FCC TEST REPORT

REPORT NO.: RF940517H04
MODEL NO.: WRT54G v4, WRT54GS v3
RECEIVED: May 17, 2005
TESTED: May 20 to 25, 2005
ISSUED: May 27, 2005

APPLICANT: Cisco-Linksys LLC

ADDRESS: 121 Theory Drive Irvine, CA 92617(USA)

ISSUED BY: Advance Data Technology Corporation

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1 CERTIFICATION

PRODUCT :	Wireless-G Broadband Router with 4-port Switch, Wireless-G Broadband Router with SpeedBooster
BRAND NAME :	Linksys
MODEL NO. :	WRT54G v4, WRT54GS v3
TESTED:	May 20 to 25, 2005
APPLICANT :	Cisco-Linksys LLC
TEST ITEM:	ENGINEERING SAMPLE
STANDARDS :	47 CFR Part 15, Subpart C (Section 15.247), ANSI C63.4-2003

The above equipment (Model: WRT54G v4) has been tested by **Advance Data Technology Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Midoli Peng , **DATE:** May 27, 2005
(Midoli Peng)

TECHNICAL ACCEPTANCE : Hank Chung , **DATE:** May 27, 2005
Responsible for RF
(Hank Chung)

APPROVED BY : Eric Lin , **DATE:** May 27, 2005
(Eric Lin, Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**REMARK**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit Minimum passing margin is –10.28 dB at 0.304 MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit
15.247(c)	Transmitter Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit Minimum passing margin is –1.5dB at 2483.50 MHz
15.247(d)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit
15.247(c)	Band Edge Measurement Limit: 20 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless-G Broadband Router with 4-port Switch, Wireless-G Broadband Router with SpeedBooster
MODEL NO.	WRT54G v4, WRT54GS v3
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	CCK, OFDM, DBPSK, DQPSK
RADIO TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	1/2/5.5/6/9/11/12/18/24/36/48/54Mbps
FREQUENCY RANGE	2412MHz ~ 2462MHz
NUMBER OF CHANNEL	11
OUTPUT POWER	11b: 19.20dBm 11g: 18.78dBm
ANTENNA TYPE	Please see note 5 on next page
DATA CABLE	NA
I/O PORTS	RJ-45 port *5
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT has two samples which are identical to each other in all aspects except for the followings:

Sample No.	Product Name	Model Name	Description
Sample 1	Wireless-G Broadband Router with 4-port Switch	WRT54G v4	The flash , DDR and firmware are difference*
Sample 2	Wireless-G Broadband Router with SpeedBooster	WRT54GS v3	

Above samples were pre-tested in chamber, Model : WRT54G v4, worst case one, was chosen for final test and its data was recorded in this report. <Except for conducted emission and transmitter radiated emissions (Below 1 GHz) >

*** Detail difference:**

Item	Model / WRT54G v4	Model / WRT54GS v3
Flash	F320C3BD-70 2M*16	TE28F640J3C-120 4M*16
DDR	HY5DU281622ET-J 8M*16	HY5DU561622DT-J 16M*16

2. The EUT operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps.

3. The EUT complies with IEEE 802.11g standards, and backwards compatible with IEEE 802.11b products.

4. The EUT was powered either adapter:

Adapter 1:	
Brand:	Linksys
Model No.:	D12-1A
Input power :	AC120V, 60Hz, 23W
Output power :	DC12V, 1A DC Cable:1.8m/unshielded/without core

Adapter 2:	
Brand:	Linksys
Model No.:	AM-1201000D41
Input power :	AC120V, 60Hz, 23W
Output power :	DC12V, 1A DC Cable:1.8m/unshielded/without core

5. There are three antennas provided to this EUT, please refer to the following table:

No.	Antenna Type	Antenna Connector	Gain (dBi)	Cable loss(dB)
1	Dipole	Reverse TNC connector	2.0 dBi	0
2	Dipole	Reverse TNC connector	5.0 dBi	0
3	Dipole(without antenna stand)	Reverse TNC connector	7.0 dBi	0
	Dipole(with antenna stand)	Reverse TNC connector	7.0 dBi	7 dB (Stand + Cable loss)

6. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Eleven channels are provided in this EUT.

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

3.3 TEST MODE APPLICABLITY AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to				Description
	PLC	RE<1G	RE≥1G	APCM	
-	x	x	x	x	NA

Where PLC: Power Line Conducted Emission RE<1G RE: Radiated Emission below 1GHz
RE≥1G: Radiated Emission above 1GHz APCM: Antenna Port Conducted Measurement

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

Radiated Emission Test (Below 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11g	1 to 11	11	OFDM	BPSK	6

☒ The EUT was pre-tested in chamber as the following test modes:

Test Mode	Model Name	Power
Mode A	**WRT54G v4**	**With Adapter 1**
Mode B	WRT54G v4	With Adapter 2
Mode C	**WRT54GS v3**	**With Adapter 1**
Mode D	WRT54GS v3	With Adapter 2

The worst was found in Mode A & C, the worst cases, were chosen for final test.

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

Bandedge Measurement:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 11	DSSS	CCK	11
802.11g	1 to 11	1, 11	OFDM	BPSK	6

Antenna Port Conducted Measurement:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	CCK	11
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6

3.4 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless-G Broadband Router with 4-port Switch, Wireless-G Broadband Router with SpeedBooster. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C. (15.247)
ANSI C63.4 : 2003

All tests have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of 47 CFR Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

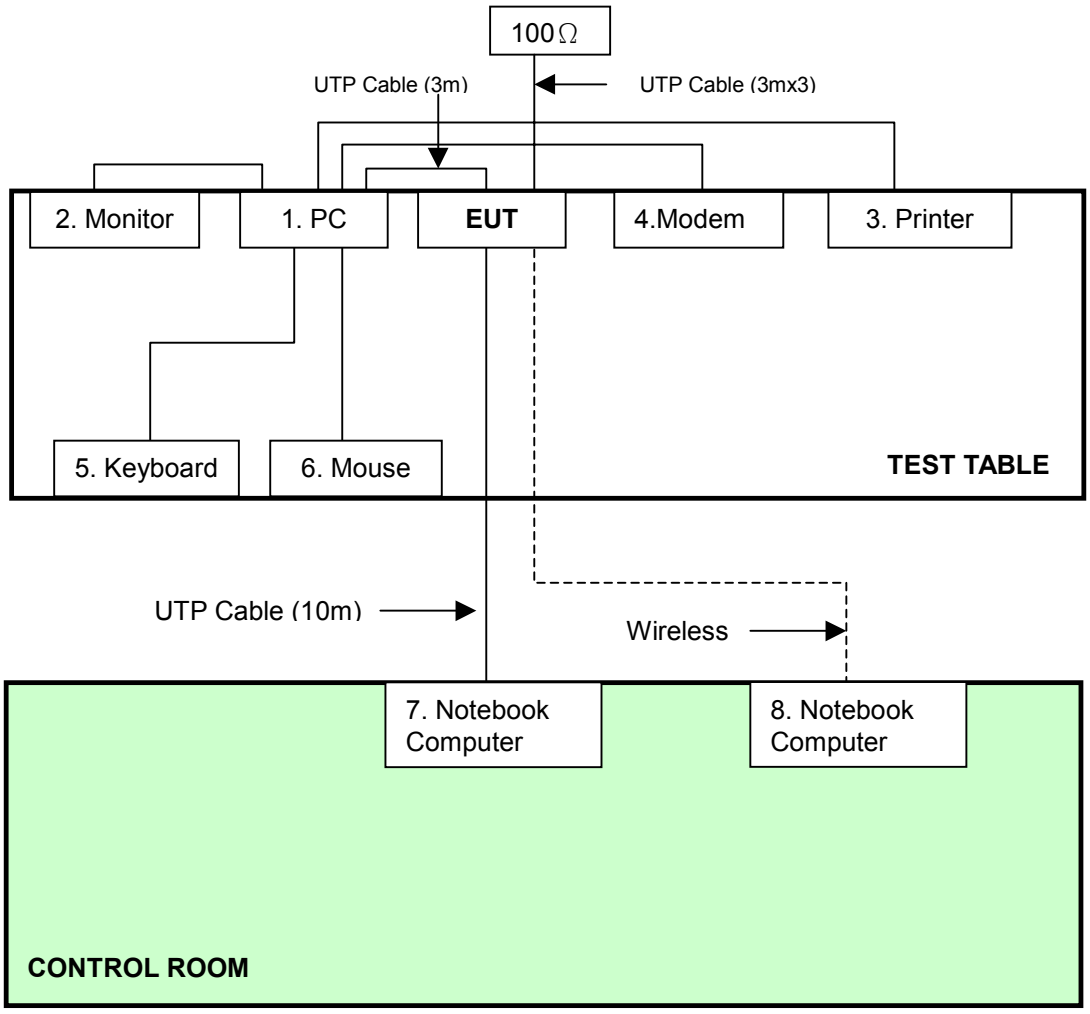
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	Personal Computer	DELL	4600	00043-517-542-487	DoC
2	MONITOR	ADI	G1000	240058T00100081	NA
3	PRINTER	HP	C2642A	MY79F1C3MZ	B94C2642X
4	MODEM	ACEEX	1414	0206026779	IFAXDM1414
5	KEYBOARD	BTC	KB-5200T	F24800412	E5XKB5122WTH0110
6	MOUSE	BTC	M851	G00347024425	NA
7	NOTEBOOK	Dell	PP01L	TW-09c748-12800-165-3171	DoC
8	NOTEBOOK	Dell	PP05L	16484462992	E2K24CLNS

No.	Signal cable description
1	NA
2	1.5 m braid shielded wire, terminated with VGA connector via metallic frame, w/o core.
3	1.1 m foil shielded wire, terminal by frame, PS2 Connector, w/o Core.
4	1.1 m braid shielded wire, terminated with DB25 and DB9 connector via metallic frame, w/o core
5	1.7 m foil shielded wire, terminal by frame, PS2 Connector, w/o Core.
6	1.5 m foil shielded wire, terminal by frame, PS2 Connector, w/o Core.
7	NA
8	NA

Note: 1. All power cords of the above support units are unshielded (1.8m).

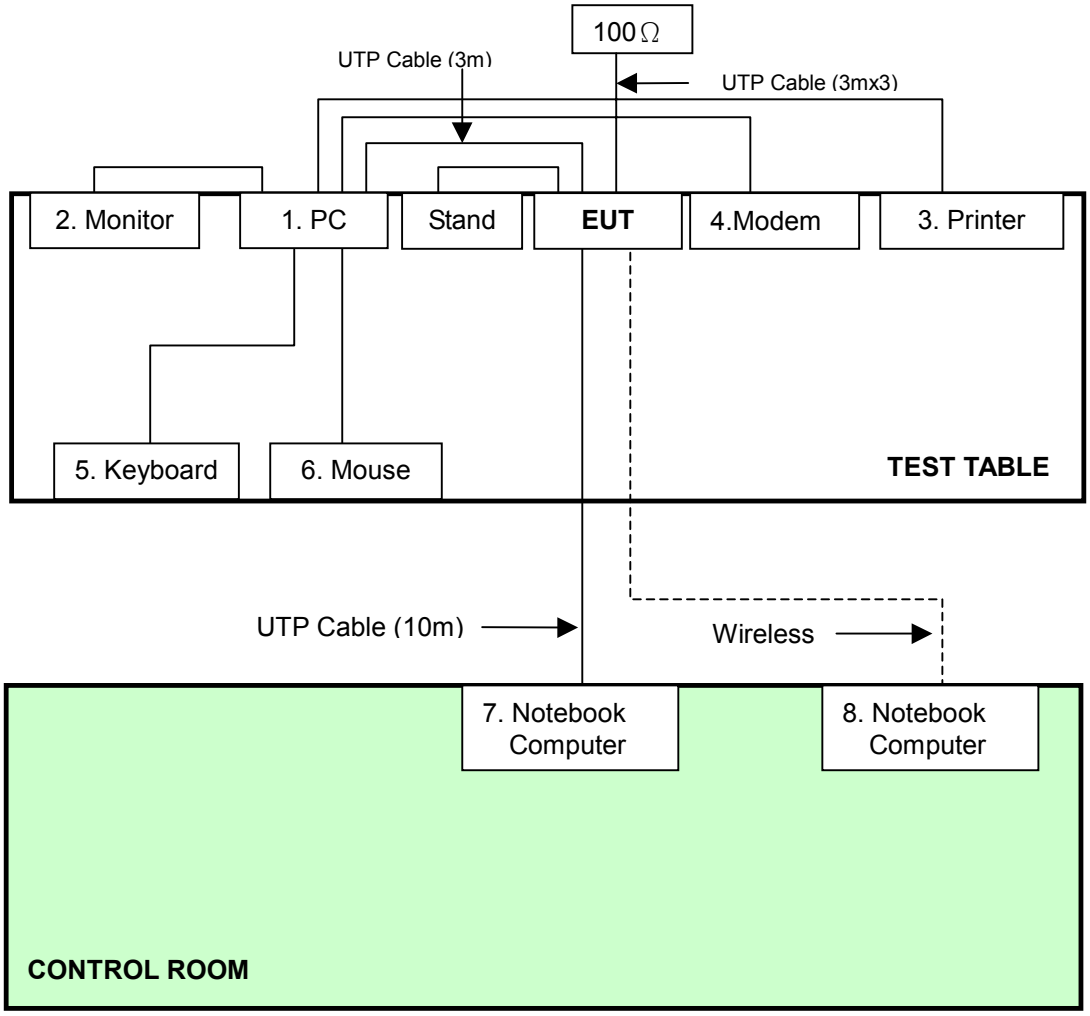
3.6 CONFIGURATION OF SYSTEM UNDER TEST

For antenna 1 / antenna 2 / antenna 3(without antenna stand):



NOTE: 1. Support units 7-8 were kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

For antenna 3(with antenna stand):



NOTE: 1. Support units 7-8 were kept in the control room during the test.
2. Please refer to the photos of test configuration in Item 5 also.

4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. All emanations from a class B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
*ROHDE & SCHWARZ Test Receiver	ESCS 30	847124/029	Dec. 07, 2005
*ROHDE & SCHWARZ LISN (for EUT)	ESHS-Z5	848773/004	Nov. 08, 2005
*KYORITSU LISN (for peripheral)	KNW-407	8/1395/12	Jul. 23, 2005
*RF Cable (JETBAO)	RG233/U	Cable_CA_01	Jul. 02, 2005
*Terminator(for KYORITSU)	50	3	Oct. 12, 2005
*Software	Cond-V2e	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in ADT Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.
4 * = These equipment are used for the final measurement.
5 The measurement uncertainty is 2.53 dB, which is calculated as per the document CISPR 16-4

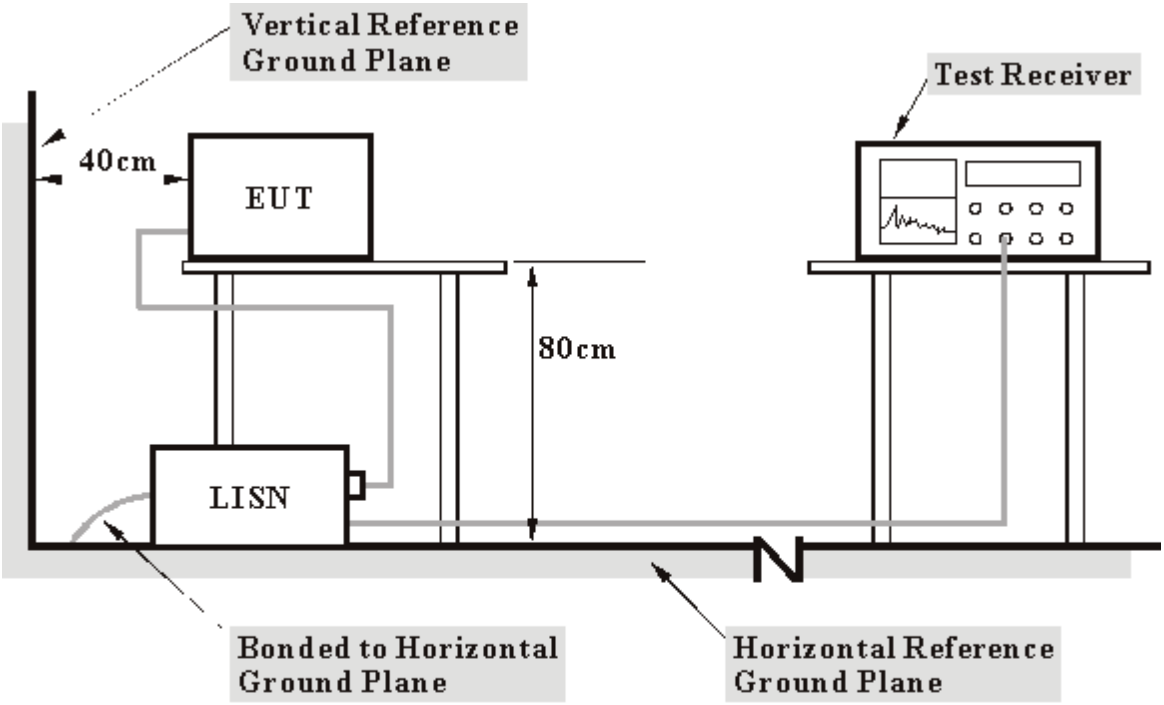
4.1.3 TEST PROCEDURES

a. The EUT/HOST was placed 0.4 meters from the conducting wall of the shielded room with EUT/HOST being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT/HOST were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits could not be reported

4.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.5 EUT OPERATING CONDITIONS

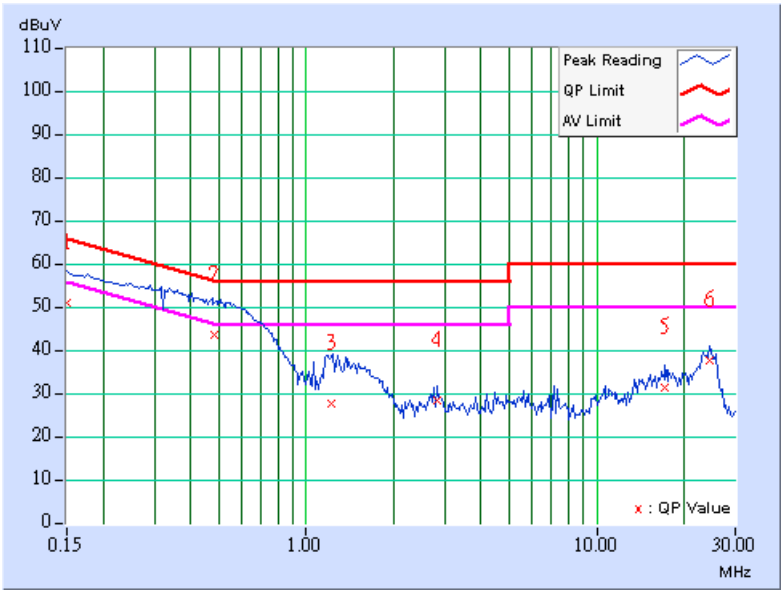
a. Placed the EUT on the testing table.
b. The support units (1-6) act as a Server PC system to communicate with EUT via UTP cable.
c. Prepared other computer systems (support unit 7and support unit 8) to act as a communication partner and placed them outside of testing area.
d. The communication partner runs test program “http://192.168.1.1/emi_test.asp” to enable EUT under transmission/receiving condition continuously via one UTP cable and wireless transmission.
e. PC sends "H" messages to modem.
f. PC sends "H" messages to printer, and the printer prints them on paper.

4.1.6 TEST RESULTS (With Adapter 1 & Sample1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.48	41.18	-	50.66	-	66.00	56.00	-15.34	-
2	0.481	9.19	33.92	-	43.11	-	56.32	46.32	-13.21	-
3	1.221	9.24	17.76	-	27.00	-	56.00	46.00	-29.00	-
4	2.813	9.29	18.64	-	27.93	-	56.00	46.00	-28.07	-
5	17.228	9.66	21.80	-	31.46	-	60.00	50.00	-28.54	-
6	24.547	9.85	28.02	-	37.87	-	60.00	50.00	-22.13	-

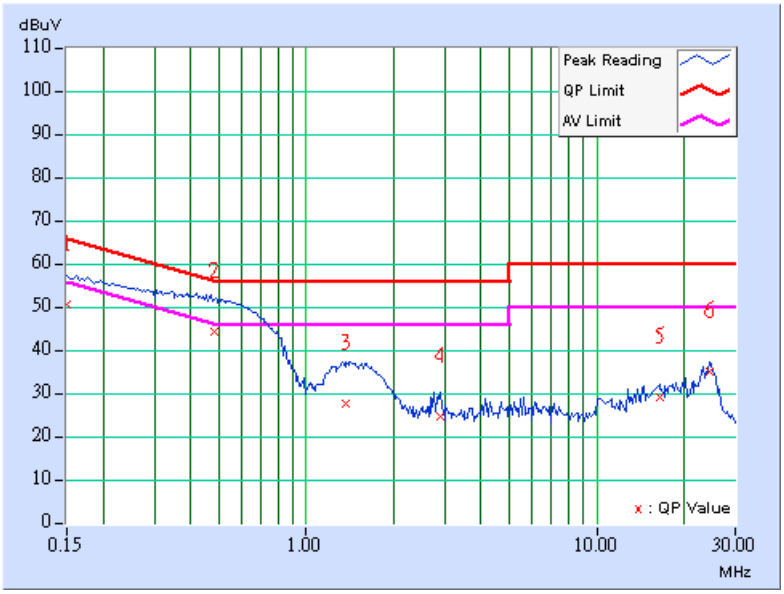
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.19	40.84	-	50.03	-	66.00	56.00	-15.97	-
2	0.480	9.24	34.61	-	43.85	-	56.34	46.34	-12.49	-
3	1.371	9.24	18.11	-	27.35	-	56.00	46.00	-28.65	-
4	2.884	9.36	15.09	-	24.45	-	56.00	46.00	-31.55	-
5	16.469	9.68	19.33	-	29.01	-	60.00	50.00	-30.99	-
6	24.352	9.85	25.50	-	35.35	-	60.00	50.00	-24.65	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

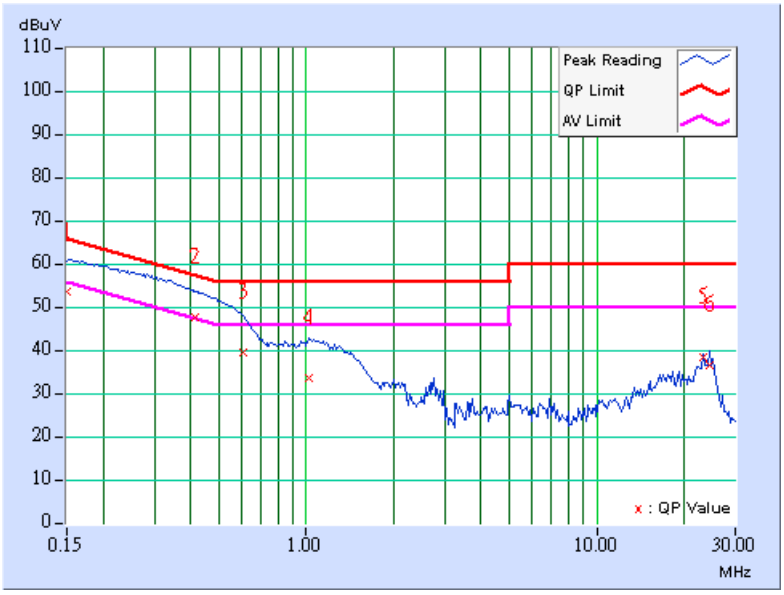


4.1.7 TEST RESULTS (With Adapter 2 & Sample 1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.48	43.96	-	53.44	-	66.00	56.00	-12.56	-
2	0.412	9.20	37.91	-	47.11	-	57.60	47.60	-10.50	-
3	0.608	9.20	29.91	-	39.11	-	56.00	46.00	-16.89	-
4	1.025	9.24	23.89	-	33.13	-	56.00	46.00	-22.87	-
5	23.129	9.83	28.80	-	38.63	-	60.00	50.00	-21.37	-
6	24.348	9.85	26.77	-	36.62	-	60.00	50.00	-23.38	-

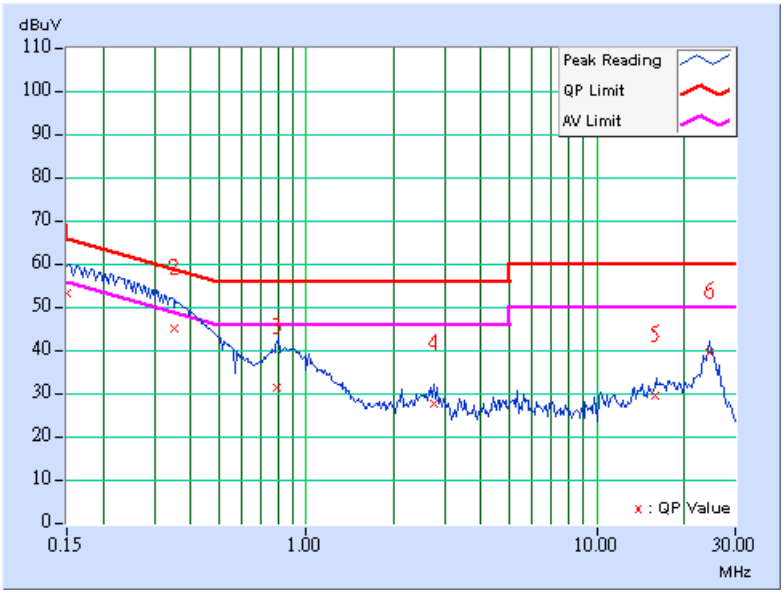
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.19	43.34	-	52.53	-	66.00	56.00	-13.47	-
2	0.349	9.22	35.21	-	44.43	-	58.98	48.98	-14.55	-
3	0.788	9.20	21.73	-	30.93	-	56.00	46.00	-25.07	-
4	2.749	9.35	17.87	-	27.22	-	56.00	46.00	-28.78	-
5	15.991	9.67	19.65	-	29.32	-	60.00	50.00	-30.68	-
6	24.531	9.86	29.90	-	39.76	-	60.00	50.00	-20.24	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

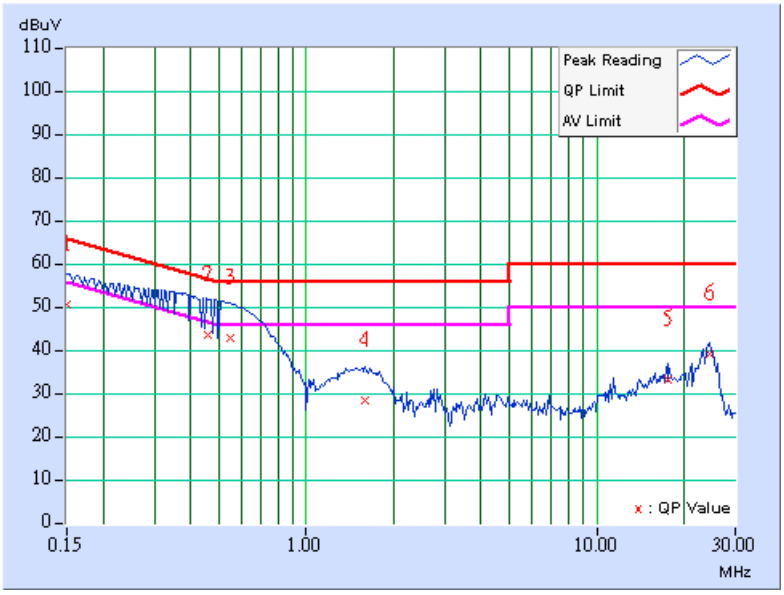


4.1.8 TEST RESULTS (With Adapter 1 & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.48	40.76	-	50.24	-	66.00	56.00	-15.76	-
2	0.458	9.19	33.80	-	42.99	-	56.73	46.73	-13.74	-
3	0.551	9.19	32.96	-	42.15	-	56.00	46.00	-13.85	-
4	1.595	9.23	18.84	-	28.07	-	56.00	46.00	-27.93	-
5	17.691	9.68	23.33	-	33.01	-	60.00	50.00	-26.99	-
6	24.348	9.85	29.44	-	39.29	-	60.00	50.00	-20.71	-

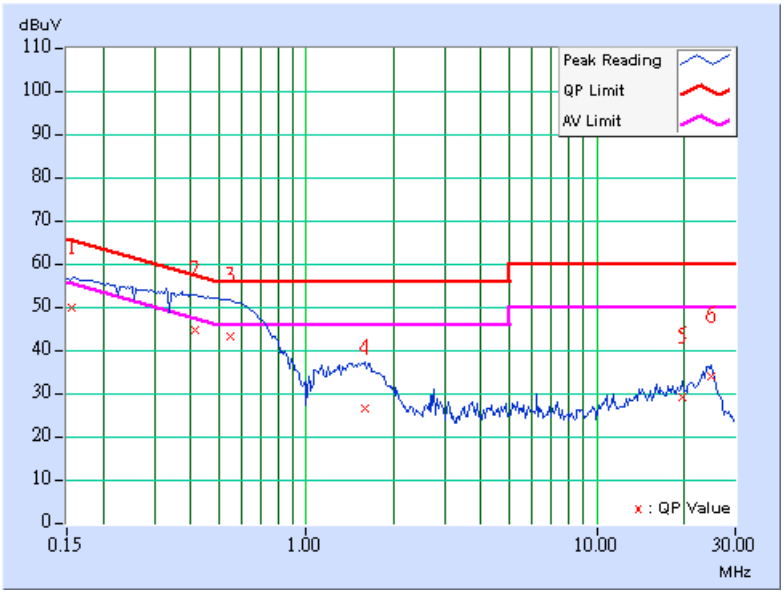
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.157	9.19	40.27	-	49.46	-	65.65	55.65	-16.18	-
2	0.413	9.23	34.79	-	44.02	-	57.59	47.59	-13.57	-
3	0.550	9.23	33.41	-	42.64	-	56.00	46.00	-13.36	-
4	1.596	9.26	16.66	-	25.92	-	56.00	46.00	-30.08	-
5	19.707	9.80	19.49	-	29.29	-	60.00	50.00	-30.71	-
6	24.688	9.87	24.33	-	34.20	-	60.00	50.00	-25.80	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

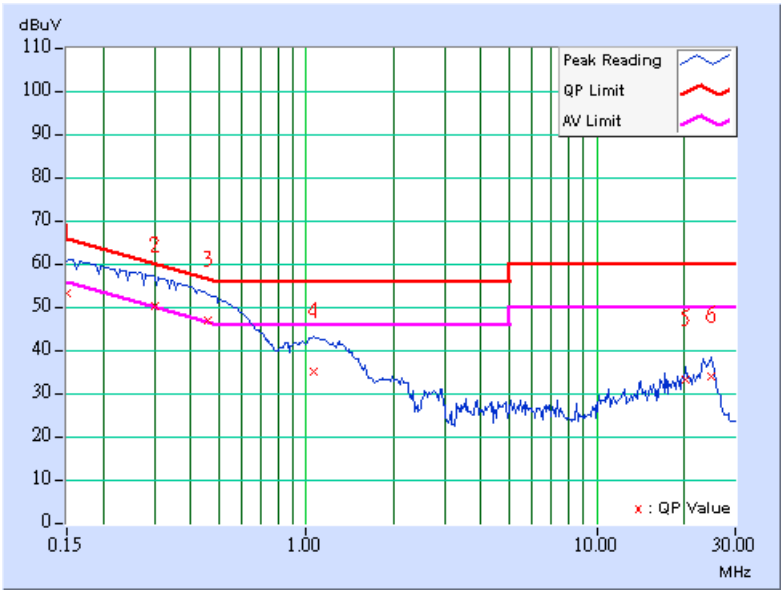


4.1.9 TEST RESULTS (With Adapter 2 & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Line (L)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.48	43.47	-	52.95	-	66.00	56.00	-13.05	-
2	**0.304**	**9.20**	**40.66**	**-**	**49.86**	**-**	**60.15**	**50.15**	**-10.28**	**-**
3	0.459	9.19	37.05	-	46.24	-	56.72	46.72	-10.48	-
4	1.068	9.24	25.20	-	34.44	-	56.00	46.00	-21.56	-
5	20.258	9.76	23.42	-	33.18	-	60.00	50.00	-26.82	-
6	24.844	9.86	24.10	-	33.96	-	60.00	50.00	-26.04	-

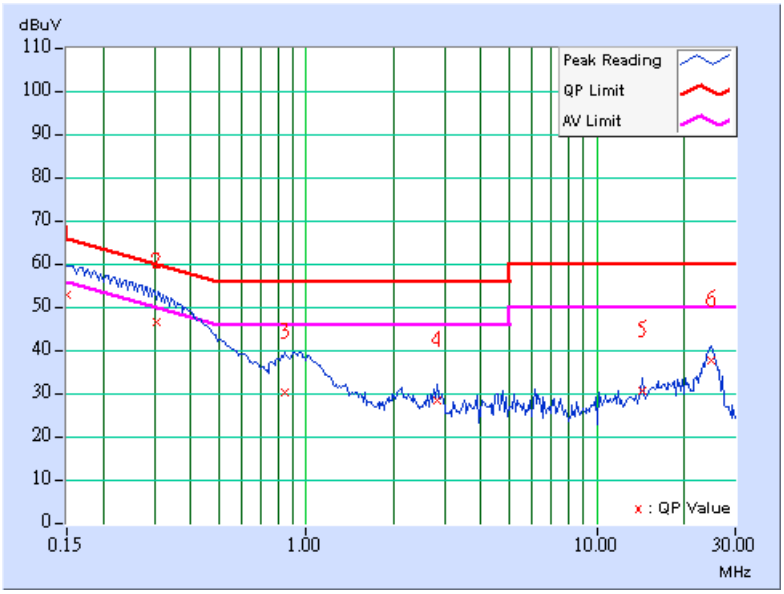
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**6dB BANDWIDTH**	9 kHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**PHASE**	Neutral (N)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	9.19	42.93	-	52.12	-	66.00	56.00	-13.88	-
2	0.304	9.21	36.87	-	46.08	-	60.14	50.14	-14.06	-
3	0.849	9.20	20.40	-	29.60	-	56.00	46.00	-26.40	-
4	2.810	9.36	18.48	-	27.84	-	56.00	46.00	-28.16	-
5	14.332	9.65	20.73	-	30.38	-	60.00	50.00	-29.62	-
6	24.691	9.87	27.98	-	37.85	-	60.00	50.00	-22.15	-

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Field strength limits are at the distance of 3 meters, emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
HP Spectrum Analyzer	8594E	3710A04861	Sep. 23, 2005
ADVANTEST Spectrum Analyzer	R3271A	85060311	Jun. 29, 2005
CHASE RF Pre_Amplifier	CPA9232	1057	Aug. 06, 2005
HP Pre_Amplifier	8449B	3008A01922	Oct. 13, 2005
ROHDE & SCHWARZ Test Receiver	ESCS30	100287	Dec. 08, 2005
CHASE Broadband Antenna	VULB9168	138	Dec. 21, 2005
Schwarzbeck Horn_Antenna	BBHA9120	D124	Jun. 16, 2005
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 30, 2006
SCHWARZBECK Biconical Antenna	VHBA9123	459	Jun. 26, 2006
SCHWARZBECK Periodic Antenna	UPA6108	1148	Jun. 26, 2006
RF Switches (ARNITSU)	CS-201	1565157	Jul. 15, 2005
RF CABLE (Chaintek) 1GHz-20GHz	SF102	22054-2	Nov. 15. 2005
RF Cable(RICHTEC)	9913-30M	STCCAB-30M-1GHz-021	Jul. 15, 2005
Software	ADT_Radiated_V 5.14	NA	NA
CHANCE MOST Antenna Tower	AT-100	0203	NA
CHANCE MOST Turn Table	TT-100	0203	NA

Note:
1. The calibration interval of the above test instruments is 12 months (36 months for Periodic Antenna)and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in ADT Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 4824-3.
7. The following table is for the measurement uncertainty, which is calculated as per the document CISPR 16-4.

Measurement	Value
Radiated emissions (30MHz-1GHz)	2.98 dB
Radiated emissions (1GHz ~18GHz)	2.21 dB
Radiated emissions (18GHz ~20GHz)	1.88 dB

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

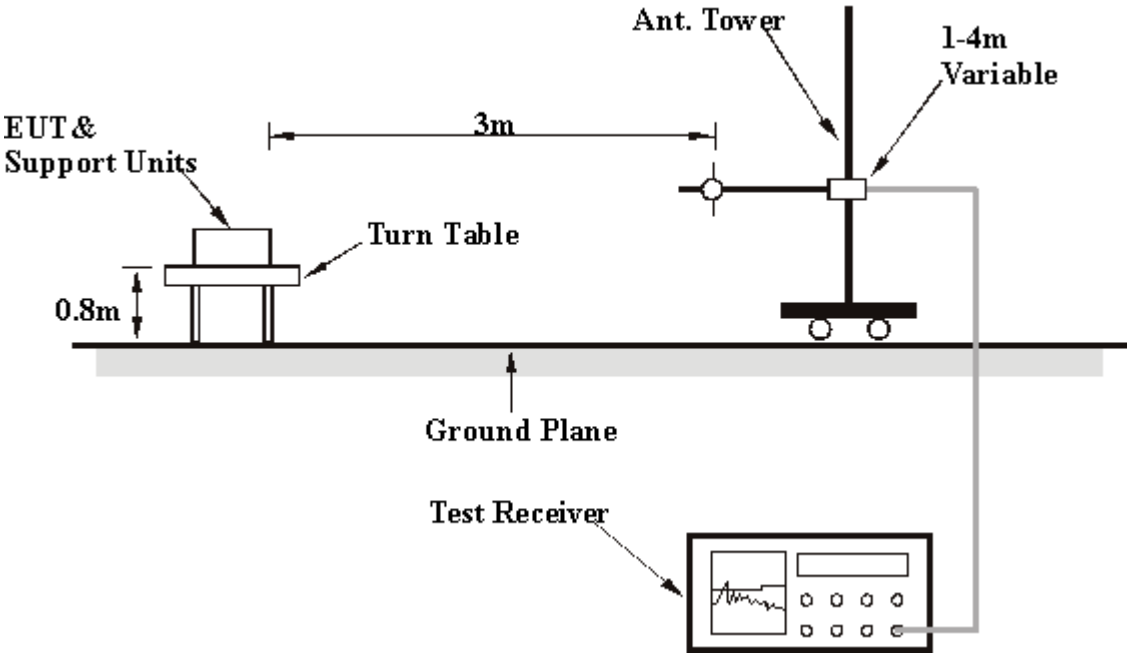
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 300 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.5 EUT OPERATING CONDITIONS

Same as 4.1.5.

4.2.6 TEST RESULTS (ANTENNA 1 & Sample 1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	28.10 QP	43.50	-15.40	2.01 H	288	16.20	11.90
2	200.02	34.70 QP	43.50	-8.80	1.81 H	329	23.50	11.20
3	250.00	37.30 QP	46.00	-8.70	1.72 H	43	24.00	13.30
4	375.00	40.40 QP	46.00	-5.60	1.57 H	252	22.80	17.60
5	400.00	38.60 QP	46.00	-7.40	1.18 H	274	20.20	18.40
6	500.00	37.50 QP	46.00	-8.50	1.46 H	319	16.60	20.90
7	624.99	37.90 QP	46.00	-8.10	1.13 H	172	14.10	23.80
8	750.00	41.30 QP	46.00	-4.70	1.42 H	267	14.90	26.40
9	875.01	40.80 QP	46.00	-5.20	1.25 H	345	13.10	27.70
10	1000.00	42.70 QP	54.00	-11.30	1.01 H	278	13.80	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	30.40 QP	43.50	-13.10	1.00 V	211	18.50	11.90
2	200.01	35.20 QP	43.50	-8.30	1.00 V	49	24.00	11.20
3	250.02	37.30 QP	46.00	-8.70	1.03 V	316	24.00	13.30
4	375.01	39.90 QP	46.00	-6.10	1.00 V	57	22.30	17.60
5	400.00	37.80 QP	46.00	-8.20	1.14 V	334	19.40	18.40
6	500.02	38.70 QP	46.00	-7.30	1.26 V	329	17.80	20.90
7	625.00	37.10 QP	46.00	-8.90	1.42 V	213	13.30	23.80
8	750.00	39.60 QP	46.00	-6.40	1.12 V	264	13.20	26.40
9	875.01	40.20 QP	46.00	-5.80	1.31 V	32	12.50	27.70
10	1000.00	41.30 QP	54.00	-12.70	1.15 V	341	12.40	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.7 TEST RESULTS (ANTENNA 2 & Sample 1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	28.40 QP	43.50	-15.10	1.95 H	31	16.50	11.90
2	200.01	34.30 QP	43.50	-9.20	1.83 H	86	23.10	11.20
3	250.01	36.40 QP	46.00	-9.60	1.57 H	352	23.10	13.30
4	375.02	40.90 QP	46.00	-5.10	1.34 H	273	23.30	17.60
5	400.01	39.30 QP	46.00	-6.70	1.16 H	268	20.90	18.40
6	500.02	38.70 QP	46.00	-7.30	1.03 H	332	17.80	20.90
7	625.01	37.60 QP	46.00	-8.40	1.41 H	317	13.80	23.80
8	750.00	40.80 QP	46.00	-5.20	1.23 H	286	14.40	26.40
9	875.00	40.90 QP	46.00	-5.10	1.32 H	49	13.20	27.70
10	1000.00	44.10 QP	54.00	-9.90	1.07 H	271	15.20	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.02	30.60 QP	43.50	-12.90	1.00 V	293	18.70	11.90
2	200.01	35.80 QP	43.50	-7.70	1.00 V	147	24.60	11.20
3	250.01	38.10 QP	46.00	-7.90	1.00 V	312	24.80	13.30
4	375.00	39.40 QP	46.00	-6.60	1.21 V	48	21.80	17.60
5	400.00	37.60 QP	46.00	-8.40	1.06 V	343	19.20	18.40
6	500.01	39.30 QP	46.00	-6.70	1.43 V	336	18.40	20.90
7	625.00	36.30 QP	46.00	-9.70	1.07 V	301	12.50	23.80
8	750.00	39.40 QP	46.00	-6.60	1.00 V	64	13.00	26.40
9	875.00	39.70 QP	46.00	-6.30	1.53 V	83	12.00	27.70
10	1000.00	40.90 QP	54.00	-13.10	1.24 V	318	12.00	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.8 TEST RESULTS (ANTENNA 3 without antenna stand & Sample 1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	28.10 QP	43.50	-15.40	1.97 H	342	16.20	11.90
2	200.00	34.60 QP	43.50	-8.90	1.83 H	86	23.40	11.20
3	250.00	36.30 QP	46.00	-9.70	1.64 H	291	23.00	13.30
4	375.00	40.90 QP	46.00	-5.10	1.22 H	243	23.30	17.60
5	399.99	39.10 QP	46.00	-6.90	1.05 H	276	20.70	18.40
6	500.00	38.40 QP	46.00	-7.60	1.37 H	301	17.50	20.90
7	625.00	38.10 QP	46.00	-7.90	1.09 H	298	14.30	23.80
8	750.00	41.20 QP	46.00	-4.80	1.31 H	334	14.80	26.40
9	875.00	40.30 QP	46.00	-5.70	1.20 H	219	12.60	27.70
10	1000.00	42.80 QP	54.00	-11.20	1.04 H	283	13.90	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	30.30 QP	43.50	-13.20	1.00 V	276	18.40	11.90
2	200.00	35.90 QP	43.50	-7.60	1.00 V	254	24.70	11.20
3	250.00	37.20 QP	46.00	-8.80	1.00 V	312	23.90	13.30
4	375.00	37.80 QP	46.00	-8.20	1.40 V	306	20.20	17.60
5	399.99	37.80 QP	46.00	-8.20	1.40 V	306	19.40	18.40
6	499.99	39.60 QP	46.00	-6.40	1.23 V	318	18.70	20.90
7	625.00	40.10 QP	46.00	-5.90	1.12 V	34	16.30	23.80
8	750.00	39.90 QP	46.00	-6.10	1.07 V	63	13.50	26.40
9	874.99	40.20 QP	46.00	-5.80	1.39 V	37	12.50	27.70
10	1000.00	41.80 QP	54.00	-12.20	1.03 V	245	12.90	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.9 TEST RESULTS (ANTENNA 3 with antenna stand & Sample 1)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.02	27.80 QP	43.50	-15.70	1.94 H	332	15.90	11.90
2	200.00	34.40 QP	43.50	-9.10	1.84 H	61	23.20	11.20
3	250.01	36.70 QP	46.00	-9.30	1.61 H	249	23.40	13.30
4	375.01	40.50 QP	46.00	-5.50	1.12 H	230	22.90	17.60
5	400.01	39.20 QP	46.00	-6.80	1.00 H	201	20.80	18.40
6	500.01	38.50 QP	46.00	-7.50	1.35 H	261	17.60	20.90
7	624.99	37.90 QP	46.00	-8.10	1.02 H	229	14.10	23.80
8	749.99	41.00 QP	46.00	-5.00	1.26 H	264	14.60	26.40
9	875.00	40.50 QP	46.00	-5.50	1.13 H	275	12.80	27.70
10	999.99	43.20 QP	54.00	-10.80	1.00 H	267	14.30	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	124.99	30.20 QP	43.50	-13.30	1.00 V	259	18.40	11.90
2	200.01	35.70 QP	43.50	-7.80	1.00 V	200	24.50	11.20
3	250.01	37.60 QP	46.00	-8.40	1.08 V	117	24.30	13.30
4	375.00	39.60 QP	46.00	-6.40	1.58 V	310	22.10	17.60
5	400.00	37.30 QP	46.00	-8.70	1.05 V	337	18.90	18.40
6	499.99	39.40 QP	46.00	-6.60	1.18 V	304	18.50	20.90
7	600.03	36.50 QP	46.00	-9.50	1.08 V	337	13.00	23.50
8	625.00	39.80 QP	46.00	-6.20	1.06 V	328	16.00	23.80
9	750.01	39.80 QP	46.00	-6.20	1.01 V	61	13.40	26.40
10	875.00	40.10 QP	46.00	-5.90	1.44 V	40	12.40	27.70
11	999.97	41.50 QP	54.00	-12.50	1.01 V	212	12.50	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.10 TEST RESULTS (ANTENNA 1 & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	36.40 QP	43.50	-7.10	1.97 H	276	24.50	11.90
2	200.01	34.70 QP	43.50	-8.80	1.84 H	314	23.50	11.20
3	250.00	33.40 QP	46.00	-12.60	1.73 H	343	20.10	13.30
4	374.99	37.10 QP	46.00	-8.90	1.41 H	146	19.50	17.60
5	400.00	37.50 QP	46.00	-8.50	1.26 H	173	19.10	18.40
6	500.00	39.70 QP	46.00	-6.30	1.37 H	268	18.80	20.90
7	624.99	38.30 QP	46.00	-7.70	1.43 H	227	14.50	23.80
8	750.00	40.20 QP	46.00	-5.80	1.52 H	336	13.80	26.40
9	875.00	39.10 QP	46.00	-6.90	1.71 H	314	11.40	27.70
10	1000.00	43.10 QP	54.00	-10.90	1.63 H	309	14.20	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.03	31.70 QP	43.50	-11.80	1.00 V	333	19.80	11.90
2	200.01	34.40 QP	43.50	-9.10	1.03 V	347	23.20	11.20
3	249.98	36.40 QP	46.00	-9.60	1.00 V	62	23.10	13.30
4	374.99	39.60 QP	46.00	-6.40	1.17 V	118	22.00	17.60
5	400.00	37.30 QP	46.00	-8.70	1.26 V	294	18.90	18.40
6	500.00	37.90 QP	46.00	-8.10	1.52 V	273	17.00	20.90
7	625.00	39.50 QP	46.00	-6.50	1.43 V	316	15.70	23.80
8	750.02	38.90 QP	46.00	-7.10	1.64 V	132	12.50	26.40
9	875.00	40.30 QP	46.00	-5.70	1.07 V	141	12.60	27.70
10	1000.00	42.90 QP	54.00	-11.10	1.36 V	297	14.00	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.11 TEST RESULTS (ANTENNA 2 & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	124.99	27.30 QP	43.50	-16.20	2.06 H	39	15.40	11.90
2	200.00	34.20 QP	43.50	-9.30	1.87 H	328	23.00	11.20
3	250.00	32.80 QP	46.00	-13.20	1.53 H	197	19.50	13.30
4	375.01	36.70 QP	46.00	-9.30	1.42 H	316	19.10	17.60
5	400.00	37.60 QP	46.00	-8.40	1.64 H	311	19.20	18.40
6	500.00	39.20 QP	46.00	-6.80	1.31 H	267	18.30	20.90
7	625.00	38.70 QP	46.00	-7.30	1.42 H	143	14.90	23.80
8	750.01	40.10 QP	46.00	-5.90	1.21 H	83	13.70	26.40
9	875.00	39.60 QP	46.00	-6.40	1.07 H	271	11.90	27.70
10	1000.00	43.40 QP	54.00	-10.60	1.11 H	284	14.50	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	32.80 QP	43.50	-10.70	1.00 V	324	20.90	11.90
2	200.00	34.50 QP	43.50	-9.00	1.00 V	63	23.30	11.20
3	250.00	37.10 QP	46.00	-8.90	1.00 V	317	23.80	13.30
4	375.00	39.70 QP	46.00	-6.30	1.00 V	293	22.10	17.60
5	400.00	36.40 QP	46.00	-9.60	1.31 V	296	18.00	18.40
6	500.00	38.50 QP	46.00	-7.50	1.43 V	42	17.60	20.90
7	624.99	39.30 QP	46.00	-6.70	1.16 V	61	15.50	23.80
8	749.99	38.70 QP	46.00	-7.30	1.00 V	149	12.30	26.40
9	874.98	40.50 QP	46.00	-5.50	1.07 V	85	12.80	27.70
10	1000.00	43.60 QP	54.00	-10.40	1.24 V	328	14.70	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.12 TEST RESULTS (ANTENNA 3, without antenna stand & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	27.40 QP	43.50	-16.10	2.06 H	337	15.50	11.90
2	200.00	33.70 QP	43.50	-9.80	1.87 H	91	22.50	11.20
3	250.00	32.90 QP	46.00	-13.10	1.73 H	284	19.60	13.30
4	375.01	36.50 QP	46.00	-9.50	1.54 H	257	18.90	17.60
5	400.00	37.40 QP	46.00	-8.60	1.36 H	293	19.00	18.40
6	500.00	39.70 QP	46.00	-6.30	1.21 H	314	18.80	20.90
7	625.01	38.20 QP	46.00	-7.80	1.07 H	276	14.40	23.80
8	750.00	40.10 QP	46.00	-5.90	1.43 H	345	13.70	26.40
9	874.99	39.60 QP	46.00	-6.40	1.32 H	178	11.90	27.70
10	1000.00	43.20 QP	54.00	-10.80	1.09 H	262	14.30	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	32.90 QP	43.50	-10.60	1.00 V	304	21.00	11.90
2	200.00	34.10 QP	43.50	-9.40	1.00 V	196	22.90	11.20
3	249.99	36.90 QP	46.00	-9.10	1.00 V	343	23.60	13.30
4	375.00	39.40 QP	46.00	-6.60	1.00 V	332	21.80	17.60
5	400.00	37.80 QP	46.00	-8.20	1.35 V	98	19.40	18.40
6	499.98	38.70 QP	46.00	-7.30	1.21 V	142	17.80	20.90
7	625.00	39.90 QP	46.00	-6.10	1.09 V	163	16.10	23.80
8	750.00	39.50 QP	46.00	-6.50	1.03 V	211	13.10	26.40
9	875.00	40.10 QP	46.00	-5.90	1.32 V	39	12.40	27.70
10	1000.00	42.70 QP	54.00	-11.30	1.01 V	354	13.80	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.13 TEST RESULTS (ANTENNA 3, with antenna stand & Sample 2)

EUT	Wireless-G Broadband Router with SpeedBooster	**MODEL**	WRT54GS v3
MODE	Channel 11	**FREQUENCY RANGE**	30-1000 MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Quasi-Peak, 120kHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 60%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.01	26.90 QP	43.50	-16.60	2.13 H	264	15.00	11.90
2	200.00	34.40 QP	43.50	-9.10	1.94 H	313	23.20	11.20
3	250.00	33.20 QP	46.00	-12.80	1.81 H	341	19.90	13.30
4	375.01	36.30 QP	46.00	-9.70	1.69 H	48	18.70	17.60
5	400.00	37.20 QP	46.00	-8.80	1.64 H	116	18.80	18.40
6	499.99	39.60 QP	46.00	-6.40	1.12 H	83	18.70	20.90
7	625.00	38.70 QP	46.00	-7.30	1.36 H	217	14.90	23.80
8	750.00	39.90 QP	46.00	-6.10	1.57 H	343	13.50	26.40
9	875.00	39.40 QP	46.00	-6.60	1.43 H	326	11.70	27.70
10	1000.00	43.70 QP	54.00	-10.30	1.02 H	273	14.80	28.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	125.00	33.10 QP	43.50	-10.40	1.00 V	317	21.20	11.90
2	200.01	34.30 QP	43.50	-9.20	1.03 V	182	23.10	11.20
3	250.00	36.60 QP	46.00	-9.40	1.00 V	266	23.30	13.30
4	375.01	39.50 QP	46.00	-6.50	1.00 V	334	21.90	17.60
5	400.00	37.60 QP	46.00	-8.40	1.00 V	96	19.20	18.40
6	500.00	38.30 QP	46.00	-7.70	1.27 V	113	17.40	20.90
7	625.00	39.70 QP	46.00	-6.30	1.16 V	106	15.90	23.80
8	749.99	39.30 QP	46.00	-6.70	1.00 V	347	12.90	26.40
9	875.00	40.20 QP	46.00	-5.80	1.48 V	33	12.50	27.70
10	1000.00	43.10 QP	54.00	-10.90	1.00 V	62	14.20	28.90
11	999.97	41.50 QP	54.00	-12.50	1.01 V	212	12.50	28.90

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

4.2.14 TEST RESULTS (ANTENNA 1 – DSSS)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	45.90 PK	74.00	-28.10	1.04 H	324	18.50	27.40
1	1608.00	43.80 AV	54.00	-10.20	1.04 H	324	16.40	27.40
2	2390.00	54.50 PK	74.00	-19.50	1.16 H	330	20.80	33.70
2	2390.00	38.60 AV	54.00	-15.40	1.16 H	330	4.90	33.70
3	*2412.00	105.40 PK			1.16 H	330	75.60	29.80
3	*2412.00	97.80 AV			1.16 H	330	68.00	29.80
4	3216.00	37.70 PK	74.00	-36.30	1.17 H	63	5.70	32.00
4	3216.00	28.70 AV	54.00	-25.30	1.17 H	63	-3.30	32.00
5	4824.00	41.30 PK	74.00	-32.70	1.39 H	147	6.20	35.10
5	4824.00	32.30 AV	54.00	-21.70	1.39 H	147	-2.80	35.10
6	7236.00	45.60 PK	74.00	-28.40	1.56 H	273	5.10	40.50
6	7236.00	34.70 AV	54.00	-19.30	1.56 H	273	-5.80	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	47.30 PK	74.00	-26.70	1.00 V	82	19.90	27.40
1	1608.00	45.50 AV	54.00	-8.50	1.00 V	82	18.10	27.40
2	2390.00	60.90 PK	74.00	-13.10	1.21 V	80	27.20	33.70
2	2390.00	46.10 AV	54.00	-7.90	1.21 V	80	12.40	33.70
3	*2412.00	111.80 PK			1.21 V	80	82.00	29.80
3	*2412.00	105.30 AV			1.21 V	80	75.50	29.80
4	3216.00	40.70 PK	74.00	-33.30	1.23 V	71	8.70	32.00
4	3216.00	34.30 AV	54.00	-19.70	1.23 V	71	2.30	32.00
5	4824.00	43.70 PK	74.00	-30.30	1.34 V	325	8.60	35.10
5	4824.00	37.80 AV	54.00	-16.20	1.34 V	325	2.70	35.10
6	7236.00	46.30 PK	74.00	-27.70	1.43 V	334	5.80	40.50
6	7236.00	35.00 AV	54.00	-19.00	1.43 V	334	-5.50	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6.“ * “ : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	44.00 PK	74.00	-30.00	1.06 H	325	16.60	27.40
1	1624.50	41.70 AV	54.00	-12.30	1.06 H	325	14.30	27.40
2	*2437.00	105.90 PK			1.17 H	334	76.00	29.90
2	*2437.00	98.20 AV			1.17 H	334	68.30	29.90
3	3249.00	37.80 PK	74.00	-36.20	1.14 H	68	5.70	32.10
3	3249.00	27.90 AV	54.00	-26.10	1.14 H	68	-4.20	32.10
4	4874.00	42.20 PK	74.00	-31.80	1.34 H	162	6.90	35.30
4	4874.00	33.30 AV	54.00	-20.70	1.34 H	162	-2.00	35.30
5	7311.00	45.30 PK	74.00	-28.70	1.62 H	287	4.70	40.70
5	7311.00	34.60 AV	54.00	-19.40	1.62 H	287	-6.00	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	46.20 PK	74.00	-27.80	1.00 V	85	16.60	27.40
1	1624.50	44.40 AV	54.00	-9.60	1.00 V	85	14.30	27.40
2	*2437.00	112.30 PK			1.22 V	79	76.00	29.90
2	*2437.00	106.00 AV			1.22 V	79	68.30	29.90
3	3249.00	40.0 PK	74.00	-34.00	1.20 V	62	5.70	32.10
3	3249.00	33.80 AV	54.00	-20.20	1.20 V	62	-4.20	32.10
4	4874.00	44.30 PK	74.00	-29.70	1.31 V	326	6.90	35.30
4	4874.00	38.20 AV	54.00	-15.80	1.31 V	326	-2.00	35.30
5	7311.00	46.90 PK	74.00	-27.10	1.00 V	85	4.70	40.70
5	7311.00	35.50 AV	54.00	-18.50	1.00 V	85	-6.00	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.00 PK	74.00	-32.00	1.08 H	317	14.50	27.40
1	1641.00	39.70 AV	54.00	-14.30	1.08 H	317	12.20	27.40
2	*2462.00	106.20 PK			1.23 H	340	76.20	30.00
2	*2462.00	98.40 AV			1.23 H	340	68.40	30.00
3	2483.50	54.60 PK	74.00	-19.40	1.23 H	340	24.50	30.10
3	2483.50	39.00 AV	54.00	-15.00	1.23 H	340	8.90	30.10
4	3282.00	37.70 PK	74.00	-36.30	1.16 H	69	5.50	32.20
4	3282.00	27.90 AV	54.00	-26.10	1.16 H	69	-4.30	32.20
5	4924.00	41.70 PK	74.00	-32.30	1.40 H	158	6.20	35.50
5	4924.00	31.60 AV	54.00	-22.40	1.40 H	158	-3.90	35.50
6	7386.00	45.80 PK	74.00	-28.20	1.59 H	289	5.00	40.80
6	7386.00	34.50 AV	54.00	-19.50	1.59 H	289	-6.30	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.80 PK	74.00	-31.20	1.00 V	87	15.30	27.40
1	1641.00	41.30 AV	54.00	-12.70	1.00 V	87	13.80	27.40
2	*2462.00	112.10 PK			1.24 V	83	82.10	30.00
2	*2462.00	105.70 AV			1.24 V	83	75.70	30.00
3	2483.50	60.50 PK	74.00	-13.50	1.24 V	83	30.40	30.10
3	2483.50	46.30 AV	54.00	-7.70	1.24 V	83	16.20	30.10
4	3282.00	38.90 PK	74.00	-35.10	1.19 V	65	6.70	32.20
4	3282.00	32.60 AV	54.00	-21.40	1.19 V	65	0.40	32.20
5	4924.00	43.10 PK	74.00	-30.90	1.33 V	329	7.60	35.50
5	4924.00	37.20 AV	54.00	-16.80	1.33 V	329	1.70	35.50
6	7386.00	46.40 PK	74.00	-27.60	1.42 V	314	5.60	40.80
6	7386.00	35.00 AV	54.00	-19.00	1.42 V	314	-5.80	40.80

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.15 TEST RESULTS (ANTENNA 2 – DSSS)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	46.30 PK	74.00	-27.70	1.23 H	79	18.90	27.40
1	1608.00	44.40 AV	54.00	-9.60	1.23 H	79	17.00	27.40
2	2390.00	49.70 PK	74.00	-24.30	1.61 H	141	16.00	33.70
2	2390.00	34.70 AV	54.00	-19.30	1.61 H	141	1.00	33.70
3	*2412.00	100.60 PK			1.61 H	141	70.80	29.80
3	*2412.00	93.90 AV			1.61 H	141	64.10	29.80
4	3216.00	38.40 PK	74.00	-35.60	1.09 H	323	6.40	32.00
4	3216.00	29.00 AV	54.00	-25.00	1.09 H	323	-3.00	32.00
5	4824.00	41.50 PK	74.00	-32.50	1.18 H	301	6.40	35.10
5	4824.00	33.80 AV	54.00	-20.20	1.18 H	301	-1.30	35.10
6	7236.00	45.50 PK	74.00	-28.50	1.15 H	70	5.00	40.50
6	7236.00	33.40 AV	54.00	-20.60	1.15 H	70	-7.10	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	47.90 PK	74.00	-26.10	1.12 V	1	20.50	27.40
1	1608.00	45.90 AV	54.00	-8.10	1.12 V	1	18.50	27.40
2	2390.00	64.10 PK	74.00	-9.90	1.09 V	336	30.40	33.70
2	2390.00	48.90 AV	54.00	-5.10	1.09 V	336	15.20	33.70
3	*2412.00	115.00 PK			1.09 V	336	85.20	29.80
3	*2412.00	108.10 AV			1.09 V	336	78.30	29.80
4	3216.00	41.40 PK	74.00	-32.60	1.11 V	232	9.40	32.00
4	3216.00	35.10 AV	54.00	-18.90	1.11 V	232	3.00	32.00
5	4824.00	44.00 PK	74.00	-30.00	1.20 V	30	8.90	35.10
5	4824.00	38.00 AV	54.00	-16.00	1.20 V	30	2.90	35.10
6	7236.00	46.00 PK	74.00	-28.00	1.15 V	26	5.50	40.50
6	7236.00	34.90 AV	54.00	-19.10	1.15 V	26	-5.60	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6.“ * “ : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	45.10 PK	74.00	-28.90	1.25 H	81	17.70	27.40
1	1624.50	43.10 AV	54.00	-10.90	1.25 H	81	15.70	27.40
2	*2437.00	100.90 PK			1.62 H	145	71.00	29.90
2	*2437.00	94.10 AV			1.62 H	145	64.20	29.90
3	3249.00	39.30 PK	74.00	-34.70	1.24 H	348	7.20	32.10
3	3249.00	31.20 AV	54.00	-22.80	1.24 H	348	-0.90	32.10
4	4874.00	41.20 PK	74.00	-32.80	1.12 H	200	5.90	35.30
4	4874.00	33.80 AV	54.00	-20.20	1.12 H	200	-1.50	35.30
5	7311.00	45.90 PK	74.00	-28.10	1.10 H	62	5.30	40.70
5	7311.00	33.70 AV	54.00	-20.30	1.10 H	62	-6.90	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	48.70 PK	74.00	-25.30	1.00 V	170	21.30	27.40
1	1624.50	46.10 AV	54.00	-7.90	1.00 V	170	18.70	27.40
2	*2437.00	115.90 PK			1.09 V	335	86.00	29.90
2	*2437.00	108.80 AV			1.09 V	335	78.90	29.90
3	3249.00	42.70 PK	74.00	-31.30	1.00 V	34	10.60	32.10
3	3249.00	37.60 AV	54.00	-16.40	1.00 V	34	5.50	32.10
4	4874.00	44.10 PK	74.00	-29.90	1.19 V	22	8.80	35.30
4	4874.00	38.30 AV	54.00	-15.70	1.19 V	22	3.00	35.30
5	7311.00	45.80 PK	74.00	-28.20	1.09 V	50	5.20	40.70
5	7311.00	34.90 AV	54.00	-19.10	1.09 V	50	-5.70	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. “ * “ : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	41.80 PK	74.00	-32.20	1.26 H	84	14.30	27.40
1	1641.00	39.20 AV	54.00	-14.80	1.26 H	84	11.70	27.40
2	2462.00	99.00 PK			1.14 H	117	69.00	30.00
2	2462.00	95.30 AV			1.14 H	117	65.30	30.00
3	2483.50	47.40 PK	74.00	-26.60	1.14 H	117	17.30	30.10
3	2483.50	32.90 AV	54.00	-21.10	1.14 H	117	2.80	30.10
4	3282.00	39.50 PK	74.00	-34.50	1.29 H	2	7.30	32.20
4	3282.00	30.30 AV	54.00	-23.70	1.29 H	2	-1.90	32.20
5	4924.00	40.30 PK	74.00	-33.70	1.08 H	191	4.80	35.50
5	4924.00	33.30 AV	54.00	-20.70	1.08 H	191	-2.20	35.50
6	7386.00	45.00 PK	74.00	-29.00	1.10 H	20	4.20	40.80
6	7386.00	33.30 AV	54.00	-20.70	1.10 H	20	-7.50	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	45.70 PK	74.00	-28.30	1.58 V	171	18.20	27.40
1	1641.00	43.30 AV	54.00	-10.70	1.58 V	171	15.80	27.40
2	*2462.00	115.70 PK			1.11 V	335	85.70	30.00
2	*2462.00	108.60 AV			1.11 V	335	78.60	30.00
3	2483.50	64.10 PK	74.00	-9.90	1.11 V	335	34.00	30.10
3	2483.50	49.20 AV	54.00	-4.80	1.11 V	335	19.10	30.10
4	3282.00	41.30 PK	74.00	-32.70	1.31 V	225	9.10	32.20
4	3282.00	34.40 AV	54.00	-19.60	1.31 V	225	2.20	32.20
5	4924.00	42.70 PK	74.00	-31.30	1.14 V	20	7.20	35.50
5	4924.00	37.40 AV	54.00	-16.60	1.14 V	20	1.90	35.50
6	7386.00	45.60 PK	74.00	-28.40	1.00 V	42	4.80	40.80
6	7386.00	34.10 AV	54.00	-19.90	1.00 V	42	-6.70	40.80

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.16 TEST RESULTS (ANTENNA 3,without antenna stand – DSSS)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 977 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	44.60 PK	74.00	-29.40	1.48 H	49	17.20	27.40
1	1608.00	41.10 AV	54.00	-12.90	1.48 H	49	13.70	27.40
2	2390.00	57.60 PK	74.00	-16.40	1.25 H	24	23.90	33.70
2	2390.00	30.60 AV	54.00	-23.40	1.25 H	24	-3.10	33.70
3	*2412.00	96.90 PK			1.19 H	234	67.10	29.80
3	*2412.00	90.80 AV			1.19 H	234	61.00	29.80
4	3216.00	39.20 PK	74.00	-34.80	1.81 H	32	7.10	32.00
4	3216.00	29.60 AV	54.00	-24.40	1.81 H	32	-2.40	32.00
5	4824.00	42.60 PK	74.00	-31.40	1.58 H	6	7.50	35.10
5	4824.00	34.30 AV	54.00	-19.70	1.58 H	6	-0.80	35.10
6	7236.00	44.60 PK	74.00	-29.40	1.60 H	118	4.10	40.50
6	7236.00	33.90 AV	54.00	-20.10	1.60 H	118	-6.60	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	51.10 PK	74.00	-22.90	1.53 V	180	23.70	27.40
1	1608.00	49.00 AV	54.00	-5.00	1.53 V	180	21.60	27.40
2	2390.00	59.70 PK	74.00	-14.30	1.25 V	22	26.00	33.70
2	2390.00	49.50 AV	54.00	-4.50	1.25 V	22	15.80	33.70
3	*2412.00	117.30 PK			1.02 V	23	87.50	29.80
3	*2412.00	109.70 AV			1.02 V	23	79.90	29.80
4	3216.00	41.30 PK	74.00	-32.70	1.14 V	36	9.30	32.00
4	3216.00	36.00 AV	54.00	-18.00	1.14 V	36	4.00	32.00
5	4824.00	47.10 PK	74.00	-26.90	1.15 V	207	12.00	35.10
5	4824.00	42.50 AV	54.00	-11.50	1.15 V	207	7.40	35.10
6	7236.00	48.80 PK	74.00	-25.20	1.19 V	17	8.30	40.50
6	7236.00	37.90 AV	54.00	-16.10	1.19 V	17	-2.60	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6.“ * “ : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 977 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	42.50 PK	74.00	-31.50	1.11 H	24	15.10	27.40
1	1624.50	40.10 AV	54.00	-13.90	1.11 H	24	12.70	27.40
2	*2437.00	97.50 PK			1.20 H	329	67.60	29.90
2	*2437.00	91.40 AV			1.20 H	329	61.50	29.90
3	3249.00	39.60 PK	74.00	-34.40	1.50 H	88	7.50	32.10
3	3249.00	31.30 AV	54.00	-22.70	1.50 H	88	-0.80	32.10
4	4874.00	42.60 PK	74.00	-31.40	1.18 H	21	7.30	35.30
4	4874.00	34.50 AV	54.00	-19.50	1.18 H	21	-0.80	35.30
5	7311.00	45.70 PK	74.00	-28.30	1.42 H	63	5.00	40.70
5	7311.00	39.60 AV	54.00	-14.40	1.42 H	63	-1.10	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	55.10 PK	74.00	-18.90	1.50 V	69	27.70	27.40
1	1624.50	48.00 AV	54.00	-6.00	1.50 V	69	20.60	27.40
2	*2437.00	117.40 PK			1.03 V	25	87.50	29.90
2	*2437.00	109.80 AV			1.03 V	25	79.90	29.90
3	3249.00	41.20 PK	74.00	-32.80	1.15 V	62	9.10	32.10
3	3249.00	35.80 AV	54.00	-18.20	1.15 V	62	3.70	32.10
4	4874.00	46.90 PK	74.00	-27.10	1.14 V	210	11.50	35.30
4	4874.00	41.10 AV	54.00	-12.90	1.14 V	210	5.80	35.30
5	7311.00	48.40 PK	74.00	-25.60	1.20 V	20	7.70	40.70
5	7311.00	37.80 AV	54.00	-16.20	1.20 V	20	-2.90	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	20 deg. C, 70%RH, 977 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	41.30 PK	74.00	-32.70	1.20 H	59	13.90	27.40
1	1641.00	37.50 AV	54.00	-16.50	1.20 H	59	10.10	27.40
2	*2462.00	98.00 PK			1.17 H	326	67.90	30.00
2	*2462.00	92.00 AV			1.17 H	326	62.00	30.00
3	2483.50	46.40 PK	74.00	-27.60	1.11 H	21	16.30	30.10
3	2483.50	32.60 AV	54.00	-21.40	1.11 H	21	2.50	30.10
4	3282.00	40.70 PK	74.00	-33.30	1.17 H	357	8.60	32.20
4	3282.00	32.20 AV	54.00	-21.80	1.17 H	357	0.10	32.20
5	4924.00	40.90 PK	74.00	-33.10	1.56 H	211	5.40	35.50
5	4924.00	33.40 AV	54.00	-20.60	1.56 H	211	-2.10	35.50
6	7386.00	44.20 PK	74.00	-29.80	1.72 H	39	3.40	40.80
6	7386.00	34.20 AV	54.00	-19.80	1.72 H	39	-6.60	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	47.80 PK	74.00	-26.20	1.09 V	32	20.30	27.40
1	1641.00	44.60 AV	54.00	-9.40	1.09 V	32	17.10	27.40
2	*2462.00	116.80 PK			1.10 V	20	86.80	30.00
2	*2462.00	109.80 AV			1.10 V	20	79.80	30.00
3	2483.50	65.20 PK	74.00	-8.80	1.32 V	20	35.10	30.10
3	2483.50	50.50 AV	54.00	-3.50	1.32 V	20	20.30	30.10
4	3282.00	42.00 PK	74.00	-32.00	1.11 V	270	9.80	32.20
4	3282.00	37.10 AV	54.00	-16.90	1.11 V	270	5.00	32.20
5	4924.00	44.40 PK	74.00	-29.60	1.12 V	34	8.90	35.50
5	4924.00	39.30 AV	54.00	-14.70	1.12 V	34	3.80	35.50
6	7386.00	48.00 PK	74.00	-26.00	1.08 V	62	7.20	40.80
6	7386.00	35.70 AV	54.00	-18.30	1.08 V	62	-5.10	40.80

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.17 TEST RESULTS (ANTENNA 3, with antenna stand – DSSS)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	45.90 PK	74.00	-28.10	1.19 H	306	18.50	27.40
1	1608.00	44.10 AV	54.00	-9.90	1.19 H	306	16.70	27.40
2	2390.00	44.40 PK	74.00	-29.60	1.26 H	285	10.70	33.70
2	2390.00	29.30 AV	54.00	-24.70	1.26 H	285	-4.40	33.70
3	2412.00	95.30 PK			1.26 H	285	65.50	29.80
3	2412.00	88.50 AV			1.26 H	285	58.70	29.80
4	3216.00	37.80 PK	74.00	-36.20	1.13 H	341	5.80	32.00
4	3216.00	28.50 AV	54.00	-25.50	1.13 H	341	-3.50	32.00
5	4824.00	40.50 PK	74.00	-33.50	1.16 H	34	5.40	35.10
5	4824.00	31.20 AV	54.00	-22.80	1.16 H	34	-3.90	35.10
6	7236.00	45.80 PK	74.00	-28.20	1.44 H	89	5.30	40.50
6	7236.00	34.90 AV	54.00	-19.10	1.44 H	89	-5.60	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	47.50 PK	74.00	-26.50	1.00 V	36	20.10	27.40
1	1608.00	45.60 AV	54.00	-8.40	1.00 V	36	18.20	27.40
2	2390.00	57.30 PK	74.00	-16.70	1.22 V	358	23.60	33.70
2	2390.00	42.60 AV	54.00	-11.40	1.22 V	358	8.90	33.70
3	*2412.00	108.20 PK			1.22 V	358	78.40	29.80
3	*2412.00	101.80 AV			1.22 V	358	72.00	29.80
4	3216.00	40.30 PK	74.00	-33.70	1.14 V	311	8.30	32.00
4	3216.00	33.90 AV	54.00	-20.10	1.14 V	311	1.90	32.00
5	4824.00	43.60 PK	74.00	-30.40	1.02 V	267	8.50	35.10
5	4824.00	37.50 AV	54.00	-16.50	1.02 V	267	2.40	35.10
6	7236.00	46.20 PK	74.00	-27.80	1.41 V	42	5.70	40.50
6	7236.00	35.20 AV	54.00	-18.80	1.41 V	42	-5.30	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6.“ * “ : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	45.40 PK	74.00	-28.60	1.18 H	305	18.00	27.40
1	1624.50	43.20 AV	54.00	-10.80	1.18 H	305	15.80	27.40
2	*2437.00	96.10 PK			1.32 H	274	66.20	29.90
2	*2437.00	89.20 AV			1.32 H	274	59.30	29.90
3	3249.00	38.80 PK	74.00	-35.20	1.12 H	337	6.70	32.10
3	3249.00	31.20 AV	54.00	-22.80	1.12 H	337	-0.90	32.10
4	4874.00	40.80 PK	74.00	-33.20	1.23 H	41	5.50	35.30
4	4874.00	30.90 AV	54.00	-23.10	1.23 H	41	-4.40	35.30
5	7311.00	45.50 PK	74.00	-28.50	1.47 H	93	4.90	40.70
5	7311.00	34.60 AV	54.00	-19.40	1.47 H	93	-6.00	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	48.00 PK	74.00	-26.00	1.00 V	38	20.60	27.40
1	1624.50	46.00 AV	54.00	-8.00	1.00 V	38	18.60	27.40
2	*2437.00	108.80 PK			1.26 V	357	78.90	29.90
2	*2437.00	102.30 AV			1.26 V	357	72.40	29.90
3	3249.00	41.10 PK	74.00	-32.90	1.12 V	309	9.00	32.10
3	3249.00	35.40 AV	54.00	-18.60	1.12 V	309	3.30	32.10
4	4874.00	44.20 PK	74.00	-29.80	1.06 V	283	8.90	35.30
4	4874.00	38.00 AV	54.00	-16.00	1.06 V	283	2.70	35.30
5	7311.00	45.80 PK	74.00	-28.20	1.37 V	51	5.20	40.70
5	7311.00	35.00 AV	54.00	-19.00	1.37 V	51	-5.60	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.80 PK	74.00	-31.20	1.19 H	308	15.30	27.40
1	1641.00	40.40 AV	54.00	-13.60	1.19 H	308	12.90	27.40
2	*2462.00	96.40 PK			1.29 H	281	66.40	30.00
2	*2462.00	89.60 AV			1.29 H	281	59.60	30.00
3	2483.50	44.80 PK	74.00	-29.20	1.29 H	281	14.70	30.10
3	2483.50	30.20 AV	54.00	-23.80	1.29 H	281	0.10	30.10
4	3282.00	39.70 PK	74.00	-34.30	1.07 H	326	7.50	32.20
4	3282.00	30.70 AV	54.00	-23.30	1.07 H	326	-1.50	32.20
5	4924.00	40.70 PK	74.00	-33.30	1.19 H	38	5.20	35.50
5	4924.00	30.80 AV	54.00	-23.20	1.19 H	38	-4.70	35.50
6	7386.00	45.70 PK	74.00	-28.30	1.46 H	92	4.80	40.80
6	7386.00	34.40 AV	54.00	-19.60	1.46 H	92	-6.40	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	45.90 PK	74.00	-28.10	1.06 V	43	18.40	27.40
1	1641.00	43.50 AV	54.00	-10.50	1.06 V	43	16.00	27.40
2	2462.00	109.60 PK			1.31 V	355	79.60	30.00
2	2462.00	102.70 AV			1.31 V	355	72.70	30.00
3	2483.50	58.00 PK	74.00	-16.00	1.31 V	355	27.90	30.10
3	2483.50	43.30 AV	54.00	-10.70	1.31 V	355	13.20	30.10
4	3282.00	40.90 PK	74.00	-33.10	1.14 V	305	8.70	32.20
4	3282.00	34.50 AV	54.00	-19.50	1.14 V	305	2.30	32.20
5	4924.00	43.50 PK	74.00	-30.50	1.13 V	292	8.00	35.50
5	4924.00	37.60 AV	54.00	-16.40	1.13 V	292	2.10	35.50
6	7386.00	45.80 PK	74.00	-28.20	1.43 V	49	5.00	40.80
6	7386.00	34.70 AV	54.00	-19.30	1.43 V	49	-6.10	40.80

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.18 TEST RESULTS (ANTENNA 1 –OFDM)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	45.70 PK	74.00	-28.30	1.05 H	327	18.30	27.40
1	1608.00	43.50 AV	54.00	-10.50	1.05 H	327	16.10	27.40
2	2390.00	49.60 PK	74.00	-24.40	1.16 H	330	15.90	33.70
2	2390.00	38.60 AV	54.00	-15.40	1.16 H	330	4.90	33.70
3	*2412.00	101.50 PK			1.16 H	330	71.70	29.80
3	*2412.00	93.80 AV			1.16 H	330	64.00	29.80
4	3216.00	37.90 PK	74.00	-36.10	1.09 H	67	5.90	32.00
4	3216.00	28.50 AV	54.00	-25.50	1.09 H	67	-3.50	32.00
5	4824.00	41.20 PK	74.00	-32.80	1.32 H	153	6.10	35.10
5	4824.00	32.00 AV	54.00	-22.00	1.32 H	153	-3.10	35.10
6	7236.00	45.70 PK	74.00	-28.30	1.54 H	268	5.20	40.50
6	7236.00	34.70 AV	54.00	-19.30	1.54 H	268	-5.80	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	47.10 PK	74.00	-26.90	1.00 V	84	19.70	27.40
1	1608.00	45.40 AV	54.00	-8.60	1.00 V	84	18.00	27.40
2	2390.00	57.20 PK	74.00	-16.80	1.08 V	359	23.50	33.70
2	2390.00	46.60 AV	54.00	-7.40	1.08 V	359	12.90	33.70
3	2412.00	109.10 PK			1.08 V	359	79.30	29.80
3	2412.00	101.80 AV			1.08 V	359	72.00	29.80
4	3216.00	41.20 PK	74.00	-32.80	1.17 V	63	9.20	32.00
4	3216.00	34.70 AV	54.00	-19.30	1.17 V	63	2.70	32.00
5	4824.00	43.80 PK	74.00	-30.20	1.30 V	326	8.70	35.10
5	4824.00	37.60 AV	54.00	-16.40	1.30 V	326	2.50	35.10
6	7236.00	49.40 PK	74.00	-24.60	1.46 V	308	8.90	40.50
6	7236.00	34.90 AV	54.00	-19.10	1.46 V	308	-5.60	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	44.40 PK	74.00	-29.60	1.06 H	314	17.00	27.40
1	1624.50	42.50 AV	54.00	-11.50	1.06 H	314	15.10	27.40
2	*2437.00	101.90 PK			1.14 H	333	72.00	29.90
2	*2437.00	94.10 AV			1.14 H	333	64.20	29.90
3	3249.00	37.70 PK	74.00	-36.30	1.11 H	75	5.60	32.10
3	3249.00	27.60 AV	54.00	-26.40	1.11 H	75	-4.50	32.10
4	4874.00	42.10 PK	74.00	-31.90	1.33 H	156	6.80	35.30
4	4874.00	32.60 AV	54.00	-21.40	1.33 H	156	-2.70	35.30
5	7311.00	45.50 PK	74.00	-28.50	1.55 H	271	4.90	40.70
5	7311.00	34.70 AV	54.00	-19.30	1.55 H	271	-5.90	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	46.10 PK	74.00	-27.90	1.00 V	83	18.70	27.40
1	1624.50	44.20 AV	54.00	-9.80	1.00 V	83	16.80	27.40
2	*2437.00	109.70 PK			1.11 V	356	79.80	29.90
2	*2437.00	102.30 AV			1.11 V	356	72.40	29.90
3	3249.00	40.10 PK	74.00	-33.90	1.19 V	64	8.00	32.10
3	3249.00	34.00 AV	54.00	-20.00	1.19 V	64	1.90	32.10
4	4874.00	44.20 PK	74.00	-29.80	1.29 V	337	8.90	35.30
4	4874.00	38.10 AV	54.00	-15.90	1.29 V	337	2.80	35.30
5	7311.00	49.80 PK	74.00	-24.20	1.50 V	313	9.20	40.70
5	7311.00	35.20 AV	54.00	-18.80	1.50 V	313	-5.40	40.70

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.40 PK	74.00	-31.60	1.07 H	323	14.90	27.40
1	1641.00	40.00 AV	54.00	-14.00	1.07 H	323	12.50	27.40
2	*2462.00	102.20 PK			1.17 H	342	72.20	30.00
2	*2462.00	94.30 AV			1.17 H	342	64.30	30.00
3	2483.50	54.10 PK	74.00	-19.90	1.17 H	342	24.00	30.10
3	2483.50	40.90 AV	54.00	-13.10	1.17 H	342	10.80	30.10
4	3282.00	38.10 PK	74.00	-35.90	1.15 H	72	5.90	32.20
4	3282.00	28.00 AV	54.00	-26.00	1.15 H	72	-4.20	32.20
5	4924.00	41.50 PK	74.00	-32.50	1.30 H	151	6.00	35.50
5	4924.00	31.50 AV	54.00	-22.50	1.30 H	151	-4.00	35.50
6	7386.00	45.80 PK	74.00	-28.20	1.51 H	257	5.00	40.80
6	7386.00	34.60 AV	54.00	-19.40	1.51 H	257	-6.20	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.50 PK	74.00	-31.50	1.00 V	86	15.00	27.40
1	1641.00	40.90 AV	54.00	-13.10	1.00 V	86	13.40	27.40
2	*2462.00	109.90 PK			1.09 V	358	79.90	30.00
2	*2462.00	102.60 AV			1.09 V	358	72.60	30.00
3	2483.50	61.80 PK	74.00	-12.20	1.09 V	358	31.70	30.10
3	2483.50	49.20 AV	54.00	-4.80	1.09 V	358	19.10	30.10
4	3282.00	38.70 PK	74.00	-35.30	1.20 V	63	6.50	32.20
4	3282.00	32.40 AV	54.00	-21.60	1.20 V	63	0.20	32.20
5	4924.00	43.70 PK	74.00	-30.30	1.27 V	332	8.20	35.50
5	4924.00	37.50 AV	54.00	-16.50	1.27 V	332	2.00	35.50
6	7386.00	46.00 PK	74.00	-28.00	1.47 V	306	5.20	40.80
6	7386.00	34.90 AV	54.00	-19.10	1.47 V	306	-5.90	40.80

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.19 TEST RESULTS (ANTENNA 2 –OFDM)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	44.00 PK	74.00	-30.00	1.00 H	333	16.60	27.40
1	1608.00	38.60 AV	54.00	-15.40	1.00 H	333	11.20	27.40
2	2390.00	44.80 PK	74.00	-29.20	1.39 H	298	11.10	33.70
2	2390.00	34.70 AV	54.00	-19.30	1.39 H	298	1.00	33.70
3	*2412.00	96.70 PK			1.39 H	298	66.90	29.80
3	*2412.00	89.90 AV			1.39 H	298	60.10	29.80
4	3216.00	42.30 PK	74.00	-31.70	1.01 H	12	10.30	32.00
4	3216.00	33.40 AV	54.00	-20.60	1.01 H	12	1.40	32.00
5	4824.00	37.90 PK	74.00	-36.10	1.09 H	46	2.80	35.10
5	4824.00	29.90 AV	54.00	-24.10	1.09 H	46	-5.20	35.10
6	7236.00	43.20 PK	74.00	-30.80	1.01 H	358	2.70	40.50
6	7236.00	33.70 AV	54.00	-20.30	1.01 H	358	-6.80	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	52.00 PK	74.00	-22.00	1.56 V	181	24.60	27.40
1	1608.00	47.80 AV	54.00	-6.20	1.56 V	181	20.40	27.40
2	2390.00	57.60 PK	74.00	-16.40	1.11 V	336	23.90	33.70
2	2390.00	48.90 AV	54.00	-5.10	1.11 V	336	15.20	33.70
3	*2412.00	109.50 PK			1.11 V	336	79.70	29.80
3	*2412.00	104.00 AV			1.11 V	336	74.20	29.80
4	3216.00	45.40 PK	74.00	-28.60	1.81 V	307	13.40	32.00
4	3216.00	38.40 AV	54.00	-15.60	1.81 V	307	6.40	32.00
5	4824.00	44.60 PK	74.00	-29.40	1.09 V	35	9.50	35.10
5	4824.00	38.10 AV	54.00	-15.90	1.09 V	35	3.00	35.10
6	7236.00	49.60 PK	74.00	-24.40	1.11 V	64	9.10	40.50
6	7236.00	34.90 AV	54.00	-19.10	1.11 V	64	-5.60	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	41.00 PK	74.00	-33.00	1.00 H	312	13.60	27.40
1	1624.50	35.20 AV	54.00	-18.80	1.00 H	312	7.80	27.40
2	*2437.00	96.40 PK			1.33 H	305	66.50	29.90
2	*2437.00	89.80 AV			1.33 H	305	59.90	29.90
3	3249.00	38.80 PK	74.00	-35.20	1.01 H	12	6.70	32.10
3	3249.00	30.50 AV	54.00	-23.50	1.01 H	12	-1.60	32.10
4	4874.00	37.40 PK	74.00	-36.60	1.01 H	33	2.10	35.30
4	4874.00	29.80 AV	54.00	-24.20	1.01 H	33	-5.50	35.30
5	7311.00	43.90 PK	74.00	-30.10	1.10 H	269	3.30	40.70
5	7311.00	33.90 AV	54.00	-20.10	1.10 H	269	-6.70	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	47.30 PK	74.00	-26.70	1.00 V	178	19.90	27.40
1	1624.50	45.80 AV	54.00	-8.20	1.00 V	178	18.40	27.40
2	*2437.00	109.80 PK			1.14 V	341	79.90	29.90
2	*2437.00	104.10 AV			1.14 V	341	74.20	29.90
3	3249.00	40.80 PK	74.00	-33.20	1.00 V	247	8.70	32.10
3	3249.00	35.80 AV	54.00	-18.20	1.00 V	247	3.70	32.10
4	4874.00	43.30 PK	74.00	-30.70	1.02 V	49	8.00	35.30
4	4874.00	37.10 AV	54.00	-16.90	1.02 V	49	1.80	35.30
5	7311.00	44.70 PK	74.00	-29.30	1.09 V	210	4.10	40.70
5	7311.00	34.80 AV	54.00	-19.20	1.09 V	210	-5.80	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	42.20 PK	74.00	-31.80	1.24 H	81	14.70	27.40
1	1641.00	39.10 AV	54.00	-14.90	1.24 H	81	11.60	27.40
2	*2462.00	97.20 PK			1.40 H	300	67.20	30.00
2	*2462.00	90.30 AV			1.40 H	300	60.30	30.00
3	2483.50	49.10 PK	74.00	-24.90	1.40 H	300	19.00	30.10
3	2483.50	36.90 AV	54.00	-17.10	1.40 H	300	6.80	30.10
4	3282.00	37.80 PK	74.00	-36.20	1.07 H	324	5.60	32.20
4	3282.00	27.90 AV	54.00	-26.10	1.07 H	324	-4.30	32.20
5	4924.00	37.30 PK	74.00	-36.70	1.14 H	67	1.80	35.50
5	4924.00	29.30 AV	54.00	-24.70	1.14 H	67	-6.20	35.50
6	7386.00	43.60 PK	74.00	-30.40	1.67 H	28	2.80	40.80
6	7386.00	34.30 AV	54.00	-19.70	1.67 H	28	-6.50	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	43.40 PK	74.00	-30.60	1.42 V	159	15.90	27.40
1	1641.00	41.30 AV	54.00	-12.70	1.42 V	159	13.80	27.40
2	*2462.00	110.10 PK			1.10 V	341	80.10	30.00
2	*2462.00	104.50 AV			1.10 V	341	74.40	30.00
3	2483.50	62.00 PK	74.00	-12.00	1.10 V	341	31.90	30.10
3	2483.50	51.00 AV	54.00	-3.00	1.10 V	341	20.90	30.10
4	3282.00	41.50 PK	74.00	-32.50	1.31 V	336	9.30	32.20
4	3282.00	30.90 AV	54.00	-23.10	1.31 V	336	-1.30	32.20
5	4924.00	43.40 PK	74.00	-30.60	1.10 V	86	7.90	35.50
5	4924.00	38.20 AV	54.00	-15.80	1.10 V	86	2.70	35.50
6	7386.00	45.10 PK	74.00	-28.90	1.10 V	359	4.30	40.80
6	7386.00	34.60 AV	54.00	-19.40	1.10 V	359	-6.20	40.80

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.20 TEST RESULTS (ANTENNA 3, without antenna stand –OFDM)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	44.30 PK	74.00	-29.70	1.27 H	176	16.90	27.40
1	1608.00	40.90 AV	54.00	-13.10	1.27 H	176	13.50	27.40
2	2390.00	46.70 PK	74.00	-27.30	1.05 H	264	13.00	33.70
2	2390.00	37.20 AV	54.00	-16.80	1.05 H	264	3.50	33.70
3	*2412.00	98.60 PK			1.05 H	264	68.80	29.80
3	*2412.00	92.10 AV			1.05 H	264	62.30	29.80
4	3216.00	39.00 PK	74.00	-35.00	1.76 H	48	7.00	32.00
4	3216.00	29.40 AV	54.00	-24.60	1.76 H	48	-2.60	32.00
5	4824.00	42.40 PK	74.00	-31.60	1.56 H	353	7.30	35.10
5	4824.00	34.00 AV	54.00	-20.00	1.56 H	353	-1.10	35.10
6	7236.00	45.10 PK	74.00	-28.90	1.42 H	97	4.60	40.50
6	7236.00	34.40 AV	54.00	-19.60	1.42 H	97	-6.10	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	50.70 PK	74.00	-23.30	1.17 V	191	23.30	27.40
1	1608.00	48.60 AV	54.00	-5.40	1.17 V	191	21.20	27.40
2	2390.00	60.60 PK	74.00	-13.40	1.00 V	27	26.90	33.70
2	2390.00	50.60 AV	54.00	-3.40	1.00 V	27	16.90	33.70
3	*2412.00	112.50 PK			1.00 V	27	82.70	29.80
3	*2412.00	105.80 AV			1.00 V	27	76.00	29.80
4	3216.00	41.70 PK	74.00	-32.30	1.56 V	43	9.70	32.00
4	3216.00	36.20 AV	54.00	-17.80	1.56 V	43	4.20	32.00
5	4824.00	47.70 PK	74.00	-26.30	1.14 V	214	12.60	35.10
5	4824.00	43.00 AV	54.00	-11.00	1.14 V	214	7.90	35.10
6	7236.00	48.60 PK	74.00	-25.40	1.32 V	46	8.10	40.50
6	7236.00	37.80 AV	54.00	-16.20	1.32 V	46	-2.70	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	44.20 PK	74.00	-29.80	1.31 H	174	16.80	27.40
1	1624.50	40.50 AV	54.00	-13.50	1.31 H	174	13.10	27.40
2	*2437.00	99.10 PK			1.06 H	268	69.20	29.90
2	*2437.00	92.60 AV			1.06 H	268	62.70	29.90
3	3249.00	39.10 PK	74.00	-34.90	1.84 H	57	7.00	32.10
3	3249.00	29.30 AV	54.00	-24.70	1.84 H	57	-2.80	32.10
4	4874.00	42.30 PK	74.00	-31.70	1.58 H	349	7.00	35.30
4	4874.00	33.90 AV	54.00	-20.10	1.58 H	349	-1.40	35.30
5	7311.00	45.10 PK	74.00	-28.90	1.37 H	103	4.50	40.70
5	7311.00	34.30 AV	54.00	-19.70	1.37 H	103	-6.30	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	50.20 PK	74.00	-23.80	1.20 V	202	22.80	27.40
1	1624.50	48.30 AV	54.00	-5.70	1.20 V	202	20.90	27.40
2	*2437.00	112.70 PK			1.00 V	29	82.80	29.90
2	*2437.00	106.10 AV			1.00 V	29	76.20	29.90
3	3249.00	41.30 PK	74.00	-32.70	1.61 V	68	9.20	32.10
3	3249.00	36.00 AV	54.00	-18.00	1.61 V	68	3.90	32.10
4	4874.00	47.50 PK	74.00	-26.50	1.18 V	223	12.20	35.30
4	4874.00	42.80 AV	54.00	-11.20	1.18 V	223	7.50	35.30
5	7311.00	48.60 PK	74.00	-25.40	1.43 V	49	8.00	40.70
5	7311.00	37.70 AV	54.00	-16.30	1.43 V	49	-2.90	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	43.90 PK	74.00	-30.10	1.30 H	186	16.40	27.40
1	1641.00	40.40 AV	54.00	-13.60	1.30 H	186	12.90	27.40
2	*2462.00	98.90 PK			1.09 H	267	68.90	30.00
2	*2462.00	92.40 AV			1.09 H	267	62.40	30.00
3	2483.50	49.80 PK	74.00	-24.20	1.09 H	267	19.70	30.10
3	2483.50	39.00 AV	54.00	-15.00	1.09 H	267	8.90	30.10
4	3282.00	39.60 PK	74.00	-34.40	1.83 H	153	7.40	32.20
4	3282.00	29.90 AV	54.00	-24.10	1.83 H	153	-2.30	32.20
5	4924.00	42.40 PK	74.00	-31.60	1.61 H	12	6.90	35.50
5	4924.00	33.80 AV	54.00	-20.20	1.61 H	12	-1.70	35.50
6	7386.00	45.60 PK	74.00	-28.40	1.43 H	146	4.80	40.80
6	7386.00	34.70 AV	54.00	-19.30	1.43 H	146	-6.10	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	50.60 PK	74.00	-23.40	1.09 V	187	23.10	27.40
1	1641.00	48.70 AV	54.00	-5.30	1.09 V	187	21.20	27.40
2	*2462.00	112.70 PK			1.01 V	33	82.70	30.00
2	*2462.00	105.90 AV			1.01 V	33	75.90	30.00
3	2483.50	63.60 PK	74.00	-10.40	1.01 V	33	33.50	30.10
3	**2483.50**	**52.50 AV**	**54.00**	**-1.50**	**1.01 V**	**33**	**22.40**	**30.10**
4	3282.00	42.20 PK	74.00	-31.80	1.57 V	61	10.00	32.20
4	3282.00	36.60 AV	54.00	-17.40	1.57 V	61	4.40	32.20
5	4924.00	48.40 PK	74.00	-25.60	1.17 V	217	12.90	35.50
5	4924.00	43.50 AV	54.00	-10.50	1.17 V	217	8.00	35.50
6	7386.00	48.40 PK	74.00	-25.60	1.41 V	54	7.60	40.80
6	7386.00	37.80 AV	54.00	-16.20	1.41 V	54	-3.00	40.80

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.2.21 TEST RESULTS (ANTENNA 3, with antenna stand –OFDM)

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 1	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	43.50 PK	74.00	-30.50	1.17 H	42	16.10	27.40
1	1608.00	37.90 AV	54.00	-16.10	1.17 H	42	10.50	27.40
2	2390.00	38.90 PK	74.00	-35.10	1.21 H	300	5.20	33.70
2	2390.00	29.50 AV	54.00	-24.50	1.21 H	300	-4.20	33.70
3	*2412.00	90.80 PK			1.21 H	300	61.00	29.80
3	*2412.00	84.70 AV			1.21 H	300	54.90	29.80
4	3216.00	41.00 PK	74.00	-33.00	1.24 H	335	9.00	32.00
4	3216.00	32.30 AV	54.00	-21.70	1.24 H	335	0.30	32.00
5	4824.00	41.60 PK	74.00	-32.40	1.24 H	53	6.50	35.10
5	4824.00	31.10 AV	54.00	-22.90	1.24 H	53	-4.00	35.10
6	7236.00	45.90 PK	74.00	-28.10	1.47 H	96	5.40	40.50
6	7236.00	34.00 AV	54.00	-20.00	1.47 H	96	-6.50	40.50

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1608.00	47.90 PK	74.00	-26.10	1.00 V	341	20.50	27.40
1	1608.00	45.90 AV	54.00	-8.10	1.00 V	341	18.50	27.40
2	2390.00	52.00 PK	74.00	-22.00	1.00 V	294	18.30	33.70
2	2390.00	43.50 AV	54.00	-10.50	1.00 V	294	9.80	33.70
3	*2412.00	103.90 PK			1.00 V	294	74.10	29.80
3	*2412.00	98.70 AV			1.00 V	294	68.90	29.80
4	3216.00	40.20 PK	74.00	-33.80	1.08 V	324	8.20	32.00
4	3216.00	34.90 AV	54.00	-19.10	1.08 V	324	2.90	32.00
5	4824.00	44.40 PK	74.00	-29.60	1.06 V	274	9.30	35.10
5	4824.00	38.00 AV	54.00	-16.00	1.06 V	274	2.90	35.10
6	7236.00	45.90 PK	74.00	-28.10	1.37 V	46	5.40	40.50
6	7236.00	35.00 AV	54.00	-19.00	1.37 V	46	-5.50	40.50

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 6	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	42.80 PK	74.00	-31.20	1.14 H	56	15.40	27.40
1	1624.50	37.70 AV	54.00	-16.30	1.14 H	56	10.30	27.40
2	*2437.00	90.70 PK			1.22 H	301	60.80	29.90
2	*2437.00	84.70 AV			1.22 H	301	54.80	29.90
3	3249.00	39.60 PK	74.00	-34.40	1.26 H	345	7.50	32.10
3	3249.00	30.80 AV	54.00	-23.20	1.26 H	345	-1.30	32.10
4	4874.00	41.00 PK	74.00	-33.00	1.25 H	48	5.70	35.30
4	4874.00	30.20 AV	54.00	-23.80	1.25 H	48	-5.10	35.30
5	7311.00	46.20 PK	74.00	-27.80	1.51 H	89	5.60	40.70
5	7311.00	34.30 AV	54.00	-19.70	1.51 H	89	-6.30	40.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1624.50	47.90 PK	74.00	-26.10	1.00 V	342	20.50	27.40
1	1624.50	45.80 AV	54.00	-8.20	1.00 V	342	18.40	27.40
2	*2437.00	104.30 PK			1.00 V	295	74.40	29.90
2	*2437.00	99.00 AV			1.00 V	295	69.10	29.90
3	3249.00	40.10 PK	74.00	-33.90	1.06 V	321	8.00	32.10
3	3249.00	34.50 AV	54.00	-19.50	1.06 V	321	2.40	32.10
4	4874.00	44.30 PK	74.00	-29.70	1.09 V	272	9.00	35.30
4	4874.00	38.00 AV	54.00	-16.00	1.09 V	272	2.70	35.30
5	7311.00	46.00 PK	74.00	-28.00	1.39 V	43	5.40	40.70
5	7311.00	34.90 AV	54.00	-19.10	1.39 V	43	-5.70	40.70

REMARKS:
1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

EUT	Wireless-G Broadband Router with 4-port Switch	**MODEL**	WRT54G v4
MODE	Channel 11	**FREQUENCY RANGE**	1000~25000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**DETECTOR FUNCTION & BANDWIDTH**	Peak (PK) Average (AV) 1 MHz
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH, 977 hPa	**TESTED BY**	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	40.80 PK	74.00	-33.20	1.18 H	54	13.30	27.40
1	1641.00	35.50 AV	54.00	-18.50	1.18 H	54	8.00	27.40
2	*2462.00	91.40 PK			1.26 H	310	61.40	30.00
2	*2462.00	85.10 AV			1.26 H	310	55.10	30.00
3	2483.50	43.30 PK	74.00	-30.70	1.26 H	310	13.20	30.10
3	2483.50	31.70 AV	54.00	-22.30	1.26 H	310	1.60	30.10
4	3282.00	39.00 PK	74.00	-35.00	1.34 H	306	6.80	32.20
4	3282.00	28.90 AV	54.00	-25.10	1.34 H	306	-3.30	32.20
5	4924.00	41.40 PK	74.00	-32.60	1.29 H	62	5.90	35.50
5	4924.00	30.10 AV	54.00	-23.90	1.29 H	62	-5.40	35.50
6	7386.00	46.60 PK	74.00	-27.40	1.58 H	93	5.80	40.80
6	7386.00	34.60 AV	54.00	-19.40	1.58 H	93	-6.20	40.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1641.00	44.80 PK	74.00	-29.20	1.06 V	337	17.30	27.40
1	1641.00	42.50 AV	54.00	-11.50	1.06 V	337	15.00	27.40
2	*2462.00	104.70 PK			1.03 V	287	74.70	30.00
2	*2462.00	99.20 AV			1.03 V	287	69.20	30.00
3	2483.50	56.60 PK	74.00	-17.40	1.03 V	287	26.50	30.10
3	2483.50	45.80 AV	54.00	-8.20	1.03 V	287	15.70	30.10
4	3282.00	41.00 PK	74.00	-33.00	1.11 V	323	8.80	32.20
4	3282.00	33.70 AV	54.00	-20.30	1.11 V	323	1.50	32.20
5	4924.00	44.30 PK	74.00	-29.70	1.05 V	276	8.80	35.50
5	4924.00	38.10 AV	54.00	-15.90	1.05 V	276	2.60	35.50
6	7386.00	46.40 PK	74.00	-27.60	1.42 V	48	5.60	40.80
6	7386.00	34.90 AV	54.00	-19.10	1.42 V	48	-5.90	40.80

REMARKS: 1. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. The limit value is defined as per 15.247
6. " * " : Fundamental frequency

4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

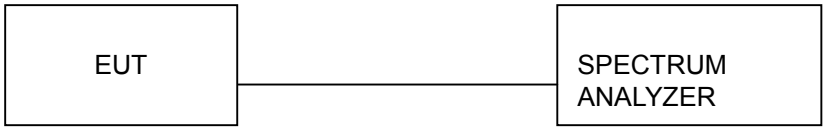
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

4.3.4 TEST SETUP



For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

4.3.5 EUT OPERATING CONDITIONS

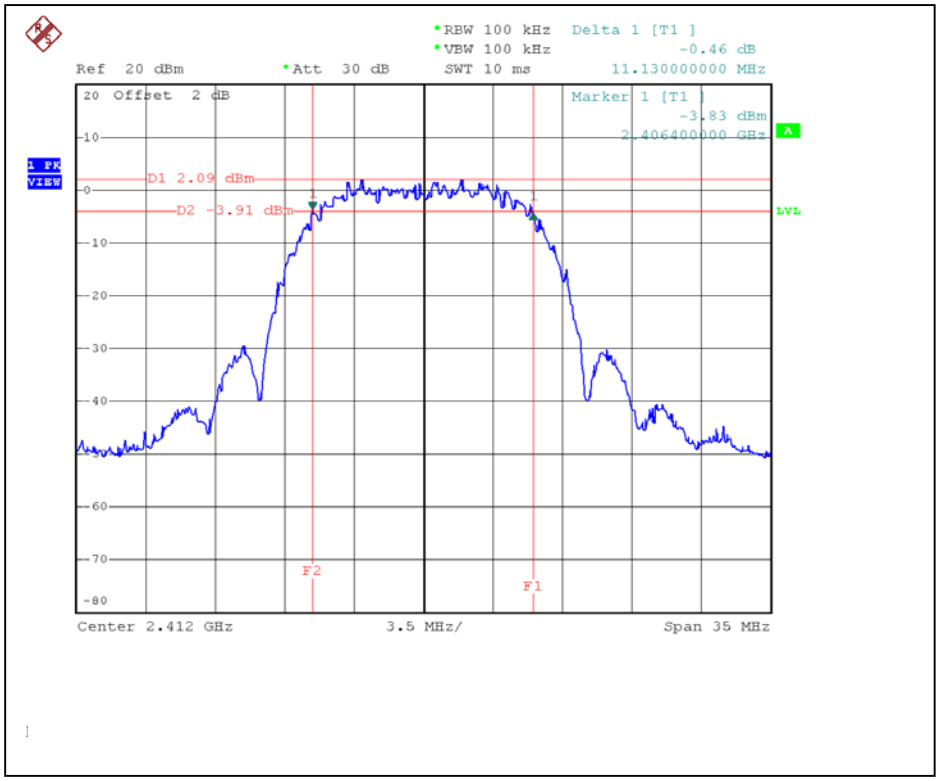
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.6 TEST RESULTS - DSSS

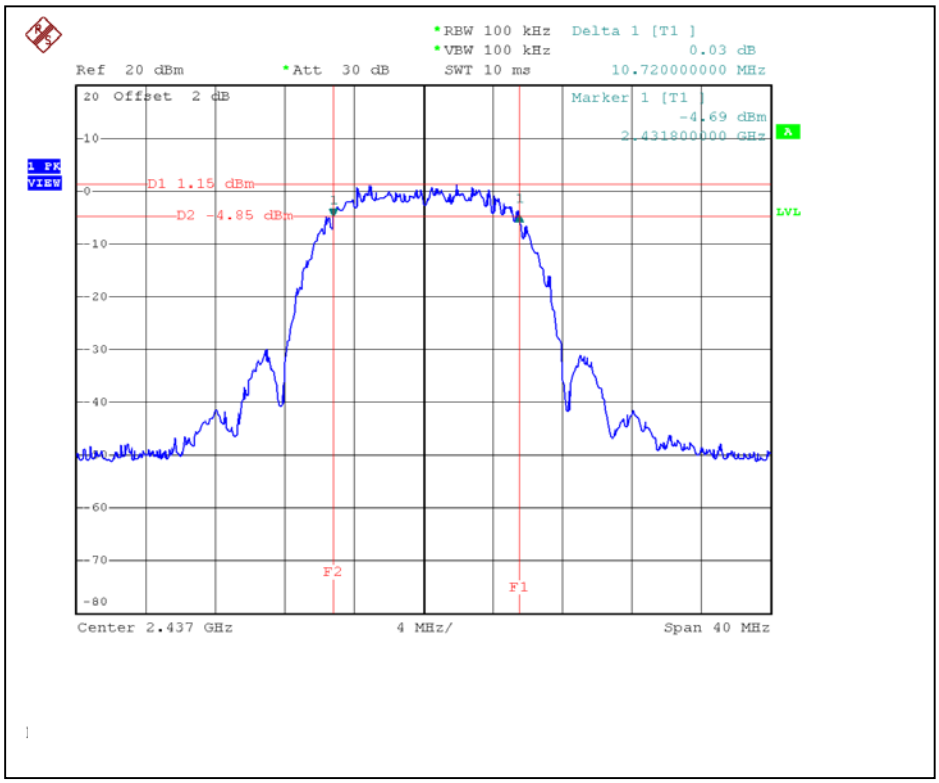
EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	11.13	0.5	PASS
6	2437	10.72	0.5	PASS
11	2462	11.13	0.5	PASS

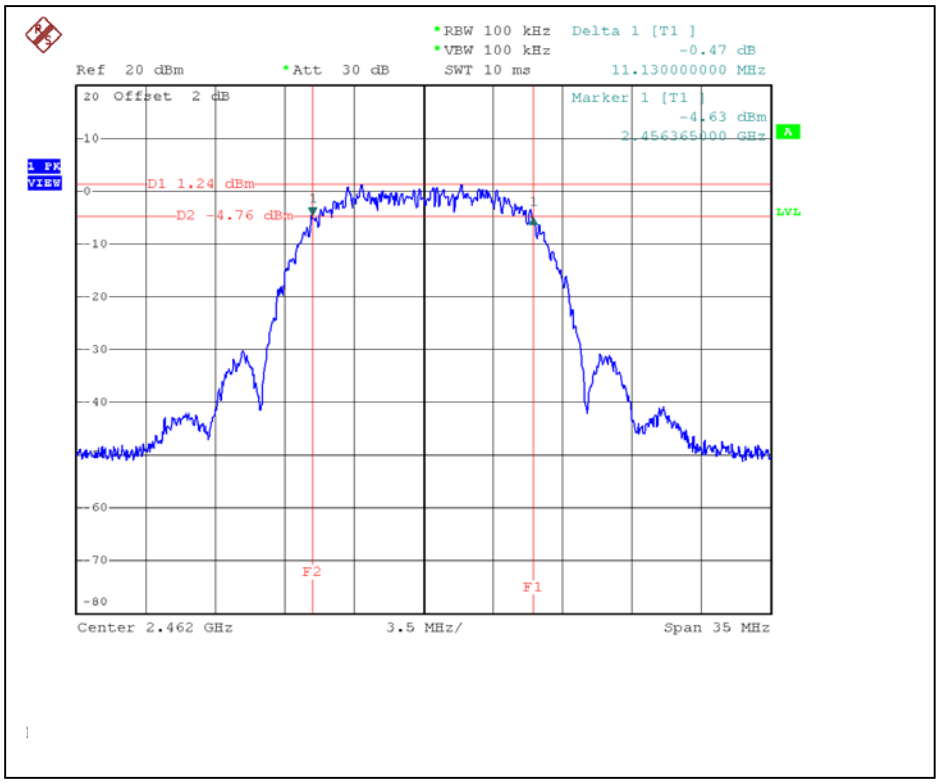
CH1


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.46 dB
11.130000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
-3.83 dBm
2.406400000 GHz
D1 2.09 dBm
D2 -3.91 dBm
F2
F1
Center 2.412 GHz
3.5 MHz/
Span 35 MHz

CH6


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.03 dB
10.720000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
-4.69 dBm
2.431800000 GHz
D1 1.15 dBm
D2 -4.85 dBm
F2
F1
Center 2.437 GHz
4 MHz/
Span 40 MHz

CH11

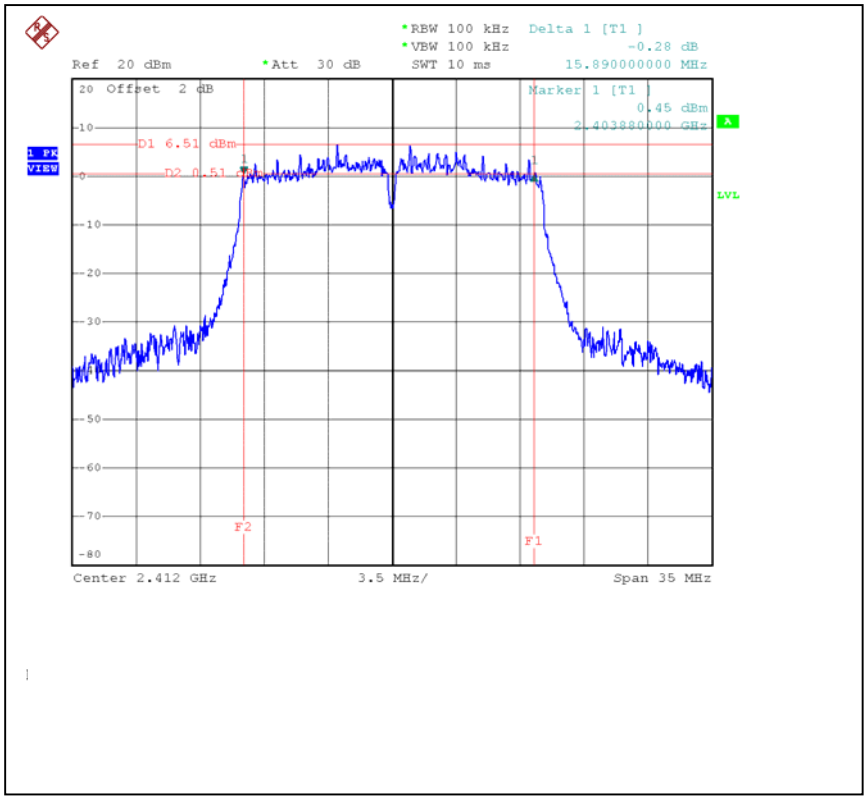

RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.47 dB
11.130000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
-4.63 dBm
2.456365000 GHz
D1 1.24 dBm
D2 -4.76 dBm
F2
F1
LVL
Center 2.462 GHz
3.5 MHz/
Span 35 MHz

4.3.7 TEST RESULTS -OFDM

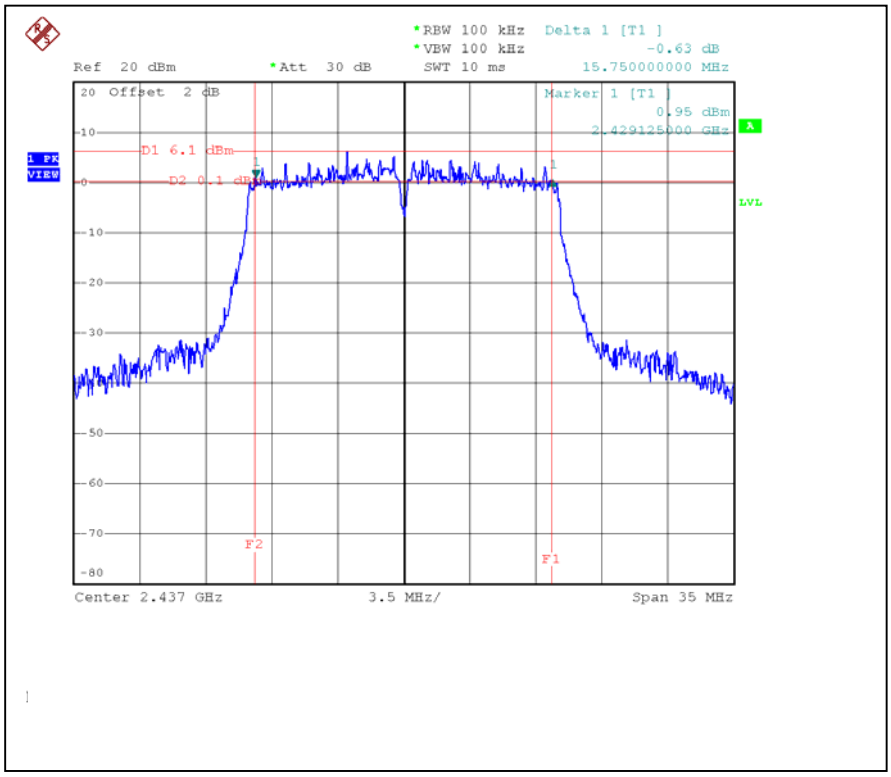
EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	15.89	0.5	PASS
6	2437	15.75	0.5	PASS
11	2462	15.40	0.5	PASS

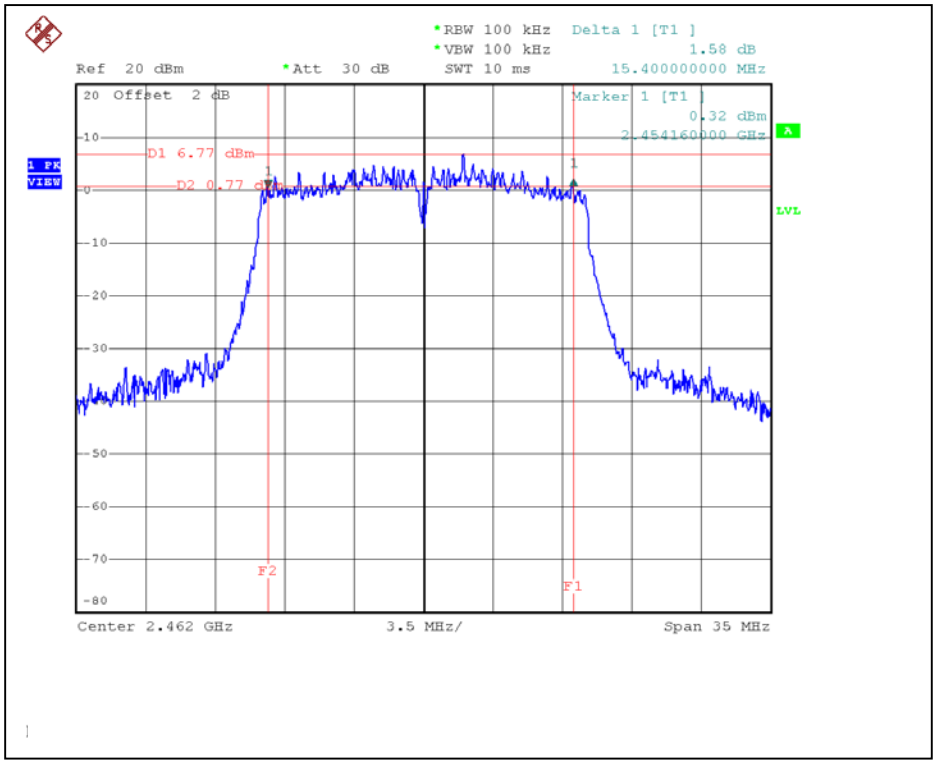
CH1


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.28 dB
15.890000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
0.45 dBm
2.403880000 GHz
D1 6.51 dBm
D2 0.51 dBm
F2
F1
Center 2.412 GHz
3.5 MHz/
Span 35 MHz

CH6


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.63 dB
15.750000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
0.95 dBm
2.429125000 GHz
D1 6.1 dBm
D2 0.1 dBm
F2
F1
Center 2.437 GHz
3.5 MHz/
Span 35 MHz

CH11


RBW 100 kHz
VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
1.58 dB
15.400000000 MHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
0.32 dBm
2.454160000 GHz
D1 6.77 dBm
D2 0.77 dB
F2
F1
Center 2.462 GHz
3.5 MHz/
Span 35 MHz

4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 TEST INSTRUMENTS

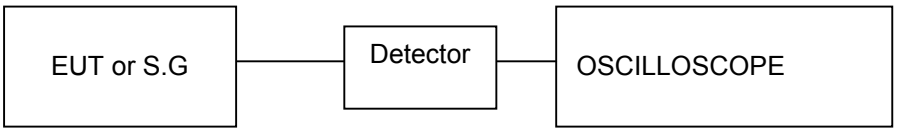
Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2005
TEKTRONIX OSCILLOSCOPE	TDS 220	B027241	Jun. 30, 2005
NARDA DETECTOR	4503A	FSCM99899	NA

NOTE:
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST PROCEDURES

1. A detector was used on the output port of the EUT. An oscilloscope was used to read the peak response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same peak reading on oscilloscope. Record the power level.

4.4.4 TEST SETUP



4.4.5 EUT OPERATING CONDITIONS

Same as Item 4.3.5

4.4.6 TEST RESULTS - DSSS

EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

Antenna 1 (Gain : 2 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.09	30	PASS
6	2437	19.13	30	PASS
11	2462	19.20	30	PASS

Antenna 2 (Gain : 5 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.09	30	PASS
6	2437	19.13	30	PASS
11	2462	19.20	30	PASS

Antenna 3 (Gain : 7 dBi), without antenna stand

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.09	29	PASS
6	2437	19.13	29	PASS
11	2462	19.20	29	PASS

Antenna 3(Gain: 7 dBi), with antenna stand + cable (loss:7dB)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	19.09	30	PASS
6	2437	19.13	30	PASS
11	2462	19.20	30	PASS

4.4.7 TEST RESULTS - OFDM

EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

Antenna 1 (Gain : 2 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.78	30	PASS
6	2437	18.68	30	PASS
11	2462	18.70	30	PASS

Antenna 2 (Gain : 5 dBi)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.78	30	PASS
6	2437	18.68	30	PASS
11	2462	18.70	30	PASS

Antenna 3 (Gain : 7 dBi), without antenna stand

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.78	29	PASS
6	2437	18.68	29	PASS
11	2462	18.70	29	PASS

Antenna 3(Gain: 7 dBi), with antenna stand + cable (loss:7dB)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS/FAIL
1	2412	18.78	30	PASS
6	2437	18.68	30	PASS
11	2462	18.70	30	PASS

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

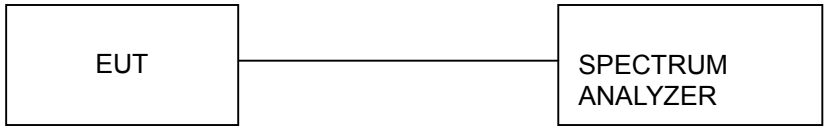
NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time=span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3KHz for a full response of the mixer in the spectrum analyzer.

4.5.4 TEST SETUP



4.5.5 EUT OPERATING CONDITIONS

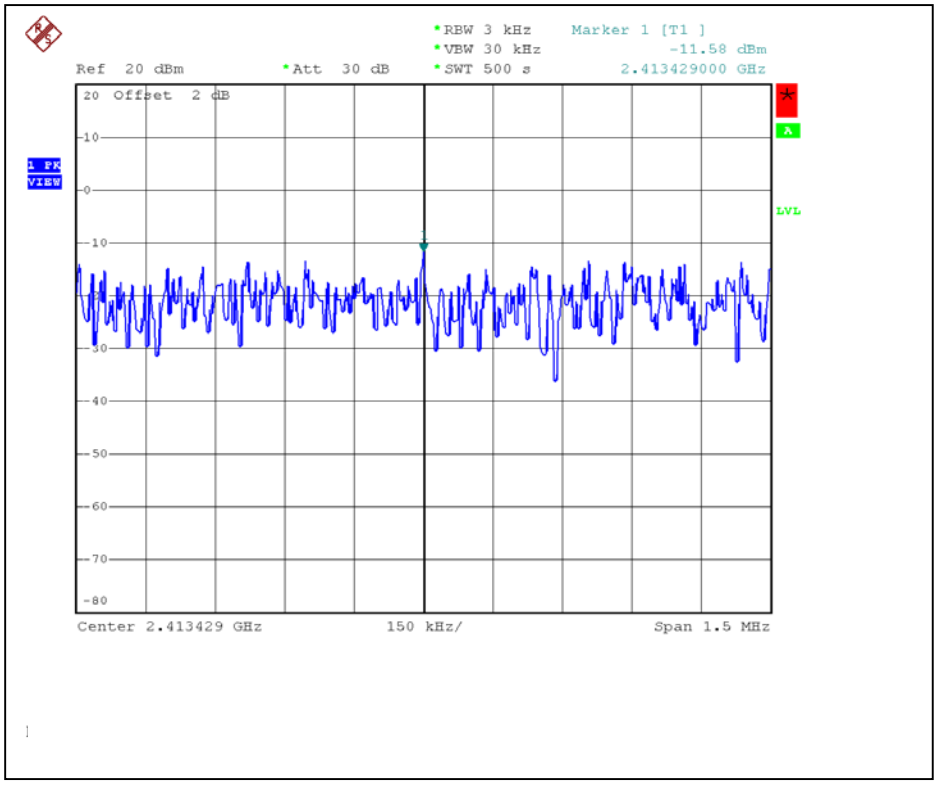
Same as 4.3.5

4.5.6 TEST RESULTS – DSSS

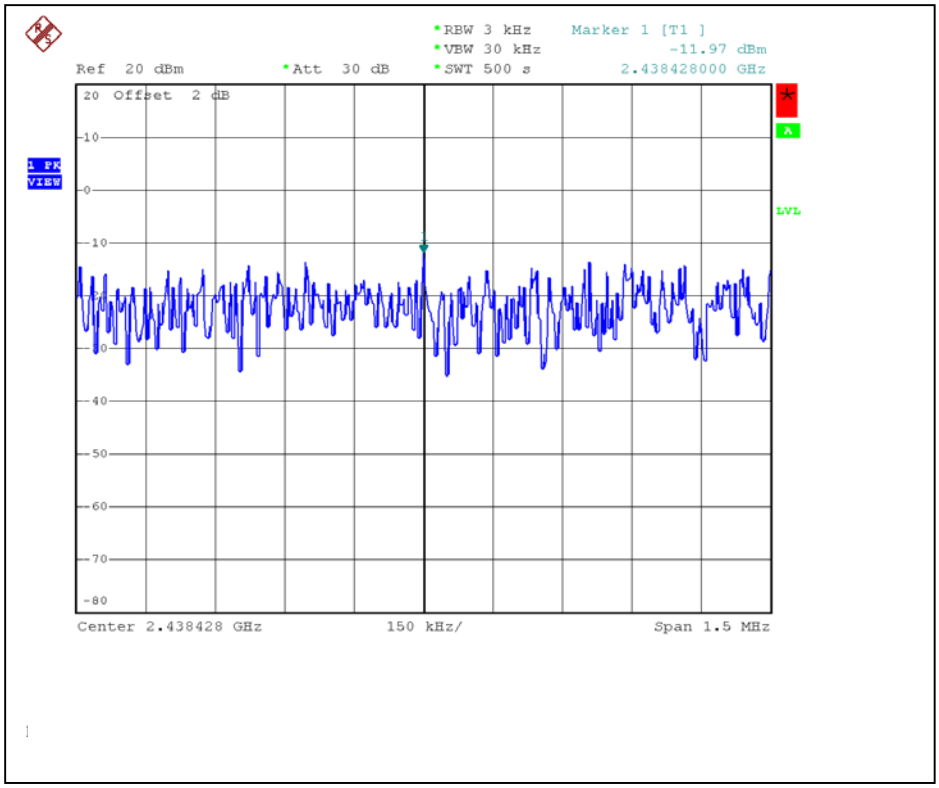
EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-11.58	8	PASS
6	2437	-11.97	8	PASS
11	2462	-11.80	8	PASS

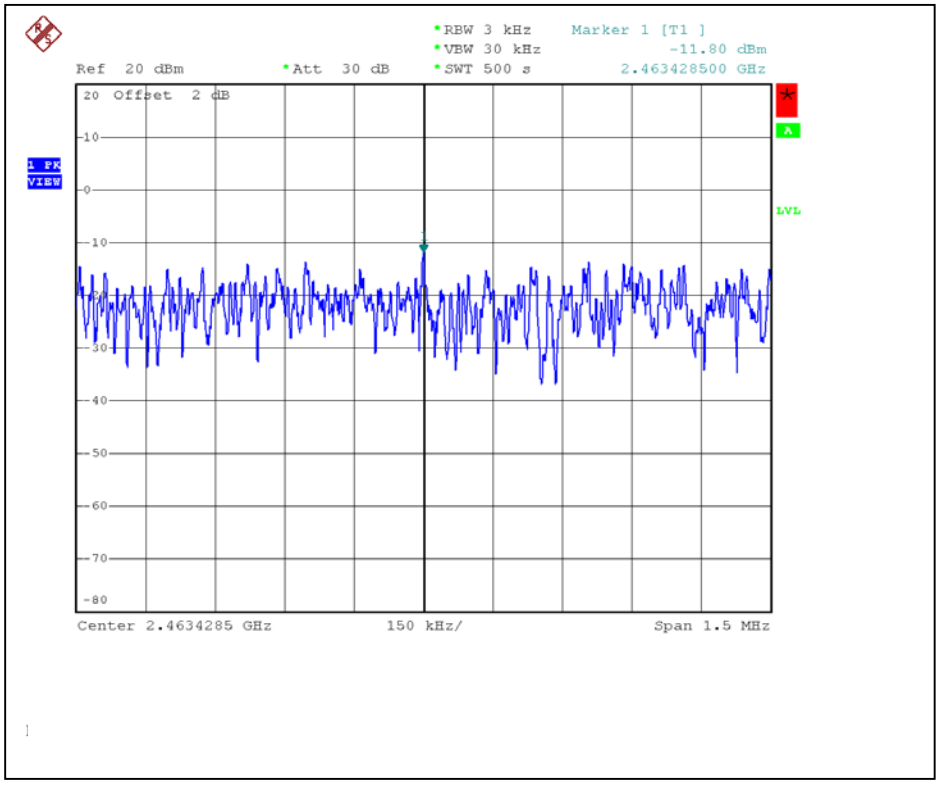
CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-11.58 dBm
2.413429000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
1 PK VIEW
LVL
Center 2.413429 GHz
150 kHz/
Span 1.5 MHz

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-11.97 dBm
2.438428000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
1 PK VIEW
LVL
Center 2.438428 GHz
150 kHz/
Span 1.5 MHz

CH11

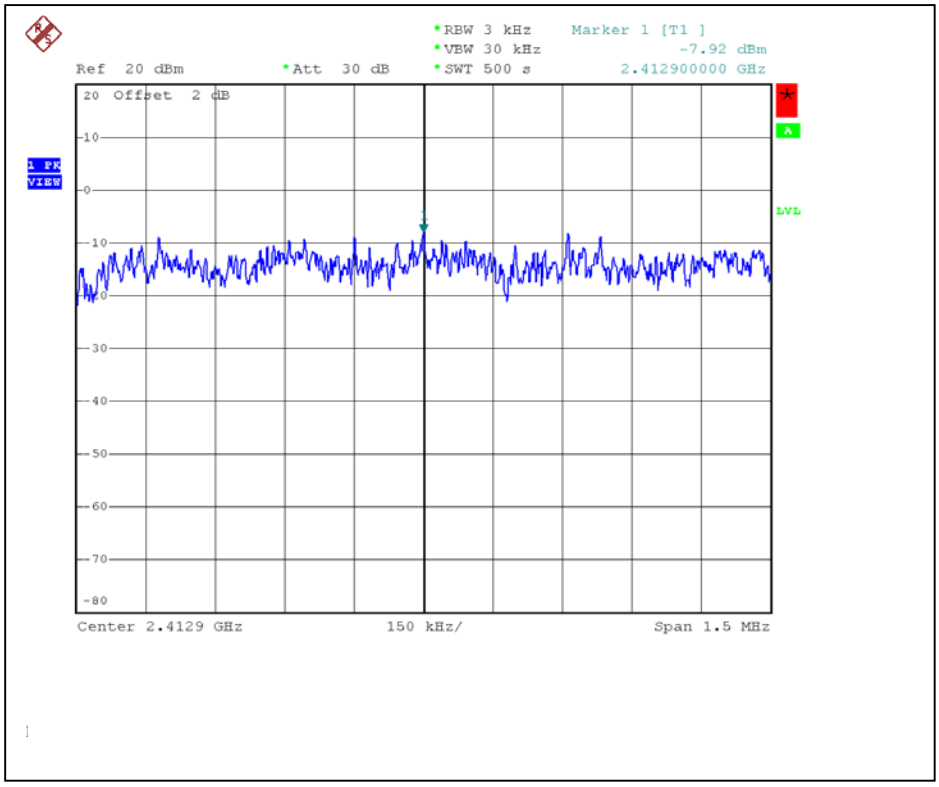

RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-11.80 dBm
2.463428500 GHz
Ref 20 dBm
Att 30 dB
Offset 2 dB
1 PK
VIEW
A
LVL
Center 2.4634285 GHz
150 kHz/
Span 1.5 MHz

4.5.7 TEST RESULTS – OFDM

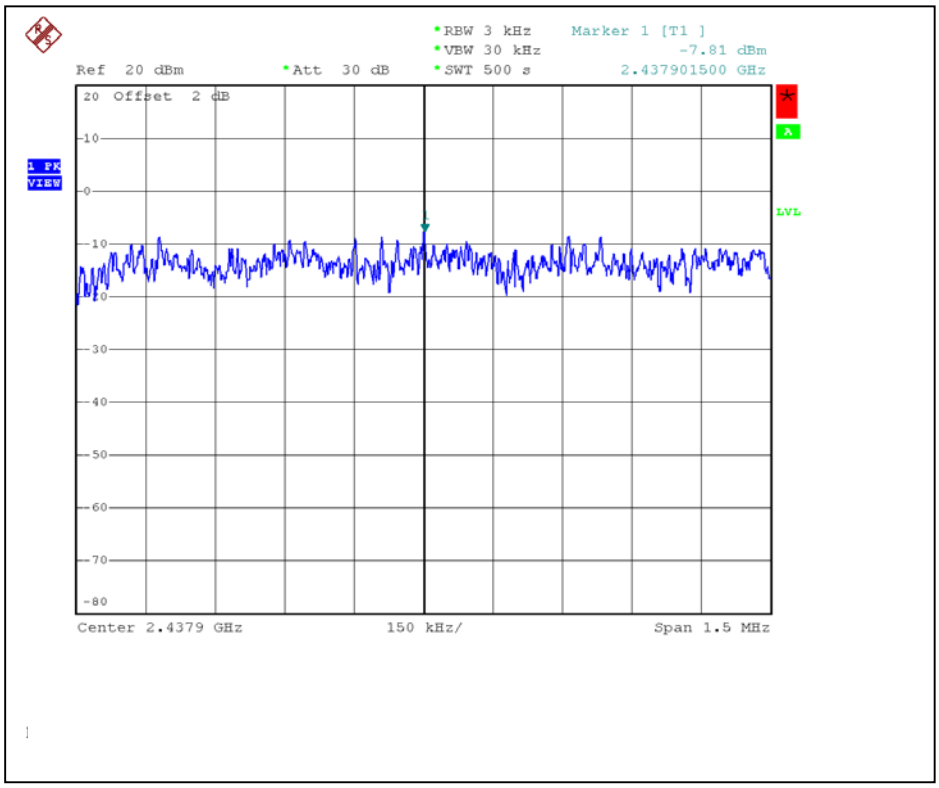
EUT	Wireless-G Broadband Router with 4-port Switch		
MODEL	WRT54G v4	**ENVIRONMENTAL CONDITIONS**	26 deg. C, 66%RH, 977 hPa
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**TESTED BY**	Eric Lee

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-7.92	8	PASS
6	2437	-7.81	8	PASS
11	2462	-8.42	8	PASS

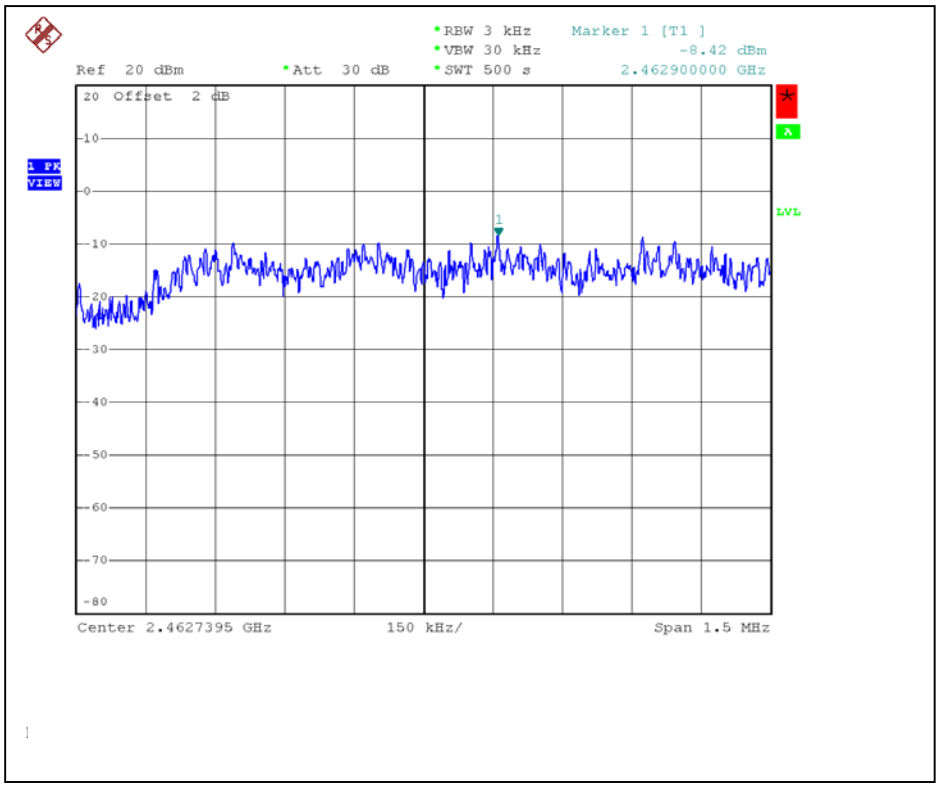
CH1


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-7.92 dBm
2.412900000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
1 PK VIEW
LVL
Center 2.4129 GHz
150 kHz/
Span 1.5 MHz

CH6


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-7.81 dBm
2.437901500 GHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
1 PK VIEW
LVL
Center 2.4379 GHz
150 kHz/
Span 1.5 MHz

CH11


RBW 3 kHz
VBW 30 kHz
SWT 500 s
Marker 1 [T1]
-8.42 dBm
2.462900000 GHz
Ref 20 dBm
Att 30 dB
20 Offset 2 dB
1 PK
VIEW
LVL
Center 2.4627395 GHz
150 kHz/
Span 1.5 MHz

4.6 BAND EDGES MEASUREMENT

4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 1MHz Resolution Bandwidth).

4.6.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
R&S SPECTRUM ANALYZER	FSP40	100036	Nov. 23, 2005

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW spectrum analyzer to 1 MHz and set VBW spectrum analyzer to 10 Hz with suitable frequency span including 1 MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW=VBW=100kHz ; Average RBW=1MHz, VBW=1KHz) are attached on the following pages.

4.6.4 EUT OPERATING CONDITION

Same as Item 4.3.5

4.6.5 TEST RESULTS (ANTENNA 1 – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

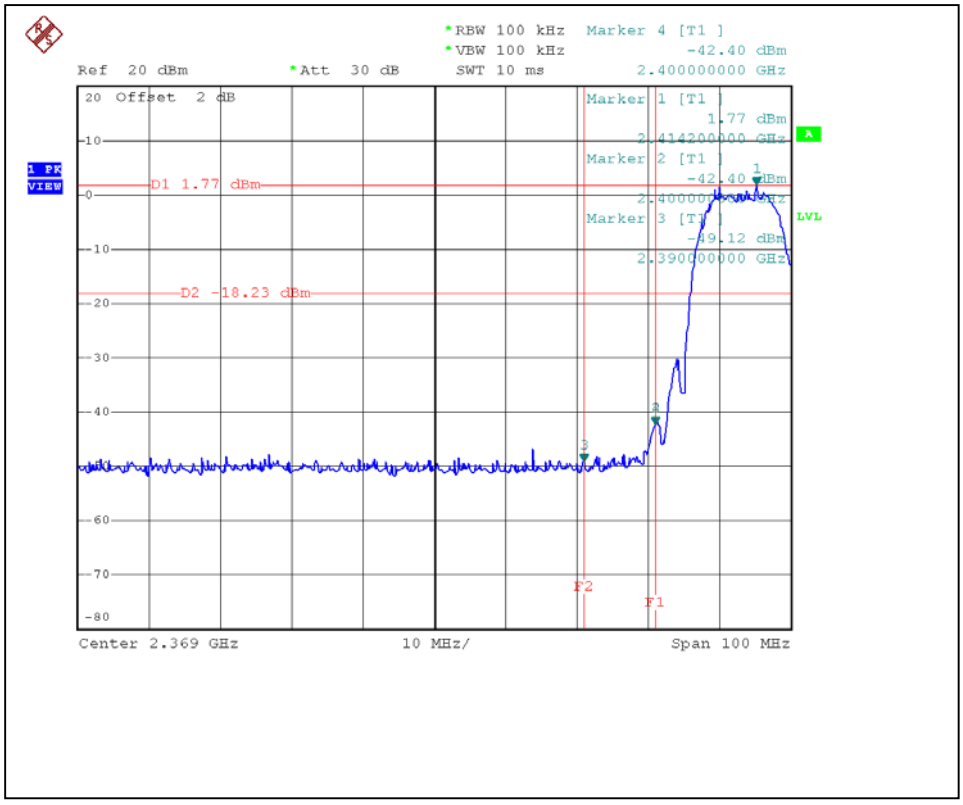
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

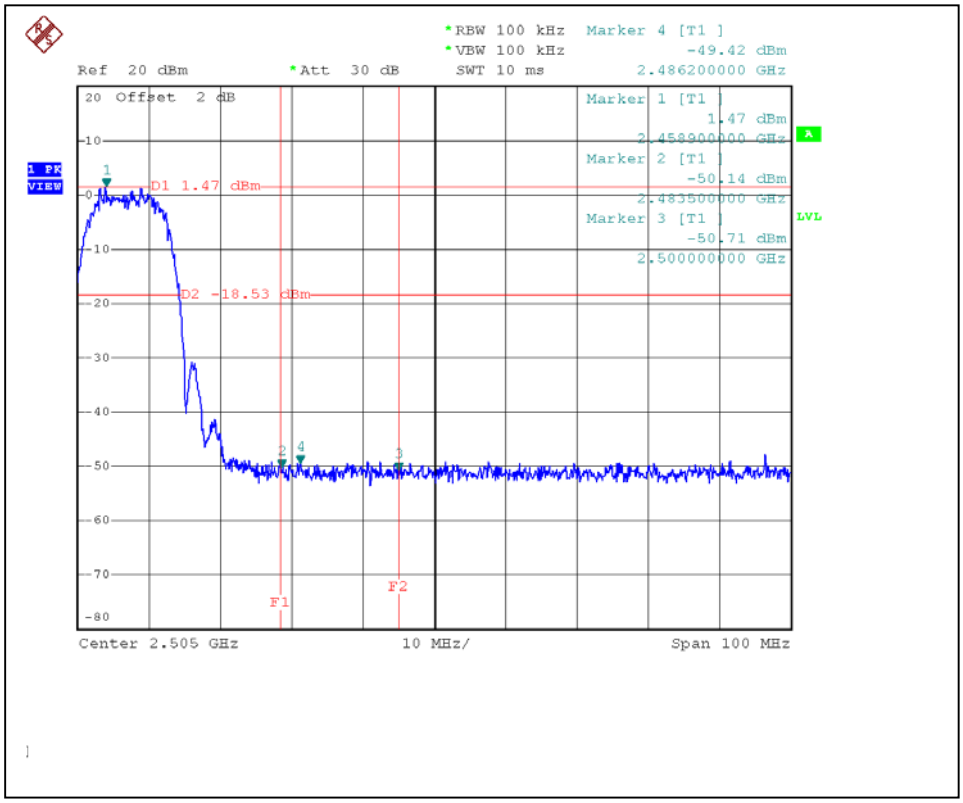
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 50.89dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 111.80dBuV/m, so the maximum field strength in restrict band is 111.80-50.89=60.91dBuV/m which is under 74 dBuV/m limit.

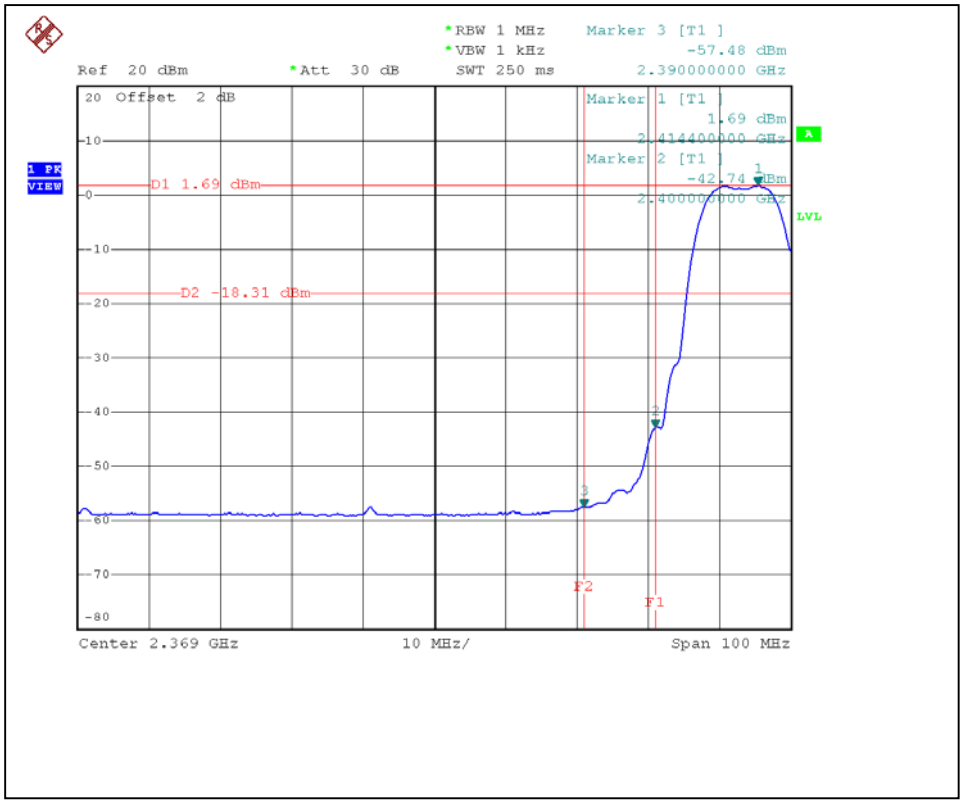
The band edge emission plot of DSSS technique on the following first page shows 51.61dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 112.10dBuV/m, so the maximum field strength in restrict band is 112.10-51.61=60.49dBuV/m which is under 74 dBuV/m limit.

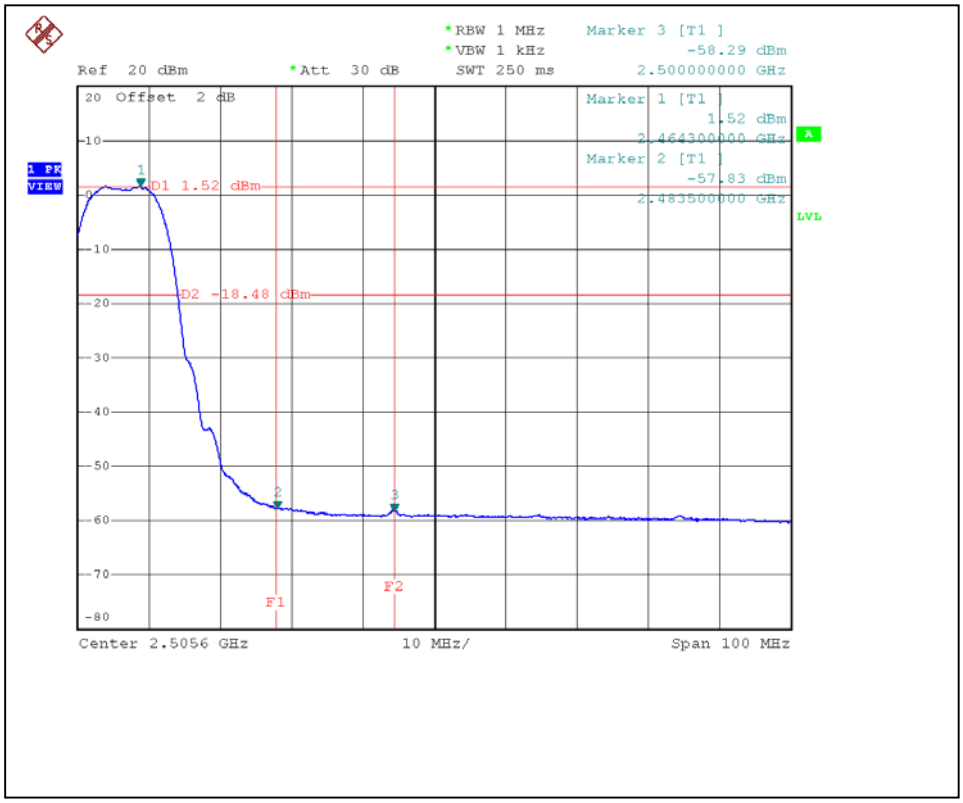
NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 59.17strict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.30dBuV/m, so the maximum field strength in restrict band is 105.30-59.17=46.13dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 59.35dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 105.70dBuV/m, so the maximum field strength in restrict band is 105.70-59.35=46.35dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-42.40 dBm
2.400000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.77 dBm
2.414200000 GHz
Marker 2 [T1]
-42.40 dBm
Marker 3 [T1]
-49.12 dBm
2.390000000 GHz
1 PK
VIEW
D1 1.77 dBm
D2 -18.23 dBm
LVL
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-49.42 dBm
2.486200000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.47 dBm
2.458900000 GHz
Marker 2 [T1]
-50.14 dBm
2.483500000 GHz
Marker 3 [T1]
-50.71 dBm
2.500000000 GHz
1 PK
VIEW
D1 1.47 dBm
D2 -18.53 dBm
LVL
F1
F2
Center 2.505 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-57.48 dBm
2.390000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.69 dBm
2.414400000 GHz
Marker 2 [T1]
-42.74 dBm
2.400000000 GHz
1 PK
VIEW
D1 1.69 dBm
D2 -18.31 dBm
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-58.29 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.52 dBm
2.464300000 GHz
Marker 2 [T1]
-57.83 dBm
2.483500000 GHz
1 PK
VIEW
D1 1.52 dBm
D2 -18.48 dBm
F1
F2
Center 2.5056 GHz
10 MHz/
Span 100 MHz

4.6.6 TEST RESULTS (ANTENNA 2 – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

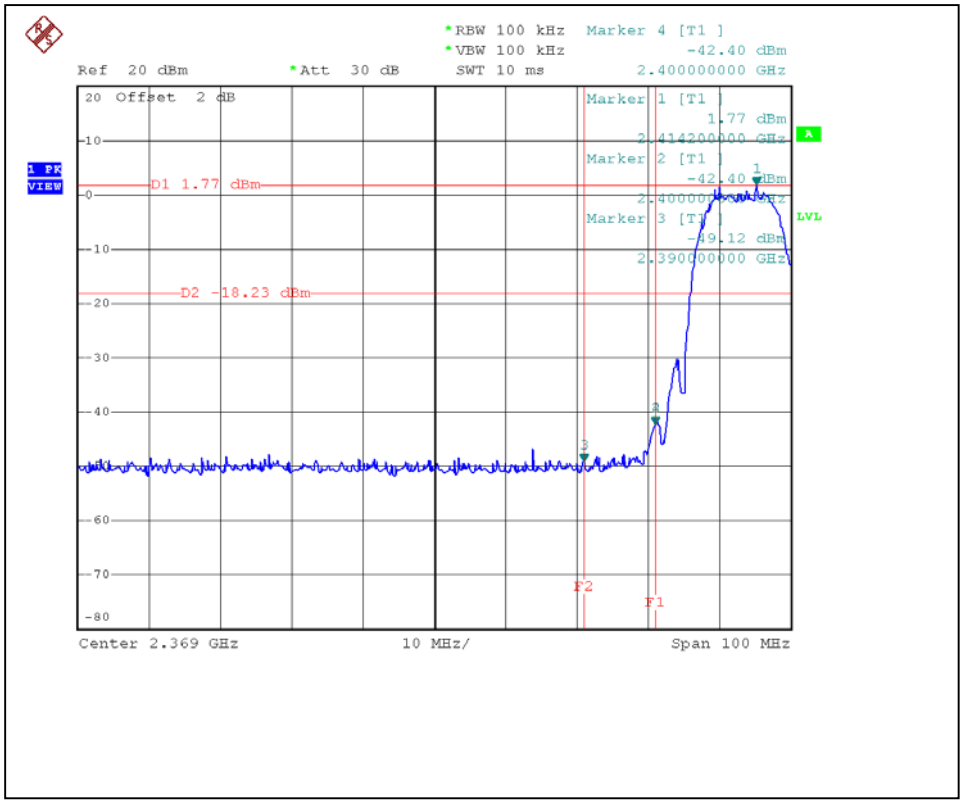
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

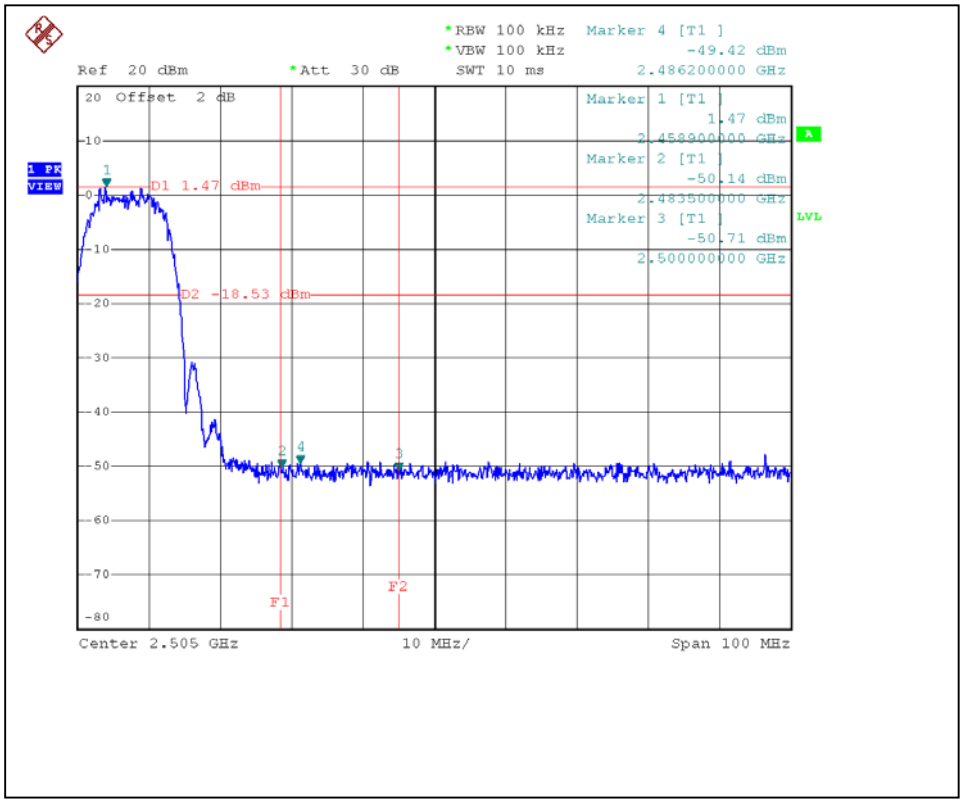
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 50.89dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 115.0dBuV/m, so the maximum field strength in restrict band is 115.0-50.89=64.11dBuV/m which is under 74 dBuV/m limit.

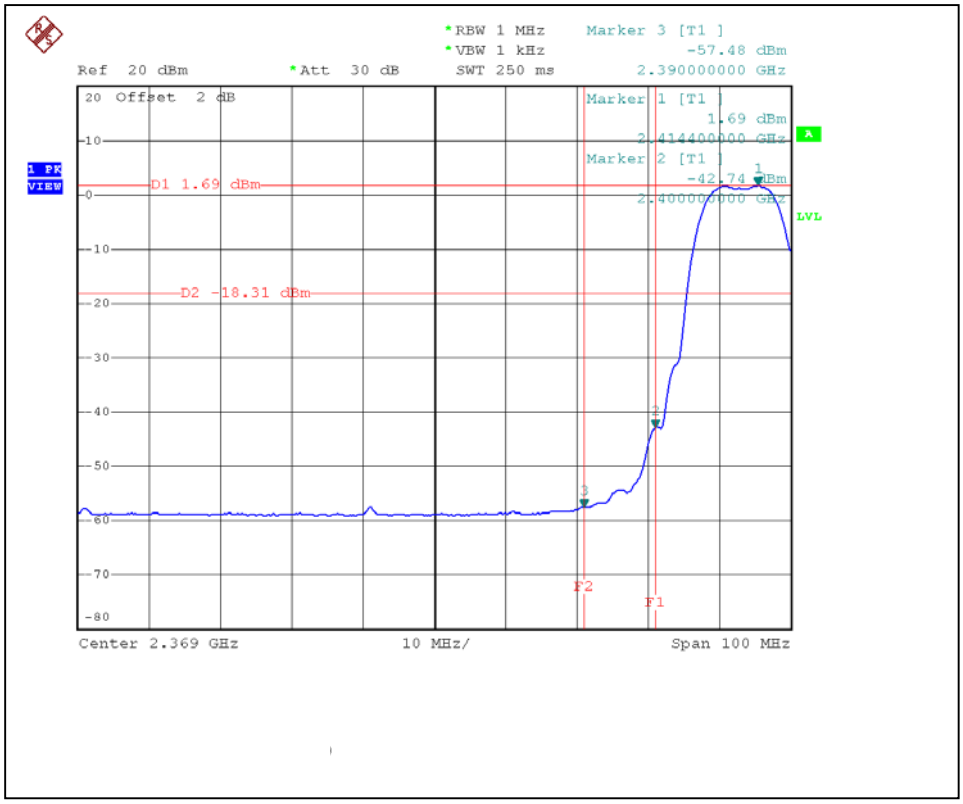
The band edge emission plot of DSSS technique on the following first page shows 51.61dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 115.70dBuV/m, so the maximum field strength in restrict band is 115.70-51.61=64.09dBuV/m which is under 74 dBuV/m limit.

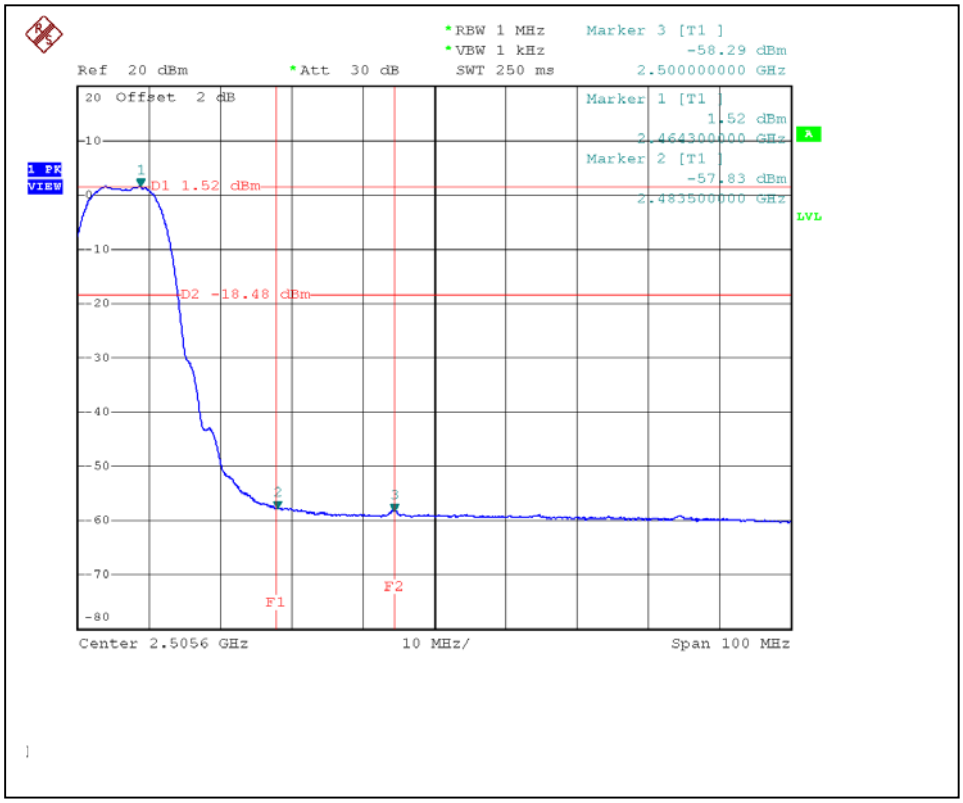
NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 59.17strict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 108.10dBuV/m, so the maximum field strength in restrict band is 108.10-59.17=48.93dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 59.35dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 108.60dBuV/m, so the maximum field strength in restrict band is 108.60-59.35=49.25dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-42.40 dBm
2.400000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.77 dBm
2.414200000 GHz
Marker 2 [T1]
-42.40 dBm
Marker 3 [T1]
-49.12 dBm
2.390000000 GHz
D1 1.77 dBm
D2 -18.23 dBm
1 PK
VIEW
LVL
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-49.42 dBm
2.486200000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.47 dBm
2.458900000 GHz
Marker 2 [T1]
-50.14 dBm
2.483500000 GHz
Marker 3 [T1]
-50.71 dBm
2.500000000 GHz
D1 1.47 dBm
D2 -18.53 dBm
1 PK
VIEW
LVL
F1
F2
Center 2.505 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-57.48 dBm
2.390000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.69 dBm
2.414400000 GHz
Marker 2 [T1]
-42.74 dBm
2.400000000 GHz
1 PK
VIEW
D1 1.69 dBm
D2 -18.31 dBm
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-58.29 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.52 dBm
2.464300000 GHz
Marker 2 [T1]
-57.83 dBm
2.483500000 GHz
1 PK
VIEW
D1 1.52 dBm
D2 -18.48 dBm
F1
F2
Center 2.5056 GHz
10 MHz/
Span 100 MHz

4.6.7 TEST RESULTS (ANTENNA 3, without antenna stand – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

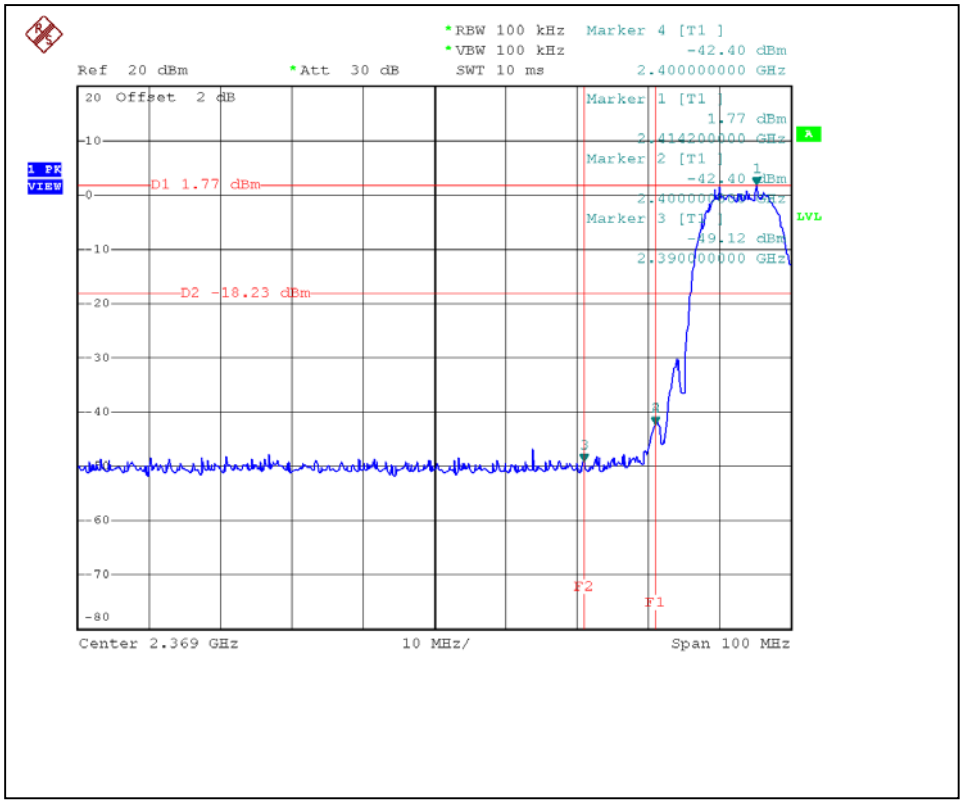
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

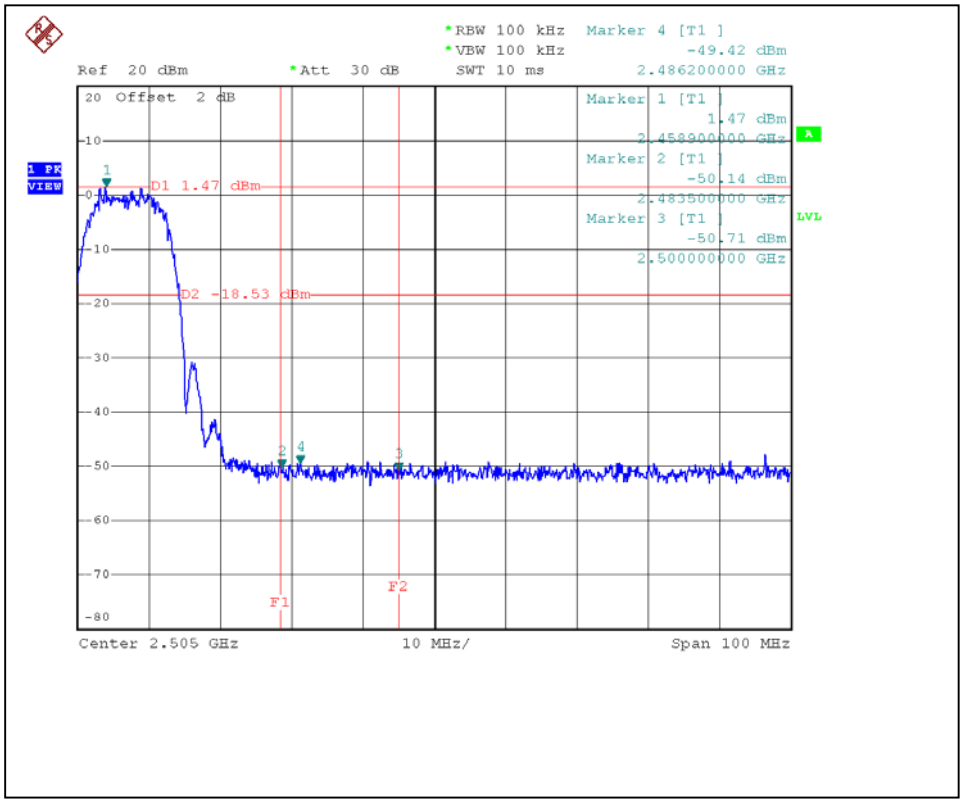
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 50.89dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 117.30dBuV/m, so the maximum field strength in restrict band is 117.30-50.89=66.41dBuV/m which is under 74 dBuV/m limit.

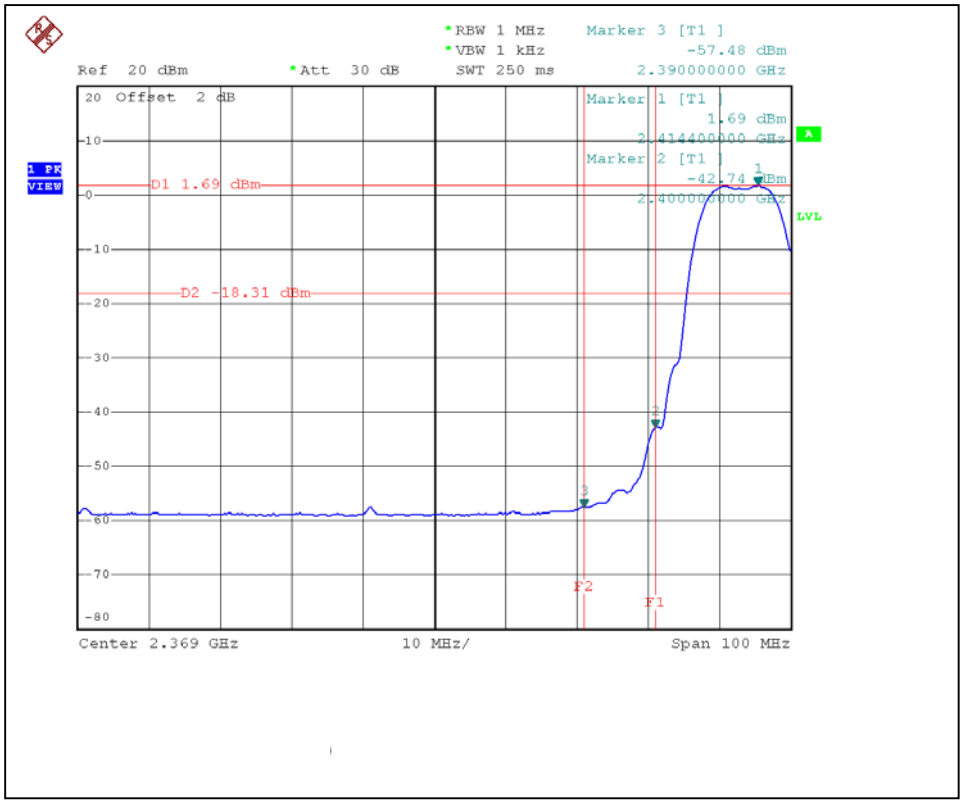
The band edge emission plot of DSSS technique on the following first page shows 51.61dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 116.80dBuV/m, so the maximum field strength in restrict band is 116.80-51.61=65.19dBuV/m which is under 74 dBuV/m limit.

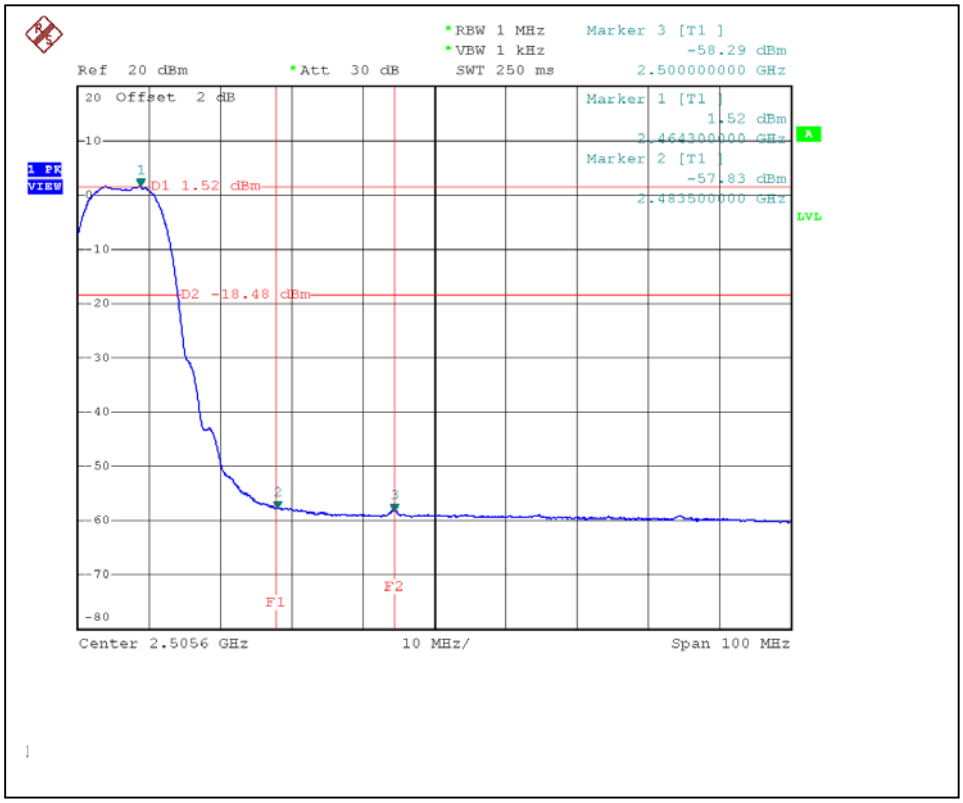
NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 59.17strict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.70dBuV/m, so the maximum field strength in restrict band is 109.70-59.17=50.53dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 59.35dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 109.80dBuV/m, so the maximum field strength in restrict band is 109.80-59.35=50.45dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-42.40 dBm
2.400000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.77 dBm
2.414200000 GHz
Marker 2 [T1]
-42.40 dBm
Marker 3 [T1]
-49.12 dBm
2.390000000 GHz
1 PK
VIEW
D1 1.77 dBm
D2 -18.23 dBm
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-49.42 dBm
2.486200000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.47 dBm
2.458900000 GHz
Marker 2 [T1]
-50.14 dBm
2.483500000 GHz
Marker 3 [T1]
-50.71 dBm
2.500000000 GHz
1 PK
VIEW
D1 1.47 dBm
D2 -18.53 dBm
F1
F2
Center 2.505 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-57.48 dBm
2.390000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.69 dBm
2.414400000 GHz
Marker 2 [T1]
-42.74 dBm
2.400000000 GHz
1 PK
VIEW
D1 1.69 dBm
D2 -18.31 dBm
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-58.29 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.52 dBm
2.464300000 GHz
Marker 2 [T1]
-57.83 dBm
2.483500000 GHz
1 PK
VIEW
D1 1.52 dBm
D2 -18.48 dBm
F1
F2
Center 2.5056 GHz
10 MHz/
Span 100 MHz

4.6.8 TEST RESULTS (ANTENNA 3, with antenna stand – DSSS)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

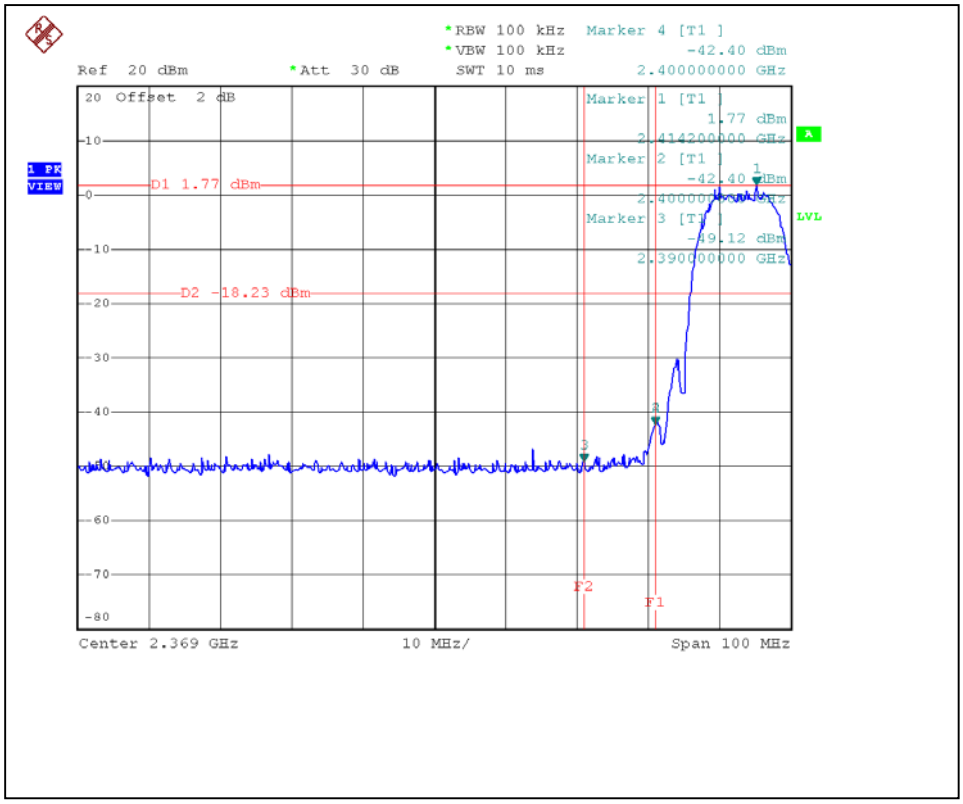
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

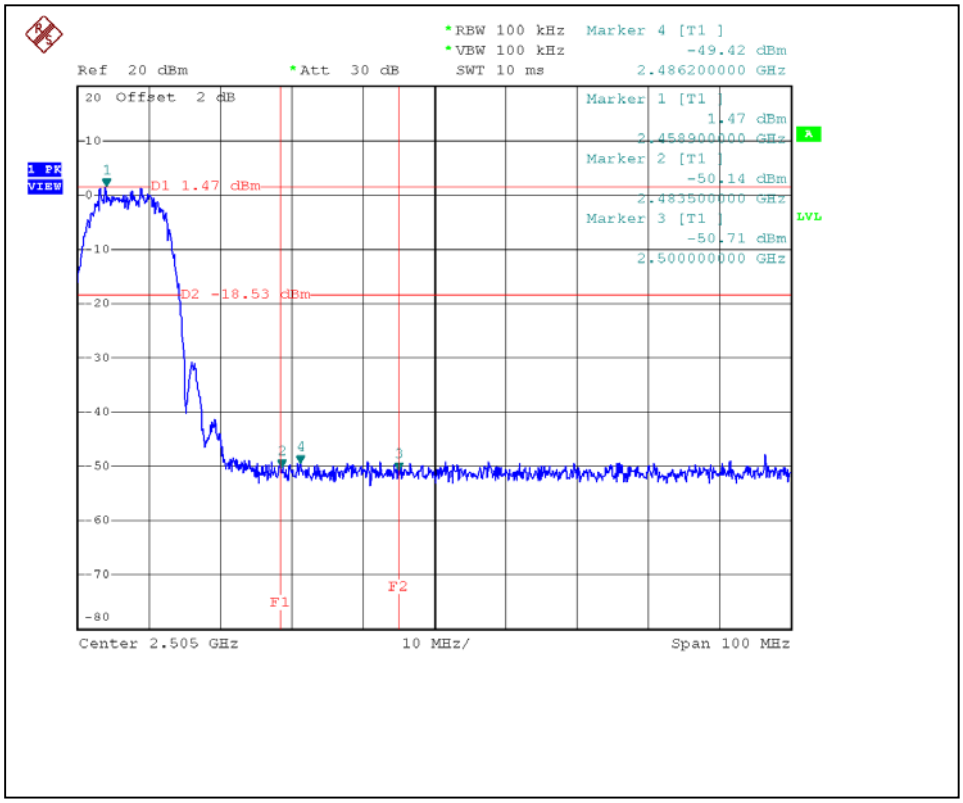
NOTE (Peak):
The band edge emission plot of DSSS technique on the following first page show 50.89dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 108.20dBuV/m, so the maximum field strength in restrict band is 108.20-50.89=57.31dBuV/m which is under 74 dBuV/m limit.

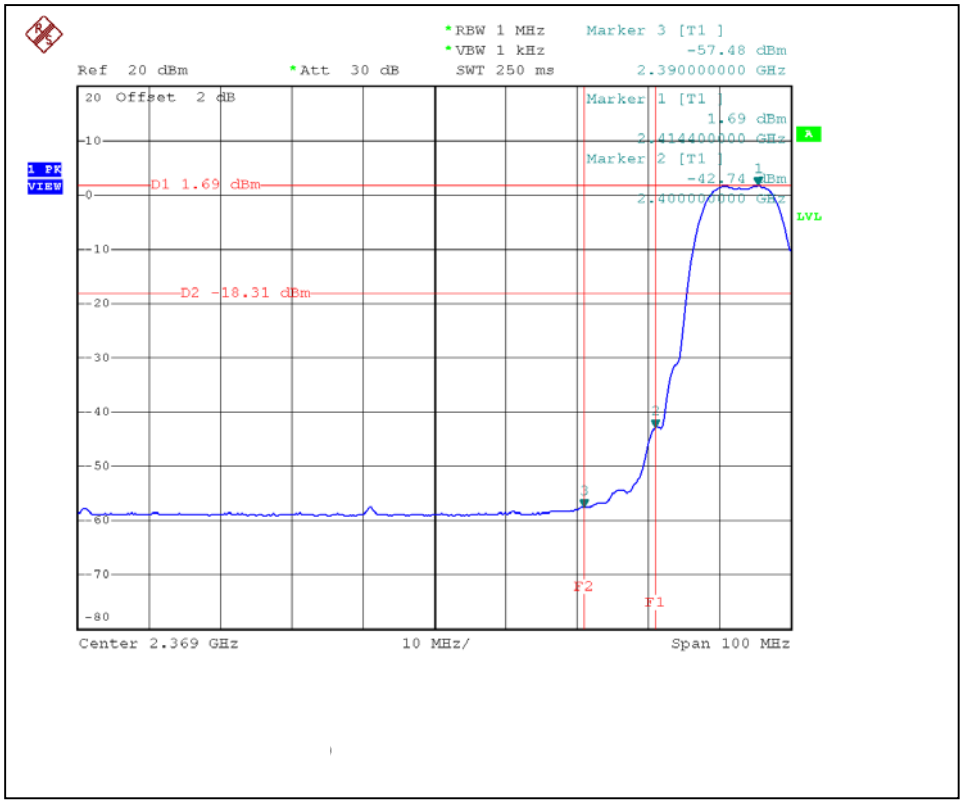
The band edge emission plot of DSSS technique on the following first page shows 51.61dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 109.60dBuV/m, so the maximum field strength in restrict band is 109.60-51.61=57.99dBuV/m which is under 74 dBuV/m limit.

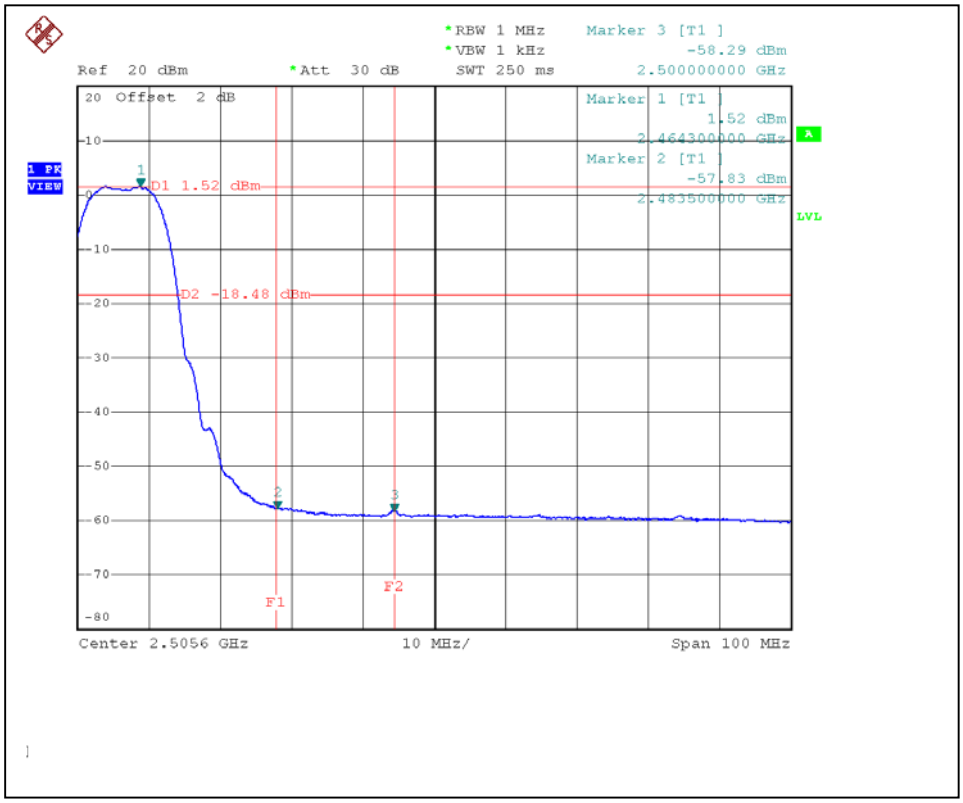
NOTE (Average):
The band edge emission plot of DSSS technique on the following second page shows 59.17strict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 101.80dBuV/m, so the maximum field strength in restrict band is 101.80-59.17=42.63dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of DSSS technique on the following second page shows 59.35dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 102.70dBuV/m, so the maximum field strength in restrict band is 102.70-59.35=43.35dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-42.40 dBm
2.400000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.77 dBm
2.414200000 GHz
Marker 2 [T1]
-42.40 dBm
Marker 3 [T1]
-49.12 dBm
2.390000000 GHz
1 PK
VIEW
D1 1.77 dBm
D2 -18.23 dBm
LVL
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 4 [T1]
-49.42 dBm
2.486200000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.47 dBm
2.458900000 GHz
Marker 2 [T1]
-50.14 dBm
2.483500000 GHz
Marker 3 [T1]
-50.71 dBm
2.500000000 GHz
1 PK
VIEW
D1 1.47 dBm
D2 -18.53 dBm
LVL
F1
F2
Center 2.505 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-57.48 dBm
2.390000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.69 dBm
2.414400000 GHz
Marker 2 [T1]
-42.74 dBm
2.400000000 GHz
1 PK
VIEW
D1 1.69 dBm
D2 -18.31 dBm
F2
F1
Center 2.369 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-58.29 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
1.52 dBm
2.464300000 GHz
Marker 2 [T1]
-57.83 dBm
2.483500000 GHz
1 PK
VIEW
D1 1.52 dBm
D2 -18.48 dBm
F1
F2
Center 2.5056 GHz
10 MHz/
Span 100 MHz

4.6.9 TEST RESULTS (ANTENNA 1 – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

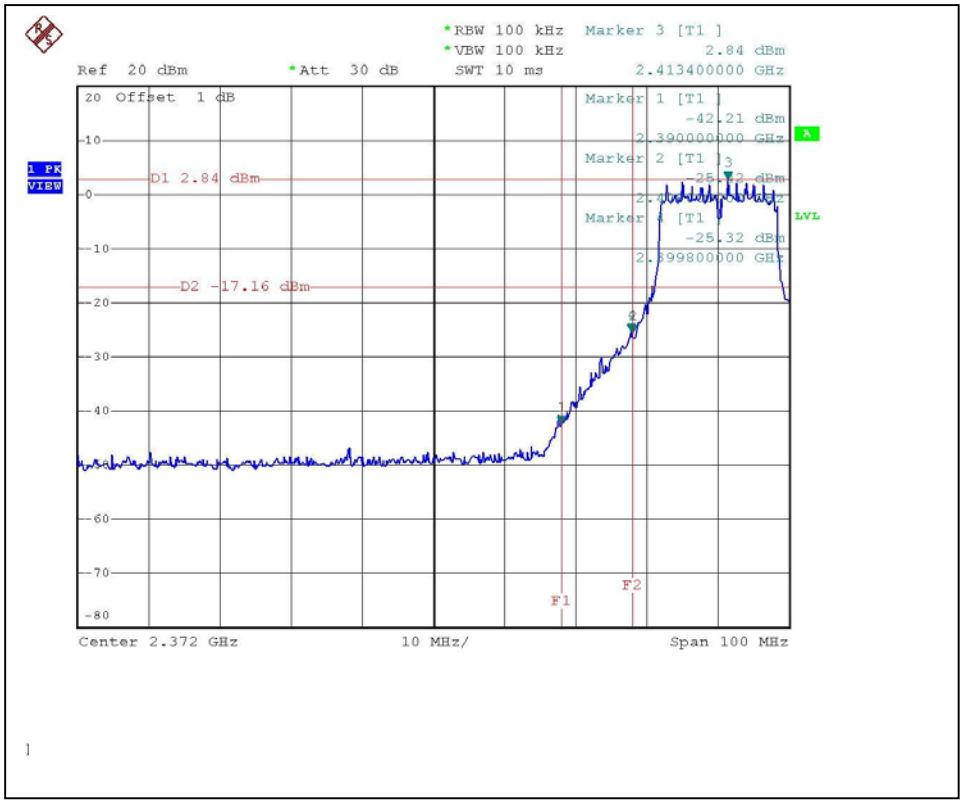
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

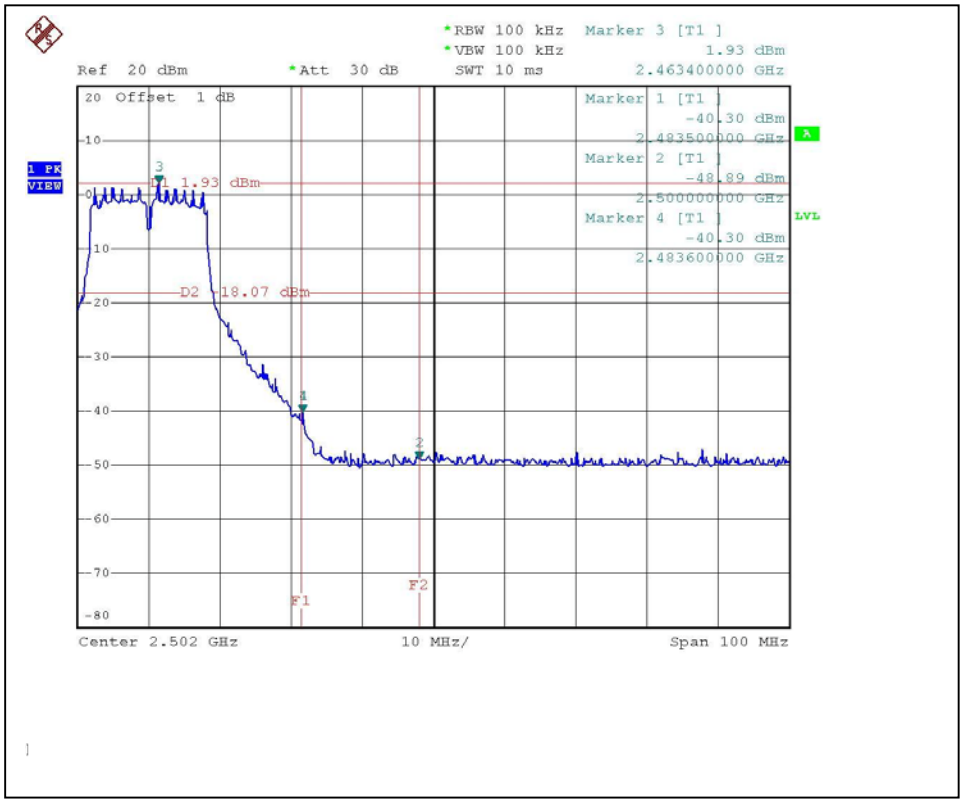
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.10dBuV/m, so the maximum field strength in restrict band is 109.10-45.05=64.05dBuV/m which is under 74 dBuV/m limit.

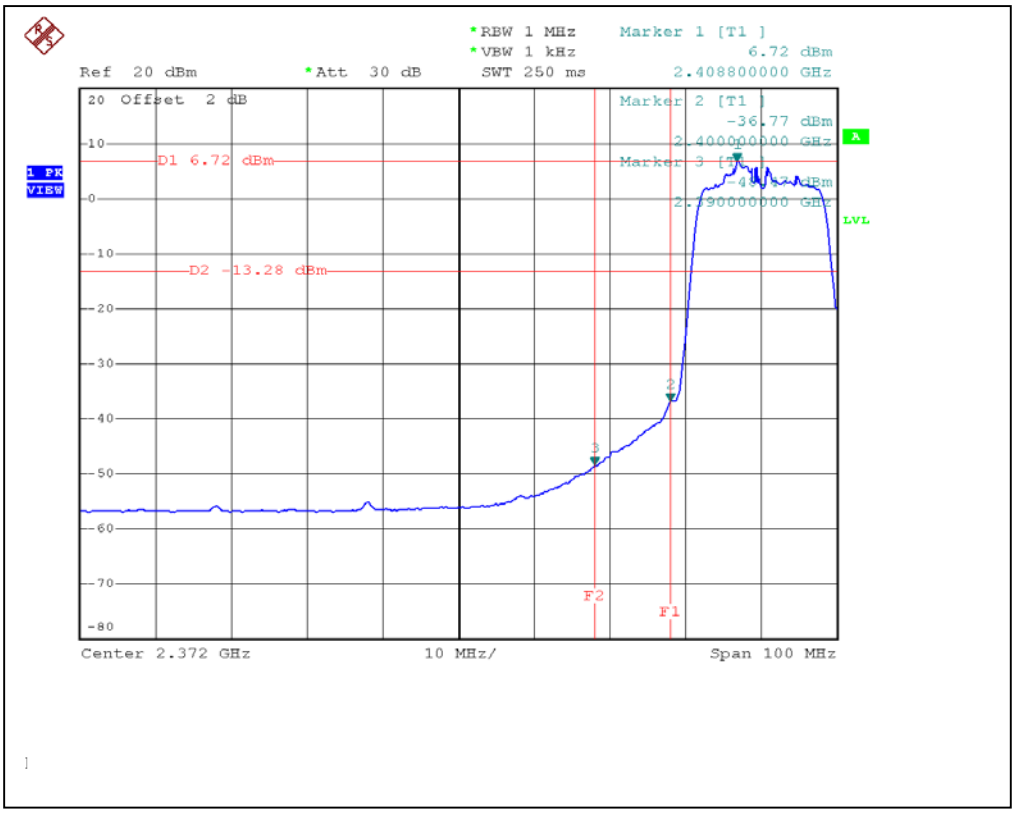
The band edge emission plot of OFDM technique on the following first page shows 42.23dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 109.90dBuV/m, so the maximum field strength in restrict band is 109.90-42.23=67.67dBuV/m which is under 74 dBuV/m limit.

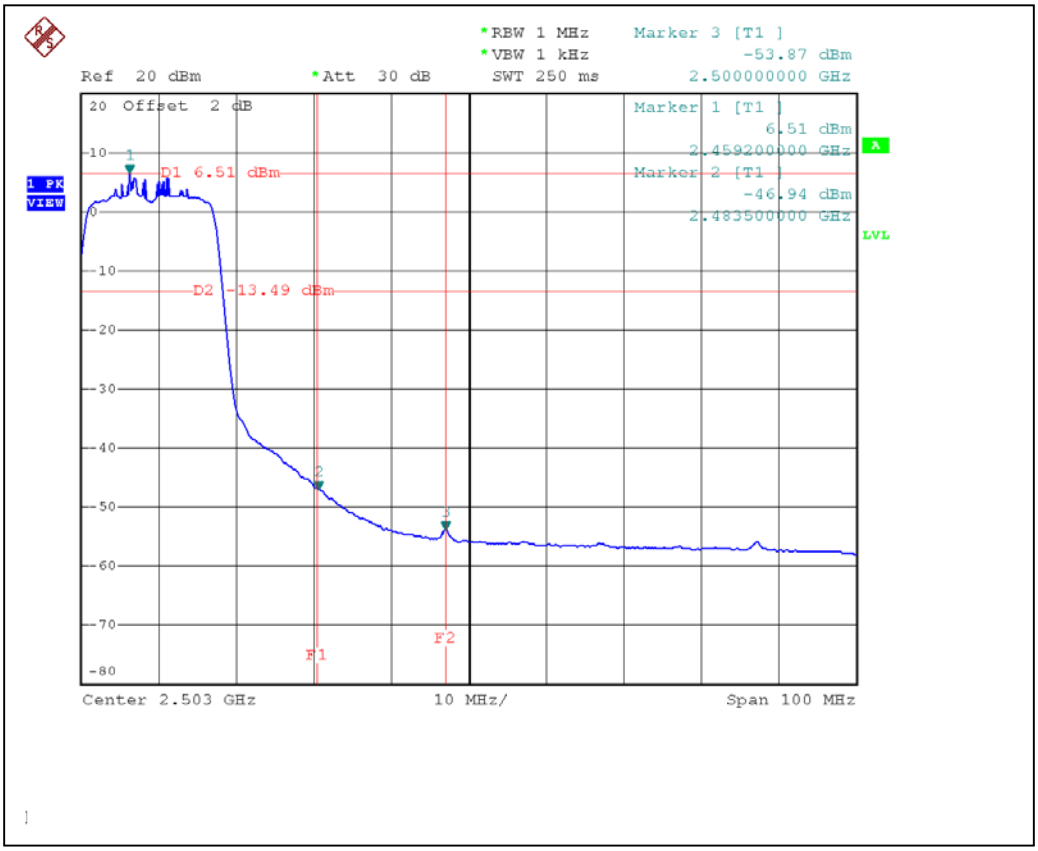
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 55.19dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 101.80dBuV/m, so the maximum field strength in restrict band is 101.80-55.19=46.61dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 53.45dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 102.60dBuV/m, so the maximum field strength in restrict band is 102.60-53.45=49.15dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
2.84 dBm
2.413400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-42.21 dBm
2.390000000 GHz
Marker 2 [T1]
Marker 4 [T1]
-25.32 dBm
2.399800000 GHz
1 PK
VIEW
D1 2.84 dBm
D2 -17.16 dBm
F1
F2
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
1.93 dBm
2.463400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-40.30 dBm
2.483500000 GHz
Marker 2 [T1]
-48.89 dBm
2.500000000 GHz
Marker 4 [T1]
-40.30 dBm
2.483600000 GHz
1 PK
VIEW
D1 1.93 dBm
D2 -18.07 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
6.72 dBm
2.408800000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 2 [T1]
-36.77 dBm
2.400000000 GHz
Marker 3 [T1]
D1 6.72 dBm
D2 -13.28 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-53.87 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
6.51 dBm
2.459200000 GHz
Marker 2 [T1]
-46.94 dBm
2.483500000 GHz
D1 6.51 dBm
D2 -13.49 dBm
1 PK
VIEW
A
LVL
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz

4.6.10 TEST RESULTS (ANTENNA 2 – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

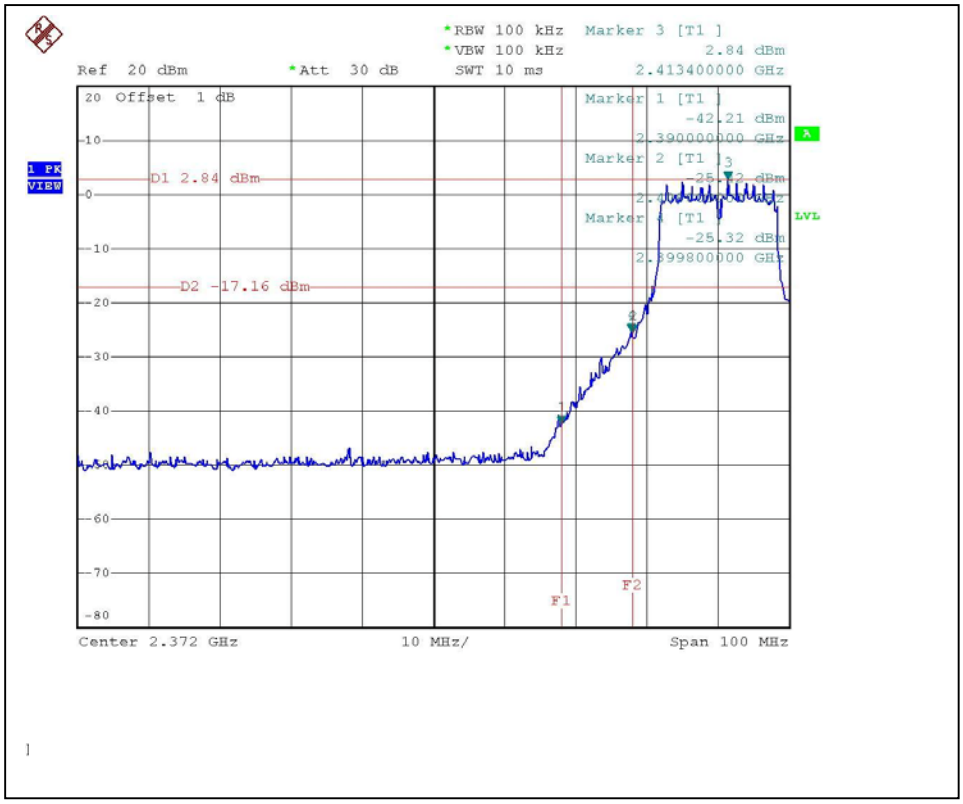
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

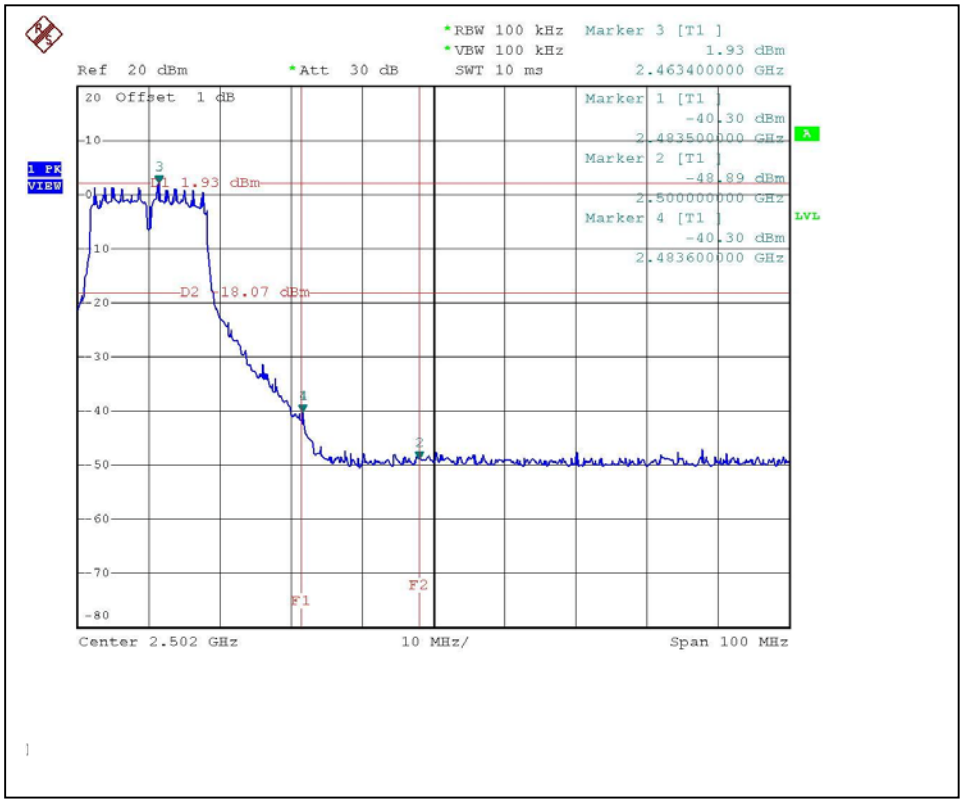
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 109.50dBuV/m, so the maximum field strength in restrict band is 109.50-45.05=64.45dBuV/m which is under 74 dBuV/m limit.

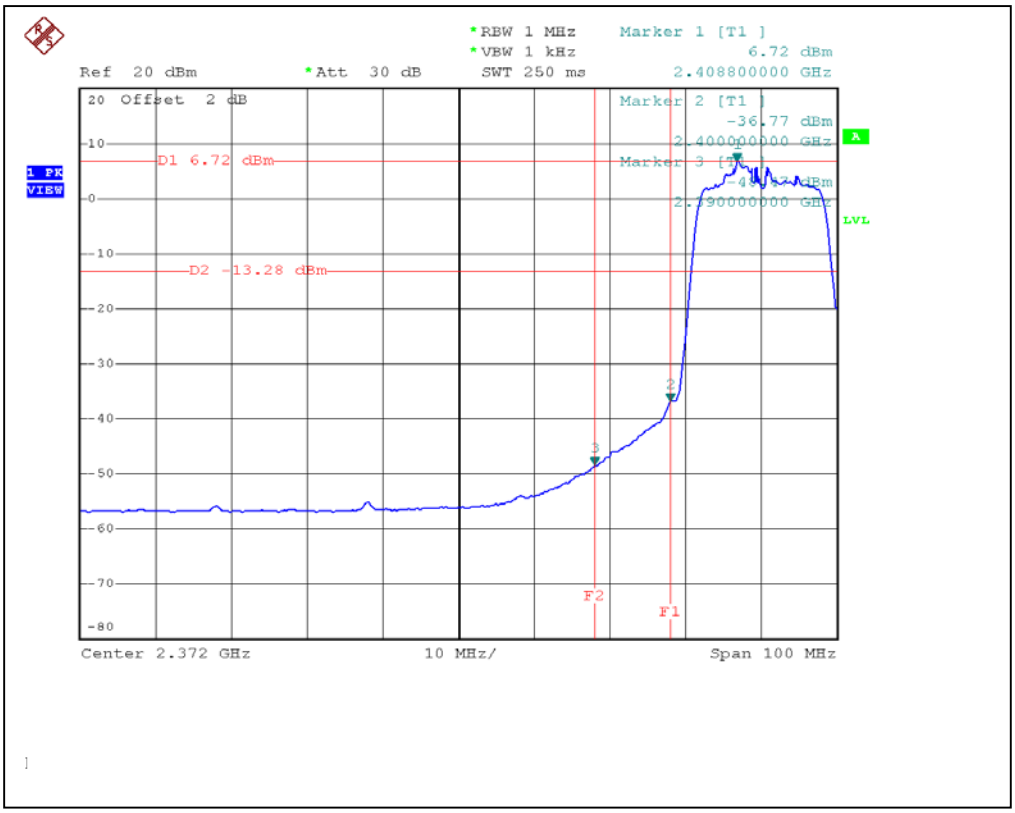
The band edge emission plot of OFDM technique on the following first page shows 42.23dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 110.10dBuV/m, so the maximum field strength in restrict band is 110.10-42.23=67.87dBuV/m which is under 74 dBuV/m limit.

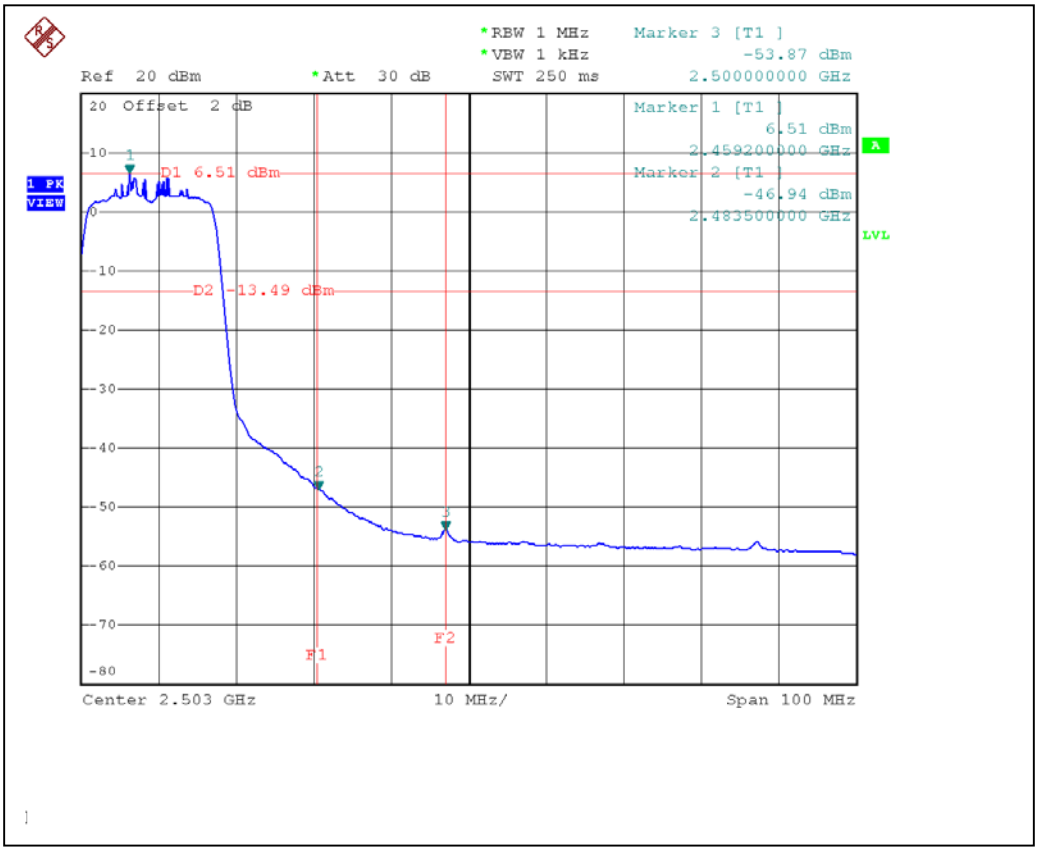
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 55.19dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 104.00dBuV/m, so the maximum field strength in restrict band is 104.00-55.19=48.81dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 53.45dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 104.50dBuV/m, so the maximum field strength in restrict band is 104.50-53.45=51.05dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
2.84 dBm
2.413400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-42.21 dBm
2.390000000 GHz
Marker 2 [T1]
Marker 4 [T1]
-25.32 dBm
2.399800000 GHz
1 PK
VIEW
D1 2.84 dBm
D2 -17.16 dBm
F1
F2
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
1.93 dBm
2.463400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-40.30 dBm
2.483500000 GHz
Marker 2 [T1]
-48.89 dBm
2.500000000 GHz
Marker 4 [T1]
-40.30 dBm
2.483600000 GHz
1 PK
VIEW
D1 1.93 dBm
D2 -18.07 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
6.72 dBm
2.408800000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 2 [T1]
-36.77 dBm
2.400000000 GHz
Marker 3 [T1]
D1 6.72 dBm
D2 -13.28 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-53.87 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
6.51 dBm
2.459200000 GHz
Marker 2 [T1]
-46.94 dBm
2.483500000 GHz
D1 6.51 dBm
D2 -13.49 dBm
1 PK
VIEW
A
LVL
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz

4.6.11 TEST RESULTS (ANTENNA 3, without antenna stand – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

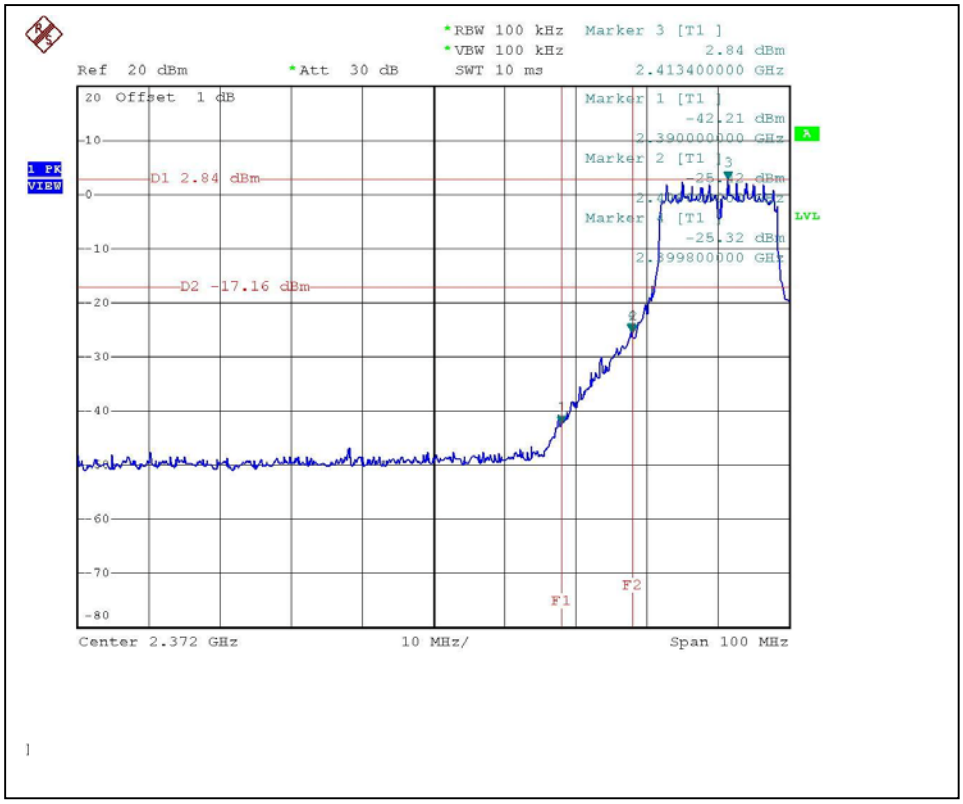
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

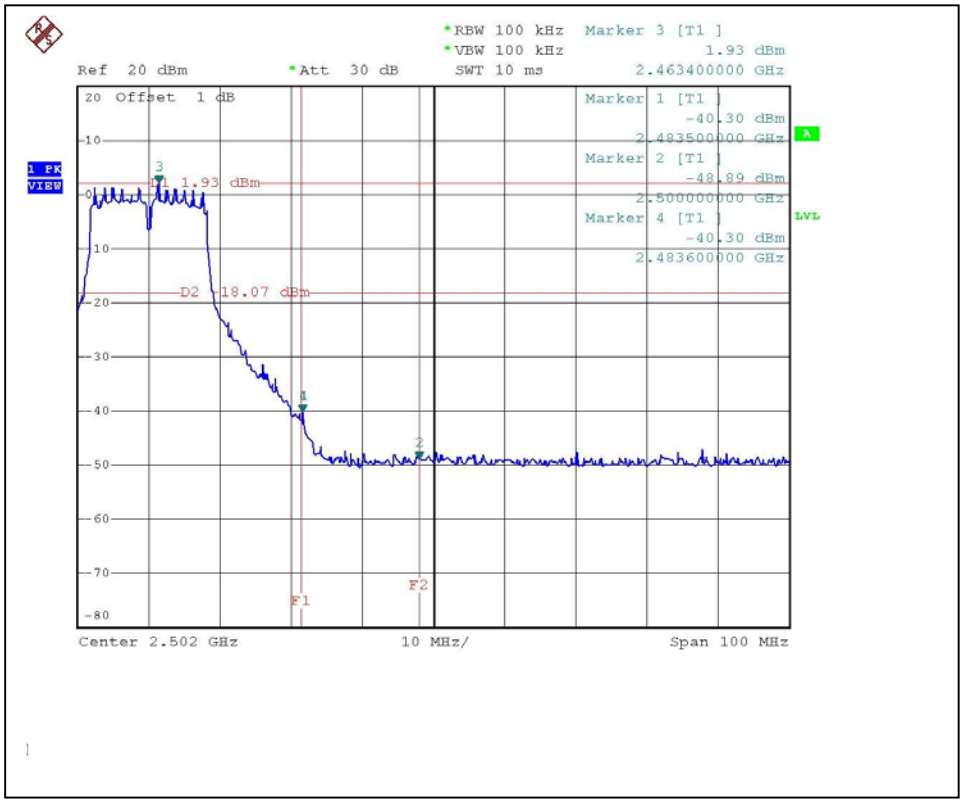
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 112.50dBuV/m, so the maximum field strength in restrict band is 112.50-45.05=67.45dBuV/m which is under 74 dBuV/m limit.

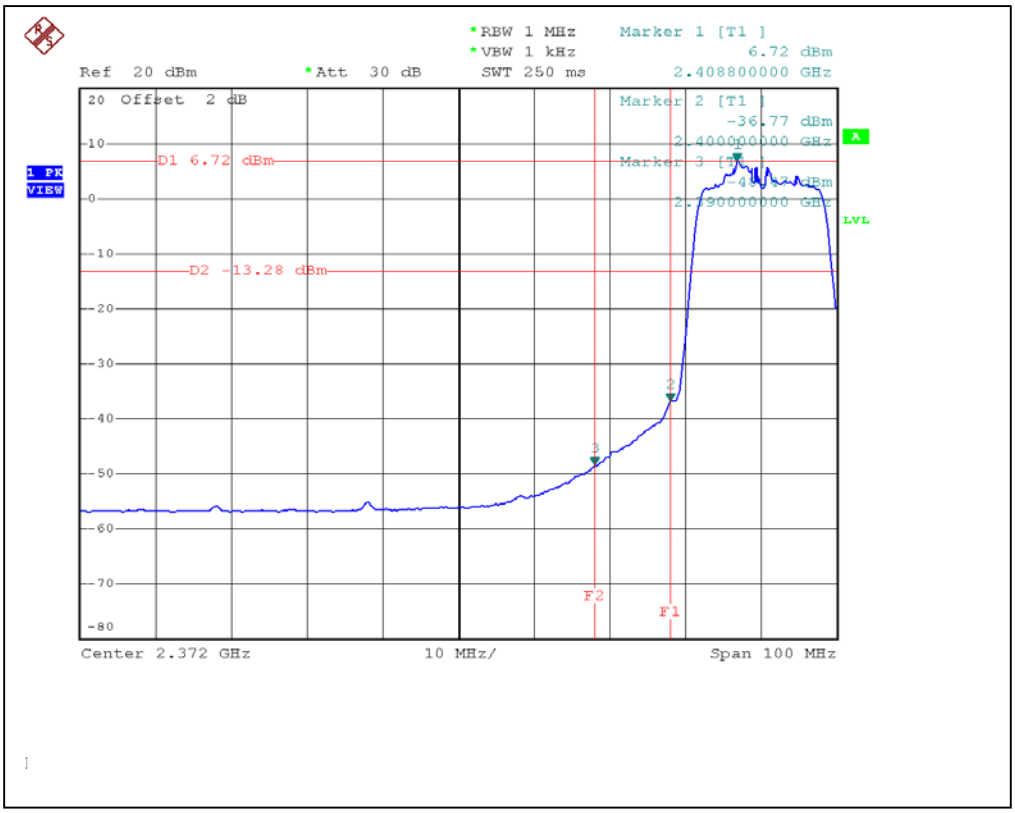
The band edge emission plot of OFDM technique on the following first page shows 42.23dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 112.70dBuV/m, so the maximum field strength in restrict band is 112.70-42.23=70.47dBuV/m which is under 74 dBuV/m limit.

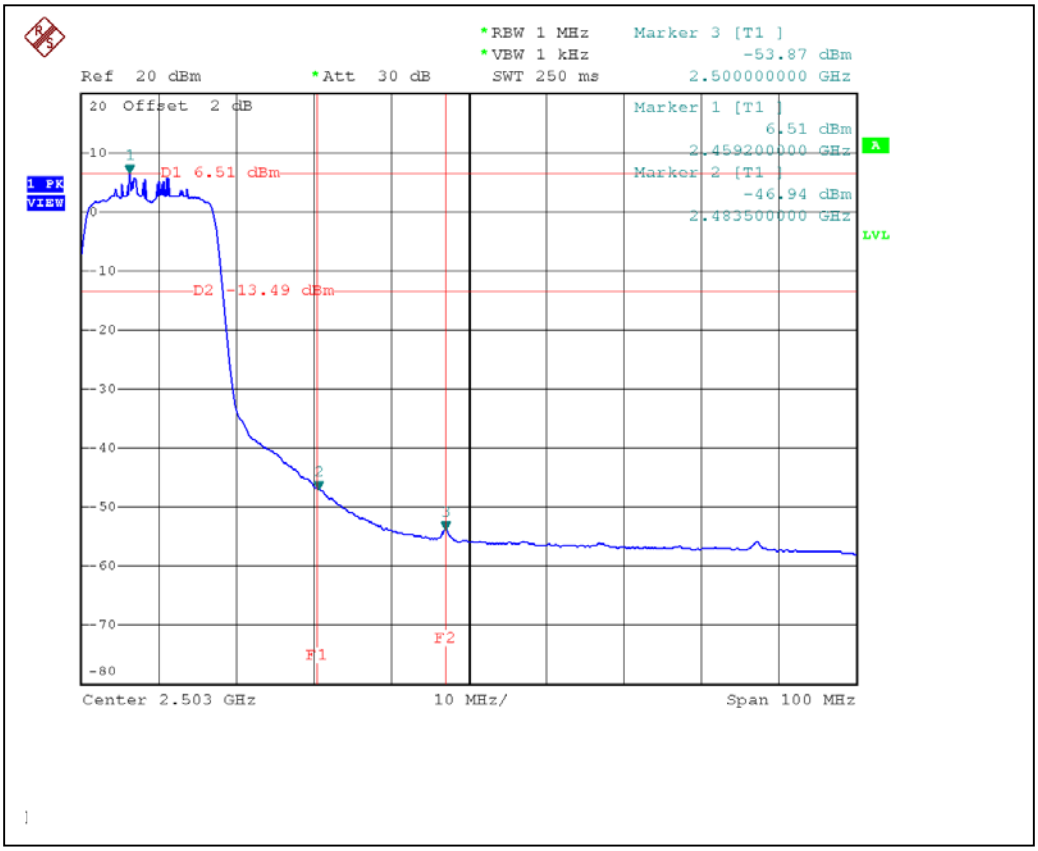
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 55.19dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 105.80dBuV/m, so the maximum field strength in restrict band is 105.80-55.19=50.61dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 53.45dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 105.90dBuV/m, so the maximum field strength in restrict band is 105.90-53.45=52.45dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
2.84 dBm
2.413400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-42.21 dBm
2.390000000 GHz
Marker 2 [T1]
-25.32 dBm
2.399800000 GHz
1 PK
VIEW
D1 2.84 dBm
D2 -17.16 dBm
F1
F2
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
1.93 dBm
2.463400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-40.30 dBm
2.483500000 GHz
Marker 2 [T1]
-48.89 dBm
2.500000000 GHz
Marker 4 [T1]
-40.30 dBm
2.483600000 GHz
1 PK
VIEW
D1 1.93 dBm
D2 -18.07 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
6.72 dBm
2.408800000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 2 [T1]
-36.77 dBm
2.400000000 GHz
Marker 3 [T1]
D1 6.72 dBm
D2 -13.28 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-53.87 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
6.51 dBm
2.459200000 GHz
Marker 2 [T1]
-46.94 dBm
2.483500000 GHz
D1 6.51 dBm
D2 -13.49 dBm
1 PK
VIEW
A
LVL
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz

4.6.12 TEST RESULTS (ANTENNA 3, with antenna stand – OFDM)

The spectrum plots are attached on the following page. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(C).

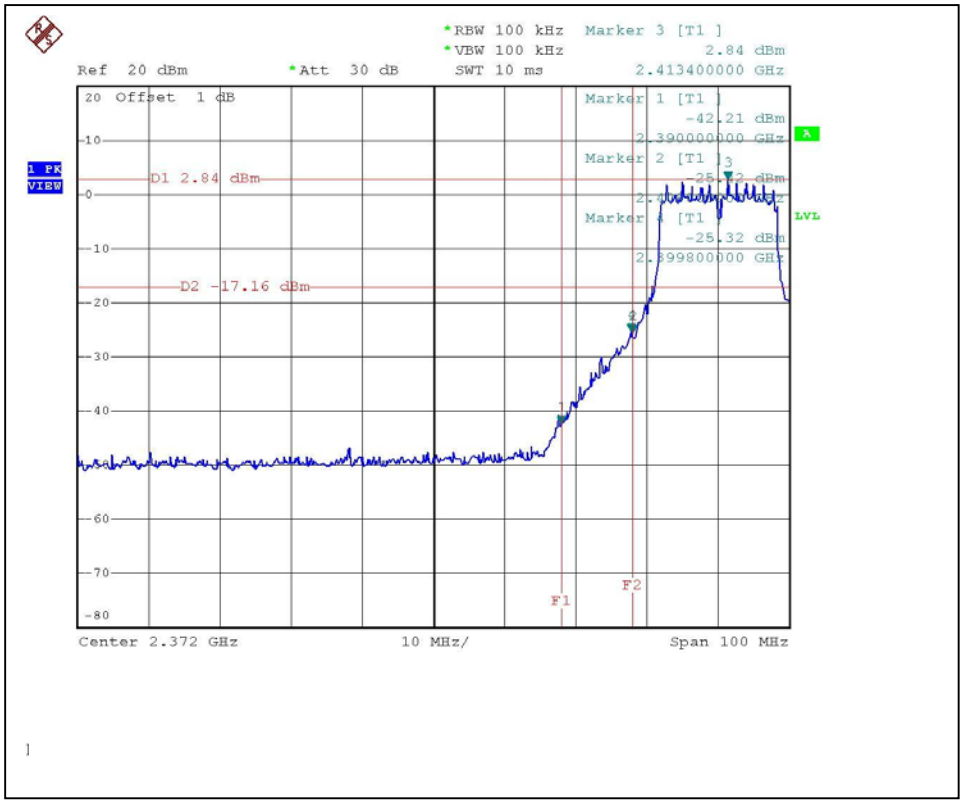
Note - The delta method is only used up to 2 MHz away from the restricted bandage, The radiated emissions which located in other restricted frequency band, the result, please refer to 4.2.

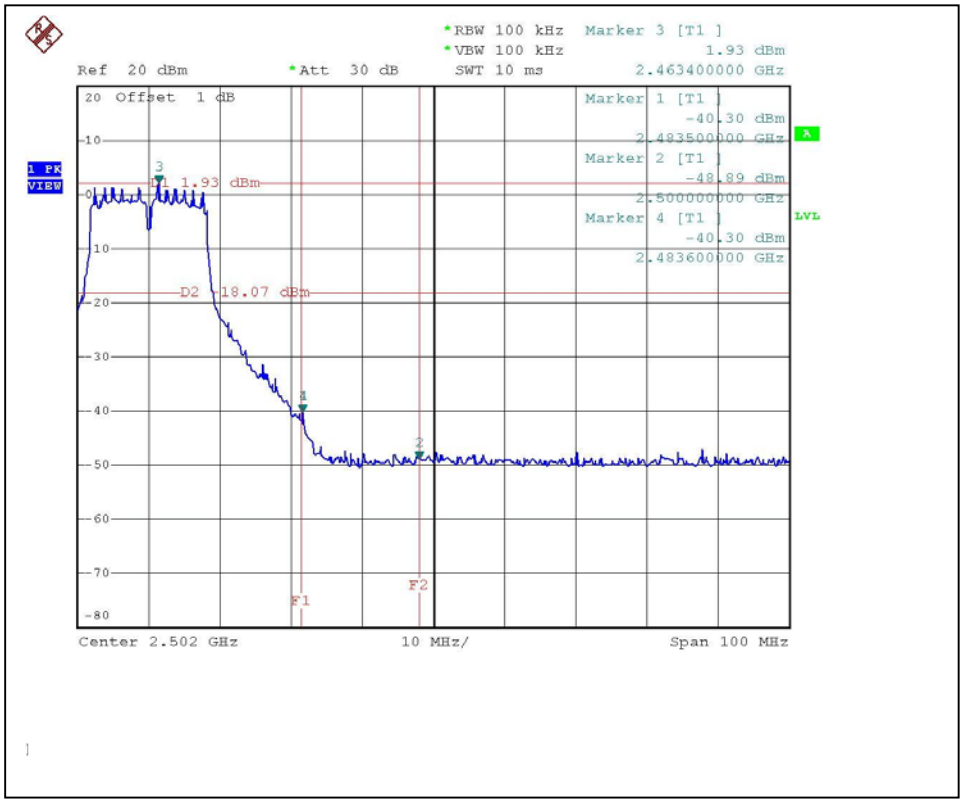
NOTE (Peak) :
The band edge emission plot of OFDM technique on the following first page show 45.05dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 103.90dBuV/m, so the maximum field strength in restrict band is 103.90-45.05=58.85dBuV/m which is under 74 dBuV/m limit.

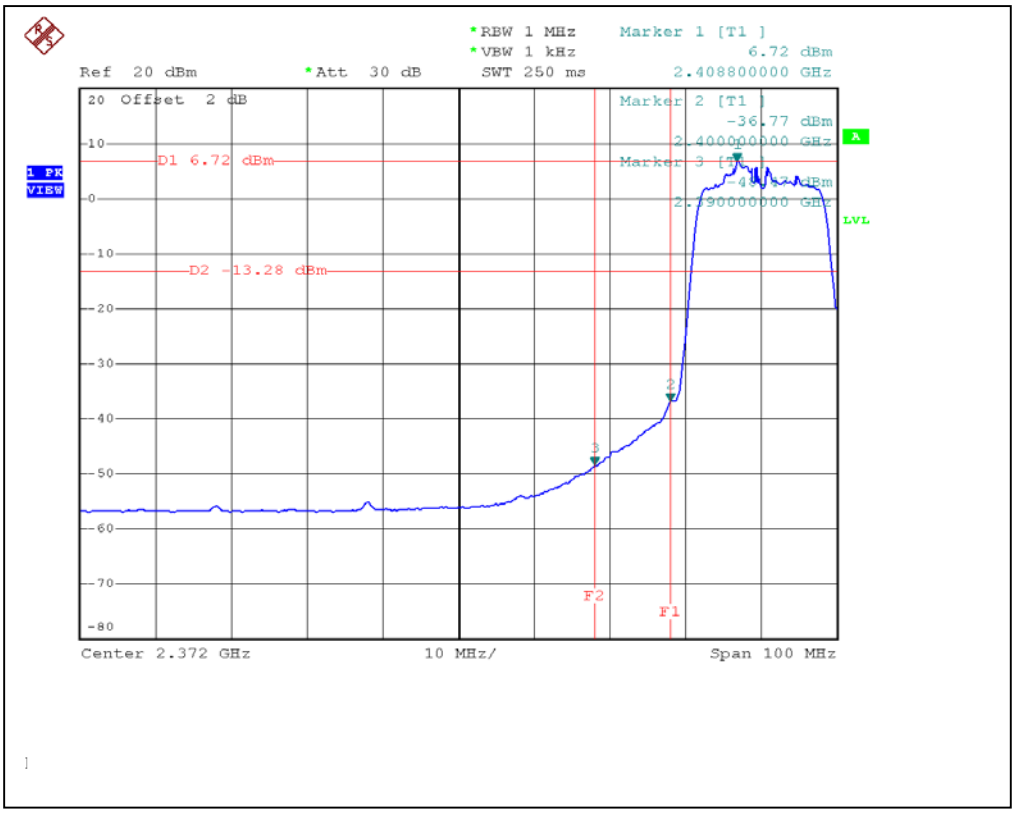
The band edge emission plot of OFDM technique on the following first page shows 42.23dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 104.70dBuV/m, so the maximum field strength in restrict band is 104.70-42.23=62.47dBuV/m which is under 74 dBuV/m limit.

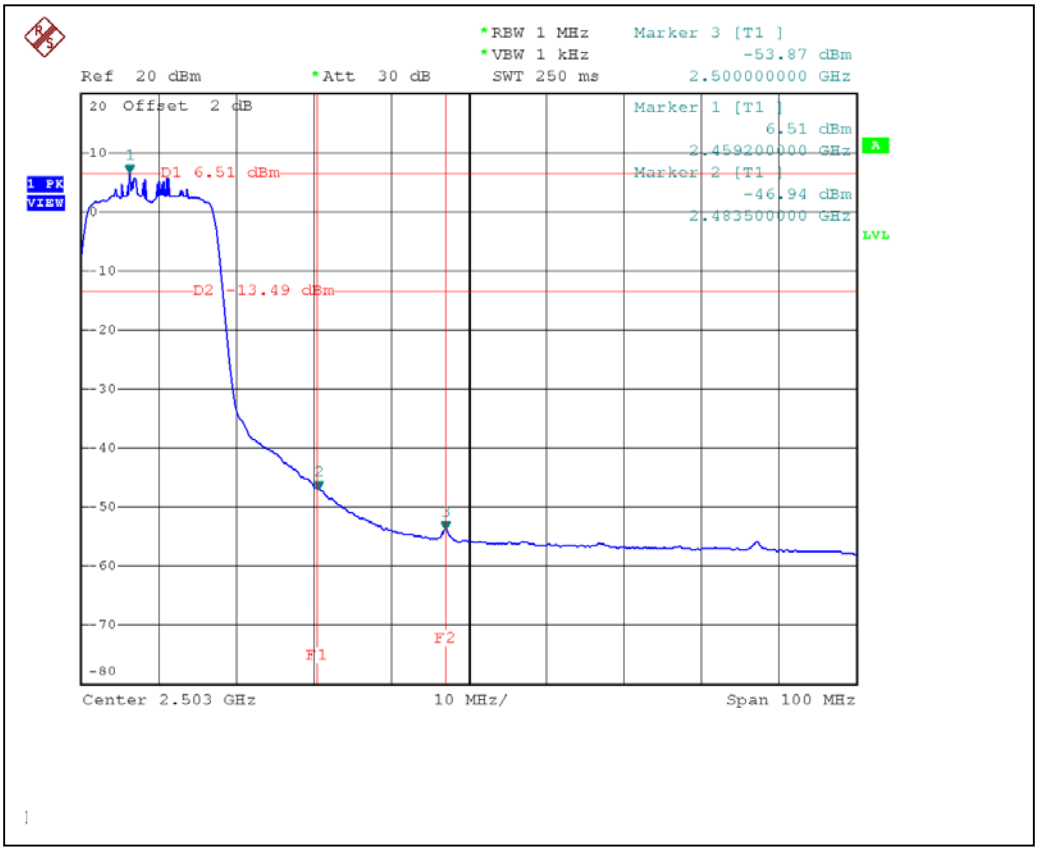
NOTE (Average):
The band edge emission plot of OFDM technique on the following second page shows 55.19dB delta between carrier maximum power and local maximum emission in restrict band (2.3900GHz). The emission of carrier strength list in the test result of channel 1 at the item 4.2 is 98.70dBuV/m, so the maximum field strength in restrict band is 98.70-55.19=43.51dBuV/m which is under 54 dBuV/m limit.

The band edge emission plot of OFDM technique on the following second page shows 53.45dB delta between carrier maximum power and local maximum emission in restrict band (2.4835GHz). The emission of carrier strength list in the test result of channel 11 at the item 4.2 is 99.20dBuV/m, so the maximum field strength in restrict band is 99.20-53.45=45.75dBuV/m which is under 54 dBuV/m limit.


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
2.84 dBm
2.413400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-42.21 dBm
2.390000000 GHz
Marker 2 [T1]
-25.32 dBm
2.399800000 GHz
1 PK
VIEW
D1 2.84 dBm
D2 -17.16 dBm
F1
F2
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Marker 3 [T1]
1.93 dBm
2.463400000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 1 dB
Marker 1 [T1]
-40.30 dBm
2.483500000 GHz
Marker 2 [T1]
-48.89 dBm
2.500000000 GHz
Marker 4 [T1]
-40.30 dBm
2.483600000 GHz
1 PK
VIEW
D1 1.93 dBm
D2 -18.07 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 1 [T1]
6.72 dBm
2.408800000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 2 [T1]
-36.77 dBm
2.400000000 GHz
Marker 3 [T1]
D1 6.72 dBm
D2 -13.28 dBm
1 PK
VIEW
A
LVL
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


*RBW 1 MHz
*VBW 1 kHz
SWT 250 ms
Marker 3 [T1]
-53.87 dBm
2.500000000 GHz
Ref 20 dBm
*Att 30 dB
20 Offset 2 dB
Marker 1 [T1]
6.51 dBm
2.459200000 GHz
Marker 2 [T1]
-46.94 dBm
2.483500000 GHz
D1 6.51 dBm
D2 -13.49 dBm
1 PK
VIEW
A
LVL
F1
F2
Center 2.503 GHz
10 MHz/
Span 100 MHz

4.7 ANTENNA REQUIREMENT

4.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

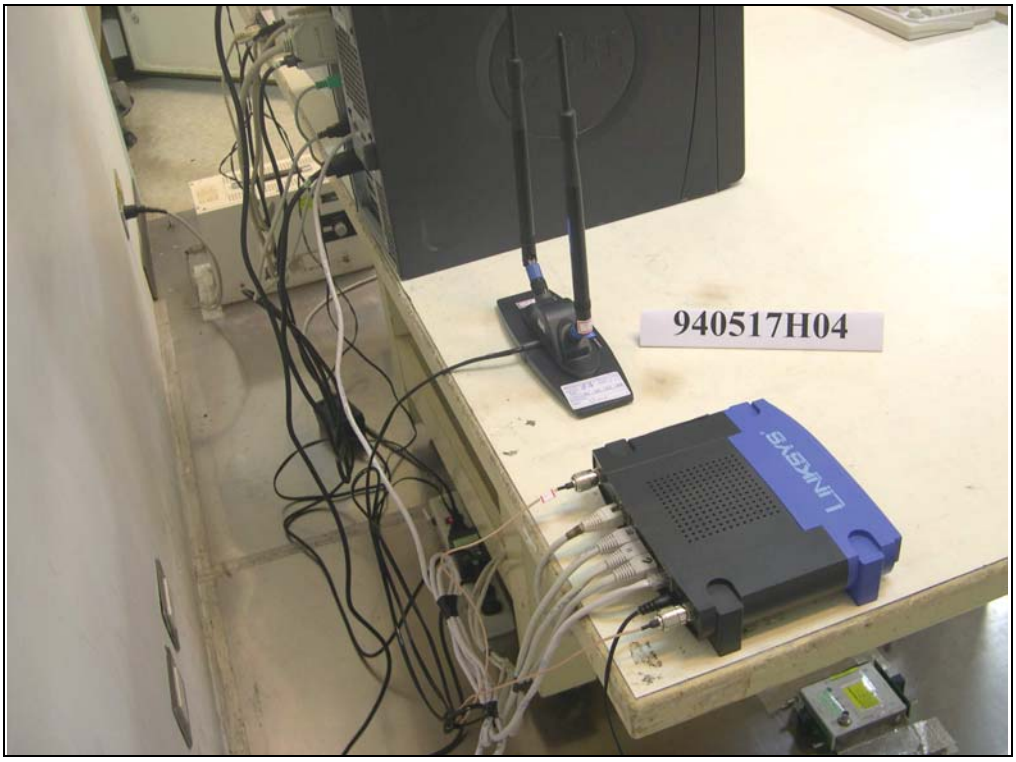
4.7.2 ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product are as following.

No.	Antenna Type	Antenna Connector	Gain (dBi)	Cable loss(dB)
1	Dipole	Reverse TNC connector	2.0 dBi	0
2	Dipole	Reverse TNC connector	5.0 dBi	0
3	Dipole(without antenna stand)	Reverse TNC connector	7.0 dBi	0
	Dipole(with antenna stand)	Reverse TNC connector	7.0 dBi	Stand + Cable loss 7 dB

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

CONDUCTED EMISSION TEST



RADIATED EMISSION TEST (With Antenna 1)

RADIATED EMISSION TEST (With Antenna 2)

RADIATED EMISSION TEST (With Antenna 3, without antenna stand)

RADIATED EMISSION TEST (With Antenna 3, with antenna stand)

6 INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP, UL, A2LA
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	CNLA, BSMI, DGT
Netherlands	Telefication
Singapore	PSB, GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml.
If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.