



RADIO TEST REPORT

Test Report No.: 11656716S-A-R2

Applicant : Nintendo Co., Ltd.
Type of Equipment : Portable Game Machine
Model No. : JAN-001
FCC ID : BKEJAN001
Test regulation : FCC Part15 Subpart C: 2016
Test result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
6. This test report covers Radio technical requirements.
It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if applicable)
7. This report is a revised version of 11656716S-A-R1. 11656716S-A-R1 is replaced with this report.

Date of test: February 27 to March 16, 2017

Representative test engineer: K. Takeyama
Kazutaka Takeyama
Engineer
Consumer Technology Division

Approved by : A. Hayashi
Akio Hayashi
Leader
Consumer Technology Division



The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in UL Japan.

There is no testing item of "Non-accreditation".

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13-EM-F0429

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SECTION 1: Customer information

Company Name : Nintendo Co., Ltd.
Address : 11-1 Hokotate-cho, Kamitoba, Minami-ku, Kyoto 601-8501, Japan
Telephone Number : +81-75-662-9600
Facsimile Number : +81-75-662-9624
Contact Person : Kazuya Kuramoto

SECTION 2: Equipment under test (E.U.T.)**2.1 Identification of E.U.T.**

Type of Equipment : Portable Game Machine
Model No. : JAN-001
Serial No. : Refer to Section 4, Clause 4.2
Rating : DC 3.7 V (battery)
AC 100 – 120 V, 50 / 60 Hz (AC Adapter)
Receipt Date of Sample : February 28, 2017
Country of Mass-production : China
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No Modification by the test lab

2.2 Product description

Model: JAN-001 (referred to as the EUT in this report) is a Portable Game Machine with Wireless LAN.

General Specification

Clock frequency(ies) in the system : Wireless LAN: 40 MHz, NFC: 13 MHz

Radio Specification**WLAN (IEEE802.11b/g, IEEE802.11)**

Radio Type : Transceiver
Frequency of Operation : 2412 MHz - 2472 MHz
Modulation : DSSS
Antenna type : Dipole Antenna
Antenna Gain : 1.28 dBi
Operating Temperature : +5 deg. C - +35 deg. C

NFC

Radio Type : Transceiver
Frequency of Operation : 13.56 MHz
Modulation : ASK
Antenna type : Loop
Operating Temperature : +5 deg.C to +35 deg C.

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SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart C
FCC Part 15 final revised on November 14, 2016 and effective December 14, 2016
Title : FCC 47 CFR Part 15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits
Section 15.209 Radiated emission limits, general requirements
Section 15.215 Additional provisions to the general radiated emission limitations.
Section 15.225 Operation within the bands 13.110 - 14.010 MHz.

3.2 Procedures & Results

Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results
Conducted emission	ANSI C63.10:2013 6 Standard test methods <IC>RSS-Gen 8.8	FCC 15.207 ----- <IC> RSS-Gen 8.8	-	N/A	9.2 dB (13.56 MHz, AV, N)	Complied
Electric field strength of Fundamental emission	ANSI C63.10:2013 6 Standard test methods <IC>RSS-Gen 6.4, 6.12	FCC 15.225 (a) ----- <IC> RSS-210 B.6	Radiated	N/A	71.4 dB (Vertical)	Complied
Electric field strength of Spurious emission (within the 13.110-14.010 MHz band)	ANSI C63.10:2013 6 Standard test methods <IC>RSS-Gen 6.4, 6.13	FCC 15.225 (b)(c) ----- <IC> RSS-210 B.6	Radiated	N/A	45.7 dB (13.110 MHz, Horizontal & Vertical)	Complied
Electric field strength of Spurious emission (outside of the 13.110-14.010 MHz band)	ANSI C63.10:2013 6 Standard test methods <IC>RSS-Gen 6.4, 6.13	FCC 15.209 FCC 15.225 (d) ----- <IC> RSS-210 B.6	Radiated	N/A	8.5 dB (43.57 MHz, Vertical)	Complied
20dB bandwidth	ANSI C63.10:2013 6 Standard test methods <IC> -	FCC 15.215 (c) ----- <IC> -	Radiated	N/A	-	-
Frequency tolerance	ANSI C63.10:2013 6 Standard test methods <IC> RSS-Gen 6.11, 8.11	FCC 15.225 (e) ----- <IC> RSS-210 B.6	Radiated	N/A	-	Complied

Note: UL Japan's Work Procedures No. 13-EM-W0420 and 13-EM-W0422

FCC Part 15.31 (e)

The EUT is supplied the power from battery and the test was performed with the full-charged battery. Therefore, the EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the EUT complies with the requirement.

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3.3 Addition to standard

Item	Test Procedure	Specification	Remarks	Worst Margin	Results
Occupied Bandwidth (99 %)	ANSI C63.10:2013 6.Standard test methods RSS-Gen 6.6	RSS-Gen 4.6.1	Conducted	-	-
Note: UL Japan's EMI Work Procedures No.13-EM-W0420 and 13-EM-W0422.					

* Other than above, no addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k = 2$.

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Item	Frequency range	Uncertainty (+/-)				
		No. 1 SAC / SR	No. 2 SAC / SR	No. 3 SAC / SR	No. 4 SAC / SR	No. 5,6,8 SR
Conducted emission (AC Mains) LISN	150 kHz-30 MHz	2.6 dB	2.5 dB	2.6 dB	2.5 dB	2.5 dB
Radiated emission (Measurement distance: 3 m)	9 kHz-30 MHz	3.1 dB	3.1 dB	3.1 dB	-	-
	30 MHz-200 MHz	4.6 dB	4.4 dB	4.6 dB	-	-
	200 MHz-1 GHz	5.8 dB	5.7 dB	5.8 dB	-	-
	1 GHz-13 GHz	4.9 dB	4.9 dB	4.9 dB	-	-
Radiated emission (Measurement distance: 1 m)	13 GHz-18 GHz	4.6 dB	4.6 dB	4.6 dB	-	-
	18 GHz-40 GHz	4.9 dB	4.9 dB	4.9 dB	-	-

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

Antenna terminal test	Uncertainty (+/-)
Power Measurement above 1 GHz (Average Detector)_SPM-06	0.72 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-06	0.85 dB
Power Measurement above 1 GHz (Average Detector)_SPM-07	0.74 dB
Power Measurement above 1 GHz (Peak Detector)_SPM-07	0.91 dB
Spurious emission (Conducted) below 1GHz	1.6 dB
Spurious emission (Conducted) 1 GHz-3 GHz	1.3 dB
Spurious emission (Conducted) 3 GHz-18 GHz	2.2 dB
Spurious emission (Conducted) 18 GHz-26.5 GHz	2.3 dB
Spurious emission (Conducted) 26.5 GHz-40 GHz	2.4 dB
Bandwidth Measurement	1.01 %
Duty cycle and Time Measurement	0.012 %

Conducted emission test

The data listed in this test report has enough margin, more than the site margin.

Radiated emission test

The data listed in this test report has enough margin, more than the site margin.

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3.5 Test location

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JAB Accreditation No. : RTL02610

	IC Registration No.	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Maximum measurement distance
No.1 Semi-anechoic chamber	2973D-1	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.2 Semi-anechoic chamber	2973D-2	20.6 x 11.3 x 7.65	20.6 x 11.3	10 m
No.3 Semi-anechoic chamber	2973D-3	12.7 x 7.7 x 5.35	12.7 x 7.7	5 m
No.4 Semi-anechoic chamber	-	8.1 x 5.1 x 3.55	8.1 x 5.1	-
No.1 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.2 shielded room	-	6.8 x 4.1 x 2.7	6.8 x 4.1	-
No.3 shielded room	-	6.3 x 4.7 x 2.7	6.3 x 4.7	-
No.4 shielded room	-	4.4 x 4.7 x 2.7	4.4 x 4.7	-
No.5 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.6 shielded room	-	7.8 x 6.4 x 2.7	7.8 x 6.4	-
No.8 shielded room	-	3.45 x 5.5 x 2.4	3.45 x 5.5	-
No.1 Measurement room	-	2.55 x 4.1 x 2.5	-	-

3.6 Test setup, Data of EMI & Test instruments

Refer to APPENDIX.

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SECTION 4: Operation of E.U.T. during testing

4.1 Operating mode

The EUT exercise program used during testing was designed to exercise the various system components in a manner similar to typical use.

Test item	Operating mode	Tested frequency
All items except for Frequency Tolerance	NFC Communication NFC transmitting	13.56 MHz
Frequency Tolerance	NFC transmitting (Unmodulated)	13.56 MHz

Software: NFC RF TEST.exe version 0.2.0.0

Power setting: Fixed

The carrier level and noise levels were confirmed with and without Tag, and the test was made with the condition that has the maximum noise.

Combinations of the worst case:

Radiated emission (Carrier)	Radiated emission (Below 30 MHz)	Radiated emission (Above 30 MHz)
With Tag (NFC type B)	With Tag (NFC type B)	With Tag (NFC type B)

Justification: The system was configured in typical fashion (as customer would normally use it) for testing.

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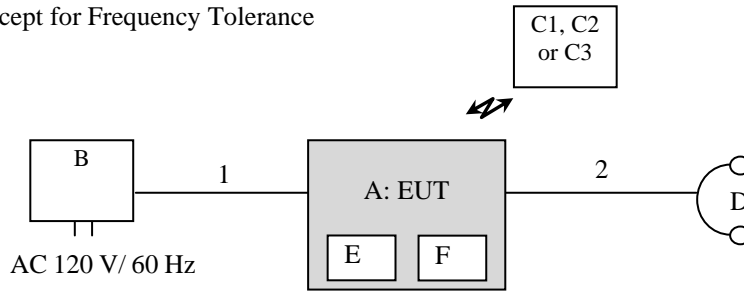
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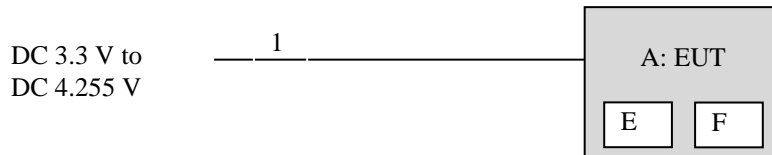
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4.2 Configuration of tested system

All items except for Frequency Tolerance



Frequency Tolerance



*Cabling and setup were taken into consideration and test data was taken under worse case conditions.

Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Portable Game Machine	JAN-001	NJG0000017176	NINTENDO	EUT
B	AC Adaptor	WAP-002	-	Mitsumi	-
C1	Cubic Tag	NVL-01	H4VW1D1MRIO	NINTENDO	Type A
C2	Tag Card	-	31	-	Type B
C3	Tag Card	-	44	-	Type F
D	Headphones	-	-	-	-
E	CTR Card	CTR-005	-	-	-
F	Micro SD Card	-	-	Transcend	-

List of cables used

No.	Cable Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	DC	1.9	Unshielded	Unshielded	-
2	Headphones	0.8	Unshielded	Unshielded	-

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SECTION 5: Conducted emission

5.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

5.2 Test configuration

EUT was placed on a platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The table is made of Styrofoam and covered with polyvinyl chloride. That has very low permittivity.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT, including peripherals was aligned and was flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from LISN and excess AC cable was bundled in center. I/O cables that were connected to the peripherals were bundled in center. They were folded back and for the forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane.

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN to the input power source. All unused 50 ohm connectors of the LISN were resistively terminated in 50 ohm when not connected to the measuring equipment.

Photographs of the set up are shown in APPENDIX 3.

5.3 Test conditions

Frequency range : 0.15 MHz - 30 MHz
EUT position : Table top

5.4 Test procedure

The AC Mains Terminal Continuous disturbance Voltage had been measured with the EUT via AC adapter within a Shielded room. The EUT via AC adapter was connected to a Line Impedance Stabilization Network (LISN).

An overview sweep with peak detection has been performed.

The measurements had been performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detection of the test receiver.

Detection Type : Quasi-Peak/ Average
IF Bandwidth : 9 kHz

5.5 Results

Summary of the test results : Pass

Refer to APPENDIX 1

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SECTION 6: Radiated emission

6.1 Operating environment

Test place : See test data (APPENDIX 1)
Temperature : See test data (APPENDIX 1)
Humidity : See test data (APPENDIX 1)

6.2 Test configuration

EUT was placed on a polystyrene platform of nominal size, 0.5 m by 0.5 m, raised 0.8 m above the conducting ground plane. That has very low permittivity.

Photographs of the set up are shown in APPENDIX 3.

6.3 Test procedure

The Radiated Electric Field Strength intensity has been measured on a semi-anechoic chamber with a ground plane at a distance of 3 m.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 937606. These tests were performed in semi anechoic chamber. Therefore the measured level of emissions may be higher than if measurements were made without a ground plane. However test results were confirmed to pass against standard limit.

The Radiated Electric Field Strength intensity has been measured with a ground plane and at a distance of 3 m.

Frequency: From 9 kHz to 30 MHz at distance 3 m (Refer to Figure 2)

The EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for vertical polarization (antenna angle: 0 deg., 45 deg., 90 deg. and 135 deg.) and horizontal polarization. Drawing of the antenna direction is shown in Figure 1.

Frequency: From 30 MHz to 1 GHz at distance 3 m (Refer to Figure 2).

The measuring antenna height was varied between 1 and 4 m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization.

Measurements were performed with QP, PK, and AV detector.

The radiated emission measurements were made with the following detector function of the test receiver.

	9 kHz to 90 kHz & 110 kHz to 150 kHz	90 kHz to 110 kHz	150 kHz to 490 kHz	490 kHz to 30 MHz	30 MHz to 1 GHz
Detector Type	PK/AV	QP	PK/AV	QP	QP
IF Bandwidth	200 Hz	200 Hz	10 kHz	9 kHz	120 kHz
Distance factor *1)	-80 dB	-80 dB	-80 dB	-40 dB	-
Measuring antenna	Loop antenna				Biconical (30 MHz - 299.99 MHz) Logperiodic (300 MHz - 1 GHz)

*1) FCC 15.31 (f)(2) (9kHz-30MHz)

Distance Factor: $40 \times \log(3 \text{ m} / 300 \text{ m}) = -80 \text{ dB}$

Distance Factor: $40 \times \log(3 \text{ m} / 30 \text{ m}) = -40 \text{ dB}$

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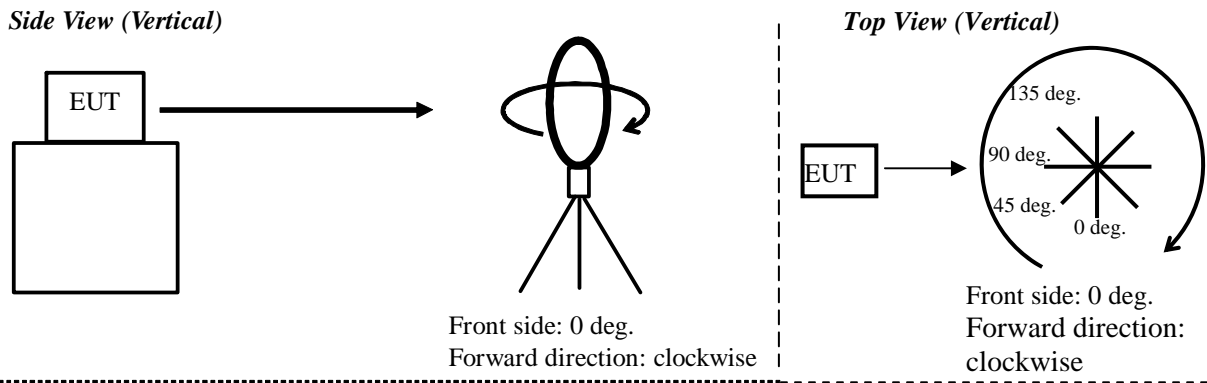
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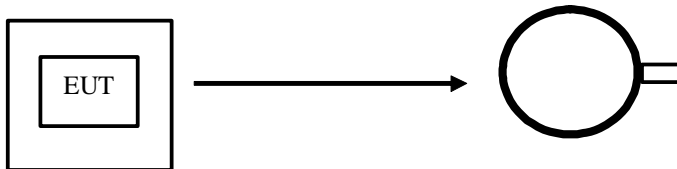
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Figure 1. Direction of the Loop Antenna

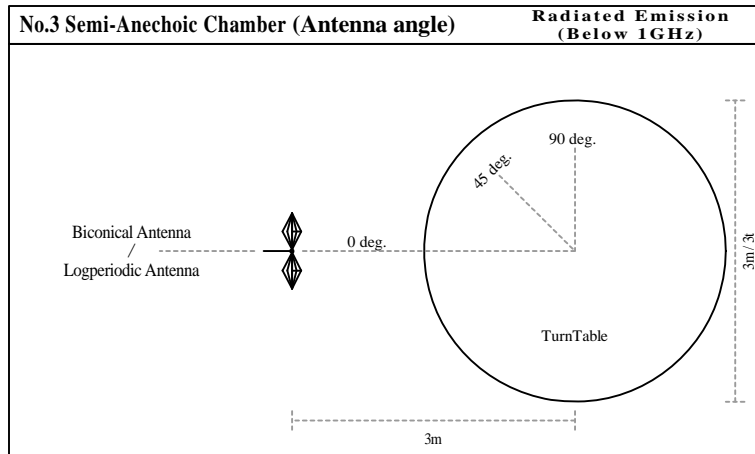


Top View (Horizontal)



Antenna was not rotated.

Figure 2. Antenna angle



6.4 Results

Summary of the test results : Pass

Refer to APPENDIX 1

SECTION 7: 20 dB bandwidth & Occupied bandwidth (99 %)

Test procedure

The test was measured with a spectrum analyzer using a test fixture.

Test	Span	RBW	VBW	Sweep	Detector	Trace	Instrument used
20 dB Bandwidth	20 MHz	10 kHz	30 kHz	Auto	Peak	Max Hold	Spectrum Analyzer
99 % Occupied Bandwidth	Enough width to display 20 dB Bandwidth	1 to 5 % of Span	Three times of RBW	Auto (Single)	Sample	Max Hold *1)	Spectrum Analyzer

*1) The measurement was performed with Max Hold since the duty cycle was not 100 %.

Summary of the test results: Pass

Refer to APPENDIX 1

SECTION 8: Frequency Tolerance

Test procedure

The test was measured with a frequency counter using a test fixture.

The temperature test was started after the temperature stabilization time of 30 minutes.

The test was begun from 50 deg.C and the temperature was lowered each 10 deg.C.

Summary of the test results: Pass

Refer to APPENDIX 1

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DATA OF CONDUCTED EMISSION TEST

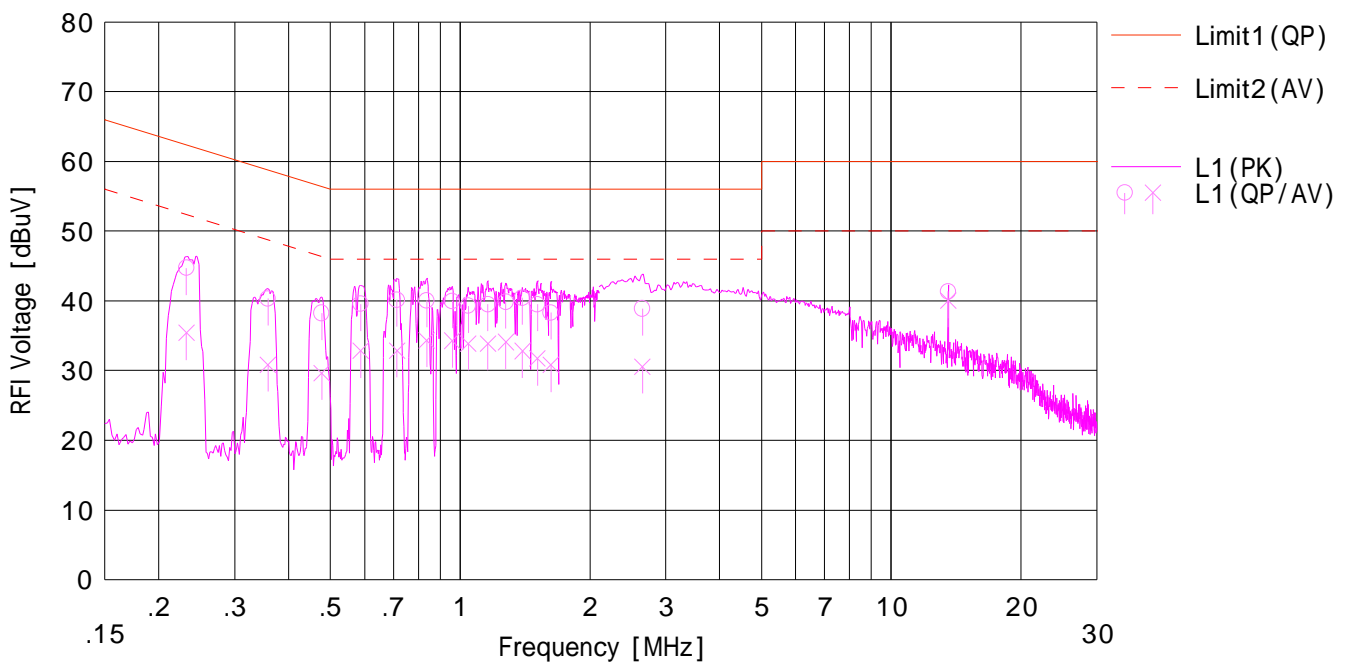
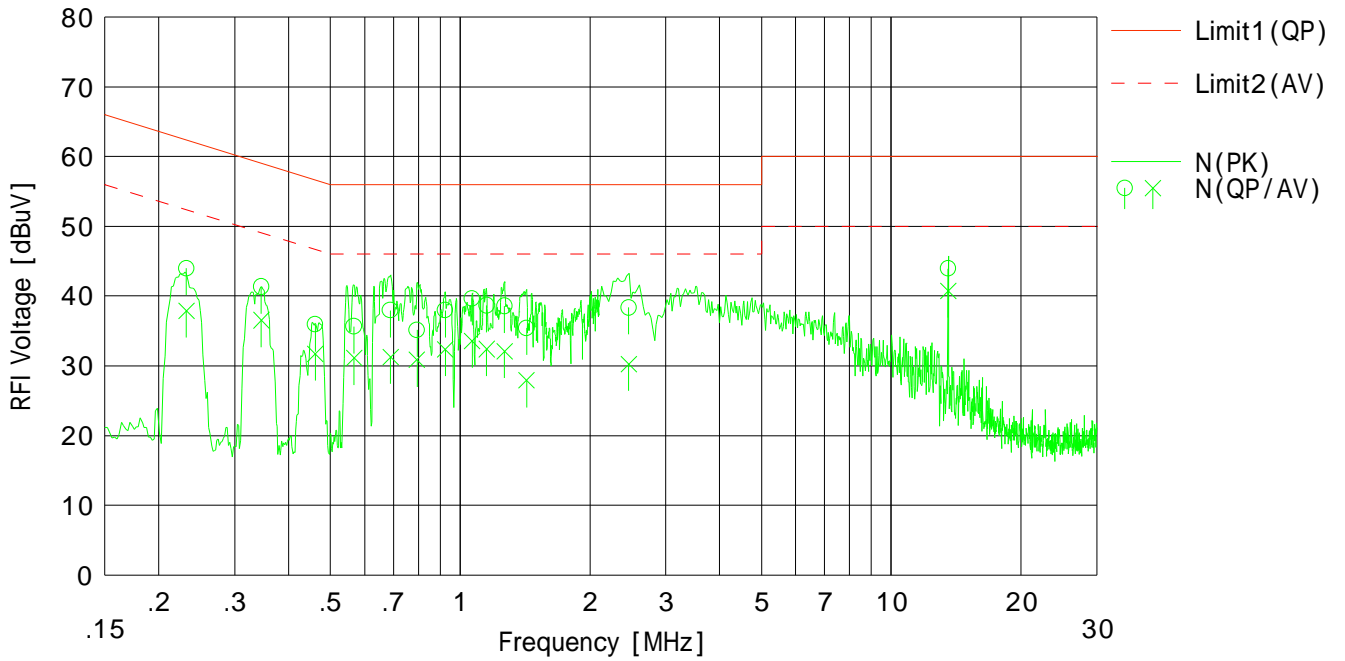
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Date : 2017/03/16

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : JAN-001
Serial No. : NJG000017176
Remarks : -

Mode : NFC type B transmitting
Order No. : 11656716S
Power : AC 120V / 60Hz
Temp./Humi. : 22 deg.C / 28 %RH

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

Engineer : Hiroyuki Morikawa



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

DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.3 Shielded Room
Date : 2017/03/16

Company : NINTENDO CO., LTD
Kind of EUT : Refer to section 2.2
Model No. : JAN-001
Serial No. : NJG000017176
Remarks : -

Mode : NFC type B transmitting
Order No. : 11656716S
Power : AC 120V / 60Hz
Temp./Humi. : 22 deg.C / 28 %RH

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

Engineer : Hiroyuki Morikawa

<< QP/AV DATA >>

No.	Freq. [MHz]	Reading		C.Fac [dB]	Results		Limit		Margin		Phase	Comment
		<QP>	<AV>		<QP>	<AV>	<QP>	<AV>	<QP>	<AV>		
		[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]		
1	0.23165	31.60	25.50	12.41	44.01	37.91	62.39	52.39	18.3	14.4	N	
2	0.34574	28.90	24.10	12.43	41.33	36.53	59.06	49.06	17.7	12.5	N	
3	0.46164	23.50	19.30	12.44	35.94	31.74	56.66	46.66	20.7	14.9	N	
4	0.56715	23.20	18.70	12.44	35.64	31.14	56.00	46.00	20.3	14.8	N	
5	0.68918	25.50	18.80	12.46	37.96	31.26	56.00	46.00	18.0	14.7	N	
6	0.79568	22.70	18.40	12.45	35.15	30.85	56.00	46.00	20.8	15.1	N	
7	0.92328	25.50	19.90	12.46	37.96	32.36	56.00	46.00	18.0	13.6	N	
8	1.06691	27.20	21.10	12.48	39.68	33.58	56.00	46.00	16.3	12.4	N	
9	1.15145	26.20	19.90	12.49	38.69	32.39	56.00	46.00	17.3	13.6	N	
10	1.26698	26.10	19.60	12.49	38.59	32.09	56.00	46.00	17.4	13.9	N	
11	1.42675	22.90	15.40	12.51	35.41	27.91	56.00	46.00	20.5	18.0	N	
12	2.45996	25.80	17.70	12.56	38.36	30.26	56.00	46.00	17.6	15.7	N	
13	13.56000	30.90	27.70	13.05	43.95	40.75	60.00	50.00	16.0	9.2	N	
14	0.23169	32.30	23.00	12.41	44.71	35.41	62.39	52.39	17.6	16.9	L1	
15	0.35819	27.90	18.40	12.43	40.33	30.83	58.77	48.77	18.4	17.9	L1	
16	0.47728	25.80	17.20	12.44	38.24	29.64	56.39	46.39	18.1	16.7	L1	
17	0.58888	27.10	20.40	12.45	39.55	32.85	56.00	46.00	16.4	13.1	L1	
18	0.71331	27.70	20.40	12.46	40.16	32.86	56.00	46.00	15.8	13.1	L1	
19	0.83673	27.60	21.90	12.45	40.05	34.35	56.00	46.00	15.9	11.6	L1	
20	0.95874	27.50	21.80	12.47	39.97	34.27	56.00	46.00	16.0	11.7	L1	
21	1.04480	26.80	21.40	12.48	39.28	33.88	56.00	46.00	16.7	12.1	L1	
22	1.15900	27.00	21.40	12.49	39.49	33.89	56.00	46.00	16.5	12.1	L1	
23	1.27712	27.40	21.60	12.49	39.89	34.09	56.00	46.00	16.1	11.9	L1	
24	1.39386	27.90	20.30	12.51	40.41	32.81	56.00	46.00	15.5	13.1	L1	
25	1.51202	27.00	19.20	12.51	39.51	31.71	56.00	46.00	16.4	14.2	L1	
26	1.62485	25.80	18.30	12.51	38.31	30.81	56.00	46.00	17.6	15.1	L1	
27	2.64796	26.30	18.00	12.57	38.87	30.57	56.00	46.00	17.1	15.4	L1	
28	13.56000	28.30	27.00	13.05	41.35	40.05	60.00	50.00	18.6	9.9	L1	

Data of Electric field strength of Fundamental emission and Spurious emission within the band: FCC15.225(a)(b)(c)

UL Japan, Inc.
Shonan EMC Lab., No.3 Semi Anechoic Chamber

Company: NINTENDO CO., LTD	Regulation: FCC Part15 Subpart C 15.225
Equipment: Refer to section 2.2	Test Distance: 3m
Model: JAN-001	Date: February 27, 2017
Sample No.: NJG000017176	Temperature: 22 deg.C
Power: AC 120 V/ 60 Hz	Humidity: 35 %RH
Mode: Transmitting 13.56 MHz	ENGINEER: Kazutaka Takeyama

Remarks: : NFC type B, with tag (Axis:Hor_Y / Ver_Y), Vertical polarization (antenna angle) of the worst case: 0deg

Fundamental emission

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	Loss [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.560	50.3	59.3	18.9	6.5	32.1	-40.0	3.5	12.5	83.9	80.4	71.4

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Distance factor: $40 \times \log(3\text{m}/30\text{m}) = -40 \text{ dB}$

Limits (30m)

• 13.553MHz to 13.567MHz : 83.9dBuV/m (FCC 15.225(a))

Spurious emission within the band

No.	FREQ [MHz]	Test Receiver Reading		Antenna Factor [dB/m]	Loss [dB]	AMP GAIN [dB]	Distance factor [dB]	RESULT		LIMIT (30m) [dBuV/m]	MARGIN	
		Hor [dBuV]	Ver [dBuV]					Hor [dBuV/m]	Ver [dBuV/m]		Hor [dB]	Ver [dB]
1	13.110	30.5	30.5	19.0	6.5	32.1	-40.0	-16.2	-16.2	29.5	45.7	45.7
2	13.410	30.3	30.5	18.9	6.5	32.1	-40.0	-16.5	-16.25	40.5	57.0	56.8
3	13.553	36.4	44.8	18.9	6.5	32.1	-40.0	-10.4	-2.0	50.4	60.8	52.4
4	13.567	36.2	44.4	18.9	6.5	32.1	-40.0	-10.6	-2.4	50.4	61.0	52.8
5	13.710	30.5	30.5	18.8	6.5	32.1	-40.0	-16.3	-16.32	40.5	56.8	56.8
6	14.010	30.6	30.6	18.8	6.5	32.1	-40.0	-16.3	-16.29	29.5	45.8	45.8

Calculation: Result[dBuV/m]=Reading[dBuV]+Ant.Fac[dB/m]+Loss(Cable+ATT)[dB]-Gain(AMP)[dB]+Distance factor[dB]

Outside filed strength frequencies

• Fc±7kHz: 13.553MHz to 13.567MHz

• Fc±150kHz: 13.410MHz to 13.710MHz

• Fc±450kHz: 13.110MHz to 14.010MHz

Fc = 13.56MHz

Limits (30m)

• 13.410MHz to 13.553MHz and 13.567MHz to 13.710MHz : 50.4dBuV/m (FCC 15.225(b))

• 13.110MHz to 13.410MHz and 13.710MHz to 14.010MHz : 40.5dBuV/m (FCC 15.225(c))

• Below 13.110MHz and Above 14.010MHz : 29.5dBuV/m (FCC 15.225(d) and FCC 15.209)

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Radiated Emission

UL Japan, Inc.
Shonan EMC Lab. No.3 Semi Anechoic Chamber

Company: NINTENDO CO., LTD	Regulation: FCC Part15 Subpart C 15.225
Equipment: Refer to section 2.2	Test Distance: 3m
Model: JAN-001	Date: February 27, 2017 February 28, 2017
Sample No.: NJG000017176	Temperature: 22 deg.C 23 deg.C
Power: AC 120 V/ 60 Hz	Humidity: 35 %RH 30 %RH
Mode: Transmitting 13.56 MHz	ENGINEER: Kazutaka TakeyamaKazutaka Takeyama
EUT axis: Below 30 MHz(Horizontal Y-axis, Vertical Y-axis), NFC type B, with Tag	
Above 30 MHz(Horizontal: X-axis, Vertical: X-axis), NFC type B, with Tag	

Remarks:

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	6.51	QP	30.6	19.1	6.3	32.2	-40.0	-16.1	29.5	45.6	-	359	* Limit: 30m
Hori.	27.12	QP	30.1	18.6	6.7	32.1	-40.0	-16.7	29.5	46.2	-	359	* Limit: 30m
Hori.	94.92	QP	34.8	9.1	7.6	32.1	0.0	19.4	43.5	24.1	200	266	
Hori.	201.087	QP	46.6	11.4	8.1	32.0	0.0	34.2	43.5	9.3	166	253	
Hori.	268.121	QP	35.2	12.3	8.5	31.9	0.0	24.1	46.0	21.9	100	1	
Hori.	938.634	QP	29.2	22.1	11.2	30.6	0.0	31.8	46.0	14.2	100	293	
Vert.	27.12	QP	30.5	18.6	6.7	32.1	-40.0	-16.3	29.5	45.8	-	359	* Limit: 30m
Vert.	43.57	QP	33.4	12.9	6.9	32.1	0.0	21.0	29.5	8.5	100	154	
Vert.	50.19	QP	31.6	10.7	7.0	32.1	0.0	17.1	29.5	12.4	100	289	
Vert.	77.437	QP	35.6	6.2	7.5	32.1	0.0	17.3	40.0	22.8	100	24	
Vert.	117.994	QP	30.0	12.6	7.4	32.1	0.0	17.9	43.5	25.6	225	2	
Vert.	201.087	QP	42.2	11.4	8.1	32.0	0.0	29.8	46.0	16.3	100	167	
Vert.	268.118	QP	32.8	12.3	8.5	31.9	0.0	21.7	46.0	24.3	100	105	

Result = Reading + Ant Factor + Loss (Cable+ATT+ΔAF(above 30MHz)) - Gain(Amplifier) + Distance factor(below 30MHz)

* Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

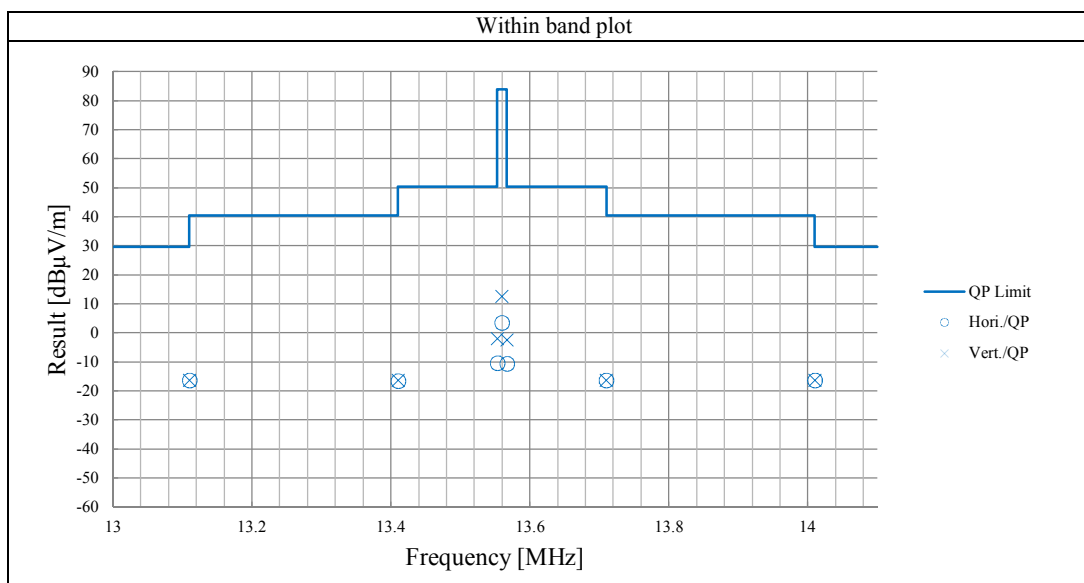
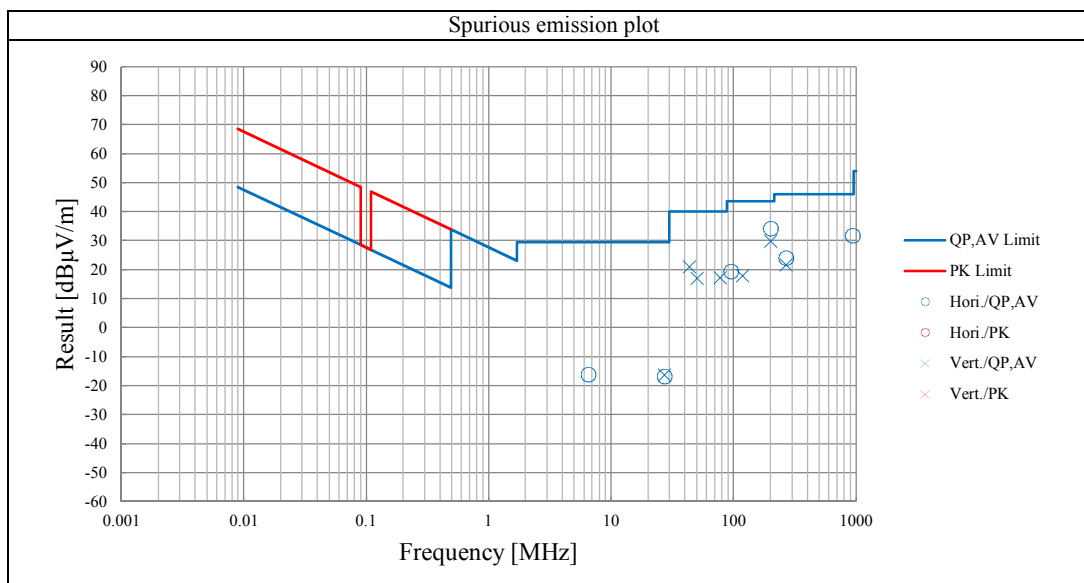
* Carrier level (Result at 3m): Hor= 43.5dBuV/m, Ver= 52.5 dBuV/m

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Radiated Emission (Worst mode plot)

UL Japan, Inc.
Shonan EMC Lab. No.3 Semi Anechoic Chamber

Company:	NINTENDO CO., LTD	Regulation:	FCC Part15 Subpart C 15.225
Equipment:	Refer to section 2.2	Test Distance:	3m
Model:	JAN-001	Date:	February 27, 2017
Sample No.:	NJG000017176	Temperature:	22 deg.C
Power:	AC 120 V/ 60 Hz	Humidity:	35 %RH
Mode:	Transmitting 13.56 MHz	ENGINEER:	Kazutaka Takeyama
EUT axis:	Below 30 MHz(Horizontal Y-axis, Vertical Y-axis), NFC type B, with Tag Above 30 MHz(Horizontal: X-axis, Vertical: X-axis), NFC type B, with Tag		
Remarks:	These plots data contains sufficient number to show the trend of characteristic features for EUT.		



Data of Frequency Tolerance

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded room

Company NINTENDO CO., LTD
 Equipment Refer to section 2.2
 Model JAN-001
 Serial No. NGE000000659
 Power DC 3.7 V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date March 2, 2017
 Temperature 19 deg.C
 Humidity 33 %RH
 ENGINEER Hikaru Shirasawa

Temperature Variation: -20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560011	0.000011	0.00008	0.010
after 2minutes	13.56	13.560047	0.000047	0.00035	0.010
after 5minutes	13.56	13.560051	0.000051	0.00038	0.010
after 10minutes	13.56	13.560053	0.000053	0.00039	0.010

Temperature Variation: -10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560055	0.000055	0.00041	0.010
after 2minutes	13.56	13.560071	0.000071	0.00052	0.010
after 5minutes	13.56	13.560073	0.000073	0.00054	0.010
after 10minutes	13.56	13.560074	0.000074	0.00055	0.010

Temperature Variation: 0deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560073	0.000073	0.00054	0.010
after 2minutes	13.56	13.560075	0.000075	0.00055	0.010
after 5minutes	13.56	13.560073	0.000073	0.00054	0.010
after 10minutes	13.56	13.560071	0.000071	0.00052	0.010

Temperature Variation: 10deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560068	0.000068	0.00050	0.010
after 2minutes	13.56	13.560061	0.000061	0.00045	0.010
after 5minutes	13.56	13.560056	0.000056	0.00041	0.010
after 10minutes	13.56	13.560052	0.000052	0.00038	0.010

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560048	0.000048	0.00035	0.010
after 2minutes	13.56	13.560036	0.000036	0.00027	0.010
after 5minutes	13.56	13.560028	0.000028	0.00021	0.010
after 10minutes	13.56	13.560024	0.000024	0.00018	0.010

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Data of Frequency Tolerance

Temperature Variation: 30deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560019	0.000019	0.00014	0.010
after 2minutes	13.56	13.560006	0.000006	0.00004	0.010
after 5minutes	13.56	13.560000	0.000000	0.00000	0.010
after 10minutes	13.56	13.559995	-0.000005	-0.00004	0.010

Temperature Variation: 40deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559989	-0.000011	-0.00008	0.010
after 2minutes	13.56	13.559976	-0.000024	-0.00018	0.010
after 5minutes	13.56	13.559972	-0.000028	-0.00021	0.010
after 10minutes	13.56	13.559970	-0.000030	-0.00022	0.010

Temperature Variation: 50deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.559966	-0.000034	-0.00025	0.010
after 2minutes	13.56	13.559960	-0.000040	-0.00029	0.010
after 5minutes	13.56	13.559959	-0.000041	-0.00030	0.010
after 10minutes	13.56	13.559958	-0.000042	-0.00031	0.010

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Data of Frequency Tolerance

UL Japan, Inc.

Shonan EMC Lab. No.5 Shielded room

Company NINTENDO CO., LTD
 Equipment Refer to section 2.2
 Model JAN-001
 Serial No. NGE000000659
 Power DC 3.7 V
 Mode Transmitting 13.56 MHz

Regulation FCC Part15 Subpart C 15.225 (e)
 Date March 3, 2017
 Temperature 20 deg.C
 Humidity 38 %RH
 ENGINEER Hikaru Shirasawa

Voltage Variation: DC 3.3 V

* Voltage was DC 3.3 V since the EUT did not operate with the voltage below 3.3 V.

Temperature Variation: 20deg.C

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560021	0.000021	0.00015	0.010
after 2minutes	13.56	13.560014	0.000014	0.00010	0.010
after 5minutes	13.56	13.560009	0.000009	0.00007	0.010
after 10minutes	13.56	13.560006	0.000006	0.00004	0.010

Voltage Variation: DC 4.255 V**Temperature Variation: 20deg.C**

Test Conditions	Original Frequency (MHz)	Measure Frequency (MHz)	Frequency Error (MHz)	Frequency tolerance (%)	Limit (%)
startup	13.56	13.560033	0.000033	0.00024	0.010
after 2minutes	13.56	13.560018	0.000018	0.00013	0.010
after 5minutes	13.56	13.560013	0.000013	0.00010	0.010
after 10minutes	13.56	13.560006	0.000006	0.00004	0.010

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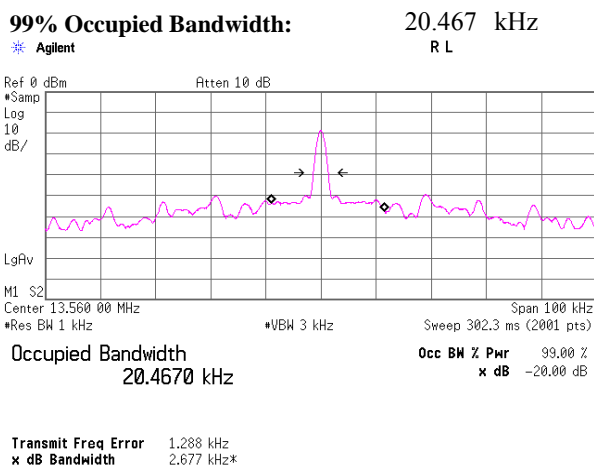
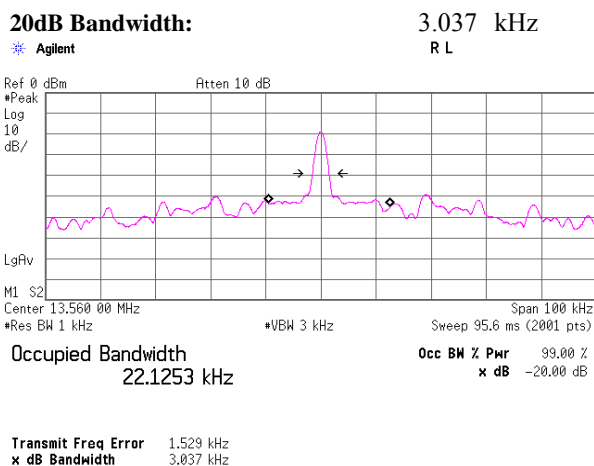
Facsimile : +81 463 50 6401

20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

UL Japan, Inc.
 Shonan EMC Lab. No.5 Shielded Room

Company: NINTENDO CO., LTD
 Equipment: Refer to section 2.2
 Model: JAN-001
 Sample No.: NJG000017176
 Power: DC 3.7 V
 Mode: Transmitting 13.56 MHz
 : NFC type B, with tag

Regulation: FCC Part15 Subpart C 15.215
 Date: March 2, 2017
 Temperature: 19 deg.C
 Humidity: 33 %RH
 ENGINEER: Hikaru Shirasawa



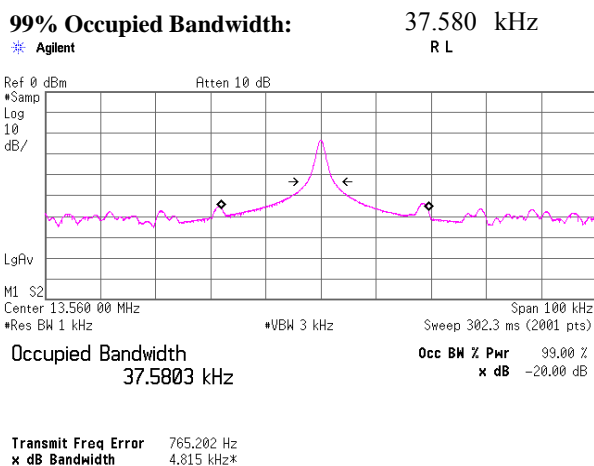
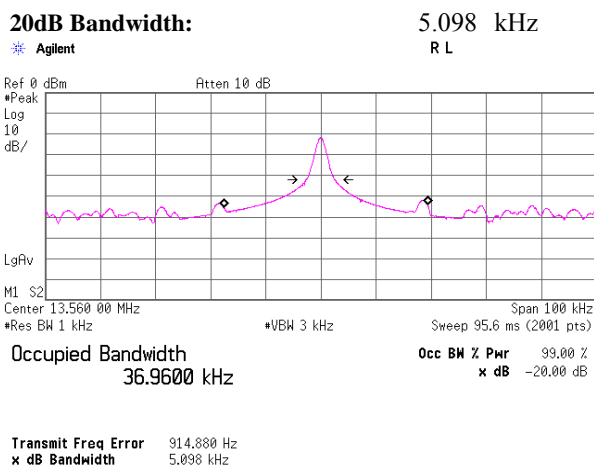
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20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

UL Japan, Inc.
 Shonan EMC Lab. No.5 Shielded Room

Company: NINTENDO CO., LTD
 Equipment: Refer to section 2.2
 Model: JAN-001
 Sample No.: NJG000017176
 Power: DC 3.7 V
 Mode: Transmitting 13.56 MHz
 : NFC type A, with tag

Regulation: FCC Part15 Subpart C 15.215
 Date: March 2, 2017
 Temperature: 19 deg.C
 Humidity: 33 %RH
 ENGINEER: Hikaru Shirasawa



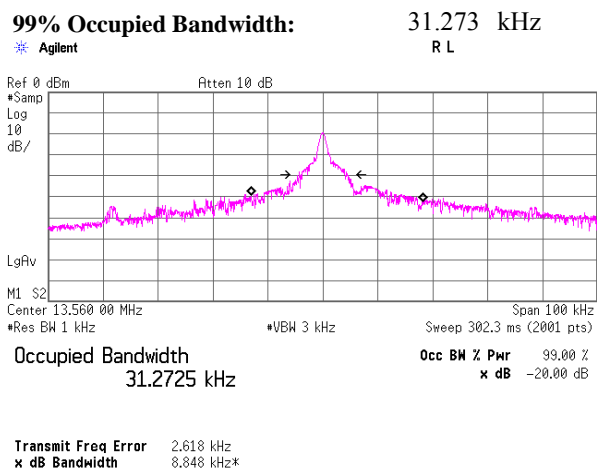
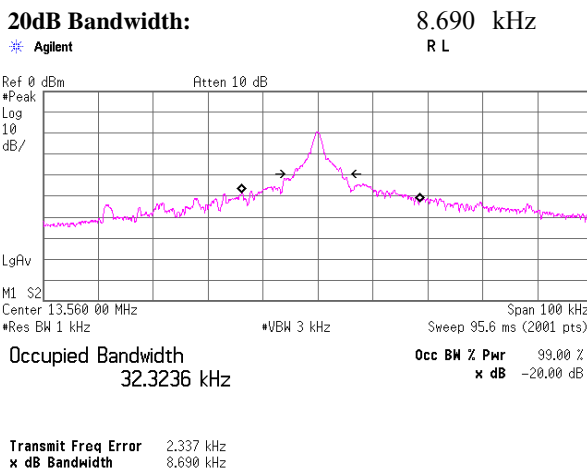
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20dB bandwidth & 99% Occupied bandwidth: FCC 15.215 / RSS-Gen

UL Japan, Inc.
 Shonan EMC Lab. No.5 Shielded Room

Company: NINTENDO CO., LTD
 Equipment: Refer to section 2.2
 Model: JAN-001
 Sample No.: NJG000017176
 Power: DC 3.7 V
 Mode: Transmitting 13.56 MHz
 : NFC type F, with tag

Regulation: FCC Part15 Subpart C 15.215
 Date: March 2, 2017
 Temperature: 19 deg.C
 Humidity: 33 %RH
 ENGINEER: Hikaru Shirasawa



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APPENDIX 2 Test Instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
SAEC-03(NSA)	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	RE	2016/07/15 * 12
SLP-02	Loop Antenna	Rohde & Schwarz	HFH2-Z2	100218	RE	2016/10/28 * 12
SAT6-12	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2016/08/04 * 12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141PE/NS4906	-/0901-271(RF Selector)	RE	2016/04/22 * 12
SAF-03	Pre Amplifier	SONOMA	310N	290213	RE	2017/02/09 * 12
STR-06	Test Receiver	Rohde & Schwarz	ESCI	101259	RE, CE	2016/03/28 * 12
COTS-SEMI-1	EMI Software	TSJ	TEPTO-DV(RE,CE, RFLMF)	-	RE, CE	-
SOS-05	Humidity Indicator	A&D	AD-5681	4062518	RE	2016/10/12 * 12
SJM-02	Measure	KOMELON	KMC-36	-	RE, CE	-
STS-03	Digital Hitester	Hioki	3805-50	080997823	RE, CE	2016/10/17 * 12
SBA-03	Biconical Antenna	Schwarzbeck	BBA9106	91032666	RE	2016/10/18 * 12
SLA-07	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	RE	2017/01/26 * 12
SAT6-08	Attenuator	HIROSE ELECTRIC CO.,LTD.	AT-406(40)	-	RE	2016/08/04 * 12
SFC-01	Microwave Counter	Agilent	53151A	US40511493	AT	2016/04/13 * 12
SCH-01	Temperature and Humidity Chamber	Espec	PL-1KT	14020837	AT	2016/04/14 * 12
SCC-G14	Coaxial Cable	Suhner	SUCOFLEX 102	31600/2	AT	2016/03/23 * 12
SAT10-09	Attenuator	Weinschel Corp.	54A-10	W5692	AT	2016/11/07 * 12
SOS-09	Humidity Indicator	A&D	AD-5681	4061484	AT,TF	2016/12/13 * 12
KTS-07	Digital Tester	SANWA	PC500	7019232	AT,TF	2016/10/17 * 12
STF-01	Test Fixture	-	-	-	TF	-
SSA-03	Spectrum Analyzer	Agilent	E4448A	MY48250152	TF	2016/09/26 * 12
SCC-C9/C10/SRSE-03	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	CE	2016/04/22 * 12
SLS-05	LISN	Rohde & Schwarz	ENV216	100516	CE	2017/02/27 * 12
SAT3-07	Attenuator	JFW	50HF-003N	-	CE	2016/09/23 * 12
SOS-06	Humidity Indicator	A&D	AD-5681	4062118	CE	2016/12/13 * 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,

AT: Antenna terminal conducted test (Frequency tolerance),

TF: Test Fixture (Bandwidth)