



FCC 47 CFR PART 15 SUBPART C 15.247

TEST REPORT

FOR

Product Name: WiDiGuard Transmitter

Model : VVIN3574

Trade Name: VIDEOHOME

Issued to

**VideoHome Technology Corp.
4F-1, No.190/192, Da Tung Rd., Sec.3, Hsichih, Taipei Hsien 221, TAIWAN**

Issued by

Global Certification Corp.

EMI Test Site	Sansia Lab	No. 34-3, Zihhe Rd., Sansia Township, Taipei County 237, Taiwan (R.O.C.)
EMS Test Site	Sijhih Office and Lab	No. 146, Sec. 2, Siangjhang Rd., Sijhih City, Taipei County 221, Taiwan (R.O.C.)

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TABLE OF CONTENTS	2
1. GENERAL INFORMATION	4
1.1 DESCRIPTION OF THE TESTED SAMPLES	5
2. TEST METHODOLOGY	6
2.1 GENERAL TEST PROCEDURES	6
2.2 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS	6
2.3 DESCRIPTION OF TEST MODES	7
2.4 DESCRIPTION OF THE SUPPORT EQUIPMENTS	8
3. TEST AND MEASUREMENT EQUIPMENT	9
3.1 CALIBRATION	9
3.2 EQUIPMENT	9
4. PEAK POWER	10
4.1 TEST SETUP	10
4.2 LIMIT	10
4.3 TEST PROCEDURE	10
4.4 TEST RESULT: PASSED	10
4.5 TEST DATA:	10
5. AVERAGE POWER	11
5.1 TEST SETUP	11
5.2 LIMIT	11
5.3 TEST PROCEDURE	11
5.4 TEST RESULT	11
5.5 TEST DATA	11
6. SECTION 15.247 REQUIREMENTS (HARMONICS)	12
6.1 TEST SETUP	12
6.2 LIMIT	12
6.3 RESULT	12
6.4 TEST DATA	13
7. SECTION 15.205 REQUIREMENTS (BAND EDGE)	15
7.1 TEST SETUP	15
7.2 LIMIT	15
7.3 RESULT	15
7.4 TEST DATA	16
8. SECTION 15.209 REQUIREMENTS (GENERAL RADIATED EMISSION)	21
8.1 TEST SETUP	21
8.2 LIMIT	22
8.3 TEST PROCEDURE	23
8.4 RESULT	23
8.5 TEST DATA	23
9. SECTION 15.207 REQUIREMENTS (POWERLINE CONDUCTED EMISSIONS)	26
9.1 TEST SETUP	26
9.2 TEST SETUP	26
9.3 LIMIT	26
9.4 TEST PROCEDURE	26
9.5 TEST SPECIFICATION	27
9.6 RESULT	27
9.7 TEST DATA	27



10.	6DB BANKWIDTH	29
10.1	TEST SETUP	35
10.2	LIMIT	29
10.3	TEST PROCEDURE	29
10.4	TEST RESULT	29
10.5	TEST DATA	30
11.	PEAK POWER SPECTRAL DENSITY	32
11.1	TEST SETUP	32
11.2	LIMIT	32
11.3	TEST PROCEDURE	32
11.4	TEST RESULT	32
11.5	TEST DATA	33
12.	SPURIOUS EMISSIONS	35
12.1	CONDUCTED MEASUREMENT	35
12.2	TEST SETUP	35
12.3	LIMIT	35
12.4	TEST PROCEDURE	35
12.5	TEST RESULTS	35
12.6	TEST DATA	35

APPENDIX 1

PHOTOS OF TEST CONFIGURATION

PHOTOS OF EUT



1. GENERAL INFORMATION

Applicant : VideoHome Technology Corp.

Address : 4F-1, No.190/192, Da Tung Rd., Sec.3, Hsichih, Taipei Hsien 221, TAIWAN

Manufacturer : VideoHome Technology Corp.

Address : 4F-1, No.190/192, Da Tung Rd., Sec.3, Hsichih, Taipei Hsien 221, TAIWAN

EUT : WiDiGuard Transmitter

Model Name : VVIN3574

Model Differences : N/A

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.4-2003. The said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

FCC part 15 subpart C

Receipt Date : 08/02/2010

Final Test Date : 10/21/2010

Taipei, Taiwan

(Place)

Oct. 21, 2010

(Date)

Alex Chou / Manager

(Signature)

Designation Number: TW1030



1.1 DESCRIPTION OF THE TESTED SAMPLES

EUT Name : WiDiGuard Transmitter
Model Number : VVIN3574
FCC ID : WIJVVIN3574T
Used Power : ☒AC POWER
Power Cord (Input) : ☒AC POWER 110 V 60 Hz 2 Pin
Power From ☐N/A ☐Inside ☒Outside
☒Adaptor ☐BATTERY ☐Power Supply ☐DC Power Source ☐Support Unit PC ☐AC Power Source
Test Power ☒AC POWER 110 V 60 Hz 2 Pin
Number of Channels : 39
Channel spacing : ☒ 2 MHz
Modulation Type : FSK, GFSK
Antenna Type : ☐integral antenna: ☐PCB Printing ☒a dedicated antenna
Antenna gain : 2dBi

Channels	Frequencies (MHz)	Channels	Frequencies (MHz)
0	2404	20	2444
1	2406	21	2446
2	2408	22	2448
3	2410	23	2450
4	2412	24	2452
5	2414	25	2454
6	2416	26	2456
7	2418	27	2458
8	2420	28	2460
9	2422	29	2462
10	2424	30	2464
11	2426	31	2466
12	2428	32	2468
13	2430	33	2470
14	2432	34	2472
15	2434	35	2474
16	2436	36	2476
17	2438	37	2478
18	2440	38	2480
19	2442		



2. TEST METHODOLOGY

All testing as described bellowed were performed in accordance with ANSI C63.4:2003 and FCC CFR 47 Part 15 Subpart C.

2.1 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.4:2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

2.2 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
10.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	()
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² Above 38.6



(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

2.3 DESCRIPTION OF TEST MODES

The EUT was tested under following modes:

Modes:

- 1. Continuous transmitting**

Channels:

- 1. 2.404GHz (Lowest Channel)**
- 2. 2.442GHz (Middle Channel)**
- 3. 2.480GHz (Highest Channel)**



2.4 DESCRIPTION OF THE SUPPORT EQUIPMENTS

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1	PC	CU5	L3ADA3F	R33B65	leveno	N/A	Unshielded 1.8m
2	PRINTER	PHOTO750	BDEK0176 29	3872P011	EPSON	Shielded 1.8M	Unshielded 1.8M
3	MONITOR	2212Ph	E9777JA00 166	R33037	AOC	Shielded 1.8m	Unshielded 1.8m
4	MOUSE	M-UV83	HCA92510 131	T41126	Logitech	Shielded 1.8m/USB	N/A
5	KEY BOARD	Y-UR83	N/A	T51160	Logitech	Shielded 1.8m / USB	N/A

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.



3. TEST AND MEASUREMENT EQUIPMENT

3.1 CALIBRATION

The measuring equipment utilized to perform the tests documented in the report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

3.2 EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. Other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.

TABLE 1 LIST OF TEST AND MEASUREMENT EQUIPMENT

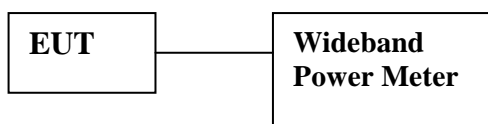
Instrument	Manufacturer	Model No.	Serial No.	Calibration Due Date	Note
EMC Test Receiver	R&S	ESCI	100438	Apr 29, 2011	
Bilog Antenna	SUNOL	JB1	A052204	Nov 06, 2010	
Turn table	EMCO	2080	9508-1805	N/A	
Controller	EMCO	2090	9804-1328	N/A	
Amplifier	G.W	GAP-801	EF150001	Jul.18, 2011	
Amplifier	Schwarzbeck	BBV 9718	9718-008	Aug. 10, 2011	
Spectrum Analyzer	NEX1	Ns-265	5044006	Aug .07, 2011	
RF Cable	BELDEN	RG-8/U	28M-002	Nov.02, 2010	
RF Cable	Huber Suhner	SUCOFLEX 104	293864/4	Nov.13, 2010	
Thermo-Hygro meter	WISEWIND	4-IN-1	050100378	Apr. 08, 2011	
Loop Antenna	TESEO	HLA6120	26349	Sep.11, 2011	
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-491	Aug. 05, 2011	
Wideband Peak Power Meter	Anritsu	ML2495A	0841006	Oct.03, 2011	

※ Calibration interval of instruments listed above is one year



4. PEAK POWER

4.1 TEST SETUP



4.2 LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to § 15.247(b)(3) , for systems using digital modulation in the bands of 902 – 928 MHz , 2400 – 2483.5 MHz: 1 Watt.
2. According to § 15.247(b)(4) , the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section , if transmitting antennas of directional gain greater than 6 dBi are used , the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) , (b)(2) , and (b)(3) of this section , as appropriate , by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.3 TEST PROCEDURE

1. Peak power is measured using the wideband power meter.
2. Power is integrated over a bandwidth grater than or equal to the 99% bandwidth.

4.4 TEST RESULT: PASSED

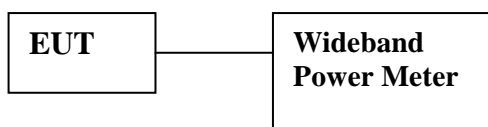
4.5 TEST DATA:

Channel No.	Frequency (MHz)	Measurement Level (dbm)	Required Limit (dbm)	Result
0	2404	-7.23	< 30 dbm	PASS
19	2442	-5.61	< 30 dbm	PASS
38	2480	-3.87	< 30 dbm	PASS



5. AVERAGE POWER

5.1 TEST SETUP



5.2 LIMIT

None ; for reporting purposes only.

5.3 TEST PROCEDURE

The transmitter output is connected to the Power Meter . The Power Meter is set to the average power detection.

5.4 TEST RESULT: PASSED

5.5 TEST DATA:

Channel No.	Frequency (MHz)	Measurement Level (dbm)	Required Limit (dbm)	Result
0	2404	-7.12	< 30 dbm	PASS
19	2442	-5.46	< 30 dbm	PASS
38	2480	-3.74	< 30 dbm	PASS



6. SECTION 15.247 REQUIREMENTS (HARMONICS)

6.1 TEST SETUP

Refer to paragraph 6.1.

6.2 LIMIT

Fundamental Frequency (MHz)	Field Strength of Harmonics (dBμV/m at 3-meter)	Detector
902 - 928 2400 – 2483 5725 - 5875	74	Peak
902 - 928 2400 – 2483 5725 - 5875	54	AV

6.3 RESULT: PASSED



6.4 TEST DATA:

Lowest Channel-Horizontal

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4808.00	41.14	0.95	42.09	74.00	-31.91	HORIZONTAL	Peak
2	7212.00	38.63	7.32	45.95	74.00	-28.05	HORIZONTAL	Peak
3	9616.00	39.24	10.51	49.75	74.00	-24.25	HORIZONTAL	Peak

Lowest Channel-Vertical

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4808.00	41.91	0.95	42.86	74.00	-31.14	VERTICAL	Peak
2	7212.00	40.49	7.32	47.81	74.00	-26.19	VERTICAL	Peak
3	9616.00	40.11	10.51	50.62	74.00	-23.38	VERTICAL	Peak

Middle Channel- Horizontal

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4915.00	46.45	1.03	47.48	74.00	-26.52	HORIZONTAL	Peak
2	7326.00	40.20	8.14	48.34	74.00	-25.66	HORIZONTAL	Peak
3	9768.00	39.40	10.78	50.18	74.00	-23.82	HORIZONTAL	Peak

Middle Channel- Vertical

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4884.00	40.55	1.01	41.56	74.00	-32.44	VERTICAL	Peak
2	7326.00	38.84	8.14	46.98	74.00	-27.02	VERTICAL	Peak
3	9768.00	38.56	10.78	49.34	74.00	-24.66	VERTICAL	Peak



Highest Channel- Horizontal

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4990.00	46.42	1.09	47.51	74.00	-26.49	HORIZONTAL	Peak
2	7440.00	40.72	8.97	49.69	74.00	-24.31	HORIZONTAL	Peak
3	9920.00	40.00	11.05	51.05	74.00	-22.95	HORIZONTAL	Peak

Highest Channel- Vertical

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	4960.00	41.41	1.07	42.48	74.00	-31.52	VERTICAL	Peak
2	7440.00	39.18	8.97	48.15	74.00	-25.85	VERTICAL	Peak
3	9920.00	40.70	11.05	51.75	74.00	-22.25	VERTICAL	Peak

Note:

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, PreAmp, etc.
3. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
4. Measurements above 1000 MHz, Peak detector setting: use a 1 MHz RBW, a 3 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10 Hz VBW
6. Peak detector measurement data will represent the worst case results.
7. “---” denotes the data which is not available.



7. SECTION 15.205 REQUIREMENTS (BAND EDGE)

7.1 TEST SETUP

Refer to paragraph 6.1.

7.2 LIMIT

Restricted Bands:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)
13.36 - 13.41			

Operation within the bands:

902 - 928 MHz, 2400 - 2483.5 MHz, 5725 - 5875 MHz, and 24.0 - 24.25 GHz.

Frequency (Hz)	Field Strength ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
1.705-30	30 (at 30-meter)	69.54
30-88	100	40
88-216	150	43
216-960	200	46
Above 960	500	54

7.3 RESULT: PASSED

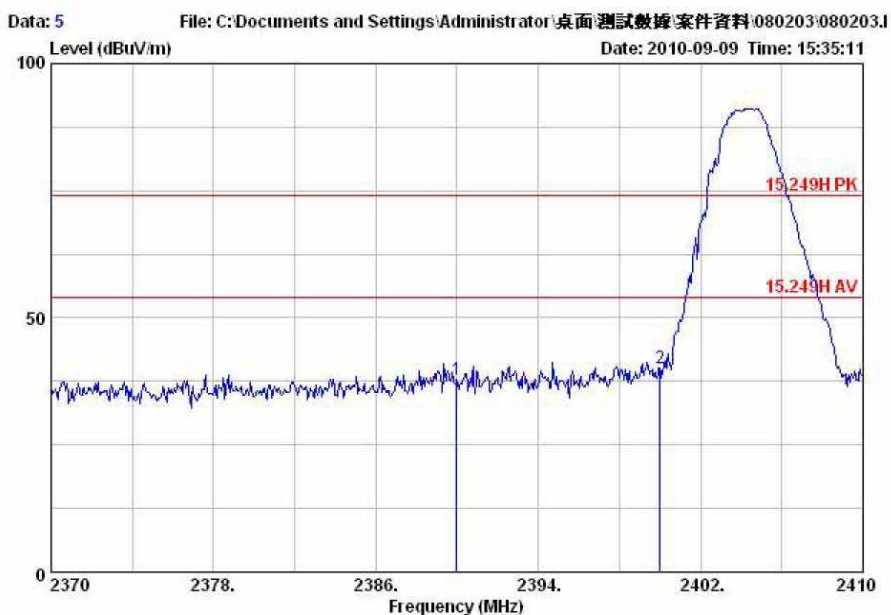


7.4 TEST DATA:

Lowest Channel-Horizontal



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NO.146,Shiang Charng Rd.,Sec.2,Hsi Chih,Taipei Hsien 221,Taiwan, R.O.C
環球認證有限公司
TEL:886-2-26426992 FAX:886-2-26487450
Global Certification Corp.
WebSite: http://www.gcc.tw



Site : Open Area Test Site 1
Condition: 15.249H PK HORIZONTAL
RBW:1000KHz VBW:1000KHz SWT:Auto
eut :
mode :
memo : CHL 2404

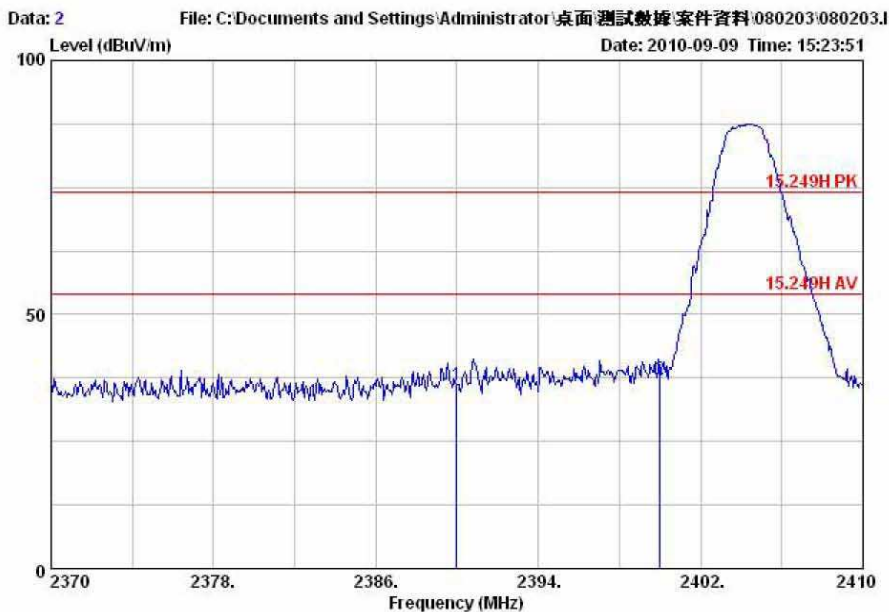
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	2390.00	44.47	-6.54	37.93	74.00	-36.07	HORIZONTAL	Peak
2	2400.00	46.58	-6.46	40.12	74.00	-33.88	HORIZONTAL	Peak



Lowest Channel-Vertical



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Global Certification Corp.
WebSite: http://www.gcc.tw



Site : Open Area Test Site 1
Condition: 15.249H PK VERTICAL
RBW:1000KHz VBW:1000KHz SWT:Auto
eut
mode
memo : CHL 2404

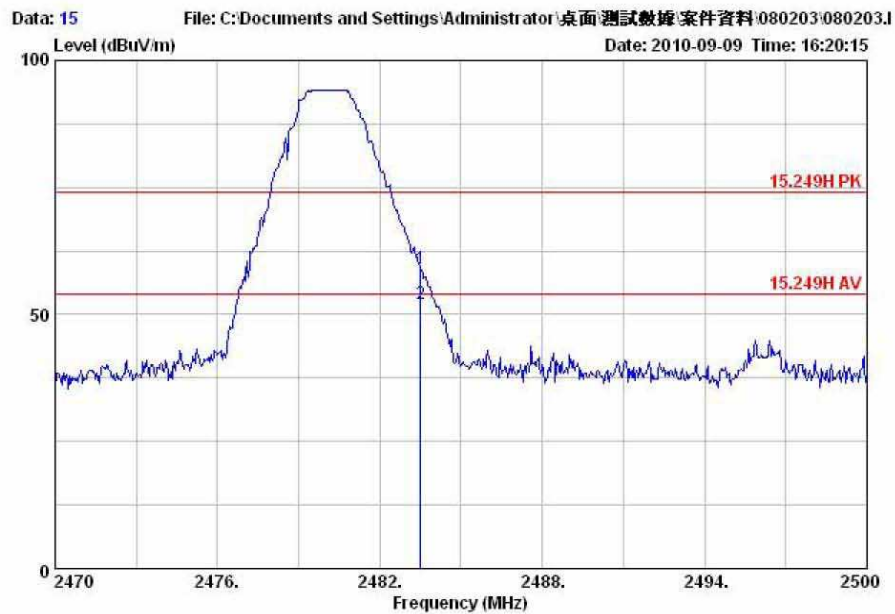
	Freq	Read		Level	Limit	Over		
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	Limit	Pol/Phase	Remark
1	2390.00	42.66	-6.54	36.12	74.00	-37.88	VERTICAL	Peak
2	2400.00	43.78	-6.46	37.32	74.00	-36.68	VERTICAL	Peak



Highest Channel- Horizontal



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WebSite: http://www.gcc.tw



Site : Open Area Test Site 1
Condition: 15.249H PK HORIZONTAL
RBW:1000KHz VBW:1000KHz SWT:Auto
eut
mode
memo : CHH 2480

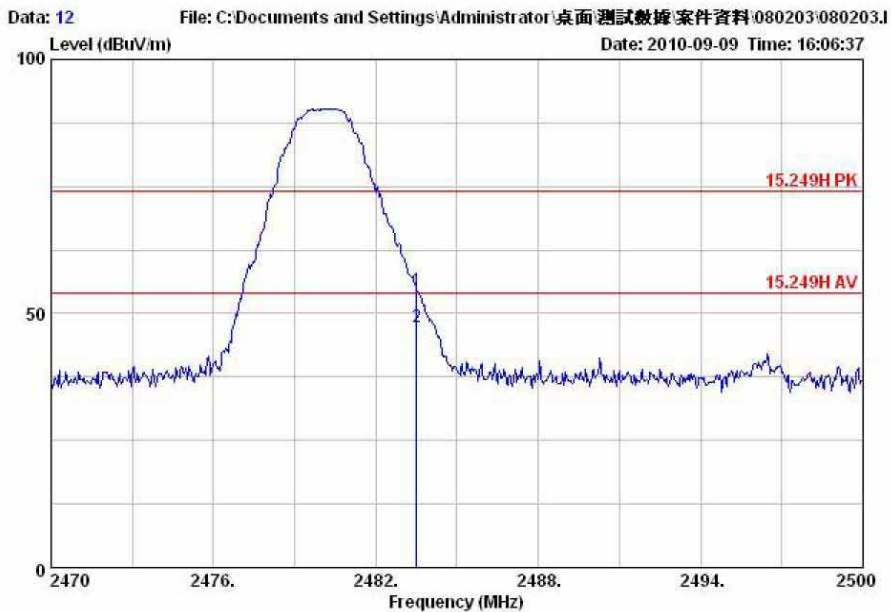
	Freq	Read		Limit	Over		
	MHz	Level	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	2483.50	64.66	-5.74	58.92	74.00	-15.08	HORIZONTAL Peak
2	2483.50	57.71	-5.74	51.97	54.00	-2.03	HORIZONTAL Average



Highest Channel- Vertical



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Site : Open Area Test Site 1
Condition: 15.249H PK VERTICAL
RBW:1000KHz VBW:1000KHz SWT:Auto
eut
mode
memo : CHH 2480

	Freq	Read		Limit	Over		
	Level	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/μ	dBuV/μ	dBuV/μ	dB	
1	2483.50	60.28	-5.74	54.54	74.00	-19.46	VERTICAL Peak
2	2483.50	53.13	-5.74	47.39	54.00	-6.61	VERTICAL Average



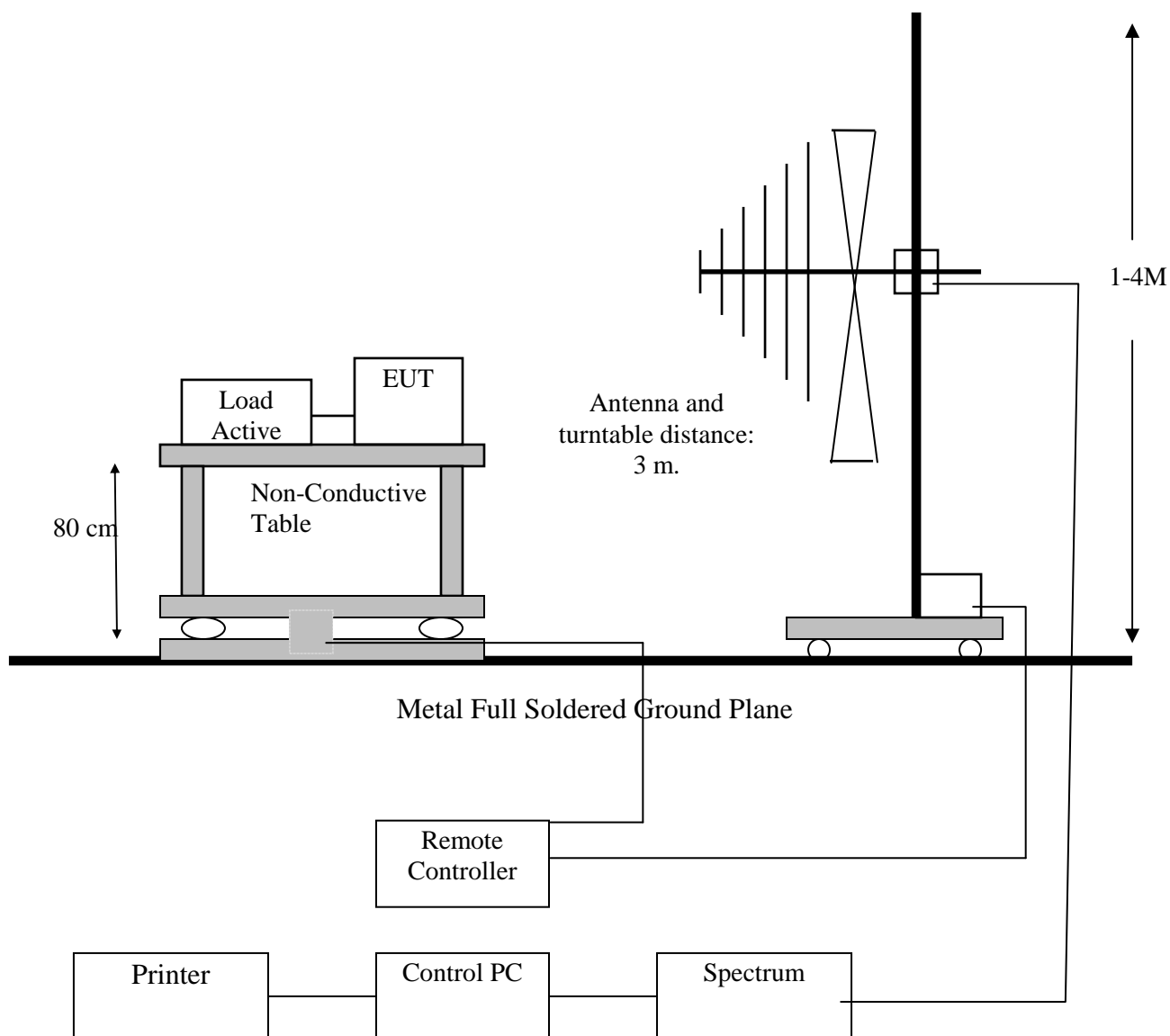
Note:

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, PreAmp, etc.
3. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
4. Measurements above 1000 MHz, Peak detector setting: use a 1 MHz RBW, a 3 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10 Hz VBW.
6. Peak detector measurement data will represent the worst case results.



8. SECTION 15.209 REQUIREMENTS (GENERAL RADIATED EMISSION)

8.1 TEST SETUP





8.2 LIMIT

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209 as below.

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
1.705-30	30	30
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500*	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength (μ V/m at 3-meter)	Field Strength (dB μ V/m at 3-meter)
1.705-30	30 (at 30-meter)	69.54
30-88	100	40
88-216	150	43
216-960	200	46
Above 960	500	54



8.3 TEST PROCEDURE

1. The EUT was placed on a turntable, which was 0.8m above ground plane.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT was set at 3m away from the receiving antenna, which was 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 maximized by changing the polarization of receiving antenna, both horizontal and vertical.
6. Repeated above procedures until the measurements for all frequencies are completed.

8.4 RESULT: PASSED

8.5 TEST DATA:

All frequencies not described in this test report and within the range of the general radiated emission limits are not detectable significantly. The table as below is representing worst emissions found.



Highest Channel (worst emissions found)- Horizontal

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	70.74	42.36	-17.89	24.47	40.00	-15.53	Peak
2	239.52	40.33	-12.79	27.54	46.00	-18.46	Peak
3	321.00	37.63	-9.69	27.94	46.00	-18.06	Peak
4	361.74	38.33	-8.58	29.75	46.00	-16.25	Peak
5	633.34	39.81	-1.82	37.99	46.00	-8.01	Peak
6 p	800.18	39.64	1.31	40.95	46.00	-5.05	Peak

Highest Channel(worst emissions found)- - Vertical

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	51.34	45.34	-17.69	27.65	40.00	-12.35	Peak
2	249.22	41.23	-12.61	28.62	46.00	-17.38	Peak
3	324.88	41.07	-9.57	31.50	46.00	-14.50	Peak
4	373.38	40.88	-8.28	32.60	46.00	-13.40	Peak
5	674.08	39.24	-1.11	38.13	46.00	-7.87	Peak
6 p	833.16	39.36	2.06	41.42	46.00	-4.58	Peak

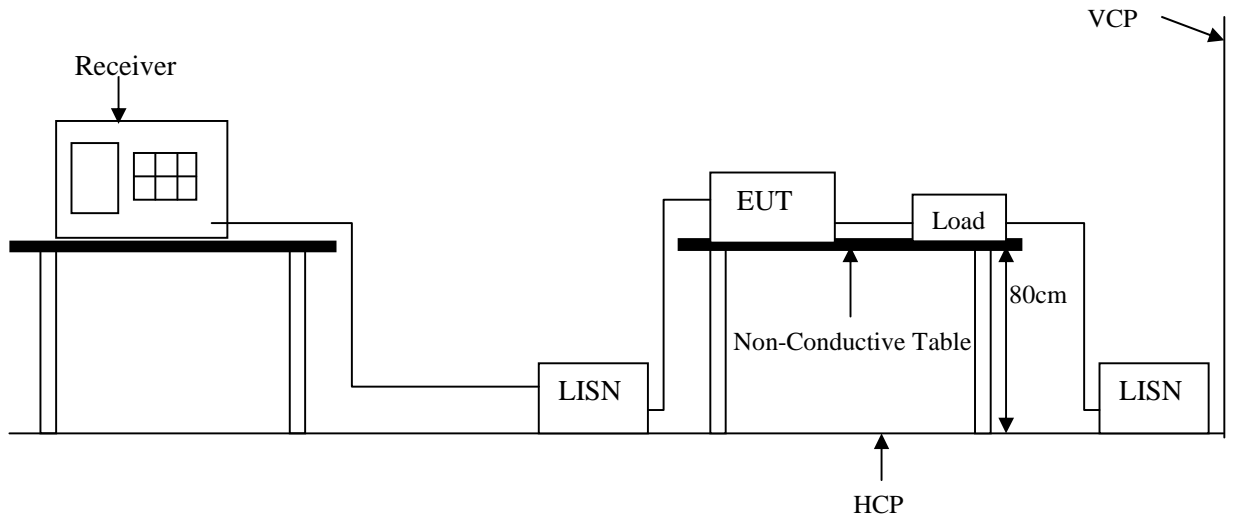


Note:

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, PreAmp, etc.
3. All emissions as described above were determining by rotating the EUT through three orthogonal axes to maximizing the emissions if the EUT belongs to hand-held or body-worn devices.
4. Measurements from 9 kHz to 150 kHz, Peak detector setting: 100 Hz RBW
5. Measurements from 150 kHz to 30MHz, Peak detector setting: 10 kHz RBW
6. Measurements from 30 MHz to 1000 MHz, Peak detector setting: 100 kHz RBW
7. Measurements from 9 kHz to 150 kHz, CISPR Quasi-Peak detector: 200 Hz RBW
8. Measurements from 150 kHz to 30MHz, CISPR Quasi-Peak detector: 9 kHz RBW
9. Measurements from 30 MHz to 1000 MHz, CISPR Quasi-Peak detector: 120 kHz RBW
10. Peak detector measurement data will represent the worst case results.

9. SECTION 15.207 REQUIREMENTS (POWERLINE CONDUCTED EMISSIONS)

9.1 TEST SETUP



9.2 TEST SETUP

9.3 LIMIT

Frequency range (MHz)	CLASS A		CLASS B	
	QP dB(uV)	Average dB(uV)	QP dB(uV)	Average dB(uV)
0.15-0.5	79 dBuV	66 dBuV	66 - 56 dBuV	56 - 46 dBuV
0.5-5.0	73 dBuV	60 dBuV	56 dBuV	46 dBuV
5.0-30.0	73 dBuV	60 dBuV	60 dBuV	50 dBuV

Remark: In the above table, the tighter limit applies at the band edges.

9.4 TEST PROCEDURE

The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). It provides a 50 ohm / 50 μ H coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm / 50 μ H coupling impedance with 50 ohm termination. (Please refer to the block diagram of the test setup and photograph.)

Both sides of AC line are checked for the maximum conducted emission interference. In order to find the maximum emissions, the relating positions of equipment and all of the interference cables must be changed according to EN 55022 regulations: The measurement procedure on conducted emission interference.

The resolution bandwidth of the field strength meter is set at 9 KHz.

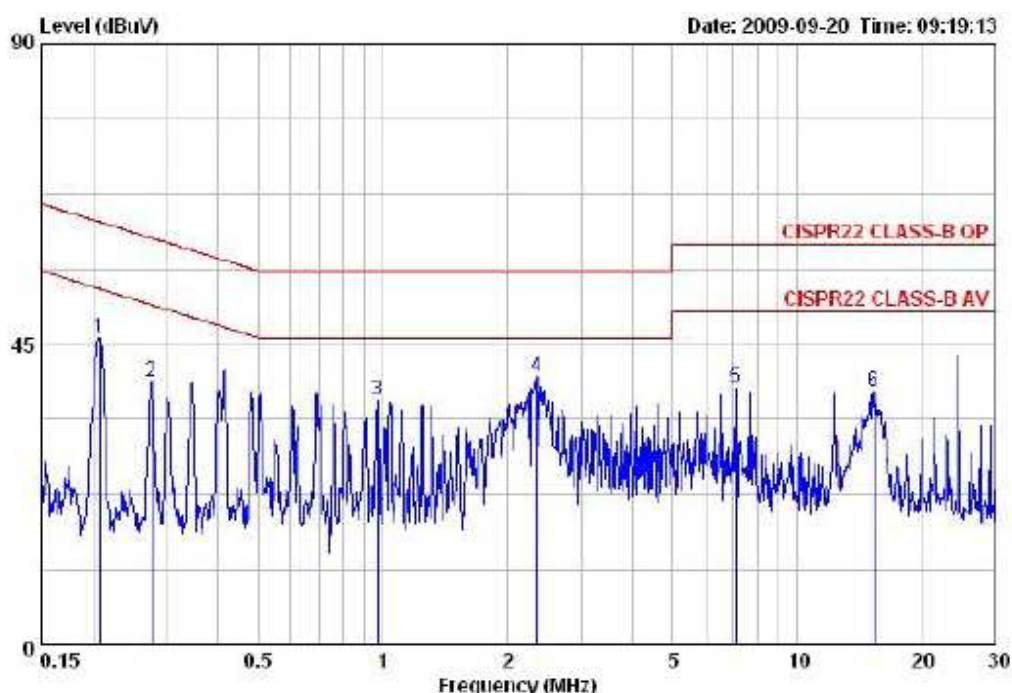


9.5 TEST SPECIFICATION

According to PART15.207

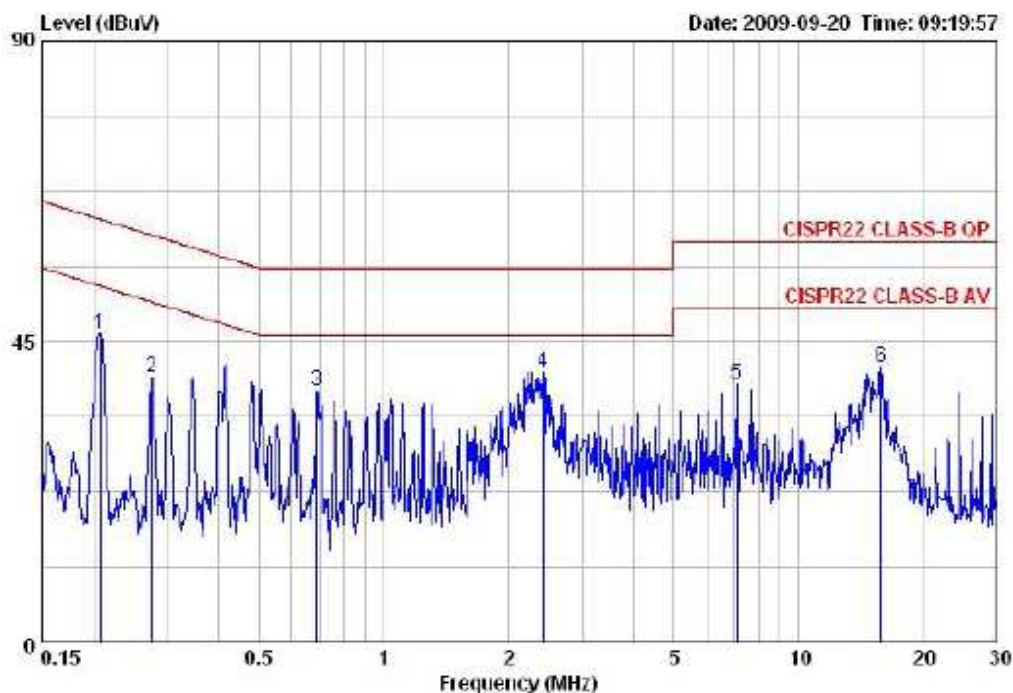
9.6 RESULT: PASSED

9.7 TEST DATA:



Site : Conducted
Condition : CISPR22 CLASS-B OP NNB41-080924 0310015 LINE
: RBW:9KHz VBW:300KHz SWT:0.10sec
EUT :
MODEL :
MEMO :

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.21	35.71	10.15	45.86	63.32	-17.46	Peak
2	0.28	29.13	10.16	39.29	60.90	-21.61	Peak
3	0.97	26.48	10.23	36.71	56.00	-19.29	Peak
4	2.35	29.93	10.30	40.23	56.00	-15.77	Peak
5	7.10	28.01	10.43	38.44	60.00	-21.56	Peak
6	15.31	27.33	10.54	37.87	60.00	-22.13	Peak



Site : Conducted
Condition : CISPR22 CLASS-B OP NNB41-080924 0310015 NEUTRAL
: RBW:9KHz VBW:300KHz SWT:0.10sec
EUT :
MODEL :
MEMO :

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.21	35.96	10.15	46.11	63.32	-17.21	Peak
2	0.28	29.51	10.16	39.67	60.94	-21.27	Peak
3	0.69	27.37	10.20	37.57	56.00	-18.43	Peak
4	2.42	30.17	10.30	40.47	56.00	-15.53	Peak
5	7.10	28.13	10.42	38.55	60.00	-21.45	Peak
6	15.80	30.70	10.53	41.23	60.00	-18.77	Peak



10. 6DB BANKWIDTH

10.1 TEST SETUP



10.2 LIMIT

According to § 15.247(a)(2), systems using digital modulation techniques may operate in the 902 – 928 MHz , 2400 -2483.5 MHz , and 5725 – 5820 MHz bands . The minimum 6dB bandwidth shall be least 500 kHz

10.3 TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
3. Set the spectrum analyzer as RBW = 100kHz , VBW = RBW , Span = Base mode , Sweep = auto.
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

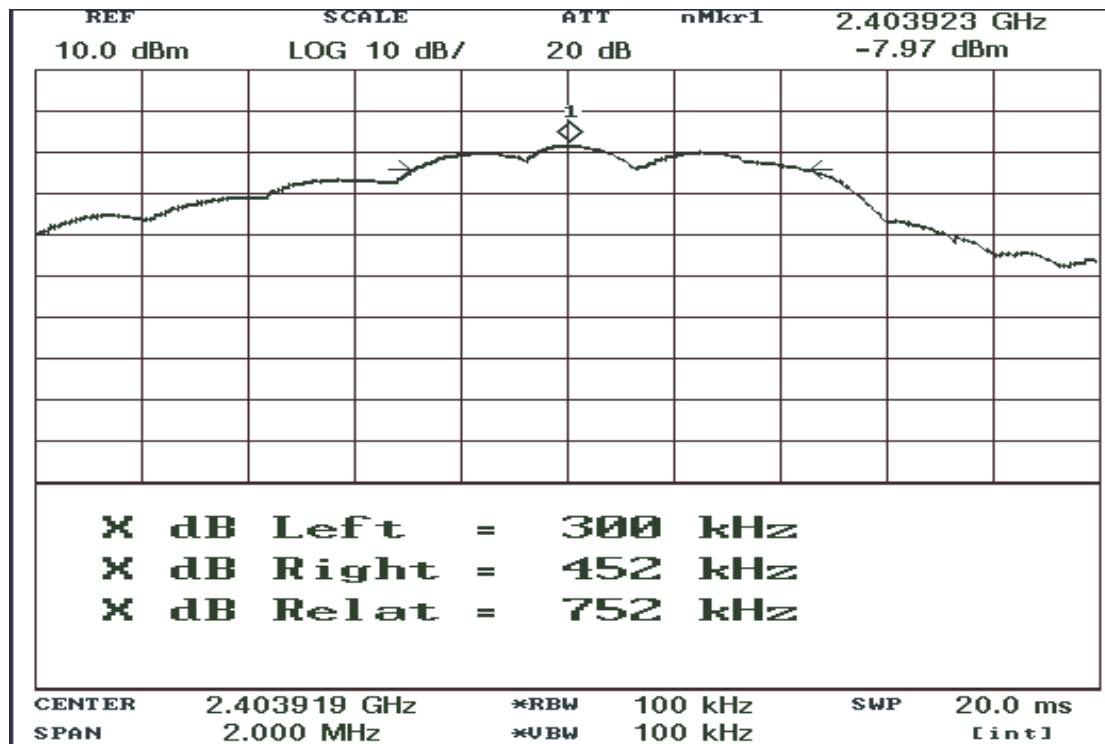
10.4 TEST RESULT: PASSED



10.5 TEST DATA:

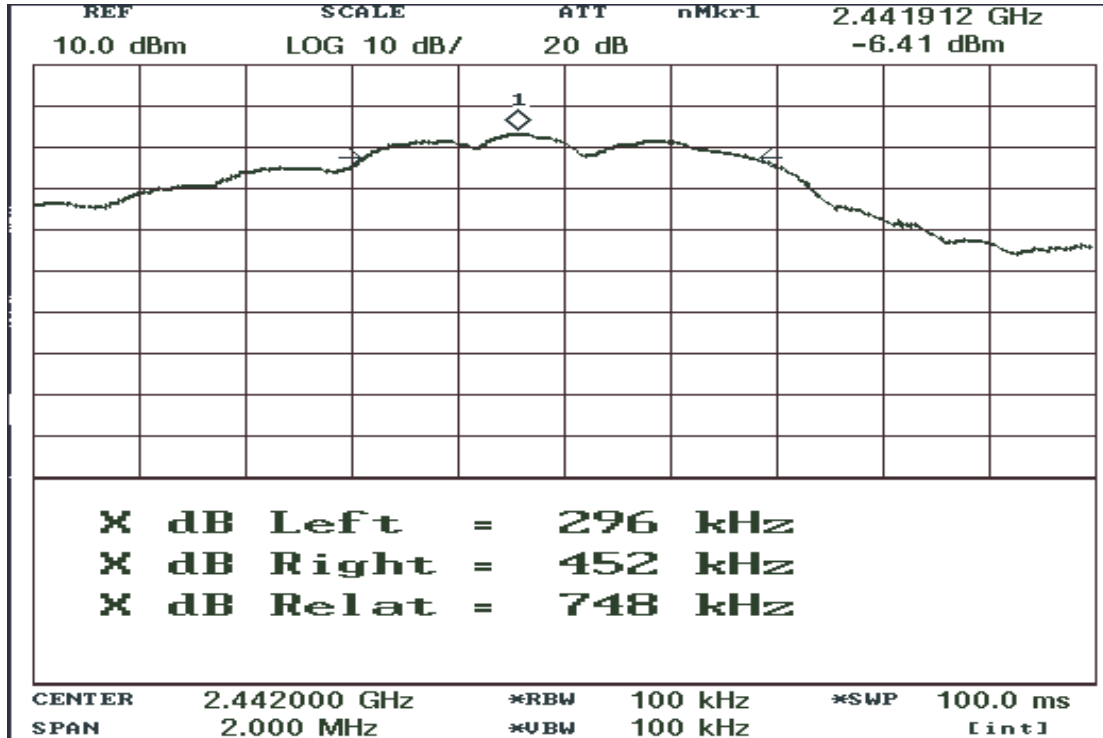
Channd	Frequency(MHz)	6dB Bandwidth(KHz)	Limit(kHz)	Result
Low	2404	752	>500	PASS
Mid	2442	748		PASS
High	2480	760		PASS

Lowest Channel

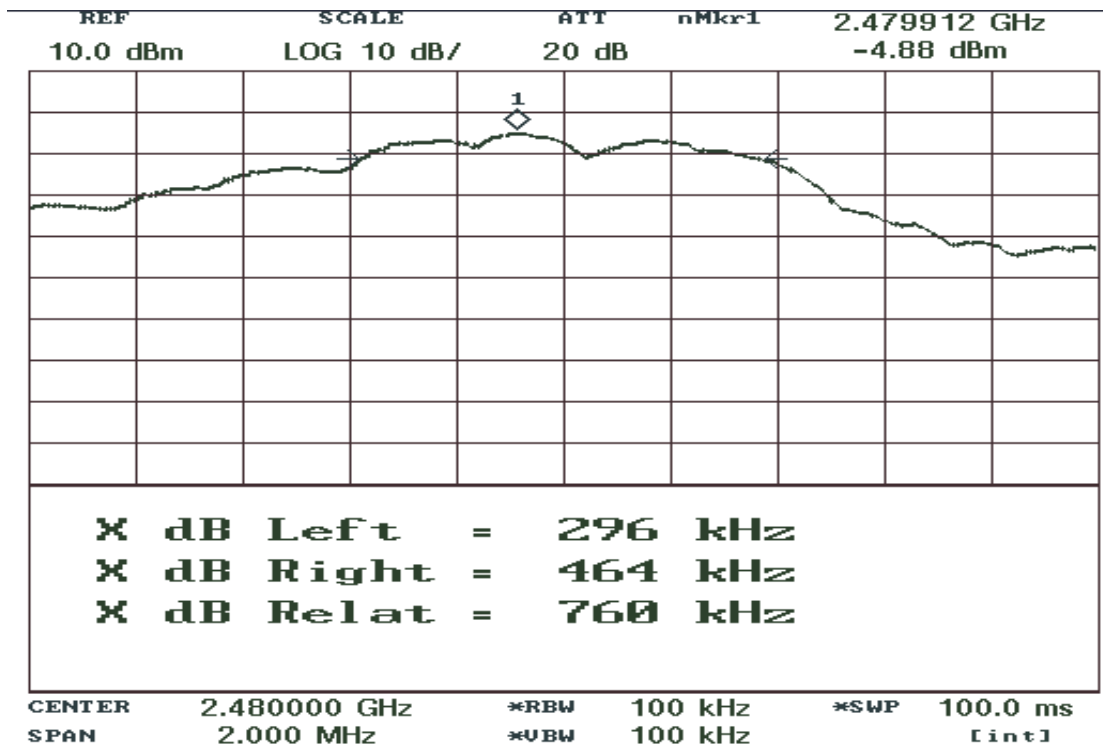




Middle Channel



Highest Channel





11. PEAK POWER SPECTRAL DENSITY

11.1 TEST SETUP



11.2 LIMIT

1. According to § 15.247(e) , for digitally modulated systems , the power spectral density conducted from the intentional radiator to the antenna shall not be greater 8 dBm in any 3 kHz band during any time interval of continuous transmission.
2. According to § 15.247(f) , the digital modulation operation of the hybrid system , with the frequency hopping turned off , shall comply with the power density requirements of paragraph (d) of this section.

11.3 TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Set the spectrum analyzer as RBW = 3kHz , VBW = 10kHz , Span = 300kHz , Sweep = 100s.
3. Record the max. reading
4. Repeat the above procedure until the measurements for all frequencies are completed.

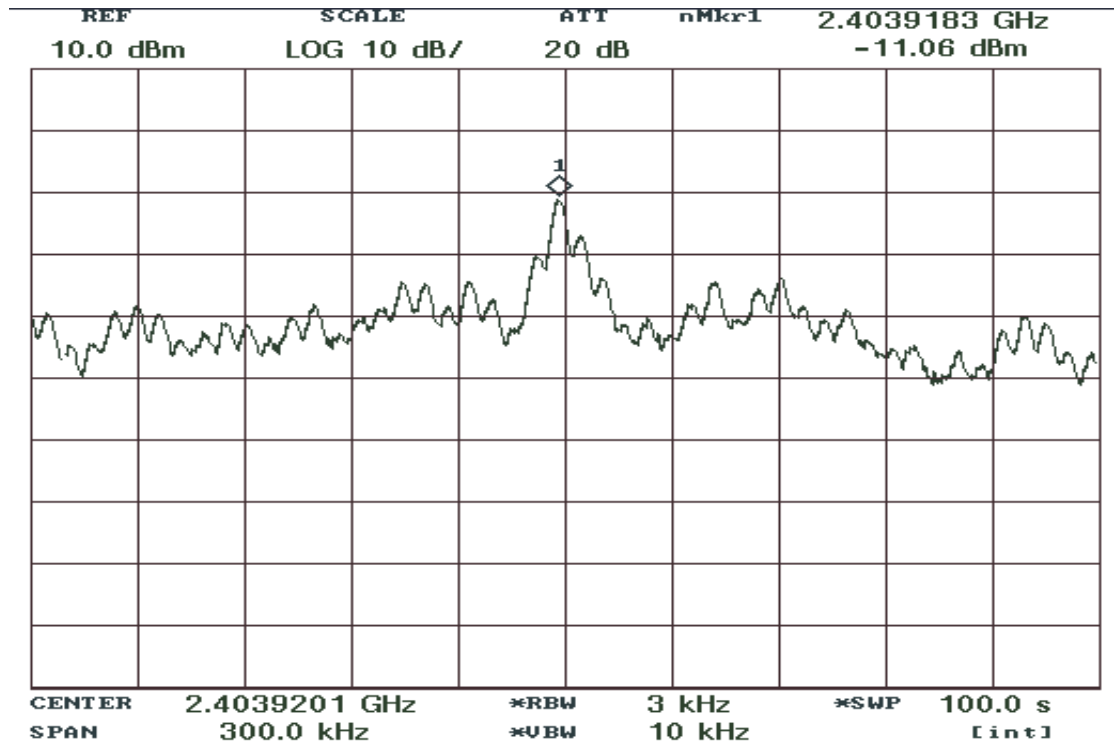
11.4 TEST RESULT: PASSED



11.5 TEST DATA:

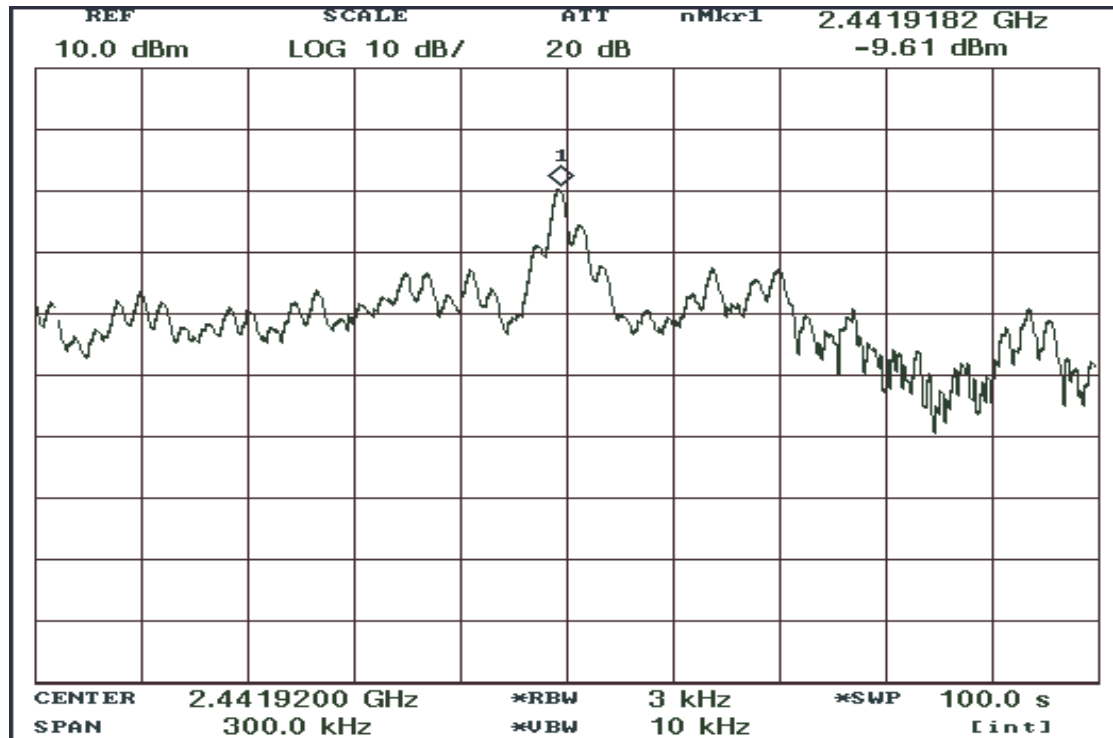
Chammel	Frequency (MHz)	Output Power (dBm)	Limit (dBw)	Result
Low	2404	-11.06	8.00	PASS
Mid	2442	-9.61		PASS
High	2480	-8.35		PASS

Lowest Channel

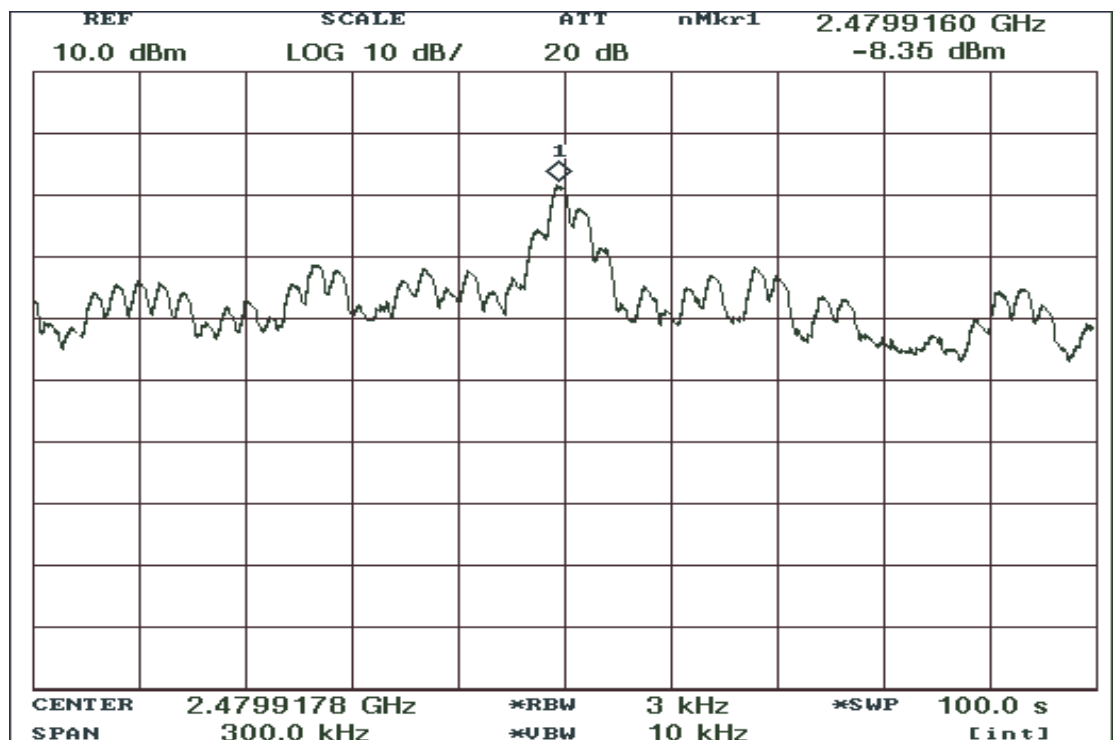




Middle Channel



Highest Channel

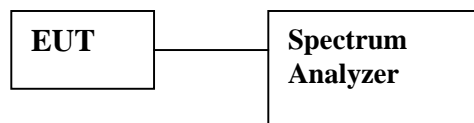




12. SPURIOUS EMISSIONS

12.1 CONDUCTED MEASUREMENT

12.2 TEST SETUP



12.3 LIMIT

According to § 15.247(d) , in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating , the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power , based on either an RF conducted or a radiated measurement , provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, 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) (see Section 15.205(c)).

12.4 TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

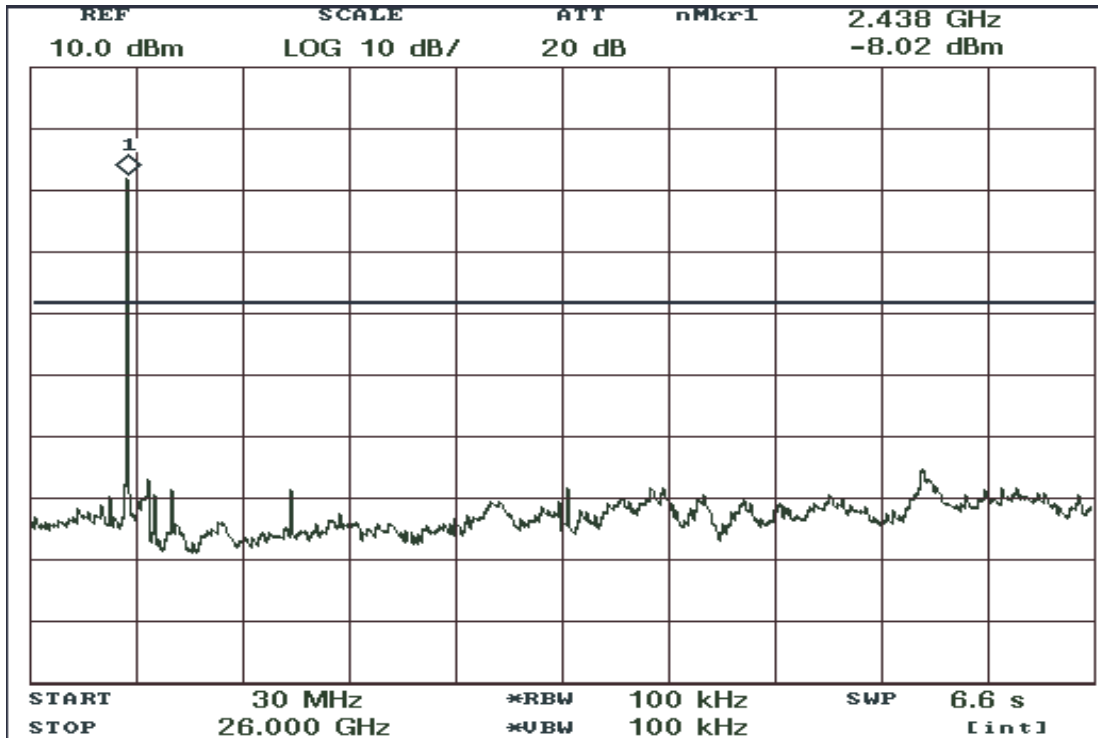
Measurements are made over the 13 GHz to 26GHz range for IEEE 802.11b/g.

12.5 TEST RESULTS: PASSED

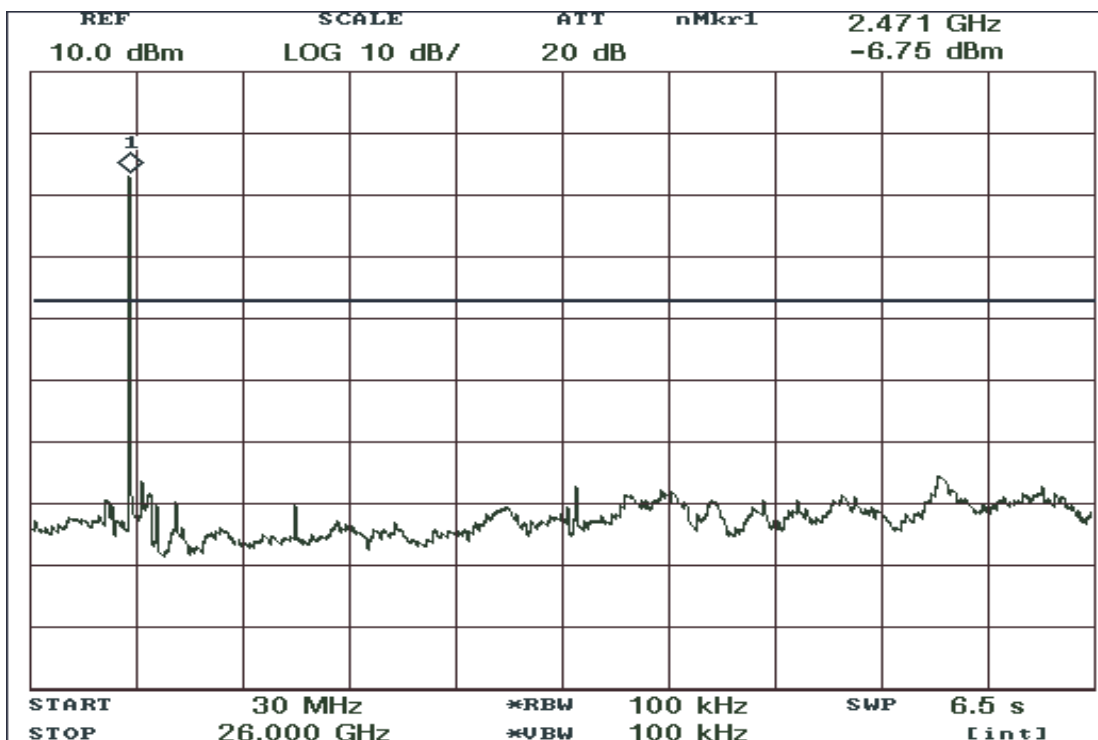
12.6 TEST DATA:



Lowest Channel

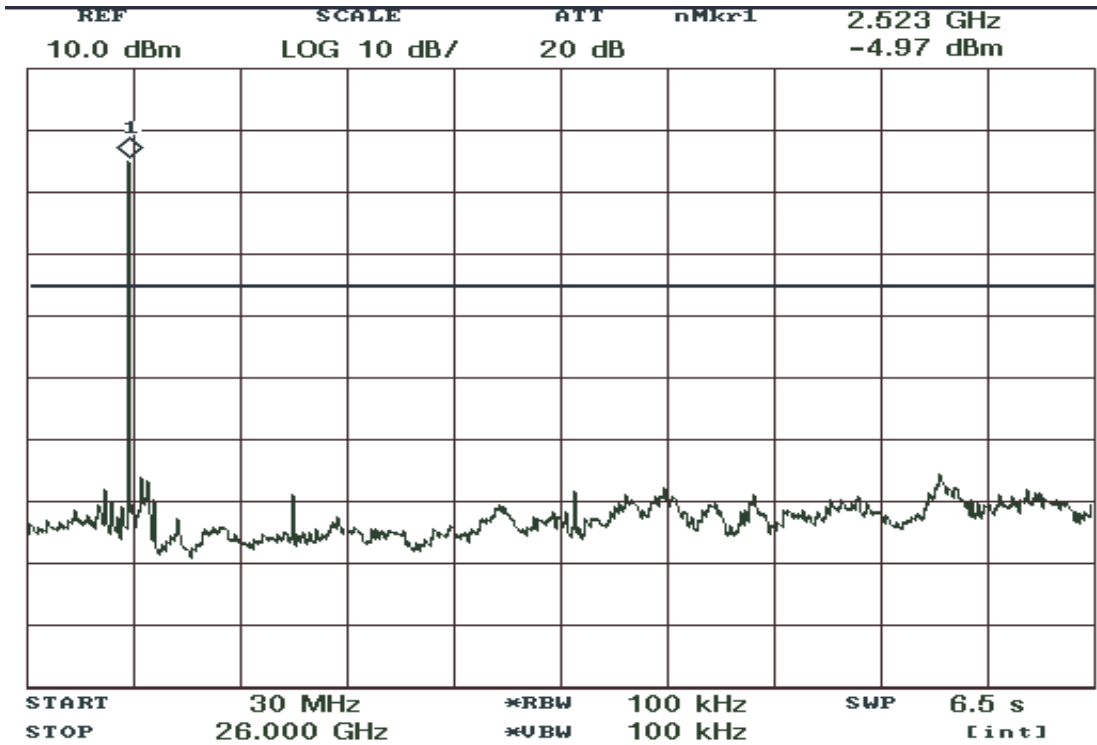


Middle Channel





Highest Channel





Global Certification Corp.

Appendix 1

PHOTOS OF TEST CONFIGURATION

