



Terms of Reference

for a rulemaking task

In-flight recording for light aircraft

RMT.0271 & 0272 (MDM.073(a) & (b)) – ISSUE 1 – 25.7.2014

Applicability		Process map	
Affected regulations and decisions:	Annexes I (Definitions), III (Part-ORO), IV (Part-CAT), VI (Part-NCC), VII (Part-NCO) and VIII (Part-SPO) to Commission Regulation (EU) No 965/2012 on Air Operations and related Decisions	Rulemaking lead:	R3
		Concept Paper:	No
		Rulemaking group:	Yes
		RIA type:	Full
Affected stakeholders:	Aircraft operators; aircraft manufacturers; aircraft pilots; safety investigation authorities; national aviation authorities	Technical consultation during NPA drafting:	No
		Publication of NPA:	2016/Q1
		Duration of NPA consultation:	3 months
Driver/origin:	Safety recommendations; legal obligation (ICAO Standards)	Review group:	TBD
		Focussed consultation:	TBD
		Publication of Opinion:	2016/Q4
Reference:	ICAO Annex 6, Parts I (Amendment 37-A), II (Amendment 32-A), and III (Amendment 18-A); Safety recommendations: FINL-2014-001 (Cessna 206, OH-AAA, 08/11/2012), FRAN-2009-008 (Beech C90, F-GVPD, 18/10/2006); FRAN-2013-012 (Cessna 208, F-OIXZ, 05/09/2010); HUNG-2008-002 (Eurocopter EC 135, HA-ECE, 31/07/2008); NETH-2012-001 (Pilatus PC12, PH-RUL, 16/10/2009); NORW-2012-010 (Aero-spatiale AS350, LN-OXC, 04/07/2011); SPAN-2012-011 (Swearingen SA226, EC-GDG, 18/02/1998); UNKG-2005-101 (Bell 206, G-BXLI, 22/01/2005); General Aviation Roadmap	Publication of Decision:	2017/Q4

1. Issue and reasoning for regulatory change

Note:

In these Terms of Reference 'in-flight recording' means recording by an airborne system of data that can be easily used to reconstruct the history of the flight for the purpose of a safety investigation. In-flight recording solutions include, but are not limited to, flight recorders.

In the absence of in-flight recording of the aircraft condition and operation, it can be very difficult to reconstruct the sequence of events that led to an accident or a serious incident. Moreover, this sequence of events is essential for defining actions in order to prevent future occurrences. Many investigations of aircraft accidents and serious incidents are hindered by the absence of accurate data on what happened.

The analysis of other types of evidence (witness statements, accident site examination, ATM recordings, etc.) is usually time-consuming and does not provide such complete and accurate data as the dedicated in-flight recording does.

Since 2010, almost all accidents and serious incidents that occur over the territory of an EASA Member State must be subject to safety investigation¹. However, many aircraft categories and types of operation fall outside the scope of current flight recorder carriage requirements. Those are for instance:

- Aeroplanes with an MCTOM of less than 5 700 kg used for commercial air transport (CAT) operations. ICAO Annex 6, Part I, prescribes that future light turbine-engined aeroplanes operated for commercial air transport be equipped with a means to record flight data and, under certain conditions, a means to record cockpit audio.
- Helicopters with an MCTOM of less than 3 175 kg used for CAT operations. ICAO Annex 6, Part III, prescribes that future light turbine-engined helicopters with an MCTOM of over 2 250 kg and operated for commercial air transport be equipped with a means to record flight data.
- Light fixed-wings and rotating wings operated for General Aviation. Safety statistics indicate² that there are, in average per year, 1 035 accidents of General Aviation aircraft with an MCTOM of under 2 250 kg and registered in an EASA Member State, with 240 fatalities. ICAO Annex 6, Parts II and III, recommend that future light turbine-engined aeroplanes and helicopters operated for General Aviation be equipped with a means to record flight data and, under certain conditions, a means to record cockpit audio.
- Lighter-than-air aircraft used for CAT operations. Those aircraft are involved in a number of accidents of the same order of magnitude as aeroplanes and helicopters performing CAT operations. Some of those lighter-than-air aircraft are certified to carry more than 10 passengers.

Furthermore, eight safety recommendations addressed to EASA recommend the introduction of in-flight recording for light aircraft:

- Safety recommendation FINL-2014-001 (Cessna 206 registered OH-AAA, 08/11/2012);

¹ Refer to Article 5 of Regulation (EU) No 996/2010 of the European Parliament of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35).

² Refer to the EASA Annual Safety Review 2012.

- Safety recommendation FRAN-2009-008 (Beech C90 registered F-GVPD, 18/10/2006);
- Safety recommendation FRAN-2013-012 (Cessna 208 registered F-OIXZ, 05/09/2010);
- Safety recommendation HUNG-2008-002 (Eurocopter EC135 registered HA-ECE, 31/07/2008);
- Safety recommendation NETH-2012-001 (Pilatus PC12 registered PH-RUL, 16/10/2009);
- Safety recommendation NORW-2012-010 (Aerospatiale AS350 registered LN-OXC, 04/07/2011);
- Safety recommendation SPAN-2012-011 (Swearingen SA226 registered EC-GDG, 18/02/1998);
- Safety recommendation UNKG-2005-101 (Bell 206 registered G-BXLI, 22/01/2005).

In addition, industry standards for flight recorders for light aircraft are available³. Several models of such equipment are on the market and have been installed on a number of aircraft models. Other equipment mandated or usually carried on board light aircraft has also some recording capability. Advantage could be taken of this equipment as an alternative solution to a dedicated in-flight recording solution.

For all these reasons, the need for in-flight recording will be assessed for categories of aircraft and types of operation covered by the air operations rules (current and under adoption) and for which there is no flight recorder carriage requirement. In particular:

- aeroplanes and helicopters of a model not eligible for carrying a flight recorder according to Regulation (EU) No 965/2012 on Air Operations, and subject to ICAO provisions on in-flight recording or subject to safety recommendations related to in-flight recording; and
- balloons operated for commercial air transport.

2. Objectives

The general objective is to maintain a uniform and high level of safety with cost-efficient rules.

The specific objectives are:

- to identify, among aircraft that are lighter than those covered by the current flight recorder carriage requirements, those for which in-flight recording should be required;
- to define in-flight recording requirements for these aircraft;
- to define requirements for the use, preservation and serviceability of the new in-flight recording solutions.

When considering non-commercial operation with non-complex aircraft, the principles of the General Aviation Safety Strategy and Road Map will be observed.

³ See for instance EUROCAE Document 155. This industry standard is referred to by standard 2C197 of CS-ETSOs.

3. Activities

The following activities will be considered:

3.1. Regulatory Impact Assessment (RIA)

- assessment of the need for in-flight recording for each combination of aircraft category, aircraft mass or occupancy, and type of operation indicated in section 1 above. This assessment should take into consideration the cost constraints peculiar to light and general aviation;
- identification, where in-flight recording is justified, of the recording function(s) needed (flight parameters, or audio, or both);
- establishment of a list of in-flight recording solutions that ranges from the cheapest and lightest solution to the conventional crash-protected flight recorder. This list may include alternative solutions, such as using or enhancing airborne equipment designed for other purposes;

3.2. Drafting of requirements

- proposal of definitions and requirements, for the elected in-flight recording solutions;
- draft provisions on the use, preservation and serviceability of in-flight recording solutions.

4. Deliverables

The expected products of this task are:

- Regulatory Impact Assessment (RIA);
- Notice of Proposed Amendment (NPA);
- Comment-Response Document (CRD);
- Opinion with draft Implementing Rules relating to Regulation (EU) 965/2012 on Air Operations; and
- related Agency Decisions.

The potentially affected parts of the Air Operations Regulation are Annex I (Definitions), Annex III (Part-ORO), Annex IV (Part-CAT), Annex VI (Part-NCC), Annex VII (Part-NCO), Annex VIII (Part-SPO) and related Decisions.

5. Interface issues (optional)

Other tasks related to flight recorders, such as RMT.0249 (MDM.051), RMT.0308 & RMT.0309 (OPS.023(a)&(b)) or RMT.0400 & 0401 (OPS.090(a)&(b)), do not present any major interface issue with RMT.0271 & RMT.0272 (MDM.073(a)&(b)). Therefore, they were kept separate.

Certification Specifications for European Technical Standard Orders (CS-ETSOs) (Information Collection and Monitoring Systems) already contain a standard for flight recorders for light aircraft (ETSO-2C197).

6. Profile and contribution of the rulemaking group

Profile of the potential rulemaking group and its members:

- Investigators of safety investigation authorities having significant experience with flight recorders or in analysing memory media of avionics systems, GNSS receivers or portable electronic equipment;
- Investigators of safety investigation authorities having significant experience in investigating light aircraft accidents;
- Avionics systems experts of national aviation authorities;
- Delegates from light and General Aviation aircraft manufacturers with experience in investigating light aircraft accidents;
- Avionics experts of light and General Aviation aircraft manufacturers having experience with flight recorders;
- Representatives of international associations of General Aviation aircraft manufacturers. These representatives should be knowledgeable in avionics systems or have experience in investigating light aircraft accidents;
- Representatives of international associations of private pilots or of international associations of aircraft owners. These representatives should preferably be knowledgeable in avionics systems or have experience in investigating light aircraft accidents;
- Representatives of operators of light aircraft. These representatives should preferably be knowledgeable in avionics systems or have experience in investigating light aircraft accidents.

Note: To the extent possible, the rulemaking group should be proportionately and appropriately balanced in terms of participation of investigators, regulators, industry and pilots. Additional expertise may be required at a later stage in the development of the NPA, particularly from vendors of flight recorders for light aircraft and of flight data monitoring services for light and General Aviation aircraft.

7. Annex I: Reference documents

7.1. Affected regulations

The following Annexes to Regulation (EU) No 965/2012 on Air Operations may be affected:

- Annex I — Definitions;
- Annex III — Organisation Requirements for Air Operations (Part-ORO), Subpart MLR (Manuals, Logs and Records);
- Annex IV — Commercial Air Transport Operations (Part-CAT), Subpart A (General requirements) and Subpart D (Instruments, data, equipment);
- Annex VI — Non-commercial air operations with complex motor-powered aircraft (Part-NCC), Subpart A (General requirements) and Subpart D (Instruments, data, equipment);
- Annex VII — Non-commercial air operations with other-than-complex motor-powered aircraft (Part-NCO), Subpart A (General requirements) and Subpart D (Instruments, data, equipment); and
- Annex VIII — Specialised operations (Part-SPO), Subpart A (General requirements) and Subpart D (Instruments, data, equipment).

7.2. Affected decisions

- Decisions related to Annexes I, III, IV, VI, VII and VIII to Commission Regulation (EU) No 965/2012 on Air Operations.

7.3. Reference documents

- ICAO Annex 6, Part I (Amendment 37-A), II (Amendment 32-A) and III (Amendment 18-A);
- EUROCAE Document 112A, Minimum Operational Performance Specification for crash protected airborne recorder systems;
- EUROCAE Document 155, Minimum Operational Performance Specification for lightweight flight recording systems;
- General Aviation Safety Strategy and Road Map, 30 August 2012.