

Test Report... FCC ID: O78SCU99BL

**Assembled from Manufacture Measurements performed to EIA/TIA-603
and
Measurements made at ADRad Communications, Inc.**

2 May 2001

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1.0 Specification Information

Model Numbers:	SCU99BL, SCU32BL, or SCU08B (Same RF and controller)	
Number of Channels:	99, 32, or 8 channels dependent on model number.	
Frequency Range:	450 to 480 MHz	
Channel Spacing:	12.5 or 25 kHz	
Transmitter Power Output	1 or 4 watt, user or programmer selectable. (± 1 dB)	
Battery Voltage:	7.5 volts	
Current Drain:	Tx...	1450 mA @ 4 watts
		750 mA @ 1 watt
	Rx...	160 mA @ 2 50 mW of Rx audio
		50 mA @ standby
Antenna Impedance:	50 Ohms	
Frequency Stability:	± 2.5 ppm	
Temperature Range:	-30°C to $+60^{\circ}\text{C}$	
Nominal Battery Voltage:	7.5 VDC (6 cells NiCad or NMHy)	
Emission Designations:	12.5 kHz Channel	(2x2.5kHz deviation)+(2x3kHz) 11k0F3E
	25.0 kHz Channel	(2x5.0kHz deviation)+(2x3kHz) 16k0F3E
	for 3 kHz maximum modulation frequency	

All measurements made to TIA/EIA-603 procedures

2.0 RF Power Output

At 5 watt Output Level

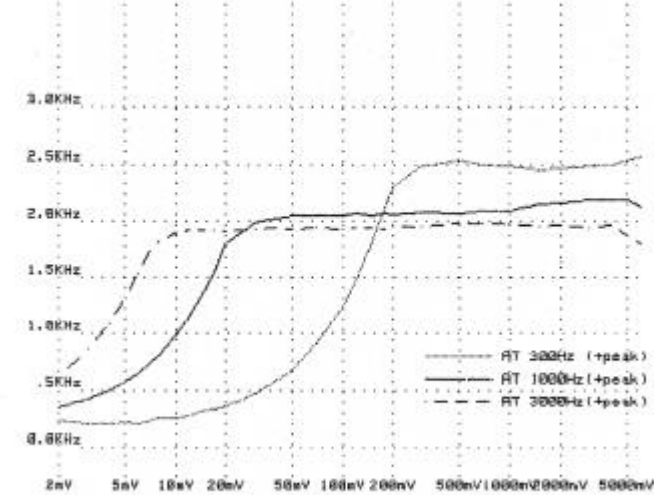
<i>DC Voltage @ -15%</i>	<i>DC Voltage @ Nominal 7.5 VDC</i>	<i>DC Voltage @ +15%</i>
4.0 Watts	4.2 Watts	4.2 Watts

At 1 watt Output Level

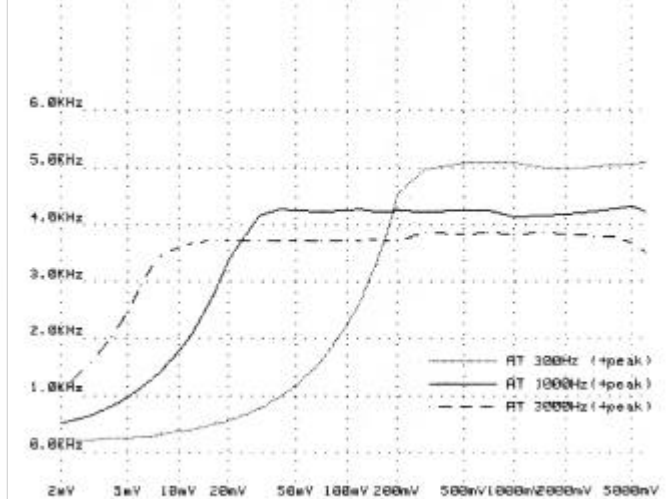
<i>DC Voltage @ -15%</i>	<i>DC Voltage @ Nominal 7.5 VDC</i>	<i>DC Voltage @ +15%</i>
0.9 Watts	0.95 Watts	1.00 Watts

3.0 Modulation Characteristics

Mic input level , Mic input Frequency US Deviation [GRAPH]
NP022001 01 168.8500MHz 1.80u 7.500 HU 22 Jan 2000 06:54:53 Room Temperature



Mic input level , Mic input Frequency US Deviation [GRAPH]
NP022001 01 168.8500MHz 1.80u 7.500 HU 25 Nov 1999 13:14:01 Room Temperature



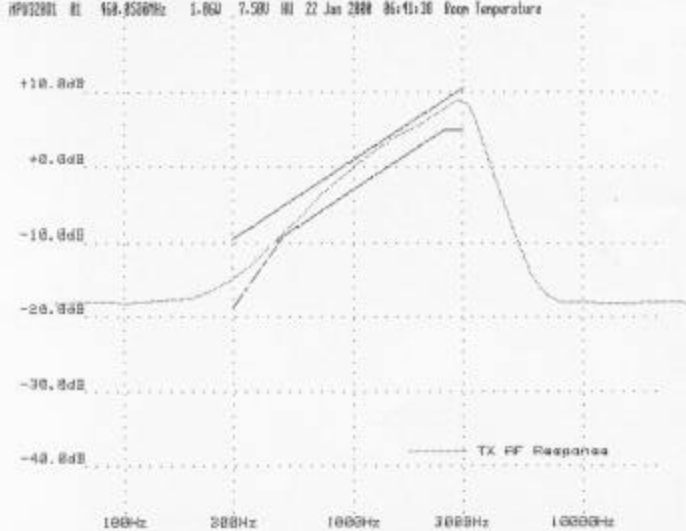
Mic input level , Mic input Frequency US Deviation [TABLE]
NP022001 01 168.8500MHz 1.80u 7.500 HU 22 Jan 2000 06:55:34 Room Temperature

Mic input level [mV]	Mic input frequency Deviation of 300Hz [KHz]	Mic input frequency Deviation of 1000Hz [KHz]	Mic input frequency Deviation of 3000Hz [KHz]
2.0	+ Peak .23	- Peak .21	+ Peak .34
3.0	.20	.16	.42
4.0	.21	.16	.50
5.0	.22	.18	.58
6.0	.21	.20	.65
7.0	.23	.22	.74
8.0	.25	.21	.81
10.0	.25	.24	.99
12.0	.27	.26	1.15
15.0	.32	.28	1.39
17.0	.33	.30	1.54
20.0	.36	.33	1.80
30.0	.47	.43	1.99
40.0	.59	.55	2.02
50.0	.69	.65	2.04
70.0	.85	.80	2.05
100.0	1.10	1.05	2.07
120.0	1.48	1.44	2.07
150.0	1.81	1.81	2.08
180.0	2.13	2.11	2.08
200.0	2.45	2.43	2.08
300.0	4.08	4.06	2.09
500.0	5.53	5.50	2.09
700.0	5.59	5.56	2.09
1000.0	5.59	5.56	2.09
1500.0	4.55	4.53	1.85
2000.0	4.46	4.45	1.85
3000.0	4.46	4.45	1.85
4000.0	5.00	5.00	1.85
5000.0	5.63	5.63	1.85
6000.0	5.67	5.67	1.85

Mic input level , Mic input Frequency US Deviation [TABLE]
NP022001 01 168.8500MHz 1.80u 7.500 HU 25 Nov 1999 13:14:45 Room Temperature

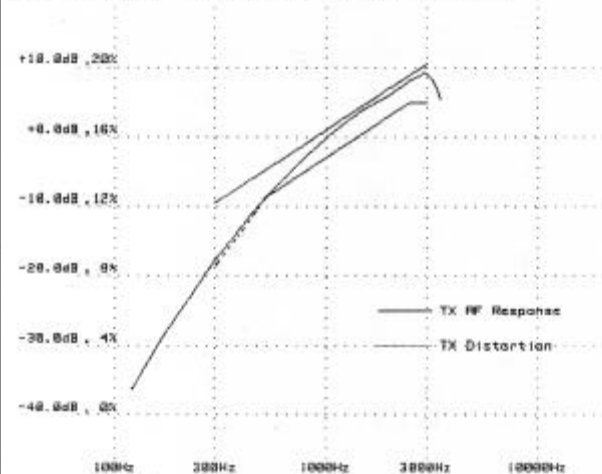
Mic input level [mV]	Mic input frequency Deviation of 300Hz [KHz]	Mic input frequency Deviation of 1000Hz [KHz]	Mic input frequency Deviation of 3000Hz [KHz]
2.0	+ Peak .23	- Peak .23	+ Peak .50
3.0	.21	.16	.65
4.0	.24	.23	.80
5.0	.26	.26	.96
6.0	.27	.25	1.12
7.0	.28	.28	1.28
8.0	.31	.33	1.44
10.0	.37	.33	1.77
12.0	.39	.39	2.08
15.0	.46	.43	2.56
17.0	.50	.49	2.89
20.0	.55	.53	3.38
30.0	.76	.75	4.15
40.0	.97	.96	4.27
50.0	1.17	1.15	4.25
70.0	1.60	1.57	4.24
100.0	2.23	2.22	4.25
120.0	2.66	2.64	4.27
150.0	3.32	3.30	4.24
180.0	3.98	3.96	4.24
200.0	4.54	4.53	4.25
300.0	4.98	4.97	4.24
500.0	5.08	5.06	4.25
700.0	5.09	5.01	4.25
1000.0	5.09	5.06	4.25
1500.0	4.99	4.91	4.15
2000.0	4.98	4.90	4.18
3000.0	5.01	5.19	4.24
4000.0	5.03	5.09	4.27
5000.0	5.06	4.88	4.31
6000.0	5.08	4.83	4.22

TX Audio Response [Constant input level] [GRAPH]
NP022001 01 168.8500MHz 1.80u 7.500 HU 22 Jan 2000 06:55:36 Room Temperature

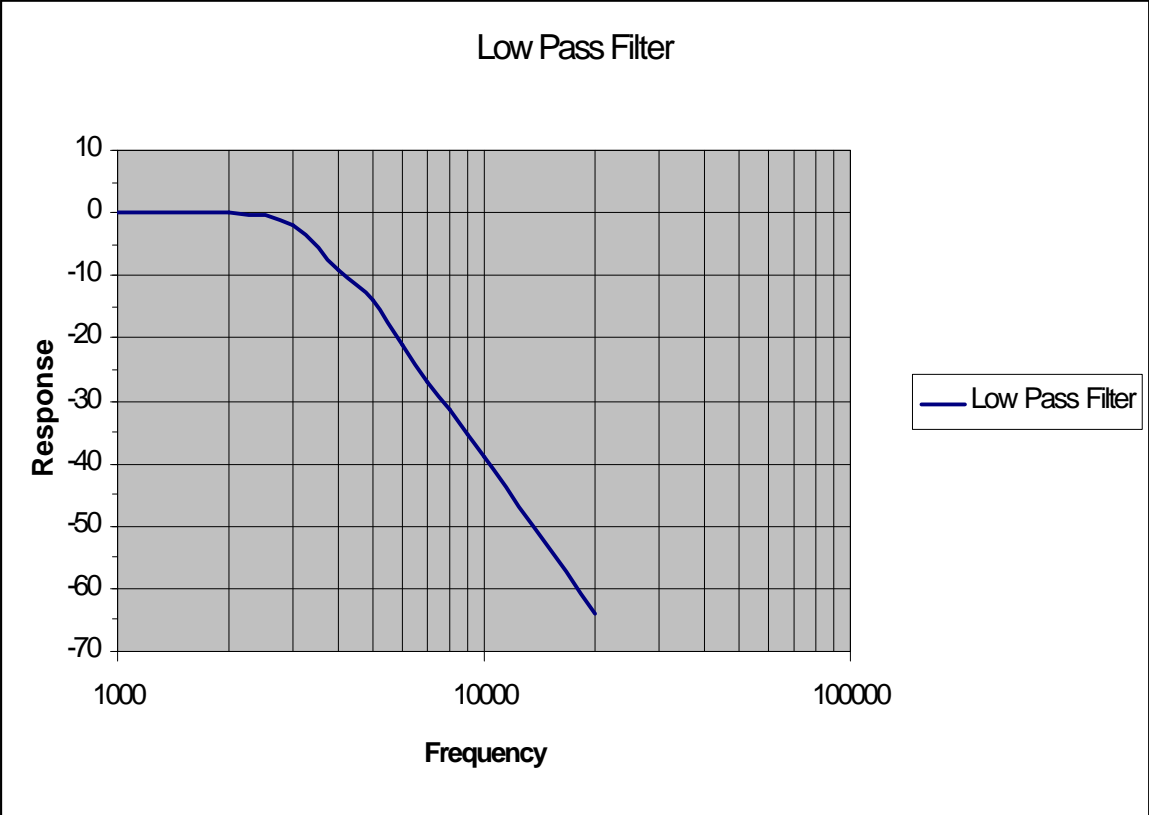


Narrow Band Mode

TX Audio Response [Constant deviation] & TX Distortion [GRAPH]
NP022001 01 168.8500MHz 1.80u 7.500 HU 25 Nov 1999 13:58:15 Room Temperature

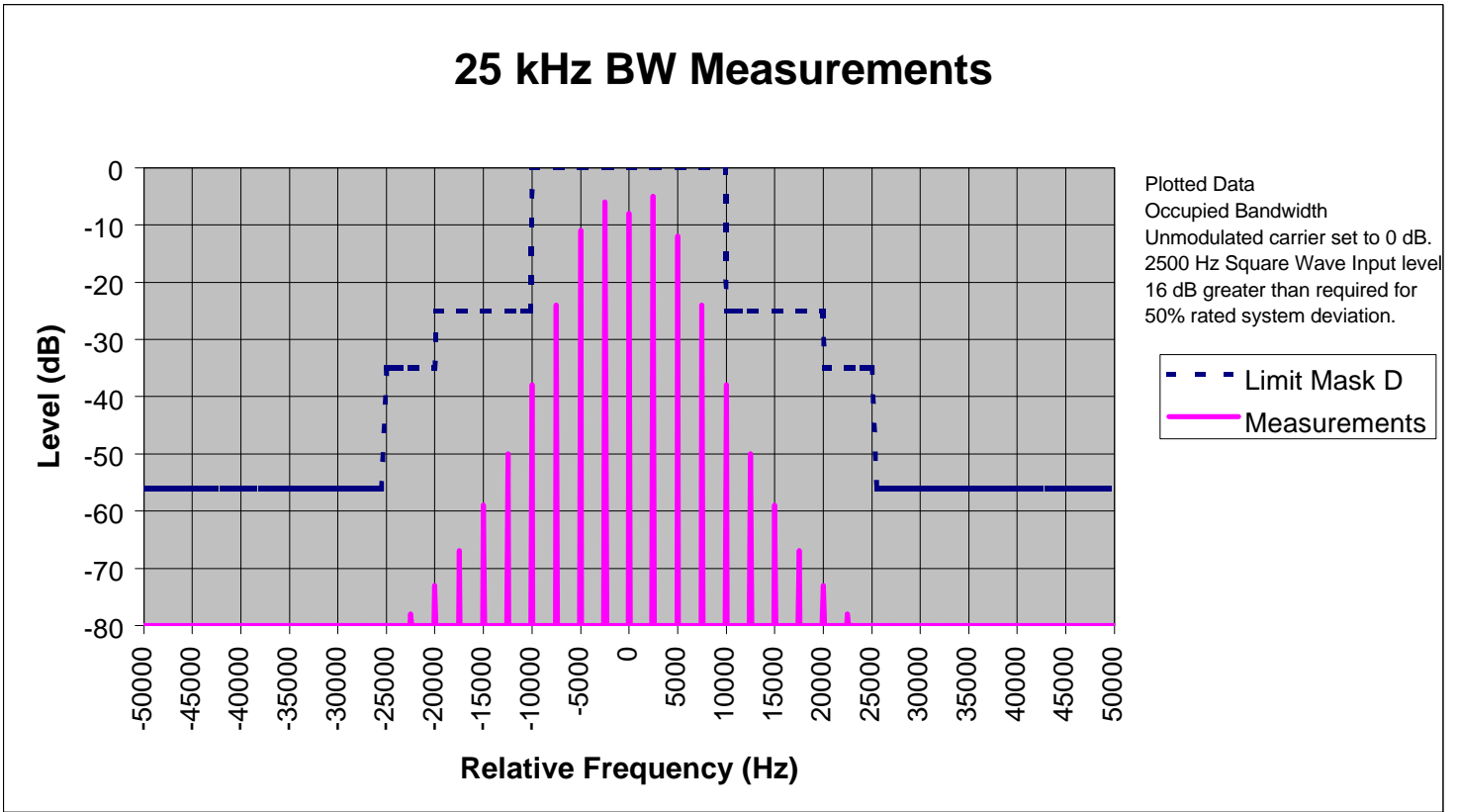
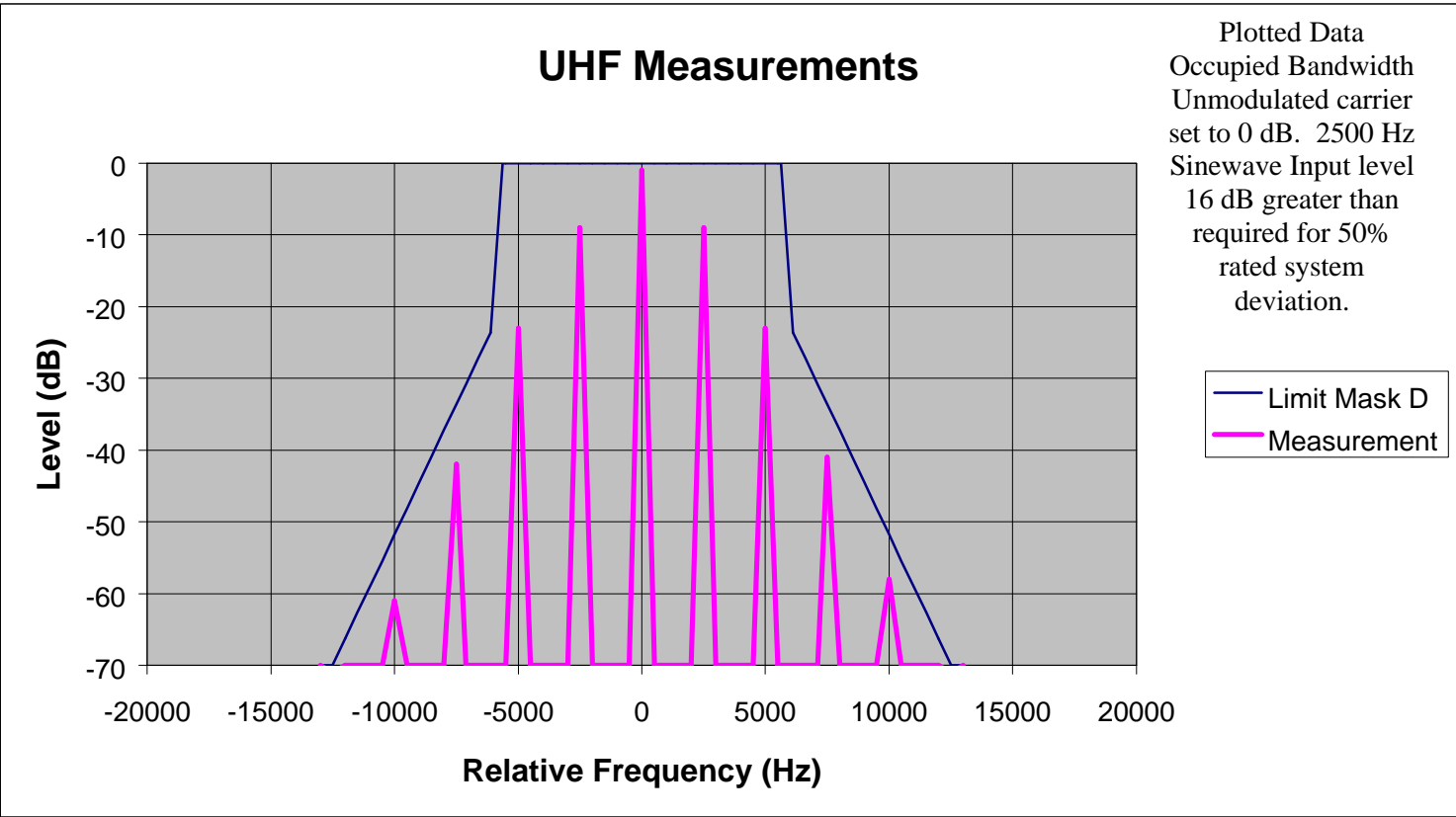


Wide Band Mode



4.0 Occupied Bandwidth

Plotted from data taken.
12.5 kHz Bandwidth Measurements



5.0 Spurious Emissions (Conducted)

Requirement is – 56 dBc at the 4 watt level, -50 dBc at the one watt level.

CHANNEL SPACING	: 12.5 KHz	TEST METHOD	: EIA
SYSTEM DEVIATION	: 2.5 KHz	TEST DEVIATION	: 1.5 KHz
SUPPLY VOLTAGE	: 7.50 Volts		
RATED AUDIO POWER	: .10 Watts		
SPK IMPEDANCE	: 8.0 Ohms		
Test Operator	: HU	1st IF	-34.300MHz
Measurement Date	: 20 Jan 2000	2nd IF	-455.000KHz
Issued Date	08:08:27 / 20 Jan 2000		

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----- TX -----
SERIAL NUMBER 01 01 01 01
TEMPERATURE °C +25.0 +25.0 +25.0 +25.0
RF FREQUENCY MHz 450.0500 460.0500 470.0500 480.0500
TEST VOLTAGE V 7.50 7.50 7.50 7.50
CARRIER POWER W 4.07 4.02 4.11 3.99
POWER DOWN 1min X -.78 -1.45 -2.20 -1.40
POWER DOWN 3min X -.84 -2.44 -3.75 -3.27
MOD LIMIT (+) KHz 2.07 2.20 2.14 1.72
MOD LIMIT (-) KHz 1.97 2.04 1.97 1.73
SPURIOUS 1 dB -71.0 -75.2 -72.0 -72.5
  at RF FREQ MHz 449.970 460.147 469.943 480.130
SPURIOUS 2 dB -73.3 -75.7 -72.7 -72.7
  at RF FREQ MHz 450.133 460.227 470.142 480.155
SPURIOUS 3 dB -83.0 -82.2 -82.7 -82.3
  at RF FREQ MHz 450.717 460.717 471.217 478.550
SPURIOUS 4 dB -81.8 -82.8 -82.7 -82.3
  at RF FREQ MHz 205.025 456.716 463.249 511.253
SPURIOUS 5 dB -70.7 -68.3 -67.3 -65.2
  at RF FREQ MHz 916.964 933.780 950.630 967.514

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Spurious with four watt
output, dBc ref to
fundamental.

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----- ( LOW POWER ) -----
CARRIER POWER W 1.13 1.10 1.14 1.18
SPURIOUS 1 dB -78.2 -78.3 -75.2 -78.0
  at RF FREQ MHz 431.883 463.550 470.383 495.550
SPURIOUS 2 dB -75.3 -77.3 -77.3 -77.0
  at RF FREQ MHz 205.025 565.060 534.656 701.938
SPURIOUS 3 dB -63.3 -62.3 -60.7 -64.3
  at RF FREQ MHz 916.964 933.780 1908.871 967.514

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Spurious with One watt
output, dBc ref to
fundamental

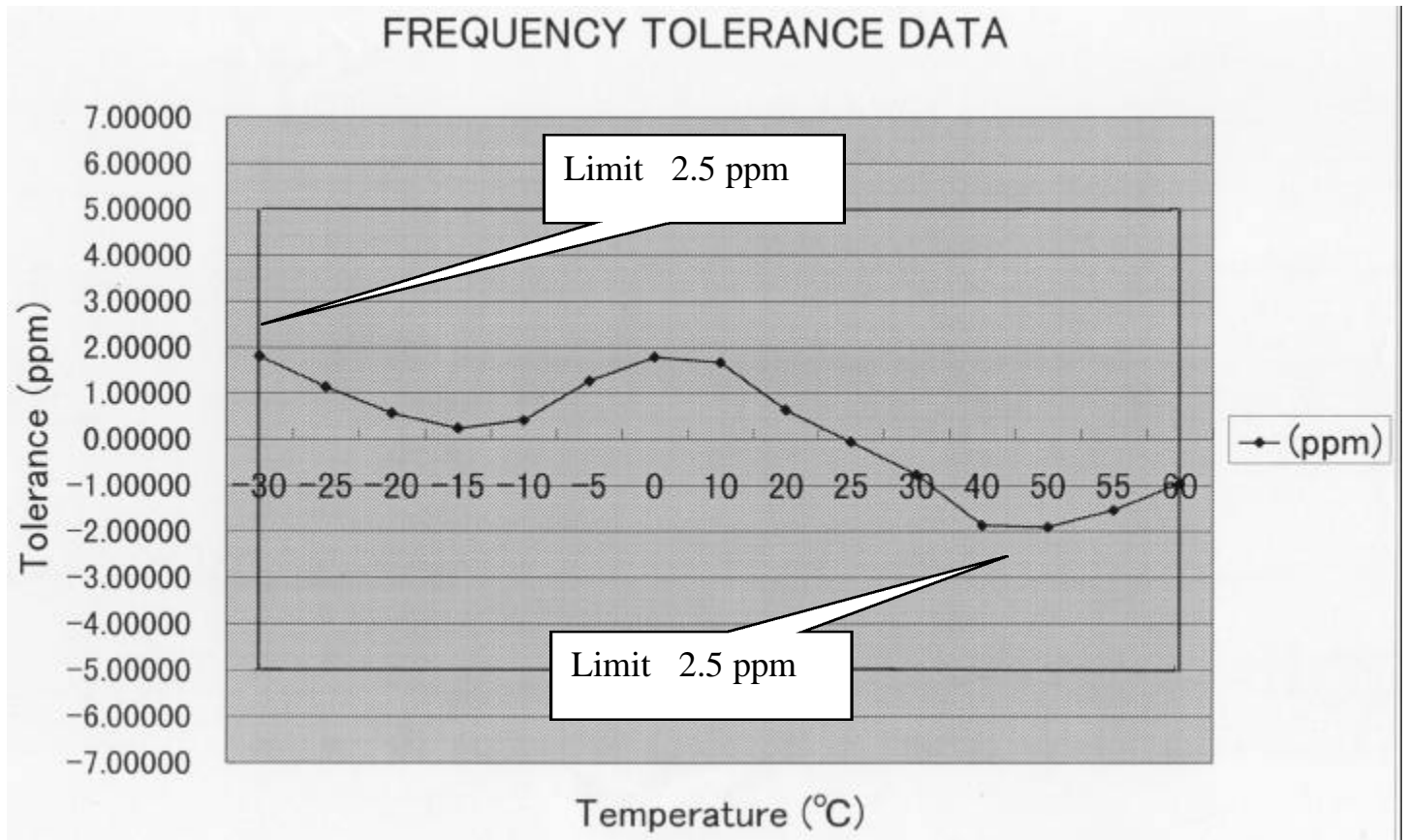
Other Spurious is greater than –76 dBc.

6.0 Frequency Stability

FCC Limit is +/- 2.5 ppm.

Frequency at -15% = 465,050,040 Hz
 Frequency at 7.5 VDC = 465,050,070 Hz
 Frequency at +15% = 465,050,080 Hz

DC Voltage @ -15%	DC Voltage @ Nominal 7.5 VDC	DC Voltage @ +15%
+40 Hz (+0.09 ppm)	+70 Hz (+0.15 ppm)	+80 Hz (+0.17 ppm)



7.0 Transient Frequency Characteristics

