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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

Report No.: GLEMO080400992RFT-2

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FCC ID: G2R-0788

TEST REPORT

Application No. : GLEMO080400992RF

Applicant: Vtech Electronics Limited

FCC ID: G2R-0788

Frequency Band 2409-2479MHz

Equipment Under Test (EUT):

Name: V.smile motion

Model No.: 80- 0788XX♣

♣

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

Serial No.: Not supplied by client

Standards: FCC PART 15 SUBPART C: 2007

Please refer to section 2 for further details.

Date of Receipt: 12 March 2008

Date of Test: 12 March to 31 March 2008

Date of Issue: 01 April 2008

Test Result :	PASS *
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In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Stephen Guo
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.

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.

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2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Flid Strength of Fundamental	FCC PART 15 :2007	Section 15.249 (a)	PASS
Flid Strength of Unwanted Emissions	FCC PART 15 :2007	Section 15.249 (a) Section 15.249 (d)	PASS
Occupied Bandwidth	FCC PART 15 :2007	Section 15.249	PASS
Band Edges	FCC PART 15 :2007	Section 15.249 (d)	PASS
Conducted Emission (150KHz to 30MHz)	FCC PART 15 :2007	Section 15.207	PASS

Remark:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

♣Item No.: 80-0788xx

According to the confirmation from the applicant, since the electrical circuit design, layout, components used and internal wiring were identical for the above items, only difference being the item numbers or outer decoration.

Therefore only one item 80-0788 was tested in this report.



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4 General Information

4.1 Client Information

Applicant Name: Vtech Electronics Limited
Address of Applicant: 23/F, Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong

4.2 General Description of E.U.T.

Product Name: V.smile motion
Model: 80- 0788XX
Power Supply: DC 9V OR 6V (4 x 1.5V'AA' size batteries) for host.
Adaptor: Input: AC 120/60Hz; Output: DC 9V 300mA
Power Cord: 1.8mX 2 wires unscreened Audio, Video cable.
1.8mX 2 wires unscreened AC/DC cable.
2.8m unscreened control lines.
1.7m unscreened mic lines.

4.3 Description of EUT operation

Type of Modulation FHSS
Frequency Band 2409MHz ~ 2479MHz
Antenna Type Integrate Antenna

4.4 Standards Applicable for Testing

The standard used was FCC PART 15, SUBPART C (2007) section 15.249.

4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198 Kezhu Road, Science Town Economic & Technology Development District Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.6 Other Information Requested by the Customer

None.



4.7 Test Facility

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

- **NVLAP – Lab Code: 200611-0**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **FCC – Registration No.: 282399**

SGS-CSTC Standards Technical Services Co., Ltd., 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 282399, May 31, 2002. With the above and NVLAP's accreditation, SGS-CSTC is an authorized test laboratory for the DoC process.



5 Equipments Used during Test

RE in Chamber/OATS						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	N/A	N/A
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	28-01-2008	28-01-2009
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	04-12-2007	04-12-2008
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	12-08-2007	12-08-2008
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	12-08-2007	12-08-2008
EMC0517	Horn Antenna	Rohde & Schwarz	HF906	100095	12-08-2007	12-08-2008
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2007	05-12-2008
EMC0520	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A06252	11-03-2008	11-03-2009
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	11-03-2008	11-03-2009
EMC0523	Active Loop Antenna	EMCO	6502	00042963	09-08-2006	09-08-2008
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	10-08-2007	10-08-2008

Conducted Emission						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0306	Shielding Room	Zhong Yu	8 x 3 x 3.8 m ³	N/A	N/A	N/A
EMC0102	LISN	Schaffner Chase	MNZ050D/1	1421	14-12-2007	14-12-2008
EMC0118	Two-line v-netwok	Rohde & Schwarz	ENV216	3560.6550.02	16-08--2007	16-08--2008
EMC0119	Two-line v-netwok	Rohde & Schwarz	ENV216	3560.6550.06	16-08--2007	16-08--2008
EMC0506	EMI Test Receiver	Rohde & Schwarz	ESCS30	100085	14-12-2007	14-12-2008
EMC0107	Coaxial Cable	SGS	2m	N/A	24-11-2007	26-11-2008
EMC0106	Voltage Probe	SGS	N/A	N/A	N/A	N/A
EMC0120	8 Line LISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	20550	21-02-2008	21-02-2009
EMC0121	4 Line LISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	20549	21-02-2008	21-02-2009
EMC0122	2 Line LISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	20548	21-02-2008	21-02-2009



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General used equipment						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0050-EMC0053	Temperature, & Humidity	ZHENGZHOU BO YANG	WSB	N/A	05-12-2007	05-12-2008
EMC0006	DMM	Fluke	73	70681569	27-09-2007	27-09-2008
EMC0007	DMM	Fluke	73	70671122	27-09-2007	27-09-2008



6 Test Result

6.1 E.U.T. Operation

Input voltage:	DC 9V or 6V for host.
Operating Environment:	
Temperature:	26°C
Humidity:	56% RH
Atmospheric Pressure:	1005mbar
EUT Operation:	The program used to control the EUT for staying in continuous transmitting and receiving mode is programmed by manufacturer .Channel lowest (2409MHz), middle (2449MHz) and highest (2479MHz) are chosen for full testing. Test the Host in transmitting mode.



6.2 Test Procedure & Measurement Data

6.2.1 Field Strength of Fundamental & Field Strength of Unwanted Emissions

Test Requirement:	FCC Part15 C Section 15.249(a) & (d)
Test Method:	Based on FCC Part15 C Section 15.249 & ANSI C63.4
Test Date:	March 17 2008
Measurement Distance:	3m (Semi-Anechoic Chamber)
Frequency range	30 MHz – 25GHz for transmitting mode. Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1000 MHz), 1 MHz (1000 M – 25GHz)
Operation:	Receive antenna scan height 1 - 4 m, polarization Vertical/ Horizontal, a turntable rotate through 360° in the horizontal plane and it is used to support the test sample at 0.8m above the ground plane.

Requirements:

FCC Part 15.249(a)

Fundamental Frequency (MHz)	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics (dBuV/m @ 3m)
902 to 928	94.0	54.0
2400 to 2483.5	94.0	54.0
5725 to 5875	94.0	54.0
24000 to 24250	108.0	68.0

FCC Part 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 Section 15.209, whichever is the lesser attenuation.

Remark:

The fundamental frequency rang of the EUT is 2409MHz ~ 2479MHz.

The limit for average field strength dBuV/m for the fundamental frequency = 94.0 dB μ V/m.

The limit for Peak field strength dBuV/m for the fundamental frequency = 114.0 dB μ V/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dB μ V/m for the harmonics = 54.0 dB μ V/m.

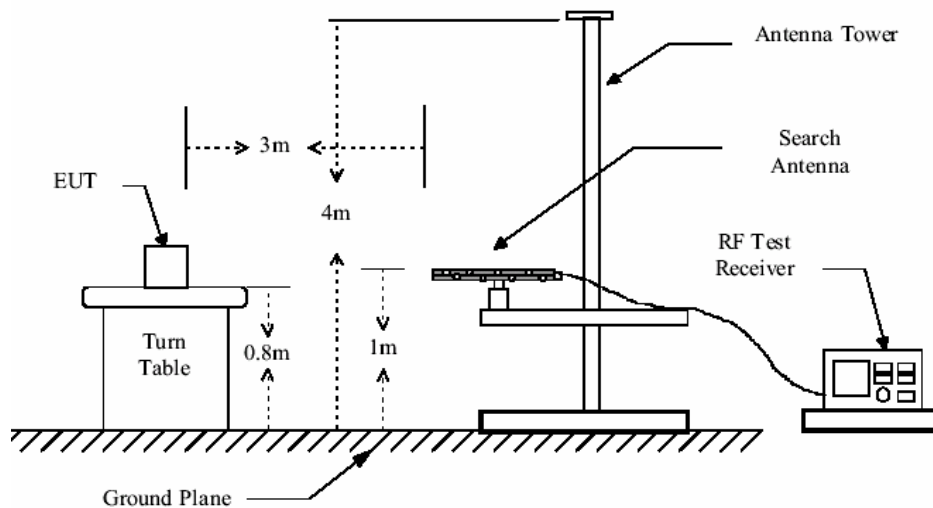
The limit for peak field strength dB μ V/m for the harmonics = 74.0 dB μ V/m.

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or 54.0 dB μ V/m in 15.209. Here the limit for the other emission is 54.0 dB μ V/m.

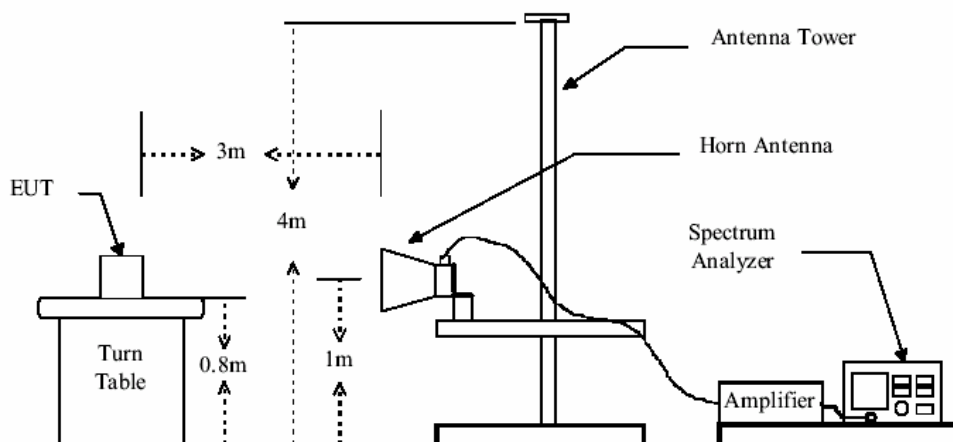
Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 25GHz. When an emission was found, the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured 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. For battery operated equipment, the equipment tests shall be performed using a new battery. The worst case emissions were reported.

Test Configuration:

30MHz to 1GHz:



Above 1GHz:





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

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Peramplifier Factor}$$

The following test results were performed on the Host:

1. Test in Channel lowest (2409MHz), keep in continuously transmitting status.

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2409.000	92.0	28.6	4.6	34.8	90.4	114.0	-23.6	PEAK
2409.000	63.2	28.6	4.6	34.8	61.6	94.0	-32.4	AVERAG
4814.000	46.8	33.2	7.2	33.0	54.2	74.0	-19.9	PEAK
4814.000	34.5	33.2	7.2	33.0	41.8	54.0	-12.2	AVERAG

(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2409.000	100.3	28.6	4.6	34.8	98.7	114.0	-15.3	PEAK
2409.000	77.2	28.6	4.6	34.8	75.6	94.0	-18.4	AVERAG
4814.000	45.3	33.2	7.2	33.0	52.7	74.0	-21.3	PEAK
4814.000	33.6	33.2	7.2	33.0	40.9	54.0	-13.1	AVERAG

2. Test in Channel middle (2449MHz), keep in continuously transmitting status.

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2449.000	93.9	28.7	4.6	34.7	92.5	114.0	-21.5	PEAK
2449.000	67.4	28.7	4.6	34.7	65.9	94.0	-28.1	AVERAG
4898.000	45.6	33.3	7.1	33.0	53.0	74.0	-21.0	PEAK
4898.000	32.6	33.3	7.1	33.0	40.0	54.0	-14.0	AVERAG



(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2449.000	98.7	28.7	4.6	34.7	97.2	114.0	-16.8	PEAK
2449.000	78.6	28.7	4.6	34.7	77.1	94.0	-16.9	AVERAG
4898.000	45.6	33.3	7.1	33.0	53.0	74.0	-21.0	PEAK
4898.000	32.3	33.3	7.1	33.0	39.7	54.0	-14.3	AVERAG

3. Test in Channel highest (2479MHz), keep in continuously transmitting status.

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2479.000	93.8	28.8	4.7	34.7	92.5	114.0	-21.5	PEAK
2479.000	67.3	27.8	4.7	34.7	65.0	94.0	-29.0	AVERAG
4958.000	47.0	33.6	7.3	33.0	55.0	74.0	-19.0	PEAK
4958.000	34.5	33.6	7.3	33.0	42.4	54.0	-11.6	AVERAG

(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
2479.000	100.1	28.8	4.7	34.7	98.8	114.0	-15.2	PEAK
2479.000	81.9	27.8	4.7	34.7	79.6	94.0	-14.4	AVERAG
4958.000	45.6	33.6	7.3	33.0	53.5	74.0	-20.5	PEAK
4958.000	32.7	33.6	7.3	33.0	40.6	54.0	-13.4	AVERAG

Remark:

- 1). 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.
- 2) Sweep from 30MHz to 25GHz, find the max radiated emissions and record it, when the emissions are too weak to be detected, it will not be reported.

TEST RESULTS: The unit does meet the FCC requirements.



6.2.2 Occupied Bandwidth & Band Edge

Test Requirement: FCC Part 15 C Section 15.249

Test Method: ANSI C63.4 and FCC Part 2.1049

Operation within the band 2400-2483.5MHz

Test Date: 12 March 2008

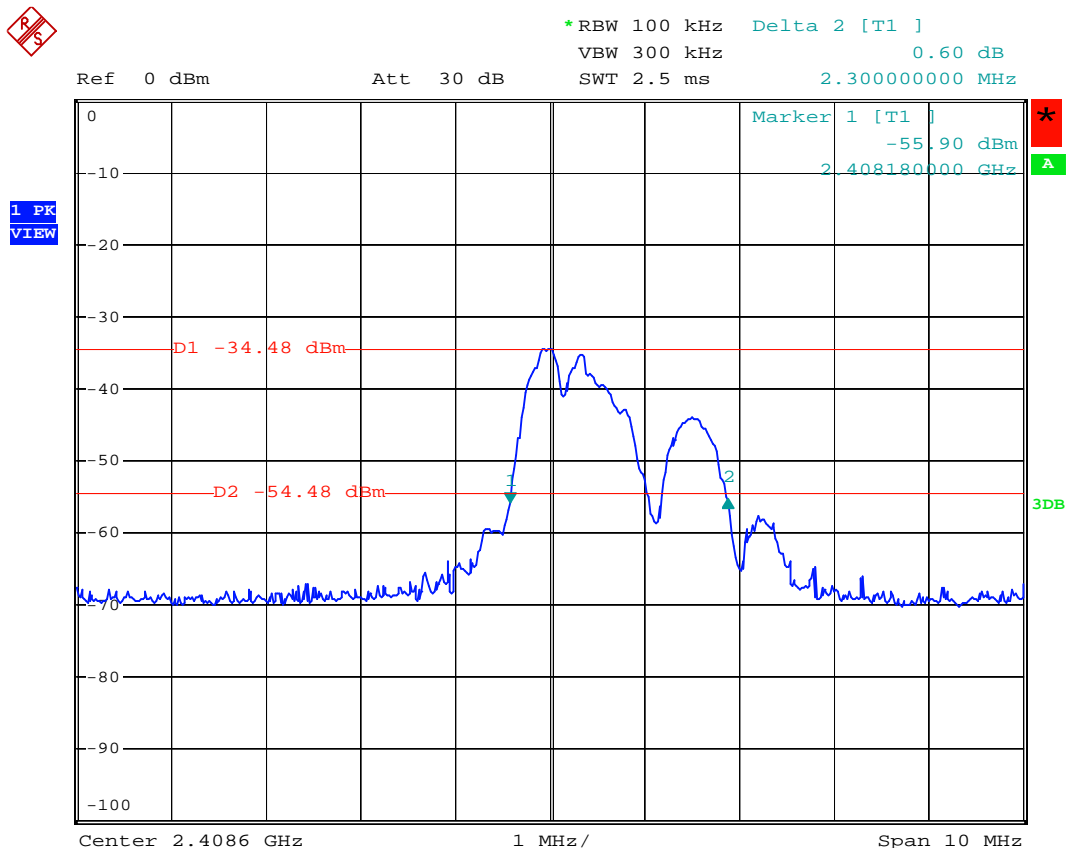
Requirements: 15.249 (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken.

For Host:

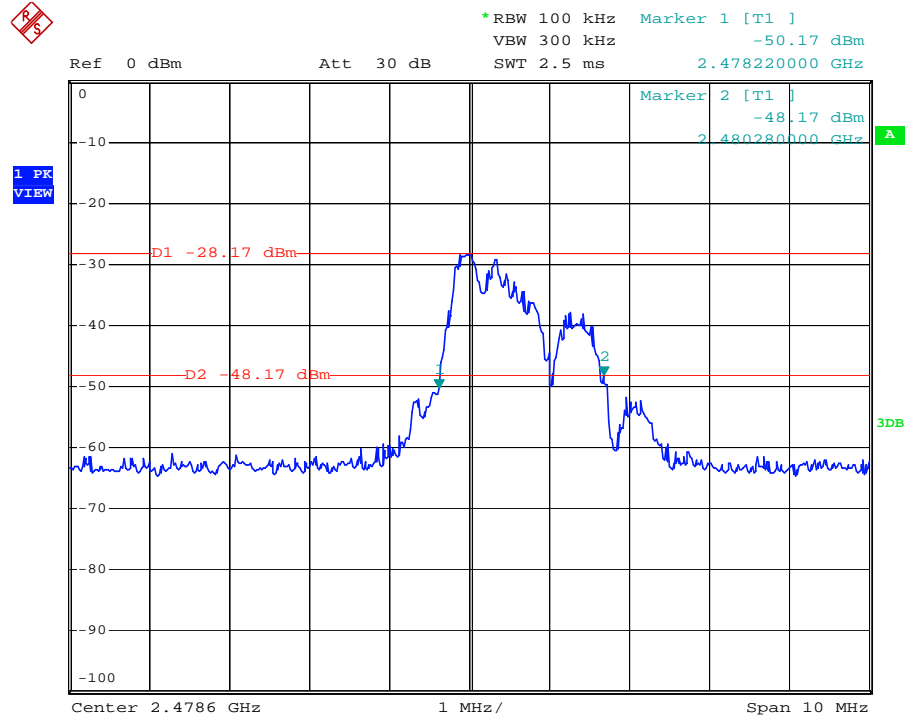
The occupied bandwidth as below:

Lowest Channel:2409MHz:



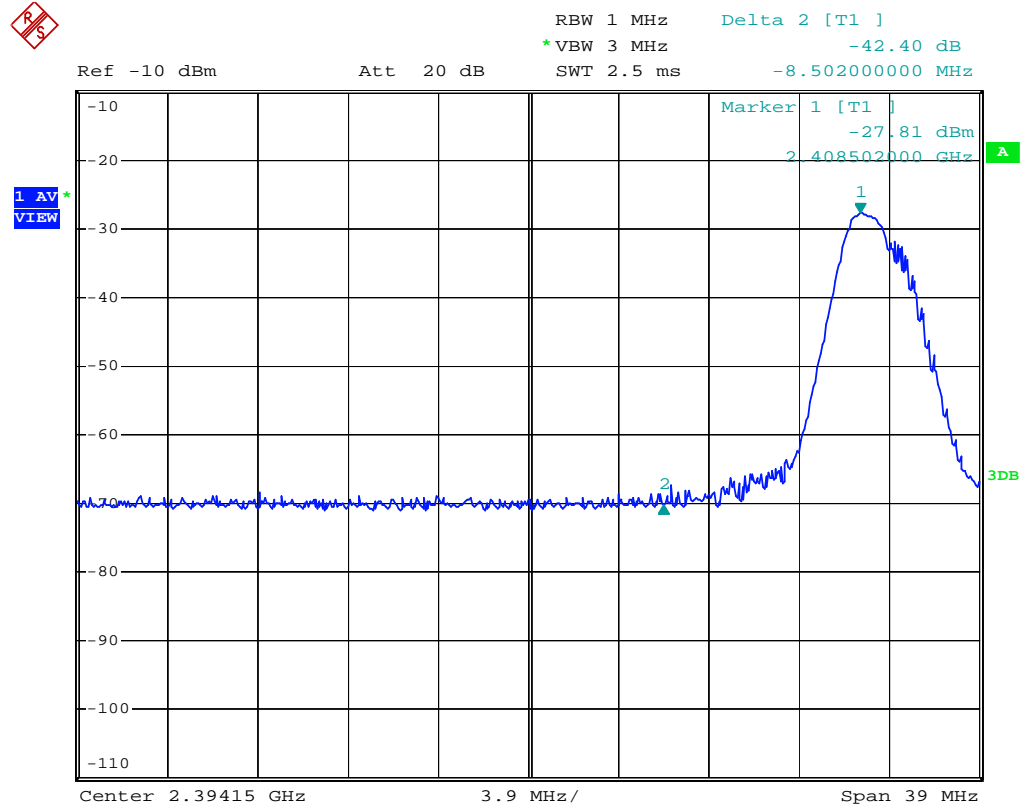


Highest Channel 2479MHz:





Detector mode:Average



For 2400MHz bandedge checked with 2409MHz frequency operated,the delta shown at the plots are 27.7dB for peak detector mode and 42.4dB for Average detector mode.

With the peak value 98.7dBuV/m and average value at 75.6dBuV/m presented at the report 11 for the fundamental, the spurious emission level at 2400MHz were 71.0dBuV/m for peak and 33.2dBuV/m for average.



Highest Band Edge 2483.5MHz

Detector mode:Peak



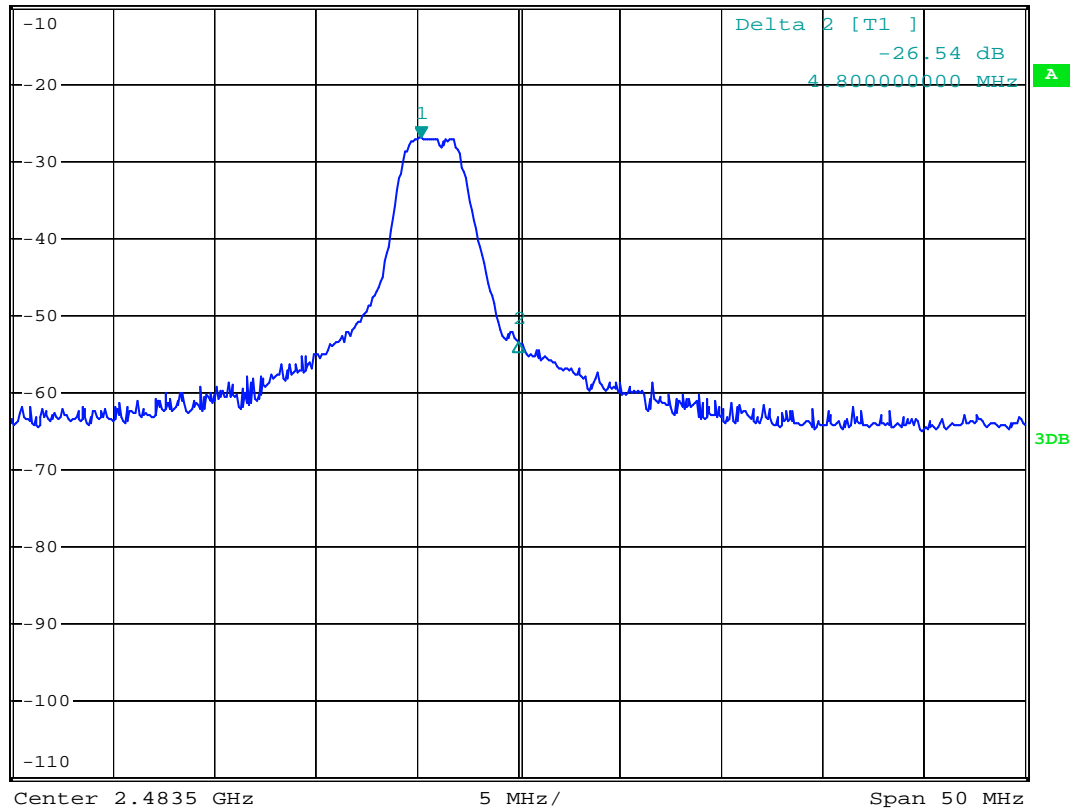
*RBW 1 MHz Marker 1 [T1]
*VBW 1 MHz -27.02 dBm
SWT 2.5 ms 2.478700000 GHz

Ref -10 dBm

Att 20 dB

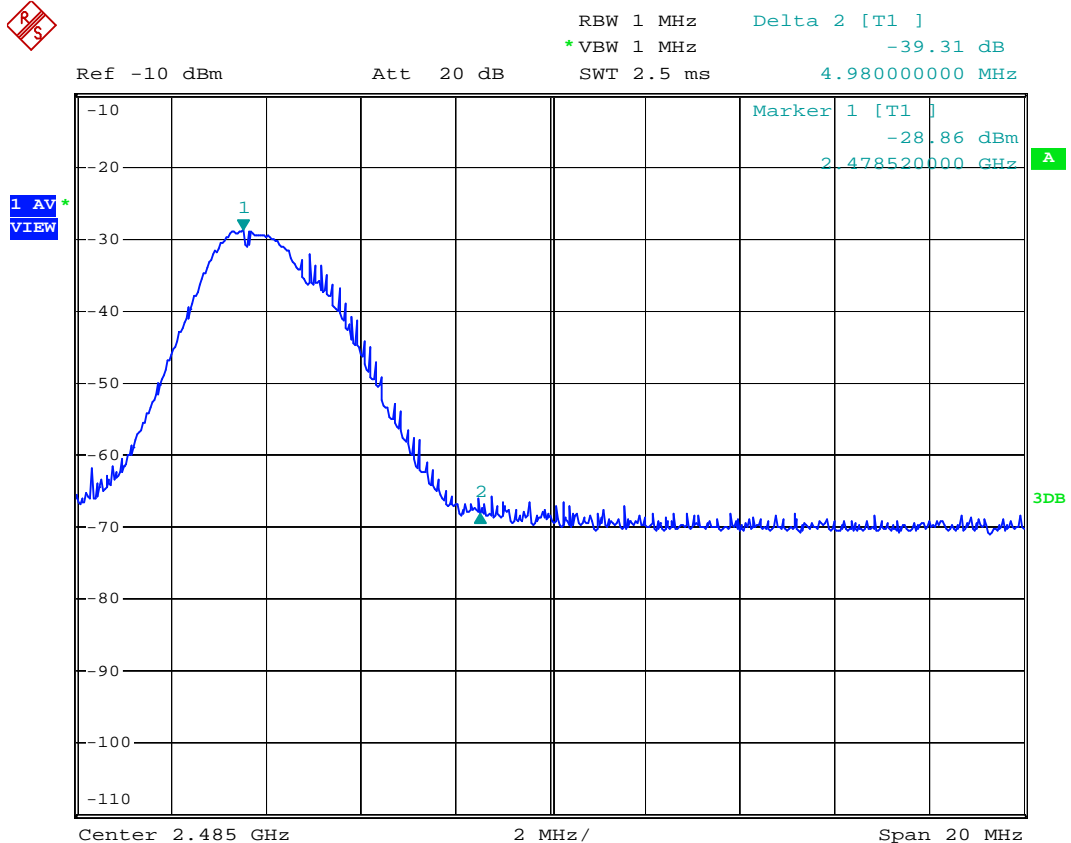
SWT 2.5 ms

2.478700000 GHz





Detector mode:Average



For 2483.5MHz bandedge checked with 2479MHz frequency operated,the delta shown at the plots are 26.5dB for peak detector mode and 39.3dB for Average detector mode.

With the peak value 98.8dBuV/m and average value at 79.6dBuV/m presented at the report 12 for the fundamental, the spurious emission level at 2483.5MHz were 72.3dBuV/m for peak and 40.3dBuV/m for average.

The test result for the Emissions radiated outside of the specified frequency bands , please refer to the section 5.3.1 of this report.

The results: The unit does meet the FCC requirements.

6.2.3 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	FCC Part15.207
Test Method:	ANSI C63.4
Test Date:	March 31 2008
Frequency Range:	150KHz to 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth) Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

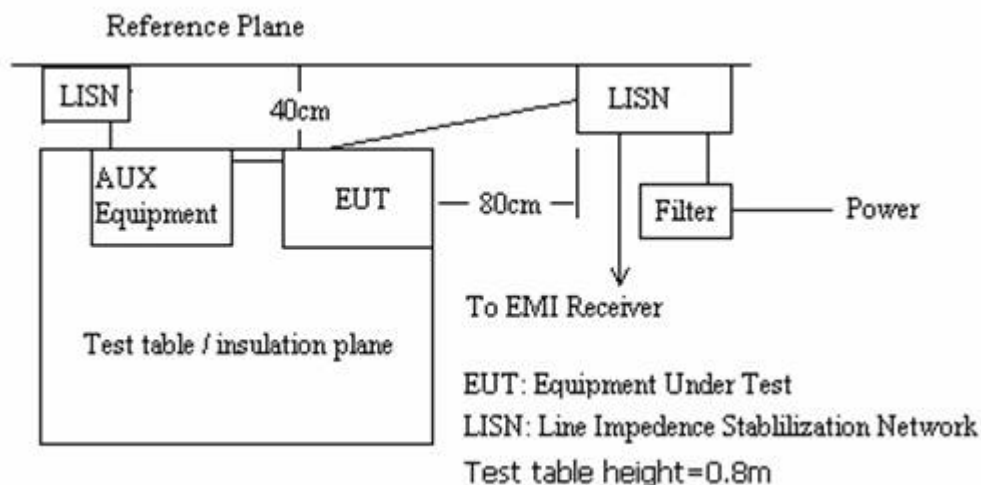
6.2.3.1 E.U.T. Operation

Operating Environment:

Temperature: 20.0 °C Humidity: 50% RH Atmospheric Pressure: 1005 mbar

EUT Operation: Test the Host in transmitting mode. Pretest in lowest, middle, highest channel transmitting status to find the worst case to reported.

6.2.3.2 Plan View of Test Setup



6.2.3.3 Measurement Data

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

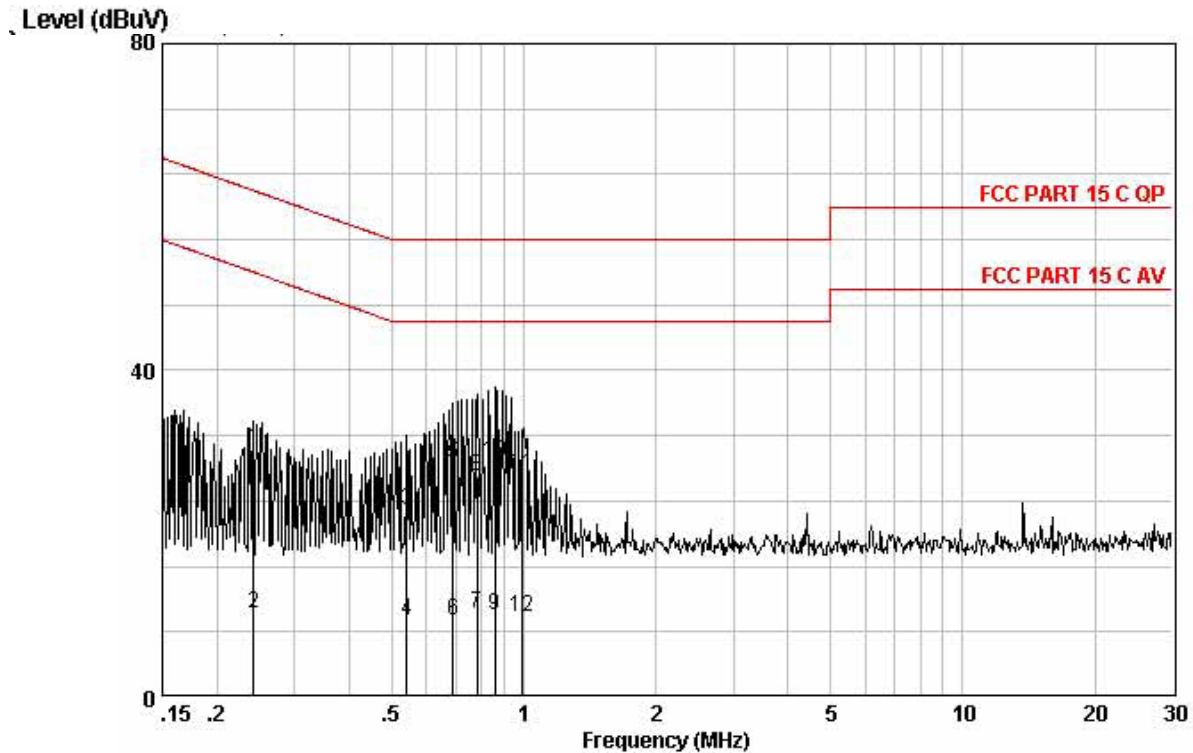
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT in middle channel transmitting status (worst case):



Live Line:

Peak Scan:



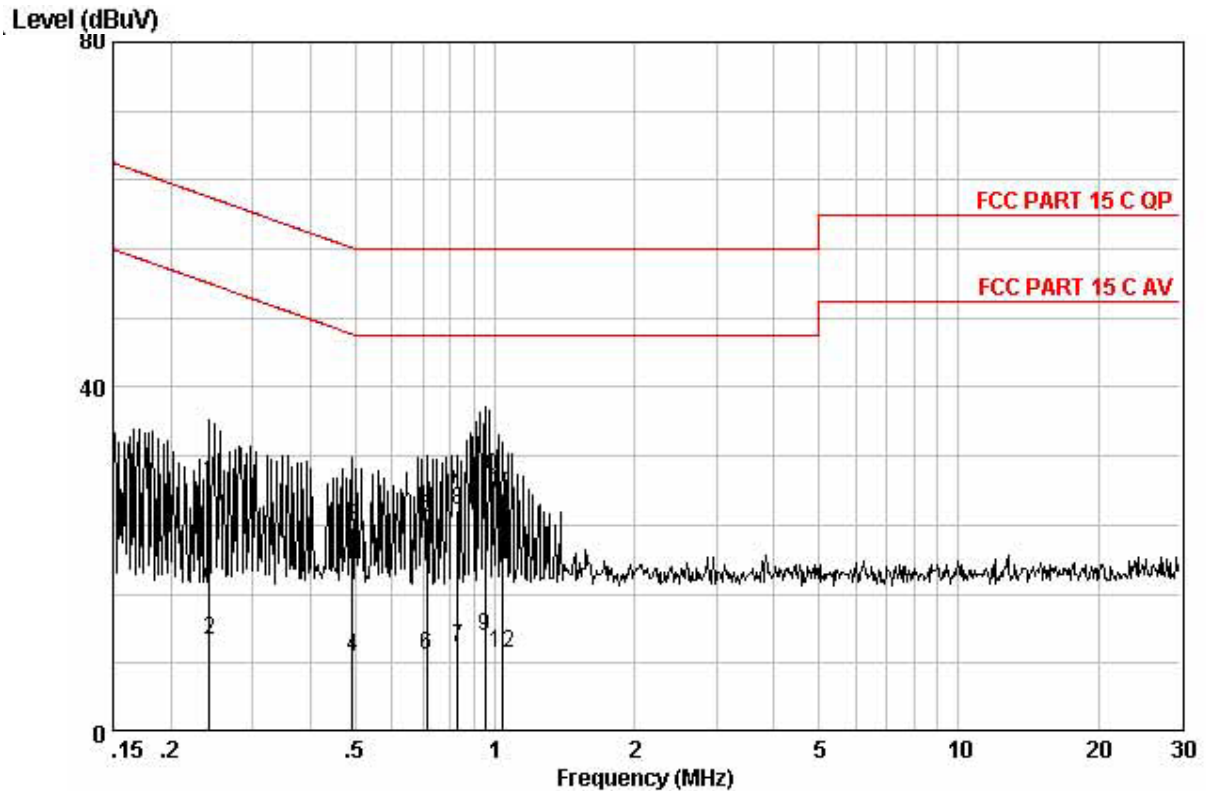
Quasi-peak and Average measurement:

Read Freq	Read Level	Cable Loss	LISN Factor	Limit Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.242	20.40	0.00	9.88	30.28	62.04	-31.76	QP
0.242	0.30	0.00	9.88	10.18	52.04	-41.86	AVERAGE
0.541	13.02	0.00	9.93	22.95	56.00	-33.05	QP
0.541	-0.48	0.00	9.93	9.45	46.00	-36.55	AVERAGE
0.690	18.74	0.00	9.88	28.62	56.00	-27.38	QP
0.690	-0.55	0.00	9.88	9.33	46.00	-36.67	AVERAGE
0.783	0.44	0.00	9.85	10.29	46.00	-35.71	AVERAGE
0.783	17.28	0.00	9.85	27.13	56.00	-28.87	QP
0.857	0.10	0.00	9.83	9.93	46.00	-36.07	AVERAGE
0.857	18.84	0.00	9.83	28.67	56.00	-27.33	QP
0.994	17.40	0.00	9.79	27.19	56.00	-28.81	QP
0.994	-0.04	0.00	9.79	9.75	46.00	-36.25	AVERAGE



Neutral Line

Peak Scan:



Quasi-peak and Average measurement:

Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.242	19.14	0.00	9.89	29.03	62.04	-33.01	QP
0.242	0.77	0.00	9.89	10.66	52.04	-41.38	AVERAGE
0.491	13.82	0.00	9.94	23.76	56.14	-32.38	QP
0.491	-1.17	0.00	9.94	8.77	46.14	-37.37	AVERAGE
0.712	15.06	0.00	9.88	24.94	56.00	-31.06	QP
0.712	-0.86	0.00	9.88	9.02	46.00	-36.98	AVERAGE
0.830	-0.04	0.00	9.85	9.81	46.00	-36.19	AVERAGE
0.830	15.84	0.00	9.85	25.69	56.00	-30.31	QP
0.953	1.21	0.00	9.83	11.04	46.00	-34.96	AVERAGE
0.953	19.80	0.00	9.83	29.63	56.00	-26.37	QP
1.037	17.78	0.00	9.82	27.60	56.00	-28.40	QP
1.037	-0.63	0.00	9.82	9.19	46.00	-36.81	AVERAGE