



NOAA 2021 BMW

RTCM SC110 Update
35 Years and still going strong
SC110 Chair: Chris Hoffman

RTCM a "Beacon for Maritime Communications and Navigation"

History - 1

- 406 MHz EPIRBs largely as we know them today, really came about in the mid 1980s, during a period of intense activity, by many countries and organizations, including RTCM, the IMO, the ITU, Cospas-Sarsat, the FCC, the USCG, the SARSAT program, Canada and the UK.
- The two driving forces were the declaration of an operational Cospas-Sarsat system in 1985 and the inclusion of 406 MHz EPIRBs in the plans for the Future GMDSS system by IMO in 1984.
- 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.



SC110 - Emergency Beacons

History - 2

- In April 1986 Cospas-Sarsat published C/S T.001 Issue 1 Rev 0 the first 406 MHz Beacon Standard (C/S T.007 wasn't published until November 1987).
- 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), 6 people attended its first meeting: Yaroslav (Bob) Kaminsky (MITRE) (Chairman), Fred Kissel (Westinghouse/NASA), Dave Edwards (USCG), Jim Bailey (NOAA), W Lloyd Fink (MarAd) and Bill Adams (RTCM).
- 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, in addition to many of the Ad Hoc Committee members, new members of note were Paul Arnstein (USCG), John Flood (ACR) and Ed Buck (Xceleratron), the latter two being the only EPIRB manufacturers in attendance.



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History - 3

- The initial work of SC110 focused on the 121 signal, inputs to ITU CCIR, responding to FCC and USCG NPRMs related to 406 MHz EPIRBs, work on Lithium batteries and tracking activity by other administrations / bodies.
- 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).
- In addition to ACR and Xcelatron who actively participated in SC110, the committee also sort input from the other 121.5 ELT and EPIRB manufacturers it was aware of at that time – Greenwich Marine Electronics (GME), Martech Inc, Modern Products, ELTS Unlimited Inc, Dorne & Margolin Inc, Halotech Inc, Narco Avionics and DME.
- When SC110 was first established the small membership largely comprised of various arms of the US government and its contractors, with some participation by ACR and Xcelatron.



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Today

- It is now 35 years since SC110 was established. In that time the EPIRB standard has been revised 4 times in 1997, 2002, 2012 and 2015 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 in 2008, 2012 and in 2018 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.
- Clearly SC110 is as relevant today as it was 35 years ago.



SC110 - Emergency Beacons

Updates

- Since the last BMW meeting SC110 has:
 - Drafted and submitted 14 papers to JC-34 (7 of which were joint submissions) and actively participated in the meeting
 - Drafted and submitted 2 joint papers to CSC-64 and participated in the meeting
 - Drafted and submitted 3 papers to EWG-1/2021 and actively participated in the meeting
 - Drafted and submitted 4 papers (1 of which is joint) to JC-35
 - Members have actively participated in the development of IEC 61097-2 Ed4.0 on EPIRBs and have transitioned that work into RTCM 11000.5
 - Completed work on RTCM 11000.5 on EPIRBs, which will be published very shortly, this incorporates IEC 61097-2 Ed4.0 and IMO Resolution MSC.471(101)
 - Continued to monitor and report on items of interest to members at IMO, ITU and similar bodies



Standards Update

- RTCM 11000.5 on EPIRBs (based on IEC 61097-2 Ed 4.0) will be published this month, 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)
- RTCM will be petitioning the FCC to adopt this new standard into Part 80 of its Rules.
- The current RTCM PLB standard is 11010.3, however this requires updating and a revised version is expected to be published next year.
- The current 406 MHz SSAS standard is 11020.1 from 2009, which is unsurprisingly out of date, but no requests have been received to update it or include an SGB SSAS.



JC-35 Papers of Interest

- JC-35/2/45 – Ground Segment Status (for info)
- JC-35/3/1 – RLS Receiver Verification (response?)
- JC-35/3/5 – T.021 Annexes E & G (review)
- JC-35/3/6 – SGB Antenna Measurements (RTCM/USA response planned)
- JC-35/3/7 – ELT(DT) Initial Encoded Location (response?)
- JC-35/3/8 – Truncation of 23 Hex ID (response required?)
- JC-35/3/11 – Clarification of T.001 Test User Protocol (review)
- JC-35/6/1 – SIT 185 CWG Report (for info)
- JC-35/6/11 – Possible Misuse of Beacons (for info)
- JC-35/8/1 – System Test CWG Report (for info)
- JC-35/8/2 – FGB RLS MMSI encoding (for info)



Next Scheduled Meeting

SC110 Fall Meeting

When: Tuesday December 14, 2021
13:00 – 17:00 UTC

Location: Virtual Web Conference

Contact: Chris Hoffman

I anticipate that an Ad Hoc SC110 meeting will be required during the week of October 11 to address JC-35 papers and consider RTCM response papers.





Thank you!

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