

**Exhibit 15 Cabinet Radiation**

2.1053 MEASUREMENTS REQUIRED: FIELD STRENGTH OF SPURIOUS RADIATION.

(a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of § 2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emissions with reference to the rated power output of the transmitter, assuming all emissions are radiated from half-wave dipole antenna.

2.1057 FREQUENCY SPECTRUM TO BE INVESTIGATED

(a) In all the measurements set forth in §§ 2.1051 and 2.1053, the spectrum shall be investigated from the lowest ratio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

**Broadcast Electronics Response**

The Emco receive antenna was placed ten meters from the AM-2.5E transmitter. Four readings were taken. The first was with the transmitter turned off to acquire the ambient signals received by the antenna. The transmitter was then operated to a power level of 2500 Watts. The next three readings were obtained by observing the radiation from the Front, Right and Left side of the transmitter.

The FCC cabinet radiation limit line on the chart was calculated based on the gain of the receive antenna and the FCC radiation limit calculated below.

Radiation Reference = Square Root (49 \* Power)/Distance  
= Square Root (49\*2500)/10  
= 35.1 Volts / Meter  
= 150.9 dBuV / M

The Radiation limit is 77 dB below this value or 73.9 dBuV / M.

The antenna gain correction factors are given below.

Frequency (MHz)	Electric Antenna Factor (dB)
.5	52.6
1.0	47.9
3.0	39.5
5.0	36.5
10.0	35.6

Specification compliance testing factor to be added to receiver meter reading in dBuV to convert to equivalent electric field intensity in dBuV/meter.

The radiation limit taking into account the antenna factor would then be:

$$\text{Radiation Limit} = 73.9 - \text{Antenna Factor}$$

Frequency (MHz)	Radiation Limit (dBuV / M)
.5	21.3
1.0	26.0
3.0	34.4
5.0	37.4
10.0	38.3

Exhibit A shows a plot of the ambient radiation. This plot was taken with the AM-2.5E transmitter turned off. The plot shows three signals that are above the noise floor. Two are local radio stations (WGEM 1440 kHz, WTAD 930 kHz) and the other is an unknown source around 770 kHz.

Exhibit A-F, A-R, A-L show spectrum analyzer plots of the AM-2.5E with the Front, Right and Left sides facing the receive antenna. The transmitter was operated at 2500 Watts. There is no detectable radiation coming from the AM-2.5E transmitter.

AM-2.5E 0w  
11-1-99

10:30:14 NOV 01, 1999

MARKER  
1.993 MHz  
11.28 dBµV

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 1.993 MHz  
11.28 dBµV

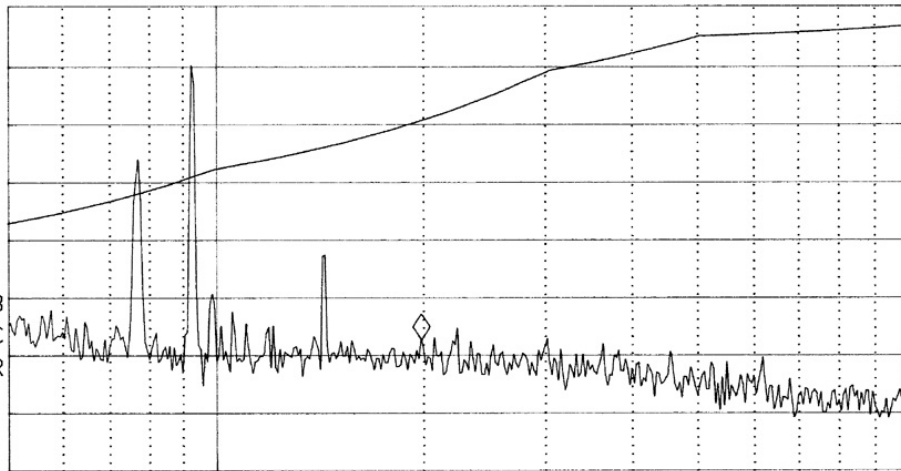
CLEAR  
WRITE A

MAX  
HOLD A

LOG REF 40.0 dBµV

5  
dB/  
#ATN  
0 dB

MA SB  
SC FC  
CORR



VIEW A

BLANK A

Trace  
A B C

More  
1 of 4

START 500 kHz

#IF BW 9.0 kHz

AVG BW 30 kHz

STOP 10.000 MHz

SWP 729 msec

DIF

Exhibit 15A

Front AM-25E 2500W  
11-1-99

10:41:46 NOV 01, 1999  
*hp*

MARKER  
1.993 MHz  
9.97 dBμV

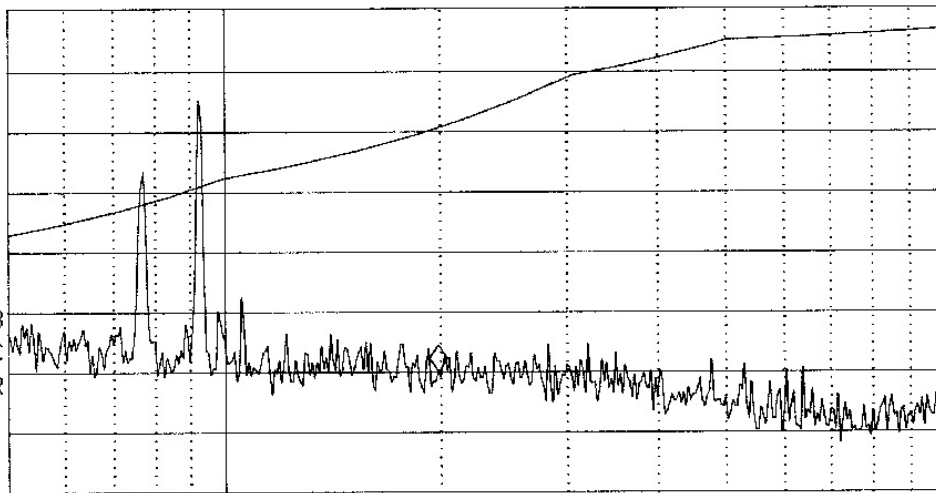
ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 1.993 MHz  
9.97 dBμV

CLEAR  
WRITE A  
MAX  
HOLD A

LOG REF 40.0 dBμV

S  
dB/  
#ATN  
0 dB

MA SB  
SC FC  
CORR



VIEW A  
BLANK A

Trace  
A B C

More  
1 of 4

START 500 kHz

#IF BW 9.0 kHz

AVG BW 30 kHz

STOP 10.000 MHz

SWP 729 msec

Exhibit 15A-F

R. J. H. AM-2.5E 2500W  
11-1-99

10:36:08 NOV 01, 1999

MARKER  
1.993 MHz  
11.42 dB $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 1.993 MHz  
11.42 dB $\mu$ V

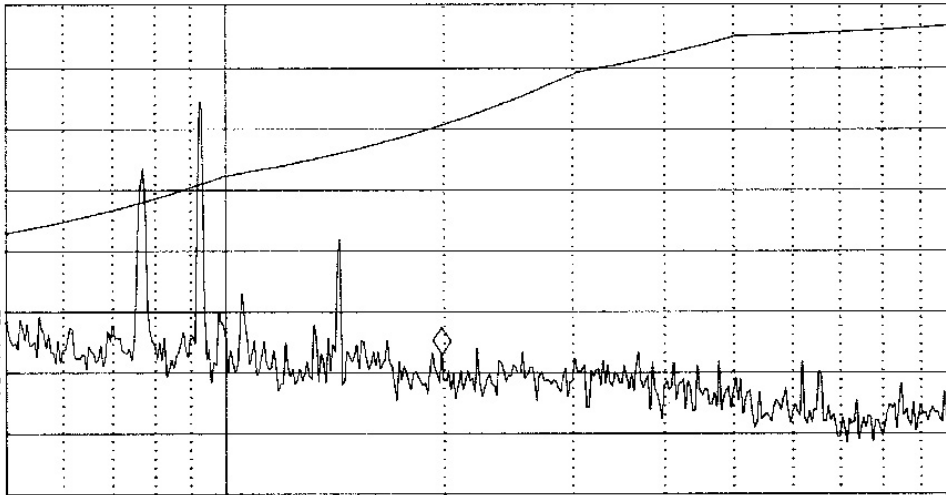
CLEAR  
WRITE A

MAX  
HOLD A

LOG REF 40.0 dB $\mu$ V

5  
dB/  
#ATN  
0 dB

MA SB  
SC FC  
CORR



VIEW A

BLANK A

Trace  
A B C

More  
1 of 4

START 500 kHz      STOP 10.000 MHz  
#IF BW 9.0 kHz      AVG BW 30 kHz      SWP 729 msec

Exhibit 15A-R

Left AM-2.5E 2500W  
11-1-99

10:46:52 NOV 01, 1999

MARKER  
1.993 MHz  
8.84 dB $\mu$ V

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 1.993 MHz  
8.84 dB $\mu$ V

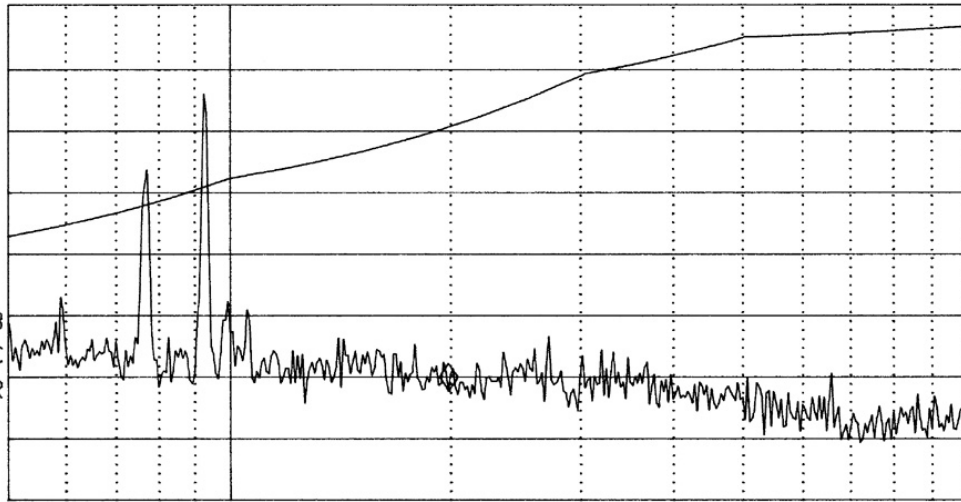
CLEAR  
WRITE A

MAX  
HOLD A

LOG REF 40.0 dB $\mu$ V

5  
dB/  
#ATN  
0 dB

MA SB  
SC FC  
CORR



VIEW A

BLANK A

Trace  
A B C

More  
1 of 4

START 500 kHz

#IF BW 9.0 kHz

AVG BW 30 kHz

STOP 10.000 MHz

SWP 729 msec

Exhibit 15A-L