SK TECH CO., LTD.

TEST REPORT

Test Report No.:	**SKTRFC-110729-015**		
Applicant:	**mondo systems, inc.**		
Applicant Address:	3F, Dongyang Bldg.,128-5, Cheongpa-Dong, 3-ga, Yongsan-Gu, Seoul, 140-133, South Korea		
Manufacturer:	**mondo systems, inc.**		
Manufacturer Address:	3F, Dongyang Bldg.,128-5, Cheongpa-Dong, 3-ga, Yongsan-Gu, Seoul, 140-133, South Korea		
Device Under Test:	**SUBWOOFER**		
FCC ID: **IC:**	**VAP-SBEV40SUB** **9737A-SBEV40SUB**	**Model Name:**	**SBEV40-SLIM.SUB**
Variant Model Name:	-		
Brand/Trade Name:	**Evoke Slim Soundbar / Haier**		
Receipt No.:	SKTEU11-0822	**Date of receipt:**	July 11, 2011
Date of Issue:	July 29, 2011		
Location of Testing:	**SK TECH CO., LTD.** #820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea		
Test Procedure:	**ANSI C63.4-2003**		
Test Specification:	**47CFR, Part 15 Rules, RSS-210 Issue 8**		
Equipment Class:	**DXT - Part 15 Low Power Transceiver, Rx Verified** **RSS-210 Issue 8 - Category I Equipment**		
Test Result:	The above-mentioned device has been tested and passed.		

Tested & Reported by: *Jungtae Kim*

July 29, 2011

Signature *Date*

Approved by: *Jongsoo Yoon*

July 29, 2011

Signature *Date*

Other Aspects:	-
Abbreviations:	**· OK, Pass = passed · Fail = failed · N/A = not applicable**

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1. GENERAL

These tests were performed using the test procedure outlined in ANSI C63.4, 2003 for intentional radiators, and in accordance with the limits set forth in FCC Part 15.249 and RSS-210 Annex 2, A2.9. The EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards.

We attest to the accuracy of data. All measurements reported herein were performed by SK TECH CO., LTD. and were made under Chief Engineer's supervision.
We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

2. TEST SITE

SK TECH CO., LTD.

2.1 Location

820-2, Wolmoon-ri, Wabu-up, Namyangju-si, Kyunggi-do, 472-905 South Korea
(FCC Registered Test Site Number: 938639)
(OPEN AREA TEST SITE INDUSTRY CANADA NUMBER: IC 5429A-1)

This test site is in compliance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.
This laboratory is recognized as a Conformity Assessment Body (CAB) for CAB's Designation Number: KR0007 by FCC, is accredited by NVLAP for NVLAP Lab. Code: 200220-0.

2.2 List of Test and Measurement Instruments

No.	Description	Manufacturer	Model No.	Serial No.	Calibrated until	Used
1	Spectrum Analyzer	Agilent	E4405B	US40520856	2012.03	
2	Spectrum Analyzer	Agilent	E4440A	MY46186322	2012.05	☒
3	EMC Spectrum Analyzer	Agilent	E7405A	US40240203	2012.03	☒
4	EMI Test Receiver	Rohde&Schwarz	ESPI7	101206	2012.07	☒
5	EMI Test Receiver	Rohde&Schwarz	ESIB40	100277	2012.03	☒
6	EMI Test Receiver	Rohde&Schwarz	ESHS10	862970/019	2012.07	☒
7	Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	836679/018	2012.07	☒
8	Pre-amplifier	HP	8447F	3113A05153	2012.07	☒
9	Pre-amplifier	MITEQ	AFS44	1116321	2011.12	
10	Pre-amplifier	MITEQ	AFS44	1116322	2012.07	☒
11	Power Meter	Agilent	E4417A	MY45100426	2012.07	
12	Power Meter	Agilent	E4418B	US39402176	2012.07	
13	Power Sensor	Agilent	E9327A	MY44420696	2012.07	
14	Power Sensor	Agilent	8482A	MY41094094	2012.07	
15	Power Sensor	Agilent	8485A	3318A13916	2012.07	
16	Attenuator (10dB)	HP	8491B	38067	2012.07	☒
17	Attenuator (20dB)	Weinschel	44	AH6967	2012.07	
18	High Pass Filter	Wainwright	WHKX3.0/18G	8	2012.07	☒
19	VHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	VHAP	1014 / 1015	2012.05	
20	UHF Precision Dipole Antenna (TX/RX)	Schwarzbeck	UHAP	989 / 990	2012.05	
21	Loop Antenna	Schwarzbeck	HFH2-Z2	863048/019	2011.11	☒
22	TRILOG Broadband Antenna	Schwarzbeck	VULB9168	230	2012.07	☒
23	TRILOG Broadband Antenna	Schwarzbeck	VULB9168	189	2012.05	
24	Horn Antenna	AH Systems	SAS-200/571	304	N/A	
25	Horn Antenna	EMCO	3115	00040723	2012.04	
26	Horn Antenna	EMCO	3115	00056768	2012.10	☒
27	Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170318	2013.09	☒
28	Vector Signal Generator	Agilent	E4438C	MY42080359	2012.07	
29	PSG analog signal generator	Agilent	E8257D-520	MY45141255	2012.07	
30	DC Power Supply	HP	6633A	3325A04972	2012.07	
31	DC Power Supply	HP	6268B	2542A-07856	2012.07	
32	Temperature/Humidity Chamber	All Three	ATM-50M	20030425	2012.03	
33	Hygro/Thermo Graph	SATO	PC-5000TRH-II	-	2012.07	☒

2.3 Test Date

Date of Test: July 22, 2011 ~ July 25, 2011

2.4 Test Environment

See each test item's description.

3. DESCRIPTION OF THE EQUIPMENT UNDER TEST

The product specification described herein was obtained from the product data sheet or user's manual.

3.1 Rating and Physical Characteristics

Power source	DC 24 V (from AC/DC adaptor)
Local Oscillator or X-Tal	(RF module) X-Tal: 16 MHz
Tx/Rx Frequency	2404 MHz to 2479 MHz (16 channels)
Antenna Type	Internal PCB antenna
Type of Modulation	GFSK
External Ports	None

3.2 Equipment Modifications

The firmware was modified to perform the measurements; continuous transmitting/receiving at the lowest (2404 MHz), Middle (2444 MHz), and highest (2479 MHz) frequency. The operating frequency was changed by pressing the PAIRING button on the EUT.

3.3 Submitted Documents

Block diagram

Schematic diagram

Antenna Specification

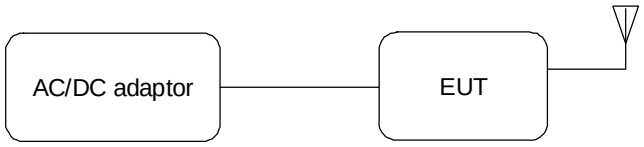
Part List

User manual

4. MEASUREMENT CONDITIONS

4.1 Description of test configuration

The EUT was tested as a stand-alone device with continuous transmitting mode provided by the applicant.



[Block Diagram of Test Configuration]

4.2 List of Peripherals

Equipment Type	Manufacturer	Model	S/N
-	-	-	-

** The EUT was tested as a stand-alone device.

4.3 Type of Used Cables

#	START		END		CABLE	
	NAME	I/O PORT	NAME	I/O PORT	LENGTH(m)	SHIELDED
1	EUT	DC IN	AC/DC Adaptor	DC OUT	1.2	w/ferrite core
2	AC/DC Adaptor	AC IN	AC Mains	AC Mains	1.4	NO

4.4 Uncertainty

Measurement Item	Combined Standard Uncertainty *Uc*	Expanded Uncertainty $U = kUc$ ($k = 2$)
Radiated disturbance	± 2.30 dB	± 4.60 dB
Conducted disturbance	± 1.96 dB	± 3.92 dB

5. TEST AND MEASUREMENTS

Summary of Test Results

Requirement	FCC, 47CFR15	RSS Standards	Report Section	Test Result
Antenna Requirement	15.203	RSS-Gen, 7.1.2	5.1	PASS
Radiated Emissions	15.249(a)&(d), 15.209(a)	RSS-210 Annex 2, A2.9 RSS-Gen 7.2.5	5.2	PASS
AC Power Line Conducted Emissions	15.207(a)	RSS-Gen, 7.2.4	5.3	PASS
Receiver Spurious emissions	-	RSS-Gen, 6.1	5.4	PASS

5.1 ANTENNA REQUIREMENT

5.1.1 Regulation

FCC 47CFR15 – 15.203 / IC RSS-Gen 7.1.2

FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of Part 15C. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31 (d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

5.1.2 Result: PASS

The EUT has an integral PCB antenna, and meets the requirements of this section.

5.2 RADIATED EMISSIONS

5.2.1 Regulation

FCC 47CFR15 – 15.249 & 15.209(a) / IC RSS-210 Annex 2, A2.9 & RSS-Gen 7.2.5

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency (MHz)	Field strength of Fundamental (mV/m @ 3m)	Field strength of Fundamental (dBμV/m @ 3m)	Field strength of Harmonics (μV/m @ 3m)	Field strength of Harmonics (dBμV/m @ 3m)
902 – 928	50	94	500	54
2400 – 2483.5	50	94	500	54
5725 – 5875	50	94	500	54
24000 – 24250	250	108	2500	68

According to §15.249(d), emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

According to §15.209(a), for an intentional device, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field strength (μV/m @ 3m)	Field strength (dBμV/m @ 3m)
30–88	100	40.0
88–216	150	43.5
216–960	200	46.0
Above 960	500	54.0

** The emission limits shown in the above tables are based on measurement instrumentation employing a CISPR quasi-peak detector below 1000 MHz and an average detector above 1000 MHz. However, the peak field strength of any emission shall not exceed the average limit by more than 20 dB.

According to §15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

5.2.2 Test Procedure

1. The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions in an anechoic chamber at a distance of 3 or 1 meter.
2. The EUT was placed on the top of the 0.8-meter height, 1 × 1.5 meter non-metallic table. To find the maximum emission levels, the height of a measuring antenna was changed and the turntable was rotated 360˚.
3. The antenna polarization was also changed from vertical to horizontal. The spectrum was scanned using the loop antenna below 30 MHz, from 30 to 1000 MHz using the Trilog broadband antenna, and from 1 GHz to tenth harmonic of the highest fundamental frequency using the horn antenna.
4. To obtain the final measurement data, the EUT was arranged on a turntable situated on a 4 × 4 meter at the Open Area Test Site. The EUT was tested at a distance 3 meters.
5. Each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth.
6. The EUT is situated in three orthogonal planes (if appropriate)
7. The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT.
8. If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-delta” method may be employed.

Marker-Delta Method at the edge of the authorized band of operation:

1. Perform an in-band field strength measurement of the fundamental emission using the RBW and detector function as the above Spurious Radiated Emissions test procedure.
2. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 1% of the total span (but never less than 30 kHz) with a video bandwidth equal to or greater than the RBW. Record the peak levels of the fundamental emission and the relevant band-edge emission (i.e., run several sweeps in peak hold mode). Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement; it is only a relative measurement to determine the amount by which the emission drops at the band-edge relative to the highest fundamental emission level.
3. Subtract the delta measured in step (2) from the field strengths measured in step (1). The resultant field strengths (CISPR QP, average, or peak, as appropriate) are then used to determine band-edge compliance as required by Section 15.205.
4. The above "delta" measurement technique may be used for measuring emissions that are up to two "standard" bandwidths away from the band-edge, where a "standard" bandwidth is the bandwidth specified by C63.4 for the frequency being measured. For example, for band-edge measurements in the restricted band that begins at 2483.5 MHz, C63.4 specifies a measurement bandwidth of at least 1 MHz. Therefore you may use the "delta" technique for measuring emissions up to 2 MHz removed from the band-edge. Radiated emissions that are removed by more than two “standard” bandwidths must be measured as the above Spurious Radiated Emissions test procedure.

5.2.3 Test Results: PASS

Table 1: Measured values of the Field strength

BELOW 1 GHz

Frequency	Receiver Bandwidth	Pol.	Antenna Height	Turn Table	Reading	Amp Gain	ATT	AF	CL	Actual	Limit	Margin
[MHz]	[kHz]	[V/H]	[m]	[degree]	[dB(μV)]	[dB]	[dB]	dB(1/m)	[dB]	[dB(μV/m)]	[dB(μV/m)]	[dB]
Average/Peak/Quasi-peak data, emissions below 30 MHz												
25.29	9	V	1.0	0	58.3	28.5	0	19.3	0.3	49.4	69.5	20.1
25.29	9	H	1.0	165	62.1	28.5	0	19.3	0.3	53.2	69.5	16.3
Quasi-peak data, emissions below 1000 MHz												
140.18	120	V	1.00	250	51.20	28.08	0	12.14	1.16	36.42	43.5	7.08
140.18	120	H	1.00	0	52.10	28.08	0	12.14	1.16	37.32	43.5	6.18

Margin (dB) = Limit – Actual

[Actual = Reading – Amp Gain + Attenuator + AF + CL]

1. H = Horizontal, V = Vertical Polarization

2. ATT = Attenuation (10dB pad and/or Insertion Loss of HPF), AF/CL = Antenna Factor and Cable Loss

NOTE: All emissions not reported were more than 20 dB below the specified limit or in the noise floor.

Remark: "---" means the emission level was too low to be measured or in the noise floor.

Table 1: Measured values of the Field strength (continued)

ABOVE 1 GHz

Frequency	Receiver Bandwidth	Pol.	Ant. Height	Turn Table	Reading		Amp Gain	ATT	AF	CL	Actual		Limit		Margin	
					PK	AV					PK	AV	PK	AV	PK	AV
[MHz]	[kHz]	[V/H]	[m]	[degree]	[dB(μV)]		[dB]	[dB]	[dB(1/m)]	[dB]	[dB(μV/m)]		[dB(μV/m)]		[dB]	
Emissions in FCC Part 15.249 (a) / RSS-210 Annex 2, A2.9(a) - Fundamental																
2404.0	1000	V	1.67	231	-	-	48.18	10.26	27.97	5.04	90.40	87.77	114	94	23.60	6.23
2404.0	1000	H	1.31	42	-	-	48.18	10.26	27.97	5.04	95.43	92.75	114	94	18.57	1.25**
2444.0	1000	V	1.89	350	-	-	48.19	10.26	28.10	5.10	90.37	87.73	114	94	23.63	6.27
2444.0	1000	H	1.39	49	-	-	48.19	10.26	28.10	5.10	93.11	90.54	114	94	20.89	3.46**
2479.2	1000	V	1.88	174	-	-	48.20	10.27	28.22	5.12	91.98	88.79	114	94	22.02	5.21
2479.2	1000	H	1.30	38	-	-	48.20	10.27	28.22	5.12	93.78	90.58	114	94	20.22	3.42**
Emissions in FCC Part 15.249 (a) / RSS-210 Annex 2, A2.9(a) - Harmonics																
4808.0	1000	V	1.67	299	60.11	50.76	48.26	1.18	32.76	7.29	53.08	43.73	74	54	20.92	10.27
4808.0	1000	H	1.48	99	61.20	51.82	48.26	1.18	32.76	7.29	54.17	44.79	74	54	19.83	9.21
4887.0	1000	V	1.69	278	60.79	51.00	48.28	1.17	32.77	7.36	53.81	44.02	74	54	20.19	9.98
4888.1	1000	H	1.50	105	61.41	51.29	48.28	1.17	32.77	7.36	54.43	44.31	74	54	19.57	9.69
4958.1	1000	V	1.66	301	61.60	51.93	48.29	1.16	32.77	7.43	54.67	45.00	74	54	19.33	9.00
4958.1	1000	H	1.50	103	62.61	53.35	48.29	1.16	32.77	7.43	55.68	46.42	74	54	18.32	7.58
Emissions in FCC Part 15.249 (d) / RSS-210 Annex 2 A2.9(b) - Spurious																
2400.0	1000	V	1.67	231	-	-	48.18	10.26	27.96	5.03	64.56	41.11	74	54	9.44	12.89
2400.0	1000	H	1.31	42	-	-	48.18	10.26	27.96	5.03	69.17	44.39	74	54	4.83	9.61
2336.8	1000	V	1.89	350	-	-	48.17	10.25	27.76	4.95	53.54	37.71	74	54	20.46	16.29
2337.2	1000	H	1.39	49	-	-	48.17	10.25	27.76	4.95	53.39	37.34	74	54	20.61	16.66
2483.6	1000	V	1.88	174	-	-	48.20	10.27	28.23	5.13	62.56	39.03	74	54	11.44	14.97
2486.3	1000	H	1.30	38	-	-	48.20	10.27	28.24	5.13	64.30	39.75	74	54	9.70	14.25

Margin (dB) = Limit – Actual

[Actual = Reading – Amp Gain + Attenuator + AF + CL]

1. H = Horizontal, V = Vertical Polarization

2. ATT = Attenuation (10dB pad and/or Insertion Loss of HPF), AF/CL = Antenna Factor and Cable Loss

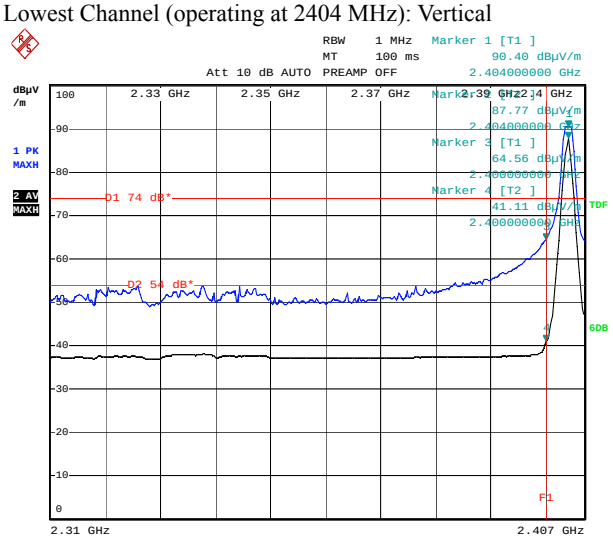
NOTE: All emissions not reported were more than 20 dB below the specified limit or in the noise floor.

Remark: The reading values at the vicinity of the operating frequency including the band-edge were taken with the correction for the antenna factor and the cable loss as the final result ('Actual' value).

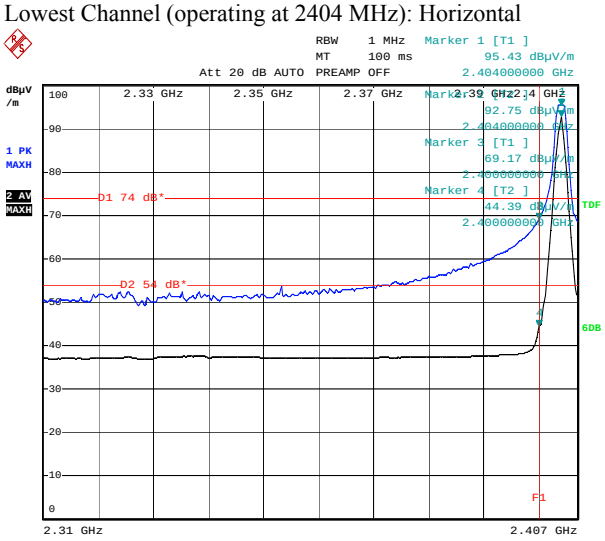
** The measured result is within the test standard limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95 % level of confidence. However, the result indicates that compliance is more probable than non-compliance.

Figure 1. Plot of the Band Edge(corrected to the field strength)

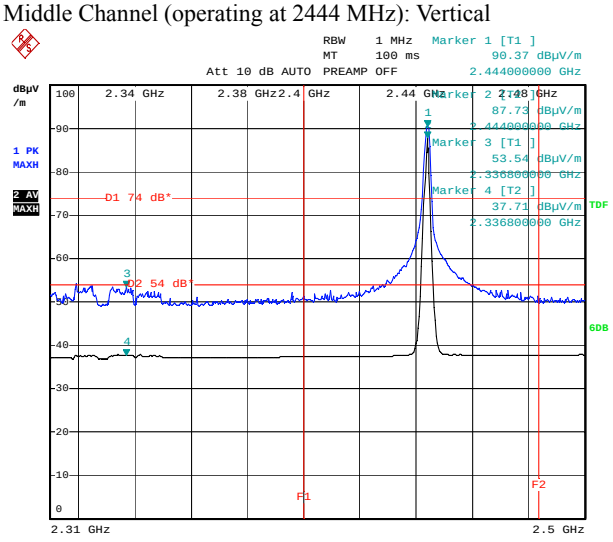
Lowest Channel (operating at 2404 MHz): Vertical



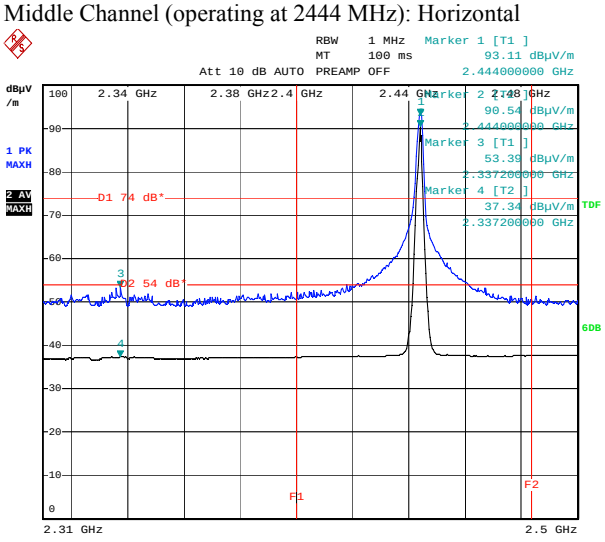
Lowest Channel (operating at 2404 MHz): Horizontal



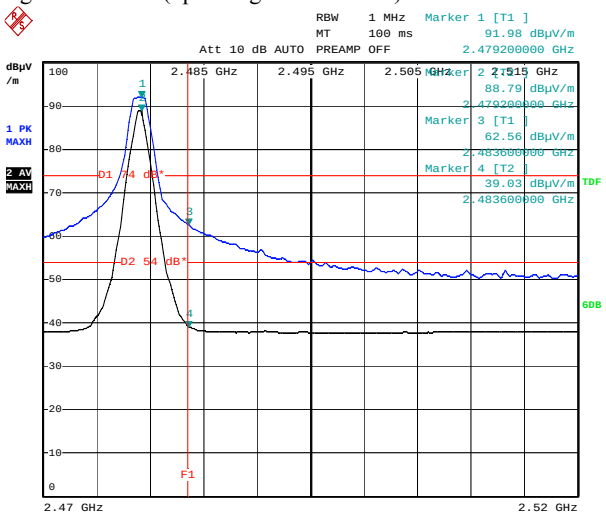
Middle Channel (operating at 2444 MHz): Vertical



Middle Channel (operating at 2444 MHz): Horizontal



Highest Channel (operating at 2479 MHz): Vertical



Highest Channel (operating at 2479 MHz): Horizontal

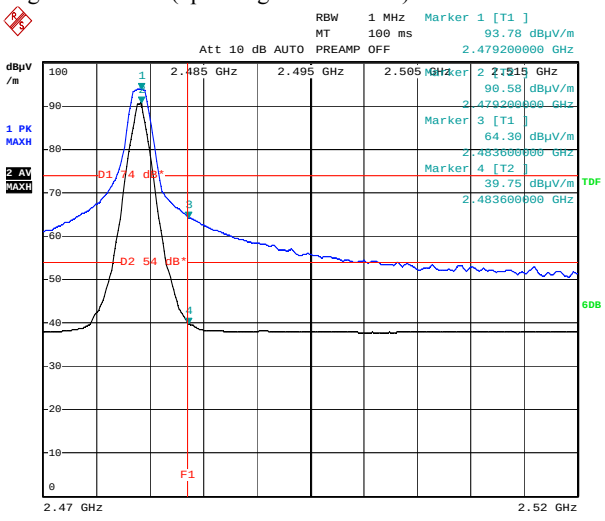
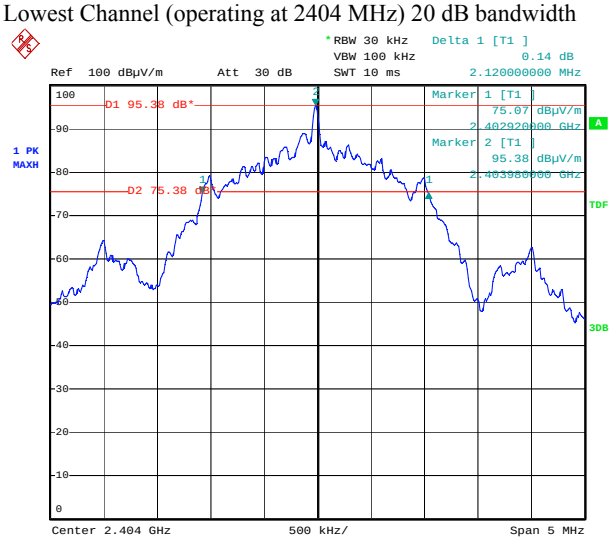
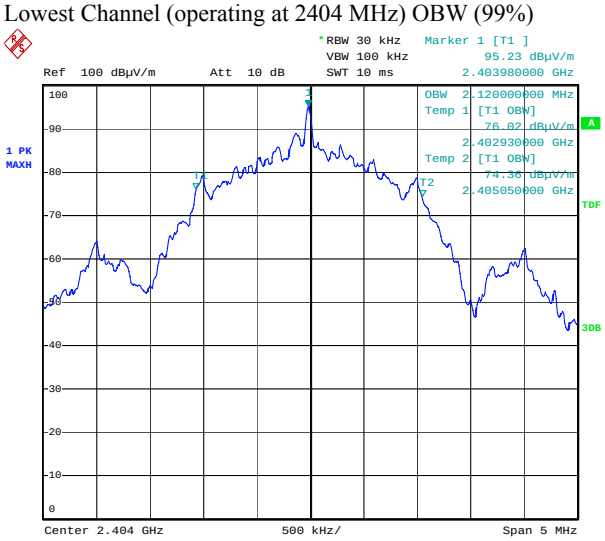


Figure 2. Plot of the 20dB bandwidth and Occupied bandwidth (99%)

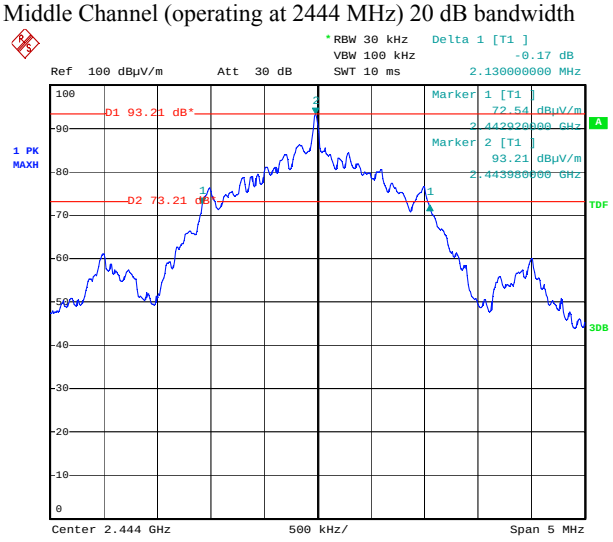
Lowest Channel (operating at 2404 MHz) 20 dB bandwidth



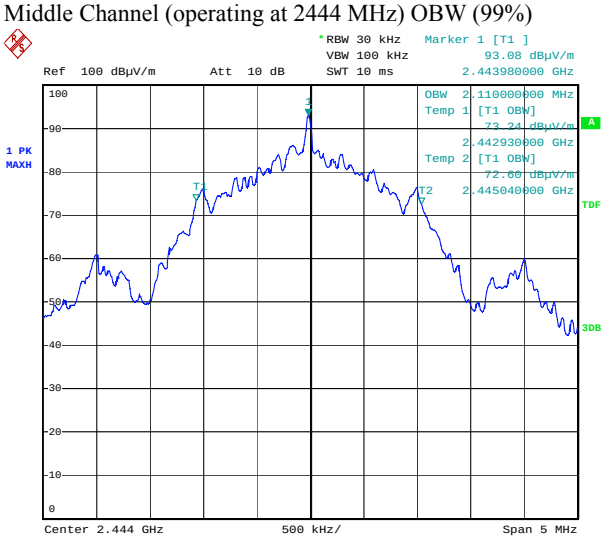
Lowest Channel (operating at 2404 MHz) OBW (99%)



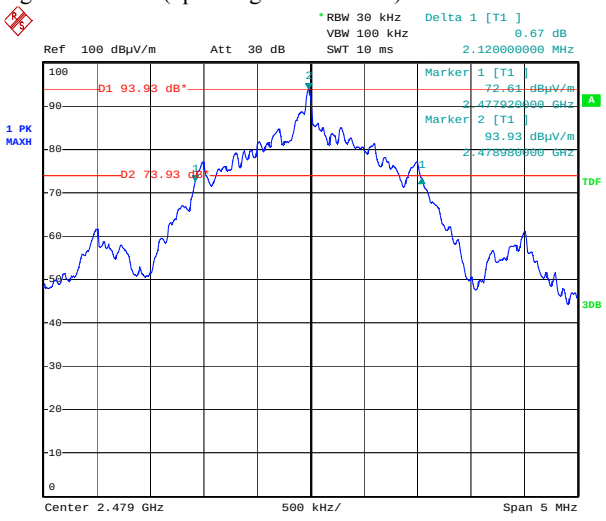
Middle Channel (operating at 2444 MHz) 20 dB bandwidth



Middle Channel (operating at 2444 MHz) OBW (99%)



Highest Channel (operating at 2479 MHz) 20 dB bandwidth



Highest Channel (operating at 2479 MHz) OBW (99%)

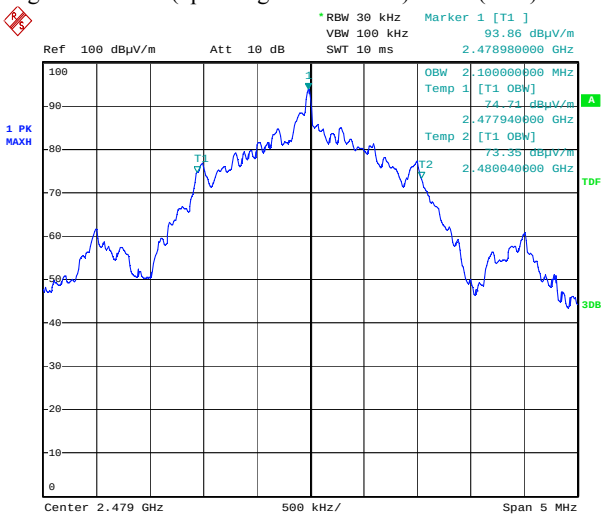
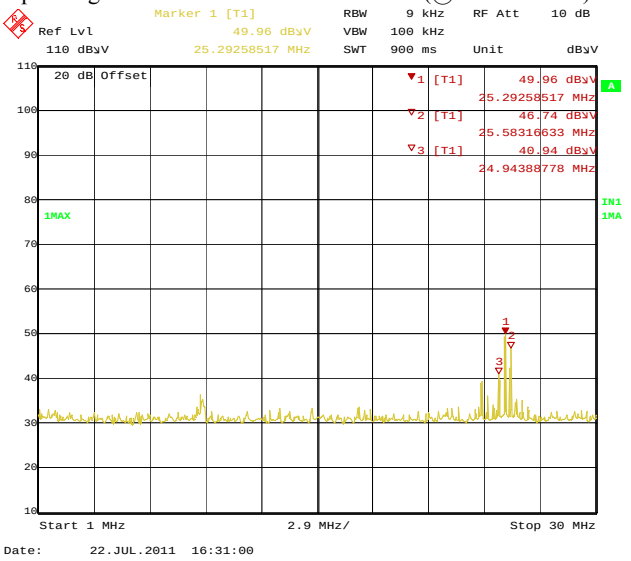
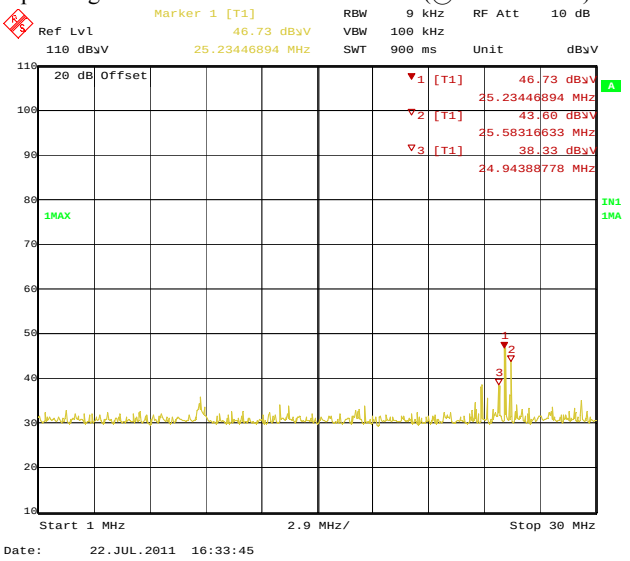


Figure 3. Emission plot for the preliminary radiated measurements

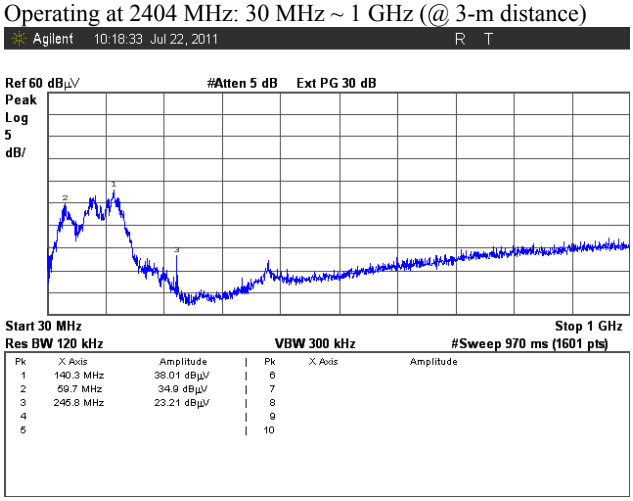
Operating at 2404 MHz: 1 MHz ~ 30 MHz (@ 3-m distance)



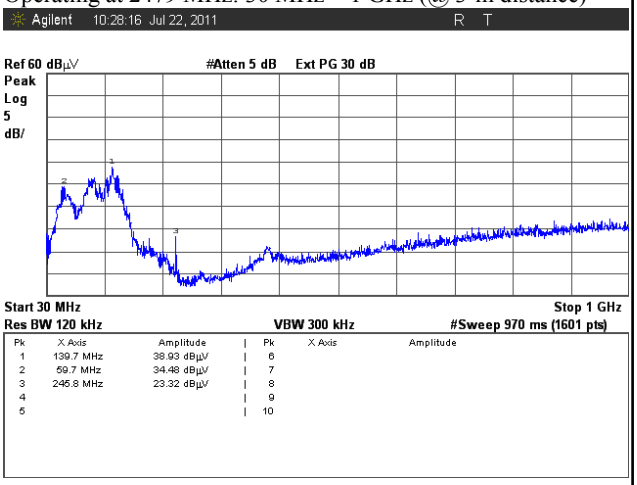
Operating at 2479 MHz: 1 MHz ~ 30 MHz (@ 3-m distance)



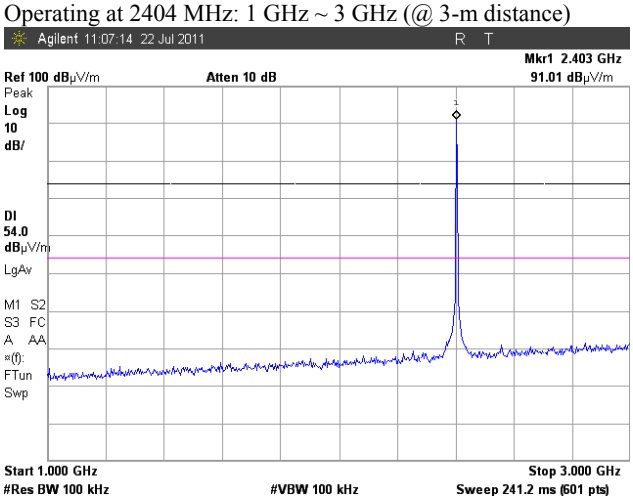
Operating at 2404 MHz: 30 MHz ~ 1 GHz (@ 3-m distance)



Operating at 2479 MHz: 30 MHz ~ 1 GHz (@ 3-m distance)



Operating at 2404 MHz: 1 GHz ~ 3 GHz (@ 3-m distance)



Operating at 2479 MHz: 1 GHz ~ 3 GHz (@ 3-m distance)

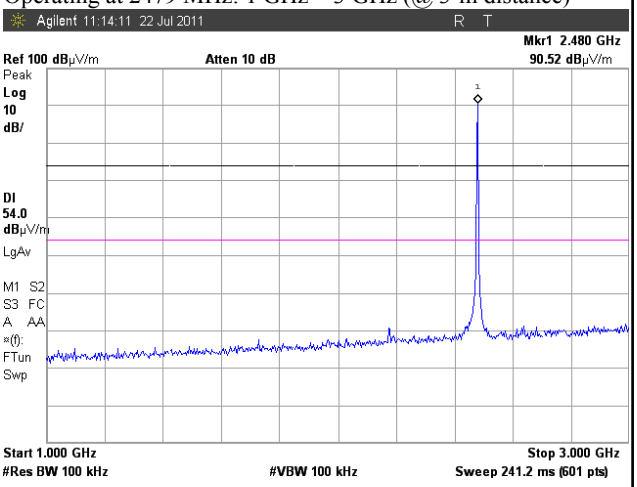
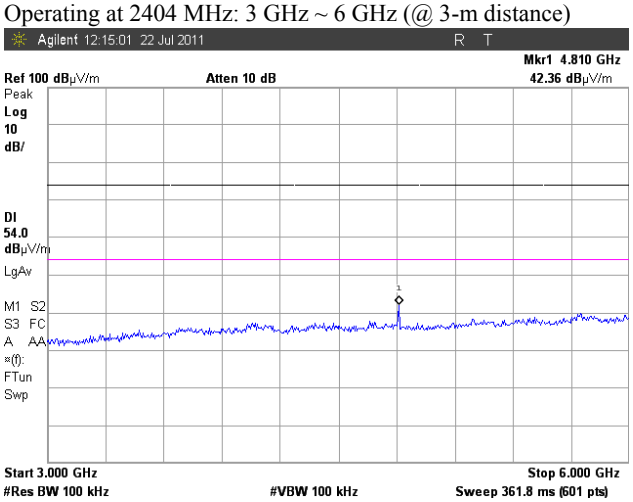
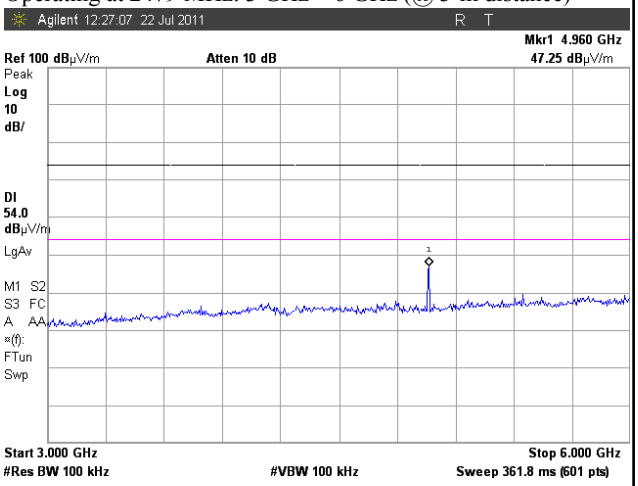


Figure 3. Emission plot for the preliminary radiated measurements (continued)

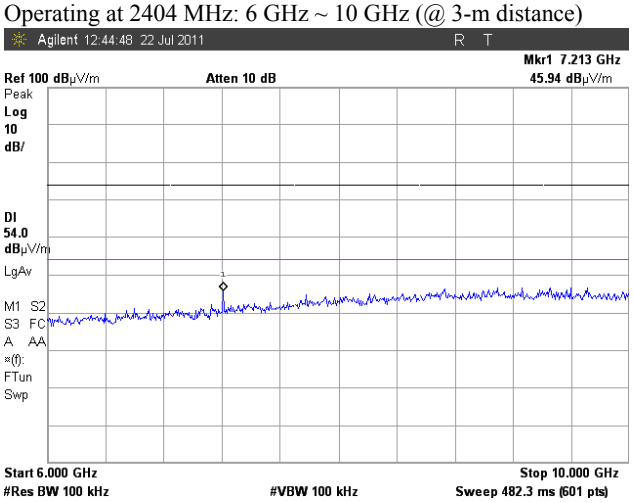
Operating at 2404 MHz: 3 GHz ~ 6 GHz (@ 3-m distance)



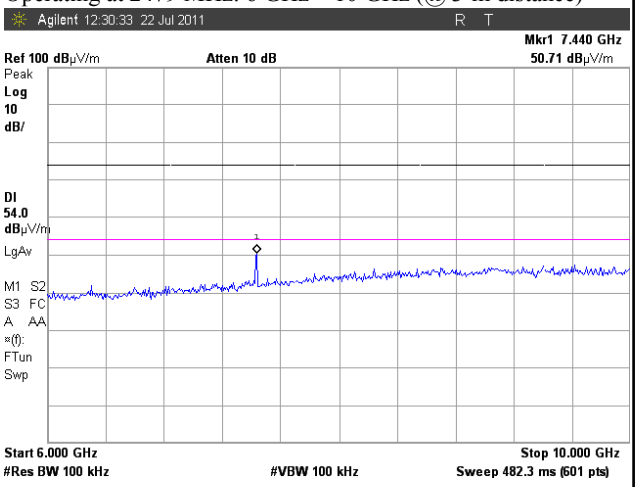
Operating at 2479 MHz: 3 GHz ~ 6 GHz (@ 3-m distance)



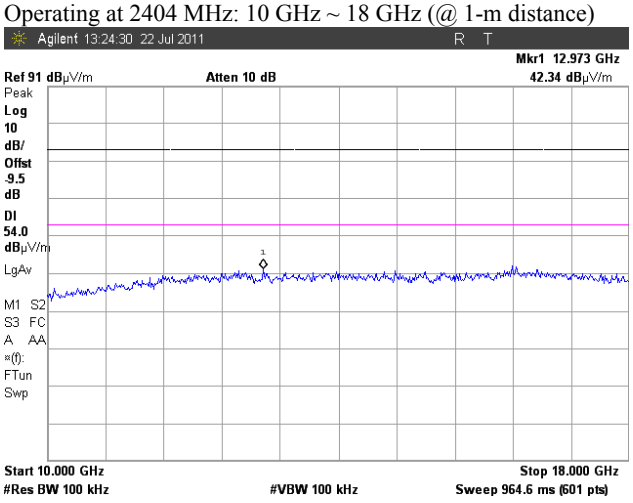
Operating at 2404 MHz: 6 GHz ~ 10 GHz (@ 3-m distance)



Operating at 2479 MHz: 6 GHz ~ 10 GHz (@ 3-m distance)



Operating at 2404 MHz: 10 GHz ~ 18 GHz (@ 1-m distance)



Operating at 2479 MHz: 10 GHz ~ 18 GHz (@ 1-m distance)

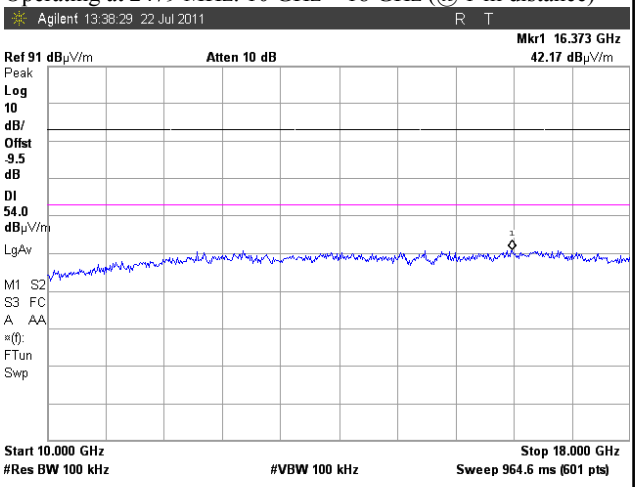
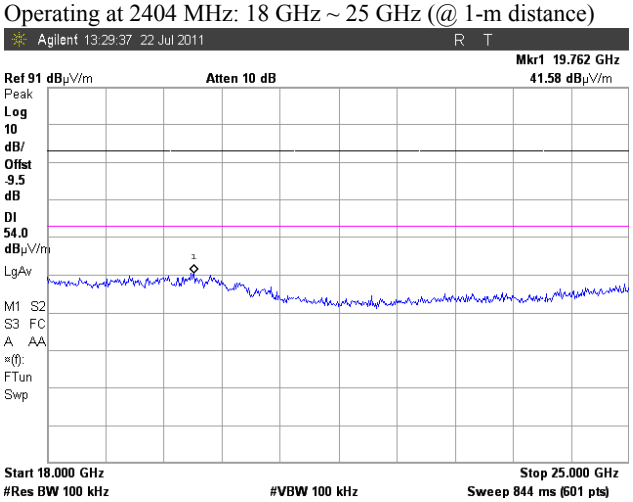
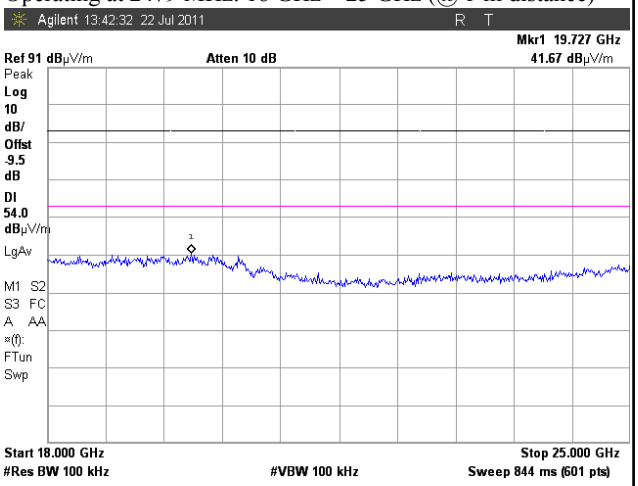


Figure 3. Emission plot for the preliminary radiated measurements (continued)

Operating at 2404 MHz: 18 GHz ~ 25 GHz (@ 1-m distance)



Operating at 2479 MHz: 18 GHz ~ 25 GHz (@ 1-m distance)



5.4 AC POWER LINE CONDUCTED EMISSIONS

5.4.1 Regulation

FCC 47CFR15 – 15.207(a) / IC RSS-210, 7.2.4

According to §15.207(a), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Qausi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency.

5.4.2 Test Procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

5.4.3 Test Results: PASS

Table 2: Measured values of the Conducted Emissions

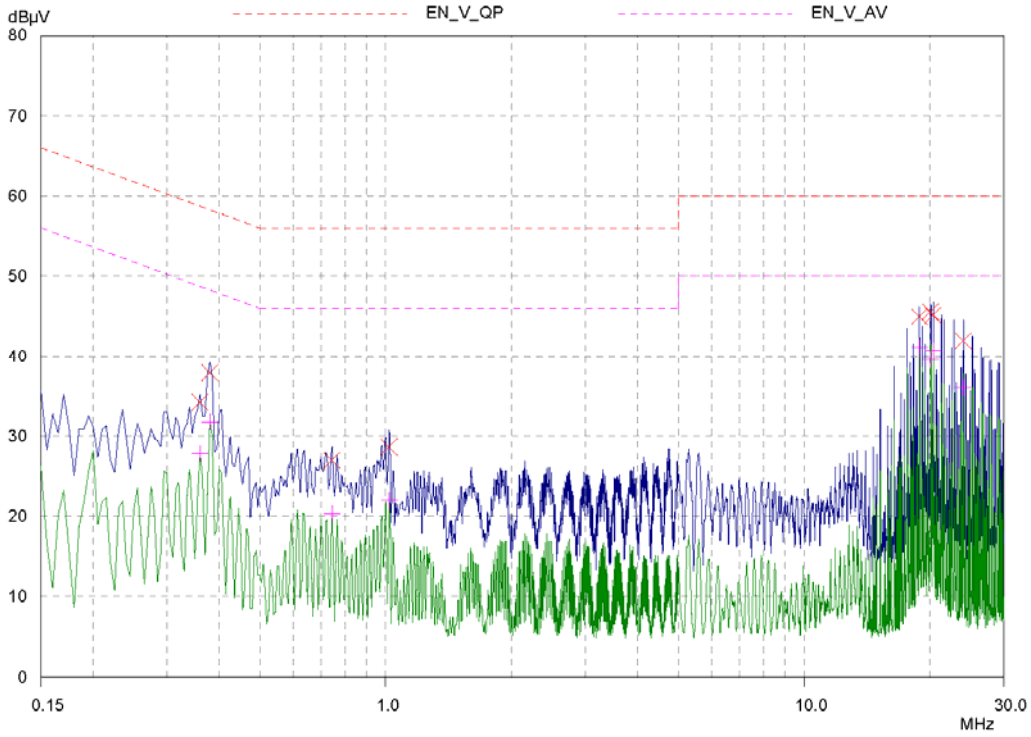
Frequency [MHz]	Reading [dBµV]	L / N	CF [dB]	CL [dB]	Actual [dBµV]	Limit [dBµV]	Margin [dB]
QUASI-PEAK DATA							
0.3600	36.60	N	0.11	0.02	36.73	58.73	22.00
0.3800	37.87	L	0.11	0.02	38.00	58.28	20.28
0.7450	26.98	L	0.12	0.04	27.14	56.00	28.86
1.0000	27.87	N	0.12	0.07	28.06	56.00	27.94
1.0200	28.62	L	0.14	0.07	28.83	56.00	27.17
1.2550	26.74	N	0.14	0.07	26.95	56.00	29.05
18.8600	44.96	L	0.82	0.29	46.07	60.00	13.93
19.1600	43.49	N	0.63	0.29	44.41	60.00	15.59
20.0800	45.77	N	0.66	0.30	46.73	60.00	13.27
20.3800	45.56	N	0.66	0.30	46.52	60.00	13.48
21.6000	44.10	N	0.65	0.31	45.06	60.00	14.94
24.0200	41.94	L	0.82	0.32	43.08	60.00	16.92
AVERAGE DATA							
0.3600	29.77	N	0.11	0.02	29.90	48.73	18.83
0.3800	31.71	L	0.11	0.02	31.84	48.28	16.44
0.7450	20.33	L	0.12	0.04	20.49	46.00	25.51
1.0000	21.61	N	0.12	0.07	21.80	46.00	24.20
1.0200	21.98	L	0.14	0.07	22.19	46.00	23.81
1.2550	19.90	N	0.14	0.07	20.11	46.00	25.89
18.8600	41.78	N	0.62	0.29	42.69	50.00	7.31
19.1600	37.92	N	0.63	0.29	38.84	50.00	11.16
20.0800	41.46	N	0.66	0.30	42.42	50.00	7.58
20.3800	41.59	N	0.66	0.30	42.55	50.00	7.45
21.6000	40.29	N	0.65	0.31	41.25	50.00	8.75
24.0200	36.05	L	0.82	0.32	37.19	50.00	12.81

Margin (dB) = Limit – Actual
[Actual = Reading + CF + CL]
L/N = LINE / NEUTRAL
CF/CL = Correction Factor and Cable Loss

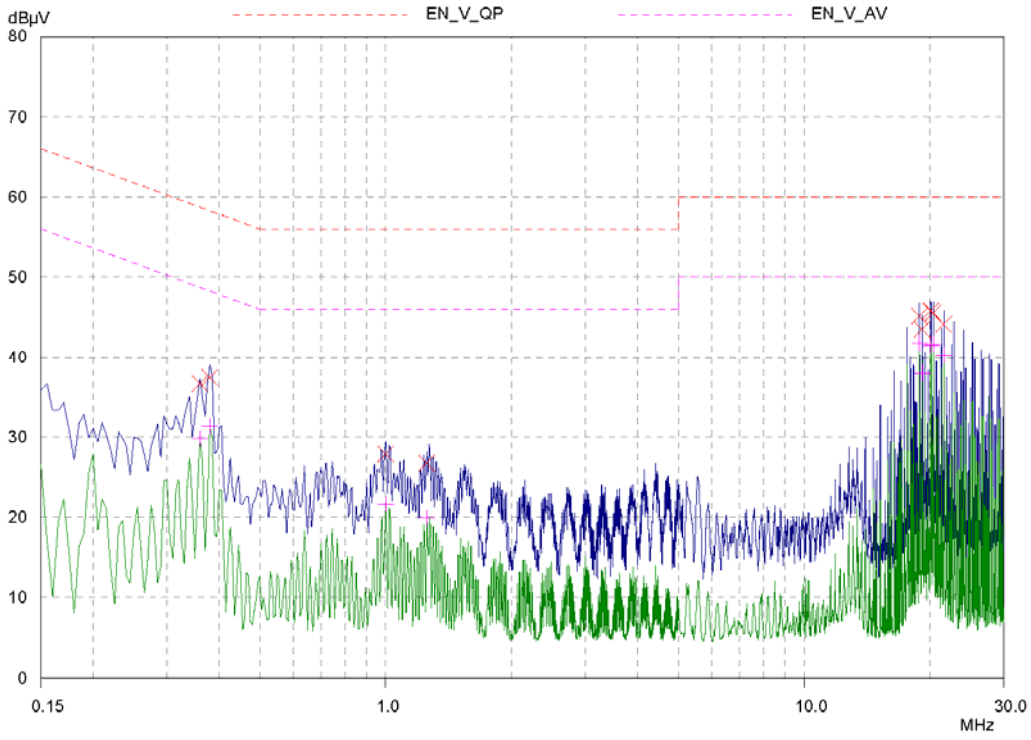
NOTE: All emissions not reported were more than 20 dB below the specified limit.

Figure 4. Plot of the Conducted Emissions

Line – PE (Peak and Average detector used)



Neutral – PE (Peak and Average detector used)



5.4 RECEIVER SPURIOUS EMISSIONS

5.4.1 Regulation

IC Gen 6.1

According to RSS-Gen 6.1, the following receiver spurious emission limits shall be complied with:

(a) If a radiated measurement is made, all spurious emissions shall comply with the limits of Table 1. The resolution bandwidth of the spectrum analyzer shall be 100 kHz for spurious emission measurements below 1.0 GHz, and 1.0 MHz for measurements above 1.0 GHz.

Table 1. Spurious Emission Limit for Receivers

Frequency (MHz)	Field strength (μV/m @ 3m)	Field strength (dBμV/m @ 3m)
30–88	100	40.0
88–216	150	43.5
216–960	200	46.0
Above 960	500	54.0

* Use quasi-peak below 1000 MHz and averaging meter above 1000 MHz.

5.4.2 Test Results: PASS

Table 3: Receiver spurious emission

BELOW 1 GHz

Frequency	Receiver Bandwidth	Pol.	Antenna Height	Turn Table	Reading	Amp Gain	ATT	AF	CL	Actual	Limit	Margin
[MHz]	[kHz]	[V/H]	[m]	[degree]	[dB(μV)]	[dB]	[dB]	dB(1/m)	[dB]	[dB(μV/m)]	[dB(μV/m)]	[dB]
Quasi-peak data, emissions below 1000 MHz												
140.18	120	V	1.00	250	51.20	28.08	0	12.14	1.16	36.42	43.5	7.08
140.18	120	H	1.00	0	52.10	28.08	0	12.14	1.16	37.32	43.5	6.18

Margin (dB) = Limit – Actual

[Actual = Reading – Amp Gain + Attenuator + AF + CL]

1. H = Horizontal, V = Vertical Polarization

2. ATT = Attenuation (10dB pad and/or Insertion Loss of HPF), AF/CL = Antenna Factor and Cable Loss

NOTE: All emissions not reported were more than 20 dB below the specified limit or in the noise floor.

Remark: "---" means the emission level was too low to be measured or in the noise floor.

Table 3: Receiver spurious emission (continued)

ABOVE 1 GHz

Frequency	Receiver Bandwidth	Pol.	Ant. Height	Turn Table	Reading		Amp Gain	ATT	AF	CL	Actual		Limit		Margin	
					PK	AV					PK	AV	PK	AV	PK	AV
[MHz]	[kHz]	[V/H]	[m]	[degree]	[dB(μV)]		[dB]	[dB]	[dB(1/m)]	[dB]	[dB(μV/m)]		[dB(μV/m)]		[dB]	

No spurious emissions found

Margin (dB) = Limit – Actual

[Actual = Reading – Amp Gain + Attenuator + AF + CL]

1. H = Horizontal, V = Vertical Polarization
2. ATT = Attenuation (10dB pad and/or Insertion Loss of HPF), AF/CL = Antenna Factor and Cable Loss

NOTE: All emissions not reported were more than 20 dB below the specified limit or in the noise floor.