

RADIO TEST REPORT

(for Bluetooth classic)

Project No. : JB-Z0146

Client : Sony Corporation

Address : 1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Type of Equipment : Digital Music Player

Model No. : NW-WM1A

Serial No. : 2000035,2000014

FCC ID : AK8NWWM1A

Regulation Applied : 47 CFR Part 15 Subpart C

Final Judgment : Passed

Sample Receipt : May 26, 2016

Testing : May 30, 2016 - June 23, 2016

Reported : June 24, 2016

Reported by :

Approved Signatory :



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Notice

* These test results relate only to the items (combination equipment, test configuration, operation condition etc.) tested.

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* 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.

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TESTING CERT #3203.01

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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	:	Pre-production
Type of Equipment	:	Digital Music Player
Trade Name	:	SONY
Model No.	:	NW-WM1A
Serial No.	:	2000035,2000014
Power Rating	:	DC3.7V(The EUT was supplied with the power from built-in battery) DC 5V (Built-in battery was charged through USB input port)
Software Ver.	:	0.80.00

Radio specification

Function of the Equipment	:	Transceiver
Operating frequency	:	2402 - 2480 MHz
Modulation Type	:	FHSS(GFSK, $\pi/4$ DQPSK, 8DPSK)
Channel Spacing	:	1 MHz
Channel Bandwidth	:	1 MHz
Number of channels	:	79
Antenna type	:	Inverted-F antenna
Antenna connector type	:	None
Antenna gain	:	+2.1 dBi
Operating Temperature	:	5 to 35deg.C

1.2. Summary of Test Result

Test Item	Worst Margin	Test Frequency band	Results
AC Power-line Conducted Emissions	16.50 dB (QP) 0.150 MHz L1	0.15 MHz - 30 MHz	Complied
20dB Bandwidth	Refer to the test data	Carrier	Complied
Carrier Frequency Separation	Refer to the test data	Carrier	Complied
Number of Hopping Frequencies	Refer to the test data	Carrier	Complied
Time of Occupancy (Dwell Time)	Refer to the test data	Carrier	Complied
Maximum Peak Conducted Output Power	22.31 dB	Carrier	Complied
Radiated Spurious Emissions	6.3 dB (AV) 2483.510 MHz Horizontal	9 kHz - 25 GHz (excluding carrier and band edge)	Complied
Conducted Spurious Emissions for Band Edge *1	35.83 dB Margin 2399.68 MHz	Carrier band edge	Complied

Note

*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 Part 15 Subpart C
 Test Method : ANSI C63.10 - 2013
 DA 00-705 (March 30, 2000)

Test Condition :

Radiated Spurious Emissions

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

Dimensions of the EUT table 0.8m(for MHz), 1.5m(for GHz) height, 1.5 m width and 1 m depth.

AC Power-line Conducted Emissions

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

1.4. Measurement Procedures

We performed the measurements in accordance with NV3-12, available upon the request.

- No Deviation
 Deviation from the above procedure.

The summary of the above procedure is mentioned below

Antenna-port Conducted Measurements

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Antenna-port Conducted Measurements were measured with spectrum analyzer.

Test Item	Detector	RBW
*Antenna-port Conducted Measurements		
20dB Bandwidth	Peak	30 kHz
99% Occupied Bandwidth	N/A	N/A
Carrier Frequency Separation	Peak	100 kHz
Number of Hopping Frequencies	Peak	100 kHz
Time of Occupancy (Dwell Time)	Peak	1 MHz
Maximum Peak Conducted Output Power	Peak	3 MHz
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 - 30MHz, 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 were 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 according to follows;
 - Rotating the turntable and/or scanning the antenna.
 - On every condition, exploring 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 of all test operating modes carried out on these emissions as follows:

The test antenna and the turntable were performed with follows:

	9kHz - 30MHz	30MHz - 1000MHz	above 1GHz
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

*: 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	above 1GHz
Detector	Peak / Average	Quasi-peak	Quasi-peak	Peak / Average
RBW	9 kHz (6dB) *1	9 kHz (6dB) *1	120 kHz (6dB)	1 MHz (3dB)
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(FCC 15.209(a)) in non-restricted band(excluding carrier band edges), the measurement is carried out additionally and compared with the limit (-20dBc) 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 - 30MHz	above 30MHz
Detector	Peak	Peak	Peak
RBW	3 dB RBW: 300 Hz *	3 dB RBW: 10 kHz *	3 dB RBW: 100 kHz
Instrument	Spectrum analyzer	Spectrum analyzer	Spectrum analyzer

*: Correction factor of RBW was compensated to a measurement result by the following formula.

$$C.F. \text{ of RBW [dB]} = 10 * \log (100\text{kHz} / \text{used RBW})$$

8. 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 937606.

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

Radiated Spurious Emission

Semi-Anechoic chamber

 4th Site EMC Site

Antenna-port Conducted Measurements

Shielded Room

 4th Site SR1

A2LA Accreditation for Test Facility

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

Effective dates: 2015-09-15 through 2017-10-31

1.6. Uncertainty

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

Test Item	Frequency	Distance	4th Site	EMC Site
AC Power-line Conducted Emissions	150kHz - 30MHz	-	± 3.34 dB	± 3.35 dB
Radiated Emissions	below 30 MHz	3m	± 2.59 dB	± 3.12 dB
	30 - 300 MHz	3m	± 4.18 dB	± 5.26 dB
	300 - 1000 MHz	3m	± 4.04 dB	± 4.37 dB
	1 - 6 GHz	3m	± 4.63 dB	± 4.90 dB
	6 - 18 GHz	3m	± 5.31 dB	± 5.50 dB
	18 - 26.5 GHz	3m	± 5.78 dB	± 5.63 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

Transmitting mode

Test Items	Operating Mode *1	Packet type *2,3	Test Channels
AC Power-line Conducted Emissions *4	EDR	3DH5	2480MHz
Carrier Frequency Separation, Number of Hopping Frequencies, Time of Occupancy (Dwell Time)	BDR	DH5	Hopping ON
	EDR	3DH5	
20dB Bandwidth, Maximum Peak Conducted Output Power, Radiated Spurious Emissions	BDR	DH5	2402 MHz
	EDR	3DH5	2441 MHz 2480 MHz
Conducted Spurious Emissions for Band Edge	BDR	DH5	2402 MHz
	EDR	3DH5	

Note

- *1: Inquiry mode was not performed based on the result of pre-compliance testing.
- *2: The worst packet type has been decided based on the result of maximum duty cycle and pre-compliance testing in the actual product specification.
- *3: EDR worst bitrate has been decided based on the result of maximum duty cycle for Time of Occupancy measurement. Other measurements were decided based on the result of Maximum Peak Conducted Output Power.
- *4: The final test was performed with the representative mode that had been found as the worst emission mode while exploratory testing.

The Software for Operating Mode

Name : Diagnosis
Version : 1.02.10

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) consists of

Symbol	Item	Manufacturer	Model No.	Serial No.
A	Digital Music Player	SONY	NW-WM1A	2000014

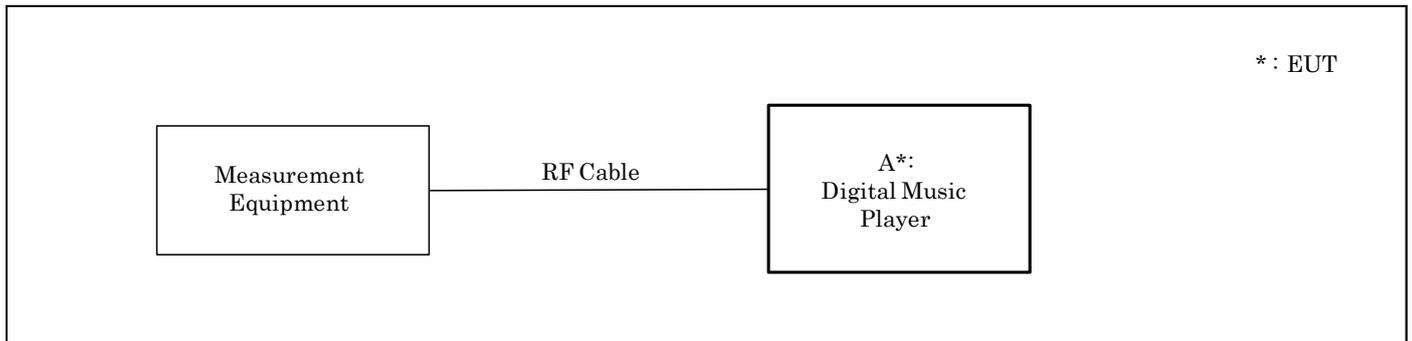
The measurement was carried out with the following support equipment connected

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

Type of Cable

Symbol	Description	Identification (Manufacturer etc)	Shielded Yes/No	Ferrite Core	Bundled	Length (m)
-	-	-	-	-	-	-

System configuration



Radiated Spurious Emissions

The equipment under test (EUT) consists of

Symbol	Item	Manufacturer	Model No.	Serial No.
A	Digital Music Player	SONY	NW-WM1A	2000035

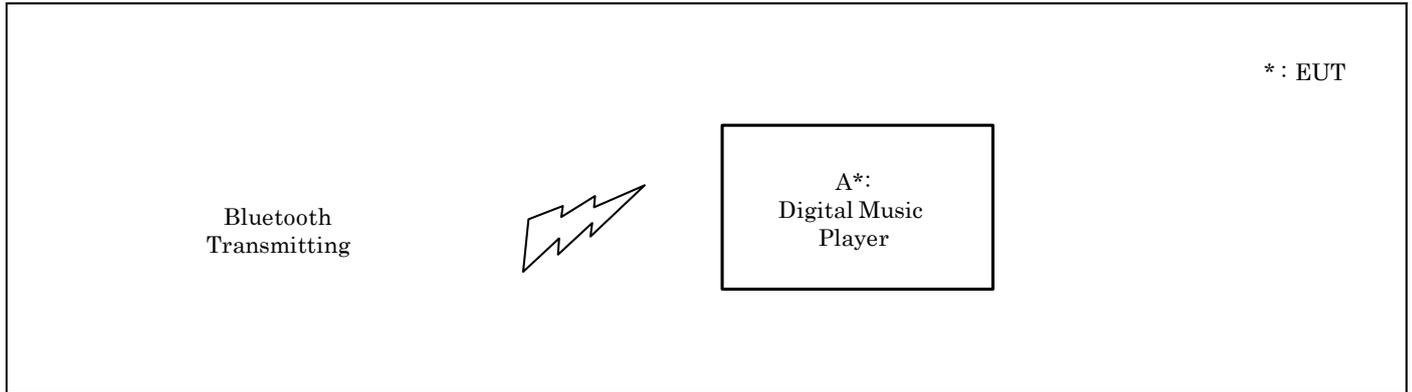
The measurement was carried out with the following support equipment connected

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

Type of Cable

Symbol	Description	Identification (Manufacturer etc)	Shielded Yes/No	Ferrite Core	Bundled	Length (m)
-	-	-	-	-	-	-

System configuration



AC Power-line Conducted Emissions

The equipment under test (EUT) consists of

Symbol	Item	Manufacturer	Model No.	Serial No.
A	Digital Music Player	SONY	NW-WM1A	2000035

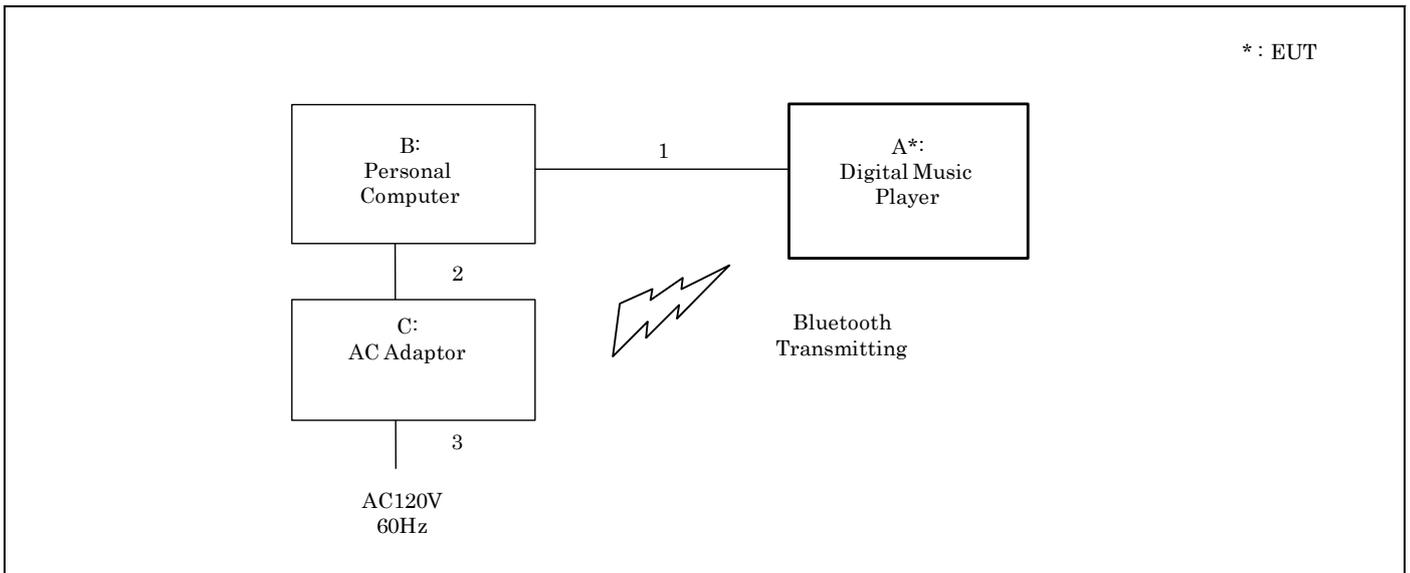
The measurement was carried out with the following support equipment connected

Symbol	Item	Manufacturer	Model No.	Serial No.
B	Personal Computer	HP	K7U44AV-AC-JA	JPA55142KP
C	AC Adaptor	HP	HSTNN-CA41	WDVTPOCGC8X1LY

Type of Cable

Symbol	Description	Identification (Manufacturer etc)	Shielded Yes/No	Ferrite Core	Bundled	Length (m)
1	USB cable	SONY	Yes	No	-	1.0
2	DC cable	-	No	No	Bundled	2.0
3	AC cable	-	No	No	-	1.0

System configuration

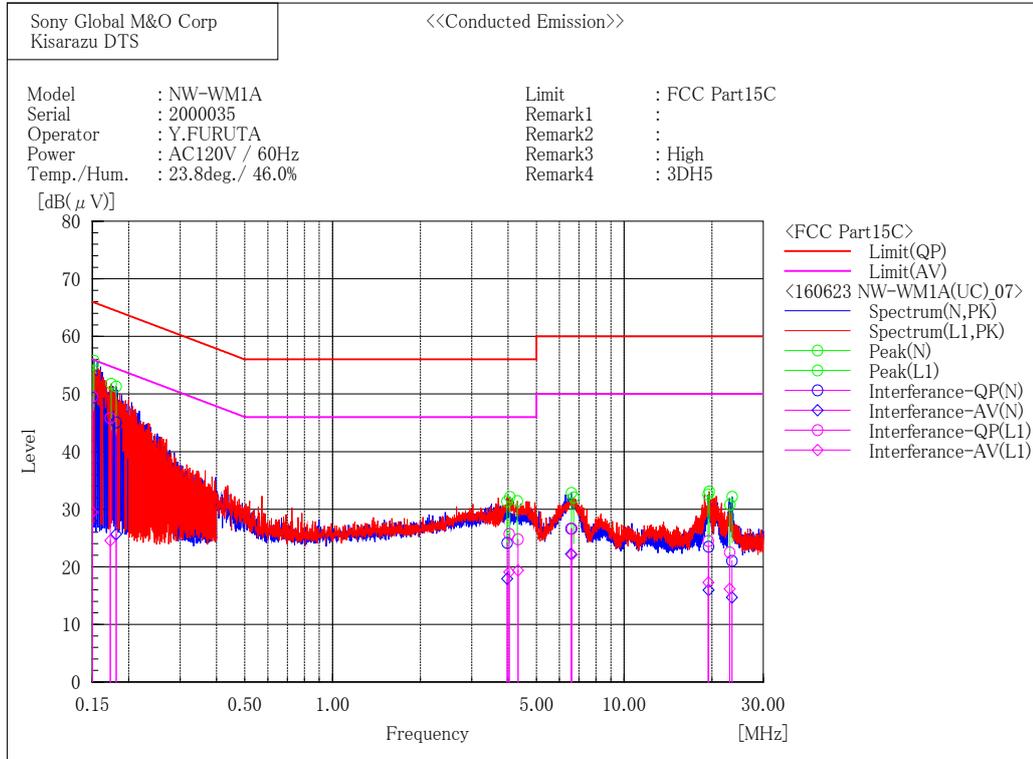


3. Test Data

3.1. AC Power-line Conducted Emissions

1) Date of measurement : June 23, 2016

[EDR (3DH5) / 2480MHz]



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	0.150	33.4	11.8	16.0	49.4	27.8	66.0	56.0	16.6	28.2
2	0.181	28.8	9.4	16.3	45.1	25.7	64.4	54.4	19.3	28.7
3	3.968	8.2	1.9	16.0	24.2	17.9	56.0	46.0	31.8	28.1
4	6.570	10.5	6.1	16.1	26.6	22.2	60.0	50.0	33.4	27.8
5	19.461	7.0	-0.5	16.5	23.5	16.0	60.0	50.0	36.5	34.0
6	23.441	4.4	-1.9	16.6	21.0	14.7	60.0	50.0	39.0	35.3

--- 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	0.150	33.5	13.5	16.0	49.5	29.5	66.0	56.0	16.5	26.5
2	0.173	29.4	8.2	16.4	45.8	24.6	64.8	54.8	19.0	30.2
3	4.036	9.7	3.1	16.0	25.7	19.1	56.0	46.0	30.3	26.9
4	4.326	8.8	3.4	16.0	24.8	19.4	56.0	46.0	31.2	26.6
5	6.612	10.5	6.0	16.1	26.6	22.1	60.0	50.0	33.4	27.9
6	19.454	8.1	0.9	16.4	24.5	17.3	60.0	50.0	35.5	32.7
7	23.008	6.0	-0.3	16.5	22.5	16.2	60.0	50.0	37.5	33.8

3.2. 20dB Bandwidth

- 1) Ambient temperature : 24.1 deg.C
- 2) Relative humidity : 77.7 %
- 3) Date of measurement : 09 June 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

Mode		Channel [MHz]	Result [MHz]	Limit [MHz]
BDR	DH5	2402	0.964	-
		2441	0.960	-
		2480	0.961	-
EDR	3DH5	2402	1.274	-
		2441	1.275	-
		2480	1.278	-

[BDR (DH5) / 2402MHz]



[BDR (DH5) / 2441MHz]



[BDR (DH5) / 2480MHz]



[EDR (3DH5) / 2402MHz]



[EDR (3DH5) / 2441MHz]



[EDR (3DH5) / 2480MHz]



3.3. Carrier Frequency Separation

- 1) Ambient temperature : 24.1 deg.C
- 2) Relative humidity : 77.7 %
- 3) Date of measurement : 09 June 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

Mode		Reading [kHz]	Limit [kHz]
BDR	DH5	984.9	≧ 642.4
EDR	3DH5	945.0	≧ 852.0

[BDR (DH5)]



[EDR (3DH5)]

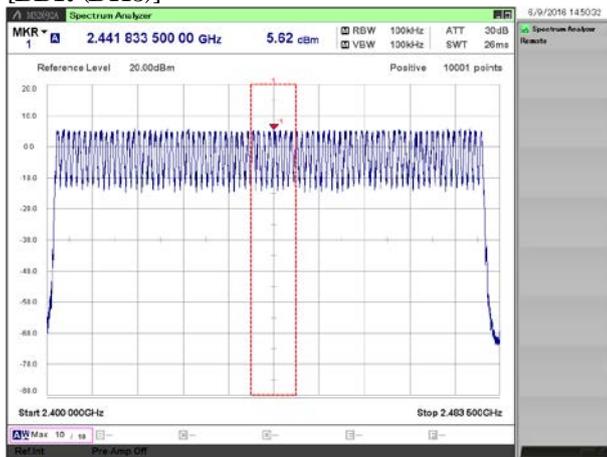


3.4. Number of Hopping Frequencies

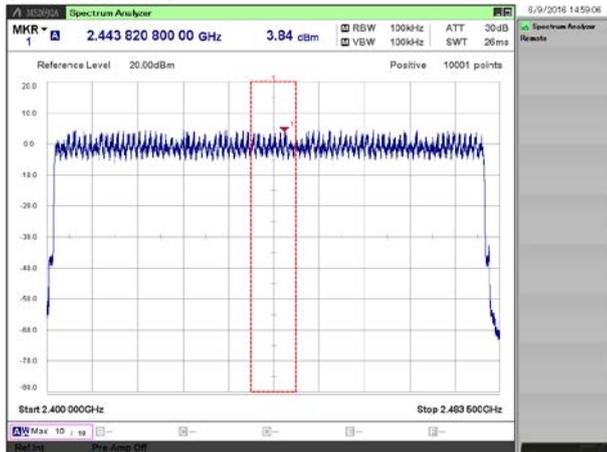
- 1) Ambient temperature : 24.1 deg.C
- 2) Relative humidity : 77.7 %
- 3) Date of measurement : 09 June 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

Mode		Number [channel]	Limit [channel]
BDR	DH5	79	≥ 15
EDR	3DH5	79	≥ 15

[BDR (DH5)]



[EDR (3DH5)]



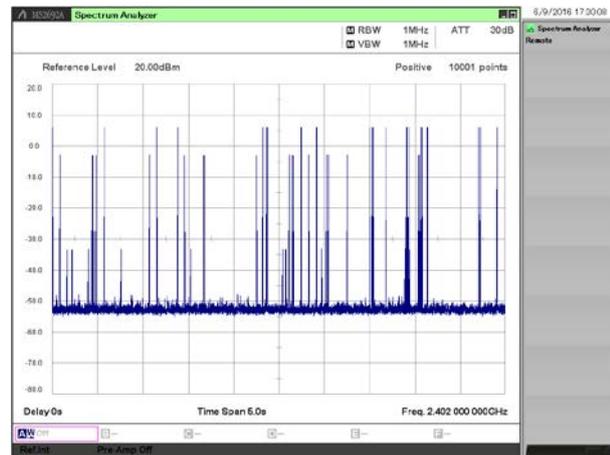
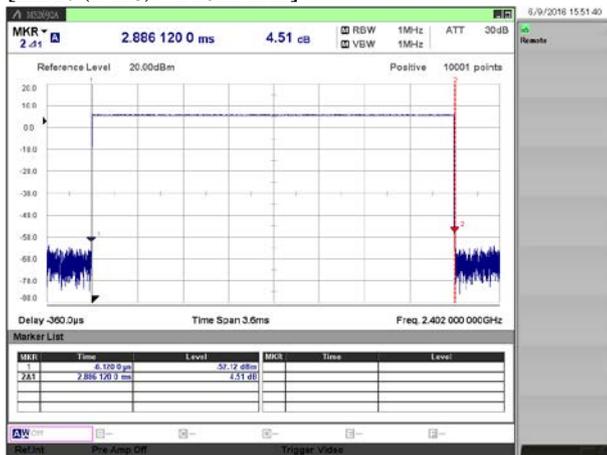
3.5. Time of Occupancy (Dwell Time)

- 1) Ambient temperature : 24.1 deg.C
- 2) Relative humidity : 77.7 %
- 3) Date of measurement : 09 June 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

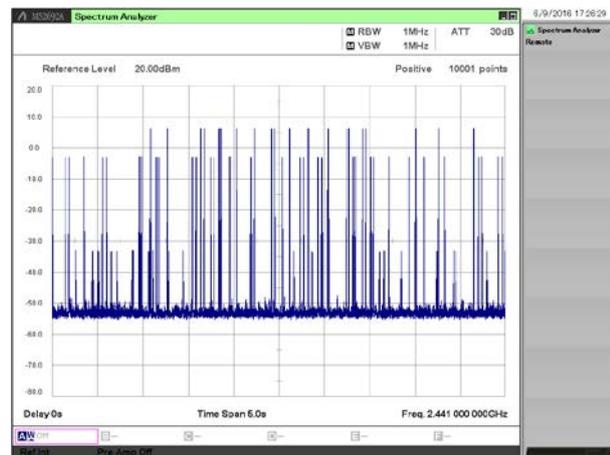
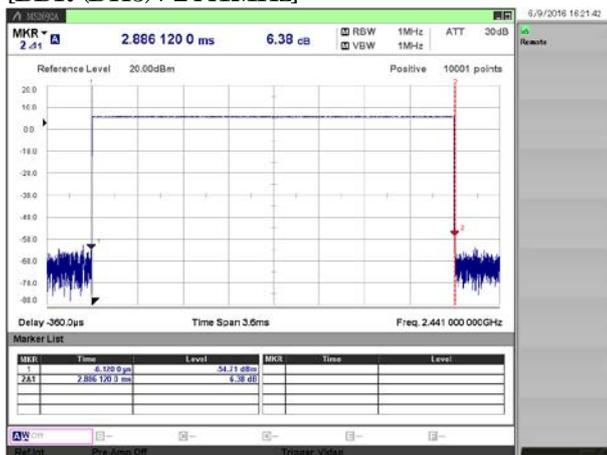
Mode		Channel [MHz]	Dwell Time [msec]	Cycle *1 [time]	Result [msec]	Limit [msec]
BDR	DH5	2402	2.89	18.2	332.0	≦ 400.0
		2441	2.89	20.8	379.4	≦ 400.0
		2480	2.89	16.6	302.8	≦ 400.0
EDR	3DH5	2402	2.89	17.8	325.3	≦ 400.0
		2441	2.89	18.6	339.9	≦ 400.0
		2480	2.89	16.0	292.4	≦ 400.0

*1: The average appearance of the 5 measurements.

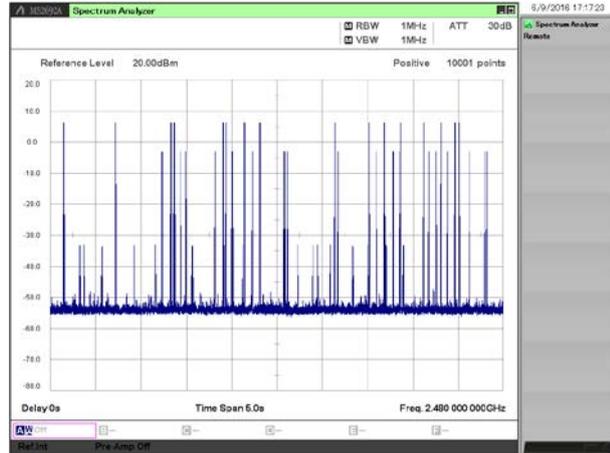
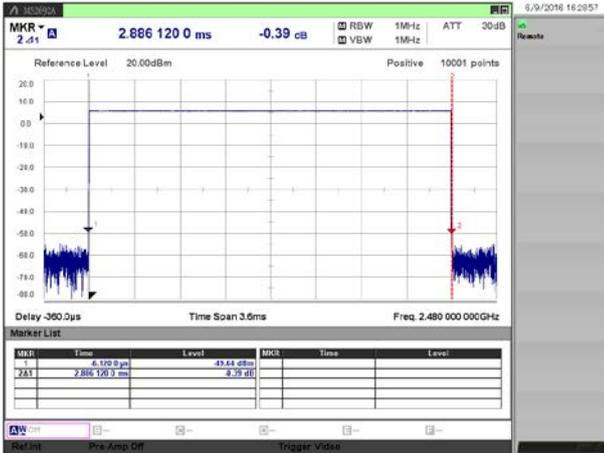
[BDR (DH5) / 2402MHz]



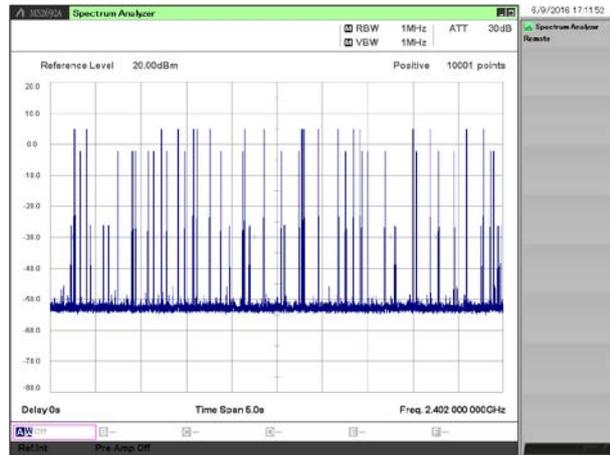
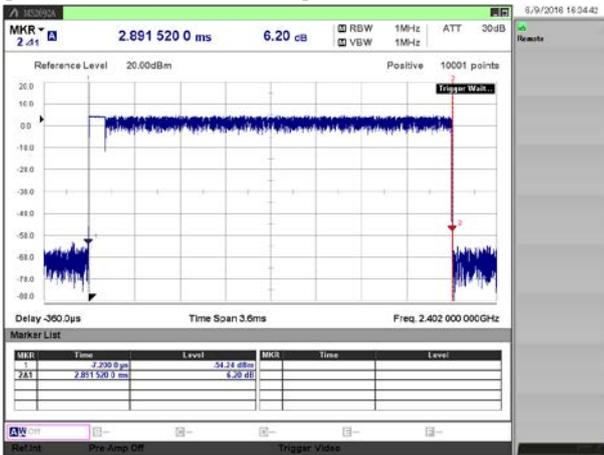
[BDR (DH5) / 2441MHz]



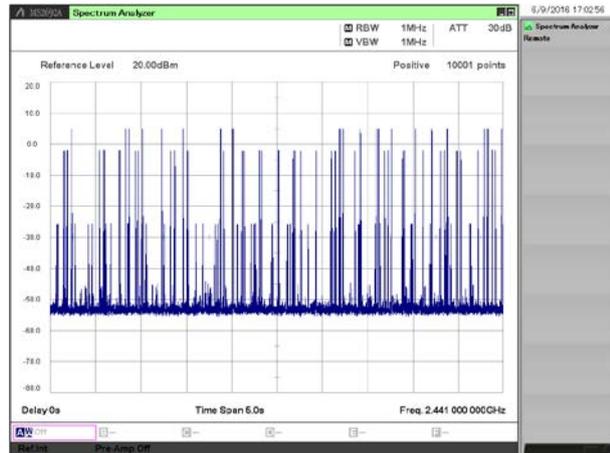
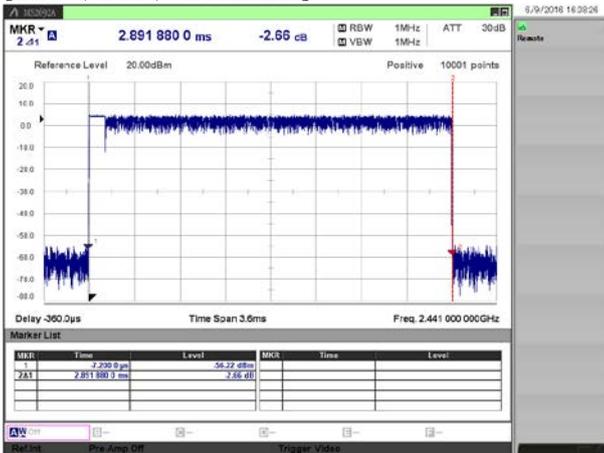
[BDR (DH5) / 2480MHz]



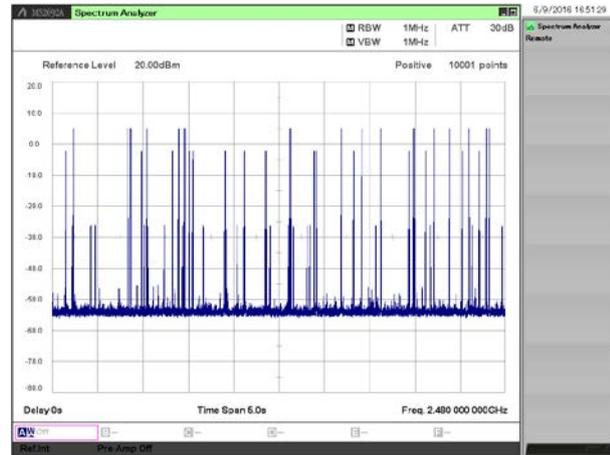
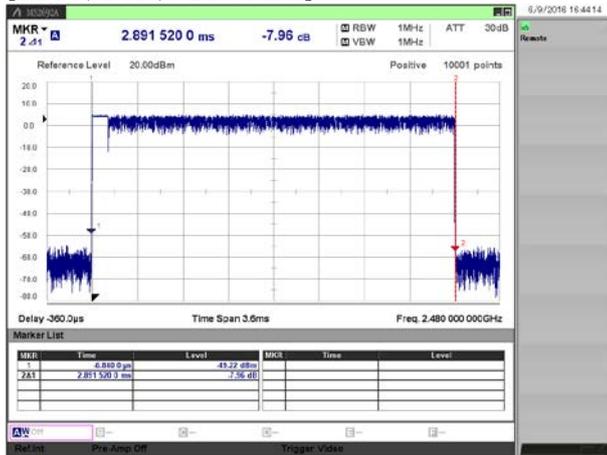
[EDR (3DH5) / 2402MHz]



[EDR (3DH5) / 2441MHz]



[EDR (3DH5) / 2480MHz]



3.6. Maximum Peak Conducted Output Power

- 1) Ambient temperature : 24.2 deg.C
- 2) Relative humidity : 60.2 %
- 3) Date of measurement : 30 May 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

Maximum Peak Conducted Output Power

Mode		Channel [MHz]	Reading(PK) [dBm]	C.F. [dB]	Result(PK) [dBm]	Result(PK) [W]	Limit [dBm]	Limit [W]	Margin [dB]
BDR	DH5	2402	-2.87	10.52	7.65	0.00582	30.0	1.0	22.35
		2441	-2.83	10.52	7.69	0.00587	30.0	1.0	22.31
		2480	-3.04	10.52	7.48	0.00560	30.0	1.0	22.52
EDR	2DH5	2402	-3.65	10.52	6.87	0.00486	30.0	1.0	23.13
		2441	-3.63	10.52	6.89	0.00489	30.0	1.0	23.11
		2480	-3.80	10.52	6.72	0.00470	30.0	1.0	23.28
	3DH5	2402	-3.55	10.52	6.97	0.00498	30.0	1.0	23.03
		2441	-3.47	10.52	7.05	0.00507	30.0	1.0	22.95
		2480	-3.64	10.52	6.88	0.00488	30.0	1.0	23.12

Maximum Average Conducted Output Power (for SAR measurement)

Mode		Channel [MHz]	Reading(AV) [dBm]	C.F. [dB]	Duty Factor [dB]	Result(AV) [dBm]	Result(AV) [W]
BDR	DH5	2402	-4.39	10.52	1.04	7.17	0.00521
		2441	-4.31	10.52	1.04	7.25	0.00531
		2480	-4.51	10.52	1.04	7.05	0.00507
EDR	2DH5	2402	-7.36	10.52	1.04	4.20	0.00263
		2441	-7.21	10.52	1.04	4.35	0.00272
		2480	-7.39	10.52	1.04	4.17	0.00261
	3DH5	2402	-7.33	10.52	1.04	4.23	0.00265
		2441	-7.21	10.52	1.04	4.35	0.00272
		2480	-7.36	10.52	1.04	4.20	0.00263

Duty Cycle check

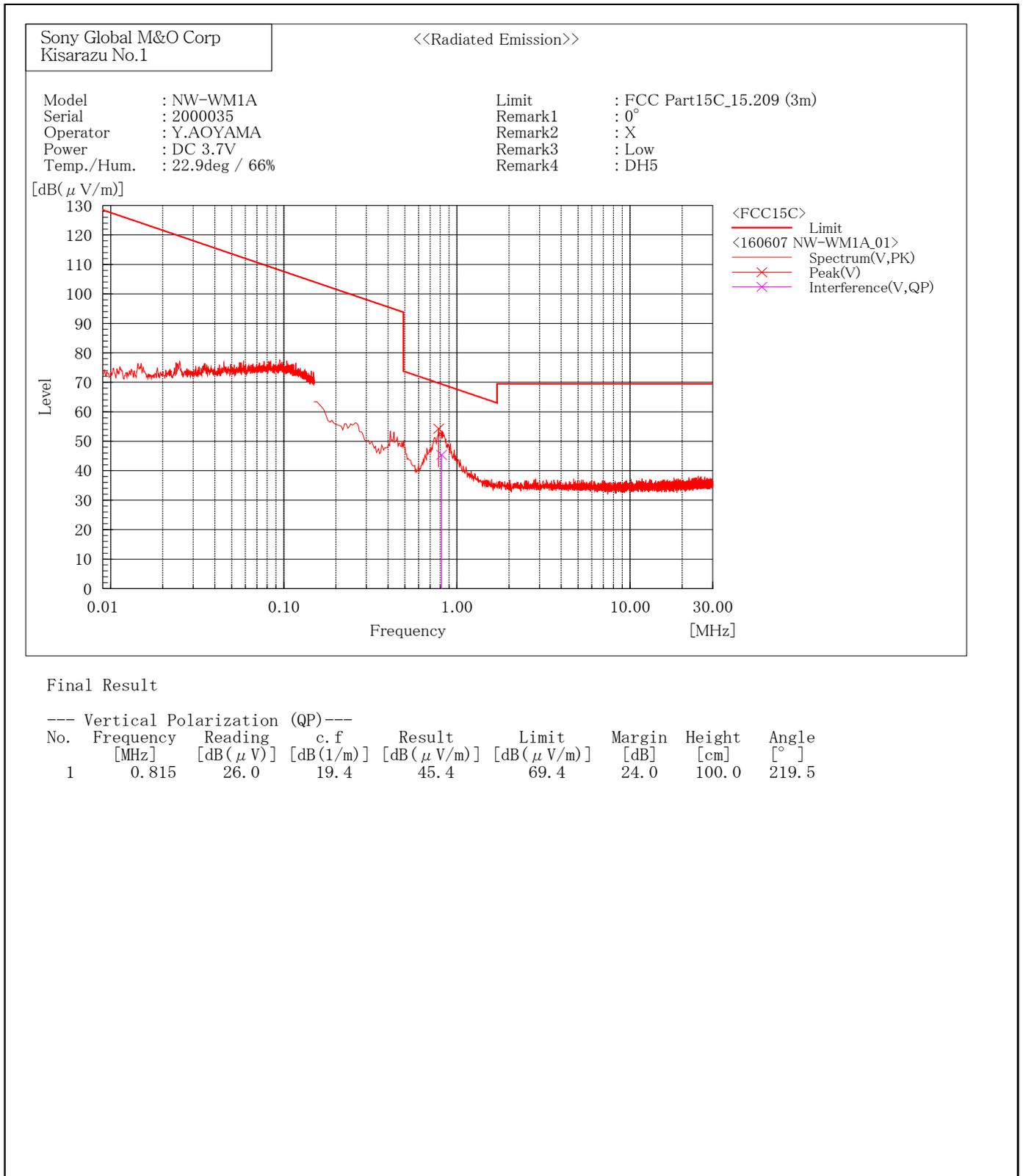
Mode		Channel [MHz]	T(on+off) [msec]	T(on) [msec]	Duty Cycle [%]
BDR	DH1	2441	1.250	0.378	30.24
	DH3	2441	2.510	1.650	65.74
	DH5	2441	3.750	2.950	78.67
EDR	2DH1	2441	1.250	0.387	30.96
	2DH3	2441	2.510	1.650	65.74
	2DH5	2441	3.750	2.950	78.67
	3DH1	2441	1.250	0.378	30.24
	3DH3	2441	2.510	1.650	65.74
	3DH5	2441	3.750	2.950	78.67

3.7. Radiated Spurious Emissions

9 kHz - 30 MHz

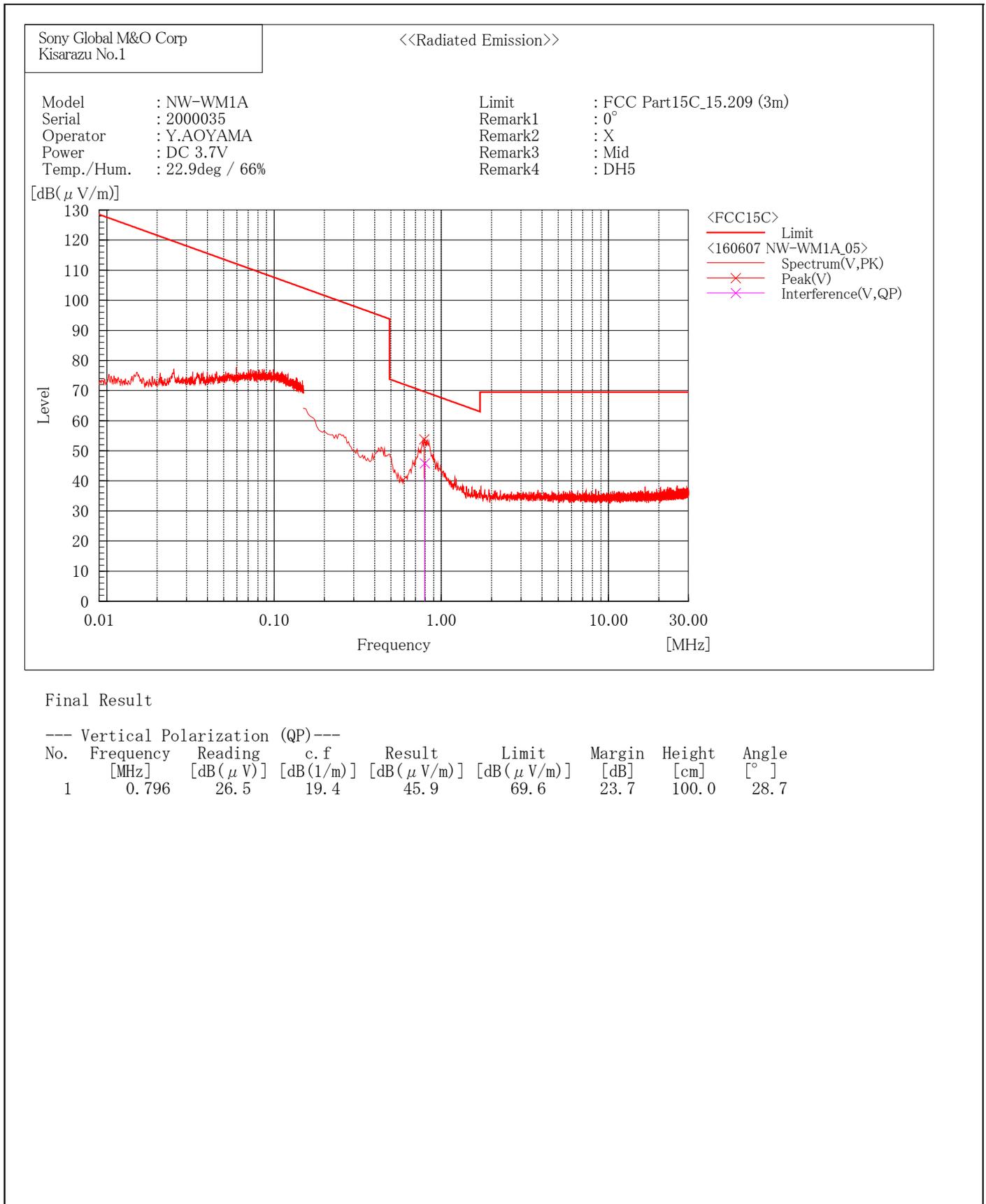
1) Date of measurement : June 07, 2016

[BDR(DH5)/2402MHz]



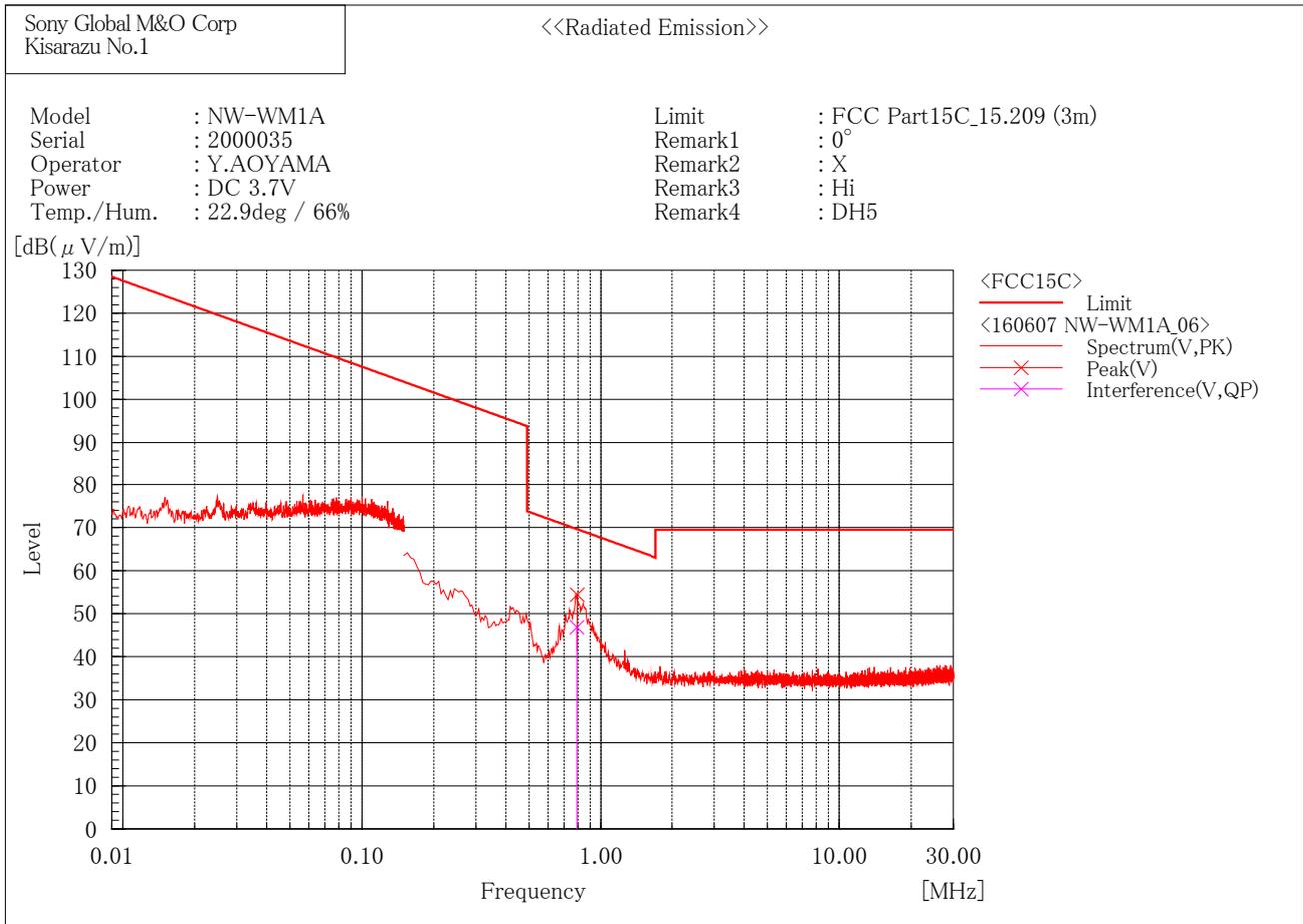
1) Date of measurement : June 07, 2016

[BDR(DH5)/2441MHz]



1) Date of measurement : June 07, 2016

[BDR(DH5)/2480MHz]



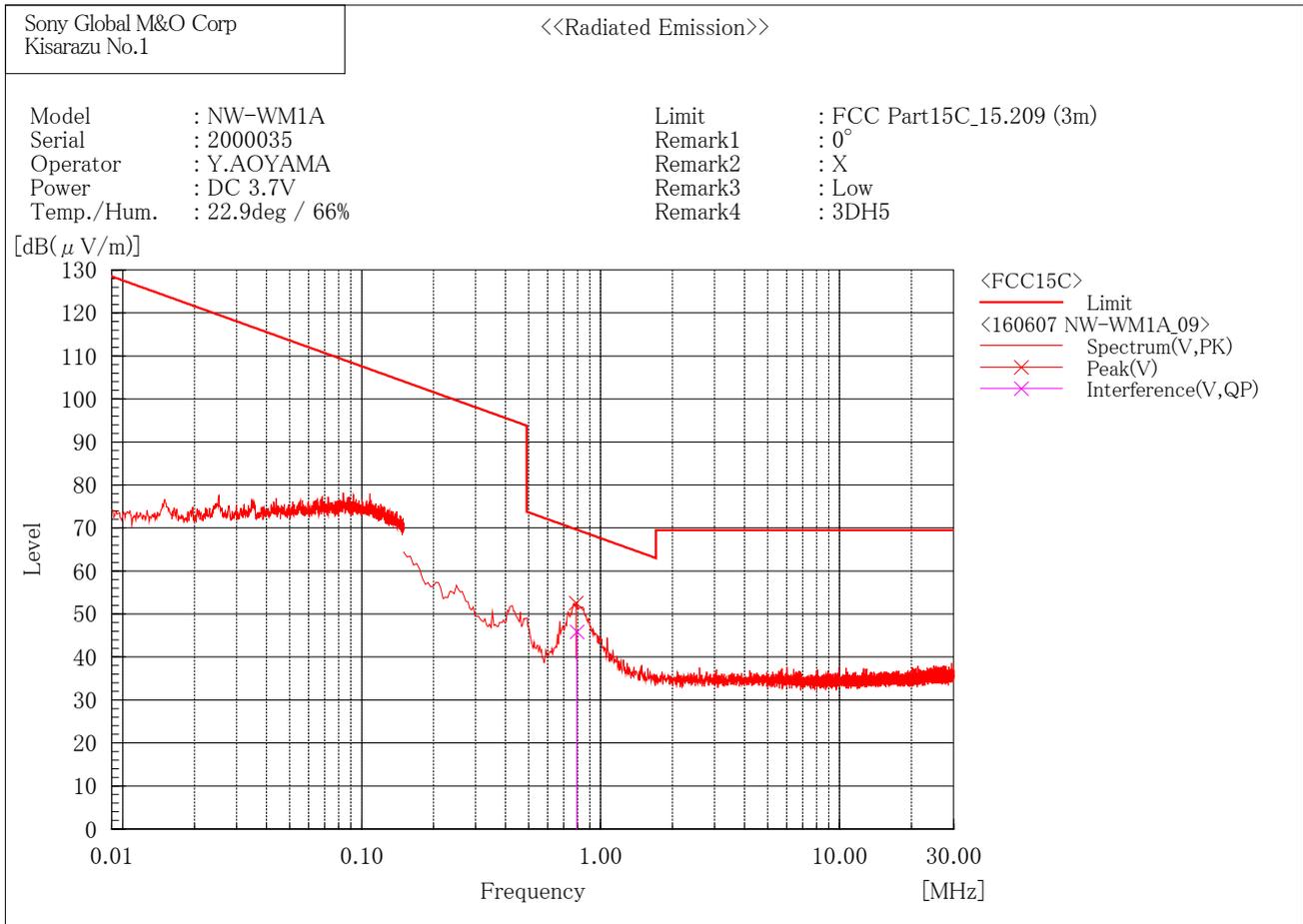
Final Result

--- 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	0.792	27.5	19.4	46.9	69.6	22.7	100.0	290.3

1) Date of measurement : June 07, 2016

[EDR(3DH5)/2402MHz]



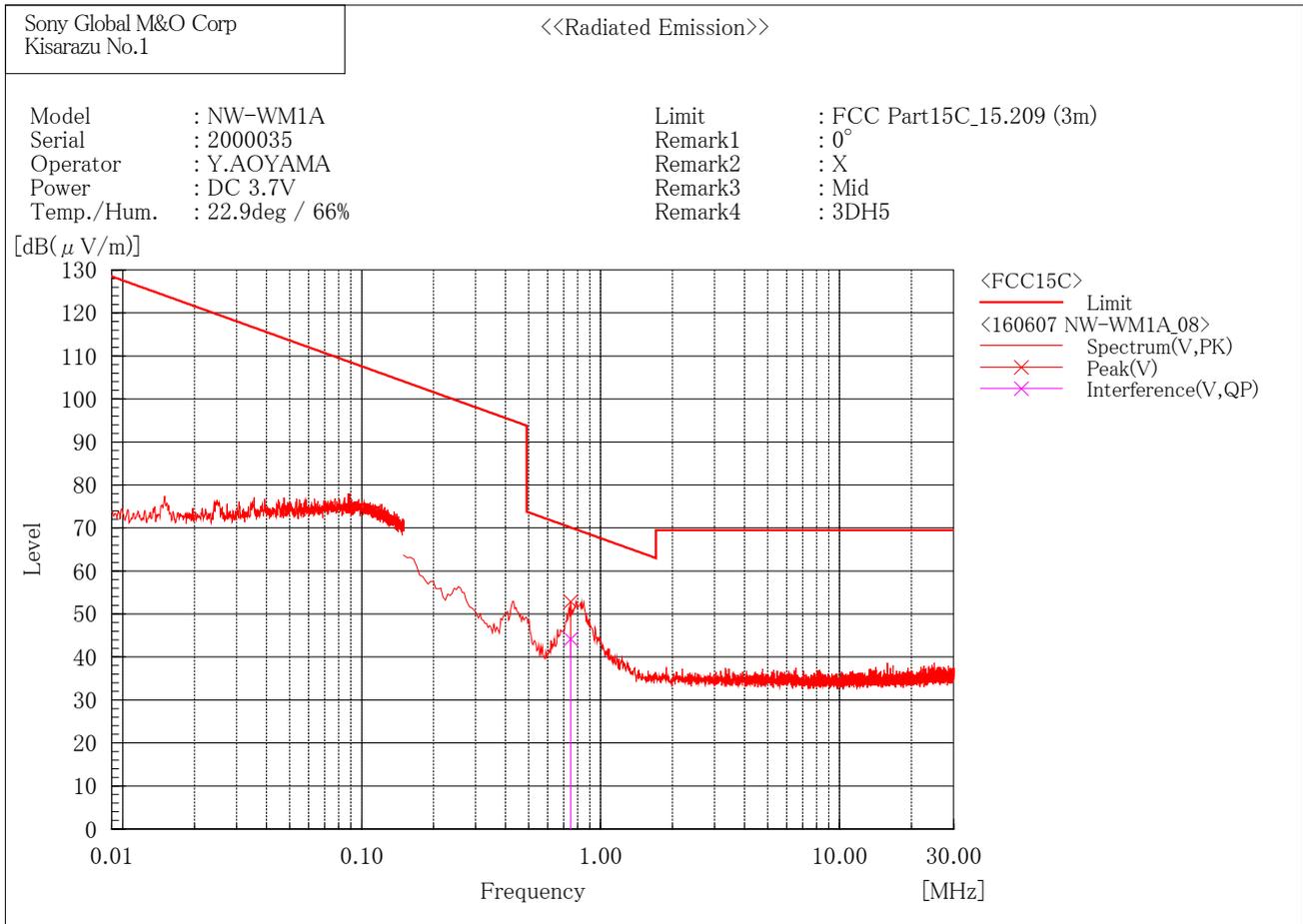
Final Result

--- 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	0.796	26.5	19.4	45.9	69.6	23.7	100.0	122.5

1) Date of measurement : June 07, 2016

[EDR(3DH5)/2441MHz]



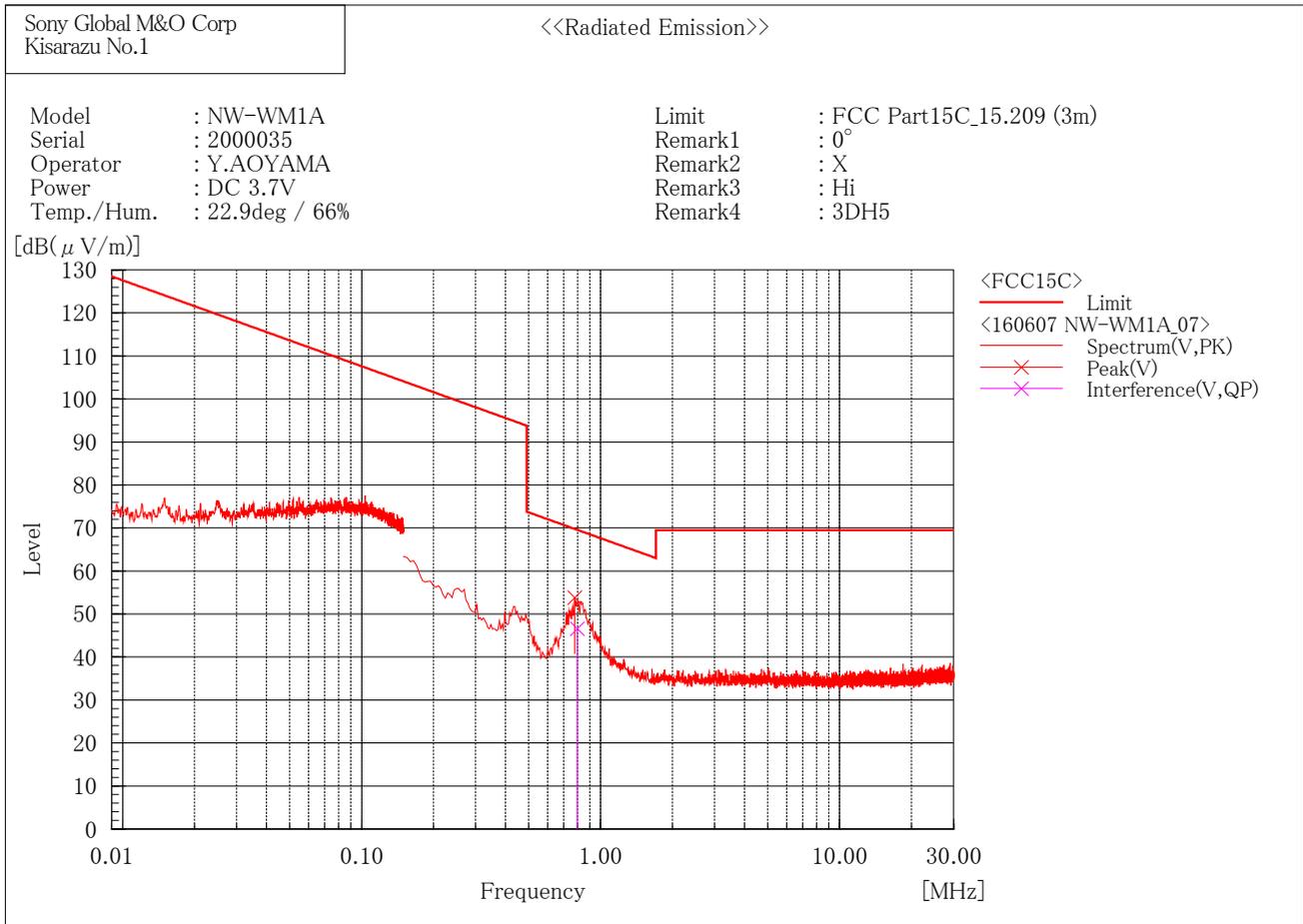
Final Result

--- 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	0.749	24.8	19.4	44.2	70.1	25.9	100.0	91.5

1) Date of measurement : June 07, 2016

[EDR(3DH5)/2480MHz]



Final Result

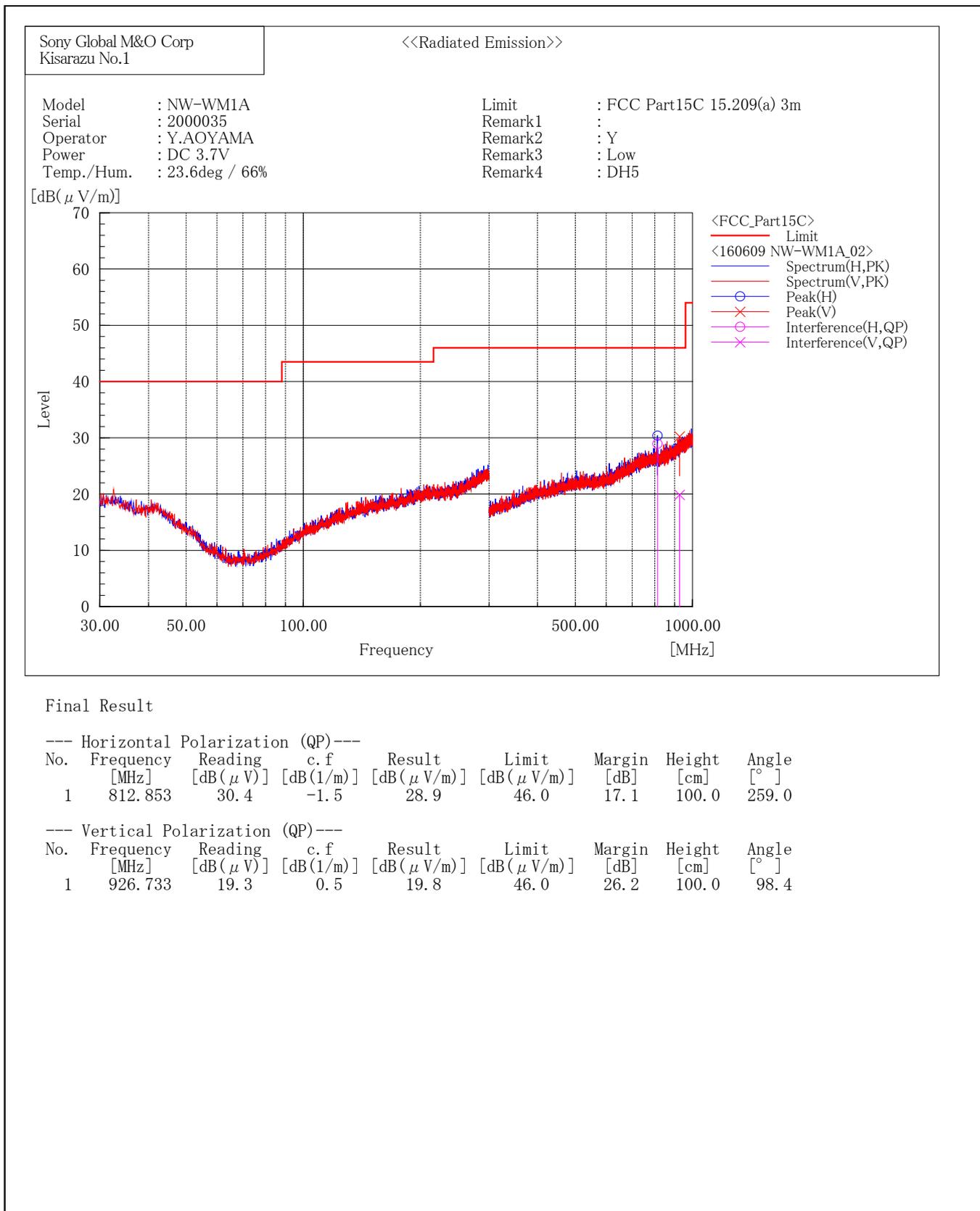
--- Vertical Polarization (QP)---

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	0.797	27.2	19.4	46.6	69.6	23.0	100.0	293.9

30 MHz - 1000 MHz

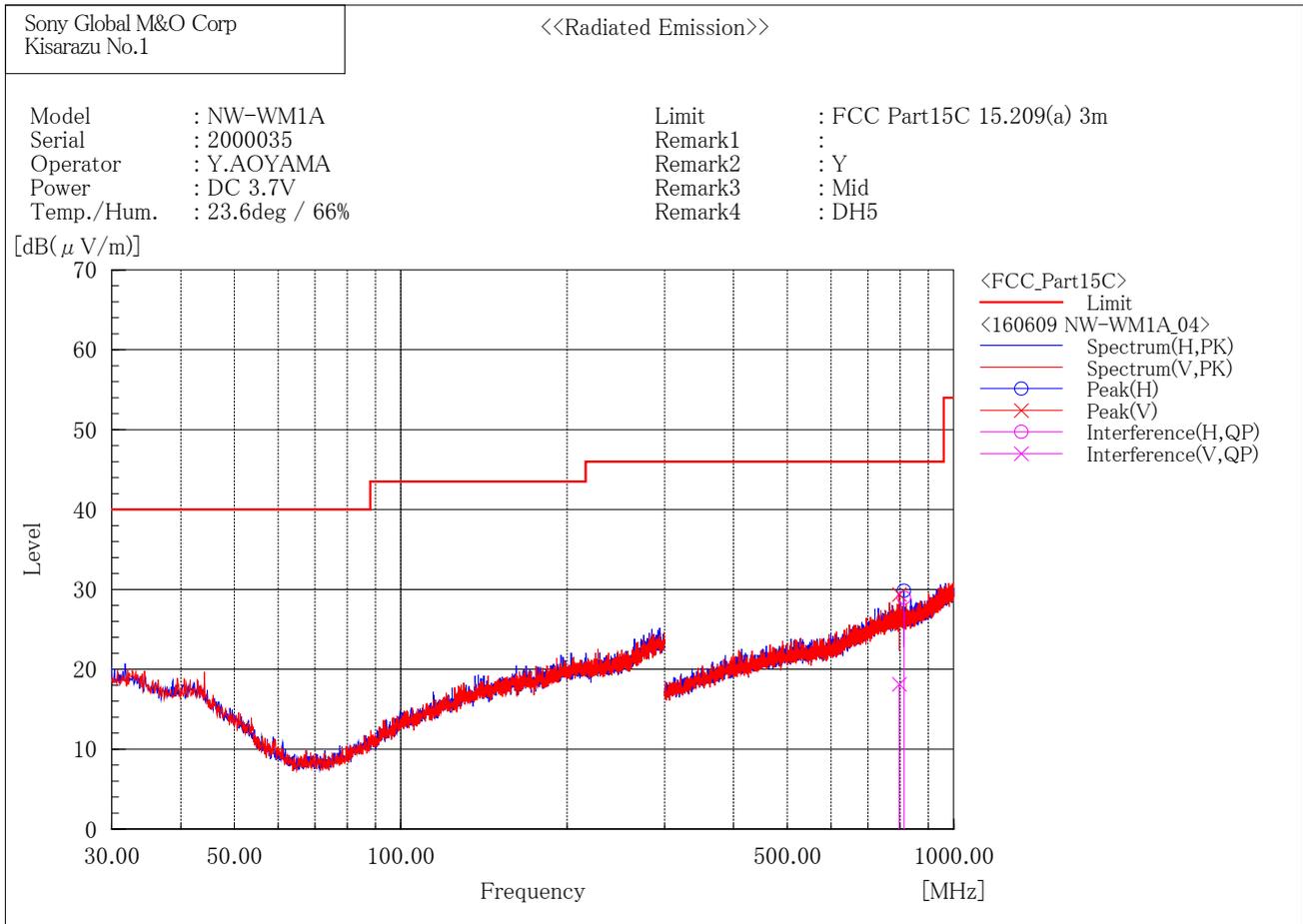
1) Date of measurement : June 09, 2016

[BDR(DH5)/2402MHz]



1) Date of measurement : June 09, 2016

[BDR(DH5)/2441MHz]



Final Result

--- Horizontal Polarization (QP)---

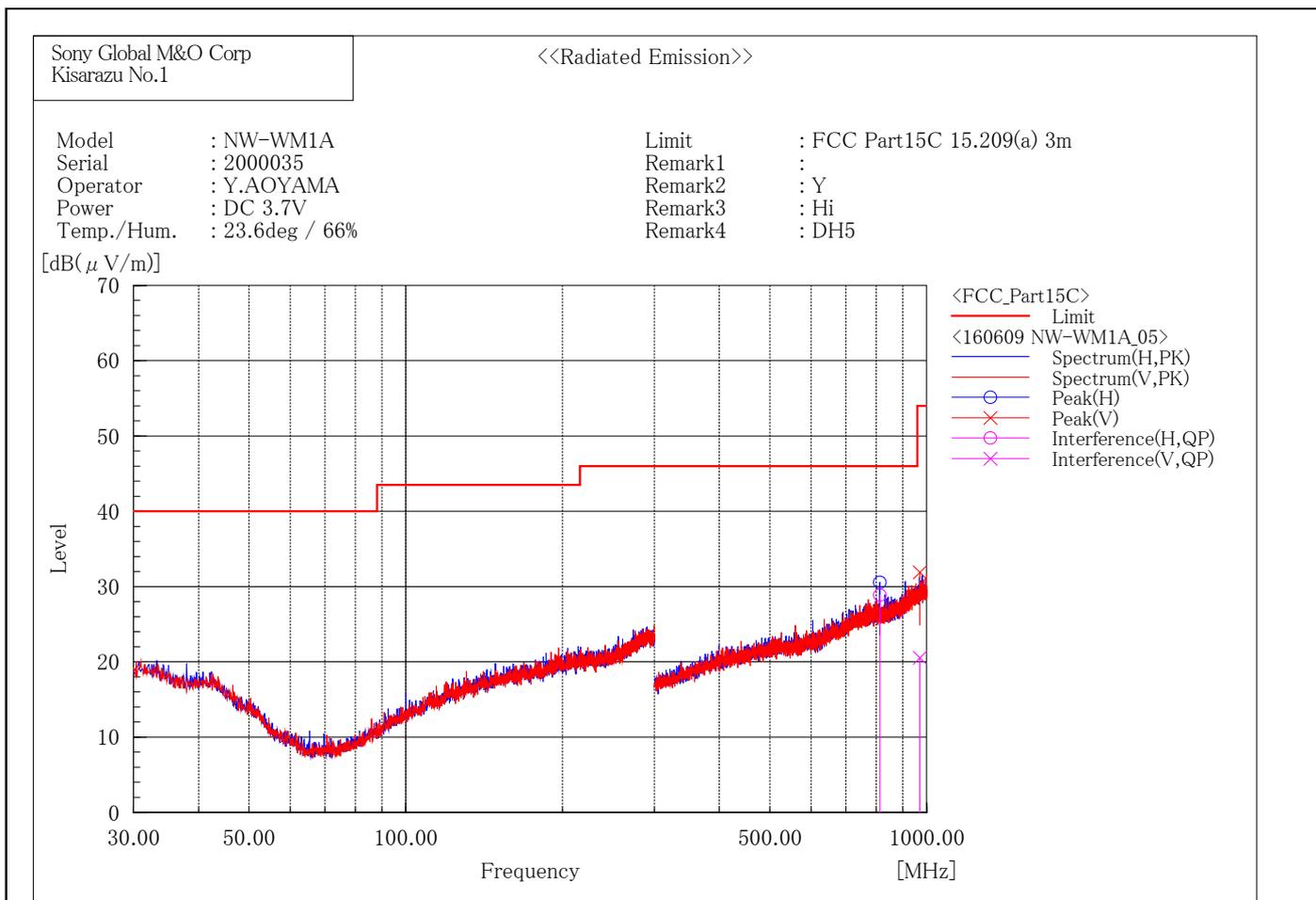
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	812.853	30.5	-1.5	29.0	46.0	17.0	100.0	260.6

--- 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	797.933	19.7	-1.6	18.1	46.0	27.9	100.0	272.4

1) Date of measurement : June 09, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (QP)---

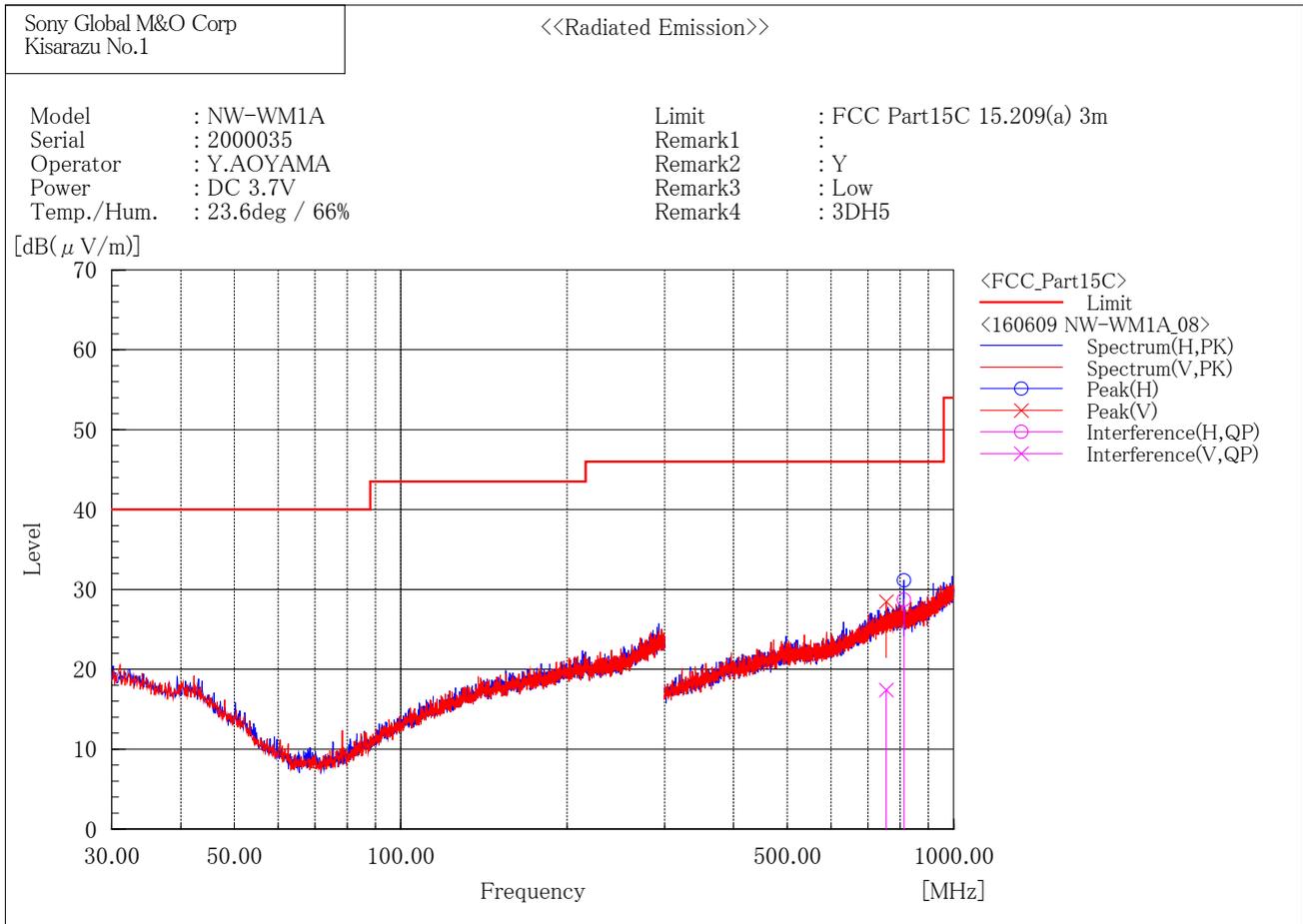
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	812.853	30.4	-1.5	28.9	46.0	17.1	100.0	261.5

--- 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	970.367	18.7	1.8	20.5	54.0	33.5	100.0	264.8

1) Date of measurement : June 09, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (QP)---

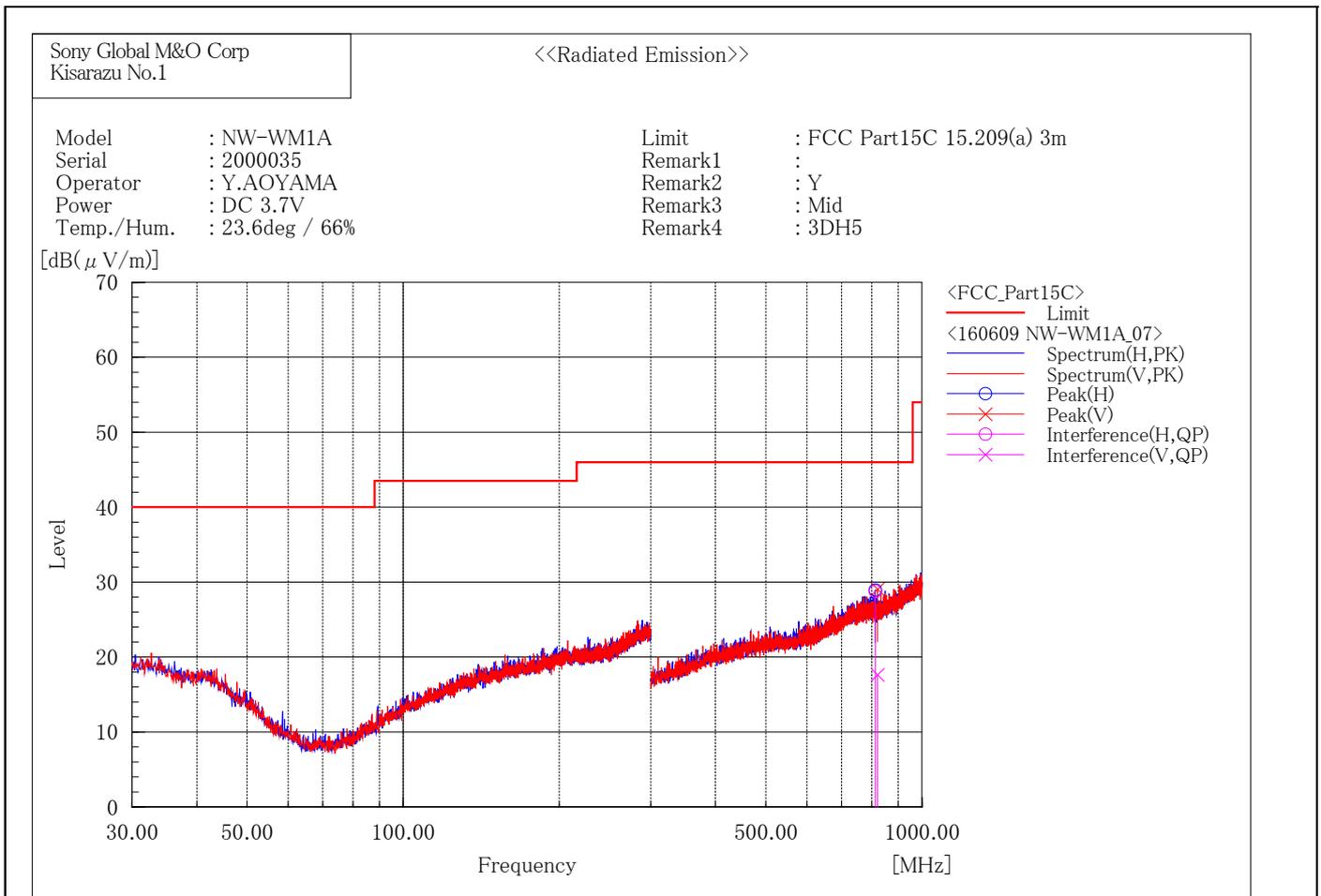
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	812.853	30.2	-1.5	28.7	46.0	17.3	100.0	262.7

--- 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	755.233	19.4	-2.0	17.4	46.0	28.6	100.0	113.8

1) Date of measurement : June 09, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (QP)---

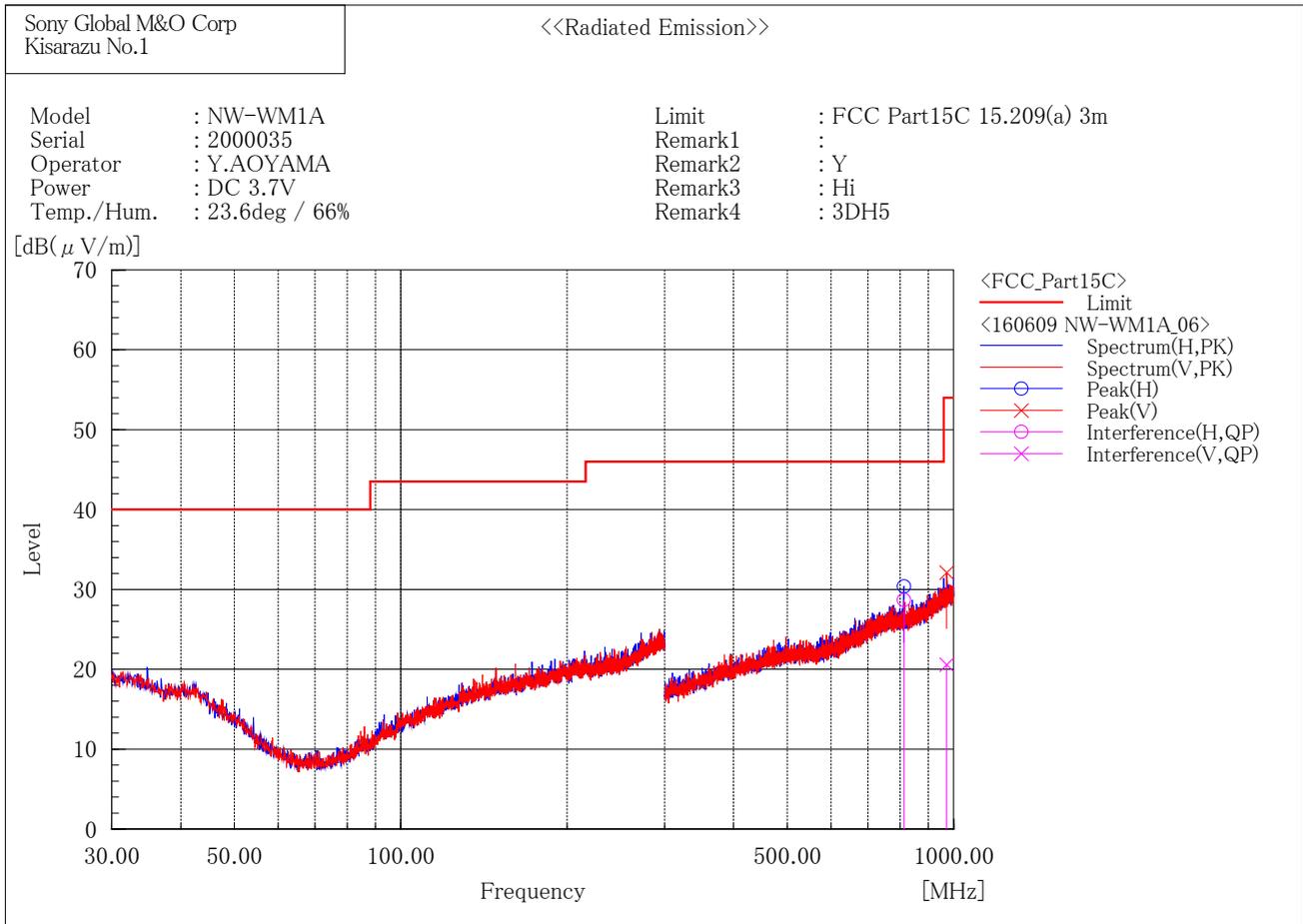
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	812.853	30.3	-1.5	28.8	46.0	17.2	100.0	273.1

--- 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	820.567	19.1	-1.5	17.6	46.0	28.4	100.0	348.9

1) Date of measurement : June 09, 2016

[EDR(3DH5)/2480MHz]



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	812.855	30.2	-1.5	28.7	46.0	17.3	100.0	251.6

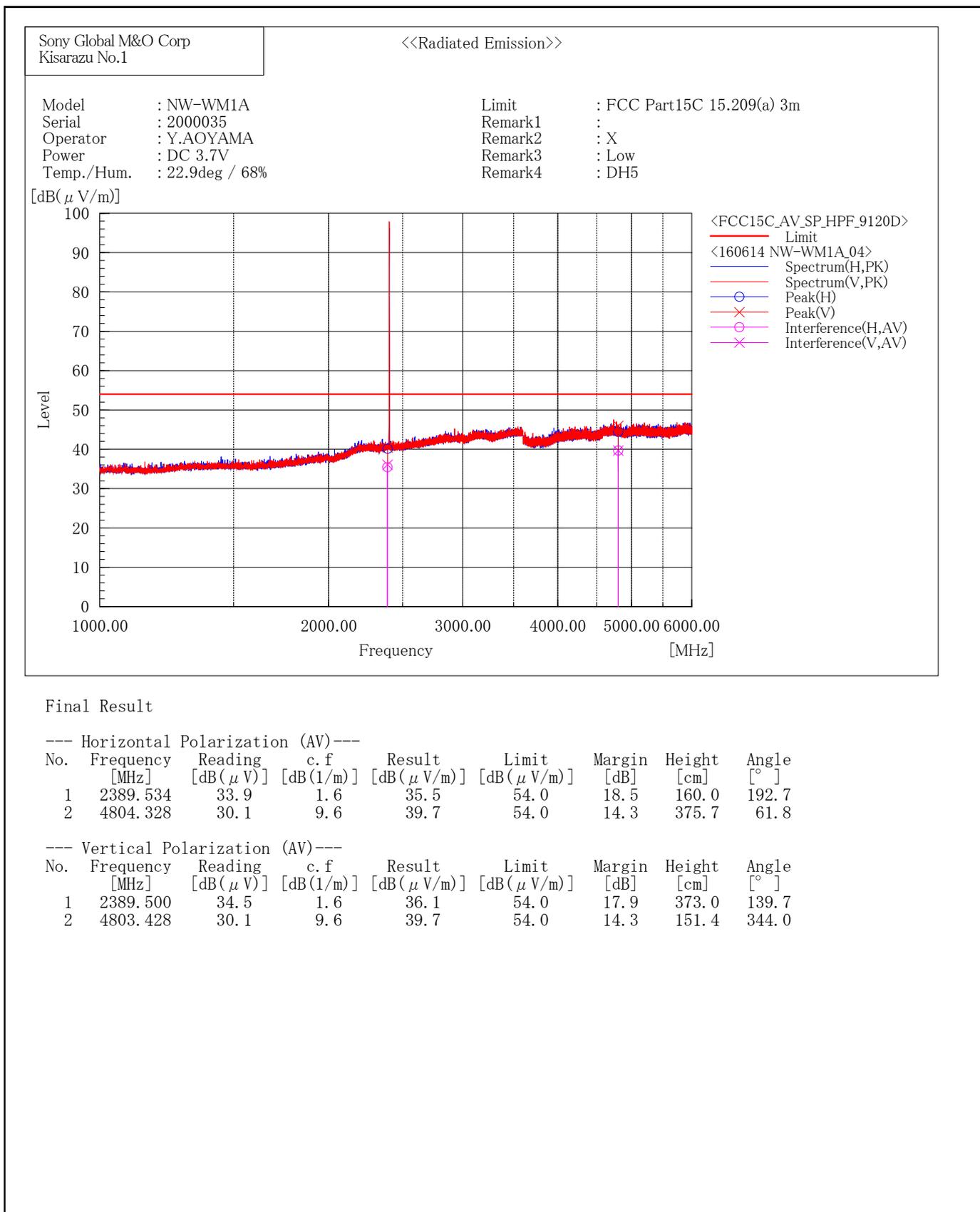
--- Vertical Polarization (QP)---

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	971.533	18.8	1.8	20.6	54.0	33.4	100.0	78.9

1GHz - 6 GHz

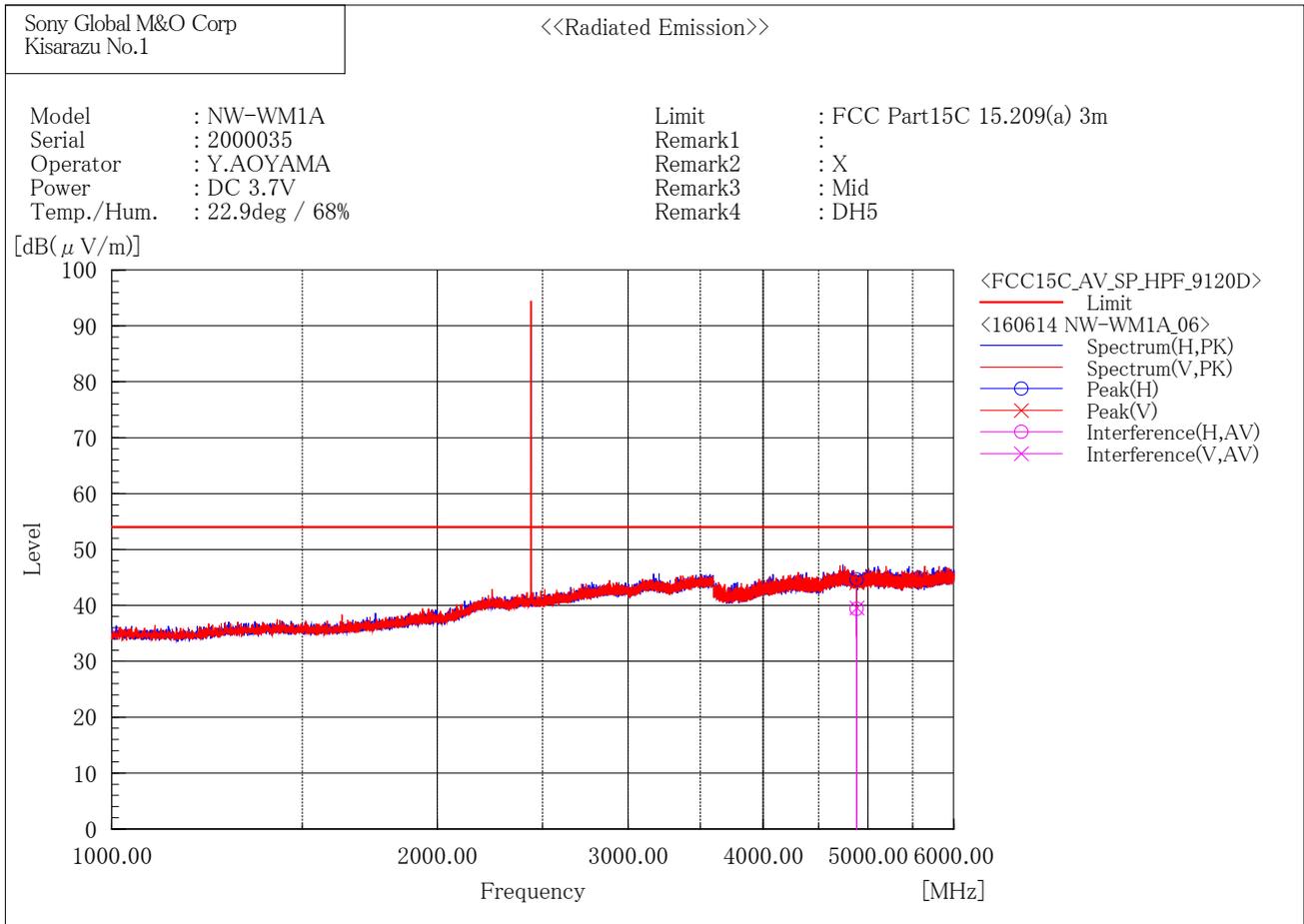
1) Date of measurement : June 14, 2016

[BDR(DH5)/2402MHz]



1) Date of measurement : June 14, 2016

[BDR(DH5)/2441MHz]



Final Result

--- Horizontal Polarization (AV)---

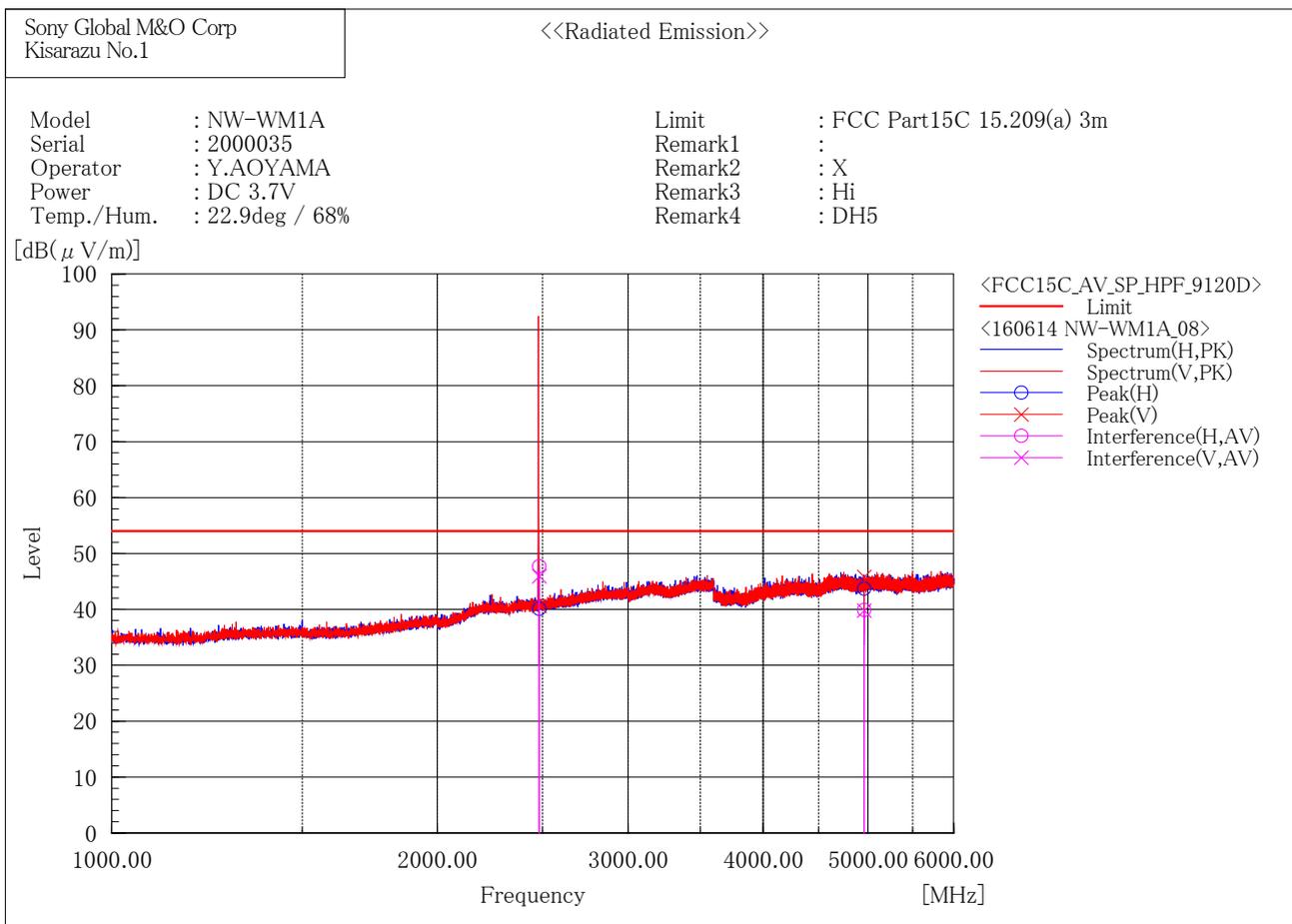
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4881.235	29.9	9.5	39.4	54.0	14.6	407.7	225.6

--- 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	4882.544	30.1	9.5	39.6	54.0	14.4	157.0	293.5

1) Date of measurement : June 14, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

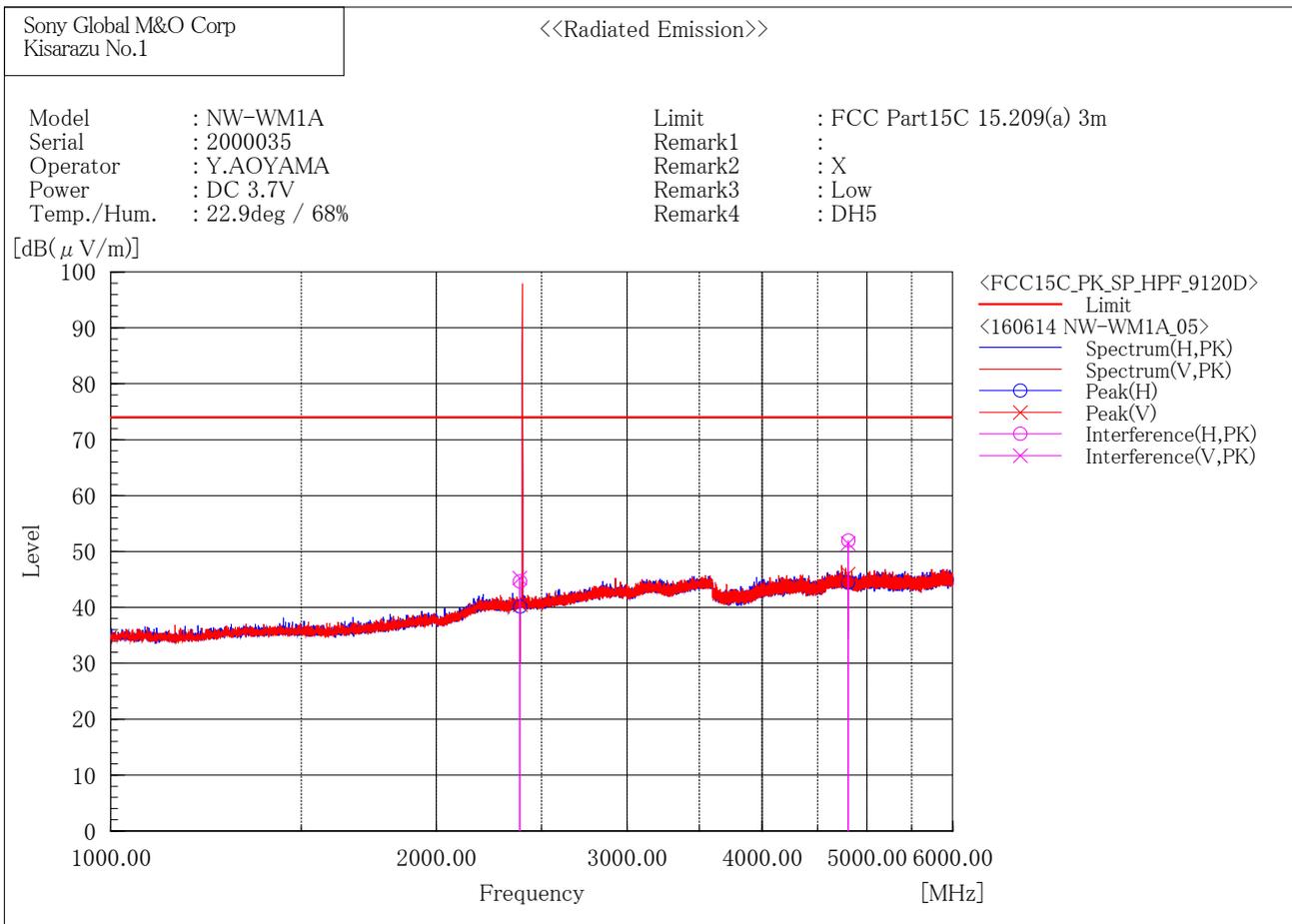
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.510	45.8	1.9	47.7	54.0	6.3	389.1	197.7
2	4959.808	30.1	9.8	39.9	54.0	14.1	111.5	39.9

--- 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	2483.506	44.1	1.9	46.0	54.0	8.0	431.1	159.4
2	4960.229	30.0	9.8	39.8	54.0	14.2	237.9	4.9

1) Date of measurement : June 14, 2016

[BDR(DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

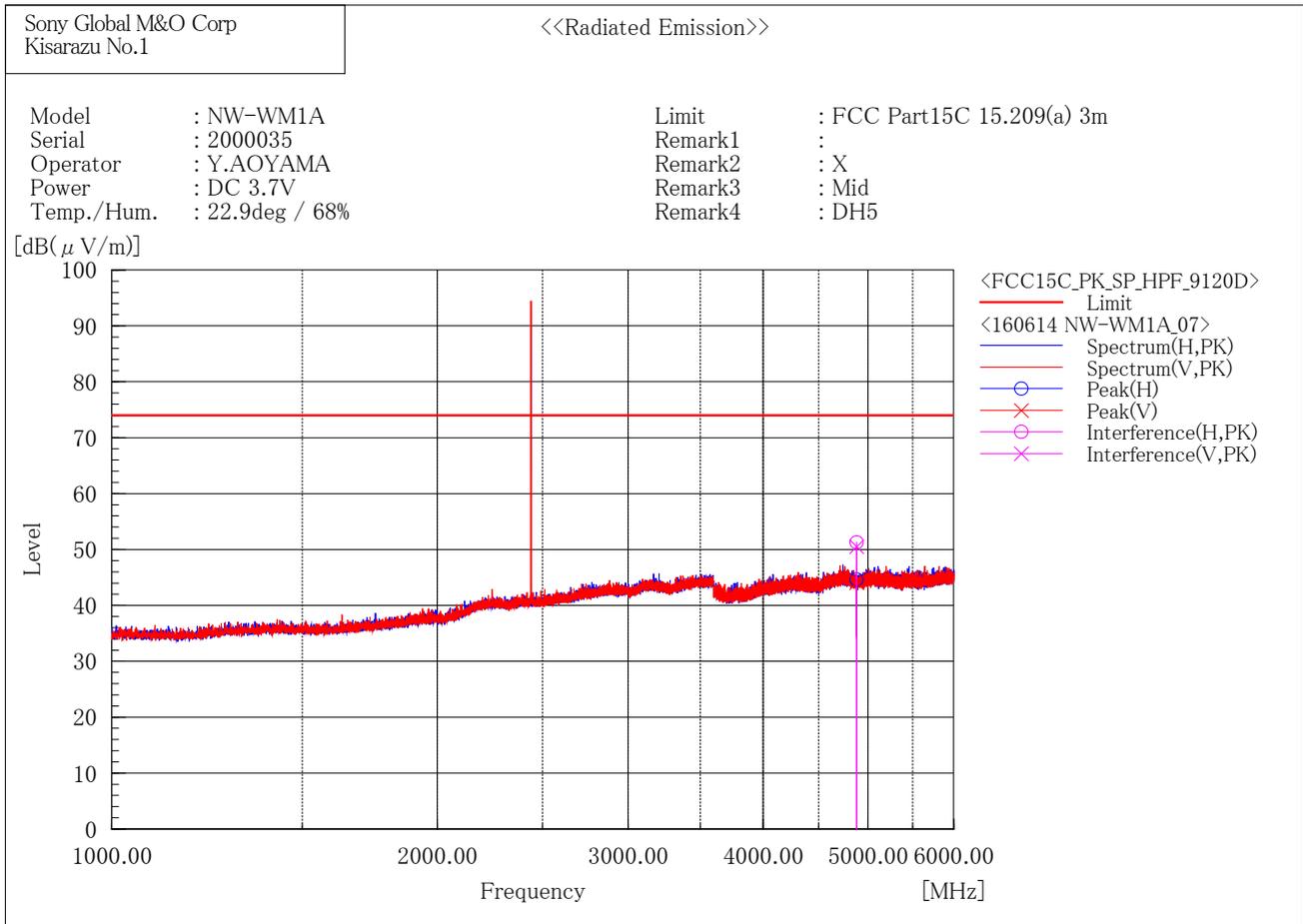
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2388.307	43.0	1.6	44.6	74.0	29.4	160.0	192.7
2	4805.324	42.3	9.6	51.9	74.0	22.1	375.7	61.8

--- 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	2388.175	43.6	1.6	45.2	74.0	28.8	373.1	139.6
2	4802.028	41.9	9.6	51.5	74.0	22.5	151.4	344.0

1) Date of measurement : June 14, 2016

[BDR(DH5)/2441MHz]



Final Result

--- Horizontal Polarization (PK)---

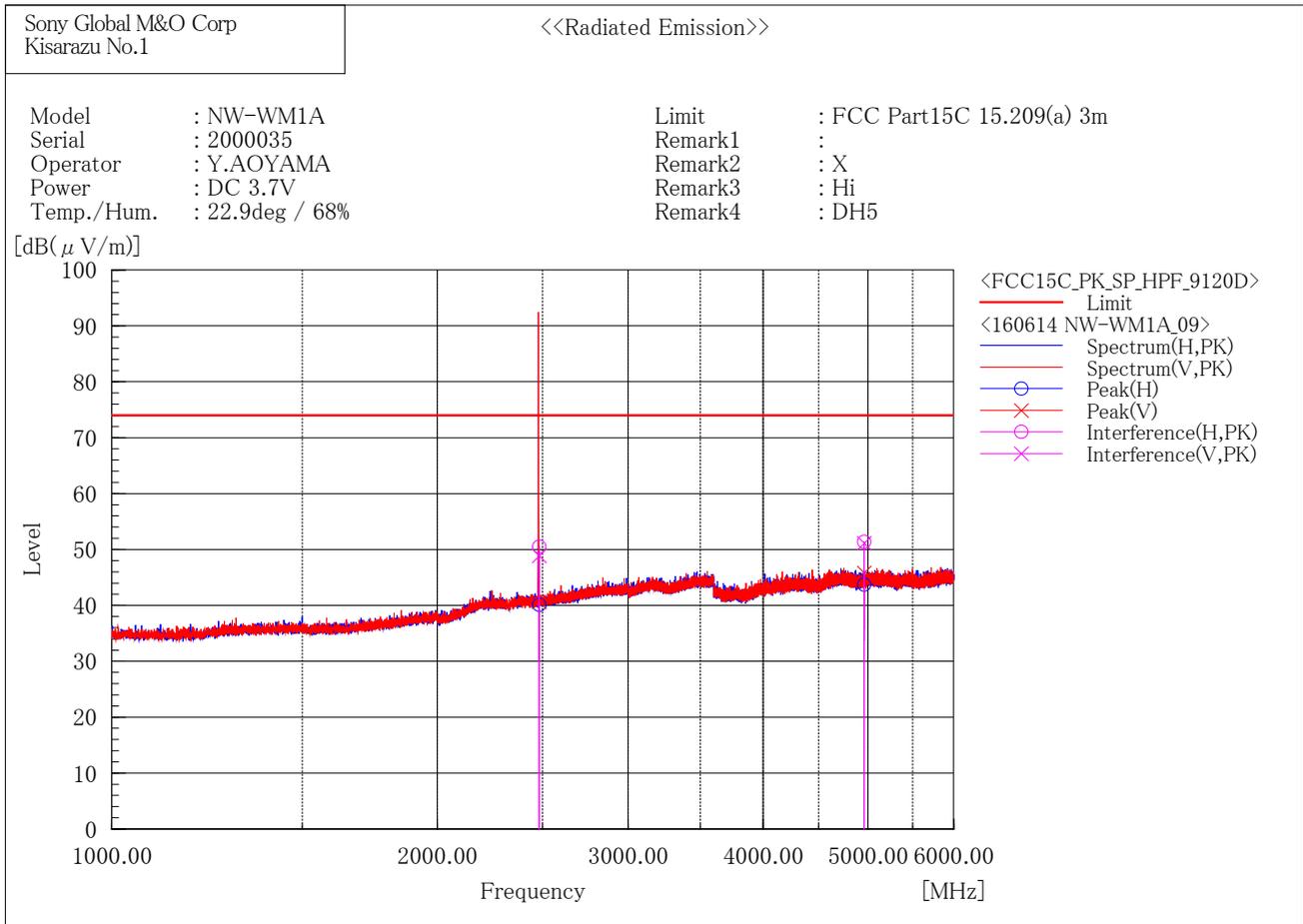
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4882.336	41.8	9.5	51.3	74.0	22.7	407.8	225.6

--- 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	4881.442	41.0	9.5	50.5	74.0	23.5	157.0	293.5

1) Date of measurement : June 14, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (PK)---

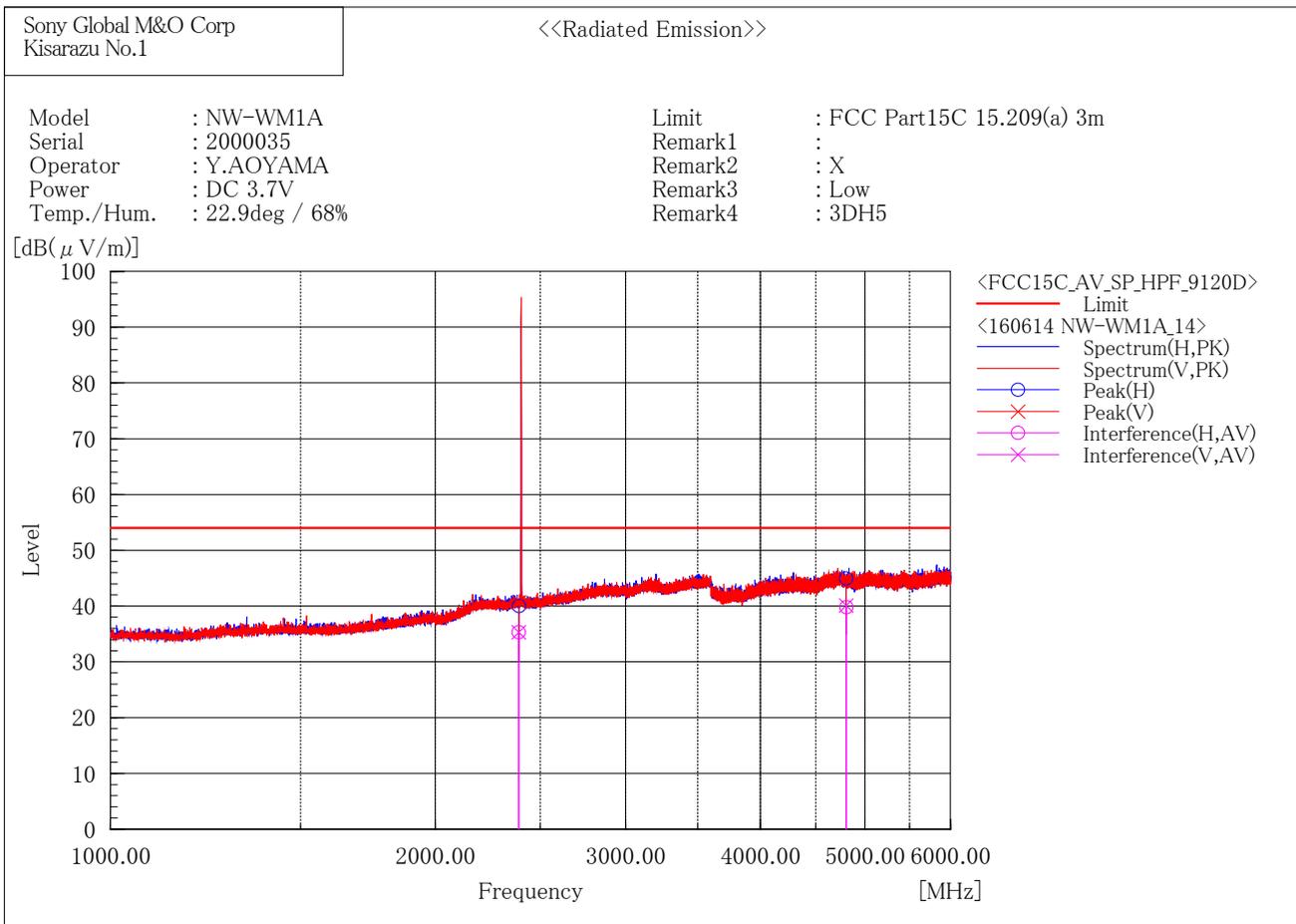
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.507	48.6	1.9	50.5	74.0	23.5	389.2	197.7
2	4960.944	41.6	9.8	51.4	74.0	22.6	111.5	39.8

--- 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	47.0	1.9	48.9	74.0	25.1	431.1	159.4
2	4959.394	41.3	9.8	51.1	74.0	22.9	237.9	4.8

1) Date of measurement : June 14, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (AV)---

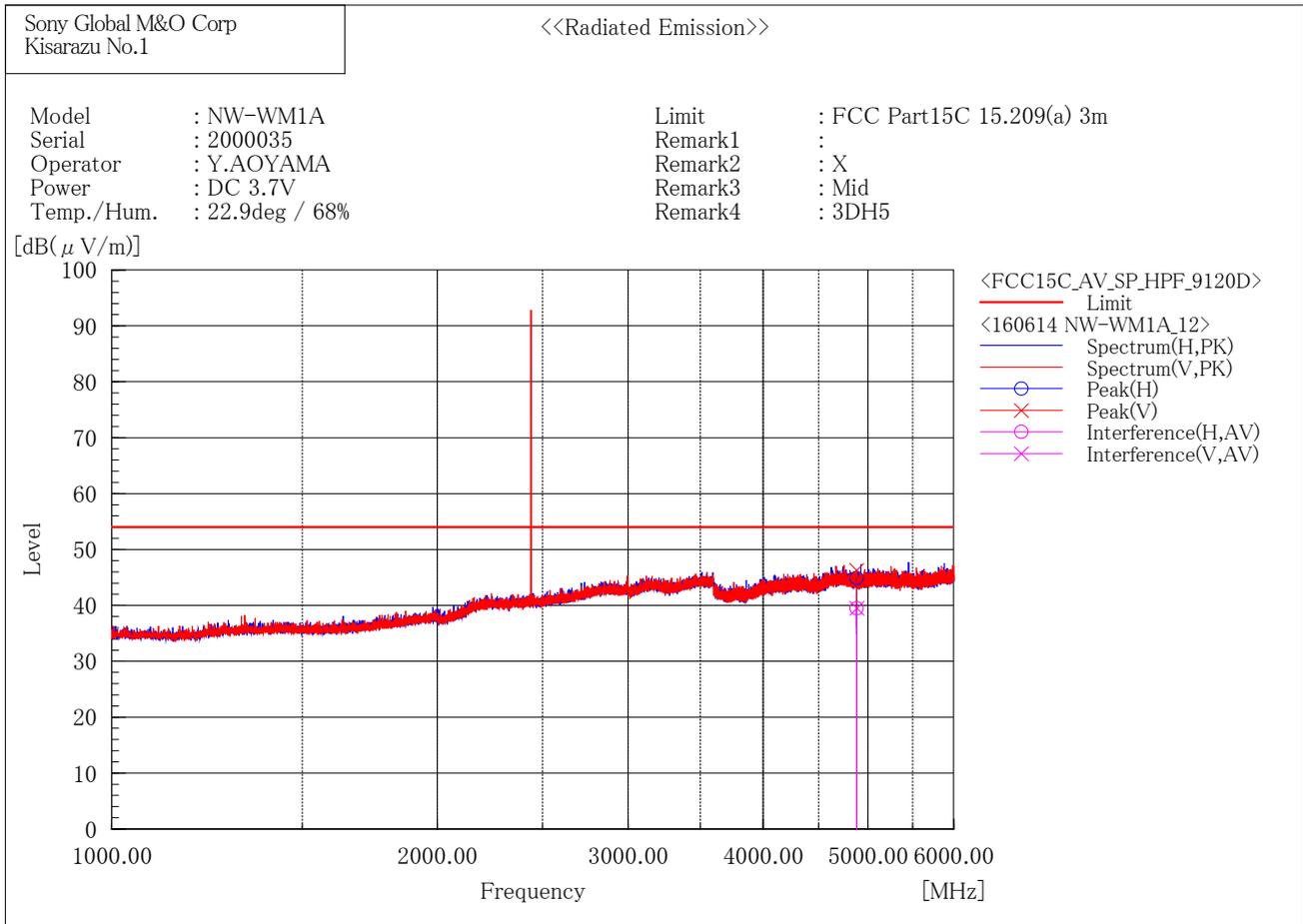
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2388.303	33.7	1.6	35.3	54.0	18.7	184.4	338.0
2	4804.950	30.2	9.6	39.8	54.0	14.2	146.6	53.8

--- 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	2389.237	33.7	1.6	35.3	54.0	18.7	280.9	101.4
2	4804.368	30.5	9.6	40.1	54.0	13.9	170.2	62.6

1) Date of measurement : June 14, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (AV)---

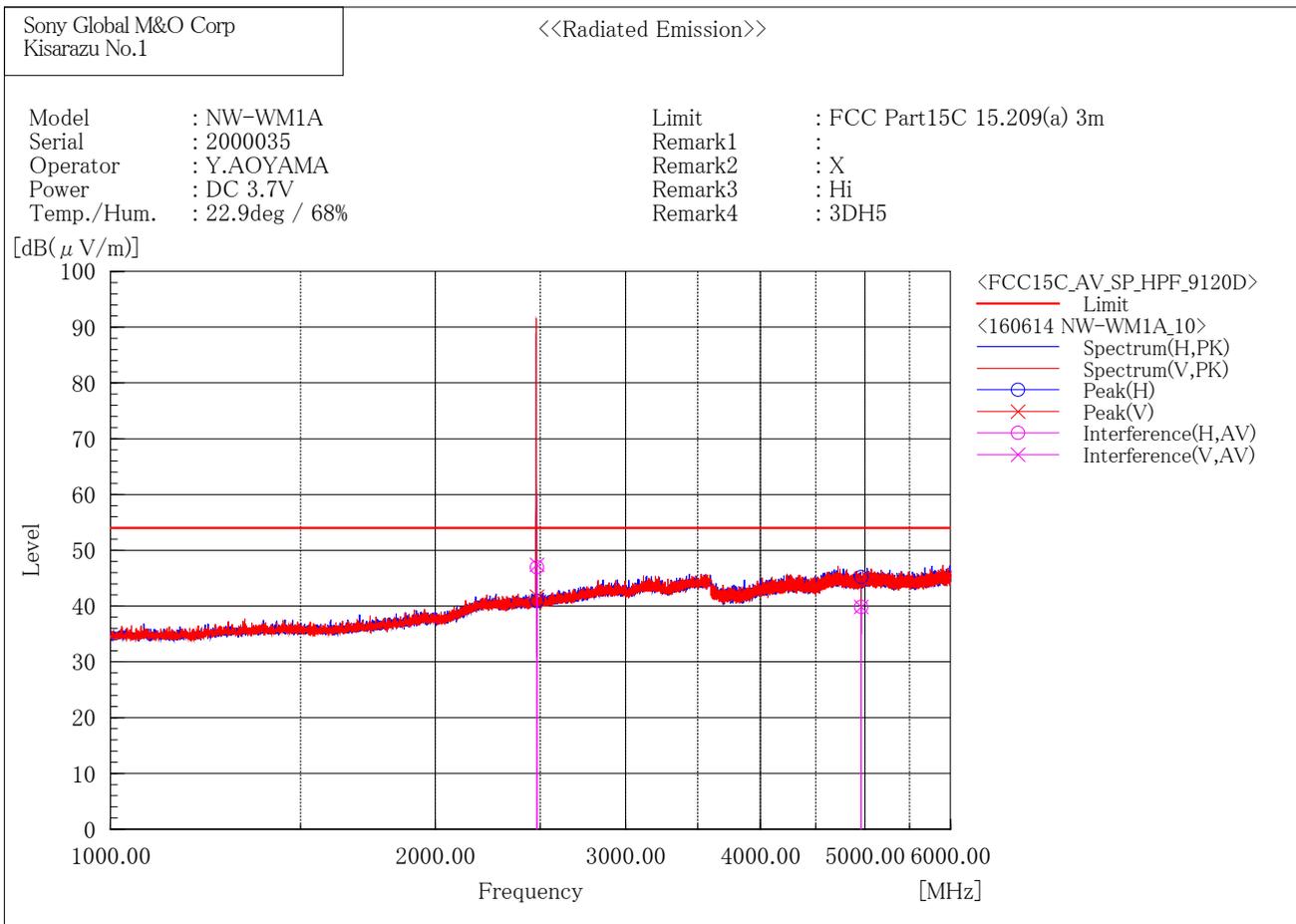
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	4881.448	30.0	9.5	39.5	54.0	14.5	109.9	236.7

--- 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	4882.600	30.0	9.5	39.5	54.0	14.5	163.0	295.7

1) Date of measurement : June 14, 2016

[EDR(3DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

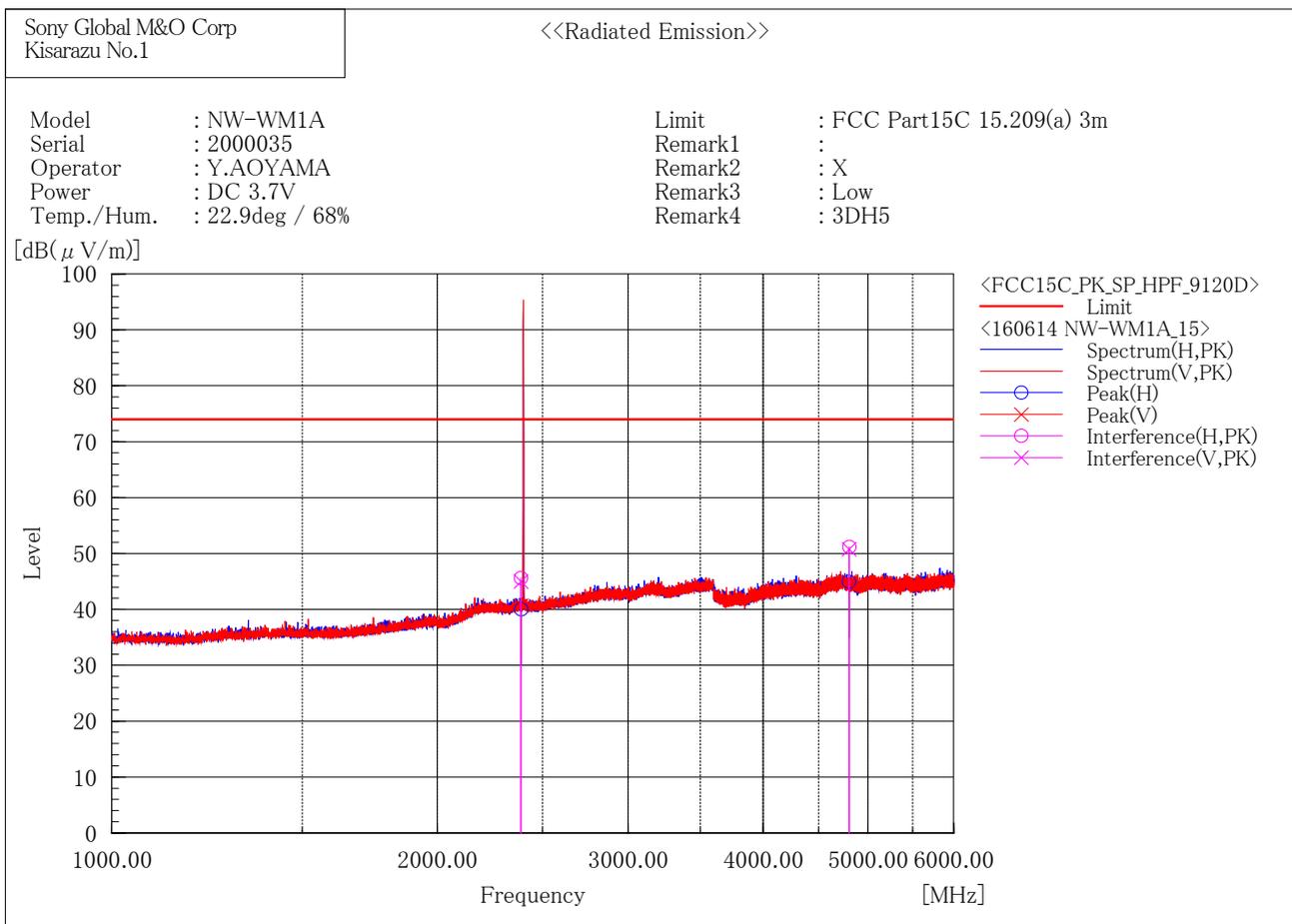
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2483.508	45.1	1.9	47.0	54.0	7.0	115.5	214.6
2	4959.804	30.0	9.8	39.8	54.0	14.2	173.2	289.4

--- 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	2483.503	45.5	1.9	47.4	54.0	6.6	122.6	260.8
2	4961.316	30.0	9.8	39.8	54.0	14.2	100.0	324.8

1) Date of measurement : June 14, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

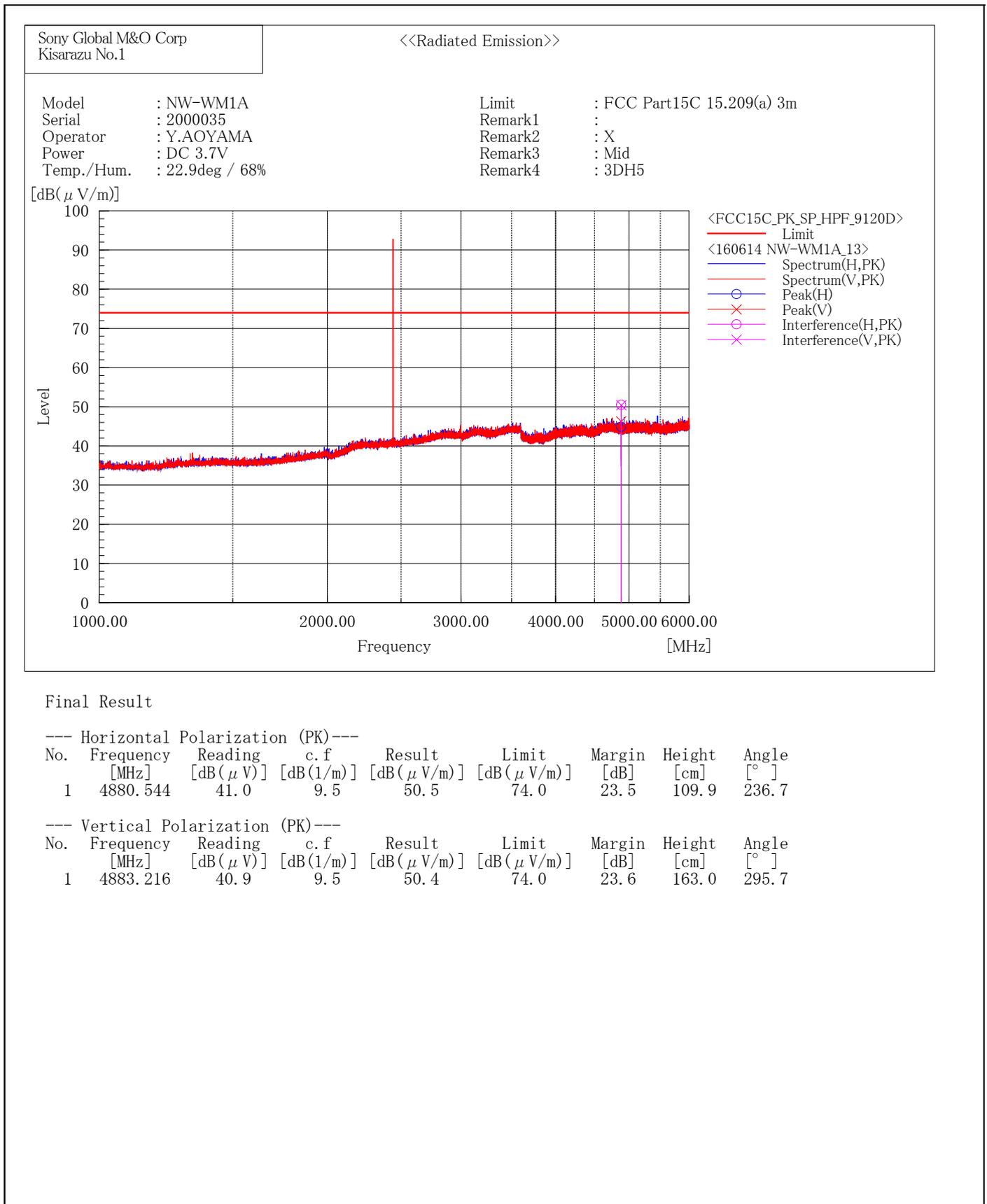
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2389.033	44.0	1.6	45.6	74.0	28.4	184.4	338.0
2	4805.487	41.6	9.6	51.2	74.0	22.8	146.6	53.7

--- 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	2389.200	43.4	1.6	45.0	74.0	29.0	281.0	101.3
2	4804.425	41.2	9.6	50.8	74.0	23.2	170.2	62.6

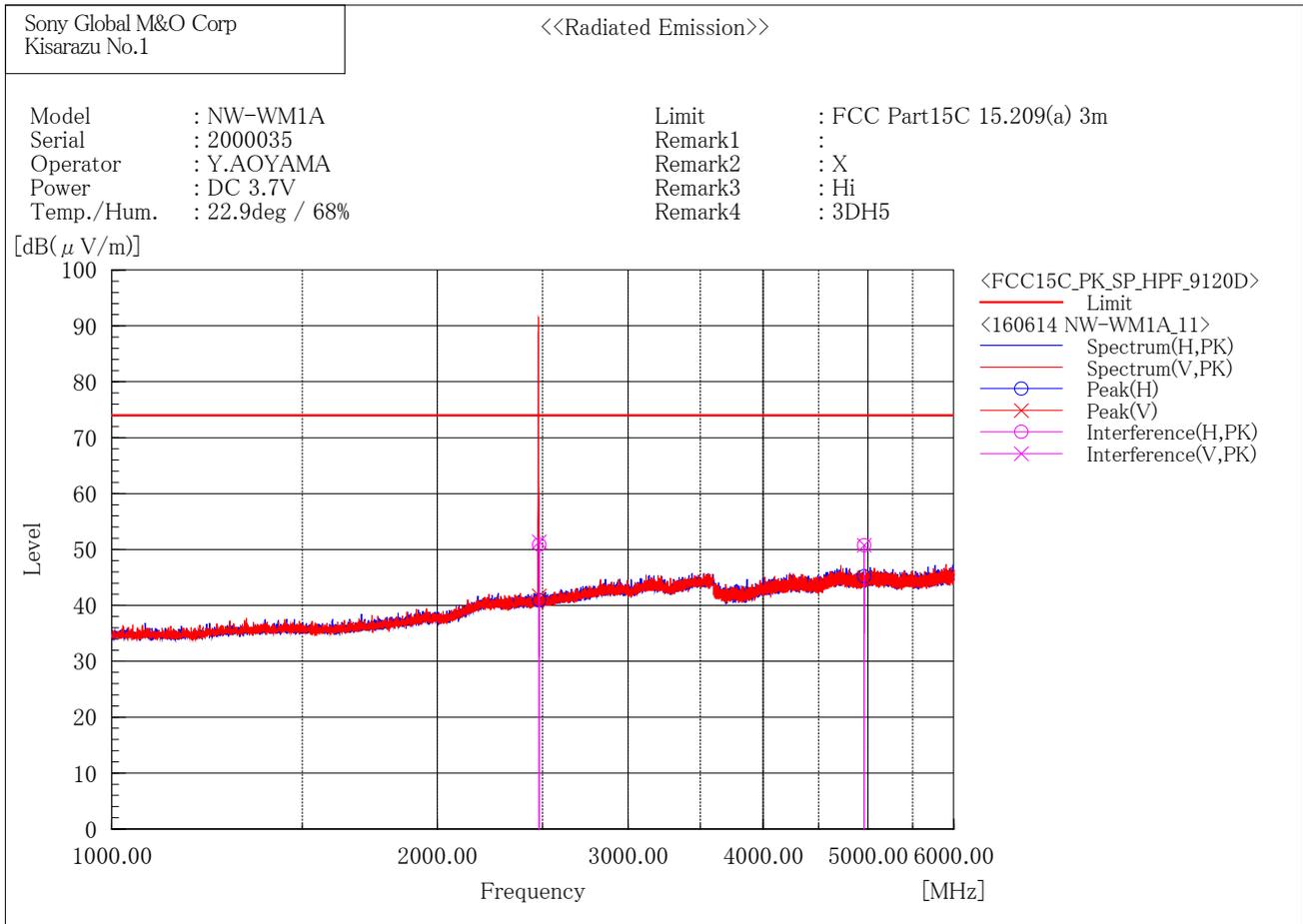
1) Date of measurement : June 14, 2016

[EDR(3DH5)/2441MHz]



1) Date of measurement : June 14, 2016

[EDR(3DH5)/2480MHz]



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	2483.509	49.0	1.9	50.9	74.0	23.1	115.5	214.6
2	4959.602	41.0	9.8	50.8	74.0	23.2	173.2	289.4

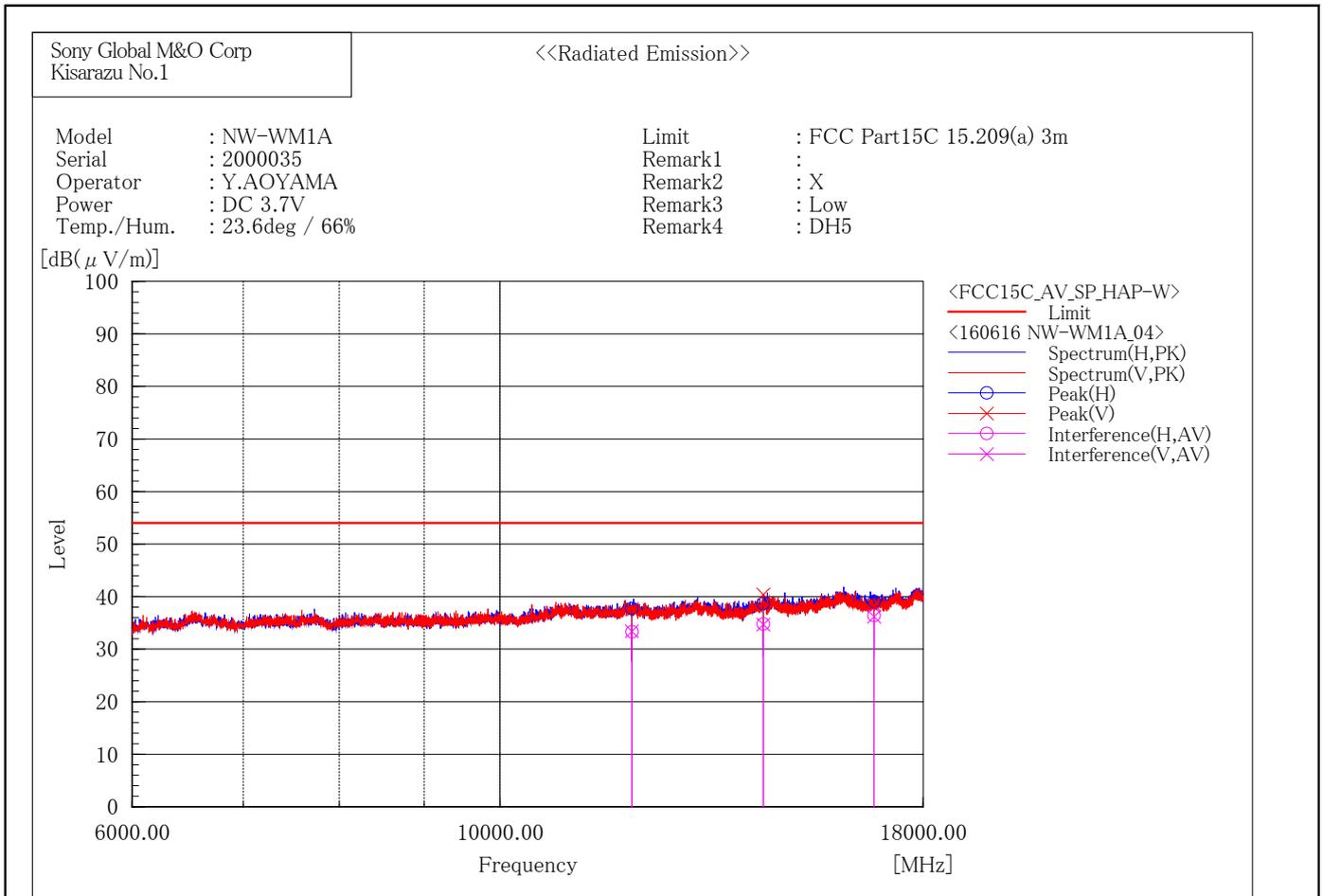
--- Vertical Polarization (PK)---

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	2483.522	49.5	1.9	51.4	74.0	22.6	122.6	260.8
2	4960.716	41.0	9.8	50.8	74.0	23.2	100.0	324.8

6 GHz - 18 GHz

1) Date of measurement : June 16, 2016

[BDR(DH5)/2402MHz]



Final Result

--- Horizontal Polarization (AV)---

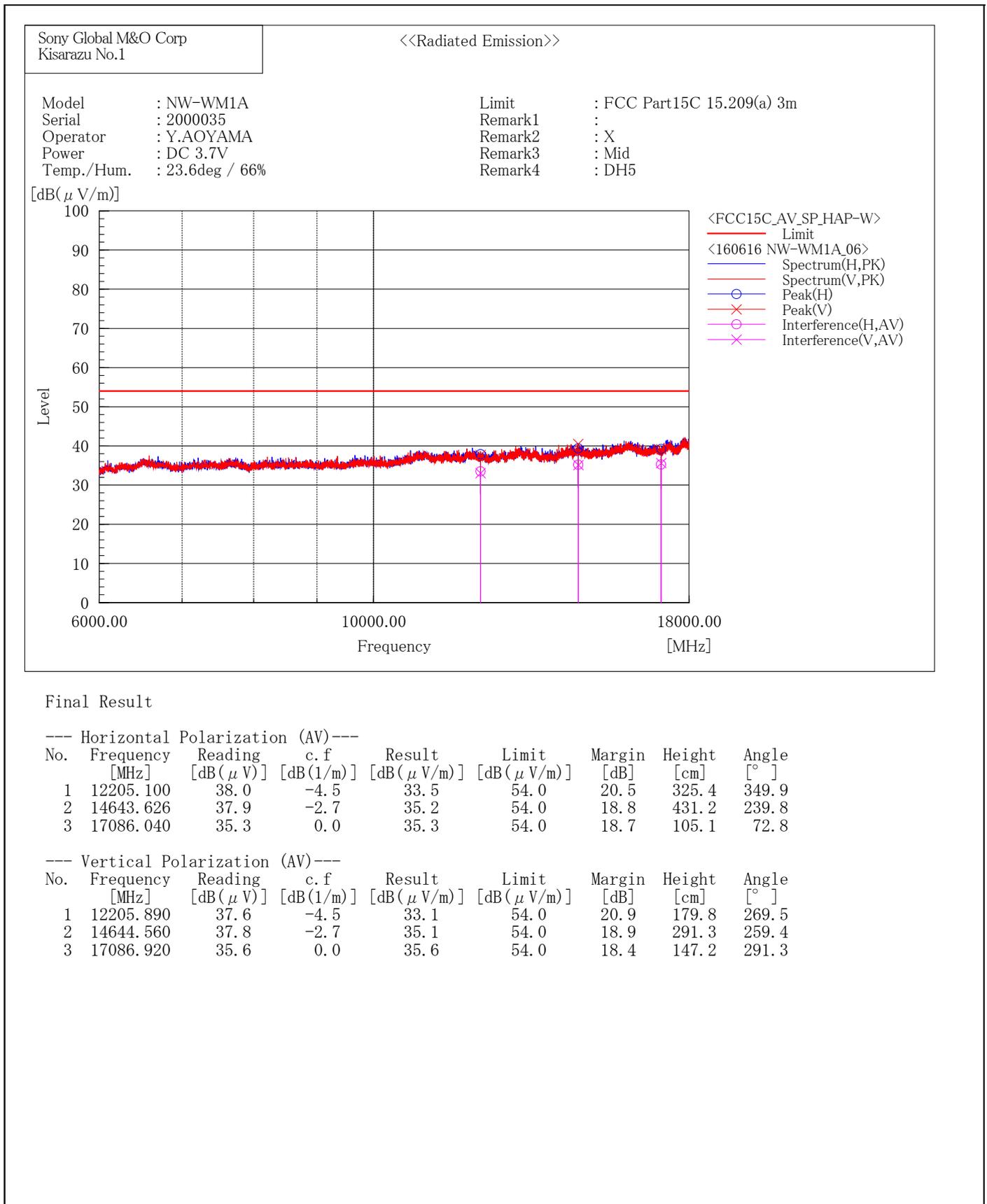
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12012.046	37.5	-4.2	33.3	54.0	20.7	323.2	291.0
2	14414.902	37.8	-3.0	34.8	54.0	19.2	262.2	52.6
3	16815.802	37.2	-0.8	36.4	54.0	17.6	100.0	2.3

--- 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	12010.720	37.6	-4.2	33.4	54.0	20.6	124.5	43.3
2	14414.135	37.7	-3.0	34.7	54.0	19.3	202.8	116.3
3	16810.862	37.0	-0.8	36.2	54.0	17.8	131.2	109.4

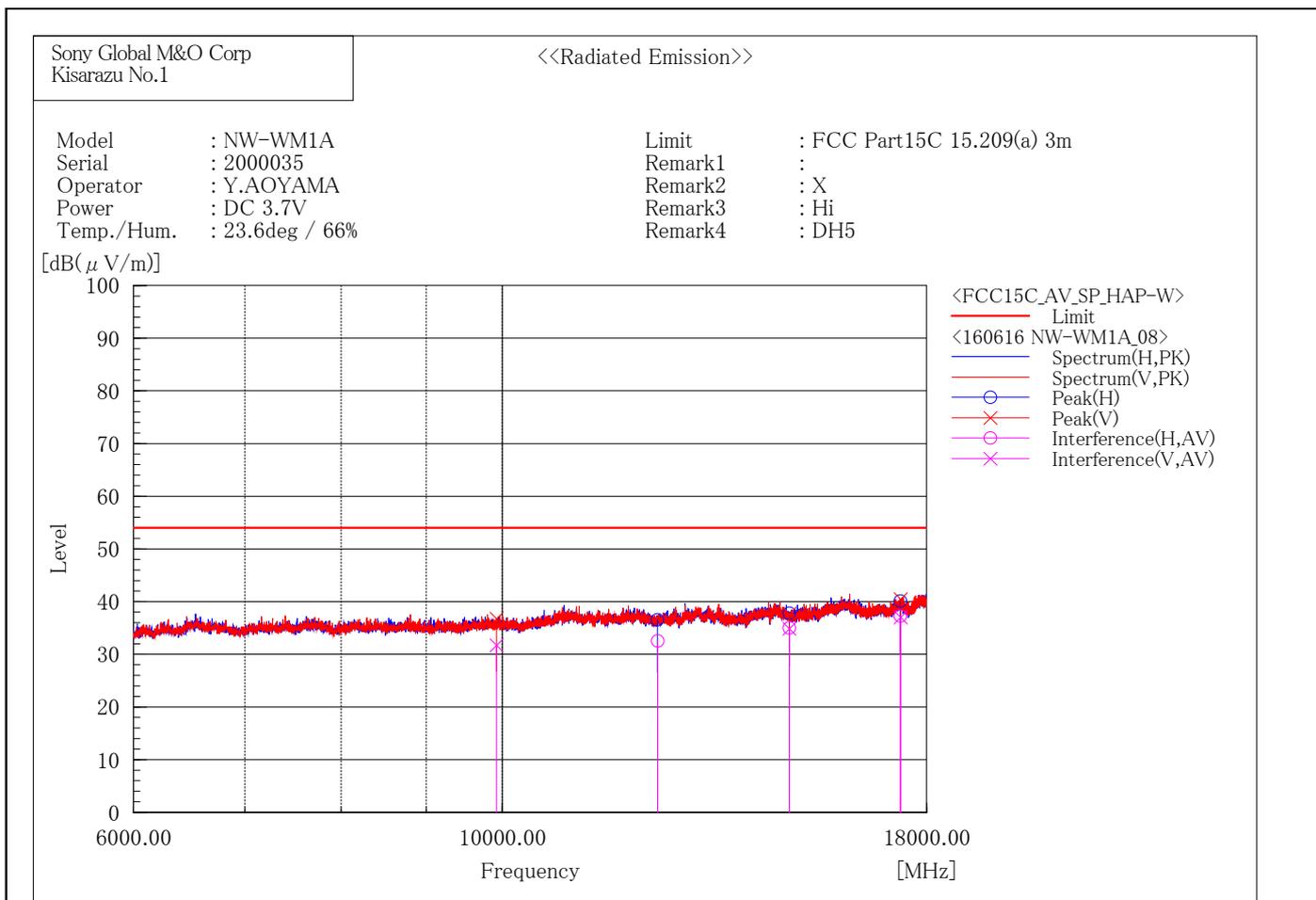
1) Date of measurement : June 16, 2016

[BDR(DH5)/2441MHz]



1) Date of measurement : June 16, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

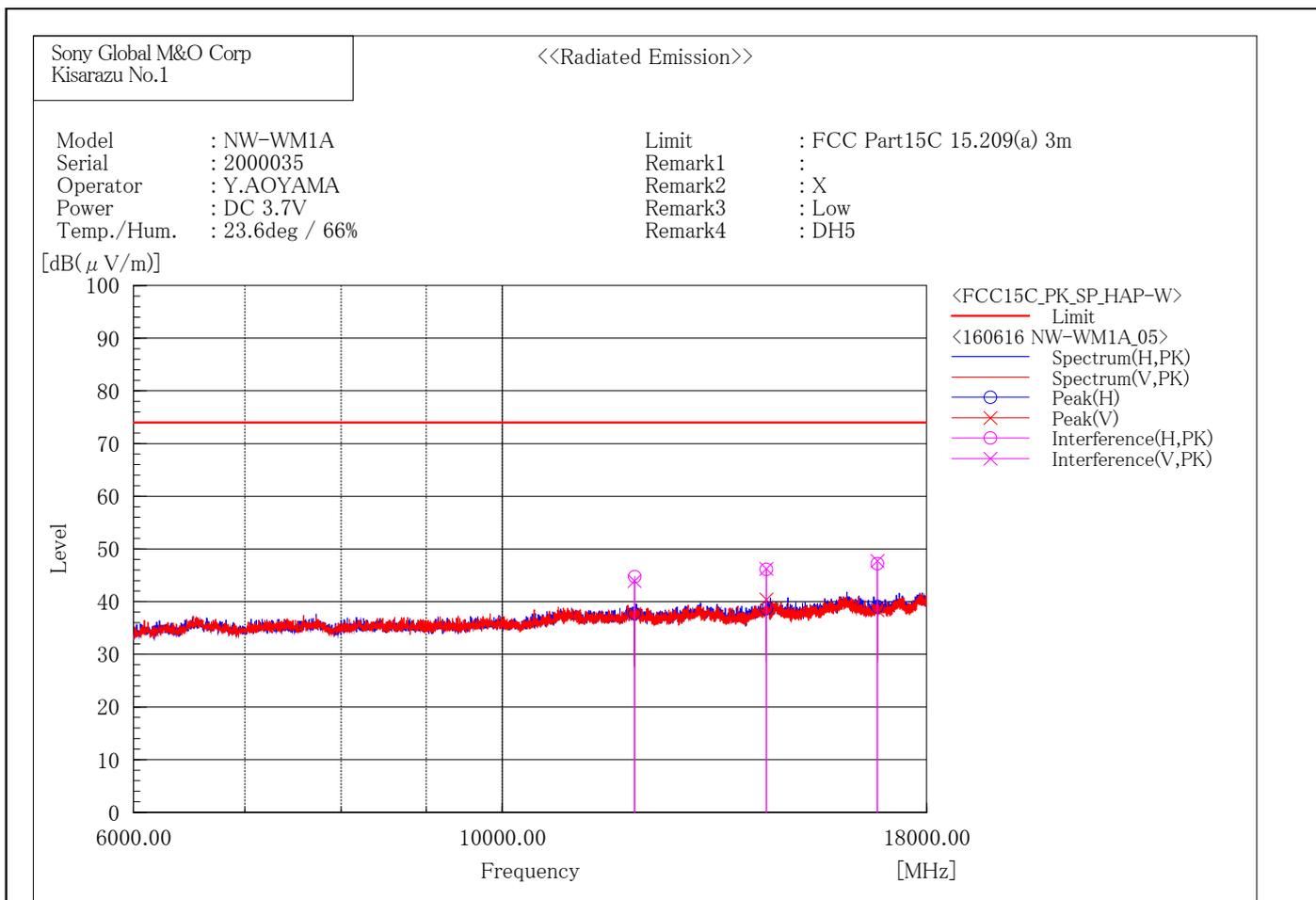
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12400.484	37.3	-4.7	32.6	54.0	21.4	257.0	102.4
2	14880.083	37.7	-2.7	35.0	54.0	19.0	397.2	149.2
3	17357.648	37.1	0.2	37.3	54.0	16.7	144.7	287.0

--- 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	9922.387	38.7	-7.0	31.7	54.0	22.3	264.4	349.7
2	14882.544	37.5	-2.7	34.8	54.0	19.2	127.1	204.2
3	17360.574	36.8	0.2	37.0	54.0	17.0	119.9	108.2

1) Date of measurement : June 16, 2016

[BDR(DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

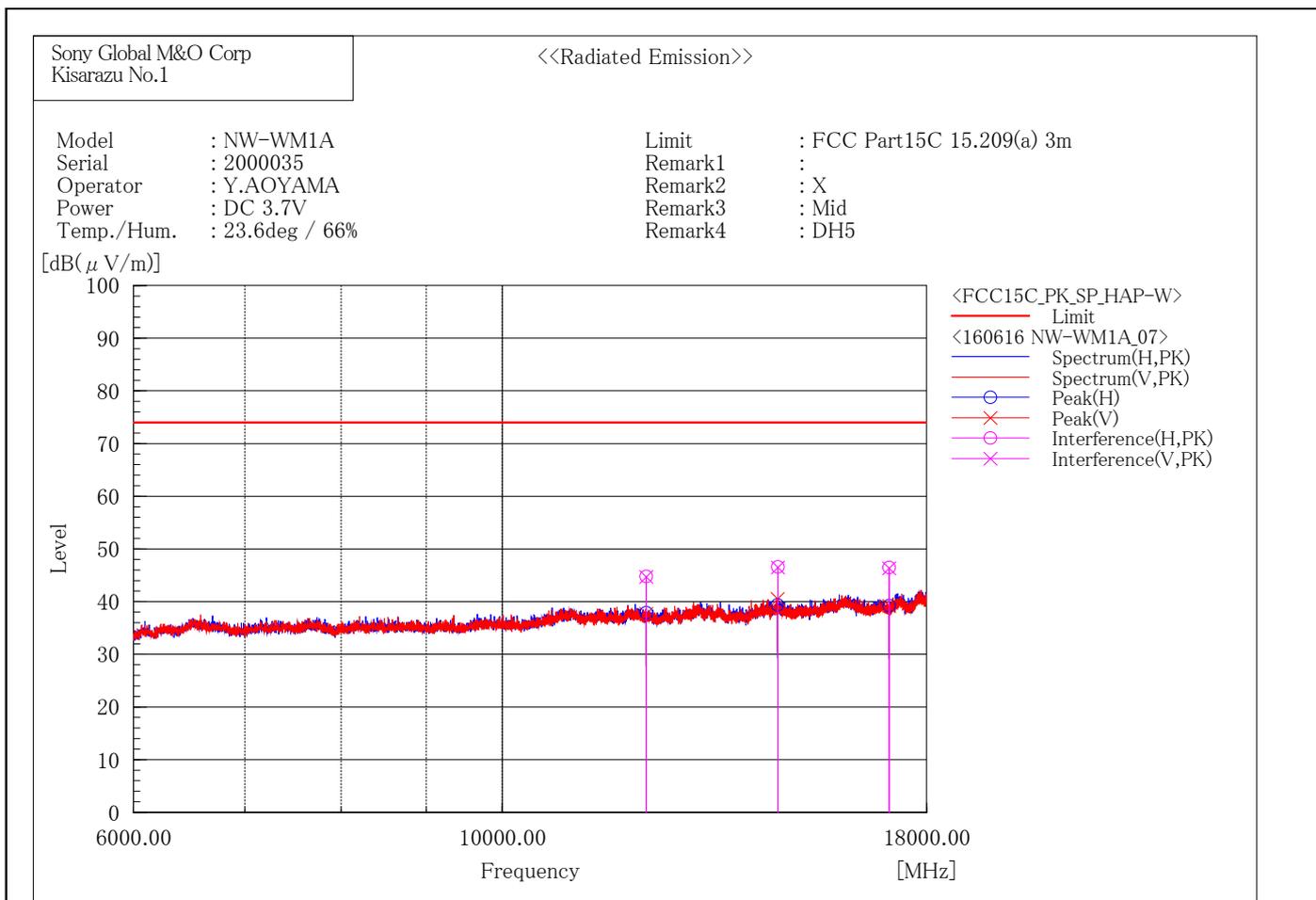
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12012.350	48.9	-4.2	44.7	74.0	29.3	323.3	291.0
2	14414.859	49.2	-3.0	46.2	74.0	27.8	262.2	52.5
3	16816.238	48.0	-0.8	47.2	74.0	26.8	100.0	2.3

--- 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	12010.548	48.1	-4.2	43.9	74.0	30.1	124.5	43.2
2	14414.212	49.2	-3.0	46.2	74.0	27.8	202.8	116.2
3	16810.664	48.5	-0.8	47.7	74.0	26.3	131.2	109.3

1) Date of measurement : June 16, 2016

[BDR(DH5)/2441MHz]



Final Result

--- Horizontal Polarization (PK)---

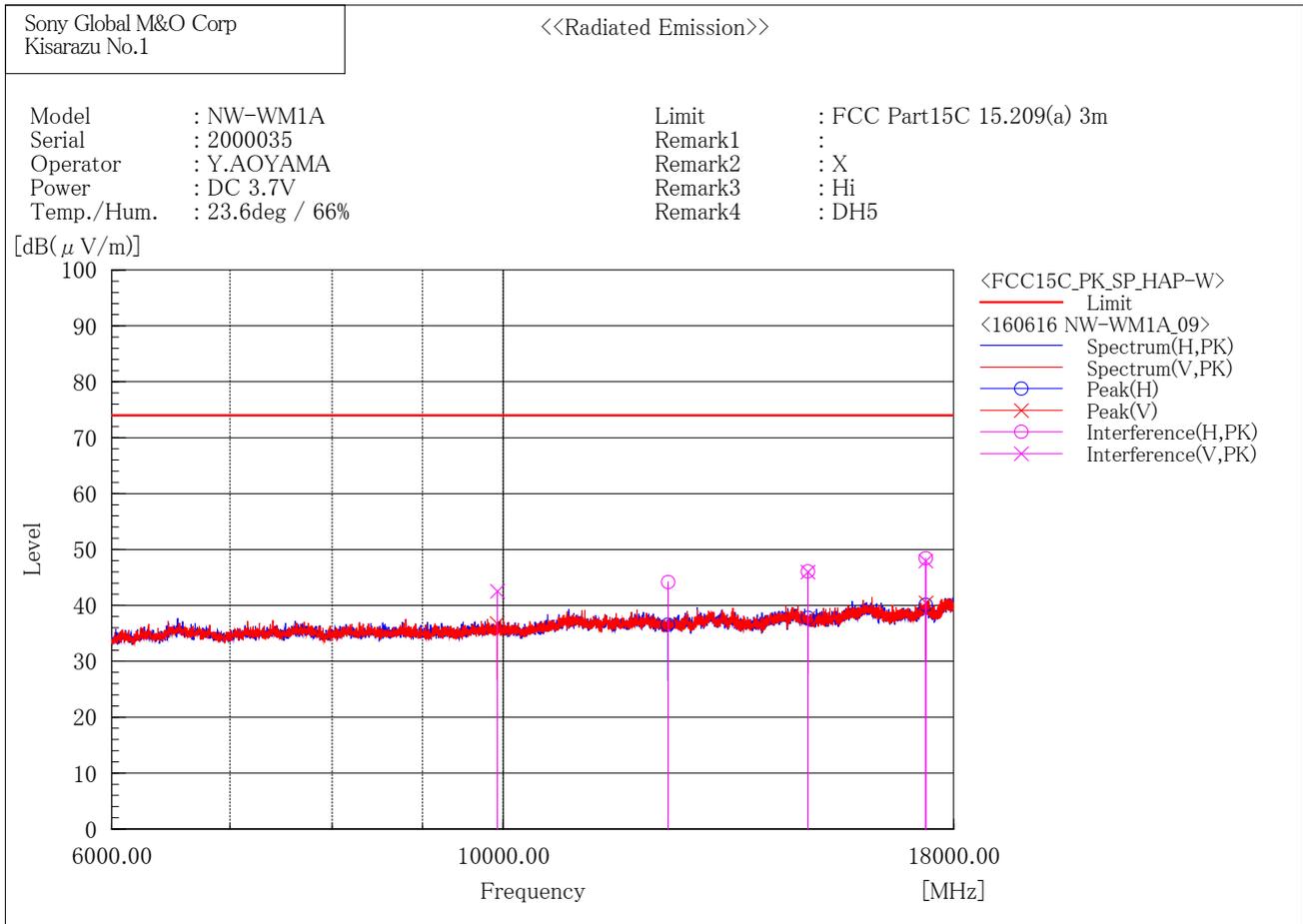
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12204.420	49.3	-4.5	44.8	74.0	29.2	325.5	349.9
2	14644.084	49.3	-2.7	46.6	74.0	27.4	431.4	239.8
3	17086.144	46.5	0.0	46.5	74.0	27.5	105.1	72.7

--- 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	12206.347	49.2	-4.5	44.7	74.0	29.3	179.8	269.5
2	14645.074	49.2	-2.7	46.5	74.0	27.5	291.4	259.4
3	17087.078	46.4	0.0	46.4	74.0	27.6	147.2	291.3

1) Date of measurement : June 16, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (PK)---

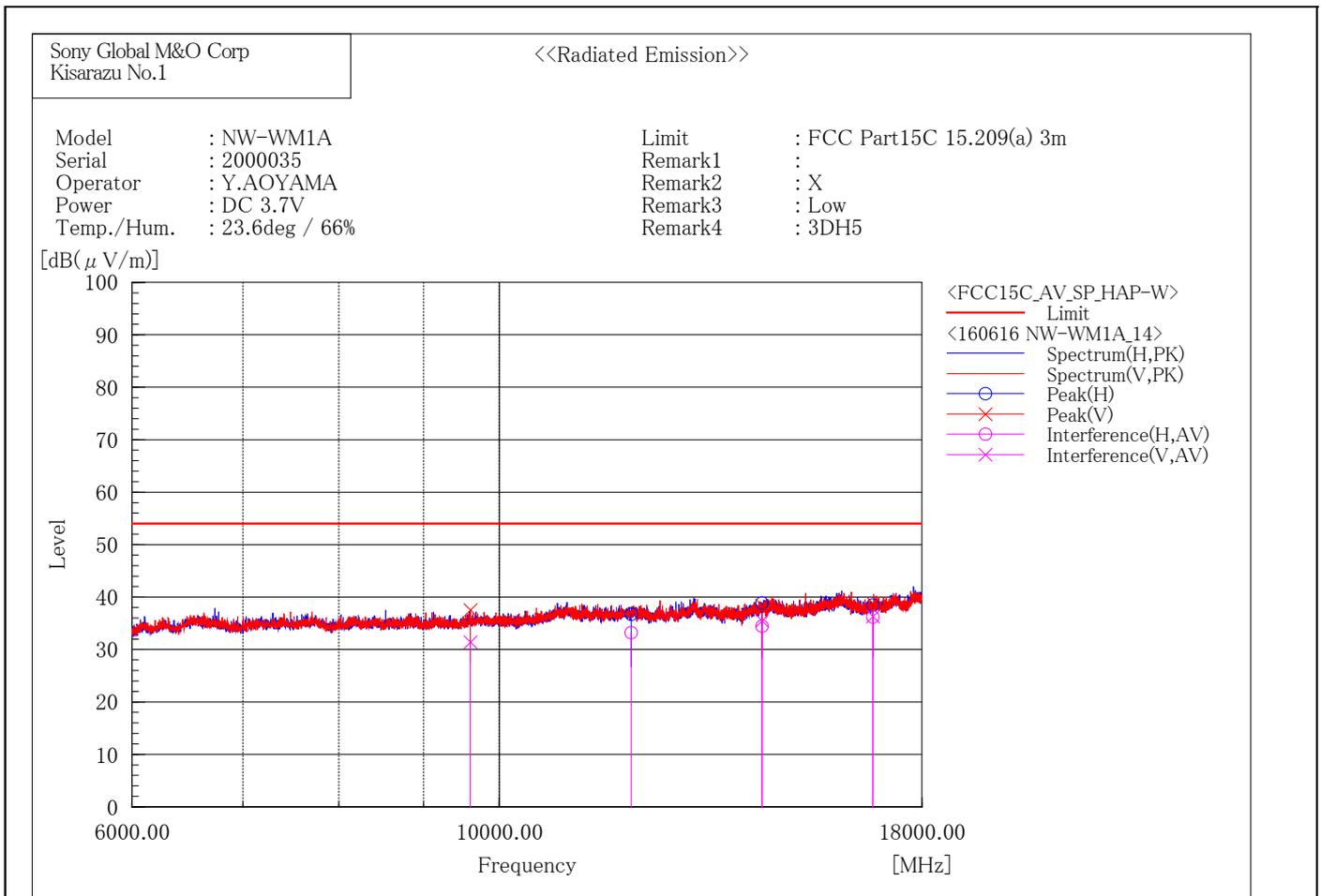
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12401.433	48.9	-4.7	44.2	74.0	29.8	257.0	102.3
2	14881.074	48.8	-2.7	46.1	74.0	27.9	397.3	149.2
3	17357.466	48.2	0.2	48.4	74.0	25.6	144.7	287.0

--- 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	9923.137	49.5	-7.0	42.5	74.0	31.5	264.4	349.8
2	14883.525	48.7	-2.7	46.0	74.0	28.0	127.1	204.2
3	17360.036	47.7	0.2	47.9	74.0	26.1	119.9	108.1

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (AV)---

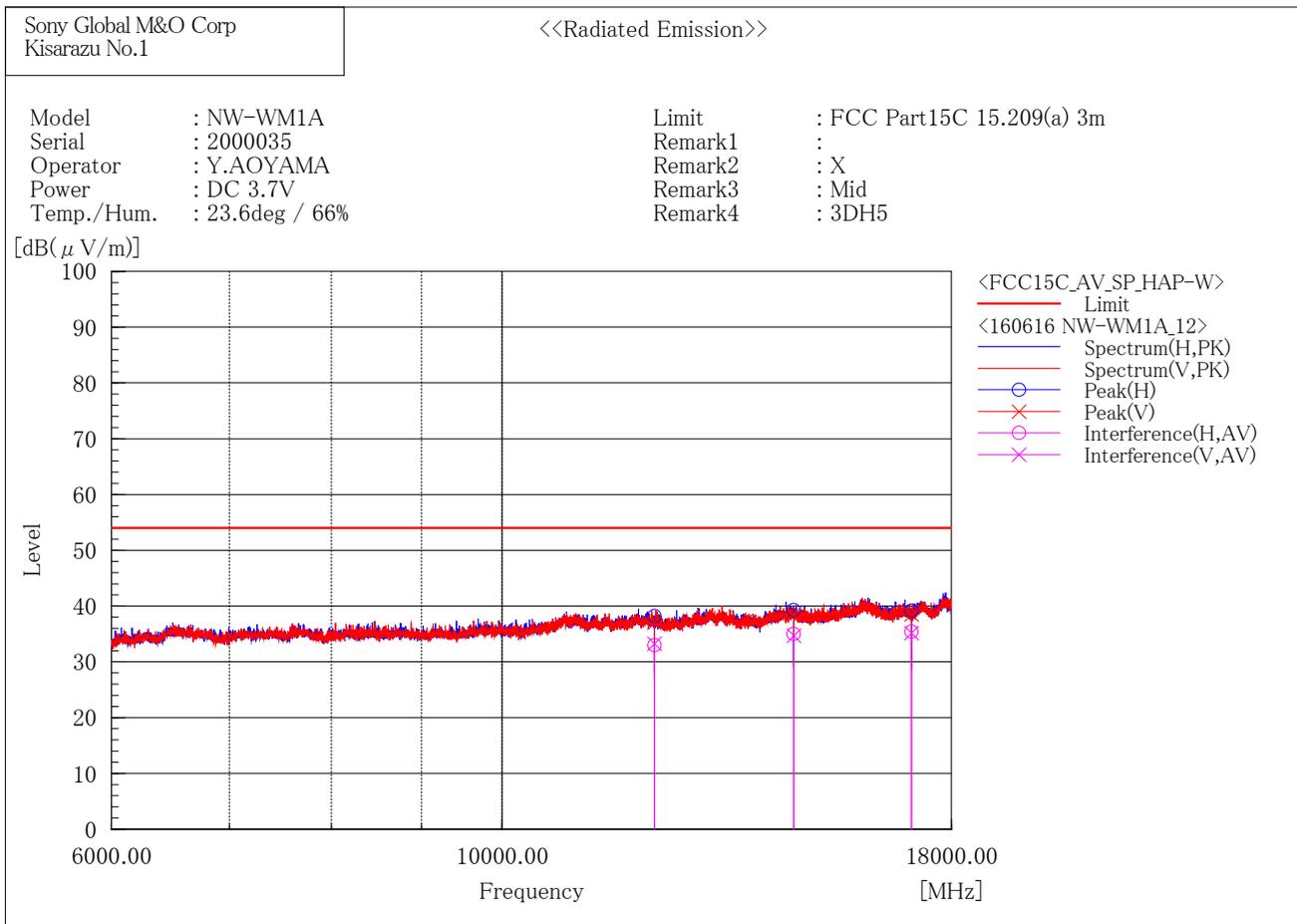
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12011.493	37.4	-4.2	33.2	54.0	20.8	273.0	255.8
2	14411.498	37.5	-3.0	34.5	54.0	19.5	145.7	61.1
3	16815.730	37.0	-0.8	36.2	54.0	17.8	206.5	317.9

--- 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	9607.734	39.5	-8.1	31.4	54.0	22.6	111.5	26.8
2	14409.339	38.5	-3.0	35.5	54.0	18.5	152.5	184.8
3	16812.952	37.1	-0.8	36.3	54.0	17.7	247.4	98.3

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (AV) ---

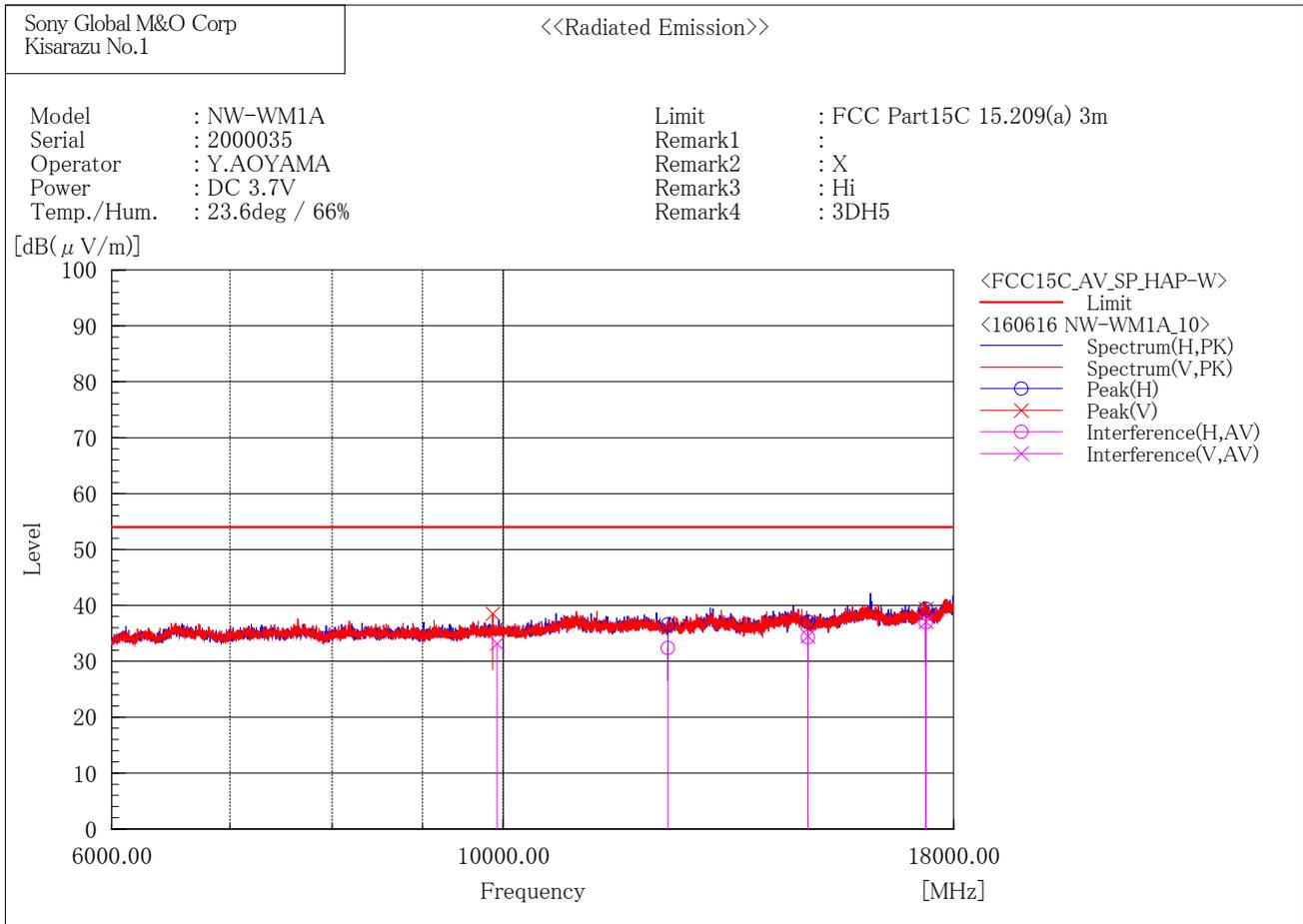
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12204.373	37.5	-4.5	33.0	54.0	21.0	147.4	38.2
2	14643.463	37.7	-2.7	35.0	54.0	19.0	393.9	158.8
3	17083.164	35.4	0.0	35.4	54.0	18.6	431.2	40.3

--- 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	12207.145	37.8	-4.5	33.3	54.0	20.7	432.2	292.0
2	14647.199	37.4	-2.7	34.7	54.0	19.3	193.8	149.1
3	17083.656	35.2	0.0	35.2	54.0	18.8	120.5	151.8

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

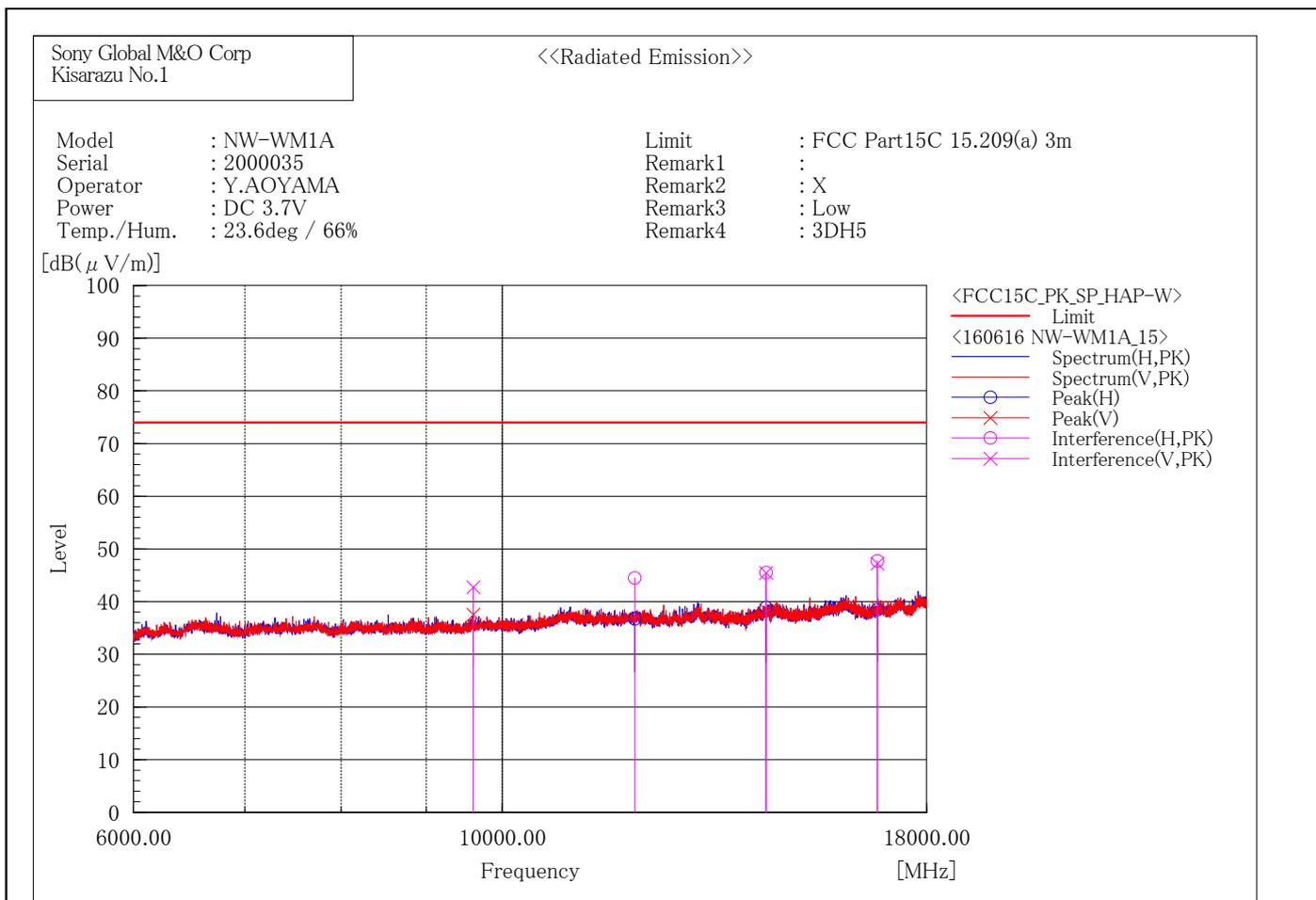
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12397.202	37.1	-4.7	32.4	54.0	21.6	375.4	52.6
2	14880.983	37.0	-2.7	34.3	54.0	19.7	173.1	0.0
3	17358.748	36.8	0.2	37.0	54.0	17.0	271.9	222.5

--- 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	9920.075	40.2	-7.0	33.2	54.0	20.8	100.0	205.1
2	14881.644	37.2	-2.7	34.5	54.0	19.5	238.4	307.8
3	17361.286	36.9	0.2	37.1	54.0	16.9	155.0	272.2

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

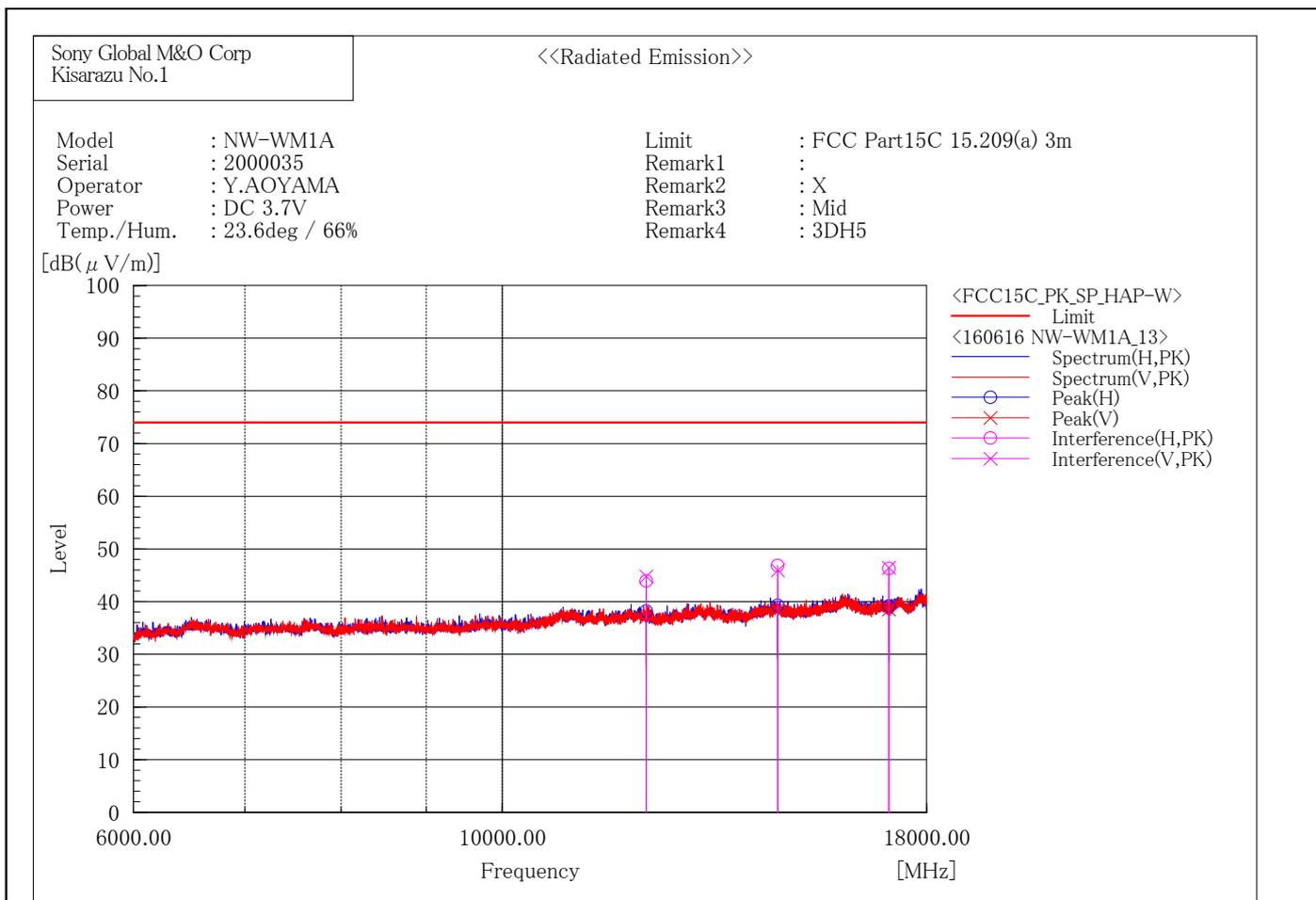
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12011.618	48.7	-4.2	44.5	74.0	29.5	273.1	255.8
2	14411.575	48.5	-3.0	45.5	74.0	28.5	145.7	61.0
3	16815.734	48.5	-0.8	47.7	74.0	26.3	206.5	317.9

--- 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	9607.868	50.8	-8.1	42.7	74.0	31.3	111.5	26.7
2	14410.031	48.5	-3.0	45.5	74.0	28.5	152.5	184.8
3	16813.070	48.0	-0.8	47.2	74.0	26.8	247.4	98.3

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (PK)---

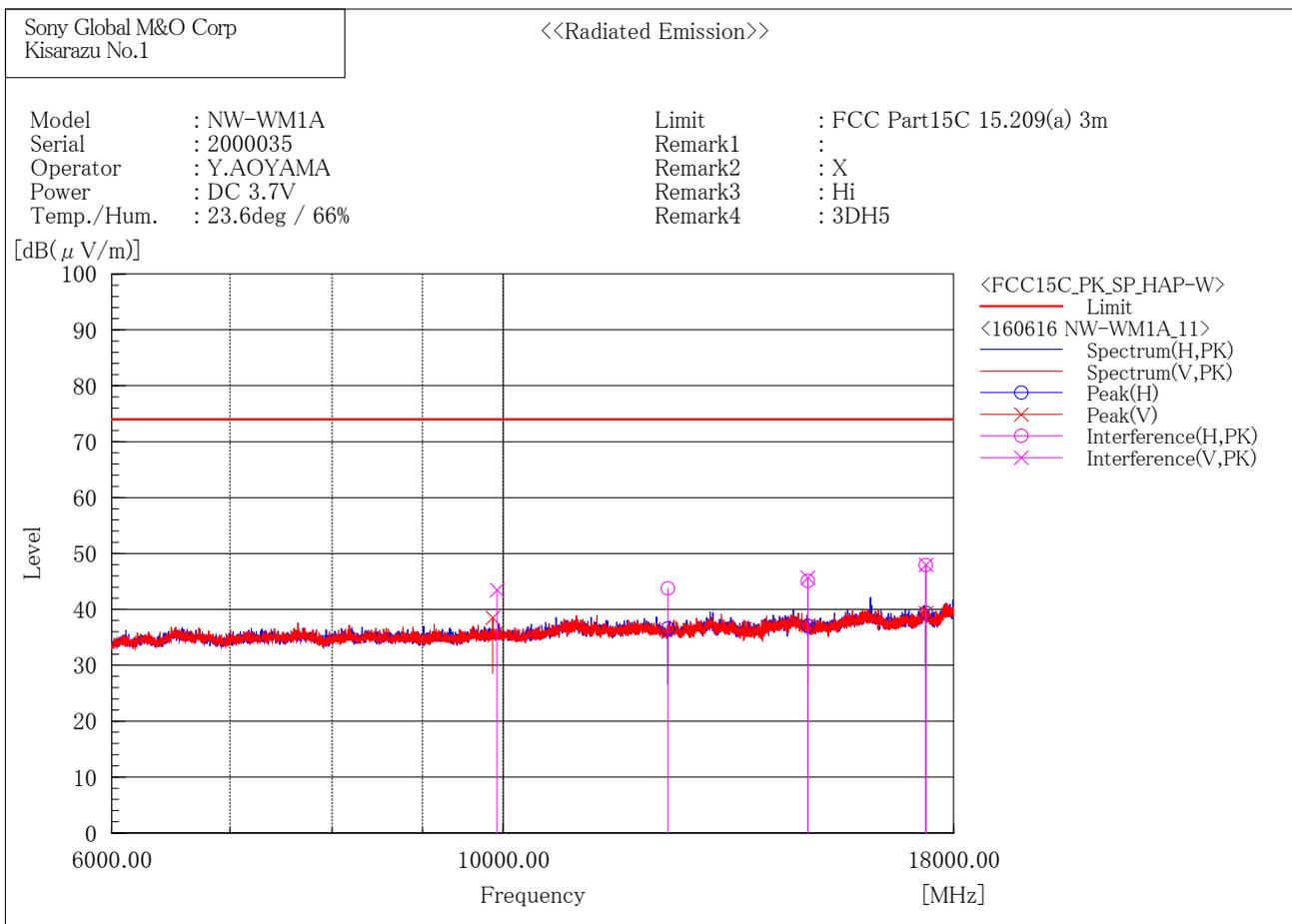
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	12204.813	48.4	-4.5	43.9	74.0	30.1	147.4	38.1
2	14643.844	49.6	-2.7	46.9	74.0	27.1	394.0	158.8
3	17083.092	46.3	0.0	46.3	74.0	27.7	431.4	40.2

--- 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	12206.647	49.3	-4.5	44.8	74.0	29.2	432.2	292.0
2	14648.190	48.6	-2.7	45.9	74.0	28.1	193.8	149.1
3	17083.194	46.5	0.0	46.5	74.0	27.5	120.5	151.8

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2480MHz]



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	12396.795	48.4	-4.7	43.7	74.0	30.3	375.5	52.5
2	14881.581	47.8	-2.7	45.1	74.0	28.9	173.1	0.0
3	17359.674	47.7	0.2	47.9	74.0	26.1	271.9	222.5

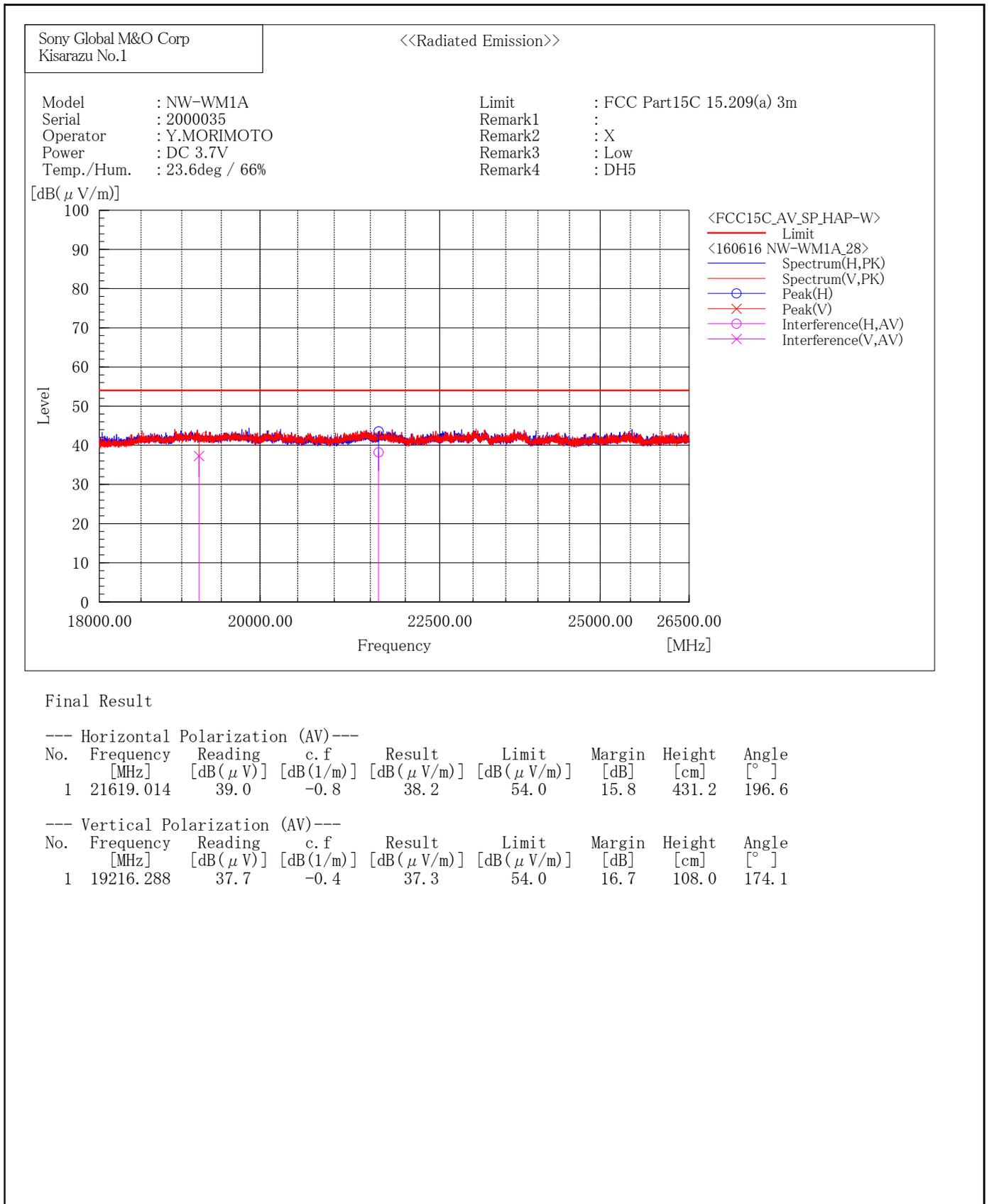
--- Vertical Polarization (PK)---

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	9919.791	50.5	-7.0	43.5	74.0	30.5	100.0	205.1
2	14882.386	48.4	-2.7	45.7	74.0	28.3	238.4	307.8
3	17362.258	47.8	0.2	48.0	74.0	26.0	155.0	272.2

18 GHz – 24.835 GHz

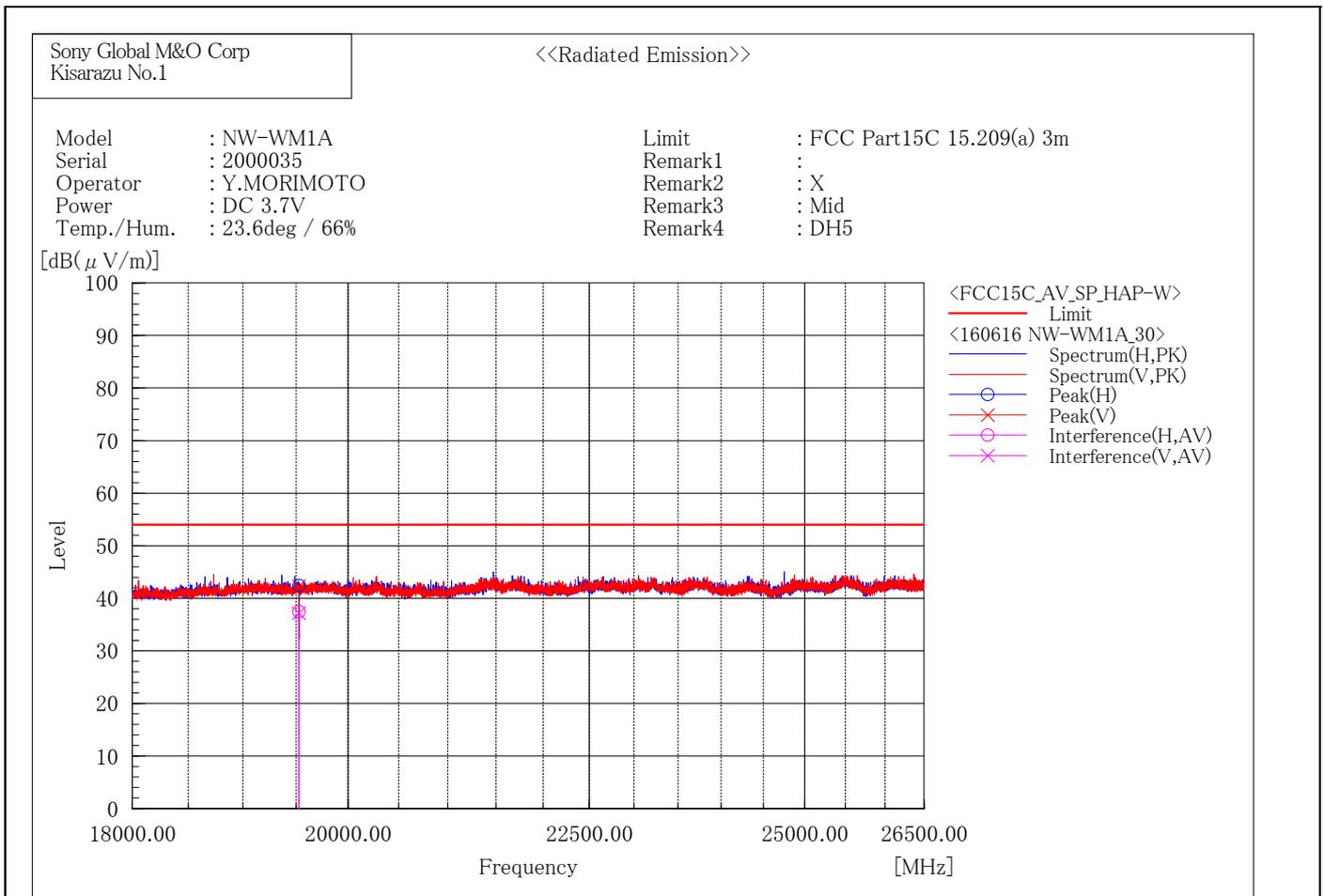
1) Date of measurement : June 16, 2016

[BDR(DH5)/2402MHz]



1) Date of measurement : June 16, 2016

[BDR(DH5)/2441MHz]



Final Result

--- Horizontal Polarization (AV)---

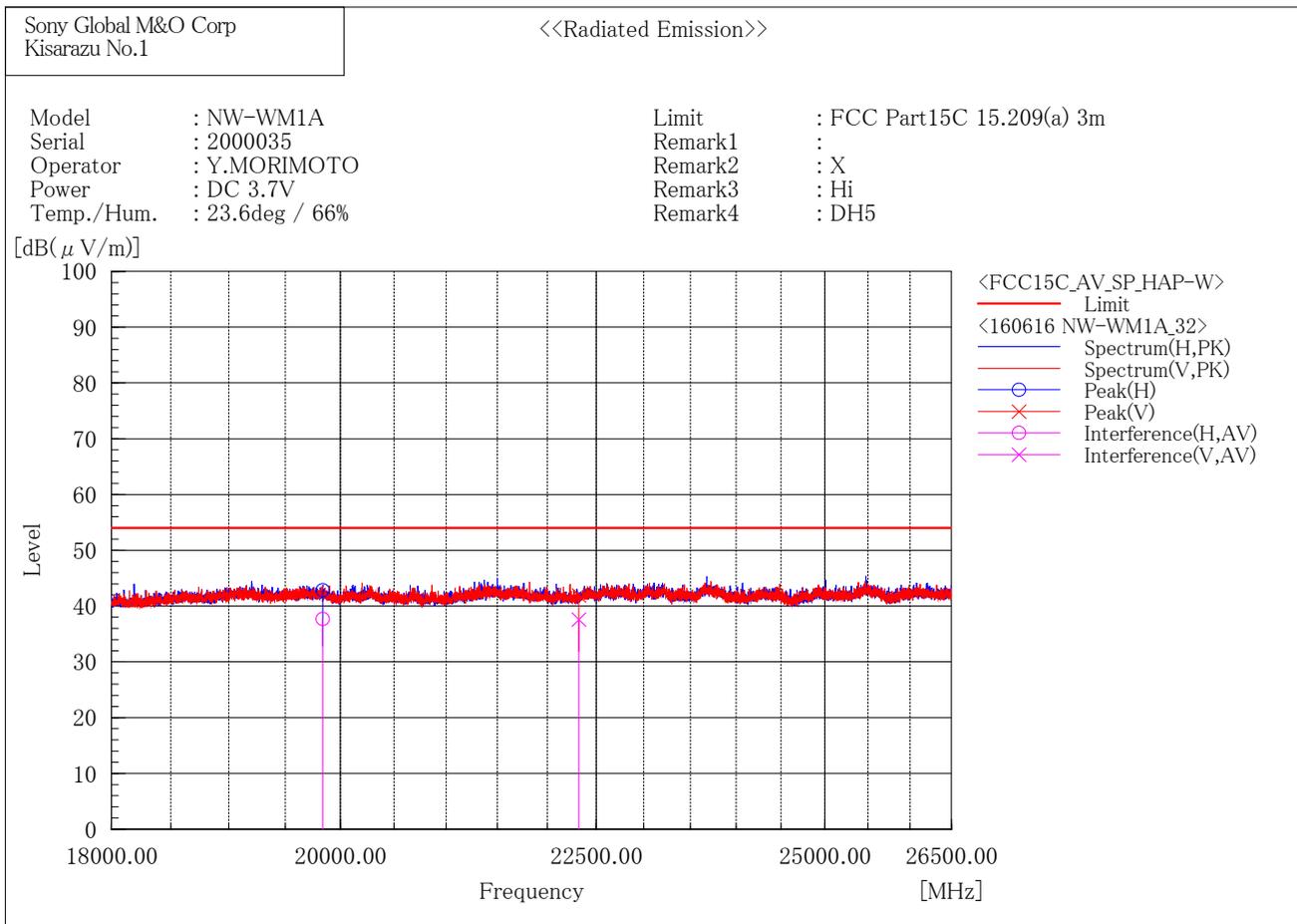
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19527.186	38.0	-0.5	37.5	54.0	16.5	217.1	253.4

--- 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	19525.396	37.7	-0.5	37.2	54.0	16.8	190.6	72.5

1) Date of measurement : June 16, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

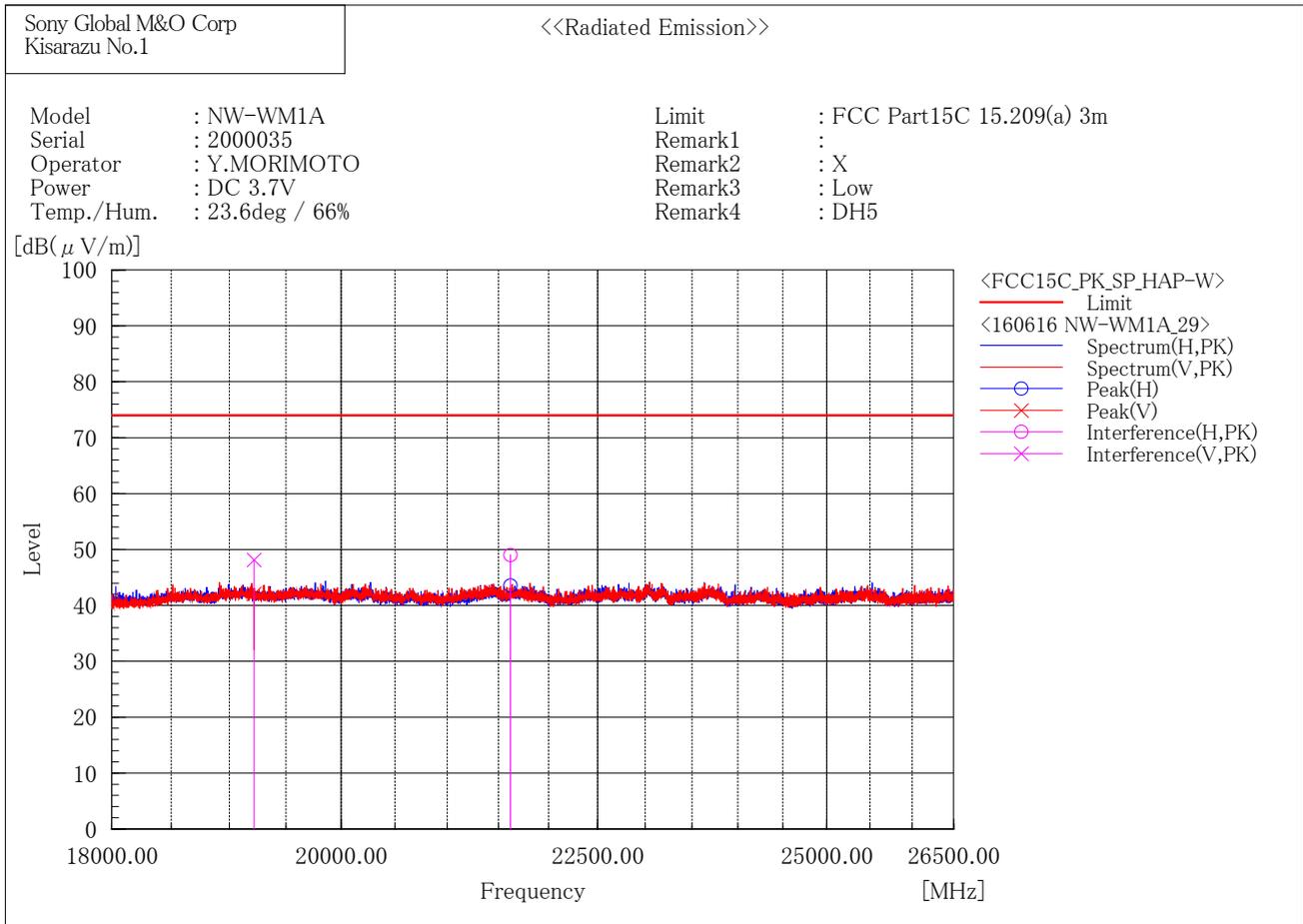
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19839.610	38.2	-0.5	37.7	54.0	16.3	369.5	219.9

--- 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	22322.318	38.8	-1.2	37.6	54.0	16.4	336.6	145.5

1) Date of measurement : June 16, 2016

[BDR(DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

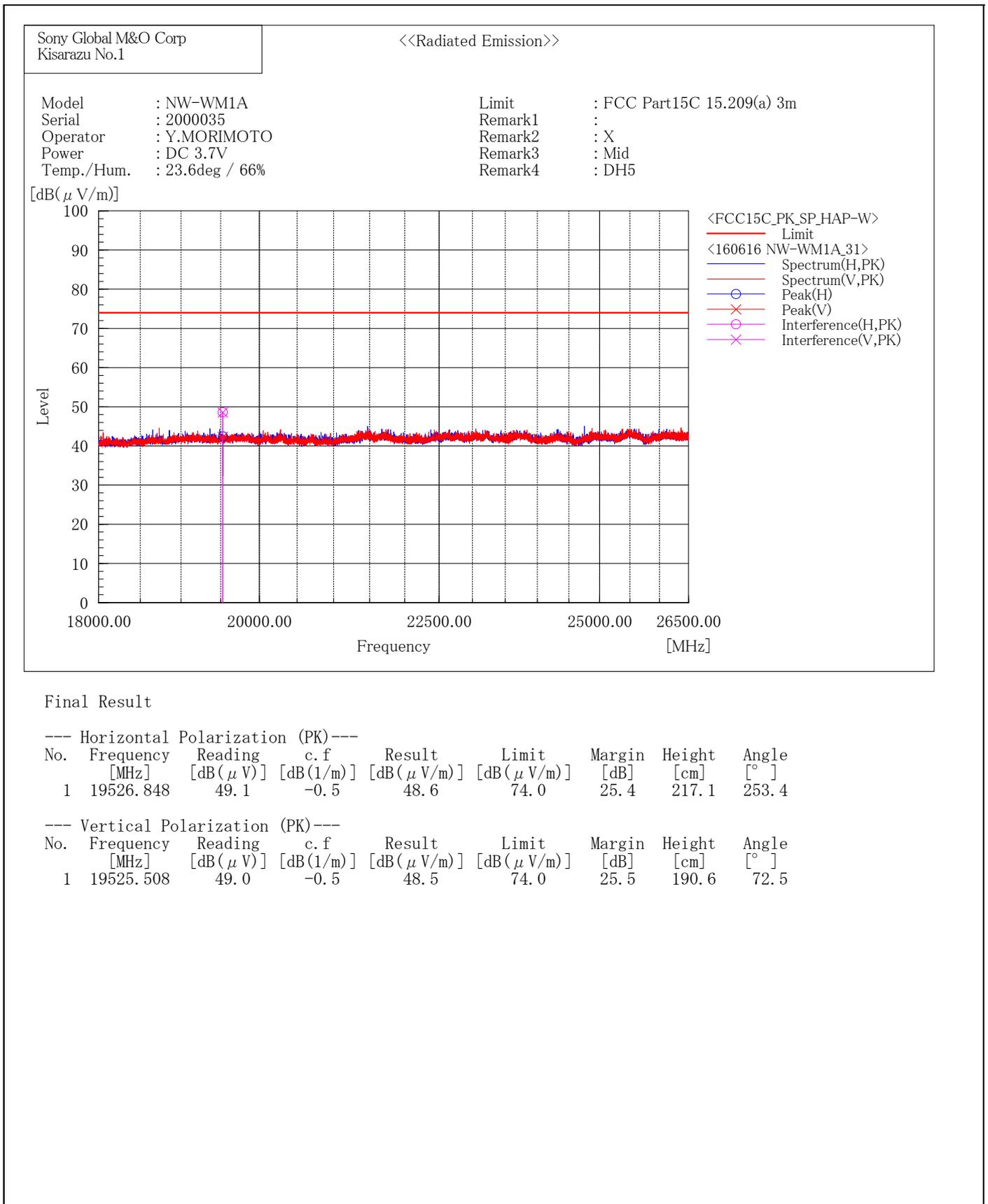
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	21618.702	49.8	-0.8	49.0	74.0	25.0	431.4	196.7

--- 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	19216.720	48.5	-0.4	48.1	74.0	25.9	108.0	174.1

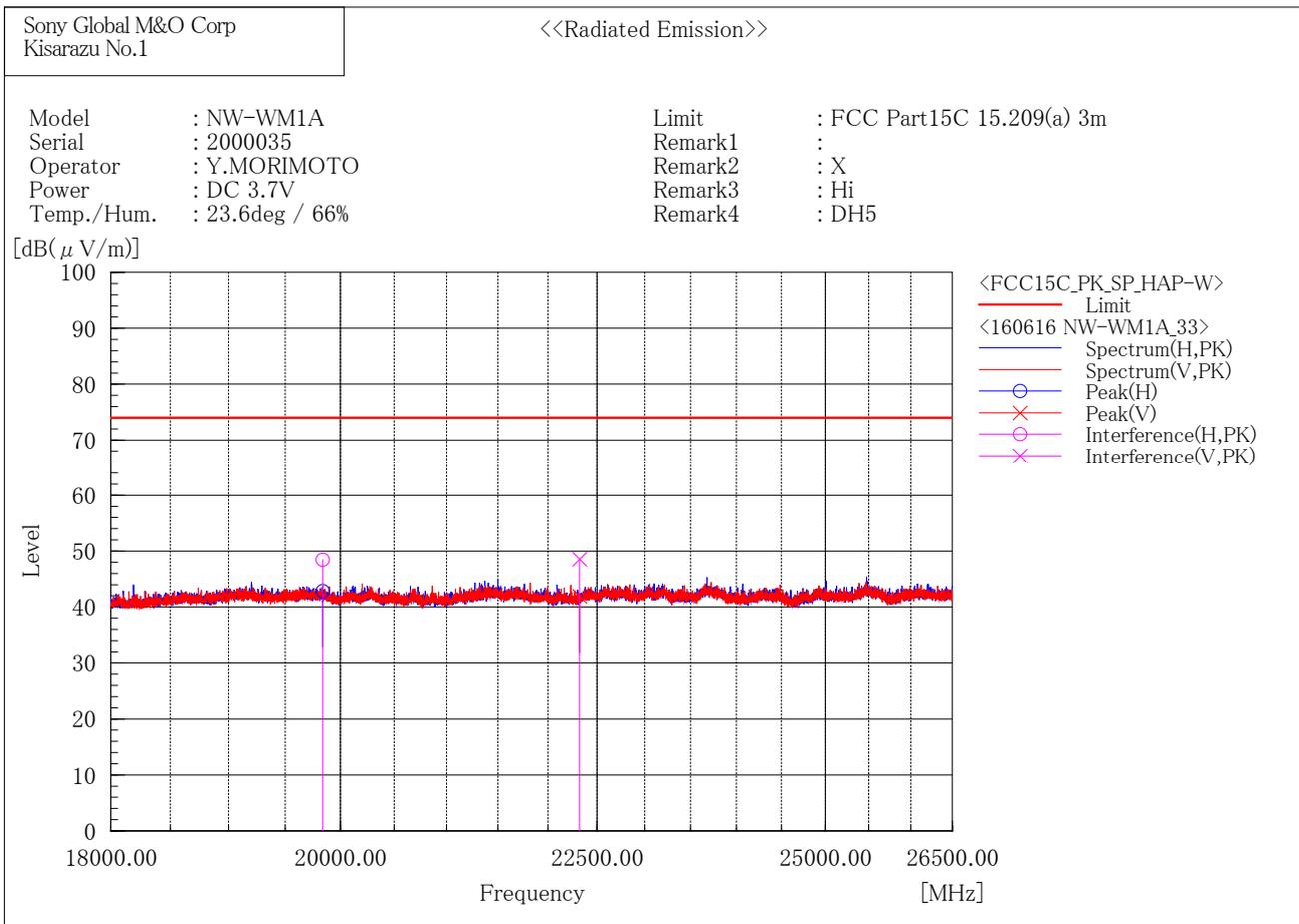
1) Date of measurement : June 16, 2016

[BDR(DH5)/2441MHz]



1) Date of measurement : June 16, 2016

[BDR(DH5)/2480MHz]



Final Result

--- Horizontal Polarization (PK)---

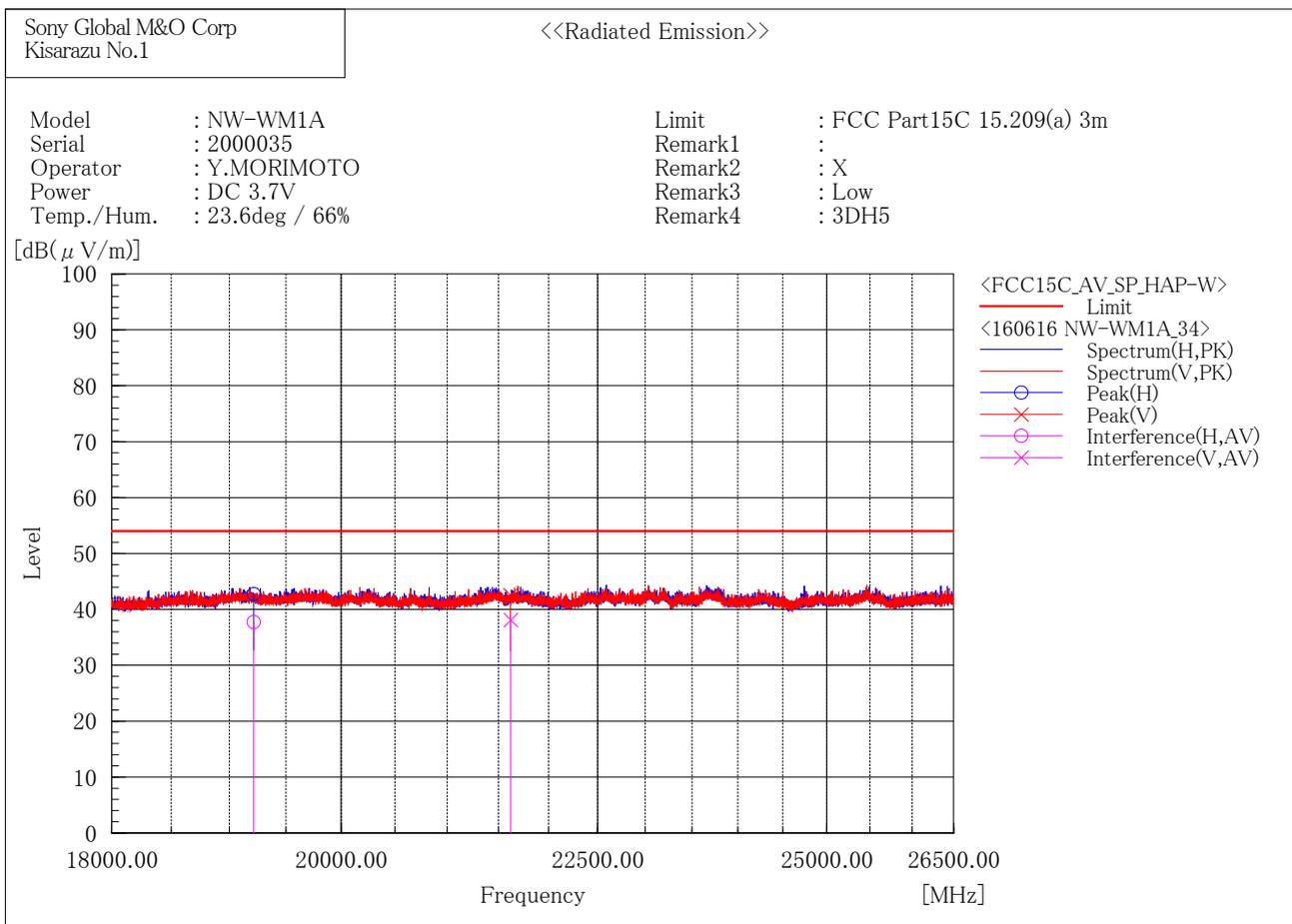
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19839.920	48.9	-0.5	48.4	74.0	25.6	369.6	220.0

--- 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	22323.108	49.8	-1.2	48.6	74.0	25.4	336.6	145.5

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (AV)---

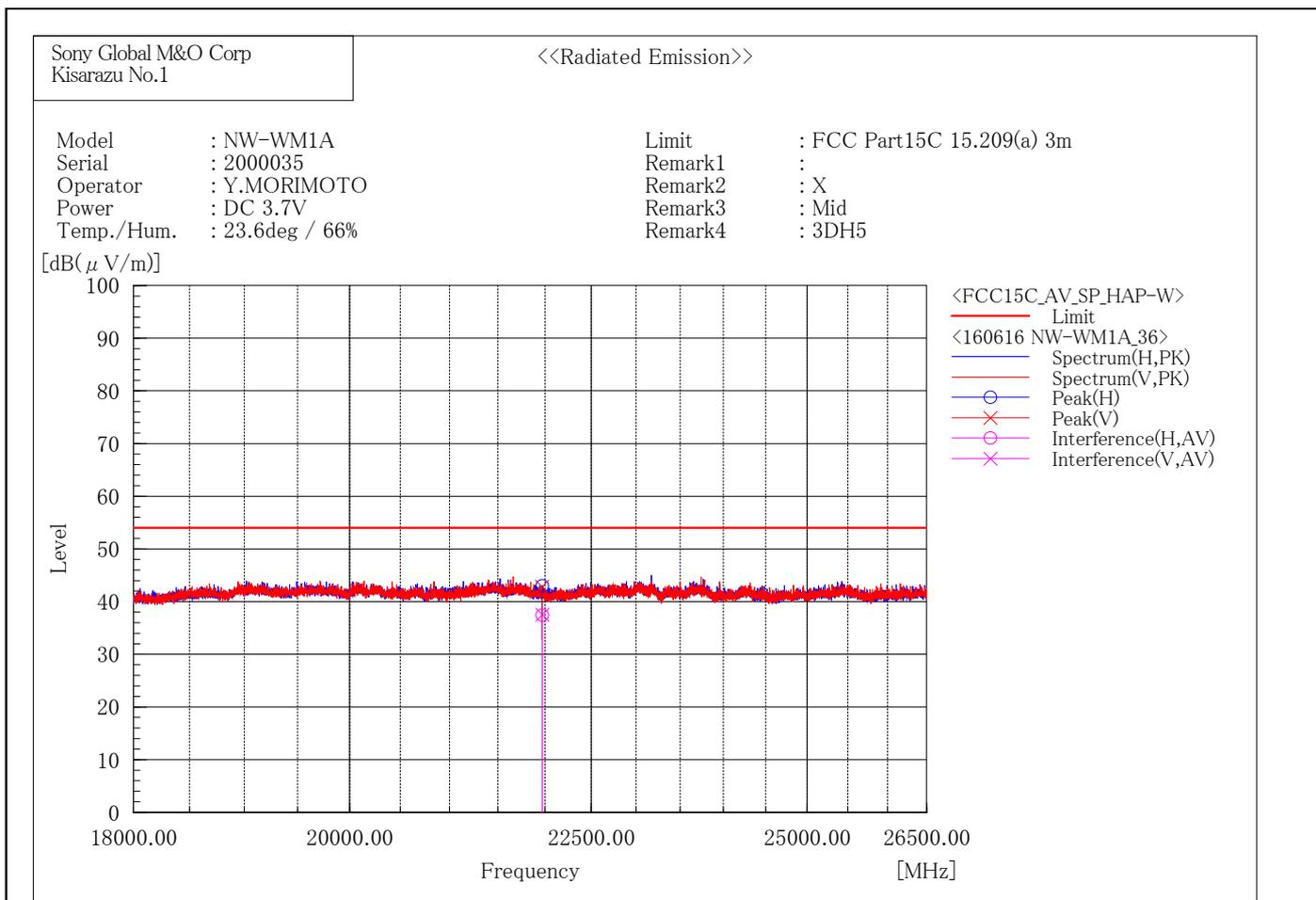
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19214.596	38.2	-0.4	37.8	54.0	16.2	173.0	309.9

--- 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	21620.242	38.9	-0.8	38.1	54.0	15.9	424.4	0.1

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (AV)---

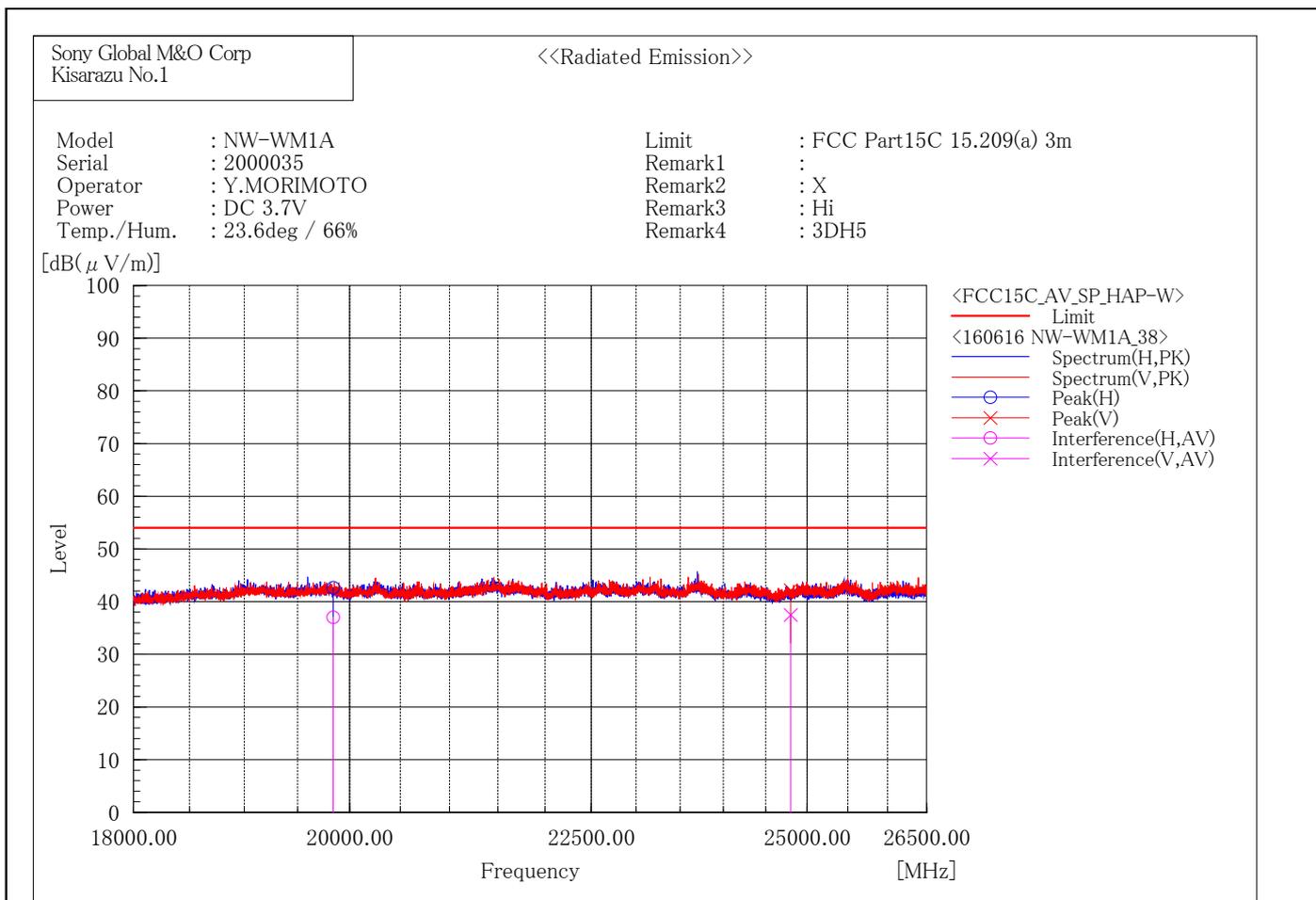
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	21971.026	38.4	-1.0	37.4	54.0	16.6	112.2	43.0

--- 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	21969.254	38.6	-1.0	37.6	54.0	16.4	204.3	211.0

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2480MHz]



Final Result

--- Horizontal Polarization (AV)---

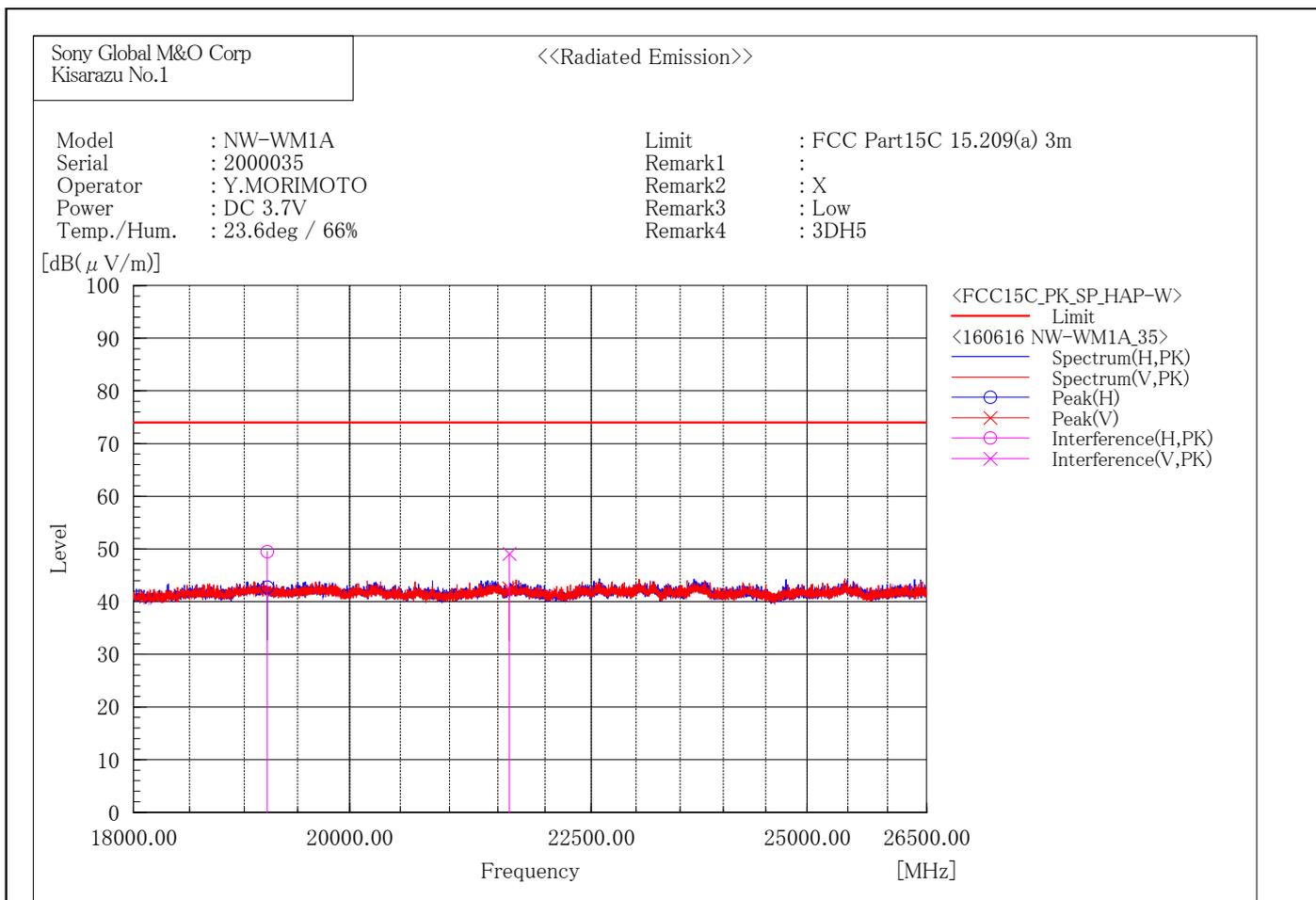
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19841.630	37.5	-0.5	37.0	54.0	17.0	228.3	297.5

--- 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	24799.196	39.6	-2.1	37.5	54.0	16.5	208.2	324.0

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2402MHz]



Final Result

--- Horizontal Polarization (PK)---

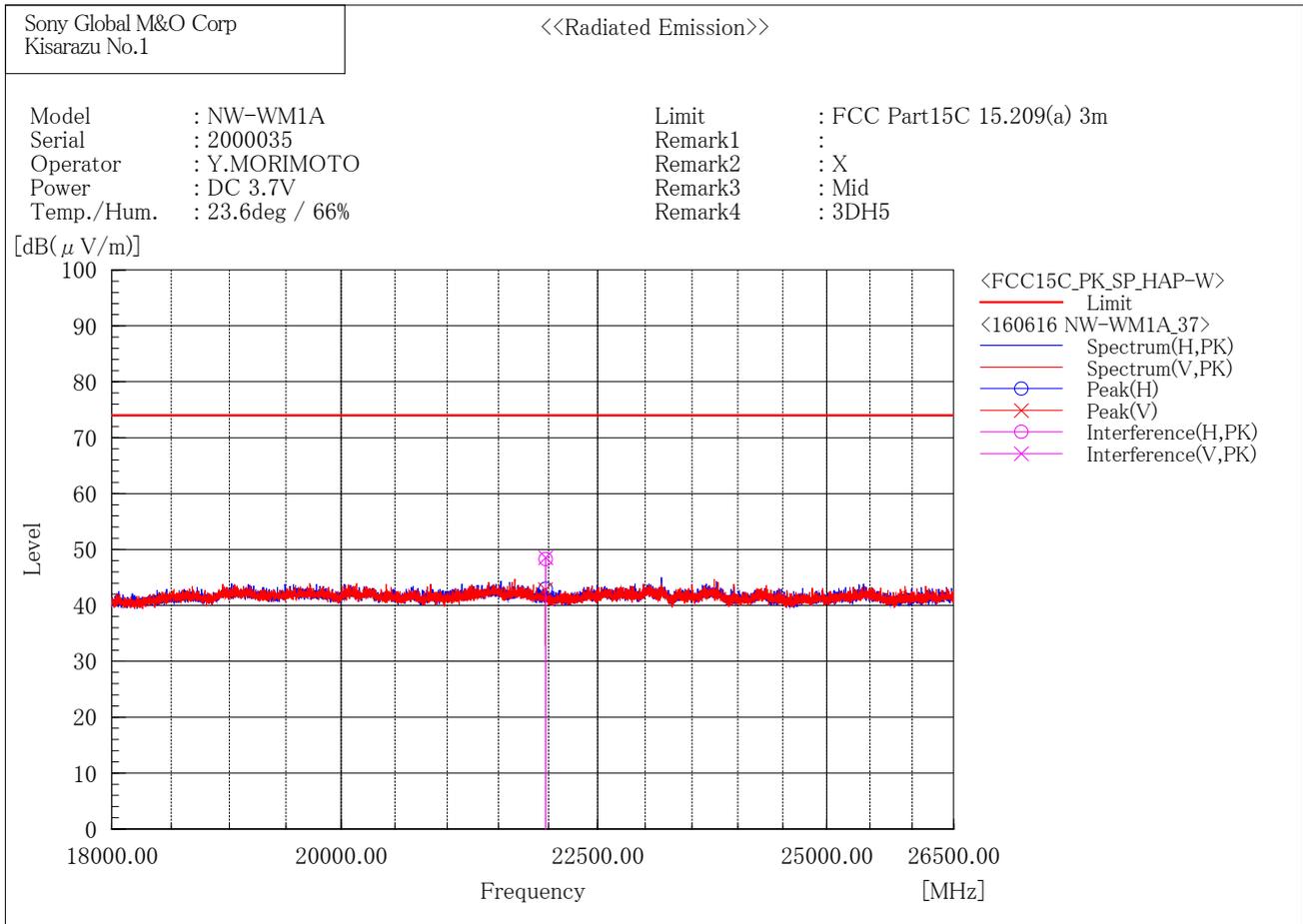
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19214.742	49.9	-0.4	49.5	74.0	24.5	173.0	309.9

--- 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	21620.594	49.9	-0.8	49.1	74.0	24.9	424.5	0.1

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2441MHz]



Final Result

--- Horizontal Polarization (PK)---

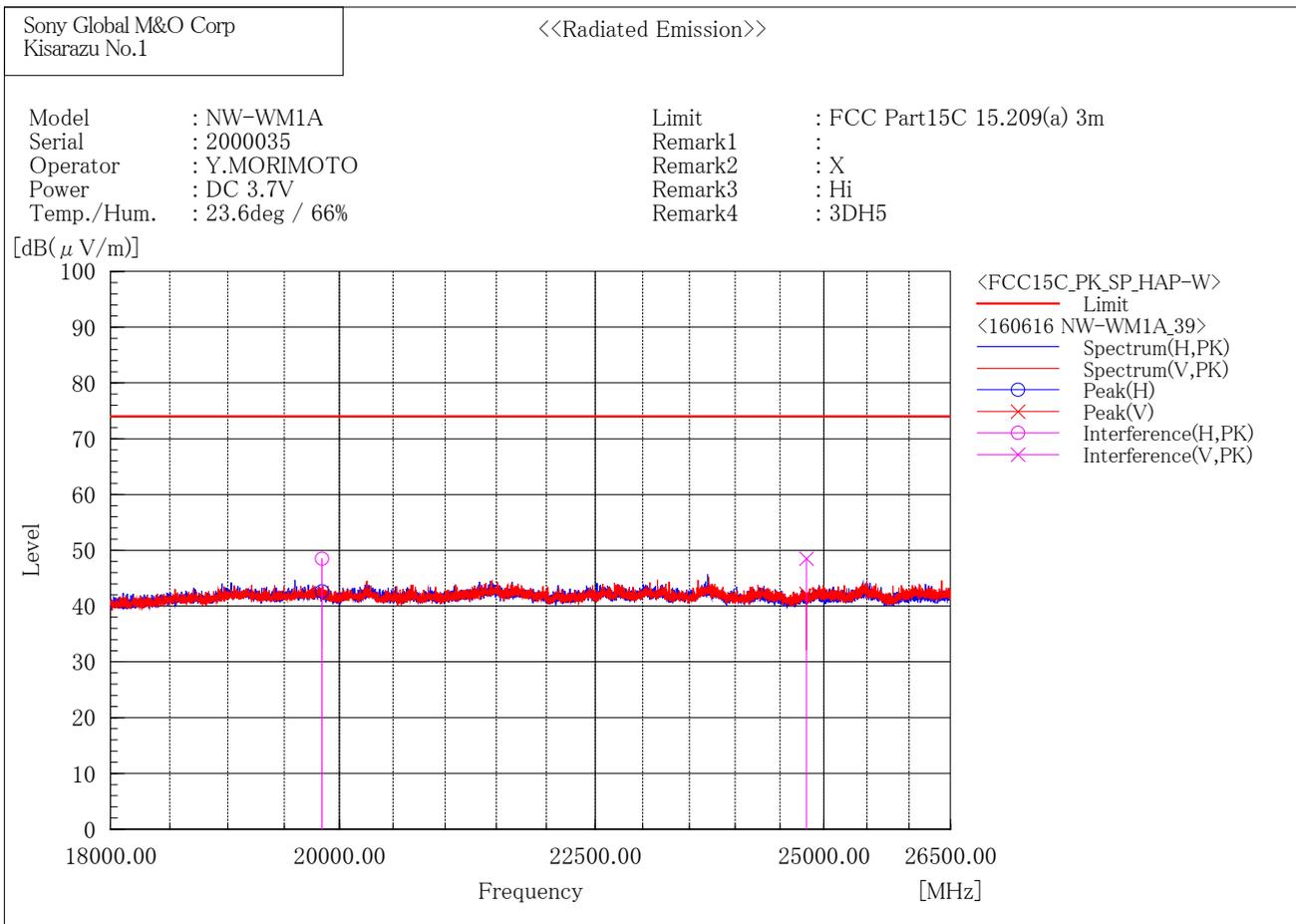
No.	Frequency [MHz]	Reading [dB(μV)]	c. f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	21970.840	49.3	-1.0	48.3	74.0	25.7	112.2	43.0

--- 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	21970.222	49.6	-1.0	48.6	74.0	25.4	204.3	211.0

1) Date of measurement : June 16, 2016

[EDR(3DH5)/2480MHz]



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	19842.340	49.0	-0.5	48.5	74.0	25.5	228.3	297.5

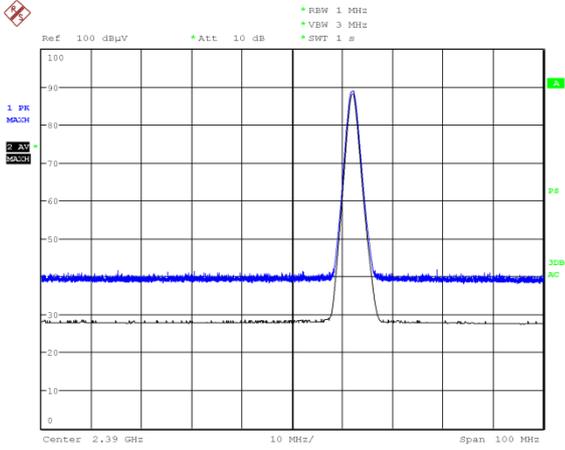
--- Vertical Polarization (PK)---

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	24798.482	50.6	-2.1	48.5	74.0	25.5	208.2	324.1

2.4GHz Restricted-Band Edge (Plot data)

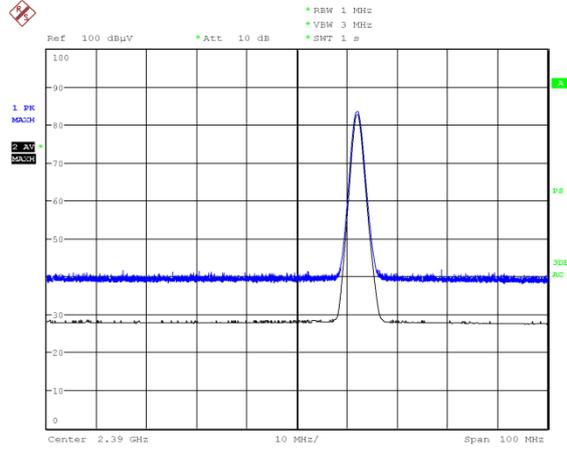
These plot data show peak (trace blue) and average (trace black) spectrum for worst case emissions in the restricted-band edges. (Restricted band edges: below 2390MHz and above 2483.5MHz)
The result of the final radiated emissions measurement refers in previous pages.

[BDR / 2402MHz]
Horizontal



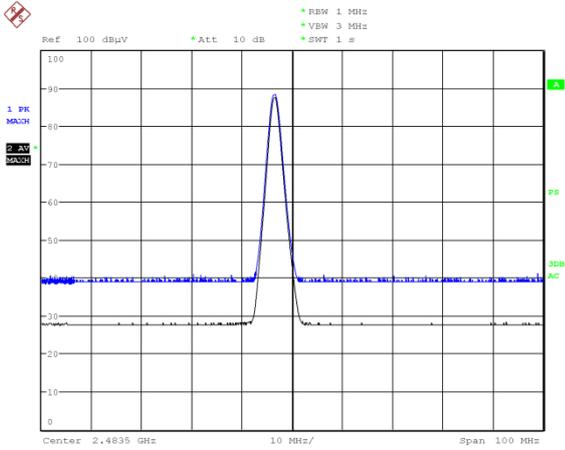
Date: 14.JUN.2016 14:45:57

Vertical



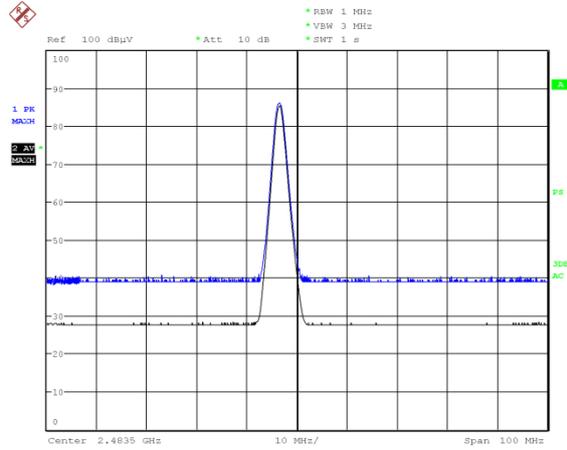
Date: 14.JUN.2016 14:34:15

[BDR / 2480MHz]
Horizontal



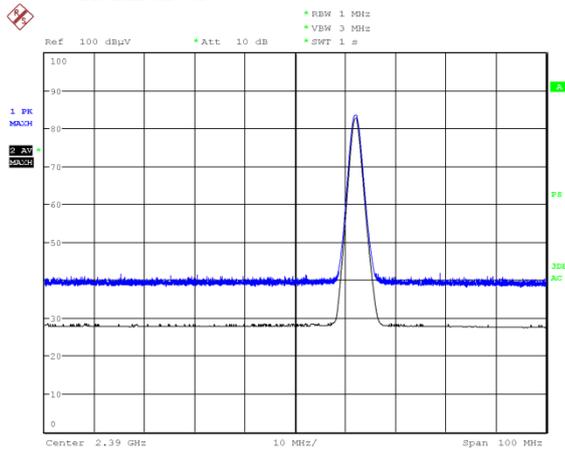
Date: 14.JUN.2016 16:11:14

Vertical



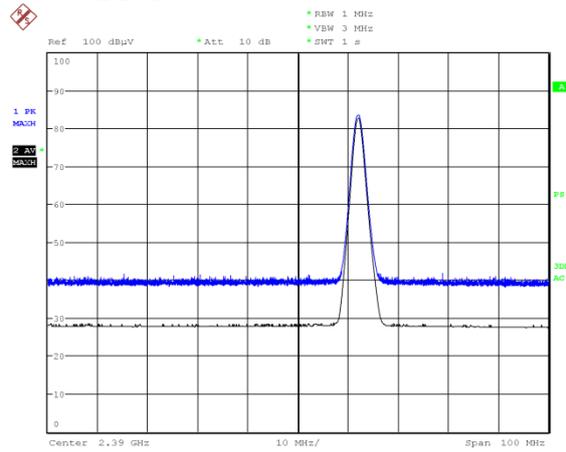
Date: 14.JUN.2016 16:00:42

[EDR / 2402MHz]
Horizontal



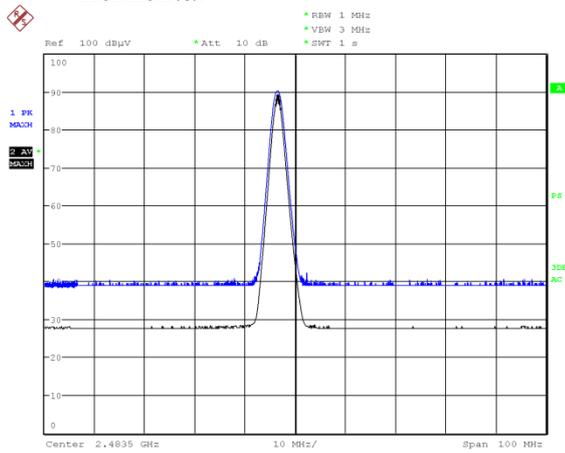
Date: 14.JUN.2016 20:15:51

Vertical



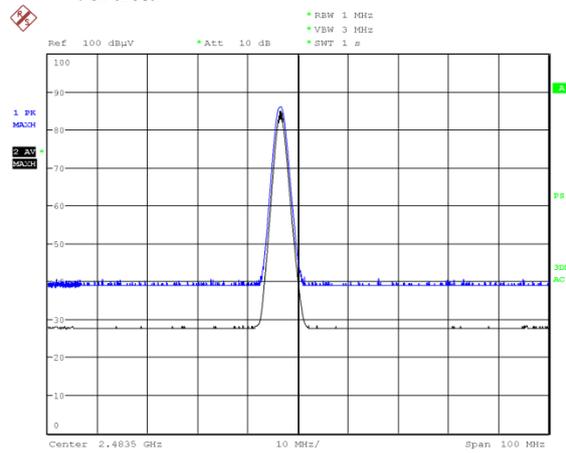
Date: 14.JUN.2016 20:23:27

[EDR / 2480MHz]
Horizontal



Date: 14.JUN.2016 16:54:06

Vertical



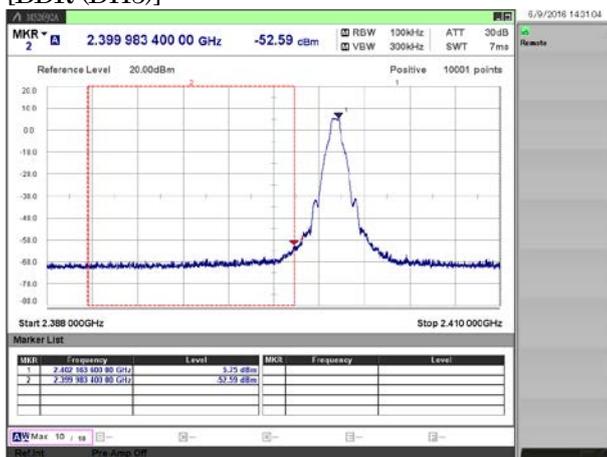
Date: 14.JUN.2016 16:49:29

3.8. Conducted Spurious Emissions for Band Edge

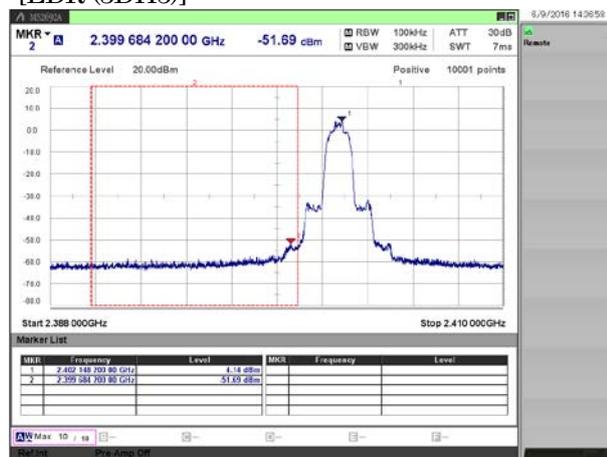
- 1) Ambient temperature : 24.1 deg.C
- 2) Relative humidity : 77.7 %
- 3) Date of measurement : 09 June 2016
- 4) Measured by : H.WAKI
- 5) Operating mode : Transmitting mode

Mode		Channel [MHz]	Frequency [MHz]	Reading(PK) [dBm]	C.F. [dB]	Result(PK) [dBm]	Limit [dBm]	Margin [dB]
BDR	DH5	2402	2399.98	-52.59	0.87	-51.72	-13.4	38.34
			2402.16	5.75	0.87	6.62	-	-
EDR	3DH5	2402	2399.68	-51.69	0.87	-50.82	-15.0	35.83
			2402.15	4.14	0.87	5.01	-	-

[BDR (DH5)]



[EDR (3DH5)]



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

$$\text{Test Result [dBuV]} = \text{Meter Reading [dBuV]} + \text{C.F. [dB]}$$

Notes :

- (a) Meter Reading : Reading of the EMI test receiver or spectrum analyzer.
- (b) C.F. : System Loss + Correction Factor of LISN.

4.2. Time of Occupancy (Dwell Time) Measurement

Method of calculation : Software
 The Software for Calculation Name : SW-308
 Version : Ver2.5

$$\text{Test Result [msec]} = \text{Dwell Time [msec]} * \text{Cycle [time]} * 31.6 [\text{sec}] / \text{Sweep Time [sec]}$$

Notes :

- (a) Dwell Time : Transmission duration of 1 hopping.
- (b) Cycle : Number of hopping appearances on the spectrum analyzer.
(The average of 5 measurements if it is random hopping equipment)
- (c) 31.6 : $0.4 [\text{sec}] * \text{Number of Hopping Frequencies}(79)$
- (d) Sweep Time : Sweep time settings on the spectrum analyzer.

4.3. Maximum Peak Conducted Output Power Measurement

Method of calculation : Software
 The Software for Calculation Name : SW-308
 Version : Ver2.5

$$\text{Test Result [dBm]} = \text{Meter Reading [dBm]} + \text{C.F. [dB]}$$

$$\text{Duty Cycle [\%]} = \text{Tx ON Time} / (\text{Tx ON Time} + \text{Tx OFF Time}) * 100$$

Notes :

- (a) Meter Reading : Reading of the spectrum analyzer.
- (b) C.F. : System Cable Loss + EUT Cable Loss

4.4. Radiated Spurious Emission Measurement

Method of calculation : Software
The Software for Calculation Name : V-Scan
Version : Ver4.0.30

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-308
Version : Ver2.5

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

Notes :

- (a) Meter Reading : Reading of the spectrum analyzer.
- (b) C.F. : System Cable 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

AC Power-line Conducted Emissions

	Control No.	Description	Model No.	Serial No.	Manufacture	Cal Int.	Last Cal.
<input checked="" type="checkbox"/>	-	Shield Room	-	-	TDK	-	-
<input checked="" type="checkbox"/>	M515	EMI Receiver	ESCI	100606	Rohde & Schwarz	12	15.07.07
<input type="checkbox"/>	M109	EMI Receiver	ESI7	100051	Rohde & Schwarz	12	16.03.15
<input checked="" type="checkbox"/>	M514	LISN	ENV216	100424	Rohde & Schwarz	12	16.05.25
<input checked="" type="checkbox"/>	CS043	4th Site CE Cable SYSTEM	-	-	EMC/RF Test Lab.	12	15.10.28
<input checked="" type="checkbox"/>	M664	6dB Attenuator	6806.01.A	-	HUBER+SUHNER	12	15.10.28
<input checked="" type="checkbox"/>	M619	HIGH FREQUENCY FUSE	MP612A	-	Anritsu	12	15.10.28
<input type="checkbox"/>	M153	50 ohm Terminator	CT-01	-	TME	12	15.08.04
<input type="checkbox"/>	M159	50 ohm Terminator	T1302	-	Stack	12	15.08.04
<input checked="" type="checkbox"/>	M690	Thermo Meter	AD-5640A	201304	AND	12	15.11.15
<input type="checkbox"/>							

5.2. Antenna-port Conducted Measurements

4th Site Shielded Room 1

	Control No.	Description	Model No.	Serial No.	Manufacture	Cal Int.	Last Cal.
<input checked="" type="checkbox"/>	-	Shield Room	B83117-B2432-T161	P26428	Albatross Projects	-	-
<input type="checkbox"/>	W003	Spectrum Analyzer	E4440A	US42511926	Keysight Technologies	12	15.06.02
<input checked="" type="checkbox"/>	W006	Power meter	N1911A	MY50000295	Keysight Technologies	12	15.09.02
<input checked="" type="checkbox"/>	W007	Power Sensor	N1922A	MY50180022	Keysight Technologies	12	15.09.09
<input type="checkbox"/>	W104	Power Sensor	U2021XA	MY54040006	Keysight Technologies	12	15.12.14
<input type="checkbox"/>	W105	Power Sensor	U2021XA	MY54080005	Keysight Technologies	12	15.12.14
<input checked="" type="checkbox"/>	W029	10dB Attenuator	8493C	76549	Keysight Technologies	12	15.09.24
<input type="checkbox"/>	W110	10dB Attenuator	6610-SK-50-1	2	HUBER + SUHNER	12	15.06.08
<input type="checkbox"/>	WC02	RF Cable	SUCOFLEX102	34124/2	HUBER + SUHNER	12	15.10.16
<input type="checkbox"/>	WC03	RF Cable	SUCOFLEX102	34127/2	HUBER + SUHNER	12	15.10.08
<input checked="" type="checkbox"/>	WC05	RF Cable	SUCOFLEX102	34287/2	HUBER + SUHNER	12	15.10.16
<input type="checkbox"/>	WC06	RF Cable	SUCOFLEX102	34289/2	HUBER + SUHNER	12	15.10.08
<input checked="" type="checkbox"/>	M719	Thermo Meter	TH-321	140053	ASONE	12	15.06.10
<input checked="" type="checkbox"/>	W100	Signal Analyzer	MS2692A	6201338954	Anritsu	12	16.04.15
<input type="checkbox"/>							

About calibration interval

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

5.3. Radiated Spurious Emissions

EMC Site 3m Semi-Anechoic Chamber

	Control No.	Description	Model No.	Serial No.	Manufacture	Cal Int.	Last Cal.
<input checked="" type="checkbox"/>	M115	Semi-Anechoic Chamber	-	7D1-8A11	Otsuka Science	12	16.06.03
<input checked="" type="checkbox"/>	M486	EMI Receiver	ESU40	100050	Rohde & Schwarz	12	16.02.23
<input checked="" type="checkbox"/>	M686	EMI Receiver	N9038A	MY52260113	Keysight Technologies	12	15.11.11
<input checked="" type="checkbox"/>	A073	Loop Antenna	HFH2-Z2	100171	Rohde & Schwarz	12	15.10.12
<input checked="" type="checkbox"/>	A089	Biconical Antenna	BBA9106	VHA91032835	Schwarzbeck	12	16.01.27
<input checked="" type="checkbox"/>	A088	Logperiodic Antenna	UHALP9108A1	0649	Schwarzbeck	12	16.01.27
<input checked="" type="checkbox"/>	A064	Horn Antenna	BBHA9120D	746	Schwarzbeck	12	16.01.27
<input checked="" type="checkbox"/>	A078	Horn Antenna	HAP06-18W	00000070	Toyo Corporation	12	16.02.04
<input checked="" type="checkbox"/>	A058	Horn Antenna	HAP18-26W	00000016	Toyo Corporation	12	16.01.26
<input checked="" type="checkbox"/>	CS017	N-RE Cable SYS1	-	-	EMC/RF Test Lab.	12	16.06.03
<input checked="" type="checkbox"/>	CS018	N-RE Cable SYS2	-	-	EMC/RF Test Lab.	12	16.06.03
<input checked="" type="checkbox"/>	CS045	N-3m EMF Cable SYS	-	-	EMC/RF Test Lab.	12	16.06.03
<input checked="" type="checkbox"/>	CS074	N-RE Cable SYS4	-	-	EMC/RF Test Lab.	12	16.06.03
<input checked="" type="checkbox"/>	CS075	N-RE Cable SYS4	-	-	EMC/RF Test Lab.	12	16.06.03
<input checked="" type="checkbox"/>	M126	Step Attenuator	8494H	3837M01144	Agilent Technologies	12	16.06.03
<input checked="" type="checkbox"/>	M609	3dB Attenuator	8491B	MY39265960	Agilent Technologies	12	16.06.03
<input checked="" type="checkbox"/>	M752	RF Pre-Amp	310N	320621	Sonoma Instrument	12	16.06.03
<input checked="" type="checkbox"/>	M128	3dB Attenuator	8491A	53451	Agilent Technologies	12	16.06.03
<input checked="" type="checkbox"/>	M737	GHz Filter Box	FB-G1	001	Sony Global M&O	12	16.06.03
<input type="checkbox"/>	M485	EMI Receiver	ESCI	100626	Rohde & Schwarz	12	16.04.18
<input checked="" type="checkbox"/>	M687	Thermo Meter	AD-5640A	201301	AND	12	15.10.15
<input type="checkbox"/>							

About calibration interval

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