Measurement Report

FCC ID:K5MRF-204PU25R

This report concerns (check one) : ■ Original Grant □ Class II Change

Issued Date	:	Jul. 04, 2005
Project No.	:	05E0157A
Equipment	:	Gamepad Receiver
Model No.	:	RF-204PU Charger receiver; RF-204PU receiver; RF-204P receiver; RF-204U receiver
Applicant	:	Charm Winner CO., LTD 18F-3, NO. 75, SEC. 1, HSIN TAI WU RD., HIS-CHIH TAIPEI HSIEN, TAIWAN R.O.C.

Tested by :
Neutron Engineering Inc. EMC Laboratory
Data of Test :
May 26, 2005 ~ Jun. 30, 2005

Testing Engineer : Alan Liu (Alan Liu)

Technical Manager : Jeff James for (James Chiu)

Authorized Signatory : (Andy Chiu)

NEUTRON ENGINEERING INC.

No. 132-1, Lane 329, Sec. 2, Palain Rd.,
Shijr Jen, Taipei, Taiwan
TEL : (02) 2646-5426 FAX : (02) 2646-6815

CNLA 0659 ILAC MRA

NVLAP Lab Code: 200145-0

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Assessment Authorities

NVLAP Lab Code: 200145-0

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Test Standard/Scope/Item Acceptance

FCC Part 15 Subpart B
IEC/CISPR22
AS/NZS 3548
CNS 13438

FCC Part 15 Subpart B
CISPR 22/EN 55022
AS/NZS 3548
VCCI -Technical Requirement
CNS 13438
SS IEC/CISPR 22

IEC/EN 61000-3-2	IEC/EN 61000-4-5
IEC/EN 61000-3-3	IEC/EN 61000-4-6
IEC/EN 61000-4-2	IEC/EN 61000-4-8
IEC/EN 61000-4-3	IEC/EN 61000-4-11
IEC/EN 61000-4-4	

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1. General Information

1.1 Applicant

Name Charm Winner CO., LTD
Address 18F-3, NO. 75, SEC. 1, HSIN TAI WU RD., HIS-CHIH TAIPEI HSIEN, TAIWAN R.O.C.

1.2 Manufacturer

Name N/A
Address N/A

1.3 Equipment Under Tested

Name: Gamepad Receiver
Trade Name: Rockfire
Model No.: RF-204PU Charger receiver; RF-204PU receiver; RF-204P receiver; RF-204U receiver

1.4 OEM Brand/Model (if applicable)

OEM Brand(s)/Model(s) except the basic model in sub-clause 1.3 is(are) the follows:
OEM Brand: N/A
Model No.: N/A

1.5 Model Difference (Series, Versions, if any)

Except the basic model no. (model designation of the sample tested in this test report), additional model no. covered is(are) :

There are some models based on similar electrical circuit except the difference of charger Function.

Model No.	I/O Interface (EUT)	
	USB	PS2
RF-204PU Charger receiver	✓	✓
RF-204PU receiver	✓	✓
RF-204P receiver	✓	X
RF-204U receiver	X	✓

All the above models were tested, and the model: RF-204PU Charger receiver was found to be the worst case during the pr-scanning test. This mode of the worst case was used for final testing and collecting test data included in this report.

1.6 Product Descriptions(Application/Features/Specification)

The EUT is a/an Gamepad Receiver. A major technical descriptions of EUT is described as following:

Operation Frequency	2404~2480 MHz
Modulation Type	GFSK
Bit Rate of Transmitter	1 Mbps
Channel Bandwidth	1MHz
Antenna Designation	Printed Antenna

Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.

1.7 Connecting I/O Port(s)

Please refer to the User's Manual.

1.8 Power Supplied

Power Source: Supplied from PC port.
Power Cord: N/A
Power Rating: N/A

1.9 Products Covered (if applicable)

The sample tested including the following sub-system/module/accessory :

Sub-system/ Module/ Accessory	Model/Type No.	Int. Inst./ Ext. Cont.
N/A	N/A	N/A

1.10 Description of Test Mode(s)

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Mode 1 power by USB (Conducted Emission & Radiated Emission)
Mode 2 power by PS2 (Conducted Emission & Radiated Emission)
Mode 3 CH 1(2402) (only Radiated Emission)
Mode 4 CH 2(2442) (only Radiated Emission)
Mode 5 CH 3(2480) (only Radiated Emission)

The EUT system operated Mode 1/2/3/4/5, mentioned above were found to be the worst case during the pre-scanning test.
These operation modes were used for final testing and collecting test data included in this report.

1.11 EUT Modifications (if applicable)

No any modification required for the EUT to comply with the standards.

2. RFI Emissions Measurement

2.1Test Facility

The test facilities used to collect the test data in this report located at No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan.

2.2 Standard Compliance

The test data contained in this report relate only to the item(s) listed below :

FCC Part15, Subpart C (15.249) / ANCI C63.4 : 2003

2.3 Test Conditions and Channel

Test Channel	Test Frequency(MHz)
CH 1	2404
CH 2	2442
CH 3	2480

Note:

(1)The measurements are performed at the highest, middle and lowest available channels with the modulation enabled.

2.4 Test Methodolog

Only radiated testing was performed during the max. EMI emission evaluation. Conducted testing excepted because of the EUT is a battery operating device and no any other cable connection to PC device.

Test procedures according to the technical standards : (Antenna to EUT distance is 3 m)

FCC Part15 (15.249) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.209	Radiated Emission	Class B	30-1000	PASS
15.249	Radiated Emission	Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400-2483.5	PASS
		Field strength of harmonics 500 μV/m (54 dBμV/m) @ 3 m	Above 2483.5	PASS

2.5 Deviations from Standard Test Method

N/A

2.6 Sample(s) Tested

The representative sample tested in this reports is(are): RF-204PU Charger receiver

Test results in this test report relate only to the sample(s) tested.

The EUT has been tested according to the following environmental condition:

Input Power	Please refer to the sub-clause 1.8
Environmental Conditions	Please refer to the measurement data.

2.7 Measurement Instruments

Valid measurement instruments used in this report refer to **Table-1** enclosed.

2.8 Measurement Uncertainty

The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

A. Conducted Measurement :5.05dB

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	H	4.59	
		30MHz ~ 200MHz	V	4.80	
		200MHz ~ 1,000MHz	H	4.47	
		200MHz ~ 1,000MHz	V	5.03	

2.9 Tested System Set-Up/Configuration Details

The system was configured for testing in a typical fashion (as a user would normally use) or in-accordance with the operating configuration specified in the user's manual. A Block Diagram(please refer to the Diagram - 1) and Photos(please refer to the attachment - **B**) showing the set-up/configuration of system tested. In addition, **Table-2** and **Table-3** provide a detail of all equipment items and cables information used in the system tested.

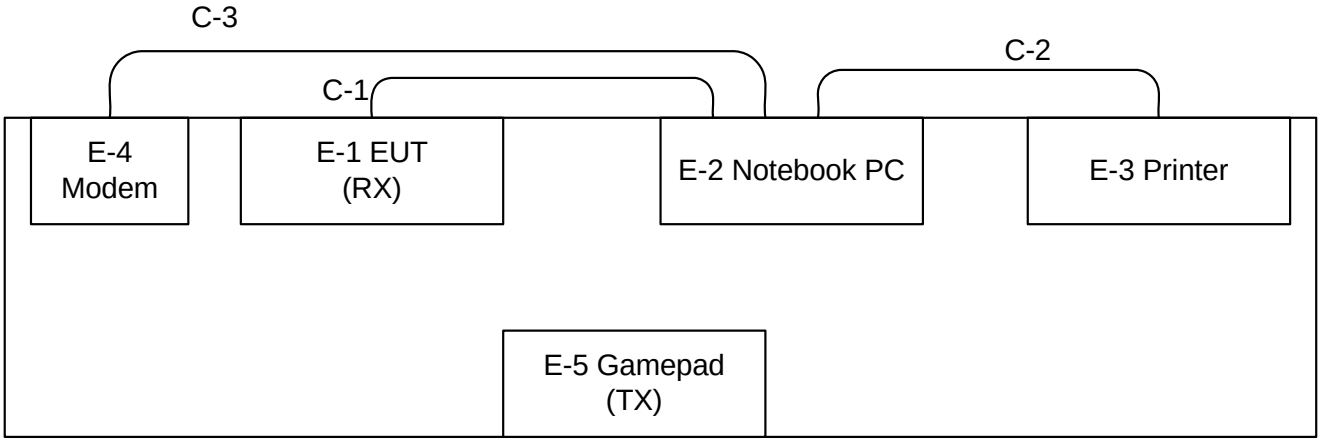
Table -1 Measurement Instruments List

Item	Instruments	Mfr/Brand	Model/Type No.	Serial No.	Calibrated Date	Next Cali. Date	Note
1	LISN	EMCO	3825/2	9605-2539	2004-10-01	2005-09-30	
2	LISN	Rolf Heine	NNB-2/16Z	98083	2004-08-03	2005-08-02	✓
3	LISN	Rolf Heine	NNB-2/16Z	98053	2004-12-24	2005-12-23	
4	4L-V-LISN	Rolf Heine	NNB-4/63TL	02/10040	2005-04-08	2006-04-07	✓
5	LISN	EMCO	3816/2	00042991	2005-01-12	2007-01-11	
6	LISN	EMCO	4825/2	00028234	2005-04-01	2006-03-31	
7	ISN	SCHAFFNER	ISN T400	16017	2004-12-07	2005-12-06	
8	Pulse Limiter	Electro-Metrics	EM-7600	112644	2004-12-07	2005-12-06	✓
9	50Ω Terminator	N/A	N/A	N/A	2005-05-12	2007-05-11	✓
10	Test Cable	N/A	C01	N/A	2004-12-08	2005-12-07	✓
11	Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9160	3058	2004-10-20	2005-10-19	✓
12	Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9160	3177	2005-02-07	2007-02-06	
13	Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9161	4022	2004-07-15	2005-07-14	
14	Test Cable	N/A	10M_OS01	N/A	2004-12-08	2005-12-07	
15	Test Cable	N/A	OS01-1/-2	N/A	2004-12-08	2005-12-07	
16	Test Cable	N/A	10M_OS02	N/A	2004-12-08	2005-12-07	✓
17	Test Cable	N/A	OS02-1/-2/-3	N/A	2004-12-08	2005-12-07	✓
18	RF Switch	Anritsu	MP59B	M65982	2004-12-07	2005-12-06	
19	Pre-Amplifier	Anritsu	MH648A	M09961	2004-11-24	2005-11-23	✓
20	Spectrum Analyzer	ADVAN TEST	R3261C	81720298	2004-09-01	2005-08-31	✓
21	Spectrum Analyzer	ADVAN TEST	R3132	81700025	2005-02-23	2006-02-22	
22	EMI Test Receiver	R&S	ESCI	1166.5950.03	2005-02-02	2007-02-01	✓
23	Test Receiver	R&S	ESH3	860156/018	2004-12-31	2005-12-30	
24	Test Receiver	R&S	ESVP	860687/009	2004-12-31	2005-12-30	
25	Test Receiver	MEB	SMV41	130	2004-12-06	2005-12-05	✓
26	Test Receiver	PMM	PMM 9000	4310J01002	2005-02-25	2006-02-24	
27	Horn Antenna	EMCO	3115	9605-4803	2005-06-15	2006-06-14	
28	Absorbing Clamp	R&S	MDS-21	841077/011	2004-09-09	2005-09-08	
29	Voltage Probe	R&S	ESH2-Z3	841.800/023	2004-09-07	2005-09-06	
30	Antenna Mast	Chance Most	CMTB-1.5	N/A	N/A	N/A	✓
31	Turn Table	Chance Most	CMTB-1.5	N/A	N/A	N/A	✓
32	Loop Ant	R&S	HFH2-Z2	830749/020	2004-10-01	2005-09-30	
33	Loop Ant	EMCO	6502	00042960	2005-01-14	2008-01-13	✓

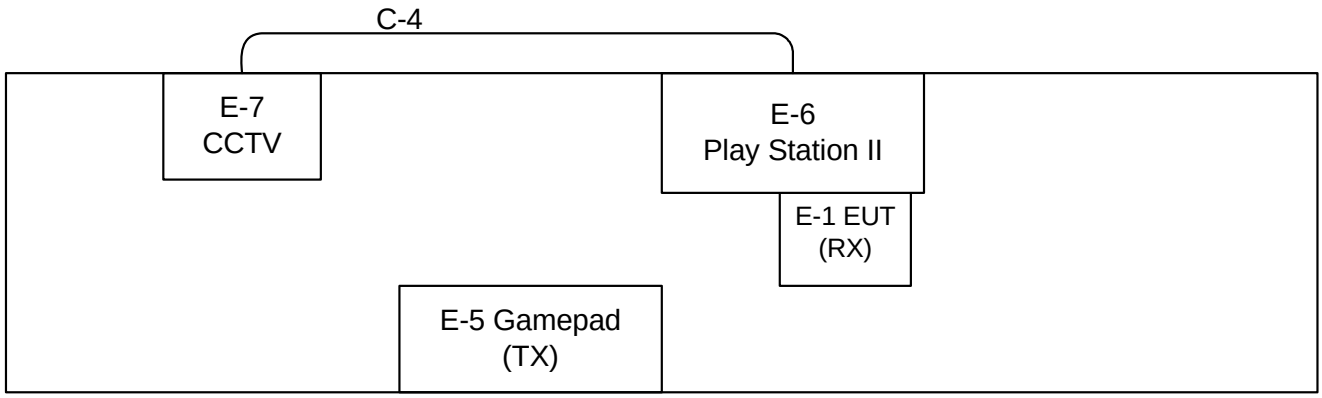
Remark :
(1)" ✓" indicates the instrument used in Test Report.
(2)" N/A" denotes No Model No. / Serial No. and No Calibration specified.

Diagram - 1
Block diagram showing the configuration of system tested

Test Mode: Mode 1/3/4/5



Test Mode: Mode 2



C-1 VGA Cable
C-2 Centronics Cable
C-3 Interface Cable
C-4Video Cable

Table - 2 Equipments Used in Tested System

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Gamepad Receiver	Rockfire	RF-204PU Charger receiver	K5MRF-204PU25R		EUT
E-2	Notebook PC	DELL	D600	DOC	N/A	
E-3	Printer	SII	DPU-414	DOC	1045105A	
E-4	Modem	ACEEX	DM-1414V	DOC	8041708	
E-5	Gamepad	Rockfire	RF-204PU Charger	K5MRF-204PU24	N/A	
E-6	Play Station II	Sony	SCPH-39007	N/A	N/A	
E-7	CCTV	TVS	CM-9DXA	N/A	N/A	

Note:

(1) Unless otherwise denoted as EUT in『Remark』column , device(s) used in tested system is a support equipment.
(2) Unless otherwise marked as ※ in『Remark』column, Neutron consigns the support equipment to the tested system.
(3) The support equipment was authorized by Declaration of Confirmation.

Table - 3 Information of Interface Cable

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	NO	1.8M	
C-2	NO	NO	1.8M	
C-3	NO	NO	1.5M	
C-4	NO	NO	1.5M	

Note:

(1) Unless otherwise marked as ※ in『Remark』column, Neutron consigns the support equipment to the tested system.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.10 EUT Operating Conditions

(a) Both conducted and radiated tests were performed during the max. EMI emission evaluation.

(b) The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit & receive during test. This operating condition was tested and used to collect the included data.

3. Justification

3.1 Limitations

3.1.1 Power Line Conducted Emission

Measurement Frequency Range (MHz)	Mains Terminal Class A Limits (dBuV)		Mains Terminals Class B Limits (dBuV)		Note CISPR FCC Std.
	QP Mode	AV Mode	QP Mode	AV Mode	
0.15 - 0.50	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 - 5.00	73.00	60.00	56.00	46.00	CISPR
5.00 - 30.0	73.00	60.00	60.00	50.00	CISPR
0.15 - 0.50	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 - 5.00	73.00	60.00	56.00	46.00	FCC
5.00 - 30.0	73.00	60.00	60.00	50.00	FCC

Notes:

(1). The tighter limit applies at the band edges.

(2). The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

3.1.2 Radiated Emission Limits (Frequency Range 30MHz-1000MHz)

Measurement Frequency Range (MHz)	Quasi-Peak Mode Class A Limits (dBuV/m)		Quasi-Peak Mode Class B Limits (dBuV/m)		Note CISPR FCC Std.
	10m	30m	10m	3m	
30.00 -230.00	40.00	30.00	30.00	40.00	CISPR
230.0 -1000.0	47.00	37.00	37.00	47.00	CISPR
30.00 - 88.00	39.00	N/A	30.00	40.00	FCC
88.00 - 216.0	43.50	N/A	33.50	43.50	FCC
216.0 -960.0	46.00	N/A	36.00	46.00	FCC
above 960.0	49.50	N/A	46.00	54.00	FCC

Notes:

(1). The tighter limit applies at the band edges.

(2). Emission level (dBuV/m)=20log Emission level (uV/m).

(3). A measuring distance 0f 10m is a primary used. However, either 3m or 10m (instead of 10m) distance my be allowed. If the distance is 3m, add 10dB to the QP-limit above. If the distance is 10m, subtract 10dB from the QP-limit above.

3.2 Measurement Justification

3.2.1 Conducted Emission

The EUT is a placed on as table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the **frequency range between 0.15 MHz and 30MHz** were made with a **Spectrum Analyzer** using **CISPR Quasi-Peak detector mode**.

The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and these signals are then Quasi Peak detector mode and/or Average detector mode re-measured.

Data of **Table - 4**. lists the significant emission frequencies, measured levels, limits and safe margins. All readings are Peak Mode measured unless otherwise stated as QP or AV in column of " Remark ".

If the Peak Mode measured value lower than both QP Mode and AV Mode Limit, EUT shall be deemed to compliance with both QP & AV Limits and then no additional QP Mode or AV Mode measurement performed.

If additional QP or AV Mode measurement needed, and if the QP Mode measured value compliance with the QP Mode Limit and lower than AV Mode Limit, the EUT shall be deemed to meet both QP & AV Limits and then only QP Mode was measured, but AV Mode was not performed。

3.2.2 Radiated Emission

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4-2003.

The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak, Peak or Average detector mode re-measured.

Data of **Table – 5** lists the significant emission frequencies, measured levels, limits and safe margins. All readings are Peak Mode measured unless otherwise stated as QP or AV in column of " Remark ".

If the Peak Mode measured value compliance with and lower than Quasi Peak or Average Mode Limit, the EUT shall be deemed to meet QP/AV Limits and then no additional QP/AV Mode measurement performed.

3.2.3 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as **FS = RA + AF + CL - AG**

Where FS = Field Strength
RA = Receiver Amplitude
AF = Antenna Factor (1)
CL = Cable Attenuation Factor(Cable Loss) (1)
AG = Amplifier Gain (1)

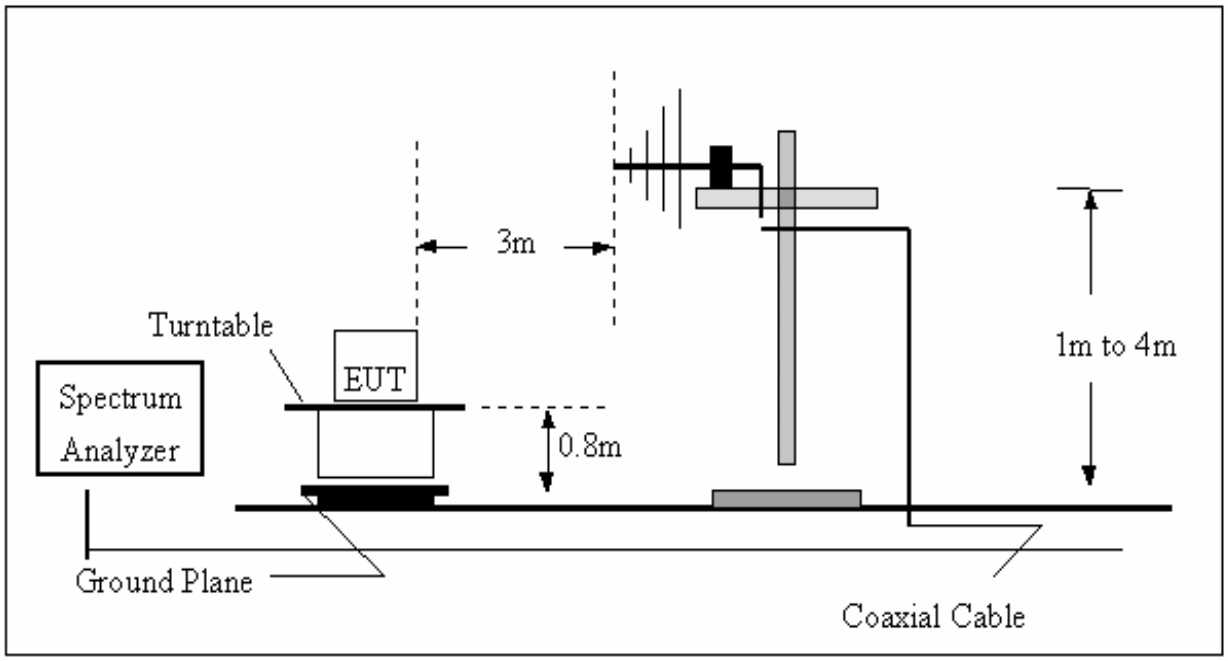
Remark :

(1) The Correction Factor = AF + CL - AG, as shown in the data tables' Correction Factor column.

3.3 Measurement Data

Table - 4. Conducted Emission Data (015-30MHz)
Table - 5. Radiated Emission Data (30-1000MHz)
Radiated Emission Data (2400-2483.5MHz)
Radiated Emission Data (above 1000MHz)
Radiated Emission Data (Restricted Bands Requirements)

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-UP Frequency Over 1 GHz

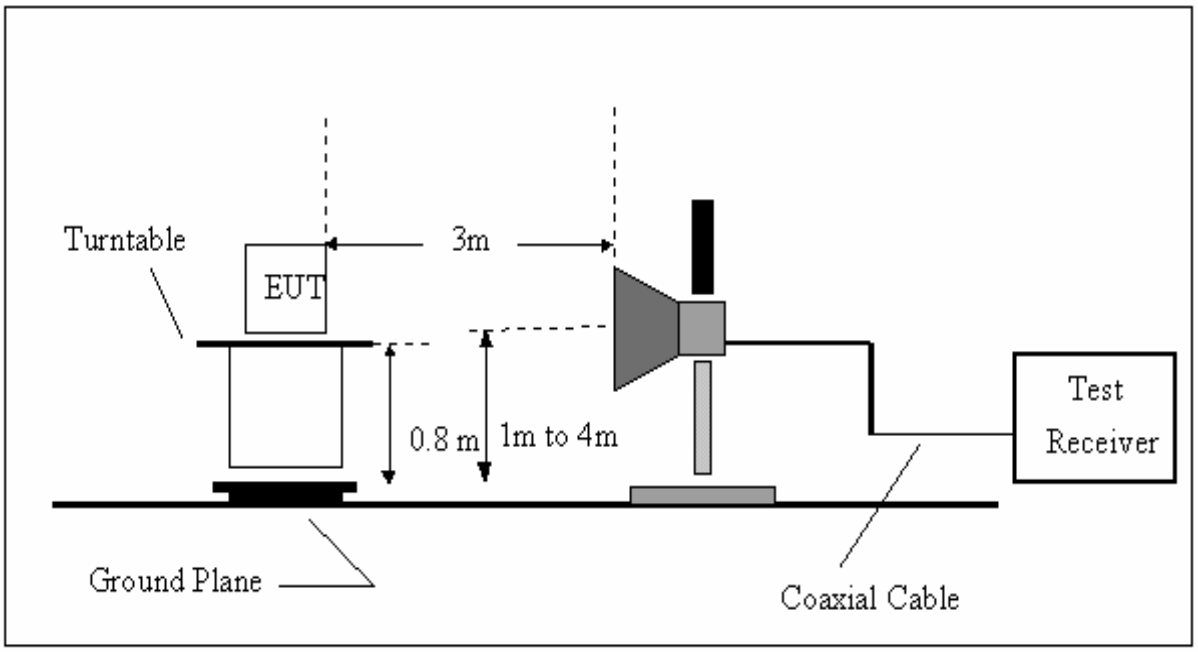


Table 4 Conducted Emission Data

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver
Temperature： 12 ℃ Relative Humidity： 71 % Pressure： 1022 hPa
Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)
Mode 1
The following table lists worst case data from TX with various bitrates on various channels.

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Safe	Margins
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.15	Line	46.35	*	65.88	55.88	-19.53	(QP)
0.22	Line	45.15	*	62.95	52.95	-17.80	(QP)
0.33	Line	32.74	*	59.46	49.46	-26.72	(QP)
1.72	Line	37.25	*	56.00	46.00	-18.75	(QP)
4.34	Line	34.65	*	56.00	46.00	-21.35	(QP)
10.38	Line	37.63	*	60.00	50.00	-22.37	(QP)
0.15	Neutral	42.75	*	65.98	55.98	-23.23	(QP)
0.21	Neutral	45.15	*	63.12	53.12	-17.97	(QP)
0.33	Neutral	30.74	*	59.39	49.39	-28.65	(QP)
1.52	Neutral	37.63	*	56.00	46.00	-18.37	(QP)
4.68	Neutral	34.28	*	56.00	46.00	-21.72	(QP)
9.95	Neutral	38.63	*	60.00	50.00	-21.37	(QP)

Remark：

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。

Table 4 Conducted Emission Data

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver
Temperature： 12 ℃ Relative Humidity： 71 % Pressure： 1022 hPa
Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)
Mode 2
The following table lists worst case data from TX with various bitrates on various channels.

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Safe	Margins
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dBuV)	Note
0.15	Line	47.95	*	65.87	55.87	-17.92	(QP)
0.24	Line	38.75	*	62.10	52.10	-23.35	(QP)
0.33	Line	38.34	*	59.34	49.34	-21.00	(QP)
0.49	Line	38.33	*	56.25	46.25	-17.92	(QP)
0.65	Line	33.14	*	56.00	46.00	-22.86	(QP)
4.29	Line	29.85	*	56.00	46.00	-26.15	(QP)
0.17	Neutral	41.95	*	65.07	55.07	-23.12	(QP)
0.24	Neutral	37.55	*	62.03	52.03	-24.48	(QP)
0.33	Neutral	40.34	*	59.44	49.44	-19.10	(QP)
0.49	Neutral	38.73	*	56.20	46.20	-17.47	(QP)
0.71	Neutral	32.35	*	56.00	46.00	-23.65	(QP)
1.56	Neutral	29.23	*	56.00	46.00	-26.77	(QP)

Remark：

(1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz；SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.3 sec./MHz。Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=1MHz,VBW=10Hz, Swp. Time =0.3 sec./MHz。

(2) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform。In this case, a " * " marked in AVG Mode column of Interference Voltage Measured。

(3) Measuring frequency range from 150KHz to 30MHz。

Table 5 Radiated Emission Data (30-1000MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver

Temperature： 23.6 ℃ Relative Humidity： 57 % Pressure： 1017 hPa

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)

Mode 1

The following table lists worst case data from TX with various bitrates on various channels.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)	Note
90.240	V	Peak	33.42	-10.04	23.38	43.50	-20.12	
395.960	V	Peak	23.38	-1.93	21.45	46.00	-24.55	
598.580	V	Peak	23.99	2.65	26.64	46.00	-19.36	
715.400	V	Peak	18.64	5.28	23.92	46.00	-22.08	
828.410	V	Peak	18.55	6.64	25.19	46.00	-20.81	
918.570	V	Peak	20.15	8.00	28.15	46.00	-17.85	
32.240	H	Peak	37.66	-6.58	31.08	40.00	-8.92	
48.250	H	Peak	34.11	-5.92	28.19	40.00	-11.81	
62.850	H	Peak	27.00	-6.99	20.01	40.00	-19.99	
176.410	H	Peak	21.29	-5.75	15.54	43.50	-27.96	
785.100	H	Peak	20.55	5.90	26.45	46.00	-19.55	
853.200	H	Peak	21.00	7.14	28.14	46.00	-17.86	
956.400	H	Peak	22.14	8.53	30.67	46.00	-15.33	

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 25MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(5) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Table 5 Radiated Emission Data (30-1000MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver

Temperature： 23.6 ℃ Relative Humidity： 57 % Pressure： 1017 hPa

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)

Mode 2

The following table lists worst case data from TX with various bitrates on various channels.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/AV)	Reading (dBuV)	Ant./CL/ Amp. CF(dB)	Actual FS (dBuV/m)	Limit3m (dBuV/m)	Safe Margin (dB)	Note
63.440	V	Peak	30.33	-7.09	23.24	40.00	-16.76	
71.490	V	Peak	26.46	-8.44	18.02	40.00	-21.98	
80.330	V	Peak	26.00	-10.09	15.91	40.00	-24.09	
597.450	V	Peak	23.76	2.63	26.39	46.00	-19.61	
884.160	V	Peak	27.91	7.55	35.46	46.00	-10.54	
948.480	V	Peak	18.00	8.40	26.40	46.00	-19.60	
65.350	H	Peak	27.71	-7.40	20.31	40.00	-19.69	
78.580	H	Peak	26.30	-9.83	16.47	40.00	-23.53	
126.900	H	Peak	22.63	-6.46	16.17	43.50	-27.33	
785.050	H	Peak	21.78	5.90	27.68	46.00	-18.32	
853.260	H	Peak	22.84	7.14	29.98	46.00	-16.02	
956.360	H	Peak	23.12	8.53	31.65	46.00	-14.35	

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 25MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(4) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission 。

(5) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Table 5 Radiated Emission Data (2400-2483.5MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver
Temperature： 28 ℃ Relative Humidity： 62 % Pressure： 1003 hPa
Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)
CH1/CH2/CH3

Freq. (MHz)	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CL/ CF(dB)	Peak Actual FS (dBuV/m)	AV Actual FS (dBuV/m)	Peak Limit3m (dBuV/m)	AV Limit3m (dBuV/m)	NOTE
2404.0	V	80.30	55.20	-11.86	68.44	43.34	114.00	94.00	CH1
2404.0	H	100.50	73.32	-11.86	88.64	61.46	114.00	94.00	CH1
2442.0	V	77.95	-	-11.66	66.29	-	114.00	94.00	CH2
2442.0	H	100.30	83.46	-11.66	88.64	71.80	114.00	94.00	CH2
2480.0	V	78.20	-	-11.46	66.74	-	114.00	94.00	CH3
2480.0	H	98.88	76.00	-11.46	87.42	64.54	114.00	94.00	CH3

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

Table 5 Radiated Emission Data (above 1000MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver

Temperature： 28 ℃ Relative Humidity： 62 % Pressure： 1003 hPa

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)

The following table lists worst case data from TX with various orthogonal planes on the EUT antenna.

CH1(2404MHz)

Freq. (MHz)	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CF CF(dB)	Peak Act. (dBuV/m)	AV Act. (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	NOTE
4808.0	V	68.95	45.12	-5.30	63.65	39.82	74.00	54.00	X
7212.0	V	54.15	40.66	0.92	55.07	41.58	74.00	54.00	X/H
9616.0	V	-	-	-	-	-	74.00	54.00	X/H
12020.0	V	-	-	-	-	-	74.00	54.00	X/H
14424.0	V	-	-	-	-	-	74.00	54.00	X/H
16828.0	V	-	-	-	-	-	74.00	54.00	X/H
19232.0	V	-	-	-	-	-	74.00	54.00	X/H
21636.0	V	-	-	-	-	-	74.00	54.00	X/H
24040.0	V	-	-	-	-	-	74.00	54.00	X/H
2325.0	H	65.76	53.10	-12.29	53.47	40.81	74.00	54.00	X
4808.0	H	70.70	50.72	-5.30	65.40	45.42	74.00	54.00	X/H
7212.0	H	59.24	44.71	0.92	60.16	45.63	74.00	54.00	X/H
9616.0	H	-	-	-	-	-	74.00	54.00	X/H
12020.0	H	-	-	-	-	-	74.00	54.00	X/H
14424.0	H	-	-	-	-	-	74.00	54.00	X/H
16828.0	H	-	-	-	-	-	74.00	54.00	X/H
19232.0	H	-	-	-	-	-	74.00	54.00	X/H
21636.0	H	-	-	-	-	-	74.00	54.00	X/H
24040.0	H	-	-	-	-	-	74.00	54.00	X/H

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(5) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(7) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Table 5 Radiated Emission Data (above 1000MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver

Temperature： 28 ℃ Relative Humidity： 62 % Pressure： 1003 hPa

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)

The following table lists worst case data from TX with various orthogonal planes on the EUT antenna.

CH2(2442MHz)

Freq. (MHz)	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CF CF(dB)	Peak Act. (dBuV/m)	AV Act. (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	NOTE
4884.0	V	62.13	43.90	-5.10	57.03	38.80	74.00	54.00	X/H
7326.0	V	48.55	-	1.14	49.69	-	74.00	54.00	X/H
9768.0	V	40.18	-	3.45	43.63	-	74.00	54.00	X/H
10640.0	V	43.26	-	4.70	47.96	-	74.00	54.00	X
12210.0	V	-	-	-	-	-	74.00	54.00	X/H
14652.0	V	-	-	-	-	-	74.00	54.00	X/H
17094.0	V	-	-	-	-	-	74.00	54.00	X/H
19536.0	V	-	-	-	-	-	74.00	54.00	X/H
21978.0	V	-	-	-	-	-	74.00	54.00	X/H
24420.0	V	-	-	-	-	-	74.00	54.00	X/H
4884.0	H	72.34	50.78	-5.10	67.24	45.68	74.00	54.00	X/H
7326.0	H	52.90	-	1.14	54.04	-	74.00	54.00	X/H
7328.0	H	39.70	-	1.15	40.85	-	74.00	54.00	X/H
9768.0	H	45.82	-	3.45	49.27	-	74.00	54.00	X
10580.0	H	44.32	-	4.47	48.79	-	74.00	54.00	X/H
12210.0	H	-	-	-	-	-	74.00	54.00	X/H
14652.0	H	-	-	-	-	-	74.00	54.00	X/H
17094.0	H	-	-	-	-	-	74.00	54.00	X/H
19536.0	H	-	-	-	-	-	74.00	54.00	X/H
21978.0	H	-	-	-	-	-	74.00	54.00	X/H
24420.0	H	-	-	-	-	-	74.00	54.00	X/H

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(5) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(7) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Table 5 Radiated Emission Data (above 1000MHz)

EUT： Gamepad Receiver Model/Type No. ： RF-204PU Charger receiver

Temperature： 28 ℃ Relative Humidity： 62 % Pressure： 1003 hPa

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)

The following table lists worst case data from TX with various orthogonal planes on the EUT antenna.

CH3(2480MHz)

Freq. (MHz)	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CF CF(dB)	Peak Act. (dBuV/m)	AV Act. (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	NOTE
4960.0	V	62.65	46.87	-4.89	57.76	41.98	74.00	54.00	X/H
7440.0	V	46.47	-	1.36	47.83	-	74.00	54.00	X/H
9920.0	V	42.90	-	3.75	46.65	-	74.00	54.00	X/H
10052.0	V	43.12	-	3.95	47.07	-	74.00	54.00	X
12400.0	V	-	-	-	-	-	74.00	54.00	X/H
14880.0	V	-	-	-	-	-	74.00	54.00	X/H
17360.0	V	-	-	-	-	-	74.00	54.00	X/H
19840.0	V	-	-	-	-	-	74.00	54.00	X/H
22320.0	V	-	-	-	-	-	74.00	54.00	X/H
24800.0	V	-	-	-	-	-	74.00	54.00	X/H
4960.0	H	72.63	51.20	-4.89	67.74	46.31	74.00	54.00	X/H
7440.0	H	56.40	38.95	1.36	57.76	40.31	74.00	54.00	X/H
9920.0	H	51.00	34.31	3.75	54.75	38.06	74.00	54.00	X/H
10880.0	H	43.60	-	5.63	49.23	-	74.00	54.00	X
12400.0	H	-	-	-	-	-	74.00	54.00	X/H
14880.0	H	-	-	-	-	-	74.00	54.00	X/H
17360.0	H	-	-	-	-	-	74.00	54.00	X/H
19840.0	H	-	-	-	-	-	74.00	54.00	X/H
22320.0	H	-	-	-	-	-	74.00	54.00	X/H
24800.0	H	-	-	-	-	-	74.00	54.00	X/H

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) All readings are Peak unless otherwise stated QP in column of 『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform。

(3) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency。"F" denotes fundamental frequency; " H" denotes spurious frequency. "E" denotes band edge frequency.

(4) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(5) Data of measurement within this frequency range shown " - " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

(6) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

(7) EUT Orthogonal Axes：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Table 5 Radiated Emission Data (Restricted Bands Requirements)

Special Notes：(EUT Operation Mode or Test Configuration Mode, if applicable)
The emission of the carrier radiated field strength is measured for channel 1 and channel 3 (Peak and AV) as following:

1. The transmitter was configured with the worst case antenna and setup to transmit at the highest channel (CH 3). Then the field strength was measured at 2483.5-2500 MHz.
2. The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel (CH 1). Then the field strength was measured at 2310-2390 MHz.

Please refer to the attachment L about the Restricted Bands emission plot.

Freq. (MHz)	Ant.Pol. (H/V)	Peak Reading (dBuV)	AV Reading (dBuV)	Ant./CF CF(dB)	Peak Act. (dBuV/m)	AV Act. (dBuV/m)	Peak Limit (dBuV/m)	AV Limit (dBuV/m)	NOTE
2375.8	V	45.70	-	-12.01	33.69	-	74.00	54.00	
2485.8	V	43.33	-	-11.43	31.90	-	74.00	54.00	
2355.6	H	44.00	-	-12.12	31.88	-	74.00	54.00	
2494.2	H	44.11	-	-11.38	32.73	-	74.00	54.00	

Remark：

(1) Spectrum Setting : 30MHz – 1000MHz , RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms. 1GHz- 25GHz, RBW= 1MHz, VBW= 1MHz, Sweep time = 200 ms

(2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission 。

(3) EUT Orthogonal Axes：

"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

Attachment

Table Contents