

# Radio Technical Commission for Maritime Services (RTCM)



Chris Hoffman  
RTCM Board of Directors  
Chairman RTCM Sub Committees SC110 & SC128

Beacon Manufacturers Workshop 2011



# 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)



# RTCM Main Activities

- RTCMs main area of activity is related to commercial shipping and navigation and radiocommunications systems for these vessels
- It also works in other areas when mandated such as Differential GPS and Terrestrial Satellite Distress Alerting
- 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 Sub-Committee**  
**Emergency Beacons**  
**(EPIRBs and PLBs)**  
**Update**



## 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 Ship Security Alert Systems (SSAS)
- It is also involved in:
  - The work of SC119 on Marine Survivor Locator Devices
  - The work of SC128 on Satellite Emergency Notification Devices
  - A joint committee with SC101 on VHF DSC GPS Hand Portable Radios
  - Considering new technology, ideas and other related matters of interest to its members e.g. AIS EPIRB, C/S MEOSAR system
  - RTCM also plays a very active role in the work of Cospas-Sarsat and in particular in its yearly Joint Committee (JC) meetings
  - We also seem to be discussing an increasing number of ELT matters



## Current SC110 Main Work Areas

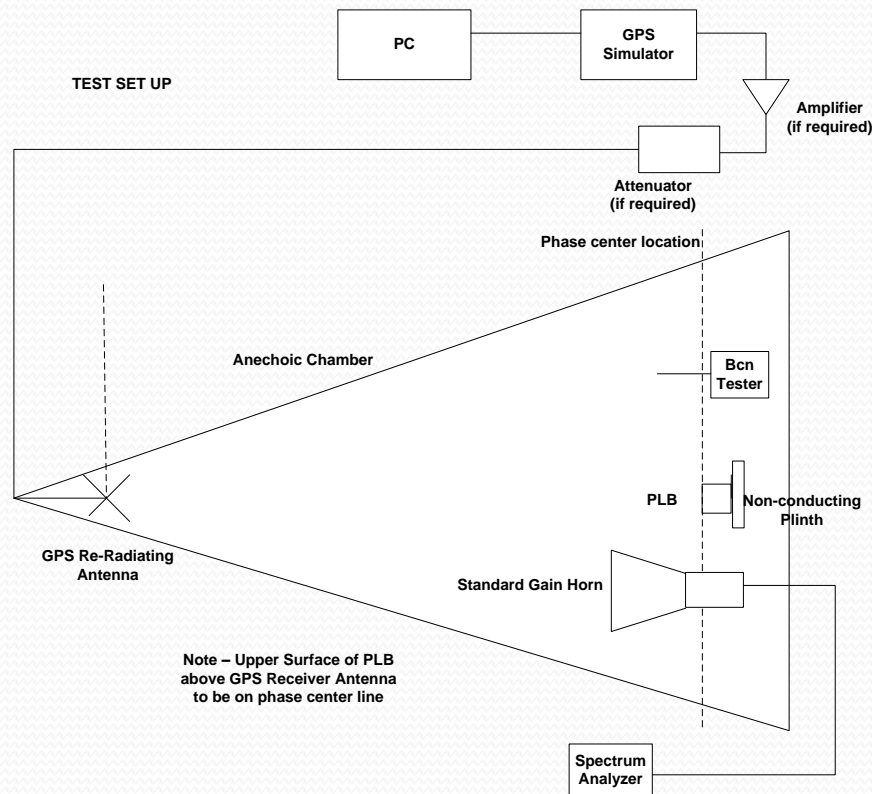
- Participating in the Cospas-Sarsat JC-25 Meeting
- Developing input towards Second Generation Beacon Standards for MEOSAR
- Keeping abreast of work in other bodies e.g. IMO and ITU
- Updating the RTCM 406 MHz EPIRB Standard, including adding new Ergonomics requirements and GPS Simulator Testing
- Working towards an AIS EPIRB standard
- Considering including AIS in PLBs
- Working with NOAA on Beacon Registration Issues
- Considering ELT issues – External Power, Antennas, Batteries
- Battery Life Discussions



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## PLB Status

- Current Standard RTCM 11010.2 Published July 2008
- Amendment 1 to above Std Published Aug 2010 – Annex G Internal Navigation Device Test Methods and Test Procedures



## EPIRB Status

- Current standard RTCM 11000.2 published June 2002
- RTCM updating standard to bring it into line with latest issue of IEC 61097-2
- Updated standard will only address differences from the IEC standard
  - Internal Navigation Device Timing
  - GNSS Self Test
  - Inadvertent Activation
  - Incorrect Mounting
  - Ergonomics Requirements and Tests
  - Cold Thermal Shock Tests
  - Testing internal GPS Receivers using GPS Simulators





## EPIRB Standard Changes

- Key areas of change relate to reducing false alerts and making it easier to carry the EPIRB to a liferaft

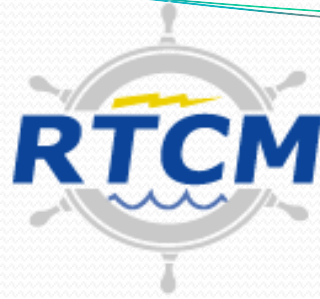




## Battery Life Discussions

- *T.007 A.2.3 Operating Lifetime at Minimum Temperature*
- *i. the depletion in battery power resulting from normal battery loss of energy due to battery ageing over the rated life of the battery pack; **at room temperature***

Battery Storage Temperature	Typical Annual Battery Capacity Loss
-20 C	0.1%
0 C	0.3%
20 C (Ambient)	1%
40 C	2.8%
60 C	7.1%



**RTCM**  
**SC128 Sub-Committee**  
**Satellite Emergency Notification Devices**  
**(SEND)**



## RTCM SC128 SEND OVERVIEW

- Committee set up in Q4 2008, at the request of the USCG to establish standards for commercial satellite emergency notification and locating devices, abbreviated to SENDs by the committee
- SC128 is working closely with the US National Search And Rescue Committee (NSARC) who have formed a Working Group to look into communications interfaces with the emergency services and with the RTCM ProTECTS Alliance
- SC128 is drawing expertise and data from SC110 406 MHz PLB work
- SC128 first met Q1 2009 and has typically meet quarterly
- SC128 SEND members include:

USCG	USAF	NOAA	NASA
FCC	NSS Canada	Globalstar	Inmarsat
Iridium	Manufacturers	Consumer Advocate	



## RTCM SC128 SEND STANDARD

- Has developed a generic standard for SEND's (both one way and two way comms devices)
- Standard addresses:
  - Controls
  - Indicators
  - Operation
  - General Construction
  - Technical Characteristics
  - Environmental and Other Tests
- Standard will not cover technical features of satellite communications (e.g. Tx Power, Frequency, Modulation), the satellite provider is responsible for this area
- Standard will not address non-distress functionality, except where it impacts the distress alerting function
- Some back end service requirements are included



## RTCM SC128 TYPES OF SEND

- The standard addresses the following SEND variants:
- Categories of SEND:
  - Cat 1 SEND which must float
  - Cat 2 SEND which is not required to float
  - Cat 3 Fixed Vehicle Mounted SEND
- Classes of SEND:
  - Class 1 SEND which operates over the temperature range of -40C to +55C
  - Class 2 SEND which operates over the temperature range of -20C to +55C
- Thus currently there are 6 possible variants of SENDs

NOTE – Excluded from the standard are devices that are not dedicated distress alerting devices that connect to the PSTN (e.g. Satellite pagers and phones)





## RTCM SC128 SEND STATUS

- Current Status
  - CDV resolution meeting held this week.
  - Standard will be published in a few weeks time
- Future Work
  - It is anticipated that the FCC will adopt the standard and mandate it for SEND devices sold in the US
  - RTCM believes the standard could form the basis for an international standard in this area
  - It is hoped that the USCG will approve SEND devices prior to the FCC adopting the standard into their rules

# Questions ?



For further information on RTCM and details of membership and the work of SC110 & SC128 visit

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