

<b>Prüfbericht - Nr.: 15031529 001</b>		<b>Seite 1 von 36</b>	
<i>Test Report No.:</i>		<i>Page 1 of 36</i>	
<b>Auftraggeber:</b>		<b>Carestream Health, Inc.</b>	
<i>Client:</i>		150 Verona Street, Rochester NY 14608, USA	
<b>Gegenstand der Prüfung:</b>		<b>KODAK 1500 Intraoral Camera</b>	
<i>Test item:</i>			
<b>Bezeichnung:</b>	<b>1500 Wireless</b>	<b>Serien-Nr.:</b>	<b>N/A</b>
<i>Identification:</i>		<i>Serial No.:</i>	
<b>Wareneingangs-Nr.:</b>	<b>153114145</b>	<b>Eingangsdatum:</b>	<b>16.01.2009</b>
<i>Receipt No.:</i>		<i>Date of receipt:</i>	
<b>Prüfort:</b>	<b>Refer to section 1.1</b>		
<i>Testing location:</i>			
<b>Prüfgrundlage:</b>	<b>FCC Part 15:2008</b>		
<i>Test specification:</i>	<b>RSS-210 (Issue 7):2007</b>		
	<b>RSS-Gen (Issue 2):2007</b>		
<b>Prüfergebnis:</b>	<b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b>		
<i>Test Result:</i>	<i>The test item passed the test specification(s).</i>		
<b>Prüflaboratorium:</b>	<b>TÜV Rheinland (Shanghai) Co., Ltd.</b>		
<i>Testing Laboratory:</i>			
<b>geprüft/ tested by:</b>		<b>kontrolliert/ reviewed by:</b>	
01.06.2009    Gu Weikang/PE <i>Signature</i>		01.06.2009    Lu Xinhua/TC <i>Signature</i>	
<i>Datum</i>	<i>Name/Stellung</i>	<i>Unterschrift</i>	<i>Datum</i>
<i>Date</i>	<i>Name/Position</i>	<i>Signature</i>	<i>Date</i>
<b>Sonstiges/ Other Aspects:</b>			
FCC ID: U72KODAK1500H			
IC: 7027A-KODAK1500			
IC OATS number: 2932F-1			
RF Power in Watts: 0.0834 W (conducted)			
FIELD STRENGTH: N/A			
OCCUPIED BANDWIDTH: 16.560 MHz (20 dB)			
EMISSION DESIGNATOR: 16M6D1D			
<b>Abkürzungen:</b>		<b>Abbreviations:</b>	
P(ass)	= entspricht Prüfgrundlage	P(ass)	= passed
F(ail)	= entspricht nicht Prüfgrundlage	F(ail)	= failed
N/A	= nicht anwendbar	N/A	= not applicable
N/T	= nicht getestet	N/T	= not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

## TEST SUMMARY

### 2.2.1 ANTENNA REQUIREMENTS FCC 15.203, FCC 15.204 AND RSS-210 A8.4

*Result:*

*Passed*

### 4.1.1 MAX PEAK OUTPUT POWER

*Result:*

*Passed*

### 4.1.2 MAX AVERAGE OUTPUT POWER

*Result:*

*N/A*

### 4.1.3 6DB BANDWIDTH

*Result:*

*Passed*

### 4.1.4 POWER SPECTRAL DENSITY

*Result:*

*Passed*

### 4.1.5 BAND EDGE / OUT-OF-BAND EMISSION

*Result:*

*Passed*

### 4.2.1 CONDUCTED EMISSION

*Result:*

*Passed*

### 4.3.1 RADIATED EMISSION

*Result:*

*Passed*

### 4.3.2 RADIATED EMISSION IN RESTRICTED BAND

*Result:*

*Passed*

### 4.3.3 RADIATED EMISSION FOR RECEIVER

*Result:*

*Passed*

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# 1 Test Sites

## 1.1 Test Facilities

**Laboratory: TÜV Rheinland (Shanghai) Co., Ltd.**  
**Address: 10-15/F, Huatsing Building, No. 88, Lane 777, West Guangzhong Road, Zhabei District, Shanghai 200072, P.R. China**  
(FCC registration No.: 657274; IC site No.: 2932F-1)

The used test equipments are in accordance with CISPR 16-1 series standards for measurement of radio interference.

## 1.2 List of Test and Measurement Instruments

**Table 1: List of test and measurement equipment**

No.	Equipment	Model	Serial no.	Cal. due date
1.	EMI test receiver	ESIB26	100227	10.06.2009
2.	Artificial mains network	NNB 42	04/10048	25.02.2010
3.	3m modified semi-anechoic chamber	SAC	N/A	25.04.2011
4.	EMI test receiver	ESCI	100280	03.12.2009
5.	Broadband antenna	BTA-H	040005H	11.03.2010
6.	HF loop antenna	HLA6120	22137	18.01.2010
7.	Spectrum analyzer	FSP30	100192	10.06.2009
8.	Power meter	NRVS	836333/067	01.07.2009
9.	Power sensor	NRV-Z1	100091	01.07.2009
10.	Double ridged broadband horn antenna	BBHA 9120D	9120D-433	21.06.2009
11.	Broadband coaxial preamplifier	BBV 9718	9718-012	07.04.2010
12.	Frequency variable power source	APW-150N	930376	04.11.2009
13.	DC power supply	0-60V/2A	0502073	07.08.2009

## 2 General Product Information

### 2.1 Product Function and Intended Use

The equipment under test (EUT) is a KODAK 1500 Intraoral Camera operating at 2400-2483.5MHz for medical use.

### 2.2 Ratings and System Details

EUT part	Rated voltage	Rated current	Supply
Intraoral camera	DC 3.7V	-	Lithium battery (when operating)
	DC 6V	1.8A	Docking station (when charging)

FCC classification	:	DTS
Radio standard	:	IEEE 802.11g
Frequency range	:	2412 - 2462MHz
Number of channel	:	11
Channel spacing	:	5MHz
Type of antenna	:	Integral antenna
Antenna info	:	Trade name: MAG.LAYERS
	:	Model name: LTA-6020-2G4S3-A1-RP
	:	Antenna gain: 1.0dBi
	:	Antenna connector: chip antenna
Modulation type	:	OFDM (802.11g)
Protection class	:	III

#### 2.2.1 Antenna Requirements FCC 15.203, FCC 15.204 and RSS-210 A8.4

<b>Result:</b>	<b>Passed</b>
----------------	---------------

The EUT use an internal antenna which is not user accessible. Therefore it complies with the requirements specified by FCC 15.203, FCC 15.204 and RSS-210 A8.4.

## **2.3 Independent Operation Modes**

The tests were performed at the lowest operating frequency (2412 MHz), middle operating frequency (2437 MHz) and the highest operating frequency (2462 MHz).

For further information refer to user manual.

## **2.4 Submitted Documents**

The submitted documents are listed as follow:

- Circuit diagram
- Block diagram
- User manual
- Label artwork

## **2.5 Related Submittal(s) Grants**

This is a single application for certification of the transceiver.

## 3 Test Set-up and Operation Modes

### 3.1 Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible emission level. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

### 3.2 Test Operation and Test Software

Test operation should refer to test methodology.

- There was no special software to exercise the device.

### 3.3 Special Accessories and Auxiliary Equipment

Equipment	Rated voltage	Rated current	Supply
Docking station	DC 6V	1.8A	AC/DC adaptor
AC/DC adaptor (Model: UE24WCP-060250SPA)	AC 100-240V, 50/60Hz	600mA	AC mains

### 3.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the circuit diagram or the Technical Construction File. No additional measures were employed to achieve compliance.

## 4 Test Result

### 4.1 Conducted Testing at Antenna Port

#### 4.1.1 Max Peak Output Power

<b>Result:</b>	<b>Passed</b>
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Date of testing : 01.04.2009  
 Test specification : FCC Part 15 Section 15.247(b)(3);  
 RSS-210 A8.4(4)  
 Limit : 1W (30dBm)  
 Ambient condition : Temperature: 23°C; Relative humidity: 40%;

The maximum peak output power (conducted) was measured directly at the antenna connector with frequency analyzer.

**Table 2: Max peak output power measurement results**

Data rate (Mbps)	Peak output power (dBm)		
	CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz
6	16.63	16.36	15.96
9	18.24	16.64	16.34
12	18.50	16.78	16.55
18	18.52	16.25	16.04
24	18.81	17.01	16.86
36	18.45	16.67	16.52
48	18.40	16.62	16.48
54	19.21	16.93	16.76

**Remark:**

The worst case configuration was found for the power output at 54Mbps for 2412MHz, 24Mbps for 2437MHz & 2462MHz. This test mode will be used for the rest of evaluation of the product.



#### 4.1.2 Max Average Output Power

**Result:****N/A**

Date of testing : 01.04.2009  
Limit : None (for reference)  
Ambient condition : Temperature: 23°C; Relative humidity: 40%;

The maximum average output power (conducted) was measured directly at the antenna connector with power meter & diode power sensor.

**Table 3: Max average output power measurement results**

Data rate (Mbps)	Average output power (dBm)		
	CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz
6	10.42	9.16	8.52
9	10.22	8.96	9.05
12	9.95	9.24	9.24
18	9.83	8.77	8.65
24	10.04	9.68	9.72
36	9.72	9.27	9.92
48	10.96	8.72	9.79
54	11.31	9.95	10.4

Remark:

The max average output power among all channels, all data rates and all modulation types is 11.31dBm.

### 4.1.3 6dB Bandwidth

**Result:****Passed**

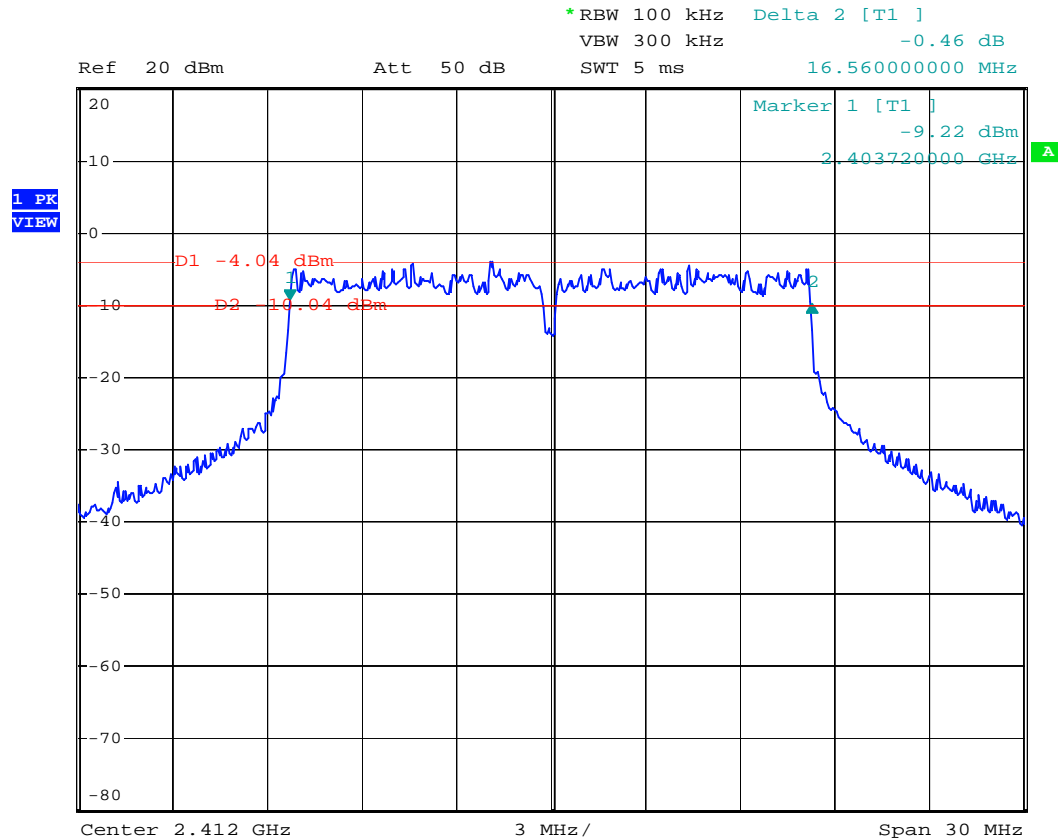
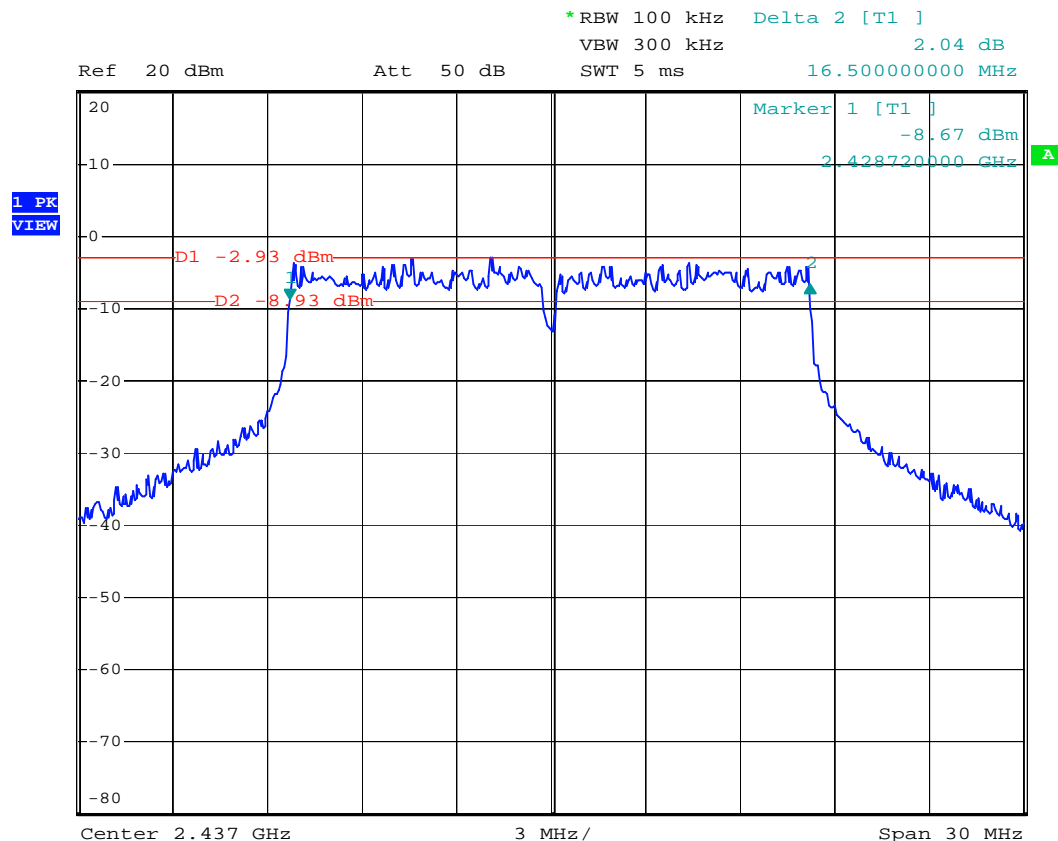
Date of testing : 13.04.2008  
Test specification : FCC Part 15 Section 15.247(a)(2);  
RSS-210 A8.2(a)  
RBW/VBW : 100kHz/300kHz  
Limit :  $\geq 500\text{kHz}$   
Ambient condition : Temperature: 24°C; Relative humidity: 42%

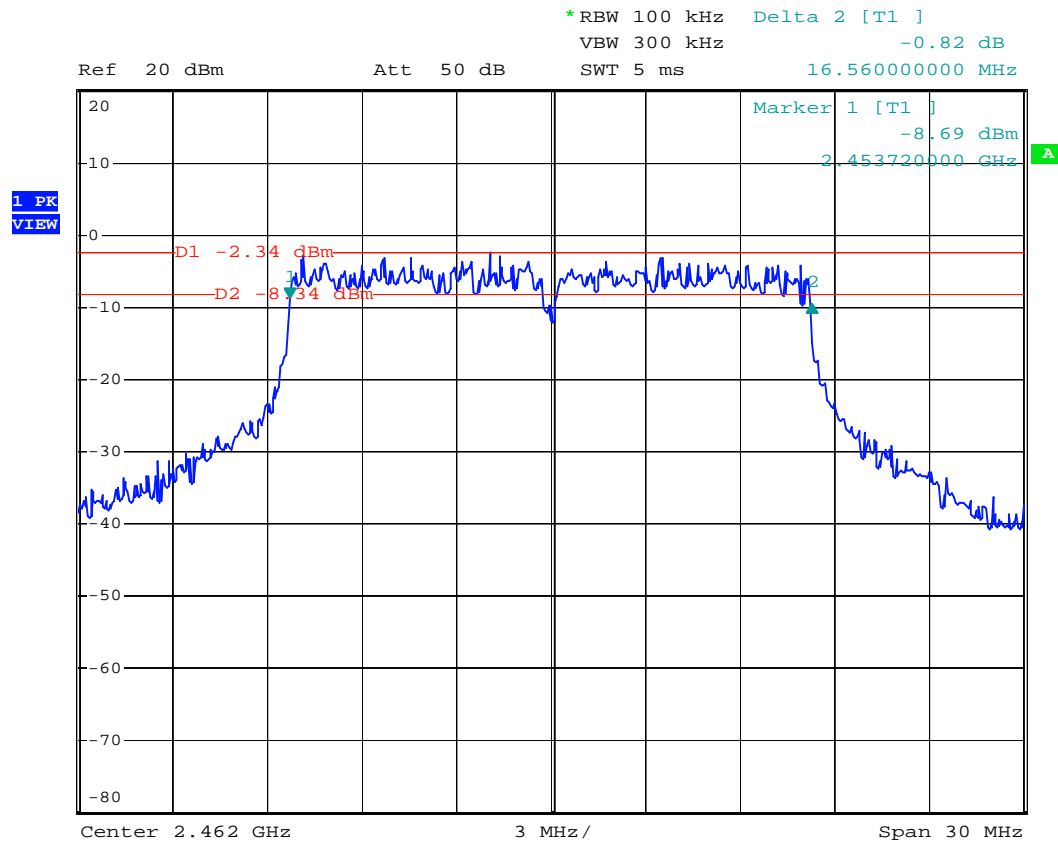
The antenna connector is connected to a spectrum analyzer. The resolution bandwidth of spectrum analyzer was set at 100kHz. The 6dB bandwidth was measured by using the Delta Marker function of the analyzer.

**Table 4: 6dB bandwidth measurement results**

Channel	Freq. (MHz)	6dB bandwidth (MHz)	Limit (kHz)
1	2412	16.56	500
6	2437	16.50	500
11	2462	16.56	500

The following figures were those measured by spectrum analyzer.

**Figure 1: 6dB bandwidth, 2412MHz**

**Figure 2: 6dB bandwidth, 2437MHz**


**Figure 3: 6dB bandwidth, 2462MHz**


#### 4.1.4 Power Spectral Density

**Result:****Passed**

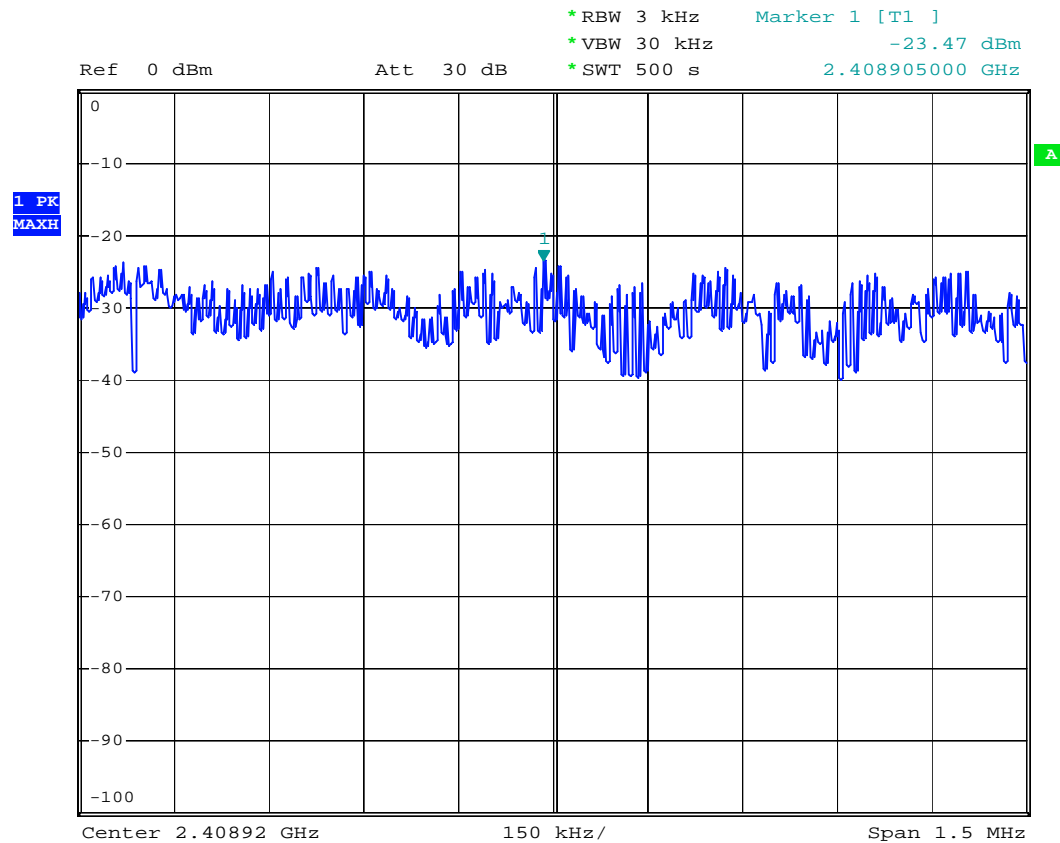
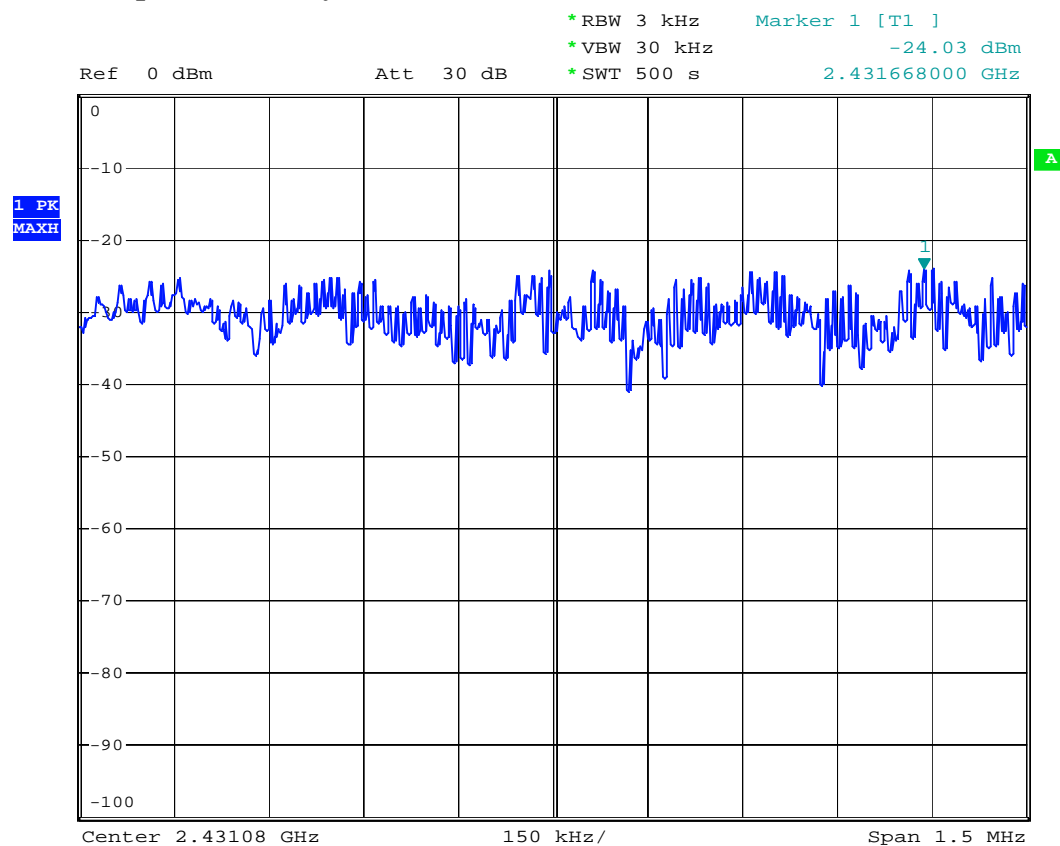
Date of testing : 26.02.2009  
Test specification : FCC Part 15 Section 15.247(e);  
RSS-210 A8.2(b)  
Limit : 8dBm/3kHz  
Ambient condition : Temperature: 23°C; Relative humidity: 40%;

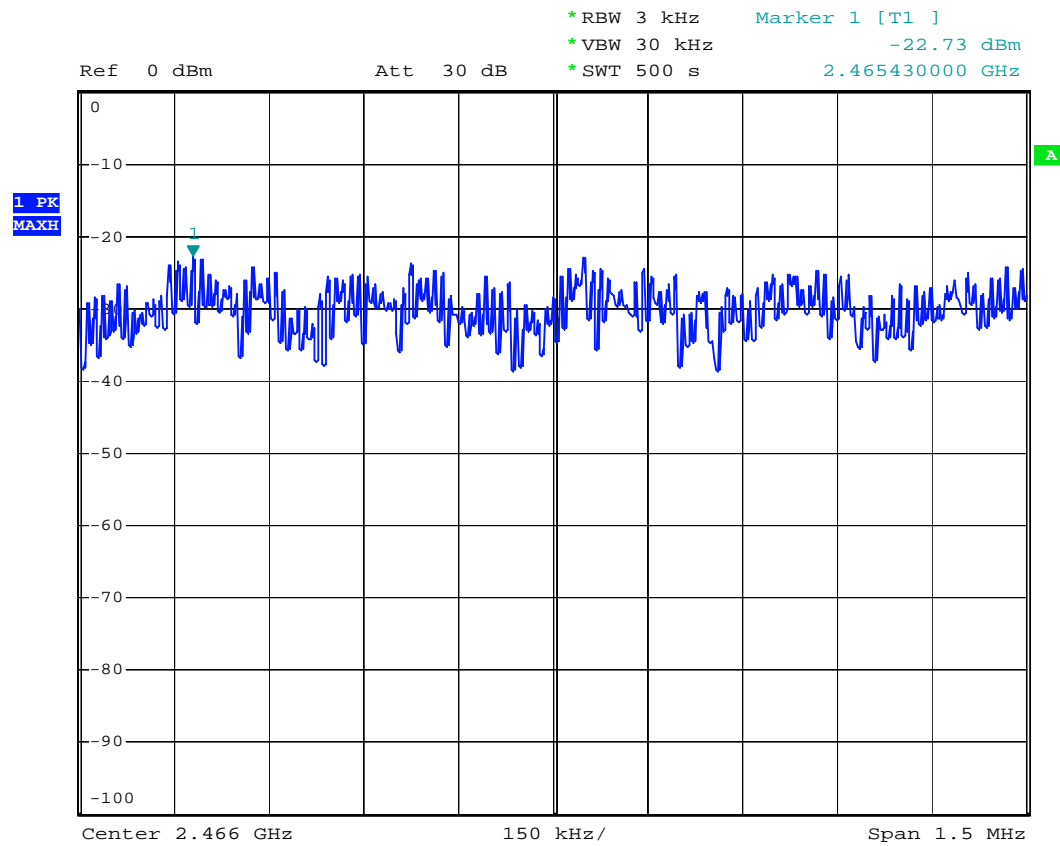
The antenna connector is connected to spectrum analyzer. The resolution bandwidth of spectrum analyzer was set at 3kHz, the video bandwidth was set to 30 kHz, and the sweep time was set to 500s.

**Table 5: Power spectral density measurement results**

Channel	Freq. (MHz)	PSD (reading)	Cable loss	PSD (dBm)	Limit (dBm)
1	2412	-23.47	3.73	-18.74	8
6	2437	-24.03	3.78	-19.30	8
11	2462	-22.73	3.78	-18.00	8

The following figures were those measured by spectrum analyzer.

**Figure 4: Power spectral density, 2412MHz**

**Figure 5: Power spectral density, 2437MHz**


**Figure 6: Power spectral density, 2462MHz**


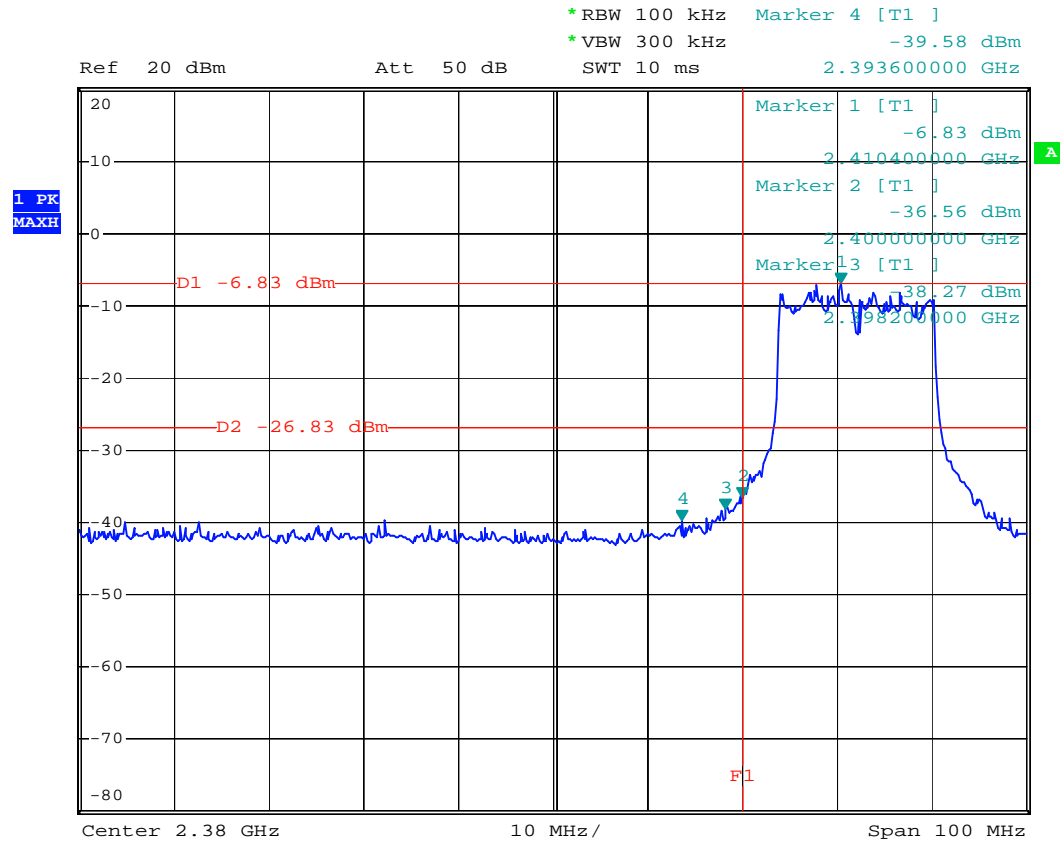
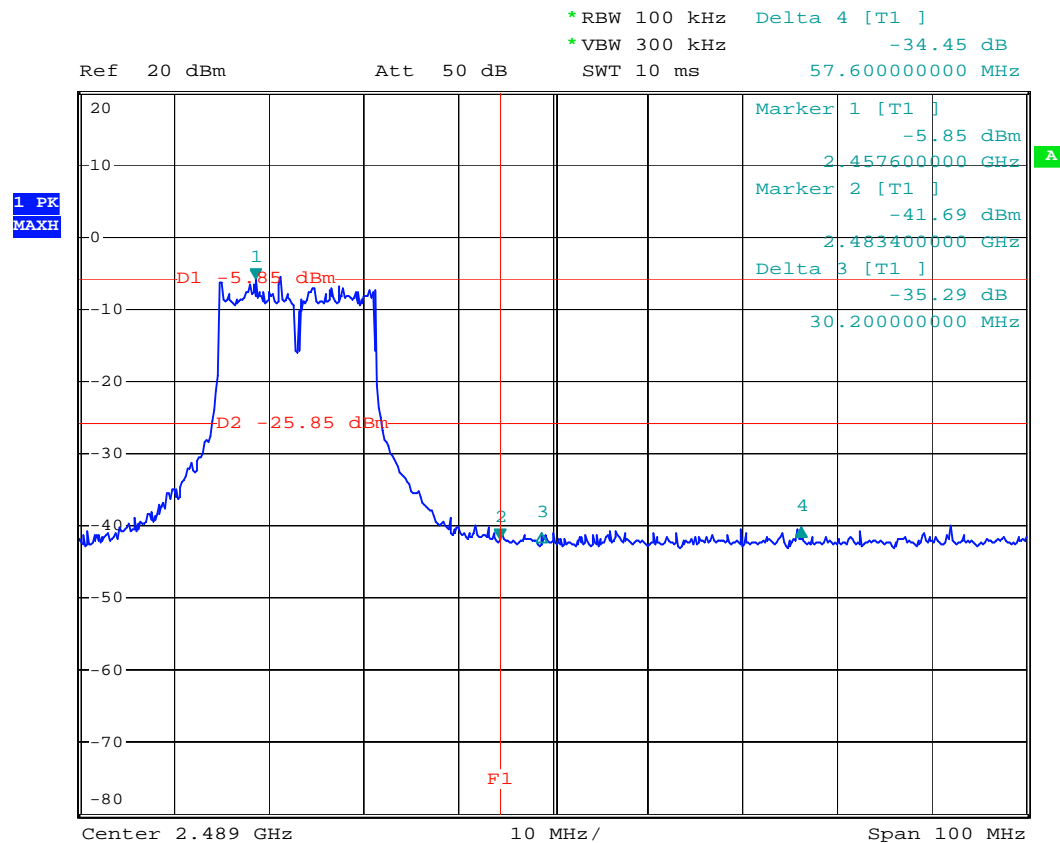
**4.1.5 Band edge / Out-of-band emission****Result:****Passed**

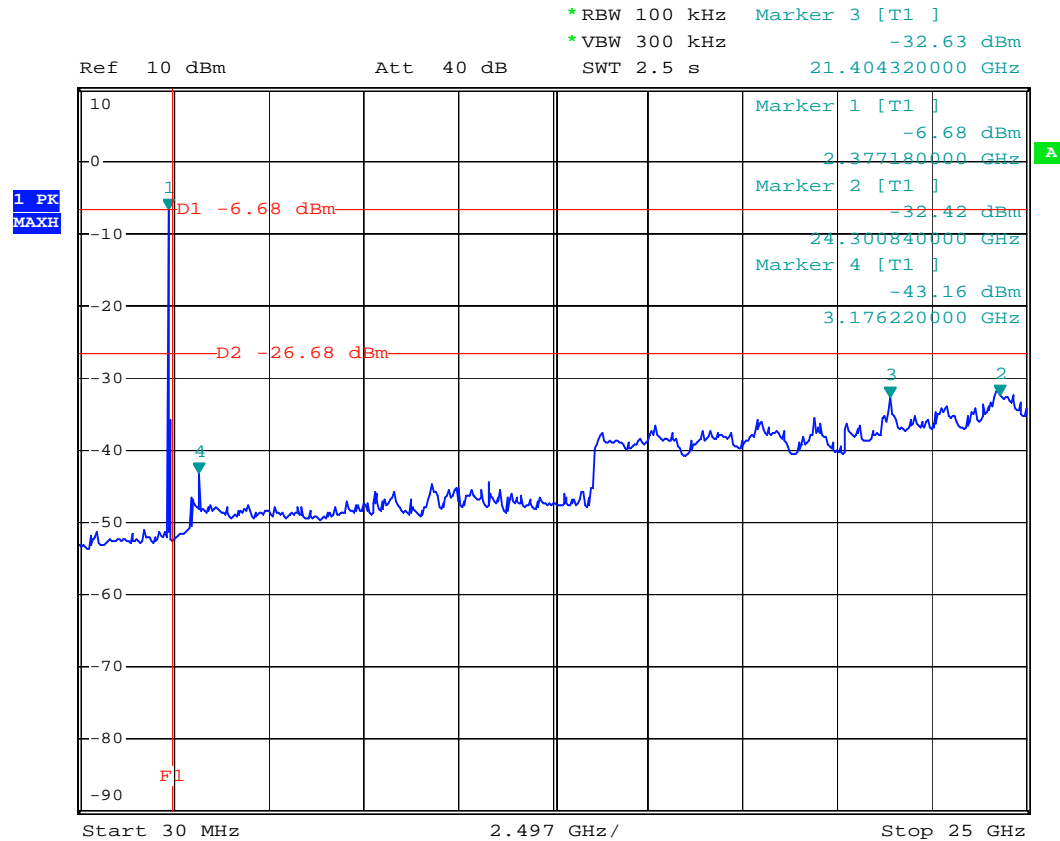
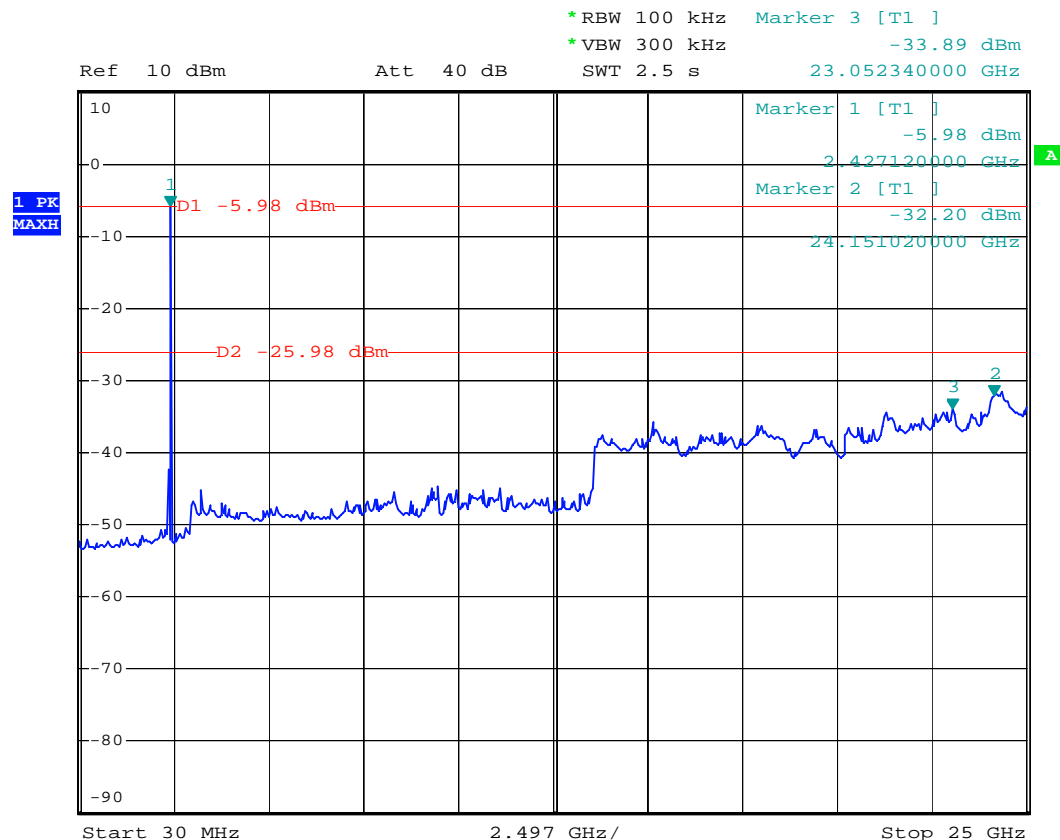
Date of testing	: 26.02.2009
Test specification	: FCC Part 15 Section 15.247(d); RSS-210 A8.5
Limit	: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional 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.
Ambient condition	: Temperature: 23°C; Relative humidity: 40%

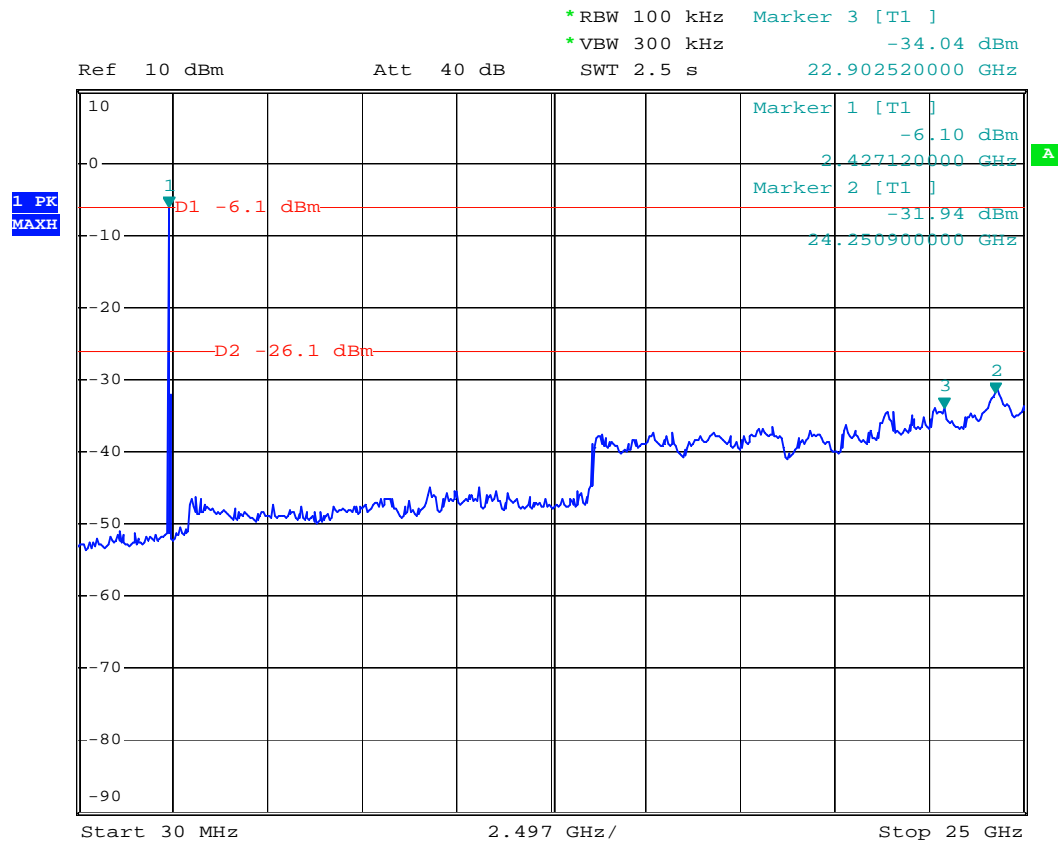
The antenna connector is connected to spectrum analyzer. The resolution bandwidth of the spectrum analyzer was set at 100kHz.

The following figures were those measured by spectrum analyzer.



**Figure 7: Band edge, 2412MHz**

**Figure 8: Band edge, 2462MHz**


**Figure 9: Out-of-band emission, 2412MHz**

**Figure 10: Out-of-band emission, 2437MHz**


**Figure 11: Out-of-band emission, 2462MHz**


## 4.2 Emission in the Frequency Range up to 30 MHz

### 4.2.1 Conducted Emission

<b>Result:</b>	<b>Passed</b>
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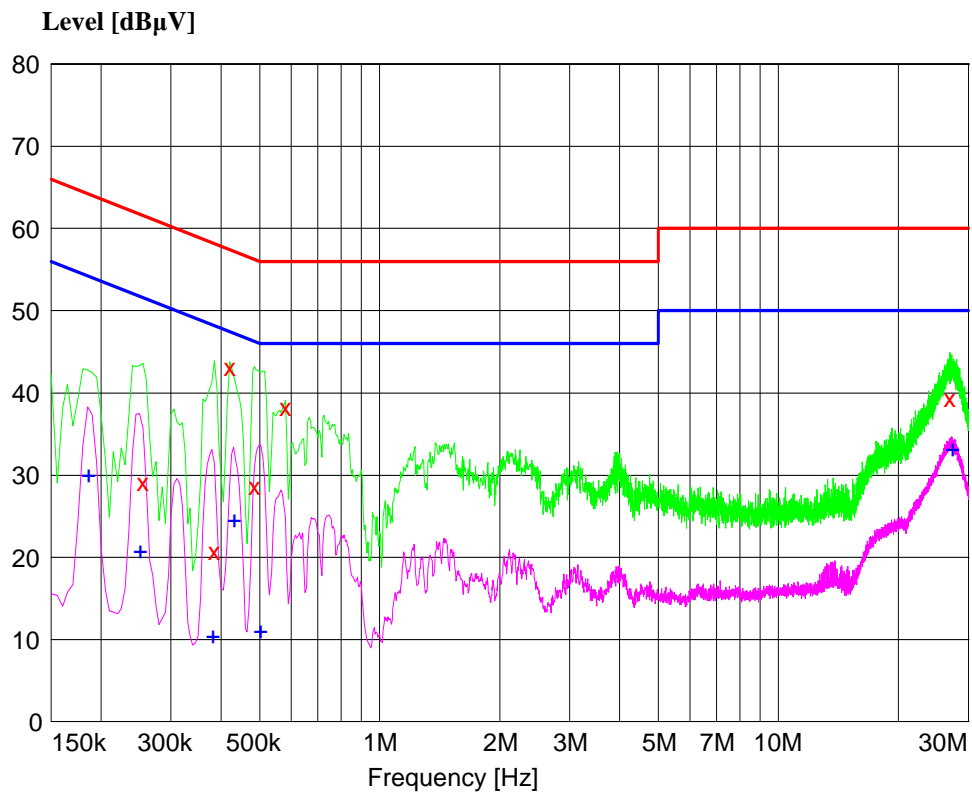
Date of testing : 09.03.2009  
 Test specification : FCC Part 15 Section 15.107;  
 RSS-GEN 7.2.2  
 Test method : ANSI 63.4-2003  
 Measurement location : Shielded room  
 Detector : Quasi-peak, Average  
 Measurement BW : 9 kHz  
 Supply voltage : AC 120V, 60Hz  
 Measuring frequency range : 0.15-30MHz  
 Ambient condition : Temperature: 25°C; Relative humidity: 40%  
 Operational mode : Charging mode

Limit Section 15.107 & RSS-GEN 7.2.2,

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	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.

The following figures and tables were those measured by an automatic measuring system. Both quasi-peak and average values were measured. Quasi-peak and average values were measured and listed respectively where they had a maximum in previous scanning survey. In the following figures, “×” means quasi-peak result and “+” means average result which was measured in final measurement.

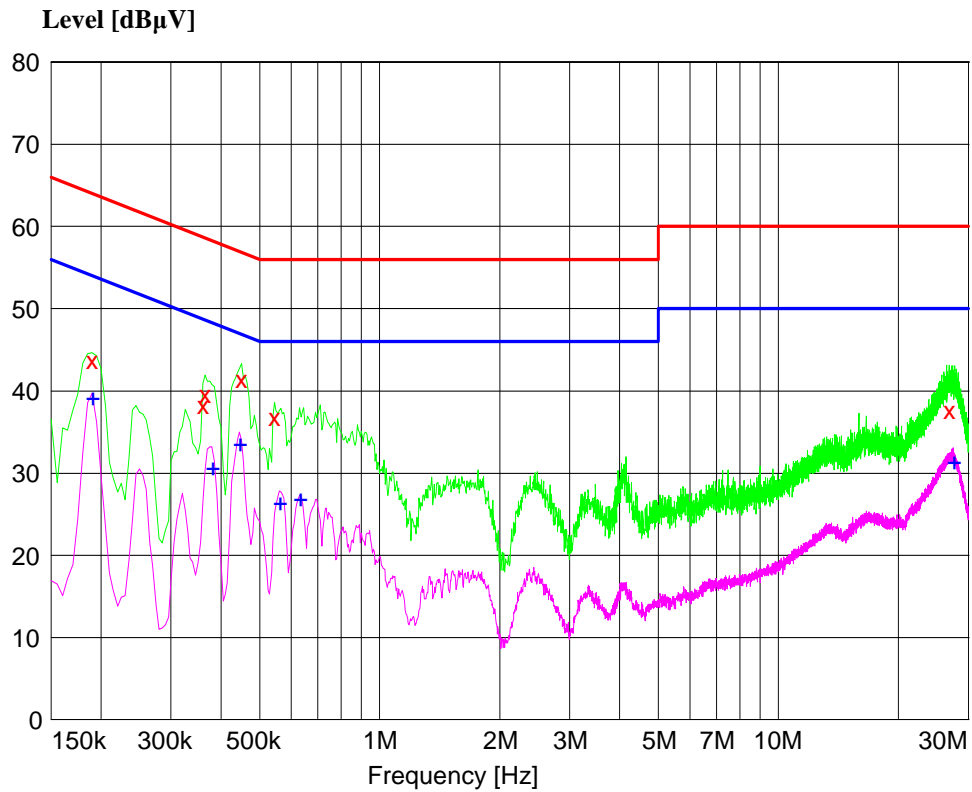
**Figure 12: Spectral diagram, conducted emission, 150kHz - 30MHz, L**


Final quasi-peak measurement results:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line
0.255000	29.20	20.4	61.6	32.4	L1
0.385000	20.80	20.4	58.2	37.3	L1
0.420000	43.10	20.4	57.4	14.4	L1
0.485000	28.70	20.4	56.3	27.6	L1
0.580000	38.20	20.4	56.0	17.8	L1
26.955000	39.40	21.3	60.0	20.6	L1

Final average measurement results:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line
0.185000	30.10	20.3	54.3	24.2	L1
0.250000	20.90	20.4	51.8	30.9	L1
0.380000	10.60	20.4	48.3	37.7	L1
0.430000	24.70	20.4	47.3	22.5	L1
0.500000	11.20	20.4	46.0	34.8	L1
27.255000	33.30	21.3	50.0	16.7	L1

**Figure 13: Spectral diagram, conducted emission, 150kHz - 30MHz, N**


Final quasi-peak measurement results:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line
0.190000	43.70	20.0	64.0	20.3	N
0.360000	38.20	20.2	58.7	20.5	N
0.365000	39.60	20.2	58.6	19.0	N
0.450000	41.50	20.3	56.9	15.4	N
0.545000	36.90	20.3	56.0	19.1	N
26.850000	37.70	21.4	60.0	22.3	N

Final average measurement results:

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line
0.190000	39.20	20.0	54.0	14.9	N
0.380000	30.70	20.2	48.3	17.5	N
0.445000	33.70	20.3	47.0	13.3	N
0.560000	26.40	20.3	46.0	19.6	N
0.630000	27.00	20.2	46.0	19.0	N
27.430000	31.50	21.5	50.0	18.5	N

## 4.3 Emission in the Frequency Range above 30 MHz

### 4.3.1 Radiated Emission

<b>Result:</b>	<b>Passed</b>
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Date of testing : 07.04.2009 - 22.04.2009  
 Test specification : FCC Part 15 Section 15.209 & 15.247(d);  
 RSS-210 A8.5  
 Test method : ANSI 63.4-2003  
 Measurement location : Semi anechoic chamber  
 Measurement distance : 3m  
 Detector : Quasi-peak (below 1GHz)  
 Peak & Average (1-25GHz)  
 Measurement BW : 200Hz (9-150kHz)  
 9kHz (150kHz-30MHz)  
 120 kHz (30MHz-1GHz)  
 1MHz (above 1GHz)  
 Supply voltage : DC 3.7V  
 Measuring frequency range : 9kHz-25000MHz  
 Ambient condition : Temperature: 22°C; Relative humidity: 41%

Limit Section 15.209 & RSS-210 table 2,

The field strength of radiated emissions from intentional radiators:

Frequency (MHz)	Field strength (microvolt/meter)	Field strength (dB $\mu$ V/m)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)		300
0.490-1.705	24000/F(kHz)		30
1.705-30.0	30		30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3
Above 1000		74.0 (Peak) 54.0 (Average)	3

The radiated emission measurement was made at 3m. The EUT was placed on a nonconductive turntable 0.8m above the ground plane. The spectrum was examined from 9kHz to the 10th harmonic of the highest fundamental transmitter frequency (25GHz).

For frequency below 1000MHz, the measurement was using a CISPR quasi-peak detector.

For frequency above 1000MHz, emissions are measured using following settings:

Peak: Peak detector with RBW=1MHz, VBW=1MHz;

Average: Peak detector with RBW=1MHz, VBW=10Hz.

**Table 6: Radiated emission results, 30MHz - 1GHz, Quasi-peak**

Frequency (MHz)	QP level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
335.97	34.3	46.0	11.7	100	122	H
369.27	34.4	46.0	11.6	100	-100	H
384.00	37.4	46.0	8.6	100	110	H
474.86	34.3	46.0	11.7	100	110	H
527.60	39.9	46.0	6.1	190	-60	H
580.35	34.1	46.0	11.9	170	-60	H
791.42	35.4	46.0	10.6	100	90	H
384.00	25.6	46.0	20.4	250	-128.0	V
335.97	24.2	46.0	21.8	300	-142.0	V

**Table 7: Radiated emission results, 1-25GHz, Peak & Average, Channel 1**

Frequency (MHz)	Peak level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1029.75	61.0	74.0	13.0	100	-60	H
1081.37	50.8	74.0	23.2	110	-60	V
Frequency (MHz)	AV level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1028.84	31.0	54.0	23.0	100	-60	H
1055.18	24.7	54.0	29.3	110	-60	V

**Table 8: Radiated emission results, 1-25GHz, Peak & Average, Channel 6**

Frequency (MHz)	Peak level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1028.87	60.2	74.0	13.8	100	-60	H
1082.25	50.7	74.0	23.3	110	-60	V
Frequency (MHz)	AV level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1028.88	31.5	54.0	22.5	100	-60	H
1055.20	24.9	54.0	29.1	110	-60	V



**Table 9: Radiated emission results, 1-25GHz, Peak & Average, Channel 11**

<b>Frequency (MHz)</b>	<b>Peak level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Antenna height (cm)</b>	<b>Angle (deg)</b>	<b>Polarization</b>
1029.75	59.9	74.0	14.1	100	-60	H
1082.25	52.5	74.0	21.5	110	-60	V
<b>Frequency (MHz)</b>	<b>AV level (dB<math>\mu</math>V/m)</b>	<b>Limit (dB<math>\mu</math>V/m)</b>	<b>Margin (dB)</b>	<b>Antenna height (cm)</b>	<b>Angle (deg)</b>	<b>Polarization</b>
1028.82	30.9	54.0	23.1	100	-60	H
1055.23	25.5	54.0	28.5	110	-60	V

Remark: No additional spurious emission was found between lowest internal generated or used radio frequency and 30 MHz.

### 4.3.2 Radiated Emission in Restricted Band

**Result:**
**Passed**

Date of testing : 13.04.2009  
 Test specification : FCC Part 15 Section 15.209 & 15.205;  
 RSS-210 A2.2  
 Test method : ANSI 63.4-2003  
 Measurement location : Semi anechoic chamber  
 Measurement distance : 3m  
 Detector : Peak & Average (1-25GHz)  
 Measurement BW : 1MHz  
 Supply voltage : DC 3.7V  
 Measuring frequency range : 30-25000MHz  
 Ambient condition : Temperature: 22°C; Relative humidity: 41%

Limit Section 15.205:

The field strength of emissions appearing within restricted band shall not exceed the limits shown below.

The field strength of radiated emissions from intentional radiators:

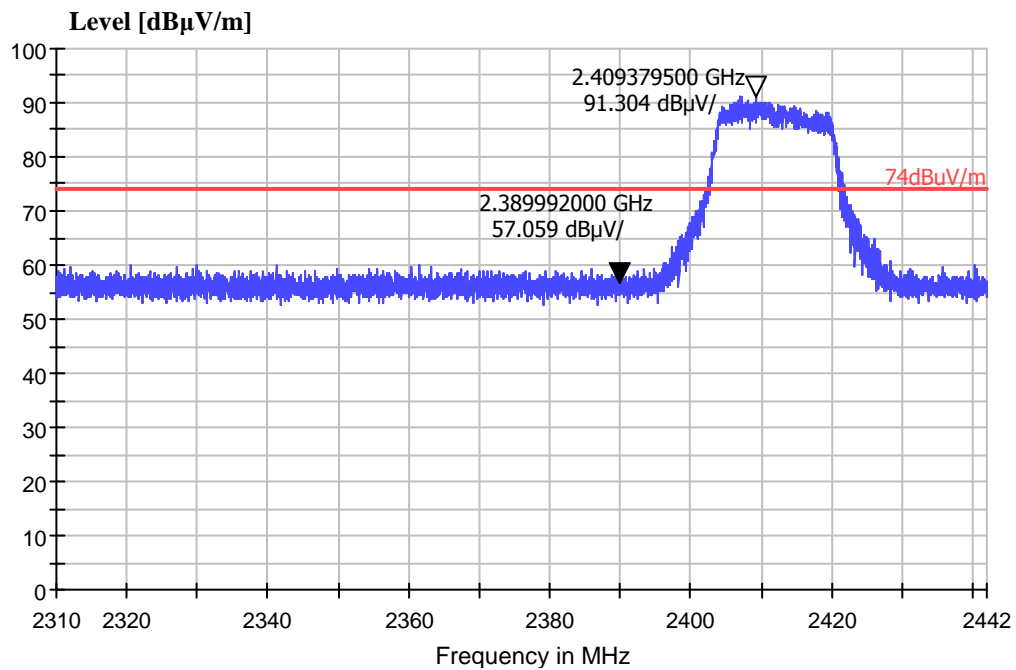
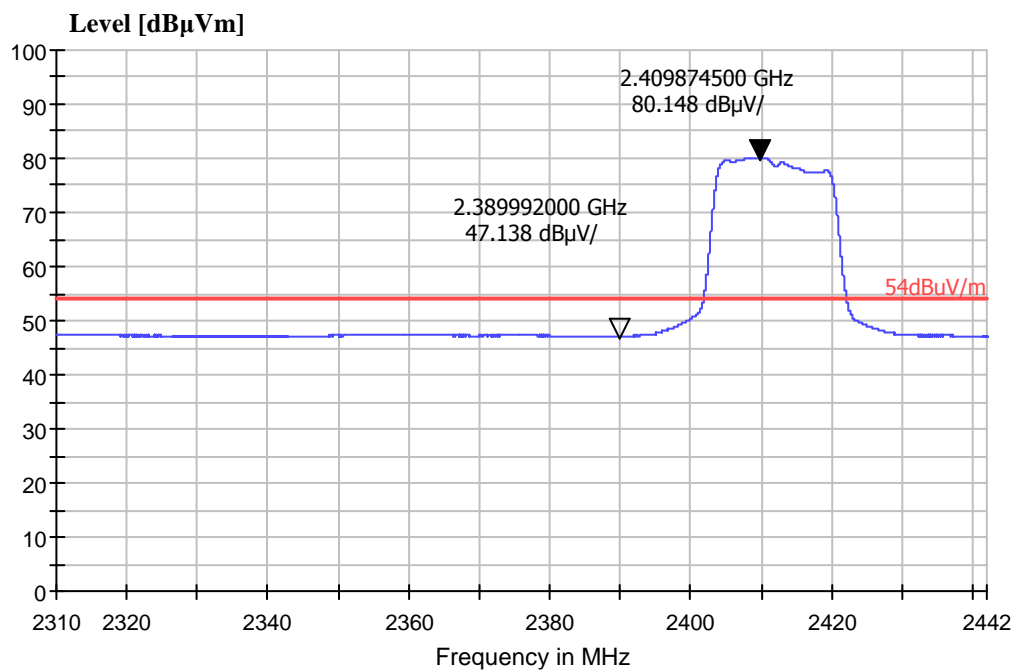
Frequency (MHz)	Field strength (microvolt/meter)	Field strength (dB $\mu$ V/m)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)		300
0.490-1.705	24000/F(kHz)		30
1.705-30.0	30		30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3
Above 1000		74.0 (Peak) 54.0 (Average)	3

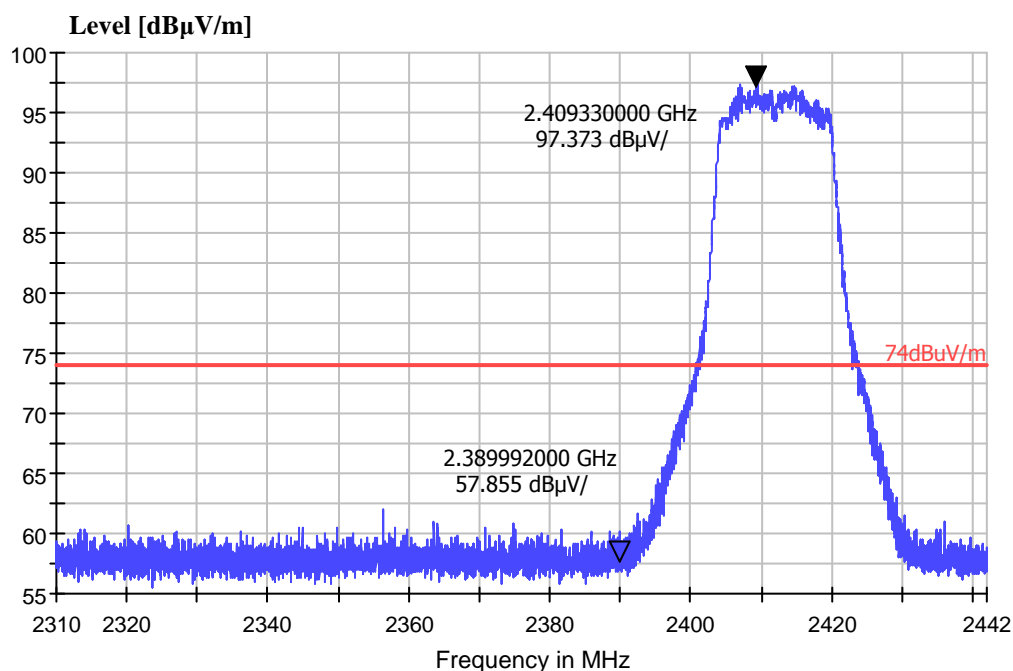
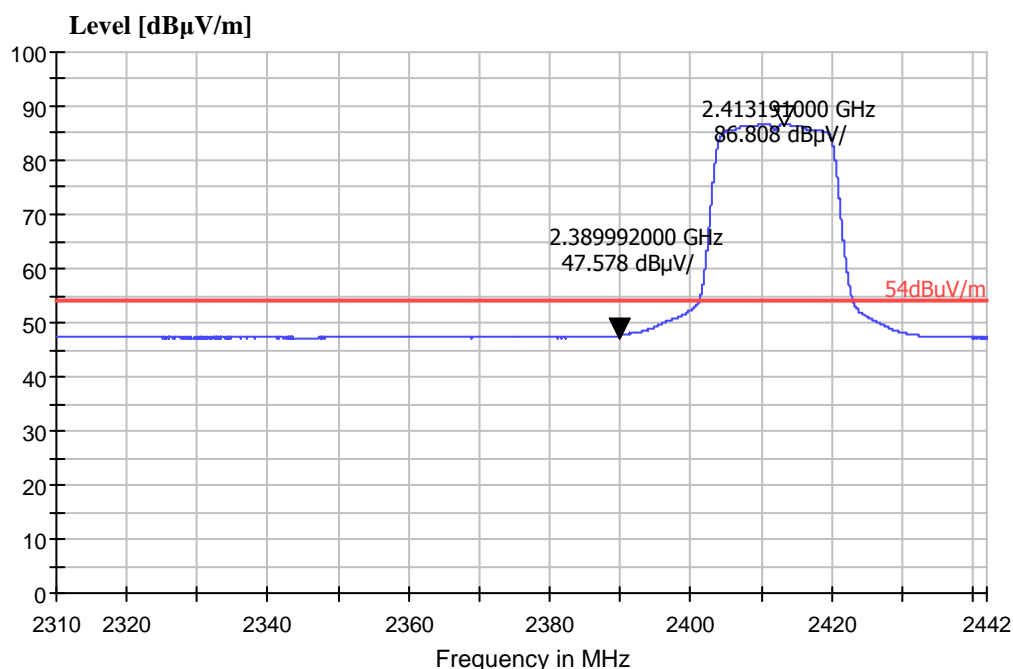
The radiated emission measurement was made at 3m. The EUT was placed on a nonconductive turntable 0.8m above the ground plane. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 m in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations.

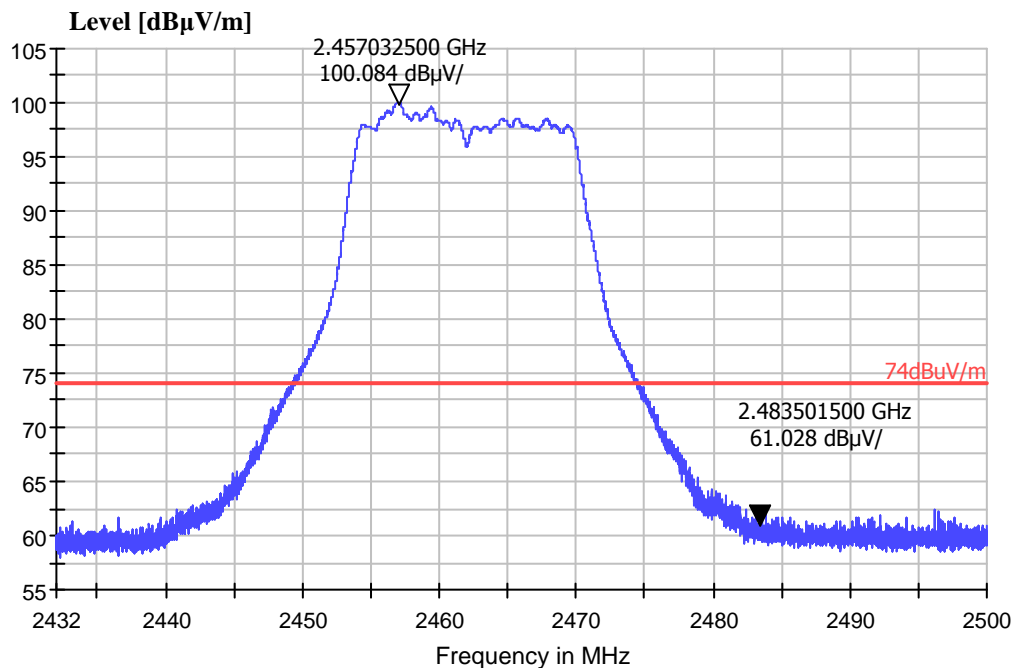
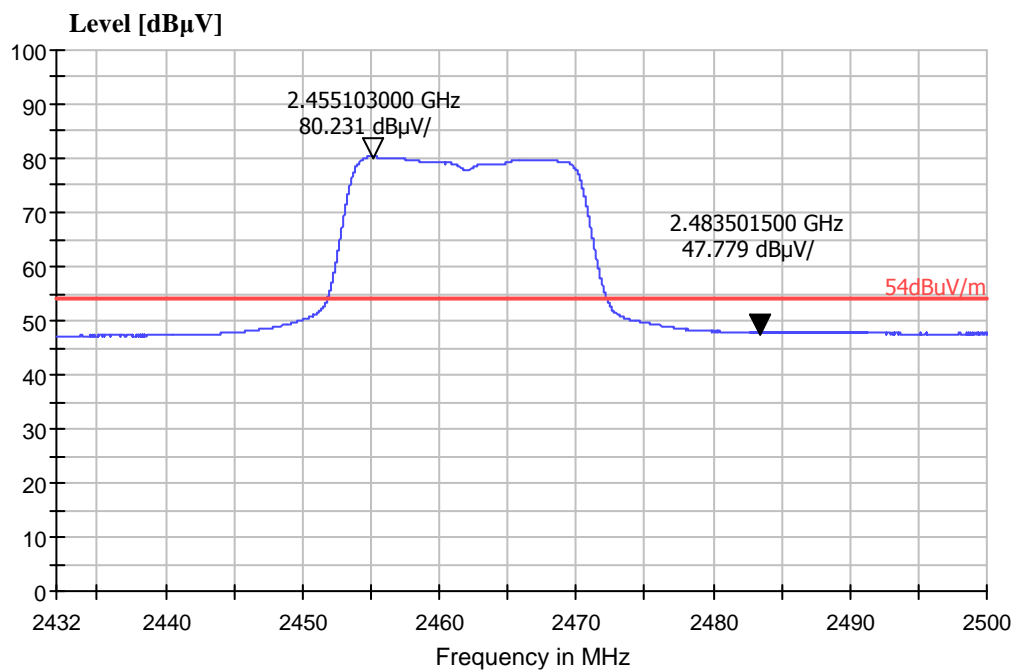
Emissions are measured using following settings:

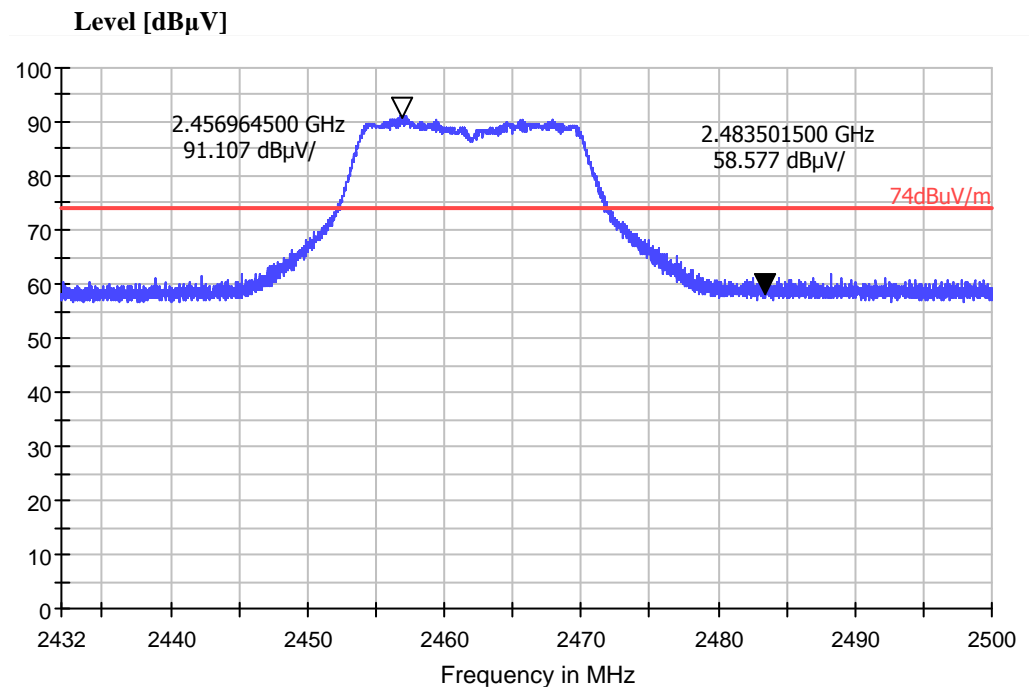
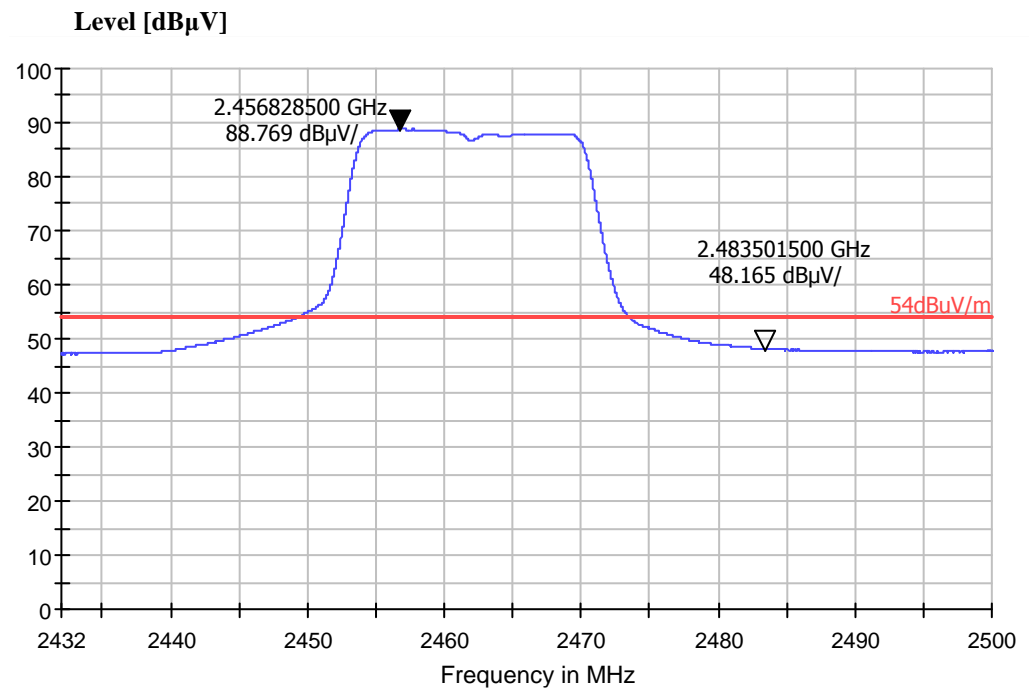
Peak: Peak detector with RBW=1MHz, VBW=1MHz;

Average: Peak detector with RBW=1MHz, VBW=10Hz.

**Figure 14: Radiated emission in restricted band, 2412MHz, Peak, Horizontal**

**Figure 15: Radiated emission in restricted band, 2412MHz, Average, Horizontal**


**Figure 16: Radiated emission in restricted band, 2412MHz, Peak, Vertical**

**Figure 17: Radiated emission in restricted band, 2412MHz, Average, Vertical**


**Figure 18: Radiated emission in restricted band, 2462MHz, Peak, Horizontal**

**Figure 19: Radiated emission in restricted band, 2462MHz, Average, Horizontal**


**Figure 20: Radiated emission in restricted band, 2462MHz, Peak, Vertical**

**Figure 21: Radiated emission in restricted band, 2462MHz, Average, Vertical**


### 4.3.3 Radiated Emission for Receiver

**Result:**
**Passed**

Date of testing : 22.04.2009  
 Test specification : FCC Part 15 Section 15.109;  
 RSS-GEN 7.2.3  
 Test method : ANSI 63.4-2003  
 Measurement location : Semi anechoic chamber  
 Measurement distance : 3m  
 Detector : Quasi-peak (30-1000MHz)  
 Average (1-25GHz)  
 Measurement BW : 120 kHz (below 1GHz)  
 1MHz (above 1GHz)  
 Supply voltage : DC 3.7V  
 Measuring frequency range : 30-25000MHz  
 Ambient condition : Temperature: 22°C; Relative humidity: 41%

Limit Section 15.109 & RSS-GEN 7.2.3:

The field strength of emissions appearing within restricted band shall not exceed the limits shown below.

The field strength of radiated emissions from unintentional radiators:

Frequency (MHz)	Field strength (microvolt/meter)	Field strength (dBμV/m)	Measurement distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3
Above 1000		74.0 (Peak) 54.0 (Average)	3

The radiated emission measurement was made at 3m. The EUT was placed on a nonconductive turntable 0.8m above the ground plane. The spectrum was examined from 30MHz to the 10th harmonic of the highest fundamental transmitter frequency (25GHz). At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 m in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations.

For frequency between 30-1000MHz, the resolution bandwidth of measuring receiver was set at 120 kHz, using CISPR quasi-peak detector.

For frequency above 1000MHz, emissions are measured using following settings:

Peak: RBW=1MHz, VBW=1MHz;

Average: RBW=1MHz, VBW=10Hz.

Pre-scan has been preformed for all channels, the worst case was shown as follows.

**Table 10: Radiated emission results, 30MHz - 1GHz, Quasi-peak (Receiver)**

Frequency (MHz)	QP level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
335.97	33.6	46.0	12.4	100	120	H
383.90	31.3	46.0	14.7	100	120	H
474.76	33.4	46.0	12.6	100	120	H
791.33	32.6	46.0	13.4	100	100	H
384.00	27.2	46.0	18.8	250	-142	V

**Table 11: Radiated emission results, 1-25GHz, Peak & Average (Receiver)**

Frequency (MHz)	Peak level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1028.87	63.0	74.0	11.0	100	-60	H
1028.00	52.1	74.0	21.9	110	-60	V
Frequency (MHz)	AV level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
1028.76	31.9	54.0	22.1	100	-60	H
1028.82	25.3	54.0	28.7	110	-60	V

Remark: No additional spurious emission was found between lowest internal generated or used radio frequency and 30 MHz.

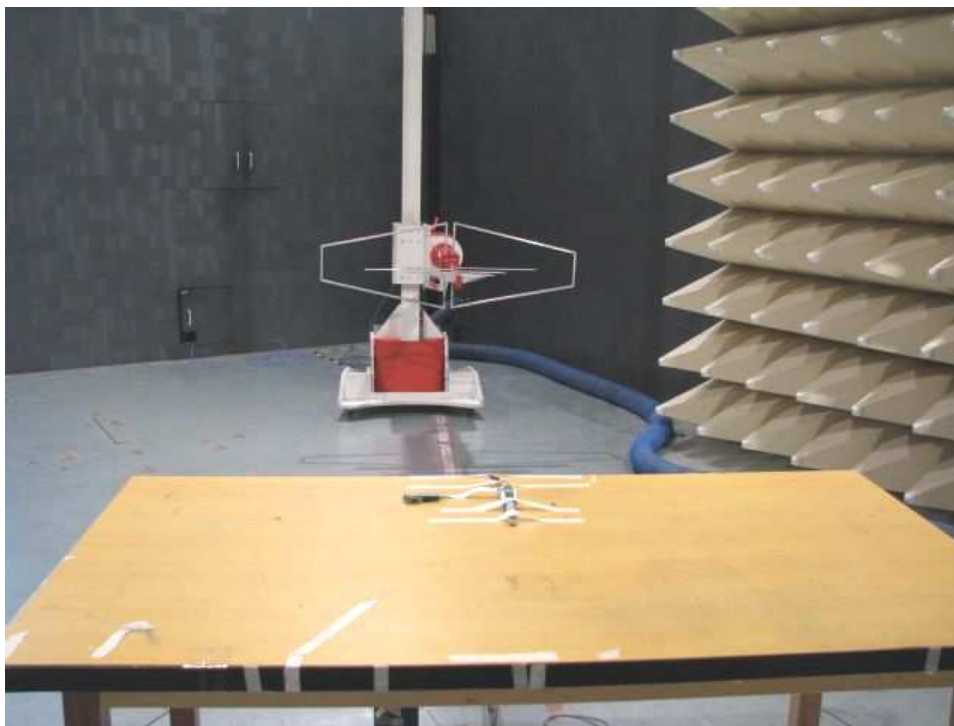


## 5 Photographs of the Test Set-Up

**Photograph 1: Set-up for conducted emission**



**Photograph 2: Set-up for radiated emission**



**below 1G**



**above 1G**

**Photograph 3: Set-up for conducted RF tests**



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