

Before the  
Federal Communications Commission  
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission’s Rules	)	WT Docket No. 04-344
Regarding Maritime Automatic Identification	)	
Systems	)	
	)	
Petition for Rule Making Filed by National	)	RM-10821
Telecommunications and Information	)	
Administration	)	
	)	
Emergency Petition for Declaratory Ruling Filed	)	
by MariTEL	)	
	)	
Amendment of the Commission’s Rules	)	PR Docket No. 92-257
Concerning Maritime Communications	)	

**REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULE MAKING AND  
FOURTH MEMORANDUM OPINION AND ORDER**

**Adopted: July 20, 2006**

**Released: July 24, 2006**

**Comment Date: (30 days after publication in the Federal Register)**

**Reply Comment Date: (45 days after publication in the Federal Register)**

By the Commission:

**TABLE OF CONTENTS**

<b>Heading</b>	<b>Paragraph No.</b>
I. INTRODUCTION AND EXECUTIVE SUMMARY.....	1
II. BACKGROUND .....	4
A. The Development of AIS .....	4
B. The <i>AIS NPRM</i> .....	9
C. The AIS Equipment Certification Rules .....	10
III. REPORT AND ORDER .....	12
A. The Need to Revisit the AIS Channel Allocation.....	12
B. Designation of Channels 87B and 88B for AIS .....	18
C. AIS/VPC Interference.....	25
D. The MariTEL Sharing Proposal.....	36
E. Applicability of Section 316 Hearing Requirement.....	40
F. Compensation .....	44
G. Use of Channels 87B and 88B in Inland Areas .....	49
H. Site-Based Licensees .....	53

IV. FURTHER NOTICE OF PROPOSED RULE MAKING ..... 58

    A. Satellite AIS – Inland Areas ..... 58

    B. AIS Base Station Issues ..... 61

    C. Class B AIS Shipborne Equipment..... 62

V. FOURTH MEMORANDUM OPINION AND ORDER ..... 65

VI. CONCLUSION..... 68

VII. PROCEDURAL MATTERS ..... 69

    A. Ex Parte Rules – Permit-But-Disclose Proceeding ..... 69

    B. Peer Review Bulletin and Information Quality Act..... 70

    C. Congressional Review Act..... 71

    D. Regulatory Flexibility Act ..... 72

    E. Comment Dates..... 74

    F. Paperwork Reduction Act..... 75

    G. Further Information..... 77

VIII. ORDERING CLAUSES ..... 79

Appendix A – Commenting Parties

Appendix B – Final Rules

Appendix C – Proposed Rules

Appendix D – Final Regulatory Flexibility Analysis

Appendix E – Supplemental Initial Regulatory Flexibility Analysis

**I. INTRODUCTION AND EXECUTIVE SUMMARY**

1. In the instant *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion and Order (Report and Order, Further Notice, and Fourth Memorandum Opinion and Order, respectively)*, the Federal Communications Commission (Commission or FCC) takes an important step toward ensuring the expeditious and effective implementation in the United States of maritime Automatic Identification Systems (AIS). AIS is a critical component of our Nation’s homeland security, as well as an important tool for enhancing maritime safety.

2. In the *Report and Order* in WT Docket No. 04-344, we designate VHF maritime Channels 87B (161.975 MHz) and 88B (162.025 MHz) for AIS. The designation of Channels 87B and 88B for AIS in the United States is consistent with establishment of a seamless global AIS framework, and will facilitate the broad, efficient and effective implementation of AIS in U.S. territorial waters. We have considered the possibility of designating channels other than 87B and 88B for AIS in the United States, and other regulatory arrangements, but the extensive record compiled in this proceeding demonstrates that designating the channels as we have herein will best accomplish our paramount goal in this proceeding – to maximize the benefits of AIS for United States homeland security and maritime safety. This action conforms the Commission’s rules with the international standards for AIS that have been developed and adopted by the International Telecommunication Union (ITU), the International Maritime Organization (IMO), and virtually all other countries. We also act in general accord with the views of the National Telecommunications and Information Administration (NTIA)<sup>1</sup> and the United

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<sup>1</sup> We note that this *Report and Order* relies in part on a study, prepared by the U.S. Department of Defense’s Joint Spectrum Center and submitted by NTIA, that has been peer reviewed in compliance with the Peer Review Bulletin issued by the Office of Management and Budget (OMB). *See generally* OMB Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (Jan.14, 2005). All of the materials relating to this peer review – including the study (the JSC Report), the charge statement (the memorandum requesting the peer review, including attachments), the peer review report, and the response to that report – are disseminated on the Commission’s website. *See* [www.fcc.gov/omd/dataquality/peer-agenda.html](http://www.fcc.gov/omd/dataquality/peer-agenda.html). The *Report and Order* discusses this study in Section III.C, *infra*.

States Coast Guard (USCG or Coast Guard), the Executive Branch agencies charged with oversight of Federal Government spectrum use and maritime safety and security, respectively, and in furtherance of a Congressional mandate for domestic AIS deployment, reflected in the Maritime Transportation Security Act of 2002 (MTSA).<sup>2</sup> We also adopt a *Further Notice of Proposed Rule Making* in WT Docket No. 04-344 to request further comment on some AIS issues. First, we seek additional comment on whether the designation of Channels 87B and 88B should be effective throughout the Nation or, as the Commission initially proposed, only in the nine maritime VHF public coast (VPC) service areas (VPCSAs),<sup>3</sup> and ask commenters to consider, in this regard, the Coast Guard's plans to develop satellite AIS tracking capabilities. Second, we request comment in the *Further Notice* on equipment standards and other issues pertaining to AIS base stations. Finally, we request comment on a proposed standard for authorizing Class B AIS devices.

3. Finally, in the *Fourth Memorandum Opinion and Order* in PR Docket No. 92-257, we deny a petition filed by MariTEL, Inc. (MariTEL) for reconsideration of the AIS equipment certification requirements for ship station equipment that were adopted in the *Sixth Report and Order* in PR Docket No. 92-257.<sup>4</sup> Based on the record before us, we conclude that there is no compelling justification for adopting domestic AIS equipment certification standards that diverge from the international standards. In support of this conclusion, we note that any such departure from the international standards would delay AIS deployment in the United States, discourage voluntary AIS carriage, and create other problems, including difficulties in AIS coordination with maritime authorities of other nations.

## II. BACKGROUND

### A. The Development of AIS

4. AIS is a maritime navigation safety communications system standardized by the ITU<sup>5</sup> that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information, automatically to appropriately equipped shore stations, other ships, and aircraft.<sup>6</sup> AIS enhances vessel tracking and monitoring capabilities, thereby

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<sup>2</sup> P.L. 107-295, § 102(e), 116 Stat. 2082 (2002) (codified at 46 U.S.C. § 70114).

<sup>3</sup> See 47 C.F.R. § 80.371(c)(1)(ii) for a listing and description of VPCSAs.

<sup>4</sup> Amendments of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, *Second Report and Order*, *Sixth Report and Order*, and *Second Further Notice of Proposed Rule Making*, WT Docket No. 00-48 & PR Docket No. 92-257, 19 FCC Rcd 3120, 3155 ¶ 67 (2004) (*GMDSS Second Report and Order*, *Sixth Report and Order*, and *GMDSS Second Further Notice*, respectively). We address here only the MariTEL petition for reconsideration of the *Sixth Report and Order*, which pertains to the Commission's AIS equipment certification rules, and is therefore closely related to the AIS issues before us in this WT Docket No. 04-344 rulemaking proceeding. Petitions for reconsideration of the *GMDSS Second Report and Order*, and comments responsive to the *GMDSS Second Further Notice*, will be the subject of a future action in WT Docket No. 00-48.

<sup>5</sup> The ITU is a United Nations agency responsible for the global oversight and implementation of international telecommunications policy. The ITU derives its authority from a multilateral treaty to which the United States is a party. See Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements, *Second Report and Order*, IB Docket No. 99-67, 18 FCC Rcd 24423, 24426 n.8 (2003).

<sup>6</sup> See Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems, *Memorandum Opinion and Order and Notice of Proposed Rule Making*, WT Docket No. 04-344, 19 FCC Rcd 20071, 20074 ¶ 5 (2004) (*AIS NPRM*); *Sixth Report and Order*, 19 FCC Rcd at 3154 ¶ 64. For more detailed information on the history of AIS, see *AIS NPRM*, 19 FCC Rcd at 20074-84 ¶¶ 2-23.

reducing the risk of vessel collisions.<sup>7</sup> Moreover, following September 11, 2001, AIS also has been viewed as an important asset for homeland security because its vessel tracking and monitoring capabilities can promote maritime domain awareness.<sup>8</sup> In the MTSA, Congress directed the Coast Guard to adopt and implement mandatory AIS carriage requirements for certain types of vessels.<sup>9</sup> Congress also specifically recognized the importance of AIS data for maritime domain awareness, and strengthened the mandate for AIS, in the Coast Guard and Maritime Transportation Act of 2004.<sup>10</sup> The Coast Guard, acting pursuant to the statutory mandate of the MTSA, as well as its authority under the Ports and Waterways Safety Act of 1972,<sup>11</sup> has adopted AIS carriage and operational requirements for specified classes of vessels.<sup>12</sup> In addition, the Saint Lawrence Seaway Development Corporation has adopted AIS carriage requirements for vessels transiting the Saint Lawrence Seaway.<sup>13</sup>

5. To date, Congress has not mandated that any particular channels be utilized for AIS in the United States. In international waters, however, Channels 87B and 88B have been allocated by the ITU for AIS since 1997. The World Radiocommunications Conference of 1997 (WRC-97) amended the ITU *Radio Regulations* to designate Channel 87B as AIS1 and Channel 88B as AIS2, but permitted member Administrations to designate other channels for AIS use within their territorial waters.<sup>14</sup> In 2000, moreover, the IMO<sup>15</sup> established an AIS carriage requirement for vessels subject to the International Convention for the Safety of Life at Sea (SOLAS).<sup>16</sup> The phased deployment of AIS, pursuant to the

<sup>7</sup> *AIS NPRM*, 19 FCC Rcd at 20074 ¶ 5.

<sup>8</sup> Maritime domain awareness is “the effective understanding of anything associated with the global maritime environment that could adversely impact the security, safety, economy or environment of the United States.” Statement of Jeffrey P. High, Department of Homeland Security, United States Coast Guard, on the U.S. Coast Guard’s Maritime Domain Awareness Efforts before the Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, U.S. House of Representatives, Oct. 6, 2004 (*USCG Prepared Statement*) (viewable at <http://www.house.gov/transportation/cgmt/10-06-04/high.pdf>); see also U.S. General Accounting Office, *Homeland Security: Efforts to Improve Information Sharing Need to be Strengthened*, Report to the Secretary of Homeland Security (GAO-03-760 August 2003) (viewable at <http://www.gao.gov/new.items/d03760.pdf>) at 39 (defining maritime domain awareness as “a concept that captures total awareness of vulnerabilities, threats, and targets of interest on the water” and as “the comprehensive information, intelligence, and knowledge of all entities within America’s waterways that could affect our safety, security, economy, or environment”).

<sup>9</sup> See MTSA, n.2, *supra*.

<sup>10</sup> See P.L. 108-293, §§ 803, 807(c), 118 Stat. 1028 (2004).

<sup>11</sup> 33 U.S.C. § 1221 *et seq.*

<sup>12</sup> See, e.g., 33 C.F.R. § 164.46. The Coast Guard anticipates expanding its AIS carriage requirements to encompass additional classes of vessels. See Vessel Requirements for Notices of Arrival and Departure, and Carriage of Automatic Identification System, 70 Fed. Reg. 64171, 64171-72 (Oct. 31, 2005).

<sup>13</sup> See 33 C.F.R. § 401.20.

<sup>14</sup> See WRC-97 Final Acts (amending ITU *Radio Regulations* App. S18).

<sup>15</sup> The IMO is an agency of the United Nations that specifies regulations for the maritime service, such as equipment carriage requirements for certain classes of ships. See *GMDSS Second Report and Order*, 19 FCC Rcd at 3124 n.6.

<sup>16</sup> See Amendments to the International Convention for the Safety of Life at Sea, 1974, Chapter V, Regulation 19.2.4, “Carriage requirements for shipborne navigational systems and equipment,” as amended by IMO Resolution MSC.99(73) – 2000 Amendments to the Safety of Life at Sea 1974 Convention, as Amended – London, 5 December 2000 (*IMO AIS Carriage Requirements*). The *IMO AIS Carriage Requirements* apply to all ships of 300 gross tons or more on international voyages, cargo ships of 500 gross tons or more not on international voyages, and all tankers

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IMO requirements, began on July 1, 2002. The IMO later accelerated the implementation schedule, at the request of the United States, to require installation on all SOLAS ships engaged on international voyages by December 31, 2004,<sup>17</sup> and on ships not engaged on international voyages by July 1, 2008.<sup>18</sup> In the interim, the ITU approved an international standard for AIS equipment. That standard, ITU-R M.1371-1, was adopted in August 2001, and is premised on the use of Channels 87B and 88B for AIS, consistent with the international allocation.<sup>19</sup> Both the Coast Guard AIS carriage rules<sup>20</sup> and the Commission's AIS equipment certification rules adopted in the *Sixth Report and Order*<sup>21</sup> require compliance with ITU-R M.1371-1 and certain other international standards.<sup>22</sup>

6. In the United States, Channel 88B is a Federal Government frequency and, as such, is under the jurisdiction of NTIA.<sup>23</sup> As clarified in the *Memorandum Opinion and Order* in WT Docket No. 04-344, Channel 88B also may be authorized by the FCC for maritime public correspondence in certain areas within seventy-five miles of the United States/Canada border, but only subject to prior coordination with both NTIA and Canada.<sup>24</sup> NTIA has approved the use of Channel 88B for AIS throughout the United States.<sup>25</sup>

7. Channel 87B is a non-Federal Government frequency and, as such, is under the jurisdiction of the FCC; further, the Commission has designated the channel for VPC service.<sup>26</sup> In the

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and passenger ships (passenger ships are defined under SOLAS as ships carrying more than twelve passengers), and to other ships as determined by the flag State.

<sup>17</sup> *Id.* Specifically, SOLAS vessels on international voyages were required to install AIS equipment no later than the first safety equipment survey after July 1, 2004, or by December 31, 2004, whichever was earlier.

<sup>18</sup> See IMO Maritime Safety Committee, 75th Session, Agenda Item 17 – Prevention and Suppression of Acts of Terrorism Against Shipping; Automatic Identification System (submitted by the United States) – London, 15 January 2002. See *AIS NPRM*, 19 FCC Rcd at 20075 n.19, for a description of the initial implementation schedule for the *IMO AIS Carriage Requirements*.

<sup>19</sup> Recommendation ITU-R M.1371-1, “Technical characteristics for a universal shipborne automatic identification system using time division multiple access in the VHF maritime mobile band,” with Annexes, at Annex 1, § 2.1.1, Table 2 (2001). See also IMO Resolution A.917(22), “Guidelines for the On Board Operational Use of Shipborne Universal Automatic Identification System.”

<sup>20</sup> 33 C.F.R. § 164.46(a) Note.

<sup>21</sup> 47 C.F.R. §§ 80.275, 80.1101(c)(12).

<sup>22</sup> In addition to ITU-R M.1371-1, applications for AIS equipment certification must meet the following standards: IMO Resolution MSC.74(69), IEC 61162-1, IEC 61162-100, and IEC 61993-2. See 47 C.F.R. § 80.1101(c)(12); IMO Resolution A.917(22), “Guidelines for the On Board Operational Use of Shipborne Universal Automatic Identification System.”

<sup>23</sup> See 47 C.F.R. § 2.106 n.G5.

<sup>24</sup> See 47 C.F.R. § 2.106 n.US223; *AIS NPRM*, 19 FCC Rcd at 20086-87 ¶¶ 28-29.

<sup>25</sup> See Letter dated May 6, 2002 from J. Hersey, Chief, Spectrum Management Division, USCG, to Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, FCC.

<sup>26</sup> See 47 C.F.R. § 80.371(c)(1)(i). VPC stations traditionally provide public correspondence service to vessels, interconnecting ship radio stations to the public switched telephone network on a common carrier basis. See 47 C.F.R. § 80.5; see also Amendment of the Commission's Rules Concerning Maritime Communications, *Notice of Proposed Rule Making and Notice of Inquiry*, PR Docket No. 92-257, 7 FCC Rcd 7863, 7864 ¶ 7 (1992). In recent years, the Commission has provided VPC stations additional flexibility to expand their service offerings. See, e.g.,

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*Public Coast Third Report and Order* in 1998,<sup>27</sup> the Commission considered allocating Channel 87B for AIS, in keeping with the international allocation, but ultimately declined to do so.<sup>28</sup> The Commission concluded, based on the record then before it, that the public interest benefits of designating Channel 87B for AIS were outweighed by the potential adverse impact on VPC stations.<sup>29</sup> In lieu of designating Channel 87B for AIS, the Commission exercised the discretion provided by the ITU *Radio Regulations* to designate other channels for AIS within U.S. territorial waters, and agreed with the Coast Guard that two duplex narrowband channel pairs from the maritime VPC frequency band, as well as VHF maritime Channel 228B (162.0125 MHz), should be designated for AIS and related maritime safety systems.<sup>30</sup> The Commission also decided, however, that instead of designating specific narrowband channels itself, it should allow the Coast Guard and each licensee of the nine maritime VPCSA<sup>31</sup> to identify mutually acceptable channels for the AIS set-aside.<sup>32</sup> The Commission stated that if good faith negotiations to identify narrowband channel pairs for AIS proved unsuccessful, it would then designate the AIS channels itself, upon Coast Guard request.<sup>33</sup> This determination was codified, and remains codified, in Section 80.371(c)(3) of the Commission's Rules.<sup>34</sup>

8. In December 1998, geographic area VPC licenses were auctioned in FCC Auction No. 20. MariTEL submitted the winning bids for all nine maritime VPCSA<sup>35</sup> and was licensed for the nine

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47 C.F.R. § 20.9(b) (permitting VPC stations to offer private radio service); 47 C.F.R. § 80.123 (authorizing VPC stations to provide service to units on land).

<sup>27</sup> Amendment of the Commission's Rules Concerning Maritime Communications, *Third Report and Order and Memorandum Opinion and Order*, PR Docket No. 92-257, 13 FCC Rcd 19853 (1998) (*Public Coast Third Report and Order*).

<sup>28</sup> *Id.* at 19876 ¶ 48. In the *Public Coast Third Report and Order*, the Commission also adopted, *inter alia*, geographic area licensing for VPC stations to replace site-based licensing, required that geographic licensees and site-based incumbent licensees protect each other from interference, determined that mutually exclusive geographic license applications should be resolved through competitive bidding, and authorized VPC use of narrowband channels offset by 12.5 kHz from the 25 kHz wideband VPC channels. *Id.* at 19859-64 ¶¶ 10-18, 19874-75 ¶ 45, 19883-88 ¶¶ 64-73.

<sup>29</sup> *Id.* at 19876 ¶ 48. The Commission reasoned that designating Channel 87B for AIS (a) would require the relocation of thirty-four incumbent VPC licensees operating on Channel 87; (b) would encumber more VPC spectrum than would the designation of narrowband channels; and (c) would hamper the ability of VPC licensees to construct wide-area systems. *Id.* The Commission also expressed concern that designation of Channel 87B for AIS might complicate AIS implementation or raise the associated equipment costs. *Id.*

<sup>30</sup> *Id.* at 19876-77 ¶¶ 48-49.

<sup>31</sup> For purposes of geographic area licensing, the Commission established nine licensing regions near major waterways, *i.e.*, the maritime VPCSA<sup>31</sup>, and thirty-three inland licensing regions. *Id.* at 19861-63 ¶¶ 14-16. The nine maritime VPCSA<sup>31</sup> are Northern Atlantic (VPCSA 1), Mid-Atlantic (VPCSA 2), Southern Atlantic (VPCSA 3), Mississippi River (VPCSA 4), Great Lakes (VPCSA 5), Southern Pacific (VPCSA 6), Northern Pacific (VPCSA 7), Hawaii (VPCSA 8), and Alaska (VPCSA 9). See 47 C.F.R. § 80.371(c)(1)(ii).

<sup>32</sup> See *Public Coast Third Report and Order*, 13 FCC Rcd at 19877 ¶ 49.

<sup>33</sup> *Id.*

<sup>34</sup> 47 C.F.R. § 80.371(c)(3).

<sup>35</sup> See VHF Public Coast Service Auction Closes; Winning Bidders in the Auction of 42 Licenses in the 156-162 MHz VHF Public Coast Service, *Public Notice*, 14 FCC Rcd 480 (WTB 1998) (*Auction Closing PN*).

maritime VPCSA's on May 19, 1999.<sup>36</sup> The licenses authorize MariTEL to operate on all of the VPC channels listed in Section 80.371 (except those assigned to site-based incumbents), including Channels 87 and 88, on both the A and B sides.<sup>37</sup> Pursuant to Section 80.371(c)(3), the Coast Guard and MariTEL negotiated over the channels to be set aside for AIS use. On March 7, 2001, they executed a Memorandum of Agreement (MOA) setting aside Channels 87A (157.375 MHz) and 87B for AIS,<sup>38</sup> and the Wireless Telecommunications Bureau (Bureau) announced the agreement in a public notice released on April 13, 2001.<sup>39</sup> On May 6, 2002, the Coast Guard informed the Bureau that it intended to operate AIS on Channel 87B (pursuant to the Coast Guard/MariTEL MOA) and on Channel 88B (pursuant to NTIA authorization).<sup>40</sup> On June 13, 2002, the Bureau released a public notice announcing the Coast Guard's intention to operate AIS on Channels 87B and 88B, and providing, as an interim measure until the Commission adopted AIS licensing and equipment certification rules, that "the Bureau will consider use of shipborne AIS equipment to be authorized by existing ship station licenses, including vessels that are licensed by rule."<sup>41</sup> On June 27, 2002, the Commission's Office of Engineering and Technology issued a public notice stating that, as an additional interim measure until final AIS rules are adopted, "the FCC Laboratory will coordinate review of applications for certification of AIS equipment with the United States Coast Guard to ensure that the equipment meets all applicable international standards and requirements."<sup>42</sup> No entity interposed a timely objection to the actions announced in either of these two public notices (*June 2002 Public Notices*), which together effectively permitted the certification and deployment of AIS equipment designed to operate on Channels 87B and 88B until AIS licensing, operating, and equipment certification requirements were codified in the Commission's rules.

## B. The AIS NPRM

9. The *June 2002 Public Notices* authorized AIS operations on Channel 87B because the channel had been designated for that purpose in the MOA. In addition, the MOA obviated the need for the Commission to exercise its residual authority under Section 80.371(c)(3) to itself identify spectrum to

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<sup>36</sup> The nine licenses are held by separate wholly-owned subsidiaries of MariTEL. For convenience, we refer to the licensees simply as MariTEL. We note that MariTEL has assigned portions of the licenses through partitioning and disaggregation. *See, e.g.,* Commonwealth of Virginia, *Order*, 19 FCC Rcd 15454 (WTB PSCID 2004). None of these assignments, however, involve Channels 87 or 88.

<sup>37</sup> The "A-side" VPC channels (157.200-157.425 MHz) are designated as ship transmit frequencies, and the paired "B-side" VPC channels (161.800-162.025 MHz) are designated as coast transmit frequencies. *See* 47 C.F.R. § 80.371(c).

<sup>38</sup> Memorandum of Agreement Between United States Coast Guard and the Maritime VHF Public Coast Area Licensee, March 7, 2001.

<sup>39</sup> *See* Wireless Telecommunications Bureau Announces the Selection of Two VHF Channel Pairs for the United States Coast Guard's Ports and Waterways Safety System, *Public Notice*, 16 FCC Rcd 7968 (WTB PSPWD 2001). Because Channels 87A/B are *non-offset* channels, and Section 80.371(c)(3) mandates that the parties negotiate to select narrowband *offset* channel pairs, the Bureau also granted a waiver of Section 80.371(c)(3). *Id.*

<sup>40</sup> *See* Letter dated May 6, 2002 from J. Hersey, Chief, Spectrum Management Division, USCG, to Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, FCC.

<sup>41</sup> Wireless Telecommunications Bureau Announces Use of an Additional Frequency for the United States Coast Guard's Ports and Waterways Safety System, *Public Notice*, 17 FCC Rcd 10960 (WTB PSPWD 2002) (*Additional Frequency Public Notice*).

<sup>42</sup> Applications For Equipment Authorization Of Universal Shipborne Automatic Identification Systems To be Coordinated with U.S. Coast Guard To Ensure Homeland Security, *Public Notice*, 17 FCC Rcd 11983 (OET 2002) (*AIS Equipment Authorization Public Notice*). The Commission identified the relevant international standards and requirements, including ITU-R 1371-1. *Id.* at 11983 n.2.

be allocated for AIS. However, a little less than one year after the release of the *June 2002 Public Notices*, MariTEL notified the Coast Guard that it was exercising its right under the MOA to terminate the MOA.<sup>43</sup> As a consequence of this development, it became necessary to revisit the question of allocating spectrum for AIS. Following the termination of the MOA, NTIA and MariTEL each filed pleadings recommending that the Commission take specified actions to resolve this matter, and the Bureau issued three public notices requesting comment on the various pleadings.<sup>44</sup> After reviewing the comments filed in response to the three public notices, as well as other information of record, the Commission adopted the *AIS NPRM* on August 26, 2004, tentatively concluding that Channel 87B along with Channel 88B should be designated for exclusive AIS use on a wideband simplex basis,<sup>45</sup> as proposed by NTIA, and inviting comment on that proposal.<sup>46</sup> The Commission also sought comment on, *inter alia*, MariTEL's assertions that the introduction into the VPC frequency band of wideband simplex AIS operations would cause interference of such magnitude that it would effectively prevent MariTEL from using not only Channels 87B and 88B but almost all of the VPC spectrum MariTEL acquired at auction.<sup>47</sup> The

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<sup>43</sup> See Letter dated May 5, 2003 from Dan Smith, President/CEO, MariTEL, to Capt. Richard S. Hartman, Jr., Chief, Office of Communications System, USCG.

<sup>44</sup> First, MariTEL filed an Emergency Petition for Declaratory Ruling requesting that the Commission clarify that shipborne AIS transmitters may not operate on Channels 87B and 88B or any other channels designated for VPC stations. MariTEL, Inc., Emergency Petition for Declaratory Ruling (filed Oct. 15, 2003, supplemented Oct. 27, 2003) (*MariTEL Emergency Petition*). NTIA then filed a *Petition for Rulemaking* urging the Commission to allocate Channels 87B and 88B for exclusive AIS use on a shared Federal Government/non-Federal Government basis. Letter dated Oct. 24, 2003 from Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, to John B. Muleta, Chief, Wireless Telecommunications Bureau, FCC, RM-10821 (*NTIA Petition*). On November 7, 2003, the Bureau issued a public notice requesting comment on both the *MariTEL Emergency Petition* and the *NTIA Petition*. Wireless Telecommunications Bureau Seeks Comment on MariTEL, Inc. Petition for Declaratory Ruling and National Telecommunication and Information Administration Petition for Rulemaking Regarding the Use of Maritime VHF Channels 87B and 88B, *Public Notice*, 18 FCC Rcd 23260 (WTB PSPWD 2003).

Subsequently, MariTEL filed separate proposals that it argued could resolve the controversy in a matter satisfactory to MariTEL while also permitting the use of Channel 87B for AIS. The first such proposal contemplated designation of MariTEL as exclusive AIS frequency coordinator. Letter dated Nov. 7, 2003 from Dan Smith, President and CEO, MariTEL, to Catherine W. Seidel, Deputy Chief, Wireless Telecommunications Bureau, FCC (*Frequency Coordinator Proposal*). On November 19, 2003, the Bureau issued a public notice requesting comment on the *Frequency Coordinator Proposal*. Wireless Telecommunications Bureau Seeks Comment on MariTEL, Inc. Proposal to Serve as Automatic Identification System (AIS) Frequency Coordinator, *Public Notice*, 18 FCC Rcd 24057 (WTB PSPWD 2003) (*Frequency Coordinator PN*). The second MariTEL proposal called for the sharing of Channels 87B and 88B, and was contingent on the Commission's adoption of certain restrictions on the use of AIS data and on its revision of the AIS equipment certification requirements. Letter dated Feb. 9, 2004 from Dan Smith, President and CEO, MariTEL, to Catherine W. Seidel, Deputy Chief, Wireless Telecommunications Bureau (*Sharing Proposal*). On February 13, 2004, the Bureau issued a public notice requesting comment on the *Sharing Proposal*. Wireless Telecommunications Bureau Seeks Comment on MariTEL, Inc. Proposal for Shared Use of Maritime VHF Channels 87B and 88B for Automatic Identification Systems, *Public Notice*, 19 FCC Rcd 2666 (WTB PSCID 2004). For a more detailed discussion of the proposals and arguments contained in these Coast Guard and MariTEL pleadings, see *AIS NPRM*, 19 FCC Rcd at 20081-84 ¶¶ 19-23.

<sup>45</sup> In simplex mode, the channel is used for one-way communications, so that one party only transmits on the channel and the other party only receives on the channel. By contrast, channels used in full-duplex mode allow transmissions to occur in two directions simultaneously, *i.e.*, both parties can communicate at once. (In half-duplex mode, both parties can transmit on the channel, but only one at a time.)

<sup>46</sup> See *AIS NPRM*, 19 FCC Rcd at 20088-89 ¶ 30.

<sup>47</sup> *Id.* at 20089 ¶ 31, 20094-99 ¶¶ 41-50.



Commission tentatively concluded, contrary to MariTEL's assertions, that "the proposed designation of Channels 87B and 88B for AIS should not have an adverse effect on MariTEL's use of its VPC channels to a materially greater extent, if at all, than would designation of narrowband offset channel pairs of the Commission's choosing."<sup>48</sup> The Commission also requested comment on its tentative conclusion that neither the MariTEL *Frequency Coordinator Proposal* nor the MariTEL *Sharing Proposal* would serve the public interest.<sup>49</sup>

### C. The AIS Equipment Certification Rules

10. As noted *supra*, the Commission addressed the issue of AIS equipment certification requirements in the *Sixth Report and Order* in PR Docket No. 92-257.<sup>50</sup> The Commission was aware at that time of MariTEL's termination of the MOA with the Coast Guard, and the emergence of the controversy regarding spectrum designated to be used for AIS in the United States.<sup>51</sup> The Commission determined in the *Sixth Report and Order* that, given the importance of AIS for homeland security and maritime safety, and the imminence of SOLAS and Coast Guard deadlines for AIS carriage, the domestic deployment of AIS should not come to a standstill pending resolution of those allocation issues in WT Docket No. 04-344.<sup>52</sup> The Commission accordingly promulgated rules for the certification of AIS equipment under Part 80, incorporating by reference the international standards for AIS equipment.<sup>53</sup>

11. MariTEL filed a timely petition for reconsideration of the decision in the *Sixth Report and Order* to adopt AIS equipment certification standards based on the international standards.<sup>54</sup> In its petition for reconsideration, MariTEL contends that the adopted AIS equipment certification requirements will have a "devastating impact" on MariTEL for two reasons.<sup>55</sup> First, MariTEL claims that the international AIS emission mask standards are not as stringent as U.S. emission mask standards.<sup>56</sup> Second, and in MariTEL's view more importantly, the international standards for measuring compliance with the international emission mask are flawed.<sup>57</sup> MariTEL concludes that, as a consequence, "operation of AIS equipment that successfully complies with the certification process will nonetheless cause harmful interference to MariTEL's operations because of a lack of compliance with the FCC's emission mask requirements (which, in turn, are more lax than U.S. standards applicable for other maritime data

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<sup>48</sup> *Id.* at 20094 ¶ 41.

<sup>49</sup> *Id.* at 20099-105 ¶ 51-61.

<sup>50</sup> *See Sixth Report and Order*, 19 FCC Rcd at 3155-56 ¶ 67.

<sup>51</sup> *See id.* at 3154 ¶ 64.

<sup>52</sup> *Id.* at 3155 ¶ 67.

<sup>53</sup> *Id.* The international AIS equipment standards are incorporated by reference in Section 80.1101(c)(12) of the Commission's Rules, 47 C.F.R. § 80.1101(c)(12). The rules governing the process for obtaining AIS equipment certification are codified in Section 80.275, 47 C.F.R. § 80.275.

<sup>54</sup> MariTEL, Inc. Petition for Reconsideration (filed Dec. 8, 2004, as amended April 12, 2005) (MariTEL PFR). NTIA filed an Opposition to the MariTEL PFR on April 28, 2005 (NTIA Opposition), and MariTEL filed a Reply to the NTIA Opposition on May 9, 2005 (MariTEL Reply).

<sup>55</sup> MariTEL PFR at 3.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* MariTEL explains that "equipment may appear to satisfy the test process, but still not comply with the emission mask limits."

applications to begin with).”<sup>58</sup> NTIA opposed the MariTEL PFR on several grounds, challenging MariTEL’s technical arguments, including MariTEL’s assertion that the international emission mask associated with AIS equipment is not as stringent as the Commission’s Part 80 emission mask for similar devices.<sup>59</sup> NTIA argues that the Commission appropriately recognized that the Part 80 AIS equipment certification rules must be based on the international standards in order to achieve seamless operation.<sup>60</sup>

### III. REPORT AND ORDER

#### A. The Need to Revisit the AIS Channel Allocation

12. Upon review of the record before us, we continue to believe that changed circumstances since the 1998 adoption of the *Public Coast Third Report and Order* warrant a reappraisal of Section 80.371(c)(3). Section 80.371(c)(3) currently provides that two narrowband channel pairs in the VPC frequency band should be designated for AIS in the United States, as selected, if possible, through negotiations between the Coast Guard and the maritime VPCSA licensees.<sup>61</sup> MariTEL argues that the Commission should leave Section 80.371(c)(3) unchanged and require the Coast Guard to again negotiate in good faith with MariTEL regarding the designation of AIS channels.<sup>62</sup> In this regard, MariTEL predicts that “[i]f the FCC is engaged in the negotiation process, and prohibits the use of Channel 87B for AIS until the parties reach an agreement, there will be a better result than that which resulted in termination of the MOA.”<sup>63</sup> We disagree.

13. Based on the record before us, particularly the history of the negotiations between the parties, we do not share MariTEL’s confidence that further negotiation between the Coast Guard and MariTEL on this matter would be productive. For example, the ultimate failure of the earlier negotiations between the Coast Guard and MariTEL to produce a lasting agreement on the set-aside of channels for AIS counsels against continued reliance on a negotiated resolution. In addition, the positions staked out by the parties in the context of this rulemaking proceeding, and the Coast Guard’s clear disinclination to undertake another round of negotiations with MariTEL, strongly suggest that additional negotiations would likely be fruitless. Moreover, MariTEL does not explain, and we cannot discern, how the Commission could become more “engaged” in the negotiation process in a manner that would improve the chances of success.

14. Even if we shared MariTEL’s confidence that mandating further negotiations could ultimately result in a satisfactory resolution of the AIS set-aside question, we remain unpersuaded, based on the record, that such approach would further the public interest. At the very least, any additional negotiations most likely would be protracted, leaving the maritime community uncertain during the interim as to which channels finally will be designated for AIS. This uncertainty, in turn, could slow

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<sup>58</sup> *Id.* at 3-4. In support of these assertions, MariTEL appended to the MariTEL PFR an Exhibit A, “Comparison of TX Emissions vs. FCC AIS Emissions Mask” for two AIS devices that tested as compliant with the international emission mask. MariTEL’s April 12, 2005 amendment of the PFR corrects certain data in Exhibit A, but does not alter MariTEL’s conclusion that the results of the certification process are unreliable. MariTEL, Inc., Amendment to Petition for Reconsideration of MariTEL, Inc. (filed April 12, 2005).

<sup>59</sup> NTIA Opposition at 3-5.

<sup>60</sup> *Id.* at 1-2.

<sup>61</sup> See *AIS NPRM*, 19 FCC Rcd at 20091-92 ¶ 35.

<sup>62</sup> MariTEL Comments at 35. Appendix A lists the commenters in the present proceedings, and the acronyms or abbreviations used to refer to them herein.

<sup>63</sup> *Id.*

down the deployment of AIS and discourage voluntary carriage of AIS equipment by vessels that are not required by law to carry such equipment. In adopting Section 80.371(c)(3), the Commission contemplated a period of no more than eighteen months following the close of Auction No. 20 for a negotiated designation of AIS channels, with the Commission retaining authority to itself designate AIS channels, upon Coast Guard request, after the expiration of that eighteen-month period.<sup>64</sup> It is now more than seven years since the close of Auction No. 20,<sup>65</sup> well past the time when the Commission initially anticipated there would be a settled designation of AIS channels, whether by negotiation or otherwise. In light of the recognition of AIS as an effective tool in support of homeland security, we are unwilling to call for another round of potentially protracted and unpromising negotiations at this late stage. Finally, as the Commission stated in the *AIS NPRM*, “a resolution premised on a new MOA between the parties would still leave open the possibility that either party would terminate that future MOA, returning us to the present predicament.”<sup>66</sup> The uncertainty engendered by that possibility could likewise have an inhibitory effect on AIS implementation in the United States. In sum, we agree with those commenters who assert that, at this juncture, the public interest would be served by Commission designation of specific channels for AIS, rather than reliance on additional negotiations, so that all parties may move forward with clear guidance as to the Commission’s AIS requirements.<sup>67</sup>

15. In addition, we affirm the Commission’s tentative conclusion in the *AIS NPRM* that other developments since 1998 merit revisiting the question of an AIS spectrum allocation, so as to include consideration of options other than the designation of two narrowband duplex channel pairs for AIS.<sup>68</sup> The events of September 11, 2001, underscore the need to implement a robust and widespread AIS network within the United States to maximize the usefulness of AIS for maritime domain awareness and to eliminate any AIS vulnerabilities or coverage gaps that might permit incipient terrorist activity in the Nation’s waterways and/or ports to escape detection.<sup>69</sup> In 1998, when AIS was viewed primarily as a tool for navigational safety, narrowband channels for AIS were deemed sufficient.<sup>70</sup> NTIA reports, however, that more recent test results demonstrate that AIS units operating in the narrowband mode have reduced sensitivity and frequency modulation discrimination capacity compared to those operating in the wideband mode.<sup>71</sup> NTIA also notes the subsequent development of Class B AIS devices, which are designed to be low-cost devices that may be installed voluntarily in recreational boats and other vessels not subject to mandatory AIS carriage. NTIA states that, in order to keep costs low, Class B AIS devices are being designed to operate solely in simplex mode, which requires that Class A AIS devices<sup>72</sup> and AIS

<sup>64</sup> Section 80.371(c)(3) provides that within six months of the conclusion of the competitive bidding procedures to determine the VPCSA licensees, the Coast Guard shall submit to each of the maritime VPCSA licensees a plan specifying up to two narrowband offset channel pairs for use in the Coast Guard’s Ports and Waterways Safety System (PAWSS), and further provides that if no agreement is reached within one year after the Coast Guard submitted its plans, the Coast Guard may petition the Commission to select the channels. See 47 C.F.R. § 80.371(c)(3).

<sup>65</sup> Auction No. 20 closed on December 14, 1998. See *Auction Closing PN*, 14 FCC Rcd 480.

<sup>66</sup> *AIS NPRM*, 19 FCC Rcd at 20093 ¶ 39.

<sup>67</sup> See NTIA Comments at 8; RTCM Comments at 2; MEPS Comments at 1; NPMRC Comments at 1.

<sup>68</sup> See *AIS NPRM*, 19 FCC Rcd at 20091-92 ¶ 35.

<sup>69</sup> See *id.* at 20092 ¶ 35; NTIA Comments at 3-4.

<sup>70</sup> See *AIS NPRM*, 19 FCC Rcd at 20092 ¶ 35.

<sup>71</sup> NTIA Comments at 4, 9-10. “As a result,” NTIA explains, “AIS signal detection [in narrowband mode] is limited at long distances and in the presence of multiple AIS transmissions at shorter distances.” *Id.* at 4.

<sup>72</sup> Class A AIS devices are those currently certified by the Commission for compliance with international and Coast Guard carriage requirements, whereas Class B AIS devices, which have somewhat reduced functionality vis-à-vis  
(continued...)

shore stations also be capable of operating in simplex mode in order to communicate with Class B devices for purposes of navigational safety as well as maritime domain awareness.<sup>73</sup> Other circumstances militating in favor of revisiting the AIS allocation are, as noted by the Commission in the *AIS NPRM*, the adoption of Channels 87B and 88B for simplex wideband AIS operations by virtually the entire international maritime community,<sup>74</sup> and the reduction in the number of site-based incumbent VPC licensees operating on those channels, solicitude for which was a key consideration in the Commission's determination in 1998 to avoid the designation of Channel 87B for AIS.<sup>75</sup>

16. MariTEL takes issue with the Commission's conclusion that changed circumstances warrant revisiting the Commission's earlier decisions regarding the designation of specific channels for AIS.<sup>76</sup> In MariTEL's view, the only relevant changed circumstances are matters that were entirely under the control of the Coast Guard.<sup>77</sup> MariTEL says that the limitations of narrowband AIS channels at long distances were well known prior to the VPC auction, and could have been taken into account by the Coast Guard in assessing its needs for AIS spectrum during the 1998 rulemaking.<sup>78</sup> MariTEL also asserts that the introduction of Class B AIS devices does not justify revisiting Section 80.371(c)(3), terming NTIA's argument on this score "a self-fulfilling prophecy."<sup>79</sup> According to MariTEL, the Coast Guard could have prevented international organizations from adopting specifications for Class B AIS devices that rely on wideband simplex operations.<sup>80</sup> Consequently, MariTEL contends that accommodation of Class B devices should not be deemed a sufficient basis for us to change our approach.

17. We disagree. Even if we were to accept MariTEL's assertions that some of the reasons advanced by NTIA for revisiting the designation of AIS channels could have been avoided if NTIA or the Coast Guard had acted differently in the past, this would not alter our conclusion that changed circumstances warrant such a reappraisal. Whatever significance MariTEL's assertions, if valid, might have in other contexts where the allocation of responsibility for past events might be relevant, they are not

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Class A devices, are intended primarily for voluntary carriage by recreational and other non-compulsory vessels. In the *Further Notice*, we request comment on whether the Commission should amend the Part 80 rules to incorporate by reference the international standard, IEC 62287-1, for purposes of certifying Class B AIS equipment.

<sup>73</sup> *Id.* at 5.

<sup>74</sup> *AIS NPRM*, 19 FCC Rcd at 20092 ¶ 35. In 1998, it appeared possible that other nations might also opt out of the international standard, and designate channels other than 87B and 88B for AIS in their territorial waters. That has not occurred. Thus, "if the United States employs channels other than Channels 87B and 88B for AIS, it will be departing from the approach adopted by the rest of the international maritime community almost without exception." *Id.*

<sup>75</sup> *Id.* In 1998, there were thirty-four U.S. public coast stations licensed to operate on Channel 87. See *Public Coast Third Report and Order*, 13 FCC Rcd at 19876 ¶ 48. At present, there are only six such stations. See para. 53 & n.268, *infra*.

<sup>76</sup> MariTEL Comments at 10-12.

<sup>77</sup> *Id.* at 12-13; MariTEL Reply Comments at 4-6.

<sup>78</sup> MariTEL Reply Comments at 4. MariTEL further contends that NTIA's allegedly belated focus on the shortcomings of narrowband AIS evinces a change in the Coast Guard's mission, and underscores that the Commission's current AIS proposal, rather than intended to replicate the obligations imposed on maritime VPCSA licensees in the *Public Coast Third Report and Order*, is "designed to satisfy a completely different need now identified by the USCG." *Id.*

<sup>79</sup> *Id.* at 6.

<sup>80</sup> *Id.*

persuasive with respect to what measures we should take in furtherance of homeland security on a going-forward basis. In any event, even MariTEL says that it “does not dispute that use of wideband simplex channels may allow the USCG to better perform marine domain awareness functions.”<sup>81</sup> We conclude that there is a compelling basis to at least revisit the question of the AIS set-aside and to determine, in light of present circumstances, whether we should depart from the approach taken in 1998, including consideration of wideband simplex channels for AIS.

## B. Designation of Channels 87B and 88B for AIS

18. Based on the record before us, we also affirm the Commission’s tentative conclusion that, in light of current circumstances, the public interest would be served by designating Channel 87B for exclusive AIS use on a wideband simplex basis. Such an approach would result in both Channel 87B and the Federal Government Channel 88B being available for AIS use in U.S. territorial waters, just as they are used for that purpose internationally. Most commenters continue to favor this approach.<sup>82</sup> However, MariTEL and a few other commenters, including ShipCom, the lone site-based incumbent VPC licensee to file comments in response to the *AIS NPRM*,<sup>83</sup> oppose the designation of Channel 87B for AIS in the wideband simplex mode.<sup>84</sup> These commenters contend that the use of duplex channels for AIS in the United States is technically feasible and should be preferred over wideband simplex AIS operation on Channel 87B because it would cause less disruption to existing VPC operations,<sup>85</sup> preserve the efficiency benefits of duplex channelization throughout the VPC band,<sup>86</sup> maximize the spectrum available for VPC communications,<sup>87</sup> facilitate the implementation of wide-area VPC systems,<sup>88</sup> reduce coordination requirements,<sup>89</sup> permit VPC licensees to make full use of Channel 87,<sup>90</sup> and minimize AIS interference to

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<sup>81</sup> *Id.* at 3. MariTEL adds, “However, ... the FCC must weigh these considerations against other means by which AIS can be introduced, then the FCC must take the correct procedural measures to modify MariTEL’s license, enact measures that will protect MariTEL from harmful interference, and/or compensate MariTEL for the loss of the capacity it acquired at auction.” *Id.*

<sup>82</sup> See NTIA Comments at 2, 5-6; NTIA Reply Comments at 4-5; Task Force Comments at 2; RTCM Comments at 2-3; Ingram Barge Comments at 3-4; MEPS Comments at 1; Nauticast Comments at 3; NPMRC Comments at 1; ORBCOMM Reply Comments at 1.

<sup>83</sup> ShipCom is the licensee of eight site-based VPC stations, including one, Station WRD704, Mobile, Alabama, that is licensed to operate on Channel 87.

<sup>84</sup> See MariTEL Comments at 4; MariTEL Reply Comments at 1-2; IP MobileNet Comments at 2; RF Neulink Comments at 1; ShipCom Comments at 1.

<sup>85</sup> MariTEL Comments at 9; IP MobileNet Comments at 2.

<sup>86</sup> MariTEL Comments at 6-7; *cf.* ShipCom Comments at 3 (favoring designation of narrowband duplex channels for AIS to “preserve the inherent duplex nature of VPC spectrum ...”).

<sup>87</sup> MariTEL Comments at 7-9. MariTEL states that adoption of the Commission’s proposal would effectively eliminate one wideband duplex channel for use with traditional marine VHF radios. *Id.* at 7. It says that setting aside two narrowband duplex channels for AIS would leave it with nine wideband and fifteen narrowband channels, a total of twenty-four, whereas setting aside one wideband simplex channel for AIS would leave it with eight wideband and fourteen narrowband channels, for a total of twenty-two. *Id.* at 10. The Commission recognized in the *Public Coast Third Report and Order* that the designation of Channel 87B for AIS would encumber one additional wideband channel and one additional narrowband channel vis-à-vis the designation of narrowband channels. *Public Coast Third Report and Order*, 13 FCC Rcd at 19876 ¶ 48.

<sup>88</sup> MariTEL Comments at 11-12.

<sup>89</sup> *Id.* at 9.

and from VPC operations.<sup>91</sup> These comments focus primarily on the comparative impact on VPC operations of the various AIS channel designation options,<sup>92</sup> but we believe it is at least as important, if not more so, to consider the impact our decisions herein will have on AIS, a service specifically intended to enhance maritime domain awareness and navigational safety.<sup>93</sup> As ORBCOMM notes, “AIS will assist the Coast Guard in saving lives, assisting people in distress, interdicting illegal immigrants and illicit drugs, responding to spills and inspecting foreign vessels.”<sup>94</sup>

19. In the *AIS NPRM*, the Commission offered a number of reasons why it believed that the

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<sup>90</sup> MariTEL contends that Channel 87 is a uniquely valuable spectrum asset because, *inter alia*, “it permits licensees to employ two internationally interoperable technologies: one that can be used by traditional marine VHF radios operating on duplex channel 87 and AIS transponders that operate in the default mode on channel 87B.” MariTEL Comments at 6; *see also* Shipcom Comments at 3 (asserting that Channel 87 is uniquely valuable because it is an internationally interoperable maritime channel capable of being used with marine VHF radios, AIS transponders, and new maritime technologies that may be developed in the future). MariTEL adds that it submitted its bids for the maritime VPCSA licenses with the expectation that it would have use of Channel 87 because the Commission had specifically declined to designate Channel 87B for AIS in the *Public Coast Third Report and Order*. MariTEL Comments at 6, *citing Public Coast Third Report and Order*, 13 FCC Rcd at 19876-77 ¶ 48.

<sup>91</sup> MariTEL Comments at 29-35; MariTEL Reply Comments at 1-2; IP MobileNet Comments at 2; RF Neulink Comments at 1; ShipCom Comments at 2; ShipCom Reply Comments at 2. We address the interference issues surrounding wideband simplex use of Channel 87B for AIS in paras. 25-35, *infra*.

<sup>92</sup> *But see* MariTEL Comments at 10-11 (contending that use of duplex channels for AIS would provide the Coast Guard with greater capacity in PAWSS Vessel Traffic Services (VTS) areas and would provide vessel operators with the benefits of wide-area AIS; that continued adherence to Section 80.371(c)(3) as it now exists would still permit Channel 88B to serve as a ship-to-ship AIS channel in both domestic and international waters, and therefore would not compromise vessel safety or homeland security; and that this approach would allow superior monitoring of international AIS-equipped vessels further off-shore by directing vessels in U.S. territorial waters to another AIS channel).

<sup>93</sup> *See USCG Prepared Statement*, n.8, *supra*, at 2, for an overview of the scope of the challenge facing the United States in maintaining maritime domain awareness. It is noted there that:

- Over ninety-five percent of overseas trade enters through U.S. seaports;
- Our seaports account for two billion tons and \$800 billion of domestic and international freight each year;
- Each year approximately nine million sea containers enter the U.S. via our seaports;
- The U.S. has 26,000 miles of commercially navigable waterways serving 361 U.S. ports;
- Many ports and waterways have strategic military value;
- There are seaborne shipments of approximately 3.3 billion barrels of oil each year;
- Six million cruise ship passengers travel each year from U.S. ports;
- Ferry systems transport 180 million passengers annually;
- Waterways support 110,000 commercial fishing vessels, contributing \$111 billion to state economies;
- 78 million Americans engage in recreational boating;
- Some 8,100 foreign vessels make 50,000 U.S. port calls each year; and
- Domestic and international trade is expected to double in the next twenty years.

<sup>94</sup> ORBCOMM Reply Comments at 3.

designation of Channel 87B for domestic AIS use on a wideband simplex basis would best promote the widespread, efficient and effective use of AIS, and thus the public interest in promoting and enhancing homeland security and maritime safety.<sup>95</sup> Neither the comments to the *AIS NPRM* nor anything else in the record of this proceeding undermine the Commission's tentative conclusion that it would serve the public interest to designate Channel 87B for wideband simplex AIS use in the United States. Of critical importance, adoption of the Commission's proposal permits seamless worldwide AIS operations.<sup>96</sup> As NTIA notes, use of Channels 87B and 88B for AIS communications in U.S. territorial waters will facilitate Coast Guard coordination with other nations in tracking and monitoring vessels.<sup>97</sup>

20. In addition, we remain concerned about the negative consequences that would arise if we do not designate Channel 87B for AIS use in the United States, because vessels on international voyages would have to switch from Channel 87B to other channels when entering U.S. territorial waters.<sup>98</sup> As the Commission explained in the *AIS NPRM*, requiring vessels to switch channels as they transit an AIS "fence" between international and U.S. waters would create a risk that AIS tracking of such vessels, by both shore stations and other ship stations, would be interrupted.<sup>99</sup> This temporary disappearance of vessels from AIS screens as they transit the AIS fence increases the risk of vessel collisions and creates a potential vulnerability in the Nation's maritime domain awareness.<sup>100</sup> MariTEL concedes that the resultant need of vessels to switch channels when entering U.S. waters could be "problematic," but argues that it should not preclude use of duplex channels for AIS in the United States.<sup>101</sup> We continue to believe that the potential risks of "losing" vessels from AIS screens when they first enter U.S. territorial waters, especially in busy maritime areas where port security is critical, is a significant factor disfavoring the use of channels other than Channel 87B for AIS in the United States,<sup>102</sup> even if, as MariTEL speculates, foreign vessels would eventually "become accustomed to switching to the U.S. AIS channels when they

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<sup>95</sup> See *AIS NPRM*, 19 FCC Rcd at 20092-93 ¶¶ 37-38.

<sup>96</sup> *Id.* at 20092-93 ¶ 37.

<sup>97</sup> See NTIA Comments at 6; see also ORBCOMM Reply Comments at 1. NTIA says, "Seamless operation of AIS is essential to permit the United States to work with the international community to ensure maritime domain awareness. The world's oceans are global thoroughfares. A cooperative, international approach involving partnerships of nations, navies, coast guards, law enforcement agencies, and commercial shipping interests is essential – with all parties collaborating to confront broadly defined threats to our common and interdependent maritime security." NTIA Reply Comments at 4. We note that the United States and Canada jointly oversee AIS in the Saint Lawrence Seaway, where an AIS system using Channel 87B has been deployed. See 33 C.F.R. § 401.20 (establishing AIS requirements for vessels transiting the Saint Lawrence Seaway).

<sup>98</sup> U.S. territorial waters extend twelve nautical miles from shore. See Presidential Proclamation No. 5928, 54 Fed. Reg. 777 (1988); 50 U.S.C. § 195(2).

<sup>99</sup> See *AIS NPRM*, 19 FCC Rcd at 2009293 ¶ 38.

<sup>100</sup> *Id.*; NTIA Comments at 6; NTIA Reply Comments at 4-5; RTCM Comments at 2; see also NPMRC Comments at 1 (claiming that "it is important for navigational safety reasons to avoid the need for channel switching in the shared waterways of the Strait of Juan de Fuca, Haro Strait and Boundary Passage and adjacent waters"). RTCM says, "Although the AIS system is designed to cope with alternate channels, we believe that it is in the best interests of safety and security ... to use the internationally allocated channels for this purpose. This will simplify AIS in the U.S. and allow the seamless operation of AIS internationally, by eliminating the need for ships to change their AIS frequencies as they enter and depart U.S. waters, and by avoiding the establishment of transitional zones where ships might be operating on different AIS frequencies. Operational complexities in transitional zones increase the possibility of errors with potential serious consequences." RTCM Comments at 2.

<sup>101</sup> MariTEL Reply Comments at 14

<sup>102</sup> See *AIS NPRM*, 19 FCC Rcd at 20093 ¶ 37.

approach U.S. waters.”<sup>103</sup>

21. Further, the record is devoid of any party disputing the Commission’s determination in the *AIS NPRM* that “domestic use of Channels 87B and 88B for AIS would facilitate the speedy and efficient deployment of AIS, allowing the United States to take full advantage of existing AIS standards and infrastructure.”<sup>104</sup> Technical standards have been established, and equipment has been built and installed, domestically and internationally, for AIS operation on Channels 87B and 88B. We are concerned that our designation of narrowband duplex channels for domestic AIS use could preclude reliance on those prior standards-setting efforts, and necessitate further technical analysis and changes in equipment design, and possibly even a more extensive AIS shore infrastructure, to accommodate a unique AIS channelization scheme in the United States and the attendant need to switch AIS channels when entering U.S. waters.<sup>105</sup> In addition to impeding AIS deployment in the United States as a general matter, such an approach also could discourage voluntary AIS carriage by, for example, recreational boaters, due to higher equipment costs.<sup>106</sup> Moreover, we believe, under the circumstances presented, that it is reasonable to consider, as part of our public interest analysis, the economic impact of a duplex approach on equipment manufacturers, ship station licensees and other stakeholders in the maritime community who have designed, manufactured, installed or are using (in most cases to comply with a statutory carriage requirement) AIS devices that operate on Channels 87B and 88B on a wideband simplex basis in reliance on the ITU standards. In this connection, we note that those standards have been in existence for several years, have been adopted for use not only in international waters but in the territorial waters of other nations, and are the only standards that have received any widespread acceptance.

22. Further, and as noted *supra*, AIS operation on wideband channels will provide for effective AIS coverage at greater distances due to improved receiver sensitivity and frequency modulation discrimination capacity.<sup>107</sup> In addition, requiring AIS shore station equipment and Class A AIS ship station equipment to operate in wideband mode will ensure the interoperability of such equipment with Class B devices.<sup>108</sup> Although MariTEL correctly notes the inherent efficiency benefits of duplex channelization, we agree with NTIA that, under the circumstances presented, authorizing the use of Channel 87B on a simplex basis will, on balance, permit the establishment of more robust and effective AIS tracking capability in U.S. waters.

23. In sum, we believe that AIS is an important tool for combating terrorism and a significant advancement in maritime navigation technology. Based on the record before us, we are persuaded that our promotion and facilitation of AIS deployment will save lives, strengthen the integrity of our borders, protect port operations that are vital to the United States economy, and promote a healthy and secure marine environment. Given the importance of AIS to homeland security and maritime safety, we also believe that, absent compelling reasons, the Commission should adopt rules that will best ensure that AIS is deployed widely, quickly, reliably, and cost-effectively, and in a manner that will maximize its capabilities. On the basis of this record, we believe that this goal can be most readily and best achieved

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<sup>103</sup> MariTEL Reply Comments at 14.

<sup>104</sup> *AIS NPRM*, 19 FCC Rcd at 20093 ¶ 38.

<sup>105</sup> *See id.*

<sup>106</sup> *See id.* As the Commission also noted in the *AIS NPRM*, avoiding disincentives to voluntary AIS carriage is an important consideration because “[t]he effectiveness of AIS as a tool in service of maritime safety and homeland security is directly proportional to the percentage of vessels that operate with AIS.” *Id.* at 20101 ¶ 55.

<sup>107</sup> *See* para. 15, *supra*.

<sup>108</sup> *Id.*; NTIA Comments at 9.



by designating Channel 87B to be used for AIS on a wideband simplex basis. We therefore amend our rules as proposed, and designate Channels 87B and 88B for exclusive AIS use.

24. In addition, we adopt our proposal in the *AIS NPRM* to delete note US223 from the Table of Frequency Allocations if Channels 87B and 88B are designated for exclusive AIS use.<sup>109</sup> Note US223 permits the authorization of maritime public correspondence operations on Channel 88 in specified areas within seventy-five miles of the Canadian border.<sup>110</sup> Most of the commenters addressing this issue agree that it is no longer necessary to retain note US223 once Channel 88B has been designated exclusively for AIS in the maritime VPCSA, inasmuch as VPCSA 1, 5 and 7 completely encompass the areas identified in note US223.<sup>111</sup> We are not persuaded by MariTEL's argument that elimination of note US223 is inconsistent with MariTEL's retention of authority to use Channel 88.<sup>112</sup> Under the rules we adopt herein, MariTEL may use only the A side of Channel 88 for public correspondence operations, and it is unnecessary to retain note US223 to authorize such operations since Channel 88A (157.425 MHz) is allocated for non-Federal Government maritime mobile use on a primary basis.<sup>113</sup> We therefore delete note US223 as proposed. Finally, we agree with MariTEL that we should modify the table in Section 80.371(c) of the Commission's Rules<sup>114</sup> only to reflect that Channels 87 and 88 may be used for radiotelephony in simplex mode, in keeping with the Commission's proposal in the *AIS NPRM*, rather than completely delete Channels 87 and 88 from the table.<sup>115</sup> The Commission invited comment on the latter option as an alternative to its proposed amendment.<sup>116</sup> MariTEL, the only commenter addressing this precise issue, correctly observes that eliminating Channels 87 and 88 from the table would be inconsistent with the fact that Channel 87A and, subject to the aforementioned limitations, Channel 88A can still be used for VPC service.<sup>117</sup>

### C. AIS/VPC Interference

25. As it has throughout this proceeding, MariTEL argues that authorizing the use of Channel 87B for AIS on a wideband simplex basis would cause devastating interference to adjacent channel VPC operations, and would effectively preclude MariTEL from making commercially reasonable use of any of

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<sup>109</sup> *AIS NPRM*, 19 FCC Rcd at 20094 ¶ 40.

<sup>110</sup> 47 C.F.R. § 2.106 n.US223.

<sup>111</sup> See RTCM Comments at 2-3; MEPS Comments at 1; NPMRC Comments at 1.

<sup>112</sup> See MariTEL Comments at 19. MariTEL notes that the Commission observed in the *AIS NPRM* that it did not anticipate that NTIA would unreasonably refuse to coordinate public correspondence operations on Channel 88B. *Id.*, citing *AIS NPRM* at n.131. This statement, of course, was made prior to a final Commission determination as to the designation of channels for AIS. After the rules we adopt herein take effect, public correspondence operations will be prohibited on Channels 87B and 88B in the maritime VPCSA. Thus, there is no longer any need to retain footnote US223 with respect to public correspondence use of Channel 88B, inasmuch as the Commission's rules no longer permit such operations in the specified areas, whether or not coordinated.

<sup>113</sup> As the Commission noted in the *Memorandum Opinion and Order* in WT Docket No. 04-344, Canada may opt to refuse to coordinate any public correspondence operations above Line A on Channel 88A as well as on Channel 88B due to nonconformity with Canada's intended use of the channel. See *AIS NPRM*, 19 FCC Rcd at 20087 n.127, citing Canadian Embassy Comments at 2-3.

<sup>114</sup> 47 C.F.R. § 80.371(c).

<sup>115</sup> See *AIS NPRM*, 19 FCC Rcd at 20107-08 ¶ 66; MariTEL Comments at 41.

<sup>116</sup> *Id.* at 20108 ¶ 66.

<sup>117</sup> MariTEL Comments at 41.

the VPC spectrum it acquired in Auction No. 20.<sup>118</sup> MariTEL contends that, if the Commission so designates Channel 87B for AIS, it must take action to protect MariTEL from such interference or must compensate MariTEL for the loss of its ability to use its licensed VPC channels.

26. In the *AIS NPRM*, the Commission tentatively concluded that adoption of the Commission's proposal "should not have an adverse impact on MariTEL's use of its VPC channels to a materially greater extent, if at all, than would designation of two narrowband offset channel pairs of the Commission's choosing."<sup>119</sup> The Commission reviewed two interference analyses submitted into the record of this proceeding. One analysis, submitted by MariTEL, was prepared by inCode Telecom Group, Inc. (the inCode Report),<sup>120</sup> and the other, submitted by NTIA, was prepared by the Department of Defense Joint Spectrum Center (the JSC Report).<sup>121</sup> MariTEL and others criticize the Commission's comparative evaluation of the two reports, and argue that the Commission's tentative conclusions grossly understate, and even trivialize, the interference ramifications of wideband simplex AIS operations in the VPC band, as well as the difficulties in overcoming such interference.<sup>122</sup> These commenters argue that

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<sup>118</sup> See, e.g., MariTEL Comments at 2-4, 19-26, 28-31; MariTEL Reply Comments at 7-11. We find that the current record does not provide any basis for adopting measures to protect AIS communications from interference. NTIA contends that the issue of VPC-to-AIS interference is not ripe for resolution, and so does not recommend the adoption of any rules to address such interference. See NTIA Comments at 14. However, in an *ex parte* presentation submitted into the record of this proceeding after the close of the pleading cycle, MariTEL asserts that radiofrequency (RF) modeling does project such interference will be caused to AIS operations by adjacent channel VPC operations. MariTEL May 31 *ex parte* Presentation at 2. MariTEL says that while this is the Coast Guard's concern, and not MariTEL's, it wishes for this issue to be fully addressed now so that the Coast Guard or NTIA "cannot later claim that more of MariTEL's channels should be dedicated for AIS operations, either for operational or guardband purposes." *Id.* at 3. In view of the sparseness of the existing record regarding VPC-to-AIS interference, and the speculative nature of MariTEL's concerns, we believe it would be premature to address this issue at this time.

<sup>119</sup> *AIS NPRM*, 19 FCC Rcd at 20094 ¶ 41. In the *AIS NPRM*, the Commission noted that Section 80.371(c)(3), 47 C.F.R. § 80.371(c)(3), currently requires maritime VPCSA licensees to set aside up to two narrowband duplex channel pairs, *i.e.*, a total of four 12.5 kHz channels, for AIS, resulting in an aggregate of 50 kilohertz of spectrum to be designated for AIS, whereas the Commission's proposal essentially contemplates only that a single 25 kHz channel – Channel 87B – be designated for that purpose, given that NTIA already has determined to designate Channel 88B for AIS. *Id.* at 20090-91 ¶ 33. The Commission added, however, that it did not "intend to suggest that the relative impact of the proposed AIS set-aside on MariTEL's operations vis-à-vis a set-aside of two narrowband channel pairs can be determined conclusively by simply looking to the total amount of spectrum involved in each alternative." *Id.* at 20091 ¶ 33. We agree with MariTEL that a simple comparison of the spectrum amounts involved in the alternative proposals is not a useful tool in assessing the relative impact on MariTEL of an AIS designation of four narrowband duplex channels versus one wideband simplex channel. See MariTEL Comments at 5. No other commenter suggests otherwise. We therefore do not accord significant decisional weight to a comparison of the quantity of spectrum to be designated for AIS in each of the alternative approaches under discussion.

<sup>120</sup> "Interference Considerations of Simplex Operation 1371 AIS Technologies With Respect to MariTEL's Spectrum," inCode Telecom Group, Inc. (October 2003) (inCode Report). In addition, MariTEL has discussed the commercial ramifications of AIS interference in several *ex parte* presentations, all of which have been incorporated into the record of this proceeding.

<sup>121</sup> "EMC Analysis of Universal Automatic Identification and Public Correspondence Systems in the Maritime VHF Band," Joint Spectrum Center, Department of Defense (February 2004) (JSC Report).

<sup>122</sup> See, e.g., MariTEL Comments at 19-20, 25-28; MariTEL Reply Comments at 7-11; RF Neulink Comments at 1-3. See also MariTEL Comments at 24 (asserting that the Commission is "insensitive" to the financial impact of its proposal on MariTEL). In addition, both MariTEL and RF Neulink fault the JSC Report for providing results primarily in terms of Bit-Error-Rate (BER), stating that the more meaningful metric for a data system is Packet-Error-Rate (PER). RF Neulink Comments at 2-3; MariTEL Comments at 26-28. MariTEL explains, "For a data  
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the inCode Report accurately demonstrates that wideband simplex AIS operations would cause a VPC data system in adjacent spectrum to suffer performance degradation of approximately fifty percent.<sup>123</sup> MariTEL also argues that IP MobileNet's separate analysis verifies that, even with state-of-the-art technology, MariTEL could not expect to utilize fifty percent of its licensed channels in close proximity to simplex AIS transmissions.<sup>124</sup>

27. These commenters also dispute the Commission's tentative conclusion in the *AIS NPRM* that the ability of MariTEL and other VPC licensees to incorporate forward error correction (FEC) coding and block interleaving techniques, as noted in the JSC Report, would enable them to operate in the presence of potential interference.<sup>125</sup> RF Neulink and MariTEL assert that FEC codes and block interleaving are not effective in mitigating interference from AIS.<sup>126</sup> RF Neulink offers two technical solutions that it believes would more effectively facilitate the use of Channels 87B and 88B for AIS use in the United States. Specifically, it recommends that the Commission (a) require that licensees with receivers using channels in close proximity to AIS transmitters install a filtering system or other measure to minimize the impact of high AIS power into the receiver; and (b) require that band-pass filters be installed on AIS transmitters to minimize the impact of spurious emissions on adjacent channel users.<sup>127</sup> In addition, RF Neulink includes in its comments a test report prepared by Dorr Engineering Services, Inc. (the DESI Report), which recommends, as a means to mitigate interference to VPC operations from AIS transmitters in close proximity, either (a) minimizing the AIS power input into the data receiver through antenna separation or filtering techniques, or (b) developing new unique technology that specifically mitigates the characteristics of AIS interference.<sup>128</sup>

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system, the use of an averaged BER is deceiving because AIS interference causes either 100% BER when transmitting or 0% BER when not transmitting. The resultant impact on data equipment is the loss of information when AIS is transmitting and conversely no loss of data when AIS is not transmitting. For these reasons, an averaged BER is not a good indicator of the impact of AIS interference to data systems." MariTEL Comments at 27.

<sup>123</sup> RF Neulink Comments at 2-3; MariTEL Comments at 25; MariTEL Reply Comments at 8. RF Neulink adds that its own testing demonstrates that there is an exponential benefit to data receiver performance when the AIS transmitter operates in duplex mode, as compared to simplex mode. RF Neulink Comments at 4.

<sup>124</sup> MariTEL Reply Comments at 7-8; *see also* MariTEL March 30 *ex parte* presentation (asserting, *inter alia*, that "AIS ... imposes a minimal 40-50% channel tax on VPC data operations").

<sup>125</sup> *See AIS NPRM*, 19 FCC Rcd at 20097 ¶ 47. The Commission also noted that AIS devices are subject to an emissions mask and an out-of-band emissions limitation significantly more stringent than the emissions profile for devices typically authorized under Part 80, thus reducing their potential for interference. *Id.* at 20097 n.191.

<sup>126</sup> RF Neulink Comments at 1-2; MariTEL Comments at 25; MariTEL Reply Comments at 8-9. RF Neulink says that the JSC Report overlooked the critical variables of transmitter noise and receiver desensitization in arriving at its conclusions regarding the efficacy of FEC coding and block interleaving, and that in fact "an AIS transmitter signal can overload the receiver front end, preventing data on the correct receive frequency from being correctly received regardless of FEC and block interleaving techniques." RF Neulink Comments at 2; *see also* MariTEL Comments at 26 n.70 (same).

<sup>127</sup> RF Neulink Comments at 4-5. According to RF Neulink, "This alternative solution is not without challenges, including the need for additional installation guidelines, coordination and the establishment of new requirements on users of channels in close proximity to AIS transmissions. This solution, however, can be readily implemented and is technically superior to the Commission's tentative conclusion suggesting other users of the maritime spectrum to [sic] adopt technology which has not been proven to prevent AIS interference." *Id.* at 5.

<sup>128</sup> *Id.* at 3. IP MobileNet "encourages the Commission to take every available measure to minimize the impact of AIS transmissions to users of adjacent channels in this band," and suggests that it consider for this purpose "a  
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28. In its comments appended to the NTIA Reply Comments, JSC addresses the criticisms of the JSC Report, and reaffirms its conclusions regarding AIS-to-VPC interference and the efficacy of the interference mitigation measures discussed therein.<sup>129</sup> JSC observes that the DESI Report model, unlike the JSC Report model, did not employ “erasure” technology, which JSC says is a common error correction technique.<sup>130</sup> It states that incorporation of erasure techniques would essentially double the robustness of a Reed Solomon (RS) code.<sup>131</sup> For example, the robustness of a (31,19) RS code with a depth of 16<sup>132</sup> would protect a receiver from an interferer burst of 16.33 to 32.65 milliseconds (ms)<sup>133</sup> if “soft decision” decoding, *i.e.*, erasure-capable decoding, is employed.<sup>134</sup> JSC adds that erasure capability “comes at the cost of a slightly more complex processor,” but can be implemented without an increase in bandwidth or delay.<sup>135</sup> According to NTIA, the JSC Response demonstrates that “a RS (31,19) code with an interleave depth of 16 codewords and employing a soft decision [decoding] process is more than adequate to correct the effects of both AIS transmissions and VPC signal fading.”<sup>136</sup>

29. MariTEL and NTIA also maintain their disagreement as to whether MariTEL would need to utilize special interference mitigation techniques in the VPC band even in the absence of wideband simplex AIS operations. Regarding that question, the Commission stated in the *AIS NPRM*, “It may add to MariTEL’s costs of doing business, but we do not think it is beyond the bounds of reasonableness, especially in a spectrum environment posing a significant interference challenge even in the absence of AIS, if MariTEL finds that it needs to incorporate state-of-the-art technology in order to operate at the

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flexible AIS channel plan” similar to that used in public safety radio systems, but does not elaborate further on this point. *See* IP MobileNet Comments at 2.

<sup>129</sup> NTIA Reply Comments, Attachment A, Enclosure 1 (Comments on Maritel, RF Neulink and Dorr Measurement Report) at 3-6 (JSC Response). At the outset, JSC rejects claims that the JSC study did not consider receiver desensitization in its model. It says that its model included gain reduction and cross-modulation effects resulting from the impact of an off-tune interference signal on a non-linear device (*e.g.*, amplifier or mixer), as well as pulse stretching effects caused by pulsed desensitization. *Id.* at 3; NTIA Reply Comments at 3.

<sup>130</sup> JSC Response at 4-5.

<sup>131</sup> *Id.* at 5, *citing* Michelson & Levesque, *Error Control Techniques for Digital Communication* at § 5.7 (John Wiley & Sons, Inc. 1985). Reed Solomon coding is a means of accomplishing FEC in order to compensate for error bursts created in data transmission. Specifically, Reed Solomon coding specifies a polynomial by plotting, or statistically sampling, a large number of points in a data block. This coding technique has been described as “a quantum leap in [FEC] technology, as it allows recovery of data even if multiple errors occurred in a single block . . . .” *See* Newton’s *Telecom Dictionary*, 20<sup>th</sup> Ed. at 691 (CMP Books 2004).

<sup>132</sup> Forward error correction involves sending data in groups of symbols called code words. The code words contain redundant symbols which aid the receiver in assembling the data information in the presence of interference. A Reed Solomon code of (31,19) with a depth of 16 contains 31 symbols, 19 of which are actual data. A depth of 16 means that 16 code words are transmitted together, also called an interleaving frame. In general, systems can tolerate longer interference pulses with longer interleaving frames. *See* JSC Response at 6.

<sup>133</sup> We note that the inCode Report used an AIS pulse of 26 ms for its tests. *See* inCode Report at 5. According to RF Neulink, AIS causes periodic interference “of a short duration (28 ms) and causes long-term discontinuity and disruption of the data stream. . . .” RF Neulink Comments at 1.

<sup>134</sup> JSC says that its test results would agree with those set forth in the DESI Report if hard decision decoding was used in the JSC model, but that the JSC analysis used soft decision decoding. JSC Response at 3

<sup>135</sup> *Id.* at 5.

<sup>136</sup> NTIA Reply Comments at 4.

minimum throughput levels it believes are essential for commercial success.”<sup>137</sup> MariTEL strongly disputes the notion that it should have anticipated a need to employ advanced technologies to overcome interference in the marine VHF environment, even if AIS did not operate on Channel 87B in wideband simplex mode.<sup>138</sup> MariTEL contends that NTIA’s claim that MariTEL would need to employ FEC codes and block interleaving in any event is ostensibly based on RTCM studies that do not in fact support that claim.<sup>139</sup> MariTEL also takes issue with the Commission’s tentative conclusion in the *AIS NPRM*<sup>140</sup> that it is not an unreasonable burden if MariTEL has to employ FEC codes and block interleaving for interference mitigation because these interference mitigation techniques are used by public safety entities in the land mobile radio services. MariTEL states that such techniques were not previously identified as necessary for maritime communications, even safety-related maritime communications,<sup>141</sup> and that to effectively force MariTEL to adopt such state-of-the-art wireless data technologies for its proposed maritime data system would be “unprecedented and, in any case, overly punitive.”<sup>142</sup> By contrast, NTIA continues to assert that in the normal maritime mobile RF environment, signals are subject to fading, thereby requiring FEC and interleaving to provide useful communications channels.<sup>143</sup> Therefore, NTIA posits, error correction is likely necessary even in the absence of AIS.<sup>144</sup> This and other interference effects were also alluded to in the inCode Report, which stated

Wireless data protocols are typically very sensitive to both environmental and electrical noise. The lab tests performed eliminated the environmental impacts and instead focus solely on the impact of AIS interference. Therefore, the results of [a] similar test in a real world environment may yield worse results.<sup>145</sup>

30. The record also reflects disagreement about the availability of equipment incorporating

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<sup>137</sup> *AIS NPRM*, 19 FCC Rcd at 20097 ¶ 47.

<sup>138</sup> MariTEL Comments at 20-21, 31.

<sup>139</sup> *Id.* The referenced studies are those that underlie RTCM Paper 87-99/SC117-STD (Oct. 10, 1999). In this connection, the Commission noted in the *AIS NPRM* that the RTCM SC117 standard applies only to voice, not data, communications. *AIS NPRM*, 19 FCC Rcd at 20096 n.187.

<sup>140</sup> *AIS NPRM*, 19 FCC Rcd at 20097 ¶ 47.

<sup>141</sup> *See* MariTEL Comments at 22. MariTEL says that international standards-setting bodies have specifically considered and rejected the use of FEC codes and block interleaving for the maritime environment. *Id.*, citing ITU-R M.1371-1 § 2.8.

<sup>142</sup> *Id.* at 23. MariTEL states that the introduction of simplex AIS technology in the VPC frequency band “creates an environment so harsh that coding and interleaving techniques would eliminate the potential use of many of MariTEL’s planned data services.” *Id.* at 25.

<sup>143</sup> NTIA Reply Comments at 2-3. The Coast Guard, in a letter appended to NTIA’s Reply Comments, claims that the challenges presented by AIS interference to and from VPC communications are similar to the challenges that were faced in addressing interference to and from maritime Digital Selective Calling (DSC) communications from other VHF shipboard radios. *See* NTIA Reply Comments, Attachment, Letter date-stamped Jan. 31, 2005, from Captain B. Judge, Chief, Office of Claims and Litigation, USCG, to Fredrick R. Wentland, Associate Administrator, Office of Spectrum Management, NTIA, at 1 (USCG Letter) (remarking that “[t]o alleviate the problem of interference to DSC, as well as to overcome fading, problems similar to the ones MariTEL faces, ITU specified [that] DSC include FEC using 50 ms interleaving”); *see also* NTIA Comments at 15 (stating that FEC and interleaving techniques “have become common practice in both the land mobile and maritime services (*e.g.*, Digital Selective Calling”).

<sup>144</sup> NTIA Reply Comments at 2-3.

<sup>145</sup> inCode Report at 7.

the identified interference mitigation techniques. MariTEL and ShipCom contend that there is no commercially available product that can prevent simplex AIS interference to VPC communications.<sup>146</sup> MariTEL has introduced into the record letters from RF Neulink and IP MobileNet pertaining to this question.<sup>147</sup> RF Neulink states in its letter that it is not aware of any commercial technology which uses erasure techniques with Reed Solomon coding.<sup>148</sup> It also states that erasure technology is not needed for public safety or commercial wireless data markets, and that its use as proposed by NTIA/USCG/JSC is “at best a speculative solution.”<sup>149</sup> However, RF Neulink does concede that such technology can be developed.<sup>150</sup> IP MobileNet states that its products incorporate FEC, but also states that erasure is not needed in the public safety environment.<sup>151</sup> It represents, however, that it is prepared to discuss the possibility of developing a data product incorporating FEC and interleaving.<sup>152</sup> In response, NTIA says that the NL 6000 system, which it asserts is a representative system that currently operates in the maritime environment, employs both FEC and interleaving, and that “[i]f these techniques were not necessary as MariTEL asserts, they would not be employed in the NL 6000 system.”<sup>153</sup>

31. In connection with its comments, ShipCom submitted a white paper that purports to show the impact of AIS emissions ten horizontal feet from other VHF simplex and duplex receivers.<sup>154</sup> It states that the Commission did not propose specific installation guidelines for separating AIS antennas from other VHF equipment, and that the Commission alluded to antenna separations as close as ten horizontal feet.<sup>155</sup> ShipCom states that this configuration exceeds the International Electrotechnical Commission (IEC)<sup>156</sup> Standard 1097-7 limits,<sup>157</sup> causing desensitization, intermodulation, and possibly permanent

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<sup>146</sup> MariTEL Comments at 26, 31-32; MariTEL Reply Comments at 9-10; ShipCom Reply Comments at 2.

<sup>147</sup> See Letter dated Apr. 11, 2005 from Russell Fox, Mintz Levin Cohn Ferris Glovsky and Popeo PC, to Michael Wilhelm, Chief, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau, FCC (MariTEL Second April 11 *ex parte* Presentation).

<sup>148</sup> See Letter dated Mar. 1, 2005, from Robert White, RF Industries, to Mr. Smith, MariTEL, Inc., attached to MariTEL Second April 11 *ex parte* Presentation, at 1.

<sup>149</sup> *Id.*

<sup>150</sup> *Id.*

<sup>151</sup> See Letter dated Mar. 14, 2005, from David Godfrey, Director, Federal and International Sales, IP MobileNet, to Mr. Smith, MariTEL, Inc., attached to MariTEL Second April 11 *ex parte* Presentation, at 1 (IP MobileNet Letter). See also IP MobileNet Comments at 1 (stating that “AIS interference characteristics are unique to any forms of interference typically encountered in the Public Safety environment”). According to IP MobileNet, uninterrupted data communications on channels adjacent to AIS transmissions can only be “guaranteed” when the data receiver is more than 75 kHz removed from the AIS transmitter or “when the AIS interference is reduced to levels generally below -70 dBm on a given channel.” IP MobileNet Letter at 1.

<sup>152</sup> IP MobileNet Letter at 1.

<sup>153</sup> NTIA Reply Comments at 2. According to NTIA, “[t]he fact is these techniques are necessary to provide a useful communications channel for mobile systems. The Commission should reject any arguments to the contrary.” *Id.* at 2-3.

<sup>154</sup> ShipCom Comments at 6-7. (Although not paginated, we refer to the two-page White Paper as pages 6 and 7 of ShipCom’s Comments.)

<sup>155</sup> *Id.* at 7. While the AIS interference test reports the Commission has previously received from Maritel and NTIA may have tested units as close as ten feet apart, we note that the Commission has not suggested that this is a typical installation.

<sup>156</sup> The IEC is an international non-governmental organization engaged in the development of broadcast technology standards that works closely with SOLAS organizations in developing standards for GMDSS equipment. Amendment of Parts 13 and 80 of the Commission's Rules Concerning Maritime Communications, *Notice of* (continued...)

damage to the VHF receiver.<sup>158</sup> As a result, it requests that the Commission adopt the IEC 1097-7 guidelines to address this problem.<sup>159</sup> The Commission's rules already require GMDSS installations to meet IEC 1097-7 guidelines.<sup>160</sup> NTIA agrees with ShipCom that appropriate installation guidelines should be applied and notes that the Coast Guard also has incorporated the AIS guidelines set forth in IMO SN/Circ. 227 in its rules.<sup>161</sup> On the other hand, MariTEL contends that IEC 1097-7 is not sufficient to protect VHF equipment, and that the *AIS NPRM* contemplates installations which may permanently damage installed VHF equipment.<sup>162</sup> However, MariTEL does not offer any suggestions on how AIS installations should differ from those that follow the IMO SN/Circ. 227 installation guidelines.<sup>163</sup> Given that both the Commission and the Coast Guard have incorporated, by reference, IEC 1097-7 and IMO SN/Circ. 227 in their respective rules for AIS installations, we take this opportunity to reiterate such requirement and do not see any need for further action in this regard.

32. After carefully reviewing the comments, reply comments, and *ex parte* presentations, and for the reasons discussed below, we continue to believe that the interference impact of wideband simplex AIS on VPC operations can be effectively mitigated through commercially reasonable means. Accordingly, we conclude that there is no need to adopt additional AIS interference abatement requirements.<sup>164</sup> Even if simplex wideband AIS operations pose a greater interference challenge than

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*Proposed Rule Making and Memorandum Opinion and Order*, WT Docket No. 00-48, 15 FCC Rcd 5942, 5947 n.21 (2000).

<sup>157</sup> IEC 1097-7, *Shipborne VHF radiotelephone transmitter and receiver - Operational and performance requirements, methods of testing and required test results*, contains technical requirements for VHF radiotelephone transmitter and receiver installations on board ships. ShipCom contends that a VHF receiver in the RF environment described *supra*, para. 29, would not meet the receiver specifications of IEC 1097-7 and in fact may become damaged from an AIS installation. ShipCom Comments at 2.

<sup>158</sup> ShipCom Comments at 2; *see also* MariTEL Comments at 30-31 (stating that, based on an examination of the transmitter mask characteristics of approved AIS equipment, "operations on channels adjacent and adjoining AIS transmissions will consistently experience abnormally high levels of interference causing reduced receiver range, desensitization or intermodulation in the receiver, or in some cases permanent damage to equipment operating in MariTEL's receive band"); MariTEL Reply Comments at 9.

<sup>159</sup> ShipCom Comments at 7.

<sup>160</sup> *See* 47 C.F.R. § 80.1101(c)(11)(v).

<sup>161</sup> NTIA Reply Comments at 2, *citing* 33 C.F.R. § 164.46(a) note (providing that the term "properly installed" refers to an installation using the guidelines set forth in IMO SN/Circ.227, "Guidelines for the Installation of a Shipborne Automatic Identification System (AIS)," dated January 6, 2003). NTIA therefore believes "there is no need for additional Commission action because the USCG adopted field tested, internationally accepted installation guidelines as part of its AIS carriage regulations." *Id.*

<sup>162</sup> *See* MariTEL March 30 *ex parte* Presentation at 4.

<sup>163</sup> *Id.*

<sup>164</sup> In arriving at this conclusion, we do not rely on the theory that the use of Channels 87B and 88B on a wideband simplex basis for AIS in international waters, and conceivably in U.S. waters by foreign-flagged vessels exercising the "right of innocent passage," would limit MariTEL's use of the channels regardless of our decisions herein, as suggested in the *AIS NPRM*. *See AIS NPRM*, 19 FCC Rcd at 20097-98 ¶ 48. While some commenters concur in that observation, they do not provide any substantiating data. *See, e.g.,* RTCM Comments at 3. However, MariTEL contends that whatever interference it might receive from international use of Channels 87B and 88B for AIS would not significantly impede its VPC operations if other channels were designated for AIS in the United States. MariTEL Comments at 33-34; MariTEL Reply Comments at 14. Moreover, NTIA agrees that the use of AIS by foreign ships will not impact domestic VPC operations, although it premises that opinion on VPC use of FEC and

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duplex narrowband AIS operations, we do not believe that extraordinary measures are necessary to overcome it. The DESI Report confirms that the use of FEC mitigates interference from AIS.<sup>165</sup> While the DESI Report concludes that FEC/interleaving techniques could be used to correct error bursts caused by AIS transmissions, it also indicates that the resulting throughput loss and latency increase would significantly degrade the quality of a maritime packet data service compared to the case where there is no AIS interference and data protocols intended for optimum performance in a multipath fading environment are used.<sup>166</sup> However, we believe, based on the record before us,<sup>167</sup> that if soft decision decoding is employed, the interference potential of AIS will be reduced to a greater extent than indicated in the DESI Report. We also continue to believe that MariTEL would be required to employ FEC and interleaving even in the absence of AIS to correct errors due to signal fading.<sup>168</sup> In support of this belief, we note that FEC and interleaving techniques are commonly used in other services and technologies, such as the Project 25 technology utilized by some public safety licensees.<sup>169</sup> While the degree of error correction in

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block interleaving techniques. NTIA Comments at 14. We conclude that the record does not establish that, even if we were to designate narrowband duplex channels for domestic AIS use, VPC licensees, and in particular MariTEL, would still be foreclosed from fully utilizing Channel 87B. Accordingly, we find that commenters' arguments regarding the scope of the right of innocent passage are moot. *See, e.g.*, NTIA Comments at 13-14; MariTEL Comments at 32-33; MariTEL Reply Comments at 13-14.

<sup>165</sup> *See* DESI Report at 5 Figure 2. In addition, we agree with the Coast Guard, *see* n.142, *supra*, that DSC incorporates FEC technology. *See* ITU-R M.493-11 paragraphs 1.1-1.2.1.2. The DSC system is composed of characters from a ten-bit error-detecting code. Time diversity, which provides some protection from co-channel interference burst energy, is provided in the call sequence by transmitting each character twice. The first transmission of a specific character is followed by the transmission of four other characters before the retransmission of that specific character takes place. Since each character is 8 1/3 ms, and the time-diversity interval is defined as 33 1/3 ms for VHF, the specific character is repeated every 33 1/3 + 8 1/3 ms or 41 2/3 ms. Therefore, it would be more accurate to characterize DSC as having 41 2/3 ms interleaving rather than 50 ms interleaving as stated by the Coast Guard. *See* n.142, *supra*.

<sup>166</sup> DESI Report at 10.

<sup>167</sup> As indicated herein, this record includes the analysis set forth in the JSC Report. As we noted earlier, the JSC Report has undergone peer review, in compliance with OMB's Peer Review Bulletin. *See* n.1, *supra*. Specifically, this peer review determined that the assumptions, calculations, methodology, and conclusions in the JSC Report – with consideration of the inCode Report, MariTEL's comments and *ex parte* presentations, the DESI Report, and the JSC Response – conformed to generally accepted standards in the radio engineering field. All of the materials relating to this peer review (including the JSC Report, the charge statement requesting the peer review, the peer review report, and the response to that report) are disseminated on the Commission's website. *See* [www.fcc.gov/omd/dataquality/peer-agendaq.html](http://www.fcc.gov/omd/dataquality/peer-agendaq.html).

<sup>168</sup> *See* NTIA Comments at 11-12; NTIA Reply Comments at 2-3. According to NTIA, "In order to overcome the effects of Rayleigh [*i.e.*, multipath] fading, it is common practice to employ error detecting and correction along with interleaving to improve the performance of digital transmissions. JSC assumed a typical error detection/correction along with interleaving scheme to be incorporated in the representative maritime VPC system that was modeled to determine the extent of AIS interference. In essence, the JSC study concluded that AIS interference to the VPC system was minimal, and that the service was adequately protected." NTIA Comments at 11-12.

<sup>169</sup> Project 25 is a group established by the Association of Public-Safety Communications Officials-International, Inc. (APCO) and comprised of representatives from many local, state and federal government agencies who evaluate basic technologies in advanced land mobile radio. The objective is to find solutions that best serve the needs of the public safety community. *See* <http://www.apcointl.org/frequency/project25/information.html>. The APCO 25 standard provides "a high degree of forward error correction and interleaving" because "[t]he mobile environment is subject to severe Rayleigh fading ...." *See id.*



the commercially available radio equipment MariTEL has thus far investigated may not meet its quality-of-service requirements, the technology is nonetheless available, as indicated in the comments.<sup>170</sup>

33. With regard to the recommendations of the DESI Report and the supporting comments of RF Neulink stating that it will be necessary to employ filters to minimize the AIS power input into the data receiver, we note that MariTEL indicates that filtering of its devices is the best technique to combat interference from National Oceanic and Atmospheric Administration (NOAA) radar and VHF paging systems.<sup>171</sup> We find it encouraging that RF Neulink and the DESI Report both indicate that filtering techniques would also provide an interference solution for devices operating in close proximity to an AIS device.<sup>172</sup> While we understand the desirability of limiting the amount of adjacent channel interference to VPC stations, we again note that the IEC AIS mask is in fact more stringent than the emissions mask applicable to other Part 80 devices.<sup>173</sup> In addition, the IEC AIS mask in the 25 kHz mode is more stringent than the equivalent Part 90 mask.<sup>174</sup> Therefore, since the AIS emission limits already are more stringent than the normally applicable Part 80 or Part 90 emission limits, we do not believe it necessary to impose additional technical requirements to further reduce AIS emissions under the circumstances presented.<sup>175</sup>

34. We nonetheless continue to encourage the Coast Guard and MariTEL, as well as other VPC licensees, to cooperate on identification and implementation of effective interference mitigation measures.<sup>176</sup> However, we remain unconvinced that the Commission should condition the use of Channel 87B for AIS on the Coast Guard's assumption of specific interference mitigation obligations. MariTEL propounds a number of such conditions as alternative means of allowing the use of Channel 87B for AIS in a manner that MariTEL deems sufficiently protective of its interests. MariTEL requests, for example, that the Commission require the Coast Guard to negotiate with MariTEL and incumbent licensees regarding interference protection, and to require an agreement among the parties before any rule designating Channel 87B for AIS becomes effective.<sup>177</sup> We think these approaches are both unnecessary,

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<sup>170</sup> See NTIA Reply Comments at 2-3; JSC Response at 5; see also IP MobileNet Letter at 1 (stating that "IP MobileNet is prepared to discuss the possibility of developing a maritime centric wireless data product to incorporate FEC code interleaving and if needed 'erasure' technology unique to the maritime market if required"). We note, moreover, that VPC spectrum traditionally has been used for non-data services, and to the extent that MariTEL therefore needs to procure or develop new equipment in any event for its proposed VPC data service, any limitations in the error correction capabilities of existing marine radio equipment may not be germane. If MariTEL has to acquire new equipment in any event, we have no reason to doubt, based on the record before us, that it can include the needed error correction capabilities as one of the specifications.

<sup>171</sup> See Maritel Comments at 21.

<sup>172</sup> See RF Neulink Comments at 4-5; DESI Report at 10.

<sup>173</sup> See AIS NPRM at 20097 n.191. For additional discussion of the relevant emissions masks, see *Fourth Memorandum Opinion and Order*, paras. 65-67, *infra*.

<sup>174</sup> See 47 C.F.R. § 90.210(c).

<sup>175</sup> Neither RF Neulink's comments nor the DESI Report provide any detail as to the amount or type of filtering they would deem necessary.

<sup>176</sup> See AIS NPRM, 19 FCC Rcd at 20098 ¶ 49. NTIA says that the Coast Guard is willing to discuss interference prevention measures with any VPC provider. NTIA Comments at 12. *But see* MariTEL Comments at 34 (indicating that MariTEL is not optimistic that the Coast Guard will cooperate in the use of AIS technology); MariTEL Reply Comments at 11-13 (same).

<sup>177</sup> MariTEL Comments at 34-35. MariTEL predicts that, if the Commission permits use of Channel 87B for AIS without such an agreement, the Coast Guard will have no incentive to cooperate in abating interference to MariTEL. *Id.* at 35. MariTEL also contends that, in such event, the Commission itself will have little incentive or ability to  
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given our conclusions regarding the extent and remediability of AIS interference, and problematic. In this regard, we are concerned that mandatory negotiations regarding interference protection would be no more successful than, and would have the same drawbacks as, mandatory negotiations over the designation of channels for AIS.<sup>178</sup> We therefore decline to condition the designation of Channel 87B for AIS on the Coast Guard's successful completion of interference abatement negotiations with MariTEL and other VPC licensees for the same reasons that impelled us to reject another round of negotiations over the AIS channel designation. We also decline to adopt MariTEL's alternative suggestion that any designation of Channel 87B for AIS be conditioned on demonstrating to MariTEL's satisfaction that it will be able to operate free of AIS interference.<sup>179</sup> Following such an approach would give MariTEL the effective ability to veto AIS deployment on Channel 87B and could result in the same delay and uncertainty that would attend further negotiations.<sup>180</sup> Moreover, even if we were to agree with MariTEL's assessment of the interference threat posed by AIS, we still would be reluctant to make actions that would promote homeland security and public safety contingent upon a private entity's approbation.

35. Similarly, we will not accept MariTEL's offer to forgo its objections to the reallocation of Channel 87B for AIS if the Commission adopts regulations that affirmatively require the Coast Guard to cure to MariTEL's satisfaction all interference to its VPC operations caused by the use of AIS devices on Channel 87B.<sup>181</sup> MariTEL has failed to demonstrate that such extraordinary relief is warranted here and would further the public interest without adversely affecting homeland security and maritime safety. Moreover, such a requirement would be extremely difficult to craft and enforce.<sup>182</sup> Most seriously, adoption of this MariTEL proposal raises the specter of shutting down AIS, and thus creating a large vulnerability in our national security.<sup>183</sup>

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intervene to resolve interference problems that emerge. *Id.* at 34; *see also* MariTEL Reply Comments at 13 (arguing that the Commission must condition the use of Channel 87B for AIS "on the USCG's agreement, in a manner reasonably acceptable to MariTEL, on interference abatement techniques").

<sup>178</sup> *See* para. 14, *supra*.

<sup>179</sup> *See* MariTEL March 30 *ex parte* Presentation at 13 (suggesting that authorization to use Channel 87B for AIS should be conditioned upon a "[d]emonstration, reasonably acceptable to MariTEL, that the use of AIS technology will not create more interference to VPC operations than exists in today's maritime environment, or [a d]emonstration, reasonably acceptable to MariTEL, that equipment and technology is available today at market prices that overcomes interference and capacity loss concerns").

<sup>180</sup> *See* para. 14, *supra*.

<sup>181</sup> *See* Letter, dated and submitted via e-mail Apr. 11, 2005, from Dan Smith, President and CEO, MariTEL, to Michael Wilhelm, Chief, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau, FCC, at 1 (MariTEL April 11 *ex parte* Presentation).

<sup>182</sup> To begin with, it is far from clear that the Coast Guard would be capable of curing interference from shipborne AIS transmitters which it does not operate or control. Further, as MariTEL acknowledges, the Commission would have to define in advance the level of interference that the Coast Guard would be responsible for curing. *Id.* at 2. MariTEL suggests an appropriate definition could be based on the capability of MariTEL's equipment in terms of transmission rate, throughput capacity, and carrier speed. *Id.* Assuming this were feasible, it would still be difficult to determine when the obligation to cure should be triggered.

<sup>183</sup> *Cf.* Implementation of Sections 309(j) and 337 of the Communications Act as Amended, *Second Report and Order and Second Further Notice of Proposed Rule Making*, WT Docket No. 99-87, 18 FCC Rcd 3034, 3043 ¶ 20 (2003) (rejecting a proposal to permit some public safety licensees failing to meet a migration deadline to continue operating on their current frequencies, albeit on a secondary basis, because the proponent "fails to offer guidance as to how to resolve issues resulting from secondary basis operation, such as resolution of interference complaints and  
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#### D. The MariTEL Sharing Proposal

36. MariTEL continues to prosecute its *Sharing Proposal*, stating that it offers “a meaningful way to resolve this matter.”<sup>184</sup> As summarized in the *AIS NPRM*, the *Sharing Proposal* contemplated: (a) shared use, through channel loading and time slot allocation, of both Channel 87B and Channel 88B by the Coast Guard, MariTEL, and ship stations for AIS; (b) Coast Guard use of the channels for shore station operations to support Vessel Traffic Services and surveillance applications for homeland security that are consistent with the MTSA, but for no other purpose; (c) MariTEL use of the two channels in all maritime areas for shore station operations to support non-Coast Guard AIS applications; (d) Commission adoption of regulations precluding reception and use of AIS transmissions, except by MariTEL, the Coast Guard, and ship stations; and (e) Commission suspension of its current AIS equipment authorization process pending consideration of MariTEL’s proposed new methodology for determining whether AIS devices adhere to emission mask limitations sufficient to ensure that 25 kHz simplex operations on Channels 87B and 88B do not cause interference to adjacent duplex maritime channels.<sup>185</sup>

37. In the *AIS NPRM*, the Commission expressed several concerns regarding the *Sharing Proposal*. First, the Commission noted that the *Sharing Proposal* called for MariTEL’s shared use of Channel 88B as well as Channel 87B, but that the Commission does not have statutory authority to permit MariTEL to share use of that Federal Government channel.<sup>186</sup> Second, the Commission questioned whether MariTEL’s proposed channel loading and slot sharing techniques would be adequate to ensure that safety-related communications would receive priority and be free of harmful interference.<sup>187</sup> Third, the Commission agreed with commenters who argued that MariTEL’s proposed restrictions on access to AIS data could prevent the United States from realizing the full benefits of AIS by, for example, precluding the Coast Guard from entering into AIS-related cooperative efforts with pilot associations, local port authorities, maritime first responders, and even the U.S. Navy.<sup>188</sup> The Commission also noted that some commenters argued that the Commission lacks statutory authority to impose MariTEL’s requested restrictions on access to AIS data, but found no need to address that question in light of its tentative determination to not adopt the *Sharing Proposal* for policy reasons.<sup>189</sup> Finally, the Commission was critical of the *Sharing Proposal* because it was premised on the Commission’s modification of the

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whether it would be in the public interest to compel a secondary public safety licensee to discontinue operations immediately because it was causing interference to a primary licensee”).

<sup>184</sup> See MariTEL Comments at 37-38. MariTEL no longer pursues its *Frequency Coordinator Proposal*. See MariTEL Comments at 37 (stating that “MariTEL no longer believes that its proposal to act as a frequency coordinator for channel 87B is optimal”). A number of commenters reiterate their strong opposition to the *Frequency Coordinator Proposal*, on the grounds that there is no need for AIS frequency coordination; that the services MariTEL proposed to provide as frequency coordinator are already available from other entities; and that adoption of the proposal would benefit only MariTEL, rather than serve the public interest. See NTIA Comments at 16-17; RTCM Comments at 3; Ingram Barge Comments at 2-3; MEPS Comments at 1; NPMRC Comments at 1.

<sup>185</sup> See *AIS NPRM*, 19 FCC Rcd at 20084 ¶ 23.

<sup>186</sup> *Id.* at 20102 ¶ 57.

<sup>187</sup> *Id.* at 20102-03 ¶ 58. The Commission did not reach any tentative conclusion about the technical feasibility of the proposed sharing mechanism, but stated that, were its other concerns about the *Sharing Proposal* adequately addressed, it would still require the submission of more detailed technical information on the sharing mechanism, and it invited further comment on the technical merits of the *Sharing Proposal*. *Id.* at 20103 ¶ 58.

<sup>188</sup> *Id.* at 20103-04 ¶¶ 59-60.

<sup>189</sup> *Id.* at 20104 n.237.

technical requirements for AIS devices in order to prevent interference to adjacent channel VPC operations.<sup>190</sup> The Commission was not persuaded that it should depart from the international AIS equipment standards, and effectively abandon the AIS standards-setting efforts to date, because doing so “could slow AIS deployment, potentially engender uncertainty in the manufacturing and maritime communities, possibly result in the premature obsolescence of AIS equipment already installed, leave AIS equipment manufacturers who reasonably relied on the existing standards with significant stranded inventory, and potentially hinder AIS interoperability.”<sup>191</sup>

38. In its comments in response to the *AIS NPRM*, MariTEL significantly modifies and clarifies its *Sharing Proposal*. MariTEL indicates that it would accept adoption of the *Sharing Proposal* as a satisfactory outcome even if Channel 88B is not included in the sharing mechanism.<sup>192</sup> MariTEL also states that it has demonstrated that its time slot sharing mechanism is workable, and in fact is based on the same approach currently under development for Class B AIS devices.<sup>193</sup> Finally, MariTEL clarifies that, if the *Sharing Proposal* is adopted, it would not object to other entities receiving AIS data; would not object to the Coast Guard or any other government entity using AIS data for safety and security purposes; and would not object to entities such as pilot associations using AIS data for safety and security purposes in cooperation with the Coast Guard.<sup>194</sup> MariTEL explains that it “wishes to prohibit any entities other than the USCG or its partners from transmitting on channel 87B,” and “to prohibit the use of AIS data for anything other than safety and security purposes. Under MariTEL’s plan, it would have the exclusive ability to transmit AIS information for commercial purposes on channel 87B. Similarly, MariTEL would have the exclusive ability to make AIS data available to others for commercial purposes.”<sup>195</sup>

39. We conclude that it would not serve the public interest to adopt MariTEL’s *Sharing Proposal*, even as modified and clarified by MariTEL to remove some of the components found objectionable in the *AIS NPRM*.<sup>196</sup> Assuming *arguendo* that the *Sharing Proposal* is technically feasible,<sup>197</sup> it nonetheless remains problematic. It appears that MariTEL still views a reexamination and

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<sup>190</sup> *Id.* at 20105 ¶ 61.

<sup>191</sup> *Id.*

<sup>192</sup> See MariTEL Comments at 38 (asserting that “there is no reason that the FCC could not require the shared use of channel 87B even if channel 88B may not be shared”).

<sup>193</sup> *Id.* MariTEL adds that “[t]he parties opposing MariTEL’s technical approach should bear the burden of demonstrating why this proposal, which would otherwise satisfy both MariTEL and the USCG, is not technically feasible.” *Id.*; see also MariTEL Reply Comments at 16.

<sup>194</sup> MariTEL Comments at 38-39.

<sup>195</sup> *Id.* at 39. MariTEL contends that the *Sharing Proposal*, as modified and clarified, would not inhibit the use of AIS data for safety and security purposes, but would instead facilitate quicker and more effective AIS implementation, while “ensur[ing] that MariTEL receives the benefit of being the high bidder for channel 87, by being able to uniquely provide commercial AIS services.” *Id.*; see also MariTEL Reply Comments at 16.

<sup>196</sup> A number of commenters reiterate their opposition to adoption of the *Sharing Proposal*, primarily due to the contemplated restrictions on the availability of AIS data, but these commenters do not acknowledge MariTEL’s reformulation of the *Sharing Proposal* with respect to this issue. See NTIA Comments at 17-19; RTCM Comments at 3; MEPS Comments at 1; NPMRC Comments at 2.

<sup>197</sup> See MariTEL Comments at 38; MariTEL Reply Comments at 16 (contending that the *Sharing Proposal* is technically feasible). *But see* NTIA Comments at 18-19 (arguing that it is “premature to consider slot sharing or similar means of allowing MariTEL to offer commercial AIS services until it can be demonstrated that such use will not degrade AIS operations”).

revision of the AIS equipment certification standards as an integral component of the *Sharing Proposal*.<sup>198</sup> We believe, however, for reasons detailed in the *Fourth Memorandum Opinion and Order*,<sup>199</sup> that it would be counterproductive to reconsider the AIS equipment standards. To do so would not only create problems for international AIS interoperability and coordination, but would also retard, possibly even freeze, AIS deployment efforts in this country, and could also necessitate retrofitting vessels that have already installed AIS equipment meeting the current international and FCC requirements.<sup>200</sup> We therefore affirm the Commission's tentative conclusion in the *AIS NPRM* that adoption of the MariTEL *Sharing Proposal* would not serve the public interest.<sup>201</sup>

#### E. Applicability of Section 316 Hearing Requirement

40. The Commission indicated in the *AIS NPRM* that it has the legal authority to designate Channel 87B for AIS, notwithstanding the effect such a designation might have on MariTEL and other VPC licensees.<sup>202</sup> As a general matter, the Commission noted that it has the authority to alter the terms of existing licenses by rulemaking,<sup>203</sup> even with respect to licenses that have been acquired through the

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<sup>198</sup> MariTEL does not expressly address this component of the *Sharing Proposal* in its comments to the *AIS NPRM*, but since those comments do modify other components of the *Sharing Proposal*, and given that MariTEL urges the Commission to revisit the AIS certification requirements (independent of the *Sharing Proposal*) in the MariTEL petition for reconsideration of the *Sixth Report and Order*, we infer that revisiting the AIS equipment certification requirements remains essential to the *Sharing Proposal*.

<sup>199</sup> See paras. 65-67, *infra*.

<sup>200</sup> In the *AIS NPRM*, the Commission had before it MariTEL's argument that restrictions of the type it seeks can be promulgated by the Commission under authority of Section 705 of the Communications Act of 1934, as amended (the Act), 47 U.S.C. § 605, as well as counterarguments from various other commenters. See *AIS NPRM*, 19 FCC Rcd at 20104 n.237. Section 705 is not intended to provide protection for unencrypted over-the-air broadcast content, such as AIS data. See, e.g., *U.S. v. Harrell*, 983 F.2d 36, 39 (5<sup>th</sup> Cir. 1993); *Inquiry into the Scrambling of Satellite Television Signals and Access to those Signals by Owners of Home Satellite Dish Antennas*, *Second Report*, GEN Docket No. 86-336, 3 FCC Rcd 1202, 1210 ¶ 66 (1988). Section 705 is intended essentially to protect two types of interests: (1) the privacy interests of parties to telephone conversations, *i.e.*, eavesdropping protection; and (2) the proprietary interests of providers of subscriber-based video programming, *i.e.*, cable piracy protection. The statute expressly states that "[t]his section shall not apply to the receiving, divulging, publishing or utilizing the contents of any radio communication which is transmitted by any stations for the use of the general public, which relates to ships, aircraft, vehicles, or persons in distress...." See 47 U.S.C. § 605. Consequently, it is not clear that adoption of such a requirement is within the FCC's statutory authority. That being said, the Commission previously declined to reach that issue in the *AIS NPRM* because the issue would be moot if, as the Commission proposed, the *Sharing Proposal* is ultimately rejected on policy grounds. See *AIS NPRM*, 19 FCC Rcd at 20104 n.237. (No party has addressed this issue in comments to the *AIS NPRM*.) As discussed *supra*, we reject the *Sharing Proposal* on policy grounds. Thus, we need not address this issue further here. We also note that such a requirement would be administratively burdensome to implement with few concomitant public interest benefits.

<sup>201</sup> In the *AIS NPRM*, the Commission questioned whether there are any actions the Commission could take to facilitate the provision by private sector entities of e-mail, web browsing, and similar data applications, consistent with protecting the integrity of AIS on Channels 87B and 88B. See *AIS NPRM*, 19 FCC Rcd at 20105-06 ¶ 62. The only responsive comments were filed by MariTEL, which stated that there are a wide variety of commercial uses for AIS data, and that MariTEL should be permitted to transmit AIS data on Channel 87B consistent with its *Sharing Proposal*. See MariTEL Comments at 39-40.

<sup>202</sup> See *AIS NPRM*, 19 FCC Rcd at 20091 ¶ 34. NTIA concurs that it is within the Commission's legal authority to change the terms of the AIS set-aside. See NTIA Comments at 5.

<sup>203</sup> *AIS NPRM*, 19 FCC Rcd at 2009 ¶ 34, citing *United States v. Storer Broadcasting Co.*, 351 U.S. 192, 205, 76 S. Ct. 763, 100 L. Ed. 1081 (1956); *National Broadcasting Co. v. United States*, 319 U.S. 190, 225, 63 S. Ct. 997, 87 L. Ed. 1344 (1943); *Committee for Effective Cellular Rules v. FCC*, 53 F.3d 1309, 1319-20 (D.C. Cir. 1995);

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competitive bidding process, such as MariTEL's maritime VPCSA licenses.<sup>204</sup> Further, when the Commission acts through a notice-and-comment rulemaking process to change the parameters of permissible operations within a service, Section 316 of the Communications Act<sup>205</sup> does not afford the affected licensees another opportunity to challenge such action, even if this change in parameters can be characterized as working a modification of license.<sup>206</sup> As explained more fully below, we therefore reject MariTEL's assertion that, because the rule changes adopted in this proceeding – in which MariTEL participated fully – would purportedly modify its VPCSA licenses, MariTEL is also entitled to a Section 316 hearing before such changes can take effect.<sup>207</sup>

41. At the outset, we observe that a basic premise of MariTEL's argument – that the rule changes adopted in this proceeding will result in such an increase in interference to its operations as to

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*WBEN, Inc. v. FCC*, 396 F.2d 601, 617-18 (2d Cir. 1968), *cert. denied*, 393 U.S. 914, 89 S. Ct. 238, 21 L. Ed. 2d 200 (*WBEN*).

<sup>204</sup> *AIS NPRM*, 19 FCC Rcd at 2009, ¶ 34 *citing* 47 U.S.C. § 309(j)(6)(C)-(D); *Celtronix Telemetry, Inc. v. FCC*, 272 F.3d 585, 589 (D.C. Cir. 2002), *cert. denied*, 536 U.S. 923, 122 S. Ct. 2589, 153 L. Ed. 2d 778 (*Celtronix*).

<sup>205</sup> 47 U.S.C. § 316. Section 316 provides,

(a)(1) Any station license or construction permit may be modified by the Commission either for a limited time or for the duration of the term thereof, if in the judgment of the Commission such action will promote the public interest, convenience, and necessity, or the provisions of this chapter or of any treaty ratified by the United States will be more fully complied with. No such order of modification shall become final until the holder of the license or permit shall have been notified in writing of the proposed action and the grounds and reasons therefor, and shall be given reasonable opportunity, of at least thirty days, to protest such proposed order of modification; except that, where safety of life or property is involved, the Commission may by order provide, for a shorter period of notice.

(2) Any other licensee or permittee who believes its license or permit would be modified by the proposed action may also protest the proposed action before its effective date.

(3) A protest filed pursuant to this subsection shall be subject to the requirements of section 309 of this title for petitions to deny.

(b) In any case where a hearing is conducted pursuant to the provisions of this section, both the burden of proceeding with the introduction of evidence and the burden of proof shall be upon the Commission; except that, with respect to any issue that addresses the question of whether the proposed action would modify the license or permit of a person described in subsection (a)(2) of this section, such burdens shall be as determined by the Commission.

<sup>206</sup> *See, e.g., Transcontinent Television Corp. v. FCC*, 308 F.2d 339, 343 (D.C. Cir. 1962) (holding that Section 316 hearing requirement was satisfied by the appellant's being heard in a rulemaking proceeding, and that it "would go beyond a reasonable construction of the Act were we to hold that [the appellant] was entitled to insist upon a different sort of hearing than it was accorded"); *California Citizens Band Association v. United States*, 375 F.2d 43, 50-51 (9<sup>th</sup> Cir. 1967), *cert. denied*, 389 U.S. 844, 88 S. Ct. 96, 19 L. Ed. 2d 112 (*California Citizens Band*) (holding that Section 316(a) of the Act is not violated by action taken in a rulemaking proceeding, where the Commission had altered the operating parameters of the stations in the Citizens Radio Service by changing the kind of messages that might be transmitted, frequencies that might be used and length of intervals of silence between transmissions); and *WBEN, Inc. v. FCC*, 396 F.2d 601, 617-18, *supra* n. 202, (holding Section 316 does not "disable[] the agency in the exercise of its rule-making powers" by "requir[ing] separate evidentiary hearings where . . . the Commission's rule . . . result[s] in increased interference during the life of . . . [the] licenses.").

<sup>207</sup> *See* MariTEL Comments at 2-3, 13-19; MariTEL Reply Comments at 5.

effect a *de facto* modification of its licenses<sup>208</sup> – is flawed. As discussed above, we have determined that the interference impact of wideband simplex AIS on VPC operations can be effectively mitigated through commercially reasonable means, and that overcoming the interference challenge posed by simplex wideband AIS operations will not require extraordinary measures.<sup>209</sup> Accordingly, such operations on Channels 87B will not unreasonably burden MariTEL’s use of its licensed VPC spectrum and therefore cannot be regarded as working a modification of its licenses.

42. However, even if these rule changes do significantly impair MariTEL’s ability to use the channels covered by its VPC licenses, the case law makes clear that when rule changes adopted in a notice-and-comment rulemaking proceeding affect the parameters of existing licenses (as they typically do), the affected licensees are not entitled to challenge the effect of the rule changes under the license modification provisions of Section 316, notwithstanding the possibility of invoking the protections of that Section were the Commission to have made similar changes in an adjudicative setting.<sup>210</sup> In short, the courts have ruled that the Section 316 hearing requirement can be met in a notice-and-comment rulemaking proceeding,<sup>211</sup> even if the Commission action will affect a relatively narrow universe of licensees.<sup>212</sup> Accordingly, we reject the general assertion that the Commission lacked the authority to act within the confines of this rulemaking simply because its actions may have had specific effects on MariTEL.

43. On a related note, MariTEL argues that the Commission’s decision to employ a rulemaking process to address the use of Channel 87B for AIS was ill advised, in light of the limited number of parties affected by this issue. According to MariTEL, “because the question of assigning channel 87B for AIS involves only two parties and a discrete set of highly technical and hotly contested facts, this situation would be best handled in an adjudication.”<sup>213</sup> The Commission, of course, has a significant degree of discretion in deciding whether to take action by rulemaking or adjudication.<sup>214</sup> In this case, the Commission determined that the public interest would be best served by resolving the AIS issues through the rulemaking process because the resolution of these issues would have a generalized effect within the service and, in fact, would involve a wide range of licensees.<sup>215</sup> For example, the

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<sup>208</sup> MariTEL Comments at 13-17. MariTEL elsewhere terms the Commission’s proposal as effecting a *de facto* revocation of MariTEL’s licenses. MariTEL Comments at 31; *see also* MariTEL Reply Comments at 10.

<sup>209</sup> *See* paras. 32-33, *supra*

<sup>210</sup> The cases cited by MariTEL to support its claim of right to a Section 316 hearing, *see* MariTEL Comments at 14, n. 31, including the case upon which it most relies, *Western Broadcasting Co. v. FCC*, 674 F.2d 44 (D.C. Cir. 1982), are all adjudications that are inapposite to the circumstances presented here. As such, these cases turn on the sufficiency of the procedural rights available to the licensee whose license was arguably modified within an adjudication. None of the cases, however, are inconsistent with the basic proposition that the guaranteed opportunities to be heard in a notice-and-comment rulemaking proceeding, unlike the adjudicatory procedures at issue in those cases, obviate the need to provide parties like MariTEL with additional Section 316 processes.

<sup>211</sup> *See* n. 205, *supra*.

<sup>212</sup> *See Transcontinent Television Corp. v. FCC*, n. 205, *supra* (rejecting challenge by licensee operating VHF channel 10 in Bakersfield, California, to a Commission rulemaking decision deleting VHF channel 10 from Bakersfield and providing two additional UHF channels effective at the expiration date of the licensee’s current license).

<sup>213</sup> MariTEL Comments at 16.

<sup>214</sup> *See, e.g., SEC v. Chenery Corp.*, 67 S. Ct. 1575, 1580 (“[T]he choice made between proceeding by general rule or by individual, ad hoc litigation is one that lies primarily in the informed discretion of the administrative agency.”)

<sup>215</sup> *See Telocator Network v. FCC*, 691 F.2d 525, 551 (D.C. Cir. 1982) (recognizing that the Commission appropriately employs its rulemaking power when issues “involve legislative rather than adjudicative facts, and have  
(continued....)

reallocation of Channel 87B does not affect only MariTEL's licenses, contrary to its characterization, but also all site-based incumbent VPC licensees in the nine maritime VPCSAAs.<sup>216</sup> Moreover, the decisions in this proceeding may also affect the inland VPC site-based and geographic licensees,<sup>217</sup> depending on whether the Commission extends the AIS designation of Channel 87B throughout the Nation or just in the maritime VPCSAAs.<sup>218</sup> Significantly, MariTEL, elsewhere in its pleadings, affirmatively recognizes the potential impact of this rulemaking on other VPC licensees.<sup>219</sup> In addition, the focus of this rulemaking is the AIS set-aside rule, Section 80.371(c)(3), which is a rule of general applicability to all maritime VPCSA licensees. The fact that MariTEL was the winning bidder for all nine maritime VPCSAAs does not transform this rule of general applicability into a MariTEL-specific license condition. We also note that the rules adopted in this proceeding also affect ship station licensees that utilize AIS equipment. Finally, we observe that the overall goal of this proceeding and of the specific rule changes at issue is to address the most fundamental and broadly applicable of public interest concerns by reallocating spectrum in order to improve homeland security and maritime safety, not to adjudicate competing private interests.<sup>220</sup>

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prospective effect and classwide applicability"); *American Airlines v. Civil Aeronautics Board*, 359 F.2d 624, 625-26 (D.C. Cir. 1966), *cert. denied*, 385 U.S. 843, 87 S. Ct. 73, 17 L. Ed. 2d 75 (holding, despite a provision in the Federal Aviation Act which required a hearing before modification of a particular aviation certificate, that the Civil Aeronautics Board could modify such certificates in a rulemaking of general applicability because its rulemaking authority "is not to be shackled ... by importation of formalities developed for the adjudicatory process and basically unsuited for policy rule making").

<sup>216</sup> One such site-based licensee, ShipCom, has filed comments opposing the Commission's proposal for much the same reasons as MariTEL. *See, e.g.*, ShipCom Comments at 2-4. We address the status of site-based licensees authorized to operate on Channel 87 at paras. 53-57, *infra*.

<sup>217</sup> Although the geographic scope of MariTEL's VPC license holdings and the amount MariTEL bid for its licenses could differentiate it from other VPC licensees, this does not establish either that the rulemaking decisions herein are focused exclusively on MariTEL or that other VPC licensees could not make a similar argument that the impact on them should likewise be deemed a modification of their licenses if such a finding were made with respect to MariTEL's licenses. MariTEL contends that if the Commission determines to conduct Section 316 license modification proceedings for site-based VPC licensees, as discussed in the *AIS NPRM*, 19 FCC Rcd at 20107 ¶ 65, there is no reason to treat MariTEL differently. MariTEL Comments at 14 n.30. We note that site-based licensees are not subject to any existing requirement to set aside any of their licensed spectrum for AIS.

<sup>218</sup> In the *Further Notice*, we request additional comment on the geographic scope of the AIS set-aside. *See* paras. 58-60, *infra*.

<sup>219</sup> *See, e.g.*, MariTEL Comments at 2 (arguing that the Commission must address the "devastating impact" of its proposal on "MariTEL and other incumbent [VPC] licensees"); MariTEL Reply Comments at 17 (estimating the value of the spectrum "that NTIA seeks to strip from inland VPC licensees" and questioning how the inland VPC licensees, including but not limited to MariTEL, would be compensated for that loss).

<sup>220</sup> Given the important public interest ramifications of the decisions we make in this proceeding, we find no merit to MariTEL's argument that the Commission's proposal contravenes, without justification, the Commission's policy of not injecting itself into what is essentially a commercial dispute. MariTEL Comments at 18. The designation of Channel 87B for AIS is not for the purpose of benefiting the commercial interest of any business entity, but for the purpose of promoting homeland security and safety of navigation for the protection of the American public generally. The fact that MariTEL opposes the Commission's proposal primarily because of the impact it will have on MariTEL's commercial interests does not transform the controversy at hand into a commercial dispute. As a result, we strongly disagree with MariTEL's characterization of the issue before us. *See* MariTEL Reply Comments at 1-2 (stating that "MariTEL does not question the United States Coast Guard's need for AIS capabilities. Therefore, the comments of [NTIA] and others designed to demonstrate the importance of marine domain awareness are beside the point. The central issue – the only material issue – in this proceeding is how to address the

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## F. Compensation

44. We affirm the Commission's tentative conclusion in the *AIS NPRM* that there is no basis in public policy or equity to compensate MariTEL in conjunction with the designation of Channels 87B and 88B for AIS on a wideband simplex basis.<sup>221</sup> MariTEL contends, as it has consistently throughout this proceeding, that the Commission should require the Coast Guard to compensate it for harmful interference if the Commission adopts its AIS channel designation proposal.<sup>222</sup> MariTEL asserts that failing to take such action would, for the first time, "strip ... the winner of an FCC auction of the right to the spectrum it purchased in that auction,"<sup>223</sup> and that such action would be inequitable and contrary to public policy, in large measure because it would undermine the integrity of spectrum auction proceedings.<sup>224</sup> We disagree for a number of reasons. Most importantly, and as explained *supra*, we do not believe that wideband simplex AIS operations on Channels 87B and 88B will unreasonably burden MariTEL's use of its licensed VPC spectrum.<sup>225</sup> Even if such wideband simplex AIS operations were to present new challenges to the launch of a data network on the maritime VPCSA channels, we do not believe that those challenges cannot be surmounted, and we do not believe they are of such magnitude as to warrant special compensation to maritime VPCSA licensees. As the Commission indicated in the *AIS NPRM*, licensees who acquire their licenses at auction do not have a vested right to the continuation without change of the rules in effect at the time of the auction.<sup>226</sup> Auction bidders are on notice, based on clear statutory language<sup>227</sup> and judicial precedent,<sup>228</sup> that the Commission retains the power to alter the terms of existing licenses (whether or not acquired through competitive bidding) through rulemaking, even to the point of "reclaim[ing] spectrum licenses,"<sup>229</sup> should the public interest so warrant.

45. We also believe that MariTEL overstates the equitable considerations it believes favor compensating it. MariTEL contends that being obligated to make Channel 87B available for AIS would

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devastating impact that the designation of channel 87B will have on MariTEL and other incumbent [VPC] licensees.").

<sup>221</sup> See *AIS NPRM*, 19 FCC Rcd at 20098 ¶ 49. In the *AIS NPRM*, the Commission invited interested parties who disagree with this tentative conclusion, and believe that MariTEL should be compensated in some way, to explain in detail why that is so, and to suggest appropriate compensation and discuss whether the Commission has legal authority to provide such compensation. *Id.* at 20098-99 ¶ 50.

<sup>222</sup> MariTEL Comments at 35-37; MariTEL Reply Comments at 14-15.

<sup>223</sup> MariTEL Comments at 2; see also MariTEL Reply Comments at 3 (terming the Commission's proposal "a dangerous precedent").

<sup>224</sup> MariTEL Reply Comments at 2-3; MariTEL Comments at 18-19 (contending that a "decision that establishes the precedent that the Commission may delete spectrum from a licensee's authorization without a hearing or compensation will destroy any faith that the financial markets may have in the telecommunications industry"); accord RF Neulink Comments at 1; IP MobileNet Comments at 1-2; ShipCom Comments at 2.

<sup>225</sup> See paras. 32-33, *supra*.

<sup>226</sup> *AIS NPRM*, 19 FCC Rcd at 20091 ¶ 34; see also NTIA Comments at 15-16.

<sup>227</sup> See 47 U.S.C. § 309(j)(6)(C)-(D).

<sup>228</sup> See, e.g., *United States v. Storer Broadcasting Co.*, 351 U.S. 192, 205, 76 S. Ct. 763, 100 L. Ed. 1081 (1956); *National Broadcasting Co. v. United States*, 319 U.S. 190, 225, 63 S. Ct. 997, 87 L. Ed. 1344 (1943); *Celtronix*, 272 F.3d at 589 (D.C. Cir. 2002), cert. denied, 536 U.S. 923, 122 S. Ct. 2589, 153 L. Ed. 2d 778; *Committee for Effective Cellular Rules v. FCC*, 53 F.3d 1309, 1319-20 (D.C. Cir. 1995); *WBEN*, 396 F.2d at 617-18.

<sup>229</sup> 47 U.S.C. § 309(j)(6)(C).

have a dramatically greater impact on MariTEL than an obligation to make available two narrowband offset channel pairs, and that the imposition of this greater burden on MariTEL could have been avoided if the Coast Guard had not changed its assessment of the spectrum requirements for AIS.<sup>230</sup> We note, however, that MariTEL also appears to have reassessed its need for spectrum after acquiring it. For instance, it originally intended to provide voice service, but later decided to instead develop a data service.<sup>231</sup> MariTEL did not timely seek reconsideration of or otherwise challenge the *AIS Equipment Authorization Public Notice* that was released in June 2002, notwithstanding that the *AIS Equipment Authorization Public Notice* clearly stated that, as an interim measure, the Commission's Laboratory would coordinate with the Coast Guard in authorizing AIS equipment based on the international standards.<sup>232</sup> It was not until more than one year later, after MariTEL had determined to abandon its voice network and after MariTEL notified the Coast Guard and the Commission that it was terminating the MOA, that MariTEL sought to put a stop to further domestic deployment of AIS equipment designed for wideband simplex operation on the internationally allocated AIS channels.<sup>233</sup>

46. We also have been directed to no persuasive authority for the proposition that the Commission has legal authority to compensate MariTEL. MariTEL states that there are two bases for such compensation. It argues, first, that the Commission's designation of Channels 87B and 88B for AIS would constitute a "taking" of MariTEL's property under the Fifth Amendment to the Constitution.<sup>234</sup> We disagree. To recognize a takings claim in this context would require, as a prerequisite, that MariTEL be deemed to hold a vested property interest in the VPC spectrum licensed to it. However, the Act forecloses a licensee's assertion of an ownership interest in the licensed spectrum.<sup>235</sup> The U.S. Supreme

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<sup>230</sup> See, e.g., MariTEL Reply Comments at 4, 6 The Coast Guard acknowledges that it has needed to reassess domestic AIS spectrum requirements in view of changed circumstances. See, e.g., *NTIA Petition* at 3.

<sup>231</sup> On March 27, 2003, MariTEL filed requests for waivers of its five-year construction benchmark in the maritime VPCSA's based on its decision to abandon build-out of a voice network and to instead develop a maritime data offering. See File Nos. 0001252148 (Call Sign WPOJ538), 0001252156 (Call Sign WPOJ531), 0001252177 (Call Sign WPOJ537), 0001252214 (Call Sign WPOJ533), 0001252257 (Call Sign WPOJ535), 0001252280 (Call Sign WPOJ532), 0001252315 (Call Sign WPOJ534), 0001252325 (Call Sign WPOJ536), 0001252334 (Call Sign WPOJ530), Request for Rule Waiver and Extension of Construction Deadline (filed Mar. 27, 2003). The Wireless Telecommunications Bureau granted that waiver request, and extended MariTEL's five-year construction deadline by two years. See MariTEL, Inc., *Order*, 18 FCC Rcd 24670 (WTB PSPWD 2003). The Coast Guard has filed an application for review of that decision. See Application for Review filed by United States Coast Guard (Jan. 5, 2004). MariTEL filed an Opposition to the Application for Review on January 20, 2004, and the Coast Guard filed a Reply on January 30, 2004. In addition, MariTEL subsequently filed a request for a further waiver of the construction deadline for its VPCSA licenses. See Request for Rule Waiver and Extension of Construction Deadline filed by MariTEL, Inc. (May 25, 2005)

<sup>232</sup> See *AIS Equipment Authorization Public Notice*, n.42, *supra*.

<sup>233</sup> See MariTEL, Inc., Emergency Petition for Declaratory Ruling (filed Oct. 15, 2003) (*MariTEL Emergency Petition*), supplemented Oct. 27, 2003; Letter dated July 30, 2003, from Russell H. Fox, Mintz Levin Cohn Ferris Glovsky and Popeo PC, to D'wana R. Terry, Chief, Public Safety and Private Wireless Division, FCC.

<sup>234</sup> MariTEL Comments at 35-36. MariTEL relies primarily but not exclusively on the U.S. Supreme Court's *Loretto* decision as relevant precedent. See *Loretto v. Manhattan CATV Corp. et al.*, 458 U.S. 419, 102 S. Ct. 3164, 73 L. Ed. 2d 868 (1982).

<sup>235</sup> See 47 U.S.C. § 304 (providing that "[n]o station license shall be granted by the Commission until the applicant therefore shall have waived any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise"); 47 U.S.C. § 301 (specifying that no Commission-issued license "shall be construed to create any right, beyond the terms, conditions, and periods of the license"); see also *MariTEL, Inc. v. Collins*, \_\_\_ F. Supp. 2d \_\_\_, (continued...)

Court, moreover, has held that “[t]he policy of the Act is clear that no person is to have anything in the nature of a property right as a result of the granting of a license,”<sup>236</sup> and that “[n]o licensee obtains any vested interest in any frequency.”<sup>237</sup> The Commission has consistently upheld that principle.<sup>238</sup> Indeed, the Commission already has specifically considered and rejected an assertion that a post-auction rulemaking change affecting the value of an auctioned license could constitute a Fifth Amendment taking.<sup>239</sup> As the Commission determined in that case, and as is equally applicable here, “no auction bidder could have assumed that it was buying a license containing terms that the Commission could not modify.”<sup>240</sup> We conclude, in keeping with this precedent, that MariTEL does not have a property interest in the spectrum covered by its VPC licenses such that any newly imposed restrictions on the use of same could be considered a taking of MariTEL’s property under the Fifth Amendment.<sup>241</sup>

47. MariTEL also argues that, even if the Commission’s action here is not a taking under the

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2006 WL 689001 n.6 (D.D.C. 2006) (“Despite its many assertions to the contrary, MariTEL does not enjoy an ‘exclusive’ right to use Channel 87B”).

<sup>236</sup> *FCC v. Sanders Bros. Radio Station*, 309 U.S. 470, 475, 60 S. Ct. 693, 697, 84 L. Ed. 869 (1940).

<sup>237</sup> *Ashbacker Radio Corp. v. FCC*, 326 U.S. 327, 331, 66 S. Ct. 148, 150, 90 L. Ed. 108 (1945). The U.S. Court of Appeals for the District of Columbia Circuit recently reiterated and applied this principle, ruling that two Specialized Mobile Radio (SMR) licensees could not successfully claim that the Commission violated the Takings Clause in adopting rules that arguably reduced the value of their licenses, because FCC licenses confer only “the right to use the spectrum for a duration expressly limited by statute subject to the Commission’s considerable regulatory power and authority” and “[t]his right does not constitute a property interest protected by the Fifth Amendment.” *Mobile Relay Associates v. FCC*, \_\_\_ F.3d \_\_\_, No. 04-1413, 2006 WL 1970200, at \*8 (D.C. Cir. July 14, 2006).

<sup>238</sup> See, e.g., Amendment of Parts 73 and 74 of the Commission’s Rules to Establish Rules for Digital Low Power Television, Television Translator, and Television Booster Stations and to Amend Rules for Digital Class A Stations, *Report and Order*, MB Docket No. 03-185, 19 FCC Rcd 19331, 19359 n.166 (2004); Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, *Report and Order*, WT Docket No. 02-146, 18 FCC Rcd 23318, 23346 n.184 (2003).

<sup>239</sup> See Facilitating the Provision of Spectrum-Based Services to Rural Areas and Promoting Opportunities for Rural Telephone Companies to Provide Spectrum-Based Services, *Report and Order and Further Notice of Proposed Rule Making*, WT Docket No. 02-281, 19 FCC Rcd 19078, 19126 ¶ 84 (2004).

<sup>240</sup> *Id.*

<sup>241</sup> Even if MariTEL had a property interest protected by the Fifth Amendment, it has failed to state a valid claim. The Takings Clause prohibits the government from taking “private property. . . for public use, without just compensation.” U.S. Const. amend. V. In claims of taking by regulation, the inquiry is whether a regulation “reaches a certain magnitude” in depriving an owner of the use of property. *Pennsylvania Coal Co. v. Mahon*, 260 U.S. 393, 413 (1922); see also *id.* at 415 (asking whether the regulation “goes too far”). To answer that question, the Court assesses three primary factors: (1) the regulation’s economic impact on the claimant; (2) its interference with the claimant’s reasonable investment-backed expectations; and (3) the character of the government action. See *Penn Central Transp. Co. v. New York City*, 438 U.S. 104, 124 (1978). MariTEL has failed to demonstrate the economic impact of our rule changes on it. As we stated in para. 32, *supra*, we continue to believe that the interference impact of wideband simplex AIS on VPC operations can be effectively mitigated through commercially reasonable means. MariTEL also has not demonstrated that the regulation has interfered with reasonable investment-backed expectations. As we state above, no Commission licensee can have a firm expectation that its spectrum authorization will not change no matter what the public safety may require. Nor has MariTEL demonstrated that the character of the government action is such that it constitutes a taking. See *Connolly v. PGB*, 475 U.S. 211, 225 (1986) (Where “interference with . . . property rights . . . arises from a public program that adjusts the benefits and burdens of economic life to promote the common good . . . it does not constitute a taking.”)

Fifth Amendment, it would be consistent with the Commission's actions in the *800 MHz Rebanding Proceeding*<sup>242</sup> to compensate MariTEL for the harmful interference that will be caused to VPC communications by AIS.<sup>243</sup> According to MariTEL, in the *800 MHz Rebanding Proceeding*, the Commission is requiring Nextel Communications, Inc. (Nextel) "to pay for the harmful interference caused by its introduction of iDEN technology ... in the 800 MHz bands. Nextel is being required to pay for the relocation of incumbent licensees in order to reconfigure the band in a manner designed to prevent harmful interference to non cellularized systems. The FCC should take the same approach here."<sup>244</sup>

48. We disagree, because the considerations that underlie adoption of the 800 MHz rebanding plan, with the attendant financial obligation on Nextel, simply are not present here.<sup>245</sup> First, the Commission determined in the *800 MHz Rebanding Proceeding* that it had legal authority to allocate the costs of relocations necessary to address the interference problem *among the affected licensees*.<sup>246</sup> In the instant case, MariTEL urges that we impose a compensation obligation not on any Commission licensee, but on the United States Coast Guard.<sup>247</sup> However, the Commission does not have jurisdiction over the Coast Guard;<sup>248</sup> and MariTEL has failed to provide the statutory basis for the relief it requests in this context. Second, the assumption by Nextel of an obligation to pay the costs of interference remediation in the 800 MHz band through licensee relocation was an integral component of a complex overall reconfiguration plan for the 800 MHz band that was determined to be "the most effective and equitable" means of resolving "serious and heretofore intractable interference problems – problems that have impaired and continue to impair public safety operations in the 800 MHz band."<sup>249</sup> Under the rebanding approach adopted by the Commission, affected licensees were not "compensated" in the manner MariTEL seeks for itself.<sup>250</sup> In sum, the instant situation is readily distinguishable from the *800 MHz Rebanding*

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<sup>242</sup> See Improving Public Safety Communications in the 800 MHz Band, *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order*, WT Docket 02-55, 19 FCC Rcd 14969 (2004), *as amended by Erratum*, 19 FCC Rcd 19651 (WTB PSCID 2004), and *Erratum*, 19 FCC Rcd 21818 (WTB PSCID 2004) (*800 MHz R&O*); Improving Public Safety Communications in the 800 MHz Band, *Supplemental Order and Order on Reconsideration*, WT Docket No. 02-55, 19 FCC Rcd 25120 (2004) (*Supplemental Order*); Improving Public Safety Communications in the 800 MHz Band, *Memorandum Opinion and Order*, WT Docket 02-55, 20 FCC Rcd 16015 (2005).

<sup>243</sup> MariTEL Comments at 36.

<sup>244</sup> *Id.* at 36-37.

<sup>245</sup> As a preliminary matter, we note that Congress, in the Auction Reform Act of 2002, Pub. L. No. 107-195, 116 Stat. 715, § 2(4) (2002), specifically recognized that the Commission needed to address the problem of interference in the 800 MHz band, whereas Congress has not similarly indicated the same need regarding potential AIS interference to VPC communications.

<sup>246</sup> See *800 MHz R&O*, 19 FCC Rcd at 15011-12 ¶ 66, *citing Teledesic, LLC v. FCC*, 275 F.3d 75 (D.C. Cir. 2001). Indeed, the Commission did not require Nextel to pay for the relocation of incumbent licensees in the 800 MHz band. Rather, the Commission structured the overall rebanding initiative to ensure, *inter alia*, that Nextel would *not* bear the ultimate cost of these incumbents' relocation. To that end, Nextel's initial outlay of relocation funds (and its performance of other obligations) will be matched by the value that Nextel receives for the rights to operate on ten megahertz of spectrum in the 1.9 GHz band (to be adjusted by a payment at the end of the transition that Nextel will make to the U.S. Treasury in the event Nextel's payment of relocation costs falls short of the value of the 1.9 GHz spectrum). *Id.* at 14974-75 ¶ 5. Moreover, Nextel had the right to reject "the conditions and obligations" that the Commission placed on it in the *800 MHz R&O*. *Id.* at 14975 ¶ 5 and 15128 ¶ 342.

<sup>247</sup> See MariTEL Comments at 35-37.

<sup>248</sup> The Commission does not have jurisdiction over any Federal Government radio stations. 47 U.S.C. § 305(a).

<sup>249</sup> *800 MHz R&O*, 19 FCC Rcd at 15012 ¶ 68.

<sup>250</sup> See para. 44, *supra*.

*Proceeding.* The 800 MHz rebanding plan represents an extraordinary response to a highly complex, widespread and unique problem, resolution of which was vital to protecting the integrity of public safety communications nationwide. As such, it does not provide a precedent for conditioning the effectiveness of rules beneficial to maritime safety and homeland security on the payment of compensation to MariTEL.

#### G. Use of Channels 87B and 88B in Inland Areas

49. The Commission tentatively concluded in the *AIS NPRM* that it is not necessary to allocate Channel 87B for AIS in inland areas, *i.e.*, areas outside the nine maritime VPCSA, notwithstanding that the *NTIA Petition* requested that Channel 87B, like Channel 88B, be allocated for AIS on a nationwide basis.<sup>251</sup> The Commission reasoned that there would seem to be little need for AIS in the inland VPCSA, which do not contain major navigable waterways, and that there were benefits to preserving the ability of inland VPCSA licensees to provide service, especially given that two duplex channels in each inland VPCSA are designated for public safety use.<sup>252</sup>

50. Most commenters addressing this issue favor a nationwide designation of Channel 87B for AIS, *i.e.*, one that encompasses the inland as well as the maritime VPCSA.<sup>253</sup> They note that a number of navigable waterways are located within inland VPCSA,<sup>254</sup> and RTCM adds that AIS can be a valuable navigational tool not only in coastal waters, but also on inland waterways.<sup>255</sup> These commenters also contend that designating Channel 87B for exclusive AIS use throughout the Nation would enhance

<sup>251</sup> See *AIS NPRM*, 19 FCC Rcd at 20106 ¶ 63. Channel 88 is not available to inland VPCSA licensees because those VPCSA do not encompass any of the areas identified in note US223 to the Table of Frequency Allocations. See 47 C.F.R. §§ 2.106 n.US223, 80.57.

<sup>252</sup> See *AIS NPRM*, 19 FCC Rcd at 20106 ¶ 63; see 47 C.F.R. § 80.371(c)(1)(ii). In addition to requesting comment on its tentative conclusion to limit AIS use of Channel 87B to the nine maritime VPCSA, the Commission requested comment on whether there were areas within the maritime VPCSA where VPC operations on Channel 87B would not pose a co-channel interference threat to AIS, and whether Channels 87B and 88B, if designated for AIS, could be used for shore station operations by commercial entities other than MariTEL. See *AIS NPRM*, 19 FCC Rcd at 20106 ¶ 63. Other than MariTEL's continued advocacy of its *Sharing Proposal*, the record does not provide any basis for making Channel 87B available on a shared basis for VPC communications within the maritime VPCSA if the Commission designates the channel for AIS. Having determined not to adopt the MariTEL *Sharing Proposal*, see para. 39, *supra*, we decline to permit shared VPC use of Channel 87B within the maritime VPCSA other than by site-based incumbent VPC licensees, and then only for the remainder of their current license terms. See paras. 56-57, *infra*. With respect to shore station issues, we request additional comment in the *Further Notice of Proposed Rule Making*. See para. 61, *infra*.

<sup>253</sup> See NTIA Comments at 19-25; RTCM Comments at 4; Task Force Comments at 2; NPMRC Comments at 2; ORBCOMM Reply Comments at 4; NTIA Reply Comments at 5.

<sup>254</sup> See RTCM Comments at 4; NTIA Reply Comments at 5. In an attachment to its Reply Comments, NTIA provides a list of navigable waterways in inland VPCSA, which includes such rivers as the Platte, San Juan, Cheyenne, and Rio Grande, and such lakes as Tahoe, Mead, and Powell. See NTIA Reply Comments, Attachment A Enclosure 2.

<sup>255</sup> RTCM explains, "AIS is designed to interface with other electronic navigational equipment. 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 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. All of these vessels should be able to use a seamless AIS system covering all navigable waterways." RTCM Comments at 4.

homeland security by maximizing the reach of vessel tracking capabilities.<sup>256</sup> MariTEL opposes a nationwide designation, and agrees with the Commission's tentative conclusion that Channel 87B should not be designated for AIS in inland VPCSAAs.<sup>257</sup> MariTEL believes that the secondary waterways located in inland VPCSAAs do not justify such an extension of the AIS designation.<sup>258</sup> MariTEL also points out that, unlike maritime VPCSA licensees, inland VPCSA licensees are under no existing obligation to set aside spectrum for AIS.<sup>259</sup> MariTEL notes that proponents of a nationwide designation do not address how inland VPCSA licensees would be compensated for this spectrum, the value of which MariTEL estimates to be at least \$3,000,000.<sup>260</sup>

51. NTIA also states that it "may be necessary to clear Channels 87B and 88B throughout the entire U.S." in order to accommodate satellite AIS systems that are under development.<sup>261</sup> It notes, specifically, that the "[t]he feasibility of using high altitude and space based platforms to extend the range of AIS is being evaluated."<sup>262</sup> NTIA reports that the Coast Guard awarded a contract to develop and supply AIS capability through a commercial low earth orbit satellite data communications provider,<sup>263</sup> and an AIS-equipped satellite is scheduled for launch in 2006.<sup>264</sup> It is our understanding that the satellite will receive AIS signals from vessels and deliver the data directly to the Coast Guard using standard two-way narrowband data communications service on the ORBCOMM network. The satellite will not transmit AIS information directly to end users, but will send the data via downlink to a Gateway Earth Station, to be routed through a Network Control Center, and ultimately incorporated into appropriate

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<sup>256</sup> See, e.g., NTIA Comments at 23; Task Force Comments at 2.

<sup>257</sup> See MariTEL Comments at 40; MariTEL Reply Comments at 16-18.

<sup>258</sup> MariTEL Comments at 40; MariTEL Reply Comments at 16-18.

<sup>259</sup> MariTEL Reply Comments at 17.

<sup>260</sup> MariTEL says that its estimate is "[b]ased on commercial transactions in which MariTEL has recently been engaged," but does not otherwise explain how it arrived at its estimate. See MariTEL Reply Comments at 17.

<sup>261</sup> NTIA Comments at 24-25.

<sup>262</sup> *Id.* at 24.

<sup>263</sup> ORBCOMM, the satellite service provider that has contracted with the Coast Guard, agrees that it is critical that the Commission limit non-AIS use of Channels 87B and 88B nationwide to protect satellite AIS from harmful interference. ORBCOMM Reply Comments at 3-4. According to ORBCOMM, as a consequence of the satellite receive antenna design and the altitude of the satellites, the ORBCOMM satellite receivers will pick up signals over a circular area with a diameter of approximately 2,700 nautical miles. In addition, ORBCOMM's satellites' footprints constantly move relative to the surface of the earth, and therefore cannot be designed to encompass only the U.S. shorelines and the high seas. It is thus inevitable that there will be occasions when ORBCOMM's satellite receive footprint will extend significantly inland while simultaneously covering ships at sea. ORBCOMM concludes, therefore, that if Channels 87B and 88B are cleared only in the nine maritime VPCSAAs, the ORBCOMM satellites would pick up non-AIS signals – "unwanted 'noise' and congestion" – which would hinder monitoring of AIS signals, and "make it difficult, if not impossible[,] for the Coast Guard to fulfill its wide area surveillance goal ...." *Id.*

<sup>264</sup> *Id.* NTIA adds that the use of satellites for detecting and tracking of AIS-equipped ships is recognized by the IMO, and that the implementation of a long-range AIS identification and tracking system is also mandated by Congress. NTIA Comments at 23-24, citing Coast Guard and Marine Transportation Act of 2004, P.L. 108-293, 118 Stat. 1028.

Coast Guard command and control systems for distribution to other users.<sup>265</sup>

52. We believe that it would be beneficial and prudent to augment the record on this important question of whether to expand the exclusive use of Channel 87B for AIS beyond the nine maritime VPCSAAs, as initially contemplated, before taking final action on this issue.<sup>266</sup> NTIA's request for a nationwide AIS allocation is now based to a significant degree on the need to protect satellite AIS systems, but NTIA advanced this justification for the first time in its comments to the *AIS NPRM*. As a result, the existing record provides almost no information regarding the technical feasibility, effectiveness or potential benefits of satellite AIS, and no studies or analysis of potential interference to and from satellite AIS. We are not convinced, based on the current record, that we should depart from the Commission's earlier determinations limiting the scope of the AIS set-aside. On the other hand, neither do we believe that we can affirm our tentative conclusion in the *AIS NPRM*, that the public interest would not be served by extending AIS use of Channel 87B to inland areas, without further review of this new development. It appears that satellite AIS may significantly expand the range at which vessels may be effectively identified and tracked.<sup>267</sup> Such an expansion of AIS vessel tracking capabilities could promote and enhance maritime domain awareness. Accordingly, we invite comment in the *Further Notice* on issues pertaining to satellite AIS, and further comment more generally on the geographic scope of the AIS set-aside.<sup>268</sup>

#### H. Site-Based Licensees

53. At present, there are six site-based VPC licensees authorized to operate on Channel 87B.<sup>269</sup> In addition, there are four private land mobile radio licensees currently licensed to operate on

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<sup>265</sup> See "Use of the Automatic Identification System (AIS) for Maritime Domain Awareness (MDA)", PowerPoint presentation by Commander Brian Tetreault, USCG AIS Program Manager, 17 October 2005, at 18 (viewed at [www.rhpublishing.com/AIS\\_05pres/Brian%20Tetreault.ppt](http://www.rhpublishing.com/AIS_05pres/Brian%20Tetreault.ppt)).

<sup>266</sup> See *Public Coast Third Report and Order*, 13 FCC Rcd at 19876 ¶ 48.

<sup>267</sup> See ORBCOMM Reply Comments at 2.

<sup>268</sup> See paras. 58-60, *infra*. In connection with its advocacy of a nationwide AIS allocation, NTIA asks that the Commission revise its proposed language for the new footnote to be added to the Section 2.106 Table of Frequency Allocations with respect to Channels 87B and 88B. NTIA Comments at 19-20. The Commission's proposed footnote provided that Channels 87B and 88B are allocated "to the maritime mobile service on a primary basis for Federal and non-Federal Government use in VHF Public Coast Station Areas (VPCSAAs) 1-9. In these areas, the maritime mobile service shall be used exclusively for Automatic Identification Systems (AIS). In VPCSAAs 10-42, the band 161.9625-161.9875 MHz is allocated to the maritime mobile service on a primary basis for exclusive non-Federal Government use and the band 162.0125-162.0375 MHz is allocated to the fixed and mobile services on a primary basis for exclusive Federal Government use. See 47 CFR § 80.371(c)(1)(ii) for the definitions of VPCSAAs." In addition to requesting a nationwide allocation, NTIA objects to delineation of a geographic restriction on Federal Government use of the frequencies for AIS based on the boundaries of VPCSAAs, which NTIA states are subject to change and, in any event, are a Commission construct that have no applicability to Federal Government operations. *Id.* Having determined to defer a final decision on the geographic scope of the AIS channel set-aside, we deny NTIA's request insofar as it is premised on a nationwide allocation of Channel 87B, as well as Channel 88B, for AIS, but we are recrafting the footnote so that the references to VPCSAAs apply only to Channel 87B, and to indicate that there are no geographic restrictions on the AIS allocation of Channel 88B, the Federal Government channel.

<sup>269</sup> The licensees are Murray Cohen (KMC972, Farmingville, New York); Pacific Bell (KMH828, Oakland, California); Pat Gardenhire (KUF681, Boyce, Texas); Avalon Communications Corp. (WAH, St. Thomas, Virgin Islands); Whidbey Telephone Company (WHU300, Freeland, Washington); and Shipcom, LLC (WRD704, Mobile, Alabama). When the *AIS NPRM* was released, Nextel of California, Inc., also held a site-based VPC license, Station KUF847, San Pedro, California, but the license was subsequently canceled at the licensee's request. See FCC File No. 0002000447 (filed Jan. 11, 2005). Avalon Communications Corp.'s Station WAH was also licensed to operate

(continued...)

Channel 87B pursuant to former Section 90.283 of the Commission's Rules.<sup>270</sup> These licensees, like the inland VPCSA geographic licensees, are under no existing obligation to set aside spectrum for AIS. In the *AIS NPRM*, the Commission requested that commenters consider the effect on the site-based incumbent VPC licensees of adopting its proposal to designate Channels 87B and 88B for AIS.<sup>271</sup> The Commission questioned, in particular, whether these existing VPC operations can co-exist on a non-interference basis with AIS.<sup>272</sup> The Commission also sought comment on the effect on domestic AIS implementation efforts of continuing to protect site-based incumbent VPC operations from interference on Channel 87B if that channel is designated for AIS.<sup>273</sup>

54. As noted above,<sup>274</sup> ShipCom, the only site-based incumbent VPC licensee to file comments in response to the *AIS NPRM*, strongly opposes the Commission's proposal to designate Channel 87B for AIS on a wideband simplex basis because of the "potentially devastating" effect it would have on site-based incumbent VPC operations.<sup>275</sup> ShipCom therefore argues that if the Commission does

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(Continued from previous page)

on Channel 88B. On October 12, 2005, however, the Bureau's Public Safety and Critical Infrastructure Division modified the license for Station WAH to delete Channel 88B. *See* Avalon Communications Corporation, *Order of Modification*, 20 FCC Rcd 16178 (WTB PSCID 2005).

<sup>270</sup> 47 C.F.R. § 90.283 (1995). The licensees are the State of Arizona, which holds four licenses (WPGA967, Phoenix, Arizona; WPGA968, Tucson, Arizona; WPGA969, Phoenix, Arizona; and WPGA970, statewide); Morris Coop Oil Association (KZT919, Morris, Minnesota); Frontier Refining Inc. (WNQQ375, Cheyenne, Wyoming); and Stanley Kuehn (WPKA286, Sanborn, Minnesota). Former Section 90.283 provided that specified frequencies in the 156-162 MHz maritime band, including 161.975 MHz (Channel 87B), could be assigned for PLMR use subject to certain conditions, where there were no available Part 90 VHF frequencies due to congestion, as determined by a certified private land mobile radio frequency coordinator. 47 C.F.R. § 90.283(a)-(b) (1995). The conditions included minimum distance separations from co-channel VPC stations and the coastline of any navigable waterway. 47 C.F.R. § 90.283(d) (1995). The rule also provided that the Commission would entertain waivers to permit PLMR operations on a secondary, non-interference basis to maritime operations if the applicant could not meet the minimum distance separation with respect to a navigable waterway. 47 C.F.R. § 90.283(f) (1995). *See* Amendment of the Commission's Rules Concerning Maritime Communications, *First Report and Order*, PR Docket No. 92-257, 10 FCC Rcd 8419 (1995). Section 90.283 was deleted when the Commission adopted a geographic licensing scheme for VPC spectrum in 1998, but PLMR stations licensed to use VPC channels were permitted to continue operating. *See Public Coast Third Report and Order*, 13 FCC Rcd at 19863-64 ¶ 18.

<sup>271</sup> *See AIS NPRM*, 19 FCC Rcd at 20107 ¶ 65.

<sup>272</sup> *Id.*

<sup>273</sup> *Id.* In addition, the Commission asked commenters if, how and under what authority the Commission might either migrate current site-based Channel 87B/88B licensees to other channels or provide compensation to such licensees. It also requested information on the extent to which the site-based stations remain in active operation, and on the traffic they carry. *Id.*

<sup>274</sup> *See* para. 18, *supra*.

<sup>275</sup> ShipCom Comments at 2-5; ShipCom Reply Comments at 1-2. According to ShipCom, "the introduction of B-side simplex operations into the duplex VPC band will not only preclude co-existent VPC and AIS operations on channel 87B but ... will also impact – potentially damaging – equipment operating even on other VPC channels." ShipCom Comments at 2. ShipCom contends that, unless stringent AIS installation guidelines are adopted and enforced, simplex AIS transmissions will cause a high percentage of installed VHF receivers to "consistently experience desensitization or intermodulation, and may even experience permanent damage from AIS transmitter power." *Id.* ShipCom notes in this regard that marine VHF radios which communicate over its facilities "do not have the latest digital signal processing enhancements and may not comply with the latest standards," and, as a consequence, are more susceptible to RF interference than newer models. *Id.*



not designate narrowband duplex channels for AIS,<sup>276</sup> it should require that NTIA negotiate with site-based incumbent VPC licensees to either provide replacement spectrum or provide compensation for the market value of Channel 87 and all other licensed channels that would experience harmful interference from AIS.<sup>277</sup>

55. NTIA argues that site-based incumbent VPC stations should be required to vacate Channel 87B and, if appropriate, migrate to another frequency.<sup>278</sup> To facilitate the requested clearing of these incumbent VPC stations, NTIA encourages the Commission to survey the few remaining site-based VPC licensees to determine the extent to which they are in active operation and providing maritime public correspondence services.<sup>279</sup> According to NTIA, the Coast Guard “strongly supports the public correspondence and watch-keeping operations of VPC stations and encourages their continued operation of these facilities....”<sup>280</sup> NTIA therefore favors migrating site-based VPC stations to other channels if, but only if, they are providing maritime public correspondence services.<sup>281</sup>

56. We believe, at this juncture, that Channel 87B can continue to be used for AIS on a shared basis with this limited group of site-based VPC stations, but that the channel should ultimately be cleared for exclusive AIS use. We are not persuaded that it is necessary to clear Channel 87B of site-based VPC stations immediately, as requested by NTIA, but neither will we require that AIS operate on a non-interference basis to such stations, as ShipCom essentially urges (unless the incumbents receive compensation).<sup>282</sup> Although ShipCom contends that it is impossible for site-based VPC operations to co-exist with AIS on Channel 87B, neither ShipCom nor NTIA (nor any other party) has brought to our attention any present examples of real-world VPC/AIS interference, notwithstanding that AIS has been operating on Channel 87B, pursuant to the international standards and the June 2002 *Public Notices*, for several years now.<sup>283</sup> We also believe that ShipCom, like MariTEL, is incorrect in asserting that it is practically impossible to overcome AIS interference, in this case co-channel as well adjacent channel

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<sup>276</sup> *Id.* at 3. ShipCom contends that designation of narrowband duplex channels for AIS would not only avoid co-channel interference from AIS but would also preserve the duplex nature of VPC spectrum and preserve licensees’ existing rights to use Channel 87, which ShipCom deems a uniquely valuable spectrum resource. *Id.*

<sup>277</sup> *Id.* at 3-5.

<sup>278</sup> NTIA Comments at 21.

<sup>279</sup> *Id.* at 20-21. NTIA states that the Coast Guard’s informal survey of the incumbent licensees suggests that at least some of them are not currently providing VPC services. *Id.* at 21. NTIA also recommends that the Commission survey the PLMR licensees operating on Channel 87B pursuant to former Section 90.283, and contends that all such operations must operate on a non-interference basis to AIS. *Id.* at 21-22.

<sup>280</sup> *Id.* at 20.

<sup>281</sup> *Id.* at 21.

<sup>282</sup> We decline to “require” NTIA or the Coast Guard to negotiate with site-based incumbent licensees over interference protection or compensation for the same legal and policy reasons we decline to mandate such negotiations between the Executive Branch agencies and maritime VPCSA licensees. *See* para. 14, *supra*. Of course, nothing herein is intended to preclude such negotiations in the interest of accelerating the clearance of these stations from Channel 87B.

<sup>283</sup> *See* NTIA Opposition at 5 (observing that AIS equipment meeting the international standards has been operating internationally for a significant period of time, yet the Coast Guard is not aware of any reports of harmful AIS interference to VPC operations). *But see* MariTEL Reply at 4-5 (suggesting that the absence of reports of AIS-to-VPC interference to date may be due to the fact that most other nations have been able to create guard bands and other regulatory schemes to separate AIS operations on Channels 87B and 88B from public correspondence traffic to protect both AIS and VPC services).

interference.<sup>284</sup> In addition, we are likewise unaware of any actual interference to AIS transmissions from these VPC operations, and we believe that AIS will be able to operate effectively notwithstanding the continued use of Channel 87B for a limited period of time by a very few, highly localized VPC stations.

57. However, we also believe that to ensure the integrity of AIS in the long run, Channel 87B should be cleared of all site-based VPC and PLMR operations over time through the non-renewal of any license authorizing such operation on Channel 87B in a maritime VPCSA.<sup>285</sup> We accordingly add a new footnote to Section 80.373(c)(1)(i) of the Rules to provide that no site-based authorization to operate on Channel 87B in a maritime VPCSA will be renewed after this *Report and Order* takes effect.<sup>286</sup> Operation of PLMR stations authorized to use Channel 87B on a secondary basis<sup>287</sup> must cease immediately if it causes harmful interference to AIS that the licensee is unable to remedy.

#### IV. FURTHER NOTICE OF PROPOSED RULE MAKING

##### A. Satellite AIS – Inland Areas

58. As noted above,<sup>288</sup> NTIA and other commenters disagree with the Commission's tentative conclusion in the *AIS NPRM* that Channel 87B should be designated for exclusive AIS use only in the nine maritime VPCSA's. These commenters argue that the designation of Channel 87B for AIS should apply throughout the Nation, including the inland VPCSA's as well as the maritime VPCSA's.<sup>289</sup> Although the proponents of a nationwide designation offer several considerations in support of their position, NTIA and ORBCOMM have emphasized that satellite AIS capabilities may be developed, and that the effectiveness of satellite AIS depends to a great deal on the establishment of a truly nationwide AIS channel designation.<sup>290</sup> The possibility of satellite AIS was not discussed in the *AIS NPRM*, however, and was not introduced into the record of this proceeding until NTIA filed comments, and ORBCOMM reply comments, addressing the issue. We therefore believe that it would be beneficial to obtain further information regarding satellite AIS before we decide this important and complex issue. We request, in particular, that interested parties provide technical and operational information regarding satellite AIS, including its susceptibility to interference from terrestrial stations, and discuss the public

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<sup>284</sup> See para. 31, *supra* (noting that the AIS installation guidelines deemed essential by ShipCom are in fact incorporated by reference in Commission and Coast Guard regulations). In addition, ShipCom concedes that VHF marine equipment more robust than that currently used on its system is available. See ShipCom Comments at 2 (representing that "the majority of ShipCom's services operate with ... radios [that] are generally more susceptible to RF interference than newer radios").

<sup>285</sup> The last such licenses to expire, assuming no earlier termination, are those licensed to the State of Arizona for PLMR use, which are scheduled to expire on November 30, 2014. Those State of Arizona licenses expressly provide that authorized operations are on a secondary, non-interference basis to stations licensed under Part 80 of the Rules. The last site-based VPC licenses to expire should be those of Whidbey Telephone Company and Pacific Bell, Stations WHU300 and KMH828, respectively, each of which has an expiration date of July 1, 2013.

<sup>286</sup> We will continue to renew licenses authorizing operation on frequencies other than Channel 87B, but only with respect to the additional frequencies. In addition, we will continue to renew licenses authorizing use of Channel 87B in inland VPCSA's (*i.e.*, Stations WNQQ375, WPGA967, WPGA968, and WPGA969), pending our decision whether to expand the geographic scope of the AIS designation.

<sup>287</sup> See n.269, *supra*.

<sup>288</sup> See paras. 49-51, *supra*.

<sup>289</sup> See NTIA Comments at 19-25; RTCM Comments at 4; Task Force Comments at 2; NPMRC Comments at 2; ORBCOMM Reply Comments at 4; NTIA Reply Comments at 5.

<sup>290</sup> See NTIA Comments at 24; ORBCOMM Reply Comments at 3-4.

interest costs and benefits of satellite AIS. Commenters should also address whether satellite AIS can function adequately without a nationwide designation of Channel 87B for AIS or whether, as argued by NTIA and ORBCOMM, a nationwide allocation is essential.<sup>291</sup>

59. In addition to providing information specifically with respect to satellite AIS, interested parties are again invited to address the larger issue of whether the designation of Channel 87B for AIS should be limited to the maritime VPCSA or should cover the entire Nation, whether or not satellite AIS proves feasible. We would especially welcome input on this issue from licensees of inland VPCSA.<sup>292</sup> In addition, we request further comment on the potential benefits of terrestrial AIS in inland areas.<sup>293</sup> We also request that commenters provide more information on the extent to which vessels on navigable waterways in the inland VPCSA may benefit from AIS on the one hand, and VPC services, including maritime public correspondence services, on the other.

60. As the Commission noted in the *AIS NPRM*, two duplex channels in each inland VPCSA are set aside for public safety use.<sup>294</sup> These channels are designated for interoperability operations in the inland VPCSA.<sup>295</sup> The Commission's Universal Licensing System database indicates that only two public safety entities are licensed for these channels.<sup>296</sup> In addition, we note that the Commission has designated other spectrum in the VHF and other bands, for interoperability operations.<sup>297</sup> We therefore seek comment on whether, in the event we designate Channel 87B for exclusive AIS use nationwide, it would be appropriate to redesignate any of these set-aside channels for VPC use in order to avoid a

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<sup>291</sup> We note that there currently is no allocation, either international or domestic, for satellite uplinking in this band. Commenters are asked to consider whether the accommodation of satellite AIS might require a reallocation of spectrum, or otherwise necessitate revision of the Section 2.106 Table of Frequency Allocations.

<sup>292</sup> MariTEL, which holds inland as well as maritime VPCSA licenses, was the only inland VPCSA licensee to file comments on the *AIS NPRM* and those comments, quite naturally, tended to focus on MariTEL's positions regarding the use of Channel 87B in the maritime VPCSA. *But see* MariTEL Reply Comments at 16-18 (discussing how the Commission's proposal would affect inland VPCSA, and noting that migrating inland VPCSA licensees to other channels in order to clear Channel 87B for AIS would encumber spectrum licensed to MariTEL).

<sup>293</sup> We note, for example, that RTCM has argued that AIS – presumably terrestrial AIS as well as satellite AIS – can serve as an important navigational tool on winding, constricted waterways in inland areas. RTCM Comments at 4. No other commenter has addressed this precise issue. We therefore invite further comment on this question.

<sup>294</sup> *See AIS NPRM*, 19 FCC Rcd at 20106 ¶ 63, *citing* 47 C.F.R. § 80.371(c)(1)(ii). Channel 25 is set aside in every inland VPCSA; in addition, Channel 84 is set aside in some inland VPCSA, and Channel 85 is set aside in the other inland VPCSA. 47 C.F.R. § 80.371(c)(1)(ii); *see Public Coast Third Report and Order*, 13 FCC Rcd at 19869 ¶ 31.

<sup>295</sup> 47 C.F.R. § 90.20(g)(2); *see* The Development of Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, *Third Memorandum Opinion and Order and Third Report and Order*, WT Docket No. 96-86, 15 FCC Rcd 19844, 19887 ¶ 94 (2000).

<sup>296</sup> Specifically, the State of Wyoming (Station KB9153) is authorized to use Channels 84, 25, and 85; and Unified School District 457 of Garden City, Kansas (Stations KJR221, KJR224, and KK7146) is authorized to use Channel 25.

<sup>297</sup> In the 800 MHz band, five channels are reserved for “mutual aid,” *i.e.*, public safety interoperability. *See* 47 C.F.R. § 90.617(a)(1). In the 700 MHz band, 2.6 megahertz of spectrum is designated for interoperability. *See* 47 C.F.R. § 90.531(b)(1), (c)(1). Below 512 MHz, five other VHF channels (five frequencies) and four UHF channel pairs (eight frequencies) are reserved for public safety interoperability. *See* 47 C.F.R. § 90.20(d)(80).

negative impact on inland VPCSA licensees.<sup>298</sup>

## B. AIS Base Station Issues

61. NTIA observes that the IEC is in the process of developing AIS base station equipment standards, and says that the Commission should address issues concerning the authorization, coordination, and operation of AIS base stations in a Further Notice of Proposed Rule Making.<sup>299</sup> We agree with NTIA, and we do not believe it necessary to defer requesting comment on these questions until the IEC completes its work. Requesting comment at this stage will permit the Commission to more expeditiously amend its rules following the development of the IEC standards, either to incorporate the IEC standards, promulgate different standards, or take other appropriate action. In addition, it may be possible to crystallize some of the relevant issues even before the IEC publishes its AIS base station standards. We accordingly request comment on standards and procedures for authorizing AIS base station equipment. We also request comment on what, if any, rules the Commission should adopt for the licensing and use of AIS base stations, including, for example, license eligibility criteria, an appropriate license term, and whether AIS base station licenses should be assignable. With respect to operational issues, commenters should address, for example, limits on permissible communications, and whether AIS base stations should be permitted to operate on a for-profit basis.<sup>300</sup>

## C. Class B AIS Shipborne Equipment

62. In its comments, NTIA notes that low-cost, Class B AIS devices are being developed for vessels not covered by a mandatory carriage requirement under SOLAS.<sup>301</sup> We understand that Class B AIS devices are intended to provide a less expensive alternative to Class A AIS equipment, while still providing vessel information critical to maritime safety and security. In standardizing AIS, the ITU Radiocommunications Sector Recommendation 1371-1, “Technical characteristics for a universal shipborne Automatic Identification System (AIS) using SOTDMA (Self-Organizing Time Division Multiple Access) in the VHF maritime mobile band,” provides for a Class B AIS device. We note, moreover, that the IEC recently adopted and published an international standard, IEC 62287-1, that sets forth requirements and test procedures for Class B AIS equipment.<sup>302</sup> During the development of this Class B AIS standard, concerns arose regarding the potential impact on the operation of the AIS network from widespread deployment of Class B AIS devices that are not compatible with the Class A devices

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<sup>298</sup> In accord with our determination to supplement the record on these issues, we have prepared a Supplemental Initial Regulatory Flexibility Analysis pertaining to these and the other issues in the *Further Notice*. See Appendix E, *infra*.

<sup>299</sup> NTIA Comments at 23.

<sup>300</sup> In addition, in the *AIS NPRM*, the Commission requested comment on MariTEL’s question as to whether Channels 87B and 88B, if designated for AIS, could be used for shore station operations by commercial entities other than MariTEL. *AIS NPRM*, 19 FCC Rcd at 20106 ¶ 63. The only remotely responsive comment is from NTIA, which asserts that the use of AIS base stations by commercial entities should be limited to those having a clear safety-related need. NTIA Comments at 22-23. It is apparent, however, that MariTEL believes that there can be some commercial use of AIS base stations consistent with the public safety purposes of AIS; in fact, it appears to be a premise of MariTEL’s *Sharing Proposal*.

<sup>301</sup> See NTIA Comments at 5.

<sup>302</sup> IEC 62287-1, “Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the automatic identification system – Part 1: Carrier-sense time division multiple access (CSTDMA) techniques,” 2006 (IEC 62287-1), available from <http://www.iec.ch>.

used on SOLAS ships, AIS base stations, and AIS-equipped Aids to Navigation.<sup>303</sup> To resolve these concerns, a network access technology was developed that allows large numbers of Class B-fitted vessels to coexist with Class A-fitted vessels with negligible detrimental effect on the AIS network. This new technology, known as Carrier Sense TDMA (CS or CSTDMA), requires that the Class B CS AIS device “listen” to the AIS network, and then determine that the network is free of competing traffic before transmitting.<sup>304</sup> This “polite” operation of Class B CS AIS devices minimizes the probability of their causing interference to Class A devices and other AIS network operations.<sup>305</sup>

63. We believe that accommodating Class B devices under the Commission’s rules will advance the Commission’s goal of ensuring that AIS is deployed widely, quickly, reliably, cost-effectively, and in a manner that will maximize its capabilities.<sup>306</sup> Class B AIS devices can significantly enhance the overall effectiveness of AIS at a low cost. In addition, the IEC 62287-1 international standard appears to adequately protect the overall AIS network. We tentatively conclude, therefore, that the Commission should 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. We believe this action will promote the domestic public interest by facilitating the sale, installation and use of internationally interoperable Class B AIS devices in the United States. We invite comment on this proposal generally, and, more specifically, on the merits of proposed new Section 80.231 in Appendix C.

64. In addition, we request comment on the measures, if any, that the Commission might take to ensure the accuracy of AIS data transmitted via Class B AIS devices. Class B AIS devices broadcast such user-programmed information as Maritime Mobile Service Identity (MMSI) number,<sup>307</sup> vessel name, vessel type, call sign and dimension of the ship and reference point for reported position. They also broadcast such dynamic information as true heading, speed over ground and course over ground. Ships, vessel traffic systems and others often make navigation decisions based upon the accuracy of the information received. We seek comments regarding means which could be employed to ensure that user-programmed as well as dynamic data on AIS units used on non-compulsory ships is accurate.

## V. FOURTH MEMORANDUM OPINION AND ORDER

65. As noted above,<sup>308</sup> in the *Sixth Report and Order*, the Commission adopted rules providing for the certification of AIS equipment that complies with the international standards for such equipment.<sup>309</sup> In its petition for reconsideration of that decision, MariTEL contends that the adopted AIS

<sup>303</sup> An aid to navigation is any device external to a vessel (or aircraft) intended to assist a navigator to determine position or safe course, or to warn of dangers or obstructions to navigation. See 33 C.F.R. § 62.3(a).

<sup>304</sup> The Class B CS AIS device also is required to “listen” for reservations from base stations and comply with these reservations.

<sup>305</sup> See IEC 62287-1 at 7.

<sup>306</sup> See para. 23, *supra*.

<sup>307</sup> An MMSI is a unique nine-digit number assigned to commercial and recreational vessels participating in the Global Maritime Distress and Safety System (GMDSS). Required under the ITU *Radio Regulations*, the MMSI functions as a “phone number” for the vessel and must be programmed into the vessel’s digital selective calling (DSC) radio. MMSIs are also used for AIS transponders.

<sup>308</sup> See para. 10, *supra*.

<sup>309</sup> *Sixth Report and Order*, 19 FCC Rcd at 3155 ¶ 67; 47 C.F.R. §§ 80.275, 80.1101(c)(12). The rules provide that applications for certification of AIS equipment will be granted if the equipment complies with the following international standards: ITU-R M.1371-1, IMO Resolution MSC.74(69), IEC 61162-1, IEC 6162-100, and IEC 61993-2.

equipment certification requirements will have a devastating impact on MariTEL because the international AIS emission mask is not as rigorous as the otherwise applicable U.S. emission mask, and, more importantly, the procedures for measuring compliance with the international mask are flawed so that equipment approved as compliant may not in fact comply even with the more lenient emission mask.<sup>310</sup> MariTEL further argues that, in adopting AIS equipment certification requirements that incorporate by reference the international standards for such equipment, the Commission has effectively ceded its authority over domestic spectrum use to international authorities, abrogating its obligation to exercise independent judgment to determine whether a particular regulation would serve the domestic public interest.<sup>311</sup> For reasons discussed below, we deny MariTEL's petition for reconsideration.<sup>312</sup>

66. We agree with MariTEL that the Commission should not incorporate international standards in its own rules automatically, without considering whether, on balance, those international standards would serve the domestic public interest.<sup>313</sup> We believe, however, based on the record before us, that it serves the public interest for the Commission to establish AIS equipment certification standards that conform to the international standards. The adoption of U.S.-specific standards for AIS equipment could preclude the development of a seamless global AIS network and complicate international AIS coordination.<sup>314</sup> This would reduce the effectiveness of AIS as a tool against terrorism. It would also reduce the value of AIS for maritime safety, especially if U.S.-certified equipment were not interoperable with AIS equipment approved under the international standards. It could also lead to the premature obsolescence of installed AIS devices meeting the international standards, and result in stranded inventory for AIS equipment manufacturers who have relied on the international standards in designing AIS devices. In addition, adoption of a separate standard could increase the costs to U.S. vessels of complying with the domestic AIS carriage requirement (and potentially also increase AIS costs for foreign-flagged

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<sup>310</sup> MariTEL PFR at 3-4; *see also* MariTEL Reply at 1-2. MariTEL also argues that the Commission improperly failed to consider evidence that MariTEL provided after the close of the pleading cycle in the GMDSS rulemaking proceeding to demonstrate that AIS equipment certified pursuant to the international standards would cause harmful interference to MariTEL's VPC operations. MariTEL PFR at 4-5. In addressing the MariTEL PFR in conjunction with the interrelated issues raised in this WT Docket No. 04-344 rulemaking proceeding, we have considered all of MariTEL's technical submissions pertinent to these matters, including all *ex parte* presentations, on the merits. This renders moot any contention that the Commission has improperly ignored relevant evidence adduced by MariTEL. *Cf. S & L Teen Hospital Shuttle, Memorandum Opinion and Order*, 16 FCC Rcd 8153, 8155 ¶ 5 (2001).

<sup>311</sup> MariTEL PFR at 8. In addition, MariTEL claims that the incorporation by reference of the international standards for certification of AIS equipment improperly prejudged the designation of AIS channels in the United States, inasmuch as the international standards default to operation on Channels 87B and 88B. *Id.* at 8-10. We believe our decision to address the MariTEL PFR in conjunction with our resolution of the issues raised in the *AIS NPRM* moots this objection.

<sup>312</sup> On April 12, 2005, MariTEL filed an amendment to correct data in an exhibit to the MariTEL PFR, and in effect moved for leave to file the amendment. *See* Amendment to Petition for Reconsideration of MariTEL, Inc. (filed April 12, 2005). MariTEL states that the data presented in the amendment is different from that originally presented, but that the data correction does not undermine the conclusion MariTEL draws from the data, namely, that the results of the AIS certification process are "completely unpredictable" and that the Commission's adopted certification process will result in the certification of AIS devices that do not in fact comply with the Commission's emission mask requirements. *Id.* at 2; *see also* MariTEL Reply at 2. We grant MariTEL leave to file the amendment, and accept the amendment into the record of this proceeding. We do not believe any party would be prejudiced by this action.

<sup>313</sup> *See, e.g.*, MariTEL PFR at 8.

<sup>314</sup> *See* NTIA Opposition at 1-2. The adverse impact of a separate U.S. AIS equipment standard would probably be felt most immediately with respect to tracking of vessels on the Saint Lawrence Seaway, which is done collaboratively by the United States and Canada using equipment authorized pursuant to the international standards.

vessels transiting U.S. waters) by making U.S.-approved AIS equipment more expensive and/or necessitating carriage of two different AIS devices. Adding to the cost of AIS equipment would also create a disincentive to voluntary AIS carriage, further undermining the effectiveness of AIS.<sup>315</sup> Furthermore, the current record in this proceeding does not provide a basis for immediate adoption of an alternative AIS equipment standard. Therefore, if we were to grant MariTEL's petition for reconsideration, it would appear that the Commission would also have to request further comment to determine precisely what standard should be adopted in Part 80 in lieu of incorporating the international standards by reference. This would engender considerable uncertainty in both the maritime and the manufacturing communities, internationally as well as domestically, for a significant period of additional time.<sup>316</sup> All of these factors would serve to delay and limit effective, efficient and expeditious AIS implementation in the United States, which would clearly be contrary to the public interest.<sup>317</sup> On the other hand, continued reliance on the international standards in certifying AIS equipment under Part 80 would permit domestic AIS deployment to proceed unabated, provide certainty to the affected entities, encourage voluntary AIS carriage, minimize the costs of AIS implementation (for the United States Government as well as private sector entities), and permit the development of a seamless global AIS network in which the vessel monitoring capabilities of AIS are maximized.

67. MariTEL does not directly dispute these benefits.<sup>318</sup> Rather, MariTEL contends that the Commission must weigh against those public interest benefits the interference to VPC operations that will be caused by the introduction of AIS technology as contemplated by the international standards, and the adverse impact of such interference on MariTEL's ability to develop a viable maritime communications service.<sup>319</sup> However, we continue to believe that MariTEL overstates the interference impact of AIS equipment authorized on the basis of international standards, and that the challenges that may be presented by such potential interference can be surmounted using existing technology. In particular, we continue to disagree with MariTEL's contention that the AIS emission mask is not as stringent as the

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<sup>315</sup> As noted in the *AIS NPRM*, the benefits of AIS are directly proportional to the number of vessels that carry AIS equipment. See *AIS NPRM*, 19 FCC Rcd at 20101 ¶ 55.

<sup>316</sup> According to MariTEL, "the inadequacy of the existing IEC 61993-2 test procedures for emissions mask has been recognized by the international community already and measures are underway to correct the emission test." MariTEL Reply at 3. The Commission would certainly consider incorporating by reference into Part 80 any revisions to the international standards. But there remains a problem, in MariTEL's view, because devices authorized pursuant to the current test procedures continue to be deployed, "creating a steadily increasing embedded base of devices that have unpredictable transmission characteristics." *Id.* With respect to this embedded base of equipment that was authorized pursuant to what MariTEL deems a flawed international standard, MariTEL requests that the Commission require the Coast Guard to replace such equipment with devices compliant with the U.S.-specific standard that is ultimately adopted. *Id.* Given our determination here to continue to rely on the international AIS standards in certifying equipment under Part 80, we need not further address this proposal by MariTEL.

<sup>317</sup> Such a delay would also be problematic because domestic AIS carriage requirements are in effect currently, having been adopted by the Coast Guard pursuant to the MTSA. The Coast Guard regulations require carriage of equipment in accord with the international standards. It would create an obvious tension between the Coast Guard regulations and the Commission regulations, and leave regulatees subject to conflicting requirements, if the Commission were to determine that it would only certify AIS equipment that would not satisfy the federal AIS carriage requirement.

<sup>318</sup> MariTEL "recognizes that there is a benefit to the FCC following the international lead by adopting emission mask requirements that have been approved by the IEC." MariTEL Reply at 5.

<sup>319</sup> *Id.*

emission mask typically applicable to maritime transmitters under Part 80 of the Commission's Rules.<sup>320</sup> MariTEL's contentions to the contrary appear to be premised on a comparison of the IEC 61993-2 25 kHz mask that is incorporated by reference in Section 80.1101(c)(12) with the Part 90 emission mask, set forth in Section 90.210, that is applicable to *narrowband* Part 80 operations pursuant to Section 80.207(d).<sup>321</sup> The proper comparison, however, is with the emission mask set forth in Section 80.211.<sup>322</sup> That comparison demonstrates that the AIS emission mask is not less rigorous than the otherwise applicable Part 80 mask. We conclude that the public interest benefits of conforming our Part 80 rules governing the certification of AIS equipment with those used in other nations and internationally clearly outweigh the costs, and that adoption of an alternative AIS certification standard would be in derogation of the paramount public interest in maximizing homeland security and maritime safety. We therefore deny MariTEL's petition for reconsideration of the *Sixth Report and Order*.

## VI. CONCLUSION

68. In this *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion and Order*, we take actions critical to ensuring that AIS is implemented in the United States in a manner that optimizes its usefulness. Our designation of Channels 87B and 88B for AIS, coupled with our affirmance of the Part 80 standards for AIS equipment, will provide a needed measure of certainty to the maritime community, as well as manufacturers of marine radio equipment, that will facilitate the expeditious and broad deployment of AIS domestically. This, in turn, will advance our Nation's ability to maximize maritime domain awareness, and should also reduce the frequency of vessel collisions and other maritime accidents that could result in loss of life and property, as well as environmental damage to oceans, rivers, and coastal areas. We believe, in sum, that the choices we have made here are those that will best advance the overriding public interest in promoting and enhancing homeland security and maritime safety.

## VII. PROCEDURAL MATTERS

### A. Ex Parte Rules – Permit-But-Disclose Proceeding

69. This is a permit-but-disclose notice and comment rulemaking proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in our Rules.<sup>323</sup>

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<sup>320</sup> See *AIS NPRM*, 19 FCC Rcd at 20097 ¶ 47 n.191 (explaining why “the emissions profile for AIS devices is significantly more stringent than the emissions profile for devices typically authorized under Part 80, including devices used for public correspondence”).

<sup>321</sup> See 47 C.F.R. §§ 80.207(d) n.20, 80.1101(c)(12), 90.210; see also NTIA Opposition at 3-5 (asserting, *inter alia*, that MariTEL's characterization of the AIS emission mask stems from confusion regarding the incorporated-by-reference emission mask in section 15.5.2 of the IEC 61993-2 standard, which requires that spurious emissions on any discrete frequency not exceed -36 dBm; that the IEC emission limitations are more stringent than those in Section 80.211(f) of the Commission's Rules; and that the narrowband emission mask in Section 90.210 of the Commission's Rules, 47 C.F.R. § 90.210, which is applicable to Part 80 transmitters pursuant to Section 80.207(d), 47 C.F.R. § 80.207(d), is nearly identical to the narrowband emission mask in IEC 61993-2). We note that while the IEC allows for a 12.5 kHz mask, we have received comments indicating that the 12.5 kHz AIS mask apparently has technical problems associated with it, and likely will not be implemented. See Shine Micro, Inc. Comments filed Dec. 16, 2003, in response to *Frequency Coordinator PN*, at 1.

<sup>322</sup> See 47 C.F.R. § 80.211.

<sup>323</sup> See generally 47 C.F.R. §§ 1.1202, 1.1203, 1.1206(a).



## B. Peer Review Bulletin and Information Quality Act

70. The Commission conducted a peer review of a study on which this *Report and Order* relies in part, in compliance with the Peer Review Bulletin issued by the Office of Management and Budget (OMB).<sup>324</sup> The peer review report is discussed in this *Report and Order* both in the Introduction and Executive Summary and in Section III.C.<sup>325</sup> All of the materials related to this peer review – the study, the charge statement, the peer review report, and the Commission staff response – are disseminated on the Commission’s website.<sup>326</sup> This *Report and Order* also complies with the Information Quality Guidelines promulgated by the Commission.<sup>327</sup>

## C. Congressional Review Act

71. The Commission will send a copy of this *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion* in a report to be sent to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

## D. Regulatory Flexibility Act

72. As required by the Regulatory Flexibility Act (RFA),<sup>328</sup> the Commission has prepared a Final Regulatory Flexibility Analysis (FRFA) of the rules adopted in this *Report and Order*. The FRFA for the *Report and Order* is contained in Appendix C. The Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Report and Order*, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration, in accordance with the RFA.<sup>329</sup> In addition, the Commission will send a copy of the *Report and Order*, including the FRFA, in a report to Congress pursuant to the Congressional Review Act.<sup>330</sup>

73. As required by the RFA,<sup>331</sup> the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the rules proposed or discussed in the *Further Notice of Proposed Rule Making*. The IRFA for the *Further Notice of Proposed Rule Making* is contained in Appendix D. Written public comments are requested on the IRFA. These comments must be filed in accordance with the same filing deadlines for comments on the *Further Notice of Proposed Rule Making*, and they should have a separate and distinct heading designating them as responses to the IRFA. The Commission’s Consumer and Governmental Affairs Bureau, Reference Information Center, will send a copy of the *Further Notice of Proposed Rule Making*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business

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<sup>324</sup> See OMB Final Information Quality Bulletin for Peer Review, 70 Fed. Reg. 2664 (Jan. 14, 2005).

<sup>325</sup> See n.1, *supra*; see generally Section III.C.

<sup>326</sup> See <http://www.fcc.gov/omd/dataquality/peer-agenda.html>.

<sup>327</sup> See *In the Matter of Implementation of Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Pursuant to Section 515 of Public Law No. 105-554*, 17 FCC Rcd 19890 (2002) (implementing OMB Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies, 67 Fed. Reg. 8452 (Feb. 22, 2002)). The Commission’s Information Quality Guidelines are available at [www.fcc.gov/omd/dataquality](http://www.fcc.gov/omd/dataquality).

<sup>328</sup> *Id.* § 603.

<sup>329</sup> *Id.* § 603(a).

<sup>330</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>331</sup> *Id.* § 603.

Administration, in accordance with the Regulatory Flexibility Act.<sup>332</sup>

### E. Comment Dates

74. Pursuant to sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments and reply comments on or before the dates indicated on the first page of this document. Comments may be filed using: (1) the Commission's Electronic Comment Filing System (ECFS), (2) the Federal Government's eRulemaking Portal, or (3) by filing paper copies. See *Electronic Filing of Documents in Rulemaking Proceedings*, 63 FR 24121 (1998).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://www.fcc.gov/cgb/ecfs/> or the Federal eRulemaking Portal: <http://www.regulations.gov>. Filers should follow the instructions provided on the website for submitting comments.
  - For ECFS filers, if multiple docket or rulemaking numbers appear in the caption of this proceeding, filers must transmit one electronic copy of the comments for each docket or rulemaking number referenced in the caption. In completing the transmittal screen, filers should include their full name, U.S. Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions, filers should send an e-mail to [ecfs@fcc.gov](mailto:ecfs@fcc.gov), and include the following words in the body of the message, "get form." A sample form and directions will be sent in response.
- Paper Filers: Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, filers must submit two additional copies for each additional docket or rulemaking number.

Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail (although we continue to experience delays in receiving U.S. Postal Service mail). All filings must be addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- The Commission's contractor will receive hand-delivered or messenger-delivered paper filings for the Commission's Secretary at 236 Massachusetts Avenue, NE., Suite 110, Washington, DC 20002. The filing hours at this location are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail should be addressed to 445 12<sup>th</sup> Street, SW, Washington DC 20554.

People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

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<sup>332</sup> *Id.* § 603(a).

## F. Paperwork Reduction Act

75. This document contains proposed new or modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the general public and the Office of Management and Budget (OMB) to comment on the information collection requirements contained in this document, as required by the Paperwork Reduction Act of 1995, Public Law 104-13. Public and agency comments are due **[30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. Comments should address: (a) whether the proposed collection of information is necessary for the proper performance of the functions of the Commission, including whether the information shall have practical utility; (b) the accuracy of the Commission's burden estimates; (c) ways to enhance the quality, utility, and clarity of the information collected; and (d) ways to minimize the burden of the collection of information on the respondents, including the use of automated collection techniques or other forms of information technology. In addition, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, *see* 44 U.S.C. 3506(c)(4), we seek specific comment on how we might “further reduce the information collection burden for small business concerns with fewer than 25 employees.”

76. Specifically, in the *Further Notice*, we propose to establish requirements for the certification of Class B AIS devices.<sup>333</sup> If adopted, the proposed rule would require, *inter alia*, that applicants for certification submit specified information, including copies of test reports and test data, to the United States Coast Guard prior to filing their applications with the Commission, and that they include with their applications to the Commission copies of letters from the United States Coast Guard stating that the device in question satisfies all of the requirements of the pertinent international standard, IEC 62287-1, “Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the automatic identification system – Part 1: Carrier–sense time division multiple access (CSTDMA) techniques,” 2006 (IEC 62287-1).<sup>334</sup> We do not believe that the requirement to submit this information would impose a significant increased administrative burden on businesses with fewer than 25 employees, primarily because such businesses would need to submit the same or similar information in order to obtain certification for Class B AIS devices under international requirements. By incorporating the international standard into the Commission’s rules, rather than establishing a different standard, the Commission’s proposed rule would avoid subjecting businesses to disparate equipment certification requirements for Class B AIS devices. In addition, whatever burden the Commission’s proposed rule might impose on businesses with fewer than 25 employees is more than justified by the underlying purpose of the rule, which to ensure that Class B devices operate effectively and safely, and are interoperable with other AIS devices. Given the important role AIS is to play in promoting homeland security and maritime safety, the public interest in establishing rules for the certification of Class B AIS devices outweighs the minimal burden it might impose on businesses with fewer than 25 employees.

## G. Further Information

77. For further information, contact Jeffrey Tobias, Public Safety and Critical Infrastructure Division, Wireless Telecommunications Bureau, (202) 418-1617, or TTY (202) 418-7233, or via electronic mail at [jeff.tobias@fcc.gov](mailto:jeff.tobias@fcc.gov).

78. To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to [fcc504@fcc.gov](mailto:fcc504@fcc.gov) or call the Consumer & Governmental

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<sup>333</sup> *See* paras. 62-64, *supra*.

<sup>334</sup> *See* proposed Section 80.231 in Appendix C, *infra*.

Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty). This *Report and Order, Further Notice of Proposed Rule Making, and Fourth Memorandum Opinion and Order* can also be downloaded at: <http://www.fcc.gov/>.

### VIII. ORDERING CLAUSES

79. Accordingly, IT IS ORDERED, pursuant to the authority of Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403 that Parts 2 and 80 of the Commission's Rules ARE AMENDED as set forth in the attached Appendix B, effective thirty days after publication in the Federal Register.

80. IT IS FURTHER ORDERED that, pursuant to Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r) and 403, this *Report and Order, Further Notice of Proposed Rule Making, and Fourth Memorandum Opinion and Order* IS HEREBY ADOPTED, and NOTICE IS HEREBY GIVEN of the proposed regulatory changes described in the *Further Notice of Proposed of Rule Making*.

81. IT IS FURTHER ORDERED that the Amendment to Petition for Reconsideration filed by MariTEL, Inc. on April 12, 2005 IS ACCEPTED.

82. IT IS FURTHER ORDERED that the Petition for Reconsideration filed by MariTEL, Inc. on December 8, 2004, as amended by the Amendment to Petition for Reconsideration of MariTEL, Inc. IS DENIED.

83. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion* including the Final Regulatory Flexibility Analysis for the *Report and Order*, and the Initial Regulatory Flexibility Analysis for the *Further Notice of Proposed Rule Making*, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

**Appendix A**  
**Commenting Parties**

Ingram Barge Company (Ingram Barge)  
IP MobileNet, Inc. (IP MobileNet)  
Marine Exchange of Puget Sound (MEPS)  
MariTEL, Inc. (MariTEL)  
Nauticast Schiffsnavigationssysteme AG (Nauticast)  
North Pacific Marine Radio Council (NPMRC)  
National GMDSS Task Force (Task Force)  
National Telecommunications and Information Administration (NTIA)  
Radio Technical Commission for Maritime Services (RTCM)  
RF Industries, Inc., Neulink Division (RF Neulink)  
ShipCom LLC (ShipCom)

Reply Comments:

MariTEL  
NTIA  
ORBCOMM, Inc. (ORBCOMM)  
ShipCom

Other Pleadings (from PR Docket No. 92-57 *Sixth Report and Order*):

MariTEL Petition for Reconsideration (filed Dec. 8, 2004)  
MariTEL Amendment to Petition for Reconsideration (filed April 12, 2005)  
NTIA Opposition (filed April 28, 2005)  
MariTEL Reply (filed May 9, 2005)

*Ex parte* Presentations:

*Ex parte* presentation during meeting on March 30, 2005 (MariTEL March 30 *ex parte* Presentation)  
Letter dated April 11, 2005 from Dan Smith to Michael Wilhelm (MariTEL April 11 *ex parte* Presentation)  
Letter dated April 11, 2005 from Russell Fox to Michael Wilhelm (MariTEL Second April 11 *ex parte* Presentation)  
Letter dated May 31, 2005 from Dan Smith to Michael Wilhelm (MariTEL May 31 *ex parte* Presentation)

**Appendix B**  
**Final Rules**

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 C.F.R. parts 2 and 80 as follows:

**PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;  
GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended as follows:

- a. Revise page 21.
- b. In the list of United States (US) Notes, delete footnote US223 and add footnote US399.

**§ 2.106 Table of Frequency Allocations.**

The revisions and additions read as follows:

\* \* \* \* \*

Table of Frequency Allocations			157.0375-267 MHz (VHF)		Page 21
International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
156.8375-174 FIXED MOBILE except aeronautical mobile	156.8375-174 FIXED MOBILE		(See previous page) 157.0375-157.1875 MARITIME MOBILE US214 5.226 US266 G109 157.1875-161.575	157.0375-157.1875 5.226 US214 US266 157.1875-157.45 LAND MOBILE US266 MARITIME MOBILE 5.226 NG111 157.45-161.575 FIXED LAND MOBILE NG28 NG111 5.226 NG6 NG70 NG112 NG124 NG148 NG155	Maritime (80) Private Land Mobile (90)
			161.575-161.625 5.226 US77 161.625-161.775	161.575-161.625 MARITIME MOBILE US77 5.226 NG6 NG17 161.625-161.775 LAND MOBILE NG6 5.226	Public Mobile (22) Maritime (80) Public Mobile (22) Auxiliary Broadcasting (74)
			161.775-162.0125 5.226 US266 US399 162.0125-173.2 FIXED US13 MOBILE 5.226 US8 US11 US216 US300 US312 US399 G5 173.2-173.4	161.775-162.0125 LAND MOBILE US266 NG6 MARITIME MOBILE 5.226 US399 162.0125-173.2 5.226 US8 US11 US13 US216 US300 US312 US399 173.2-173.4 FIXED Land mobile	Public Mobile (22) Maritime (80) Private Land Mobile (90) Auxiliary Broadcasting (74) Maritime (80) Private Land Mobile (90)
			173.4-174 FIXED MOBILE G5	173.4-174	Private Land Mobile (90)
5.226 5.229	5.226 5.230 5.231 5.232				

## UNITED STATES (US) NOTES

\* \* \* \* \*

US399 Except as indicated below, the frequency bands 161.9625-161.9875 MHz (AIS 1 with its center frequency at 161.975 MHz) and 162.0125-162.0375 MHz (AIS 2 with its center frequency at 162.025 MHz) are allocated to the maritime mobile service on a primary basis for Federal Government and non-Federal Government use, and shall be used exclusively for Automatic Identification Systems. However, in VHF Public Coast Station Areas (VPCSA) 1-9, site-based VHF Public Coast stations licensed prior to [effective date of this order] may continue to operate on a co-primary basis in the frequency band 161.9625-161.9875 MHz until expiration of the license term for licenses in active status as of [effective date of this order], and in VPCSA 10-42, the band 161.9625-161.9875 MHz is allocated to the maritime mobile service on a primary basis for exclusive non-Federal Government use. See 47 CFR § 80.371(c)(1)(ii) for the definitions of VPCSA.

\* \* \* \* \*

**II. PART 80 -- STATIONS IN THE MARITIME SERVICES**

3. The authority citation for Part 80 continues to read as follows:

AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

4. Section 80.5 is amended by adding an entry for Automatic Identification Systems (AIS), in the alphabetically appropriate location, to read as follows:

**§ 80.5 Definitions.**

\* \* \* \* \*

Automatic Identification Systems (AIS). A maritime navigation safety communications system standardized by the International Telecommunication Union (ITU) and adopted by the International Maritime Organization (IMO) that provides vessel information, including the vessel's identity, type, position, course, speed, navigational status and other safety-related information automatically to appropriately equipped shore stations, other ships, and aircraft; receives automatically such information from similarly fitted ships; monitors and tracks ships; and exchanges data with shore-based facilities.

\* \* \* \* \*

5. Section 80.13 is amended by revising paragraph (c) to read as follows:

**§ 80.13 Station license required.**

\* \* \* \* \*

(c) A ship station is licensed by rule and does not need an individual license issued by the FCC if the ship station is not subject to the radio equipment carriage requirements of any statute, treaty or agreement to which the United States is signatory, the ship station does not travel to foreign ports, and the ship station does not make international communications. A ship station licensed by rule is authorized to transmit radio signals using a marine radio operating in the 156-162 MHz band, any type of AIS, any type of EPIRB, and any type of radar installation. All other transmissions must be authorized under a ship



station license. Even though an individual license is not required, a ship station licensed by rule must be operated in accordance with all applicable operating requirements, procedures, and technical specifications found in this part.

6. Section 80.371 is amended by revising paragraphs (c)(1)(i), (c)(2) and (c)(3) to read as follows:

**§ 80.371 Public correspondence frequencies.**

\* \* \* \* \*

(c) Working frequencies in the marine VHF 156-162 MHz band. (1)(i) The frequency pairs listed in the following table are available for assignment to public coast stations for public correspondence communications with ship stations and units on land.

Working Carrier Frequency Pairs in the 156-162 MHz Band<sup>1</sup>

Channel designator	Carrier Frequency (MHz)	
	Ship Transmit	Coast Transmit
24.....	157.200	161.800
84.....	157.225	161.825
25.....	157.250	161.850
85 <sup>2</sup> .....	157.275	161.875
26.....	157.300	161.900
86.....	157.325	161.925
27.....	157.350	161.950
87 <sup>4 5</sup> .....	157.375	161.975
28.....	157.400	162.000
88 <sup>3</sup> .....	157.425	162.025

<sup>1</sup> For special assignment of frequencies in this band in certain areas of Washington State, the Great Lakes and the east coast of the United States pursuant to arrangements between the United States and Canada, see subpart B of this part.

<sup>2</sup> The frequency pair 157.275/161.875 MHz is available on a primary basis to ship and public coast stations. In Alaska it is also available on a secondary basis to private mobile repeater stations.

<sup>3</sup> Within that portion of VHF Public Coast Station Areas (VPCSA) 1 through 9 listed in the table in paragraph (c)(1)(ii) of this section within 120 km (75 miles) of the United States/Canada border, in the area of the Great Lakes, the Saint Lawrence Seaway, and the Puget Sound and the Strait of Juan de Fuca and its approaches, Maritime VHF Channel 88A (157.425 MHz) is available for use for public correspondence communications, subject to prior coordination with Canada. Maritime VHF Channel 88B (162.025 MHz) is available only for Automatic Identification System communications. One hundred twenty kilometers (75 miles) from the United States/Canada border 157.425 MHz is available for intership and commercial communications. Outside the Puget Sound area and its approaches and the Great Lakes, 157.425 MHz is available for communications between commercial fishing vessels and associated aircraft while engaged in commercial fishing activities.

<sup>4</sup> Within VHF Public Coast Station Areas (VPCSA) 1 through 9 listed in the table in paragraph (c)(1)(ii) of this section, Maritime VHF Channel 87B (161.975 MHz) may be used only for Automatic Identification System communications.

<sup>5</sup> No license authorizing a site-based VHF Public Coast Station or a Private Land Mobile Radio Station to operate on maritime VHF Channel 87B (161.975 MHz) in one of the nine maritime VHF Public Coast Service Areas (VPCSA) listed in the table in paragraph (c)(1)(ii) will be renewed unless the license is or has been modified to remove Channel 87B as an authorized frequency.

\* \* \* \* \*

(2) Any recovered channel pairs will revert automatically to the holder of the VPCSA license within which such channels are included, except the channel pairs listed in the table in paragraph (c)(1)(i) of this section. Those channel pairs, and any channel pairs recovered where there is no VPCSA licensee, will be retained by the Commission for future licensing.

(3) VPCSA licensees may not operate on Channel 228B (162.0125 MHz), which is available for use in the Coast Guard's Ports and Waterways Safety System (PAWSS). In addition, VPCSA licensees in VPCSA 1-9 may not operate on Channel AIS 1 (161.975 MHz) or Channel AIS 2 (162.025 MHz), which are designated in those areas exclusively for Automatic Identification Systems (AIS), except to transmit and receive AIS communications to the same extent, and subject to the same limitations, as other shore stations participating in AIS.

\* \* \* \* \*

7. Section 80.373 is amended by revising paragraph (j) to read as follows.

**§ 80.373 Private communications frequencies.**

\* \* \* \* \*

(j) Frequencies for portable ship stations. VHF frequencies authorized for stations authorized carrier frequencies in the 156.275 MHz to 157.450 MHz and 161.575 MHz to 162.025 MHz bands may also be authorized as marine utility stations. Marine-utility stations on shore must not cause interference to any Automatic Identification System, VHF or coast station, VHF or UHF land mobile base station, or U.S. Government station.

8. Section 80.393 is added under the heading AIS STATIONS to read as follows:

**§ 80.393 Frequencies for AIS stations.**

Automatic Identification Systems (AIS) is a maritime broadcast service. The simplex channels at 161.975 MHz (AIS 1) and 162.025 MHz (AIS 2), each with a 25 kHz bandwidth, may be authorized in VHF Public Coast Station Areas 1-9 for AIS, and the frequency 162.025 MHz (AIS 2) also may be authorized in VHF Public Coast Station Areas 10-42 for AIS. The VHF Public Coast Station Areas are codified at 47 CFR § 80.371(c)(1)(ii). In accordance with the Maritime Transportation Security Act, the United States Coast Guard regulates AIS carriage requirements for non-Federal Government ships. These requirements are codified at 33 CFR §§ 164.46, 401.20.

## Appendix C Proposed Rules

For the reasons discussed in the preamble, the Federal Communications Commission proposes to amend 47 C.F.R. parts 2 and 80 as follows:

### II. PART 80 -- STATIONS IN THE MARITIME SERVICES

A. The authority citation for Part 80 continues to read as follows:

AUTHORITY: Secs. 4, 303, 307(e), 309, and 332, 48 Stat. 1066, 1082, as amended; 47 U.S.C. 154, 303, 307(e), 309, and 332, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. 151-155, 301-609; 3 UST 3450, 3 UST 4726, 12 UST 2377.

1. Part 80 is amended by adding section 80.231 to read as follows:

#### **§ 80.231 Technical Requirements for Class B Automatic Identification System (AIS) equipment.**

(a) Class B Automatic Identification System (AIS) equipment must meet the technical requirements of the International Electrotechnical Commission (IEC) 62287-1 International Standard, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the Automatic Identification System – Part 1: Carrier –sense time division multiple access (CSTDMA) techniques," 2006. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of these standards can be inspected at the Federal Communications Commission, 445 12th Street, SW., Washington, DC (Reference Information Center) or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). IEC publications can be purchased from the International Electro-technical Commission, 3 Rue de Varembe, CH-1211 Geneva 20, Switzerland, or from the American National Standards Institute (ANSI), 25 West 43<sup>rd</sup> Street, New York, NY 10036, telephone (212) 642-4900.

(b) Prior to submitting a certification application for a Class B AIS device, the following information must be submitted in duplicate to the Commandant (G-PSE), U.S. Coast Guard, 2100 2<sup>nd</sup> Street, SW, Washington, DC 20593-0001:

(1) The name of the manufacturer or grantee and the model number of the AIS device;

(2) Copies of the test report and test data obtained from the test facility showing that the device complies with the environmental and operational requirements identified in IEC 62287-1.

(c) After reviewing the information described in paragraph (b) of this section, the U.S. Coast Guard will issue a letter stating whether the AIS device satisfies all of the requirements specified in IEC 62287-1.

(d) A certification application for an AIS device submitted to the Commission must contain a copy of the U.S. Coast Guard letter stating that the device satisfies all of the requirements specified in IEC 62287-1, a copy of the technical test data, and the instruction manual(s).

2. Section 80.275 is amended by revising the title and paragraph (a) to read as follows:

**§ 80.275 Technical Requirements for Class A Automatic Identification System (AIS) equipment.**

(a) Prior to submitting a certification application for a Class A AIS device, the following information must be submitted in duplicate to the Commandant (G-MSE), U.S. Coast Guard, 2100 2nd Street, SW., Washington DC 20593-0001:

\* \* \* \* \*

3. Section 80.1101 is amended by adding paragraph (c)(12)(vi) to read as follows:

**§ 80.1101 Performance standards.**

(c) \* \* \*

(12) \* \* \*

(vi) with respect to Class B AIS devices only, IEC 62287-1 International Standard, “Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the Automatic Identification System – Part 1: Carrier –sense time division multiple access (CSTDMA) techniques,” 2006.

\* \* \* \* \*

## Appendix D

### Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>335</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making* in this proceeding (*AIS NPRM*).<sup>336</sup> The Commission sought written public comment on the proposals in the *AIS NPRM*, including comment on the IRFA. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>337</sup>

#### A. Need for, and Objectives of, the Report and Order

The rules adopted in the *Report and Order* are intended to identify spectrum to be used for maritime Automatic Identification Systems (AIS) in the United States and its territorial waters. AIS is an important tool for enhancing maritime safety and homeland security, and the Commission had been concerned that certain developments in recent years, such as the termination of the Memorandum of Agreement between the U.S. Coast Guard and MariTEL, Inc. regarding the set-aside of channels for AIS, and the various petitions and pleadings filed by NTIA and MariTEL following that termination,<sup>338</sup> may have created uncertainty in the maritime community regarding the very high frequency (VHF) channels to be used for AIS, and that this in turn could impede efforts to expedite the broad deployment of AIS domestically. In the *Report and Order*, we designate VHF maritime Channels 87B and 88B for AIS use domestically, in keeping with the international allocation of those channels for AIS, because we believe the use of those channels will best ensure that the United States can maximize the maritime safety and homeland security benefits of AIS. The use of VHF maritime Channels 87B and 88B for domestic AIS use will, *inter alia*, permit U.S. participation in a seamless global AIS network, avoid the problems that would inhere in requiring vessels to switch AIS channels when transiting an AIS “fence” between international and U.S. territorial waters, facilitate speedy AIS deployment using existing technical standards and infrastructure, and provide for AIS coverage at greater distances than would otherwise be possible.<sup>339</sup>

#### B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA

No comments were submitted specifically in response to the IRFA. However, some commenters, including two VHF Public Coast (VPC)<sup>340</sup> station licensees, MariTEL, Inc. (MariTEL) and ShipCom LLC (ShipCom), contend that the interference impact of wideband simplex AIS operations on Channels 87B and 88B would be of such magnitude as to effectively preclude VPC licensees from being able to make commercially reasonable use of their licensed spectrum. As discussed in detail in Section E of this FRFA, we have considered the potential economic impact on small entities of these rules, and we have considered alternatives that would reduce the potential economic impact on small entities of the rules enacted herein, regardless of whether the potential economic impact was discussed in any comments.

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<sup>335</sup> See 5 U.S.C. § 603. The RFA, see 5 U.S.C. §§ 601–612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>336</sup> See Amendment of the Commission’s Rules Regarding Maritime Automatic Identification Systems, *Memorandum Opinion and Order and Notice of Proposed Rule Making*, WT Docket No. 04-344, 19 FCC Rcd 20071, 20120 (2004) (*AIS NPRM*).

<sup>337</sup> See 5 U.S.C. § 604.

<sup>338</sup> See paras. 8-9, *supra*.

<sup>339</sup> See paras. 19-22, *supra*.

<sup>340</sup> See n.26, *supra*, for the definition of VPC stations.

### C. Description and Estimate of the Number of Small Entities to Which Rules Will Apply

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.<sup>341</sup> The RFA defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>342</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>343</sup> A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>344</sup>

Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category “Cellular and Other Wireless Telecommunications,” which is 1,500 or fewer employees.<sup>345</sup> Between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast (VPC) licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a “small” business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed fifteen million dollars. In addition, a “very small” business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed three million dollars.<sup>346</sup> There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as “small” businesses under the above special small business size standards.

### D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

There are no projected reporting, recordkeeping or other compliance requirements. However, some commenters contend that the *Report and Order* may have a significant economic impact on VPC licensees because of the potential interference impact on their operations of designating VHF maritime Channels 87B and 88B for exclusive AIS use on a wideband simplex basis within the nine maritime VPC service areas (VPCSAs).

### E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

The RFA requires an agency to describe any significant alternatives that it has considered in developing its approach, which may include the following four alternatives (among others): “(1) the

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<sup>341</sup> 5 U.S.C. § 603(b)(3).

<sup>342</sup> 5 U.S.C. § 601(6).

<sup>343</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.” 5 U.S.C. § 601(3).

<sup>344</sup> Small Business Act, 15 U.S.C. § 632 (1996).

<sup>345</sup> 13 C.F.R. § 121.201, NAICS code 517212 (2002).

<sup>346</sup> Amendment of the Commission’s Rules Concerning Maritime Communications, *Third Report and Order and Memorandum Opinion and Order*, PR Docket No. 92-257, 13 FCC Rcd 19853 (1998).

establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities.<sup>347</sup>

In the IRFA of the *AIS NPRM*, the Commission described, and sought comment on, possible alternatives to the Commission's proposal for the designation of Channels 87B and 88B for AIS that might minimize the economic impact on small entities.<sup>348</sup> First, the Commission asked commenters to consider the interference impact on MariTEL, licensee of the nine maritime VPC service areas, or on any incumbent site-based VPC licensees or any Economic Area (EA) VPC licensees, of the proposed designation of Channels 87B and 88B for AIS exclusively.<sup>349</sup> The Commission noted that it had tentatively concluded that the proposed designation of Channels 87B and 88B for AIS should not have an adverse effect on MariTEL's use of its VPC channels to a materially greater extent, if at all, than would designation of two narrowband offset channel pairs of the Commission's choosing from the 156-162 MHz VHF maritime band.<sup>350</sup> The Commission noted that it had requested comment on this tentative conclusion, and had also asked commenters to consider if incumbent site-based VPC operations can co-exist on a non-interference basis with AIS and, if not, whether the Commission should require that these operations be migrated to other spectrum and/or that the licensees be compensated in some way.<sup>351</sup>

Commenters were requested to identify potential means of minimizing or eliminating any adverse economic impact on any small entities, particularly VPC licensees that qualify as small entities, if Channels 87B and 88B are designated for AIS use.<sup>352</sup> The Commission suggested that such means might include, for example, exemptions, grandfathering protection, or geographic limitations on the use of Channels 87B and 88B for AIS.<sup>353</sup> The Commission also stated, *inter alia*, that commenters could recommend that the Commission designate channels other than Channels 87B and 88B for AIS use in the United States as a means of minimizing any adverse economic impact on these licensees.<sup>354</sup> The Commission noted, however, that mandating use of channels other than Channels 87B and 88B for AIS use in the United States could have an adverse economic impact on vessel operators and radio equipment manufacturers that qualify as small entities by, for example, increasing the cost of AIS equipment, causing premature obsolescence of AIS equipment already installed on vessels, or leaving manufacturers with stranded inventory.<sup>355</sup> Accordingly, commenting parties, and particularly commenting parties who favor adopting an alternative to the Commission's proposal, were asked to address the potential economic impact of that alternative on small entities.<sup>356</sup> In addition, the Commission specifically invited site-based incumbent licensees that operate within VHF Public Coast Service Areas (VPCSA) 1-9 on Channel 87B or Channel 88B to suggest alternatives or additions to the Commission's proposal that would minimize any significant economic impact on them. Finally, the Commission also noted that there are incumbent

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<sup>347</sup> 5 U.S.C. § 603(c)(1)-(4).

<sup>348</sup> See *AIS NPRM*, 19 FCC Rcd at 20121-22.

<sup>349</sup> *Id.*

<sup>350</sup> *Id.*

<sup>351</sup> *Id.*

<sup>352</sup> *Id.*

<sup>353</sup> *Id.*

<sup>354</sup> *Id.*

<sup>355</sup> *Id.*

<sup>356</sup> *Id.*

licensees operating on the specified channels in inland areas.<sup>357</sup> The Commission said it did not anticipate any significant adverse effect on any such licensee due to the geographic limitations of its proposal, *i.e.*, its tentative determination to limit the AIS set-aside to areas near major navigable waterways.<sup>358</sup> Commenters who believed differently were asked to describe the expected adverse economic impact on incumbent inland licensees operating on these or adjacent channels, and to provide suggested methods of minimizing any such impact.<sup>359</sup> The Commission noted that, although it was proposing only to designate Channels 87B and 88B for AIS in the nine maritime VPCSA, it was not foreclosing the possibility of designating those channels for AIS on a nationwide basis, and it therefore requested inland licensees and other interested parties to address the possible economic impact on small entities if the Commission were to designate Channels 87B and 88B for AIS in inland areas as well as the nine maritime VPCSA.<sup>360</sup>

Although we received no comments specifically addressed to the IRFA for the *AIS NPRM*, we have considered all comments to the *AIS NPRM* addressing the impact of any proposed change on small entities and all suggestions for alternative measures that would have a less significant impact on small entities. In particular, we have addressed comments regarding the impact on VPC licensees of designating Channels 87B and 88B for AIS on a wideband simplex basis.<sup>361</sup> We have considered the possibility of designating two narrowband duplex channel pairs for AIS in lieu of Channel 87B,<sup>362</sup> because commenters argued that VPC licensees would not incur as great a level of interference from narrowband duplex AIS as they would from wideband simplex AIS. We have determined not to designate narrowband duplex channels for AIS in lieu of Channel 87B because doing so would compromise the effectiveness of AIS as a tool in the service of homeland security and maritime safety. Because both international bodies and other nations operate AIS on a wideband simplex basis on Channels 87B and 88B, the designation of narrowband duplex channels for AIS in the United States would preclude creation of a seamless global AIS network; limit and complicate the ability of the Coast Guard to coordinate with maritime safety organizations in other nations; result in AIS coverage gaps when vessels transit an AIS “fence” between international and U.S. territorial waters; delay domestic AIS deployment efforts; discourage voluntary carriage of AIS equipment; and reduce the distances at which vessels may be tracked.<sup>363</sup> In addition, the designation of narrowband duplex channels for AIS would likely harm more small entities than it would benefit, because it could leave small manufacturers of marine radio equipment with stranded inventory, and require small entities that own or operate vessels to refit those vessels with new AIS equipment.<sup>364</sup>

We also have considered a proposal by MariTEL that would permit MariTEL to share use of Channel 87B in what MariTEL deems a commercially advantageous manner. We have rejected this MariTEL *Sharing Proposal* for two reasons. First, it includes as an integral component the Commission’s agreement to revisit and revise the rules governing certification of AIS equipment. We have concluded that it would disserve the public interest to adopt AIS equipment certification requirements that diverge from the international requirements.<sup>365</sup> An attempt to devise new, U.S.-specific AIS equipment standards at this juncture would engender many of the same problems that would attend designation of AIS channels other

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<sup>357</sup> *Id.*

<sup>358</sup> *Id.*

<sup>359</sup> *Id.*

<sup>360</sup> *Id.*

<sup>361</sup> We assume for the purpose of this analysis that at least some VPC licensees are small entities.

<sup>362</sup> Channel 88B is a Federal Government channel under the jurisdiction of NTIA, and NTIA already has determined that Channel 88B should be used exclusively for AIS throughout the Nation. *See* para. 6, *supra*.

<sup>363</sup> *See* paras. 19-22, *supra*.

<sup>364</sup> *See* para. 21, *supra*.

<sup>365</sup> *See* paras. 39, 65-67, *supra*.



than Channels 87B and 88B for use in the United States.<sup>366</sup> Second, the *Sharing Proposal* contemplates the Commission's imposition and enforcement of restrictions on the ability of entities other than MariTEL to make commercial use of AIS data.<sup>367</sup> We have concluded that, even if the Commission had authority to impose and enforce such restrictions, its exercise would be administratively burdensome.<sup>368</sup>

In making all of the above policy determinations, we have weighed in the balance the interference impact of wideband simplex AIS on MariTEL and the other VPC licensees. We have concluded that whatever harmful interference may be caused to VPC operations by wideband simplex AIS transmissions, it can be effectively mitigated through commercially reasonable means, such as forward error correction (FEC) coding, and block interleaving.<sup>369</sup> Based on that determination, as well as a determination that there is no legal theory through which the Commission could provide compensation to VPC licensees in any event, the Commission has declined to provide for compensation to any VPC licensee based on predictions of the interference impact of AIS.<sup>370</sup>

As a measure to minimize the potential economic impact of its decision herein on site-based incumbent VPC licensees, some of which may be small entities, we have determined not to require such licensees to immediately terminate use of Channel 87B in order to clear the spectrum for AIS.<sup>371</sup> Instead, we are providing that such licensees may continue to operate on Channel 87B for the remainder of their current license terms, but also that no such license will be renewed for operation on Channel 87B.<sup>372</sup> This provides what is in effect grandfathering protection for site-based incumbent licensees for a period of several years, with the precise termination date based on their current authorizations. In reaching this determination, we have considered that site-based incumbent VPC licensees, unlike maritime VPCSA licensees, were not subject to any pre-existing requirement to set aside spectrum for AIS.<sup>373</sup>

Finally, we have determined to augment the record with additional comments to better inform a decision as to whether the designation of Channel 87B for AIS should be nationwide in scope or just limited to the nine maritime VPCSAAs.<sup>374</sup> We discuss this matter in the *Further Notice of Proposed Rule Making (Further Notice)* in this proceeding<sup>375</sup> and the accompanying Initial Regulatory Flexibility Analysis of the *Further Notice, infra*.

## F. Report to Congress

The Commission will send a copy of this *Report and Order* in WT Docket No. 04-344, including the Final Regulatory Flexibility Analysis, in a report to be sent to Congress pursuant to the Congressional

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<sup>366</sup> *Id.* That is, an effort to develop U.S.-specific AIS equipment standards would engender uncertainty in the maritime and manufacturing communities, potentially create equipment interoperability problems, retard domestic AIS deployment, necessitate retrofitting vessels that are currently equipped in compliance with the existing standards, make AIS equipment more expensive, leave manufacturers with stranded inventory, etc.

<sup>367</sup> See para. 38, *supra*.

<sup>368</sup> See para. 39, *supra*.

<sup>369</sup> See paras. 25-35, *supra*.

<sup>370</sup> See paras. 44-48, *supra*.

<sup>371</sup> See paras. 56-57, *supra*.

<sup>372</sup> *Id.*

<sup>373</sup> See 47 C.F.R. § 80.371(c)(3).

<sup>374</sup> See para. 52, *supra*.

<sup>375</sup> See paras. 58-60, *supra*.

Review Act.<sup>376</sup> In addition, the Commission will send a copy of the *Report and Order*, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the SBA. A copy of the *Report and Order* and the Final Regulatory Flexibility Analysis (or summaries thereof) will also be published in the Federal Register.<sup>377</sup>

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<sup>376</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>377</sup> See *id.* § 604(b).

## Appendix E

### Supplemental Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA) as amended,<sup>378</sup> the Commission has prepared this present supplemental Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities of the policies and rules proposed in this *Further Notice of Proposed Rule Making* in WT Docket No. 04-344 (*Further Notice*). Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *Further Notice* as provided in paragraph 74 of the item, *supra*. The Commission will send a copy of the *Further Notice*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration.<sup>379</sup> In addition, the *Further Notice* and IRFA (or summaries thereof) will be published in the Federal Register.<sup>380</sup>

#### A. Need for, and Objectives of, the Proposed Rules

In the *Further Notice*, we contemplate rules changes involving three issues. First, with the objective of ensuring that AIS operations are implemented in an effective and efficient manner without imposing unnecessary restrictions on a VPC operations, we request comment as to whether there is a need to revisit the issue of the appropriate geographic scope of the AIS set-aside, *i.e.*, whether it should be nationwide or limited to the nine maritime VPCsAs.<sup>381</sup> We seek comment, in particular, on whether and how the potential development of satellite AIS should weigh in that decision.<sup>382</sup> Second, with the objective of ensuring that AIS base stations operate in a manner consonant with the overall goals and purposes of AIS, we request comment on equipment certification, licensing, and other issues pertaining to AIS base stations.<sup>383</sup> We note, in this regard, that AIS base stations are a critical component of the AIS network, and that there is an apparent need for some regulation of AIS base stations just as there is a need for some regulation of AIS ship stations. Finally, with the objective of accommodating Class B as well as Class A AIS devices, we request comment on the Commission's proposal to incorporate by reference IEC 62287-1, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the automatic identification system – Part 1: Carrier-sense time division multiple access (CSTDMA) techniques," 2006 (IEC 62287-1), as the standard for certifying Class B AIS devices under Part 80 of the Commission's rules.<sup>384</sup>

#### B. Legal Basis for Proposed Rules

The proposed action is authorized under sections 1, 4(i), 302, 303(f) and (r), and 332 of the Communications Act of 1934, as amended, 47 U.S.C. 1, 154(i), 302, 303(f) and (r), and 332.

#### C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

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<sup>378</sup> See 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 847 (1996).

<sup>379</sup> See 5 U.S.C. § 603(a).

<sup>380</sup> See *id.*

<sup>381</sup> See paras. 58-60, *supra*.

<sup>382</sup> See para. 58, *supra*.

<sup>383</sup> See para. 61, *supra*.

<sup>384</sup> See para. 62, *supra*.

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.<sup>385</sup> The RFA defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>386</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>387</sup> A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>388</sup>

Small businesses in the aviation and marine radio services use a very high frequency (VHF) marine or aircraft radio and, as appropriate, an emergency position-indicating radio beacon (and/or radar) or an emergency locator transmitter. The Commission has not developed a small business size standard specifically applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category “Cellular and Other Wireless Telecommunications,” which is 1,500 or fewer employees.<sup>389</sup> Between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast (VPC) licenses in the 157.1875-157.4500 MHz (ship transmit) and 161.775-162.0125 MHz (coast transmit) bands. For purposes of the auction, the Commission defined a “small” business as an entity that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed fifteen million dollars. In addition, a “very small” business is one that, together with controlling interests and affiliates, has average gross revenues for the preceding three years not to exceed three million dollars.<sup>390</sup> There are approximately 10,672 licensees in the Marine Coast Service, and the Commission estimates that almost all of them qualify as “small” businesses under the above special small business size standards.

#### **D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements**

There are no projected reporting, recordkeeping or other compliance requirements.

#### **E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.”<sup>391</sup>

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<sup>385</sup> 5 U.S.C. § 603(b)(3).

<sup>386</sup> 5 U.S.C. § 601(6).

<sup>387</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.” 5 U.S.C. § 601(3).

<sup>388</sup> Small Business Act, 15 U.S.C. § 632 (1996).

<sup>389</sup> 13 CFR § 121.201, NAICS code 517212 (2002).

<sup>390</sup> Amendment of the Commission’s Rules Concerning Maritime Communications, *Third Report and Order and Memorandum Opinion and Order*, 13 FCC Rcd 19853 (1998).

<sup>391</sup> 5 U.S.C. § 603(c)(1)-(4).

In the *Further Notice*, we ask that interested parties, and in particular inland VPCSA licensees, provide information on the potential impact on inland VPCSA licensees of designating Channel 87B for AIS use exclusively throughout the Nation. To the extent that commenters foresee such an impact, they are invited to suggest alternatives that would minimize or eliminate any adverse effect on small entities. For example, commenters may suggest that inland VPCSA licensees be accorded treatment similar to that which we are providing to site-based incumbent licensees, permitting them to continue to operate on Channel 87B on a shared basis with AIS for the remainder of their current license terms, but with no opportunity for renewal of the licenses.<sup>392</sup> Commenters may also address the possibility of migrating such licensees to different channels if such were available.

In the *Further Notice*, we also invite comment on rules to govern AIS base stations, including certification standards for AIS base station equipment<sup>393</sup> In the absence of specific proposals, we invite interested parties to consider generally whether any special measures should be adopted in the AIS base station rules to prevent a significant adverse impact on small entities. Parties providing such comments should also address the extent to which they believe small entities may seek to become AIS base station licensees.

Finally, we request comment in the *Further Notice* on the Commission's proposal to incorporate by reference IEC 62287-1, "Maritime navigation and radio communication equipment and systems – Class B shipborne equipment of the automatic identification system – Part 1: Carrier-sense time division multiple access (CSTDMA) techniques," 2006 (IEC 62287-1), as the standard for certifying Class B AIS devices under Part 80 of the Commission's rules. We believe that incorporating by reference the international standard for Class B AIS devices will reduce costs to manufacturers by eliminating the possible need to design devices to two potentially conflicting standards, and will reduce costs to users of the devices both from a pass-through of manufacturers' cost savings and by eliminating the possible need to fit their vessels with more than one Class B AIS device if they travel outside U.S. territorial waters, i.e., removing the need to carry one Class B AIS device to function within U.S. territorial waters, and another Class B AIS device to function in international waters or other nations' territorial waters. We note, in addition, that Class B AIS devices are intended generally for use on vessels that are not required by law to carry AIS devices. Since carriage of Class B AIS devices is voluntary, the establishment of standards for certifying such devices should not impose a new compliance burden on vessel operators. However, to the extent that any commenters believe that the establishment of equipment certification standards for Class B AIS devices may impose a significant new compliance burden on any small entities, we invite them to suggest alternative or complementary approaches that may reduce or eliminate that burden, including, but not limited to, the establishment of less rigorous standards, or the provision of exemptions or grandfathering protection for small entities.

#### **F. Federal Rules that May Duplicate, Overlap, or Conflict With the Proposed Rules**

None.

IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Further Notice of Proposed Rule Making, including the supplemental Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

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<sup>392</sup> We note that inland VPCSA licensees, unlike site-based incumbent VPC licensees, acquired their licenses at auction.

<sup>393</sup> See para. 61, *supra*.