REGULATORY TEST REPORT

TITLE: Mobile Collector Data Logger FCC part 101/Industry Canada RSS-119
AUTHOR: W. Raymond Stoner

REV	CCO	*DESCRIPTION OF CHANGE*	DATE	*APPROVALS*	
001		INITIAL RELEASE		Engineering	
				Engineering	

REVISION HISTORY

001		Initial Release	1/14/09	Engineering	Ray Stoner
002		Changes made to deal with non-conformities from the FCC	2/4/09	Engineering	Ray Stoner
				Engineering	

Summary

Test Data Summary

FCC Part 101 / RSS-119 Transceiver
952-960 MHz

FCC ID: EO9-DCU-5310 / **IC:** 864A-DCU-5310

Device Model (for IC):
MC3-DL10

Model Numbers:
DCU-5310

Serial Numbers:
74005504

OATS Registration Number: FCC 90716, IC 5615

Rule	Description	Max. Reading	Pass/Fail
FCC 101.113 / RSS-119 sec. 5.4.1	EIRP of Fundamental Emissions	13.1dbW 20.42W	P
FCC 101.111a(5)	Transmit Mask - FCC	NA	P
RSS-119 Sec. 5.8.3(d)	Transmit Mask – Canada	NA	P
FCC 101.109 / RSS-119 Table 3	Occupied Bandwidth	3.6379khz	P
FCC 101.111(a)(5)(iv) / RSS-119 Sec. 5.8.3(d)	EIRP of Transmitter Spurious emissions	-24.48dbm	P
FCC 101.107 / RSS-119 Table 1	Frequency Stability	0.00002%	P
FCC 1.1310 / Health Canada Safety Code 6	MPE evaluation	22.72cm	P
RSS-119 Sec. 5.11 (RSS-GEN Sec. 6)	Receiver spurious emissions	49.5 dBuV/m	P

Cognizant Personnel

W. Raymond Stoner	Engineer
Name	Title
Jay Holcolmb	Regulatory Manager
Name	Title
Drew Rosenburg	Project Lead
Name	Title

Test 1: FCC Part 101.113
RSS-119 Sec. 5.4.1

Output Power Limits

1. Output power must be +/- 1db of rated power
2. EIRP Limit is 14 dbW for mobile devices
3. IC limit is 110 W for Base stations, 30W for mobile stations.

Equipment Used	Serial Number	Cal Date	Cal Due
Agilent E4407B Spectrum Analyzer	MY45107856	3/07	3/09
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	na

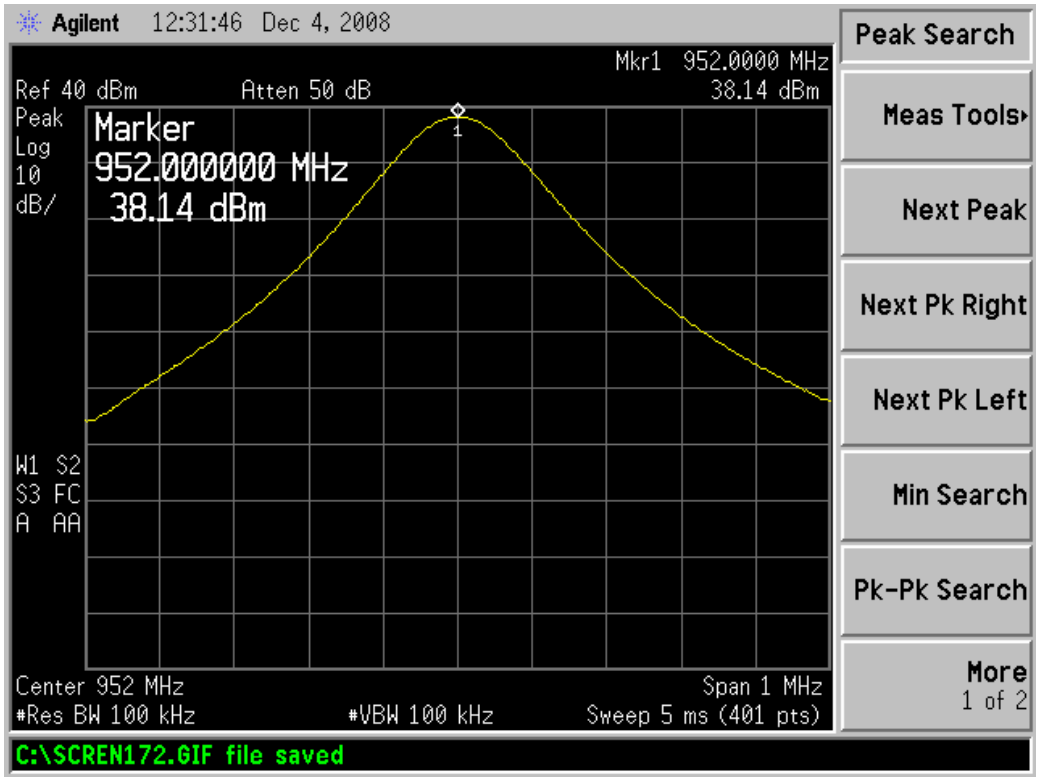
Date	Temp/Humidity ºF / %	Tested by
11/18/08	60/35%	Ray Stoner

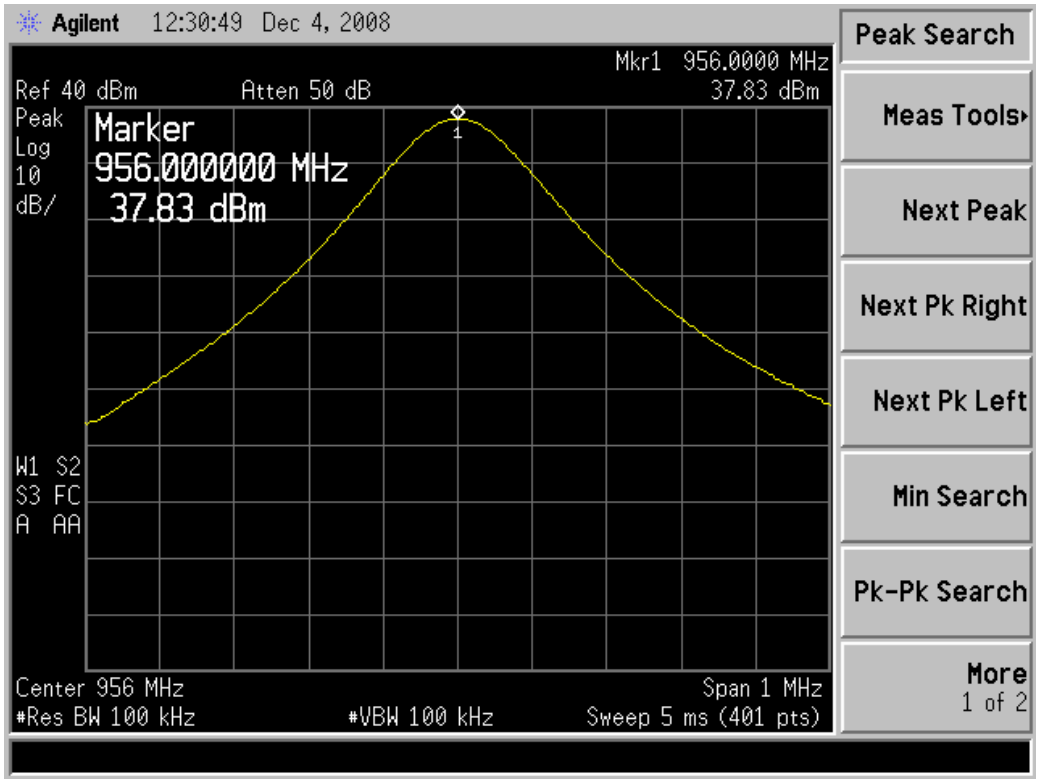
Frequency	Reading (dBm)	Attenuation (dB)	Power Level (dBm)	Rated Power (dBm)	Deviation (dB)
952Mhz	38.14	0	38.14	38.14	0
956Mhz	37.83	0	37.83	38.14	-0.31
960	38	0	38	38.14	-0.14

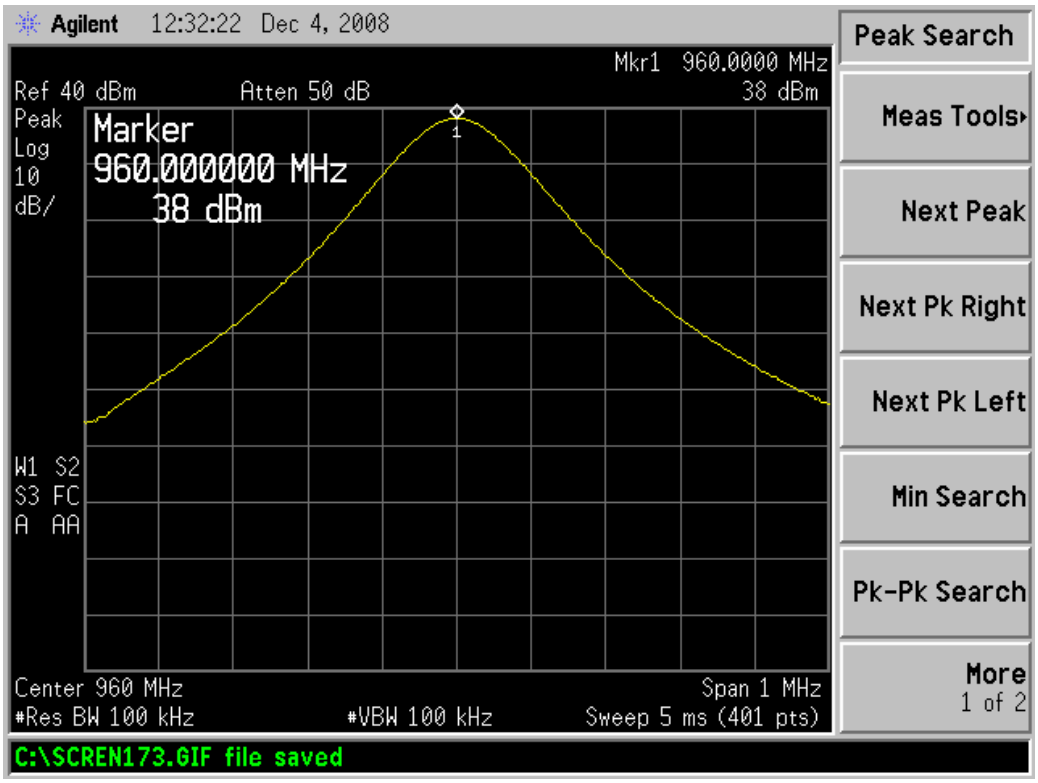
Loss in the 20 db attenuator and cable is 21.2 db. This loss was entered as an external gain of 21.2 db

This device uses a third party OEM antenna with a gain of 5 dbi

EIRP for this device is:
Antenna conducted power = 6.5W (38.14 dbm)
Antenna Gain = 5dbi
EIRP = 43.14 dbm (20.6W or 13.1 dbW)


Agilent 12:31:46 Dec 4, 2008
Mkr1 952.0000 MHz
Ref 40 dBm
Atten 50 dB
38.14 dBm
Peak
Log
10
dB/
Marker
952.000000 MHz
38.14 dBm
W1 S2
S3 FC
A AA
Center 952 MHz
Span 1 MHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 5 ms (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2
C:\SCREN172.GIF file saved


Agilent 12:30:49 Dec 4, 2008
Mkr1 956.0000 MHz
Ref 40 dBm
Atten 50 dB
37.83 dBm
Peak
Log
10
dB/
Marker
956.000000 MHz
37.83 dBm
W1 S2
S3 FC
A AA
Center 956 MHz
Span 1 MHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 5 ms (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent 12:32:22 Dec 4, 2008
Mkr1 960.0000 MHz
Ref 40 dBm
Atten 50 dB
38 dBm
Peak
Log
10
dB/
Marker
960.000000 MHz
38 dBm
1
W1 S2
S3 FC
A AA
Center 960 MHz
Span 1 MHz
#Res BW 100 kHz
#VBW 100 kHz
Sweep 5 ms (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2
C:\SCREN173.GIF file saved

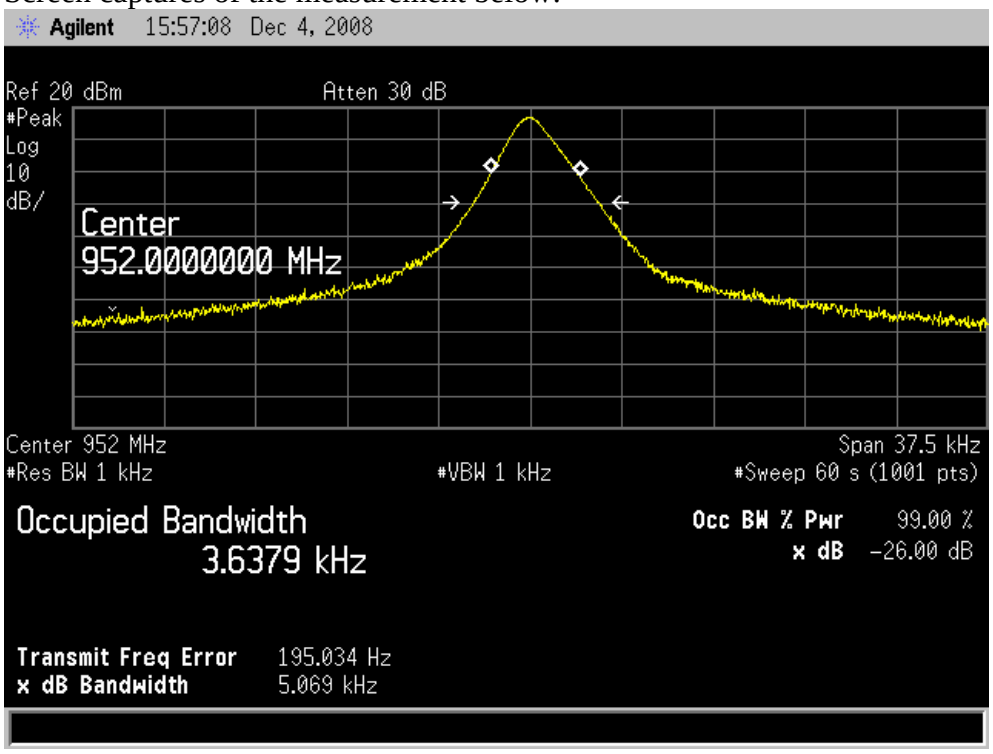
Test 2: FCC 101.109/RSS-119 Table 3
Occupied Bandwidth

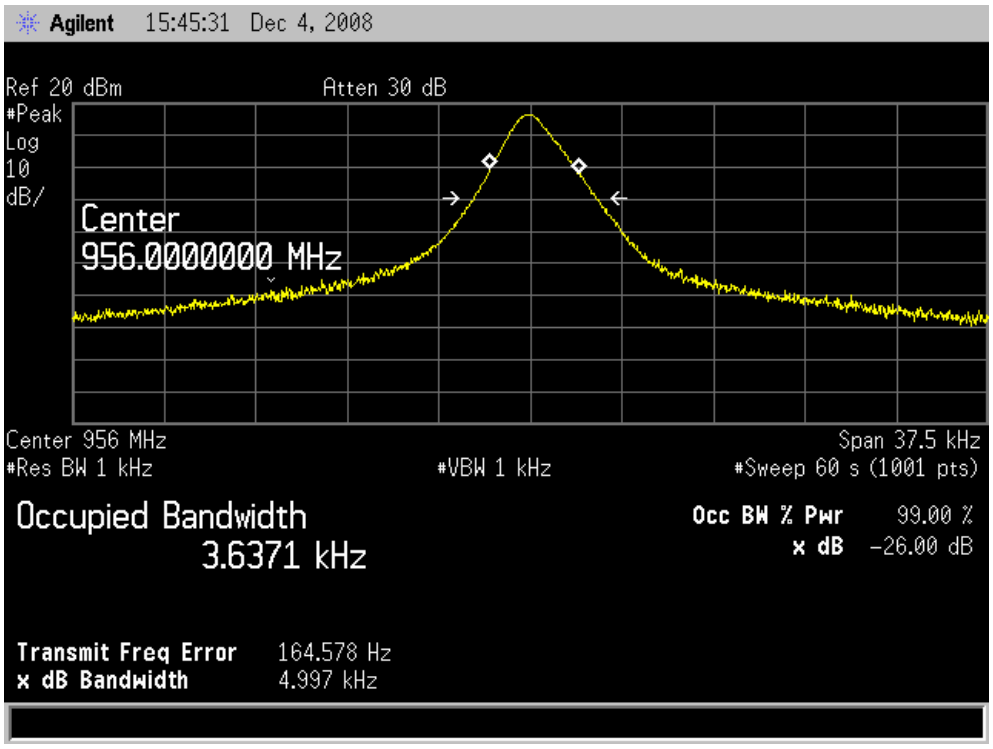
Measure the occupied bandwidth (99% bandwidth). The Occupied bandwidth may not exceed 12.5kHz (US) or 11.25kHz (Canada).

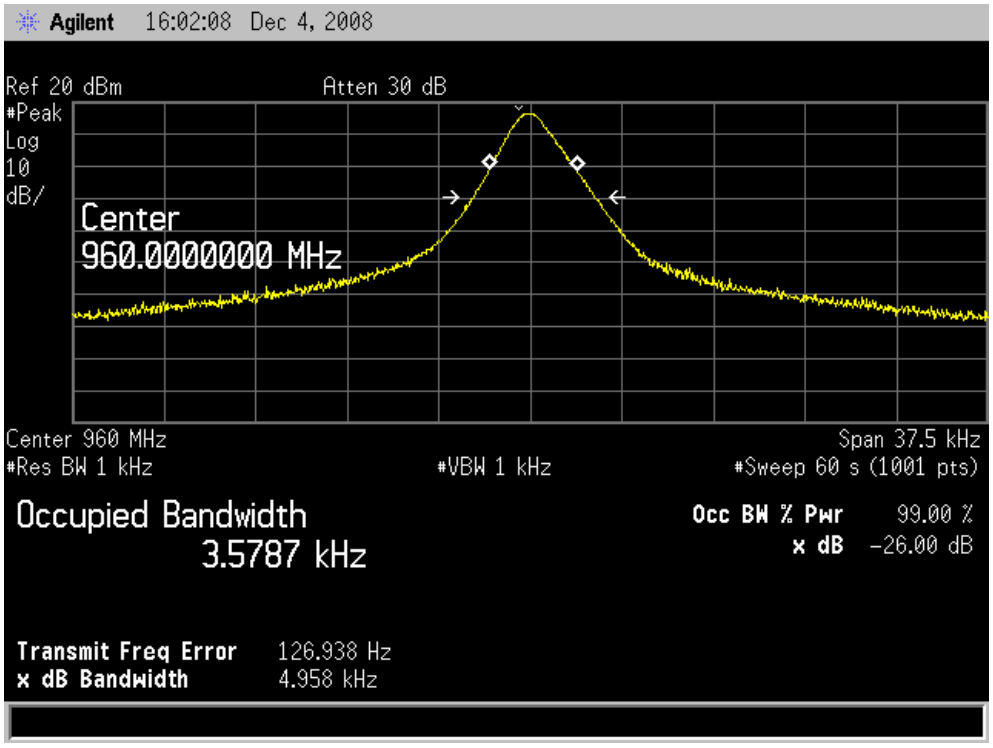
Equipment Used			Serial Number	Cal Date	Cal Due
Agilent E4407B Spectrum Analyzer			MY45107856	3/07	3/09
Itronix Laptop computer			ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply			9300525	na	na
Date	Temp/Humidity ºF / %	Tested by			
12/4/08	72/40%	Ray Stoner			

Loss in the 20 db attenuator and cable is 21.2 db. This loss was entered as an external gain of 21.2 db

Screen captures of the measurement below:




Agilent 15:45:31 Dec 4, 2008
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Center
956.0000000 MHz
Center 956 MHz
#Res BW 1 kHz
#VBW 1 kHz
Span 37.5 kHz
#Sweep 60 s (1001 pts)
Occupied Bandwidth
3.6371 kHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 164.578 Hz
x dB Bandwidth 4.997 kHz


Agilent 16:02:08 Dec 4, 2008
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Center
960.0000000 MHz
Center 960 MHz
#Res BW 1 kHz
#VBW 1 kHz
Span 37.5 kHz
#Sweep 60 s (1001 pts)
Occupied Bandwidth
3.5787 kHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error 126.938 Hz
x dB Bandwidth 4.958 kHz

Test 3: FCC Part 101.111a(5)
Transmitter Mask (US)

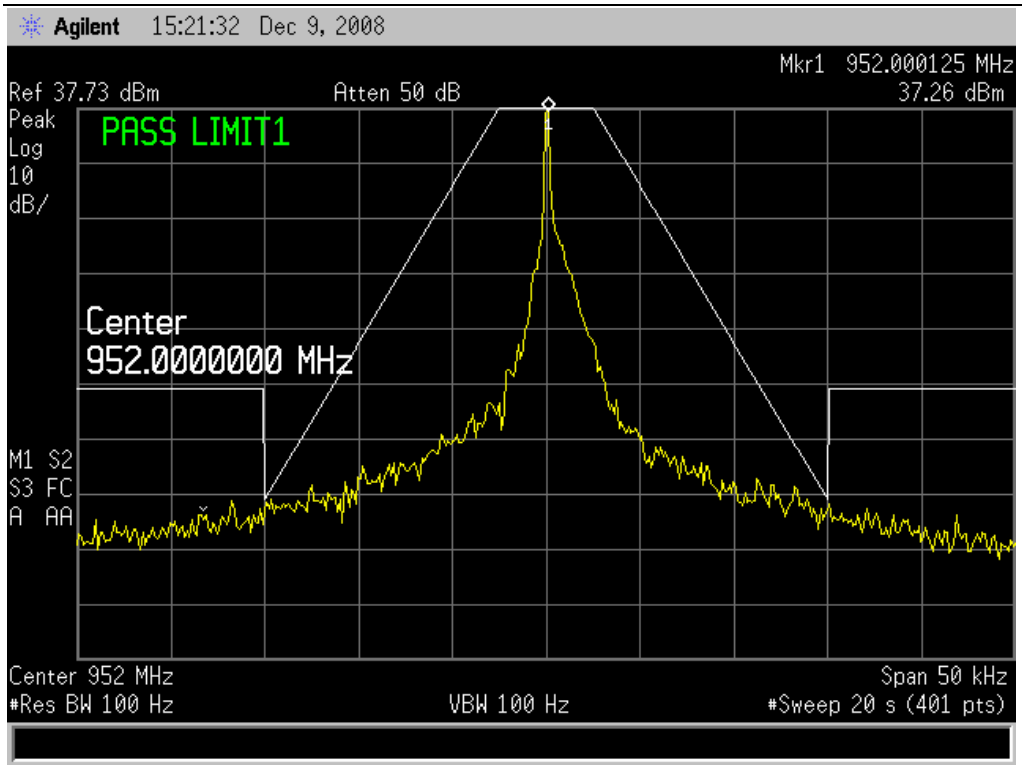
Measure the transmitter mask, referenced to an unmodulated carrier, according to the following schedule:

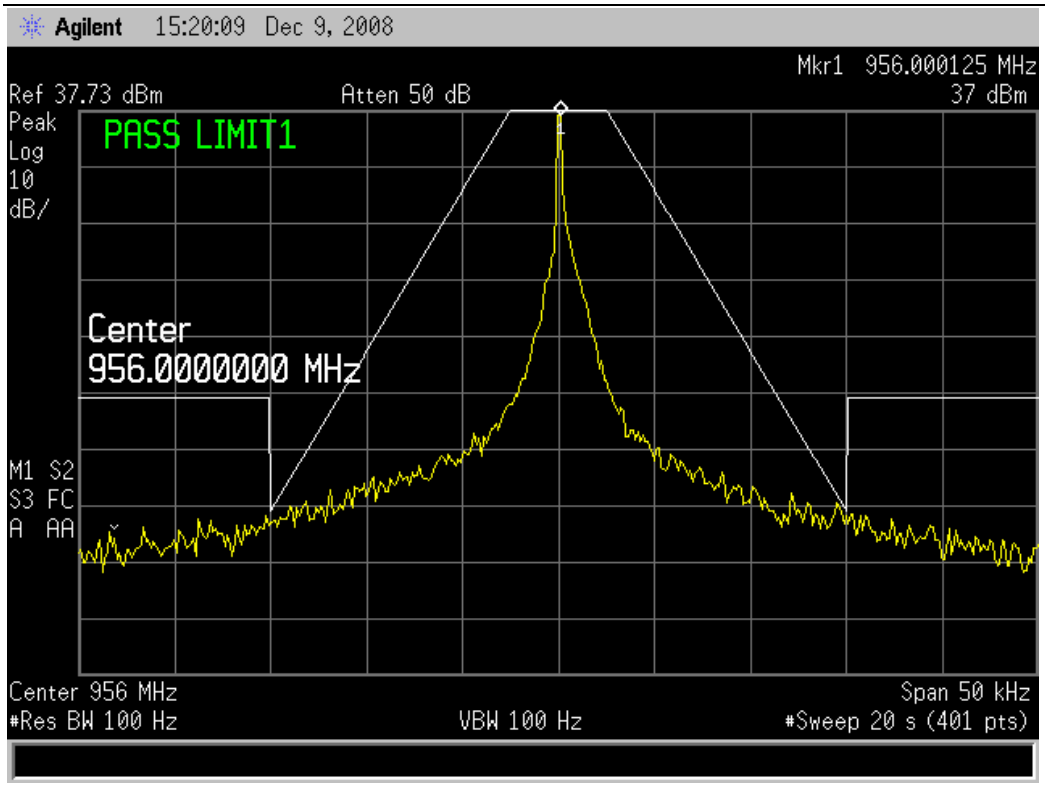
Minimum Displacement Frequency (kHz)	Maximum Displacement Frequency (kHz)	Attenuation below unmodulated carrier (dB)
2.5	6.25	53*log(fd/2.5)
6.25	9.5	103*log(fd/3.9)
9.5	15	157*log(fd/5.3)
15	>15	50+Log(P) or 70

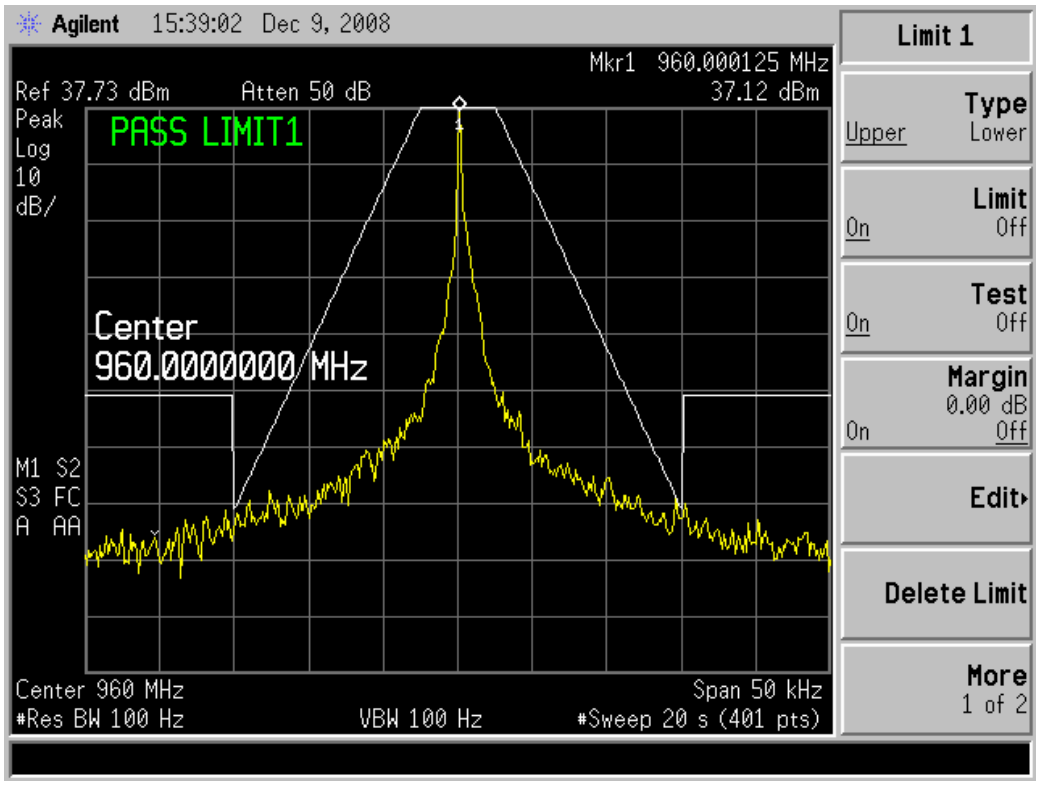
Equipment Used	Serial Number	Cal Date	Cal Due
Agilent E4407B Spectrum Analyzer	MY45107856	3/07	3/09
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	na

Date	Temp/Humidity ºF / %	Tested by
12/4/08	72/40%	Ray Stoner

Loss in the 20 db attenuator and cable is 21.2 db. This loss was entered as an external gain of 21.2 db




Agilent 15:20:09 Dec 9, 2008
Mkr1 956.000125 MHz
Ref 37.73 dBm
Atten 50 dB
37 dBm
Peak
Log
10
dB/
PASS LIMIT1
Center
956.0000000 MHz
M1 S2
S3 FC
A AA
Center 956 MHz
#Res BW 100 Hz
VBW 100 Hz
Span 50 kHz
#Sweep 20 s (401 pts)


Agilent 15:39:02 Dec 9, 2008
Mkr1 960.000125 MHz
Ref 37.73 dBm
Atten 50 dB
37.12 dBm
Peak
Log
10
dB/
PASS LIMIT1
Center
960.0000000 MHz
M1 S2
S3 FC
A AA
Center 960 MHz
#Res BW 100 Hz
VBW 100 Hz
Span 50 kHz
#Sweep 20 s (401 pts)
Limit 1
Type
Upper Lower
Limit
On Off
Test
On Off
Margin
0.00 dB
On Off
Edit
Delete Limit
More
1 of 2

Test 3: RSS-119 Sec. 5.8.3(d)
Transmitter Mask (Canada)

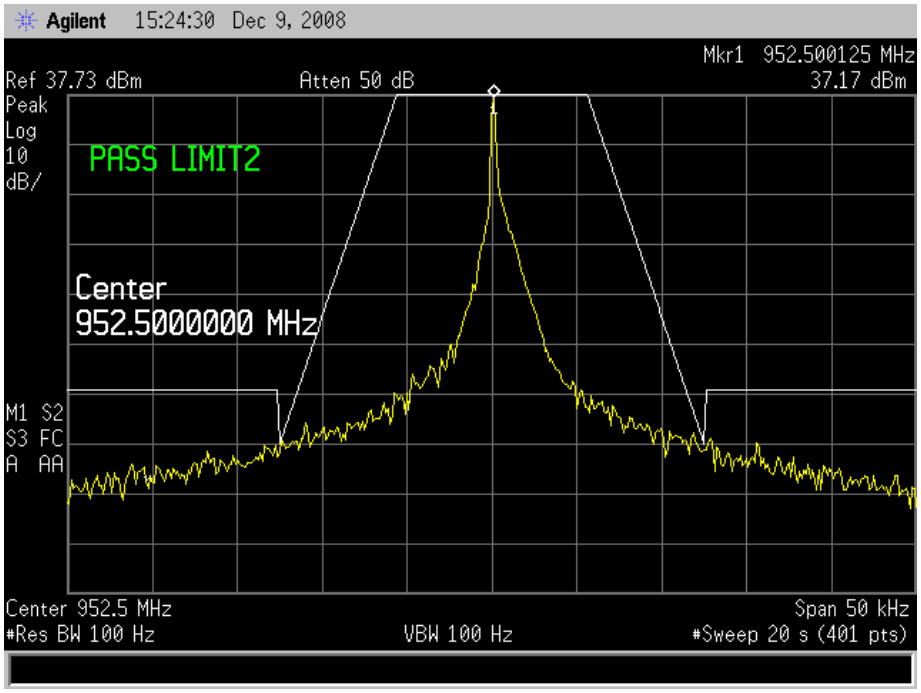
Measure the transmitter mask, referenced to an unmodulated carrier, according to the following schedule:

Minimum Displacement Frequency (kHz)	Maximum Displacement Frequency (kHz)	Attenuation below unmodulated carrier (dB)
0	5.625	0
5.625	12.5	7.27*(fd-2.88)
12.5	> 12.5	50+log(P) or 70

Equipment Used	Serial Number	Cal Date	Cal Due
Agilent E4407B Spectrum Analyzer	MY45107856	3/07	3/09
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	na

Date	Temp/Humidity ºF / %	Tested by
12/4/08	72/40%	Ray Stoner

Loss in the 20 db attenuator and cable is 21.2 db. This loss was entered as an external gain of 21.2 db



Test 5: FCC Part 101.111(a)(5)(iv)
Spurious Emissions

Measure the EIRP of all transmitter spurious emissions that are >15kHz away from the center of the fundamental peak. The EIRP of these emissions may not exceed 50+10log(P) or 70dB below the EIRP of the fundamental (measured in test 1). Use the procedure in appendix B to determine field strength then use the antenna substitution procedure in appendix A to determine EIRP levels.

Equipment Used	Serial Number	Cal Date	Due
AH systems preamplifier model PAM 0126	135	12/8/07	12/8/08
H/S Sucoflex 40ft cable	220297001	12/3/07	12/3/09
Agilent E7405A Spectrum Analyzer	MY45113415	8/12/08	8/12/09
Emco 6502 Loop (9kHz to 30Mhz)	9509-2970	10/15/08	10/15/10
Emco 3110B Biconical (30MHz-to 300MHz)	9807-3129	10/4/07	10/4/09
Emco 3146 Log Periodic (200Mhz to 1GHz)	9203-3358	10/4/07	10/409
Emco 3115 wave guide (1GHz-18GHz)	9205-3878	3/17/08	3/17/09
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	na

Date	Temp/Humidity ºF / %	Tested by
18-19 November 2008	65/25%	Ray Stoner

6.5 watts = 38.14 dbm
From test 1 EIRP is 43.14dbm or 20.6W
50+Log(p)=50+10log(20.6W)=63.14db > 70db
Limit = 43.14dbm-63.14db = -20dbm
Frequency range investigated was 9 kHz to 9.6GHz

Frequency (MHz)	Polarity	Analyzer Reading of Device Emissions (dBm)	Analyzer Reading of Generator Emissions (dBm)	Difference (add to ERP reading)	Substitution Antenna Gain (dBi)	Generator Output (dBm)	EIRP (dBm)
245.6	Vertical	-33.45	-33.23	-0.22	6	-47.3	-41.52
245.6	Horizontal	-28.01	-35.51	7.5	6	-56.8	-43.3
252.24	Vertical	-34.49	-35.54	1.05	5.9	-47.12	-40.17
252.24	Horizontal	-35.45	-35.48	0.03	5.9	-56.5	-50.57
304.2	Vertical	-43.76	-43.58	-0.18	5.2	-57.8	-52.78
304.2	Horizontal	-36.73	-36.76	0.03	5.2	-52.88	-47.65
308.2	Vertical	-43.36	-43.51	0.15	4.7	-56.15	-51.3
308.2	Horizontal	-37.94	-37.55	-0.39	4.7	-55.4	-51.09
340.3	Vertical	-48.76	-48.82	0.06	5.5	-64.9	-59.34
340.3	Horizontal	-44.05	-44.19	0.14	5.5	-61.26	-55.62
1904	Vertical	-39.49	-38.08	-1.41	8.5	-39.59	-32.5
1904	Horizontal	-37.28	-35.67	-1.61	8.5	-37.6	-30.71
1912	Vertical	-39.76	-39.93	0.17	8.6	-42.14	-33.37
1912	Horizontal	-39.1	-39.28	0.18	8.6	-42.45	-33.67
1920	Vertical	-38.66	-38.81	0.15	8.6	-39.63	-30.88
1920	Horizontal	-36.77	-36.57	-0.2	8.6	-37.59	-29.19
2856	Vertical	-40.41	-43.44	3.03	9.5	-43.12	-30.59
2856	Horizontal	-45.13	-44.71	-0.42	9.5	-46.2	-37.12
2868	Vertical	-36.02	-36.25	0.23	9.5	-37.92	-28.19
2868	Horizontal	-44.08	-44.32	0.24	9.5	-47.09	-37.35
2880	Vertical	-41.73	-43.1	1.37	9.5	-43.17	-32.3
2880	Horizontal	-47.66	-45.15	-2.51	9.5	-46.25	-39.26
3808	Vertical	-37.62	-37.12	-0.5	9.2	-33.18	-24.48
3808	Horizontal	-40.85	-41.4	0.55	9.2	-38.35	-28.6
3824	Vertical	-38.76	-36.68	-2.08	9.2	-33.32	-26.2
3824	Horizontal	-38.76	-38.83	0.07	9.2	-34.92	-25.65
3840	Vertical	-32.91	-33.27	0.36	9.2	-37.91	-28.35
3840	Horizontal	-41.37	-42.27	0.9	9.2	-38.42	-28.32
4760	Vertical	-56.57	-54.24	-2.33	11	-45.52	-36.85
4760	Horizontal	-59.77	-54.19	-5.58	11	-50.5	-45.08
4780	Vertical	-57.84	-57.14	-0.7	11	-56.25	-45.95
4780	Horizontal	-60.25	-59.58	-0.67	11	-57.95	-47.62
4800	Vertical	-52.64	-54.92	2.28	11	-45.6	-32.32
4800	Horizontal	-57.38	-54.39	-2.99	11	-50.56	-42.55
5712	Vertical	-56.45	-55.61	-0.84	11.4	-45.81	-35.25
5712	Horizontal	-58.51	-56.95	-1.56	11.4	-53.1	-43.26
5736	Vertical	-63.36	-63.36	0	11.4	-61.3	-49.9
5736	Horizontal	-63.31	-63.34	0.03	11.4	-60.36	-48.93
5760	Vertical	-54.98	-54.86	-0.12	11.4	-46	-34.72
5760	Horizontal	-59.12	-57.81	-1.31	11.4	-53.25	-43.16
6664	Vertical	-56.11	-57.81	1.7	11.8	-48.35	-34.85
6664	Horizontal	-58.7	-56.08	-2.62	11.8	-46.77	-37.59
6692	Vertical	-60.97	-61.14	0.17	11.6	-56.21	-44.44
6692	Horizontal	-58.63	-58.41	-0.22	11.6	-51.17	-39.79
6720	Vertical	-55.22	-57.12	1.9	11.6	-48.57	-35.07
6720	Horizontal	-56.62	-56.36	-0.26	11.6	-49.03	-37.69
7616	Vertical	-56.08	-55.29	-0.79	11.5	-46.4	-35.69
7616	Horizontal	-56.62	-52.08	-4.54	11.5	-43.12	-36.16
7648	Vertical	-58.61	-58.53	-0.08	11.5	-53.33	-41.91
7648	Horizontal	-61	-60.89	-0.11	11.5	-54.07	-42.68
7680	Vertical	-54.04	-52.48	-1.56	11.5	-43.77	-33.83
7680	Horizontal	-54.69	-52.49	-2.2	11.5	-43.22	-33.92
8568	Vertical	-58.55	-54.75	-3.8	11.6	-45.84	-38.04
8568	Horizontal	-60.09	-55.46	-4.63	11.6	-46.34	-39.37
8604	Vertical	-62.7	-62.59	-0.11	11.6	-58.27	-46.78
8604	Horizontal	-67.55	-67.33	-0.22	11.6	-62.3	-50.92
8640	Vertical	-59.36	-53.31	-6.05	11.6	-46.17	-40.62
8640	Horizontal	-59.93	-56.21	-3.72	11.6	-46.63	-38.75
9520	Vertical	-60.11	-60.18	0.07	11.9	-46.6	-34.63
9520	Horizontal	-60.61	-60.19	-0.42	11.9	-49.01	-37.53
9560	Vertical	-68.21	-68.32	0.11	12.1	-63.49	-51.28
9560	Horizontal	-68.47	-68.38	-0.09	12.1	-63.53	-51.52
9600	Vertical	-58.99	-58.41	-0.58	12.3	-48.8	-37.08
9600	Horizontal	-60.69	-59.59	-1.1	12.3	-49.2	-38

Test 6: FCC Part 2.1051
Conducted Spurious Emissions

Measure the spurious emissions of the EUT at the output terminal of the transmitter loaded with a suitable artificial antenna (50 ohm). Record the frequency and magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in FCC 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified. Use the appropriate bandwidth and detector settings as specified in appendix B.

Equipment Used	Serial Number	Cal Date	Cal Due
Agilent E4407B Spectrum Analyzer	MY45107856	3/07	3/09
K&L Microwave Inc. tunable bandreject filter	PB269-1	na	na
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	Na

Date	Temp/Humidity ºF / %	Tested by
2/4/09	72/40%	Ray Stoner

6.5 watts = 38.14 dbm
50+Log(p)=50+10log(6.5W)=58.14db > 70db
Limit = 38.14dbm-58.14db = -20dbm
Frequency range investigated was 9 kHz to 9.6GHz

Loss in the 20 db attenuator, band reject filter and cable is 21.9 db. This loss was entered as an external gain of 21.9 db

Frequency	Level dBm	Limit dBm	Margin
4780	-43.7	-20	-23.7
5736	-44.1	-20	-24.1
7648	-42.9	-20	-22.9
9560	-49.6	-20	-29.6
4760	-49.6	-20	-29.6
5712	-44	-20	-24
7616	-49.9	-20	-29.9
4800	-42.2	-20	-22.2
5760	-46.4	-20	-26.4
7680	-40	-20	-20

Test 7: FCC Part 101.107
Frequency Stability

At the device's rated voltage level, measure the carrier frequency at every 10 degrees from -30ºC to +50ºC. At +20ºC, measure the carrier frequency with the device powered at 85% and 115% of the device's rated voltage level. If the device is battery powered, then measurements should be made at the maximum and cutoff battery voltages.

The carrier frequency may not deviate from the reference level measured at +20ºC and with the device powered at its rated voltage level by more than +/- 0.00015%.

Equipment used	**Serial #**	**Cal Date**	**Cal Due**
Agilent E4405B Spectrum Analyzer	MY45112158	3/07	3/09
Agilent U1242A Multimeter	TW48280139	7/08	7/09
HP53181A Frequency Counter	3548A01784	3/08	3/09
MCH-3-.33-.33-H/AC Env. Chamber	MC0728042	1/08	1/09
Leader adjustable Lab Power Supply	9300525	na	na
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na

Date	Temp/Humidity ºF / %	Tested by
11/14/08	72/40%	Alex Cory

Fill in the white spaces in the following tables. For tables that do not apply, enter a "-":

Temperature (ºC)	20	-30	-20	-10	0
Frequency (MHz)	954.499372	954.4992747	954.4993756	954.4993623	954.4994610
Deviation (%)	0.00000%	-0.00001%	0.00000%	0.00000%	0.00001%

Temperature (ºC)	20	10	30	40	50
Frequency (MHz)	954.499372	954.4994868	954.4995330	954.4995632	954.4995498
Deviation (%)	0.00000%	0.00001%	0.00002%	0.00002%	0.00002%

Battery Voltage	Peak 18V	Cut Off 8V
Frequency (Hz)	954.499328	954.499361
Deviation (%)	0.00000%	0.00000%

Test 8: FCC 1.1310(A) / RSS 102;
MPE evaluation

Determine the minimum safe distance for a controlled population from the transmitter where a power density of:
FCC - f_{MHz} / 300 mW/cm^2
IC - f_{MHz} / 30W/m^2

The minimum safe distance for FCC is calculated as:

$$P_d = \frac{P_t \times G}{4 \times \pi \times r^2}$$

P_d = power density in watts
P_t = transmit power in milliwatts
G = numeric antenna gain
r = distance between body and transmitter in centimeters.

The minimum safe distance for IC is calculated as:

$$P_d = \frac{P_t \times G}{4 \times \pi \times r^2}$$

P_d = power density in watts
P_t = transmit power in watts
G = numeric antenna gain
r = distance between body and transmitter in meters.

Max output power = 6.516W
Max Antenna Gain =5 dBi = 3.16 numeric

FCC;
(f_{MHz}/300)mW/cm^2 = (952/300)mW/cm^2 = 3.173mW/cm^2
$P_d = P_t*G/4\pi r^2$
$0.003173W = 6.516*3.16/12.57r^2$
r=22.72cm

Industry Canada;
(f_{MHz}/30)W/m^2 = (952/30)W/m^2 = 31.73W/m^2
$P_d = P_t*G/4\pi r^2$
$31.73=6.516*3.16/12.57r^2$=.2272m = 22.72cm

Test 9: RSS-119 Sec. 5.11 (RSS-GEN Sec. 6)

Receiver Spurious Emissions

Use procedure in appendix B to determine field strengths. Receiver spurious emissions may not exceed the following limits:

Frequency (MHz)	Field Strength (microvolts/meter)	in dBuV/m
30-88	100	40
88-216	200	43.5
216-960	200	46
Above 960	500	54

Equipment Used	Serial Number	Cal Date	Due
AH systems preamplifier model PAM 0126	135	12/8/07	12/8/08
H/S Sucoflex 40ft cable	220297001	12/3/07	12/3/09
Agilent E7405A Spectrum Analyzer	MY45113415	8/12/08	8/12/09
Emco 6502 Loop (9kHz to 30Mhz)	9509-2970	10/15/08	10/15/10
Emco 3110B Biconical (30MHz-to 300MHz)	9807-3129	10/4/07	10/4/09
Emco 3146 Log Periodic (200Mhz to 1GHz)	9203-3358	10/4/07	10/409
Emco 3115 wave guide (1GHz-18GHz)	9205-3878	3/17/08	3/17/09
Itronix Laptop computer	ZZGEG7201ZZ7266	na	na
Leader adjustable Lab Power Supply	9300525	na	na

Date	Temp/Humidity ºF / %	Tested by
18-19 November 2008	65/25%	Ray Stoner

Frequency range investigated was 9 kHz to 9.6GHz

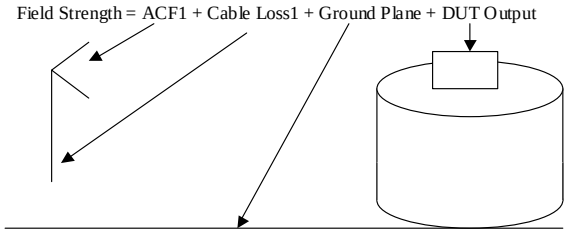
Emissions from the Receiver were below the noise floor. Measurements in both the horizontal and vertical antenna orientation were performed.

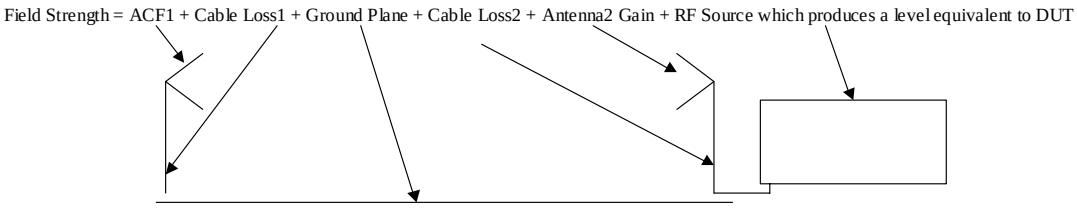
Frequency	Reading dbm	ACF	Coax corr.	Amp corr.	Corrected dbm	dbuV/m
35	-48.77	12.8	.92	-36.95	-72	35
150	-48.09	12.6	1.14	-36.03	-70.38	36.62
500	-65.34	17.9	1.82	-35.87	-81.49	25.51
2000	-65.32	27.4	3.85	-35.53	-69.6	37.4
5000	-66.36	33.1	7.27	-36.5	-62.49	44.51
9000	-70.53	37.8	10.69	-35.46	-57.5	49.5

Appendix A

Antenna Substitution Method of EIRP Measurement

First, measure the field strength of the device in accordance with the procedure in Appendix B. Second, replace the device with an antenna and connect the antenna to the output of a signal generator. Set the signal generator to the same frequency as the device emission that is being measured. Adjust the height of receiving antenna to give the highest reading. Repeat with the substitution antenna in the vertical position. Bring the position back to the polarity and height that results in the highest field strength reading. Set the signal generator to a power that results in the same field strength reading as that of the device emission. The gain of the transmitting antenna, output power of the generator, and loss of the cable can then be used to determine the EIRP of the device.





Appendix B

Field Strength Measurement Procedure

This test measures the field strength of radiated emissions using a spectrum analyzer and a receiving antenna in accordance with ANSI C63.4-2003. During the test, the EUT is to be placed on a non-conducting support at 80 cm above the horizontal ground plane of the OATS. The horizontal distance between the antenna and the EUT is to be exactly 3 meters. The bandwidths used shall be; 200 Hz from 9 kHz to 150 kHz, 9 kHz from 150 kHz to 30 MHz, 100 kHz from 30 MHz to 1000 MHz, and 1 MHz from 1 GHz to 40 GHz, with the detector set to peak hold.

1) Monitor the frequency range of interest at a fixed antenna height and EUT azimuth.
2) If appropriate, manipulate the system cables to produce the highest amplitude signal relative to the limit. Note the amplitude and frequency of the suspect signal.
3) Rotate the EUT 360° to maximize the suspected highest amplitude signal. If the signal or another at a different frequency is observed to exceed the previously noted highest amplitude signal by 1 dB or more, go back to the azimuth and repeat step b). Otherwise, orient the EUT azimuth to repeat the highest amplitude observation and proceed.
4) Move the antenna over its fully allowed range of travel to maximize the suspected highest amplitude signal. If the signal or another at a different frequency is observed to exceed the previously noted highest amplitude signal by 1 dB or more, return to step b) with the antenna fixed at this height. Otherwise, move the antenna to the height that repeats the highest amplitude observation and proceed.
5) Change the polarity of the antenna and repeat step b), step c), and step d). Compare the resulting suspected highest amplitude signal with that found for the other polarity. Select and note the higher of the two signals. This signal is termed the highest observed signal with respect to the limit for this EUT operational mode.