

WD2XSH status report: December 1, 2008 - February 28, 2009**Prepared by Fritz Raab, W1FR, Experiment Coordinator****March 21, 2009****1. SUMMARY OF OPERATIONS**

This report provides a summary of WD2XSH activity during the winter of 2008-2009. The key statistics of our operations to date are:

- Number of QSOs: 42 additional, total 335;
- Number of reports via web site: 1186 additional, total 8138;
- Operating hours: 2,349 additional, total 33,476; and
- Number of interference complaints: 0.

All statistics are based upon the end of the reporting period (02/28/09).

2. ADMINISTRATIVE

We are still waiting for action on our request for modification to add stations, frequencies, and portable operation. I have been told that our application will be subject to a "high-level review" at the FCC to determine whether or not we are really an experimental operation. I have recommended that someone from the ARRL visit the FCC to clarify this.

I visited the ARRL office in Fairfax, VA on February 11. In attendance were Paul Rinaldo, Brendan Price, and Jonathan Siverling. We discussed the WRC process and various issues related to a 600-meter amateur band. In the evening, I gave a presentation on the 500-kHz experiment to AMRAD.

John Oehlenschlager K0JO - WD2XSH/13 passed away on February 2. Participants in the the experiment made a total of \$400 in memorial contributions to the Tri-County Home Hospice that helped to care for John during his final months.

3. COMMUNICATIONS

As expected, conditions improved during the winter months. Consequently, both activity and reception reports are up. A number of trans-Atlantic receptions have been reported in both directoins.

Processing of the ground-wave data from last summer is still pending.

4. INTERFERENCE

There have been no reports of interference, however, we are continuing to monitor three potential interference problems.

NDB OF

K0HW has collected a good deal of data on the relative signal strengths of our signals compared to those of NDB OF. These tests are now concluded and I plan to process the data during the next month.

NEED

We continue to hear NEED on 505 kHz from time to time.

SBQ

SBQ was heard several times in December, but only on the Louisiana grabber (W5JGV). It has not been heard since. There have been several reports (by K0HW, AA5AM, WE0H, and KN8AZN) of weak unidentified carriers near 506.7 kHz. One signal (heard by K0HW in South Dakota) was the second harmonic of the audio tone from NDB OF in Norfolk, Nebraska.

5. OTHER US EXPERIMENTAL LICENSES

The frequency ranges of current US amateur experimental licenses as well as international licenses for the 500-kHz band are shown in Figure 1. Parameters are given in the Table 1.

Application WE2XXH by Brian Keith Ford was dismissed on January 22, 2009, for failure to respond. On December 17, the FCC asked for a description of the experiment and justification for the five-year term.

Experimental license WE2XVY (Michael Gray, KD7LMO, Fountain Hills, AZ) was granted on 01/05/09. It runs through 01/01/11 and allows operation on 500 - 510 kHz with 200 W ERP and CW or 1-kHz FSK or general phase/frequency modulation. It runs from 12/09/2008 to 12/01/2010.

Experimental license WE2XVO was granted to LBA Technology, Inc. It allows operation on 435 to 495 kHz with 10 W ERP within a 24-km radius of Portolus, NC. The specified modulation (30K0N0N) is basically steady carrier. This license is said to be for mine communication in support of contract 240-BPA-08-EH-0172. While this is not an amateur activity, it is of interest because the US Coast Guard previously objected to amateur experimentation in this band.

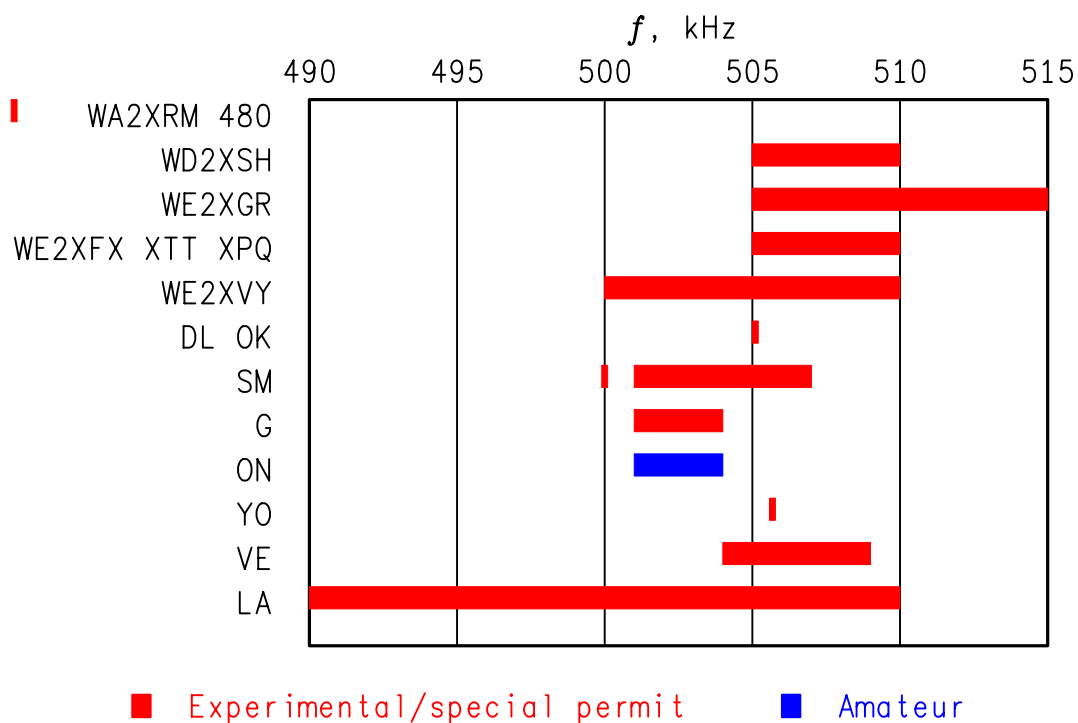


Figure 1. Worldwide amateur activity at 500 kHz.

| CALL | NUMBER | QTH | f, kHz | ERP, W | DATES |
|--------|--------|-------------|-----------|--------|---------------------|
| WA2XRM | 1 | CO | 480 | 100 | 01/01/09 - 01/01/14 |
| WD2XSH | 20 | CONUS | 505 - 510 | 20 | 09/13/06 - 08/01/10 |
| WE2XGR | 5 | New England | 505 - 515 | 200 | 09/05/07 - 09/01/12 |
| WE2XFX | 1 | OK | 505 - 510 | 20 | 07/27/07 - 10/21/08 |
| WE2XTT | 1 | PA | 505 - 510 | 1500* | 09/08/08 - 09/01/13 |
| WE2XPQ | 1 | AK | 505 - 510 | 50 | 06/05/08 - 06/01/13 |
| WE2XVY | 1 | AZ | 500 - 510 | 200 | 12/09/08 - 12/01/10 |

* RF output to antenna

Table 1. Active US experimental licenses.

Charles Vest W5COV was granted experimental license WE2XXO on February 23. He had requested 136-137 kHz, 160 160 - 185 kHz, and 495 - 510 kHz, but was granted only 160 - 185 kHz. not 495 - 510 originally requested. Possible interference to aircraft beacons was cited in refusing the 500-kHz band. He is located in Oklahoma, which has NDBs at 512 kHz (HMY) and 515 kHz (PN).

On February 11, Roy Croston AB4OM applied for an experimental license for operation on 135-136 and 505-510 kHz. He has requested 10 W ERP and 30-Hz on-off keying (30H0A1A, 30H0A1D).

6. INTERNATIONAL AMATEUR ACTIVITIES

The Canadians are not yet active on 500 kHz. They are still working-out procedures for qualifying applicants.

On January 17, the NRRL announced that Norwegian amateurs will be able to operate from 490 to 510 kHz, CW only. The NRRL and a historical-preservation group have been working together toward this. [Author's note: The use of 490 kHz seems unlikely given the use of this frequency for NAVTEX in Europe.]

On February 18, Ofcom announced that the NoV's for UK amateur operation on 500 kHz will be extended one more year (until February 28, 2010). They also increased the power from 1 to 10 W ERP. Statistics from our experiment were used by the RSGB in their request for the increase in power.

The February 2009 issue of the Lowdown reports that the European prankster PAT again sent a "Happy New Year" message on 499 kHz. He was heard in Europe and Canada.

D12AT has gone QRT due to lack of listening reports. Only ten reports were received in the past 6 months.

7. HERITAGE (MUSEUM) OPERATIONS

KSM participated in Straight Key Night on January 1 on 426 and 500 kHz.

The Seefunker organization signed a memorandum of understanding with the German DARC on January 26. This agreement for cooperation between amateur and heritage organizations proposes that the amateur service will become the curator of the maritime historical frequencies (e.g., 500 kHz). WNE license OM The New England Historical Radio Society, Inc. in Stoneham, MA has been granted a new coastal-station license with the callsign WNE. WNE is authorized to operate with 5 kW of RF output on 500 and 472 kHz. The principal member of the NEHRS is Steve Russell, and his plans are to build the station from the ground up. It will probably be located at his house. The web page for the NEHRS is <http://nehrs.net>.

KL1X is in the PRC on business. He reports receiving XSV from Tianjins and hearing their transmitting a gale warning (with "TTT") on 500.0 kHz on February 24.

8. REGULATORY AND WRC-11

The 2008 update to the "Federal Radionavigation Plan" (FRP) was released in January. It has two points of interest, but neither represents a change in policy.

The High-Accuracy National Differential GPS (HA-NDGPS) is discussed in Section 5.1.3.1.2. Currently, the Coast Guard is working to improve the accuracy to something better than the accuracy of 10 to 15 cm that is currently being achieved. When the improvements are complete, a standard is to be developed for this system. (U.S. Coast Guard interest in developing this system has kept experimental licenses out of the band from 435 to 495 kHz).

Non-Directional Beacons (NDBs) are addressed in Section 5.1.8 addresses nondirectional aircraft beacons (NDBs). It states that there are currently 1300 NDBs in the national airspace, 300 of which are operated by the FAA. Decommissioning has begun, although NDBs will be retained in certain areas (Alaska, Gulf of Mexico off shore) where no equivalent service is available. Appendix B.2.7 states that there are 1575 NDBs in the NAS, 728 of which are operated by the FAA. Subsection K further states that except in Alaskan airspace, no future civil aeronautical uses are envisioned for these [frequency] bands after the aeronautical NDB system has been decommissioned throughout the rest of the NAS.

9. PORTABLE STATION

Fred Temple KN8AZN has successfully modified digital transceiver and amplifier kits for operation on 600 m. Ralph Wallio W0RPK has a simple base-loaded vertical radiator with deployable radials ready to go on-the-air. Other antennas will be tested as the experiment progresses. The AMRAD LF antenna design has been modified for use on 600 m.

Little progress has been made in selecting an operating protocol that includes both FEC and error detection/correction. Local testing into a dummy load finds PSK31FEC significantly outperforms BPSK31. However, PSK31FEC requires more bandwidth than we are permitted.

10. PLANS

Plans for winter quarter include:

- General operations,
- Processing of the NDB signal-level comparisons, and
- Reduction of ground-wave data from this summer.

APPENDIX A. STATISTICS

| STATION | CALL | STATUS | 08/31/08 | | 11/30/08 | | COMMENT |
|-----------|----------|---------|----------|------|----------|------|-----------|
| | | | HOURS | QSOs | HOURS | QSOs | |
| WD2XSH/1 | W1NZR | ON | 13:36 | 7 | 13:36 | 7 | Inactive |
| WD2XSH/2 | W5TVW | OFF | 12:31 | 22 | 12:31 | 22 | QRT Order |
| WD2XSH/3 | WD5CVG | DROPPED | - | - | - | - | Dropped |
| WD2XSH/4 | WD4PLI | DROPPED | - | - | - | - | Dropped |
| WD2XSH/5 | KW1I | ON | 21:37 | 46 | 24:07 | 48 | |
| WD2XSH/6 | W5THT | ON | 4022:51 | 90 | 4590:20 | 111 | |
| WD2XSH/7 | W5JGV | MOVED | - | - | - | - | Moved |
| WD2XSH/8 | N4ICK | OFF | 0 | 0 | 0 | 0 | Inactive |
| WD2XSH/9 | W2ILA | ON | 9:37 | 26 | 9:37 | 26 | Inactive |
| WD2XSH/10 | W4DEX | ON | 1070:58 | 22 | 1233:46 | 28 | |
| WD2XSH/11 | WS4S | OFF | 809:42 | 12 | 809:42 | 12 | QRT Order |
| WD2XSH/12 | AI8Z | ON | 10355:53 | 21 | 11814:19 | 22 | |
| WD2XSH/13 | K0J0 | OFF | 997:00 | 7 | 997:00 | 7 | SK |
| WD2XSH/14 | W1FR | ON | 151:02 | 5 | 224:21 | 5 | |
| WD2XSH/15 | W50R | ON | 3557:18 | 2 | 4131:33 | 2 | |
| WD2XSH/16 | WE0H | ON | 470:44 | 3 | 871:45 | 12 | |
| WD2XSH/17 | AA1A | ON | 772:49 | 23 | 722:49 | 23 | Inactive |
| WD2XSH/18 | N1EA | OFF | 3935:00 | 0 | 3935:00 | 0 | QRT Order |
| WD2XSH/19 | K9EUI | ON | 1310:21 | 3 | 1313:51 | 3 | |
| WD2XSH/20 | N6LF | OFF | 1963:12 | 7 | 1963:12 | 7 | Inactive |
| WD2XSH/21 | WORW | DROPPED | 652:42 | 0 | 652:42 | 0 | Dropped |
| WD2XSH/22 | WB2FCN | MOVED | - | - | - | - | Ready |
| WD2XSH/23 | K2ORS | OFF | 110:11 | 0 | 110:11 | 0 | QRT Order |
| TOTAL | 11/30/08 | 8 ON | 31,127 | 293 | | | |
| TOTAL | 02/28/09 | 8 ON | 33,476 | 335 | | | |

Note:

Operating hours and QSOs are derived from logs through February 28, 2009.

The statistics in this appendix were compiled by Rudy Severns N6LF using the Excel logs submitted by the stations.

Several stations are subject to a QRT order for not being current in submitting their logs. These stations are required to remain QRT until they have rectified the situation. Generally, these stations have an equipment problem or some other problem that keeps them from operating.

Two stations moved from the location specified on our original license. They are ready to go on the air as soon as the modification is approved.