European Aviation Safety Agency

# Notice of Proposed Amendment 2016-09(B)

# Requirements for air traffic services

RMT.0464 — 14.9.2016


**EXECUTIVE SUMMARY**

This Notice of Proposed Amendment (NPA) addresses safety and regulatory coordination issues related to the provision of air traffic services (ATS).

The main objective of this NPA is to maintain a high level of safety in the European Union (EU) air navigation system, in particular with regard to the provision of ATS. In order to achieve this objective, the proposal aims at:

— transposing the relevant International Civil Aviation Organization (ICAO) provisions on ATS into the EU aviation regulatory framework, thus contributing to their uniform implementation throughout the EU, and supporting EU Member States in fulfilling their obligations stemming from the Chicago Convention; and

— defining proportionate and cost-efficient rules.

The NPA introduces a detailed set of provisions to be placed in the 'ATM/ANS Common Requirements Regulation', in particular in Annex IV thereto, and thus removes the existing provision referencing to ICAO Annexes. These provisions provide implementation of the Essential Requirements in Annex Vb 2.(c) to Regulation (EC) No 216/2008. It also proposes associated AMC and GM to facilitate the application by the affected stakeholders.

In addition to the transposition of the ICAO provisions, this NPA proposes a number of measures related to the aerodrome flight information service (AFIS), as this is not explicitly addressed in the ICAO Standards and Recommended Practices (SARPs). In this way, this service is proposed to be regulated in the EU context, thus reducing the high diversity of the existing implementation across the EU Member States. In this context, Member States may decide not to provide ATS (ATC or AFIS)at smaller airfields, where the so-called 'UNICOM stations', not addressed by EU ATS rules, may be established to support local and, in particular, General Aviation activities.

As this NPA and Regulation (EU) No 923/2012 (standardised rules of the air (SERA)) are closely interrelated, the NPA also proposes minor amendments to said Regulation, which was recently amended by Regulation (EU) 2016/1185.

Safety recommendations submitted to the Agency are also addressed by this proposal.

NPA 2016-09 is divided in two parts. The present sub-NPA(B) includes the proposed amendments both at implementing rule and acceptable means of compliance/guidance material level.


| Applicability | | Process map | |
|---|---|---|---|
| Affected regulations and decisions: | — Regulation (EU) 2016/1377;<br>— the upcoming related ED Decision;<br>— Regulation (EU) No 923/2012;<br>— ED Decision 2013/013/R | Concept paper: | No |
| | | Terms of Reference: | 9.7.2014 |
| | | Rulemaking group: | Yes |
| | | RIA type: | Full |
| Affected stakeholders: | Member States; competent authorities; air navigation service providers; air traffic controllers; aircraft operators; professional organisations; trade unions; pilots; passengers | Technical consultation during NPA drafting: | No |
| | | Duration of NPA consultation: | 4 months |
| | | Review group: | Yes |
| | | Focused consultation: | Yes |
| Driver/origin: | Safety | Publication date of the opinion: | Q2/2017 |
| Reference: | Please refer to Section 2.3. of this NPA | Publication date of the decision: | Q4/2017 |

# Table of contents

# 1. Proposed amendments

The text of the amendment is arranged to show deleted text, new or amended text as shown below:

(a) deleted text is marked with ~~strike through~~;

(b) new or amended text is highlighted in grey;

(c) an ellipsis (…) indicates that the remaining text is unchanged in front of or following the reflected amendment.

## 1.1. Amendments to the ATM/ANS Common Requirements Regulation (draft opinion (PART-ATS))

### 1.1.1. Amendments to the Regulation

(a) The following recital is introduced:

Whereas the provisions contained in Commission Implementing Regulation (EU) No 923/2012 should be complemented with aspects related to the provision of air traffic services, to ensure consistency of service provision with pilot and ATS personnel actions, and requirements under that Regulation.

(b) The following articles are introduced:

**Article 3(1b) — Determination of the need for ATS**

(a) The need for the provision of ATS shall be determined by the Member States by consideration of the following:

(1) the types of air traffic involved;

(2) the density of air traffic;

(3) the meteorological conditions;

(4) such other factors as may be relevant.

(b) The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for ATS in that area.

**(Annex 11— Sections 2.4.1 and 2.4.2)**

**Article 3(1c) — Coordination between military authorities and ATS**

Member States shall ensure that special procedures are established so that:

(a) ATS units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;

(b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

**(Annex 11— Section 2.17.3.2)**

**Article 3(1d) — Coordination of activities potentially hazardous to civil traffic**

(a) Member States shall ensure that the arrangements for activities potentially hazardous to civil aircraft over their territory are coordinated. When over the high seas, potentially hazardous activities shall be coordinated with the competent authority of the State having accepted,

pursuant to an ICAO Regional Agreement, the responsibility to provide ATS within the airspace concerned. The coordination shall be effected early enough to permit timely promulgation of information regarding these activities.

(b) Member States shall establish arrangements for the promulgation of information regarding such activities.

(c) Member States shall take adequate measures to prevent emission of laser beams from adversely affecting flight operations.

**(Annex 11 — Sections 2.18.1, 2.18.3 and 2.18.5)**

**1.1.2. Amendments to Annex I — Definitions**

(a) Definition 6. is amended as follows:

'Aerodrome flight information service (AFIS)' means flight information service ~~and alerting service for aerodrome traffic at an aerodrome~~ provided at an aerodrome by an ATS provider designated in accordance with Article 8(1) of Regulation (EC) No 550/2004;

(b) The following definitions are added:

'Accepting controller' means air traffic controller next to take control of an aircraft.

'Accepting unit' means ATC unit next to take control of an aircraft.

'Accuracy' means a degree of conformance between the estimated or measured value and the true value.

'Advisory airspace' means an airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

'ADS-C agreement' means a reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

'Advisory route' means a designated route along which air traffic advisory service is available.

'Aerodrome control tower' means a unit established to provide ATC service to aerodrome traffic.

'Aerodrome traffic' means all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome. An aircraft operating in the vicinity of an aerodrome includes but is not limited to aircraft entering or leaving an aerodrome traffic circuit.

'Aerodrome traffic circuit' means the specified path to be flown by aircraft operating in the vicinity of an aerodrome.

'Aeronautical fixed station' means a station in the aeronautical fixed service.

'Aeronautical ground light' means any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.

'Aeronautical mobile service' means a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

'Aeronautical station' means a land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board a ship or on a platform at sea.

'Aeronautical telecommunication station' means a station in the aeronautical telecommunication service.

'Airborne collision avoidance system (ACAS)' means an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

'Aircraft address' means a unique combination of 24 bits available for assignment to an aircraft for the purpose of air–ground communications, navigation and surveillance.

'Aircraft identification' means a group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air–ground communications, and which is used to identify the aircraft in ground–ground ATS communications.

'Aircraft proximity' means a situation in which, in the opinion of a pilot or ATS personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. An aircraft proximity is classified as follows:

(a) Risk of collision. The risk classification of an aircraft proximity in which serious risk of collision has existed.

(b) Safety not assured. The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.

(c) No risk of collision. The risk classification of an aircraft proximity in which no risk of collision has existed.

'Air–ground communication' means two-way communication between aircraft and stations or locations on the surface of the earth.

'Air-taxiing' means movement of a helicopter/vertical take-off and landing (VTOL) above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 37 km/h (20 kts).

'Air traffic' means all aircraft in flight or operating on the manoeuvring area of an aerodrome.

'Air traffic advisory service' means a service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on instrument flight rules (IFR) flight plans.

'Air traffic control (ATC) clearance' means authorisation for an aircraft to proceed under conditions specified by an ATC unit.

'Air traffic control (ATC) instruction' means directives issued by ATC for the purpose of requiring a pilot to take a specific action.

'ATC unit' is a generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

'ATS airspaces' means airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which ATS and rules of operation are specified.

'Airway' means a control area or portion thereof established in the form of a corridor.

'ALERFA' is the code word used to designate an alert phase.

'Alert phase' means a situation wherein apprehension exists as to the safety of an aircraft and its occupants.

'Approach control unit' means a unit established to provide ATC service to controlled flights arriving at, or departing from, one or more aerodromes.

'Approach sequence' means the order in which two or more aircraft are cleared to approach to land at the aerodrome.

'ATIS' is the symbol used to designate automatic terminal information service.

'Automatic dependent surveillance — broadcast (ADS-B)' means a means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

'Automatic dependent surveillance — contract (ADS-C)' means a means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

'Automatic terminal information service (ATIS)' means the automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

(a) 'Data link-automatic terminal information service (D-ATIS)' means the provision of ATIS via data link;

(b) 'Voice-automatic terminal information service (Voice-ATIS)' means the provision of ATIS by means of continuous and repetitive voice broadcasts.

'ATS surveillance service' means a service provided directly by means of an ATS surveillance system.

'ATS surveillance system' means a generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

'Base turn' means a turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

'Broadcast' means a transmission of information relating to air navigation that is not addressed to a specific station or stations.

'Ceiling' means the height above the ground or water of the base of the lowest layer of cloud below 6 000 m (20 000 ft) covering more than half of the sky.

'Change-over point' means the point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

'Clearance limit' means the point to which an aircraft is granted an ATC clearance.

'Code (SSR)' means the number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C.

'Common point' means a point on the surface of the earth common to the tracks of two aircraft, used as a basis for the application of separation (e.g. significant point, waypoint, navigation aid, fix).

'Conference communications' means communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

'Controlled aerodrome' means an aerodrome at which ATC service is provided to aerodrome traffic.

'Controlled airspace' means an airspace of defined dimensions within which ATC service is provided in accordance with the airspace classification.

'Controlled flight' means any flight which is subject to an ATC clearance.

'Controller-pilot data link communications (CPDLC)' means a means of communication between controller and pilot, using data link for ATC communications.

'Cruise climb' means an aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases.

'Cruising level' means a level maintained during a significant portion of a flight.

'Data link communications' means a form of communication intended for the exchange of messages via a data link.

'Data link-VOLMET (D-VOLMET)' means the provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

'Decision altitude (DA) or decision height (DH)' means a specified altitude or height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

'Dependent parallel approaches' means simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended centre lines are prescribed.

'DETRESFA' is the code word used to designate a distress phase.

'Discrete code' means a four-digit SSR code with the last two digits not being '00'.

'Distress phase' means a situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

'Downstream clearance' means a clearance issued to an aircraft by an ATC unit that is not the current controlling authority of that aircraft.

'Elevation' means the vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

'Emergency phase' is a generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

'Estimated elapsed time' means the estimated time required to proceed from one significant point to another.

'Estimated off-block time' means the estimated time at which the aircraft will commence movement associated with departure.

'Estimated time of arrival' means for IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For visual flight rules (VFR) flights, the time at which it is estimated that the aircraft will arrive over the aerodrome.

'Expected approach time' means the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing.

'Filed flight plan (FPL)' means the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.

'Final approach' means that part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

(a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or

(b) at the point of interception of the last track specified in the approach procedure, and

ends at a point in the vicinity of an aerodrome from which:

— a landing can be made; or

— a missed approach procedure is initiated.

'Flight path monitoring' means the use of ATS surveillance systems for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path, including deviations from the terms of their ATC clearances.

'Flight plan' means specified information provided to ATS units, relative to an intended flight or portion of a flight of an aircraft.

'Flight visibility' means the visibility forward from the cockpit of an aircraft in flight.

'Glide path' means a descent profile determined for vertical guidance during a final approach.

'Ground effect' means a condition of improved performance (lift) due to the interference of the surface with the airflow pattern of the rotor system when a helicopter or other VTOL aircraft is operating near the ground.

'Ground visibility' means the visibility at an aerodrome, as reported by an accredited observer or by automatic systems.

'Heading' means the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

'Holding fix' means a geographical location that serves as a reference for a holding procedure.

'Holding procedure' means a predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.

'Identification' means the situation which exists when the position indication of a particular aircraft is seen on a situation display and positively identified.

'IFR' is the symbol used to designate the instrument flight rules.

'IFR flight' means a flight conducted in accordance with the instrument flight rules.

'IMC' is the symbol used to designate instrument meteorological conditions.

'INCERFA' is the code word used to designate an uncertainty phase.

'Independent parallel approaches' means simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.

'Independent parallel departures' means simultaneous departures from parallel or near-parallel instrument runways.

'Initial approach segment' means that segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

'Instrument approach operations' means an approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

(a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

(b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

'Instrument approach procedure (IAP)' means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

(a) 'Non-precision approach (NPA) procedure' means an instrument approach procedure designed for 2D instrument approach operations Type A.

(b) 'Approach procedure with vertical guidance (APV)' means an performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

(c) 'Precision approach (PA) procedure' means an instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations Type A or B.

'Instrument meteorological conditions (IMC)' means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

'Landing area' means that part of a movement area intended for the landing or take-off of aircraft.

'Location indicator' means a four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

'Manoeuvring area' means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

'Minimum fuel' is a term to be used to describe a situation in which an aircraft's fuel supply has reached a state where the flight is committed to land at a specific aerodrome and no additional delay can be accepted.

'Missed approach procedure' means the procedure to be followed if the approach cannot be continued.

'Mode (SSR)' means the conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are four modes specified in ICAO Annex 10: A, C, S and intermode.

'Movement area' means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron(s).

'Multilateration (MLAT) system' means a group of equipment configured to provide position derived from the secondary surveillance radar (SSR) transponder signals (replies or squitters) primarily using time difference of arrival (TDOA) techniques. Additional information, including identification, can be extracted from the received signals.

'Near-parallel runways' means non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less.

'Normal operating zone (NOZ)' means airspace of defined dimensions extending to either side of an ILS localiser course and/or MLS final approach track. Only the inner half of the normal operating zone is taken into account in independent parallel approaches.

'No transgression zone (NTZ)' means, in the context of independent parallel approaches, a corridor of airspace of defined dimensions located centrally between the two extended runway centre lines, where a penetration by an aircraft requires a controller intervention to manoeuvre any threatened aircraft on the adjacent approach.

'Obstacle clearance altitude (OCA)' means the lowest altitude above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

'Obstacle clearance height (OCH)' means the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

'Onward clearance time' means the time at which an aircraft can expect to leave the fix at which it is being held.

'Pilot-in-command' means the pilot designated by the operator, or in the case of General Aviation, the owner, as being in command and charged with the safe conduct of a flight.

'Position indication' means the visual indication, in non-symbolic and/or symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object.

'Position symbol' means the visual indication in symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object, obtained after automatic processing of positional data derived from any source.

'Pressure-altitude' means an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere.

'Primary radar' means a radar system which uses reflected radio signals.

'Primary surveillance radar (PSR)' means a surveillance radar system which uses reflected radio signals.

'Procedural control' means a term used to indicate that information derived from an ATS surveillance system is not required for the provision of ATC service.

'Procedural separation' means the separation used when providing procedural control.

'Procedure turn' means a manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

'PSR blip' means the visual indication, in non-symbolic form, on a situation display of the position of an aircraft obtained by primary radar.

'Radar' means a radio detection device which provides information on range, azimuth and/or elevation of objects.

'Radar approach' means an approach in which the final approach phase is executed under the direction of a controller using radar.

'Radar clutter' means the visual indication on a situation display of unwanted signals.

'Radar contact' means the situation which exists when the radar position of a particular aircraft is seen and identified on a situation display.

'Radar separation' means the separation used when aircraft position information is derived from radar sources.

'Radio navigation service' means a service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

'Radiotelephony' means a form of radio communication primarily intended for the exchange of information in the form of speech.

'Receiving controller' means the air traffic controller to which a message is sent.

Receiving unit' means the ATS unit to which a message is sent.

'Reporting point' means a specified geographical location in relation to which the position of an aircraft can be reported.

'Runway-holding position' means a designated position intended to protect a runway, an obstacle limitation surface, or an instrument landing system (ILS)/microwave landing system (MLS) critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold unless otherwise authorised by the aerodrome control tower.

'Runway incursion' means any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

'Runway-in-use' means the runway or runways that, at a particular time, are considered by the ATS unit to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome. Separate or multiple runways may be designated runway-in-use for arriving aircraft and departing aircraft.

'Secondary radar' means a radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.

'Secondary surveillance radar (SSR)' means a surveillance radar system which uses transmitters/receivers (interrogators) and transponders.

'Segregated parallel operations' means simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

'Sending controller' means the air traffic controller transmitting a message.

'Sending unit' means the ATS unit transmitting a message.

'Significant point' means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

'Situation display' means an electronic display depicting the position and movement of aircraft and other information as required.

'Special VFR flight' means a VFR flight cleared by ATC to operate within a control zone in meteorological conditions below VMC.

'SSR response' means the visual indication, in non-symbolic form, on a situation display, of a response from an SSR transponder in reply to an interrogation.

'Standard instrument arrival (STAR)' means a designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

'Standard instrument departure (SID)' means a designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.

'Stopway' means a defined rectangular area on the ground at the end of take-off run available, prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

'Surveillance radar' means radar equipment used to determine the position of an aircraft in range and azimuth.

'Taxiing' means movement of an aircraft on the surface of an aerodrome or an operating site under its own power, excluding take-off and landing.

'Taxiway' means a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

(a) 'aircraft stand taxilane' which means a portion of an apron designated as a taxiway and intended to provide access to aircraft stands only;

(b) 'apron taxiway' which means a portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron; and

(c) 'rapid exit taxiway' which means a taxiway connected to a runway at an acute angle and designed to allow landing aeroplanes to turn off at higher speeds than are achieved on other exit taxiways thereby minimising runway occupancy times.

'Terminal control area (TMA)' means a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

'Total estimated elapsed time' means for IFR flights, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, to arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

'Touchdown' means the point where the nominal glide path intercepts the runway.

'Touchdown zone' means the portion of a runway, beyond the threshold, where it is intended landing aircraft first contact the runway.

'Track' means the projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

'Traffic avoidance advice' means advice provided by an ATS unit specifying manoeuvres to assist a pilot to avoid a collision.

'Traffic information' means information issued by an ATS unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision.

'Transfer of control point' means a defined point located along the flight path of an aircraft, at which the responsibility for providing ATC service to the aircraft is transferred from one control unit or control position to the next.

'Transferring controller' means the air traffic controller in the process of transferring the responsibility for providing ATC service to an aircraft to the next ATC unit/air traffic controller along the route of flight.

'Transferring unit' means ATC unit in the process of transferring the responsibility for providing ATC service to an aircraft to the next ATC unit/air traffic controller along the route of flight.

'Transition altitude' means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

'Transition layer' means the airspace between the transition altitude and the transition level.

'Transition level' means the lowest flight level available for use above the transition altitude.

'Uncertainty phase' means a situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

'Unmanned free balloon' means a non-power-driven, unmanned, lighter-than-air aircraft in free flight.

'Vectoring' means the provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.

'VFR' is the symbol used to designate the visual flight rules.

'VFR flight' means a flight conducted in accordance with the visual flight rules.

'Visual approach' means an approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

'Visual departure' means a departure by an IFR flight when either part or all of an instrument departure procedure (e.g. standard instrument departure (SID)) is not completed and the departure is executed in visual reference to terrain.

'Visual meteorological conditions (VMC)' means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima.

'VMC' is the symbol used to designate visual meteorological conditions.

'VOLMET' means meteorological information for aircraft in flight.

'VOLMET broadcast' means the provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

'Waypoint' means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

(a) fly-by waypoint — a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

(b) flyover waypoint — a waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

### 1.1.3. Amendments to Annex IV — Subpart A — Additional organisation requirements for providers of ATS (ATS.OR)

**Section 1 — General requirements**

**ATS.OR.110 Coordination between aerodrome operators and ATS providers**

The ATS provider shall establish arrangements with the operator of the aerodrome at which it provides ATS to ensure adequate coordination of activities and services provided as well as exchange of relevant data and information.

**ATS.OR.115 Coordination between military authorities and ATS providers**

Without prejudice to Article 6 of Commission Regulation (EC) No 2150/2005, ATS providers shall ensure that their ATS units, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft in order to facilitate their identification.

***(Annex 11 — Section 2.17.3.1, first sentence)***

**ATS.OR.120 Coordination between meteorological and ATS providers**

(a) To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, the ATS provider shall arrange with the meteorological services provider for ATS personnel:

(1) in addition to using indicating instruments, to report, if observed by ATS personnel or communicated by aircraft, such other meteorological elements as may be agreed upon;

(2) to report as soon as possible to the associated meteorological office meteorological phenomena of operational significance, if observed by ATS personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;

(3) to report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centres and flight information centres shall report the information to the associated meteorological watch office and volcanic ash advisory centres (VAACs).

(b) The ATS provider shall ensure that close coordination is maintained between area control centres, flight information centres and associated meteorological watch offices such that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

***(Annex 11 — Sections 2.20.1 and 2.20.2)***

**ATS.OR.125 Coordination between aeronautical information services and ATS providers**

(a) The ATS providers shall provide to the relevant aeronautical information services provider the aeronautical information to be published as necessary to permit the utilisation of such ATS.

(b) To ensure that the aeronautical information services providers obtain information to enable them to provide up-to-date preflight information and to meet the need for in-flight information, the ATS provider shall arrange to report to the responsible aeronautical information services provider, with a minimum of delay:

(1) information on aerodrome conditions;

(2) the operational status of associated facilities, services and navigation aids within their area of responsibility;

(3) the occurrence of volcanic activity observed by ATS personnel or reported by aircraft; and

(4) any other information considered to be of operational significance.

(c) Before introducing changes to the air navigation system elements under its responsibility, the ATS provider shall:

(1) ensure close coordination with the aeronautical information services provider(s) concerned;

(2) take due account of the time needed by the aeronautical information services provider for the preparation, production and issuance of relevant material for promulgation;

(3) provide the information in a timely manner to the aeronautical information services provider concerned.

(d) The ATS provider shall observe the predetermined, internationally agreed aeronautical information regulation and control (AIRAC) effective dates in addition to 14 days postage time when submitting to aeronautical information services providers the raw information/data subject to AIRAC cycle.

***(Annex 11 — Sections 2.1.4, 2.21.1, 2.21.2, 2.21.3 second sentence)***

**ATS.OR.130 Time in ATS**

(a) The ATS provider shall ensure that ATS units are equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

(b) The ATS provider shall ensure that ATS unit clocks and other time-recording devices are checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilised by an ATS unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

(c) The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

***(Annex 11 — Sections 2.25.2, 2.25.3, 2.25.4 (second sentence of Section 2.25.3 transposed as SERA.3401(c) with a slightly modified text))***

**ATS.OR.135 Contingency arrangements**

The ATS provider shall develop contingency plans as required in ATM/ANS.OR.A.070 in close coordination with the ATS providers responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

***(Annex 11 — Section 2.30)***

**ATS.OR.140 Failure and irregularity of systems and equipment**

The ATS provider shall establish appropriate arrangements for ATS units to immediately report any failure or irregularity of communication, navigation and surveillance systems or any other safety-significant systems or equipment which could adversely affect the safety or efficiency of flight operations and/or the provision of ATS.

***(PANS ATM — Section 4.14)***

**ATS.OR.145 Operation of ATC service**

(a) The ATS provider shall ensure that information on aircraft movements, together with a record of ATC clearances issued to such aircraft, are so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

(b) For all airspace between FL 290 and FL 410 inclusive, the ATS providers concerned shall participate to the Reduced Vertical Separation Minima (RVSM) Monitoring programme instituted for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the continued application of this vertical separation minimum meets the safety objectives.

***(Annex 11 — Sections 3.3.2 and 3.3.5.1)***

**ATS.OR.150 Transfer of responsibility for control**

(a) The ATS provider(s) shall specify applicable coordination procedures for transfer of responsibility for control of flights, including transfer of control points, in letters of agreement and operation manuals, as appropriate.

(b) The ATS provider(s) shall establish procedures between ATS units and/or sectors for the transfer of air–ground communication of aircraft in letters of agreement and operation manuals, as appropriate.

**Section 4 — Requirements for communications**

**ATS.OR.400 Aeronautical mobile service (air–ground communications) — General**

(a) The ATS provider shall use voice and/or data link in air–ground communications for ATS purposes.

(b) When providing ATS surveillance service, the ATS provider shall ensure that the level of reliability and availability of communication systems are such that the possibility of system failures or significant degradations is very remote, and that adequate backup facilities are provided.

(c) When direct pilot–controller two-way voice or data link communications are used for the provision of ATC service, recording facilities shall be provided on all such air–ground communication channels.

(d) When direct air–ground two-way voice or data link communications are used for the provision of FIS and AFIS, recording facilities on all such air–ground communication channels shall be provided by the ATS provider, when so prescribed by the competent authority.

***(Annex 11 — Sections 6.1.1.1 and 6.1.1.3, PANS ATM — Section 8.3.1)***

**ATS.OR.405 Very high frequency (VHF) emergency channel**

(a) The emergency channel (121.500 MHz) shall be used only for genuine emergency purposes, as broadly outlined in the following, to provide:

(1) a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilised for other aircraft;

(2) a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

(3) a common VHF communication channel between aircraft, either civil or military, and between such aircraft and surface services, involved in common search and rescue operations, prior to changing when necessary to the appropriate frequency;

(4) air–ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

(5) a channel for the operation of emergency locator transmitters (ELTs), and for communication between survival craft and aircraft engaged in search and rescue operations; and

(6) a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and ATS units in the event of interception of the civil aircraft.

(b) The ATS provider shall provide the frequency 121.500 MHz at:

(1) all area control centres and flight information centres;

(2) aerodrome control towers and approach control offices serving international aerodromes and international alternate aerodromes; and

(3) any additional location designated by the competent authority, where the provision of that frequency is considered necessary to ensure immediate reception of distress calls or to serve the purposes specified in point (a).

***(Annex 10 — Volume V, Sections 4.1.3.1.1 and 4.1.3.1.2)***

**ATS.OR.410 Aeronautical mobile service (air–ground communications) — For flight information service**

(a) The ATS provider shall ensure, to the practicable extent and as approved by the competent authority, that air–ground communication facilities enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.

(b) The ATS provider shall ensure, to the practicable extent and as approved by the competent authority, that air–ground communication facilities enable direct, rapid, continuous and static-free two-way communications to take place between an AFIS unit and appropriately equipped aircraft operating within the airspace defined as in ATS.TR.110(a)(3) or, when such airspace is not defined, in the vicinity of the aerodrome.

***(Annex 11 — Sections 6.1.2.1 and 6.1.2.2)***

**ATS.OR.415 Aeronautical mobile service (air–ground communications) — For area control service**

The ATS provider shall ensure that air–ground communication facilities enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area(s).

***(Annex 11 — Section 6.1.3.1)***

**ATS.OR.420 Aeronautical mobile service (air–ground communications) — For approach control service**

(a) The ATS provider shall ensure that air–ground communication facilities enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

(b) Where the unit providing approach control service functions as a separate unit, air–ground communications shall be conducted over communication channels provided for its exclusive use.

***(Annex 11 — Sections 6.1.4.1 and 6.1.4.2)***

**ATS.OR.425 Aeronautical mobile service (air–ground communications) — For aerodrome control service**

(a) The ATS provider shall ensure that air–ground communication facilities enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

(b) Where conditions warrant, the ATS provider shall provide separate communication channels for the control of traffic operating on the manoeuvring area.

***(Annex 11 — Sections 6.1.5.1 and 6.1.5.2)***

**ATS.OR.430 Aeronautical fixed service (ground–ground communications) — General**

(a) The ATS service provider shall ensure that direct-speech and/or data link communications are used in ground–ground communications for ATS purposes.

(b) When communication for ATC coordination purposes is supported by automation, the ATS provider shall ensure that the failure of such automated coordination is presented clearly to the controller(s) responsible for coordinating flights at a transferring unit.

***(Annex 11 — Section 6.2.1.1, PANS ATM — Section 10.1.6 first sentence)***

**ATS.OR.435 Aeronautical fixed service (ground–ground communications) — Communication within a flight information region**

(a) Communications between ATS units

(1) The ATS provider shall ensure that a flight information centre has facilities for communications with the following units providing a service within its area of responsibility:

(i) the area control centre, unless co-located;

(ii) approach control units;

(iii) aerodrome control towers;

(iv) AFIS units.

(2) The ATS provider shall ensure that an area control centre, in addition to being connected to the flight information centre as prescribed in point (1), has facilities for communications with the following units providing a service within its area of responsibility:

(i) approach control units;

(ii) aerodrome control towers;

(iii) AFIS units;

(iv) air traffic services reporting offices, when separately established.

(3) The ATS provider shall ensure that an approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in points (1) and (2), has facilities for communications with:

(i) the associated aerodrome control tower(s);

(ii) with relevant AFIS unit(s); and

(iii) when separately established, the associated air traffic services reporting office(s).

(4) The ATS provider shall ensure that an aerodrome control tower or an AFIS unit, in addition to being connected to the flight information centre, the area control centre and the approach

control unit as prescribed in points (1), (2) and (3), has facilities for communications with the associated air traffic services reporting office, when separately established.

(b) Communications between ATS units and other units

(1) The ATS provider shall ensure that a flight information centre and an area control centre have facilities for communications with the following units providing a service within their respective area of responsibility:

(i) appropriate military units;

(ii) the meteorological office serving the centre;

(iii) the aeronautical telecommunications station serving the centre;

(iv) appropriate aircraft operator's offices;

(v) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service;

(vi) the international NOTAM office serving the centre.

(2) The ATS provider shall ensure that an approach control unit, an aerodrome control tower and an AFIS unit have facilities for communications with the following units providing a service within their respective area of responsibility:

(i) appropriate military units;

(ii) rescue and emergency services (including ambulance, fire, etc.);

(iii) the meteorological office serving the unit concerned;

(iv) the aeronautical telecommunications station serving the unit concerned;

(v) the unit providing apron management service, when separately established.

(3) The communication facilities required under points (b)(1)(i) and (b)(2)(i) shall include provisions for rapid and reliable communications between the ATS unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the ATS unit, in order to fulfil obligations established in Section 11 of Commission Implementing Regulation (EU) No 923/2012.

(c) Description of communication facilities

(1) The communication facilities required under point (a), point (b)(1)(i) and points (b)(2)(i), (b)(2)(ii) and (b)(2)(iii) shall include provisions for:

(i) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously, and for other purposes the communications can normally be established within 15 seconds; and

(ii) printed communications, when a written record is required; the message transit time for such communications being no longer than 5 minutes.

(2) In all cases not covered by point (c)(1), the communication facilities shall include provisions for:

(i) communications by direct speech alone, or in combination with data link communications, whereby the communications can normally be established within 15 seconds; and

(ii) printed communications, when a written record is required; the message transit time for such communications being no longer than 5 minutes.

(3) In all cases where automatic transfer of data to and/or from ATS computers is required, suitable facilities for automatic recording shall be provided.

(4) The communication facilities required under points (b)(2)(i);(ii);(iii);(iv) shall include provisions for communications by direct speech arranged for conference communications whereby the communications can normally be established within 15 seconds.

(5) All facilities for direct-speech or data link communications between ATS units and between ATS units and other units described under points (b)(1) and (b)(2) shall be provided with automatic recording.

***(Annex 11 — Sections 6.2.2.1.1, 6.2.2.1.2, 6.2.2.1.3, 6.2.2.1.4, 6.2.2.2.1, 6.2.2.2.2, 6.2.2.2.3, 6.2.2.3.1, 6.2.2.3.2, 6.2.2.3.3, 6.2.2.3.5, 6.2.2.3.6 and 6.2.2.3.7)***

**ATS.OR.440 Aeronautical fixed service (ground–ground communications) — Communication between flight information regions**

(a) The ATS provider shall ensure that flight information centres and area control centres have facilities for communications with all adjacent flight information centres and area control centres. These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by ICAO regional air navigation agreements.

(b) The ATS providers shall ensure that facilities for communications between area control centres serving contiguous control areas, in addition, include provisions for direct-speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using ATS surveillance data, the communications can be established instantaneously, and for other purposes the communications can normally be established within 15 seconds.

(c) When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, the ATS provider shall ensure that facilities for communications between adjacent flight information centres or area control centres other than those mentioned in point (b):

(1) include provisions for direct speech alone, or in combination with data link communications;

(2) permit communications to be established normally within 15 seconds; and

(3) are provided with automatic recording.

(d) The ATS providers concerned shall ensure that adjacent ATS units are connected in all cases where special circumstances exist.

(e) Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, the ATS providers concerned shall ensure that an approach control unit and/or aerodrome control tower are connected with the area control centre serving the adjacent area.

(f) The communication facilities supporting connections to be established in accordance with points (d) and (e) shall include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using ATS surveillance or ADS-C data, the communications can be established instantaneously, and for other purposes, the communications can normally be established within 15 seconds.

(g) The ATS provider shall provide suitable facilities for automatic recording in all cases where automatic exchange of data between ATS computers is required.

***(Annex 11 — Sections 6.2.3.1, 6.2.3.1.1, 6.2.3.1.2, 6.2.3.1.3, 6.2.3.1.4, 6.2.3.2, 6.2.3.3, 6.2.3.4 and 6.2.3.5)***

**ATS.OR.445 Aeronautical fixed service (ground–ground communications) — Procedures for direct-speech communications**

The ATS provider shall develop appropriate procedures for direct-speech communications to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

***(Annex 11 — Section 6.2.4)***

**ATS.OR.450 Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes**

(a) The ATS provider shall provide two-way radiotelephony communication facilities for aerodrome control service for the control of vehicles on the manoeuvring area, except where communication by a system of visual signals is deemed to be adequate.

(b) When conditions warrant, separate communication channels for the control of vehicles on the manoeuvring area shall be provided.

(c) Automatic recording facilities on all channels in point (b) shall be provided.

***(Annex 11 — Sections 6.3.1.1 and 6.3.1.2)***

**ATS.OR.455 Automatic recording of surveillance data**

The ATS provider shall ensure that surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to ATS, are automatically recorded for use in accident and incident investigations, search and rescue, ATC and surveillance systems evaluation and training.

***(Annex 11 — Section 6.4.1.1)***

**ATS.OR.460 Retention of recorded information and data**

(a) The ATS provider shall retain for a period of at least 30 days the following:

(1) recordings of communications channels, as specified in ATS.OR.400(b);

(2) recordings of data and communications, as specified in ATS.OR.435(c)(3), (4) and (5);

(3) recordings of data and communications, as specified in ATS.OR.440(g);

(4) recordings of communications, as specified in ATS.OR.450;

(5) recordings of data, as specified in ATS.OR.455;

(6) paper flight progress strips, electronic flight progress and coordination data.

(b) When the recordings and logs listed in point (a) are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

***(Annex 11 — Sections 6.1.1.4, 6.2.2.3.8, 6.2.3.6, 6.3.1.3 and 6.4.1.2 identical to Annex 10 — Volume II, Section 3.5.1.5 'Records of communications', PANS ATM — Section 4.13.4)***

**ATS.OR.465 Background communication and aural environment recording**

Air traffic control units shall be equipped with devices that record background communication and the aural environment at air traffic controller work stations, capable of retaining the information recorded during at least the last 24 hours of operation.

***(Annex 11 — Section 3.3.3)***

**Section 5 — Requirements for information**

**ATS.OR.500 Meteorological information — General**

(a) The ATS provider shall ensure that up-to-date information on existing and forecast meteorological conditions are made available to the relevant ATS units as necessary for the performance of their respective functions.

(b) Available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations, shall be supplied to the relevant ATS units.

(c) The information in points (a) and (b) shall be supplied in such a form as to require a minimum of interpretation on the part of ATS personnel and with a frequency which satisfies the requirements of the ATS units concerned.

***(Annex 11 — Sections 7.1.1.1 and 7.1.1.2)***

**ATS.OR.505 Meteorological information for flight information centres and area control centres**

(a) The ATS provider shall ensure that flight information centres and area control centres are supplied with the meteorological information stipulated in MET.OR.245(f) and (g), particular emphasis being given to the occurrence or expected occurrence of deterioration in a weather element as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and, if so required by the competent authority, such other areas.

(b) The ATS provider shall ensure that flight information centres and area control centres are provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

***(Annex 11 — Sections 7.1.2.1 and 7.1.2.2)***

**ATS.OR.510 Meteorological information for units providing approach control service**

(a) The ATS provider shall ensure that units providing approach control service are supplied with meteorological information for the airspace and the aerodromes with which they are concerned, as stipulated in MET.OR.242(b).

(b) Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

(c) The ATS provider shall ensure that, where multiple anemometers are used, the displays to which they are related are clearly marked to identify the runway and section of the runway monitored by each anemometer.

(d) The ATS provider shall ensure that units providing approach control service are provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

(e) The ATS provider shall ensure that units providing approach control service for final approach, landing and take-off are equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(f) The ATS provider shall ensure that units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means are equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(g) The ATS provider shall ensure that units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means are equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays shall be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

(h) The ATS provider shall ensure that units providing approach control service for final approach, landing and take-off are supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

***(Annex 11 — Sections 7.1.3.1, 7.1.3.2, 7.1.3.3, 7.1.3.4, 7.1.3.5 and 7.1.3.6)***

**ATS.OR.515 Meteorological information for aerodrome control towers and AFIS units**

(a) The ATS provider shall ensure that aerodrome control towers and, unless otherwise prescribed by the competent authority, AFIS units are supplied with meteorological information for the aerodrome with which they are concerned as stipulated in MET.OR.242(a).

(b) Special reports and amendments to forecasts shall be communicated to the aerodrome control towers and AFIS units as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

(c) The ATS provider shall ensure that aerodrome control towers and AFIS units are provided with current pressure data for setting altimeters for the aerodrome concerned.

(d) The ATS provider shall ensure that aerodrome control towers and AFIS units are equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensors are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.

(e) The ATS provider shall ensure that aerodrome control towers and AFIS units at aerodromes where runway visual range values are measured by instrumental means are equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

(f) The ATS provider shall ensure that aerodrome control towers and AFIS units at aerodromes where the height of cloud base is assessed by instrumental means are equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays shall be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and AFIS units and in the meteorological station, where such a station exists.

(g) The ATS provider shall ensure that aerodrome control tower and AFIS units are supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach, and aircraft on the runway during the landing roll or take-off run.

(h) The ATS provider shall ensure that aerodrome control towers and AFIS units and/or other appropriate units are supplied with aerodrome warnings, in accordance with MET.OR.215(b).

***(Annex 11 — Sections 7.1.4.1, 7.1.4.2, 7.1.4.3, 7.1.4.4, 7.1.4.5, 7.1.4.6 and 7.1.4.7)***

**ATS.OR.520 Information on aerodrome conditions and the operational status of associated facilities**

The ATS provider shall ensure that aerodrome control towers, AFIS units and units providing approach control service are kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned, as reported by the aerodrome operator.

***(Annex 11 — Section 7.2)***

**ATS.OR.525 Information on the operational status of navigation services**

(a) The ATS provider shall ensure that ATS units are kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility, and of those radio navigation services and visual aids essential for surface movement.

(b) The ATS providers shall ensure that information referred to in point (a) is received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s) involved.

***(Annex 11 — Sections 7.3.1 and 7.3.2)***

### 1.1.4. Amendments to Annex IV — Subpart B — Technical requirements for providers of ATS (ATS.TR)

**Section 1 — General**

~~**ATS.TR.100 Working methods and operating procedures for providers of air traffic services**~~

~~(a) An air traffic services provider shall be able to demonstrate that its working methods and operating procedures are compliant with:~~

~~(1) Commission Implementing Regulation (EU) No 923/2012[1]; and~~

~~(2) the standards laid down in the following Annexes to the Chicago Convention, as far as they are relevant to the provision of air traffic services in the airspace concerned:~~

~~(i) Annex 10 on aeronautical telecommunications, Volume II on communication procedures including those with PANS Status in its 6th edition of October 2001, including all amendments up to and including No 89; and~~

~~(ii) without prejudice to Regulation (EU) No 923/2012, Annex 11 on air traffic services in its 13th edition of July 2001, including all amendments up to and including No 49.~~

~~(b) Notwithstanding point (a), for air traffic services units providing services for flight testing, the competent authority may specify additional or alternative conditions and procedures to those contained in point (a) when so required for the provision of services for flight testing.~~

**ATS.TR.100 Objectives of the air traffic services (ATS)**

The objectives of the ATS shall be to:

(a) prevent collisions between aircraft;

(b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;

(c) expedite and maintain an orderly flow of air traffic;

(d) provide advice and information useful for the safe and efficient conduct of flights;

(e) notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

***(Annex 11 — Section 2.2) (transposed as SERA.7001)***

~~[1] Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p. 1).~~

**ATS.TR.105 Divisions of the ATS**

The ATS shall comprise the services identified as follows:

(a) The air traffic control (ATC) service, to accomplish objectives as in points (a), (b) and (c) of ATS.TR.100, this service being divided in three parts as follows:

(1) Area control service: the provision of ATC service for controlled flights, except for those parts of such flights described in points (a)(2) and (a)(3), in order to accomplish the objectives established in points (a) and (c) of ATS.TR.100;

(2) Approach control service: the provision of ATC service for those parts of controlled flights associated with arrival or departure, in order to accomplish the objectives established in points (a) and (c) of ATS.TR.100;

(3) Aerodrome control service: the provision of ATC service for aerodrome traffic, except for those parts of flights described in point (a)(2), in order to accomplish the objectives established in points (a), (b) and (c) of ATS.TR.100.

(b) The flight information service (FIS) and/or air traffic advisory service, to accomplish the objective established in point (d) of ATS.TR.100;

(c) The alerting service, to accomplish the objective established in point (e) of ATS.TR.100.

***(Annex 11 — Sections 2.3, 2.3.1, 2.3.2 and 2.3.3, PANS ATM — Section 9.1.4)***

**ATS.TR.110 Establishment of the units providing ATS**

(a) The ATS shall be provided by units established as follows:

(1) Flight information centres shall be established to provide flight information service and alerting service within flight information regions unless the responsibility of providing such services within a flight information region is assigned to an ATC unit having adequate facilities for the discharge of such responsibility;

(2) ATC units shall be established to provide ATC service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

(3) Aerodrome flight information service (AFIS) units shall be established to provide flight information service and alerting service at AFIS aerodromes and within the portion of airspace associated with such aerodromes.

(b) Air traffic services reporting office(s) or other arrangements shall be established for the purpose of receiving reports concerning ATS and flight plans before departure.

***(Annex 11 — Sections 2.9.1 and 2.9.2, PANS ATM definition of 'air traffic services reporting office')***

**ATS.TR.115 Identification of ATS units and airspaces**

(a) ATS units shall be unambiguously named by the competent authority, as follows:

(1) an area control centre or flight information centre shall normally be identified by the name of a nearby town or city or geographic feature or area;

(2) an aerodrome control tower or approach control unit shall normally be identified by the name of the aerodrome at which it is providing services or by the name of a nearby town or city or geographic feature or area;

(3) an AFIS unit shall normally be identified by the name of the aerodrome at which it is providing services or by the name of a nearby town or city or geographic feature or area.

(b) The name of the ATS units shall be complemented by one of the following, as appropriate:

(1) area control centre — CONTROL;

(2) approach control — APPROACH;

(3) aerodrome control — TOWER;

(4) surface movement control — GROUND;

(5) flight information centre — INFORMATION; and

(6) aerodrome flight information unit — AFIS.

***(Annex 11 —Sections 2.11.1 and 2.11.2, Annex 10 — Volume II, Section 5.2.1.7.1)***

**ATS.TR.120 Coordination between military authorities and ATS**

In order to eliminate or reduce the need for interceptions, the ATS provider shall ensure that all pertinent data concerning flight plans, two-way communications and position reporting stipulated in Commission Implementing Regulation (EU) No 923/2012, which apply to any area or route as determined by the competent authority, is available to the appropriate ATS units specifically for the purpose of facilitating identification of civil aircraft.

***(Annex 11 — Section 2.17.3.1 second sentence)***

**ATS.TR.125 Language for communication between ATS units**

Except when communications between ATS units are conducted in a mutually agreed language, the English language shall be used for such communications.

***(Annex 11 — Section 2.29.2)***

**ATS.TR.130 Expression of vertical position of aircraft**

(a) For flights in areas where a transition altitude is established, the vertical position of the aircraft shall, except as provided for in point (b) below, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, the vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

(b) When an aircraft which has been given clearance to land is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used except that it shall be expressed in terms of height above runway threshold elevation:

(1) for instrument runways if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and

(2) for precision approach runways.

***(PANS ATM — Sections 4.10.1.1, 4.10.1.2, 4.10.1.3)(4.10.1.1 and 4.10.1.3 transposed as SERA.8015(eb)(1), 4.10.1.2 transposed as SERA.8015(eb)(5))***

**ATS.TR.135 Determination of the transition level**

(a) The appropriate ATS unit shall establish the transition level to be used in areas where a transition altitude is established, for the appropriate period of time on the basis of QNH (altimeter subscale setting to obtain elevation when on the ground) reports and forecast mean sea level pressure, if required.

(b) The transition level shall be located at least 300 m (1 000 ft) above the transition altitude to permit the transition altitude and the transition level to be used concurrently in cruising flight, with vertical separation ensured.

***(PANS ATM — Section 4.10.2.1, Doc.7030 (EUR) — Section 6.3.1.2)***

**ATS.TR.140 Minimum cruising level for IFR flights**

(a) The ATC units shall not assign cruising levels below the minimum flight altitudes established by the Member States, except when specifically authorised by the competent authority.

(b) ATC units shall:

(1) determine the lowest usable flight level or levels for the whole or parts of the control area for which they are responsible;

(2) assign flight levels at or above such level or levels; and

(3) pass the lowest usable flight level or levels on to pilots on request.

***(PANS ATM — Sections 4.10.3.1 and 4.10.3.2)***

**ATS.TR.145 Provision of altimeter setting information**

(a) The appropriate ATS units shall at all times have available for transmission to aircraft in flight, on request, the information required to determine the lowest flight level which will ensure adequate terrain clearance on routes or on segment of routes for which this information is required.

(b) Flight information centres and ACCs shall have available for transmission to aircraft, on request, an appropriate number of QNH reports or forecast pressures for the FIRs and control areas for which they are responsible, and for those adjacent.

(c) The flight crew shall be provided with the transition level in due time prior to reaching it during descent.

(d) A QNH altimeter setting shall be included in the descent clearance when first cleared at an altitude below the transition level, in approach clearances or clearances to enter the traffic circuit, and in taxi clearances for departing aircraft except when it is known that the aircraft has already received the information in a directed transmission.

(e) A QFE altimeter setting as described in ATS.TR.130(b) shall be provided to aircraft on request or on a regular basis in accordance with local arrangements.

(f) The appropriate ATS units shall round down the altimeter settings provided to aircraft to the nearest lower whole hectopascal.

***(PANS ATM — Sections 4.10.4.1, 4.10.4.2, 4.10.4.3, 4.10.4.5, 4.10.4.6 and 4.10.4.7) (Section 4.10.4.3 transposed as SERA.8015(eb)(2), Section 4.10.4.5 transposed as SERA.8015(eb)(3), Section 4.10.4.6 transposed as SERA.8015(eb)(4))***

**ATS.TR.150 Suspension of visual flight rules operations on and in the vicinity of an aerodrome**

(a) Any or all VFR operations on and in the vicinity of an aerodrome may be suspended by any of the following units, persons or authorities whenever safety requires such action:

(1) the approach control unit or the appropriate ACC;

(2) the aerodrome control tower;

(3) the competent authority.

(b) When any or all VFR operations on and in the vicinity of an aerodrome are suspended, the aerodrome control tower shall observe the following procedures:

(1) hold all VFR departures;

(2) recall all local flights operating under VFR or obtain approval for special VFR operations;

(3) notify the approach control unit or ACC as appropriate of the action taken;

(4) notify all operators, or their designated representatives, of the reason for taking such action, if necessary or requested.

***(PANS ATM — Sections 7.13.1 and 7.13.3)***

**ATS.TR.155 Aeronautical ground lights**

The ATS provider shall establish procedures for the operation of aeronautical ground lights, whether or not they are on or in the vicinity of an aerodrome.

***(PANS ATM — Section 7.15.1)***

**ATS.TR.160 ATS surveillance services**

(a) The ATS provider may use ATS surveillance systems in the provision of ATS.

(b) When providing ATS surveillance services, the ATS provider shall ensure that:

(1) the ATS surveillance system(s) in use provides (provide) for a continuously updated presentation of surveillance information, including position indications;

(2) the number of aircraft simultaneously provided with ATS surveillance services which can be safely handled under the prevailing circumstances is determined;

(3) controllers are at all times in possession of full and up-to-date information regarding:

(i) established minimum flight altitudes within the area of responsibility, including the necessary temperature correction;

(ii) the lowest usable flight level or levels determined in accordance with ATS.TR.135 and ATS.TR.140; and

(iii) established minimum altitudes applicable to procedures based on tactical vectoring, including the necessary temperature correction.

(c) Before providing an ATS surveillance service to an aircraft, identification shall be established and the pilot informed. Thereafter, identification shall be maintained until the termination of the ATS surveillance service. If identification is subsequently lost, the pilot shall be informed accordingly and, when applicable, appropriate instructions shall be issued.

(d) When providing ATS surveillance services, the ATS provider shall, when relevant, establish procedures for:

(1) establishing identification of aircraft;

(2) providing position information to aircraft;

(3) vectoring aircraft;

(4) providing navigation assistance to aircraft;

(5) providing information regarding adverse weather, if applicable;

(6) transferring of control of aircraft;

(7) failure of ATS surveillance system(s);

(8) SSR transponder failure, in accordance with the provisions of Section 13 of Commission Implementing Regulation (EU) No 923/2012;

(9) ATS surveillance-based safety-related alerts and warnings, when implemented.

(e) When an identified controlled flight is observed to be on a conflicting path with an unknown aircraft, deemed to constitute a collision hazard, the pilot of the controlled flight shall, whenever practicable:

(1) be informed of the unknown aircraft, and, if the pilot so requests or if the situation so warrants in the opinion of the controller, avoiding action shall be suggested; and

(2) be notified when the conflict no longer exists.

***(PANS ATM — Sections 8.2.2 and 8.4.2 (the principle, not the exact text), 8.6.2.1.1, 8.6.2.1.2, 8.6.8.1 and 8.8.2.1)(PANS ATM Section 8.8.2.1 transposed as SERA.7002)***

**ATS.TR.165 ATS provision for flight testing**

Notwithstanding the provisions in Subpart B of this Annex, for ATS units providing services for flight testing, the competent authority may specify additional or alternative conditions and procedures to those contained in Subpart B of this Annex when so required for the provision of services for flight testing.

***(ATM/ANS Common Requirements Regulation Annex IV, Subpart B, ATS.TR.100(b))***

## Section 2 — ATC service

### ATS.TR.200 Application

ATC service shall be provided:

(a) to all IFR flights in airspace Classes A, B, C, D and E;

(b) to all VFR flights in airspace Classes B, C and D;

(c) to all special VFR flights;

(d) to all aerodrome traffic at controlled aerodromes.

***(Annex 11 — Section 3.1) (transposed as SERA.8001)***

### ATS.TR.205 Provision of ATC service

The parts of ATC service described in ATS.TR.105(a) shall be provided by the various units as follows:

(a) Area control service:

(1) by an area control centre; or

(2) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control centre is established.

(b) Approach control service:

(1) by an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service;

(2) by an approach control unit when it is necessary or desirable to establish a separate unit.

(c) Aerodrome control service: by an aerodrome control tower.

***(Annex 11 — Section 3.2)***

### ATS.TR.210 Operation of ATC service

(a) In order to provide ATC service, an ATC unit shall:

(1) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;

(2) determine from the information received, the relative positions of known aircraft to each other;

(3) issue clearances, instructions and/or information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;

(4) coordinate clearances as necessary with other units:

(i) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;

(ii) before transferring control of an aircraft to such other units.

(b) Clearances issued by ATC units shall provide separation:

(1) between all flights in airspace Classes A and B;

(2) between IFR flights in airspace Classes C, D and E;

(3) between IFR flights and VFR flights in airspace Class C;

(4) between IFR flights and special VFR flights;

(5) between special VFR flights unless otherwise prescribed by the competent authority;

except that, when requested by the pilot of an aircraft and agreed by the pilot of the other aircraft and if so prescribed by the competent authority for the cases listed under point (2) above in airspace Classes D and E, a flight may be cleared subject to maintaining own separation in respect of a specific portion of the flight below 3 050 m (10 000 ft) during climb or descent, during day in visual meteorological conditions.

(c) Except for cases of operations on parallel or near-parallel runways as in ATS.TR.255, or when a reduction in separation minima in the vicinity of aerodromes can be applied, separation by an ATC unit shall be obtained by at least one of the following:

(1) vertical separation, obtained by assigning different levels selected from the table of cruising levels in Appendix 3 to the Annex to Commission Implementing Regulation (EU) No 923/2012, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or ATC clearances. The vertical separation minimum shall be a nominal 300 m (1 000 ft) up to and including FL 410 and a nominal 600 m (2 000 ft) above this level. Geometric height information shall not be used to establish vertical separation;

(2) horizontal separation, obtained by providing:

(i) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or

(ii) lateral separation, by maintaining aircraft on different routes or in different geographical areas.

(d) When the controller becomes aware that the type of separation or minimum used to separate two aircraft cannot be maintained, the controller shall establish another type of separation or another minimum prior to the time when the current separation minimum would be infringed.

***(Annex 11 — Sections 3.3.1, 3.3.4 and 3.3.5, PANS ATM — Section 5.2.1.4, PANS ATM — Section 8.5.5.1.1 third sentence) (Section 3.3.1 transposed as SERA.8005(a), Section 3.3.4 transposed as SERA.8005(b), Section 3.3.5 transposed as SERA.8005(c))***

**ATS.TR.215 Selection and notification of separation minima**

(a) The selection of separation minima for application within a given portion of airspace shall be made by the ATS provider responsible for the provision of ATS and approved by the competent authority concerned.

(b) For traffic that will pass from one into the other of neighbouring airspaces and for routes that are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the

circumstances, the selection of separation minima shall be made in consultation between the ATS providers responsible for the provision of ATS in neighbouring airspace.

(c) Details of the selected separation minima and of their areas of application shall be notified:

(1) to the ATS units concerned; and

(2) to pilots and aircraft operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

***(Annex 11 — Sections 3.4.1 and 3.4.2) (3.4.1 transposed as SERA.8010(a) and (b), and 3.4.2 transposed as SERA.8010(c))***

**ATS.TR.220 Application of wake turbulence separation**

ATC units shall apply wake turbulence separation minima to aircraft in the approach and departure phases of flight under the following circumstances:

(a) an aircraft is operating directly behind another aircraft at the same altitude or less than 300 m (1 000 ft) below it; or

(b) both aircraft are using the same runway, or parallel runways separated by less than 760 m (2 500 ft); or

(c) an aircraft is crossing behind another aircraft, at the same altitude or less than 300 m (1 000 ft) below it,

except for arriving VFR flights, and for arriving IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft, for which the ATC unit shall issue caution for wake turbulence.

***(PANS ATM — Sections 5.8.1.1, 5.8.1.2 first sentence, 8.7.3.4.1) (Section 8.7.3.4.1 transposed in SERA.8012, the text not being identical)***

**ATS.TR.225 Responsibility for control**

(a) A controlled flight shall be under the control of only one ATC unit at any given time.

(b) Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single ATC unit. However, control of an aircraft or groups of aircraft may be delegated to other ATC units provided that coordination between all ATC units concerned is assured.

***(Annex 11 — Sections 3.5.1 and 3.5.2)***

**ATS.TR.230 Transfer of responsibility for control**

**(a) Place or time of transfer**

The responsibility for the control of an aircraft shall be transferred from one ATC unit to another as follows:

(1) Between two units providing area control service

The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control

centre having control of the aircraft or at such other point or time as has been agreed between the two units.

(2) Between a unit providing area control service and a unit providing approach control service or between two units providing approach control service

The responsibility for the control of an aircraft shall be transferred from one unit to another, and vice versa, at a point or time agreed between the two units.

(3) Between a unit providing approach control service and an aerodrome control tower

(i) Arriving aircraft — The responsibility for the control of an arriving aircraft shall be transferred from the unit providing approach control service to the aerodrome control tower, when the aircraft:

(A) is in the vicinity of the aerodrome, and:

(a) it is considered that approach and landing will be completed in visual reference to the ground, or

(b) it has reached uninterrupted visual meteorological conditions, or

(B) is at a prescribed point or level; or

(C) has landed,

as specified in letters of agreement and operation manuals, as appropriate.

(ii) Departing aircraft — The responsibility for control of a departing aircraft shall be transferred from the aerodrome control tower to the unit providing approach control service:

(A) when visual meteorological conditions prevail in the vicinity of the aerodrome:

(a) prior to the time the aircraft leaves the vicinity of the aerodrome, or

(b) prior to the aircraft entering instrument meteorological conditions, or

(c) at a prescribed point or level,

(B) when instrument meteorological conditions prevail at the aerodrome:

(a) immediately after the aircraft is airborne, or

(b) at a prescribed point or level,

as specified in letters of agreement and operation manuals, as appropriate.

(4) Between control sectors/positions within the same ATC unit

The responsibility for control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same ATC unit at a point, level or time, as specified in ATS unit instructions.

**(b) Coordination of transfer**

(1) Responsibility for control of an aircraft shall not be transferred from one ATC unit to another without the consent of the accepting control unit, which shall be obtained in accordance with points (b)(2), (b)(3), (b)(4) and (b)(5).

(2) The transferring control unit shall communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

(3) Where transfer of control is to be effected using ATS surveillance systems, the control information pertinent to the transfer shall include information regarding the position and, if required, the track and speed of the aircraft, as observed by ATS surveillance systems immediately prior to the transfer.

(4) Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer shall include the four-dimensional position and other information as necessary.

(5) The accepting control unit shall:

(i) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and

(ii) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

(6) Unless otherwise specified by an agreement between the two control units concerned, the accepting control unit shall not notify the transferring control unit when it has established two-way voice and/or data link communications with and assumed control of the aircraft concerned.

(7) Standardised phraseology shall be used in the coordination between ATS units and/or sectors. Only when standardised phraseology cannot serve an intended transmission, plain language shall be used.

***(Annex 11 — Sections 3.6.1, 3.6.1.1, 3.6.1.2, 3.6.1.3.1, 3.6.1.3.2 3.6.1.4, 3.6.2.1, 3.6.2.2, 3.6.2.2.1, 3.6.2.2.2, 3.6.2.3, 3.6.2.4 and 3.6.2.5)(Point (b)(7) partially duplicated from SERA.14001)***

**ATS.TR.235 ATC clearances**

(a) ATC clearances shall be based solely on the requirements for providing ATC service.

(1) Clearances shall be issued solely for expediting and separating air traffic and be based on known traffic conditions which affect safety in aircraft operation. Such traffic conditions include not only aircraft in the air and on the manoeuvring area over which control is being exercised, but also any vehicular traffic or other obstructions not permanently installed on the manoeuvring area in use.

(2) ATC units shall issue such ATC clearances as necessary to prevent collisions and to expedite and maintain an orderly flow of air traffic.

(3) ATC clearances shall be issued early enough to ensure that they are transmitted to the aircraft in sufficient time for it to comply with them.

(4) When the pilot-in-command of an aircraft informs an ATC unit that an ATC clearance is not satisfactory, the ATC unit shall issue an amended clearance, if practicable.

(5) When vectoring or assigning a direct routing not included in the flight plan, which takes an IFR flight off published ATS route or instrument procedure, a controller providing ATS surveillance service shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will re-join the flight plan route, or join a published ATS route or instrument procedure.

(b) Contents of clearances

An ATC clearance shall indicate:

(1) aircraft identification as shown in the flight plan;

(2) clearance limit;

(3) route of flight;

(i) The route of flight shall be detailed in each clearance when deemed necessary; and

(ii) The phrase 'cleared flight planned route' shall not be used when granting a re-clearance.

(4) level(s) of flight for the entire route or part thereof and changes of levels if required;

(5) any necessary instructions or information on other matters, such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

(c) In order to facilitate the delivery of the elements in point (b), the ATS provider shall assess the necessity for establishing standard departure and arrival routes and associated procedures to facilitate:

(1) the safe, orderly and expeditious flow of air traffic;

(2) the description of the route and procedure in ATC clearances.

(d) Clearances for transonic flight

(1) The ATC clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.

(2) The ATC clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall seek to provide for uninterrupted descent, at least during the transonic phase.

(e) Changes in clearance regarding route or level

(1) When issuing a clearance covering a requested change in route or level, the exact nature of the change shall be included in the clearance.

(2) When traffic conditions will not permit clearance of a requested change, the word 'UNABLE' shall be used. When warranted by circumstances, an alternative route or level shall be offered.

(f) Conditional clearances

Conditional phrases, such as 'behind landing aircraft' or 'after departing aircraft', shall not be used for movements affecting the active runway(s) except when the aircraft or vehicles concerned are seen by the appropriate controller and pilot. The aircraft or vehicle causing the condition in the clearance issued

shall be the first aircraft/vehicle to pass in front of the other aircraft concerned. In all cases, a conditional clearance shall be given in the following order and consist of:

(1) the call sign;

(2) the condition;

(3) the clearance; and

(4) a brief reiteration of the condition.

(g) Read-back of clearances and safety-related information

(1) The controller shall listen to the read-back concerning safety-related parts of ATC clearances and instructions as defined in SERA.8015(e)(1) and (2) of Commission Implementing Regulation (EU) No 923/2012, to ascertain that the clearance and/or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

(2) Voice read-back of CPDLC messages shall not be required unless otherwise specified by the ATS provider.

(h) Coordination of clearances

An ATC clearance shall be coordinated between ATC units to cover the entire route of an aircraft or a specified portion thereof as follows.

(1) An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

(i) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or

(ii) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

(2) When coordination as in point (1) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

(3) When prescribed by the ATS unit, aircraft shall contact a downstream ATC unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.

(i) Aircraft shall maintain the necessary two-way communication with the current ATC unit whilst obtaining a downstream clearance.

(ii) A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

(iii) Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the ATC unit responsible for the delivery of the downstream clearance.

(4) When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of 30 minutes, or such other specific period of time as has been

agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.

(5) When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter the same or another control area, a clearance from the point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

***(Annex 11 — Sections 3.7, 3.7.1.1, 3.7.1.2, 3.7.2.1, 3.7.2.2, 3.7.3.1.2, 3.7.3.2, 3.7.4, 3.7.4.1, 3.7.4.2, 3.7.4.2.1, , 3.7.4.2.1.1, 3.7.4.2.1.2, 3.7.4.2.1.3 3.7.4.3 and 3.7.4.4, PANS ATM — Sections 4.5.1.1, 4.5.1.2, 4.5.1.4, 4.5.1.5, 4.5.7.2.1 (first sentence), 4.5.7.2.2, 4.5.7.4.1, 4.5.7.4.2, 8.6.5.2 as amended by EANPG #57 Final Report, 12.2.7, Annex 2 — Section 3.6.1.1) (Section 3.7 transposed as SERA.8015(a), Section 3.7.1.1 transposed as SERA.8015(d), Sections 3.7.2.1 and 3.7.2.2 transposed as SERA.8015(c), Section 3.7.3.1.2 transposed as SERA.8015(e)(3), Section 3.7.3.2 transposed as SERA.8015(e)(3), Sections 3.7.4, 3.7.4.1, 3.7.4.2, 3.7.4.2.1, 3.7.4.2.1.1, 3.7.4.2.1.2, 3.7.4.2.1.3, 3.7.4.3 and 3.7.4.4 transposed as SERA.8015(f)) (Annex 2 — Section 3.6.1.1 transposed as SERA.8015(b)(2)) (PANS ATM — Sections 4.5.1.1, 4.5.1.2, 4.5.1.4, 4.5.1.5 transposed as SERA.8015(a), Sections 4.5.7.2.1 (first sentence) and 4.5.7.2.2 transposed as SERA.8015(d)(3), Sections 4.5.7.4.1 and 4.5.7.4.2 transposed as SERA.8015(ea), Section 12.2.7 transposed as SERA.8015(ec))***

**ATS.TR.240 Control of persons and vehicles at controlled aerodromes**

(a) The movement of persons or vehicles, including towed aircraft, on the manoeuvring area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

(b) In conditions where low visibility procedures are in operation:

(1) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;

(2) subject to the provisions in point (c), the minimum separation between vehicles and taxiing aircraft shall be as specified by the ATS provider and approved by the competent authority taking into account the aids available;

(3) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.

(c) Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

(d) Subject to the provisions in point (c), vehicles on the manoeuvring area shall be required to comply with the following rules:

(1) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off, taxiing or being towed;

(2) vehicles shall give way to other vehicles towing aircraft;

(3) vehicles shall give way to other vehicles in accordance with ATS unit instructions;

(4) notwithstanding the provisions of points (1), (2) and (3), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

***(Annex 11 — Sections 3.8.1, 3.8.2, 3.8.3 and 3.8.4) (Sections 3.8.1, 3.8.2, 3.8.3 and 3.8.4 transposed as SERA.3210(d)(4))***

**ATS.TR.245 Use of surface movement surveillance equipment at aerodromes**

Where deemed necessary, in the absence of visual observation of all or part of the manoeuvring area, or to supplement visual observation, advanced surface movement guidance and control systems (A-SMGCS), or other suitable surveillance equipment, shall be utilised by the ATS provider in order to:

(a) monitor the movements of aircraft and vehicles on the manoeuvring area;

(b) provide directional information to pilots and vehicle drivers as necessary; and

(c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

***(Annex 11 — Section 3.10)***

**ATS.TR.250 Essential traffic information**

(a) Essential traffic information shall be given to controlled flights concerned whenever they constitute essential traffic to each other.

(b) Information on essential local traffic known to the controller shall be given to departing and arriving aircraft concerned.

***(PANS ATM — Sections 5.10.1.2 and 6.2.1)***

**ATS.TR.255 Operations on parallel or near-parallel runways**

Independent or dependent approaches or departures to/from parallel or near-parallel runways shall be established by the ATS provider and approved by the competent authority.

***(New provision establishing general principle to allow such types of operations. PANS ATM — Section 6.7 is relevant)***

**ATS.TR.260 Selection of the runway in use**

The unit providing aerodrome control service shall select the runway in use for take-off and landing of aircraft taking into consideration the surface wind speed and direction as well as other local relevant factors, such as:

(a) runway configuration;

(b) meteorological conditions;

(c) instrument approach procedures;

(d) approach and landing aids available;

(e) aerodrome traffic circuits and air traffic conditions;

(f) length of the runway(s);

(g) other factors indicated in local instructions.

***(PANS ATM — Section 7.2.2 (second sentence))***

**ATS.TR.265 Control of aerodrome surface traffic in conditions of low visibility**

(a) When there is a requirement for traffic to operate on the manoeuvring area in conditions of visibility which prevent the aerodrome control tower from applying visual separation between aircraft, and between aircraft and vehicles, the following shall apply:

(1) at the intersection of taxiways, an aircraft or vehicle on a taxiway shall not be permitted to hold closer to the other taxiway than the holding position limit defined by intermediate holding positions, stop bar or taxiway intersection marking according to the applicable aerodrome design specifications;

(2) the longitudinal separation on taxiways shall be as specified for each particular aerodrome by the ATS provider and approved by the competent authority. This separation shall take into account the characteristics of the aids available for surveillance and control of ground traffic, the complexity of the aerodrome layout and the characteristics of the aircraft using the aerodrome.

(b) In coordination with the aerodrome operator, provisions applicable to the start and continuation of precision approach category II/III operations as well as departure operations in RVR conditions less than a value of 550 m shall be established by the ATS provider and approved by the competent authority.

***(PANS ATM — Sections 7.12.1.1, 7.12.1.1.1,.1.2 and 7.12.2.1)***

**ATS.TR.270 Authorisation of special VFR**

(a) Special VFR flights may be authorised to operate within a control zone, subject to an ATC clearance. Except when permitted by the competent authority for helicopters in special cases such as, but not limited to, police, medical, search and rescue operations and fire-fighting flights, the following additional conditions shall be applied:

(1) such flights may be conducted during day only, unless otherwise permitted by the competent authority;

(2) by the pilot:

(i) clear of cloud and with the surface in sight;

(ii) the flight visibility is not less than 1 500 m or, for helicopters, not less than 800 m;

(iii) fly at a speed of 140 kts IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision; and

(b) An ATC unit shall not issue a special VFR clearance to aircraft to take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

(1) the ground visibility is less than 1 500 m or, for helicopters, less than 800 m;

(2) the ceiling is less than 180 m (600 ft).

(c) An ATC unit shall handle requests for such authorisation individually.

***(PANS ATM — Sections 7.14.1, 7.14.1.1 and 7.14.1.3) (Sections 7.14.1 and 7.14.1.3 transposed with modifications in SERA.5010)***

**ATS.TR.275 Pressure-altitude-derived level information**

(a) Unless otherwise prescribed by the competent authority, verification of the pressure-altitude-derived level information displayed to the controller shall be effected at least once by each suitably equipped ATC unit on initial contact with the aircraft concerned or, if this is not feasible, as soon as possible thereafter.

(b) Verified pressure-altitude-derived level information shall only be used in the provision of ATS surveillance services to determine that aircraft:

(1) maintain a level;

(2) vacate a level;

(3) pass a level in climb or descent; or

(4) reach a level.

***(PANS ATM — Section 8.5.5.1.2 (first sentence)) (Section 8.5.5.1.2 (first sentence) transposed as SERA.13010(b))***

**Section 3 — Flight information service**

**ATS.TR.300 Application**

(a) Flight information service shall be provided by the appropriate ATS units to all aircraft which are likely to be affected by the information and which are:

(1) provided with ATC service; or

(2) otherwise known to the relevant ATS units.

(b) Where ATS units provide both flight information service and ATC service, the provision of ATC service shall have precedence over the provision of flight information service whenever the provision of ATC service so requires.

(c) The flight information service provider shall establish arrangements for:

(1) recording and transmission of information on the progress of flights;

(2) coordination and transfer of responsibility for the provision of flight information service.

***(Annex 11 — Sections 4.1.1 and 4.1.2, PANS ATM — Sections 9.1.1 and 9.1.2) (Sections 4.1.1 and 4.1.2 transposed as SERA.9001)***

**ATS.TR.305 Scope of flight information service**

(a) Flight information service shall include the provision of pertinent:

(1) SIGMET and AIRMET information;

(2) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;

(3) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;

(4) information on changes in the availability of radio navigation services;

(5) information on changes in the condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water;

(6) information on unmanned free balloons;

(7) information on abnormal aircraft configuration and condition; and

(8) any other information likely to affect safety.

(b) Flight information service provided to flights shall include, in addition to that outlined in point (a), the provision of information concerning:

(1) weather conditions reported or forecast at departure, destination and alternate aerodromes;

(2) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;

(3) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.

(c) AFIS provided to flights shall include, in addition to relevant items outlined in points (a) and (b), the provision of information concerning:

(1) collision hazards to aircraft and vehicles operating on the manoeuvring area;

(2) the runway in use;

(3) messages, including clearances, received from other ATS units to relay to aircraft.

(d) ATS units shall transmit, as soon as practicable, special and non-routine air-reports to:

(1) other aircraft concerned;

(2) the associated meteorological watch office (MWO) in accordance with Appendix 5 to Commission Implementing Regulation (EU) No 923/2012; and

(3) other ATS units concerned.

Transmissions to aircraft shall be repeated at a frequency and continued for a period of time which shall be determined by the ATS unit concerned.

(e) Flight information service provided to VFR flights shall include, in addition to that outlined in point (a), the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

***(Annex 11 — Sections 4.2.1, 4.2.2, Recommendation in 4.2.3 and 4.2.4, Circular 211-AN/128, PANS ATM — Section 7.4.1.7 (Title)) (Section 4.2.1 transposed as SERA.9005(a), Section 4.2.2 transposed as SERA.9005(b), Section 4.2.4 transposed as SERA.9005(c), Recommendation in Section 4.2.3 transposed as SERA.12020(a) and (b))***

**ATS.TR.310 Voice-automatic terminal information service (Voice-ATIS) broadcasts**

(a) Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air–ground communication channels. When provided, they shall comprise:

(1) one broadcast serving arriving aircraft; or

(2) one broadcast serving departing aircraft; or

(3) one broadcast serving both arriving and departing aircraft; or

(4) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

(b) A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

(c) Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.

(d) Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.

(e) The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and take-off, whenever the message has not been prepared by that (those) unit(s).

(f) Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.

(g) The Voice-ATIS broadcast message shall, whenever practicable, not exceed 30 seconds, care being taken that the readability of the ATIS message is not impaired by the speed of the transmission or by the identification signal of a navigation aid used for transmission of ATIS.

***(Annex 11 — Sections 4.3.4.1, 4.3.4.2, 4.3.4.3, 4.3.4.4, 4.3.4.5, 4.3.4.6 and 4.3.4.8 (first sentence))***

**ATS.TR.315 Data link-automatic terminal information service (D-ATIS)**

(a) Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast. Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria established in MET.TR.200(e) and (f), the content, for the purpose of maintaining the same designator, shall be considered identical.

(b) Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice-ATIS and D-ATIS shall be updated simultaneously.

**(Annex 11 — Section 4.3.5.1, 4.3.5.1.1 and 4.3.5.2)**

**ATS.TR.320 Automatic terminal information service (voice and/or data link)**

(a) Whenever Voice-ATIS and/or D-ATIS is provided:

(1) the information communicated shall relate to a single aerodrome;

(2) the information communicated shall be updated immediately when a significant change occurs;

(3) the preparation and dissemination of the ATIS message shall be the responsibility of the ATS provider;

(4) individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages shall be in alphabetical order;

(5) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower or AFIS unit, as appropriate;

(6) the appropriate ATS unit shall, when replying to the message in point (5) or, in the case of arriving aircraft, at such other time as may be prescribed by the competent authority, provide the aircraft with the current altimeter setting; and

(7) the meteorological information shall be extracted from the local meteorological routine or special report.

(b) When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages shall indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.

(c) Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with point (a).

(d) If an aircraft acknowledges receipt of an ATIS that is no longer current, the ATS unit shall transmit without delay to the aircraft any element of information that needs updating.

***(Annex 11 — Sections 4.3.6.1, 4.3.6.2, 4.3.6.3 and 4.3.6.4) (Introductory sentence, points e) and f) of Section 4.3.6.1 transposed as SERA.9010(a)(2), Section 4.3.6.3 transposed as SERA.9010 (a)(3)), Section 4.3.6.4 transposed as SERA.9010 (a)(4))***

**ATS.TR.325 VOLMET broadcasts and D-VOLMET broadcasts**

When so prescribed by the competent authority, HF and/or VHF VOLMET broadcasts and/or D-VOLMET service shall be provided, using standard radiotelephony phraseologies.

***(Annex 11 — Section 4.4, Recommendations in Sections 4.4.1 and 4.4.2)***

## Section 4 — Alerting service

**ATS.TR.400 Application**

(a) Alerting service shall be provided by the ATS units:

(1) for all aircraft provided with ATC service;

(2) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the ATS; and

(3) to any aircraft known or believed to be the subject of unlawful interference.

(b) Flight information centres or area control centres shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

(c) In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit or in contact with an AFIS unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre shall not be required when the nature of the emergency is such that the notification would be superfluous.

(d) Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible or the relevant AFIS unit shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organisations which can give the immediate assistance required, in accordance with local instructions.

***(Annex 11 — Sections 5.1.1, 5.1.2, 5.1.3 and 5.1.3.1, PANS ATM — Section 7.1.2.2, first sentence) (Section 5.1.1 transposed as SERA.10001(a))***

**ATS.TR.405 Notification to rescue coordination centres**

(a) Without prejudice to any other circumstances that may render such notification advisable, ATS units shall, except as prescribed in ATS.TR.420(a), notify rescue coordination centres immediately when an aircraft is considered to be in a state of emergency in accordance with the following:

(1) Uncertainty phase when:

(i) no communication has been received from an aircraft within a period of 30 minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier; or

(ii) an aircraft fails to arrive within 30 minutes of the estimated time of arrival last notified to or estimated by ATS units, whichever is the later;

except when no doubt exists as to the safety of the aircraft and its occupants.

(2) Alert phase when:

(i) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft; or

(ii) an aircraft has been cleared to land and fails to land within 5 minutes of the estimated time of landing and communication has not been re-established with the aircraft; or

(iii) at AFIS aerodromes, under circumstances as prescribed by the competent authority; or

(iv) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely, except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants; or

(v) an aircraft is known or believed to be the subject of unlawful interference.

(3) Distress phase when:

(i) following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress; or

(ii) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety; or

(iii) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or

(iv) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing,

except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

(b) The notification shall contain such of the following information as is available in the order listed:

(1) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;

(2) agency and person calling;

(3) nature of the emergency;

(4) significant information from the flight plan;

(5) unit which made last contact, time and means used;

(6) last position report and how it was determined;

(7) colour and distinctive marks of aircraft;

(8) dangerous goods carried as cargo;

(9) any action taken by the reporting office; and

(10) other pertinent remarks.

(c) Such part of the information specified in point (b), which is not available at the time the notification is made to a rescue coordination centre, shall be sought by an ATS unit prior to the declaration of a distress phase where time permits and where there is reasonable certainty that this phase will eventuate.

(d) Further to the notification in point (a), ATS units shall, without delay, furnish the rescue coordination centre with:

(1) any useful additional information, especially on the development of the state of emergency through subsequent phases; or

(2) information that the emergency situation no longer exists.

***(Annex 11 — Sections 5.2.1, 5.2.2, 5.2.2.1 and 5.2.3)***

**ATS.TR.410 Use of communication facilities**

ATS units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

***(Annex 11 — Section 5.3)***

**ATS.TR.415 Plotting aircraft in a state of emergency**

When a state of emergency is considered to exist, the ATS unit(s) aware of the emergency shall plot the flight of the aircraft involved on a chart or other appropriate tool in order to determine the probable future position of the aircraft and its maximum range of action from its last known position.

***(Annex 11 — Section 5.4)***

**ATS.TR.420 Information to the operator**

(a) When an area control centre or a flight information centre decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the aircraft operator prior to notifying the rescue coordination centre.

(b) Whenever practicable, an area control centre or flight information centre shall, without delay, communicate all information notified to the rescue coordination centre to the aircraft operator.

***(Annex 11 — Sections 5.5.1 and 5.5.2)***

**ATS.TR.425 Information to aircraft operating in the vicinity of an aircraft in a state of emergency**

(a) When it has been established by an ATS unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in point (b), be informed of the nature of the emergency as soon as practicable.

(b) When an ATS unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air–ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

***(Annex 11 — Sections 5.6.1 and 5.6.2) (5.6.1 transposed as SERA.10005(a), 5.6.2 transposed as SERA.10005(b))***

**1.1.5. Amendments to Annex V — Subpart A — Additional organisation requirements for providers of meteorological services (MET.OR)**

**MET.OR.242 Information to be provided to air traffic services units**

(a) An aerodrome meteorological office shall provide, as necessary, its associate aerodrome control tower and AFIS unit with:

(1) […]

**MET.OR.245 Meteorological watch and other information**

Within its area of responsibility, the meteorological watch office shall:

[…]

(f) provide its associated area control centre […]

(8) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological watch office and the ACC/FIC~~.~~;

(g) when available, provide the relevant ATS units, in accordance with local agreement, information regarding the release into the atmosphere of radioactive materials or toxic chemicals which could affect the airspace used by flights within their area of responsibility.

***(Annex 11 — Section 7.6)***

## 1.2. Amendments to the SERA Regulation (draft Opinion)

(1) The following recital is added:

[…]

(Whereas) the provisions contained in this Regulation should support and complement rules related to the provision of air traffic services contained in Annex 10 Volume II and Annex 11 to the Chicago Convention, ICAO Doc.4444 (PANS ATM) and Commission Implementing Regulation (EU) 2016/1377, to ensure consistency of service provision with pilot actions under this Regulation.

[…]

(2) The definition of 'controlled aerodrome' is amended as follows:

'Controlled aerodrome' means an aerodrome at which ATC service is provided to aerodrome traffic ~~regardless whether or not a control zone exists~~.

(3) SERA.8005 is amended as follows:

**SERA.8005 Operation of air traffic control service**

(a) In order to provide ATC service, an ATC unit shall:

(1) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;

(2) determine from the information received, the relative positions of known aircraft to each other;

(3) issue clearances, instructions and/or information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;

(4) […]

(b) […]

(c) Except for cases of operations on parallel or near-parallel runways as in ATS.TR.255 of Commission Implementing Regulation (EU) 2016/1377, or when a reduction in separation

minima in the vicinity of aerodromes can be applied, separation by an ATC unit shall be obtained by at least one of the following:

(1) vertical separation, obtained by assigning different levels selected from the table of cruising levels in Appendix 3 to the Annex to Commission Implementing Regulation (EU) No 923/2012, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or ATC clearances. The vertical separation minimum shall be a nominal 300 m (1000 ft) up to and including FL 410 and a nominal 600 m (2000 ft) above this level. Geometric height information shall not be used to establish vertical separation;

(2) […]

(4) SERA.8012 (introduced with Regulation (EU) 2016/1185) is amended as follows:

**SERA.8012 Application of wake turbulence separation**

Wake turbulence separation minima shall be applied to aircraft in the approach and departure phases of flight under the following circumstances:

(a) an aircraft is operating directly behind another aircraft at the same altitude or less than 300 m (1 000 ft) below it; or

(b) both aircraft are using the same runway, or parallel runways separated by less than 760 m (2 500 ft); or

(c) an aircraft is crossing behind another aircraft, at the same altitude or less than 300 m (1 000 ft) below it~~.~~,

except for arriving VFR flights, and for arriving IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft, for which the ATC unit shall issue caution for wake turbulence.

(5) SERA.8015 (as amended by Regulation (EU) 2016/1185) is amended as follows:

**SERA.8015 Air traffic control clearances**

(a) […]

(b) ATC clearances shall be based solely on the requirements for providing ATC service.

(1) ….

(2) ….

(3) ….

(4) ……

(5) ……

(6) When vectoring or assigning a direct routing not included in the flight plan, which takes an IFR flight off published ATS route or instrument procedure, a controller providing ATS surveillance service shall issue clearances such that the prescribed obstacle clearance will

exist at all times until the aircraft reaches the point where the pilot will re-join the flight plan route, or join a published ATS route or instrument procedure.

(c) […]

(d) Contents of clearances

An ATC clearance shall indicate:

(1) ……;

(2) ……;

(3) ……;

(i) The route of flight shall be detailed in each clearance when deemed necessary, and

(ii) The phrase 'cleared ~~via~~ flight planned route' shall not be used when granting a re-clearance.

(4) […]

(6) SERA.9005 is amended as follows:

**SERA.9005 Scope of flight information service**

(a) Flight information service shall include the provision of pertinent:

(1) ……;

(2) …..;

(3) …..;

(4) …..;

(5) …..;

(6) …..;

(7) information on abnormal aircraft configuration and condition; and

(8) ……

(b) […]

(7) SERA.14095 is amended as follows:

**SERA.14095 Distress and urgency radiotelephony communication procedures**

(a) The emergency channel (121.500 MHz) shall be used only for genuine emergency purposes, as broadly outlined in the following:

(1) to provide a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilised for other aircraft;

(2) to provide a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

(3) to provide a common VHF communication channel between aircraft, either civil or military, and between such aircraft and surface services, involved in common search and rescue operations, prior to changing when necessary to the appropriate frequency;

(4) to provide air–ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

(5) to provide a channel for the operation of emergency locator transmitters (ELTs), and for communication between survival craft and aircraft engaged in search and rescue operations;

(6) to provide a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and ATS units in the event of interception of the civil aircraft.

~~(a)~~ (b) […]

~~(b)~~ (c) […]

~~(d)~~ (d) […]

## 1.3. Amendments to the upcoming ED Decision issuing the AMC/GM to the ATM/ANS Common Requirements Regulation (draft decision (PART-ATS))

**GM1 to Article 3(1b)(a) Determination of the need for ATS**
ELEMENTS TO DETERMINE THE NEED FOR ATS PROVISION

The determination of the need for ATS in a given area and/or aerodrome may be subject to consideration and evaluation of a great number and typology of elements, such as:

(a) a mixture of different types of air traffic with aircraft of varying speeds (conventional, jet, etc.) might necessitate the provision of ATS, whereas a relatively greater density of traffic where only one type of operation is involved would not;

(b) meteorological conditions might have considerable effect in areas where there is a constant flow of air traffic (e.g. scheduled traffic), whereas similar or worse meteorological conditions might be relatively unimportant in an area where air traffic would be discontinued in such conditions (e.g. local VFR flights);

(c) open stretches of water, mountainous, uninhabited or desert areas might necessitate the provision of ATS even though the frequency of operations is extremely low;

(d) the complexity of the airspace concerned; and

(e) the language(s) to be used in air–ground communications, in the case of AFIS.

***(Annex 11 — Note to Section 2.4.1, ICAO Circular 211-AN/128 'General' — paragraph 2.)***

**GM2 to Article 3(1b)(a) Determination of the need for ATS**
UNICOM AERONAUTICAL STATION

Where a Member State determines that no requirement exists for the provision of ATS at an aerodrome and its vicinity or in other airspace, a 'UNICOM' type aeronautical station may be established, following the Member State arrangements, to facilitate the activities of the aircraft. Such

UNICOM stations may be established in an airspace where Member States have decided that flight information service will be provided, but there is no requirement for mandatory two-way radio communication. In such cases, the Member State should ensure that the aeronautical station established does not provide ATS but acts as an informal facility for exchanges on, for example, aerodrome conditions or other activities at the aerodrome.

**GM1 to Article 3(1d)(a) Coordination of activities potentially hazardous to civil traffic**
In determining these arrangements, the following should be applied:

(a) the locations or areas, times and durations for the activities should be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist;

(b) the size of the airspace designated for the conduct of the activities should be kept as small as possible.

***(Annex 11 — Recommendation in Section 2.18.2.1)***

**GM2 to Article 3(1d)(a) Coordination of activities potentially hazardous to civil traffic**
COORDINATION OF MILITARY ACTIVITIES POTENTIALLY HAZARDOUS TO CIVIL TRAFFIC

Guidance for the coordination of such activities is provided in ICAO Doc 9554 'Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations'

**GM1 to the definition of 'accuracy'**

For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.

**GM1 to the definition of 'aerodrome flight information service (AFIS)'**

AFIS, being part of ATS, is provided in accordance with the applicable EU Regulations and should be distinguished from non-designated facilities, such as 'Universal Communications (UNICOM)' which comprise a frequency used by pilots to announce their intentions at an aerodrome where ATS are not provided. A ground station may exist at such a 'UNICOM' aerodrome but it does not provide a designated and certified or declared flight information service.

**GM1 to the definition of 'ATC clearance'**

For convenience, the term 'air traffic control clearance' is frequently abbreviated to 'clearance' when used in appropriate contexts.

The abbreviated term 'clearance' may be prefixed by the words 'taxi', 'take-off', 'departure', 'en-route', 'approach' or 'landing' to indicate the particular portion of flight to which the air traffic control clearance relates.

**GM1 to the definition of 'ADS-C'**

The abbreviated term 'ADS contract' is commonly used to refer to 'ADS event contract', 'ADS demand contract', 'ADS periodic contract' or an emergency mode.

**GM1 to the definition of 'ATS surveillance system'**

A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse secondary surveillance radar (SSR).

**GM1 to the definition of 'decision altitude'**

Decision altitude (DA) is referenced to mean sea level, and decision height (DH) is referenced to the threshold elevation. The required visual reference is that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a decision height, the required visual reference is that specified for the particular procedure and operation.

**GM1 to the definition of 'expected approach time'**

The actual time of leaving the holding fix will depend upon the approach clearance.

**GM1 to the definition of 'obstacle clearance altitude'**

Obstacle clearance altitude is referenced to mean sea level.

**GM1 to the definition of 'obstacle clearance height'**

Obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approach procedures to the aerodrome elevation or the threshold elevation if that is more than 2 m (7 ft) below the aerodrome elevation. An obstacle clearance height for a circling approach procedure is referenced to the aerodrome elevation.

**GM1 to the definition of 'procedure turn'**

Procedure turns are designated 'left' or 'right' according to the direction of the initial turn.

Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

**GM1 to the definition of 'runway-holding position'**

In radiotelephony phraseologies, the expression 'holding point' is used to designate the runway-holding position.

**GM1 to the definition of 'significant point'**

There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.

**GM1 to the definition of 'touchdown'**

'Touchdown' as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

**AMC1 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
ESTABLISHMENT AND IDENTIFICATION OF STANDARD TAXI ROUTES

(a) The ATS provider, in coordination with the aerodrome operator, should assess the necessity for establishing standard routes for taxiing aircraft on an aerodrome between runways, aprons and maintenance areas.

(b) When established, such routes should be direct, simple and, where practicable, designed to avoid traffic conflicts.

(c) Standard routes for taxiing aircraft should be identified by designators distinctively different from those of the runways and ATS routes.

***(Annex 11 — Sections 2.15.1 and 2.15.2)***

**AMC2 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
INFORMATION EXCHANGE ON THE AERODROME CONDITIONS AND OPERATIONAL STATUS OF AERODROME FACILITIES

The ATS provider should establish arrangements with the aerodrome operator for the exchange of information regarding the aerodrome conditions, in particular the operational conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

**AMC3 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
APRON MANAGEMENT SERVICES

The ATS provider should establish arrangements, including a coordination procedure, with the aerodrome operator and, when applicable, with the other organisation(s) providing apron management services. The coordination procedure between the provider(s) of apron management services and the ATS provider should contain at least the following:

(a) the boundaries of the respective areas of responsibilities as described according to ADR.OPS.D.020 of Regulation (EU) No 139/2014;

(b) the handover points between apron and manoeuvring area;

(c) the holding areas;

(d) the means of guidance for the aircraft taxiing;

(e) the operational information to be exchanged between both parties; and

(f) the push back operations, when interfering with the manoeuvring area.

**AMC4 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
COORDINATION FOR LOW-VISIBILITY OPERATIONS

The ATS provider should establish arrangements with the aerodrome operator and, where established, with the apron management services provider(s) for the relevant aspects and the definition of the respective responsibilities in conducting low-visibility operations, in addition to those established in ATS.TR.265(b).

**AMC5 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
RUNWAYS INSPECTIONS

The ATS provider should coordinate with the aerodrome operator the conduct of routine and non-routine runways inspections.

***(PANS ATM — Section 7.4.1.7.2 (partially))***

**AMC6 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
INFORMATION ON THE SAFE USE OF THE MANOEUVRING AREA

When a not previously notified condition pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the air traffic controllers or by AFIS officers, the ATS provider should inform the aerodrome operator, and operations on that part of the manoeuvring area should be terminated until otherwise advised by the aerodrome operator.

***(PANS ATM — Section 7.5.4)***

**GM1 ATS.OR.110 Coordination between aerodrome operators and ATS providers**
COORDINATION FOR THE AERODROME MANUAL

The ATS provider should establish close coordination with the aerodrome operator to participate in the development of the elements of the Aerodrome Manual pertaining to the services it provides.

**GM1 ATS.OR.125(a) Coordination between aeronautical information services and ATS providers**
PUBLICATION OF REDUCED RUNWAY SEPARATION MINIMA

The ATS provider should arrange to publish all applicable procedures related to the application of reduced runway separation minima as in AMC9 ATS.TR.210(c)(2)(i) in the aeronautical information publication (AIP) and to include them also in the local ATC instructions.

***(PANS ATM — Section 7.11.2 (first sentence))***

**GM2 ATS.OR.125(a) Coordination between aeronautical information services and ATS providers**
PROMULGATION OF INFORMATION ON AFIS

The ATS provider should arrange to report information regarding the availability of AFIS and related procedures for its inclusion in the relevant parts of the AIP in the same manner as in the case of aerodromes provided with ATC service, in accordance with Appendix I to Annex VI (Part AIS). The information includes but is not limited to the following:

(a) identification of the aerodrome;

(b) location and identification of the AFIS unit;

(c) hours of operation of the AFIS unit;

(d) lateral and vertical limits of the associated airspace, when defined;

(e) language(s) used;

(f) detailed description of the services provided, including alerting service and, if applicable, use of direction-finding;

(g) special procedures for application by pilots; and

(h) any other pertinent information.

***(ICAO Circular 211-AN/128 — 'Promulgation of information', 36.)***

**GM3 ATS.OR.125(a) Coordination between aeronautical information services and ATS providers**
PROMULGATION OF INFORMATION FOR UNICOM AERONAUTICAL STATIONS NOT PROVIDING ATS

The arrangements established as outlined in GM2 to Article 3(1b) should ensure that information regarding the availability of the 'UNICOM' are included in the relevant parts of the AIP. The information should include the following:

(a) identification of the aerodrome, where applicable;

(b) location and identification of the aeronautical station, where applicable;

(c) hours of operation of the aeronautical station, where applicable;

(d) language(s) used;

(e) detailed description of the facilitation provided and its limitations;

(f) special procedures for application by pilots; and

(g) any other pertinent information.

**GM1 ATS.OR.125(c) Coordination between aeronautical information services and ATS providers**
ORIGIN OF AERONAUTICAL INFORMATION

Information to be reported to the AIS provider may originate also from other entities, such as the aerodrome operator, the apron management service provider, CNS service providers, etc.

**GM1 ATS.OR.125(d) Coordination between aeronautical information services and ATS providers**

Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the aeronautical information regulation and control (AIRAC) system, as stipulated in AIS.OR.505 and AIS.TR.505.

***(Annex 11 — Section 2.21.3 (first sentence))***

**GM1 ATS.OR.135 Contingency arrangements**

The various circumstances surrounding each ATS contingency situation preclude the establishment of exact detailed procedures to be followed.

***(PANS ATM — Section 15.6)***

**GM2 ATS.OR.135 Contingency arrangements**

RADIO COMMUNICATION CONTINGENCIES IN AIR TRAFFIC CONTROL SERVICE

**(a) General**

ATC contingencies related to communications, i.e. circumstances preventing a controller from communicating with aircraft under control, may be caused by either a failure of ground radio

equipment, a failure of airborne equipment, or by the control frequency being inadvertently blocked by an aircraft or a ground transmitter, or any unauthorised use. The duration of such events may be for prolonged periods and appropriate action to ensure that the safety of aircraft is not affected should therefore be taken immediately.

**(b) Ground radio failure**

(1) In the event of complete failure of the ground radio equipment used for ATC, the controller should:

(i) attempt to establish radio communications on the emergency frequency 121.500 MHz;

(ii) without delay inform all adjacent control positions or ATC units, as applicable, of the failure;

(iii) apprise such positions or units of the current traffic situation;

(iv) request their assistance, in respect of aircraft which may establish communications with those positions or units, in establishing and maintaining separation between such aircraft; and

(v) instruct adjacent control positions or ATC units to hold or re-route all controlled flights outside the area of responsibility of the position or ATC unit that has experienced the failure until such time that the provision of normal services can be resumed,

unless able to continue to provide ATS by means of other available communication channels.

(2) In order to reduce the impact of complete ground radio equipment failure on the safety of air traffic, the ATS provider should establish contingency procedures to be followed by control positions and ATC units in the event of such failures. Where agreed between affected ATS providers, such contingency procedures should provide for the delegation of control to an adjacent control position or ATC unit in order to permit a minimum level of services to be provided as soon as possible, following the ground radio failure and until normal operations can be resumed.

**(c) Blocked frequency**

In the event that the control frequency is inadvertently blocked by an aircraft transmitter, the following additional steps should be taken:

(1) attempt to identify the aircraft concerned;

(2) if the aircraft blocking the frequency is identified, attempts should be made to establish communication with that aircraft, e.g. on the emergency frequency 121.500 MHz, by SELCAL, through the aircraft operator's company frequency if applicable, on any VHF frequency designated for air-to-air use by flight crews or any other communication means or, if the aircraft is on the ground, by direct contact; and

(3) if communication is established with the aircraft concerned, the flight crew should be instructed to take immediate action to stop inadvertent transmissions on the affected control frequency.

**(d) Unauthorised use of ATC frequency**

Instances of false and deceptive transmissions on ATC frequencies which may impair the safety of aircraft can occasionally occur. In the event of such occurrences, the ATC unit concerned should:

(1) correct any false or deceptive instructions or clearances which have been transmitted;

(2) advise all aircraft on the affected frequency(ies) that false and deceptive instructions or clearances are being transmitted;

(3) instruct all aircraft on the affected frequency(ies) to verify instructions and clearances before taking action to comply;

(4) if practical, instruct aircraft to change to another frequency; and

(5) if possible, advise all aircraft affected when the false and deceptive instructions or clearances are no longer being transmitted.

***(PANS ATM — Sections 8.8.6.1/15.6.1.1, 8.8.6.2/15.6.1.2.1, 15.6.1.2.2, 15.6.1.3 and 15.6.1.4)***

**GM3 ATS.OR.135 Contingency arrangements**

CONTINGENCY PROCEDURES FOR ATS UNITS WHEN A VOLCANIC ASH CLOUD IS REPORTED OR FORECAST

If a volcanic ash cloud is reported or forecast in the airspace for which the ATS unit is responsible, the following actions should be taken, as appropriate:

(a) relay pertinent information immediately to flight crews whose aircraft could be affected to ensure that they are aware of the ash cloud's current and forecast position and the flight levels affected;

(b) accommodate requests for re-routing or level changes to the extent practicable;

(c) suggest re-routing to avoid or exit areas of reported or forecast ash clouds when requested by the pilot or deemed necessary by the controller; and

(d) when practicable, request a special air-report when the route of flight takes the aircraft into or near the forecast ash cloud and provide such special air-reports to the appropriate agencies.

***(PANS ATM — Section 15.8.1)***

**GM4 ATS.OR.135 Contingency arrangements**

Guidance on contingency planning for air navigation services providers may be found in the 'EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)' Edition 2.0 of 06.04.2009, available at:

https://www.eurocontrol.int/sites/default/files/article/content/documents/nm/safety/safety-guidelines-contingency-planning-ans-2009.pdf

and in its complementary document named 'Reference Guide to EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)' Edition 2.0 of 06.04.2009, available at:

https://www.eurocontrol.int/sites/default/files/article/content/documents/nm/safety/reference-guide-contingency-planning-ans-2009.pdf

**AMC1 ATS.OR.145(a) Operation of ATC service**

PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA AND OTHER RELEVANT INFORMATION FOR THE ATC PROVISION

(a) The ATS provider should ensure that sufficient information and data are presented in such a manner as to enable the controller to have a complete representation of the current air traffic situation within the controller's area of responsibility and, when relevant, movements on the manoeuvring area of aerodromes.

(b) The presentation should be updated in accordance with the progress of aircraft, in order to facilitate the timely detection and resolution of conflicts as well as to facilitate and provide a record of coordination with adjacent ATS units and control sectors.

(c) An appropriate representation of the airspace configuration, including significant points and information related to such points, should be provided.

(d) Data to be presented should include relevant information from flight plans and position reports as well as clearance and coordination data.

(e) The information display may be generated and updated automatically, or the data may be entered and updated by authorised personnel.

(f) Data generated automatically should be presented to the controller in a timely manner. The presentation of information and data for individual flights should continue until such time as the data is no longer required for the purpose of providing control, including conflict detection and the coordination of flights, or until terminated by the controller.

(g) All information and data as in point (a), including data related to individual aircraft, should be presented in a manner minimising the potential for misinterpretation or misunderstanding.

***(PANS ATM — Sections 4.13.2.1, 4.13.2.2, 4.13.3.2 (second sentence) and 4.13.3.5)***

**GM1 ATS.OR.145(a) Operation of ATC service**

PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA AND OTHER RELEVANT INFORMATION FOR THE ATC PROVISION

Human Factors principles should be considered when establishing the provisions and procedures stipulated in ATS.TR.145(a).

***(PANS ATM — Sections 4.13.3.2 (first sentence) and 4.13.3.3)***

**GM2 ATS.OR.145(a) Operation of ATC service**

PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA AND OTHER RELEVANT INFORMATION FOR THE ATCPROVISION

Other information required or desirable for the provision of ATS may be but are not limited to:

(a) relevant meteorological information;

(b) NOTAMs;

(c) airspace-related information;

(d) status of radio navigation services and visual aids;

(e) aerodrome conditions and the operational status of associated facilities, where appropriate;

(f) unmanned free balloons; and

(g) others.

**GM3 ATS.OR.145(a) Operation of ATC service**
PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA AND OTHER RELEVANT INFORMATION FOR THE ATC PROVISION

(a) The required flight plan and control data may be presented through the use of paper flight progress strips or electronic flight progress strips, by other electronic presentation forms or by a combination of presentation methods.

(b) The ATS provider should specify the procedures for annotating data and provisions specifying the types of data to be entered on flight progress strips, including the use of symbols.

***(PANS ATM — Sections 4.13.3.1 and 4.13.3.4 (third sentence))***

**GM1 ATS.OR.150(a) Transfer of responsibility for control**
GUIDANCE ON LETTERS OF AGREEMENT BETWEEN ATS UNITS

Guidance on the drafting of operational Letters of Agreement between ATS units may be found in the EUROCONTROL 'Common Format Letter of Agreement Between Air Traffic Services Units' Edition 4.0 of 15.03.2012, available at:

https://www.eurocontrol.int/sites/default/files/field_tabs/content/documents/nm/airspace/airspace-atmprocedures-common-format-loa-4.0.pdf

**GM1 ATS.OR.150(b) Transfer of responsibility for control**
TRANSFER OF COMMUNICATION

(a) Except when separation minima based on ATS surveillance systems specified in AMC1 ATS.TR.210(c)(2) and AMC6 ATS.TR.220 are being applied, the transfer of air–ground communications of an aircraft from the transferring to the accepting ATC unit should be made 5 minutes before the time at which the aircraft is estimated to reach the common control area boundary unless otherwise agreed between the two ATC units concerned.

(b) When separation minima based on ATS surveillance systems specified in AMC1 ATS.TR.210(c)(2) and AMC6 ATS.TR.220 are being applied at the time of transfer of control, the transfer of air–ground communications of an aircraft from the transferring to the accepting ATC unit should be made immediately after the accepting ATC unit has agreed to assume control.

(c) The accepting ATC unit should notify the transferring unit in the event that communication with the aircraft is not established as expected.

(d) In cases where a portion of a control area is so situated that the time taken by aircraft to traverse it is of a limited duration, agreement should be reached to provide for direct transfer of communication between the units responsible for the adjacent control areas, provided that the intermediate unit is fully informed of such traffic. The intermediate unit should retain responsibility for coordination and for ensuring that separation is maintained between all traffic within its area of responsibility.

(e) An aircraft may be permitted to communicate temporarily with a control unit other than the unit controlling the aircraft.

***(PANS ATM — Sections 10.1.2.4.1, 10.1.2.4.2, 10.1.2.4.3 (second sentence), 10.1.2.4.4 and 10.1.2.4.5)***

**AMC1 ATS.OR.400(a) Aeronautical mobile service (air–ground communications) — General**

Direct pilot-controller communications should be established prior to the provision of ATS surveillance services unless special circumstances, such as emergencies, dictate otherwise.

***(PANS ATM — Section 8.3.2) (Section 8.3.2 has been transposed as AMC1 SERA.8035)***

**GM1 ATS.OR.405 Very high frequency (VHF) emergency channel**
LISTENING WATCH OF VHF EMERGENCY CHANNEL

Requirements for ATS units to maintain continuous guard on the emergency channel 121.500 MHz are specified in SERA.14080(b) of Commission Implementing Regulation (EU) No 923/2012.

***(Annex 11 — Note to Section 6.1.1.1)***

**GM1 ATS.OR.405(a)(3) Very high frequency (VHF) emergency channel**
USE OF VHF EMERGENCY CHANNEL IN CASE OF HANDLING OF DISTRESS TRAFFIC

The use of the frequency 121.500 MHz for the purpose outlined in point (a)(3) of ATS.OR.405 is to be avoided if it interferes in any way with the efficient handling of distress traffic.

***(Annex 10 — Volume V, Note 1 to Section 4.1.3.1.1)***

**GM1 ATS.OR.405(b) Very high frequency (VHF) emergency channel**
VHF EMERGENCY CHANNEL

Where two or more of the ATS units listed in point (b) of ATS.OR.405 are co-located, provision of 121.500 MHz at one would meet the requirement.

***(Annex 10 — Volume V, Note to Section 4.1.3.1.2)***

**GM1 ATS.OR.410(a) Aeronautical mobile service (air–ground communications) — For flight information service**

Whenever practicable, air–ground communication facilities for flight information service should permit direct, rapid, continuous and static-free two-way communications.

***(Annex 11 — Recommendation in Section 6.1.2.2)***

**AMC1 ATS.OR.415 Aeronautical mobile service (air–ground communications) — For area control service**

Whenever practicable, air–ground communication facilities for area control service should permit direct, rapid, continuous and static-free two-way communications.

***(Annex 11 — Recommendation in Section 6.1.3.2)***

**GM1 ATS.OR.415 Aeronautical mobile service (air–ground communications) — For area control service**

Where air–ground voice communication channels are used for area control service by air–ground communicators, suitable arrangements should be made to permit direct pilot–controller voice communications, as and when required.

***(Annex 11 — Recommendation in Sections 6.1.3.3)***

**GM1 ATS.OR.430(a) Aeronautical fixed service (ground–ground communications) — General**

Indication by time of the speed with which the communication should be established is provided as a guide to communication services, particularly to determine the types of communication channels required, e.g. that 'instantaneous' is intended to refer to communications which effectively provide for immediate access between controllers; '15 seconds' to accept switchboard operation and '5 minutes' to mean methods involving retransmission.

***(Annex 11 — Note 1 to Section 6.2.1.1)***

**GM1 ATS.OR.430(b) Aeronautical fixed service (ground–ground communications) — General**

FAILURE OF AUTOMATED COORDINATION

In case of failure of the automated coordination, the controller should facilitate the required coordination using prescribed alternative methods, as established by the ATS provider in operation manuals.

***(PANS ATM — Section 10.1.6 (second sentence))***

**GM1 ATS.OR.435(a);(b) Aeronautical fixed service (ground-ground communications) — Communication within a flight information region**

SUPPLEMENTARY FACILITIES TO THOSE PRESCRIBED FOR COMMUNICATION

The communication facilities in points (a) and (b) of ATS.OR.435 could be supplemented, as and where necessary, by facilities for other forms of visual or audio communications; for example, closed circuit television or separate information processing systems.

***(Annex 11 — Recommendation in Section 6.2.2.3.4)***

**GM1 ATS.OR.435(c)(4) Aeronautical fixed service (ground–ground communications) — Communication within a flight information region**

FACILITY FOR DIRECT SPEECH

The facility for direct speech does not necessarily refer to permanently dedicated point-to-point telephone lines.

**GM1 ATS.OR.440(d) Aeronautical fixed service (ground–ground communications) — Communication between flight information regions**

Special circumstances may be due to traffic density, types of aircraft operations and/or the manner in which the airspace is organised and may exist even if the control areas and/or control zones are not contiguous or have not (yet) been established.

***(Annex 11 — Note to Section 6.2.3.2)***

**AMC1 ATS.OR.450(a) Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes**

SYSTEM OF VISUAL SIGNALS FOR COMMUNICATION BETWEEN AERODROME CONTROL TOWER AND VEHICLES ON THE MANOEUVRING AREA

(a) When communications by a system of visual signals is deemed to be adequate, or in the case of radio communication failure, the signals given hereunder should have the meaning indicated therein:

| LIGHTS SIGNAL FROM AERODROME CONTROL | MEANING |
|---|---|
| Green flashes | Permission to cross landing area or to move onto taxiway |
| Steady red | Stop |
| Red flashes | Move off the landing area or taxiway and watch out for aircraft |
| White flashes | Vacate manoeuvring area in accordance with local instructions |

(b) In emergency conditions or if the signals in point (a) are not observed, the signal given hereunder should be used for runways or taxiways equipped with a lighting system and should have the meaning indicated therein.

| LIGHT SIGNAL | MEANING |
|---|---|
| Flashing runway or taxiway lights | Vacate the runway and observe the tower for light signal |

***(PANS ATM — Sections 7.6.3.2.3.2 and 7.6.3.2.3.3)***

**GM1 ATS.OR.450(a) Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes**

COMMUNICATIONS BETWEEN AERODROME CONTROL TOWER AND VEHICLES ON THE MANOEUVRING AREA

At controlled aerodromes, all vehicles operating on the manoeuvring area should be capable of maintaining two-way radio communication with the aerodrome control tower, except when the vehicle is only occasionally used on the manoeuvring area and is:

(a) accompanied by a vehicle with the required communications capability; or

(b) employed in accordance with a pre-arranged plan established with the aerodrome control tower.

***(PANS ATM — Section 7.6.3.2.3.1)***

**GM1 ATS.OR.505(a) Meteorological information for flight information centres and area control centres**

INFORMATION CONCERNING WEATHER DETERIORATION

Certain changes in meteorological conditions are construed as deterioration in a weather element, although they are not ordinarily considered as such. An increase in temperature may, for example, adversely affect the operation of certain types of aircraft.

***(Annex 11 — Note to Section 7.1.2.1)***

**GM1 ATS.OR.525 Information on the operational status of navigation services**

PROVISION OF INFORMATION WITH RESPECT TO RADIO AND VISUAL AND NON-VISUAL NAVIGATION AIDS

Guidance material regarding the provision of information to ATS units with respect to visual and non-visual navigation aids is contained in Appendix A to Chapter 10, Part I of the ICAO Air Traffic Services Planning Manual (Doc 9426).

***(Annex 11 — Note to Section 7.3.2)***

**AMC1 ATS.TR.105(b) Divisions of the ATS**

AIR TRAFFIC ADVISORY SERVICE IMPLEMENTATION

(a) The air traffic advisory service within airspace class F may be provided with the objective of making information on collision hazards more effective than it would be in the mere provision of flight information service.

(b) Class F airspace should only be implemented where the ATS are inadequate for the provision of ATC, and the limited advice on collision hazards otherwise provided by flight information service is not adequate. Where air traffic advisory service is implemented, this should be considered as a temporary measure only until such time as it can be replaced by ATC service or, in cases where the traffic situation changes such that advisory service is no longer required, replaced by flight information service.

***(PANS ATM — Sections 9.1.4.1.1 (first sentence) and 9.1.4.1.2) (Section 9.1.4.1.2 has been transposed as AMC1 SERA.6001(h))***

**AMC2 ATS.TR.105(b) Divisions of the ATS**

COORDINATION IN RESPECT OF THE PROVISION OF AIR TRAFFIC ADVISORY SERVICE

ATS units providing air traffic advisory service should apply the coordination procedures in ATS.TR.230 and ATS.OR.150 with respect to such aircraft having elected to use this type of service.

***(PANS ATM — Section 10.3)***

**GM1 ATS.TR.105(b) Divisions of the ATS**

AIR TRAFFIC ADVISORY SERVICE

(a) The air traffic advisory service may be provided to aircraft conducting IFR flights in advisory airspace or on advisory routes (class F airspace), specified by the State concerned.

(b) Air traffic advisory service does not afford the degree of safety and cannot assume the same responsibilities as ATC service in respect of the avoidance of collisions, since information regarding the disposition of traffic in the area concerned available to the unit providing air traffic advisory service may be incomplete.

(c) The efficiency of air traffic advisory service will depend largely on the procedures and practices in use. Its establishment in line with the organisation, procedures and equipment of area control service, taking into account the basic differences of the two services, will help to ensure a high degree of efficiency and promote uniformity in the various provisions of air traffic advisory service. For example, exchange of information by the units concerned on the progress of an aircraft from one advisory area into an adjacent control area or terminal control area, and vice versa, will help to relieve pilots from repeating details of their flight plans already filed; also, use of standard ATC phraseology, preceded by the verbs 'suggest' or 'advise', will facilitate the pilot's understanding of air traffic advisory service intelligence.

(d) ATS units providing air traffic advisory service:

(1) advise the aircraft to depart at the time specified and to cruise at the levels indicated in the flight plan if it does not foresee any conflict with other known traffic;

(2) suggest to aircraft a course of action by which a potential hazard may be avoided, giving priority to an aircraft already in advisory airspace over other aircraft desiring to enter such advisory airspace; and

(3) pass to aircraft traffic information comprising the same information as that prescribed for area control service.

(e) The criteria used as a basis for action under points (d)(2) and (d)(3) should be at least those laid down for aircraft operating in controlled airspace and should take into account the limitations inherent in the provision of air traffic advisory service, navigation facilities and air–ground communications prevailing in the region.

***(PANS ATM — Sections 9.1.4.1.1 (second sentence), 9.1.4.1.3 (first sentence) 9.1.4.3 (Note to Section), 9.1.4.3.1, and 9.1.4.3.2) (Sections 9.1.4.1.3 (first sentence) and 9.1.4.3.1 have been proposed for transposition with NPA 2015-14 as points (a) and (c) respectively of GM1 SERA.14090(b))***

**GM2 ATS.TR.105(b) Divisions of the ATS**

Flight information service includes flight information service provided for the en-route traffic in the FIR and AFIS provided to the aerodrome traffic at specified aerodromes.

**GM1 ATS.TR.110(b) Establishment of the units providing ATS**
AIR TRAFFIC SERVICES REPORTING OFFICE

The reference to an air traffic services reporting office denotes the functions to be performed by such an office. When addressing the provision of ATS, States are to ensure that the functions of ARO are fully implemented by:

(a) establishing physical offices; and/or

(b) assigning the duties to any ATS unit; and/or

(c) agreeing with one or more Contracting State(s) to provide a joint service; and/or

(d) delegating the provision of the service to an external agency or external agencies.

***(EANPG 57 Final Report)***

**GM1 ATS.TR.115 Identification of ATS units and airspaces**
IDENTIFICATION OF UNICOM AERONAUTICAL STATIONS AT AERODROMES

Where a Member State determines that no requirement exists for the provision of ATS and a UNICOM aeronautical station is established as guided in GM2 to Article 3(1b):

(a) aeronautical stations should normally be identified by the name of the aerodrome at which they are providing air–ground, or air–air communication, or by the name of a nearby town or city or geographic feature or area.

(b) the name of the aeronautical station should be complemented by the suffix 'UNICOM'.

**GM1 ATS.TR.135 Determination of the transition level**
DETERMINATION OF A COMMON TRANSITION LEVEL FOR TWO OR MORE AERODROMES

Where a common transition altitude has been established for two or more aerodromes which are so closely located as to require coordinated procedures, the appropriate ATS units should establish a common transition level to be used at any given time in the vicinity of the aerodrome and, when relevant, in the TMA concerned.

***(PANS ATM — Section 4.10.2.2 (second sentence))***

**GM1 ATS.TR.140(b) Minimum cruising level for IFR flights**

The lowest usable flight level is that flight level which corresponds to, or is immediately above, the established minimum flight altitude.

***(PANS ATM — Note 1 to Section 4.10.3.2)***

**GM1 ATS.TR.145(c) Provision of altimeter setting information**

The transition level may be included in the approach clearances or provided when requested by the pilot.

***(PANS ATM — Section 4.10.4.4)***

**GM2 ATS.TR.145(c) Provision of altimeter setting information**

The provision of transition level may be accomplished by voice communications, ATIS broadcast or data link.

***(PANS ATM — Section 4.10.4.3, second sentence, has been proposed as GM1 SERA.8015(eb)(2) PROVISIONS FOR CLEARANCES AND INSTRUCTIONS — ALTIMETRY' with NPA 2015-14)***

**GM1 ATS.TR.150 Suspension of visual flight rules operations on and in the vicinity of an aerodrome**

All such suspensions of VFR operations should be accomplished through or notified to the aerodrome control tower.

***(PANS ATM — Section 7.13.2)***

**AMC1 ATS.TR.155 Aeronautical ground lights**

PROCEDURES FOR THE OPERATION OF AERONAUTICAL GROUND LIGHTS

(a) Except as provided in point (b), all aeronautical ground lights should be operated:

(1) continuously during the hours of darkness or during the time the centre of the sun's disc is more than 6 degrees below the horizon, whichever requires the longer period of operation, unless otherwise provided hereafter or otherwise required for the control of air traffic;

(2) at any other time when their use, based on meteorological conditions, is considered desirable for the safety of air traffic.

(b) Lights on and in the vicinity of aerodromes that are not intended for en-route navigation purposes may be turned off, subject to further provisions hereafter, if no likelihood of either regular or emergency operation exists, provided that they can be again brought into operation at least one hour before the expected arrival of an aircraft.

(c) At aerodromes equipped with lights of variable intensity, a table of intensity settings, based on conditions of visibility and ambient light, should be provided for the guidance of ATS personnel in effecting adjustment of these lights to suit the prevailing conditions. When so requested by an aircraft, further adjustment of the intensity should be made whenever possible.

(d) In addition to point (a), approach lighting should also be operated:

(1) by day when requested by an approaching aircraft;

(2) when the associated runway lighting is operated.

(e) The lights of a visual approach slope indicator system should be operated during the hours of daylight as well as of darkness and irrespective of the visibility conditions when the associated runway is being used.

(f) Runway lighting should not be operated if that runway is not in use for landing, take-off or taxiing purposes unless required for runway inspections or maintenance.

(g) If runway lighting is not operated continuously, lighting following a take-off should be provided as specified below:

(1) at aerodromes where ATC service is provided and where lights are centrally controlled, the lights of one runway should remain lighted after take-off as long as is considered necessary for the return of the aircraft due to an emergency occurring during or immediately after take-off;

(2) at aerodromes without ATC service or without centrally controlled lights, the lights of one runway should remain lighted until such time as would normally be required to reactivate

the lights in the likelihood of the departing aircraft returning for an emergency landing, and in any case not less than 15 minutes after take-off.

(h) Stopway lights should be operated whenever the associated runway lights are operated.

(i) Where required to provide taxi guidance, taxiway lighting should be turned on in such order that a continuous indication of the taxi path is presented to taxiing aircraft. Taxiway lighting or any portion thereof may be turned off when no longer needed.

(j) Stop bars should be switched on to indicate that all traffic shall stop, and switched off to indicate that traffic may proceed.

(k) Obstacle lighting associated with the approach to or departure from a runway or channel, where the obstacle does not project through the inner horizontal surface, as described in the applicable aerodrome design specifications may be turned off and on simultaneously with the runway or channel lights.

(l) Unserviceability lights should not be turned off as permitted under point (k) while the aerodrome is open.

(m) ATS personnel should make use of automatic monitoring facilities, when provided, to ascertain whether the lighting is in good order and functioning according to selection.

(n) In the absence of an automatic monitoring system or to supplement such a system, ATS personnel should visually observe such lighting as can be seen from the aerodrome control tower and use information from other sources such as visual inspections or reports from aircraft to maintain awareness of the operational status of the visual aids.

(o) On receipt of information indicating a lighting fault, ATS personnel should take such action as is warranted to safeguard any affected aircraft or vehicles, and initiate action to have the fault rectified.

***(PANS ATM — Sections 7.15.2.1, 7.15.2.2, 7.15.2.3, 7.15.3.1, 7.15.3.2, 7.15.4.1, 7.15.4.2, 7.15.5, 7.15.6, 7.15.7, 7.15.8.1, 7.15.8.2, 7.15.9.1, 7.15.9.2 and 7.15.9.3)***

**GM1 to AMC1 ATS.TR.155 Aeronautical ground lights**

OPERATION OF AERONAUTICAL GROUND LIGHTS

(a) Approach lighting includes such lights as simple approach lighting systems, precision approach lighting systems, visual approach slope indicator systems, circling guidance lights, approach light beacons and runway alignment indicators.

(b) Runway lighting includes such lights as edge, threshold, centre line, end, touchdown zone and wing bar lights.

(c) Where obstacle lighting is operated simultaneously with runway lighting as provided in point (k) of AMC1 ATS.TR.155, particular care should be taken to ensure that it is not turned off until no longer required by the aircraft.

(d) Taxiway lighting includes such lights as edge lights, centre line lights, stop bars and clearance bars.

(e) Stop bars are located across taxiways at the point where it is desired that traffic stop, and consist of lights, showing red, spaced across the taxiway.

(f) Obstacle lighting includes such lights as obstacle and unserviceability lights and hazard beacons.

***(PANS ATM — Sections 7.15.3, 7.15.4, 7.15.4.2 (Note to Section), 7.15.6 (Note to Section), 7.15.7 (Note to Section), and 7.15.8 (Note to Section))***

**GM1 ATS.TR.160 ATS surveillance services**
USE OF INFORMATION DERIVED FROM ATS SURVEILLANCE SYSTEMS FOR ATC SERVICE PURPOSES

Information derived from ATS surveillance systems, including safety-related alerts and warnings such as conflict alert and minimum safe altitude warning, should be used to the extent possible in the provision of ATC service in order to improve capacity and efficiency as well as to enhance safety.

***(PANS ATM — Section 8.4.1)***

**AMC1 ATS.TR.160(a) ATS surveillance services**
FUNCTIONS OF THE ATS SURVEILLANCE SYSTEMS IN ATS

**(a) Functions in the area control service and approach control services**

The information provided by ATS surveillance systems and presented on a situation display may be used to perform one or more of the following functions in the provision of area control service or approach control service:

(1) provide ATS surveillance services as necessary in order to improve airspace utilisation, reduce delays, provide for direct routings and more optimum flight profiles, as well as to enhance safety;

(2) provide vectoring to departing aircraft for the purpose of facilitating an expeditious and efficient departure flow and expediting climb to cruising level;

(3) provide vectoring to aircraft for the purpose of resolving potential conflicts;

(4) provide vectoring to arriving aircraft for the purpose of establishing an expeditious and efficient approach sequence;

(5) provide vectoring to assist pilots in their navigation, e.g. to or from a radio navigation aid, away from or around areas of adverse weather;

(6) provide separation and maintain normal traffic flow when an aircraft experiences communication failure within the area of coverage;

(7) maintain flight path monitoring of air traffic;

(8) when applicable, maintain a watch on the progress of air traffic, in order to provide a procedural controller with:

(i) improved position information regarding aircraft under control;

(ii) supplementary information regarding other traffic; and

(iii) information regarding any significant deviations by aircraft from the terms of their respective ATC clearances, including their cleared routes as well as levels, when appropriate.

**(b) Additional functions in the approach control service**

In addition to the functions listed in point (a), the position indications presented on a situation display may be used to perform one or more of the following functions in the provision of approach control service:

(1) provide vectoring of arriving traffic on to pilot-interpreted final approach aids;

(2) provide flight path monitoring of parallel ILS approaches and instruct aircraft to take appropriate action in the event of possible or actual penetrations of the no transgression zone (NTZ);

(3) provide vectoring of arriving traffic to a point from which a visual approach can be completed;

(4) provide vectoring of arriving traffic to a point from which a surveillance radar approach can be made;

(5) provide flight path monitoring of other pilot-interpreted approaches;

(6) in accordance with prescribed procedures, conduct surveillance radar approaches; and

(7) provide separation between:

(i) succeeding departing aircraft;

(ii) succeeding arriving aircraft; and

(iii) a departing aircraft and a succeeding arriving aircraft.

**(c) Functions in the aerodrome control service**

(1) When authorised by and subject to procedures and conditions prescribed by the competent authority, ATS surveillance systems may be used in the provision of aerodrome control service to perform the following functions:

(i) flight path monitoring of aircraft on final approach;

(ii) flight path monitoring of other aircraft in the vicinity of the aerodrome;

(iii) establishing an appropriate longitudinal and/or distance-based separation based on ATS surveillance systems in between succeeding departing aircraft;

(iv) maintaining separation between succeeding aircraft on the same final approach; and

(v) providing navigation assistance to VFR flights

(2) In prescribing conditions and procedures for the use of ATS surveillance systems in the provision of aerodrome control service, the ATS provider should ensure that the availability and use of an ATS surveillance system will not be detrimental to visual observation of aerodrome traffic.

**(d) Functions in the flight information service**

The information presented on a situation display may be used to provide identified aircraft with:

(1) information regarding any aircraft observed to be on a conflicting path with the identified aircraft and suggestions or advice regarding avoiding action;

(2) information on the position of significant weather and, as practicable, advice to the aircraft on how best to circumnavigate any such areas of adverse weather. When doing so, attention is to be paid to the fact that under certain circumstances the most active area of adverse weather may not be displayed;

(3) information to assist the aircraft in its navigation.

***(PANS ATM — Sections 8.7.1, 8.9.2, 8.10.1.1, 8.10.1.4, 8.11.1, and 8.6.9.2 (Note to Section), EANPG 56 Final Report – Section 4.4.6 and Appendix H) (PANS ATM Section 8.1.11 (introductory sentence and first bullet point) has been transposed as GM3 SERA.7002(a)(1))***

**GM1 ATS.TR.160(a) ATS surveillance services**
PROVISION OF ATS SURVEILLANCE SERVICES IN PRESENCE OF CONTROLLED BUT UNIDENTIFIED AIRCRAFT

In the event that the controller has been notified of a controlled flight entering or about to enter the airspace within which a separation minimum based on ATS surveillance systems is applied, but has not identified the aircraft, the controller may, if so prescribed by the ATS provider, continue to provide an ATS surveillance service to identified aircraft, provided that:

(a) reasonable assurance exists that the unidentified controlled flight will be identified using SSR and/or ADS-B and/or MLAT or the flight is being operated by an aircraft of a type which may be expected to give an adequate return on primary radar in the airspace within which the separation is applied; and

(b) the separation is maintained between identified flights and any other observed ATS surveillance system position indications until either the unidentified controlled flight has been identified or procedural separation has been established.

***(PANS ATM — Section 8.7.2.8)***

**AMC1 ATS.TR.160(b)(1) ATS surveillance services**
MEASUREMENT OF DISTANCES BETWEEN POSITION INDICATIONS

The ATS provider should define in local instructions the criteria to measure distances between position indications.

**GM1 ATS.TR.160(b)(1) ATS surveillance services**
ATS SURVEILLANCE SYSTEM — PERFORMANCE CHECKS

(a) The ATS personnel utilising ATS surveillance systems should adjust the situation display(s) and carry out adequate checks on the accuracy thereof, in accordance with the technical instructions prescribed by the ATS provider.

(b) The ATS personnel utilising ATS surveillance systems should be satisfied that the available functional capabilities of the ATS surveillance system as well as the information presented on the situation display(s) is adequate for the functions to be performed.

***(PANS ATM — Sections 8.6.1.1 and 8.6.1.2)***

**AMC1 ATS.TR.160(b)(2) ATS surveillance services**
FACTORS DETERMINING THE NUMBER OF AIRCRAFT SIMULTANEOUSLY PROVIDED WITH ATS SURVEILLANCE SERVICES

When determining the number of aircraft simultaneously provided with ATS surveillance services, the ATS provider should take into account, as a minimum:

(a) the structural complexity of the control area or sector concerned;

(b) the functions to be performed within the control area or sector concerned;

(c) assessments of controller workloads, taking into account different aircraft capabilities, and sector capacity; and

(d) the degree of technical reliability and availability of the primary and backup communications, navigation and surveillance systems, both in the aircraft and on the ground.

***(PANS ATM — Section 8.4.2)***

**AMC1 ATS.TR.160(c) ATS surveillance services**
INTERRUPTION OR TERMINATION OF ATS SURVEILLANCE SERVICE

The controller should immediately inform an aircraft which has previously been informed that it is provided with ATS surveillance service when, for any reason, the service is interrupted or terminated.

***(PANS ATM — Section 8.6.7.1)***

**AMC1 ATS.TR.160(d)(1) ATS surveillance services**
METHODS OF IDENTIFICATION

Identification of aircraft should be established by at least one of the following methods**:**

**(a) ADS-B identification procedures**

Where ADS-B is used for identification, aircraft may be identified by one or more of the following procedures:

(1) direct recognition of the aircraft identification in an ADS-B label;

(2) transfer of ADS-B identification; and

(3) observation of compliance with an instruction to TRANSMIT ADS-B IDENT.

**(b) SSR and/or MLAT identification procedures**

(1) Where SSR and/or MLAT is used for identification, aircraft may be identified by one or more of the following procedures:

(i) recognition of the aircraft identification in an SSR and/or MLAT label, in accordance with Article 4 of Commission Implementing Regulation (EU) No 1206/2011[2];

(ii) recognition of an assigned discrete code, the setting of which has been verified, in an SSR and/or MLAT label, in accordance with Article 4 of Commission Implementing Regulation (EU) No 1206/2011;

(iii) direct recognition of the aircraft identification of a Mode S-equipped aircraft in an SSR and/or MLAT label, in accordance with Article 4 of Commission Implementing Regulation (EU) No 1206/2011;

(iv) by transfer of identification;

(v) observation of compliance with an instruction to set a specific code;

(vi) observation of compliance with an instruction to squawk IDENT.

(2) When a discrete code has been assigned to an aircraft, a check should be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the flight. Only after this check has been made, the discrete code should be used as a basis for identification.

**(c) PSR identification procedures**

(1) Where PSR is used for identification, aircraft may be identified by one or more of the following procedures:

(i) by correlating a particular radar position indication with an aircraft reporting its position over, or as bearing and distance from, a point shown on the situation display, and by ascertaining that the track of the particular radar position is consistent with the aircraft path or reported heading;

(ii) by correlating an observed radar position indication with an aircraft which is known to have just departed, provided that the identification is established within 2 km (1 NM) from the end of the runway used. Particular care should be taken to avoid confusion with aircraft holding over or overflying the aerodrome, or with aircraft departing from or making a missed approach over adjacent runways;

(iii) by transfer of identification;

(iv) when ATC service is provided, by ascertaining the aircraft heading, if circumstances require, and following a period of track observation:

(A) instructing the pilot to execute one or more changes of heading of 30 degrees or more and correlating the movements of one particular radar position indication with the aircraft's acknowledged execution of the instructions given; or

[2] Commission Implementing Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky (OJ L 305, 23.11.2011, p. 23) (http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1467625880593&uri=CELEX:32011R1206)

(B) correlating the movements of a particular radar position indication with manoeuvres currently executed by an aircraft having so reported.

(2) When using these methods, the controller/FIS officer/AFIS officer, as appropriate, should:

(i) verify that the movements of not more than one radar position indication correspond with those of the aircraft; and

(ii) ensure that the manoeuvre(s) will not carry the aircraft outside the coverage of the radar or the situation display.

**(d) Additional identification method**

When two or more position indications are observed in close proximity, or are observed to be making similar movements at the same time, or when doubt exists as to the identity of a position indication for any other reason, changes of heading should be prescribed or repeated as many times as necessary, or additional methods of identification should be employed, until all risk of error in identification is eliminated.

***(PANS ATM — Sections 8.6.2.1.3, 8.6.2.2, 8.6.2.3.1, 8.6.2.3.2, 8.6.2.4.1 and 8.6.2.5)***

**GM1 ATS.TR.160(d)(1) ATS surveillance services**
METHODS OF IDENTIFICATION — SSR AND/OR MLAT IDENTIFICATION PROCEDURES

When applying this method of identification, the controller/FIS officer/AFIS officer should consider that some aircraft equipped with first generation ADS-B avionics do not have the capability of squawking IDENT while the emergency and/or urgency mode is selected.

***(PANS ATM — Note 1 to Section 8.6.2.2)***

**GM2 ATS.TR.160(d)(1) ATS surveillance services**
METHODS OF IDENTIFICATION — PSR IDENTIFICATION PROCEDURE

(a) Caution is to be exercised when employing this method since a position reported in relation to a point may not coincide precisely with the radar position indication of the aircraft on the situation display. The ATS provider may, therefore, prescribe additional conditions for the application of this method, e.g.:

(1) a level or levels above which this method may not be applied in respect of specified navigation aids; or

(2) a distance from the radar site beyond which this method may not be applied.

(b) The term ‘a point’ refers to a geographical point suitable for the purposes of identification. It is normally a reporting point defined by reference to a radio navigation aid or aids.

***(PANS ATM — Notes 1 and 2 to Section 8.6.2.4.1)***

**AMC2 ATS.TR.160(d)(1) ATS surveillance services**
METHODS OF IDENTIFICATION — USE OF ATS SURVEILLANCE SYSTEMS IN SURFACE MOVEMENT CONTROL

Where an ATS surveillance system is used in surface movement control, the controller/AFIS officer may identify aircraft by one or more of the following procedures:

(a) by correlating a particular position indication with:

(1) an aircraft position visually observed by the controller/AFIS officer;

(2) an aircraft position reported by the pilot; or

(3) an identified position indication displayed on a situation display;

(b) by transfer of identification when authorised by the competent authority; and

(c) by automated identification procedures when authorised by the competent authority.

***(PANS ATM — Section 8.10.2.3)***

**AMC3 ATS.TR.160(d)(1) ATS surveillance services**
METHOD OF IDENTIFICATION — TRANSFER OF IDENTIFICATION

(a) Transfer of identification from one controller/FIS officer/AFIS officer to another should only be attempted when it is considered that the aircraft is within the accepting controller's/FIS officer's/AFIS officer's surveillance coverage.

(b) Transfer of identification should be effected by one of the following methods:

(1) designation of the position indication by automated means, provided that only one position indication is thereby indicated and there is no possible doubt of correct identification;

(2) notification of the aircraft's discrete SSR code;

(3) notification of the automated or system-to-system aircraft address;

(4) notification that the aircraft is SSR Mode S-equipped with an aircraft identification feature when SSR Mode S coverage is available;

(5) notification that the aircraft is ADS-B-equipped with an aircraft identification feature when compatible ADS-B coverage is available;

(6) direct designation (pointing with the finger) of the position indication if the two situation displays are adjacent, or if a common 'conference' type of situation display is used;

(7) designation of the position indication by reference to, or in terms of bearing and distance from, a geographical position or navigational facility accurately indicated on both situation displays, together with the track of the observed position indication if the route of the aircraft is not known to both controllers/FIS officers/AFIS officers;

(8) where applicable, issuance of an instruction to the aircraft by the transferring controller/FIS officer/AFIS/AFIS officer to change SSR code and the observation of the change by the accepting controller/FIS officer/AFIS officer; or

(9) issuance of an instruction to the aircraft by the transferring controller/FIS officer/AFIS officer to squawk/transmit IDENT and observation of this response by the accepting controller/FIS officer/AFIS officer.

***(PANS ATM — Sections 8.6.3.1 and 8.6.3.2)***

**GM1 ATS.TR.160(d)(1) ATS surveillance services**
METHODS OF IDENTIFICATION — TRANSFER OF IDENTIFICATION

(a) When applying the identification method described in point (b)(5) of AMC3 ATS.TR.160(d)(1), attention is to be paid to any errors which might occur due to parallax effects.

(b) When applying the identification method described in point (b)(6) of AMC3 ATS.TR.160(d)(1), caution is to be exercised before transferring identification using this method, particularly if other position indications are observed on similar headings and in close proximity to the aircraft under control. Inherent radar deficiencies, such as inaccuracies in bearing and distance of the radar position indications displayed on individual situation displays and parallax errors, may cause the indicated position of an aircraft in relation to the known point to differ between the two situation displays. The ATS provider may therefore prescribe additional conditions for the application of this method, e.g.:

(1) a maximum distance from the common reference point used by the two controllers; and

(2) a maximum distance between the position indication as observed by the accepting controller and the one stated by the transferring controller.

(c) The use of procedures in points (b)(7) and (b)(8) of AMC3 ATS.TR.160(d)(1) requires prior coordination between the controllers/FIS officers/AFIS officers, since the indications to be observed by the accepting controller/FIS officer/AFIS officer are of short duration.

***(PANS ATM — Section 8.6.3.2 (Note to paragraph (e), Note to paragraph (f), Note to paragraphs (g) and (h)))***

**AMC1 ATS.TR.160(d)(2) ATS surveillance services**
POSITION INFORMATION

(a) Aircraft provided with ATS surveillance service should be informed of its position in the following circumstances:

(1) upon identification, except when the identification is established:

(i) based on the pilot's report of the aircraft position or within one nautical mile of the runway upon departure and the observed position on the situation display is consistent with the aircraft's time of departure; or

(ii) by use of ADS-B aircraft identification, Mode S aircraft identification or assigned discrete SSR codes and the location of the observed position indication is consistent with the current flight plan of the aircraft; or

(iii) by transfer of identification;

(2) when the pilot requests this information;

(3) when a pilot's estimate differs significantly from the controller's estimate based on the observed position;

(4) when the pilot is instructed to resume own navigation after vectoring if the current instructions had diverted the aircraft from a previously assigned route;

(5) immediately before termination of ATS surveillance service if the aircraft is observed to deviate from its intended route.

(b) Position information should be passed on to aircraft in one of the following forms:

(1) as a well-known geographical position;

(2) magnetic track and distance to a significant point, an en-route navigation aid, or an approach aid;

(3) direction (using points of the compass) and distance from a known position;

(4) distance to touchdown if the aircraft is on final approach; or

(5) distance and direction from the centre line of an ATS route.

(c) Whenever practicable, position information should relate to positions or routes pertinent to the navigation of the aircraft concerned and shown on the situation display map.

***(PANS ATM — Sections 8.6.4.1, 8.6.4.2 and 8.6.4.3)***

**AMC1 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING — GENERAL

(a) When vectoring an aircraft, an air traffic controller should comply with the following:

(1) when an aircraft is given its initial vector diverting it from a previously assigned route, the pilot should be informed what the vector is to accomplish, and, when practicable, the limit of the vector should be specified (e.g. to ... position, for ... approach);

(2) except when transfer of control is to be effected, aircraft should not be vectored closer than 4.6 km (2.5 NM) or, where the minimum permissible separation is greater than 9.3 km (5 NM), a distance equivalent to one-half of the prescribed separation minimum, from the limit of the airspace for which the controller is responsible, unless local arrangements have been made to ensure that separation will exist with aircraft operating in adjoining areas;

(3) controlled flights should not be vectored into uncontrolled airspace except in the case of emergency or in order to circumnavigate adverse meteorological conditions (in which case the pilot should be so informed), or at the specific request of the pilot; and

(4) when an aircraft has reported unreliable directional instruments, the pilot should be requested, prior to the issuance of manoeuvring instructions, to make all turns at an agreed rate and to carry out the instructions immediately upon receipt.

(b) Special VFR flights should not be vectored unless special circumstances, such as emergencies, dictate otherwise.

(c) In terminating vectoring of an aircraft, the controller should instruct the pilot to resume own navigation, giving the pilot the aircraft's position and appropriate instructions, as necessary, in the form prescribed in point (b)(2) of AMC1 ATS.TR.160(d)(2), if the current instructions had diverted the aircraft from a previously assigned route.

***(PANS ATM — Sections 8.6.5.1 (bullet point list as from bullet (b)), 8.6.5.5 and 8.10.1.2)***

**GM1 to AMC1 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING — GENERAL

(a) Vectoring is achieved by issuing to the pilot specific headings which will enable the aircraft to maintain the desired track.

(b) Whenever practicable, controllers should vector aircraft along tracks on which the pilot can monitor the aircraft position with reference to pilot-interpreted navigation aids; this will minimise the amount of navigational assistance required and alleviate the consequences resulting from an ATS surveillance system failure.

(c) Controllers should exercise caution when vectoring VFR flights so as to ensure that the aircraft concerned does not inadvertently enter instrument meteorological conditions.

***(PANS ATM — Section 8.6.5.1 (First sentence and bullet point (a) of the list) and 8.10.1.3)***

**AMC2 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING FOR APPROACH CONTROL — GENERAL

(a) Prior to, or upon commencement of, vectoring for approach, the controller should advise the pilot of the type of approach as well as the runway to be used.

(b) The controller should advise the pilot of an aircraft being vectored for an instrument approach of its position at least once prior to commencement of final approach.

(c) When giving distance information, the controller should specify the point or navigation aid to which the information refers.

(d) Aircraft vectored for final approach should be given a heading or a series of headings calculated to close with the final approach track. The final vector should enable the aircraft to be established on the final approach track prior to intercepting the specified or nominal glide path of the approach procedure from below, and should provide an intercept angle with the final approach track of 45 degrees or less.

(e) Whenever an aircraft is assigned a vector which will take it through the final approach track, it should be advised accordingly, stating the reason for the vector.

(f) When an aircraft is vectored to a pilot-interpreted final approach aid, the transfer of communications to the aerodrome controller should be effected at such a point or time that clearance to land or alternative instructions can be issued to the aircraft in a timely manner.

***(PANS ATM — Sections 8.9.3.2, 8.9.3.3, 8.9.3.4, 8.9.3.6, 8.9.3.7 and 8.9.4.5)***

**GM1 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING — DEFINITION OF INITIAL AND INTERMEDIATE APPROACH PHASES

The initial and intermediate approach phases of an approach executed under the direction of a controller comprise those parts of the approach from the time vectoring is initiated for the purpose of positioning the aircraft for a final approach until the aircraft is on final approach and:

(a) established on the final approach path of a pilot-interpreted aid; or

(b) reports that it is able to complete a visual approach; or

(c) ready to commence a surveillance radar approach.

***(PANS ATM —Section 8.9.3.5)***

**GM1 to AMC2 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING TO PILOT-INTERPRETED FINAL APPROACH AIDS

(a) An aircraft vectored to intercept a pilot-interpreted final approach aid should be instructed to report when established on the final approach track. Clearance for the approach should be issued prior to the time the aircraft reports are established unless circumstances preclude the issuance of the clearance at such time. Vectoring will normally terminate at the time the aircraft leaves the last assigned heading to intercept the final approach track.

(b) When clearance for the approach is issued, aircraft is expected to maintain last assigned level until intercepting the specified or nominal glide path of the approach procedure. If the controller requires an aircraft to intercept the glide path at a level other than a level flight segment depicted on the instrument approach chart, the controller should instruct the pilot to maintain the particular level until established on the glide path.

(c) The approach controller is normally responsible for maintaining separation based on ATS surveillance systems between succeeding aircraft on the same final approach, except that the responsibility may be transferred to the aerodrome controller in accordance with procedures prescribed by the ATS provider, and provided an ATS surveillance system is available to the aerodrome controller.

***(PANS ATM — Sections 8.9.4.1, 8.9.4.2 and 8.9.4.3)***

**GM2 to AMC2 ATS.TR.160(d)(3) ATS surveillance services**
VECTORING FOR VISUAL APPROACH

(a) The controller may initiate vectoring of an aircraft for visual approach provided the reported ceiling is above the minimum altitude applicable to vectoring and meteorological conditions are such that, with reasonable assurance, a visual approach and landing can be completed.

(b) Clearance for visual approach should be issued only after the pilot has reported that contact with the terrain is achieved and can be maintained, at which time vectoring would normally be terminated.

***(PANS ATM — Section 8.9.5.1 and 8.9.5.2)***

**GM3 to AMC2 ATS.TR.160(d)(3) ATS surveillance services**
PROCEDURES FOR RADAR APPROACHES

(a) During the period that a controller is engaged in giving surveillance radar approaches, he or she should not be responsible for any duties other than those directly connected with such approaches.

(b) Controllers conducting radar approaches should be in possession of information regarding the obstacle clearance altitudes/heights established for the types of approach to be conducted.

(c) Prior to commencement of a radar approach, the controller should inform the aircraft of:

(1) the runway to be used;

(2) the applicable obstacle clearance altitude/height;

(3) the angle of the nominal glide path and the approximate rate of descent to be maintained;

(4) the procedure to be followed in the event of radio communication failure unless the procedure has been published in AIPs.

(d) When a radar approach cannot be continued due to any circumstance, the aircraft should be immediately informed that a radar approach or continuation thereof is not possible. The approach should be continued if this is possible using non-radar facilities or if the pilot reports that the approach can be completed visually; otherwise an alternative clearance should be given.

(e) Aircraft making a radar approach should be reminded, when on final approach, to check that the wheels are down and locked.

(f) Unless otherwise prescribed by the ATS provider, the controller conducting the approach should notify the aerodrome controller or, when applicable, the procedural controller when an aircraft making a radar approach is approximately 15 km (8 NM) from touchdown. If landing clearance is not received at this time, a subsequent notification should be made at approximately 8 km (4 NM) from touchdown and landing clearance requested.

(g) Clearance to land or any alternative clearance received from the aerodrome controller or, when applicable, the procedural controller should normally be passed on to the aircraft before it reaches a distance of 4 km (2 NM) from touchdown.

(h) An aircraft making a radar approach should:

(1) be directed to execute a missed approach in the following circumstances:

(i) when the aircraft appears to be dangerously positioned on final approach; or

(ii) for reasons involving traffic conflictions; or

(iii) if no clearance to land has been received from the procedural controller by the time the aircraft reaches a distance of 4 km (2 NM) from touchdown or such other distance as has been agreed with the aerodrome control tower; or

(iv) on instructions by the aerodrome controller; or

(2) be advised to consider executing a missed approach in the following circumstances:

(i) when the aircraft reaches a position from which it appears that a successful approach cannot be completed; or

(ii) if the aircraft is not visible on the situation display for any significant interval during the last 4 km (2 NM) of the approach; or

(iii) if the position or identification of the aircraft is in doubt during any portion of the final approach.

In all such cases, the reason for the instruction or the advice should be given to the pilot.

(i) Unless otherwise required by exceptional circumstances, radar instructions concerning a missed approach should be in accordance with the prescribed missed approach procedure and should include the level to which the aircraft is to climb and heading instructions to keep the aircraft within the missed approach area during the missed approach procedure.

***(PANS ATM — Sections 8.9.6.1.1, 8.9.6.1.2, 8.9.6.1.3, 8.9.6.1.4, 8.9.6.1.5, 8.9.6.1.6, 8.9.6.1.7, 8.9.6.1.8 and 8.9.6.1.9)***

**GM4 to AMC2 ATS.TR.160(d)(3) ATS surveillance services**
FINAL APPROACH PROCEDURES — SURVEILLANCE RADAR APPROACH

(a) A surveillance radar approach should only be performed with equipment suitably sited and a situation display specifically marked to provide information on position relative to the extended centre line of the runway to be used and distance from touchdown, and which is specifically approved for the purpose by the competent authority.

(b) When conducting a surveillance radar approach, the controller should comply with the following:

(1) at or before the commencement of the final approach, the aircraft should be informed of the point at which the surveillance radar approach will be terminated;

(2) the aircraft should be informed when it is approaching the point at which it is computed that descent should begin, and just before reaching that point it should be informed of the obstacle clearance altitude/height and instructed to descend and check the applicable minima;

(3) azimuth instructions should be given as follows:

(i) the pilot should be informed at regular intervals of the aircraft's position in relation to the extended centre line of the runway. Heading corrections should be given as necessary to bring the aircraft back on to the extended centre line;

(ii) in the case of azimuth deviations, the pilot should not take corrective action unless specifically instructed to do so;

(4) except as provided in point (c), distance from touchdown should normally be passed at every 2 km (each NM);

(5) pre-computed levels through which the aircraft should be passing to maintain the glide path should also be transmitted at every 2 km (each NM) at the same time as the distance;

(6) the surveillance radar approach should be terminated:

(i) at a distance of 4 km (2 NM) from touchdown, except as provided in point (c); or

(ii) before the aircraft enters an area of continuous radar clutter; or

(iii) when the pilot reports that a visual approach can be effected;

whichever is the earliest.

(c) When, as determined by the competent authority, the accuracy of the radar equipment permits, surveillance radar approaches may be continued to the threshold of the runway, or to a prescribed point less than 4 km (2 NM) from touchdown, in which case:

(1) distance and level information should be given at each km (each half NM);

(2) transmission should not be interrupted for intervals of more than 5 seconds while the aircraft is within a distance of 8 km (4 NM) from touchdown;

(3) the controller should not be responsible for any duties other than those directly connected with a particular approach.

(d) Levels through which the aircraft should pass to maintain the required glide path, and the associated distances from touchdown, should be pre-computed and displayed in such a manner as to be readily available to the controller concerned.

***(PANS ATM — Sections 8.9.7.1.2, 8.9.7.1.3, 8.9.7.1.4 and 8.9.7.1.5)***

**AMC1 ATS.TR.160(d)(4) ATS surveillance services**
NAVIGATION ASSISTANCE

An identified aircraft observed to deviate significantly from its intended route or designated holding pattern should be advised accordingly. Appropriate action should also be taken if, in the opinion of the controller or, when applicable, the FIS officer/AFIS officer, such deviation is likely to affect the service being provided.

***(PANS ATM — Section 8.6.6.1)***

**GM1 ATS.TR.160(d)(5) ATS surveillance services**
INFORMATION REGARDING ADVERSE WEATHER

(a) Information that an aircraft appears likely to penetrate an area of adverse weather should be issued in sufficient time to permit the pilot to decide on an appropriate course of action, including that of requesting advice on how best to circumnavigate the adverse weather area, if so desired.

(b) Depending on the capabilities of the ATS surveillance system, areas of adverse weather may not be presented on the situation display. An aircraft's weather radar will normally provide better detection and definition of adverse weather than radar sensors in use by ATS.

(c) In vectoring an aircraft for circumnavigating any area of adverse weather, the controller should ascertain that the aircraft can be returned to its intended or assigned flight path within the coverage of the ATS surveillance system and, if this does not appear possible, inform the pilot of the circumstances.

***(PANS ATM — Sections 8.6.9.1, 8.6.9.1 (Note to Section) and 8.6.9.2)***

**AMC1 ATS.TR.160(d)(6) ATS surveillance services**
ATS SURVEILLANCE SERVICES — PROCEDURES FOR TRANSFER OF CONTROL

(a) Where an ATS surveillance service is being provided, transfer of control should be effected, whenever practicable, so as to enable the uninterrupted provision of the ATS surveillance service.

(b) Where SSR and/or ADS-B and/or MLAT is used and the display of position indications with associated labels is provided for, transfer of control of aircraft between adjacent control positions or between adjacent ATC units may be effected without prior coordination, provided that:

(1) updated flight plan information on the aircraft about to be transferred, including the discrete assigned SSR code or, with respect to Mode S and ADS-B, the aircraft identification, is provided to the accepting controller prior to transfer;

(2) the ATS surveillance system coverage provided to the accepting controller is such that the aircraft concerned is presented on the situation display before the transfer is effected and is identified on, but preferably before, receipt of the initial call;

(3) when the controllers are not physically adjacent, two-way direct speech facilities, which permit communications to be established instantaneously, are available between them at all times;

(4) the transfer point or points and all other conditions of application, such as direction of flight, specified levels, transfer of communication points, and especially an agreed minimum separation between aircraft, including that applicable to succeeding aircraft on the same route, about to be transferred as observed on the situation display, have been made the subject of specific instructions (for intra-unit transfer) or of a specific letter of agreement between two adjacent ATC units;

(5) the instructions or letter of agreement specify explicitly that the application of this type of transfer of control may be terminated at any time by the accepting controller, normally with an agreed advance notice;

(6) the accepting controller is informed of any level, speed or vectoring instructions given to the aircraft prior to its transfer and which modify its anticipated flight progress at the point of transfer.

(c) The minimum agreed separation between aircraft about to be transferred (see point (b)(4)) and the advance notice (see point (b)(5)) should be determined taking into account all relevant technical, operational and other circumstances. If circumstances arise in which these agreed conditions can no longer be satisfied, controllers should revert to the procedure in point (d) until the situation is resolved.

(d) Where primary radar is being used, and where another type of ATS surveillance system is employed but the provisions in point (b) are not applied, the transfer of control of aircraft between adjacent control positions or between two adjacent ATS units may be effected, provided that:

(1) identification has been transferred to or has been established directly by the accepting controller;

(2) when the controllers are not physically adjacent, two-way direct-speech facilities between them are at all times available which permit communications to be established instantaneously;

(3) separation from other controlled flights conforms to the minima authorised for use during transfer of control between the sectors or units concerned;

(4) the accepting controller is informed of any level, speed or vectoring instructions applicable to the aircraft at the point of transfer;

(5) radio communication with the aircraft is retained by the transferring controller until the accepting controller has agreed to assume responsibility for providing the ATS surveillance service to the aircraft. Thereafter, the aircraft should be instructed to change over to the appropriate channel and from that point the responsibility is of the accepting controller.

***(PANS ATM — Sections 8.7.4.1, 8.7.4.2, 8.7.4.3 and 8.7.4.4)***

**GM1 to AMC1 ATS.TR.160(d)(6) ATS surveillance services**
ATS SURVEILLANCE SERVICES — PROCEDURES FOR TRANSFER OF CONTROL

Transfer of control based on the procedures specified in AMC1 ATS.TR.160(d)(6) may be carried out without systematic use of the bidirectional speech facilities available between the adjacent units concerned, provided that:

(a) the detailed conditions applicable for the transfer are the subject of a bilateral agreement; and

(b) the minimum distance between successive aircraft during the period of transfer is agreed as one of the following values:

(1) 19 km (10 NM) when SSR information is used in accordance with the provisions of AMC1 ATS.TR.160(d)(6), provided that an overlapping radar coverage of at least 56 km (30 NM) between units involved exists; or

(2) 9.3 km (5 NM) when the conditions of point (b)(1) apply and both units involved possess electronic aids for immediate recognition of release and acceptance of aircraft under radar transfer.

***(Doc 7030 — Section 6.2.5.1)***

**GM1 ATS.TR.160(d)(6) ATS surveillance services**
PROCEDURES FOR TRANSFER OF CONTROL IN ATS SURVEILLANCE SERVICES

Guidance on procedures for transfer of control in the provision of ATS surveillance services may be found in the EUROCONTROL document titled ‘Guidelines for the Application of European Coordination and Transfer Procedures’ Edition 1.0 of 25.10.2012.

**AMC1 ATS.TR.160(d)(7) ATS surveillance services**
PROCEDURES FOR ATC SERVICE IN CASE OF ATS SURVEILLANCE SYSTEM FAILURE

In the event of complete failure of the ATS surveillance system, where air–ground communications remain, the controller should plot the positions of all aircraft already identified, take the necessary action to establish procedural separation between the aircraft and, if necessary, limit the number of aircraft permitted to enter the area.

***(PANS ATM — Section 8.8.4.1)***

**GM1 ATS.TR.160(d)(7) ATS surveillance services**
SEPARATION APPLICATION IN CASE OF ATS SURVEILLANCE SYSTEM FAILURE

As an emergency measure, in the event of complete failure of the ATS surveillance system, where air–ground communications remain, the use of flight levels spaced by half the applicable vertical separation minimum may be resorted to temporarily if standard procedural separation cannot be provided immediately.

***(PANS ATM — Section 8.8.4.2)***

**GM2 ATS.TR.160(d)(7) ATS surveillance services**
ATS SURVEILLANCE SYSTEM FAILURE — DATA DEGRADATION

In order to reduce the impact of a degradation of aircraft position source data, for example, a receiver autonomous integrity monitoring (RAIM) outage for GNSS, the ATS provider should establish contingency procedures to be followed by control positions and ATC units in the event of data degradation.

***(PANS ATM — Section 8.8.5)***

**GM1 ATS.TR.160(d)(9) ATS surveillance services**
DISPLAY OF ATS SURVEILLANCE-BASED SAFETY-RELATED ALERTS AND WARNINGS

ATS surveillance systems should provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

***(Annex 11 — Section 3.9, PANS ATM — Section 8.1.4)***

**GM2 ATS.TR.160(d)(9) ATS surveillance services**
SHORT-TERM CONFLICT ALERT (STCA) PROCEDURES

The generation of STCAs is a function based on surveillance data, integrated into an ATC system. The objective of the STCA function is to assist the controller in preventing collision between aircraft by generating, in a timely manner, an alert of a potential or actual infringement of separation minima. Procedures and related instructions concerning use of the STCA function should specify, inter alia:

(a) the types of flight which are eligible for generation of alerts;

(b) the sectors or areas of airspace within which the STCA function is implemented;

(c) the method of displaying the STCA to the controller;

(d) in general terms, the parameters for generation of alerts as well as alert warning time;

(e) the volumes of airspace within which STCA can be selectively inhibited and the conditions under which this will be permitted;

(f) conditions under which specific alerts may be inhibited for individual flights; and

(g) procedures applicable in respect of volume of airspace or flights for which STCA or specific alerts have been inhibited.

***(PANS ATM — Sections 15.7.2 (Note 1 to Section) and 15.7.2.1)***

**GM3 ATS.TR.160(d)(9) ATS surveillance services**
MINIMUM SAFE ALTITUDE WARNING (MSAW) PROCEDURES

(a) The generation of MSAWs is a function of an ATC radar data-processing system. The objective of the MSAW function is to assist in the prevention of controlled flight into terrain accidents by generating, in a timely manner, a warning of the possible infringement of a minimum safe altitude. Procedures and related instructions concerning use of the MSAW function should specify, inter alia:

(b) the types of flight which are eligible for generation of MSAW;

(c) the sectors or areas of airspace for which MSAW minimum safe altitudes have been defined and within which the MSAW function is implemented;

(d) the values of the defined MSAW minimum safe altitudes;

(e) the method of displaying the MSAW to the controller;

(f) the parameters for generation of MSAW as well as warning time; and

(g) conditions under which the MSAW function may be inhibited for individual aircraft tracks as well as procedures applicable in respect of flights for which MSAW has been inhibited.

***(PANS ATM — Sections 15.7.4 (Note 1 to Section) and 15.7.4.1)***

**AMC1 ATS.TR.160(e) ATS surveillance services**
INFORMATION REGARDING TRAFFIC ON CONFLICTING PATH

(a) Information regarding traffic on a conflicting path should be given, whenever practicable, in the following form:

(1) relative bearing of the conflicting traffic in terms of the 12-hour clock;

(2) distance from the conflicting traffic in kilometres (nautical miles);

(3) direction in which the conflicting traffic appears to be proceeding;

(4) level and type of aircraft or, if unknown, relative speed of the conflicting traffic, e.g. slow or fast.

(b) Pressure-altitude-derived level information, even when unverified, should be used in the provision of collision hazard information because such information, particularly if available from an otherwise unknown aircraft (e.g. a VFR flight) and given to the pilot of a known aircraft, could

facilitate the location of a collision hazard. Erroneous level information should not be used in providing collision hazard information.

(c) When the pressure-altitude-derived level information has been verified, the information should be passed to pilots in a clear and unambiguous manner. When, subsequent to the verification, it has been ascertained that the pressure-altitude-derived level information is erroneous, such value should not be used in providing traffic information. In such case, the level information provided by the pilot should be used. If the level information has not been verified, the accuracy of the information should be considered uncertain and the pilot should be informed accordingly.

***(PANS ATM — Sections 8.8.2.3, 8.8.2.4 and 8.8.2.4.1) (PANS ATM — Sections 8.8.2.3, 8.8.2.4, and 8.8.2.4.1 have been transposed as AMC1 SERA.7002(a)(1) in NPA 2015-14)***

**GM1 ATS.TR.160(e) ATS surveillance services**
INFORMATION REGARDING TRAFFIC ON CONFLICTING PATH

When an identified IFR flight operating outside controlled airspace is observed to be on a conflicting path with another aircraft, the pilot should:

(a) be informed as to the need for collision avoidance action to be initiated, and if so requested by the pilot or if, in the opinion of the air traffic controller, the situation warrants, a course of avoiding action should be suggested; and

(b) be notified when the conflict no longer exists.

***(PANS ATM — Section 8.8.2.2) (PANS ATM —Section 8.8.2.2 has been transposed as GM2 SERA.7002(a)(1) in NPA 2015-14)***

**AMC1 ATS.TR.205 Provision of ATC service**

The ATS provider should:

(a) determine the area of responsibility for individual control sectors within an ATC unit, when applicable;

(b) where there is more than one ATC working position within a unit or sector, define the duties and responsibilities of the individual working positions.

***(PANS ATM — Section 4.3.1)***

**GM1 ATS.TR.205 Provision of ATC service**

Approach control service may be provided by a unit co-located with an ACC, or by a control sector within an ACC.

***(PANS ATM — Note to Section 4.1.2)***

**AMC1 ATS.TR.205(c) Provision of ATC service**
FUNCTIONS OF AERODROME CONTROL TOWERS

(a) Aerodrome control towers should issue information, instructions and clearances to aircraft under their control to achieve a safe, orderly and expeditious flow of air traffic on and in the vicinity of an aerodrome with the object of preventing collision(s) between:

(1) aircraft flying within the designated area of responsibility of the control tower, including the aerodrome traffic circuits;

(2) aircraft operating on the manoeuvring area;

(3) aircraft landing and taking off;

(4) aircraft and vehicles operating on the manoeuvring area;

(5) aircraft on the manoeuvring area and obstructions on that area.

(b) Aerodrome controllers should maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as on vehicles and personnel on the manoeuvring area.

(c) Watch should be maintained by visual observation, augmented in low visibility conditions by an ATS surveillance system, when available.

(d) If there are other aerodromes within a control zone, traffic at all aerodromes within such a zone should be coordinated so that traffic circuits do not conflict.

***(PANS ATM — Sections 7.1.1.1 and 7.1.1.2)***

**GM1 ATS.TR.205(c) Provision of ATC service**
POSITIONS AT THE AERODROME CONTROL TOWER

(a) The functions of an aerodrome control tower may be performed by different control or working positions, such as:

(1) aerodrome controller, normally responsible for operations on the runway and aircraft flying within the area of responsibility of the aerodrome control tower;

(2) ground controller, normally responsible for traffic on the manoeuvring area with the exception of runways;

(3) clearance delivery position, normally responsible for delivery of start-up and ATC clearances to departing IFR flights.

(b) Where parallel or near-parallel runways are used for simultaneous operations, individual aerodrome controllers should be responsible for operations on each of the runways.

***(PANS ATM — Sections 7.1.1.3 and 7.1.1.4)***

**AMC1 ATS.TR.210(a)(3) Operation of ATC service**
HORIZONTAL SPEED CONTROL INSTRUCTIONS — GENERAL

(a) In order to facilitate a safe and orderly flow of traffic, the ATC unit may, subject to conditions specified by the competent authority, instruct aircraft to adjust speed in a specified manner.

(b) Flight crews should be given adequate notice of planned speed control.

(c) Speed control instructions should remain in effect unless explicitly cancelled or amended by the controller.

(d) Speed control should not be applied to aircraft entering or established in a holding pattern.

(e) Speed adjustments should, as far as practicable, be limited to those necessary to establish and/or maintain a desired separation minimum or spacing. Instructions involving frequent changes of speed, including alternate speed increases and decreases, should be avoided.

(f) When the flight crew informs the ATC unit concerned that they are unable to comply with a speed instruction, the controller should apply an alternative method to achieve the desired spacing between the aircraft concerned.

(g) At levels at or above 7 600 m (FL 250), speed adjustments should be expressed in multiples of 0.01 Mach; at levels below 7 600 m (FL 250), speed adjustments should be expressed in multiples of 20 km/h (10 kt) based on indicated airspeed (IAS).

(h) The controller should advise the flight crew when a speed control restriction is no longer required.

***(PANS ATM — Sections 4.6.1.1, 4.6.1.2, 4.6.1.3, 4.6.1.4, 4.6.1.5, 4.6.1.6 and 4.6.1.7)***

**GM1 to AMC1 ATS.TR.210(a)(3) Operation of ATC service**
HORIZONTAL SPEED CONTROL INSTRUCTIONS — GENERAL

(a) In order to establish a desired spacing between two or more successive aircraft, the controller should first either reduce the speed of the last aircraft, or increase the speed of the lead aircraft, then adjust the speed(s) of the other aircraft in order.

(b) In order to maintain a desired spacing using speed control techniques, specific speeds need to be assigned to all the aircraft concerned.

(c) The true airspeed (TAS) of an aircraft will decrease during descent when maintaining a constant IAS. When two descending aircraft maintain the same IAS, and the leading aircraft is at the lower level, the TAS of the leading aircraft will be lower than that of the following aircraft. The distance between the two aircraft will thus be reduced unless a sufficient speed differential is applied. For the purpose of calculating a desired speed differential between two succeeding aircraft, 11 km/h (6 kt) IAS per 300 m (1 000 ft) height difference may be used as a general rule. At levels below 2 450 m (FL 80), the difference between IAS and TAS is negligible for speed control purposes.

(d) Time and distance required to achieve a desired spacing will increase with higher levels, higher speeds, and when the aircraft is in a clean configuration.

***(PANS ATM — Sections 4.6.2.1, 4.6.2.2 and Notes 1 and 2 to Section 4.6.2.2)***

**GM2 to AMC1 ATS.TR.210(a)(3) Operation of ATC service**
HORIZONTAL SPEED CONTROL INSTRUCTIONS — AIRCRAFT PERFORMANCE AT HIGH LEVEL

When an aircraft is heavily loaded and at a high level, its ability to change speed may, in cases, be very limited.

***(PANS ATM — Note 2 to Section 4.6.1.6)***

**AMC2 ATS.TR.210(a)(3) Operation of ATC service**
HORIZONTAL SPEED CONTROL INSTRUCTIONS — DESCENDING AND ARRIVING AIRCRAFT

(a) The controller should only apply speed reductions to less than 460 km/h (250 kt) IAS for turbojet aircraft during initial descent from cruising level with the concurrence of the flight crew.

(b) The controller should use only minor speed adjustments not exceeding plus/minus 40 km/h (20 kt) IAS for aircraft on intermediate and final approach.

(c) The controller should not apply speed control to aircraft after passing a point 7 km (4 NM) from the threshold on final approach.

***(PANS ATM — Sections 4.6.3.3, 4.6.3.6 and 4.6.3.7)***

**GM1 to AMC2 ATS.TR.210(a)(3) Operation of ATC service**
HORIZONTAL SPEED CONTROL INSTRUCTIONS — DESCENDING AND ARRIVING AIRCRAFT

(a) The controller should, when practicable, authorise an aircraft to absorb a period of notified terminal delay by cruising at a reduced speed for the latter portion of its flight.

(b) The controller may instruct an aircraft to maintain its 'maximum speed', 'minimum clean speed', 'minimum speed', a specified speed or a speed equal or less/more than a specified speed. 'Minimum clean speed' signifies the minimum speed at which an aircraft can be flown in a clean configuration, i.e. without deployment of lift-augmentation devices, speed brakes or landing gear.

(c) The controller should avoid issuing instructions for an aircraft to simultaneously maintain a high rate of descent and reduce its speed, as such manoeuvres are normally not compatible. Any significant speed reduction during descent may require the aircraft to temporarily level off to reduce speed before continuing descent.

(d) The controller should permit arriving aircraft to operate in a clean configuration for as long as possible. Below 4 550 m (FL 150), speed reductions for turbojet aircraft to not less than 410 km/h (220 kt) IAS, which will normally be very close to the minimum speed of turbojet aircraft in a clean configuration, may be used.

***(PANS ATM — Sections 4.6.3.1, 4.6.3.2, 4.6.3.2 (Note to Section), 4.6.3.4 and 4.6.3.5)***

**AMC3 ATS.TR.210(a)(3) Operation of ATC service**
VERTICAL SPEED CONTROL INSTRUCTIONS — GENERAL

(a) In order to facilitate a safe and orderly flow of traffic, the controller may instruct aircraft to adjust rate of climb or rate of descent. The controller may apply vertical speed control between two or more climbing aircraft or two or more descending aircraft in order to establish or maintain a specific vertical separation minimum.

(b) The controller should, as far as practicable, limit vertical speed adjustments to those necessary to establish and/or maintain a desired separation minimum, and should avoid instructions involving frequent changes of climb/descent rates.

(c) When the flight crew informs the ATC unit concerned that they are unable to comply with a specified rate of climb or descent, the controller should apply an alternative method to achieve an appropriate separation minimum between aircraft, without delay.

(d) The controller should advise aircraft when a rate of climb/descent restriction is no longer required.

***(PANS ATM — Sections 4.7.1.1, 4.7.1.2, 4.7.1.3 and 4.7.1.4)***

**GM1 to AMC3 ATS.TR.210(a)(3) Operation of ATC service**
VERTICAL SPEED CONTROL INSTRUCTIONS — GENERAL

(a) The controller may instruct an aircraft to expedite climb or descent as appropriate to or through a specified level, or to reduce its rate of climb or rate of descent.

(b) The controller may instruct climbing aircraft to maintain a specified rate of climb, a rate of climb equal to or greater than a specified value or a rate of climb equal to or less than a specified value.

(c) The controller may instruct descending aircraft to maintain a specified rate of descent, a rate of descent equal to or greater than a specified value or a rate of descent equal to or less than a specified value.

(d) In applying vertical speed control, the controller should ascertain to which level(s) climbing aircraft can sustain a specified rate of climb or, in the case of descending aircraft, the specified rate of descent which can be sustained.

(e) Controllers should be aware of aircraft performance characteristics and limitations in relation to a simultaneous application of horizontal and vertical speed limitations.

***(PANS ATM — Sections 4.7.2.1, 4.7.2.2, 4.7.2.3, and 4.7.2.4 and the associated Note)***

**AMC4 ATS.TR.210(a)(3) Operation of ATC service**
HOLDING CLEARANCE AND INSTRUCTIONS

When delay is expected, the ACC should clear aircraft to the holding fix, and:

(a) include holding instructions; and

(b) communicate in such clearances an expected approach time or onward clearance time, as applicable.

***(PANS ATM — Section 6.5.5.2)***

**GM1 to AMC4 ATS.TR.210(a)(3) Operation of ATC service**
HOLDING CLEARANCE AND INSTRUCTIONS

(a) In the event of extended delays, aircraft should be advised of the anticipated delay as early as possible and, when practicable, be instructed or given the option to reduce speed en-route in order to absorb delay.

(b) Holding and holding pattern entry should be accomplished in accordance with procedures published in AIPs. If entry and holding procedures have not been published or if the procedures

are not known to a flight crew, the appropriate ATC unit should specify the designator of the location or aid to be used, the inbound track, radial or bearing, direction of turn in the holding pattern as well as the time of the outbound leg or the distances between which to hold.

(c) ATS units should normally hold aircraft a designated holding fix.

(d) For the purpose of maintaining a safe and orderly flow of traffic, an aircraft may be instructed to orbit at its present or at any other position, provided the required obstacle clearance is ensured.

***(PANS ATM — Sections 6.5.5.1, 6.5.5.5, 6.5.5.6 (first sentence) and 6.5.5.10)***

**AMC5 ATS.TR.210(a)(3) Operation of ATC service**
APPROACH SEQUENCE

(a) The approach sequence should be established in a manner which will facilitate arrival of the maximum number of aircraft with the least average delay. Priority in the approach sequence should be given to:

(1) an aircraft which anticipates being compelled to land because of factors affecting the safe operation of the aircraft (engine failure, shortage of fuel, etc.);

(2) hospital aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention;

(3) aircraft engaged in search and rescue operations; and

(4) other aircraft as may be determined by the competent authority.

(b) Succeeding aircraft should be cleared for approach:

(1) when the preceding aircraft has reported that it is able to complete its approach without encountering instrument meteorological conditions; or

(2) when the preceding aircraft is in communication with and sighted by the aerodrome control tower, and reasonable assurance exists that a normal landing can be accomplished; or

(3) when timed approaches are used, the preceding aircraft has passed the defined point inbound, and reasonable assurance exists that a normal landing can be accomplished; or

(4) when the use of an ATS surveillance system confirms that the required longitudinal spacing between succeeding aircraft has been established.

***(PANS ATM — Sections 6.5.6.1.1 and 6.5.6.1.2)***

**GM1 to AMC5 ATS.TR.210(a)(3) Operation of ATC service**
APPROACH SEQUENCE — SEQUENCING AND SPACING OF INSTRUMENT APPROACHES

**(a) Timed approach procedures**

(1) The following procedure should be utilised as necessary to expedite the approaches of a number of arriving aircraft:

(i) a suitable point on the approach path, which shall be capable of being accurately determined by the pilot, should be specified, to serve as a checkpoint in timing successive approaches;

(ii) aircraft should be given a time at which to pass the specified point inbound, which time should be determined with the aim of achieving the desired interval between successive landings on the runway while respecting the applicable separation minima at all times, including the period of runway occupancy.

(2) The time at which aircraft shall pass the specified point should be determined by the unit providing approach control service and notified to the aircraft sufficiently in advance to permit the pilot to arrange the flight path accordingly.

(3) Each aircraft in the approach sequence should be cleared to pass the specified point inbound at the previously notified time, or any revision thereof, after the preceding aircraft has reported passing the point inbound.

**(b) Interval between successive approaches**

In determining the time interval or longitudinal distance to be applied between successive approaching aircraft, the relative speeds between succeeding aircraft, the distance from the specified point to the runway, the need to apply wake turbulence separation, runway occupancy times, the prevailing meteorological conditions as well as any condition which may affect runway occupancy times should be considered. When an ATS surveillance system is used to establish an approach sequence, the minimum distance to be established between succeeding aircraft should be specified in local instructions. Local instructions should additionally specify the circumstances under which any increased longitudinal distance between approaches may be required as well as the minima to be used under such circumstances.

***(PANS ATM — Sections 6.5.6.2.1.1, 6.5.6.2.1.2, 6.5.6.2.1.3 and 6.5.6.2.2)***

**AMC6 ATS.TR.210(a)(3) Operation of ATC service**
EXPECTED APPROACH TIME

(a) The appropriate ATS unit should determine an expected approach time for an arriving aircraft that will be subjected to a delay of 10 minutes or more.

(b) The expected approach time should be transmitted to the aircraft as soon as practicable and preferably not later than at the commencement of its initial descent from cruising level.

(c) A revised expected approach time should be transmitted to the aircraft without delay whenever it differs from that previously transmitted by 5 minutes or more, or such lesser period of time as has been established by the competent authority or agreed between the ATS units concerned.

(d) An expected approach time should be transmitted to the aircraft by the most expeditious means whenever it is anticipated that the aircraft will be required to hold for 30 minutes or more.

(e) The holding fix to which an expected approach time relates should be identified together with the expected approach time whenever circumstances are such that this would not otherwise be evident to the pilot.

***(PANS ATM — Sections 6.5.7.1, 6.5.7.2 and 6.5.7.3)***

**AMC7 ATS.TR.210(a)(3) Operation of ATC service**
ONWARD CLEARANCE TIME

In the event that an aircraft is held en-route or at a location or aid other than the initial approach fix, the appropriate ATS unit should, as soon as practicable, give the aircraft concerned an expected onward clearance time from the holding fix. The aircraft should also be advised if further holding at a subsequent holding fix is expected.

***(PANS ATM — Section 6.5.8)***

**AMC8 ATS.TR.210(a)(3) Operation of ATC service**
INSTRUMENT APPROACH

(a) The approach control unit should specify the instrument approach procedure to be used by arriving aircraft. When a flight crew requests an alternative instrument approach procedure, the approach control unit should clear it accordingly, if circumstances permit.

(b) If a pilot reports or it is clearly apparent to the ATC unit that the pilot is not familiar with an instrument approach procedure, the initial approach level, the point (in minutes from the appropriate reporting point) at which base turn or procedure turn will be started, the level at which the procedure turn is to be carried out and the final approach track should be specified, except that only the last-mentioned need be specified if the aircraft is to be cleared for a straight-in approach. The frequency(ies) of the navigation aid(s) to be used as well as the missed approach procedure should also be specified when deemed necessary.

***(PANS ATM — Sections 6.5.4.1 and 6.5.4.2)***

**GM1 to AMC8 ATS.TR.210(a)(3) Operation of ATC service**
INSTRUMENT APPROACH

If visual reference to terrain is established before completion of the approach procedure, the entire procedure should nevertheless be executed unless the aircraft requests and is cleared for a visual approach.

***(PANS ATM — Section 6.5.4.3)***

**AMC9 ATS.TR.210(a)(3) Operation of ATC service**
VISUAL APPROACH

(a) Subject to the conditions described in point (b), clearance for an IFR flight to execute a visual approach may be requested by a flight crew or initiated by the controller. In the latter case, the concurrence of the flight crew should be required.

(b) An IFR flight should only be cleared to execute a visual approach, provided the pilot can maintain visual reference to the terrain and:

(1) the reported ceiling is at or above the level of the beginning of the initial approach segment for the aircraft so cleared; or

(2) the pilot reports at the level of the beginning of the initial approach segment or at any time during the instrument approach procedure that the meteorological conditions are such that with reasonable assurance a visual approach and landing can be completed.

(c) Except between aircraft performing successive visual approaches as described in point (d), separation should be provided between an aircraft cleared to execute a visual approach and other arriving and departing aircraft.

(d) For successive visual approaches, separation should be maintained by the controller until the pilot of a succeeding aircraft reports having the preceding aircraft in sight. The aircraft should then be instructed to follow and maintain own separation from the preceding aircraft.

(e) In case of aircraft performing successive visual approaches and instructed to maintain own separation as in point (d), and the distance between such aircraft is less than the appropriate wake turbulence minimum, the controller should issue a caution of possible wake turbulence.

***(PANS ATM — Sections 6.5.3.1, 6.5.3.3, 6.5.3.4 and 6.5.3.5 (first, second and third sentence))***

**GM1 to AMC9 ATS.TR.210(a)(3) Operation of ATC service**
VISUAL APPROACH

Controllers should exercise caution in initiating a visual approach when there is a reason to believe that the flight crew concerned is not familiar with the aerodrome and its surrounding terrain. Controllers should also take into consideration the prevailing traffic and meteorological conditions when initiating visual approaches.

***(PANS ATM — Section 6.5.3.2)***

**AMC10 ATS.TR.210(a)(3) Operation of ATC service**
INFORMATION FOR ARRIVING AIRCRAFT

(a) As early as practicable after an aircraft has established communication with the unit providing approach control service, the following elements of information, in the order listed, should be transmitted to the aircraft, with the exception of such elements which are known to have been already received by the aircraft:

(1) type of approach and runway-in-use;

(2) meteorological information, as follows:

(i) surface wind direction and speed, including significant variations;

(ii) visibility and, when applicable, runway visual range (RVR);

(iii) present weather;

(iv) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(v) air temperature;

(vi) dew point temperature, inclusion determined on the basis of a regional air navigation agreement;

(vii) altimeter setting(s);

(viii) any available information on significant meteorological phenomena in the approach area; and

(ix) trend-type landing forecast, when available.

(3) current runway surface conditions, in case of precipitants or other temporary hazards;

(4) changes in the operational status of visual and non-visual aids essential for approach and landing.

(b) At the commencement of final approach, the following information should be transmitted to aircraft:

(1) significant changes in the mean surface wind direction and speed;

(2) the latest information, if any, on wind shear and/or turbulence in the final approach area;

(3) the current visibility representative of the direction of approach and landing or, when provided, the current runway visual range value(s) and the trend.

(c) During final approach, the following information should be transmitted without delay:

(1) the sudden occurrence of hazards (e.g. unauthorised traffic on the runway);

(2) significant variations in the current surface wind, expressed in terms of minimum and maximum values;

(3) significant changes in runway surface conditions;

(4) changes in the operational status of required visual or non-visual aids; and

(5) changes in observed RVR value(s), in accordance with the reported scale in use, or changes in the visibility representative of the direction of approach and landing.

***(PANS ATM — Sections 6.6.1, 6.6.4 and 6.6.5)***

**GM1 to AMC10 ATS.TR.210(a)(3) Operation of ATC service**
INFORMATION FOR ARRIVING AIRCRAFT

Significant variations are specified in MET.TR.205(a)(3). However, if the controller possesses wind information in the form of components, the significant changes are:

(a) Mean headwind component: 19 km/h (10 kt);

(b) Mean tailwind component: 4 km/h (2 kt); and

(c) Mean crosswind component: 9 km/h (5 kt).

***(PANS ATM — Note to Section 6.6.4)***

**AMC11 ATS.TR.210(a)(3) Operation of ATC service**
START UP TIME PROCEDURES

(a) When so requested by the pilot prior to engine start, the aerodrome control tower should give an expected take-off time, unless engine start-up time procedures are employed.

(b) The aerodrome control tower should implement start-up time procedures where necessary to avoid congestion and excessive delays on the manoeuvring area or when necessary to comply with applicable ATFM regulations. Start-up time procedures should be contained in local instructions, and should specify the criteria and conditions for determining when and how start-up times should be calculated and issued to departing flights.

(c) A start-up clearance should only be withheld under circumstances or conditions specified by the competent authority.

(d) If a start-up clearance is withheld, the aerodrome control tower should advise the flight crew of the reason.

***(PANS ATM — Sections 7.4.1.1.1, 7.4.1.1.2, 7.4.1.1.6 and 7.4.1.1.7)***

**AMC12 ATS.TR.210(a)(3) Operation of ATC service**

INFORMATION TO AIRCRAFT BY AERODROME CONTROL TOWERS — AERODROME AND METEOROLOGICAL INFORMATION

(a) Prior to taxiing for take-off, the aerodrome control tower should advise aircraft of the following elements of information, in the order listed, with the exception of such elements which are known to have been already received by the aircraft:

(1) the runway to be used;

(2) the surface wind direction and speed, including significant variations therefrom;

(3) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting;

(4) the air temperature for the runway to be used, in the case of turbine-engined aircraft;

(5) the visibility representative of the direction of take-off and initial climb, if less than 10 km, or, when applicable, the RVR value(s) for the runway to be used;

(6) the correct time.

(b) Prior to take-off, the aerodrome control tower should advise aircraft of:

(1) any significant changes in the surface wind direction and speed, the air temperature, and the visibility or RVR value(s) given in accordance with point (a);

(2) significant meteorological conditions in the take-off and climb-out area, except when it is known that the information has already been received by the aircraft.

(c) Prior to entering the traffic circuit or commencing its approach to land, the relevant ATC unit should provide aircraft with the following elements of information, in the order listed, with the exception of such elements which are known to have been already received by the aircraft:

(1) the runway to be used;

(2) the surface wind direction and speed, including significant variations therefrom;

(3) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting.

***(PANS ATM — Sections 7.4.1.2.1, 7.4.1.2.2 and 7.4.1.2.3)***

**GM1 to AMC12 ATS.TR.210(a)(3) Operation of ATC service**
SIGNIFICANT METEOROLOGICAL CONDITIONS IN THE TAKE-OFF AND CLIMB-OUT AREA

Significant meteorological conditions include the occurrence or expected occurrence of cumulonimbus or thunderstorm, moderate or severe turbulence, wind shear, hail, moderate or severe icing, severe squall line, freezing precipitation, severe mountain waves, sandstorm, dust storm, blowing snow, tornado or waterspout in the take-off and climb-out area.

***(PANS ATM — Note to Section 7.4.1.2.2)***

**AMC13 ATS.TR.210(a)(3) Operation of ATC service**
TAXI CLEARANCE

(a) Prior to issuing a taxi clearance, the controller should determine where the aircraft concerned is parked. Taxi clearances should contain concise instructions and adequate information so as to assist the flight crew to follow the correct taxi routes, to avoid collision with other aircraft or objects and to minimise the potential for the aircraft inadvertently entering an active runway.

(b) When a taxi clearance contains a taxi limit beyond a runway, it should contain an explicit clearance to cross or an instruction to hold short of that runway.

***(PANS ATM — Sections 7.6.3.1.1.1 and 7.6.3.1.1.2)***

**GM1 to AMC13 ATS.TR.210(a)(3) Operation of ATC service**
TAXI CLEARANCE

Where standard taxi routes have not been published, the controller should, whenever possible, describe a taxi route, for example, by use of taxiway and runway designators or alternative identifiers. Other relevant information, such as an aircraft to follow or give way to, should also be provided to a taxiing aircraft.

***(PANS ATM — Section 7.6.3.1.1.4)***

**GM2 to AMC13 ATS.TR.210(a)(3) Operation of ATC service**
HELICOPTER TAXI OPERATIONS

(a) The provisions in points (b) to (f) may be considered and applied when a wheeled helicopter or vertical take-off and landing (VTOL) aircraft taxi on the surface.

(b) Ground taxiing uses less fuel than air-taxiing and minimises air turbulence. However, under certain conditions, such as rough, soft or uneven terrain, it may become necessary to air-taxi for safety considerations. Helicopters with articulating rotors (usually designs with three or more main rotor blades) are subject to ‘ground resonance’ and may, on rare occasions, suddenly lift off the ground to avoid severe damage or destruction.

(c) When it is requested or necessary for a helicopter to proceed at a slow speed above the surface, normally below 37 km/h (20 kt) and in ground effect, air-taxiing may be authorised.

(d) Instructions which require small aircraft or helicopters to taxi in close proximity to taxiing helicopters should be avoided and consideration should be given to the effect of turbulence from taxiing helicopters on arriving and departing light aircraft.

(e) A frequency change should not be issued to single-pilot helicopters hovering or air-taxiing. Whenever possible, control instructions from the next ATS unit should be relayed as necessary until the pilot is able to change frequency.

(f) Most light helicopters are flown by one pilot and require the constant use of both hands and feet to maintain control during low-altitude/low-level flight. Although flight control friction devices assist the pilot, changing frequency near the ground could result in inadvertent ground contact and consequent loss of control.

***(PANS ATM — Sections 7.6.3.1.4.1, 7.6.3.1.4.1 (Note to Section), 7.6.3.1.4.2, 7.6.3.1.4.3, 7.6.3.1.4.4, and 7.6.3.1.4.4 (Note to Section))***

**AMC14 ATS.TR.210(a)(3) Operation of ATC service**
TAXIING ON A RUNWAY IN USE

(a) For the purpose of expediting air traffic, aircraft may be permitted to taxi on the runway-in-use, provided no delay or risk to other aircraft will result. Where control of taxiing aircraft is provided by a ground controller and the control of runway operations by an aerodrome controller, the use of a runway by taxiing aircraft should be coordinated with and approved by the aerodrome controller. Communication with the aircraft concerned should be transferred from the ground controller to the aerodrome controller prior to the aircraft entering the runway.

(b) If the aerodrome control tower is unable to determine, either visually or via an ATS surveillance system, that a vacating or crossing aircraft has cleared the runway, the aircraft should be requested to report when it has vacated the runway. The report should be made when the entire aircraft is beyond the relevant runway-holding position.

***(PANS ATM — Sections 7.6.3.1.2.1 and 7.6.3.1.2.2)***

**AMC15 ATS.TR.210(a)(3) Operation of ATC service**
USE OF RUNWAY-HOLDING POSITIONS

(a) The controller should not hold aircraft closer to a runway-in-use than at a runway-holding position, except as in cases specified in point (b).

(b) Aircraft should not be permitted to line up and hold on the approach end of a runway-in-use whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding (See Figure 1).

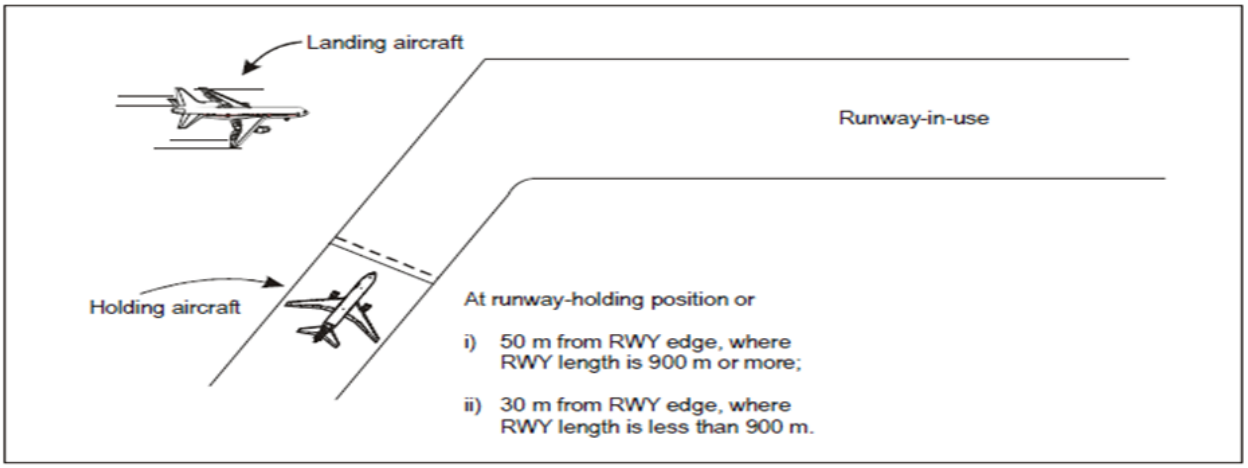


**Figure 1 — Method of holding aircraft**

***(PANS ATM — Sections 7.6.3.1.3.1 and 7.6.3.1.3.2)***

**GM1 to AMC15 ATS.TR.210(a)(3) Operation of ATC service**
RUNWAY HOLDING POSITIONS

The locations of runway holding positions in relation to runways are specified in CS ADR-DSN.D.335 'Holding bays, runway-holding positions, intermediate holding positions, and road-holding positions' and CS ADR-DSN.D.340 'Location of holding bays, runway-holding positions, intermediate holding positions, and road-holding positions' of EASA ED Decision 2014/013/R 'Certification Specifications and Guidance Material For Aerodromes Design', as amended.

**AMC16 ATS.TR.210(a)(3) Operation of ATC service**
RUNWAY INCURSION OR OBSTRUCTED RUNWAY

In the event that the aerodrome controller, after a take-off clearance or a landing clearance has been issued, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, he or she should take appropriate action as follows:

(a) cancel the take-off clearance for a departing aircraft;

(b) instruct a landing aircraft to execute a go-around or missed approach;

(c) in all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

***(PANS ATM — Section 7.4.1.4.1)***

**GM1 to AMC16 ATS.TR.210(a)(3) Operation of ATC service**
RUNWAY INCURSION OR OBSTRUCTED RUNWAY

Animals and flocks of birds may constitute an obstruction with regard to runway operations. In addition, an aborted take-off or a go-around executed after touchdown may expose the aeroplane to the risk of overrunning the runway. Moreover, a low altitude missed approach may expose the aeroplane to the risk of a tail strike. Pilots may therefore have to exercise their judgement in

accordance with SERA.2015 in Commission Implementing Regulation (EU) No 923/2012, concerning the authority of the pilot-in-command of an aircraft.

***(PANS ATM — Note to Section 7.4.1.4.1)***

**GM2 to AMC16 ATS.TR.210(a)(3) Operation of ATC service**
CANCELLING TAKE-OFF CLEARANCE FOR DEPARTING AIRCRAFT

(a) If take-off clearance has to be cancelled before the take-off run has commenced, the pilot should be instructed to hold position and to acknowledge the instruction.

(b) In certain circumstances, the aerodrome controller may consider that it is necessary to cancel take-off clearance after the aircraft has commenced the take-off run. In this event, the pilot should be instructed to stop immediately and to acknowledge the instruction.

(c) The cancellation of a take-off clearance after an aircraft has commenced its take-off run should only occur when the aircraft will be in serious and imminent danger should it continue. Controllers should be aware of the potential for an aircraft to overrun the end of the runway if the take-off is abandoned at a late stage; this is particularly so with large aircraft or those operating close to their performance limit, such as at maximum take-off mass, in high ambient temperatures or when the runway braking action may be adversely affected. Because of this risk, even if a take-off clearance is cancelled, the commander of the aircraft may consider it safer to continue the take-off than to attempt to stop the aircraft.

(d) Controllers should also be aware of the possibility that an aircraft that abandons its take-off may suffer overheated brakes or another abnormal situation and should be prepared to declare the appropriate category of emergency or to provide other suitable assistance.

***(UK CAP 493 — Section 2, Chapter 1, Paragraph 16)***

**AMC17 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — TAKE-OFF CLEARANCE

(a) The aerodrome control tower may issue a take-off clearance to an aircraft when there is reasonable assurance that the separation for departing aircraft as in AMC7 ATS.TR.210(c)(2)(i), or the separation prescribed in accordance with AMC9 ATS.TR.210(c)(2)(i) for reduced runway separation minima between aircraft using the same runway, will exist when the aircraft commences take-off.

(b) When an ATC clearance is required prior to take-off, the aerodrome control tower should not issue the take-off clearance until the ATC clearance has been transmitted to and acknowledged by the aircraft concerned. The ATC clearance should be forwarded to the aerodrome control tower with the least possible delay after receipt of a request made by the tower or prior to such request if practicable.

(c) Subject to point (b), the take-off clearance should be issued when the aircraft is ready for take-off and at or approaching the departure runway, and the traffic situation permits. To reduce the potential for misunderstanding, the take-off clearance should include the designator of the departure runway.

(d) In the interest of expediting traffic, a clearance for immediate take-off may be issued to an aircraft before it enters the runway.

***(PANS ATM — Sections 7.9.3.1, 7.9.3.2, 7.9.3.4 and 7.9.3.5 (first sentence))***

**AMC18 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — CLEARANCE TO LAND

The aerodrome control tower may clear an aircraft to land when there is reasonable assurance that the separation of landing aircraft and preceding landing and departing aircraft using the same runway established in AMC8 ATS.TR.210(d)(2)(i), or the separation prescribed in accordance with AMC9 ATS.TR.210(c)(2)(i) for reduced runway separation minima between aircraft using the same runway, will exist when the aircraft crosses the runway threshold, provided that a clearance to land is not be issued until a preceding landing aircraft has crossed the runway threshold. To reduce the potential for misunderstanding, the landing clearance should include the designator of the landing runway.

***(PANS ATM — Section 7.10.2)***

**GM1 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — CLEARANCES IN THE TRAFFIC CIRCUIT

(a) The clearance to enter the traffic circuit should be issued to an aircraft whenever it is desired that the aircraft approach the landing area in accordance with current traffic circuits but traffic conditions do not yet allow a landing clearance to be issued. Depending on the circumstances and traffic conditions, an aircraft may be cleared to join at any position in the traffic circuit.

(b) A controller may, inter alia, clear an aircraft to enter the traffic circuit by instructing the aircraft to continue in an upwind direction, parallel to the runway before crossing the runway axis to join the downwind leg.

(c) An arriving aircraft executing an instrument approach should normally be cleared to land straight in unless visual manoeuvring to the landing runway is required.

***(PANS ATM — Sections 7.7.2.1 and 7.7.2.2, EANPG/56 WP 18 of 12/11/14)***

**GM2 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — INSTRUCTIONS FOR TURNING ON TO CIRCUIT LEGS

When so instructed by the controller, pilots should obtain approval prior to turning on to any of the aerodrome traffic circuit legs. When extending an aerodrome traffic circuit leg, pilots should report to ATC as soon as there is a risk that the visual contact with the runway cannot be maintained.

***(EANPG/56 — WP18 of 12/11/14)***

**GM3 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — INSTRUCTIONS FOR LANDING AND ROLL OUT MANOEUVRES

(a) When necessary or desirable in order to expedite traffic, the aerodrome control tower may request a landing aircraft to:

(1) hold short of an intersecting runway after landing;

(2) land beyond the touchdown zone of the runway;

(3) vacate the runway at a specified exit taxiway;

(4) expedite vacating the runway.

(b) In requesting a landing aircraft to perform a specific landing and/or roll-out manoeuvre, the type of aircraft, runway length, location of exit taxiways, reported braking action on runway and taxiway, and prevailing meteorological conditions should be considered. A HEAVY aircraft should not be requested to land beyond the touchdown zone of a runway.

(c) When necessary or desirable, e.g. due to low visibility conditions, a landing or a taxiing aircraft may be instructed to report when a runway has been vacated. The report should be made when the entire aircraft is beyond the relevant runway-holding position.

***(PANS ATM — Sections 7.10.3.1, 7.10.3.2 and 7.10.3.4)***

**GM4 ATS.TR.210(a)(3) Operation of ATC service**
FORMULATION OF INSTRUCTIONS AND INFORMATION TO AIRCRAFT ON THE GROUND

As the view from the flight deck of an aircraft is normally restricted, the controller should ensure that instructions and information which require the flight crew to employ visual detection, recognition and observation are phrased in a clear, concise and complete manner.

***(PANS ATM — Section 7.6.1)***

**GM5 ATS.TR.210(a)(3) Operation of ATC service**
INFORMATION ON JET BLAST AND PROPELLER SLIPSTREAM

(a) In issuing clearances or instructions, air traffic controllers should take into account the hazards caused by jet blast and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

(b) Jet blast and propeller slipstream can produce localised wind velocities of sufficient strength to cause damage to other aircraft, vehicles and personnel operating within the affected area.

***(PANS ATM — Section 7.4.1.6.2 and Note to Section 7.4.1.6.2)***

**GM6 ATS.TR.210(a)(3) Operation of ATC service**
DESIGNATED POSITIONS OF AIRCRAFT IN THE AERODROME TRAFFIC AND TAXI CIRCUIT IN RELATION TO AERODROME CONTROL TOWER CLEARANCES

The following positions of aircraft in the traffic and taxi circuits, as showed in Figure 2, are the positions where aircraft normally receive aerodrome control tower clearances. Aircraft should be watched closely as they approach these positions so that proper clearances may be issued without delay. Where practicable, all clearances should be issued without waiting for aircraft to initiate the call.

— Position 1. Aircraft initiates call to taxi for departing flight. Runway-in-use information and taxi clearances given.

— Position 2. If there is conflicting traffic, the departing aircraft will be held at this position. Engine run-up will, when required, normally be performed here.

— Position 3. Take-off clearance is issued here if not practicable at position 2.

— Position 4. Clearance to land is issued here as practicable.

— Position 5. Clearance to taxi to apron is issued here.

— Position 6. Parking information issued here if necessary.

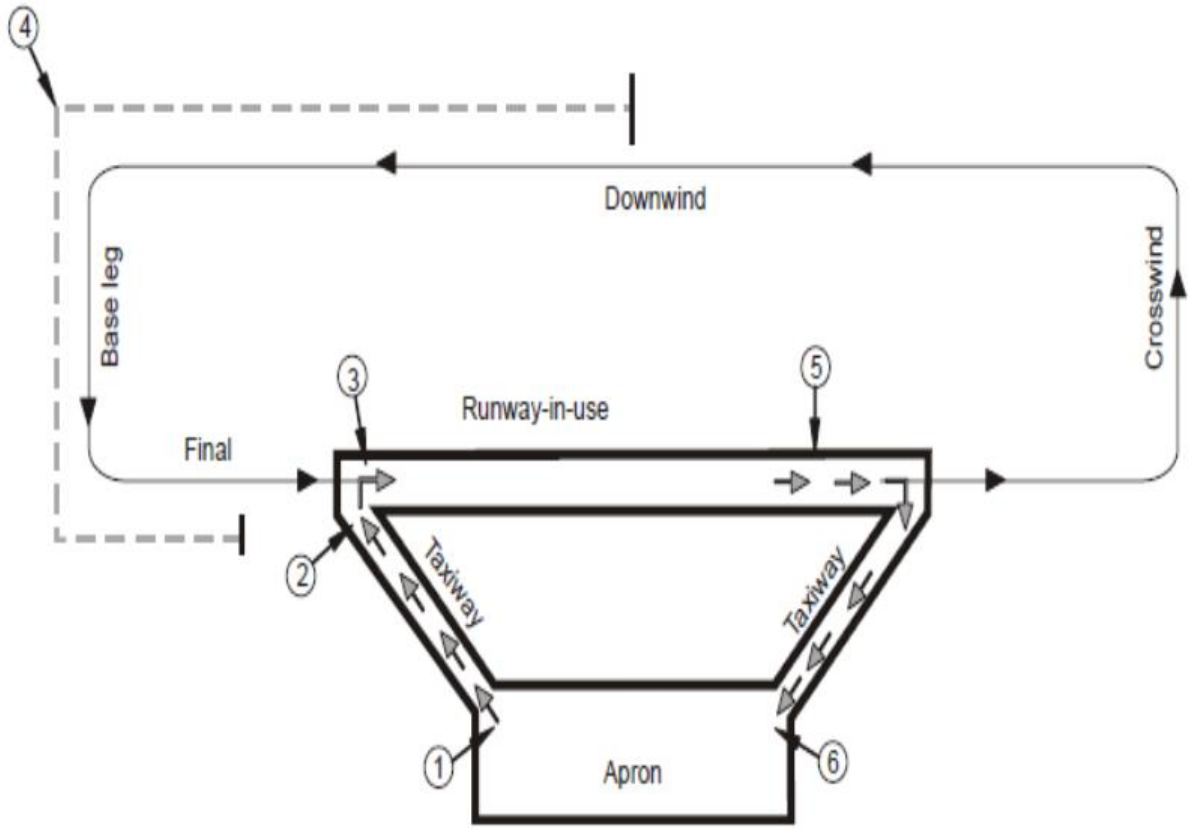


**Figure 2**

***(PANS ATM — Section 7.6.2)***

**AMC19 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — PRIORITY FOR LANDING

In the provision of aerodrome control service, priority for landing should be given to:

(a) an aircraft which anticipates being compelled to land because of factors affecting the safe operation of the aircraft (engine failure, shortage of fuel, etc.);

(b) hospital aircraft or aircraft carrying any sick or seriously injured persons requiring urgent medical attention;

(c) aircraft engaged in search and rescue operations; and

(d) other aircraft as may be determined by the competent authority.

***(PANS ATM — Section 7.7.3.3)***

**GM1 to AMC19 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — PRIORITY FOR LANDING

(a) An aircraft landing or in the final stages of an approach to land should normally have priority over an aircraft intending to depart from the same or an intersecting runway.

(b) If an aircraft enters an aerodrome traffic circuit without proper authorisation, it should be permitted to land if its actions indicate that it so desires. If circumstances warrant, aircraft which are in contact with the controller may be instructed to give way so as to remove as soon as possible the hazard introduced by such unauthorised operation. In no case should permission to land be withheld indefinitely.

(c) In cases of emergency, it may be necessary, in the interests of safety, for an aircraft to enter a traffic circuit and effect a landing without proper authorisation. Controllers should recognise the possibilities of emergency action and render all assistance possible.

***(PANS ATM — Sections 7.7.3.1, 7.7.3.2 and 7.8)***

**GM7 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — PRIORITY FOR DEPARTURE

Departures should normally be cleared in the order in which they are ready for take-off, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay. Factors which should be considered in relation to the departure sequence include, inter alia:

(a) types of aircraft and their relative performance;

(b) routes to be followed after take-off;

(c) any specified minimum departure interval between take-offs;

(d) need to apply wake turbulence separation minima;

(e) aircraft which should be afforded priority; and

(f) aircraft subject to ATFM requirements.

***(PANS ATM — Section 7.9.1)***

**GM8 ATS.TR.210(a)(3) Operation of ATC service**
AERODROME CONTROL — PRIORITY FOR DEPARTURE AND ATFM MEASURES

For aircraft subject to ATFM requirements, it is the responsibility of the pilot and the operator to ensure that the aircraft is ready to taxi in time to meet any required departure time, bearing in mind that once a departure sequence is established on the taxiway system, it can be difficult, and sometimes impossible, to change the order.

***(PANS ATM — Note 2 to Section 7.9.1)***

**AMC20 ATS.TR.210(a)(3) Operation of ATC service**
VISUAL DEPARTURE

(a) An IFR flight may be cleared to execute a visual departure:

(1) when requested by the pilot; or

(2) prior to take-off, when initiated by the controller and accepted by the pilot by a read-back of the ATC clearance.

(b) When implemented, visual departure should be applied under the following conditions:

(1) the meteorological conditions in the direction of take-off and the following climb-out are such that they do not impair the procedure up to an altitude to be established and published by the appropriate authority, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA);

(2) the procedure is to be applied during the daytime;

(3) the pilot is responsible for maintaining obstacle clearance until the specified altitude. Further clearance (route, heading, point) should be specified by ATC; and

(4) separation is provided between an aircraft cleared to execute a visual departure and other aircraft, in accordance with the airspace classification.

(c) Any additional local restrictions should be agreed on in consultation between the ATS provider and operators.

***(Doc 7030 — Sections 6.5.4.2, 6.5.4.3, and 6.5.4.4)***

**GM1 to AMC20 ATS.TR.210(a)(3) Operation of ATC service**
VISUAL DEPARTURE

If the aircraft is in or may enter airspace class D during the application of the visual departure, attention is drawn to the requirement to provide timely VFR traffic information deemed relevant for the aircraft executing the visual departure. Flight crews should be made aware when the application of the visual departure may lead the departing aircraft to enter airspace classes E, F or G.

***(Doc 7030 — Note to Section 6.5.4.3(d))***

**GM2 to AMC20 ATS.TR.210(a)(3) Operation of ATC service**
FLIGHT CREW ACCEPTANCE OF VISUAL DEPARTURE

Flight crew acceptance of the clearance for visual departure will indicate that the aircraft take-off performance characteristics allow an early turn after take-off.

***(Doc 7030 — Section 6.5.4.3)***

**AMC21 ATS.TR.210(a)(3) Operation of ATC service**
MISSED APPROACHES INSTRUCTIONS

When issuing instruction for a missed approach to flight conducting an instrument approach procedure, the controller should adhere to the published missed approach procedure. The controller

should issue modifications to the published missed approach procedure only in presence of safety reasons.

***(In response to Safety Recommendation FRAN-2013-045 (BEA) addressed to EASA)***

**AMC1 ATS.TR.210(b) Operation of ATC service**

CLEARANCES TO FLY MAINTAINING OWN SEPARATION WHILE IN VISUAL METEOROLOGICAL CONDITIONS

When so requested by an aircraft and provided it is agreed by the pilot of the other aircraft and so authorised by the competent authority, an ATC unit may clear a controlled flight, including departing and arriving flights, operating in airspace Classes D and E in visual meteorological conditions during the hours of daylight to fly subject to maintaining own separation from the other aircraft and remaining in visual meteorological conditions. When a controlled flight is so cleared, the following should apply:

(a) the clearance should be for a specified portion of the flight at or below 3 050 m (10 000 ft), during climb or descent and subject to further restrictions as and when prescribed by the competent authority;

(b) if there is a possibility that flight under visual meteorological conditions may become impracticable, an IFR flight should be provided with alternative instructions to be complied with in the event that flight in VMC cannot be maintained for the term of the clearance;

(c) the pilot of an IFR flight, on observing that conditions are deteriorating and considering that operation in VMC will become impossible, should inform ATC before entering instrument meteorological conditions (IMC) and should proceed in accordance with the alternative instructions given.

***(PANS ATM — Section 5.9)***

**GM1 to AMC1 ATS.TR.210(b) Operation of ATC service**

CLEARANCES TO FLY MAINTAINING OWN SEPARATION WHILE IN VISUAL METEOROLOGICAL CONDITIONS

(a) The provision of vertical or horizontal separation by an ATC unit is not applicable in respect of any specified portion of a flight cleared subject to maintaining own separation and remaining in visual meteorological conditions. It is for the aircraft so cleared to ensure, for the duration of the clearance, that it is not operated in such proximity to other flights as to create a collision hazard.

(b) It is axiomatic that a VFR flight must remain in visual meteorological conditions at all times. Accordingly, the issuance of a clearance to a VFR flight to fly subject to maintaining own separation and remaining in visual meteorological conditions has no other object than to signify that, for the duration of the clearance, separation from other aircraft by ATC is not provided.

(c) The objectives of the ATC service as prescribed in ATS.TR.100 do not include prevention of collision with terrain. Pilots are responsible to ensure that any clearances issued by ATC units are safe in this respect. When vectoring or assigning a direct routing not included in the flight plan, which takes an IFR flight off published ATS route or instrument procedure, the procedures in ATS.TR.235(a)(5) apply.

***(PANS ATM — Notes 1, 2 and 3 to Section 5.9)***

**AMC1 ATS.TR.210(c) Operation of ATC service**
EMERGENCY SEPARATION APPLICATION

(a) If, during an emergency situation, it is not possible to ensure that the applicable horizontal separation can be maintained, emergency separation of half the applicable vertical separation minimum may be used, i.e. a nominal 150 m (500 ft) between aircraft in airspace where a vertical separation minimum of 300 m (1 000 ft) is applied, and a nominal 300 m (1 000 ft) between aircraft in airspace where a 600 m (2 000 ft) vertical separation minimum is applied.

(b) When emergency separation is applied, the flight crews concerned should be advised that emergency separation is being applied, and informed of the actual minimum used. Additionally, all flight crews concerned should be provided with essential traffic information.

***(PANS ATM — Sections 15.7.1.1 and 15.7.1.2)***

**GM1 to AMC1 ATS.TR.210(c) Operation of ATC service**
SEPARATION APPLICATION IN CASE OF ATS SURVEILLANCE SYSTEM FAILURE

As an emergency measure, in the event of complete failure of the ATS surveillance system where air–ground communications remain, the use of flight levels spaced by half the applicable vertical separation minimum may be resorted to temporarily if standard procedural separation cannot be provided immediately.

***(PANS ATM — Section 8.8.4.2)***

**GM1 ATS.TR.210(c) Operation of ATC service**
PROCEDURAL SEPARATION — APPLICATION OF LARGER SEPARATION MINIMA UNDER SPECIFIC CIRCUMSTANCES

Larger separations than the specified minima should be applied whenever exceptional circumstances such as unlawful interference or navigational difficulties call for extra precautions. This should be done with due regard to all relevant factors so as to avoid impeding the flow of air traffic by the application of excessive separations.

***(PANS ATM — Section 5.2.1.3)***

**AMC1 ATS.TR.210(c)(1) Operation of ATC service**
PROCEDURAL SEPARATION — SEPARATION OF AIRCRAFT HOLDING IN FLIGHT

(a) Except when lateral separation between the holding areas exists, the controller should separate aircraft established in adjacent holding patterns by the applicable vertical separation minimum.

(b) Except when lateral separation exists, the controller should apply vertical separation between aircraft holding in flight and other aircraft, whether arriving, departing or en-route, whenever the other aircraft concerned are within 5 minutes flying time of the holding area or within a distance established by the ATS provider and approved by the competent authority (see Figure 3).

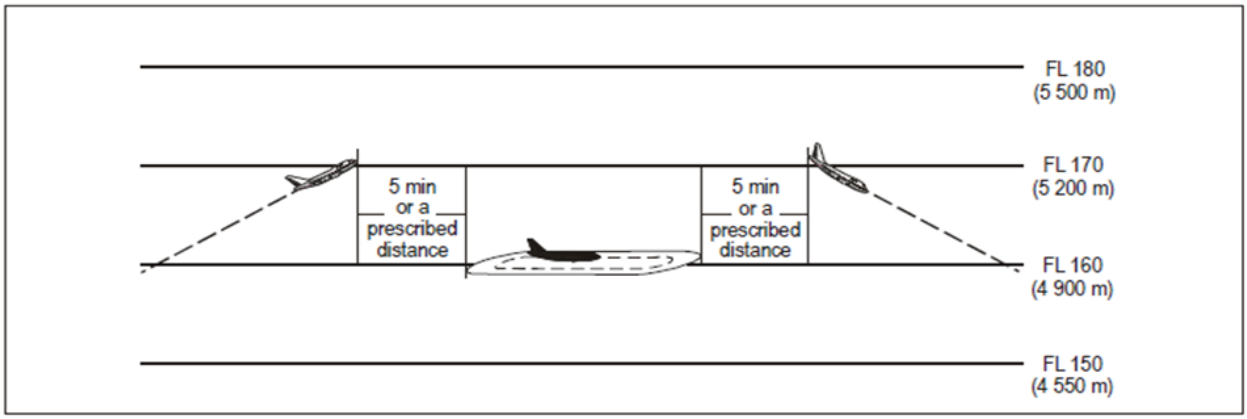


**Figure 3 — Separation between holding aircraft and en-route aircraft**

***(PANS ATM — Sections 5.5.1 and 5.5.2)***

**GM1 to AMC1 ATS.TR.210(c)(1) Operation of ATC service**
SEPARATION OF AIRCRAFT HOLDING IN FLIGHT

Criteria and procedures for the simultaneous use of adjacent holding patterns should be prescribed in local instructions.

***(PANS ATM — Section 6.5.5.6 (third sentence))***

**GM1 ATS.TR.210(c)(1) Operation of ATC service**
VERTICAL SEPARATION APPLICATION

Vertical separation is obtained by requiring aircraft using prescribed altimeter setting procedures to operate at different levels expressed in terms of flight levels or altitudes, in accordance with the provisions in ATS.TR.130, ATS.TR.135, ATS.TR.140, and ATS.TR.145.

***(PANS ATM — Section 5.3.1)***

**GM2 ATS.TR.210(c)(1) Operation of ATC service**
APPLICATION OF VERTICAL SEPARATION DURING CLIMB OR DESCENT

(a) An aircraft may cleared to a level previously occupied by another aircraft after the latter has reported vacating it, except when:

(1) severe turbulence is known to exist;

(2) the higher aircraft is effecting a cruise climb; or

(3) the difference in aircraft performance is such that less than the applicable separation minimum may result;

in which case such clearance should be withheld until the aircraft vacating the level has reported at or passing another level separated by the required minimum.

(b) When the aircraft concerned are entering or established in the same holding pattern, consideration should be given to aircraft descending at markedly different rates and, if necessary, additional measures such as specifying a maximum descent rate for the higher

aircraft and a minimum descent rate for the lower aircraft should be applied to ensure that the required separation is maintained.

***(PANS ATM — Sections 5.3.4.1 and 5.3.4.1.1)***

**GM3 ATS.TR.210(c)(1) Operation of ATC service**
GEOMETRIC HEIGHT INFORMATION

Geometric height information is generated by airborne systems, for instance GPS or radio altimeters.

**AMC1 ATS.TR.210(c)(2) Operation of ATC service**
HORIZONTAL SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEM

(a) Unless otherwise prescribed in accordance with point (b), or AMC6 ATS.TR.220, or ATS.TR.255, the horizontal separation minimum based on radar and/or ADS-B and/or MLAT systems should be 9.3 km (5.0 NM).

(b) If so established by the ATS provider and approved by the competent authority, the separation minimum in point (a) may be reduced but not below:

(1) 5.6 km (3.0 NM) when radar and/or ADS-B and/or MLAT systems' capabilities at a given location so permit; and

(2) 4.6 km (2.5 NM) between succeeding aircraft which are established on the same final approach track within 18.5 km (10 NM) of the runway threshold. A reduced separation minimum of 4.6 km (2.5 NM) may be applied, provided:

(i) the average runway occupancy time of landing aircraft is proven, by means such as data collection and statistical analysis and methods based on a theoretical model, not to exceed 50 seconds;

(ii) braking action is reported as good and runway occupancy times are not adversely affected by runway contaminants such as slush, snow or ice;

(iii) an ATS surveillance system with appropriate azimuth and range resolution and an update rate of 5 seconds or less is used in combination with suitable displays;

(iv) the aerodrome controller is able to observe, visually or by means of surface movement radar (SMR), MLAT system or a surface movement guidance and control system (SMGCS), the runway in use and associated exit and entry taxiways;

(v) wake turbulence separation minima in AMC6 ATS.TR.220, or as may be prescribed by the ATS provider and approved by the competent authority (e.g. for specific aircraft types), do not apply;

(vi) aircraft approach speeds are closely monitored by the controller and when necessary adjusted so as to ensure that separation is not reduced below the minimum;

(vii) aircraft operators and pilots have been made fully aware of the need to exit the runway in an expeditious manner whenever the reduced separation minimum on final approach is applied; and

(viii) procedures concerning the application of the reduced minimum are published in AIPs.

***(PANS ATM — Sections 8.7.3.1 and 8.7.3.2)***

**GM1 to AMC1 ATS.TR.210(c)(2) Operation of ATC service**

CRITERIA FOR APPLICATION OF HORIZONTAL SEPARATION BASED ON RADAR AND/OR ADS-B AND/OR MLAT SYSTEMS

(a) The separation minimum or minima based on radar and/or ADS-B and/or MLAT systems to be applied should be prescribed by the ATS provider and approved by the competent authority according to the capability of the particular ATS surveillance system or sensor to accurately identify the aircraft position in relation to the centre of a position symbol, PSR blip, SSR response and taking into account factors which may affect the accuracy of the ATS surveillance system-derived information, such as aircraft range from the radar site and the range scale of the situation display in use.

(b) Separation based on the use of ADS-B, SSR and/or MLAT, and/or PSR position symbols and/or PSR blips should be applied so that the distance between the centres of the position symbols and/or PSR blips, representing the positions of the aircraft concerned, is never less than a prescribed minimum.

(c) Separation based on the use of PSR blips and SSR responses should be applied so that the distance between the centre of the PSR blip and the nearest edge of the SSR response (or centre, when authorised by the competent authority) is never less than a prescribed minimum.

(d) Separation based on the use of ADS-B position symbols and SSR responses should be applied so that the distance between the centre of the ADS-B position symbol and the nearest edge of the SSR response (or the centre, when authorised by the competent authority) is never less than a prescribed minimum.

(e) Separation based on the use of SSR responses should be applied so that the distance between the closest edges of the SSR responses (of the centres, when authorised by the competent authority) is never less than a prescribed minimum.

(f) In no circumstances, should the edges of the position indications touch or overlap unless vertical separation is applied between the aircraft concerned, irrespective of the type of position indication displayed and separation minimum applied.

***(PANS ATM — Sections 8.7.2.3, 8.7.2.4, 8.7.2.5, 8.7.2.6, 8.7.2.7 and 8.7.3.3)***

**AMC2 ATS.TR.210(c)(2) Operation of ATC service**

SPECIFIC CONDITIONS AND LIMITATIONS FOR THE APPLICATION OF SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEM

(a) The separation minima based on ATS surveillance systems specified in AMC1 ATS.TR.210(c)(2) and AMC6 ATS.TR.220 may be applied between an aircraft taking off and a preceding departing aircraft or other identified traffic, provided there is reasonable assurance that the departing aircraft will be identified within 2 km (1 NM) from the end of the runway, and that, at the time, the required separation will exist.

(b) The separation minima specified based on ATS surveillance systems should not be applied between aircraft holding over the same holding fix.

***(PANS ATM — Sections 8.7.2.9 and 8.7.2.10 (first sentence))***

**AMC3 ATS.TR.210(c)(2) Operation of ATC service**

PROCEDURAL SEPARATION — REDUCTION IN LATERAL AND LONGITUDINAL SEPARATION MINIMA

(a) Provided prior consultation with airspace users is undertaken and that an appropriate safety assessment has shown that an acceptable level of safety is maintained, the lateral and longitudinal separation minima established in:

— AMC1 ATS.TR.210(c)(2)(i);

— AMC2 ATS.TR.210(c)(2)(i);

— AMC3 ATS.TR.210(c)(2)(i);

— AMC4 ATS.TR.210(c)(2)(i);

— AMC5 ATS.TR.210(c)(2)(i);

— AMC6 ATS.TR.210(c)(2)(i); and

— AMC1 ATS.TR.210(c)(2)(ii)

may be reduced in the following circumstances:

(1) when special electronic or other aids enable the pilot-in-command of an aircraft to determine accurately the aircraft's position and when adequate communication facilities exist for that position to be transmitted without delay to the appropriate ATC unit; or

(2) when, in association with rapid and reliable communication facilities, information of an aircraft's position, derived from an ATS surveillance system, is available to the appropriate ATC unit; or

(3) when special electronic or other aids enable the air traffic controller to predict rapidly and accurately the flight paths of aircraft, and adequate facilities exist to verify frequently the actual aircraft positions with the predicted positions; or

(4) when RNAV-equipped aircraft operate within the coverage of electronic aids that provide the necessary updates to maintain navigation accuracy.

(b) In addition to circumstances mentioned in point (a), the lateral and longitudinal separation minima established in:

— AMC1 ATS.TR.210(c)(2)(i);

— AMC2 ATS.TR.210(c)(2)(i);

— AMC3 ATS.TR.210(c)(2)(i);

— AMC4 ATS.TR.210(c)(2)(i);

— AMC5 ATS.TR.210(c)(2)(i);

— AMC6 ATS.TR.210(c)(2)(i); and

— AMC1 ATS.TR.210(c)(2)(ii)

may be reduced in the vicinity of aerodromes if:

(1) adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller; or

(2) each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation; or

(3) in the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and separation can be maintained.

***(PANS ATM — Sections 5.11.1, 5.11.1.1 and 6.1)***

**GM1 ATS.TR.210(c)(2)(i) Operation of ATC service**
PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION APPLICATION

(a) Longitudinal separation should be applied so that the spacing between the estimated positions of the aircraft being separated is never less than a prescribed minimum. Longitudinal separation between aircraft following the same or diverging tracks may be maintained by application of speed control, including the Mach number technique. When applicable, use of the Mach number technique should be prescribed on the basis of a regional air navigation agreement.

(b) Longitudinal separation between supersonic aircraft during the transonic acceleration and supersonic phases of flight should normally be established by appropriate timing of the start of transonic acceleration rather than by the imposition of speed restrictions in supersonic flight.

(c) Time-based separation applied in accordance with AMC1 ATS.TR.210(c)(2)(i), AMC2 ATS.TR.210(c)(2)(i) and AMC5 ATS.TR.210(c)(2)(i) may be based on position information and estimates derived from voice reports, controller–pilot data link communications (CPDLC) or ADS-C.

(d) For the purpose of application of longitudinal separation, the terms ‘same track’, ‘reciprocal tracks’ and ‘crossing tracks’ have the following meanings:

(1) Same track (see Figure 4)

same direction tracks and intersecting tracks or portions thereof, the angular difference of which is less than 45 degrees or more than 315 degrees, and whose protected airspaces overlap.

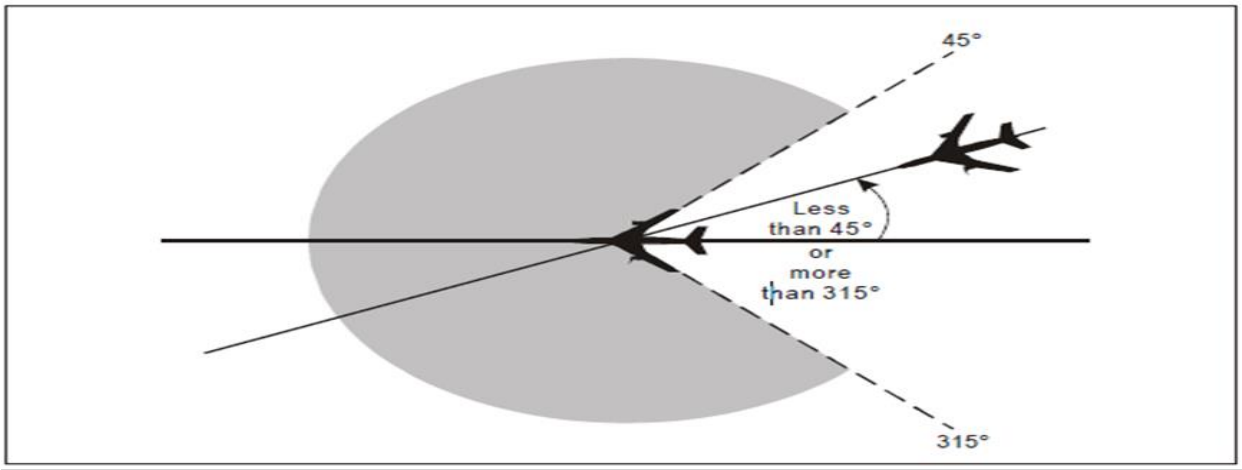


**Figure 4 — Aircraft on same track**

(2) Reciprocal tracks (see Figure 5):

opposite tracks and intersecting tracks or portions thereof, the angular difference of which is more than 135 degrees but less than 225 degrees, and whose protected airspaces overlap.

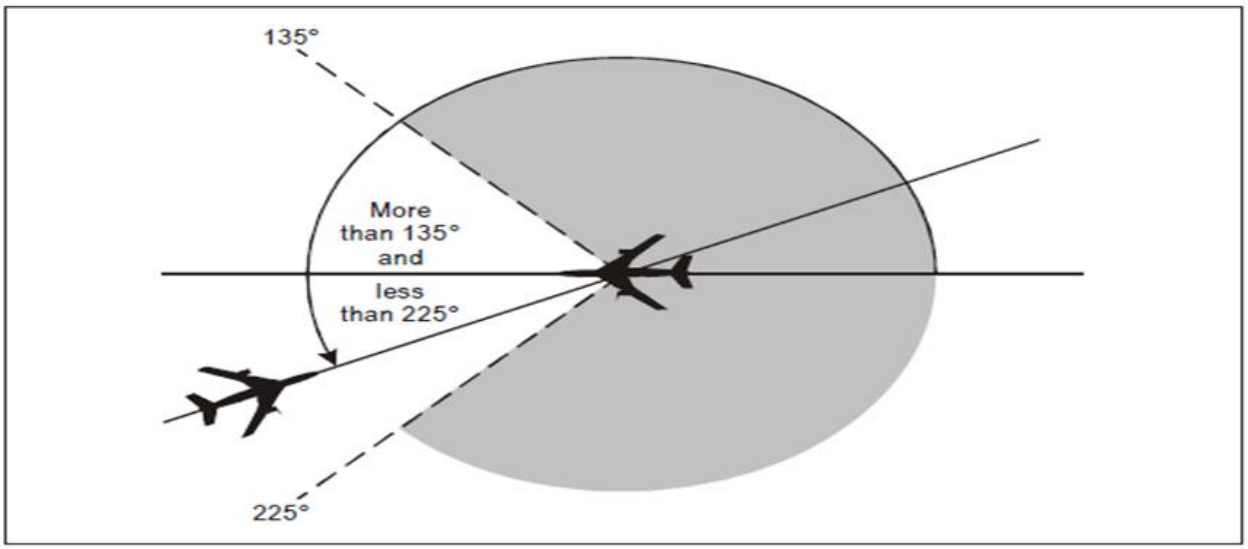


**Figure 5 — Aircraft on reciprocal tracks**

(3) Crossing tracks (see Figure 6):

intersecting tracks or portions thereof other than those specified in points (1) and (2).

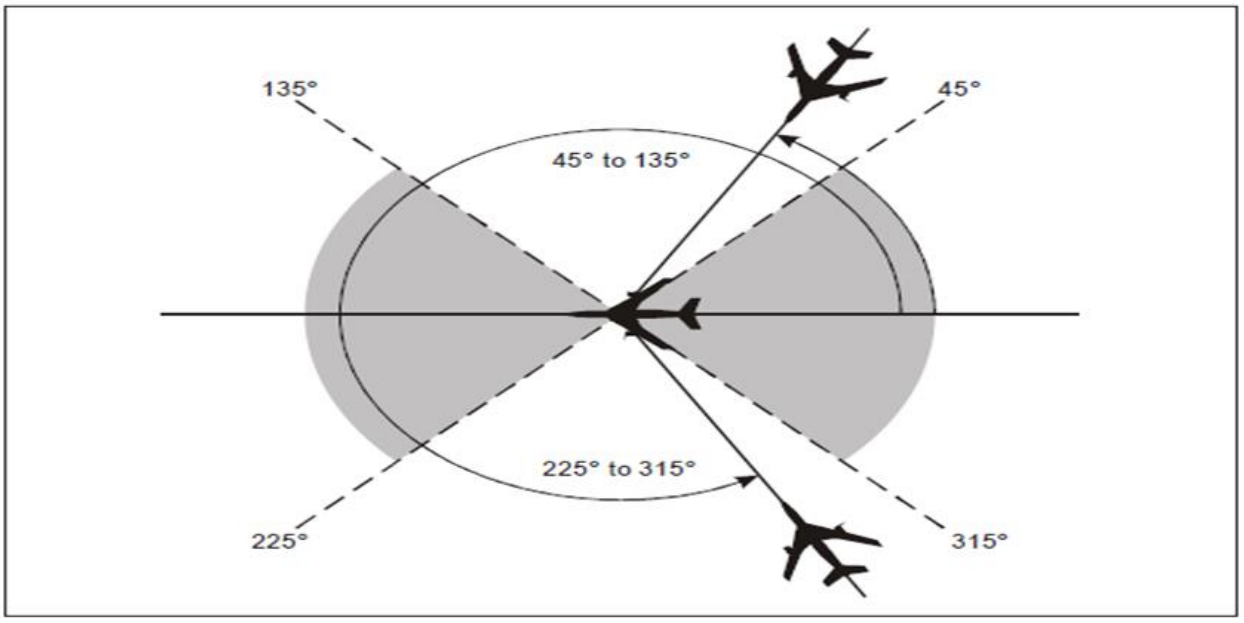


**Figure 6 — Aircraft on crossing tracks**

***(PANS ATM — Sections 5.4.2.1.1, 5.4.2.1.4, 5.4.2.1.5, and 5.4.2.1.6)***

**AMC1 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA BASED ON TIME — AIRCRAFT MAINTAINING THE SAME LEVEL

For aircraft flying at the same level, the longitudinal separation minima based on time should be one of the following:

**(a) Aircraft flying on the same track**

(1) 15 minutes (see Figure 7); or

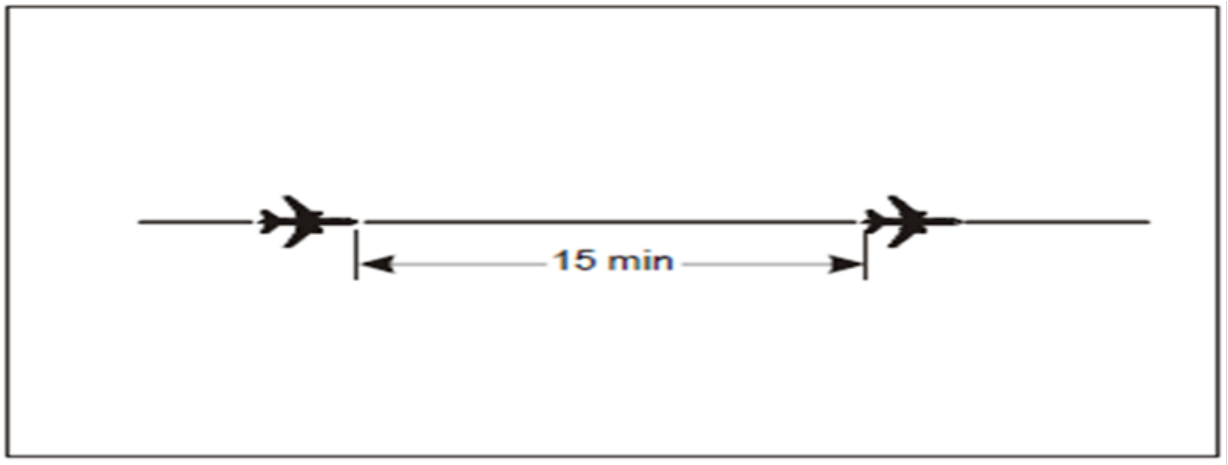


**Figure 7 — 15-minute separation between aircraft on same track and same level**

(2) 10 minutes if navigation aids permit frequent determination of position and speed (see Figure 8); or

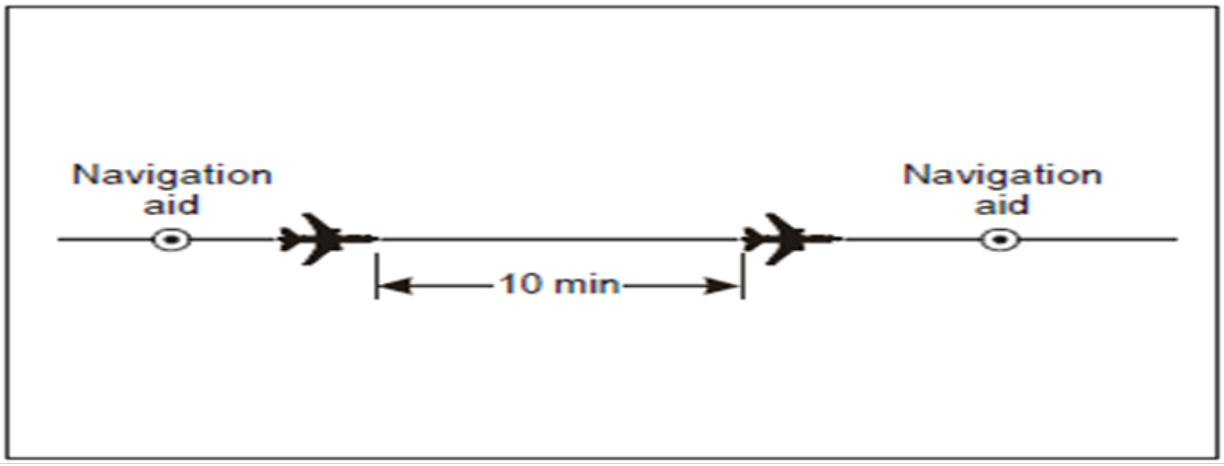


**Figure 8 — 10-minute separation between aircraft on same track and same level**

(3) 5 minutes in the following cases, provided that in each case the preceding aircraft is maintaining a true airspeed of 37 km/h (20 kt) or more faster than the succeeding aircraft (see Figure 9):

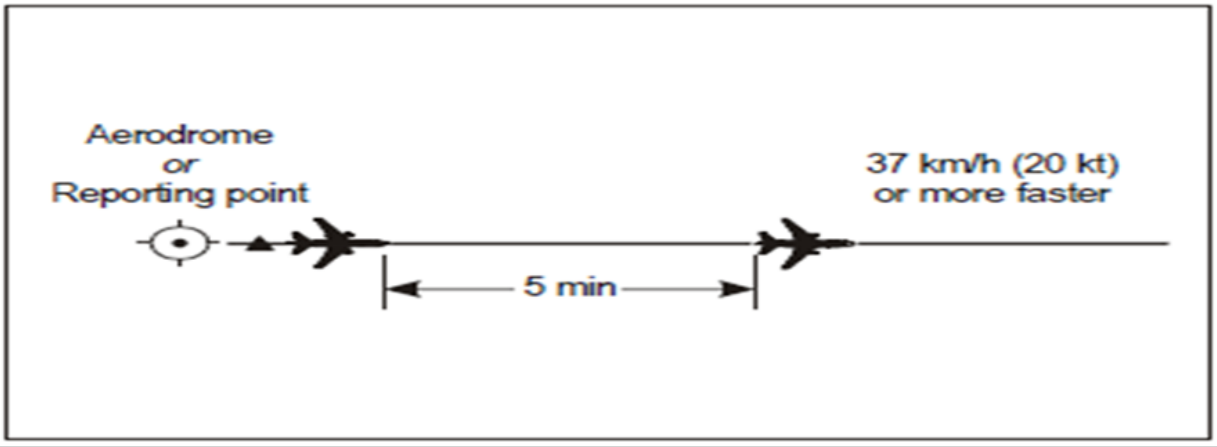


**Figure 9 — 5-minute separation between aircraft on same track and same level**

(i) between aircraft that have departed from the same aerodrome;

(ii) between en-route aircraft that have reported over the same exact significant point;

(iii) between departing and en-route aircraft after the en-route aircraft has reported over a fix that is so located in relation to the departure point as to ensure that 5-minute separation can be established at the point the departing aircraft will join the air route; or

(4) 3 minutes in the cases listed under point (a)(3), provided that in each case the preceding aircraft is maintaining a true airspeed of 74 km/h (40 kt) or more faster than the succeeding aircraft (see Figure 10).

 

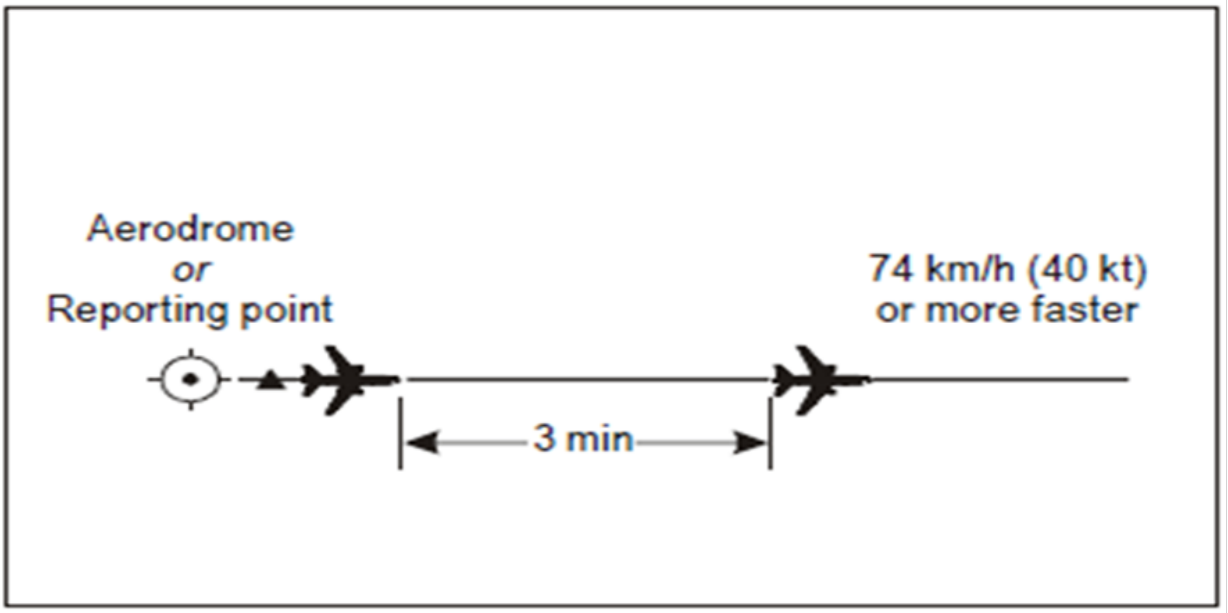


**Figure 10 — 3-minute separation between aircraft on same track and same level**

**(b) Aircraft flying on crossing tracks**

(1) 15 minutes at the point of intersection of the tracks (see Figure 11); or

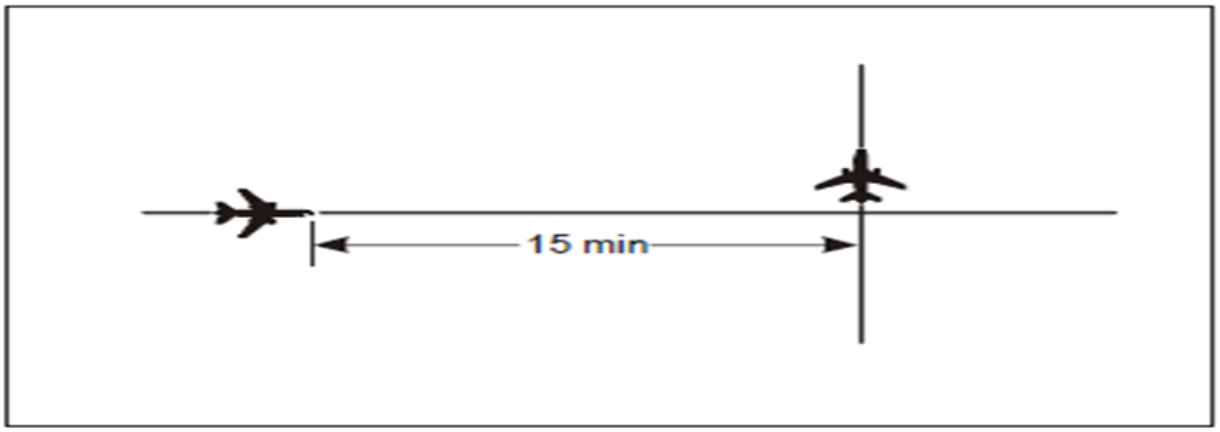


**Figure 11 — 15-minute separation between aircraft on crossing tracks and same level**

(2) 10 minutes if navigation aids permit frequent determination of position and speed (see Figure 12).

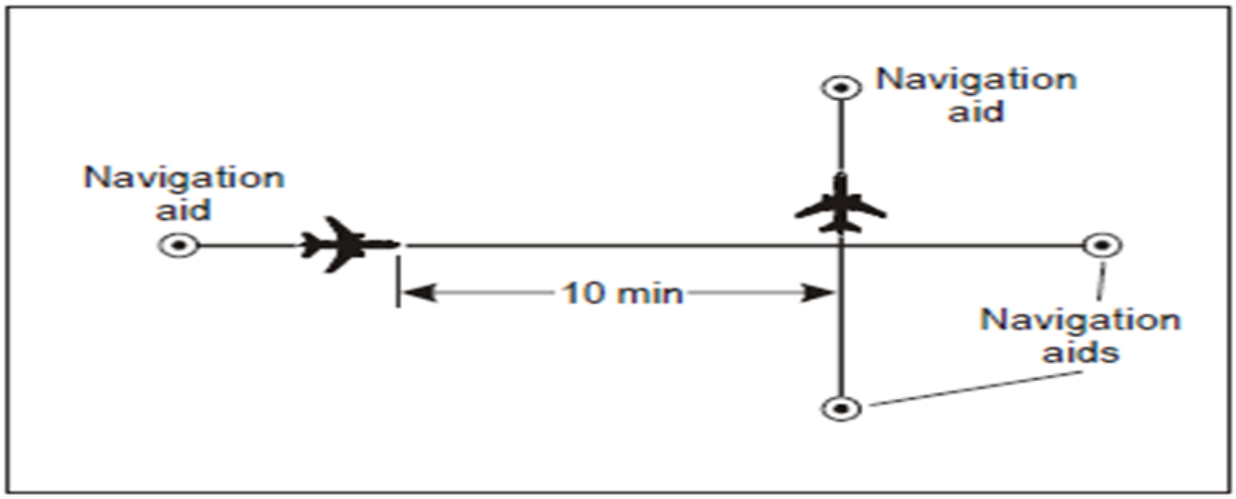


**Figure 12 — 10-minute separation between aircraft on crossing tracks and same level**

***(PANS ATM — Sections 5.4.2.2.1.1 and 5.4.2.2.1.2)***

**AMC2 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA BASED ON TIME — AIRCRAFT CLIMBING OR DESCENDING

For aircraft climbing or descending, the longitudinal separation minima based on time should be one of the following:

**(a) Aircraft on the same track**

When an aircraft will pass through the level of another aircraft on the same track, the following minimum longitudinal separation should be provided:

(1) 15 minutes while vertical separation does not exist (see Figures 13 and 14); or

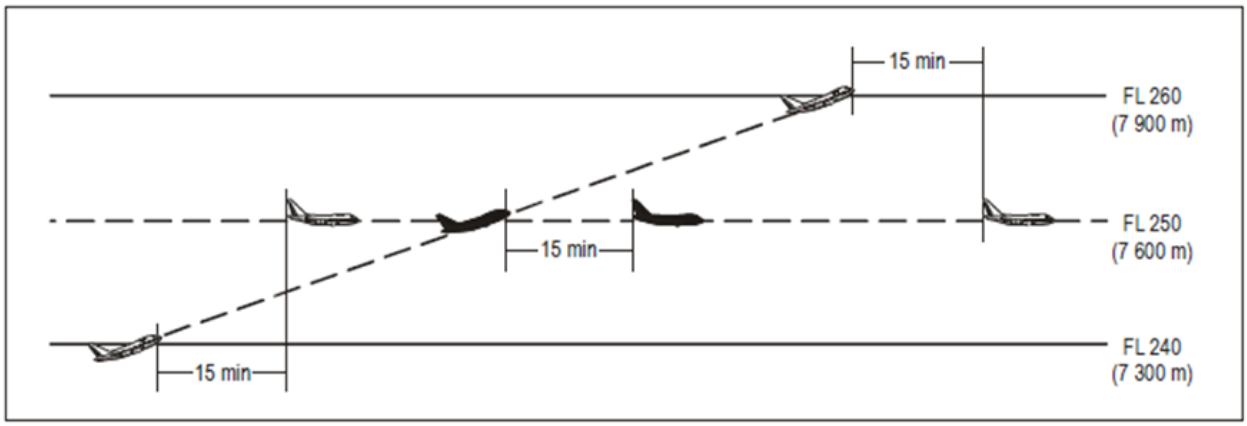


**Figure 13 — 15-minute separation between aircraft climbing and on same track**

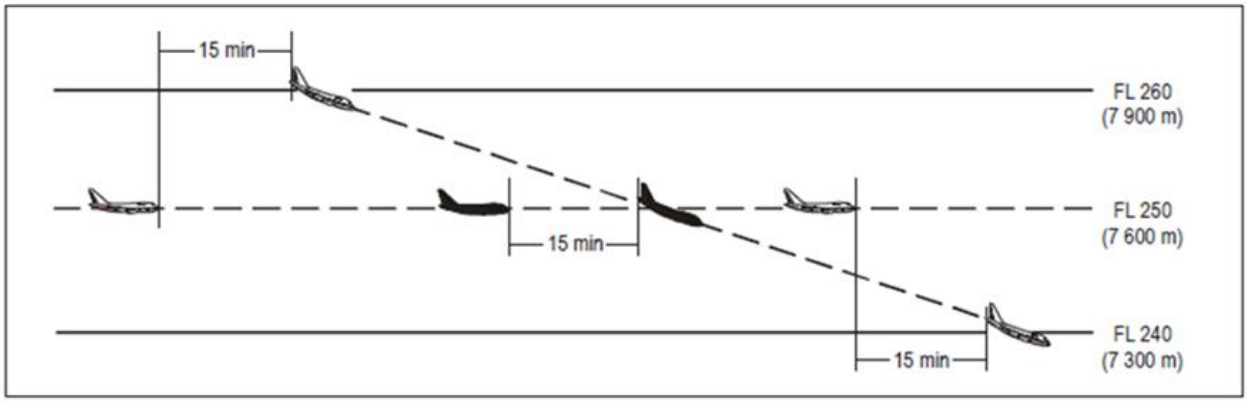


**Figure 14 — 15-minute separation between aircraft descending and on same track**

(2) 10 minutes while vertical separation does not exist, provided that such separation is authorised only where ground-based navigation aids or GNSS permit frequent determination of position and speed (see Figures 15 and 16); or

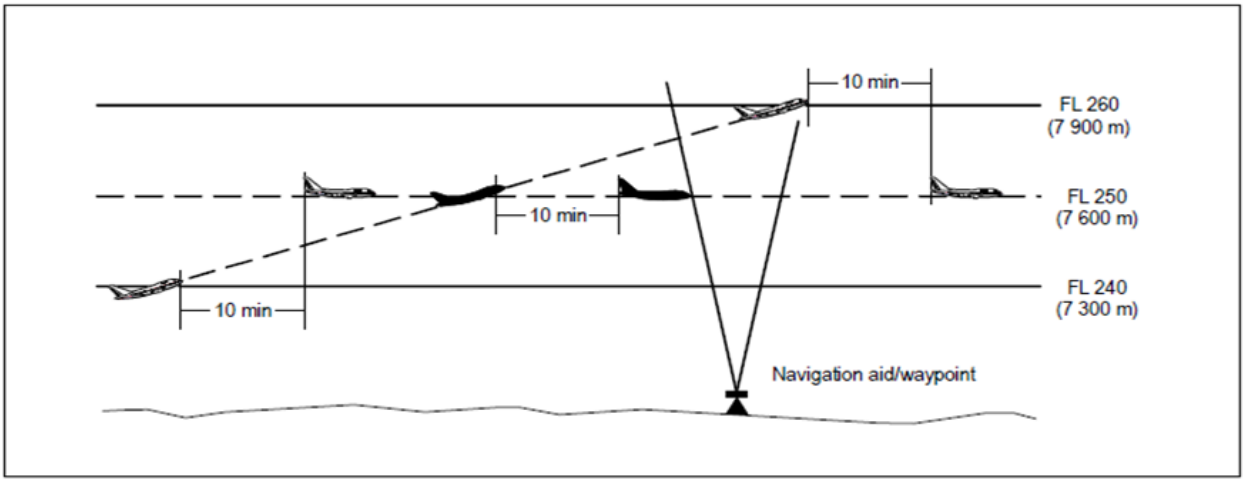


**Figure 15 — 10-minute separation between aircraft climbing and on same track**

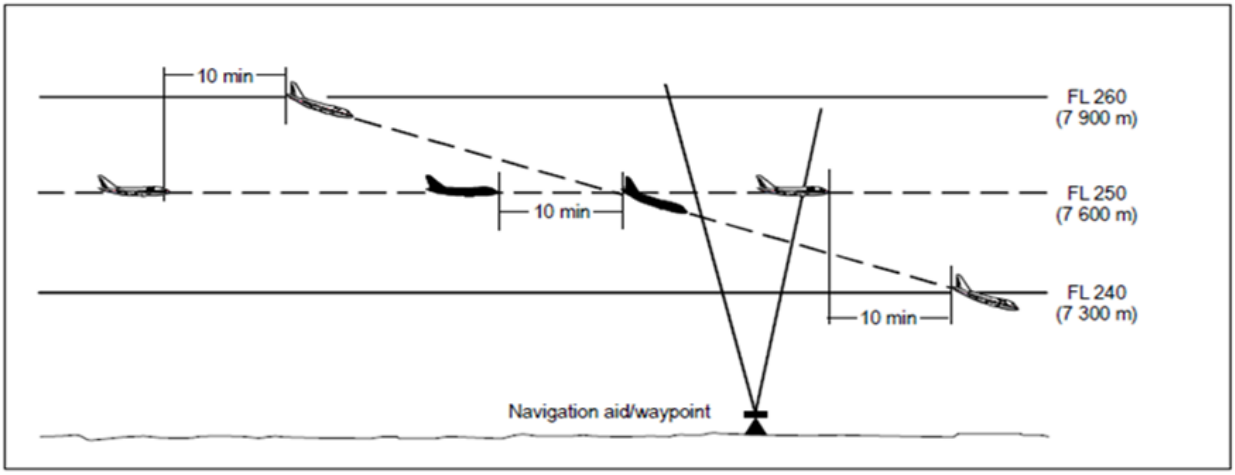


**Figure 16 — 10-minute separation between aircraft descending and on same track**

(3) 5 minutes while vertical separation does not exist, provided that:

(i) the level change is commenced within 10 minutes of the time the second aircraft has reported over a common point which should be derived from ground-based navigation aids or by GNSS; and

(ii) when issuing the clearance through third-party communication or CPDLC, a restriction should be added to the clearance to ensure that the 10-minute condition is satisfied (see Figures 17 and 18).

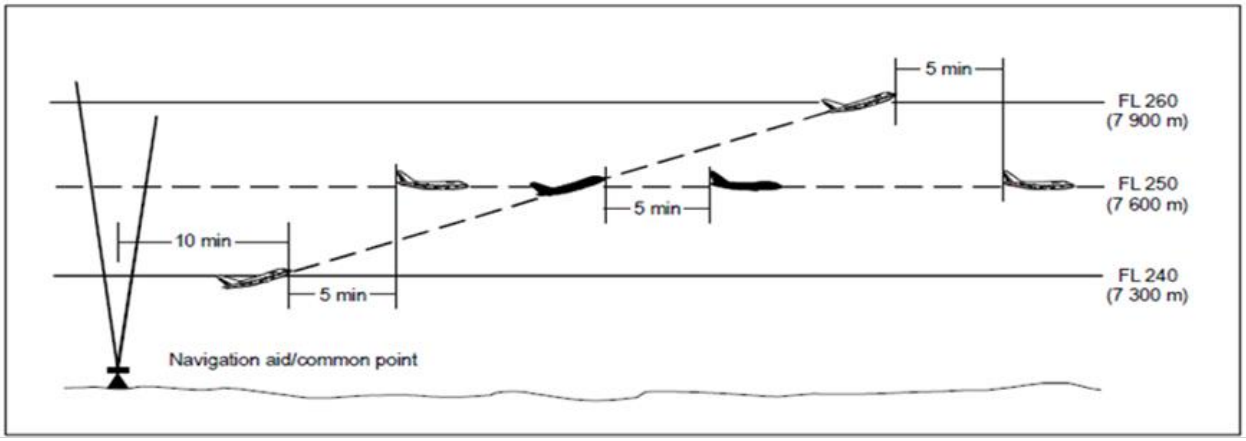


**Figure 17 — 5-minute separation between aircraft climbing and on same track**

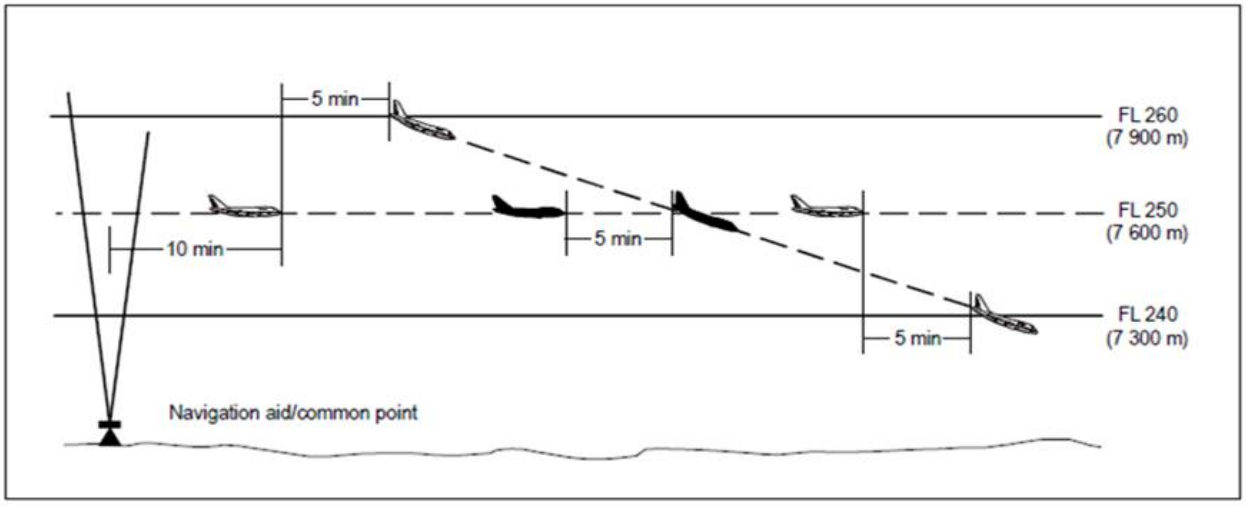


**Figure 18 — 5-minute separation between aircraft descending and on same track**

**(b) Aircraft on crossing tracks**

(1) 15 minutes while vertical separation does not exist (see Figures 19 and 20); or

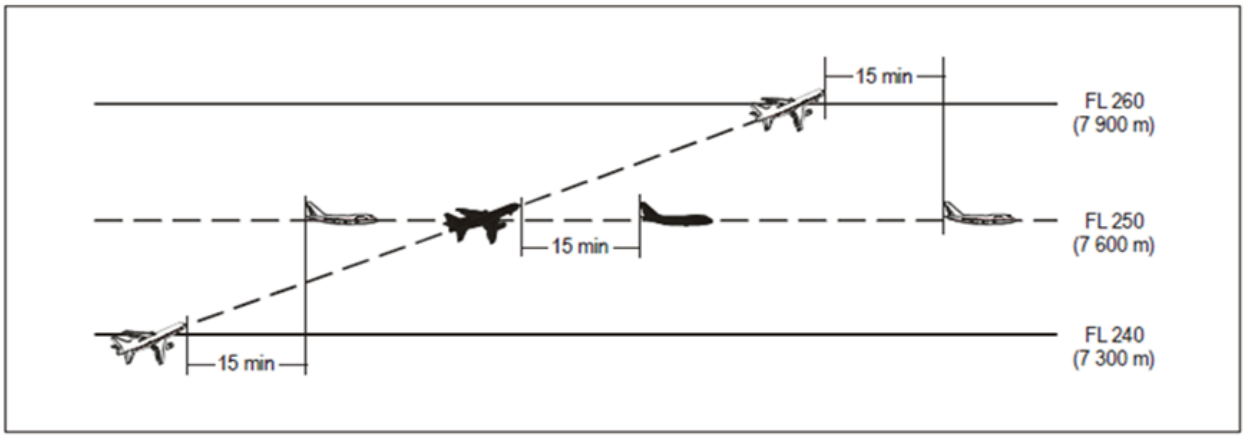


**Figure 19 — 15-minute separation between aircraft climbing and on crossing tracks**

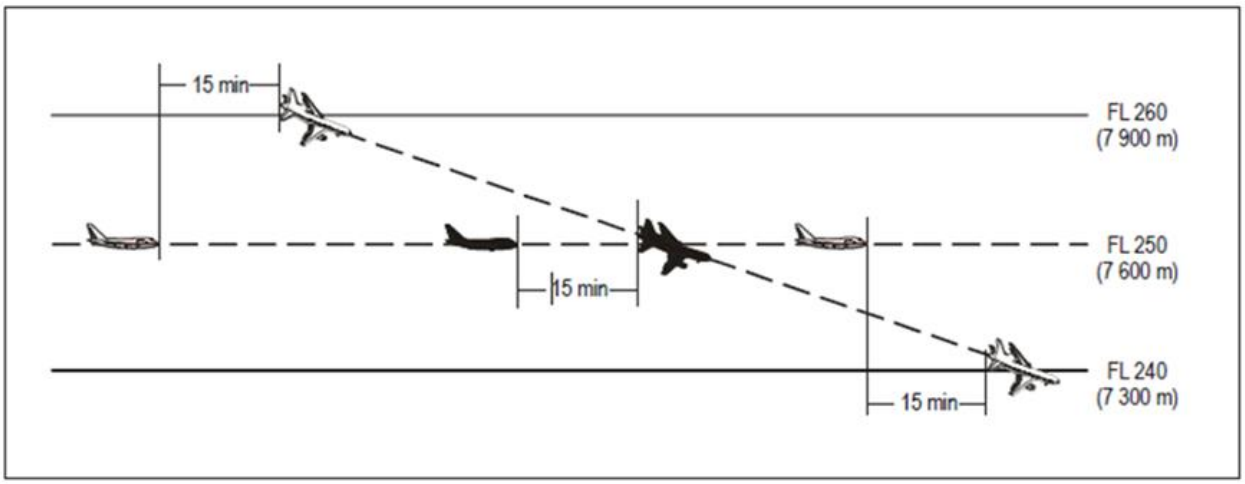


**Figure 20 — 15-minute separation between aircraft descending and on crossing tracks**

(2) 10 minutes while vertical separation does not exist if navigation aids permit frequent determination of position and speed (see Figures 21 and 22).

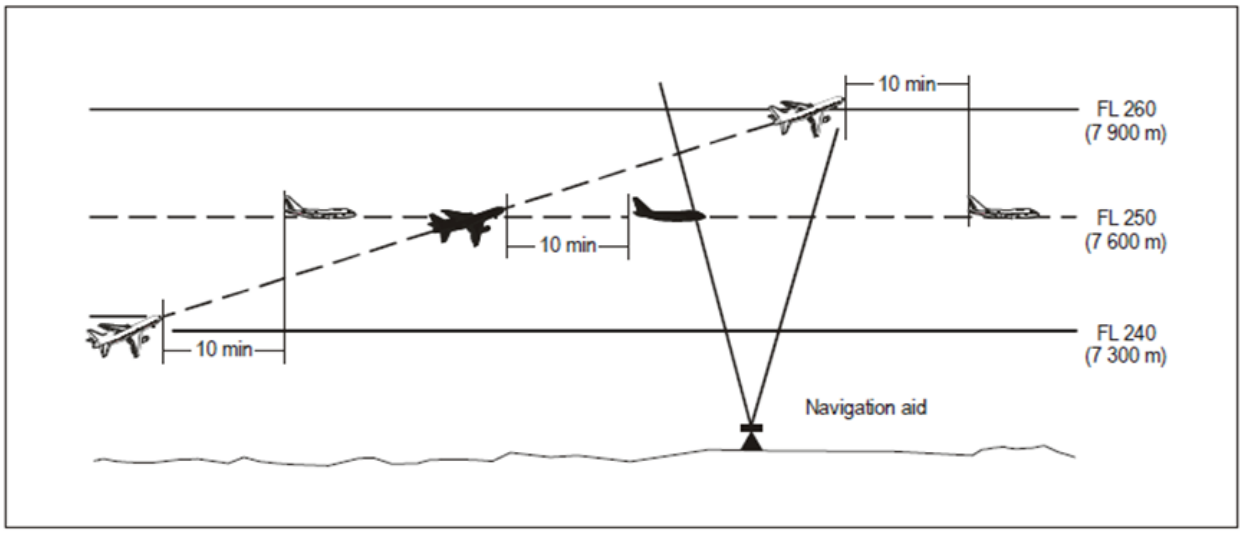


**Figure 21 — 10-minute separation between aircraft climbing and on crossing tracks**

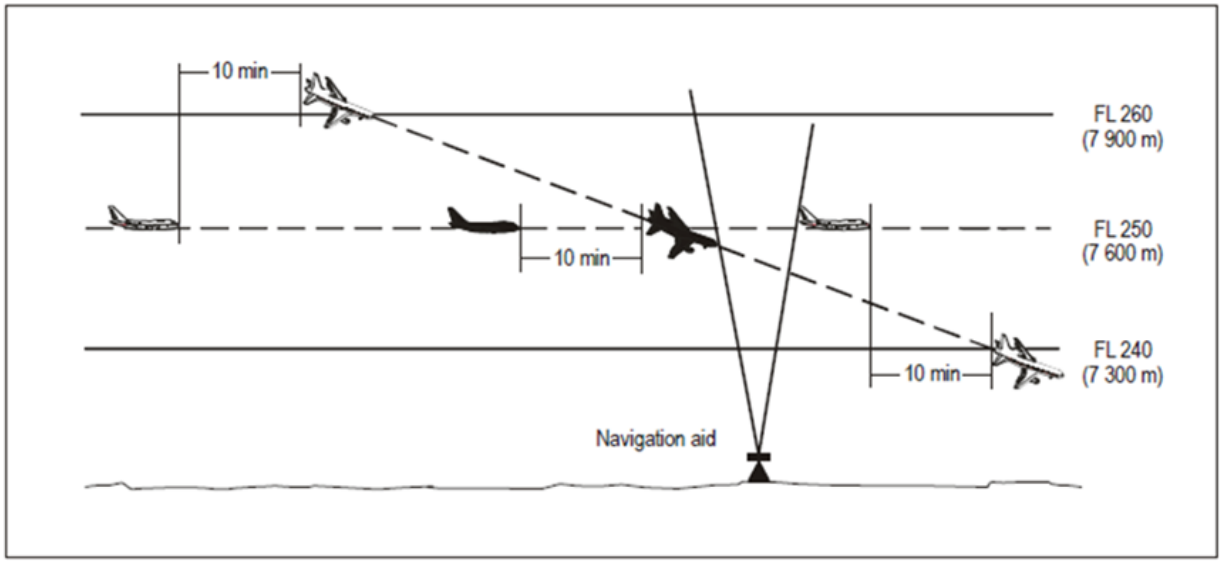


**Figure 22 — 10-minute separation between aircraft descending and on crossing tracks**

**(c) Aircraft on reciprocal tracks**

Where lateral separation is not provided, vertical separation should be provided for at least 10 minutes prior to and after the time the aircraft are estimated to pass, or are estimated to have passed (see Figure 23). Provided it has been determined that the aircraft have passed each other, this minimum need not apply.

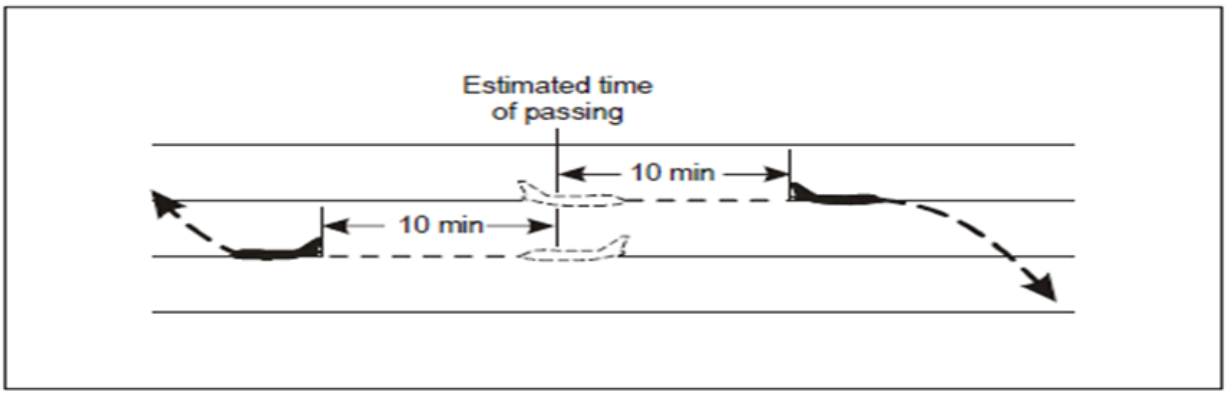


**Figure 23 — 10-minute separation between aircraft on reciprocal tracks**

***(PANS ATM — Sections 5.4.2.2.2.1, 5.4.2.2.2.2 and 5.4.2.2.2.3)***

**AMC3 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING DISTANCE MEASURING EQUIPMENT (DME) AND/OR GNSS — AIRCRAFT AT THE SAME CRUISING LEVEL

Longitudinal separation minima based on distance using distance measuring equipment (DME) and/or GNSS should be established between aircraft at the same cruising level, as follows:

**(a) Aircraft on the same track**

(1) 37 km (20 NM), provided:

(i) each aircraft utilises:

(A) the same 'on-track' DME station when both aircraft are utilising DME; or

(B) an 'on-track'" DME station and a collocated waypoint when one aircraft is utilising DME and the other is utilising GNSS; or

(C) the same waypoint when both aircraft are utilising GNSS; and

(ii) separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed (see Figure 24);

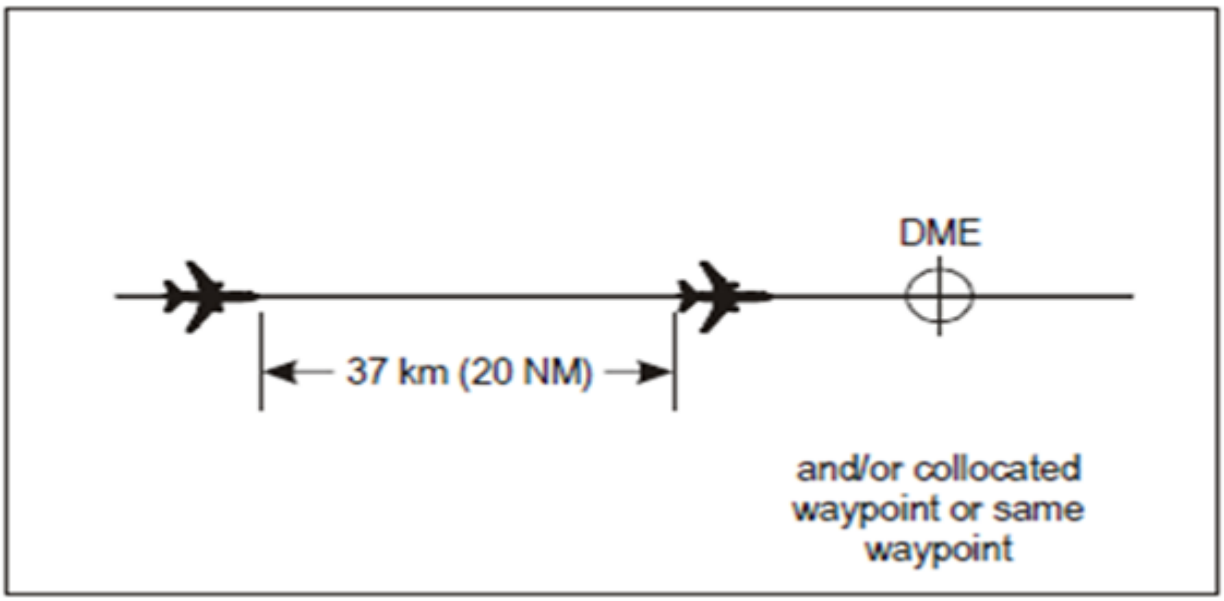


**Figure 24 — 37 Km (20 NM) DME and/or GNSS-based separation between aircraft on same track and same level**

(2) 19 km (10 NM), provided:

(i) the leading aircraft maintains a true airspeed of 37 km/h (20 kt) or more faster than the succeeding aircraft;

(ii) each aircraft utilises:

(A) the same 'on-track' DME station when both aircraft are utilising DME; or

(B) an 'on-track' DME station and a collocated waypoint when one aircraft is utilising DME and the other is utilising GNSS; or

(C) the same waypoint when both aircraft are utilising GNSS; and

(iii) separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at such intervals as are necessary to ensure that the minimum is established and will not be infringed (see Figure 25).

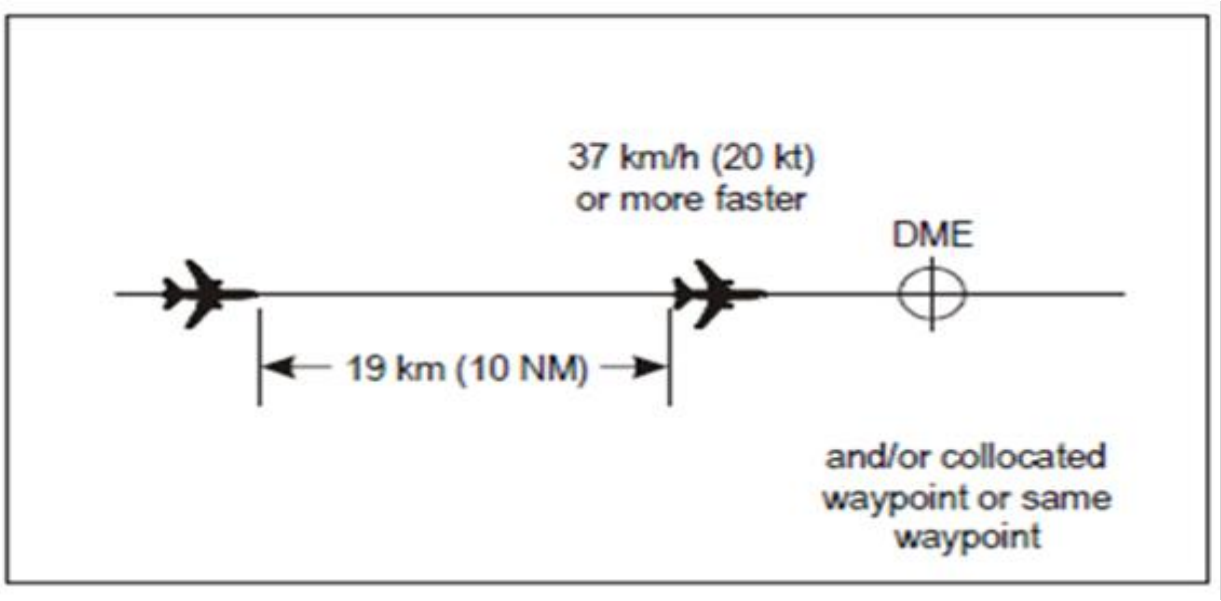


**Figure 25 — 19 Km (10 NM) DME and/or GNSS-based separation between aircraft on same track and same level**

**(b) Aircraft on crossing tracks**

The longitudinal separation prescribed in point (a) should also apply, provided each aircraft reports distance from the DME station and/or collocated waypoint or same waypoint located at the crossing point of the tracks and that the relative angle between the tracks is less than 90 degrees (see Figures 26 and 27).

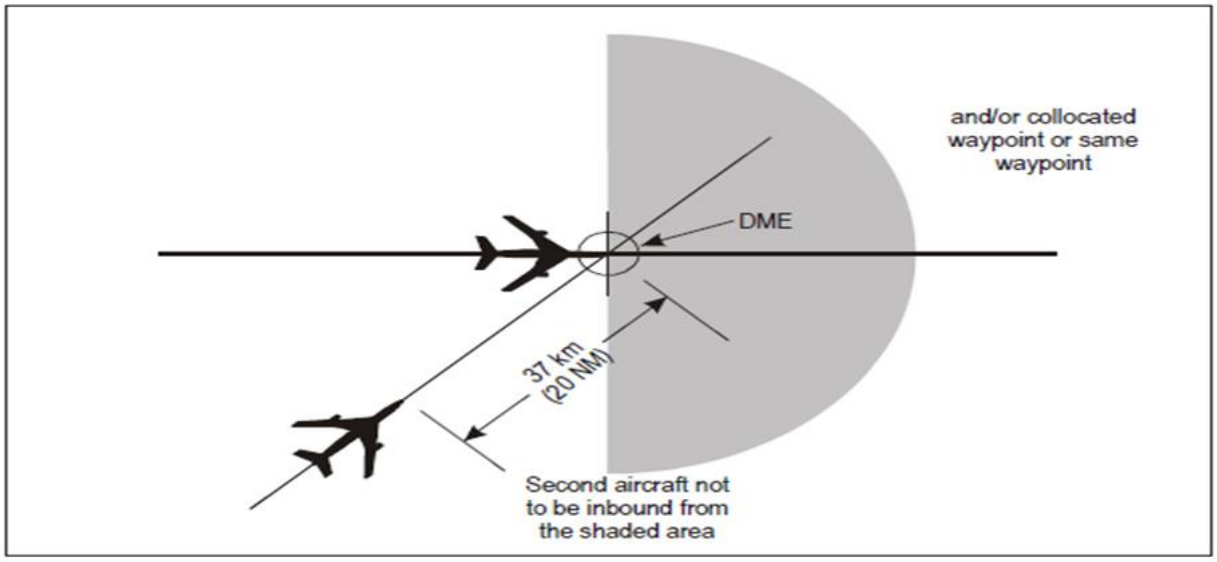


**Figure 26 — 37 Km (20 NM) DME and/or GNSS-based separation between aircraft on crossing tracks and same level**

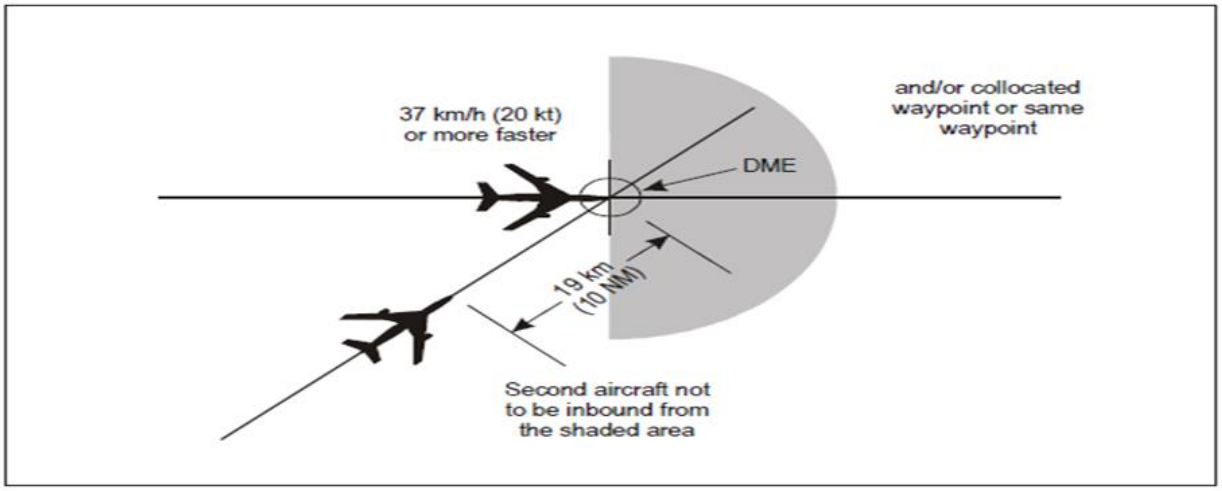


**Figure 27 — 19 Km (10 NM) DME and/or GNSS-based separation between aircraft on crossing tracks and same level**

***(PANS ATM — Sections 5.4.2.3.3.1 and 5.4.2.3.3.2)***

**AMC4 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING DISTANCE MEASURING EQUIPMENT (DME) AND/OR GNSS — AIRCRAFT CLIMBING OR DESCENDING

Longitudinal separation minima based on distance using distance measuring equipment (DME) AND/OR GNSS should be established between aircraft climbing or descending, as follows:

**(a) Aircraft on the same track**

19 km (10 NM) while vertical separation does not exist, provided:

(1) each aircraft utilises:

(i) the same 'on-track' DME station when both aircraft are utilising DME; or

(ii) an 'on-track' DME station and a collocated waypoint when one aircraft is utilising DME and the other is utilising GNSS; or

(iii) the same waypoint when both aircraft are utilising GNSS; and

(2) one aircraft maintains a level while vertical separation does not exist; and

(3) separation is established by obtaining simultaneous DME and/or GNSS readings from the aircraft (see Figures 28 and 29).

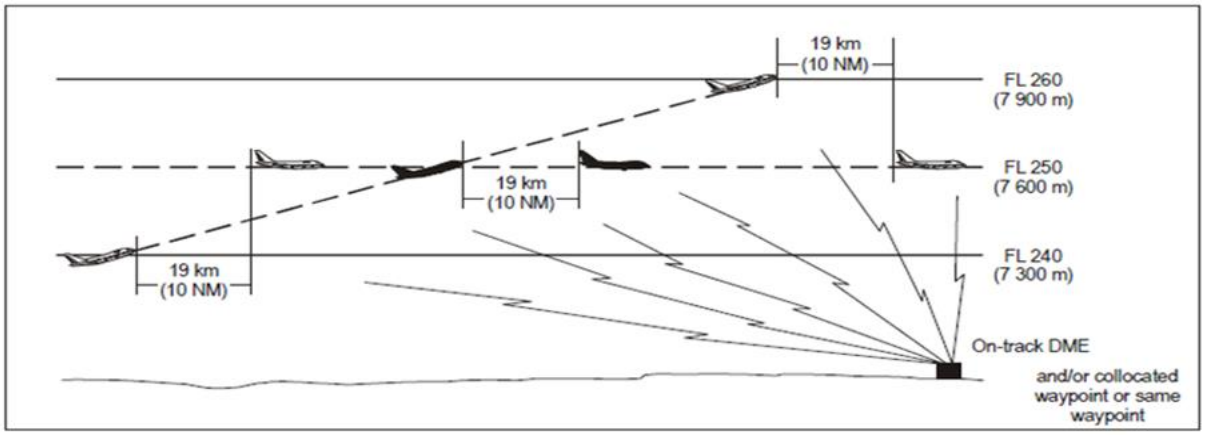


**Figure 28 — 19 Km (10 NM) DME and/or GNSS-based separation between aircraft climbing and on same track**

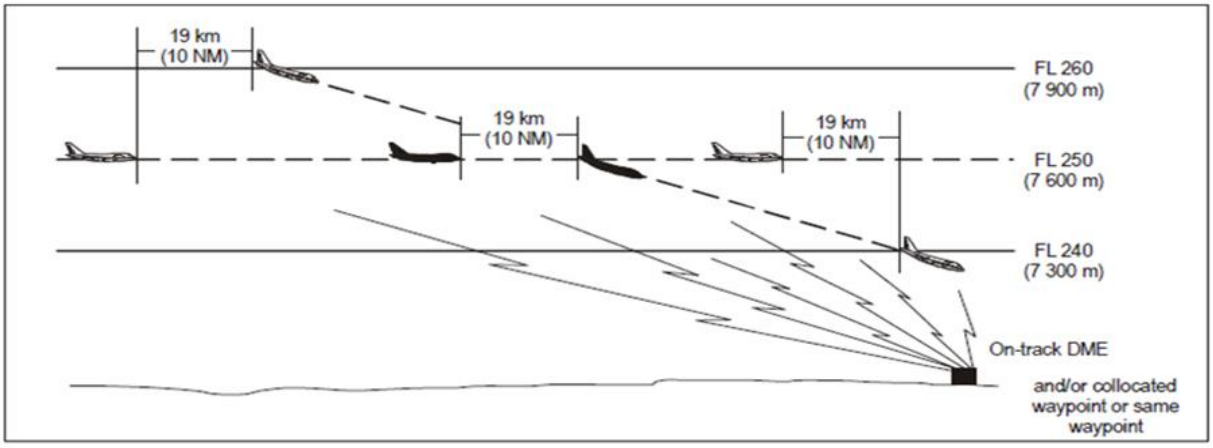


**Figure 29 — 19 Km (10 NM) DME and/or GNSS-based separation between aircraft descending and on same track**

**(b) Aircraft on reciprocal tracks**

Aircraft utilising on-track DME and/or collocated waypoint or same waypoint may be cleared to climb or descend through the levels occupied by other aircraft utilising on-track DME and/or collocated waypoint or same waypoint, provided that it has been positively established that the aircraft have passed each other and are at least 10 NM apart, or such other value determined by the ATS provider and approved by the competent authority.

***(PANS ATM — Sections 5.4.2.3.4.1 and 5.4.2.3.4.2)***

**GM1 to AMC3 ATS.TR.210(c)(2)(i) and to AMC4 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING DISTANCE MEASURING EQUIPMENT (DME) AND/OR GNSS — APPLICATION

(a) Where the term 'on track' is used in the provisions relating to the application of longitudinal separation minima using DME and/or GNSS, it means that the aircraft is flying either directly inbound to or directly outbound from the station/waypoint.

(b) Separation should be established by maintaining not less than the specified distance(s) between aircraft positions as reported by reference to DME in conjunction with other appropriate

navigation aids and/or GNSS. This type of separation should be applied between two aircraft using DME, or two aircraft using GNSS, or one aircraft using DME and one aircraft using GNSS. Direct controller-pilot VHF voice communication should be maintained while such separation is used.

(c) For the purpose of applying GNSS-based separation minimum, a distance derived from an integrated navigation system incorporating GNSS input is regarded as equivalent to GNSS distance.

(d) When applying these separation minima between any aircraft with area navigation capability, controllers should specifically request GNSS-derived distance.

***(PANS ATM — Sections 5.4.2.3 (Note to Section), 5.4.2.3.1, 5.4.2.3.1 (Note to Section) and 5.4.2.3.2)***

**AMC5 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON TIME

When the Mach number technique is applied and provided that:

(a) the aircraft concerned have reported over the same common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or

(b) if the aircraft have not reported over the same common point and it is possible to ensure, by radar, ADS-B or other means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks,

minimum longitudinal separation between turbojet aircraft on the same track, whether in level, climbing or descending flight should be:

(1) 10 minutes. In this case, the preceding aircraft should maintain a true Mach number equal to or greater than that maintained by the following aircraft; or

(2) between 9 and 5 minutes inclusive, provided that the preceding aircraft is maintaining a true Mach number greater than the following aircraft in accordance with the following:

(i) 9 minutes if the preceding aircraft is Mach 0.02 faster than the following aircraft;

(ii) 8 minutes if the preceding aircraft is Mach 0.03 faster than the following aircraft;

(iii) 7 minutes if the preceding aircraft is Mach 0.04 faster than the following aircraft;

(iv) 6 minutes if the preceding aircraft is Mach 0.05 faster than the following aircraft;

(v) 5 minutes if the preceding aircraft is Mach 0.06 faster than the following aircraft.

***(PANS ATM — Sections 5.4.2.4.3 and 5.4.2.4.4)***

**AMC6 ATS.TR.210(c)(2)(i) Operation of ATC service**

PROCEDURAL SEPARATION — LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON DISTANCE USING RNAV

(a) The controller should not apply RNAV distance-based separation minima after having received pilot advice indicating navigation equipment deterioration or failure.

(b) A 150 km (80 NM) RNAV distance-based separation minimum with Mach number technique may be used on same-direction tracks in lieu of a 10-minute longitudinal separation minimum with Mach number technique, provided that:

(1) each aircraft reports its distance to or from the same 'on-track' common point;

(2) separation between aircraft at the same level is checked by obtaining simultaneous RNAV distance readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed (see Figure 30);

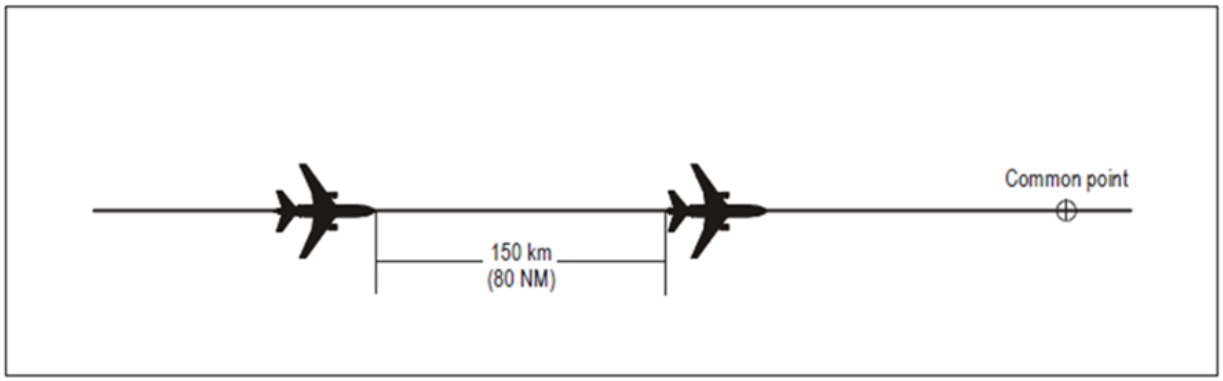


**Figure 30 — 150 Km (80 NM) RNAV-based separation between aircraft at the same level**

(3) separation between aircraft climbing or descending is established by obtaining simultaneous RNAV distance readings from the aircraft (see Figures 31 and 32); and

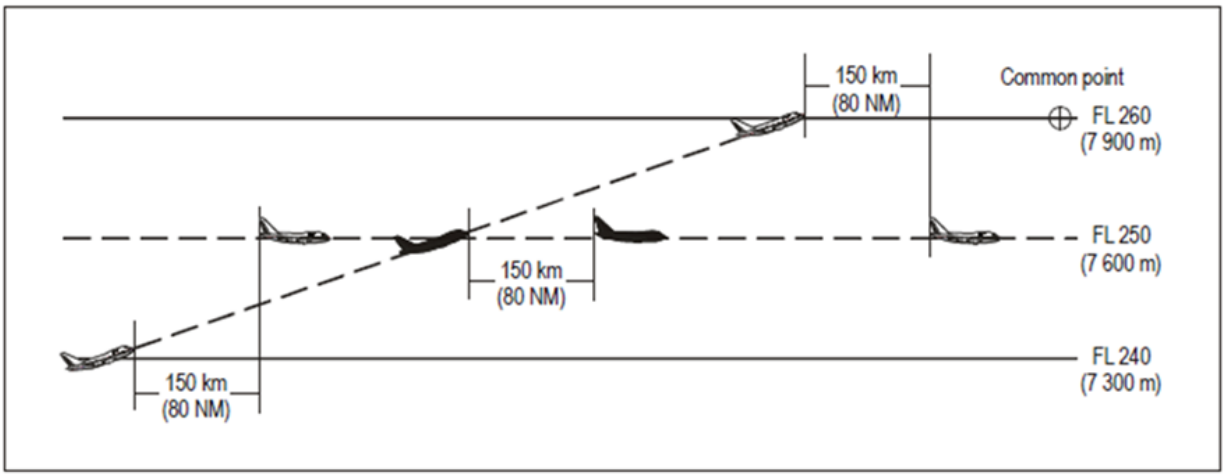


**Figure 31 — 150 Km (80 NM) RNAV-based separation between aircraft climbing and on same track**

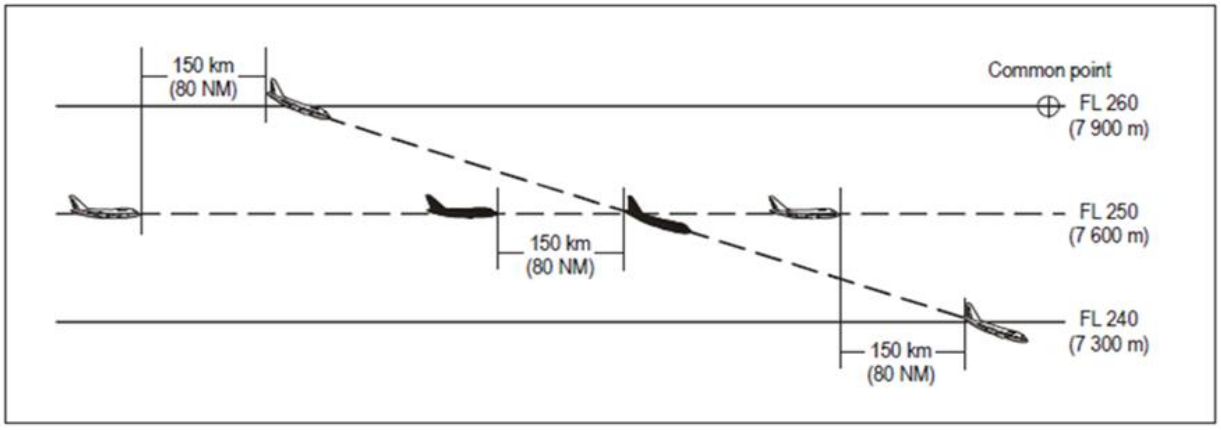


**Figure 32 — 150 Km (80 NM) RNAV-based separation between aircraft descending and on same track**

(4) in the case of aircraft climbing or descending, one aircraft maintains a level while vertical separation does not exist.

(c) Aircraft on reciprocal tracks

Aircraft utilising RNAV may be cleared to climb or descend to or through the levels occupied by other aircraft utilising RNAV, provided it has been positively established by simultaneous RNAV distance readings to or from the same 'on-track' common point that the aircraft have passed each other and are at least 150 km (80 NM) apart (see Figure 33).

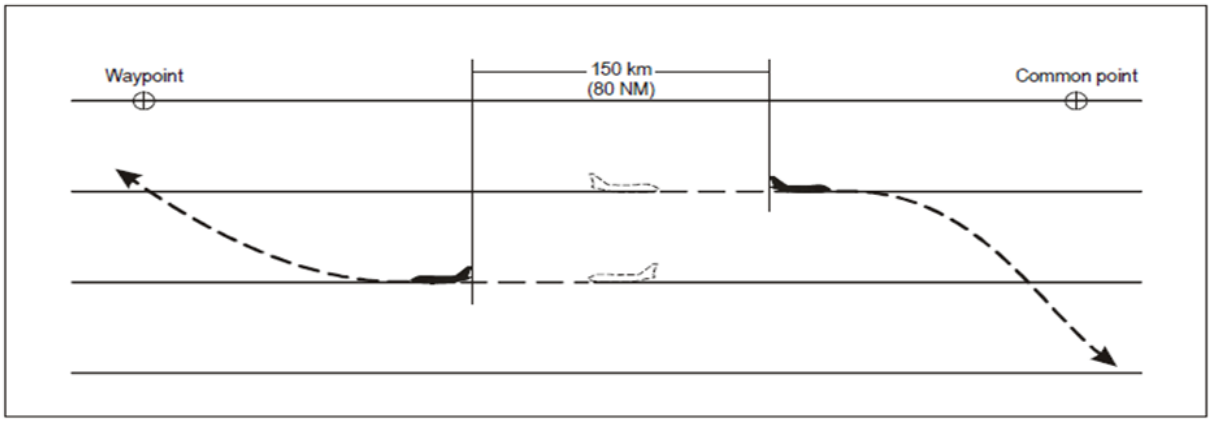


**Figure 33 — 150 Km (80 NM) RNAV-based separation between aircraft on reciprocal tracks**

***(PANS ATM — Sections 5.4.2.5.2, 5.4.2.5.5, and 5.4.2.5.7)***

**GM1 to AMC6 ATS.TR.210(c)(2)(i) Operation of ATC service**

LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON DISTANCE USING RNAV — APPLICATION

(a) Separation should be established by maintaining not less than the specified distance between aircraft positions as reported by reference to RNAV equipment. Direct controller-pilot communications should be maintained, while such separation is used. Where high frequency or general purpose extended range very high frequency air–ground communication channels are used for area control service and are worked by air–ground communicators, suitable

arrangements should be made to permit direct controller-pilot communications, or monitoring by the controller of all air–ground communications.

(b) To assist pilots to readily provide the required RNAV distance information, such position reports should, wherever possible, be referenced to a common waypoint ahead of both aircraft.

(c) RNAV distance-based separation may be applied between RNAV-equipped aircraft when operating on designated RNAV routes or on ATS routes defined by VOR.

(d) To facilitate application of the procedure where a considerable change of level is involved, a descending aircraft may be cleared to some convenient level above the lower aircraft, or a climbing aircraft to some convenient level below the higher aircraft, to permit a further check on the separation that will be obtained while vertical separation does not exist.

***(PANS ATM — Sections 5.4.2.5.3, 5.4.2.5.3.1, 5.4.2.5.4 and 5.4.2.5.6 (Note to Section))***

**AMC7 ATS.TR.210(c)(2)(i) Operation of ATC service**

RUNWAY SEPARATION MINIMA BETWEEN DEPARTING AIRCRAFT AND OTHER AIRCRAFT USING THE SAME RUNWAY

Except as provided in AMC9 ATS.TR.210(c)(2)(i) as regards reduced runway separation minima between aircraft using the same runway, and in ATS.TR.220 as regards time-based wake turbulence separation minima, the aerodrome control tower should not permit a departing aircraft to commence take-off until the preceding departing aircraft has crossed the end of the runway in use or has started a turn or until all preceding landing aircraft are clear of the runway in use.

Position limits to be reached by a landed aircraft (A) or a departing aircraft (B or C) before an arriving aircraft may be cleared to cross the threshold of the runway-in-use or a departing aircraft may be cleared to take off, unless otherwise prescribed.

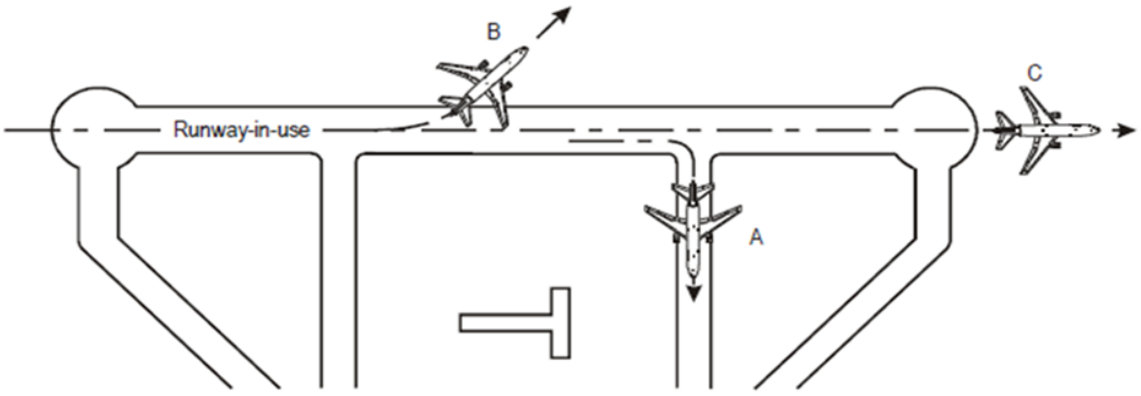


**Figure 34 — Separation between departing and arriving aircraft**

***(PANS ATM — Section 7.9.2)***

**AMC8 ATS.TR.210(c)(2)(i) Operation of ATC service**
RUNWAY SEPARATION OF LANDING AIRCRAFT AND PRECEDING LANDING AND DEPARTING AIRCRAFT USING THE SAME RUNWAY

Except as provided AMC9 ATS.TR.210(c)(2)(i) as regards reduced runway separation minima between aircraft using the same runway, and in ATS.TR.220 as regards time-based wake turbulence separation minima, the aerodrome control tower should not permit a landing aircraft to cross the runway threshold on its final approach until the preceding departing aircraft has crossed the end of the runway in use, or has started a turn, or until all preceding landing aircraft are clear of the runway in use.

***(PANS ATM — Section 7.10.1)***

**AMC9 ATS.TR.210(c)(2)(i) Operation of ATC service**
REDUCED RUNWAY SEPARATION MINIMA BETWEEN AIRCRAFT USING THE SAME RUNWAY

(a) The ATS provider may prescribe lower minima than those established in AMC7 ATS.TR.210(c)(2)(i) concerning separation of departing aircraft, and in AMC8 ATS.TR.210(c)(2)(i) concerning separation of landing aircraft and preceding landing and departing aircraft using the same runway, after consultation with the operators. The safety assessment to be performed in support of the application of reduced separation minima should be carried out for each runway for which the reduced minima are intended, taking into account factors such as:

(1) runway length;

(2) aerodrome layout; and

(3) types/categories of aircraft involved.

(b) Reduced runway separation minima should only be applied during the hours of daylight from 30 minutes after local sunrise to 30 minutes before local sunset.

(c) For the purpose of reduced runway separation, aircraft should be classified as follows:

(1) Category 1 aircraft: single-engine propeller aircraft with a maximum certificated take-off mass of 2 000 kg or less;

(2) Category 2 aircraft: single-engine propeller aircraft with a maximum certificated take-off mass of more than 2 000 kg but less than 7 000 kg; and twin-engine propeller aircraft with a maximum certificated take-off mass of less than 7 000 kg;

(3) Category 3 aircraft: all other aircraft.

(d) Reduced runway separation minima should not apply between a departing aircraft and a preceding landing aircraft.

(e) Reduced runway separation minima should be subject to the following conditions:

(1) wake turbulence separation minima should be applied;

(2) visibility should be at least 5 km and ceiling shall not be lower than 300 m (1 000 ft);

(3) tailwind component should not exceed 5 kt;

(4) there should be available means, such as suitable landmarks, to assist the controller in assessing the distances between aircraft. A surface surveillance system that provides the

air traffic controller with position information on aircraft may be utilised, provided that approval for operational use of such equipment includes a safety assessment to ensure that all requisite operational and performance requirements are met;

(5) minimum separation continues to exist between two departing aircraft immediately after take-off of the second aircraft;

(6) traffic information should be provided to the flight crew of the succeeding aircraft concerned; and

(7) the braking action should not be adversely affected by runway contaminants such as ice, slush, snow and water.

(f) Reduced runway separation minima which may be applied at an aerodrome should be determined for each separate runway. The separation to be applied should in no case be less than the following minima:

(1) landing aircraft:

(i) a succeeding landing Category 1 aircraft may cross the runway threshold when the preceding aircraft is a Category 1 or 2 aircraft which either:

(A) has landed and has passed a point at least 600 m from the threshold of the runway, is in motion and will vacate the runway without backtracking; or

(B) is airborne and has passed a point at least 600 m from the threshold of the runway;

(ii) a succeeding landing Category 2 aircraft may cross the runway threshold when the preceding aircraft is a Category 1 or 2 aircraft which either:

(A) has landed and has passed a point at least 1 500 m from the threshold of the runway, is in motion and will vacate the runway without backtracking; or

(B) is airborne and has passed a point at least 1 500 m from the threshold of the runway;

(iii) a succeeding landing aircraft may cross the runway threshold when a preceding Category 3 aircraft:

(A) has landed and has passed a point at least 2 400 m from the threshold of the runway, is in motion and will vacate the runway without backtracking; or

(B) is airborne and has passed a point at least 2 400 m from the threshold of the runway;

(2) departing aircraft:

(i) a Category 1 aircraft may be cleared for take-off when the preceding departing aircraft is a Category 1 or 2 aircraft which is airborne and has passed a point at least 600 m from the position of the succeeding aircraft;

(ii) a Category 2 aircraft may be cleared for take-off when the preceding departing aircraft is a Category 1 or 2 aircraft which is airborne and has passed a point at least 1 500 m from the position of the succeeding aircraft; and

(iii) an aircraft may be cleared for take-off when a preceding departing Category 3 aircraft is airborne and has passed a point at least 2 400 m from the position of the succeeding aircraft.

***(PANS ATM — Sections 7.11.1, 7.11.3, 7.11.4, 7.11.5, 7.11.6 and 7.11.7)***

**AMC10 ATS.TR.210(c)(2)(i) Operation of ATC service**
PROCEDURAL CONTROL — MINIMUM SEPARATION BETWEEN DEPARTING AIRCRAFT

(a) The aerodrome controller should apply an 1-minute separation if aircraft are to fly on tracks diverging by at least 45 degrees immediately after take-off so that lateral separation is provided (see Figure 5-37).

(b) When:

(1) aircraft are using parallel runways; or

(2) in a context of operations on diverging runways which do not cross, the pilot has accepted a take-off direction which is not into the wind, in accordance with the procedure described in point (b) of GM1 ATS.TR.260,

this minimum may be reduced, provided instructions covering the procedure have been established by the ATS provider and approved by the competent authority and lateral separation is effected immediately after take-off.

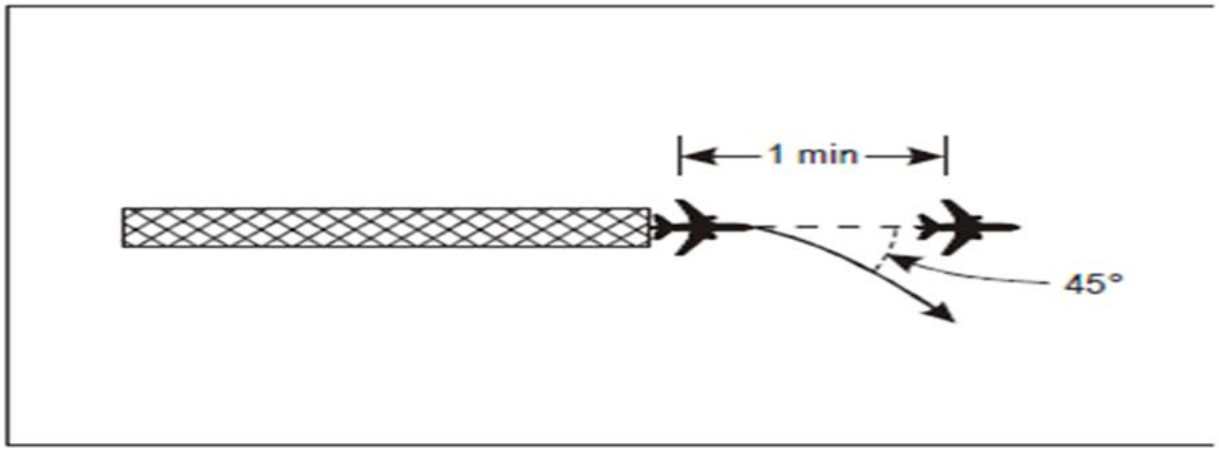


**Figure 35 — 1-minute separation between departing aircraft following tracks diverging by at least 45 degrees**

(c) The controller should apply a 2-minute separation between take-offs when the preceding aircraft is 74 km/h (40 kt) or more faster than the following aircraft and both aircraft will follow the same track (see Figure 36).

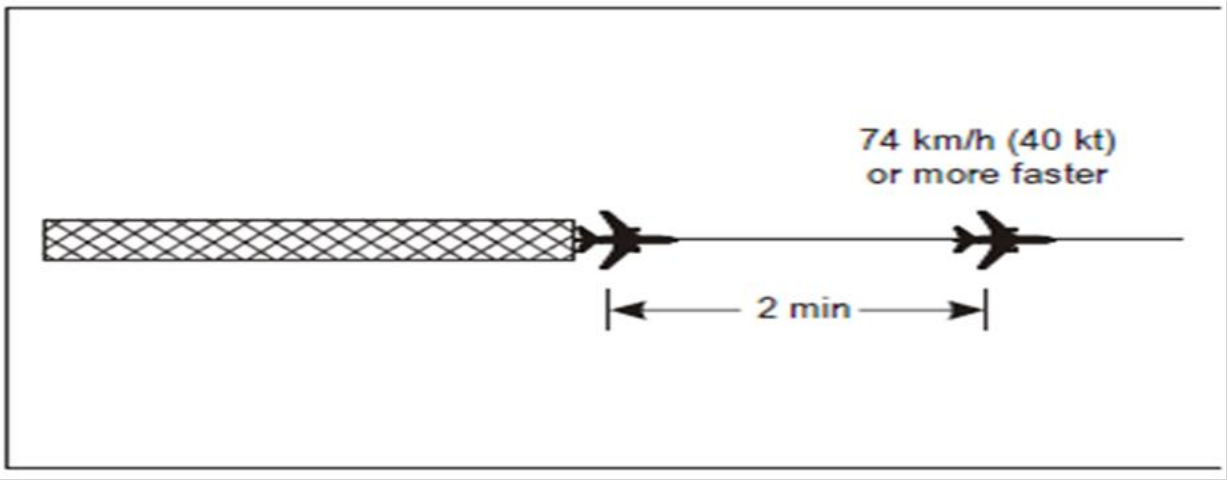


**Figure 36 — 2-minute separation between aircraft following same track**

(d) The controller should apply a 5-minute separation while vertical separation does not exist if a departing aircraft will be flown through the level of a preceding departing aircraft and both aircraft propose to follow the same track (see Figure 37). The controller should take action to ensure that the 5-minute separation will be maintained or increased while vertical separation does not exist.

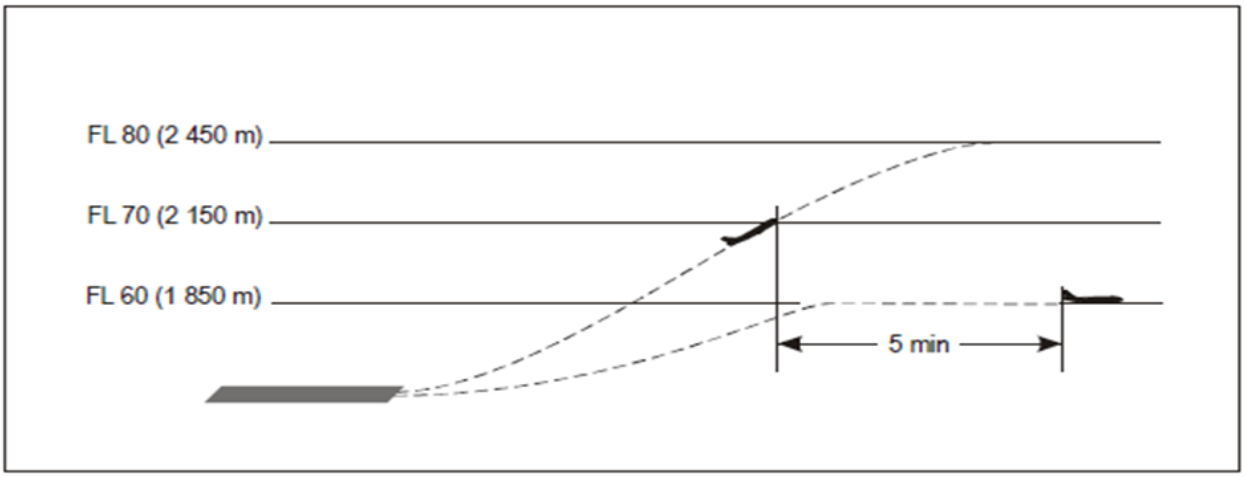


**Figure 37 — 5-minute separation of departing aircraft following same track**

***(PANS ATM — Sections 5.6.1, 5.6.2 and 5.6.3)***

**AMC11 ATS.TR.210(c)(2)(i) Operation of ATC service**
PROCEDURAL CONTROL — SEPARATION OF DEPARTING AIRCRAFT FROM ARRIVING AIRCRAFT

The aerodrome controller should apply the following separation when take-off clearance is based on the position of an arriving aircraft:

(a) If an arriving aircraft is making a complete instrument approach, a departing aircraft may take off:

(1) in any direction until an arriving aircraft has started its procedure turn or base turn leading to final approach;

(2) in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach after the arriving aircraft has started procedure turn or base turn leading to final approach, provided that the take-off will be made at least 3 minutes before the arriving aircraft is estimated to be over the beginning of the instrument runway (see Figure 38).

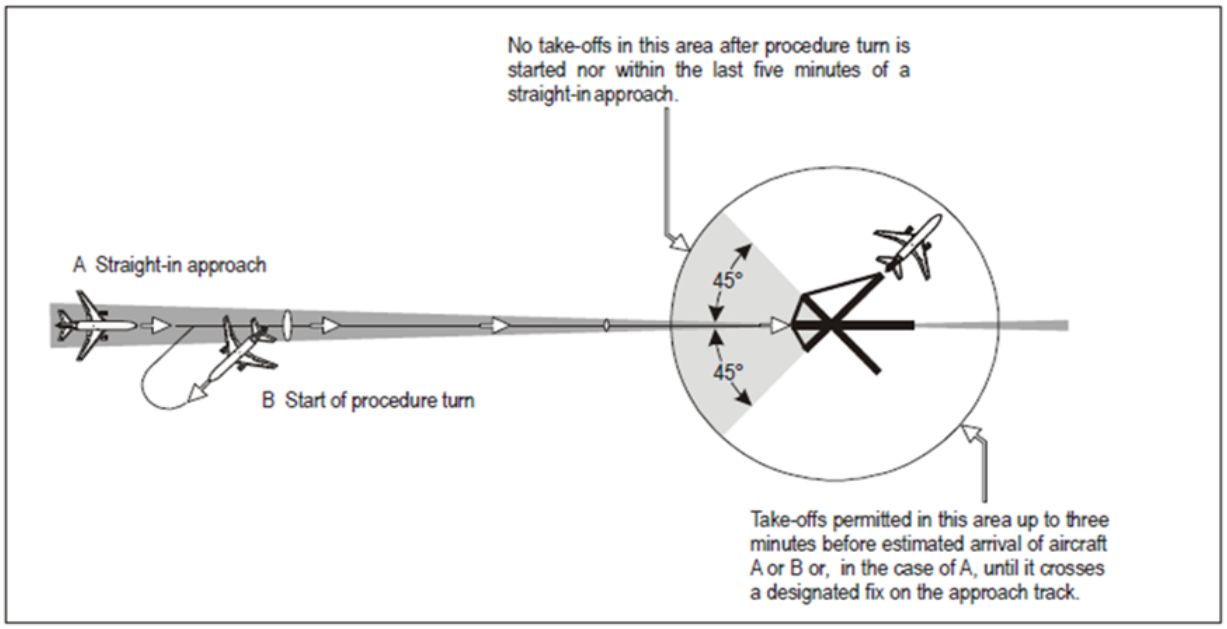


**Figure 38 — Separation of departing aircraft from arriving aircraft**

(b) If an arriving aircraft is making a straight-in approach, a departing aircraft may take off:

(1) in any direction until 5 minutes before the arriving aircraft is estimated to be over the instrument runway;

(2) in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach of the arriving aircraft:

(i) until 3 minutes before the arriving aircraft is estimated to be over the beginning of the instrument runway (see Figure 38); or

(ii) before the arriving aircraft crosses a designated fix on the approach track; the location of such fix should be determined by the ATS provider after consultation with the operators, and approved by the competent authority.

***(PANS ATM — Sections 5.7.1, 5.7.1.1 and 5.7.1.2)***

**AMC1 ATS.TR.210(c)(2)(ii) Operation of ATC service**
PROCEDURAL CONTROL — LATERAL SEPARATION CRITERIA AND MINIMA

Lateral separation should be applied by one of the following means:

**(a) By reference to the same or different geographic locations**

By position reports which positively indicate that the aircraft are over different geographic locations as determined visually or by reference to a navigation aid (see Figure 39).

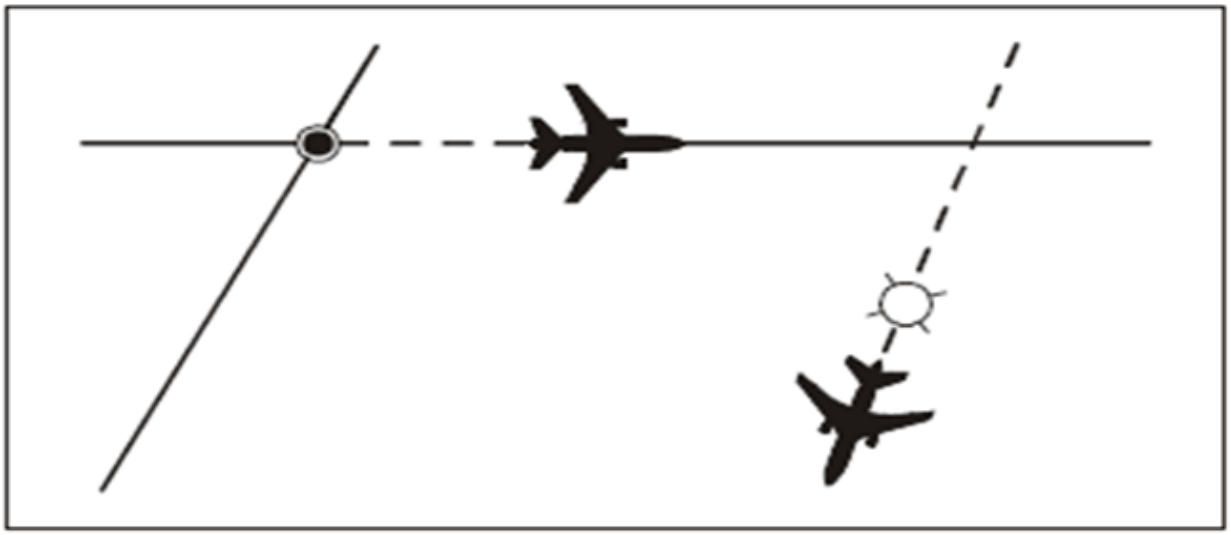

**Figure 39 — Using same or different geographic locations**

**(b) By use of NDB, VOR or GNSS on intersecting tracks or ATS routes**

By requiring aircraft to fly on specified tracks which are separated by a minimum amount appropriate to the navigation aid employed. Lateral separation between two aircraft exists when:

(1) VOR: both aircraft are established on radials diverging by at least 15 degrees and at least one aircraft is at a distance of 28 km (15 NM) or more from the facility (see Figure 40);

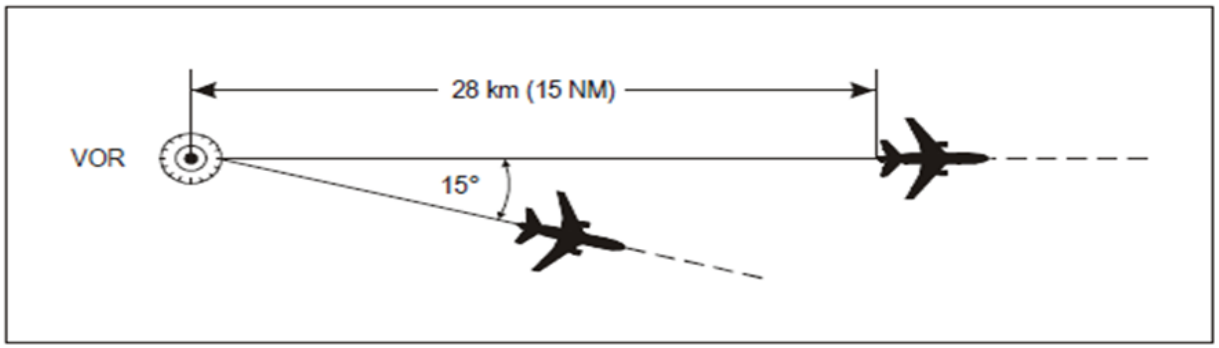


**Figure 40 — Separation using the same VOR**

(2) NDB: both aircraft are established on tracks to or from the NDB which are diverging by at least 30 degrees and at least one aircraft is at a distance of 28 km (15 NM) or more from the facility (see Figure 41**);**

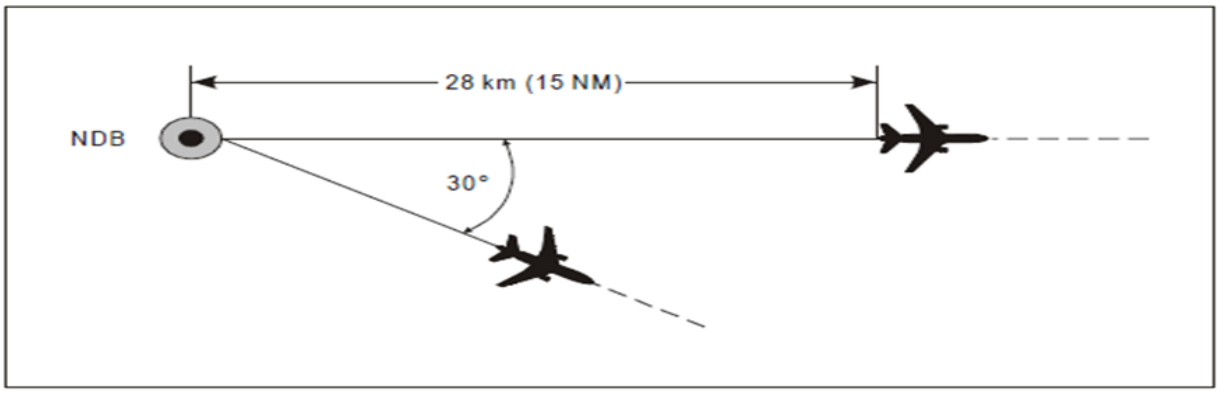


**Figure 41 — Separation using the same NDB**

(3) GNSS/GNSS: each aircraft is confirmed to be established on a track with zero offset between two waypoints and at least one aircraft is at a minimum distance from a common point as specified in Table 1 below; or

(4) VOR/GNSS: the aircraft using VOR is established on a radial to or from the VOR and the other aircraft using GNSS is confirmed to be established on a track with zero offset between two waypoints and at least one aircraft is at a minimum distance from a common point as specified in Table 1 below.

Table 1

| | Aircraft 1: VOR or GNSS<br>Aircraft 2: GNSS | |
|---|---|---|
| Angular difference between tracks measured at the common point (degrees) | FL010–FL090<br>Distance from a common point | FL200–FL600<br>Distance from a common point |
| 15–135 | 27.8 km (15 NM) | 43 km (23 NM) |
| The distances in the table are ground distances. States must take into account the distance (slant range) from the source of a DME signal to the receiving antenna when DME is being utilised to provide range information. | | |

**(c) By use of different navigation aids or methods**

Lateral separation between aircraft using different navigation aids, or when one aircraft is using RNAV equipment, should be established by ensuring that the derived protected airspaces for the navigation aid(s) or RNP do not overlap.

**(d) Lateral separation of aircraft on published instrument flight procedures for arrivals and departures**

Lateral separation of departing and/or arriving aircraft, using instrument flight procedures, will exist:

(1) where the distance between any combination of RNAV 1 with RNAV 1, or RNP 1, RNP APCH or RNP AR APCH tracks is not less than 13 km (7 NM); or

(2) where the distance between any combination of RNP 1, RNP APCH or RNP AR APCH tracks is not less than 9.3 km (5 NM); or

(3) where the protected areas of tracks designed using obstacle clearance criteria do not overlap and provided operational error is considered.

**(e) RNAV operations where RNP is specified on parallel tracks or ATS routes**

Within designated airspace or on designated routes, where RNP is specified, lateral separation between RNAV-equipped aircraft may be obtained by requiring aircraft to be established on the centre lines of parallel tracks or ATS routes spaced at a distance which ensures that the protected airspace of the tracks or ATS routes does not overlap.

**(f) Transitioning into airspace where a greater lateral separation minimum applies**

Lateral separation will exist when aircraft are established on specified tracks which:

(1) are separated by an appropriate minimum; and

(2) diverge by at least 15 degrees until the applicable lateral separation minimum is established;

provided that it is possible to ensure, by means approved by the competent authority, that aircraft have the navigation capability necessary to ensure accurate track guidance.

***(PANS ATM — Sections 5.4.1.2.1, 5.4.1.2.1.1, 5.4.1.2.1.2, 5.4.1.2.1.3, 5.4.1.2.1.4. 5.4.1.2.1.5 and 5.4.1.2.1.9)***

**GM1 to AMC1 ATS.TR.210(c)(2)(ii) Operation of ATC service**
PROCEDURAL CONTROL — LATERAL SEPARATION OF AIRCRAFT ON PUBLISHED INSTRUMENT FLIGHT PROCEDURES FOR ARRIVALS AND DEPARTURES

ICAO Circular 324 'Guidelines for Lateral Separation of Arriving and Departing Aircraft on Published Adjacent Instrument Flight Procedures' contains information on separation of arrival and departure tracks using non-overlapping protected areas based on obstacle clearance criteria, as provided for in the Procedures for Air Navigation Services — Aircraft Operations, Volume II — Construction of Visual and Instrument Flight Procedures (PANS-OPS, Doc 8168).

***(PANS ATM — Section 5.4.1.2.1.4.1)***

**GM1 ATS.TR.210(c)(2)(ii) Operation of ATC service**
PROCEDURAL CONTROL — LATERAL SEPARATION APPLICATION

(a) Lateral separation should be applied so that the distance between those portions of the intended routes for which the aircraft are to be laterally separated is never less than an established distance to account for navigational inaccuracies plus a specified buffer. This buffer should be determined by the ATS provider and approved by the competent authority and included in the lateral separation minima as an integral part thereof.

(b) Lateral separation of aircraft is obtained by requiring operation on different routes or in different geographical locations as determined by visual observation, by the use of navigation aids or by the use of area navigation (RNAV) equipment.

(c) When an aircraft turns onto an ATS route via a flyover waypoint, a separation other than the normally prescribed lateral separation is to be applied for that portion of the flight between the flyover waypoint where the turn is executed and the next waypoint (see Figures 42 and 43).

(d) For flyover waypoints, aircraft are required to first fly over the waypoint before executing the turn. After the turn the aircraft may either navigate to join the route immediately after the turn

or navigate to the next defined waypoint before re-joining the route. This will require additional lateral separation on the overflown side of the turn.

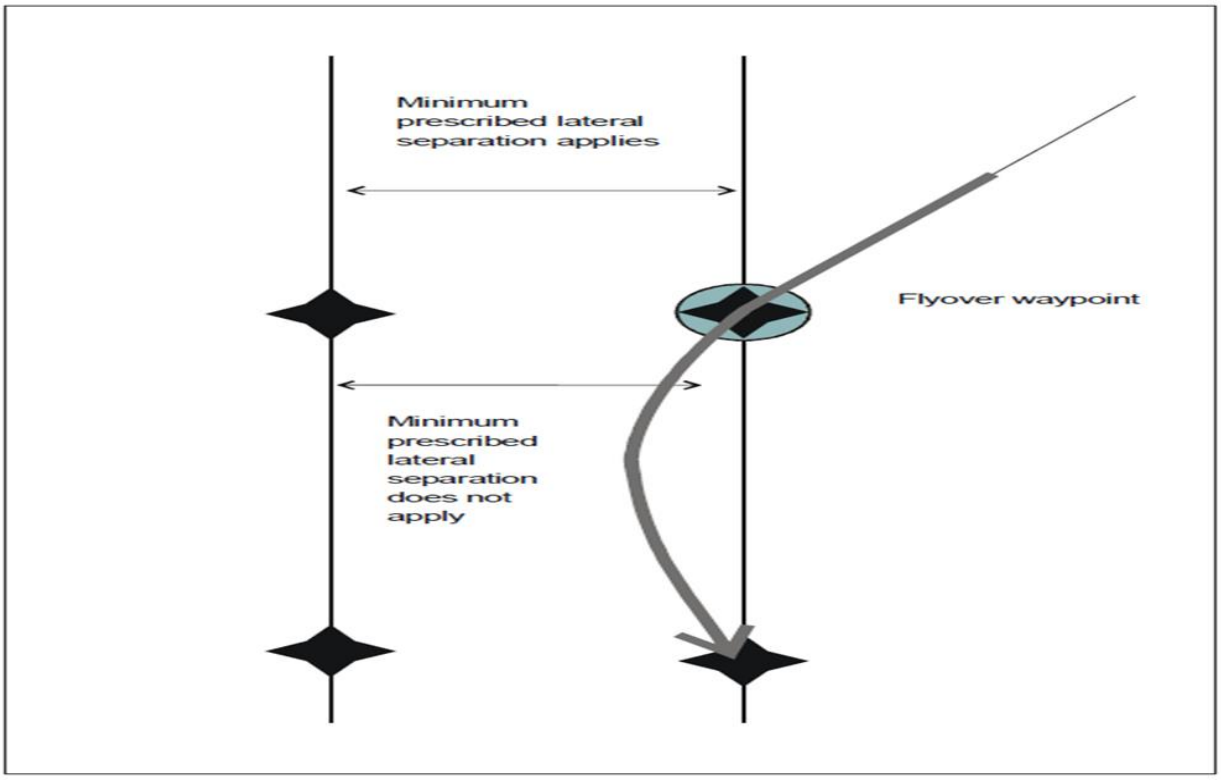


**Figure 42 — Turn over flyover waypoint**

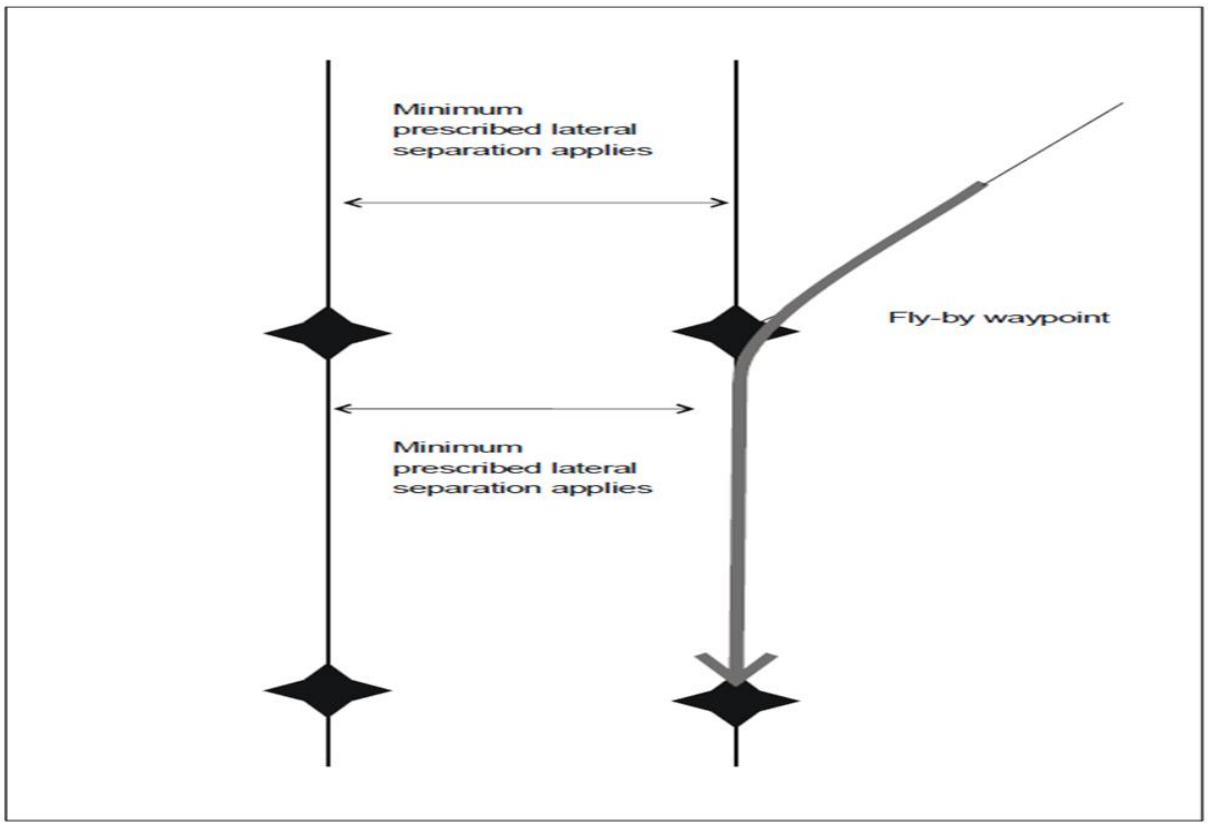


**Figure 43 — Turn at fly-by waypoint**

***(PANS ATM — Sections 5.4.1.1.1, 5.4.1.1.2, 5.4.1.1.4 and 5.4.1.1.4 (Note to Section))***

**GM1 ATS.TR.210(d) Operation of ATC service**
APPLICATION OF SEPARATION MINIMA TO IDENTIFIED AIRCRAFT

(a) When the control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, the transferring controller should ensure that appropriate procedural separation is established between that aircraft and any other controlled aircraft before the transfer is effected.

(b) When control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, such separation should be established by the transferring controller before the aircraft reaches the limits of the transferring controller's area of responsibility, or before the aircraft leaves the relevant area of surveillance coverage.

***(PANS ATM — Sections 8.6.7.2 and 8.7.2.2)***

**AMC1 ATS.TR.220 Application of wake turbulence separation**
CATEGORISATION OF AIRCRAFT FOR THE PURPOSES OF WAKE TURBULENCE SEPARATION MINIMA APPLICATION

Wake turbulence separation minima should be based on a grouping of aircraft types into four categories according to the maximum certificated take-off mass as follows:

(a) SUPER (S) if so identified by the competent authority;

(b) HEAVY (H) — all aircraft types of 136 000 kg or more;

(c) MEDIUM (M) — aircraft types less than 136 000 kg but more than 7 000 kg; and

(d) LIGHT (L) — aircraft types of 7 000 kg or less.

***(PANS ATM — Section 4.9.1.1, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**GM1 to AMC1 ATS.TR.220 Application of wake turbulence separation**

For the Airbus A380-800, with a maximum take-off mass in the order of 560 000 kg, it is recommended to apply an increase of the wake turbulence separation minima associated to the HEAVY category.

***(ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**AMC2 ATS.TR.220 Application of wake turbulence separation**
TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA — ARRIVING AIRCRAFT

Except for arriving VFR flights, and for arriving IFR flights executing visual approach, the following separation minima should be applied to aircraft landing behind a HEAVY or a MEDIUM aircraft:

(a) MEDIUM aircraft behind SUPER aircraft: 3 minutes;

(b) MEDIUM aircraft behind HEAVY aircraft: 2 minutes;

(c) LIGHT aircraft behind SUPER aircraft: 4 minutes; and

(d) LIGHT aircraft behind a HEAVY or MEDIUM aircraft: 3 minutes.

***(PANS ATM — Sections 5.8.2.1 and 5.8.2.1.1, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**AMC3 ATS.TR.220 Application of wake turbulence separation**

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA — DEPARTING AIRCRAFT

(a) A separation minimum of 3 minutes should be applied for a LIGHT or MEDIUM aircraft and 2 minutes for a HEAVY aircraft taking off behind a SUPER aircraft when the aircraft are using:

(1) the same runway;

(2) parallel runways separated by less than 760 m (2 500 ft);

(3) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below;

(4) parallel runways separated by 760 m (2 500 ft) or more if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below.

(b) A separation minimum of 4 minutes should be applied for a LIGHT or MEDIUM aircraft when taking off behind an SUPER aircraft from:

(1) an intermediate part of the same runway; or

(2) an intermediate part of a parallel runway separated by less than 760 m (2 500 ft).

(c) A separation minimum of 2 minutes should be applied between a LIGHT or MEDIUM aircraft taking off behind a HEAVY aircraft or a LIGHT aircraft taking off behind a MEDIUM aircraft when the aircraft are using:

(1) the same runway (see Figure 44);

(2) parallel runways separated by less than 760 m (2 500 ft) (see Figure 44);

(3) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below (see Figure 45);

(4) parallel runways separated by 760 m (2 500 ft) or more if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below (see Figure 45).

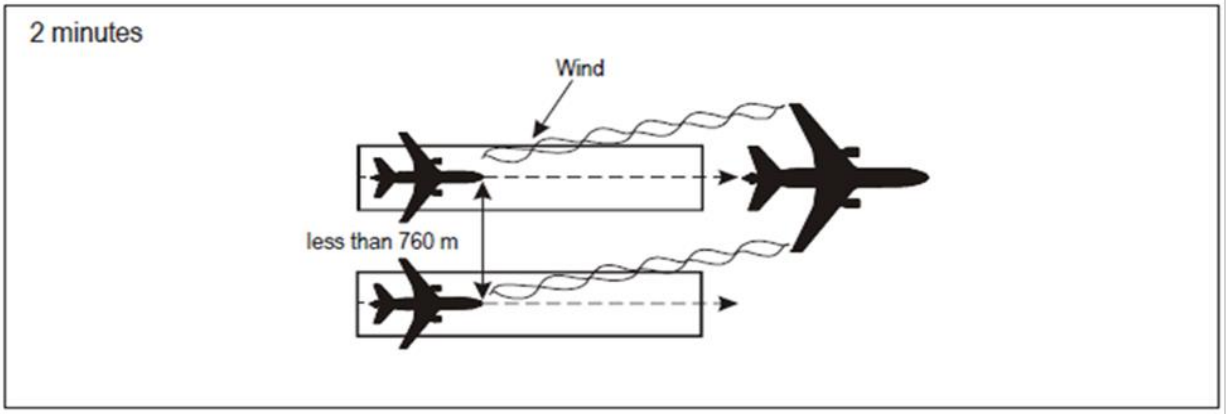


**Figure 44 — 2-minute separation for following aircraft**

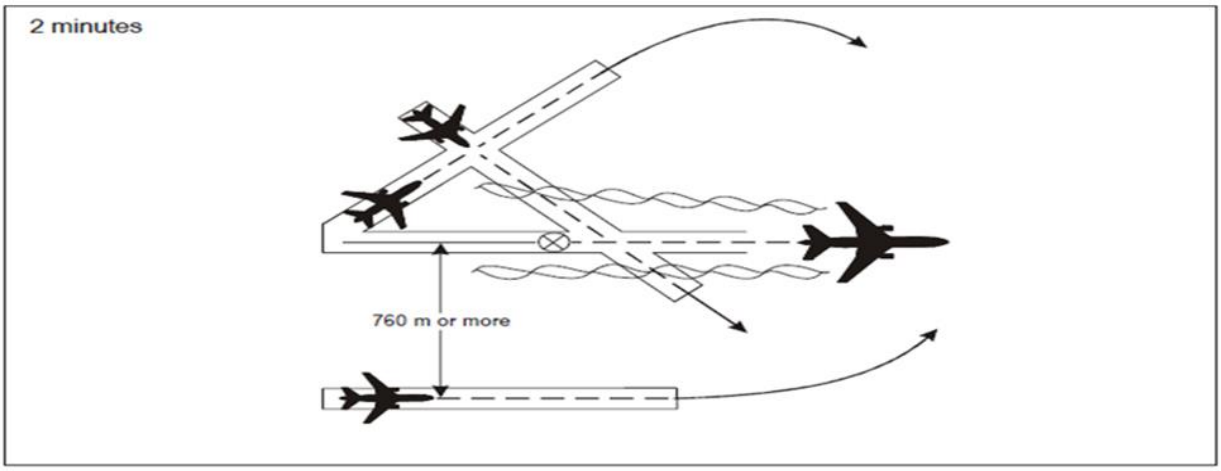


**Figure 45 — 2-minute wake turbulence separation for crossing aircraft**

(d) A separation minimum of 3 minutes should be applied (see Figure 46) between a LIGHT or MEDIUM aircraft when taking off behind a HEAVY aircraft or a LIGHT aircraft when taking off behind a MEDIUM aircraft from:

(1) an intermediate part of the same runway; or

(2) an intermediate part of a parallel runway separated by less than 760 m (2 500 ft).

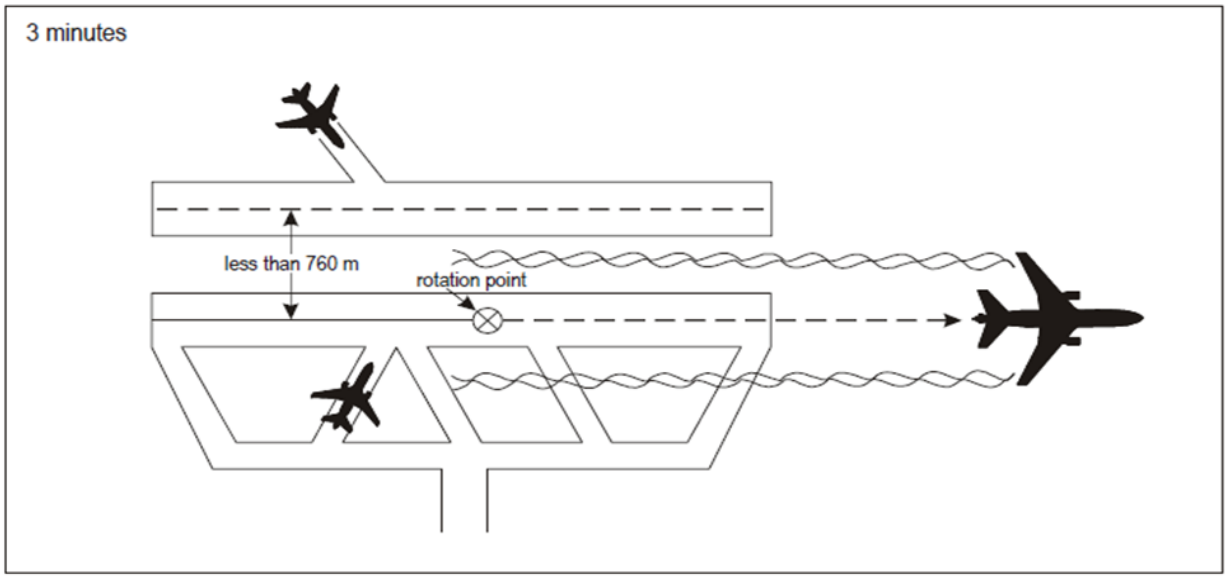


**Figure 46 — 3-minute wake turbulence separation for following aircraft**

***(PANS ATM — Sections 5.8.3.1 and 5.8.3.2, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**AMC4 ATS.TR.220 Application of wake turbulence separation**

TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA — DISPLACED LANDING THRESHOLD

(a) A separation minimum of 3 minutes should be applied between a LIGHT or MEDIUM aircraft and a SUPER aircraft when operating on a runway with a displaced landing threshold when:

(1) a departing LIGHT or MEDIUM aircraft follows an SUPER aircraft arrival; or

(2) an arriving LIGHT or MEDIUM aircraft follows an SUPER aircraft departure if the projected flight paths are expected to cross.

(b) A separation minimum of 2 minutes should be applied between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when operating on a runway with a displaced landing threshold when:

(1) a departing LIGHT or MEDIUM aircraft follows a HEAVY aircraft arrival and a departing LIGHT aircraft follows a MEDIUM aircraft arrival; or

(2) an arriving LIGHT or MEDIUM aircraft follows a HEAVY aircraft departure and an arriving LIGHT aircraft follows a MEDIUM aircraft departure if the projected flight paths are expected to cross.

***(PANS ATM — Section 5.8.4, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**AMC5 ATS.TR.220 Application of wake turbulence separation**
TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA — OPPOSITE DIRECTION

(a) A separation minimum of 3 minutes should be applied between a LIGHT or MEDIUM aircraft and a SUPER aircraft when the SUPER aircraft is making a low or missed approach and the LIGHT or MEDIUM aircraft is:

(1) utilising an opposite-direction runway for take-off; or

(2) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft).

(b) A separation minimum of 2 minutes should be applied between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when the heavier aircraft is making a low or missed approach and the lighter aircraft is:

(1) utilising an opposite-direction runway for take-off (see Figure 47); or

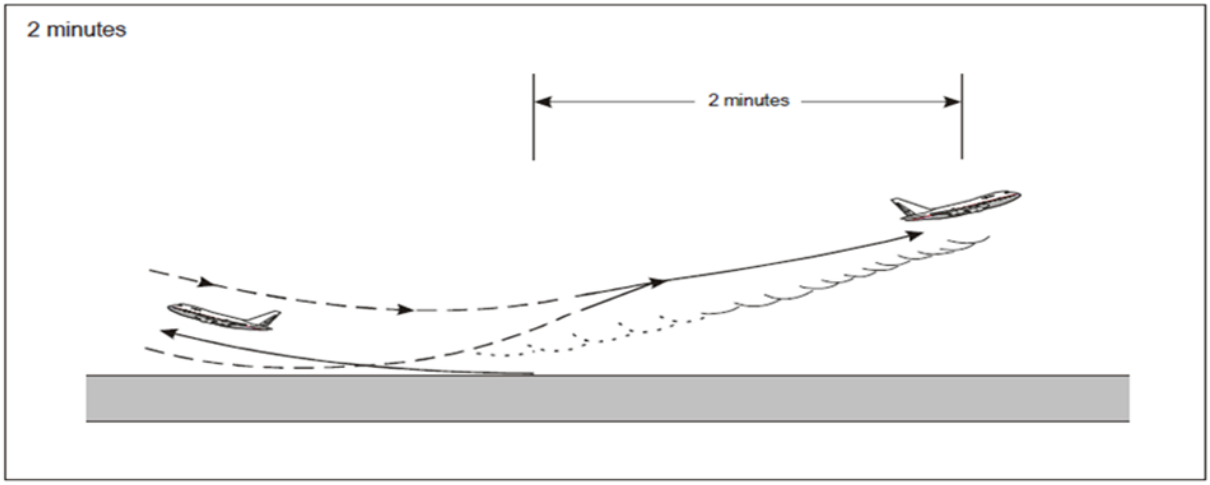


**Figure 47 — 2-minute wake turbulence separation for opposite-direction take-off**

(2) landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft) (see Figure 48).

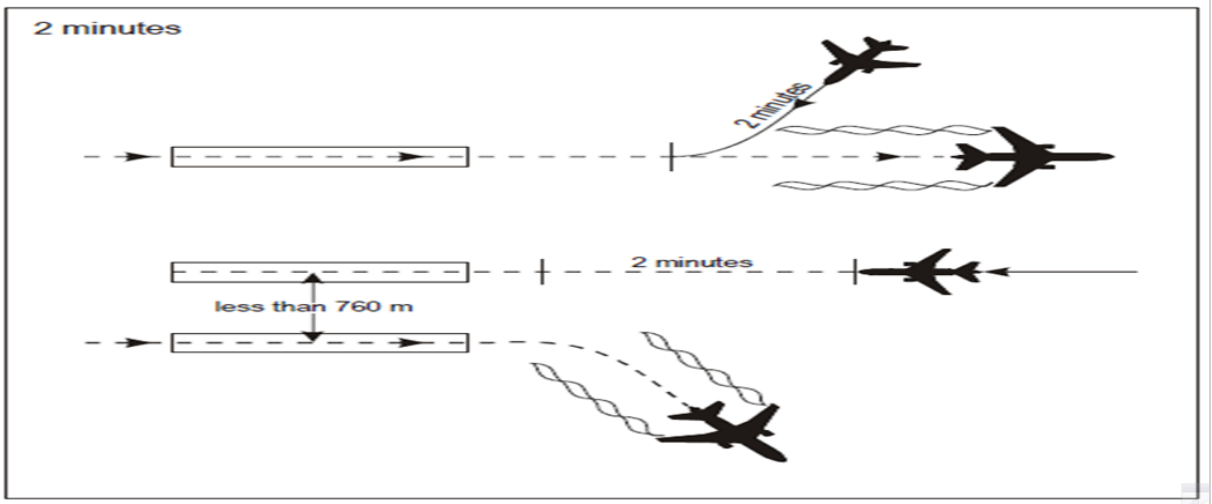


**Figure 48 — 2-minute wake turbulence separation for opposite-direction landing**

***(PANS ATM — Section 5.8.5, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**AMC6 ATS.TR.220 Application of wake turbulence separation**

DISTANCE-BASED WAKE TURBULENCE SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEM

(a) The following distance-based wake turbulence separation minima should be applied to aircraft being provided with an ATS surveillance service in the approach and departure phases:

| **PRECEDING AICRAFT** | **SUCCEEDING AIRCRAFT** | **WAKE TURBULENCE RADAR SEPARATION MINIMA** |
|---|---|---|
| SUPER or HEAVY | SUPER | Not required.<br>In this case, separation reverts to radar separation minima as established by the ATS provider and approved by the competent authority. |
| SUPER | HEAVY | 11.1 km (6.0 NM) |
| SUPER | MEDIUM | 13.0 km (7.0 NM) |
| SUPER | LIGHT | 14.8 km (8.0 NM) |
| HEAVY | HEAVY | 7.4 km (4.0 NM) |
| HEAVY | MEDIUM | 9.3 km (5.0 NM) |
| HEAVY | LIGHT | 11.1 km (6.0 NM) |
| MEDIUM | LIGHT | 9.3 km (5 NM) |

(b) Separation minima as in point (a) between SUPER aircraft and other aircraft should be applied when:

(1) an aircraft is operating directly behind an A380-800 aircraft at the same altitude or less than 300 m (1 000 ft) below; or

(2) both aircraft are using the same runway, or parallel runways separated by less than 760 m; or

(3) an aircraft is crossing behind an A380-800 aircraft, at the same altitude or less than 300 m (1 000 ft) below.

***(PANS ATM — Section 8.7.3.4, ICAO TEC/OPS/SEP – 08-0294.SLG 'Wake turbulence aspects of Airbus A380-800 aircraft', dated 08 July 2008)***

**GM1 to AMC6 ATS.TR.220 Application of wake turbulence separation**

Figures 49 and 50 provide a visualisation of the application of the aforementioned separation minima between HEAVY, MEDIUM and LIGHT aircraft.

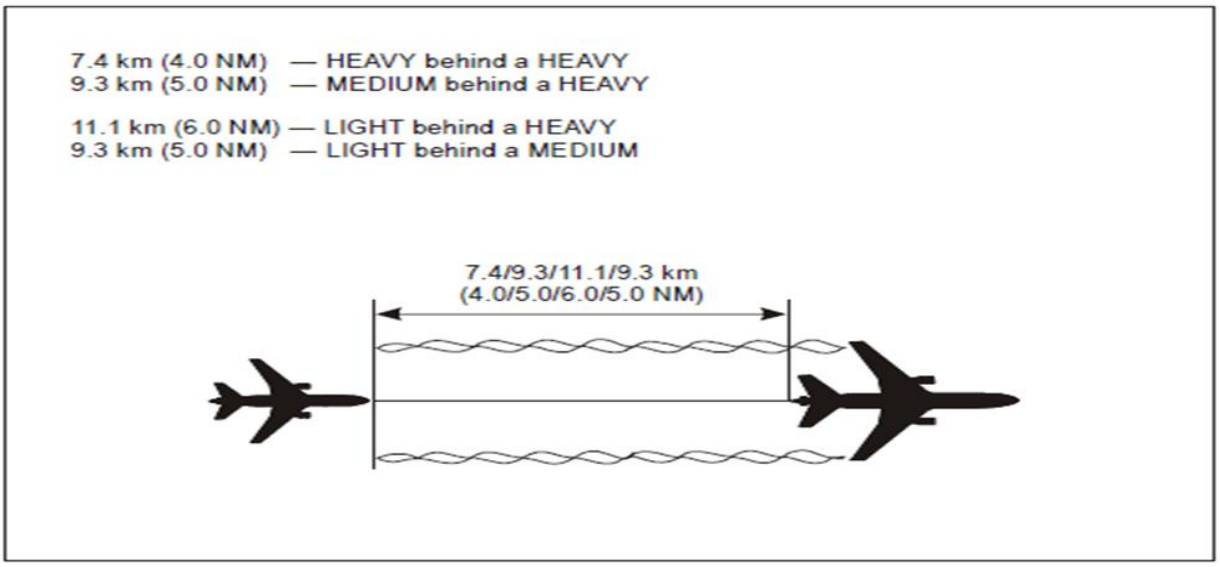


**Figure 49 — Operating directly behind**

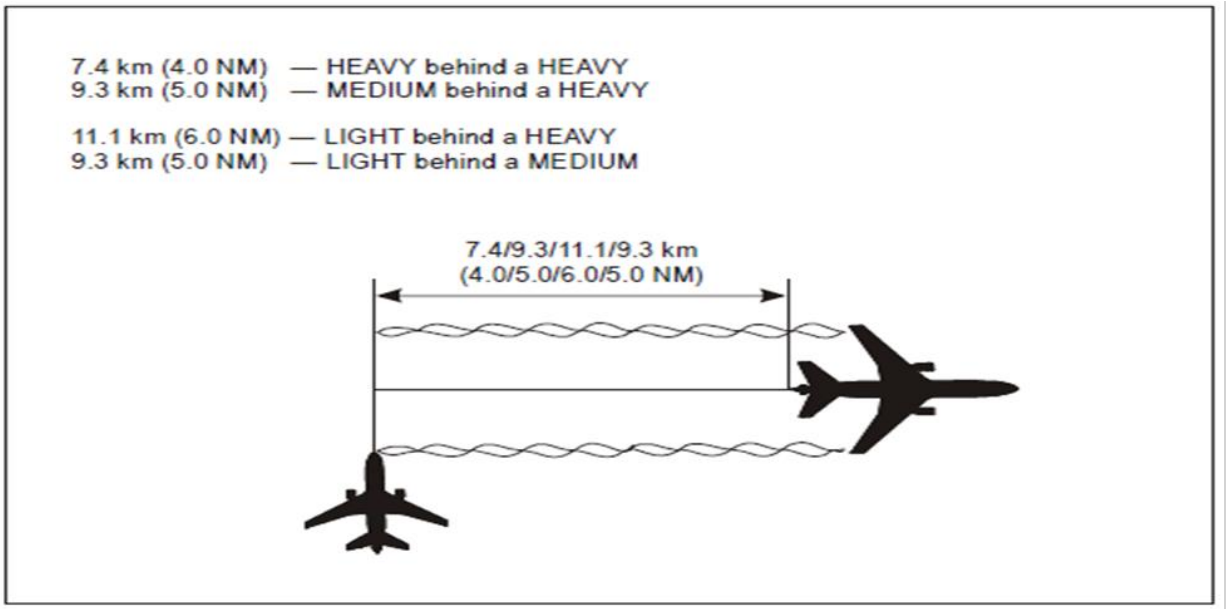


**Figure 50 — Crossing behind**

**GM1 ATS.TR.220 Application of wake turbulence separation**
WAKE TURBULENCE EFFECTS INDUCED BY HELICOPTERS

(a) Helicopters should be kept well clear off light aircraft when hovering or while air taxiing.

(b) Helicopters produce vortices when in flight and there is some evidence that, per kilogram of gross mass, their vortices are more intense than those of fixed-wing aircraft.

***(From PANS ATM — Sections 4.9.1.2 and 4.9.1.2 (Note 1 to Section))***

**AMC1 ATS.TR.230 Transfer of responsibility for control**
COORDINATION IN RESPECT OF THE PROVISION OF ATC SERVICE — GENERAL

Agreements between ATC units or sectors and local instructions concerning coordination and transfer of control of flights should cover the following, as applicable:

(a) definition of areas of responsibility and common interest, airspace structure and airspace classification(s);

(b) any delegation of responsibility for the provision of ATS;

(c) procedures for the exchange of flight plan and control data, including use of automated and/or verbal coordination messages;

(d) means of communication;

(e) requirements and procedures for approval requests;

(f) significant points, levels or times for transfer of control;

(g) significant points, levels or times for transfer of communication;

(h) conditions applicable to the transfer and acceptance of control, such as specified altitudes/flight levels, specific separation minima or spacing to be established at the time of transfer, and the use of automation;

(i) ATS surveillance system coordination procedures;

(j) SSR code assignment procedures;

(k) procedures for departing traffic;

(l) designated holding fixes and procedures for arriving traffic;

(m) applicable contingency procedures; and

(n) any other provisions or information relevant to the coordination and transfer of control of flights.

***(PANS ATM — Section 10.1.1.3)***

**GM1 ATS.TR.230 Transfer of responsibility for control**
COORDINATION IN RESPECT OF THE PROVISION OF ATC SERVICE — GENERAL

(a) The coordination and transfer of control of a flight between successive ATC units and control sectors should be effected by a dialogue comprising the following stages:

(1) notification of the flight in order to prepare for coordination, as necessary;

(2) coordination of conditions of transfer of control by the transferring ATC unit;

(3) coordination, if necessary, and acceptance of conditions of transfer of control by the accepting ATC unit; and

(4) the transfer of control to the accepting ATC unit or control sector.

(b) ATC units should, to the extent possible, establish and apply standardised procedures for the coordination and transfer of control of flights, in order, inter alia, to reduce the need for verbal coordination. Such coordination procedures should be specified in letters of agreement and local instructions, as applicable.

***(PANS ATM — Sections 10.1.1.1 and 10.1.1.2)***

**GM2 ATS.TR.230 Transfer of responsibility for control**
LETTERS OF AGREEMENT AND OPERATION MANUALS

Relevant information contained in letters of agreement should be included in the operation manual of the ATS units concerned.

**AMC1 ATS.TR.230(a) Transfer of responsibility for control**
COORDINATION BETWEEN ATC UNITS PROVIDING AIR TRAFFIC SERVICE WITHIN CONTIGUOUS CONTROL AREAS — TRANSFER OF CONTROL

(a) The responsibility for the control of an aircraft should be transferred from the ATC unit to the next unit at the time of crossing the common control area boundary as determined by the unit having control of the aircraft or at such other point or time as has been agreed between the two units.

(b) Where specified in letters of agreement between the ATC units concerned, and when transferring an aircraft, the transferring unit should notify the accepting unit that the aircraft is in position to be transferred, and specify that the responsibility for control should be assumed by the accepting unit forthwith at the time of crossing the control boundary or other transfer control point specified in letters of agreement between the ATC units or at such other point or time coordinated between the two units.

(c) If the transfer of control time or point is other than forthwith, the accepting ATC unit should not alter the clearance of the aircraft prior to the agreed transfer of control time or point without the approval of the transferring unit.

(d) If transfer of communication is used to transfer an aircraft to a receiving ATC unit, responsibility for control should not be assumed until the time of crossing the control area boundary or other transfer of control point specified in letters of agreement between the ATC units.

***(PANS ATM — Sections 10.1.2.2.1, 10.1.2.2.2, 10.1.2.2.3 and 10.1.2.2.4)***

**GM1 ATS.TR.230(a)(2) Transfer of responsibility for control**
DIVISION OF CONTROL BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE

(a) Except when otherwise specified in letters of agreement or local instructions, or by the ACC concerned in individual cases, a unit providing approach control service may issue clearances to

any aircraft released to it by an ACC without reference to the ACC. However, when an approach has been missed the ACC should, if affected by the missed approach, be advised immediately and subsequent action should be coordinated between the ACC and the unit providing approach control service as necessary.

(b) An ACC may, after coordination with the unit providing approach control service, release aircraft directly to aerodrome control towers if the entire approach will be made under visual meteorological conditions.

***(PANS ATM — Sections 10.1.3.1.1 and 10.1.3.1.2)***

**GM1 ATS.TR.230(a)(3) Transfer of responsibility for control**
DIVISION OF CONTROL BETWEEN A UNIT PROVIDING APPROACH CONTROL SERVICE AND A UNIT PROVIDING AERODROME CONTROL SERVICE

(a) A unit providing approach control service should retain control of arriving aircraft until such aircraft have been transferred to the aerodrome control tower and are in communication with the aerodrome control tower. Letters of agreement or local instructions, appropriate to the airspace structure, terrain, meteorological conditions and ATS facilities available, should establish rules for the transfer of arriving aircraft.

(b) A unit providing approach control service may authorise an aerodrome control tower to release an aircraft for take-off subject to the discretion of the aerodrome control tower with respect to arriving aircraft.

(c) Aerodrome control towers should, when so prescribed in letters of agreement or local instructions, obtain approval from the unit providing approach control service prior to authorising operation of special VFR flights.

***(PANS ATM — Sections 10.1.4.1.1, 10.1.4.1.2 and 10.1.4.1.3)***

**GM2 ATS.TR.230(a)(3) Transfer of responsibility for control**
TRANSFER OF FLIGHTS BETWEEN AREA CONTROL CENTRE AND AERODROME CONTROL TOWER

Even though there is an approach control unit, control of certain flights may be transferred directly from an area control centre (ACC) to an aerodrome control tower and vice versa, by prior arrangement between the units concerned for the relevant part of approach control service to be provided by the ACC or the aerodrome control tower, as applicable.

***(Annex 11 — Note to Section 3.6.1.3.1 and 3.6.1.3.2)***

**GM1 ATS.TR.230(a)(3)(i) Transfer of responsibility for control**
COORDINATION OF STANDARD CLEARANCES FOR ARRIVING AIRCRAFT

(a) Wherever possible, the ATS providers concerned should establish standardised procedures for transfer of control between the ATC units concerned and standard clearances for arriving aircraft.

(b) Where standard clearances for arriving aircraft are in use and, provided no terminal delay is expected, clearance to follow the appropriate STAR will normally be issued by the ACC without

prior coordination with or approval from the approach control unit or the aerodrome control tower as applicable.

(c) Prior coordination of clearances should be required only in the event that a variation to the standard clearance or the standardised transfer of control procedures is necessary or desirable for operational reasons.

(d) Provision should be made to:

(1) ensure that the approach control unit is at all times kept informed of the sequence of aircraft following the same STAR; and

(2) display the designators of assigned STARs to the ACC, the approach control unit and/or the aerodrome control tower, as applicable.

***(PANS ATM — Sections 6.5.2.1, 6.5.2.2.1, 6.5.2.2.2, 6.5.2.2.3 and 6.5.2.2.4)***

**GM1 ATS.TR.230(a)(1)(ii) Transfer of responsibility for control**
COORDINATION OF STANDARD CLEARANCES FOR DEPARTING AIRCRAFT

(a) Wherever possible, the ATS providers concerned should establish standardised procedures for transfer of control between the ATC units concerned and standard clearances for departing aircraft.

(b) Where standard clearances for departing aircraft have been agreed to between the units concerned, the aerodrome control tower will normally issue the appropriate standard clearance without prior coordination with or approval from the approach control unit or ACC.

(c) Prior coordination of clearances should be required only in the event that a variation to the standard clearance or the standardised transfer of control procedures is necessary or desirable for operational reasons.

(d) Provision should be made to:

(1) ensure that the approach control unit at all times is kept informed of the sequence in which aircraft will depart as well as the runway to be used; and

(2) display the designators of assigned SIDs to the aerodrome control tower, the approach control unit and/or the ACC as applicable.

***(PANS ATM — Sections 6.3.2.1, 6.3.2.2.1, 6.3.2.2.2, 6.3.2.2.3 and 6.3.2.2.4)***

**AMC1 ATS.TR.230(a)(4) Transfer of responsibility for control**
COORDINATION BETWEEN CONTROL POSITIONS WITHIN THE SAME UNIT

Appropriate flight plan and control information should be exchanged between control positions within the same ATC unit, in respect of:

(a) all aircraft for which responsibility for control will be transferred from one control position to another;

(b) aircraft operating in such close proximity to the boundary between control sectors that control of traffic within an adjacent sector may be affected;

(c) all aircraft for which responsibility for control has been delegated by a controller using procedural methods to a controller using an ATS surveillance system, as well as other aircraft affected.

***(PANS ATM — Section 10.1.5.1)***

**AMC1 ATS.TR.230(b)(2) Transfer of responsibility for control**

COORDINATION BETWEEN ATC UNITS PROVIDING ATS WITHIN CONTIGUOUS CONTROL AREAS — GENERAL

(a) ATC units should forward from unit to unit, as the flight progresses, necessary flight plan and control information. When so required by agreement between ATS providers concerned, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries should also be provided to the ATC units in charge of the flight information regions adjacent to such routes or portions of routes.

(b) The flight plan and control information in point (b) of ATS.TR.230 should be transmitted in sufficient time to permit reception and analysis of the data by the receiving unit(s) and necessary coordination between the units concerned.

***(PANS ATM — Sections 10.1.2.1.1 and 10.1.2.1.2)***

**AMC2 ATS.TR.230(b)(2) Transfer of responsibility for control**

EXCHANGE OF MOVEMENT AND CONTROL DATA BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE

(a) The unit providing approach control service should keep the ACC promptly advised of pertinent data on controlled traffic.

(b) The ACC should keep the unit providing approach control service promptly advised of pertinent data on controlled traffic.

(c) The ACC should normally forward to the unit providing approach control service information on arriving aircraft not less than 15 minutes before estimated time of arrival and should revise such information as necessary.

***(PANS ATM — Sections 10.1.3.3.1 (first sentence), 10.1.3.3.2 and 10.1.3.3.3)***

**GM1 to AMC2 ATS.TR.230(b)(2) Transfer of responsibility for control**

EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING APPROACH CONTROL SERVICE TO A UNIT PROVIDING AREA CONTROL SERVICE

Pertinent data on controlled traffic should include:

(a) runway(s) in use and expected type of instrument approach procedure;

(b) lowest vacant level at the holding fix available for use by the ACC;

(c) average time interval or distance between successive arrivals as determined by the unit providing approach control service;

(d) revision of the expected approach time issued by the ACC when the calculation of the expected approach time by the unit providing approach control service indicates a variation of 5 minutes or such other time as has been agreed between the two ATC units concerned;

(e) arrival times over the holding fix when these vary by 3 minutes, or such other time as has been agreed between the two ATC units concerned, from those previously estimated;

(f) cancellations by aircraft of IFR flight if these will affect levels at the holding fix or expected approach times of other aircraft;

(g) aircraft departure times or, if agreed between the two ATC units concerned, the estimated time at the control area boundary or other specified point;

(h) all available information relating to overdue or unreported aircraft; and

(i) missed approaches which may affect the ACC.

***(PANS ATM — Section 10.1.3.3.1 (second sentence))***

**GM2 to AMC2 ATS.TR.230(b)(2) Transfer of responsibility for control**

EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING AREA CONTROL SERVICE TO A UNIT PROVIDING APPROACH CONTROL SERVICE

Pertinent data on controlled traffic should include:

(a) identification, type and point of departure of arriving aircraft;

(b) estimated time and proposed level of arriving aircraft over holding fix or other specified point;

(c) actual time and proposed level of arriving aircraft over holding fix if aircraft is released to the unit providing approach control service after arrival over the holding fix;

(d) requested type of IFR approach procedure if different from that specified by the approach control unit;

(e) expected approach time issued;

(f) when required, statement that aircraft has been instructed to contact the unit providing approach control service;

(g) when required, statement that an aircraft has been released to the unit providing approach control service including, if necessary, the time and conditions of release; and

(h) anticipated delay to departing traffic due to congestion.

***(PANS ATM — Section 10.1.3.3.2 (second sentence))***

**AMC3 ATS.TR.230(b)(2) Transfer of responsibility for control**

EXCHANGE OF MOVEMENT AND CONTROL DATA BETWEEN A UNIT PROVIDING APPROACH CONTROL SERVICE AND A UNIT PROVIDING AERODROME CONTROL SERVICE

(a) An aerodrome control tower should keep the unit providing approach control service promptly advised of pertinent data on relevant controlled traffic.

(b) The unit providing approach control service should keep the aerodrome control tower promptly advised of pertinent data on controlled traffic.

***(PANS ATM — Sections 10.1.4.2.1 (first sentence) and 10.1.4.2.2 (first sentence))***

**GM1 to AMC3 ATS.TR.230(b)(2) Transfer of responsibility for control**
EXCHANGE OF MOVEMENT AND CONTROL DATA FROM AN AERODROME CONTROL TOWER TO A UNIT PROVIDING APPROACH CONTROL SERVICE

Pertinent data on controlled traffic should include:

(a) arrival and departure times;

(b) when required, statement that the first aircraft in an approach sequence is in communication with and is sighted by the aerodrome control tower, and that reasonable assurance exists that a landing can be accomplished;

(c) all available information relating to overdue or unreported aircraft;

(d) information concerning missed approaches; and

(e) information concerning aircraft that constitute essential local traffic to aircraft under the control of the unit providing approach control service.

***(PANS ATM — Section 10.1.4.2.1 (second sentence))***

**GM2 to AMC3 ATS.TR.230(b)(2) Transfer of responsibility for control**
EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING APPROACH CONTROL SERVICE TO AN AERODROME CONTROL TOWER

Pertinent data on controlled traffic should include:

(a) estimated time and proposed level of arriving aircraft over the aerodrome, at least 15 minutes prior to estimated arrival;

(b) when required, a statement that an aircraft has been instructed to contact the aerodrome control tower and that control shall be assumed by that unit; and

(c) anticipated delay to departing traffic due to congestion.

***(PANS ATM — Section 10.1.4.2.2 (second sentence))***

**GM1 ATS.TR.230(b)(2) Transfer of responsibility for control**
COORDINATION BETWEEN ATC UNITS FOR APPROVAL REQUESTS

(a) If the flying time from the departure aerodrome of an aircraft to the boundary of an adjacent control area is less than the specified minimum required to permit transmission of the necessary flight plan and control information to the accepting ATC unit after take-off and allow adequate time for reception, analysis and coordination, the transferring ATC unit should, prior to departure, forward that information to the accepting ATC unit together with a request for approval. The required time period should be specified in letters of agreement or local instructions, as appropriate. In the case of revisions to a previously transmitted current flight plan, and control data being transmitted earlier than this specified time period, no approval from the accepting ATC unit should be required.

(b) In the case of an aircraft in flight requiring an initial clearance when the flying time to the boundary of an adjacent control area is less than a specified minimum, the aircraft should be held within the transferring ATC unit's control area until the flight plan and control information have been forwarded together with a request for approval, and coordination effected with the adjacent ATC unit.

(c) In the case of an aircraft requesting a change in its current flight plan, or of a transferring ATC unit proposing to change the current flight plan of an aircraft, and the flying time of the aircraft to the control area boundary is less than a specified minimum, the revised clearance should be withheld pending approval of the proposal by the adjacent ATC unit.

(d) When boundary estimate data are to be transmitted for approval by the accepting unit, the time in respect of an aircraft not yet departed should be based upon the estimated time of departure as determined by the ATC unit in whose area of responsibility the departure aerodrome is located. In respect of an aircraft in flight requiring an initial clearance, the time should be based on the estimated elapsed time from the holding fix to the boundary plus the time expected to be needed for coordination.

***(PANS ATM — Sections 10.1.2.3.1, 10.1.2.3.2, 10.1.2.3.3, and 10.1.2.3.4)***

**GM2 ATS.TR.230(b)(2) Transfer of responsibility for control**
COORDINATION BETWEEN ATC UNITS FOR TAKE-OFF AND CLEARANCE EXPIRY TIMES

(a) Time of take-off should be specified by the ACC when it is necessary to:

(1) coordinate the departure with traffic not released to the unit providing approach control service; and

(2) provide en-route separation between departing aircraft following the same track.

(b) If time of take-off is not specified, the unit providing approach control service should determine the take-off time when necessary to coordinate the departure with traffic released to it.

(c) A clearance expiry time should be specified by the ACC if a delayed departure would conflict with traffic not released to the unit providing approach control service. If, for traffic reasons of its own, a unit providing approach control service has to specify in addition its own clearance expiry time, this should not be later than that specified by the ACC.

***(PANS ATM — Sections 10.1.3.2.1, 10.1.3.2.2 and 10.1.3.2.3)***

**GM3 ATS.TR.230(b)(2) Transfer of responsibility for control**
COORDINATION BETWEEN ATS UNITS FOR CHANGE FROM IFR TO VFR

An ATC unit receiving notification of an aircraft's intention to change from IFR to VFR flight should, as soon as practicable thereafter, so inform all other ATS units to whom the IFR flight plan was addressed, except those units through whose regions or areas the flight has already passed.

***(PANS ATM — Section 4.8.4)***

 

**AMC1 ATS.TR.230(b)(7) Transfer of responsibility for control**
PHRASEOLOGIES TO BE USED IN THE COORDINATION BETWEEN ATS UNITS

The following phraseology should be used in the coordination between ATS units or sectors:

| *Circumstances* | *Phraseologies* |
|---|---|
| ESTIMATES AND REVISIONS | a) ESTIMATE *[direction of flight] (aircraft call sign)* [SQUAWKING *(SSR code)]* *(type)* ESTIMATED *(significant point) (time) (level)* (*or* DESCENDING FROM *(level)* TO *(level))* [SPEED *(filed TAS)]* *(route)* [REMARKS]; |
| ... sending unit | b) ESTIMATE *(significant point)* ON *(aircraft call sign)*; |
| ... receiving unit reply (if flight plan details are not available) | c) NO DETAILS; |

| *Circumstances* | *Phraseologies* |
|---|---|
| ... receiving unit reply (if flight plan details are available) | *(aircraft type) (destination)*; |
| ... sending unit reply | [SQUAWKING *(SSR code)*] [ESTIMATED] *(significant point) (time)* AT *(level)*;<br><br>*Note.— In the event that flight plan details are not available the receiving station shall reply to b) NO DETAILS and transmitting station shall pass full estimate as in a).*<br><br>d) ESTIMATE UNMANNED FREE BALLOON(S) *(identification and classification)* ESTIMATED OVER *(place)* AT *(time)* REPORTED FLIGHT LEVEL(S) *(figure or figures)* [or FLIGHT LEVEL UNKNOWN] MOVING *(direction)* ESTIMATED GROUND SPEED *(figure) (other pertinent information, if any)*;<br><br>e) REVISION *(aircraft call sign) (details as necessary)*. |
| TRANSFER OF CONTROL | a) REQUEST RELEASE OF *(aircraft call sign)*;<br><br>b) *(aircraft call sign)* RELEASED [AT *(time)*] *[conditions/restrictions]*;<br><br>c) IS *(aircraft call sign)* RELEASED [FOR CLIMB (*or* DESCENT)];<br><br>d) *(aircraft call sign)* NOT RELEASED [UNTIL *(time or significant point)*];<br><br>e) UNABLE *(aircraft call sign)* [TRAFFIC IS *(details)*]. |
| CHANGE OF CLEARANCE | a) MAY WE CHANGE CLEARANCE OF *(aircraft call sign)* TO *(details of alteration proposed)*;<br><br>b) AGREED TO *(alteration of clearance)* OF *(aircraft call sign)*;<br><br>c) UNABLE *(aircraft call sign)*;<br><br>d) UNABLE *(desired route, level, etc.)* [FOR *(aircraft call sign)*] [DUE *(reason)*] *(alternative clearance proposed)*. |
| APPROVAL REQUEST | a) APPROVAL REQUEST *(aircraft call sign)* ESTIMATED DEPARTURE FROM *(significant point)* AT *(time)*;<br><br>b) *(aircraft call sign)* REQUEST APPROVED *[(restriction if any)]*;<br><br>c) *(aircraft call sign)* UNABLE *(alternative instructions)*. |

| *Circumstances* | *Phraseologies* |
|---|---|
| INBOUND RELEASE | [INBOUND RELEASE] *(aircraft call sign)* [SQUAWKING *(SSR code)*] *(type)* FROM *(departure point)* RELEASED AT *(significant point, or time, or level)* CLEARED TO AND ESTIMATING *(clearance limit) (time)* AT *(level)* [EXPECTED APPROACH TIME *or* NO DELAY EXPECTED] CONTACT AT *(time)*. |
| HANDOVER | HANDOVER *(aircraft call sign)* [SQUAWKING *(SSR code)*] POSITION *(aircraft position) (level)*. |
| EXPEDITION OF CLEARANCE | a) EXPEDITE CLEARANCE *(aircraft call sign)* EXPECTED DEPARTURE FROM *(place)* AT *(time)*;<br>b) EXPEDITE CLEARANCE *(aircraft call sign)* [ESTIMATED] OVER *(place)* AT *(time)* REQUESTS *(level or route, etc.)*. |
| REDUCED VERTICAL SEPARATION MINIMUM (RVSM) OPERATIONS | |
| ... to verbally supplement estimate messages of aircraft non-approved for RVSM or to verbally supplement an automated estimate message exchange that does not automatically transfer information from Item 18 of the flight plan followed by supplementary information, as appropriate | a) NEGATIVE RVSM *[(supplementary information, e.g. State aircraft)]*, |
| ... to communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe meteorological phenomena or equipment failure, as applicable | b) UNABLE RVSM DUE TURBULENCE (*or* EQUIPMENT, *as applicable*). |

***(PANS ATM — Section 12.3.5)***

**GM1 ATS.TR.235 ATC clearances**

The issuance of air traffic control clearances by air traffic control units constitutes authority for an aircraft to proceed only in so far as known air traffic is concerned. ATC clearances do not constitute authority to violate any applicable regulations for promoting the safety of flight operations or for any other purpose; neither do clearances relieve a pilot-in-command of any responsibility whatsoever in connection with a possible violation of applicable rules and regulations.

***(PANS ATM Section 4.5.1.3)***

**GM1 ATS.TR.235(a)(5) ATC clearances**
ASSURANCE OF OBSTACLE CLEARANCE IN VECTORING

Prescribed obstacle clearance will exist at all times when controller issues clearances at or above the established minimum flight altitudes.

When an IFR flight is being vectored, the pilot may be unable to determine the aircraft's exact position in respect of obstacles in this area and consequently the altitude which provides the required obstacle clearance.

***(PANS ATM — Note 1 to Section 8.6.5.2, EANPG 57 Final Report)***

**AMC1 ATS.TR.235(b) ATC clearances**
CONTENT OF CLEARANCES FOR DEPARTING AIRCRAFT

Clearances for departing aircraft should specify, when necessary for the separation of aircraft:

(a) direction of take-off and turn after take-off;

(b) heading or track to be made good before taking up the cleared departure track;

(c) level to maintain before continuing climb to assigned level;

(d) time, point and/or rate at which a level change shall be made; and

(e) any other necessary manoeuvre consistent with safe operation of the aircraft.

***(PANS ATM — Section 6.3.1.1)***

**GM1 to AMC1 ATS.TR.235(b) ATC clearances**
CORRECTION TO HEADING OR TRACK PRIOR TO TAKING UP THE CLEARED DEPARTURE TRACK

'Track to be made good' means that the pilot should correct for the wind effect and to fly a heading that would ensure keeping that track.

**AMC2 ATS.TR.235(b) ATC clearances**
CONTENTS OF STANDARD CLEARANCES FOR DEPARTING AIRCRAFT

Standard clearances for departing aircraft should contain the following items:

(a) aircraft identification;

(b) clearance limit, normally destination aerodrome;

(c) designator of the assigned standard instrument departure (SID), if applicable;

(d) cleared level;

(e) allocated SSR code; and

(f) any other necessary instructions or information not contained in the SID description, e.g. instructions relating to change of frequency.

***(PANS ATM — Section 6.3.2.3)***

**GM1 to AMC2 ATS.TR.235(b) ATC clearances**
CONTENTS OF STANDARD CLEARANCES FOR DEPARTING AIRCRAFT — COMMUNICATION FAILURE

(a) Clearances for departing aircraft may specify a cleared level other than that indicated in the filed flight plan for the en-route phase of flight, without a time or geographical limit for the cleared level. Such clearances will normally be used to facilitate the application of tactical control methods by ATC, normally through the use of an ATS surveillance system.

(b) Where clearances for departing aircraft which contain no time or geographical limit for a cleared level are utilised, the action to be taken by an aircraft experiencing air–ground communication failure in the event that the aircraft has been radar-vectored away from the route specified in its current flight plan, should be prescribed on the basis of a regional air navigation agreement and included in the SID description or published in AIPs.

***(PANS ATM — Sections 6.3.2.5.1 and 6.3.2.5.2)***

**AMC3 ATS.TR.235(b) ATC clearances**
CLEARANCES FOR ARRIVING IFR FLIGHTS

An IFR flight should neither be cleared for an initial approach below the appropriate minimum altitude as specified by the State concerned nor descend below that altitude unless:

(a) the pilot has reported passing an appropriate point defined by a navigation aid or as a waypoint; or

(b) the pilot reports that the aerodrome is and can be maintained in sight; or

(c) the aircraft is conducting a visual approach; or

(d) the controller has determined the aircraft's position by the use of an ATS surveillance system, and a lower minimum altitude has been specified for use when providing ATS surveillance services.

***(PANS ATM — Section 6.5.1.3)***

**AMC4 ATS.TR.235(b) ATC clearances**
CONTENTS OF STANDARD CLEARANCES FOR ARRIVING AIRCRAFT

Standard clearances for arriving aircraft should contain the following items:

(a) aircraft identification;

(b) designator of the assigned STAR if applicable;

(c) runway in use, except when part of the STAR description;

(d) cleared level; and

(e) any other necessary instructions or information not contained in the STAR description, e.g. change of communications.

***(PANS ATM — Section 6.5.2.3)***

**AMC1 ATS.TR.235(b)(2) ATC clearances**
SPECIFICATION OF CLEARANCE LIMIT

A clearance limit should be described by specifying the name of an appropriate significant point, or aerodrome, or controlled airspace boundary.

***(PANS ATM — Section 4.5.7.1.1)***

**GM1 to AMC1 ATS.TR.235(b)(2) ATC clearances**
SPECIFICATION OF CLEARANCE LIMIT

(a) When prior coordination has been effected with units under whose control the aircraft will subsequently come, or if there is reasonable assurance that it can be effected a reasonable time prior to their assumption of control, the clearance limit should be the destination aerodrome or, if not practicable, an appropriate intermediate point, and coordination should be expedited so that a clearance to the destination aerodrome may be issued as soon as possible.

(b) If an aircraft has been cleared to an intermediate point in adjacent controlled airspace, the appropriate ATC unit will then be responsible for issuing, as soon as practicable, an amended clearance to the destination aerodrome.

(c) When the destination aerodrome is outside controlled airspace, the ATC unit responsible for the last controlled airspace through which an aircraft will pass should issue the appropriate clearance for flight to the limit of that controlled airspace.

***(PANS ATM — Sections 4.5.7.1.2, 4.5.7.1.3 and 4.5.7.1.4)***

**GM1 ATS.TR.235(b)(3)(i) ATC clearances**

The phrase 'cleared flight planned route' may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases 'cleared (designation) departure' or 'cleared (designation) arrival' may be used when standard departure or arrival routes have been established and published in AIPs.

***(PANS ATM — Sections 4.5.7.2.1 (Second and third sentences))***

**AMC1 ATS.TR.235(b)(4) ATC clearances**
INSTRUCTIONS IN CLEARANCES RELATING TO LEVELS

Instructions included in clearances relating to levels should consist of:

(a) cruising level(s) or, for cruise climb, a range of levels, and, if necessary, the point to which the clearance is valid with regard to the level(s);

(b) levels at which specified significant points are to be crossed, when necessary;

(c) the place or time for starting climb or descent, when necessary;

(d) the rate of climb or descent, when necessary; and

(e) detailed instructions concerning departure or approach levels, when necessary.

***(PANS ATM — Section 11.4.2.6.2.2)***

**GM1 ATS.TR.235(b)(4) ATC clearances**
ASSIGNMENT OF FLIGHT LEVELS FOR CONTROLLED FLIGHTS

(a) Except when traffic conditions and coordination procedures permit authorisation of cruise climb, an ATC unit should normally authorise only one level for an aircraft beyond its control area, i.e. that level at which the aircraft will enter the next control area whether contiguous or not. It is

the responsibility of the accepting ATC unit to issue clearance for further climb as appropriate. When relevant, aircraft will be advised to request en-route any cruising level changes desired.

(b) In so far as practicable, cruising levels of aircraft flying to the same destination should be assigned in a manner that will be correct for an approach sequence at destination.

(c) An aircraft at a cruising level should normally have priority over other aircraft requesting that cruising level. When two or more aircraft are at the same cruising level, the preceding aircraft should normally have priority.

***(PANS ATM — Sections 5.3.3.1, 5.3.3.6 and 5.3.3.7)***

**GM1 ATS.TR.235(b)(5) ATC clearances**
CONTENT OF THE CLEARANCES — TIME OF EXPIRY

The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been commenced.

***(Annex 11 — Note to Section 3.7.1.1(e)) (Said Note has been transposed as GM1 SERA.8015(d)(5))***

**GM1 ATS.TR.235(c) ATC clearances**
ESTABLISHMENT AND PROCEDURES FOR STANDARD ARRIVAL AND DEPARTURE ROUTES

Guidance related to the establishment of standard departure and arrival routes and associated procedures is available in ICAO Doc 9426 (Chapter 4, Appendix A).

***(Annex 11 Note to Section 3.7.1.2(b))***

**AMC1 ATS.TR.235(d) ATC clearances**
CLEARANCES FOR TRANSONIC FLIGHT

(a) The ATC units should, whenever practicable, deliver clearance for the transonic acceleration phase to aircraft intending supersonic flight prior to departure.

(b) During the transonic and supersonic phases of a flight, amendments to the clearance should be kept to a minimum and should take due account of the operational limitations of the aircraft in these flight phases.

***(PANS ATM — Sections 4.5.6.2.1 and 4.5.6.2.2)***

**GM1 ATS.TR.235(e) ATC clearances**
CHANGE IN CLEARANCE REGARDING ROUTE

The nature of the change should include a description of the route and levels to the point where it joins the previously cleared route, or, if the aircraft will not re-join the previous route, to the destination.

***(PANS ATM — Section 4.5.7.4.3) (Section 4.5.7.4.3 also transposed as GM to SERA.8015(e)(1))***

**GM2 ATS.TR.235(e) ATC clearances**
CHANGE IN CLEARANCE REGARDING CRUISING LEVEL

If it is necessary to change the cruising level of an aircraft operating along an established ATS route extending partly within and partly outside controlled airspace and where the respective series of cruising levels are not identical, the change should, whenever possible, be effected within controlled airspace.

***(PANS ATM — Section 5.3.3.3)***

**GM1 ATS.TR.235(g)(2) ATC clearances**
READ-BACK OF CPDLC MESSAGES

When so indicated by local safety assessments, the ATS provider may require that the receipt of some of the CPDLC message types (in particular those addressing trajectory changes) be acknowledged by voice.

***(GM1 SERA.8015(e)(4))***

**GM1 ATS.TR.235(h)(1) ATC clearances**
CLEARANCE UPDATE

Where a clearance is issued covering the initial part of the flight solely as a means of expediting departing traffic, the succeeding en-route clearance will be as specified in point (h)(1) of ATS.TR.235 even though the aerodrome of first intended landing is under the jurisdiction of an ACC other than the one issuing the en-route clearance.

***(Annex 11 — Note to Section 3.7.4.1)***

**GM1 ATS.TR.235(h)(2)(i) ATC clearances**
AIR–GROUND COMMUNICATION FOR DELIVERY OF DOWNSTREAM CLEARANCES

Where practicable, and where data link communications are used to facilitate downstream clearance delivery, two-way voice communications between the pilot and the ATC unit providing the downstream clearance should be available.

***(Annex 11 — Section 3.7.4.2.1.4)***

**AMC1 ATS.TR.240(a) Control of persons and vehicles at controlled aerodromes**
CONTROL OF OTHER THAN AIRCRAFT TRAFFIC ON THE MANOEUVRING AREA

(a) The movement of pedestrians or vehicles on the manoeuvring area should be subject to authorisation by the aerodrome control tower. Persons, including drivers of all vehicles, should be required to obtain authorisation from the aerodrome control tower before entry to the manoeuvring area. Notwithstanding such an authorisation, entry to a runway or runway strip or change in the operation authorised should be subject to a further specific authorisation by the aerodrome control tower.

(b) When an aircraft is landing or taking off, the controller should not permit vehicles to hold closer to the runway in use than:

(1) at a taxiway/runway intersection — at a runway-holding position; and

(2) at a location other than a taxiway/runway intersection — at a distance equal to the separation distance of the runway-holding position.

***(PANS ATM — Sections 7.6.3.2.1 and 7.6.3.2.2.2)***

**AMC2 ATS.TR.240(a) Control of persons and vehicles at controlled aerodromes**
UNCERTAINTY ON AIRCRAFT AND/OR VEHICLES POSITION ON THE MANOEUVRING AREA

In the event that the aerodrome controller becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, he or she should immediately take appropriate action to safeguard operations and assist the aircraft or vehicle concerned to determine its position.

***(PANS ATM — Section 7.4.1.5.4)***

**GM1 ATS.TR.240(b)(2) Control of persons and vehicles at controlled aerodromes**
CONTROL OF PERSONS AND VEHICLES AT AERODROMES

In prescribing the minimum separation between vehicles and taxiing aircraft, the availability of lighting, markings, signals and signage should normally be taken into account.

***(GM1 SERA.3210(d)(4)(ii)(B) Right-of-way)***

**GM1 ATS.TR.240(c) Control of persons and vehicles at controlled aerodromes**
PRIORITY TO EMERGENCY VEHICLES

When emergency vehicles are proceeding to the assistance of an aircraft in distress, all other movement of surface traffic should, to the extent practicable, be halted until it is determined that the progress of the emergency vehicles will not be impeded.

***(PANS ATM — Section 7.6.3.2.2.1)***

**GM1 ATS.TR.245 Use of surface movement surveillance equipment at aerodromes**
FUNCTIONS OF SURFACE MOVEMENT RADAR IN SURFACE MOVEMENT CONTROL

The information displayed on an SMR display may be used to assist in:

(a) monitoring of aircraft and vehicles on the manoeuvring area for compliance with clearances and instructions;

(b) determining that a runway is clear of traffic prior to a landing or take-off;

(c) providing information on essential local traffic on or near the manoeuvring area;

(d) determining the location of aircraft and vehicles on the manoeuvring area;

(e) providing directional taxi information to aircraft when requested by the pilot or deemed necessary by the controller. Except under special circumstances, e.g. emergencies, such information should not be issued in the form of specific heading instructions; and

(f) providing assistance and advice to emergency vehicles.

***(PANS ATM — Section 8.10.2.2.2)***

**GM2 ATS.TR.245 Use of surface movement surveillance equipment at aerodromes**
FUNCTIONS OF ADVANCED SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEMS — A-SMGCS IN SURFACE MOVEMENT CONTROL

When authorised and subject to conditions prescribed by the competent authority, the information provided on an A-SMGCS display may be used for the purpose of:

(a) determining the location of aircraft on the movement area and vehicles on the manoeuvring area. Where visual observation by the aerodrome controller is not possible, or whenever deemed beneficial by the aerodrome controller, the information provided by A-SMGCS may be used to replace visual observation;

(b) monitoring aircraft and vehicles on the manoeuvring area for compliance with clearances and instructions;

(c) determining that a runway is clear of traffic or assisting in the assessment that a runway will be clear of traffic prior to a landing or take-off;

(d) providing information on essential local traffic on or near the manoeuvring area;

(e) providing directional taxi information to aircraft when requested by the pilot or deemed necessary by the controller. Such information should not be issued in the form of specific heading instructions (except in special circumstances, e.g. emergencies); and

(f) providing assistance and advice to emergency vehicles.

***(Doc 7030 EUR — Section 6.5.6.2)***

**AMC1 ATS.TR.250(a) Essential traffic information**
ESSENTIAL TRAFFIC INFORMATION — CONTENT

Essential traffic information should include the following information if relevant and available:

(a) direction of flight of aircraft concerned;

(b) type and wake turbulence category of aircraft concerned;

(c) cruising level of aircraft concerned; and

(d) one of the following:

(1) estimated time over the reporting point nearest to where the level will be crossed; or

(2) relative bearing of the aircraft concerned in terms of the 12-hour clock as well as distance from the conflicting traffic; or

(3) actual or estimated position of the aircraft concerned.

***(PANS ATM — Section 5.10.2)***

**GM1 ATS.TR.250(a) Essential traffic information**
ESSENTIAL TRAFFIC INFORMATION — CONTENT

(a) Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum.

(b) Subject to provisions in ATS.TR.210(b), ATC is required to provide separation between IFR flights in airspace Classes A to E, and between IFR and VFR flights in Classes B and C. ATC is not required to provide separation between VFR flights, except within airspace Class B. Therefore, IFR or VFR flights may constitute essential traffic to IFR traffic, and IFR flights may constitute essential traffic to VFR traffic. However, a VFR flight would not constitute essential traffic to other VFR flights except within Class B airspace.

***(PANS ATM — Section 5.10.1.1 and Note to Section 5.10.1.1)***

**AMC1 ATS.TR.250(b) Essential traffic information**
ESSENTIAL LOCAL TRAFFIC INFORMATION

(a) The relevant ATC unit should issue in a timely manner information on essential local traffic, either directly or through the unit providing approach control service when, in the judgement of the aerodrome controller, such information is necessary in the interests of safety, or when requested by aircraft.

(b) The relevant ATC unit should describe essential local traffic so as to be easily identified.

***(PANS ATM — Sections 7.4.1.3.1 and 7.4.1.3.3)***

**GM1 ATS.TR.250(b) Essential traffic information**
ESSENTIAL LOCAL TRAFFIC INFORMATION

Essential local traffic should be considered to consist of any aircraft, vehicle or personnel on or near the manoeuvring area, or traffic in the take-off and climb-out area or the final approach area, which may constitute a hazard to the aircraft concerned.

***(PANS ATM — Note to Section 6.2.1)***

**AMC1 ATS.TR.255 Operations on parallel or near-parallel runways**
REQUIREMENTS AND PROCEDURES FOR INDEPENDENT PARALLEL DEPARTURES

(a) Parallel runways may be used for independent instrument departures as follows:

(1) both runways are used exclusively for departures (independent departures); or

(2) one runway is used exclusively for departures while the other runway is used for a mixture of arrivals and departures (semi-mixed operation); or

(3) both runways are used for mixed arrivals and departures (mixed operation).

(b) Independent instrument departures should only be conducted from parallel runways where:

(1) the runway centre lines are spaced by the distance specified in CS ADR-DSN.B.055 ‘Minimum distance between parallel instrument runways’ in EASA ED Decision 2014/013/R ‘Certification Specifications and Guidance Material For Aerodromes Design’, as amended;

(2) the departure tracks diverge by at least 15 degrees immediately after take-off;

(3) ATS surveillance system capable of identifying the aircraft within 2 km (1.0 NM) from the end of the runway is available; and

(4) ATS operational procedures ensure that the required track divergence is achieved.

***(PANS ATM — Sections 6.7.2.1 and 6.7.2.2)***

**AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**
REQUIREMENTS AND PROCEDURES FOR INDEPENDENT PARALLEL APPROACHES

(a) Whenever parallel approaches are carried out, separate controllers should be responsible for the sequencing and spacing of arriving aircraft to each runway.

(b) Independent parallel approaches should only be conducted to parallel runways where:

(1) the runway centre lines are spaced by the distance specified in CS ADR-DSN.B.055 'Minimum distance between parallel instrument runways' in EASA ED Decision 2014/013/R 'Certification Specifications and Guidance Material For Aerodromes Design', as amended;

(i) where runway centre lines are spaced by less than 1 310 m but not less than 1 035 m, suitable SSR equipment, with a minimum azimuth accuracy of 0.06 degrees (one sigma), an update period of 2.5 seconds or less, and a high resolution display providing position prediction and deviation alert is available; or

(ii) where runway centre lines are spaced by less than 1 525 m but not less than 1 310 m, SSR equipment with performance specifications other than the foregoing may be applied, provided they are equal to or better than those stated under point (iii) below, and when it is determined that the safety of aircraft operation would not be adversely affected; or

(iii) where runway centre lines are spaced by 1 525 m or more, suitable surveillance radar with a minimum azimuth accuracy of 0.3 degrees (one sigma) or better and update period of 5 seconds or less is available;

(2) as early as practicable after an aircraft has established communication with approach control, the aircraft is advised that independent parallel approaches are in force;

(3) instrument landing system (ILS) and/or microwave landing system (MLS) approaches are being conducted on both runways;

(4) the missed approach track for one approach diverges by at least 30 degrees from the missed approach track of the adjacent approach;

(5) an obstacle survey and evaluation is completed, as appropriate, for the areas adjacent to the final approach segments;

(6) aircraft are advised of the runway identification and ILS localiser or MLS frequency as early as possible;

(7) vectoring is used to intercept the ILS localiser course or the MLS final approach track, at an angle not greater than 30 degrees and providing at least 2 km (1.0 NM) straight and level flight prior to the intercept. The vector should also enable the aircraft to be established on the ILS localiser course or MLS final approach track in level flight for at least 3.7 km (2.0 NM) prior to intercepting the ILS glide path or specified MLS elevation angle;

(8) a minimum of 300 m (1 000 ft) vertical separation or, subject to radar system and situation display capabilities, a minimum of 5.6 km (3.0 NM) radar separation is provided until aircraft are established:

(i) inbound on the ILS localiser course and/or MLS final approach track; and

(ii) within the normal operating zone (NOZ);

(9) an NTZ at least 610 m (2 000 ft) wide is established equidistant between extended runway centre lines and is depicted on the situation display;

(10) separate controllers use surveillance to monitor the approaches to each runway;

(11) controller ensures that when the 300 m (1 000 ft) vertical separation is reduced:

(i) aircraft do not penetrate the depicted NTZ; and

(ii) the applicable minimum longitudinal separation between aircraft on the same ILS localiser course or MLS final approach track is maintained; and

(12) flight path monitoring using surveillance is provided until:

(i) visual separation is applied, and procedures ensure that both controllers are advised whenever visual separation is applied;

(ii) the aircraft has landed, or in case of a missed approach, is at least 2 km (1.0 NM) beyond the departure end of the runway and adequate separation with any other traffic is established.

(13) if no dedicated radio channels are available for the controllers to control the aircraft until landing:

(i) transfer of communication of aircraft to the respective aerodrome controller's channel is effected before the higher of two aircraft on adjacent final approach tracks intercepts the ILS glide path or the specified MLS elevation angle; and

(ii) the controllers monitoring the approaches to each runway are provided with the capability to override transmissions of aerodrome control on the respective radio channels for each arrival flow.

(c) The meteorological conditions under which the independent parallel approaches to parallel runways spaced by less than 1 525 m between their centre lines are to be suspended, should be proposed by the ATS provider and approved by the competent authority. These conditions include but are not limited to wind shear, turbulence, downdrafts, crosswind and significant meteorological conditions such as thunderstorms, which might otherwise increase ILS localiser course and/or MLS final approach track deviations to the extent that safety may be impaired.

***(PANS ATM — Sections 6.7.3.1.2, 6.7.3.2.1, 6.7.3.2.2 (first sentence), 6.7.3.2.3, 6.7.3.2.4, 6.7.3.2.10 and 6.7.3.3)***

**GM1 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

With reference to point (b)(1) of AMC2 ATS.TR.255, other equivalent ATS surveillance systems (e.g. ADS-B or MLAT) may be used to provide the services, provided that a performance capability equal to or better than that required can be demonstrated.

***(PANS ATM — Section 6.7.3.2.1 (second sentence))***

**GM2 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

With reference to point (b)(2) of AMC2 ATS.TR.255, the information that independent parallel operations are in force may be provided through the ATIS broadcasts.

***(PANS ATM — Section 6.7.3.2.2 (second sentence))***

**GM3 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

This GM refers to provisions in points (b)(7) and (b)(8) of AMC2 ATS.TR.255.

(a) When assigning the final heading to intercept the ILS localiser course or MLS final approach track, the runway will be confirmed, and the aircraft will be advised of:

(1) its position relative to a fix on the ILS localiser course or MLS final approach track;

(2) the altitude to be maintained until established on the ILS localiser course or MLS final approach track to the ILS glide path or specified MLS elevation angle intercept point; and

(3) if required, clearance for the appropriate ILS or MLS approach.

(b) When an aircraft is observed to overshoot the turn-on or to continue on a track which will penetrate the NTZ, the aircraft will be instructed to return immediately to the correct track.

(c) When an aircraft is observed penetrating the NTZ, the aircraft on the adjacent ILS localiser course or MLS final approach track will be instructed to immediately climb and turn to the assigned altitude/height and heading in order to avoid the deviating aircraft. Where parallel approach obstacle assessment surfaces (PAOAS) criteria are applied for the obstacle assessment, the air traffic controller will not issue the heading instruction to the aircraft below 120 m (400 ft) above the runway threshold elevation, and the heading instruction will not exceed 45 degrees track difference with the ILS localiser course or MLS final approach track.

***(PANS ATM — Sections 6.7.3.2.6, 6.7.3.2.8 and 6.7.3.2.9)***

**GM4 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

This GM refers to provisions in point (b)(8) of AMC2 ATS.TR.255. Subject to radar system and situation display capabilities, a minimum of 5.6 km (3.0 NM) radar separation as established in point (a) of AMC1 ATS.TR.210(c)(2), will be provided between aircraft on the same ILS localiser course or MLS final approach track unless increased longitudinal separation is required due to wake turbulence or for other reasons.

An aircraft established on an ILS localiser course or MLS final approach track is separated from another aircraft established on an adjacent parallel ILS localiser course or MLS final approach track provided neither aircraft penetrates the NTZ as depicted on the situation display.

***(PANS ATM — Section 6.7.3.2.5 and Note 2 to Section 6.7.3.2.5)***

**GM5 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

With reference to point (b)(10) of AMC2 ATS.TR.255, the primary responsibility for navigation on the ILS localiser course and /or MLS final approach track rests with the pilot. Control instructions and

appropriate information should be issued to ensure that separation between aircraft exists at all times and that aircraft do not enter the NTZ.

***(PANS ATM — Section 6.7.3.2.7 (second sentence) and Note 1 to Section 6.7.3.2.7)***

**GM6 to AMC2 ATS.TR.255 Operations on parallel or near-parallel runways**

With reference to point (c) of AMC2 ATS.TR.255, guidance material relating to meteorological conditions is contained in the Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR) (Doc 9643).

***(PANS ATM — Note 2 to Section 6.7.3.3)***

**AMC3 ATS.TR.255 Operations on parallel or near-parallel runways**
REQUIREMENTS AND PROCEDURES FOR DEPENDENT PARALLEL APPROACHES

(a) Dependent parallel approaches should only be conducted to parallel runways where:

(1) the runway centre lines are spaced by the distance specified in CS ADR-DSN.B.055 'Minimum distance between parallel instrument runways' in EASA ED Decision 2014/013/R 'Certification Specifications and Guidance Material For Aerodromes Design', as amended;

(2) the aircraft are vectored to intercept the final approach track;

(3) suitable surveillance radar with a minimum azimuth accuracy of 0.3 degrees (one sigma) and an update period of 5 seconds or less is available;

(4) ILS and/or MLS approaches are being conducted on both runways;

(5) aircraft are advised that approaches are in use to both runways;

(6) the missed approach track for one approach diverges by at least 30 degrees from the missed approach track of the adjacent approach; and

(7) approach control has a frequency override capability to aerodrome control.

(b) A minimum of 300 m (1000ft) vertical separation or a minimum of 5.6km (3.0NM) surveillance separation should be provided between aircraft during turn-on to parallel ILS localiser courses and/or MLS final approach tracks.

(c) The minimum surveillance separation to be provided between aircraft established on the ILS localiser course and/or MLS final approach track should be:

(1) 5.6 km (3.0NM) between aircraft on the same ILS localiser course or MLS final approach track unless increased longitudinal separation is required due to wake turbulence; and

(2) 3.7 km (2.0NM) between successive aircraft on adjacent ILS localiser courses or MLS final approach tracks.

***(PANS ATM — Sections 6.7.3.4.1, 6.7.3.4.2 and 6.7.3.4.3)***

**GM1 to AMC3 ATS.TR.255 Operations on parallel or near-parallel runways**

With reference to point (a)(5) of AMC3 ATS.TR.255, the information that dependent parallel operations are in force may be provided through the ATIS broadcasts.

***(PANS ATM — Section 6.7.3.4.1 (paragraph (e)))***

**GM2 to AMC3 ATS.TR.255Operations on parallel or near-parallel runways**

With reference to point (a)(3) of AMC2 ATS.TR.255, other equivalent ATS surveillance systems (e.g. ADS-B or MLAT) may be used to provide the services, provided that a performance capability equal to or better than that required can be demonstrated.

***(PANS ATM — Section 6.7.3.2.1 (second sentence))***

**AMC4 ATS.TR.255 Operations on parallel or near-parallel runways**
REQUIREMENTS AND PROCEDURES FOR SEGREGATED PARALLEL OPERATIONS

(a) Segregated parallel operations should only be conducted on parallel runways when:

(1) the runway centre lines are spaced by the distance specified in CS ADR-DSN.B.055 'Minimum distance between parallel instrument runways' in EASA ED Decision 2014/013/R 'Certification Specifications and Guidance Material For Aerodromes Design', as amended; and

(2) the nominal departure track diverges immediately after take-off by at least 30 degrees from the missed approach track of the adjacent approach (see Figure 51).

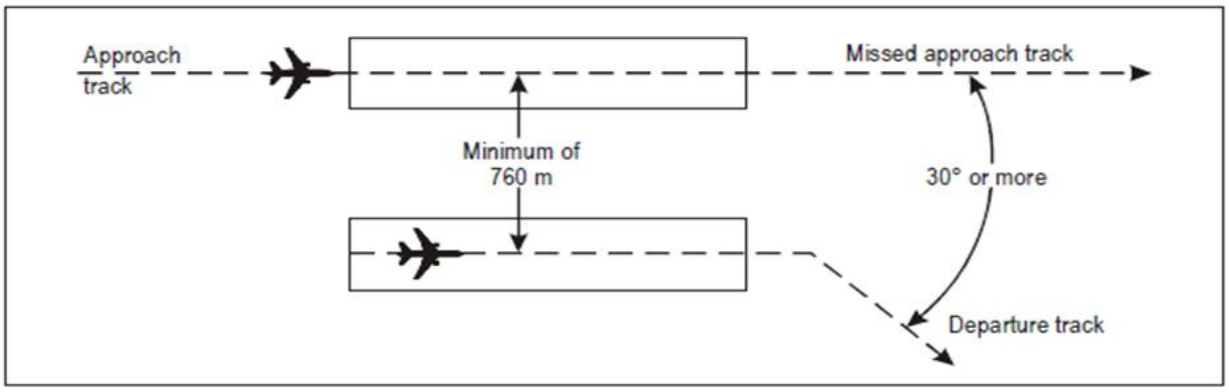


**Figure 51 — Segregated parallel operations**

(b) The minimum distance between parallel runway centre lines for segregated parallel operations may be decreased by 30 m for each 150 m that the arrival runway is staggered toward the arriving aircraft, to a minimum of 300 m (see Figure 52) and should be increased by 30 m for each 150 m that the arrival runway is staggered away from the arriving aircraft (see Figure 53).

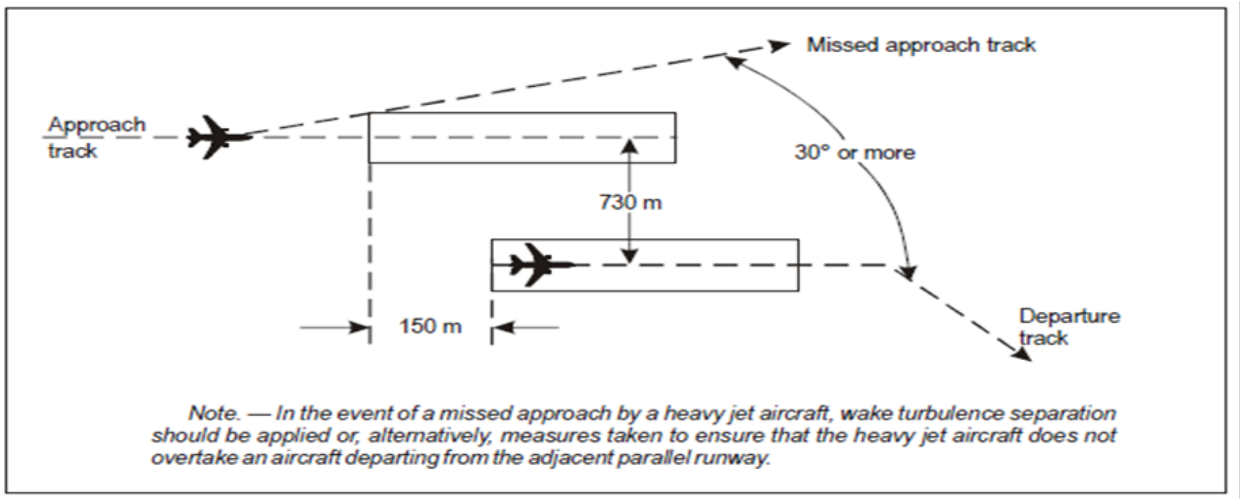


**Figure 52 — Segregated parallel operations where runways are staggered**

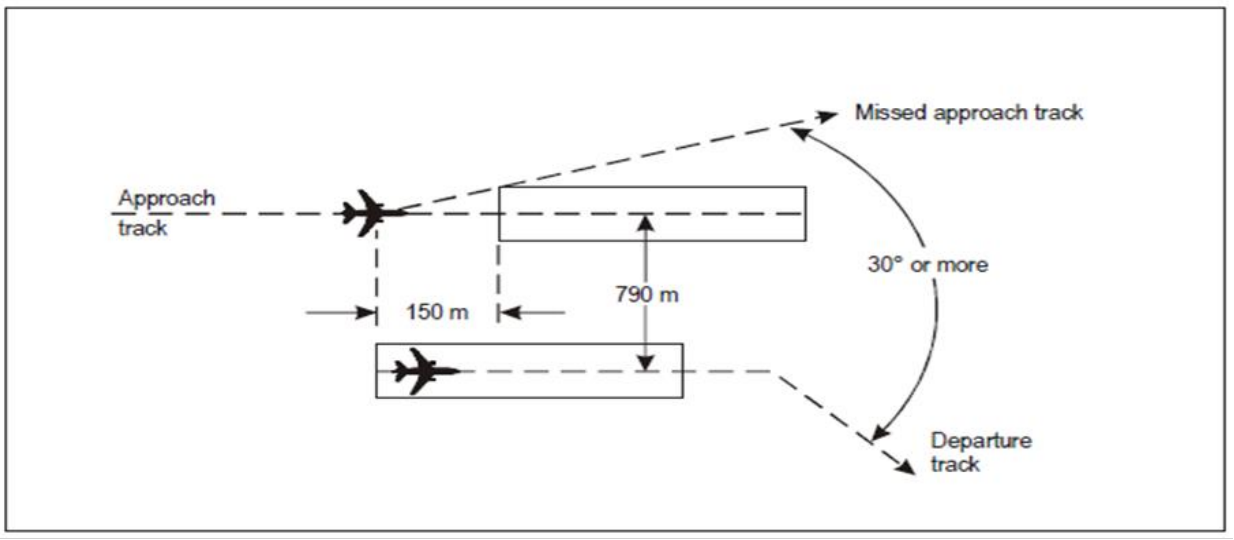


**Figure 53 — Segregated parallel operations where runways are staggered**

(c) The following types of approaches may be conducted in segregated parallel operations, provided suitable surveillance radar and the appropriate ground facilities conform to the standard necessary for the specific type of approach:

(1) ILS and/or MLS precision approach;

(2) surveillance radar approach (SRA); and

(3) visual approach.

***(PANS ATM — Sections 6.7.3.5.1, 6.7.3.5.2 and 6.7.3.5.3)***

**GM1 ATS.TR.255 Operations on parallel or near-parallel runways**

Guidance material relating to operations on parallel or near-parallel runways is contained in the Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR) (Doc 9643).

**(PANS ATM — Note to Section 6.7.1)**

**AMC1 ATS.TR.260(g) Selection of the runway in use**
CONSIDERATION OF NOISE ABATEMENT IN THE SELECTION OF RUNWAY IN USE

(a) The unit providing aerodrome control service should select runways for noise abatement purposes for landing operations only when they are equipped with suitable glide path guidance, e.g. ILS, or a visual approach slope indicator system for operations in visual meteorological conditions.

(b) Noise abatement should not be a determining factor in runway nomination under the following circumstances:

(1) if the runway surface conditions are adversely affected (e.g. by snow, slush, ice, water, mud, rubber, oil or other substances);

(2) for landing in conditions:

(i) when the ceiling is lower than 150 m (500 ft) above aerodrome elevation, or the visibility is less than 1 900 m; or

(ii) when the approach requires use of vertical minima greater than 100 m (300 ft) above aerodrome elevation and:

(A) the ceiling is lower than 240 m (800 ft) above aerodrome elevation; or

(B) the visibility is less than 3 000 m;

(3) for take-off when the visibility is less than 1 900 m;

(4) when wind shear has been reported or forecast or when thunderstorms are expected to affect the approach or departure; and

(5) when the crosswind component, including gusts, exceeds 28 km/h (15 kt), or the tailwind component, including gusts, exceeds 9 km/h (5 kt).

***(PANS ATM — Section 7.2.4 and 7.2.6)***

**GM1 ATS.TR.260 Selection of the runway in use**
SELECTION OF THE RUNWAY IN USE

(a) Normally, an aircraft will land and take off into wind.

(b) Departing aircraft may be expedited by suggesting a take-off direction which is not into the wind. It is the responsibility of the pilot-in-command of an aircraft to decide between making such a take-off or waiting for take-off in a preferred direction.

***(PANS ATM — Sections 7.2.2 (initial part of the first sentence) and Section 6.3.3.1)***

**GM1 ATS.TR.265(a)(1) Control of aerodrome surface traffic in conditions of low visibility**
HOLDING POSITION LIMITS

The definition of holding position limits by intermediate holding positions, stop bar or taxiway intersection marking is established in accordance with EASA ED Decision 2014/013/R 'Certification Specification and Guidance Material for Aerodrome Design', as amended.

**AMC1 ATS.TR.265(b) Control of aerodrome surface traffic in conditions of low visibility**
PROCEDURES FOR CONTROL OF AERODROME TRAFFIC WHEN CATEGORY II/III APPROACHES ARE IN USE

(a) Low visibility operations should be initiated by or through the aerodrome control tower.

(b) The aerodrome control tower should inform the approach control unit concerned when procedures for precision approach category II/III and departure operations in RVR conditions less than a value of 550 m will be applied and also when such procedures are no longer in force.

(c) Provisions regarding low visibility operations should specify:

(1) the RVR value(s) at which the low visibility operations procedures are to be implemented;

(2) the minimum ILS/MLS equipment requirements for category II/III operations;

(3) other facilities and aids required for category II/III operations, including aeronautical ground lights, which are to be monitored for normal operation;

(4) the criteria for and the circumstances under which downgrading of the ILS/MLS equipment from category II/III operations capability is to be made;

(5) the requirement to report any relevant equipment failure and degradation, without delay, to the flight crews concerned, the approach control unit, and any other appropriate organisation;

(6) special procedures for the control of traffic on the manoeuvring area, including:

(i) the runway-holding positions to be used;

(ii) the minimum distance between an arriving and a departing aircraft to ensure protection of the sensitive and critical areas;

(iii) procedures to verify that aircraft and vehicles have vacated the runway; and

(iv) procedures applicable to the separation of aircraft and vehicles;

(7) the applicable spacing between successive approaching aircraft;

(8) the action(s) to be taken in the event that low visibility operations need to be discontinued, e.g. due to equipment failures; and

(9) any other relevant procedures or requirements.

(d) The aerodrome control tower should, prior to a period of application of low visibility procedures, establish a record of vehicles and persons currently on the manoeuvring area and maintain this record during the period of application of these procedures to assist in assuring the safety of operations on that area.

***(PANS ATM — Sections 7.12.3, 7.12.4, 7.12.5 and 7.12.6)***

**GM1 ATS.TR.270 Authorisation of special VFR**
SPECIAL VFR IN CONTROL ZONES

The list of type of operations subject to permit by the competent authority to deviate from the requirements for special VFR flights is not exhaustive. The competent Authority may grant a permit for other kinds of helicopter operations such as power line inspections, helicopter hoist operations, etc.

***(Also proposed as GM1 SERA.5010 in NPA 2015-14)***

**GM1 ATS.TR.270(a)(3) Authorisation of special VFR**
SPECIAL VFR IN CONTROL ZONES

When the reported ground visibility at the aerodrome is less than 1 500 m, ATC units may issue a special VFR clearance for a flight crossing the control zone and not intending to take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the flight visibility reported by the pilot is not less than 1 500 m**.**

***(Also proposed as GM2 to SERA.5010(b) in NPA 2015-14)***

**GM1 ATS.TR.275 Pressure-altitude-derived level information**

These provisions may also apply to flight information service when so prescribed by the competent authority.

**AMC1 ATS.TR.275(a) Pressure-altitude-derived level information**
TOLERANCE VALUE FOR PRESSURE-ALTITUDE-DERIVED INFORMATION

The tolerance value used to determine that the pressure-altitude-derived level information displayed to the controller is accurate should be ±60 m (±200 ft) in RVSM airspace. In other airspace, it should be ±90 m (±300 ft), except that the competent authority may specify a smaller criterion, but not less than ±60 m (±200 ft), if this is found to be more practical.

***(PANS ATM — Section 8.5.5.1.1 (first and second sentence))***

**AMC2 ATS.TR.275(a) Pressure-altitude-derived level information**
VERIFICATION OF PRESSURE ALTITUDE DERIVED INFORMATION

The verification should be effected by simultaneous comparison with altimeter-derived level information received from the same aircraft by radiotelephony.

***(PANS ATM — Section 8.5.5.1.2 (second sentence))***

**GM1 ATS.TR.275(a) Pressure-altitude-derived level information**
ERRONEOUS LEVEL INFORMATION

(a) If the displayed level information is not within the approved tolerance value or when a discrepancy in excess of the approved tolerance value is detected subsequent to verification, the pilot should be advised accordingly and requested to check the pressure setting and confirm the aircraft's level.

(b) If, following confirmation of the correct pressure setting the discrepancy continues to exist, the following action should be taken by ATC according to circumstances:

(1) request the pilot to stop Mode C or ADS-B altitude data transmission, provided this does not cause the loss of position and identity information, and notify the next control positions or ATC unit concerned with the aircraft of the action taken; or

(2) inform the pilot of the discrepancy and request that the relevant operation continue in order to prevent loss of position and identity information of the aircraft and, when so

prescribed by the local instructions, override the label-displayed level information with the reported level. In addition, the ATC unit should notify the next control position or ATC unit concerned with the aircraft of the action taken.

***(PANS ATM — Sections 8.5.5.1.3 and 8.5.5.1.4) (Sections 8.5.5.1.3 and 8.5.5.1.4 have been transposed as GM1 SERA.13010(b) with NPA 2015-14)***

**AMC1 ATS.TR.275(b) Pressure-altitude-derived level information**
VERIFICATION OF LEVEL OCCUPANCY

(a) In accordance with AMC1 ATS.TR.275(a), the criterion which should be used to determine that a specific level is occupied by an aircraft is be ±60 m (±200 ft) in RVSM airspace. In other airspace, this criterion should be ±90 m (±300 ft), except that the competent authority may specify a smaller criterion, but not less than ±60 m (±200 ft), if this is found to be more practical.

(b) **Aircraft maintaining a level.** An aircraft should be considered to be maintaining its assigned level as long as the pressure-altitude-derived level information indicates that it is within the appropriate tolerances of the assigned level, as specified in point (a).

(c) **Aircraft vacating a level**. An aircraft cleared to leave a level should be considered to have commenced its manoeuvre and vacated the previously occupied level when the pressure-altitude-derived level information indicates a change of more than 90 m (300 ft) in the anticipated direction from its previously assigned level.

(d) **Aircraft passing a level in climb or descent.** An aircraft in climb or descent should be considered to have crossed a level when the pressure-altitude-derived level information indicates that it has passed this level in the required direction by more than 90 m (300 ft).

(e) **Aircraft reaching a level.** An aircraft should be considered to have reached the level to which it has been cleared when the elapsed time of three display updates, three sensor updates or 15 seconds, whichever is the greater, has passed since the pressure-altitude-derived level information has indicated that it is within the appropriate tolerances of the assigned level, as specified in point (a).

***(PANS ATM — Sections 8.5.5.2.1, 8.5.5.2.2, 8.5.5.2.3, 8.5.5.2.4 and 8.5.5.2.5)***

**GM1 ATS.TR.300(b) Application**

It is recognised that in certain circumstances an aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of ATC service.

***(Annex 11 — Note to Section 4.1.2)***

**AMC1 ATS.TR.300(c)(1) Application**
RECORDING AND TRANSMISSION OF INFORMATION ON THE PROGRESS OF FLIGHTS

Information on the actual progress of flights, including those of heavy or medium unmanned free balloons, under neither ATC service nor air traffic advisory service should be:

(a) recorded by the ATS unit serving the FIR within which the aircraft is flying in such a manner that it is available for reference and in case it is requested for search and rescue action; and

(b) transmitted by the ATS unit receiving the information to other ATS units concerned, when so required for the purposes of the coordination between ATS units providing flight information service in adjacent FIRs in respect of IFR and VFR flights (See points (a) and (b) of GM2 ATS.TR.300(c)(2)).

***(PANS ATM — Section 9.1.1)***

**AMC1 ATS.TR.300(c)(2) Application**
TRANSFER OF RESPONSIBILITY FOR THE PROVISION OF FLIGHT INFORMATION SERVICE BETWEEN FLIGHT INFORMATION CENTRES

The responsibility for the provision of flight information service to a flight should normally pass from the appropriate ATS unit in an FIR to the appropriate ATS unit in the adjacent FIR at the time of crossing the common FIR boundary. However, when coordination is required in accordance with point (b) of AMC1 ATS.TR.300(c)(1), but communication facilities are inadequate, the former ATS unit should, as far as practicable, continue to provide flight information service to the flight until it has established two-way communication with the appropriate ATS unit in the FIR it is entering.

***(PANS ATM — Section 9.1.2)***

**GM1 ATS.TR.300(c)(2) Application**
INFORMATION EXCHANGE IN CASE OF TERMINATION OF A CONTROLLED FLIGHT

In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace or by cancelling its IFR flight and proceeding on VFR in airspace where VFR flights are not controlled, the ATC unit concerned should ensure that appropriate information on the flight is forwarded to ATS unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

***(PANS ATM — Section 10.1.2.5)***

**GM2 ATS.TR.300(c)(2) Application**
COORDINATION IN RESPECT OF THE PROVISION OF FLIGHT INFORMATION SERVICE AND ALERTING SERVICE

(a) Coordination between ATS units providing flight information service in adjacent FIRs should be effected in respect of IFR and VFR flights, in order to ensure continued flight information service to such aircraft in specified areas or along specified routes. Such coordination should be effected in accordance with an agreement between the ATS units concerned.

(b) The coordination of flights effected in accordance with point (a) should include transmission of the following information on the flight concerned:

(1) appropriate items of the current flight plan; and

(2) the time at which last contact was made with the aircraft concerned.

(c) This information should be forwarded to the ATS unit in charge of the next FIR in which the aircraft will operate prior to the aircraft entering such FIR.

(d) In order to assist in the identification of strayed or unidentified aircraft and thereby eliminate or reduce the need for interception, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to FIR boundaries should also be provided to the ATS units in charge of the FIRs adjacent to such routes or portions of routes.

(e) In circumstances where an aircraft has declared minimum fuel or is experiencing an emergency or in any other situation wherein the safety of the aircraft is not assured, the type of emergency and/or the circumstances experienced by the aircraft should be reported by the transferring unit to the accepting unit and any other ATS unit that may be concerned with the flight and to the associated rescue coordination centres, if necessary.

***(PANS ATM — Sections 10.2.1, 10.2.2, 10.2.3, 10.2.4 and 10.2.5)***

**AMC1 ATS.TR.305 Scope of flight information service**
TRANSMISSION OF INFORMATION

**(a) Means of transmission**

(1) Information should be disseminated to aircraft by one or more of the following means:

(i) the preferred method of directed transmission on the initiative of the appropriate ATS unit to an aircraft, ensuring that receipt is acknowledged; or

(ii) a general call, unacknowledged transmission to all aircraft concerned; or

(iii) broadcast; or

(iv) data link.

(2) The use of general calls should be limited to cases where it is necessary to disseminate essential information to several aircraft without delay, e.g. the sudden occurrence of hazards, a change of the runway in use, or the failure of a key approach and landing aid.

**(b) Transmission of special air-reports, SIGMET and AIRMET information**

(1) Appropriate SIGMET and AIRMET information, as well as special air-reports which have not been used for the preparation of a SIGMET, should be disseminated to aircraft by one or more of the means specified in point (a) as established by the competent authority. Special air-reports should be disseminated to aircraft for a period of 60 minutes after their issuance.

(2) The special air-report, SIGMET and AIRMET information to be passed on to aircraft on ground initiative should cover a portion of the route up to one hour's flying time ahead of the aircraft except when another period has been determined on the basis of regional air navigation agreements.

**(c) Transmission of information concerning volcanic activity**

Information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds (position of clouds and flight levels affected) should be disseminated to aircraft by one or more of the means specified in point (a) as established by the competent authority.

**(d) Transmission of information concerning radioactive materials and toxic chemical clouds**

Information on the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace within the area of responsibility of the ATS unit should be transmitted to aircraft by one or more of the means specified in point (a).

**(e) Transmission of SPECI and amended TAF**

(1) Special reports in the SPECI code form and amended TAF should be transmitted on request and supplemented by:

(i) directed transmission from the appropriate ATS unit of selected special reports and amended TAF for the departure, destination and its alternate aerodromes, as listed in the flight plan; or

(ii) a general call on appropriate frequencies for the unacknowledged transmission to affected aircraft of selected special reports and amended TAF; or

(iii) continuous or frequent broadcast or the use of data link to make available current METAR and TAF in areas determined on the basis of regional air navigation agreements where traffic congestion dictates. VOLMET broadcasts and/or D-VOLMET should be used to serve this purpose.

(2) The passing of amended aerodrome forecasts to aircraft on the initiative of the appropriate ATS unit should be limited to that portion of the flight where the aircraft is within a specified time from the aerodrome of destination, such time being established on the basis of regional air navigation agreements.

**(f) Transmission of information on heavy or medium unmanned free balloons**

Appropriate information on heavy or medium unmanned free balloons should be disseminated to aircraft by one or more of the means specified in point (a).

**(g) Transmission of information to supersonic aircraft**

The following information should be available at appropriate ACCs or flight information centres for aerodromes determined by the competent authority and should be transmitted on request to supersonic aircraft prior to commencement of deceleration/descent from supersonic cruise:

(1) current meteorological reports and forecasts, except that where communications difficulties are encountered under conditions of poor propagation, the elements transmitted may be limited to:

(i) mean surface wind, direction and speed (including gusts);

(ii) visibility or runway visual range;

(iii) amount and height of base of low clouds;

(iv) other significant information; and

(v) if appropriate, information regarding expected changes;

 

(2) operationally significant information on the status of facilities relating to the runway in use, including the precision approach category in the event that the lowest approach category promulgated for the runway is not available;

(3) sufficient information on the runway surface conditions to permit assessment of the runway braking action.

***(PANS ATM — Sections 9.1.3.1.1, 9.1.3.1.2, 9.1.3.2.1, 9.1.3.2.2, 9.1.3.3, 9.1.3.4, 9.1.3.5.1, 9.1.3.5.2, 9.1.3.6 and 9.1.3.7)***

**AMC1 ATS.TR.305(a);(b) Scope of flight information service**
INFORMATION FOR DEPARTING AIRCRAFT — METEOROLOGICAL CONDITIONS

Information regarding significant changes in the meteorological conditions in the take-off or climb-out area, obtained by the unit providing approach control service after a departing aircraft has established communication with such unit, should be transmitted to the aircraft without delay, except when it is known that the aircraft already has received the information.

***(PANS ATM — Section 6.4.1)***

**GM1 to AMC1 ATS.TR.305(a);(b) Scope of flight information service**
INFORMATION FOR DEPARTING AIRCRAFT — METEOROLOGICAL CONDITIONS

Significant changes in this context include those relating to surface wind direction or speed, visibility, runway visual range or air temperature (for turbine-engined aircraft), and the occurrence of thunderstorm or, moderate or severe turbulence, wind shear, hail, moderate or severe icing, severe squall line, freezing precipitation, severe mountain waves, sandstorm, dust storm, blowing snow, tornado or waterspout.

***(PANS ATM — Note to Section 6.4.1)***

**GM1 ATS.TR.305(a);(b);(c) Scope of flight information service**
INFORMATION ON AERODROME CONDITIONS IN THE AFIS CONTEXT

Information on AFIS aerodrome conditions and changes thereto which is essential to the safe operation of aircraft, should, to the extent possible, relate to the following:

(a) construction or maintenance work on, or immediately adjacent to, the manoeuvring area;

(b) rough or broken surfaces on a runway or a taxiway, whether marked or not;

(c) water, snow, slush, ice or frost on a runway or a taxiway;

(d) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron;

(e) snow banks or drifts adjacent to a runway or a taxiway;

(f) other temporary hazards, including parked aircraft and birds on the ground or in the air;

(g) failure or irregular operation of part or all of the aerodrome lighting system; and

(h) any other pertinent information.

***(ICAO Circular 211-AN/128, 'General', 6. (d))***

**GM2 ATS.TR.305(a);(b);(c) Scope of flight information service**
TRAFFIC INFORMATION TO AIRCRAFT IN THE AFIS CONTEXT

The AFIS unit should provide the following information, as appropriate:

(a) direction of flight of aircraft concerned

(b) type and wake turbulence category (if known) of aircraft concerned;

(c) level of aircraft concerned, including possible changes;

(d) relative bearing of the aircraft concerned in terms of the 12-hour clock as well as distance from the conflicting traffic; or

(1) actual or estimated position of the aircraft concerned; or

(2) estimated times; and

(e) any other information considered relevant (e.g. approaching, crossing the traffic information area/traffic information zone (TIA/TIZ), estimated take-off or landing time).

***(EUROCONTROL AFIS Manual, Section 3.4.1)***

**GM3 ATS.TR.305(a);(b);(c) Scope of flight information service**
LOCAL TRAFFIC INFORMATION TO AIRCRAFT IN THE AFIS CONTEXT

AFIS units should issue traffic information on local traffic in a timely manner, either directly or through the unit providing approach control service when, in the judgement of the AFIS unit, such information is necessary in the interests of safety, or when requested by aircraft. Local traffic shall be described so as to be easily identified by the pilot.

***(EUROCONTROL AFIS Manual, Section 3.4.2)***

**GM4 ATS.TR.305(a);(b);(c) Scope of flight information service**
WAKE TURBULENCE AND JET BLAST HAZARDS INFORMATION TO AIRCRAFT IN THE AFIS CONTEXT

(a) The responsibility for wake turbulence avoidance rests entirely with the pilot-in-command. AFIS units should, to the extent practicable, advise aircraft of the expected occurrence of hazards caused by turbulent wake. Such information will be provided by the warning ‘caution wake turbulence’ and may also include relevant information on the aircraft concerned.

(b) In providing information, AFIS units should take into account the hazards caused by jet blast, helicopter downwash turbulence and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

***(EUROCONTROL AFIS Manual, — Sections 3.4.5.1 and 3.4.5.2)***

**AMC1 ATS.TR.305(a)(5) Scope of flight information service**
ESSENTIAL INFORMATION ON AERODROME CONDITIONS

Essential information on aerodrome conditions should be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources, including NOTAM, ATIS broadcasts, and the display of suitable signals. The information should be given in

sufficient time for the aircraft to make proper use of it, and the hazards should be identified as distinctly as possible.

***(PANS ATM — Section 7.5.3)***

**GM1 to AMC1 ATS.TR.305(a)(5) Scope of flight information service**
ESSENTIAL INFORMATION ON AERODROME CONDITIONS

(a) Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft, which pertains to the movement area or any facilities usually associated therewith. For example, construction work on a taxi strip not connected to the runway in use would not be essential information to any aircraft except one that might be taxied in the vicinity of the construction work. As another example, if all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

(b) Essential information on aerodrome conditions should include information relating to the following:

(1) construction or maintenance work on, or immediately adjacent to, the movement area;

(2) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;

(3) water, snow, slush, ice or frost on a runway, a taxiway or an apron;

(4) water on a runway, a taxiway or an apron;

(5) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron;

(6) other temporary hazards, including parked aircraft and birds on the ground or in the air;

(7) failure or irregular operation of part or all of the aerodrome lighting system; and

(8) any other pertinent information.

(c) Up-to-date information on the conditions on aprons may not always be available to the aerodrome control tower or to the AFIS unit. The responsibility of the aerodrome control tower or the AFIS unit in relation to aprons is, with respect to the provision of information as described in points (a) and (b), limited to the transmission to aircraft of the information which is provided to it by the operator responsible for the aprons.

***(PANS ATM — Sections 7.5.1, 7.5.2 and Note to Section 7.5.2)***

**AMC2 ATS.TR.305(a)(5) Scope of flight information service**
INFORMATION FOR DEPARTING AIRCRAFT — OPERATIONAL STATUS OF VISUAL AND NON-VISUAL AIDS

Information regarding changes in the operational status of visual or non-visual aids essential for take-off and climb should be transmitted without delay to a departing aircraft, except when it is known that the aircraft has already received the information.

***(PANS ATM — Section 6.4.2)***

**GM1 ATS.TR.305(a)(6) Scope of flight information service**
INFORMATION ON UNMANNED FREE BALLOONS

(a) On receipt of notification of the intended flight of a medium or heavy unmanned free balloon, the ATS unit should arrange for the information to be disseminated to all concerned. The information should include:

(1) the balloon flight identification or project code name;

(2) balloon classification and description;

(3) SSR code or NDB frequency as applicable;

(4) the launch site;

(5) the estimated time of the commencement of the launch or the planned period of the launches;

(6) the expected direction of ascent;

(7) the cruising level(s) (pressure-altitude); and

(8) the estimated elapsed time to pass 18 000 m (60 000 ft) pressure-altitude, or to reach cruising level if at or below 18 000 m (60 000 ft), together with the estimated location.

(b) On receipt of notification that a medium or heavy unmanned free balloon has been launched, the ATS unit should arrange for the information to be disseminated to all concerned. The information should include:

(1) the balloon flight identification or project code name;

(2) balloon classification and description;

(3) SSR code or NDB frequency as applicable;

(4) the launch site;

(5) the time of launch(es);

(6) the estimated time at which 18 000 m (60 000 ft) pressure-altitude will be passed, or the estimated time at which the cruising level will be reached if at or below 18 000 m (60 000 ft), and the estimated location;

(7) the estimated date and time of termination of the flight; and

(8) the planned location of ground contact, when applicable.

(c) When there is reasonable expectation that a heavy or medium unmanned free balloon will cross international borders, the appropriate ATS unit should arrange for the pre-launch and the launch notifications to be sent by NOTAM to the ATS unit(s) in the State(s) concerned. If agreed between the States concerned, the launch notification may be transmitted orally by direct ATS speech circuit between the ACCs/flight information centres involved.

***(PANS ATM — Sections 16.2.1, 16.2.2 and 16.2.3)***

**AMC1 ATS.TR.305(a)(7) Scope of flight information service**
INFORMATION ON ABNORMAL AIRCRAFT CONFIGURATION AND CONDITION

(a) Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from any part of the aircraft, is observed by or reported to the aerodrome controller or the AFIS officer, the aircraft concerned should be advised without delay.

(b) When requested by the flight crew of a departing aircraft suspecting damage to the aircraft, the departure runway used should be inspected without delay and the flight crew advised in the most expeditious manner as to whether any aircraft debris or bird or animal remains have been found or not.

***(PANS ATM — Sections 7.4.1.7.1 and 7.4.1.7.2)***

**GM1 ATS.TR.305(b)(1) Scope of flight information service**
INFORMATION RELATED TO WEATHER CONDITIONS AT DEPARTURE, DESTINATION, AND ALTERNATE AERODROMES

Pilots normally obtain information on the weather conditions from the appropriate office before the flight. Outstanding or safety-relevant information is normally provided by radio communication when available.

***(GM1 SERA.9005(b)(1))***

**GM1 ATS.TR.305(b)(2) Scope of flight information service**
INFORMATION CONCERNING COLLISION HAZARDS

Information relating to collision hazards includes only known activities that constitute risks to the aircraft concerned. The availability of such information to ATS may sometimes be incomplete (e.g. limitations in radar or radio coverage, optional radio contact by pilots, limitations in the accuracy of reported information by pilots, or unconfirmed level of information) and, therefore, ATS cannot assume responsibility for its issuance at all times or for its accuracy.

***(Annex 11 — Note to Section 4.2.2(b)) (Said Note has been transposed as GM1 SERA.9005(b)(2)***

**GM1 ATS.TR.305(c)(1) Scope of flight information service**
RUNWAY INCURSION OR OBSTRUCTED RUNWAY

In the event that the AFIS officer becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action should be taken to inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

***(EUROCONTROL AFIS Manual — Section 4.2.7)***

**GM1 ATS.TR.305(c)(2) Scope of flight information service**
SELECTION OF THE RUNWAY IN USE AT AFIS AERODROMES

Normally, an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and available instrument approach procedures or air traffic conditions

determine that a different direction is preferable. In selecting the runway however, besides surface wind speed and direction, other relevant factors such as the aerodrome traffic circuits, the length of runways, and the approach and landing aids available are to be taken into consideration.

***(EUROCONTROL AFIS Manual — Section 3.2.2)***

**GM1 ATS.TR.305(d)(3) Scope of flight information service**
OTHER ATS UNITS CONCERNED

Other ATS units concerned are those that have flights under their jurisdiction which are expected to enter the airspace concerned at a later stage of flight. Those flights could, for instance, require rerouting before entering the airspace concerned. As an example, a special air-report concerning volcanic ash or volcanic eruption could be necessary to be transmitted to aircraft by ATS units in the FIR adjacent to that affected by the air-report.

***(GM1 SERA.12020(a)(3))***

**GM1 ATS.TR.310(f) Voice-automatic terminal information service (Voice-ATIS) broadcasts**
ATIS BROADCAST CHANNELS

Where Voice-ATIS broadcasts are available in more than one language, a discrete channel should be used for each language.

***(Annex 11 — Recommendation in Section 4.3.4.7)***

**GM1 ATS.TR.310(g) Voice-automatic terminal information service (Voice-ATIS) broadcasts**
ATIS BROADCAST MESSAGES

The ATIS broadcast message should take into consideration human performance.

***(Annex 11 — Second sentence of Recommendation in Section 4.3.4.8)***

**GM1 ATS.TR.315 Data link-automatic terminal information service (D-ATIS)**
Guidance material relating to D-ATIS is contained in the ICAO Manual of Air Traffic Services Data Link Applications (Doc 9694).

***(Annex 11 — Note to Section 4.3.5.2)***

**GM1 ATS.TR.320 Automatic terminal information service (voice and/or data link)**
CONTENT OF ATIS MESSAGES

(a) Contents of ATIS messages are established in provision SERA.9010 of Commission Implementing Regulation (EU) No 923/2012, and more specifically:

(1) the elements of information of ATIS messages containing both arrival and departure information are specified in provision SERA.9010(b) of Commission Implementing Regulation (EU) No 923/2012, in the order listed.

(2) the elements of information ATIS messages containing arrival information only are specified in provision SERA.9010(c) of Commission Implementing Regulation (EU) No 923/2012, in the order listed;

(3) the elements of information of ATIS messages containing departure information only are specified in provision SERA.9010(d) of Commission Implementing Regulation (EU) No 923/2012, in the order listed.

(b) Contents of ATIS messages should be kept as brief as possible.

(c) Information additional to that specified in SERA.9010 of Commission Implementing Regulation (EU) No 923/2012; for example information already available in AIPs and NOTAM, should only be included when justified in exceptional circumstances.

***(Annex 11 — Sections 4.3.7, 4.3.8, 4.3.9 and Note to Section 4.3.6.5) (Sections 4.3.7, 4.3.8, 4.3.9 have been transposed as SERA.9010)***

**GM1 ATS.TR.320(d) Automatic terminal information service (voice and/or data link)**
UPDATE OF CHANGED ATIS MESSAGES ELEMENTS

The ATS unit should:

(a) communicate to the aircraft any element of information which has to be updated; or

(b) instruct the aircraft to obtain the current ATIS information.

**GM1 ATS.TR.325 VOLMET broadcasts and D-VOLMET broadcasts**
VOLMET BROADCAST PHRASEOLOGIES

Guidance on standard radiotelephony phraseologies to be used in VOLMET broadcasts is available in the ICAO Manual on Coordination between Air Traffic Services, Aeronautical information Services and Aeronautical Meteorological Services (Doc 9377), Appendix 1.

***(Annex 11 — Note to Section 4.4.2)***

**GM1 ATS.TR.400(b) Application**
COORDINATION FOR ALERTING SERVICE

(a) When alerting service is required in respect of a flight operated through more than one FIR or control area, and when the position of the aircraft is in doubt, responsibility for coordinating such service should rest with the ATS unit of the FIR or control area:

(1) within which the aircraft was flying at the time of last air–ground radio contact;

(2) that the aircraft was about to enter when last air–ground contact was established at or close to the boundary of two FIRs or control areas;

(3) within which the aircraft's intermediate stop or final destination point is located if the aircraft was not:

(i) equipped with suitable two-way radio communication equipment; or

(ii) under obligation to transmit position reports.

(b) The unit responsible for alerting service, in accordance with point (a), should:

(1) notify units providing alerting service in other affected FIRs or control areas of the emergency phase or phases, in addition to notifying the rescue coordination centre associated with it;

(2) request those units to assist in the search for any useful information pertaining to the aircraft presumed to be in an emergency, by all appropriate means and available communication facilities;

(3) collect the information gathered during each phase of the emergency and, after verifying it as necessary, transmit it to the rescue coordination centre; and

(4) announce the termination of the state of emergency as circumstances dictate.

(c) In obtaining the necessary information as required under ATS.TR.405(b) and (c), attention is to particularly be given to informing the relevant rescue coordination centre of the distress frequencies available to survivors. Said information is listed in Item 19 of the flight plan but not normally transmitted.

***(PANS ATM — Sections 9.2.2.2, 9.2.2.3 and 9.2.2.4)***

**AMC1 ATS.TR.400(d) Application**
ALERTING OF RESCUE AND FIREFIGHTING SERVICES

Aerodrome control towers, approach control units or AFIS units should alert the rescue and firefighting services whenever:

(a) an aircraft accident has occurred on or in the vicinity of the aerodrome; or

(b) information is received that the safety of an aircraft which is or will come under the jurisdiction of the aerodrome control tower or of the AFIS unit may have or has been impaired; or

(c) requested by the flight crew; or

(d) when otherwise deemed necessary or desirable.

***(PANS ATM — Section 7.1.2.1)***

**AMC2 ATS.TR.400(d) Application**
ALERTING OF RESCUE AND FIRE FIGHTING SERVICES

Local instructions, as in ATS.TR.400(d), should specify the type of information to be provided by the aerodrome control tower or approach control unit responsible or the relevant AFIS unit to the rescue and firefighting services, including type of aircraft and type of emergency and, when available, number of persons on board, and any dangerous goods carried on the aircraft.

***(PANS ATM — Section 7.1.2.2 (second sentence))***

**GM1 ATS.TR.405(a)(1) Notification to rescue coordination centres**
AIRCRAFT REPORT FOR THE PURPOSES OF UNCERTAINTY PHASE

When no report from an aircraft has been received within a reasonable period of time (which may be a specified interval prescribed on the basis of regional air navigation agreements) after a scheduled or expected reporting time, the ATS unit should, within the stipulated period of 30 minutes, endeavour to obtain such report in order to be in a position to apply the provisions relevant to the 'Uncertainty Phase' should circumstances warrant such application.

***(PANS ATM — Section 9.2.2.1)***

**GM1 ATS.TR.405(a)(2)(ii) Notification to rescue coordination centres**
MISSED AICRAFT REPORT — ACTIONS OF THE AERODROME CONTROL TOWERS

When an aircraft fails to report after having been transferred to an aerodrome control tower, or, having once reported, ceases radio contact and in either case fails to land 5 minutes after the expected landing time, the same aerodrome control tower should, in accordance with ATS.TR.400(c), report the situation to the approach control unit, ACC or flight information centre, or to the rescue coordination centre or rescue sub-centre.

***(PANS ATM — Section 7.1.2.3)***

**GM1 ATS.TR.405(a)(2)(iii) Notification to rescue coordination centres**
MISSED AICRAFT REPORT — ACTIONS OF THE AFIS UNIT

When an aircraft fails to report to or ceases radio contact with an AFIS unit under the circumstances established by the competent authority, the same AFIS unit should, in accordance with ATS.TR.400(c), report the situation to the approach control unit, ACC or flight information centre, or to the rescue coordination centre or rescue sub-centre.

***(PANS ATM — Section 7.1.2.3)***

**GM1 ATS.TR.405(c) Notification to rescue coordination centres**
INFORMATION FOR THE PURPOSES OF ALERTING SERVICE

In case of missing information as specified in ATS.TR.405(b), the ATS units should clearly indicate to the rescue coordination centre the information not available at the time of the notification of the distress phase.

**GM1 ATS.TR.405(d) Notification to rescue coordination centres**
CANCELLATION OF ACTION(S) RELATED TO ALERTING SERVICE

The cancellation of action(s) initiated by the rescue coordination centre is the responsibility of that centre.

***(Annex 11 — Note to Section 5.2.3)***

**AMC1 ATS.TR.415 Plotting aircraft in a state of emergency**
PLOTTING AIRCRAFT IN A STATE OF EMERGENCY WHERE ATS SURVEILLANCE SERVICE IS PROVIDED

The progress of an aircraft in emergency should be monitored and (whenever possible) plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system, and position information should be provided to all ATS units which may be able to give assistance to the aircraft.

***(PANS ATM — Section 8.8.1.2)***

## 1.4. Amendments to ED Decision 2013/013/R — AMC/GM to the SERA Regulation (draft decision)

It is proposed to amend the ED Decision by introducing the following:

**GMX to SERA.8005(c)(1) Operation of air traffic control service**
GEOMETRIC HEIGHT INFORMATION

Geometric height information is generated by airborne systems, for instance, GPS or radio altimeters.

**GMY to SERA.14095 Distress and urgency radiotelephony communication procedures**
USE OF VHF EMERGENCY CHANNEL IN CASE OF HANDLING OF DISTRESS TRAFFIC

The use of the frequency 121.500 MHz for the purpose outlined in point (a)(3) is to be avoided if it interferes in any way with the efficient handling of distress traffic.

# 2. References

## 2.1. Affected regulations

— Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 (OJ L 226, 19.8.2016, p. 1)

— Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p. 1)

— Commission Implementing Regulation (EU) 2016/1185 of 20 July 2016 amending Implementing Regulation (EU) No 923/2012 as regards the update and completion of the common rules of the air and operational provisions regarding services and procedures in air navigation (SERA Part C) and repealing Regulation (EC) No 730/2006 (OJ L 196, 21.7.2016, p. 3)

## 2.2. Affected AMC and GM

Decision 2013/013/R of the Executive Director of the European Aviation Safety Agency of 17 July 2013 adopting the Acceptable Means of Compliance and Guidance Material to Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/20101 'Acceptable Means of Compliance and Guidance Material to the rules of the air'

## 2.3. Reference documents

— Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1)

— Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation) (OJ L 96, 31.3.2004, p. 10)

— Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky (the airspace Regulation) (OJ L 96, 31.3.2004, p. 20)

— Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC

of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007 (OJ L 122, 24.4.2014, p. 18)

— Commission Regulation (EU) 2015/340 of 20 February 2015 laying down technical requirements and administrative procedures relating to air traffic controllers' licences and certificates pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 923/2012 and repealing Commission Regulation (EU) No 805/2011 (OJ L 63, 6.3.2015, p. 1)

— Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20)

— Commission Implementing Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky (OJ L 305, 23.11.2011, p. 23)

— Commission Regulation (EC) No 2096/2005 of 20 December 2005 laying down common requirements for the provision of air navigation services (OJ L 335, 21.12.2005, p. 13)

— Commission Implementing Regulation (EU) No 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services and amending Regulations (EC) No 482/2008 and (EU) No 691/2010 (OJ L 271, 18.10.2011, p. 23)

— Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 44, 14.2.2014, p. 1)

— ED Decision 2015/014/R of 3 July 2015 ‘Guidance Material on the implementation of the remote tower concept for single mode of operation’

— ED Decision 2014/013/R of 27 February 2014 adopting Certification Specifications and Guidance Material for Aerodromes Design ‘CS-ADR-DSN — Initial issue’

— EASA Opinion No 02/2014 ‘Requirements for apron management services at aerodromes’

— EASA NPA 2016-02 ‘Technical requirements and operational procedures for aeronautical information services and aeronautical information management’

— EASA Safety Information Bulletin (SIB) 2014-07R1: Unexpected Autopilot Behaviour on Instrument Landing System (ILS) Approach

— ICAO Doc 7300 ‘Convention of International Civil Aviation’

— ICAO Annex 2 ‘Rules of the Air’

— ICAO Annex 3 ‘Meteorological Service for International Air Navigation’

— ICAO Annex 10 ‘Aeronautical Telecommunications’ (Volume II ‘Communication Procedures’ including those with PANS status)

— ICAO Annex 10 ‘Aeronautical Telecommunications’ (Volume V ‘Aeronautical Radio Frequency Spectrum Utilization’)

— ICAO Annex 11 ‘Air Traffic Services’

— ICAO Doc. 4444 ‘Procedures for Air Navigation Services — Air Traffic Management’ (PANS ATM)

 

— ICAO Doc 8168 ‘Procedures for Air Navigation Services — Aircraft Operations’(PANS OPS) (Volume II)

— ICAO Doc 9377 ‘Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services’

— ICAO Doc 9426 ‘Air Traffic Services Planning Manual’

— ICAO Doc 7030 EUR ‘European (EUR) Regional Supplementary Procedures’

— ICAO Doc 9554 ‘Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations’

— ICAO Doc 9643 ‘Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR)’

— ICAO Doc 9694 ‘Manual of Air Traffic Services Data Link Applications’

— ICAO Circular 211-AN/128 ‘Aerodrome Flight Information Service (AFIS)’

— ICAO TEC/OPS/SEP — 08-0294.SLG ‘Wake turbulence aspects of Airbus A380-800 aircraft’

— ICAO Working Paper AN-WP/9014 dated 18 February 2016

— ICAO EANPG/54 — WP/15 of 16.11.12

— ICAO EANPG/54 — Flimsy 08 of 04.12.12

— ICAO EANPG/56 — WP 18 of 12.11.14

— ICAO EANPG/56 — Final Report

— ICAO EANPG/57 — Final Report

— EUROCONTROL ‘Manual for Aerodrome Flight Information Service (AFIS)’ Edition 1.0 of 17.06.2010

— EUROCONTROL ‘Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)’ Edition 2.0 of 06.04.2009

— ‘Reference Guide to EUROCONTROL Guidelines for Contingency Planning of Air Navigation Services (including Service Continuity)’ Edition 2.0 of 06.04.2009

— EUROCONTROL ‘Common Format Letter of Agreement Between Air Traffic Services Units’ Edition 4.0 of 15.03.2012

— EUROCONTROL ‘Guidelines for the Application of European Coordination and Transfer Procedures’ Edition 1.0 of 25.10.2012

— Investigation Report C 2/2003 L ‘Incident between an airliner and airport maintenance vehicle at Kuusamo airport on 29 January 2003’ Issued by the Finnish Investigation Commission — Translation of the original Finnish report

— Investigation Report AX001-1-2/02 published by the German Federal Bureau of Aircraft Accidents Investigation (BFU) in May 2004 regarding the mid-air collision between a Boeing 757-200 and a Tupolev TU154M on 1 July 2002 near Überlingen, Germany

— UK CAP 493 ‘Manual of Air Traffic Services’

 

— Study on Aeroplane State Awareness during Go-Around (ASAGA) – Published in August 2013 by Bureau d'Enquêtes et d'Analyses (BEA) pour la Sécurité de l'Aviation civile

 