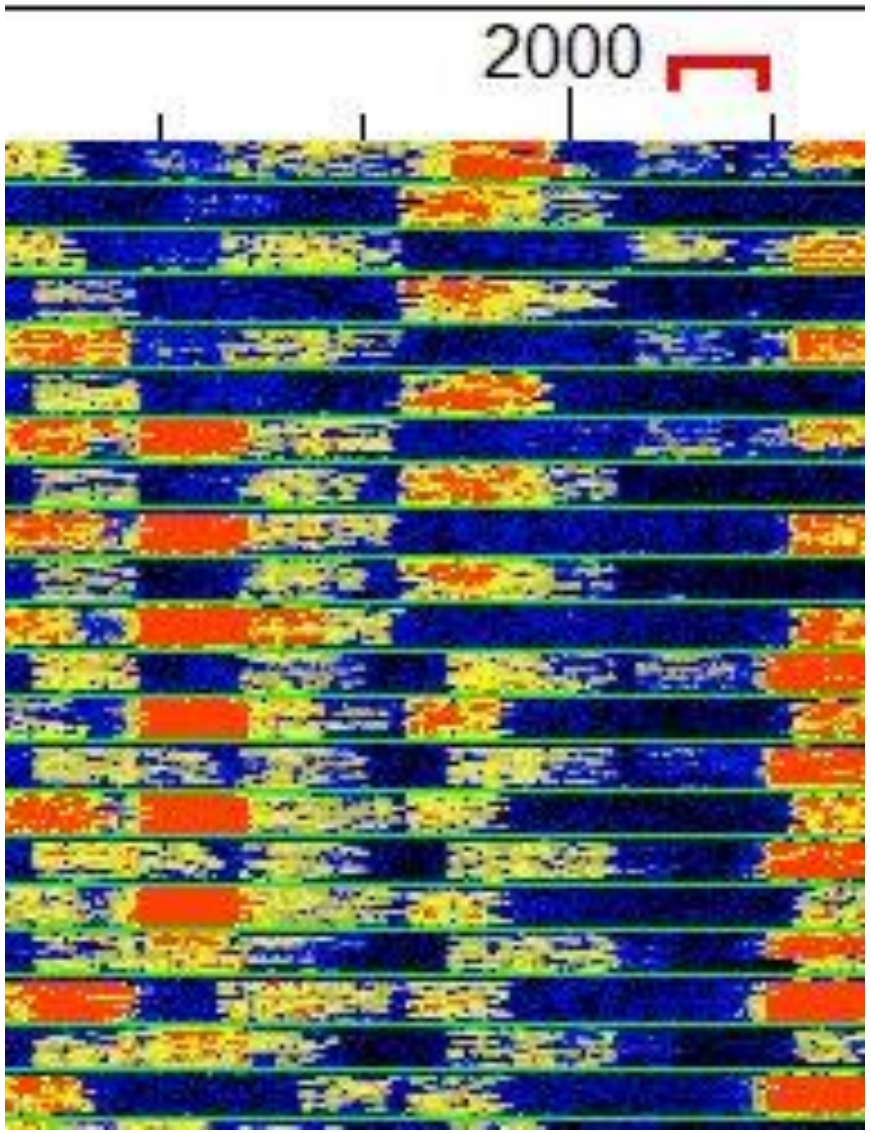
FT8 – Regular and Fox/Hound

Tips and Tricks for DX QSOs

Colin - N5GG

5/21/24



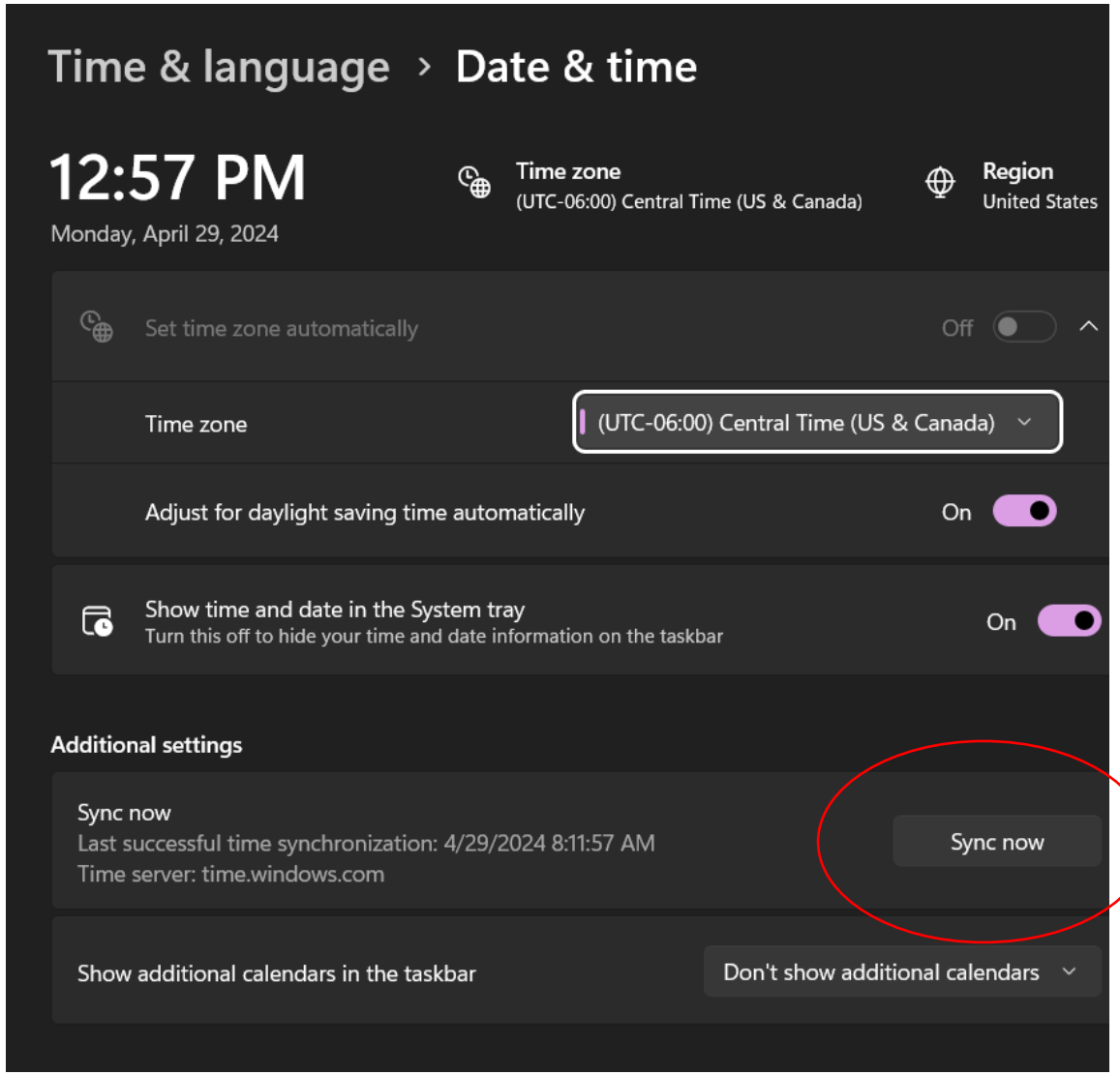
Important and Mandatory Settings for Regular and F/H FT8

Internal Use - Confidential

Precise PC Clock Setting

- Since FT8 is a time dependent mode, with even and odd tx/rx slots, it is extremely important to have the PC clock set to the exact time with a max tolerance of about +/- 0.5s.

- That should allow for good decoding and in-synch transmissions

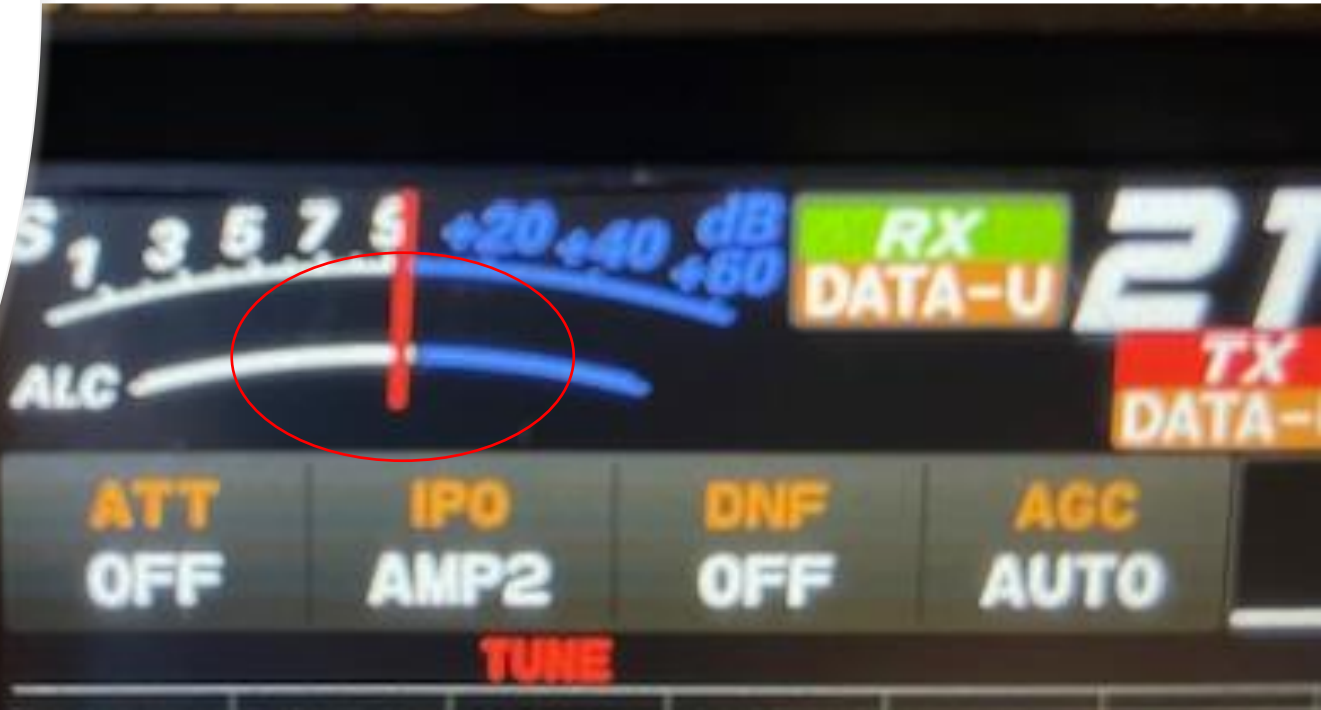


Transmitter PWR and ALC Level

Each Transceiver has a BEST setting for ALC for FT8…

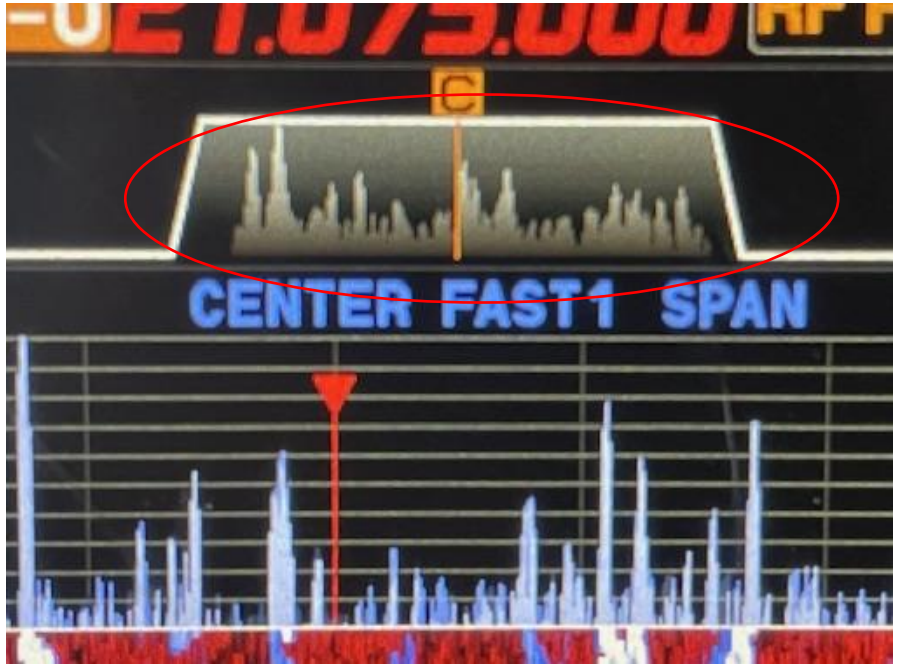
- Yaesu FT-710 – right at white to blue transition
- ICOM 7300 – less than ¼ ALC movement

CHECK your user manual!!!



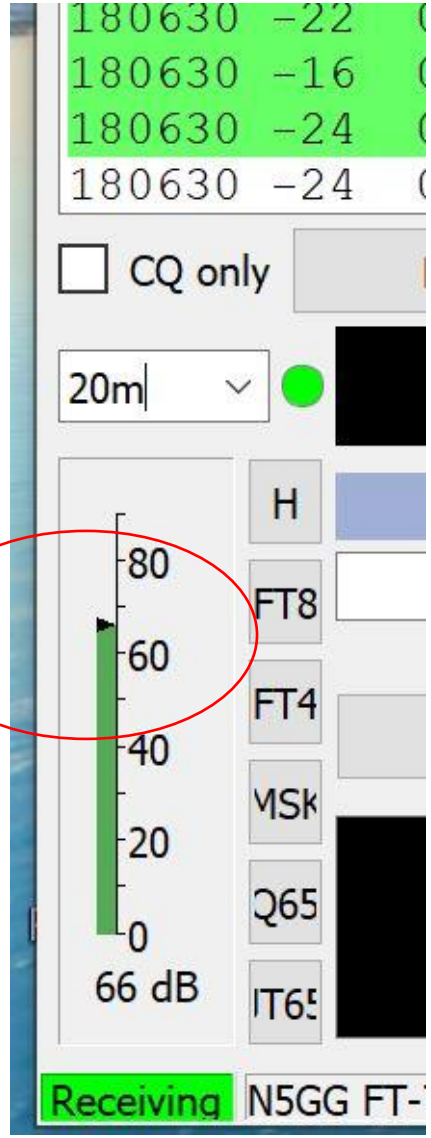
RX Audio Filter and RF Gain

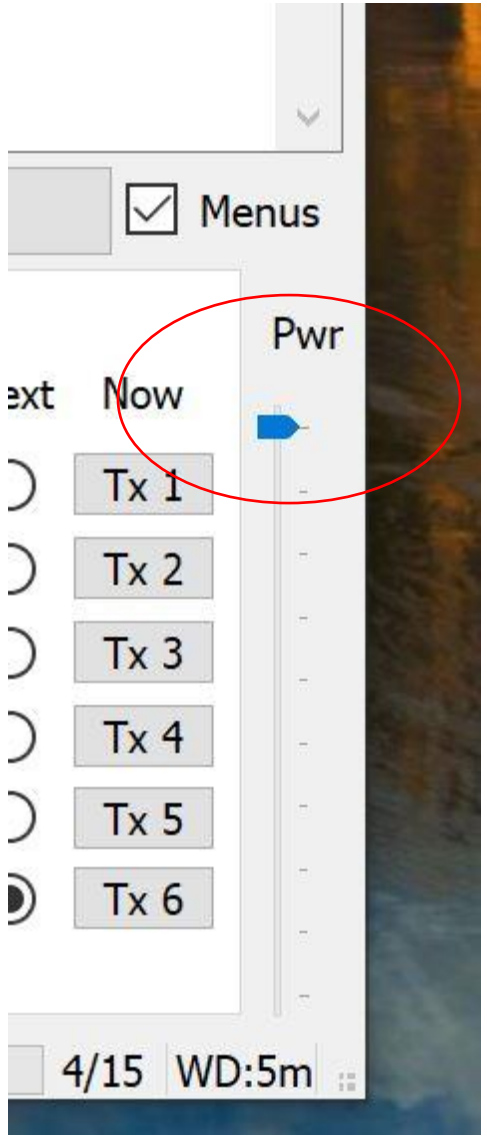
Audio Filter – 3000 Hz or wider



RF Gain – WIDE open

Receive and Transmit Audio Levels



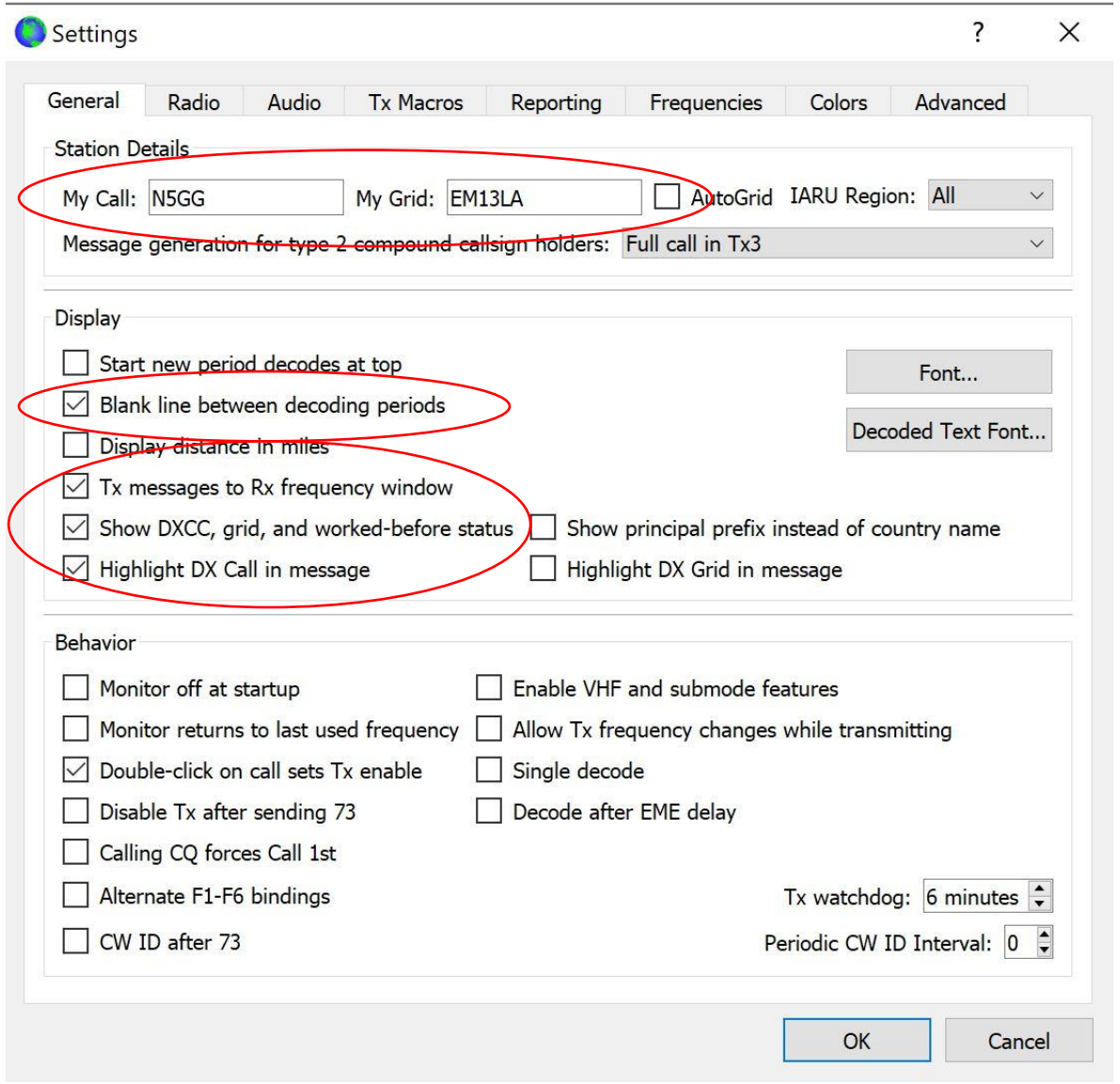


WSJT-X Software Setting

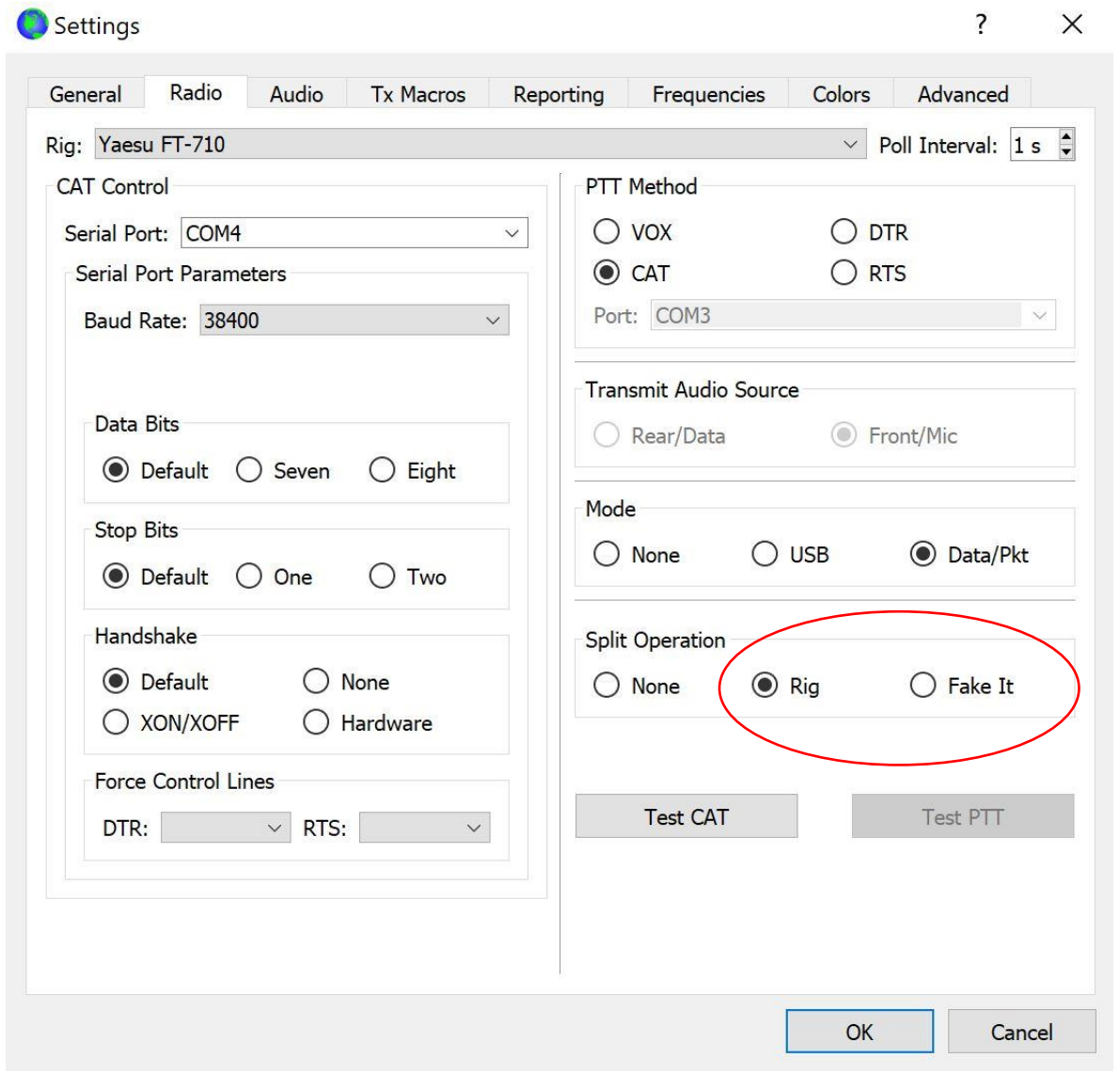
Regular FT8

Internal Use - Confidential

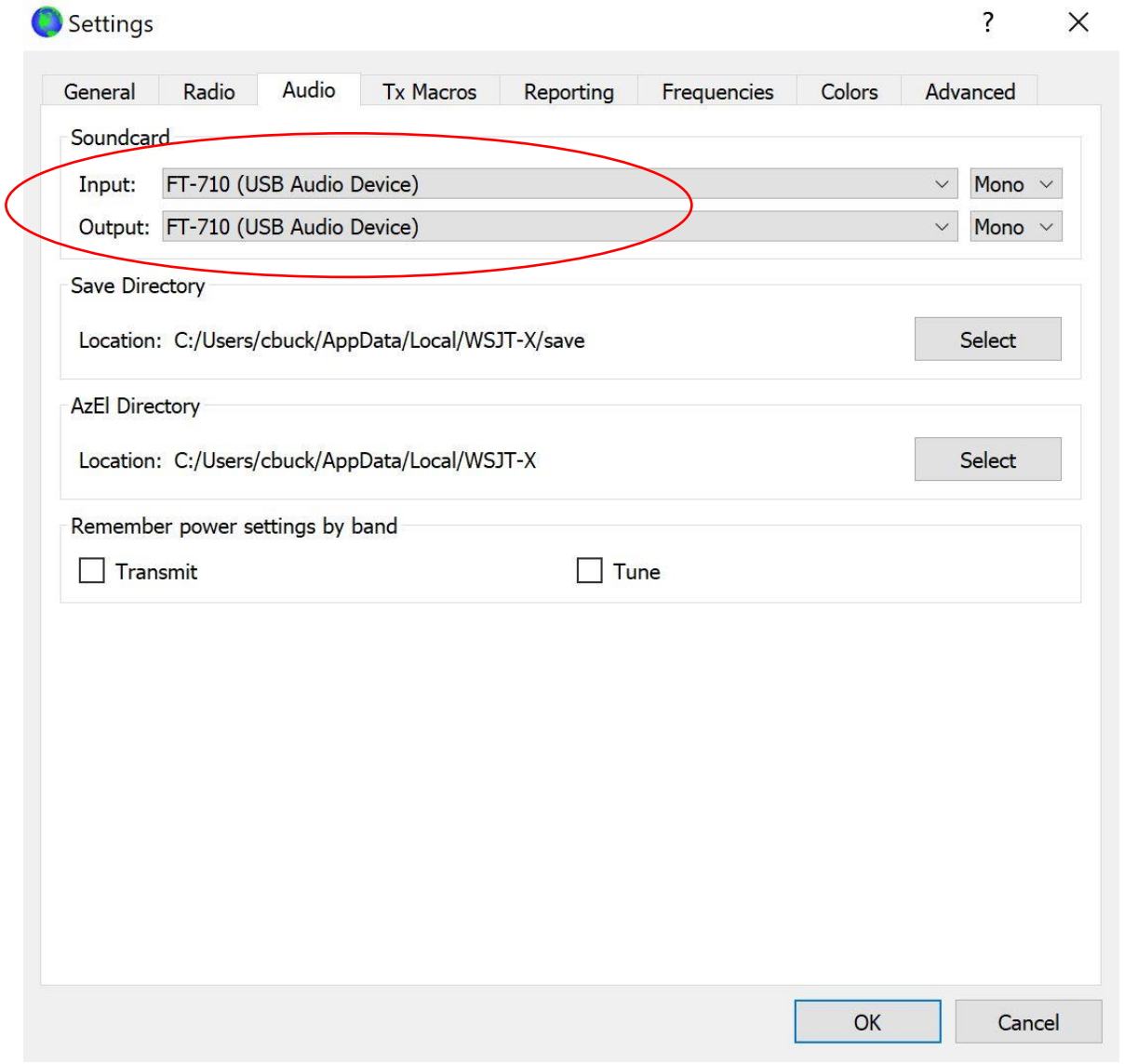
General Tab


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Station Details
My Call: N5GG
My Grid: EM13LA
AutoGrid
IARU Region: All
Message generation for type 2 compound callsign holders: Full call in Tx3
Display
Start new period decodes at top
Blank line between decoding periods
Display distance in miles
Tx messages to Rx frequency window
Show DXCC, grid, and worked-before status
Highlight DX Call in message
Font...
Decoded Text Font...
Show principal prefix instead of country name
Highlight DX Grid in message
Behavior
Monitor off at startup
Monitor returns to last used frequency
Double-click on call sets Tx enable
Disable Tx after sending 73
Calling CQ forces Call 1st
Alternate F1-F6 bindings
CW ID after 73
Enable VHF and submode features
Allow Tx frequency changes while transmitting
Single decode
Decode after EME delay
Tx watchdog: 6 minutes
Periodic CW ID Interval: 0
OK
Cancel

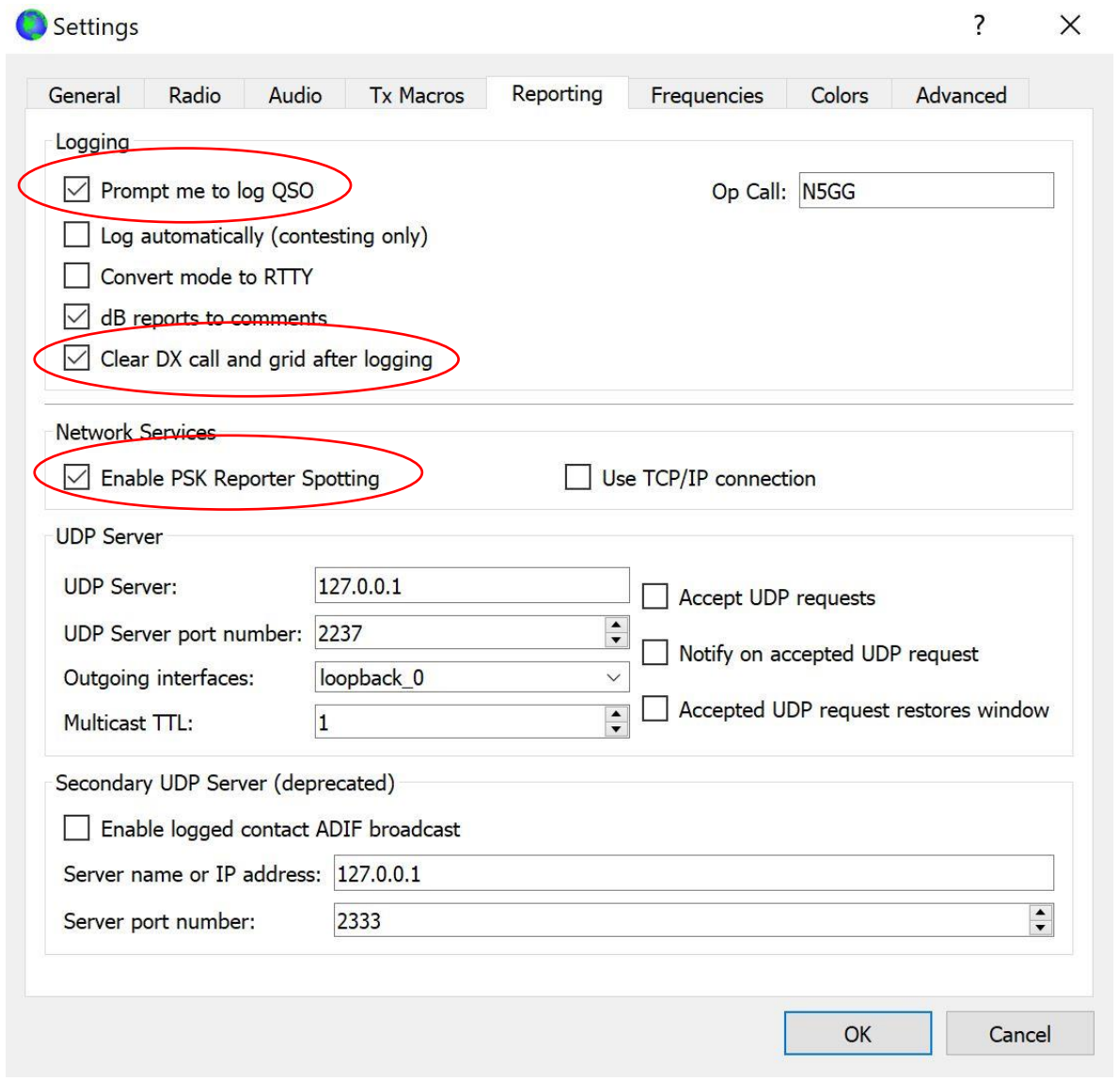
Radio Tab


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Rig: Yaesu FT-710
Poll Interval: 1 s
CAT Control
Serial Port: COM4
Serial Port Parameters
Baud Rate: 38400
Data Bits
Default
Seven
Eight
Stop Bits
Default
One
Two
Handshake
Default
None
XON/XOFF
Hardware
Force Control Lines
DTR:
RTS:
PTT Method
VOX
DTR
CAT
RTS
Port: COM3
Transmit Audio Source
Rear/Data
Front/Mic
Mode
None
USB
Data/Pkt
Split Operation
None
Rig
Fake It
Test CAT
Test PTT
OK
Cancel

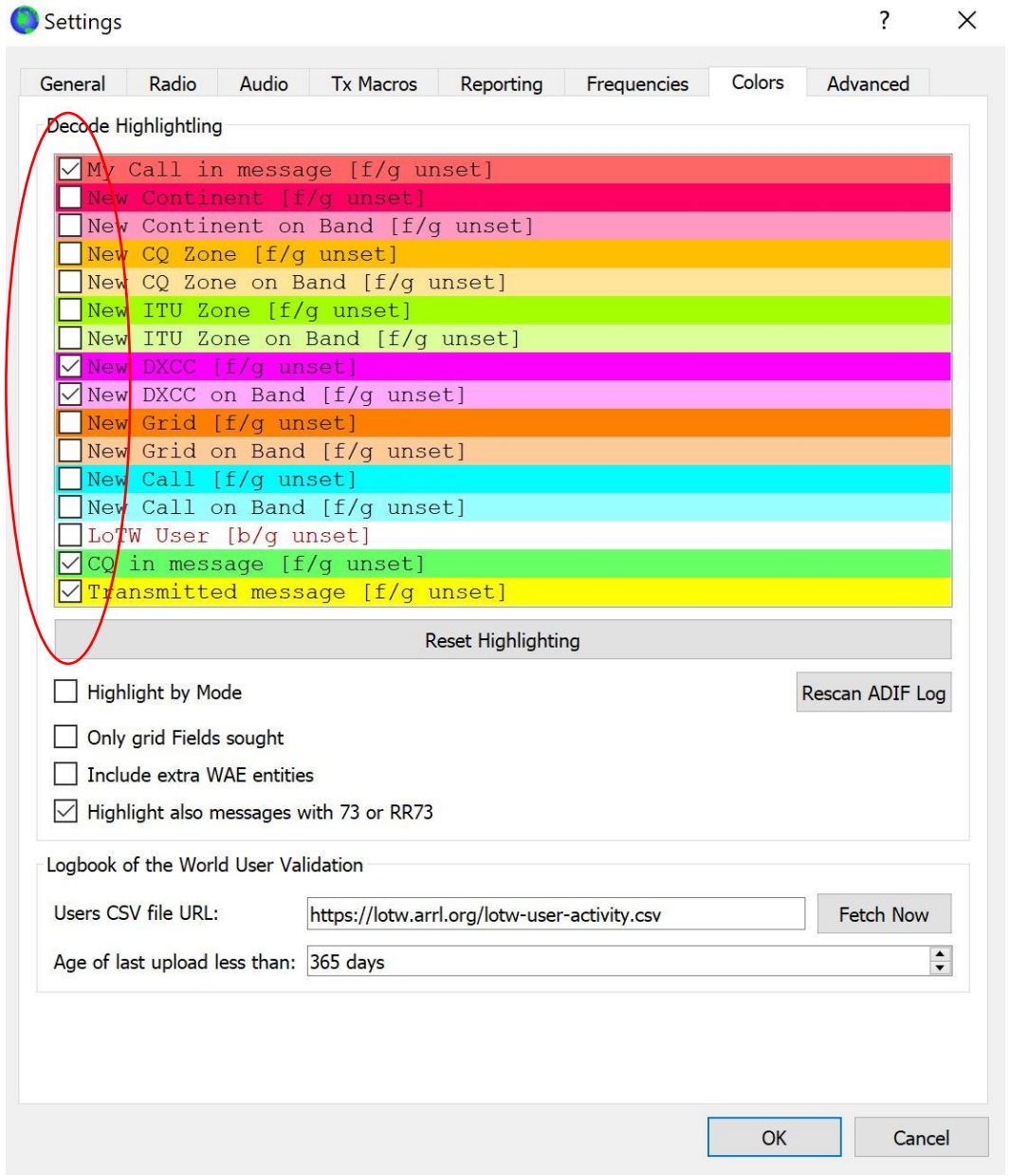
Audio Tab


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Soundcard
Input:
FT-710 (USB Audio Device)
Mono
Output:
FT-710 (USB Audio Device)
Mono
Save Directory
Location: C:/Users/cbuck/AppData/Local/WSJT-X/save
Select
AzEl Directory
Location: C:/Users/cbuck/AppData/Local/WSJT-X
Select
Remember power settings by band
Transmit
Tune
OK
Cancel

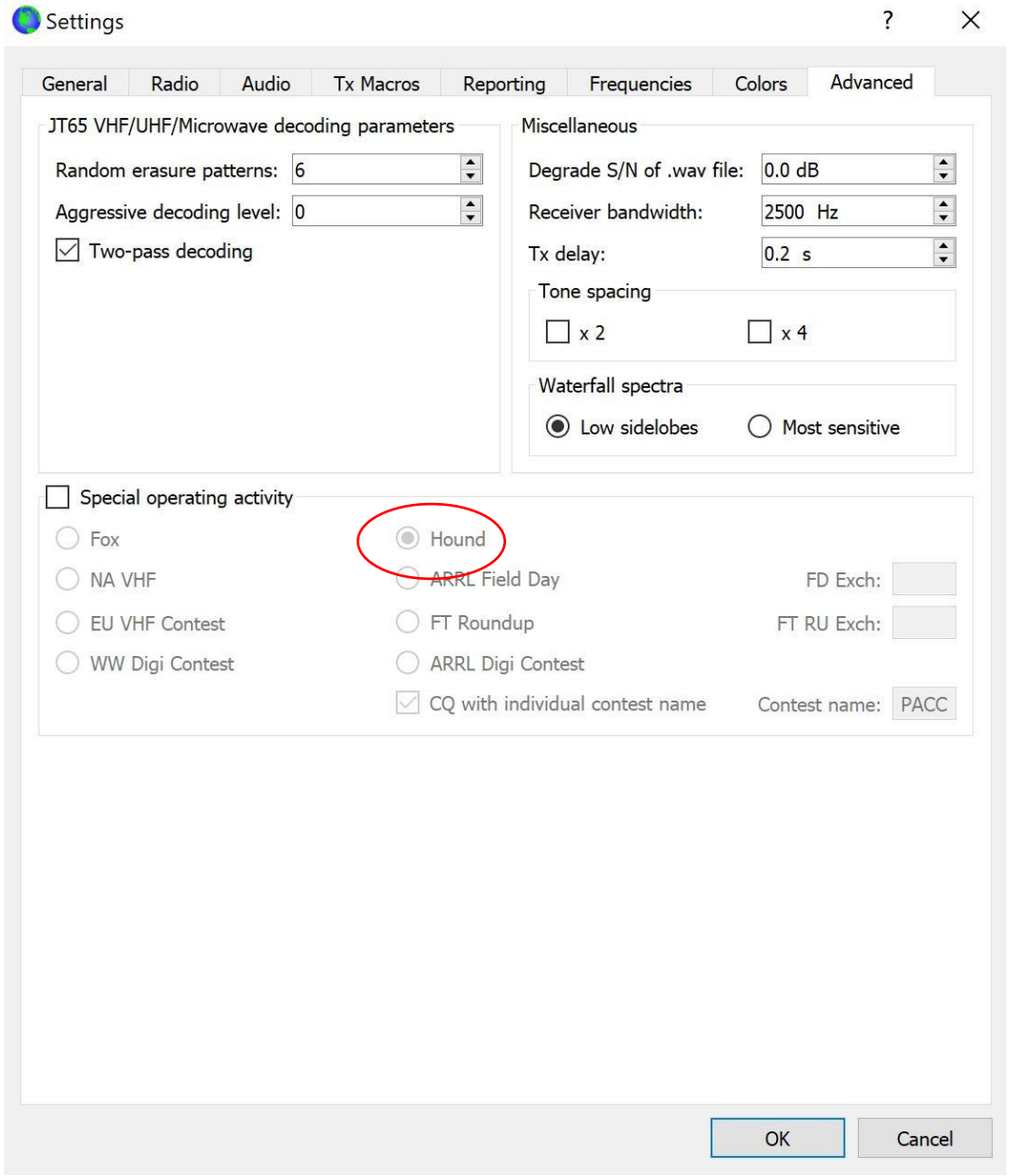
Reporting Tab



Colors Tab


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Decode Highlightling
My Call in message [f/g unset]
New Continent [f/g unset]
New Continent on Band [f/g unset]
New CQ Zone [f/g unset]
New CQ Zone on Band [f/g unset]
New ITU Zone [f/g unset]
New ITU Zone on Band [f/g unset]
New DXCC [f/g unset]
New DXCC on Band [f/g unset]
New Grid [f/g unset]
New Grid on Band [f/g unset]
New Call [f/g unset]
New Call on Band [f/g unset]
LoTW User [b/g unset]
CQ in message [f/g unset]
Transmitted message [f/g unset]
Reset Highlighting
Highlight by Mode
Rescan ADIF Log
Only grid Fields sought
Include extra WAE entities
Highlight also messages with 73 or RR73
Logbook of the World User Validation
Users CSV file URL:
https://lotw.arrl.org/lotw-user-activity.csv
Fetch Now
Age of last upload less than:
365 days
OK
Cancel

Advanced Tab

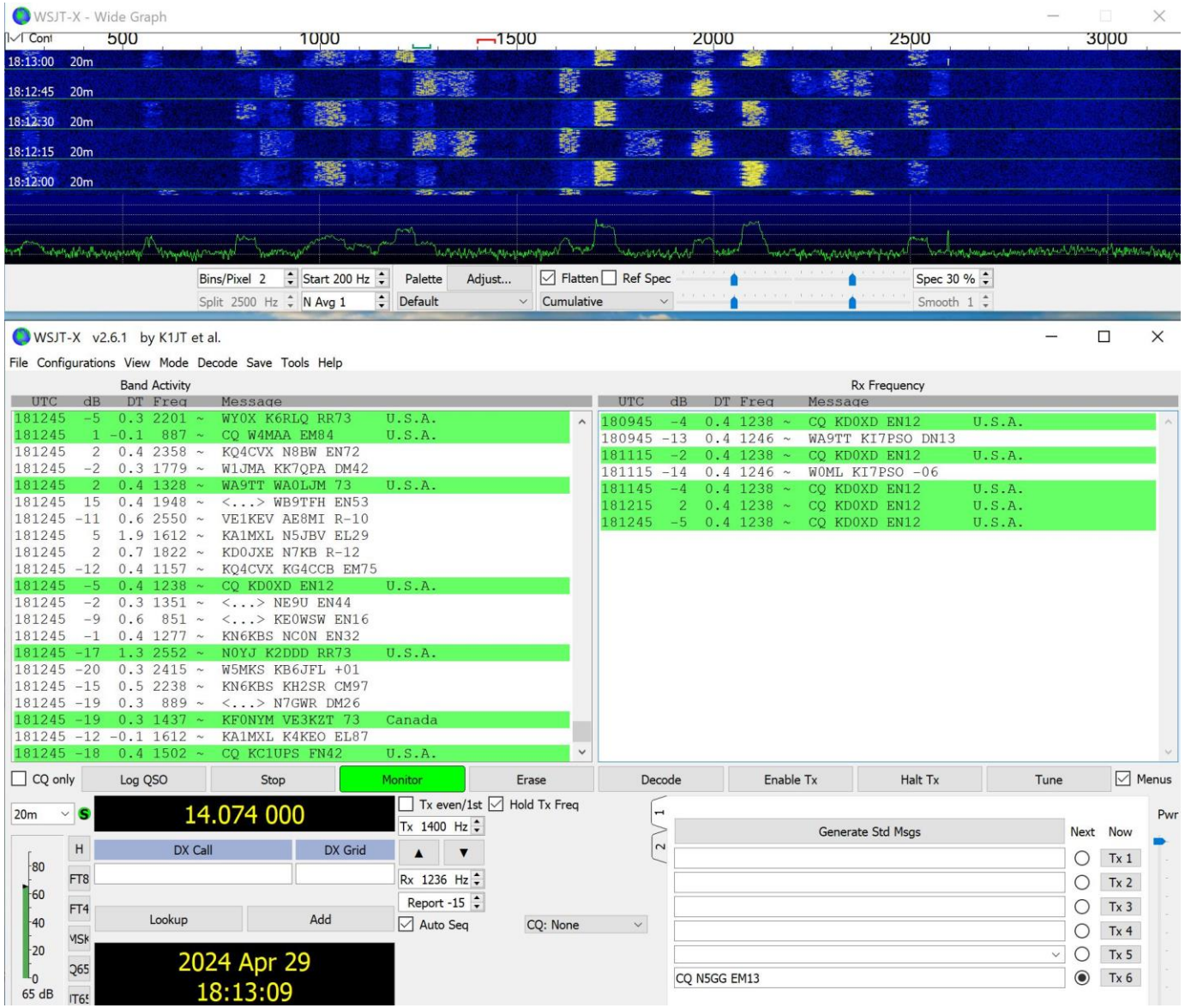


FT8 – Regular

Working the Bands

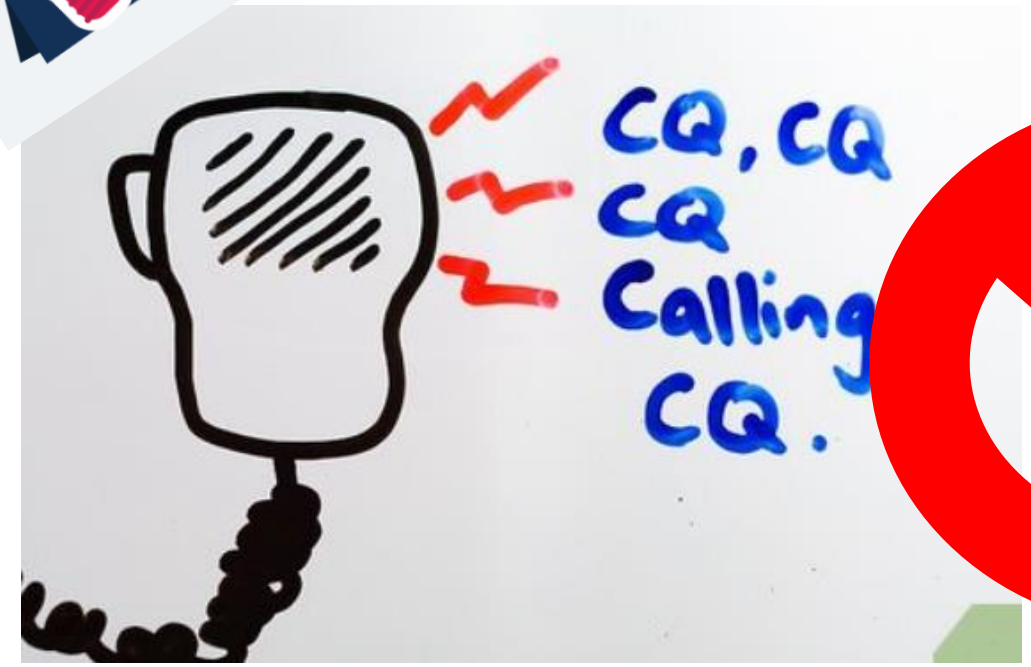
Internal Use - Confidential

The Interface



Internal Use - Confidential

Unless you are Grid Hunting…
STOP CALLING CQ!!!

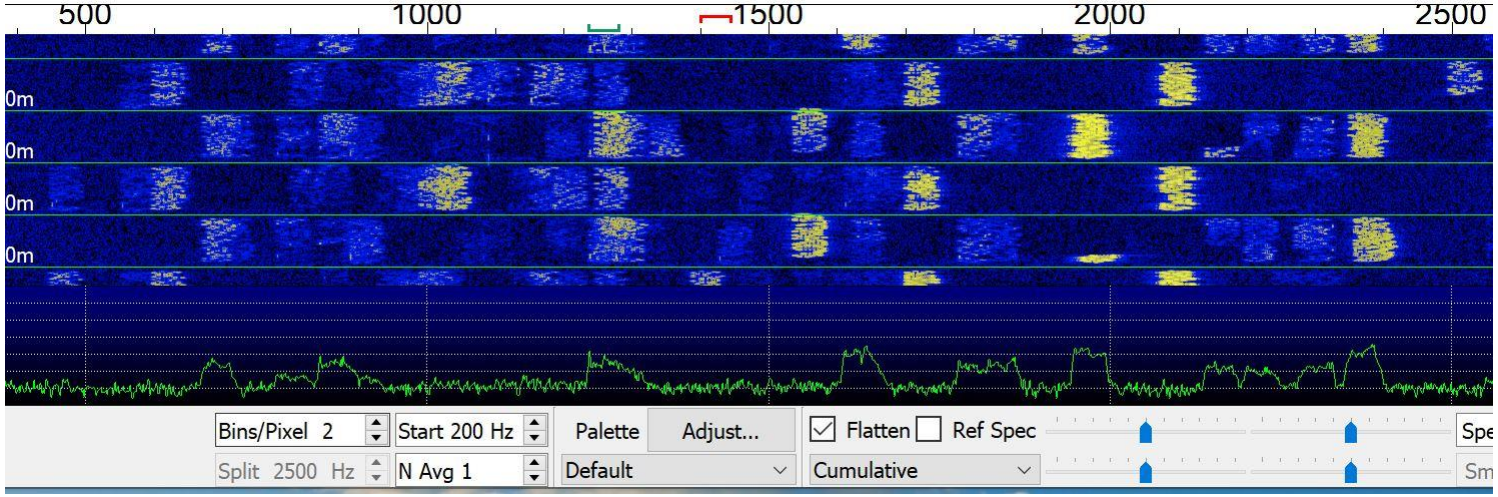


1		4	-0.0	2797	~	CQ KK6TDG CM88 U.S.A.
152		3	-0.6	990	~	N0VVH WA4RH R+08
152		7	0.3	1414	~	CQ ND6H EL96 U.S.A.
152		1	0.0	735	~	CQ NX4RH FM18 U.S.A.
152		0	0.0	2161	~	CQ WY0V EN12 U.S.A.

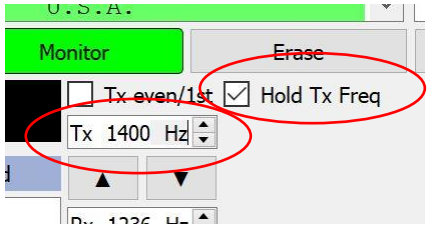
Listen, Listen and then Listen again!

Internal Use - Confidential

Pick a CLEAN lane
(Multiple of 50 Hz)



Hold your TX lane



Internal Use - Confidential

Remember the Color Scheme…

Decode Highlighting

- [x] My Call in message [f/g unset]
- [ ] New Continent [f/g unset]
- [ ] New Continent on Band [f/g unset]
- [ ] New CQ Zone [f/g unset]
- [ ] New CQ Zone on Band [f/g unset]
- [ ] New ITU Zone [f/g unset]
- [ ] New ITU Zone on Band [f/g unset]
- [x] New DXCC [f/g unset]
- [x] New DXCC on Band [f/g unset]
- [ ] New Grid [f/g unset]
- [ ] New Grid on Band [f/g unset]
- [ ] New Call [f/g unset]
- [ ] New Call on Band [f/g unset]
- [ ] LoTW User [b/g unset]
- [x] CQ in message [f/g unset]
- [x] Transmitted message [f/g unset]

WSJT-X v2.6.1 by K1JT et al.

File Configurations View Mode Decode Save Tools Help

Band Activity

UTC	dB	DT	Freq	Message	
152100	-21	0.1	2010	~ SP5CTY CT3MD 73	Madeira Is.
152100	-18	-0.0	1041	~ CQ AO75IB	Spain
152100	-16	1.4	2194	~ SV2ROG SP5LST RR73	Poland
152100	-12	0.0	1459	~ CQ KC1QYD FN41	U.S.A.
152100	-16	0.0	854	~ OH3OJ <AO75NA> R-18	
152100	-19	0.1	1191	~ IT9EXH F1EXL R+04	
152100	-12	0.0	1338	~ CQ POTA KC3NQB FN20	U.S.A.
----------				17m	
152130	-6	-0.1	322	~ AB0TA 3W9T RR73	Vietnam
152130	-2	-0.1	1944	~ AD0AA KF2GQ EL96	
152130	4	-0.0	2797	~ CQ KK6TDG CM88	U.S.A.
152130	13	-0.6	990	~ N0VVH WA4RH R+08	
152130	7	0.3	1414	~ CQ ND6H EL96	U.S.A.
152130	1	0.0	735	~ CQ NX4RH FM18	U.S.A.
152130	0	0.0	2161	~ CQ WY0V EN12	U.S.A.
152130	-4	0.1	1783	~ AD0AA KR5EEE EM12	
152130	-11	0.0	854	~ <OH3OJ> AO75NA 73	Spain
152130	-14	0.0	2305	~ G0JNH UB0ABG R-20	
152130	-12	0.1	1191	~ IT9EXH F1EXL 73	France
152130	-12	0.1	2233	~ KJ6HZ UT7UJ -17	
152130	-11	0.3	1089	~ GS3PYE R3DHP 73	EU Russia
152130	-8	0.0	1459	~ CQ KC1QYD FN41	U.S.A.
152130	-16	0.1	1676	~ MW0ODQ <AO75GA> -08	
152130	-13	0.0	301	~ CQ YO4NF KN44	Romania
152130	-7	0.1	1977	~ KG7UL JJ1BMB -03	
152130	-11	0.0	1396	~ CQ ON5AG JO20	Belgium
152130	-15	0.1	2009	~ CQ CT3MD IM13	Madeira Is.

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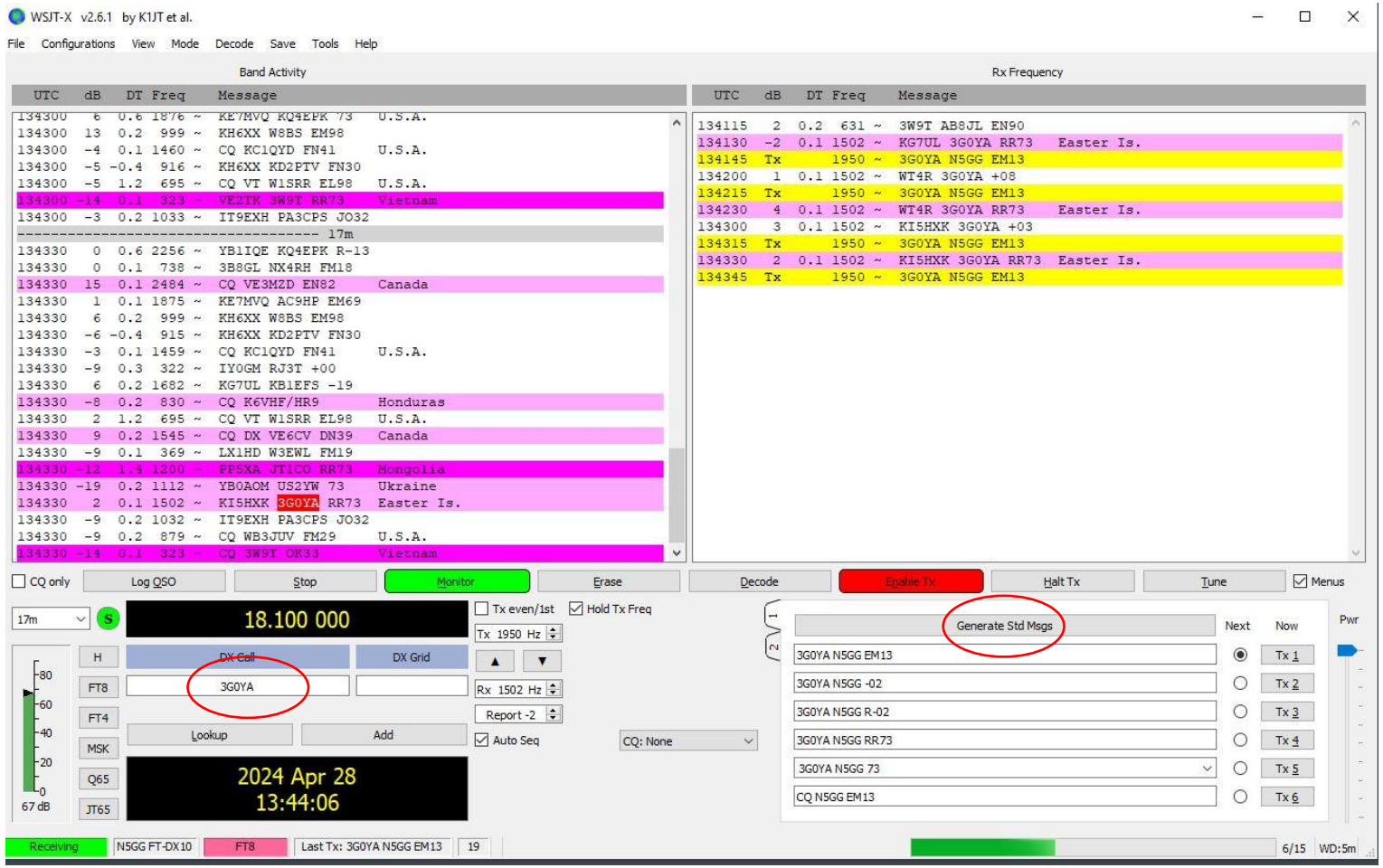
Use the Call Highlight



```
 5 -0.1   627 ~   KO4ATB 3G0YA -08
Tx        2101 ~   3G0YA N5GG EM13
 0  0.8   627 ~   KO4ATB 3G0YA RR73   Easter Is.
Tx        2101 ~   3G0YA N5GG EM13
 4 -0.2   627 ~   N5GG 3G0YA +07
Tx        2101 ~   3G0YA N5GG R+04
 2 -0.1   627 ~   N5GG 3G0YA RR73     Easter Is.
Tx        2101 ~   3G0YA N5GG 73
 1 -0.2   628 ~   KD5RBU 3G0YA +10
```

Work the DX

```
140715   Tx        1950 ~   3W9T N5GG EM13
140700  -14   0.5 1200 ~   CQ JT1CO OO20       Mongolia
140716   Tx        1950 ~   JT1CO N5GG EM13
140730  -14   0.5 1200 ~   SP7NC JT1CO -07
140745   Tx        1950 ~   JT1CO N5GG EM13
140800  -11   1.5 1200 ~   SP7NC JT1CO RR73    Mongolia
140815   Tx        1950 ~   JT1CO N5GG EM13
140830  -13   0.5 1200 ~   N5GG JT1CO -09
140845   Tx        1950 ~   JT1CO N5GG R-13
140900   -8   0.5 1201 ~   N5GG JT1CO RR73     Mongolia
140915   Tx        1950 ~   JT1CO N5GG 73
140930
```

…and Another One…

Internal Use - Confidential

Rack them up…

```
145230  -8  0.0  322 ~  CQ 3W9T OK33        Vietnam
145230   8  0.2  830 ~  CQ K6VHF/HR9        Honduras
145245  Tx      1501 ~  <K6VHF/HR9> N5GG EM13
145300   2  0.2  830 ~  N5GG <K6VHF/HR9> +07
145315  Tx      1501 ~  <K6VHF/HR9> N5GG R+02
145330   7  0.2  830 ~  <N5GG> K6VHF/HR9 RR73 Honduras
145345  Tx      1501 ~  K6VHF/HR9 <N5GG> 73
145400  10  0.1  829 ~  CQ K6VHF/HR9        Honduras
```

Rx Frequency

```
  UTC   dB   DT Freq    Message
165730  -6  0.1 1777 ~  WB6MPH OA4DOS -09
165746  Tx      1101 ~  OA4DOS N5GG EM13
165800  -9  0.1 1778 ~  N5GG OA4DOS -10
165815  Tx      1101 ~  OA4DOS N5GG R-09
165830   2  0.1 1778 ~  N5GG OA4DOS RR73   Peru
165845  Tx      1101 ~  OA4DOS N5GG 73
```

```
205300  14  0.2 2024 ~  CQ YN1Y EK62        N
205315  Tx      2300 ~  YN1Y N5GG EM13
205330   6  0.2 2024 ~  N5GG YN1Y +06
205345  Tx      2300 ~  YN1Y N5GG R+06
205400   1  0.2 2025 ~  N5GG YN1Y RRR
205415  Tx      2300 ~  YN1Y N5GG 73
205430  10  0.2 2024 ~  N5GG YN1Y 73        Nicaragua
205530  -4  0.2 2024 ~  J66BF YN1Y -17
```

```
230230 -13  0.3 1690 ~  KD1AB SU3YM RR73   Egypt
230245  Tx      650 ~  SU3YM N5GG EM13
230300 -13  0.0 1689 ~  N5GG SU3YM -17
230315  Tx      650 ~  SU3YM N5GG R-13
230330 -19  0.2 1688 ~  N5GG SU3YM RR73    Egypt
230345  Tx      650 ~  SU3YM N5GG 73
230400 -18  0.6 1689 ~  NE9U SU3YM -09
```

```
  UTC   dB   DT Freq    Message
203145   7  0.3  213 ~  N5GG HS0ZOY -12
203200  Tx      2554 ~  HS0ZOY N5GG R+07
203215   2  0.1  213 ~  N5GG HS0ZOY RR73   Thailand
203230  Tx      2554 ~  HS0ZOY N5GG 73
203245  -4  0.5  213 ~  CQ HS0ZOY OK14     Thailand
```

```
235845  Tx      2550 ~  A61QQ N5GG EM13
235900 -17  0.3 2549 ~  N5GG A61QQ -18
235915  Tx      2550 ~  A61QQ N5GG R-17
235930 -21  0.3 2550 ~  N5GG A61QQ RR73    United Arab Emirates
235945  Tx      2550 ~  A61QQ N5GG 73
```

```
150630 -18 -0.2 2580 ~  PP5HR PJ4TB 73      Bonaire
150647  Tx      2050 ~  PJ4TB N5GG EM13
150700 -17 -0.2 2580 ~  ZS5GJK PJ4TB FK52
150715  Tx      2050 ~  PJ4TB N5GG EM13
150730 -16 -0.2 2579 ~  ZS5GJK PJ4TB FK52
150745  Tx      2050 ~  PJ4TB N5GG EM13
        ~  N5GG PJ4TB -14
        ~  PJ4TB N5GG R-17
        ~  N5GG PJ4TB RR73    Bonaire
        ~  PJ4TB N5GG 73
        ~  ZS5GJK PJ4TB FK52
13
R73  Dominica
13
2
11
73   Dominica
```

```
CQ VK2LAW QF56      Australia
VK2LAW N5GG EM13
N5GG VK2LAW -13
VK2LAW N5GG R-15
VK2LAW N5GG R-15
131415  Tx      2400 ~  VK2LAW N5GG R-15
131430 -21  0.2 1706 ~  N5GG VK2LAW RR73   Australia
131445  Tx      2400 ~  VK2LAW N5GG 73
```

Rx Frequency

```
  UTC   dB   DT Freq    Message
202030 -15  0.1 1214 ~  EA1AHY CP7DX RR73  Bolivia
202045  Tx      1500 ~  CP7DX N5GG EM13
202100 -13  0.1 1154 ~  N5GG CP7DX -12
202115  Tx      1500 ~  CP7DX N5GG R-13
202130  -9  0.1 1154 ~  N5GG CP7DX RR73    Bolivia
202145  Tx      1500 ~  CP7DX N5GG 73
```

Internal Use - Confidential

Don’t be Monotinic…

UTC	dB	DT	Freq	Message
202030	-15	0.1	1214	~ EA1AHY CP7DX RR73 Bolivia
202045	Tx		1500	~ CP7DX N5GG EM13
202100	-13	0.1	1154	~ N5GG CP7DX -12
202115	Tx		1500	~ CP7DX N5GG R-13
202130	-9	0.1	1154	~ N5GG CP7DX RR73 Bolivia
202145	Tx		1500	~ CP7DX N5GG 73

CLUBLOG

Settings | Upload | OQRS | Donat

- Your Log
- DXCC Charts
- Satellite Charts
- Timelines
- Grid Squares
- QSL Charts
- Zone Charts
- Log Inspector
- Log Matching
- League Tables
- DXCC Leagues
- Satellite Leagues
- Zone Leagues
- Club Leagues
- CDXC Challenges
- Super League

Active Live Streams

The following Live Streams have been active recently. The ranked listing is for the last 8 hours. The % FT mode ir
column headings are clickable to sort.

Ranked by DXCC most wanted

Callsign	Location	Rank	Last QSO	% FT	Live Stream
C21TS	NAURU	74	**12:13**	100%	https://clublog.or
ZC4GW	UK BASES ON CYPRUS	141	06:42	0%	https://clublog.or
VK9DX	NORFOLK ISLAND	142	10:03	100%	https://clublog.or
V85NPV	BRUNEI	151	**11:57**	0%	https://clublog.or
8Q7KB	MALDIVES	154	**12:10**	100%	https://clublog.or
J88BTI	SAINT VINCENT	170	**11:59**	96%	https://clublog.or
5W1SA	SAMOA	181	**12:06**	100%	https://clublog.or
CP7DX	BOLIVIA	186	**12:14**	75%	https://clublog.or
XV9Q	VIET NAM	192	07:28	100%	https://clublog.or
9M8HAZ	EAST MALAYSIA	197	11:38	100%	https://clublog.or

Club Log: Club Log Live Stream | Club Log Live Stream: CP7DX

clublog.org/livestream/CP7DX

CLUBLOG CP7DX 20:12:25 18502 QSOs Rate: 4.8 QSOs/min

	160	80	60	40	30	20	17	15	12	10	6	4	2	70
Phone								■		■				
CW														
Data														

30:	10M	28.460	SSB	N3NTJ
29:	15M	21.292	SSB	K0OL
28:	10M	28.460	SSB	PA7PA
27:	10M	28.460	SSB	KE6HDV
26:	15M	21.292	SSB	IU1NKS
25:	10M	28.460	SSB	K1YWW
24:	10M	28.460	SSB	W3KXR
23:	15M	21.292	SSB	IK6LBT
22:	10M	28.460	SSB	WB5SYT
21:	10M	28.460	SSB	WB1DXD
20:	10M	28.460	SSB	W4HJ
19:	15M	21.292	SSB	WB8TLI
18:	10M	28.460	SSB	W4GMT
17:	15M	21.292	SSB	PY2GG
16:	10M	28.460	SSB	LU7WSH
15:	15M	21.292	SSB	OE8TTR
14:	10M	28.460	SSB	PY1TTN
13:	15M	21.292	SSB	9A1WW
12:	10M	28.460	SSB	NS4C
11:	10M	28.460	SSB	K2UQT
10:	15M	21.292	SSB	WB1DXD
09:	10M	28.460	SSB	KC1BBU
08:	10M	28.460	SSB	F4HJO
07:	15M	21.292	SSB	LU5BE
06:	10M	28.460	SSB	K8NYM
05:	10M	28.460	SSB	N2MEE
04:	15M	21.292	SSB	W1GC
03:	15M	21.292	SSB	K9AU
02:	10M	28.460	SSB	I1NVU
01:	15M	21.292	SSB	N5GG

Leaflet | © OpenStreetMap contributors

First QSO: 2022-09-25 12:55 | Last QSO: < 10 mins | Map pins: 30 Update rate: 3s Heartbeat: 20:12:24 | Log Search | DX Spots | Live Stream by Club Log Documentation | Wrong locator?

Internal Use - Confidential

Cont 1000 1500 2000 2500 3000

Bins/Pixel 2 | Start 200 Hz | Palette | Adjust... | Flatten | Ref Spec | Spec 30 %
Split 2500 Hz | N Avg 1 | Default | Cumulative | Smooth 1

WSJT-X v2.6.1 by K1JT et al.

File Configurations View Mode Decode Save Tools Help

Band Activity

UTC	dB	DT	Freq	Message
---------- 15m				
203645	5	0.3	2804	~ A52P W4LUF EL95
203645	-8	0.2	2044	~ 3D2CCC PU5SVE GG35
203645	-1	0.3	3004	~ A52P KZ4RB EL99
---------- 15m				
203715	7	0.3	2803	~ A52P W4LUF EL95
203715	-4	0.3	3004	~ A52P KZ4RB EL99
203715	-11	0.3	2956	~ A52P YV1SW FK40
203715	-13	0.2	2043	~ 3D2CCC PU5SVE GG35
---------- 15m				
203745	10	0.3	2804	~ A52P W4LUF EL95
203745	-12	0.2	2044	~ 3D2CCC PU5SVE GG35
203745	-4	0.3	3005	~ A52P KZ4RB EL99
203745	-10	0.3	2955	~ A52P YV1SW FK40
---------- 15m				
203815	12	0.3	2803	~ A52P W4LUF EL95
203815	-14	0.2	2044	~ 3D2CCC PU5SVE GG35
203815	-6	0.3	2954	~ A52P YV1SW FK40
203815	-7	0.3	3004	~ A52P KZ4RB EL99

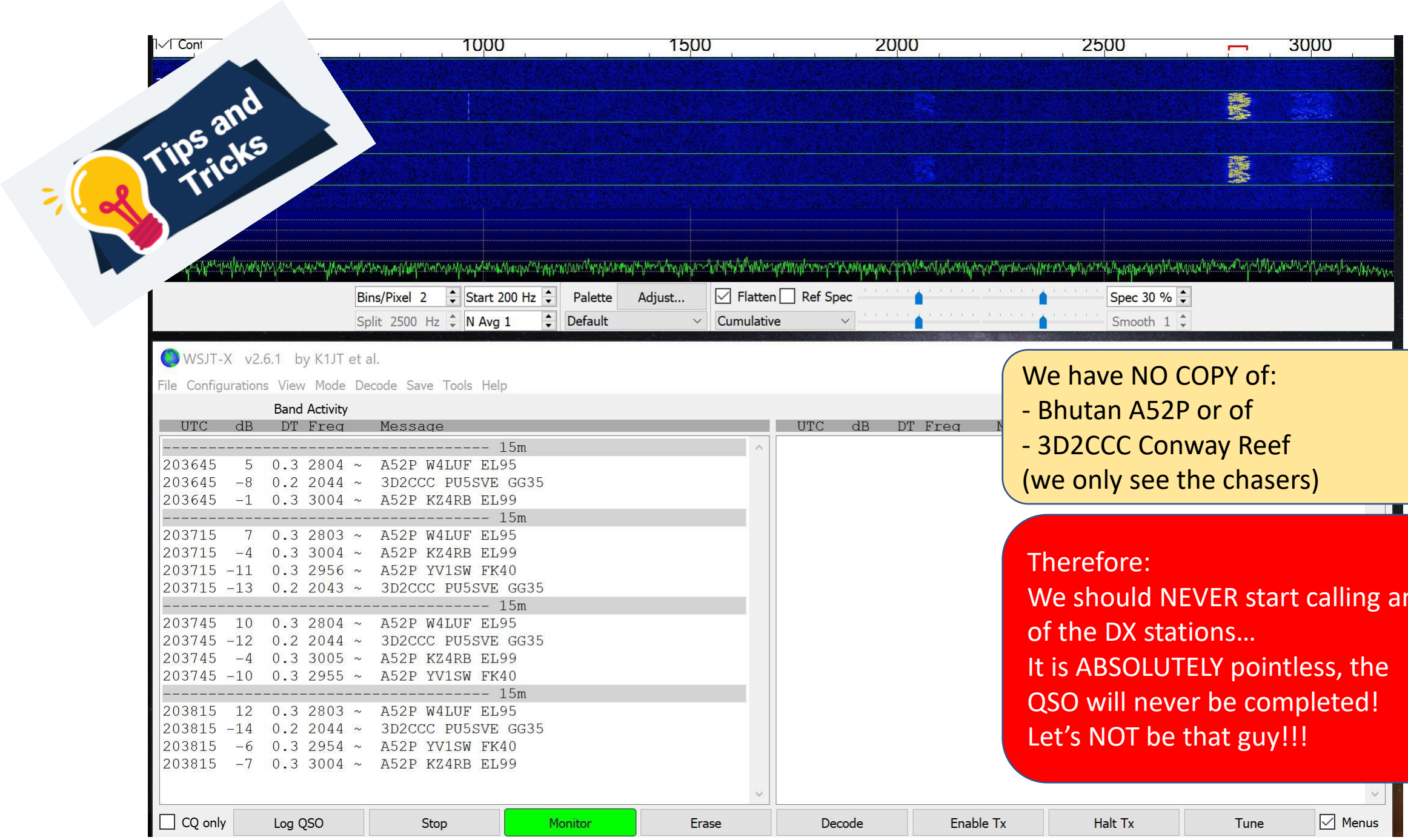
Rx Frequency

UTC	dB	DT	Freq	Message

What is wrong here???

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

Internal Use - Confidential



We have NO COPY of:
- Bhutan A52P or of
- 3D2CCC Conway Reef
(we only see the chasers)

Therefore:
We should NEVER start calling any of the DX stations…
It is ABSOLUTELY pointless, the QSO will never be completed!
Let’s NOT be that guy!!!

Internal Use - Confidential

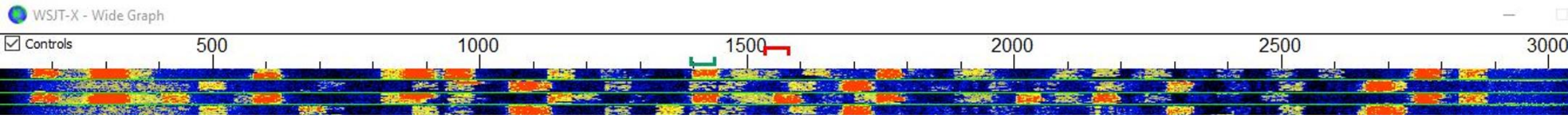
SNR / Filters

WIDE FILTERING

	DT	Freq	Message	
	-9	0.1 1496 ~	8Q7KB KC3PCS FN20	
234815	-20	0.0 953 ~	K6GF KB8QD RR73	U.S.A.
234815	-6	0.0 819 ~	8Q7KB NA9J EL86	
234815	-11	0.0 1478 ~	SU3YM KC1THU FN31	
234815	-18	0.5 2485 ~	K9EL PY2DPM R+05	
234815	-21	0.3 1229 ~	8Q7KB K5LLF -10	
234815	-24	0.0 1073 ~	KL1Y WB8UBR EM79	
			17m	
234830	-11	0.2 1395 ~	CQ 7Q6M KH67	Malawi
234830	-6	0.1 2687 ~	CN8NY KC3UEK FN00	
234830	-2	0.3 1334 ~	CQ K6RRS DN18	U.S.A.
234830	13	0.0 954 ~	KB8QD K6GF 73	U.S.A.
234830	14	0.6 1690 ~	KE2DFS AI4FR EL88	
234830	2	0.1 1058 ~	ES1KK WA4AAV FM05	
234830	-11	0.3 2528 ~	CQ R7DX KN84	EU Russia
234830	-2	0.0 2289 ~	SP7NC N3QE -17	
234830	-10	0.0 1238 ~	CQ W5XO EM10	U.S.A.
234830	-14	0.1 617 ~	9V1YC HK3J -08	
234830	-12	0.0 2645 ~	EA3ELW AD2CM 73	U.S.A.

UTC	dB	DT	Freq	Message	
234630	-10	0.2	1394 ~	CQ 7Q6M KH67	Malawi
234645	5	0.1	1402 ~	8Q7KB AD2L FN11	
234700	-10	0.2	1395 ~	CQ 7Q6M KH67	Malawi
234715	2	0.1	1402 ~	8Q7KB AD2L FN11	
234730	-12	1.6	1394 ~	CQ 7Q6M KH67	Malawi
234745	-1	0.1	1402 ~	8Q7KB AD2L FN11	
234800	-14	1.5	1394 ~	CQ 7Q6M KH67	Malawi
234815	4	0.0	1402 ~	8Q7KB AD2L FN11	
234830	-11	0.2	1395 ~	CQ 7Q6M KH67	Malawi

With the Audio Filter at 3.2kHz:
Malawi is being detected at around
-12 dB SNR



Internal Use - Confidential

SNR / Filters

NARROW FILTERING

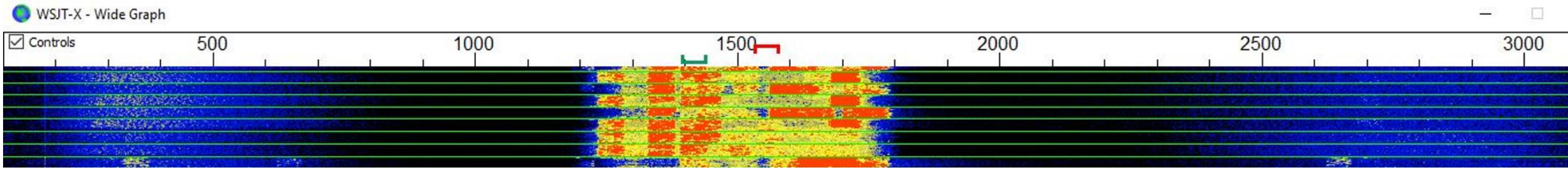
Band Activity

UTC	dB	DT	Freq	Message	
				17m	
234500	20	0.3	1684	~ VO2ET KO4LZZ FM05	
234500	7	0.1	1238	~ CQ DX W5XO EM10	U.S.A.
234500	4	0.3	1334	~ CQ K6RRS DN18	U.S.A.
234500	11	0.2	1422	~ CQ KC6CHL DM04	U.S.A.
234500	6	0.3	1394	~ CQ 7Q6M KH67	Malawi

Rx Frequency

UTC	dB	DT	Freq	Message	
234500	6	0.3	1394	~ CQ 7Q6M KH67	Malawi

With the Audio Filter at 400 Hz:
Malawi is being detected at around
+6dB SNR



Be VERY careful when using NARROW FILTERING… Remember that you will be decoding ONLY the stations within the BW of the filter setting!

To be used only in extreme cases when a STRONG station needs to be “notched” out to help decodability of the DX

Internal Use - Confidential

FT8 – Fox and Hound

Internal Use - Confidential

Why was F/H Introduced?

RARE DX using FT8 mode (typical scenario):

- Rare DX wants to operate FT8 on 20m
- Rare DX tunes to 14074 kHz
- Selects a clean lane
- Starts calling CQ

- 2 minutes later absolute chaos ensues because EVERY chaser is now trying to work the rare DX and everyone is stomping on everyone else's transmission, including the DX's frequency!!!

Result:
DX station is frustrated
QSO rates plummet
Chasers are frustrated

let's turn it all off and go watch TV…

Internal Use - Confidential

What is FT-8 F/H

FT8 – F/H is a variation of the regular FT8 scheme that separates the chasers from the rare DX station and allows for a more orderly and faster QSO flow.

F/H aims at addressing and minimizing the issues in the previous scenario

Characteristics of F/H:

- DX transmission frequency is in the lower 900 Hz of the FT-8 audio passband (300 to 900 Hz)
- Chasers CALL the DX above the 1kHz marker (1kHz to 3kHz)
- DX station works with a queue of chasers
- Objective of the DX station is to keep the queue as full as possible
- Objective of the chasers is to be added to the queue
- When chasers are on the top of the DX station's queue, DX sends the chaser's report (The software detects that the DX answered to the chaser and that moves the chaser's original transmitter lane right to the DX transmit lane)

The idea is that ONLY chasers that received the chaser's report will be on that frequency, increasing the DX's station decoding probability of the chaser station's transmission.

Another new aspect is that the DX station can operate with more than 1 stream (TX lane) at a time. That increases the QSO rate for the DX station. In ideal conditions 400+ Qs/hr is possible. Max is 5 simultaneous streams.

Internal Use - Confidential

FT-8 F/H
Prerequisits

Please note these restrictions and prerequisites:

FT8 F/H (also known as Dxpedition mode) is intended for use by rare-entity DXpeditions and other unusual circumstances in which sustained QSO rates well above 100/hour are expected. Do not use the multi-signal capability if you do not satisfy this requirement.

F/H Mode must not be used in the conventional FT8 sub-bands. If you are contemplating operation as Fox in DXpedition Mode, find a suitable dial frequency consistent with regional band plans and publicize it for the operators you hope to work. Remember that on-the-air signal frequencies will be higher than the dial frequency by up to 4 kHz.

Everyone, including Fox (DX) and all Hounds (Chasers) trying to work Fox, must use WSJT-X Version 1.9.0 or later.

Everyone should use CAT control with Split Operation, either Rig or Fake It

Every chaser needs to activate F/H mode in WSJT-X prior to calling the DX station using F/H

Here is a great detailed document covering the F/H mode:
https://wsjt.sourceforge.io/FT8_DXpedition_Mode.pdf
User Guide / Joe Taylor, K1JT — May 16, 2018

Internal Use - Confidential

FT-8 F/H

Quoting from K1JT's documentation:

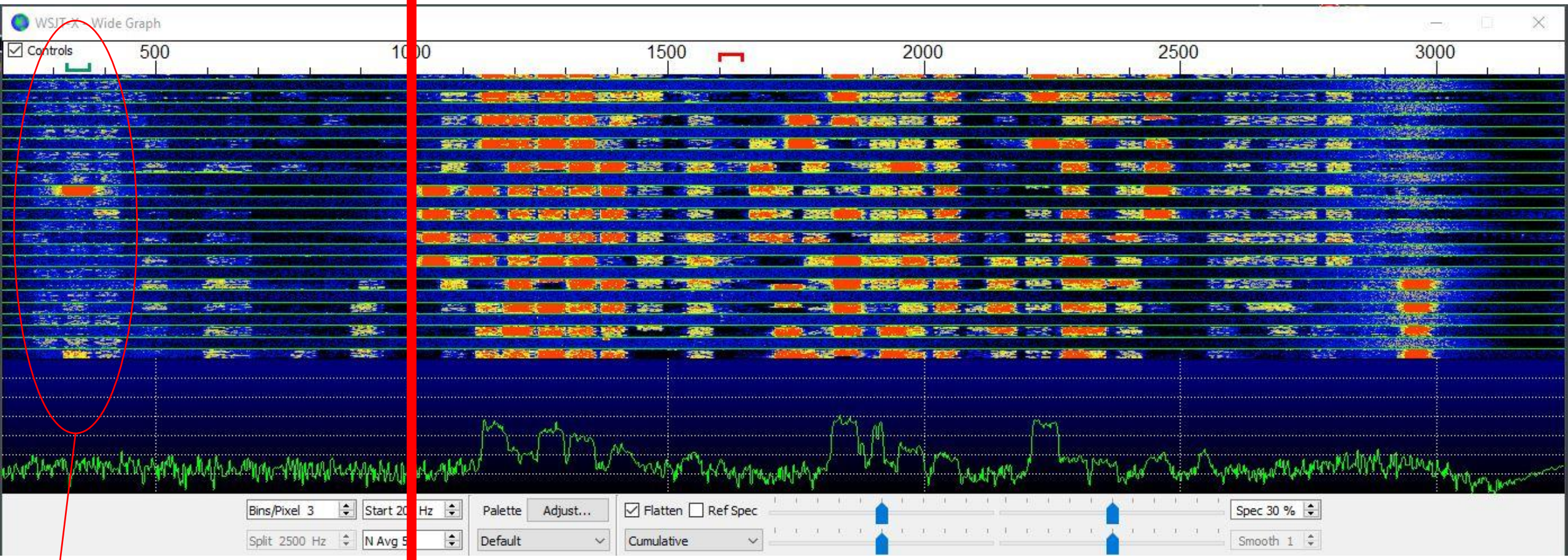
"In FT8 DXpedition mode, QSOs between the DXpedition ("Fox") and calling stations ("Hounds") can be completed with as little as one Fox transmission per QSO. Moreover, authorized Foxes can transmit up to five signals simultaneously, thereby allowing QSO rates up to about 500 per hour in ideal conditions."

Internal Use - Confidential

FT8 FH spectrum

DX station and chasers being worked

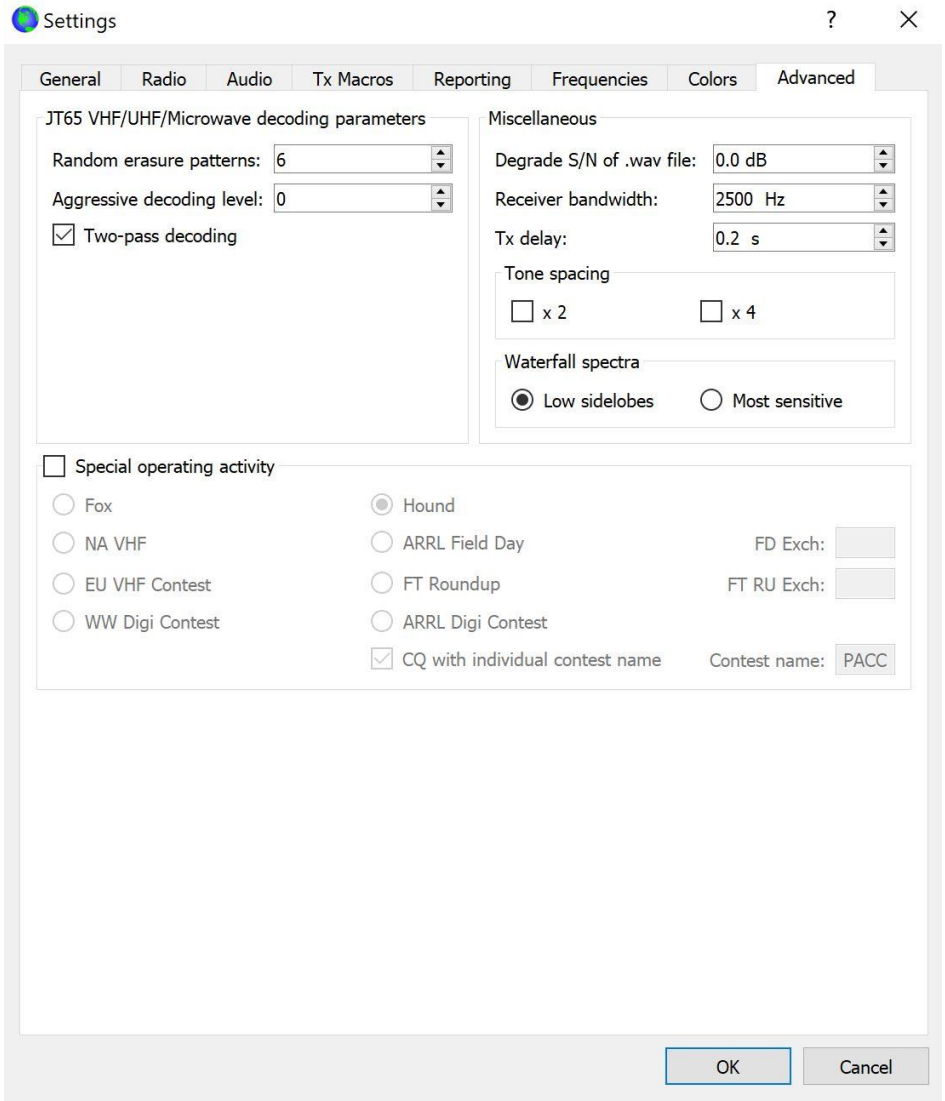
Chasers trying to get on the queue

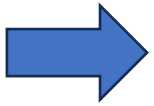


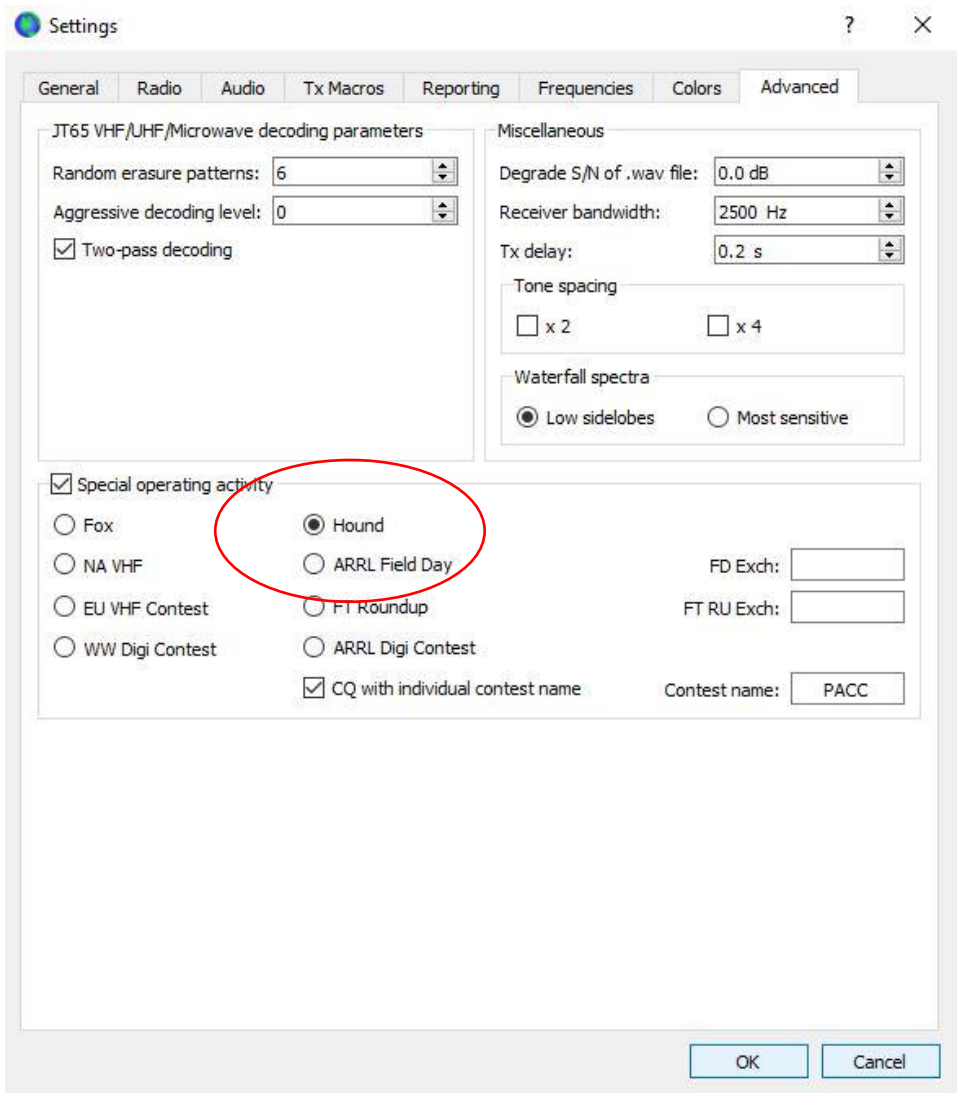
DX using 3 simultaneous streams

Internal Use - Confidential

Activate F/H mode via Settings Tab

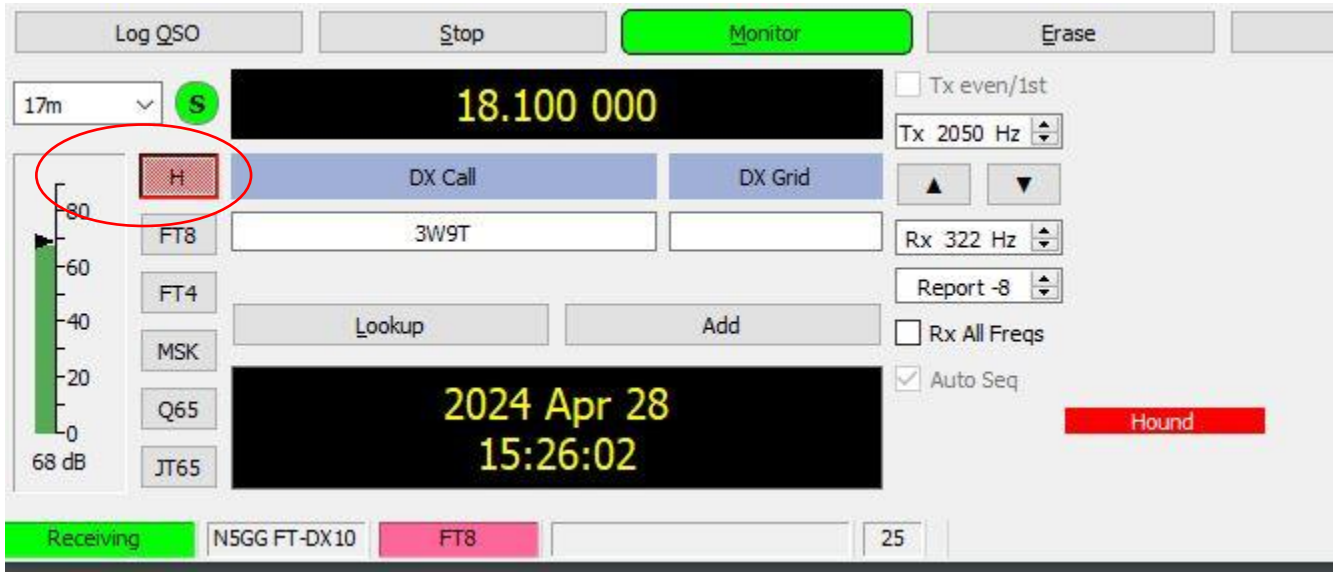






Internal Use - Confidential

Activate F/H mode
Via main screen



Internal Use - Confidential

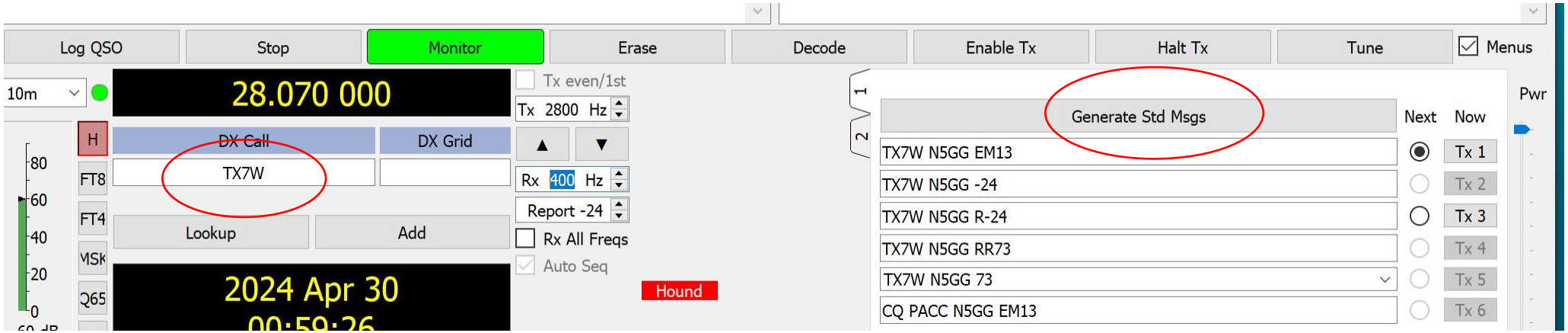
Select one of the DX lanes for RX

Find a clean lane ABOVE 1kHz

Pick YOUR lanes

Internal Use - Confidential

Fill the DX call
Generate Standard Messages



Internal Use - Confidential

Check List

"Hound Checklist"

- Verify you can hear the Fox
- Properly enabled Hound Mode
- Entered Fox's Freq in Table
- Enter Fox callsign into Call field and click Gen Msgs button
- Set Tx Freq > 1000 Hz
- Select the Tx 1 Field

THEN: click on the Enable TX button and start calling the DX (fox)

Internal Use - Confidential

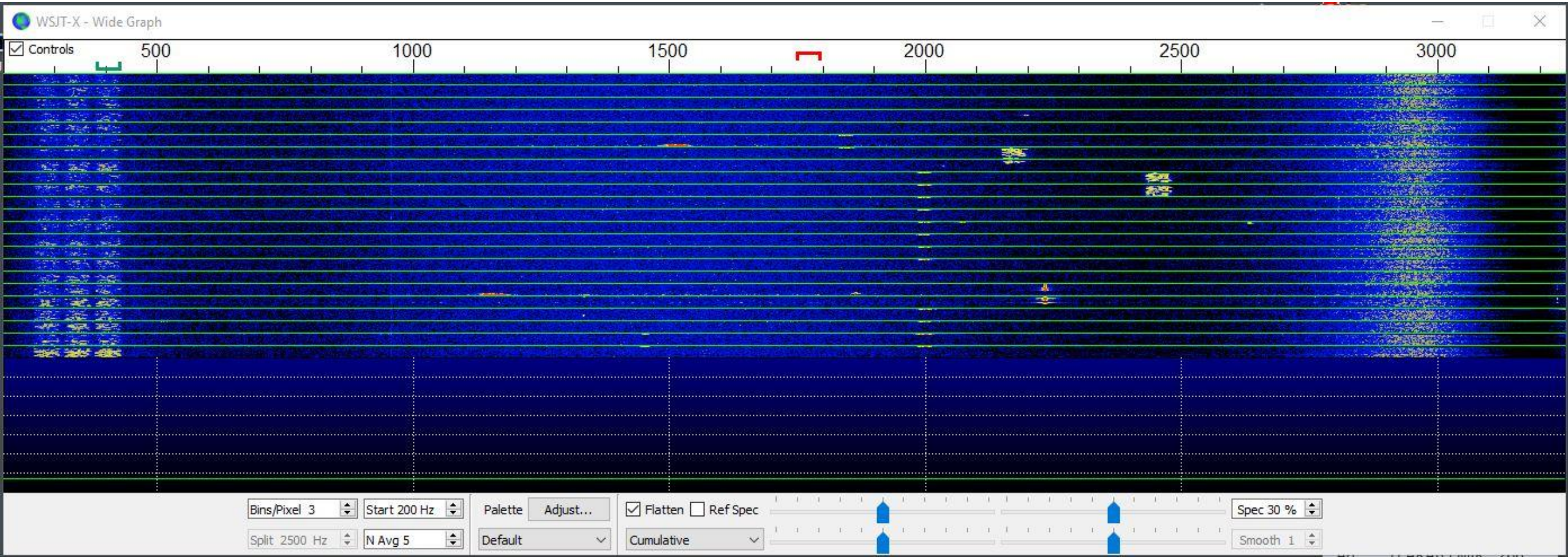
Try to get on the DX queue

Rx Frequency

UTC	dB	DT	Freq		Message
170000	13	-0.1	329	~	WA9JBQ TX7W -14
170015	Tx		1101	~	TX7W N5GG EM13
170030	10	-0.1	329	~	WA9JBQ RR73; VE3YXO <TX7W> -20
170045	Tx		1101	~	TX7W N5GG EM13
170100	5	-0.1	329	~	VE3YXO TX7W -19
170115	Tx		1101	~	TX7W N5GG EM13
170130	-1	-0.1	329	~	VE3YXO TX7W RR73
170145	Tx		1101	~	TX7W N5GG EM13
170200	0	-0.1	329	~	WA9JBQ RR73; W7TEC <TX7W> -08
170218	Tx		1101	~	TX7W N5GG EM13
170230	0	-0.1	329	~	W7TEC TX7W -08
170245	Tx		1101	~	TX7W N5GG EM13
170300	1	-0.1	329	~	W7TEC TX7W RR73
170315	Tx		1101	~	TX7W N5GG EM13
170330	2	-0.1	329	~	WA9JBQ RR73; K0AY <TX7W> -02

Internal Use - Confidential

This is the waterfall when you are calling the DX
(you see only the DX slot)



DX using 3 simultaneous streams

Not much happening here… this is the DX slot and he is below 1kHz

Internal Use - Confidential

This is what the DX station sees
(Their settings is configured as a FOX)

Stations calling DXpedition VK9LAA

Call	Grid	dB	Freq	Dist	Age	Continent
WP4JLU	FK68	-7	1427	15205	0	NA
KG8P	EN81	-12	1689	14481	0	NA
W9ROG	EN62	-13	1194	14175	0	NA
KD8MRL	EN50	-24	1804	13965	0	NA
AI5DZ	EM12	-17	2541	13014	0	NA
AJ6LG	CM97	-13	2343	11285	0	NA
JM8FEI	QN03	-3	2614	8514	0	AS
JA8XQI	QN03	-4	1113	8514	0	AS
JA2UBD	PM85	6	1056	7773	1	AS
JE2WNL	PM95	11	1240	7714	0	AS
JE2AVU	PM95	11	1872	7714	3	AS
JF1DKB	QM05	16	1552	7660	0	AS
YC1JEL	OI33	-9	1891	6065	0	OC

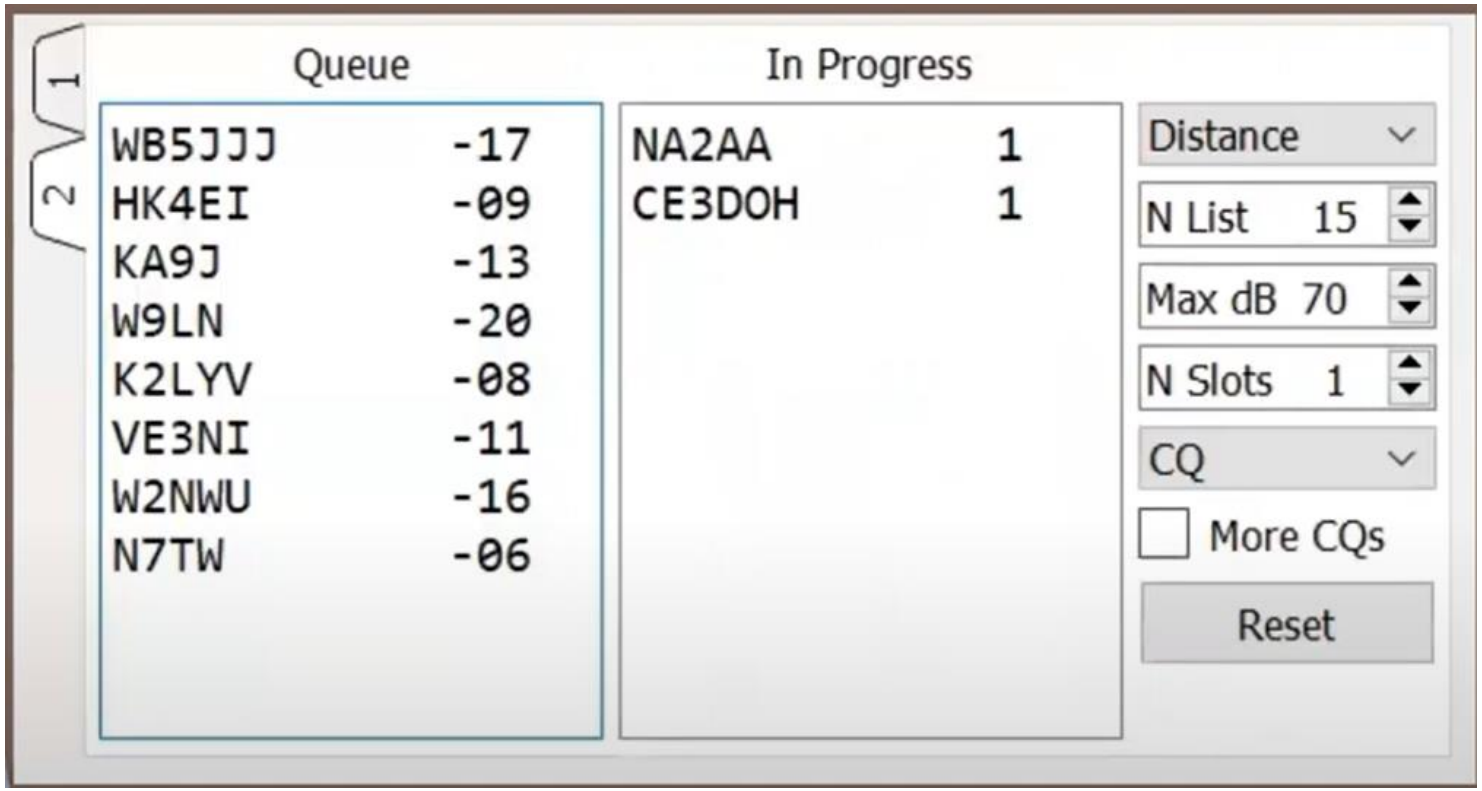
Assuming the Fox can hear you, you will appear in the Stations Calling Window

This window is sorted by strongest signal by default, although the Fox may sort by Distance (as shown here)

YOUR goal is to make it onto this list and then to be MANUALLY selected by the FOX to join his queue!

Internal Use - Confidential

This is the FOX's Queue and Progress Window



The Fox double clicks a callsign in the Stations Calling window, which moves that callsign to the bottom of the Queue. The Queue has 10 positions. The Fox may select any callsign in any order from the Stations Calling Window to move to the Queue.

Each station "bubbles up" through the Queue until he is on the top (which creates new space at the bottom of the queue)

That station then moves to the In Progress Window

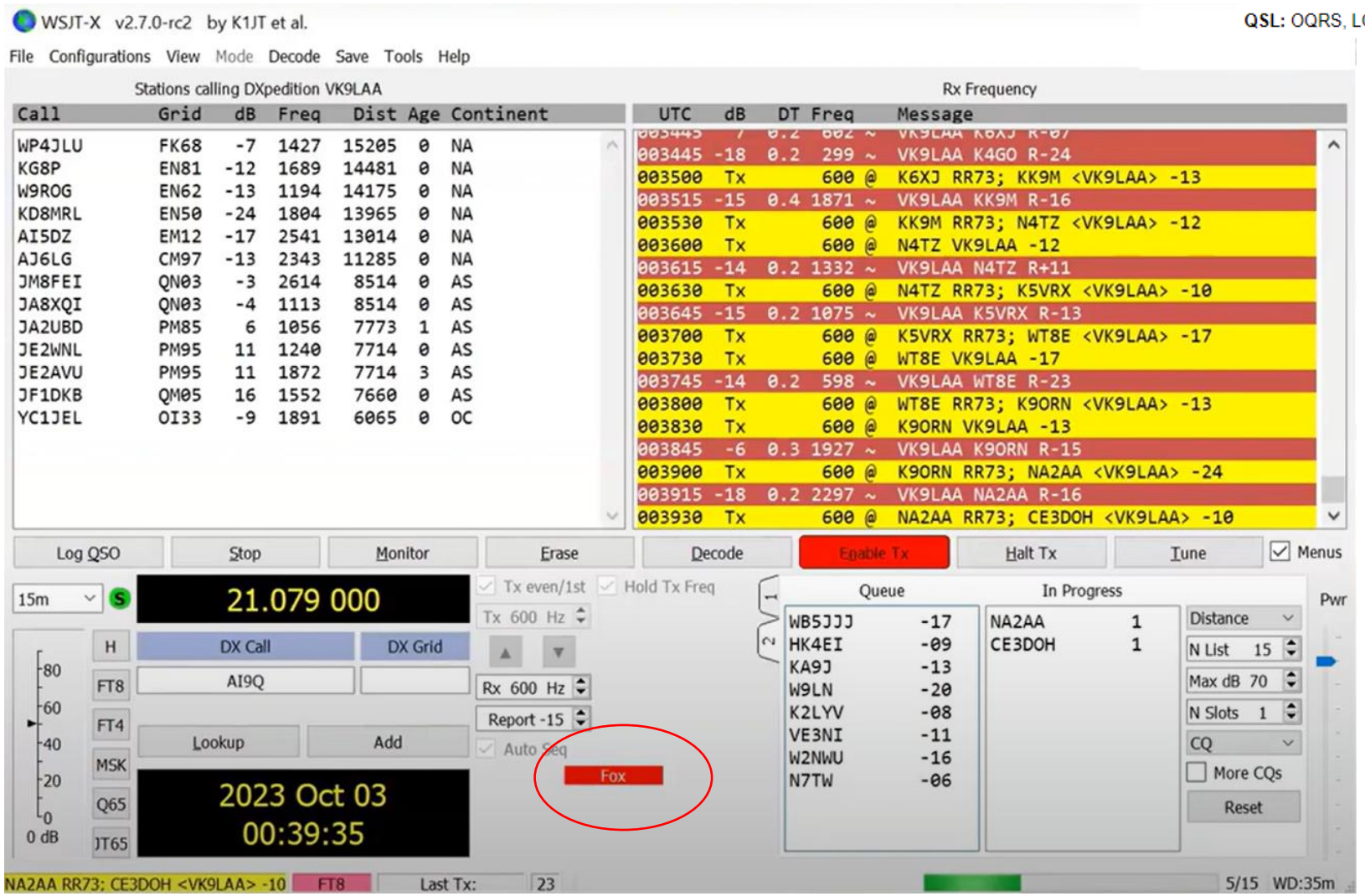
New Feature: The Fox can move any station to the top of the Queue, just for club members and buddies!

Internal Use - Confidential

Fox's entire screen
K7AR – Al Rovner running FT8 FOX
during the Dxpedition to VK9LAA
Lord Howe Is. - 2023

VK9LAA Lord Howe Island
Robert **"Bob"** Norin

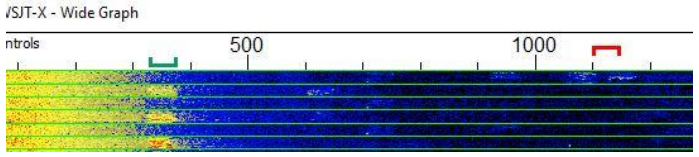
Lord Howe Island
Australia
QSL: OQRS, LOTW, or via W7YAQ



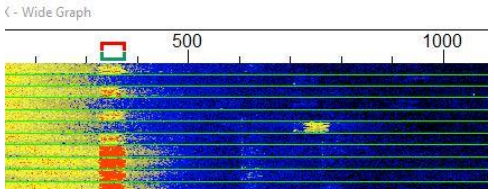
Internal Use - Confidential

Eventually you will get on the queue and work the DX
Note: the whole QSO is only 2 exchanges per side

N5GG is listening for TX7W on 329 Hz
And is trying to call him on 1101 Hz
Over
And
Over and over and over…
Until…



N5GG calls on 1101 Hz
TX7W replies on 329 Hz
N5GG changes to 329 Hz and sends report
TX7W finishes with RR73 and works next in queue



Rx Frequency

UTC	dB	DT	Freq		Message
170000	13	-0.1	329	~	WA9JBQ TX7W -14
170015	Tx		1101	~	TX7W N5GG EM13
170030	10	-0.1	329	~	WA9JBQ RR73; VE3YXO <TX7W> -20
170045	Tx		1101	~	TX7W N5GG EM13
170100	5	-0.1	329	~	VE3YXO TX7W -19
170115	Tx		1101	~	TX7W N5GG EM13
170130	-1	-0.1	329	~	VE3YXO TX7W RR73
170145	Tx		1101	~	TX7W N5GG EM13
170200	0	-0.1	329	~	WA9JBQ RR73; W7TEC <TX7W> -08
170218	Tx		1101	~	TX7W N5GG EM13
170230	0	-0.1	329	~	W7TEC TX7W -08
170245	Tx		1101	~	TX7W N5GG EM13
170300	1	-0.1	329	~	W7TEC TX7W RR73
170315	Tx		1101	~	TX7W N5GG EM13
170330	2	-0.1	329	~	WA9JBQ RR73; K0AY <TX7W> -02
170345	Tx		1101	~	TX7W N5GG EM13
170400	0	-0.1	329	~	K0AY RR73; N5GG <TX7W> +06
170415	Tx		329	~	TX7W N5GG R+00
170430	-8	-0.1	329	~	N5GG RR73; W7HRF <TX7W> +02
170500	-10	-0.1	329	~	W7HRF RR73; W7ACM <TX7W> -06
170530	-9	-0.1	329	~	W7ACM TX7W -05
170600	-10	-0.1	329	~	YY5RVC TX7W -01
170630	-13	-0.1	329	~	YY5RVC TX7W -01
170700	-2	-0.0	329	~	W0QL TX7W +04

Whole QSO

Internal Use - Confidential

What happens when a chaser (Hound) moves from the Queue to the In Progress state?

- A Hound has 5 opportunities to complete a successful QSO
- For the first 3 cycles, the Fox sends a Report and expects a Reply Report
- If a Reply Report is received during the first 3 attempts, the Fox sends the Hound an RR73 message and logs the QSO
- If no Reply Report is received after 3 attempts, the Fox will contact the next station in the Queue
- Even though the Fox is contacting the next station, he will listen for 2 additional cycles for the first Hound's Reply Report. This is called the Grace Period.

Internal Use - Confidential

What happens if the Hound loses or fails all 5 opportunities for a QSO?

Internal Use - Confidential

If the QSO was NOT completed…

- The Fox will not make any other attempts to call or listen for the Hound
- The Hound has forfeited this opportunity for a QSO
- What should the Hound do in this case?
- Reset and go back to the Hound Checklist
  - Set Tx Freq > 1000 Hz
  - Select Tx 1 field to transmit
  - Select Enable Tx to call the Fox for a second attempt
- (Hopefully) the Hound will re-appear in the Stations Calling Window and go back through the process again

Start OVER!!!

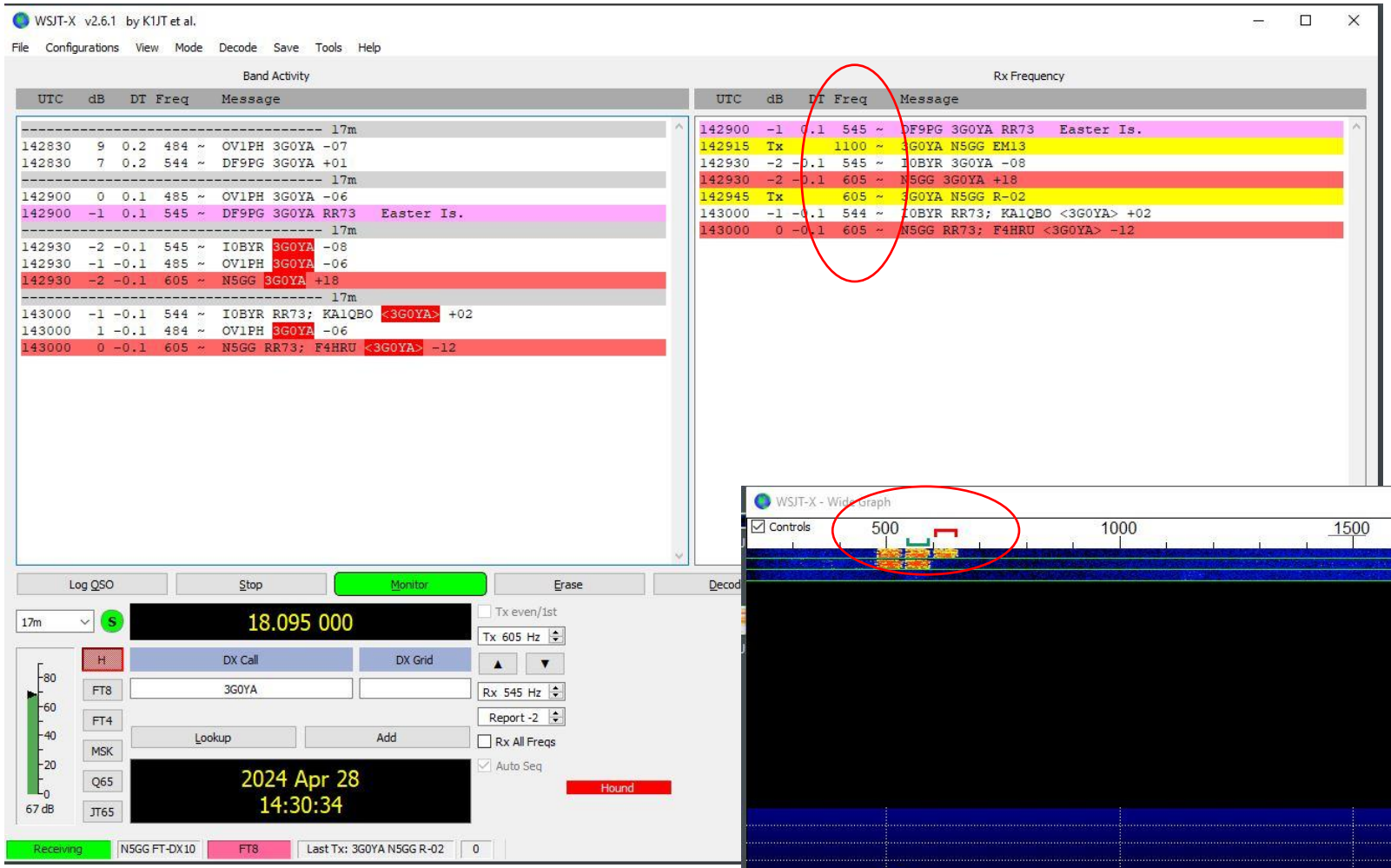
Internal Use - Confidential

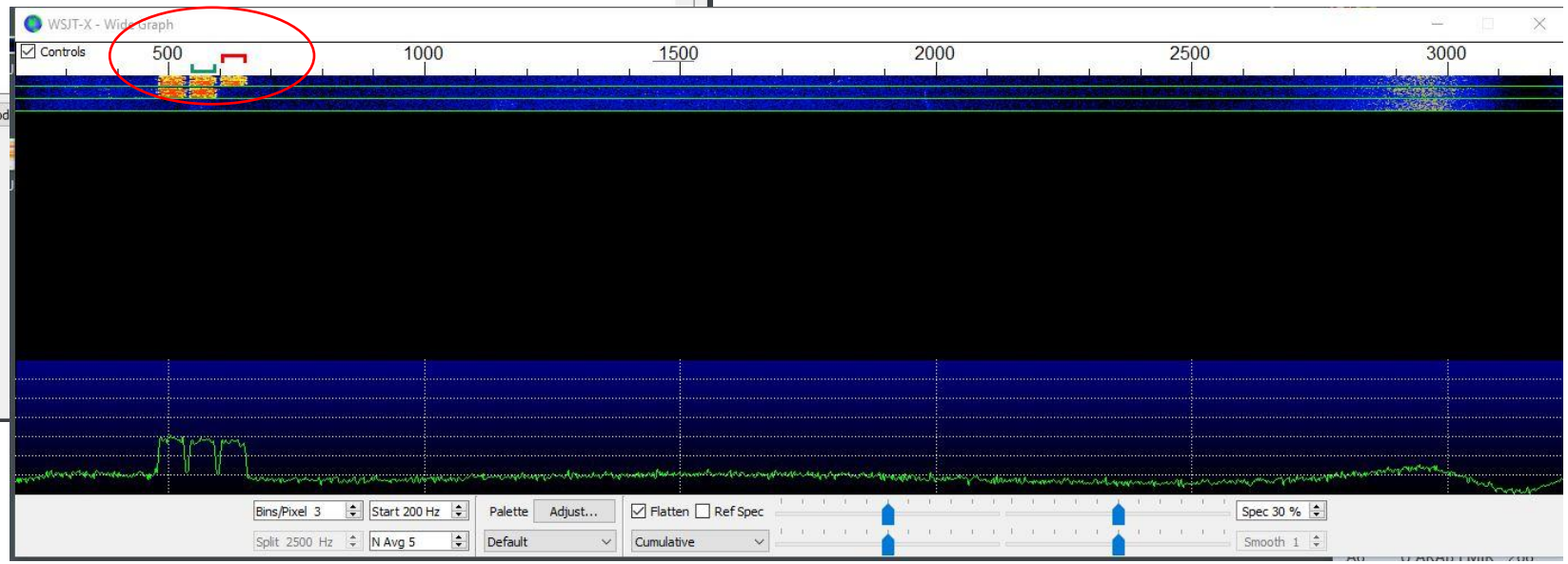
What should the chaser (Hound) NOT DO???

- Do not keep sending the Fox a Report
- The Fox will not reply. This attempt for a QSO has failed
- The Hound must Reset as previously stated (because the Fox likely moved your Tx Freq below 1000 Hz on the first attempt)
- Operating as a Fox, I have seen stations keep sending their report for over an hour. The Fox will not reply to this.

Internal Use - Confidential

Another Example of a successful F/H QSO





Log Search

This form allows you to check if you are "in the log". It only works for registered C

Log to search:	3G0YA
94,256 QSOs logged between 2024-04-18 16:18Z and 2024-04-28 14:30Z	
Callsign to check:	N5GG

Show contacts

Band	CW	FT8
40	1	1
20	1	1
17	1	1
15	1	2
12	1	1
10	1	1

Note: 3G0YA is also using the Club Log expedition charts

Internal Use - Confidential

And Another One

Clipperton on 160m

```
102200   -6   1.2   600  ~  W3XY RR73; JH8JWF <TX5S> -22
102215   Tx        1200  ~  TX5S N5GG EM13
102230   -3   1.2   600  ~  N4PYI RR73; N5GG <TX5S> -12
102245   Tx         600  ~  TX5S N5GG R-03
102300   -4   1.2   600  ~  N5GG RR73; W0ELT <TX5S> -16
102330   -2   1.2   600  ~  W0ELT TX5S RR73
102400   -5   1.2   600  ~  W4GM TX5S -19
```

Internal Use - Confidential

Examples of QSO’s from FOX’s perspective

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FOX’s view - Perfect QSO

Active RPRT 1

Reply with RPRT

RR73 – QSO OK

```
234330   Tx          600 @  K4UWC VK9LAA -13
234345   -7 -0.0     600 ~  VK9LAA K4UWC R-14
234400   Tx          600 @  K4UWC RR73; KM4VJW <VK9LAA> -18
```

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FOX's view – QSO completed within the GRACE Period

Active RPRT 1

Active RPRT 2

Active RPRT 3

Grace Period 1

Station sends RPRT

RR73 – QSO OK

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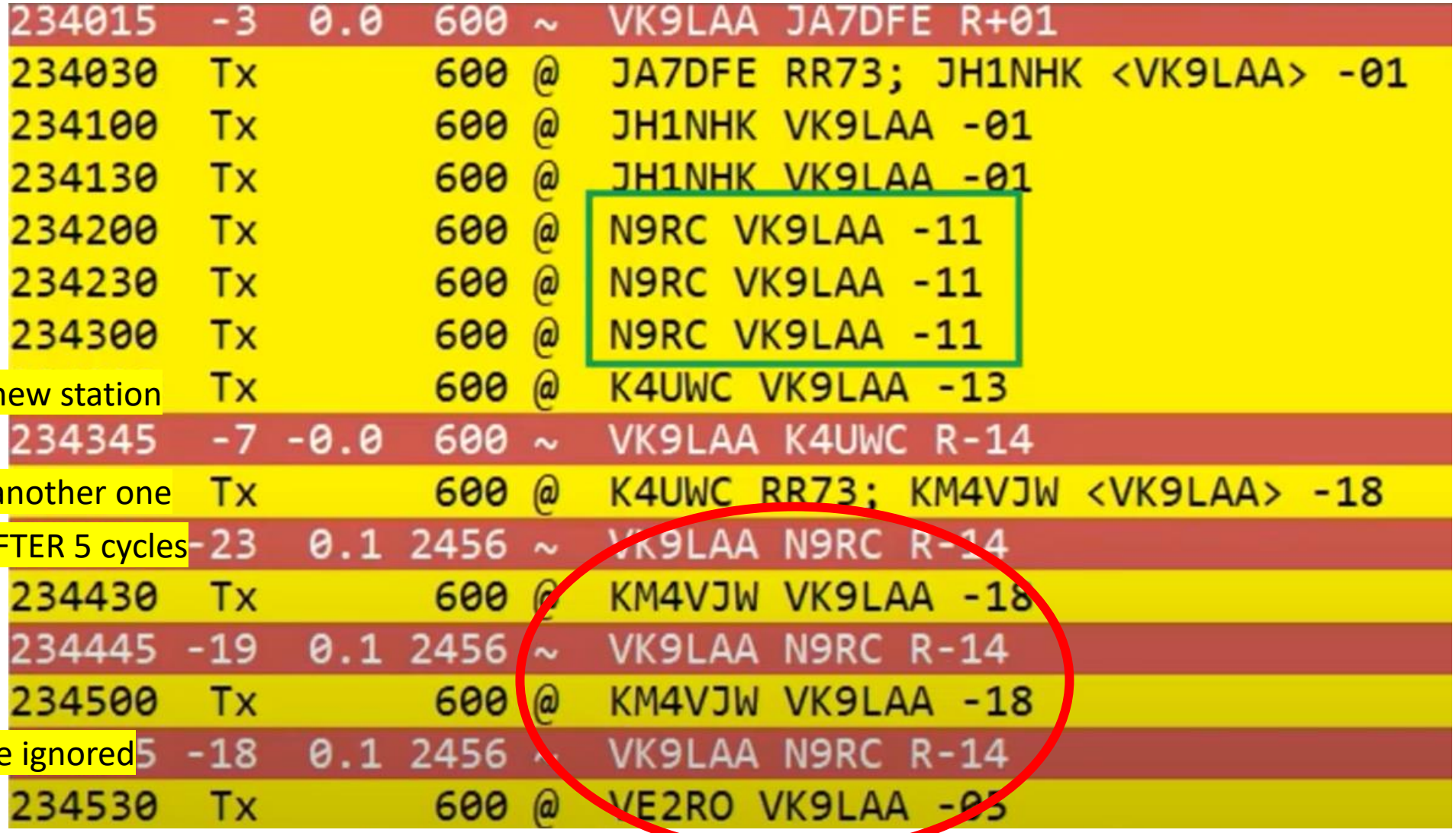
FOX's view – FAILED QSO



Active RPRT 1

Active RPRT 2

Active RPRT 3

Grace Period 1, moved to new station

Grace Period 2, moved to another one

QSO FAILS – RPRT arrives AFTER 5 cycles

All further N9RC reports are ignored

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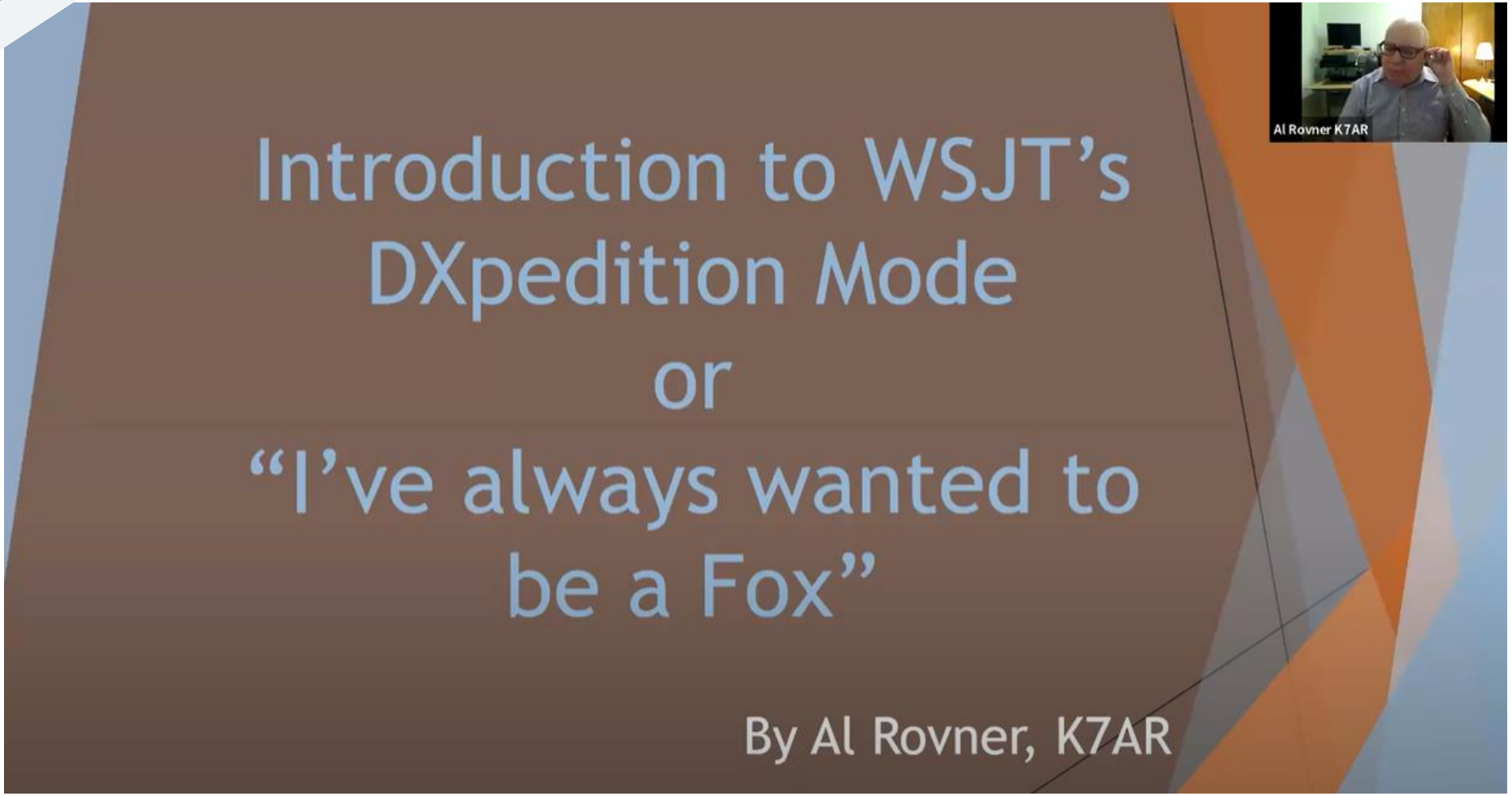
Watch the whole video on YouTube:
FT8 DXPedition mode for working Fox and Hound

https://www.youtube.com/watch?v=Z92XWSK-ASA



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What about those non-standard frequencies for FT8?

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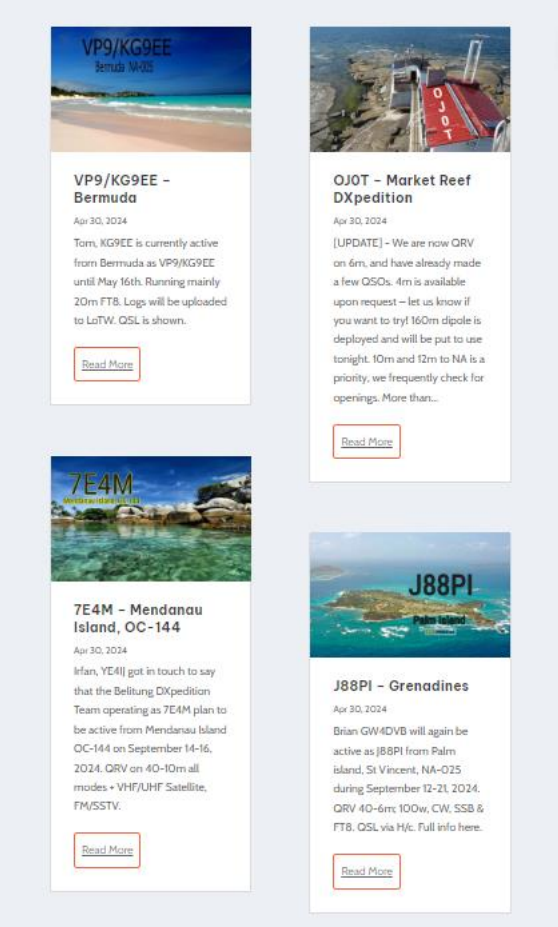
Places to dig for information

DX-World
https://www.dx-world.net

DX-World | The World's Biggest and Best DX News Service for ...

WEB **DX-World** is a website that provides news, updates and bulletins about amateur radio DXpeditions and IOTA activities around the world. Find out the latest information about ...

Estimated Reading Time: 2 mins



DX News
https://dxnews.com

DX - News - HAM Radio - Amateur Radio - DX News

WEB Feb 16, 2020 · **DX News** is a website for radio amateurs who are interested in DX and radiosport. It features news, articles, videos, images and a forum about upcoming and ...

Latest Articles

PZ5TW Suriname
2024-04-30 18:01:24

Ren, PY8WW will be active as PZ5TW from Suriname, 29 April - 4 May 2024.

★★★★★ 7430 2 More...

6O3T Somalia
2024-04-30 15:35:22

Looking for young radio operators for our next DXpedition!

★★★★★ 7092 2 More...

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Finding those elusive DXpedition Band Plans

E6SP

Niue

E6SP NIUE - BAND PLAN APRIL 2024

	FT8		FT4
160m	1,840		
80m	3,573		
60m	5,357		
40m	7,074 7,056	F/H	7,047.5
30m	10,136 10,131	F/H	10,140
20m	14,074 14,090	F/H	14,080
17m	18,100 18,105	F/H	18,104
15m	21,074 21,095	F/H	21,140
12m	24,915 24,925	F/H	24,919
10m	28,074 28,095	F/H	28,180

Band-Plan

All frequencies are +/- QRM

	TT8RR			TT8XX	TT8TT
Band	CW	SSB	RTTY	FT8	QO100
6m	50.097	50.150	---------	50.313	
10m	28.030	28.470	28.085	28.091	
12m	24.890	24.950	24.925	24.911	
15m	21.030	21.310	21.085	21.091	
17m	18.068	18.130	18.105	18.095	
20m	14.030	14.240	14.084	14.084	
30m	10.115	--------	10.145	10.131	
40m	7.025	7.090	7.040	7.056	
60m	5.352	5.360	--------	5.357	
80m	3.527	3.775	--------	3.567	

Band	FT8	FT4
1.8 MHz	1.840*	1.840
3.5 MHz	3.570 and 3.573	3.570
5.3 MHz	5.357*	5.357*
7 MHz	7.079 and 7.074	7.047.5
10 MHz	10.131 and 10136	10.140
14 MHz	14.090 and 14.074	14.080
18 MHz	18.096 and 18.100	18.104
21 MHz	21.091 and 21.074	21.140
24 MHz	24.925 and 24.915	24.919
28 MHz	28.091 and 28.074	28.180
50 MHz	50.313*	50.318*

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Wrapping Up!

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The chaser's responsibilities in FT8 F/H mode

- You have properly enabled Hound Mode in Settings
- You have verified you can hear the Fox
- You have followed the Hound Checklist - Entered Fox Freq in Table; set Tx Freq > 1000 etc
- You understand how to initiate a second QSO if the first one was not acknowledged
- Above all - have patience. Once in the Queue it can take a couple minutes or more to receive a reply from the Fox

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The DX's (Fox's) responsibilities in FT8 F/H mode

- Properly enable Fox mode
- Do not call CQ on standard FT8 freqs such as 14.074
- Move stations from Stations Calling window to the Queue
- Keep the Queue as full as possible
- Manage N Slots (streams) to maximize QSO count but be aware that the power output drops with each stream added
- Equitably work areas of the World that are calling

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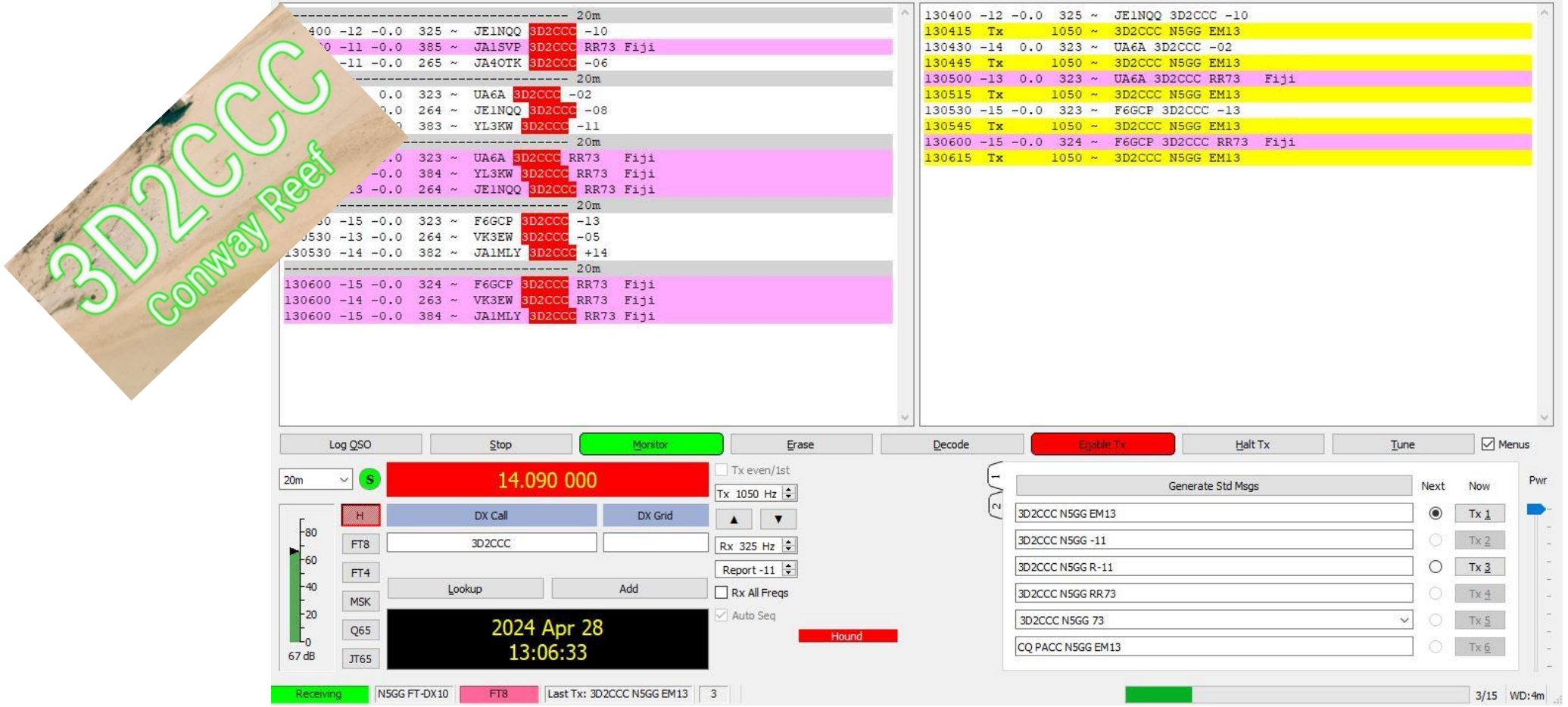
And sometimes you just don’t get thru the QRM wall… and that’s OK!
Just try again another day!



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4 days later… you log it!

Rx Frequency

UTC	dB	DT	Freq		Message	
152000	-15	2.3	327	~	CQ 3D2CCC RG78	Fiji
152016	Tx		1701	~	3D2CCC N5GG EM13	
152048	Tx		1701	~	3D2CCC N5GG EM13	
152100	-15	2.4	326	~	N5GG 3D2CCC -12	
152115	Tx		326	~	3D2CCC N5GG R-15	
152130	-13	2.3	326	~	N5GG 3D2CCC RR73	Fiji
152200	-13	2.3	326	~	KD6UY 3D2CCC -15	
152230	-14	2.3	327	~	KD6UY 3D2CCC RR73	Fiji
152300	-14	2.3	326	~	CQ 3D2CCC RG78	Fiji

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Rx Frequency

Message
KB6ZA AI4UC -20
CQ N7TTA DM42 U.S.A.
CQ N7TTA DM42 U.S.A.
KB6ZA AI4UC RR73 U.S.A.
JA8TSN BX2AMC RR73 Taiwan
BX2AMC N5GG EM13
BX2AMC N5GG EM13
BX2AMC N5GG EM13
CQ FK8HM RG37 New Caledonia
FK8HM N5GG EM13
N5GG FK8HM -15
CQ KM6TFY DM05 U.S.A.
FK8HM N5GG R-09
N5GG FK8HM RR73 New Caledonia
FK8HM N5GG 73
CQ FK8HM RG37 New Caledonia

Rx Frequency

UTC	dB	DT	Freq	Message
162930	-10	1.7	791	~ IK8TMF PU0FDN RR73 Fernando de Noronha
162945	Tx		2250	~ PU0FDN N5GG EM13
163015	Tx		2250	~ PU0FDN N5GG EM13
163045	Tx		2250	~ PU0FDN N5GG EM13
163115	Tx		2250	~ PU0FDN N5GG EM13
163145	Tx		2250	~ PU0FDN N5GG EM13
163515	-9	-0.1	593	~ CQ YV5DRN FK60 Venezuela
163533	Tx		2250	~ YV5DRN N5GG EM13
163545	-4	-0.1	593	~ N5GG YV5DRN -20
163600	Tx		2250	~ YV5DRN N5GG R-04
163615	-14	-0.1	593	~ N5GG YV5DRN -20
163630	Tx		2250	~ YV5DRN N5GG R-04
163645	-8	0.0	592	~ N5GG YV5DRN RR73 Venezuela
163700	Tx		2250	~ YV5DRN N5GG 73

Sometimes you have to be smart…
One not answering? Work another one…

73 de N5GG

dah dah dit dit dit
dit dit dit dah dah