

WD2XSH status report: March 1 - May 31, 2011**Prepared by Fritz Raab, W1FR, Experiment Coordinator****June 20, 2011****1. SUMMARY OF OPERATIONS**

This report provides a summary of WD2XSH activity during the Spring 2011. The key statistics of our operations during this period are:

- Number of QSOs: 9 additional, total 450;
- Number of reports via web site: 214 additional, total 13,245;
- Operating hours: 9,384 additional, total 99,408; and
- Number of interference complaints: 0.

All statistics are based upon the end of the reporting period (05/31/11). The logs now show only transmitting hours.

2. ADMINISTRATIVE

There are no administrative issues to report.

3. COMMUNICATIONS

The locations and status of 500-kHz amateur/experimental stations in the USA are shown in Figure 1.

As usual, activity declined during the spring as the number of night-time hours decreased and the QRN increased. Nonetheless, a few dedicated operators kept signals on the air, and a few dedicated listeners continued to file reports.

New status categories have been devised for stations that are off the air. These include "permanant QRT" and "QRT until further notice." The sites of stations that are permanently QRT may be offered to other qualified operators within 50 km of the designated location.

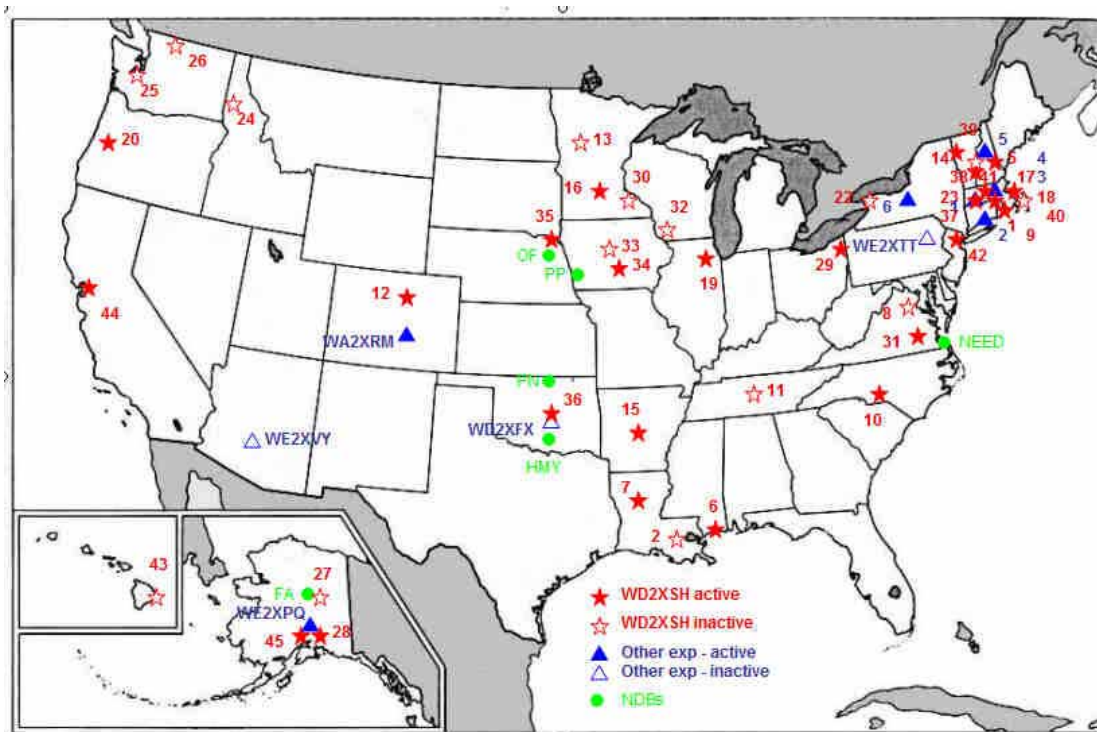


Figure 1. Locations and status of US 500-kHz experimental stations.

The author has completed processing of the data from the ground-wave tests in summer 2010. The results show that:

- Reliable ground-wave communication can be achieved over 150 km over most paths most of the time.
- Ground-wave communication is problematic during periods of local thunderstorm activity.
- Ground-wave communication is not reliable over paths that involve low-conductivity soil and mountainous terrain

Ralph Wallio W0RPK and other WD2XSH stations have concluded a set of ground-wave tests. Transmissions from W0RPK - WD2XSH/34 in Indianola, Iowa, used a portable 500-kHz station based on a 100-W PA and a 20-ft transportable vertical antenna. PSK-10 and PSK-31 were received reliably in Missouri by KC0TKS at a distance of 190 mi. WD2XSH/29 (KN8AZN in Ohio) transmitted MSK-31 to WB8ILI in Michigan over a 125 mi path with reliable reception. WD2XSH/7 (W5JGV in Louisiana) transmitted MSK-31 to K5BTP also in Louisiana at 156mi and to AA5AM in Texas at 216 mi, again with reliable reception. Here "reliable" means 99 percent or more of the characters in the message were decoded correctly. Many of these transmissions yielded 100% copy. These tests demonstrate the capability for reliable ground-wave communication on 500 kHz using ordinary amateur-level equipment that can be transported and set-up where needed.

4. ACTIVITIES

The author displayed a poster on the 500-kHz experiment at the Ham Radio Social at the International Microwave Symposium in Baltimore on June 7.

There was considerable informal discussion at the FDIM and Dayton Hamvention about the 500-kHz project.

5. INTERFERENCE

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

- NDB OF continues to operate on 510 kHz.
- We continue to hear NEED on 505 kHz from time to time.
- NDB FA continues to operate on 510 kHz.

To date, we have not identified any communication signals in the band from 461 to 479 kHz.

6. OTHER US EXPERIMENTAL LICENSES

The frequency bands of US and foreign amateur and experimental licenses are shown in Figure 2. The parameters of U.S. experimental licenses are given in Appendix B, and the known unlicensed (part-15) operators are given in Appendix E.

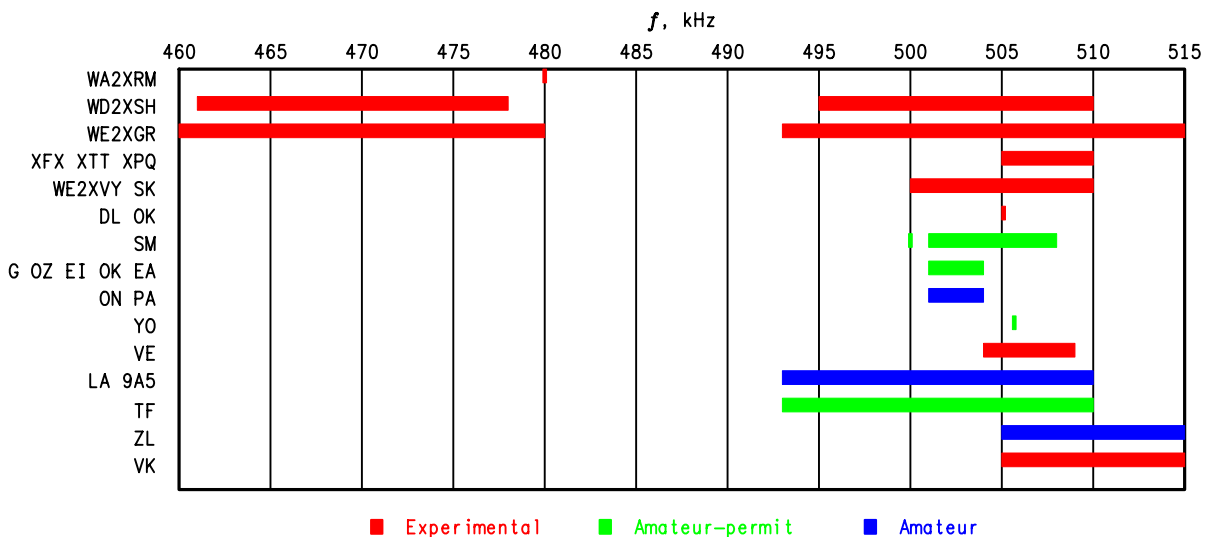


Figure 4. Worldwide amateur activity at 500 kHz.

A modification to the WE2XGR license was approved on June 14. This modification gives WE2XGR a total of ten sites in New England and New York. It also allows operation from 460 to 480 kHz and 493 to 515 kHz with an ERP of 1 kW. Mobile operation is permitted within 300 km of the designated sites. WE2XGR/1 (K2ORS) began transmissions in the lower band on June 15.

License WE9XXY issued to Carlson Technologies permits operation from 470 to 680 kHz. However, their intent is clearly exploitation of TV white space, so the frequency assignment is erroneous (kHz instead of MHz).

7. INTERNATIONAL AMATEUR ACTIVITIES

Nothing new has been reported.

8. HERITAGE (MUSEUM) OPERATIONS

Appendix D identifies the known heritage stations in the USA.

9. REGULATORY AND WRC-12

Nothing new to report.

10. PLANS

Activity is expected to decrease as summer brings more QRN and shorter nights. Several stations are planning to work on modifications to allow operation in the new lower-frequency band.

The author plans to finish the report on the 2010 ground-wave tests. Other plans include completing documentation of the WORPK ground-wave tests and developing a band plan for the lower band. Most likely, beacons will be assigned to the top end with the rest of the band open for communication.

APPENDIX A. WD2XSH STATISTICS

STATION	CALL	STATUS	02/28/11		05/31/11		LAST LOG
			HOURS	QSOs	HOURS	QSOs	
WD2XSH/1	W1NZR	Inactive	14	3	4	3	04/11
WD2XSH/2	W5TVW	Inactive	13	22	13	22	08/07
WD2XSH/5	KW1I	ON	44	54	49	54	05/11
WD2XSH/6	W5THT	ON	8156	159	8541	159	05/11

WD2XSH/7	W5JGV	ON	8292	1	10226	1	05/11
WD2XSH/8	N4ICK	Inactive	0	0	0	0	-
WD2XSH/9	W2ILA	Inactive	10	26	10	27	05/10
WD2XSH/10	W4DEX	ON	1744	25	1744	25	05/11
WD2XSH/11	WS4S	Inactive	810	12	810	12	11/10
WD2XSH/12	AI8Z	ON	23387	25	25247	25	05/11
WD2XSH/13	KOJO	SK	997	7	997	7	08/08
WD2XSH/14	W1FR	ON	376	8	386	8	05/11
WD2XSH/15	W5OR	ON	1722	26	10161	2	05/11
WD2XSH/16	WEOH	ON	1184	16	1186	16	05/11
WD2XSH/17	AA1A	ON	10540	2	11715	23	05/11
WD2XSH/18	N1EA	Inactive	3959	0	3959	0	04/08
WD2XSH/19	K9EUI	Inactive	1339	3	1339	3	05/11
WD2XSH/20	N6LF	ON	2296	7	2296	7	03/11
WD2XSH/21	WORW	Dropped	652	0	652	0	02/11
WD2XSH/22	WB2FCN	Inactive	-	-	-	-	-
WD2XSH/23	K2ORS	Inactive	112	1	112	1	08/09
WD2XSH/28	KL7Q	ON	46	6	52	6	05/11
WD2XSH/29	KN8AZN	ON	384	5	392	5	05/11
WD2XSH/31	WA1ZMS	ON	8504	7	10710	7	05/11
WD2XSH/34	WORPK	OFF (Moved)	153	1	153	1	04/11
WD2XSH/35	KOHW	Inactive	11	0	11	0	05/11
WD2XSH/36	W5GHZ	Inactive	1180	0	1180	0	08/10
WD2XSH/37	W1XP	ON	5680	17	5680	17	05/11
WD2XSH/38	KN1H	ON	1524	2	1551	2	05/11
WD2XSH/41	W1HK	ON	14	0	15	10	05/11
WD2XSH/42	K2LRE	ON	10	2	16	0	04/11
WD2XSH/44	AC6QV	ON	33	0	33	0	05/11
WD2XSH/45	KL7UW	ON	173	6	173	6	05/11
TOTAL 05/31/10		20 ON	60,648	405			
TOTAL 08/31/10		22 ON	72,844	434			
TOTAL 11/30/10		22 ON	83,073	441			
TOTAL 02/28/11		22 ON	90,024	441			
TOTAL 05/31/11		19 ON	99,408	450			

Notes:

Operating hours and QSOs are derived from logs through February 28, 2011. The statistics in this appendix were compiled by Ralph Wallio WORPK using the Excel logs submitted by the stations. Decreases in the number of operating hours or QSOs from the previous total indicate correction of errors. Several stations are off the air because of health or equipment problems. "ON" means operation within the past year. Stations who do not submit logs each month are subject to an automatic QRT order and must remain off the air until their log has been brought up to date.

APPENDIX B. US EXPERIMENTAL LICENSES

CALL	NUMBER	QTH	f, kHz	ERP, W	DATES	NOTES
WA2XRM	1	CO	480	100	01/01/09 - 01/01/14	
WD2XSH	43	USA	495 - 510 461 - 478	20	09/13/06 - 08/01/15	
WE2XGR	5	New Engl and	493 - 515 460 - 480	1000	09/05/07 - 09/01/12	
WE2XFX	1	OK	505 - 510	20	07/27/07 - 07/26/12	
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	SK
WF2XAU	1	FL	505 - 510	10	06/23/09 - 01/01/10	Exp.

* RF output to antenna

APPENDIX C. FOREIGN AMATEUR/EXPERIMENTAL BANDS

COUNTRY	TYPE	BAND, kHz	ERP, W
Sweden	NoV	500, 501 - 508	20 CW, SSB, data
Germany	Exp	505.0 - 505.2	9
Czech Republic	Exp	501-504, 505.60	10
UK	NoV	501 - 504	10
Belgium	Amateur	501 - 504	5
Canada	Exp	504 - 509	20
Norway	Am/Herit	493 - 510	100 (RF) CW only
Romania	NoV	505.68	100 (RF)
Denmark	NoV	501 - 504	20
Ireland	NoV	501 - 504	10 CW, PSK-31
Netherlands	Amateur	501 - 504	5
Iceland	NoV	493 - 510	100 CW
New Zealand	Amateur	505 - 515	20 200 Hz
Croatia	Exp	493 - 510	
Australia	Exp	505 - 515	
Spain	NoV	501 - 504	5 100 Hz

APPENDIX D. HERITAGE STATIONS

CATEGORY	CALLSIGN	FREQUENCIES	OPERATOR / QTH
Coastal	KSM	500, 426	MRHS, Bolinas, CA
	KFS		
	KPH	500, 426	MRHS, Bolinas, CA
	KLB	500, 488	Seattle, WA
	WLO	500, 438	Mobile, AL
New	WNE	500, 472	NEHRS, Stoneham, MA
	KDR	500, 482	Bellevue, WA
	WFT	500, 486	KZ4RV, Palmeto, FL
USCG	NMC	500, 448, 472	Bolinas, CA
	NMN	500, 448, 468	Chesapeake, VA
	NOJ	500, 416, 470	Kodiak, AK
Ships	KKUI		SS American Victory
	KYVM		SS Red Oak Victory
	KECW		SS Lane Victory
	KXCH		SS Jeremiah O'Brien
	KHRC		SS Matsonia
	NWVC	500, 512	LST325, Evansville, IN
	NTTH	500, 512	USS Cassin Young, Charleston, MA
	NEPL		USS Massachusetts, Fall River, MA
	NWKJ		USS Yorktown, Charleston, SC
Foreign	LGQ	493 - 510	Rogaland, Norway
	LM500LGN	493 - 510	Bergen, Norway

APPENDIX E. US PART-15 OPERATORS

f , kHz	ID	QTH	OPERATOR
510.1	HI	Monroe, CT	
510.903	EH	East Haven, CT	K1RGO

APPENDIX F. CANADIAN 500-kHz STATIONS

CALL	OP	QTH	STATUS
VX9BDQ	VE7BDQ	Del ta, BC (near Vancouver)	Acti ve
VX9MRC	V01NA	Torbay, NFLD	Acti ve
VX9ZZZ	VE1ZZ	Nova Scoti a	Acti ve
VX90HH	VE30HH	Richmond Hill , Ontario	Inacti ve

APPENDIX G. COMMUNICATION RECORDS

The reception and QSO distances below have been compiled by Ralph Walio WØRPK.

STATI ON	CW	QRSS	DI GIT	WSPR	WOLF	SSB	QSO
WD2XSH/1	56	--	--	--	--	--	56
WD2XSH/2	778	--	--	--	--	--	775
WD2XSH/5	1, 508	1, 508	--	--	--	--	1, 315
WD2XSH/6	3, 434	6, 679	--	--	--	--	2, 079
WD2XSH/7	3, 212	3, 212	1, 951	4, 866	--	--	266
WD2XSH/9	1, 155	--	--	--	--	--	649
WD2XSH/10	3, 767	4, 369	701	5, 305	--	--	747
WD2XSH/11	1, 039	4, 515	--	--	--	--	884
WD2XSH/12	1, 811	1, 811	1, 306	2, 357	--	--	1, 696
WD2XSH/14	1, 467	1, 467	--	--	--	--	747
WD2XSH/15	930	1, 432	--	1, 420	--	--	377
WD2XSH/16	1, 535	854	1, 074	718	--	--	1, 089
WD2XSH/17	3, 668	4, 032	--	4, 611	--	--	1, 308
WD2XSH/18	3	--	--	--	--	--	--
WD2XSH/19	1, 814	465	392	--	--	--	782
WD2XSH/20	4, 737	--	--	--	--	--	2, 301
WD2XSH/23	1, 185	--	--	--	--	--	690
WD2XSH/28	91	--	--	--	--	--	91
WD2XSH/29	687	1, 048	669	1, 090	--	--	669
WD2XSH/31	2, 057	3, 348	--	--	--	--	751
WD2XSH/34	1, 060	--	669	273	--	--	669
WD2XSH/35	1, 321	--	--	--	--	--	1, 209
WD2XSH/36	--	--	--	--	--	--	--
WD2XSH/37	1, 098	--	--	3, 489	--	--	467
WD2XSH/38	1, 468	1, 468	--	524	--	--	238
WD2XSH/41	14	--	--	--	--	--	14
WD2XSH/42	731	--	--	--	--	--	357
WD2XSH/44	2	--	--	--	--	--	--
WD2XSH/45	96	--	--	2, 893	--	--	91
WE2XGR/1	2, 293	473	473	--	--	1, 286	975
WE2XGR/2	3, 771	4, 137	1, 407	4, 735	3, 747	1, 209	3, 379
WE2XGR/3	686	3, 700	1, 476	4, 650	670	671	670
WE2XGR/5	174	527	--	--	--	--	174

WE2XGR/6	4,253	1,205	--	4,870	--	994	3,713
WA2XRM	623	2,441	--	--	--	--	--
WE2XPQ	96	1,335	--	--	--	--	--
VX9BDQ	2,695	2,461	--	2,086	--	--	--
VX9MRC	2,325	--	--	--	--	--	1,986
VX9ZZZ	2,505	--	--	--	--	--	2,505