MX800 Base Station Test Information

Note: All tests follow TIA / EIA 603 Procedures

Measurements made by :

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or

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Radiated Measurements at
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1516 Centre Circle
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2.1033(c) Equipment Measured:

MX800 base station model number: MX800R2R3HNSZ1CD RF Base Station and Repeater
Serial Number : 01119999
Transmitter Frequency Range: 746 to 764 MHz

External Power Supply was used as the equipment has no internal power supply and operates on 13.8 VDC.

Transmitter Requirements:

Test Frequency = 746.000MHz at CH-1
Test Frequency = 755.000MHz at CH-2
Test Frequency = 764.000MHz at CH-3 or 4

2.1046(a) Carrier Output Power:

Results;

Channel 1 = 49.7W
Channel 2 = 49.8W
Channel 4 = 49.8W

Output level is the same with Channel or DC voltage +/- 10% (corrected by ALC loop)

2.1055 (a) (1) **Frequency Stability vs Voltage Variation**

Standard: EIA 4.2.2.3 Voltage variation +-15%

The power supply voltage was varied from 85% to 115% of the nominal voltage of 13.8vDC as measured at the input to the MX800.

Ambient Temperature = +24°C

Measurement Results
Limit, ppm = 1
Limit, Hz = 755

STV, %	Vdc	Change in Frequency, Hz	
85	**11.7**	**755000000**	**-0.5**
100	**13.8**	**755000000**	**0.0**
115	**15.9**	**755000000**	**+0.5**

2.1055 (b) (1) Standard Test Method: EIA 4.2.2.3 Temperature variation –30ºC to +60ºC

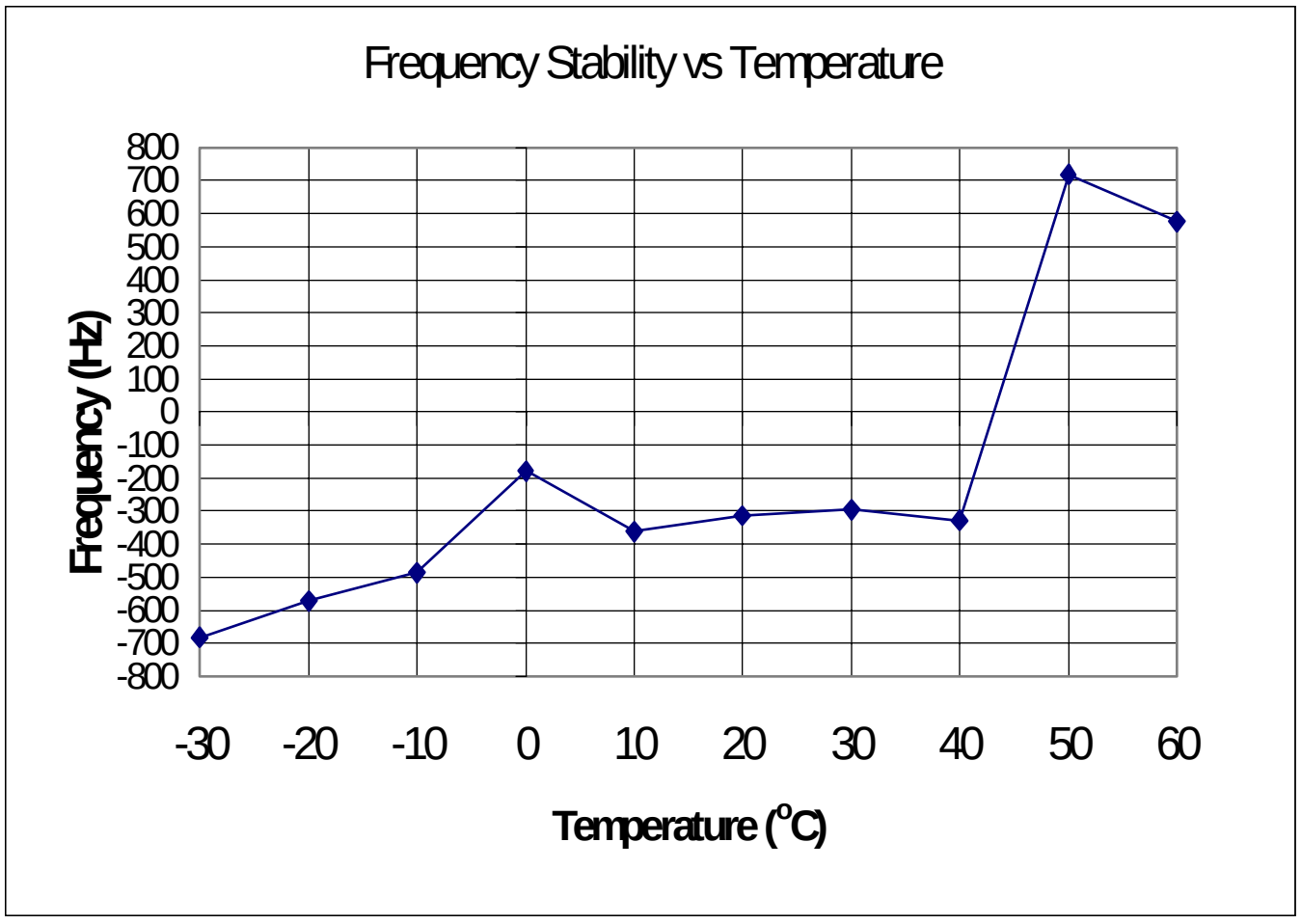
Standard: EIA 4.2.2.3 Temperature variation –30°C to +60°C

The MX800 was placed in a temperature chamber with the power supply voltage set at 13.8vDC as measured at the input to the MX800.

Table 1 Frequency Stability versus Temperature

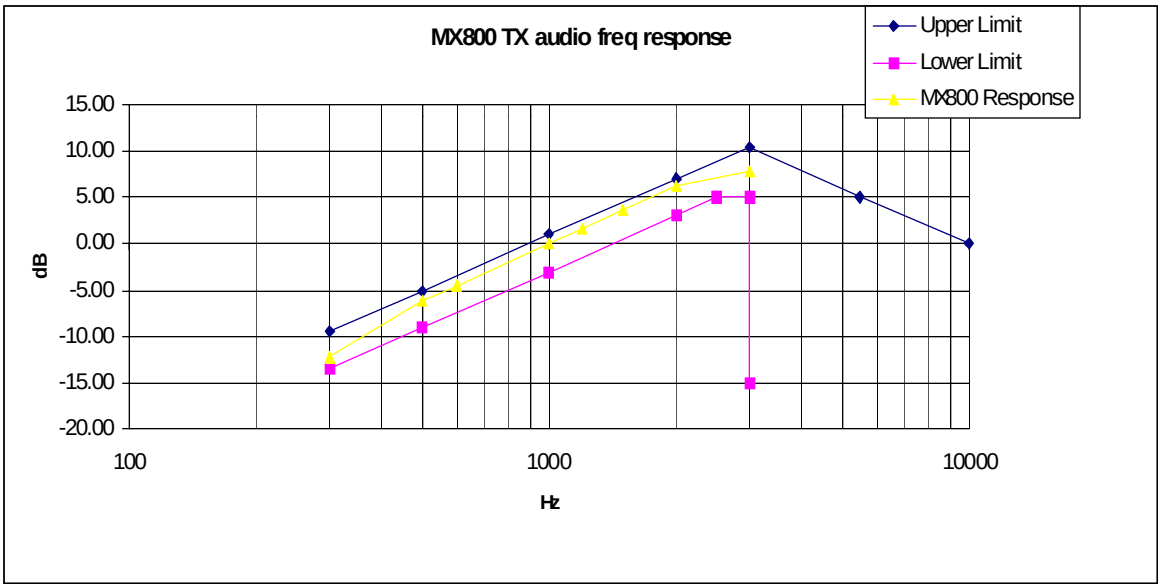
Measurement Results
Limit, ppm = ± 1
Limit, Hz = ± 755

STV, °C	Channel Frequency	Frequency Variation, Hz
-30	755000000	-683
-20	755000000	-570
-10	755000000	-486
0	755000000	-179
10	755000000	-360
20	755000000	-313
30	755000000	-295
40	755000000	-327
50	755000000	+717
60	755000000	+575



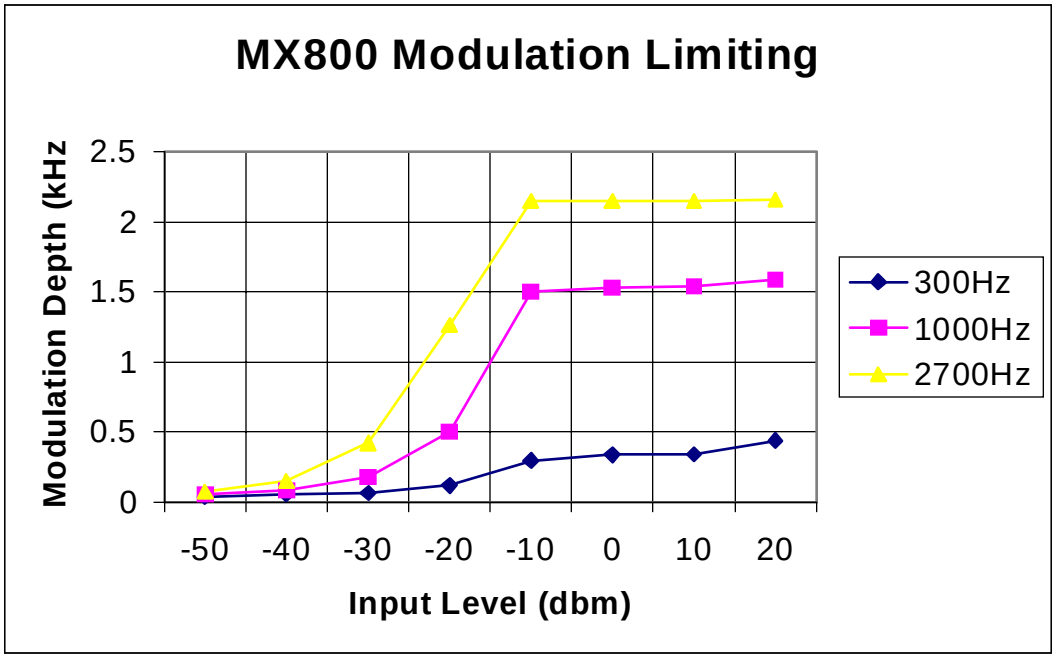
2.1047 (a) Audio Frequency Response: **300Hz—3kHz**

300Hz : ***-12.3dB*** **(EIA +1dB / -3dB from 6dB per Octave)**
500Hz : ***-6.05dB***
600Hz : ***-4. 45dB***
1200Hz : ***+1.65dB***
1500Hz : ***+3.59dB***
2000Hz : ***+6.22dB***
3000Hz : ***+7.86dB***



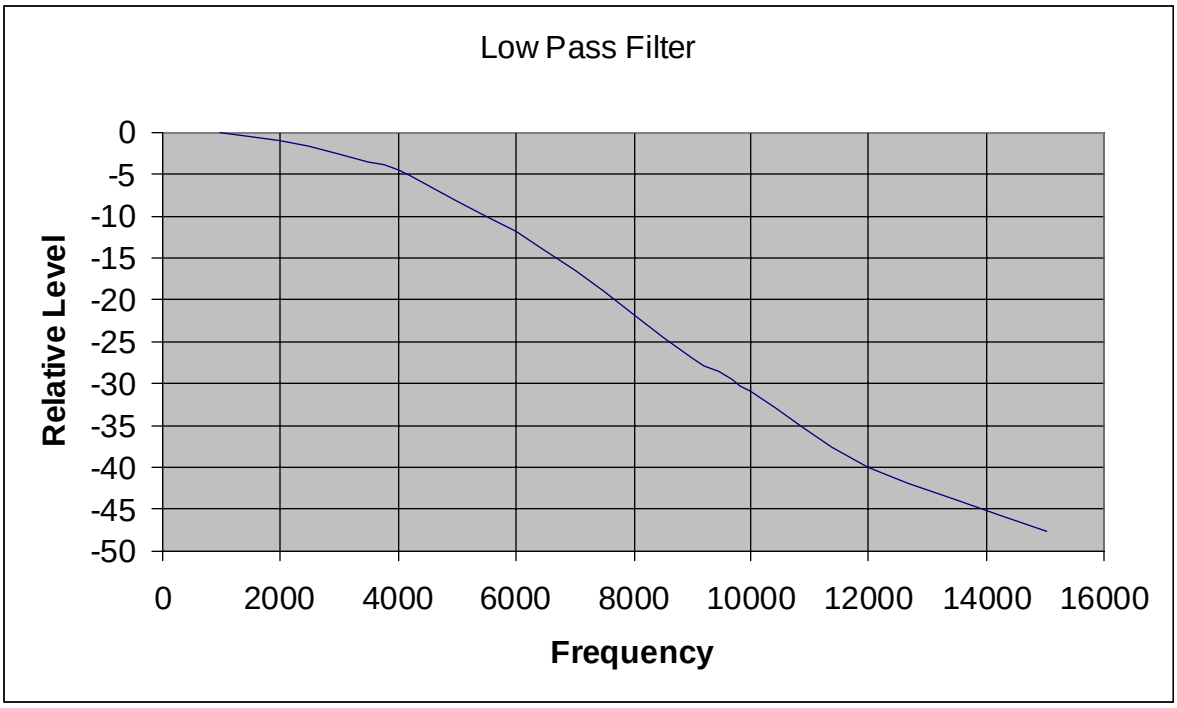
2.1047 (b) **Modulation Limiting**

Maximum Frequency Deviation: = ***+/- 2.40KHz***
(**EIA** ±2.5KHz)



2.1047 (a) **Low Pass Filter Response:**

Frequency (Hz)	Response (dB)
1000	0
2000	-0.9
3000	-2.5
4000	-4.6
5000	-8
6000	-12
7000	-16.5
8000	-22
9000	-27
10000	-31
12000	-40
15000	-47.7

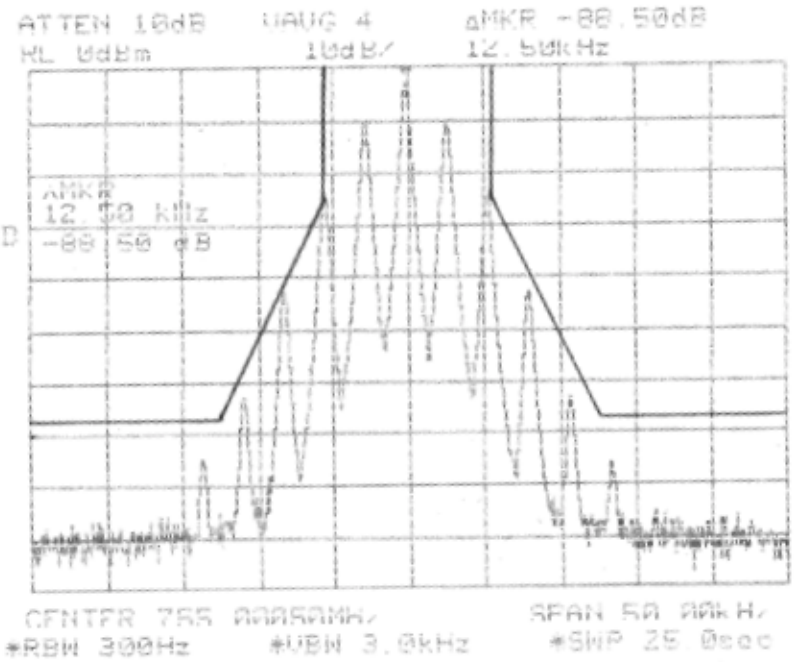


2.1053(a) Field Strength of Spurious Emissions

Attached as a separate document from Elite Electronic Engineering, Inc.

2.1049(a)(1) Emission Mask (Occupied Bandwidth)

Sideband Spectrum:	**6.25kHz < fd ≤ 12.0kHz Att.=25dB**	=	***25.0dB***
	12.25kHz < fd ≤ 25kHz Att.=35dB	=	***75dB***
	25kHz < fd Att.=> 80dB	=	***90dB***



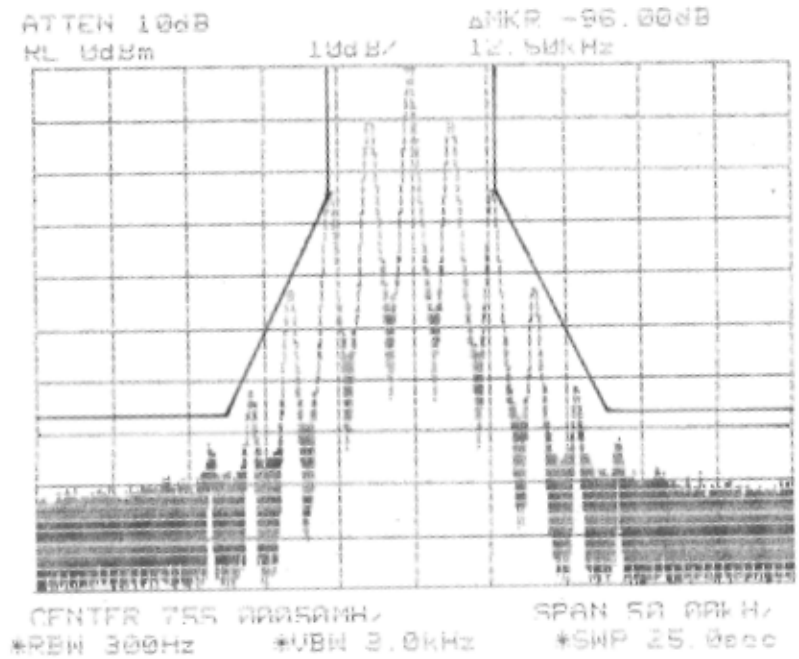


Figure 2: Side Band Spectrum

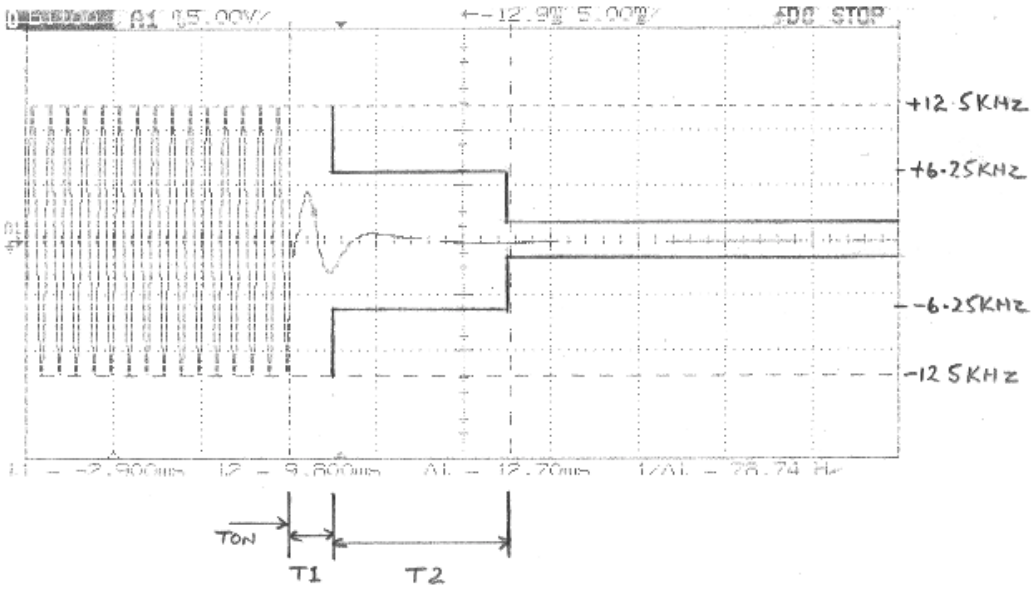
2.1049(a)(1) **Unwanted Emissions (Transmitter Conducted)**

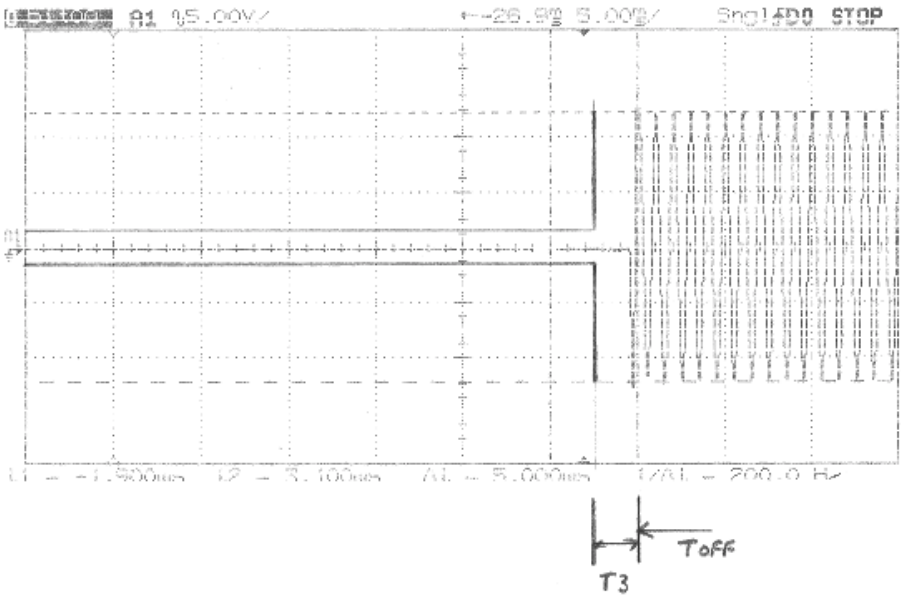
Measurements made per TIA/EIA-603A, paragraph 2.2.13 out to the tenth harmonic. All harmonics were more than 20 dB below the -13 dBm equivalent level. The only measurable harmonic was the second harmonic which was measured at ***-58dBm.*** This would be -105 dBc referenced to the 50 watt carrier.

90.214 Transient Frequency Behaviour

t1 = 5ms	< ±12.5kHz	=	***Pass***
t2 = 12.5ms	< ±6.25kHz	=	***Pass***
t3 = 5ms	< ±12.5kHz	=	***Pass***

2.202 (g) Emission Bandwidth





Maximum Modulation Frequency = 3 kHz
Maximum Deviation = 2.5 kHz
Constant (k) = 1

Bandwidth = (2xM) + (2xDxk)
11.0 kHz

Emission Designator = 11K0F3E

12.5 kHz Base Transmitter ACPR Requirements

Offset from Center Frequency (kHz)	Nominal Resolution Bandwidth (Hz)	Measurement Bandwidth (kHz)	Maximum ACPR (dB)	Measured ACPR (dB) Lower	Measured ACPR (dB) Upper
9.375 With modulation	100	6.25	40	55.0	57.0
9.375 With mod and no compressor	100	6.25	40	49.0	53.0
9.375 NO MOD	100	6.25	40	62.8	64.9
15.625 NO MOD or MOD	100	6.25	60	76.3	76.8
21.875	100	6.25	60	79.3	79.8
37.50	300	25.00	60	78.4	78.4
62.50	300	25.00	65	82.1	84.1
87.50	300	25.00	65	84.1	84.1
150.00	1000	100.00	65	84.0	84.0
250.00	1000	100.00	65	87.0	87.0
>400 to paired RX Band	30000	30 (swept)	80	94 to 105	94 to 105
In paired RX Band	30000	30 (swept)	100	105 to 110	105 to 110

Measurements conducted by Rick MaCallen Technician
Supervised by Gary Jacobs Engineer.

Equipment used:
HP8901B Modulation Analyzer with HP8644B LO source for offsets to 250kHz
HP8594E Spectrum Analyzer with custom built 2 cavity notch filter for offsets 400kHz to 40MHz.

Receiver Test Requirements: Test Frequency = 785.000MHz at CH-2

Results;

Conducted Spurious Radiation: (< **-57dBm**) ***-90dBm***

4.1.2.3 (EIA < -87dBW = -57dBm