



Terms of Reference

for a rulemaking task

Systematic review and transposition of existing FAA TSO for parts and appliances into EASA ETSO

RMT.0206 (ETSO.011) – ISSUE 1 – 26/06/2013

Applicability		Process map	
Affected regulations and decisions:	CS-ETSO (Decision 2003/10/RM of the Executive Director of 24 October 2003)	Rulemaking lead	R4
Affected stakeholders:	Manufacturers of parts and appliances	Concept paper	No
Driver/origin:	Level playing field	Rulemaking group	No
Reference:	Article 5.6(b) of Regulation (EC) 216/2008	RIA type	Light
		Technical consultation during NPA drafting	No
		Publication date of the NPA	2014/Q2
		Duration of NPA consultation	3 months
		Review group	No
		Focussed consultation	Yes
		CRD	With Decision
		Publication date of the Opinion	N/A
		Publication date of the Decision	2015/Q3



1. Issue and reasoning for regulatory change

Article 5.6(b) of Regulation (EC) 216/2008¹ (hereinafter referred to as the 'Basic Regulation') requires to periodically update Agency's rules taking into account worldwide aircraft experience in service, and scientific and technical progress. This also applies to the series of ETSOs for parts and appliances, which needs regular update almost every two years in order to incorporate:

- Harmonisation with corresponding FAA TSOs;
- Recognition of latest industry standards (e.g. Eurocae EDs, RTCA DOs or else);
- New ETSOs as required;
- Editorial changes;
- Specific topic, including those stemming from Safety Recommendations (SR);
- a new ETSO for halon-free handheld fire extinguishers.

2. Objectives

Incorporation of new standards and updated FAA TSO standards into Agency's CS-ETSO.

3. Specific tasks and deliverables

3.1. Tasks

Amendment of CS-ETSO to update a number of existing ETSO and to introduce a new one.

Develop a light-RIA to be published with the NPA, considering in general the global impact of the set of proposed ETSOs (e.g. voluntary process; harmonization with FAA; etc.).

3.2. Deliverables

Following the consultation on the NPA, the CRD will be published simultaneously with the ED Decision to amend CS-ETSO and, in particular, to amend or introduce the following ETSOs:

New or update	ETSO	Subject	Driver
update	C3e	Turn and slip instruments	Corresponding FAA update.
update	C5f	Direction Instrument, Non-magnetic (Gyroscopically Stabilized)	Corresponding FAA update.
update	C26d	Aircraft Wheels and Wheel-Brake Assemblies (CS-23,CS-27, and CS-29 aircraft)	Corresponding FAA update. It may be edition 'e', depending on the FAA progress.
update	C43d	Temperature Instruments	Corresponding FAA update, if

¹ 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, 19.03.2008, p. 1). Regulation as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).



			published in 2013.
update	C44d	Fuel flow meters	Corresponding FAA update (if updated SAE standard available) and as requested by industry and referred in CRD to NPA 2012-16.
update	C70b	Life Rafts	Publication of SAE standard AS 1356, which may lead to harmonised text with the FAA, and, therefore, insertion of this ETSO in index 1.
update	C76b	Fuel Drain Valves	Corresponding FAA update.
update	C88b	Automatic Pressure Altitude Reporting Code Generating Equipment	Corresponding FAA update.
update	C89a	Crewmember Oxygen Regulator, demand	CRD to NPA 2011-12 (RMT.0186 (ETSO.008); first NPA).
Editorial	C90d A1	Cargo Pallets, Nets and Containers	Elimination of duplicated testing for rapid depressurisation
update	C99a	Flight Deck (Sedentary) Crewmember Protective Breathing Equipment	CRD to NPA 2011-12 (RMT.0186 (ETSO.008); first NPA).
update	C100c	Child restraint system	Corresponding FAA update.
update	C112e	Secondary Surveillance Radar Mode S Transponder	Corresponding FAA update, if published in 2013.
update	C113a	Airborne Multipurpose Electronic Displays	Corresponding FAA update.
update	C116a	Crewmember Portable Protective Breathing Equipment	CRD to NPA 2011-12 (RMT.0186 (ETSO.008); first NPA).
update	C119d	TCAS II	Corresponding FAA update, if published in 2013.
update	C126b	406 and 121.5 MHz Emergency Locator Transmitter	Safety Recommendation TSB Canada M4271.
update	C127b	Rotorcraft, Transport Aeroplane, and Normal and Utility Aeroplane Seating Systems (Stowage life vest)	Corresponding FAA update, if published in 2013.



update	C139a	Audio Systems and Equipment	Corresponding FAA update, if published in 2013.
update	C151c	Terrain Awareness and Warning System (TAWS)	Corresponding FAA update
update	C159b	NextGen Satellite Systems NGSS equipment	Corresponding FAA update, if published in 2013.
update	C161a	Ground Based Augmentation System Positioning and Navigation Equipment	Failure condition classification update requested by industry as referred in CRD to NPA 2012-16.
new	C167	Personnel Carrying Device Systems (PCDS), also known as Human Harnesses	Corresponding FAA TSO published in 2004
update	C173a	Nickel-Cadmium and Lead-Acid Batteries	Corresponding FAA update, if published in 2013.
new	C201	Attitude and Heading Reference Systems (AHRS)	Corresponding FAA update.
new	C202	Cargo Stoppers	Corresponding FAA update, if published in 2013.
new	2C515	Aircraft Halocarbon Clean Agent - Handheld fire extinguishers	Commission Regulation (EU) No 744/2010 on phasing out halon and SAE standard AS 6271

In addition, editorial amendments may be proposed to several ETSOs, to replace the expressions:

- 'computer software', by simply 'software'; and
- 'Electronic hardware qualification', by 'airborne electronic hardware'.

3.3. Interface issues

3.3.1 The following topics, mentioned here only for clarity and ease of reference, are out of the scope of these ToR, since already covered by recent (or in progress) rulemaking initiatives:

- Some ETSOs cancelled, added or modified in amendment 7 of CS-ETSO in 2012, as listed in Annex II to this ToR;
- Update of CS-ETSO Subpart A following publication of edition C of AMC 20-115 on software assurance since it has been progressed through NPA 2012-16 of 11 October 2012 (2nd NPA from task RMT.0186);
- Other ETSOs proposed for cancellation, addition or modification through NPA 2012-16, as listed in Annex III to this ToR;
- New ETSO-2C165a since it is progressed through NPA 2012-02 of 12 March 2012 (RMT.0001 on Electronic Flight Bag);



- New ETSO-2C153 on Integrated Modular Avionics (IMA) as it is being progressed through specific task RMT.0456.

3.3.2 The following topics, are out of the scope of this ToR, since planned to be covered in the future:

- Amendment of ETSO-C16a on 'Electrically heated pitot and pitot-static tubes', following SR FRAN-2009-020, for which harmonised work is underway with the FAA, and which is planned to be covered by the subsequent update of CS-ETSO (i.e. task RMT.0457);
- ETSO-C90e on Unit Load Devices, and a possible new ETSO on thermally controlled ULD, since on these matters technical work is still in progress.

3.4. Focussed consultation

A focussed consultation could possibly take place during the regular yearly Workshop with stakeholders, organised by the Certification Directorate or FAA on TSOs/CS-ETSO.



4. Annex I: Reference documents

4.1. Affected regulations

CS-ETSO.

4.2. Affected decisions

Decision 2003/10/RM of the Executive Director of the European Aviation Safety Agency of 24 October 2003 on certification specifications, including airworthiness codes and acceptable means of compliance, for European Technical Standard Orders (CS-ETSO).

4.3. 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 as last amended by Commission Regulation (EU) No 6/2013 of 8 January 2013 (OJ L 4, 9.1.2013, p. 34).
- Subpart O (ETSO Authorisation) in Section A of Part 21 (Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appliances, as well as for the certification of design and production organisations.



5. Annex II: List of ETSOs cancelled, added or modified by amendment 7 to CS-ETSO (ED Decision 2012/009/R of 5 July 2012)

ETSO reference	ETSO title	Action
Index 1		
ETSO-C31d	HF Transmitting Equipment	Cancelled
ETSO-C32d	HF Receiving Equipment	Cancelled
ETSO-C55a	Fuel and Oil Quantity Instruments (Reciprocating Engine Aircraft)	Update
ETSO-C62de	Aircraft Tyres	Update
ETSO-C90ed	Cargo Pallets, Nets and Containers	Update
ETSO-C95a	Mach Meters	Update
ETSO-C126a	406MHz Emergency Locator Transmitter	New
ETSO-C129a	Airborne Supplemental Navigation Equipment Using Global Positioning System (GPS)	Cancelled
ETSO-C154c	Universal Access Transceiver (UAT) Automatic Dependent Surveillance - Broadcast (ADS-B) Equipment Operating on the Frequency of 978 MHz	New
ETSO-C157a	Aircraft Flight Information Services-Broadcast (FIS-B) Data Link Systems and Equipment	New
ETSO-C158	Aeronautical Mobile High Frequency Data Link (HF DL) Equipment	New
ETSO-C159a	Avionics Supporting Next Generation Satellite Systems (NGSS) = Airborne Iridium Satellite Transceiver for Voice or Data	New
ETSO-C161a	Ground Based Augmentation System Positioning and Navigation Equipment	New
ETSO-C162a	Ground Based Augmentation System Very High Frequency Data Broadcast Equipment	New
ETSO-C166ab	Extended Squitter Automatic Dependent Surveillance - Broadcast (TIS-B) Equipment Operating on the Radio Frequency of 1090 Megahertz (MHz)	Update
ETSO-C170	High Frequency (HF) Radio Communications Transceiver Equipment Operating Within the Radio Frequency 1.5 to 30 Megahertz	New
ETSO-C172	Cargo Restraint Strap Assemblies	New
ETSO-C179a	Permanently Installed Rechargeable Lithium Cells, Batteries, and Battery Systems	New
ETSO-C194	Helicopter Terrain Awareness and Warning System (HTAWS)	New



ETSO-C195a	Avionics Supporting Automatic Dependent Surveillance - Broadcast (ADS-B) Aircraft Surveillance	New
ETSO-C196a	Airborne Supplemental Navigation Sensors for Global Positioning System Equipment Using Aircraft-Based Augmentation	New

ETSO Reference	ETSO title	Action
Index 2		
ETSO-2C70ab	Liferafts (reversible and non-reversible)	Update
ETSO-2C126	406MHz Emergency Locator Transmitter (ELT)	Cancelled
ETSO-2C197	Information Collection and Monitoring Systems	New

6.



7. Annex III: List of ETSOs being cancelled, added or modified (ref. NPA 2012-16 of 11 October 2012)

ETSO reference	ETSO title	Based on and similar to FAA TSO
Subpart A — General		
Subpart A, par. 2.2	Software standards	n/a
Subpart A, par. 2.4	Failure condition classification	n/a

ETSO reference	ETSO title	Based on and similar to FAA TSO
Index 1		
ETSO-C9e	Automatic Pilot	DELETED
ETSO-C44c A1 (editorials)	Fuel Flowmeters	TSO-C44c (from 22/08/2006)
ETSO-C45b A1 (editorials)	Manifold Pressure Instruments	TSO-C45b (from 22/08/2006)
ETSO-C47a A1 (editorials)	Pressure Instruments — Fuel, Oil, and Hydraulic (Reciprocating Engine Powered Aircraft)	TSO-C47a (from 08/08/2006)
ETSO-C52b	Flight Directors	DELETED
ETSO-C56b A1 (editorials)	Engine-driven Direct Current Generators/Starter generators	TSO-C56b (from 01/06/2006)
ETSO-C60b	Airborne Area Navigation Equipment Using Loran-C Inputs	DELETED
ETSO-C74d	Airborne ATC Transponder Equipment	TSO-C74d (from 12/17/2008) still current
ETSO-C87a (update)	Airborne Low-range Radio Altimeter	TSO-C87a (from 31/05/2012)
ETSO-C106 A1 (editorials)	Air Data Computer	TSO-C106 (from 15/01/1988)
ETSO-C112d (update)	Air Traffic Control Radar Beacon System/Mode Select (ATCRSB/Mode S) Airborne Equipment	TSO-C112d (from 06/06/2011)
ETSO-C114 A1 (editorials)	Torso Restraint Systems	TSO-C114 (from 27/03/1987)
ETSO-C115c (update)	Flight Management Systems (FMS) using Multi-Sensor Inputs	TSO-C115c (from 09/01/2012)
ETSO-C121b (update)	Underwater Locating Device	TSO-C121b (from 28/02/2012)
ETSO-C155a (update)	Recorder Independent Power Supply	TSO-C155a (from 09/06/2010)
ETSO-C160a (new)	VDL Mode 2 Communications equipment	TSO-C160a (from 27/03/2012)
ETSO-C161a A1 (editorials)	Ground-Based Augmentation System Positioning and Navigation Equipment	TSO-C161a (from 17/12/2009)
ETSO-C164 (new)	Night Vision Goggles (NVG)	TSO-C164 (from 30/09/2004)
ETSO-C166b A1(editorials)	Extended Squitter ADS-B and TIS-B Equipment Operating on the RF of 1090 Megahertz (MHz)	TSO-C166b (from 02/12/2009)
ETSO-C174 A1	Battery-Based Emergency Power Unit	TSO-C174



(editorials)	(BEPU)	(from 25/07/2005)
ETSO-C178 (new)	Single Phase 115 VAC, 400 Hz Arc Fault Circuit Breakers	TSO-C178 (from 03/03/2006)
ETSO-C198 (new)	Automatic Flight Guidance and Control System (AFGCS) Equipment	TSO-C198 (from 02/06/2011)
ETSO-C200 (new)	Low-frequency Underwater Locating Device (ULD)	TSO-C200 (from 26/06/2012)

ETSO Reference	ETSO title	Based on and similar to FAA TSO
Index 2		
ETSO-2C87	Airborne Low-range Radio Altimeter	DELETED (moved to Index 1)
ETSO-2C91a	Emergency Locator Transmitter (ELT) Equipment	DELETED