



SDR and WSJT

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Rocky Mountain Ham University
April 9, 2022



SDR & WSJT-X

Block Diagram

Software Tools Needed

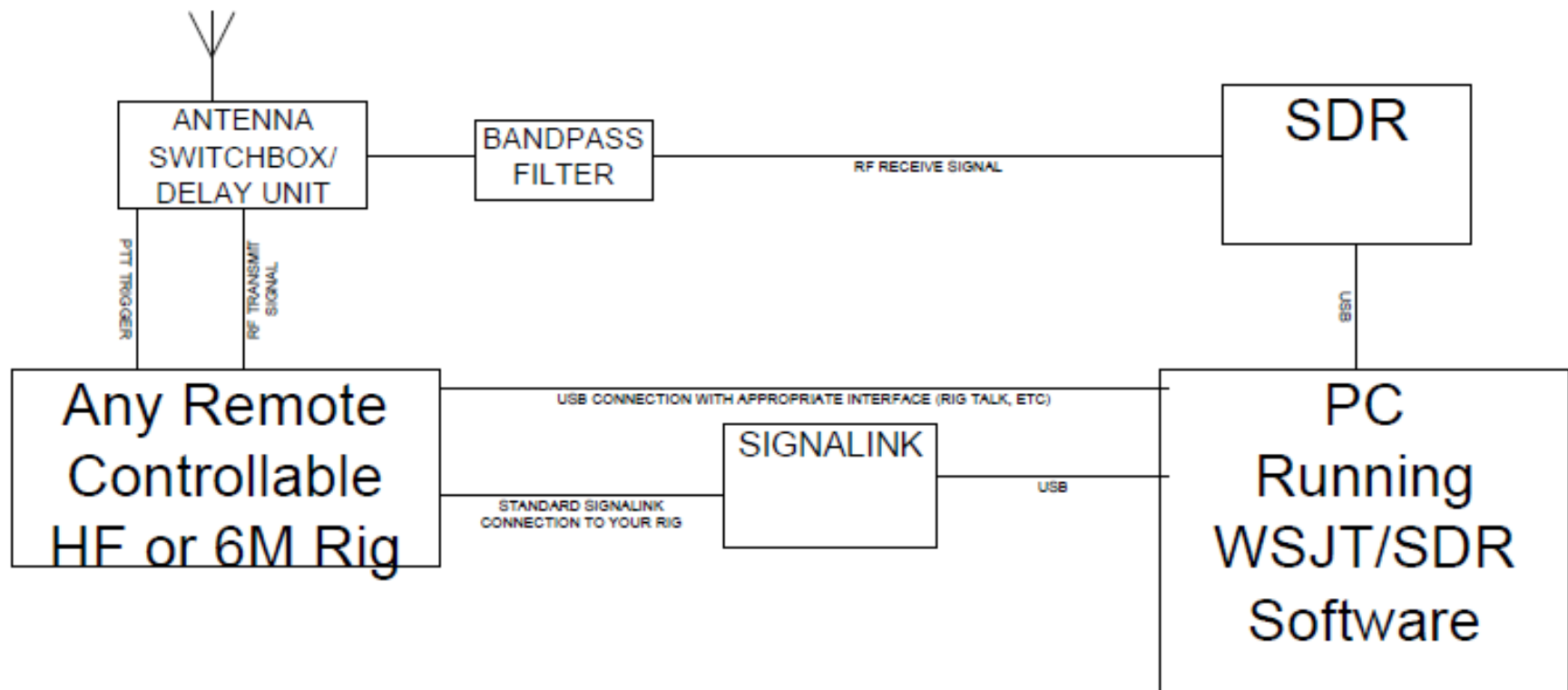
Hardware needed

Setting it all up

Making WSJT play right



Block Diagram



Software needed to pull this off

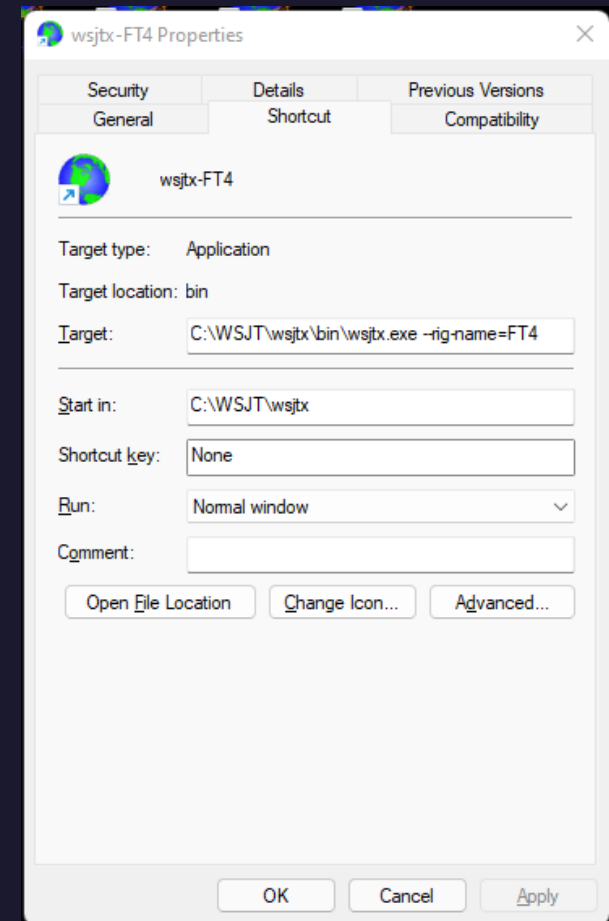


- WSJT-X and your card configured properly to work standalone
- Drivers for your SDR (we're using SDRPlay RSP DUO)
- SDR Console for your SDR
- VB Audio Cable from VB Audio Software
- Omni Rig (For TX Control Following) from DX-ATLAS



WSJT-X Configuration

- Every instance of WSJT-X must have a different “RIG NAME” switch
- I simply copy the desktop icon for WSJT and edit the config appropriately. You right click the icon and select properties. Edit Target appropriately.
- C:\WSJT\wsjtx\bin\wsjtx.exe -rig-name=FT4 or whatever instance you're setting up.

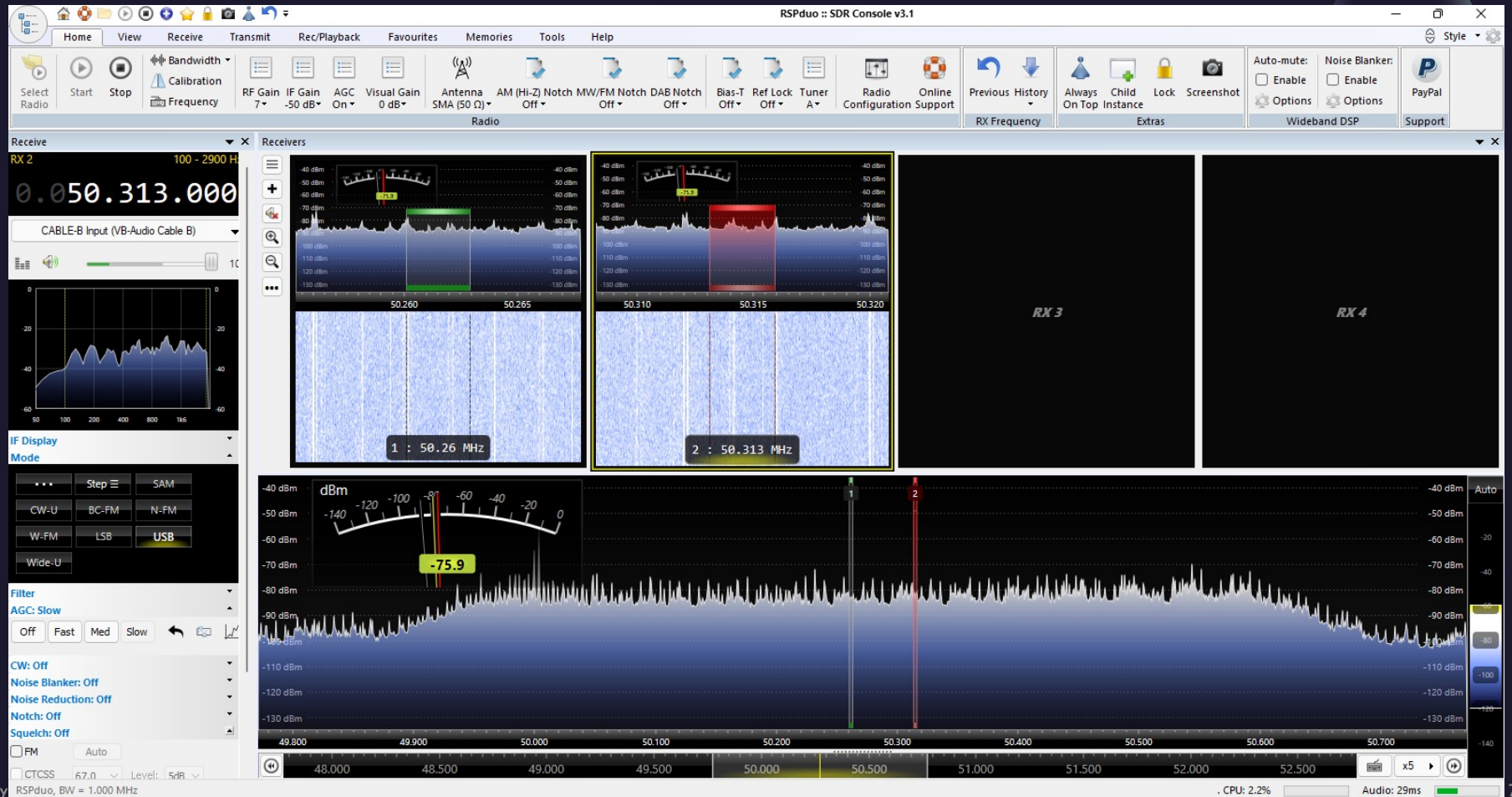


Hardware Needed

- You must have a working WSJT setup on the radio you're using.
- ...a working rig control interface for your chosen radio
- ...a working SDR unit with SDR Console running.
- ...a working antenna switch that has timing functionality and dummy load on the inactive port (N2EME)

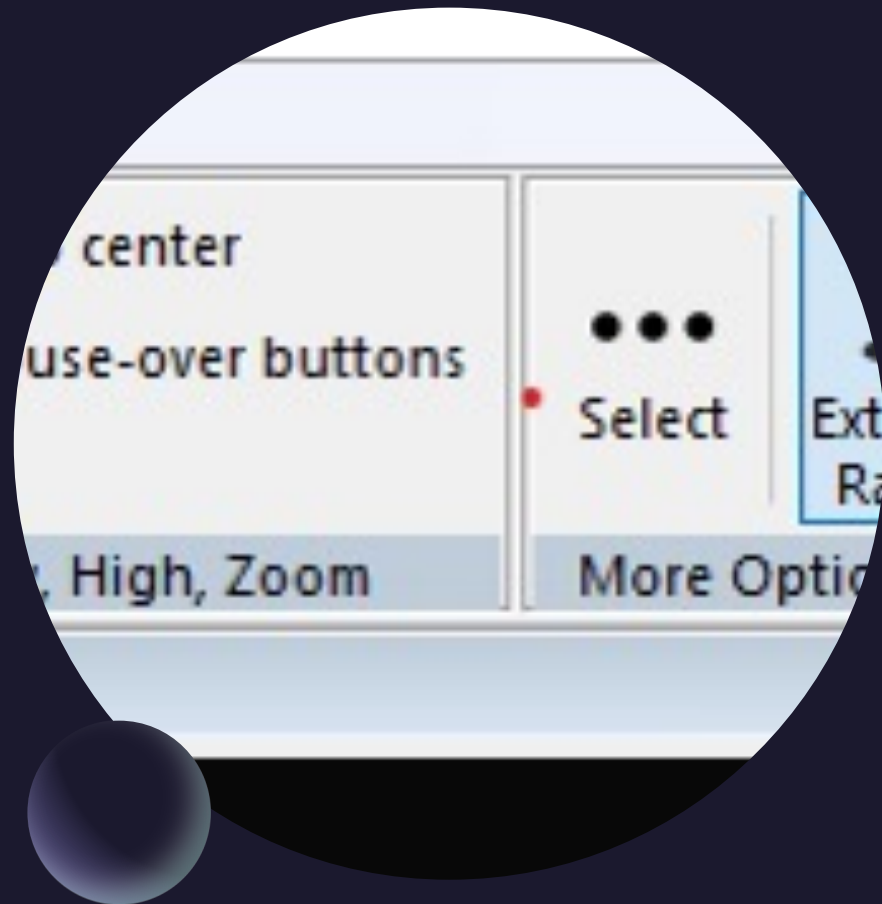


SDR Console with 2 receivers



Controlling your external rig

- If you don't have an option for "EXTERNAL RADIO" click on VIEW, then the three dots over Select.
- Select "EXTERNAL RADIO" and it will show up in the left side ribbon. It will configure itself to run with OmniRig. Configuration of that will be shortly.



Getting your audio into WSJT-X

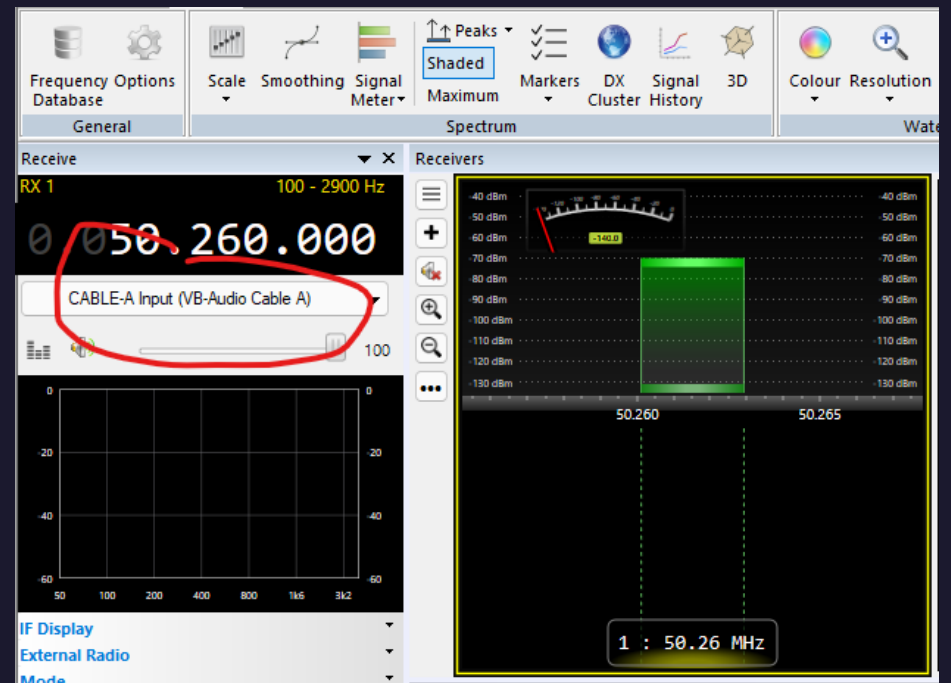
We use VB Audio Cable

It's an inexpensive donationware software package that allows us to set up an audio cable for each receiver.

Each audio cable patches receiver audio to a different receiver.

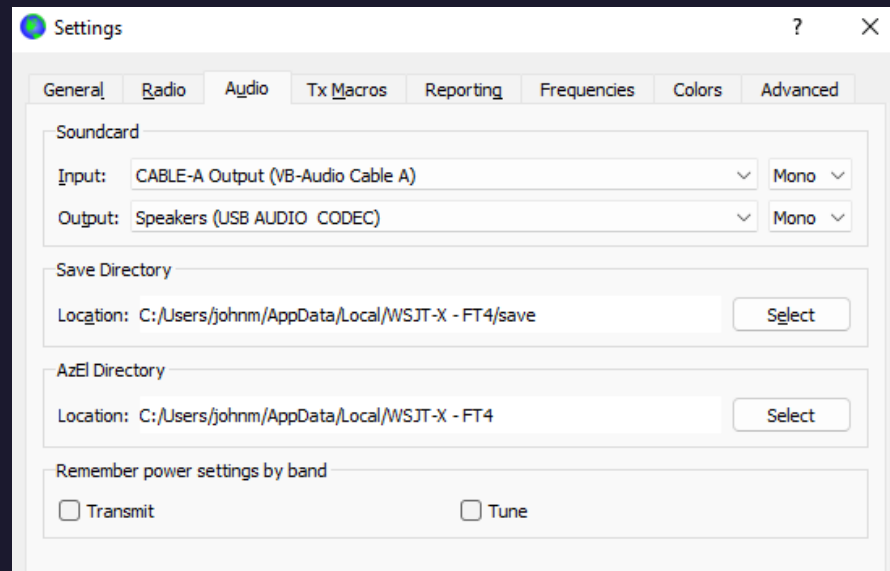
Example is two receivers and two audio cables.

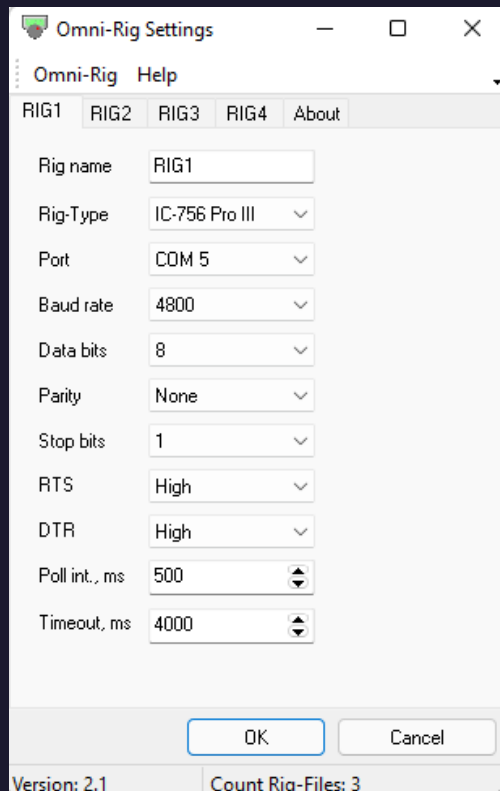
Do the same for the second receiver pane but choose Cable-B.



Now to set up WSJT-X instance

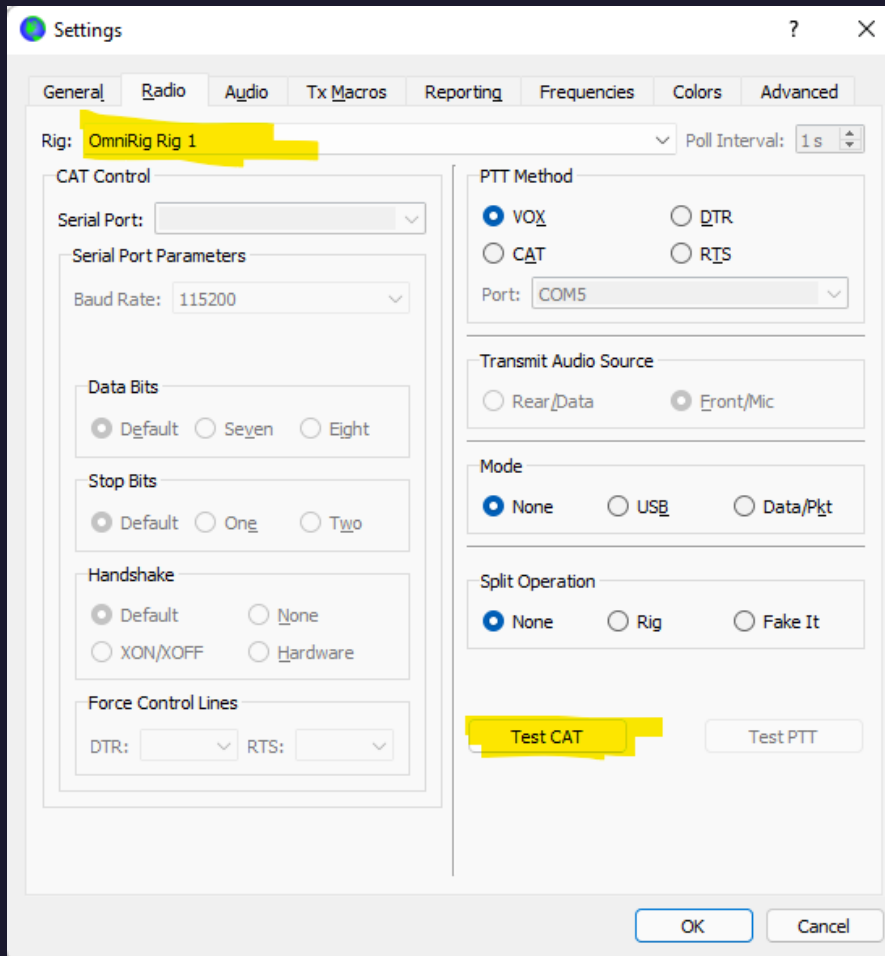
- Load WSJT-X and go into settings.
- Under RADIO, choose the input for the instance you're using.
- This will bring SDR-Console audio from the first pane connected to cable A into this instance of WSJT-X
- The second instance will get Cable-B for input and Output will be the soundcard connected to the rig.





Set up OmniRig

- OmniRig allows multiple devices to utilize the connection to the radio at the same time. Grab it from:
- <http://www.dxatlas.com/omnirig/>
- Install and Run it as Administrator. You've been warned.
- Set it up for your radio configuration, com port and speed. This radio should work standalone BEFORE you set it up to work on OmniRig
- Note that this DOES NOT work on Window 11. Stick with 10 if you're trying to do this



Set Up WSJT-X to use OmniRig

- Under Settings, Radio, Choose OmniRig I for your radio. This will slave WSJT-X to the serial port connected to the radio.
- Test CAT and you should be connected



Set Up SDR Console to OmniRig as External Radio

- In External Radio in the left ribbon, select the first icon to start the omni-rig server. It should track whatever receiver is selected in the external radio.
- Note that if you need to configure the radio, you will use the ? In the upper right of the display.

Install a filter

- SDRs are very prone to overload and it's highly recommended that you install a bandpass filter on the front end of your SDR. I use this device on 6m. Good quality and small footprint.
- Simply put it in-line with the SDR.



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6 meter 50 – 51 MHz Ultimate Low Loss Receiving Band-pass Filter for Magic Band

99,00 €

1

Add to cart

SKU: 5910

6 meter Antenna

6 meter 4 meter Dual Band Antenna

6 meter 2 meter Dual Band Antenna

4 meter Antenna

4 meter 2 meter Dual Band Antenna

2 meter Antenna

Horizontal and Vertical

2 meter CROSS Antenna

2 meter XPOL Antenna

2 meter 70 cm Dual Band Antenna

Common Connector Dual Band

Two Connector Dual Band

LEO Pack

1.25 meter Antenna

**50 - 51 MHz**
High Selectivity, High Q, Low Loss
Bandpass Filter BPF
Nominal Input / Output impedance: 50 Ohm
Insertion loss:
HF: 7 MHz = 90 dB, 14 MHz = 72 dB, 28.4 MHz = 45 dB
50 MHz = 0.11 dB, 51 MHz = 0.12 dB, 70.2 MHz = 33 dB
88 MHz = 49 dB, 108 MHz = 61 dB, 144 MHz = 89 dB
432 MHz = 64 dB



IN **OUT**

SDRPlay RSPduo :: SDR Console v3.1

HomeViewReceiveTransmitRec/PlaybackFavouritesMemoriesToolsHelp

DSPMatrixReceiver PaneOptions

AMBroadcast FMNarrow FMEqualiserPseudo Stereo

AddCopy SettingsKeyboard Sort by Frequency

☒ Unmute☐ Mute other

AllOtherAllOtherAllOtherAllOther

[1] LSB50.260.000

[2] USB50.313.000

ViewMode...ManagerSelect RXCloseMuteUnmuteReceivers

ReceiveRX 1100 - 2900 Hz0.050.260.000CABLE-A Input (VB-Audio Cable A)

IF DisplayExternal RadioTrackRefreshAntennaLSB50.260.000IC-756 Pro III, OnlineModeFilterAGC: SlowCW: OffNoise Blanker: OffNoise Reduction: OffNotch: OffSquelch: Off

1 : 50.26 MHz

2 : 50.313 MHz

-129.4

-127.2

-129.4


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Auto

Saturday April 9, 2022

RMHAM University

Set up the receivers



To Finish: We will go live with SDR Console and the RSP Duo

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<https://www.rmham.org>

Saturday April 9, 2022

RMHAM University