

WD2XSH status report: December 1, 2007 - February 29, 2008**Prepared by Fritz Raab, W1FR, Experiment Coordinator****March 15, 2008****1. ADMINISTRATIVE ISSUES**

This winter brought excellent operating conditions and a good deal of operating. The operating hours and QSOs have increased considerably, and a number of distance records have been set. Over 5500 operating hours were accumulated during this quarter, bringing the total to over 19,000. Fourteen stations are on the air, and an additional 180 QSOs were logged, bringing the total to 283. There has been increased activity among listeners; 990 additional reception reports have been filed on our web site, bringing the total to 5790. There have been no interference complaints.

Statistics cited here are derived from logs (01/31/08), reception reports on the web site (02/29/08), and the W0RPK activity report on the web site.

2. COMMUNICATIONS**DX**

The weak D layer associated with the bottom of the sunspot cycle and the low noise levels associated with the winter have produced a unique opportunity for "DX". QSOs have been made that nearly span the continental USA and the Atlantic Ocean as well. Signals from two stations were received in the Marshall Islands, and signals from several stations have been received in Europe. The record QSO and receptions are given below:

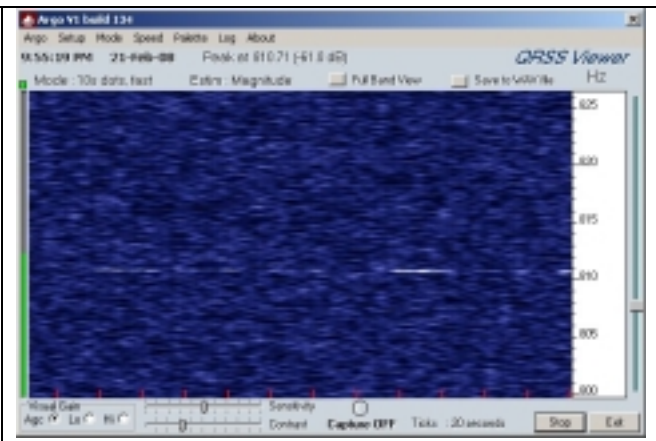
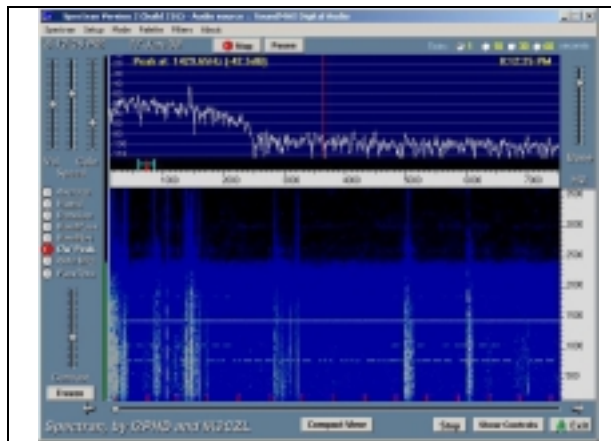
Longest overland QSO	WD2XSH/20 - WE2XGR/6	2,031 mi
Longest trans-oceanic QSO:	WE2XGR/6 - GI4DPE	3,144 mi
Two-way reception	WD2XSH/17 - SM6BHZ	3,583 mi
Most distant CW reception:	WD2XSH/20 - V73NS, Roi-Namur	4,737 mi
Most distant QRSS reception:	WD2XSH/6 - V73NS, Roi-Namur	6,679 mi



CONUS QSOs



DX (courtesy W0RPK)



Reception in Roi-Namur by V73NS. Left: WD2XSH/20. Right: WD2XSH/6.

Ground Wave Communication

We have continued to accumulate ground-wave QSOs and reception reports, as shown in the figure below. Communication or reception at distances up to 300 mi has been observed using normal CW, QRSS, and PSK-31. Reception during the daytime in the summer months ensures a strong D layer that blocks sky-wave signals. The ground-wave signals are also very steady and free from fading. These ground-wave links demonstrate the capability of 500 kHz to provide ionospheric-independent regional (beyond-line-of-sight) emergency communication.

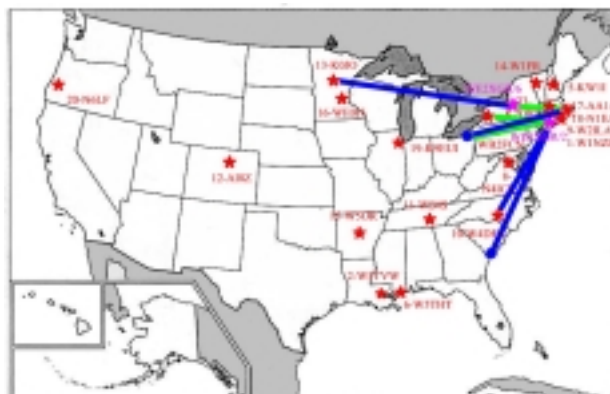
Daytime Sky-Wave Communication

During December and January, we observed several cases of long-range communication or reception during the daytime. Paths of lengths from 300 to 500 mi (green) may be ground-wave propagation, but those from 500 to 900 mi are well beyond the capability of ground-wave

propagation. This unexpected phenomenon is thought to be due to sky-wave propagation that passes through a weak D layer during the winter.



Ground-Wave Links.



Daytime Sky-Wave Links.

Digital Modulation

PSK-31 has now been used by three WD2XSH stations: /12, /17, and /19. The WE2XGR stations have been using PSK-31 and a variety of other digital modes. Good copy is generally reported.

3. INTERFERENCE

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

NDB OF

During January and February, K0HW made numerous comparisons of the signal strengths of NDB OF and several of our midwest stations. K0HW is located in South Dakota and is just on the edge of the service area of OF, hence these measurements indicate the worst case interference level that one might expect if WD2XSH stations were operating near the 510-kHz frequency of OF. I plan to process these measurements and to produce a report.

NEED

We continue to hear NEED on 505 kHz from time to time. The CW-beacon frequencies for stations /6 and /10 were relocated to avoid the NEED upper sideband.

4. INTERNATIONAL AND OTHER

Other US Experimental Licenses

The application by KL1X remains pending. The application by K1ENT was dismissed because of lack of response to questions by the FCC. WD2XFX is not yet on the air on 500 kHz.

International

UK amateurs with the NoV for 500 kHz may now run up to 1 W ERP. SM6BHZ is now permitted to operate from 501 to 507 kHz. Belgium now allows any amateur with a "full" license to operate from 501 to 504 kHz with 5 W ERP. ON7YD is now on the air.

WRC-11

A summary of the issues related to the choice of frequency [RN07-30] for a new amateur band was prepared for use by ARRL personnel at the WRC-11 CPM in February.

The International Federation of Shipmasters' Associations has submitted a paper to the IMO Comsar meeting calling for 500 kHz to be retained for historical demonstrations of maritime telegraphy.

5. RENEWAL AND EXPANSION

The present license expires on September 1, 2008. On December 14, Paul Rinaldo, Walt Ireland, and Fritz Raab discussed issues related to renewal and expansion of the WD2XSH license. Approval of modifications to the license may take considerable time. It was therefore decided that we would

- Renew the license "as is" to ensure there is no interruption in operation, and
- Submit a request for modification.

On February 1, ARRL attorney Chris Imlay confirmed that the request for renewal had been filed.

Information [M08-1] for the modification was submitted to the ARRL attorney on February 29. The recommendations are based upon the discussion on December 14 and include additional stations, expanded frequency range, portable operation, and communication with other amateur/experimental stations operating on 500 kHz. The additional stations add coverage to the western USA (bringing the total to 40) and the additional frequencies will pave the way for a new amateur band. Since it may take some time for approval, it is desirable to submit the request for modification as soon as practical.

6. PORTABLE STATION

Ralph Wallio, W0RPK, has initiated work on a transportable station. The basic characteristics of this station are:

- Transportable by personal vehicle,
- Set-up by one or two people,
- 30 - 50-ft umbrella-loaded monopole antenna,
- 100-W linear power amplifier, and
- PSK-31 operation.

This is similar to what might be used as the node in a 500-kHz ground-wave emergency-communication network. Ralph plans to put together the station and to operate it once the modification to our license has been approved.

7. PLANS

With the DX season just-about over, we will return to work on four major areas of interest:

- Digital operation (all three modes, ground-wave and sky-wave),
- Ground-wave tests, and
- 24-hour tests, and
- Portable station.

We will support studies for WRC-11 as requested.

APPENDIX. STATISTICS

STATION	CALL	STATUS	10/31/07		01/31/08		COMMENT
			HOURS	QSOs	HOURS	QSOs	
WD2XSH/1	W1NZR	ON	4:52	3	9:37	3	
WD2XSH/2	W5TVW	OFF	12:31	22	12:31	22	Family illness
WD2XSH/3	WD5CVG	DROPPED	-	-	-	-	
WD2XSH/4	WD4PLI	DROPPED	-	-	-	-	
WD2XSH/5	KW1I	ON	18:33	38	19:38	41	Antenna repair
WD2XSH/6	W5THT	ON	2052:57	37	2599:38	80	
WD2XSH/7	W5JGV	MOVED	-	-	-	-	
WD2XSH/8	N4ICK	OFF	0	0	0	0	
WD2XSH/9	W2ILA	ON	9:37	26	9:37	26	
WD2XSH/10	W4DEX	ON	543:14	17	655:13	22	
WD2XSH/11	WS4S	ON	809:42	12	809:42	12	Equipment failure
WD2XSH/12	AI8Z	ON	3581:28	0	5466:19	26	24/7 beacon
WD2XSH/13	K0J0	ON	626:49	0	854:46	7	
WD2XSH/14	W1FR	ON	20:17	3	87:07	4	
WD2XSH/15	W50R	ON	873:30	2	942:27	2	
WD2XSH/16	WE0H	OFF	2:38	0	2:38	0	Working on antenna
WD2XSH/17	AA1A	ON	553:18	23	680:00	23	
WD2XSH/18	N1EA	ON	2119:04	0	3215:04	0	24/7 beacon
WD2XSH/19	K9EUI	ON	1192:13	3	1283:96	3	
WD2XSH/20	N6LF	ON	1857:48	0	1963:12	7	
WD2XSH/21	WORW	DROPPED	652:42	0	652:42	0	
WD2XSH/22	WB2FCN	MOVED	-	-	-	-	Ready
WD2XSH/23	K2ORS	OFF	110:10	0	110:11	0	Op as WE2XGR/1
TOTAL	10/31/07	17 ON	13,849	93			
TOTAL	01/31/08	14 ON	19,375	278			

Note:

Operating hours and QSOs are derived from logs through January 31, 2008.

Total number of QSOs is half the total shown for individual stations.