

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

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

**Reply Comments of ARRL, The National Association For
Amateur Radio**

ARRL, The National Association for Amateur Radio, also known as the American Radio Relay League, Incorporated (ARRL), submits this Reply to the comments and oppositions submitted in response to the above-referenced petition. The petition should be denied or dismissed without further consideration for reasons well-explained in multiple responsive filings.

The proposed rules changes, if adopted, would result in significant harmful interference to an array of other services and users. As demonstrated by multiple commenters in detail, the petitioner has offered no meaningful test results, no accurate assessment of interference, and no meaningful suggestion(s) for mitigation of the interference to other users.¹ The petitioner thereby has failed to set forth “all facts, views, arguments and data deemed to support the action requested” as required by Section 1.401(c) of the Commission’s Rules and therefore the Petition should be denied or dismissed pursuant to Section 1.401(e) of those Rules.²

¹ Listen-Before-Talk (LBT) is of no help to licensees in other services operating on adjacent or near-by frequencies, such as those in the Amateur Radio and Aeronautical Services.

² See 47 C.F.R. § 1.401(c), (e).

The Proposals Do Not Merit Further Consideration by the Commission

As multiple commenters point out, the Petitioner failed to assess and submit to the Commission results of actual testing or representative analyses that would accurately demonstrate the effect of its proposal on other users of the 2-25 MHz spectrum. Specifically, SMC did not submit any showing or results of tests conducted with any other licensee or user of adjacent or nearby frequencies while transmitting on the spectrum under the conditions that it proposes that the Commission permit. Additionally, the computer simulations in its “Band Coexistence Study” employ substantially less than the maximum radiated power and bandwidth that it is proposing that the Commission adopt.

The simulations in the “Band Coexistence Study” notably specify antenna gain that is unrealistically low and substantially less than that of the antennas generally specified in related Experimental License applications. Specifically, the Petitioner fails to include analysis – computer or otherwise – of the effects of transmitting a 50-kHz wide signal with 100% duty cycle and employing 20,000 watts RMS power output³ to an antenna with gain consistent with that of the 15-17 dBi gain antennas commonly specified in related experimental license applications.

One of multiple such applications that include antenna information, for example, is the application for experimental license submitted by 3DB Communications on June 28, 2023, FCC File No. 0180-EX-CM-2023, for modification of its experimental license WI2XXG. In this

³ Transmitter output power is not commonly measured as “RMS” output for these purposes. Conventional means of measuring power for these purposes most often is “peak” or “mean”, which will result in measurements expressed as a higher number of watts, the specifics of which depend upon the type of digital modulation, but with which RF engineers are familiar. *See, for example*, FCC Form 442 used to apply for all experimental licenses, including those referenced by SMC, which requires the applicant to state whether the power is “mean” or “peak” (“RMS” is not a choice).

application 3DB certifies that one of the antennas it will use is a SteppIR Communication Systems' model HFT540C, which appears to be a modified Amateur Radio antenna.⁴ The data sheet for this antenna states that it provides as much as 16.93 dBi gain on frequencies between 6.8-25 MHz,⁵ comparable to many Amateur Radio antennas used on nearby frequencies. Stacking two of these antennas, a common method for antennas used at these frequencies when the tower is 100 feet tall as in this application, increase the gain into the 19-20 dBi range.

Conducting tests with other users while employing the power, bandwidth, frequencies, and out-of-band emissions being requested with an antenna of the type being employed by holders of related experimental licenses would have revealed the interference problems. With experimental licenses in hand and facilities constructed, properly collecting and submitting the relevant data to the Commission would have been an easy matter. Given the multiple authoritative comments in the record demonstrating the significant harmful interference that inevitably would be created by operators transmitting under the proposed rules, not having relevant data from SMC under these circumstances is more than sufficient reason to deny or dismiss the Petition.

Operating Under the Proposed Rules Would Cause Harmful Interference to Multiple Incumbent Services and Licensees

As demonstrated in the Comments of ARRL and others, there is little doubt that the rewrite of Part 90 that SMC proposes, if adopted, would result in destructive interference to

⁴ This license is referenced in the Reply Comments submitted by Greg Lapin, *infra* note 6. The application is available at this link: https://apps.fcc.gov/oetcf/els/reports/442_Print.cfm?mode=initial&application_seq=125766&license_seq=127494 (viewed Aug. 16, 2023).

⁵ The data sheet for this antenna is available at this link: <https://www.steppir.com/wp-content/uploads/2021/05/HFT540C-Data-Sheet-Gen-Pub-2.2.pdf> (viewed Aug. 16, 2023).

Amateur Radio operators as well as to other incumbent users in a variety of services that use adjacent and nearby spectrum in the 2-25 MHz range.⁶

Commenters authoritatively demonstrate that the excessive power and bandwidth that SMC proposes, amplified by antennas with gains of up to 15-18 dBi that will significantly increase the radiated power of the signals, coupled with the proposed substantially relaxed out-of-band emission limits, all will contribute to the resulting harmful interference. Those that will suffer harmful interference include not only the tens of thousands of U.S. Amateur Radio operators licensed under Part 97 of the Commission's Rules, but also the tens of thousands of Radio Amateurs licensed in other countries, particularly in North America and Europe where the petitioners intend to aim their signals with directional antennas. Other services will be at similar risk of harmful interference.

These interference threats are readily apparent to those familiar with HF (shortwave) propagation. HF signals reach the other side of the earth every day and almost every hour by means of ionospheric propagation. Yet Petitioners inexplicably ignored the potential for harmful interference to services in other countries on these frequencies, and even to neighboring Canada and Mexico. This is the reason that over 800 commenters in this proceeding overwhelmingly oppose further consideration of SMC's proposals.

In the most basic terms, SMC seeks to use unreasonably wide channel bandwidths, excessive power, and an extraordinarily wide spectrum mask. These characteristics, if permitted, would interfere not only with the Amateur Radio Service but equally with other services worldwide, including cable, aeronautical and marine. Adopting the proposed rules would be a

⁶ See, e.g., Opposition of ARRL, The National Association for Amateur Radio (filed Aug. 2, 2023); Comments of Gregory D, Lapin, Ph.D., P.E. (filed Aug. 1, 2023); Opposition to Petition for Rulemaking of Alex Pilosov, Shortwave Solutions (filed Aug. 3, 2023); Ron McGowan, Collin Aerospace (filed July 27, 2023); Opposition of NCTA – The Internet & Television Association (filed July 31, 2023).

huge step backward, and as explained by commenter Greg Lapin, would go against the Commission's well-considered spectrum policies of the last few decades that seek to make maximum use of our shared scarce spectrum resource.⁷

Conclusion

Accordingly, after reviewing the comments and oppositions, the ARRL respectfully reiterates its request that the petition be dismissed or denied.

Respectfully submitted
by:



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August 17, 2023

⁷ See, Comments of Greg Lapin and Opposition of Alex Pilosov, *supra* note 6.

CERTIFICATE OF SERVICE

I hereby certify that on August 17, 2023, I transmitted a true, correct, and complete copy of the foregoing Opposition by electronic mail to counsel for Petitioners at the below-noted email addresses.

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