



Proposed Class H DSC Hand Held VHF Radio with GPS



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RTCM

Annual Assembly 2008

Presented by Chris Hoffman – Procon Inc.



Agenda

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3. Why include a GPS Receiver?
4. Why do we need a new Class of DSC for this radio?
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Background

- The FCC's Third GMDSS (Part 80) Report and Order released September 8, 2006, established a requirement for all new marine VHF radios with DSC, including handheld portable radios, to meet the ITU Digital Selective Calling requirements.
- The Final Rule has now been published in the Federal Register, setting an effective date of March 25, 2008 for implementation.



Background

- § 80.225 of Title 47 of the Code of Federal Regulations now states:
- Beginning March 25, 2012, the Commission will not accept new applications for certification of handheld, portable DSC equipment that does not meet the requirements of ITU-R Recommendation M.493–11, and in the case of Class D DSC equipment only, IEC 62238 Ed.1.
- The manufacture, importation, or sale of handheld, portable DSC equipment that does not comply with these standards is prohibited beginning March 25, 2015.
- Approved DSC equipment that has been manufactured, sold, and installed in conformity with these requirements prior to the above dates may be used indefinitely.



Background

- Also in its Third Further Notice of Proposed Rulemaking, also released September 8, 2006, the FCC invited comment on a Coast Guard recommendation to require that all VHF-DSC handheld equipment include GPS capability to ensure that distress calls to the Coast Guard include accurate location information.
- RTCM supported the proposal to equip VHF-DSC handheld radios with GPS capability, in principle but recommended deferring a decision and adding it to a later NPRM in order to allow time to develop relevant performance standards.



Background

- USCG reports most distress calls received via VHF
- Many boat owners do not connect their DSC radios to their GPS receivers
- Rescue 21 has the ability to receive DSC calls
- Class D DSC considered to complex in its present form for Hand Held Radios
- Experience within RTCM SC110 has shown that adding a GPS Receiver into portable equipment can present problems
- Following discussions at the 2007 Annual Assembly RTCM set up a Joint SC101 / SC110 committee to develop a standard for VHF DSC Hand Held Radios equipped with GPS



Principles Behind the Radio

- This radio is intended for use on vessels which are:
 - not required to carry GMDSS equipment under the Safety of Life at Sea Convention,
 - not equipped with fixed radios, and perhaps not equipped with electrical systems.
- This radio is intended for use by persons who are not trained GMDSS operators, and therefore full GMDSS functionality is not desired in order to reduce complexity
- Simple self-evident operation is necessary



Why Include a GPS Receiver?

- It is considered essential to include an integral GPS Receiver as evidence shows that radios with external interfaces are invariably not connected up.
- Those making the distress call may not know their location or only have a vague idea of where it is.
- Relying on DF equipment to locate the distress rules out help from other boaters and may not work in all cases



Why do we need a new Class of DSC for this radio?

- SC101 DSC will no longer be permitted by the FCC
- Class D DSC is considered too complex for a simple **hand held** radio that anyone should be able to use
- Class D DSC includes features not needed in an emergency or for routine daily use
- The Second Receiver Channel in Class D adds cost to and increases the size of the radio
- All of this creates a barrier against voluntary carriage
- The proposed Class H DSC would not have the capability to send urgency, safety, relay, reply or acknowledgement calls



Class H to Class D DSC Comparison

Distress Alerts				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Distress (RT)	•	•	•	•
Distress (EPIRB)		•		•



Class H to Class D DSC Comparison

Distress Acknowledgments				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Distress Acknowledgement (RT)		•		•
Distress Acknowledgement (EPIRB)		•		•



Class H to Class D DSC Comparison

Distress Relay				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Individual (RT)	•	•		
Individual (EPIRB)		•		
Geographic Area (RT)		•		
Geographic Area (EPIRB)		•		
All Ships (RT)		•		
All Ships (EPIRB)		•		



Class H to Class D DSC Comparison

Distress Relay Acknowledgments				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Individual (RT)	•	•		
Individual (EPIRB)		•		
All Ships (RT)		•		
All Ships (EPIRB)		•		



Class H to Class D DSC Comparison

Urgency and Safety Calls – All Ships				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
All Modes RT	•	•		•
Duplex RT		•		•
Medical Transports				
Ships and Aircraft (Res 18)				



Class H to Class D DSC Comparison

Urgency and Safety Calls – Geographical Area				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Not Applicable to VHF				



Class H to Class D DSC Comparison

Urgency and Safety – Individual Calls and their Acknowledgements				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
All Modes RT		•		•
Duplex RT				
RT Acknowledge	•			
Unable to Comply Acknowledge	•			
Position Request				
Position Acknowledgement				
Test	•	•	•	
Test Acknowledgement	•	•		•



Class H to Class D DSC Comparison

Routine Group Calls				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
All Modes RT	•	•		•
Duplex RT				



Class H to Class D DSC Comparison

Routine Individual Calls and their Acknowledgement				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
All Modes RT	•	•	•	•
Duplex RT				
RT Acknowledgment	•	•	•	•
Data				
Data Acknowledgment				
Unable to Comply Acknowledgment				
Polling				
Polling Acknowledgment				



Class H to Class D DSC Comparison

Semi / Auto Calls (Optional)				
Type of Call	Ship Station Class D		Proposed Ship Station Class H	
	Tx	Rx	Tx	Rx
Request	•	•		
Able to Comply Acknowledgement	•	•		
Start of Call (on working channel)	•			
Unable to Comply Acknowledgement	•	•		
End of Call Request (on working channel)	•			
End of Call Acknowledgement (on working channel)		•		



Current Status of Class H Proposal in ITU

- USA submitted proposal to ITU WP5B to add Class H DSC to ITU-R M.493-12 in January
- At the WP5B meeting in February the members decided to ask IMO and CIRM for comments on the proposal by way of a Liaison Statement
- At the recent COMSAR meeting IMO's response was to recommend that ITU keeps DSC simple
- ITU WP5B next meets in October, we don't yet know what it will decide to do with Class D or Class H



How You Can Help

- Class H DSC needs support if it is to be successfully added to ITU-R M.493-12
- If you think this is a good idea please encourage your national administration to support the work in ITU WP5B
- Or raise the matter with other organisations to which you belong that have Liaison status with WP5B (e.g. CIRM, IALA)



SC101-110 Committee Work

- Joint SC101-SC110 committee tasked with developing a standard for a DSC Hand Held VHF Radio with GPS
- It is hoped that ITU will adopt Class H DSC so that the radio has international appeal
- Work in early stages still, so some of the following may change
- Currently envisage 3 Classes of Radio:
 - Class 1 – General Purpose doesn't Float
 - Class 2 – General Purpose will float
 - Class 3 – Full SOLAS compliance
- Classes 1 and 2 are envisaged to be basic affordable radios
- Class 3 is seen as a radio that could be mandated for carriage in some application (e.g. It could be a possible replacement for the GMDSS Survival Craft VHF Radio)



SC101-110 Committee Work

- RTCM is setting a minimum standard, most radios produced are expected to exceed the requirements in at least some areas
- Radio will have a very simple display
- Standard operating mode will be Dual Watch on Channels 16 and 70, with the option of setting a Working Channel as well (Tri-Watch)
- Scanning capabilities are still under discussion
- Radio will have a “Distress” button under a flip up cover
- Other DSC controls and features will be kept to a minimum to keep operation simple



SC101-110 Committee Work

- Radio will intelligently automatically handle the integration of location into the DSC message
- Radio will send Distress message even if location not available, however it will warn user of this and keep trying to acquire location and send an updated Distress message automatically
- Radio will have safeguards to ensure erroneous and out of date locations are not transmitted



SC101-110 Committee Work

- Requirements will include:
 - Typical IEC 60945 Environmental Tests
 - Watertight to JIS 7 Standards
- Radio tests will be based upon extracts from ETSI EN 301 178 (Non-GMDSS VHF Hand Portables)
- DSC Tests will be based upon extracts from ETSI 300 338 (Tx and Rx of DSC at MF, HF and VHF)



Conclusions

- SC101 DSC Handheld VHF Radios with built in GPS are available today – no standards exist for these products
- SC101 DSC will be phased out under the new FCC rules
- Class D DSC Handhelds are expensive and complex
- A new DSC standard (Proposed Class H) is needed to replace SC101
- A minimum standard is required for Handheld DSC radios going forward to ensure that they work when needed in an emergency
- Your support can help to make this happen



Proposed Class H DSC Hand Held VHF Radio with GPS



**SC101-110 meets tomorrow from
09-00 to 13-00
everyone is welcome to attend**

Questions?