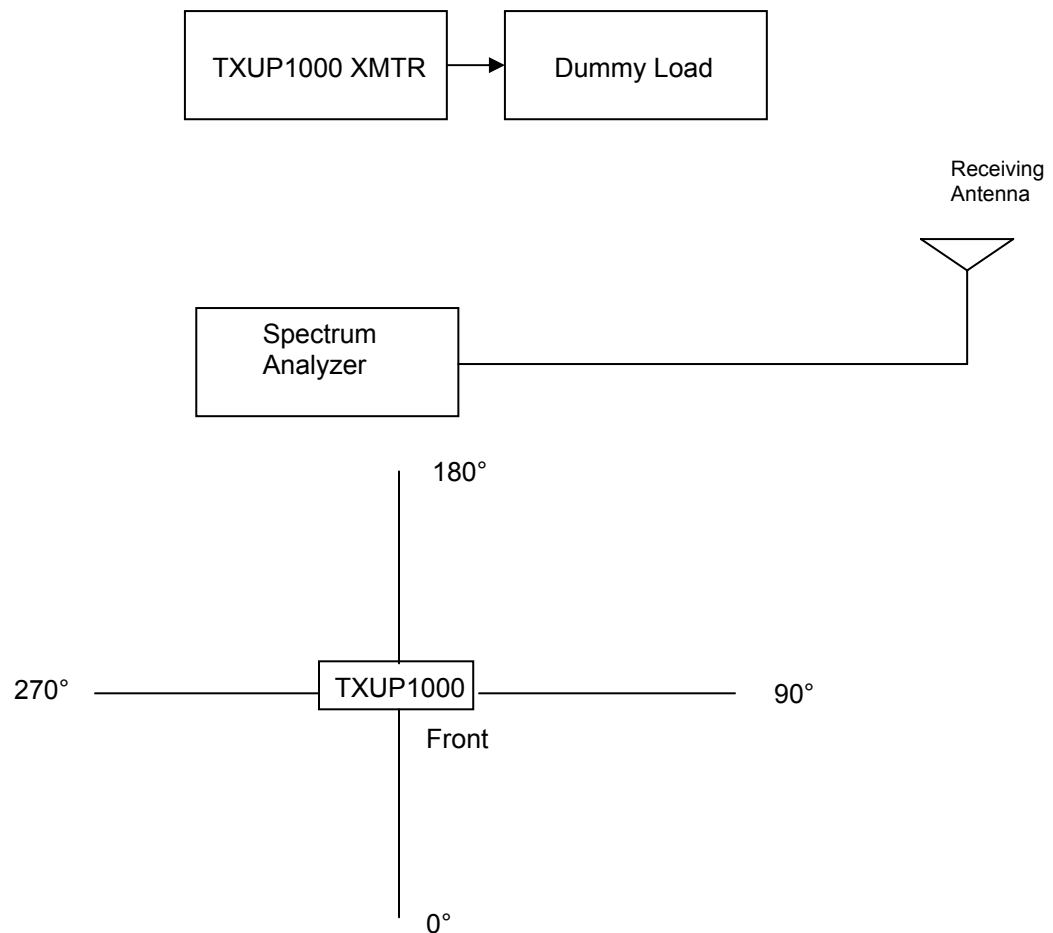


## CABINET RADIATION

The transmitter and test equipment were configured as shown below including the angles of measurement with respect to the transmitter cabinet. The photo on the subsequent page also shows one view of the physical set-up of the test equipment and equipment under test. The transmitter was operated at 1000 watts peak sync power with a 10 dB visual/aural ratio with the video input signal being a Modulated Stairstep signal. In this case the fundamental frequency was set to 693 MHz because there was interference on 567 MHz. The free space path loss and antenna gain characteristics were obtained at the fundamental frequency and at each of the harmonics of the visual carrier frequency in order to accurately assess the level of the signal radiated from the cabinet. Radiation from the cabinet was measured with 4 different physical rotation angles: 0, 90, 180, and 270 degrees (0 degrees being the front of the cabinet). All spectral components above -80 dB referenced to peak sync power radiated from the cabinet were recorded. The values are tabulated in the table on the next page following the photos.

### TEST EQUIPMENT CONFIGURATION



## PHYSICAL CABINET RADIATION TEST CONFIGURATION

This photograph shows the actual laboratory environment in which the cabinet radiation tests were conducted. The antenna and Unit Under Test is shown in the photograph. The transmitter was rotated 90 degrees for each of the measurement orientations.



As indicated in the spreadsheet data on the following page, the worst case measurement was 75.8 dB at the second harmonic. The measurement tables for the all views of the transmitter at each frequency are shown below. The results indicate that all radiated harmonics meet the FCC requirement of 60 dB as outlined in FCC rule 2.1053 and 2.1057.

## CABINET RADIATION DATA

### TXUP1000 CABINET RADIATION SPREADSHEET

1KW Front View

1.0 kW = 60 dBm

Corrected level must be less than 0 dBm

Distance is 30 feet

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Comparison to transmit level dB
Xmit freq.	693.25	-41	0.8	7.1	48.5	1.2	0 dBm	N/A
2nd	1386.5	-65	1.4	6.7	54.5	-15.8	0 dBm	75.8
3rd	2079.75	-70	1.6	6.4	58	-16.8	0 dBm	76.8
4th	2773	-74	1.9	5.9	60.5	-17.5	0 dBm	77.5
5th	3466.25	-86	2.3	6.6	62.5	-27.8	0 dBm	87.8
6th	4159.5	-86	2.6	6.4	64.1	-25.7	0 dBm	85.7
7th	4852.75	-86	2.9	7	65.4	-24.7	0 dBm	84.7
8th	5546	-87	3.4	7.1	66.6	-24.1	0 dBm	84.1
9th	6239.25	-87	3.9	6.3	67.6	-21.8	0 dBm	81.8
10th	6932.5	-80	4.5	4.5	68.5	-11.5	0 dBm	71.5

Note: The spectrum analyzer noise floor changed 10 dB for data at the 10<sup>th</sup> harmonic so that is why the figures at that frequency are less than previous harmonics.

### CABINET RADIATION SPREADSHEET

1KW Left side View

1.0 kW = 60 dBm

Corrected level must be less than 0 dBm

Distance is 30 feet

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Comparison to transmit level dB
Xmit freq.	693.25	-40	0.8	7.1	48.5	2.2	0 dBm	N/A
2nd	1386.5	-68	1.4	6.7	54.5	-18.8	0 dBm	78.8
3rd	2079.75	-73	1.6	6.4	58	-19.8	0 dBm	79.8
4th	2773	-77	1.9	5.9	60.5	-20.5	0 dBm	80.5
5th	3466.25	-86	2.3	6.6	62.5	-27.8	0 dBm	87.8
6th	4159.5	-86	2.6	6.4	64.1	-25.7	0 dBm	85.7
7th	4852.75	-86	2.9	7	65.4	-24.7	0 dBm	84.7
8th	5546	-86	3.4	7.1	66.6	-23.1	0 dBm	83.1
9th	6239.25	-86	3.9	6.3	67.6	-20.8	0 dBm	80.8
10th	6932.5	-80	4.5	4.5	68.5	-11.5	0 dBm	71.5

Note: The spectrum analyzer noise floor changed 10 dB for data at the 10<sup>th</sup> harmonic so that is why the figures at that frequency are less than previous harmonics.

# CABINET RADIATION SPREADSHEET

1KW Rightside View

1.0 kW = 60 dBm

Corrected level must be less than 0 dBm

Distance is 30 feet

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Comparison to transmit level dB
Xmit freq.	693.25	-38	0.8	7.1	48.5	4.2	0 dBm	N/A
2nd	1386.5	-69	1.4	6.7	54.5	-19.8	0 dBm	79.8
3rd	2079.75	-72	1.6	6.4	58	-18.8	0 dBm	78.8
4th	2773	-86	1.9	5.9	60.5	-29.5	0 dBm	89.5
5th	3466.25	-86	2.3	6.6	62.5	-27.8	0 dBm	87.8
6th	4159.5	-86	2.6	6.4	64.1	-25.7	0 dBm	85.7
7th	4852.75	-86	2.9	7	65.4	-24.7	0 dBm	84.7
8th	5546	-86	3.4	7.1	66.6	-23.1	0 dBm	83.1
9th	6239.25	-86	3.9	6.3	67.6	-20.8	0 dBm	80.8
10th	6932.5	-80	4.5	4.5	68.5	-11.5	0 dBm	71.5

Note: The spectrum analyzer noise floor changed 10 dB for data at the 10<sup>th</sup> harmonic so that is why the figures at that frequency are less than previous harmonics.

# CABINET RADIATION SPREADSHEET

1KW Back side View

1.0 kW = 60 dBm

Corrected level must be less than 0 dBm

Distance is 30 feet

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Comparison to transmit level dB
Xmit freq.	693.25	-42	0.8	7.1	48.5	0.2	0 dBm	N/A
2nd	1386.5	-72	1.4	6.7	54.5	-22.8	0 dBm	82.8
3rd	2079.75	-75	1.6	6.4	58	-21.8	0 dBm	81.8
4th	2773	-86	1.9	5.9	60.5	-29.5	0 dBm	89.5
5th	3466.25	-86	2.3	6.6	62.5	-27.8	0 dBm	87.8
6th	4159.5	-86	2.6	6.4	64.1	-25.7	0 dBm	85.7
7th	4852.75	-86	2.9	7	65.4	-24.7	0 dBm	84.7
8th	5546	-86	3.4	7.1	66.6	-23.1	0 dBm	83.1
9th	6239.25	-86	3.9	6.3	67.6	-20.8	0 dBm	80.8
10th	6932.5	-80	4.5	4.5	68.5	-11.5	0 dBm	71.5

Note: The spectrum analyzer noise floor changed 10 dB for data at the 10<sup>th</sup> harmonic so that is why the figures at that frequency are less than previous harmonics.

## VOLTAGES AND CURRENTS TO FINAL AMPLIFIERS

Final amplifier DC voltage and current measurements were made with the transmitter operating at 1000 Watts power output and at 250 watts power output. A video input signal of sync and 0 IRE "setup" level was used. The aural carrier was energized and adjusted for the proper 10 dB Visual to Aural power ratio. Voltage and current measurements were made at the transmitter.

Peak Output Power = 1000 Watts  
Voltage = 32 volts  
Total DC Current =  $6 \times 10 = 60$  amps  
Final amplifier DC power input =  $32 \times 60 = 1920$  watts

Peak Output Power = 125 Watts  
Voltage = 32 volts  
Total DC Current = 21 amps  
Final amplifier DC power input =  $32 \times 21 = 672$  watts

### EQUIPMENT LIST

The following test equipment was used in the various test equipment configurations or to create calibration of equipment at various frequencies. All equipment was known to be in good working order and the equipment was within the calibration period.

Type	Manufacturer	Model	Date of Calibration	Calibration Expired
Spectrum Analyzer	Advantest	R3132	11/11/05	11/11/06
Signal Generator Platform	Tektronix	TG2000	15/05/05	15/05/06
Video Measurement Set	Tektronix	VM700A	09/01/06	09/01/07
TV Test Receiver	Rohde&Schwarz	EFA	15/05/05	15/05/06
Selective Modulation Analyzer	Rohde&Schwarz	FMAS	02/04/05	02/04/06
Wattmeter	BIRD	4391	02/04/05	02/04/06
Attenuator	Elettronika	N/A		
Dummy Load 100W	Elettronika	N/A		