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FT4 – Digital Contesting

By

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What is FT4?

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- Newest digital mode that will be part of the WSJT-X software.
- Special purpose mode designed for rapid fire contest QSO.
- Initially targeting use in HF digital contests.
- Will also support VHF contests.

Highlights

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- Developed for speed - 6 second sequences
  4.48 second TX duration
- 4 tone GFSK
- 90 Hz bandwidth
- S/N = -16.4 dB in a 2500 Hz bandwidth
- 2.5x faster than FT8
- Sensitivity is better than RTTY
- Uses same encoding scheme as FT8
- Same message payload and structure as FT8.
- Timing is not needed**

Important Dates

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- April 22, 2019 FT4 announcement made
- April 29 wsjtx.2.1.0-rc5 is available for download
- May 9th 0000-0100 utc 1st practice session 7.090 MHz
- May 14th 0000-0100 utc 2nd practice session 7.090 MHz
- June 5th 0000-0100 utc 3rd practice session 7.090 MHz (if needed)
- June 7th Kill switch built into S/W
- TBD 2.1.X GA software will be available

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Comparison of S/N

Mode	Modulation	Baud	BW (Hz)	TX Duration (s)	S/N (dB)
RTTY	2-FSK	45.45	170	variable	-6.4
FT4	4-GFSK	23.4	90	4.48	-16.4
FT8	8-FSK	6.25	50	12.6	-20
JT4	4-FSK	4.375	17.5	47.1	-23
JT65	65-FSK	2.692	177.6	46.8	-25
QRA64	64-FSK	1.736	111.1	48.4	-26
JT9	9-FSK	1.736	15.6	49.0	-27
WSPR	4-FSK	1.465	5.9	110.6	-28

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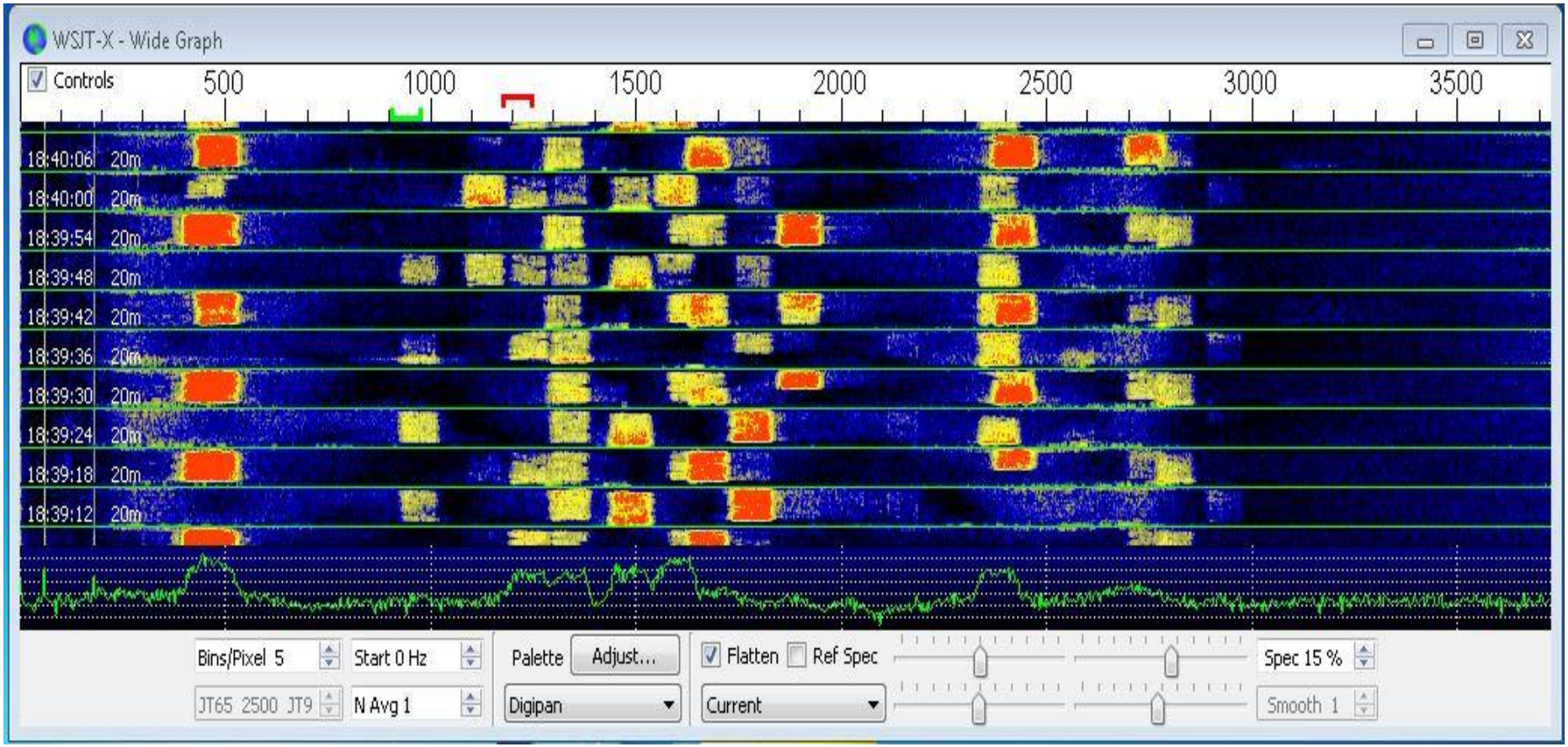
FT4 Screen Capture



FT8 Screen Capture

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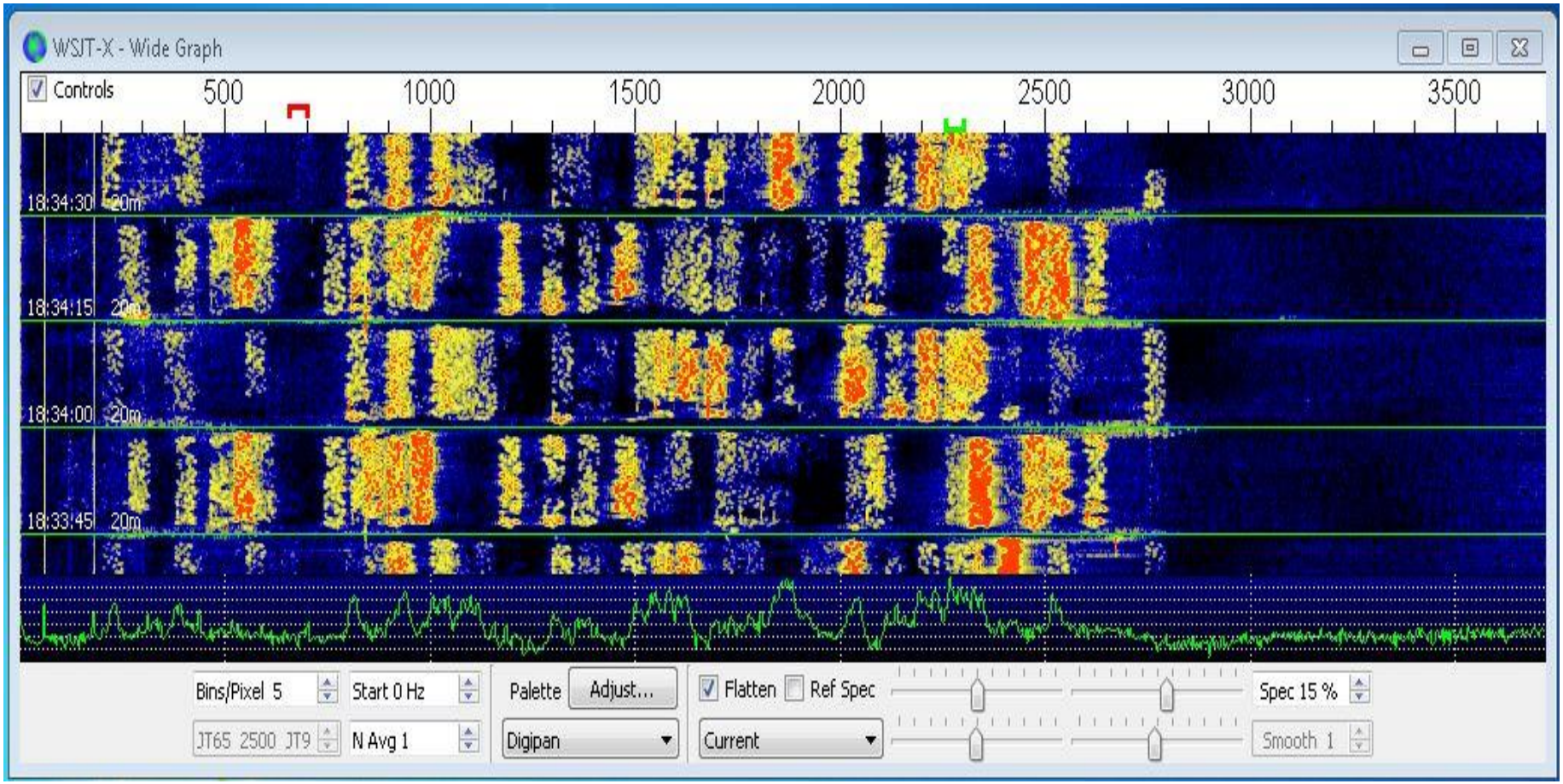

RTTY Screen Capture

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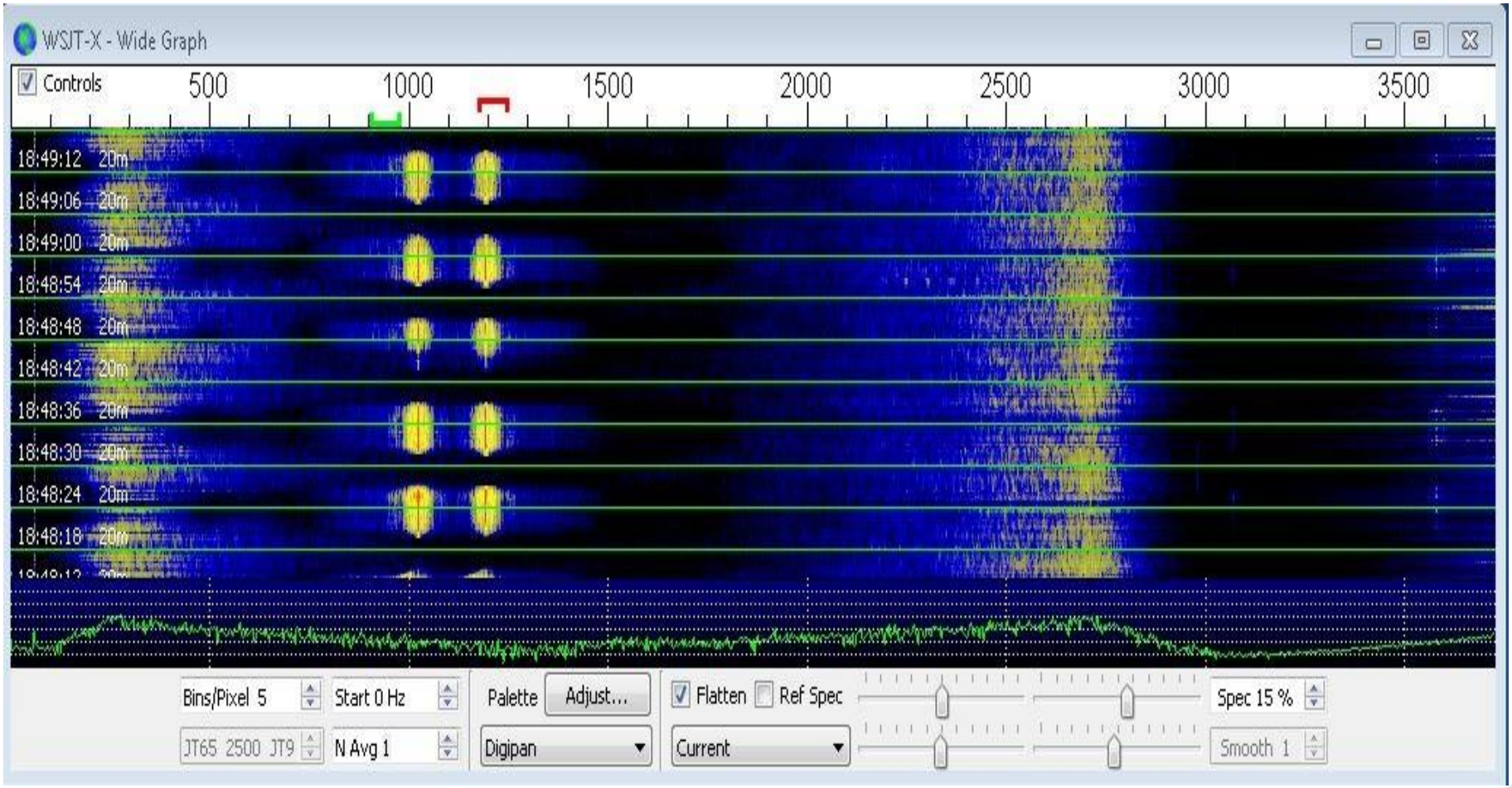

Best S+P

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- Best S+P or Best Search and Pounce
- S/W examines all the decoded CQ messages and selects the best QSO partner
- Best QSO partner means:
  - 1st priority – new multiplier (DXCC)
  - 2nd priority – new call on band
- New multiplier categories will be defined in the future for the ARRL RTTY Roundup
- May also add priority rankings for VHF contest

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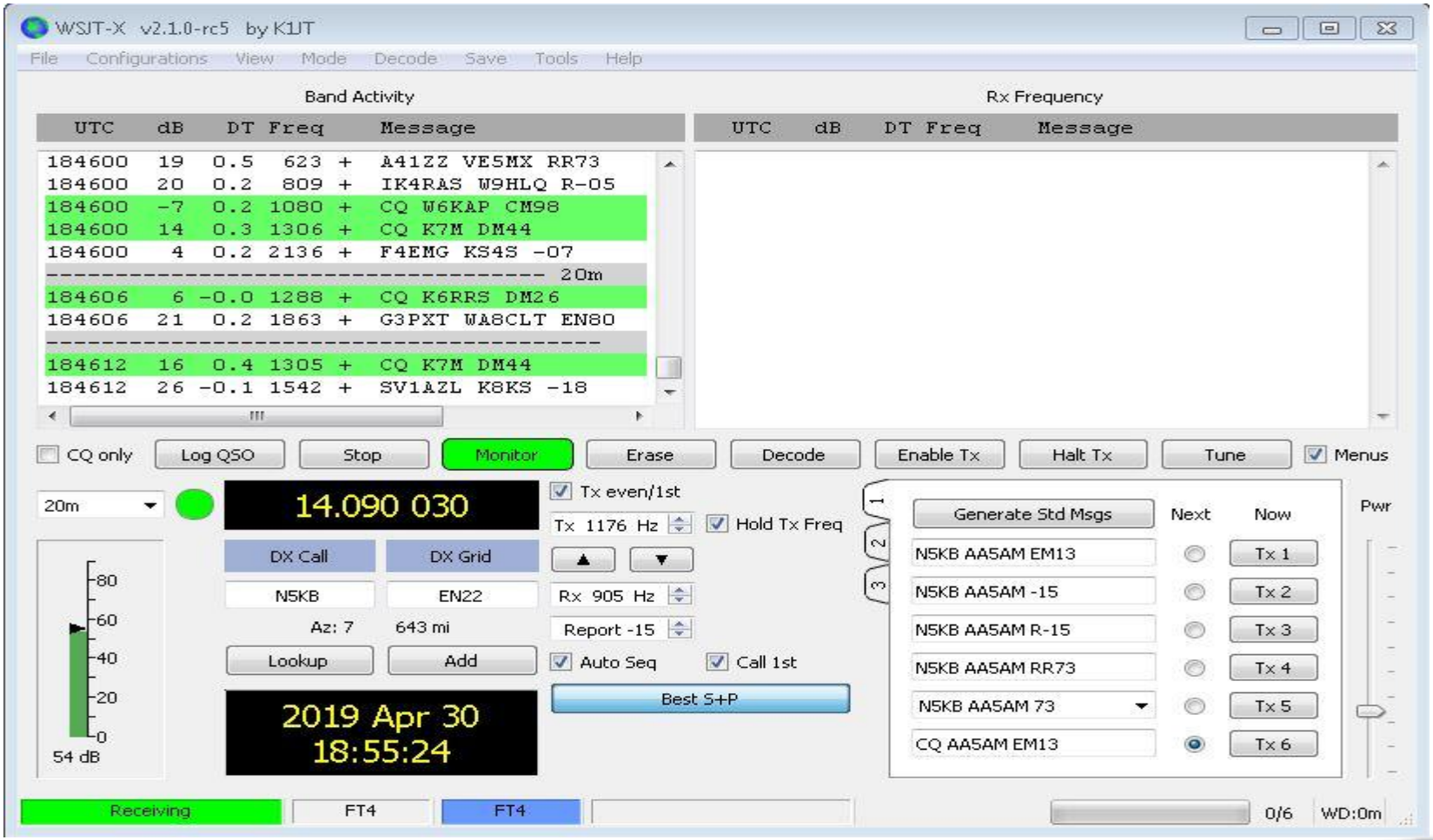
WSJTX screen capture



FT4 Watering Holes

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- 80m – 3.575 MHz
- 40m – 7.047 MHz **
- 30m – 10.140 MHz
- 20m – 14.080 MHz
- 17m – 18.104 MHz
- 15m – 21.140 MHz
- 12m – 24.919 MHz
- 10m – 28.180 MHz
- 6m – 50.318 MHz
- 2m – 144.170 MHz

** 40m frequency to change due to potential interference with ARRL CW bulletins on 7047.5

Nothing defined for 2200m, 630m, 160m, and 60m

Future Developement

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- Another mode in the works for the LF/MF crowd (2200m and 630m)
- Sensitivity down to a S/N –35 dB

References and Links

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- **Dr. Joe Taylor Presents More on FT8's Future at the FairLawnARC.org - Guest Presentation Series.**
  - Part1 - https://www.youtube.com/watch?v=0edSacXsSco
  - Part2 - https://www.youtube.com/watch?v=2Pd7zB40xdY
- **FT4 Protocol Document**
  - https://physics.princeton.edu/pulsar/k1jt/FT4_Protocol.pdf
- **VHFContesting Reflector**
  - http://lists.contesting.com/mailman/listinfo/vhfcontesting

References and Links

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- **WSJTX_v2_Whats_New_FT8 by Wes Atchison WA5TKU**
  - http://ntms.org/files/Feb2019/WSJTX_v2_whats_new_Wes_WA5TKU.pdf
- **WSJT-X Homepage**
  - https://physics.princeton.edu/pulsar/k1jt/wsjtx.html
- **WSJT-X v2.1.0-rc5 S/W Download**
  - 32 bit https://physics.princeton.edu/pulsar/k1jt/wsjtx-2.1.0-rc5-win32.exe
  - 64 bit https://physics.princeton.edu/pulsar/k1jt/wsjtx-2.1.0-rc5-win64.exe
- **WSJT User Group**
  - groups.yahoo.com (Membership required)

Thoughts

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- Will the masses leave FT8 in droves for the speed of FT4, sacrificing the sensitivity like was done with JT65 and FT8?
- How will the VHF crowd handle the digital modes for contests? We have already experienced the message incompatibility in the early releases of FT8.
- Other thoughts?

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Thank You