

AfedriNet Review



SDRZone

AfedriNet

SDR Review

December 31st 2013

Reviewed by NI0Z



AFEDRI SDR-Net

<http://www.afedri-sdr.com/>

Downloads & Manuals

<http://www.afedri-sdr.com/index.php/downloads>

Review Type = High-level

SDR Type = Compact DDC SDR Receiver

Review Scope

The Afedri is a moderately capable low cost SDR and I will only be reviewing it as an SDR Receiver.

Reviewer

NI0Z, Mark Abraham - Licensed as Extra 2011. You can read more about the reviewer's background using the link at the bottom of the review.

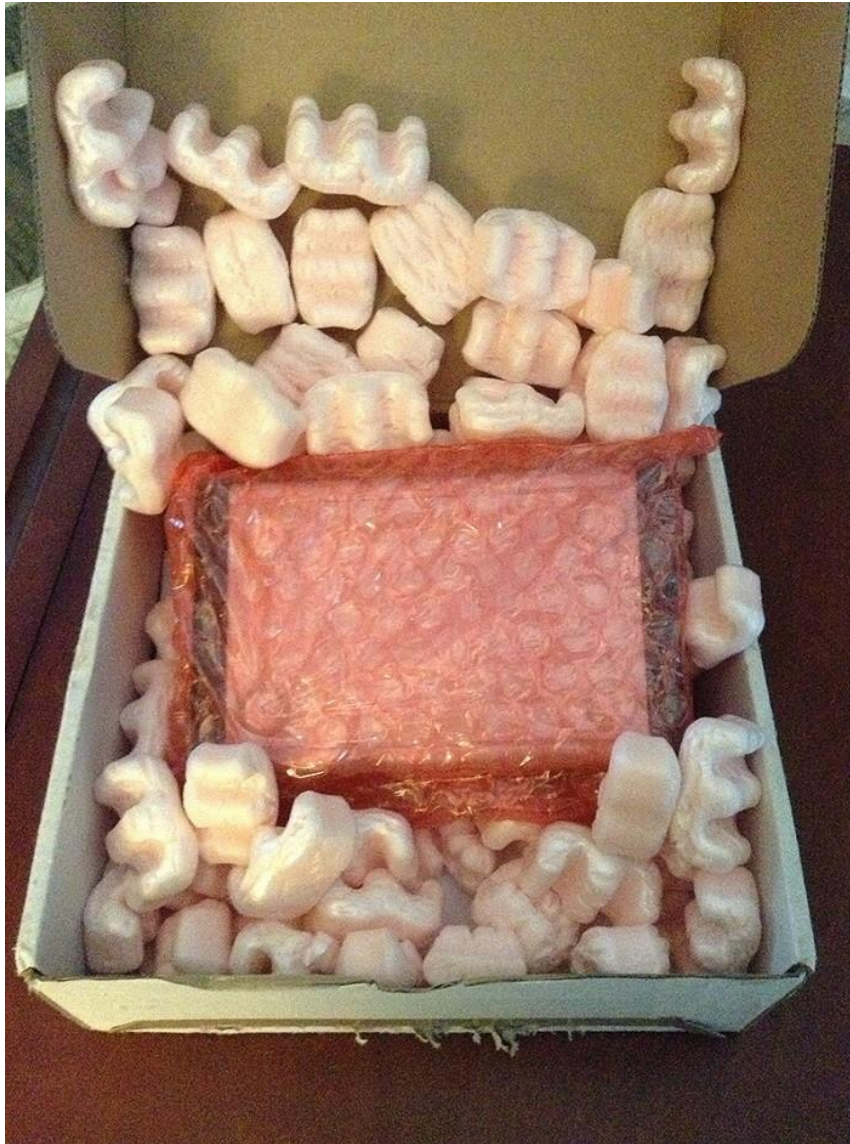
Ordering, Shipping & Receiving

Ordering was a breeze and communication with Alexander was very clear and precise.

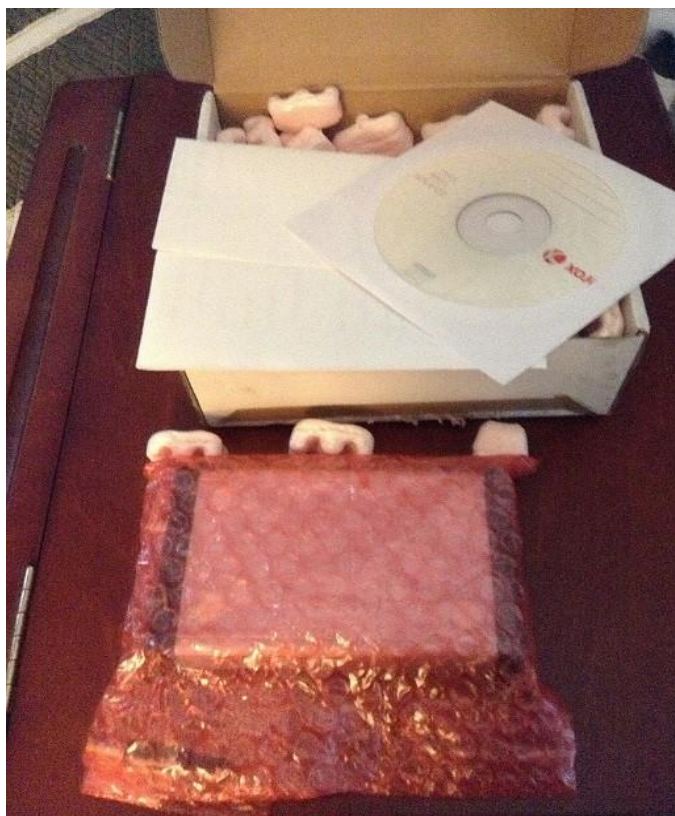


The packing box was a standard Issue

The package was received in about 7 days via the low cost shipping option that was offered.



There was ample packing materials to protect the radio.



The Afedri was wrapped in bubble wrap for extra protection.

Specs

The following excerpt is taken from the website:

Afedri SDR-Net Features

100 kHz to 30.00MHz continuous frequency range

- Direct sampling
- Digital down-conversion
- 12- bit 80 MSPS A/D conversion
- Up to 1.85MHz recording and processing bandwidth
- Waterfall display functions, when used with appropriate software
- Recording and playback, when used with appropriate software
- Sensitivity - MDS -133 dBm at 500Hz bandwidth
- USB 2.0 interface
- LAN interface for remote access
- Compatible with: Linrad, Winrad, HDSDR, Studio1, SDR#, SDR Console SDR-radio, CuteSDR
- Powered from USB or 7.5v to 14 volt external source (for SDR rev. <=

2.1) or

7-10V for SDR's revisions beginning rev. 2.2

- Dimensions 120mm deep x 78mm wide x 27mm high
- Low cost - \$249

AFEDRI SDR-Net is a direct sampling Software Defined Receiver (see picture below) it has ability to send it's received I/Q stream through two different interfaces:

- Network (LAN)
- USB

The first versions of the AFEDRI SDR receivers supported only a USB interface

AFEDRI SDR-Net has the following specification:

Frequency Coverage:

0.1MHz-30MHz: 30MHz Low Pass Filter (LPF) assembled - standard configuration

0.1MHz-70MHz: In aliased mode, the 30MHz LPF is not assembled and external Band Pass Filters (BPF) have to be used instead

In aliased mode the AFEDRI SDR-Net can be used to monitor the FM broadcast band - 88MHz-108MHz...

Noise Figure: ~14dB (for 1MHz-30MHz range and maximum gain 35dB)*

*input VGA (Variable Gain Amplifier) has variable Gain from -10dB up to +35dB

MDS: -133 dBm at 500Hz bandwidth

Output data format: two 16-bit I/Q channels (audio stereo stream emulation)

Maximum Receiving Bandwidth:

BW = up to 1850kHz (for 2000k samples/s sample rate) - using Network connection (for AFEDRI SDR-Net Rev. 3.0 and up)

BW = up to 1225kHz (for 1333k samples/s sample rate) - using Network connection (for AFEDRI SDR-Net Rev. 2.0 up to 2.3)

BW = up to 460kHz (for 500k samples/s sample rate) - using Network

connection (for AFEDRI SDR-Net Rev. 0.0 and 1.0)
BW = up to 230kHz (for 250k samples/s sample rate) - using USB
connection

RF ADC sampling rate: 80.000MHz

Power Supply Voltage Requirements:

5V (supplied from the PC's USB bus or from external) or from external power supply able to provide 5VDC +/-0.2V).

(For SDR's revision less or equal to 2.1) 7.5-14V DC to the DC power connector. The AFEDRI's internal switched DC/DC converter will produce some interference on 930kHz and its harmonics.

For best results on MF and LF the 5V Mini-USB power supply should be used.

In AFEDRI SDR-Net revision 2.2 linear power supply is used, so there is no interference exist to reception from internal power supply!

Power Supply Current Requirements:

- 400mA from USB
- 220mA from external 12.6V power supply (revision up to 2.1 including)
- 400mA form external 7.5V power supply (revisions 3.0)

Radio Build

The build and finish of the SDR is compact and of semi-professional build quality. No scratches, chips, loose screws or surprises. The connectors are solid and the overall finish is very functional.

As you can see the radio is clean and proper flush. The serial number is hand written neatly on the back of the device.



Professional Case and Labeling

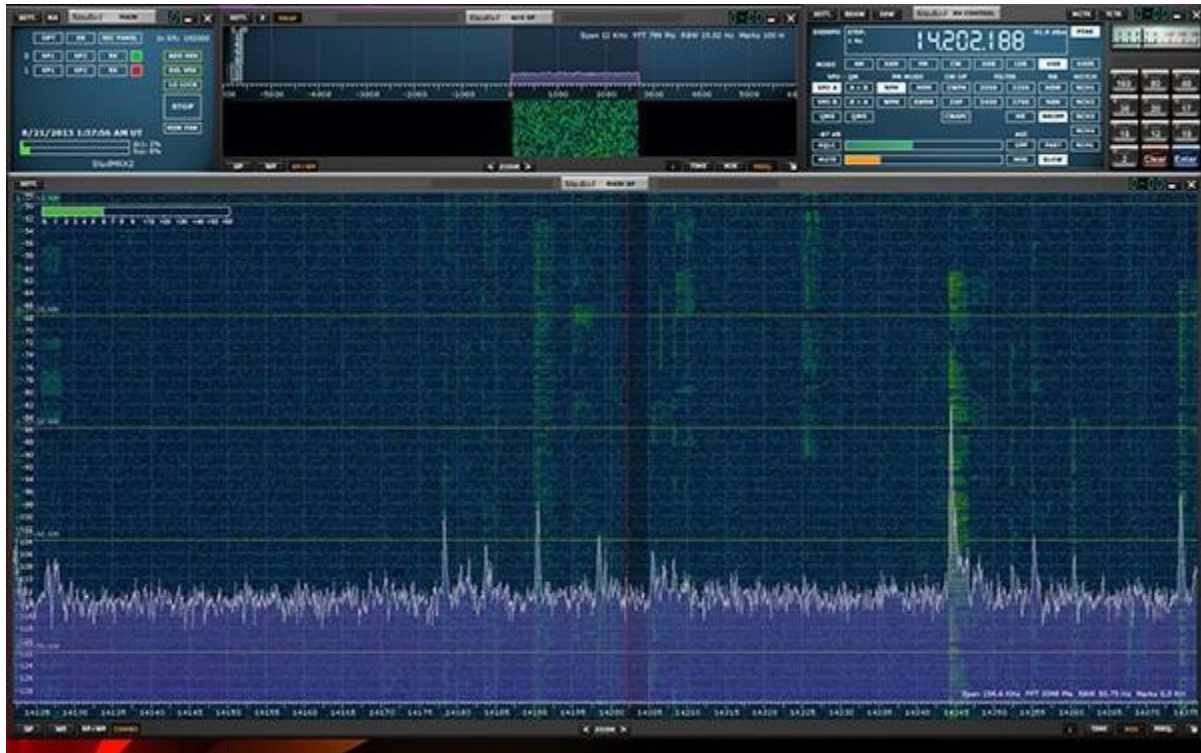
Adaptor not included



Solid professional connectors (adaptor not included)

Setup

Software setup is a bit interesting, however, if one clearly reads the instructions that are available setup is pretty straight forward. USB setup is actually very simple. Ethernet depending on your existing network IP address range can be a little more tenuous.



SDR Radio 2.0 though makes all this a snap! Simon has really done a great job supporting the smaller SDRs and if you want to hit the ground running I highly suggest his software. This is with reference to the single receiver model and if you purchase the multi-receiver option then you'll need to determine best how to leverage the second receiver. In side by side comparisons with the FunCube Dongle Pro Plus, I had difficulty getting two instances of SDR-Software to run side by side. This may have been more of an issues with hardware conflicts, however I thought it only fair to warn that this may not be straight forward.

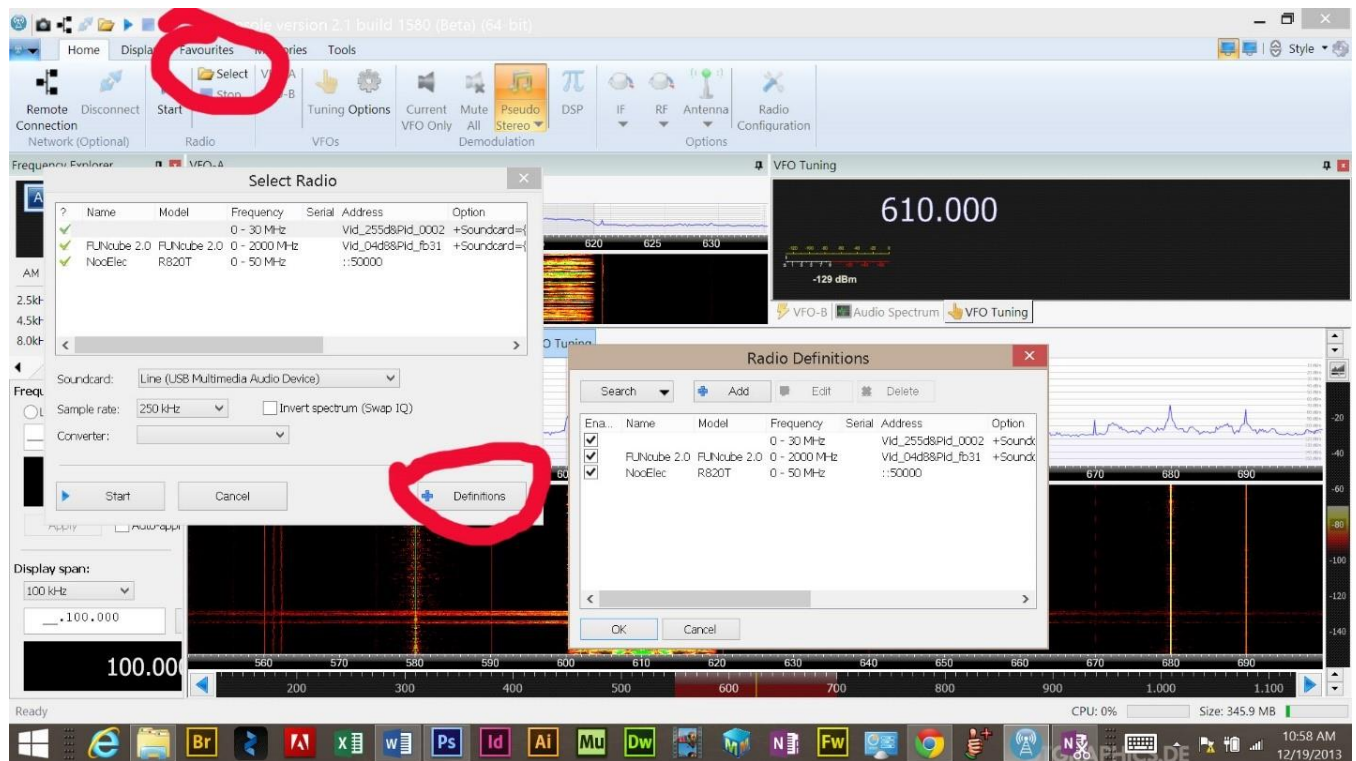
Operation

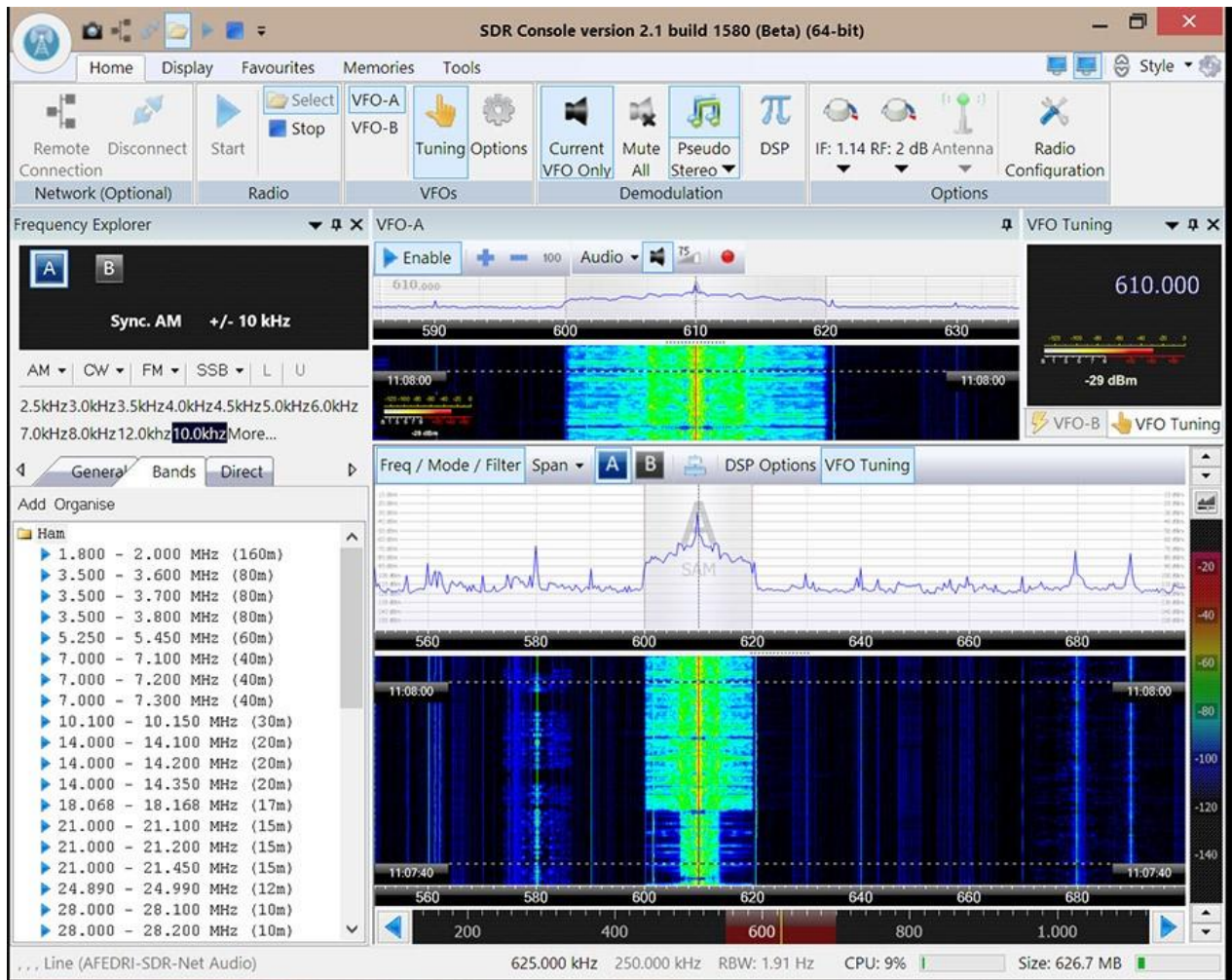
It always takes a little bit of getting used to a new software package.

For this review I will focus on usage with SDR-Software since it makes operating so incredibly easy.

There are drivers that will allow you to run the Afedri with other packages such as Studio 1, SDR Sharp and others and all that information is available via the Afedri website, documentation and google.

If you just want the easy path, then download Simon's SDR Radio 2, plug in an antenna, and plug in a USB cable, Select the Afedri for the radio and Rock and Roll!





The controls are all laid out nicely in SDR-Radio V2.1 and the user can expose band, filters, and recording controls and a full spectrum view on an as needed or permanent basis. In this view I am set to a simple local AM station using a Wellbrook Loop. Audio is exceptional at 10K width!

I won't review SDR-Radio here as this review is really about the Afedri.

SSB

The audio is a little louder than some of the other SDRs I have used, however, still smooth and overall easy on the ears. I observed it in Studio 1 as well. By louder I might best describe that as the audio is well amplified and you won't struggle with volume levels as you might on some other SDRs. More specifically you might have the opposite where the audio seems, IE, too loud and you'll want to turn it down.

I compared the Afedri to the Anan and to the QS1R. I could hear and see some observable difference between the Afedri and QS1R, as well as between the and I would say the QS1r audio is noticeably superior to the Afedri in Studio 1 as it should be based on the difference in the ADC and components.

PSK31

The short answer is that it works fine and there are no surprises here. Side by side against the Anan 100D I could see little difference in performance. You can use a Virtual Audio Cable to route the audio out of your SDR software to your Digital Modes Software such as DM780 with ease. No fussing or surprises here, you just simply set your output in the Audio Setup

As an operator looking at relatively weaker signals I did not see any real difference in normal operations. It should be noticed that I did not experience any strong signal conditions that would cause clipping and so attenuation did not come into play in my limited usage and testing. Keep in mind that this is real world testing and not lab testing and so my observations in theory could be flawed. It should be noted that based on my observations that DM780 became more of a limiting factor than the Afedri as far as weak signal work is concerned.

CW

I had no surprises routing CW to DM780 either and the side by side against the Anan 100D showed no readily apparent differences. Keep in mind that detailed lab testing would likely show major differences in performance. I performed this comparison visually in SDR-Radio and used Studio 1 for the DM780 routing since I am familiar with that method and it makes it easier for me to compare it to other SDRs.

Reviewer Notes

The radio is extremely lightweight. Very deceptive as its appearance and construction is rock solid.

This SDR can virtually operate anywhere as far as I can see. There are no heat issues at all!

SSB Connection is fast and clean! I experienced no issues in the 20 plus hours of hands on operation I had with the Afedri.

The LAN interface also worked well with SDR-radio. I did have a few complications using the included Afedri Software to configure the radio over my home network.

No Power Supply is included, powering it via USB for both USB and LAN modes worked without issues.

The instructions are rather vague, however, still simple and concise. The Afedri website is concise and the help is clear and helpful.

I was able to operate the Afedri on Studio 1 and HPSDR without issues.

Scoring

Criteria	*Score 1-10 is high	Notes
Order/Ship	10	Good Communication and Packaging
Build Quality	9.5	Very solid Professional Build
Design Quality	8.5	Very Clever Design/ ADC Drives Performance
Ease of Setup	8.5	Easy with SDR Radio, a bit of a hassle with others
Documentation	9.0	Easy to locate and follow, simple effective
Expandability	NA	Not really applicable, Second RX2 Model
Operating Experience	9.0	Very nice with SDR Radio & Studio 1 & HPSSDR
Performance	8.0	Very clean receive audio, good on weak sigs
Support	9.0	Response was prompt and concise
Value	9.0	Cost as compared to specs and other SDRs
Overall Score (Average)	9.0	Excellent Overall

*8-10 = best in class, 5-7 Above Average, 3-4 Below Average, 2 Poor, 0-1 Unacceptable

Pros

1. • Inexpensive representing a tremendous value
2. • Beginner SDR User friendly! Easy to setup and use with SDR-Radio 2
3. • Decent Receiver Performance!
4. • Very low CPU and PC requirements
5. • Cross Platform Support
6. • Several Packages Support the Afedri
7. • EXTIO.dll support for additional compatibility!
8. • Can be setup to be server based to serve up RF over a network
9. • Good Support

Cons

1. · Does not have built in filters – I didn't seem to miss them though

Summary

I had a great time testing and using the Afedri. I have plans to use it in my future testing videos and reviews. I may also set it up as a remote RF Server for myself when traveling.

I personally think that this would make a great first SDR Receiver for both the new and experienced ham. If you are a shortwave listener and have not made the SDR jump yet, this is a wonderful way to get a nice affordable HF receiver for listening!

I was very impressed with the Afedri and its solid and would make a good entry level cheap panadaptor using the DX Engineering box. See QS1R and or other forums for hook-up diagram.

Additional Thoughts

The Afedri really represents tremendous value for someone wanting a straight HF SDR Receiver. Its fun to use and you'll likely be amazed at how easy it is to work with in SDR-Radio.

After having reviewed quite a few SDRs, I can tell you that if you want a simple cheap panadaptor option for HF then the Afedri and a DX Engineering box could make a nice pairing. That said, you may actually be better off with the FunCube Dongle Pro for that type of application due to its expanded frequency range.

Please feel free to post your questions in the new reviews forum.

About the Reviewer

You can learn more about Mark [N10Z] on the site at the link below.

https://sdrzone.com/index.php?option=com_content&view=category&layout=blog&id=24&Itemid=506