TEST REPORT

Report Number : A-001-14-C

Date of Issue: 30 June 2014

FCC Rules and Regulations Part 15 Subpart C Intentional Radiators.

This test report is to certify that the device was tested according to the requirements of the above.
The results of this report should not be construed to imply compliance of devices other than the sample tested.
Without the laboratory approval by the documents, this report should not be copied in part.

1. Applicant

Company Name	: INTELLIGENT SYSTEMS CO.,LTD.
Mailing Address	: 10 Daimotsu-cho Kamitoba Minami-ku Kyoto-shi Kyoto-fu 601-8121 Japan

2. Identification of Tested Device

Type of Device	: Transmitter
FCC ID	: SRX-SZK001
Device Name	: Software Development tool
Model Number	: SRX-SZKFULL
Serial Number	: 3100635[6]
Trade Name	: INTELLIGENT SYSTEMS CO.,LTD.
Type of Test	: ☐ Production ☒ Pre-production ☐ Prototype

3. Test Items

AC Power Line Conducted Emission Measurement	☒ Pass	☐ Fail	☐ N/A
Radiated Emission (The Frequency Range of 9kHz to 30MHz)	☒ Pass	☐ Fail	☐ N/A
Radiated Emission (The Frequency Range of above 30MHz)	☒ Pass	☐ Fail	☐ N/A
20dB Bandwidth Measurement	☒ Pass	☐ Fail	☐ N/A
Frequency Tolerance of Carrier Signal	☒ Pass	☐ Fail	☐ N/A

Refer the below reason(s) with respect to the decision and justification not to test.
(*1) EUT Specifications (*2) Request of Applicant (*3) According to Test Plan

KEC Electronic Industry Development Center Testing Division
3-2-2, Hikari-dai, Seika-cho, Soraku-gun, Kyoto 619-0237 Japan

Test Engineer(s)

Naoki Norimoto

Testing RTL02810

Approved by Ikuya Minematsu / Group Manager

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0. REVISION HISTORY

Report Version	Page	Description	Date of Issue
A	-	Initial issue of report	30 June 2014

1. LABORATORY INFORMATION

1.1. Laboratory Accreditation

The KEC has been accredited by the following organizations based on their criteria for testing laboratory (ISO/IEC 17025).

(1) American Association for Laboratory Accreditation (A2LA) : Accreditation Number: 2070.01
(2) Japan Accreditation Board for Conformity Assessment (JAB) : Accreditation Number: RTL02810
(3) Voluntary EMC Laboratory Accreditation Center Inc. (VLAC) : Accreditation Number: VLAC-005

1.2. Test Facility

All tests described in this report were performed by:

Name: KEC Electronic Industry Development Center
Testing Division

Address: 3-2-2, Hikari-dai, Seika-cho, Soraku-gun, Kyoto 619-0237 Japan

Anechoic Chamber	: ☐ No.1	☐ No.2	☒ No.3	☐ No.6	☐ No.7
	☐ No.8	☐ No.9	☐ No.10	☐ No.11	☐ No.12
Shielded Room	: ☐ No.1	☐ No.7	☐ No.8	☒ No.9	☐ No.10
Harmonic Current Meas. Room	: ☐				

1.3. Measurement Uncertainty

The result of a measurement is only an approximation or estimate of the value of a specific quantity.
And thus the measurand is complete only when a statement of uncertainty is given.
KEC quotes Measurement Uncertainty (U) as follows.

Conducted Disturbance at Mains Port (150kHz-30MHz)	+2.5 / -2.8 dB
Conducted Disturbance at Mains Port (9kHz-30MHz)	+2.9 / -3.4 dB
Conducted Disturbance at Telecommunication Ports ISN method (None-Shield type)	+2.5 / -2.8 dB
Conducted Disturbance at Telecommunication Ports ISN method (Shield type)	+2.4 / -2.6 dB
Conducted Disturbance at Telecommunication Ports Current Probe method	+2.2 / -2.7dB
Conducted Disturbance at Telecommunication Ports 150Ω Load voltage method (using a 150Ω Load to the out side surface of the shield)	+1.8 / -2.4 dB
Conducted Disturbance at Telecommunication Ports None Invasive method (using a combination of current probe and capacitive voltage probe)	+2.7 / -3.8 dB
Conducted Disturbance at Lead Terminals and Additional Terminals	+2.0 / -2.4 dB
Disturbance Power (30MHz -300MHz)	+3.1 / -4.0 dB
Radiated Disturbance at Frequency Range from 9kHz up to 30MHz 60cm Loop Antenna method	+3.6 / -4.1 dB
Radiated Disturbance at Frequency Range from 9kHz up to 30MHz LLA method	+2.1 / -2.7 dB
Radiated Disturbance at Frequency Range from 30MHz up to 300MHz 3m method	+3.1 / -4.5 dB
Radiated Disturbance at Frequency Range from 300MHz up to 1GHz 3m method	+3.4 / -3.6 dB
Radiated Disturbance at Frequency Range from 30MHz up to 300MHz 10m method	+3.4 / -3.6 dB
Radiated Disturbance at Frequency Range from 300MHz up to 1GHz 10m method	+3.8 / -3.9 dB
Radiated Disturbance at Frequency Range from 30MHz up to 1GHz 10m method (Hybrid Antenna used measurement)	+4.2 / -5.1 dB
Radiated Disturbance at Frequency Range from 1GHz up to 6GHz 3m method	+4.6 / -5.7 dB
Radiated Disturbance at Frequency Range from 6GHz up to 26.5GHz 3m method	+4.6 / -5.2 dB
Harmonics Currents Emissions	+/-4.4%
Voltage Change, Voltage Fluctuations and Flicker	+5.0 / -5.1%

Expiration Date : 2014/9/30

The above values are calculated as Expanded Uncertainty (k=2 [95%]).

[Note]

If the measured result is below the specification limit and a margin is less than the above measurement uncertainty, it is impossible to determine compliance at a level of confidence of 95%. However, the measured result indicates high probability that the tested device complies with the specification limit.

2. GENERAL INFORMATION

2.1. Product Description

(1) Technical Specifications

· The module consists of radios 802.11b/g.	: FCC ID: MCLJ27H02301, IC: 2878D-J27H02301
· 802.11b at 1/2Mbps supports NDS series.	: The two radios cannot transmit at the same time.
· 802.11b/g supports Nintendo Wii.	: The two radios cannot transmit at the same time.
· Near field communication (NFC) 13.56MHz	: Type III, Class 3

(2) Maximum Oscillators Frequency

· TARGET CPU(SZK CPU)	: 804.34MHz

(3) Radio Specifications

· Tx Operating Frequency	: 13.56MHz
· Modulation Type	: ASK
· Communication Type	: Type-A, B, F

(4) Software Version

· FANG Check Program	: 1.0

(5) Firmware Version : 0.22.5 (r56297)

(6) Interface and Provide Terminal

· Audio jack (stereo output)	
· USB connector	: Debug Communication
· USB connector	: Capture Communication
· SD Card slot	: Connect for SD Card
· Game Card slot	: Connect for Flash Card
· EXT connector	: Connect for Debug controller
· HDMI connector	
· AC adapter connector	
· CONTROLLER connector	: Connect for Controller Unit

(7) Rated Power Supply : 120-230V (Test for AC 120V 60Hz)

3. TESTED SYSTEM

3.1. Reference Rule and Specification

(1) Reference Rule and Regulation	: FCC Rule Part 15 Subpart C, Section 15.225 Operation within the band 13.110-14.010 MHz ☒ Section 15.205 ☒ Section 15.207 ☒ Section 15.209 ☒ Section 15.215 ☒ Section 15.225
(2) Test Procedure	: ANSI C63.4-2003

3.2. Date of Test

Receipt of Test Sample : 8 May 2014
Condition of Test Sample : ☒ Damage is not found on the set.
☐ Damage is found on the set. (Details are described in this report)

Test Completed on : 29 May 2014
Condition of Test Sample : ☒ Damage is not found on the set.
☐ Damage is found on the set. (Details are described in this report)

3.3. Deviation of Standard

☒ without deviation, ☐ with deviation (details are found inside of this report)

3.4. Test Mode

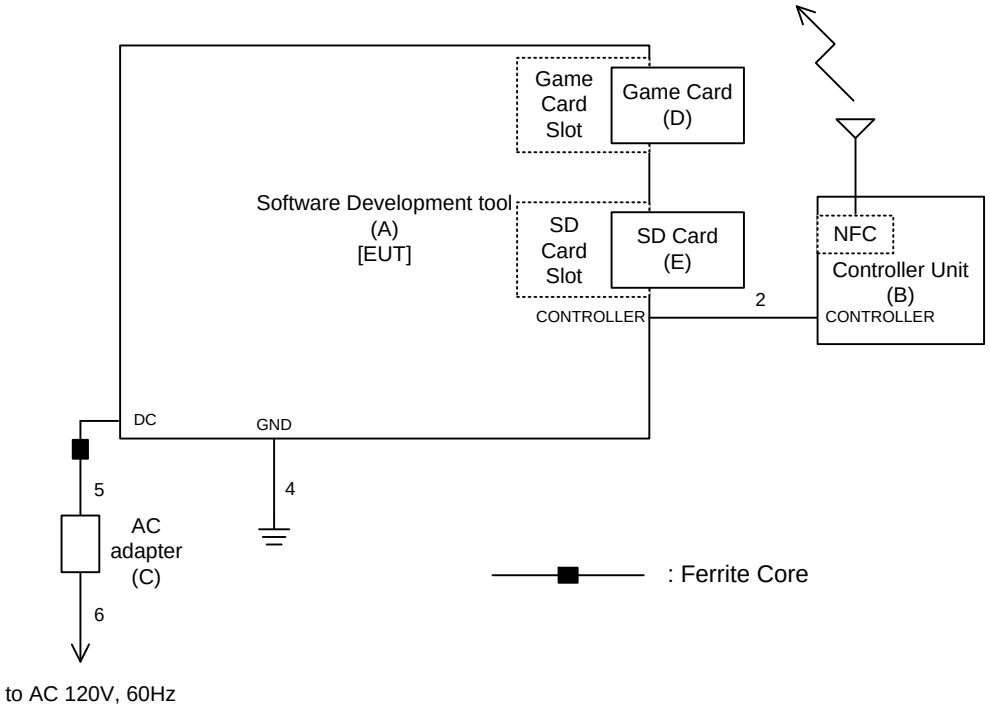
Test items	Test mode	Test frequency
AC Power Line Conducted Emission	Type B with IC card	13.56MHz
Radiated Emission (9kHz to 30MHz)		
Radiated Emission (above 30MHz)		
20dB Emission Bandwidth		
Frequency Tolerance of Carrier Signal	Unmodulated	13.56MHz

[Note]
(1) The test program was prepared by applicant.
(2) The test modes were confirmed with and without IC card(Type A, B, and F), and the test was made with IC card that was worst condition.
(3) The radiated emission was checked in three orthogonal axes, and the data of the producing the maximum emissions were reported at each frequency.

Extreme test condition	
Temperature	0 deg C to 40 deg C
Voltage	AC 102 V to 138 V

[Note]
(1) The tests at 50 deg C, -10 deg C and -20 deg C were not applied since the specification of operating temperature of EUT was 0 deg C to 40 deg C and the EUT was only used in this temperature range.

3.5. Block Diagram of TEST System



3.6. List of Test System

No.	Device Name	Model Number	Serial Number	Trade Name	Note
A	Software Development tool	SRX-SZKFULL	3100635[6]	INTELLIGENT SYSTEMS CO.,LTD.	EUT
B	Controller Unit	SRX-SZKFULL	3100635[6]	INTELLIGENT SYSTEMS CO.,LTD.	EUT
C	AC adapter	RVL-002(USA)	-	Nintendo Co., Ltd.	for No. A EUT
D	Game Card	-	-	Nintendo Co., Ltd.	
E	SD Card	RVL-038	SS1KN051481	Nintendo Co., Ltd.	

[Note]
(1): Option of EUT

3.7. List of Cables

No.	Cable Name	Shielded (Y/N)	Length (m)	Note	
2	Controller connection cable	N	1.0	for EUT	(2)
4	Earth cable	N	3.0		
5	DC cable	Y	0.9	for EUT With ferrite core (2-turn x1)	(1),(2)
6	AC cable	N	1.6	RVL-002(USA) PRI.: 120V 52W OUT PUT : DC 12V 3.7A	(1),(2) (4)

[Note]
(1) : Undetachable cable type
(2) : Accessories cable of EUT
(3) : 3-wires type,earth plug is grounded
(4) : 2-wires type

4. AC POWER LINE CONDUCTED EMISSION MEASUREMENT

4.1. Test Procedure

(1) The EUT is placed in accordance with ANSI C63.4-2003 section 7.
(2) The EUT is activated as to simulate an actual operation.
(3) Connect the EUT's AC power cord to one Line Impedance Stabilization Network (LISN).
(4) Any other power cord of other equipment is connected to a LISN different from the LISN used for the EUT.
(5) Connect the spectrum analyzer (*1) to the measuring port of the LISN for the EUT, using a calibrated coaxial cable.
(6) To find out the maximum emission of the configuration of the EUT System, the operation mode and the position of the cables are changed, then preliminary conducted measurement are performed.
(7) The spectrums are scanned from 150kHz to 30MHz and collect the six highest emissions minimum on the spectrum analyzer relative to the limits in the whole range.
(8) The test receiver (*2) is connected to the LISN for the EUT, and the six highest emissions minimum recorded above are measured.

[Note]
(*1) Spectrum Analyzer Set Up Conditions
Frequency range : 150kHz – 30MHz
Resolution bandwidth : 10kHz
Video bandwidth : 1MHz
Detector function : Peak mode
(*2) Test Receiver Set Up Conditions
Detector function : Quasi – Peak / Average (if necessary)
IF bandwidth : 10kHz

4.2. Test Results

Measured Frequency	LISN Factor	Meter Reading				Maximum RF Voltage		Limit		Margin for Limit	
		Q-Peak		Average							
		Va	Vb	Va	Vb	Q-Peak	Average	Q-Peak	Average	Q-Peak	Average
(MHz)	(dB)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dB)	(dB)
0.150	10.4	40.8	40.7	12.4	12.2	51.2	22.8	66.0	56.0	14.8	33.2
0.179	10.3	44.8	44.9	43.5	43.6	55.2	53.9	64.5	54.5	9.3	0.6
0.237	10.3	40.2	40.2	39.5	39.6	50.5	49.9	62.2	52.2	11.7	2.3
0.298	10.2	31.8	31.8	29.5	29.2	42.0	39.7	60.3	50.3	18.3	10.6
0.358	10.2	29.7	29.6	27.5	27.6	39.9	37.8	58.8	48.8	18.9	11.0
0.537	10.2	32.5	32.5	31.8	31.9	42.7	42.1	56.0	46.0	13.3	3.9
0.656	10.2	34.2	34.3	33.7	33.7	44.5	43.9	56.0	46.0	11.5	2.1
2.807	10.3	29.6	28.7	29.1	28.0	39.9	39.4	56.0	46.0	16.1	6.6
4.477	10.3	36.4	36.2	34.0	33.9	46.7	44.3	56.0	46.0	9.3	1.7
4.773	10.3	34.9	34.6	34.6	33.8	45.2	44.9	56.0	46.0	10.8	1.1
4.837	10.3	35.6	35.1	35.5	34.8	45.9	45.8	56.0	46.0	10.1	0.2
4.896	10.3	35.4	34.9	34.7	34.2	45.7	45.0	56.0	46.0	10.3	1.0
6.401	10.4	31.2	30.8	30.2	30.1	41.6	40.6	60.0	50.0	18.4	9.4
13.560	10.7	32.2	31.9	31.9	30.1	42.9	42.6	60.0	50.0	17.1	7.4

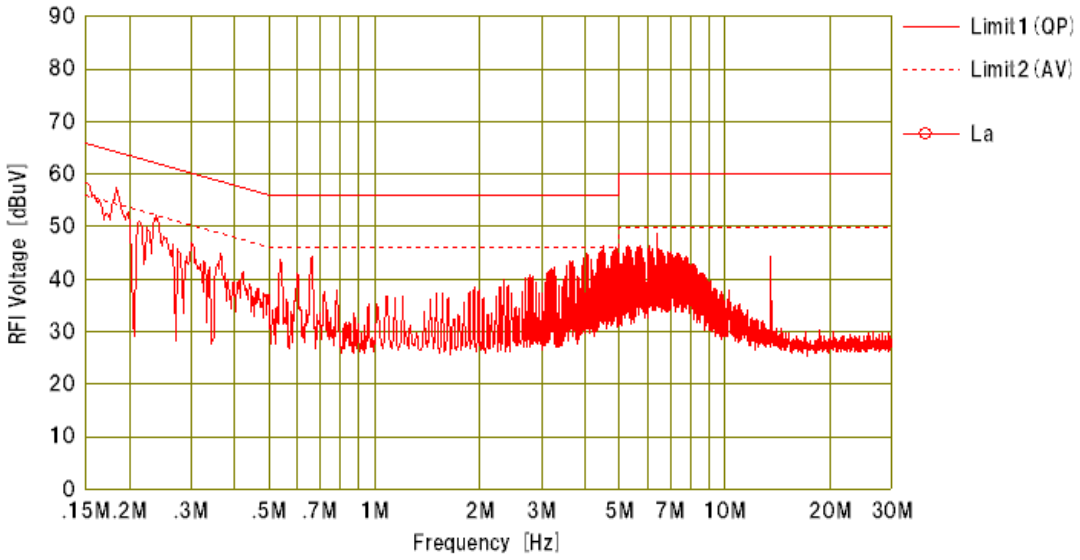
[Note]
LISN Factor includes the cable loss and attenuator loss.

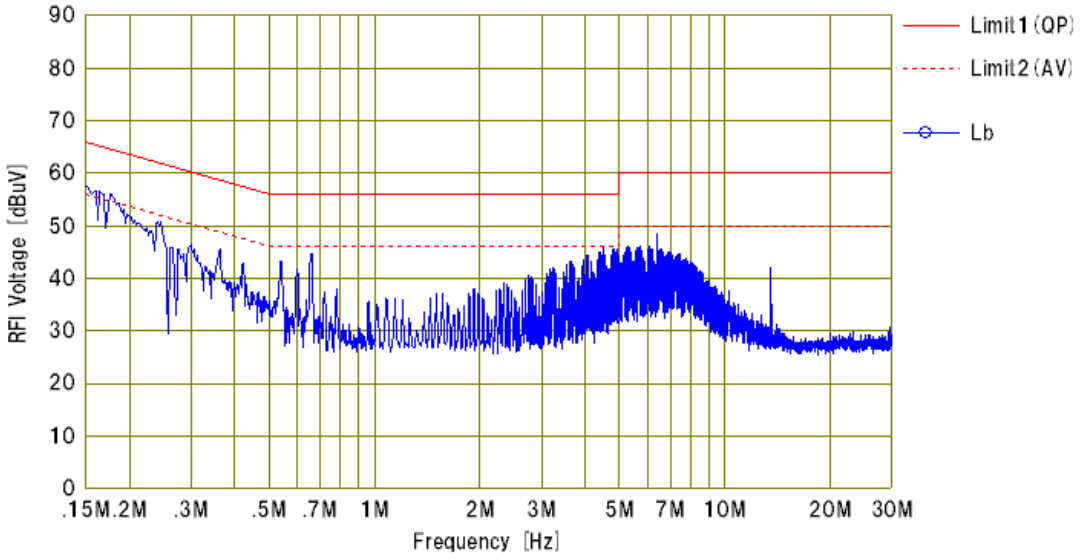
[Calculation method]
Maximum RF Voltage (dBμV)
= Meter Reading (at maximum level of Va or Vb) (dBμV) + LISN Factor (dB)

At the next page, the result of exploratory conducted emission measurement by using the spectrum analyzer is shown by the spectrum chart.

Tested Date	Environment	
	Temperature	Humidity
29 May 2014	22 °C	35 %

Test Results in Graph





5. Radiated Emission (The Frequency Range of 9kHz to 30MHz)

5.1. Test Procedure

(1) The EUT is placed in accordance with ANSI C63.4-2003 section 8.
(2) The EUT is activated as to simulate an actual operation.
(3) To find out the maximum emission of the configuration of the EUT System, the operation mode and the position of the cables are changed, then preliminary radiated measurement are performed using the spectrum analyzer (*1) and the loop antenna.
(4) The emissions recorded are measured at the specified distance using the loop antenna and the test receiver (*2).
(5) If the emission level is low and not detected at the specified distance, compliance test is performed at a closer distance and judged from calculating field strength at specified distance by using the measured data at a closer distance.

[Note]
(*1) Spectrum Analyzer Set Up Conditions
Frequency range : 9kHz – 150kHz / 150kHz – 30MHz
Resolution bandwidth : 300Hz / 10kHz
Detector function : Peak mode
(*2) Test Receiver Set Up Conditions
Detector function : Quasi – Peak
IF bandwidth : 200Hz (9kHz – 150kHz)
: 10kHz (150kHz – 30MHz)

5.2. Test Results

1) Field Strength at 300m

Measured Frequnecy (MHz)	Antenna Factor (dB)	Meter Reading (dBμV/m)	Conversion Factor 3m to 300m (dB)	Maximum Field Strength (dBμV/m)	Limit at 300m (dBμV/m)	Margin for Limit (dB)
0.05954	20.5	40.5	-80.0	-19.0	32.1	51.1
0.11905	20.5	35.0	-80.0	-24.5	26.1	50.6
0.17810	20.5	30.1	-80.0	-29.4	22.6	52.0
0.23710	20.6	30.0	-80.0	-29.4	20.1	49.5

2) Field Strength at 30m

Measured Frequnecy (MHz)	Antenna Factor (dB)	Meter Reading (dBμV/m)	Conversion Factor 3m to 30m (dB)	Maximum Field Strength (dBμV/m)	Limit at 30m (dBμV/m)	Margin for Limit (dB)
1.19000	20.8	16.1	-40.0	-3.1	26.1	29.2
12.71500	22.0	14.3	-40.0	-3.7	29.5	33.2
13.11000	22.0	4.5	-40.0	-13.5	29.5	43.0
13.41000	22.1	4.6	-40.0	-13.3	40.5	53.8
13.55300	22.1	14.1	-40.0	-3.8	50.4	54.2
13.56000	22.1	39.9	-40.0	22.0	83.9	61.9
13.56700	22.1	24.4	-40.0	6.5	50.4	43.9
13.71000	22.1	4.9	-40.0	-13.0	40.5	53.5
14.01000	22.1	4.7	-40.0	-13.2	29.5	42.7
14.40900	22.2	13.5	-40.0	-4.3	29.5	33.8
27.12000	24.3	4.6	-40.0	-11.1	29.5	40.6

[Note]
(1) Antenna Factor includes the cable loss.
(2) Conversion Factor : FCC Part 15 Subpart A Section 15.31(f) (2) is applied.

[Calculation method]
Maximum Field Strength (dBμV/m) = Meter Reading (dBμV/m) + Antenna Factor (dB) + Conversion Factor (dB)

Tested Date	Environment	
	Temperature	Humidity
22 May 2014	20°C	50 %

6. Radiated Emission (The Frequency Range of above 30MHz)

6.1. Test Procedure

(1) The EUT is placed in accordance with ANSI C63.4-2003 section 8.
(2) The EUT is activated as to simulate an actual operation.
(3) To find out the maximum emission of the configuration of the EUT System, the operation mode and the position of the cables are changed, then preliminary radiated measurement are performed using the spectrum analyzer (*1) and the broad band antenna.
(4) The spectrums are scanned from 30MHz to 1GHz, and collect the highest emissions on the spectrum analyzer relative to the limits in the whole range.
In the frequency above 1GHz, it is performed using the spectrum analyzer (*2) and the horn antenna.
(5) The highest emissions are measured at the specified distance using the test receiver (*3) and the broad band antenna or the tuned dipole. In the frequency above 1GHz, they are measured using the spectrum analyzer (*4) and the horn antenna.

[Note]

(*1) Spectrum Analyzer Set Up Conditions

Frequency range	: 30MHz – 1GHz
Resolution bandwidth	: 100kHz
Detector function	: Peak mode

(*2) Spectrum Analyzer Set Up Conditions (Pre-measurement)

Frequency range	: 1GHz – Upper frequency of measurement range
Resolution bandwidth	: 1MHz

(*3) Test Receiver Set Up Conditions

Detector function	: Quasi – Peak
IF bandwidth	: 120kHz

(*4) Spectrum Analyzer Set Up Conditions

Center Frequency	: Measurement Frequency
Resolution bandwidth	: 1MHz
Video bandwidth	: 1MHz (Peak measurement) 10Hz or 30Hz (Average measurement)
Attenuator	: 10dB
Y axis	: Linear (Average measurement)

6.2. Test Results

Measured Frequency (MHz)	Antenna Factor (dB/m)	Meter Reading		Maximum Field Strength (dBμV/m)	Limit (dBμV/m)	Margin for Limit (dB)
		Horizontal Polarization (dBμV)	Vertical Polarization (dBμV)			
40.68	18.1	11.3	17.7	35.8	40.0	4.2
67.80	16.0	1.3	5.0	21.0	40.0	19.0
122.04	18.3	1.4	6.5	24.8	43.5	18.7
203.40	22.2	6.5	3.4	28.7	43.5	14.8
230.52	23.1	8.7	2.8	31.8	46.0	14.2
311.88	16.8	13.2	8.1	30.0	46.0	16.0
420.36	19.0	9.7	15.8	34.8	46.0	11.2
827.16	24.4	5.8	1.4	30.2	46.0	15.8
854.28	24.8	6.9	4.3	31.7	46.0	14.3

[Note]

(1) ☐ Antenna Factor includes the cable loss, attenuator loss and pre-amplifier gain.
☒ Antenna Factor includes the cable loss and attenuator loss.
Above 1000MHz, the antenna factor includes the cable loss and pre-amplifier gain.

(2) * mark in Measured Frequency : Measured with the tuned dipole antenna.
no mark in Measured Frequency : Measured with the broadband antenna.

(3) Upper Frequency : ☒ 1GHz ☐ 2GHz ☐ 5GHz
☐ 5th harmonic of the highest frequency ☐ 40GHz
The emissions were checked to the upper frequency, and the lower emissions than the listed emissions in the above tables were omitted.

(4) Measurement Distance : <below 1GHz> ☒ 3m ☐ 10m
<above 1GHz> ☐ 3m ☐ 10m

(5) The other emissions were the noise from the IT devices, and it conforms to the FCC Part 15 Subpart B - Unintentional Radiators class A limit. (Test Report No. A-002-14-A)
See next page, the radio device power off spectrum chart.

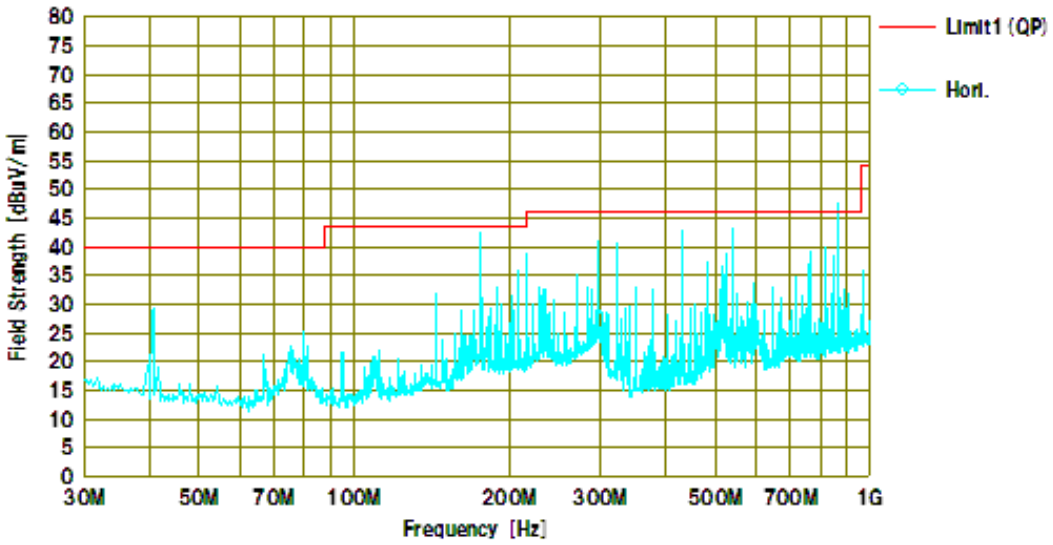
[Calculation method]

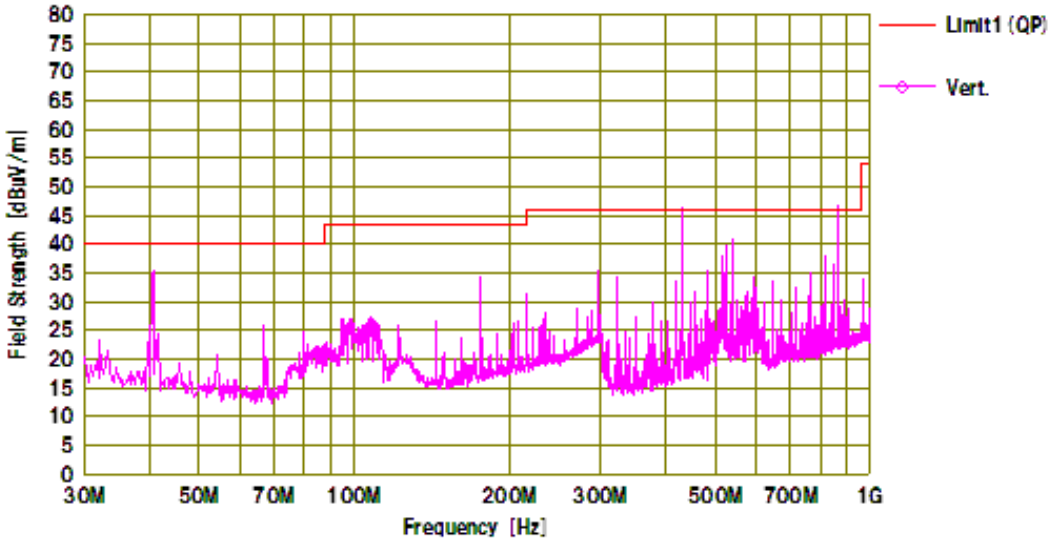
Maximum Field Strength (dBμV/m)
= Meter Reading (at maximum level of Horizontal or Vertical) (dBμV) + Antenna Factor (dB/m)

Tested Date	Environment	
	Temperature	Humidity
22 May 2014	20°C	50 %

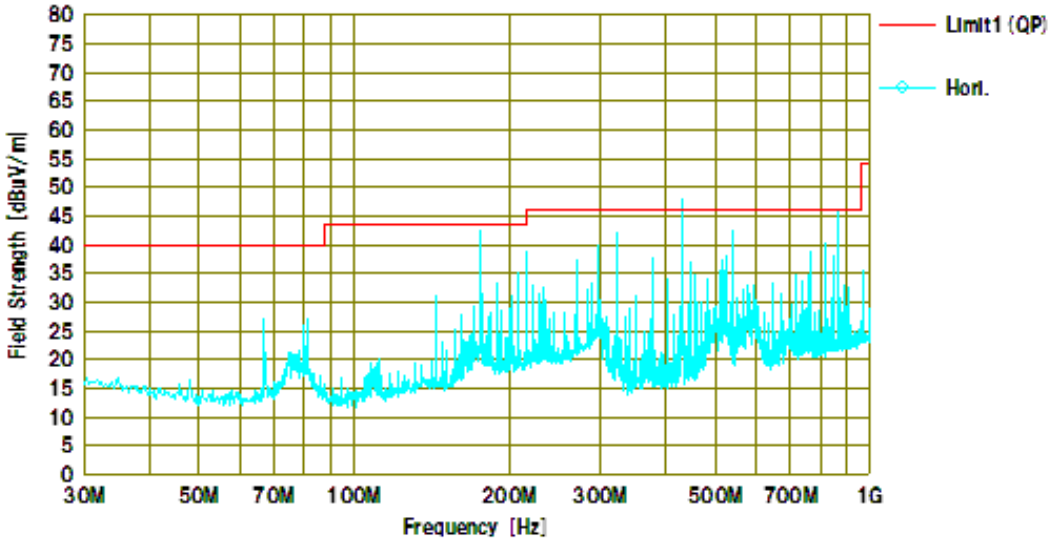
Test Results in Graph

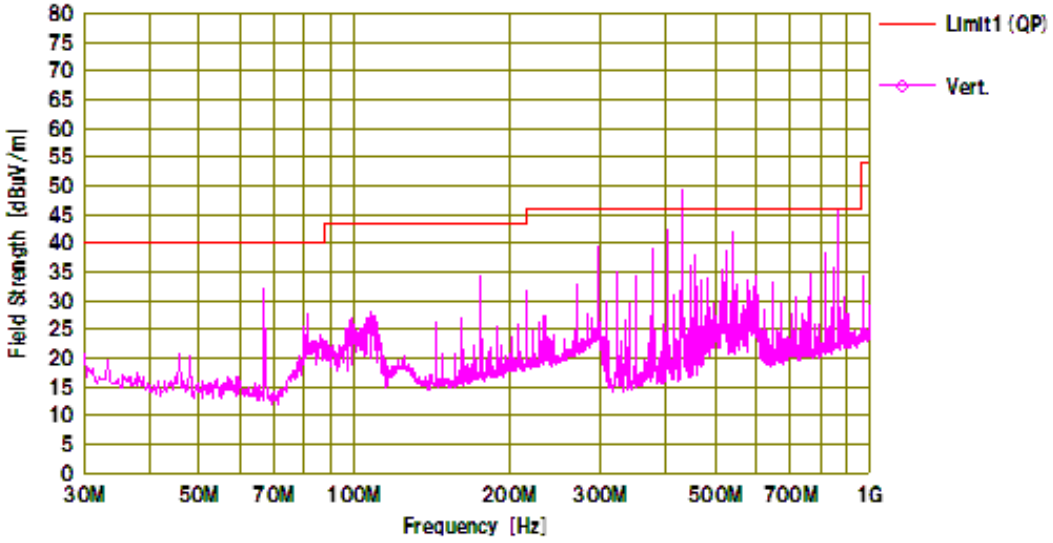
Transmission of NFC : ON





Transmission of NFC : OFF



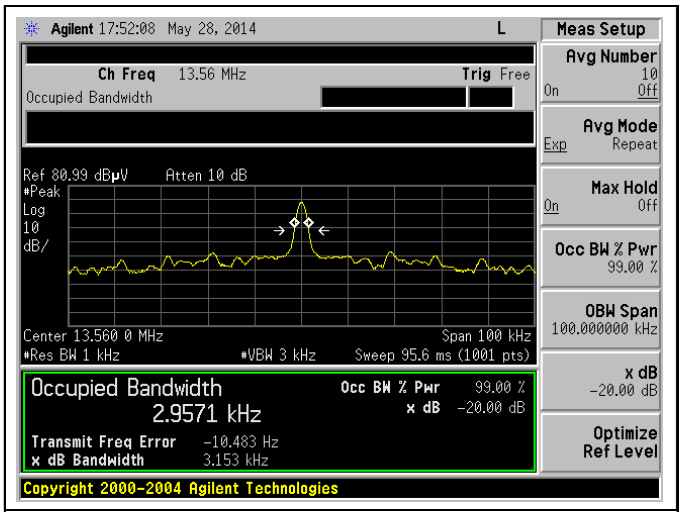


7. 20dB BANDWIDTH MEASUREMENT

7.1. Test Procedure

(1) Connect the EUT RF output port to spectrum analyzer (*1) via calibrated coaxial cable and suitable attenuator (if necessary). (2) Activates the EUT System and execute the software prepared for test, if necessary. (3) To find out the maximum emission condition, the transmitting data rate of EUT is set to maximum data rate. (4) 20dB Bandwidth is measured using the function of spectrum analyzer.
[Note] (*1) Spectrum Analyzer Set Up Conditions Frequency Span : 1kHz Resolution bandwidth : 3kHz Video bandwidth :≧RBW Detector function : Peak x dB : -20dB

7.2. Test Results



	Result(kHz)
20dB Bandwidth	3.153
99% Occupied Bandwidth	2.957

Tested Date	Environment	
	Temperature	Humidity
28 May 2014	22 °C	35 %

8. FREQUENCY TOLERANCE OF CARRIER SIGNAL

8.1. Test Procedure

(1) Connect the EUT RF output port to spectrum analyzer via calibrated coaxial cable and suitable attenuator (if necessary). (2) Activates the EUT System and execute the software prepared for test, if necessary. (3) To find out the maximum emission condition, the transmitting data rate of EUT is set to maximum data rate. (4) The operating frequency measured by using frequency counter function of spectrum analyzer (*1) .
[Note] (*1) Spectrum Analyzer Set Up Conditions Center Frequency : Equal to operating frequency of EUT Resolution bandwidth : 3 kHz Video bandwidth : 100 Hz Sweep : Auto Function : Frequency counter

8.2. Test Results

[Temperature : 40deg.C]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560003	0.003	0.0000	±0.01
after 2minutes	13.56	13.559995	-0.005	0.0000	±0.01
after 5minutes	13.56	13.559994	-0.006	0.0000	±0.01
after 10minutes	13.56	13.559994	-0.006	0.0000	±0.01

[Temperature : 30deg.C]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560023	0.023	0.0002	±0.01
after 2minutes	13.56	13.560008	0.008	0.0001	±0.01
after 5minutes	13.56	13.560003	0.003	0.0000	±0.01
after 10minutes	13.56	13.560000	0.000	0.0000	±0.01

[Temperature : 20deg.C]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560041	0.041	0.0003	±0.01
after 2minutes	13.56	13.560029	0.029	0.0002	±0.01
after 5minutes	13.56	13.560024	0.024	0.0002	±0.01
after 10minutes	13.56	13.560020	0.020	0.0001	±0.01

[Temperature : 10deg.C]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560056	0.056	0.0004	±0.01
after 2minutes	13.56	13.560047	0.047	0.0003	±0.01
after 5minutes	13.56	13.560043	0.043	0.0003	±0.01
after 10minutes	13.56	13.560040	0.040	0.0003	±0.01

[Temperature : 0deg.C]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560061	0.061	0.0004	±0.01
after 2minutes	13.56	13.560061	0.061	0.0005	±0.01
after 5minutes	13.56	13.560059	0.059	0.0004	±0.01
after 10minutes	13.56	13.560057	0.057	0.0004	±0.01

[Temperature : 20deg.C, Voltage : AC102V(85%)]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560043	0.043	0.0003	±0.01
after 2minutes	13.56	13.560028	0.028	0.0002	±0.01
after 5minutes	13.56	13.560023	0.023	0.0002	±0.01
after 10minutes	13.56	13.560019	0.019	0.0001	±0.01

[Temperature : 20deg.C, Voltage : AC138V(115%)]

Test Condition	Original Frequency (MHz)	Measured Frequency (MHz)	Tolerance (kHz)	Tolerance (%)	Limit (%)
startup	13.56	13.560041	0.041	0.0003	±0.01
after 2minutes	13.56	13.560028	0.028	0.0002	±0.01
after 5minutes	13.56	13.560023	0.023	0.0002	±0.01
after 10minutes	13.56	13.560019	0.019	0.0001	±0.01

9. TEST EQUIPMENT

· AC Power Line Conducted Emission Measurement

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-144	Low Power Attenuator	HUBER+SUHNER	6810.01.A	2013/09	2014/09
FL-107	LISN	KYORITSU	KNW-407	2013/09	2014/09
FS-083	Test Receiver	ROHDE & SCHWARZ	ESHS10	2013/12	2014/12
FS-103	Test Receiver	Schwarzbeck	FCKL1528	2013/12	2014/12
MM-252	RF Relay Matrix	TSJ	RFM-E121	2013/09	2014/09
SA-049	Spectrum Analyzer	Agilent	E4403B	2013/11	2014/11

· Radiated Emission (9kHz to 30MHz)

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AN-054	Loop Antenna	ROHDE & SCHWARZ	HFH2-Z2	2014/04	2016/04
FS-062	Test Receiver	ROHDE & SCHWARZ	ESS	2013/08	2014/08
SA-062	Test Receiver	Agilent Technologies	N9038A	2014/05	2015/04

· Radiated Emission (above 30MHz)

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AM-098	Pre-Amplifier	SONOMA	SONOMA 310N	2014/03	2015/04
AN-220	LPDA Antenna	Schwarzbeck	UHALP 9108A	2014/04	2015/04
AN-296	Biconical Antenna	Schwarzbeck	VHBB9124	2014/04	2015/04
AT-158	Fixed Attenuator	Anritsu	MP721B	2014/03	2015/04
FS-099	Test Receiver	ROHDE & SCHWARZ	ESS	2013/11	2014/11
MM-302	RF Selector	TOYO	NS4900	2014/04	2015/04
SA-058	Spectrum Analyzer	Agilent	N9010A	2014/05	2015/04

· 20dB Bandwidth Measurement
· Frequency Tolerance of Carrier Signal

KEC No.	Equipment	Manufacturer	Model No.	Last Cal.	Next Cal.
AT-148	Fixed Attenuator	Anritsu	41KC-10	2014/04	2015/04
SA-052	Spectrum Analyzer	Agilent	E4446A	2013/10	2014/10
SF-093	Temperature Chamber	ESPEC CORP.	SH-641	2013/07	2014/07

Note : (*1) We check the performance, before using this device.

The overall program of calibration and verification of equipment is designed and operated so as to ensure that measurements made by KEC are traceable to national standards of measurement or equivalent abroad.