MX800 Base Station FCC ID: OKRMX800AB Type Approval

Test Report

Measurements made by :

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or

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Equipment Measured:

MX800 base stations (3)

A2 Frequency Range 30 to 43 MHz
A3 Frequency Range 43 to 50 MHz
B Frequency Range 72 to 76 MHz

Equipment being submitted for type acceptance as a 'family' group as the assemblies have common PCBs and differ by component values.

2.1046 (a) Carrier Output Power:

A2 Band ***Results;***

Ch-1 = ***50W***
Ch-2 = ***50.5W***
Ch-3 = ***50.5W***

Test Frequency: 30.100Mhz at Ch-1, 34.500MHz at Ch-2, 38.900MHz at Ch-3
Output level is the same with DC voltage +/- 10% (corrected by ALC loop)

A3 Band ***Results;***

Ch-1 = ***51.4W***
Ch-2 = ***51.4W***
Ch-3 = ***51.1W***

Test Frequency: 42.500Mhz at Ch-1, 44.500MHz at Ch-2, 46.500MHz at Ch-3
Output level is the same with DC voltage +/- 10% (corrected by ALC loop)

B Band Results:

Ch-1 = ***51W***
Ch-2 = ***50.4W***
Ch-3 = ***51.2W***

Test Frequency: 72.020MHz at Ch-1, 74.000MHz at Ch-2, 75.980MHz at Ch-3
Output level is the same with DC voltage +/- 10% (corrected by ALC loop)

2.1051 Unwanted Emissions

A2 Band Results:
Conducted Spurious Emissions: Maximum specification level = 60 dBc by calculation
Test Frequency: 30.100Mhz at Ch-1, 34.500MHz at Ch-2, 38.900MHz at Ch-3

At Ch-1 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-1 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)
At Ch-2 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-2 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)
At Ch-3 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-3 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)

A3 Band Results:
Conducted Spurious Emissions: Maximum specification level = 60 dBc by calculation
Test Frequency: 42.500Mhz at Ch-1, 44.500MHz at Ch-2, 46.500MHz at Ch-3

At Ch-1 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-1 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)
At Ch-2 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-2 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)
At Ch-3 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)
At Ch-3 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)

B Band Results:

Conducted Spurious Emissions: Maximum specification level = 60 dBc by calculation

Test Frequency: 72.020MHz at Ch-1, 74.000MHz at Ch-2, 75.980MHz at Ch-3

At Ch-1 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)

At Ch-1 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)

At Ch-2 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)

At Ch-2 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)

At Ch-3 = Greater Than *100dBc* (Measurement of : RF Carrier 2nd Harmonic up to 10th Harmonic)

At Ch-3 = Greater Than *105dBc* (Measurement of : Other Spurious RF Frequency up to 1000MHz)

2.1053 (a) Field Strength of Spurious Radiation

Separate report is attached.

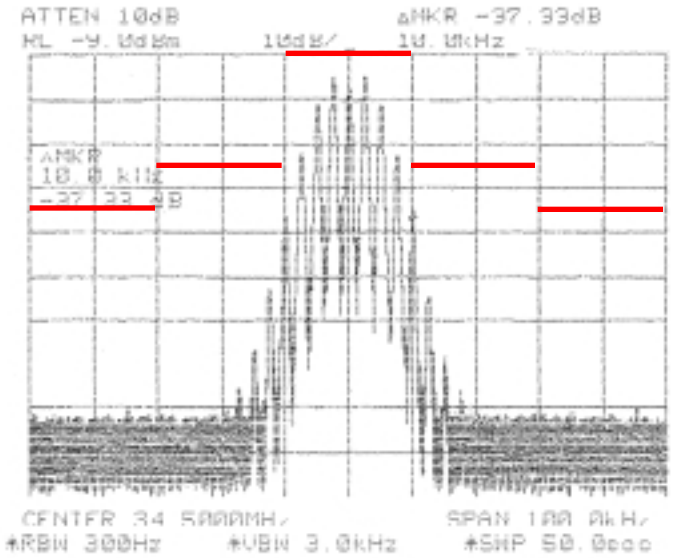
2.1049 (c) (1) Emission Mask Meausrements

The limiter and low pass filters are the same on all units as a common controller/limiter/filter assembly is used. As modulation is also set on this same board, the spectrum is the same on all units.

10kHz < fd ≤ 20kHz Att.=25dB = ***36dB***

20kHz < fd ≤ 50kHz Att.=35dB = ***98dB***

50kHz < fd Att.= > 80dB = ***98dB***

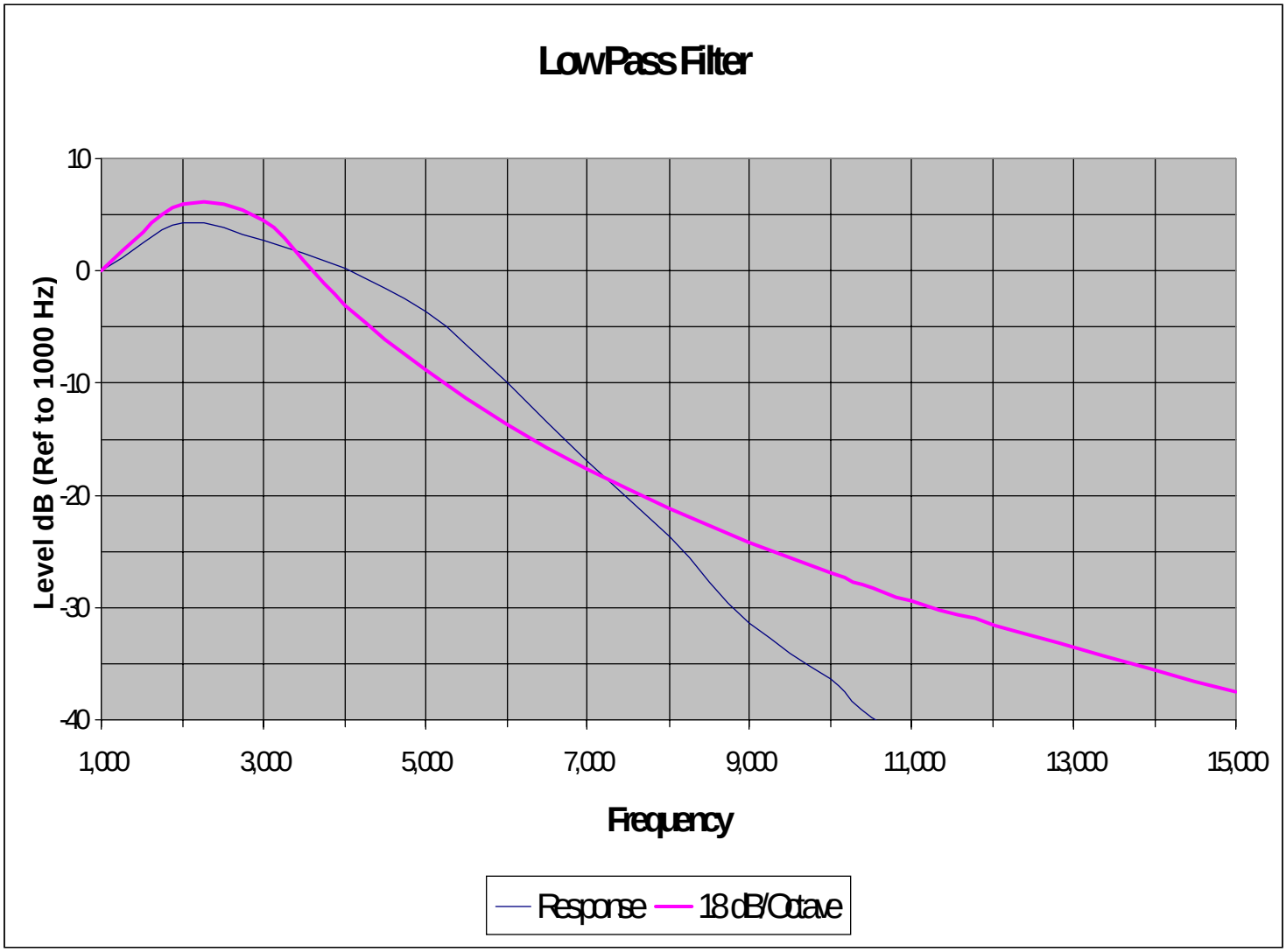


2.1047 (a) Audio Low Pass Filter

Low pass filter is the same on all units as a common limiter/filter assembly is used. Response is shown below with an 18 dB/octave filter shown for reference.

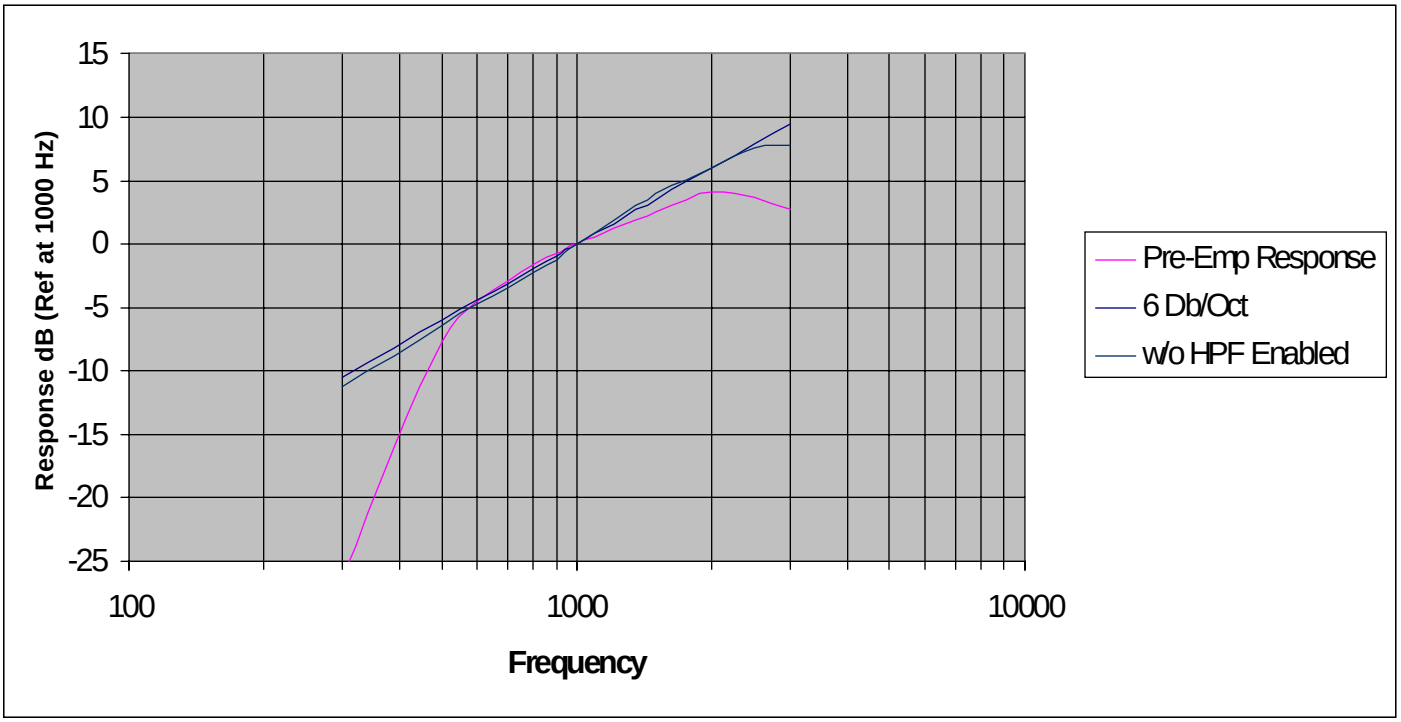
Audio Input : Line Input Port Audio Output : IC-24 Pin-7

Frequency	Level	Frequency	Level
1000	0	7000	-17
2000	4.2	8000	-23.6
3000	2.6	9000	-31.3
4000	0.1	10000	-36.3
5000	-3.7	11000	-41.8
6000	-10	15000	-49



Audio Frequency Response: **300Hz—3kHz** = ***300Hz : -15dB***

500Hz :	***-6.37dB***
600Hz :	***-4.64dB***
1200Hz :	***+1.63dB***
1500Hz :	***+3.62dB***
2000Hz :	***+6.12dB***
3000Hz :	***+7.36dB***



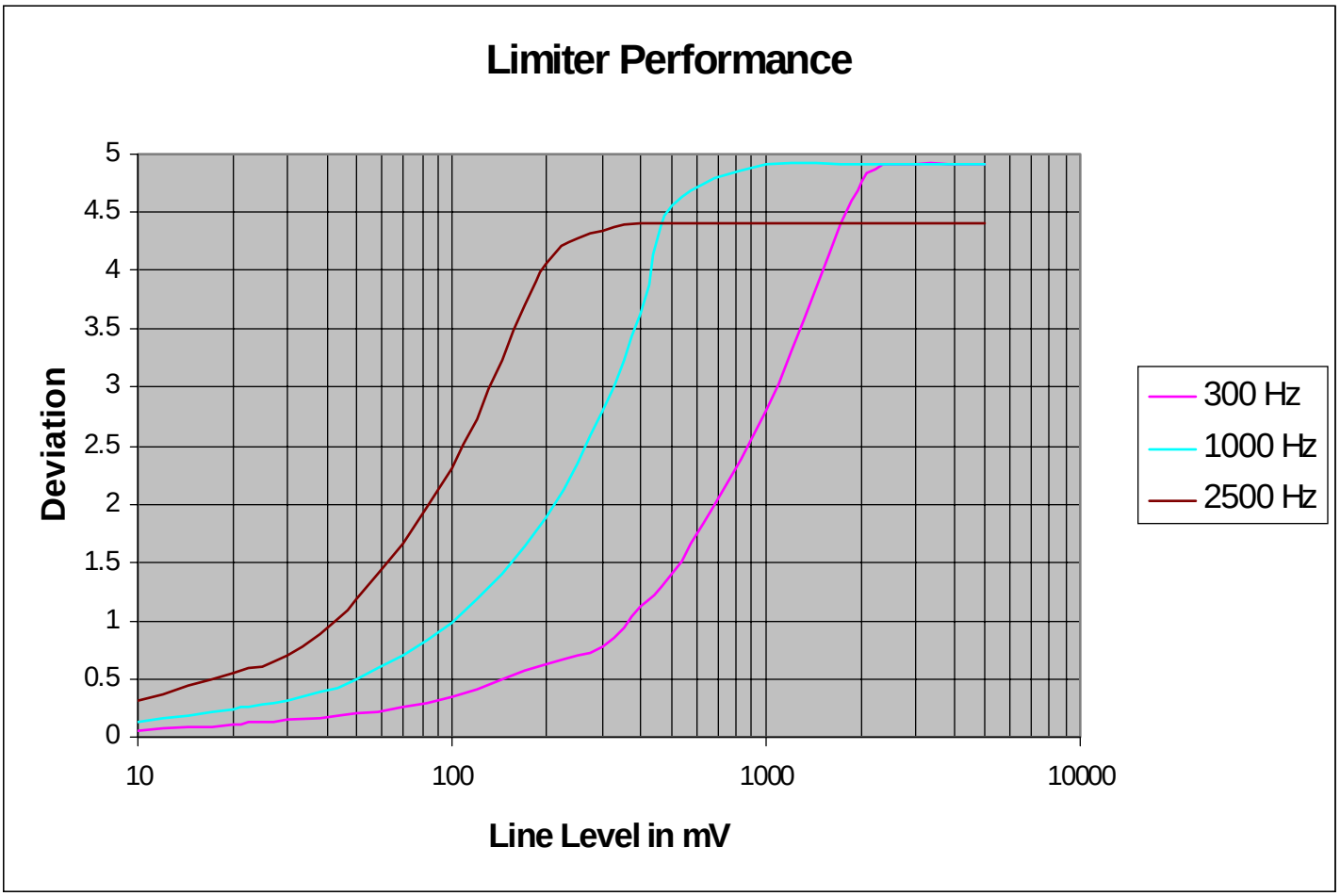
2.1047 (b) Modulation Limiting

The limiter is the same on all units as a common limiter/filter assembly is used. Limiter function is shown below on a channel setup for A5.0 kHz deviation maximum.

(Tested at ADRad Communications)

Measured Frequency Deviation: = ***+/- 4.82KHz***

Limiter Performance shown below:



2.1055 (a) (1) Frequency Stability

A2 Unit Frequency Error = + 5 Hz

No variation with input DC voltage variation of +/- 15%. TCXO driven by regulated power source.

A3Unit Frequency Error = - 52 Hz

No variation with input DC voltage variation of +/- 15%. TCXO driven by regulated power source.

A2 Unit Frequency Error = + 130 Hz

No variation with input DC voltage variation of +/- 15%. TCXO driven by regulated power source.

2.1055 (b) (1)

A +/- 5 ppm oscillator is used in all units.

A2 Unit Carrier Frequency Stability:	at	-30°C	=	***+23Hz***
(Limit +/- 20 ppm = A690 Hz)		-20°C	=	+127Hz
Tested at 34.5 MHz		-10°C	=	***+156Hz***
		+0°C	=	***+147Hz***
		+10°C	=	***+100Hz***
		+20°C	=	***+39Hz***
		+30°C	=	***-32Hz***
		+40°C	=	***-102Hz***
		+50°C	=	***-133Hz***
A3 Unit Carrier Frequency Stability:	at	-30°C	=	***-275Hz***
(Limit +/- 20 ppm = A890 Hz)		-20°C	=	***-88Hz***
Tested at 44.5 MHz		-10°C	=	***-22Hz***
		+0°C	=	***+12Hz***
		+10°C	=	***+4Hz***
		+20°C	=	***-33Hz***
		+30°C	=	***-84Hz***
		+40°C	=	***-136Hz***
		+50°C	=	***-143Hz***
B Unit Carrier Frequency Stability:	at	-30°C	=	***+210Hz***
(Limit +/- 5 ppm = A370 Hz)	-20°C	=	***+204Hz***	
Tested at 74.0 MHz		-10°C	=	***+196Hz***
		+0°C	=	***+205Hz***
		+10°C	=	***+191Hz***
		+20°C	=	***+150Hz***
		+30°C	=	***+107Hz***
		+40°C	=	***+78Hz***
		+50°C	=	***+66Hz***

90.213 Transient Frequency Behavior of Transmitter:

Although transient is not required, these measurements were made as part of normal qualification testing.

t1 = 10ms	< ±25kHz	=	***Pass***
t2 = 25ms	< ±12.5kHz	=	***Pass***
t3 = 10ms	< ±25kHz	=	***Pass***

Information is shown on the next page in graphic format.