

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

Email: sgs\_internet\_operations@sgs.com

**FEDERAL COMMUNICATIONS COMMISSION**

Registration number: 556682

Report No.: SZEMO09090549401

Page: 1 of 22

## **TEST REPORT**

**Application No:** SZEMO090905494RF

**Applicant:** KATUMFEI INDUSTRY LIMITED(HK)

**Manufacturer/ Factory:** KATUMFEI INDUSTRY LIMITED(HK)

**FCC ID:** XNZ2G4-TX

**Fundamental Carrier Frequency :** 2.410GHz to 2.474GHz

**Equipment Under Test (EUT):**

Name: 2.4G Transmitter

Model: KTH-90300G, KTH-90200G, KTH-90100G, KTH-90302G, KTH-90500G,  
KTH-90600G, KTH-90700G, KTH-90800G, KTH-90900G♦

♦ Please refer to section 2 of this report which indicates which item was  
actually tested and which were electrically identical.

**Standards:** FCC PART 15: 2008

**Date of Receipt:** 18 September 2009

**Date of Test:** 18 September to 27 October 2009

**Date of Issue:** 28 October 2009

<b>Test Result :</b>	<b>PASS *</b>
----------------------	---------------

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

Authorized Signature:



Robinson Lo  
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

"This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at [www.sgs.com/terms\\_and\\_conditions.htm](http://www.sgs.com/terms_and_conditions.htm) and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at [www.sgs.com/terms\\_e-document.htm](http://www.sgs.com/terms_e-document.htm). Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only."

## 2 Test Summary

Test	Standard Paragraph	Result
<b>Flied Strength of Fundamental</b>	Section 15.249 (a)	PASS
<b>Flied Strength of Harmonics or other Frequency Emission</b>	Section 15.249 (a) Section 15.209/15.205	PASS
<b>Occupied Bandwidth</b>	Section 15.215/15.249	PASS

Remark:

Item No.: KTH-90300G, KTH-90200G, KTH-90100G, KTH-90302G, KTH-90500G,

KTH-90600G, KTH-90700G, KTH-90800G, KTH-90900G

Only the Item KTH-90300G was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above items.

### 3 Contents

	Page
1 COVER PAGE .....	1
2 TEST SUMMARY .....	2
3 CONTENTS .....	3
4 GENERAL INFORMATION .....	4
4.1 CLIENT INFORMATION .....	4
4.2 GENERAL DESCRIPTION OF E.U.T .....	4
4.3 STANDARDS APPLICABLE FOR TESTING .....	4
4.4 TEST LOCATION .....	4
4.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER .....	4
4.6 TEST FACILITY .....	5
5 TEST RESULTS .....	6
5.1 TEST INSTRUMENTS .....	6
5.2 E.U.T. OPERATION .....	7
5.3 TEST PROCEDURE & MEASUREMENT DATA .....	8
5.3.1 Radiated Emissions .....	8
5.3.2 Transmitting spurious emissions .....	11
5.3.3 Occupy Bandwidth .....	21-22

## 4 General Information

### 4.1 Client Information

Applicant:	KATUMFEI INDUSTRY LIMITED(HK)
Address of Applicant:	FuCheng Industrial Town Tian, Sha Jing, Shen Zhen
Manufacturer/ Factory:	KATUMFEI INDUSTRY LIMITED(HK)
Address of Factory:	FuCheng Industrial Town Tian, Sha Jing, Shen Zhen

### 4.2 General Description of E.U.T

Product Name:	2.4G Transmitter
Model:	KTH-90300G, KTH-90200G, KTH-90100G, KTH-90302G, KTH-90500G, KTH-90600G, KTH-90700G, KTH-90800G, KTH-90900G
Operation Frequency	2410MHz to 2474MHz
Number of Channels	80 Channels
Channel Separation	0.810 MHz
Modulated Type	FHSS (Frequency Hopping Spread Spectrum)
Antenna Gain	2dBi
Power Supply:	DC12V(8*1.5V"AA"Size Batteries)
Power Cord:	N/A-

### 4.3 Standards Applicable for Testing

The customer requested FCC tests for a 2.4G Transmitter

The standard used was FCC PART 15, SUBPART C: 2008 section 15.249.

### 4.4 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.

### 4.5 Other Information Requested by the Customer

None.

## 4.6 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.

## 5 Test Results

### 5.1 Test Instruments

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	16-06-2009	15-06-2010
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2008	11-12-2009
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2009	17-06-2010
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2009	11-08-2010
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2009	17-06-2010
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2009	11-08-2010
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2009	11-08-2010
9	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2009	17-06-2010
10	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	18-06-2009	17-06-2010
11	Band filter	Amindeon	82346	SEL0094	18-06-2009	17-06-2010
12	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	15-06-2009	14-06-2010

## **5.2 E.U.T. Operation**

Operating Environment:

Temperature: 24°C

Humidity: 50 % RH

Atmospheric Pressure: 1010 mbar

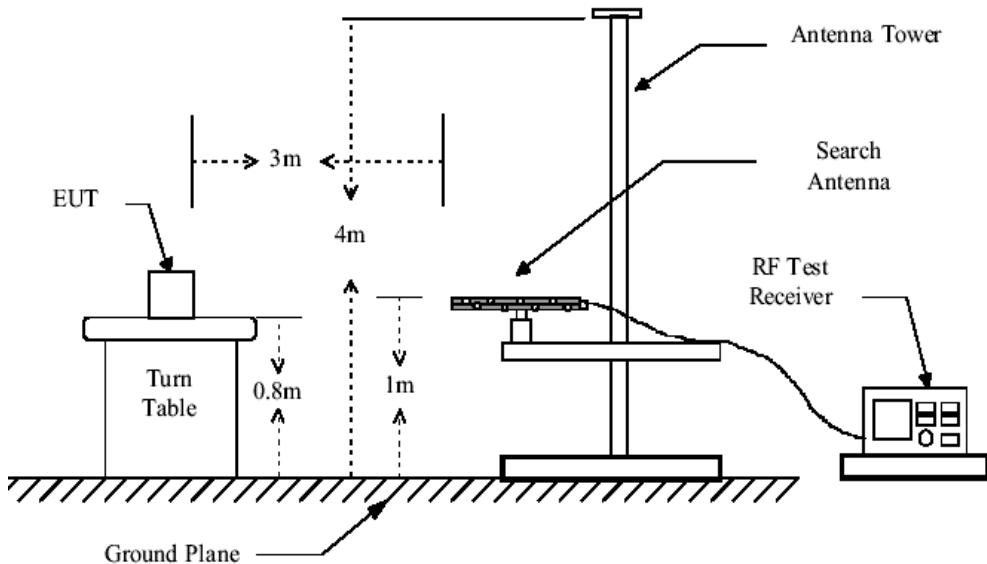
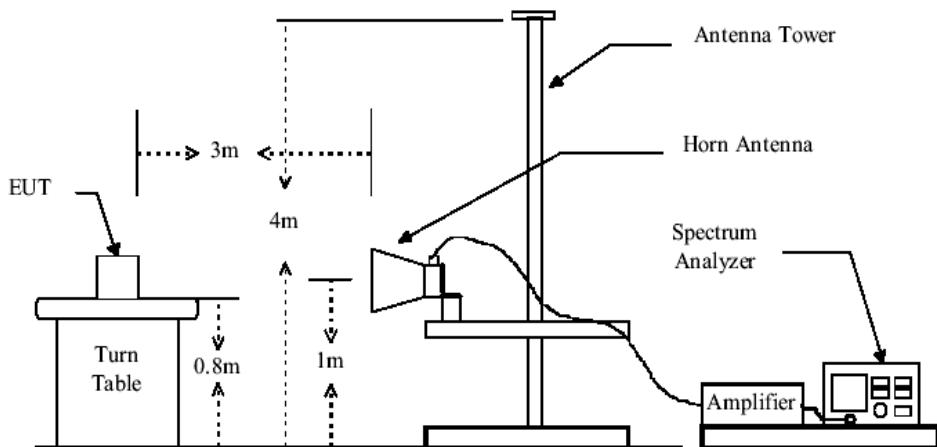
EUT Operation: Test in transmitting with modulation.  
Lowest channel: channel 2410MHz,  
Middle channel: channel 2443.2MHz,  
Highest channel: channel 2474MHz.

The EUT was configured by using an external test program. This program allowed the unit to transmit /receive on one of 3 channels (Low: 2410MHz, Middle: 2443.2MHz, High: 2474MHz). The unit was also programmed to hop on 80 channels with its normal pseudorandom rate. Worst case emission levels are provided in the test results data.

## 5.3 Test Procedure & Measurement Data

### 5.3.1 Radiated Emissions

Test Requirement:	15.209
Test Method:	ANSI C63.4:2003
Test Status:	
Normal mode	Keep the EUT in operation mode
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Test Range	30MHz to 25GHz 30MHz-1000MHz: RBW=100KHz, VBW=300KHz Above 1GHz: Peak: RBW=1MHz, VBW=1MHz Average : RBW=1MHz, VBW=10Hz
Limit:	QP value Limit 40.0 dB $\mu$ V/m between 30MHz & 88MHz QP value Limit 43.5 dB $\mu$ V/m between 88MHz & 216MHz QP value Limit 46.0 dB $\mu$ V/m between 216MHz & 960MHz QP value Limit 54.0 dB $\mu$ V/m between 960MHz & 1000MHz above 1000MHz: Average value Limit 54.0 dB $\mu$ V/m Peak value Limit 74.0 dB $\mu$ V/m.
Test procedure:	The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

**Test Configuration:**

**Figure1: 30MHz to 1GHz radiated emissions test configuration**

**Figure 2: Above 1GHz radiated emissions test configuration**

The following test results were performed on the EUT:

Vertical:

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)	Detector
30.000	0.60	15.40	28.19	47.07	34.88	40.00	-5.12	QP
40.670	0.61	10.93	28.09	40.21	23.66	40.00	-16.34	QP
52.310	0.80	7.80	28.09	51.16	31.67	40.00	-8.33	QP
106.630	1.22	8.77	27.81	34.97	17.15	43.50	-26.35	QP
153.190	1.33	9.18	27.43	44.32	27.40	43.50	-16.10	QP
233.700	1.59	11.79	26.99	41.73	28.12	46.00	-17.88	QP
1775.50	5.52	27.94	38.94	45.88	40.40	74.00	-33.60	Peak
1775.50	5.52	27.94	38.94	35.80	30.32	54.00	-23.68	Average
6769.25	13.44	36.83	40.26	48.56	58.57	74.00	-15.43	Peak
6769.25	13.44	36.83	40.26	37.60	47.61	54.00	-6.39	Average

Horizontal

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)	Detector
30.000	0.60	15.20	28.19	33.16	20.77	40.00	-19.23	QP
52.310	0.80	8.18	28.09	36.92	17.81	40.00	-22.19	QP
153.190	1.33	9.18	27.43	44.90	27.98	43.50	-15.52	QP
223.030	1.54	11.38	27.04	44.67	30.55	46.00	-15.45	QP
241.460	1.63	12.04	26.95	43.59	30.31	46.00	-15.69	QP
424.790	2.31	16.40	27.49	37.07	28.29	46.00	-17.71	QP
1787.25	5.59	27.96	38.80	45.54	40.29	74.00	-33.71	Peak
1787.25	5.59	27.96	38.80	35.60	30.35	54.00	-23.65	Average
7333.25	12.91	37.31	40.40	51.50	61.32	74.00	-12.68	Peak
7333.25	12.91	37.31	40.40	39.80	49.62	54.00	-4.38	Average

### 5.3.2 Transmitting spurious emissions

Test Requirement: FCC Part15.249 and 15.205  
Test Method: ANSI C63.4: 2003  
Measurement Distance: 3m (Semi-Anechoic Chamber)  
Frequency range 30 MHz – 25GHz

Test instrumentation resolution bandwidth

Frequency Range	Detector	RBW/VBW
30MHz to 1000MHz	Quasi-Peak	120KHz/300KHz
1GHz to 25GHz	Peak	1MHz/1MHz for Peak
		1MHz/10Hz for Average

Operation: Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal

Fundamental Frequency (MHz)	Field Strength of Fundamental (dB $\mu$ V/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dB $\mu$ V/m @ 3m)
2400 to 2483.5	94.0	54.0

The fundamental frequency of the EUT is 2.410GHz to 2.474GHz

The limit for average field strength for the fundamental frequency = 94.0 dB $\mu$ V/m.

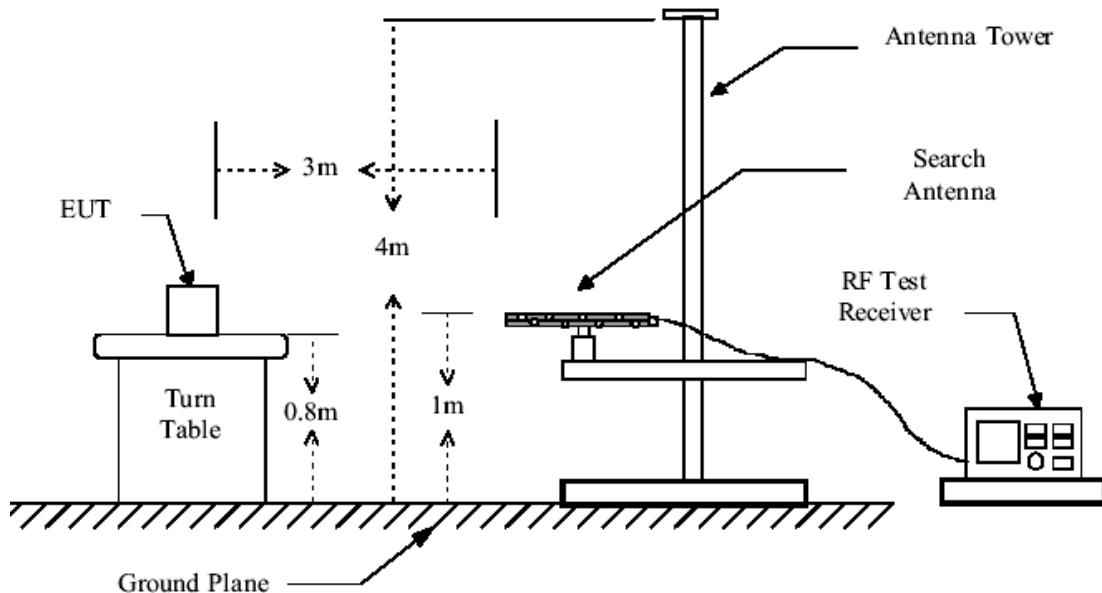
No fundamental is allowed in the restricted bands.

Test Procedure:

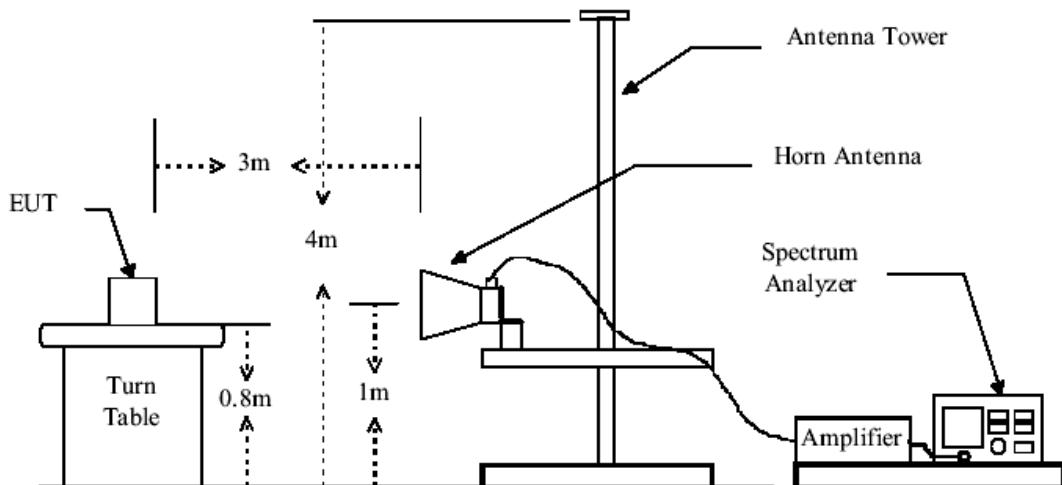
1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

**Test Configuration:**

Below 1GHz



Above 1GHz



**5.3.2.1 Transmitting emission below 1GHz**
**The lowest channel (2410MHz)**

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
82.380	1.10	7.95	27.99	38.87	19.93	40.00	-20.07	Vertical
191.020	1.39	10.11	27.20	38.44	22.74	43.50	-20.76	Vertical
559.620	2.66	18.98	27.65	30.87	24.86	46.00	-21.14	Vertical
70.740	0.83	6.97	28.00	38.85	18.65	40.00	-21.35	Horizontal
153.190	1.33	9.18	27.43	42.19	25.27	43.50	-18.23	Horizontal
172.590	1.36	9.61	27.31	42.67	26.33	43.50	-17.17	Horizontal

**The middle channel (2443.2MHz)**

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
82.380	1.10	7.95	27.99	40.25	21.31	40.00	-18.69	Vertical
153.190	1.33	9.18	27.43	35.65	18.73	43.50	-24.77	Vertical
191.020	1.39	10.11	27.20	37.53	21.83	43.50	-21.67	Vertical
70.740	0.83	6.97	28.00	39.36	19.16	40.00	-20.84	Horizontal
153.190	1.33	9.18	27.43	41.36	24.44	43.50	-19.06	Horizontal
172.590	1.36	9.61	27.31	43.01	26.67	43.50	-16.83	Horizontal

**The highest channel (2474MHz)**

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
82.380	1.10	7.95	27.99	36.67	17.73	40.00	-22.27	Vertical
153.190	1.33	9.18	27.43	36.68	19.76	43.50	-23.74	Vertical
648.860	2.80	20.60	27.45	34.23	30.18	46.00	-15.82	Vertical
70.740	0.83	6.97	28.00	36.68	16.48	40.00	-23.52	Horizontal
153.190	1.33	9.18	27.43	42.18	25.26	43.50	-18.24	Horizontal
172.590	1.36	9.61	27.31	43.04	26.70	43.50	-16.80	Horizontal

**5.3.2.1 Transmitting emission above 1GHz**

For 2410MHz:

## Peak Measurement

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2410.0	6.25	30.05	38.83	94.90	92.37	114	-21.63	Vertical
2390.0	6.28	29.98	39.03	36.80	34.03	74.00	-39.97	Vertical
2400.0	6.34	30.03	38.87	37.20	34.70	74.00	-39.30	Vertical
2615.0	6.10	30.76	38.99	46.95	44.82	74.00	-29.18	Vertical
4876.0	10.36	34.34	39.89	48.26	53.07	74.00	-20.93	Vertical
12594.0	17.34	39.46	39.46	44.41	61.75	74.00	-12.25	Vertical
2410.0	6.25	30.05	38.83	98.70	96.17	114	-17.83	Horizontal
2390.0	6.28	29.98	39.03	36.80	34.03	74.00	-39.97	Horizontal
2400.0	6.34	30.03	38.87	37.50	35.00	74.00	-39.00	Horizontal
3890.0	7.85	32.98	39.83	46.63	47.63	74.00	-26.37	Horizontal
6219.0	14.46	36.09	41.69	48.24	57.10	74.00	-16.90	Horizontal
12203.0	17.95	39.23	39.30	43.31	61.19	74.00	-12.81	Horizontal

**Average Measurement**

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2410.0	6.25	30.05	38.83	77.00	74.47	94	-19.53	Vertical
2390.0	6.28	29.98	39.03	29.30	26.53	54.00	-27.47	Vertical
2400.0	6.34	30.03	38.87	29.80	27.30	54.00	-26.70	Vertical
4876.0	10.36	34.34	39.89	36.96	41.77	54.00	-12.23	Vertical
6797.0	13.47	36.85	40.18	32.98	43.12	54.00	-10.88	Vertical
12169.0	18.03	39.21	39.27	28.73	46.70	54.00	-7.30	Vertical
2410.0	6.25	30.05	38.83	84.60	82.07	94	-11.93	Horizontal
2390.0	6.28	29.98	39.03	30.20	27.43	54.00	-26.57	Horizontal
2400.0	6.34	30.03	38.87	29.30	26.80	54.00	-27.20	Horizontal
3108.0	7.50	32.04	39.90	31.68	31.32	54.00	-22.68	Horizontal
7800.0	14.34	37.60	39.65	31.09	43.38	54.00	-10.62	Horizontal
12169.0	18.03	39.21	39.27	28.68	46.65	54.00	-7.35	Horizontal

For 2443.2MHz:

## Peak Measurement

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2443.2	6.40	30.18	38.59	95.40	93.39	114	-20.61	Vertical
2400.0	6.34	30.03	38.87	61.54	59.04	74.00	-14.96	Vertical
2483.5	6.22	30.32	39.53	60.59	57.60	74.00	-16.40	Vertical
3550.0	7.85	32.60	40.17	45.25	45.53	74.00	-28.47	Vertical
5471.0	12.23	35.14	41.67	46.53	52.23	74.00	-21.77	Vertical
6967.0	13.71	37.08	40.95	47.29	57.13	74.00	-16.87	Vertical
8327.0	12.79	37.73	38.61	44.09	56.00	74.00	-18.00	Vertical
11149.0	15.11	38.41	37.87	42.53	58.18	74.00	-15.82	Vertical
2443.2	6.40	30.18	38.59	103.48	101.47	114	-12.53	Horizontal
2400.0	6.34	30.03	38.87	61.30	58.80	74.00	-15.20	Horizontal
2483.5	6.22	30.32	39.53	61.60	58.61	74.00	-15.39	Horizontal
3295.0	6.89	32.30	39.08	46.26	46.37	74.00	-27.63	Horizontal
4859.0	9.68	34.32	40.35	55.19	58.84	74.00	-15.16	Horizontal
7715.0	13.68	37.54	39.47	46.23	57.98	74.00	-16.02	Horizontal
10503.0	14.58	38.20	36.32	42.70	59.16	74.00	-14.84	Horizontal
12475.0	17.47	39.39	39.55	43.60	60.91	74.00	-13.09	Horizontal

**Average Measurement**

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2443.2	6.40	30.18	38.59	80.30	78.29	94	-15.71	Vertical
2400.0	6.34	30.03	38.87	24.60	22.10	54.00	-31.90	Vertical
2483.5	6.22	30.32	39.53	24.20	21.21	54.00	-32.79	Vertical
4315.0	8.79	33.57	39.87	31.89	34.38	54.00	-19.62	Vertical
4978.0	11.54	34.46	41.09	32.09	37.00	54.00	-17.00	Vertical
7800.0	14.34	37.60	39.65	31.09	43.38	54.00	-10.62	Vertical
12169.0	18.03	39.21	39.27	28.66	46.63	54.00	-7.37	Vertical
2443.2	6.40	30.18	38.59	87.60	85.59	94	-8.41	Horizontal
2400.0	6.34	30.03	38.87	24.40	21.90	54.00	-32.10	Horizontal
2483.5	6.22	30.32	39.53	24.30	21.31	54.00	-32.69	Horizontal
3227.0	6.99	32.20	39.33	34.72	34.58	54.00	-19.42	Horizontal
4944.0	10.51	34.43	40.96	35.06	39.04	54.00	-14.96	Horizontal
6032.0	13.39	35.85	41.85	35.60	42.99	54.00	-11.01	Horizontal
7800.0	14.34	37.60	39.65	34.06	46.35	54.00	-7.65	Horizontal
10605.0	14.91	38.22	36.57	31.39	47.95	54.00	-6.05	Horizontal

For 2474MHz:

## Peak Measurement

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2474.0	6.58	30.27	39.67	99.26	96.44	114	-17.56	Vertical
2292.0	5.88	29.64	39.97	45.28	40.83	74.00	-33.17	Vertical
2483.5	6.22	30.32	39.53	61.29	58.30	74.00	-15.70	Vertical
2500.0	5.76	30.37	39.15	61.39	58.37	74.00	-15.63	Vertical
5539.0	12.48	35.22	41.84	47.62	53.48	74.00	-20.52	Vertical
8735.0	13.10	37.78	37.62	44.42	57.68	74.00	-16.32	Vertical
12543.0	17.38	39.43	39.52	43.54	60.83	74.00	-13.17	Vertical
2474.0	6.58	30.27	39.67	103.58	100.76	114	-13.24	Horizontal
2343.0	6.11	29.84	39.51	44.61	41.05	74.00	-32.95	Horizontal
2483.5	6.22	30.32	39.53	60.11	57.12	74.00	-16.88	Horizontal
2500.0	5.76	30.37	39.15	60.30	57.28	74.00	-16.72	Horizontal
6202.0	14.47	36.07	41.71	46.18	55.01	74.00	-18.99	Horizontal
9551.0	13.52	37.97	37.41	43.55	57.63	74.00	-16.37	Horizontal
12594.0	17.34	39.46	39.46	43.37	60.71	74.00	-13.29	Horizontal

**Average Measurement**

Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Over limit	polarization
2474.0	6.58	30.27	39.67	79.58	76.76	94	-17.24	Vertical
2360.0	6.17	29.88	39.35	31.48	28.18	54.00	-25.82	Vertical
2483.5	6.22	30.32	39.53	48.89	45.90	54.00	-8.10	Vertical
2500.0	5.76	30.37	39.15	48.91	45.89	54.00	-8.11	Vertical
6797.0	13.47	36.85	40.18	32.87	43.01	54.00	-10.99	Vertical
10605.0	14.91	38.22	36.57	28.33	44.89	54.00	-9.11	Vertical
12169.0	18.03	39.21	39.27	28.64	46.61	54.00	-7.39	Vertical
2474.0	6.58	30.27	39.67	88.99	86.17	94	-7.83	Horizontal
2343.0	6.11	29.84	39.51	31.39	27.83	54.00	-26.17	Horizontal
2483.5	6.22	30.32	39.53	48.85	45.86	54.00	-8.14	Horizontal
2500.0	5.76	30.37	39.15	48.88	45.86	54.00	-8.14	Horizontal
6797.0	13.47	36.85	40.18	32.85	42.99	54.00	-11.01	Horizontal
10605.0	14.91	38.22	36.57	28.29	44.85	54.00	-9.15	Horizontal
12169.0	18.03	39.21	39.27	28.65	46.62	54.00	-7.38	Horizontal

N/A: refer to remark 1).

Remark:

- 1). For this intentional radiator operates below 10 GHz, the spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the fifth harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 6<sup>th</sup> harmonic.
- 2). According to 15.249 (e) As shown in Section 15.35(b), for frequencies above 1000 MHz, the above 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.

TEST RESULTS: The unit does meet the FCC requirements.

### 5.3.3 Occupy Bandwidth

Test Requirement: FCC Part 15.215 and part 15.249

Test Method: ANSI C63.4: 2003

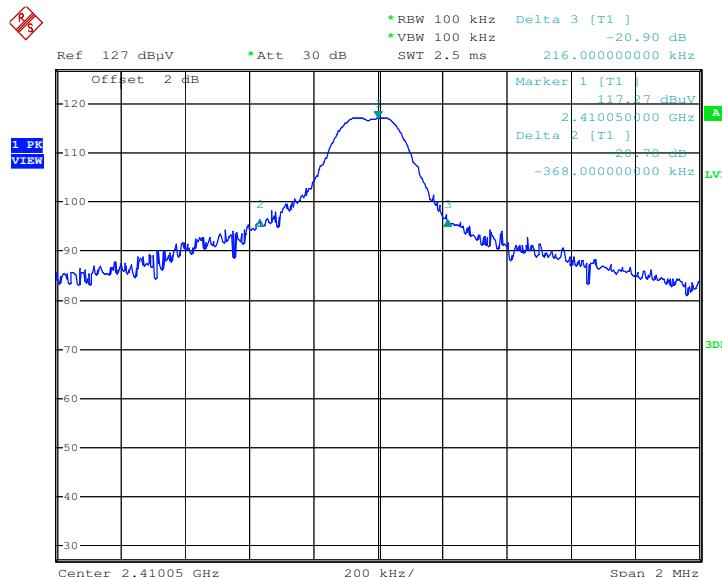
Requirement: Operation within the band 2410 MHz– 2474MHz

Results:

Channel	Frequency (MHz)	Occupy bandwidth(MHz)	Results
Lowest	2410	0.584	Pass
Middle	2443.2	0.620	Pass
Highest	2474	0.688	Pass

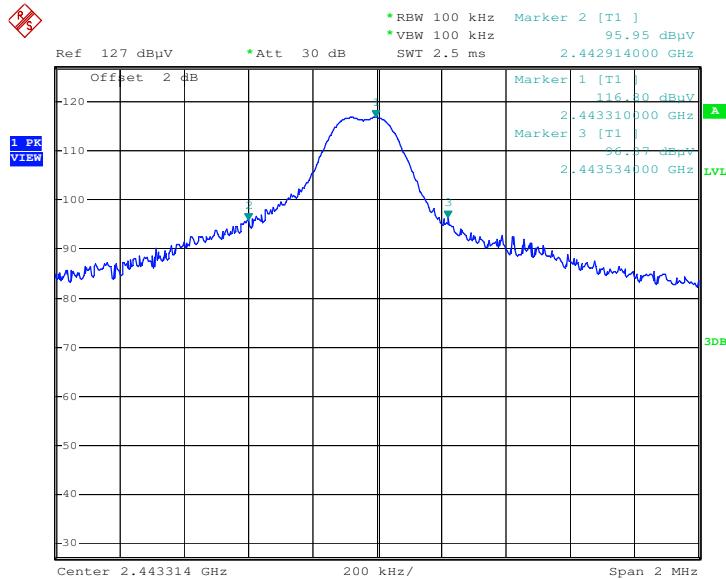
**The occupied bandwidth as below:**

1. For 2410MHz:



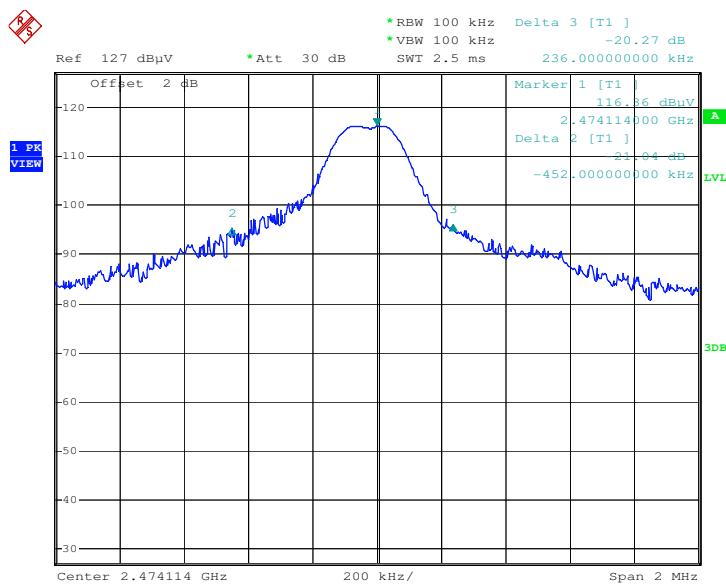
Date: 28.OCT.2009 13:01:51

## 2. For 2443.2MHz:



Date: 28.OCT.2009 13:05:55

## 3. For 2474MHz:



Date: 28.OCT.2009 13:08:23