

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

In the Matter of

Amendment of Parts 2, 15, 80, 90, 97 and 101 )  
Of the Commission’s Rules Regarding )  
Implementation of the Final Acts of the World )  
Radiocommunications Conference (Geneva, 2007 )  
(WRC-07), Other Allocation Issues and Related )  
Rules Updates )

ET Docket No. 15-99

Amendment of Parts 2, 15, 80, 90, 97 and 101 )  
Of the Commission’s Rules Regarding )  
Implementation of the Final Acts of the World )  
Radiocommunications Conference (Geneva, 2012 )  
(WRC-12), Other Allocation Issues and Related )  
Rules Updates )

To the Commission:

**COMMENTS OF BRIAN S. MCDANIEL, KC4LMD**

COMES NOW Brian S. McDaniel who, pursuant to Section 1.415 of the Commission’s Rules (47 C.F.R. §1.415), respectfully submits his comments in response to the *Report and Order, Order, and Notice of Proposed Rulemaking*, FCC 15-99, released April 27, 2015 (“NPRM”).

**Radio Buoys Operating in the 1,900 to 2,000 kHz Band**

1. The Commission proposes to amend Section 80.375 of its Rules to make the 1,900 kHz to 2,000 kHz band available to commercial fishing vessels for use by radio buoys on the open sea and to include them in the equipment authorized as part of a ship station license.  
  
Authorization allows buoys to transmit on any frequency in the 1,900 kHz to 2,000 kHz

band; provided that the transmitter output power does not exceed 10 watts and that the antenna height of the buoy station does not exceed 4.6 meters (15 feet) above sea level.<sup>1</sup>

2. The Commission next proposes rules for the use of SELCAL buoys. Therefore, they also propose to authorize ship stations to transmit selective calling signals on all frequencies in the 1,900 kHz to 2,000 kHz band, provide that transmitter output power does not exceed 10 watts and that the ship station's antenna height does not exceed 6 meters (20 feet) above the mast of the ship on which it is installed.<sup>2</sup>
3. Finally, the Commission proposes a footnote to the *Table of Frequency Allocations* (47 C.F.R. §2.106) to restrict radio buoy operations to the open sea "based on the areas where radio buoys appear to be in use" and to "provide greater protection for amateur stations by excluding radio buoys from 'inland waters'."<sup>3</sup> The proposed footnote is named NG92.

#### **Comments on Proposed Footnote NG92**

4. The Commission's proposed Footnote NG92 simply states "This use [of the 1,900 kHz to 2,000 kHz band] is restricted to radio buoy operations on the open sea."<sup>4</sup> It is unclear, though, how the Commission defines "open sea" with respect to the geographic distance from amateur stations or the boundaries of "inland waters." We urge the Commission to bring specificity to this passage for the reasons set forth below.

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<sup>1</sup> NPRM at ¶155

<sup>2</sup> *Ibid.*

<sup>3</sup> See NPRM at Appendix F for the proposed text of Footnote NG92.

<sup>4</sup> *Ibid.*

5. We expect that the Commission defines “open sea” in the legal tradition of *mare liberum*, a body of navigable water to which all nations have unrestricted access.<sup>5</sup> Even by this definition, it is not clear where the Commission intends radio buoys to operate.
6. If we define “open sea” as beginning at the outer limit of U.S. territorial waters, 12 nautical miles, we observe that open sea under this standard begins within Sea Area A1 as defined in Section 80.1069(1) of the Commission’s Rules regulating the Global Maritime Distress and Safety System (GMDSS). In Sea Area A1, an area typically 30 to 40 nautical miles from a Coast Radio Station, the Commission only requires Very High Frequency (VHF) radiotelephone coverage, not coverage in a Medium Frequency (MF) band such as the 1,900 kHz to 2,000 kHz band allocated to the Amateur Radio Service.
7. It is only when a ship using GMDSS sails into Sea Area A2, an area extending beyond Sea Area A1 and up to 180 nautical miles, does the Commission’s rules require radiotelephone coverage on the MF band.<sup>6</sup> This point is significant with respect to radio interference by radio buoys to stations in the Amateur Radio Service. By requiring ships to use MF operation for safety and distress communication so close to a Coast Radio station, it is self-evident that the close range between ship and shore expressly favors MF communication by ship stations not in the open sea.
8. Based upon these considerations, we believe the Commission should restrict usage of radio buoys to open sea similar to the definition of Sea Area A3 and Sea Area A4 in Section 80.1069(3) and 80.1069(4), and, by extension, not authorized radio buoy operation in Chesapeake Bay, the Great Lakes, or other inland waters.

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<sup>5</sup> "Mare Liberum." *Merriam-Webster.com*. Merriam-Webster, n.d. Web. 5 May 2015. <[http://www.merriam-webster.com/dictionary/mare liberum](http://www.merriam-webster.com/dictionary/mare%20liberum)>

<sup>6</sup> See Section 80.1069(2)

**Should the FCC Transition New Radio Buoys to Another MF Band?**

9. As stated in the *NPRM*, the Commission discussed that U.S. commercial fishing fleets were using radio buoys “under the faulty assumption that such use is permitted by their Part 80 ship station licenses.”<sup>7</sup> Rather than using its regulatory authority to address this misconception, the Commission granted a temporary waiver for their use. The Commission now desires to authorize radio buoy operation under a ship station license, making the waiver permanent. The Commission is wise to ask whether or not they should transition new radio buoys to another MF band.
10. In our review of the *Table of Frequency Allocations* (47 C.F.R. §2.106), the United States reserves the 1,705 kHz to 1,800 kHz band for Radiolocation services under Part 90 rules.<sup>8</sup> With exception of Travelers’ Information Service users at 1,710 kHz, a search of the Universal Licensing System indicates only one non-federal user in this band segment.<sup>9</sup>
11. From a technical point of view, shifting the operating frequency of radio buoys to the 1,715 kHz to 1,800 kHz sub-band from the 1,900 kHz to 2,000 kHz band is not a significant hurdle for manufacturers to leap. Equally, modification to existing radio buoys for the new band would not present an undue technical burden.
12. The 1,715 kHz to 1,800 kHz sub-band also meets the Commission’s desire for radio spectrum for radio buoys in MF, allowing up to 42 separate SELCAL channels up to 2 kHz in bandwidth each. The number of channels means that, given the current number of

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<sup>7</sup> NPRM at ¶153. See further Commission commentary at ¶40-43.

<sup>8</sup> The *Radiolocation Service Frequency Table* at Section 90.103(b) lists five total bands in MF spectrum from 1,705 kHz to 1,800 kHz and then 1,900 kHz to 2,000 kHz. All five bands have limitations as to transmitter power output; maximum authorized bandwidth, type and directional characteristics of the antenna, and other technical limitations.

<sup>9</sup> Cochrane Technologies, Inc., FRN #0006539753, holds four licenses in the Land Mobile Radiolocation service.

SELCAL code assignments, the commercial fishing industry could deploy 458,640 radio buoys without concern of code duplication by a commercial fisher.<sup>10</sup>

13. With the band's lower boundary beginning at 1,715 kHz, our proposal guards existing licensees in the Travelers' Information Service (TIS) at 1,710 kHz. This boundary is important if the Commission grants radio buoy operation within Sea Area A1, as it is likely that TIS stations will operate in coastal communities or along coastal highways.
14. We believe the Commission should make rules for the manufacturing and marketing of radio buoys in the 1,715 kHz to 1,800 kHz sub-band as a compulsory requirement after a date certain. We also believe the Commission would be wise to sunset the waiver for existing radio buoys in the 1,900 kHz to 2,000 kHz band over an appropriate amount of time, perhaps corresponding to the compulsory adoption date for the new MF band.

**Would it be Beneficial to Authorize Different Transmitter Power near the Coast Line?**

15. The technical requirements of GMDSS stations in Sea Area A2 provide clues to the viability to MF communication within 180 nautical miles of the shore. Recommendation ITU-R PN.368-7<sup>11</sup> and ITU-R Report 322<sup>12</sup> determine the performance standards for GMDSS stations. These standards include ground wave propagation, and a ship's antenna efficiency of at least 25%.
16. If a radio buoy met these technical standards, or others proposed by the Commission, a 10-watt transmitter would have a coverage area as wide as Sea Area A1 during local daytime

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<sup>10</sup> The current rules for SELCAL codes assignments use sixteen available letters/tones. This combination limits the number of possible allowable codes to 10,920 per frequency channel, or 458,640 (10,920 x 42) code-channels.

<sup>11</sup> [https://www.itu.int/dms\\_pubrec/itu-r/rec/p/R-REC-P.368-7-199203-S!!PDF-E.pdf](https://www.itu.int/dms_pubrec/itu-r/rec/p/R-REC-P.368-7-199203-S!!PDF-E.pdf)

<sup>12</sup> [http://www.iho.int/iho\\_pubs/CB/C-55/Sea-Areas.pdf](http://www.iho.int/iho_pubs/CB/C-55/Sea-Areas.pdf)

and of several hundred nautical miles after local sunset. Such wide area coverage increases the possibility of interference to primary users of the 1,900 kHz to 2,000 kHz band.

17. Wide coverage area, along with the temporary nature of radio buoy deployment, makes it all but impossible for primary users to identify interfering radio buoys and then to notify the owner of interference in order to remove the radio buoy from service for testing and repair.
18. While we object to allowing radio buoys continued access to the 1,900 kHz to 2,000 kHz band, we believe it is beneficial that the Commission restrict transmitter power to 1-watt ERP when operating in Sea Area A1 and Sea Area A2 if they remain. This restriction would create two classes of radio buoys, a 1-watt “low power” class for Sea Area A1 and A2 and a 10-watt “high power” class for Sea Area A3 and A4. These two classes of radio buoys would assist in the proper marketing, usage, and regulation of these devices to commercial fishing fleets.
19. Because the technical characteristics of radio buoys would change under our proposal, compliance would be an important regulatory matter for the Commission to consider. Therefore, we believe the Commission would be wise to include radio buoys in any compulsory ship radio station inspection required under Part 80 of its Rules.

### **Conclusion**

20. It is an unfortunate situation that people who make a living from commercial fishing are caught in the middle of such a regulatory discrepancy. On one hand, these radio buoys make it easier for fishing fleets to track equipment while at sea. On the other hand, and more to the point, these radio buoys are illegal in all areas regulated by the Federal Communication Commission.

21. In its proposed rules, the Commission wishes to reconcile the fact that these devices have wide commercial use to the fact that they transmit in a segment of radio spectrum exclusively allocated to the Amateur Radio Service. The proposed rules, in fact, unwind Amateur Radio Service exclusivity in the United States and its territories by allowing radio buoys to continue operating in spectrum they were never authorized to use in the outset. By changing its rules under Part 80, Part 90, and Footnote NG92, the Commission, in essence, has accepted “squatting” as a suitable tactic for spectrum allocation. It is as if the Commission, rather than addressing the discrepancy head-on, threw its regulatory hands into the air and declared, “Well, they are already here; we have to let them stay.”
22. This new schema has wide-ranging ramifications. Can any interest who covets radio spectrum be allowed to develop and deploy a transmitter on any frequency, and then file a Petition for Rulemaking once their product has significant market penetration and use?
23. In a similar line of thinking, should the Commission change Part 73 rules to allow unlicensed “pirate” radio stations to transmit between 88.1 MHz and 107.9 MHz despite any interference they cause existing commercial broadcast license holders? After all, “pirate” radio stations operate unlicensed transmitters in every major U.S. city and serve niche markets ignored by authorized licensees. This, in essence, is the argument made in support of new radio buoys rules.
24. Naturally, the two proceeding examples are exaggerated illustrations. The point, however, is to demonstrate that changes proposed by the Commission for pirate radio buoys are as unacceptable a solution as changes to Part 73 would be for pirate radio broadcast stations.

Respectfully submitted,

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