IC-7100 VARA FM Manual Setup

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Thank you, **Jeff W2JCL** for testing, for your suggestions, insights and encouragement.

Our practice is to do digital and voice traffic on the same simplex frequency.

When using Winlink to do the PTT for the IC-7100 Winlink currently assumes that operators are using SSB, even when FM is selected. Consequently the center frequency and dial-frequency are offset, which is not needed for FM. There is a clever work around, however, because VARA 1.2.3 and later have the ability to handle the PTT switching.

VARA FM Winlink Settings

Open a VARA Winlink or VARA P2P **Session**
Click on **Settings**
Click on **Radio Setup**
You will see this screen:

Set Select Radio Model **Manual**.
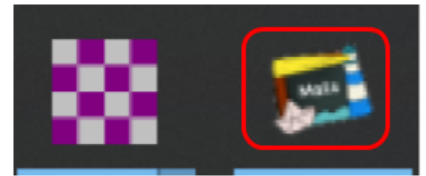Click on the radio button next to **FM**[1]
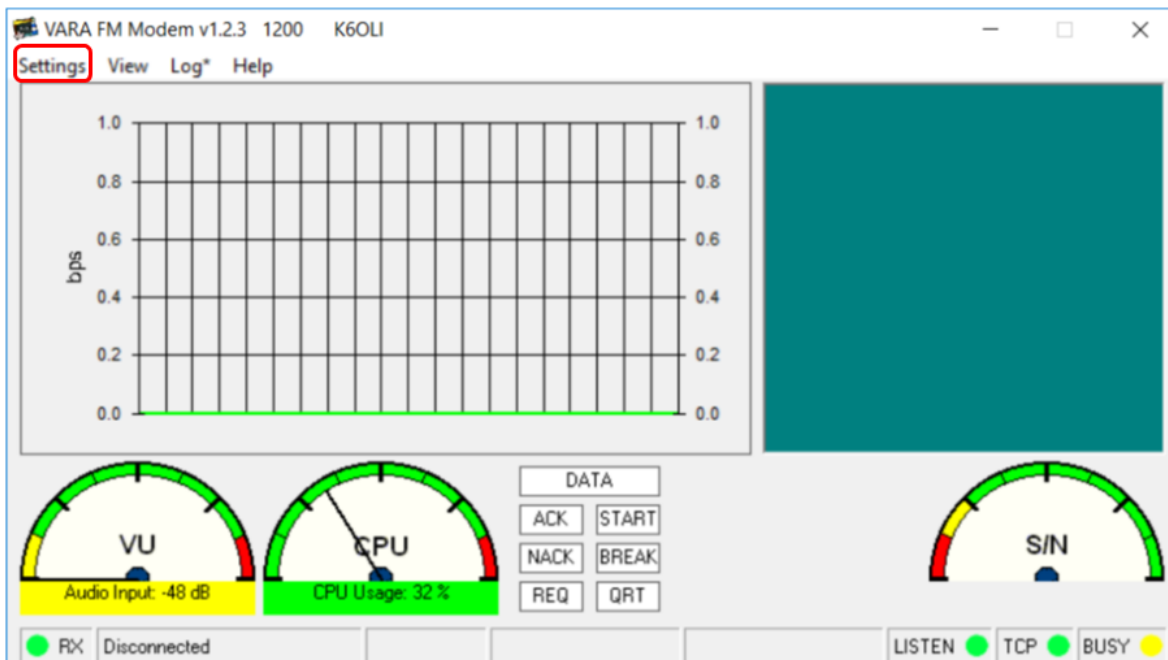Set Serial Port to Use **None**
Click **Update**

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[1] For **Select Radio Model: Manual** the choice between USB, USB Digital or FM does not really matter. It does matter when you select a radio other than Manual, however.

VARA FM Modem Setup

Click on the VARA FM Modem icon next to the Winlink Express icon at the bottom of your screen.
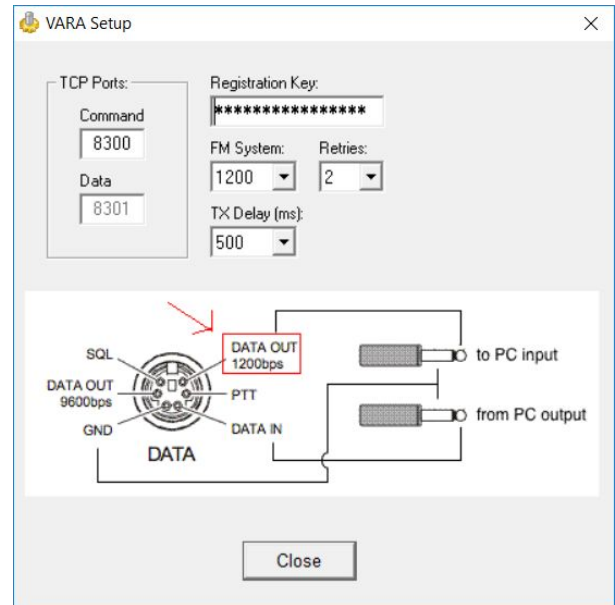

You will see this screen:

VARA FM Setup

Click on **Settings**
Select **VARA Setup**

Make sure the following is set

TCP Ports: Command **8300**
Registration Key: (here is where you enter your registration key if you have one)
FM System **1200**
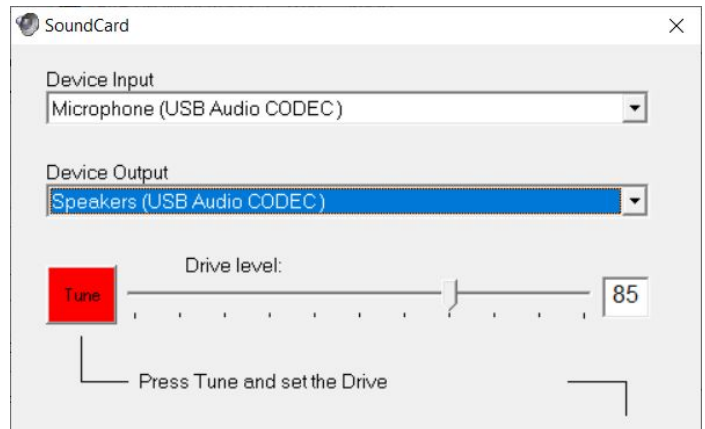Retries: **2**
TX Delay (ms): **500**[2]
Click **Close**

VARA FM SoundCard Setup

Click on **Settings**
Select **SoundCard**

Make sure the following is set

Device Input: **USB Audio CODEC**
Device Output: **USB Audio CODEC**
Drive Level: **85**
Click **Close**

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[2] TX Delay of 500ms is a good starting point for P2P and will support almost any manual setup. You can try 200ms and 100ms for better performance if your rigs support it.
Note: Try to match TX Delay on all the rigs for best performance.
Note: VARA gateways run on 100ms so that is what VARA FM on your rig should be set at for WL2K gateway access. Not all rigs support 100ms.

VARA FM PTT Setup

Click on **Settings**
Select **SoundCard**

Select **PTT switched by VARA**
Select **CAT**
Select Brand: **Icom**
Select Port: **COM5***
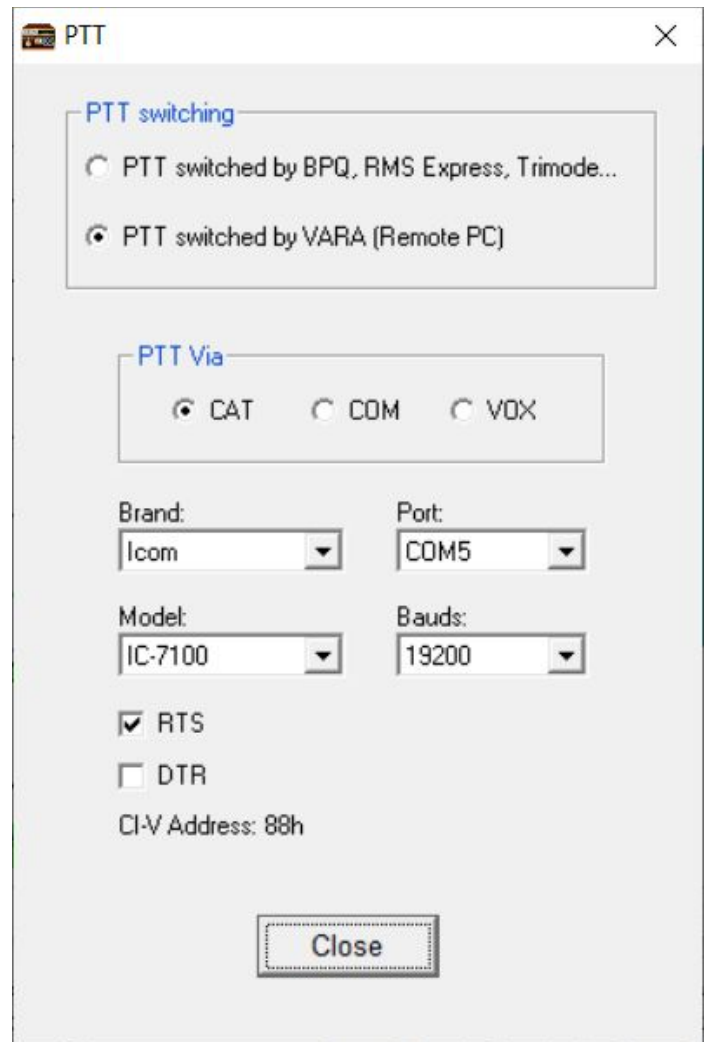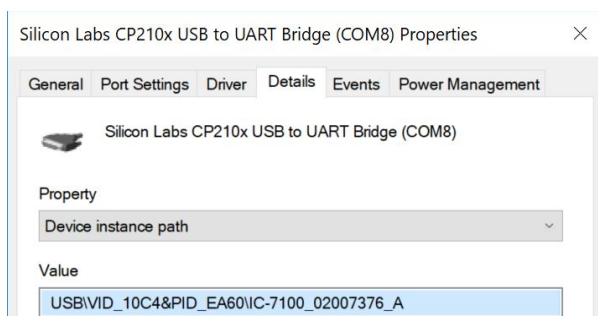Select Model: **IC-7100**
Select Bauds: **19200**
Check **RTS**
Click **Close**

* This will likely a be different in your setup.
You can find out which COM port to use here by
going to **Device Manager -> Silicon Labs ….
(COM5) -> Details -> Device Instance Path**
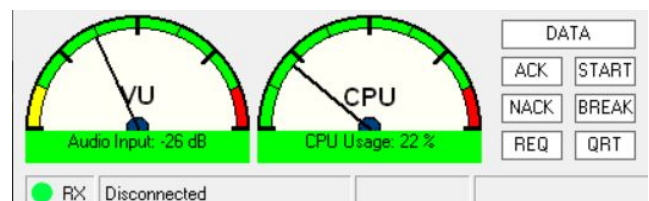The COM Port ending in **_A** is the one you enter
here.

Sound Settings

VU Meter

Setting Windows Input Volume Level

Bring up the VARA Window and move it to the
left of your screen so you can see the VU meter.

Right click on the Speaker Icon 🔊 at the
bottom right of your Windows taskbar.

Select **Sounds**
Select **Recordings**
Select **USB Audio CODEC**
Select **Levels**
Right-click on the number and switch to
decibels
Adjust the slider until you are as close as
possible to 0dB
Click OK
Click OK

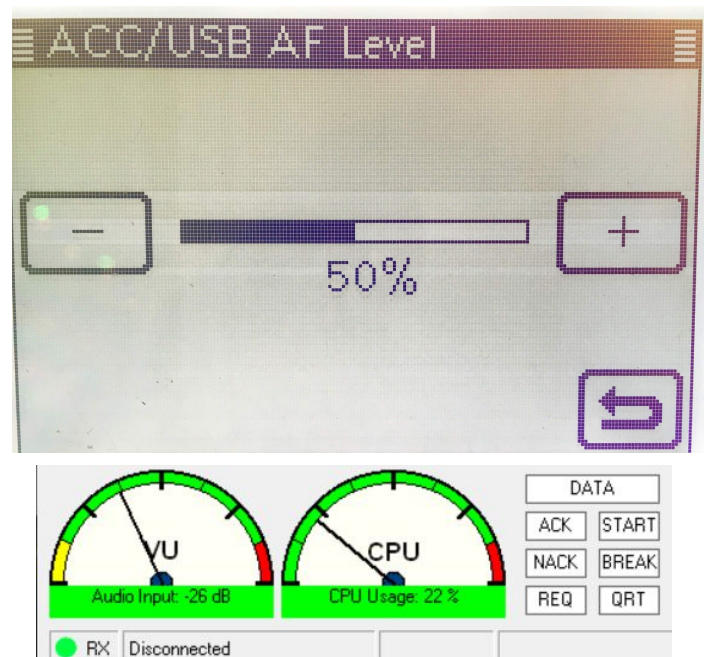Next adjust the **ACC/USB AF LEVEL** in your
IC-7100.

Setting IC-7100 AF Level

Press **SET**
Select **Connectors**
Select **ACC/USB AF LEVEL**

Change the AF Level until the VU meter on the
VARA FM is in the lower green segments.

Field Tuning: Adjusting Speaker Levels on the fly

Right click on the Speaker Icon at the
bottom right of your Windows taskbar,
Select **Sounds**
Select **Playback**
Select **USB Audio CODEC**
Select **Levels**

Right-click on the number and switch to
percentage
Adjust the slider during a longer transmission
(30kB or more) until the bars in the VARA FM
Window reach their maximum throughput.
Maximum throughput level is Level 6 at
8532bps, but that may be lower depending on
propagation and conditions.

Usually that adjustment is lower (i.e. to the left).
50 percent is a good starting point from which to
adjust downward.

Note: PSK based modes like VARA work well
will low signal strength and, conversely, suffer
when the signal is overdriven.

Quick Tip
Instead of switching manually from FM to FM-D using the touchscreen I program the same
frequency in adjacent channels, once as FM and once as FM-D. The result is that when I want to
send digital traffic I only have to switch channels with the M-CH channel rotating knob.

Please email your suggestions and improvements to Oliver K6OLI at k6oli@arrl.net