

# #1055 Multi-Band WSPR Receiver - Quick Guide

## Connecting the WSPR Receiver to a computer.

1. Connect an antenna to the Antenna port on the receiver
2. Connect the USB cable between the receiver and your computer.

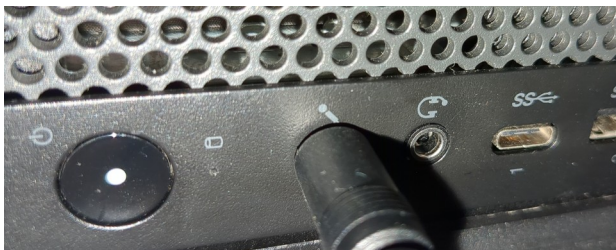
This cable will both power the receiver and be used to set the frequency of the receiver.

The green power LED in the receiver should go on as soon as it is connected to the computer.



3. Connect the audio cable between the receiver and your computer.

If there is a microphone or line input on the computer use that.

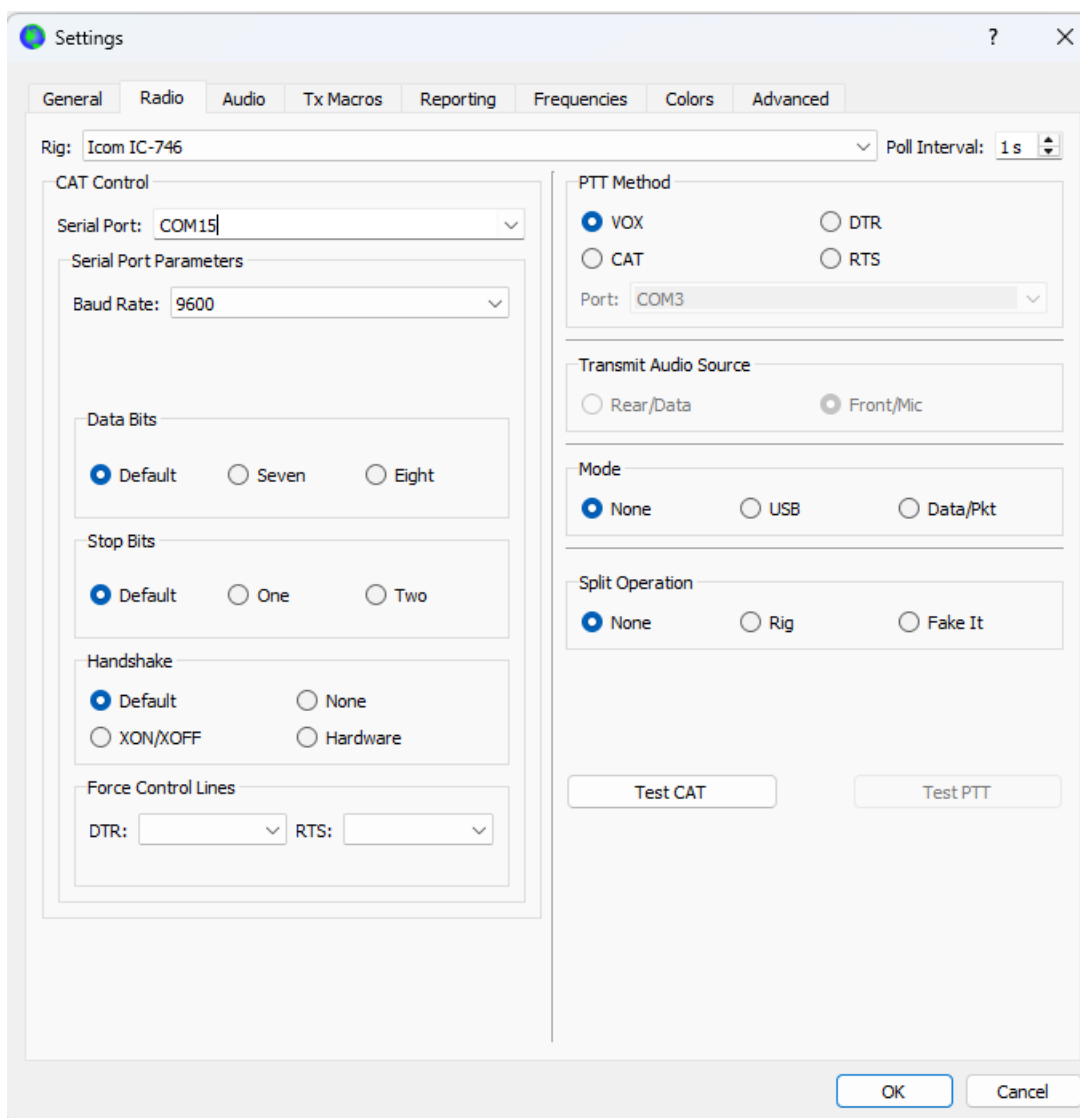


If there is no Audio-In port on your computer you can use a USB Sound card to get the Audio in to the computer.

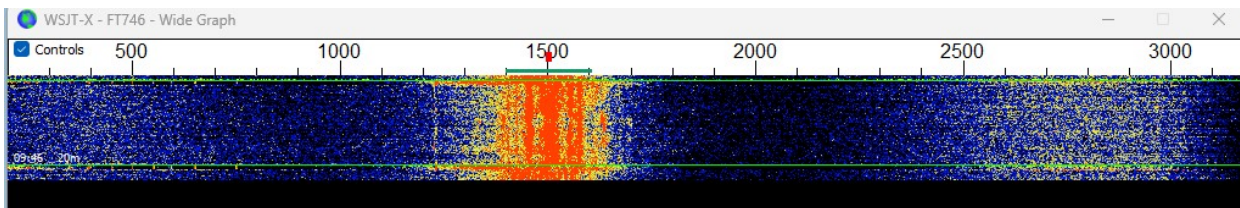


# Configure the computer software WSJT-X

1. Prerequisite – having the correct time on your computer.  
To receive the WSPR signals properly you need to have and keep the correct time on your computer. You can check it on this webpage <https://time.is/>  
Preferably it should be within half a second or better although the hard limit is two seconds.
2. Download and install WSJT-X on your computer.  
Do the general setup like setting your call sign and Maidenhead grid on the “General” tab.
3. In the “Radio” Tab set the Radio to be IC-746 and the Baud Rate to be 9600.
4. Set the Serial port to one of the available ports in the list.
5. Set the other setting to the default setting or to the same settings shown in the screenshot below.

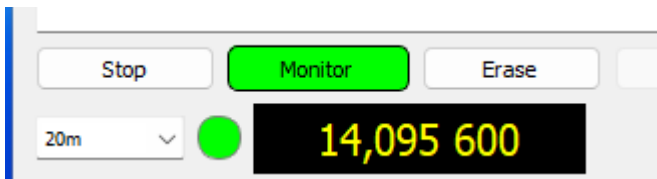


6. Click the “Test CAT” button. If the correct serial port was picked it will turn green to indicate that it has a connection to the receiver. If it does not turn green – pick another serial port and try again until it turns green.  
If you are unable to make the Test CAT button to turn green go to the Trouble shooting section at the end of this document for tips how to fix the problem.
7. Go to the Audio Tab and pick the correct Sound card for the input, you don’t have to set the output.
8. Click the OK button.
9. Make sure the Waterfall window is displayed, if it isn’t use the menu “View, Waterfall” to display it.  
Check to see if there are signals shown around 1500Hz.



If you don’t see any signals first check that you have an antenna connected, secondly open the Audio settings again and pick another Sound input until you find the correct one coming from the receiver.

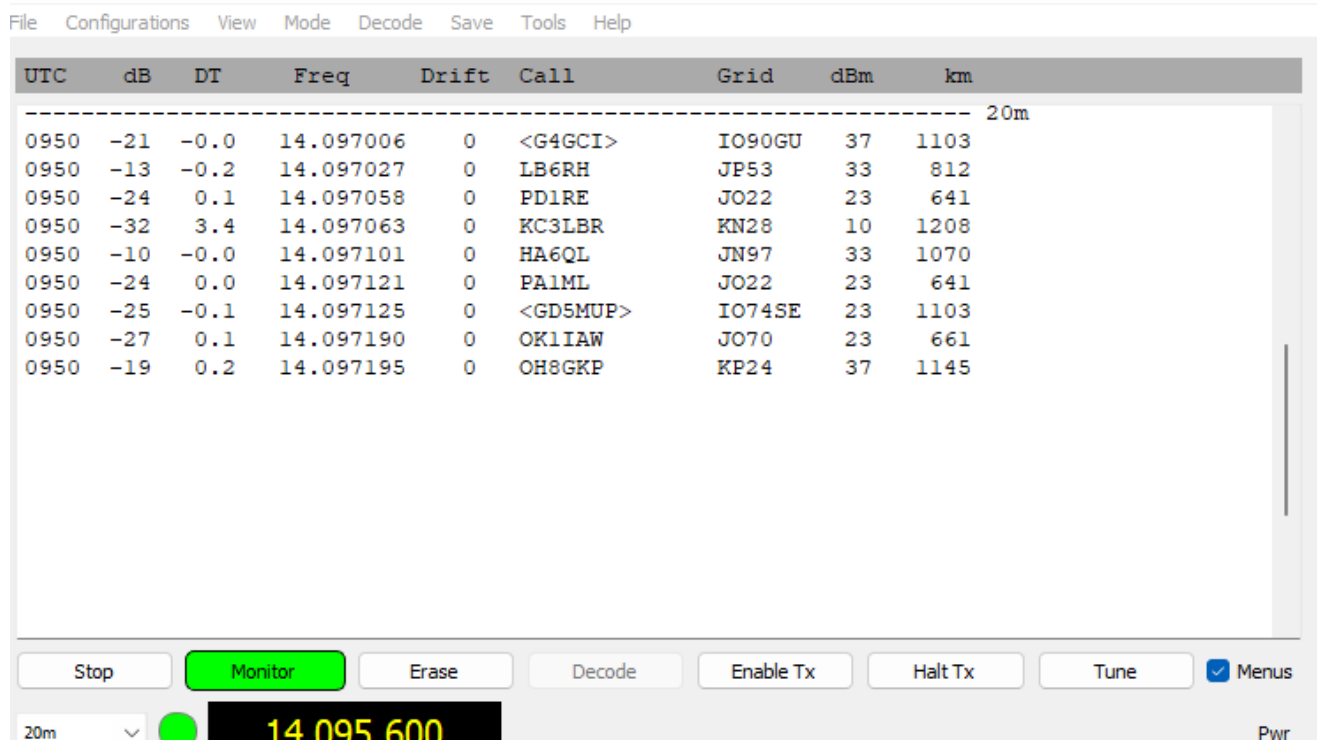
10. Tell WSJT-X to listen for WSPR signals by using the menu “Mode, WSPR”
11. Make sure the “Monitor” button is green, if not click it once to make it go green.



## 12. You are now receiving WSPR signals.

It takes two minutes to receive the WSPR signals, the green progress bar in the lower right shows the progress, at the end of the cycle the "Decode" button will turn Cyan for a bit while it processes the received signals.

If any signals were received it will show up as text in the main windows.

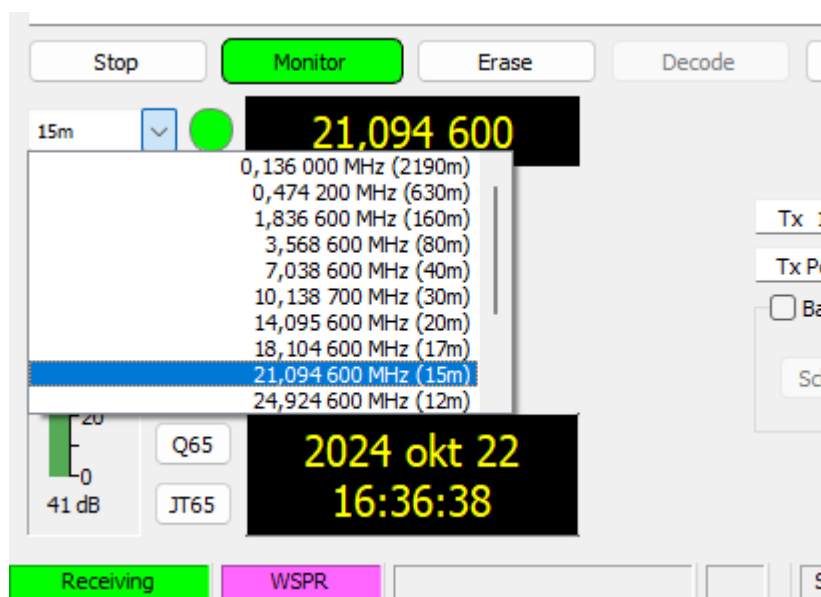


The screenshot shows the WSJT-X main window with a menu bar (File, Configurations, View, Mode, Decode, Save, Tools, Help) and a table of received signals. The table has columns for UTC, dB, DT, Freq, Drift, Call, Grid, dBm, and km. A green progress bar is visible at the bottom left, and a frequency display shows 14.095 600. The 'Monitor' button is highlighted in green.

UTC	dB	DT	Freq	Drift	Call	Grid	dBm	km
0950	-21	-0.0	14.097006	0	<G4GCI>	IO90GU	37	1103
0950	-13	-0.2	14.097027	0	LB6RH	JP53	33	812
0950	-24	0.1	14.097058	0	PD1RE	JO22	23	641
0950	-32	3.4	14.097063	0	KC3LBR	KN28	10	1208
0950	-10	-0.0	14.097101	0	HA6QL	JN97	33	1070
0950	-24	0.0	14.097121	0	PA1ML	JO22	23	641
0950	-25	-0.1	14.097125	0	<GD5MUP>	IO74SE	23	1103
0950	-27	0.1	14.097190	0	OK1IAW	JO70	23	661
0950	-19	0.2	14.097195	0	OH8GKP	KP24	37	1145

## 13. Picking what band to receive.

You can pick what band to listen to by using the band selector on the left side of WSJT-X



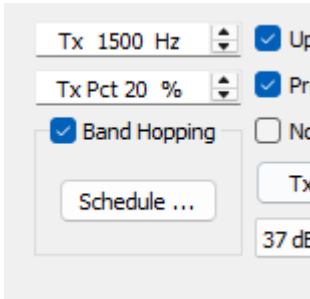
The screenshot shows the WSJT-X main window with a band selector menu open. The menu lists various frequency bands with their corresponding bandwidths. The '21,094 600 MHz (15m)' band is selected. The 'Monitor' button is highlighted in green. The frequency display shows 21,094 600. The 'Receiving' button is highlighted in green, and the 'WSPR' button is highlighted in pink. The date and time '2024 okt 22 16:36:38' are displayed in the center.

Frequency (MHz)	Bandwidth (m)
0,136 000	2190m
0,474 200	630m
1,836 600	160m
3,568 600	80m
7,038 600	40m
10,138 700	30m
14,095 600	20m
18,104 600	17m
21,094 600	15m
24,924 600	12m

14. When you change band WSJT-X will communicate with the band you have picked. Once you have picked a band it will stay on this frequency unless you have ticked the Band Hopping option.

### 15. **Band Hopping**

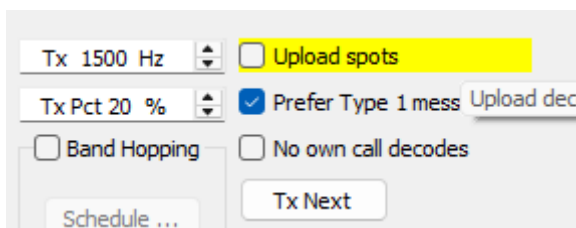
To listen to more than one band in a sequence as determined by WSJT-X you can use the Band hopping Feature.



If you tick this option WSJT-X will change what band it listen to every two minutes. You can set what band it will use by clicking the “Schedule...” button.

### 16. **Uploading spots.**

Tick the Upload spots to continuously transfer your received “Spots” to the wsprnet.org database.



This will happen in the background and there is no indication if it works or not.

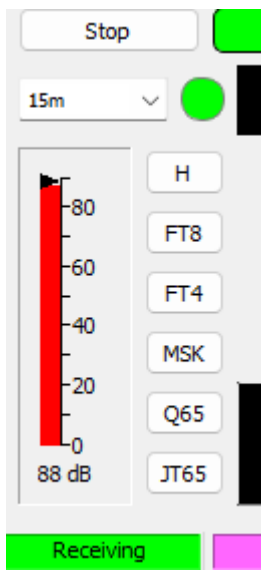
### 17. **Checking the results on a webpage.**

You can check the results by going to <https://www.wsprnet.org/> or <https://wspr.rocks/> sites. The wspr.rocks site have many advanced features that one can use to compare receivers or antennas, visualize the direction of the receiving stations, see how propagation changes over time for different bands ... and many many other useful things.

## ***Adjusting the Audio signals.***

Check the Audio indicator on the left in WSJT-X , it should be green.

If it is red it means the volume is too loud and clipping is occurring,

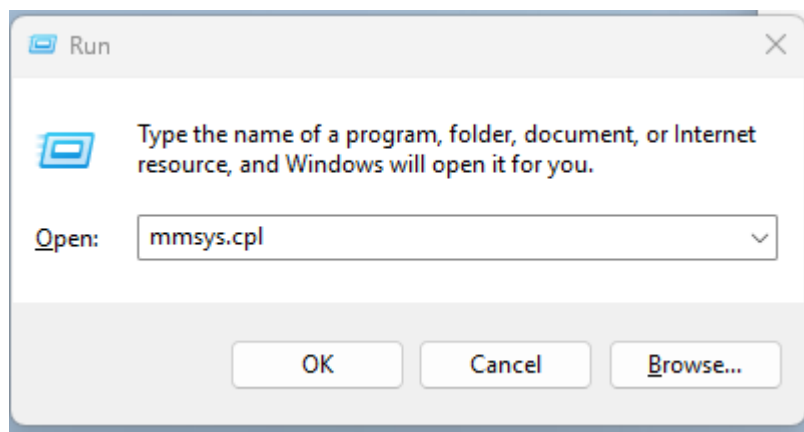


to correct that you need to adjust the audio-in volume, it can not be done in WSJT-X - it must be done in the Operating System.

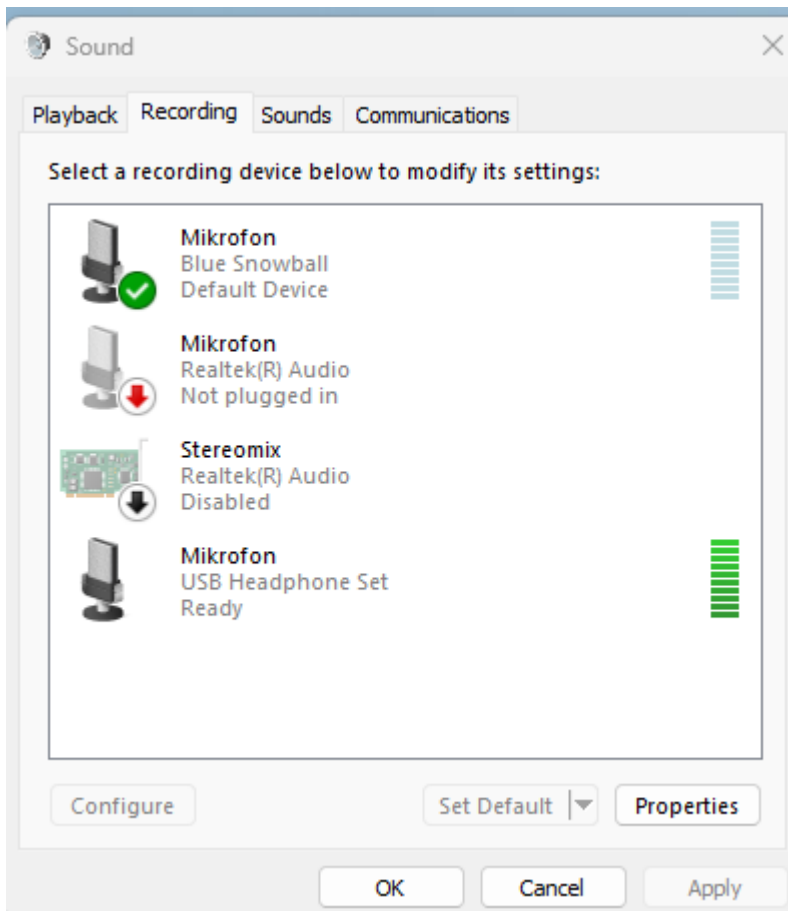
In MS Windows you do it like this:

Hold down the Windows Key on the Keyboard and press the R key.

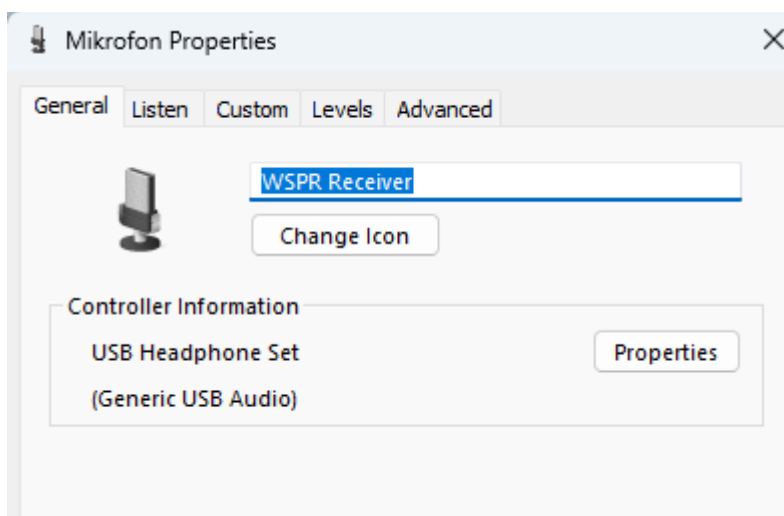
In the dialog that pops up write MMSYS.CPL and press Enter or click the OK Key.



In the Sound control panel that show up first click the “Recording” tab and then find the correct audio device, in the screen shoot below you can see that the device at the bottom called “Mikrofon” is showing full a full volume bar indicating to much Audio level. Click it once and then click the “Properties” button.

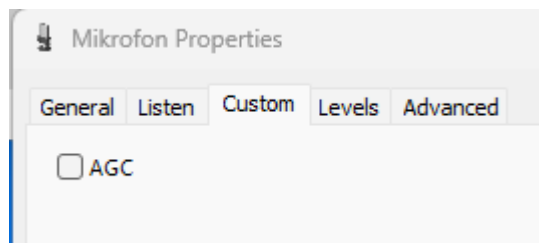


In the dialog that pops up you can change the name on the General tab if you want.



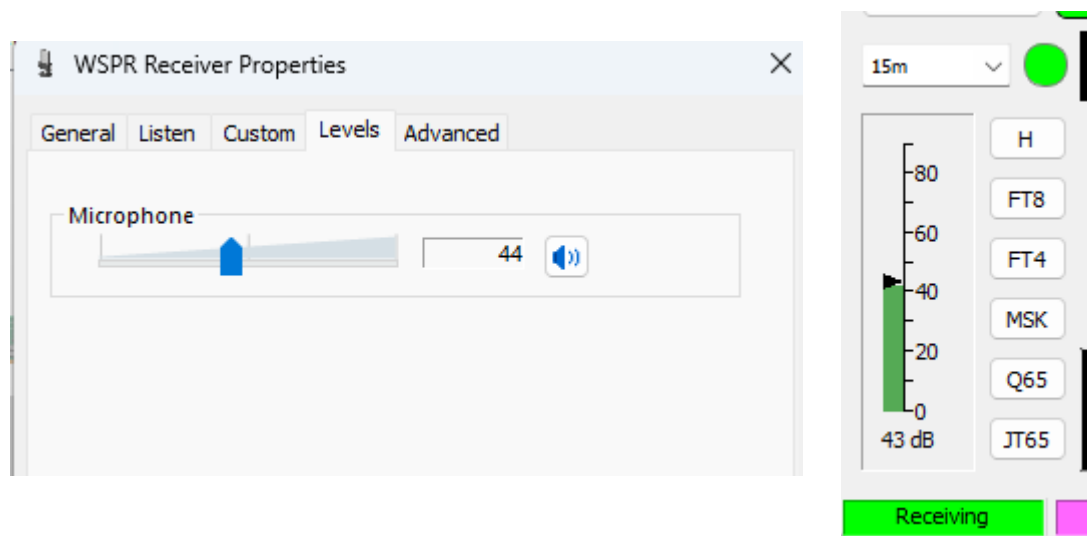


The important tabs are the “Custom” and “Level” tabs. The Custom Tab don’t exist on all sound cards but if it does on yours go in there and make sure that the “AGC” property is not selected.



Now go in to the Levels tab and adjust the slider while watching the WSJT-X Audio Level indicator

Set the volume so the WSJT-X level indicator is at about 60%. This is not critical and anything between 30% and 75% is fine. As there is no Automatic Gain Control level in the receiver the level changes somewhat between bands and time of day.



The lower bands like 80m and 40m will be among the strongest especially at night so you might have to tweak the volume level to make sure that the 40m band during the night does not cause clipping of the volume.



## ***Trouble shooting serial ports connection***

If you are unable to find the correct serial port the receiver is using you should be aware that WSJT-X only do not update what serial ports are available when the software is running.

That means that if you connect the Receiver while WSJT-X was already running you need to close it and start it again.

If you are unsure what port to use you should be able to try them out one after each other and use the “Check CAT” button in WSJT-X Radio setting

If you prefer to know what serial port the receiver happens to use in your computer without going thru all of them you can start WSJT-X without having the receiver connected and make a note of all serial ports that is shown, - then close WSJT-X, plug in the receiver, start WSJT-X and see what new Serial Port have turned up.

If no new serial port is shown as a first try – simply restart your computer and redo the test, if ther still is no new serial port shown you may need a driver for my hardware, thi is unusaul as all Windows versions should have the driver already installed but in some rare case you may have to download and install it by hand, in that case download in my webpage here:

<https://www.zachtek.com/download>

scroll down to the “Windows Drivers” section and click the “Download driver” button.

After installation you may need to restart your computer before the device shows up.

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