

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

In the Matter of
Part 80 of the Commission's Rules and the Use of
the Automatic Identification System for Devices
that Can Be Used to Mark Fishing Equipment
WT Docket No. 21-230

NOTICE OF PROPOSED RULEMAKING

Adopted: June 15, 2021

Released: June 16, 2021

By the Commission:

Comment Date: [30 days after date of publication in the Federal Register]
Reply Comment Date: [60 days after date of publication in the Federal Register]

I. INTRODUCTION

1. As required by Section 8416 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, we initiate this rulemaking proceeding to explore whether to authorize devices that can be used to mark fishing equipment for use on Automatic Identification System (AIS) channels without undermining the core purpose of AIS to prevent maritime accidents. AIS is a maritime navigation safety and domain awareness communication system that has been successfully relied upon both domestically and internationally to provide pertinent navigation safety information among vessels, aircraft, and maritime authorities. The Commission's existing rules limit the use of AIS channels to devices needed for safety and do not authorize the use on AIS channels of devices used to mark fishing equipment or the marketing of such devices. This Notice seeks comment on both the issue raised in Section 8416 of the NDAA21 and on the use of alternative spectrum (other than AIS channels) for these types of devices.

II. BACKGROUND

2. Automatic Identification System. Under Commission rules, AIS is defined as a "maritime navigation safety communications system . . . 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." The Commission's rules codify the international standards for AIS to ensure AIS

1 National Defense Authorization Act for Fiscal Year 2021, Pub. Law No. 116-283, Division G, Title LVXXXIV (NDAA21), § 8416.

2 NDAA21 § 8416 (a)(5), (b)-(c). Section 8416 requires the Commission to initiate this rulemaking proceeding by "[n]ot later than 180 days after the date of enactment" of the NDAA21. Because the NDAA21 was enacted on January 1, 2021, the deadline for initiating the rulemaking proceeding is June 30, 2021.

3 See 47 CFR § 80.5; see also 33 CFR § 164.46(a); U.S Department of Homeland Security, AIS Frequently Asked Questions, https://www.navcen.uscg.gov/?pageName=AISFAQ (AIS FAQ) (Nov. 23, 2020). For more detailed information on the history of AIS, see Amendment of the Commission's Rules Regarding Maritime Automatic

devices meet the requirements of the International Maritime Organization (IMO),⁴ which imposes obligations on vessels traveling in international waters.⁵ The IMO established those requirements to “improve the safety of navigation by assisting in the efficient navigation of ships, protection of the environment, and operation of Vessel Traffic Services.”⁶ An AIS device allows users to receive data related to the locations of other vessels in the area, additional objects like navigational aids, and maritime-related messages.⁷ The IMO adopted a requirement for AIS to be fitted aboard all ships of 300 gross tonnage or more engaged on international voyages, cargo ships of 500 gross tonnage or more not engaged on international voyages, and all passenger ships carrying more than 12 passengers.⁸ The United States Coast Guard (Coast Guard), acting pursuant to statutory directive, expanded the AIS carriage requirement to most commercial vessels in U.S. navigable waters.⁹

3. The Commission has incorporated by reference, in Part 80 of its rules, an International Telecommunication Union (ITU)¹⁰ international standard for AIS equipment¹¹ and several other international standards for AIS, as the basis for certifying compulsory and voluntary AIS equipment.¹² The only AIS equipment types currently authorized under part 80 of the Commission’s rules are Class A and B shipborne equipment, AIS Search and Rescue Transponders (AIS-SARTs), and Maritime Survivor Locating Devices (MSLDs).¹³ Class A AIS devices are typically used by sea-going vessels¹⁴ to comply

(Continued from previous page)

Identification Systems et al., Report and Order and Further Notice of Proposed Rule Making and Fourth Memorandum Opinion and Order, 21 FCC Rcd 8892, 8894-8901, paras. 4-11 (2006) (*AIS Report and Order*).

⁴ 47 CFR § 80.5; 33 CFR § 164.46(a); AIS FAQ.

⁵ As a specialized agency of the United Nations, IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. International Maritime Organization, *About IMO, Frequently Asked Questions*, <https://www.imo.org/en/About/Pages/FAQs.aspx> (last visited Apr. 22, 2021). Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented. *Id.*

⁶ IMO Resolution MSC.74(69), Recommendation On Performance Standards For An Universal Shipborne Automatic Identification System, at 13 (1998) [https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.74\(69\).pdf](https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.74(69).pdf).

⁷ See International Convention for the Safety of Life at Sea (SOLAS), *Chapter V Regulation 19 - Carriage requirements for shipborne navigational systems and equipment*, <https://www.navcen.uscg.gov/pdf/AIS/SOLAS.V.19.2.1-5.pdf> (last visited Apr. 22, 2021) (also describing AIS functionality).

⁸ See *id.*; see also *Amendment of the Commission's Rules Concerning Maritime Communications*, Second Report and Order and Second Further Notice of Proposed Rule Making, 12 FCC Rcd 16949, 16954, para. 6 (1997) (*Maritime Second Report and Order*).

⁹ See 46 U.S.C. § 70114; see also 33 CFR § 164.46(b).

¹⁰ The ITU allocates global radio spectrum and satellite orbits and develops technical standards regarding network and technology compatibility.

¹¹ See 47 CFR §§ 80.7(c)(11), 80.1101(c)(12). The applicable ITU standard is ITU-R M.1371-3.

¹² See *id.* §§ 80.7(b)(23), (28), (d)(13), (14), (17), (19), 80.231(a), 80.233(a), 80.1101(c)(12). The applicable standards are IMO Resolution MSC.74(69), IMO Resolution MSC.246(83), IEC 61162-1, IEC 61097-14, IEC 61993-2, IEC 62287-1, and 62320-1 and -2.

¹³ See 47 CFR §§ 80.231-80.233, 80.275, 95.2989. Class A AIS devices are those currently certified by the Commission for compliance with international and Coast Guard carriage requirements. Class B AIS devices, which have somewhat reduced functionality vis-à-vis Class A devices, are intended primarily for voluntary carriage by recreational and other non-compulsory vessels. See 47 CFR § 80.1101(c)(12) for Class A certification requirements. Class B AIS devices must meet the certification requirements of the International Electro-technical Commission (IEC) 62287-1. See 47 CFR § 80.231. In addition, the Commission has granted waivers authorizing the use of AIS

(continued...)

with international and Coast Guard carriage requirements, and have a much greater transmit power and provide more information than Class B devices.¹⁵ Class B AIS devices may be used for voluntary carriage by recreational and other non-compulsory vessels and a select segment of mandatory AIS users¹⁶ in lieu of a Class A device. AIS-SARTs are carried on board survival craft for use during a distress situation to assist search and rescue personnel in locating those in distress. An AIS-SART is used to locate a survival craft or distressed vessel by transmitting a unique identification code and GPS coordinates to all AIS-enabled vessels in VHF range.¹⁷ MSLDs are devices intended to aid in locating persons in the water.¹⁸ The Commission has also granted temporary waiver of its rules to permit certification and use of AIS Aid to Navigation (AtoN) stations.¹⁹

4. In 2006, the Commission implemented the international AIS allocation domestically by designating VHF maritime Channels 87B (161.975 MHz) and 88B (162.025 MHz) for AIS.²⁰ These channels are denominated AIS 1 and AIS 2, respectively, and are authorized for use only by Class A and B AIS devices, AIS-SARTs, AIS AtoNs, and MSLDs.²¹ The Commission does not authorize non-AIS use of the AIS channels or certification of non-AIS VHF radios that include the AIS frequencies.²²

(Continued from previous page) _____

position locating with Emergency Position Indicating Radio Beacons (EIPRBs). *See Amendment of the Commission's Rules Regarding Maritime Radio Equipment and Related Matters et al.*, Report and Order, 31 FCC Rcd 10300, 10303, para. 5 & n.16 (2016) (citing *McMurdo Group*, Order, 30 FCC Rcd 10634 (WTB 2015)).

¹⁴ Ships required by treaty or statute to carry radio equipment for safety purposes are known as “compulsory ships,” and those not required to carry radio equipment are known as “voluntary ships.” *See* 47 CFR § 80.5. Compulsory ships generally include cargo vessels of more than 300 gross tons, vessels carrying more than six passengers for hire in the open sea or any adjacent tidewater, and power-driven vessels of more than 20 meters in length or carrying one or more passengers for hire in tidal waters of the United States. *See* 47 U.S.C. § 381; *Maritime Second Report and Order*, 12 FCC Rcd at 16954, para. 6.

¹⁵ U.S. Department of Homeland Security, *Shipborne AIS Class Comparison*, https://www.navcen.uscg.gov/pdf/AIS_Comparison_By_Class.pdf (comparing Class A and Class B equipment) (last visited Mar. 17, 2021).

¹⁶ *See* 47 CFR § 80.231 for Class B technical requirements; 33 CFR § 164.46(b)-(c). Generally, compulsory ships must install and operate Class A AIS shipborne equipment to satisfy the Coast Guard requirement; vessels not required to carry AIS equipment may use Class B devices. *See Amendment of the Commission's Rules Regarding Maritime Automatic Identification Systems*, 23 FCC Rcd 13711, 13728, para. 27 (2008).

¹⁷ *Amendment of the Commission's Rules Regarding Maritime Radio Equipment and Related Matters et al.*, Report and Order, 31 FCC Rcd 10300, 10308, paras. 21-22 (2016) (*Maritime Radio Equipment Report and Order*).

¹⁸ 47 CFR § 95.2903; *see also id.* §§ 95.2987, 95.2989, 95.2991 (incorporating by reference the Radio Technical Commission for Maritime Services standards for MSLD certification requirements, technical standards, and marketing limitations).

¹⁹ An AtoN is any device external to a vessel intended to assist a navigator to determine position or safe course, or to warn of dangers or obstructions to navigation. AIS AtoN are devices certified to the IEC standard 62320-2 for their use on AIS channels. Use of private AtoN is subject to the Coast Guard approval (per 33 CFR 66), the FCC coordinates with the Coast Guard for their licensing. FCC certified AIS AtoN (i.e., FCC ID UYW-4180013) have been illegally repurposed, sold and are being used outside the U.S. as fishnet markers, i.e. SRT Buoy Tracker.

²⁰ *AIS Report and Order*, 21 FCC Rcd at 8893, para. 2; *see* 47 CFR § 80.393. In this proceeding, the Commission designated channels 87B and 88B for AIS on a shared federal/non-federal basis. *See AIS Report and Order*, 21 FCC Rcd at 8947 (amending U.S. Note 32 to the Table of Frequency Allocations).

²¹ *See* 47 CFR § 80.393; *AIS Report and Order*, 21 FCC Rcd at 8893, para. 2; International Telecommunication Union, *Final Acts WRC-97*, Appendix S18, https://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.5-1997-PDF-E.pdf (1997) (Rev. WRC-97). Incumbent licensees in certain inland areas may continue to operate on Channel 87 until 2024. *See* 47 CFR § 80.371(c) & n.3.

²² *See* 47 CFR §§ 80.393; 80.203.

5. As more vessels become equipped with authorized AIS equipment and usage increases, AIS 1 and 2 have the potential to become overloaded in areas with high vessel traffic. A consequence of overloading is an impact on mariner situational awareness, including reduction in the navigational range of the AIS system, effectively limiting the number of vessels that can be observed within the system.²³ As discussed below, the ITU has sought to address this problem by defining the types of navigation safety AIS uses that are permitted on AIS 1 and 2, and by recommending the use of 160.900 MHz for non-navigation and non-safety AIS operations on a non-interference basis.²⁴

6. *Unauthorized Use of Devices on AIS Channels.* In 2018, the Commission’s Enforcement Bureau issued an advisory stating that it had observed a “proliferation in the use and marketing of noncompliant devices that operate on radio frequencies assigned to Automatic Identification Systems (AIS), which are authorized exclusively for marine navigation safety communications.”²⁵ One particular unauthorized operation is the use of AIS frequencies in the marking of fishing equipment, which can “disrupt important maritime communications, increasing the risk of accidents by creating confusion about whether an AIS signal represents a vessel that must be avoided.”²⁶ Such noncompliant AIS devices are often advertised as “AIS Fishing Net Buoys,” and the devices can transmit a vessel identification signal without essential navigational safety information.²⁷ According to the Enforcement Bureau, in addition to being illegal, the use of devices to mark fishing nets on AIS channels “can have a serious detrimental effect on maritime safety, hampering the situational awareness of maritime operators and endangering ships relying on AIS to avoid collisions and allisions at sea.”²⁸ The Enforcement Bureau warned that violations of the Commission’s marketing or operating rules would be subject to substantial monetary

²³ When AIS VHF data link (VDL) loading exceeds 50%, the ability of the shipborne AIS to find free slots and the ability of the AIS shore infrastructure to exchange information with the shipborne AIS are impaired. See ITU, Automatic identification system VHF data link loading, Report ITU-R M.2287-0, section 4, at 4 (Dec. 2013), see also *id.*, at Annex 1 (“The critical 50% threshold has already been exceeded in some areas of the world where vessel traffic is high, for example, the Northern Gulf of Mexico in the United States of America . . .”) (citing International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation A-124); see also U.S. Department of Homeland Security, *How AIS Works* (Sept. 08, 2016) <https://www.navcen.uscg.gov/?pageName=AISworks>.

²⁴ See International Telecommunication Union, Final Acts-WRC-12, Geneva, Appendix 18 (2012) https://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.9-2012-PDF-E.pdf (Rev. WRC-12); International Telecommunication Union, Final Acts WRC-19, Appendix 18, https://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.14-2019-PDF-E.pdf (2019) (Rev. WRC-19). To address concerns about congestion on AIS 1 and AIS 2, in 2012, the ITU redesignated marine VHF Channels 75 (156.775 MHz) and 76 (156.825 MHz) as AIS 3 and AIS 4, respectively, and reallocated them from the maritime mobile service to the mobile satellite service (Earth-to-space) for the reception of long-range AIS broadcast messages from ships. See Rev. WRC-12 at Appendix 18. To improve satellite detection of messages from AIS, the Commission reallocated bands 156.7625/156.7875 MHz (AIS 3) and 156.8125/156.8375 MHz (AIS 4) to the mobile-satellite service (MSS), restricted to Earth-to-space (uplink) operations, on a primary basis for Federal and non-Federal use. *Amendment of Part 2, 15, 80, 90, 97, and 101 of the Commission’s Rules Regarding Implementation of the Final Acts of the World Radiocommunication Conference (Geneva, 2012)(WRC-12), Other Allocation Issues, and Related Rule Updates*, Report and Order, 32 FCC Rcd 2703, 2721, para. 55 (2017). AIS 3 and AIS 4 are satellite channels that are not suited for devices capable of being used to mark fishing equipment because such equipment is not typically identified through long-range broadcasting.

²⁵ *FCC Rules Prohibit Marketing, Sale, or Use of Fishing Net Buoys that Use Radio Frequencies Reserved for Marine Navigation Safety Communications*, Public Notice, 33 FCC Rcd 11665, 11665 (EB 2018) (*Enforcement Bureau Advisory*).

²⁶ *Id.* Marking fishing equipment refers to the transmission of location information about various types of fishing nets.

²⁷ *Id.* at 11667.

²⁸ *Id.*

penalties.²⁹ As the legal alternative, the advisory pointed to compliant maritime equipment intended for tracking fishing nets that is authorized to operate in the 1900-2000 kHz band.³⁰

7. *Statutory Mandate.* Section 8416 of the NDAA21 mandates that we initiate a rulemaking proceeding by June 30, 2021 to consider whether to authorize devices used to mark fishing equipment in radio frequencies assigned for AIS.³¹ Congress further instructed the Commission to “consider whether imposing requirements with respect to the manner in which [AIS] devices are deployed and used would enable the authorization of [devices used to mark fishing equipment] to operate in radio frequencies assigned for [AIS] stations consistent with the core purpose of the [AIS] to prevent maritime accidents.”³²

III. DISCUSSION

8. Pursuant to Section 8416 of the NDAA21, we seek comment on whether to permit devices capable of marking fishing equipment to operate on channels currently assigned in the United States and internationally for AIS operation, specifically AIS 1 and 2, and on related operational issues.³³ As stated, in the United States, AIS 1 and 2 currently are authorized only for maritime navigation safety purposes, and Congress directed the Commission to ensure that any changes to permitted operations in AIS spectrum are consistent with the core purpose of AIS to prevent maritime accidents.

9. We seek comment below on the current types and usages of such devices. We seek comment on whether such devices could operate on AIS 1 and 2 consistent with the purpose of AIS and, if so, under what conditions. We also seek comment on the costs and benefits of permitting operation of these devices on AIS 1 and 2, including the risks to maritime safety. In addition, we seek comment on the costs and benefits of facilitating use of such devices on alternative spectrum, specifically, by encouraging more robust use of frequencies in the 1900-2000 kHz band (which is currently authorized for radio buoy operations under certain ship station licenses held by commercial fishing vessels) and/or by permitting such use on 160.900 MHz (consistent with ITU recommendations). We further seek comment on how best to categorize devices used to mark fishing equipment and protect incumbents through technical and operational limitations. Finally, we seek comment on a consumer labeling approach to provide consumers guidance on whether the equipment being purchased complies with the Coast Guard’s rules and the Commission’s rules.

A. Current Environment for Devices Used to Mark Fishing Equipment

10. We seek comment generally on the current usage of spectrum to operate devices that could be used to mark fishing equipment. We consider two general types of fishing equipment; those attached to vessels during fishing activities, such as long-lines, trawl nets or drift nets, and those deployed for later retrieval, such as fixed fishing nets, pots, traps or other fishing equipment. What is the volume of usage of any of these devices that could be used to mark fishing equipment? How many mobile and/or fixed devices are typically used by an individual vessel or fleet? To what extent does usage of these devices vary based on the body of water where deployed? Are there other types of fishing nets that we should consider? We recognize that fishing seasons are time limited and vary by location, and we seek data to determine the most trafficked locations during high fishing season. Approximately how many devices are typically used to mark fishing equipment in a given area during high season? Are the devices used year-round, or only during the fishing season? If they are used year-round, are the full complement

²⁹ *Id.*

³⁰ *Id.*

³¹ NDAA21 § 8416 (a)(5), (b).

³² NDAA21 § 8416(c).

³³ See NDAA21 § 8416(b)-(c). We clarify that our exploration in this *Notice* of potentially adopting rules for the legal use of AIS channels for devices that can be used to mark fishing equipment in no way waives our rights to take enforcement action against unauthorized uses of such equipment.

of devices always in use, or does the number of devices in use vary based on the time of year? Over how large an area are these devices used? What types of technical developments have occurred to facilitate the use of these devices? Are these devices also used to mark the location of other types of marine equipment? We seek extensive data input into our record in this proceeding as part of our consideration of whether to authorize devices that could be used to mark fishing equipment on AIS 1 and 2.

11. *1900 – 2000 kHz Operations.* We note that the Commission currently authorizes radio buoy operations under a ship station license for commercial fishing operations on the open sea and the Great Lakes in the 1900-2000 kHz band.³⁴ Under Commission rules, the output power is limited to 8 watts and the station antenna height is limited to 4.6 meters above sea level for a buoy station, or 6 meters above the mast of the ship for ship installations.³⁵ We seek comment on the extent to which this band is used in support of fishing operations. We ask that commenters provide specific details regarding use cases to provide a clearer understanding of the scope of the use of the 1900-2000 kHz band in support of fishing operations. What are the advantages and disadvantages of using the 1900-2000 kHz band in support of such operations? How many devices currently used to mark fishing equipment employ this band? What is the anticipated rate of increase in the number of devices used to mark fishing equipment in this band? Is there sufficient equipment available in this band for use in marking devices for fishing operations? Would the current technical limits hinder the use of this band for devices that can be used to mark fishing equipment, or fail to incentivize equipment development? Given the current power limits, what is the estimated number of devices in a given area that this band can support without harmful interference? What advantages or disadvantages are there to using equipment in this band as compared to AIS equipment, specifically as related to any differences in functionality, performance, and cost? We also seek information, especially quantitative estimates, on the economic value of improved safety and more efficient commercial fishing operations from the use of these radio buoys in the 1900-2000 kHz band.

12. *Unauthorized Use of AIS Channels.* We seek comment on whether entities currently using AIS 1 and 2 for navigation safety and domain awareness communication systems are experiencing problems from unauthorized use of AIS 1 and 2. If so, how and to what extent does such unauthorized use impact legitimate operations on AIS 1 and 2? We seek specific comment on the types and quantity of devices used, or marketed for use, to illegally operate on AIS 1 and 2 to mark fishing equipment. Since the issuance of the 2018 Enforcement Bureau Advisory, is there evidence of the continued proliferation of the unauthorized deployment of devices used to mark fishing equipment using AIS channels 1 and 2, and if so, at what rate? Is any such proliferation largely limited to certain bodies of water? How are such unauthorized uses typically deployed—i.e., at what power levels and antenna heights—and are there differences between fixed deployments and mobile deployments (e.g. trawl use cases)?

13. As noted above, there is a concern that, in some areas, AIS 1 and 2 may become compromised.³⁶ The Commission's Enforcement Bureau Advisory stated that non-certified devices used to track or mark fishing equipment "can have a serious detrimental effect on maritime safety, hampering the situational awareness of maritime operators and endangering ships relying on AIS to avoid collisions and allisions at sea."³⁷ Further, an ITU Radiocommunication Bureau Recommendation indicates that, to avoid confusion or an overload of information on the bridge of a vessel, devices that do not enhance the safety of navigation should not be permitted to use designated frequencies AIS 1 and 2.³⁸ Do commenters agree with the ITU Recommendation? We seek specific comment and data on the extent the use of

³⁴ See 47 CFR § 80.376 (authorizing radio buoy operations).

³⁵ 47 CFR § 80.376(b).

³⁶ See *supra* n.23.

³⁷ *Enforcement Bureau Advisory*, 33 FCC Rcd at 11667.

³⁸ Rec. ITU-R M.2135-0, Annex 1 at page 3.

unauthorized devices is compromising the use of AIS 1 and 2 and any resulting impact on the state of maritime safety.

B. Exploring Additional Spectrum for Devices that Could be Used to Mark Fishing Equipment

14. *AIS Channels 1 and 2.* Consistent with the Congressional directive in Section 8416 of the NDAA21, we seek specific comment on whether requirements could be imposed to enable authorization of devices that are designed to mark fishing equipment to operate in AIS 1 and 2 consistent with the core purpose of AIS to prevent maritime accidents. How would the introduction of such devices impact the availability and utility of the AIS 1 and 2 channels, especially in light of concerns about potential overloading? Would the authorization of devices used to mark fishing equipment on AIS 1 and 2 result in substantial further channel overloading? If low power/low-latency requirements were utilized for operation of devices used to mark fishing equipment on AIS 1 and 2, would this alleviate concerns regarding channel overloading? Are modifications or retrofits required for existing devices to become compliant to the low-power/low-latency requirements? If so, what is the likely unit cost to make existing devices compliant with the low-power/low-latency requirements? How many existing devices are estimated to be affected by any new requirements? We seek comment on the overall costs and benefits of potentially allowing devices that could be used to mark fishing equipment to operate on AIS 1 and 2, including the risks to maritime safety.

15. We also seek comment on whether we could authorize devices that could be used to mark fishing equipment to operate on AIS 1 and 2 without diminishing navigation safety in domestic and international waters and impeding the efficiency of marine transportation systems. If so, what is the likely cost? If the Commission were to permit such devices to operate on AIS 1 and AIS 2, to what extent would we need to amend our current AIS equipment authorization rules?³⁹ If the Commission were to permit devices used to mark fishing equipment to operate on AIS 1 and 2, what coordination procedures would be needed between the Commission, the Coast Guard, and others to certify equipment and ensure safe operation? Are there restrictions or requirements the Commission could impose to mitigate against a negative impact on existing uses? For example, should we limit the types of devices used to mark fishing equipment that would be permitted to operate on AIS 1 and 2? Should we authorize devices for operation only in certain areas? If so, is there any practical way to enforce such limitations? Are there any technical parameters or other limits the Commission might impose to ensure that any new uses do not undermine the core purpose of AIS to prevent maritime accidents? We note that, during the pendency of this rulemaking, we will continue to enforce our rules that limit the use of AIS channels to devices needed for safety and that do not authorize use on AIS channels of devices used to mark fishing equipment or the marketing of such devices.

16. Particularly in the maritime context, the Commission considers international ramifications in determining whether its actions are in the public interest. We therefore note that at WRC-19, the ITU updated its *Radio Regulations*,⁴⁰ to establish a new class of AIS devices, Group A and Group B autonomous maritime radio devices (AMRD), and state that an AMRD is a “mobile station

³⁹ 47 CFR § 80.203 (requiring certification under the procedures in Part 2 for Part 80 maritime devices, including AIS devices); *see also id.* § 2.907 (general provision regarding certification). The general equipment authorization rules apply to the manufacture, import, sale, offer for sale, shipment, or use of devices capable of emitting radio frequency energy. *See* 47 U.S.C. § 302a(b); 47 CFR §§ 2.803, 2.805. These rules apply to all radio frequency equipment advertised or sold to, or used by, non-Federal U.S. persons or entities regardless of the equipment’s origin, including equipment manufactured overseas and imported for subsequent sale to non-Federal U.S. customers or shipped directly from overseas to non-federal U.S. customers. These rules do not apply to equipment used by Federal Government agencies. *See* 47 U.S.C. § 302a(c), 47 CFR § 2.807(d).

⁴⁰ The World Radiocommunication Conference (WRC) is organized by the ITU. It is held every three to four years, addresses radiocommunication matters, and reviews and revises the ITU Radio Regulations.

operating at sea and transmitting independently of a ship station or a coast station.”⁴¹ The ITU defined AMRD Group A as devices that “enhance the safety of navigation.”⁴² In contrast, the ITU defined AMRD Group B as “[devices] that do not enhance the safety of navigation (AMRD which deliver signals or information which do not concern the navigation of the vessel or do not complement vessel traffic safety in waterways).”⁴³ Should we consider a similar categorization of AIS devices? Would this type of categorization be consistent with the core purpose of AIS to prevent maritime accidents? To the extent that the ITU categories might inform our approach in this proceeding, and recognizing that the distinction between devices in AMRD Groups A and B may be somewhat unclear and can vary by use case, we request comment on the types of devices that should be categorized as AMRD Group A versus Group B. Should the two general categories of fishing nets mentioned above (and their associated devices used for marking) be separately considered for AMRD Group A or B? Are there other categories of fishing nets/devices that should also be considered? What are the appropriate factors to consider in categorizing various devices, and should those factors differ depending on the use case? For example, should nets attached to a vessel be considered for AMRD Group A since approaching vessels will need to be aware of their location for navigation safety? Should static nets be considered for Group B due to their static nature, or do they remain a navigation hazard for approaching vessels? We also seek comment on the international ramifications if we were to authorize operation of devices used to mark fishing equipment on AIS 1 and 2, including the ramifications for international technical and intergovernmental organizations. For example, would revisions to existing technical standards, recommendations, or mandates be required at IEC, IMO, ITU or elsewhere?

17. While we are concerned about the proliferation of devices that use AIS 1 and 2 to mark fishing equipment, and their potential overall effect on maritime safety, we also seek comment on any potential safety-related reasons to integrate such devices on AIS 1 and 2, including whether they might enhance the safety of navigation (e.g., by helping ships to avoid collision with fishing nets). Are there use or deployment restrictions on devices intended to mark fishing equipment that we could impose to potentially accommodate the addition of such devices on AIS 1 and 2, while not undermining the core safety purpose of AIS? Would allowing devices that could be used to mark fishing equipment to operate on AIS 1 and 2 help maritime operators and ships relying on AIS to avoid collisions? Do concerns about AIS 1 and 2 overloading or traffic congestion generally vary depending on the type of fishing areas—e.g., fishing areas near ports or fishing lanes versus deep sea fishing areas? What other devices and/or applications are being considered for AMRD Group A and B? If the potential for new types of devices and/or applications for Group A is limited, could this provide an opportunity for devices that could be used to mark fishing equipment to operate as Group A devices on AIS 1 and 2 and not impact the AIS network and its core maritime safety purpose? Could the impact be further reduced if devices that could be used to mark fishing equipment utilized a carrier-sense time-division multiple-access (CSTDMA) system used by Class B AIS transceivers, as opposed to random access time-division multiple access (RATDMA) used by other AIS devices?⁴⁴

18. *Operation on 160.900 MHz by Devices that Could be Used to Mark Fishing Equipment.* In order to assess the relative costs and benefits of permitting the use of AIS 1 and 2 by devices that could

⁴¹ Rec. ITU-R M.2135-0, Annex 1 at 3.

⁴² *Id.*

⁴³ Rec. ITU-R M.2135-0, Annex 1 at page 3; AMRD Group A and AMRD Group B are ITU terms referring to a category of devices that are different from AIS Class A and AIS Class B devices described *supra*. The ITU recommended 160.900 MHz for AMRD Group B operations. See Rev. WRC-19, Table of transmitting frequencies in the VHF maritime mobile band, at Appendix 18.

⁴⁴ RATDMA is a time-division technology where a transmission are quasi-randomly broadcast--possibly on top of other AIS broadcast-- in an available time slot window within the AIS system, while CSTDMA operates at lower power and under a "listen before talk" criteria, only operating if there is an unused time slot.

be used to mark fishing equipment, we explore whether other frequencies could be allocated to such uses, in particular 160.900 MHz. The ITU, in amending its *Radio Regulations* to permit certain devices categorized as AMRD Group B to use AIS technology, specifically identified 160.900 MHz for purposes other than safety on a non-interference basis to existing primary incumbents.⁴⁵ We note, however, that the Commission has issued a substantial number of licenses authorizing primary operations within a 25 kHz bandwidth of 160.900 MHz.⁴⁶ Our Universal Licensing System (ULS) reflects 579 incumbent licensees on these channels,⁴⁷ mostly railroad entities authorized across the nation, including near port cities, for uses such as dispatch, track maintenance, car maintenance, and safety-related communications.⁴⁸ ULS records also reflect three licenses near 160.900 MHz issued to public safety entities for land mobile operation under Part 90 of the Commission's rules, and 44 fixed and mobile Broadcast Auxiliary Remote Pickup under Part 74 of the Commission's rules.⁴⁹ Remote pickup channels can be used by a mobile transmitter to relay signals from a remote location back to the studio, or between two points, such as a main studio and an auxiliary studio.⁵⁰

19. We seek comment on whether the Commission should maintain consistency with the international maritime approach regarding devices used to mark fishing equipment and authorize operation of these devices on 160.900 MHz. As stated, we recognize that incumbents currently operate near this frequency and seek comment on the specific level of incumbent deployments near 160.900 MHz, including geographic locations and technical parameters. We also seek comment on whether there are protective measures that could be employed to minimize the potential for harmful interference to incumbents while still accommodating new maritime uses on or near 160.900 MHz. If stakeholders support 160.900 MHz as the appropriate frequency for devices that could be used to mark fishing equipment in lieu of AIS 1 and 2, we seek comment on how the Commission should specifically protect incumbents, including many U.S. rail entities, and any incumbents that might operate near waterways, such as ports. To what extent can the Commission accommodate operation of devices that could be used to mark fishing equipment and incumbents on or near this frequency? We also note that the three public safety incumbent systems near 160.900 MHz are operated by governmental jurisdictions.⁵¹ Should public safety systems be provided the same protection as non-public safety systems operating on or near 160.900 MHz or does their status as public safety entities requiring reliable communications dictate more stringent protective measures? If so, what protective measures are necessary?

20. We recognize that the ITU established power level limits for AMRD Group B operation on 160.900 MHz not to exceed 100 mW and antenna height limits not to exceed 1 m above the surface of the sea.⁵² If we were to authorize operation of devices that could be used to mark fishing equipment on 160.900 MHz, we seek comment on whether the ITU established power/height limitations are sufficient

⁴⁵ Rev. WRC-19, at Appendix. 18.

⁴⁶ Channels 160.890 MHz, 160.8975 MHz, 160.905 MHz, 160.9125 MHz are licensed under Parts 74 and 90 of the rules. See 47 CFR §§ 90.35, 74.402. The Association of American Railroads (AAR) provides frequency coordination for licenses under part 90. See TFCI, AAR Frequency Coordination, https://aar.com/standards/fc_index.html (last visited Apr. 13, 2021).

⁴⁷ Federal Communications Commission, Universal Licensing System, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp> (last visited Apr. 21, 2021).

⁴⁸ The frequencies subject to exclusive coordination by AAR are denoted with an "LR" radio service code in the Coordinator Column of the Industrial/Business Pool Frequency Table. See 47 CFR § 90.35(b)(2)(iv), (b)(3).

⁴⁹ Federal Communications Commission, Universal Licensing System, <https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp> (last visited Apr. 21, 2021).

⁵⁰ See 47 CFR §§ 74.401, 74.402.

⁵¹ See Call Signs WPGZ241, WQQN990, WQQP804.

⁵² Rev. WRC-19, Final Acts, at Appendix 18, n. r.

to protect U.S. licensed incumbents operating near 160.900 MHz. If not, what alternative technical and operational limitations would be appropriate to mitigate the likelihood of harmful interference to incumbent licensees? Should we consider creating exclusion areas where devices that could be used to mark fishing equipment cannot be deployed if operating on 160.900 MHz? Commenters supporting domestic use of 160.900 MHz for such devices should address these and any other issues, including the existence of appropriate technical and operational standards, necessary for such devices to successfully operate without causing harmful interference to incumbent licensees. If co-existence is not technically feasible, should we consider requiring incumbents to relocate to new spectrum, and if so, what are the available and appropriate spectrum alternatives for incumbents? We also recognize that any new authorized uses of 160.900 MHz may impact existing operations near the Canadian and Mexican borders and therefore seek comment on what measures might be necessary to protect use of the 160.900 MHz spectrum outside of the United States, consistent with applicable treaties or arrangements.⁵³

21. *Consumer Labeling.* We seek comment on whether to establish labeling requirements on authorized devices that could be used to mark fishing equipment to provide consumers guidance on whether the equipment being purchased complies with the Coast Guard's rules and the Commission's rules.⁵⁴ By requiring labeling on devices approved for use in marking fishing equipment, consumers would be on notice not to purchase devices that do not contain the approved label. For example, if we adopted such an approach, unauthorized devices used in marking fishing equipment that operate on AIS 1 and 2, currently illegally marketed as "AIS Fishing Net Buoys," would not contain the label of approval. We seek comment on requiring consumer labeling for devices that could be used to mark fishing equipment, including the costs and benefits of such an approach.

IV. PROCEDURAL MATTERS

22. *Regulatory Flexibility Act.* The Regulatory Flexibility Act of 1980, as amended (RFA),⁵⁵ requires that an agency prepare a regulatory flexibility analysis for notice-and-comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities."⁵⁶ Accordingly, the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) concerning potential rule and policy changes contained in this *Notice of Proposed Rulemaking (Notice)*. The IRFA is set forth in Appendix A.

23. *Comment Period and Filing Requirements.* Pursuant to sections 1.415 and 1.419 of the Commission's rules, 47 CFR §§ 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 the Commission's Electronic Comment Filing System (ECFS). *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/ecfs/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing.

⁵³ We note that the U.S and Canada have an existing arrangement (first executed in 1960, supplemented in 1965 and again in 1971) for railroad use of 160 MHz spectrum in cross-border areas. *See* Letter from Ben F. Waple, Acting Secretary, FCC, to F.G Nixon, Director, Telecommunications & Electronics Branch, Canada Department of Transport, 6155-F (July 28, 1960).

⁵⁴ *See, e.g.*, 47 CFR § 80.1061(f) (consumer labeling requirements for Emergency Position Indicating Radio Beacons in the 406.0–406.1 MHz band).

⁵⁵ The RFA, *see* 5 U.S.C. §§ 601-612, was amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

⁵⁶ 5 U.S.C. § 605(b).

- Filings can be sent by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be addressed to the Commission’s Secretary, Office of the Secretary, Federal Communications Commission.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9050 Junction Drive, Annapolis Junction, MD 20701.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 45 L Street NE Washington, DC 20554.
- Effective March 19, 2020, and until further notice, the Commission no longer accepts any hand or messenger delivered filings. This is a temporary measure taken to help protect the health and safety of individuals, and to mitigate the transmission of COVID-19. *See FCC Announces Closure of FCC Headquarters Open Window and Change in Hand-Delivery Policy*, Public Notice, 35 FCC Rcd 2788, 2788-89 (OS 2020), <https://www.fcc.gov/document/fcc-closes-headquarters-open-window-and-changes-hand-delivery-policy>.

24. *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 or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (TTY).

25. The proceeding this Notice initiates shall be treated as a “permit-but-disclose” proceeding in accordance with the Commission’s *ex parte* rules.⁵⁷ Persons making *ex parte* presentations must file a copy of any written presentation or a memorandum summarizing any oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral *ex parte* presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the *ex parte* presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter’s written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during *ex parte* meetings are deemed to be written *ex parte* presentations and must be filed consistent with rule 1.1206(b). In proceedings governed by rule 1.49(f) or for which the Commission has made available a method of electronic filing, written *ex parte* presentations and memoranda summarizing oral *ex parte* presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission’s *ex parte* rules.

V. ORDERING CLAUSES

26. Accordingly, IT IS ORDERED, pursuant to sections 4(i), 301, 303(r), 308, 309, and 384 of the Communications Act of 1934, 47 U.S.C. §§ 154(i), 301, 303(r), 308, 309, and 384, and pursuant to section 8416 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, that this *Notice of Proposed Rulemaking* is HEREBY ADOPTED.

⁵⁷ 47 CFR § 1.1200 *et seq.*

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

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch
Secretary

APPENDIX A**Initial Regulatory Flexibility Analysis**

1. As required by the Regulatory Flexibility Act of 1980 (RFA),¹ as amended, the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the potential policy and rule changes that the Commission seeks comment on in the *Notice of Proposed Rulemaking (NPRM)*. 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 as specified in the *NPRM*. The Commission will send a copy of the *NPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).² In addition, the *NPRM* and IRFA (or summaries thereof) will be published in the Federal Register.³

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

2. As required by Section 8416 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021,⁴ the Commission initiated a proceeding to explore whether to authorize devices used to mark fishing equipment for use on Automatic Identification System (AIS) channels.⁵ Section 8416 of the NDAA21 mandates that the Commission initiate a proceeding by June 30, 2021 to consider whether to authorize devices use to mark fishing equipment in radio frequencies assigned for AIS.⁶ Congress further instructs the Commission to “consider whether imposing requirements with respect to the manner in which [AIS] devices are deployed and used would enable the authorization of [devices used to mark fishing equipment] to operate in radio frequencies assigned for [AIS] stations consistent with the core purpose of the [AIS] to prevent maritime accidents.”⁷

3. Pursuant to the mandates of Section 8416 of the NDAA21, the *NPRM* raises germane technical, operational and economic issues that could result in rules changes in its request for comments on whether to permit devices that could be used to mark fishing equipment to operate on channels currently assigned for AIS operation in the United States and internationally, specifically AIS channels 1 and 2. The *NPRM* seeks comment on the current types and usages of such devices. The *NPRM* inquires whether requirements could be adopted by the Commission to enable authorization of devices that are designed to mark fishing equipment to operate in AIS 1 and 2 consistent with the core purpose of AIS to prevent maritime accidents and seeks comment on this issue. The Commission also requests input on the overall costs and benefits of potentially allowing devices used to mark fishing equipment to operate on AIS 1 and 2, including the risks to maritime safety. Further, to the extent that the Commission were to permit devices used to mark fishing equipment on AIS 1 and AIS 2, the *NPRM* seeks input on the certification procedures that should be required, and whether, and to what extent the current Commission AIS equipment certification rules would need to be amended. Additionally, the *NPRM* seeks input on whether there are restrictions or requirements such as technical parameters, and use or deployment restrictions on devices intended to mark fishing equipment, that the Commission could impose to mitigate

¹ See 5 U.S.C. § 603. The RFA, 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).

² See 5 U.S.C. § 603(a).

³ See *Id.*

⁴ National Defense Authorization Act for Fiscal Year 2021, Pub. Law No. 116-283, Division G, Title LVXXXIV (NDAA21), § 8416.

⁵ NDAA21 § 8416 (a)(5) and (b)-(c).

⁶ NDAA21 § 8416 (a)(5) and (b).

⁷ NDAA21 § 8416(c).

against a negative impact on existing uses without undermining the core safety purpose of AIS technology.

4. As part of the Commission's assessment of the relative costs and benefits of permitting the use of AIS 1 and 2 by devices that could be used to mark fishing equipment, the *NPRM* seeks comment on whether to, in the alternative, authorize devices that could be used to mark fishing equipment for operation on 160.900 MHz pursuant to a relevant International Telecommunications Union (ITU) recommendation.⁸ As more vessels become equipped with authorized AIS equipment and as its use increases, AIS channels have the potential to become overloaded in areas with high vessel traffic.⁹ In addition to the other impacts, one consequence of overloading is a reduction in the range of the AIS system which reduces situational awareness for mariners. The ITU has sought to address this problem by defining the types of navigation safety AIS uses that are permitted on AIS 1 and 2, and by identifying 160.900 MHz for non-navigation and non-safety AIS uses. In addition to the ITU's recommendation, the *NPRM* seeks comment on how best to categorize devices used to mark fishing equipment. Further, the Commission requests input on the appropriate technical and operational limitations and protective measures that could be adopted to best protect existing incumbents with deployments on the 160.900 MHz frequency from interference while still accommodating new maritime uses.

5. Finally, the *NPRM* inquires whether a consumer labeling requirement should be adopted to provide consumers guidance on whether the equipment being purchased complies with both the Coast Guard's and the Commission's rules. By requiring labeling on devices approved for use in marking fishing equipment, consumers would be on notice not to purchase devices that do not contain the approved label. The Commission requests information on the costs and benefits of imposing such a labeling requirement.

B. Legal Basis

6. The proposed action is authorized pursuant to Sections 4(i), 301, 303(r), 308, 309, and 384 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 301, 303(r), 308, 309, and 384, and pursuant to section 8416 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021.

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

7. 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 and policies, if adopted.¹⁰ The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."¹¹ In addition, the term "small business" has

⁸ The ITU allocates global radio spectrum and satellite orbits and develops technical standards regarding network and technology compatibility.

⁹ When AIS VHF data link (VDL) loading exceeds 50%, the ability of the shipborne AIS to find free slots and the ability of the AIS shore infrastructure to exchange information with the shipborne AIS are impaired. See ITU, Automatic identification system VHF data link loading, Report ITU-R M.2287-0, section 4, at 4 (Dec. 2013), *see also id.*, at Annex 1 ("The critical 50% threshold has already been exceeded in some areas of the world where vessel traffic is high, for example, the Northern Gulf of Mexico in the United States of America . . .") (citing International Association of Marine Aids to Navigation and Lighthouse Authorities Recommendation A-124); *see also* U.S. Department of Homeland Security, How AIS Works (Sept. 08, 2016) <https://www.navcen.uscg.gov/?pageName=AISworks>.

¹⁰ 5 U.S.C. § 603(b)(3).

¹¹ 5 U.S.C. § 601(6).

the same meaning as the term “small business concern” under the Small Business Act.¹² 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 SBA.¹³

8. *Wireless Telecommunications Carriers (except Satellite)*. This industry comprises establishments engaged in operating and maintaining switching and transmission facilities to provide communications via the airwaves. Establishments in this industry have spectrum licenses and provide services using that spectrum, such as cellular phone services, paging services, wireless Internet access, and wireless video services.¹⁴ The appropriate size standard under SBA rules is that such a business is small if it has 1,500 or fewer employees.¹⁵ For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.¹⁶ Of this total, 955 firms employed fewer than 1,000 employees and 12 firms employed of 1000 employees or more.¹⁷ Thus under this category and the associated small business size standard, the Commission estimates that the majority of Wireless Telecommunications Carriers (except Satellite) are small entities.

9. *Marine Radio Services*. Small businesses in the aviation and marine radio services use a marine very high frequency (VHF), medium frequency (MF), or high frequency (HF) radio, any type of emergency position indicating radio beacon (EPIRB) and/or radar, an aircraft radio, and/or any type of emergency locator transmitter (ELT). The Commission nor the SBA have developed a size standard applicable to these small businesses. For purposes of this analysis, the Commission uses the SBA small business size standard for the category Wireless Telecommunications Carriers (except Satellite),¹⁸ which is 1,500 or fewer employees.¹⁹ For this industry, U.S. Census Bureau data for 2012 show that there were 967 firms that operated for the entire year.²⁰ Of this total, 955 firms employed fewer than 1,000 employees and 12 firms employed of 1000 employees or more.²¹ Thus under this category and the

¹² 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), 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.”

¹³ 15 U.S.C. § 632.

¹⁴ See U.S. Census Bureau, *2017 NAICS Definition, “517312 Wireless Telecommunications Carriers (except Satellite)”*, <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

¹⁵ See 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

¹⁶ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5, *Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210, <https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePrevieiw=false&vintage=2012>.

¹⁷ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

¹⁸ See U.S. Census Bureau, *2017 NAICS Definition, “517312 Wireless Telecommunications Carriers (except Satellite)”*, <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

¹⁹ See 13 CFR § 121.201, NAICS Code 517312 (previously 517210).

²⁰ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ5, *Information: Subject Series: Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210, <https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePrevieiw=false&vintage=2012>.

²¹ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

associated small business size standard, the Commission estimates that the majority firms in this industry are small entities.

10. Based on Commission data most applicants for recreational licenses are individuals. Approximately 581,000 ship station licensees and 131,000 aircraft station licensees operate domestically and are not subject to the radio carriage requirements of any statute or treaty. For purposes of our evaluations in this analysis, we estimate that there are up to approximately 712,000 licensees that are small businesses (or individuals) under the SBA standard. In addition, between December 3, 1998 and December 14, 1998, the Commission held an auction of 42 VHF Public Coast 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 \$15 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 \$3 million dollars. 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.

11. *Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing.* This industry comprises establishments primarily engaged in manufacturing radio and television broadcast and wireless communications equipment.²² Examples of products made by these establishments are: transmitting and receiving antennas, cable television equipment, GPS equipment, pagers, cellular phones, mobile communications equipment, and radio and television studio and broadcasting equipment.²³ The SBA has established a size standard for this industry of 1,250 employees or less.²⁴ U.S. Census Bureau data for 2012 show that 841 establishments operated in this industry in that year.²⁵ Of that number, 828 establishments operated with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees.²⁶ Based on this data, we conclude that a majority of manufacturers in this industry are small.

12. *Private Land Mobile Radio Licensees.* Private land mobile radio (PLMR) systems serve an essential role in a vast range of industrial, business, land transportation, and public safety activities. Companies of all sizes operating in all U.S. business categories use these radios. Because of the vast array of PLMR users, the Commission has not developed a small business size standard specifically applicable to PLMR users. The closest applicable SBA category is Wireless Telecommunications Carriers (except Satellite) which encompasses business entities engaged in radiotelephone communications.²⁷ The appropriate size standard for this category under SBA rules is that such a business is small if it has 1,500 or fewer employees.²⁸ For this industry, U.S. Census Bureau data for

²² See U.S. Census Bureau, *2017 NAICS Definition*, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,” <https://www.census.gov/naics/?input=334220&year=2017&details=334220>.

²³ *Id.*

²⁴ See 13 CFR § 121.201, NAICS Code 334220.

²⁵ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1231SG2, *Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012*, NAICS Code 334220, <https://data.census.gov/cedsci/table?text=EC1231SG2&n=334220&tid=ECNSIZE2012.EC1231SG2&hidePreview=false>.

²⁶ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

²⁷ See U.S. Census Bureau, *2017 NAICS Definition*, “517312 Wireless Telecommunications Carriers (except Satellite),” <https://www.census.gov/naics/?input=517312&year=2017&details=517312>.

²⁸ See 13 CFR § 121.201, NAICS Code 517312 (formerly 517210).

2012 shows that there were 967 firms that operate for the entire year.²⁹ Of this total, 955 firms has employment of 999 or fewer employees and 12 had employment of 1,000 employees or more.³⁰ Thus under this category and the associated size standard, the Commission estimates that the majority of PLMR licensees are small entities.

13. *Small Businesses, Small Organizations, Small Governmental Jurisdictions.* Our actions, over time, may affect small entities that are not easily categorized at present. We therefore describe here, at the outset, three broad groups of small entities that could be directly affected herein.³¹ First, while there are industry specific size standards for small businesses that are used in the regulatory flexibility analysis, according to data from the Small Business Administration's (SBA) Office of Advocacy, in general a small business is an independent business having fewer than 500 employees.³² These types of small businesses represent 99.9% of all businesses in the United States, which translates to 30.7 million businesses.³³

14. Next, the type of small entity described as a "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."³⁴ The Internal Revenue Service (IRS) uses a revenue benchmark of \$50,000 or less to delineate its annual electronic filing requirements for small exempt organizations.³⁵ Nationwide, for tax year 2018, there were approximately 571,709 small exempt organizations in the U.S. reporting revenues of \$50,000 or less according to the registration and tax data for exempt organizations available from the IRS.³⁶

15. Finally, the small entity described as a "small governmental jurisdiction" is defined generally as "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than fifty thousand."³⁷ U.S. Census Bureau data from the 2017 Census

²⁹ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table EC1251SSSZ5, Information: Subject Series: *Estab and Firm Size: Employment Size of Firms for the U.S.: 2012*, NAICS Code 517210, <https://data.census.gov/cedsci/table?text=EC1251SSSZ5&n=517210&tid=ECNSIZE2012.EC1251SSSZ5&hidePreview=false&vintage=2012>.

³⁰ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA standard.

³¹ See 5 U.S.C. § 601(3)-(6).

³² See SBA, Office of Advocacy, "What's New With Small Business?", <https://cdn.advocacy.sba.gov/wp-content/uploads/2019/09/23172859/Whats-New-With-Small-Business-2019.pdf> (Sept 2019).

³³ *Id.*

³⁴ 5 U.S.C. § 601(4).

³⁵ The IRS benchmark is similar to the population of less than 50,000 benchmark in 5 U.S.C § 601(5) that is used to define a small governmental jurisdiction. Therefore, the IRS benchmark has been used to estimate the number small organizations in this small entity description. See Annual Electronic Filing Requirement for Small Exempt Organizations — Form 990-N (e-Postcard), "Who must file," <https://www.irs.gov/charities-non-profits/annual-electronic-filing-requirement-for-small-exempt-organizations-form-990-n-e-postcard>. We note that the IRS data does not provide information on whether a small exempt organization is independently owned and operated or dominant in its field.

³⁶ See Exempt Organizations Business Master File Extract (EO BMF), "CSV Files by Region," <https://www.irs.gov/charities-non-profits/exempt-organizations-business-master-file-extract-eo-bmf>. The IRS Exempt Organization Business Master File (EO BMF) Extract provides information on all registered tax-exempt/non-profit organizations. The data utilized for purposes of this description was extracted from the IRS EO BMF data for Region 1-Northeast Area (76,886), Region 2-Mid-Atlantic and Great Lakes Areas (221,121), and Region 3-Gulf Coast and Pacific Coast Areas (273,702) which includes the continental U.S., Alaska, and Hawaii. This data does not include information for Puerto Rico.

³⁷ 5 U.S.C. § 601(5).

of Governments³⁸ indicate that there were 90,075 local governmental jurisdictions consisting of general purpose governments and special purpose governments in the United States.³⁹ Of this number there were 36,931 general purpose governments (county,⁴⁰ municipal and town or township⁴¹) with populations of less than 50,000 and 12,040 special purpose governments - independent school districts⁴² with enrollment populations of less than 50,000.⁴³ Accordingly, based on the 2017 U.S. Census of Governments data, we estimate that at least 48,971 entities fall into the category of “small governmental jurisdictions.”⁴⁴

16. *Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) Licensees (TV Stations)*. Only licensees of broadcast stations, broadcast networks, and cable networks can hold RPU licenses. BAS involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit to the studio or from the studio to the transmitter). The Commission nor the SBA has developed a small business size standard for Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) licensees. The closest applicable SBA small business size standard for Remote pickup BAS when used by a TV station is for Television Broadcasting⁴⁵ and such a business is small if it has \$41.5 million or less in annual receipts.⁴⁶ The 2012 Economic Census reports that 751 firms in this category operated for the

³⁸ See 13 U.S.C. § 161. The Census of Governments survey is conducted every five (5) years compiling data for years ending with “2” and “7”. See also Census of Governments, <https://www.census.gov/programs-surveys/cog/about.html>.

³⁹ See U.S. Census Bureau, 2017 Census of Governments – Organization Table 2. Local Governments by Type and State: 2017 [CG1700ORG02]. <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. Local governmental jurisdictions are made up of general purpose governments (county, municipal and town or township) and special purpose governments (special districts and independent school districts). See also Table 2. CG1700ORG02 Table Notes_Local Governments by Type and State_2017.

⁴⁰ See U.S. Census Bureau, 2017 Census of Governments - Organization, Table 5. County Governments by Population-Size Group and State: 2017 [CG1700ORG05], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 2,105 county governments with populations less than 50,000. This category does not include subcounty (municipal and township) governments.

⁴¹ See U.S. Census Bureau, 2017 Census of Governments - Organization, Table 6. Subcounty General-Purpose Governments by Population-Size Group and State: 2017 [CG1700ORG06], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 18,729 municipal and 16,097 town and township governments with populations less than 50,000.

⁴² See U.S. Census Bureau, 2017 Census of Governments - Organization, Table 10. Elementary and Secondary School Systems by Enrollment-Size Group and State: 2017 [CG1700ORG10], <https://www.census.gov/data/tables/2017/econ/gus/2017-governments.html>. There were 12,040 independent school districts with enrollment populations less than 50,000. See also Table 4. Special-Purpose Local Governments by State Census Years 1942 to 2017 [CG1700ORG04], CG1700ORG04 Table Notes Special Purpose Local Governments by State Census Years 1942 to 2017.

⁴³ While the special purpose governments category also includes local special district governments, the 2017 Census of Governments data does not provide data aggregated based on population size for the special purpose governments category. Therefore, only data from independent school districts is included in the special purpose governments category.

⁴⁴ This total is derived from the sum of the number of general-purpose governments (county, municipal and town or township) with populations of less than 50,000 (36,931) and the number of special purpose governments - independent school districts with enrollment populations of less than 50,000 (12,040), from the 2017 Census of Governments - Organizations Tables 5, 6, and 10.

⁴⁵ See U.S. Census Bureau, 2017 NAICS Definition, “515120 Television Broadcasting,” <https://www.census.gov/naics/?input=515120&year=2017&details=515120>.

⁴⁶ See 13 CFR § 121.201, NAICS Code 515120.

entire year.⁴⁷ Of that number, 656 had annual receipts of \$25,000,000 or less, and 25 had annual receipts between \$25,000,000 and \$49,999,999.⁴⁸ Based on this data we estimate that the majority of firms are small entities under the applicable SBA size standard.

17. *Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) Licensees (Radio Stations).* Only licensees of broadcast stations, broadcast networks, and cable networks can hold RPU licenses. BAS involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit to the studio or from the studio to the transmitter). The Commission nor the SBA has developed a small business size standard for Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) licensees. The closest applicable SBA small business size standard for Remote pickup BAS when used by a radio station is for Radio Stations⁴⁹ and such a business is small if it has \$41.5 million or less in annual receipts.⁵⁰ U.S. Census Bureau data for 2012 show that 2,849 firms operated for the entire year.⁵¹ Of that number, 2,806 firms operated with annual receipts of less than \$25 million per year and 17 firms operated with annual receipts between \$25 million and \$49,999,999 million.⁵² Therefore, based on the SBA's size standard the majority of firms are small entities.

18. *Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) (Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing).* Only licensees of broadcast stations, broadcast networks, and cable networks can hold RPU licenses. BAS involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit to the studio or from the studio to the transmitter). The Commission nor the SBA has developed a small business size standard for Broadcast Auxiliary Services (BAS) Remote Pickup (RPU) licensees. The closest applicable SBA small business size standard for Remote pickup BAS involving BAS equipment manufacturers is for Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing⁵³ and such a business is small if it has 1,250 employees or less.⁵⁴ U.S. Census Bureau data for 2012 show that 841 establishments operated in this industry for the entire year.⁵⁵ Of that number, 828 establishments operated

⁴⁷ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series – Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 515120, <https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=515120&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false>.

⁴⁸ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

⁴⁹ See U.S. Census Bureau, *2017 NAICS Definition*, “515112 Radio Stations,” <https://www.census.gov/naics/?input=515112&year=2017&details=515112>.

⁵⁰ See 13 CFR § 121.201, NAICS Code 515112.

⁵¹ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1251SSSZ4, *Information: Subject Series – Estab and Firm Size: Receipts Size of Firms for the U.S.: 2012*, NAICS Code 515112, <https://data.census.gov/cedsci/table?text=EC1251SSSZ4&n=515112&tid=ECNSIZE2012.EC1251SSSZ4&hidePreview=false>.

⁵² *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

⁵³ See U.S. Census Bureau, *2017 NAICS Definition*, “334220 Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing,” <https://www.census.gov/naics/?input=334220&year=2017&details=334220>.

⁵⁴ See 13 CFR § 121.201, NAICS Code 334220.

⁵⁵ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1231SG2, *Manufacturing: Summary Series: General Summary: Industry Statistics for Subsectors and Industries by Employment Size: 2012*, NAICS Code 334220,

(continued...)

with fewer than 1,000 employees, 7 establishments operated with between 1,000 and 2,499 employees and 6 establishments operated with 2,500 or more employees.⁵⁶ Based on this data, we conclude that a majority of manufacturers in this industry are small.

19. *Boat Dealers.* This U.S. industry comprises establishments primarily engaged in (1) retailing new and/or used boats or retailing new boats in combination with activities, such as repair services and selling replacement parts and accessories, and/or (2) retailing new and/or used outboard motors, boat trailers, marine supplies, parts, and accessories.⁵⁷ The SBA has established a size standard for this industry, which is having annual receipts of \$35 million or less.⁵⁸ 2012 U.S. Census Bureau data indicate that 3,338 firms operated in this industry throughout the entire year.⁵⁹ Of that number, 3,328 operated with annual receipts of less than \$25 million, while 17 firms had annual receipts between \$25 million and \$49,999,999.⁶⁰ Based on this data, we conclude that a majority of the firms in this industry are small.

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

20. The inquiries raised for comment in the *NPRM* may create new or additional reporting or recordkeeping and/or other compliance obligations on small entities, if adopted. The *NPRM* seeks comment on potentially allowing devices used to mark fishing equipment on to AIS channels 1 and 2 pursuant to a statutory mandate and requests information on potential rule changes that can be made to facilitate this action. Following the Congressional directive in the NDAA21, the Commission is seeking comment on multiple alternatives for devices that could be used to mark fishing equipment that could result in reporting, recordkeeping, and other compliance requirements for small entities. More specifically, in its request for comment, the Commission seeks information on the type of use or deployment restrictions on devices intended to mark fishing equipment it could impose to potentially accommodate the addition of such devices on AIS channels 1 and 2, while not undermining the core safety purpose of AIS technology. The *NPRM* also seeks input on what the certification procedures should be implemented if the Commission decides to allow devices used to mark fishing equipment on AIS channels 1 and 2 and whether to amend the current AIS equipment certification rules.

21. In the alternative, the Commission is seeking comment on whether alternative frequencies could provide a viable option for devices that could be used to mark fishing equipment, in particular 160.900 MHz. If the Commission decides that relocating existing incumbents from the 160.900 MHz band is a feasible course of action, those incumbents may face new requirements. Further, if the Commission adopts rules for devices that could be used to mark fishing equipment to protect incumbents

(Continued from previous page)

<https://data.census.gov/cedsci/table?text=EC1231SG2&n=334220&tid=ECNSIZE2012.EC1231SG2&hidePreview=false>.

⁵⁶ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

⁵⁷ See U.S. Census Bureau, *2017 NAICS Definition*, “441222 Boat Dealers,” <https://www.census.gov/naics/?input=441222&year=2017&details=441222>.

⁵⁸ See 13 CFR § 121.201, NAICS Code 441222.

⁵⁹ See U.S. Census Bureau, *2012 Economic Census of the United States*, Table ID: EC1244SSSZ4, *Retail Trade: Subject Series - Estab & Firm Size: Summary Statistics by Sales Size of Firms for the U.S.: 2012*, NAICS Code 441222, <https://data.census.gov/cedsci/table?text=EC1244SSSZ4&n=441222&tid=ECNSIZE2012.EC1244SSSZ4&hidePreview=false>.

⁶⁰ *Id.* The available U.S. Census Bureau data does not provide a more precise estimate of the number of firms that meet the SBA size standard.

on 160.900 MHz, entities deploying such devices would need to conform to technical and operational standards and requirements. In addition, to the extent the Commission established a consumer labeling requirement pursuant to the inquiry raised in the *NPRM* compliance with a labeling requirement would be applicable to device manufacturers.

22. At this time, the Commission is not currently in a position to determine whether, if adopted, the potential rule changes that could result from questions raised and issues discussed in the *NPRM* will require small entities to hire attorneys, engineers, consultants, or other professionals, and cannot quantify the cost of compliance with any the potential rule changes that may be adopted. In the discussion of these issues relevant to whether to authorize devices used to mark fishing equipment for use on AIS channels or other frequencies, the Commission has sought comments from parties in the proceeding, including seeking cost and benefit analyses. This information may help the Commission identify and evaluate other relevant matters, including compliance costs and burdens on small entities that may result from the matters explored in the *NPRM*.

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

23. 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 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.”⁶¹

24. In the *NPRM*, the Commission seeks to identify the appropriate band for devices that could be used to mark fishing equipment and how to best protect maritime safety and incumbents. The Commission has raised three possible for approaches for consideration. As discussed above, the first approach looks at use of the current 1900-2000 kHz band and whether it remains appropriate for use in support of fishing operations. Pursuant to the NDAA21 statutory mandate, the *NPRM* seeks comment on whether imposing requirements with respect to the manner in which devices that could be used to mark fishing equipment are deployed would enable them to be authorized to operate in radio frequencies assigned for AIS consistent with the core AIS purpose to prevent maritime accidents. In the alternative, the Commission raised for consideration whether alternative frequencies could provide a viable option for devices that could be used to mark fishing equipment, in particular 160.900 MHz. To understand the technical, operational, and economic impact of each of these alternatives the Commission has provided small entities and others the opportunity to provide information, including cost and benefit analyses on issues identified in the *NPRM* as well as information on any other issues relevant to this matter.

25. The Commission expects to consider more fully the economic impact on small entities following its review of comments filed in response to the *NPRM*, including costs and benefits analyses, and this IFRA. The Commission’s evaluation of the comments filed in this proceeding will shape the final conclusions it reaches, the final alternatives it considers, and the actions it ultimately takes in this proceeding to minimize any significant economic impact that may occur on small entities.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

26. None.

⁶¹ 5 U.S.C. § 603(c)(1)-(4).