

# Appendix D - Measurement Procedure

## Introduction

Two variations for making the measurements were used depending on the overall site sensitivity. At the Hammond site the sensitivity was high enough that no power amplifier was needed while at the other two sites because the cables were buried a power was needed to make measurements at 30 meters.

## Hammond Site

For setup the equipment was connected as in Figure 1

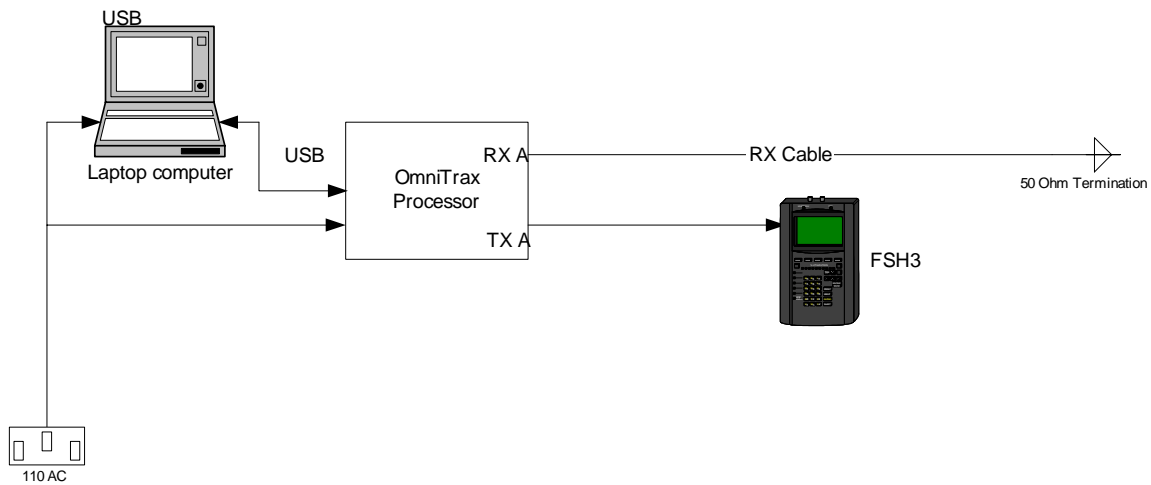


Figure 1

The laptop was used to set the OmniTrax TX gain at 80. The resulting spectrum from the FSH is shown in Figure 2

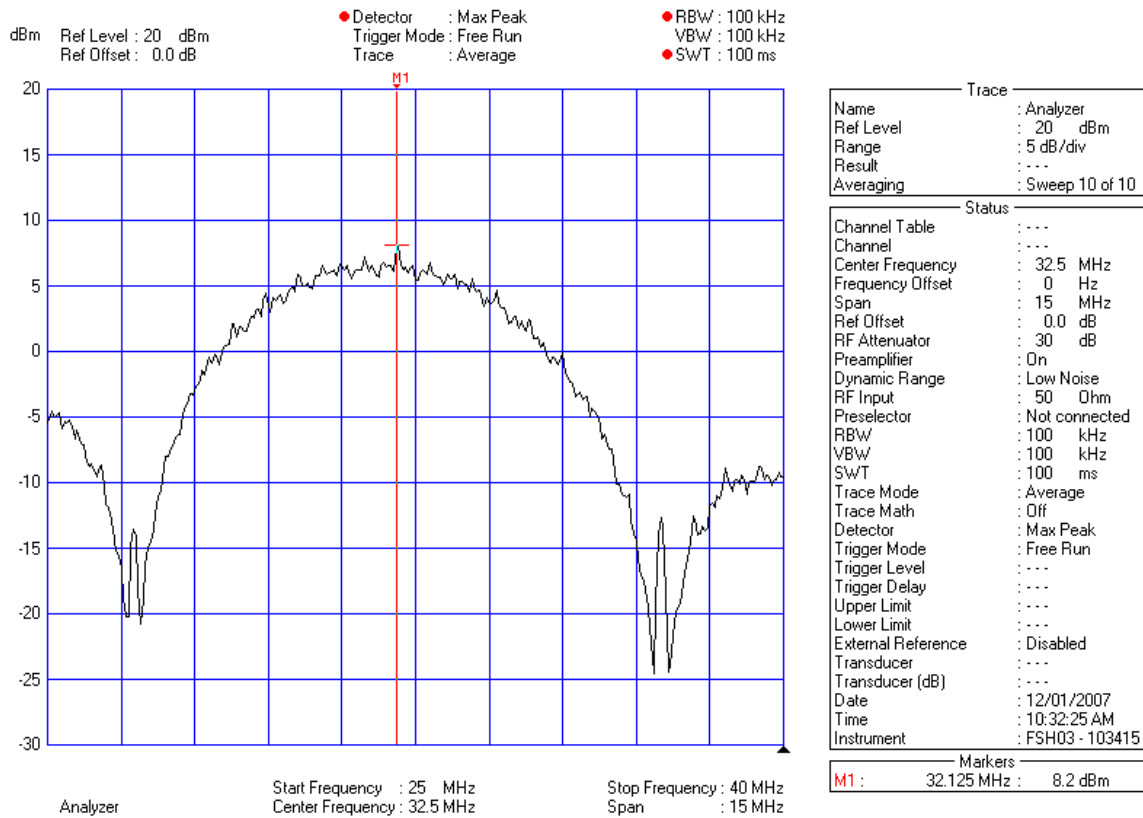


Figure 2

The value of 8.2 dBm is used as the test signal in equation 2.

For the radial field measurements the equipment configuration shown in Figure 3 was used.

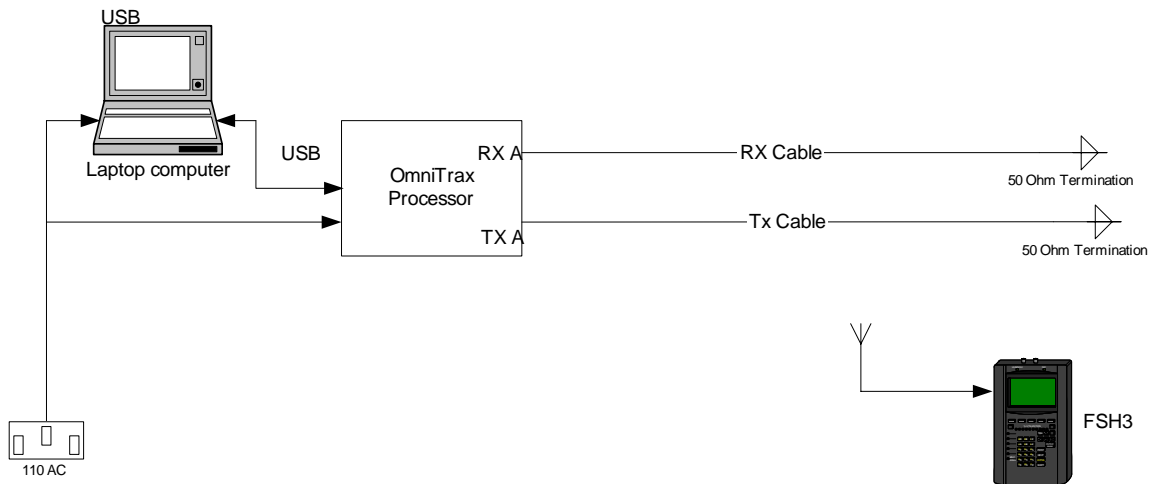


Figure 3

## SITE and JWP

At these sites the configuration shown in figure 4 was used

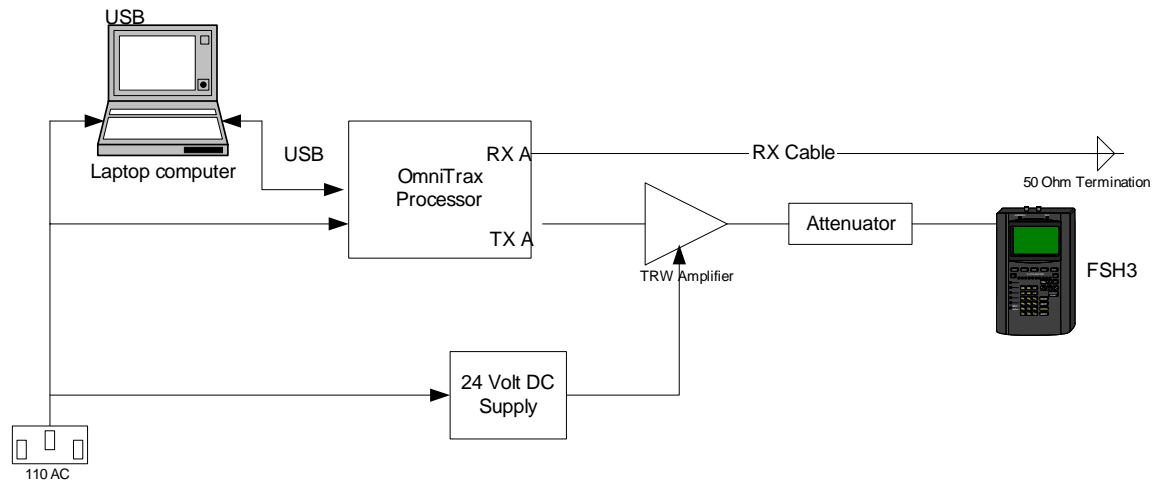


Figure 4

For the radial measurements the configuration of figure 5 was used.

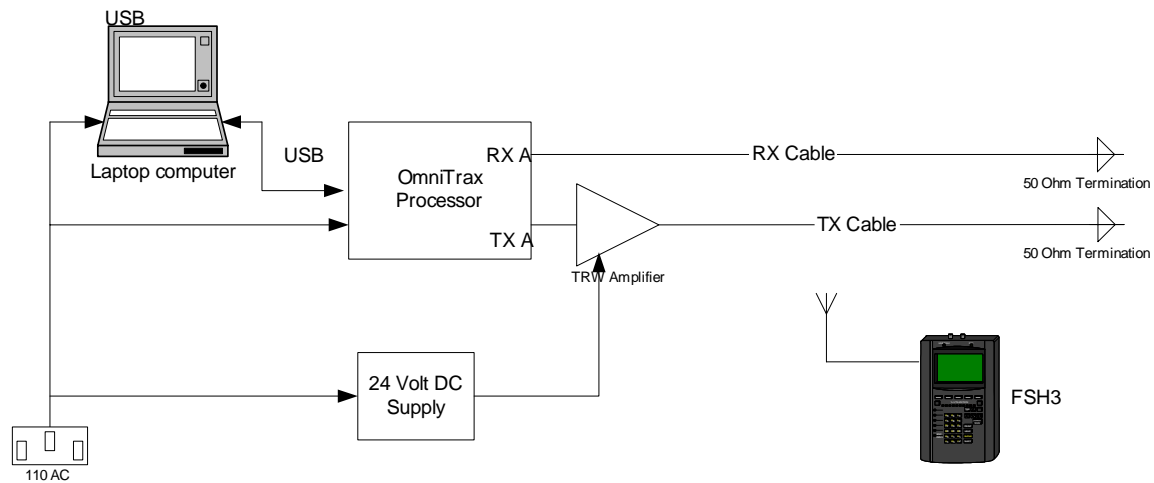
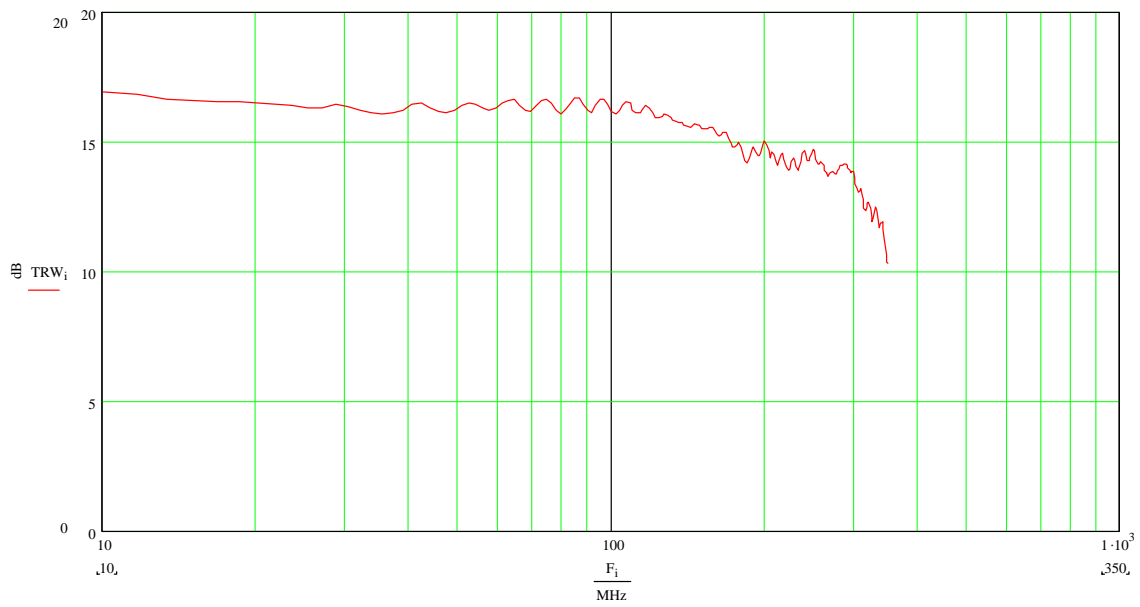


Figure 5

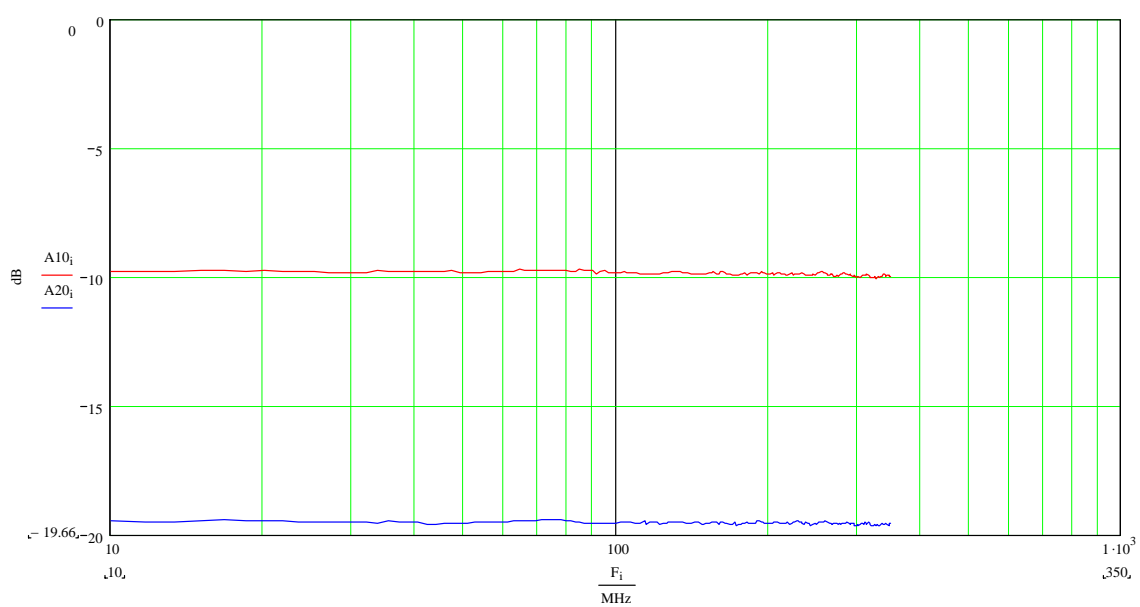
At site for the setup a 10 dB attenuator was used and the peak measured signal was 4.5 dBm so the test signal used in equation 2 was 14.5 dBm. For JWP a 20 dB attenuator was used and the peak measured signal was -3.2 dBm so the test signal used in equation 2 was 16.8 dBm.

This method of measuring the test signal ensures that the gain of the TRW amplifier does not enter into the equation. However it was tested and is shown in figure 6.



**Figure 6 Gain of TRW Power Amp**

The attenuators used were also tested and the result is shown in figure 7.



**Figure 7 Attenuation of 10 and 20 dB pads**

The attenuator results are also listed in tabular form.

Freq (MHz)	10 dB	20 dB
10	-9.8	-19.5
19	-9.8	-19.5
27	-9.8	-19.5
36	-9.8	-19.5
44	-9.8	-19.6
53	-9.8	-19.5
61	-9.8	-19.5
70	-9.7	-19.4
78	-9.7	-19.4
87	-9.7	-19.5
95	-9.8	-19.6
104	-9.8	-19.5
112	-9.9	-19.6
121	-9.9	-19.5
129	-9.8	-19.5
138	-9.8	-19.5
146	-9.9	-19.5
155	-9.8	-19.5
163	-9.8	-19.5
172	-9.9	-19.5
180	-9.8	-19.5
189	-9.8	-19.5
197	-9.9	-19.6
206	-9.9	-19.5
214	-9.9	-19.6
223	-9.8	-19.5
231	-9.9	-19.5
240	-9.9	-19.5
248	-9.9	-19.5
257	-9.8	-19.5
265	-9.9	-19.5
274	-9.9	-19.5
282	-9.8	-19.5
291	-9.9	-19.6
299	-10.0	-19.6
308	-9.9	-19.5
316	-9.9	-19.5
325	-10.0	-19.6
333	-10.0	-19.6
342	-9.9	-19.5
350	-10.0	-19.6

Table of 10 and 20 dB attenuators