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Before The
FEDERAL COMMUNICATIONS COMMISSION
Washington, D. C. 20554

In the Matter of	)	
	)	
Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications	)	WT Docket No. 00-48
	)	
	)	FCC 06-129
	)	
	)	December 14, 2006

COMMENTS OF THE RADIO TECHNICAL COMMISSION FOR MARITIME SERVICES (RTCM)

The Radio Technical Commission for Maritime Services (RTCM) respectfully submits these Comments in response to the Notice of Proposed Rulemaking published in the Federal Register on November 8, 2006 (71 FR 65447).

The RTCM is a non-profit organization whose objectives include studying and preparing reports on maritime telecommunications practices, needs and technologies with a view toward improving the efficiency and capabilities of maritime telecommunications services, suggesting ways to keep rules and regulations to the minimum essential for effective maritime telecommunications and making recommendations on important issues involving maritime telecommunications.

INMARSAT-E EPIRB earth stations

Inmarsat-E EPIRBs will serve no useful function after December 1, 2006. We support the proposal to prohibit any further certification, manufacture, importation, or installation of INMARSAT-E EPIRBs, and to prohibit continued use of deployed INMARSAT-E EPIRBs upon publication of the Final Rule.

GPS capability in VHF-DSC handheld radios

In principle, RTCM supports the proposal to equip VHF-DSC handheld radios with GPS capability. We understand the need for accurate position information in a distress situation, and agree with the Coast Guard concerning the potential lifesaving benefits. However, our experience with GPS-equipped Personal Locator Beacons (PLB) operating on the Cospas-Sarsat satellite system,[1] indicates that requiring GPS functionality without establishing relevant performance standards can lead to disappointing performance. For instance, to operate properly, the GPS antenna may have to be properly oriented, and not shielded by puddled water or other obstruction. If the GPS processor operates continually, it could result in an unacceptable battery drain, reducing the time available for VHF transmissions, or alternatively requiring larger, heavier, and more expensive batteries. However, if the GPS processor does not operate periodically, it might "cold start" when needed in an emergency, resulting in a delay in computing a position fix that could be 10 minutes or more.

As a result of these kinds of issues, RTCM is revising its PLB standard to ensure proper performance of PLBs equipped with the GPS position fixing option. RTCM will

[1] Relevant regulations at 47 CFR 95.1400 *et seq*. Like VHF-DSC handhelds, PLBs are hand-portable, battery powered radios.

also consider the issue of VHF-DSC handheld radio performance with GPS capability, and will be in a better position to make recommendations on performance standards in the future.

We recommend that the Commission defer its decision on such a requirement for now. We also recommend that a future Further Notice of Proposed Rulemaking ask for public input on additional questions, such as the following:

Can a VHF handheld equipped with a GPS processor be expected to reliably acquire an accurate position fix under distress conditions?

Would the GPS processor put an unacceptable current drain on the battery if it operates continuously? If so, what is an appropriate duty cycle? Should the GPS processor be activated only by the operator, or perhaps just when a DSC distress call is made?

How long would it take to get an accurate position fix in the preceding case?

Should such a device also be required to display the GPS position determined by the processor? (Since a position fix may not be immediately available, this would provide the user with confirmation of when a position fix is obtained. Without this information, a user could be dangerously misled. It would also allow the user to provide their coordinates to a listener without a DSC radio.)

Should position-fixing be accomplished only through the GPS system, or would GLONASS or GALILEO position fixing be allowed, either in place of GPS, or in combination with it?

Should it be required to float?

What performance standards should apply to GPS-equipped VHF-DSC handheld radios?

What would it cost? (We understand that GPS processors are available to manufacturers for about $50 in limited quantities. A lower price would be expected for production quantities.)

Carriage of VHF handheld marine radio transceivers on small passenger vessels

RTCM strongly believes that vessels carrying passengers need to be able to communicate with rescuers and nearby vessels in case of an emergency, including one that disables the vessel's power supply. We would therefore support a requirement for carriage of at least one VHF handheld marine radio transceiver on any small passenger vessel that does not have a reserve power source. Furthermore, we believe that new radios carried to meet this requirement should have DSC capability. Since handheld radios aren't "installed" on the vessel, this could be accomplished by requiring radios carried to meet this requirement and manufactured after the effective date of the rules, to be DSC capable.

With regard to safety benefits and economic costs, we believe that operators have a duty to their passengers to be fully prepared for an emergency. Being able to communicate with rescuers and nearby vessels in the event of loss of power is an important part of being so prepared. By offering this alternative to the reserve power supply, the Commission would be providing the flexibility that a lower cost option would give.

Furthermore, RTCM recommends that the Commission revise 47 CFR 80.203(n) to remove the exception for DSC capability in new applications for certification of handheld VHF-FM equipment. Additionally, we recommend a prohibition on the manufacture, importation and sale of non-DSC handheld VHF-FM equipment on the same schedule as set forth in 47 CFR 80.225(a)(5) in the Third Report and Order under this docket.

Spectrum for ship station facsimile communications and the transmission of data on VHF maritime voice channels

RTCM is not able to comment on the need for additional spectrum for facsimile communications, since we do not have access to relevant channel loading data. We do believe that the need for data transmission for maritime users will increase, but that voice traffic will not necessary decrease. However, keeping channels open for voice communications results in unused channel capacity in the time between voice conversations. We believe that technologies can be developed to use this "white space" on voice channels for data without interfering with voice transmissions, similar to the "polite" behavior of Class B Automatic Identification System units using Carrier Sense Time Division Multiple Access techniques.[2] RTCM is working on a standard using such technologies and will bring the results of our work to the attention of the Commission when it is completed.

[2] IEC 62287-1 Ed.1: Maritime navigation and radiocommunication equipment and systems - Class B shipborne equipment of the automatic identification system (AIS) - Part 1: Carrier-sense time division multiple access (CSTDMA) techniques

Number of frequencies that may be assigned to any particular private coast station

RTCM has no objection to the removal of the limitation on the number of frequencies that may be assigned to private coast stations or marine utility stations under 47 CFR 80.511.

Standards for ship radar equipment

We urge the Commission to incorporate the relevant IEC standards for radar equipment into 47 CFR 80.273. Although these standards technically impose new testing requirements on manufacturers, which did not exist under the old RTCM standards, as a practical matter, modern marine radar equipment is an international product and manufacturers will not be subject to testing that they are not already doing for other Administrations. In particular, testing to the IEC standards is a requirement for European approval of radar equipment under the European Union (EU) Marine Equipment Directive. This approval is required for any radar equipment installed on a ship registered in any country of the European Union, as well as Norway and Iceland. [3] We believe that the European Marine Equipment Directive provides an appropriate model for identifying the relevant standards applicable to the various types of radar equipment under SOLAS, and therefore recommend that § 80.273 be revised as follows:

[3] See Consolidated Marine Equipment Directive at http://europa.eu.int/eur-lex/en/consleg/pdf/1996/en_1996L0098_do_001.pdf . Radar equipment listings begin on page 39, at Item A.1/4.34 in Annex A.1

Equipment	Applicable standards
Radar equipment with automatic radar plotting aid (ARPA)	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60872-1 IEC 60936-1, with Amendment 1 IEC 60936-3 [a] IEC 60945
Radar equipment with automatic tracking aid (ATA)	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60872-2 IEC 60936-1, with Amendment 1 IEC 60936-3 [a] IEC 60945
Radar equipment with electronic plotting aid (EPA)	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60872-3 IEC 60936-1, with Amendment 1 IEC 60936-3 [a] IEC 60945
Radar equipment with automatic radar plotting aid (ARPA) for high-speed craft	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60872-1 IEC 60936-2 IEC 60936-3 [a] IEC 60945
Radar equipment with automatic tracking aid (ATA) for high-speed craft	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60872-2 IEC 60936-2 IEC 60936-3 [a] IEC 60945

[a] Applies only if the radar is equipped with chart facilities

Standards incorporated by reference:

IEC 60872-1, Maritime navigation and radiocommunication equipment and systems - Radar plotting aids - Part 1: Automatic radar plotting aids (ARPA) - Methods of testing and required test results, September 23, 1998

IEC 60872-2, Maritime navigation and radiocommunication equipment and systems - Radar plotting aids - Part 2: Automatic tracking aids (ATA) - Methods of testing and required test results, January 15, 1999

IEC 60872-3, Maritime navigation and radiocommunication equipment and systems - Radar plotting aids - Part 3: Electronic plotting aid (EPA) - Performance requirements - Methods of testing and required test results, August 30, 2000

IEC 60936-1 with Amendment 1, Maritime navigation and radiocommunication equipment and systems - Radar - Part 1: Shipborne radar - Performance requirements - Methods of testing and required test results, June 14, 2002

IEC 60936-2, Maritime navigation and radiocommunication equipment and systems - Radar - Part 2: Shipborne radar for high-speed craft (HSC) - Methods of testing and required test results, October 30, 1998

IEC 60936-3, Maritime navigation and radiocommunication equipment and systems - Radar - Part 3: Radar with chart facilities - Performance requirements - Methods of testing and required test results. April 2004

IEC 60945, Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results, August 14, 2002

IMO Resolution A.694 (17), Recommendation on General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids, November 6, 1991

IMO Resolution MSC.191(79), Performance Standards for the Presentation of Navigation-Related Information on Shipborne Navigational Displays

IMO Resolution MSC.192(79), Revised Recommendation on Performance Standards for Radar Equipment

ITU-R M.1177-3, Techniques for measurement of unwanted emissions of radar systems , June 2003

These standards should apply to new equipment installations on or after July 1, 2008, which is the effective date of IMO Resolutions MSC.191(79) and MSC.192(79). The Commission should accept applications for certification of radar equipment to these standards immediately, using a waiver procedure, if necessary before the effective date of a Final Rule. Existing radar equipment should be permitted to be used as long as it is in good and serviceable condition.

If the IEC standards are not incorporated into § 80.273, manufacturers would be able to introduce equipment to the U.S. market before it has been completely tested. We

consider this possibility to be potentially dangerous, since this equipment directly affects navigational safety. We do not believe that reputable manufacturers will object to the inclusion of these standards, since they have the opportunity to be involved in their development through IEC Technical Committee 80 (TC80), and since they must test to these standards to gain access to the global market. They also stand to benefit by alignment with the EU Marine Equipment Directive in that it would simplify their compliance processes.

We also believe that the EU Marine Equipment Directive is correct by certifying radar equipment to include automatic radar plotting aids (ARPA), automatic tracking aids (ATA), and electronic plotting aids (EPA). These features are an integral part of modern radar equipment, and should be included as part of their certification. When an operator chooses to have a radar with chart facilities, this feature is also integral with the radar, and should be included as part of its certification. Furthermore, we recommend certification of equipment for high speed craft separately from radar equipment for conventional ships. Radar equipment standards for high speed craft take into account that craft traveling at higher speeds than conventional craft need to have different performance characteristics. Note that in the United States, vessels meeting the definition of high speed craft in the International Convention for the Safety of Life at Sea (SOLAS) are not necessarily certificated under the International Maritime Organization's (IMO) High Speed Craft Code, since they are usually not engaged on international voyages. Therefore, we recommend that the Commission adopt the SOLAS High Speed Craft definition as the applicable definition for the term under § 80.273, specifically:

> "High-speed craft" is a craft capable of a maximum speed, in meters per second (m/s), equal to or exceeding:

$$3.7\ V^{0.1667}$$

where:

V = volume of displacement corresponding to the design waterline (m^3),

excluding craft the hull of which is supported completely clear above the water surface in non-displacement mode by aerodynamic forces generated by ground effect.[4]

In the Further Notice of Proposed Rulemaking, the Commission expresses concern that our recommendations would impose carriage requirements and minimum standards for radar equipment on vessels of less than 500 gross tons, which had been formerly exempt from any radar standards prescribed by the Commission. The SOLAS requirements for radar equipment apply to all ships of 300 gross tons and above and all passenger ships in international waters except:

1 warships, naval auxiliaries and other ships owned or operated by a Contracting Government and used only on government non-commercial service;

2 ships solely navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of the St. Lambert Lock at Montreal in the Province of Quebec, Canada;

3 ships below 150 gross tonnage engaged on any voyage;

4 ships below 500 gross tonnage not engaged on international voyages; and

5 fishing vessels.[5]

Therefore, in addition to ships 500 gross tons and over, this equipment is to be carried on passenger ships 150 gross tons and over on international voyages, and cargo ships of 300 gross tons or more on international voyages. Furthermore, the Commission, having the responsibility for certification of radio transmitting devices in the United States, is obligated under SOLAS to type approve this equipment to the SOLAS requirements and

[4] International Convention for the Safety of Life at Sea 1974, as amended, Regulation X/1.3.
[5] *Id.* at (taken together) Regulation V/1.1, 1.4, and 19.2.3.2.

related IMO standards,[6] and the IEC standards by extension. IEC publishes another standard, IEC 62252, which covers radar equipment for ships not required to carry radar under the SOLAS convention. We recommend that the Commission consider adoption of this standard for certification of radar equipment for use on voluntary vessels.

It should be noted that IEC is currently developing another radar standard, IEC 62388, as well as IEC 62288 on navigational displays, both of which should be published in 2008. These standards will replace IEC 60936-1, IEC 60936-2, IEC 60872-1, IEC 60872-2, and IEC 60872-3. Upon publication of the new standards, we will recommend that they be substituted for IEC 60936-1, IEC 60936-2, IEC 60872-1, IEC 60872-2, and IEC 60872-3, where they appear in the table above. We have included Enclosure (1) to show what the list of standards should look like once IEC 62388 and IEC 62288 are published. Note that the availability of these standards should greatly simplify the list.

Daily testing of GMDSS radiotelephone equipment

RTCM supports the proposal to add a rule to Subpart W of Part 80 to clarify that vessels subject to the Subpart W GMDSS requirements are required to test their radiotelephone equipment on a daily basis.

For the Radio Technical Commission for Maritime Services

R. L. Markle
President

[6] *Id.* at Regulation V/18

Standards applying to ship radar equipment after publication of IEC 62288 and IEC 62388:

Equipment	Applicable standards
Radar equipment	IMO Resolution MSC.191(79) IMO Resolution MSC.192(79) IMO Resolution A.694 (17) ITU-R M.1177-3 IEC 60936-3 [a] IEC 60945 IEC 62288 IEC 62388

[a] Applies only if the radar is equipped with chart facilities

Standards incorporated by reference:

IEC 60936-3, Maritime navigation and radiocommunication equipment and systems - Radar - Part 3: Radar with chart facilities - Performance requirements - Methods of testing and required test results. April 2004

IEC 60945, Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results, August 14, 2002

IEC 62288, Maritime navigation and radiocommunication equipment and systems - Presentation of navigation-related information - General requirements and methods of test, [2008]

IEC 62388, Maritime navigation and radiocommunication equipment and systems – Radar - Shipborne Radar – Performance requirements – Methods of testing and required test results, [2008]

IMO Resolution A.694 (17), Recommendation on General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids, November 6, 1991

IMO Resolution MSC.191(79), Performance Standards for the Presentation of Navigation-Related Information on Shipborne Navigational Displays

IMO Resolution MSC.192(79), Revised Recommendation on Performance Standards for Radar Equipment

ITU-R M.1177-3, Techniques for measurement of unwanted emissions of radar systems , June 2003