



NOAA 2022 BMW

RTCM SC110 Update

SC110 Chair: Chris Hoffman

RTCM a “Beacon for Maritime Communications and Navigation”

History - 1

- RTCM Special Committee SC105 – Performance Standards for Maritime Telecommunications Equipment – was established in August 1984 to develop performance standards for the US SOLAS Working Group to IMO for FGMDSS devices (including EPIRBs).
- In 1985 the US submitted a draft 406 MHz EPIRB Performance Standard to the IMO Radiocommunications COM.30 meeting, which eventually became IMO Resolution A.611(15) published 19 Nov 1987, a year before IMO adopted GMDSS and set an EPIRB carriage date of 1993.
- SC105 also established there was a lack of standards related to EPIRB requirements, other than those related to 406MHz electrical performance.



History - 2

- As a result of the C/S D&E Tests in 1985 and SC105 work, in March 1986 RTCM formed an Ad Hoc Committee on 121.5 EPIRBs, which was subsequently renamed to the 121.5 / 243 MHz EPIRBs Ad Hoc Committee. Its initial focus was on 121.5 MHz signal requirements for satellite detection.
- The Ad Hoc Committee met for the first time in May 1986 (it met 3 times in total)
- Due to the need to address 406 MHz EPIRBs as well as 121.5/243 ones and the growing international nature of the work, the RTCM Board established SC110 on EPIRBs in September 1986 to formalize the work of the Ad Hoc committee.
- The first meeting of SC110 took place on October 20, 1986 with 11 attendees.
- SC110 started work on its 406 MHz EPIRB standard in April 1987, which it based on the Canadian TP 4522 / RSS-187 and UK MPT 1259 standards. The original RTCM 406 MHz EPIRB standard was published on July 31, 1987 (a month or so after the first 406 MHz EPIRB was approved).



SC110 - Emergency Beacons

Today

- It is now 35 years since SC110 was established. In that time the EPIRB standard has been revised 4 times and has undergone numerous Amendments between these dates. The first RTCM PLB standard was published in 2002 and that has since been revised 3 times with Amendments in between and an SSAS standard was first published in 2004 and was revised in 2009.
- RTCM is also nowadays an active participant in the work of Cospas-Sarsat and has been fundamental to the development of ELT(DT)s, the RLS Service and SGBs for several years now and continues to support these new beacon types going forward.
- Today SC110 participants number well over 50 member organisations from around the world and 136 individuals, including 13 current beacon manufacturers of ELTs, EPIRBs and PLBs, 2 prospective manufacturers, beacon component manufacturers, a C/S test facility, related device manufacturers and various government and quasi government organisations.



SC110 - Emergency Beacons

Update Summary

- Since the last BMW meeting SC110 has:
 - Participated in the JC-35, EWG-6C/2021 and CSC-66/OPN Cospas-Sarsat meetings
 - Drafted and submitted 24 papers to these three meetings (18 of which were joint submissions)
 - To date drafted and submitted 4 papers (1 of which is joint) to JC-36
 - Helped correct errors in IEC 61097-2 Ed4.0:2021 on EPIRBs, with the publication of a Corrigendum IEC 61097-2:2021/COR1:2021
 - Published RTCM 11000.5 on EPIRBs, in October 2021, this incorporates IEC 61097-2 Ed4.0 and IMO Resolution MSC.471(101)
 - Published Amendment 1 to RTCM 11000.5 in April 2022 to clarify RLS Coding requirements in the USA
 - Completed a revision to the RTCM 11010.4 PLB standard, which is currently out for vote as a CDV (the updated standard should be published in late May or early June)
 - Once the PLB standard is published this will trigger the introduction of RLS EPIRBs and PLBs in the USA
- The current 406 MHz SSAS standard is 11020.1 from 2009, which is unsurprisingly out of date, no requests have been received to update or include an SGB SSAS



JC-36 Papers of Interest

- JC-36/2/47 – Ground Segment Status (for info)
- JC-36/3/1 – MMSI Coding for Polar EPIRBs
- JC-36/3/2 – ETF Panel Report on EPG SGB Certification
- JC-36/3/3 – ETF Panel Report on TUV FGB DT Certification
- JC-36/3/4 – SGB EVM Measurement Improvements
- JC-36/3/5 – MMSI Coding Options for EPIRBs (RTCM)
- JC-36/3/7 – Changes to C/S T.007 and C/S T.021
- JC-36/5/3 – Alternative Method for the Moving Beacon Test (RTCM)
- JC-36/6/4 – Corrupted MEOSAR Alert Messages
- JC-36/8/2 – Monitoring Progress to ELT(DT) FOC Readiness (RTCM)
- JC-36/8/3 – System Test CWG Status (RTCM)



RTCM 11000.5 EPIRB Standard

- RTCM 11000.5 on EPIRBs was published October 2021, it addresses:
 - Two Categories of EPIRB (Float-free and Manual)
 - Three Temperature Classes (as per C/S Classes 0, 1 and 2)
 - Three Groups (Group 1 – with a 121.5 MHz Homer, Group 2 – with an AIS transmitter and Group 3 – with both of these)
- The RTCM standard is based on IEC 61097-2 Ed4.0 and simply details additions and exceptions to it
- The RTCM standard includes an Annex on US EPIRB Coding
- RTCM have petitioning the FCC to adopt this new standard into Part 80 of its Rules
- Amendment 1 to the above standard was published in April 2022 to modify the US Coding Annex to add new sections on coding EPIRBs with RLS capability, to support the introduction of RLS in the US.



RTCM 11010.4 PLB Standard

- Currently circulated as a Committee Draft for Vote (CDV) with a due date of May 20
- The changes are largely editorial, but are extensive, the main ones being:
 - Added BDS (BeiDou) as a GNSS option
 - Redefined what is an acceptable GNSS system
 - Modified the definition of the 121.5 MHz duty cycle on/off regime, but kept 33% minimum
 - Aligned the SGB cancellation and GNSS timing requirements with the latest C/S requirements
 - Modified the GNSS requirements and tests related to multi-constellation GNSS receivers
 - Modified the 406 and GNSS indicator requirements
 - Changed the Altitude requirement
 - Added a SAR (Specific Absorption – Radiation Exposure) requirement
 - Added the option to use defined Symbols for Controls and Indicators (similar to EPIRBs)
 - Simplified the labelling requirements
 - Modified the sequence of tests to match what's in IEC 61097-2 Ed4.0
 - Removed the option to relax the AIS transmission rates after 6 hours
 - Updated the US PLB Coding requirements annex to match the RTCM EPIRB standard
- RTCM will be petitioning the FCC to adopt this new standard into Part 95 of its Rules.





Thank you!

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