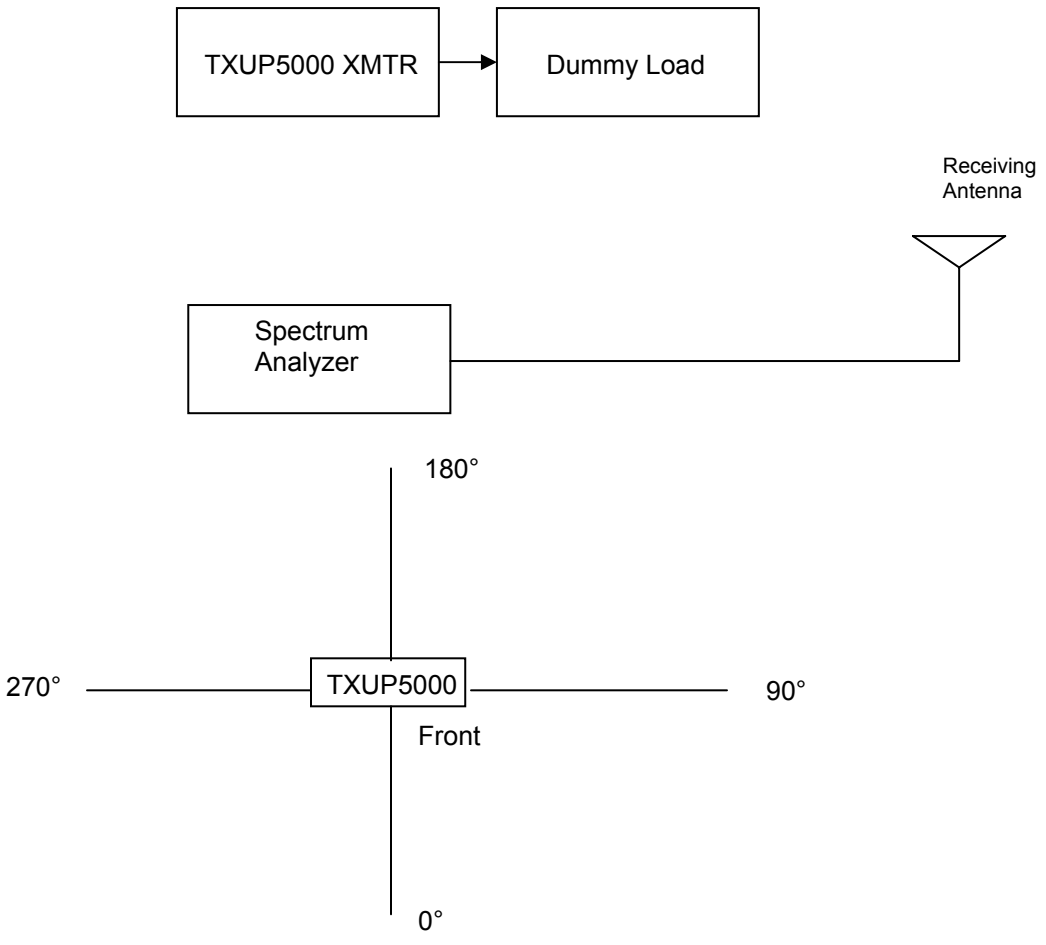
CABINET RADIATION

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 5000 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 633.25 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 are 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 84.3 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

TXUP5000 CABINET RADIATION SPREADSHEET 1/26/2006

5KW Front View

5.0 kW = 67 dBm

Corrected level must be less than 7 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.	633.25	-19	0.7	6.8	47.7	22.6	7 dBm	N/A
2nd	1266.5	-65	1.1	7.1	53.7	-17.3	7 dBm	84.3
3rd	1899.75	-77	1.5	7	57.3	-25.2	7 dBm	92.2
4th	2533	-86	2	6.2	59.8	-30.4	7 dBm	97.4
5th	3166.25	-86	2.2	5.9	61.7	-28	7 dBm	95
6th	3799.5	-86	2.4	7.3	63.3	-27.6	7 dBm	94.6
7th	4432.75	-86	2.6	7.5	64.6	-26.3	7 dBm	93.3
8th	5066	-86	3.2	7.2	65.8	-24.2	7 dBm	91.2
9th	5699.25	-86	3.7	7.2	66.8	-22.7	7 dBm	89.7
10th	6332.5	-86	4.2	6	67.7	-20.1	7 dBm	87.1

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Antenna AH SYSTEMS SAS-510-7 S/N 118 CAL 1-11-06

Spectrum Analyzer HP 8593E S/N No #

Cable RG213, 12 foot length

Load BIRD 8932-115 S/N 1399

XMTR TXUP1500

Video Source Tektronix 1910 S/N B010833 (color bars)

Aural Carrier =-10 dB

Spectrum analyzer RBW 100 kHz VBW 10kHz

Exciter is VEGA

CABINET RADIATION SPREADSHEET
5KW Left side View
5.0 kW = 67 dBm
Corrected level must be less than 7 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.	633.25	-12	0.7	6.8	47.7	29.6	7 dBm	N/A
2nd	1266.5	-65	1.1	7.1	53.7	-17.3	7 dBm	84.3
3rd	1899.75	-86	1.5	7	57.3	-34.2	7 dBm	101.2
4th	2533	-86	2	6.2	59.8	-30.4	7 dBm	97.4
5th	3166.25	-86	2.2	5.9	61.7	-28	7 dBm	95
6th	3799.5	-86	2.4	7.3	63.3	-27.6	7 dBm	94.6
7th	4432.75	-86	2.6	7.5	64.6	-26.3	7 dBm	93.3
8th	5066	-86	3.2	7.2	65.8	-24.2	7 dBm	91.2
9th	5699.25	-86	3.7	7.2	66.8	-22.7	7 dBm	89.7
10th	6332.5	-86	4.2	6	67.7	-20.1	7 dBm	87.1

CABINET RADIATION SPREADSHEET
5KW Rightside View
5.0 kW = 67 dBm
Corrected level must be less than 7 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.	633.25	-14	0.7	6.8	47.7	27.6	7 dBm	N/A
2nd	1266.5	-69	1.1	7.1	53.7	-21.3	7 dBm	88.3
3rd	1899.75	-86	1.5	7	57.3	-34.2	7 dBm	101.2
4th	2533	-86	2	6.2	59.8	-30.4	7 dBm	97.4
5th	3166.25	-86	2.2	5.9	61.7	-28	7 dBm	95
6th	3799.5	-86	2.4	7.3	63.3	-27.6	7 dBm	94.6
7th	4432.75	-86	2.6	7.5	64.6	-26.3	7 dBm	93.3
8th	5066	-86	3.2	7.2	65.8	-24.2	7 dBm	91.2
9th	5699.25	-86	3.7	7.2	66.8	-22.7	7 dBm	89.7
10th	6332.5	-86	4.2	6	67.7	-20.1	7 dBm	87.1

CABINET RADIATION SPREADSHEET
5KW Back side View
5.0 kW = 67 dBm
Corrected level must be less than 7 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.	633.25	-37	0.7	6.8	47.7	4.6	7 dBm	N/A
2nd	1266.5	-70	1.1	7.1	53.7	-22.3	7 dBm	89.3
3rd	1899.75	-86	1.5	7	57.3	-34.2	7 dBm	101.2
4th	2533	-86	2	6.2	59.8	-30.4	7 dBm	97.4
5th	3166.25	-86	2.2	5.9	61.7	-28	7 dBm	95
6th	3799.5	-86	2.4	7.3	63.3	-27.6	7 dBm	94.6
7th	4432.75	-86	2.6	7.5	64.6	-26.3	7 dBm	93.3
8th	5066	-86	3.2	7.2	65.8	-24.2	7 dBm	91.2
9th	5699.25	-86	3.7	7.2	66.8	-22.7	7 dBm	89.7
10th	6332.5	-86	4.2	6	67.7	-20.1	7 dBm	87.1

VOLTAGES AND CURRENTS TO FINAL AMPLIFIERS

Final amplifier DC voltage and current measurements were made with the transmitter operating at 5000 Watts power output and at 1250 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 = 5000 Watts
Voltage = 32 volts
Total DC Current = 32X10= 320 amps
Final amplifier DC power input = 32 x 320 = 10240 watts

Peak Output Power = 1250 Watts
Voltage = 32 volts
Total DC Current = 32X3.5= 112 amps
Final amplifier DC power input = 32 x 112 = 3584 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		