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: 12656071S-V-R1

: September 27, 2019 FCC ID : BKEHDH002

# **RADIO TEST REPORT**

Test Report No.: 12656071S-V-R1

**Applicant** Nintendo Co., Ltd.

**Type of Equipment Game Console** 

**HDH-002** Model No.

FCC ID **BKEHDH002** 

**Test regulation** FCC Part 15 Subpart C: 2019

\* NFC part

**Test Result Complied (Refer to SECTION 3.2)** 

**Test Item Spurious Emission** 

Purpose of test spot check

- 1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
- 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. This test report must not be used by the customer to claim product certification, approval, or endorsement by any agency of the Federal Government.
- 6. This test report covers Radio technical requirements. It does not cover administrative issues such as Manual or non-Radio test related Requirements. (if
- 7. The all test items in this test report are conducted by UL Japan, Inc. Shonan EMC Lab.
- The opinions and the interpretations to the result of the description in this report are outside scopes where UL Japan has been accredited.
- 9. The information provided from the customer for this report is identified in SECTION 1.
- This report is a revised version of 12656071S-V. 12656071S-V is replaced with this report. 10.

| Date of test:                 | December 24, 2018            |  |  |
|-------------------------------|------------------------------|--|--|
| Representative test engineer: | M. Hacaka                    |  |  |
| •                             | Makoto Hosaka                |  |  |
|                               | 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".

UL Japan, Inc. **Shonan EMC Lab.** 

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# **REVISION HISTORY**

Original Test Report No.: 12656071S-V

| Revision     | Test report No. | Date          | Page revised | Contents                           |
|--------------|-----------------|---------------|--------------|------------------------------------|
| - (Original) | 12656071S-V     | July 30, 2019 | -            | -                                  |
| 1            | 12656071S-V-R1  | September 27, | 5            | Addition of product description as |
|              |                 | 2019          |              | below,                             |
|              |                 |               |              | The EUT is intended to be used for |
|              |                 |               |              | software development or events.    |

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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

The information provided from the customer is as follows;

- Applicant, Type of Equipment, Model No., FCC ID on the cover and other relevant pages
- Operating/Test Mode(s) (Mode(s)) on all the relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (E.U.T.)
- SECTION 4: Operation of E.U.T. during testing
- \* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2 and 4.

# **SECTION 2:** Equipment under test (E.U.T.)

#### 2.1 Identification of E.U.T.

Type of Equipment : Game Console Model No. : HDH-002

Serial No. : Refer to Section 4.2 Rating : DC 3.8 V (battery),

AC Adapter input: AC 100 V - 240 V, 50 Hz / 60 Hz, 1 A,

AC Adapter output: DC 5 V - DC 15 V, 2.6 A

Receipt Date of Sample : December 19, 2018

(Information from test lab.)

Country of Mass-production : China

Condition of EUT : Engineering prototype

(Not for Sale: This sample is equivalent to mass-produced items.)

Modification of EUT : No Modification by the test lab.

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#### 2.2 Product Description

Model: HDH-002 (referred to as the EUT in this report) is a Game Console.

#### **Radio Specification**

Wireless LAN, Bluetooth part:

Equipment type : Transmitter

Frequency of operation : Wireless LAN part: (2.4 GHz): 2412 MHz - 2472 MHz,

(U-NII-1): 5180 MHz - 5240 MHz, (U-NII-2A): 5260 MHz - 5320 MHz,

Bluetooth (BDR/EDR/BTLE) part: 2402 MHz - 2480 MHz

Radio part clock frequency : 37.4 MHz

Channel spacing : Wireless LAN part: (2.4 GHz): 5 MHz, (5 GHz): 20 MHz,

Bluetooth part: (BDR/EDR): 1 MHz, (BT LE): 2 MHz

Type of modulation : Wireless LAN part:

2.4 GHz bands: DBPSK, DQPSK, CCK, OFDM,

5 GHz bands: OFDM Bluetooth (BT) part:

BDR (Basic Data Rate): GFSK,

EDR (Enhanced Data Rate): π/4-DQPSK, 8DPSK,

BT LE (Low Energy mode): GFSK

Antenna type : Sheet metal antenna

Antenna connector type : (Ant: 0): MHF2, (Ant: 1): MHF2

Antenna gain : 2.4 GHz bands: (Ant: 0): -0.904 dBi, (Ant: 1): -0.730 dBi

5 GHz bands: (Ant: 0): 2.949 dBi, (Ant: 1): 1.994 dBi

Power Supply (radio part input) : DC 1.8 V, DC 3.3 V Operation temperature range : +5 deg.C to +35 deg.C

Remarks: This wireless module consists of 1 chip each of 5 GHz bands and 2.4 GHz bands.

(NFC part)

Equipment type : Transmitter
Frequency of operation : 13.56 MHz
Radio part clock frequency : 27.12 MHz
Type of modulation : ASK

Power Supply (radio part input) : DC 1.8 V, DC 5.0 V

Antenna type : Ferrite Chip Antenna

Operation temperature range : +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 July 19, 2019 and effective August 19, 2019 except 15.258

Title : FCC 47CFR Part15 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 and results

| Item   | Test Procedure  | Specification                      | Worst Margin                       | Results   | Remarks  |
|--|---|------------------------------------|------------------------------------|-----------|----------|
| Electric field<br>strength of                      | ANSI C63.10:2013 6. Standard test methods                         | FCC 15.225 (a)                     | 56.3 dB (Vertical, OP)             | Complied  | Radiated |
| fundamental<br>emission                            | RSS-Gen 6.4, 6.12   | RSS-210 B.6                        | 30.3 dB (Vertical, QP)             | a)        | Kadiated |
| Electric field<br>strength of                      |   | 27.5 dD (14.105 MHz, Ventical, OD) | Complied                           | Radiated  |          |
| outside the allocated bands                        | RSS-Gen 6.4,<br>RSS-Gen 6.13                                      | RSS-210 B.6                        | 37.5 dB (14.195 MHz, Vertical, QP) | a)        | Radiated |
| Electric field<br>strength of<br>spurious emission | ANSI C63.10:2013<br>6. Standard test methods<br>RSS-Gen 6.4, 6.13 |                                    |                                    | Complied# | Radiated |
| spurious emission                                  | RSS-Gen 6.11, 8.11  | RSS-210 B.6                        |                                    |           |          |

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

a) Refer to APPENDIX 1 (data of Radiated emission)

Symbols:

Complied The data of this test item has enough margin, more than the measurement uncertainty.

Complied# The data of this test item meets the limits unless the measurement uncertainty is taken into consideration.

# FCC Part 15.31 (e)

This EUT provides the stable voltage constantly to RF Module regardless of input voltage. Therefore, this 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 equipment complies with the antenna requirement.

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<sup>\*</sup> The revisions made after testing date do not affect the test specification applied to the EUT.

<sup>\*</sup> Also the EUT complies with FCC Part 15 Subpart B.

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# 3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

#### 3.4 Uncertainty

There is no applicable rule of uncertainty in this applied standard. Therefore, the results are derived depending on whether or not laboratory uncertainty is applied.

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  | 2.9 dB            | 2.8 dB         | 2.9 dB         | 2.9 dB         | 2.9 dB       |
| Radiated emission                  | 9 kHz-30 MHz    | 3.0 dB            | 3.0 dB         | 3.1 dB         | -              | -            |
| (Measurement distance: 3 m)        | 30 MHz-200 MHz  | 4.6 dB            | 4.6 dB         | 4.7 dB         | -              | -            |
|                                    | 200 MHz-1 GHz   | 6.0 dB            | 6.0 dB         | 6.1 dB         | -              | -            |
|                                    | 1 GHz-6 GHz     | 4.8 dB            | 4.8 dB         | 4.8 dB         | -              | -            |
|                                    | 6 GHz-18 GHz    | 5.4 dB            | 5.4 dB         | 5.4 dB         | -              | -            |
|                                    | 18 GHz-40 GHz   | 5.6 dB            | 5.6 dB         | 5.6 dB         | -              | -            |

SAC=Semi-Anechoic Chamber

SR= Shielded Room is applied besides radiated emission

| Antenna terminal test | Uncertainty (+/-) |
|-----------------------|-------------------|
| Bandwidth Measurement | 0.61 %            |
| Frequency Measurement | 2.9 E-5           |
| Temperature           | 0.59 deg.C.       |
| Humidity              | 3.60%             |
| Voltage               | 0.74%             |

#### 3.5 Test Location

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Telephone: +81 463 50 6400, Facsimile: +81 463 50 6401

JAB Accreditation No. RTL02610 (FCC Test Firm Registration Number: 839876, ISED Lab Company Number: 2973D)

| Test site                  | Width x Depth x Height (m) | Size of reference ground plane (m) / horizontal conducting plane | Maximum measurement distance |
|----------------------------|----------------------------|--|------------------------------|
| No.1 Semi-anechoic chamber | 20.6 x 11.3 x 7.65         | 20.6 x 11.3  | 10 m                         |
| No.2 Semi-anechoic chamber | 20.6 x 11.3 x 7.65         | 20.6 x 11.3  | 10 m                         |
| No.3 Semi-anechoic chamber | 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 data, Test instruments, and Test set up

Refer to APPENDIX.

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

# 4.1 **Operating Mode(s)**

| Test item            | Operating mode                         | Tested frequency |
|----------------------|--|------------------|
| All items except for | Transmitting 13.56 MHz                 | 13.56 MHz        |
| Frequency            |  |                  |
| Tolerance            |  |                  |
| Frequency            | Transmitting 13.56 MHz (Non-modulated) | 13.56 MHz        |
| Tolerance            |  |                  |

Software for testing: Controller NFC Checker Ver.B.01

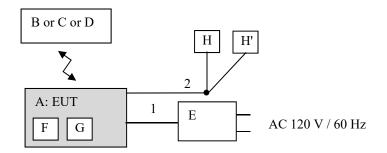
Power setting: Fixed

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 (Type F)           | With Tag (Type F)                | With Tag (Type F)                |

# 4.2 Configuration and peripherals



<sup>\*</sup> Test data was taken under worse case conditions.

**Description of EUT and support equipment** 

| No.   | Item          | Model number | Serial number  | Manufacturer       | Remarks |
|-------|---------------|--------------|----------------|--------------------|---------|
| A     | Game Console  | HDH-002      | XJW01000021132 | Nintendo Co., Ltd. | EUT     |
| В     | Tag (type A)  | NVL-001      | -              | Nintendo Co., Ltd. | Type A  |
| C     | Tag (type B)  | -            | -              | -                  | Type B  |
| D     | Tag (type F)  | -            | -              | -                  | Type F  |
| Е     | AC Adapter    | HAC-002      | -              | Nintendo Co., Ltd. | -       |
| F     | Game Card     | HAC-008      | DFCAA22L000    | Nintendo Co., Ltd. | -       |
| G     | Micro SD Card | -            | -              | Transcend          | -       |
| H, H' | Headphone     | -            | -              | Nintendo Co., Ltd. | -       |

#### List of cables used

| No. | Cable Name | Longth (m) | Shield     |            | Remark |
|-----|------------|------------|------------|------------|--------|
|     |            | Length (m) | Cable      | Connector  |        |
| 1   | USB        | 1.8        | Shielded   | Shielded   | -      |
| 2   | Headphone  | 0.5 + 0.3  | Unshielded | Unshielded | -      |

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# SECTION 5: Radiated Emission (Electric field strength of Fundamental emission and Spurious emission within the band)

#### **Test Procedure**

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 expanded polystyrol and expanded polypropylene and the table top is covered with polycarbonate. That has very low permittivity.

The Radiated Electric Field Strength has been measured in a Semi Anechoic Chamber with a ground plane.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are 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 414788.

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 m 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 &  | 90 kHz to | 150 kHz    | 490 kHz to | 30 MHz to 1 GHz       |
|-----------------|--------------------|-----------|------------|------------|-----------------------|
|                 | 110 kHz to 150 kHz | 110 kHz   | to 490 kHz | 30 MHz     |                       |
| Detector Type   | PK/AV              | QP        | PK/AV      | QP         | QP                    |
| IF Bandwidth    | 200 Hz             | 200 Hz    | 10 kHz     | 9 kHz      | 120 kHz               |
| Distance factor | -80 dB             | -80 dB    | -80 dB     | -40 dB     | =                     |
| *1)             |                    |           |            |            |                       |
| Measuring       |                    | Loop ante | enna       |            | Biconical             |
| antenna         |                    |           |            |            | (30 MHz - 199.99 MHz) |
|                 |                    |           |            |            | Logperiodic           |
|                 |                    |           |            |            | (200 MHz - 1 GHz)     |

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

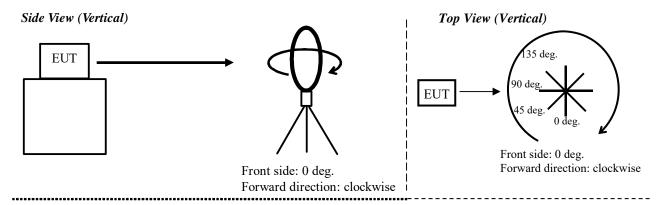
Distance Factor:  $40 \times \log (3 \text{ m} / 300 \text{ m}) = -80 \text{ dB}$ Distance Factor:  $40 \times \log (3 \text{ m} / 300 \text{ m}) = -40 \text{ dB}$ 

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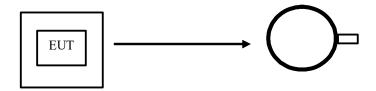
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Figure 1: Direction of the Loop Antenna

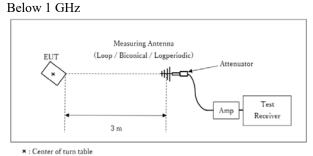


#### Top View (Horizontal)



Antenna was not rotated.

Figure 2: Test Setup



Test Distance: 3 m

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

| Antenna      | Below 30 MHz | Above 30 MHz |
|--------------|--------------|--------------|
| polarization |              |              |
| Horizontal   | Y            | X            |
| Vertical     | Z            | X            |

The test results and limit are rounded off to one decimal place, so some differences might be observed.

Measurement range : 9 kHz - 1 GHz : APPENDIX Test data Test result : Pass

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APPENDIX 1: Data of Radio tests Report No.: 12656071S-V-R1

# **Radiated Emission**

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

UL Japan, Inc.

Shonan EMC Lab., No.2 Semi Anechoic Chamber

Company: Nintendo Co., Ltd. Regulation: FCC Part15 Subpart C 15.225

Equipment: Game Console Test Distance: 3 m

Model: HDH-002 Date: December 24, 2018

Sample No.:XJW01000021132Temperature:18 deg.CPower:AC 120 V/ 60 Hz (AC adaptor input)Humidity:42 %RHMode:Transmitting 13.56 MHzENGINEER:Makoto Hosaka

Remarks: : NFC type F (Axis: Ver\_Z), Vertical polarization (antenna angle) of the worst case: 0deg

#### **Fundamental emission**

| N | No. | FREQ   | Test Receiver |        | Antenna | Loss | AMP  | Distance | RESULT   | LIMIT    | MARGIN |
|---|-----|--------|---------------|--------|---------|------|------|----------|----------|----------|--------|
|   |     |        | Reading       |        | Factor  |      | GAIN | factor   |          | (30 m)   |        |
|   |     |        |               | Ver    |         |      |      |          | Ver      |          | Ver    |
|   |     | [MHz]  |               | [dBuV] | [dB/m]  | [dB] | [dB] | [dB]     | [dBuV/m] | [dBuV/m] | [dB]   |
|   | 1   | 13.560 |               | 73.8   | 19.1    | 6.6  | 31.9 | -40.0    | 27.6     | 83.9     | 56.3   |

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

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

Limits (30 m)

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

#### Spurious emission within the band

| No. | FREQ   | Test Receiver |        | Antenna | Loss | AMP  | Distance | RESULT   | LIMIT    | MARGIN |
|-----|--------|---------------|--------|---------|------|------|----------|----------|----------|--------|
|     |        | Reading       |        | Factor  |      | GAIN | factor   |          | (30 m)   |        |
|     |        |               | Ver    |         |      |      |          | Ver      |          | Ver    |
|     | [MHz]  |               | [dBuV] | [dB/m]  | [dB] | [dB] | [dB]     | [dBuV/m] | [dBuV/m] | [dB]   |
| 1   | 12.925 |               | 35.9   | 19.2    | 6.6  | 31.9 | -40.0    | -10.2    | 29.5     | 39.7   |
| 2   | 13.110 |               | 30.2   | 19.2    | 6.6  | 31.9 | -40.0    | -16.0    | 29.5     | 45.5   |
| 3   | 13.348 |               | 45.7   | 19.2    | 6.6  | 31.9 | -40.0    | -0.5     | 40.5     | 41.0   |
| 4   | 13.410 |               | 33.9   | 19.2    | 6.6  | 31.9 | -40.0    | -12.3    | 40.5     | 52.8   |
| 5   | 13.553 |               | 58.6   | 19.1    | 6.6  | 31.9 | -40.0    | 12.4     | 50.4     | 38.0   |
| 6   | 13.567 |               | 59.1   | 19.1    | 6.6  | 31.9 | -40.0    | 12.9     | 50.4     | 37.5   |
| 7   | 13.710 |               | 34.5   | 19.1    | 6.6  | 31.9 | -40.0    | -11.8    | 40.5     | 52.3   |
| 8   | 13.772 |               | 46.8   | 19.1    | 6.6  | 31.9 | -40.0    | 0.5      | 40.5     | 40.0   |
| 9   | 14.010 |               | 30.2   | 19.1    | 6.6  | 31.9 | -40.0    | -16.1    | 29.5     | 45.6   |
| 10  | 14.195 |               | 38.3   | 19.0    | 6.6  | 31.9 | -40.0    | -8.0     | 29.5     | 37.5   |

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

#### Outside filed strength frequencies

- ·Fc±7 kHz: 13.553 MHz to 13.567 MHz
- $\cdot$ Fc $\pm$ 150 kHz:13.410 MHz to 13.710 MHz
- $\cdot$ Fc $\pm$ 450 kHz:13.110 MHz to 14.010 MHz

Fc = 13.56 MHz

#### Limits (30 m)

- ·13.410 MHz to 13.553 MHz and 13.567 MHz to 13.710 MHz : 50.4 dBuV/m (FCC 15.225(b))
- ·13.110 MHz to 13.410 MHz and 13.710 MHz to 14.010 MHz : 40.5 dBuV/m (FCC 15.225(c))
- ·Below 13.110 MHz and Above 14.010 MHz : 29.5 dBuV/m (FCC 15.225(d)and FCC 15.209)

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Report No.: 12656071S-V-R1

# **Radiated Emission**

UL Japan, Inc.

Shonan EMC Lab. No.2 Semi Anechoic Chamber

Company: Nintendo Co., Ltd. Regulation: FCC Part15 Subpart C 15.225

Equipment: Game Console Test Distance: 3 r

Model: HDH-002 Date: December 24, 2018

Sample No.:XJW01000021132Temperature:18 deg.CPower:AC 120 V/60 Hz (AC adaptor input)Humidity:42 %RHMode:Transmitting 13.56 MHzENGINEER:Makoto Hosaka

EUT axis: Below 30 MHz( Vertical: Z-axis), NFC type F, with Tag

Above 30 MHz( Vertical: X-axis), NFC type F, with Tag

Remarks: -

| Polarity | Frequency | Detector | Reading | Ant.Fac. | Loss | Gain | Distance Factor | Result   | Limit    | Margin | Height | Angle  | Remark        |
|----------|-----------|----------|---------|----------|------|------|-----------------|----------|----------|--------|--------|--------|---------------|
|          | [MHz]     |          | [dBuV]  | [dB/m]   | [dB] | [dB] | [dB]            | [dBuV/m] | [dBuV/m] | [dB]   | [cm]   | [deg.] |               |
| Vert.    | 27.120    | QP       | 29.8    | 18.6     | 6.9  | 31.9 | -40.0           | -16.7    | 29.5     | 46.1   | -      | 0      | * Limit: 30 m |
| Vert.    | 40.620    | QP       | 45.7    | 14.6     | 7.0  | 31.9 | 0.0             | 35.3     | 40.0     | 4.7    | 100    | 352    |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |
|          |           |          |         |          |      |      |                 |          |          |        |        |        |               |

 $Result = Reading + Ant Factor + Loss (Cable + ATT + \Delta AF(above \ 30 \ MHz)) - Gain(Amprifier) + Distance \ factor(below \ 30 \ MHz)$ 

UL Japan, Inc. Shonan EMC Lab.

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa, Japan 259-1220

<sup>\*</sup> Carrier level (Result at 3 m): Hor= -6.2 dBuV/m, Ver= 67.6 dBuV/m

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# **Radiated Emission (Worst mode plot)**

UL Japan, Inc.

Shonan EMC Lab. No.2 Semi Anechoic Chamber

Company: Nintendo Co., Ltd. Regulation: FCC Part15 Subpart C 15.225

Equipment: Game Console Test Distance: 3 n

 Model:
 HDH-002
 Date:
 December 24, 2018

 Sample No.:
 XJW01000021132
 Temperature:
 18 deg.C

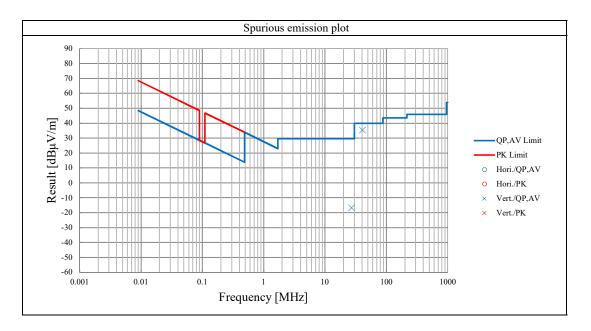
Power: AC 120 V/60 Hz (AC adaptor input) Humidity: 42 %RH

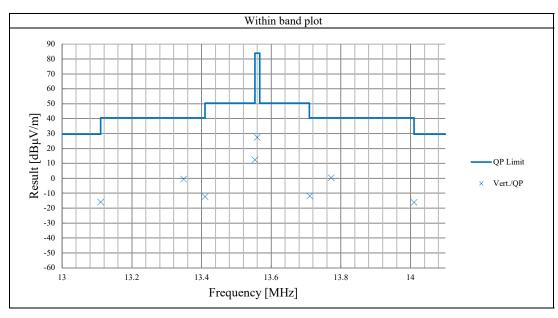
Mode: Transmitting 13.56 MHz ENGINEER: Makoto Hosaka

EUT axis: Below 30 MHz( Vertical: Z-axis), NFC type F, with Tag

Above 30 MHz( Vertical: X-axis), NFC type F, with Tag

Remarks: These plots data contains sufficient number to show the trend of characteristic features for EUT.





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# **APPENDIX 2**

Test Instruments

# EMI test equipment

| Local ID                                   | Test Name LIMS ID Description Manufact |        | Manufacturer                    | Model  | Serial                                 | Last<br>Calibration<br>Date    | Calibration<br>Due Date | Calibration<br>Interval<br>(Month) |    |
|--|--|--------|---------------------------------|--|--|--------------------------------|-------------------------|------------------------------------|----|
| COTS-SEMI-<br>5                            | RE                                     | 170932 | EMI Software                    | TSJ  | TEPTO-<br>DV3(RE,CE,ME,PE)             | -                              | -                       | -                                  | -  |
| SAEC-<br>02(NSA)                           | RE                                     | 145563 | Semi-Anechoic<br>Chamber        | TDK  | SAEC-02(NSA)                           | 2                              | 2018/5/31               | 2019/5/31                          | 12 |
| SAF-02                                     | RE                                     | 145004 | Pre Amplifier                   | SONOMA   | 310N                                   | 290212                         | 2019/2/5                | 2020/2/29                          | 12 |
| SAT3-11                                    | RE                                     | 150921 | Attenuator                      | JFW  | 50HF-003N                              | -                              | 2019/1/25               | 2020/1/31                          | 12 |
| SAT6-02                                    | RE                                     | 145045 | Attenuator                      | JFW  | 50HF-006N                              | -                              | 2019/2/5                | 2020/2/29                          | 12 |
| SAT6-12                                    | RE                                     | 145158 | Attenuator                      | HIROSE<br>ELECTRIC   | AT-406(40)                             | -                              | 2018/8/23               | 2019/8/31                          | 12 |
| SBA-02                                     | RE                                     | 145022 | Biconical Antenna               | Schwarzbeck  | BBA9106                                | 91032665                       | 2018/6/5                | 2019/6/30                          | 12 |
| SCC-<br>B1/B3/B5/B7/<br>B8/B13/SRSE<br>-02 | RE                                     | 144975 | Coaxial<br>Cable&RF<br>Selector | Fujikura/Fujikura/S<br>uhner/Suhner/Suhner<br>/Suhner/TOYO | 8D2W/12DSFA/141P<br>E/141PE/141PE/141P | -/0901-<br>270(RF<br>Selector) | 2018/4/9                | 2019/4/30                          | 12 |
| SCC-<br>B2/B4/B6/B7/<br>B8/B13/SRSE<br>-02 | RE                                     | 144976 | Coaxial<br>Cable&RF<br>Selector | Fujikura/Fujikura/S<br>uhner/Suhner/Suhner<br>/Suhner/TOYO | 8D2W/12DSFA/141P<br>E/141PE/141PE/141P | -/0901-<br>270(RF<br>Selector) | 2018/4/7                | 2019/4/30                          | 12 |
| SJM-09                                     | RE                                     | 145336 | Measure                         | PROMART  | SEN1935                                | -                              | -                       | -                                  | -  |
| SLA-06                                     | RE                                     | 145528 | Logperiodic<br>Antenna          | Schwarzbeck  | VUSLP9111B                             | 195                            | 2018/6/5                | 2019/6/30                          | 12 |
| SLP-02                                     | RE                                     | 145536 | Loop Antenna                    | Rohde & Schwarz  | HFH2-Z2                                | 100218                         | 2018/10/10              | 2019/10/31                         | 12 |
| SOS-03                                     | RE                                     | 146317 | Humidity<br>Indicator           | A&D  | AD-5681                                | 4063325                        | 2018/10/25              | 2019/10/31                         | 12 |
| STR-07                                     | RE                                     | 146209 | Test Receiver                   | Rohde & Schwarz  | ESU26                                  | 100484                         | 2018/9/26               | 2019/9/30                          | 12 |
| STS-02                                     | RE                                     | 145793 | Digital Hitester                | HIOKI  | 3805-50                                | 80997819                       | 2018/3/8                | 2019/3/31                          | 12 |

<sup>\*</sup>Hyphens for Last Calibration Date, Calibration Due Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

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:

RE: Radiated emission

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