SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

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TEST REPORT

Application No. :	SHEM120700101201
Applicant:	Philips Electronics (Suzhou) Co.,Ltd.
	209 ZhuYuan Road , Building B-3rd ,19~21 floor, SuZhou new district,Suzhou
FCC ID:	ZQ8OVU810004
Fundamental Frequency :	2425MHz-2475MHz
Equipment Under Test (EUT):	
EUT Name:	Dongle
Brand Name:	Cogeco
EUT Model No:	OVU810004
Add Model No:	Jarie
Standards:	FCC PART 15 SUBPART C, Section 15.249
Date of Receipt:	July 25, 2012
Date of Test:	July 26, 2012 to Aug 08, 2012
Date of Issue:	Aug 08, 2012
Test Result :	**PASS ***

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

Jim Xu
E&E Section Head
SGS-CSTC(Shanghai) Co., Ltd.

Neil Zhang
E&E Project Engineer
SGS-CSTC(Shanghai) Co., Ltd.

2 Test Summary

TEST ITEM	FCC REFERANCE	RESULT
Power line conducted emission	15.207	Pass
Radiated emission	15.249 & 15.205	Pass
Assigned bandwidth (20dB bandwidth)	15.215(c)	Complete
Antenna Requirement	15.203	Pass

Remark：

Model No.: OVU810004，Jarie

Since the electrical circuit design, PCB layout, components used, material exterior and internal wiring were identical for the above items.Only different is appearance,mode name,minor software.

3 Contents

4 General Information

4.1 Client Information

Applicant:	Philips Electronics (Suzhou) Co.,Ltd.
Address of Applicant:	209 ZhuYuan Road , Building B-3rd ,19~21 floor, SuZhou new district,Suzhou
Manufacturer:	Philips Electronics (Suzhou) Co.,Ltd.
Address of Manufacturer:	209 ZhuYuan Road , Building B-3rd ,19~21 floor, SuZhou new district,Suzhou

4.2 General Description of E.U.T.

EUT Name:	Dongle
Brand Name:	Cogeco
EUT Model No:	OVU810004
Add Model No:	Jarie

4.3 Details of E.U.T.

EUT Power Supply:	5V DC
Operation Frequency Range:	The EUT application supports only 3 RF-channels; these channels are the following: CH15 2425 MHz CH20 2450 MHz CH25 2475 MHz
Hardware Version:	Not supplied by client
Software Version:	Not supplied by client

4.4 Description of Support Units

Name	Model No.	Remark
32" HD LCD TV with DVB-T	3200SL-A101	N/A

4.5 Standards Applicable for Testing

47CFR Part 15 (2009)
ANSI C63.10: 2009

4.6 Test Location

All tests were performed at SGS E&E EMC lab

SGS-CSTC EMC Laboratory, No.588 West Jindu Road,Songjiang District,Shanghai,China

Tel:+86 21 6191 5666 Fax:+86 21 6191 5655

4.7 Mode of operation during the test / Test peripherals used

While testing the transmitter mode of the EUT, the internal modulation was used.

4.8 Deviation from Standards

None.

4.9 Other Information Requested by the Customer

None.

4.10 Test Confident level

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

4.11 Test Facility

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

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. 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. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

4.12 Test Instruments

Radiated Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-03	2013-06-01
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2011-10-28	2012-10-26
3	CONTROLLER	INNCO	CO200	474	/	/
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2011-10-28	2012-10-26
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2011-10-28	2012-10-26

Conducted Emission

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-06-03	2013-06-01
2	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-05-07	2013-05-05

General Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal.Due date
1	Digital pressure meter	YONGZHI	DYM3-01	101012	2011-11-18	2012-11-17
2	Digital Multimeter	FLUKE	17B	10560713	2011-08-24	2012-08-22
3	Temperature& humidity recorder	ShangHai weather meter work	ZJ 1-2B	0805126	2011-07-25	2012-07-23

4.13 E.U.T. Operation

Input voltage:	5V DC
Operating Environment:	
Temperature:	24.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	1010 mbar
EUT Operation:	While testing the transmitter mode of the EUT, the internal modulation was used. The EUT has been tested under operating condition.Test program was used to control the EUT for staying in continuous Transmitting mode is programmed. Channel low (2425MHz) mid(2450MHz) high(2475MHz)

5 Test Procedure & Measurement Data

5.1 Conducted Emission Test

Test Requirement: FCC Part15 15.207

Test date: July 30, 2012

Standard Applicable According to section 15.207,frequency 150KHz to 30MHz shall not exceed the limit table as blew.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*

EUT Setup 1.The conducted emission tests were performed in the test site,using the setup in accordance with the ANSI C63.10-2009.

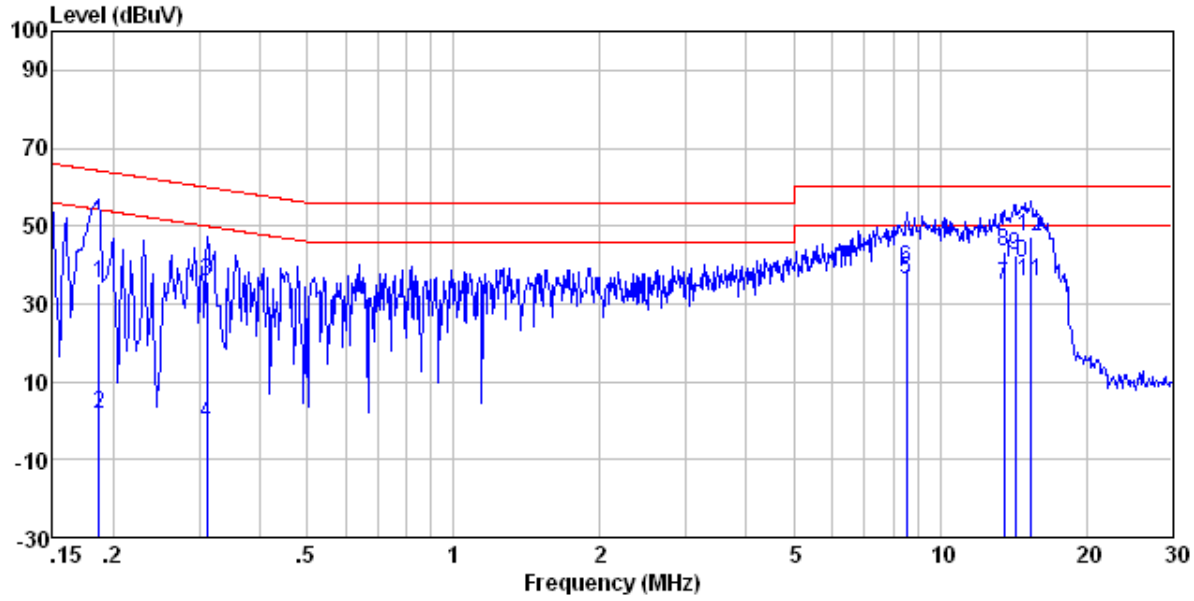
2.EUT is connect with AC Power adaptor was plug-in LISN.The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.

3.The LISN was connected with 120V AC/60Hz power source.

Measurement Result Operation mode:Transmitting mode.

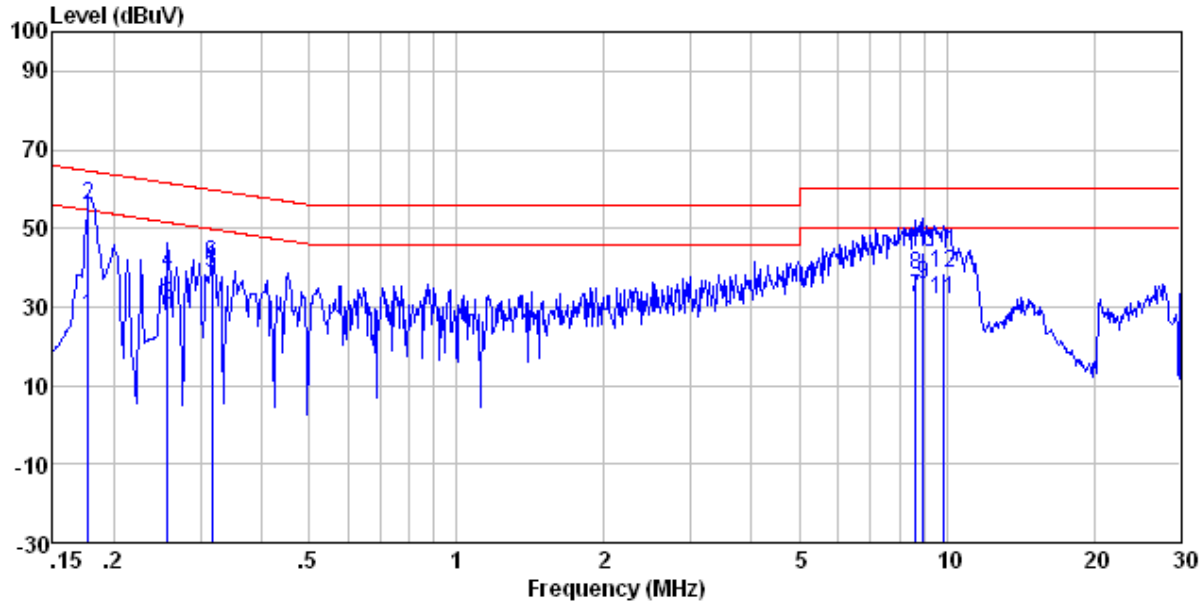
Note:All test modes have been tested.

L line:



	Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.19	35.00	0.10	0.13	35.23	54.20	-18.97	Average
2	0.19	1.22	0.10	0.13	1.45	64.20	-62.75	QP
3	0.31	35.37	0.10	0.14	35.61	49.93	-14.32	Average
4	0.31	-1.14	0.10	0.14	-0.90	59.93	-60.83	QP
5	8.55	35.83	0.15	0.45	36.43	50.00	-13.57	Average
6	8.55	38.65	0.15	0.45	39.25	60.00	-20.75	QP
7	13.55	34.11	0.10	0.60	34.81	50.00	-15.19	Average
8	13.55	42.62	0.10	0.60	43.32	60.00	-16.68	QP
9	14.29	41.85	0.10	0.60	42.55	50.00	-7.45	Average
10	14.29	39.99	0.10	0.60	40.69	60.00	-19.31	QP
11	15.39	34.91	0.11	0.60	35.62	50.00	-14.38	Average
12	15.39	46.42	0.11	0.60	47.13	60.00	-12.87	QP

N Line:



	Freq	Read Level	Cable Loss	LISN Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.18	27.24	0.10	0.15	27.49	54.64	-27.15	Average
2	0.18	55.45	0.10	0.15	55.70	64.64	-8.94	QP
3	0.26	30.19	0.10	0.12	30.41	51.51	-21.10	Average
4	0.26	38.50	0.10	0.12	38.72	61.51	-22.79	QP
5	0.32	38.20	0.10	0.14	38.44	49.80	-11.36	Average
6	0.32	40.76	0.10	0.14	41.00	59.80	-18.80	QP
7	8.64	31.92	0.15	0.46	32.53	50.00	-17.47	Average
8	8.64	37.51	0.15	0.46	38.12	60.00	-21.88	QP
9	8.96	35.25	0.13	0.50	35.88	50.00	-14.12	Average
10	8.96	43.30	0.13	0.50	43.93	60.00	-16.07	QP
11	9.86	30.99	0.10	0.59	31.68	50.00	-18.32	Average
12	9.86	37.94	0.10	0.59	38.63	60.00	-21.37	QP

5.2 Spurious Emission Test

Test Requirement: FCC part 15.249 & 15.205

Test date: Mar 2,2012 to Mar 4,2012

Limit:

15.249(a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

The radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) showed as below:

Frequency (MHz)	Field Strength (dBuV/m)	Measurement Distance (m)
30 - 88	40.0	3
88 - 216	43.5	3
216 - 960	46.0	3
Above 960	54.0	3

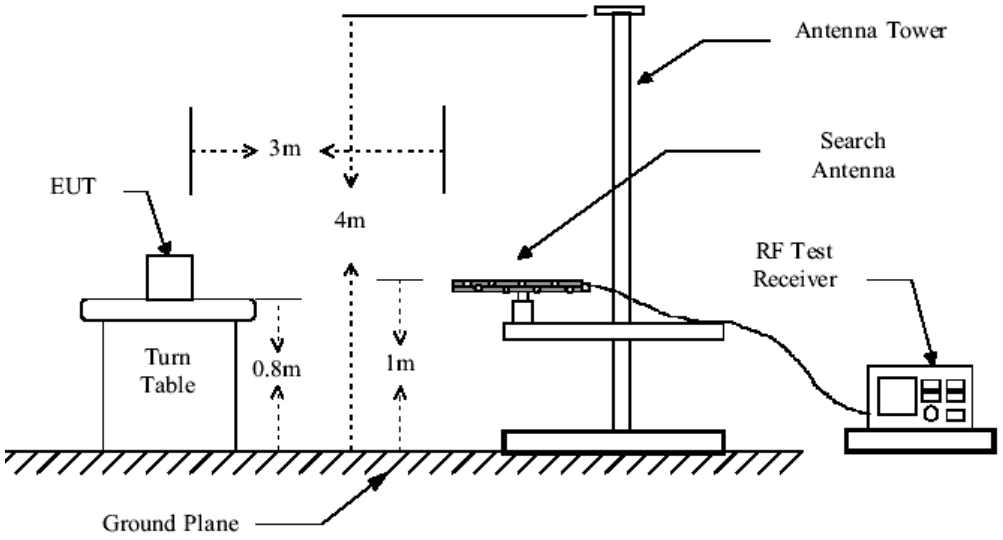
15.249 (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Measurement Procedure:

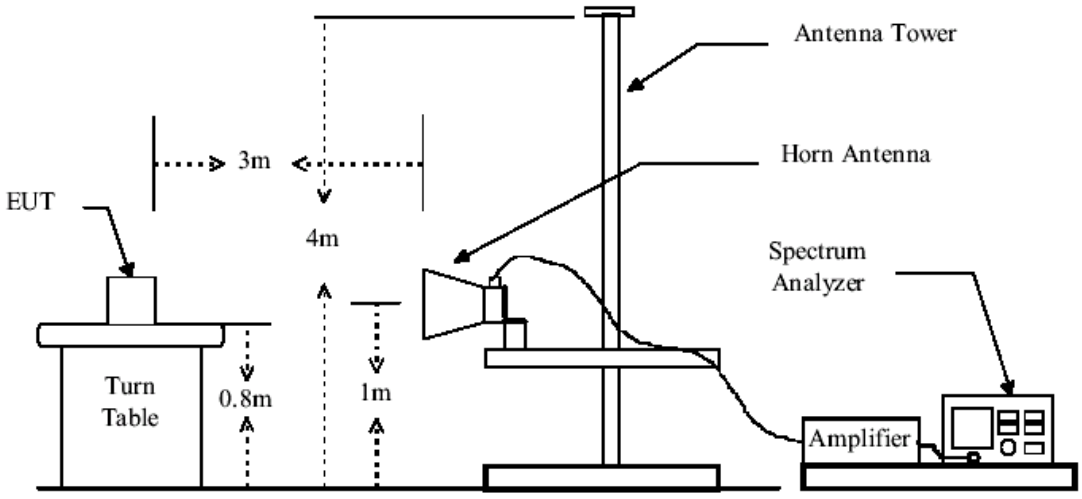
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz). 1MHz resolution bandwidth and Peak detector apply (1000 MHz – 25GHz) Above 1GHz
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
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 all frequency measured were complete.

Radiated Test Set-up:

Radiated Emission Test Set-up,Frequency Below 1000MHz

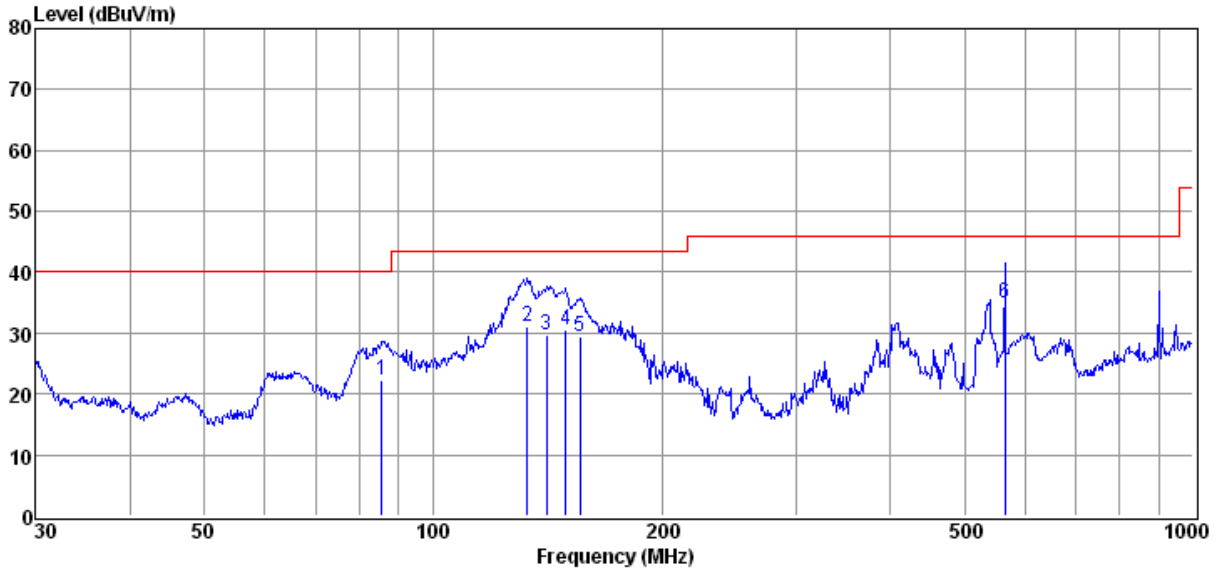


Radiated Emission Test Set-up Frequency Over 1GHz



Low nosie amplifier was used below 1GHz,High pass Filter was used above 1GHz.

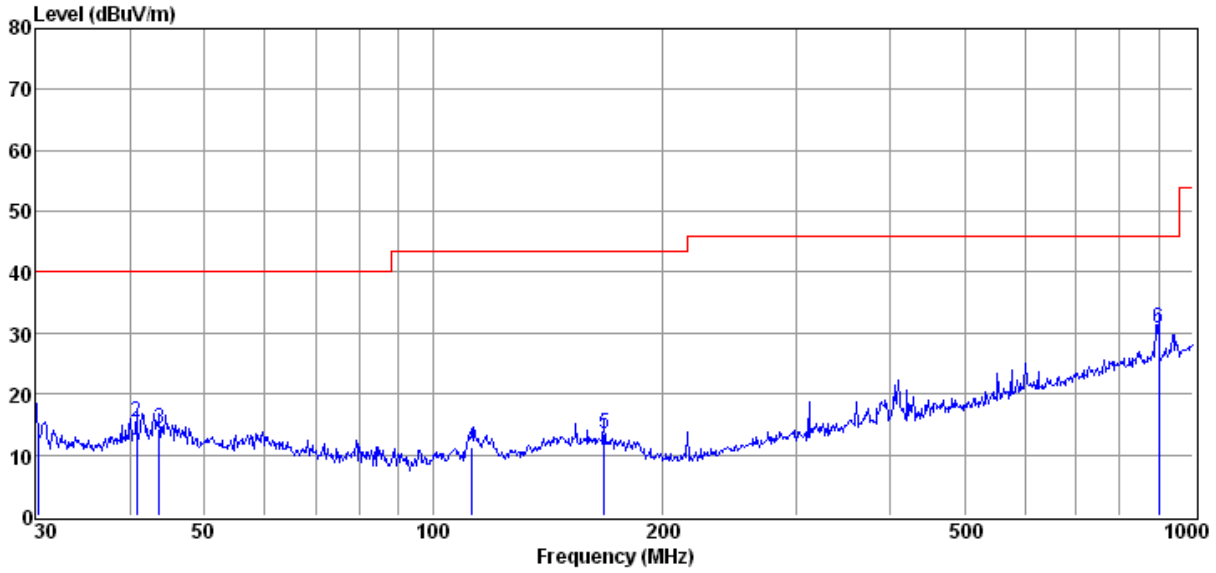
Antenna Horizontal:



Item (Mark)	Freq (MHz)	Read Level (dBμV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBμV/m)	Limit Line (dBμV/m)	Over Limit (dB)	Detector	Polarization
1	85.61	37.56	8.63	24.70	0.91	22.40	40.00	-17.60	QP	HORIZONTAL
2	133.17	42.80	11.76	24.70	1.20	31.06	43.50	-12.44	QP	HORIZONTAL
3	140.84	40.98	12.15	24.70	1.23	29.66	43.50	-13.84	QP	HORIZONTAL
4	149.49	41.28	12.67	24.70	1.27	30.52	43.50	-12.98	QP	HORIZONTAL
5	155.92	40.23	12.64	24.70	1.30	29.47	43.50	-14.03	QP	HORIZONTAL
6	564.64	37.92	18.31	24.24	2.80	34.79	46.00	-11.21	QP	HORIZONTAL

Note: Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor

Antenna Vertical:



Item (Mark)	Freq (MHz)	Read Level (dBµV)	Antenna Factor (dB/m)	PRM Factor (dB)	Cable Loss (dB)	Result Level (dBµV/m)	Limit Line (dBµV/m)	Over Limit (dB)	Detector	Polarization
1	30.25	27.33	12.12	24.70	0.42	15.17	40.00	-24.83	QP	VERTICAL
2	40.70	26.31	13.27	24.70	0.57	15.45	40.00	-24.55	QP	VERTICAL
3	43.66	25.31	13.15	24.70	0.59	14.35	40.00	-25.65	QP	VERTICAL
4	112.52	24.63	10.13	24.70	1.10	11.16	43.50	-32.34	QP	VERTICAL
5	167.82	24.32	12.37	24.62	1.35	13.42	43.50	-30.08	QP	VERTICAL
6	900.15	27.95	22.90	23.80	3.65	30.70	46.00	-15.30	QP	VERTICAL

Note: Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor

Operation Mode: TX
Low CH 2425MHz
Fundamental frequency emission：

Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Receiver Peak Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Peak Result (dBuV/m)	Peak Limit 3m (dBuV/m)	Margin (dB)
2.425	50.99	PK	H	32.4	83.39	114	-30.61
2.425	46.35	PK	V	32.4	78.75	114	-35.25

Remark：
1. For fundamental emission test, no amplifier is employed.
2.Peak Result=Peak Reading+Correction Factors
3.Margin =Corrected Reading – Limit

Spurious emission above 1GHz：

Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4.850	52.69	PK	H	-2.3	50.39	54	-3.61
7.274	46.93	PK	H	3.0	49.93	54	-4.07
4.510	53.69	PK	V	-2.3	51.39	54	-2.61
7.274	43.98	PK	V	3.0	46.98	54	-7.02

Remark:
1. Correct Factor = Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin =Corrected Reading – Limit
4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Operation Mode: TX
Mid CH 2450MHz
Fundamental frequency emission：

Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Receiver Peak Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Peak Result (dBuV/m)	Peak Limit 3m (dBuV/m)	Margin (dB)
2.450	48.21	PK	H	32.4	80.61	114	-33.39
2.450	45.92	PK	V	32.4	78.32	114	-35.68

Remark：
1. For fundamental emission test, no amplifier is employed.
2.Peak Result=Peak Reading+Correction Factors
3.Margin =Corrected Reading – Limit

Spurious emission above 1GHz：

Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4.899	50.15	PK	H	-2.1	48.05	54	-5.95
7.350	40.75	PK	H	3.2	43.95	54	-10.05
4.899	49.97	PK	V	-2.1	47.87	54	-6.13
7.351	38.28	PK	V	3.2	41.48	54	-12.52

Remark:
1. Correct Factor = Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin =Corrected Reading – Limit
4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

Operation Mode: TX
High CH 2475MHz
Fundamental frequency emission：

Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Receiver Peak Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Peak Result (dBuV/m)	Peak Limit 3m (dBuV/m)	Margin (dB)
2.475	47.58	PK	H	32.4	79.98	114	-34.02
2.475	42.24	PK	V	32.4	74.64	114	-39.36

Remark：
1. For fundamental emission test, no amplifier is employed.
2.Peak Result=Peak Reading+Correction Factors
3.Margin =Corrected Reading – Limit

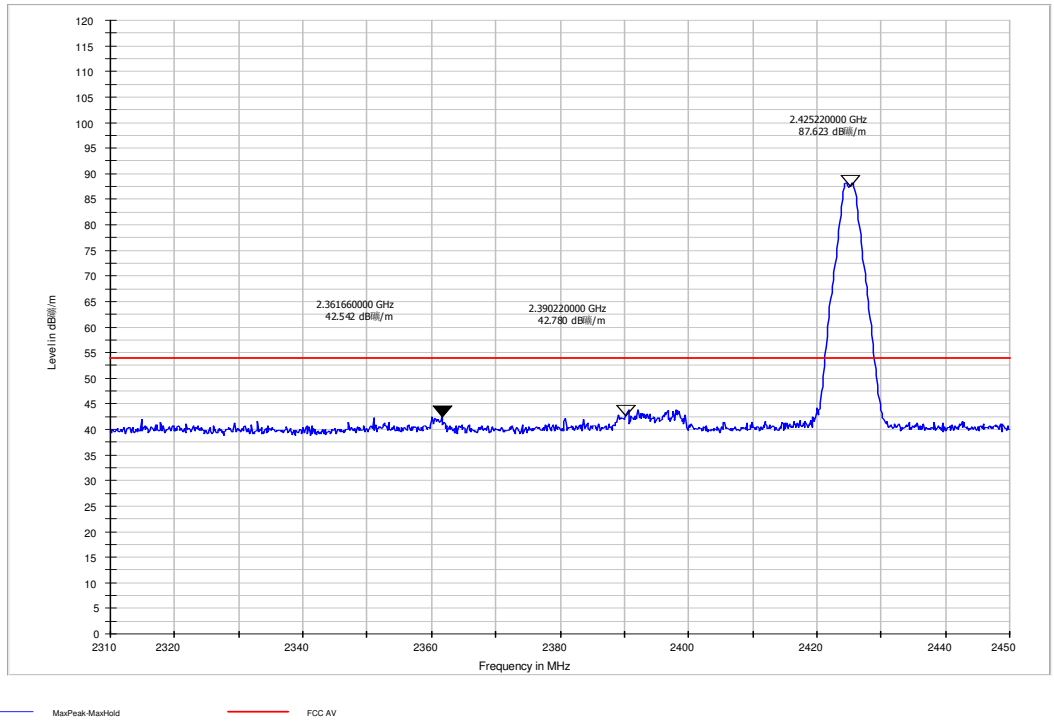
Spurious emission above 1GHz：

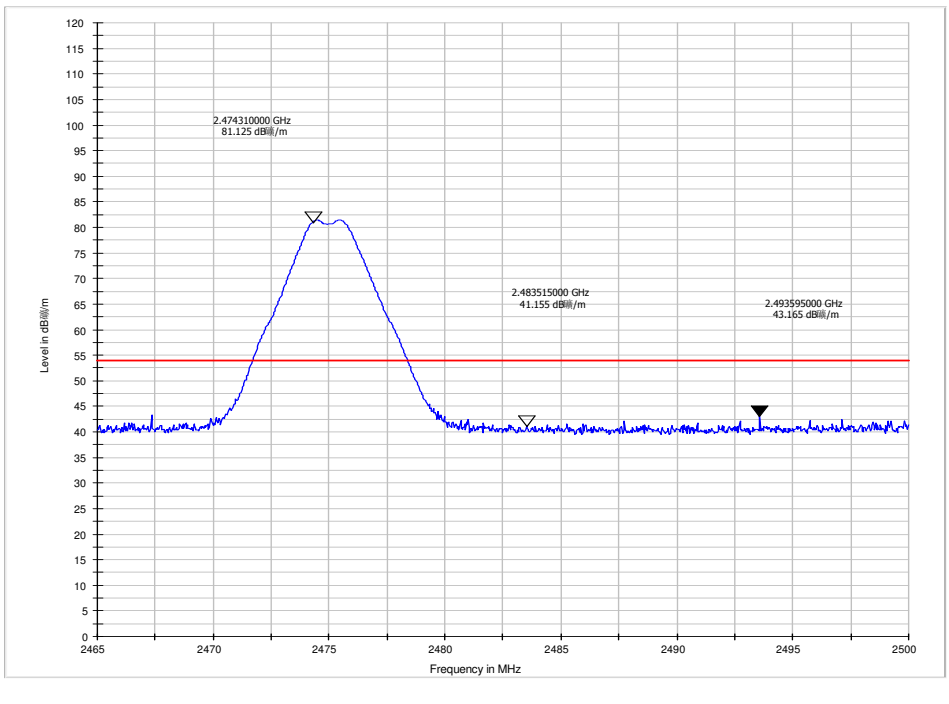
Radiated Emissions			Ant	Correction Factors	Total	FCC Limit	
Frequency (GHz)	Reading (dBuV)	Detect Mode	Pol.	Ant.(dB/m)	Actual (dBuV/m)	Limit (dBuV/m)	Margin (dB)
4.950	52.16	PK	H	-2.0	50.16	54	-3.84
7.425	40.62	PK	H	3.0	43.62	54	-10.38
4.950	50.94	PK	V	-2.0	48.94	54	-5.06
7.425	39.36	PK	V	3.0	42.36	54	-11.64

Remark:
1. Correct Factor = Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Corrected Reading = Original Receiver Reading + Correct Factor
3. Margin =Corrected Reading – Limit
4. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

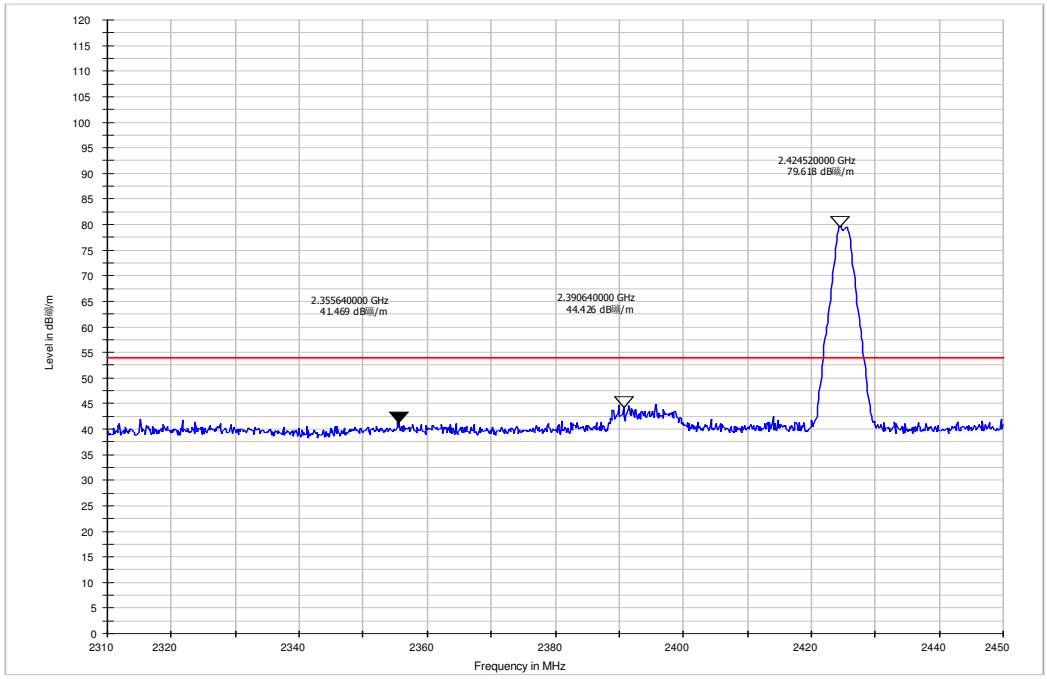
Bandedge Test Plot:

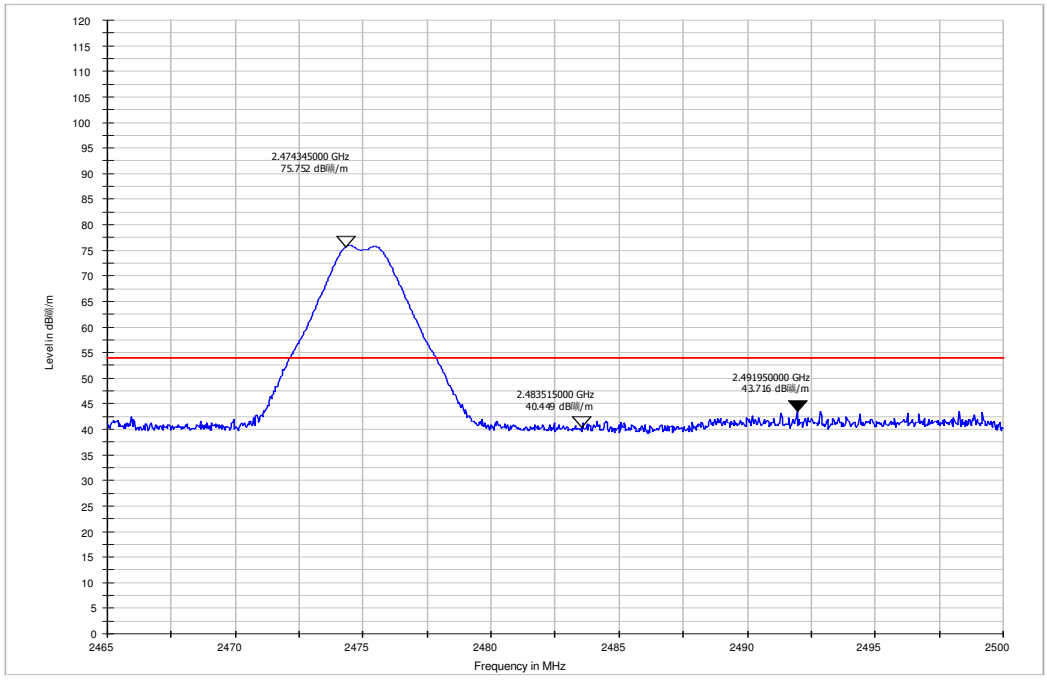
Horizontal, Peak Detector:





Vertical, Peak Detector:





Note：If the test result on peak is lower than average limit, then average measurement needn't be performed.

5.3 20dB Bandwidth

Test Requirement: FCC Part15 215(c)

Test date: Aug. 5.2012

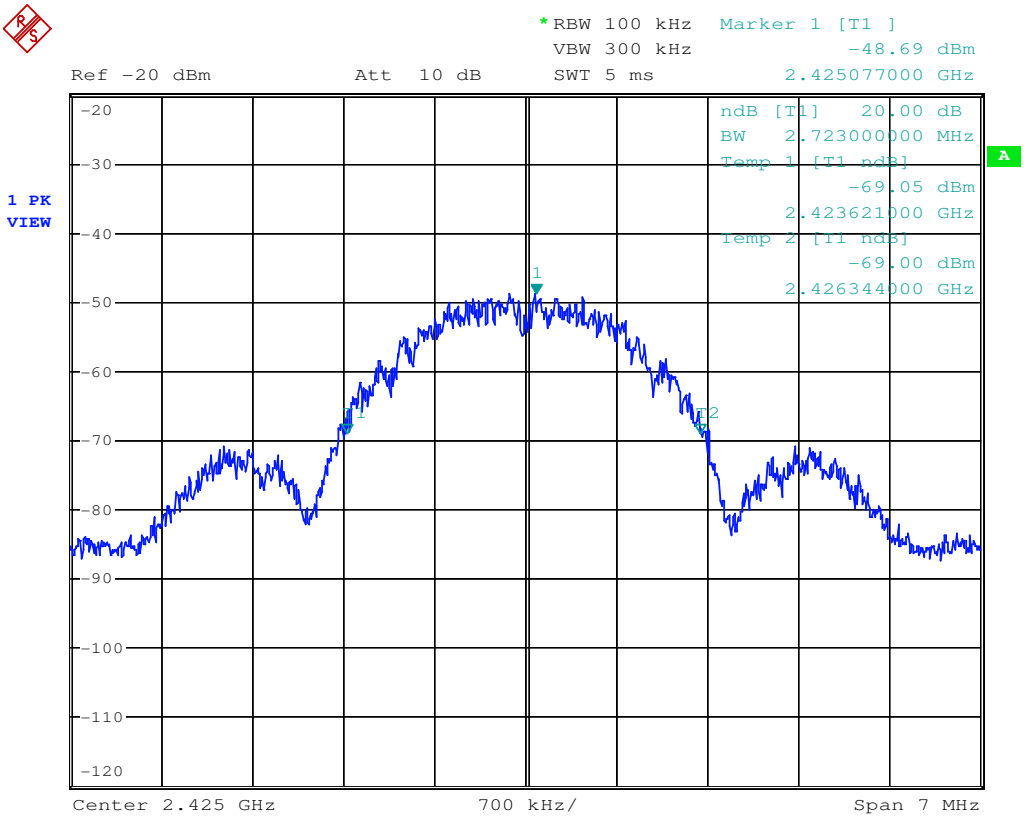
Standard Applicable: Intentional radiators must be designed to ensure that the 20 dB bandwidth of the emission is contained within the allocated frequency band as clause 3.1 shows. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Measurement Procedure: The 20dB Bandwidth per FCC § 15.215(c) is measured using the Spectrum Analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set at 300kHz, and the SPAN>>RBW.

Measurement Result:

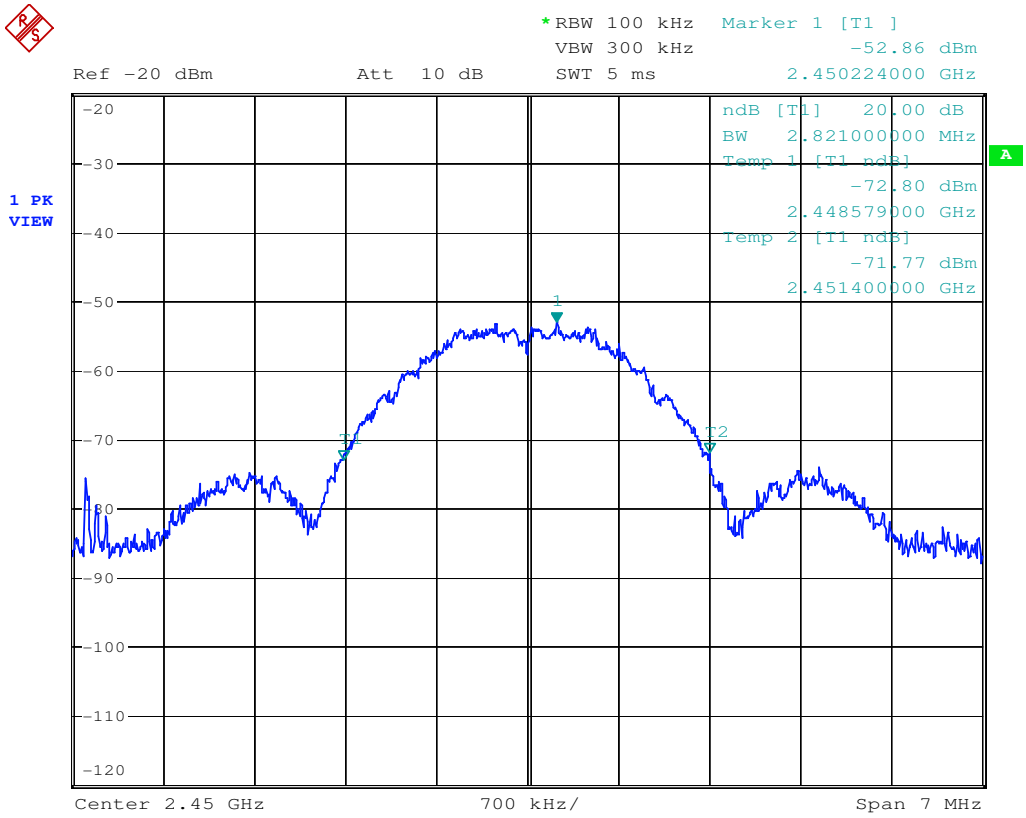
CH	Frequency (MHz)	20dB bandwidth (MHz)
15	2425	2.723

20dB Band Width Test Data CH15 2425MHz:



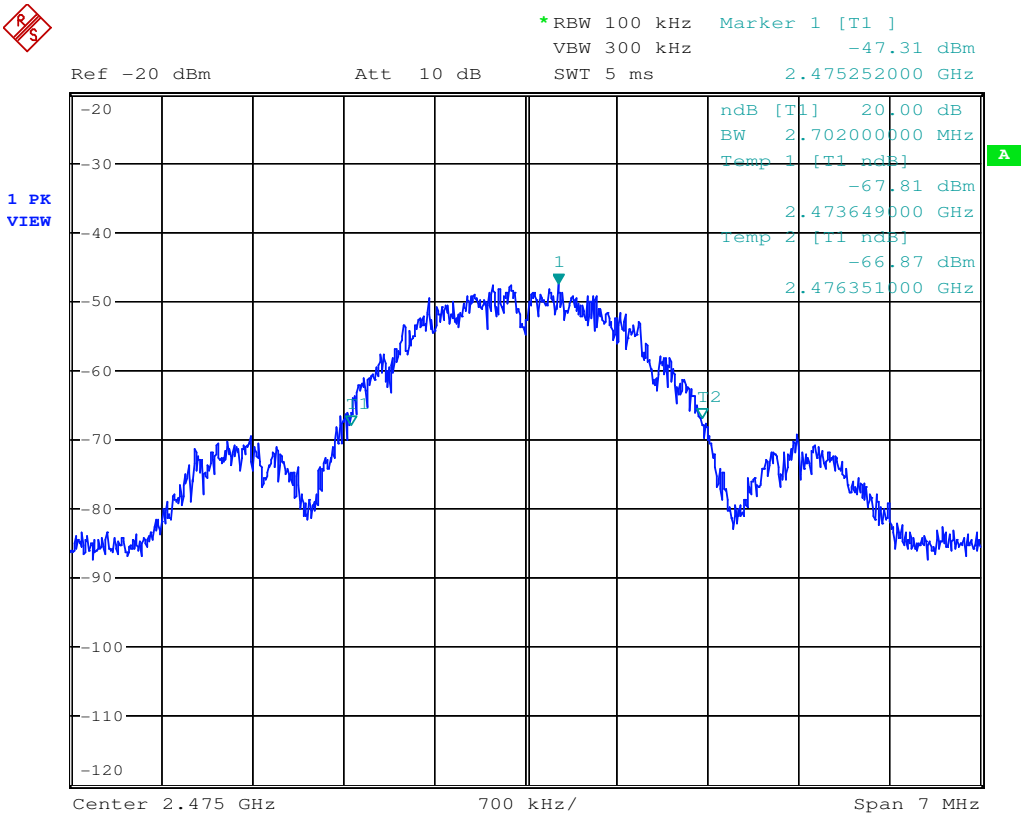
CH	Frequency (MHz)	20dB bandwidth (MHz)
20	2450	2.821

20dB Band Width Test Data CH20 2450MHz:



CH	Frequency (MHz)	20dB bandwidth (MHz)
25	2475	2.702

20dB Band Width Test Data CH25 2475MHz:



5.4 Antenna Requirement

Test Requirement: FCC Part15 15.203

5.3.7.1 Standard Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. 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.

5.3.7.2 Antenna Connected Construction

The antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT internal photo for details.

5.3.7.3 Result

The EUT antenna is internal Antenna. It comply with the standard requirement.

End of the Report