

Using the ICOM R8600 Receiver with the Doppler DDF7001 Direction Finder

A Technical Application Note from Doppler Systems

17 January 2020

Rev A: 5 February 2020

1.0 Introduction

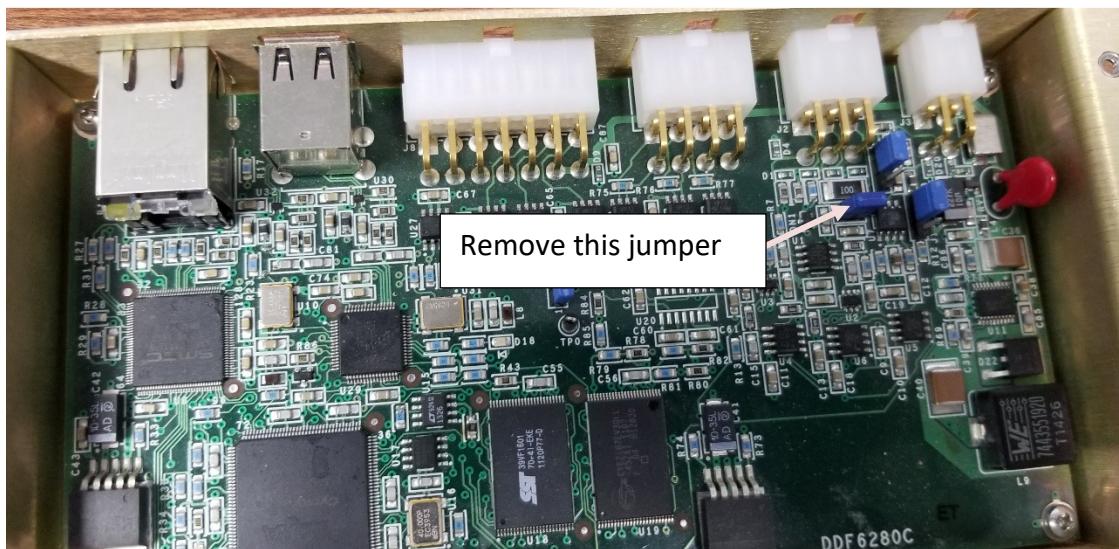
The Doppler DDF7001 Radio Direction Finder firmware version 2.35 and later supports the ICOM R8600 receiver. The latest version of the firmware is available from our website <http://dopsys.com/upgrades/firmware%20upgrades.html>. The updated firmware allows the user to tune the receiver and set its volume and squelch. Upon receipt of a signal the audio and RSSI signals from the receiver are used in the firmware to compute the bearing and display the signal strength. This application note details how to connect the receiver and use the MPT User Interface software to setup and test the operation of the direction finder with the R8600 connected.

2.0 DDF 7001 Modification

The AF/IF output of the R8600 is used for the direction finding. This output is high impedance so it requires the audio input of the DDF7001 to be configured as high impedance input.

The following steps describe this conversion

1. Remove the 4 screws holding the base and remove the base
2. Remove the jumper shown in the figure below and set it aside
3. Reinstall the base using the 4 screws.



3.0 Wiring

Figure 1 below shows the general wiring diagram for the direction finder using a R8600 receiver.

Connect the USB cable from the DF processor to the USB (B) connector on the back of the receiver.

Connect the six-pin connector on the receiver cable to the DDF7001 processor and plug the audio connector into the AF/IF output on the back of the R8600.

Connect the control cable from the antenna to the DDF7001 and connect the coaxial cable to the ANT1 connector on the receiver. The N connector on the receiver requires a N-to-BNC adapter on it.

Connect the computer to the Ethernet connector on the DDF7001 using the supplied crossover cable (orange).

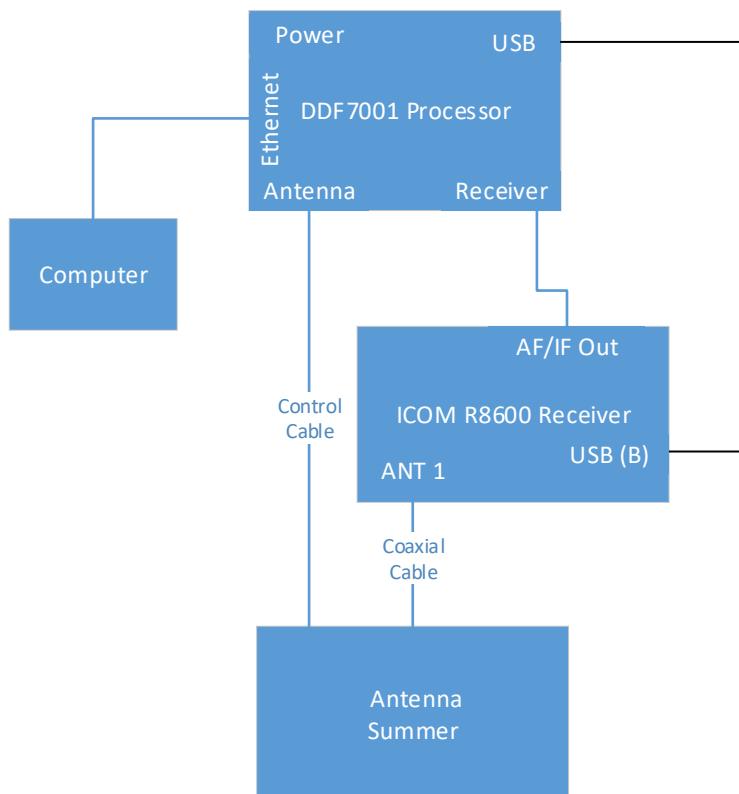


Figure 1: Wiring Diagram for Doppler Direction Finder with ICOM R8600 Receiver

4.0 Setting up the R8600

The AF/IF output of the receiver must be set up to use it for direction finding. With the receiver powered press the menu button to display the following screen



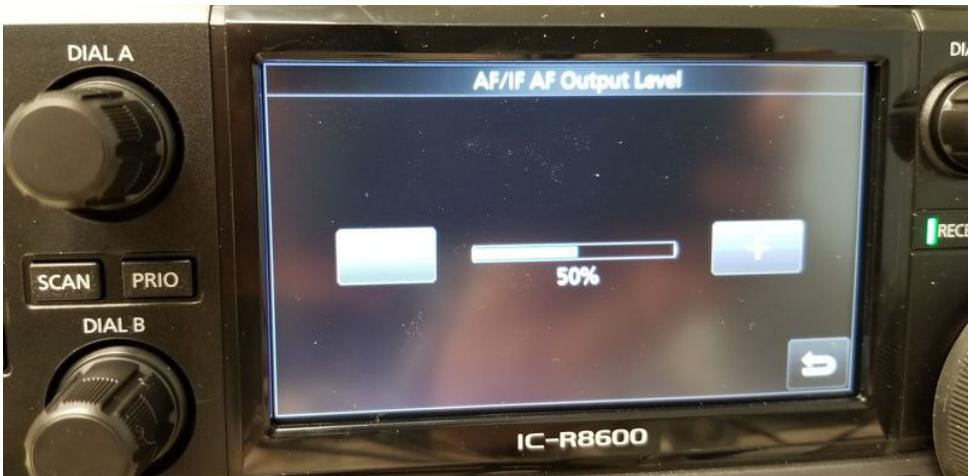
Next select Set from on the touch screen to display the following screen.



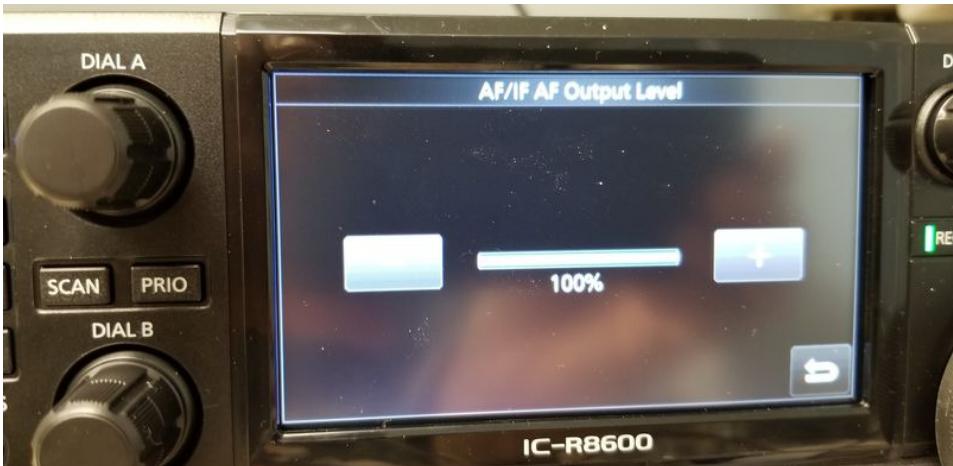
Next select Connectors on the touch screen to display the following screen



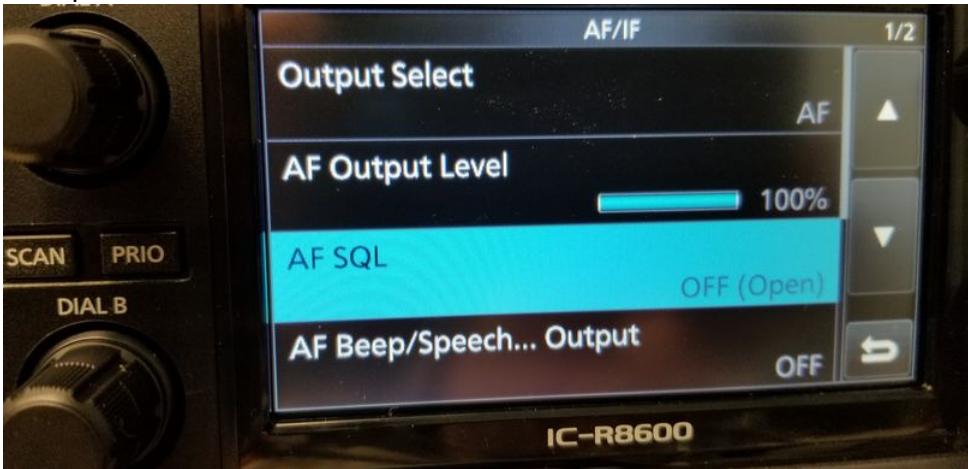
Next select AF/IF from on the touch screen to display the following screen



Press the up arrow to increase the AF output to 100% as shown below and then press the back button on the screen.



Next press the AF SQL button on the screen as shown below



Change setting to ON as shown below and then press the back key several times until you back



out of the setting mode.

At this point the receiver is ready to be used in the DF.

5.0 Using the MPT User Interface

Version 2.15 or higher of the MPT User Interface Software is required to use the DDF7001 Direction Finder with the R8600 receiver. The latest version of the software is available from our website at <http://dopsys.com/software/downloads.html>.

Apply power to the power supply and wait 15 seconds. Launch the MPT User Interface program. After a short time a dialog similar to the following dialog will be displayed.

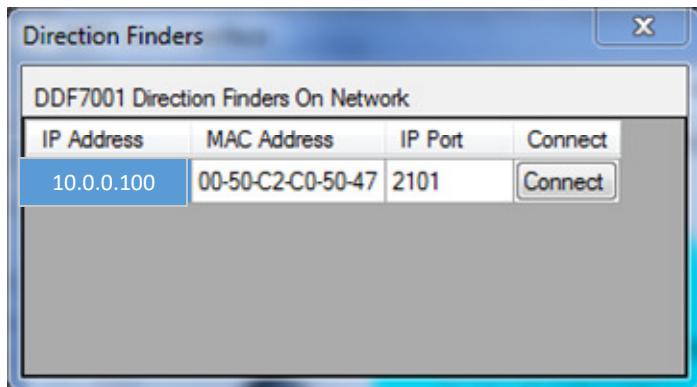


Figure 2: Connection Dialog

Press connect and the following dialog will be displayed

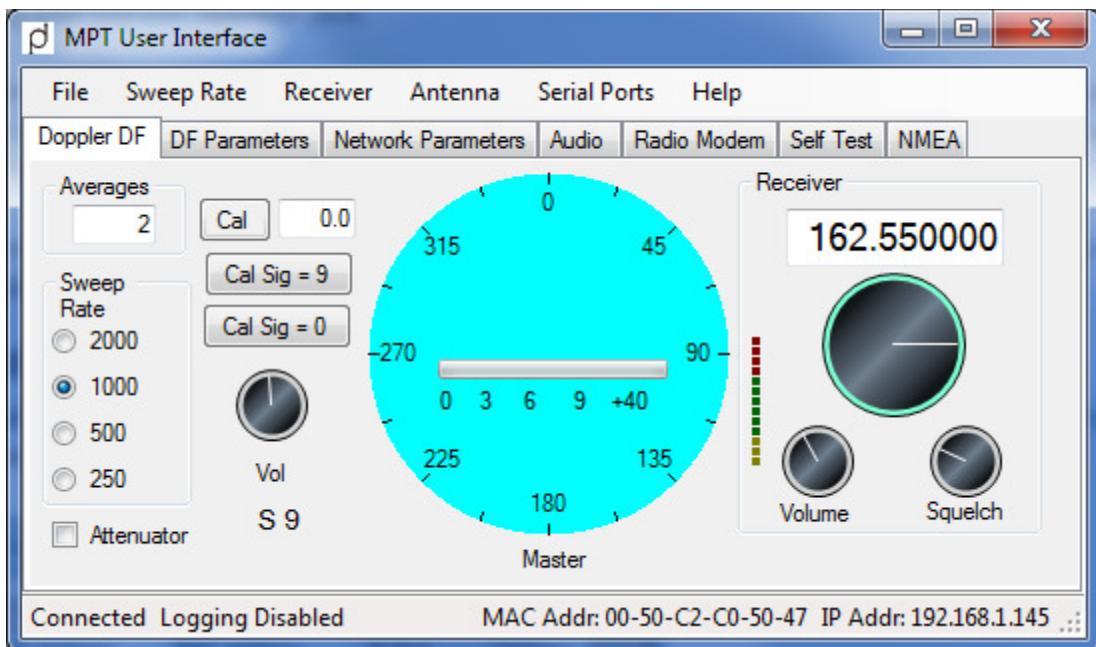


Figure 3: Initial Display of MPT User Interface

Select the Receiver menu and select ICOM R8600 from the menu.

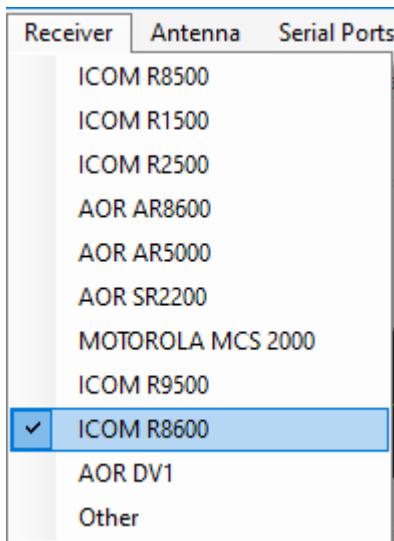


Figure 4: Select ICOM R8600 as the Receiver

At this point the direction finder is ready to operate with the R8600 receiver. As a quick check right or left click on the tuning dial to verify that the receiver changes frequency. If it changes frequency the unit has been set up properly.

Refer the MPT Software manual or help for further instructions on using the MPT User Interface software and consult the TargetTrack manual or help files on setting up and using the TargetTrack software. Both of these programs and their manuals are on the CD supplied with the unit. The

latest versions of these programs are always available on the Doppler web site (www.dopsys.com).