OmniTrax Field Strength Test

1 March 07

This test was performed to verify compliance with FCC field strength limits. We were requested to do the following:

> 1) Test the device without the amplifier at the transmitter. An amplifier can and should be used at the receiving antenna.
> 2) In this case, you can perform final testing on the worst case site determined from the sites already tested.
> 3) Because of the design of the device, when testing above 30 MHz, you can make measurements at a distance greater than 3 meters. Since the levels of the device are too low when testing at 30 MHz, test at a closer distance (e.g. 10 meters) in order to get the level of the EUT above the ambient. Extrapolate the levels to 3 meters using a 20 dB per decade factor and compare to the 3 meter limit.

The strongest fields were observed at the SITE test facility at the 150 meter mark of the A cable set. (see Figure 5 of the test report). Therefore this location was chosen for the verification measurement. The test set up is shown in figure 1.

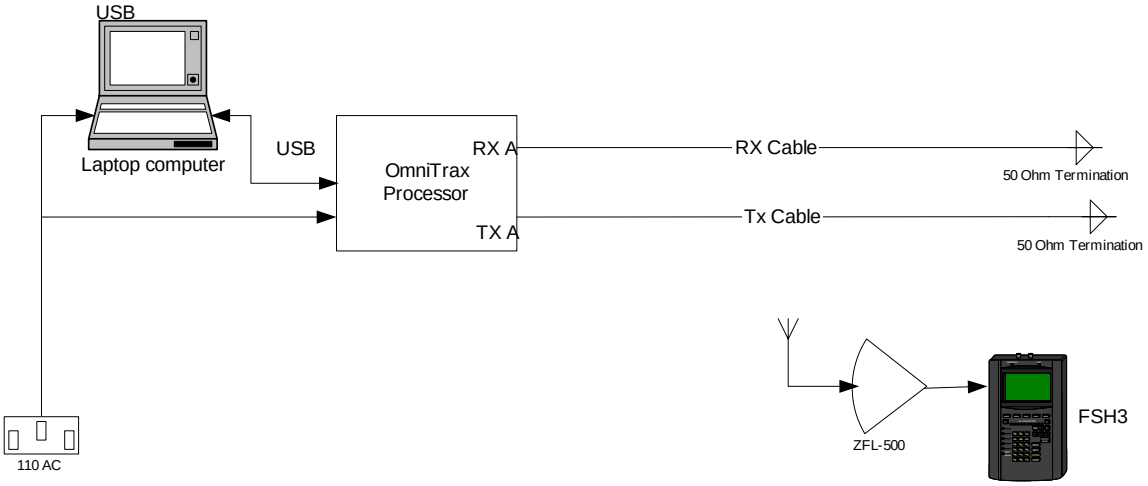

Figure 1

An amplifier was used at the input to the FSH3 spectrum analyzer to boost the signal so that it could be read.

The biconical antenna was set up 10 meters from the cable. The output power of the OmniTrax unit was adjusted to -11.1 dBm. Equation 1 of the test report calls for a transmit power setting of -10.5 dBm and -11.1 dBm was the closest setting available. First the back ground field was measured before the cable was connected to the OmniTrax processor. The result is shown in Figure 2.

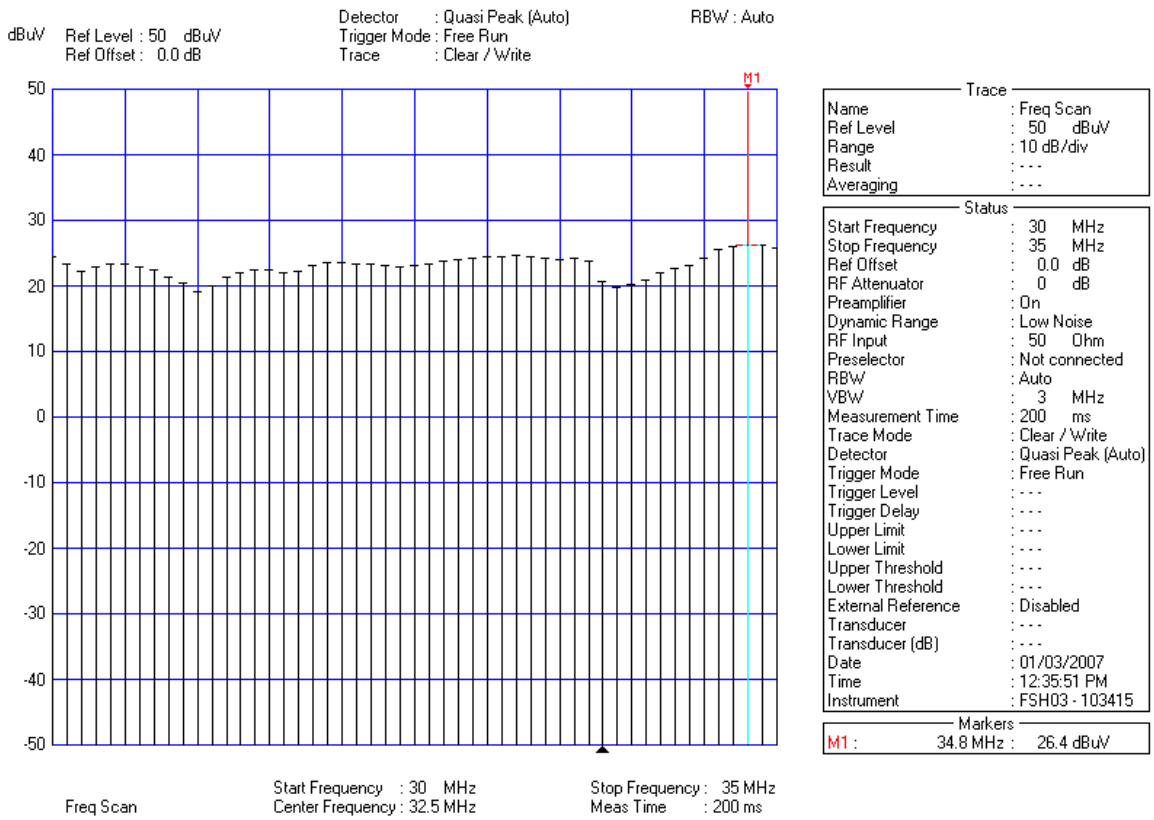

Figure 2

Next the transmit cable was connected to the OmniTrax processor and the field measured as shown in Figure 3

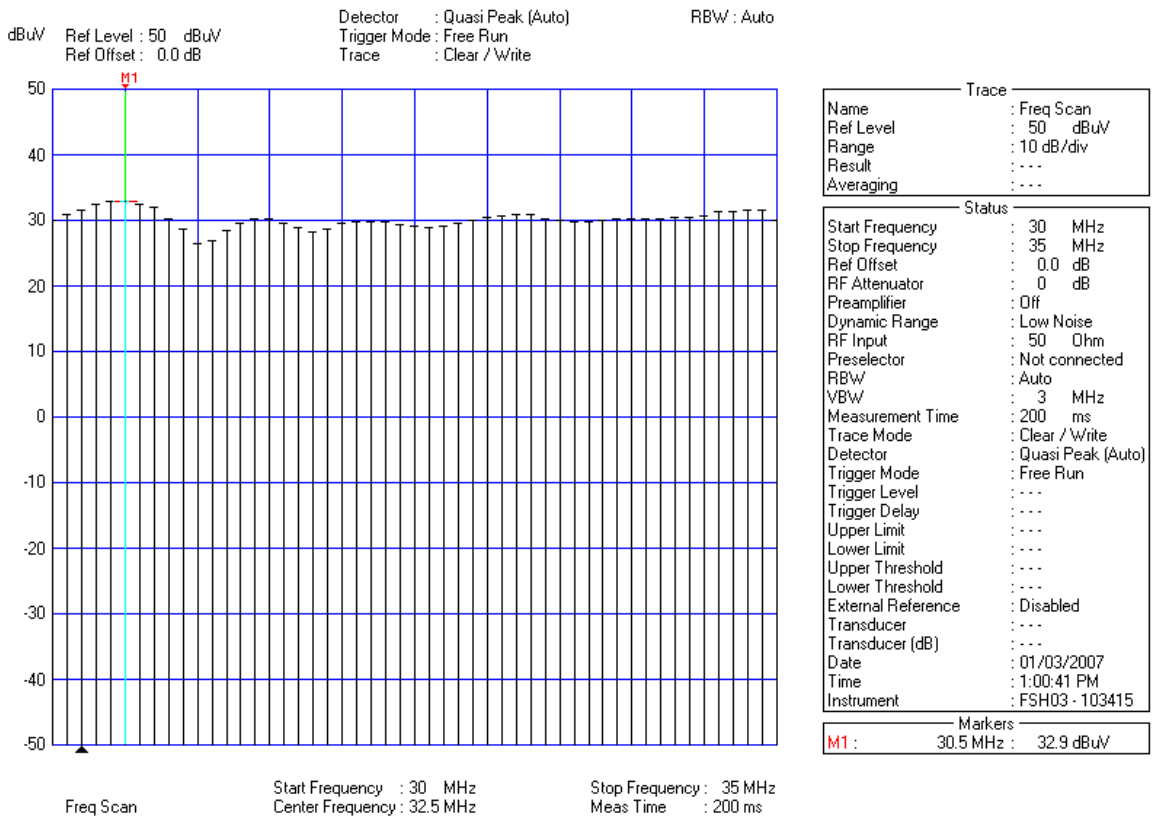

Figure 3

Note that is reading is about 6 dB above the peak background reading from Figure 2. The field strength is then calculated as follows:

FSH3 Reading	32.9	dBµV
Antenna Factor dB	13.8	dB
ZFL-500 Gain	-19.8	dB
Field Strength	26.9	dBµV/m
Extrapolated to 3 m distance	10.5	dB
Extrapolated Field Strength	**37.4**	**dBµV/m**
FCC Limit at 3 meters	40.0	dBµV/m
	Pass	

The measured field is below the FCC limit.