

**MEASUREMENT/TECHNICAL REPORT**  
**FCC Part 15 Subpart C**

Issued: June 22, 2005

Name and Address of the Applicant:	Buffalo Inc. 15,Shibata Hondori 4,Minami-ku Nagoya, Aichi Japan 457-8520
Test Item:	Wireless LAN Router
Identification:	“AirStation” WZR-HP-G54
Serial No.:	16625350516752
Sample No.:	1
Sample Receipt Date:	June 2, 2005
Test Specification:	CFR 47 Part.15 Subpart C 15.247
Date of Testing:	June 2 <sup>nd</sup> – 16 <sup>th</sup> , 2005
Test Result:	PASS

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Tested by:	_____	_____
	D. Watanuki, Engineer	Date June 22, 2005
Reviewed by:	_____	_____
	Y. Kawahara, Leader	Date June 22, 2005

- Notes:
1. This report should not be reproduced except in full, without the written approval of Cosmos Corporation.
  2. All measurement data contained in this report may have uncertainty. A judgement for the limitation should be taken into the count.
  3. The report in this report apply only to the sample tested.

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### 1. Description of Equipment Under Test

#### 1.1 Product Description

Manufacturer : Buffalo Inc.  
 Model (referred to as the EUT) : WZR-HP-G54.  
 Nominal Voltage : DC 5V  
 Type of Modulation :  DSSS       FHSS       Other  
 FCC ID : FDI-09101457-0  
 The type of the equipment :  Stand-alone    Combined Equipment  
    Plug -In Card    Other  
 The type of the antenna :  Integral  external    Other  
 The type of power source :  AC mains  Dedicated AC adapter (120 VAC)  
    DC Voltage    Battery  
 The type of battery (if applicable) : N/A  
 Type of Operation :  Continuous  Burst    Intermittent  
 Stand by Mode :  Available  N/A  
 Intended functions : Wireless data transmission  
 The type of modulation : CCK, OFDM  
 The bandwidth of the IF filters : 5MHz  
 Method of Communication Link : Software to make high speed packet transmitting  
 The operating frequency band : 2,412 to 2,462 MHz  
 The thermal limitation : 0 to 40 degree

#### 1.2 Antenna Description

Following five antennas are provided to EUT as optional enhanced antenna.

No.	Type Name	Gain	Antenna Type	Remarks
1	AI25P01-CA	2.6 dBi	Printed Inverse F	Originally Integrated.
2	WLE-HG-NDR	4.7 dBi	Sleeve Non-Directional	
3	WLE-NDR-WR	2.0 dBi	Sleeve Non-Directional	
4	WLI-MYG	3.9 dBi	Yagi	
5	WLE-DA	4.0 dBi	Flat Face Diversity	

EUT is able to attach one optional antenna at the external antenna connector. However, the internal RF module feeds no RF power to the original integrated antenna while the external antenna is connected. This means that the integrated antenna and the external antennas never work simultaneously.

2. General Information

2.1 Test Methodology

All measurement subject to the present report was carried out according to the procedures in ANSI C63.4: 2003.

2.2 Test Facility

All measurement was performed in the following facility;

Cosmos Corporation EMC Lab. Ohnogi  
 (2-3571 Ohaza-iwatachi, Ohnogi, Watarai-cho, Watarai-gun, Mie-ken 516-2102, Japan) This site has been accepted in a letter dated November 2, 2004 from FCC.

Cosmos Corporation EMC Lab. No.1 (Only conducted emission under 15.207)  
 (543 Shimesasu, Watarai-cho, Watarai-gun, Mie-ken, 516-2119, Japan) This site has been fully described in a report dated May 23, 1996 submitted to FCC, and accepted in a letter dated July 10, 1996 (31040/SIT 1300F2). The registration has been renewed on April 21, 2005.

2.3 Traceability

The calibration of measurement equipment used in the test subject to the present report is designed and operated to ensure that the measurement is traceable to national standards of measurement or equivalent abroad.

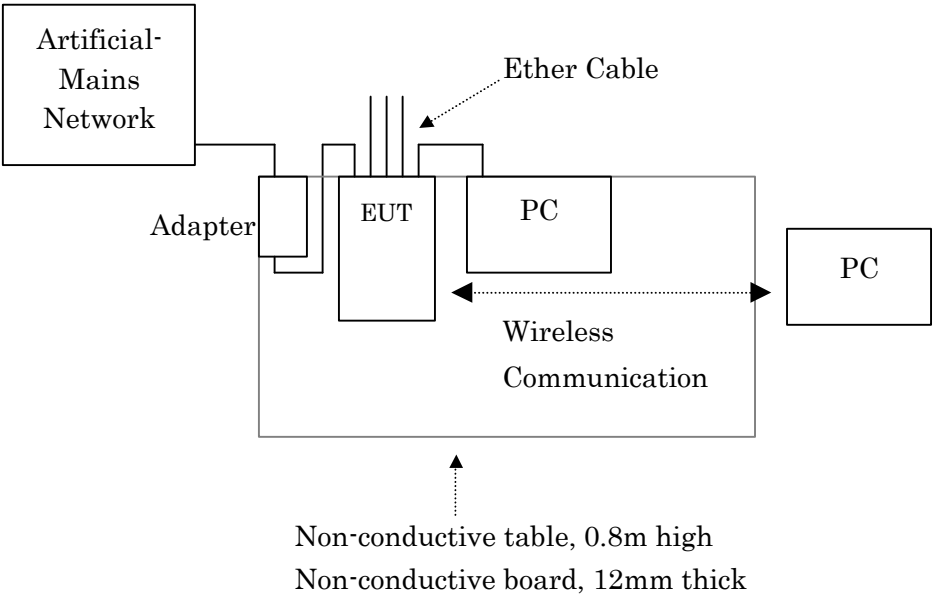
3. Summary of Test Results

Section	Test Item	Limit	Result
15. 207	AC Power Conducted Emission	Limit: 48dBuV	Pass
15. 247(a)(2)	Spectrum Bandwidth of Direct Sequence Spread Spectrum System	Min. 500kHz	Pass
15. 247(b)	Maximum Peak Output Power	Max. 30dBm	Pass
15. 247(c)	Transmitter Radiated Emissions	20dB less than the peak value	Pass
15. 247(d)	Power Spectrum Density	Max. 8dBm	Pass
15. 247(c)	Band Edge Measurement	Refer to 15. 209	Pass

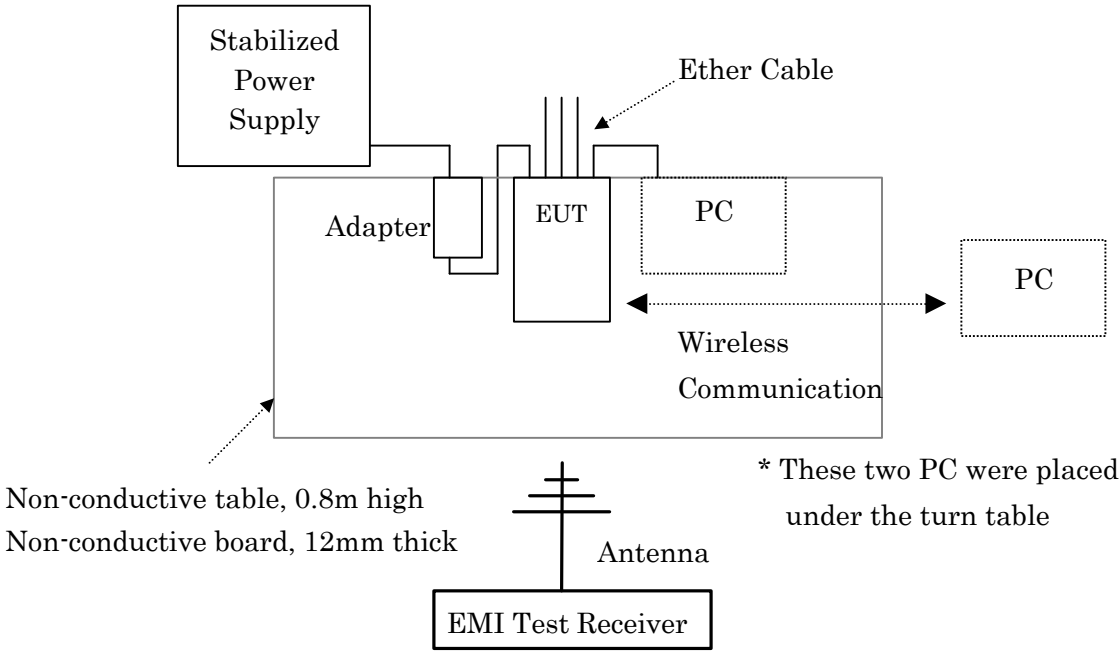
15. 247(c) Transmitter Radiated Emissions was performed with the antennas No. 1 to 5 except No. 3 because No. 2 and 3 are the same type of antenna. Therefore No. 2, which has higher antenna gain than No. 3 applied to the measurement.

4. Test Configuration

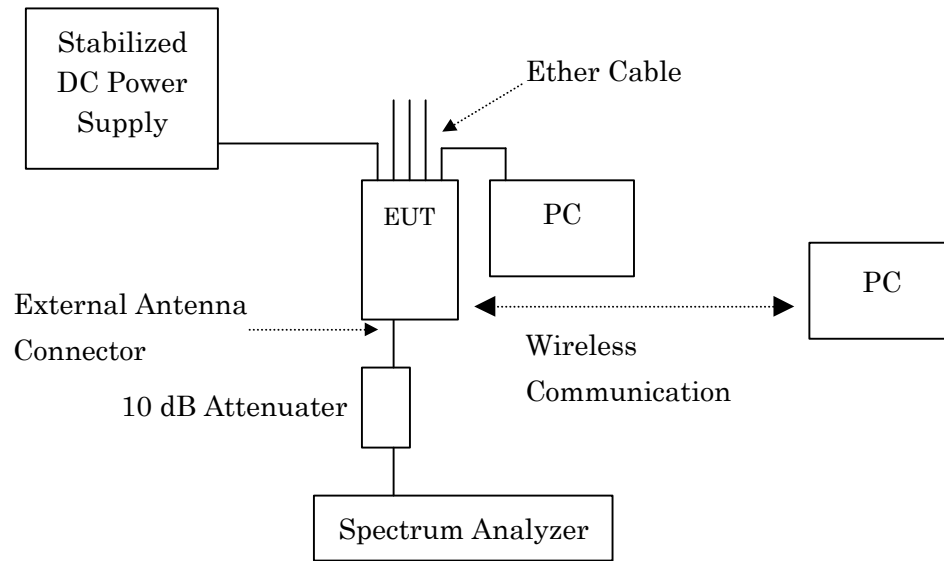
4.1 15. 207 AC Power Conducted Emission in Shield Room



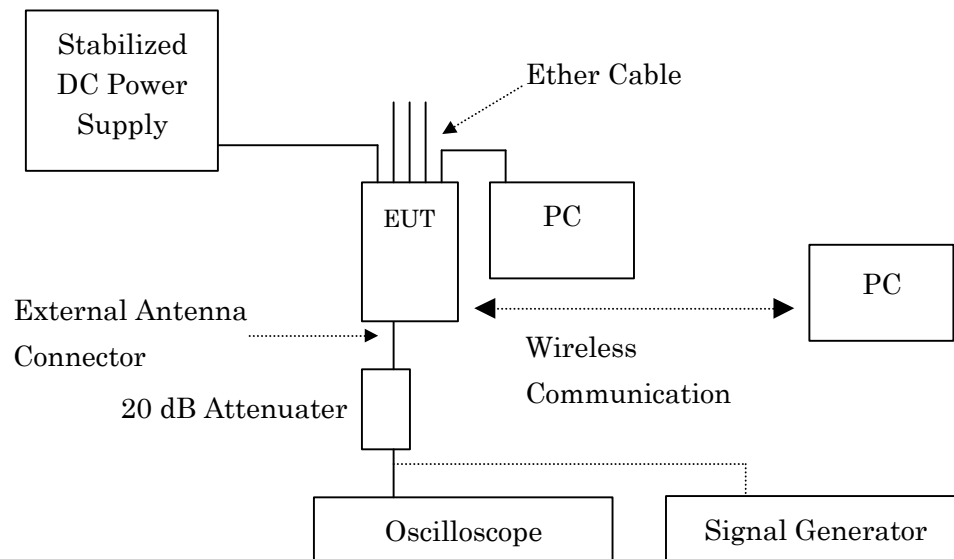
4.2 15. 247(c) Transmitter Radiated Emissions (Radiated) in 3m Anechoic Chamber



4.3 All Other Test Items (Except Maximum Peak Output Power)



4.4 Maximum Peak Output Power



4.5 Test Mode

In all test configurations above, EUT and the support PC made communication link by First Packet Transmitting Software. The software provides channel selection, change modulation type, where necessary.

All conducted measurement was performed with an external stabilized DC power supply voltage varied between 85% and 115% of the nominal rated supply voltage in accordance with the section 15.31 (e) of the part.

5. Measurement Result

5.1 15. 207 AC Power Conducted Emission

5.1.1 Setting Remarks

- Configure the EUT System in accordance with ANSI C63.4-2003.
- A wooden test table (1.5m×1.0m, height 0.8m) was used.
- EUT's dedicated AC adapter connected to Artificial Mains Network (AMN).
- Other power cord of support equipment is connected to another AMN to isolate its emission from the measured emission of EUT.
- The measuring port of AMN for support equipment was terminated by the 500
- Activate the EUT System and run the software prepared for the test, if necessary.
- Refer to test configuration figure 4.1.

5.1.2 Minimum Standard

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

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

\* Decreases with the logarithm of the frequency.

5.1.3 Result

EUT complies with the requirement.

Uncertainty of measurement : ± 2.26 dB  
 Temperature, Humidity : 24 °C, 51 %



5.1.4 Measured Data

Measured Value Table

\*\*\*\*\* Cosmos Corporation \*\*\*\*\*  
 <Conducted Emission>

8 June, 2005 15:12  
 047103E CE Result02.dat

Standard : FCC Part 15 SubpartC Class B/QP  
 Model : WZR-HP-G54  
 Serial No. :  
 Operator : R.Yamanaka  
 Power : AC120V 60HZ  
 Temp, Humid : 24 deg, 51 %  
 Remark1 : Operated(LAN Mode)  
 Remark2 :  
 Remark3 :  
 Remark4 :

Final Result

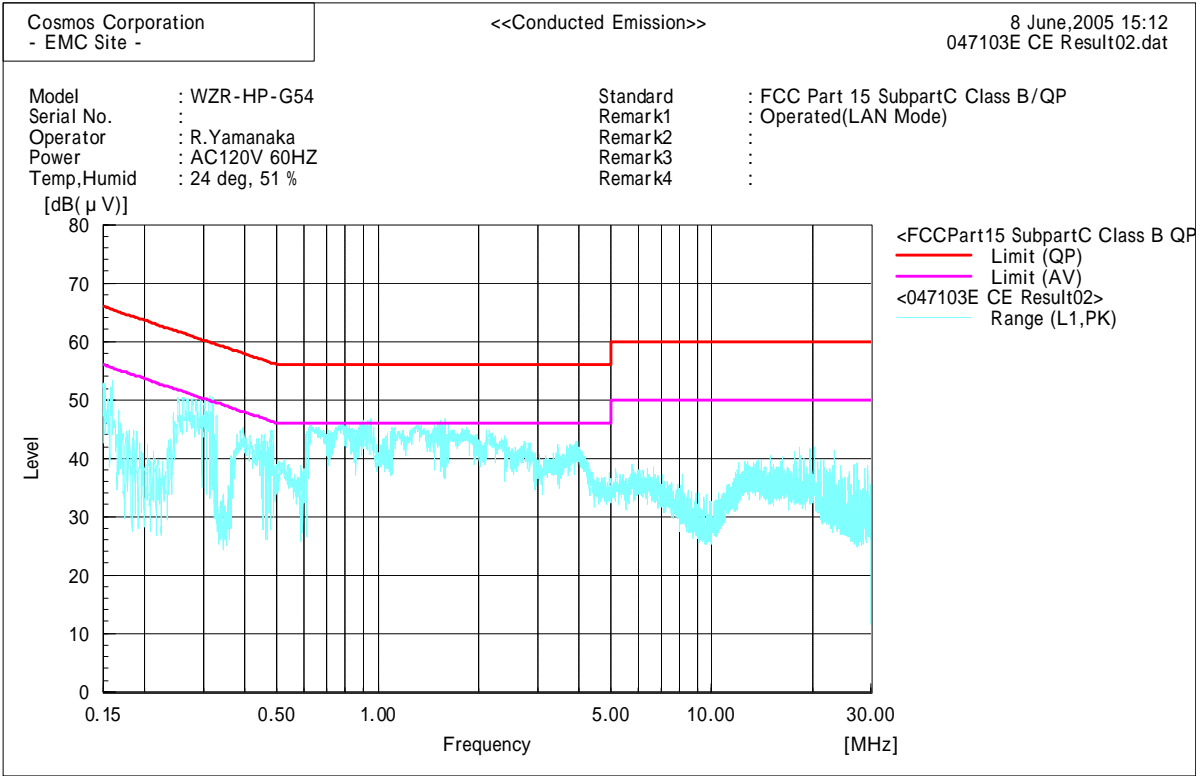
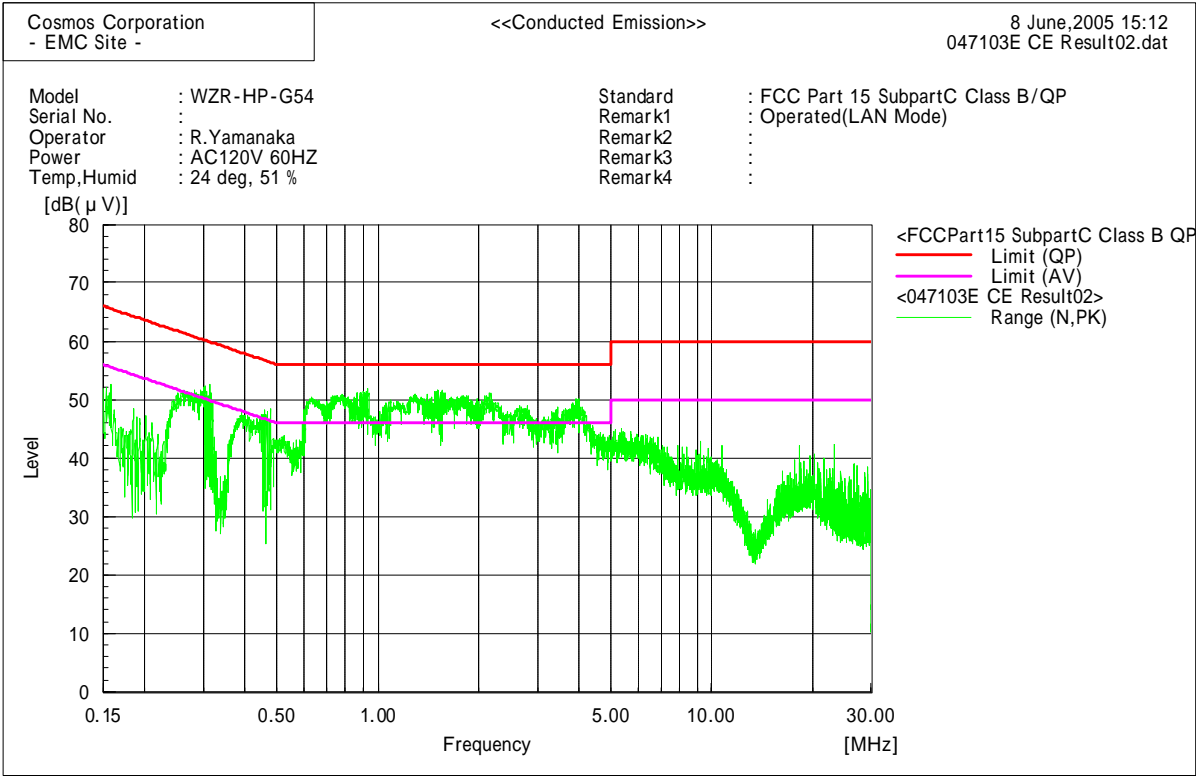
--- N Phase ---

No.	Frequency [MHz]	Reading		c. f [dB]	Result		Limit		Margin	
		QP [dB(μV)]	AV [dB(μV)]		QP [dB(μV)]	AV [dB(μV)]	QP [dB(μV)]	AV [dB(μV)]	QP [dB]	AV [dB]
1	0.259	39.4	32.1	11.4	50.8	43.5	61.5	51.5	10.7	8.0
2	0.307	38.8	24.3	11.4	50.2	35.7	60.0	50.0	9.8	14.3
3	0.645	36.8	28.4	11.5	48.3	39.9	56.0	46.0	7.7	6.1
4	0.777	37.5	28.0	11.6	49.1	39.6	56.0	46.0	6.9	6.4
5	0.918	37.2	21.8	11.6	48.8	33.4	56.0	46.0	7.2	12.6
6	1.309	34.7	24.3	11.6	46.3	35.9	56.0	46.0	9.7	10.1
7	1.825	33.9	23.9	11.7	45.6	35.6	56.0	46.0	10.4	10.4
8	2.117	32.6	22.9	11.7	44.3	34.6	56.0	46.0	11.7	11.4
9	3.880	34.7	23.5	11.7	46.4	35.2	56.0	46.0	9.6	10.8

--- L1 Phase ---

No.	Frequency [MHz]	Reading		c. f [dB]	Result		Limit		Margin	
		QP [dB(μV)]	AV [dB(μV)]		QP [dB(μV)]	AV [dB(μV)]	QP [dB(μV)]	AV [dB(μV)]	QP [dB]	AV [dB]
1	0.159	36.0	27.9	11.4	47.4	39.3	65.5	55.5	18.1	16.2
2	0.254	38.2	29.0	11.4	49.6	40.4	61.6	51.6	12.0	11.2
3	0.312	34.2	16.5	11.4	45.6	27.9	59.9	49.9	14.3	22.0
4	0.624	31.8	22.4	11.5	43.3	33.9	56.0	46.0	12.7	12.1
5	0.787	30.9	20.8	11.6	42.5	32.4	56.0	46.0	13.5	13.6
6	0.929	29.6	15.7	11.7	41.3	27.4	56.0	46.0	14.7	18.6
7	1.310	28.8	18.9	11.7	40.5	30.6	56.0	46.0	15.5	15.4
8	1.826	29.3	17.9	11.7	41.0	29.6	56.0	46.0	15.0	16.4
9	3.909	25.0	18.7	11.8	36.8	30.5	56.0	46.0	19.2	15.5

Peak Hold Wave Form



5.2 15. 247(a)(2) Spectrum Bandwidth of Direct Sequence Spread Spectrum System

5.2.1 Setting Remarks

- The both side of 6dB down value from peak power were measured by using delta-maker function of the spectrum analyzer.
- The spectrum analyzer was set-up as following;

- ✓ Frequency Span : 30 MHz
- ✓ Resolution bandwidth : 100 kHz
- ✓ Video bandwidth : 300 kHz
- ✓ Sweep : 1sec
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

- Refer to test configuration figure 4.1.

5.2.2 Minimum Standard

(2) Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.2.3 Result


EUT complies with the requirement.

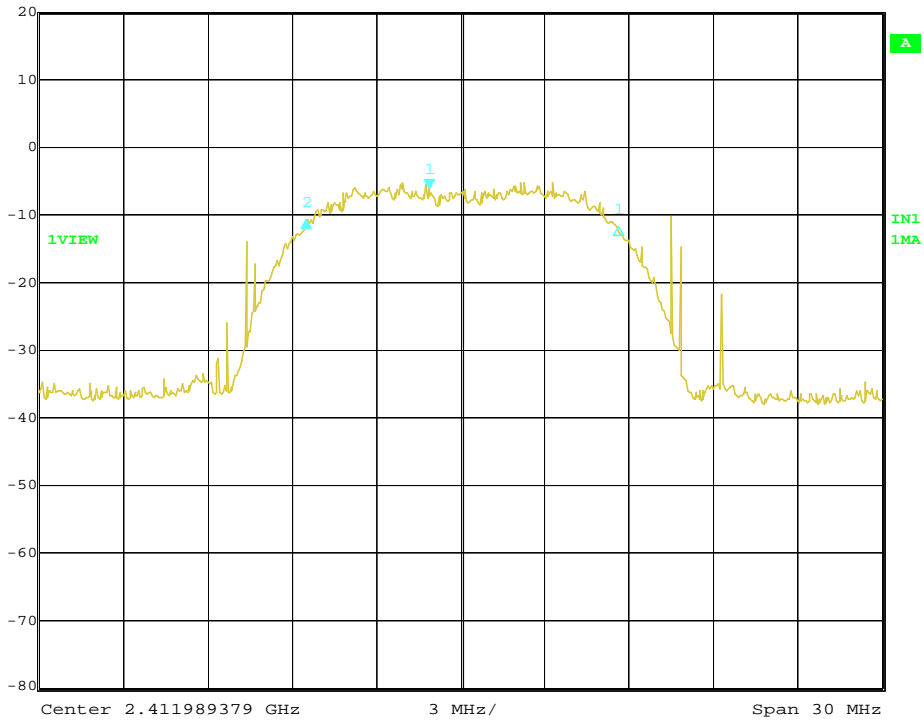
Uncertainty of measurement : ± 0.8 dB  
 Temperature, Humidity : 26 °C, 62%

5.2.4 Measured Data

Frequency (MHz)	Measured Bandwidth (MHz)	Limit (MHz)
CCK (11Mbps)		
2412 (1ch)	11.11	> 0.5
2437 (6ch)	11.72	> 0.5
2462 (11ch)	11.35	> 0.5
OFDM (54 Mbps)		
2412 (1ch)	16.52	> 0.5
2437 (6ch)	16.59	> 0.5
2462 (11ch)	16.52	> 0.5


2412 MHz (1ch), CCK (11Mbps)

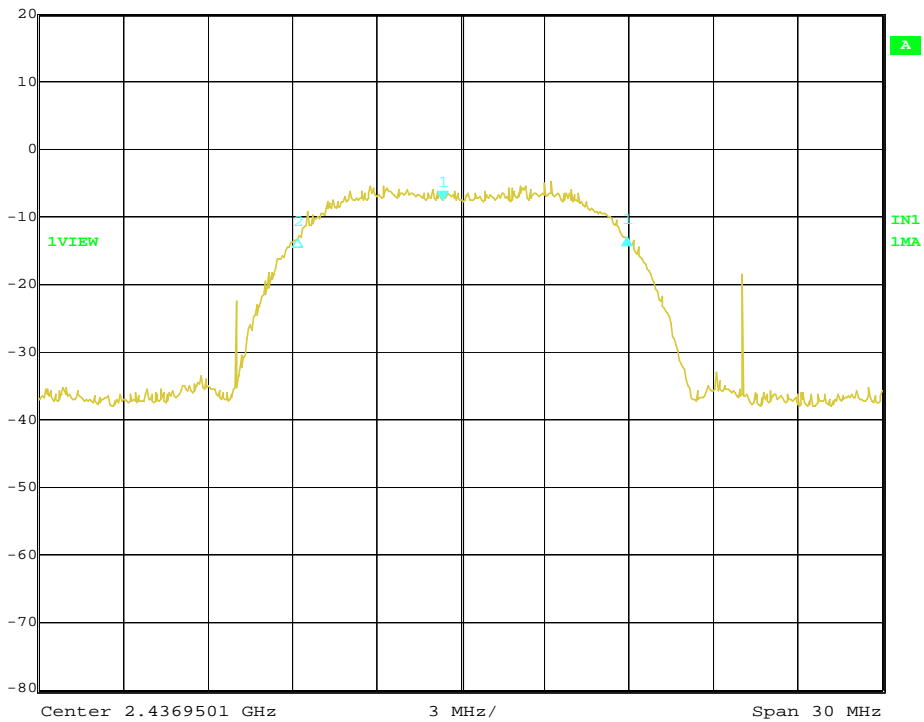
 Delta 2 [T1] RBW 100 kHz RF Att 50 dB  
Ref Lvl -4.69 dB VBW 300 kHz  
20 dBm -4.38877756 MHz SWT 1 s Unit dBm



Date: 30.MAY.2005 19:34:31

2437 MHz (6ch), CCK (11Mbps)

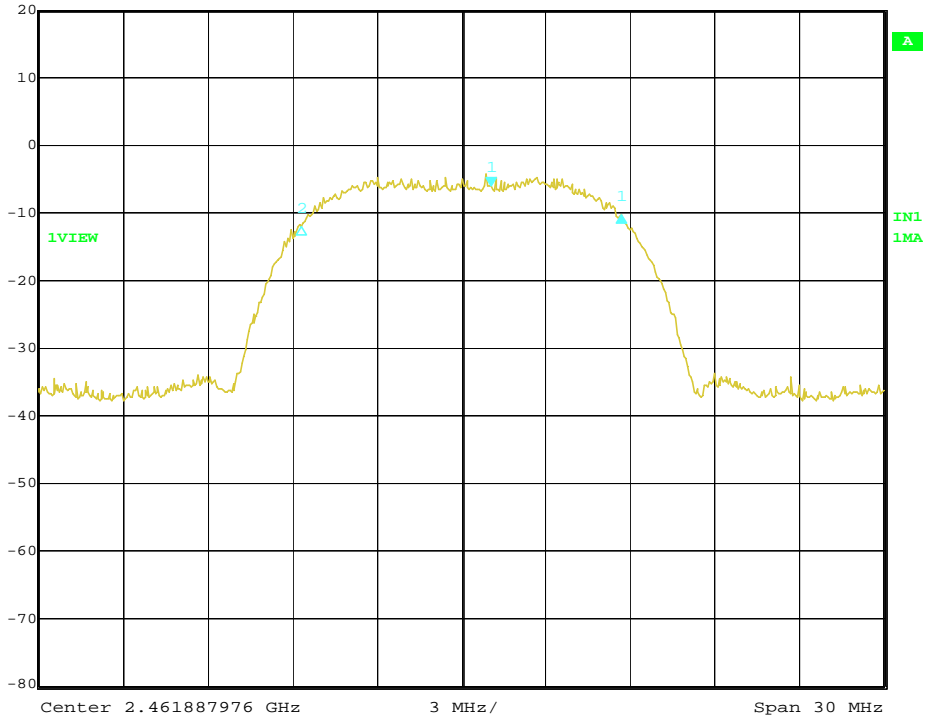
 Delta 1 [T1] RBW 100 kHz RF Att 50 dB  
Ref Lvl -5.49 dB VBW 300 kHz  
20 dBm 6.55310621 MHz SWT 1 s Unit dBm



Date: 30.MAY.2005 19:43:58

2462 MHz (11ch), CCK (11Mbps)

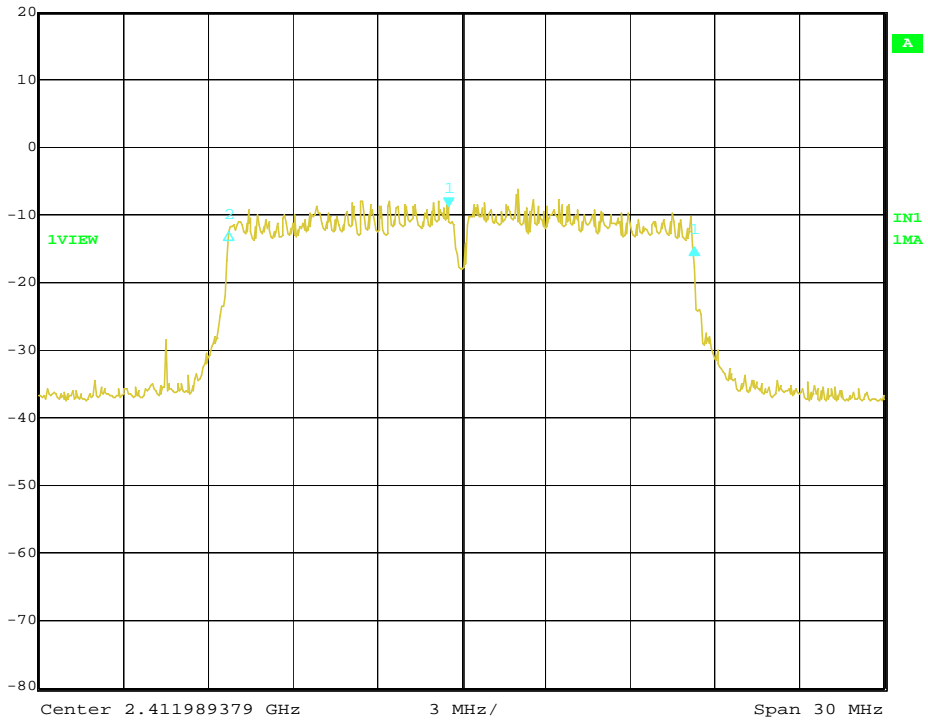
	Delta 1 [T1]	RBW	100 kHz	RF Att	50 dB
	Ref Lvl	-4.14 dB	VBW	300 kHz	
	20 dBm	4.61122244 MHz	SWT	1 s	Unit dBm



Date: 30.MAY.2005 19:50:45


2412 MHz (1ch), OFDM (54Mbps)

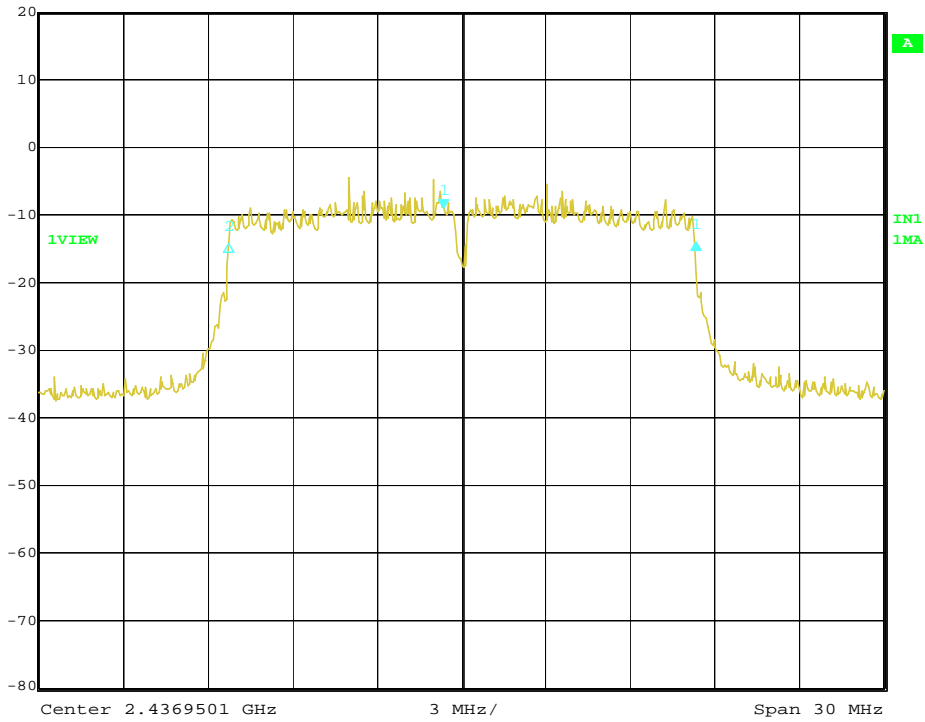
	Delta 1 [T1]	RBW	100 kHz	RF Att	50 dB
	Ref Lvl	-5.85 dB	VBW	300 kHz	
	20 dBm	8.70420842 MHz	SWT	1 s	Unit dBm



Date: 30.MAY.2005 19:29:23


2437 MHz (6ch), OFDM (54Mbps)

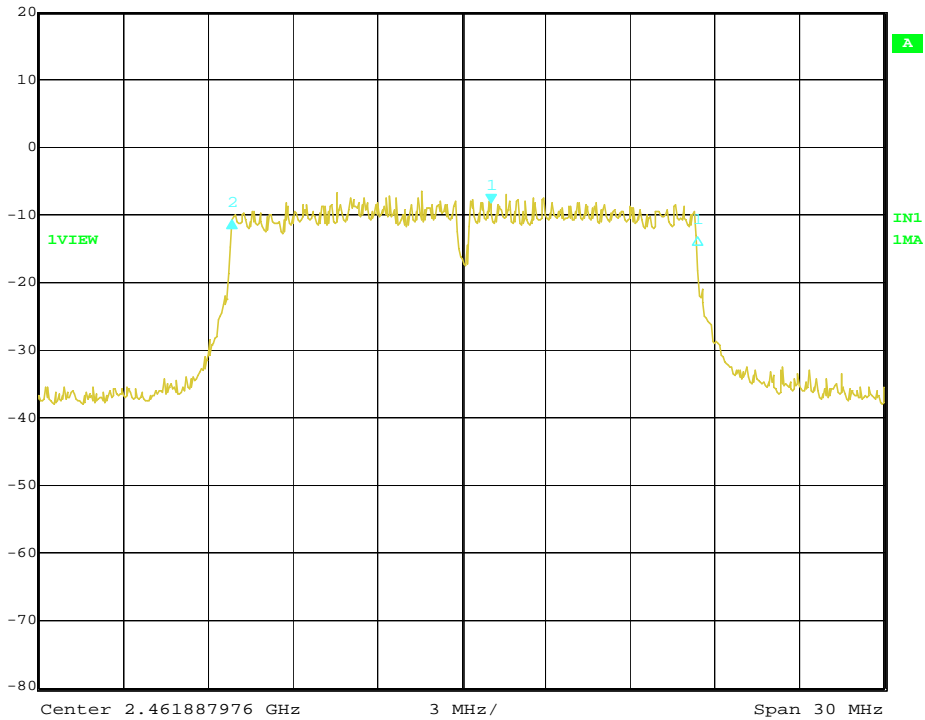
 Delta 1 [T1] RBW 100 kHz RF Att 50 dB  
Ref Lvl -5.16 dB VBW 300 kHz  
20 dBm 8.95791583 MHz SWT 1 s Unit dBm



Date: 30.MAY.2005 19:58:35

2462 MHz (11ch), OFDM (54Mbps)

 Delta 2 [T1] RBW 100 kHz RF Att 50 dB  
Ref Lvl -2.47 dB VBW 300 kHz  
20 dBm -9.20200401 MHz SWT 1 s Unit dBm



Date: 30.MAY.2005 19:54:59

5.3 15. 247(b) Maximum Peak Output Power

5.3.1 Setting Remarks

- Refer to test configuration figure 4.4.
- The maximum peak output power was measured as following;
  1. The diode detector is inserted between EUT and the oscilloscope.
  2. The oscilloscope was used to read the peak response of the detector.
  3. Replaced EUT by the signal generator (SG).
  4. Adjusted the frequency of SG to the fundamental frequency.
  5. Adjusted the amplitude of SG to be the same peak recorded in 2.
- The spectrum analyzer was set-up as following;
  - ✓ Voltage level range : 10 mV / Div
  - ✓ Sampling time : 1.00GS / s
  - ✓ Function : Peak search

5.3.2 Minimum Standard

The maximum peak output power shall not exceed 1 watt. If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.3.3 Result

EUT complies with the requirement.

Uncertainty of measurement result: ± 0.5 dB  
 Temperature, Humidity : 26 °C, 62%

5.3.4 Measured Data

Frequency (MHz)	Peak Voltage (mV)	Peak Power (dBm)	Limit (dB)	Margin (dB)
CCK (11 Mbps)				
2412 (1ch)	10.40	19.18	30	10.82
2437 (6ch)	10.40	19.18	30	10.82
2462 (11ch)	10.40	19.18	30	10.82
OFDM (54 Mbps)				
2412 (1ch)	27.20	25.00	30	5.00
2437 (6ch)	27.20	25.00	30	5.00
2462 (11ch)	26.80	24.88	30	5.12

## 5.4 15. 247(c) Transmitter Radiated Emissions (Conducted)

### 5.4.1 Setting Remarks

- EUT directly connects to the spectrum analyzer via calibrated coaxial cable and 10 dB attenuator.
- The Spectrums are scanned from the lowest generated frequency of EUT up to the 10th harmonics by using the spectrum analyzer.
- The spectrum analyzer was set-up as following;
  - ✓ Resolution bandwidth : 100 kHz (1 MHz for average detection)
  - ✓ Video bandwidth : 100 kHz
  - ✓ Sweep : Auto
  - ✓ Detector function : Peak, Average
  - ✓ Trace Mode : Max Hold
- Refer to test configuration figure 4.3.

### 5.4.2 Minimum Standard

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required.

### 5.4.3 Result

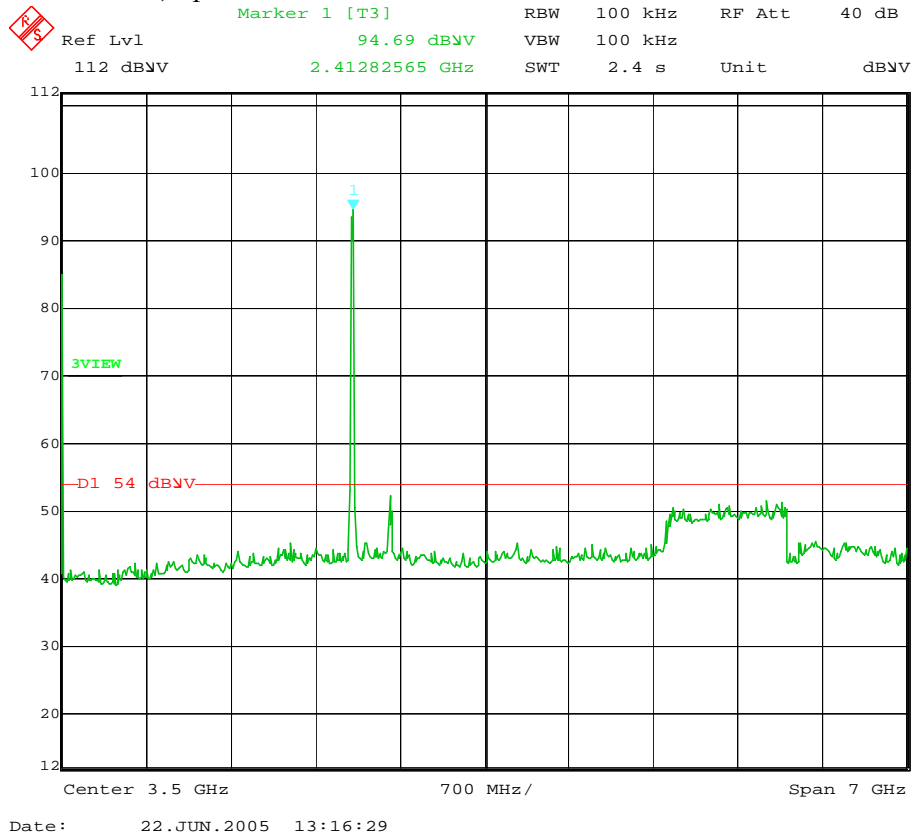
EUT complies with the requirement.

Uncertainty of measurement result:  $\pm 0.8$  dB  
Temperature, Humidity : 26 °C, 62%

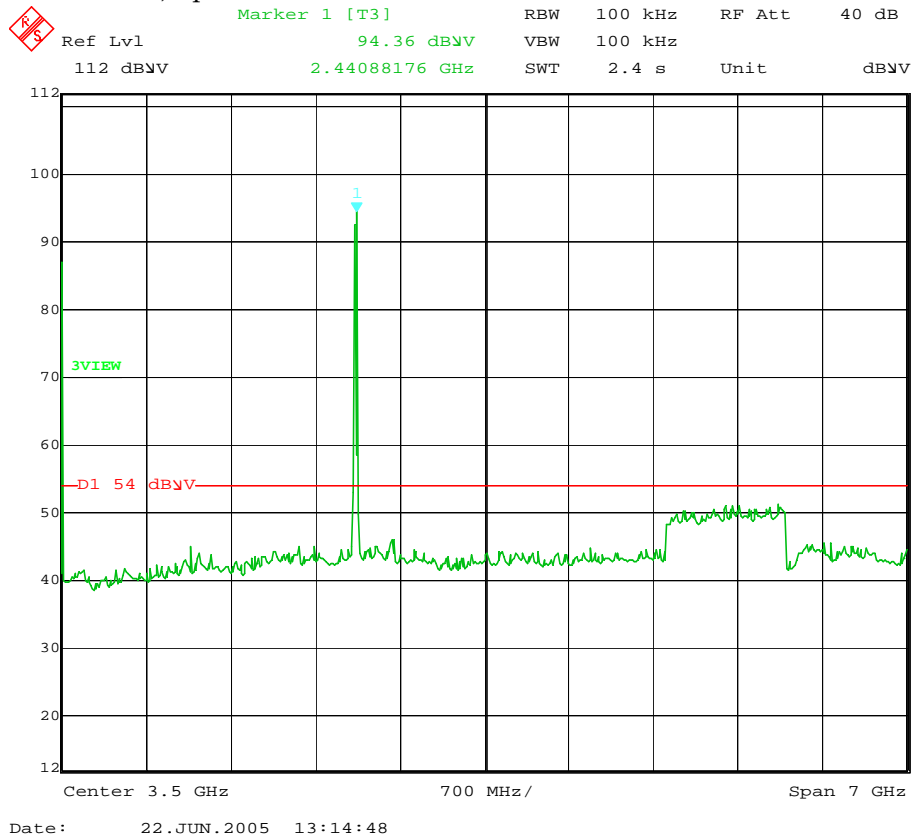


5.4.4 Measured Data (No significant emission was found)

2412 MHz (1ch), up to 7 GHz

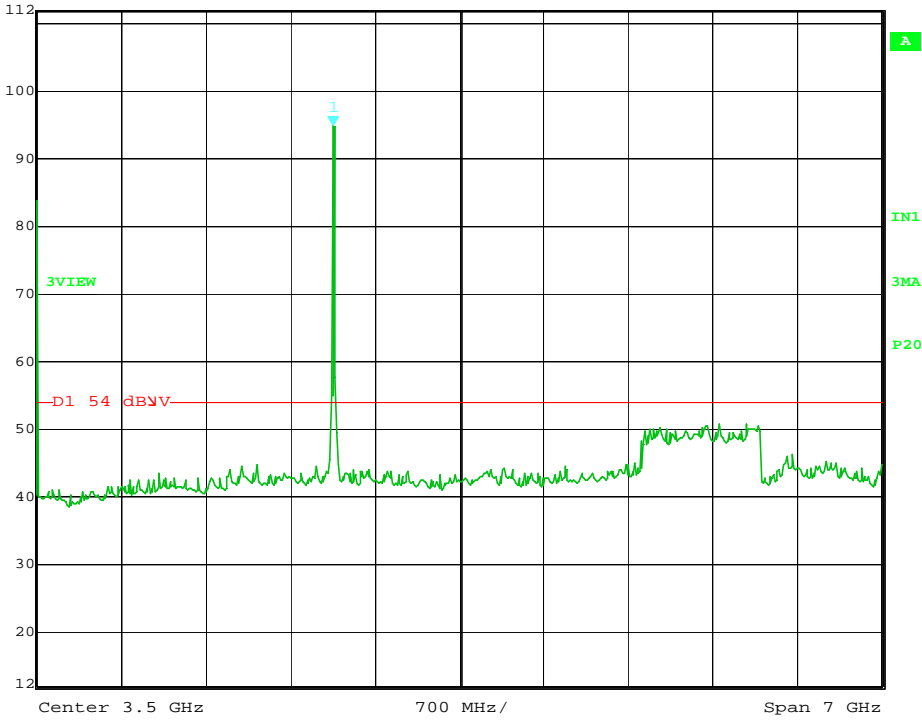


2437 MHz (6ch), up to 7 GHz



2462 MHz (11ch), up to 7 GHz

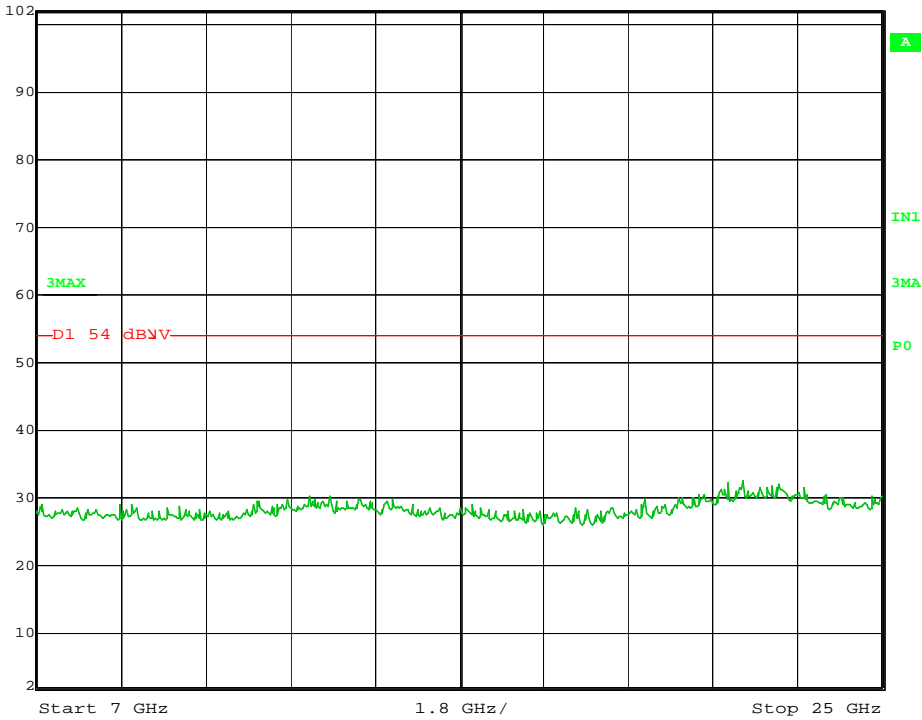
	Ref Lvl	112 dBV	Marker 1 [T3]	94.95 dBV	RBW	100 kHz	RF Att	40 dB
				2.45490982 GHz	VBW	100 kHz		
					SWT	2.4 s	Unit	dBV



Date: 22.JUN.2005 13:12:53

2412 MHz (1ch), 7 to 25 GHz

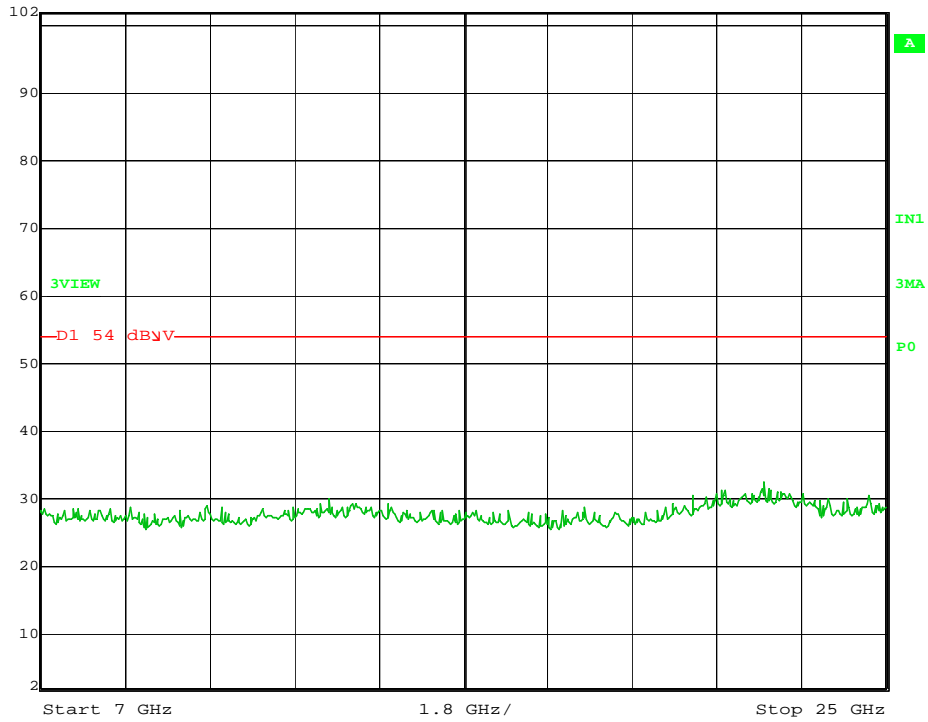
	Ref Lvl	102 dBV	RBW	100 kHz	RF Att	10 dB
			VBW	100 kHz		
			SWT	4.5 s	Unit	dBV



Date: 22.JUN.2005 13:27:05

2437 MHz (6ch), 7 to 25 GHz

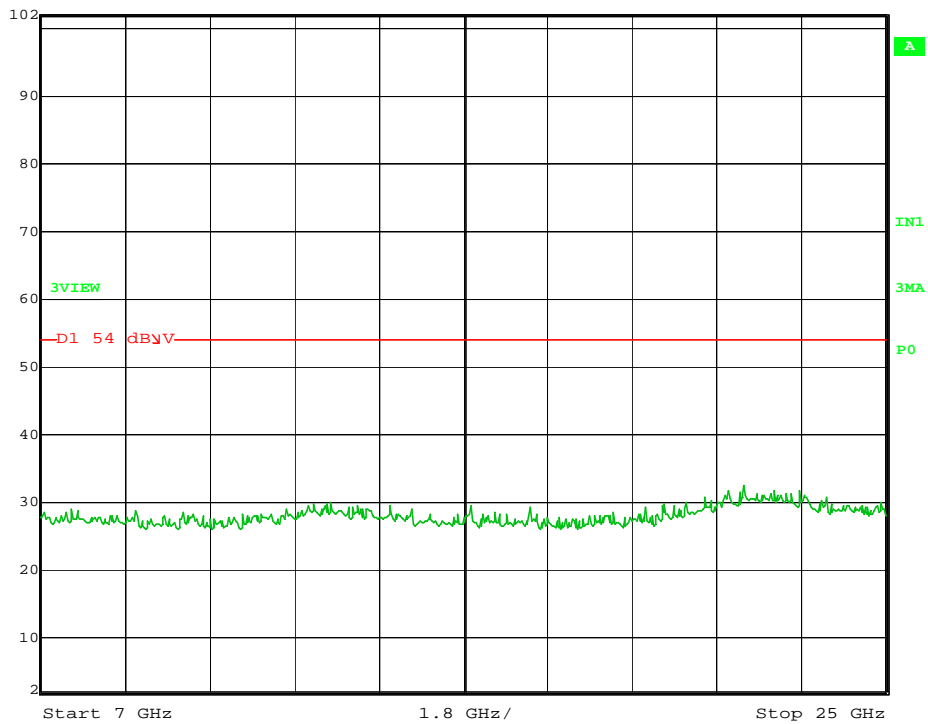
 Ref Lvl 102 dB $\mu$ V  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 4.5 s Unit dB $\mu$ V



Date: 22.JUN.2005 13:28:08

2462 MHz (11ch), 7 to 25 GHz

 Ref Lvl 102 dB $\mu$ V  
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 4.5 s Unit dB $\mu$ V



Date: 22.JUN.2005 13:30:58

## 5.5 15. 247(c) Transmitter Radiated Emissions (Radiated)

## 5.5.1 Setting Remarks

- The data lists in “5.5.4 Measured Data “ list the significant emission frequencies, measured levels, correction factor (includes cable and antenna corrections), the corrected reading, plus the limit.
- In the frequency range between 30MHz to 25 GHz (as 10<sup>th</sup> harmonics), the Electric Field Strength was measured in accordance with ANSI C63.4: 2003 and CISPR22: 1997.
- The test setup was made in accordance with ANSI C63.4: 2003.
- The antenna was measured at 1-4m height.
- The EUT was placed on the non-conductive table in the center of turntable. The height of this table was 0.8m.
- The measurement was carried out with both horizontal and vertical antenna polarization.
- The highest radiation from the equipment was recorded.
- By varying the configuration of the test sample and the cable routing, it was attempted to maximize the emission.
- The test receiver with Quasi Peak and Average detector is in compliance with CISPR 16-1:1993.
- The spectrum analyzer was set-up as following;

(Frequency range : 30 - 1000 MHz)

- ✓ Resolution bandwidth : 100 kHz
- ✓ Video bandwidth : 300 kHz
- ✓ Detector function : Peak
- ✓ Trace Mode : Max Hold

(Frequency range : Above 1000 MHz)

- ✓ Resolution bandwidth : 1 MHz
- ✓ Video bandwidth : 1 MHz
- ✓ Detector function : Peak, Average
- ✓ Trace Mode : Max Hold

- EMI Test Receiver analyzer was set-up as following;
  - ✓ IF bandwidth : 120 kHz (Quasi-Peak Detector)
  - ✓ IF bandwidth : 1 MHz (Average Detector)
- Refer to test configuration figure 4.2.

### 5.5.2 Minimum Standard

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### 5.5.3 Result

EUT complies with the requirement.

Uncertainty of measurement result:  $\pm 3.28$  dB

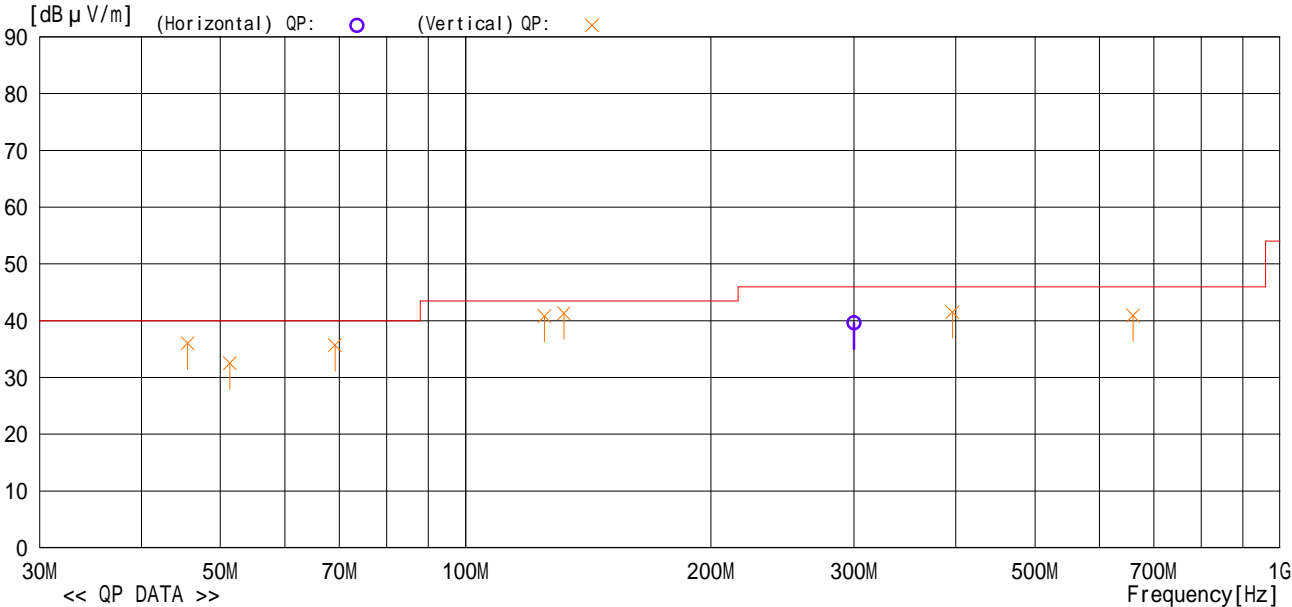
Temperature, Humidity : Refer to each data table

5.4.4 Measured Data

30MHz to 1GHz, Channel 1 with Antenna No.1

Model Name	: WZR-HP-G54	Job No	: CJ05-047103E
Serial No.	:	Temp./Humi.	: 26 /43%
Operator	: K.Yamashita	Condition	: Operated
Power Supply	: AC120V,60Hz	Remark	: Antenna No.1:A125P01-CA, CH 1

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total06 3m 15.209 Antenna No.1 CH 1  
 LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pola.	Height	Angle	Ant
	[MHz]	[dBµV]	[dB/m]	[dBµV/m]	[dBµV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.576	49.7	-13.7	36.0	40.0	4.0	Vert.	100	187	BC
2	51.345	46.8	-14.3	32.5	40.0	7.5	Vert.	100	196	BC
3	69.114	51.1	-15.4	35.7	40.0	4.3	Vert.	100	195	BC
4	125.003	53.5	-12.7	40.8	43.5	2.7	Vert.	100	174	BC
5	132.011	53.7	-12.4	41.3	43.5	2.2	Vert.	100	150	BC
6	300.000	41.7	-2.1	39.6	46.0	6.4	Hori.	114	195	BC
7	396.027	47.1	-5.6	41.5	46.0	4.5	Vert.	150	59	LP
8	660.041	41.5	-0.6	40.9	46.0	5.1	Vert.	100	257	LP

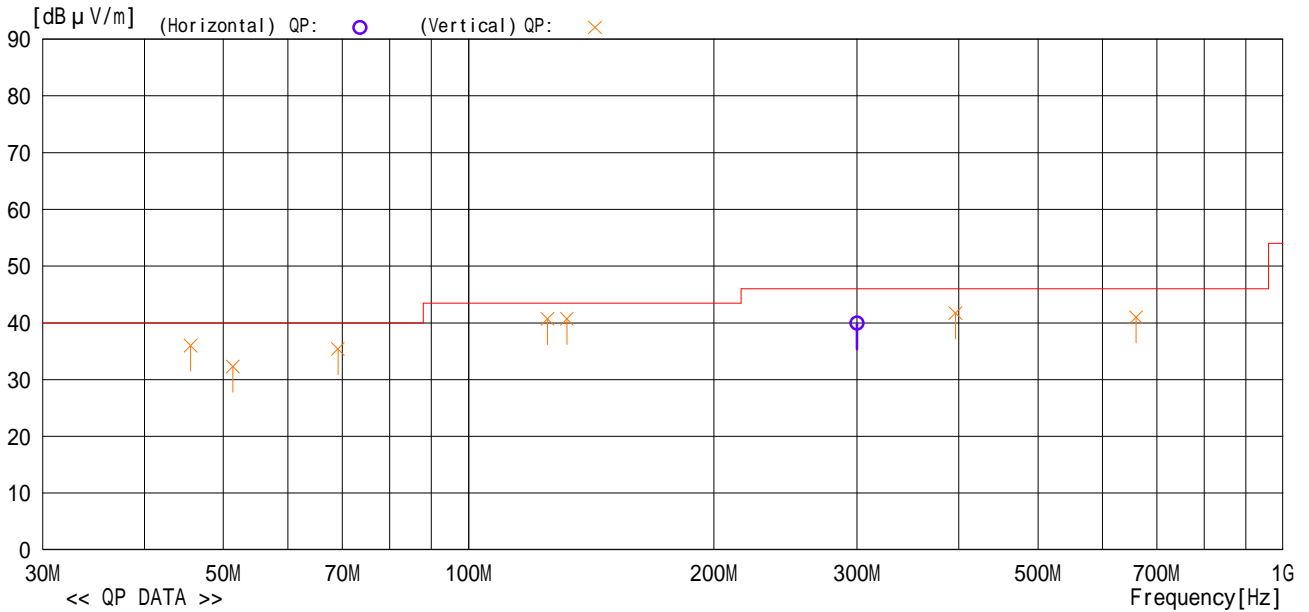
30MHz to 1GHz, Channel 6 with Antenna No.1

Model Name : WZR-HP-G54  
 Serial No. :  
 Operator : K.Yamashita  
 Power Supply : AC120V,60Hz

Job No : CJ05-047103E  
 Temp./Humi. : 26 /43%  
 Condition : Operated  
 Remark : Antenna No.1:A125P01-CA, CH 6

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total05 3m 15.209 Antenna No.1 CH 6

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.574	49.7	-13.7	36.0	40.0	4.0	Vert.	100	177	BC
2	51.347	46.6	-14.3	32.3	40.0	7.7	Vert.	100	198	BC
3	69.115	50.8	-15.4	35.4	40.0	4.6	Vert.	100	194	BC
4	125.003	53.4	-12.7	40.7	43.5	2.8	Vert.	100	192	BC
5	132.011	53.1	-12.4	40.7	43.5	2.8	Vert.	100	149	BC
6	300.000	42.0	-2.1	39.9	46.0	6.1	Hori.	113	187	BC
7	396.029	47.3	-5.6	41.7	46.0	4.3	Vert.	138	62	LP
8	660.043	41.6	-0.6	41.0	46.0	5.0	Vert.	148	232	LP

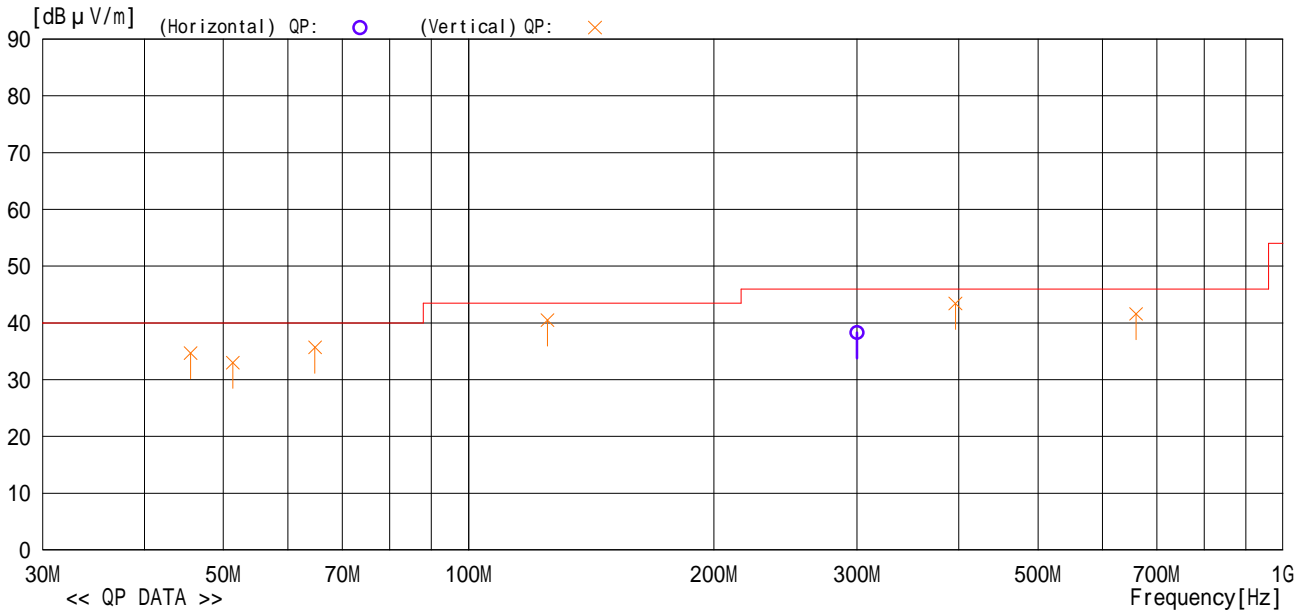
30MHz to 1GHz, Channel 11 with Antenna No.1

Model Name : WZR-HP-G54  
 Serial No. :  
 Operator : K.Yamashita  
 Power Supply : AC120V,60Hz

Job No : CJ05-047103E  
 Temp./Humi. : 26 /43%  
 Condition : Operated  
 Remark : Antenna No.1:A125P01-CA, CH 11

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total04 3m 15.209 Antenna No.1 CH 11

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.574	48.4	-13.7	34.7	40.0	5.3	Vert.	100	173	BC
2	51.344	47.3	-14.3	33.0	40.0	7.0	Vert.	100	178	BC
3	64.780	50.9	-15.2	35.7	40.0	4.3	Vert.	100	180	BC
4	125.003	53.2	-12.7	40.5	43.5	3.0	Vert.	100	189	BC
5	300.000	40.4	-2.1	38.3	46.0	7.7	Hori.	114	185	BC
6	396.027	49.0	-5.6	43.4	46.0	2.6	Vert.	144	57	LP
7	660.039	42.2	-0.6	41.6	46.0	4.4	Vert.	172	84	LP

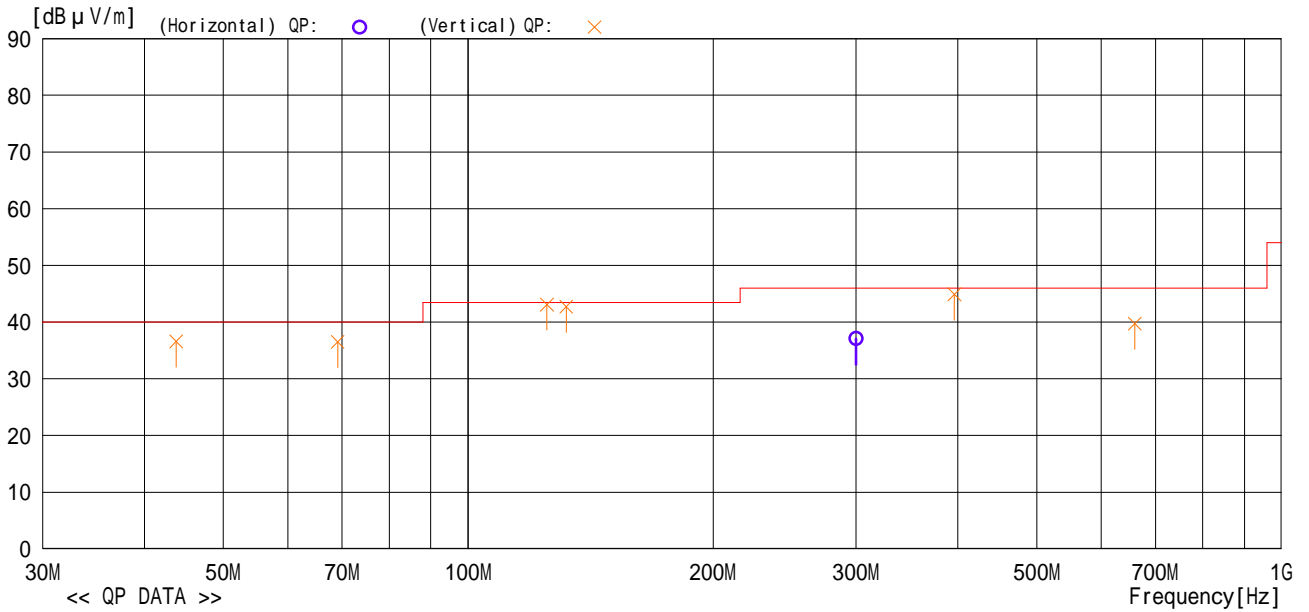


30MHz to 1GHz, Channel 1 with Antenna No.2

Model Name : WZR-HP-G54 Job No : CJ05-047103E  
 Serial No. : Temp./Humi. : 24 /58%  
 Operator : K.Yamashita Condition : Operated  
 Power Supply : AC120V,60Hz Remark : Antenna No.2:WLE-HG-NDR, CH 1

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total12 3m 15.209 Antenna No.2 CH 1

LIMIT : FCC 15.209 3m



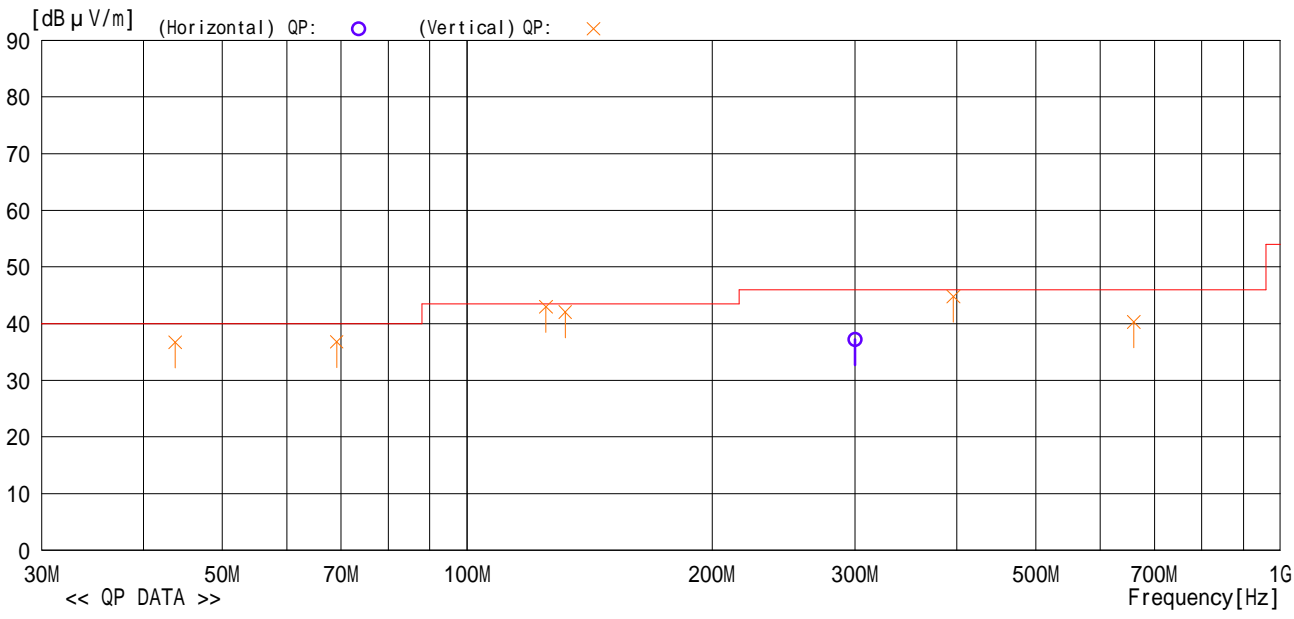
No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	43.773	50.2	-13.6	36.6	40.0	3.4	Vert.	100	173	BC
2	69.115	51.9	-15.4	36.5	40.0	3.5	Vert.	100	204	BC
3	124.994	55.8	-12.7	43.1	43.5	0.4	Vert.	100	168	BC
4	132.007	55.1	-12.4	42.7	43.5	0.8	Vert.	100	163	BC
5	300.000	39.2	-2.1	37.1	46.0	8.9	Hori.	112	178	BC
6	396.024	50.5	-5.6	44.9	46.0	1.1	Vert.	151	95	LP
7	660.032	40.3	-0.6	39.7	46.0	6.3	Vert.	183	32	LP

30MHz to 1GHz, Channel 6 with Antenna No.2

Model Name : WZR-HP-G54 Job No : CJ05-047103E  
 Serial No. : Temp./Humi. : 24 /58%  
 Operator : K.Yamashita Condition : Operated  
 Power Supply : AC120V,60Hz Remark : Antenna No.2:WLE-HG-NDR, CH 6

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total11 3m 15.209 Antenna No.2 CH 6

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	43.773	50.3	-13.6	36.7	40.0	3.3	Vert.	100	164	BC
2	69.114	52.2	-15.4	36.8	40.0	3.2	Vert.	100	200	BC
3	124.999	55.7	-12.7	43.0	43.5	0.5	Vert.	102	167	BC
4	132.008	54.5	-12.4	42.1	43.5	1.4	Vert.	107	162	BC
5	300.000	39.3	-2.1	37.2	46.0	8.8	Hori.	110	176	BC
6	396.029	50.4	-5.6	44.8	46.0	1.2	Vert.	155	96	LP
7	660.045	40.9	-0.6	40.3	46.0	5.7	Vert.	160	261	LP

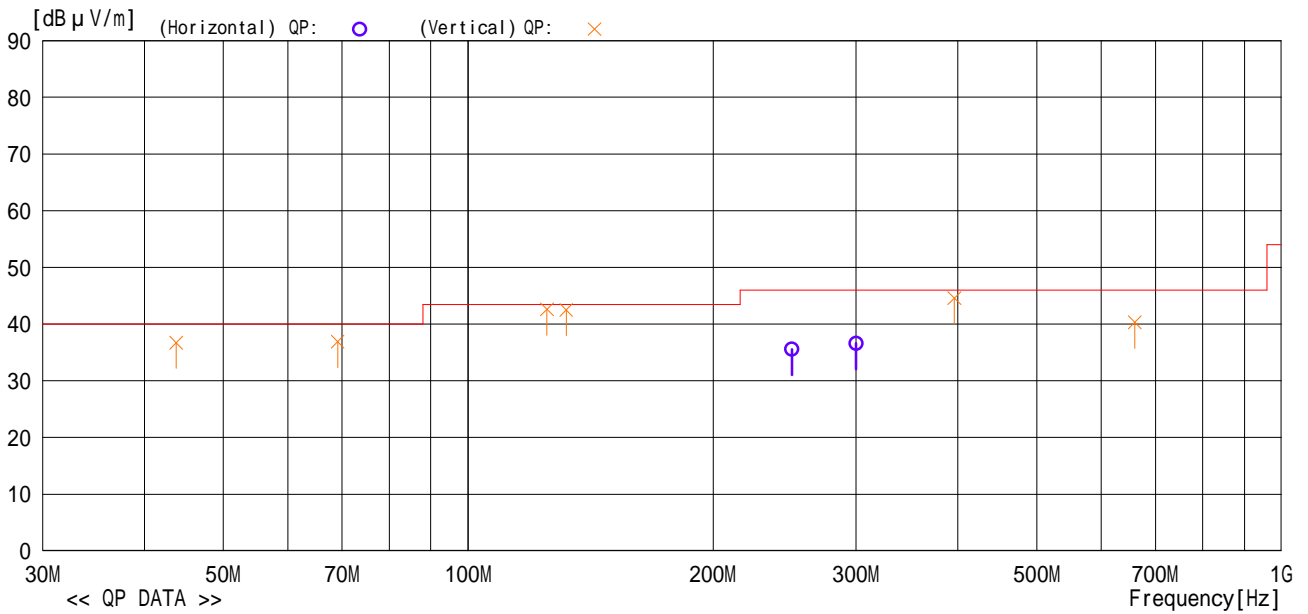
30MHz to 1GHz, Channel 11 with Antenna No.2

Model Name : WZR-HP-G54  
 Serial No. :  
 Operator : K.Yamashita  
 Power Supply : AC120V,60Hz

Job No : CJ05-047103E  
 Temp./Humi. : 24 /58%  
 Condition : Operated  
 Remark : Antenna No.2:WLE-HG-NDR, CH 11

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total10 3m 15.209 Antenna No.2 CH 11

LIMIT : FCC 15.209 3m



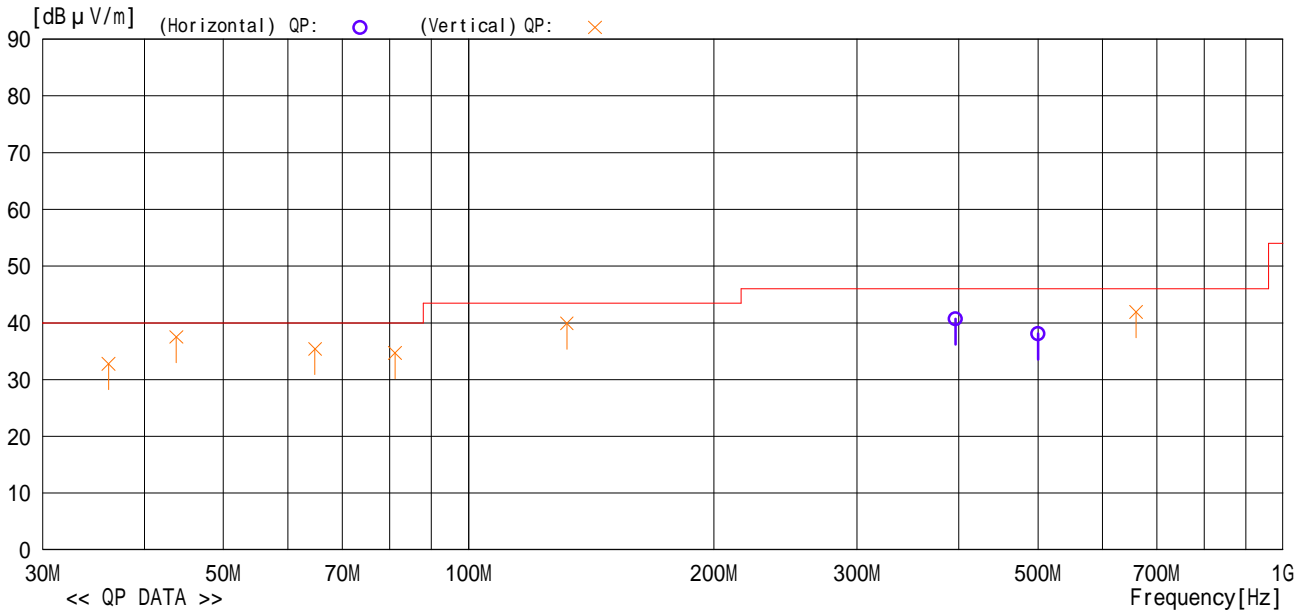
No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	43.773	50.3	-13.6	36.7	40.0	3.3	Vert.	100	166	BC
2	69.115	52.3	-15.4	36.9	40.0	3.1	Vert.	100	204	BC
3	125.003	55.3	-12.7	42.6	43.5	0.9	Vert.	100	148	BC
4	132.011	54.9	-12.4	42.5	43.5	1.0	Vert.	100	161	BC
5	250.005	41.2	-5.6	35.6	46.0	10.4	Hori.	133	169	BC
6	300.000	38.7	-2.1	36.6	46.0	9.4	Hori.	113	179	BC
7	396.029	50.2	-5.6	44.6	46.0	1.4	Vert.	150	86	LP
8	660.045	40.9	-0.6	40.3	46.0	5.7	Vert.	156	257	LP

30MHz to 1GHz, Channel 1 with Antenna No.4

Model Name : WZR-HP-G54 Job No : CJ05-047103E  
 Serial No. : Temp./Humi. : 23 /59%  
 Operator : K.Yamashita Condition : Operated  
 Power Supply : AC120V,60Hz Remark : Antenna No.4:WLE-MYG, CH 1

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total02 3m 15.209 Antenna No.4 CH 1

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	36.140	45.2	-12.4	32.8	40.0	7.2	Vert.	100	60	BC
2	43.773	51.1	-13.6	37.5	40.0	2.5	Vert.	100	173	BC
3	64.779	50.6	-15.2	35.4	40.0	4.6	Vert.	100	201	BC
4	81.237	49.7	-15.0	34.7	40.0	5.3	Vert.	100	17	BC
5	132.011	52.3	-12.4	39.9	43.5	3.6	Vert.	100	50	BC
6	396.027	46.3	-5.6	40.7	46.0	5.3	Hori.	113	181	LP
7	500.009	41.2	-3.1	38.1	46.0	7.9	Hori.	100	310	LP
8	660.047	42.5	-0.6	41.9	46.0	4.1	Vert.	100	261	LP

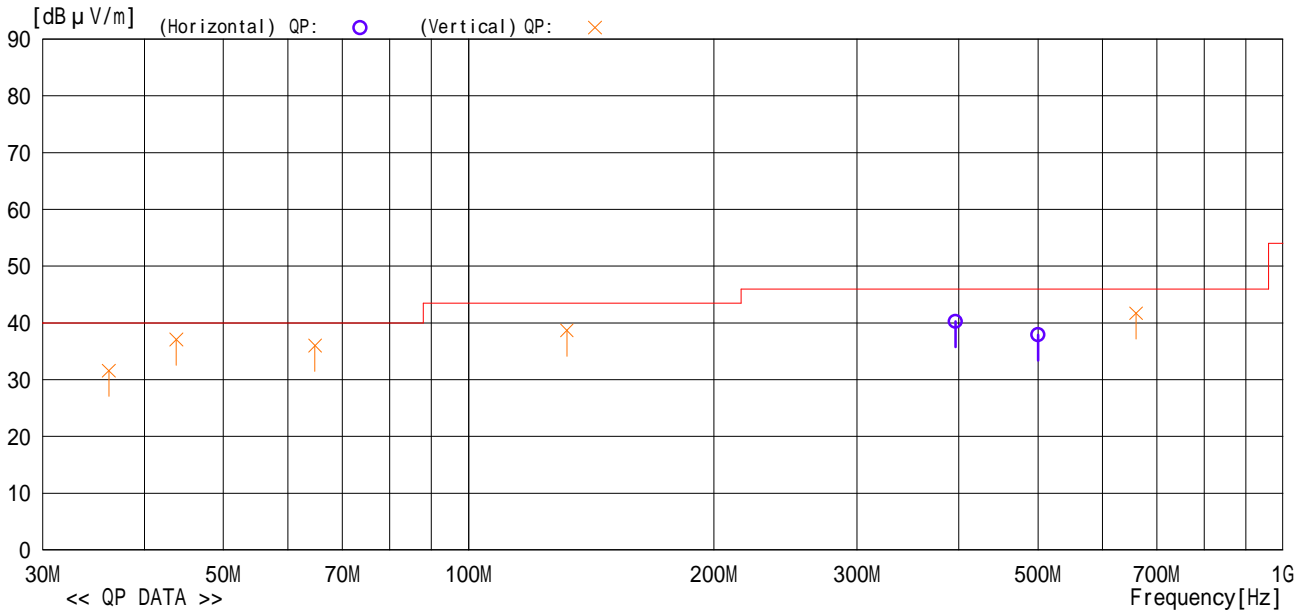
30MHz to 1GHz, Channel 6 with Antenna No.4

Model Name : WZR-HP-G54  
 Serial No. :  
 Operator : K.Yamashita  
 Power Supply : AC120V,60Hz

Job No : CJ05-047103E  
 Temp./Humi. : 23 /59%  
 Condition : Operated  
 Remark : Antenna No.4:WLE-MYG, CH 6

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total03 3m 15.209 Antenna No.4 CH 6

LIMIT : FCC 15.209 3m



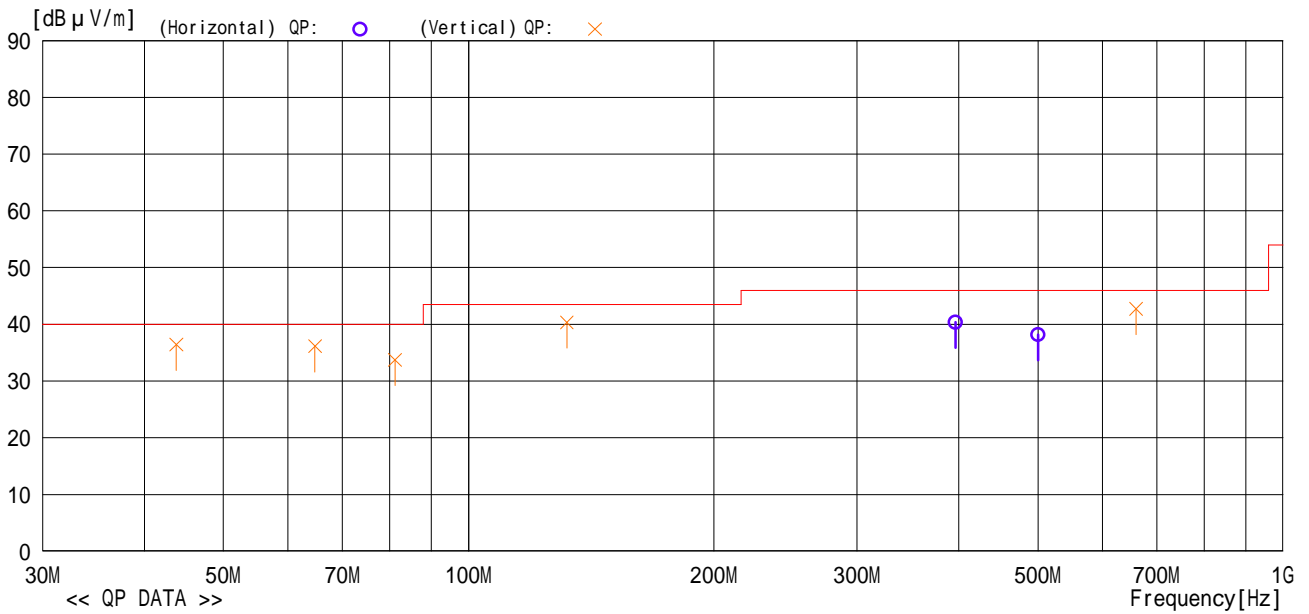
No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	36.177	44.0	-12.4	31.6	40.0	8.4	Vert.	100	29	BC
2	43.773	50.7	-13.6	37.1	40.0	2.9	Vert.	100	169	BC
3	64.775	51.2	-15.2	36.0	40.0	4.0	Vert.	100	194	BC
4	132.012	51.1	-12.4	38.7	43.5	4.8	Vert.	100	191	BC
5	396.029	45.8	-5.6	40.2	46.0	5.8	Hori.	100	170	LP
6	500.009	41.0	-3.1	37.9	46.0	8.1	Hori.	100	170	LP
7	660.047	42.3	-0.6	41.7	46.0	4.3	Vert.	100	260	LP

30MHz to 1GHz Channel 11 with Antenna No.4

Model Name : WZR-HP-G54 Job No : CJ05-047103E  
 Serial No. : Temp./Humi. : 23 /59%  
 Operator : K.Yamashita Condition : Operated  
 Power Supply : AC120V,60Hz Remark : Antenna No.4:WLE-MYG, CH 11

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total01 3m 15.209 Antenna No.4 CH 11

LIMIT : FCC 15.209 3m



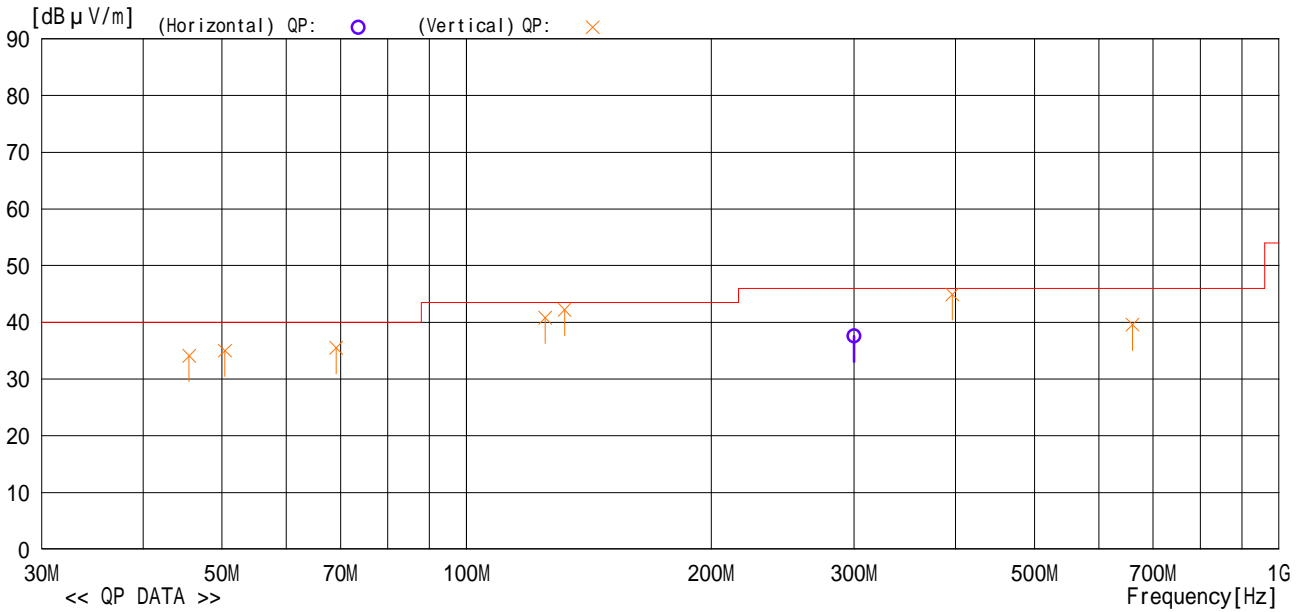
No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	43.772	50.0	-13.6	36.4	40.0	3.6	Vert.	100	67	BC
2	64.779	51.3	-15.2	36.1	40.0	3.9	Vert.	100	162	BC
3	81.237	48.7	-15.0	33.7	40.0	6.3	Vert.	100	150	BC
4	132.013	52.7	-12.4	40.3	43.5	3.2	Vert.	100	62	BC
5	396.029	46.0	-5.6	40.4	46.0	5.6	Hori.	112	175	LP
6	500.007	41.3	-3.1	38.2	46.0	7.8	Hori.	100	173	LP
7	660.045	43.3	-0.6	42.7	46.0	3.3	Vert.	100	275	LP

30MHz to 1GHz, Channel 1 with Antenna No.5

Model Name	: WZR-HP-G54	Job No	: CJ05-047103E
Serial No.	:	Temp./Humi.	: 26 /43%
Operator	: K.Yamashita	Condition	: Operated
Power Supply	: AC120V,60Hz	Remark	: Antenna No.5:WLE-DA-US, CH 1

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total09 3m 15.209 Antenna No.5 CH 1

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pola.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.574	47.8	-13.7	34.1	40.0	5.9	Vert.	100	177	BC
2	50.428	49.4	-14.4	35.0	40.0	5.0	Vert.	100	216	BC
3	69.114	50.9	-15.4	35.5	40.0	4.5	Vert.	100	189	BC
4	125.003	53.5	-12.7	40.8	43.5	2.7	Vert.	100	148	BC
5	132.013	54.6	-12.4	42.2	43.5	1.3	Vert.	100	153	BC
6	300.000	39.7	-2.1	37.6	46.0	8.4	Hori.	113	164	BC
7	396.027	50.5	-5.6	44.9	46.0	1.1	Vert.	140	66	LP
8	660.043	40.2	-0.6	39.6	46.0	6.4	Vert.	172	262	LP

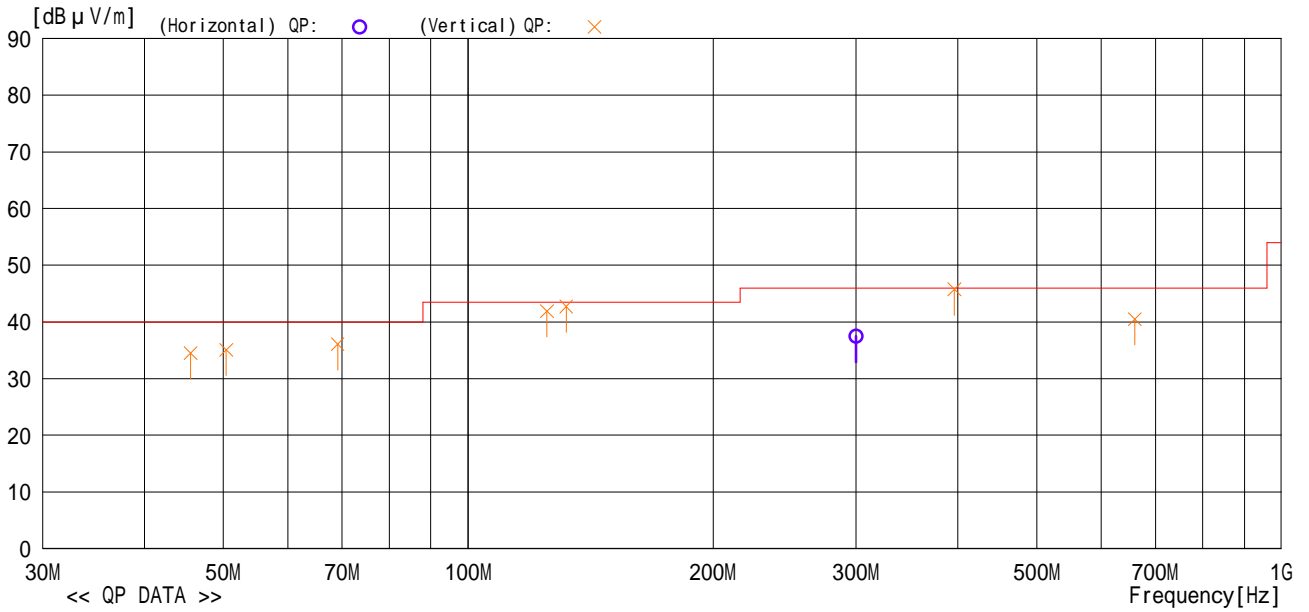
30MHz to 1GHz, Channel 6 with Antenna No.5

Model Name : WZR-HP-G54  
 Serial No. :  
 Operator : K.Yamashita  
 Power Supply : AC120V,60Hz

Job No : CJ05-047103E  
 Temp./Humi. : 24 /58%  
 Condition : Operated  
 Remark : Antenna No.5:WLE-DA-US, CH 6

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total08 3m 15.209 Antenna No.5 CH 6

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.573	48.2	-13.7	34.5	40.0	5.5	Vert.	100	184	BC
2	50.427	49.5	-14.4	35.1	40.0	4.9	Vert.	100	233	BC
3	69.114	51.5	-15.4	36.1	40.0	3.9	Vert.	100	204	BC
4	125.003	54.6	-12.7	41.9	43.5	1.6	Vert.	100	191	BC
5	132.012	55.1	-12.4	42.7	43.5	0.8	Vert.	100	173	BC
6	300.000	39.6	-2.1	37.5	46.0	8.5	Hori.	114	181	BC
7	396.029	51.4	-5.6	45.8	46.0	0.2	Vert.	139	63	LP
8	660.045	41.1	-0.6	40.5	46.0	5.5	Vert.	150	166	LP

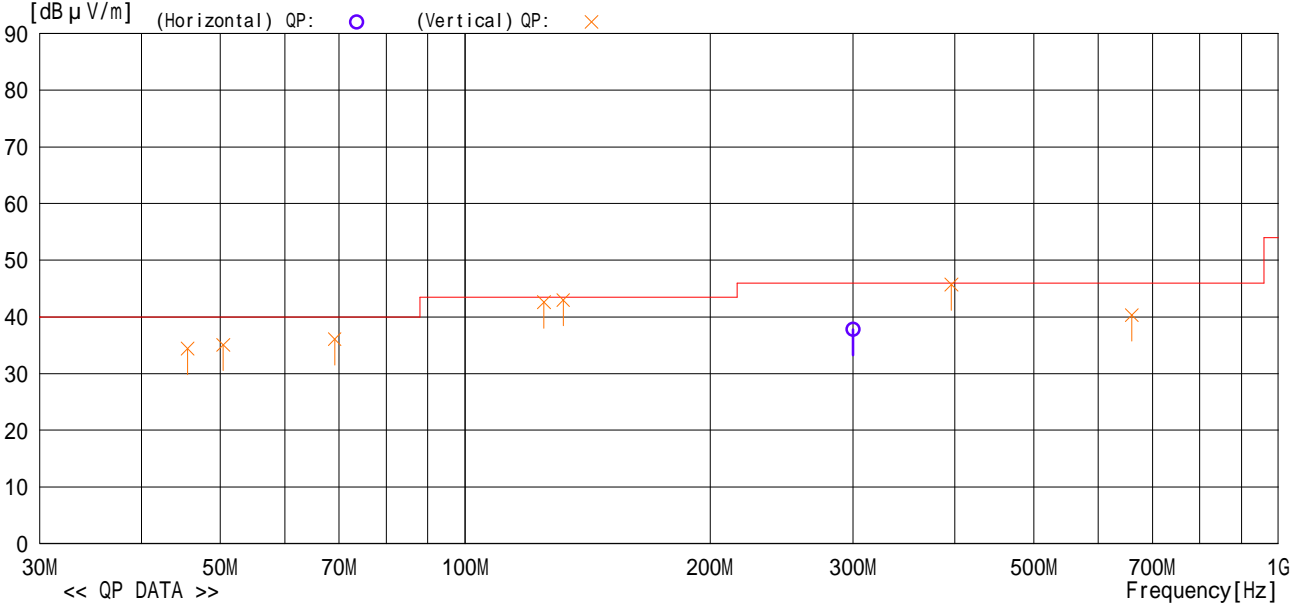


30MHz to 1GHz, Channel 11 with Antenna No.5

Model Name : WZR-HP-G54 Job No : CJ05-047103E  
 Serial No. : Temp./Humi. : 24 /58%  
 Operator : K.Yamashita Condition : Operated  
 Power Supply : AC120V,60Hz Remark : Antenna No.5:WLE-DA-US, CH 11

Memo : RBW:120KHz VBW:1MHz  
 Data Comment : CJ05-047103E RE Total07 3m 15.209 Antenna No.5 CH 11

LIMIT : FCC 15.209 3m



No	Freq.	Reading	C.Fac	Result	Limit	Margin	Pol.	Height	Angle	Ant
	[MHz]	[dBuV]	[dB/m]	[dBuV/m]	[dBuV/m]	[dB]	[H/V]	[cm]	[deg]	Type
1	45.574	48.1	-13.7	34.4	40.0	5.6	Vert.	100	190	BC
2	50.429	49.5	-14.4	35.1	40.0	4.9	Vert.	100	217	BC
3	69.115	51.5	-15.4	36.1	40.0	3.9	Vert.	100	182	BC
4	125.003	55.3	-12.7	42.6	43.5	0.9	Vert.	100	188	BC
5	132.013	55.4	-12.4	43.0	43.5	0.5	Vert.	100	154	BC
6	300.000	39.9	-2.1	37.8	46.0	8.2	Hori.	113	174	BC
7	396.029	51.3	-5.6	45.7	46.0	0.3	Vert.	137	70	LP
8	660.045	40.9	-0.6	40.3	46.0	5.7	Vert.	185	269	LP

1 to 25 GHz, with Antenna No.1

Ch.	Frequency (MHz)	Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Pola.	Pk. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)	Av. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)
1	*2418.8	104.6	81.6	Hori.				
1	4823.6	61.4	38.4	Hori.	74.0	12.6	54.0	15.6
1	7235.5	66.2	46.9	Hori.	74.0	7.8	54.0	7.1
1	9650.3	68.4	49.1	Vert.	74.0	5.6	54.0	4.9
6	*2438.9	104.1	81.1	Hori.				
6	4875.7	63.4	40.4	Hori.	74.0	10.6	54.0	13.6
6	7310.6	67.4	48.1	Hori.	74.0	6.6	54.0	5.9
11	*2458.9	105.4	82.4	Hori.				
11	4923.8	65.0	42.0	Hori.	74.0	9.0	54.0	12.0
11	7385.8	66.7	47.4	Hori.	74.0	7.3	54.0	6.6

\* Fundamental frequency

1 to 25 GHz, with Antenna No.2

Ch.	Frequency (MHz)	Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Pola.	Pk. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)	Av. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)
1	*2418.8	110.5	87.5	Vert.				
1	4823.6	61.1	38.1	Vert.	74.0	12.9	54.0	15.9
1	7235.5	67.1	47.8	Vert.	74.0	6.9	54.0	6.2
6	*2442.9	110.9	87.9	Vert.				
6	4875.7	65.4	42.4	Hori.	74.0	8.6	54.0	11.6
6	7310.6	67.7	48.4	Vert.	74.0	6.3	54.0	5.6
11	*2458.9	**112.9	89.9	Vert.				
11	4923.8	63.5	40.5	Vert.	74.0	10.5	54.0	13.5
11	7385.8	67.5	48.2	Vert.	74.0	6.5	54.0	5.8

\* Fundamental frequency

\*\* The highest emission in the all spurious emission

1 to 25 GHz, with Antenna No.4

Ch.	Frequency (MHz)	Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Pola.	Pk. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)	Av. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)
1	*2418.8	103.0	80.0	Vert.				
1	4823.6	63.2	40.2	Vert.	74.0	10.8	54.0	13.8
1	7385.8	67.7	48.4	Vert.	74.0	6.3	54.0	5.6
1	9848.7	68.9	49.6	Vert.	74.0	5.1	54.0	4.4
6	*2434.9	102.1	79.1	Hori.				
6	4875.7	62.9	39.9	Hori.	74.0	11.1	54.0	14.1
11	*2454.9	101.2	78.2	Hori.				
11	4923.8	63.8	40.8	Vert.	74.0	10.2	54.0	13.2

\* Fundamental frequency

1 to 25 GHz, with Antenna No.5

Ch.	Frequency (MHz)	Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)	Pola.	Pk. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)	Av. Limit (dB $\mu$ V/m)	Margin (dB $\mu$ V/m)
1	*2418.8	97.9	74.9	Hori.				
1	4823.6	63.6	40.6	Vert.	74.0	10.4	54.0	13.4
6	*2434.9	98.6	75.6	Hori.				
6	4875.7	63.8	40.8	Hori.	74.0	10.2	54.0	13.2
6	7310.6	66.8	47.5	Hori.	74.0	7.2	54.0	6.5
11	*2462.9	100.1	77.1	Hori.				
11	4923.8	63.9	40.9	Hori.	74.0	10.1	54.0	13.1

\* Fundamental frequency

## 5.6 15. 247(d) Power Spectrum Density

### 5.6.1 Setting Remarks

- EUT directly connects to the spectrum analyzer via calibrated coaxial cable and 10 dB attenuator.
- The loss of the coaxial cable is maximum 1 dB.
- The peak output power was determined by using the marker-data function of spectrum analyzer.
- The spectrum analyzer was set-up as following;
  - ✓ Frequency Span : 2 MHz
  - ✓ Resolution bandwidth : 3 kHz
  - ✓ Video bandwidth : 3 MHz
  - ✓ Sweep : 680sec
  - ✓ Detector function : Peak
  - ✓ Trace Mode : Max Hold
- Refer to test configuration figure 4.3.

### 5.6.2 Minimum Standard

(e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

### 5.6.3 Result

EUT complies with the requirement.

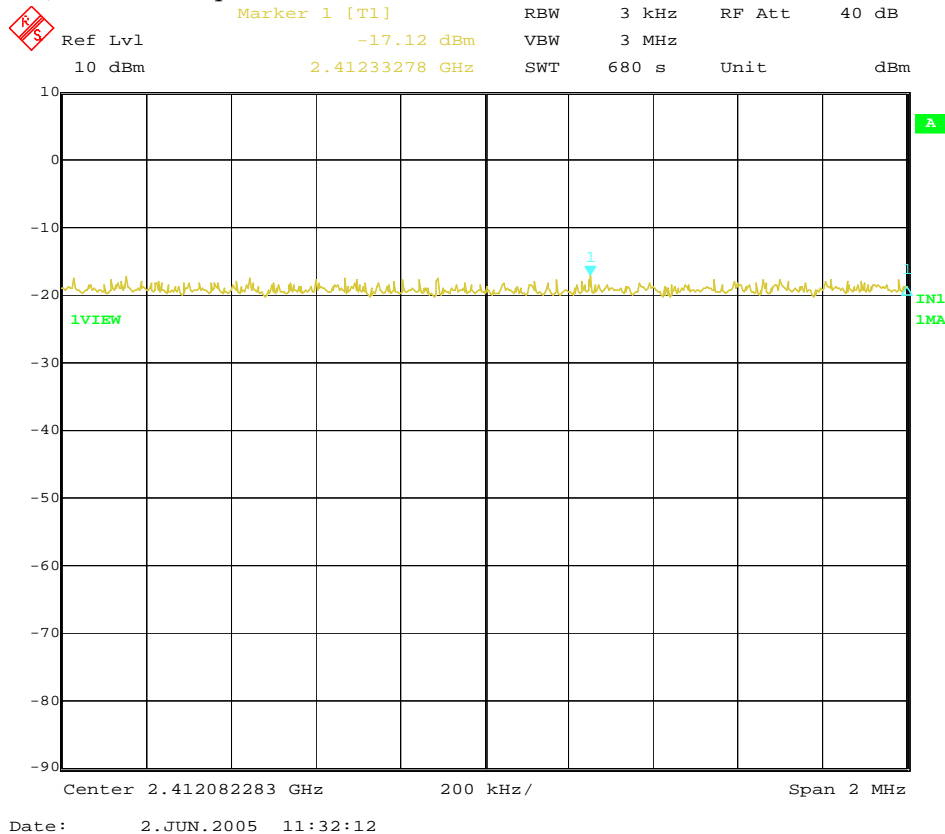
Uncertainty of measurement result:  $\pm 0.8$  dB  
Temperature, Humidity : 26 °C, 62%

5.6.4 Measured Data


Frequency (MHz)	Correction Factor (dB)	Reading (dBm)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
<b>CCK (11 Mbps)</b>					
2412 (1ch)	11	-17.12	-6.12	8	14.12
2437 (6ch)	11	-16.85	-5.85	8	13.85
2462 (11ch)	11	-16.58	-5.58	8	13.58
<b>OFDM (54 Mbps)</b>					
2412 (1ch)	11	-14.52	-3.52	8	11.52
2437 (6ch)	11	-17.9	-6.9	8	14.9
2462 (11ch)	11	-17.19	-6.19	8	14.19

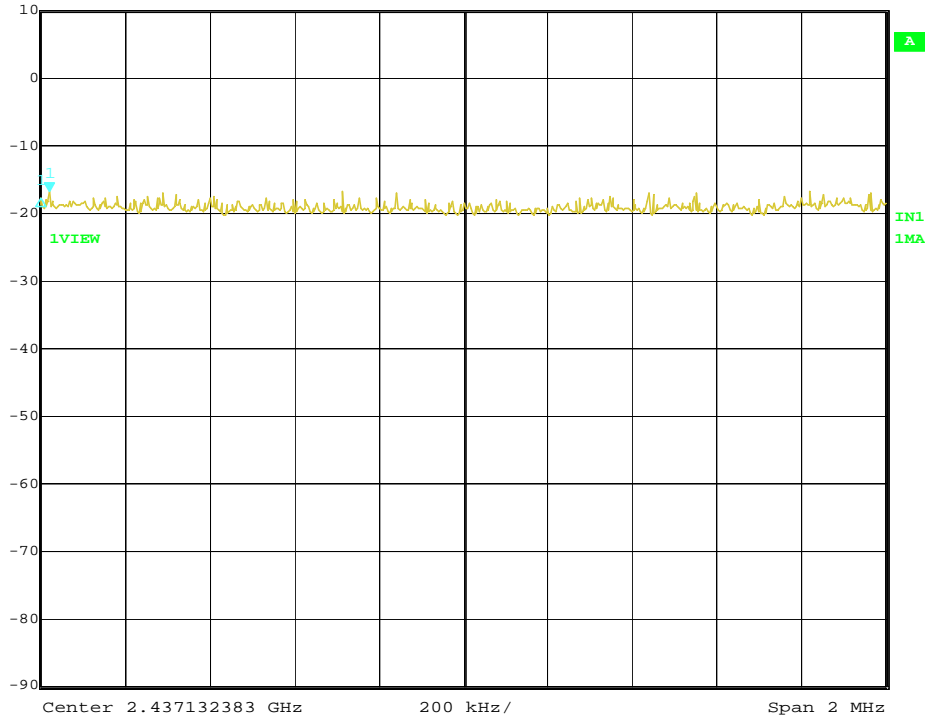
\* Correction Factor = Cable Loss (dB) + External Attenuator (dB)

2412 MHz (1ch), CCK (11Mbps)




2437 MHz (6ch), CCK (11Mbps)

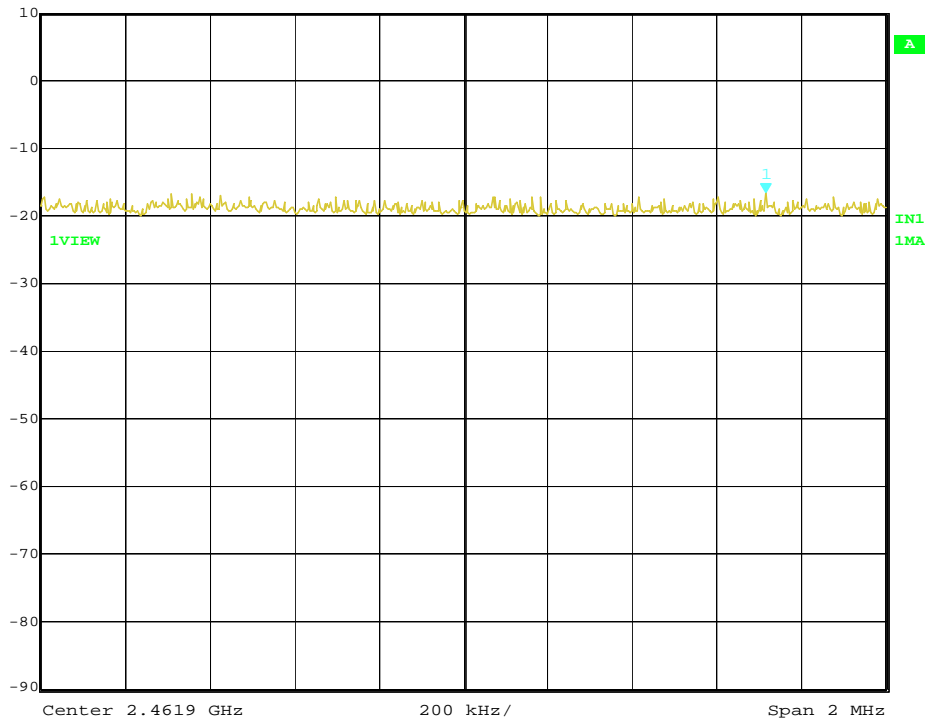
 Marker 1 [T1] RBW 3 kHz RF Att 40 dB  
Ref Lvl -16.85 dBm VBW 3 MHz  
10 dBm 2.43615242 GHz SWT 680 s Unit dBm



Date: 2.JUN.2005 11:51:23


2462 MHz (11ch), CCK (11Mbps)

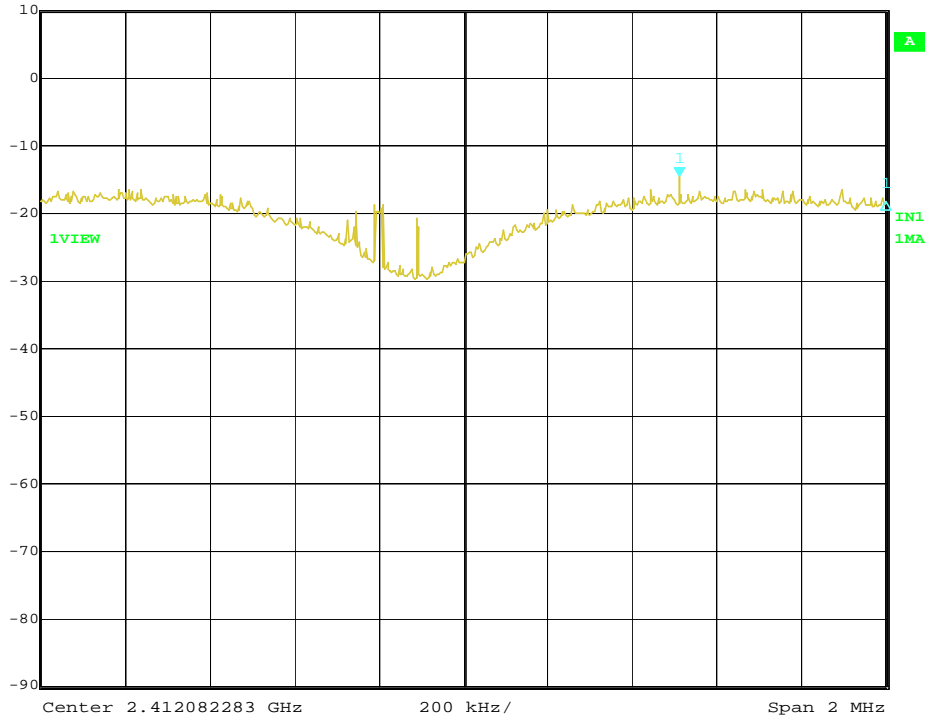
 Marker 1 [T1] RBW 3 kHz RF Att 40 dB  
Ref Lvl -16.58 dBm VBW 3 MHz  
10 dBm 2.46261543 GHz SWT 680 s Unit dBm



Date: 2.JUN.2005 13:01:01


2412 MHz (1ch), OFDM (54Mbps)

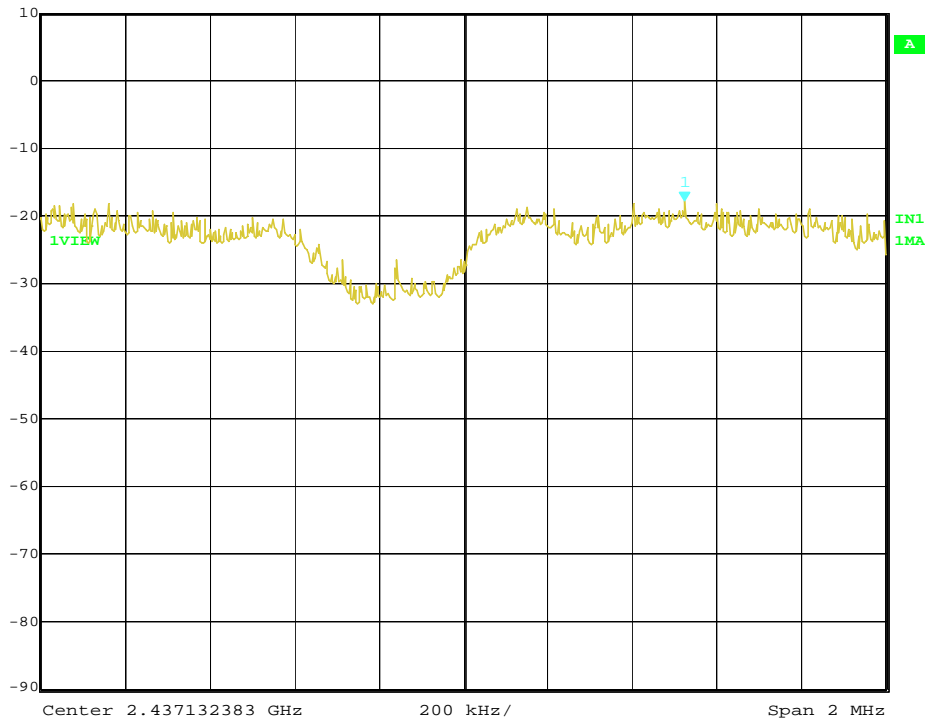
 Marker 1 [T1] RBW 3 kHz RF Att 40 dB  
Ref Lvl -14.52 dBm VBW 3 MHz  
10 dBm 2.41259330 GHz SWT 680 s Unit dBm



Date: 2.JUN.2005 11:05:04

2437MHz (6ch), OFDM (54Mbps)

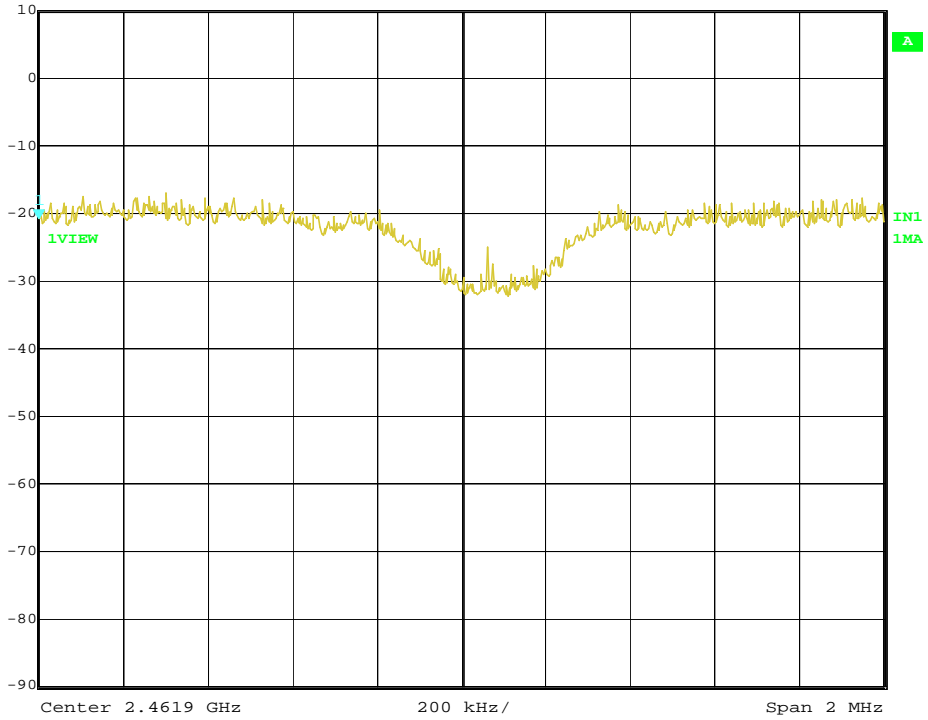
 Marker 1 [T1] RBW 3 kHz RF Att 40 dB  
Ref Lvl -17.90 dBm VBW 3 MHz  
10 dBm 2.43765543 GHz SWT 680 s Unit dBm



Date: 2.JUN.2005 12:07:34

2462 MHz (11ch), OFDM (54Mbps)

Marker 1 [T1] RBW 3 kHz RF Att 40 dB  
Ref Lvl -20.81 dBm VBW 3 MHz  
10 dBm 2.46090000 GHz SWT 680 s Unit dBm



Date: 2.JUN.2005 12:44:09



5.7 15. 247(c) Band Edge Measurement

5.7.1 Setting Remarks

- EUT directly connects to the spectrum analyzer via calibrated coaxial cable and 10 dB attenuator.
- The loss of the coaxial cable is maximum 1 dB.
- The emission at the band edge was measured by using the marker function of spectrum analyzer.
- The peak of the in-band emission was measured by using the marker to peak function of spectrum analyzer.
- This measurement was repeated in both side of the spectrum.
- The spectrum analyzer was set-up as following;
  - ✓ Resolution bandwidth : 100 kHz
  - ✓ Video bandwidth : > RBW
  - ✓ Sweep : Auto
  - ✓ Detector function : Peak
  - ✓ Trace Mode : Max Hold
- Refer to test configuration figure 4.3.

5.7.2 Minimum Standard

In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency of Emission (MHz)	Limit of the band edge spurious emission (dB $\mu$ V)	
	Peak	Average
Below 2,390.0		
Above 2,483.5	74	54

5.7.3 Result

EUT complies with the requirement.

Uncertainty of measurement result:  $\pm 2.6$  dB

Temperature, Humidity : 25 °C, 60%

5.7.4 Measured Data

The band edge emissions are calculated as following;

(Band edge emission at the lower frequency 2,390 MHz in CCK modulation.)

$P_{max}$	=	112.9 dB $\mu$ V / m
$P_{dev}$	=	45.80 dB
$E_{be}$	=	67.10 $\mu$ V / m (Margin: 6.90 dB)
$E_{av}$	=	44.10 $\mu$ V / m (Margin: 9.90 dB)

(Band edge emission at the higher frequency 2,483.5 MHz in CCK modulation.)

$P_{max}$	=	112.9 dB $\mu$ V / m
$P_{dev}$	=	45.81 dB
$E_{be}$	=	67.07 $\mu$ V / m (Margin: 6.93 dB)
$E_{av}$	=	44.07 $\mu$ V / m (Margin: 9.93 dB)

(Band edge emission at the lower frequency 2,390 MHz in OFDM modulation.)

$P_{max}$	=	112.9 dB $\mu$ V / m
$P_{dev}$	=	43.28 dB
$E_{be}$	=	69.62 $\mu$ V / m (Margin: 4.38 dB)
$E_{av}$	=	46.62 $\mu$ V / m (Margin: 7.38 dB)

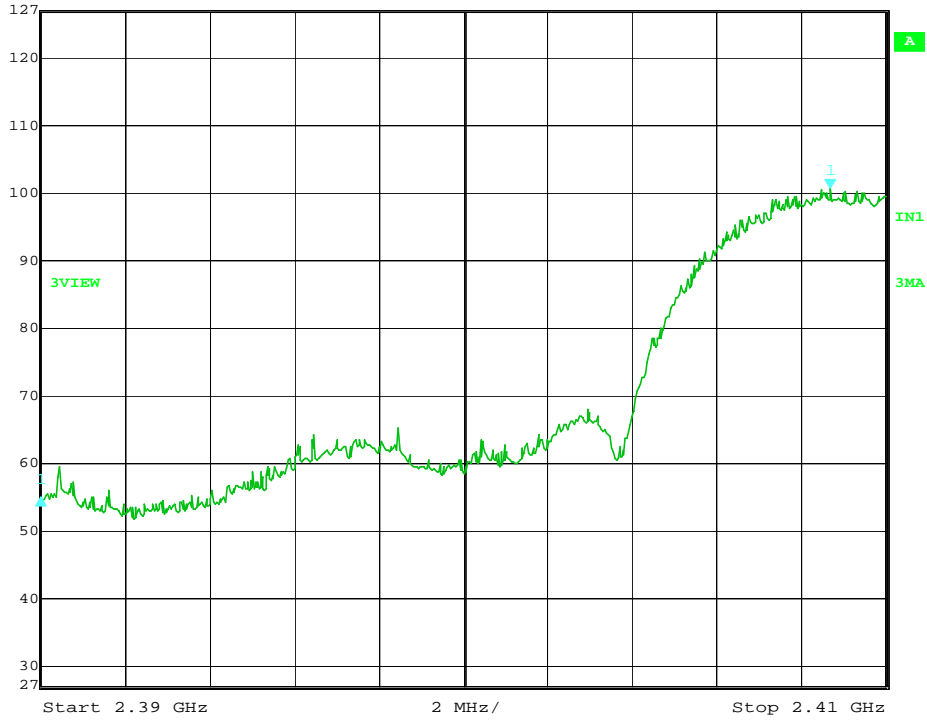
(Band edge emission at the higher frequency 2,483.5 MHz in OFDM modulation.)

$P_{max}$	=	112.9 dB $\mu$ V / m
$P_{dev}$	=	41.38 dB
$E_{be}$	=	71.52 $\mu$ V / m (Margin: 2.48 dB)
$E_{av}$	=	48.52 $\mu$ V / m (Margin: 5.48 dB)

- $P_{max}$  : Maximum peak power of the fundamental emission observed in the radiated spurious emission test. (Refer to page 38).
- $P_{dev}$  : The amplitude delta between the peak power and the band edge emission.
- $E_{be}$  : Band edge emission.
- $E_{av}$  : Average of the band edge emission.

Lower frequency of the band edge 2,390.0 MHz, CCK (11Mbps)

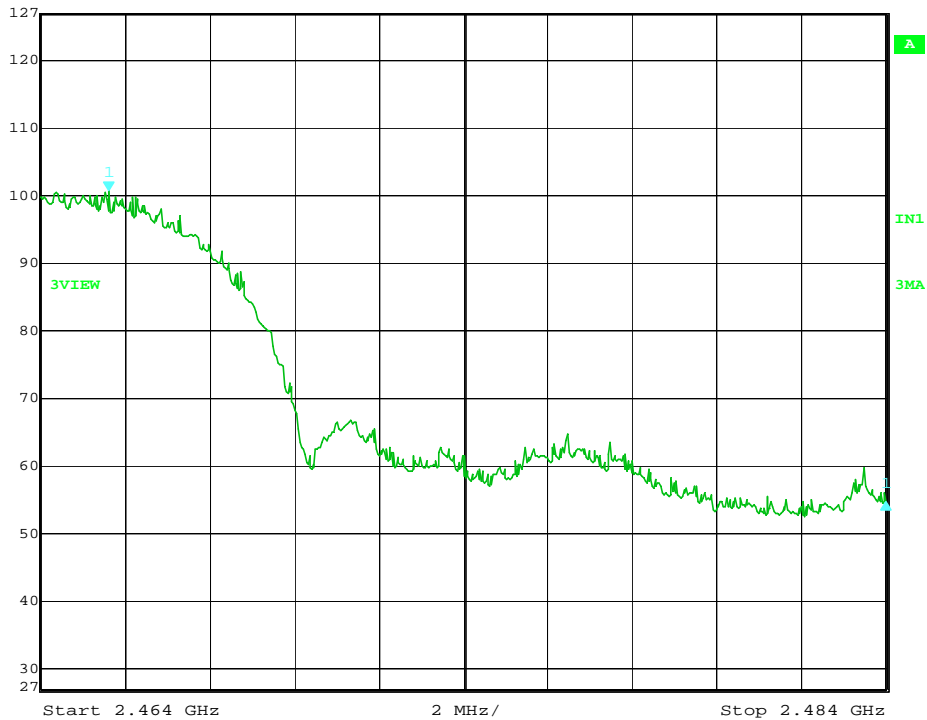
	Ref Lvl	Delta 1 [T3 CNT]	RBW	100 kHz	RF Att	30 dB
	127 dBV	-45.80 dB	VBW	10 MHz		
		-18.67735471 MHz	SWT	5 ms	Unit	dBV



Date: 15.JUN.2005 18:10:12


Higher frequency of the band edge 2,483.5 MHz, CCK (11Mbps)

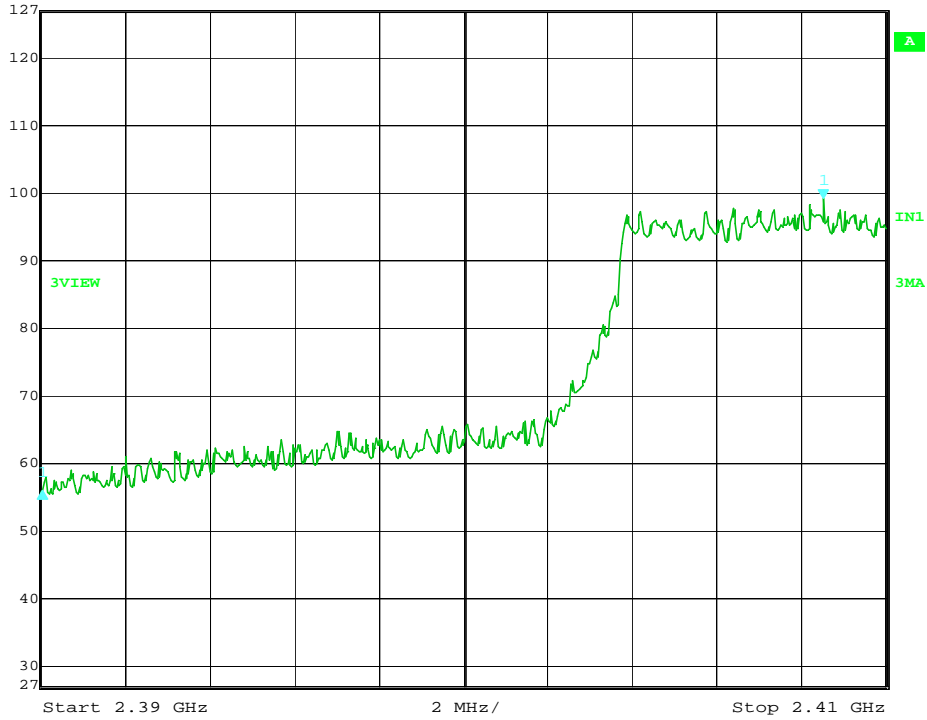
	Ref Lvl	Delta 1 [T3 CNT]	RBW	100 kHz	RF Att	30 dB
	127 dBV	-45.81 dB	VBW	10 MHz		
		18.39679359 MHz	SWT	5 ms	Unit	dBV



Date: 15.JUN.2005 18:13:33


Lower frequency of the band edge 2,390.0 MHz, OFDM (54Mbps)

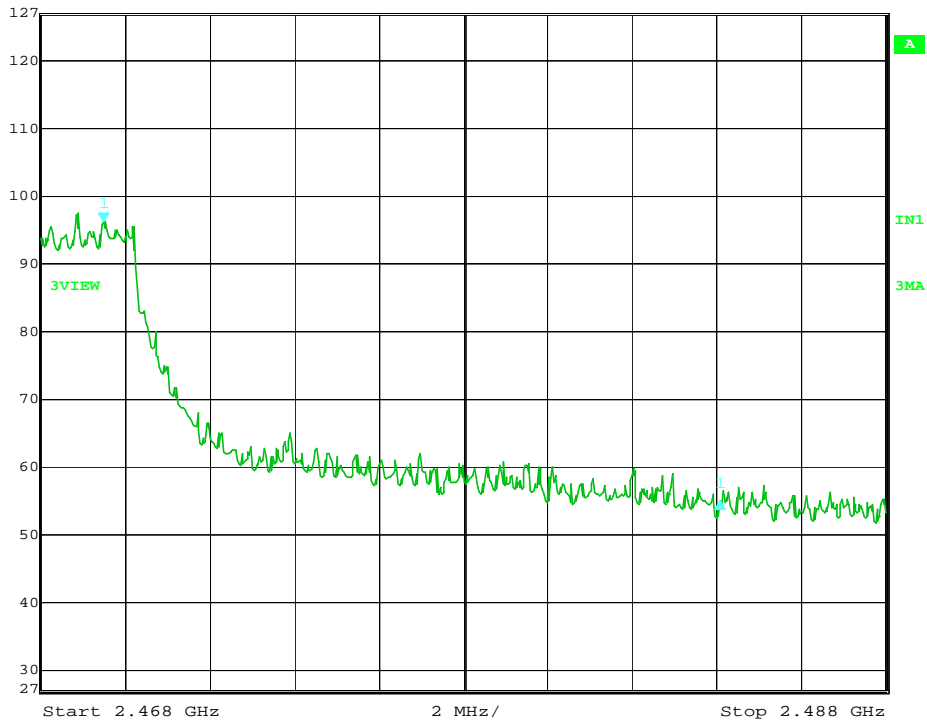
 Ref Lvl 127 dBV Delta 1 [T3 CNT] -43.28 dB RBW 100 kHz RF Att 30 dB  
127 dBV -18.47695391 MHz VBW 10 MHz SWT 5 ms Unit dBV



Date: 15.JUN.2005 18:06:07

Higher frequency of the band edge 2,483.5 MHz, OFDM (11Mbps)

 Ref Lvl 127 dBV Delta 1 [T3 CNT] -41.38 dB RBW 100 kHz RF Att 30 dB  
127 dBV 14.60040080 MHz VBW 1 MHz SWT 5 ms Unit dBV



Date: 15.JUN.2005 17:29:47

6. Photos

6.1 Setup Photo (Conducted Emission)

Front View



Side View

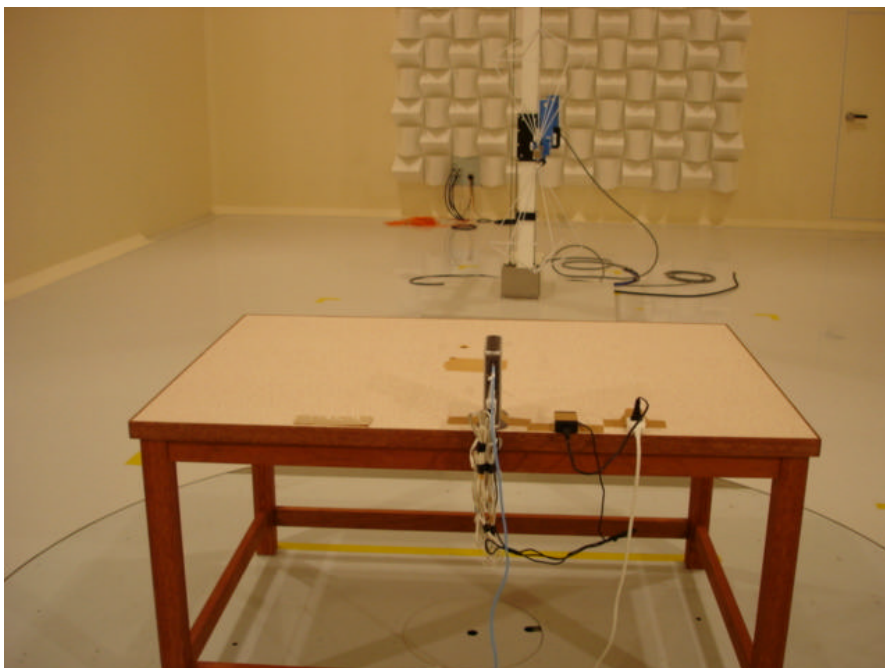


6.2 Setup Photo (Radiated Emission)

Front View (Antenna 1)



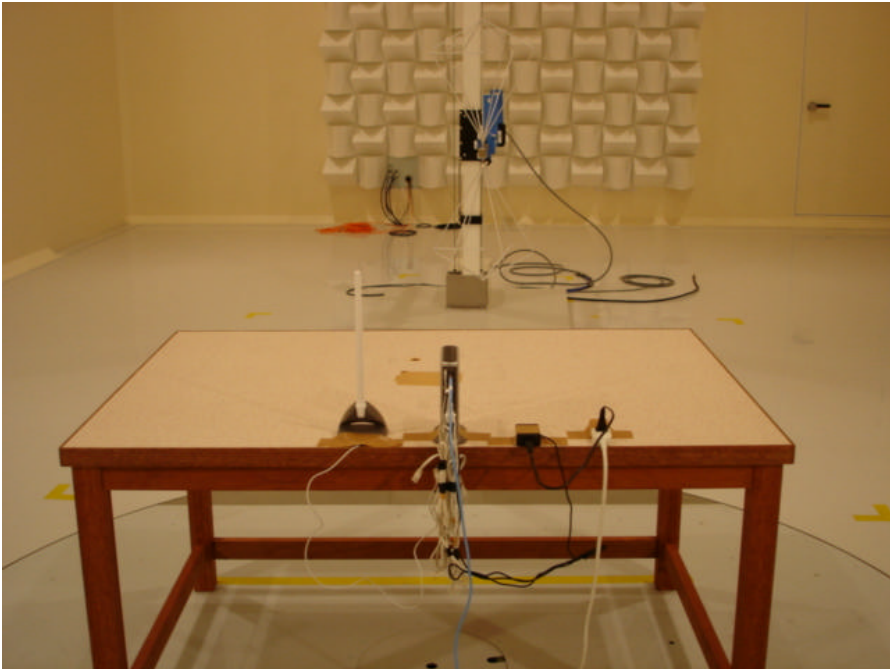
Rear View (Antenna 1)



Front View (Antenna 2)

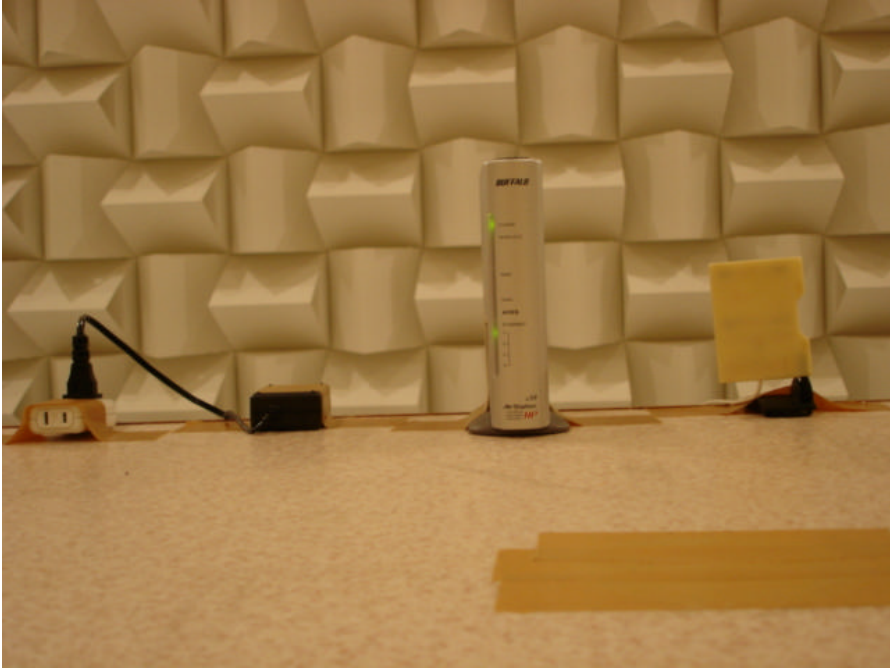


Rear View (Antenna 2)

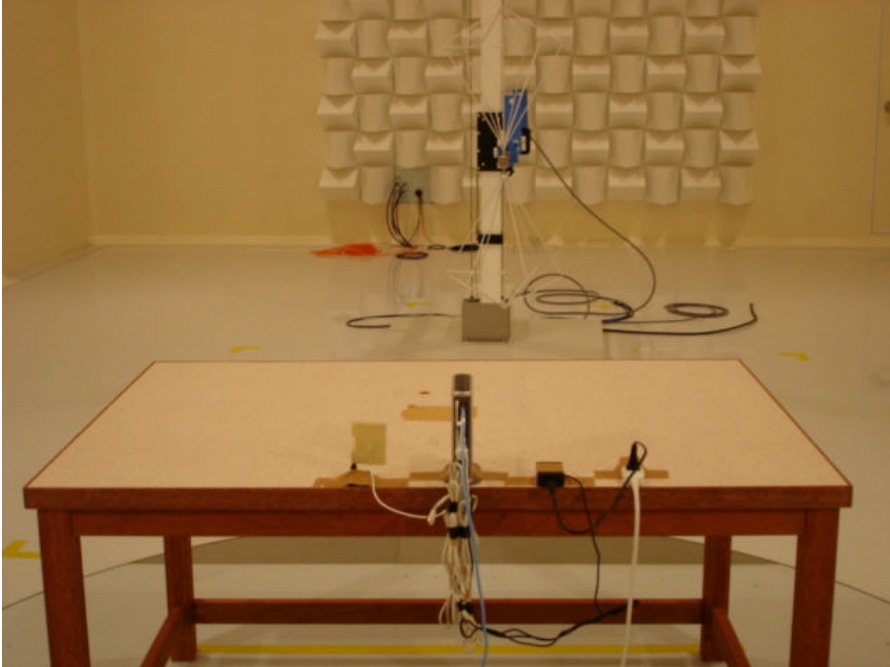




Front View (Antenna 4)



Rear View (Antenna 4)

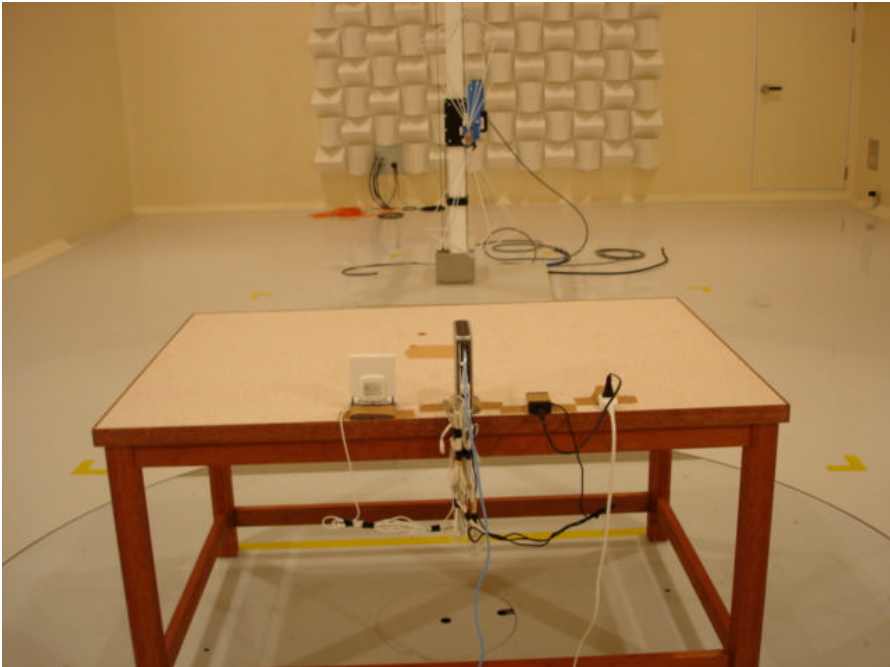




Front View (Antenna 5)



Rear View (Antenna 5)



## 7. List of Test Measurement Instruments

### 7.1 Conducted Emission

Instruments	Manufacturer	Model / Type	Serial No.	Calibration Date Next Calibration
Spectrum Analyzer	ROHDE & SCHWARZ	FSA	828100/005	July, 2004
			827831/007	July, 2005
EMI Test Receiver	ROHDE & SCHWARZ	ESHS10	842121/012	July, 2004 July, 2005
Artificial-Mains Network	ROHDE & SCHWARZ	ESH2-Z5 (for EUT)	842210/010	May, 2005 May, 2006
Artificial-Mains Network	CHASE Electronics Limited	MN2050B (for peripheral)	1140	June, 2004 June, 2005
RF cable	SCHAFFNER	RG214/U 500	(4m)	May, 2005 May, 2006
RF Selector	TOYO Corporation	NS4906A	9601008	--
Transient Limiter	CHASE Electronics Limited	CFL9206	1426	--

### 7.2 Radiated Emission Measurement

Instruments	Manufacturer	Model / Type	Serial No.	Calibration Date Next Calibration
Programmable AC/DC Power Source	NF Corporation	ES18000W	425779	---
EMI Test Receiver	ROHDE & SCHWARZ	ESIB40	100211	April, 2005 April, 2006
Biconical Antenna (30 to 300MHz)	SCHWARZBECK	VHBB9124(Balun) BBA9106(Elements)	311	September, 2004 September, 2005
Log.-Periodic Antenna (300 MHz to 1 GHz)	SCHWARZBECK	UHALP 9108 A	645	September, 2004 September, 2005
Horn Antenna	SCHWARZBECK	BBHA 9120 D	446	September, 2004 September, 2005
Horn Antenna	ETS LINDGREN	3160-08	00033778	September, 2004 September, 2005
Horn Antenna	ETS LINDGREN	3160-09	00034723	September, 2004 September, 2005

## 7.3 Conducted Radio Measurement

Instruments	Manufacturer	Model / Type	Serial No.	Calibration Date Next Calibration
DC Power Source	Diamond Antenna	GSV3000	01101481	---
Spectrum Analyzer	ROHDE & SCHWARZ	ESIB40	100211	April, 2005 April, 2006
Signal Generator	Agilent Technology	E8254A	US411401 86	June, 2004 June, 2005
Oscilloscope	Tektronix	TDS794D	B031832	June, 2005 June, 2006
Diode Detector	Agilent Technology	423B	MY422418 36	March, 2005 March, 2006