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Report No.: SZEMO10060327201

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FCC REPORT

Application No:	SZEMO100603272RF
Applicant:	Graco Children's Products Inc
Product Name:	Video Baby Monitor
Operation Frequency:	2410MHz to 2470MHz
FCC ID:	M6YPD141402
Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2008
Date of Receipt:	2010-06-03
Date of Test:	2010-06-03 to 2010-06-28 & 2010-08-30 to 2010-09-02
Date of Issue:	2010-09-16
Test Result :	PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Jack Zhang
Laboratory Manager

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf. This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Passed
AC Power Line Conducted Emission	15.207	Passed
Conducted Peak Output Power	15.247 (b)(3)	Passed
6dB Occupied Bandwidth	15.247 (a)(2)	Passed
Power Spectral Density	15.247 (e)	Passed
Radiated Emission	15.205/15.209	Passed
Band Edge	15.247(d)	Passed

Remark: Passed: The EUT complies with the essential requirements in the standard.

Failed: The EUT does not comply with the essential requirements in the standard.

4 General Information

4.1 Client Information

Applicant:	Graco Children's Products Inc
Manufacturer:	Graco Children's Products Inc
Address of Applicant:	150 Oaklands Blvd. Exton Pennsylvania 19341, United States
Address of Manufacturer:	150 Oaklands Blvd. Exton Pennsylvania 19341, United States

4.2 General Description of E.U.T.

Product Name:	Video Baby Monitor
Trade Name:	N/A
Item No.:	PD141402
Operation Frequency:	2410MHz-2470MHz
Channel numbers:	13
Channel separation:	5MHz
Modulation type:	DSSS
Antenna Type:	Integral
Antenna gain:	1.5dBi
Power supply:	2.4V(rechargeable battery)
Adapter:	Input: AC 100-240V 50/60Hz 0.2A Output: DC 5.0 V 1000mA

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2410MHz	4	2425MHz	7	2440MHz	10	2455MHz
2	2415MHz	5	2430MHz	8	2445MHz	11	2460MHz
3	2420MHz	6	2435MHz	9	2450MHz	12	2465MHz
13	2470MHz						

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2410MHz
The middle channel	2440MHz
The Highest channel	2470MHz

4.3 Test environment and mode

Test Environment:	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Normal operation mode:	Keep EUT in the charging and communicating mode
Transmitting mode:	Keep the EUT in transmitting mode with modulation.

4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

VCCI

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

FCC – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 556682, June 27, 2008.

Industry Canada (IC)

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.6 Other Information Requested by the Customer

None.

4.7 Test Instruments list

The calibration certificates issued by the calibration laboratory on the test equipments in our laboratory are traceable to national primary standards maintained in National Institute of Metrology (NIM) in China and International System of Units (SI). NIM is the signatory to the Mutual Recognition Agreement (MRA) for national measurement standards and for calibration and measurement certificates issued by national metrology institutes.

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	17-06-2010	16-06-2011
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	05-11-2009	05-11-2010
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2008	18-06-2011
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	05-11-2009	05-11-2010
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	10-11-2009	10-11-2010
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	10-11-2009	10-11-2010
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	02-06-2010	01-06-2011
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	18-12-2009	17-12-2010
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	04-06-2010	03-06-2011
11	Band filter	Amindeon	82346	SEL0094	02-06-2010	01-06-2011

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	02-06-2010	01-06-2011
3	LISN	Schwarzbeck	NNBM 8125	SEL0119	28-07-2009	28-07-2010
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	02-06-2010	01-06-2011
5	Coaxial Cable	SGS	N/A	SEL0024	18-06-2008	18-06-2011

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2010-06-17	2011-06-17
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2009-11-05	2010-11-05
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2008-06-18	2011-06-18
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2009-11-05	2010-11-05
6	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2009-11-10	2010-11-10
7	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2009-11-10	2010-11-10
8	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2010-06-02	2011-06-02
9	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2009-12-18	2010-12-18
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	2010-06-04	2011-06-04
11	Band filter	Amindeon	82346	SEL0094	2010-06-02	2011-06-02

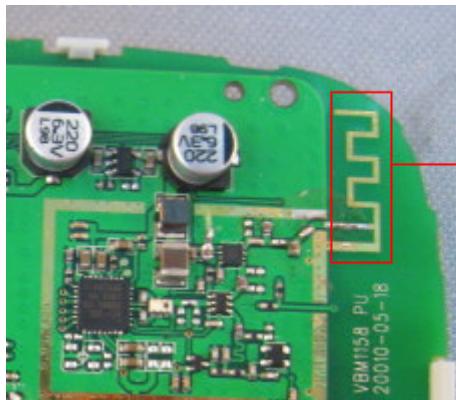
Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	N/A	N/A
2	LISN	ETS-LINDGREN	3816/2	SEL0021	2010-06-02	2011-06-02
3	Two-Line V-Network	Rohde & Schwarz	ENV216	SEL0152	2009-10-22	2010-10-22
4	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2010-06-02	2011-06-02
5	Coaxial Cable	SGS	N/A	SEL0024	2008-06-18	2011-06-18

RF conducted						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	Spectrum Analyzer	Rohde & Schwarz	FSP 30	SEL0154	22-10-2009	21-10-2010
2	Coaxial cable	SGS	N/A	SEL0028	18-06-2008	18-06-2011

5 Test results and Measurement Data

5.1 Antenna requirement:

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: <i>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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</i>	
15.247(c) (1)(i) requirement: <i>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</i>	

E.U.T Antenna:**RF Antenna**

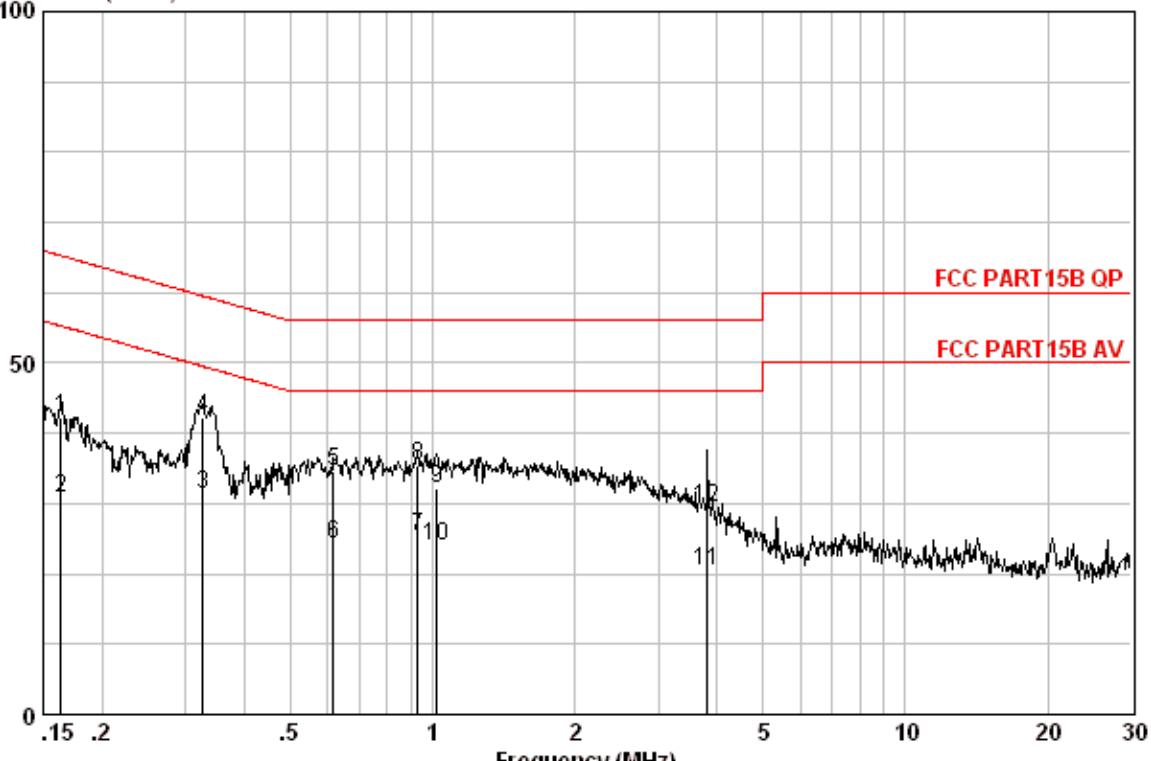
5.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207																	
Test Method:	ANSI C63.4: 2003																	
Test Frequency Range:	150KHz to 30MHz																	
Class / Severity:	Class B																	
Limit:	<table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <th></th> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>			Frequency range (MHz)	Limit (dBuV)			Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)																	
	Quasi-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.																	
Test procedure	<p>The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.</p>																	
Test setup:	<p>Reference Plane</p> <p>LISN → AUX Equipment → E.U.T</p> <p>LISN → Filter → AC power</p> <p>EMI Receiver</p> <p>Test table/Insulation plane</p> <p>40cm 80cm</p> <p>Test table height=0.8m</p>																	
Test Instruments:	Refer to section 4.7 for details																	
Test mode:	Normal operation mode																	
Test results:	Passed																	

Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

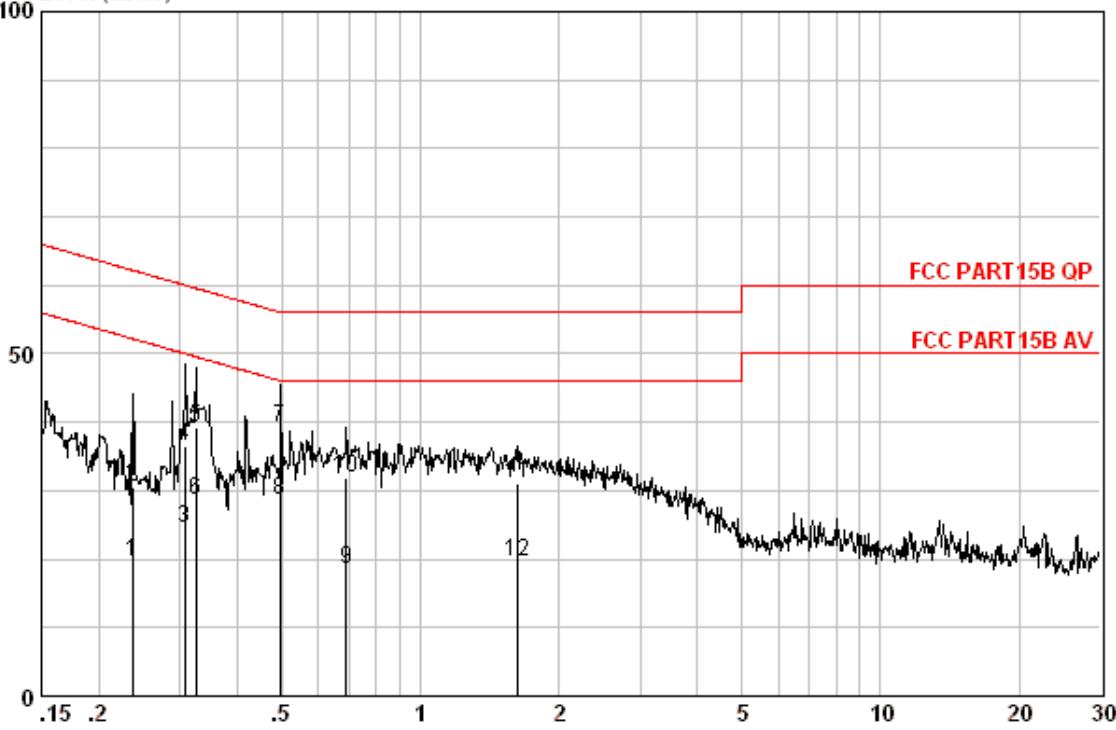
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:Data: 9
Level (dBuV)

Freq	Cable			LISN		Read		Limit	Over	Remark
	Freq	Loss	Factor	Level	Level	Level	Level			
	MHz	dB	dB	dBuV	dBuV	dBuV	dBuV		dB	
1	0	0.16327	0.04	-0.05	42.30	42.29	65.30	-23.01	QP	
2	0	0.16327	0.04	-0.05	30.76	30.75	55.30	-24.55	Average	
3	0	0.32685	0.05	-0.04	31.20	31.21	49.53	-18.32	Average	
4	0	0.32685	0.05	-0.04	42.14	42.15	59.53	-17.38	QP	
5	0	0.61726	0.06	-0.05	34.48	34.50	56.00	-21.50	QP	
6	0	0.61726	0.06	-0.05	24.35	24.36	46.00	-21.64	Average	
7	0	0.92821	0.08	-0.05	25.28	25.31	46.00	-20.69	Average	
8	0	0.92821	0.08	-0.05	35.47	35.50	56.00	-20.50	QP	
9	0	1.021	0.08	-0.05	32.11	32.14	56.00	-23.86	QP	
10	0	1.021	0.08	-0.05	23.90	23.93	46.00	-22.07	Average	
11		3.820	0.15	-0.09	20.45	20.51	46.00	-25.49	Average	
12		3.820	0.15	-0.09	29.45	29.51	56.00	-26.49	QP	

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

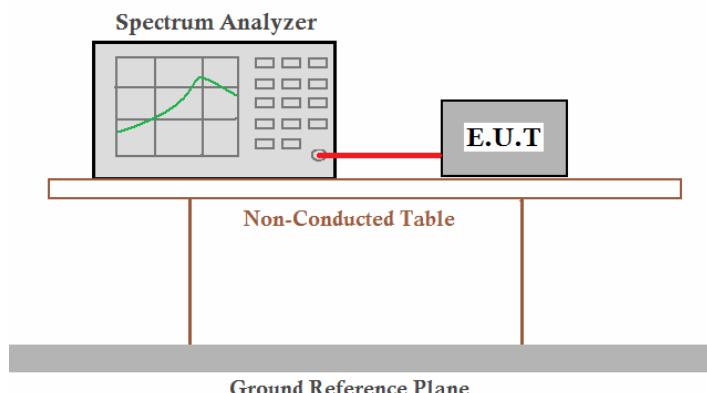
Neutral Line:Data: 10
Level (dBuV)

Freq	Frequency (MHz)			Limit Level	Over Line	Limit	Remark
	Cable	LISN	Read				
	Freq	Loss	Factor				
	MHz	dB	dB	dBuV	dBuV	dBuV	dB
1	0.23700	0.04	-0.04	19.60	19.60	52.20	-32.60 Average
2	0.23700	0.04	-0.04	30.60	30.60	62.20	-31.60 QP
3	0.30800	0.05	-0.04	24.50	24.51	50.02	-25.51 Average
4	0.30800	0.05	-0.04	36.40	36.41	60.02	-23.61 QP
5	0.32500	0.05	-0.04	39.20	39.21	59.58	-20.37 QP
6	0.32500	0.05	-0.04	28.70	28.71	49.58	-20.87 Average
7	0.49600	0.06	-0.04	39.20	39.22	56.07	-16.85 QP
8	0.49600	0.06	-0.04	28.70	28.72	46.07	-17.35 Average
9	0.68900	0.06	-0.04	18.50	18.52	46.00	-27.48 Average
10	0.68900	0.06	-0.04	31.90	31.92	56.00	-24.08 QP
11	1.619	0.11	-0.06	30.90	30.95	56.00	-25.05 QP
12	1.619	0.11	-0.06	19.60	19.65	46.00	-26.35 Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

5.3 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	30dBm
Test setup:	 <p>Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane</p> <p><i>Remark:</i> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

Measurement Data

Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	16.89	30.00	Pass
Middle	15.94	30.00	Pass
Highest	14.77	30.00	Pass

Test average power:

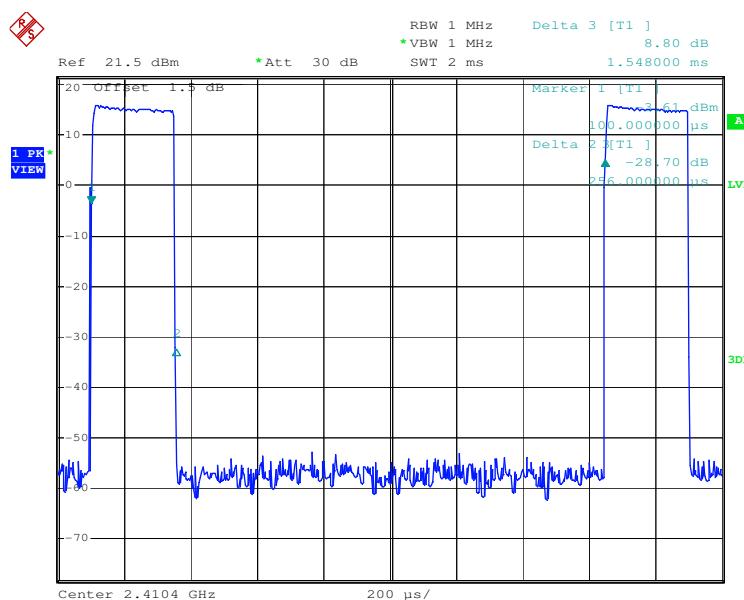
The EUT duty cycle:

Duty cycle=T on/T period=0.256/1.548=16.5%

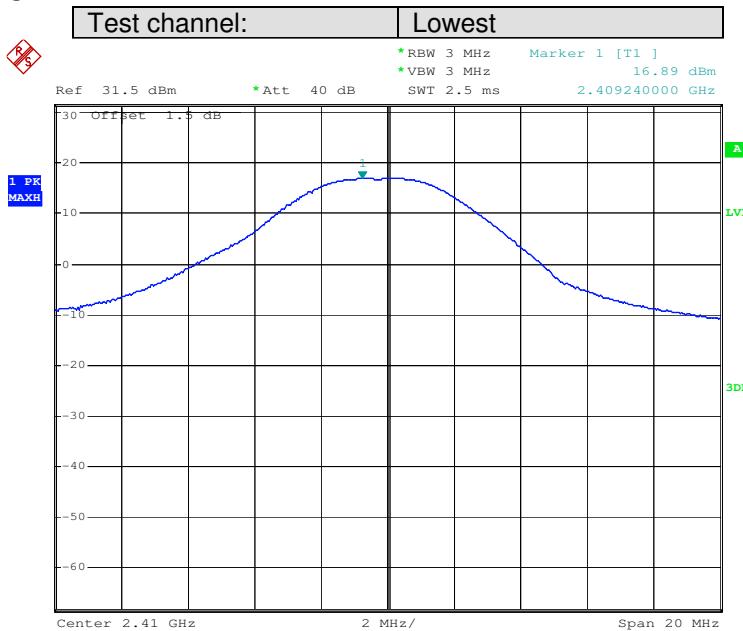
Factor=10log(duty cycle)=10log(0.165)= -7.83

P average=PK power+10log(duty cycle)=PK power+10log(0.165)=PK power-7.83

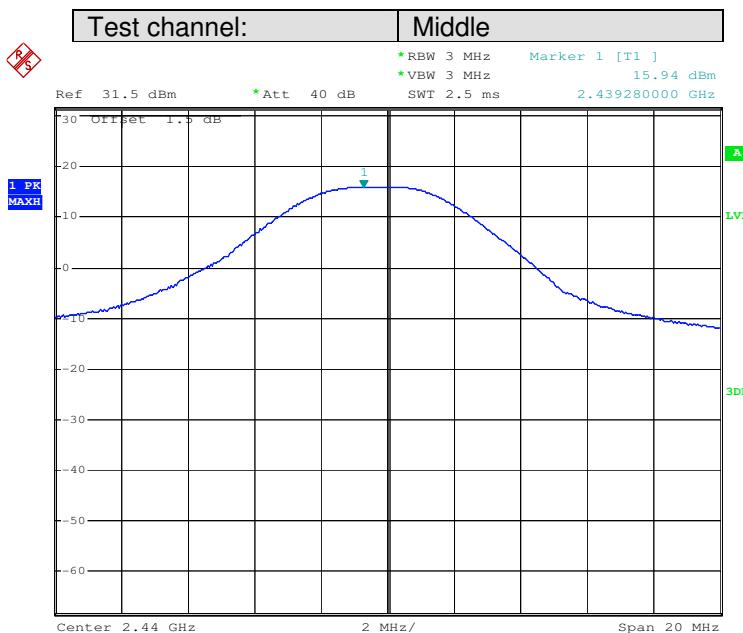
Test channel	Fundamental Frequency(MHz)	PK power (dBm)	Factor	Average power(dBm)
Lowest	2410	16.89	-7.83	9.06
Middle	2440	15.94	-7.83	8.11
Highest	2470	14.77	-7.83	6.94



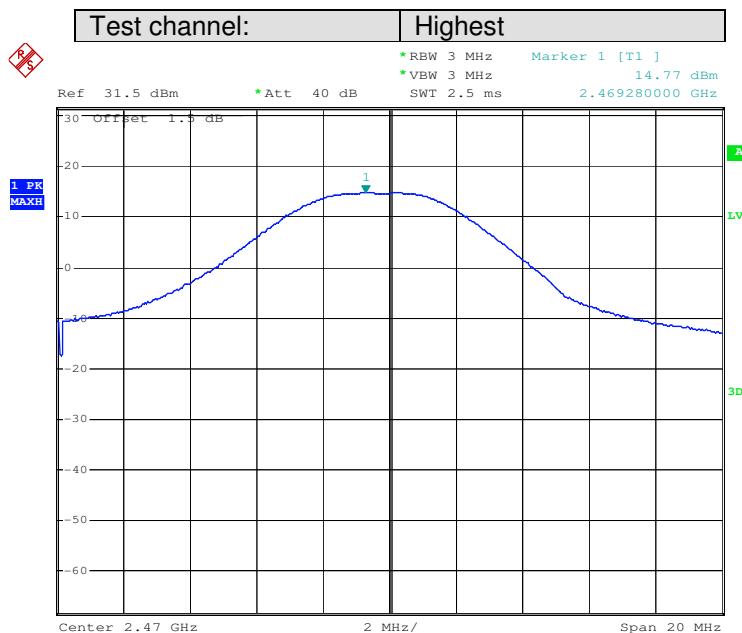
Date: 10.SEP.2010 14:08:05

Test plot as follows:


Date: 27.JUN.2010 15:13:10

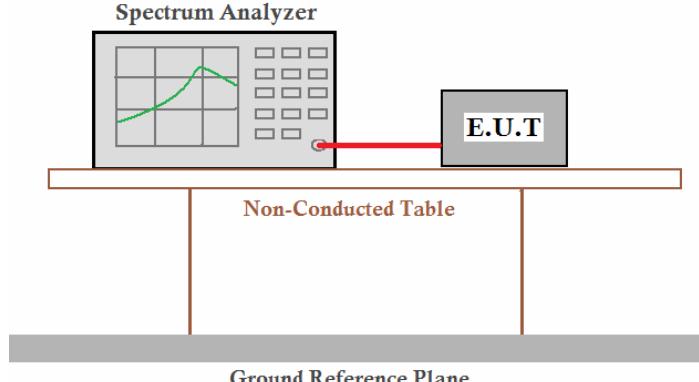


Date: 27.JUN.2010 15:11:08



Date: 27.JUN.2010 15:12:23

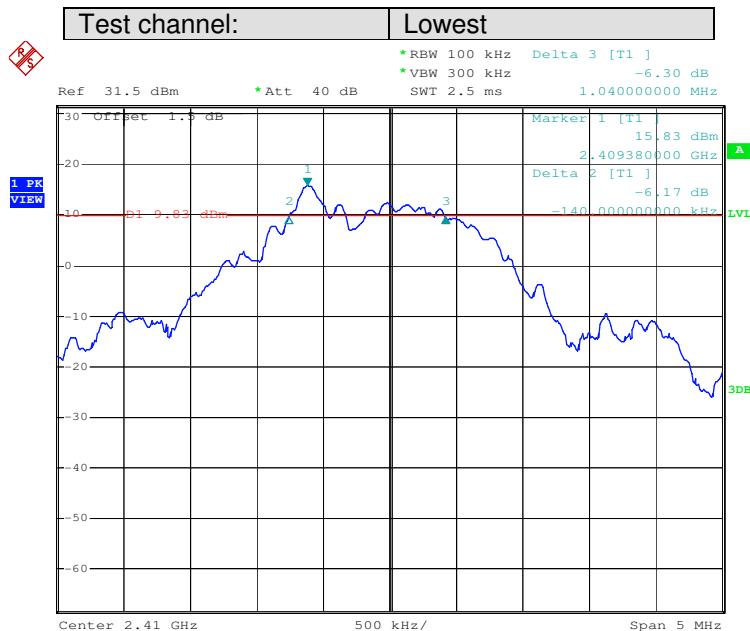
5.4 6dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)		
Test Method:	ANSI C63.4:2003 and KDB558074		
Limit:	>500KHz		
Test setup:			
Test Instruments:	Refer to section 4.7 for details		
Test results:	Passed		

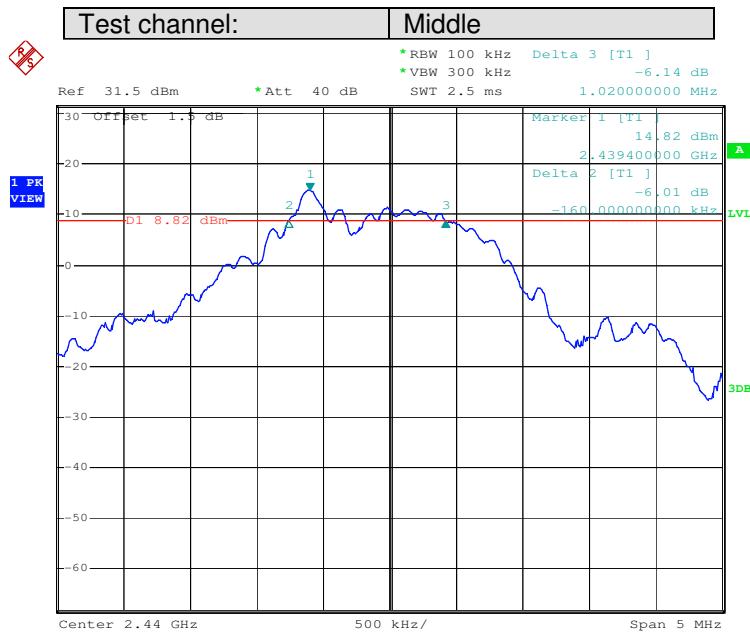
Measurement Data

Test channel	6dB Occupy Bandwidth (MHz)	Limit (KHz)	Result
Lowest	1.180	>500	Pass
Middle	1.180	>500	Pass
Highest	1.180	>500	Pass

Test plot as follows:

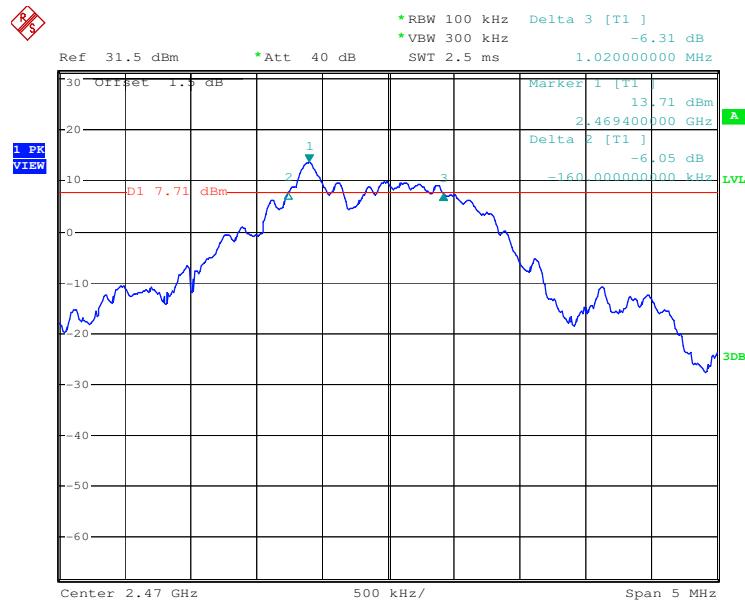


Date: 27.JUN.2010 15:16:10



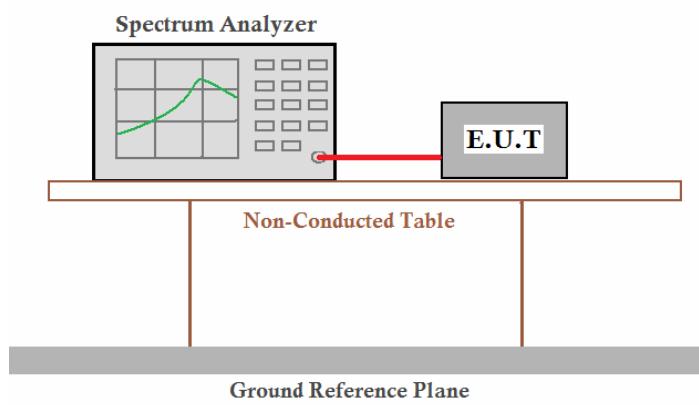
Date: 27.JUN.2010 15:53:54

Test channel:	Highest
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Date: 27.JUN.2010 16:08:49

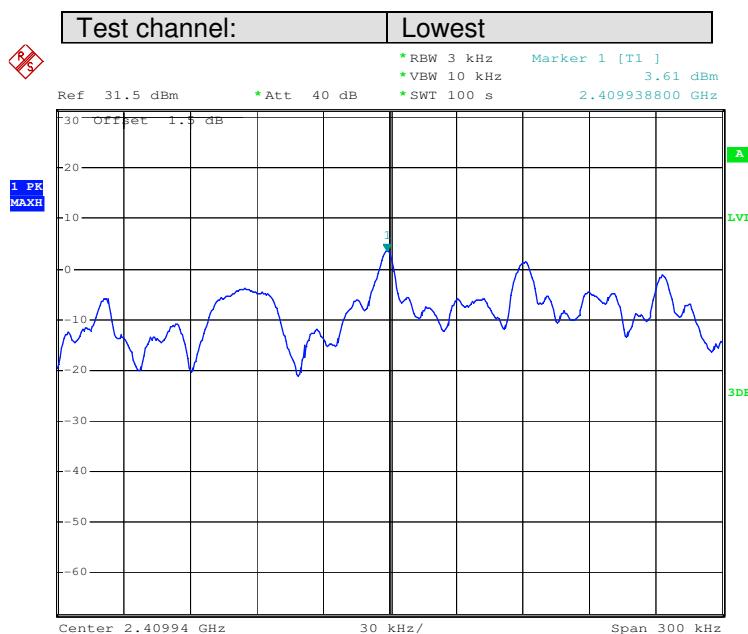
5.5 Power Spectral Density

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	<8dBm
Test setup:	 <p>Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane</p> <p><i>Remark:</i> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

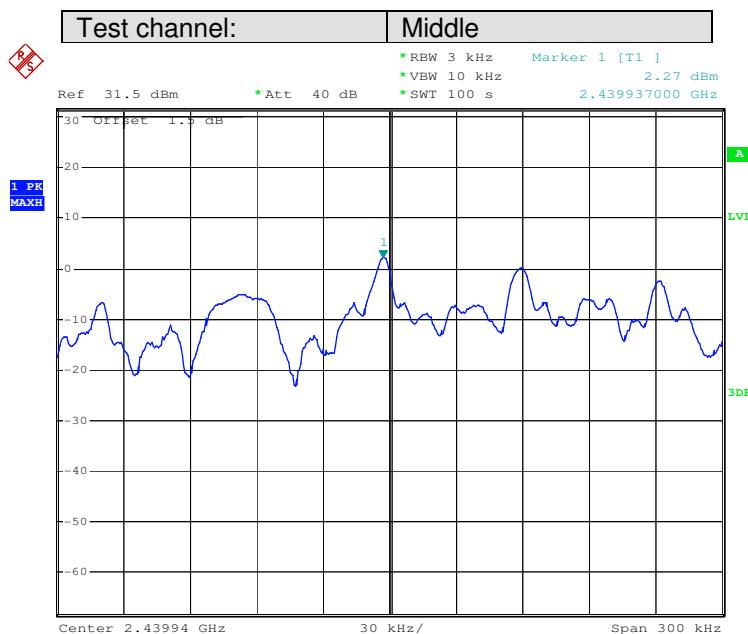
Measurement Data

Test channel	Power Spectral Density (dBm)	Limit (dBm)	Result
Lowest	3.61	<8.00	Pass
Middle	2.27	<8.00	Pass
Highest	1.05	<8.00	Pass

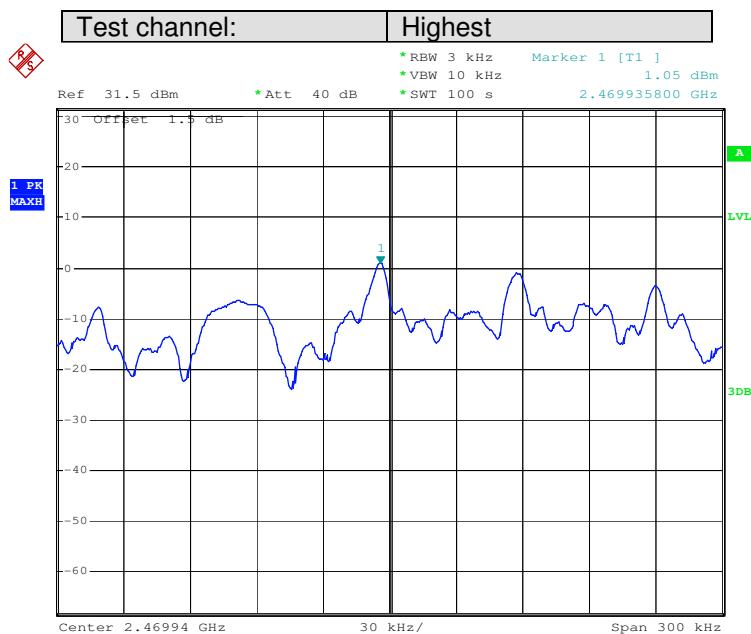
Test plot as follows:



Date: 27.JUN.2010 15:24:08

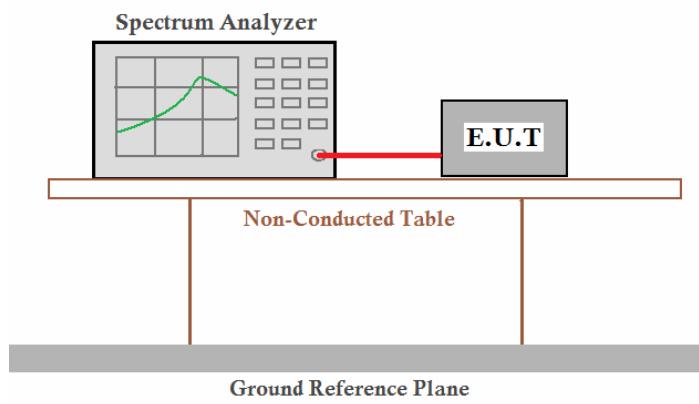


Date: 27.JUN.2010 16:04:47

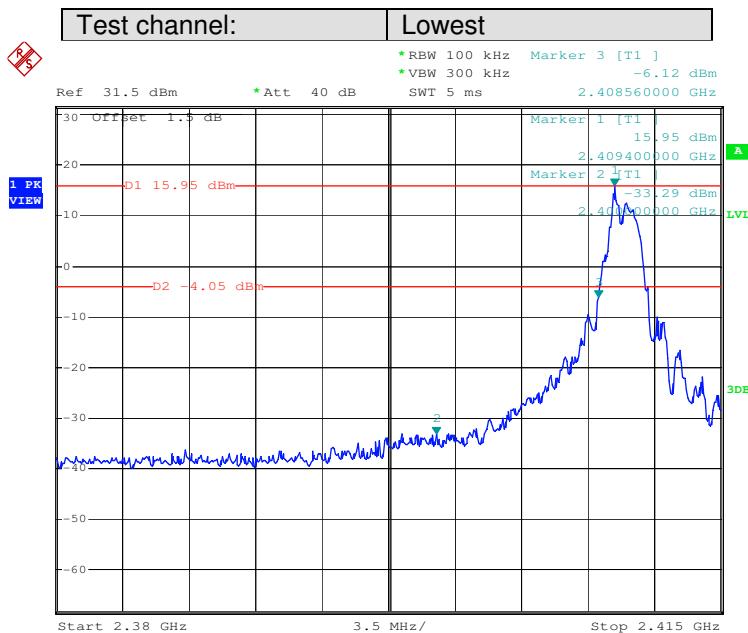


Date: 27.JUN.2010 16:16:40

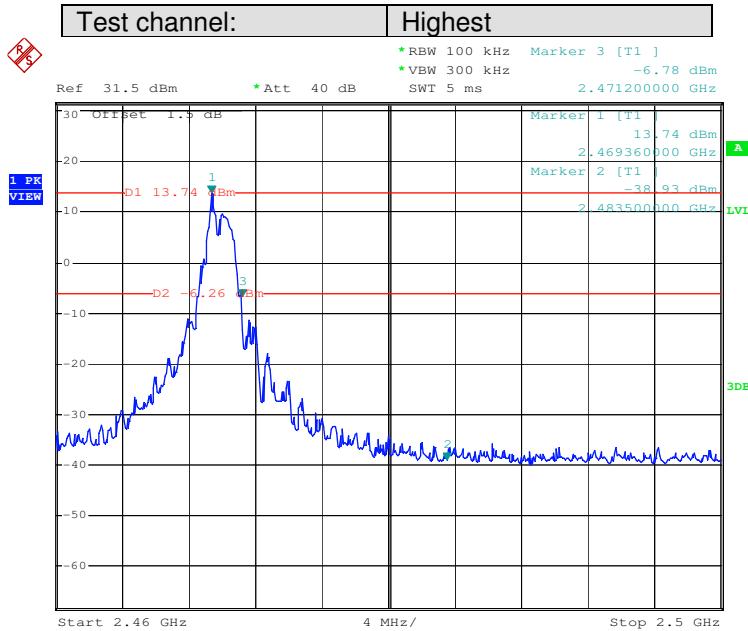
5.6 Band Edge

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane</p> <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

Test plot as follows:

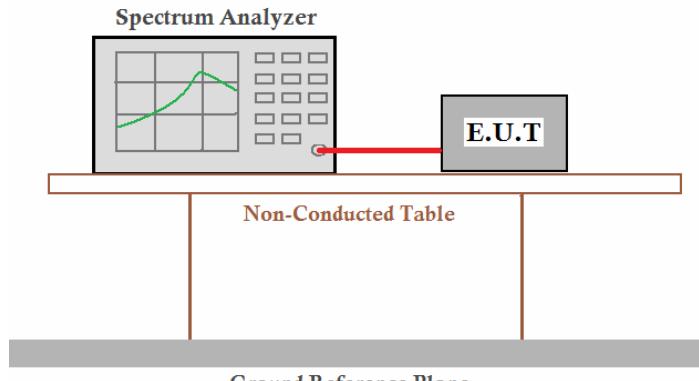


Date: 27.JUN.2010 15:19:27

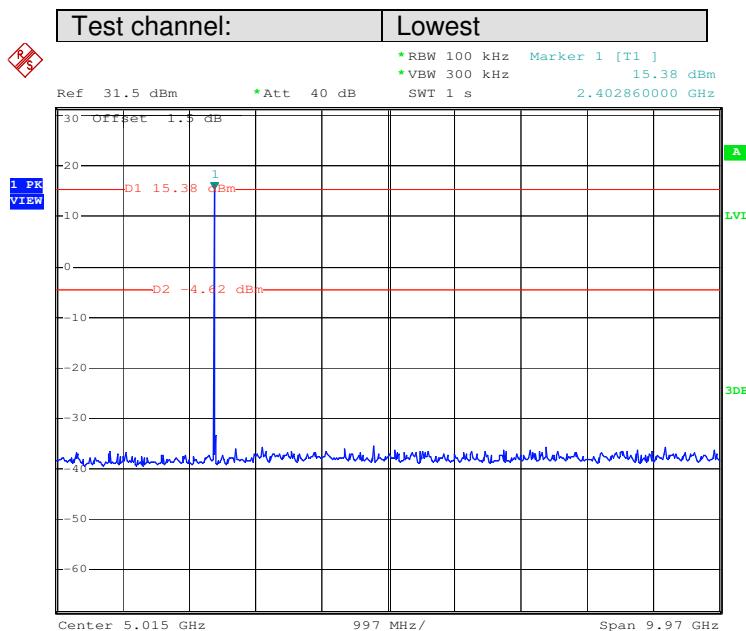


Date: 27.JUN.2010 16:09:52

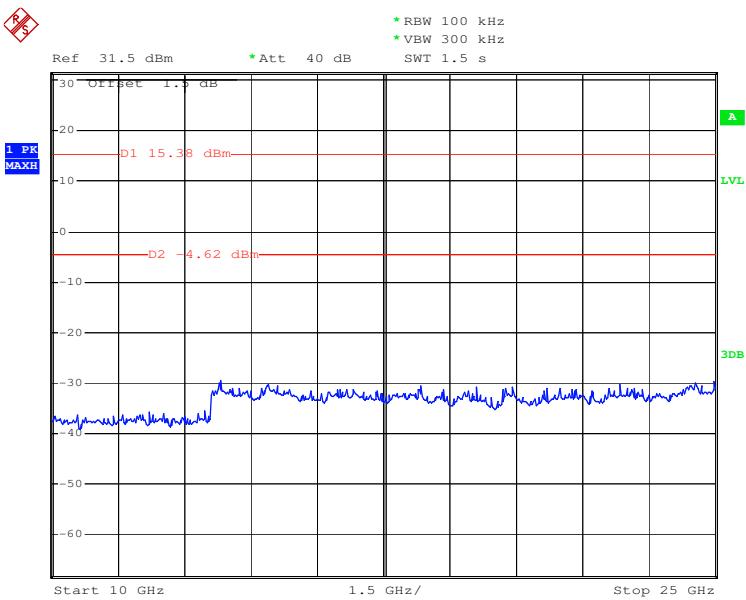
5.7 RF Antenna Conducted spurious emissions

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB558074
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test setup:	 <p>Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane</p> <p><i>Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.</i></p>
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed

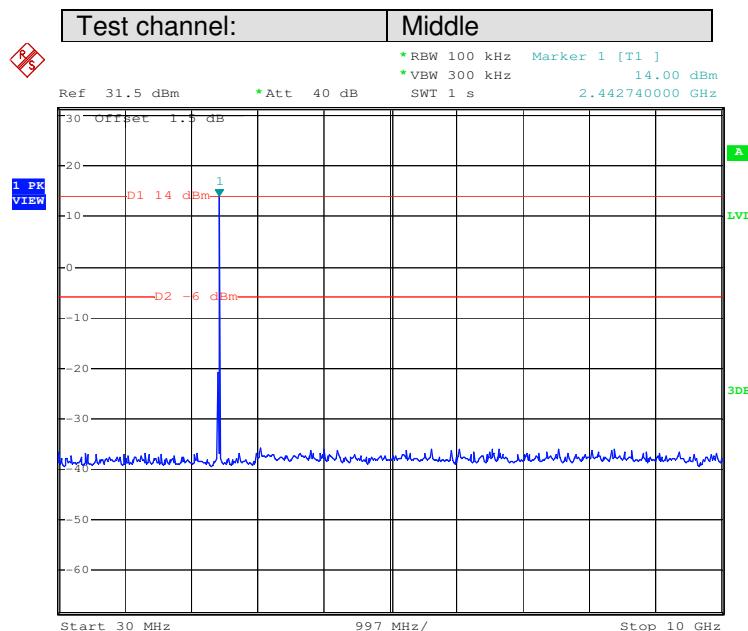
Test plot as follows:



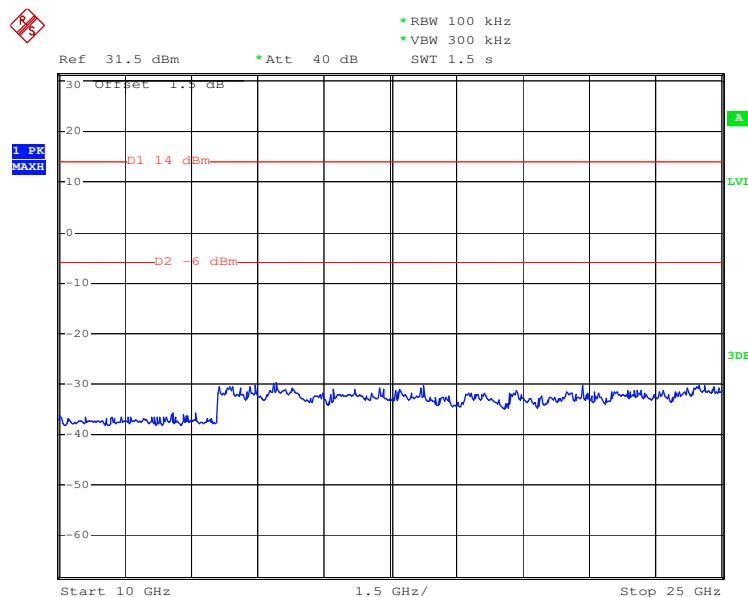
Date: 27.JUN.2010 15:17:43



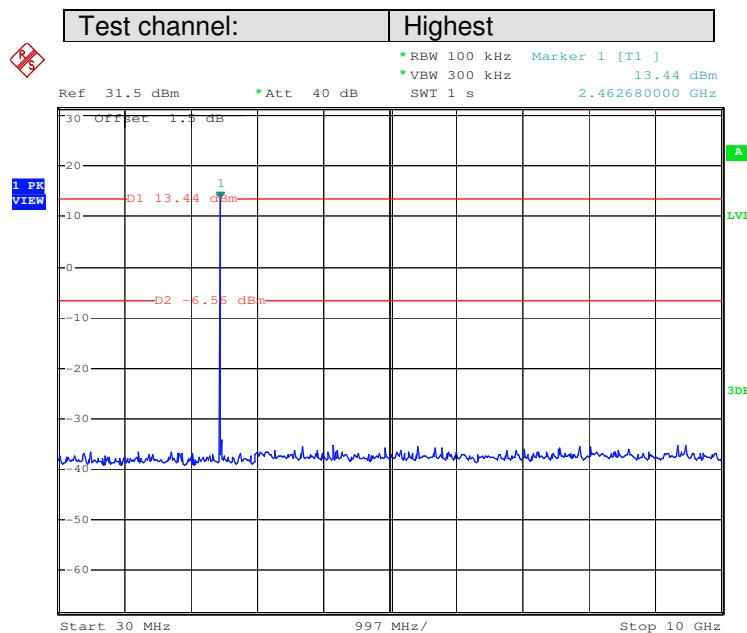
Date: 27.JUN.2010 15:18:12



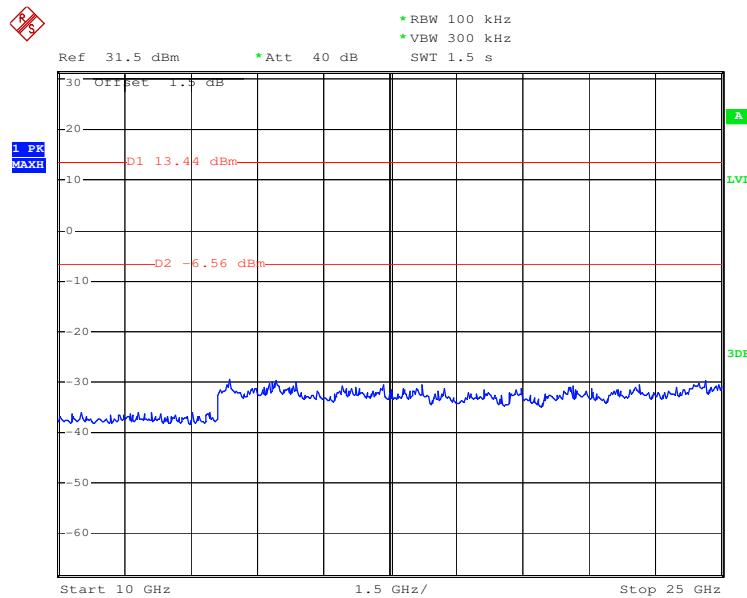
Date: 27.JUN.2010 15:59:45



Date: 27.JUN.2010 16:00:10



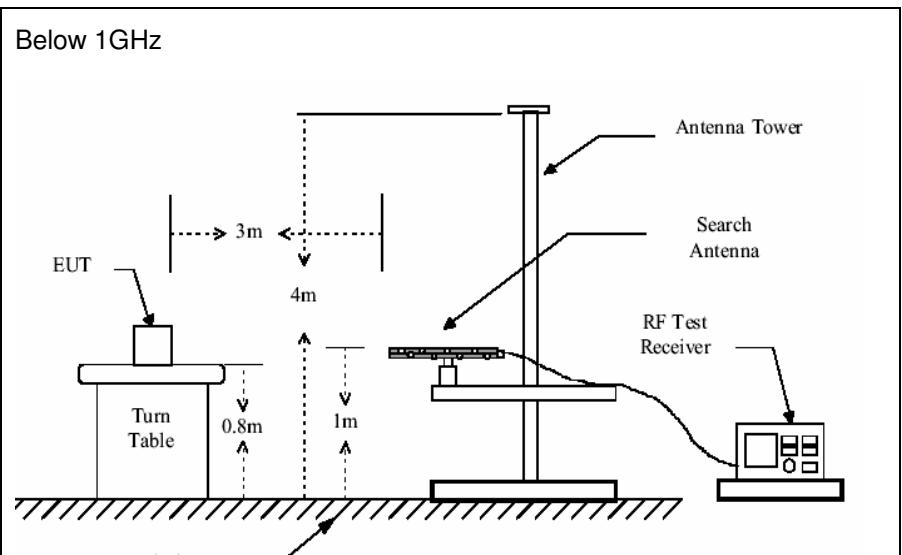
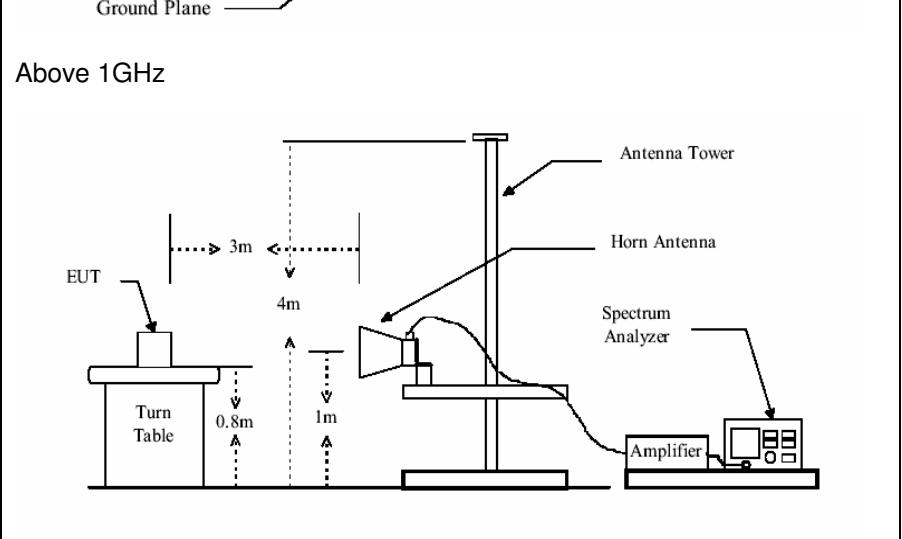
Date: 27.JUN.2010 16:11:51



Date: 27.JUN.2010 16:12:12

5.8 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.209 and 15.205																								
Test Method:	ANSI C63.4: 2003																								
Test Frequency Range:	30MHz to 25GHz																								
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)																								
Receiver setup:	<table border="1"><thead><tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr></thead><tbody><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr></tbody></table>					Frequency	Detector	RBW	VBW	Remark	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value	
Frequency	Detector	RBW	VBW	Remark																					
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value																					
Above 1GHz	Peak	1MHz	3MHz	Peak Value																					
	Peak	1MHz	10Hz	Average Value																					
Limit:	<table border="1"><thead><tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr></thead><tbody><tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr><tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr><tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr><tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr><tr><td>74.0</td><td>Peak Value</td></tr></tbody></table>					Frequency	Limit (dBuV/m @3m)	Remark	30MHz-88MHz	40.0	Quasi-peak Value	88MHz-216MHz	43.5	Quasi-peak Value	216MHz-960MHz	46.0	Quasi-peak Value	960MHz-1GHz	54.0	Quasi-peak Value	Above 1GHz	54.0	Average Value	74.0	Peak Value
Frequency	Limit (dBuV/m @3m)	Remark																							
30MHz-88MHz	40.0	Quasi-peak Value																							
88MHz-216MHz	43.5	Quasi-peak Value																							
216MHz-960MHz	46.0	Quasi-peak Value																							
960MHz-1GHz	54.0	Quasi-peak Value																							
Above 1GHz	54.0	Average Value																							
	74.0	Peak Value																							
Test Procedure:	<ol style="list-style-type: none">The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.																								
Test Instruments:	Refer to section 4.7 for details																								
Test mode:	Keep the EUT in transmitting mode with modulation Test the EUT in normal operation mode																								
Test results:	Passed																								

Test setup:	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Below 1GHz</p>  </div><div style="width: 45%;"> <p>Above 1GHz</p>  </div></div>
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Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

5.8.1 Radiated emission below 1GHz

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
48.430	0.78	8.47	28.11	40.54	21.68	40.00	-18.32	Vertical
66.860	0.80	6.99	28.01	33.88	13.66	40.00	-26.34	Vertical
136.700	1.29	7.98	27.55	36.11	17.83	43.50	-25.67	Vertical
219.150	1.51	11.18	27.05	37.28	22.92	46.00	-23.08	Vertical
418.074	2.28	16.38	27.47	50.00	41.19	46.00	-4.81	Vertical
816.670	3.28	22.29	26.85	32.42	31.14	46.00	-14.86	Vertical
129.910	1.28	7.70	27.61	35.64	17.01	43.50	-26.49	Horizontal
219.150	1.51	11.18	27.05	41.07	26.71	46.00	-19.29	Horizontal
285.110	1.83	13.26	26.77	35.21	23.53	46.00	-22.47	Horizontal
417.293	2.28	16.37	27.47	52.00	43.18	46.00	-2.82	Horizontal
447.100	2.40	16.84	27.56	45.49	37.17	46.00	-8.83	Horizontal
815.700	3.27	22.29	26.85	32.79	31.50	46.00	-14.50	Horizontal

Note: The data above is tested with QP detector mode.

5.8.2 Transmitter emission above 1GHz

Test channel:	Lowest	Remark:			Peak
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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1728.00	5.21	27.80	39.65	49.42	42.78	74.00	-31.22	Vertical
2316.00	6.00	29.74	39.83	45.31	41.22	74.00	-32.78	Vertical
4794.00	9.45	34.23	41.50	43.91	46.09	74.00	-27.91	Vertical
7244.00	13.22	37.26	40.78	38.13	47.83	74.00	-26.17	Vertical
9666.00	13.59	38.00	37.71	34.46	48.34	74.00	-25.66	Vertical
12046.00	16.77	39.12	39.13	29.26	46.02	74.00	-27.98	Vertical
1812.00	5.63	28.03	38.86	46.68	41.48	74.00	-32.52	Horizontal
2316.00	6.00	29.74	39.83	47.97	43.88	74.00	-30.12	Horizontal
4794.00	9.45	34.23	41.50	42.29	44.47	74.00	-29.53	Horizontal
7230.00	13.30	37.24	40.88	35.00	44.66	74.00	-29.34	Horizontal
9638.00	13.49	37.99	37.64	30.22	44.06	74.00	-29.94	Horizontal
12046.00	16.77	39.12	39.13	28.75	45.51	74.00	-28.49	Horizontal

Test channel:	Middle	Remark:	Peak
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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1798.00	5.65	27.99	38.66	42.22	37.20	74.00	-36.80	Vertical
3100.00	7.55	32.03	39.95	40.98	40.61	74.00	-33.39	Vertical
4850.00	11.47	34.30	41.59	41.79	45.97	74.00	-28.03	Vertical
7328.00	12.91	37.31	40.40	33.48	43.30	74.00	-30.70	Vertical
9778.00	13.99	38.04	38.01	30.34	44.36	74.00	-29.64	Vertical
12228.00	17.95	39.23	39.30	26.45	44.33	74.00	-29.67	Vertical
1700.00	5.05	27.73	40.00	47.92	40.70	74.00	-33.30	Horizontal
3394.00	7.22	32.42	39.85	42.83	42.62	74.00	-31.38	Horizontal
4850.00	11.47	34.30	41.59	36.93	41.11	74.00	-32.89	Horizontal
7328.00	12.91	37.31	40.40	35.25	45.07	74.00	-28.93	Horizontal
9750.00	13.89	38.03	37.94	29.28	43.26	74.00	-30.74	Horizontal
12228.00	17.95	39.23	39.30	26.71	44.59	74.00	-29.41	Horizontal

Test channel:	Highest	Remark:	Peak
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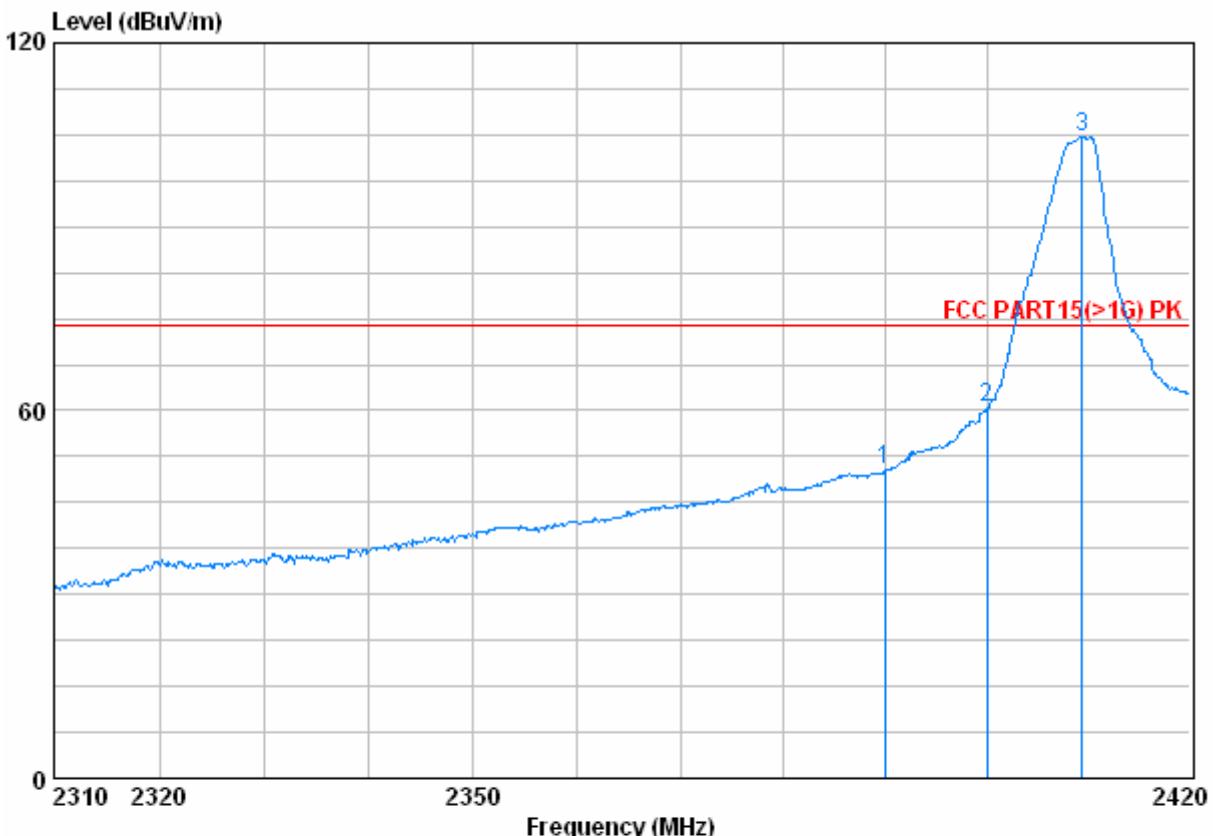
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
1775.50	5.52	27.94	38.94	42.60	37.12	74.00	-36.88	Vertical
3291.25	6.90	32.28	39.11	43.25	43.32	74.00	-30.68	Vertical
4948.00	10.51	34.43	40.96	42.08	46.06	74.00	-27.94	Vertical
7415.50	12.70	37.36	40.06	39.38	49.38	74.00	-24.62	Vertical
9894.75	14.21	38.07	37.85	33.02	47.45	74.00	-26.55	Vertical
12327.00	17.71	39.30	39.41	29.56	47.16	74.00	-26.84	Vertical
1728.50	5.21	27.80	39.65	48.86	42.22	74.00	-31.78	Horizontal
3655.50	7.92	32.72	40.07	45.88	46.45	74.00	-27.55	Horizontal
4948.00	10.51	34.43	40.96	41.84	45.82	74.00	-28.18	Horizontal
7415.50	12.70	37.36	40.06	39.25	49.25	74.00	-24.75	Horizontal
9894.75	14.21	38.07	37.85	35.42	49.85	74.00	-24.15	Horizontal
12092.00	17.08	39.14	39.16	32.57	49.63	74.00	-24.37	Horizontal

Remark: 1. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

5.8.3 Band Edge and Restricted band (Radiated measurement)

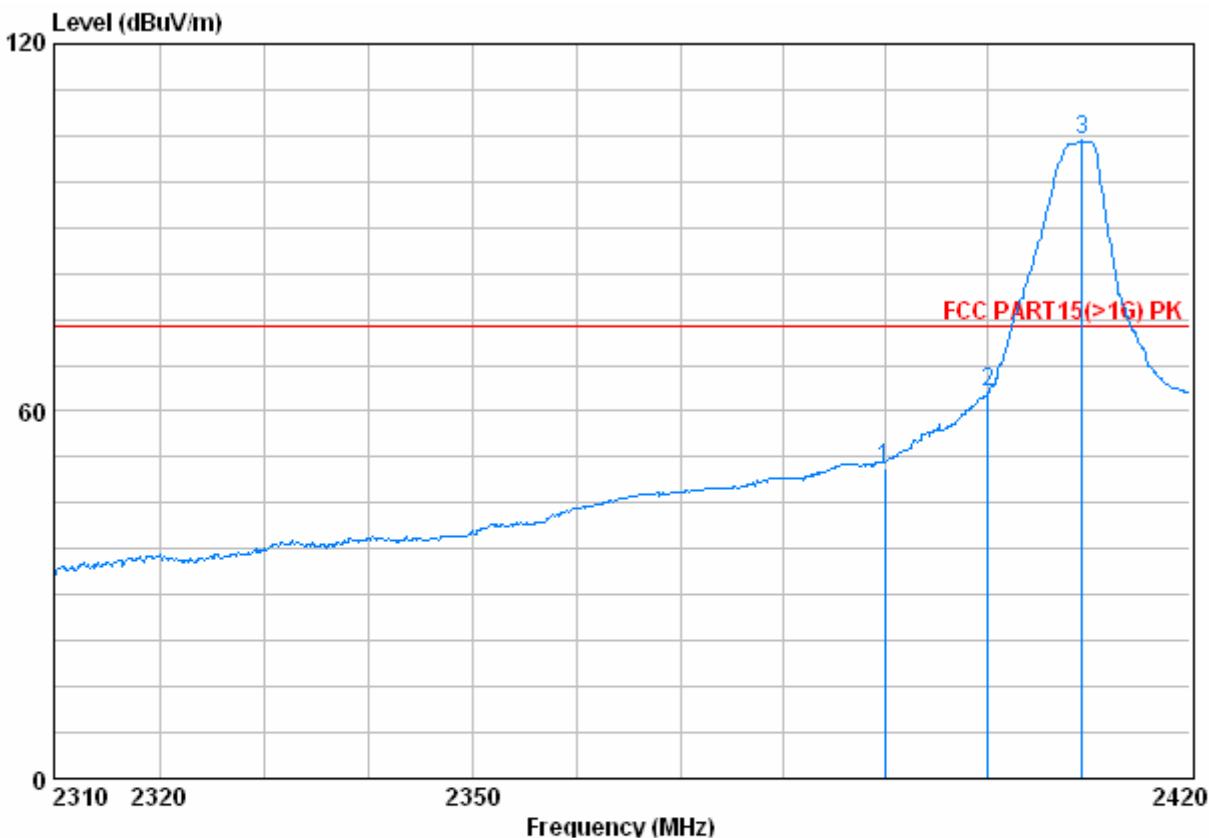
Test channel:	Lowest	Remark:	Peak
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Vertical:



Freq	Cable	Antenna	Preamp	Read	Limit	Over		
	Loss	Factor	Factor	Level	Level	Line	Limit	
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	53.04	50.27	74.00	-23.73
2	2400.000	6.34	30.03	38.87	62.84	60.34	74.00	-13.66
3	2409.330	6.25	30.05	38.83	107.28	104.75	74.00	30.75

Horizontal:



Freq	Cable Antenna Preamp			Read Level	Limit	Over Line	Limit	
	Loss	Factor	Factor					
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2390.000	6.28	29.98	39.03	53.34	50.57	74.00	-23.43
2	2400.090	6.34	30.03	38.87	65.57	63.07	74.00	-10.93
3	2409.330	6.25	30.05	38.83	106.67	104.14	74.00	30.14

Test channel:	Lowest	Remark:	Average
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Vertical:

The EUT duty cycle:

Duty cycle=T on/T period=0.256/1.548=16.5%

Factor=20log(duty cycle)=20log(0.165)= -15.65

P average=PK power+20log(duty cycle)=PK power+20log(0.165)=PK power-15.65

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin(dB)	polarization
2390	34.62	54.00	19.38	Vertical
2400	44.69	54.00	9.31	Vertical

Horizontal:

The EUT duty cycle:

Duty cycle=T on/T period=0.256/1.548=16.5%

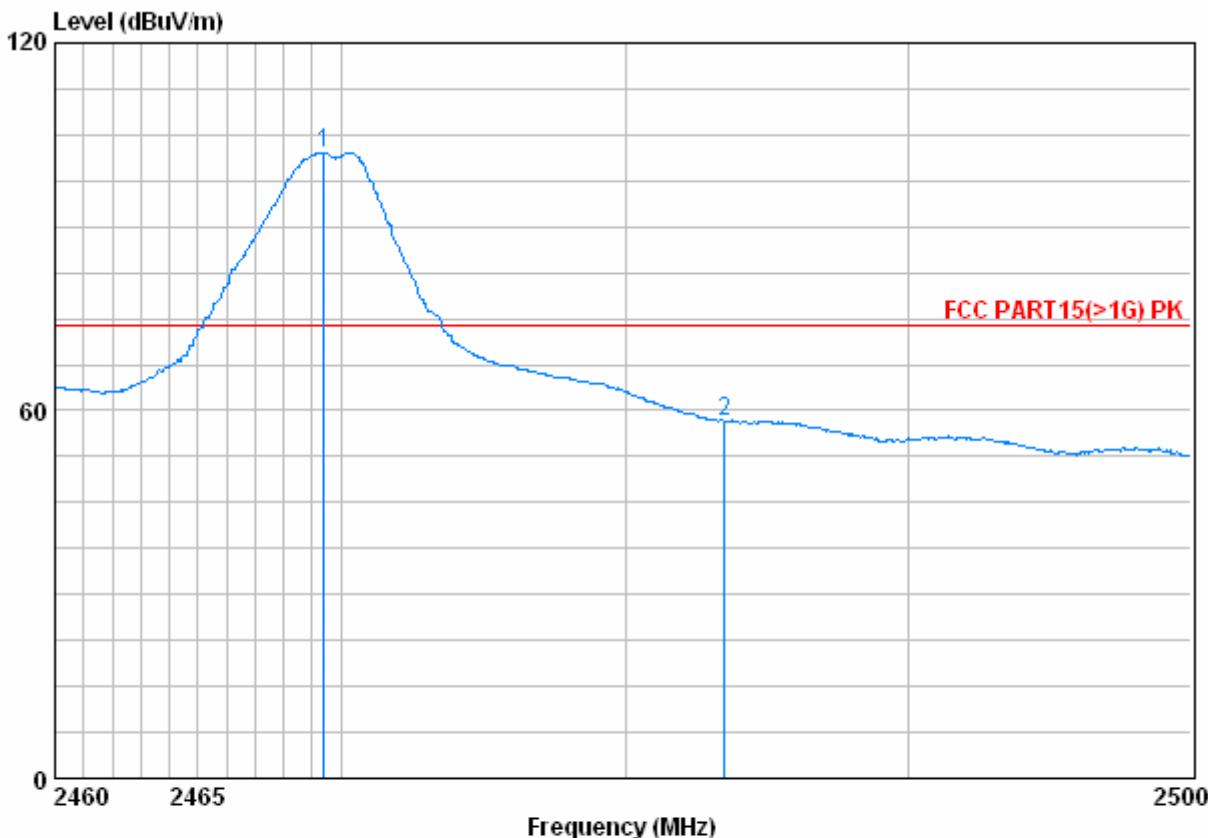
Factor=20log(duty cycle)=20log(0.165)=-15.65

P average=PK power+20log(duty cycle)=PK power+20log(0.165)=PK power-15.65

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin(dB)	polarization
2390	34.92	54.00	19.08	Horizontal
2400	47.42	54.00	6.58	Horizontal

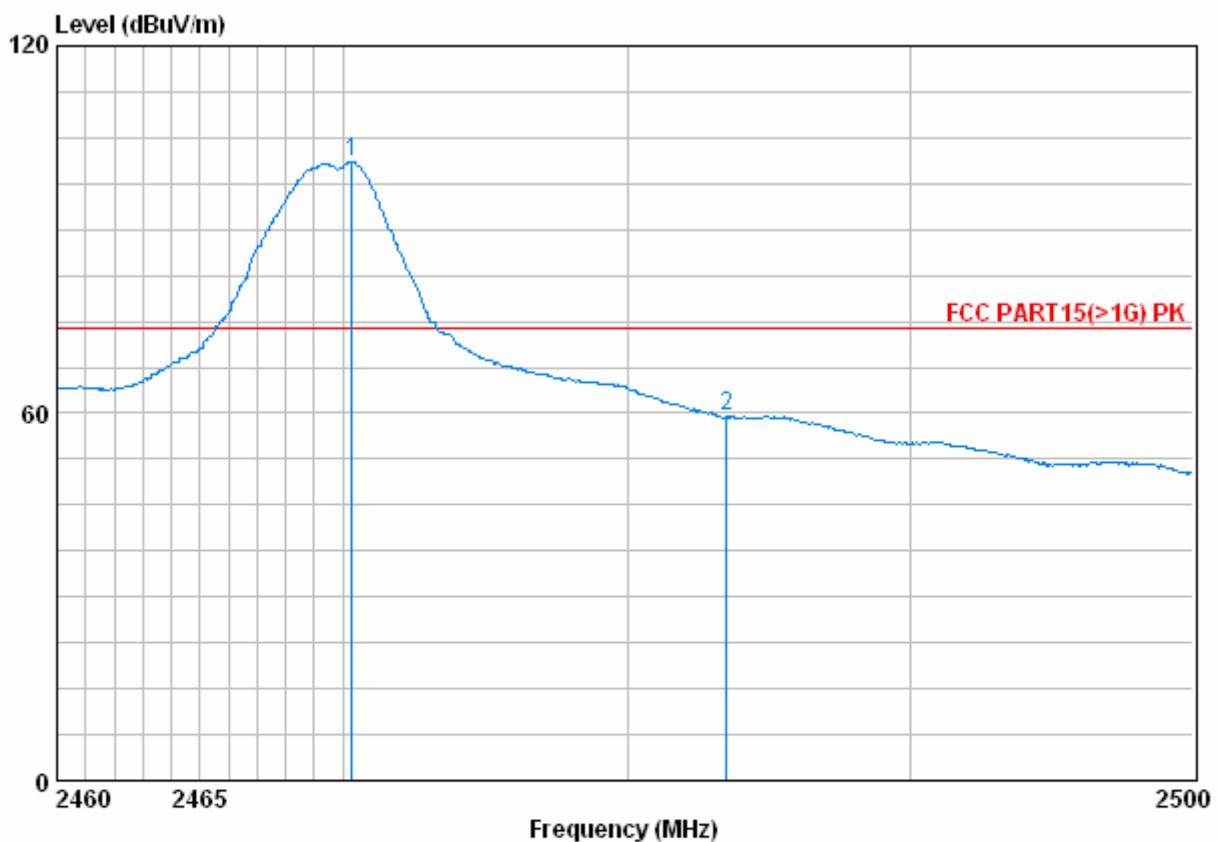
Test channel:	Highest	Remark:	Peak
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Vertical:



Freq	Cable Loss		Antenna Factor		Preamp Factor		Read Level	Limit Level	Line Limit	Over Limit
	MHz	dB	dB/m	Factor	dB	dBuV	dBuV/m	dBuV/m	dB	
1 X	2469.400	6.58	30.27	39.67	104.93	102.11	74.00	28.11		
2	2483.500	6.22	30.32	39.53	61.22	58.23	74.00	-15.77		

Horizontal:



Freq	Cable		Antenna	Preamp	Read	Limit	Over	
	Loss	Factor	Factor	Level	Level			
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 X	2470.320	6.58	30.27	39.67	103.89	101.08	74.00	27.08
2	2483.500	6.22	30.32	39.53	62.34	59.35	74.00	-14.65

Test channel:	Highest	Remark:	Average
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Vertical:

The EUT duty cycle:

Duty cycle=T on/T period=0.256/1.548=16.5%

Factor=20log(duty cycle)=20log(0.165)= -15.65

P average=PK power+20log(duty cycle)=PK power+20log(0.165)=PK power-15.65

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin(dB)	polarization
2483.500	42.58	54.00	11.42	Vertical

Horizontal:

The EUT duty cycle:

Duty cycle=T on/T period=0.256/1.548=16.5%

Factor=20log(duty cycle)=20log(0.165)= -15.65

P average=PK power+20log(duty cycle)=PK power+20log(0.165)=PK power-15.65

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin(dB)	polarization
2483.500	43.7	54.00	10.3	Horizontal