ROCKY MOUNTAIN HAM RADIO UNIVERSITY



6 Meters The Magic Band

And an introduction to Joe Taylor K1JT's Weak Signal Software And it's uses on 6 meters





Rocky Mountain Ham Radio

Types of Propagation on 6 meters

Line of Site - out to 100 miles

E Layer Skip (Es) Single Hop

- Between 300 and 1200 miles
- Generally, Occurs between April & August December & January
 - But <u>MAY</u> occur at any time
 - More common in the Morning and Evening
 - Is referred to as Sporadic E because it is unpredictable!
- Is referred to as Sporadic E because it can last from Minutes to Hours!





Rocky Mountain

Ham Radio

Types of Propagation on 6 meters

E Layer Skip (Es) Multiple Hops and F₂

- 1200 miles to Trans Oceanic Distances
 - Not as common as single hop skip
- Occurs during the same time frames as single hop Es skip
 - Varies widely from location to location
 - Varies in intensity from location to location
- Is referred to as Sporadic E because it is unpredictable!
- Is referred to as Sporadic E because it can last from Minutes to Hours!



Rocky Mountain Ham Radio

Types of Propagation on 6 meters

<u>Meteor Scatter 200 - 1400 miles</u>

- Dependent on the number of meteors in the sky
- Can Occur at any time but is better in predawn and dawn hours
 - Is very productive during known meteor showers
 - Varies in intensity from location to location



Modes of Operation on 6 meters

Rocky Mountain Ham Radio

All modes are supported by all types of Propagation

- USB CW FM and Digital all work fine for line of site.
- When E-skip is present quick contacts using USB and CW are favored, especially during contests when the number of QSO's is important to your score.
- When the quality of E-skip is poor or the durations are short and spotty, digital modes are favored.

• For Meteors USB and CW have been used in the past, however with the development of the Weak Signal be Joe Taylor (WSJT) software the preferred mode is digital.





Getting on 6 meters in 1997.

Purchased an ICOM IC-505 10w all mode \$250.00

Homebrewed & put up a 1/2 Wave Dipole \$50





Today's Equipment

Transceiver Options

- Many HF radios today cover 160 through 6 meters.
- They can be found New (at HRO and other retailers).
- They can be found Used on The Swaplist, eBay and other used outlets.
- Transverters (50 MHz to 28MHz) are available and can be an inexpensive way to add 6 meters to an HF rig capable of 10 meters.

Antenna Options

- For weak signal operation antennas are horizontally polarized!
- Homebrew Dipole Can be outside or attic mounted where restrictions exist
- Halos are Omni directional and can be attic mounted where restrictions exist
 - Yagi's small ones can be chimney or attic mounted with a light duty rotor



N0POH Six Meter Grids 1997 thru 2000

				D012																									
									D061			DO91			E021														
C070	CO80	CO90	D000	DO10	D020	DO30	DO40	D050	D060	D070	D080	D090	EO00	EO10	E020	EO30	EO40	EO50	E060	E070	E080	E090	F000	F010	F020	F030	FO40	F050	F060
CN79	CN89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69
CN78	CN88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68
CN77	CN87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67
CN76	CN86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66
CN75	CN85	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FDIE	25	7945	11/45	FN55	FN65
CN74	CN84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN64	DN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FH14	FN24	FN34	FN44	FN54	FN64
CN73	CN83	CN93	DN03	DN13	DN23	DN33	DN4B	INS?	DNG	PNS	FCP	EN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	FN23	FN33	FN43	FN53	
CN72	CN82	CN92	DN02	DN12	DN22	DN32	DN42	DN52	DN62	DN72	DN82	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42		
		CN91																	-			-					FN41	FN51	
CN70	CN80	CN90	DN00	DN10	DN20	DN30	DN40	DN:50	DN60	DN70	DN80	UNAD	FN00	EN10	ENZU	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30			
CM79	CM89) CM99	DM09	DM19	DM29	DM39	DM49	DN 59	DM69	DM79	DM89	DM99	EM09	EM19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29				
	CM88	CM98	DM08	DM18	DM28	DM38	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EM18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28				
	CM87	CM97	DM07	DM17	DM27	DM37	DM47	DM57	DM67	DM77	DM87	DM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27				
	CM86	CM96	DM06	DM16	DM26	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EM06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26				
		CM95	DM05	DM15	DM25	DM35	DM45	DM55	DM65	DM75	DM85	DM95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25				
											DM84											la race							
		CM93									DM83											in the second	Second Second	FM13					
			DM02	DM12							DM82												FM02						
							DM41	DM51	DM61		DM81														.	atte			pole
					DM20						DM80															ante			actic .
										DL/9	DL89					EL39				EL/9	EL89	100000							
											DL88	DL98	EL08		EL28			EL58			EL88								
													EL07								EL87								
													EL06	EL16 EL15							EL86	EL96 EL95							
														2213							EL84								



NOPOH Six Meter Grids added in 2001

						DO33															Δ		Q	SC)'s	U	SE	B /	CV	V
				DO12																							-			
									D061			DO91			E021															
C070	CO80	CO90	DO00	DO10	D020	DO30	DO40	D050	D060	D070	D080	DO90	EO00	EO10	E020	EO30	EO40	E050	E060	EO70	E080	E090	F000	F010	F020	F030	FO40	F050	F060	
CN79	CN89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69	
CN78	CN88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	EN28	EN38	FN48	FN58	FN68	
CN77	CN87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	EN77
CN76	CN86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FH56	FN66	FN76
CN75	CN85	CN95	DN05	DN15	DN25	DN35	DN 15	DN55	DN65	FIN7C	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	EN25	FN35	FN45	FN55	FN65	
CN74	CN84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN64	DN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN04	FN74
CN73	CN83	CN93	DN03	DN13	DN23	DN33	DN43	DN53	DIN63	DN73	DNS3	DN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	FNZS	FN33	FN43	FN53		
CN72	CN82	CN92	DN02	DN12	DN22	DN32	DN42	DN52	DN62	DN72	DN82	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	ENoz	EN92	FN02	FN12	FN22	FN32	FN42			
CN71	CN81	CN91	DN01	DN11	DN21	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	EN11	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51		
CN70	CN80	CN90	DN00	DN10	DN20	DN30	DN40	DN50	DN60	DN70	DN80	Photo	Eivuu	EN10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30				
CM79	CM89	CM99	DM09	DM19	DM29	DM39	DM49	DM59	DM69	DM79	DM89	DM99	EM09	EM19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29					
	CM88	CM98	DM08	DM18	DM28	DM38	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EM18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28					
1.1	CM87	CM97	DM07	DM17	DM27	DM37	DM47	DM57	DM67	DM77	DM87	DM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27					
	CM86	CM96	DM06	DM16	DM26	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EM06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26					
		CM95	DM05	DM15	DM25	DM35	DM45	DM55	DM65	DM75	DM85	DM95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25					
		CM94	DM04	DM14	DM24	DM34	DM44	DM54	DM64	DM74	DM84	DM94	EM04	EM14	EM24	EM34	EM44	EM54	EM64	EM74	EM84	EM94	FM04	FM14						
		CM93	DM03	DM13	DM23	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13						
			DM02	DM12	DM22	DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02							
						DM31	DM41	DM51	DM61	DM71	DM81	DM91	EM01	EM11	EM21	EM31	EM41	EM51	EM61	EM71	EM81	EM91								
					DM20					DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90							pole	
										DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59		EL79	EL89	EL99								
											DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98								
													EL07	EL17							EL87	EL97								
													EL06	EL16							EL86	EL96								
														EL15								EL95								
																					EL84	EL94								

2001	. Double Hop &	& F2 Contacts	
Date	Call	Country	GRID
October 23, 2001	NP3S	Puerto Rico	FK68
October 23, 2001	WP4KJJ	Puerto Rico	FK68
November 12, 2001	KL7FH	Alaska	BP51
November 12, 2001	AL7OC	Alaska	BP64
November 13, 2001	VO1BC	Newfoundland	GN38
November 13, 2001	VO1PJN	Newfoundland	GN38
November 17, 2001	WH6O	Hawaii	BL11
November 17, 2001	JH0HZO	Japan	PM97
November 17, 2001	JA70Q	Japan	QM08
November 17, 2001	JA4MBM	Japan	PM64
November 17, 2001	JHORNN	Japan	PM97nv
November 18, 2001	JE1RXJ	Japan	PM95qh
November 18, 2001	JA1ELY	Japan	QM05ft
November 18, 2001	JA8EPO	Japan	QN23
November 22, 2001	K2KW/6Y5	Jamaica	FK18
November 22, 2001	WP4N	Puerto Rico	FK78
December 2, 2001	NL7ZW	Alaska	BP71
December 2, 2001	WL7X	Alaska	BP64
December 2, 2001	KL7Y	Alaska	BP51en
December 2, 2001	KL7NO	Alaska	BP54xw
December 2, 2001	KL1SF	Alaska	BP53
December 2, 2001	N1TX/KL7	Alaska	BP64
December 4, 2001	WL7M	Alaska	BO49
December 9, 2001	VO1GO	Newfoundland	GN38
December 9, 2001	OX3OX	Greenland	GP36
December 24, 2001	GM0EWX	Scotland	1067
December 25, 2001	VO1NE	Newfoundland	GN27
December 26, 2001	NP2BT	Virgin Islands	FK78
December 26, 2001	P49MR	Aruba	FK42
December 26, 2001	VE1ZJ	Nova Scotia	FN96
December 29, 2001	VP9ID	Bermuda	FM72
December 30, 2001	CO8LY	Cuba	FL20



N0POH Six Meter Grids added in 2001

All contacts were USB with 10 watts and a 5 element M² 6M5X yagi



NOPOH Six Meter Grids added in 2002-2020

						D023	DO33	DO43																	~							
	c	082			D012			D042														F	۸H	Q	50	JS	U	5	3 /	C۱	N	
						D021	D031	D041		D061			DO91			E021																
C070	o co	080	CO90	DOOO	D010	D020	DO30	DO40	D050	DO60	D070	D080	D090	EO00	EO10	E020	EO30	E040	EO50	E060	E070	E080	E090	F000	F010	F020	FO30	FO40	FO50	F060		
CN79	0 CI	N89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69		
CN78		N88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68		
CN77	10	N87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	F2(00	FNS	FN67	5N77	
CN76	CI	N86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	ENSO	FN66	FN76	
CN75	5 CI	N85	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75	FN85
CN74	CI	N84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	E N64	DN74	BNS	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	ENG4	FN74	
CN73	S CI	N83	CN93	DN03	DN13	DN23	DN33	DN43	DN53	DN63	DN73	DN83	DN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	EN23	FN33	FN43	FN53		_	
CN72	2 CI	N82	CN92	DN02	DN12	DN22	DN32	DN42	DN52	DN62	DN72	DN88	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42				
CN71	Ċ	N81	CN91	DN01	DN11	DN21	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	EN11	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51			
CN70	0 01	N80	CN90	DNOO	DN10	DN20	DN30	DN-0	DN50	DN60	DN70	DN80	DNS	ENGO	EN10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30					
CM79	e ci	M89	CM99	DM09	DM19	DM29	DM39	DM49	DM59	DM69	DM79	DM89	DM99	EM09	EM19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29						
	CI	M88	CM98	DM08	DM18	DM28	DM38	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EM18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28						
	CI	M87	CM97	DM07	DM17	DM27	DM37	DM47	DM57	DM67	DM77	DM87	OM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27						
	CI	M86	CM96	DM06	DM16	DM26	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EM06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26						
			CM95	DM05	DM15	DM25	DM35	DM45	DM55	DM65	DM75	DM85	DM95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25						
			CM94	DM04	DM14	DM24	DM34	DM44	DM54	DM64	DM74	DM84	DM94	EM04	EM14	EM24	EM34	EM44	EM54	EM64	EM74	EM84	EM94	FM04	FM14							
			CM93	DM03	DM13	DM23	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13							
				DM02	DM12	DM22	DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02								
					DM11		DM31	DM41	DM51	DM61			and the second second																			
						DM20		_			DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90	SSB/	(Te	n w	atts		ı dij			
								DL49			DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59													
											DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98	SSB/	100	wat	ts &	Bea	m 0	2-21		
														EL07	EL17							EL87	EL97									
														EL06	EL16							EL86	EL96									
															EL15								EL95									
								DL44														EL84	EL94									· · · · ·

The Donut Hole



						D023	DO33	DO43																0	sc)'s		S	R	C	N	
	co	82			D012			D042																X								
_			- 10			D021	D031	D041		D061		_	DO91			EO21																
C070	CO	080	090	DOOO	D010	D020	DO30	DO40	D050	D060	D070	D080	D090	EO00	EO10	E020	EO30	EO40	EO50	E060	E070	E080	E090	F000	F010	F020	FO30	FO40	F050	F060		
CN79	CN	189 0	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69		
CN78	CN	188 0	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68		
CN77	CN	187 0	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77	
CN76	CN	186 C	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76	
CN75	CN	185 0	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75	FN85
CN74	CN	184 0	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN64	DN74	DN84	EN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64	FN74	
CN73	CN	183 0	CN93	DN03	DN13	DN23	DN33	DN/3	DN53	DN63	DN73	DN83	DN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	FN23	FN33	FN43	FN53			
CN72	CN	182 0	CN92	DN02	DN12	DN22	DN32	ON42	DN52	DN62	DN72	DN82	EN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42			_	
CN71	CN	181 C	CN91	DN01	DN11	DN21	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	E 111	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51		_	
CN70	CN	180 0	CN90	DN00	DN10	DN20	DN 30	DN40	DN50	DN60	DN70	DN80	DN90	ENOO	EN 10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30				_	
CM79	CM	189 0	CM99	DM09	DM19	DM29	DN 39	DM4	DM59	DM69	DM79	DM89	DM99	EM09	EN 19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29						
	CM	188 0	CM98	DM08	DM18	DM28	DM.8	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EI 18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28						
	CM	187 0	CM97	DM07	DM17	DM27	DM37	DM47	DM5R	DM67	DM77	DM87	BM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27						
	CM	186 0	CM96	DM06	DM16	DM26	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EV.06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26						
		C	CM95	DM05	DM15	DM25	DM35	DM45	DINES	DM65	DM75	DM85	D'a95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25					_	
		C	CM94	DM04	DM14	DM24	DM34	DM44	DM54	DM64	DM74	DM84	DM94	EM04	EM14	EM24	EM34	EM44	EM54	EM64	EM74	EM84	EM94	FM04	FM14						_	
		C	CM93	DM03	DM13	DM23	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13						_	
				DM02	DM12	DM22	DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02							_	
					DM11		DM31	DM41	DM51	DM61			and the second second																		_	
-						DM20		_	_	10	DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50											pole	_	_
								DL49			DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59											am	_	
											DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98	SSB/o	100	wat	ts 8	Bea	am O	2-21		
														EL07	EL17							EL87	EL97									
														EL06								EL86										
								DL44							EL15							EL84	EL95									
								UL44														CL04	CL94									

N0POH Six Meter Grids using FSK-441 2009 -2016



					D023	DO33	DO43																10/		-	FC				
	C082			D012			D042													· ·			W							
					D021	D031	DO41		D061			D091			E021				F	ill	ing	y ir	T	he	D	on	ut	Ho	le	
C070	CO80	CO90	DOOO	DO10	D020	DO30	DO40	DO50	D060	D070	D080	DO90	EOOO	EO10	E020	EO30	E040	EO50	E060	E070	E080	E090	F000	F010	F020	FO30	F040	F050	F060	
CN79	CN89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69	
CN78	CN88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68	
CN77	CN87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77
CN76	CN86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76
CN75	CN85	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75
CN74	CN84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN04	UN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64	FN74
																							FN03			10.00		FN53		
																				a set			FN02							
																				and a second of the second			FN01				FN41	FN51		
																							FN00		1					-
CM79																							FM09							
																							FM08							
																							FM07 FM06							
	CMOD																						FM05							
																							FM05		FMZƏ					
						Sec. 1																1	FM03							
		Ginob																		EM72		and the second								
				DM11																EM71										
					DM20					DM70	DM80	DM90	EMOO	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90	ssbłow		n w		8.8			
							DL49			1.000				Contractor (EL39							ssbłow							
										DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98	ssbłow	100	wat	ts &	Bea	m 02	2-21	
													EL07	EL17							EL87	EL97	FSK	100	wat	ts & I	Bear	n 09-	16	
													EL06	EL16							EL86	EL96								
														EL15								EL95								
							DL44														EL84	EL94								

N0POH Six Meter Grids added using WSJT-X FT8 in 2021



	С	083				D023	DO33	D043			D073		D093														SJ	-	C 1	2		
	C	082			D012		D032	DO42		D062												- -		, 	aı	VV	00		-	0		
						D021	D031	D041		D061			D091			E021																
C07	o c	080	CO90	DOOO	DO10	DO20	D030	DO40	D050	D060	D070	D080	D090	EO00	EO10	E020	EO30	EO40	E050	E060	E070	E080	E090	F000	F010	F020	F030	F040	F050	F060		
CN79	9 CI	N89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69		
CN78	8 CI	N88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68		
CN77	7 CI	N87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77	
CN76	6 CI	N86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76	FN86
CN75	5 CI	N85	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75	FN85
CN74	4 CI	N84	CN94	DN04	DN14	DN24	DN34	DN44	DN54	DN64	DN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64	FN74	FN84
CN73	3 CI	N83	CN93	DN03	DN13	DN23	DN33	DN43	DN53	DN63	DN73	DN83	DN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	FN23	FN33	FN43	FN53		FN73	
CN72	2 CI	N82	CN92	DN02	DN12	DN22	DN32	DN42	DN52	DN62	DN72	DN82	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42				
CN71	1 CI	N81	CN91	DN01	DN11	DN21	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	EN11	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51			
CN70	0 CI	N80	CN90	DNOO	DN10	DN20	DN30	DN40	DN50	DN60	DN70	DN80	DN90	EN00	EN10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30					
CM7	9 CI	M89	CM99	DM09	DM19	DM29	DM39	DM49	DM59	DM69	DM79	DM89	DM99	EM09	EM19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29						
	CI	M88	CM98	DM08	DM18	DM28	DM38	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EM18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28						
	С	M87	CM97	DM07	DM17	DM27	DM37	DM47	DM57	DM67	DM77	DM87	DM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27						
	CI	M86	CM96	DM06	DM16	DM26	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EM06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26						
			CM95	DM05	DM15	DM25	DM35	DM45	DM55	DM65	DM75	DM85	DM95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25						
			CM94	DM04	DM14	DM24	DM34	DM44	DM54	DM64	DM74	DM84	DM94	EM04	EM14	EM24	EM34	EM44	EM54	EM64	EM74	EM84	EM94	FM04	FM14							
			СМ93	DM03	DM13	DM23	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13							
				DM02	DM12	DM22	DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02								
					DM11		DM31	DM41	DM51	DM61	DM71	DM81	DM91	EM01	EM11	EM21	EM31	EM41	EM51	EM61	EM71	EM81	EM91									
						DM20		_			DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90	ssbłow	Te	n w				pole		
								DL49			DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59		EL79	EL89	EL99	ssbłow	Te							
										DL68	DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98	ssbłow	100	wat	tts &	Bea	am 0	2-21		
														EL07	EL17							EL87	EL97	FSK	100	wat	ts & I	Bear	n 09	-16		
													DL96	EL06	EL16							EL86	EL96	FT8	100	wat	ts & I	Bear	n 20	21		
													DL95		EL15								EL95								-	
								DL44		DL64	DL74											EL84	EL94									3

N0POH Six Meter Grids added using WSJT-X MSK-144 in 2021



	С	083				D023	DO33	D043			D073		D093												-	R Л (20	2	
	C	082			D012		D032	DO42		D062										лg	JIL	al	VV	DJ		IVR	JN	14	+4	-20		
_						D021	D031	D041		D061			DO91			E021																
C070	c c	080	CO90	DOOO	DO10	DO20	D030	DO40	D050	D060	D070	D080	D090	EO00	EO10	E020	EO30	EO40	EO50	E060	E070	E080	EO90	F000	F010	F020	F030	FO40	FO50	F060		
CN79	9 CI	N89	CN99	DN09	DN19	DN29	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69		
CN78	B CI	N88	CN98	DN08	DN18	DN28	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68		
CN77	7 CI	N87	CN97	DN07	DN17	DN27	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77	
CN76	6 CI	N86	CN96	DN06	DN16	DN26	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76	FN86
CN75	i Cl	N85	CN95	DN05	DN15	DN25	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75	FN85
									DN54																					FN64	FN74	FN84
									DN53																				FN53		FN73	
									DN52												a second								-			1 1
									DN51																			FN41	FN51			
		-						S	DN50 DM59			1000														-						
CM79									DM59																							
									DM50															240303								
									DM56																		8					
									DM55																							
									DM54																							
			CM93	DM03	DM13	DM23	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13							
				DM02	DM12	2 DM22	2 DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02								
					DM11		DM31	DM41	DM51	DM61	DM71	DM81	DM91	EM01	EM11	EM21	EM31	EM41	EM51	EM61	EM71	EM81	EM91									
						DM20					DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90	ssbłow		n w						
								DL49			DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59		EL79	EL89	EL99	ssbłow								
										DL68	DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98	ssbłow	100	wat	tts &	Bea	am 0	2-21		
														EL07	EL17							EL87	EL97	FSK	100	wat	ts & I	Bear	n 09	-16		
													DL96	EL06	EL16							EL86	EL96				ts &					
								DL44		DIGA	DI 74		DL95		EL15								EL95	MSK	100	wat	ts & I	Bear	n 20	21		
								DL44		DL64	DL74											EL84	EL94									

Grids worked from May through September 2021 with FT8 - 263



Grids worked in 23 years from 1997 through 2020 all modes - 525

C083		D	023 0	0033	D043			D073		DO93																				Total	Grids Wor	ked 263	3
C082		D012		0032	D042		D062																							Grids	Not Mapp	ed	
		D	021 0	0031	D041		D061			D091			E021																	CO45	Alaska	PM74	Japan
CO70 CO80 CO9	0000 00	D010 D0	020 0	0030	DO40	D050	DO60	D070	D080	D090	EO00	EO10	E020	EO30	EO40	E050	E060	E070	E080	E090	FO00	F010	F020	FO30	F040	F050	F060			C084	Canada	PM75	Japan
CN79 CN89 CN9	9 DN09	DN19 DI	N29 C	DN39	DN49	DN59	DN69	DN79	DN89	DN99	EN09	EN19	EN29	EN39	EN49	EN59	EN69	EN79	EN89	EN99	FN09	FN19	FN29	FN39	FN49	FN59	FN69			DL80	Mexico	PM85	Japan
CN78 CN88 CN9	8 DN08	DN18 DI	N28 D	DN38	DN48	DN58	DN68	DN78	DN88	DN98	EN08	EN18	EN28	EN38	EN48	EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68			DL81	Mexico	PM86	Japan
CN77 CN87 CN9	7 DN07	DN17 DI	N27 C	DN37	DN47	DN57	DN67	DN77	DN87	DN97	EN07	EN17	EN27	EN37	EN47	EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77		DO05	Canada	PM96	Japan
CN76 CN86 CN9	6 DN06	DN16 DI	N26 C	DN36	DN46	DN56	DN66	DN76	DN86	DN96	EN06	EN16	EN26	EN36	EN46	EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76	FN86	EK09	Mexico	QM06	Japan
CN75 CN85 CN9	5 DN05	DN15 DI	N25 C	DN35	DN45	DN55	DN65	DN75	DN85	DN95	EN05	EN15	EN25	EN35	EN45	EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75	FN85	EL83	Cuba	QM07	Japan
CN74 CN84 CN94	4 DN04	DN14 DI	N24 C	DN34	DN44	DN54	DN64	DN74	DN84	DN94	EN04	EN14	EN24	EN34	EN44	EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64	FN74	FN84	FJ92	Brazil	QM08	Japan
CN73 CN83 CN93	3 DN03	DN13 DI	N23 C	DN33	DN43	DN53	DN63	DN73	DN83	DN93	EN03	EN13	EN23	EN33	EN43	EN53	EN63	EN73	EN83	EN93	FN03	FN13	FN23	FN33	FN43	FN53		FN73		FK38	Haiti	QN00	Japan
CN72 CN82 CN92	2 DN02	DN12 DI	N22 C	DN32	DN42	DN52	DN62	DN72	DN82	DN92	EN02	EN12	EN22	EN32	EN42	EN52	EN62	EN72	EN82	EN92	FN02	FN12	FN22	FN32	FN42					FK49	Dom Rep	QN02	Japan
CN71 CN81 CN9	1 DN01	DN11 DI	N21 C	DN31	DN41	DN51	DN61	DN71	DN81	DN91	EN01	EN11	EN21	EN31	EN41	EN51	EN61	EN71	EN81	EN91	FN01	FN11	FN21	FN31	FN41	FN51				FK58	Dom Rep	QN03	Japan
CN70 CN80 CN9	DN00	DN10 DI	N20 C	0N30	DN40	DN50	DN60	DN70	DN80	DN90	EN00	EN10	EN20	EN30	EN40	EN50	EN60	EN70	EN80	EN90	FN00	FN10	FN20	FN30						FK68	PR		
см79 см89 <mark>см9</mark>	99 DM09	DM19 DI	M29 C	DM39	DM49	DM59	DM69	DM79	DM89	DM99	EM09	EM19	EM29	EM39	EM49	EM59	EM69	EM79	EM89	EM99	FM09	FM19	FM29							FK95	Dominica		
CM88 CM9	80MD	DM18 DI	M28 C	DM38	DM48	DM58	DM68	DM78	DM88	DM98	EM08	EM18	EM28	EM38	EM48	EM58	EM68	EM78	EM88	EM98	FM08	FM18	FM28							FL23	Bahamas		
CM87 CM9	97 DM07	DM17 DI	M27 C	DM37	DM47	DM57	DM67	DM77	DM87	DM97	EM07	EM17	EM27	EM37	EM47	EM57	EM67	EM77	EM87	EM97	FM07	FM17	FM27							IL10	Mauritani	а	
CM86 CM9	96 DM06	DM16 DI	M26 D	DM36	DM46	DM56	DM66	DM76	DM86	DM96	EM06	EM16	EM26	EM36	EM46	EM56	EM66	EM76	EM86	EM96	FM06	FM16	FM26							IL18	Canary Is		
CM9	95 DM05	DM15 DI	M25 C	DM35	DM45	DM55	DM65	DM75	DM85	DM95	EM05	EM15	EM25	EM35	EM45	EM55	EM65	EM75	EM85	EM95	FM05	FM15	FM25							IM13	Madeira I	s	
CM9	94 DM04	DM14 DI	M24 C	DM34	DM44	DM54	DM64	DM74	DM84	DM94	EM04	EM14	EM24	EM34	EM44	EM54	EM64	EM74	EM84	EM94	FM04	FM14								IM68	Spain		
CM9	93 <mark>DM03</mark>	DM13 DI	M23 E	DM33	DM43	DM53	DM63	DM73	DM83	DM93	EM03	EM13	EM23	EM33	EM43	EM53	EM63	EM73	EM83	EM93	FM03	FM13								IN94	France		
	DM02	DM12 DI	M22 C	DM32	DM42	DM52	DM62	DM72	DM82	DM92	EM02	EM12	EM22	EM32	EM42	EM52	EM62	EM72	EM82	EM92	FM02									1075	Scotland		
		DM11	0	DM31	DM41	DM51	DM61	DM71	DM81	DM91	EM01	EM11	EM21	EM31	EM41	EM51	EM61	EM71	EM81	EM91										1083	England		
		DI	M20					DM70	DM80	DM90	EM00	EM10	EM20	EM30	EM40	EM50	EM60	EM70	EM80	EM90										JN49	Germany		
					DL49			DL79	DL89	DL99	EL09	EL19	EL29	EL39	EL49	EL59		EL79	EL89	EL99										JN58	Germany		
							DL68	DL78	DL88	DL98	EL08	EL18	EL28			EL58			EL88	EL98										JN67	Austria		
											EL07	EL17							EL87	EL97										JN76	Slovenia		
										DL96	EL06	EL16							EL86	EL96										J021	Belgium		
										DL95		EL15								EL95	- 22							_			Germany		
					DL44		DL64	DL74											EL84	EL94										PM53	Japan		



Do the math 263/525 = .50092 or 50.10% of the grids worked in 23 years were worked between May and September of 2021!

C083	DO	23 <mark>D033</mark> D0	43	D073	D093																		Total	Grids W	orked 2	63
C082	D012	DO32 DO	42 DO6	2																			Gride	Not Map	ped	
	DO	21 DO31 DO	41 DO6	1	D091		E	E021															CO4	Alaska	PM7	4 Japan
CO70 CO80 CO90	DO00 DO10 DO	20 <mark>DO30</mark> DO	40 DO50 DO6	0 DO70 DO80	DO90	EO00	EO10 E	EO20 E	030 EO	40 EO50	E060	E070	E080	E090	FO00	F010	F020	F030	F040	F050	F060		C08	4 Canada	PM7	75 Japan
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CN78 CN88 CN98	DN08 DN18 DN	28 DN38 DN	48 DN58 DN6	B DN78 DN88	B DN98	EN08	EN18 E	EN28 E	N38 EN	48 EN58	EN68	EN78	EN88	EN98	FN08	FN18	FN28	FN38	FN48	FN58	FN68		DL81	Mexico	PM8	36 Japan
CN77 CN87 CN97	DN07 DN17 DN	27 DN37 DN	47 DN57 DN6	7 DN77 DN87	7 DN97	EN07	EN17 E	EN27 E	N37 EN	47 EN57	EN67	EN77	EN87	EN88	FN07	FN17	FN27	FN37	FN47	FN57	FN67	FN77	DOO	5 Canada	PMS	6 Japan
CN76 CN86 CN96	DN06 DN16 DN	26 DN36 DN	46 DN56 DN6	5 DN76 DN86	5 DN96	EN06	EN16 E	EN26 E	N36 EN	46 EN56	EN66	EN76	EN86	EN96	FN06	FN16	FN26	FN36	FN46	FN56	FN66	FN76 FN	86 EK09	Mexico	QM	06 Japan
CN75 CN85 CN95	DN05 DN15 DN	25 DN35 DN	45 DN55 DN6	5 DN75 DN85	5 DN95	EN05	EN15 E	EN25 E	N35 EN	45 EN55	EN65	EN75	EN85	EN95	FN05	FN15	FN25	FN35	FN45	FN55	FN65	FN75 FN	85 EL83	Cuba	QM	07 Japan
CN74 CN84 CN94	DN04 DN14 DN	24 DN34 DN	44 DN54 DN6	4 DN74 DN84	4 DN94	EN04	EN14 E	EN24 E	N34 EN	44 EN54	EN64	EN74	EN84	EN94	FN04	FN14	FN24	FN34	FN44	FN54	FN64	FN74 FN	84 FJ92	Brazil	QM	08 Japan
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Hence the introduction to <u>Weak Signal by Joe Taylor Software</u>

From Joe's Website – "(Weak Signal Communication, by K1JT) offers specific digital protocols optimized for EME (moonbounce), meteor scatter, and ionospheric scatter, at VHF/UHF, as well as for LF, MF, and HF propagation. The program can decode fractionof-a-second signals reflected from ionized meteor trails and steady signals more than 10 dB below the audible threshold."



In addition to your Transceiver, you'll need a Computer and a Computer to Transceiver Interface

A few commercially available Transceiver to Computer Interfaces











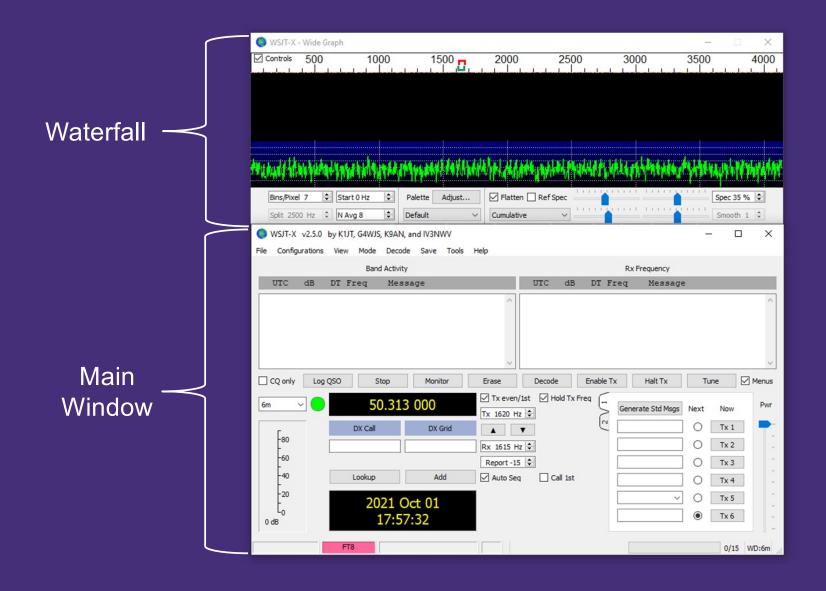


Getting Started with WSJT-X

- Choose your operating system Windows, Mac or Linux
 - Download the software FREE from K1JT's Website
 - https://physics.princeton.edu/pulsar/k1jt/wsjtx.html
- Download FREE easy to follow instructions from the web site
 - Install the software

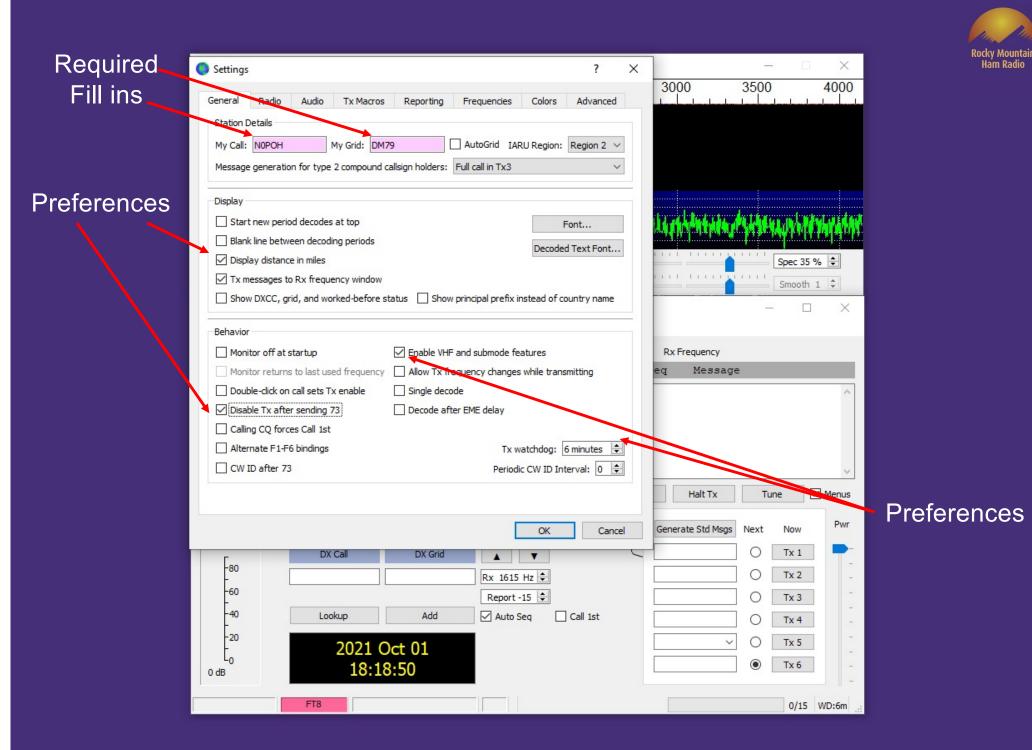


Let's set up the Software

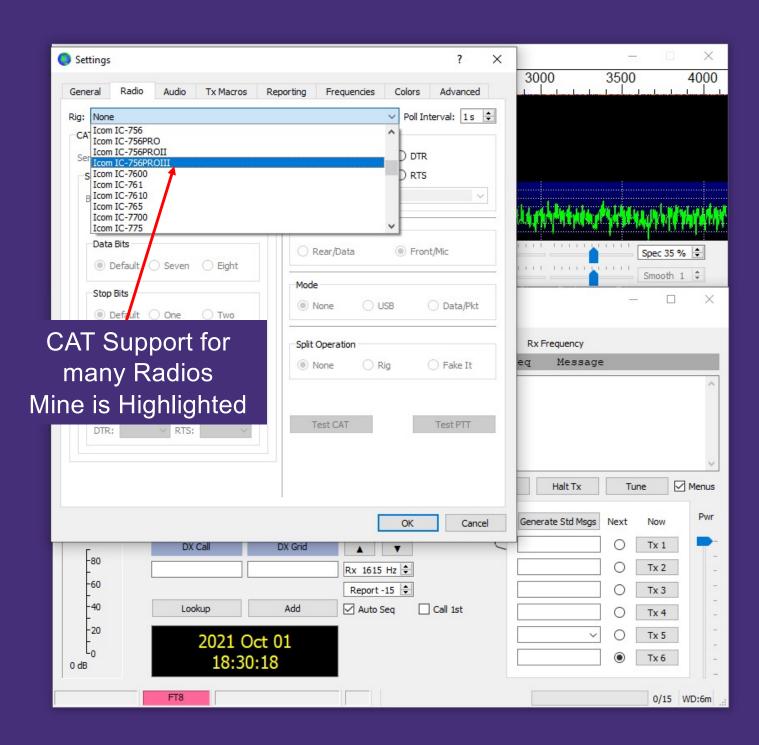


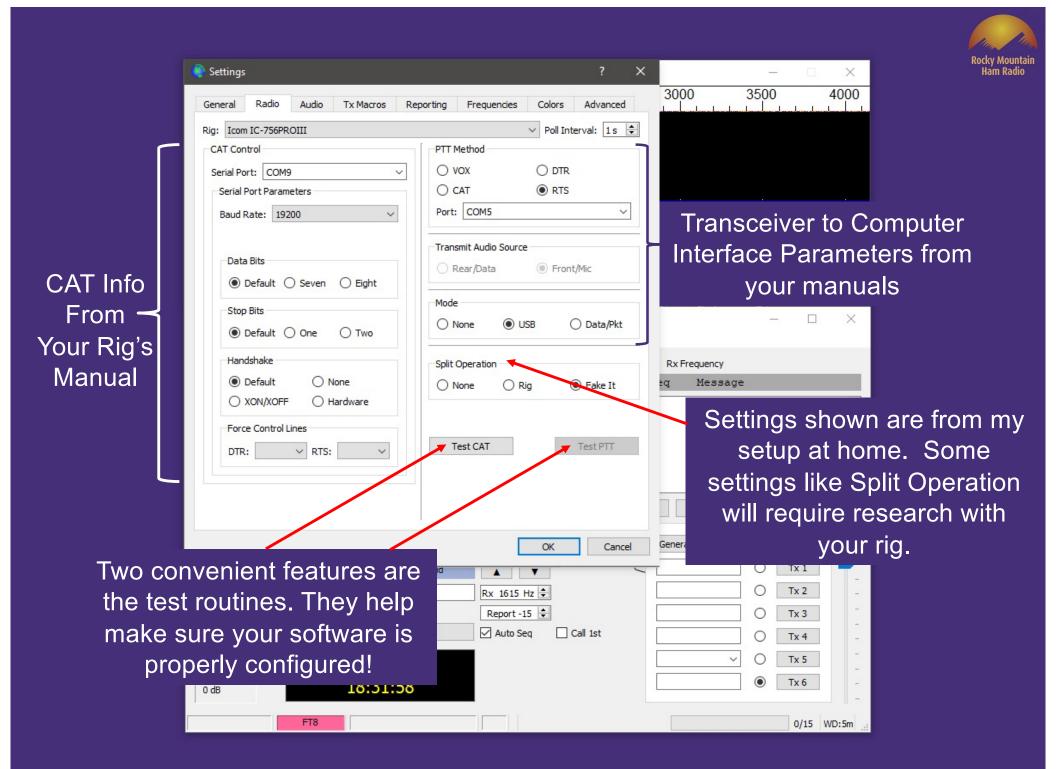


	🔘 WSJT-X - Wide Graph	- 🗆 X
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	Open next in directory UTC dB DT Freq Message Decode remaining files in directory Shift+F6	
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	Erase WSPR hashtable	
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	FT8	0/15 WD:6m



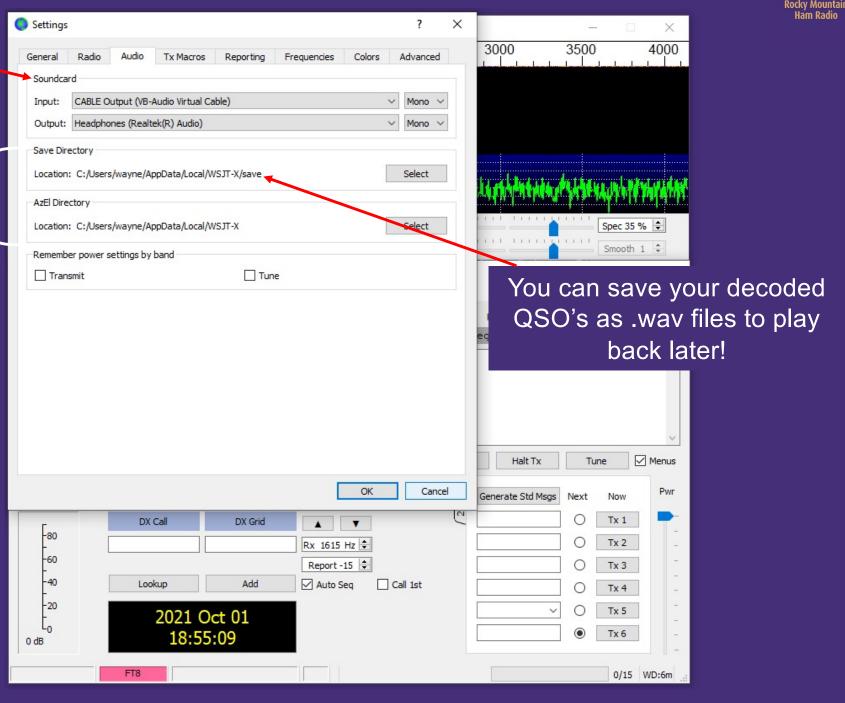


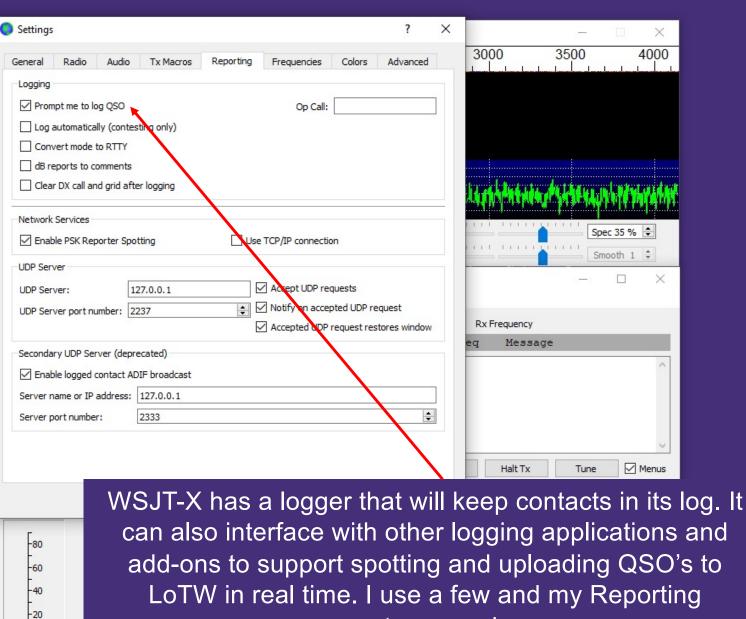






Default Directories⁻





Ln

0 dB

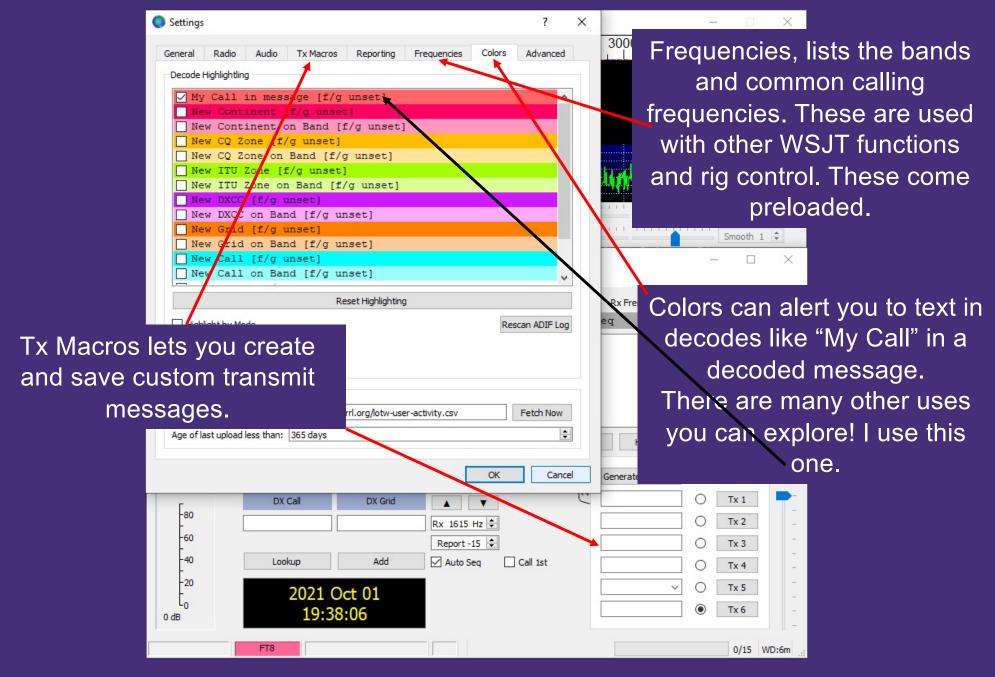
can also interface with other logging applications and add-ons to support spotting and uploading QSO's to LoTW in real time. I use a few and my Reporting parameters are shown CLIDNET

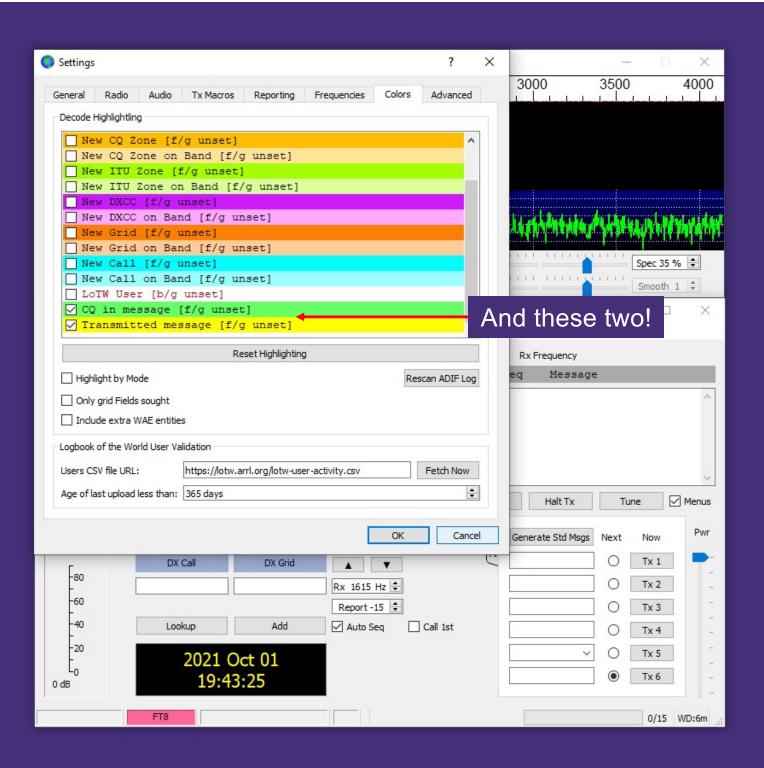
0/15 WD:6m

Ham Radio

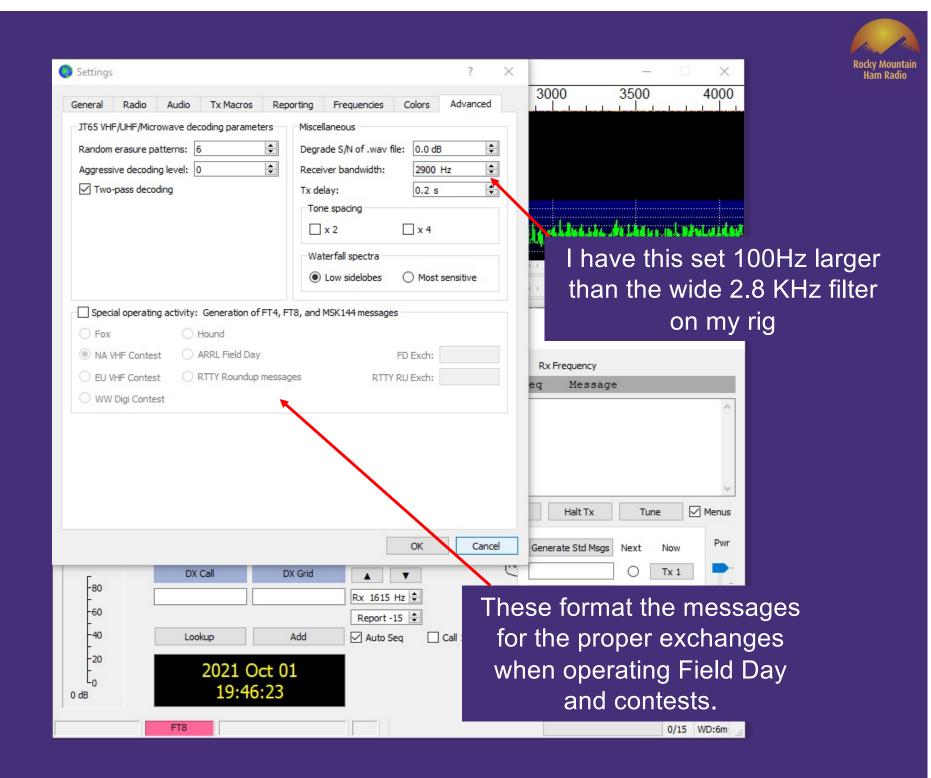
Let's look at the remaining setup tabs









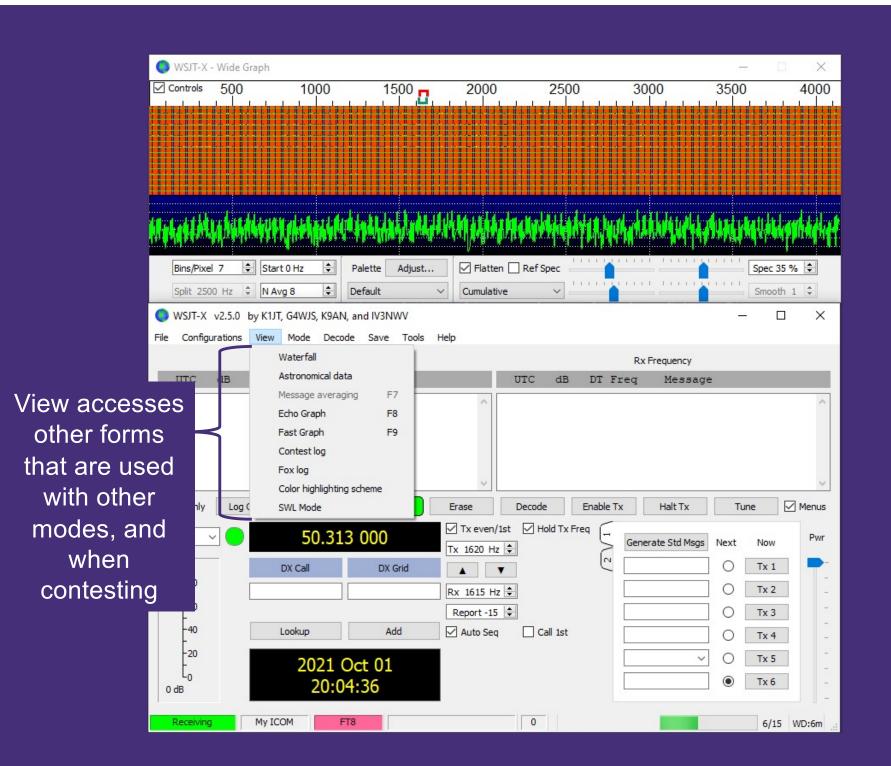


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O Fox	O Hound					
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O EU VHF Contest	RTTY Roundup messages	RTTY RU Exch:	eq			
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🔘 WSJT-X - Wid	de Graph							□ ×	Roc
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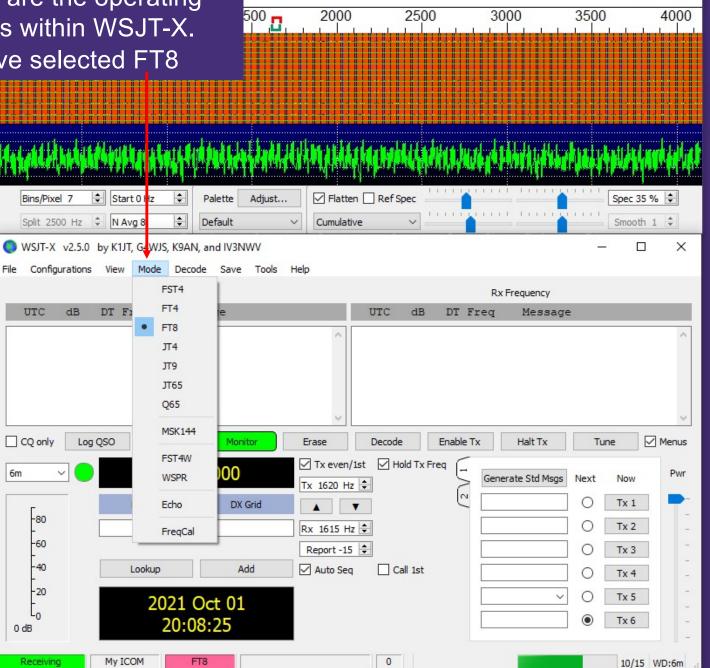






X

These are the operating modes within WSJT-X. We've selected FT8





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X

4000

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3500

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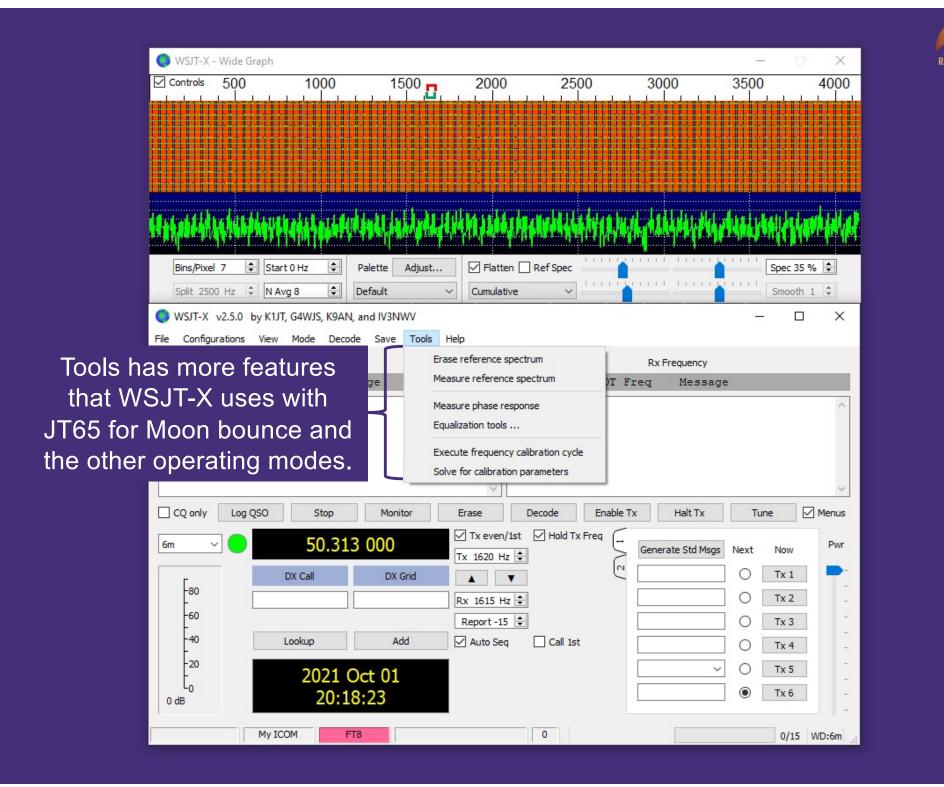
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Ham Radio

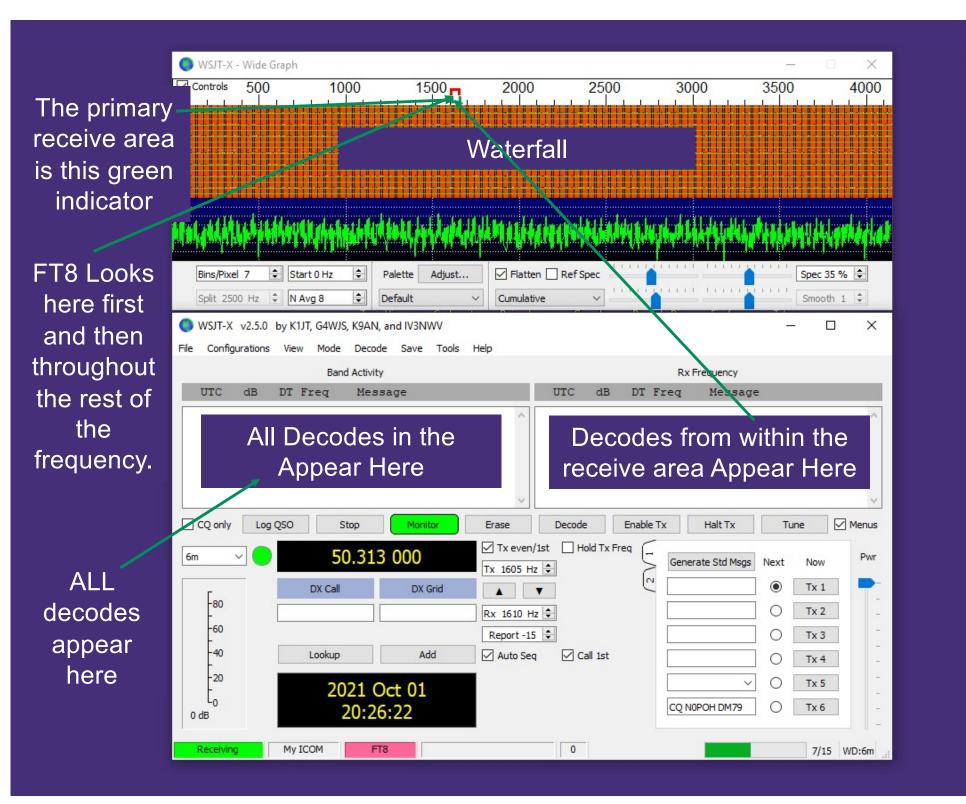
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Rocky Mountain Ham Radio

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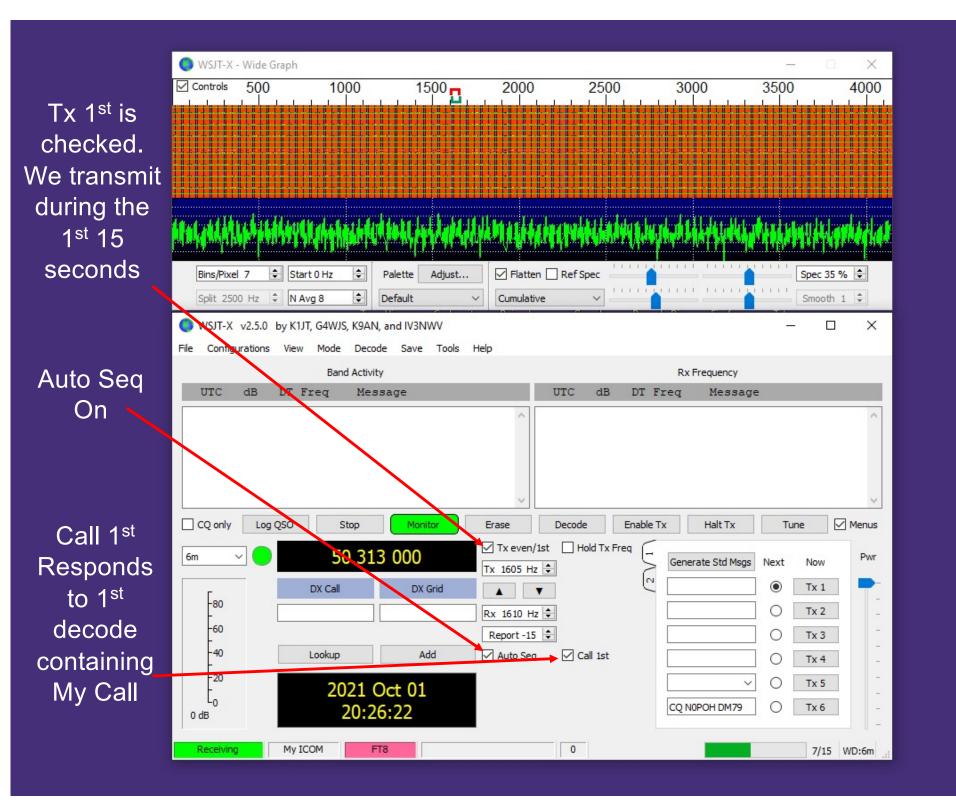




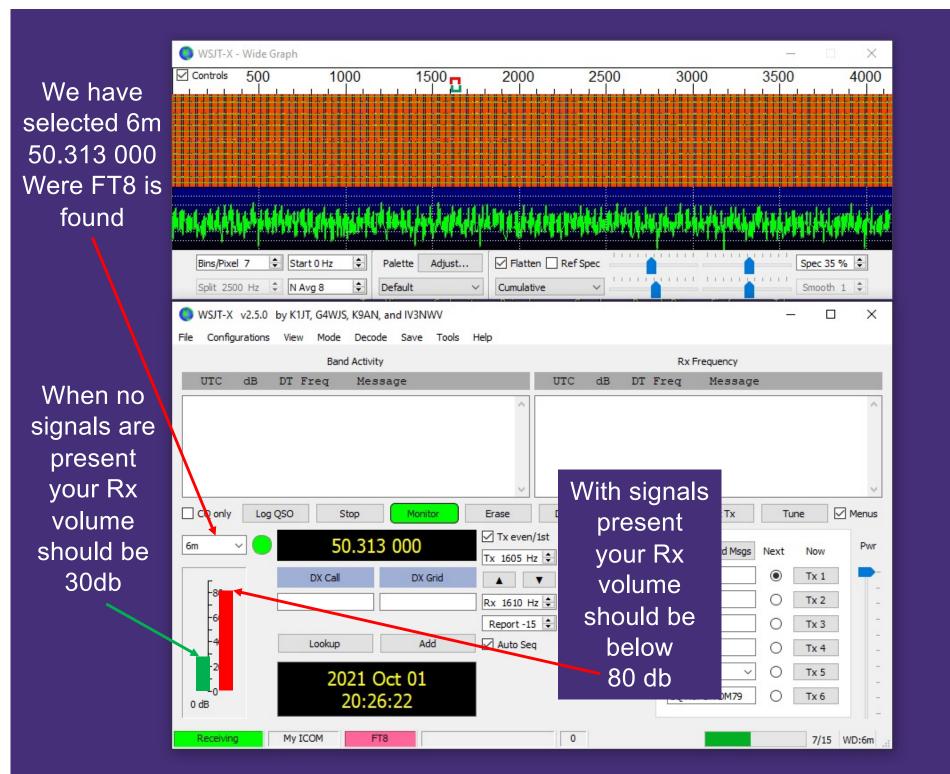


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Ham Radio



Rocky Mountain Ham Radio



Rocky Mounta Ham Radio

This is reenacted – Times & Frequencies won't match



🔘 WSJT-X - Wide Graph × 1500 Controls 500 1000 2000 2500 3000 3500 4000 We click transmit and Our transmitted messages send CQ show up in here. ^Astrempty program particularly particular and a standard and a standard program and a standard and a standard and a Start 0 Hz \$ Flatten Ref Spec Spec 35 % 🖨 Bins/Pixel 7 Palette Adjust... Split 2500 Hz N Avg 8 + Default V ~ Smooth 1 ≑ Cumulative WSJT-X v2.5.0 by K1JT, G4WJS, K9AN, and IV3NWV × Becode Save Tools File Configurations Mode Help View Band Activity **Rx Frequency** UTC dB DT Freq Message UTC dB Freq Message 212301 Tx 1605 ~ CQ NOPOH DM79 Log QSO Decode Halt Tx Menus CQ only Stop Monitor Erase Tune Tx even/1st Hold Tx Freq 50.313 000 6m Pwr Generate Std Msgs Next Now Tx 1605 Hz 🖨 N Tx 1 DX Call DX Grid C . -80 Tx 2 0 Rx 1610 Hz ≑ Report -15 🖨 Tx 3 0 The Radio button is ookup Add Auto Seq Call 1st \cap Tx 4 Checked for CQ 2021 Oct 01 ~ \bigcirc Tx 5 CO NOPOH DM79 21:23:05 Tx 6 0 dB Tx: CQ N0POH DM79 My ICOM FT8 5/15 WD:6m

This is reenacted – Times & Frequencies won't match

2500

3000

3500

2000

1500



 \times

4000

AB0YM/R responds to my CQ 🔘 WSJT-X - Wide Graph

Controls

500

1000

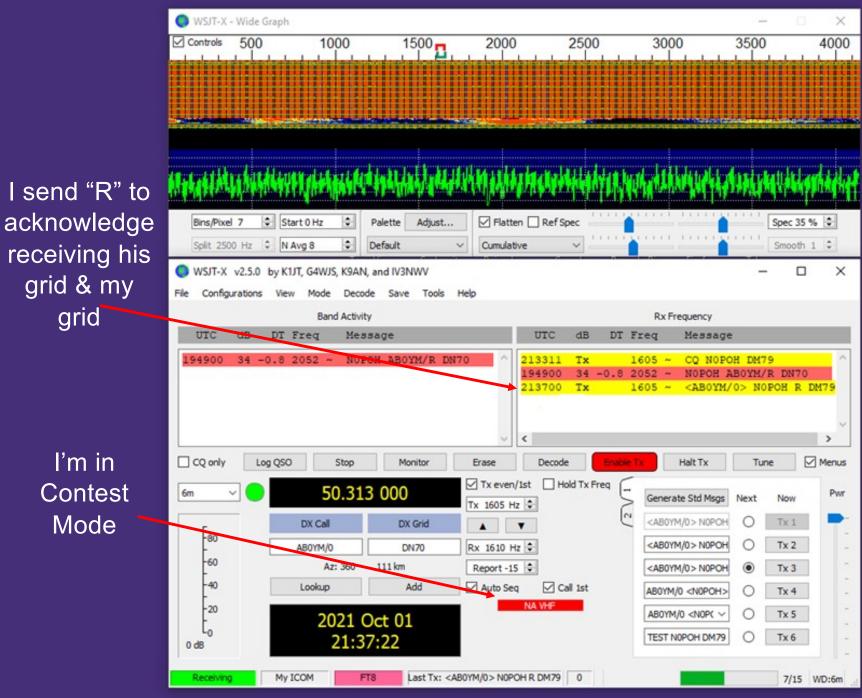
The decode appears in both windows

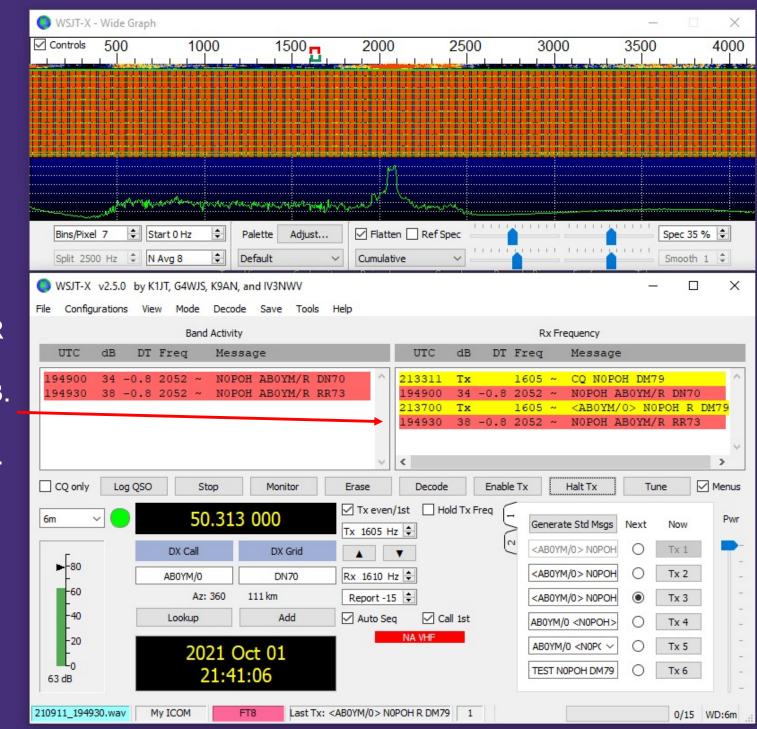
Auto Seq advances to the next response

Bins/Pixel 7 Start 0 Hz Palette Adjust Image: Adjust
Bins/Pixel 7 Start 0 Hz Palette Adjust Flatten Ref Spec Spec 35 % Spec 35 % Split 2500 Hz N Avg 8 Default Cumulative Smooth 1 Smooth 1 WSJT-X v2.5.0 by K1JT, G4WJS, K9AN, and IV3NWV — — — — — N Configurations View Mode Decode Save Tools Help Band Activity Rx Frequency UTC UTC B DT Freq Message 194900 34 -0.8 2052 ~ NOPOH ABOYM/R DN70 213311 Tx 1605 ~ CQ NOPOH DM79
Bins/Pixel 7 Start 0 Hz Palette Adjust Flatten Ref Spec Spec 35 % Spec 35 % Split 2500 Hz N Avg 8 Default Cumulative Smooth 1 Smooth 1 WSJT-X v2.5.0 by K1JT, G4WJS, K9AN, and IV3NWV — — — — — N Configurations View Mode Decode Save Tools Help Band Activity Rx Frequency UTC UTC B DT Freq Message 194900 34 -0.8 2052 ~ NOPOH ABOYM/R DN70 213311 Tx 1605 ~ CQ NOPOH DM79
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Band Activity Rx Frequency UTC B DT Freq Message UTC B DT Freq Message 194900 34 -0.8 2052 ~ NOPOH ABOYM/R DN70 213311 Tx 1605 ~ CQ NOPOH DM79
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194900 34 -0.8 2052 ~ NOPOH ABOYM/R DN70 ^ 213311 Tx 1605 ~ CQ NOPOH DM79 ^
194900 54 -0.8 2052 ~ NOPOH ABOIM/R DN/0 215511 1X 1805 ~ CO NOPOH DM/9
✓
CQ only Log QSO Stop Monitor Erase Decode Enable Tx Halt Tx Tune Menus
6m 50.313 000
Tx 1605 Hz -
AB0YM/0 DN70 Rx 1610 Hz <ab0ym 0=""> N0POH Tx 2 - -60 Az; 360 111 km Report -15 <ab0ym 0=""> N0POH Tx 3 -</ab0ym></ab0ym>
200 2021 Oct 01 O Tx 5
Сорон DM79 О Тх 6 - Сталана С

This is reenacted – Times & Frequencies won't match







Rocky Mountain

Ham Radio

AB0YM/R responds with RR73. QSO complete.



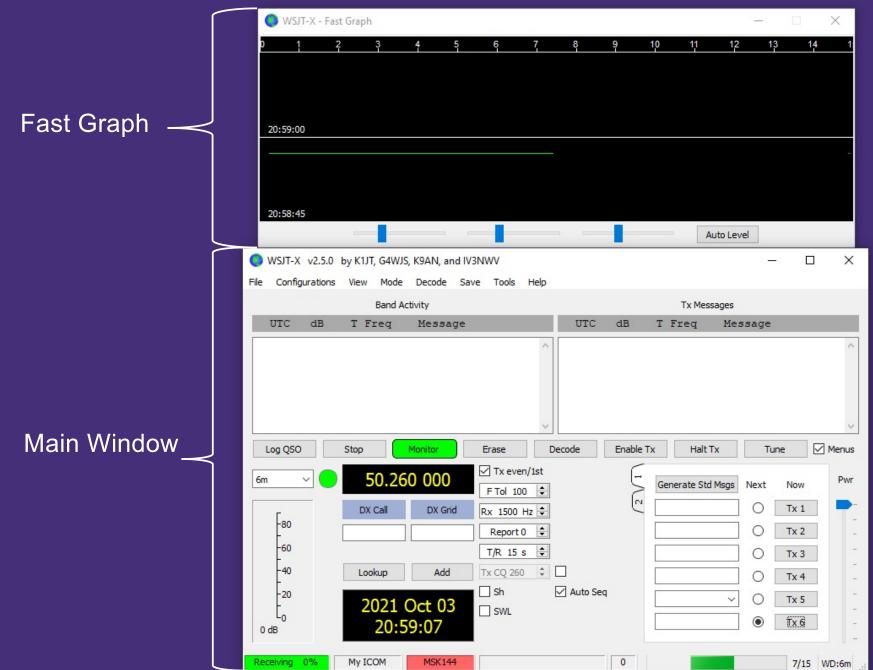
We've covered WSJT-X's FT8 mode.

This mode is also very popular on the HF bands.



Time to look at WSJT-X's MSK144 Mode

Rocky Mountain Ham Radio

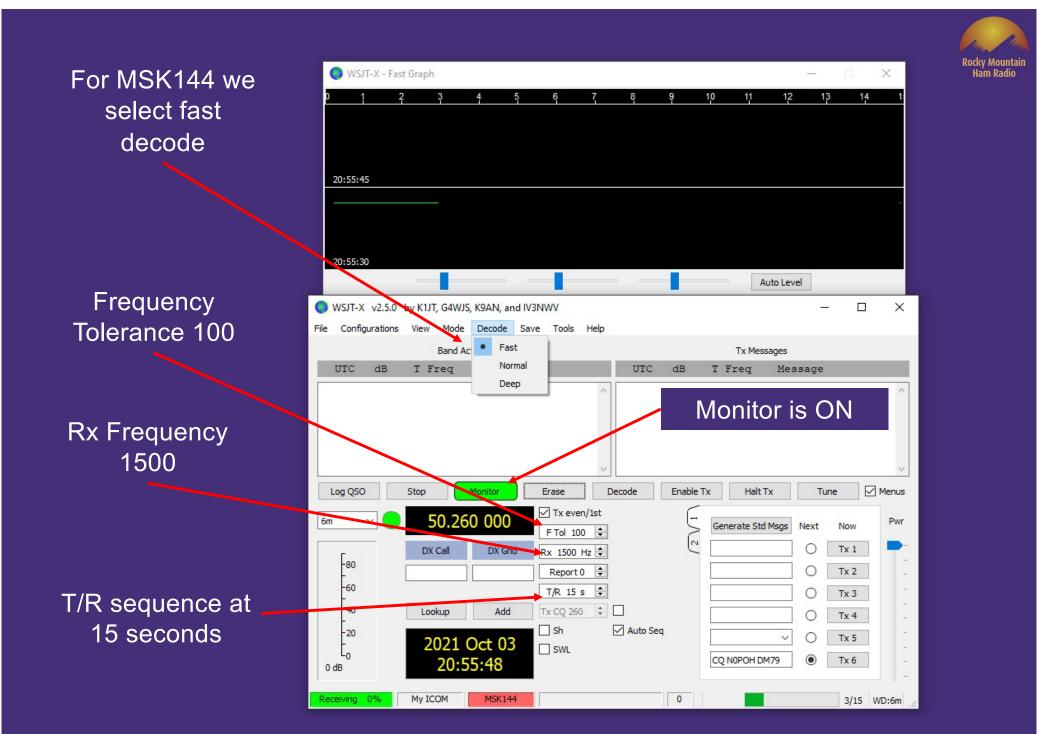


We have selected 6m 50.260 000 the MSK144 calling frequency

	🔵 WSJT-X - Fa	ast Graph										×
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	20:58:45											
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	● WSJT-X v2.5.0									(C .	- 0	×
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	6m ~	50.2	60 000	I TX FTC	even/1st ol 100 🗘 500 Hz 🗘 port 0 🗘]	[]	ſx	Halt Tx	s Next	Now	
	6m ~	DX Call	60 000 DX Gr	id Rx 1 FTC	s even/1st bl 100 \$ 500 Hz \$ port 0 \$ 15 s \$]]]	[]	ſx	Halt Tx	Next	Now Tx 1	
	6m ~	50.2	60 000	id Rx 1 Reg T/R Tx CC	even/1st 100 ÷ 500 Hz ÷ port 0 ÷ 15 s ÷ 2 260 ÷		/2/1	ſx	Halt Tx	s Next	Now Tx 1 Tx 2 Tx 3 Tx 4	
	6m -80 -60 -40 -20	50.2 DX Call Lookup 2021	60 000 DX Gr Add Oct 03	id Rx 1 Rx 1 T/R Tx CC	even/1st 100 \$ 500 Hz \$ port 0 \$ 15 s \$ 2 260 \$]]]	/2/1	ſx	Halt Tx te Std Msg	s Next 0 0 0 0 0 0 0 0 0	Now Tx 1 Tx 2 Tx 3 Tx 4 Tx 5	
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ing th	6m ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	50.2 DX Call Lookup 2021 20:	60 000 DX Gr Add Oct 03	id Rx 1 Reg T/R Tx CC B S SN	even/1st 100 \$ 500 Hz \$ port 0 \$ 15 s \$ 2 260 \$		/2/1	ſx	Halt Tx te Std Msg	s Next 0 0 0 0 0 0 0 0 0	Now Tx 1 Tx 2 Tx 3 Tx 4 Tx 5 Tx 6	

Rocky Mountain Ham Radio

We are still using the M ICOM Configuration





🔘 WSJT-X - Fast Graph × 14 10 11 12 13 2 6 21:49:45 21:49:30 Auto Level WSJT-X v2.5.0 by K1JT, G4WJS, K9AN, and IV3NWV X File View Mode Decode Save Tools Help Configurations Band Activity Tx Messages dB Message UTC dB Message UTC T Freq T Freq We enter EM05 in DX Grid Decode Enable Tx Menus Log QSO Monito Erase Halt Tx Tune Stop Tx even/1st 50,260,000 6m Pwr Generate Std Msgs Next Now F Tol 100 🖨 KN4JX/R N0POH DM Tx 1 DX Call DX Grid Rx 1500 Hz 🖨 \bigcirc -80 Tx 2 Report 0 ≑ KN4JX/R N0POH +0 О KN4JX/R EM05 -60 T/R 15 s ≑ Az: 128 A: 144 El: 13 430 mi KN4JX/R N0POH R+ \cap Tx 3 -40 Tx CQ 260 🗘 🗌 Lookup Add KN4JX/R N0POH RRI Tx 4 \cap Sh Auto Seq -20 KN4JX/R NOPOH ~ Tx 5 2021 Oct 03 SWL Ln CQ NOP DH DM79 \bigcirc Tx 6 21:49:46 0 dB My ICOM 0 MSK144 Receiving 0% 1/15 WD:6m

We enter KN4JX/R in DX Call

Distance 430mi & AZ: Bearing are calculated from My Grid: DM79

Rocky Mountain Ham Radio

A meteor scatter audio burst is detected

The audio is decoded as KN0JX/R's CQ

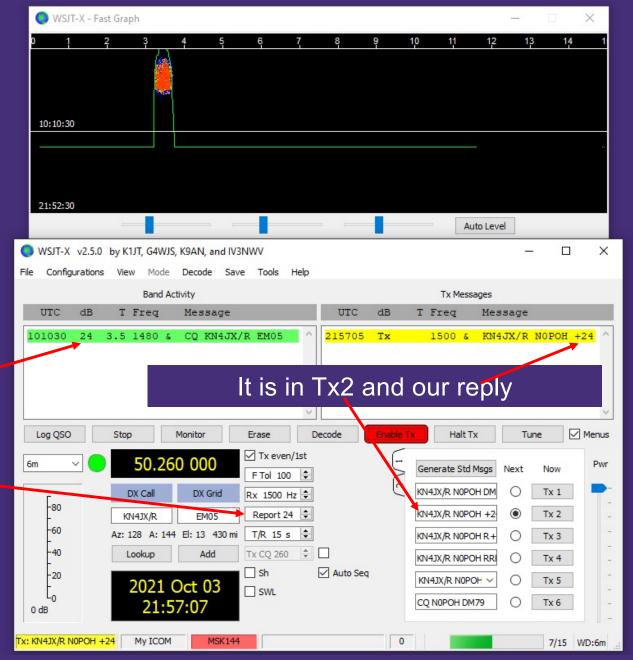
🔵 WSJT-X - Fas	st Graph						1010	
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	Sec.							
10:10:30								
21:52:30						Auto Le	vel	
WSJT-X v2.5.0	by K1JT G4WJS	K9AN and	IV3NWV		-		_	
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101030 24	3.5 1480 &	CQ KN4J	JX/R EM05					^
				~				~
Log QSO	Stop	Monitor	Erase	Decode	Enable T	x Halt Tx	Tune	Menus
6m ~	50.26	000 00	Tx eve		-	Generate Std Msgs	Next	Now
_	DX Call	DX Grid	F Tol 10	Longer Land	5	KN4JX/R NOPOH DI		Tx 1
-80	KN4JX/R	EM05	Report			KN4JX/R NOPOH +		
-60	Az: 128 A: 144	4 El: 13 430	mi T/R 15	s 🜲		KN4JX/R N0POH R	+ 0	Тх 3 -
-40	Lookup	Add	Tx CQ 260			KN4JX/R NOPOH RE	u o 🗌	
-20	2021 (Oct 03	Sh	Auto Se	eq	KN4JX/R NOPOH ~	0	Tx 5
L _O			L SVVL			CQ N0PDH DM79		Tx 6 -
UUD	21:5	3:07						
210913_101030.wav	21:5 My ICOM	MSK144			0			0/15 WD:6m

Rocky Mountain Ham Radio

Time for us to start sending our reply!

Here is the signal strength in db

The software stores it here in report or it can be manually entered





X

14

×

Menus

Pwr

13

12

Message

KN4JX/R N0POH +24

KN4JX/R N0POH +24

KN4JX/R N0POH +24

Tune

Now

Tx 1

Tx 2

Tx 3

Tx 4

Tx 5

Tx 6

13/15 WD:6m

Next

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🔘 WSJT-X - Fast Graph 10 11 KN4JX/R was CQ'ing 2nd 22:03:45 22:03:32 Auto Level WSJT-X v2.5.0 by K1JT, G4WJS, K9AN, and IV3NWV File View Mode Decode Save Tools Help Configurations Tx Messages Band Activity UTC dB T Freq Message UTC dB T Freq 24 3.5 1480 & CQ KN4JX/R EM05 Тx 101030 5705 1500 & 220300 Tx 1500 & 220330 Tx 1500 & We are Tx'ing 1st Log OSO Stop Monitor Erase Decode Halt Tx and will be doing Tx even/1st 50.260 000 6m Generate Std Msos so until we see F Tol 100 🖨 N KN4JX/R NOPOH DM DX Call DX Grid Rx 1500 Hz 🖨 something from -80 Report 24 🖨 KN4JX/R N0POH +2 EM05 KN4JX/R -60 T/R 15 s ≑ Az: 128 A: 144 El: 13 430 mi KN4JX/R N0POH R+ him -40 Tx CO 260 📫 🗌 Lookup Add KN4JX/R N0POH RRI Sh Auto Seq -20 KN4JX/R N0POH 2021 Oct 03 SWL Ln CQ N0POH DM79 22:03:58 0 dB

My ICOM

Receiving 0%

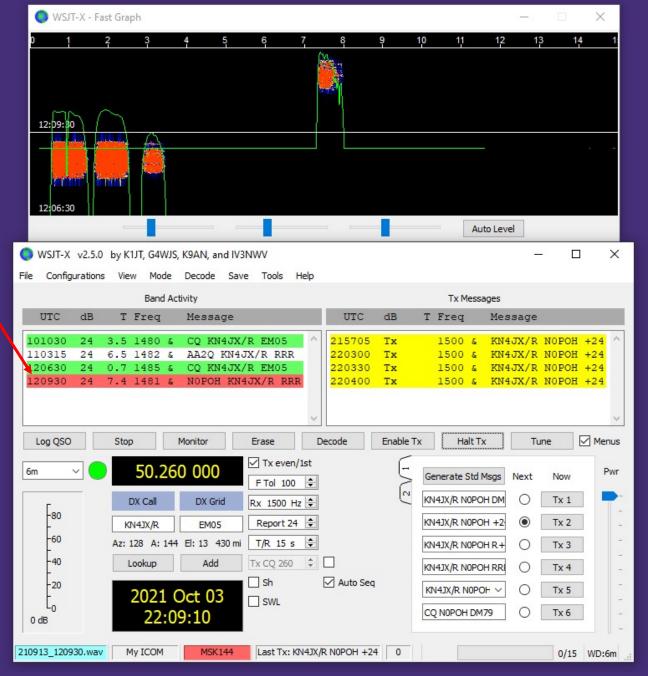
MSK144

Last Tx: KN4JX/R N0POH +24

0

A few decodes between and finally KN4JX/R acknowledges me with RRR

QSO Complete and a new Grid is in the Log!



Rocky Mountain Ham Radio



We've covered WSJT-X's MSK144 mode.

This is now the most popular mode for meteor scatter QSO's on the VHF+ Bands

Other Useful Add ins

JT Alert

- Provides audio, visual and SMS alerts based on decoded Callsigns within WSJT-X.
- Alerts by Wanted Callsign. Prefix, Grid, State, Provence, DXCC and more
- Automatic logging to these log types when QSO is logged in WSJT-X, DXLab, DXKeeper, ACLog, Log4OM V1, Log4OM V2, HRD Log V5/V6, Standard ADIF file
- Various Web Services Supported Online XML Callsign Database lookup. QRZ.com (paid) and HamQTH (free) Upload logged QSO to Online Logbooks. QRZ.com, eQSL.cc, ClubLog.org and HRDLog.net Upload all decoded Callsigns with frequency and Signal report to HamSpots.net
- <u>https://hamapps.com/JTAlert/</u>

Grid Tracker

- Highly advanced mapping of real-time and historical contacts
- Many overlays are supported, such as Greyline, real-time award tracking, lightning strikes, Moon position and PSK-Reporter Reception Reports (Spots). Detailed State, Grid and County information is instantly accessible from the map!
- <u>https://gridtracker.org/grid-tracker/</u>

Resources

WSJTX Website https://physics.princeton.edu/pulsar/k1jt/wsjtx.html

Slack-VHF Chat https://join.slack.com/t/vhf-chat/shared_invite/zt-a8qh72u9-PVVYUdMiSyuswPGAtIti9w_

splat-65 (JT65, Q65) Terrestrial Link https://www.chris.org/cgi-bin/jt65talk

Ping Jockey Central https://www.pingjockey.net/cgi-bin/pingtalk

Front Range 6 Meter Group https://groups.io/g/FrontRange6Meter Slack VHF Chat Channels # 1-vhf-ms-es-tropo

- 3-rover-raregrid
- 4-all-topics
- 5-eme





Questions?