

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Shortwave Modernization Coalition Petition)	
for Rulemaking to Amend the Commission’s)	RM-11953
Rules to Allow Fixed, Long-Distance, Non-)	
Voice Communications Above 2 MHz and)	
Below 25 MHz)	
)	

**COMMENTS OF THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION**

The National Telecommunications and Information Administration (NTIA)¹ respectfully submits these comments in response to the Public Notice² of a petition filed by the Shortwave Modernization Coalition (SMC) requesting the initiation of a rulemaking regarding access to over 20 megahertz of spectrum for fixed, long-distance operations (Petition). Numerous federal entities – including the Department of the Air Force, the Department of the Navy, the United States Coast Guard (USCG), the Department of Commerce, the Department of Transportation and the Federal Aviation Administration, the Department of Homeland Security (DHS), and the National Science Foundation – are greatly concerned by the regulatory changes contemplated in the Petition. To the extent the Commission considers initiating a responsive rulemaking, NTIA

¹ NTIA is the Executive Branch agency principally responsible for the development of communications policies pertaining to the Nation’s economic and technological advancement and to the regulation of the communications industry, for the coordination of the communications activities of the Executive Branch, and for the effective presentation of the views of the Executive Branch to the Commission. *See* 47 U.S.C. § 902 (b)(2). In formulating these comments, NTIA also incorporated input from the Interdepartment Radio Advisory Committee (IRAC) and other Executive Branch entities.

² *Office of Managing Director Reference Information Center Petition for Rulemakings Filed*, RM-11953, Public Notice, Report No. 3198 (rel. June 30, 2023).

respectfully requests that the Commission recognize that much more information would be needed to ensure protection of the significant number of incumbent federal operations in the 2-25 MHz band. Alternatively, if the Commission concludes that the work necessary to show that federal missions would be protected is too extensive and time consuming, it could simply exclude bands where federal incumbents and safety missions are operating. In support, attached are comments of the USCG.

I. There are Significant and Widespread Incumbent Federal Operations in the 2-25 MHz Band That Require Protection.

The Commission and NTIA must, of course, consider rule changes based on technological innovations that can further the public interest. But such rule changes should not compromise incumbent operations and the missions that they enable. The Petition provides little to no assurance that the proposed rule changes would protect important federal operations. The Petition addresses protection of incumbent federal assignments in a one-sentence footnote.³ If the Commission determines that the SMC Petition warrants the initiation of a rulemaking, NTIA asks the Commission to seek a great deal of additional information about how the significant number of incumbent federal operations in the 2-25 MHz band would be protected from harmful interference.

Some 28 Federal agencies hold over 120,000 frequency assignments in the 2-25 MHz frequency band, including safety-of-life operations such as the aeronautical mobile (R) service where no interference can be tolerated. The USCG, for example, is a heavy user with thousands of assignments to provide maritime mobile communications, including search-and-rescue operations. DHS operates critical systems in this band such as the SHARED RESources

³ See Petition at 6, n.8.

(SHARES) High Frequency program and the Federal Emergency Management Agency National Radio System (FNARS). The military also extensively uses these frequencies for a variety of purposes, including training exercises to maintain operational readiness. The Department of Veterans Affairs uses the band to provide “back-up” communications among its facilities, including veterans’ hospitals, when other communications methods are inoperable. Other agencies with large numbers of assignments are the Departments of Veterans Affairs, Justice, Health and Human Services, Energy, and the Federal Aviation Administration.

The amount of work that would be required to ensure protection of incumbent federal operations would, therefore, be extensive. The Petition does not attempt to show how the myriad of potentially impacted incumbent federal operations would be protected from the contemplated use. Here are a few matters that would require thorough study.

A. Frequency Agility

The Petition all but concedes at the outset that harmful interference would arise such that new entrants would require “the ability to access multiple frequencies, and to choose among those frequencies.”⁴ Rather than protect incumbent federal operations, the Petition urges the Commission to “weigh the interests of government users [and] incumbent licensees” and apply a “balancing of interests” to the proposed stock trading uses.⁵ The Petition goes on nonetheless to give assurances that all new entrants’ systems are designed to “avoid” interference by transmitting and receiving on any frequency via an “immediate” change.⁶ The Commission would need to study the proposed frequency agility to ascertain *inter alia* what “immediate”

⁴ Petition at 5-6.

⁵ Petition at 7-8.

⁶ Petition at 14.

might mean, whether any latency would translate into harmful interference, and if the proposed power limits are sufficient.

B. Listen-Before-Transmit

Relatedly, the Petition indicates that a “listen-before-transmit” (LBT) technique presented in Appendix B could be used to avoid interference, but elsewhere acknowledges there are “technical challenges” with this approach caused by, among other things, naturally-occurring ionospheric fluctuations.⁷ This is not insignificant. Study would be required to evaluate the robustness and reliability of shortwave LBT to ensure that ionospheric fluctuations and the like do not result in interference on frequencies LBT thinks is unoccupied. Study also would be needed to determine whether LBT is capable of addressing various federal operations, such as where aircraft receivers communicate with ground stations beyond the LBT’s line of sight.

II. Alternatively, Federal and Safety Frequencies Could be Excluded.

As discussed above, in the event the Commission proceeds with a responsive rulemaking, protection of incumbent federal operations would require significant time and effort.

Commission consideration of the Petition might be facilitated if frequencies operated by federal incumbents (including sufficient adjacent-channel protection) and those operated for safety purposes simply were excluded. Here are some example bands on which the Commission could prohibit Petitioners’ systems.

A. Radio Astronomy Service

The 13.360-13.410 MHz frequency range is allocated to the Radio Astronomy Service (RAS) on a primary basis (with some limited active use for national defense and emergency

⁷ Petition at 5-6, Appendix B.

purposes). Pursuant to both the international and U.S. Table of Allocations, “all practicable steps” must be taken to protect RAS from harmful interference.⁸

B. Standard Frequency and Time Signals

The National Institute of Standards and Technology (NIST) operates two radio stations which it uses to broadcast a number of technical services continuously night and day: WWV in Ft. Collins, Colorado and WWVH in Kauai, Hawaii.⁹ Since 1923, NIST has transmitted standard time and frequency reference signals (among other technical services), and the current standardized signals exist at 2.495-2.505 MHz (2.5 MHz), 4.995-5.005 MHz (5.0 MHz), 9.995-10.005 MHz (10 MHz), 14.99-15.01 MHz (15 MHz), 19.99-20.01 MHz (20 MHz), and 24.99-25.01 MHz (25 MHz).¹⁰ These carrier frequencies and several modulations are directly synthesized from NIST atomic clocks disciplined to UTC(NIST)—NIST’s realization of Coordinated Universal Time (UTC). In addition to timing information, the NIST broadcasts can also be used to transmit geophysical alerts from NOAA (e.g., alerts on geomagnetic storms).¹¹

C. Aeronautical Mobile (Route) Service Frequencies

The Aeronautical Mobile (Route) Service (AM(R)S) frequencies between 2.85-3.155 MHz are used to provide critical services to ensure separation of aircraft in remote locations where other means of communicating with aircraft are unavailable. These AM(R)S communications provide safety assurance for global aviation services.

⁸ 47 CFR § 2.106 n.5.149, US342.

⁹ 15 CFR § 200.107(a).

¹⁰ 47 CFR § 2.106.

¹¹ 15 CFR § 200.107(a)(1), (i).

Conclusion

NTIA respectfully requests, to the extent the Commission considers initiating a rulemaking in response to the Petition, that it (1) seek additional information on how the proposed new entrants would protect incumbent federal operations from harmful interference; or, alternatively (2) exclude from consideration frequency ranges involving federal and safety operations.

Respectfully submitted,

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National Telecommunications
and Information Administration
U.S. Department of Commerce
1401 Constitution Ave, NW
Washington, DC 20230
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August 24, 2023

ATTACHMENT
COMMENTS OF THE UNITED STATES COAST GUARD



Re: FCC RM-11593

2400
August 16, 2023

Mr. Charles Cooper
Associate Administrator
Office of Spectrum Management
National Telecommunications and Information Administration (NTIA)
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Dear Mr. Cooper,

1. The United States Coast Guard (USCG) reviewed the drafted petition for the Shortwave Modernization Coalition Petition for Rulemaking to Amend the Federal Communication Commission's (FCC) Rules to Allow Fixed, Long-Distance, Non-Voice Communications Above 2 MHz and Below 25 MHz. USCG has concerns with this petition and comments are provided.
2. The USCG is the principal Federal agency responsible for maritime mobility, safety, security, and environmental stewardship of U.S. ports and waters, along more than 95,000 nautical miles of U.S. coastline, 25,000 nautical miles of U.S. navigable rivers, and 4.5 million square miles of U.S. Exclusive Economic Zone (EEZ), and U.S. vessels at sea. USCG serves world-wide on all seven continents upholding international security standards in foreign ports and enforcing United Nation sanctions. USCG leads the efforts to ensure maritime interactions are safe and professional. The 2-25 MHz frequency band contains frequency assignments adjacent to internationally recognized Global Maritime and Distress Safety Service frequency bands, it is the position of the USCG, to comment on the operational use of 2-25 MHz in the Maritime Mobile Service (MMS).
3. The MMS is extensively utilized in the 2-25 MHz Medium Frequency/ High Frequency (MF/HF) frequency band for beyond line of sight communications in accordance with (IAW) Appendix 17¹ of the International Radio Regulations (RR) and Appendix 15² of the RR for distress and safety calling. For distress calling, all vessels transiting in international water are required to operate 2-25 MHz MF/HF equipment to support the Global Maritime Distress and Safety System (GMDSS) IAW the Safety of Life at Sea (SOLAS) international treaty; the United States is a signatory.
4. The USCG is responsible for operating the GMDSS Sea Area A1 within 25 miles of the U.S. coastline with 156-162 MHz (VHF) coverage, and beyond 25 nautical miles with

¹<https://www.itu.int/pub/R-REG-RR-2020> Vol.II Page 273

²<https://www.itu.int/pub/R-REG-RR-2020> Vol.II Page 267

GMDSS Sea Area A2 with MF/HF coverage. For these reasons, the USCG opposes the petition (draft FCC NPRM) because it poses potential harmful interference to essential maritime communications and the GMDSS, which is a safety of life matter with the highest priority in RR; both domestic and international.

5. The following is USCG position and concerns to this petition:

a. Use of the frequencies by the MMS is on a primary basis.

The GMDSS MF/HF Digital Selective Calling (DSC) and Narrow Band Direct Printing (NBDP) frequencies are a primary example of 2-25 MHz in-band frequencies which should be prohibited for use as these are not just utilized for Federal Maritime frequencies, but also international frequencies supporting the SOLAS international treaty.

b. The proposed new data service will likely result in a high use percentage.

From the description that is provided, it is likely these new frequencies will be active a high percentage of the time to "update their bid/ask prices continuously based on the most up-to-date information" yet this increased contribution to the noise floor is not addressed as potential co-interference. With the addition of multiple new 20 kW stations, this may have a significant impact within the band, especially for adjacent frequencies in the near field. This increase in the noise floor may degrade the performance of and range of existing band users, as well as new users.

c. The proposed channel bandwidth and modified mask are spectrum inefficient.

This petition seeks to increase the allowed channel bandwidth by up to 5 times more applied across multiple frequencies. Based on the combination of the increased channel bandwidth and the proposed modified Mask C, the effective bandwidth that minimizes adjacent channel interference is 250 percent of the authorized bandwidth, or 125 kHz. Approval may result in multiple (up to 5) frequency channels of 125 kHz per user to implement this and cause interference to the current band users. This is a very inefficient use of the limited spectrum, even considering the use of the agile frequency and interference detection / avoidance techniques as described.

d. The Part 90 bandwidth and mask would make better use of the spectrum.

The USCG does not understand the need to deviate from the current 10 kHz bandwidth and Mask C as presently prescribed in Part 90. The Coexistence Study was based on the existing 10 kHz bandwidths and thus, its' results may not hold for the increase to 50 kHz bandwidths. This point needs to be reviewed and the results verified at the proposed 50 kHz bandwidth prior to deciding to deviate from the current Part 90 requirements.

e. The Coexistence Study Report did not address the MMS.

The USCG notes that the Coexistence Study Report was based on the use of channels at 4.9, 10.2, 14.9, 19.9, and 24.8 MHz frequency band. This report did not identify any direct issues with these frequencies against the maritime frequencies, USCG doubts only these 5 frequencies can support the intent of the petition. Further clarification on the specific frequencies to be allowed is required for a thorough review to address and mitigate any adverse impact.

f. The USCG is concerned with Cyber security issues.

The USCG notes that the petition also does not address any Cyber security concerns or considerations, such as spoofing or jamming. If the purpose is the transmission and receipt of critical, time-sensitive data, some discussion of Cyber security mitigation may be appropriate

before the allocation of frequencies is determined. If the service can be spoofed, jammed, or interfered with, a more secure means of transmission may be necessary and preferred. While this may be somewhat outside the typical FCC role, it should now be a factor of consideration in the decision process.

Very Respectfully,

Jerry L. Ulcek
Spectrum Management and Communications Policy Division
Division Chief
U. S. Coast Guard



UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
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Washington, D.C. 20230

CERTIFICATE OF SERVICE

I hereby certify that on August 24, 2023, I transmitted a true, correct, and complete copy of the foregoing Comments by electronic mail to counsel for Petitioners at the below-noted email addresses.

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Respectfully submitted,

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