

FCC CFR47 PART 15 SUBPART C**CLASS II PERMISSIVE CHANGE
TEST REPORT****FOR****Remote Controller****MODEL NUMBER: WUP-005(-01)****FCC ID: POO-R237999****REPORT NUMBER: 33JE0044-SH-A****ISSUE DATE: June 11, 2013***Prepared for***Mitsumi Electric Co., Ltd.****2-11-2, Tsurumaki, Tama-shi, Tokyo, 206-8567 Japan***Prepared by***UL Japan, Inc. Shonan EMC Lab.****1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken 259-1220 JAPAN****Telephone number : +81 463 50 6400****Facsimile number : +81 463 50 6401****JAB Accreditation No. : RTL02610**

- The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.
- There is no testing item of "Non-accreditation".

Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/11/13	Initial Issue	K. Adachi

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Mitsumi Electric Co., Ltd.
 2-11-2, Tsurumaki, Tama-shi, Tokyo, 206-8567 Japan

EUT DESCRIPTION: Remote controller

MODEL: WUP-005(-01)

SERIAL NUMBER: 2

DATE TESTED: May 29, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Japan, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Japan, Inc. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Japan, Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Japan, Inc. will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by any government agency.

Approved & Released For UL Japan, Inc. By: Tested By:



 Toyokazu Imamura
 Leader of WiSE Japan,
 UL Verification Service



 Kenichi Adachi
 Engineer of WiSE Japan,
 UL Verification Service
 (Representative)

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10: 2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa-ken, 259-1220 JAPAN.

UL Japan is accredited by JAB, Laboratory Code RTL02610. The full scope of accreditation can be viewed at

http://www.jab.or.jp/cgi-bin/jab_exam_proof_j.cgi?page=2&authorization_number=RTL02610

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor} \\ & \text{(dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	150kHz-30MHz +/- 3.5 dB
Radiated Emission	30MHz-300MHz +/- 4.9 dB
	300MHz-1000MHz +/- 4.9 dB
	1000MHz-13GHz +/- 4.9 dB
	13GHz-18GHz +/- 5.6 dB
	18GHz-26.5GHz +/- 4.4 dB

Uncertainty figures are valid to a confidence level of 95% using a coverage factor k=2.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth Remote control unit, powered by AC adapter.

The radio module is manufactured by CSR.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The change filed under this application is adding AC adapter.

5.3. MAXIMUM OUTPUT POWER

The measured maximum peak output power values were same as values in original report. Refer to original report No. 32JE0252-AP-01-A issued by UL Japan, Inc.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes PIFA antenna, with a maximum gain of -0.91 dBi.

5.5. SOFTWARE AND FIRMWARE

The test utility software used during testing was fs_1012201147 + 20120810_No01.psr.

* It tested by using the above test tool at this application, because the transmit power by this test tool was same to the power in an original report though it tested by using CSR's tools in the following.

Driver: CSR BlueCore Bluetooth, v2.4.0.0.

Software: CSR BlueTest3, v2.4 Release Build.

5.6. WORST-CASE CONFIGURATION AND MODE

The fundamental and spurious was measured in three different orientations X, Y and Z to find worst-case orientation, and final testing for radiated emissions was performed with EUT in following orientation.

	Horizontal	Vertical
Spurious (below 1GHz)	X	X

Test was performed on Bluetooth communication mode.

6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST					
No.	Description	Manufacturer	Model	Serial Number	Remarks
A	Controller HUB	Nintendo	WIS-007	N/A	-
B	AC Adapter	Nintendo	WUP-011	Lot No.F2281	-
C	Wii	Nintendo	RVL-101	FW090000591	-
D	AC Adapter	Nintendo	WUP-002	MKF619Z01	-
E	Monitor	BenQ	E2200HD	ETH2901919026	-

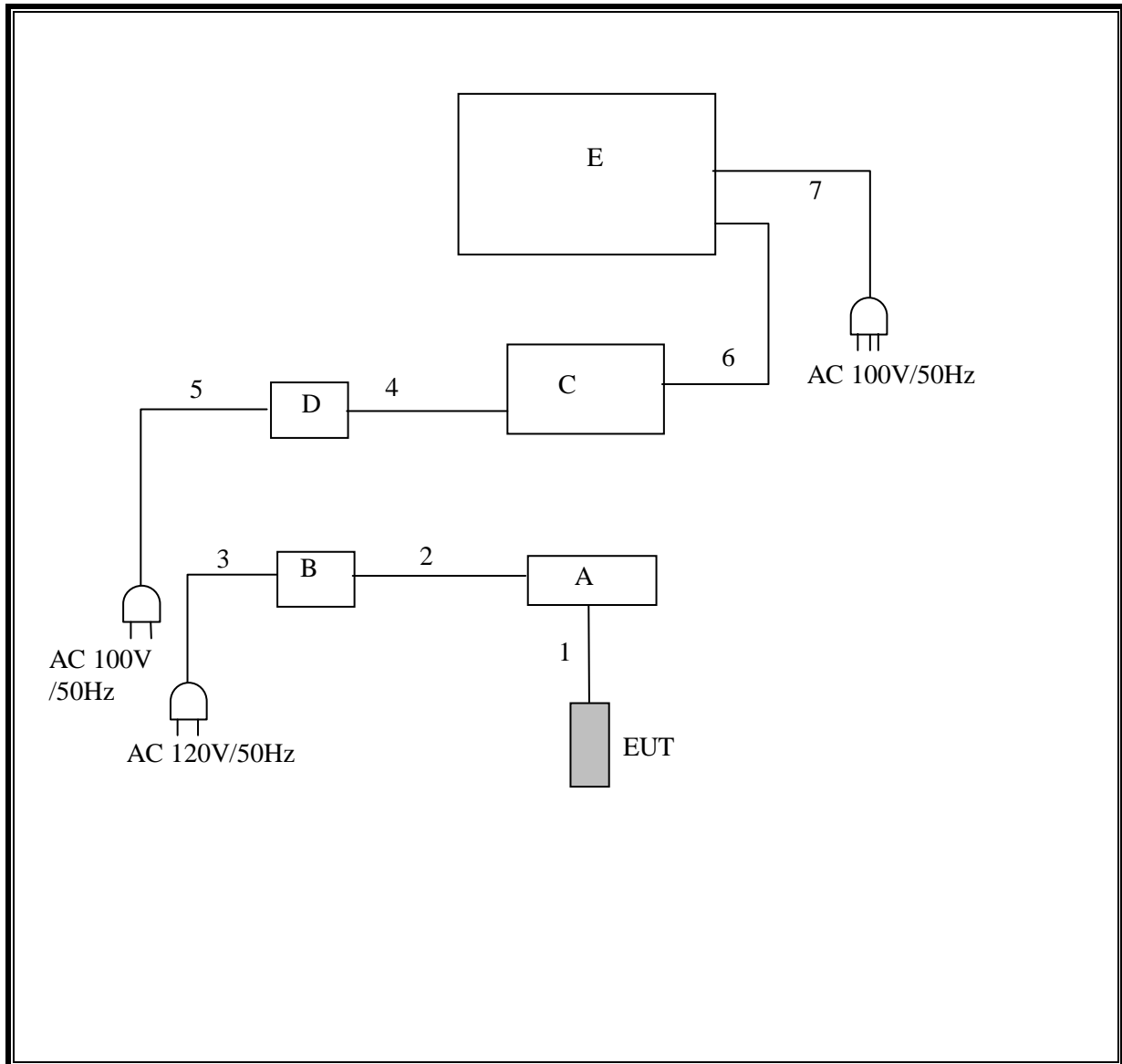
I/O CABLES

I/O CABLE LIST				
Cable No.	Port	Cable Type	Cable Length	Remarks
1	DC & Signal	Shielded	2.0m	NA
2	DC	Un-shielded	2.0m	NA
3	AC	Un-shielded	0.5m	NA
4	DC	Un-shielded	1.0m	NA
5	AC	Un-shielded	2.0m	NA
6	HDMI	Shielded	2.0m	NA
7	AC	Un-shielded	1.8m	NA

TEST SETUP

The EUT is connected to communicates with the Wii Console on 2.4GHz by Bluetooth.

SETUP DIAGRAM FOR TESTS



7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2012/10/08 * 12
SLA-03	Logperiodic Antenna	Schwarzbeck	UHALP9108 A	UHALP 9108-A 0901	RE	2012/10/08 * 12
SAT6-03	Attenuator	JFW	50HF-006N	-	RE	2013/02/12 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2013/02/12 * 12
SCC-C1/C2/C3 /C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DS FA/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2013/04/03 * 12
STR-06	EMI Test Receiver / Spectrum Analyzer	Rohde & Schwarz	ESCI	101259	RE,CE	2013/02/27 * 12
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2013/02/27 * 12
SJM-11	Measure	PROMART	SEN1935	-	RE,CE	-
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2012/09/21 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE,RFI,MF)	-	RE,CE	-
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2013/04/03 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2013/02/25 * 12
SAT3-06	Attenuator	JFW	50HF-003N	-	CE	2013/02/12 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2013/03/07 * 12

The expiration date of the calibration is the end of the expired month.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.

Test Item:

CE: Conducted emission, RE: Radiated emission

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

The measurement below 1GHz was only performed to confirm the effect of the addition of AC adapter.

8.2. TRANSMITTER Below 1GHz

SPURIOUS EMISSIONS

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Semi-Anechoic Chamber
 Date : 2013/06/01

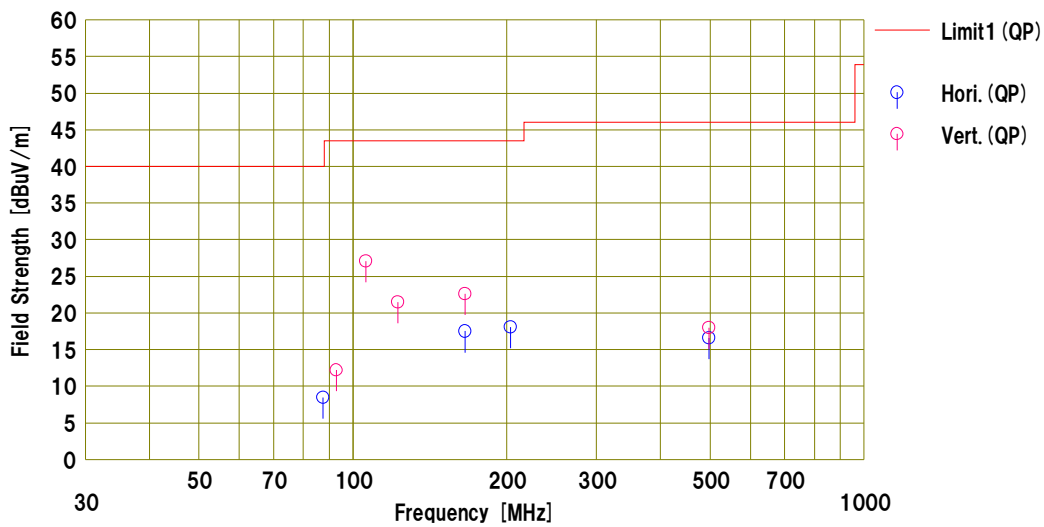
Company : Nintendo Co., Ltd.
 Kind of EUT : Wii Remote Controller
 Model No. : WUP-005(-01)
 Serial No. : 2

Mode : Bluetooth Communication
 Order No. : 33JE0044-SH
 Power : AC120V/60Hz SinglePhase
 Temp./Humi. : 25deg.C / 47%RH

Remarks :

Limit1 : FCC15.209 3m. below 1GHz:QP, above 1GHz:AV

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading	Ant.Fac [dB/m]	Loss [dB]	Gain [dB]	S.Fac [dB]	Result	Limit	Margin	Pola. [H/V]	Height [cm]	Angle [deg]	Ant. Type	Comment
		<QP> [dBuV]					<QP> [dBuV/m]	<QP> [dB]	<QP> [dB]					
1	87.501	25.3	7.8	7.1	32.1	0.4	8.5	40.0	31.5	Hori.	307	264	BC	
2	165.706	26.4	15.4	7.7	32.1	0.1	17.5	43.5	26.0	Hori.	386	78	BC	
3	203.698	25.7	16.4	8.0	32.0	0.0	18.1	43.5	25.4	Hori.	304	181	BC	
4	498.031	21.6	17.5	9.5	32.0	0.0	16.6	46.0	29.4	Hori.	111	48	LP	
5	92.798	28.0	8.8	7.2	32.1	0.3	12.2	43.5	31.3	Vert.	166	133	BC	
6	106.110	41.0	11.0	7.3	32.1	-0.1	27.1	43.5	16.4	Vert.	100	276	BC	
7	122.505	33.2	13.2	7.4	32.1	-0.2	21.5	43.5	22.0	Vert.	100	114	BC	
8	165.706	31.5	15.4	7.7	32.1	0.1	22.6	43.5	20.9	Vert.	100	230	BC	
9	498.031	23.0	17.5	9.5	32.0	0.0	18.0	46.0	28.0	Vert.	117	196	LP	

Calculation: Result [dBuV/m] = Reading [dBuV] + Ant.Fac [dB/m] + Loss (Cable+Att) [dB] - Gain (PreAMP) [dB] + S.Fac (Δ AF)
 Ant.Type=BC:Biconical Antenna, LP:Logperiodic Antenna, SHA** :Horn Antenna

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

§15.207, for equipment 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 μ H/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 band edges.

Frequency range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Notes:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

TEST PROCEDURE

ANSI C63.4

RESULTS

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
 Date : 2013/06/01

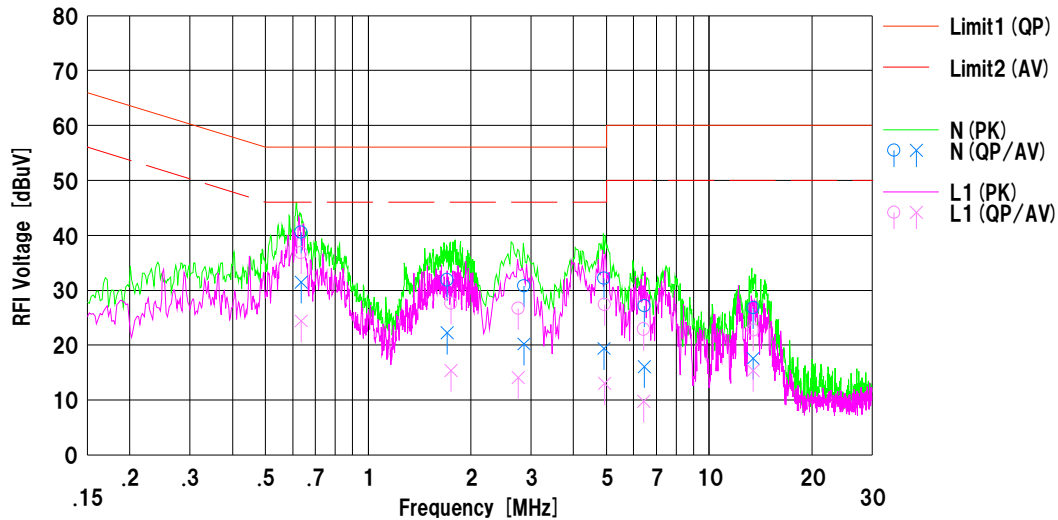
Company : Nintendo Co., Ltd.
 Kind of EUT : Wii Remote Controller
 Model No. : WUP-005(-01)
 Serial No. : 2

Mode : Bluetooth Communication
 Order No. : 33JE0044-SH
 Power : AC120V/60Hz SinglePhase
 Temp./Humi. : 25deg.C / 39%RH

Remarks :

Limit1 : FCC 15C(15.207) QP
 Limit2 : FCC 15C(15.207) AV

Engineer : Kenichi Adachi



No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP> [dBuV]	<AV> [dBuV]		<QP> [dBuV]	<AV> [dBuV]	<QP> [dBuV]	<AV> [dBuV]	<QP> [dB]	<AV> [dB]		
1	0.63479	27.9	18.8	12.7	40.6	31.5	56.0	46.0	15.4	14.5	N	
2	1.70406	19.2	9.5	12.7	31.9	22.2	56.0	46.0	24.1	23.8	N	
3	2.86359	18.0	7.4	12.8	30.8	20.2	56.0	46.0	25.2	25.8	N	
4	4.91495	19.3	6.5	12.9	32.2	19.4	56.0	46.0	23.8	26.6	N	
5	6.46145	14.2	3.1	13.0	27.2	16.1	60.0	50.0	32.8	33.9	N	
6	13.46124	13.5	4.3	13.3	26.8	17.6	60.0	50.0	33.2	32.4	N	
7	0.63479	24.1	11.7	12.7	36.8	24.4	56.0	46.0	19.2	21.6	L1	
8	1.75115	14.8	2.6	12.8	27.6	15.4	56.0	46.0	28.4	30.6	L1	
9	2.75468	13.9	1.3	12.8	26.7	14.1	56.0	46.0	29.3	31.9	L1	
10	4.92498	14.5	0.1	12.9	27.4	13.0	56.0	46.0	28.6	33.0	L1	
11	6.41599	9.9	-3.2	13.0	22.9	9.8	60.0	50.0	37.1	40.2	L1	
12	13.46124	9.4	2.1	13.3	22.7	15.4	60.0	50.0	37.3	34.6	L1	

Calculation:Result [dBuV] =Reading [dBuV] +C.Fac (LISN+Cable+ATT) [dB]
 LISN-SLS-05