

WAVES

Chattanooga Amateur Radio Club P.O. Box 23121 Chattanooga TN 37422 <http://w4am.org>

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ARRL RESPONDS TO FCC'S PROPOSED ALLOCATION FOR MEDICAL DEVICES IN 70 CM BAND

ARRL General Counsel Chris Imlay, W3KD, on behalf of the ARRL, filed comments http://www.arrl.org/news/files/MannFoundationDocket_09-36Comments08_11_09.pdf on August 11 regarding a Notice of Proposed Rule Making (NPRM), ET Docket 09-36, issued by the FCC in March 2009 http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-09-20A1.pdf. In the NPRM, the FCC proposed to allocate spectrum and adopt service and technical rules for the utilization of new implanted medical devices that operate on 413-457 MHz (70 cm). According to the Commission, these devices -- called implanted neuromuscular micro stimulators -- would greatly expand the use of functional electric stimulation to restore sensation, mobility and function to those persons with paralyzed limbs and organs; they would be implanted in a patient and function as wireless broadband medical micro-power networks (MMNs). These devices would be used on the 70 cm band on a secondary basis as part of the Medical Data Radiocommunication Service in Part 95 of the FCC rules. The Amateur Radio Service has a secondary allocation in the 70 cm band.

Researchers with the Alfred Mann Foundation -- a leading medical research organization located in Santa Clarita, California <http://www.aemf.org/> -- have developed a wireless medical micro-power network to tie together tiny devices implanted in victims of paralysis, creating an artificial nervous system to restore sensation, mobility, and function to paralyzed limbs and organs. "The Mann Foundation argues that the frequency range just above 400 MHz is optimum for their application, which requires no more than 1 mW of RF spread across about 5 MHz of bandwidth," ARRL Chief Executive Officer David Sumner, K1ZZ, wrote in "It Seems to Us," published in the June 2009 issue of QST <http://www.arrl.org/news/features/2009/06/01/10784/>. "However, recognizing the presence of a variety of incumbent radio services in that range, specifically including the amateur service, they have proposed four channels for flexibility in avoiding localized interference. Two of the four channels are 426-432 and 438-444 MHz; the other two are above and below the 420-450 MHz band."

In its comments to the FCC regarding the NPRM, the ARRL said it believes that the choice of frequency bands for MMNs as proposed is "unfortunate and unnecessary" and that "the WMTS [Wireless Medical Telemetry Service] offers a far more suitable solution than does the 413-457 MHz band for MMNs."

Sumner, in his editorial, said that the FCC's proposed rules raise two concerns: "First and foremost, the devices would be required to accept interference only from stations authorized to operate on a primary basis. The Mann Foundation has assured us that amateur stations will not cause its system to malfunction, so we see no reason why this cannot be reflected in the rules, even though our allocation is on a secondary basis. Second, while the Mann Foundation researchers appear to have done their homework, others who try to take advantage of the new rules may not be as rigorous."

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The ARRL asserts in its comments that due to redundant interference rejection design, the devices developed by the Alfred Mann Foundation "appear to have some reasonable prospect of avoiding the disastrous consequences of RF interference to implanted MMNs." The ARRL stressed, however, that the FCC should not permit the marketing of MMNs or any similar device in the 420-450 MHz band: "(1) unless and until thorough RF interference susceptibility testing is conducted on the AMF devices relative to high power Amateur Radio equipment; (2) at parameters other than those inherent in the Mann system, which incorporates notably redundant interference rejection design characteristics; and (3) without very specific patient notifications and labeling of the body-worn MCUs [Master Control Units] and other portable components which provide firm assurance that the devices will not malfunction in the presence of RF fields from authorized radio services in the same bands."

The ARRL did acknowledge that it thought the Commission to be correct when it stated in the NPRM that "[g]iven the low transmitter power and duty cycle limits that would typically be used by either the implanted MMN device or the external MCU, we expect that the risk of interference from MMNs to incumbent operations in these frequency bands would be negligibly small." The ARRL pointed out, however, that no testing has been done to verify this conclusion and "such testing should be concluded and the results analyzed before this anticipatory conclusion can be relied upon."

In its comments, the ARRL made note of the fact that there is Part 90 spectrum above 450 MHz available for low-power biomedical telemetry, but "the Alfred Mann Foundation argues that bands between 450 and 470 MHz are unsuitable due to the fact that the band is 'congested and populated with commercial, high-power transmitters that could preclude reliable operation of lower-power, wireless medical implant devices.' This, the ARRL said, "is a very worrisome contention, and not the argument that should be made by the proponent of a new service that is secondary to other incumbent licensees. ARRL contends that if the 450-470 MHz band hosts services that are incompatible with reliable operation of MMNs, then the 420-450 MHz band, and especially the segment proposed for MMNs at 438-444 MHz is equally incompatible with MMNs."

Pointing out that Amateur Radio television transmitters and repeaters and FM voice repeater input and outputs operate in this segment in particular, "the potential for interference to MMNs is on the same order, or worse, than would be the case if MMNs were to operate in the Part 90 biomedical telemetry band between 450 and 470 MHz," the ARRL told the FCC. "In the segment 426-432 MHz, amateur television stations transmit on a wide bandwidth basis. Amateur Radio stations are permitted to operate at power levels up to 1500 W PEP output, and the RF environment at 420-450 MHz, with primary government radiolocation facilities and high power amateur facilities are no more conducive to reliable MMN operation than would be the 450-470 MHz band."

The ARRL also voiced concerns that nowhere in the NPRM does it mention what the allocation status of MMNs would be relative to the Amateur Radio Service. Though the Alfred Mann Foundation has proposed that MMNs would be secondary to incumbent licensed operations in the subject bands, the Amateur Service is presently secondary to government radiolocation in this band; this represents a cooperative sharing arrangement that is satisfactory to both government agencies and the Amateur Service, the League contends.

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"While it is presumed that the proposal is for MMNs to be secondary to both government radiolocation and to the Amateur Service (as opposed to Amateur stations and MMNs being co-secondary) this is not clear from the NPRM," the ARRL maintained. "Because the interference susceptibility of MMN devices generally is not known, it would be improper to create a co-secondary allocation for MMNs anywhere in the 420-450 MHz band at this time. The Amateur Service has a practical inability to protect patients wearing RF susceptible MMNs from interference from ongoing amateur operations in the 420-450 MHz band, and therefore all MMN operation is going to have to be conditioned on the ability to withstand and operate in the presence of such high-power signals, and thus subordinate in allocation status to the Amateur Service. Unless this interference rejection capability is demonstrated by MMN proponents in advance, the devices should not be allowed to operate anywhere in the 420-450 MHz band."

Imlay and ARRL Technical Relations Manager Brennan Price, N4QX, met with the Alfred Mann Foundation in February 2009, but Imlay said that so far, they have not responded to the ARRL's request to "cooperate in a firm statement that their devices would not malfunction in the presence of nearby RF signals from Amateur Radio stations. Failing that, these comments reflect our continuing concern about the effect on implant patients from unpredictably close Amateur Radio station operations.

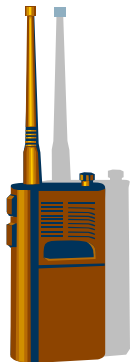
Other radio services affected, both above and below the 430-450 MHz band, are taking similar positions."



Tuesday Night 8 PM 146.610



Thursday night 8 PM 146.790



CARC Sunday night net 9 PM 146.790

Chattanooga Amateur Radio Club
Regular monthly meeting
August 6, 2009

Officers present: Mark Rose, Bill Dobbs, Jim Knight, Susan Miller
Directors present: Tom Cash, Tom Morgan, Susan Miller

Meeting was called to order at 7:30 by president, Mark Rose.
First order on agenda was Pledge of Allegiance.

Program for the evening was introduced by Bill Dobbs.
Paul Pagano WA4AA gave a very informative presentation on Islands on the Air.

We had one visitor in attendance, Dana Harris N4OUA.

The minutes from June were approved as written in the Waves.
Jim Knight made the motion and Bill Dobbs seconded.
All approved.

Treasurers Report was given By Jim Knight and accepted as read.

Checking Account	9,203.37
Hamfest Account	9,693.83
Post Office	135.09
Total	19,032.29

We have a New Member Jerry Moore KC4NIV.

Saturday October 24, 2009 will be Swapfest. It will be held at Burk United Methodist Church back parking lot. Burk's is located on Hixson Pike.
For directions you can visit the Burk church website www.Burks.org

Jack Green is helping with a road race on Sat Aug 8.

Meeting was adjourned at 8:25

Respectfully submitted,
Susan Miller - KI4RZJ
Recording Secretary

30 Days — 30 Ham Radio Contesting Tips

Scot, K9JY

For September, I gave myself a challenge: post one ham radio contesting tip a day to kick off the fall contesting season. The subject matter was easy as I love contesting. The challenge was in writing thirty articles, as well as a few others, during the month instead of my normal 20-25.

What I didn't want to do was have one article with a simple listing of 30-tips. I wanted to go into a little more depth with each of the tips so that some reasoning and explanation could take place.

But, it's tough to scroll through the entire month of September to find those tips, so I'm consolidating them here.

Thanks for all of your comments and writing references to these articles; I really appreciate it.

30 Ham Radio Contesting Tips:

1. [Schedule your Contests](#). The really great thing about contesting is they are regularly scheduled – regardless of great propagation, DXpeditions or the mood of the sun.
2. [Create a contest goal](#). Goals are good and help motivate you while participating.
3. [Contest on your terms](#). Contest for and be motivated by your reasons. Not everyone is out to win the contest; it could be you want to learn a new mode.
4. [Have an operating plan](#). Having a plan provides you guidance for the contest and a baseline to compare against reality in the midst of battle.
5. [Test equipment before the contest](#). You do want your stuff to work, right?
6. [Update Multiplier Files](#). Downloading the latest ensures you won't miss a juicy multiplier during the contest.
7. [Read the contest rules](#). You'd be surprised how often this bites you – even experienced testers.
8. [Work a contest one month before the real contest](#). The sun rotates once a month (27 days)...so work a contest the month before to experience the propagation you will have before the one you really want to concentrate on later.
9. [Test ergonomics](#). Sitting in a chair contesting a long while will test how well your station is laid out for operating.
10. [Have a guest op checklist](#). What should you bring as a guest op?
11. [Compete with a partner](#). Work a contest with someone in your club (together or at your individual stations). Discuss what worked and what didn't about the contest.
12. [Review Newsletter for Contest DXpeditions](#). Lots of people travel for contests. Make sure you take a look at the list from your favorite ham radio newsletter.
13. [Have propagation plan](#). Propagation programs can suggest what will be open where. Having a propagation plan can give you a guide while contesting.

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14. [Filter your packet connection](#). If the contest allows packet, filter the connection to match up with your station.
15. [Accurate logging](#). A contest is about working stations – and logging them accurately. If you don't you get penalized.
16. [Send in your log](#). Even if you didn't work many stations, you can help the contest by sending in your log to help enable log checking.
17. [Logbook of the World](#). Want to reduce your QSL'ing chores for contests? Submit your log to Logbook of The World for instant confirmations for you and the people you contact.
18. [Review UBN's](#). Uniques, Busted, and Not in the Log. It's how your log is viewed for accuracy.
19. [Have a QSL System](#). Even if you use Log of the World, testers get a lot of QSL card requests. Have a system for processing them.
20. [Use a grey line map](#). Grey line propagation is the cat's meow. Having a visual representation of where the grey line is right now can help you point your antennas the right way.
21. [Learn a single band](#). Want to learn propagation on a band fast? Do a contest on a single band. You'll learn.
22. [Challenge your operating skill with QRP](#). Get frustrated fast. Operate a contest QRP from your station. Then learn how to get through the mess for points. It will make you a better operator.
23. [Do an After Action Review](#). Did we achieve our goal, what went right, what could be improved? Record the results for the next contest.
24. [Join a contesting club](#). Amp up your contesting knowledge and motivation.
25. [Learn from contesting pros](#). They are out there. They can teach you a lot.
26. [Leverage your strengths](#). Great CW operator? Great antennas? Whatever your strength, leverage it for the contest.
27. [Go on a contesting DXpedition](#). Even if it is to a different state. It's a very different experience and will teach you a lot.
28. [Practice CW before contests](#). Notice how much better you are at CW at the end of the contest compared to the start? You need to practice before the contest.
29. [Participate on a contesting team](#). Many contests offer team (versus club) entries. Join a team to up your motivation for the contest.
30. [Find joy in contesting](#). It's there. You know it. Go find it.

There are many more contesting tips, of course. But thirty to start out the fall contesting season seemed like the right number for me.

I had great fun writing these. Enjoy the resource.