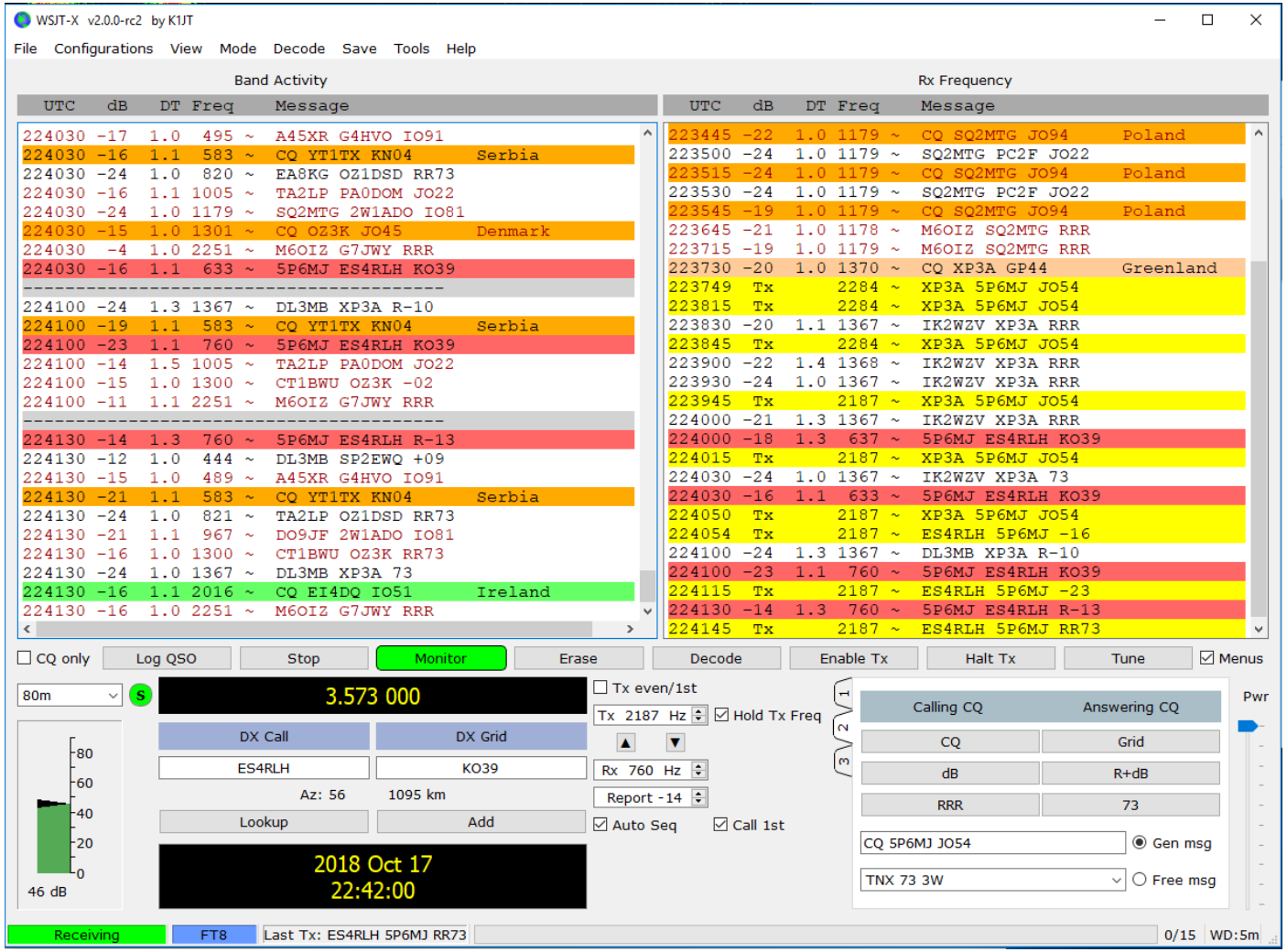
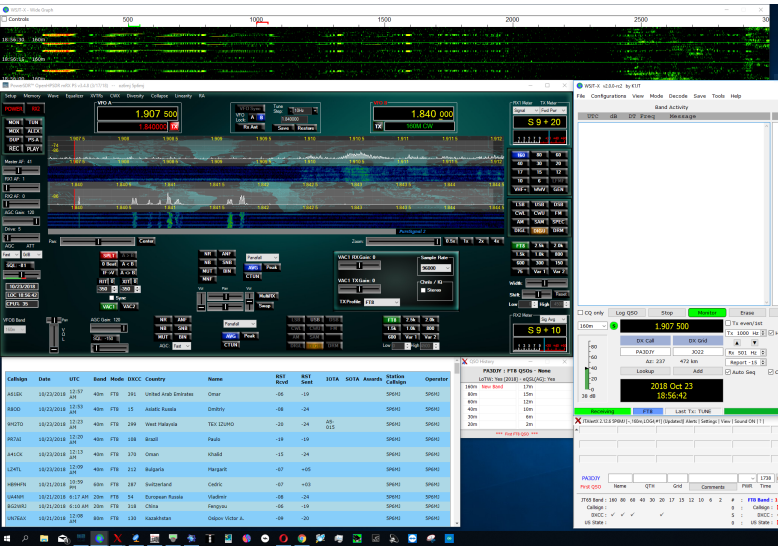
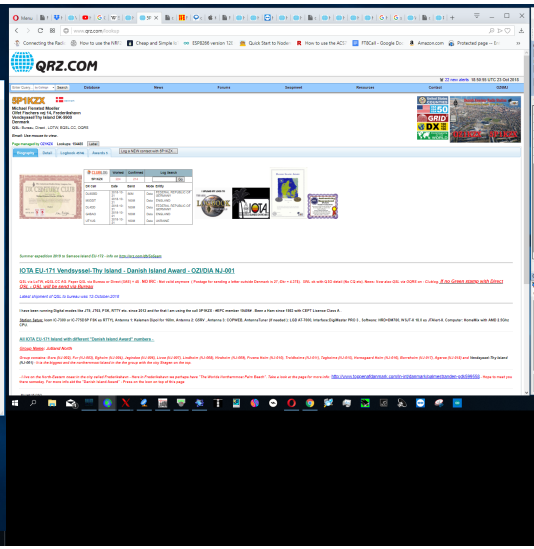
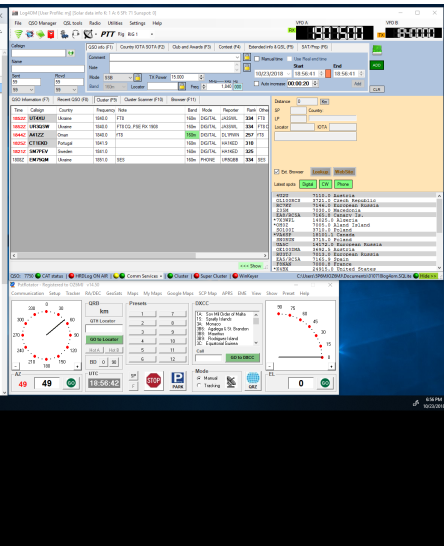
FT8 orientering fra en nystartet radioamatør



Tranekær den 17 oktober 2018 [OZ6MJ/5P6MJ]







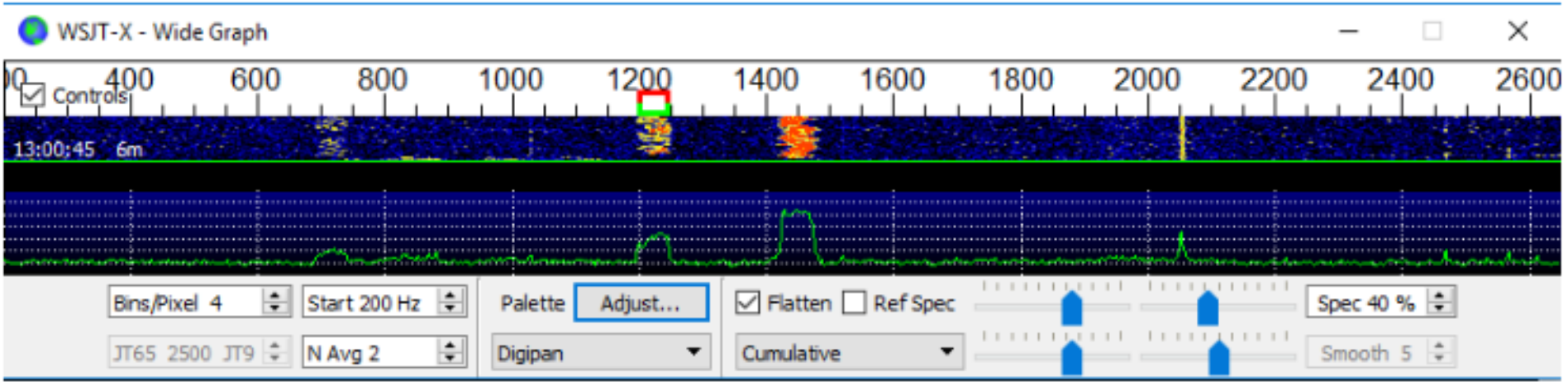
Oversigt:

- Eksempel på en FT8 QSO
- Den daglige QSO
- FT8 Historie
- Important characteristics of FT8
- Hints
- PSK reporter
- Links
- ICOM 7300
- End

Eksempel på en FT8 QSO

“CQ M6PSK JO01”	CQ call from M6PSK
“M6PSK G0QQQ IO81”	G0QQQ replies with their location
“G0QQQ M6PSK -12”	M6PSK responds with a signal report
“M6PSK G0QQQ R-08”	G0QQQ confirms signal report & replies with his own report
“G0QQQ M6PSK RRR”	M6PSK says Reception Report Received
“M6PSK G0QQQ 73”	G0QQQ says Best regards
“G0QQQ M6PSK 73”	M6PSK says Best regards

Signal reports are specified as signal-to-noise ratio (S/N) in dB, using a standard reference noise bandwidth of 2500 Hz. Thus, in the example message above, G0QQQ is telling M6PSK that his signal is 12 dB below the noise power in bandwidth 2500 Hz.

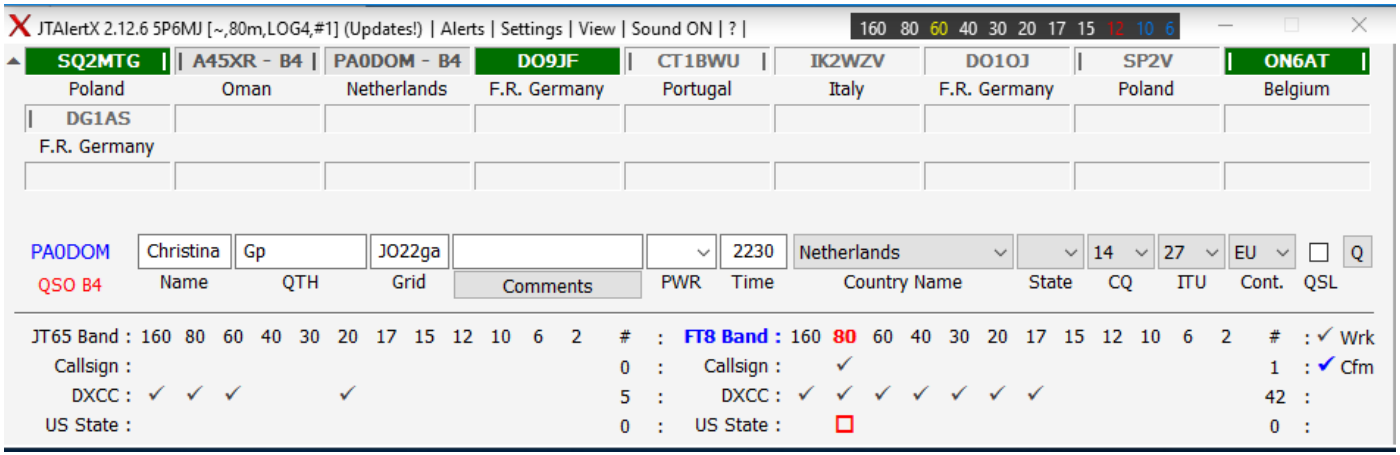


Den daglige QSO

Rx Frequency

UTC	dB	DT	Freq		Message	
222945	-12	1.1	1178	~	CQ PA0DOM JO22	Netherlands
223004	Tx		2284	~	PA0DOM 5P6MJ JO54	
223015	-17	1.2	1177	~	5P6MJ PA0DOM -07	
223030	Tx		2284	~	PA0DOM 5P6MJ R-17	
223045	-17	1.1	1177	~	5P6MJ PA0DOM RR73	
223100	Tx		2284	~	PA0DOM 5P6MJ 73	
223145	-14	1.1	1177	~	CQ PA0DOM JO22	Netherlands

Hver linie har 15 sekunders transmissionstid



Den daglige QSO (med PAoDOM)

Den daglige QSO

Band Activity

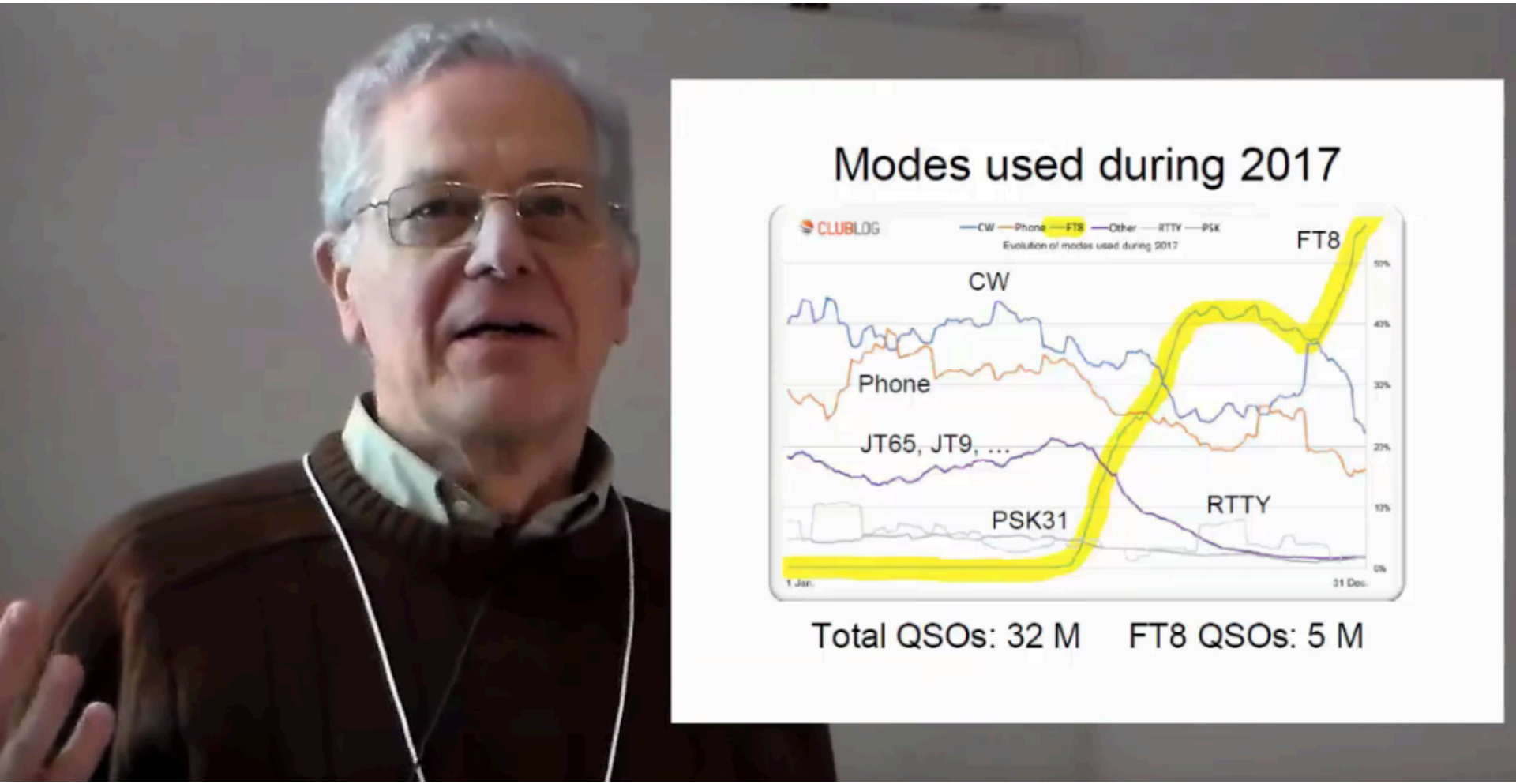
UTC	dB	DT	Freq		Message	
223300	-23	1.1	583	~	LB8MG YT1TX R-09	
223300	-8	1.0	2251	~	OK2HFC G7JWY -17	
223300	-3	1.0	2323	~	PA0DOM DL1GME -10	
---------- 80m						
223315	-18	1.1	503	~	CQ A45XR LL93	Oman
223315	-19	1.4	904	~	CT3MD TA2LP KN40	
223315	-20	1.0	966	~	CQ DO9JF JN39	Germany
223315	-17	0.3	1042	~	CU3AT EA5EY R-13	
223315	-20	1.5	1118	~	XP3A IK2WZV JN45	
223315	-10	1.1	1628	~	XP3A M6OIZ R-12	
223315	-15	1.0	1805	~	CQ ON6AT JO10	Belgium
223315	-1	1.0	1952	~	D44TWO SP2V JO94	
223315	0	1.0	2097	~	XP3A DG1AS JO53	
223315	-10	1.5	2251	~	G7JWY OK2HFC R-18	
223315	-6	1.0	2322	~	DL1GME PA0DOM R-02	
223315	-24	-0.2	1077	~	E79EA EA8KG IL18	
---------- 80m						
223330	-21	1.6	1513	~	CQ IU1GLI JN34	Italy
223330	-3	1.0	2250	~	OK2HFC G7JWY -17	
223330	-4	1.0	2322	~	PA0DOM DL1GME RRR	
---------- 80m						
223345	-12	0.9	1368	~	DL4GAG DO1OJ +06	
223345	-9	1.1	1628	~	XP3A M6OIZ 73	
223345	-4	1.0	1952	~	D44TWO SP2V JO94	
223345	2	1.0	2097	~	XP3A DG1AS JO53	
223345	-11	1.5	2251	~	G7JWY OK2HFC R-18	
223345	-11	1.6	2323	~	DL1GME PA0DOM 73	

Historie

Joe Taylor, K1JT
Stan Frankie, K9AN
Bill Somerville, G4WJS
Developed a new mode for WSJT-X
FT8 (Frankie-Taylor design, 8 FSK modulation)
Released on June 29, 2017

Callsign	Station Callsign	QSO date	Start time	Band	Mode	Country	RST sent	RST rcvd
RW9AD	5P6MJ	7/11/2017	14:12:00	40m	JT65	Asiatic Russia	-12	-18
WB8WOB	5P6MJ	7/11/2017	23:12:00	20m	JT9	United States	-15	-16
VE9DX	5P6MJ	7/12/2017	23:17:00	20m	FT8	Canada	-02	-13
KM4MDT	5P6MJ	7/12/2017	23:57:00	30m	FT8	United States	-07	-05
EI9HQ	5P6MJ	7/12/2017	14:09:00	20m	FT8	Ireland	+01	-08
KC2WUF	5P6MJ	7/12/2017	23:51:00	30m	FT8	United States	-06	-16
SV3CIX	5P6MJ	7/12/2017	14:54:00	20m	FT8	Greece	-12	-11
ON7NQ	5P6MJ	7/12/2017	23:54:00	30m	FT8	Belgium	-14	-07
VA3FU	5P6MJ	7/13/2017	00:00:00	30m	FT8	Canada	-07	-17
YO5BRZ	5P6MJ	7/13/2017	14:39:00	30m	FT8	Romania	+01	+06
KA0JZV	5P6MJ	7/13/2017	23:15:00	20m	FT8	United States	+04	-07
ON5DC	5P6MJ	7/13/2017	14:43:00	30m	FT8	Belgium	-03	-11
GW0TKX	5P6MJ	7/13/2017	10:14:00	20m	FT8	Wales	+06	-06
EI7HDB	5P6MJ	7/13/2017	10:22:00	20m	FT8	Ireland	+12	+08
F1MWV	5P6MJ	7/14/2017	08:51:00	30m	FT8	France	+00	-10
W4KBX	5P6MJ	7/14/2017	23:51:00	20m	JT65	United States	-03	-07
OH2FQV	5P6MJ	7/14/2017	14:32:00	20m	FT8	Finland	+11	-04
K2TE	5P6MJ	7/14/2017	23:57:00	20m	JT65	United States	-07	-17
OH8ENQ	5P6MJ	7/14/2017	23:26:00	40m	FT8	Finland	-01	+03
CO8LY	5P6MJ	7/14/2017	23:25:00	40m	FT8	Cuba	-02	-10
YO7CVL	5P6MJ	7/14/2017	09:02:00	15m	FT8	Romania	+01	-11
YO8SEP	5P6MJ	7/14/2017	08:58:00	15m	FT8	Romania	+05	-08
KU0D	5P6MJ	7/14/2017	23:39:00	20m	JT65	United States	-10	-07
VA3RLC	5P6MJ	7/15/2017	00:05:00	20m	JT9	Canada	-08	-03
EA3VM	5P6MJ	7/15/2017	10:29:00	15m	JT65	Spain	-01	-11
OF4NDU	5P6MJ	7/16/2017	22:27:00	80m	FT8	Finland	-15	-05
EA1CGG	5P6MJ	7/17/2017	11:23:00	20m	FT8	Spain	-12	-11
DD5ZZ	5P6MJ	7/18/2017	08:46:00	20m	FT8	Fed. Republic of ...	-06	-08
G3PXT	5P6MJ	7/19/2017	14:01:00	17m	FT8	England	-09	-04
N1MD	5P6MJ	7/20/2017	23:16:00	20m	FT8	United States	-02	+01
W4RKC	5P6MJ	7/20/2017	23:12:00	20m	FT8	United States	-13	-07
YV5AJI	5P6MJ	7/20/2017	23:18:00	20m	FT8	Venezuela	-10	-15
N2HYG	5P6MJ	7/20/2017	22:19:00	20m	FT8	United States	+01	-07
WA1TGN	5P6MJ	7/20/2017	22:58:00	20m	FT8	United States	-06	-10

Historie


Modes used during 2017
CLUBLOG
CW Phone FT8 Other RTTY PSK
Evolution of modes used during 2017
FT8
CW
Phone
JT65, JT9, ...
PSK31
RTTY
1 Jan.
31 Dec.
Total QSOs: 32 M
FT8 QSOs: 5 M

Historie

Year	CW	%	FT8	%	Phone	%	RTTY	%	PSK	%	Other	%	Total
2 018	8 099 614	29.24%	11 917 795	43.02%	5 455 456	19.69%	1 548 651	5.59%	414 118	1.49%	265 665	0.96%	27 701 299
2 017	13 429 587	37.55%	5 283 601	14.77%	10 355 944	28.96%	2 745 669	7.68%	1 060 925	2.97%	2 886 046	8.07%	35 761 772
2 016	15 768 634	43.62%	0	0.00%	12 504 461	34.59%	3 465 647	9.59%	1 244 228	3.44%	3 168 097	8.76%	36 151 067
2 015	16 452 579	41.90%	0	0.00%	15 073 215	38.39%	3 808 788	9.70%	1 449 754	3.69%	2 480 468	6.32%	39 264 804
2 014	18 539 958	40.78%	0	0.00%	18 332 538	40.32%	4 602 560	10.12%	1 716 824	3.78%	2 276 676	5.01%	45 468 556

Mode statistics based on data from Club Log

DXCC Timeline

Timelines for 5P6MJ (Mads Rosell)

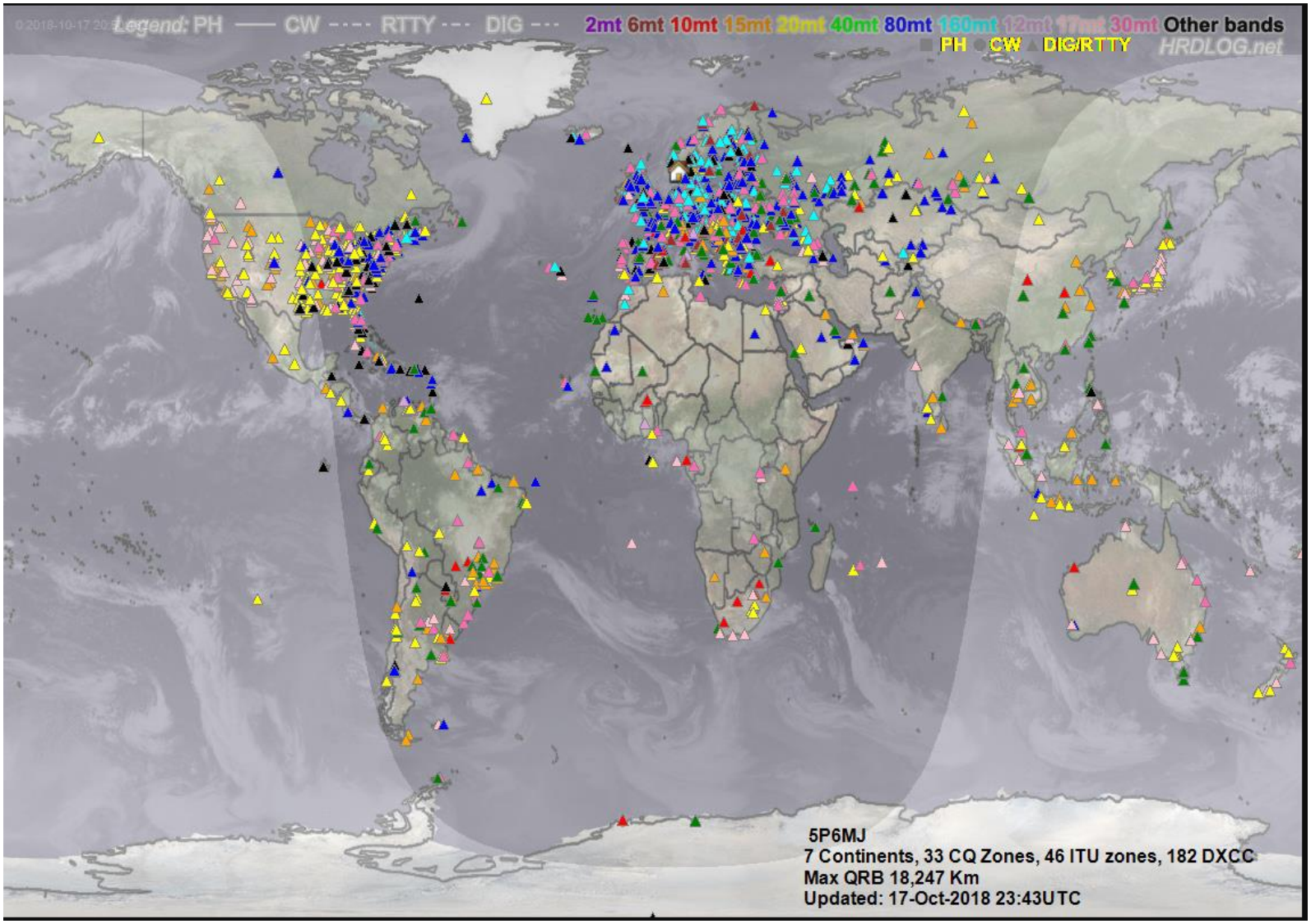
Your callsigns: 5P6MJ Submit

QSOs by Year | Graphs | First Worked Dates | Needed DXCCs | Least Worked

QSOs by Year

Year	Number of DXCCs	Number of QSOs	QSOs as Percent
2018	109	684	CW: 0.00% Phone: 0.00% Data: 100.00%
2017	130	1188	CW: 0.00% Phone: 0.00% Data: 100.00%
2016	92	1033	CW: 0.00% Phone: 0.00% Data: 100.00%
2015	101	1777	CW: 0.00% Phone: 0.00% Data: 100.00%
Total	171	4682	CW: 0.00% Phone: 0.00% Data: 100.00%

Historie


Legend: PH CW RTTY DIG
2mt 6mt 10mt 15mt 20mt 40mt 80mt 160mt 12mt 17mt 30mt Other bands
PH CW DIG/RTTY
HRDLOG.net
5P6MJ
7 Continents, 33 CQ Zones, 46 ITU zones, 182 DXCC
Max QRB 18,247 Km
Updated: 17-Oct-2018 23:43UTC

Important characteristics of FT8

FT8: DXing for alle

- Hvad er FT8?
  - **For teknikeren**:
    - En kommunikationsprotokol baseret på
      - Multi-Tone Frequency Shift Keying (MFSK)
      - Bruger 8 toner
      - 5.86 Hz adskillelse
      - Optager 47 Hz båndbredde
      - Sender i (79*1920/12000) = 13.48 sec.

        Beskrivelse https://sourceforge.net/p/wsjt/wsjt/8021/
      - Indeholder 75 bit message + 12 bit CRC, and LDPC FEC*

*Cyclic Redundancy Check og Low Density Parity Check Forward Error Correction

Reference: QST, November 2017, page 34 *Work the World with WSJT-X, Part 2: Codes, Modes, and Cooperative Software Development*

Important characteristics of FT8

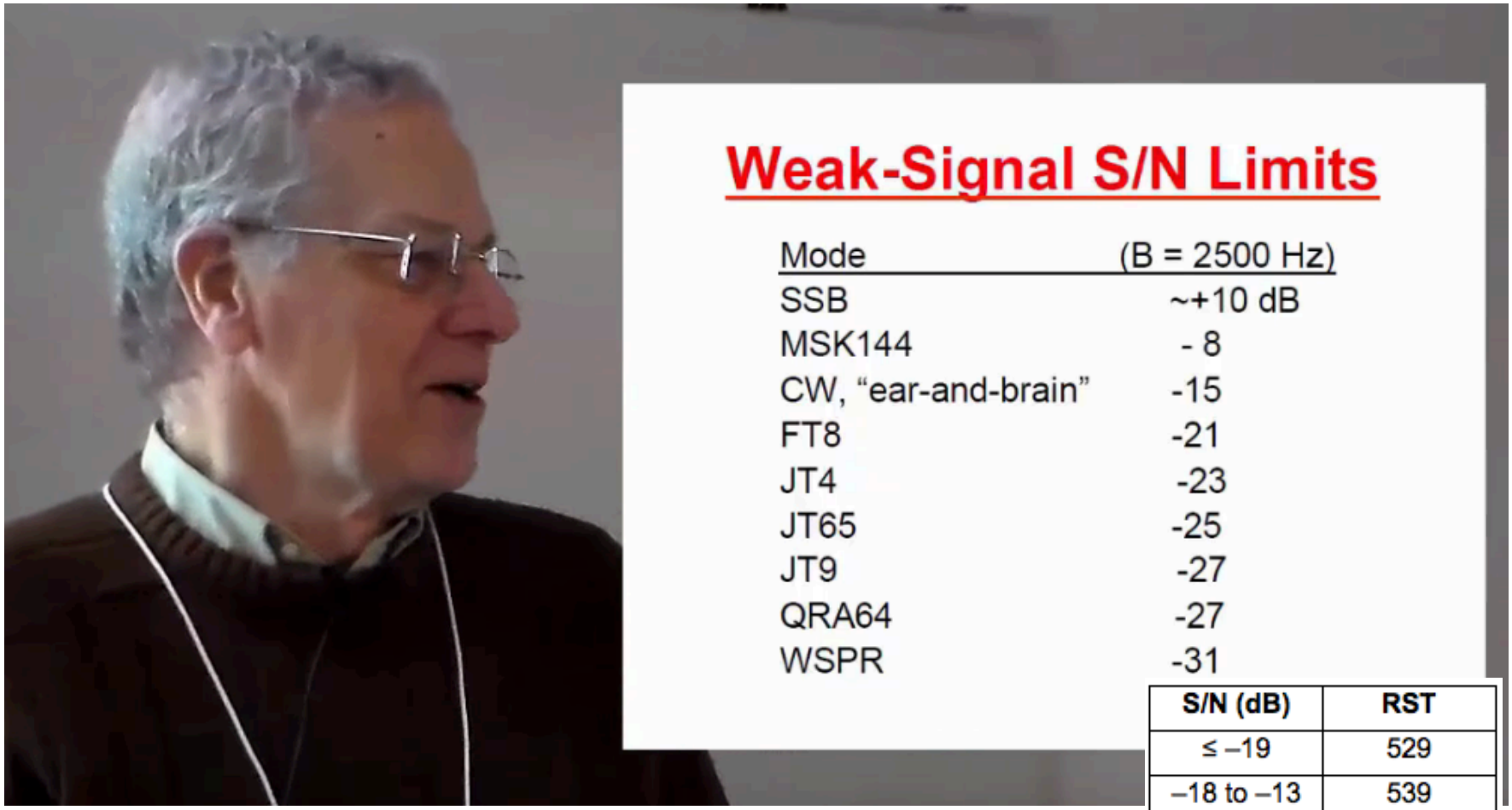
Important characteristics of FT8:

– T/R sequence length: 15 s
– Message length: 75 bits + 12-bit CRC
– FEC code: LDPC(174,87)
– Modulation: 8-FSK, keying rate = tone spacing = 5.86 Hz
– Waveform: Continuous phase, constant envelope
– Occupied bandwidth: 47 Hz
– Synchronization: three 7×7 Costas arrays (start, middle, end of Tx)
– Transmission duration: 79*2048/12000 = 13.48 s
– Decoding threshold: -20 dB (perhaps -24 dB with AP decoding, TBD)
– Operational behavior: similar to HF usage of JT9, JT65
– Multi-decoder: finds and decodes all FT8 signals in passband
– Auto-sequencing after manual start of QSO

"FT8 – designed specifically for propagation conditions such as multi-hop sporadic-E at 50 MHz – circumstances where signals are weak and fading, openings short, and quick completion of reliable, confirmable contacts is particularly desirable."

"Work the World with WSJT-X, Part 2: Codes, Modes, and Cooperative Software Development", K1JT, K9AN and G4WJS, QST November 2017

Important characteristics of FT8



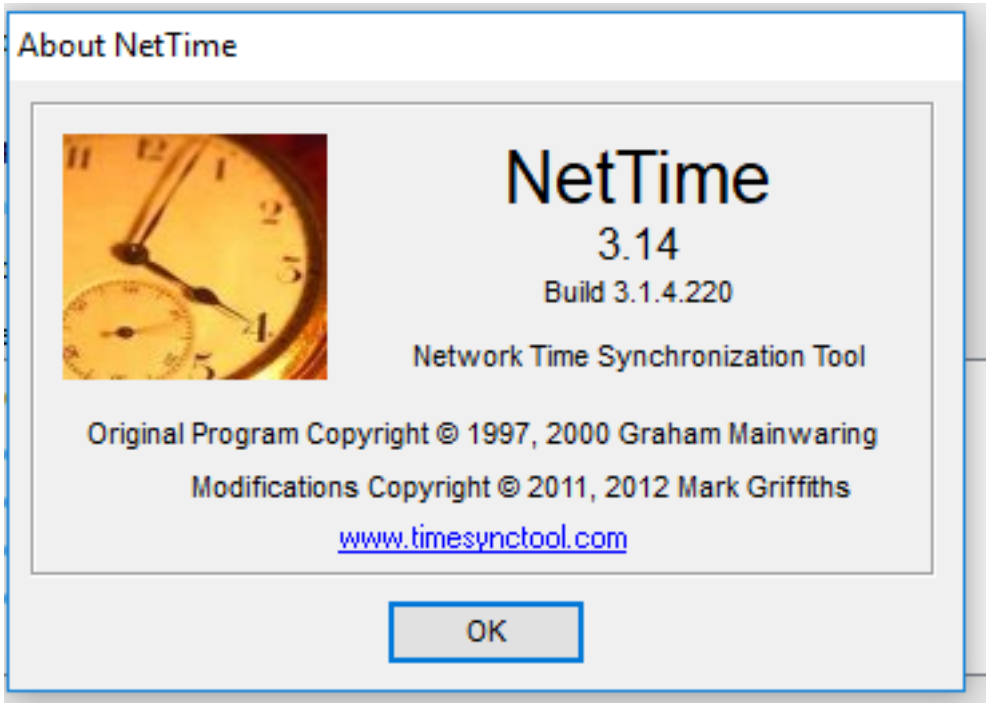
S/N (dB)	RST
≤ –19	529
–18 to –13	539
–12 to –7	549
–6 to –1	559
0 to 5	569
6 to 11	579
12 to 17	589
≥ 18	599

Hints

Synchronization

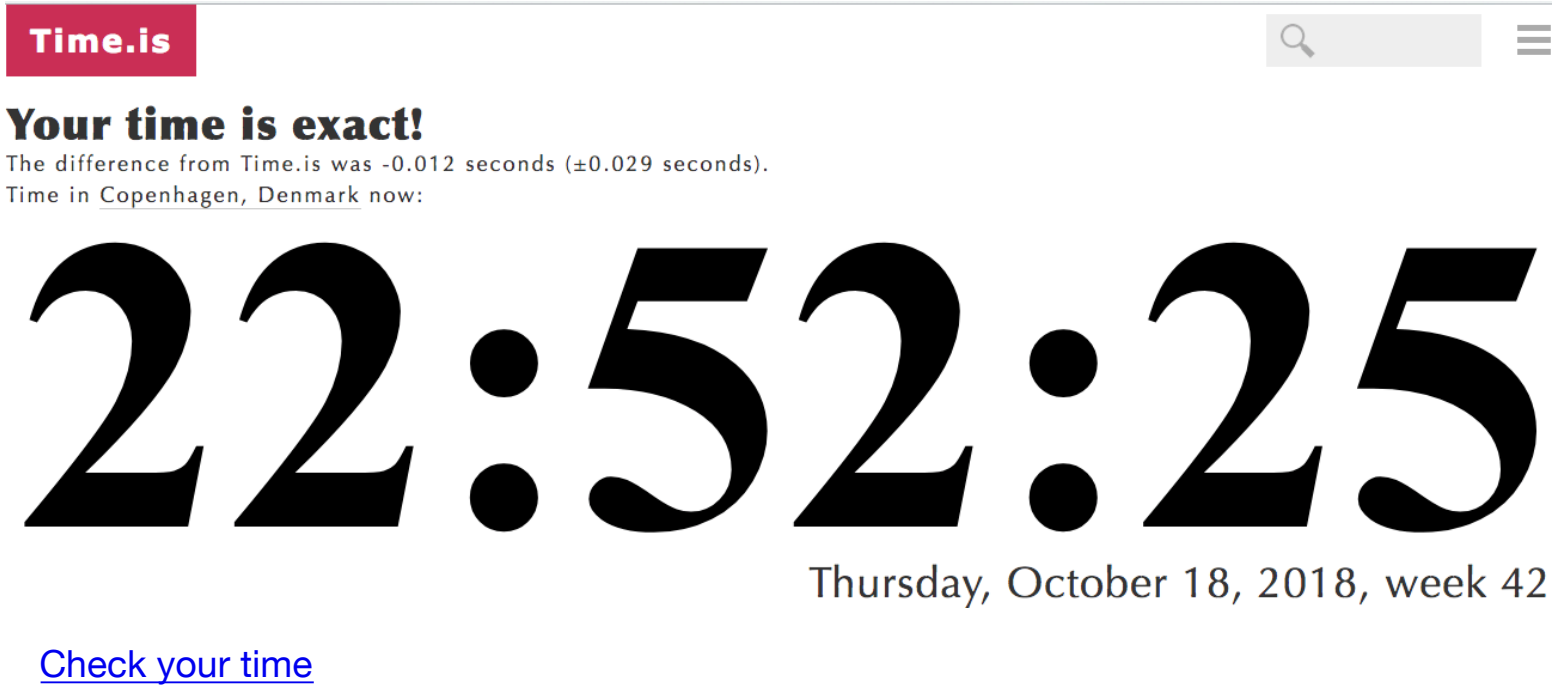
- Synchronize your PC's clock to within milliseconds of "real" time

I use the Dimension 4

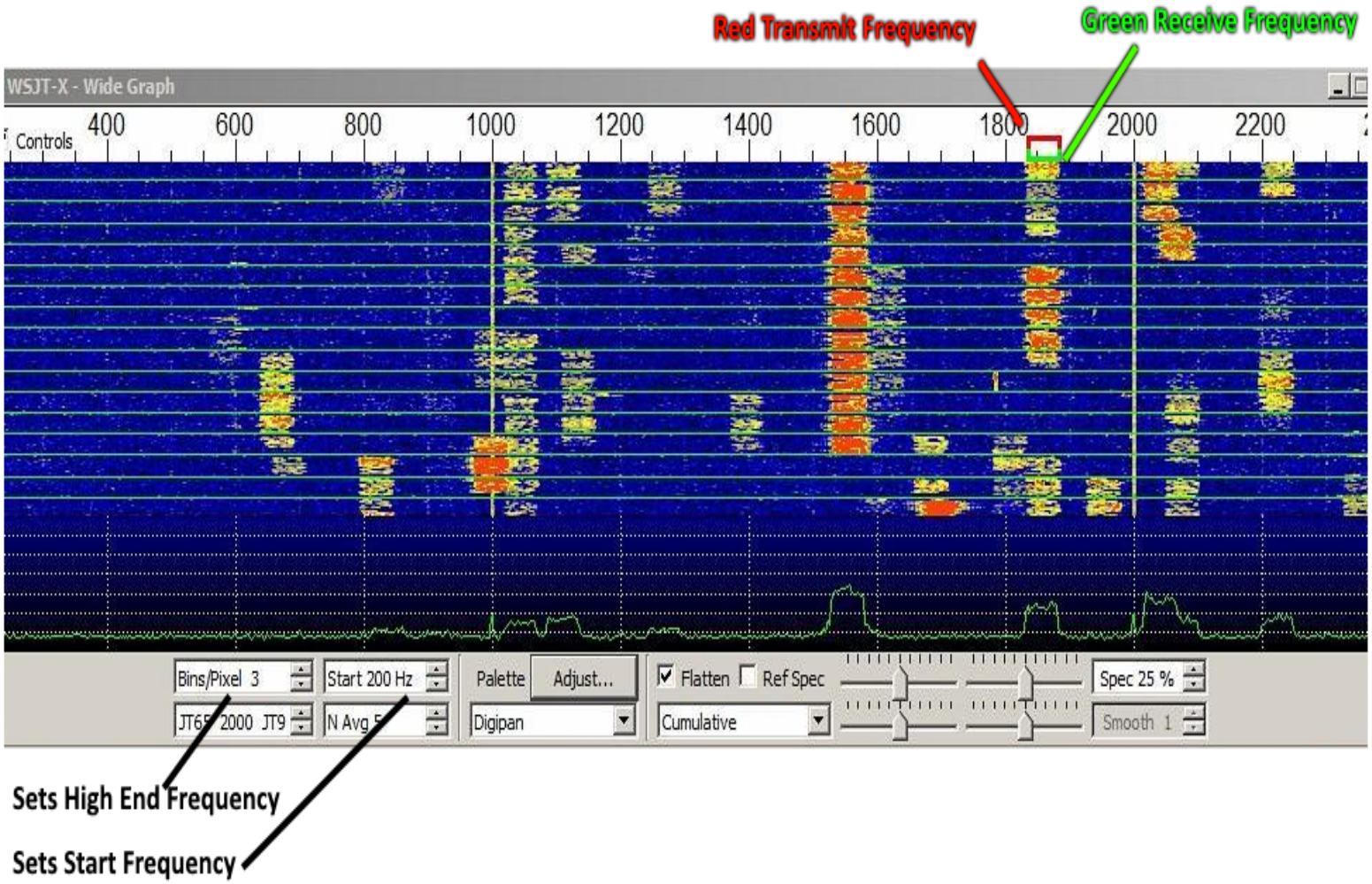


NetTime

Hints

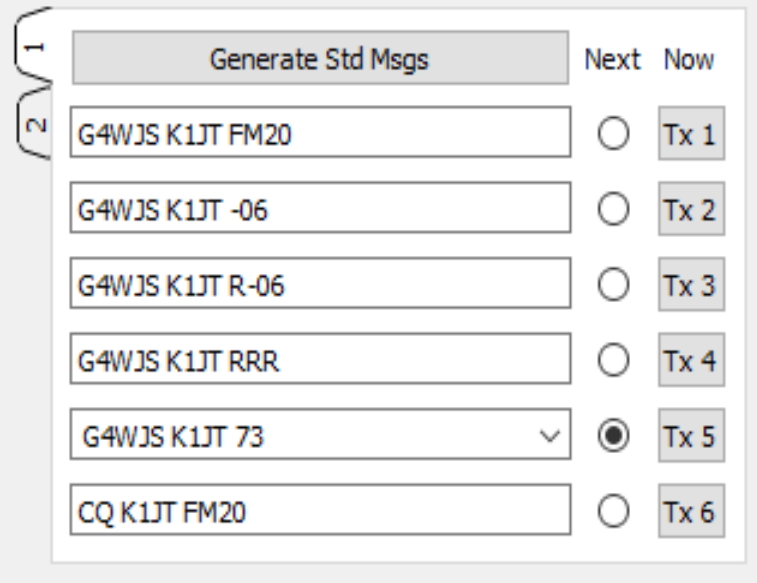

Time.is
Your time is exact!
The difference from Time.is was -0.012 seconds (±0.029 seconds).
Time in Copenhagen, Denmark now:
22:52:25
Thursday, October 18, 2018, week 42
Check your time

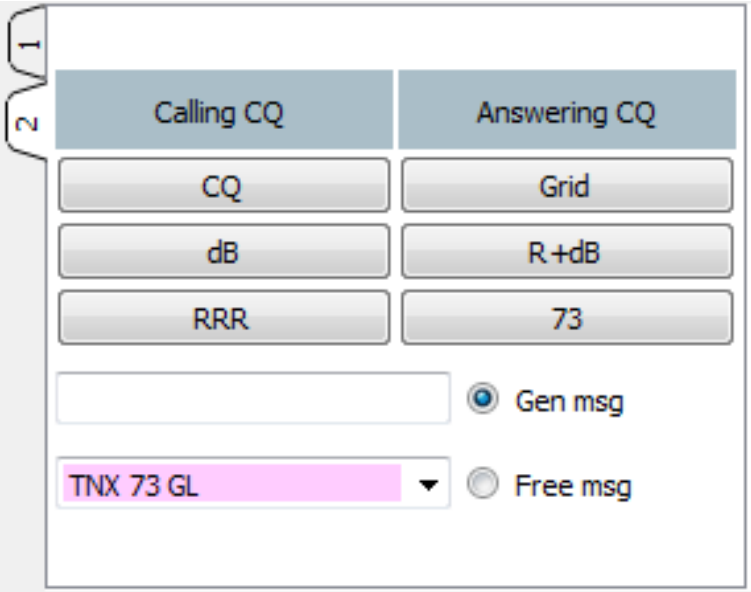
Hints


Red Transmit Frequency
Green Receive Frequency
WSJT-X - Wide Graph
Controls
400
600
800
1000
1200
1400
1600
1800
2000
2200
Bins/Pixel 3
Start 200 Hz
Palette
Adjust...
Flatten
Ref Spec
Spec 25 %
Digipan
Cumulative
Smooth 1
Sets High End Frequency
Sets Start Frequency

Hints

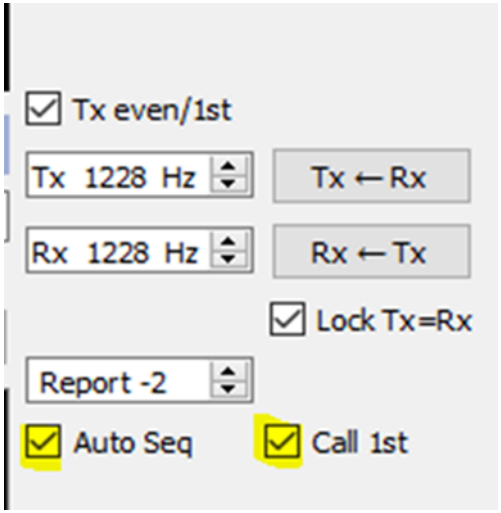
Transmit Messages - Type 1 & 2





Hints

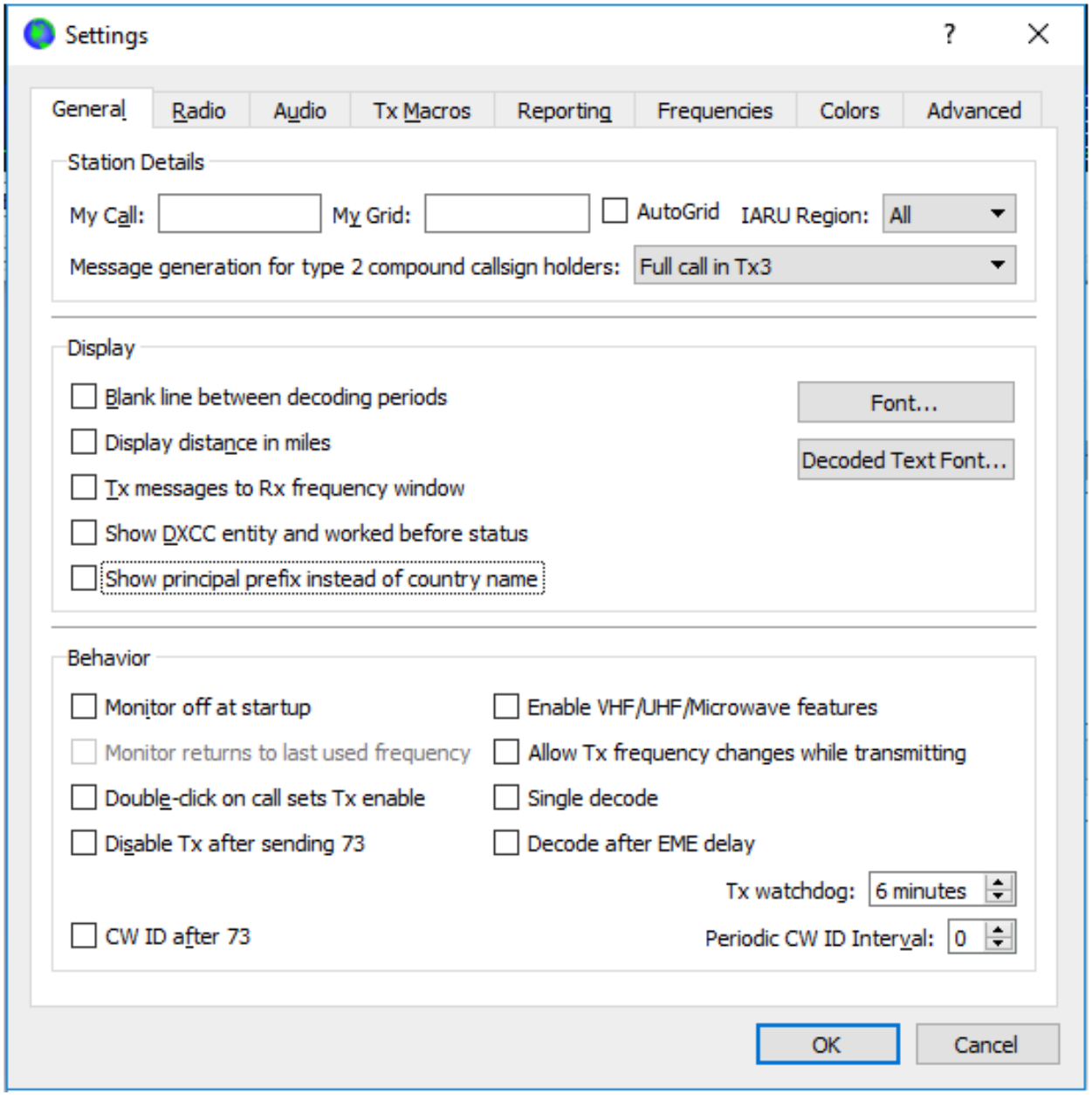
Auto Sequence & Call 1st



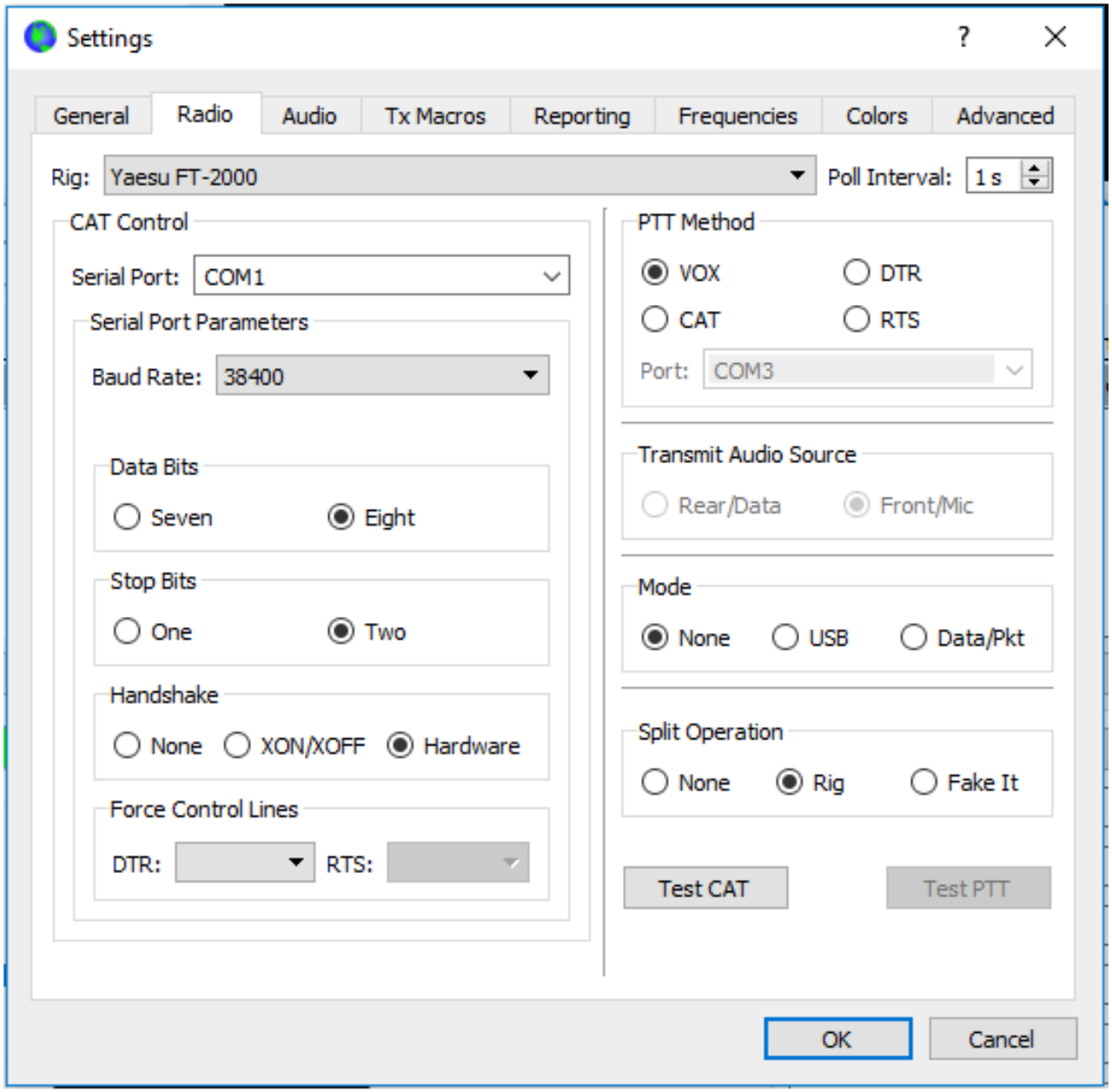
Auto Sequence – Automatically sequences thru the QSO – Signal Report, Roger & 73

Call 1st – Answers for 1st call found after a CQ – not recommended when call CQ DX

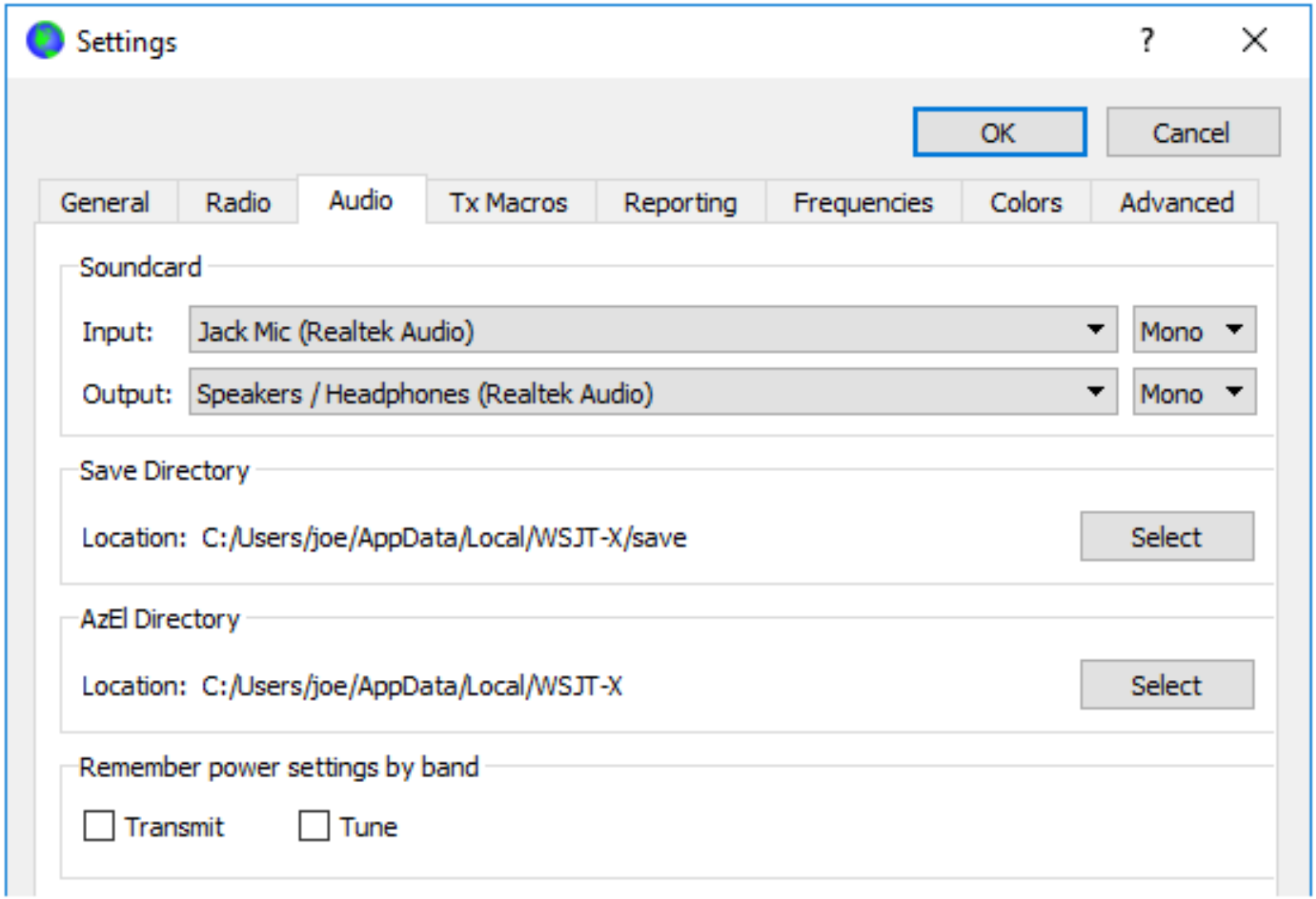
Hints


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Station Details
My Call:
My Grid:
AutoGrid
IARU Region:
All
Message generation for type 2 compound callsign holders:
Full call in Tx3
Display
Blank line between decoding periods
Display distance in miles
Tx messages to Rx frequency window
Show DXCC entity and worked before status
Show principal prefix instead of country name
Font...
Decoded Text Font...
Behavior
Monitor off at startup
Monitor returns to last used frequency
Double-click on call sets Tx enable
Disable Tx after sending 73
CW ID after 73
Enable VHF/UHF/Microwave features
Allow Tx frequency changes while transmitting
Single decode
Decode after EME delay
Tx watchdog:
6 minutes
Periodic CW ID Interval:
0
OK
Cancel

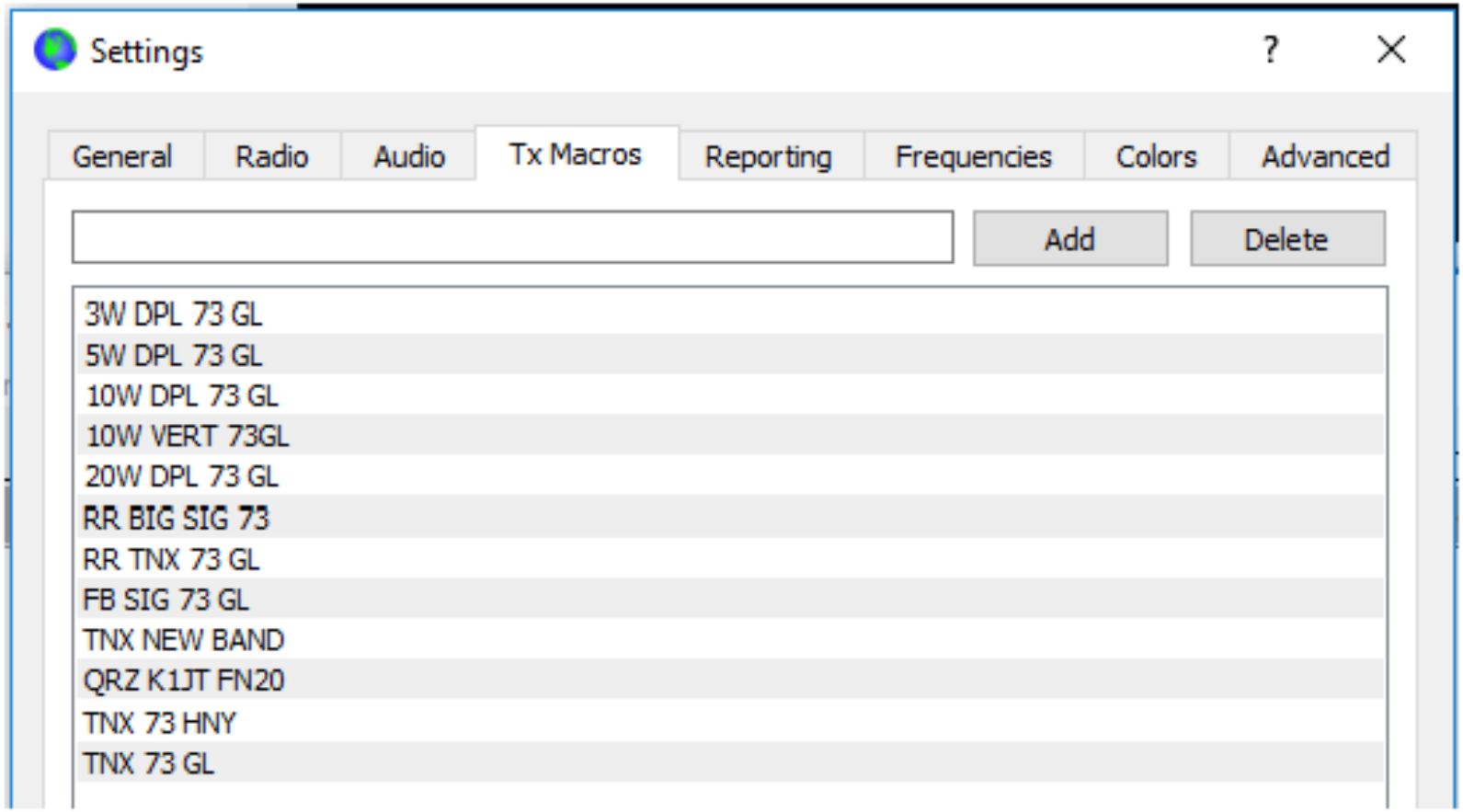
Hints


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Rig:
Yaesu FT-2000
Poll Interval:
1 s
CAT Control
Serial Port:
COM1
Serial Port Parameters
Baud Rate:
38400
Data Bits
Seven
Eight
Stop Bits
One
Two
Handshake
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

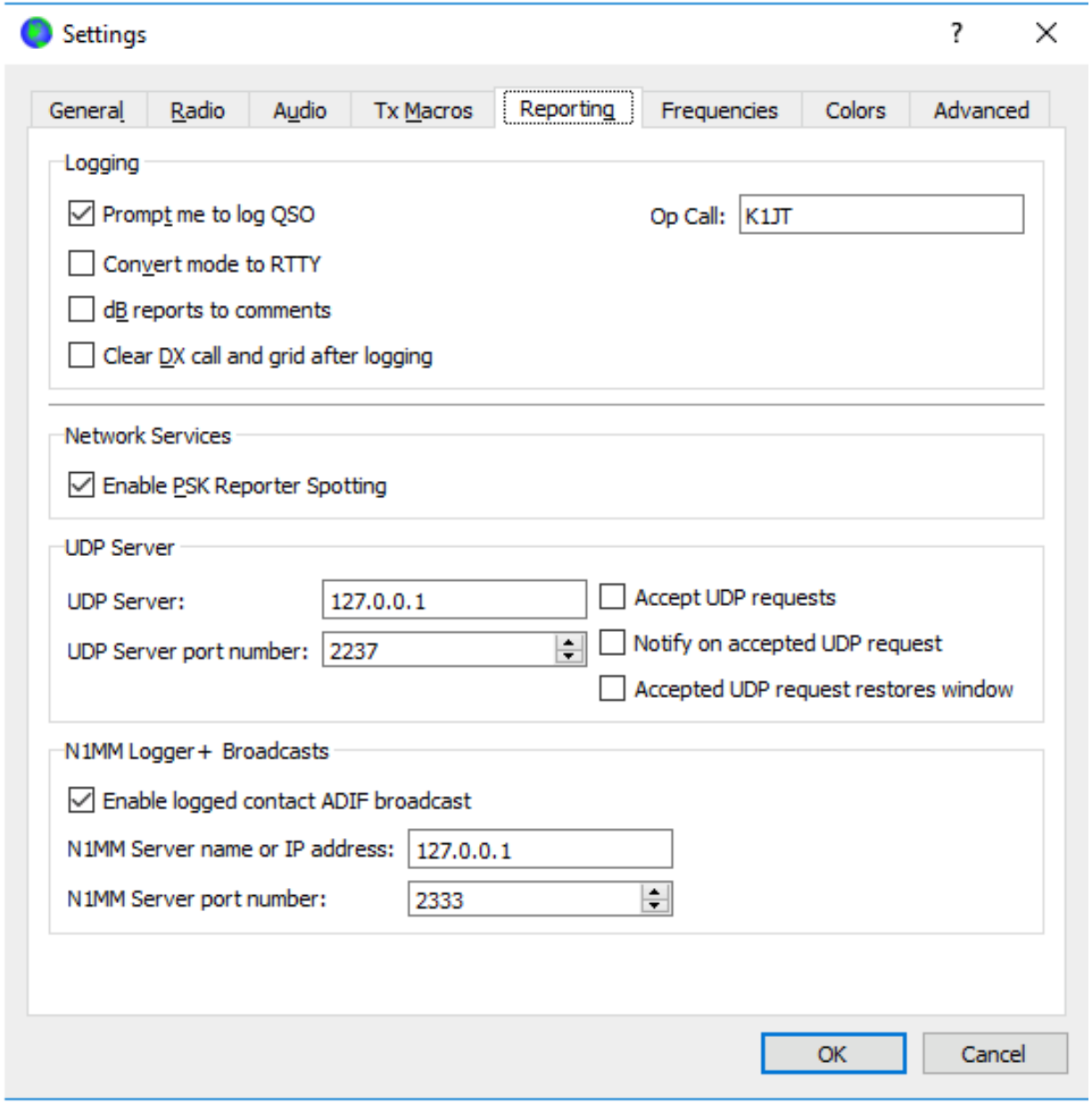
Hints


Settings
OK
Cancel
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Soundcard
Input:
Jack Mic (Realtek Audio)
Mono
Output:
Speakers / Headphones (Realtek Audio)
Mono
Save Directory
Location: C:/Users/joe/AppData/Local/WSJT-X/save
Select
AzEl Directory
Location: C:/Users/joe/AppData/Local/WSJT-X
Select
Remember power settings by band
Transmit
Tune

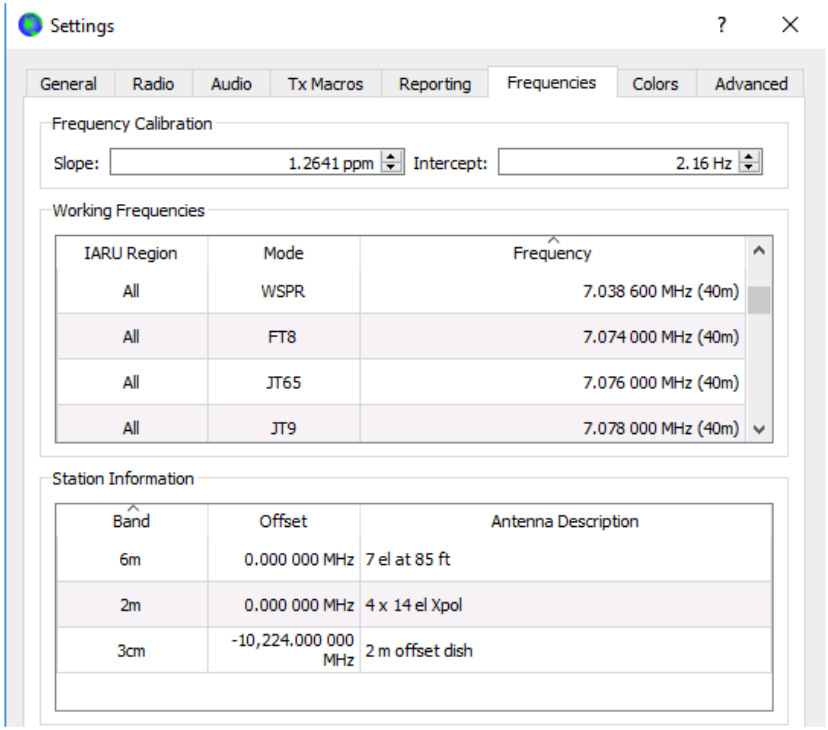
Hints


Settings
?
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Add
Delete
3W DPL 73 GL
5W DPL 73 GL
10W DPL 73 GL
10W VERT 73GL
20W DPL 73 GL
RR BIG SIG 73
RR TNX 73 GL
FB SIG 73 GL
TNX NEW BAND
QRZ K1JT FN20
TNX 73 HNY
TNX 73 GL

Hints


Settings
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
Logging
Prompt me to log QSO
Op Call:
K1JT
Convert mode to RTTY
dB reports to comments
Clear DX call and grid after logging
Network Services
Enable PSK Reporter Spotting
UDP Server
UDP Server:
127.0.0.1
Accept UDP requests
UDP Server port number:
2237
Notify on accepted UDP request
Accepted UDP request restores window
N1MM Logger+ Broadcasts
Enable logged contact ADIF broadcast
N1MM Server name or IP address:
127.0.0.1
N1MM Server port number:
2333
OK
Cancel

Hints



FT8 Frequencies		**Added FT8 Frequencies**	
Band	MHz	Band	MHz
160M	1.840	60M*	5.357
80M	3.573	2M*	144.125 & 144.165
40M	7.074	1 ¼M*	222.065
30M	10.136	70CM*	432.065
20M	14.074		
17M	18.100		
15M	21.074		
12M	24.915		
10M	28.074		
6M	50.313		

* Not to Frequency list - to add use “Insert”

160M 1.907 JA TX

Hints

Hello Mads,
I copy you FT8 on 1840khz but We can not work on that frequency.
I send the JPG file to you.
Please QSX(RX) 1908khz and your TX 1840khz for JA.
I am calling you on 1908khz and RX 1840khz.

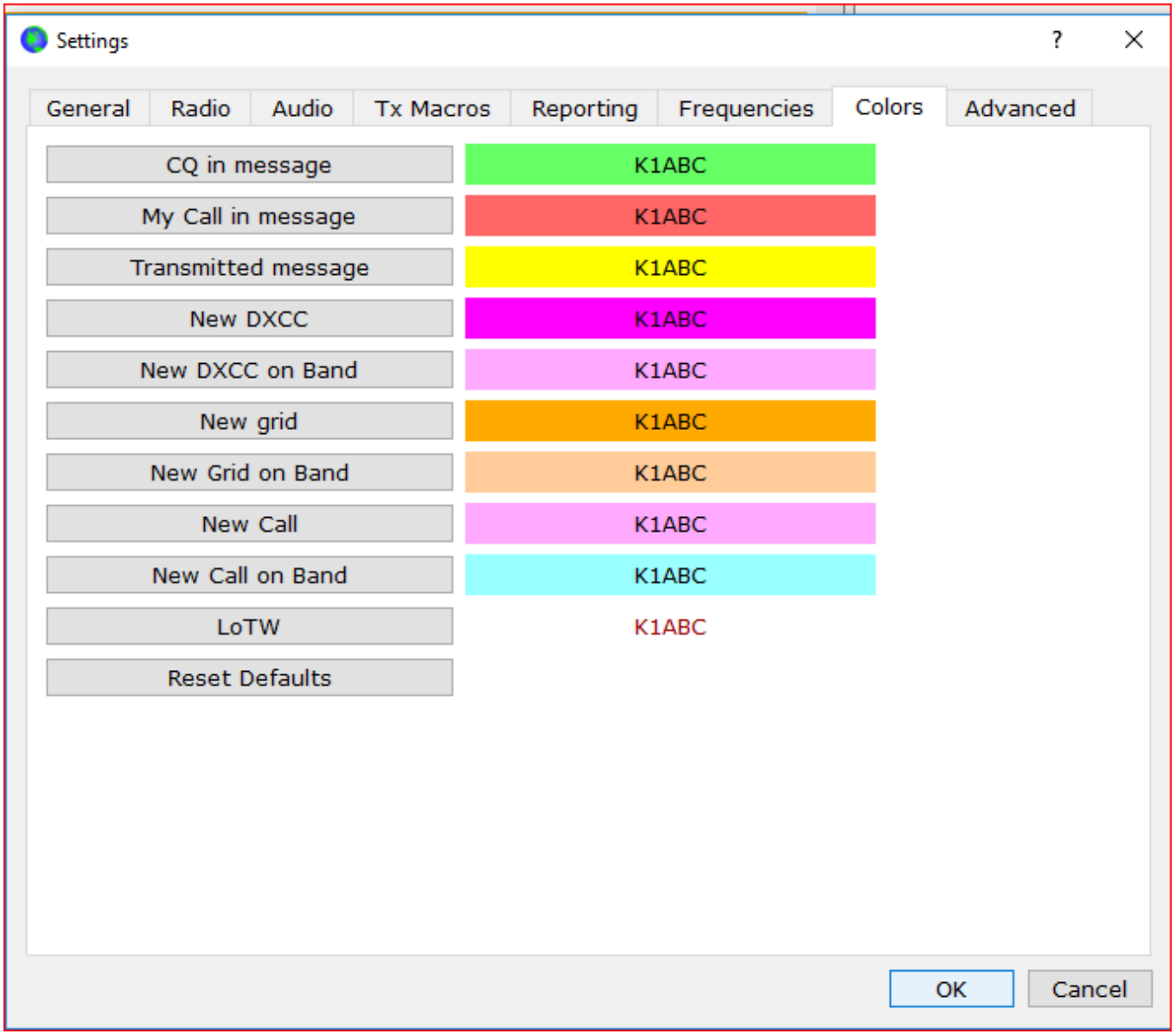
The 160m frequency in Japan,
1810-1825KHz and 1907.5-1912.5KHz

DATE Sunrise (GMT) in JA3
Oct.18 21:05

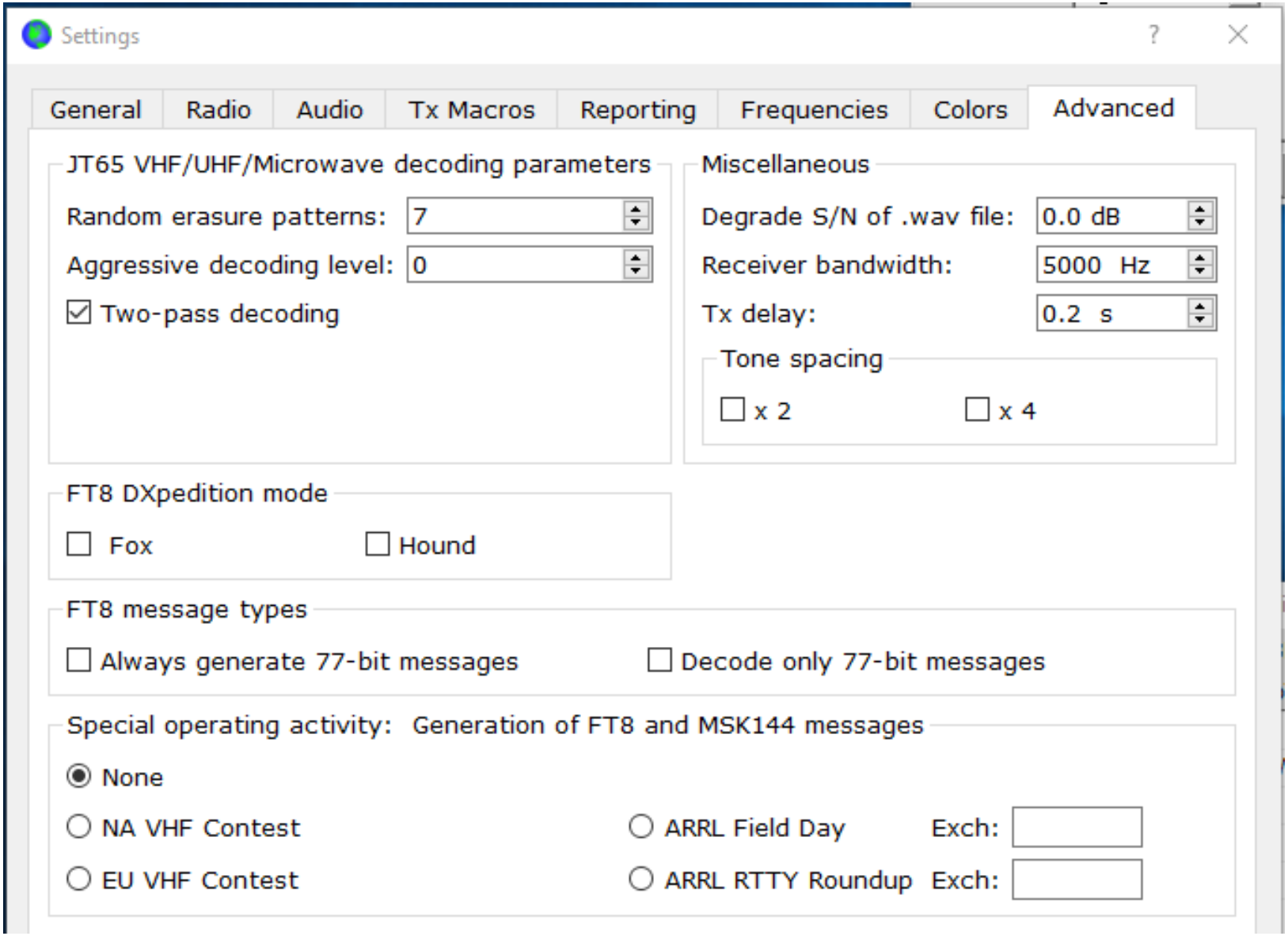
We hope to see you on 160m soon.
Thanks 73

Mas JA3FYC

Hints


Settings
?
General
Radio
Audio
Tx Macros
Reporting
Frequencies
Colors
Advanced
CQ in message
K1ABC
My Call in message
K1ABC
Transmitted message
K1ABC
New DXCC
K1ABC
New DXCC on Band
K1ABC
New grid
K1ABC
New Grid on Band
K1ABC
New Call
K1ABC
New Call on Band
K1ABC
LoTW
K1ABC
Reset Defaults
OK
Cancel

Hints



[Quick-Start Guide to WSJT-X 2.0]

Hints

Logs

- Log All - logs all reception and transmissions
- Log Text – Text log
- Log ADI – ADIF log (Used for LOTW & eQSL)

Note: Don’t erase the ADI log, it is used to find the stations you have worked.

Support Programs

- PSK Reporter – Reverse Beacon Network
- DX Maps – DX Spotting Map
- JT Alert

Hints

Computer Audio Rig Interface

- Rig Baster – MFJ

- Tigertronics SignaLink

- FlexRadio and PowerSDR uses a virtual audio connections

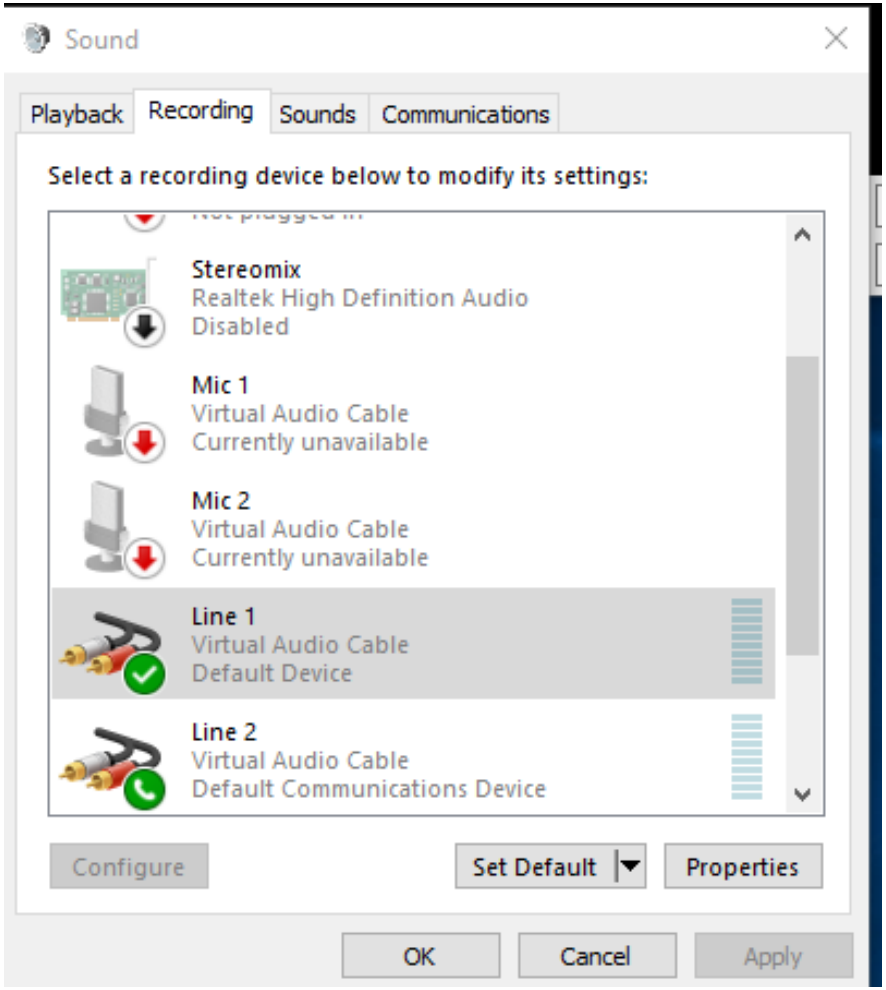
- USB Sound Adapters

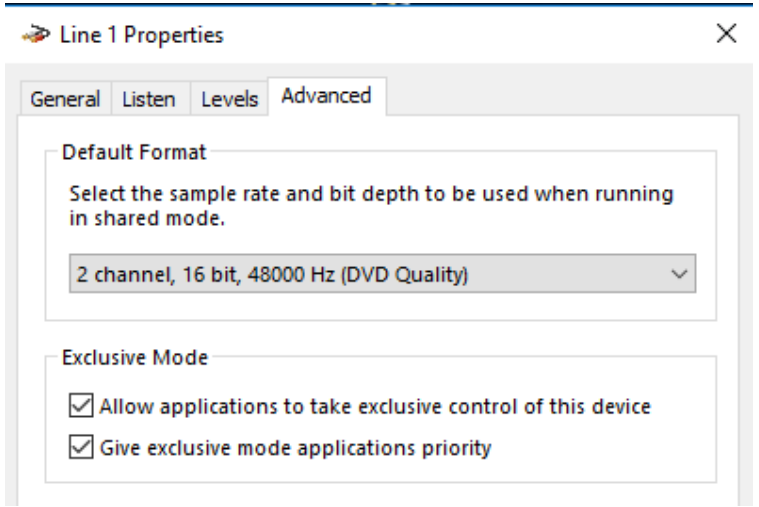
Hints

Logging Programs that support FT8

- Ham Radio Deluxe V6
- N3FJP
- Log4HAM
- LOTW
- eQSL

Hints


Sound
Playback
Recording
Sounds
Communications
Select a recording device below to modify its settings:
Stereomix
Realtek High Definition Audio
Disabled
Mic 1
Virtual Audio Cable
Currently unavailable
Mic 2
Virtual Audio Cable
Currently unavailable
Line 1
Virtual Audio Cable
Default Device
Line 2
Virtual Audio Cable
Default Communications Device
Configure
Set Default
Properties
OK
Cancel
Apply

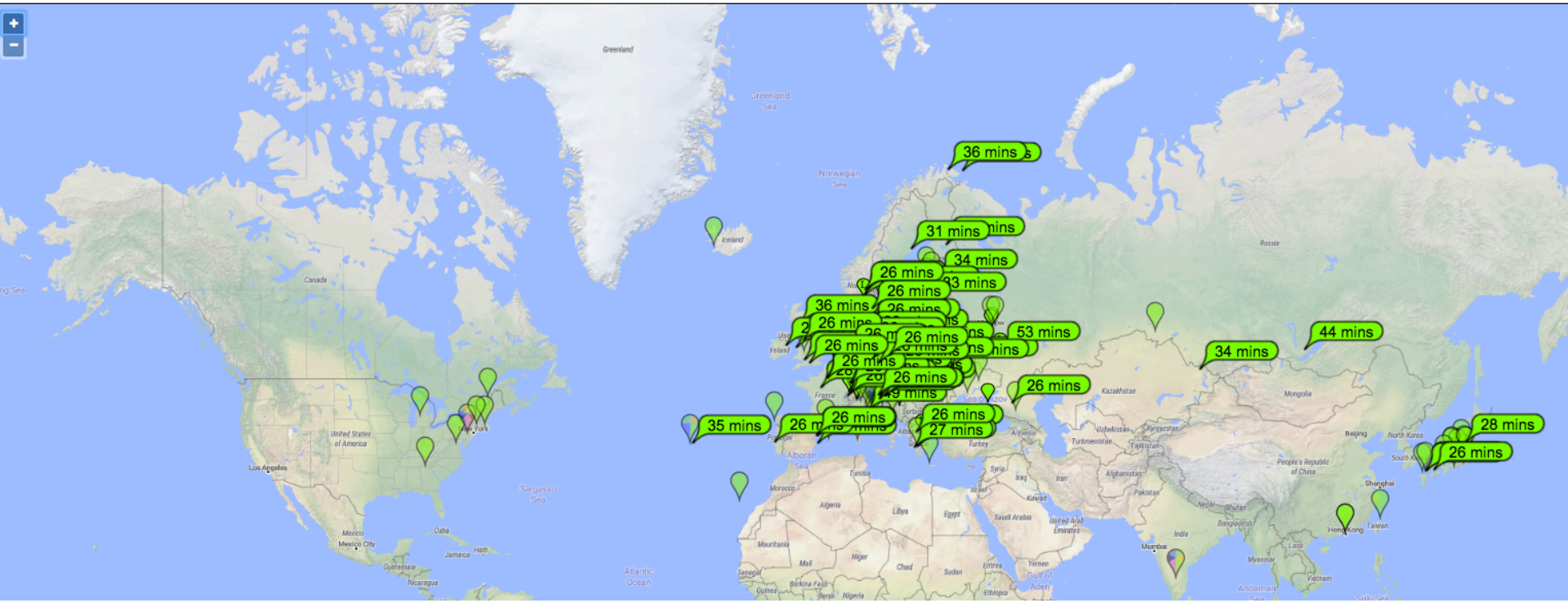

Line 1 Properties
General
Listen
Levels
Advanced
Default Format
Select the sample rate and bit depth to be used when running in shared mode.
2 channel, 16 bit, 48000 Hz (DVD Quality)
Exclusive Mode
Allow applications to take exclusive control of this device
Give exclusive mode applications priority

PSK Reporter

On 160m, show signals, sent/rcvd by, the callsign, 5p6mj using FT8 over the last 2 hours Go! Display options Permalink

Monitoring 5P6MJ (last heard 26 mins ago). Automatic refresh in 5 minutes. Small markers are the 40 transmitters (show logbook) heard (distance chart) at 5P6MJ (84 reports, 32 countries last 24 hours; 2279 reports, 68 countries last week).

There are 127 active FT8 monitors on 160m. Show all FT8 on all bands. Show all on all bands. Legend



Can be setup to show the stations that are receiving you

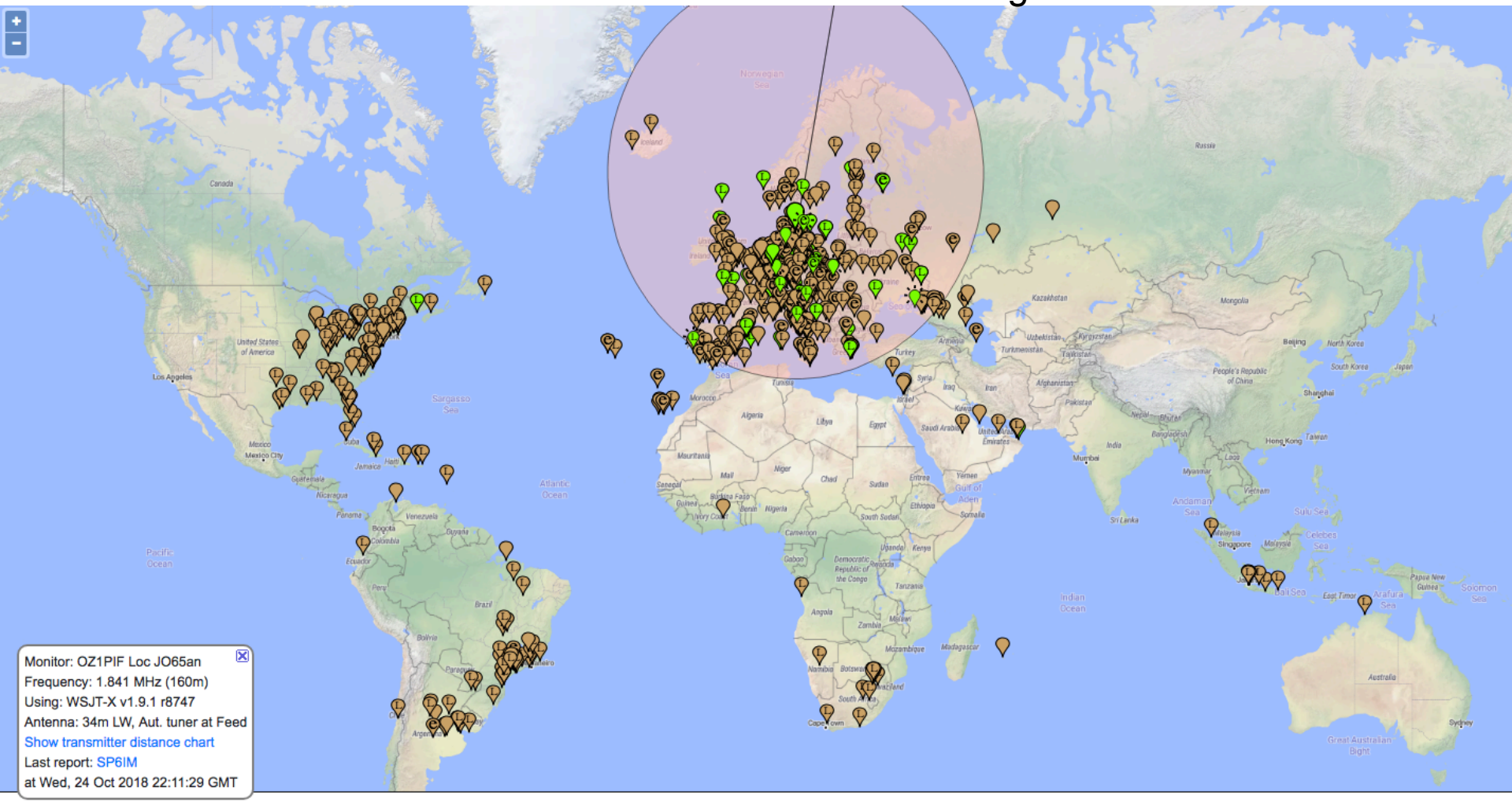
Monitor: 5P6MJ Loc JO54kx
in Denmark
Receiving: FT8 on 1.842 MHz (160m)
Using: WSJT-X v2.0.0-rc2 cc148d
Antenna: Skywire 160m
Show all seen by 5P6MJ
Showing transmitters for the last 11 mins
Show transmitter distance chart

Rx at Wed, 24 Oct 2018 20:55:44 GMT
From 5P6MJ by JA5EXW Loc PM63jv
Frequency: 1.840.500 MHz (160m), FT8, -18dB
Distance: 8692 km bearing 46°
Using: JTDX - EvIFT8 v18.1.95

PSK Reporter

On all bands, show signals rcvd by the callsign OZ1PIF using all modes over the last 12 hours

Peter Frenning



OZ1PIF (664 reports, 78 countries last 24 hours; 4179 reports, 98 countries last week).

Links

Download WSJT-X

Work the World with WSJT-X - Dr. Joe Taylor Video

Mode statistics based on data from Club Log

WSJTX documentation 1.9.1

Indianapolis Radio Club KJ9B & K9RU

Peter Frenning, OZ1PIF/Larry Gauthier, K8UT

Gary Hinson ZL2iFB

Louis K4BYN & Tom N4TL

Mads OZ6MJ/5P6MJ

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Gary Hinson ZL2iFB

Mads OZ6MJ/5P6MJ

Louis K4BYN & Tom N4TL

Icom 7300

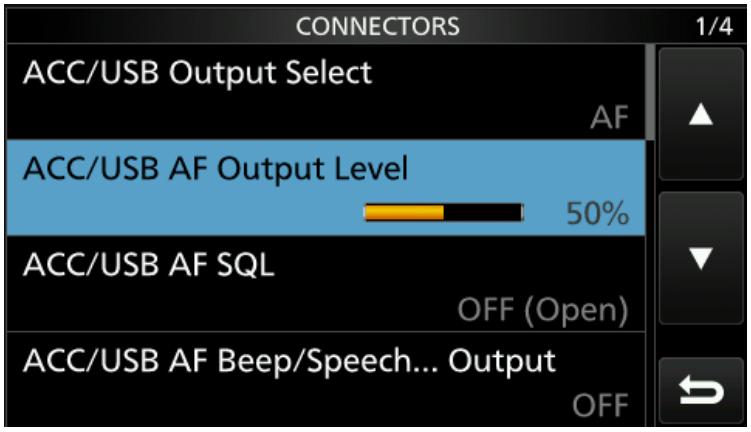
Are you looking for an easy way to try out the new WSJT-X FT8 mode?
If you have the Icom 7300 I assure you this cannot get any easier or better.
There's no need for an external sound card (Signalink) or any other hardware.
The Icom 7300 suffices.
The only thing needed is a USB cable (install the driver from Icom before connecting a USB cable) and WSJT-X.

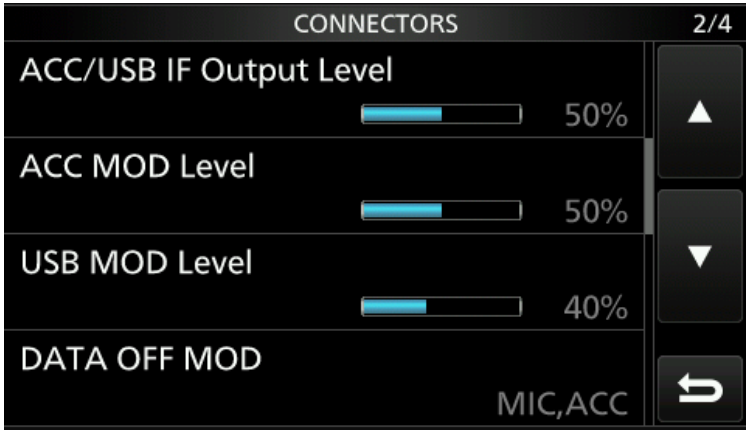
Important: Use something for time sync. I use NetTime.

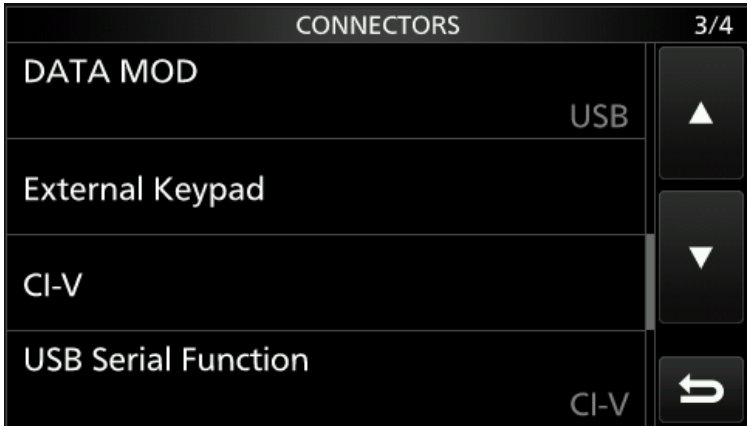
ICOM 7300 Setup for Digital signals

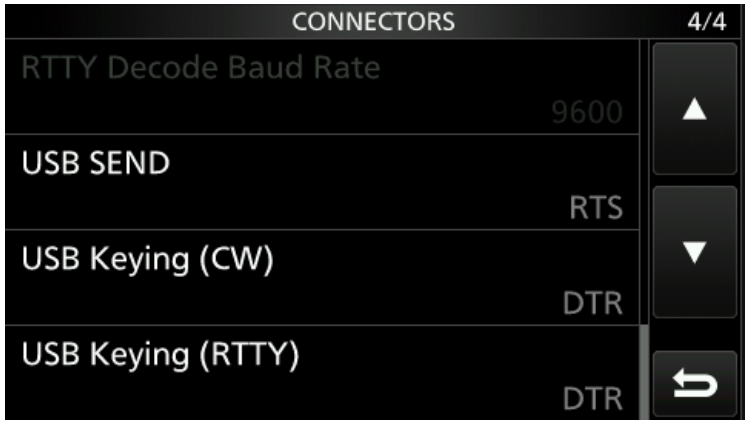
ICOM 7300 and WSJT-X setup

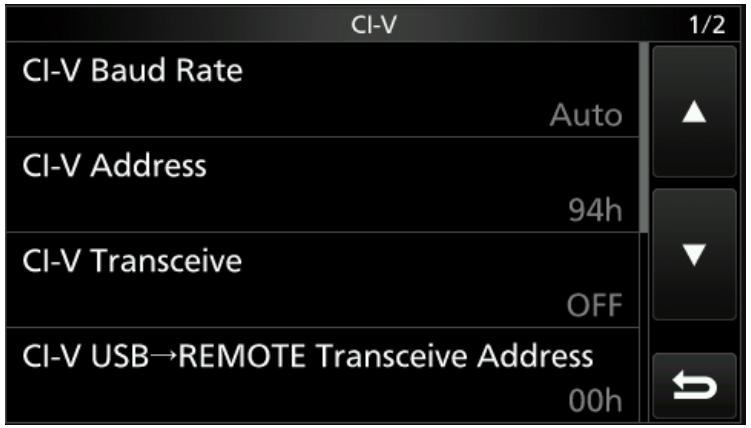
Icom 7300

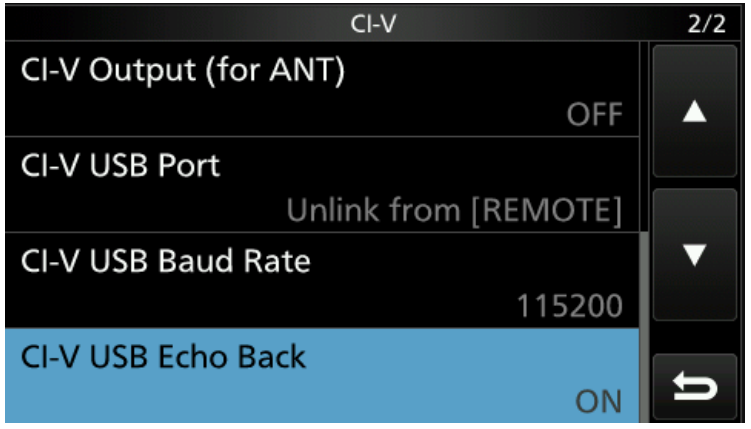

CONNECTORS
1/4
ACC/USB Output Select
AF
ACC/USB AF Output Level
50%
ACC/USB AF SQL
OFF (Open)
ACC/USB AF Beep/Speech... Output
OFF


CONNECTORS
2/4
ACC/USB IF Output Level
50%
ACC MOD Level
50%
USB MOD Level
40%
DATA OFF MOD
MIC,ACC

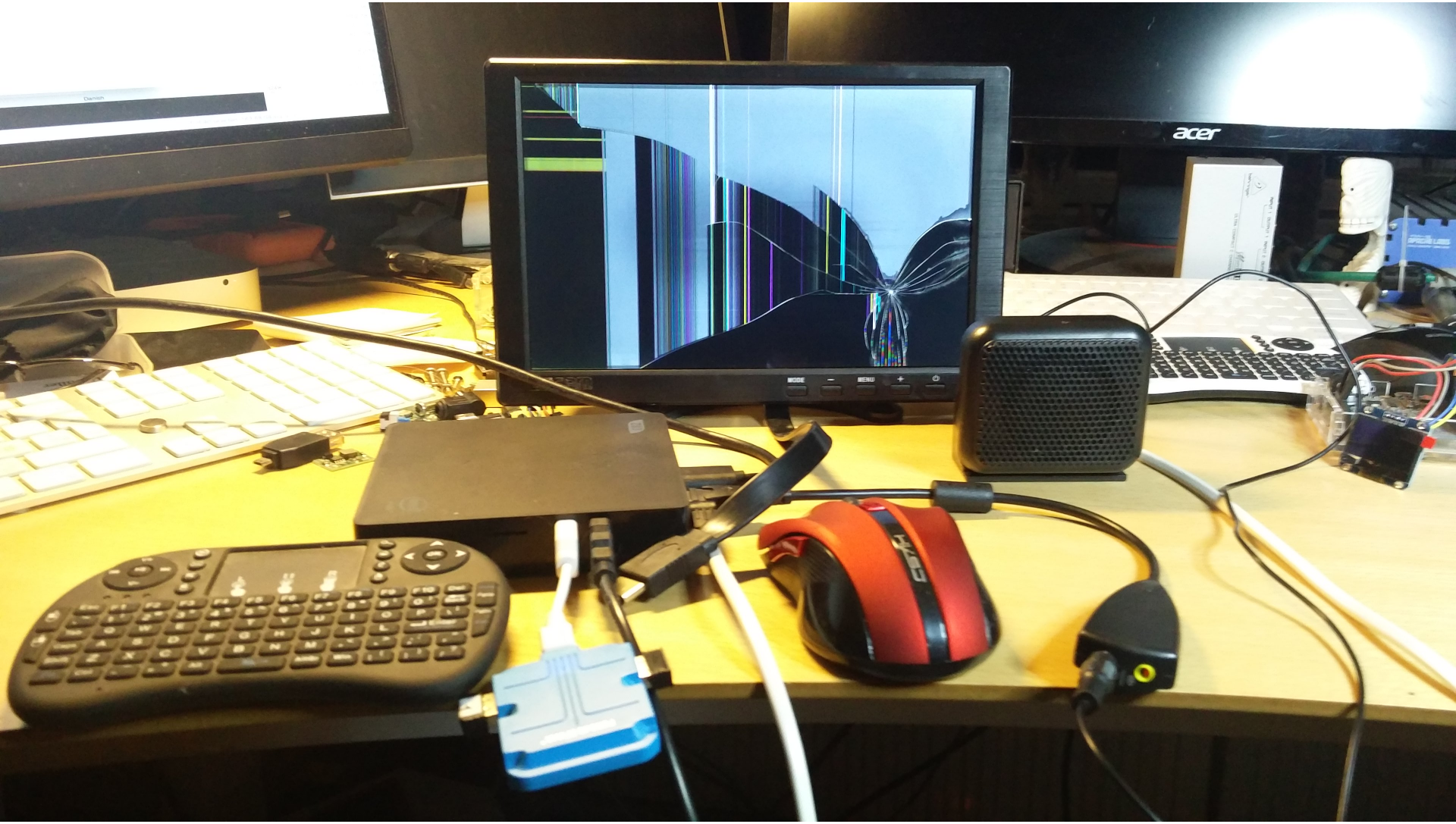

CONNECTORS
3/4
DATA MOD
USB
External Keypad
CI-V
USB Serial Function
CI-V


CONNECTORS
4/4
RTTY Decode Baud Rate
9600
USB SEND
RTS
USB Keying (CW)
DTR
USB Keying (RTTY)
DTR


CI-V
1/2
CI-V Baud Rate
Auto
CI-V Address
94h
CI-V Transceive
OFF
CI-V USB→REMOTE Transceive Address
00h


CI-V
2/2
CI-V Output (for ANT)
OFF
CI-V USB Port
Unlink from [REMOTE]
CI-V USB Baud Rate
115200
CI-V USB Echo Back
ON

END



Evt. Download via oz6mj.dk/FT8/FT8.pdf