VARA HF 4.0 QUICK GUIDE
Rev, December 3th 2020

VARA LICENSE

The VARA license is valid for the callsign and his 15 suffixes:
CALLSIGN, CALLSIGN-1, CALLSIGN-2…….CALLSIGN-15 and CALLSIGN-T,
CALLSIGN-R and CALLSIGN-X.

There is not hardware restrictions. You can use your VARA license in several
computers. In the case of Gateway operation, no license is necessary to get full speed.

The registration Key is inserted in VARA Setup menu:

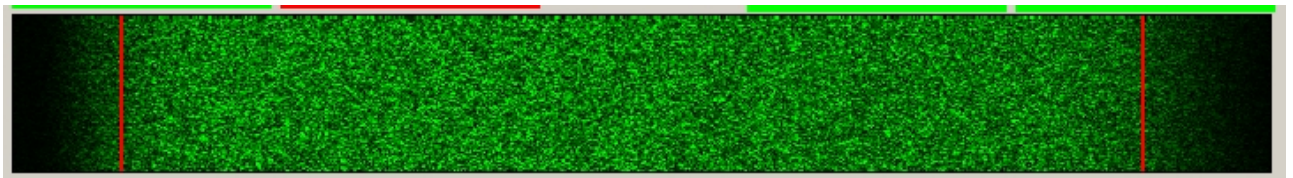# VARA FOLDER

By default, VARA is installed in C:\VARA folder. If you need to use more than one VARA instance in a same PC, you will need to create another VARA folder.

RIG SETTINGS

Open filters from 0-3000Hz, even in the case of VARA 500. VARA uses a specific internal filter for VARA 2300 or 500, which is not visible in the waterfall.

In the waterfall, VARA signal covers the space between the red lines, so ideally, your rig filter should exceed this threshold, like in this picture:

VARA GATEWAYS CENTER FREQUENCY

Center Frequency = USB dial + 1500Hz

WINDOWS DEFENDER

Some antivirus, like Windows Defender, give a false positive in VARA.exe file, removing the file even without asking you. I recommend to add an exclusion to C:\VARA folder.

*How Add an exclusion to Windows Security:*

Go to Start > Settings > Update & Security > Windows Security > Virus & thread protection.
Under Virus & threat protection settings, select Manage settings, and then under Exclusions, select Add or remove exclusions.
*Select Add an exclusion, and then select C:\VARA folder*

WIN10 POWER & SLEEP SETTINGS

To avoid a possible VARA locked-up with Win10, go to /Settings/System/Power & Sleep, and set the Screen and Sleep option to "**NEVER"**.
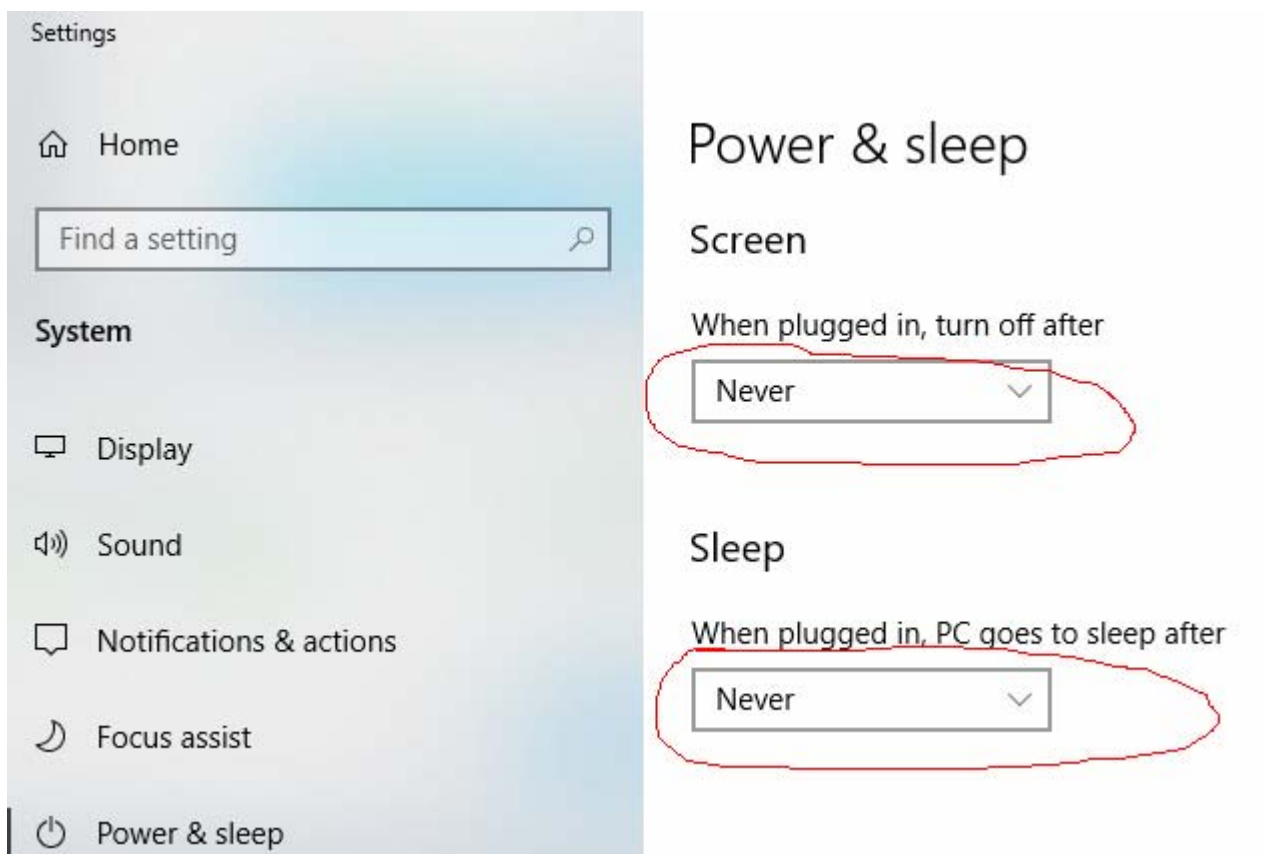
TUNE BUTTON

The **TUNE button** plays a test tone, useful for the power/ALC settings. Using the **drive level** slider, you can adjust the audio level out. Your **ALC** meter should be about 1/3 or 1/2 of scale.
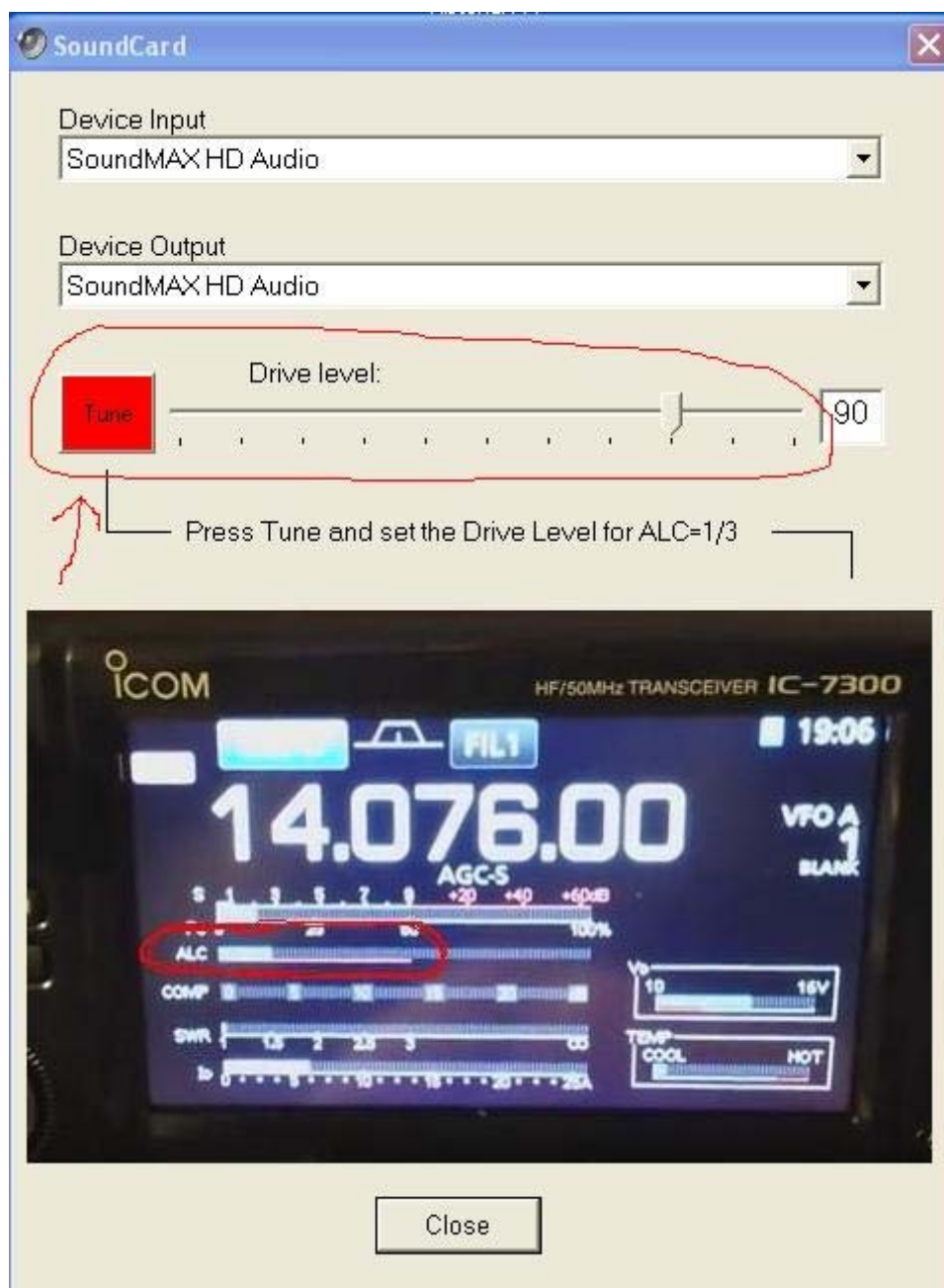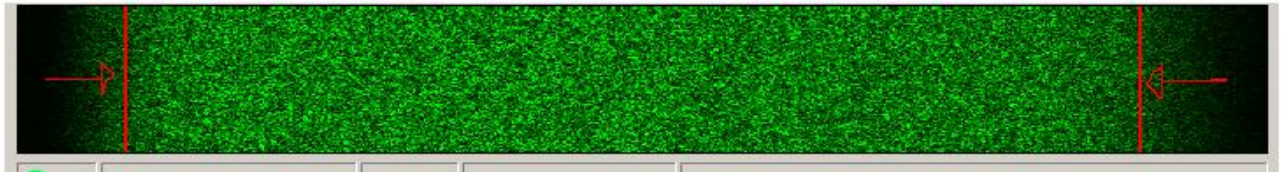
SOUNDCARD INTERFACES

An ideal soundcard interface should not limit the wideband available of your rig. However, some interfaces filter a good part of the signal. By the robust nature of VARA, the modem continue working with a good performance, but obviously this not help. As Alfredo Di Stefano told his goalkeeper: "Do not ask you to stop the balls going inward, but at least not goals balls going out"

Here there are two different noise waterfalls:

PERFECT SOUNDCARD INTERFACE

BAD SOUNDCARD INTERFACE
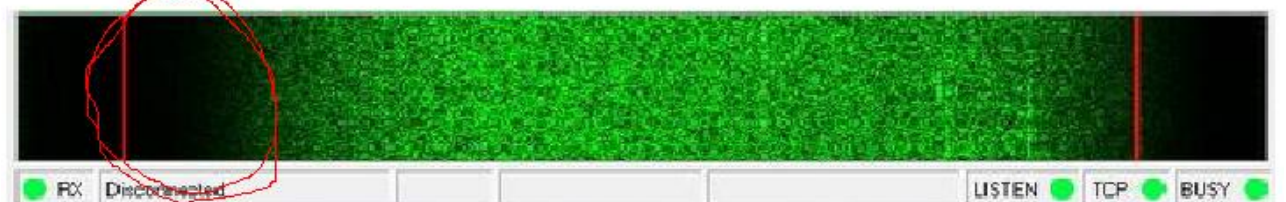
In the first case there is not signal filtered between the red lines (300-2700 Hz). This waterwall was recorded with a built-in IC-7300 interface.

In the second case the low frequencies are filtered, reducing the performance.

Some new radios have a built-in interface, which is ideal. Anyway, if you need buy a soundcard interface I recommend you something similar to this, which not filter the signal, easy to set up, simple, and without any button:

PTT SOUNDCARD INTERFACE

https://www.astroradio.com/en/302018

Additionally, if you want frequency control, you need the CAT cable:

ICOM CAT CABLE

https://www.astroradio.com/en/502002

YAESU CAT CABLE

https://www.astroradio.com/en/502001
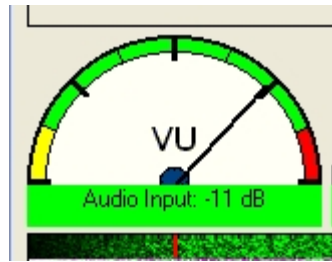
KENWOOD CAT CABLE
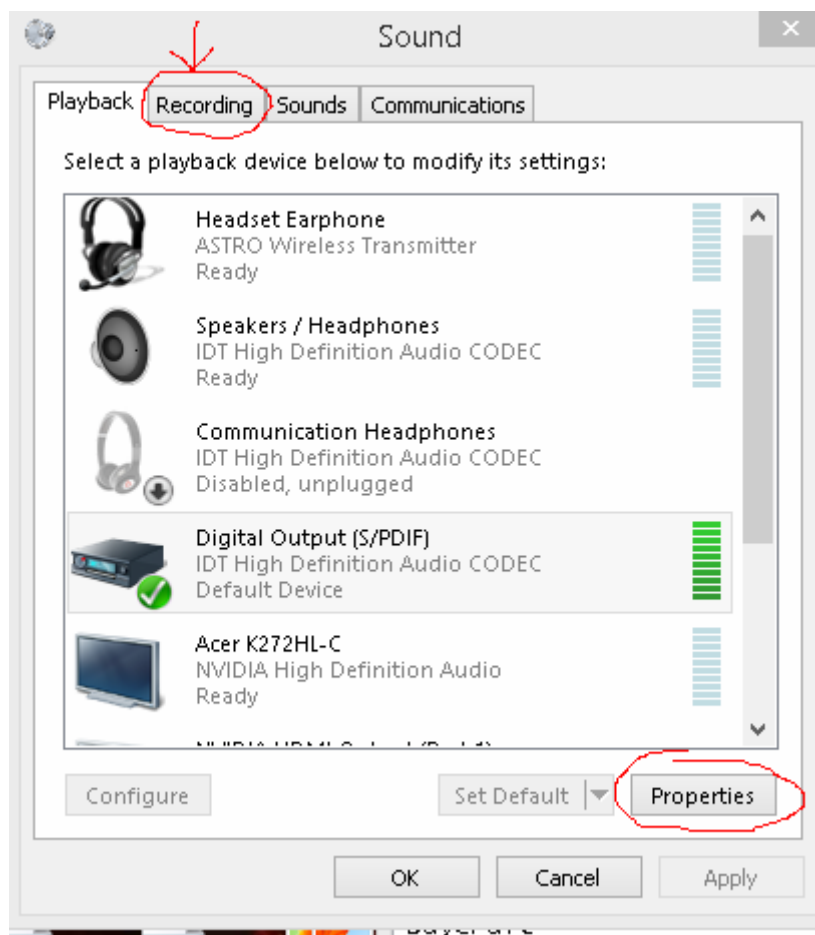

https://www.astroradio.com/en/502008
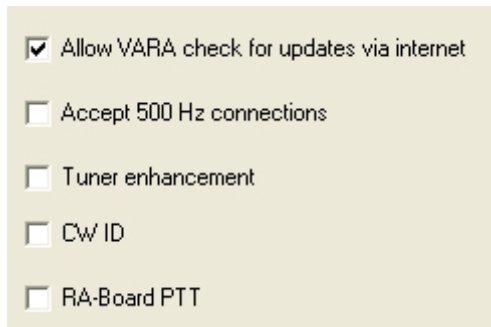
VU METER

The VU meter measures the input audio level in the soundcard. **Avoid the Red Zone**.

.

For adjusting the RX Audio level, use the Windows Recording Audio Slider
(Recording→Properties).

Setup Options

Allow VARA check for updates via internet

       VARA will connect with a VARA server to check if a new version is available.

Accept 500 Hz connections

       Your VARA Gateways accept incomming connections on VARA HF 500, even if your station has not selected 500 mode. I recommend disable this option, as the 500Hz mode is slower than Wide modes.

Tuner enhancement

       Select Tuner enhancement in your VARA HF Gateway only if you have problems with your ATU scanning bands. This option requires 2 additional retries by client users.

CW ID

       For USA calls, the CW ID is forced. The rest of the world can enable/disable it

RA Board PTT

       Select RA Board PTT if you are using a RA-Board interface with VARA HF. Then, in Winlink Express Port PTT select "External"
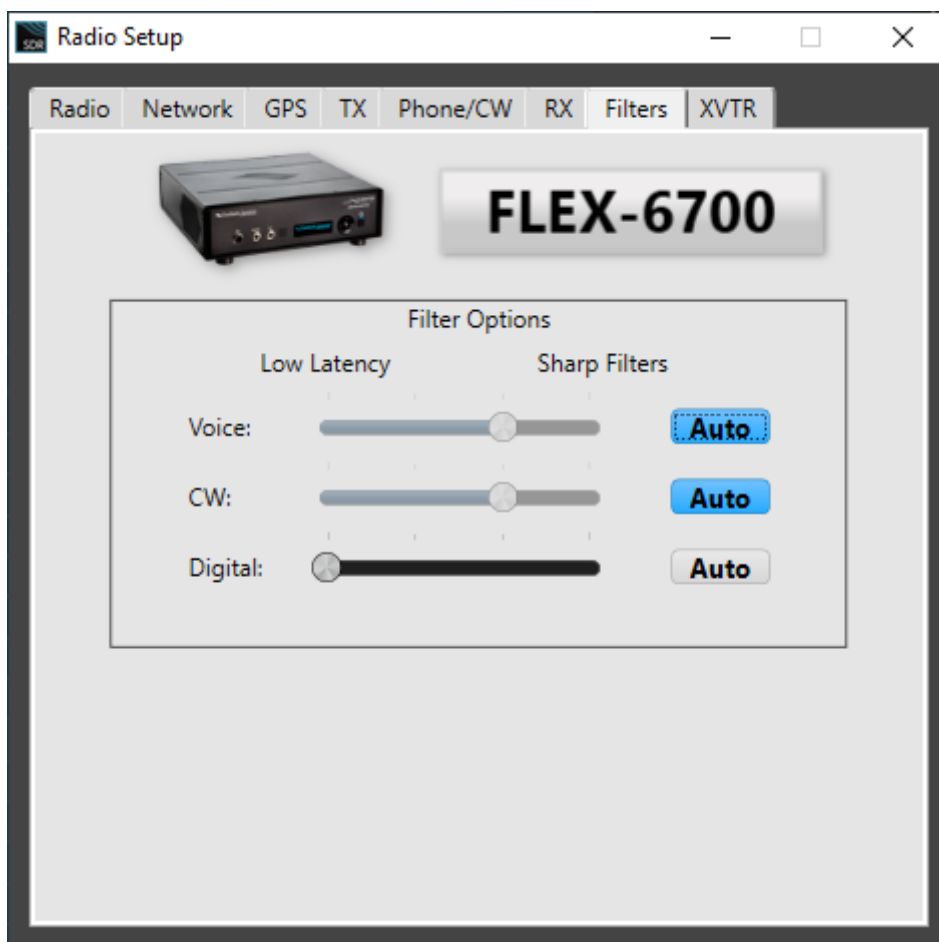
A feature of SDR transceivers is the high latency caused by VAC (Virtual audio cables). This latency is about 470 ms as minimum. In case of connection between two SDR's, the latency is double: 2x470=940ms minimum.

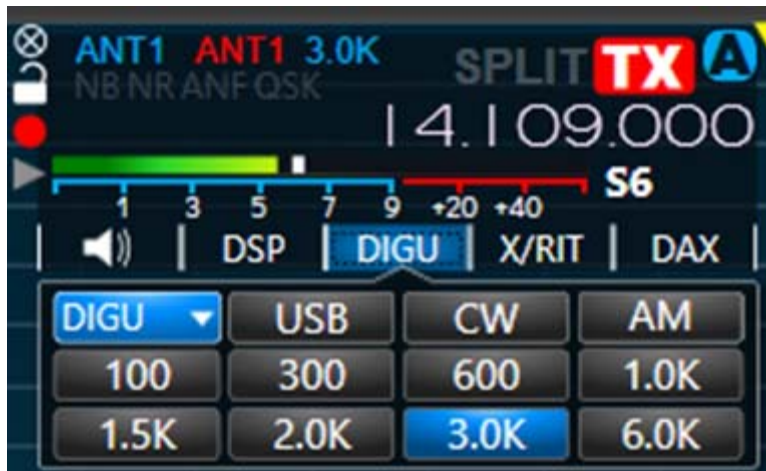For EMMCOM, I recommend to use conventional Radios (0 latency), to have a better throughput performance.

VARA supports a single SDR connected to a conventional radio station, but it does not support the connection between two SDR's.

Here a typical configuration for SDR's:

In Filters Option set Digital to the left (minimum latency)

Select **DIGU** and **3.0K** wideband:

Winlink Radio Setup Configuration:
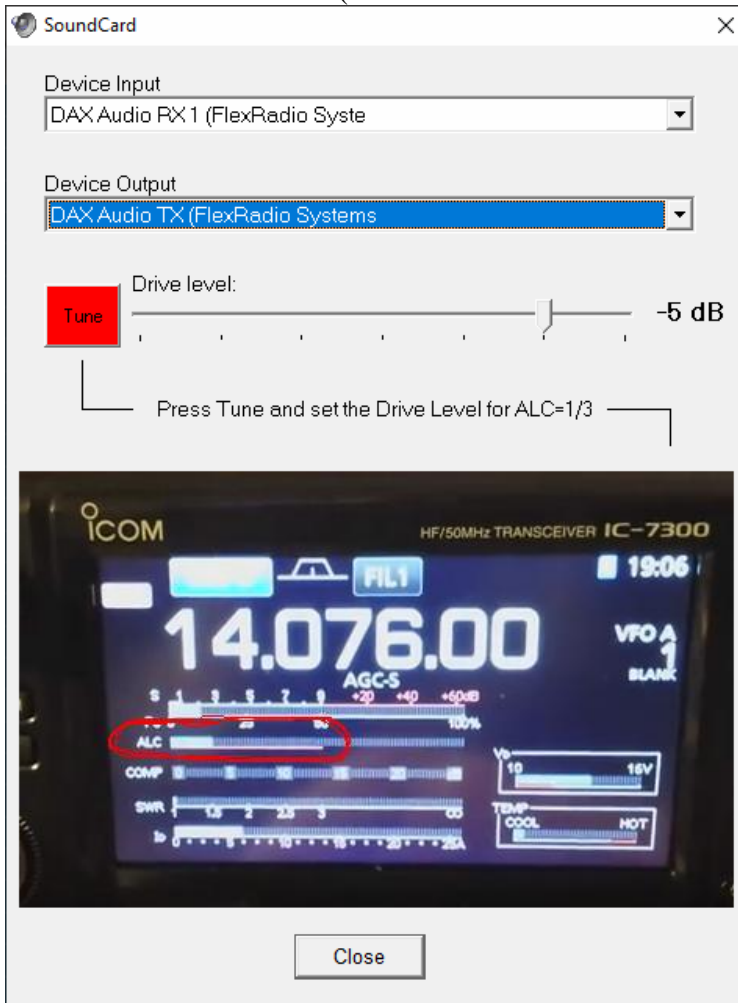
CAT port:

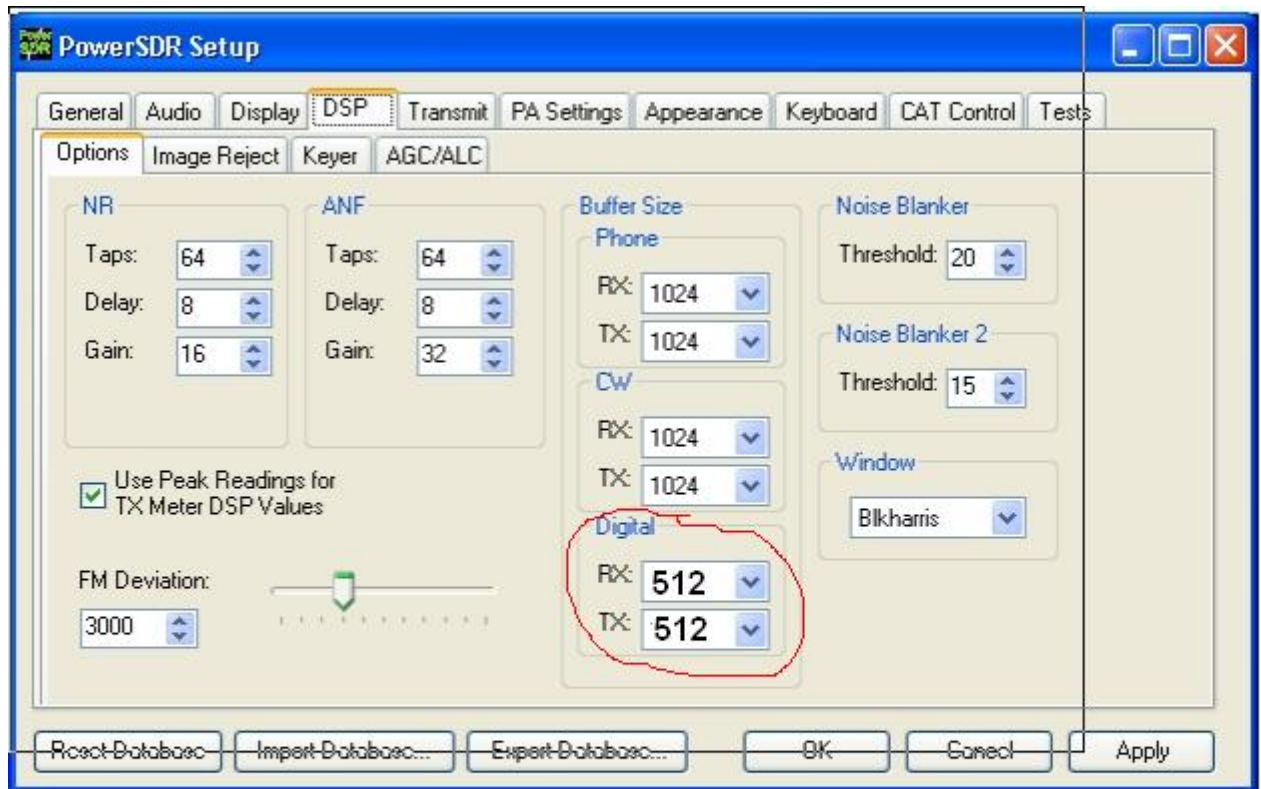VARA Souncard menu: (Use the Drive Level slider to adjust the ALC)

DAX Control
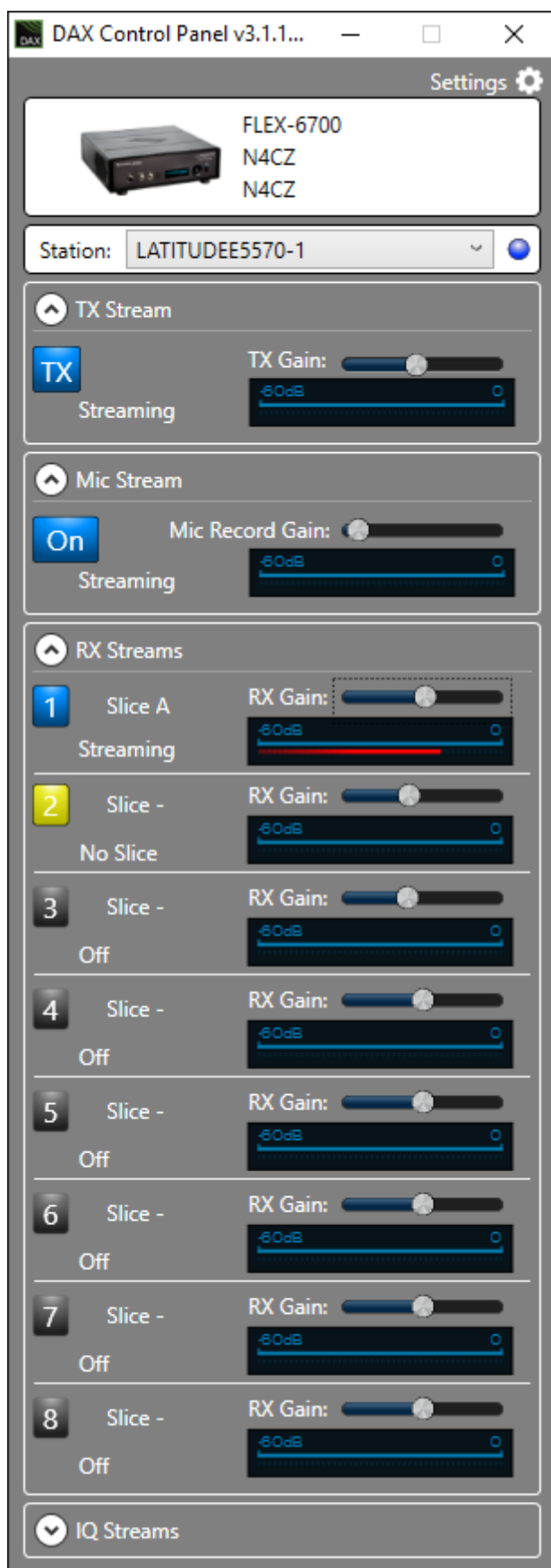
PowerSDR

To reduce the latency, set the DSP Buffer size to 512.

VARA APPLICATIONS

Currently, VARA have been incorporated to BPQ32, RMS express, RMS Trimode, RMS packet, VARA Chat, VARA Terminal and vARIM. The communication between VARA and these external applications is done using two TCP ports (8300, 8301 by default).

I recommend you to create a different VARA folder for every application, using different TCP ports.
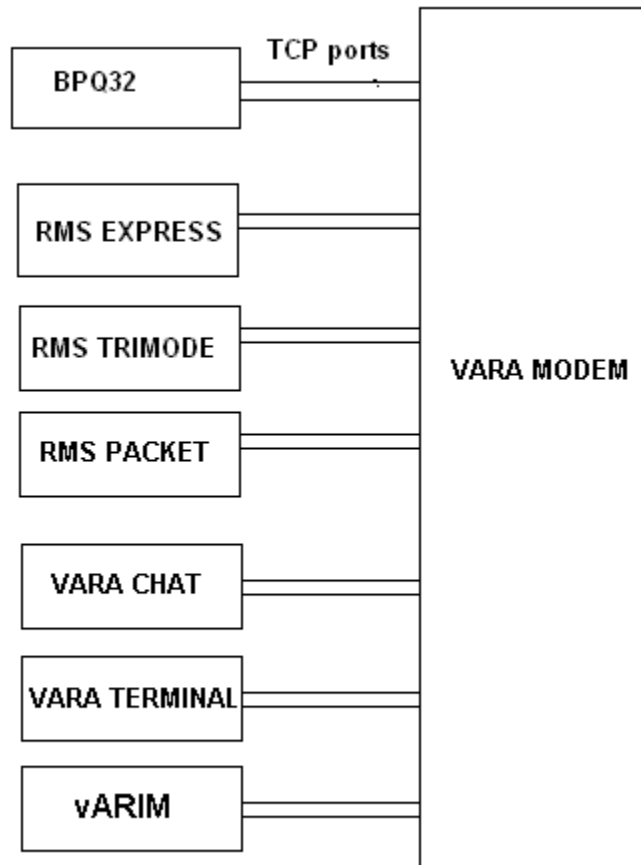
For example:
Winlink Express   C:\VARA   (TCP 8300-8301)
VARA Chat   C:\VARA2 (TCP 8310-8311)
VARA Terminal   C:\VARA3 (TCP 8320-8321)
etc....

LINUX

For using VARA under Linux S.O go to this link:

http://k6eta.com/linux/installing-rms-express-on-linux-with-wine

For using VARA in a Raspberry Pi with Win10 go to this link:

https://www.tomshardware.com/how-to/install-windows-10-raspberry-pi

For more information, ask to Rafael PU2UIT, or Steve K6ETA .
rafael@riseup.net
steve@sfischerdesign.com

TECHNICAL SUPPORT

If you have problems or doubts with the installation, write to nietoros@hotmail.com

Jose, EA5HVK
nietoros@hotmail.com