



CENTRAL TEXAS DX AND CONTEST CLUB

October 2, 2018 rev5

Club Meeting Presentation



FT*8

Why, What & How



Steve Franke, K9AN
Joe Taylor, K1JT

Remote In Marquette, MI

Presented by

Gene Hinkle, K5PA

Tom Parish, KB5RF



Marquette, MI

But Why?



Gene, K5PA, Leander, TX



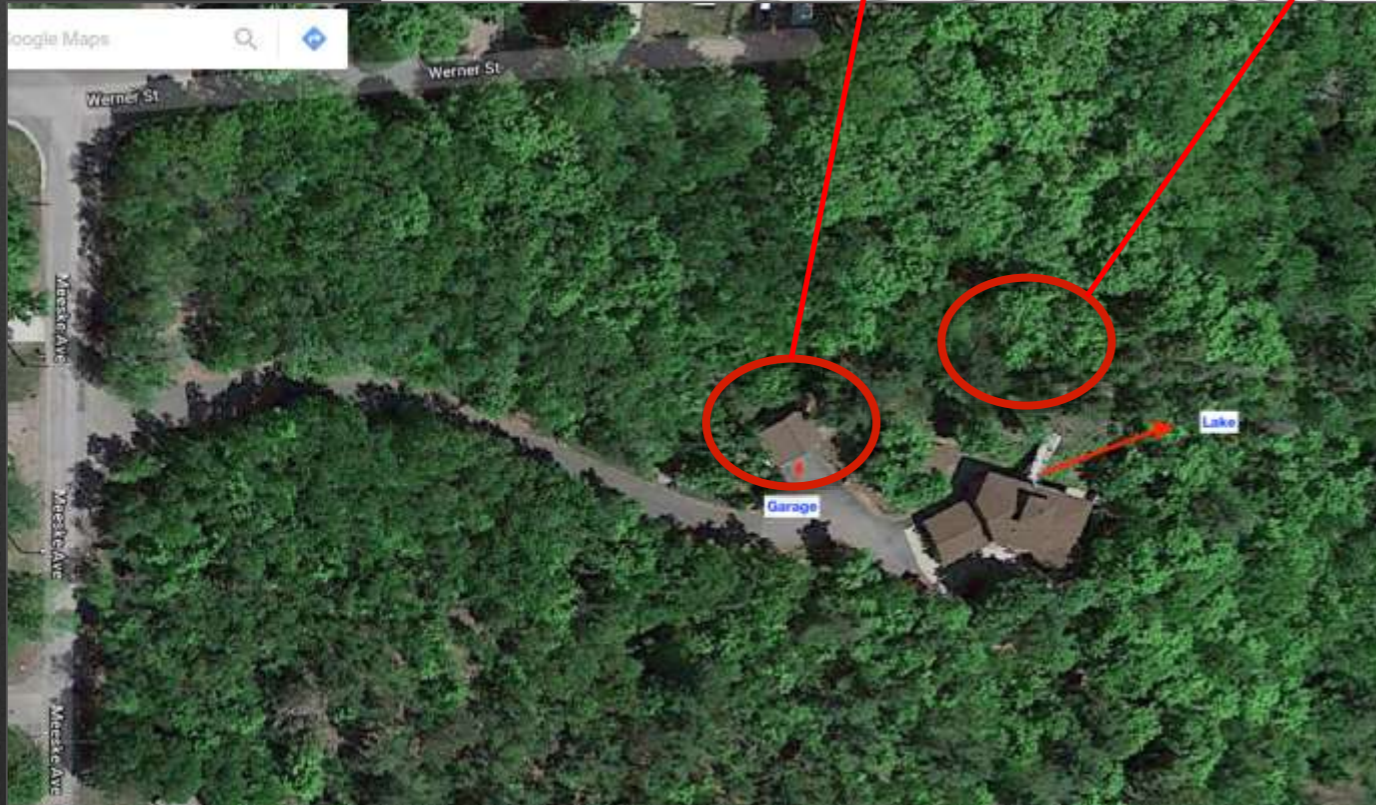
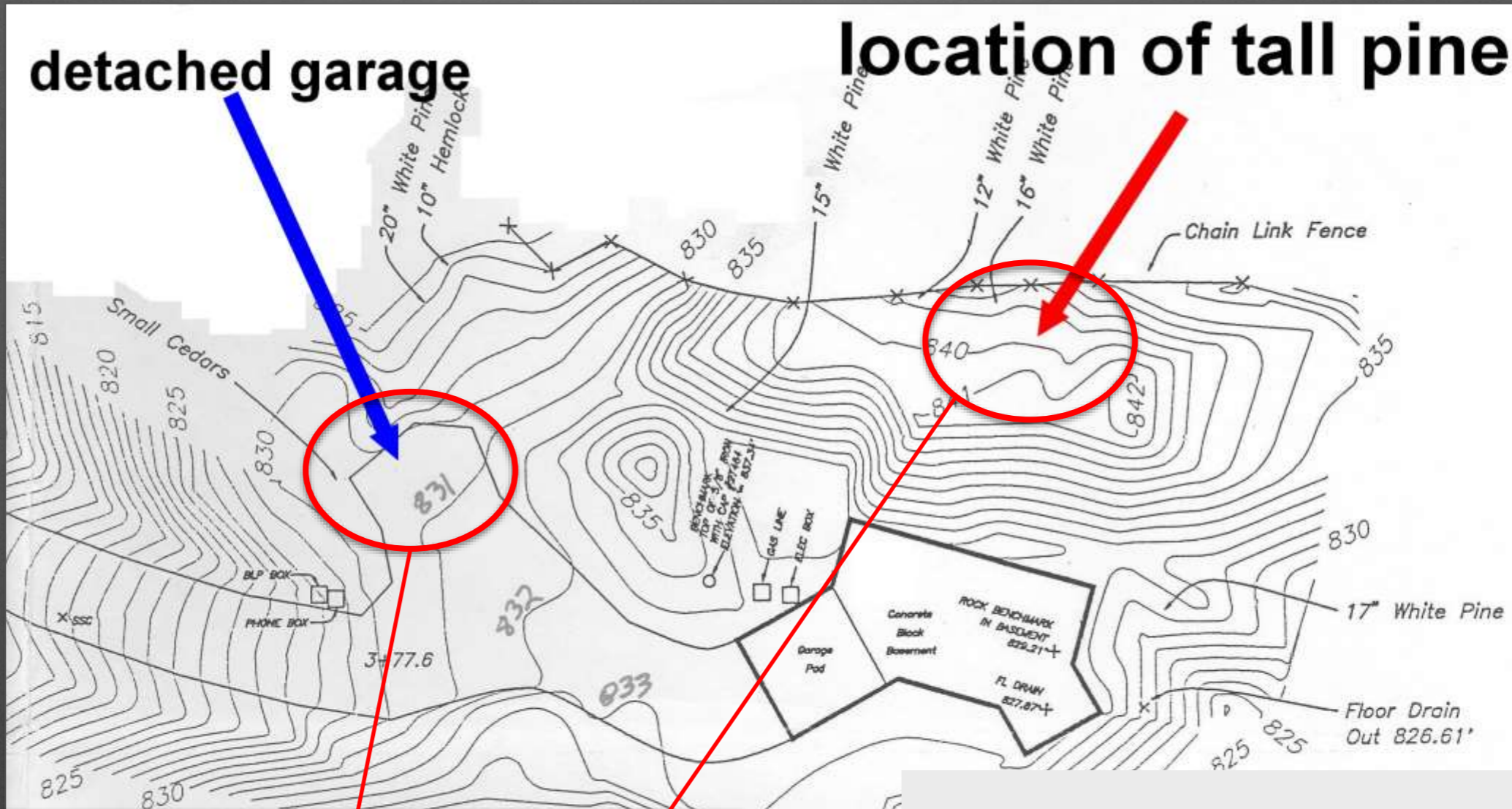
Tom, KB5RF, Austin, TX
Tom, Marquette, MI

Marquette, Michigan



detached garage

location of tall pine tree



Topo Survey

Topographic Survey

End Support



Marquette,
MI

Tom P. & Tom T.
Standing on
Garage
Rooftop

End Support

picture taken before pulley was added



Egg Insulator





- Perimeter Ground Wire
- Multi-point Ground Rods
- All Bonded to Power Mains Grounding Rods



Alpha Delta ATT3G50U
Surge Protectors
(200 W RF)





It all started with Remote Ham Software RCForb Client / Server

Austin, TX

RCForb Client by RemoteHams.com

Audio Control Devices Virtual Devices Layout

SPKR Speaker for IC7... VOL ON OFF CONFIG 300ms CONFIG 800ms

MIC Mic IC7300 RX A... MIC

Audio Devices Audio Levels Buffering (Latency) VOX (Local)

Enter text to search...

Orb...	Remote Station	Radio	City	State	Country
127...	KB5RF, a Marquette MTA Club Station	Ic-7300	Marq...	MI	United St...
8039	K5PA - an MTA Club Station	Ic-756 P...	Leander	TX	United St...
-1	KB5RF_MTA_Internal Network	Unknown	Unkn...	Unkn...	Unknown
122...	K5KNM	TS-590	Rio R...	NM	USA
8993	****KJ4TN - ICOM-7300 - BIRMINGHAM, AL - BANDS: 10-80----NO ...	Ic-7300	Birmin...	AL	United St...
134...	K8EA-Irondale AL Icom 7300 80/40 dipole; 20-10m 3el yaqi @ 60' (...)	Ic-7300	Irond...	AL	United St...
9067	K8UGB-Tony_ N8KCZ -Debi	Ic-7300	New ...	Berrie...	United St...
125...	N8KCZ (Debi)_K8UGB (Tony)	FT-991A	New ...	Berrie...	United St...
4109	W6RYO TS-870	TS-870	Alta L...	CA	United St...

Online: 227 | RX: 61 | TX: 166 | Clubs: 142 | Non-Clubs: 85 | Synchronized @ 5:26 PM

Chats

Memories Debug CW

Marquette, MI

...Donate

```

RemoteHams.com...
d KMTronics Switch
RemoteHams.com
on 0.0.0.0:4525

o Radio): Speaker for IC7300 XMIT Audio (
o from Radio): Mic IC7300 RX Audio (2- USB Aud
dMaxDelay: 300ms
0.0.0.0:4524
rted on 0.0.0.0:843
ompatible Router...

```

```

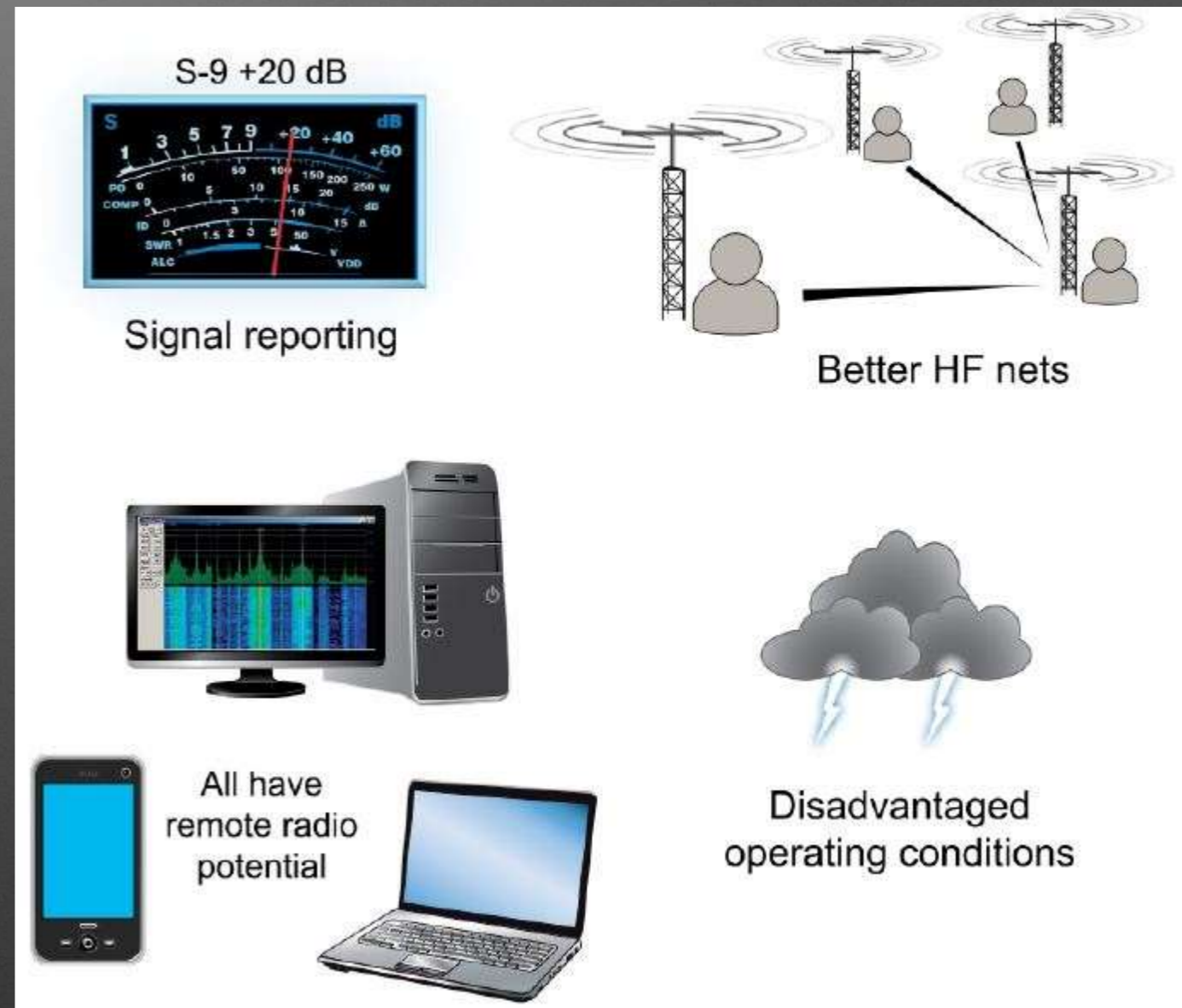
9/18/2018 5:24:43 PM | Synchronized with RemoteHams.com
9/18/2018 5:25:17 PM | Info: New Connection->136.62.8.171:50189 (Guest-94)
9/18/2018 5:25:17 PM | Info: VoipServer UserIn: 136.62.8.171:50190
9/18/2018 5:25:21 PM | Info: Checking login request for kb5rf from 136.62.8.171
9/18/2018 5:25:21 PM | Info: Login cache expired, checking via RemoteHams.com...
9/18/2018 5:25:21 PM | Info: Login-> 136.62.8.171:50189 (Guest-94) --> kb5rf

```

Connected Users: 1 | Pending TX: 0 | Pending Club: 0 | TX Audio Buffer: 0 ms

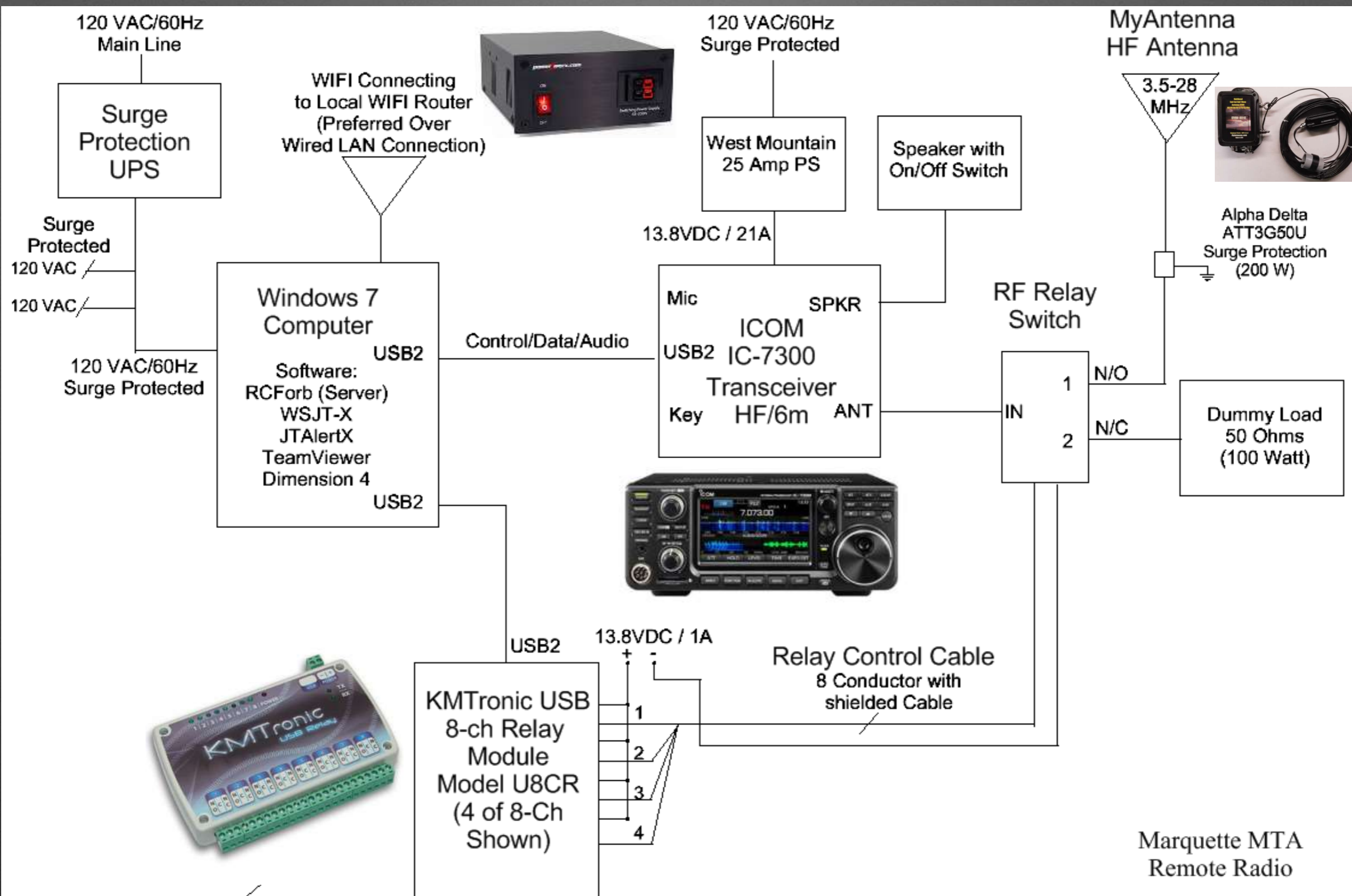
How We Use Remotes

- Signal Reporting Comparisons
- Better Net Experience
- Multiple Platforms
- Disadvantaged Conditions



Source: QST, Hinkle, July 2018, p. 66

System Block Diagram



KMTronic USB 8 Channel Relay Board, RS232 Serial controlled MICROCHIP CDC
https://www.ebay.com/usr/kmtronic2010?ul_noapp=true

Marquette MTA
 Remote Radio

RemoteHamsDrawing_5

rev 10/1/2018



Remote Protection Guidelines

- **Disconnect**, **Disconnect**, **Disconnect**

- Antenna Coax (Whole Coax)
- Ethernet (Best to Use WiFi Radio)
- 120 VAC Power But Also Surge Protect
- Computer Power / USB / Ethernet



Credit noaa.gov

- **ICOM** Service Center (Matt in Michigan, paraphrasing)

- With newer radios, **Big** uptick in number of radios damaged by electrical disturbances and storms !

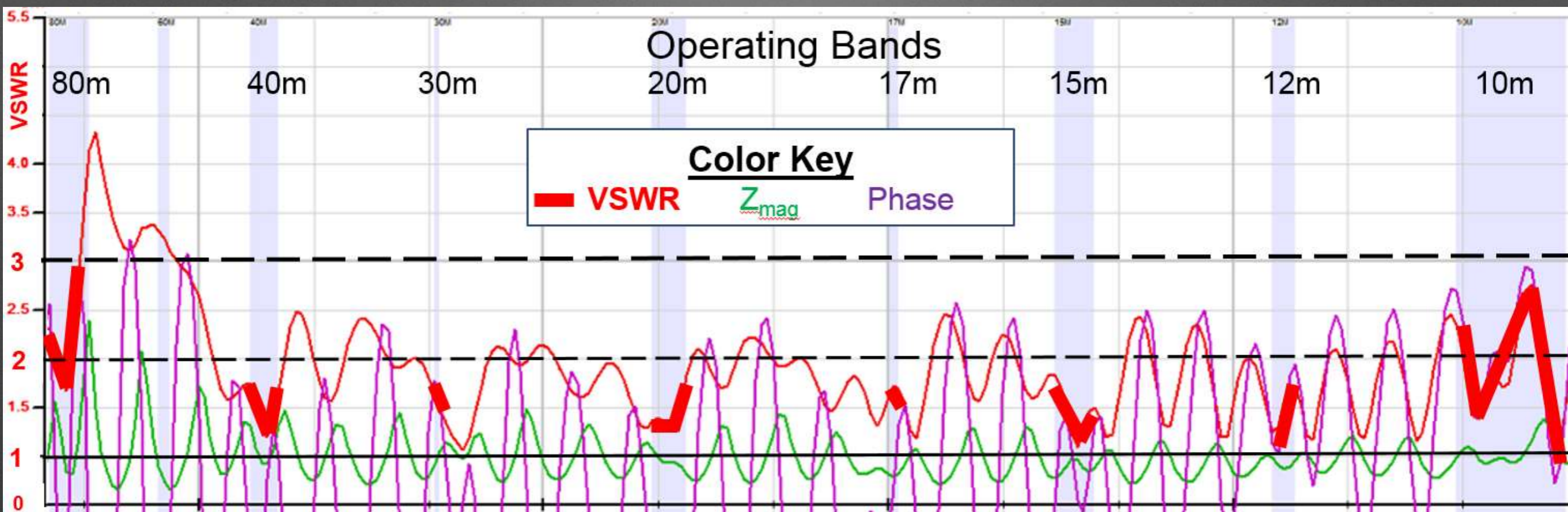
Antenna Selection

- Multiple band (80-10m) ops
- Good impedance match all bands
- Simple & easy - myantennas.com



End Fed Half Wave
EFHW-8010-1k

VNA Plots, EFHW 80-10m

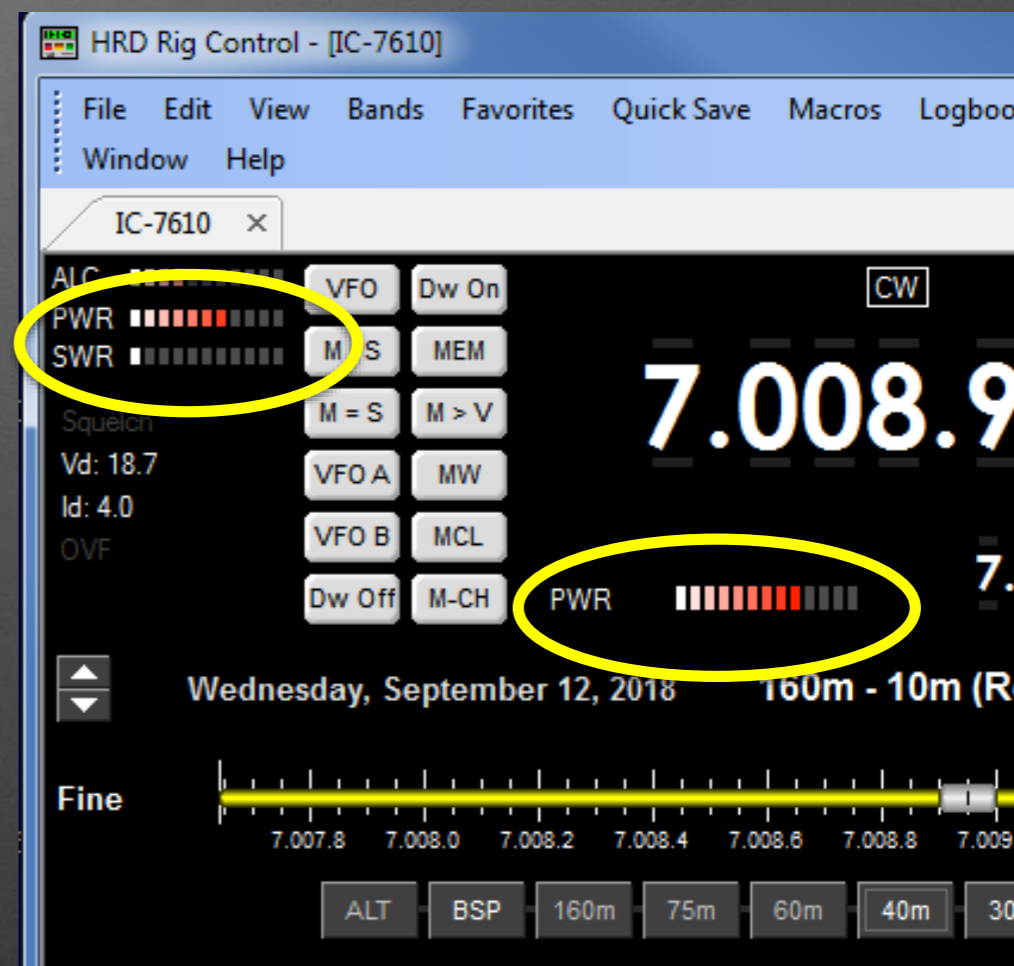


- **Source:** K5PA QTH, Vector Network Analyzer Plots, Array Solutions Model AIM 4170D, Software Version AIM 900B



Verifying Remote Operation

- How do we know the transmitter is operating correctly?
 - Listening to signal on-the-air in SSB, CW, Digital
 - Ham Radio Deluxe - Power & VSWR monitor
 - Keeping controls within known constraints
- May have to go outside WSJTX program to verify operation





How Do We Remote FT8?

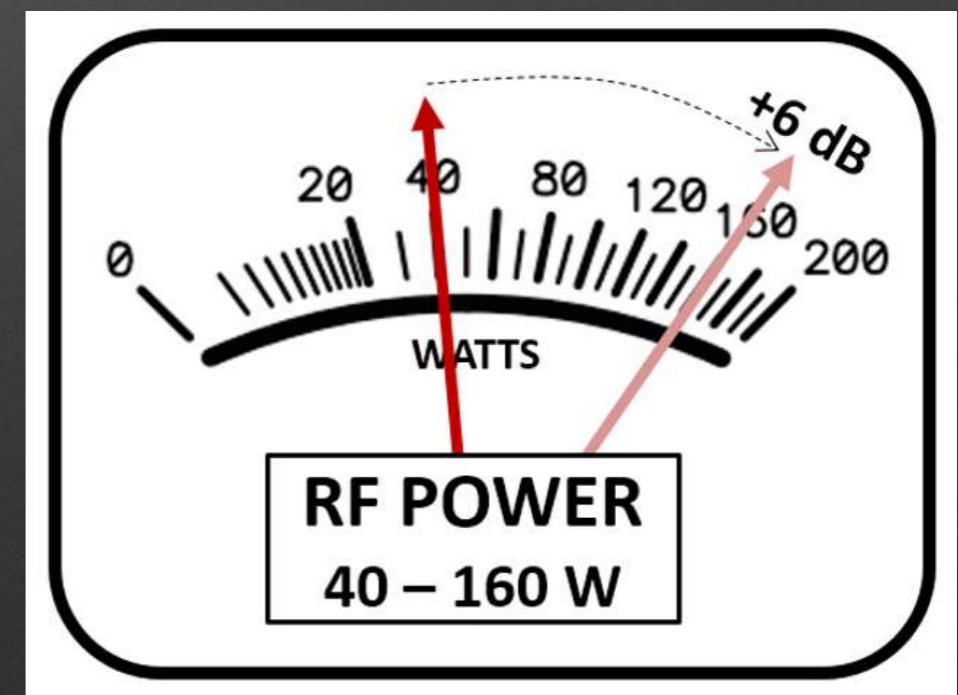
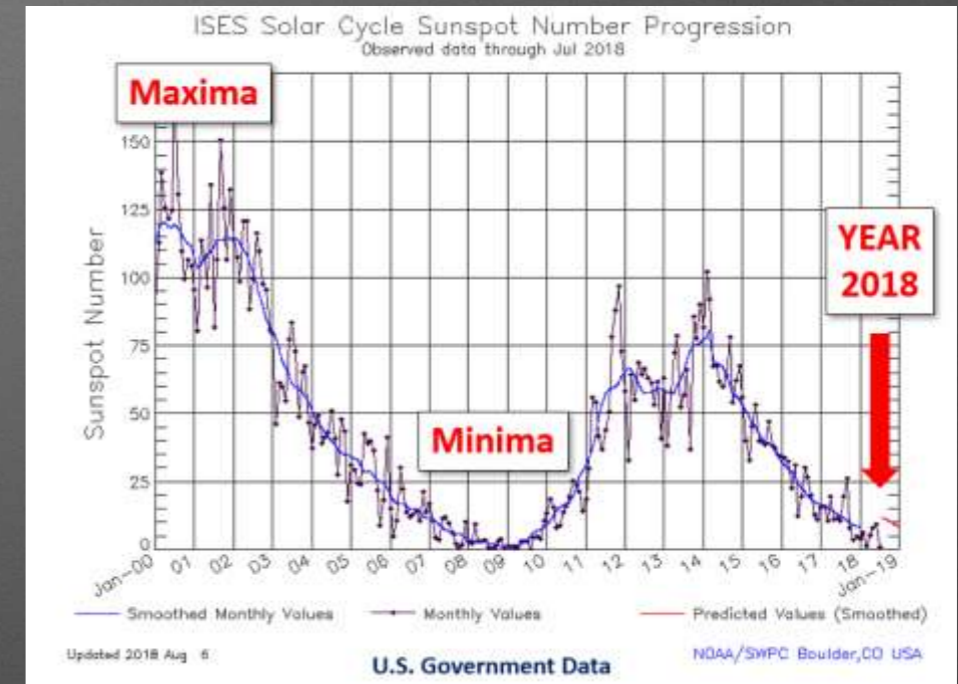


- TeamViewer is the **Secret Sauce** to Making Remote FT8 Possible
<https://www.teamviewer.us/>
- TeamViewer is a Screen Sharing Program (Free for non-Commercial Use)
- Easy, Secure Login to Remote Computers
- FT8 is Mostly Graphical User Interfaces with Few Point and Clicks Needed to Make QSOs
- We Run TeamViewer on Remote Computer and Login from Our Computer
 - We can then Control Remote Computer as if We are Sitting in Front of the Screen
 - Open/Close Programs & Control GUIs of Remote Computer – GREAT solution



WSJT-X FT8

- **G**reatest **M**ode in **H**am **R**adio **E**ver?
- Low Sun Spot Cycle Capable
- Very Popular World Wide
- Easy Setup with Newer Radios
- Semi-Automatic Features Once Initialize QSO
 - Select QSO Partner
 - Wait for Log Window... and Log
- **L**ow **S**NR not **L**ow **P**ower





WSJT-X FT8 (v1.9.1 GA)

- High Use of LoTW by World Wide Ham Community
- QSO Confirmation Rate at K5PA, 12 months Starting Aug. 2017
 - USA, 72%, Non USA/Canada, 60%

LOG ANALYSIS - K5PA			
LoTW CONFIRMATION SUCCESS RATE			
	Total Through 8/4/2018 (12 Months)	LoTW Confirmed	LoTW Percentage Success
Total Contacts	6363	4568	72%
USA	5173	3787	73%
CANADA	157	157	100%
NON - (USA+CANADA)	1032	624	60%
NON - USA	1189	781	66%

- Multi-Operator Using Multi-Logs Great for Remotes
- DXpedition **Fox** & **Hound** Mode is Great *Fun*





What is FT8?

- **External** View of Signal Waveform
 - 8-Tone FSK, 6.25 Hz Spacing, 50 Hz Bandwidth, Constant Envelope
 - 6.25 Baud (3-bits encoded per tone frequency)
 - Transmit Interval = 15 Sec, Receive Interval = 15 Sec
 - RF Transmission 12.6 Sec for Duty Cycle 12.6/30 or 42%
 - Performance Signal-to-Noise Ratio (SNR) Decode Down to -24 dB !
 - WSJT-X FT8 Total Processing Bandwidth of 2500 Hz
 - This is 10 dB **Lower** Than Human Threshold for CW (same BW)
 - Can Use Multi-pass, Signal Subtraction and *a priori* Decoders !



What is FT8?



- **Internal** View of Signal

- Two 28-bits for Callsigns
- 15-bit for Grid Locator, 73's, Reports, R
- 1-bit to Indicate a 13 Character Free Field Text
- 3-bits To Be Defined

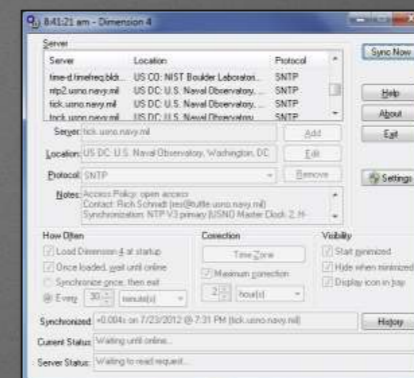
- Totals **75** Bits

- **Internal** View of Signal (Cont.)

- 12 Bits CRC
- **87 Bits Parity**
- Grand Total of 174 Bits (75+12+87)
- Thus, LDPC (174, **87**) Code
- 3, 7x7 Costas Array **Sync Signals**
- Sync Bits = Beginning, Middle, End (**21** Bits)

FT8 & Time

- 3 Sync Periods During Transmit Period But Still Must Begin At Same UTC Time
- Differential Time (DT) Between Two Stations Needs to be Less Than 2.5 Seconds



Methods Employed Successfully¹

Method	Examples	Need Internet?	Price Class
Auto Sync Software (SW)	Dimension 4	Yes	Free
GPS Rx/Antenna & SW	NMEA Time2	No	\$35
Stand-alone SW	TimeFudge.exe	No	Free

¹ References are provided at the end of presentation



and Now for Something Different ...

WSJT-X Version 2.0

Date	Release Candidate	Expires On
9/17	WSJT-X 2.0-rc1	10/31
9/25	WSJT-X 2.0-rc2	10/31
10/15	WSJT-X 2.0-rc#	11/30
11/12	WSJT-X 2.0-rc#	12/31
12/10	(GA) General Availability	--

- **More** Bits (**77**) Gives Us NA VHF Contest, EU VHF Contest, ARRL Field Day, ARRL RTTY Roundup Ops, Compound and Non-Standard Callsigns, Telemetry Format (71 Bits), and All Features of DXpedition Mode
- WSPR 1 dB Better, Color Highlighting of Decoded Messages, LoTW Status of OTHER Stations!
- No Significant Changes to Favorites JT4, JT9, QRA64, ISCAT, Echo, or FreqCal
- **New / Old** Versions Can Co-Exist Until WSJT-X 2.0-rc# (Early Nov.)



Let's Look at the Graphical User Interfaces (GUI)

- WSJT-X
- Wide Graph - the "waterfall"
- JTAlertX
- DX Expedition Fox/Hound Mode
- PSK Reporter

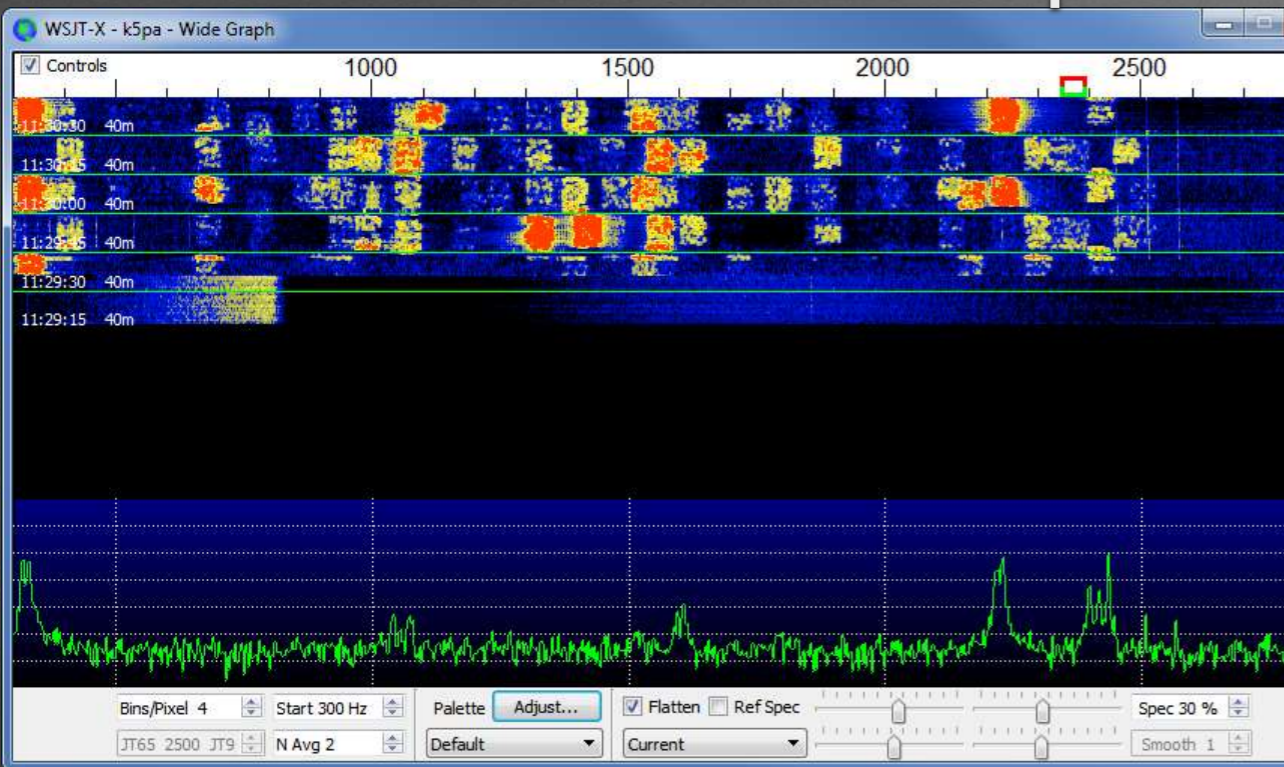


WSJT-X FT8 & JTAlertX

The Big Picture (see following slides)

WSJT-X FT8 Main

WSJT-X Wide Graph



WSJT-X - k5pa v1.9.1 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
113015	-3	0.2	390	~ CQ KK6ILV CM97	112945	-10	0.2	2353	~ CQ W2HTS FN20
113015	-4	0.2	920	~ CQ VR2XYL OL72	113015	-14	0.2	2353	~ CQ W2HTS FN20
113015	1	0.4	971	~ VO1NC WB3DEL 73					
113015	5	-1.0	1049	~ WP4AZT WA3OGQ 73					
113015	-9	0.5	1160	~ CE3YP JA2ZS PM85					
113015	-17	0.2	1251	~ CQ KE00IR DM79					
113015	-7	-0.0	1304	~ JI4JKO YC1BCT OI33					
113015	-14	0.2	1447	~ N9UDO KD2NOM FN20					
113015	6	0.2	1541	~ HK2AQ N8HMG EN91					
113015	1	0.2	1605	~ WC3A W8CO 73					
113015	-1	1.3	1867	~ CQ YV5ZV FK60					
113015	-13	0.1	2109	~ JM1MHE 9W2SAF -01					
113015	-5	0.6	2277	~ VK4YOK ZL1BQD -09					
113015	-10	0.4	2327	~ KM6HB JH1TJH R-16					
113015	-5	0.5	2450	~ CQ CM8NMN FK29					

Buttons: CQ only, Log QSO, Stop, Monitor, Erase, Decode, Enable Tx, Halt Tx, Tune, Menus

Frequency: 7.074 000

Time: 2018 Sep 12 11:30:38

Settings: Tx 2345 Hz, Rx 2345 Hz, Hold Tx Freq, Report -15, Auto Seq, Call 1st

Calling CQ: CQ, dB, RRR, Gen msg, Free msg

Answering CQ: Grid, R+dB, 73

Status: Receiving, KSPA_Normal, FT8, 8/15 WD:4m

JTAlertX

JTAlertX 2.12.5 KSPA [-,40m,ADIF,F,#1] | Alerts | Settings | View | Sound OFF | ? |

WA9BZW - WI	YD1CRR	W4DOW - VA	HK2AQ	N7TM - WA	K3ABE - PA
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WSJT-X FT8 - MAIN

WSJT-X - k5pa v1.9.1 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity

UTC	dB	DT	Freq	Message
113645	-17	1.3	1866	~ CQ YV5ZV FK60
113645	-22	0.2	2109	~ JR2UYA 9W2SAF RRR
----- 40m -----				
113700	-10	0.2	376	~ W8CO K3ABE -13
113700	-15	0.2	484	~ K1DAT KC9MXM RRR
113700	-13	-1.4	1049	~ CQ WP4AZT FK67
113700	6	-0.2	1375	~ K4ELI W4DOW 73
113700	-13	0.3	1446	~ CQ KB2DJJ FN13
113700	7	0.5	1510	~ CQ KM6HB DM13
113700	-20	1.0	1591	~ WB4EVH HK2AQ RRR
113700	-13	0.2	1674	~ YG9CLC VK4NAO -04
113700	-1	1.5	1792	~ YD9VIZ WD4HIP EL96
113700	-24	0.1	1987	~ W9DBF WA3BMX RRR
113700	-7	0.4	2228	~ CQ YD2LGF PI06
113700	-11	0.2	2433	~ CM8NMN N2BJ R+00

Rx Frequency

UTC	dB	DT	Freq	Message
113645	-4	0.3	1236	~ CQ WOPAS EN91

CQ only Log QSO Stop **Monitor** Erase Decode Enable Tx Halt Tx Tune Menus

40m **S** **7.074 000** Tx even/1st

DX Call DX Grid Tx 2345 Hz Tx ← Rx

Rx 1235 Hz Rx ← Tx

Lookup Add Hold Tx Freq

Report -15 Auto Seq Call 1st

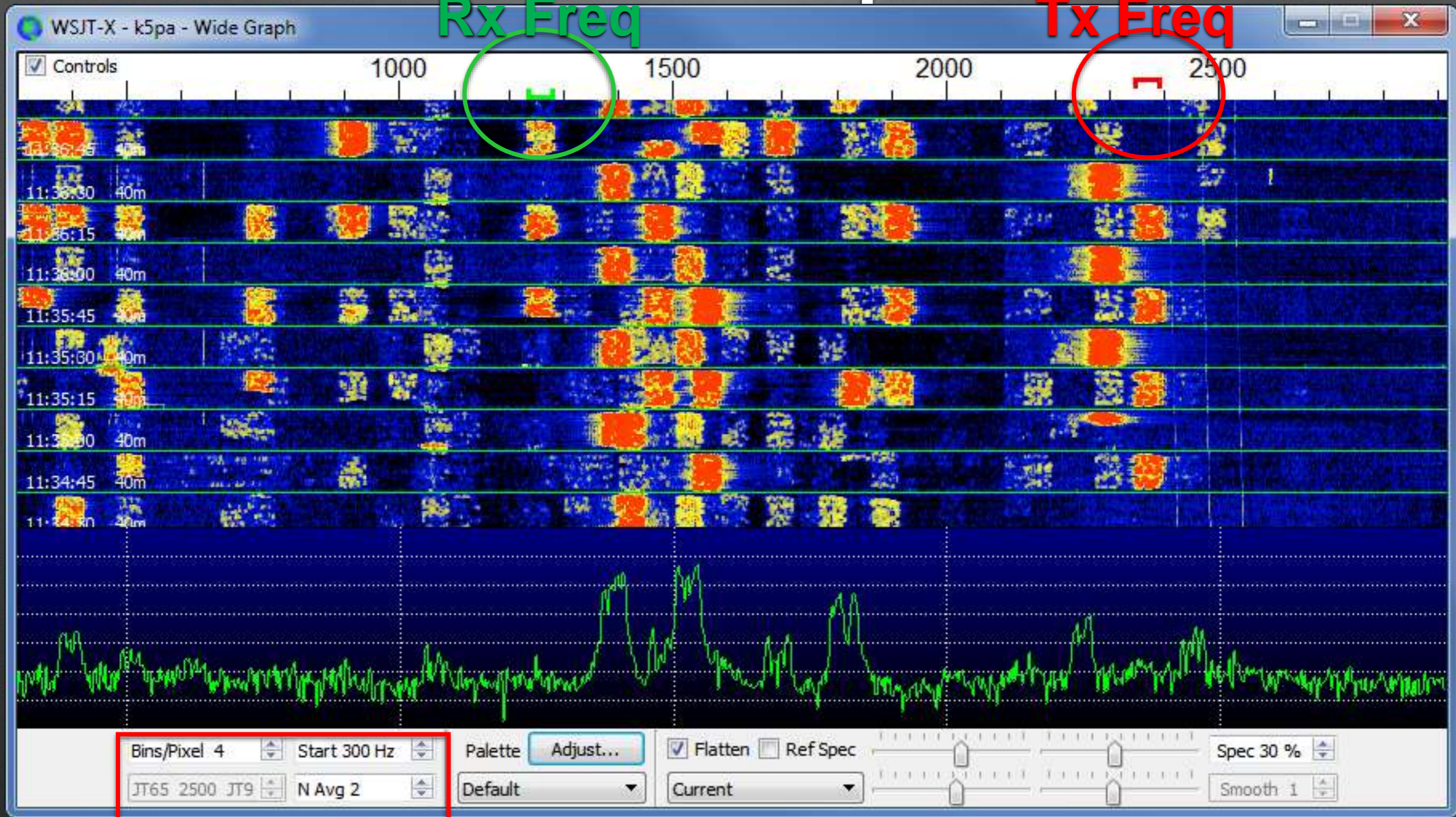
Calling CQ	Answering CQ
CQ	Grid
dB	R+dB
RRR	73

Gen msg Free msg

Receiving K5PA_Normal FT8 6/15 WD:4m



WSJT-X FT8 Wide Graph





JTAlertX

JTAlertX 2.12.5 K5PA [~40m,ADIF,F,#1] | Alerts | Settings | View | Sound OFF | ? |

WP4AZT	KM6HB - CA	YD2LGF					
--------	------------	--------	--	--	--	--	--

WJT-X - k5pa v1.9.1 by K1...

File Configurations View Mode Decode Save Tools Help

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
113645	-17	1.3	1866	~ CQ YV5ZV FK60	113645	-4	0.3	1236	~ CQ WOPAS EN91
113645	-22	0.2	2109	~ JR2UYA 9W2SAF RRR					
----- 40m									
113700	-10	0.2	376	~ W8CO K3ABE -13					
113700	-15	0.2	484	~ K1DAT KC9MYM RRR					
113700	-13	-1.4	1049	~ CQ WP4AZT FK67					
113700	6	-0.2	1375	~ W4ELI W4DOW 73					
113700	-13	0.3	1446	~ CQ KR2DJI EN13					
113700	7	0.5	1510	~ CQ KM6HB DM13					
113700	-20	1.0	1591	~ WB4EVH HK2AQ RRR					
113700	-13	0.2	1674	~ YG9CLC VK4NAO -04					
113700	-1	1.5	1792	~ YD9VIZ WD4HIP EL96					
113700	24	0.4	1987	~ W0DDE W0CEM RRR					
113700	-7	0.4	2228	~ CQ YD2LGF PI06					
113700	-11	0.2	2433	~ CM8NMN N2BJ R+00					

Buttons: CQ only, Log QSO, Stop, Monitor, Erase, Decode, Enable Tx, Halt Tx, Tune, Menus

40m S 7.074 000

Tx 2345 Hz Rx 1235 Hz

Calling CQ: CQ, dB, RRR
Answering CQ: Grid, R+dB, RRR



WSJT-X FT8

DXpedition Mode *Fox* & *Hounds*

WSJT-X v1.9.0-rc2 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity					Rx Frequency				
UTC	dB	DT	Freq	Message	UTC	dB	DT	Freq	Message
225545	5	-0.5	1438	LA9VFA W7PP R+11	225745	Tx		1900	K1JT K5PA EM10
				20m	225815	Tx		1900	K1JT K5PA EM10
225600	8	0.2	1439	W7PP LA9VFA RRR	225845	Tx		1900	K1JT K5PA EM10
225600	3	0.2	1600	W7PP N4HER EM96	225915	Tx		1900	K1JT K5PA EM10
				20m	225945	Tx		1900	K1JT K5PA EM10
225800	4	0.2	567	W7PP N4HER R-03	230000	2	0.3	300	CQ K1JT FN20
				20m	230030	-4	0.3	298	K5PA K1JT +10
225830	5	0.2	566	W7PP N4HER R-03	230045	Tx		418	K1JT K5PA R+02
				20m					
230000	2	0.3	300	CQ K1JT FN20 U.S.A.					
				20m					
230030	-4	0.3	298	K5PA K1JT +10					
230030	-3	0.3	358	N2AWJ K1JT -10					

CQ only Log QSO Stop **Monitor** Erase Decode **Enable Tx** Halt Tx Tune Menus

20m **s** **14.080 000** Tx even/1st Tx 418 Hz Tx ← Rx
Fox **K1JT** **FN20** Rx 300 Hz Rx ← Tx
 Az: 06 1456 mi Report 2 Rx All Freqs
 Auto Seq **Hounds** DXpedition: Hound

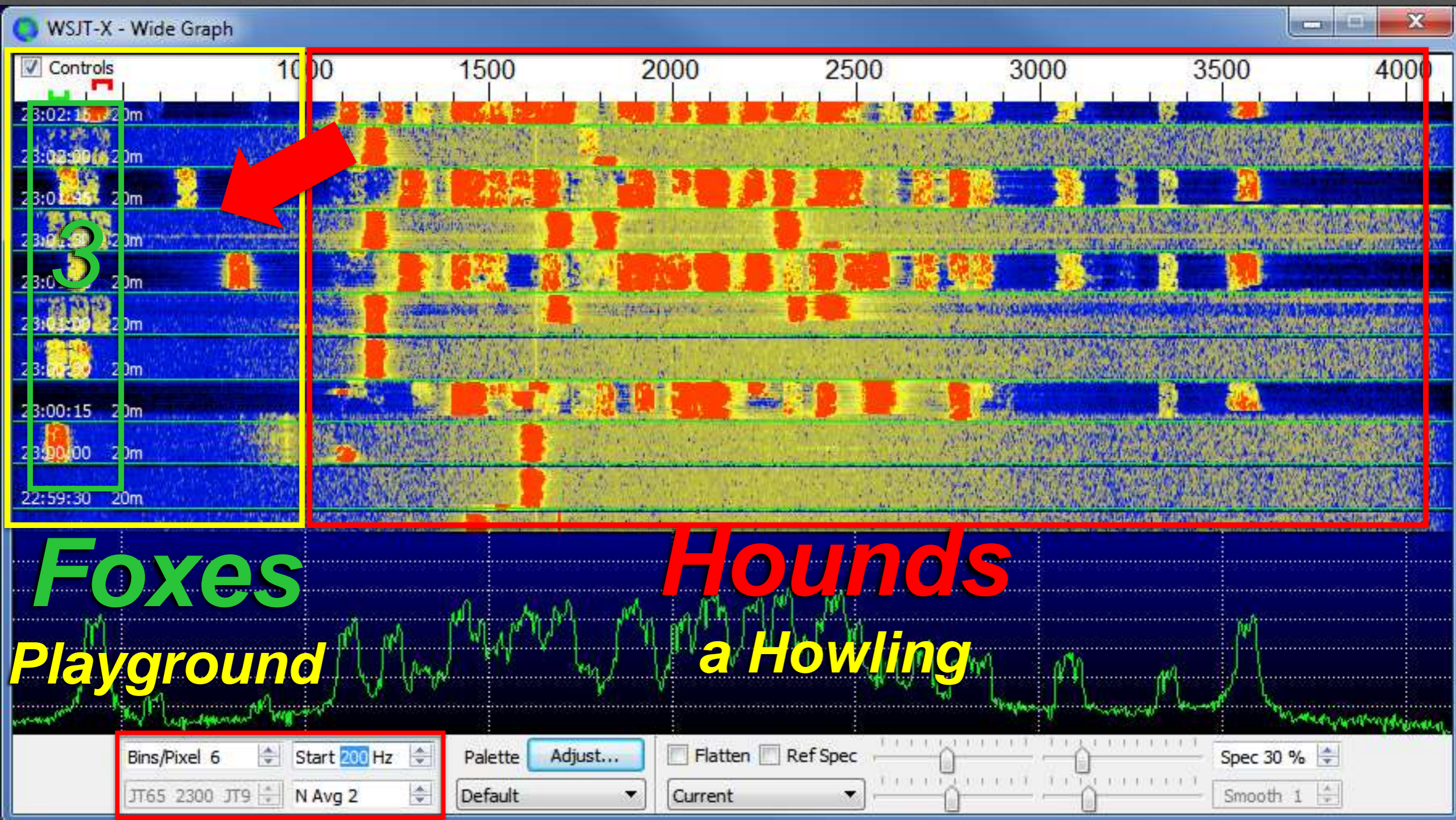
Tx Messages
 Generate Std Msgs Next Now
 K1JT K5PA EM10 Tx 1
 K1JT K5PA +02 Tx 2
 K1JT K5PA R+02 **Tx 3**
 K1JT K5PA RRR Tx 4
 K1JT K5PA 73 Tx 5
 CQ K5PA EM10 Tx 6

Receiving DXpedition Testing FT8 Last Tx: K1JT K5PA R+02 5/15 WD:5m



WSJT-X FT8 (cont.)

DXpedition Mode *Fox* & *Hounds*





WSJT-X FT8 (cont.)

DXpedition Mode *Fox* & *Hounds*

WSJT-X v1.9.0-rc2 by K1JT

File Configurations View Mode Decode Save Tools Help

Band Activity				
UTC	dB	DT	Freq	Message
230100	-13	0.3	360 ~	NZAWU K1JT -10
230100	-12	0.3	420 ~	W7VXS K1JT -05
----- 20m				
230115	-2	0.3	355 ~	K1JT KE7B R+05
230115	5	0.2	796 ~	K1JT W7VXS R+02
----- 20m				
230130	-17	0.3	298 ~	W7VXS RR73; KE7B <K1JT> -14
230130	-13	0.3	358 ~	AA7A K1JT -07
230130	-12	0.3	418 ~	JR2WYD K1JT -23
----- 20m				
230145	-3	0.6	331 ~	K1JT K6MM CM87
230145	-12	0.1	387 ~	K1JT AA7A R-15
230145	1	0.3	653 ~	K1JT KE7B R+05

Rx Frequency				
UTC	dB	DT	Freq	Message
225745	Tx		1900 ~	K1JT K5PA EM10
225815	Tx		1900 ~	K1JT K5PA EM10
225845	Tx		1900 ~	K1JT K5PA EM10
225915	Tx		1900 ~	K1JT K5PA EM10
225945	Tx		1900 ~	K1JT K5PA EM10
230000	2	0.3	300 ~	CQ K1JT FN20
230030	-4	0.3	298 ~	K5PA K1JT +10
230045	Tx		418 ~	K1JT K5PA R+02
230100	-17	0.3	300 ~	K5PA RR73; ZP4KFX <K1JT> -04
230130	-17	0.3	298 ~	W7VXS RR73; KE7B <K1JT> -14

CQ only

 Menus

20m
 S 14.080 000

Tx even/1st
 Tx 418 Hz
 Tx ← Rx
 Rx 300 Hz
 Rx ← Tx

DX Call: K1JT
 DX Grid: FN20
 Az: 36
 1456 mi
 Report 2

 Rx All Freqs
 Auto Seq
 DXpedition: Hound

2018 Mar 06 23:01:59

Tx Messages

Generate Std Msgs	Next	Now
K1JT K5PA EM10	<input type="radio"/>	<input type="button" value="Tx 1"/>
K1JT K5PA +02	<input type="radio"/>	<input type="button" value="Tx 2"/>
K1JT K5PA R+02	<input checked="" type="radio"/>	<input type="button" value="Tx 3"/>
K1JT K5PA RRR	<input type="radio"/>	<input type="button" value="Tx 4"/>
K1JT K5PA 73	<input type="radio"/>	<input type="button" value="Tx 5"/>
CQ K5PA EM10	<input type="radio"/>	<input type="button" value="Tx 6"/>

Receiving
DXpedition Testing
FT8
 Last Tx: K1JT K5PA R+02
14/15 WD:5m

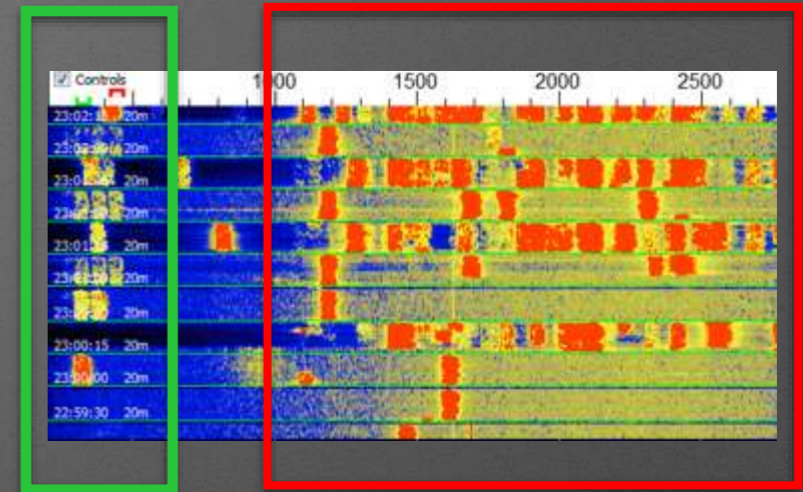


How Do You Know it is DXpedition Mode?

- Waterfall Signatures
- Spotting Networks
- Operating Frequencies
 - Baker Island or Variant
- DXpedition Website Notices

Foxes

Hounds



Waterfall Grouping

Baker 2018

FT8 DXpedition
-
3567
5357*
7056
10131
14090
18095
21091
24911
28091
50316

Date/Time	Frequency	Comment
2018-10-08 07:18	10131	FT8 FOX/HOUND
2018-10-08 07:15	7014	CQ NA&SA UP
2018-10-08 07:05	10131	FT8 TNX
2018-10-08 06:43	10131	FT8 F&H MODE
2018-10-08 06:42	10131	FT8 F/H TKS

Spotting Networks
Club Log F/H = Fox/Hound



~10月10日の間、下記の周波数でシオンモードでのみ運用します。

MHz	MHz
28,091	24,911
21,091	18,095
14,090	10,131
7,056	3,567

Qui di seguito trovate le istruzioni (file PDF) per usare i



PSK Reporter

<https://pskreporter.info/pskmap.html>

On **all bands** ▾, show **signals** ▾ sent by ▾ **the callsign** ▾ **wb2rem** using **FT8** ▾ over the last **30 minutes** ▾ **Go!** [Display options](#) [Permalink](#)

Monitoring WB2REM (last heard 1 mins ago). Automatic refresh in 5 minutes. 140 reception reports for WB2REM are shown as times ([show logbook](#)).

There are 2001 active FT8 monitors: **625 on 40m**, **574 on 20m**, **249 on 17m**, **188 on 80m**, **119 on 30m**, **85 on 15m**, **53 on 160m**, **36 on 6m**, **25 on 2m**, 14 on unknown, **11 on 60m**, **7 on 10m**, **2 on 11m**, **1 on 600m**, **1 on 4m**. [Show all on all bands](#). [Legend](#)

Rx at Wed, 12 Sep 2018 11:05:00 GMT ✕
 From **WB2REM** by **VK4CMV** Loc QG63kh
 Frequency: 3.574.908 MHz (80m), FT8, -11dB
 Distance: 14789 km bearing 257°
 Using: WSJT-X v1.9.1 r8733-dirty
 Antenna: N/S Dipole at 20m

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[System statistics](#). [Comments, problems etc to Philip Gladstone](#). [Online discussion of problems/issues](#). Reception records: 4,426,336,249

PSKREPORTER.INFO



PSK Reporter

<https://pskreporter.info/pskmap.html>

On , show using over the last [Display options](#) [Permalink](#)

Automatic refresh in 5 minutes. Small markers are the 75 transmitters (show logbook) heard (distance chart) at WB2REM (3740 reports, 96 countries last 24 hours; 25736 reports, 105 countries last week). There are 2003 active FT8 monitors: 616 on 40m, 577 on 20m, 250 on 17m, 192 on 80m, 123 on 30m, 85 on 15m, 52 on 160m, 36 on 6m, 25 on 2m, 14 on unknown, 11 on 60m, 7 on 10m, 2 on 11m, 1 on 600m, 1 on 4m. Show all on all bands. Legend

Rx at Wed, 12 Sep 2018 10:57:59 GMT
From **T15/N5BEK** in Alajuela, Costa Rica
Loc EJ79tx by **WB2REM**
Distance: 1229 miles bearing 193°
Frequency: 3.574.654 MHz (80m), FT8, +7dB
eQSL Authenticity Guaranteed.

Rx at Wed, 12 Sep 2018 10:57:59 GMT
From **T15/N5BEK** in Alajuela, Costa Rica
Loc EJ79tx by **WB2REM**
Distance: 1229 miles bearing 193°
Frequency: 3.574.654 MHz (80m), FT8, +7dB
eQSL Authenticity Guaranteed.

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System statistics. Comments, problems etc to Philip Gladstone. Online discussion of problems/issues. Reception records: 4,426,343,079

PSKREPORTER.INFO



Demo Time

Live Remote FT8
Marquette, MI



FT8 Etiquette for Dxers

by **3D2AG**, ANTOINE DE RAMON N'YEURT

- Call DX Station in **Split Mode**
- Send Your Report, Not Your Grid (**Tx1 Double Click**)
- Combine RR and 73 Into RR73 (**Tx4 Double Click**)
- Don't Call if You Can't Stick Around (1-5 Minutes)
- After Completion of DX QSO **Do Not Start Calling CQ on His Frequency!**

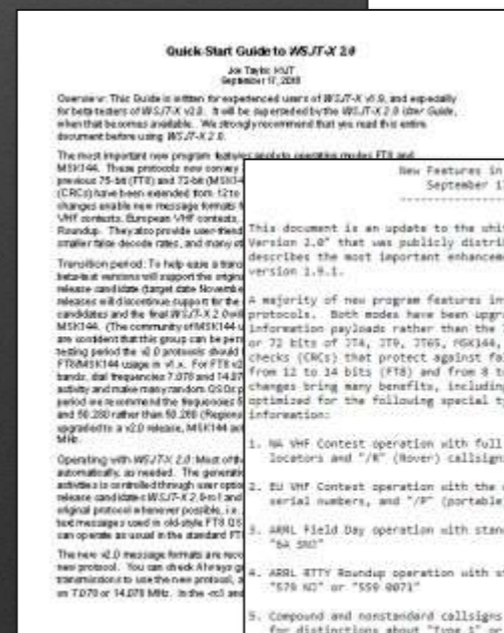
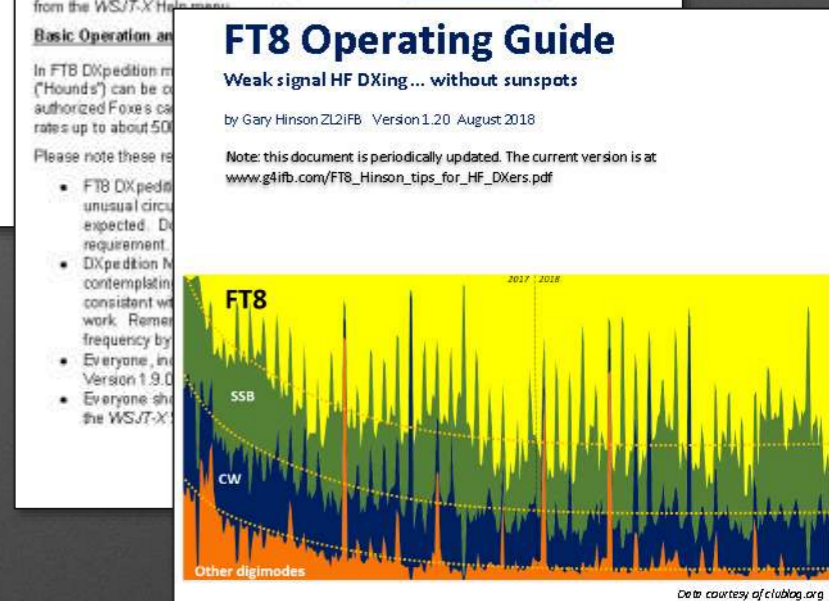
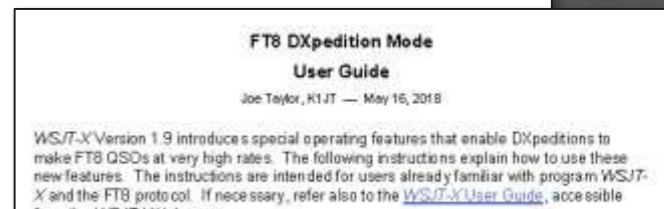
Resources

• Top References

- *WSJT-X User Guide*, <https://physics.princeton.edu/pulsar/k1jt/wsjt-x-doc/wsjt-x-main-1.9.1.html>
- *DXpedition Guide*, https://physics.princeton.edu/pulsar/k1jt/FT8_DXpedition_Mode.pdf
- *FT8 Operating Guide*, Gary Hinson, ZL2iFB, <http://www.g4ifb.com/>

• WSJT-X 2.0 Resources

- *Quick-Start Guide to WSJT-X 2.0*, Joe Taylor, K1JT, 9/17/2018, https://physics.princeton.edu/pulsar/k1jt/Quick_Start_WSJT-X_2.0.pdf
- *New Features in WSJT-X 2.0*, https://physics.princeton.edu/pulsar/k1jt/New_Features_WSJT-X_2.0.txt





Resources

• Time Sync References

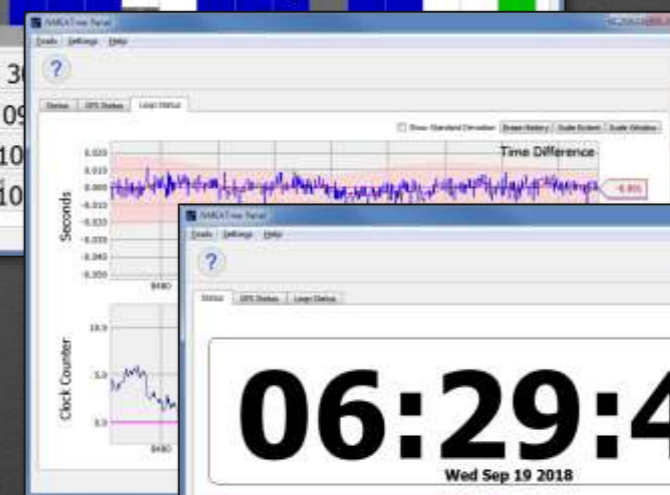
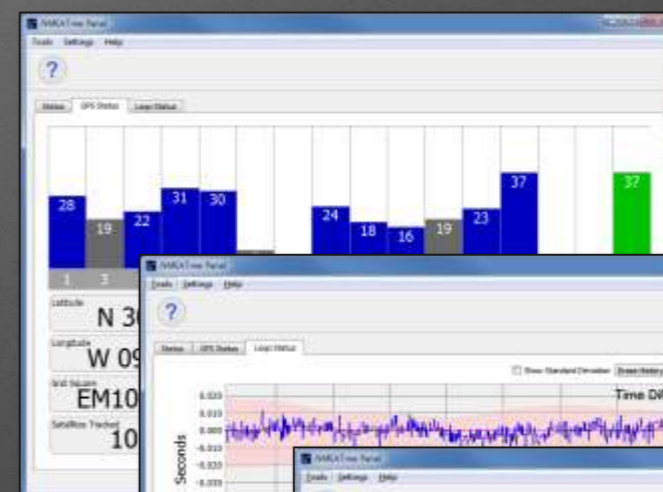
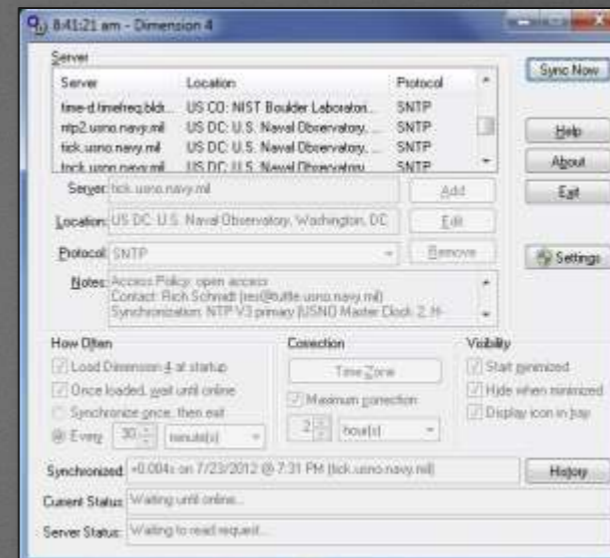
- Dimension 4, Thinking Man Software, www.thinkman.com/dimension4/

- Using GPS to set your Time in the Field, Gene Hinkle, K5PA, *CQ Amateur Radio*, Vol 73, Number 12, December 2017, [Click Here for Link](#)

- TimeFudge, Michael Black, <https://www.qrz.com/db/W9MDB>

• Remote Computer Control

- TeamViewer, <https://www.teamviewer.us/>



06:29:40
Wed Sep 19 2018

Locked

1σ = 10.282 ms
Samples: 9097
Using time from: ZDA

Estimated Time Error: 2.751 Milliseconds



TimeFudge v1.3

Fudge

Seconds Total
0.94 +0





- **Publication Date**
(Nov / Dec 2018)
- **Concepts Today**
Discussed
- **Authors**
 - Gene, K5PA
 - Jim, WB2REM



Mock-up Cover of Upcoming Article



Lake Superior

Michigan Shoreline



Photo Credit: Tom Tourville



CENTRAL TEXAS DX AND CONTEST CLUB

Thank You !