K7EAR

December 2011

EAARS open repeaters. PL is 141.3 unless noted otherwise
Helio 146.860 and 440.700 EAARS Network, 146.900, 447.825 w/ closed remote PL 100.0 or 141.3. Packet 145.010 **MT. Lemmon** 147.160 EAARS Network **Pinal Peak** 145.41 EAARS Network **Guthrie Peak** 147.28 EAARS Network **South Mountain, Alpine** 145.27 EAARS Network **Greens Peak** 146.70 Eaars Network **Jacks Peak, NM** 145.21 EAARS Network **Mule MTN** 147.08 EAARS Network
GMRS Repeater on Helio 462.625 PL 123.0
Website HTTP://WWW.EAARS.COM

Merry Christmas
Happy New Year

Next Meeting

Tuesday January 17th 2012 arrive at 6:30 PM meeting at 7 PM. This is election night also dues drawing time. Location to be determined.

New Licencees

On November 8th Joe K7JEM finished his classes and we tested 10 people. The results were 8 new technicians and one new general license. The new calls are KF7SOO, KF7SOP, KF7SOQ, KF7SOR, KS7SOT, KF7SPE, KF7SOU (general), KF5NKT, and KF5NKU. If you hear them on the air welcome them! Several of them also joined EAARS

EAARS Net

If You would like to be a net control operator occassionaly contact Grace KB7CSE

Control operators for the EAARS Net

KE7EDP December 4th and January 1, 2012

Pink K7ILA December 11th and January 8, 2012

Richard N7DZH December 18th and January 15, 2012

Wendell W7WGW December 25th and January 22, 2012

Grace KB7CSE January 29, 2012

Dues Drawing

As we have done in the past, anyone having thier 2012 dues paid before Dember 15th (postmarked by) will be in a drawing for an AES gift certificate. Only one prize but it'a good one. It makes the book keeping easier if all dues are paid by January first so, please try and maybe the club will make your January a little brighter. The drawing will be held at the January meeting and elections.

2011 Officers

President Lon Whitmer K7LON

Vice President Quentin Kavanaugh N7QK

Secretary/ Treasurer Larry Griggs N5BG

Net Control Operator

Helio Site Trustee Joe Montierth K7JEM

Technical Adviser Milt Jensen N5IA

Newsletter Editor Dave Wells N7AM

Club Address

EAARS

P.O. Box 398

Solomon, AZ 85551

Nets

EAARS Net; Sunday Night 7 PM general check ins

Smart Net; Monday evening 7:30 to 8:30 Technical discussion

Weather Net Daily 5:30 AM collect local weather information

MERC Net Second Saturday at 8:45 AM Emergency communications group

Saguaro NTS Traffic Net Every evening at 6:30 PM

Email Addresses

To get your own email at EAARS.com contact Larry, N5BG

Email all Officers at once — **EAARSOFFICERS at EAARS.COM**

Newsletter Editor — **NEWSLETTER at EAARS.COM**

rom ARRL Web

FCC Grants Secondary Service Allocation to Wireless Broadband Medical Micropower Networks

In their regular meeting on Wednesday, November 30, the four FCC Commissioners unanimously agreed 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). These devices will be used on a secondary basis as part of the Medical Data Radiocommunication Service in Part 95 of the FCC rules. The Amateur Radio Service also has a secondary allocation on the 70 cm band. These new rules are the result of a *Notice of Proposed Rule Making* (***NPRM***) that the FCC released in March 2009.

According to the FCC, these devices 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 micropower networks (MMNs).

Calling the new rules an "advance[ment of] its mobile broadband agenda," the FCC said this will create "a new generation of wireless medical devices that could be used to restore functions to paralyzed limbs. Medical Micropower Networks (MMNs) are ultra-low power wideband networks consisting of multiple transmitters implanted in the body that use electric currents to activate and monitor nerves and muscles." The Commission also noted that its ***National Broadband Plan*** -- released in 2010 -- observed "that the use of spectrum-agile radios and other techniques can significantly increase the efficient use of radio spectrum to meet growing demand for this valuable resource. MMNs illustrate how advanced technology can enable the more efficient use of spectrum to deliver innovative new services."

Researchers with the Alfred Mann Foundation -- a leading medical research organization located in Santa Clarita, California -- 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: Coexistence," published in the June 2009 issue of *QST*. "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 August 2009, the ARRL filed comments in response to the *NPRM*, stating that 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." Though the 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 maintained.

The ARRL noted in its comments 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."

"As part of our mobile broadband agenda, the Commission has already taken a number of actions to seize the opportunities of mHealth," explained FCC Chairman Julius Genachowski in a press release after the November 30 meeting. "We entered an unprecedented partnership with the Food and Drug Administration to help ensure that communications-related medical innovations can swiftly and safely be brought to market. We've also taken steps to facilitate spectrum sharing and to improve and expand our experimental licensing program, proposing to ease testing restrictions on universities and research organizations and proposing a new program to speed development of new health-related devices that use spectrum."

Genachowski went on to say that MMNs have been shown "to reliably operate in spectrum shared with other services and are a model for making more efficient use of radio spectrum by using advanced technologies such as monitoring the quality of the radio link, switching frequency bands, notching out of interfering signals and error correction coding. Testing also demonstrates that the Medical Micropower Network devices developed by the Alfred Mann Foundation are able to operate reliably in spectrum shared with federal government and commercial services."

FCC Commissioner Michael Copps agreed: "Today's action allocates 24 megahertz of spectrum in four band segments for the MedRadio service on a secondary basis. The band here -- 400 MHz -- is well suited for propagation inside the body. These devices employ the latest techniques for efficient use of spectrum and interference mitigation -- tools like spectrum sensing and dynamic frequency selection. The devices' low power means that they themselves won't pose interference to their neighbors."

Sumner, in his June 2009 *QST* 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."

The ARRL did acknowledge in its comments that it thought the FCC was 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 in-

terference 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."

While the ARRL is concerned about interference from the MMNs affecting radio amateurs, it is also concerned about RF from these radio amateurs affecting the MMNs. "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," the ARRL said in its comments. "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."

FASTRAC-1 Satellite Digipeater Active

12/01/2011

Beginning Friday, December 2, at 1600 UTC, the FASTRAC-1 satellite (FO-69) will be open for use as a packet radio digipeater. Anyone with a 1200 baud packet TNC and a VHF/UHF FM transceiver will have an opportunity to try it. If you own satellite tracking software, you'll find the latest orbital elements on the FASTRAC Web site.

FASTRAC-1 receives at 145.825 MHz and transmits at 437.345 MHz. The digipeater alias is FAST1. To connect to ARRL Headquarters station W1AW through FASTRAC-1, for example, you would send the following packet:

C W1AW VIA FAST1

Reports of your results are welcome via e-mail, or at the FASTRAC Facebook page.

--Courtesy AMSAT-UK