RADIO TEST REPORT

(for Bluetooth Low Energy)

Project No.	:	JB-Z0398
Client	:	Sony Corporation
Address	:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Type of Equipment	:	Digital Music Player
Model No.		NW-A55
FCC ID	:	AK8NWA50
Regulation Applied	:	47 CFR Part 15 Subpart C
Final Judgment	:	**Passed**
Sample Receipt	:	April 3, 2018
Testing	:	April 11, 2018 - April 20, 2018
Reported	:	April 23, 2018

Reported by :

Takanori Oho
Technical Manager
EMC/RF Test Laboratory, Main Lab.
Design Technology Division
Sony Global Manufacturing & Operations Corporation

Approved Signatory :

Teruki Kurihara
Technical Manager
EMC/RF Test Laboratory, Main Lab.
Design Technology Division
Sony Global Manufacturing & Operations Corporation

Notice
* *These test results relate only to the items (combination equipment, test configuration, operation condition etc.) tested.*
* *This report shall not be reproduced except in full, without written approval of the laboratory.*
* *This report must not be used by the client to claim product endorsement by A2LA or any agency of the U.S. Government.*
* *All test results are traceable to the national and / or international standards.*
  The testing in which "Non-accreditation" is displayed is outside the accreditation scopes in Sony Global Manufacturing & Operations Corporation EMC/ RF Test Laboratory.

TESTING CERT #3203.01

TABLE OF CONTENTS

1. General Information 3

1.1. Description of Equipment Under Test (EUT) 3

1.2. Summary of Test Result 4

1.3. Tested Methodology 5

1.4. Measurement Procedures 5

1.5. Test Facility 8

1.6. Uncertainty 8

2. System Test Configuration 8

2.1. Validation 9

2.2. Test Operating Conditions 9

2.3. EUT Modifications 9

2.4. Configuration of Tested System 10

3. Test Data 12

3.1. AC Power-line Conducted Emissions 12

3.2. 6dB Bandwidth 13

3.3. Maximum Peak Conducted Output Power 14

3.4. Power Spectral Density 15

3.5. Radiated Spurious Emissions 16

3.6. Conducted Spurious Emissions for Band Edge 41

4. Method of Calculation 42

5. List of Test Equipment 44

5.1. AC Power-line Conducted Emissions 44

5.2. Antenna-port Conducted Measurements 44

5.3. Radiated Spurious Emissions 44

6. Photographs of test setup 45

6.1. AC Power-line Conducted Emissions Measurement Photo(s) 45

6.2. Antenna-port Conducted Measurements Photo(s) 45

6.3. Radiated Spurious Emissions Measurement Photo(s) 46

Note

☒-indicates that the listed condition, standard or equipment is applicable for this report.

☐-indicates that the listed condition, standard or equipment is not applicable for this report.

1. General Information

1.1. Description of Equipment Under Test (EUT)

General specification

Test Sample Condition : ☐ Prototype ☒ Pre-production ☐ Mass-production
Type of Equipment : Digital Music Player
Trade Name : SONY
Model No. : NW-A55
Serial No. : 2, 4
Power Rating : DC 3.7V (The EUT was supplied with the power from built-in battery)

Similar model (to be covered by this Report)

Model No. :

Model No.	Point of Difference
NW-A55	Memory size only. (16 GB) *EUT
NW-A56	Memory size only. (32 GB)
NW-A57	Memory size only. (64 GB)

These points of difference do not affect the measurement results.
Total 3 models are covered by this report.

Radio specification

Function of the Equipment : Transceiver
Operating Frequency : 2402 - 2480 MHz
Modulation Type : GFSK
Channel Spacing : 2 MHz
Channel Bandwidth : 2 MHz
Number of channels : 40
Antenna Type : Inverted-F antenna
Antenna connector Type : None
Antenna Gain : 1.0 dBi
Operating Temperature : +5 to +35 deg.C

1.2. Summary of Test Result

47 CFR Part 15 Subpart C § 15.247 [DTS]

Test Item	Worst Margin	Test Frequency band	Results
AC Power-line Conducted Emissions	19.7 dB (QP) 0.181 MHz N	150 kHz - 30 MHz	Complied
6dB Bandwidth	Refer to the test data	Carrier	Complied
Maximum Peak Conducted Output Power	22.76 dB	Carrier	Complied
Power Spectral Density	16.68 dB	Carrier	Complied
Radiated Spurious Emissions	1.2 dB (AV) 7205.986 MHz Vertical	9 kHz - 25 GHz (excluding carrier and band edge)	Complied
Conducted Spurious Emissions for Band Edge *1	40.24 dB 2399.94 MHz	Carrier band edge	Complied

*1: Conducted Spurious Emission was tested for the only frequencies in the non-restricted carrier band edges, since the spurious emissions in other non-restricted band were complied with Radiated Spurious Emission measurement.

Other requirements

Part 15.31(e) Supply voltage requirement

: Complied (The EUT was tested with a new battery)

Part 15.203 / 212 Antenna requirement

: Complied (The EUT has an internal antenna which cannot be replaced by users)

1.3. Tested Methodology

Test Standard : 47 CFR Part15 Subpart C
Test Method : ANSI C63.10 - 2013
KDB 558074 D01 DTS Meas. Guidance v04

Test Condition

AC Power-line Conducted Emissions

Dimensions of the EUT table : 0.8m height, 2m width and 1m depth.

Radiated Spurious Emissions

Test Distance : ☒ 3 m ☐ 10m (9 kHz - 30 MHz)
☒ 3 m ☐ 10m (30 - 1000 MHz)
☒ 3 m (1 - 25 GHz)

Dimensions of the EUT table : 0.8m (below 1 GHz) or 1.5m (above 1 GHz) height, 2m width and 1m depth.

1.4. Measurement Procedures

We performed the measurements in accordance with NV3-06, available upon the request.

☒ No deviation
☐ Deviation from the above procedure

The summary of the above procedure is mentioned below

Antenna-port Conducted Measurement

1. Antenna-port of the EUT was connected to the power sensor (Maximum peak conducted output power) or spectrum analyzer. (other test items).

2. For each EUT operation mode, the Antenna-port Conducted Measurements were measured with power meter or spectrum analyzer.

Test Item * Antenna-port Conducted Measurements	Detector	RBW
6dB Bandwidth	Peak	100 kHz
Maximum Peak Conducted Output Power	Peak	-
Power Spectral Density	Peak	3 kHz
Conducted Spurious Emissions for Band Edge	Peak	100 kHz

AC Power-line Conducted Emissions

1. The non-conductive table (EUT table) made of (☒ FRP, ☐ wood, ☐ other non-conductive material) was placed 0.4 m from its rear to the vertical reference ground plane.

2. The EUT was placed on the center of tabletop and its rear was flush with the rear of the table, connected through a LISN to the input power mains.

3. The LISN was placed in 80 cm from the nearest part of the EUT chassis.

4. The excess length of the AC cable between the EUT and the LISN receptacle, or an adaptor or extension cable connected to and measured with LISN, was folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

5. The connection of the all other equipment to the second LISN was performed. The second LISN was terminated with a 50-ohm terminator.

6. Interconnecting cables that hang closer than 40 cm to the horizontal reference ground plane was folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between the horizontal reference ground plane and the tabletop.

7. Find the worst mode and arrangement of the EUT according to the follows;
   - Connecting all peripherals and change the position of peripherals and cables.
   - Changing the all test operation modes of the EUT.
   - On every condition, exploring the highest emissions with the spectrum analyzer. (150kHz - 30 MHz, peak detector, RBW: 10 kHz)

8. On the worst condition of the EUT found in above, choose the 6 highest emissions on the spectrum data. The final measurements carried out on these emissions with EMI test receiver. (quasi-peak and average detector, RBW: 9 kHz)

Radiated Spurious Emissions

1. The non-conductive table (EUT table) made of (☐ FRP, ☒ Styrene Foam, ☐ other non-conductive material) was placed in the center of the turntable.

2. The EUT was placed on the center of the tabletop.

3. The test antenna was placed away from the EUT at test distance.

4. The limits compensated the distance factor with follows;
   9 kHz - 490 kHz [Limit at 3m] = [Limit at 300m] + 40log (300[m] / 3[m])
   490 kHz - 30 MHz [Limit at 3m] = [Limit at 30m] + 40log (30[m] / 3[m])

5. Find the worst arrangement of the EUT as follows;
   - Rotate the turntable and/or scanning the antenna.
   - On every condition, explore the highest emissions with the spectrum analyzer. (9 kHz - 25 GHz, peak detector)

6. On the worst arrangement of the EUT found in above, choose the three highest harmonics or spurious emissions on the spectrum data.(*excluding carrier band edges)
The final measurements are performed with all test operating modes for these emissions as follows;

The test antenna and the turntable were performed with follows;

	9 kHz - 30 MHz	30 MHz - 1000 MHz	1 GHz - 25 GHz
Antenna	Loop Antenna	Bi-conical Antenna, Log-periodic Antenna	Horn Antenna
Antenna scanning range	1m, Vertical, 360 degrees	1 - 4m, Horizontal and Vertical	1 - 4m *, Horizontal and Vertical
Turntable rotating range	360 degrees	360 degrees	360 degrees

*: When the measurement frequencies above 1 GHz, final measurements are performed keeping the antenna in the "cone of radiation" from EUT area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.

Instruments settings were carried out with follows;

	9 kHz - 90 kHz 110 kHz - 490 kHz	90 kHz- 110 kHz 490 kHz - 30 MHz	30 MHz - 1000 MHz	1 GHz - 25 GHz
Detector	Peak / Average	Quasi-peak	Quasi-peak	Peak / Average
RBW	200 Hz (6dB) or 9 kHz (6dB) *1	200 Hz (6dB) or 9 kHz (6dB) *1	120 kHz (6dB)	1 MHz (6dB)
VBW	N/A	N/A	N/A	3 MHz (for peak) 10 kHz (for average) *2
Instrument	EMI test receiver	EMI test receiver	EMI test receiver	Spectrum analyzer

*1: When the measurement frequencies below 150 kHz, RBW: 200 Hz was used.
*2: VBW setting (for average) was higher than 1/T. (T is the minimum transmission duration)

7. If the final measurement result exceeded the limit in non-restricted band(excluding carrier band edges), the measurement is carried out additionally with follows;

Measurement points
- Fundamental Frequency
- Frequency that exceeded the limit in non-restricted band (excluding carrier band edges)

	9 kHz - 150 kHz	150 kHz - 30 MHz	30 MHz - 25 GHz
Detector	Peak	Peak	Peak
RBW	300 Hz (6dB) *	10 kHz (6dB) *	100 kHz (6dB)
Instrument	Spectrum analyzer	Spectrum analyzer	Spectrum analyzer

*: Correction factor of RBW was compensated to a measurement result by the following formula.
C.F. of RBW [dB] = 10*log (100 kHz / used RBW)

8. If the final average measurement result exceeded the limit in the authorized band edge, the integration method is carried out with follows;

	2483.5 - 2485.5 MHz
Detector	Peak
RBW	100 kHz (6dB)
Instrument	Spectrum analyzer
Function	Channel Power (integration BW : 1 MHz)

9. Although these tests were performed other than open field area test site, adequate comparison measurements were confirmed against 30 m open field 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 414788 D01.

1.5. Test Facility

Address of Test Facility

Test Facility Name : Sony Global Manufacturing & Operations Corporation
EMC/ RF Test Laboratory, Main Lab.

Address : Kisarazu Site 8-4 Shiomi Kisarazu-shi Chiba, 292-0834 Japan

Phone : +81 438 37 2750

AC Power-line Conducted Emissions

Shielded Room

☒ 4th Site ☐ EMC Site

Radiated Spurious Emission

Semi-Anechoic chamber

☒ 4th Site ☐ EMC Site

Antenna-port Conducted Measurements *

Shielded Room

☒ 4th Site SR1

*Note: This item contains the following

-6dB Bandwidth
-Maximum Peak Conducted Output Power
-Power Spectral Density
-Conducted Spurious Emissions for Band Edge

A2LA Accreditation for Test Facility

The above test facility has been fully reported to A2LA and accepted as follows:

A2LA Certificate No. : 3203.01

Cert. Validated Date : 31 Oct 2019

1.6. Uncertainty

Test Item	Frequency	4th Site SR1
Conducted Output Power	1 - 6 GHz	± 0.84 dB
Power Spectral Density, Conducted Spurious Emissions	1 - 6 GHz	± 0.89 dB

Test Item	Frequency	4th Site	
AC Power-line Conducted Emissions	150 kHz - 30 MHz	± 3.34 dB	
Radiated Emissions	9 kHz - 30 MHz	3m	± 3.34 dB
	30 - 300 MHz	3m	± 2.59 dB
	300 - 1000 MHz	3m	± 4.18 dB
	1 - 7 GHz	3m	± 4.04 dB
	7 - 18 GHz	3m	± 4.63 dB
	18 - 26.5 GHz	3m	± 5.31 dB

2. System Test Configuration

2.1. Validation

The system was configured for testing in a typical (as a customer would normally use it).
The tests were conducted with the worst case modes as follows.

2.2. Test Operating Conditions

The tests have been carried out the following conditions.

Test Items	Operating Mode	Data Rate	Test Channels
AC Power-line Conducted Emissions	Bluetooth Low Energy	1 Mbps	2440 MHz *1
6dB Bandwidth, Maximum Peak Conducted Output Power, Power Spectral Density, Radiated Spurious Emissions	Bluetooth Low Energy	1 Mbps	2402 MHz, 2440 MHz, 2480 MHz
Conducted Spurious Emissions for Band Edge	Bluetooth Low Energy	1 Mbps	2402 MHz

Note:
*1: The test was performed with the representative mode that had been found as the worst emissions while exploratory testing.

The Software for Operating Mode
Name : Diagnosis
Version : 3.02.02

Special accessories needed for connecting the EUT to achieve compliance:

Item	Manufacturer	Model No.	Serial No.	Remark
-	-	-	-	-

2.3. EUT Modifications

☒ No equipment modification to achieve compliance to the standard levels was done during the tests.
☐ Equipment was modified to achieve compliance to the standard level as below.

Responsible Party Signature

_____

Typed/ Print Name :
Responsible Party :
Position :
Date :

2.4. Configuration of Tested System

Antenna-port Conducted Measurements

The equipment under test (EUT)

Symbol	Item	Manufacturer	Model No.	Serial No.
A-1	Digital Music Player	SONY	NW-A55	4

Support equipment for operation

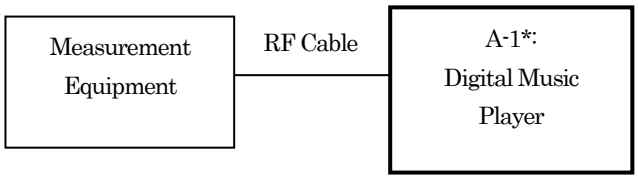
Symbol	Item	Manufacturer	Model No.	Serial No.
-	-	-	-	-

Type of cable

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Length (m)	Bundled
-	-	-	-	-	-	-

System configuration

*: EUT ■ : Ferrite core



Radiated Spurious Emissions Measurement

The equipment under test (EUT)

Symbol	Item	Manufacturer	Model No.	Serial No.
A-2	Digital Music Player	SONY	NW-A55	2

Support equipment for operation

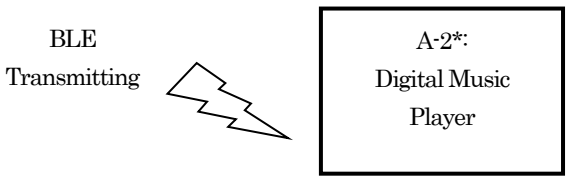
Symbol	Item	Manufacturer	Model No.	Serial No.
-	-	-	-	-

Type of cable

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Length (m)	Bundled
-	-	-	-	-	-	-

System configuration

*: EUT



AC Power-line Conducted Emissions Measurement

The equipment under test (EUT)

Symbol	Item	Manufacturer	Model No.	Serial No.
A-2	Digital Music Player	SONY	NW-A55	2

Support equipment for operation

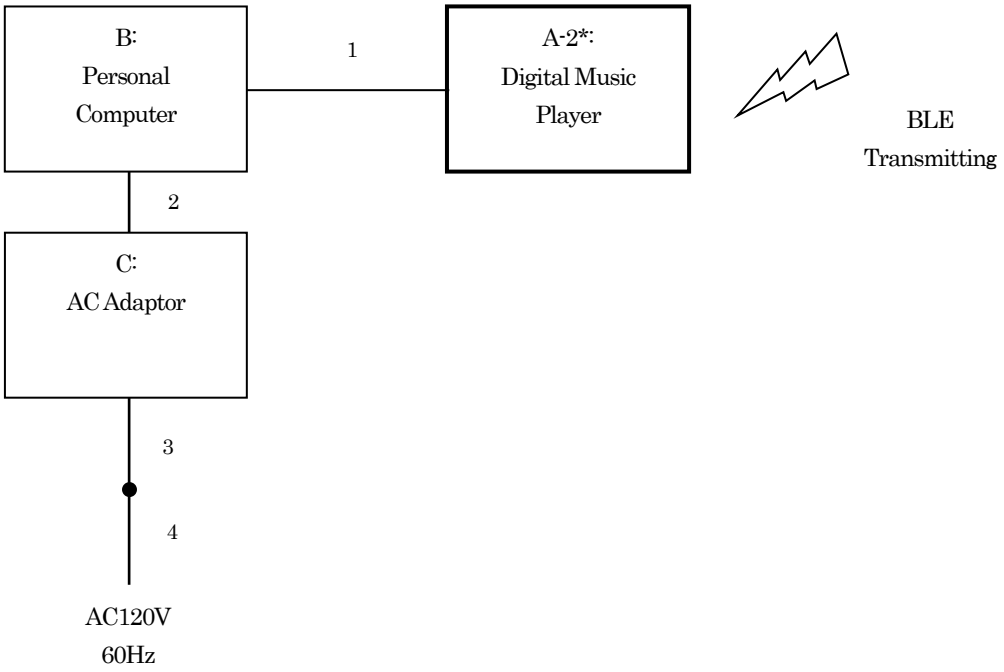
Symbol	Item	Manufacturer	Model No.	Serial No.
B	Personal Computer	SONY	PCG-71611N	1006554
C	AC Adaptor	SONY	VGP-AC19V41	148753032 0255555

Type of cable

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Length (m)	Bundled
1	USB cable	SONY	YES	NO	1.0	-
2	DC cable	-	NO	NO	1.7	Bundled
3	AC cable	-	NO	NO	0.7	-
4	AC Extension Cable	lian dung	NO	NO	0.1	-

System configuration

*: EUT



3. Test Data

3.1. AC Power-line Conducted Emissions

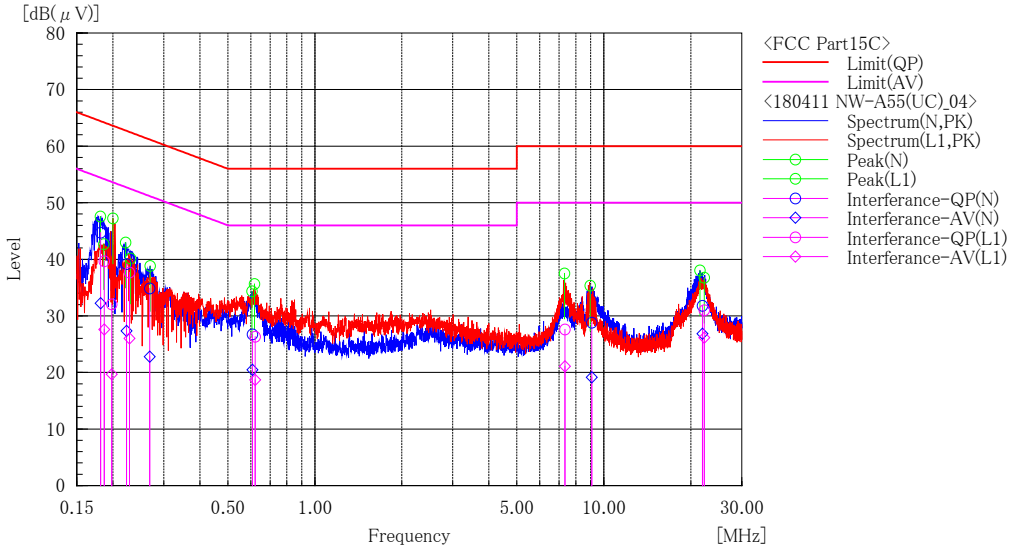
1) Date of measurement : April 11, 2018

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Conducted Emission>>

Model	: NW-A55	Limit	: FCC Part15C
Serial	: 2	Remark1	:
Operator	: T.NAKAMURA	Remark2	:
Power	: AC 120V / 60Hz	Remark3	: 1M
Temp./Hum.	: 24deg./ 54%	Remark4	: Mid



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.181	28.5	16.0	16.2	44.7	32.2	64.4	54.4	19.7	22.2
2	0.223	23.3	11.4	15.9	39.2	27.3	62.7	52.7	23.5	25.4
3	0.268	19.0	6.9	15.9	34.9	22.8	61.2	51.2	26.3	28.4
4	0.608	10.4	4.2	16.3	26.7	20.5	56.0	46.0	29.3	25.5
5	9.075	12.6	2.9	16.2	28.8	19.1	60.0	50.0	31.2	30.9
6	21.948	15.2	10.2	16.6	31.8	26.8	60.0	50.0	28.2	23.2

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.187	23.6	11.5	16.1	39.7	27.6	64.2	54.2	24.5	26.6
2	0.198	16.0	3.7	16.0	32.0	19.7	63.7	53.7	31.7	34.0
3	0.228	21.8	10.1	15.9	37.7	26.0	62.5	52.5	24.8	26.5
4	0.621	10.0	2.4	16.3	26.3	18.7	56.0	46.0	29.7	27.3
5	7.337	11.4	4.9	16.2	27.6	21.1	60.0	50.0	32.4	28.9
6	22.234	14.5	9.6	16.5	31.0	26.1	60.0	50.0	29.0	23.9

3.2. 6dB Bandwidth

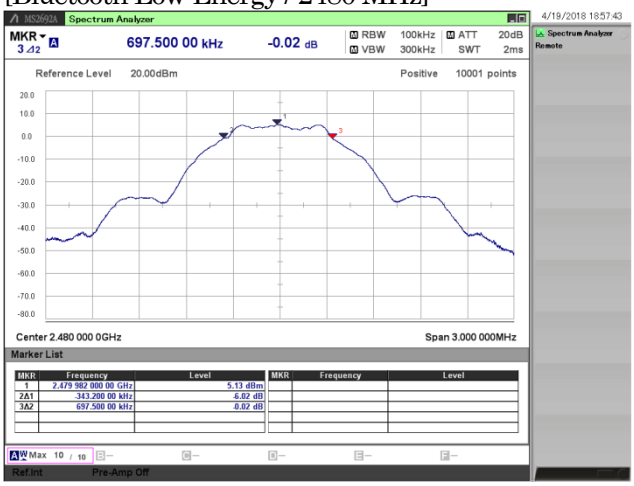
1) Ambient temperature : 24.0 deg.C
2) Relative humidity : 46.9 %
3) Date of measurement : April 19, 2018
4) Measured by : M.KOUGA
5) Operating mode : Transmitting mode

Mode	Rate [Mbps]	Channel [MHz]	Result [MHz]	Limit [MHz]
BLE	1	2402	0.687	0.5
		2440	0.689	0.5
		2480	0.698	0.5

[Bluetooth Low Energy / 2402 MHz]

[Bluetooth Low Energy / 2440 MHz]

[Bluetooth Low Energy / 2480 MHz]



3.3. Maximum Peak Conducted Output Power

1) Ambient temperature : 23.9 deg.C
2) Relative humidity : 50.1 %
3) Date of measurement : April 12, 2018
4) Measured by : M.KOUGA
5) Operating mode : Transmitting mode

Maximum Peak Conducted Output Power

Mode	Rate [Mbps]	Channel [MHz]	Reading(PK) [dBm]	C.F. [dB]	Result(PK) [dBm]	Result(PK) [W]	Limit [dBm]	Margin [dB]
BLE	1	2402	6.84	0.40	7.24	0.00530	30.0	22.76
		2440	6.77	0.40	7.17	0.00521	30.0	22.83
		2480	6.75	0.40	7.15	0.00519	30.0	22.85

Maximum Average Conducted Output Power (for SAR measurement)

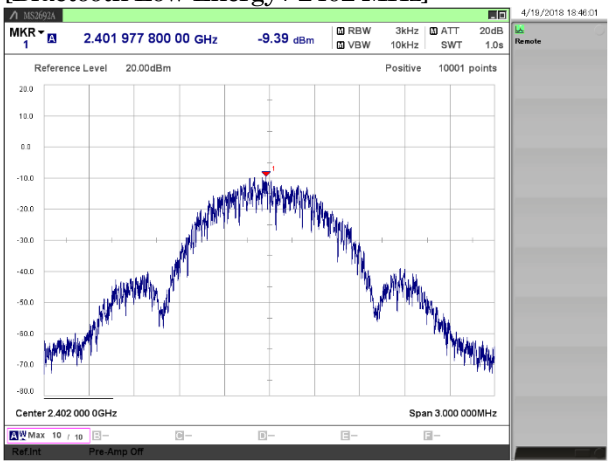
Mode	Rate [Mbps]	Channel [MHz]	Reading(AV) [dBm]	C.F. [dB]	Duty Factor [dB]	Result(AV) [dBm]	Result(AV) [W]
BLE	1	2402	4.39	0.40	2.23	7.02	0.00504
		2440	4.30	0.40	2.23	6.93	0.00493
		2480	4.28	0.40	2.23	6.91	0.00491

3.4. Power Spectral Density

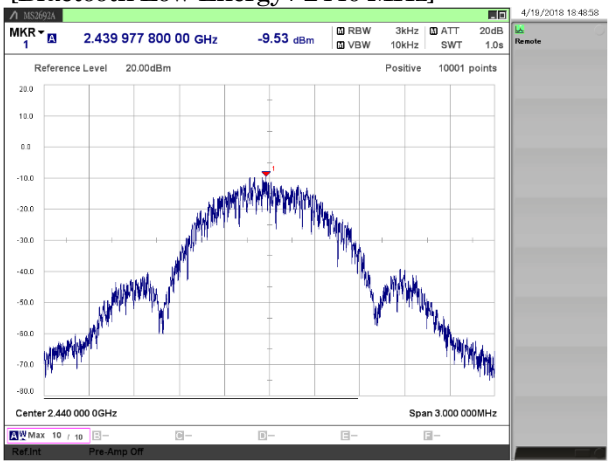
1) Ambient temperature : 24.0 deg.C
2) Relative humidity : 46.9 %
3) Date of measurement : April 19, 2018
4) Measured by : M.KOUGA
5) Operating mode : Transmitting mode

Mode	Rate [Mbps]	Channel [MHz]	Reading(PK) [dBm]	C.F. [dB]	Result(PK) [dBm]	Limit [dBm]	Margin [dB]
BLE	1	2402	-9.39	0.71	-8.68	8.0	16.68
		2440	-9.53	0.71	-8.82	8.0	16.82
		2480	-9.63	0.71	-8.92	8.0	16.92

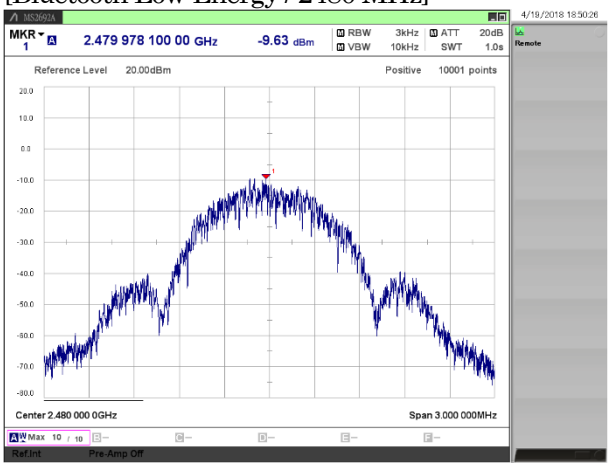
[Bluetooth Low Energy / 2402 MHz]



[Bluetooth Low Energy / 2440 MHz]



[Bluetooth Low Energy / 2480 MHz]



3.5. Radiated Spurious Emissions

1) Date of measurement

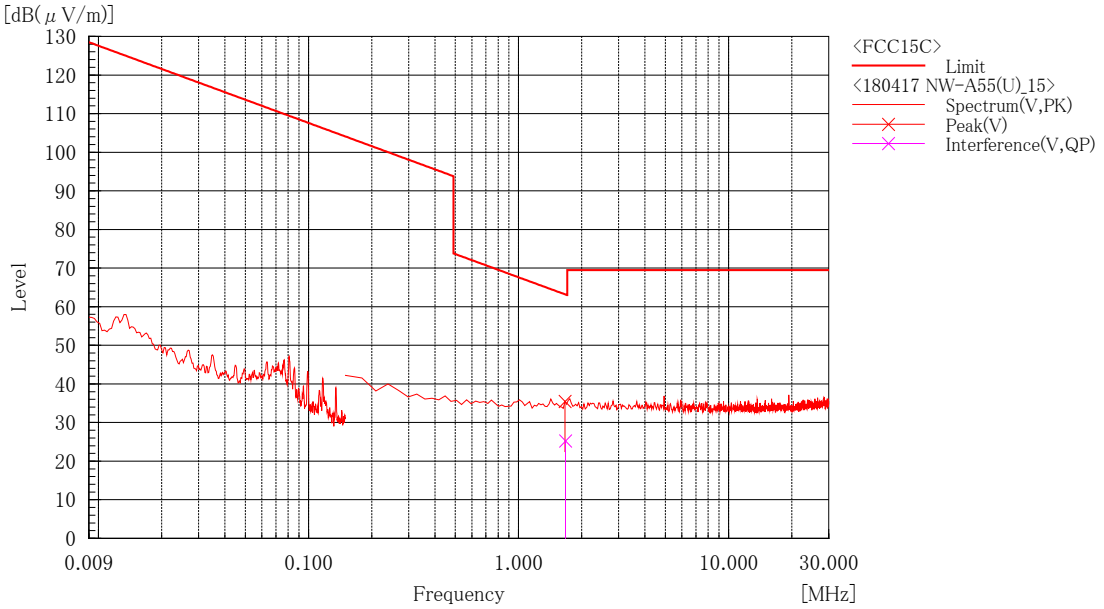
9 kHz - 30 MHz	: April 17, 2018	(all mode)	
30 MHz - 1000 MHz	: April 20, 2018	(all mode)	
1 GHz - 7GHz	: April 16, 2018	(all mode)	April 17, 2018 (band edge plot data)
7GHz - 18GHz	: April 18, 2018	(all mode)	
18GHz - 25GHz	: April 18, 2018	(all mode)	

9 kHz - 30 MHz
[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C_15.209 (3m)
Serial	: 2	Remark1	: 0°
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 46%	Remark4	: Low



Final Result

--- Vertical Polarization (QP)---

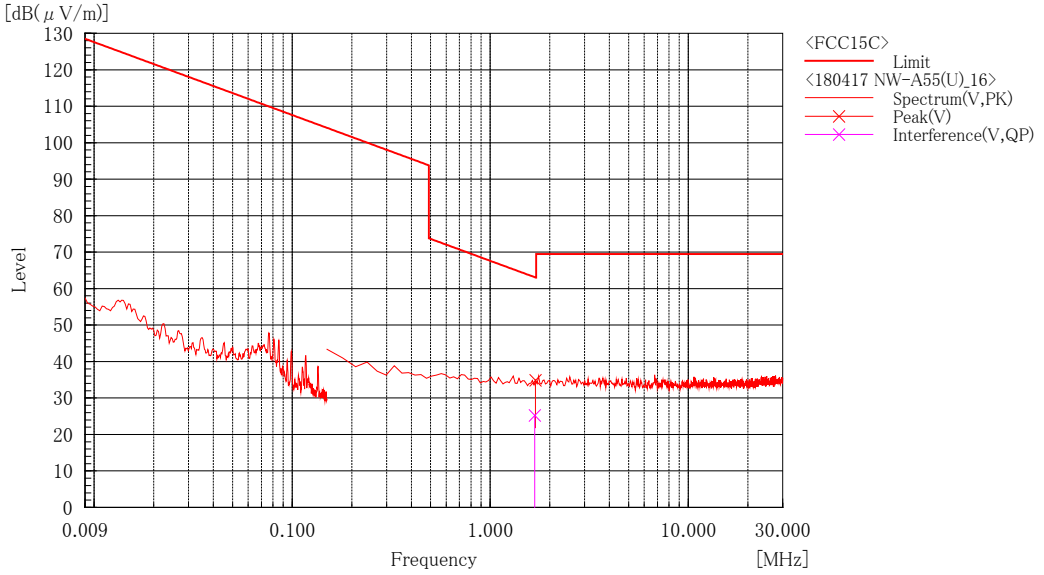
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	1.673	5.3	19.9	25.2	63.2	38.0	100.0	92.4

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C_15.209 (3m)
Serial	: 2	Remark1	: 0°
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 46%	Remark4	: Mid



Final Result

--- Vertical Polarization (QP)---

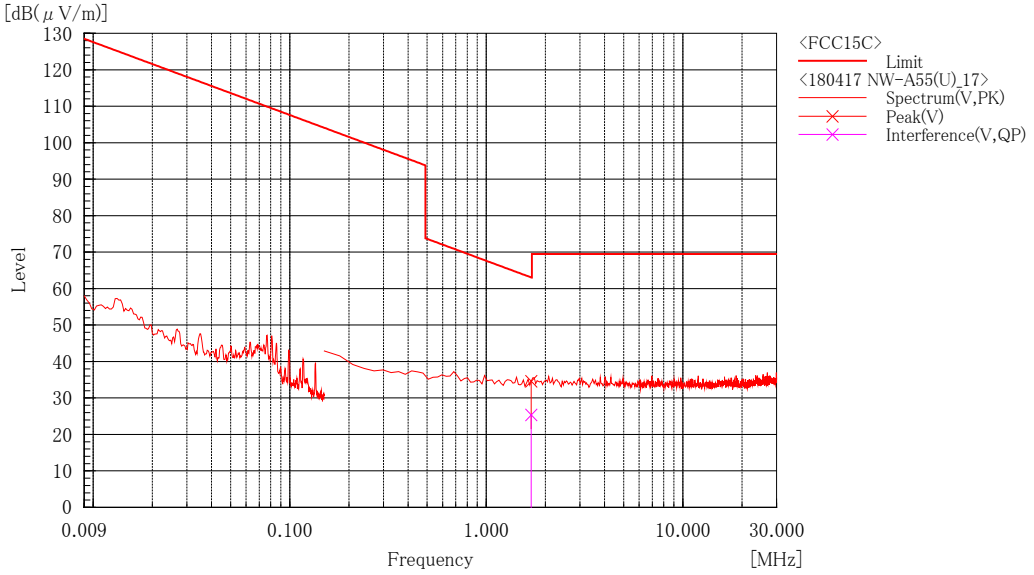
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	1.678	5.4	19.9	25.3	63.1	37.8	100.0	47.2

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C_15.209 (3m)
Serial	: 2	Remark1	: 0°
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 46%	Remark4	: High



Final Result

--- Vertical Polarization (QP)---

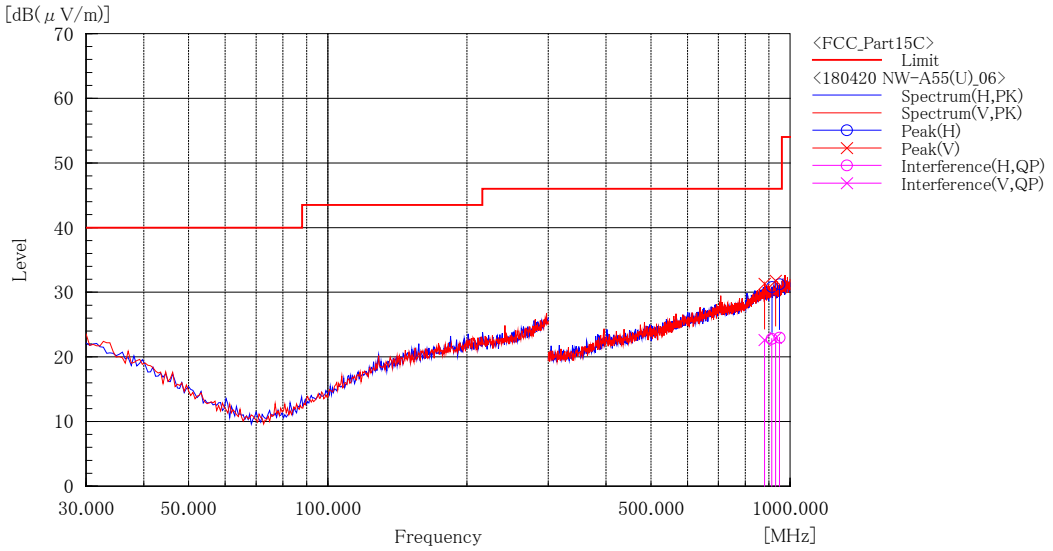
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	1.693	5.5	19.9	25.4	63.1	37.7	100.0	243.9

30 MHz - 1000 MHz
[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 25deg / 50%	Remark4	: Low



Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	913.360	24.5	-1.7	22.8	46.0	23.2	137.6	45.0
2	948.300	24.2	-1.2	23.0	46.0	23.0	152.3	227.2

--- Vertical Polarization (QP)---

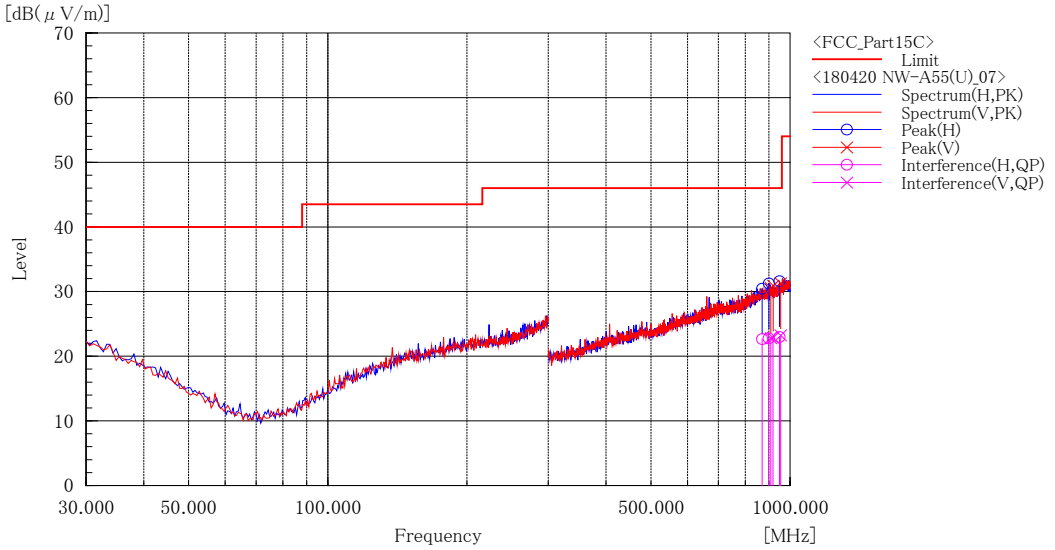
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	880.400	24.6	-2.0	22.6	46.0	23.4	246.5	208.7
2	930.340	24.4	-1.4	23.0	46.0	23.0	259.1	245.0

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 25deg / 50%	Remark4	: Mid



Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	870.080	24.6	-2.0	22.6	46.0	23.4	202.7	230.0
2	899.300	24.6	-1.8	22.8	46.0	23.2	256.4	87.2
3	948.360	24.2	-1.2	23.0	46.0	23.0	238.1	105.3

--- Vertical Polarization (QP)---

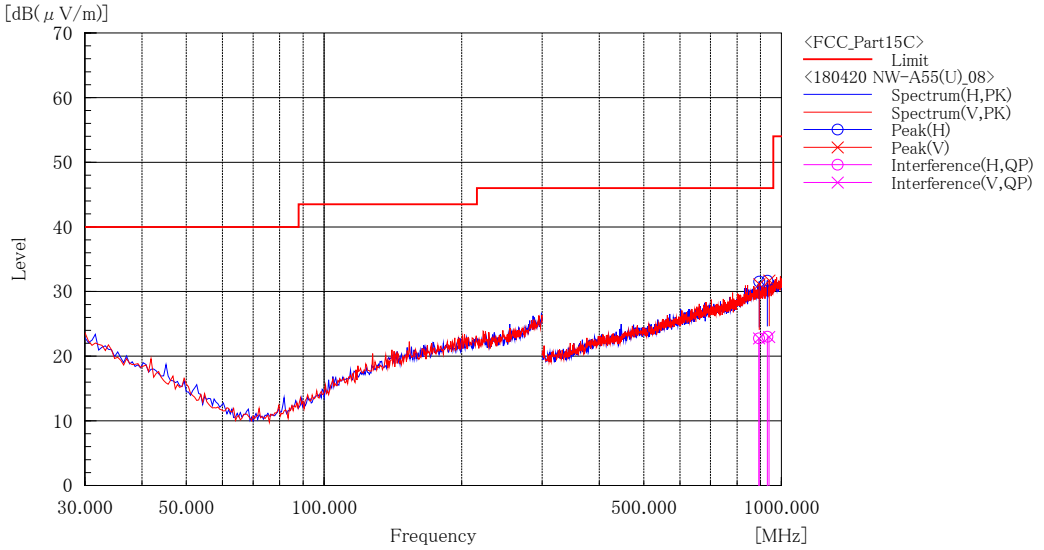
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	908.100	24.5	-1.7	22.8	46.0	23.2	150.9	290.6
2	918.960	24.4	-1.5	22.9	46.0	23.1	264.6	331.7
3	954.080	24.2	-1.0	23.2	46.0	22.8	165.4	170.0

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: T.NAKAMURA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 25deg / 50%	Remark4	: High



Final Result

--- Horizontal Polarization (QP)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	893.460	24.7	-1.9	22.8	46.0	23.2	264.1	335.0
2	931.680	24.4	-1.4	23.0	46.0	23.0	212.9	243.4

--- Vertical Polarization (QP)---

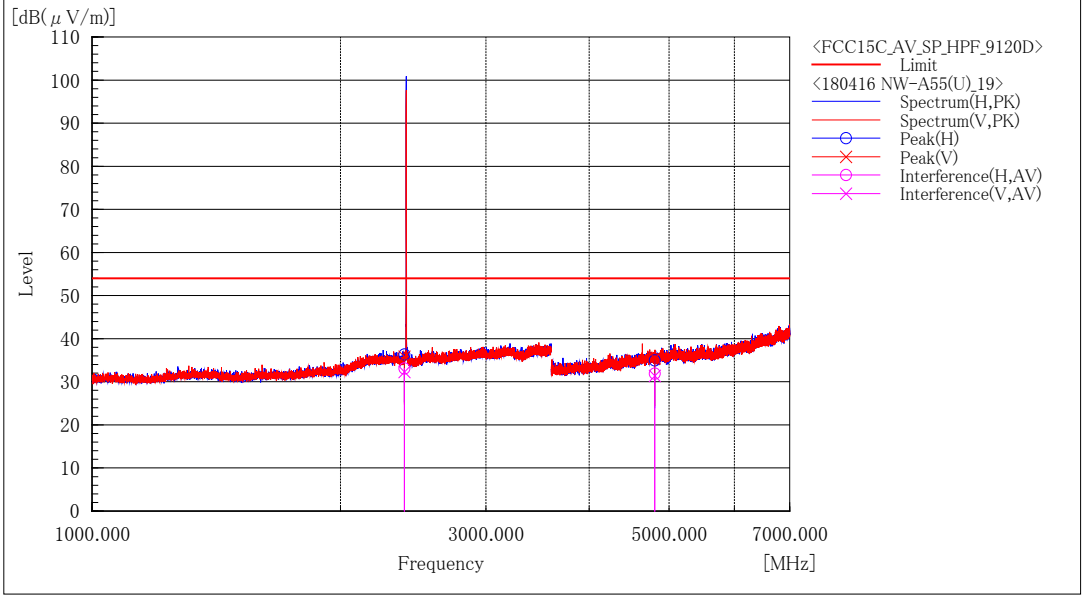
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	893.640	24.7	-1.9	22.8	46.0	23.2	192.7	157.4
2	940.020	24.3	-1.3	23.0	46.0	23.0	221.0	79.5

1 GHz - 7 GHz
[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: Low



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2390.000	40.7	-7.6	33.1	54.0	20.9	114.0	255.1
2	4804.000	35.7	-3.8	31.9	54.0	22.1	160.4	203.5

--- Vertical Polarization (AV)---

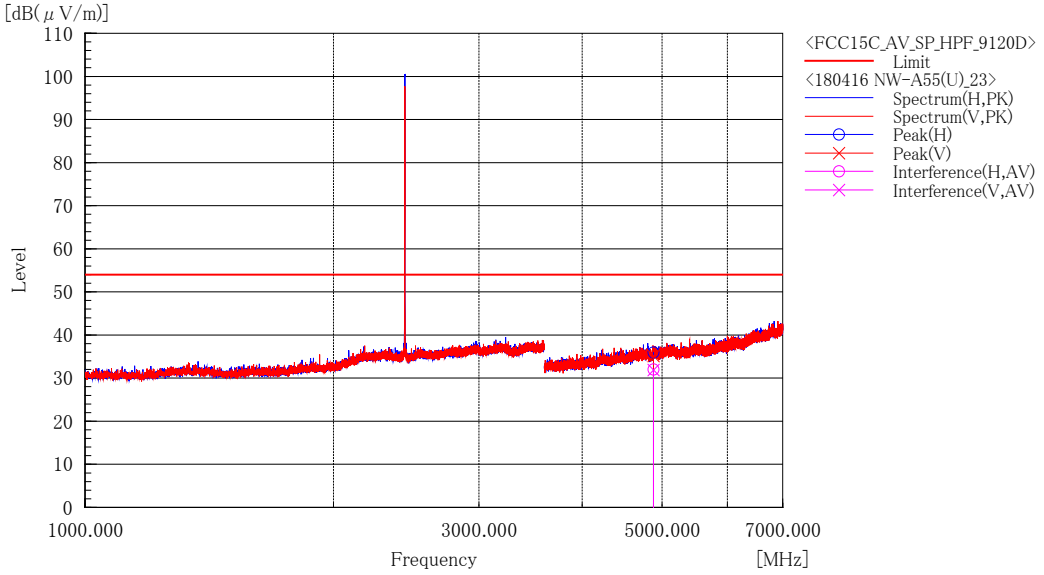
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2390.000	39.9	-7.6	32.3	54.0	21.7	169.0	168.5
2	4804.000	35.2	-3.8	31.4	54.0	22.6	150.0	245.6

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: Mid



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4882.000	35.7	-3.7	32.0	54.0	22.0	334.0	182.1

--- Vertical Polarization (AV)---

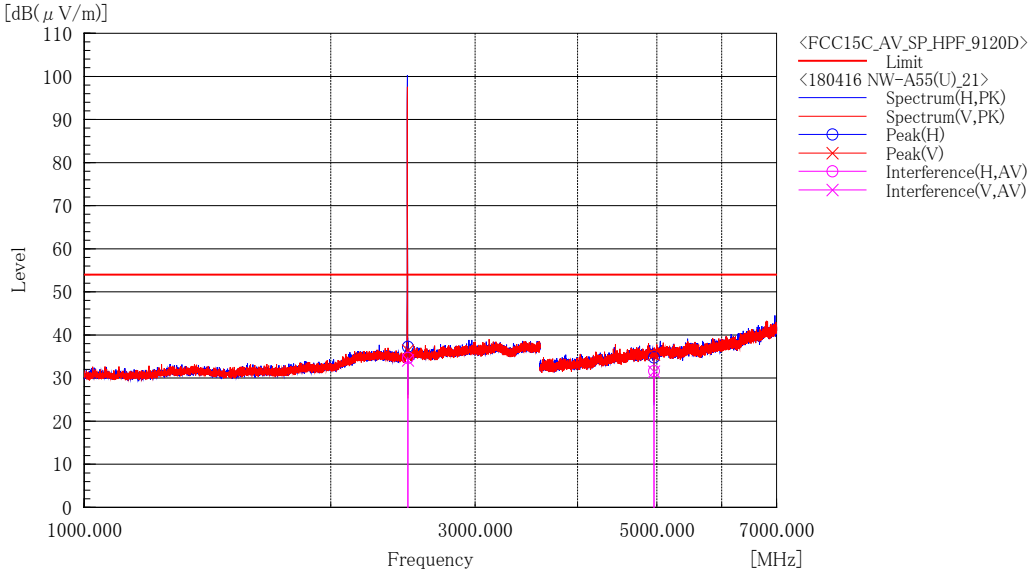
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4882.000	35.6	-3.7	31.9	54.0	22.1	283.9	330.3

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: High



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.500	41.9	-7.2	34.7	54.0	19.3	206.4	263.1
2	4960.000	35.0	-3.4	31.6	54.0	22.4	141.0	353.1

--- Vertical Polarization (AV)---

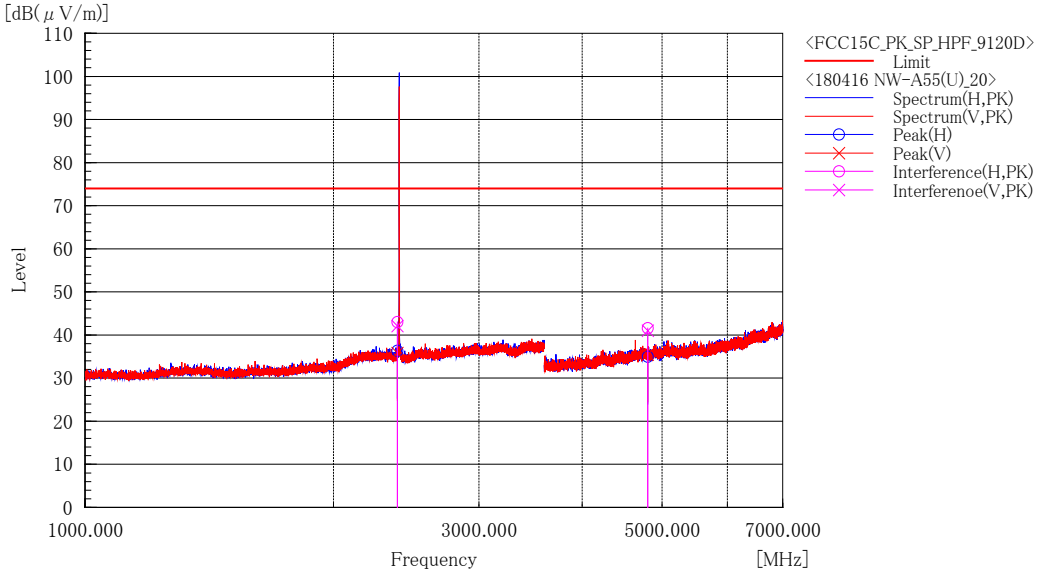
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.500	41.3	-7.2	34.1	54.0	19.9	327.8	350.1
2	4960.000	34.9	-3.4	31.5	54.0	22.5	250.0	201.8

[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: Low



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2390.000	50.6	-7.6	43.0	74.0	31.0	138.2	259.4
2	4804.000	45.4	-3.8	41.6	74.0	32.4	141.0	200.7

--- Vertical Polarization (PK)---

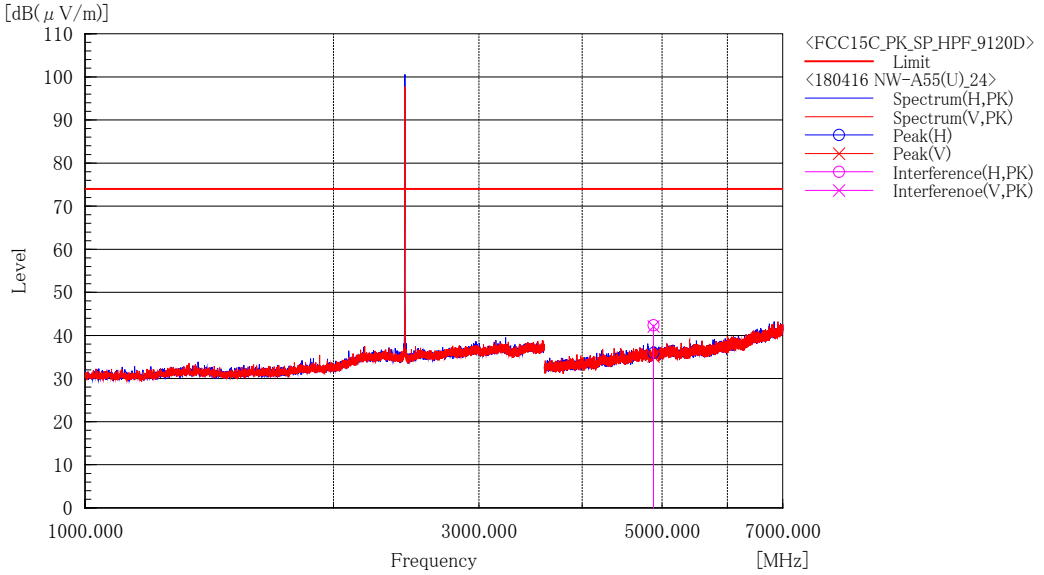
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2390.000	49.7	-7.6	42.1	74.0	31.9	176.6	169.1
2	4804.000	44.8	-3.8	41.0	74.0	33.0	150.0	246.6

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: Mid



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4882.000	46.1	-3.7	42.4	74.0	31.6	336.7	158.3

--- Vertical Polarization (PK)---

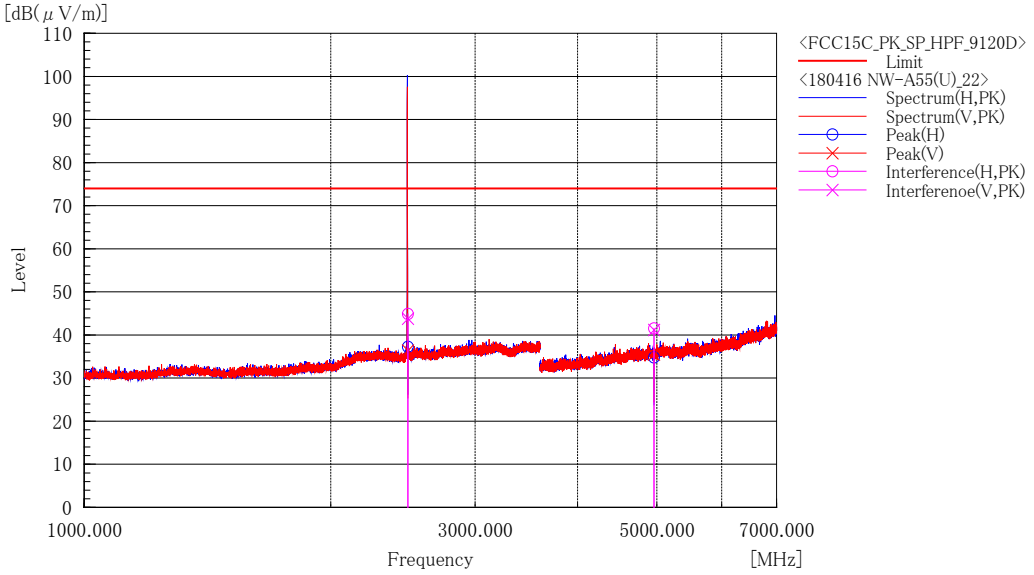
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4882.000	45.8	-3.7	42.1	74.0	31.9	307.0	329.4

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 24deg / 45%	Remark4	: High



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.500	52.1	-7.2	44.9	74.0	29.1	177.6	261.1
2	4960.000	44.9	-3.4	41.5	74.0	32.5	142.0	353.1

--- Vertical Polarization (PK)---

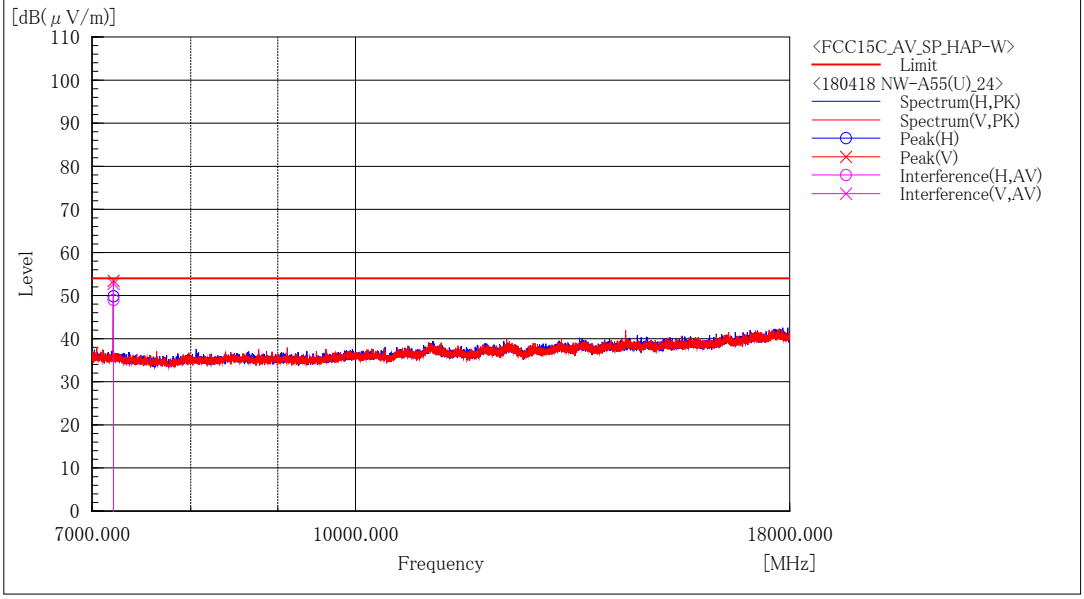
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.500	51.0	-7.2	43.8	74.0	30.2	321.2	352.1
2	4960.000	44.6	-3.4	41.2	74.0	32.8	242.6	200.1

7 GHz - 18 GHz
[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Low



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7206.060	56.6	-7.6	49.0	54.0	5.0	431.0	296.0

--- Vertical Polarization (AV)---

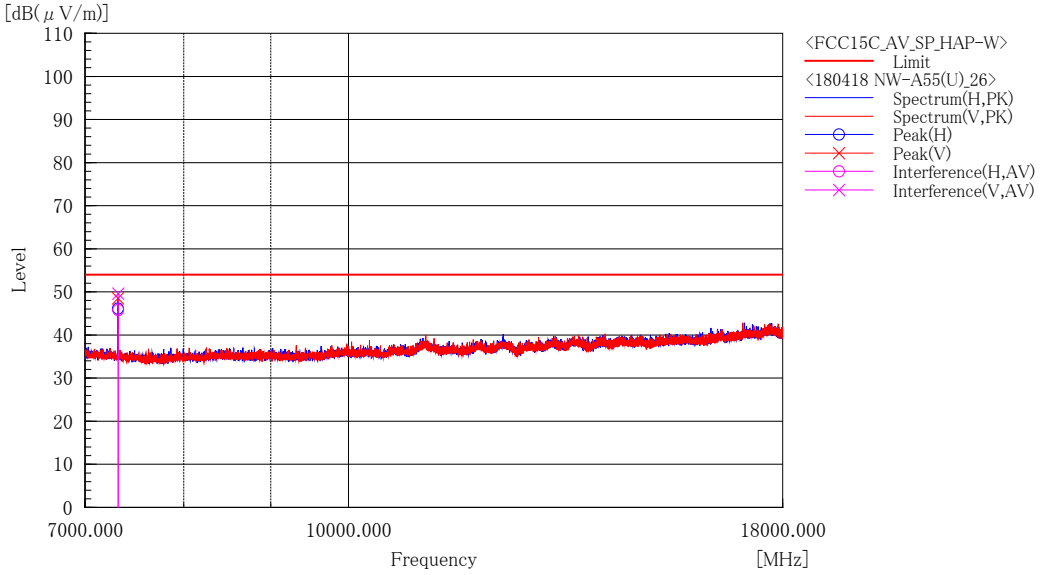
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7205.986	60.4	-7.6	52.8	54.0	1.2	416.4	297.0

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Mid



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7320.143	53.6	-7.8	45.8	54.0	8.2	415.3	295.0

--- Vertical Polarization (AV)---

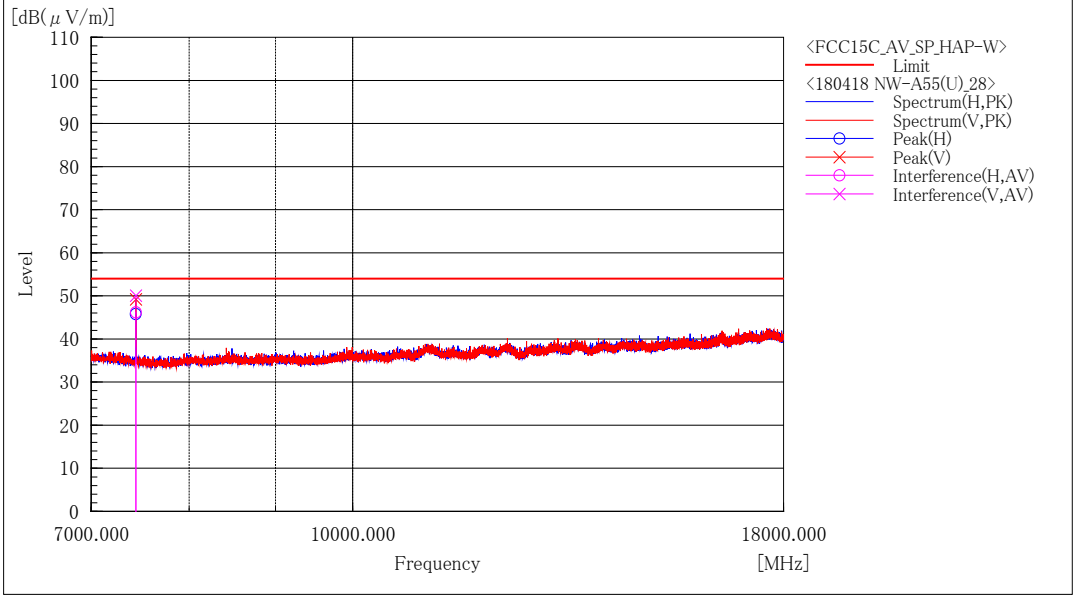
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7320.215	57.4	-7.8	49.6	54.0	4.4	418.2	285.0

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: High



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7440.093	54.1	-7.9	46.2	54.0	7.8	161.0	221.0

--- Vertical Polarization (AV)---

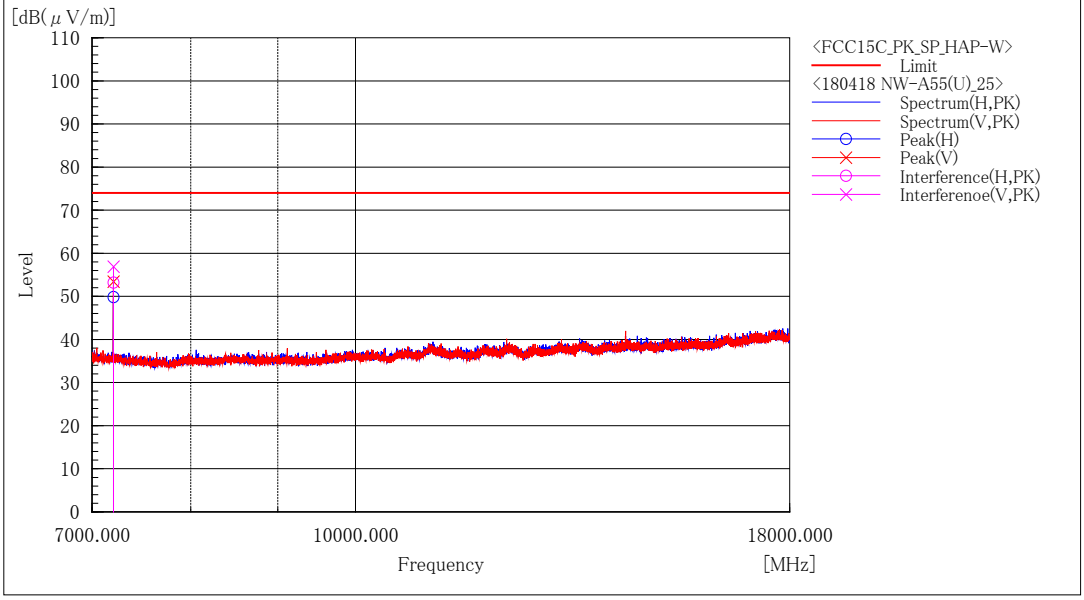
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7440.117	58.0	-7.9	50.1	54.0	3.9	386.0	296.0

[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Low



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7205.977	60.8	-7.6	53.2	74.0	20.8	431.0	293.5

--- Vertical Polarization (PK)---

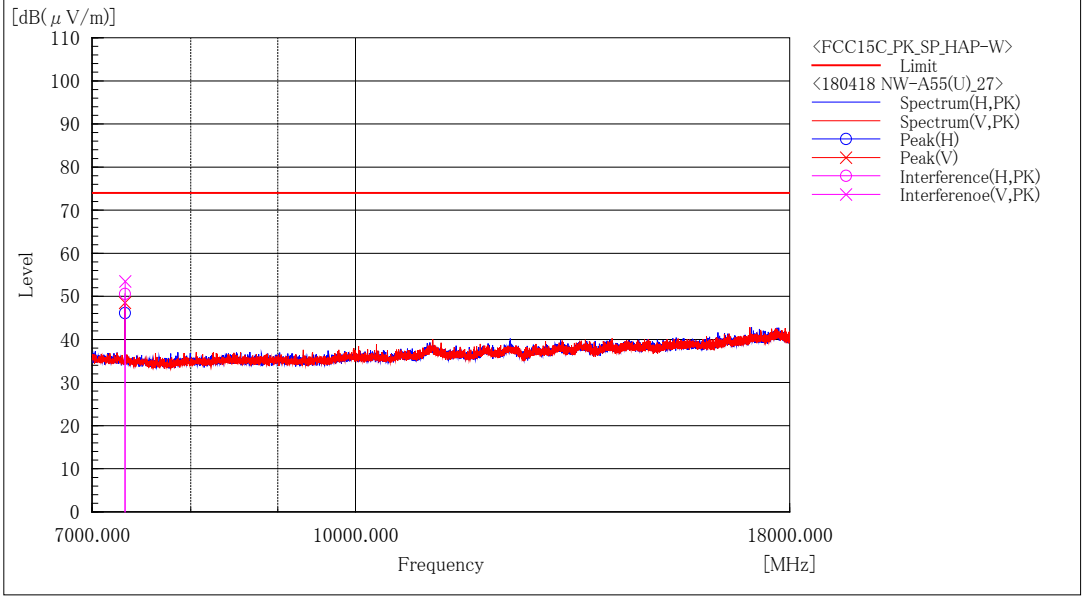
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7206.104	64.5	-7.6	56.9	74.0	17.1	416.4	296.0

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Mid



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7319.972	58.4	-7.8	50.6	74.0	23.4	416.0	295.0

--- Vertical Polarization (PK)---

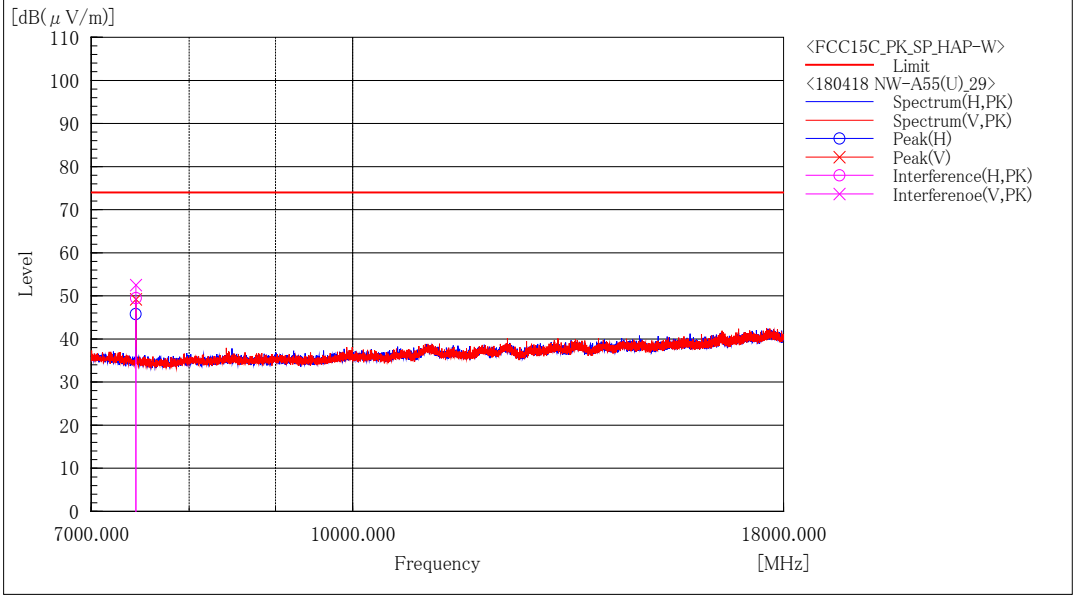
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7320.080	61.3	-7.8	53.5	74.0	20.5	418.2	284.0

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: High



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7439.846	57.4	-7.9	49.5	74.0	24.5	163.0	222.0

--- Vertical Polarization (PK)---

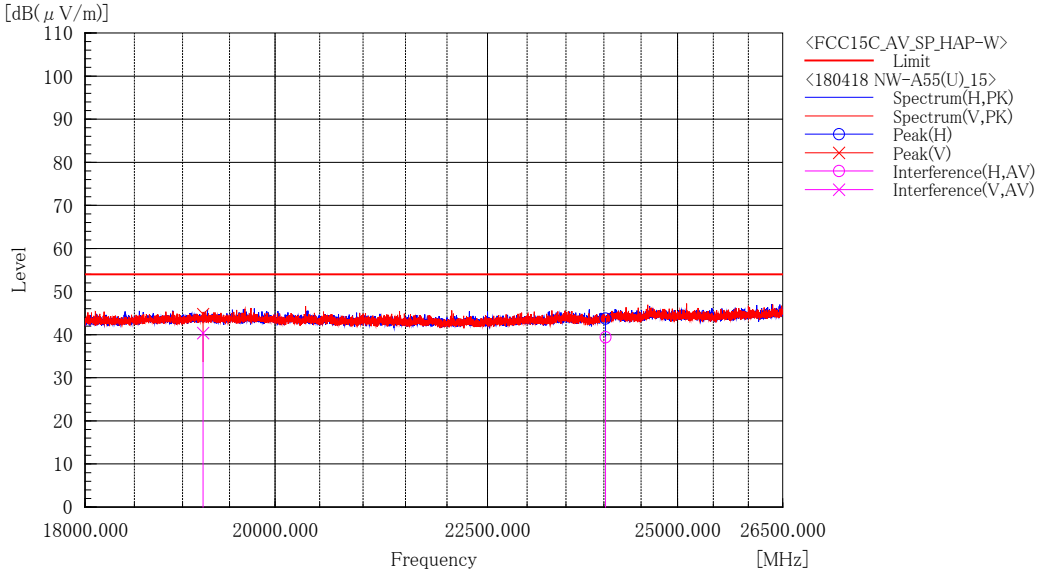
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7439.929	60.4	-7.9	52.5	74.0	21.5	386.5	296.0

18 GHz - 25 GHz
[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Low



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24020.000	35.0	4.4	39.4	54.0	14.6	162.0	23.0

--- Vertical Polarization (AV)---

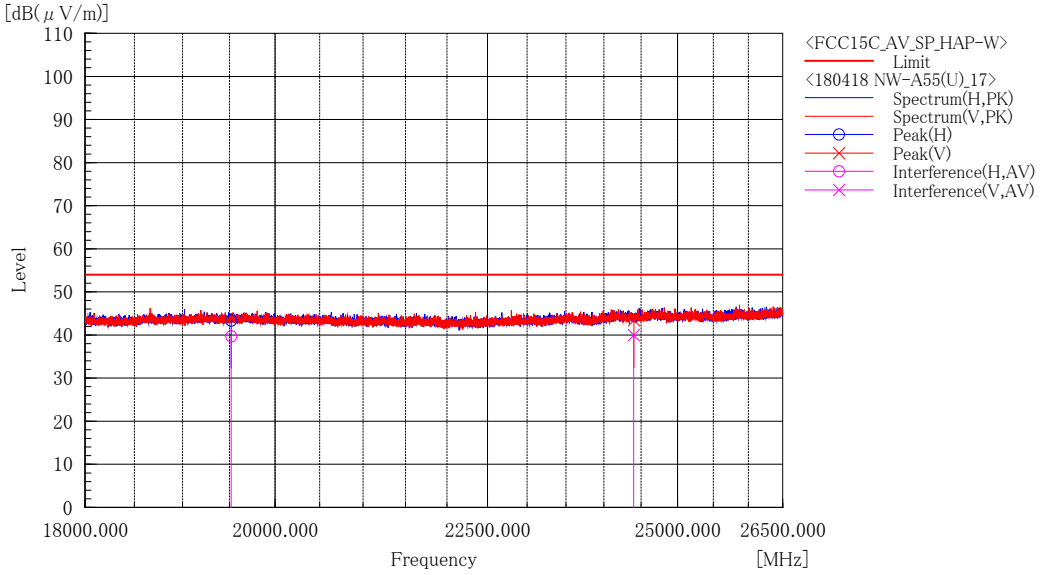
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19216.000	35.0	5.4	40.4	54.0	13.6	203.0	263.0

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Mid



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19520.000	34.2	5.5	39.7	54.0	14.3	123.0	149.0

--- Vertical Polarization (AV)---

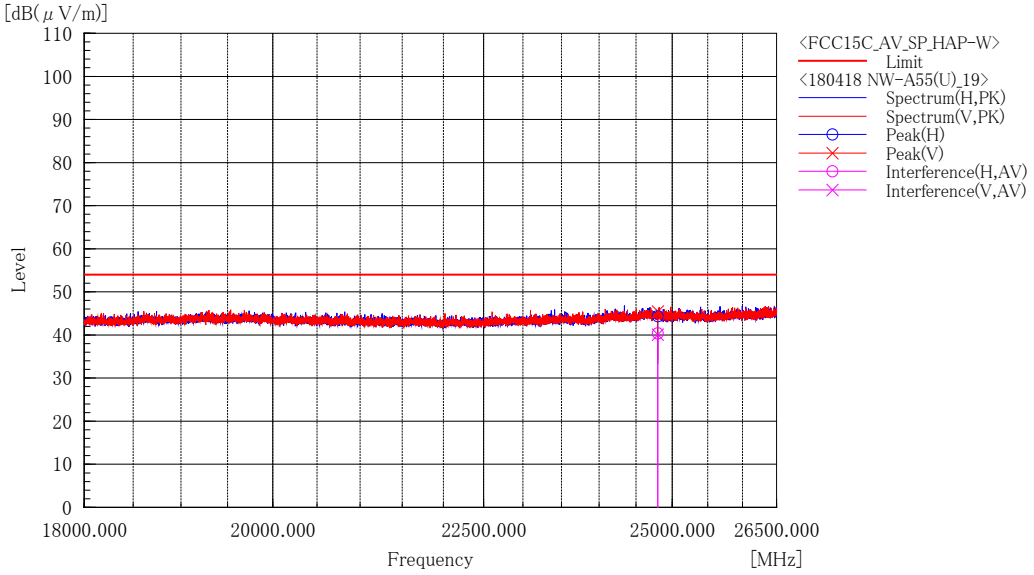
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24400.000	35.5	4.5	40.0	54.0	14.0	167.8	50.7

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: High



Final Result

--- Horizontal Polarization (AV)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24800.000	35.9	4.5	40.4	54.0	13.6	248.6	322.5

--- Vertical Polarization (AV)---

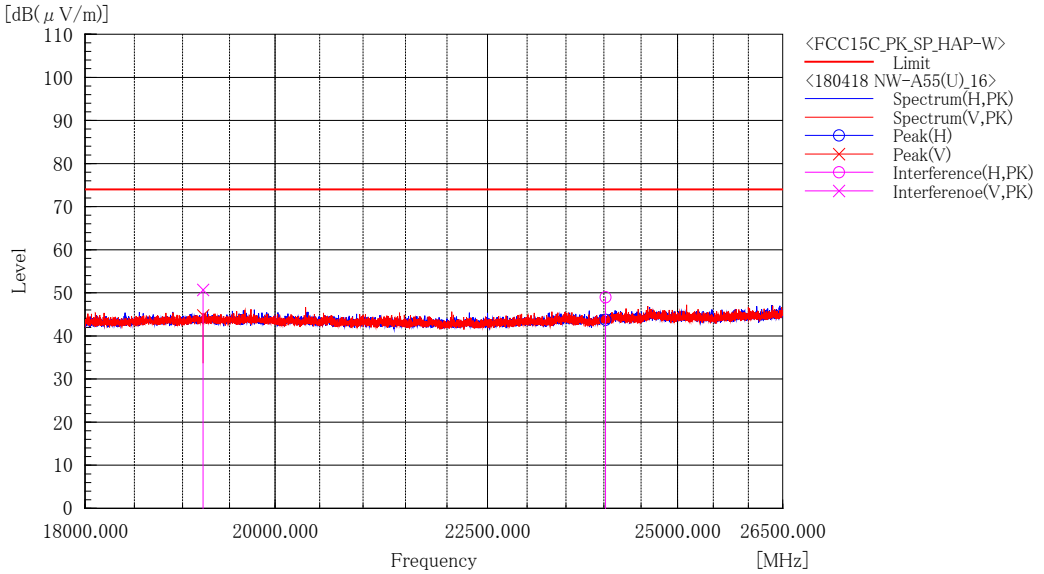
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24800.000	35.6	4.5	40.1	54.0	13.9	225.1	329.0

[Bluetooth Low Energy (1 Mbps) / 2402 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Low



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24020.000	44.6	4.4	49.0	74.0	25.0	160.0	24.0

--- Vertical Polarization (PK)---

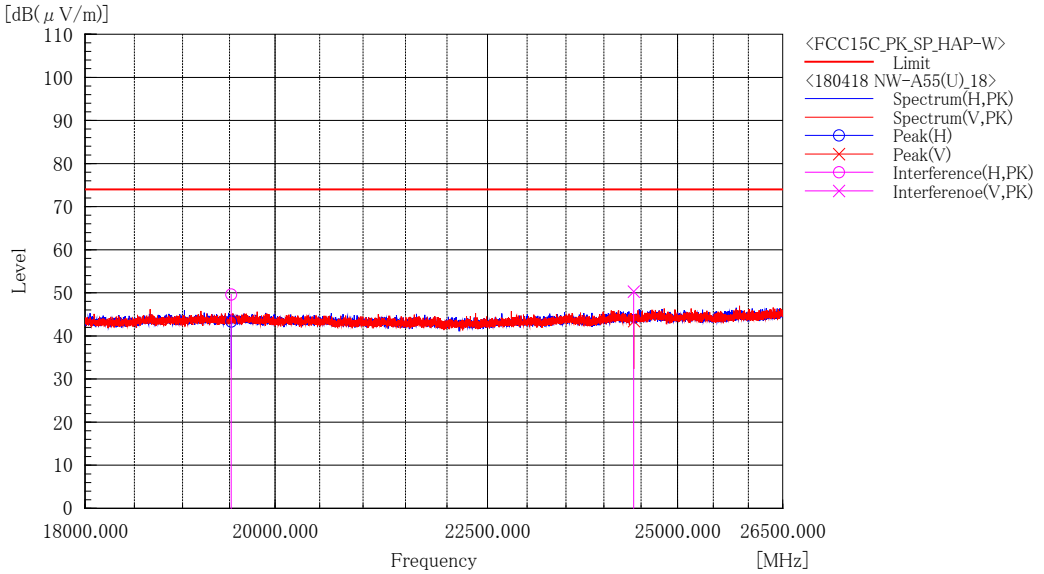
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19216.000	45.3	5.4	50.7	74.0	23.3	175.0	280.8

[Bluetooth Low Energy (1 Mbps) / 2440 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: Mid



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19520.000	44.1	5.5	49.6	74.0	24.4	130.0	150.0

--- Vertical Polarization (PK)---

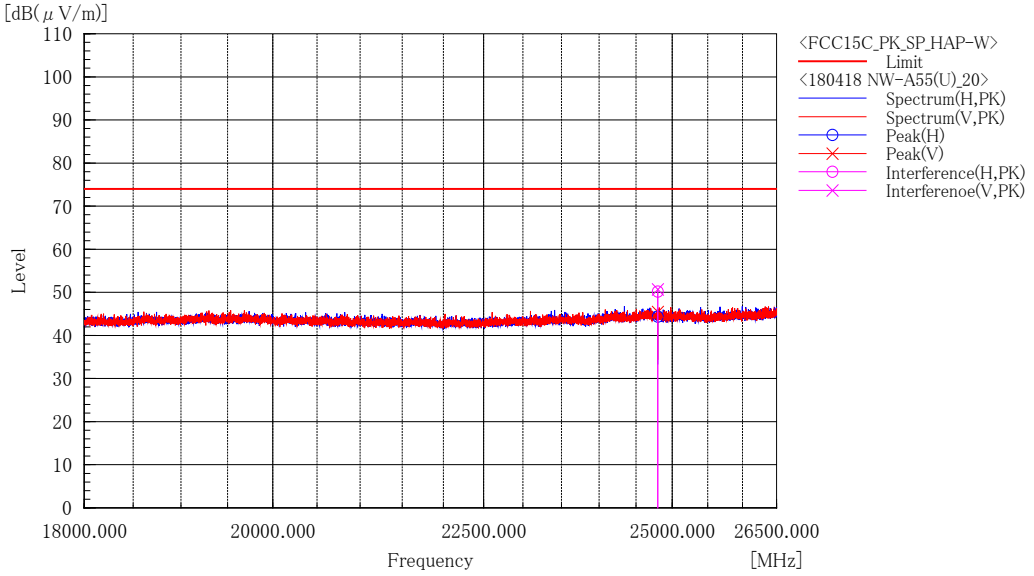
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24400.000	45.8	4.5	50.3	74.0	23.7	173.0	44.0

[Bluetooth Low Energy (1 Mbps) / 2480 MHz]

Sony Global M&O Corp
Kisarazu DTS

<<Radiated Emission>>

Model	: NW-A55	Limit	: FCC Part15C 15.209(a) 3m
Serial	: 2	Remark1	:
Operator	: M.KOUGA	Remark2	: Z
Power	: DC 3.7V	Remark3	: 1M
Temp./Hum.	: 23deg / 50%	Remark4	: High



Final Result

--- Horizontal Polarization (PK)---

No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24800.000	45.7	4.5	50.2	74.0	23.8	246.0	321.0

--- Vertical Polarization (PK)---

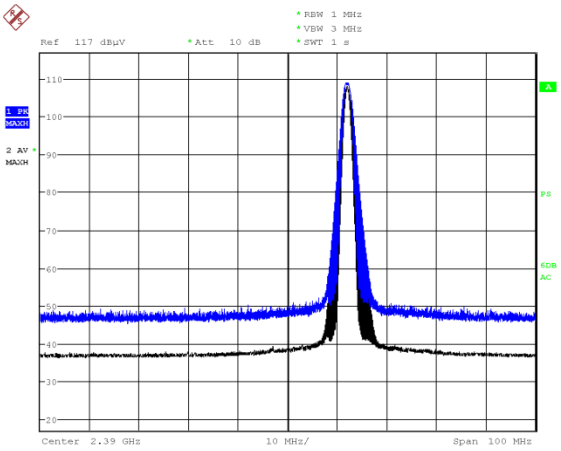
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	24800.000	46.2	4.5	50.7	74.0	23.3	254.0	338.6

2.4GHz Restricted-Band Edge (Plot data)

These plot data show peak (trace blue) and average (trace black) spectrum for worst case emissions in the restricted-band edges. (Restricted band edges: below 2390 MHz and above 2483.5 MHz)
The result of the final radiated emissions measurement refers in previous pages.

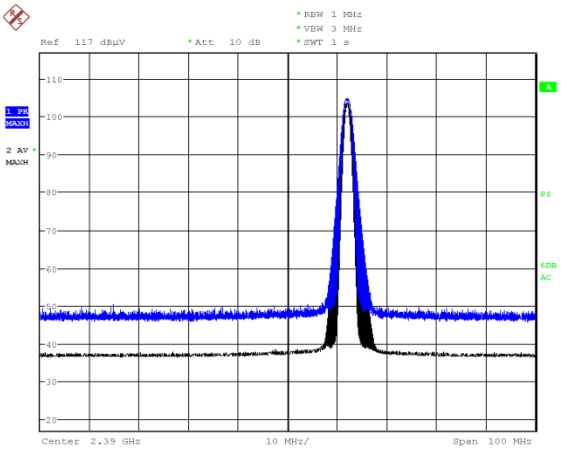
[Bluetooth Low Energy / 2402 MHz]

Horizontal



Date: 17.APR.2018 00:20:51

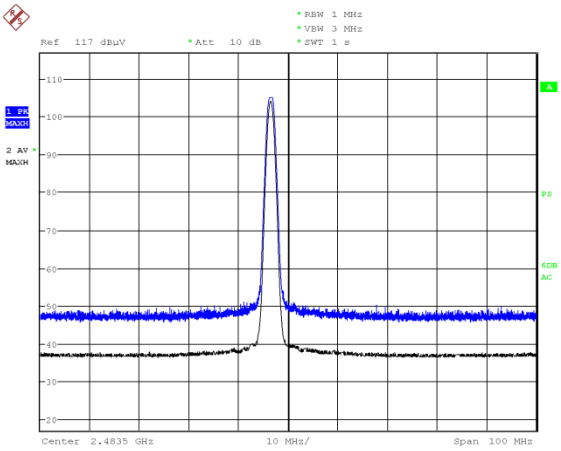
Vertical



Date: 17.APR.2018 00:28:13

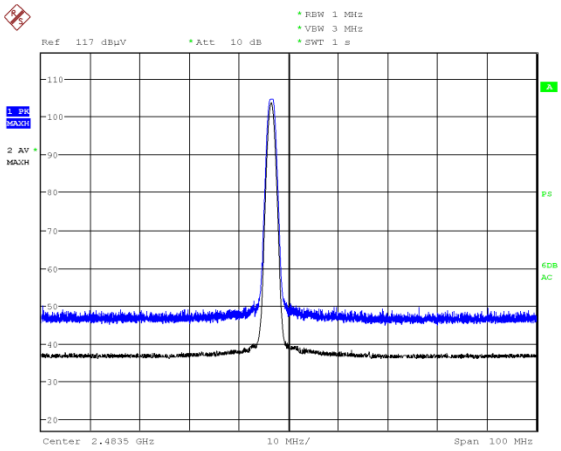
[Bluetooth Low Energy / 2480 MHz]

Horizontal



Date: 17.APR.2018 01:03:09

Vertical



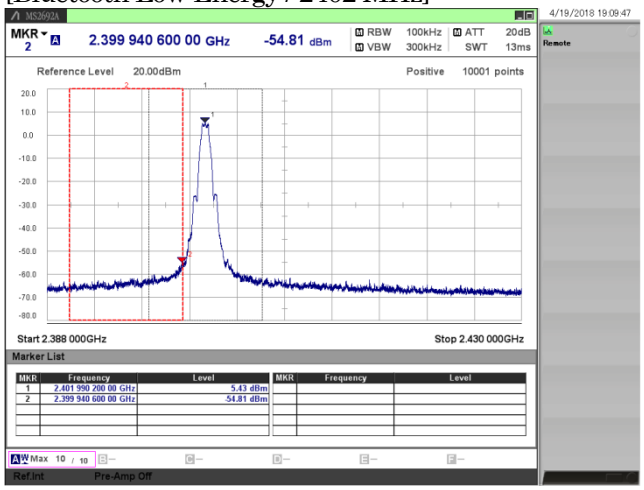
Date: 17.APR.2018 00:56:00

3.6. Conducted Spurious Emissions for Band Edge

1) Ambient temperature : 24.0 deg.C
2) Relative humidity : 46.9 %
3) Date of measurement : April 19, 2018
4) Measured by : M.KOUGA
5) Operating mode : Transmitting mode

Mode	Rate [Mbps]	Channel [MHz]	Frequency [MHz]	Reading(PK) [dBm]	C.F. [dB]	Result [dBm]	Limit [dBm]	Margin [dB]
BLE	1	2402	2401.99	5.43	0.71	6.14	-	-
			2399.94	-54.81	0.71	-54.10	-13.9	40.24

[Bluetooth Low Energy / 2402 MHz]



4. Method of Calculation

4.1. AC Power-line Conducted Emissions Measurement

Method of calculation	:	Software
The Software for Calculation	Name	: EP5/ CE
	Version	: Ver5.0.0

Test Result [dBuV] = Meter Reading [dBuV] + C.F. [dB]

Notes :

(a) Meter Reading : Reading of the EMI test receiver or spectrum analyzer.

(b) C.F. : System Loss + Correction Factor of LISN.

4.2. Maximum Peak Conducted Output Power Measurement

Method of calculation	:	Software
The Software for Calculation	Name	: SW-316
	Version	: Ver.1.3

Test Result (PK) [dBm] = Meter Reading [dBm] + C.F. [dB]

Test Result (AV) [dBm] = Meter Reading [dBm] + C.F. [dB] + Duty Factor [dB]

Notes :

(a) Meter Reading : Reading of the power meter.

(b) C.F. : Attenuator Loss + EUT Cable Loss

(c) Duty Factor : 10log {(Tx ON Time + Tx OFF Time) / (Tx ON Time)}

4.3. Power Density Measurement

Method of calculation	:	Software
The Software for Calculation	Name	: SW-316
	Version	: Ver.1.3

Test Result [dBm] = Meter Reading [dBm] + C.F. [dB]

Notes :

(a) Meter Reading : Reading of the spectrum analyzer.

(b) C.F. : System Cable Loss + Attenuator Loss + EUT Cable Loss

4.4. Radiated Spurious Emission Measurement

Method of calculation	:	Software
The Software for Calculation	Name	: V-Scan
	Version	: Ver. 4.0.30

Test Result [dBuV/m] = Meter Reading [dBuV] + C.F. [dB/m]

Notes :

(a) Meter Reading : Reading of the EMI test receiver or spectrum analyzer.

(b) C.F. : ☒ Antenna Factor (including Balun Loss) + System GainLoss

: ☐ Antenna Factor (including Balun Loss) + System GainLoss + 20 log (3 m/ 10 m)

4.5. Conducted Spurious Emission for Band Edge Measurement

Method of calculation	:	Software
The Software for Calculation	Name	: SW-316
	Version	: Ver.1.3

Test Result [dBm] = Meter Reading [dBm] + C.F. [dB]

Notes :

(a) Meter Reading : Reading of the spectrum analyzer.

(b) C.F. : System Cable Loss + Attenuator Loss + EUT Cable Loss

5. List of Test Equipment

All test results are traceable to the national and/or international standards.

5.1. AC Power-line Conducted Emissions

4th Site Shielded Room

	Ctrl.#	Equipment	Model No.	Serial No.	Manufacturer	Cal.Int.	Last Cal.
x	-	Shield Room	-	-	TDK	-	-
x	CS0043	4th Site CE Cable SYSTEM	-	-	EMC/RF Test Lab.	12	17.11.19
x	M0664	6dB Attenuator	6806.01A	N/A	HUBER+SUHNER AG	12	17.11.19
x	M0619	HIGH FREQUENCY FUSE	MP612A	N/A	Anritsu	12	17.11.19
x	M0026	LISN (for Peripheral)	KNW-407	8-541-1	Kyoritsu	12	17.07.24
x	M0833	LISN (for EUT)	ENV216	100293	Rohde & Schwarz	12	17.12.04
x	M0970	EMI Receiver	ESCI	100511	Rohde & Schwarz	12	18.03.27
x	M0689	Thermo Meter	AD-5640A	201303	A&D	12	17.11.14

5.2. Antenna-port Conducted Measurements

4th Site Shielded Room 1

	Ctrl.#	Equipment	Model No.	Serial No.	Manufacturer	Cal.Int.	Last Cal.
x	-	Shield Room	B83117-B2432-T161	P26428	Albatross Project	-	-
x	W0100	Spectrum Analyzer	MS2692A	6201338954	Anritsu	12	18.04.03
x	W0006	Power Meter	N1911A	MY50000295	Keysight Technologies	12	17.10.03
x	W0007	Power Sensor	N1922A	MY50180022	Keysight Technologies	12	17.10.04
-	W0029	10dB Attenuator	8493C	76549	Keysight Technologies	12	17.08.03
x	WC0005	RF Cable	SUCOFLEX 102	34287	HUBER + SUHNER	12	17.08.03
x	M0720	Thermometer	TH-321	140044	AS ONE	12	17.06.09

5.3. Radiated Spurious Emissions

4th Site 10m Semi-Anechoic Chamber

	Ctrl.#	Equipment	Model No.	Serial No.	Manufacturer	Cal.Int.	Last Cal.
x	M0506	EMC Chamber	-	-	TDK	12	17.07.10
x	M0515	EMI Receiver	ESCI	100606	Rohde & Schwarz	12	17.09.29
x	M0504	EMI Receiver	ESU40	100086	Rohde & Schwarz	12	17.11.02
x	A0073	Loop Antenna	HFH2-Z2	100171	Rohde & Schwarz	12	17.11.01
x	A0043	Biconical Antenna	BBA9106	VHA91032598 (V5)	Schwarzbeck	12	17.11.13
x	A0046	Log periodic Antenna	UHALP9108A1	0830	Schwarzbeck	12	17.11.13
x	A0056	Horn Antenna	BBHA9120D	670	Schwarzbeck	12	17.11.18
x	A0057	Horn Antenna=	HAP06-18W	00000037	TOYO Corporation	12	17.11.18
x	A0058	Horn Antenna	HAP18-26W	00000016	TOYO Corporation	12	17.12.01
-	CS0037	Fourth Site RE Cable SYS1	-	-	EMC/RF Test Lab.	12	17.11.19
x-	CS0039	Fourth Site RE Cable SYS3	-	-	EMC/RF Test Lab.	12	17.11.19
x	CS0054	Fourth Site EMF Cable SYS	-	-	EMC/RF Test Lab.	12	17.11.19
x	CS0064/0065	Fourth Site RE Cable SYS8	-	-	EMC/RF Test Lab.	12	17.11.19
x	M0510	RF Selector	NS4900	0802-226	TOYO Corporation	12	17.11.19
x	M0620	RF Pre-Amp	8447D	2944A10720	Keysight Technologies	12	17.11.19
x	M0706	3dB Attenuator	8491A	MY39267782	Keysight Technologies	12	17.11.19
x	M0831	GHz Filter Box	FB-G1	002	Sony GM&O	12	17.11.19
x	M0690	Thermometer	AD-5640A	201304	AND	12	17.11.14

About calibration interval

Valid until the end of the month listed in “Cal. Int.” column.