TERMS OF REFERENCE

Task Nr:	RMT.0281 (MDM.082)
Issue:	1
Date:	19 November 2012
Regulatory reference:	Commission Regulation (EC) No 2042/2003 (Part-66/Part-147)
Reference documents:	See section 4

1. Subject: New training methods or new teaching technologies (Part-66/Part-147)

2. Problem/statement of the issue and justification; reason for regulatory evolution (regulatory tasks):

With the advent and development of digital technologies, Part-66 and Part-147 need to be amended to take into consideration the following issues:

- Introduction of new teaching methods such as Distance Learning, e-learning, Web-Based Training (WBT), Multimedia-Based Training (MBT), Computer-Based Training (CBT), Simulation Training Devices (STDs), Virtual Aircraft, Mobile Learning (m-Learning), etc.;
- Recommendations for the use of blended teaching methods;
- Potential impacts of these new teaching methods.

Digital technology has fundamentally changed the way of:

- designing aircraft (with new aircraft types come also new technologies);
- interacting with these new aircraft types, its components, its tools, its documentation and, finally, maintaining them;
- simulating the aircraft (virtual aircraft);
- working (information dissemination technology);
- teaching: tutorial and self-learning.

The aeronautical industry, being a leading sector in new technological developments, requires contribution from maintenance and training organisations, requesting the personnel involved in aircraft maintenance organisations to:

- adapt themselves to these new technologies, methods and processes;
- build up the competencies (knowledge, skills and attitude) needed to cope with the technological development.

In addition, it is recognised that the new generation of more computer-minded maintenance staff finds new teaching methods based on digital technology more appealing.

Direct interaction between the aircraft and the student is part of the learning processes and should enable the student to reach the required level of competence.

Simulation and e-learning have their limits. Poorly developed and implemented

e-learning courses would result in poor training. Simulation and e-learning will probably never eliminate the need for well-qualified human instructors. Good teaching will always depend on effective instructors and courses.

From a tutorial point of view, the use of technology and simulation in training is not intended to entirely replace teaching and substitute traditional classroom instruction.

3. Objectives:

The objectives of the regulatory task RMT.0281 (MDM.082) consist of:

- evaluating the advantages and disadvantages of these new:
  - technologies (digital aircraft, electronic engineering, computers, Internet, etc.);
  - teaching methods for the benefit of the maintenance staff's training.
- modifying Commission Regulation (EC) No 2042/2003 wherever there are benefits of introducing these new technologies and teaching methods for the sake of the efficiency of the maintenance training while increasing safety.

In particular, but not limited to, Part-66 and Part-147 should be reviewed with regard to the following issues:

1) introduce (in addition to the traditional teaching methods) e-learning (or any digitalised tutor devices at the training facilities), Distance Learning or Web-Based Training (WBT) (at home or remote from the TOs), Multimedia-Based Training (MBT), Computer-Based Training (CBT) at the training facilities or any other teaching methods intended to be evaluated in the course of this rulemaking task, including practical training on virtual training devices.

   Some aspects would be:

   a. giving a definition of these new methods;

   b. evaluating the advantages and disadvantages and then proposing mitigation of their drawback or restrictions;

2) provide AMC or GM to the NAAs regarding the qualification of a computerised training programme. One aspect will be the understanding of the simulation capabilities and its limits and then providing criteria as of which part of the practical elements of the training could be covered by simulation devices (bearing in mind that today all experience and practical training cannot be replaced by computers and a theoretical approach from behind a screen); define the methods and criteria for competence assessment;

3) provide recommendations for, and use of, blended teaching methods;

4) better reflect criteria addressing the course efficiency based on these methods;

5) consider the potential impacts of these new teaching methods on the training in terms of content, level, duration, learning objectives, competence to be gained, documentation, assessment, examination and examiners, benefits and limits for the practical tasks.

4. Specific tasks and interface issues (deliverables):

1) In the course of this task, properly consider ICAO State Letters 2011-018e and 2011-040e amending ICAO Annex I (Amendment 170 of 31 March 2011) on 'Competency-Based Training' whenever possible or appropriate: clear training objectives, stating competency elements to be achieved through training, examination and assessment might be another key elements of effective training programmes.

2) Further associated literature should be assessed, such as ICAO PANS-TRG 9868 (Amdt 1 of May 2011 — applicable on 25 August 2011), ICAO Doc 9941 (training development guide — Competency-based training methodology), ICAO New Generation of Aviation Professionals (NGAP) initiatives, IATA/ITQI material, ATA104 version 2010 — currently under progress, EAMTC Guidelines and Recommendations and other as appropriate.

3) Consistency with Part-ORA.ATO.300, AMC1 ORA.ATO.300 and any other rules should be ensured.

4) Ensure appropriate coordination with FAA.

5. Working methods (in addition to the applicable Agency's procedures):

Group

6. Timescale, milestones:

Start: 2012/Q4

NPA: 2014/Q4

CRD/Opinion: 2016/Q1

Decision: Within 1 quarter from adoption of the Opinion by the European Commission