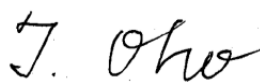


RADIO TEST REPORT

Project No. : JB-Z0086-A
Client : Sony Corporation
Address : 1-7-1 Konan, Minato-ku Tokyo 108-0075, Japan
Type of Equipment : Bluetooth Module
Model No. : BT-LSP1
Serial No. : 72, 84
FCC ID : AK8BTLS1
Regulation Applied : 47 CFR Part 15 Subpart C
Final Judgment : Passed
Sample Receipt : October 1, 2015
Testing : October 2, 2015 – October 7, 2015
Original Reported : October 14, 2015
Amend Reported : October 29, 2015

Amend: This report is to be replaced with the original report, Project No. JB-Z0086 because the test data is revised on . Voltage notation error correction 100V/50Hz -> 120V/60Hz in the System configuration.

Reported by :



Takanori Oho
Test Engineer
EMC/ RF Test Laboratory Main Lab.
Design Technology Division
Sony EMCS Corporation

Approved Signatory :



Teruki Kurihara
Technical Manager
EMC/ RF Test Laboratory Main Lab.
Design Technology Division
Sony EMCS 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 EMCS 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.....	9
2.1. Validation	9
2.2. Test Operating Conditions.....	9
2.3. Special Accessories	9
2.4. EUT Modifications	9
2.5. Configuration of Tested System.....	10
3. Test Data.....	12
3.1. AC Power-line Conducted Emissions	12
3.2. 20dB Bandwidth.....	13
3.3. Carrier Frequency Separation	15
3.4. Number of Hopping Frequencies.....	16
3.5. Time of Occupancy (Dwell Time).....	17
3.6. Maximum Peak Conducted Output Power	20
3.7. Radiated Spurious Emissions	21
3.8. Conducted Spurious Emissions for Band Edge.....	69
4. Method of Calculation	70
5. List of Test Equipment	72
5.1. AC Power-line Conducted Emissions	72
5.2. Antenna-port Conducted Measurements.....	72
5.3. Radiated Spurious Emissions	72
6. Photographs of test setup	73
6.1. AC Power-line Conducted Emissions Measurement Photo(s).....	73
6.2. Antenna-port Conducted Measurements Photo(s).....	73
6.3. Radiated Spurious Emissions Measurement Photo(s)	74

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 : Bluetooth Module
Trade Name : SONY
Model No. : BT-LSP1
Serial No. : 72, 84
Power Rating : DC 3.3V

(The EUT was supplied with the power from the DC power output equipment)

Radio specification

Function of the Equipment : Transceiver
Operating Frequency : 2402 - 2480MHz
Modulation Type : FHSS (GFSK, $\pi/4$ DQPSK, 8DPSK)
Channel Spacing : 1MHz
Channel Bandwidth : 1MHz
Number of channels : 79
Antenna Type : Inverted F pattern antenna
Antenna connector Type : None
Antenna Gain : -1.24 dBi
Operating Temperature : 0 to + 60 deg.C

1.2. Summary of Test Result

Test Item	Worst Margin	Measurement Detector	Test Frequency band	Results
AC Power-line Conducted Emissions	17.3 dB (AV) 24.945 MHz N	Quasi-peak (:QP), Average (:AV)	150 kHz – 30 MHz	Complied
20dB Bandwidth	Refer to the test data	Peak (:PK)	Carrier	Complied
Carrier Frequency Separation	Refer to the test data	Peak	Carrier	Complied
Number of Hopping Frequencies	Refer to the test data	Peak	Carrier	Complied
Time of Occupancy (Dwell Time)	Refer to the test data	Peak	Carrier	Complied
Maximum Peak Conducted Output Power	26.65 dB	Peak	Carrier	Complied
Radiated Spurious Emissions	7.4 dB (QP) 56.128MHz Vertical	Below 1GHz: QP / AV Above 1GHz: PK / AV	9 kHz - 25 GHz (excluding carrier and band edge)	Complied
Conducted Spurious Emissions for Band Edge *1	15.59 dB 2399.99 MHz	Peak	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 is provided with stable DC 3.3V from the host device)

Part 15.203 / 212 Antenna requirement

: Complied (The EUT has a printed antenna which cannot be replaced by users)

1.3. Tested Methodology

Test Standard : 47 CFR Part15 Subpart C Section 15.207 / 15.247

Test Method: ANSI C63.10 - 2013

DA 00-705 (March 30, 2000)

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

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

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 dimensions of the EUT table were 0.8 m height, 2.0m width and 1.0 m depth.
3. 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.
4. The LISN was placed in 80 cm from the nearest part of the EUT chassis.
5. 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.
6. The connection of the all other equipment to the second LISN was performed. The second LISN was terminated with a 50-ohm terminator.
7. 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.
8. 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)
9. 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)

20dB Bandwidth

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the 20dB Bandwidth was measured with spectrum analyzer.
 Detector type : Peak
 RBW : 100kHz

Carrier Frequency Separation

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Carrier Frequency Separation was measured with spectrum analyzer.
 Detector type : Peak
 RBW : 100kHz

Number of Hopping Frequencies

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Number of Hopping Frequencies was measured with a spectrum analyzer.
 Detector type : Peak
 RBW : 510kHz

Time of Occupancy (Dwell Time)

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Time of Occupancy (Dwell Time) was measured with a spectrum analyzer.
 Detector type : Peak
 RBW : 1MHz

Maximum Peak Conducted Output Power

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Maximum Peak Conducted Output Power was measured with spectrum analyzer.
 Detector type : Peak
 RBW : 3MHz

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 dimensions of the EUT table were 0.8 m (for MHz), 1.5 m (for GHz) height, 2.0 m width and 1.0 m depth.
3. The EUT was placed on the center of the tabletop and its rear was flush with the rear of the table.
4. The test antenna was placed away from the EUT at 3m distance.
5. 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])

6. Find the worst arrangement of the EUT according to follows;
- Connecting all peripherals and change the position of EUT, peripherals and cables.
 - 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)
7. 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

*: When the measurement frequencies above 1GHz, 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	200 Hz (6dB) or 9 kHz (6dB) *1	200 Hz (6dB) or 9 kHz (6dB) *1	120 kHz (6dB)	1 MHz (3dB)
VBW	N/A	N/A	N/A	3 MHz (for peak) 10 Hz (for average)
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.

8. 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.

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

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 937606.

Conducted Spurious Emissions for Band Edge

1. Antenna-port of the EUT was connected to the spectrum analyzer.
2. For each EUT operation mode, the Conducted Spurious Emissions for Band Edge was measured with a spectrum analyzer.
 Detector type : Peak
 RBW : 100kHz

1.5. Test Facility

Address of Test Facility

Test Facility Name : Sony EMCS 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

Antenna-port Conducted Measurements *

Shielded Room

☒ 4th Site SR1

*Note: This item contains the following

- 20dB Bandwidth
- Carrier Frequency Separation
- Number of Hopping Frequencies
- Time of Occupancy (Dwell Time)
- Maximum Peak Conducted Output Power
- Conducted Spurious Emissions and Band Edge Compliance

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, Conducted Spurious Emissions	below 6GHz	± 1.25 dB

Test Item	Frequency	4th Site	
AC Power-line Conducted Emissions	150kHz - 30MHz	± 2.54 dB	
Radiated Emissions	below 30 MHz	3m	± 2.60 dB
	30 - 300 MHz	3m	± 2.61 dB
	300 - 1000 MHz	3m	± 2.59 dB
	1 - 6 GHz	3m	± 2.84 dB
	6 - 18 GHz	3m	± 2.84 dB
	18 - 26.5 GHz	3m	± 2.84 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 *1	Packet type *2,3	Test Channels
Carrier Frequency Separation, Number of Hopping Frequencies, Time of Occupancy (Dwell Time)	BDR	DH5	Hopping ON
	EDR	3DH5	
20dB Bandwidth, 99% Occupied Bandwidth, Maximum Peak Conducted Output Power, Radiated Spurious Emissions	BDR	DH5	2402MHz, 2441MHz, 2480MHz
	EDR	3DH5	
Conducted Spurious Emissions for Band Edge	BDR	DH5	2402MHz
	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: Packet type for EDR has been decided based on the result of Maximum Peak Conducted Output Power.

2.3. Special Accessories

Special accessories needed for connecting the EUT to achieve compliance:

Item	Manufacturer	Model No.	Serial No.	Remark
Personal Computer	SONY	PCG-4U1N	27505310 1001869	Installation software : CSR Blue Test3 (Ver.2.5.8.667)
AC Adaptor	SONY	VGP-AC16V13	148015421 0199581	-
USB Cable	-	-	-	-

2.4. 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 :

2.5. Configuration of Tested System

AC Power-line Conducted Emissions and Radiated Spurious Emissions Measurement

The equipment under test (EUT) consists of:

Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
A	Bluetooth Module	SONY	BT-LSP1	AK8BTL51	84

The measurement was carried out with the following support equipment connected

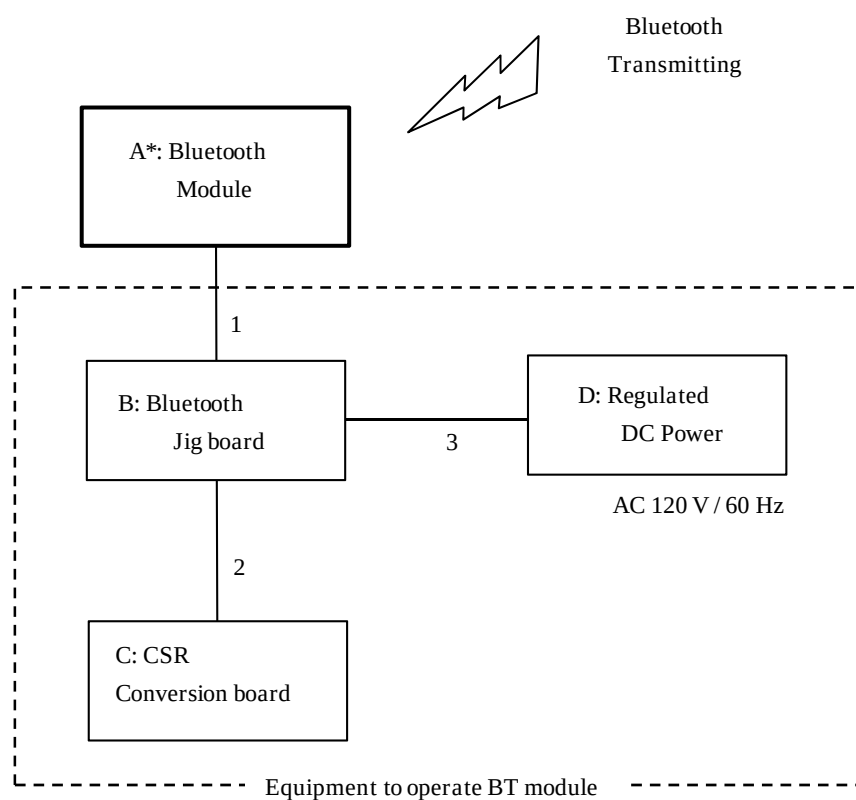
Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
B	BT Jig board	-	-	-	-
C	CSR Conversion board	-	-	-	-
D	Regulated DC Power	KENWOOD	PW18-1.3AT	-	8046429

Type of Cable

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Length (m)	Remarks
1	Flat Flexible Cable	-	NO	NO	0.2	-
2	Harness	-	NO	NO	0.1	-
3	Wire	-	NO	NO	0.1	-

[System configuration]

*: EUT



Antenna-port Conducted Measurements

The equipment under test (EUT) consists of:

Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
A	Bluetooth Module	SONY	BT-LSP1	AK8BTL S1	72

The measurement was carried out with the following support equipment connected

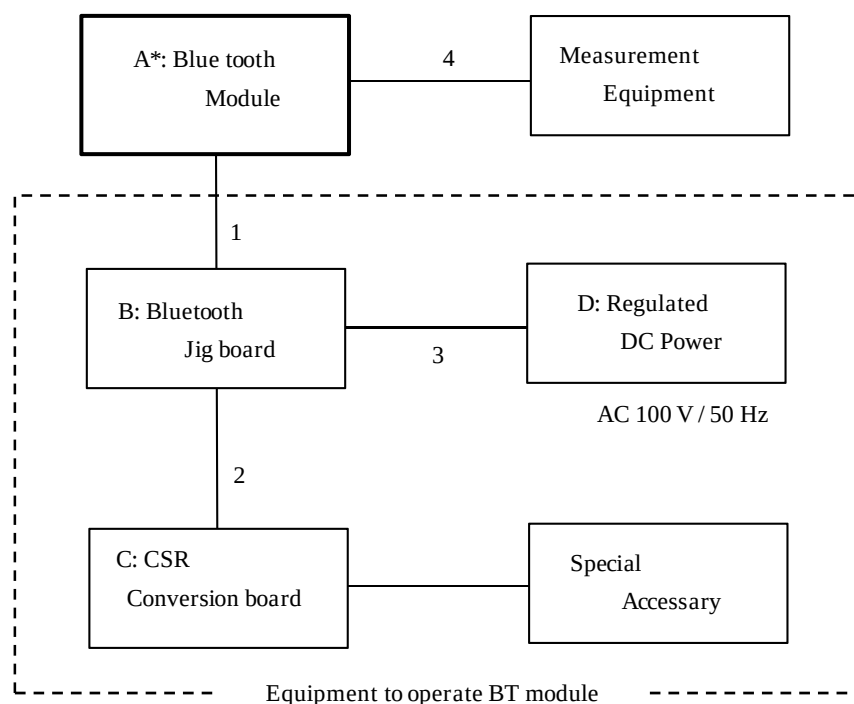
Symbol	Item	Manufacturer	Model No.	FCC ID	Serial No.
B	BT Jig board	-	-	-	-
C	CSR Conversion board	-	-	-	-
D	Regulated DC Power Supply	KENWOOD	PW18-1.3AT	-	8046429

Type of Cable

Symbol	Description	Identification (Manufacturer etc.)	Shielded YES / NO	Ferrite Core	Length (m)	Remarks
1	Flat Flexible Cable	-	NO	NO	0.2	-
2	Harness	-	NO	NO	0.1	-
3	Wire	-	NO	NO	0.1	-
4	U,FL-SMA conversion cable		YES	NO	0.45	-

[System configuration]

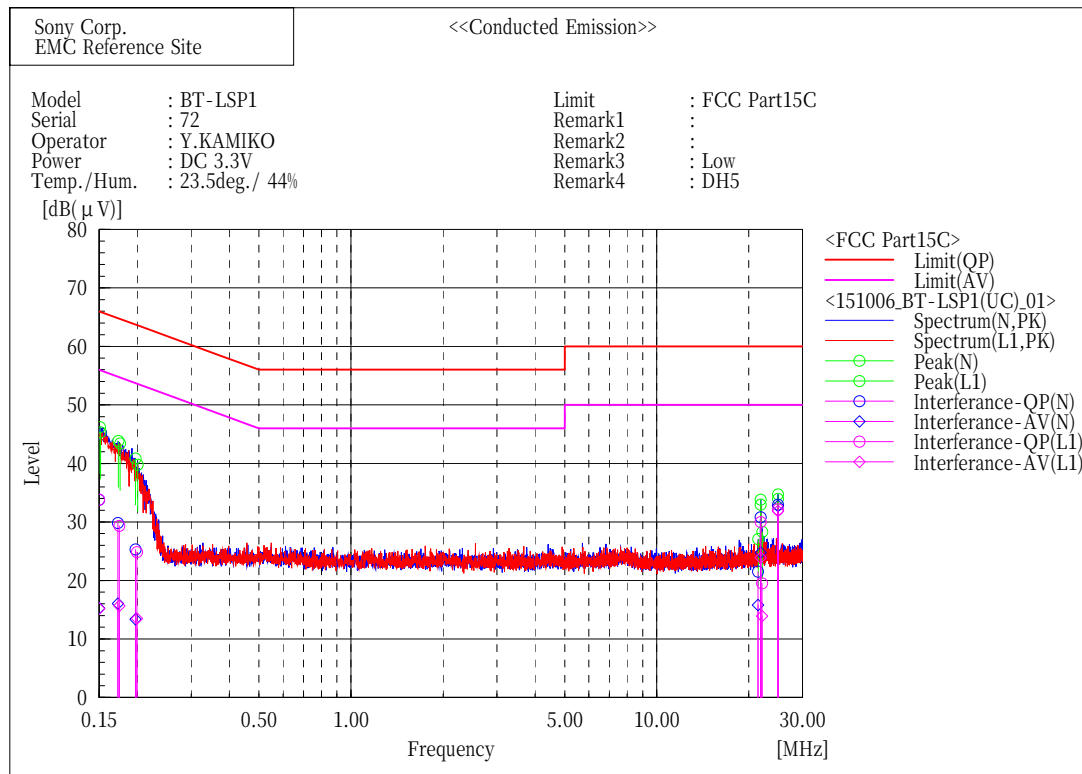
*: EUT



3. Test Data

3.1. AC Power-line Conducted Emissions

[BDR (DH5) / 2402MHz]



Final Result

--- N Phase ---										
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
	[MHz]	QP	AV		QP	AV	QP	AV	QP	AV
		[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.150	17.8	-0.7	16.0	33.8	15.3	66.0	56.0	32.2	40.7
2	0.173	13.5	-0.3	16.3	29.8	16.0	64.8	54.8	35.0	38.8
3	0.197	9.3	-2.6	16.0	25.3	13.4	63.7	53.7	38.4	40.3
4	21.469	5.0	-0.7	16.5	21.5	15.8	60.0	50.0	38.5	34.2
5	21.878	14.2	8.1	16.6	30.8	24.7	60.0	50.0	29.2	25.3
6	24.945	16.4	16.1	16.6	33.0	32.7	60.0	50.0	27.0	17.3

--- L1 Phase ---										
No.	Frequency	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin
	[MHz]	QP	AV		QP	AV	QP	AV	QP	AV
		[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.150	17.9	-0.7	15.9	33.8	15.2	66.0	56.0	32.2	40.8
2	0.175	13.0	-0.6	16.3	29.3	15.7	64.7	54.7	35.4	39.0
3	0.200	8.9	-2.5	16.0	24.9	13.5	63.6	53.6	38.7	40.1
4	21.878	13.6	7.5	16.4	30.0	23.9	60.0	50.0	30.0	26.1
5	22.123	3.1	-2.5	16.4	19.5	13.9	60.0	50.0	40.5	36.1
6	24.945	15.7	15.4	16.5	32.2	31.9	60.0	50.0	27.8	18.1

3.2. 20dB Bandwidth

- 1) Ambient temperature

2) Relative humidity

3) Date of measurement

4) Measured by

5) Operating mode
- : 21.0 deg.C

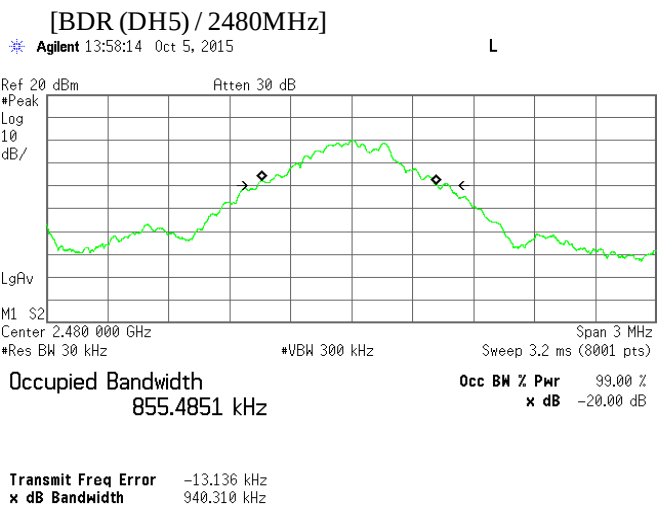
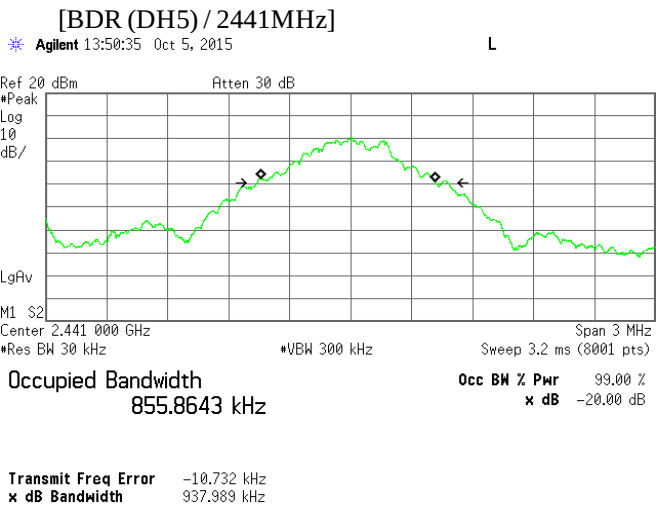
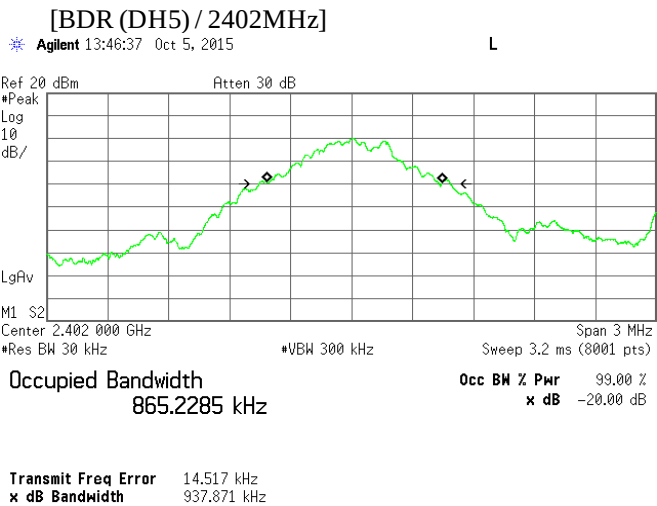
: 52.0 %

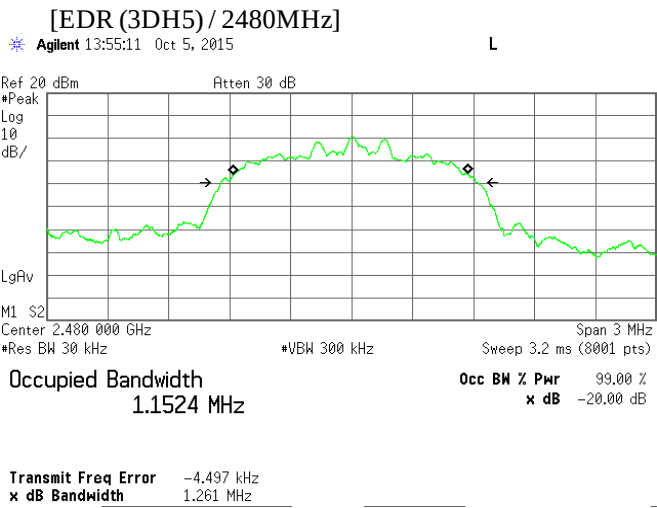
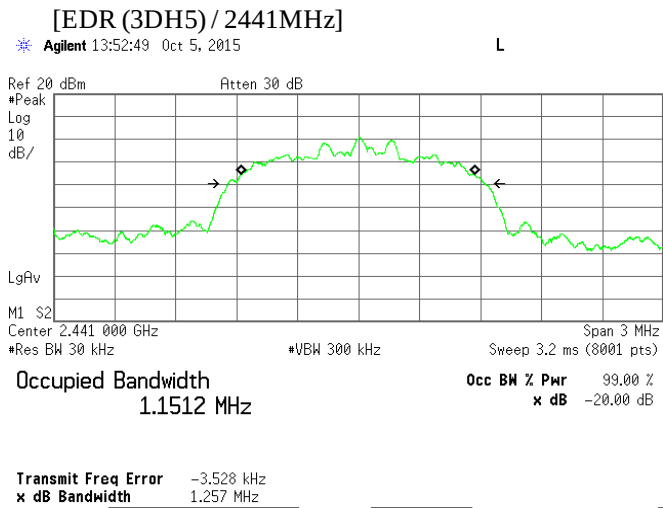
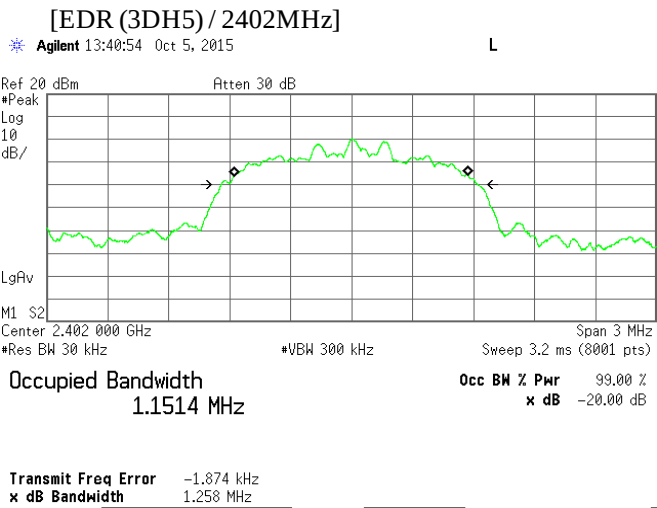
: October 5, 2015

: M. KOUGA

: Transmitting mode

Mode		Channel [MHz]	Result [MHz]	Limit [MHz]
BDR	DH5	2402	0.938	-
		2441	0.938	-
		2480	0.940	-
EDR	3DH5	2402	1.258	-
		2441	1.257	-
		2480	1.261	-

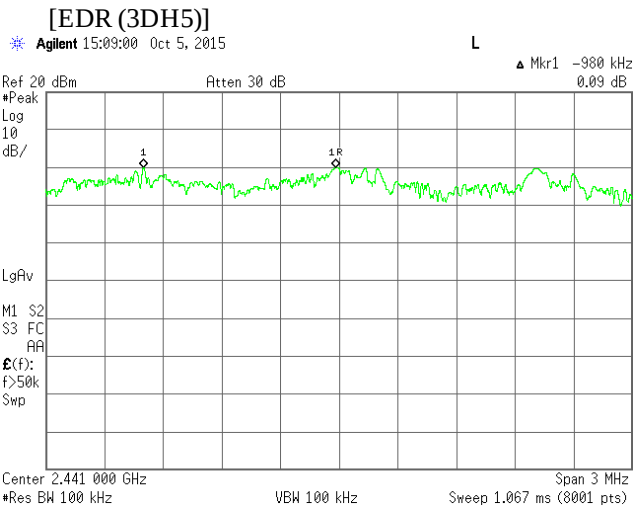
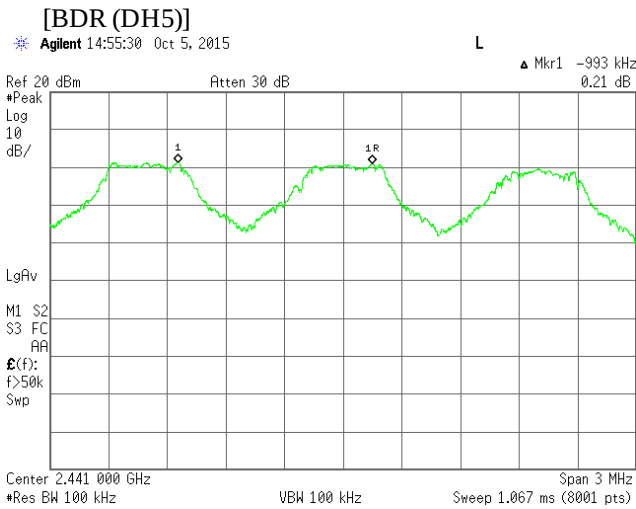




3.3. Carrier Frequency Separation

- 1) Ambient temperature
- : 21.0 deg.C
- 2) Relative humidity
- : 52.0 %
- 3) Date of measurement
- : October 5, 2015
- 4) Measured by
- : M. KOUGA
- 5) Operating mode
- : Transmitting mode

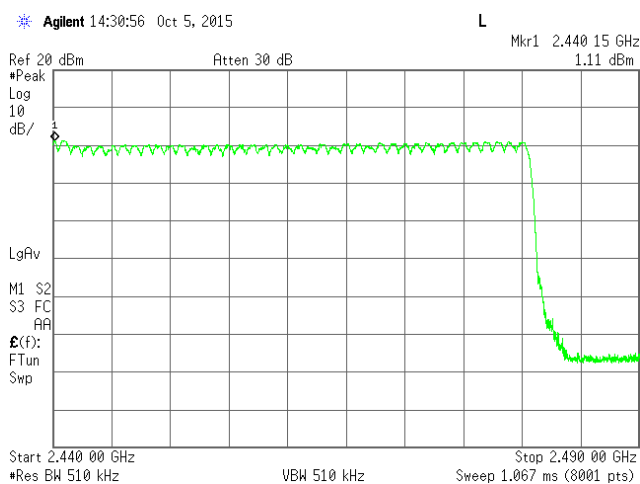
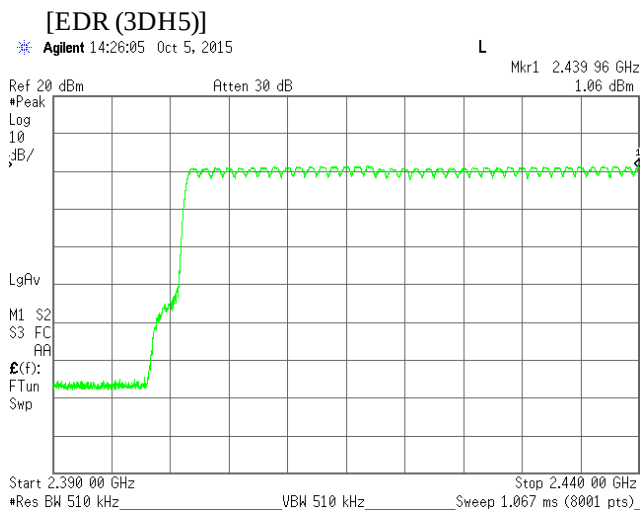
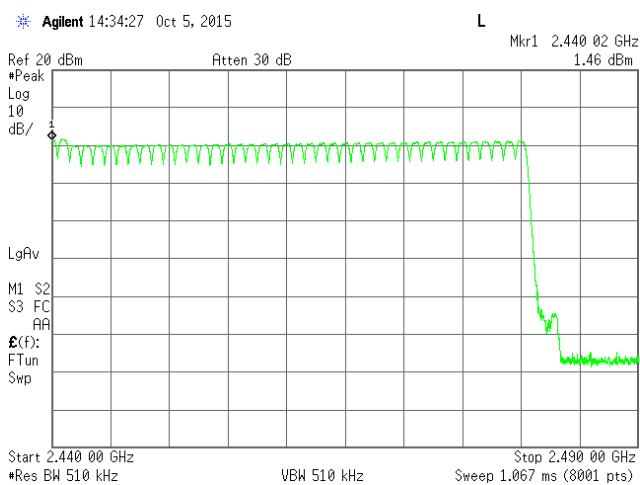
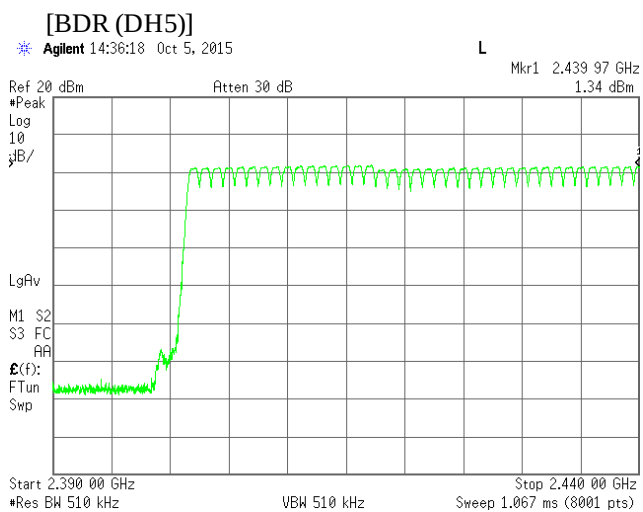
Mode		Reading [kHz]	Limit [kHz]
BDR	DH5	990.0	626.9
EDR	3DH5	980.0	840.7



3.4. Number of Hopping Frequencies

- | | |
|------------------------|---------------------|
| 1) Ambient temperature | : 21.0 deg.C |
| 2) Relative humidity | : 52.0 % |
| 3) Date of measurement | : October 5, 2015 |
| 4) Measured by | : M. KOUGA |
| 5) Operating mode | : Transmitting mode |

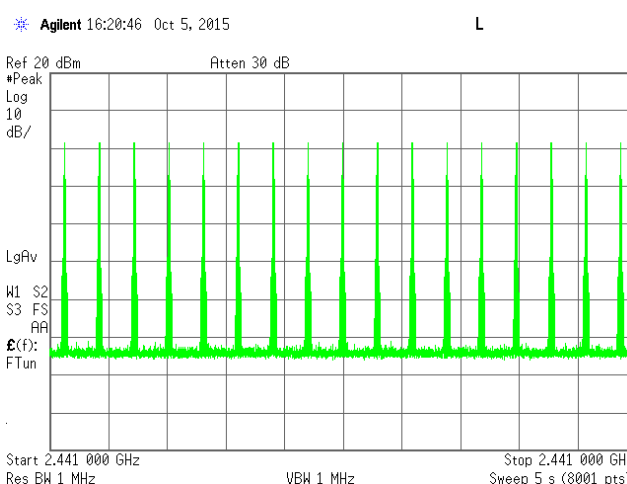
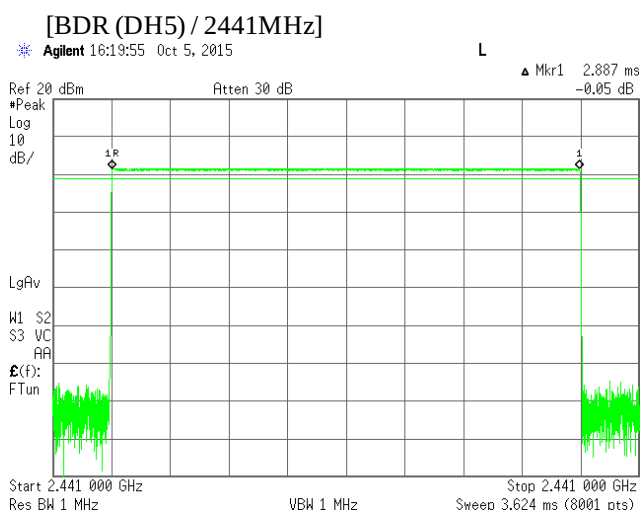
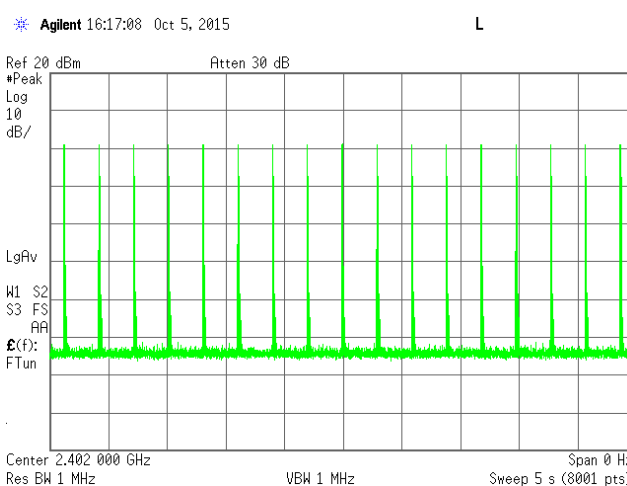
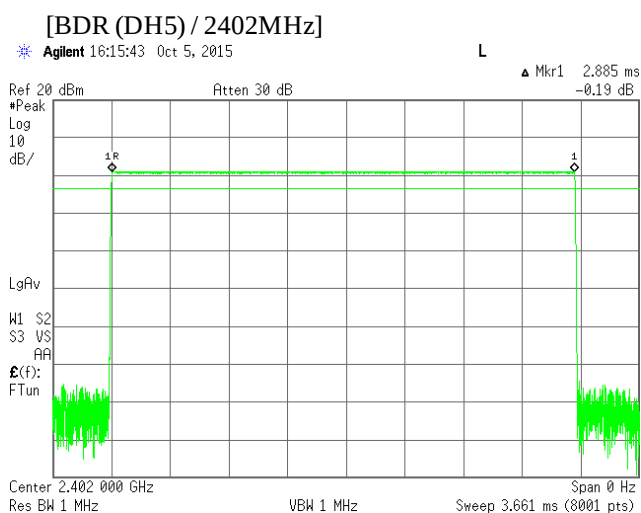
Mode		Number [channel]	Limit [channel]
BDR	DH5	79	15
EDR	3DH5	79	15



3.5. Time of Occupancy (Dwell Time)

- | | |
|------------------------|---------------------|
| 1) Ambient temperature | : 21.0 deg.C |
| 2) Relative humidity | : 52.0 % |
| 3) Date of measurement | : October 5, 2015 |
| 4) Measured by | : M. KOUGA |
| 5) Operating mode | : Transmitting mode |

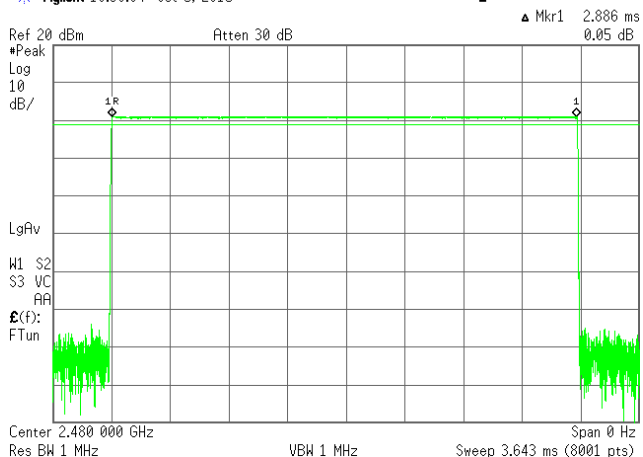
Mode	Channel [MHz]	Dwell Time [msec]	Cycle [time]	Result [msec]	Limit [msec]
BDR	DH5	2402	2.89	17	310.0
		2441	2.89	17	310.2
		2480	2.89	17	310.1
EDR	3DH5	2402	2.90	17	311.7
		2441	2.90	17	311.7
		2480	2.90	17	311.7



[BDR (DH5) / 2480MHz]

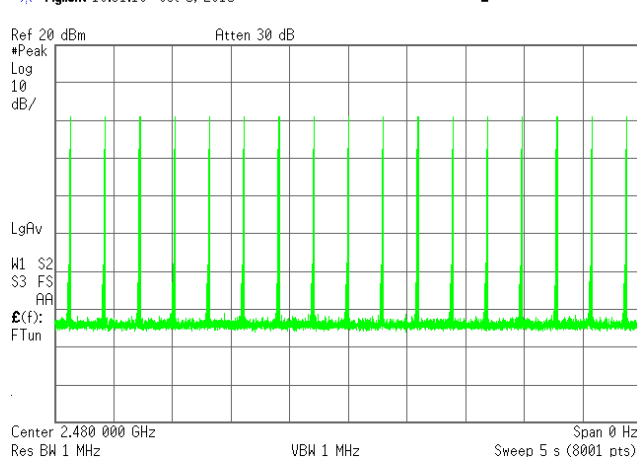
* Agilent 16:30:04 Oct 5, 2015

L



* Agilent 16:31:16 Oct 5, 2015

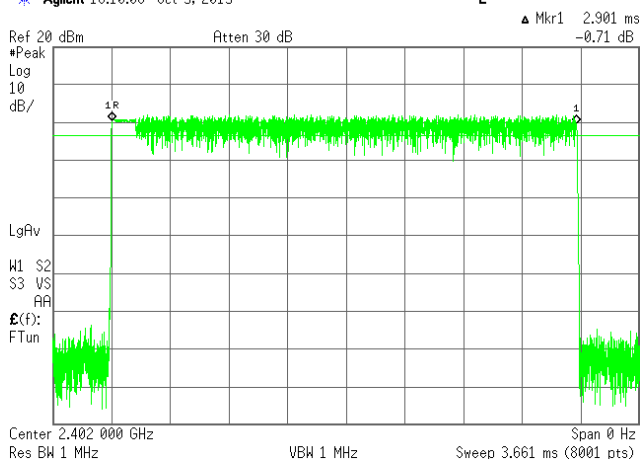
L



[EDR (3DH5) / 2402MHz]

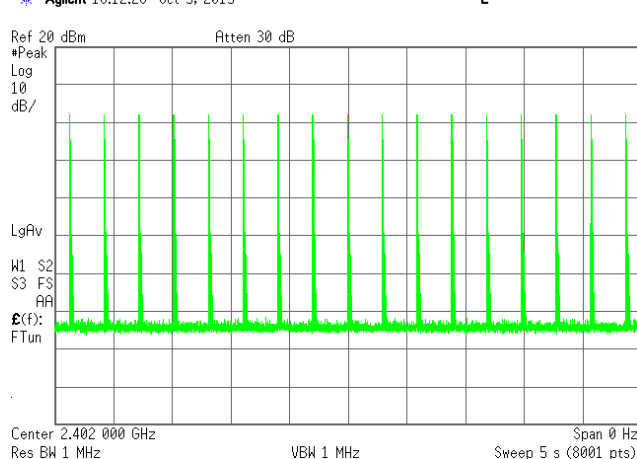
* Agilent 16:10:06 Oct 5, 2015

L



* Agilent 16:12:28 Oct 5, 2015

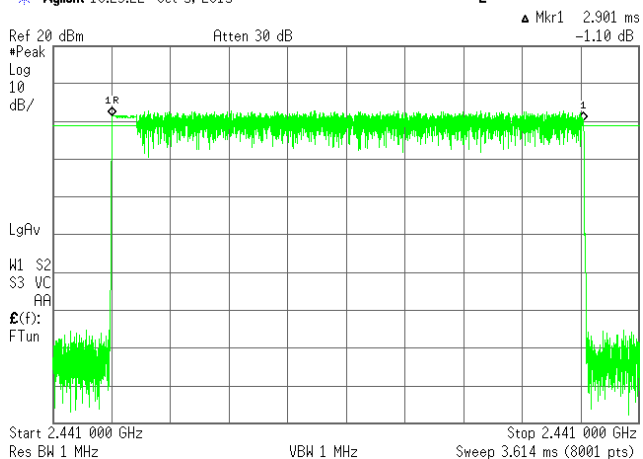
L



[EDR (3DH5) / 2441MHz]

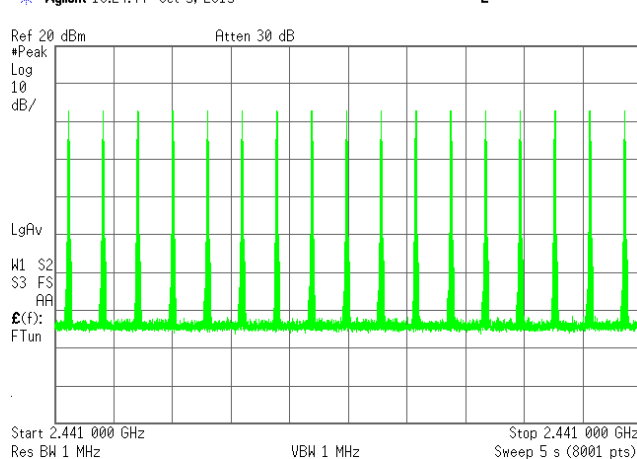
* Agilent 16:23:22 Oct 5, 2015

L



* Agilent 16:24:44 Oct 5, 2015

L

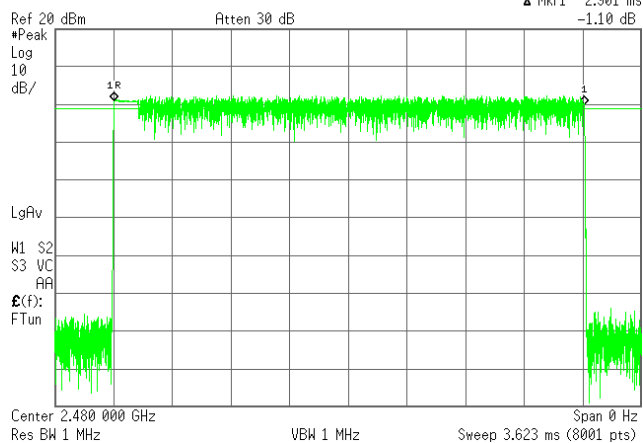


[EDR (3DH5) / 2480MHz]

* Agilent 16:26:42 Oct 5, 2015

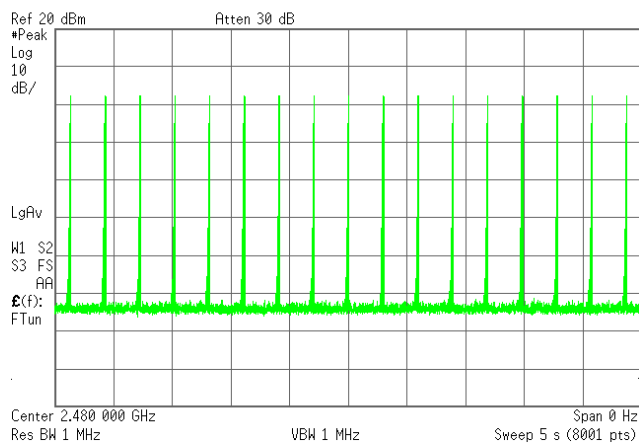
L

▲ Mkr1 2.901 ms



* Agilent 16:27:42 Oct 5, 2015

L



3.6. Maximum Peak Conducted Output Power

- | | |
|------------------------|---------------------|
| 1) Ambient temperature | : 21.0 deg.C |
| 2) Relative humidity | : 52.0 % |
| 3) Date of measurement | : October 5, 2015 |
| 4) Measured by | : M. KOUGA |
| 5) Operating mode | : Transmitting mode |

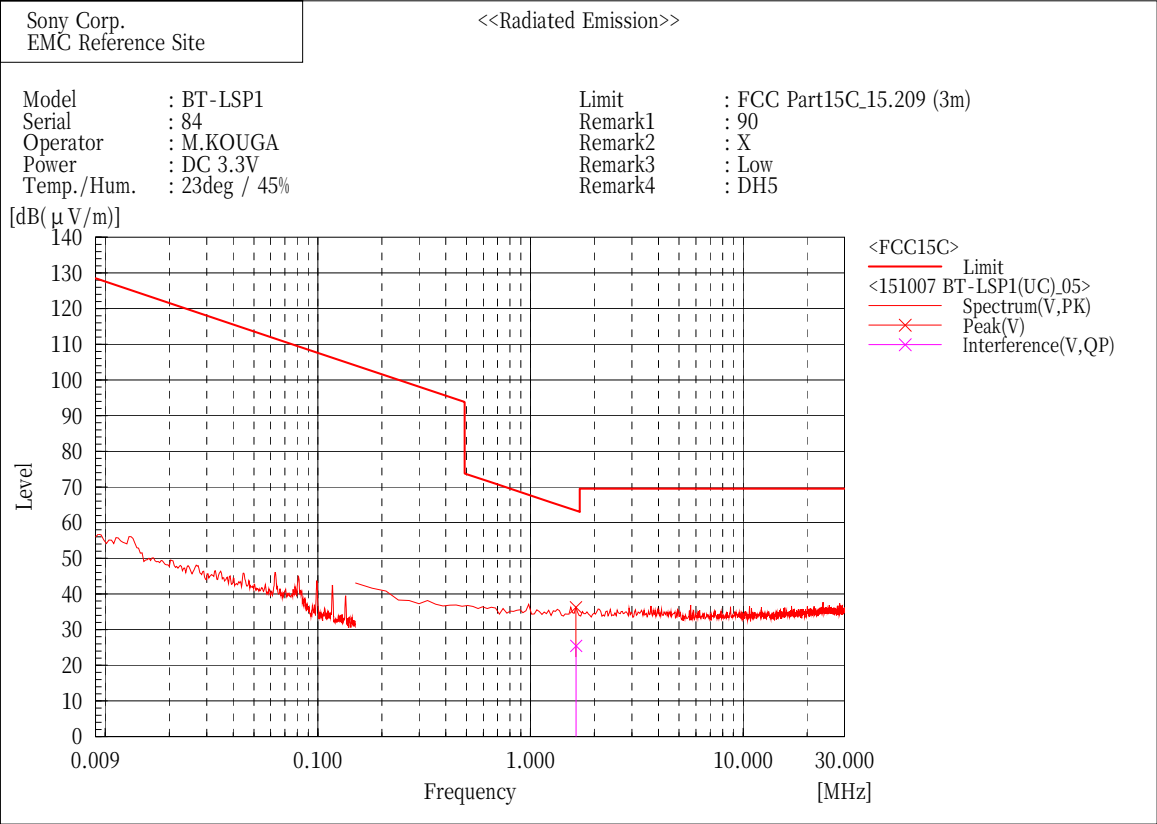
Mode		Channel [MHz]	Reading (PK) [dBm]	C.F. [dB]	Result (PK) [dBm]	Result (PK) [W]	Limit [dBm]	Limit [W]	Margin [dB]
BDR	DH5	2402	1.52	-0.28	1.24	0.00133	30.0	1.0	28.76
		2441	1.68	-0.29	1.39	0.00138	30.0	1.0	28.61
		2480	1.45	-0.30	1.15	0.00130	30.0	1.0	28.85
EDR	2DH5	2402	2.64	-0.28	2.36	0.00172	30.0	1.0	27.64
		2441	3.15	-0.29	2.86	0.00193	30.0	1.0	27.14
		2480	2.76	-0.30	2.46	0.00176	30.0	1.0	27.54
	3DH5	2402	3.15	-0.28	2.87	0.00194	30.0	1.0	27.13
		2441	3.64	-0.29	3.35	0.00216	30.0	1.0	26.65
		2480	3.31	-0.30	3.01	0.00200	30.0	1.0	26.99

Duty Cycle check

Mode		Channel [MHz]	T (on+off) [msec]	T(on) [msec]	Duty Cycle [%]
BDR	DH1	2441	1.250	0.386	30.86
	DH3	2441	2.501	1.641	65.61
	DH5	2441	3.750	2.888	77.01
EDR	2DH1	2441	1.250	0.402	32.13
	2DH3	2441	2.500	1.653	66.12
	2DH5	2441	3.750	2.899	77.31
	3DH1	2441	1.251	0.403	32.18
	3DH3	2441	2.500	1.650	66.00
	3DH5	2441	3.750	2.901	77.36

3.7. Radiated Spurious Emissions

9 kHz - 30 MHz
[BDR (DH5) / 2402MHz]

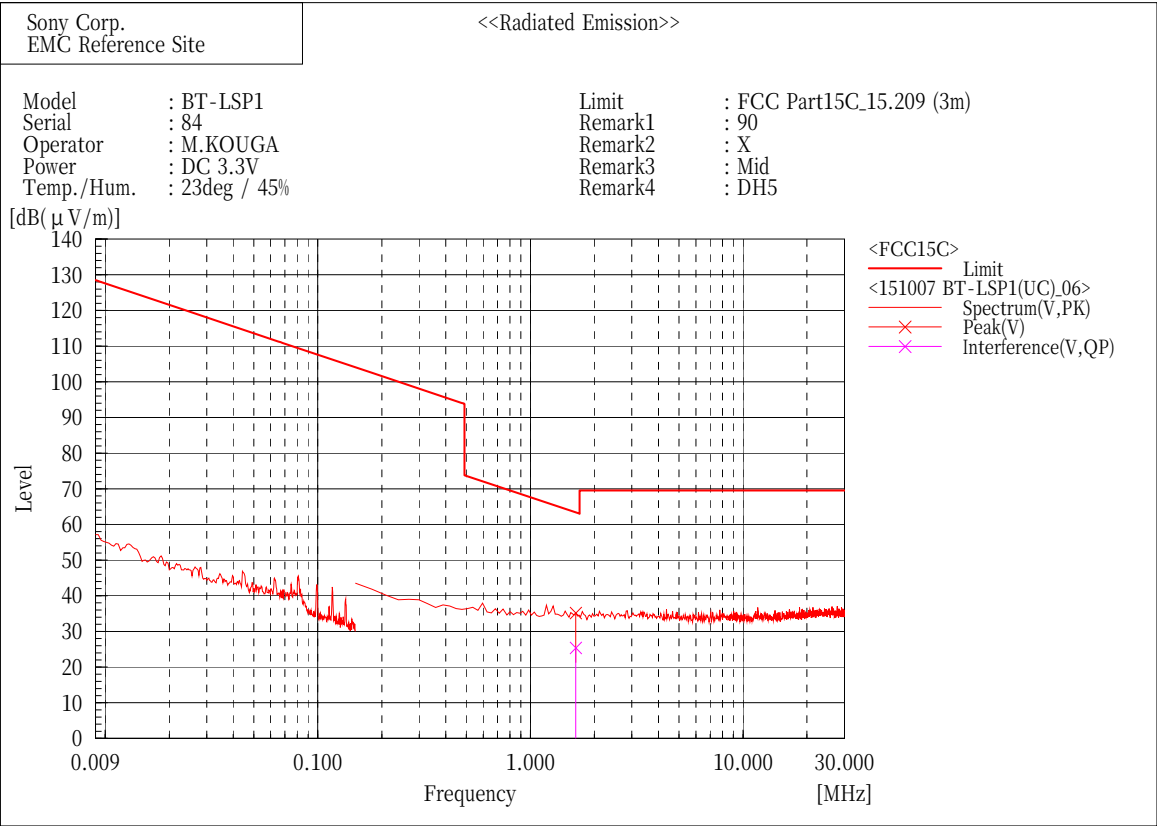


Final Result

--- 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	1.638	5.4	20.1	25.5	63.3	37.8	100.0	239.2

[BDR (DH5) / 2441MHz]

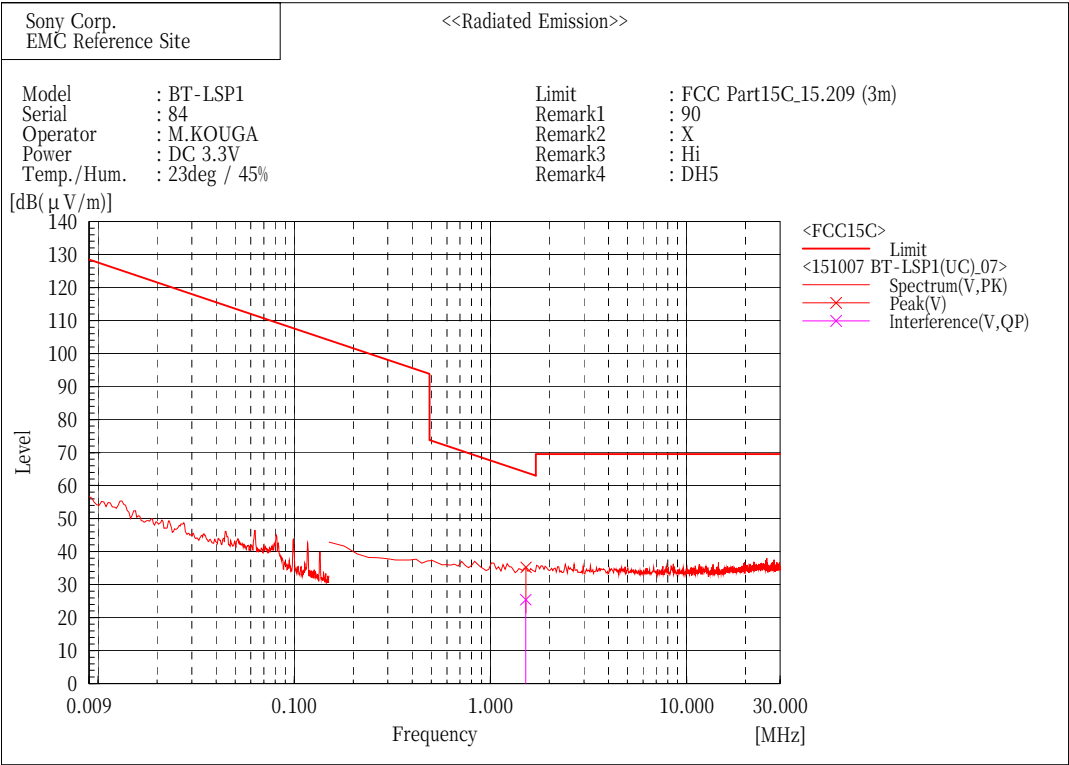


Final Result

--- 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	1.636	5.3	20.1	25.4	63.4	38.0	100.0	69.6

[BDR (DH5) / 2480MHz]

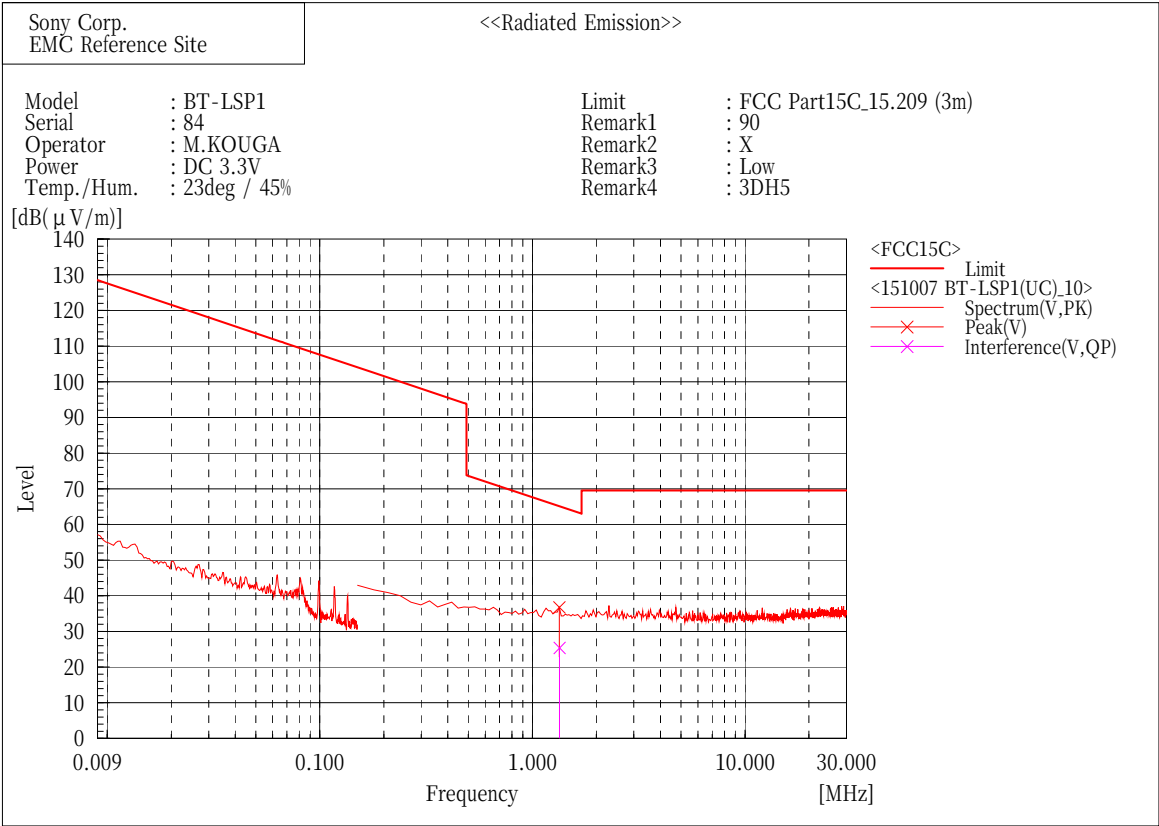


Final Result

--- 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	1.514	5.4	20.1	25.5	64.0	38.5	100.0	182.0

[EDR (3DH5) / 2402MHz]

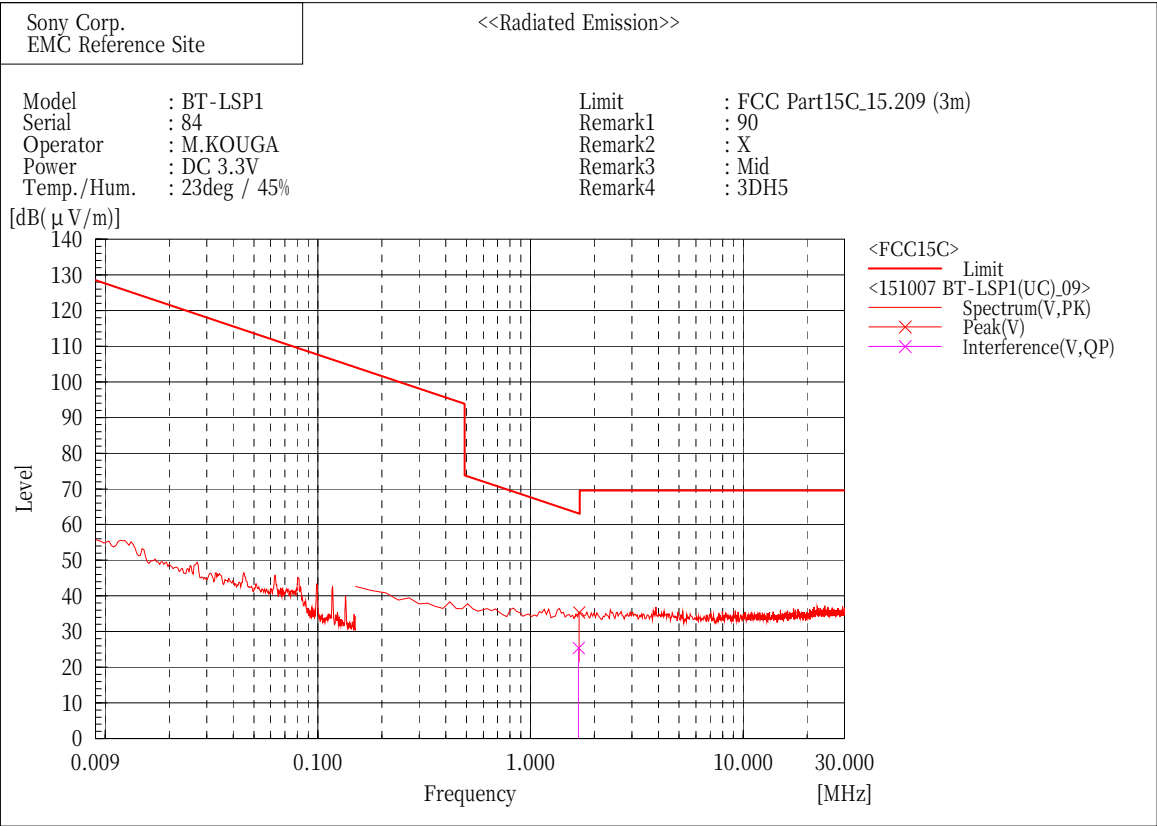


Final Result

--- 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	1.340	5.4	20.0	25.4	65.1	39.7	100.0	242.9

[EDR (3DH5) / 2441MHz]

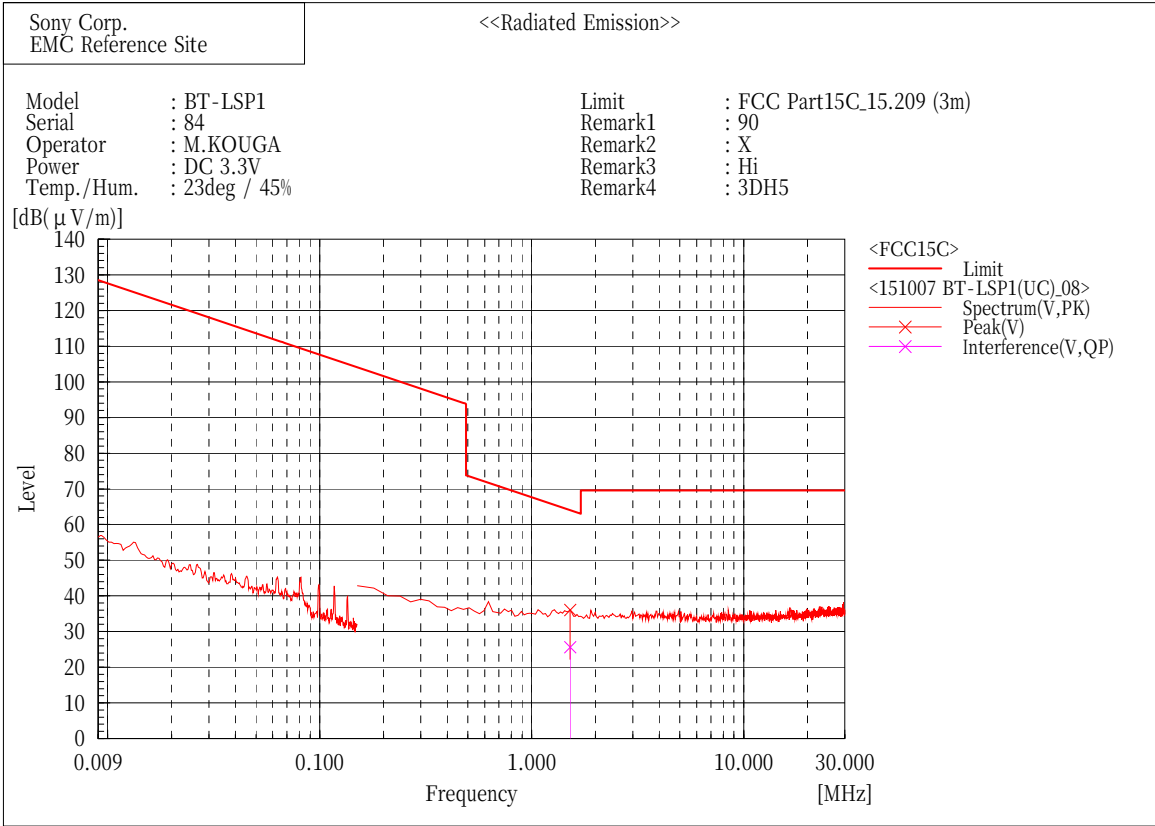


Final Result

--- 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	1.683	5.3	20.1	25.4	63.1	37.7	100.0	77.6

[EDR (3DH5) / 2480MHz]



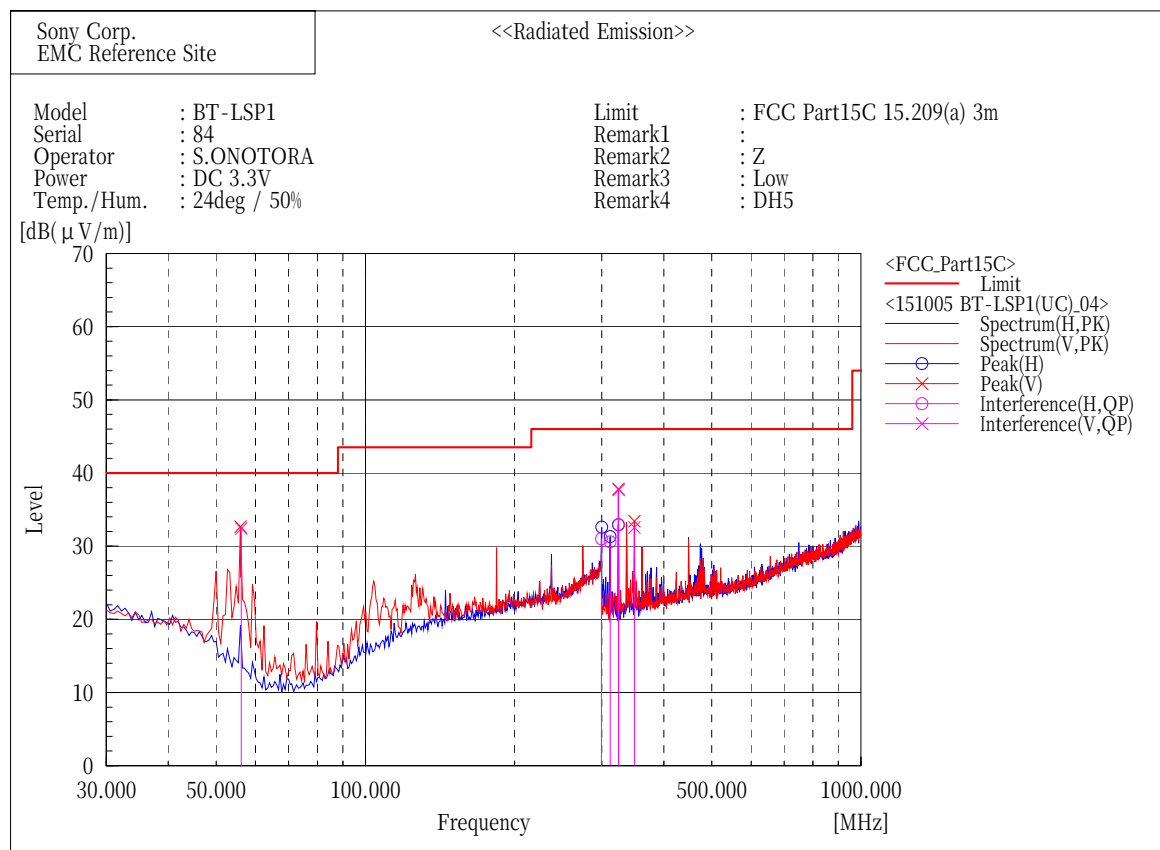
Final Result

--- 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	1.517	5.5	20.1	25.6	64.0	38.4	100.0	237.6

30 MHz - 1000 MHz

[BDR (DH5) / 2402MHz]



Final Result

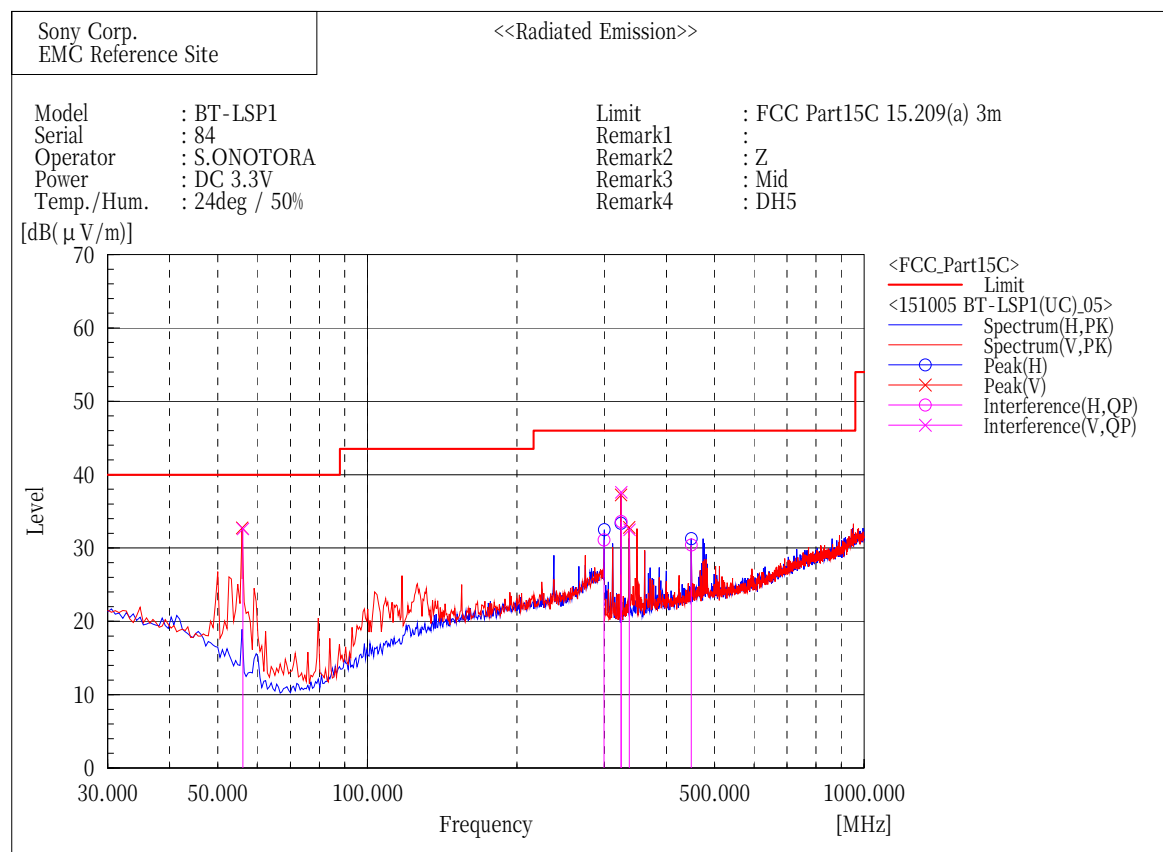
--- Horizontal Polarization (QP)---

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	299.341	36.8	-5.8	31.0	46.0	15.0	224.2	157.4
2	311.810	42.3	-11.7	30.6	46.0	15.4	198.6	8.4
3	324.283	44.2	-11.3	32.9	46.0	13.1	231.9	145.4

--- 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	56.126	51.9	-19.5	32.4	40.0	7.6	100.0	30.8
2	324.283	49.0	-11.3	37.7	46.0	8.3	100.0	210.4
3	349.229	43.4	-10.8	32.6	46.0	13.4	100.0	87.0

[BDR (DH5) / 2441MHz]



Final Result

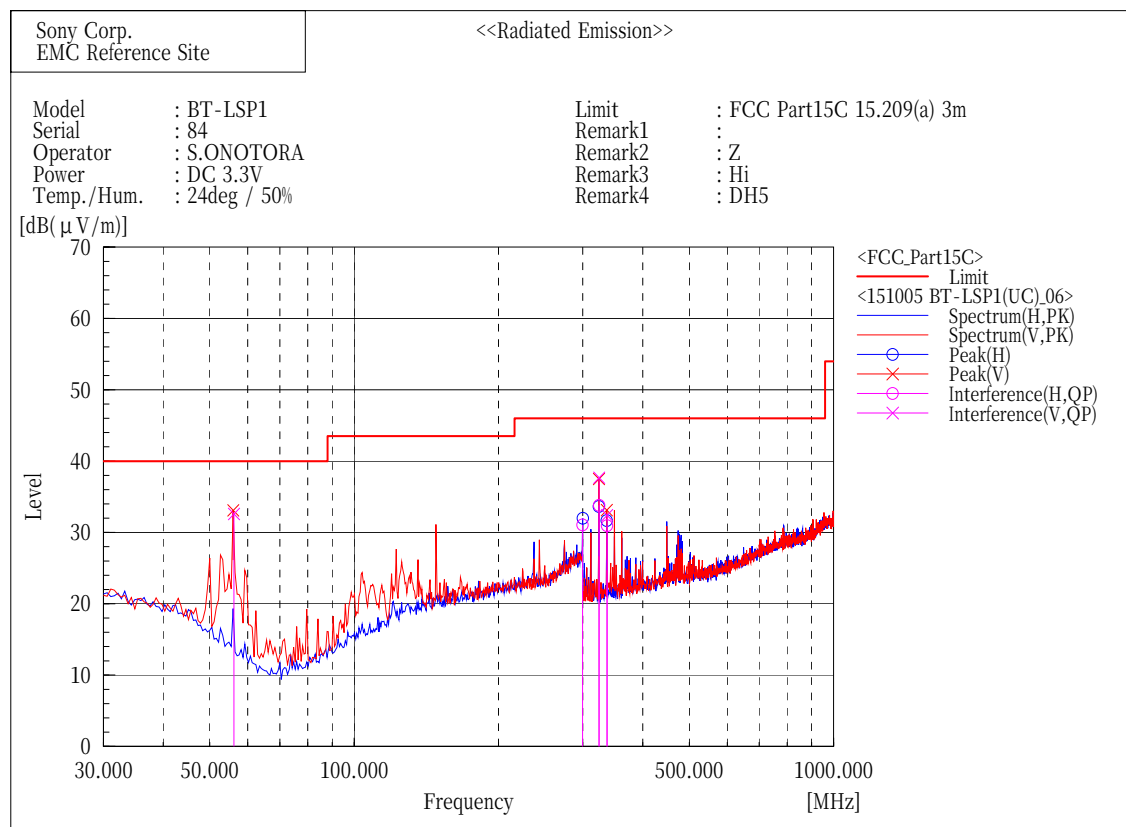
--- Horizontal Polarization (QP)---

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	299.339	36.9	-5.8	31.1	46.0	14.9	211.0	158.0
2	324.281	44.9	-11.3	33.6	46.0	12.4	221.3	152.0
3	449.007	39.7	-9.3	30.4	46.0	15.6	164.3	124.7

--- 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	56.125	52.1	-19.5	32.6	40.0	7.4	100.0	342.0
2	324.284	48.9	-11.3	37.6	46.0	8.4	100.0	200.7
3	336.750	43.6	-11.1	32.5	46.0	13.5	132.3	72.1

[BDR (DH5) / 2480MHz]



Final Result

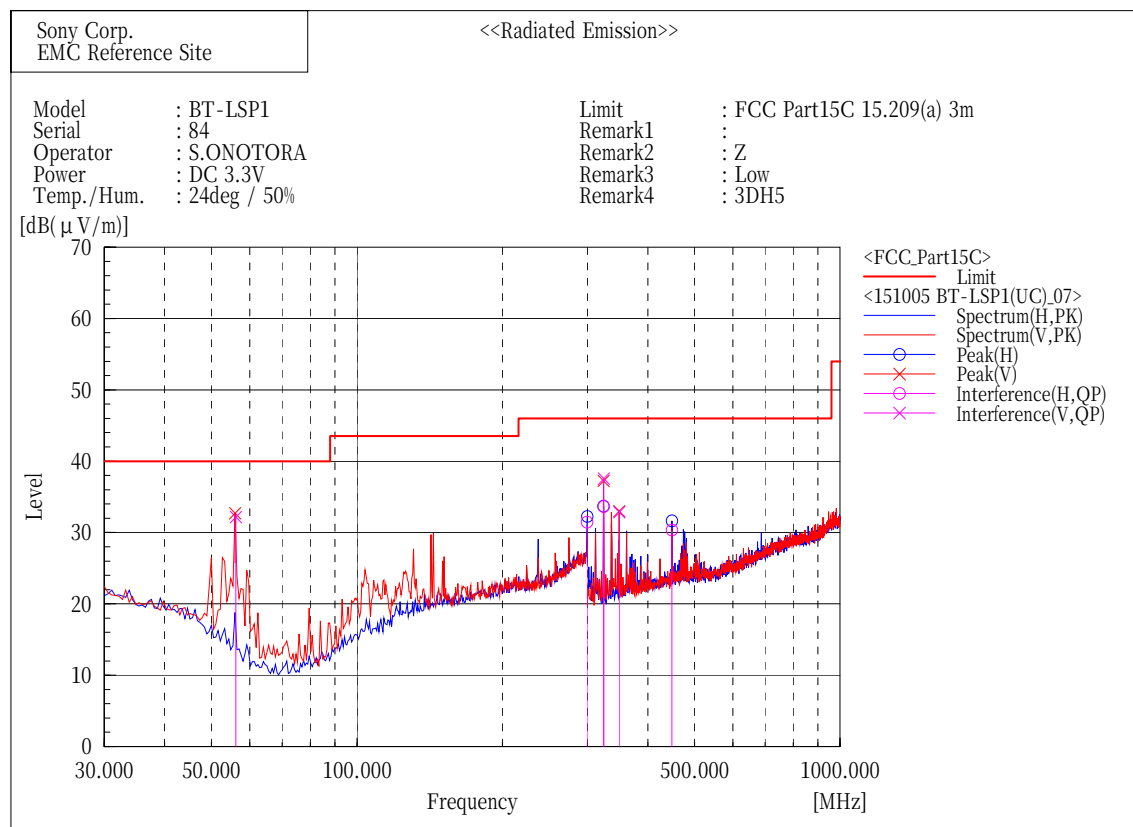
--- Horizontal Polarization (QP)---

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	299.341	36.9	-5.8	31.1	46.0	14.9	205.5	357.1
2	324.283	45.1	-11.3	33.8	46.0	12.2	221.2	153.5
3	336.756	42.1	-11.1	31.0	46.0	15.0	179.1	135.3

--- 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	56.128	52.1	-19.5	32.6	40.0	7.4	100.0	337.5
2	324.278	49.0	-11.3	37.7	46.0	8.3	100.0	208.0
3	336.758	43.5	-11.1	32.4	46.0	13.6	100.0	77.6

[EDR (3DH5) / 2402MHz]



Final Result

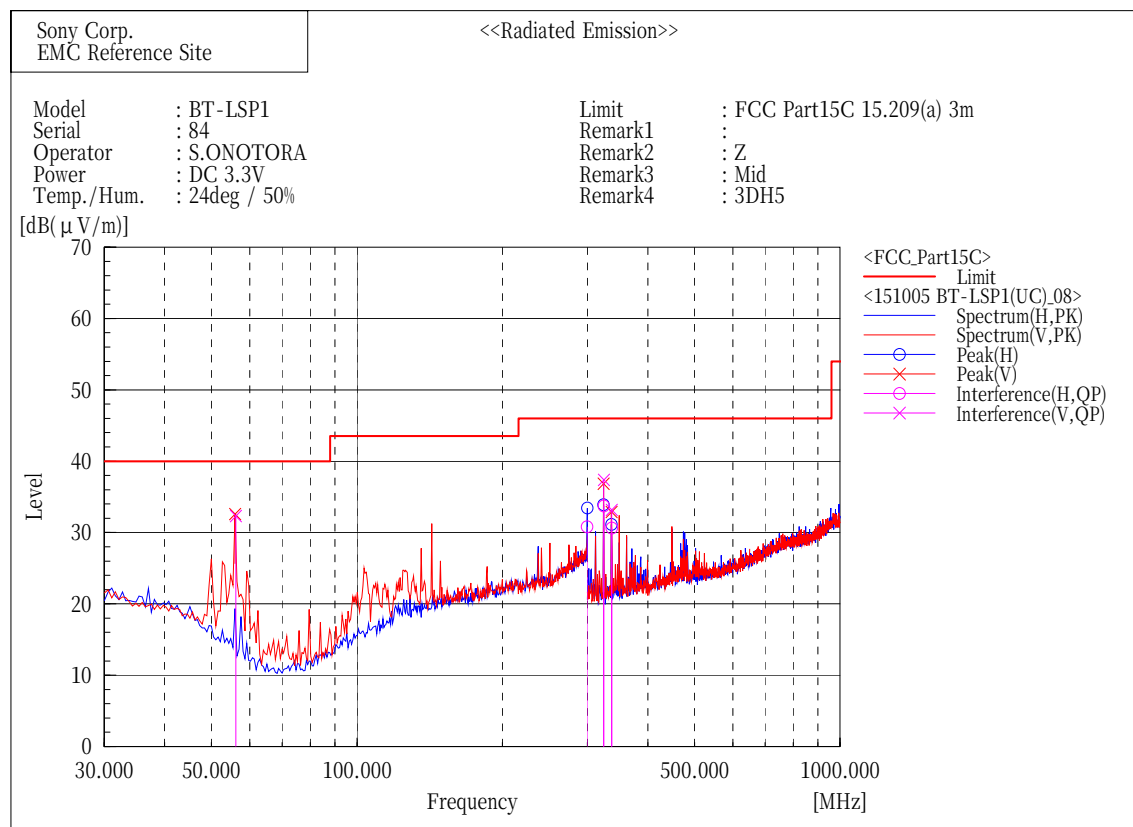
--- Horizontal Polarization (QP)---

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	299.336	37.3	-5.8	31.5	46.0	14.5	216.6	163.1
2	324.284	44.9	-11.3	33.6	46.0	12.4	204.6	153.0
3	449.005	39.7	-9.3	30.4	46.0	15.6	185.0	302.1

--- 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	56.132	51.7	-19.5	32.2	40.0	7.8	100.0	277.7
2	324.281	48.9	-11.3	37.6	46.0	8.4	100.0	204.6
3	349.225	43.7	-10.8	32.9	46.0	13.1	100.0	188.6

[EDR (3DH5) / 2441MHz]



Final Result

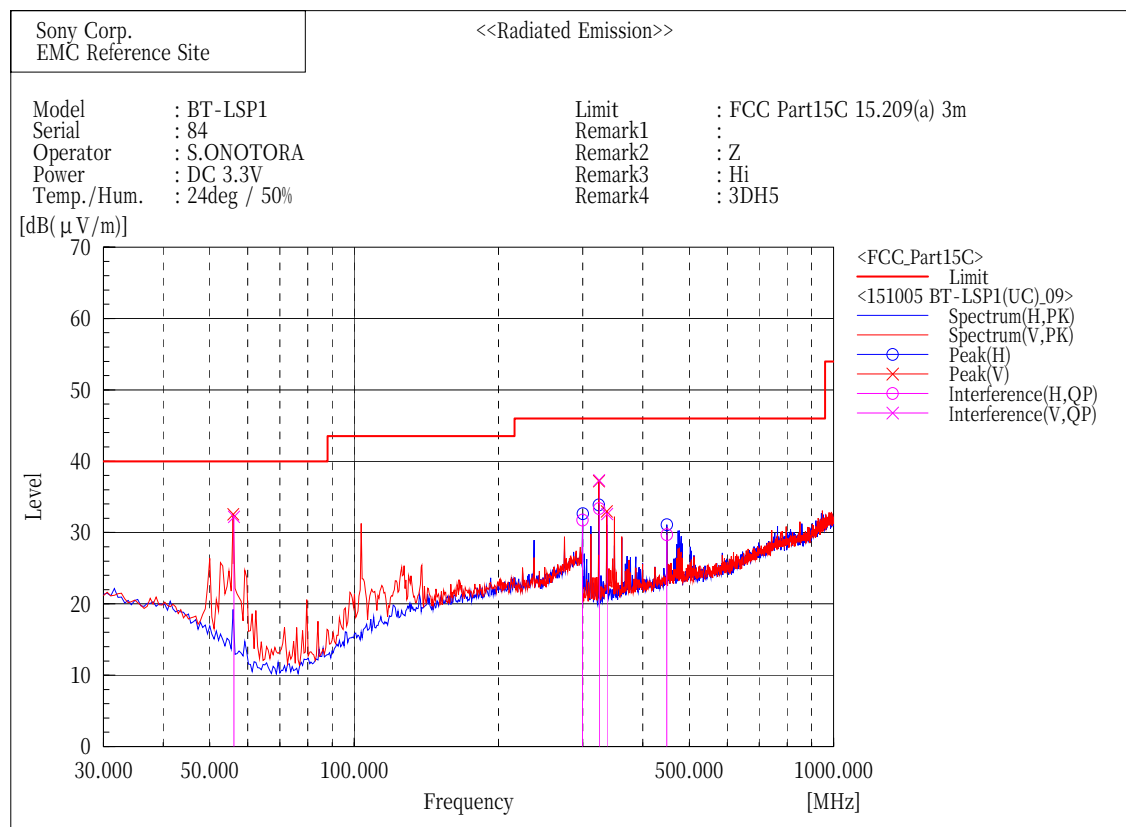
--- Horizontal Polarization (QP)---

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	299.334	36.6	-5.8	30.8	46.0	15.2	225.4	157.9
2	324.283	45.0	-11.3	33.7	46.0	12.3	224.4	151.8
3	336.758	41.7	-11.1	30.6	46.0	15.4	168.5	136.6

--- 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	56.126	51.8	-19.5	32.3	40.0	7.7	100.0	293.2
2	324.279	48.7	-11.3	37.4	46.0	8.6	100.0	207.8
3	336.758	44.3	-11.1	33.2	46.0	12.8	100.0	192.0

[EDR (3DH5) / 2480MHz]



Final Result

--- Horizontal Polarization (QP)---

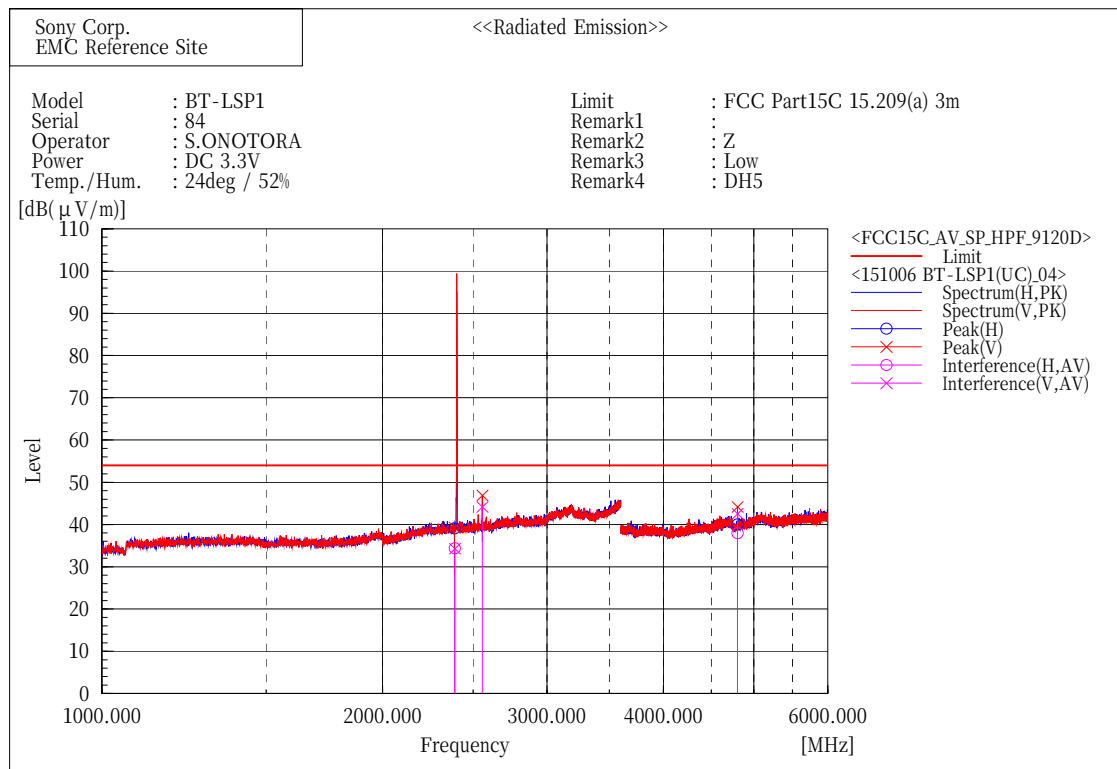
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	299.342	37.5	-5.8	31.7	46.0	14.3	261.3	355.9
2	324.292	44.7	-11.3	33.4	46.0	12.6	233.0	160.4
3	449.007	39.0	-9.3	29.7	46.0	16.3	140.5	129.0

--- 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	56.126	51.7	-19.5	32.2	40.0	7.8	100.0	67.6
2	324.284	48.6	-11.3	37.3	46.0	8.7	100.0	204.0
3	336.754	43.7	-11.1	32.6	46.0	13.4	100.0	200.9

1GHz - 6 GHz

[BDR (DH5) / 2402MHz]



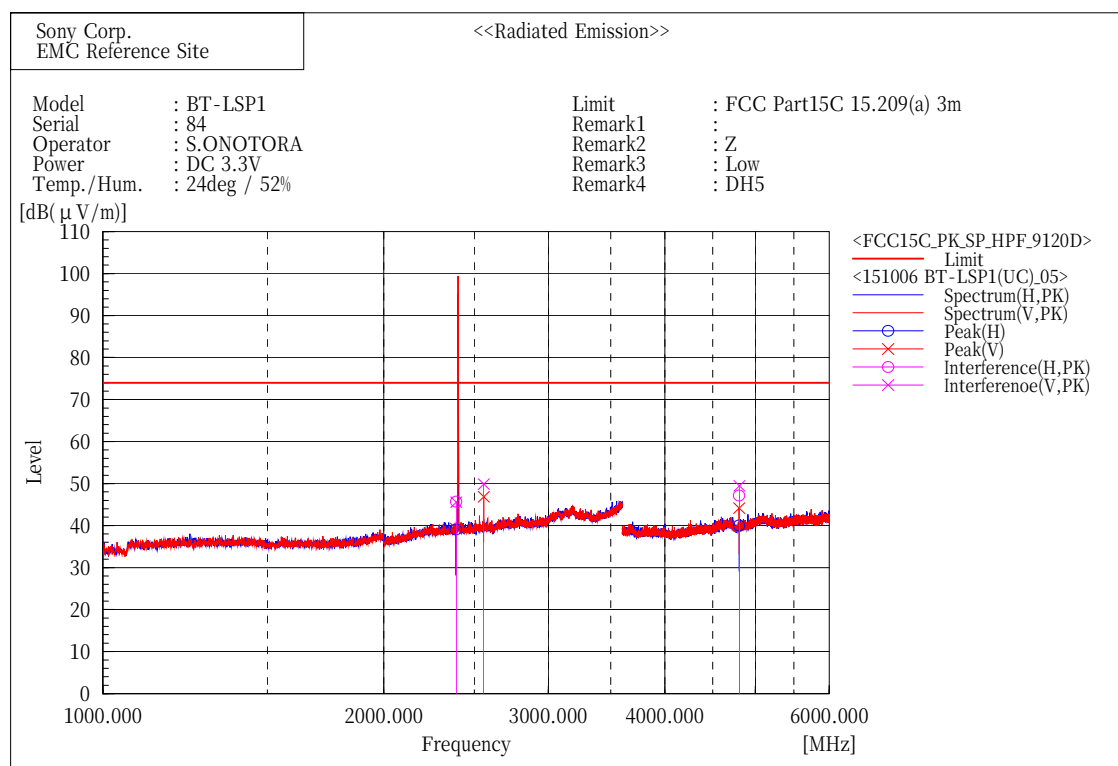
Final Result

--- 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	2389.794	35.5	-1.1	34.4	54.0	19.6	149.2	188.9
2	4804.037	33.0	4.9	37.9	54.0	16.1	165.1	338.0

--- 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	2389.804	35.4	-1.1	34.3	54.0	19.8	152.3	171.5
2	2557.999	45.0	-0.8	44.2	54.0	9.8	146.8	273.0
3	4804.270	37.7	4.9	42.6	54.0	11.4	152.6	254.0



Final Result

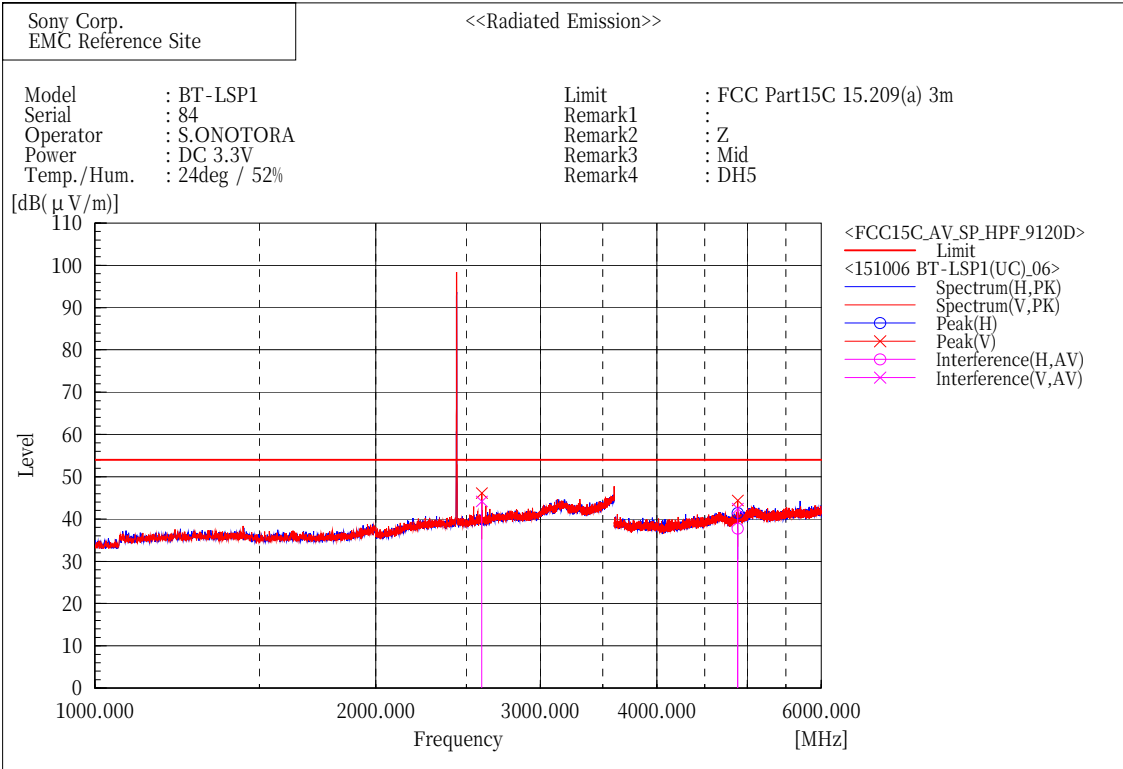
--- Horizontal Polarization (PK)---

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	2389.864	46.8	-1.1	45.7	74.0	28.3	149.2	188.9
2	4803.711	42.2	4.9	47.1	74.0	26.9	165.1	338.0

--- 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	2389.759	46.7	-1.1	45.6	74.0	28.4	152.3	171.5
2	2558.066	50.7	-0.8	49.9	74.0	24.1	146.8	273.0
3	4804.480	44.6	4.9	49.5	74.0	24.5	152.6	254.0

[BDR (DH5) / 2441MHz]



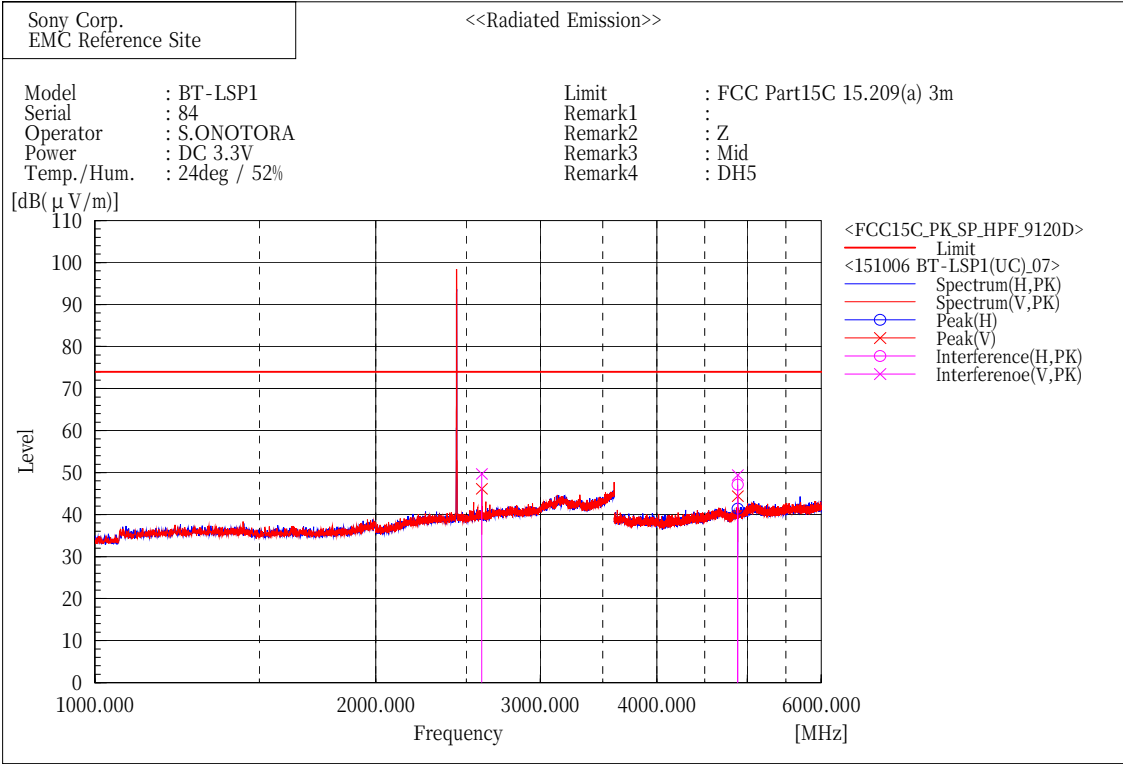
Final Result

--- 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	4881.876	32.7	5.0	37.7	54.0	16.3	157.3	315.4

--- 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	2597.116	44.9	-0.7	44.2	54.0	9.8	148.0	95.4
2	4882.133	37.5	5.0	42.5	54.0	11.5	149.6	308.1



Final Result

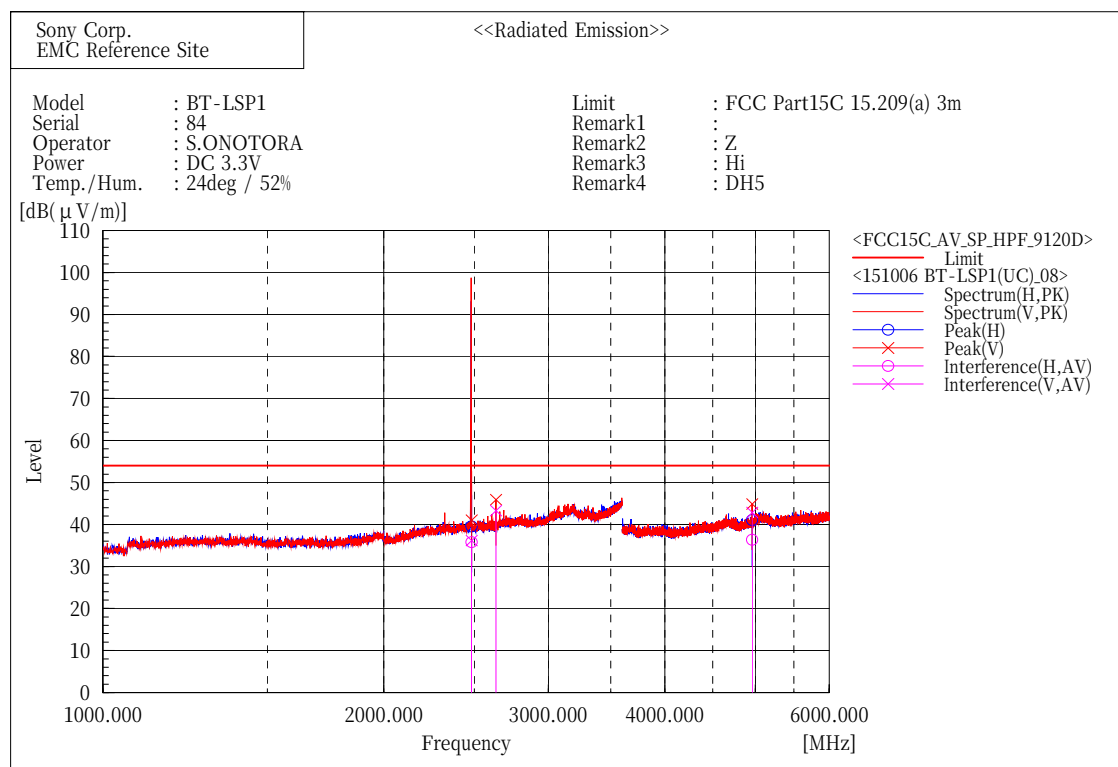
--- Horizontal Polarization (PK)---

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	4881.643	42.1	5.0	47.1	74.0	26.9	157.3	315.4

--- 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	2596.894	50.4	-0.7	49.7	74.0	24.3	148.0	95.4
2	4882.526	44.4	5.0	49.4	74.0	24.6	149.6	308.1

[BDR (DH5) / 2480MHz]



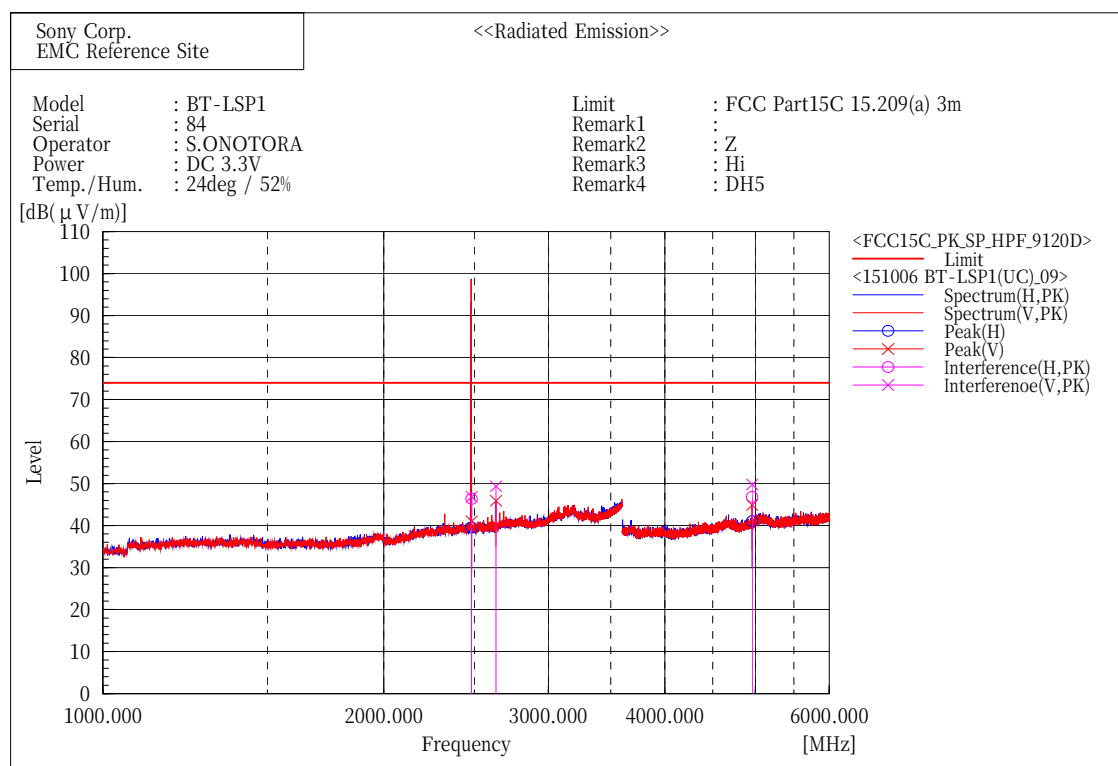
Final Result

--- 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	2483.621	36.7	-0.9	35.8	54.0	18.2	153.6	332.6
2	4959.957	31.2	5.1	36.3	54.0	17.7	152.9	310.5

--- 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	2483.645	37.1	-0.9	36.2	54.0	17.8	151.6	326.5
2	2636.085	43.9	-0.6	43.3	54.0	10.7	148.0	78.7
3	4959.788	37.8	5.1	42.9	54.0	11.1	152.8	285.0



Final Result

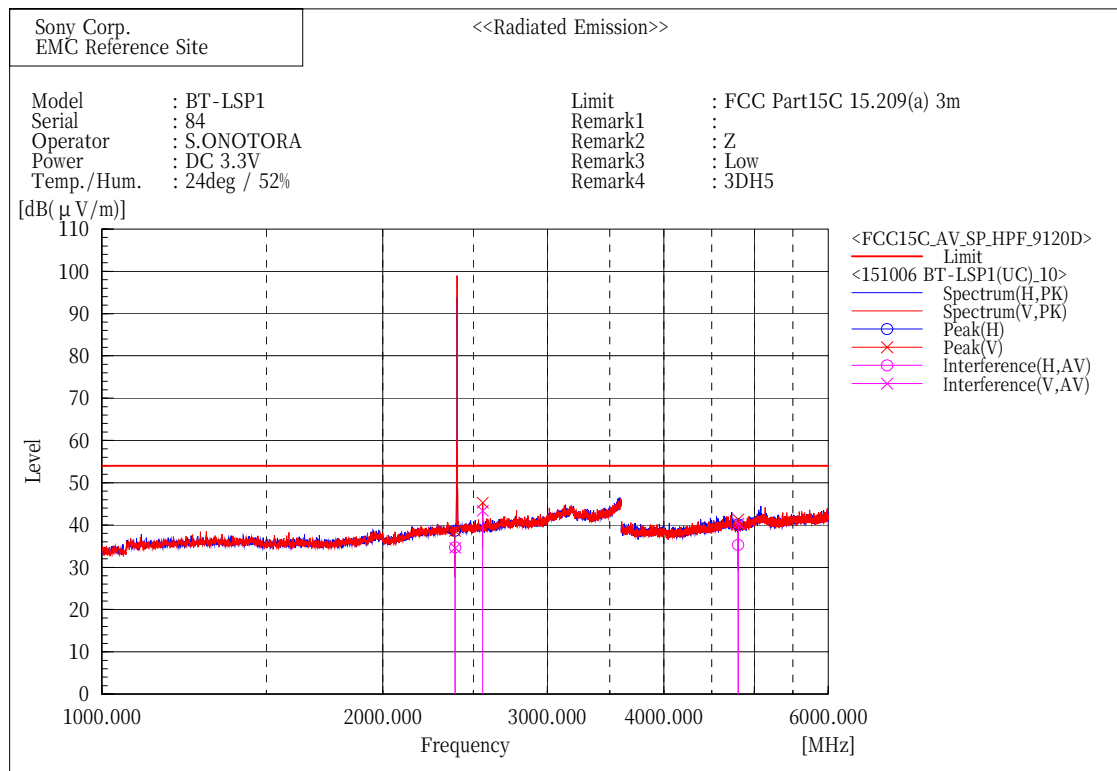
--- Horizontal Polarization (PK)---

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	2483.610	47.3	-0.9	46.4	74.0	27.6	153.6	332.6
2	4960.622	41.7	5.1	46.8	74.0	27.2	152.9	310.5

--- 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	2483.615	47.8	-0.9	46.9	74.0	27.1	151.6	326.5
2	2635.973	49.9	-0.6	49.3	74.0	24.7	148.0	78.7
3	4960.251	44.7	5.1	49.8	74.0	24.2	152.8	285.0

[EDR (3DH5) / 2402MHz]



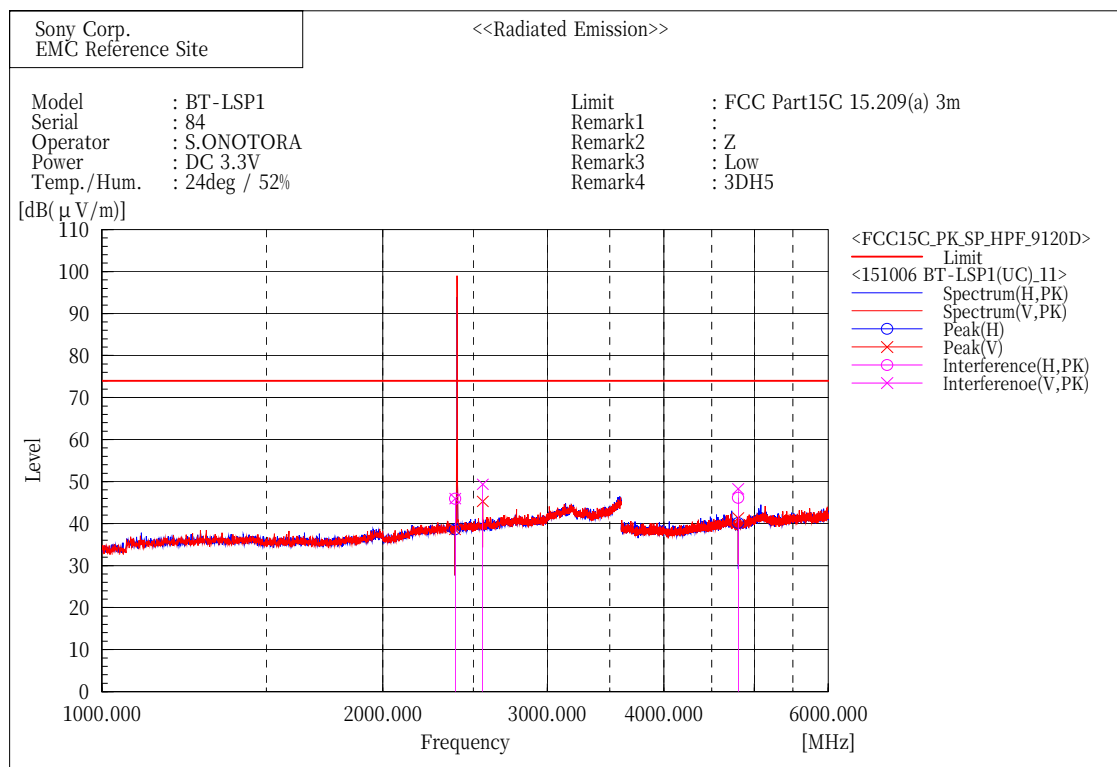
Final Result

--- 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	2389.856	35.8	-1.1	34.7	54.0	19.3	147.6	226.3
2	4803.309	30.4	4.9	35.3	54.0	18.7	146.8	292.8

--- 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	2389.799	35.7	-1.1	34.6	54.0	19.4	149.3	311.5
2	2558.011	44.2	-0.8	43.4	54.0	10.6	141.8	78.6
3	4804.487	35.5	4.9	40.4	54.0	13.6	155.3	250.5



Final Result

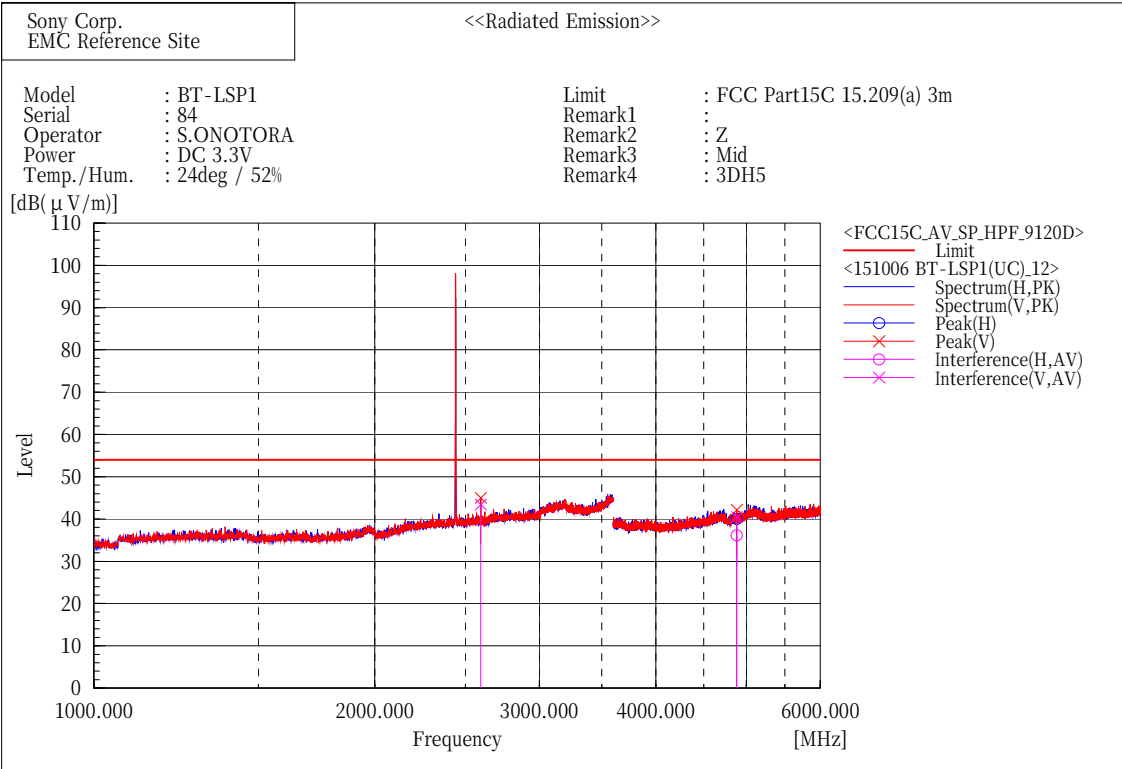
--- Horizontal Polarization (PK)---

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	2389.953	47.0	-1.1	45.9	74.0	28.1	147.6	226.3
2	4803.614	41.3	4.9	46.2	74.0	27.8	146.8	292.8

--- 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	2389.868	47.1	-1.1	46.0	74.0	28.0	149.3	311.5
2	2557.676	50.2	-0.8	49.4	74.0	24.6	141.8	78.6
3	4803.769	43.4	4.9	48.3	74.0	25.7	155.3	250.5

[EDR (3DH5) / 2441MHz]



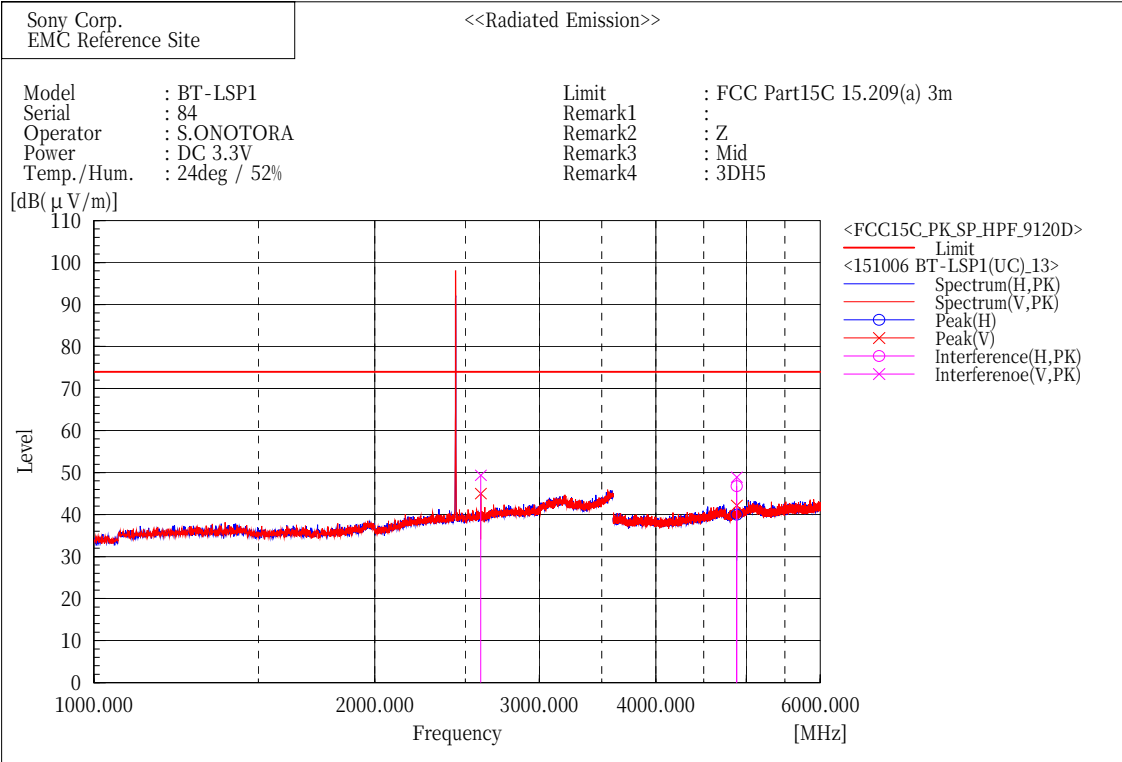
Final Result

--- 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	4882.024	31.1	5.0	36.1	54.0	17.9	147.8	329.9

--- Vertical Polarization (AV)---

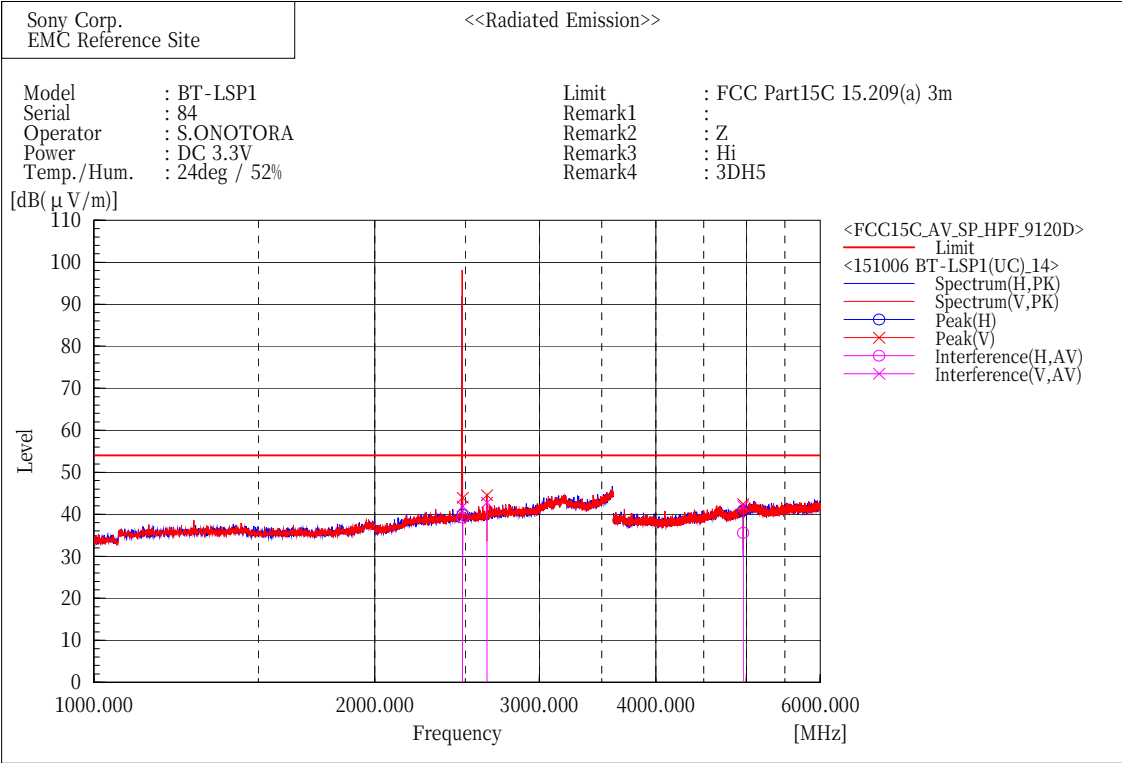
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	2597.079	44.1	-0.7	43.4	54.0	10.6	151.1	93.0
2	4882.321	35.5	5.0	40.5	54.0	13.5	150.0	308.8



Final Result

--- Horizontal Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	4881.682	41.8	5.0	46.8	74.0	27.2	147.8	329.9
--- Vertical Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	2596.932	50.1	-0.7	49.4	74.0	24.6	151.1	93.0
2	4881.732	43.9	5.0	48.9	74.0	25.1	149.5	308.8

[EDR (3DH5) / 2480MHz]



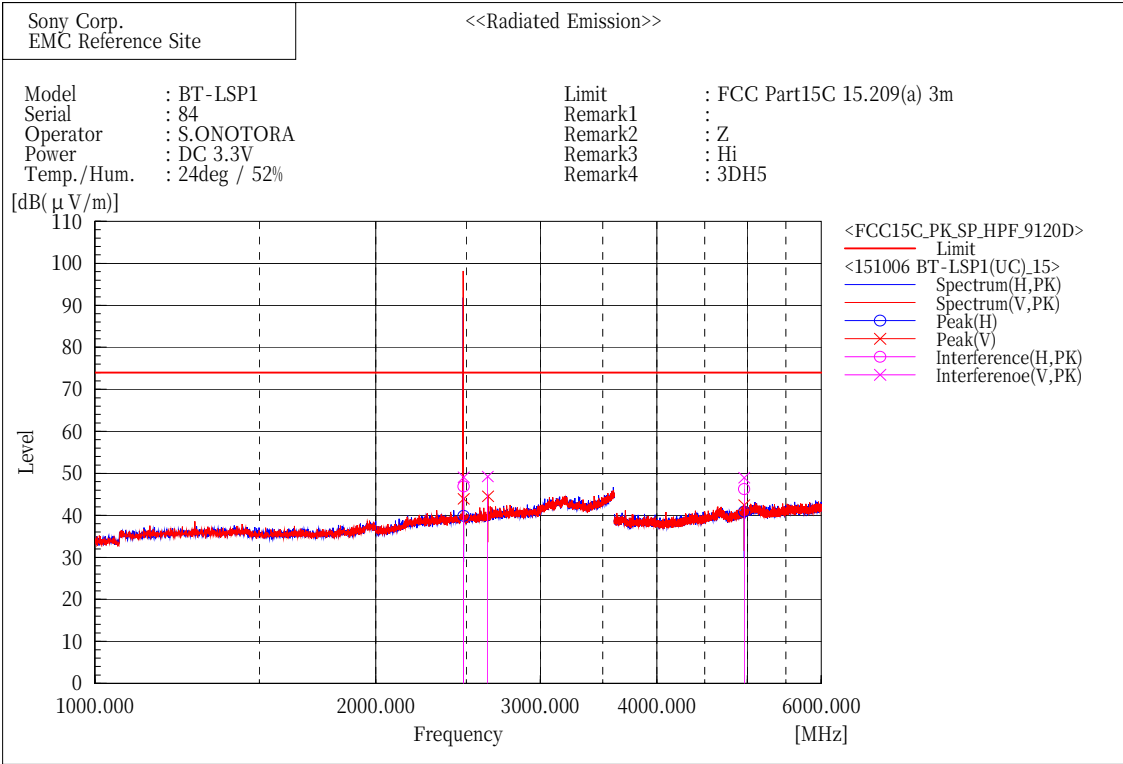
Final Result

--- 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	2483.526	40.1	-0.9	39.2	54.0	14.8	155.8	98.6
2	4960.296	30.5	5.1	35.6	54.0	18.4	148.3	327.2

--- 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	2483.553	42.8	-0.9	41.9	54.0	12.1	146.8	72.6
2	2636.087	43.4	-0.6	42.8	54.0	11.2	150.5	85.3
3	4960.294	36.9	5.1	42.0	54.0	12.0	153.0	282.2



Final Result

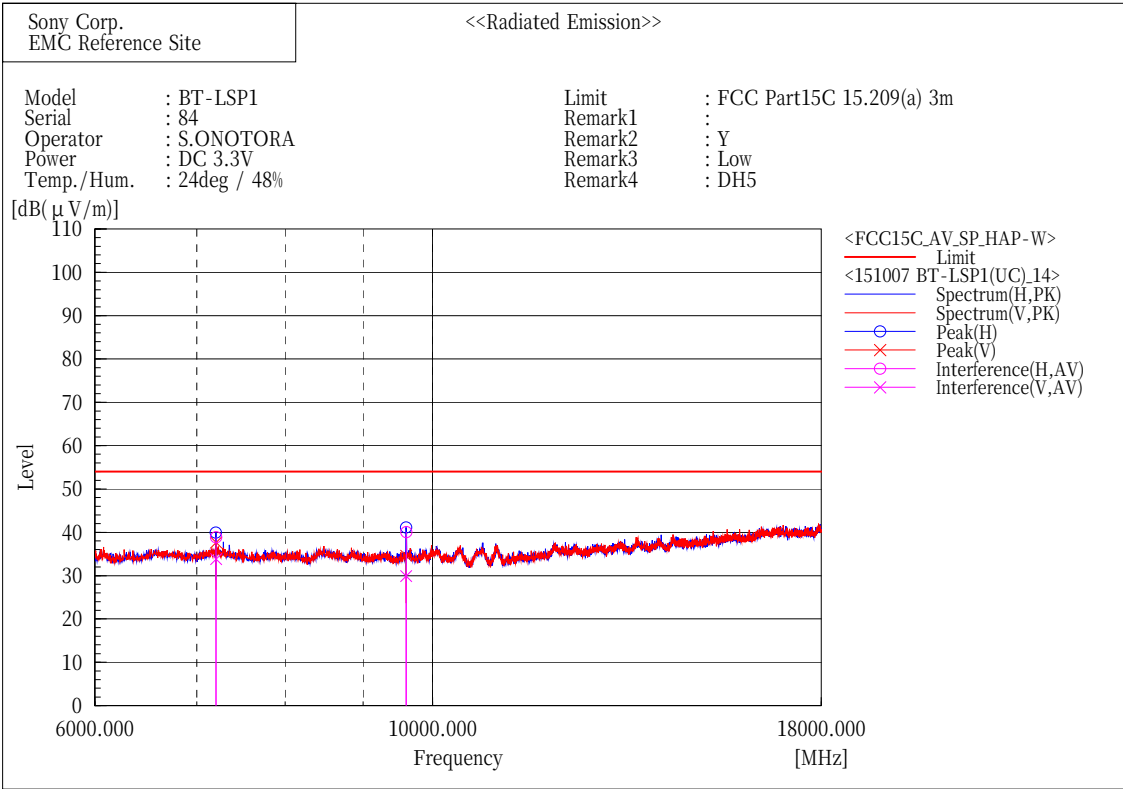
--- Horizontal Polarization (PK)---

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	2483.516	47.8	-0.9	46.9	74.0	27.1	155.8	98.6
2	4961.155	41.2	5.1	46.3	74.0	27.7	148.3	327.2

--- 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	2483.523	50.0	-0.9	49.1	74.0	24.9	146.8	72.6
2	2635.814	49.9	-0.6	49.3	74.0	24.7	150.5	85.3
3	4959.930	43.9	5.1	49.0	74.0	25.0	153.0	282.2

6 GHz - 18 GHz
[BDR (DH5) / 2402MHz]



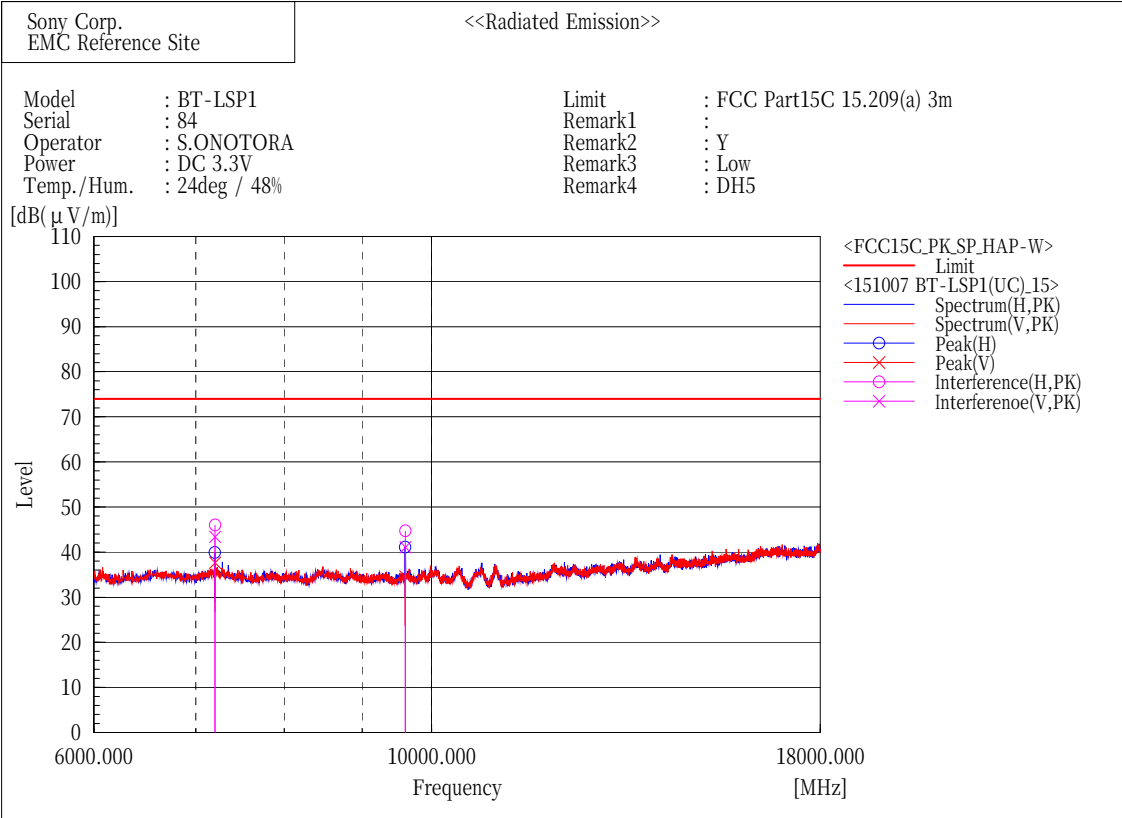
Final Result

--- 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	7206.397	47.0	-8.1	38.9	54.0	15.1	146.0	133.9
2	9610.041	46.4	-6.4	40.0	54.0	14.0	153.2	170.1

--- 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	7205.669	41.9	-8.1	33.8	54.0	20.2	150.7	122.9
2	9607.783	36.3	-6.4	29.9	54.0	24.1	149.4	170.0



Final Result

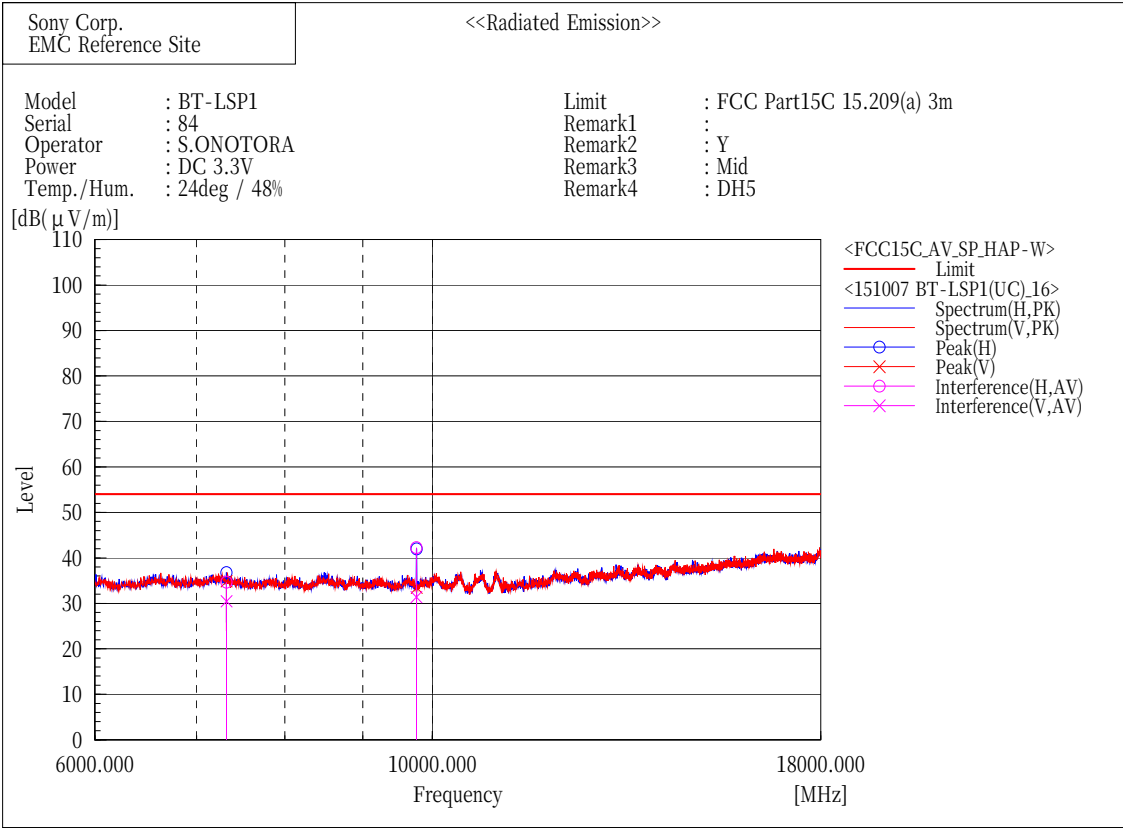
--- Horizontal Polarization (PK)---

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	7205.700	54.1	-8.1	46.0	74.0	28.0	146.0	133.5
2	9609.050	51.1	-6.4	44.7	74.0	29.3	153.2	169.7

--- 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	7206.431	51.5	-8.1	43.4	74.0	30.6	150.7	122.5
2	9608.943	47.5	-6.4	41.1	74.0	32.9	149.4	169.6

[BDR (DH5) / 2441MHz]



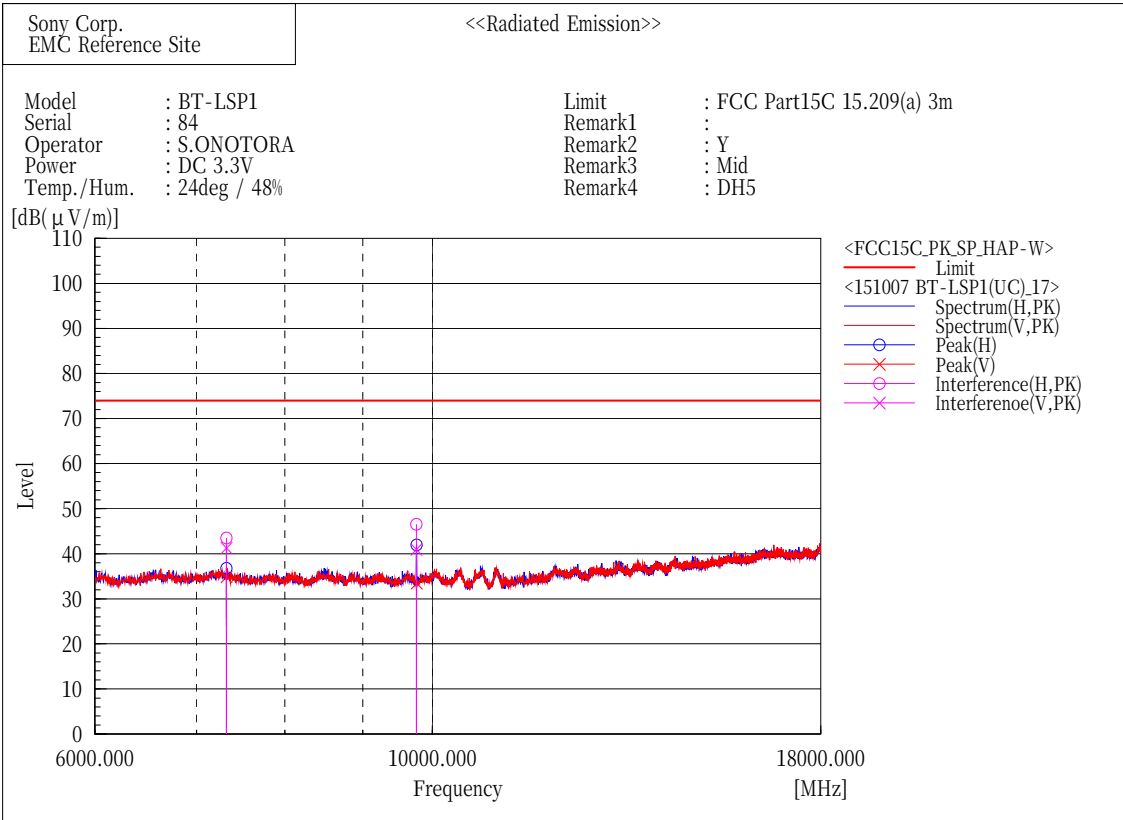
Final Result

--- 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	7323.018	43.1	-8.4	34.7	54.0	19.3	138.1	156.2
2	9762.068	48.4	-6.1	42.3	54.0	11.7	153.5	180.8

--- 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	7323.202	38.9	-8.4	30.5	54.0	23.5	154.0	157.9
2	9761.846	37.5	-6.1	31.4	54.0	22.6	154.0	173.6



Final Result

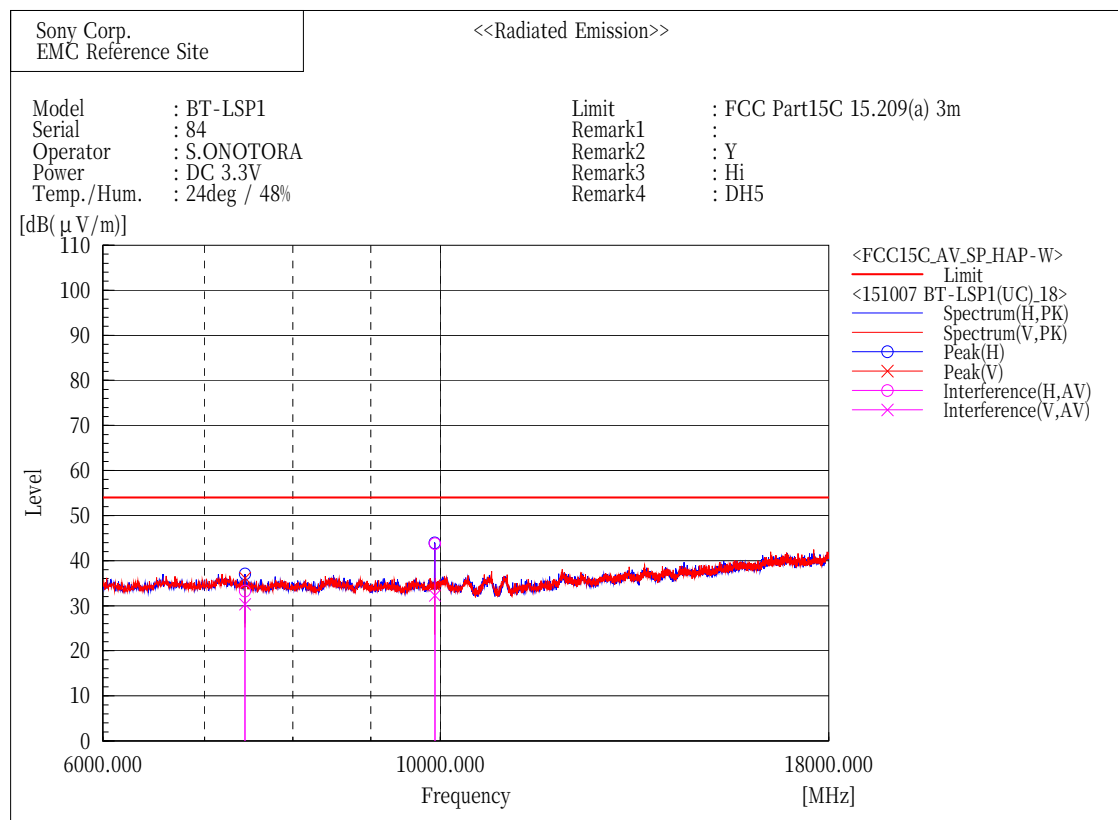
--- Horizontal Polarization (PK)---

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	7322.824	51.9	-8.4	43.5	74.0	30.5	138.1	155.8
2	9762.174	52.7	-6.1	46.6	74.0	27.4	153.5	180.4

--- 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	7324.168	49.7	-8.4	41.3	74.0	32.7	154.0	157.5
2	9762.328	47.0	-6.1	40.9	74.0	33.1	154.0	173.2

[BDR (DH5) / 2480MHz]



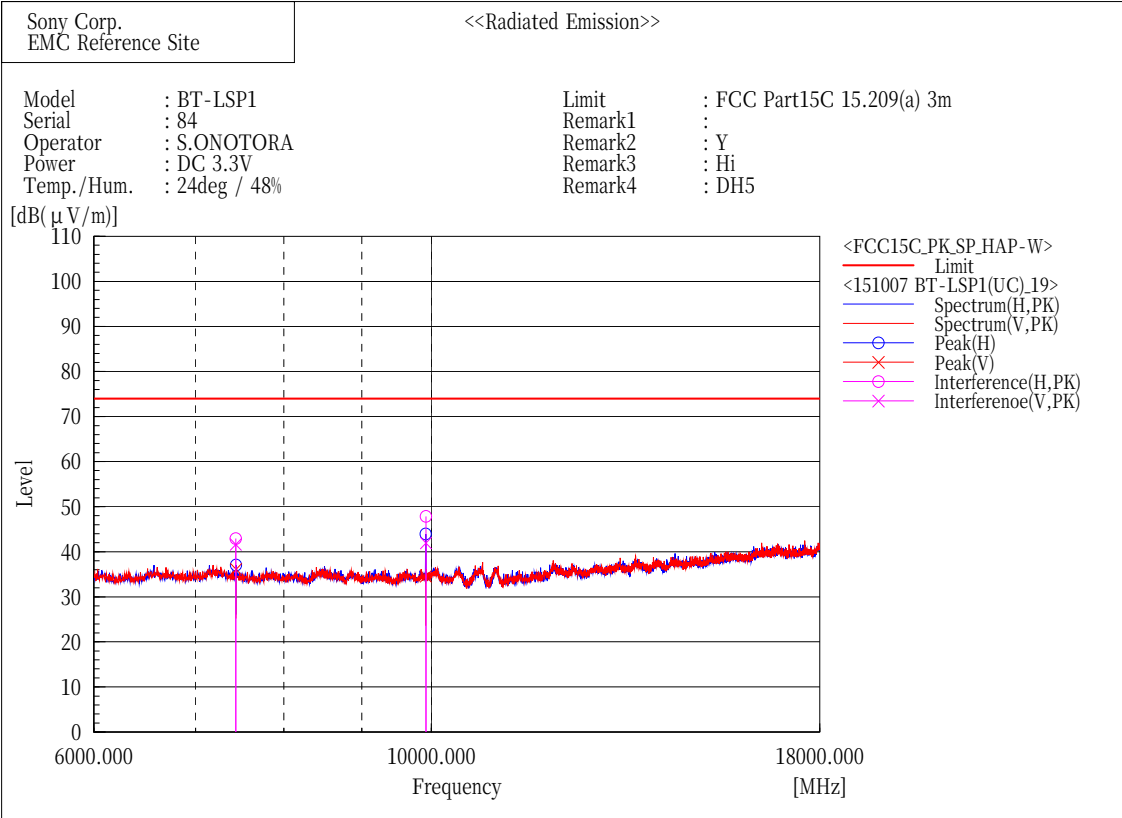
Final Result

--- 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	7439.865	42.0	-8.7	33.3	54.0	20.7	152.0	152.4
2	9918.038	49.4	-5.6	43.8	54.0	10.2	150.5	187.3

--- Vertical Polarization (AV)---

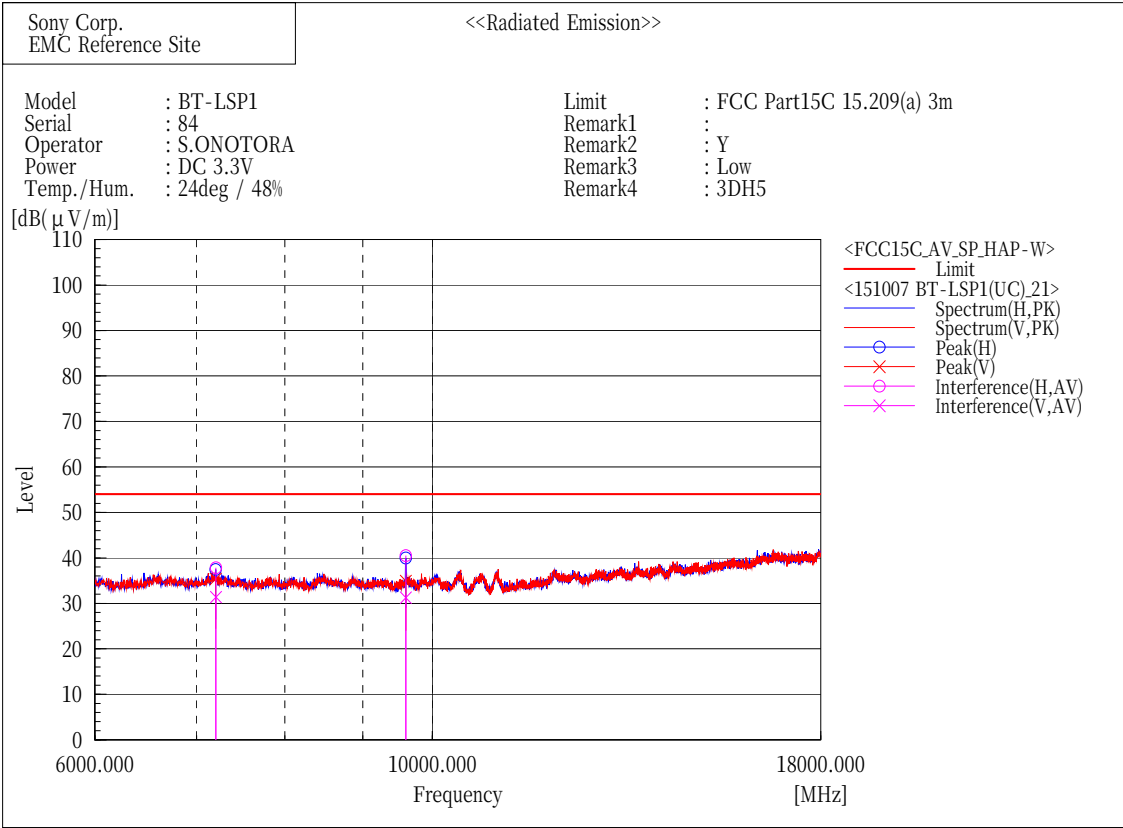
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7440.016	39.0	-8.7	30.3	54.0	23.7	159.4	233.5
2	9917.964	37.9	-5.6	32.3	54.0	21.7	145.6	202.9



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	7439.093	51.6	-8.7	42.9	74.0	31.1	152.0	152.0
2	9917.842	53.4	-5.6	47.8	74.0	26.2	150.5	186.9
--- 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	7439.036	50.3	-8.7	41.6	74.0	32.4	159.4	233.1
2	9918.202	47.5	-5.6	41.9	74.0	32.1	145.6	202.5

[EDR (3DH5) / 2402MHz]



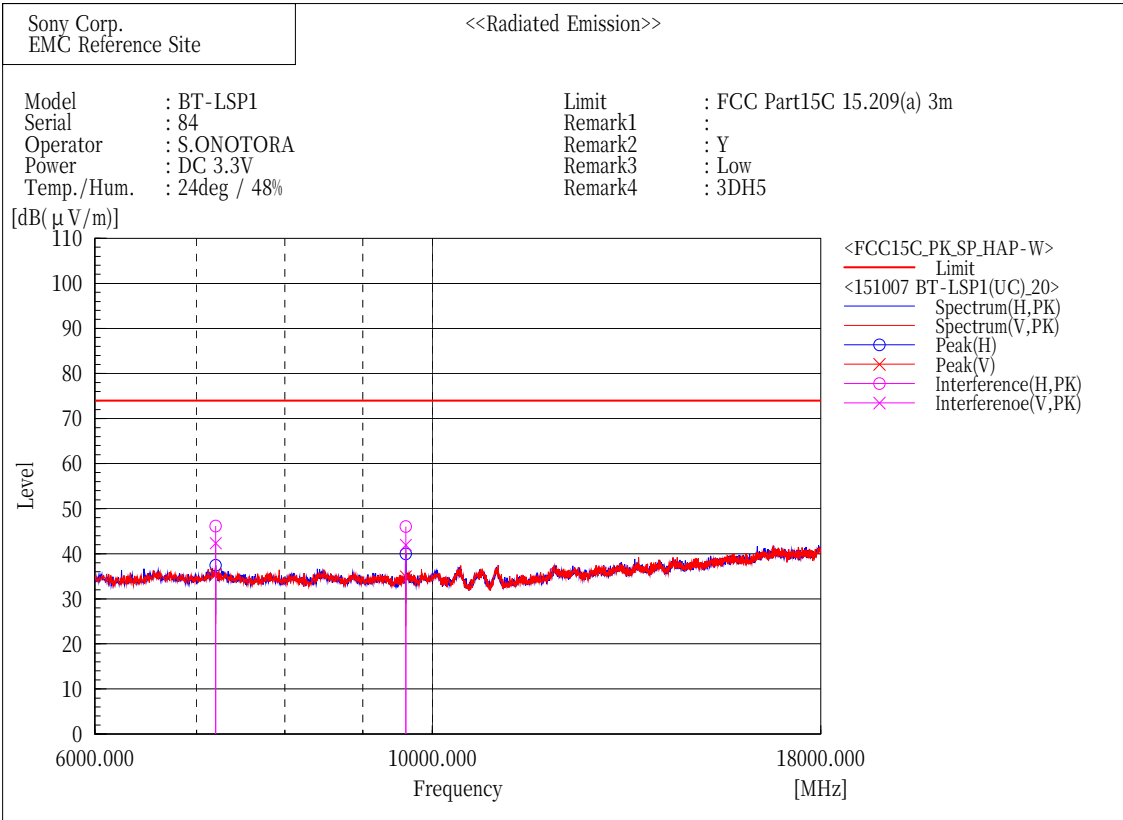
Final Result

--- 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	7206.332	45.9	-8.1	37.8	54.0	16.2	148.7	142.1
2	9605.887	46.9	-6.4	40.5	54.0	13.5	149.3	195.0

--- 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	7205.744	39.5	-8.1	31.4	54.0	22.6	151.2	209.5
2	9605.895	37.7	-6.4	31.3	54.0	22.7	149.9	190.9



Final Result

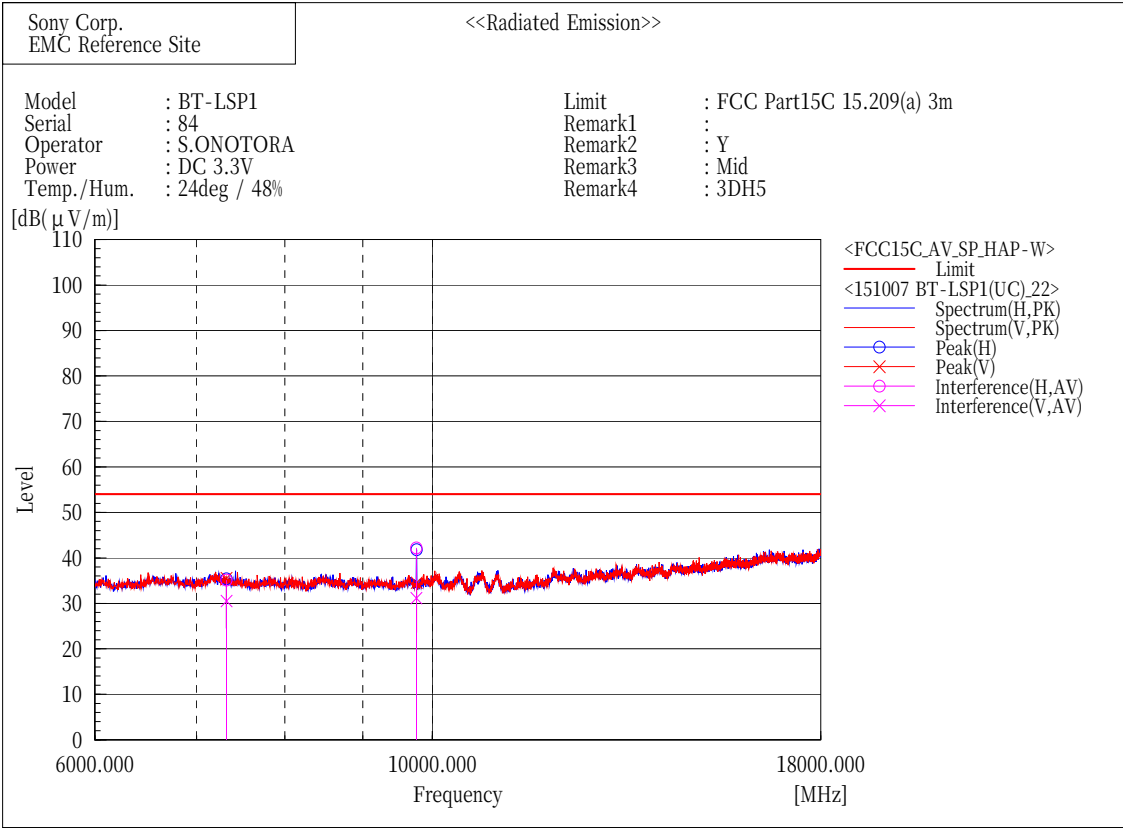
--- Horizontal Polarization (PK)---

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	7205.458	54.3	-8.1	46.2	74.0	27.8	148.7	142.5
2	9606.904	52.5	-6.4	46.1	74.0	27.9	149.3	195.4

--- 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	7204.882	50.5	-8.1	42.4	74.0	31.6	151.2	209.9
2	9606.671	48.4	-6.4	42.0	74.0	32.0	149.9	191.3

[EDR (3DH5) / 2441MHz]



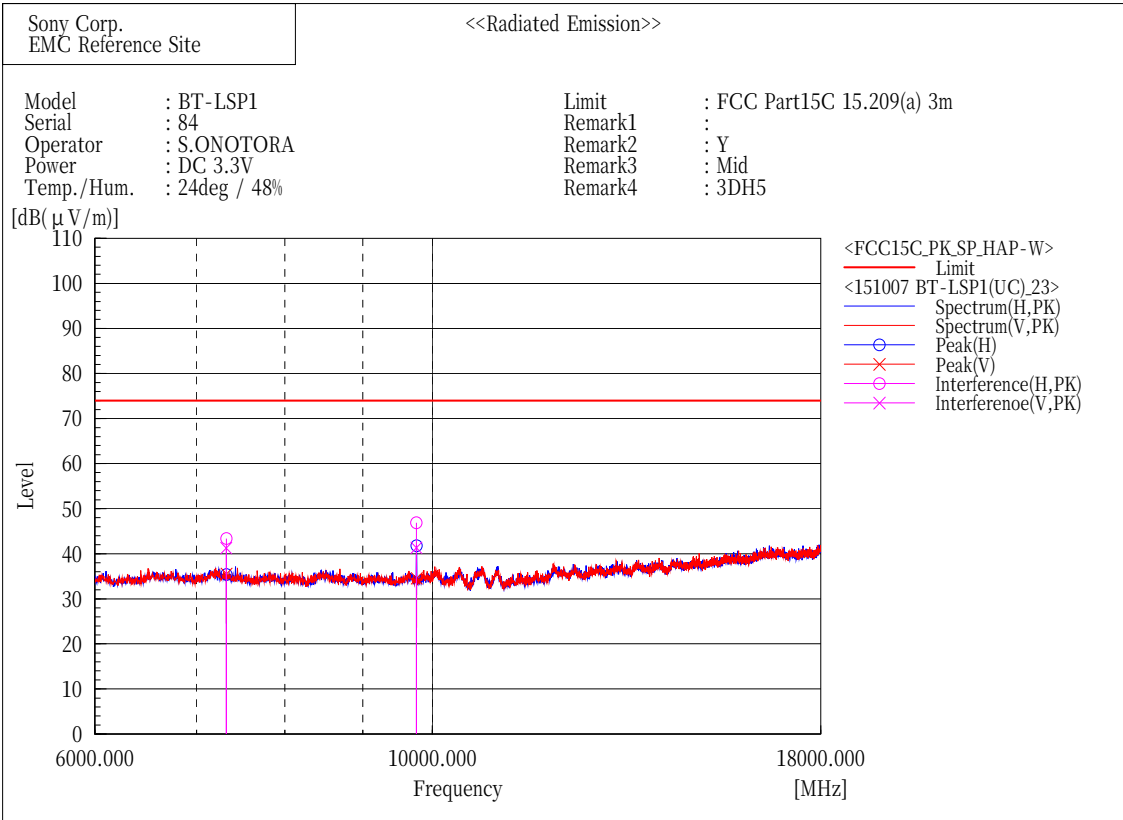
Final Result

--- 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	7323.445	43.5	-8.4	35.1	54.0	18.9	141.4	140.8
2	9761.956	48.3	-6.1	42.2	54.0	11.8	154.2	184.8

--- 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	7323.137	38.9	-8.4	30.5	54.0	23.5	144.3	171.7
2	9762.165	37.3	-6.1	31.2	54.0	22.8	164.0	181.2



Final Result

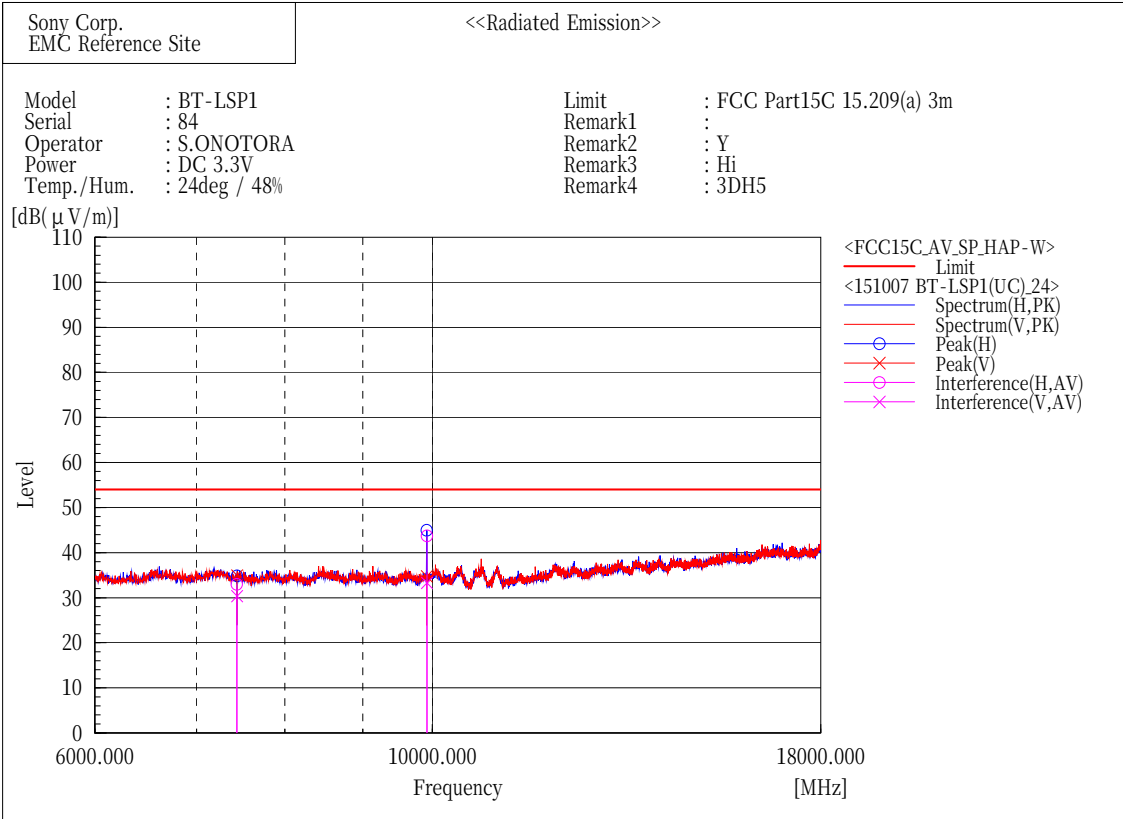
--- Horizontal Polarization (PK)---

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	7322.812	51.8	-8.4	43.4	74.0	30.6	141.4	140.4
2	9761.853	53.0	-6.1	46.9	74.0	27.1	154.2	184.4

--- 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	7321.646	49.7	-8.4	41.3	74.0	32.7	144.3	171.3
2	9761.860	47.5	-6.1	41.4	74.0	32.6	164.0	180.8

[EDR (3DH5) / 2480MHz]



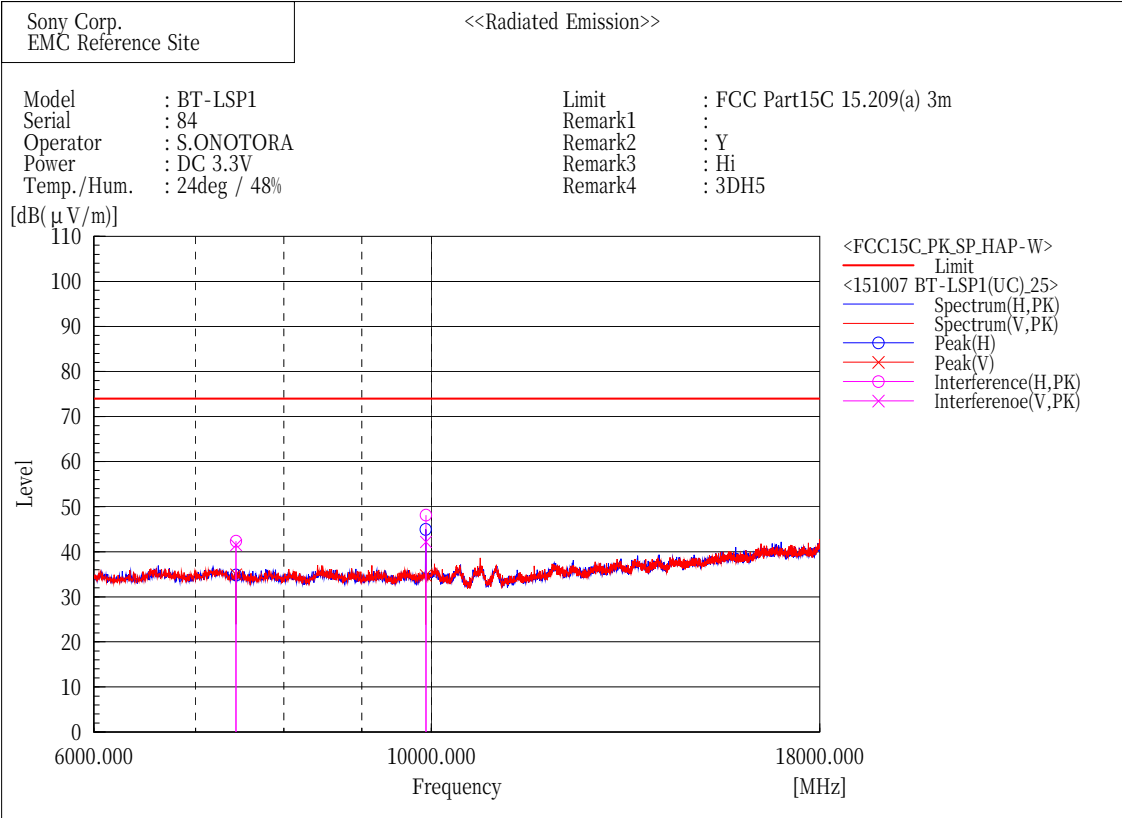
Final Result

--- 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	7439.307	41.7	-8.7	33.0	54.0	21.0	148.2	158.8
2	9918.020	49.3	-5.6	43.7	54.0	10.3	152.0	185.7

--- Vertical Polarization (AV)---

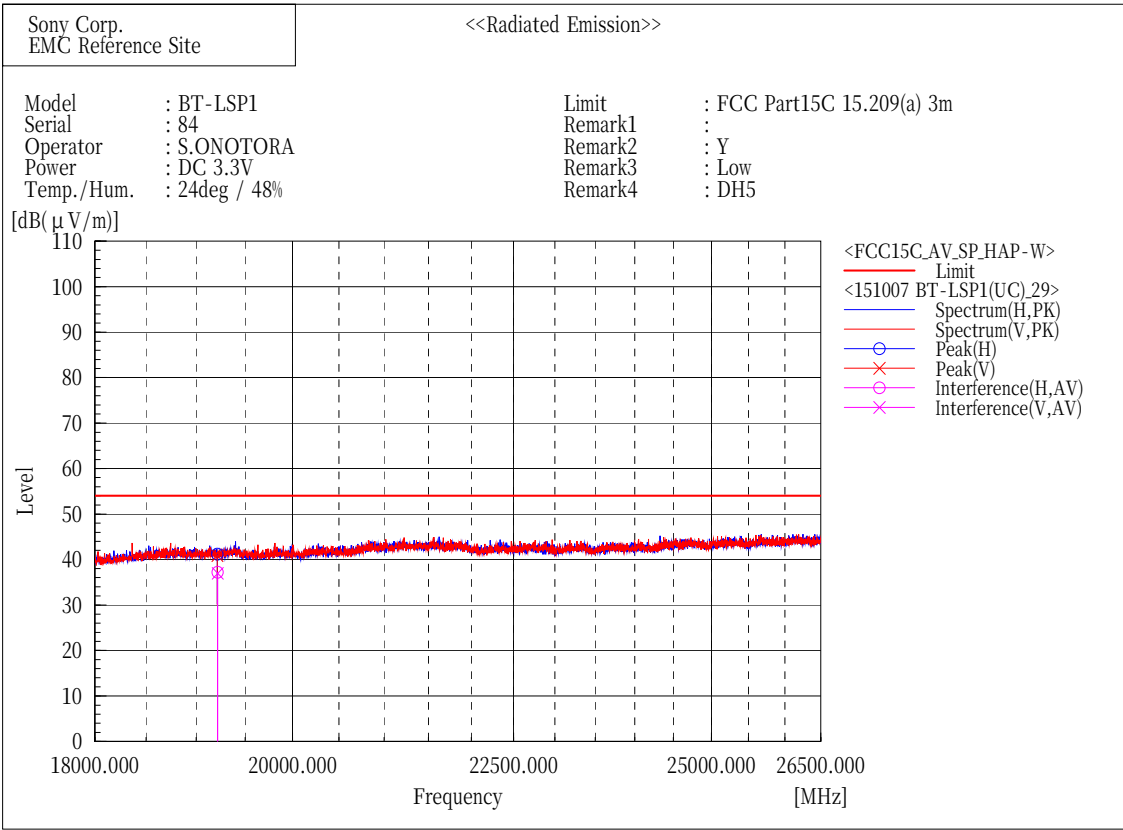
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	7440.671	39.1	-8.7	30.4	54.0	23.6	156.5	130.9
2	9918.013	38.9	-5.6	33.3	54.0	20.7	150.6	165.7



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	7439.821	51.0	-8.7	42.3	74.0	31.7	148.2	158.4
2	9918.171	53.7	-5.6	48.1	74.0	25.9	152.0	185.3
--- 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	7439.885	50.2	-8.7	41.5	74.0	32.5	156.5	130.5
2	9918.136	47.8	-5.6	42.2	74.0	31.8	150.6	165.3

18 GHz – 24.835 GHz
[BDR (DH5) / 2402MHz]



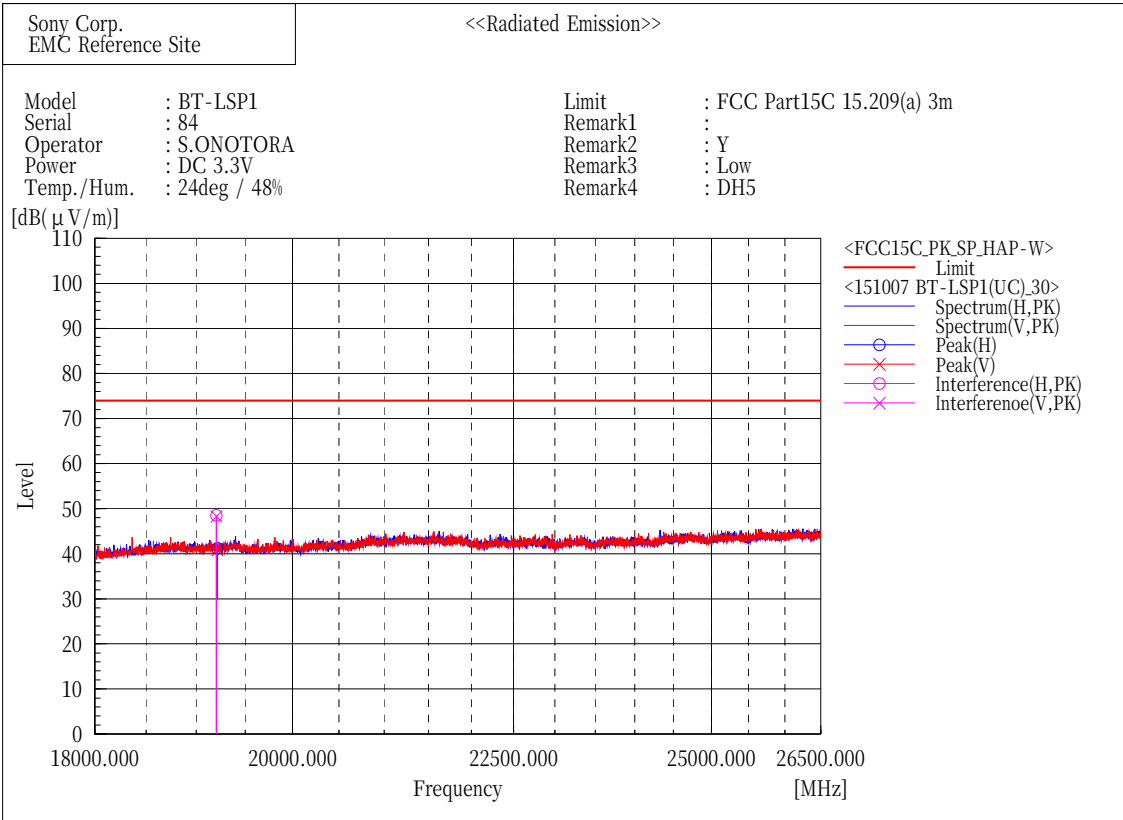
Final Result

--- 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	19217.794	37.8	-0.6	37.2	54.0	16.8	148.8	12.2

--- Vertical Polarization (AV)---

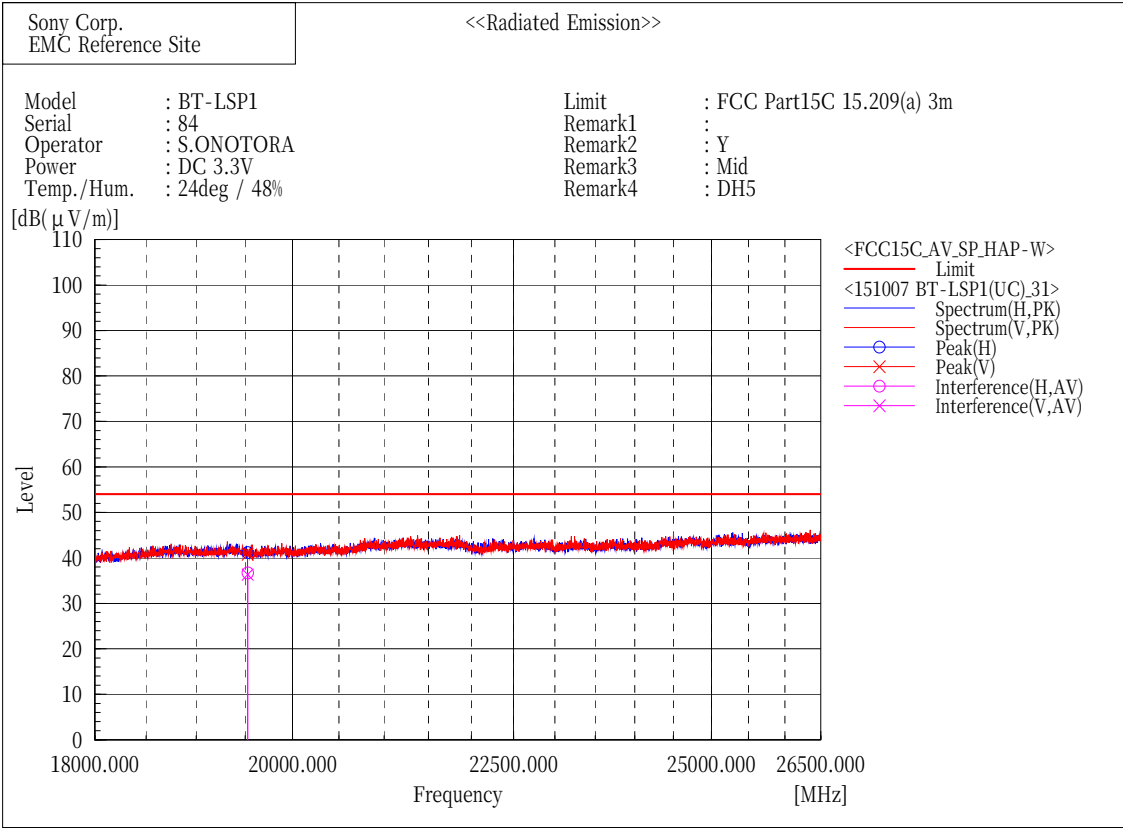
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19216.496	37.6	-0.6	37.0	54.0	17.0	151.6	258.1



Final Result

--- Horizontal Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19205.592	49.1	-0.6	48.5	74.0	25.5	148.8	11.8
--- Vertical Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19205.694	48.9	-0.6	48.3	74.0	25.7	151.6	258.1

[BDR (DH5) / 2441MHz]



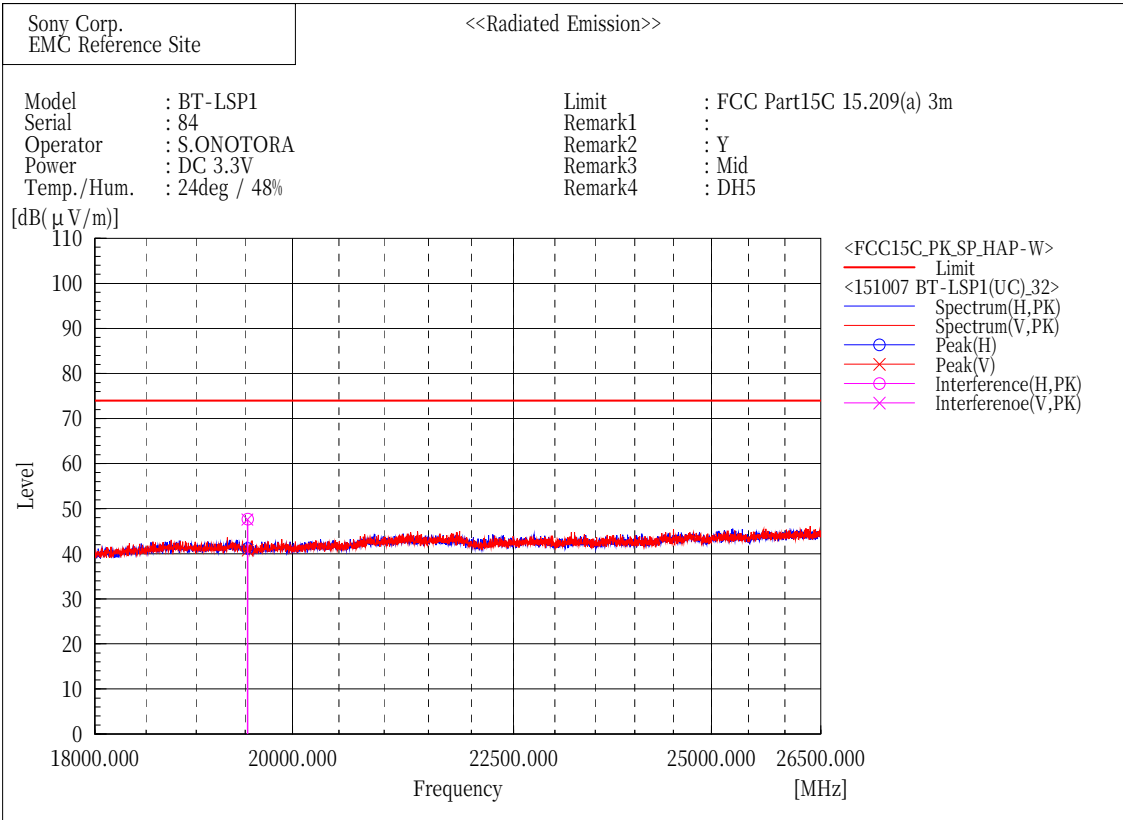
Final Result

--- 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	19528.980	37.3	-0.6	36.7	54.0	17.3	155.5	177.4

--- Vertical Polarization (AV)---

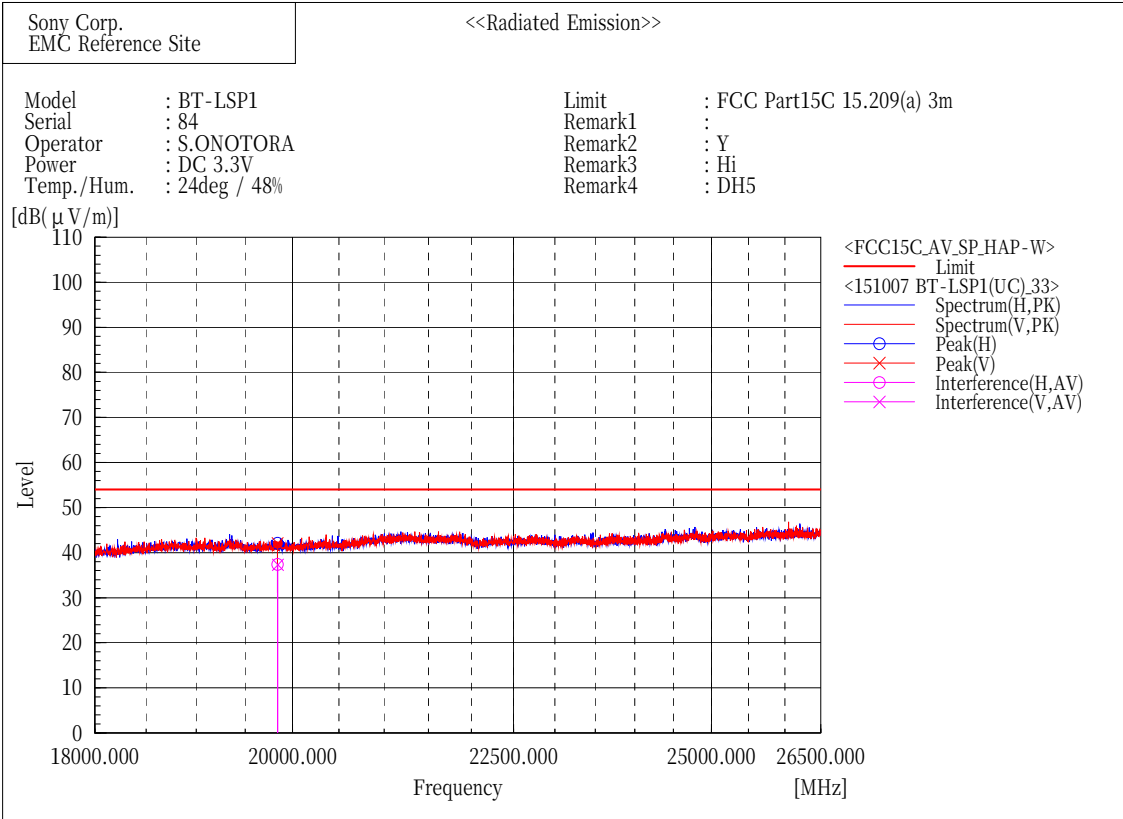
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19527.310	37.0	-0.6	36.4	54.0	17.6	144.2	62.3



Final Result

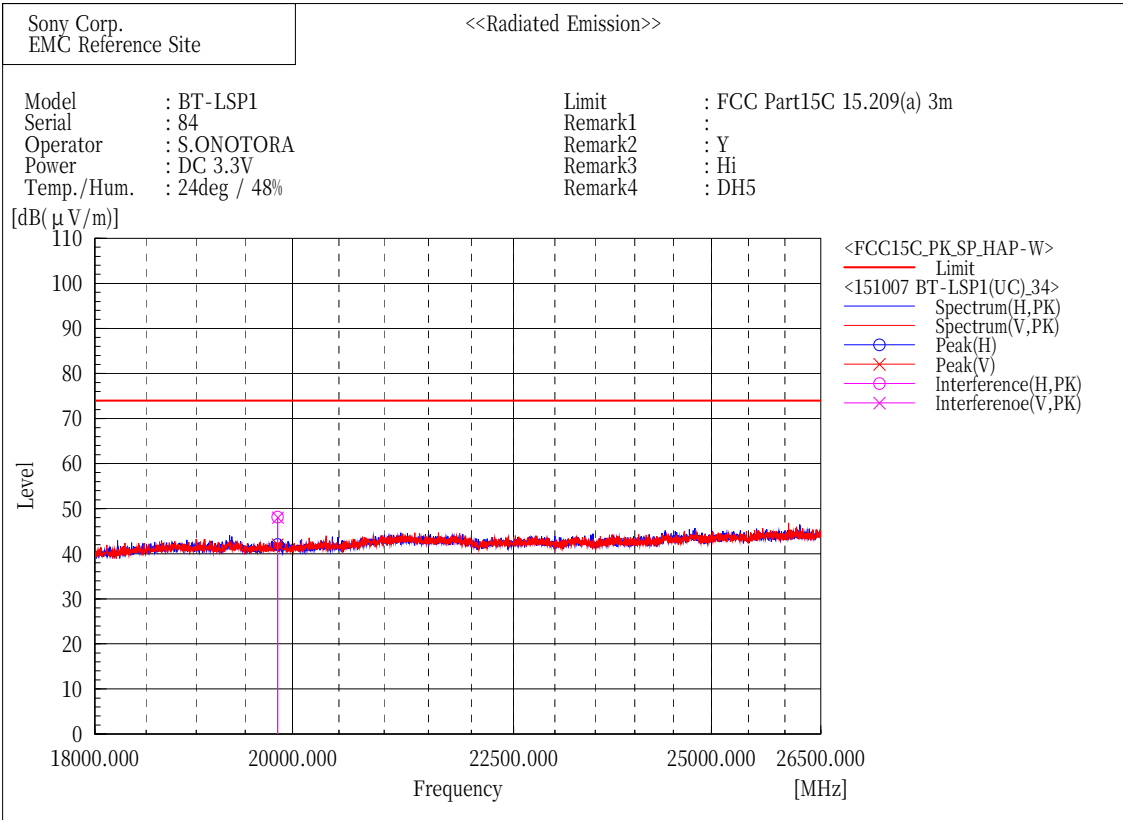
--- Horizontal Polarization (PK)---								
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19530.324	48.3	-0.6	47.7	74.0	26.3	155.5	177.0
--- Vertical Polarization (PK)---								
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19525.408	48.2	-0.6	47.6	74.0	26.4	144.2	61.9

[BDR (DH5) / 2480MHz]



Final Result

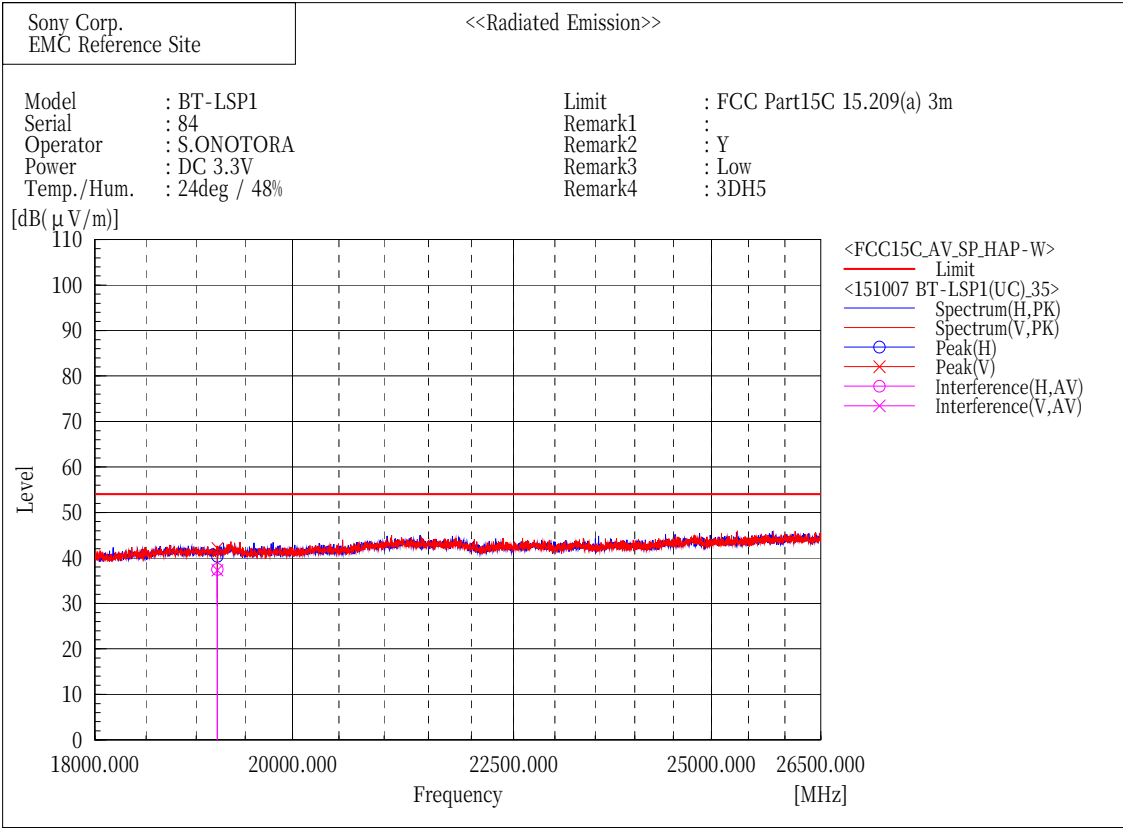
--- Horizontal Polarization (AV)---								
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19841.640	37.8	-0.4	37.4	54.0	16.6	153.8	153.7
--- Vertical Polarization (AV)---								
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19842.364	37.8	-0.4	37.4	54.0	16.7	152.3	346.6



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	19840.814	48.5	-0.4	48.1	74.0	25.9	153.8	153.3
--- 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	19843.128	48.4	-0.4	48.0	74.0	26.0	152.3	346.2

[EDR (3DH5) / 2402MHz]



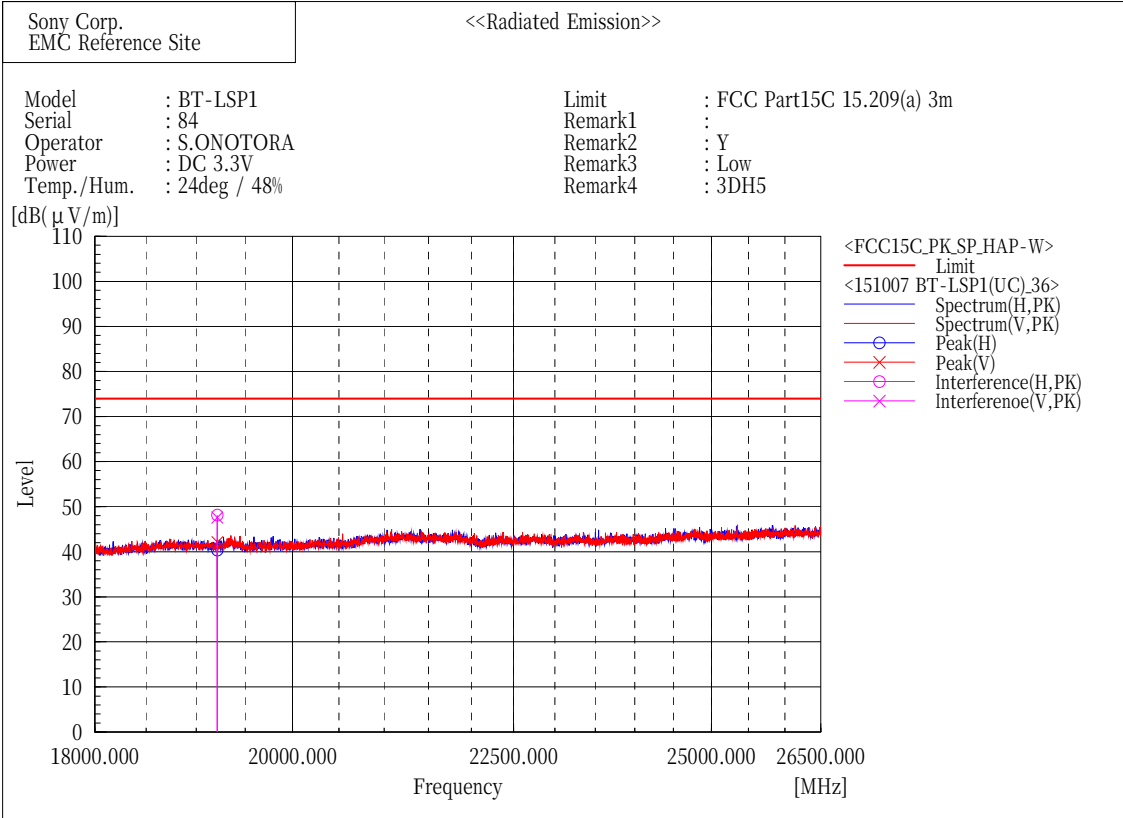
Final Result

--- 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	19214.062	38.1	-0.6	37.5	54.0	16.5	147.0	151.1

--- Vertical Polarization (AV)---

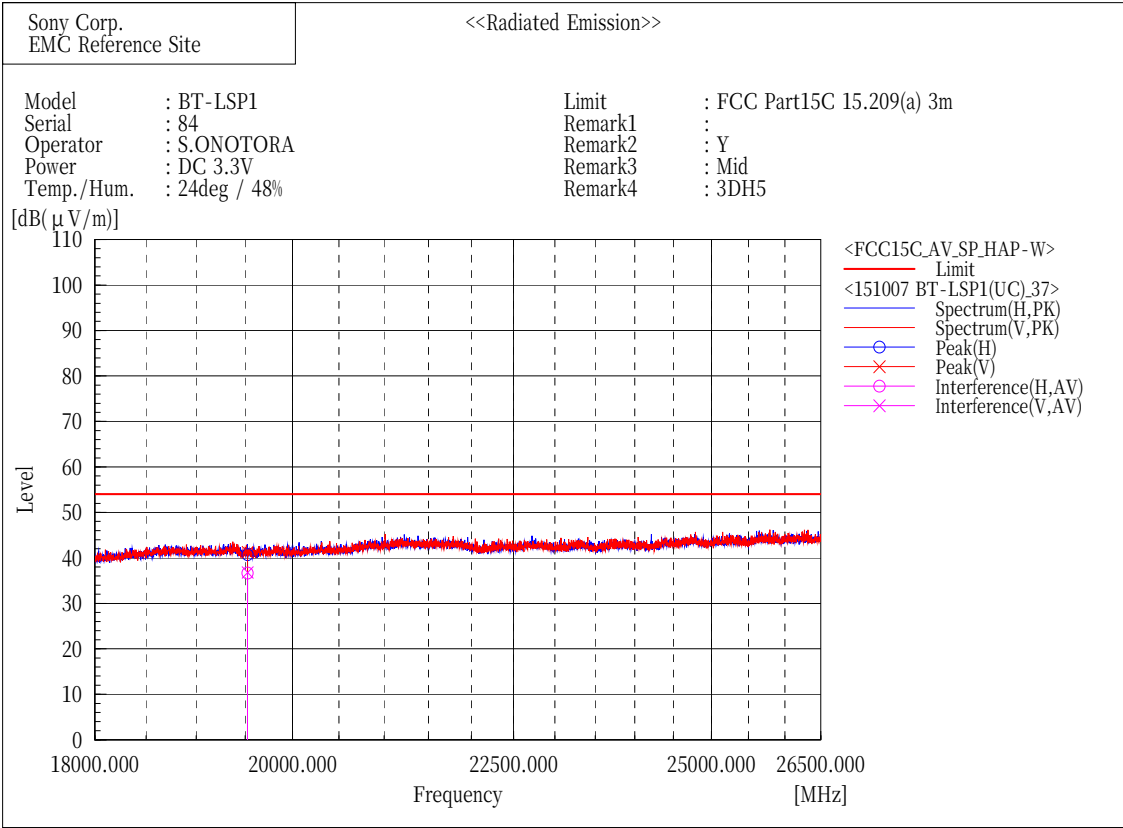
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19214.078	37.9	-0.6	37.3	54.0	16.7	146.3	81.2



Final Result

--- Horizontal Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19214.082	48.7	-0.6	48.1	74.0	25.9	147.0	150.7
--- Vertical Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19213.202	48.2	-0.6	47.6	74.0	26.4	146.3	80.8

[EDR (3DH5) / 2441MHz]



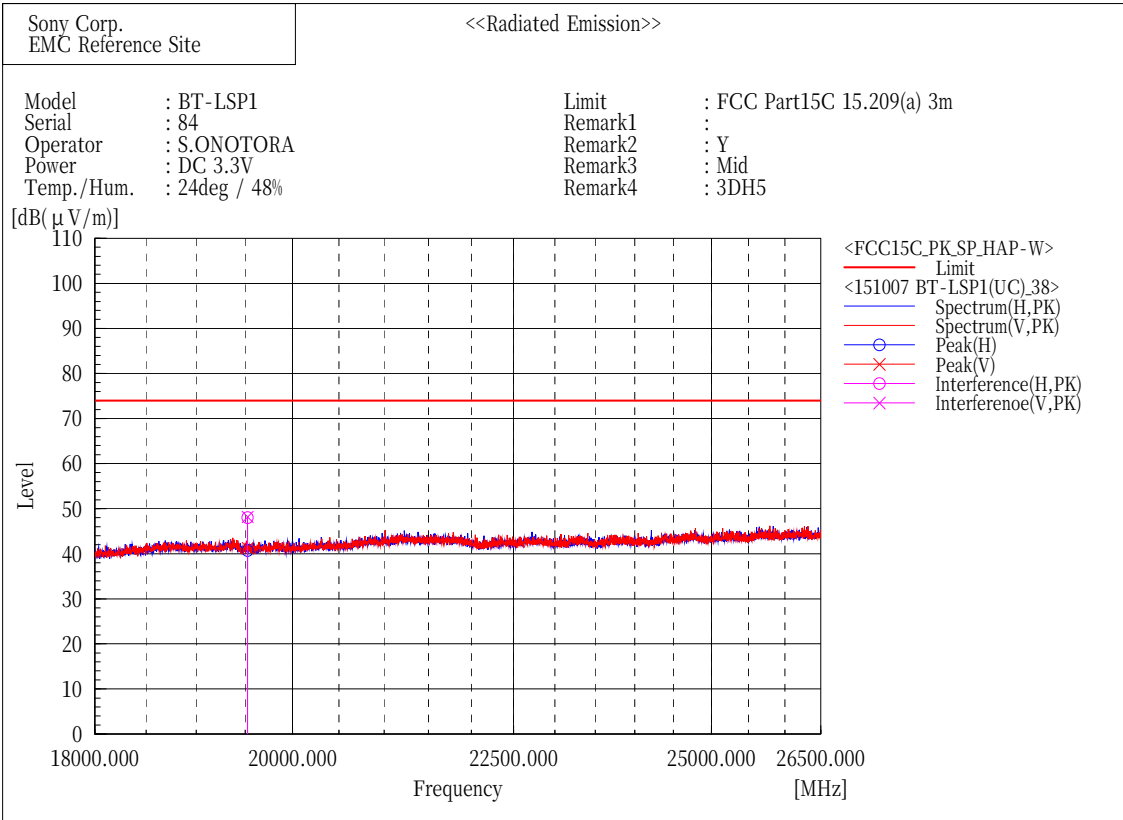
Final Result

--- 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	19527.066	37.2	-0.6	36.6	54.0	17.4	143.7	210.4

--- 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	19525.966	37.4	-0.6	36.8	54.0	17.2	146.6	296.8



Final Result

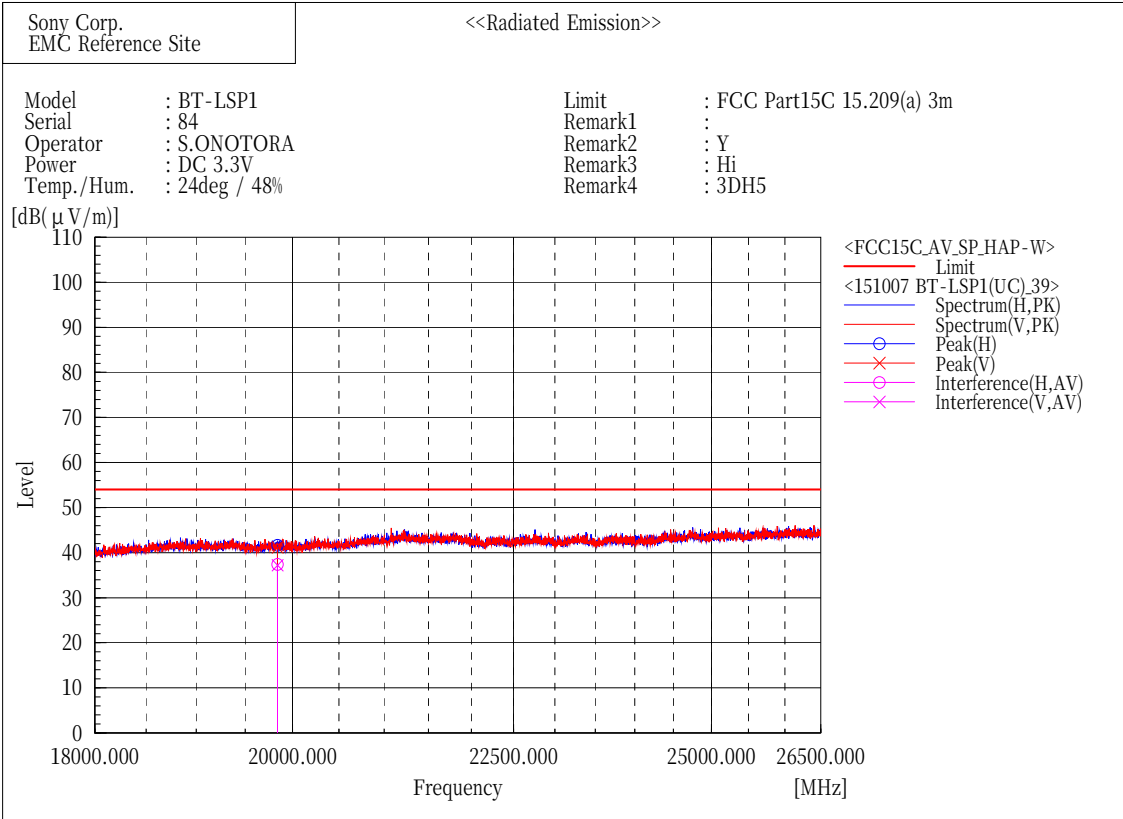
--- Horizontal Polarization (PK)---

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	19526.770	48.6	-0.6	48.0	74.0	26.0	143.7	210.4

--- Vertical Polarization (PK)---

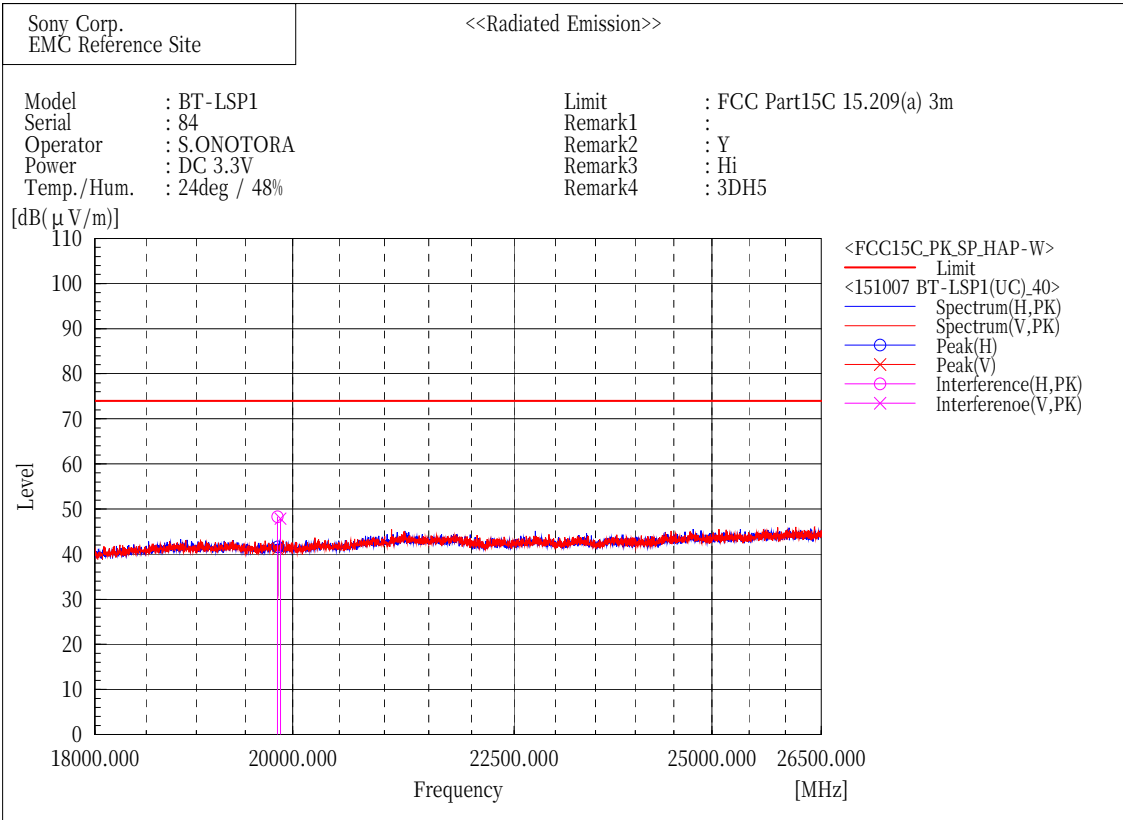
No.	Frequency [MHz]	Reading [dB(μV)]	c.f [dB(1/m)]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]	Height [cm]	Angle [°]
1	19527.450	48.8	-0.6	48.2	74.0	25.8	146.6	296.4

[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	19839.930	37.8	-0.4	37.4	54.0	16.6	155.6	258.4
--- 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	19841.680	37.6	-0.4	37.2	54.0	16.8	140.9	232.1



Final Result

--- Horizontal Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19839.184	48.7	-0.4	48.3	74.0	25.7	155.6	258.0
--- Vertical Polarization (PK)---								
No.	Frequency	Reading	c.f	Result	Limit	Margin	Height	Angle
	[MHz]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	19868.792	48.3	-0.4	47.9	74.0	26.1	140.9	231.7

3.8. Conducted Spurious Emissions for Band Edge

- 1) Ambient temperature

2) Relative humidity

3) Date of measurement

4) Measured by

5) Operating mode
- : 21.0 deg.C

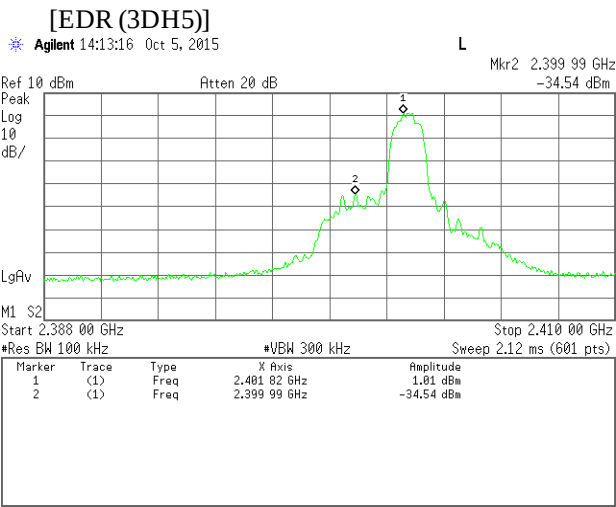
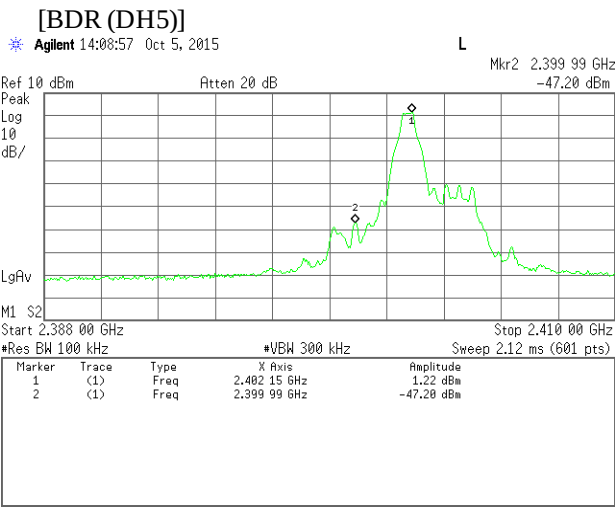
: 52.0 %

: October 5, 2015

: M. KOUGA

: Transmitting mode

Mode		Channel [MHz]	Frequency [MHz]	Reading (Pk) [dBm]	C.F. [dB]	Result (Pk) [dBm]	Limit [dBm]	Margin [dB]
BDR	DH5	2402	2402.15	1.22	-0.28	0.94	-	-
			2399.99	-47.20	-0.28	-47.48	-19.1	28.42
EDR	3DH5	2402	2401.82	1.05	-0.28	0.77	-	-
			2399.99	-34.54	-0.28	-34.82	-19.2	15.59



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	: Ver. 2.0

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

Notes :

- (a) Dwell Time : Transmission duration of 1 hopping.
- (b) Cycle : Number of hopping appearances on the spectrum analyzer.
- (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	: Ver. 2.0

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

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

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 : 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-308
Version : Ver. 2.0

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

[Main Lab. 4th Site Shielded Room]

	Control No.	Equipment	Model No.	Manufacture	Serial No.	Cal.Int.	Last Cal.
☒	-	Shield Room	-	TDK	-	-	-
☒	M515	EMI Receiver	ESCI	Rohde&Schwarz	100606	12	15.07.07
☒	M514	LISN (for EUT)	ENV216	Rohde&Schwarz	100424	12	15.04.07
☐	M505	LISN	ENV216	Rohde&Schwarz	100425	12	15.05.02
☐	M116	LISN	KNW-242	Kyoritsu	8-888-6	12	15.05.02
☐	M026	LISN	KNW-407	Kyoritsu	8-541-1	12	14.12.09
☒	CS043	Ref Site CE Cable SYS	None	EMC/RF Test Lab.	-	12	14.11.20
☒	M664	6dB Attenuator	6806.01A	HUBER	-	12	14.11.20
☒	M619	High Frequency Fuse	MP612A	Anritsu	-	12	14.11.20
☐	M159	50 ohm Terminator	T1302	Stack	-	12	15.08.04
☐	M153	50 ohm Terminator	CT-01	TME	-	12	15.08.04
☐	M165	50 ohm Terminator	T1302	TME	-	12	15.08.04
☒	M690	Thermo Meter	AD-5640A	AND	201304	12	14.10.06

5.2. Antenna-port Conducted Measurements

[Main Lab. 4th Site Shielded Room 1]

	Control No.	Equipment	Model No.	Manufacture	Serial No.	Cal.Int.	Last Cal.
☒		Shield Room	B83117-B2432-T161	Albatross Project	P26428		
☒	W003	Spectrum Analyzer	E4440A	Keysight Technologies	US42511926	12	15.06.11
☐	W006	Power Meter	N1911A	Keysight Technologies	MY50000295	12	15.09.28
☐	W007	Power Sensor	N1922A	Keysight Technologies	MY50180022	12	15.09.28
☐	W029	10dB Attenuator	8493C	Keysight Technologies	76549	12	15.09.26
☒	WC05	RF Cable	SUCOFLEX 102	HUBER + SUHNER	34287	12	15.09.24
☒	M719	Thermo Meter	TH-321	AS ONE	40053	12	15.06.10

5.3. Radiated Spurious Emissions

[Main Lab. 4th Site Semi-Anechoic Chamber]

	Control No.	Equipment	Model No.	Manufacture	Serial No.	Cal.Int.	Last Cal.
☒	M506	EMC Chamber	None	TDK	-	12	15.08.03
☒	M669	EMI Receiver	N9038A	Keysight Technologies	MY51210223	12	15.05.19
☒	M575	EMI Receiver	ESCI	Rohde&Schwarz	100161	12	14.10.23
☒	A043	Biconical Antenna	BBA9106	Schwarzbeck	V5 (91032598)	12	15.08.04
☒	A046	Logperiodic Antenna	UHALP9108A1	Schwarzbeck	0830	12	15.08.06
☒	A056	Horn Antenna	BBHA9120D	Schwarzbeck	1201	12	15.01.26
☒	A057	Horn Antenna	HAP06-18W	TOYO Corporation	00000037	12	15.08.04
☒	A058	Horn Antenna	HAP06-26W	TOYO Corporation	00000016	12	15.01.14
☒	A073	Active Loop Antenna	HFH2-Z2	Rohde & Schwarz	100171	12	15.06.11
☒	CS054	4th Site EMF Cable SYS	None	EMC/RF Test Lab.	-	12	14.11.20
☒	CS039	4th Site RE Cable SYS3	None	EMC/RF Test Lab.	-	12	14.11.20
☒	CS064/065	4th Site RE Cable SYS8	None	EMC/RF Test Lab.	-	12	14.11.20
☒	M706	Attenuator (3 dB)	8491A	Keysight Technologies	MY39267782	12	14.11.20
☒	M510	RF Selector	NS4900	TOYO Corporation	0802-226	12	14.11.20
☒	M620	RF Pre-Amp	8447D	Keysight Technologies	2944A10720	12	14.11.20
☒	M737	GHz Filter Box	FB-G1	Sony EMCS	001	12	15.05.19
☒	M689	Thermo Meter	AD-5640A	AND	201303	12	14.10.06