Engineering and Testing for EMC and Safety Compliance

CERTIFICATION APPLICATION REPORT
FCC PART 15.247

Test Lab:	Applicant:
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FCC ID:	O6Y-F1000	**GRANTEE FRN NUMBER:**	0005823877
PLAT FORM:	N/A	**RTL WORK ORDER NUMBER:**	2004217
MODEL NUMBER:	F1000	**RTL QUOTE NUMBER:**	QRTL04-419
DATE OF TEST REPORT:	December 12, 2004		

Standards and Procedures:	ANSI 63.4, DA00-705 (FHSS) and FCC 97-114 (DSSS)
FCC Classification:	DSS Spread Spectrum Transmitter
FCC Rule Part(s):	Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System
Digital Interface Information	Digital Interface was found to be compliant

Frequency Range (MHz)	Output Power*(W)	Frequency Tolerance	Emission Designator
2412-2462	0.018	N/A	N/A

* output power is maximum peak conducted

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Furthermore, there was no deviation from, additions to, or exclusions from the FCC Part 2, FCC Part 15, ANSI 63.4, DA00-705 (FHSS) and FCC 97-114 (DSSS).

Signature: _____ Date: December 12, 2004

Typed/Printed Name: Desmond A. Fraser Position: President

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1 GENERAL INFORMATION

1.1 SCOPE

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

A direct sequence (DS) system is a spread spectrum (SS) system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high-speed code sequence dominates the "modulating function" and is the direct cause of the wide spreading of the transmitted signal.

1.2 TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 2003).

1.3 RELATED SUBMITTAL(S)/GRANT(S)

This is an original FCC certification application

1.4 MODIFICATIONS

No modifications were implemented to meet testing criteria.

2 TEST INFORMATION

2.1 TEST JUSTIFICATION

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. Channel 1 at 2412 MHz, Channel 6 at 2437 MHz, and Channel 11 at 2462 MHz were tested and investigated from 9 kHz to 24 GHz. Data for all three channels are presented in this report.

The EUT is connected to an internal integral antenna. The antenna transmits and receives.

The worst case data taken in this report represents the highest data rate at 11 MBPS. Data rates of 5.5 MBPS, 2 MBPS and 1 MBPS were investigated and found to be in compliance. The change in envelope did not cause the EUT to be non-compliant in any of the aforementioned modes.

2.2 EXERCISING THE EUT

The EUT was provided with the software to continuously transmit during testing. The carrier was also checked to verify that the information was being transmitted. There were no deviations from the test standard(s) and/or methods.

2.3 TEST RESULT SUMMARY

TABLE 2-1: TEST RESULT SUMMARY WITH FCC RULES AND REGULATIONS

STANDARD	TEST	PASS/FAIL OR N/A
FCC 15.205	Compliance with the Restricted Band Edge	Pass
FCC 15.207	Conducted Emissions	Pass
FCC 15.209	Radiated Emissions	Pass
FCC 15.247(a)(2)	Modulated Bandwidth	Pass
FCC 15.247(b)	Power Output	Pass
FCC 15.247(c)	Antenna Conducted Spurious Emissions	Pass
FCC 15.247(d)	Power Spectral Density	Pass

2.4 TEST SYSTEM DETAILS

The test sample was received on November 24, 2004. The FCC Identifiers for all equipment and descriptions of all cables used in the tested system are:

TABLE 2-2: EQUIPMENT UNDER TEST (EUT)

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
F1000 WiFi Handset	UTStarcom, Inc.	F1000	000000244	O6Y-F1000	N/A	16338
F1000 WiFi Handset	UTStarcom, Inc.	F1000	000000239	O6Y-F1000	N/A	16339
F1000 WiFi Handset	UTStarcom, Inc.	F1000	000000241	O6Y-F1000	N/A	16340
Power supply	UTStarcom, Inc.	S5260005A	N/A	N/A	1.8m shielded power	16341
Power supply	UTStarcom, Inc.	S5260005A	N/A	N/A	1.8m shielded power	16342
3.6VDC Battery	UTStarcom, Inc.	HZSL10345SR	N/A	N/A	N/A	16345
3.6VDC Battery	UTStarcom, Inc.	HZSL103450A	N/A	N/A	N/A	16346
3.6VDC Battery	UTStarcom, Inc.	HZSL103450A	N/A	N/A	N/A	16347
Earphone/microphone	UTStarcom, Inc.	N/A	N/A	N/A	1.12m unshielded I/O	16343

TABLE 2-3: AUXILLIARY EQUIPMENT USED TO SETUP TESTING

Part	Manufacturer	Model	Serial Number	FCC ID	Cable Description	RTL Bar Code
Power supply	UTStarcom, Inc.	S5260005A	N/A	N/A	1.8m shielded power	16382
Programming cable	UTStarcom, Inc.	N/A	N/A	N/A	0.5m shielded I/O	16385
Programming Box	UTStarcom, Inc.	SO-WRITER	N/A	N/A	N/A	16383
Serial Cable	UTStarcom, Inc.		N/A	N/A	1.4m shielded	16384

2.5 CONFIGURATION OF TESTED SYSTEM

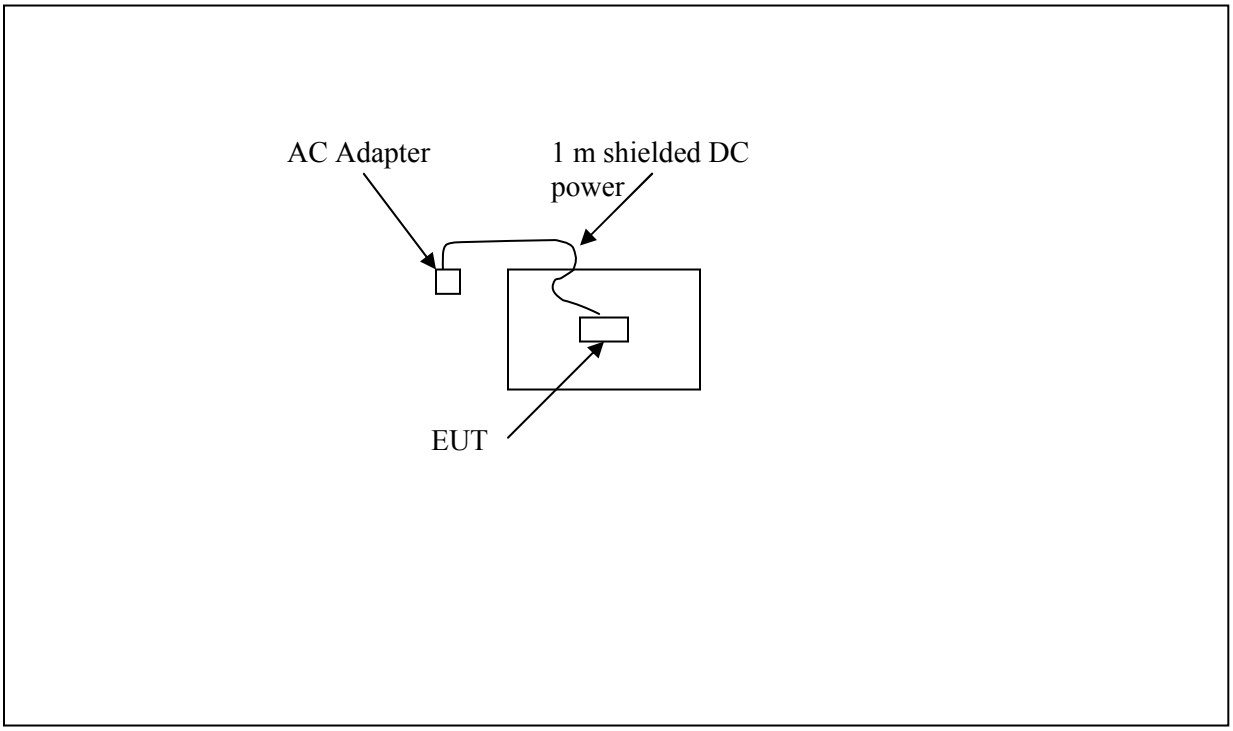


FIGURE 1: WORST CASE CONFIGURATION OF SYSTEM UNDER TEST

3 COMPLIANCE WITH THE RESTRICTED BAND EDGE - FCC §15.247(C), §15.205

3.1 TEST PROCEDURE

Compliance with the band edges was performed using the FCC's "Radiated Measurement at a Band Edge" guidance document. The final data derived below were from radiated measurements only. The data shown in this report represents the worst case at 11 MBPS. Data rates of 5.5MBPS, 2 MBPS, and 1 MBPS were investigated and found to be in compliance.

3.2 RESTRICTED BAND EDGE PLOTS

Calculation of Lower Band Edge

The level 106.2 dBuV/m is the peak field strength measurement, from which the delta measurement of 60.5 dB is subtracted (reference plots), which is equivalent to a level of 45.7 dB. This level has a margin of 8.3 dB below the limit of 54 dBuV/m.

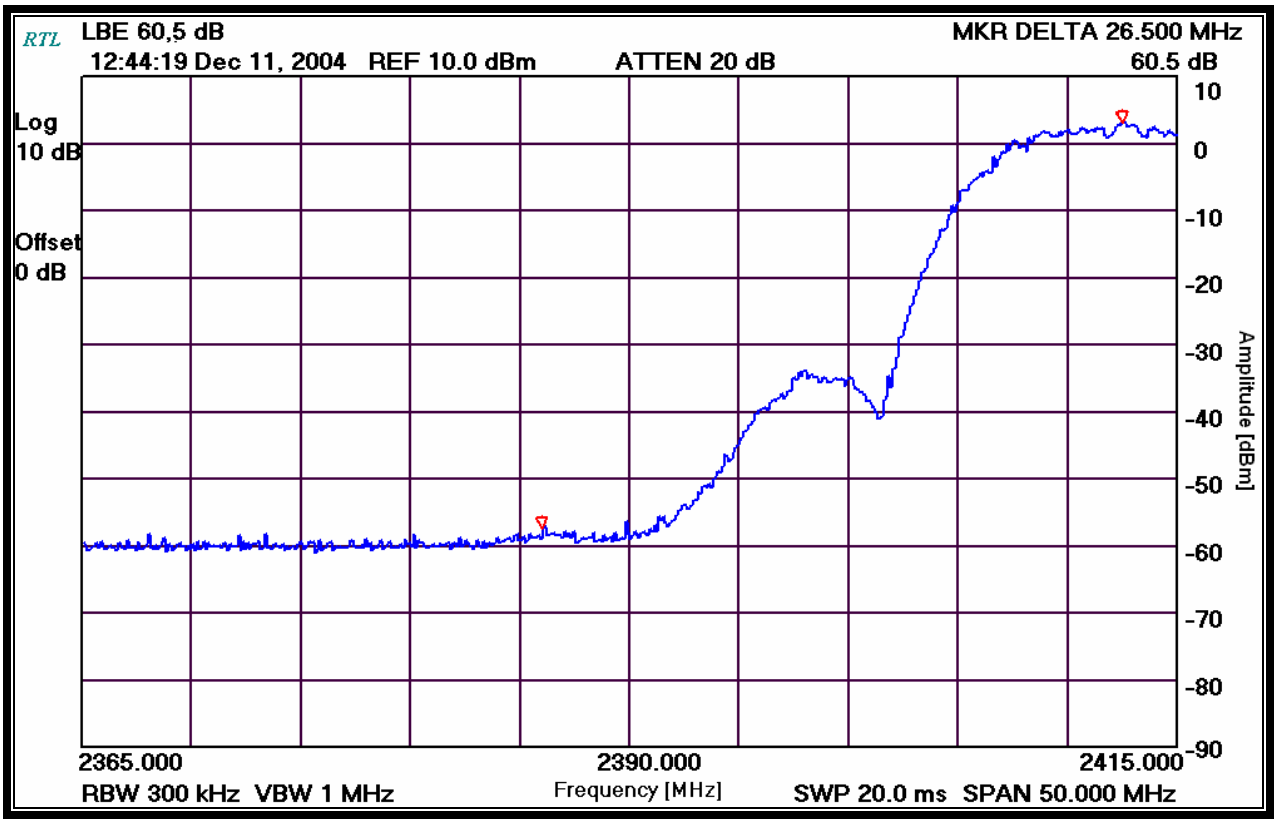
Calculation: 106.2 dBuV/m – 60.5 dB – 54 dBuV/m = -8.3 dB

Peak field strength of Channel 1(1 MHz RBW/1 MHz VBW) = 106.2 dBuV/m
Average field strength of Channel 1(1 MHz RBW/10 Hz VBW) = 100.0 dBuV/m

Delta measurement: 60.5 dB

Channel Number:	1
Frequency (MHz):	2412
Resolution Bandwidth (kHz):	300
Video Bandwidth (MHz):	1
Sweep Time (ms):	20

PLOT 3-1: LOWER BAND EDGE: DELTA MEASUREMENT



TEST PERSONNEL:

Daniel W. Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

Calculation of Upper Band Edge

The level 107.8 dBuV/m is the peak field strength measurement, from which the delta measurement of 59.2 dB is subtracted (reference plots), which is equivalent to a level of 48.6 dB. This level has a margin of 5.4 dB below the limit of 54 dBuV/m.

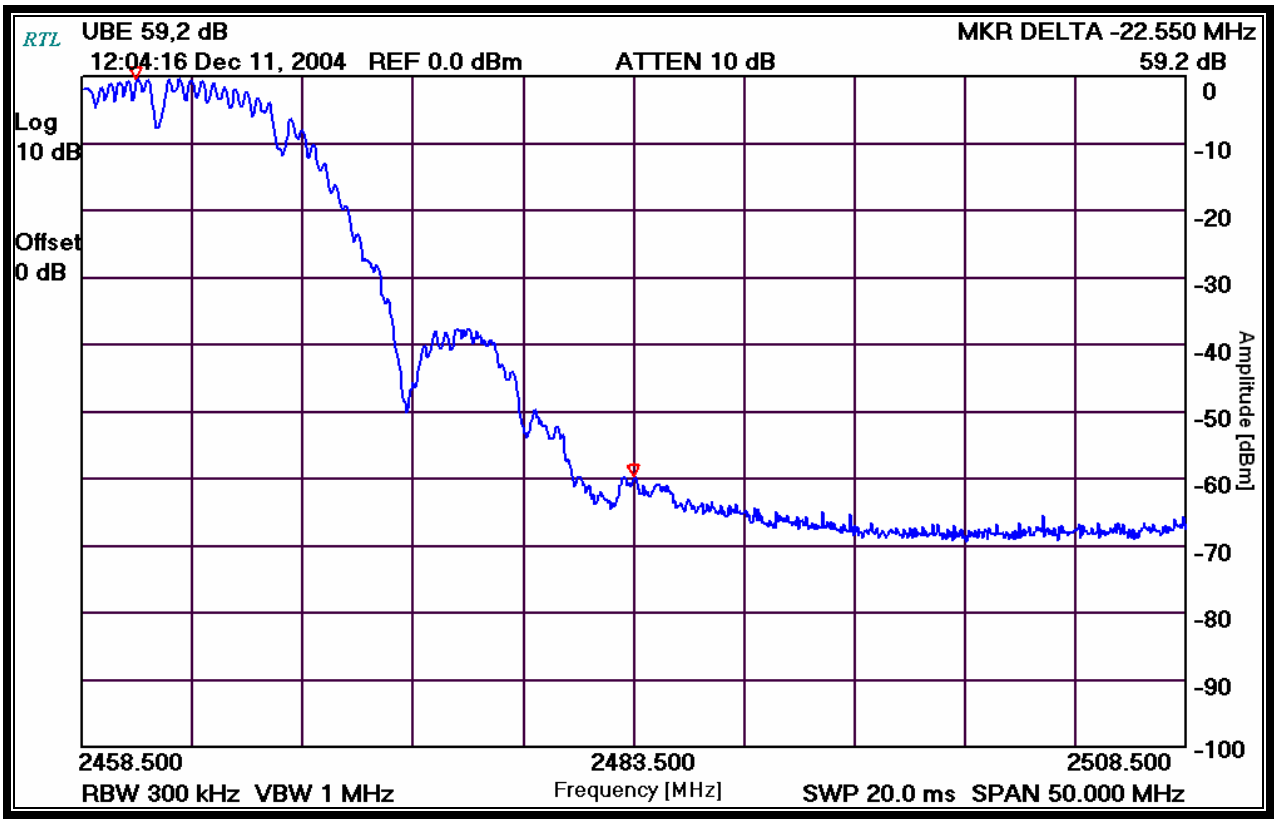
Calculation: 107.8 dBuV/m – 59.2 dB – 54 dBuV/m = -5.4 dB

Peak field strength of Channel 1(1 MHz RBW/1 MHz VBW) = 107.8 dBuV/m
Average field strength of Channel 1(1 MHz RBW/10 Hz VBW) = 99.6 dBuV/m

Delta measurement = 59.2 dB

PLOT 3-2: UPPER BAND EDGE: DELTA MEASUREMENT

Channel Number:	11
Frequency (MHz):	2462
Resolution Bandwidth (kHz):	300
Video Bandwidth (MHz):	1
Sweep Time (ms):	20



TEST PERSONNEL:

Daniel W. Baltzell	Daniel W. Baltzell	December 11, 2004
Test Engineer	Signature	Date Of Test

3.3 BAND EDGE TEST EQUIPMENT

TABLE 3-1: BAND EDGE TEST EQUIPMENT

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900878	Rhein Tech Labs	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901242	Rhein Tech Labs	WRT-000-0003	Wood rotating table	N/A	Not Required
901231	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	9/5/05
901235	IW Microwave Products	KPS-1503-360-KPS	High frequency RF cables	36"	9/5/05
900772	EMCO	3161-02	Horn Antenna	9804-1044	5/20/07
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1 - 26.5 GHz)	3008A00505	5/5/05
901215	Hewlett Packard	8596EM	Spectrum Analyzer (9 kHz - 12.8 GHz)	3826A00144	9/8/05
900931	Hewlett Packard	8566B	Spectrum Analyzer	3138A07771	6/23/05

4 CONDUCTED EMISSIONS - §15.207

4.1 TEST METHODOLOGY FOR CONDUCTED EMISSIONS MEASUREMENTS

The power line conducted emission measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm / 50 microhenry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar high pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 150 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. No video filter less than 10 times the resolution bandwidth was used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in this report.

Note: Rhein Tech Laboratories, Inc. has implemented procedures to minimize errors that occur from test instruments, calibration, procedures, and test setups. Test instrument and calibration errors are documented from the manufacturer or calibration lab. Other errors have been defined and calculated within the Rhein Tech Quality Manual, Section 6.1. Rhein Tech implements the following procedures to minimize errors that may occur: yearly as well as daily calibration methods, technician training, and emphasis to employees on avoiding error.

4.2 CONDUCTED EMISSION TEST

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emissions exceed the limit, then the instrument is set to the quasi-peak mode and compared to the quasi-peak limit, then measurements are made in the average mode and compared to the average limit. The conducted test was performed with the EUT exercise program loaded, and the emissions were scanned between 150 kHz to 30 MHz on the NEUTRAL SIDE and PHASE SIDE.

TABLE 4-1: CONDUCTED EMISSIONS TEST EQUIPMENT

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900339	Hewlett Packard	85650A	Quasi-Peak Adapter (30 Hz - 1 GHz)	2521A00743	4/28/05
901083	AFJ international	LS16	16A LISN	16010020080	3/24/06
900968	Hewlett Packard	8567A	Spectrum Analyzer (10 kHz - 1.5 GHz)	2602A00160	4/28/05
900970	Hewlett Packard	85662A	Spectrum Analyzer Display	2542A11239	4/28/05

4.3 CONDUCTED EMISSION TEST DATA

TABLE 4-2: CONDUCTED EMISSIONS (NEUTRAL SIDE) TRANSMITTING CH 1

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.151	Av	11.1	2.0	13.1	65.9	-52.8	55.9	-42.8
0.151	Qp	41.8	2.0	43.8	65.9	-22.1	55.9	-12.1
0.296	Pk	37.6	1.1	38.7	60.4	-21.7	50.4	-11.7
0.411	Pk	30.7	1.0	31.7	57.6	-25.9	47.6	-15.9
1.597	Pk	32.9	1.2	34.1	56.0	-21.9	46.0	-11.9
3.730	Pk	32.5	1.7	34.2	56.0	-21.8	46.0	-11.8
25.310	Pk	21.7	4.3	26.0	60.0	-34.0	50.0	-24.0

TABLE 4-3: CONDUCTED EMISSIONS (PHASE SIDE) TRANSMITTING CH 1

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.151	Qp	42.6	2.0	44.6	65.9	-21.3	55.9	-11.3
0.151	Av	14.4	2.0	16.4	65.9	-49.5	55.9	-39.5
0.297	Pk	40.4	1.0	41.4	60.3	-18.9	50.3	-8.9
0.413	Pk	36.5	1.0	37.5	57.6	-20.1	47.6	-10.1
0.590	Pk	35.8	0.8	36.6	56.0	-19.4	46.0	-9.4
4.090	Pk	31.7	1.8	33.5	56.0	-22.5	46.0	-12.5
22.910	Pk	23.8	4.2	28.0	60.0	-32.0	50.0	-22.0

TABLE 4-4: CONDUCTED EMISSIONS (NEUTRAL SIDE) TRANSMITTING CH 6

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.209	Pk	21.5	1.6	23.1	63.2	-40.1	53.2	-30.1
0.276	Pk	20.4	1.2	21.6	60.9	-39.3	50.9	-29.3
0.344	Pk	21.4	1.0	22.4	59.1	-36.7	49.1	-26.7
0.550	Pk	18.8	0.8	19.6	56.0	-36.4	46.0	-26.4
6.190	Pk	19.1	2.1	21.2	60.0	-38.8	50.0	-28.8
20.100	Pk	18.8	3.8	22.6	60.0	-37.4	50.0	-27.4

TABLE 4-5: CONDUCTED EMISSIONS (PHASE SIDE) TRANSMITTING CH 6

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.205	Pk	19.4	1.6	21.0	63.4	-42.4	53.4	-32.4
0.275	Pk	20.5	1.2	21.7	61.0	-39.3	51.0	-29.3
0.344	Pk	19.9	1.0	20.9	59.1	-38.2	49.1	-28.2
0.719	Pk	18.3	0.9	19.2	56.0	-36.8	46.0	-26.8
13.320	Pk	19.9	3.3	23.2	60.0	-36.8	50.0	-26.8
28.800	Pk	18.0	4.4	22.4	60.0	-37.6	50.0	-27.6

TABLE 4-6: CONDUCTED EMISSIONS (NEUTRAL SIDE) TRANSMITTING CH 11

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.208	Pk	19.9	1.6	21.5	63.3	-41.8	53.3	-31.8
0.274	Pk	18.2	1.2	19.4	61.0	-41.6	51.0	-31.6
0.344	Pk	22.4	1.0	23.4	59.1	-35.7	49.1	-25.7
0.550	Pk	18.7	0.8	19.5	56.0	-36.5	46.0	-26.5
2.090	Pk	20.0	1.4	21.4	56.0	-34.6	46.0	-24.6
22.590	Pk	18.7	4.1	22.8	60.0	-37.2	50.0	-27.2

TABLE 4-7: CONDUCTED EMISSIONS (PHASE SIDE) TRANSMITTING CH 11

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)
0.205	Pk	19.7	1.6	21.3	63.4	-42.1	53.4	-32.1
0.274	Pk	20.4	1.2	21.6	61.0	-39.4	51.0	-29.4
0.346	Pk	20.3	1.0	21.3	59.1	-37.8	49.1	-27.8
0.548	Pk	18.5	0.8	19.3	56.0	-36.7	46.0	-26.7
2.610	Pk	18.3	1.5	19.8	56.0	-36.2	46.0	-26.2
23.310	Pk	18.4	4.2	22.6	60.0	-37.4	50.0	-27.4

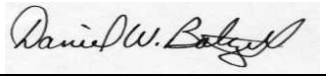
TABLE 4-8: CONDUCTED EMISSIONS (NEUTRAL SIDE) RECEIVE

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**QP Limit (dBuV)**	**QP Margin (dBuV)**	**AV Limit (dBuV)**	**AV Margin (dBuV)**
0.154	Av	17.6	2.0	19.6	65.8	-46.2	55.8	-36.2
0.154	Qp	39.2	2.0	41.2	65.8	-24.6	55.8	-14.6
0.197	Av	16.3	1.7	18.0	63.7	-45.7	53.7	-35.7
0.197	Qp	25.4	1.7	27.1	63.7	-36.6	53.7	-26.6
0.350	Pk	38.0	1.0	39.0	59.0	-20.0	49.0	-10.0
1.277	Pk	35.7	1.1	36.8	56.0	-19.2	46.0	-9.2
3.010	Pk	34.1	1.5	35.6	56.0	-20.4	46.0	-10.4
26.400	Pk	39.6	4.3	43.9	60.0	-16.1	50.0	-6.1

TABLE 4-9: CONDUCTED EMISSIONS (PHASE SIDE) RECEIVE

Temperature: 74°F Humidity: 28%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**QP Limit (dBuV)**	**QP Margin (dBuV)**	**AV Limit (dBuV)**	**AV Margin (dBuV)**
0.154	Qp	38.9	2.0	40.9	65.8	-24.9	55.8	-14.9
0.156	Av	19.8	2.0	21.8	65.7	-43.9	55.7	-33.9
0.174	Qp	33.3	1.8	35.1	64.8	-29.7	54.8	-19.7
0.176	Av	32.7	1.8	34.5	64.7	-30.2	54.7	-20.2
0.439	Pk	39.9	0.9	40.8	57.1	-16.3	47.1	-6.3
0.740	Pk	34.5	0.9	35.4	56.0	-20.6	46.0	-10.6
4.930	Pk	34.2	2.0	36.2	56.0	-19.8	46.0	-9.8
26.610	Pk	39.0	4.4	43.4	60.0	-16.6	50.0	-6.6

TEST PERSONNEL:



Daniel W. Baltzell		December 12, 2004
Test Engineer	Signature	Date Of Test

5 RADIATED EMISSION FOR RECEIVER/DIGITAL INTERFACE - §15.209

5.1 RADIATED EMISSION TEST PROCEDURE FOR RECEIVER/DIGITAL INTERFACE

The IF, LO and up to the 2nd LO of the receiver were investigated. The data in this report represents the worst case modes.

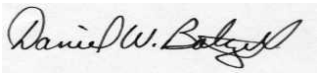
5.2 RADIATED EMISSION TEST DATA RECEIVER/DIGITAL INTERFACE

TABLE 5-1: RADIATED EMISSIONS

Temperature: 42°F Humidity: 62%									
Emission Frequency (MHz)	**Test Detector**	**Antenna Polarity (H/V)**	**Turntable Azimuth (deg)**	**Antenna Height (m)**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB/m)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**
130.000	Qp	V	90	1.0	43.1	-18.2	24.9	43.5	-18.6
260.000	Qp	H	0	1.0	40.6	-15.8	24.8	46.0	-21.2
276.666	Qp	H	90	1.0	44.3	-15.9	28.4	46.0	-17.6
288.329	Qp	H	260	1.0	49.7	-15.9	33.8	46.0	-12.2
311.660	Qp	H	230	1.0	45.1	-14.9	30.2	46.0	-15.8
390.000	Qp	V	180	1.0	43.8	-12.9	30.9	46.0	-15.1

QP: RES. =100 KHZ, VID= 100 KHZ

TEST PERSONNEL:



Daniel W. Baltzell		December 12, 2004
Test Engineer	Signature	Date Of Test

6 RADIATED EMISSION RADIATED HARMONICS/SPURIOUS NOISE - §15.247

6.1 RADIATED EMISSION TEST PROCEDURE FOR HARMONICS/SPURIOUS NOISE

Radiated Spurious Emissions applies to harmonics and spurious emissions that fall in the restricted bands when the EUT is configured in the transmit mode. The restricted bands are listed in Part 15.205. The maximum permitted average field strength for the restricted band is listed in Part 15.209. The EUT was tested in three orthogonal planes from 10 kHz to the 10th harmonic of the fundamental. The data in this report represents the worst case modes.

6.2 RADIATED EMISSIONS HARMONICS/SPURIOUS TEST DATA

TABLE 6-1: RADIATED EMISSIONS HARMONICS/SPURIOUS CHANNEL 1 / 2412 MHZ)

Emission Frequency (MHz)	Peak Test Detector (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4824.0	37.3	14.3	51.6	54.0	-2.4
7236.0	36.2	13.1	49.3	86.2	-36.9
9648.0	36.2	18.6	54.8	86.2	-31.4
12060.0	31.2	19.9	51.1	54.0	-2.9

Fundamental Field Strength (100 kHz / dBuV/m): 106.2

TABLE 6-2: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6 / 2437 MHZ)

Emission Frequency (MHz)	Peak Test Detector (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4874.0	35.9	14.4	50.3	54	-3.7
7311.0	36.0	13.1	49.1	54	-4.9
9748.0	36.4	18.2	54.6	86.6	-32.0
12185.0	29.7	18.5	48.2	54	-5.8

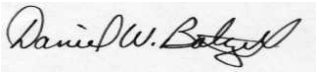
Fundamental Field Strength (100 kHz / dBuV/m): 106.6

TABLE 6-3: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 11 / 2462 MHZ)

Emission Frequency (MHz)	Peak Test Detector (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4924.0	35.0	14.7	49.7	54	-4.3
7386.0	36.7	13.3	50.0	54	-4.0
9848.0	36.4	18.2	54.6	87.8	-33.2
12310.0	29.5	18.7	48.2	54	-5.8

Fundamental Field Strength (100 kHz / dBuV/m): 107.8

TEST PERSONNEL:



Daniel W. Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

6.3 TEST EQUIPMENT USED FOR TESTING

TABLE 6-4: RADIATED SPURIOUS EMISSIONS TEST EQUIPMENT

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900878	Rhein Tech Labs	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901242	Rhein Tech Labs	WRT-000-0003	Wood rotating table	N/A	Not Required
901231	IW Microwave Products	KPS-1503-2400-KPS	High frequency RF cables	240"	9/5/05
901235	IW Microwave Products	KPS-1503-360-KPS	High frequency RF cables	36"	9/5/05
900772	EMCO	3161-02	Horn Antenna (2–4 GHz)	9804-1044	05/20/07
900321	EMCO	3161-03	Horn Antennas (4-8,2 GHz)	9508-1020	05/20/07
900323	EMCO	3160-7	Horn Antennas (8,2-12,4 GHz)	9605-1054	05/20/07
900325	EMCO	3160-9	Horn Antennas (18-26.5 GHz)	9605-1051	05/20/07
900932	Hewlett Packard	8449B OPT H02	Preamplifier (1-26.5 GHz)	3008A00505	5/5/05
901020	Hewlett Packard	8564E	Portable Spectrum Analyzer (9 kHz-40 GHz)	3943A01719	8/11/05

7 MODULATED BANDWIDTH - §15.247(A)(2)

7.1 MODULATED BANDWIDTH TEST PROCEDURE

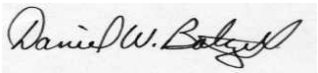
The minimum 6 dB bandwidth per FCC 15.247 (a)(2) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 1 MHz. The minimum 6 dB modulated bandwidths are the following:

7.2 MODULATED BANDWIDTH TEST DATA

TABLE 7-1: MINIMUM 6 DB MODULATED BANDWIDTHS

CHANNEL	6 dB BANDWIDTH (MHz)
1	10.15
6	10.15
11	10.20

TEST PERSONNEL:

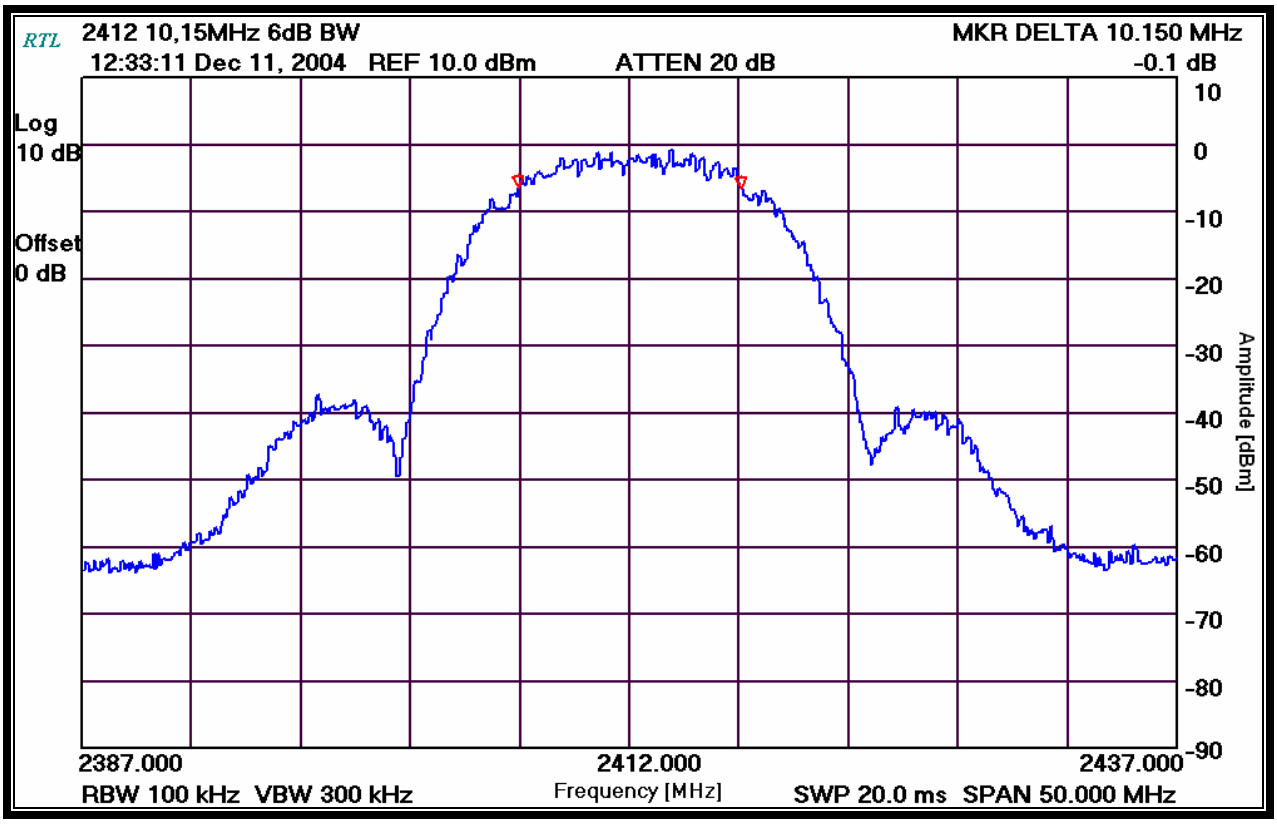


Daniel Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

7.3 MODULATED BANDWIDTH PLOTS

Channel Number:	1
Frequency (MHz):	2412
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (ms):	20.0

PLOT 7-1: MODULATED BANDWIDTH CHANNEL 1

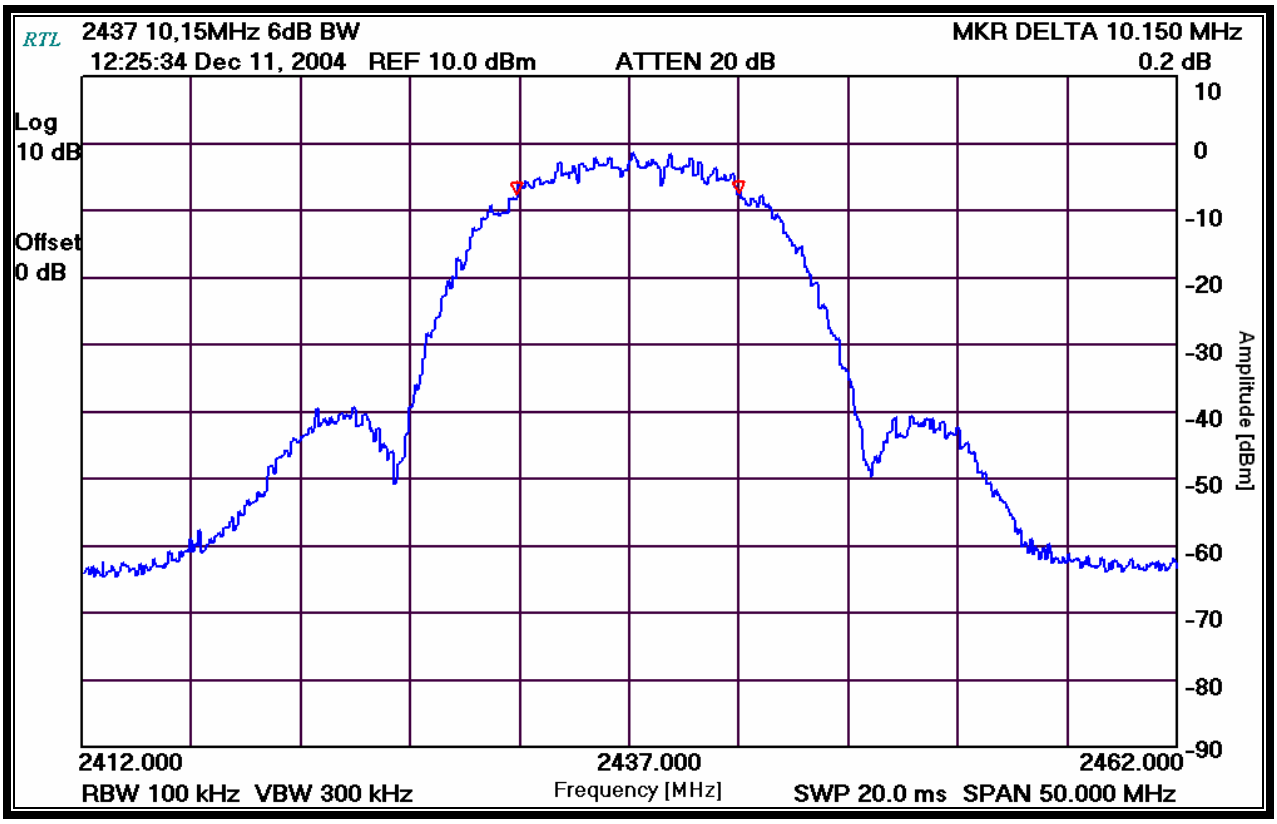


TEST PERSONNEL:

Daniel Baltzell	Daniel W. Baltzell	December 11, 2004
Test Engineer	Signature	Date Of Test

Channel Number:	6
Frequency (MHz):	2437
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (ms):	20.0

PLOT 7-2: MODULATED BANDWIDTH CHANNEL 6

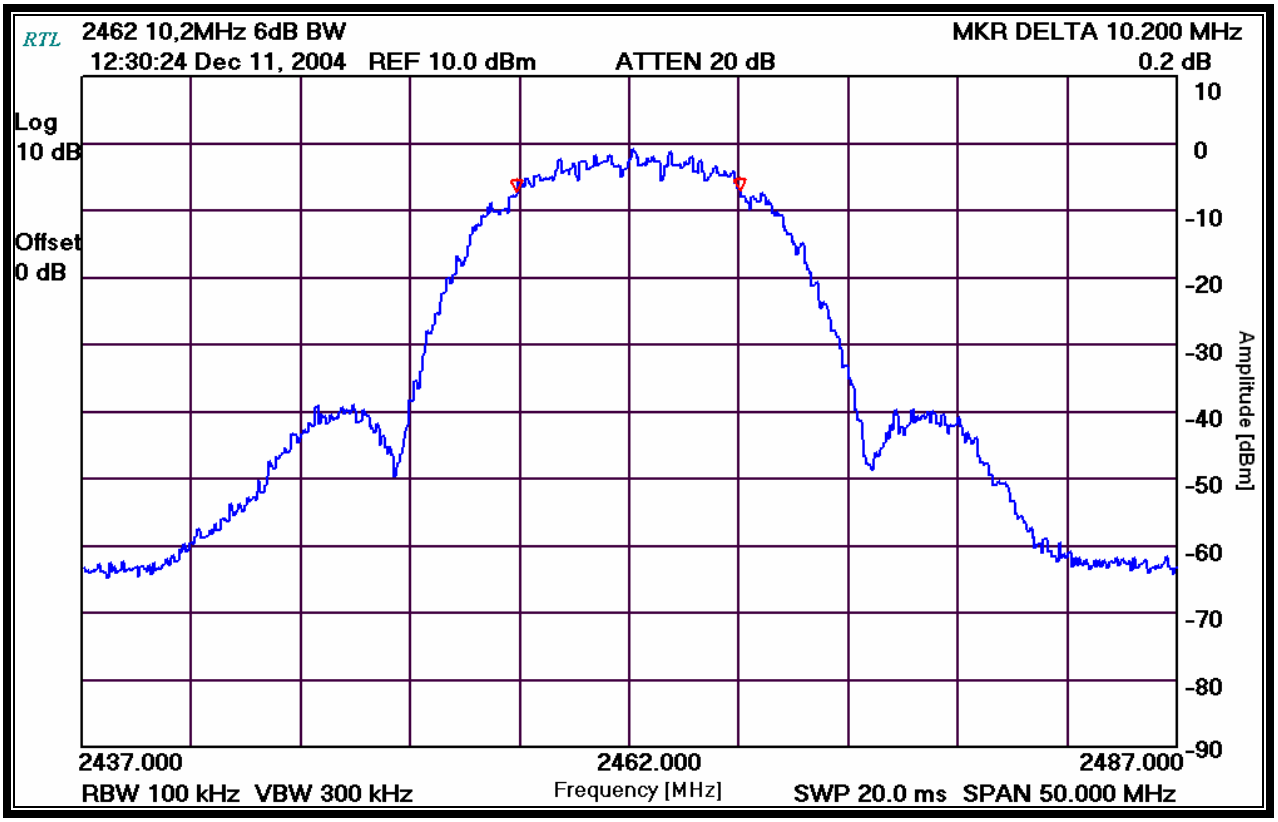


TEST PERSONNEL:

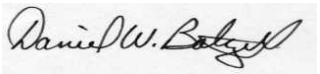
Daniel Baltzell	Daniel W. Baltzell	December 11, 2004
Test Engineer	Signature	Date of Test

Channel Number:	11
Frequency (MHz):	2462
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (ms):	20.0

PLOT 7-3: MODULATED BANDWIDTH CHANNEL 11



TEST PERSONNEL:

Daniel Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

7.4 TEST EQUIPMENT USED FOR TESTING

TABLE 7-2: TEST EQUIPMENT USED FOR TESTING (MODULATED BANDWIDTH)

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900931	Hewlett Packard	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771	6/23/05

8 PEAK OUTPUT POWER - FCC §15.247(B)(1)

8.1 POWER OUTPUT TEST PROCEDURE

The conducted output power of the EUT was measured using an Agilent 4416A EPM-P Series Power Meter with an E9323A Peak and Average Power Sensor.

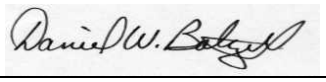
8.2 POWER OUTPUT TEST DATA

TABLE 8-1: POWER OUTPUT TEST DATA

CHANNEL	POWER CONDUCTED OUTPUT (dBm)
1	12.5
6	12.1
11	11.6

*Measurement accuracy is +/- 1.5 dB

TEST PERSONNEL:



Daniel W. Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

8.3 TEST EQUIPMENT USED FOR TESTING

TABLE 8-2: TEST EQUIPMENT USED FOR TESTING RF POWER OUTPUT

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901356	Agilent Technologies	E9323A	Peak & Average Power Sensor (50 MHz - 6 GHz)	31764-261	9/10/05
901184	Agilent Technologies	E4416A	EPM-P Power Meter, single channel	GB41050573	8/2/05

9 ANTENNA CONDUCTED SPURIOUS EMISSIONS - §15.247(C)

9.1 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST PROCEDURES

Antenna spurious emission per FCC 15.247(c) was measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. The modulated carrier was identified at 2.412 GHz for Channel 1, 2.437 GHz for Channel 6, and 2.462 GHz for Channel 11. No other harmonics or spurs were found within 20 dB of the carrier level, and from 9 kHz to the carriers 10^{th} harmonic. A notch filter was not used; it was found to have no effect in the levels.

Channels 1, 6, and 11 were investigated and tested.

9.2 ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 1

Operating Frequency (MHz): 2412
Channel: 1
Measured Peak Conducted Power (dBm): -.6
Conducted Spurious Limit (dBm): -20.6

TABLE 9-1: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 1

Frequency (MHz)	Measured Level (dBm)	Measured Level (dBc)	Limits (dBc)	Margin (dB)
1807.2	-58.7	58.1	20.0	-38.1
4824.0	-67.3	66.7	20.0	-46.7
7236.0	-78.3	77.7	20.0	-57.7
9648.0	-70.9	70.3	20.0	-50.3
12060.0	-81.3	80.7	20.0	-60.7
14472.0	-76.4	75.8	20.0	-55.8
16884.0	-76.7	76.1	20.0	-56.1
19296.0	-71.5	70.9	20.0	-50.9
21708.0	-71.6	71.0	20.0	-51.0
24120.0	-88.3	87.7	20.0	-67.7

9.3 ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 6

Operating Frequency (MHz): 2437
Channel: 6
Measured Peak Conducted Power (dBm): -0.9
Conducted Spurious Limit (dBm): -20.9

TABLE 9-2: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 6

Frequency (MHz)	Measured Level (dBm)	Measured Level (dBc)	Limits (dBc)	Margin (dB)
1844.6	-59.1	58.2	20.0	-38.2
4874.0	-67.7	66.8	20.0	-46.8
7311.0	-80.4	79.5	20.0	-59.5
9748.0	-73.9	73.0	20.0	-53.0
12185.0	-80.5	79.6	20.0	-59.6
14622.0	-75.4	74.5	20.0	-54.5
17059.0	-76.7	75.8	20.0	-55.8
19496.0	-71.3	70.4	20.0	-50.4
21933.0	-71.7	70.8	20.0	-50.8
24370.0	-88.7	87.8	20.0	-67.8

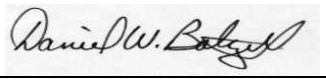
9.4 ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 11

Operating Frequency (MHz): 2462
Channel: 11
Measured Peak Conducted Power (dBm): -0.7
Conducted Spurious Limit (dBm): -20.7

TABLE 9-3: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 11

Frequency (MHz)	Measured Level (dBm)	Measured Level (dBc)	Limits (dBc)	Margin (dB)
1881.7	-58.5	57.8	20.0	-37.8
4924.0	-62.7	62.0	20.0	-42.0
7386.0	-73.2	72.5	20.0	-52.5
9848.0	-78.3	77.6	20.0	-57.6
12310.0	-80.1	79.4	20.0	-59.4
14772.0	-75.9	75.2	20.0	-55.2
17234.0	-77.3	76.6	20.0	-56.6
19696.0	-71.0	70.3	20.0	-50.3
22158.0	-71.0	70.3	20.0	-50.3
24620.0	-88.4	87.7	20.0	-67.7

TEST PERSONNEL:



Daniel W. Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

10 POWER SPECTRAL DENSITY - §15.247(D)

10.1 POWER SPECTRAL DENSITY TEST PROCEDURE

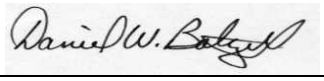
The power spectral density per FCC 15.247(d) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3 kHz, the video bandwidth set at 30 kHz, and the sweep time set at 500 seconds. The test was performed as a conducted test. The spectral lines were resolved for the modulated carriers at 2.412 GHz, 2.437 GHz, and 2.462GHz respectively. These levels are well below the +8 dBm limit. See the power spectral density table and plots that follow.

10.2 POWER SPECTRAL DENSITY TEST DATA

TABLE 10-1: POWER SPECTRAL DENSITY

CHANNEL	POWER SPECTRAL DENSITY (dBm) (LIMIT = +8dBm)
1	-13.8
6	-14.4
11	-14.4

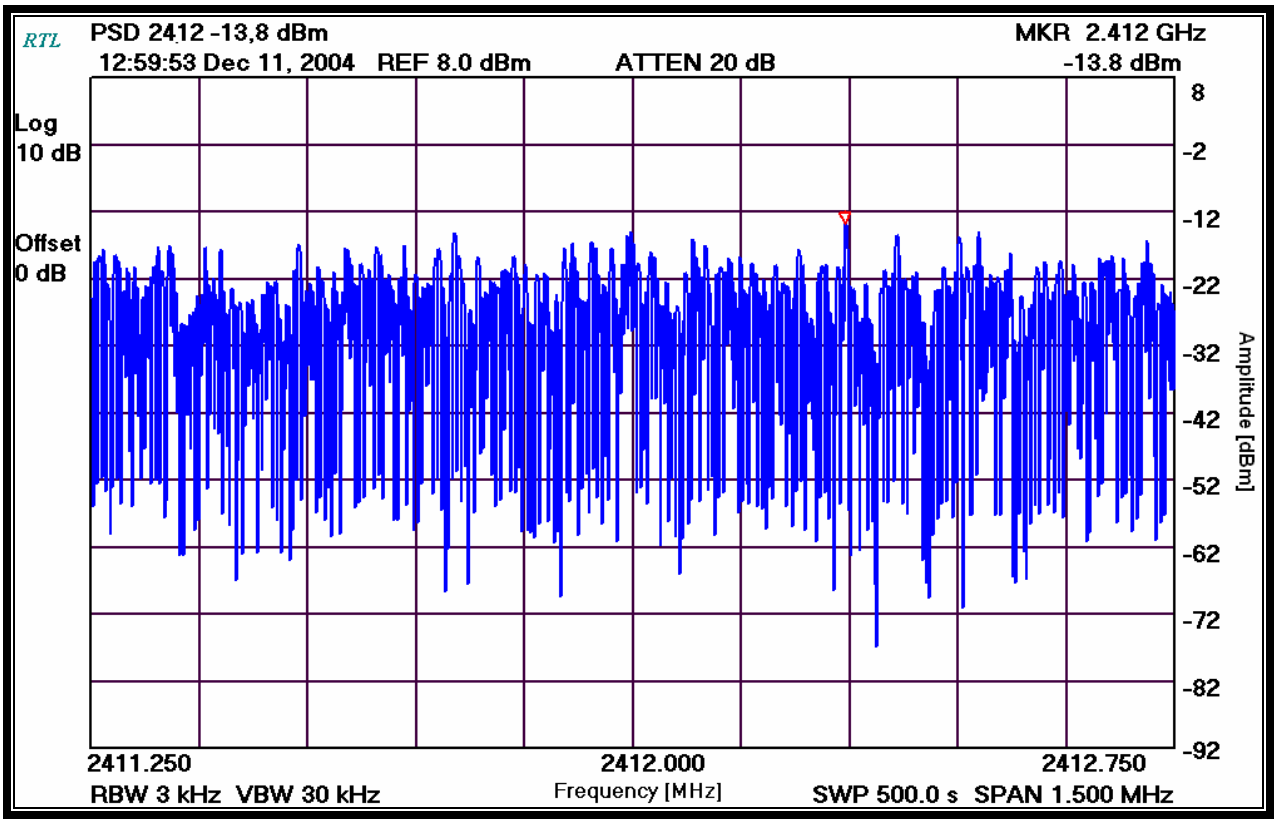
TEST PERSONNEL:

Daniel Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

10.3 POWER SPECTRAL DENSITY PLOTS

Operating Frequency (MHz):	2412
Channel:	1
Measured Peak Conducted Power (dBm):	12.5
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	30
Sweep Time (s):	500

PLOT 10-1: POWER SPECTRAL DENSITY: CHANNEL 1

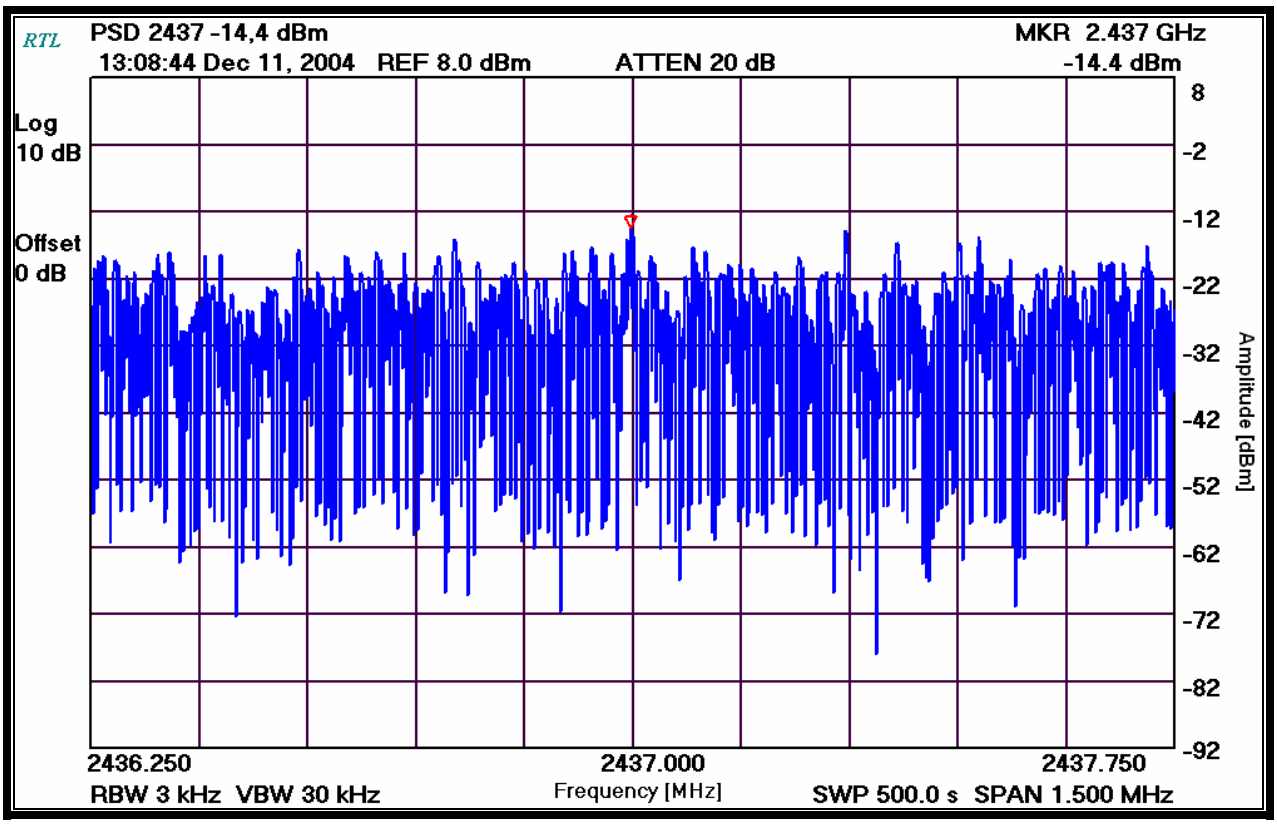


TEST PERSONNEL:

Daniel Baltzell	Daniel W. Baltzell	December 11, 2004
Test Engineer	Signature	Date Of Test

Operating Frequency (MHz):	2437
Channel:	6
Measured Peak Conducted Power (dBm):	12.1
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	30
Sweep Time (s):	500

PLOT 10-2: POWER SPECTRAL DENSITY: CHANNEL 6

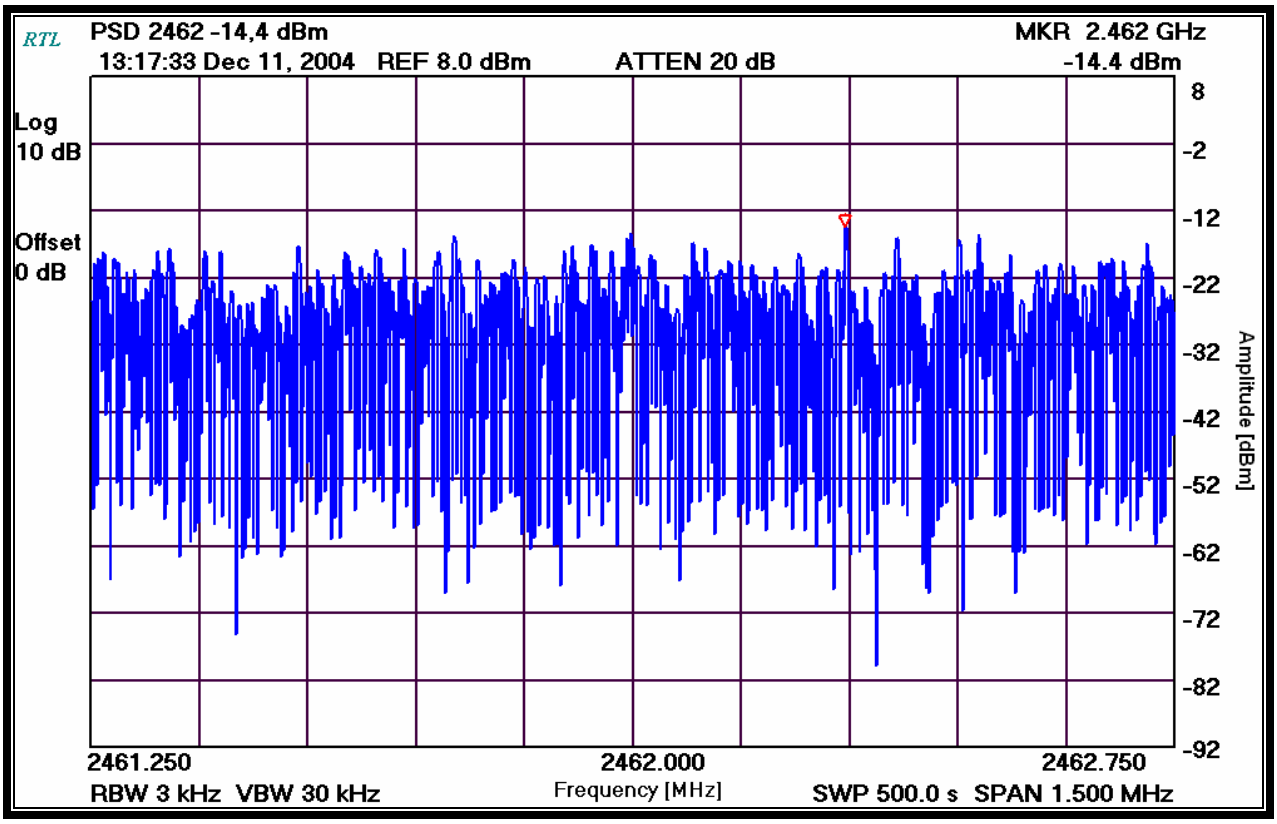


TEST PERSONNEL:

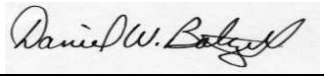
Daniel Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

Operating Frequency (MHz):	2462
Channel:	11
Measured Peak Conducted Power (dBm):	11.6
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	30
Sweep Time (s):	500

PLOT 10-3: POWER SPECTRAL DENSITY: CHANNEL 11



TEST PERSONNEL:

Daniel Baltzell		December 11, 2004
Test Engineer	Signature	Date Of Test

10.4 TEST EQUIPMENT USED FOR TESTING

TABLE 10-2: TEST EQUIPMENT USED FOR TESTING (POWER SPECTRAL DENSITY)

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
900931	Hewlett Packard	8566B	Spectrum Analyzer (100 Hz – 22 GHz)	3138A07771	6/23/05

11 CONCLUSION

The data in this measurement report shows that the UTStarcom, Model F1000, FCC ID: O6Y-F1000, complies with all the applicable requirements of Parts 2 and 15 of the FCC Rules and ANSI 63.4.