WD2XSH status report: December 1, 2011 - February 29, 2012

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1. SUMMARY OF OPERATIONS

This report provides a summary of WD2XSH activity during the Winter 2011 - 2012. The key statistics of our operations during this period are:

- Number of QSOs: 39 additional, total 490;
- Number of reports via web site: 754 additional, total 14,466;
- Operating hours: 7,571 additional, total 121,743; and
- Number of interference complaints: 0.

All statistics are based upon the end of the reporting period (02/29/12). Only transmitting hours are included.

2. ADMINISTRATIVE

Recommendations for one last modification to the WD2XSH license have been sent to ARRL attorney Chris Imlay. They include removal of three sites (SK, resigned) and addition of ten sites, mostly in western states.

3. COMMUNICATIONS

The locations and status of 500-kHz amateur/experimental stations in the USA are shown in Figure 1. As usual, activity increased in the winter months, and good conditions were reported on many occasions.

Brian Justin made a special-event transmission on Christmas Eve to commemorate the first AM transmission by Fessenden and also the Heising modulator. AM transmissions were made on 472.5 kHz under STA WF2XIH and carried both voice and music. Signals were received at distances up to 900 mi. The transmission was repeated on New Year's Eve. Brian took care to avoid times when WNE was using 472 kHz, which is its working frequency. The two-tube MOPA transmitter is built according to the 1921 book *Radio Telephony for Amateurs* by Ballentine. It uses a Hafler 9505 as a booster amplifier.

Neile Klagge W0YES reports that the noise level gradually increased during the solar flare of January 25, then gradually decreased the next day.

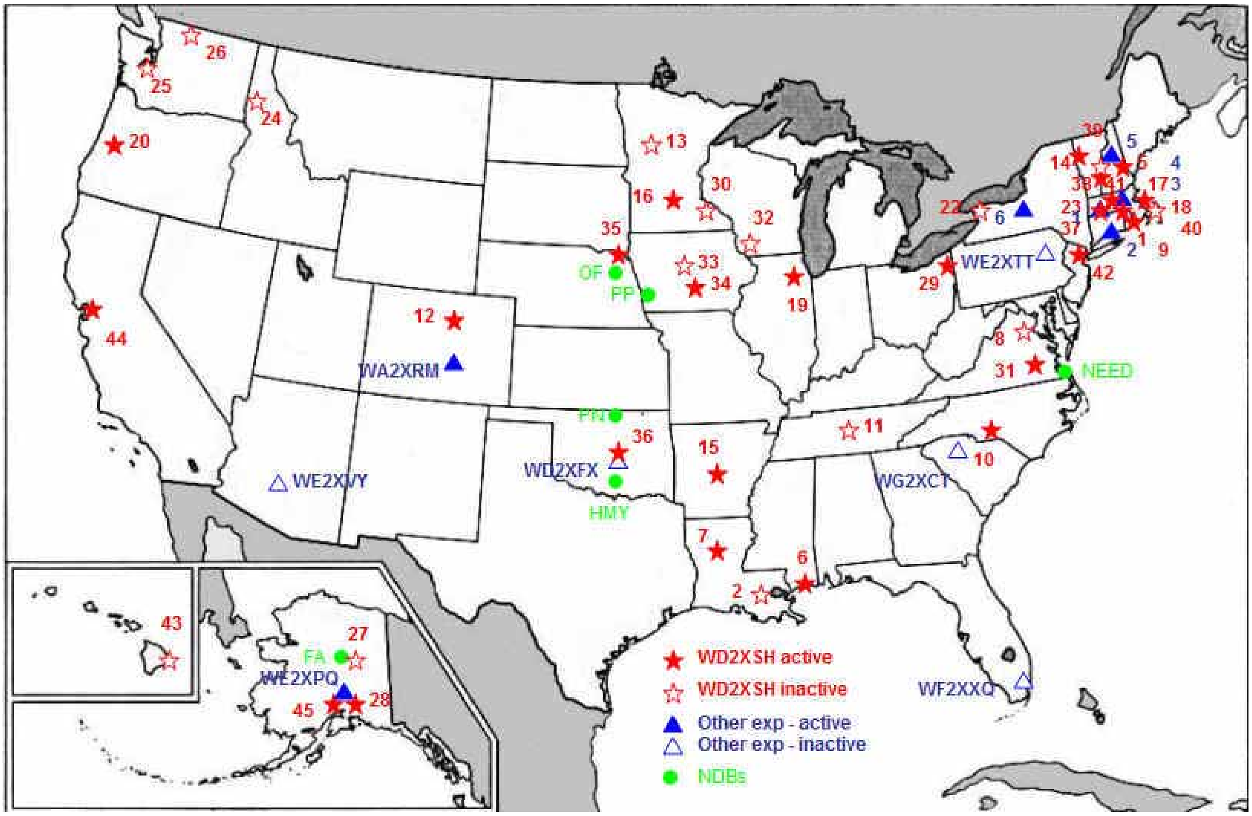

Figure 1. Locations and status of US 500-kHz experimental stations.

4. ACTIVITIES

Bob Reif W1XP gave a presentation on our activities at the Nashoba Valley Amateur Radio Club (MA) on January 19. Hal Dietz, W5GHZ, is giving a talk on March 20 at the monthly meeting of the Oklahoma City Auto Patch Assc. (OCAPA).

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.

In January, the U.S. Coast Guard and Ursanav signed a Cooperative Research and Development Agreement (CRADA). The CRADA allows Ursanav to test new LF PNT (Position / Navigation / Timing) signals from Coast Guard facilities. The general plans call for transmissions in the Loran-C band (90 - 110 kHz), DGPS band (270 - 330 kHz), HA-DGPS band (435 - 495 kHz), and former distress band (495 - 505 kHz). These signals are being evaluated as alternatives to and back-ups for GPS. Under the CRADA, the government provides access to the facilities, but Ursanav funds its own work.

In late February, Ursanav began transmissions on 100 kHz from the Coast Guard Loran facility at Wildwood, NJ. For the next several months and perhaps the rest of 2012, all of their transmissions will be in the Loran-C band. Future transmissions in the HA-DGPS band will most likely be made on the currently used HA-DGPS frequencies (453 - 456 kHz) as they will be using existing facilities. Consequently, there does not appear to be a conflict between this and our operations on 461 - 478 kHz, or the new amateur allocation from 472 - 479 kHz. There is, however, a potential problem if they actually transmit in the distress band. In this case, we will have to avoid interfering.

The author contacted the project personnel at Ursanav, advised them of our experimental operations, and offered to act as frequency coordinator. They are agreeable to contacting me first if there is an interference problem, or they will be operating on frequencies we currently are using.

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.

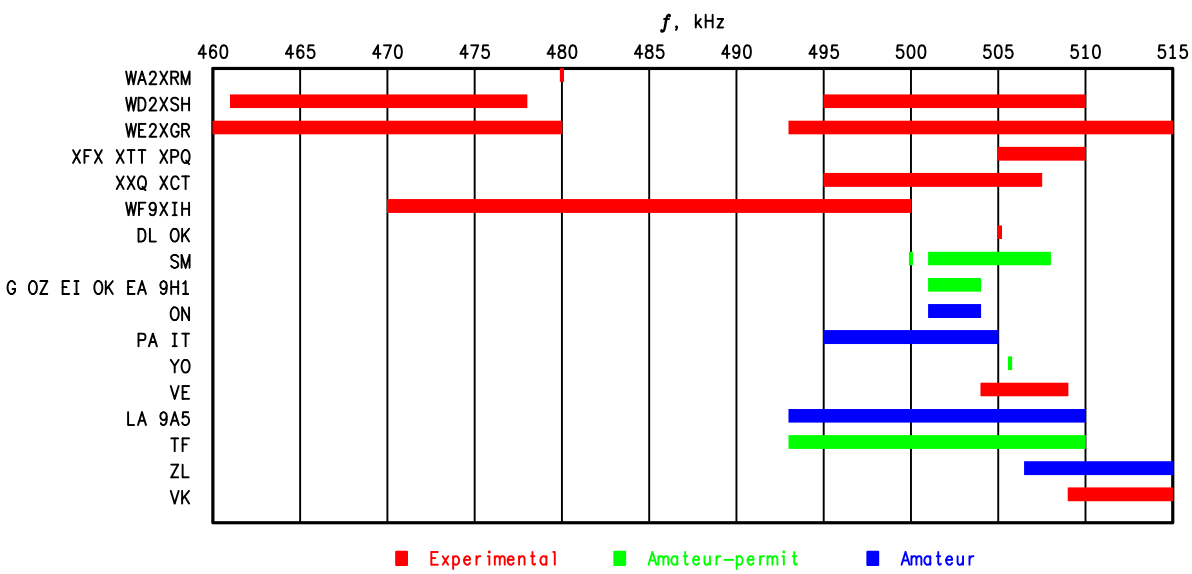

Figure 4. Worldwide amateur activity at 500 kHz.

Brian Justin's special temporary authority WF9XIH has been extended until June 30, 2012. He is now authorized to use 470 - 500 kHz.

Pat Bunn N4LTA was issued experimental license WG2XCT on March 14. It authorizes CW, PSK-31, MSK-31, and FSK-31 with 5 W ERP on 495 - 510 kHz. He is located in Spartanburg, South Carolina..

7. INTERNATIONAL AMATEUR ACTIVITIES

An Italian station IQ2MI is reported active on 501.3 kHz. It is operated by the Radio Club Milano.

A new Norwegian station LA6DW is reported operating on 498 kHz.

The Netherlands have renewed their amateur authorization for 501 - 505 kHz with a limit of 100 W RF output.

8. HERITAGE (MUSEUM) OPERATIONS

Appendix D identifies the known heritage stations in the USA.

9. REGULATORY AND WRC-12

The WRC-12 conference was held during February. Two actions are relevant to MF operations:

- 495 - 505 kHz is now reserved for the "NAVDAT" maritime-data system (formerly "SYNOPTIC").

- 472 - 479 is now a secondary allocation for radio amateurs.

The new amateur allocation is a major achievement for our work, which goes back to 2004. The power limits for are 5 W ERP in most locations, but only 1 W ERP within 800 km of Russia and some other countries who wish to protect their NDBs. The allocation becomes effective on January 1, but the FCC and other national authorities must also approve the allocation before amateurs may use the band.

10. PLANS

We expect that operations will decrease during the spring months, as usual.

A special operating event is planned for April 14 - 15 to commemorate the 100th anniversary of the sinking of the Titanic, and the role 500 kHz played in the rescue.

APPENDIX A. WD2XSH STATISTICS

STATION	CALL	STATUS	11/30/11 HOURS	11/30/11 QSOs	02/29/12 HOURS	02/29/12 QSOs	LAST LOG
WD2XSH/1	W1NZR	Inactive	4	3	4	3	11/11
WD2XSH/2	W5TVW	Inactive	13	22	13	22	08/07
WD2XSH/5	KW1I	ON	50	55	53	55	01/12
WD2XSH/6	W5THT	ON	9272	159	9671	180	02/12
WD2XSH/7	W5JGV	ON	14245	1	16374	1	02/12
WD2XSH/8	N4ICK	Inactive	0	0	0	0	-
WD2XSH/9	W2ILA	Inactive	10	27	10	27	05/10
WD2XSH/10	W4DEX	ON	1781	25	1947	30	02/12
WD2XSH/11	WS4S	Inactive	810	12	810	12	11/10
WD2XSH/12	AI8Z	ON	28718	25	29542	25	02/12
WD2XSH/13	K0JO	SK	997	7	997	7	08/08
WD2XSH/14	W1FR	ON	415	8	508	10	02/12
WD2XSH/15	W5OR	OFF	10161	2	10785	2	11/11
WD2XSH/16	WE0H	ON	1186	16	1186	16	02/12
WD2XSH/17	AA1A	ON	11802	23	11802	31	08/11
WD2XSH/18	N1EA	Inactive	3959	0	3959	0	04/08
WD2XSH/19	K9EUI	Inactive	1339	3	1351	3	02/12
WD2XSH/20	N6LF	ON	2327	7	2402	7	02/12
WD2XSH/21	W0RW	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	59	6	59	6	02/12
WD2XSH/29	KN8AZN	ON	452	5	480	5	02/12
WD2XSH/31	WA1ZMS	ON	15501	7	16760	8	02/12
WD2XSH/34	W0RPK	OFF (Moved)	153	1	153	1	04/11
WD2XSH/35	K0HW	Inactive	11	0	11	1	02/12
WD2XSH/36	W5GHZ	Inactive	1180	0	1180	0	08/10
WD2XSH/37	W1XP	ON	6493	7	6493	16	02/12
WD2XSH/38	KN1H	ON	2024	2	2048	2	02/12
WD2XSH/41	W1HK	ON	15	0	15	13	09/11
WD2XSH/42	K2LRE	ON	18	0	54	0	01/12
WD2XSH/44	AC6QV	ON	63	0	71	0	02/12
WD2XSH/45	KL7UW	ON	173	6	173	6	02/12

TOTAL 02/28/11	22 ON	90,024	441
TOTAL 05/31/11	19 ON	99,408	450
TOTAL 08/31/11	19 ON	106,158	451
TOTAL 11/30/11	16 ON	114,172	451
TOTAL 02/29/12	13 ON	121,743	490

Notes:
Operating hours and QSOs are derived from logs through February 29, 2012. The statistics in this appendix were compiled by Ralph Wallio W0RPK 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	20	09/13/06 - 08/01/15	
			461 - 478			
WE2XGR	8	New England	493 - 515	1000	09/05/07 - 09/01/12	
			460 - 480			
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.
WF2XXQ	1	FL	495 - 505	500	10/14/11 - 10/01/16	
WF9XIH	1	VA	470 - 500	20	12/10/11 - 06/30/12	STA
WG2XCT	1	SC	495 - 510	5	03/14/12 - 03/01/14	

* 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	495 - 505	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
Malta 9H1	Amateur	501 - 504	10
Italy	NoV	501	One station

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

515.15	U	Magdalena, NM	Mike Mideke

APPENDIX F. CANADIAN 500-kHz STATIONS

CALL	OP	QTH	STATUS
VX9BDQ	VE7BDQ	Delta, BC (near Vancouver)	Active
VX9MRC	VO1NA	Torbay, NFLD	Active
VX9ZZZ	VE1ZZ	Nova Scotia	Active
VX9OHH	VE3OHH	Richmond Hill, Ontario	Inactive

APPENDIX G. COMMUNICATION RECORDS

The reception and QSO distances (in miles) below have been compiled by Ralph Walio WØRPK.

STATION	CW	QRSS	DIGIT	AUTO*	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	8,903	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	1,448	--	--	--	--	--
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	1,209	3,379
WE2XGR/3	1,094	3,700	1,476	4,650	671	670
WE2XGR/5	174	527	--	--	--	174
WE2XGR/6	4,253	1,205	--	4,870	3,139	3,713
WE2XGR/8	238	--	--	--	--	238
WA2XRM	623	2,441	--	--	--	--
WE2XPQ	96	1,335	--	--	--	--
WF9HIX	--	--	--	--	922/	--
VX9BDQ	2,695	2,461	--	2,086	--	--
VX9MRC	2,532	3,106	--	1,071	--	2,532
VX9ZZZ	2,505	--	--	--	--	2,505

*NOTE: AUTO includes PC-based beacon modes WSPR/WOLF/OPERA/ROS/JT65, etc., which are not being used for QSOs.