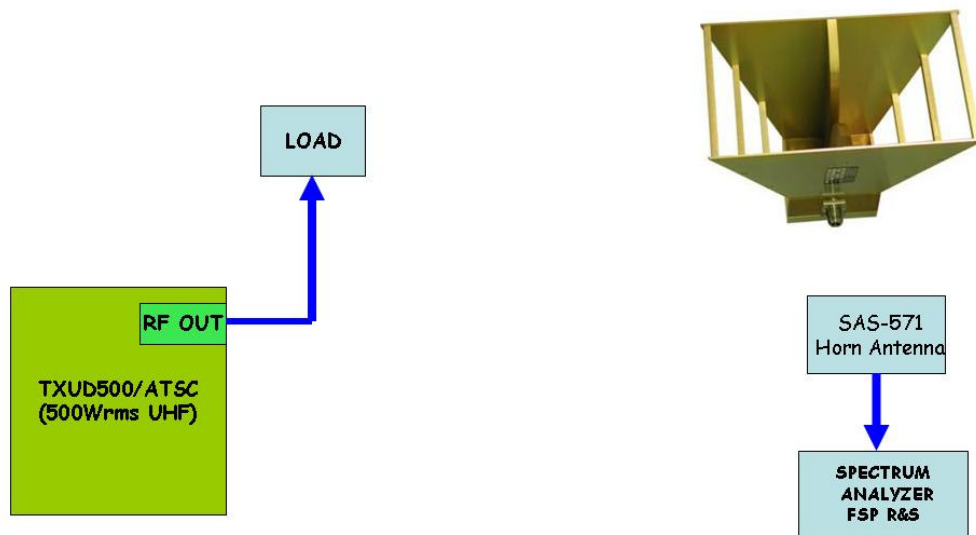


## Cabinet Radiation

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 500W average power. 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 center frequency of channel 33 (587 MHz) 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 the noise floor (approximately -93 dBm in a 500 kHz bandwidth) referenced to average power radiated from the cabinet were recorded. The values are tabulated in the table on the next page following the photo.

Test set ATSC FCC Measures - Cabinet radiations



## PHYSICAL CABINET RADIATION TEST CONFIGURATION

This photograph shows the actual laboratory environment in which the cabinet radiation tests were conducted. The SAS571 antenna is shown in the foreground and the TXUD500 is shown in the background. The transmitter was rotated 90 degrees for each of the measurement orientations.



As calculated from the spreadsheet data on the following page, the worst case measurement was 63 dB at the second harmonic (The photo above shows this particular measurement). The measurement tables for the remaining views of the transmitter are shown on the following pages.

# CABINET RADIATION MEASURED DATA

## TXUD500/ATSC XMTR CABINET RADIATION SPREADSHEET

500 Wrms

Front View

500 Wrms = 57 dBm

Corrected level must be less than -3 dBm

Distance is 10m

Harmonic	Frequency	Measured	Cable	Antenna	Path	Corrected	Required	Status
	MHz	Level	Loss	Gain	Loss	Level	Level	P=Pass
Xmit freq.	647	-51.6	0.9	6.1	48.6	-8.2	-3dBm	N/A
2nd	1294	-84.0	1.3	5	54.6	-33.1	-3dBm	P
3rd	1941	-97.0	1.8	9.5	58.2	-46.6	-3dBm	P
4th	2588	-96.0	2.0	10.6	60.7	-44.0	-3dBm	P
5th	3235	-88.0	3.0	11.2	62.6	-33.7	-3dBm	P
6th	3882	-89.0	3.0	10.9	64.2	-32.7	-3dBm	P
7th	4529	-90.0	3.4	11.5	65.5	-32.6	-3dBm	P
8th	5176	-90.0	4.2	10.8	66.7	-29.9	-3dBm	P
9th	5823	-91.0	5.0	12.3	67.7	-30.6	-3dBm	P
10th	6470	-92.0	7.7	12.1	68.6	-27.8	-3dBm	P

## TXUD500/ATSC XMTR CABINET RADIATION SPREADSHEET

500 Wrms

Left View

500 Wrms = 57 dBm

Corrected level must be less than -3 dBm

Distance is 10m

Harmonic	Frequency	Measured	Cable	Antenna	Path	Corrected	Required	Status
	MHz	Level	Loss	Gain	Loss	Level	Level	P=Pass
Xmit freq.	647	-52.1	0.9	6.1	48.6	-8.7	-3dBm	N/A
2nd	1294	-80.0	1.3	5	54.6	-29.1	-3dBm	P
3rd	1941	-96.0	1.8	9.5	58.2	-45.6	-3dBm	P
4th	2588	-93.0	2.0	10.6	60.7	-41.0	-3dBm	P
5th	3235	-88.0	3.0	11.2	62.6	-33.7	-3dBm	P
6th	3882	-89.0	3.0	10.9	64.2	-32.7	-3dBm	P
7th	4529	-90.0	3.4	11.5	65.5	-32.6	-3dBm	P
8th	5176	-91.0	4.2	10.8	66.7	-30.9	-3dBm	P
9th	5823	-91.0	5.0	12.3	67.7	-30.6	-3dBm	P
10th	6470	-92.0	7.7	12.1	68.6	-27.8	-3dBm	P

# TXUD500/ATSC XMTR CABINET RADIATION SPREADSHEET

500 Wrms Right View

500 Wrms = 57 dBm

Corrected level must be less than -3 dBm

Distance is 10m

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Status P=Pass
Xmit freq.	647	-51.8	0.9	6.1	48.6	-8.4	-3dBm	N/A
2nd	1294	-81.0	1.3	5	54.6	-30.1	-3dBm	P
3rd	1941	-97.0	1.8	9.5	58.2	-46.6	-3dBm	P
4th	2588	-93.0	2.0	10.6	60.7	-41.0	-3dBm	P
5th	3235	-89.0	3.0	11.2	62.6	-34.7	-3dBm	P
6th	3882	-89.0	3.0	10.9	64.2	-32.7	-3dBm	P
7th	4529	-89.0	3.4	11.5	65.5	-31.6	-3dBm	P
8th	5176	-90.0	4.2	10.8	66.7	-29.9	-3dBm	P
9th	5823	-91.0	5.0	12.3	67.7	-30.6	-3dBm	P
10th	6470	-92.0	7.7	12.1	68.6	-27.8	-3dBm	P

# TXUD500/ATSC XMTR CABINET RADIATION SPREADSHEET

500 Wrms Rear View

500 Wrms = 57 dBm

Corrected level must be less than -3 dBm

Distance is 10m

Harmonic	Frequency MHz	Measured Level	Cable Loss	Antenna Gain	Path Loss	Corrected Level	Required Level	Status P=Pass
Xmit freq.	647	-51.4	0.9	6.1	48.6	-8.0	-3dBm	N/A
2nd	1294	-82.0	1.3	5	54.6	-31.1	-3dBm	P
3rd	1941	-95.0	1.8	9.5	58.2	-44.6	-3dBm	P
4th	2588	-97.0	2.0	10.6	60.7	-45.0	-3dBm	P
5th	3235	-88.0	3.0	11.2	62.6	-33.7	-3dBm	P
6th	3882	-89.0	3.0	10.9	64.2	-32.7	-3dBm	P
7th	4529	-90.0	3.4	11.5	65.5	-32.6	-3dBm	P
8th	5176	-90.0	4.2	10.8	66.7	-29.9	-3dBm	P
9th	5823	-91.0	5.0	12.3	67.7	-30.6	-3dBm	P
10th	6470	-92.0	7.7	12.1	68.6	-27.8	-3dBm	P

All cabinet radiation measurements indicate the FCC rule has been met.

### Final Amplifier Voltage and Current Measurements

Final amplifier voltage and current measurements were made with the transmitter operating at 500 watts power.

Output Power = 500 Watts

Voltage = 31.7 volts

Current = 75.1 amps

Final amplifier power input = 2400 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 was within the calibration period.

EQUIPMENT & MFGR	MODEL NUMBER
Rohde Schwarz Power Sensor Meter	NRV-Z53
Level Meter	URV-35
R & S DTV Analyzer	ETL
Rohde Schwarz Spectrum Analyzer	FSP
Elettronika Bandstop Filter	N/A
Elettronika Highpass filter	N/A
A H Systems Horn Antenna	SAS571
Bird Dummy Load	8251
Humidifier Cuoghi NEB-5000	No Number
Thermal detector CAREL IR32c	No Number
Humidity detector CAREL S90HP	No Number
Thermal Chamber (-20 °C / 60 °C) Assembled by COTER	N/A