

# Radio Technical Commission for Maritime Services (RTCM)



Chris Hoffman  
RTCM Board of Directors Chairman  
Chairman RTCM Sub Committees SC110 and SC136

**Beacon Manufacturers Workshop 2020**



# Agenda

- RTCM Overview
- SC110 Overview
- SC136 Overview
- RTCM Cospas-Sarsat Related Activities
- RTCM EPIRB Standard Status
- RTCM PLB Standard Status



# RTCM Overview

# RTCM Overview



- ❑ RTCM is an international non-profit scientific, professional and educational organization
- ❑ Members are both government and non-government organizations
- ❑ Established in 1947 as a U.S. government advisory organization
- ❑ Now an independent organization with members from all over the world
- ❑ Headquartered in Arlington VA, (Washington DC), but likely to move offices into DC later this year

# RTCM Main Activities



- ❑ RTCMs main area of activity is related to commercial shipping and navigation and radiocommunications systems for these vessels
- ❑ Increasingly it is also working in other areas such as Differential GNSS, High Integrity GNSS and Radio Comms for DGNSS Applications
- ❑ RTCMs main role is in developing standards, but it also plays a major part in national and international committees, information dissemination to its members and advising on legislation and regulatory changes



# RTCM SC110 Emergency Beacons Overview

# RTCM Special Committee SC110 on Emergency Beacons



- SC110's primary role is to develop and maintain standards for Emergency Beacons – 406 MHz EPIRBs, PLBs and 406 MHz Ship Security Alert Systems (SSAS)
- It is also heavily involved in:
  - Considering new technology, ideas and other related matters of interest to its members e.g. AIS EPIRB, C/S MEOSAR system, ELT(DT)s
  - RTCM also plays a very active role in the work of Cospas-Sarsat and in particular in its Joint Committee (JC) meetings
  - Developing input towards Second Generation Beacon Standards for MEOSAR
  - New EPIRB and PLB AIS standards





# RTCM SC136

## Beacon Type Approvals

### Overview

# RTCM Special Committee SC136 on Beacon Type Approvals



- Took on the mantel of the Type Approvals Workshop (TAW) group last year
- Principally acts as a sub-group of SC110, currently most work merged
- Mainly focusses on matters related to C/S T.001 and T.007, likely to get involved in T.021 in the future
- Basically provides a forum for RTCM and the C/S Secretariat along with other Participants to try and address type approval related matters

**COSPAS SARSAT**

**TYPE APPROVAL CERTIFICATE**  
For a 406 MHz Distress Beacon for use with the Cospas-Sarsat Satellite System

**Certificate Number: 309**

Manufacturer: Standard Communication Pty Ltd (SOM), Australia  
Beacon Type(s): Non-Float Free EPIRB  
Beacon Model(s): MT600G MT600  
Test Laboratory: OMEGA, Sevastopol, Crimea, Ukraine  
Dates of Test: September 2012 – November 2013

Details of the beacon features and battery type are provided on sheet

The Cospas-Sarsat Council hereby certifies that the 406 MHz Distress Beacon Model identified above is compatible with the Cospas-Sarsat System as defined in document:

C/S T.001 Specification for Cospas-Sarsat 406 MHz Distress Beacon  
Issue 3 - Revision 13, October 2012  
C/S T.007 Cospas-Sarsat 406 MHz Distress Beacon Type Approval Standard  
Issue 4 - Revision 4, October 2012

Original TAC 247 issued on 12 December 2013 3-ed extension TAC 293 issued on 6 December 2018  
1-st extension TAC 258 issued on 9 February 2017  
2-nd extension TAC 293 issued on 23 October 2017

Steven W. Lert  
Head of Cospas-Sarsat Secretariat

**NOTE, HOWEVER:**

- This certificate does not authorize the operation or sale of any 406 MHz distress beacons. Such authorization may require type acceptance by national administrations in countries where the beacons will be distributed, and may also be subject to national licensing requirements.
- This certificate is intended only as a formal notification to the above identified manufacturer that the Cospas-Sarsat Council has determined, on the basis of test data of a beacon submitted by the manufacturer, that 406 MHz distress beacons of the type identified herein meet the standards for use with the Cospas-Sarsat System.
- Although the manufacturer has formally stated that all beacons identified with the above serial number(s) will meet the Cospas-Sarsat specifications referenced above, this certificate is not a warranty and Cospas-Sarsat hereby expressly disclaims any and all liability arising out of or in connection with the contents, use or misuse of the certificate.
- This certificate is subject to extension by the Cospas-Sarsat Council should the beacon type for which it is issued cease to meet the Cospas-Sarsat specifications. A new certificate may be issued after satisfactory corrective action has been taken and correct performance demonstrated in accordance with the Cospas-Sarsat Type Approval Standard.
- Cospas-Sarsat type approval testing requirements only address the electrical performance of the beacons at 406 MHz. Confirmation of the beacons to operational and environmental requirements is the responsibility of national administrations.

FEDERAL COMMUNICATIONS COMMISSION  
WASHINGTON, D.C. 20544

**GRANT OF EQUIPMENT AUTHORIZATION**

Certification: \_\_\_\_\_ Date of Grant: 0/25/08  
Application Dated: 7/23/08

ACR Electronics Inc  
5757 Pinecrest Road  
P.O. Lakewood, FL 32812

Attention: Kerry Green, Engineering, Vice President

**NOT TRANSFERABLE**

EQUIPMENT AUTHORIZATION IS HEREBY IDENTIFIED, and it is VALID ONLY for the equipment identified herein for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: **B5ACR-RLEB3**  
Name of Grantee: **ACR Electronics Inc**

Equipment Class: **406 MHz EPIRB**  
Notes: **RLB-36 DiscOps (P)**

Grant Notes	FCC Rule Parts	Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
GM	88.1191(k)(3)	171.5	6.05	0.005 %	3K20A3X
GM	90.1191(k)(3)	400.220	5	0.0006 %	16W05D10

GM: This unit meets requirements for DME/DME-S (see all authorized in Section IV of Part 90).

FEDERAL COMMUNICATIONS COMMISSION

ENR5870

FCC ID: B5ACR-RLEB3  
Grantee: ACR Electronics Inc

In correspondence concerning this grant, please refer to the FCC IDENTIFIER and the date of grant.

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RTCM  
Cospas-Sarsat  
Related Activities

# RTCM C/S Related Activity



- Under its observer status, RTCM basically represents the interests of beacon manufacturers at C/S meetings
- In the last year RTCM has participated in the following:
  - CSC-62 Open Council Meeting (Nov 2019)
  - EWG-2/2020 on ELT(DT)s and SGBs (Feb)
  - EWG-6C/2020 on RLS Transition (Virtual Meetings) (Feb / Mar)
- At these meetings RTCM submitted 10 documents in its own right and was involved in a further 9 joint submissions
- Currently RTCM is busy preparing for JC-34

# RTCM C/S Related Activity



- Topics addressed by RTCM in the last year included:
  - PLBs on PFDs for SGBs
  - Numerous changes to T.001, T.007, T.018 and T.021
  - RLS Preparation for IOC and FOC
  - Various features of ELT(DT)s, inc FGB PDF-2 Rotating Field
  - TAC Numbers for SGBs with different characteristics
  - SGB Programming Adapters
  - Requirements for New Beacon Types and Program Readiness
  - C/S Trademarks and Service Marks management in C/S P.011
- All of this work supports your beacons business, so please participate

# RTCM C/S Related Activity



- Topics being addressed by RTCM at JC-34 include:
  - Numerous changes to T.001, T.007, T.018 and T.021
  - Hopefully finalisation of the SGB Antenna EIRP Testing Requirements
  - Changes to T.021 to address issues found by EPG during testing
  - Changes and a proposal to recommend an Issue 1 of T.021
  - SGB Programming Adapter Test Procedures
  - Requirements and Tests for the FGB ELT(DT) PDF-2 Rotating Field
  - Jointly, steps to improve Distress Alerts sent to RCCs and SPOCs
- If you wish to join the RTCM delegation to JC-34 please let me know by the end of this week



RTCM  
EPIRB Standard  
Status



## EPIRB Status

- Current standard in FCC Rules is RTCM 11000.3
- FCC requires all EPIRBs sold in the USA to comply with 11000.3 from 17 Jan 2020
- Current standard RTCM 11000.4 Amendment 1
- RTCM has petitioned the FCC to adopt 11000.4
- RTCM is supporting work to update IEC 61097-2
- At its next meeting on Oct 20<sup>th</sup>

RTCM will start working to update its EPIRB standard to bring it into line with IEC 61097-2 Ed4.0

it expects to complete this work

by next summer





RTCM  
PLB Standard  
Status

# PLB Status



- Current standard in FCC Rules is RTCM 11010.2 including Amendments 1 and 2, dated June 8, 2012
- FCC requires all PLBs sold in the USA to comply with 11010.2 from 17 Jan 2020
- Only real implication of above is to require PLBs with integral GPS Receivers to be tested using the RTCM scenarios in Annex G of the standard
- The current Standard is RTCM 11010.3 Published June 25, 2018.
- RTCM petitioned the FCC to adopt this new standard in August 2018

# PLB Status



- RTCM 11010.3 addresses:
- Two Generations of PLBs:
  - First Generation PLBs complying with C/S T.001 and approved to T.007
  - Second Generation PLBs complying with C/S T.018 and approved to T.021
- Two Categories of PLBs:
  - Category 1 PLBs designed for use in and around water and which must float
  - Category 2 PLBs designed principally for use on land and which are not required to float
- Three Classes of PLB:
  - Class 0 - -55C to +70C, Class 1 - -40C to +55C, Class 2 -20C to +55C
- Three Groups of PLB:
  - Group 1 PLBs include a 121.5 MHz homing transmitter
  - Group 2 PLBs – reserved for future use
  - Group 3 PLBs include a 121.5 MHz homer and an AIS Locating Transmitter

# PLB Functions



- PLB functionality is very similar to that for the latest IMO EPIRBs:
  - Mandatory GNSS
  - Optional AIS (Mandatory for EPIRBs, but not really applicable to PLBs on land)
  - Optional RLS
  - Mandatory 121.5 MHz with reduced duty cycle
- Key differences are:
  - The GNSS position update rate requirement
  - The minimum 121.5 MHz duty cycle
- RTCM needs to consider whether it should bring its PLB requirements into line with the latest IMO EPIRB requirements
- If it does then a further update and minor changes will be needed to the current PLB standard



# Beacon Manufacturers Workshop 2020

Questions?

Thank you

For further information on RTCM and details of membership  
and the work of SC110 / SC136 visit

[www.rtcmm.org](http://www.rtcmm.org)