

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°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

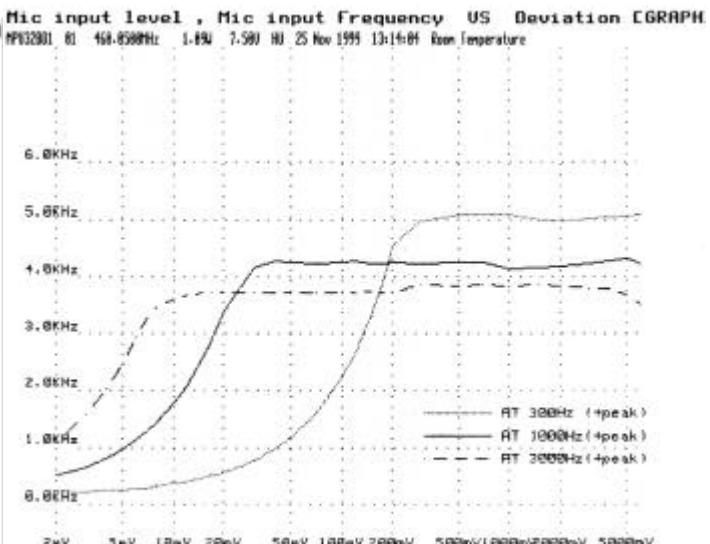
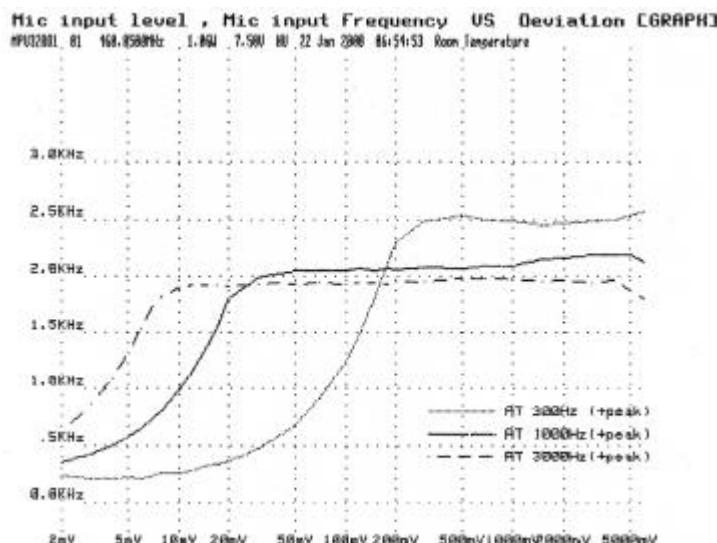
At 5 watt Output Level

<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

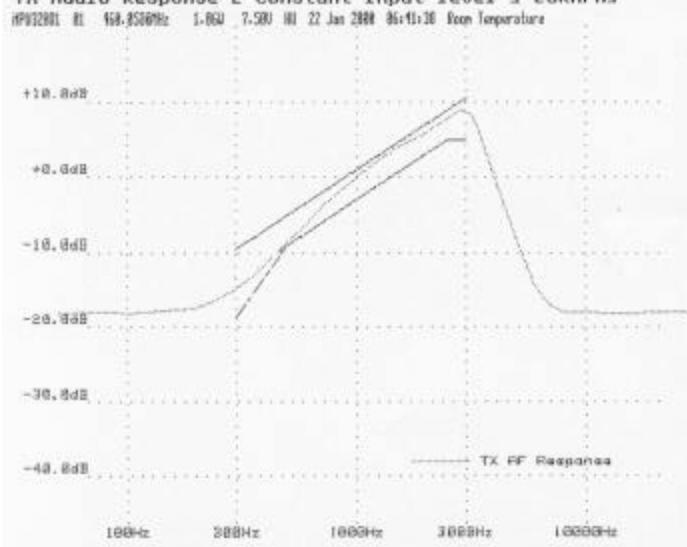
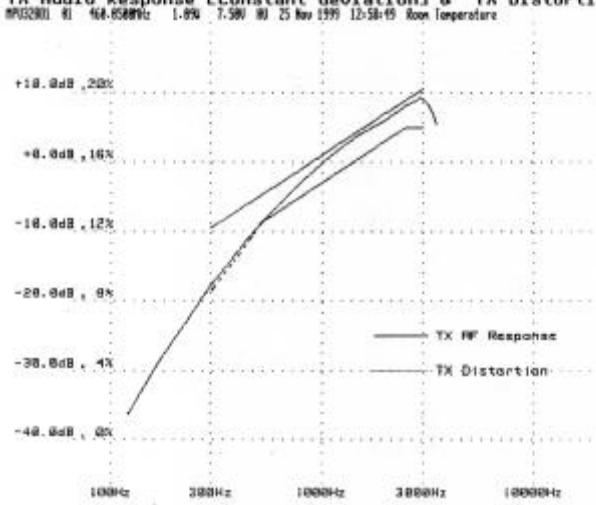
3.0 Modulation Characteristics

**Mic input level , Mic input Frequency US Deviation [DATA]**

Mic input level [mV]	Mic input frequency [KHz]		Mic input frequency Deviation of 300Hz [KHz]		Mic input frequency Deviation of 3000Hz [KHz]	
	+ Peak	- Peak	+ Peak	- Peak	+ Peak	- Peak
2.0	.23	.21	.34	.32	.61	.61
3.0	.28	.18	.42	.37	.86	.84
4.0	.21	.16	.50	.47	1.10	1.05
5.0	.22	.18	.58	.53	1.32	1.29
6.0	.21	.20	.65	.60	1.54	1.50
7.0	.23	.22	.74	.72	1.73	1.69
8.0	.26	.21	.81	.80	1.82	1.79
10.0	.25	.24	.99	.94	1.89	1.86
12.0	.27	.26	1.15	1.09	1.92	1.90
15.0	.32	.28	1.39	1.34	1.92	1.90
17.0	.33	.30	1.54	1.54	1.92	1.99
20.0	.36	.33	1.80	1.76	1.91	1.92
30.0	.47	.43	1.99	2.06	1.93	1.91
40.0	.59	.59	2.02	2.10	1.94	1.96
50.0	.68	.66	2.04	2.12	1.93	1.95
70.0	.92	.89	2.05	2.12	1.94	1.93
100.0	1.25	1.25	2.04	2.15	1.93	1.91
120.0	1.48	1.44	2.07	2.15	1.94	1.93
150.0	1.81	1.81	2.05	2.16	1.94	1.95
180.0	2.13	2.14	2.07	2.13	1.93	1.95
200.0	2.30	2.28	2.06	2.14	1.95	1.93
300.0	3.48	3.49	2.06	2.13	1.95	1.92
500.0	5.53	5.56	2.07	2.10	1.98	1.91
700.0	5.50	5.58	2.09	2.11	1.97	1.90
1000.0	4.49	5.59	2.09	2.10	1.98	1.91
1500.0	4.45	6.65	2.15	2.09	1.95	1.85
2000.0	4.46	6.65	2.16	2.09	1.96	1.87
3000.0	4.48	6.65	2.18	2.09	1.94	1.87
4000.0	5.59	5.58	2.18	2.10	1.86	1.88
6000.0	5.53	4.47	2.18	2.07	1.87	1.89
6000.0	2.57	2.44	2.13	2.13	1.80	1.85

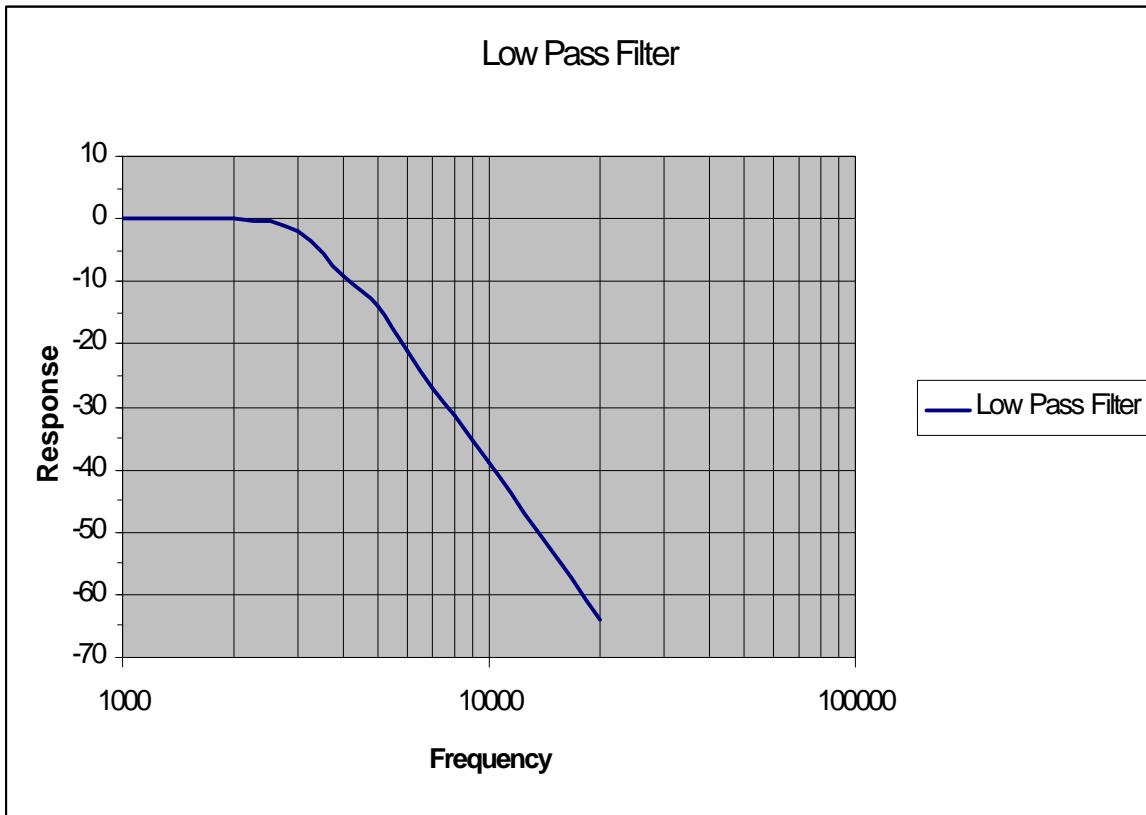
Mic input level , Mic input Frequency US Deviation [DATA]

Mic input level [mV]	Mic input frequency [KHz]		Mic input frequency Deviation of 300Hz [KHz]		Mic input frequency Deviation of 3000Hz [KHz]	
	+ Peak	- Peak	+ Peak	- Peak	+ Peak	- Peak
2.0	.23	.22	.50	.46	1.08	1.06
3.0	.21	.18	.65	.59	1.57	1.54
4.0	.24	.23	.80	.75	2.02	1.98
5.0	.26	.26	.96	.93	2.48	2.43
6.0	.27	.25	1.12	1.09	2.93	2.87
7.0	.28	.28	1.28	1.27	3.27	3.20
8.0	.31	.33	1.44	1.44	3.47	3.44
10.0	.37	.33	1.77	1.75	3.60	3.40
12.0	.39	.39	2.08	2.04	3.68	3.54
15.0	.46	.43	2.55	2.53	3.71	3.59
17.0	.50	.49	2.89	2.86	3.73	3.59
20.0	.55	.52	3.38	3.32	3.73	3.60
30.0	.76	.76	4.15	3.91	3.73	3.63
40.0	.97	.96	4.27	4.03	3.72	3.63
50.0	1.17	1.15	4.25	4.08	3.73	3.64
70.0	1.60	1.57	4.24	4.14	3.73	3.61
100.0	2.23	2.22	4.25	4.17	3.73	3.68
120.0	2.66	2.64	4.27	4.17	3.73	3.63
150.0	3.32	3.27	4.24	4.16	3.74	3.61
180.0	3.98	3.98	4.24	4.19	3.72	3.60
200.0	4.54	4.56	4.35	4.17	3.72	3.64
300.0	4.98	4.70	4.24	4.19	3.65	3.69
500.0	5.08	4.96	4.26	4.19	3.84	3.78
700.0	5.09	5.01	4.25	4.17	3.85	3.68
1000.0	5.09	5.06	4.13	4.25	3.84	3.72
1500.0	4.99	5.21	4.15	4.30	3.85	3.67
2000.0	4.98	5.20	4.18	4.25	3.83	3.68
3000.0	5.01	5.19	4.24	4.23	3.80	3.65
4000.0	5.03	5.09	4.27	4.20	3.80	3.69
5000.0	5.06	4.88	4.31	4.18	3.67	3.69
6000.0	5.08	4.83	4.22	4.26	3.52	3.62

TX Audio Response [Constant input level] [GRAPH]**TX Audio Response [Constant deviation] & TX Distortion [GRAPH]**

Narrow Band Mode

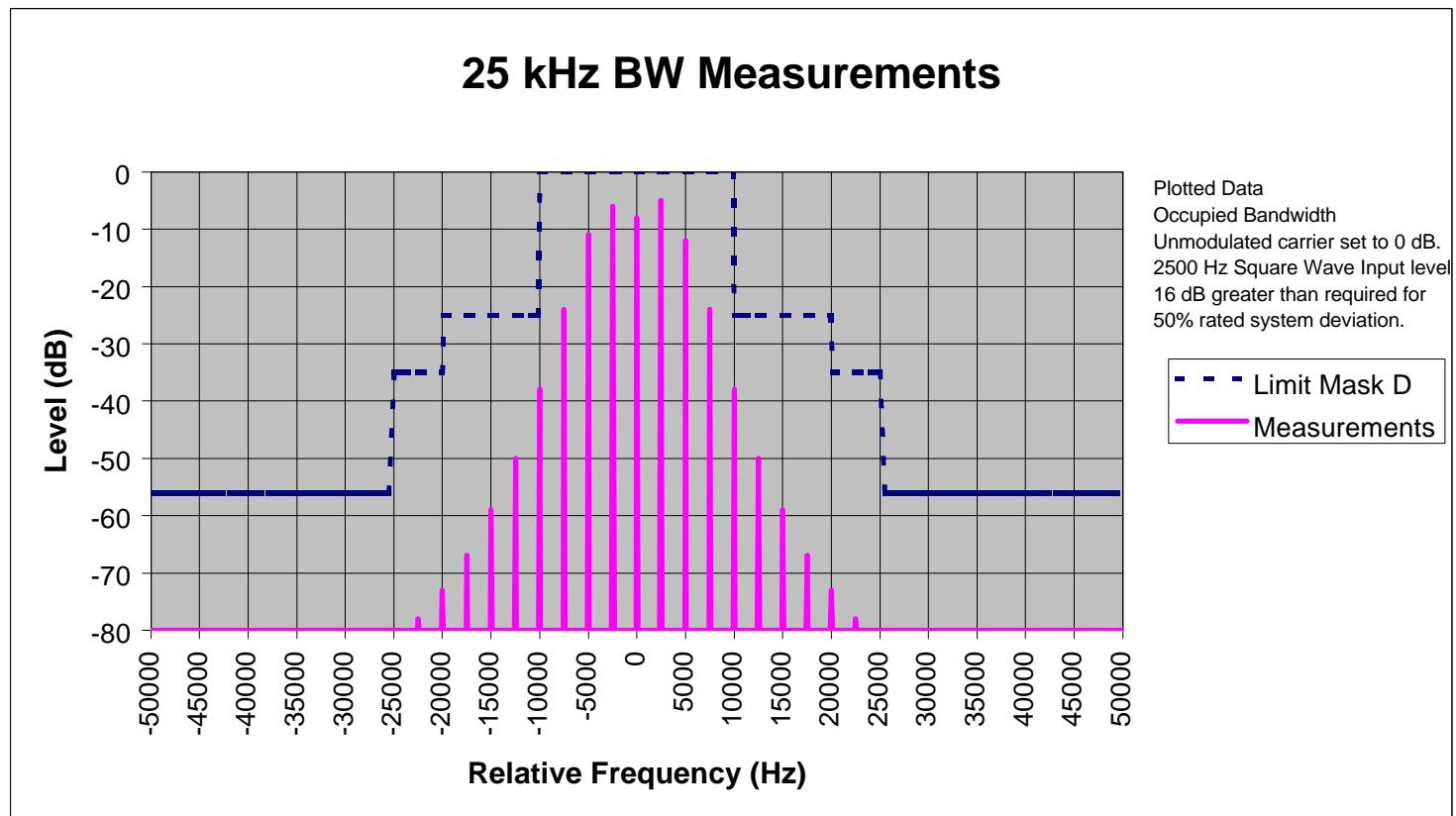
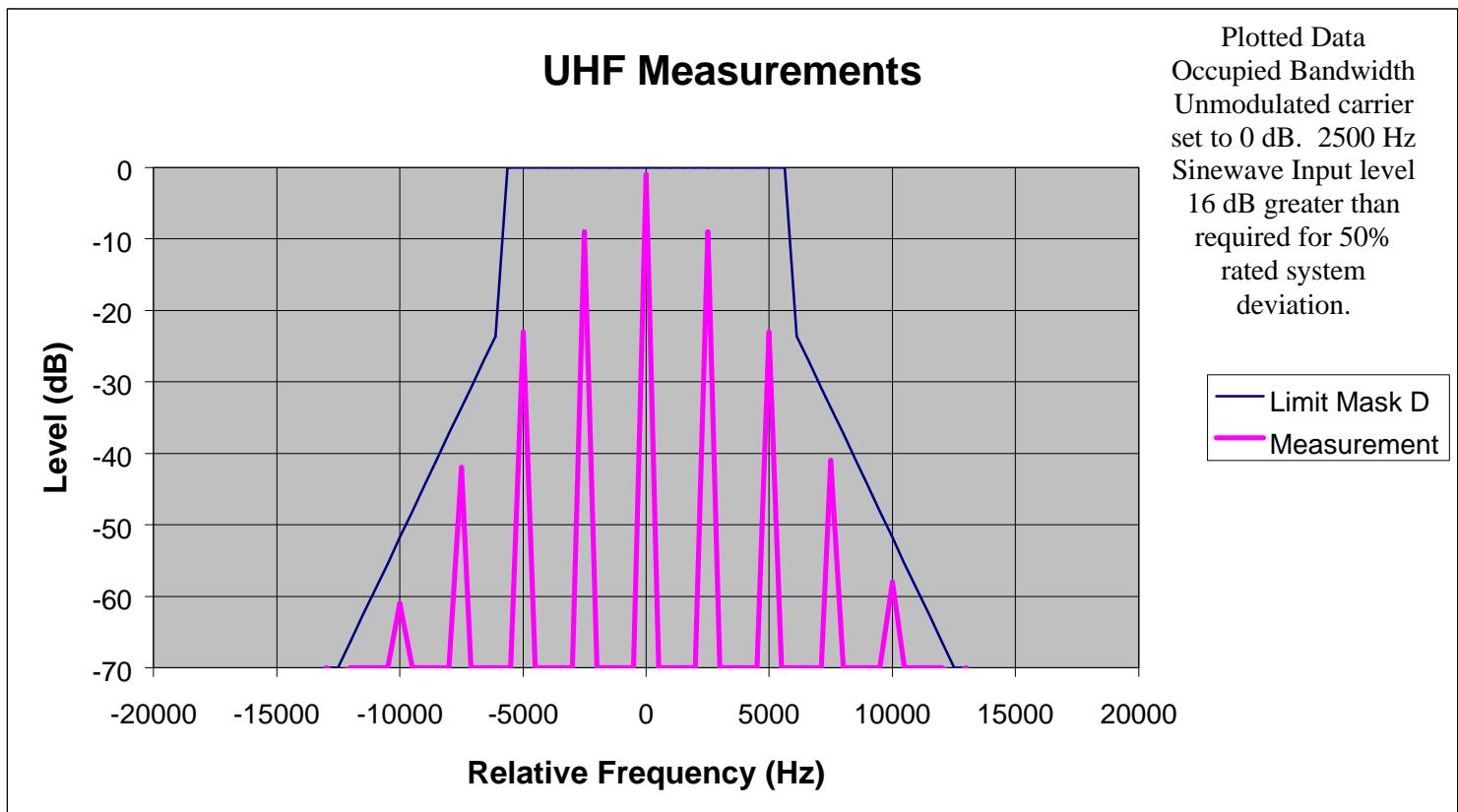
Wide Band Mode



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		

----- 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 %	-.78	-1.45	-2.20	-1.40
POWER DOWN 3min %	-.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

Spurious with four watt output, dBc ref to fundamental.

----- (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

Spurious with One watt output, dBc ref to fundamental

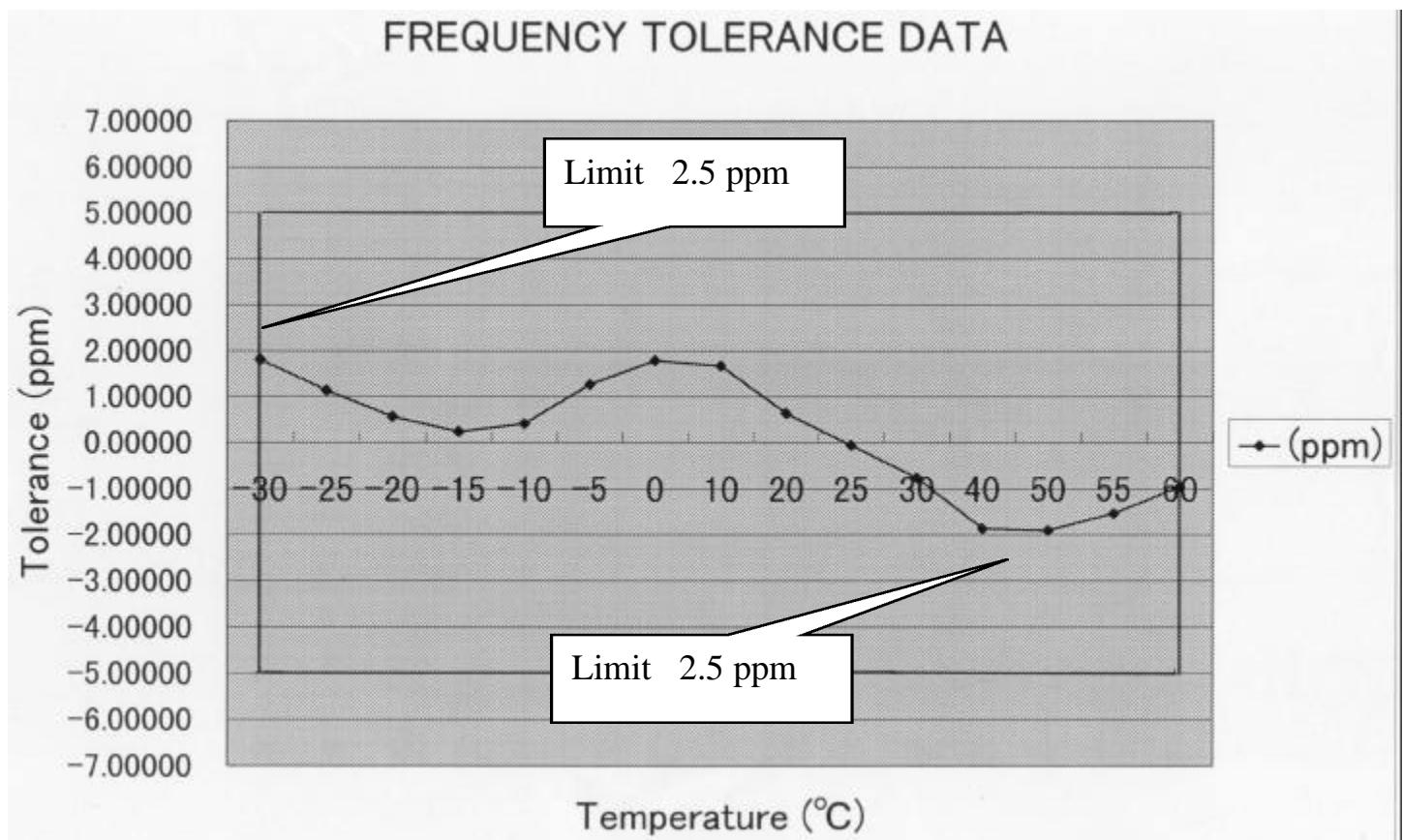
Other Spurious is greater than -76 dBc.

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

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



7.0 Transient Frequency Characteristics

Transmitter Transient Behavior

Turn on with 1000Hz Modulation

MPU32BD1 No.01
460.050MHz

Transmitter Transient Behavior

Turn off with 1000Hz Modulation

MPU32BD1 No.01
460.050MHz

