

Comment/Response Document
NPA-TSO-8
(TAWS – Terrain Awareness and Warning System)

The following pages contain the proposal, the summaries to the comments that were received on the NPA during the consultation period, and the resulting amendment to JAR-TSO.

1. Introduction

The NPA-TSO-8 (Terrain Awareness and Warning System) was published by the JAA Headquarters in September 2000 (refer to JAA HQ letter 07/03-17-2 IS-00-L172).

The NPA proposed the introduction of JTSO-C151a, following its review by the JAR-TSO Study Group.

2. Proposal

2.1. The NPA-TSO-8 proposes to include a new JTSO-C151a, based on the equivalent FAA TSO-C151a, which contains 3 appendices :

- Appendix 1 : FAA Minimum performance standard for a terrain awareness and warning system,
- Appendix 2 : Standards applicable to environmental test procedures (Reserved),
- Appendix 3 : Test conditions.

2.2. Some minor alterations have been brought to Appendix 1, but it has been determined that these changes are of a clarifying nature and do not alter the original intent of FAA TSO-C151a. Therefore, JTSO-C151a remains in Index 1 of JAR-TSO.

2.3. That proposal has been agreed by the JAR-TSO Study Group.

3. Consultation

The NPA has been circulated for comment to NPA subscribers. The comment period passed on 1st December 2000.

3.1. The Civil Aviation Authorities of Netherlands and Denmark have informed the JAA that they agree with the proposed amendment or have no comment. These entries have not been included in the table of section 3.3.

3.2. Comments demanding alterations to the proposed text were received from Airbus UK Ltd, BAE Systems, the Civil Aviation Authority of Sweden, CAA-UK, LBA and DGAC-France.

3.3. The attached table summarizes the entries and the JAA responses.

4. Amendment

Based on the conclusions outlined above, JAR-TSO Subpart B is amended by the addition of JTSO-C151a.

That amendment has been agreed by the JAR-TSO Study Group.

| 1 | 2 | 3 | 4 | 5 | |
|-------|------------------------|-------------------------|--|---------------|--|
| Para. | Position | Proposed text/comment | Organization | Response | |
| 1 | General | Comment | The CAA feels the NPA is premature, and that it should be withdrawn, then re-submitted to the whole JAR-TSO SG once WG44 has had the opportunity to deliberate over the FAA TSO-C151a. | CAA-UK | Noted. However, the JTSO SG has to proceed with the current version, but will take account of the need for a better harmonisation with the FAA expressed by the commentor. |
| 2 | General | Comment | Some tables are to an old standard and do not reflect the present standards used. | CAA-UK | Noted. See response to comment 1. |
| 3 | § 3.2.1 | Propose different text | Propose to review the wording “Hazardously misleading information” | CAA-UK | Accepted in principle. |
| 4 | § 3.2.1 | Propose different text | Replace “is considered a major failure condition” by “should be shown to be improbable (i.e. <10-5 per flight hour)” | DGAC-F | Accepted. |
| 5 | § 3.2.1 | Propose different text | Propose to replace “Hazardously misleading information” by “Misleading information” | LBA | Accepted. |
| 6 | Several | Propose different text | Replace “TERPS” by “ICAO PANS OPS”, and “TCAS” by “ACAS” | DGAC-F | “TCAS” replaced by “ACAS”. It is proposed to keep the term “TERPS”, because it is not totally similar to PANS OPS. |
| 7 | Several | Propose different text | Delete all references to Class B equipment | DGAC-F | Rejected. The FAA TSO requires the class B equipment to be called up. |
| 8 | Appendix 1 – Title | Propose different text | Propose to replace “FAA Minimum performance standard” with “FAA/JAA Minimum performance standard”. | Airbus UK Ltd | Accepted in principle (see comment 10). |
| 9 | Appendix 1 – Title | Propose different text | Delete “FAA” in the title | DGAC-F | Accepted in principle (see comment 10). |
| 10 | Appendix 1 – Title | Propose additional text | Propose to add “As amended by JAA” at the end of the title. | LFV-Sweden | Accepted. |
| 11 | Appendix 1 - § 1.3.e.6 | Propose different text | Delete “or nearest runway elevation” | DGAC-F | Rejected. These words appear in the product specifications of enhanced GPWS (Mark V and VII). |
| 12 | Appendix 1 - § 3.3.d | Comment | Does the reference to JTSO-2C87 meet the intent of the FAA reference to TSO-C67? | LBA | Noted. It has been decided to introduce JTSO-2C87 instead of FAA TSO-C67 because TSO-C67 was deemed obsolete by JAA experts. |
| 13 | Appendix 1 - § 4.10 | Comment | Satisfying this requirement appears to infringe the patent | BAE Systems | Noted. That item can not be dealt with by the JAR-TSO SG but will be submitted to Central JAA. |
| 14 | Appendix 1 - § 4.10.a | Propose different text | Replace existing Table 4.2 with a new one | DGAC-F | Noted. See comment 13. |

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| Para. | Position | Proposed text/comment | Organization | Response | |
| 15 | Appendix 1 – Table 4.1 | General comment | The alert “Too low terrain” is not used in basic modes of existing GPWS. Is it a voluntary addition or not? | DGAC-F | Noted. The mode 4A does call for a "TOO LOW TERRAIN" warning. |
| 16 | Appendix 1 - § 5.3 | Propose different text | Replace “RTCA DO-208” by “EUROCAE ED-72A” | LBA | Accepted. |
| 17 | Appendix 1 - § 6.3 | Propose different text | Restore the original FAA note under § 6.3 | DGAC-F, LBA | Accepted. |
| 18 | Appendix 1 - § 11, Table 11.1 | Propose different text | Modify the original table to refer to JAR-OPS 1 only or with additional criteria which would cover also General Aviation operations | LBA | Rejected. |
| 19 | Appendix 3 | Comment | Concern about the values contained in tables A, C and E. | BAE Systems | Noted. The values contained in Table A, C and E of Appendix 3 are linked to the nuisance alert test conditions contained in § 4.0 of Appendix 3, which give the minimum level-off altitude without a caution or warning depending on the phase of flight and the vertical speed. According to these nuisance criteria, the values in Tables A, C and E give sufficient time for the pilot to respond to the caution and warning. |
| 20 | Appendix 3 - § 1.2 | Comment | Warnings may be issued later if the aircraft is descending than if the aircraft were in level flight. | BAE Systems | Noted. |