

RTCM Annual Assembly and Virtual Conference

- Start Time is 10:00 AM (EDT)
- Welcome and Opening Remarks by RTCM Chairman of the Board
- Questions will be collected throughout the presentations using the QA feature, most often located at the bottom right of your screen, depending on your device.





Radio Technical Commission for Maritime Services (RTCM) Report



RTCM – the Beacon for Maritime
Communications and Navigation

**Presented By: Ed Wendlandt
President**

RTCM Report

- General RTCM Overview
- Annual Conference and General Meeting
- RTCM Special Committees
- Standards Activity



RTCM Overview

- **Non-profit, scientific, professional and educational organization**
- **Over 140 organization members from industry, government, and educational institutions from all over the world**
- **As an NGO, we maintain a unique relationship between US and international regulatory bodies, commercial interests, and the public**



RTCM Main Activities

- **Navigation and Radiocommunication systems for commercial and recreational vessels**
- **Major role in national and international regulatory dialogues and policy initiatives**
- **Developing and maintaining standards through Special Committee (SC) Activity.**
 - SC's provide a forum in which government and non-government members work together to develop technical standards and consensus recommendations in regard to issues of particular concern.



RTCM International Engagement

We are actively engaged in the development of international standards through our involvement in –

- the International Maritime Organization (IMO),
- the International Electrotechnical Commission (IEC),
- the International Organization for Standardization (ISO),
- the European Telecommunications Standards Institute (ETSI),
- COSPAS-SARSAT,
- The International Loran Association.

We also monitor and contribute to relevant work of –

- the International Telecommunications Union (ITU),
- the International Hydrographic Organization (IHO),
- the International Association of Aids to Navigation and Lighthouse Authorities (IALA),
- the Comité International Radio-Maritime (CIRM),
- The National Marine Electronics Association (NMEA), and
- Mobile Satellite Users Association (MSUA)





2020 RTCM Annual *Virtual* Assembly and Conference













RTCM – the Beacon for Maritime
Communications and Navigation



2020 RTCM Annual Meeting Sessions

Coming up Next Session 2 – Autonomous Shipping

Session 2 - 10:30 am - 12:30 pm (EST) (Virtual)			
RTCM Technical 1 - Autonomous Shipping			
Captain Michael H. Trent, USN (Ret.) <i>Managing Director, MARITECH USA</i>	Session Introduction by Moderator <ul style="list-style-type: none"> RTCM Member and founder of MARITECH USA 	 Click here for Speaker Bio	
Ørnulf Jan Rødseth <i>Senior Scientist, SINTEF AS and General Manager, Norwegian Forum on Autonomous Ships</i>	Autonomous ships: Why, How and When? <ul style="list-style-type: none"> Ørnulf is an SME and prolific writer on the subject of autonomous ships The discussion will include his views on the future of e-Navigation and the interactions of autonomous, remote-controlled and conventional ships 	 Click here for Speaker Bio	
Brett Phaneuf <i>Director, Mayflower Autonomous Ship (MAS) Project and President, Submergence Group, LLC</i>	The Mayflower Autonomous Ship – A New Era in Ocean Research <ul style="list-style-type: none"> To discuss the planned trans-Atlantic sailing of this scientific vessel Focus to be on communications, monitoring and control of the vessel, and edge computing 	 Click here for Speaker Bio	
Dor Raviv <i>Chief Technology Officer, ORCA AI</i>	Autonomous Navigation for Ships <ul style="list-style-type: none"> Dor served in the Israeli Navy and has led the development of Orca AI's solutions for safe navigation, collision avoidance and their AI/ML/DL engine The discussion will include ORCA's unique approach to dealing with navigation in congested ship traffic, harbor approaches and port entry using ML/DL 	 Click here for Speaker Bio	
Domenic Carlucci <i>ABS Director, Machinery, Electrical and Controls</i>	Classification of Autonomous Vessels <ul style="list-style-type: none"> Domenic's group has been leading the effort by ABS to define industry methods for implementing and classifying autonomous functionality and systems ABS has published 4 documents on novel concepts, smart functions, qualifying new technologies and autonomy over the last 3 years 	 Click here for Speaker Bio	
Q/A			



2020 RTCM Annual Meeting Sessions

Wednesday 10:00 AM (EDT)

Session 3 –

RTCM Technical 2

Session 3 - 10:00 am - 11:00 am (EST) (Virtual)			
RTCM Technical 2			
Joe Hersey <i>Chair, RTCM Special Committee 137</i>	Unexpected Discoveries in Shipboard Electromagnetic Compatibility, A report on the work of RTCM SC137 Abstract Info	 Click here for Speaker Bio	
Ross Norsworthy <i>Chair, RTCM Special Committee 123</i>	VDES Frequencies and Regulations Finalized by WRC 2019 - What's Next?	 Click here for Speaker Bio	
	Q/A		



2020 RTCM Annual Meeting Sessions

Wednesday 11:00 AM (EDT)

Session 4 – RTCM Technical 3 Satellite Communications Update

Session 4 - 11:00 am - 12:00 pm (EST) (Virtual) RTCM Technical 3 - Satellite Communications Update			
Kyle Hurst <i>Director of Maritime Safety and Security Services</i> <i>Iridium</i>	Iridium GMDSS Update		
John Dodd <i>Director of Maritime Safety Services</i> <i>Inmarsat</i>	Inmarsat Safety Update	 Click here for Speaker Bio	
Adam Dunbar <i>Program Manager</i> <i>Spire</i>	Feasibility of Cubesat Retrieval and Delivery of Surface In Situ Observations Leveraging the Automatic Identification System (AIS)	 Click here for Speaker Bio	
	Q/A		

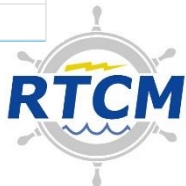


2020 RTCM Annual Meeting Sessions

Thursday 10:00 AM (EDT)

Session 5 – RTCM Technical 4 Maritime Safety Services

Session 5 - 10:00 am - 12:00 pm (EST) (Virtual)			
RTCM Technical 4 - Maritime Safety Services			
Dr. Alan Grant <i>Principal Development Engineer & GLA DGPS System Director</i> <i>The General Lighthouse Authorities of the UK and Ireland</i>	Maritime Resilient PNT – A System of Systems Approach	 Click here for Speaker Bio	 Get the presentation Available upon completion
Brian Tetreault <i>Navigation Systems Specialist</i> <i>US Army Corps of Engineers</i>	Army Corps of Engineers Navigation Technology Update	 Click here for Speaker Bio	 Get the presentation Available upon completion
	Q/A		
Timothy "Ed" Stacy <i>Senior Watch Officer - Maritime Safety Watch - NGA</i>	NGA Maritime Safety Watch	 Click here for Speaker Bio	 Get the presentation Available upon completion
LT Anne Newton, USCG <i>Project Manager CSI Branch, USCG Research and Development Center</i>	Overview of i911 and Current Use in the USCG	 Click here for Speaker Bio	 Get the presentation Available upon completion
	Q/A		



2020 RTCM Annual Meeting Sessions

Thursday 12:00 PM (EDT)

Session 6 – RTCM Technical 5 Maritime Zero Trust Architecture

Session 6 - 12:00 pm - 1:00 pm (EST) (Virtual)			
RTCM Technical 5 - Maritime Zero Trust Architecture			
CAPT USCG (Ret) Glenn Hernandez <i>OpEdge Solutions</i>	Maritime Zero Trust Architecture Overview - Why it Matters to the maritime community		 <small>LIVE TO PARTICIPATE Available post conference</small>
	Q/A		
CAPT USCG (Ret) Glenn Hernandez <i>OpEdge Solutions</i>	Maritime Zero Trust Applicability -Selected Use Cases		 <small>LIVE TO PARTICIPATE Available post conference</small>
	Q/A		





RTCM

General Updates



RTCM – the Beacon for Maritime
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RTCM General Updates

- Virtual Meetings since 7 February
- Repaired the website to properly run the GMDSS Comms Equipment Requirements Guide. Same for International Ship Navigation Equipment Requirements.
- Plans to host the Annual IALA eNavigation Underway North America Conference were halted due to COVID-19 pandemic.
 - The conference series is now known as Digital@Sea.
- RTCM is moving its headquarters back across the river into Washington, DC by year's end.





RTCM

Special Committee (SC) Status and Other Work



RTCM – the Beacon for Maritime
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RTCM SC Status Summary

SC No.	Special Committee Name	Date
SC 104	Differential Global Navigation Satellite Systems (DGNSS)	Jan 13-14, 2021, if conditions allow Prague in May 2021
SC 109	Electronic Charting Technology	TBD
SC 110	Emergency Beacons (EPIRBs and PLBs)	October 20, 2020
SC 119	Maritime Survivor Locator Devices	mid October 2020
SC 121	Automatic Identification Systems (AIS) and Digital Messaging	TBD
SC 123	Digital Message Services over Maritime Frequencies	TBD
SC 132	RTCM Standards 13200.0 – Electronic Visual Distress Signal Devices (eVDSD)	TBD, some commercial devices are on the market.



RTCM SC Status Summary

SC No.	Special Committee Name	Date
SC 133	Data Exchange for Navigation-Related Applications for Mobile Devices (AIS-i)	TBD
SC 134	Integrity for High Accuracy GNSS-Based Applications	January 20-21, 2021 Prague, May 2021
SC 135	Radio Layer for Real-Time DGNSS Applications	TBD, heavy users of Basecamp to advance technical discussion
SC 136	Beacon Type Approval	TBD
SC 137	Electromagnetic Compatibility Requirements for LED Devices and other Unintentional Emitters Located Near Shipboard Antennas	October 2020, dependent on completion of tests



SC104 – DGNSS

- Amended RTCM 10403.3 to include NavIC, formerly known as IRNSS. Published the Amended version on April 28th.
- Completed the fall meeting virtually last week with nearly 50 members attending.
- Expect to have 3 CDVs due for voting by the January meeting.



SC109 – Electronic Charting Technology

- **RTCM 10900.7 requires review to check compliance with NOAA effort to “sunset” the raster chart, the new IEC presentation standard and continuing efforts to leverage AIS messaging.**
- **Former SC Chair is no longer available creating an opportunity for someone else to take the role.**



SC110 – Emergency Beacons

- Preparations continue for the Cospas-Sarsat Joint Committee 34th Meeting to be held virtually from November 2-23
- IEC TC80 completed a Committee Draft for Vote (CDV), to the IEC EPIRB Standard to bring it in compliance with the latest IMO performance standards, most active members of SC110 participated in the work



SC110 – Emergency Beacons (continued)

- The CDV was recently posted and includes:
 - Test requirements for 2nd generation beacons
 - Addition of AIS locating device, a night vision light, and optional return link service
 - Reducing the minimum duty cycle of the 121,5 homing signal
 - Requires an integral GNSS receiver
- The next SC110 meeting is set for October 20th and will start work to bring the RTCM EPIRB standard into line with the new IEC standard



SC119 – Maritime Survivor Locator Devices

- Last meeting was held virtually in May.
- Several committee members jointly attend the IEC TC 80 WG15 to monitor the activities.
- Consolidation of IEC 63269 Man Overboard Devices has taken place over the last year and the Committee produced a draft (CD) for circulation and comments. Test methods still need to be included.
- Next SC119 meeting scheduled for mid-October.



SC121 – Automatic Identification Systems (AIS) and Digital Messaging

- The committee chair plans to hold one more meeting to finalize the RTCM draft 12100 standard prior to sending it out for CDV.
- The goal is to have the CDV voted and a published standard by the end of March 2021.



SC134 – Integrity Monitoring for High Precision Applications

- SC134 recently closed the applications requirements review for the Automotive, Rail, Maritime and other application domains
- More than 20 applications have been identified. High accuracy and high integrity have been recognized as the drivers for many incoming applications, as autonomous driving and IoT
- Message Groups have been defined for each application



SC134 – Integrity Monitoring for High Precision Applications (continued)

- Integrity parameters definition is underway
- Relevant liaison activities have been carried out and contacts established with auto manufacturers and standardization organizations (e.g. ETSI, ISO, etc.) for a common definition of standards for emerging applications needing integrity



SC135 – Radio Layer for Real-Time DGNSS Applications

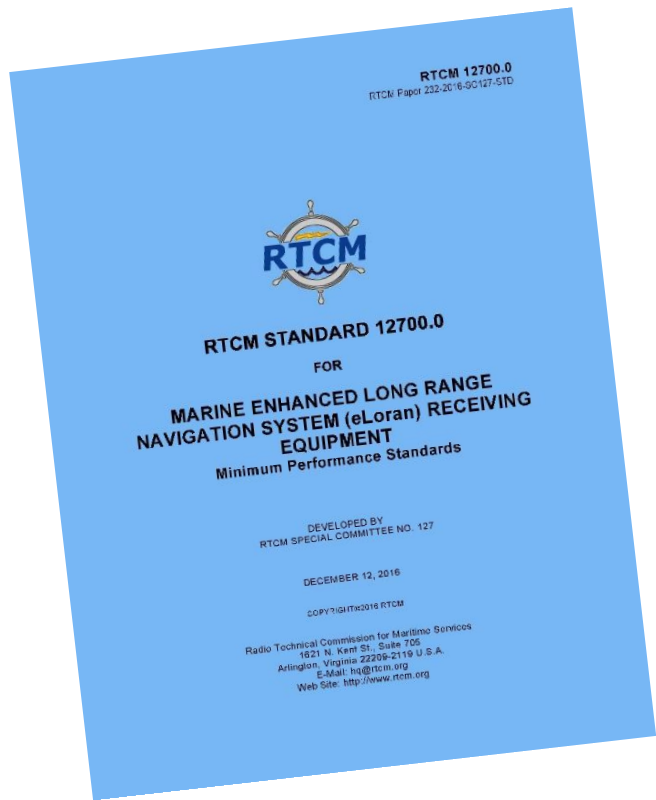
- SC135 has a committee draft standard in progress.
- Making steady progress and currently engaged in some highly technical discussions about framing.
- Major radio manufacturers are engaged, but greater participation is encouraged, especially for radio experts in the RTK industry.



SC137 – Electromagnetic Compatibility Requirements for LED Devices & other Unintentional Emitters Located Near Shipboard Antennas

- **Our newest special committee.**
- **SC137 has made some unexpected discoveries Shipboard Electromagnetic Compatibility.**
- **Tune in tomorrow at 10:00 AM for those details with the SC137 Chair.**





RTCM

Recently Amended Standard



RTCM Special Committees News

- **SC104 completed the Amending of RTCM Standard 10402.3 to include NavIC, the India Regional Constellation.**
- **Work is also in progress for a general update of the standard to produce version 10402.4 including an updated message set for handling multiple DGNSS systems**



RTCM



Tentative schedule for the next two conferences are:

Sep 20-24, 2021 in Anaheim, CA

Orlando, FL on Sep 19-23, 2022

- Send an email to HQ@rtcm.org if you'd like to submit an idea to present at our next Annual Assembly, or with any topics you'd like covered

Visit www.rtcm.org





Thank you!



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Communications