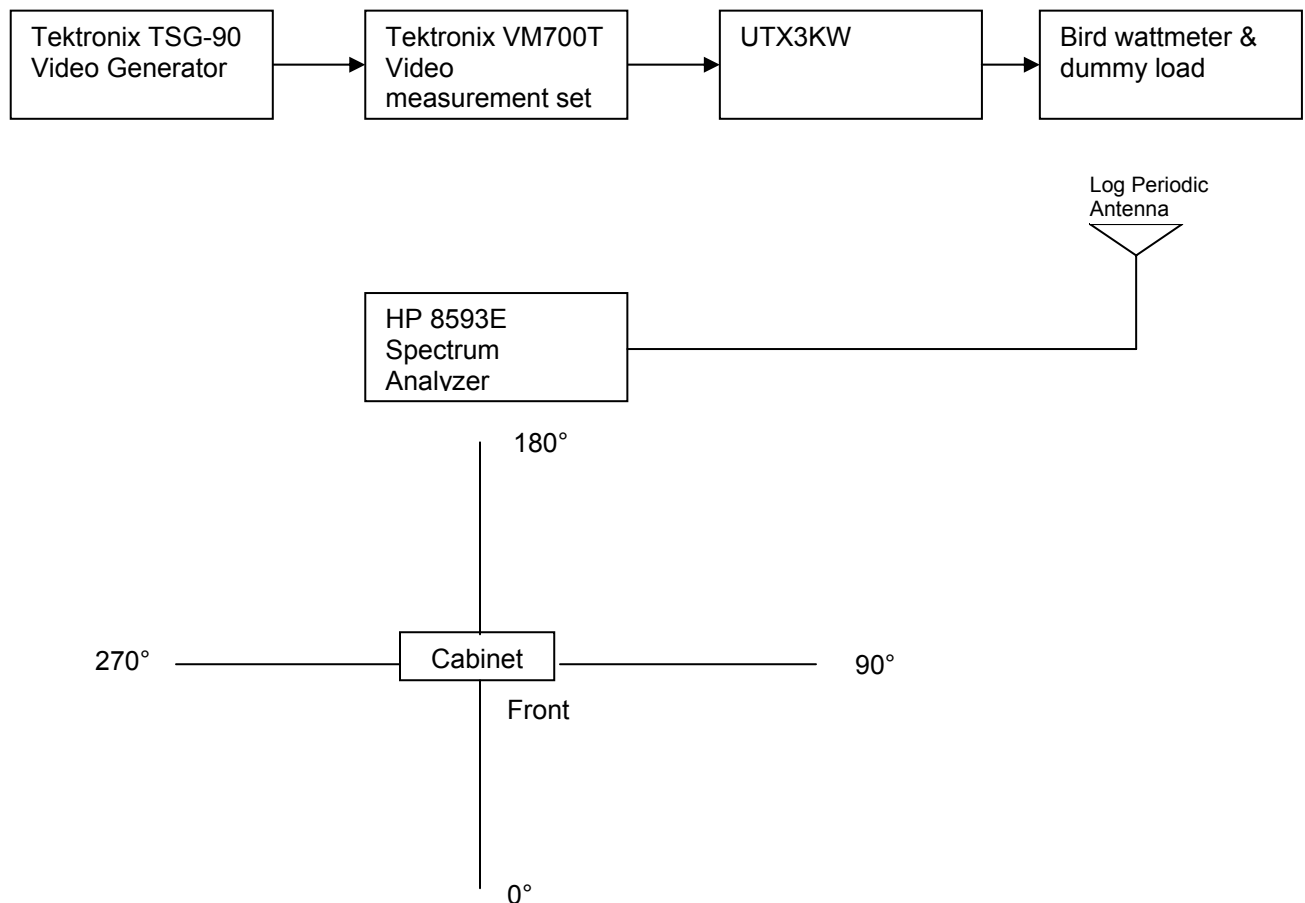


CABINET RADIATION

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 the physical set-up of the test equipment and equipment under test. The transmitter was operated at 3.0 kW peak sync power with a 10 dB visual/aural ratio with the video input signal being a sync signal and 50 IRE "set-up" level. The free space path loss, cable 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 at a distance of 30 feet in 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 log periodic antenna, cable and spectrum analyzer is shown in the foreground and the UTX3KW is shown in the background. 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 72 dB at the second harmonic. (This photo above shows this particular measurement). The measurement tables for the remaining views of the transmitter are shown below.

CABINET RADIATION DATA

CABINET RADIATION

UTX-3KW

Front View

3 kW = 64.8 dBm

Corrected level must be less than 4.8

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
2nd	1062.5	-54	0.8	6.5	52.5	-7.2	4.8 dBm	72
3rd	1593.75	-81	1.2	7	56.1	-30.7	4.8 dBm	95.5
4th	2125	-75	1.6	5.7	58.6	-20.5	4.8 dBm	85.3
5th	2656.25	-83	1.7	4	60.5	-24.8	4.8 dBm	89.6
6th	3187.5	-80	1.8	4.2	62.1	-20.3	4.8 dBm	85.1
7th	3718.75	-85	1.9	3.7	63.4	-23.4	4.8 dBm	88.2
8th	4250	-85	2	3	64.6	-21.4	4.8 dBm	86.2
9th	4781.25	-85	2.8	2	65.6	-18.6	4.8 dBm	83.4
10th	5312.5	-85	3.2	2.5	66.5	-17.8	4.8 dBm	82.6

CABINET RADIATION

UTX-3KW

Left side View

3 kW = 64.8 dBm

Corrected level must be less than 4.8

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
2nd	1062.5	-67	0.8	6.5	52.5	-20.2	4.8 dBm	85.0
3rd	1593.75	-75	1.2	7	56.1	-24.7	4.8 dBm	89.5
4th	2125	-82	1.6	5.7	58.6	-27.5	4.8 dBm	92.3
5th	2656.25	-83	1.7	4	60.5	-24.8	4.8 dBm	89.6
6th	3187.5	-85	1.8	4.2	62.1	-25.3	4.8 dBm	90.1
7th	3718.75	-85	1.9	3.7	63.4	-23.4	4.8 dBm	88.2
8th	4250	-85	2	3	64.6	-21.4	4.8 dBm	86.2
9th	4781.25	-85	2.8	2	65.6	-18.6	4.8 dBm	83.4
10th	5312.5	-85	3.2	2.5	66.5	-17.8	4.8 dBm	82.6

CABINET RADIATION

UTX-3KW

Right side View

3 kW = 64.8 dBm

Corrected level must be less than 4.8 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
2nd	1062.5	-62	0.8	6.5	52.5	-15.2	4.8 dBm	80.0
3rd	1593.75	-79	1.2	7	56.1	-28.7	4.8 dBm	93.5
4th	2125	-76	1.6	5.7	58.6	-21.5	4.8 dBm	86.3
5th	2656.25	-84	1.7	4	60.5	-25.8	4.8 dBm	90.6
6th	3187.5	-83	1.8	4.2	62.1	-23.3	4.8 dBm	88.1
7th	3718.75	-85	1.9	3.7	63.4	-23.4	4.8 dBm	88.2
8th	4250	-85	2	3	64.6	-21.4	4.8 dBm	86.2
9th	4781.25	-85	2.8	2	65.6	-18.6	4.8 dBm	83.4
10th	5312.5	-85	3.2	2.5	66.5	-17.8	4.8 dBm	82.6

CABINET RADIATION

UTX-3KW

Back View

3 kW = 64.8 dBm

Corrected level must be less than 4.8 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
2nd	1062.5	-67	0.8	6.5	52.5	-20.2	4.8dBm	85
3rd	1593.75	-73	1.2	7	56.1	-22.7	4.8dBm	87.5
4th	2125	-73	1.6	5.7	58.6	-18.5	4.8dBm	83.3
5th	2656.25	-83	1.7	4	60.5	-24.8	4.8dBm	89.6
6th	3187.5	-82	1.8	4.2	62.1	-22.3	4.8dBm	87.1
7th	3718.75	-85	1.9	3.7	63.4	-23.4	4.8dBm	88.2
8th	4250	-85	2	3	64.6	-21.4	4.8dBm	86.2
9th	4781.25	-85	2.8	2	65.6	-18.6	4.8dBm	83.4
10th	5312.5	-85	3.2	2.5	66.5	-17.8	4.8dBm	82.6

VOLTAGES AND CURRENTS TO FINAL AMPLIFIERS

Final amplifier DC voltage and current measurements were made with the transmitter operating at 3.0 kWatts power output and at 1.0 kWatt output power. A video input signal of sync and 0 IRE "setup" level was used. Voltage measurements were made using a Fluke 77 meter. Current measurements were made using the same meter with a measurement across a DC shunt for each of the 6 power amplifiers operating in parallel. The shunt resistance value is 1 milliohm. The power supply voltage was 31.0 volts for each measurement. The DC current values were summed to get the total DC current at both operating points of 3.0 kW and 1.0 kW.

Peak Output Power = 3000 Watts

Voltage = 31.0 volts

Total DC Current = 275 amps

Final amplifier DC power input = $31 \times 275 = 8525$ watts

Peak Output Power = 1000 Watts

Voltage = 31.0 volts

Total DC Current = 170 amps

Final amplifier DC power input = $31 \times 170 = 5270$ 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 supplier of the equipment stipulated the equipment was within the calibration period.

EQUIPMENT MODEL	SERIAL NUMBER
Tektronix 1410 Video generator	B020216
Modulation Sciences MSI320 demodulator	390128364
HP 8595E Spectrum Analyzer	3523A01399
VM-700T Video Analyzer	B010396
HP 3525A Signal Generator	2846A01312
HP 200 CD Audio Generator	0960A86012
Tektronix TSG90 Video signal generator	B022622
Tektronix 1750 Waveform Monitor	B033351
ETS 3147 Log Periodic Antenna	9703-1288
Fluke 77 meter	54810424
Wavetek 8003 Scalar Analyzer	1813961
HP 54601 Oscilloscope	3134A02137
Bird 6801-220 wattmeter	4978
Bird 8890-300 Dummy load	4778
HP 8903B Modulation Monitor	2920A02167
HP 53181 Frequency Counter	3736A05957