

MX800 Base Station Test Information

Note: All tests follow TIA / EIA 603 Procedures

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Measurements made by :

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or

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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 -30°C to +60°C

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.

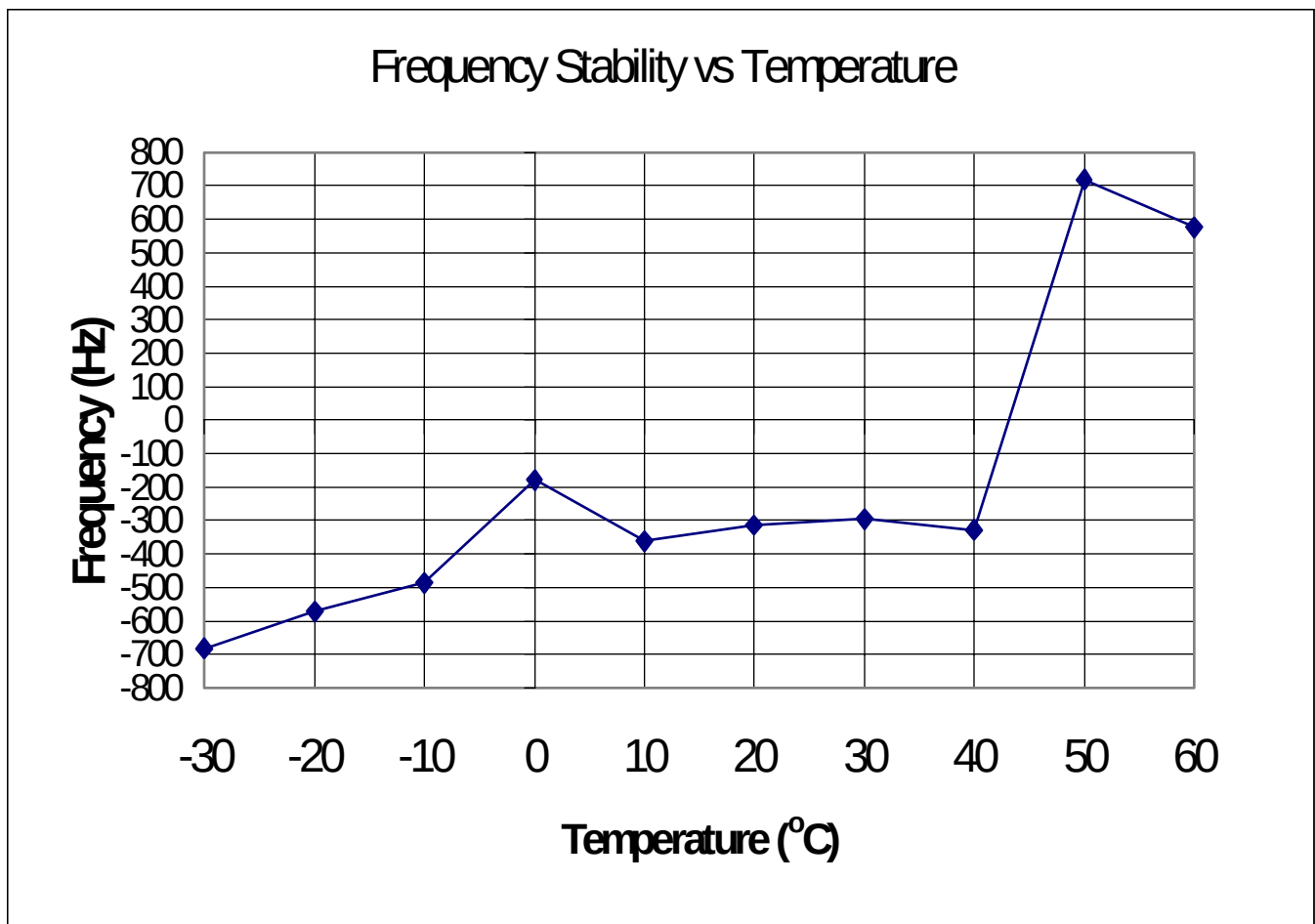
Table 1 Frequency Stability versus Temperature

Measurement Results

Limit, ppm = ± 1

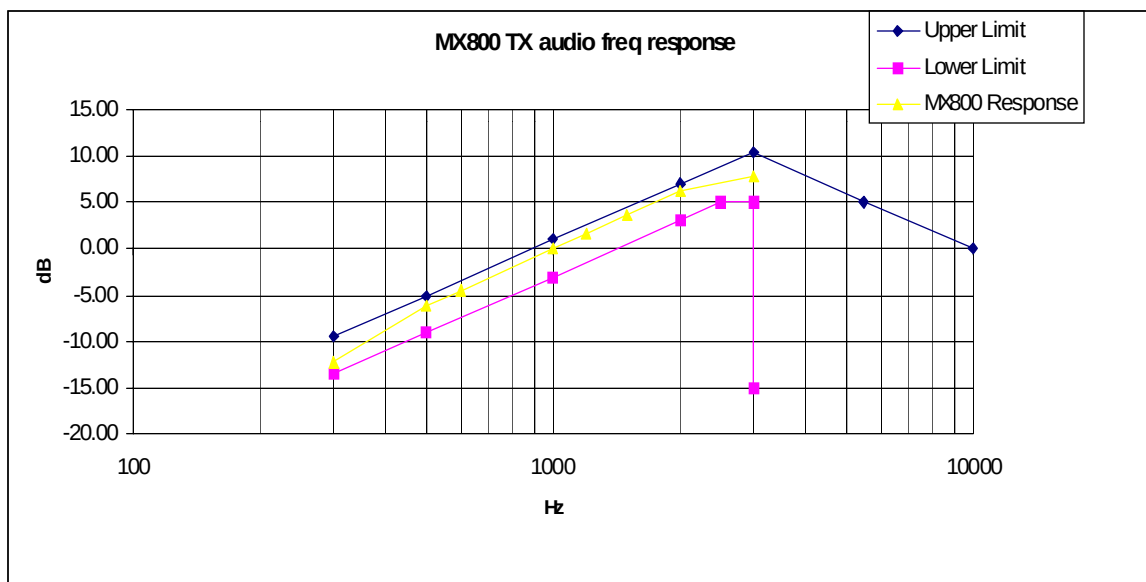
Limit, Hz = ± 755

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



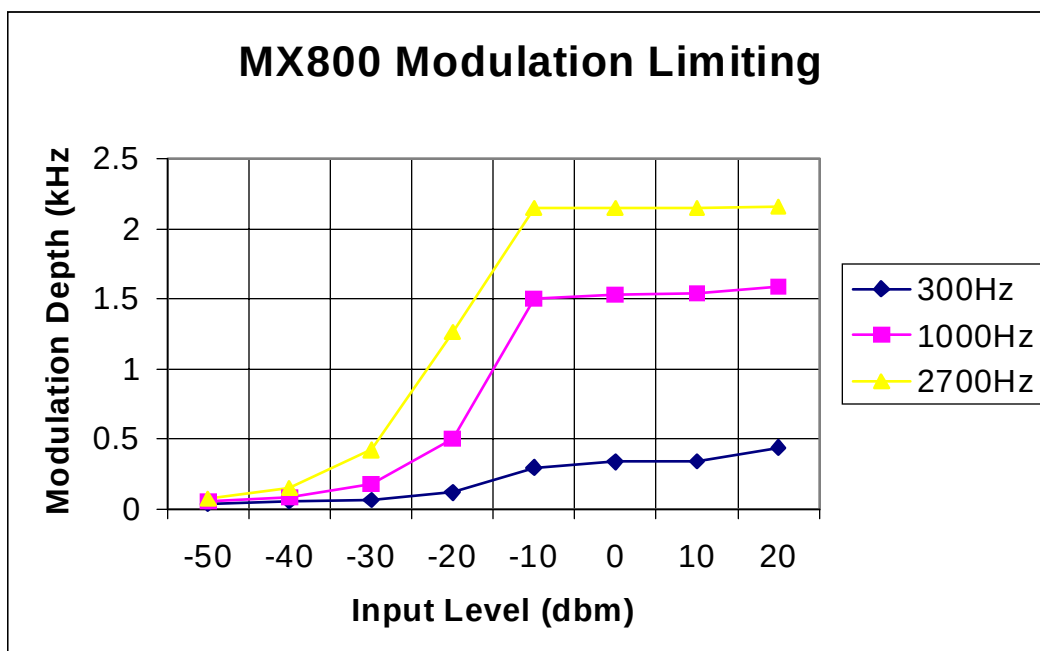
2.1047 (a) Audio Frequency Response: 300Hz—3kHz

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	



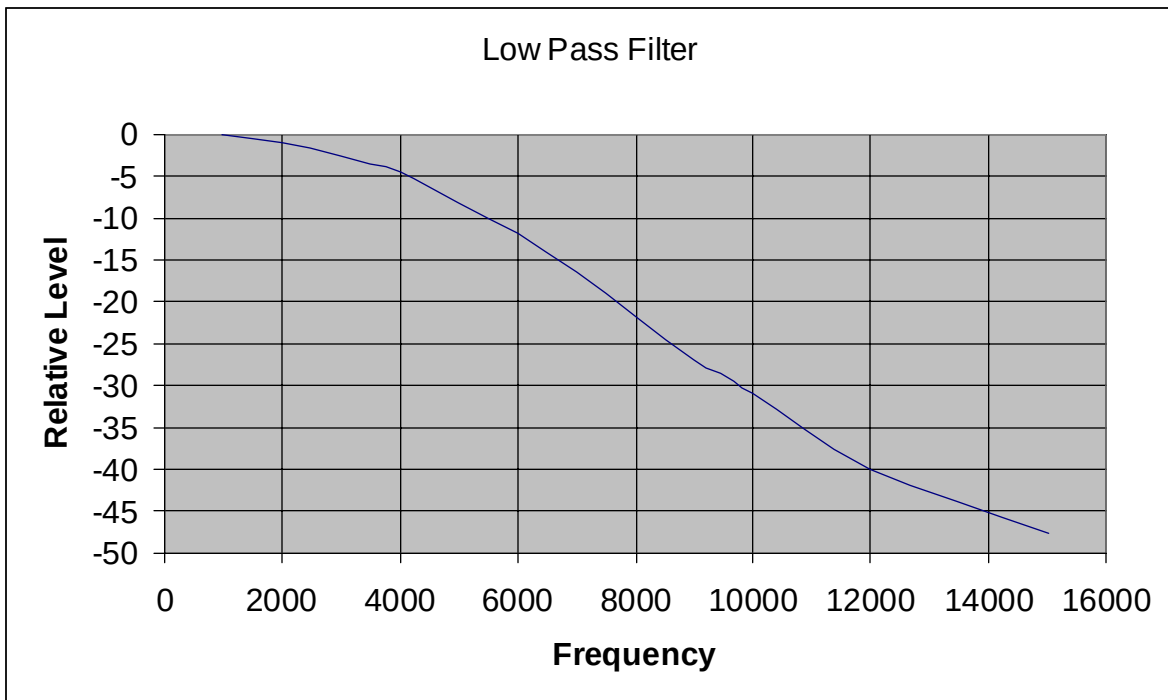
2.1047 (b) Modulation Limiting

Maximum Frequency Deviation: = **+/- 2.40KHz**
(EIA $\pm 2.5\text{KHz}$)



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:	$6.25\text{kHz} < f_d \leq 12.0\text{kHz}$	Att.=25dB	=	25.0dB
	$12.25\text{kHz} < f_d \leq 25\text{kHz}$	Att.=35dB	=	75dB
	$25\text{kHz} < f_d$	Att.=> 80dB	=	90dB

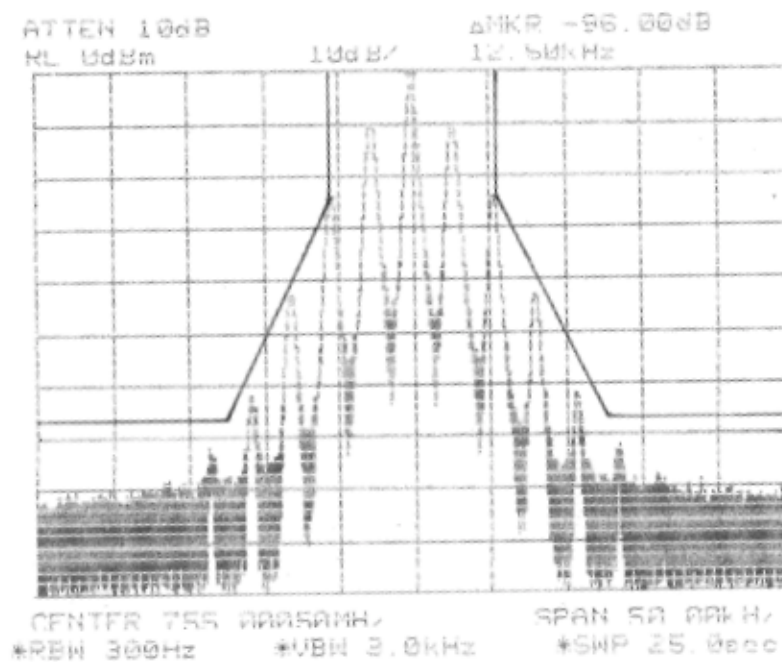
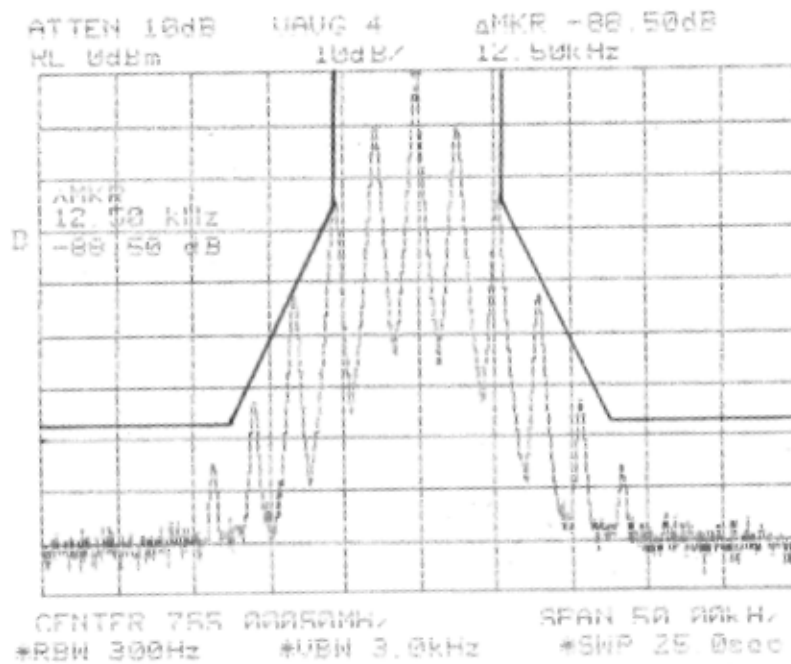


Figure 2: Side Band Spectrum

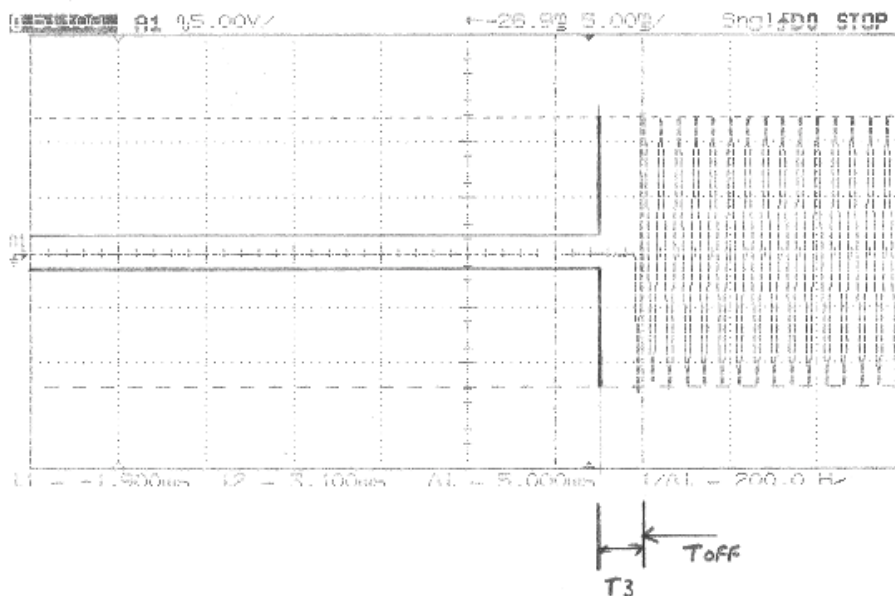
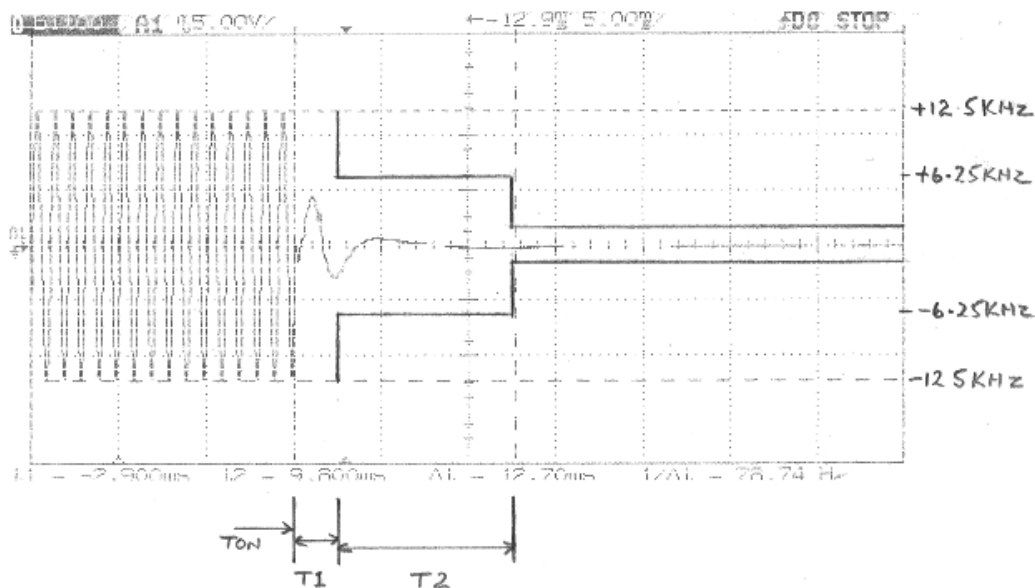
2.1049(a)(1) Unwanted Emissions (Transmitter Conducted)

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



Test By :

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

Conducted Spurious Radiation: (< -57dBm)

4.1.2.3 (EIA < -87dBW = -57dBm)

Results;
-90dBm