

FCC Radio Test Report

FCC ID: VXDWII07

This report concerns (check one) : Original Grant Class I Change

Issued Date : Jan. 30, 2008
Project No. : R0712004
Equipment : Wii CONTACTLESS CHARGER
Model Name : Wii07

Applicant : Fu Da Tong Technology Co., Ltd.
Address : 14F. -5, No. 872, Zhongzheng Rd.,
Zhonghe City, Taipei County 235, Taiwan
(R. O. C)

Tested by:

Neutron Engineering Inc. EMC Laboratory

Date of Test:

Dec. 24, 2007 ~ Jan. 25, 2008

Testing Engineer : Leo Kao for
(Rush Kao)

Technical Manager : Jeff Yang
(Jeff Yang)

Authorized Signatory : Andy Chiu
(Andy Chiu)

NEUTRON ENGINEERING INC.

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



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.**

Neutron's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

Neutron's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron's** authorized written approval.

Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Table of Contents	Page
1 . CERTIFICATION	4
2 . SUMMARY OF TEST RESULTS	5
2.1 TEST FACILITY	6
2.2 MEASUREMENT UNCERTAINTY	6
3 . GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	8
3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	9
3.4 DESCRIPTION OF SUPPORT UNITS	10
4 . EMC EMISSION TEST	11
4.1 CONDUCTED EMISSION MEASUREMENT	11
4.1.1 POWER LINE CONDUCTED EMISSION	11
4.1.2 MEASUREMENT INSTRUMENTS LIST	11
4.1.3 TEST PROCEDURE	12
4.1.4 DEVIATION FROM TEST STANDARD	12
4.1.5 TEST SETUP	12
4.1.6 EUT OPERATING CONDITIONS	13
4.1.7 TEST RESULTS	14
4.2 RADIATED EMISSION MEASUREMENT	16
4.2.1 RADIATED EMISSION LIMITS	16
4.2.2 MEASUREMENT INSTRUMENTS LIST	17
4.2.3 TEST PROCEDURE	17
4.2.4 DEVIATION FROM TEST STANDARD	17
4.2.5 TEST SETUP	18
4.2.6 EUT OPERATING CONDITIONS	18
4.2.7 TEST RESULTS (Below 30MHz)	19
4.2.8 TEST RESULTS (Between 30 – 1000 MHz)	20
5 . EUT TEST PHOTO	22

1. CERTIFICATION

Equipment : Wii CONTACTLESS CHARGER
Brand Name : PowerHouse
Model No. : Wii07
Applicant : Fu Da Tong Technology Co., Ltd.
Data of Test : Dec. 24, 2007 ~ Jan. 25, 2008
Test Item : ENGINEERING SAMPLE
Standards : FCC Part15, Subpart C(15.209) / RSS-210: 2004/ ANCI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-R0712004) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.209	Radiated Spurious Emission	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS01** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan.
 Neutron's test firm number is 95335

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, 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 :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U , (dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Wii CONTACTLESS CHARGER	
Brand Name	PowerHouse	
Model No.	Wii07	
OEM Brand/Model No.	N/A	
Model Difference	N/A	
Product Description	The EUT is a Wii CONTACTLESS CHARGER.	
	Operation Frequency:	250 KHz
	Product Class:	Class 1
	Receiver Class:	Class 3
	Modulation Type:	ASK
	Antenna Designation:	Integra (Induction coil)
	Output Power:	90.56 dBuV/m
	Mode of Operation:	Simplex
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.		
Channel List	N/A	
Power Source	DC Voltage supplied from AC/DC adapter.	
Power Rating	AC I/P 100-240V~50-60Hz, 0.3A / DC O/P 6.0V, 1.0A, 6.0W max	
Connecting I/O Port(s)	Please refer to the User's Manual	
Products Covered	AC/DC Adapter(Model No.: PA1008-1DU)	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

3.2 DESCRIPTION OF TEST MODES

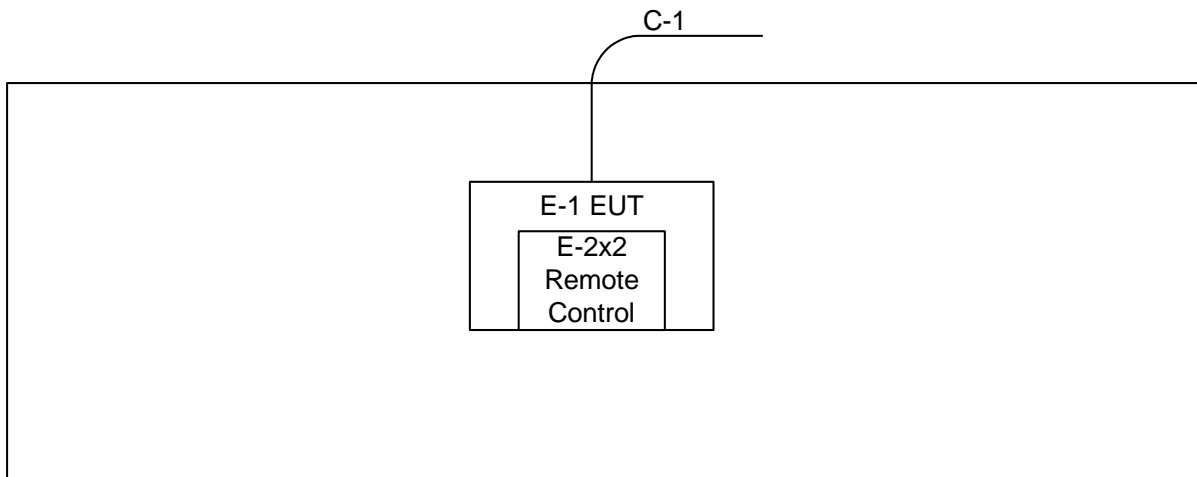
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Test Mode	Description
Mode 1	CH01

For Conducted Test	
Final Test Mode	Description
Mode 1	CH01

For Radiated Test	
Final Test Mode	Description
Mode 1	CH01

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1 Power Cable

3.4 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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Wii CONTACTLESS CHARGER	PowerHouse	Wii07	VXDWII07	N/A	EUT
E-2	Remote control	Nintendo	RVL-003	POO-WC45	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.5M	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION (FREQUENCY RANGE 150KHZ-30MHZ)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

- (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.

4.1.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00042990	Jan. 25, 2008
2	Pulse Limiter	Electro-Metrics	EM-7600	112644	Nov. 27, 2008
3	Test Cable	N/A	C01	N/A	Oct. 10, 2008
4	EMI Test Receiver	R&S	ESCI	100082	Mar. 08, 2008

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

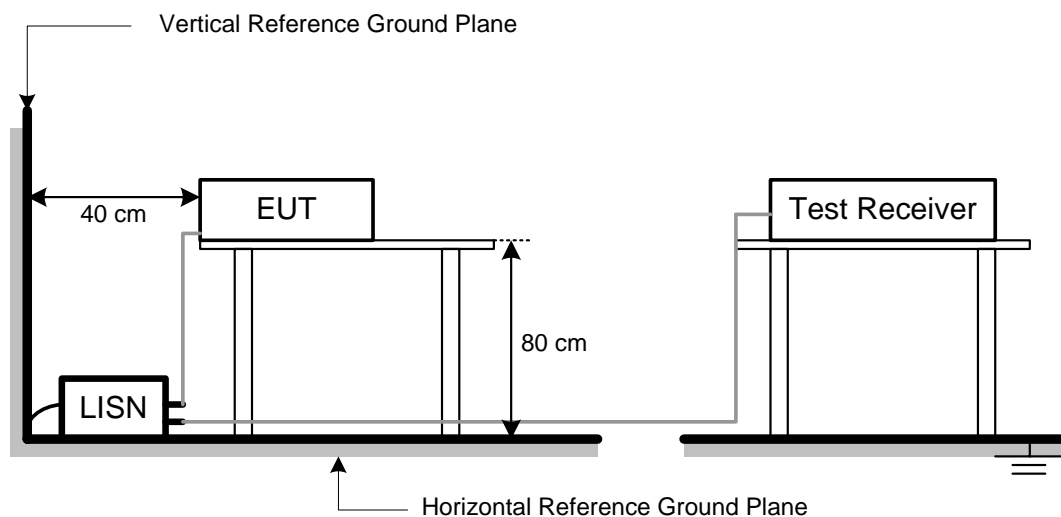
4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



4.1.6 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

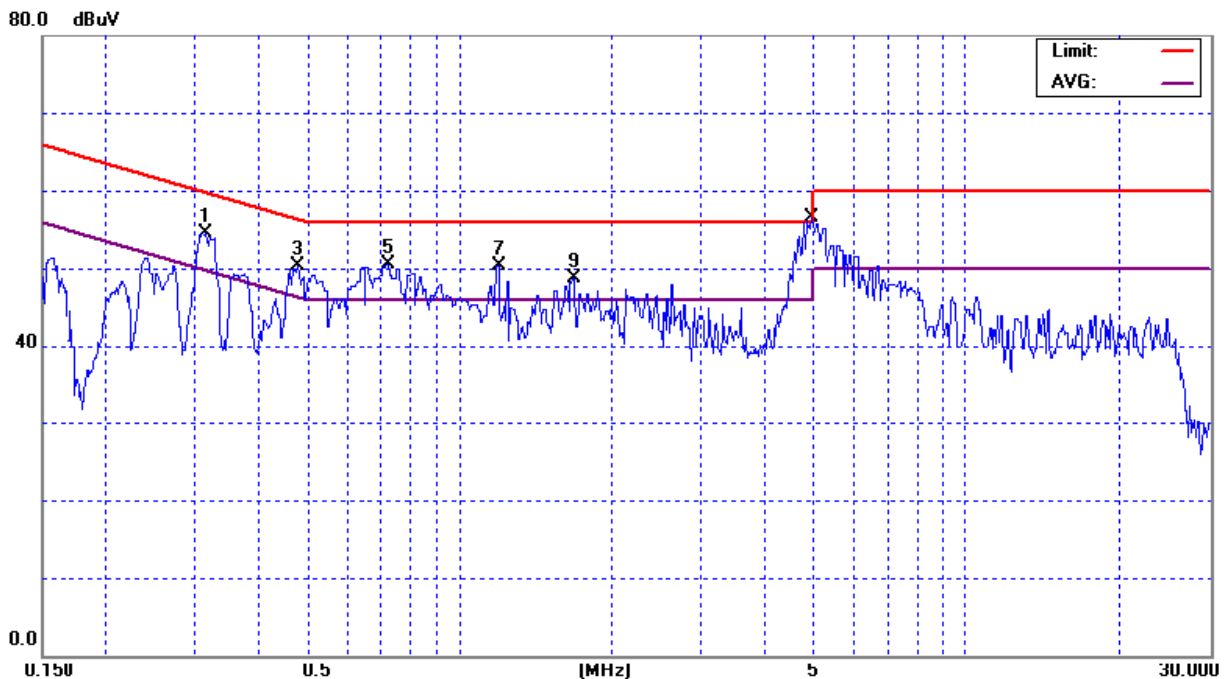
4.1.7 TEST RESULTS

E.U.T :	Wii CONTACTLESS CHARGER	Model Name :	Wii07
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1008 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	charge		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.31	Line	54.49	39.58	59.85	49.85	-5.36	(QP)
0.48	Line	50.36	33.11	56.39	46.39	-6.03	(QP)
0.73	Line	50.43	33.95	56.00	46.00	-5.57	(QP)
1.19	Line	50.27	34.53	56.00	46.00	-5.73	(QP)
1.68	Line	48.70	31.38	56.00	46.00	-7.30	(QP)
4.95	Line	50.94	37.14	56.00	46.00	-5.06	(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 ◦



E.U.T :	Wii CONTACTLESS CHARGER	Model Name :	Wii07
Temperature :	25 ° C	Relative Humidity :	60%
Pressure :	1008 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	charge		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.25	Neutral	50.81	40.25	61.78	51.78	-10.97	(QP)
0.31	Neutral	50.40	32.27	60.02	50.02	-9.62	(QP)
0.51	Neutral	47.56	28.00	56.00	46.00	-8.44	(QP)
0.59	Neutral	45.77	28.62	56.00	46.00	-10.23	(QP)
0.72	Neutral	46.73	32.05	56.00	46.00	-9.27	(QP)
4.79	Neutral	53.03	33.42	56.00	46.00	-2.97	(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 ◦



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS

Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500

Note:

- (1) The tighter limit shall apply at the boundary between two frequency range.
- (2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).
- (3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.

Example:

F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as $L_{d1} = L_1 = 30uV/m * (10)^2 = 100 * 30 uV/m$

4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3176	Feb. 05, 2008
2	Loop Antenna	EMCO	6502	00042960	May. 13, 2008
3	Test Cable	N/A	10M_OS01	N/A	Oct. 10, 2008
4	Test Cable	N/A	OS01-1/-2	N/A	Oct. 10, 2008
5	Pre-Amplifier	Anritsu	MH648A(OS01)	M09961	Oct. 10, 2008
6	Spectrum Analyzer	ADVAN TEST	R3261C	81720298	Sep. 12, 2008
7	Test Receiver	MEB	SMV41	130	Jun. 21, 2008
8	Antenna Mast	Chance Most	CMTB-1.5	N/A	N/A
9	Turn Table	Chance Most	CMTB-1.5	N/A	N/A

Remark: " N/A" denotes No Model No. / Serial No. and No Calibration specified.

4.2.3 TEST PROCEDURE

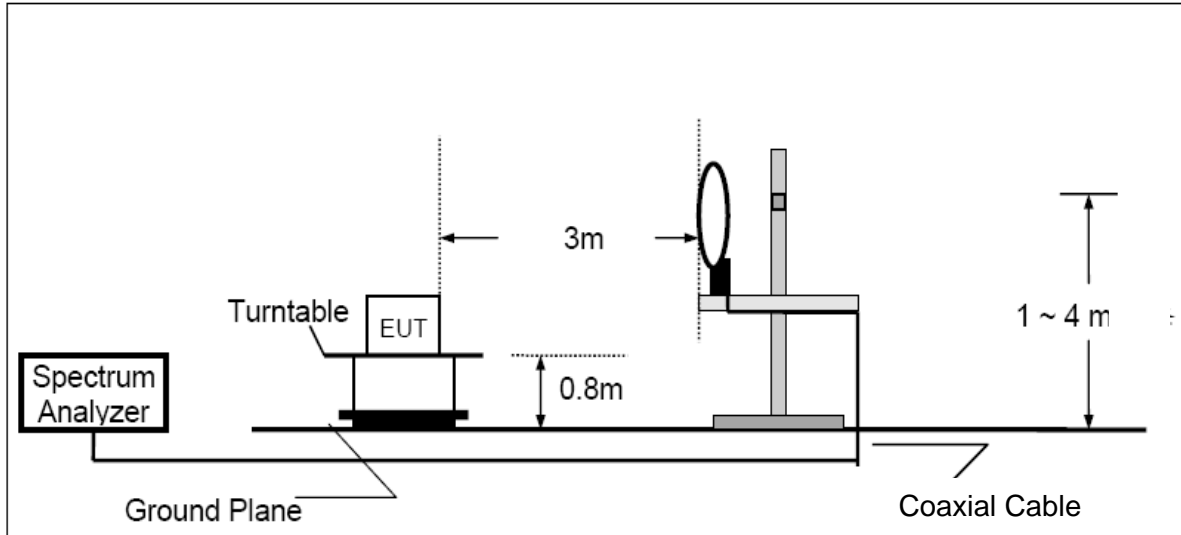
- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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 detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

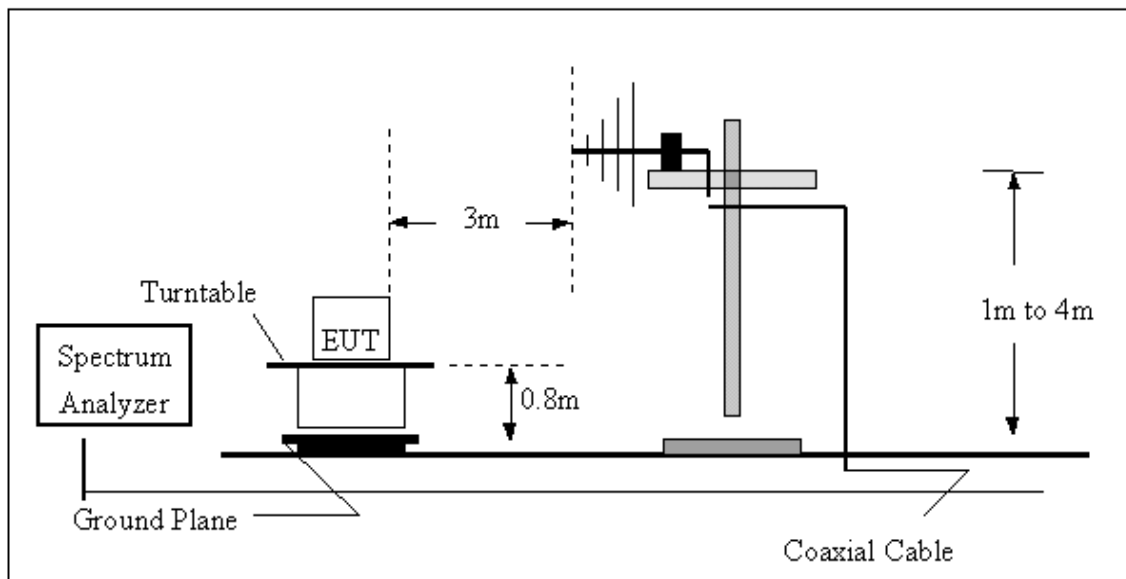
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (Below 30MHz)

EUT :	Wii CONTACTLESS CHARGER	Model No. :	Wii07
Temperature :	22°C	Relative Humidity :	72%
Pressure :	1016hPa	Test Power :	AC 120V/60Hz
Test Mode :	CH01		

Freq. (KHz)	Receiver Reading in dBuV/m	Factor (dB) Cable loss	Field Strength Limit (uV/m)	Required Measurement Distance(m)	Limitation Converted 3m dist. (dBuV/m)	Over Limit	Dector Mode PK/AV
250.00	77.56	13.00	9.60	300.00	99.65	- 9.09	Peak
500.00	41.45	12.80	48.00	30.00	73.62	- 19.37	Peak
750.00	40.57	12.80	32.00	30.00	70.10	- 16.73	Peak
1000.00	36.65	12.70	24.00	30.00	67.60	- 18.25	Peak
1250.00	31.88	12.70	19.20	30.00	65.67	- 21.09	Peak
1500.00	-	12.80	16.00	30.00	64.08	-	Peak
1750.00	-	12.80	30.00	30.00	69.54	-	Peak
2000.00	-	12.80	30.00	30.00	69.54	-	Peak
2250.00	-	12.90	30.00	30.00	69.54	-	Peak
2500.00	-	12.90	30.00	30.00	69.54	-	Peak

Remark :

- (1) Spectrum Setting:
 9 KHz – 150 KHz, RBW= 1 KHz, VBW=1 KHz, Sweep time = 200 ms.
 150 K Hz – 30 MHz, RBW= 9 KHz, VBW=9 KHz, 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) The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table ◦

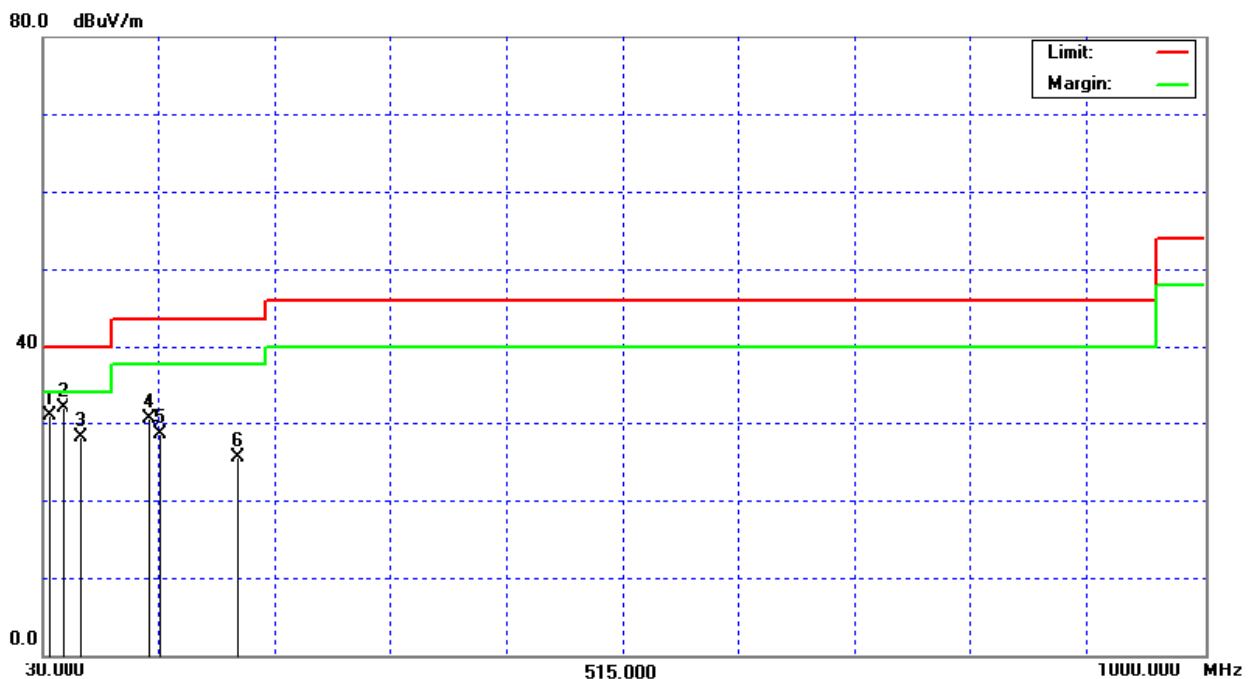
4.2.8 TEST RESULTS (Between 30 – 1000 MHz)

EUT :	Wii CONTACTLESS CHARGER	Model No. :	Wii07
Temperature :	22°C	Relative Humidity :	75%
Pressure :	1016hPa	Test Power :	AC 120V/60Hz
Test Mode :	CH01		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
34.55	V	35.85	-5.00	30.85	40.00	- 9.15	
47.96	V	35.90	-4.07	31.83	40.00	- 8.17	
63.15	V	33.42	-5.32	28.10	40.00	- 11.90	
119.30	V	34.90	-4.30	30.60	43.50	- 12.90	
127.90	V	31.72	-3.29	28.43	43.50	- 15.07	
192.20	V	30.07	-4.48	25.59	43.50	- 17.91	

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ◦
- (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 ◦
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not how in table ◦

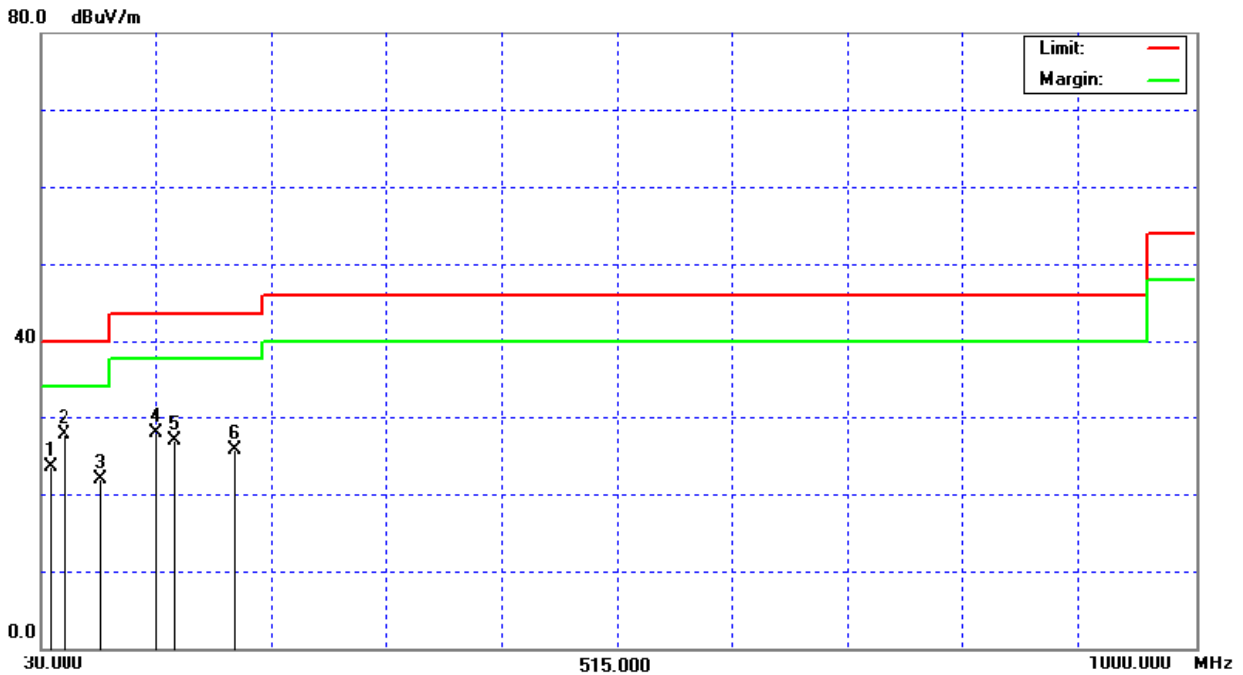


EUT :	Wii CONTACTLESS CHARGER	Model No. :	Wii07
Temperature :	22°C	Relative Humidity :	75%
Pressure :	1016hPa	Test Power :	AC 120V/60Hz
Test Mode :	CH01		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
37.30	H	28.47	-4.91	23.56	40.00	- 16.44	
48.06	H	31.74	-4.07	27.67	40.00	- 12.33	
81.20	H	30.29	-8.48	21.81	40.00	- 18.19	
126.68	H	31.40	-3.44	27.96	43.50	- 15.54	
143.62	H	29.40	-2.52	26.88	43.50	- 16.62	
192.46	H	30.10	-4.48	25.62	43.50	- 17.88	

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ◦
- (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 ◦
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table ◦



5. EUT TEST PHOTO

Conducted Measurement Photos



Radiated Measurement Photos

