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

In the Matter of	)	
	)	
Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems	)	WT Docket No. 04-344
	)	
Amendment of the Commission's Rules Concerning Maritime Communications	)	FCC 06-108
	)	
	)	October 13, 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 October 12, 2006 (71 FR 60102).

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.

Satellite AIS – Nationwide Channel Designation

RTCM reiterates its position that channels 87B and 88B should be reserved for exclusive AIS use not only in maritime VPCSAs, but also nationwide, including all inland VPCSAs. RTCM believes that AIS will become a valuable navigational safety tool not only in coastal waters, but also on inland waterways. AIS is designed to interface with other electronic navigational equipment. When connected to radar displays, AIS can identify every radar target which is also equipped with AIS. When connected to electronic navigational displays that include charts, AIS can plot the position of every AIS-equipped vessel in VHF range. In narrow, obstructed, or winding waterways, this gives AIS the ability to "see" around islands and bends in rivers where radar can not reach, significantly improving navigational safety. U.S. inland waterways have popular passenger vessel services, and also large barge tows which are limited in their ability to maneuver. We think that AIS will become an important navigational tool for these vessels. Furthermore, many of the vessels that operate on inland waterways eventually reach coastal waters where oceangoing vessels operate. Oceangoing vessels serve Great Lakes ports, and inland river and bay ports such as Providence, Philadelphia, Baltimore, Alexandria (VA), Richmond (VA), New Orleans, Baton Rouge, Sacramento, Portland (OR), and Seattle. All of these vessels should be able to use a seamless AIS system covering all navigable waterways.

Channel 87B is needed for exclusive AIS use in all inland VPCSAs where navigable waterways exist, for the purposes of navigational safety.[1]

Those who oppose the nationwide reservation of channel 87B for exclusive AIS use may point out that AIS units can operate on channels other than 87B and 88B. Use of alternate channels requires that a boundary be set to demarcate where an alternative channel or channels will be used. If some channel other than 87B would be designated as the second channel for inland areas, vessels would have to shift between the alternative and channel 87B as they cross the boundary between coastal waters where channel 87B is designated and inland waters where some other channel is designated. This is problematical for at least two reasons:

1) In the boundary area, a vessel with an AIS unit operating on channel 87B and 88B, would receive only half of the position reports from vessels with AIS units operating on channel 88B and an alternative channel. This degrades the accuracy and update rate of the displayed AIS positions of the other vessels. Likewise, a vessel with an AIS unit operating on channel 88B and an alternative channel would receive degraded position information concerning vessels operating on channels 87B and 88B.

2) There are two ways that an AIS unit frequency could be changed. One is manually, and the other is remotely. Changing frequencies manually adds to the navigator's workload, and could easily be overlooked, degrading the performance of the AIS unit. Furthermore, Class B AIS units intended for smaller vessels, can not be manually retuned – this can only be done

[1] The AIS system operates on two VHF channels simultaneously. The Commission has designated channel 88B for AIS operation nationwide. If channel 87B is not also designated nationwide for AIS, an alternative VHF channel will have to be designated for this purpose.

remotely.[2] Remote channel management is done only by AIS base stations. Therefore, if an alternative channel is designated for AIS use in inland waters, the Coast Guard, Corps of Engineers, and/or other government entities will have to establish, operate and maintain a nationwide system of AIS base stations for the sole purpose of ensuring that AIS units on inland waters operate on the proper channels.[3] Although the Coast Guard has a Nationwide AIS project underway, it is not certain that the system will be extended to all inland navigable waters.

In its Final Rule designating channels 87B and 88B for exclusive AIS use in U.S. territorial waters in the maritime VPCSAs, the Commission discusses its concerns about the negative consequences vessels could face as they transit an AIS "fence".[4] The same situation and potential negative consequences would arise if an alternate channel to 87B is designated in inland VPCSAs, except that the fence would be at the transition between the inland and maritime areas, instead of at the boundary with international waters.

If channel 87B is continued to be used by inland VPCSAs, transmissions on that channel have the potential to interfere with distant AIS operation, and therefore degrade the effectiveness of the AIS system for security and navigational safety purposes. This frequency band is susceptible to ducting, an anomalous propagation phenomenon which can result in transmission of signals for hundreds of miles – far beyond the nominal 20 to 50 mile range of VHF transmissions.

[2] IEC 62287-1 - 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, clause 6.1

[3] AIS units default to operation on channels 87B and 88B.

[4] 71 FR 60067, paragraph "3".

Although navigation safety provides sufficient justification to reserve channel 87B for AIS nationwide, the potential for satellite monitoring of AIS has been demonstrated, and is feasible. Because of the large geographic coverage of satellite reception, such a system needs a truly nationwide channeling arrangement. RTCM supports the comments of NTIA and ORBCOMM in this regard. It is another reason to reserve channel 87B nationwide for AIS purposes.

RTCM understands that VHF Public Coast Stations wish to retain channel 87B for their use in inland VPCSAs. VHF Public Coast Stations perform an important maritime safety and communication role, but in this case, the overriding interests of navigational safety, national security, and burden on he Federal Government, require that channel 87B along with 88B be designated for AIS operation on a nationwide basis. RTCM also supports redesignation of interoperability channels for VPC use, if those channels are not required for interoperability purposes.

AIS Base Stations

In the United States, AIS base station equipment should be authorized if it meets pending IEC 62320-1. This standard has been developed to ensure that base stations operate properly with the international AIS system.

Until and unless the U.S. Coast Guard develops guidelines for the operation of AIS base stations by non-federal entities, AIS base stations should only be owned and operated by or on behalf of the federal government. International Maritime Organization (IMO) Resolution MSC.74(69), Annex 3 describes the purpose of the AIS system:

> The AIS should improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services (VTS), by satisfying the following functional requirements:
>
> .1 in a ship-to-ship mode for collision avoidance;
>
> .2 as a means for littoral States to obtain information about a ship and its cargo; and
>
> .3 as a VTS tool, i.e. ship-to-shore (traffic management).

Functional requirement 1 is provided by shipborne AIS units. Functional requirements 2 and 3 are governmental or quasi-governmental functions provided by AIS base stations. AIS base stations can serve as a type of aid to navigation similar to a lighthouse or navigation buoy. They can command shipborne AIS units to change operating frequency channels and reporting characteristics, and to send them all sorts of messages. This power of AIS Base Stations to affect the operating characteristics of AIS systems should only be available to federal agencies with responsibility for navigational safety and security.

Private entities such as marine exchanges, marinas, and terminals could benefit from AIS information. This can be accomplished with receive-only AIS receivers, which are not base stations, and which do not require licenses.

RTCM concludes that the Commission should not license AIS base stations to non-federal entities.

Class B AIS Shipborne Equipment

RTCM supports the Commission's proposal to amend the Part 80 rules to incorporate by reference the IEC 62287-1 standard and provide for the certification of Class B AIS equipment that complies with that standard.

It is essential that all AIS units, not just Class B, have accurate MMSIs and other static data entered. The Commission should require that clear and specific information be provided with all AIS units that includes clear and concise information on how to enter and confirm static data.[5] This information should be provided not only in the user's manual, but also on a card or label that is attached conspicuously to the unit. Sellers and installers of AIS units should be urged to enter static data for the owner, if possible.[6]

Editorial Correction

The U.S. Coast Guard staff symbol in the address at proposed § 80.275(a) should be "G-PSE".

For the Radio Technical Commission for Maritime Services

R. L. Markle
President

[5] IEC 62287-1 contains only minimal guidance on the contents of manuals and other user instructions. Further FCC regulation on these points would not conflict with the standard.
[6] Clause 6.7.2 of IEC 62287-1 requires that it shall not be possible for the user to alter the MMSI in a Class B AIS unit, once programmed. The wording of the standard would not prohibit the user from being able to do the initial programming.