

Concept

Typical SDRs can tune in the range of 25MHz to 1700MHz.

Need to be able to receive 14MHz, though.

Special version of SDR can be bought which can do that.

Once you can receive these frequencies:

- SDR# program can decode them into audio signals
- Those audio signals are sent via special software to a WSPR decoder
- The WSPR decoder runs as separate software

The computer itself needs to synchronize precisely to the correct time.

(1 second off is an error).

There is special software to do that also.

Physical Parts

New Dongle - Not tested but found as of 2023-03-22



([link](#)) RTL-SDR Blog V3 R860 RTL2832U - \$32

([link](#)) Antenna kit - \$18

Old Dongle - Tested and working



([link](#)) RTL-SDR Blog R820T2 Amazon \$30
([link](#)) or without antennas, etc for \$21

Antenna

Use the SMA antenna connection to have a long antenna.
Length not particularly important for decoding your own transmissions.

NTP Software

You need to sync your PC to the correct time.

([link](#)) NTP software from Meinberg, replaces windows NTP, worked right out of the box
(configure to use time.google.com as the NTP server)

Download, install with default values.



[ntp-4.2.8p13-win32-setup.exe](#) (3.81 MB)

8 March 2019

NTP package with IPv6 support for Windows XP and newer

Check the time at <https://time.is/>

You want to see that your time is "exact."

It may take several minutes after you install the NTP software for that to become true.

Refresh periodically to check again.

Time.is

Your time is exact!

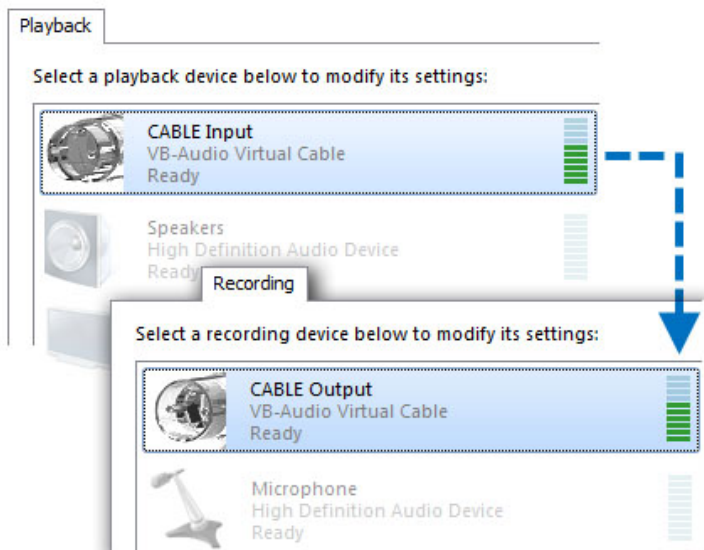
The difference from Time.is was -0.003 seconds (± 0.005 seconds).

Time in Hoboken, New Jersey, United States now:

Audio Software

([link](#)) VB-Audio Virtual Audio Cable

This is the special software that allows you to channel audio from SDR# into the WSPR decoder. You need to set a configuration option in SDR# to make use of this once you've installed it.



VB-CABLE Virtual Audio Device.

VB-CABLE is a virtual audio device working as virtual audio cable. All signals coming in the CABLE input is going to the CABLE output. Then It becomes simple to make computer audio recording or to connect a player application to a recorder one.

Install VB-CABLE Driver (Donationware)

Virtual Audio MMIO, KS, WDM Device Driver (XP to WIN10 32/64 bits)

[Download](#)

VB-CABLE_Driver_Pack43.zip (1.09 MB - OCT 2015)
[Click Here](#) to download from alternative web site.

INSTALLATION: Extract all files from the ZIP and run Setup Program in Administrator Mode (Reboot after installation or de-installation).

If you find VB-CABLE useful, you can donate and get two other Virtual Audio Devices: **VB-CABLE A+B**.

VB-CABLE is a Donationware (not a freeware), for Volume Licensing / special deals, especially for company deployment or commercial distribution, you may contact us to get quotation / agreement.
[Get more info about Volume Licensing...](#)

Unzip, open the folder, run the x64 installer.

	vbaudio_cable64_2003.cat	09/02/2014 6:01 PM	Security Catalog
	vbaudio_cable64_2003.sys	09/02/2014 6:01 PM	System file
	vbaudio_cable64_vista.cat	09/02/2014 6:01 PM	Security Catalog
	vbaudio_cable64_vista.sys	09/02/2014 6:01 PM	System file
	vbaudio_cable64_win7.cat	09/02/2014 6:01 PM	Security Catalog
	vbaudio_cable64_win7.sys	09/02/2014 6:01 PM	System file
	VBCABLE_ControlPanel.exe	10/19/2015 5:29 PM	Application
	VBCABLE_Setup.exe	05/25/2016 12:03 ...	Application
	VBCABLE_Setup_x64.exe	05/25/2016 12:03 ...	Application
	vbMmeCable_2003.inf	09/02/2014 5:16 PM	Setup Information
	vbMmeCable_vista.inf	09/02/2014 5:16 PM	Setup Information
	vbMmeCable_win7.inf	09/02/2014 5:16 PM	Setup Information
	vbMmeCable_xp.inf	09/02/2014 5:16 PM	Setup Information
	vbMmeCable64_2003.inf	09/02/2014 5:16 PM	Setup Information
	vbMmeCable64_vista.inf	09/02/2014 5:16 PM	Setup Information

SDR# Software

Download

([link](#)) Official download

Software Defined Radio Package (Change log)

Download

This package contains:

- SDR# (SDRSharp) **revision 1910** (2023-02-27) – The best free SDR software for Airspy and RTL-SDR dongles!
- Airspy drivers
- HackRF driver
- RTL-SDR driver (manual installation script)

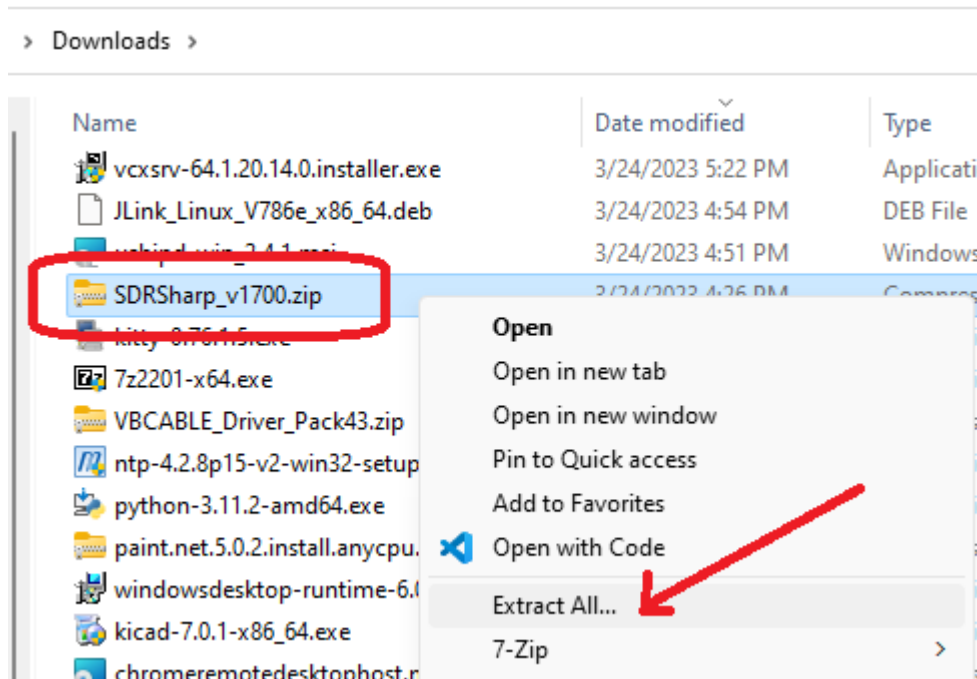
If you are looking for the older versions and legacy hardware support tools, check these links:

- Latest unskinned SDR# build
- Latest SDR# build with collapsible panels
- Latest dotnet 4.x build
- Latest dotnet 5.x build

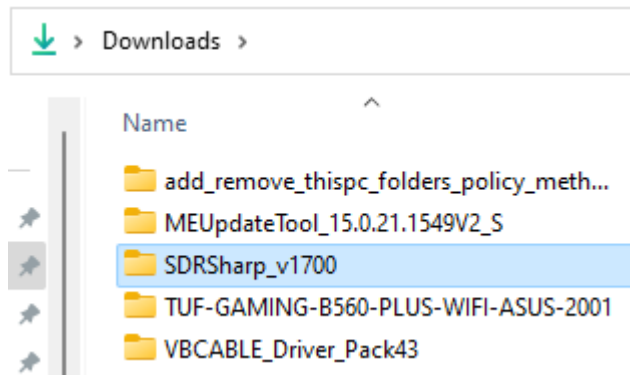
([link](#)) The old revision 1700 is my fav

Install

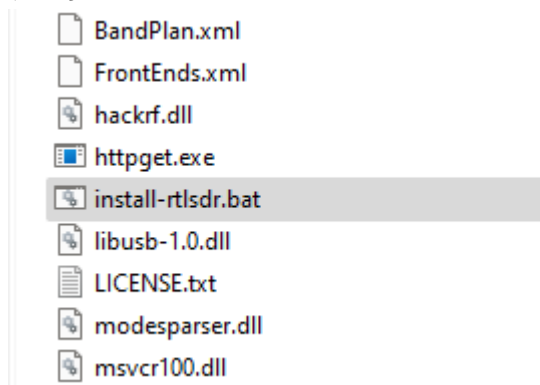
Right-click on the downloaded zip file, click Extract All



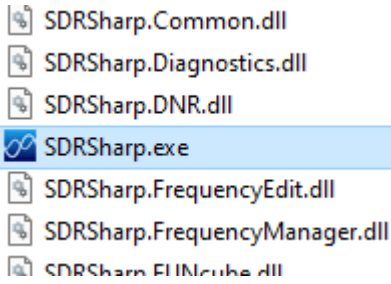
This creates a folder, go to it



Find the install batch file, run it by double-clicking
(only have to do this once -- the first time you install)



Run the program



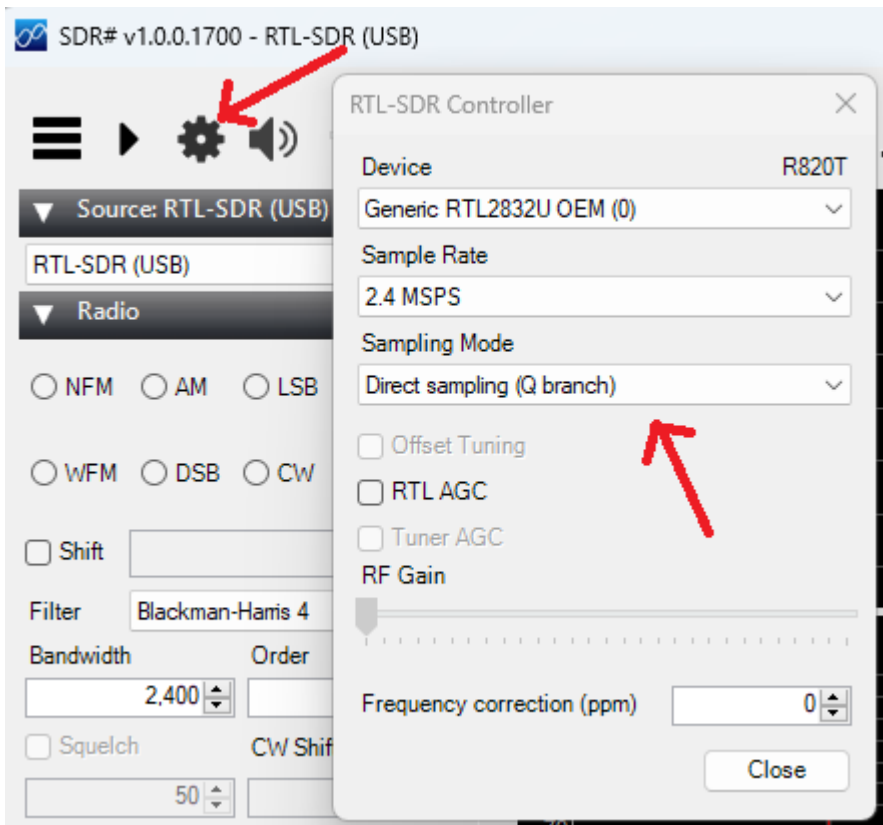
Configuration

Choose the SDR dongle from the configuration menu



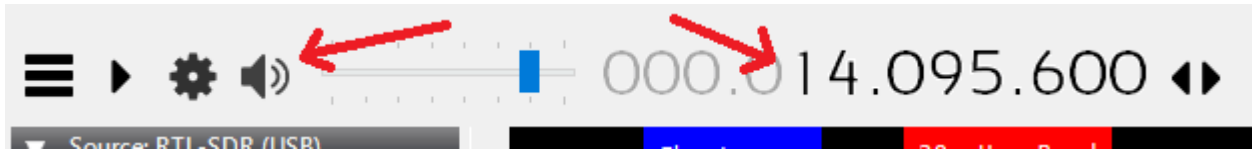
When decoding WSPR, you must explicitly set the Sampling Mode to Direct Sampling (Q branch). This allows you to decode signals below the typical 25MHz range.

While in Direct Sampling mode, you cannot decode the typical 25MHz+ range, only lower.

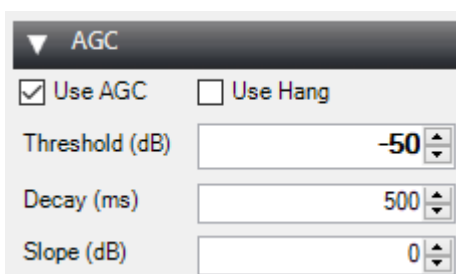
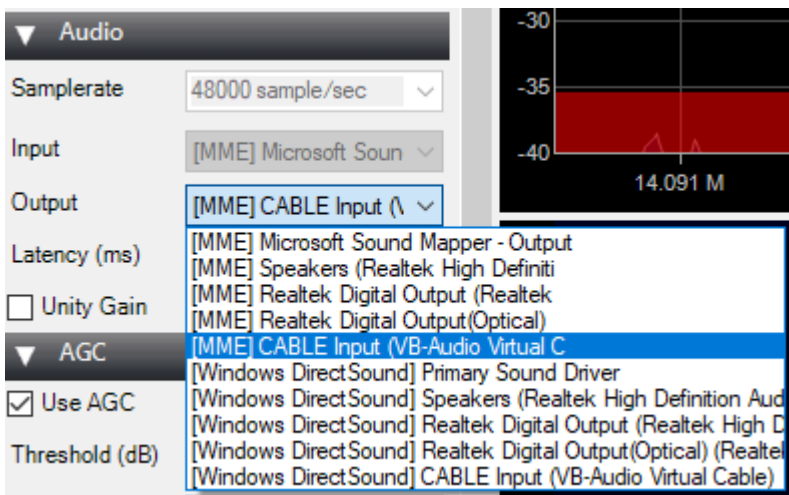
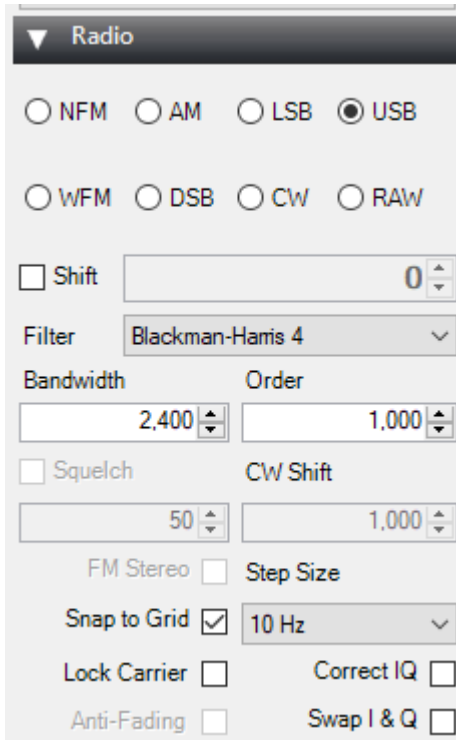


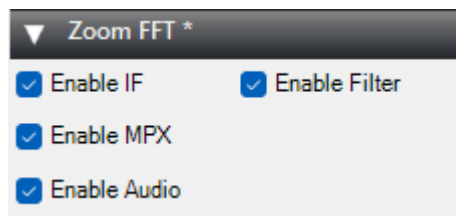
Tune to 14.095600 MHz

(the speaker icon on the left can be clicked to mute, unmute. Make sure it isn't muted!)

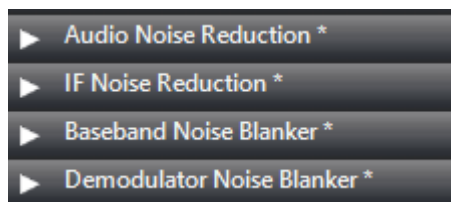


Set up the other configuration available on the left-hand column menu sections.

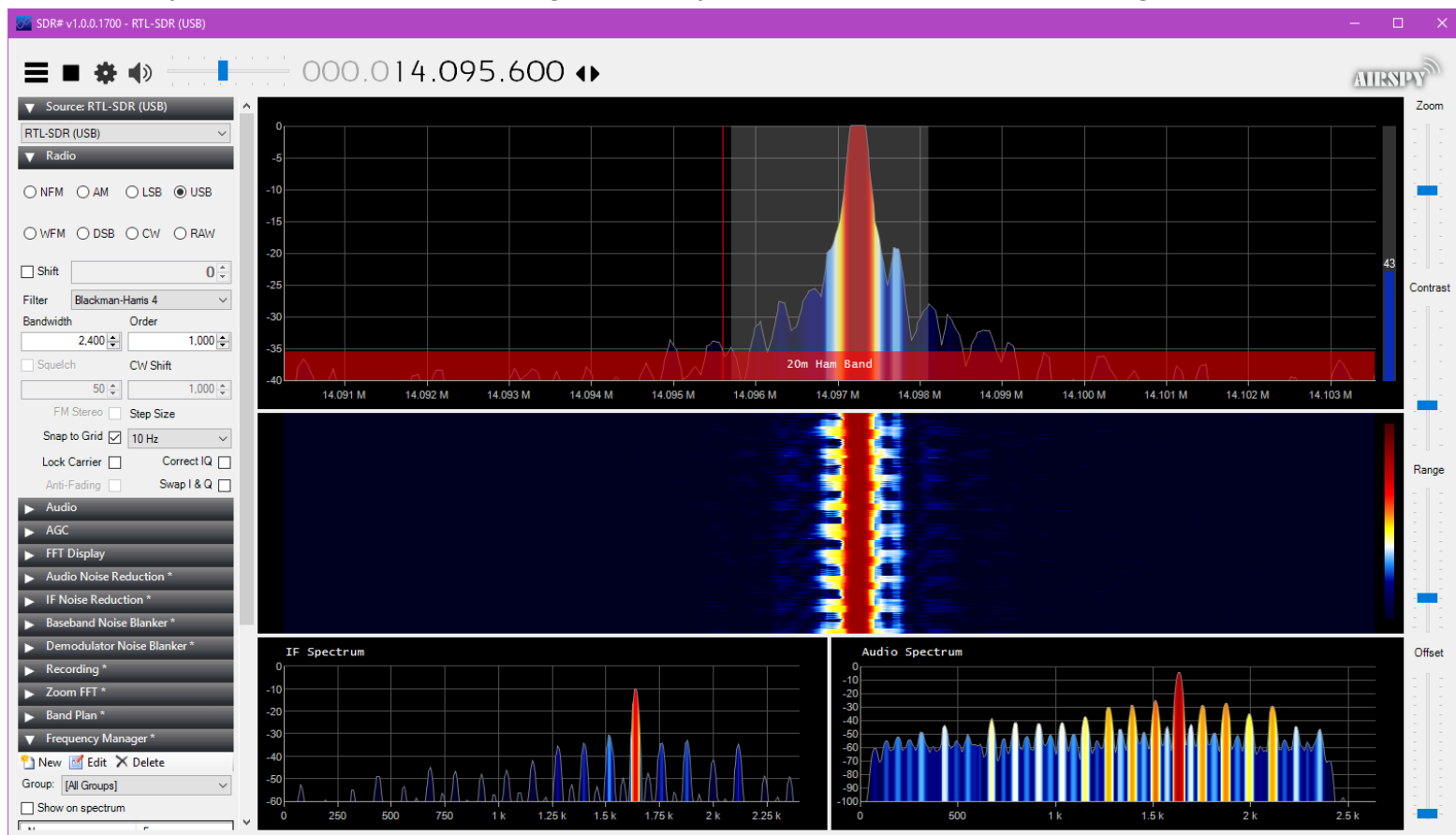




These are all disabled:

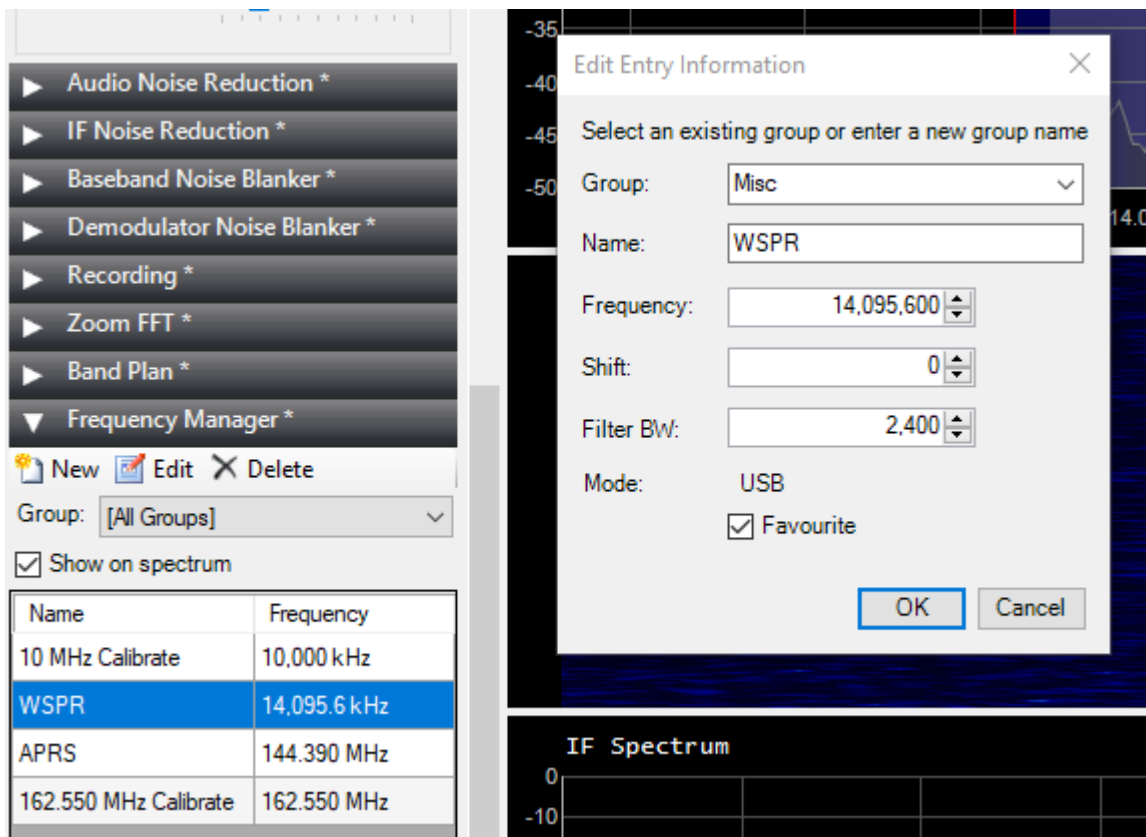


Zoom in if you want. This is running correctly when zoomed in and receiving a transmission.



Bookmark it - this entry is for 20m.

You can pick any other WSPR band also, just change the dial freq, nothing else.



WSPR Decoder - WSJT-X

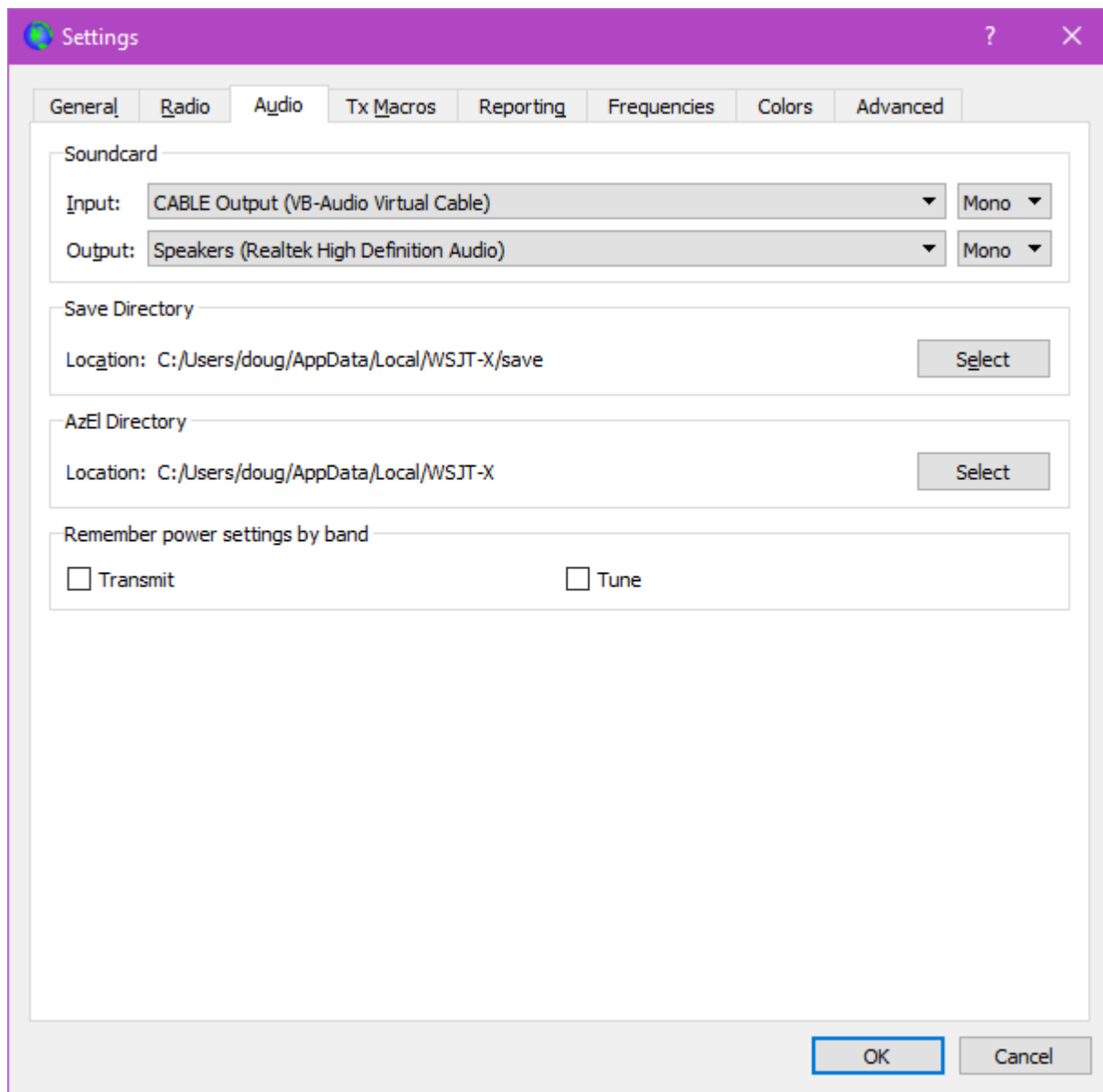
([link](#)) Download WSPR decoder, install with all defaults.

Installation packages for WSJT-X 2.0

Windows:

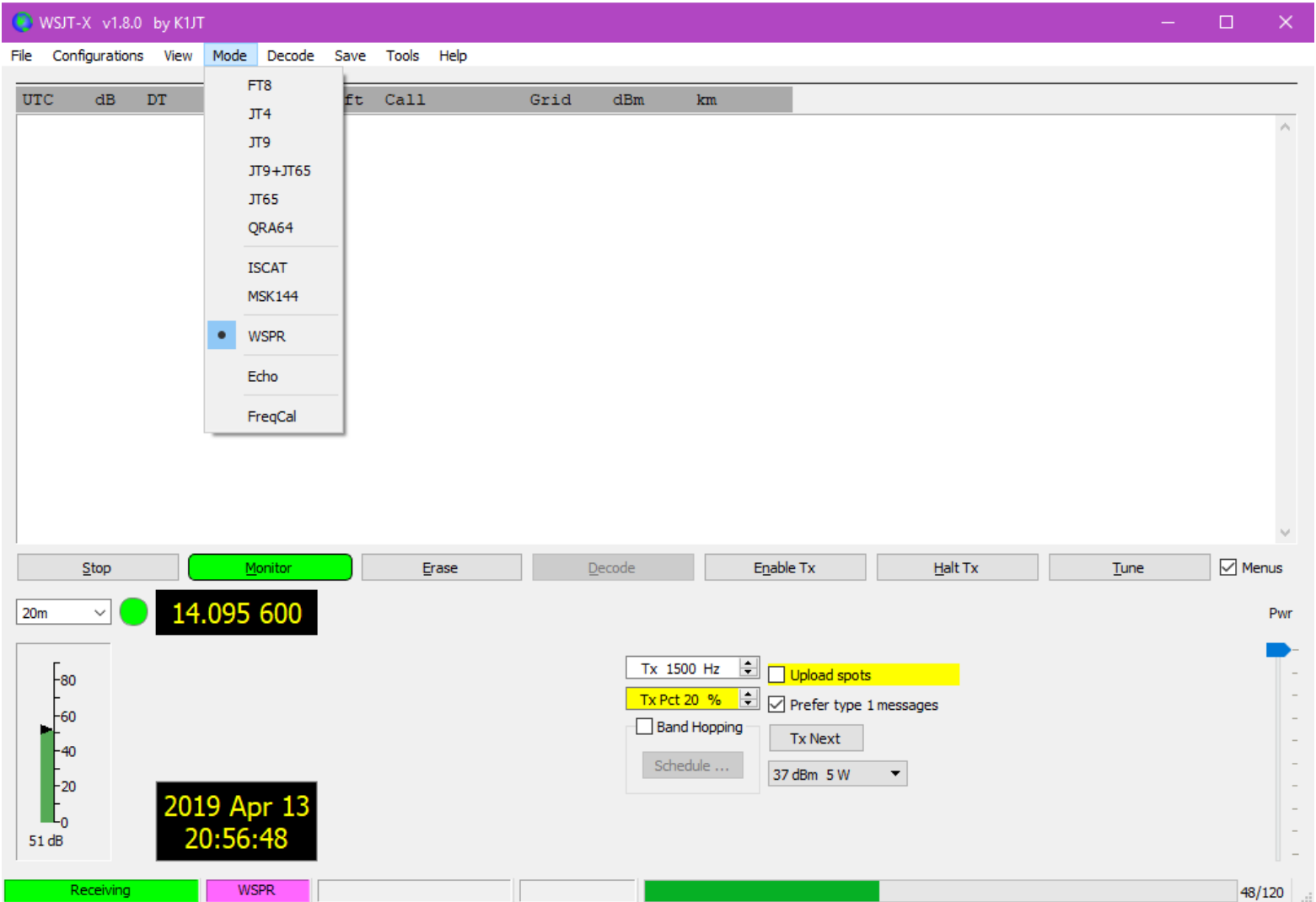
- Version 2.0.1: [wsjtx-2.0.1-win32.exe](#) (runs on ')



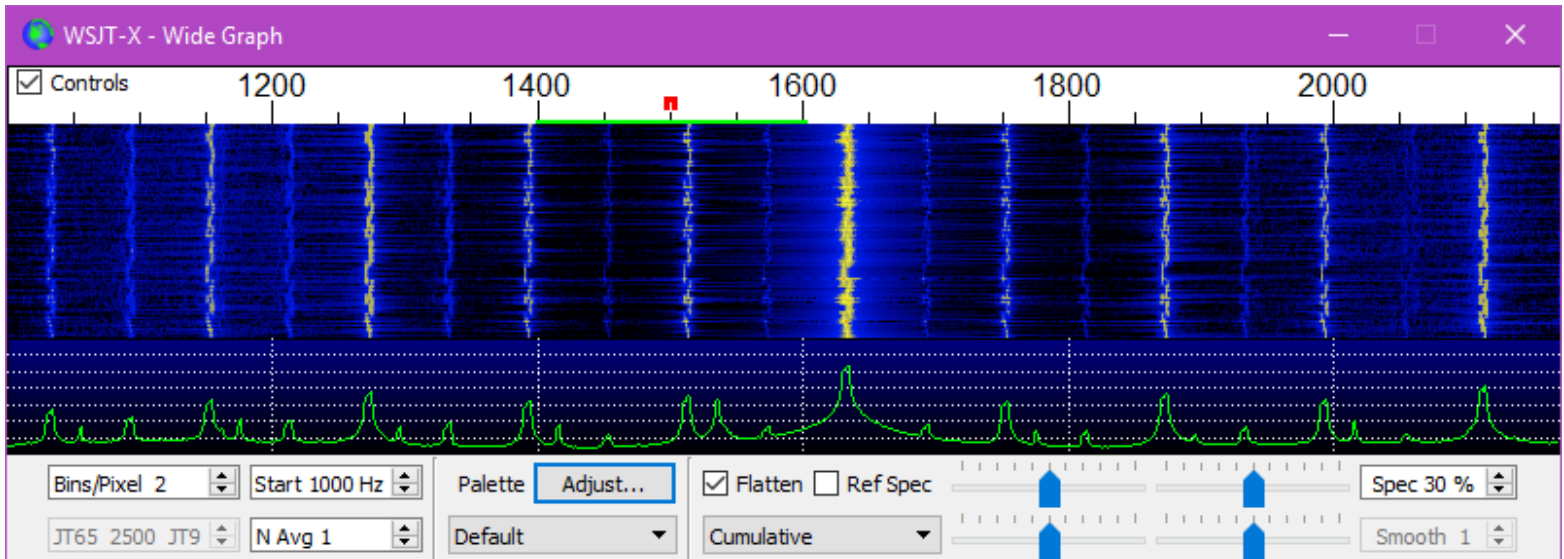


Set Mode->WSPR.

Also set View->Waterfall.



This is what the waterfall view looks like when receiving WSPR transmissions.



This is what it looks like when you've successfully decoded a WSPR transmission.

UTC	dB	DT	Freq	Drift	Call	Grid	dBm	km
2104	-12	2.2	14.096993	0	KD2KDD	AB12	27	15373
2104	-6	2.2	14.097113	0	KD2KDD	AB12	27	15373

Stop

Monitor

Erase

Decode

Enable Tx

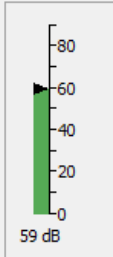
Halt Tx

Tune

☒ Menus

20m

14.095 600

2019 Apr 13
21:06:07

Tx 1500 Hz

☐ Upload spots

Tx Pct 20 %

☒ Prefer type 1 messages☐ Band Hopping

Schedule ...

Tx Next

37 dBm 5 W

Pwr

Receiving

WSPR

7/120

