



International Satellite System for Search and Rescue
Système international de satellites pour les recherches et le sauvetage
Международная Спутниковая Система Поиска и Спасания

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Date: 14 February 2022

To: 406-MHz Beacon Manufacturers, Agents & Developers,
Cospas-Sarsat Beacon Type Approval Test Facilities,
Beacon Component Manufacturers

Cc: Cospas-Sarsat Parties,
European Telecommunications Standard Institute (ETSI),
European Organization for Civil Aviation Equipment (EUROCAE),
International Radio Maritime Committee (CIRM),
Radio Technical Commission for Aeronautics (RTCA),
Radio Technical Commission for Maritime Services (RTCM)

Dear Sir / Madam,

**Subject: Matters of Interest to 406-MHz Beacon Manufacturers and Type Approval Test Facilities
Arisen from the Cospas-Sarsat Joint Committee JC-35 Meeting**

This circular letter is to inform 406-MHz-beacon manufacturers, type-approval-test facilities and beacon-component manufacturers of the matters of interest arising from the Cospas-Sarsat JC-35 meeting.

During JC-35, held by videoconference on 8 - 30 November 2021, 255 delegates from 36 countries, Secretariat and six observer-organizations, including the European Commission, EUMETSAT, ICAO, ITU, RTCM and UNOOSA, considered 127 working documents and revisions on Cospas-Sarsat operational and technical matters.

The JC-35 has reviewed action items from previous meetings and agreed on a number of action items and recommendations related to beacon matters for consideration of Cospas-Sarsat Council, as presented at Attachments 1 and 2 to this letter.

The first part of this letter discusses the amendments to first-generation beacon (FGB) standards, documents C/S T.001, C/S T.007 and C/S T.008, which were agreed by JC-35 and submitted for consideration and approval by the Cospas-Sarsat Council (CSC-66) in March 2022.

The second part of this letter presents information related JC-35 developments on second-generation beacons (SGBs) designed to operate within the Cospas-Sarsat MEOSAR system, and specifically, addresses amendments to SGB standards, documents C/S T.018, C/S T.021, which were agreed by JC-35 and submitted for consideration and approval by the Cospas-Sarsat Council in March 2022.

The third part of the letter provides important information on the interim acceptance granted by Cospas-Sarsat Parties to two accepted test facilities, TUV SUD, allowing the test facility to perform type-approval testing of first-generation ELT(DT) beacons, and EPG, allowing the facility to perform type-approval testing of SGBs (excluding SGB ELT(DT)s).

The fourth part of this letter provides information on future Cospas-Sarsat meetings, planned to be held in 2022.

Please note that files with changes proposed to beacon standards, documents C/S T.001, C/S T.007, C/S T.008, C/S T.018 and C/S T.021 recommended by JC-35 for approval by the next Council (March 2022) are bulky and might not be accepted by some email servers due to mail-box limitations. For this reason, these files are not distributed as attachments to this email, but will be made available for download from the following Cospas-Sarsat webpage:

<https://www.cospas-sarsat.int/en/documents-pro/jc-35-matters-of-interest-to-beacon-manufacturers>

We would be grateful, if accepted test facilities and beacon manufacturers could provide us with some feedback on the proposed changes, indicating specifically whether the proposed modifications to these Cospas-Sarsat documents are clear, constructive and feasible for implementation within the timeframe proposed.

Notwithstanding the availability of the revisions proposed to beacon standards in documents C/S T.001, C/S T.007, C/S T.008, C/S T.018 and C/S T.021 in the Dropbox, the Secretariat has also prepared a summary of the most important changes proposed in these documents, which are shown in sections 1.1, 1.2, 1.3, 2.1 and 2.2 below.

1. MATTERS RELATED TO CURRENT-GENERATION 406 MHz BEACONS

1.1 Amendments to the 406 MHz Beacon Specification (C/S T.001)

The JC-35 reviewed and agreed changes proposed document C/S T.001 “Specifications for Cospas-Sarsat 406 MHz Distress Beacons” and recommended the Council to approve the proposed document as document C/S T.001, Issue 4 – Revision 9. The Red Book of document C/S T.001 – Issue 4 – Revision 9 with marked proposed amendments is available for download from the Cospas-Sarsat webpage and includes changes, described in the Table 1 below:

Table 1- Changes to document C/S T.001 agreed by JC-35 and recommended for approval of the Council

Page in the C/S T.001 – Red Book	Section	Description of the changes	Applicable to all beacon types, except as noted
4-2 and 4-3	4.2.3 Table 4.1	Editorial changes to Figure 4.1	
4-7	4.5.4	Clarification of the requirement for beacons supporting GNSS self-test mode using both the internal navigation device and the external navigation interface	
4-11	4.5.5.6	Clarification of requirements for encoded location data and the encoded position freshness	ELT(DT)
4-13	4.5.6	Editorial changes in the Beacon Activation section	
4-18	4.5.7.5	Editorial changes in the RLS documentation section and addition of a link to Annex D	RLS beacons
4-20 and 4-21	4.5.10.5	Clarification of the requirement for the minimum duration of continuous operation	ELT(DT) specifically designed to withstand a crash impact
4-22	4.5.11.7	Clarification of the requirement for the minimum duration of continuous operation	ELT(DT) combined with automatic ELT
4-22	4.5.11.8	Editorial change	
A-4	A3.1 Table A1	Clarification of the requirement for message encoding with Orbitography and National User protocols	
A-25	A.3.3.4 Table A7	Clarification of Use-Protocol encoding parameters	

Page in the C/S T.001 – Red Book	Section	Description of the changes	Applicable to all beacon types, except as noted
A-33	A3.3.7.1	Deletion of the footnote stating that the RLS MMSI protocol is not approved for use	RLS beacons
D-1	Annex D	Addition of example of information to be included in the user manual of an RLS-capable beacon	RLS beacons

1.2 Amendments to the 406-MHz Beacon Type-Approval Standard (C/S T.007)

JC-35 reviewed and agreed changes proposed document C/S T.007 “406 MHz Distress Beacons Type Approval Standard” and recommended the Council to approve the proposed document as document C/S T.007, Issue 5 – Revision 8. The Red Book of document C/S T.007 – Issue 5 – Revision 8 with marked proposed amendments is available for download from the Cospas-Sarsat webpage and includes changes, described in the Table 2 below.

Table 2- Changes to document C/S T.007 agreed by JC-35 and recommended for approval of the Council

Pages in the C/S T.007 – Red Book	Section	Description of the changes	Applicable to all beacon types, except as noted
3-1	3.3	Clarification of requirement for testing of ELT antennas separated from beacons	
4-3	4.4	Clarification of requirement for applicable standards related to type approval testing of new beacon models and change notices	
4-7	4.5 Figure 4.2	Editorial changes to the Table column titles and addition of applicability of test configurations to RLS tests	RLS
4-8	4.5	Editorial changes and clarification of test configuration requirements	
4-10	4.8	Clarification of the test report content	
5-1	5.1	Clarification of requirements for the type-approval application form and photographs	
5-2	5.1	Clarification of requirements for beacon modes	ELT(DT)s
5-1 to 5-7	5.1	Amendments of bullet numbering	
6-4 and 6-5	6.4.2	Clarification of requirements for the change of navigation receiver	
6-9	6.11	Addition of a footnote with a reference to section 3.3	
6-10	6.13	Addition of a section with requirements for addition of RLS capability	RLS
A-3	A.2.1	Correction of the references	
A-5	A.2.3	Clarification of the ELT test requirements for ELT(DT)s designed to withstand a crash and ELT(DT)s combined with ELT(AF)	ELT(DT)s designed to withstand a crash and ELT(DT)s combined with ELT(AF)
A-5 and A-6	A.2.4	Editorial change in the section title	
A-7 and A-8	A.2.4 Figure A.1	Editorial amendment to graphical elements and legends of the Figure A.1 with the Temperature Gradient test profile	
A-9	A.2.5	Clarification of the measurement interval for the SQT of ELT(DT)s	ELT(DT)
A-10	A.2.5	Clarification of the SQT reporting requirements	
A-13	A.2.10.1	Editorial change	
A-24 and A-25	A.3.2.4, A.3.2.5	Editorial changes in section numbering	
A-29 and A-30	A.3.6.3	Clarification of the GNSS Self-test mode test procedure and reporting requirements	

Pages in the C/S T.007 – Red Book	Section	Description of the changes	Applicable to all beacon types, except as noted
A-32 and A-33	A.3.8.1	Clarification of the Position data default values requirements and test procedures for ELT(DT)s	ELT(DT)s
A-39 to A-45	A.3.8.8.1 to A.3.8.8.10	Restructure of the RLS Tests section, sections re-numbering, clarification of the test setup, test procedure, pass/fail criteria and reporting requirements	RLS
A-48	A.3.10.1	Editorial changes	
A-49	A.3.10.2	Clarification of the test procedure and reporting requirements for the Testing Operating Controls test	
B-11	B.7.4 and B.8	Clarification of the Loss Calibration factor, deletion of the footnote	
B-12	B.8	Clarification of the test receiver calibration procedure	
E-2	E.4	Editorial changes in the section title	
F-6	Annex F Table F.1	Clarification of results reporting for the TP-8b, GNSS Self-test mode test	
F-8	Annex F Table F.1	Editorial changes in the test parameter TP-11 title	
F-12		Editorial changes in the test parameter TP-18 title	
F-15	Annex F Table F.1	Clarification of results reporting for the test parameter TP-18, the RLS Indication test and the RLS GNSS Receiver Tracking Test	RLS
F-20	Annex F, Appendix A	Clarification of the SQT reporting form	
F-21 and F-22	Annex F, Appendix A	Clarification of the SQT reporting forms for ELT(DT)s	ELT(DT)s
F-37	Annex F, Appendix E, Table F-E.1	Clarification to the Table F-E.1, Beacon Operating Current and addition of notes with current measurement requirements	
F-38	Annex F, Appendix E, Table F-E.2	Clarification of requirements for the pre-test battery discharge calculations	
F-40	Annex F, Appendix E, Table F-E.4	Clarification of reporting requirements for the GNSS Self-Test Mode test	
F-43	Annex F, Appendix E, Table F-F.1	Re-numbering of bullets in the Check List table	
F-61. F-62	Annex F, Appendix G,	Editorial correction	
G-1, G-2	Annex G	Restructure of the Beacon Type and Operational Configuration section	
G-6, G-8	Annex G	Editorial corrections	
H-1	Annex H	Clarification of the CHN application form	
M-3	Annex M	Addition of the RLS Location MMSI protocol to the list of the approved beacon message protocols	

1.3 C/S T.008 “Cospas-Sarsat Acceptance of 406 MHz Beacon Type Approval Test Facilities”

The JC-35 agreed changes to the draft document C/S T.008 “Cospas-Sarsat Acceptance of 406 MHz Distress Beacon Type Approval Test Facilities” and recommended the Council approve the proposed document as document C/S T.008 – Issue 3 – Revision 6. The Red Book version of document C/S T.008 – Issue 3 – Revision 6 with marked proposed amendments is available for download from the Cospas-Sarsat webpage and includes changes listed in the Table 3 below.

Table 3- Changes to document C/S T.008 agreed by JC-35 and recommended for approval of the Council

Pages in the C/S T.008 – Red Book	Section	Description of the changes	Applicability of the proposed changes
3-4	3.8	Clarification of requirements for the content of annual letter on retention of test facilities acceptance status	All SGBs, except ELT(DT)s

2. Important Matters Related to the Second Generation 406-MHz Beacons Designed to Operate within the Cospas-Sarsat MEOSAR System

2.1 C/S T.018 “Specifications for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons”

JC-35 reviewed and agreed changes proposed document C/S T.018 “Specifications for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons” and recommended the Council approve the proposed document as document C/S T.018, Issue 1 – Revision 9. The Red Book of document C/S T.018 – Issue 1 – Revision 9 with marked proposed amendments is available for download from Dropbox and includes changes listed in the Table 4 below.

Table 4 - Changes to document C/S T.018 agreed by JC-34 and recommended for approval of the Council

Pages in the C/S T.018 – Red Book	Section	Description of the changes	Applicable to all SGBs, except as noted
4-2 and 4-3	4.2.3 Figure 4.1	Editorial amendment to graphical elements and legends of the Figure 4.1 with Temperature gradient test	
4-5 and 4-7	4.5.4.1	Clarification of GNSS Self-test requirements	
4-10	4.5.5.3	Editorial correction and clarification of requirements for ELT(DT)s fit with internal navigation devices	ELT(DT)
4-11	4.5.5.4	Clarification of requirements for SGBs with interface to external navigation device input	
4-14	4.5.7	Clarification of requirements for the beacon activation cancellation function	
4-18	4.5.9.5	Editorial correction to improve language, and addition of the reference to Annex H	RLS
4-18	4.5.10	Addition of the PIE requirements for the Battery Status Indication section	
4-18	4.5.15.5	Clarification of the Duration of Continuous Operation requirement for ELT(DT)s specifically designed to withstand a crash impact	ELT(DT)

Pages in the C/S T.018 – Red Book	Section	Description of the changes	Applicable to all SGBs, except as noted
4-20	4.5.16.7	Clarification of the Duration of Continuous Operation requirement for ELT(DT)s combined with automatic ELTs	ELT(DT)
B-6	B.2	Editorial correction to improve language and addition of the reference to section 3.6	
H-1	Appendix H	New Appendix H with RLS information to be included in the User Manual of an RLS-capable beacon	RLS

2.2 C/S T.021 “Cospas-Sarsat Second-Generation 406-MHz Distress Beacon Type-Approval Standard”

The JC-35 agreed changes to the draft document C/S T.021 “Cospas-Sarsat Second-Generation 406-MHz Distress Beacon Type-Approval Standard” and recommended the Council approve the proposed document as document C/S T.021 – Issue 1 – Rev.2. The Red Book version of document C/S T.021 – Issue 1 – Rev.2 with marked proposed amendments is available for download from the Cospas-Sarsat webpage and includes changes listed in the Table 5 below.

Table 5 - Changes to document C/S T.021 agreed by JC-35 and recommended for approval of the Council

Pages in the C/S T.021 – Red Book	Section	Description of the changes	Applicable to all SGBs, except as noted
2-3	2.2.1	Clarification to the type-approval certificate number ranges	
A-6	A.2.1.2	Clarification to description the burst sequences for the electrical and functional tests at constant temperature	
A-7	A.2.1.3 A.2.2.3	Clarification to required results for the electrical and functional tests at constant temperature	
A-10	A.2.3.2	Clarification of the test procedures/method of validation for the operating lifetime test of ELT(DT)s designed to withstand a crash and \ELT(DT)s combined with ELT(AF)	ELT(DT)
A-10 A-12 A-14 A-15 A-15 A-17 A-22	A.2.3.3 A.2.4.3 A.2.5.3 A.2.6.3 A.2.7.3 A.2.8.3 A.2.10.3	Correction of references	
A-11, A-12	A.2.4.2	Editorial amendment to graphical elements and legends of the Figure A.1: Temperature Profile for Frequency Stability	
A-16 and A-17	A.2.8.2	Editorial change: Restructure of section	ELT(DT)
A-18, A-21	A.2.10.2.1	Clarification of the test procedure parameters used during the Combined Constant Temperature and Frequency stability test	ELT(DT)s with external power source
B-24	B.7.3.2	Clarification of the test procedure for the Cancellation Message test	
B-25	B.8	Correction of references to Annexes for recording test results	
B-26 to B-27	B.8.3 to B.8.6.3	Re-numbering of sections, amendments to references	
B-34 and B-35	B.11.1.2.4.2, B.11.1.2.4.3,	Clarification of the antenna test calibration procedure setup, measurement method and calibration factor computation	

Pages in the C/S T.021 – Red Book	Section	Description of the changes	Applicable to all SGBs, except as noted
	B.11.1.2.4.4		
B-44	B.13.1	Correction of references to document C/S T.018 requirements	
B-45	B.13.2	Clarification of the test procedure for the GNSS Self-test Mode test	
B-51, B-52	B.14.1.2.2, B.14.1.2.3	Clarification of the test procedure and results reporting for the Retention of Location Data Prior to ELT(DT) Activation test.	
B-60 B-62 B-82	B.14.2.6.1, B.14.2.7.1 B.16.1	Correction of references to document C/S T.018 requirements	
B-62	B.14.2.7.2	Correction of the section title	
B-64	B.14.2.8.6	Clarification of the pass/fail criteria for the RLS GNSS Receiver Satellite Tracking test	RLS
B-75 and B-76	B.14.4.2.2 , B.14.4.2.3	Clarification of the test procedure and results reporting for the Location Accuracy and Information test applicable to beacons with external navigation devices)	
B-79, B-80 and B-82	B.15.2	Restructure of the ELT(DT) Beacon Activation test section and clarification of the test procedure	ELT(DT)
B-83 and B-84	B.16.2.2	Clarification of the test procedure for the Beacon Activation Cancellation Function test	
B-84	B.16.2.3	Correction of references	
B-86	B.16.3	Clarification of requirements for reporting of results for the Reactivation test (applicable to ELT(AD)s, (AP)s, (AF)s, and (DT)s only)	ELT(AD)s, (AP)s, (AF)s, and (DT)s only
B-94	B.20.2.1.1	Editorial : correction of the term used	
B-98, B-99	B.22.1 B.22.2	Clarification of the list of additional features to be described in the End User Instruction manual	
B-101, B-102	B.23.2.3	Clarification of the results reporting requirements for the Programming Adaptor test	
D-1	ANNEX D Section D.1	Amended list and description of the Navigation Test Scripts	
D-3 to D8	ANNEX D, Table D.2.1	Amendments to the Table D.2.1 column titles , re-numbering of scripts and amendments to the scripts 5 through 9.	
E-1 and E-2	ANNEX E	Amendment of the list of the embedded Excel files.	

Other T.021 - Red Book supplementary documents (electronic forms and tables) referenced in C/S T.021- Issue 1 with clearly marked changes, where applicable, are presented as attachments to this letter, as follows:

- Attachment 8: Red Book - Annexes E – G, file “T021_MAR_25_2022_RB(with_markup)_Annex_E-G.xls”,
- Attachment 9: Red Book - Verification Compliance Matrix (VCM), file “T021_MAR_25_2022_RB(with_markup)_Sec_L.2_VCM.xls”,
- Attachment 10: Red Book – Section D.3.3.3 ELT(DT) Trajectory data, file “Att-10_T021_MAR_25_2022_Sec_D.3.3_ELT(DT)-Trajectory-file.xls”.

The Red Books of these files with marked proposed amendments are available for download from the Cospas-Sarsat webpage.

3 Interim Acceptance of Cospas-Sarsat Accepted Test Facilities

Cospas-Sarsat Parties have granted an interim acceptance to perform type-approval testing of first-generation document C/S T.001-compliant ELT(DT)s to a first Cospas-Sarsat accepted test facilities, TÜV SÜD, located in Fareham, UK, effective 10 November 2021. ELT(DT)s are intended to be an option for commercial aircraft operators to meet mandatory equipage requirements of the UN's International Civil Aviation Organization (ICAO) and the European Union Aviation Safety Agency (EASA) for some category of aircraft, both with a deadline of 1 January 2023. Having TÜV SÜD available to conduct the required ELT(DT) testing well in advance of that deadline should allow FGB ELT(DT) manufacturers aircraft manufacturers and aircraft operators the possibility of getting a timely type approval for their ELT(DT)s-based system in compliance with the ICAO and EASA timeline requirements.

After JC-35, Cospas-Sarsat Parties have granted an interim acceptance for the U.S. Army Electronic Proving Ground (EPG), located in Fort Huachuca, Arizona, USA, to perform type-approval testing of second generation, document C/S T.018 – compliant beacons, excluding SGBs with return-link service (RLS) functionality and SGB (ELT(DT)s) for which EPG application for acceptance is still pending completion of the review process. This interim acceptance is with effect from 28 January 2022.

Please note that the “interim” nature of these acceptances relates to the normal meeting cycle of the Cospas-Sarsat Programme, where such decisions ordinarily are made following a recommendation of the Cospas-Sarsat Joint Committee, which is planned to be held in June 2022.

Other test facilities have indicated their intents to obtain Cospas-Sarsat acceptance to perform type-approval testing of FGB ELT (DT)s and SGBs in the upcoming years.

4 JC-35 Recommended Schedule of Cospas-Sarsat Meetings in 2022

The JC-35 agree to recommend to CSC-66 the following schedule for the Cospas-Sarsat meetings to be held in 2022:

- 66th Session of the Council - Closed and Open Meeting(CSC-66) in March 2022,
- 36th Joint Committee Meeting(JC-36) in May-June 2022,
- 67th Session of the Council - Closed and Open Meeting(CSC-66) in October 2022.

JC-35 also agreed to a draft proposed provisional agenda for the JC-36 meeting, which can be seen in Attachment 10 to this Letter. After JC-35, Cospas-Sarsat Parties [tentatively] agreed that JC-36 should be held between 30 May and 9 June 2022. The place and format (remote or in-person) of the meeting will be decided subject to COVID-19 situation, and this information, once available, will be announced by a separate circular letter.

For participation in the meetings, or if you plan to provide input or propose amendments to beacon standards, please get in touch with your Cospas-Sarsat representative or with representatives from CIRM, ETSI, EUROCAE, RTCA or RTCM, as these observer-organizations will receive invitations for JC-36 to be held in 2022.

Please do not hesitate to contact the Cospas-Sarsat Secretariat, if you need clarifications on these matters.

Best Regards,

Andryey Zhitenev

Andryey Zhitenev
Technical Officer
Cospas-Sarsat Secretariat

Attachments (*):

- (1) JC-35 On-going Action Items from previous meetings related to 406 MHz beacons, file “Att-1_Annex 30_On-going AIs from previous meeting.pdf”,
- (2) JC-35 Action Items related to 406 MHz beacons, file “Att-2_Annex 1_Action Items from JC-35.pdf”,
- (3) Red Book – Document C/S T.001 “Specification for Cospas-Sarsat 406 MHz Distress Beacons” with amendments agreed by JC-354, file “Att-3_T001_MAR_25_2022_RB_(with_markup).pdf”,
- (4) Red Book – Document C/S T.007 “Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard” with amendments agreed by JC-35, file “Att-4_T007_MAR_25_2022_RB_(with_markup).pdf”,
- (5) Red Book – Document C/S T.008 “Cospas-Sarsat Acceptance of 406 MHz Beacon Type Approval Test Facilities” with amendments agreed by JC-35, file “Att-5_T008_MAR_25_2022_RB_(with_markup).pdf”,
- (6) Red Book – Document C/S T.018 “Specification for Second-Generation Cospas-Sarsat 406-MHz Distress Beacons” with amendments as agreed by JC-35, file “Att-6_T018_MAR_25_2022_RB_(with_markup)”,
- (7) Red Book – Document C/S T.021 “Cospas-Sarsat Second-Generation 406-MHz Distress Beacon Type Approval Standard” with amendments as agreed by JC-35, file “Att-7_T021_MAR_25_2022_RB_(with_markup).pdf”,
- (8) Red Book – Annex G and Annex E, file “Att-8_T021_MAR 2022_RB-Annex_E-G.xls”,
- (9) Red Book – Verification Compliance Matrix (VCM), file “Att-9_T021_MAR 2022_RB-Sec_L.2_VCM.xls”,
- (10) Red Book – Section D.3.3.3 ELT(DT) Trajectory data, file “Att-10_T021_MAR_25_2022_Sec_D.3.3_ELT(DT)-Trajectory-file.xls”,
- (11) Draft provisional agenda of JC-36, file “Att-10_Annex 28 - Provisional JC-36 Agenda.pdf”.

NOTE * : Attachments to this letter are available for download from the following Cospas-Sarsat webpage:
<https://www.cospas-sarsat.int/en/documents-pro/jc-35-matters-of-interest-to-beacon-manufacturers>