

EMI TEST REPORT**CONFIDENTIAL**

Project No. : JB-Z0072  
Manufacture : Sony Mobile Communications Inc.  
Address : W Building 1-8-15 Konan, Minato-Ku, Tokyo 108-0075 JAPAN  
Type of Equipment : GSM/ WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC  
FCC ID : PY7-PM0907  
Serial No. : CB5A27HTLV  
Regulation Applied : 47 CFR Part 15 Subpart B, Class B  
Final Judgment : Passed  
Sample Receipt : July 21, 2015  
Testing : July 21 - 30, 2015  
Reported : August 07, 2015

Reported by :

Approved by :



Akari Ohyama  
Test Engineer  
EMC/ RF Test Laboratory Main Lab.  
Design Technology Division  
Sony EMCS Corporation



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.
  - \* Hereby certify that no party is subject to a denial of federal benefits pursuant to section 5301 of the Anti-Drug Abuse Act.
  - \* All test results are traceable to the national and /or international standards.



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 .....                    | 3  |
| 1.3. Tested Methodology .....                        | 3  |
| 1.4. Test Facility .....                             | 7  |
| 2. System Test Configuration .....                   | 8  |
| 2.1. Validation.....                                 | 8  |
| 2.2. Operating Condition.....                        | 8  |
| 2.3. Special Accessories.....                        | 8  |
| 2.4. EUT Modifications.....                          | 8  |
| 2.5. Configuration of Tested System.....             | 9  |
| 3. Conducted Emissions Data.....                     | 11 |
| 4. Radiated Emissions Data.....                      | 13 |
| 5. Method of Calculation.....                        | 24 |
| 5.1. Conducted Emissions Measurement.....            | 24 |
| 5.2. Radiated Emissions Measurement .....            | 24 |
| 6. List of Test Equipment.....                       | 25 |
| 7. Conducted Emissions Measurement Photo(s).....     | 26 |
| 8. Radiated Emissions Measurement Photo(s) .....     | 27 |

### 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)

|                                              |   |                                                                             |                                                    |                                          |
|----------------------------------------------|---|-----------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------|
| Test Sample Condition                        | : | <input type="checkbox"/> Prototype                                          | <input checked="" type="checkbox"/> Pre-production | <input type="checkbox"/> Mass-production |
| Type of Equipment                            | : | GSM/ WCDMA /LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac, ANT+ & NFC          |                                                    |                                          |
| FCC ID                                       | : | PY7-PM0907                                                                  |                                                    |                                          |
| Serial No.                                   | : | CB5A27HTLV                                                                  |                                                    |                                          |
| Category                                     | : | Class B personal computers and peripherals                                  |                                                    |                                          |
| Regulation Frequency Scope                   | : | Conducted Emissions 0.15 MHz - 30 MHz<br>Radiated Emissions 30 MHz - 10 GHz |                                                    |                                          |
| Power Rating of EUT                          | : | DC 3.8 V<br>The EUT was supplied with power from Desktop PC or TV.          |                                                    |                                          |
| Highest Frequency used in the EUT            | : | 2000 MHz                                                                    |                                                    |                                          |
| EUT Grounding                                | : | None                                                                        |                                                    |                                          |
| Similar model (to be covered by this Report) |   |                                                                             |                                                    |                                          |
| Model No.                                    | : | None                                                                        |                                                    |                                          |

## 1.2. Summary of Test Result

|                                            |                                                |                                         |
|--------------------------------------------|------------------------------------------------|-----------------------------------------|
| Conducted Emissions                        | <input checked="" type="checkbox"/> Applicable | <input type="checkbox"/> Not Applicable |
| The requirements are                       | <input checked="" type="checkbox"/> Passed     | <input type="checkbox"/> Not Passed     |
| Measurement of Frequency 0.15 MHz - 30 MHz |                                                |                                         |
| Worst Point      Freq. <u>0.195</u> MHz    | Line <u>L1</u>                                 | Margin <u>8.6 dB (AV)</u>               |
| Radiated Emissions (below 1 GHz)           | <input checked="" type="checkbox"/> Applicable | <input type="checkbox"/> Not Applicable |
| The requirements are                       | <input checked="" type="checkbox"/> Passed     | <input type="checkbox"/> Not Passed     |
| Measurement of Frequency 30 MHz - 1 GHz    |                                                |                                         |
| Worst Point      Freq. <u>30.623</u> MHz   | Polarization <u>Vertical</u>                   | Margin <u>6.0 dB (QP)</u>               |
| Radiated Emissions (above 1 GHz)           | <input checked="" type="checkbox"/> Applicable | <input type="checkbox"/> Not Applicable |
| The requirements are                       | <input checked="" type="checkbox"/> Passed     | <input type="checkbox"/> Not Passed     |
| Measurement of Frequency 1 GHz - 10 GHz    |                                                |                                         |
| Worst Point      Freq. <u>1598.872</u> MHz | Polarization <u>Horizontal</u>                 | Margin <u>6.0 dB (AV)</u>               |

### 1.3. Tested Methodology

|                                      |                                                                                       |
|--------------------------------------|---------------------------------------------------------------------------------------|
| Test Standard                        | : 47 CFR Part15 Subpart B, Class B                                                    |
| Test Distance for Radiated Emissions | : <input checked="" type="checkbox"/> 3 m <input type="checkbox"/> 10 m (below 1 GHz) |
|                                      | : <input checked="" type="checkbox"/> 3 m    (above 1 GHz)                            |

## CE (Conducted Emissions)

TEST PROCEDURE

ANSI C63.4: 2009

Limit

§15.107 (a) Except for Class A digital devices, the equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

| Frequency range<br>(MHz) | Limits (dB $\mu$ V) |          |
|--------------------------|---------------------|----------|
|                          | Quasi-peak limits   | Average  |
| 0.15 to 0.50             | 66 to 56            | 66 to 46 |
| 0.50 to 5                | 56                  | 46       |
| 5 to 30                  | 60                  | 50       |

Note:

1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

## RE (Radiated Emissions)

TEST PROCEDURE

ANSI C63.4: 2009

The highest clock frequency generated or used in the EUT is 1.0 GHz therefore the frequency range was investigated from 30 MHz to 18 GHz.

Limit

§15.109 (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency range<br>(MHz) | Quasi-peak limits<br>(dB $\mu$ V/m) |
|--------------------------|-------------------------------------|
| 30 to 88                 | 40                                  |
| 88 to 216                | 43.5                                |
| 216 to 960               | 46                                  |
| Above 960 MHz            | 54                                  |

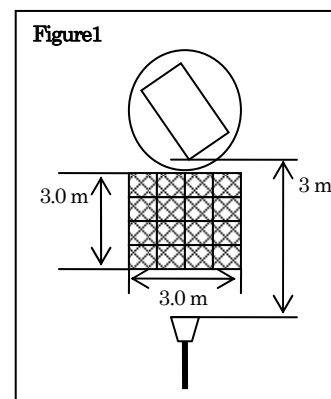
Note: The lower limit shall apply at the transition frequency.

## CE (Conducted Emissions)

1. The rear of the top of the non-conductive table (EUT table) made of (☐ FRP, ☒ wood, ☐ styrene foam, ☐ other non-conductive material) was placed 0.4 m from the vertical ground reference plane on the one of the walls of the shielded room.
2. The dimensions of the EUT table were 0.8 m high, 1.5 m long and 1.0 m wide.
3. The connection of the EUT to the line impedance stabilization network (LISN) was performed.
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 shall be 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 ground reference plane shall be folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between the horizontal ground reference plane and the EUT table.
8. Find the worst mode and set-up of the EUT according to the following measurement.  
How to find the worst operation mode:  
Connect all peripherals and check all operation modes of the EUT.  
The worst point can be observed with the spectrum analyzer (peak detector mode, RBW: 10 kHz).  
How to find the worst set-up:  
Connect all peripherals and exchange the position of peripherals and cables.  
The worst point can be observed with the spectrum analyzer (peak detector mode, RBW: 10 kHz)
9. With the condition mentioned in the above 8, the measurement in peak detector mode was carried out with the spectrum analyzer.
10. Choose the 6 worst points on the data of the spectrum analyzer.
11. Then, the measurements in quasi-peak detector mode (RBW: 9 kHz) and average detector mode (RBW: 9 kHz) on those points were carried out with the EMI test receiver.
12. The measurement has been conducted with both line and neutral power supply polarization.

## RE (Radiated Emissions)

1. The center of the top of the non-conductive table (EUT table) made of (☐ FRP, ☐ wood, ☒ 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 high, 1.5 m long and 1.0 m wide.
3. For measurement frequency above 1000 MHz, a minimum area of 3.0 m by 3.0 m of the ground plane shall be covered by RF absorbing material. (see Figure 1)



4. Find the worst operation mode and set-up of the EUT according to the following measurement.  
How to find the worst operation mode:  
Connect all peripherals and check all operation modes of the EUT while rotating the turntable and moving the antenna up and down.  
The worst point can be observed with the spectrum analyzer (peak detector mode, 3 dB RBW: 100 kHz).  
How to find the worst set-up:  
Connect all peripherals and exchange the position of peripherals and cables while rotating the turntable and moving the antenna up and down.  
The worst point can be observed with the spectrum analyzer (peak detector mode, 3 dB RBW: 100 kHz).
5. With the condition mentioned in the above 4, the antenna and the turntable must be actuated with the following range, the measurement in peak detector mode was carried out with the spectrum analyzer.
 

|                             |                                           |
|-----------------------------|-------------------------------------------|
| Antenna                     | : Biconical Antenna & Logperiodic Antenna |
| Antenna scanning range      | : 1 - 4 m, Horizontal and Vertical        |
| Rotating angle of turntable | : 360 degrees                             |

For measurement frequency above 1000 MHz, place the measurement antenna so that the EUT system is covered within 3dB beam width of the measurement antenna at the specified measurement distance. When the beam widths of the measurement antenna are smaller than the width of the EUT system, move the measurement antenna to the left and right. The measurement distance shall be more than the Rayleigh distance.  
The measurement antenna aimed at the source of emission to get the maximum emission, and the final measurement is performed at the angle where the maximum emission is observed.

6. Choose the 6 worst points on the data of the spectrum analyzer.
7. Among the points chosen in the above 6, the EUT's maximum emissions were observed with the following method.  
First, set the antenna height to 1 m and rotate the turntable until the maximum emission was observed. Then, move the antenna up and down to observe the maximum emission without rotating the turntable. Again with that position, rotate the turntable to find the worst point without moving the antenna. For measurement frequency above 1000 MHz, use the same antenna position as the preliminary testing to the final test.
8. Then measurement frequency below 1000 MHz, the measurement in quasi-peak detector mode (6 dB RBW: 120 kHz) on that worst points were carried out with the EMI test receiver.  
Then measurement frequency above 1000 MHz, the measurement in peak detector mode (3 dB RBW: 1 MHz) and average detector mode (3 dB RBW: 1 MHz) on that worst points were carried out with the spectrum analyzer.

## 1.4. 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

## Conducted Emissions

## Shielded Room

☒ EMC Site ☐ 4th Site

## Radiated Emissions

## Semi-Anechoic chamber

☒ EMC Site ☐ 4th Site

## A2LA Accreditation for Test Facility

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

Effective dates: 2013-09-30 through 2015-10-31

## FCC Registration for Test Facility

Designation Number : JP4005  
Test Firm Registration Number : 633008

## 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. Operating Condition

Power Supply Voltage: AC 120 V, 60 Hz

PC Communication mode  
- Copy files from EUT to PC.

MHL mode  
- Copy files from EUT to 4KTV.

### 2.3. Special Accessories

Special accessories needed for connecting the EUT to achieve compliance:

None

Note :

### 2.4. EUT Modifications

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

Responsible Party Signature

\_\_\_\_\_

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



## 2.5. Configuration of Tested System

The equipment under test (EUT) consists of :

| Symbol | Item | Manufacturer               | FCC ID     | Serial No. |
|--------|------|----------------------------|------------|------------|
| A      | EUT  | SONY Mobile Communications | PY7-PM0907 | CB5A27HTLV |

The measurement was carried out with the following support equipment connected :

| Symbol | Item         | Manufacturer | Model No.   | FCC ID | Serial No.      |
|--------|--------------|--------------|-------------|--------|-----------------|
| B      | Desktop PC   | DELL         | D13M        | DoC    | 5VLN522         |
| C      | USB Mouse    | DELL         | MS111L      | DoC    | -               |
| D      | USB Keyboard | DELL         | KB212-B     | DoC    | -               |
| E      | Monitor      | Samsung      | 204B        | DoC    | BR20HVRP500521H |
| F      | Headphones   | SONY         | MDR-NC31E   | DoC    | -               |
| G      | 10M/100M HUB | BUFFALO      | LSW-TX-5NP  | N/A    | 16481504774092  |
| H      | TV           | SONY         | XBR-49X850B | DoC    | 5402606         |

DoC : Device for Declaration of Conformity

## Type of Cable

| Symbol | Description             | Identification<br>(Manufacturer etc.) | Shielded<br>YES / NO | Ferrite<br>Core | Bundled  | Length<br>(m) |
|--------|-------------------------|---------------------------------------|----------------------|-----------------|----------|---------------|
| 1      | Headphone Cable (for F) | -                                     | YES                  | NO              | -        | 1.5           |
| 2      | USB Cable (A-microB)    | -                                     | YES                  | NO              | -        | 1             |
| 3      | USB Cable (for C)       | -                                     | YES                  | NO              | -        | 1.8           |
| 4      | USB Cable (for D)       | -                                     | YES                  | YES             | -        | 2             |
| 5      | AC Cable (for B)        | -                                     | NO                   | NO              | Bundled# | 1.8           |
| 6      | Ether Cable             | -                                     | NO                   | NO              | -        | 1             |
| 7      | AC Cable (for G)        | -                                     | NO                   | NO              | -        | 1.8           |
| 8      | D-Sub Cable             | -                                     | YES                  | YES             | Bundled  | 2             |
| 9      | MHL Cable               | SONY                                  | YES                  | NO              | Bundled  | 3             |
| 10     | AC Cable (for H)        | -                                     | NO                   | NO              | -        | 1.5           |
| 11     | AC Cable (for E)        | -                                     | NO                   | NO              | -        | 2             |

Note

#: Conducted Emission measurement only.

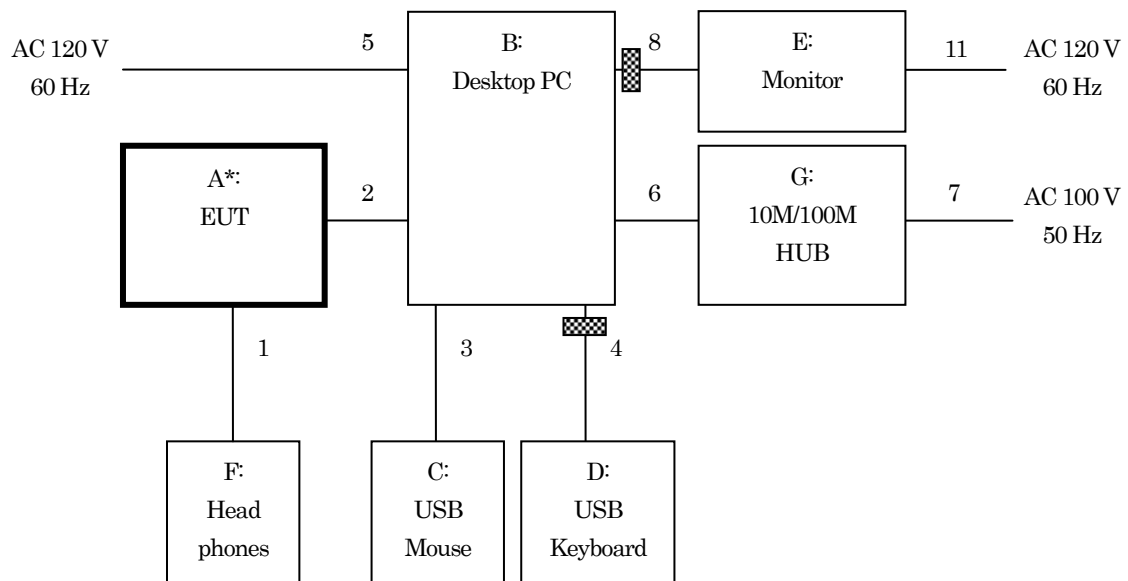
## Interconnecting Cables

Cables that hang closer than 40 cm to the ground plane is folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between the ground plane and the EUT table, shown "Bundled" in the above table.

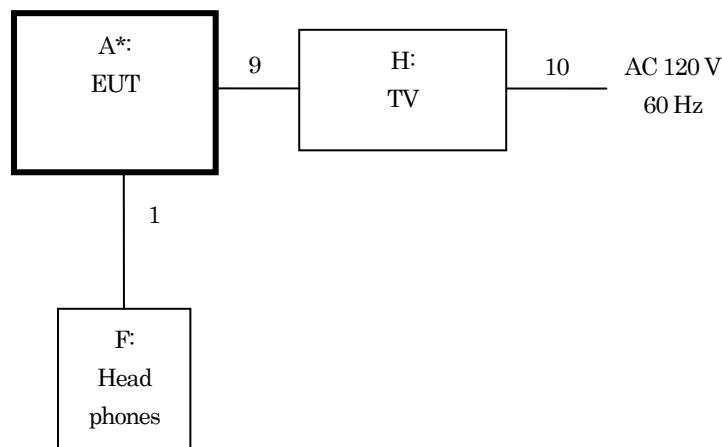
## System configuration

\* : EUT     : Ferrite core (Fixed)

## PC Communication mode



## MHL mode



## Interconnecting Cables

Cables that hang closer than 40 cm to the ground plane is folded back and forth forming a bundle 30 to 40 cm long, hanging approximately in the middle between the ground plane and the EUT table.

Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.

### 3. Conducted Emissions Data

The following data lists the significant emissions frequencies measured levels, correction factor (includes cable and LISN corrections), the corrected reading, the limit, plus margin.

Explanation of the correction factor is given in Section 5.

Notes :      C.F. : Correction Factor  
              PK : Peak detector mode (RBW: 10 kHz) of the spectrum analyzer  
              QP : Quasi-Peak detector mode (RBW: 9 kHz) of the EMI test receiver  
              AV : Average detector mode (RBW: 9 kHz) of the EMI test receiver

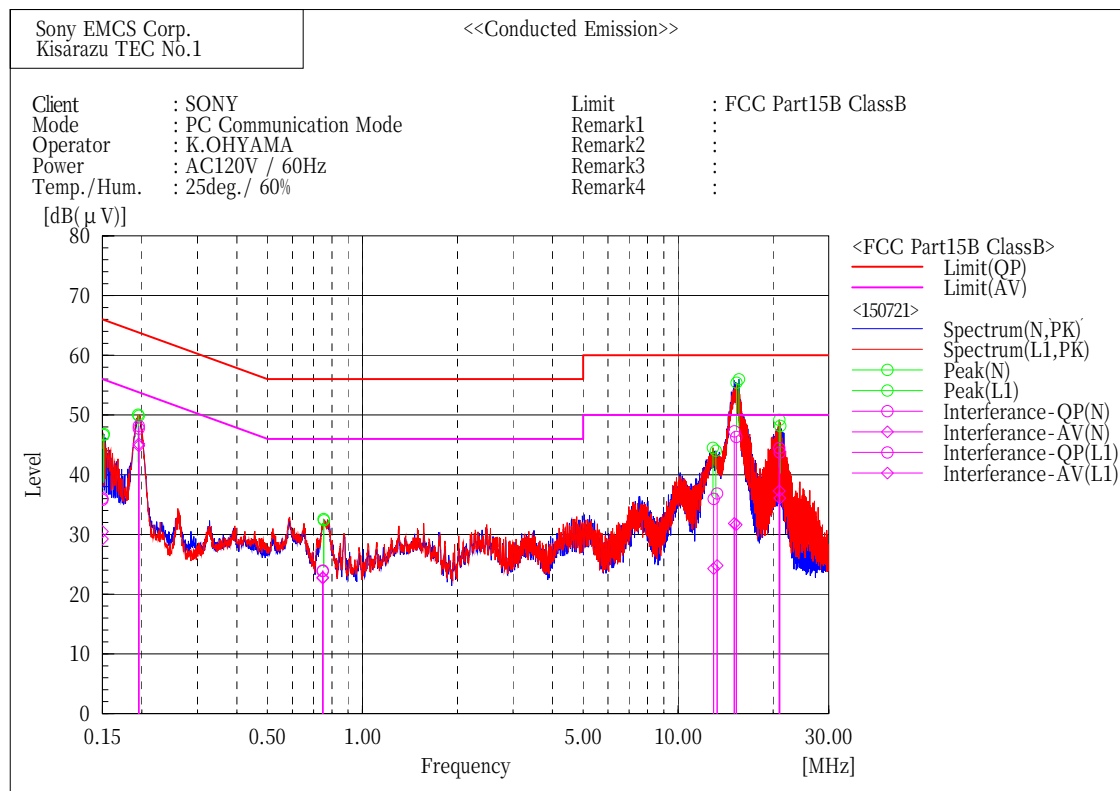
Test Engineer:

Koji Ohyama

Typed/ Print Name : Koji Ohyama

Date : July 21, 2015

## PC Communication mode



## 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     | 19.9     | 13.4     | 15.9 | 35.8     | 29.3     | 66.0     | 56.0     | 30.2   | 26.7   |
| 2   | 0.195     | 31.6     | 28.7     | 16.1 | 47.7     | 44.8     | 63.8     | 53.8     | 16.1   | 9.0    |
| 3   | 0.748     | 7.9      | 6.7      | 16.0 | 23.9     | 22.7     | 56.0     | 46.0     | 32.1   | 23.3   |
| 4   | 13.297    | 20.6     | 8.6      | 16.2 | 36.8     | 24.8     | 60.0     | 50.0     | 23.2   | 25.2   |
| 5   | 15.280    | 30.0     | 15.3     | 16.3 | 46.3     | 31.6     | 60.0     | 50.0     | 13.7   | 18.4   |
| 6   | 20.987    | 27.3     | 19.7     | 16.4 | 43.7     | 36.1     | 60.0     | 50.0     | 16.3   | 13.9   |

--- 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     | 20.1     | 14.6     | 15.9 | 36.0     | 30.5     | 66.0     | 56.0     | 30.0   | 25.5   |
| 2   | 0.195     | 32.0     | 29.1     | 16.1 | 48.1     | 45.2     | 63.8     | 53.8     | 15.7   | 8.6    |
| 3   | 0.750     | 7.9      | 6.8      | 16.0 | 23.9     | 22.8     | 56.0     | 46.0     | 32.1   | 23.2   |
| 4   | 12.968    | 19.7     | 8.0      | 16.2 | 35.9     | 24.2     | 60.0     | 50.0     | 24.1   | 25.8   |
| 5   | 15.070    | 31.1     | 15.6     | 16.2 | 47.3     | 31.8     | 60.0     | 50.0     | 12.7   | 18.2   |
| 6   | 20.922    | 28.1     | 20.8     | 16.4 | 44.5     | 37.2     | 60.0     | 50.0     | 15.5   | 12.8   |

#### 4. Radiated Emissions Data

The following data lists the significant emissions frequencies measured levels, correction factor (includes cable and Antenna corrections), the corrected reading, the limit, plus margin.

Explanation of the correction factor is given in Section 5.

Notes :      C.F. : Correction Factor  
              PK : Peak detector mode (below 1GHz RBW: 100 kHz, above 1GHz RBW: 1 MHz)  
                      of the spectrum analyzer  
              QP : Quasi-Peak detector mode (RBW: 120 kHz) of the EMI test receiver  
              AV : Average detector mode (RBW: 1 MHz) of the spectrum analyzer

\* Although "Height" in radiated emissions data, which shows the height of the boom of the antenna mast, might exceed 400.0 cm because of the antenna tilt positioner attached to the edge of the boom for the bore-sighting measurement, the height of the reference point of the antenna does not exceed 400.0 cm.

Test Engineer:

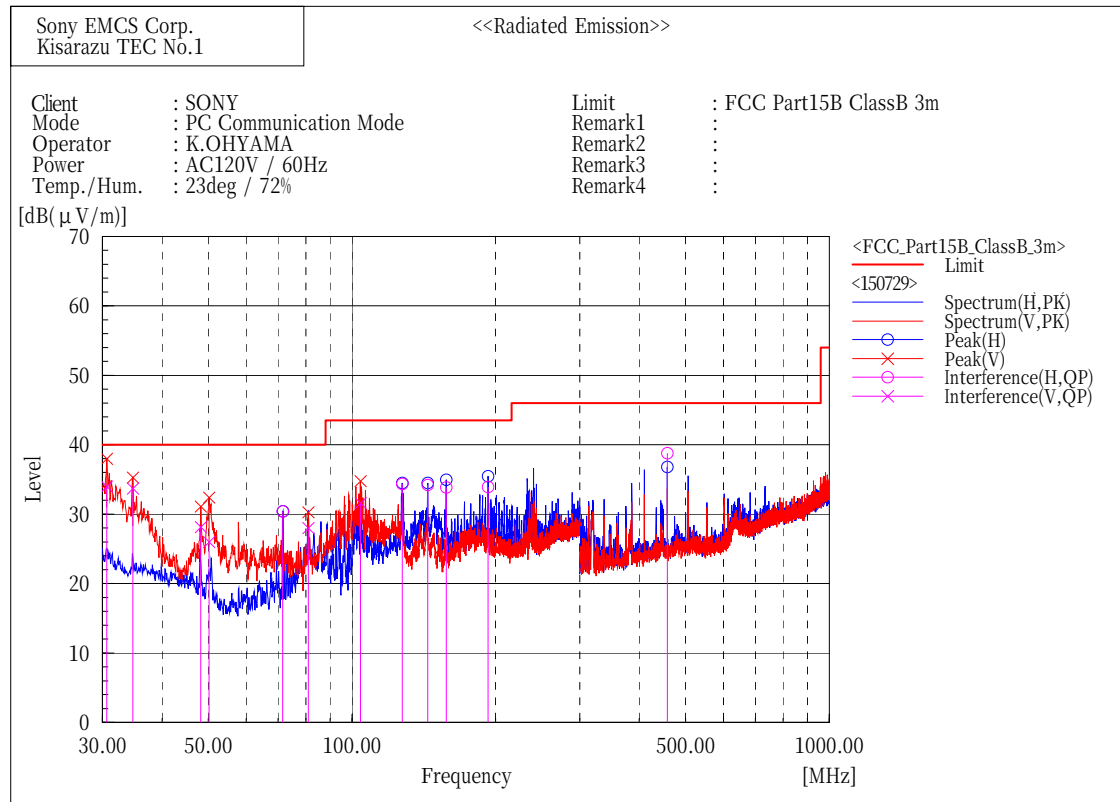
Koji Ohyama

Typed/ Print Name : Koji Ohyama

Date : July 21 - 30, 2015

Below 1 GHz

PC Communication mode



## Final Result

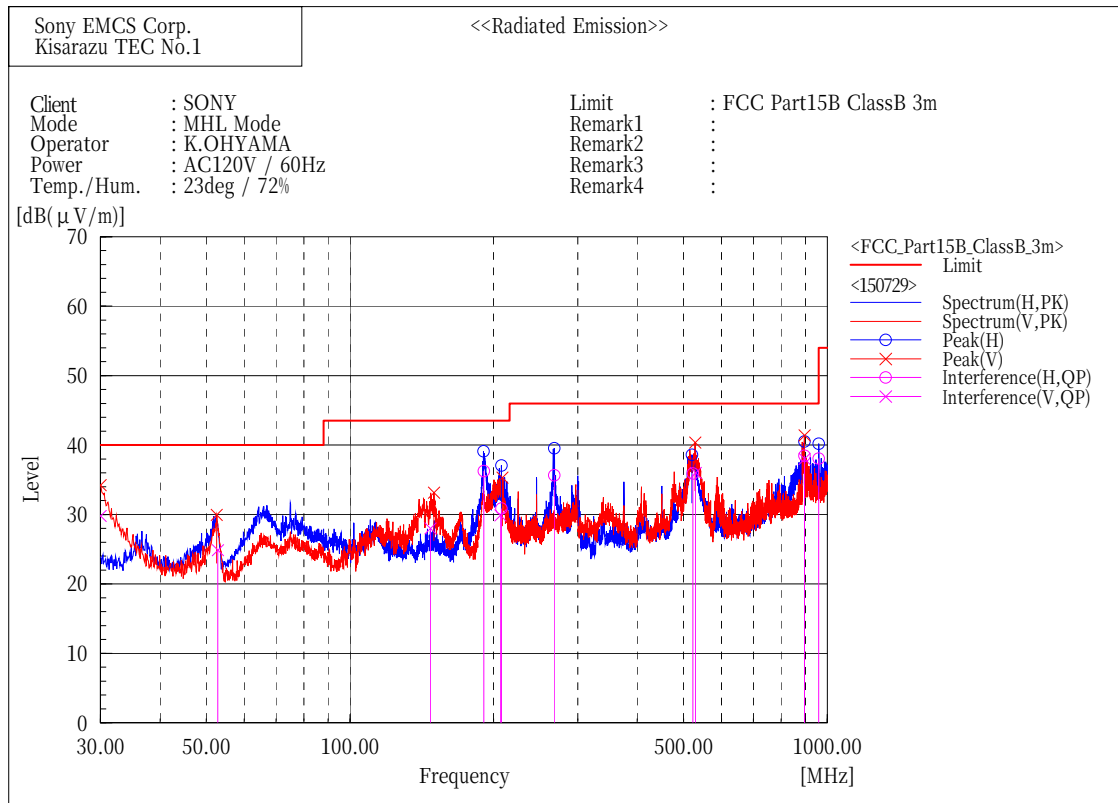
## --- Horizontal Polarization (QP)---

| 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   | 71.593          | 45.5             | -15.1         | 30.4              | 40.0             | 9.6         | 248.6       | 81.9      |
| 2   | 127.514         | 41.3             | -6.9          | 34.4              | 43.5             | 9.1         | 147.1       | 100.4     |
| 3   | 143.998         | 40.0             | -5.8          | 34.2              | 43.5             | 9.3         | 218.8       | 239.0     |
| 4   | 157.502         | 38.7             | -4.9          | 33.8              | 43.5             | 9.7         | 191.0       | 234.5     |
| 5   | 192.810         | 37.3             | -3.4          | 33.9              | 43.5             | 9.6         | 159.0       | 81.1      |
| 6   | 457.905         | 41.1             | -2.3          | 38.8              | 46.0             | 7.2         | 100.0       | 187.4     |

## --- 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   | 30.623          | 38.7             | -4.7          | 34.0              | 40.0             | 6.0         | 100.0       | 204.3     |
| 2   | 34.715          | 39.2             | -5.5          | 33.7              | 40.0             | 6.3         | 100.0       | 240.0     |
| 3   | 48.210          | 37.0             | -8.8          | 28.2              | 40.0             | 11.8        | 100.0       | 53.9      |
| 4   | 50.180          | 35.8             | -9.8          | 26.0              | 40.0             | 14.0        | 100.0       | 349.0     |
| 5   | 81.008          | 41.8             | -13.8         | 28.0              | 40.0             | 12.0        | 122.0       | 273.6     |
| 6   | 104.174         | 41.1             | -9.5          | 31.6              | 43.5             | 11.9        | 100.0       | 176.3     |

## MHL mode



## Final Result

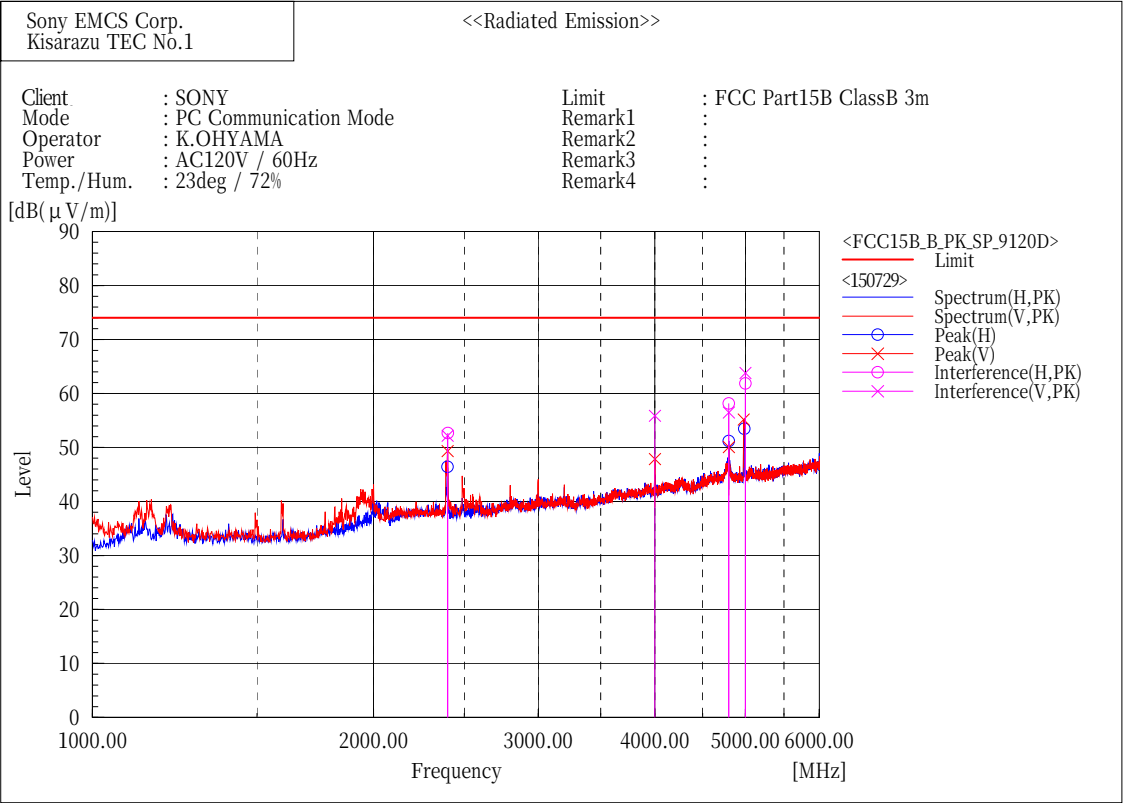
## --- Horizontal Polarization (QP)---

| 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   | 190.714         | 39.8             | -3.5          | 36.3              | 43.5             | 7.2         | 151.3       | 152.9     |
| 2   | 207.619         | 33.7             | -2.8          | 30.9              | 43.5             | 12.6        | 100.0       | 151.3     |
| 3   | 267.929         | 36.2             | -0.6          | 35.6              | 46.0             | 10.4        | 243.1       | 148.4     |
| 4   | 523.148         | 37.6             | -1.7          | 35.9              | 46.0             | 10.1        | 232.5       | 126.5     |
| 5   | 895.385         | 34.6             | 3.9           | 38.5              | 46.0             | 7.5         | 136.5       | 238.0     |
| 6   | 960.008         | 32.7             | 5.4           | 38.1              | 54.0             | 15.9        | 149.9       | 190.5     |

## --- 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   | 30.000          | 34.4             | -4.6          | 29.8              | 40.0             | 10.2        | 100.0       | 187.4     |
| 2   | 52.863          | 36.0             | -11.1         | 24.9              | 40.0             | 15.1        | 100.0       | 62.9      |
| 3   | 147.464         | 33.5             | -5.5          | 28.0              | 43.5             | 15.5        | 100.0       | 180.9     |
| 4   | 206.485         | 32.7             | -2.8          | 29.9              | 43.5             | 13.6        | 213.1       | 163.4     |
| 5   | 529.961         | 37.7             | -1.7          | 36.0              | 46.0             | 10.0        | 235.6       | 200.7     |
| 6   | 895.399         | 34.1             | 3.9           | 38.0              | 46.0             | 8.0         | 156.0       | 174.9     |

Above 1GHz  
1 GHz - 6 GHz (Peak)  
PC Communication mode



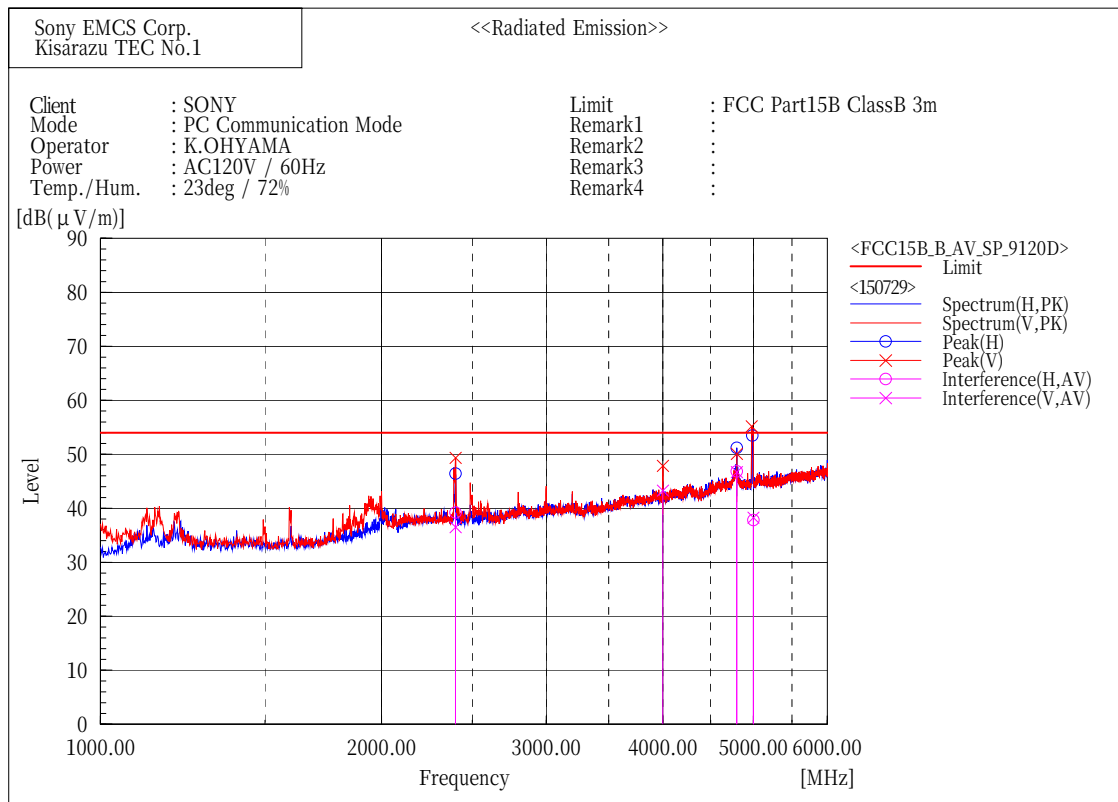
Final Result

|                                     |                 |                  |               |                   |                  |             |             |           |
|-------------------------------------|-----------------|------------------|---------------|-------------------|------------------|-------------|-------------|-----------|
| --- 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                                   | 2400.041        | 59.8             | -7.1          | 52.7              | 74.0             | 21.3        | 129.5       | 313.5     |
| 2                                   | 4799.333        | 55.6             | 2.6           | 58.2              | 74.0             | 15.8        | 111.6       | 311.2     |
| 3                                   | 4999.350        | 59.7             | 2.2           | 61.9              | 74.0             | 12.1        | 365.2       | 322.8     |
| --- 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                                   | 2399.389        | 59.3             | -7.1          | 52.2              | 74.0             | 21.8        | 173.3       | 18.5      |
| 2                                   | 3999.419        | 56.1             | -0.2          | 55.9              | 74.0             | 18.1        | 100.0       | 32.0      |
| 3                                   | 4799.673        | 53.9             | 2.6           | 56.5              | 74.0             | 17.5        | 404.4       | 357.6     |
| 4                                   | 4998.741        | 61.6             | 2.2           | 63.8              | 74.0             | 10.2        | 217.9       | 32.4      |



## 1 GHz - 6 GHz (Average)

## PC Communication mode



## Final Result

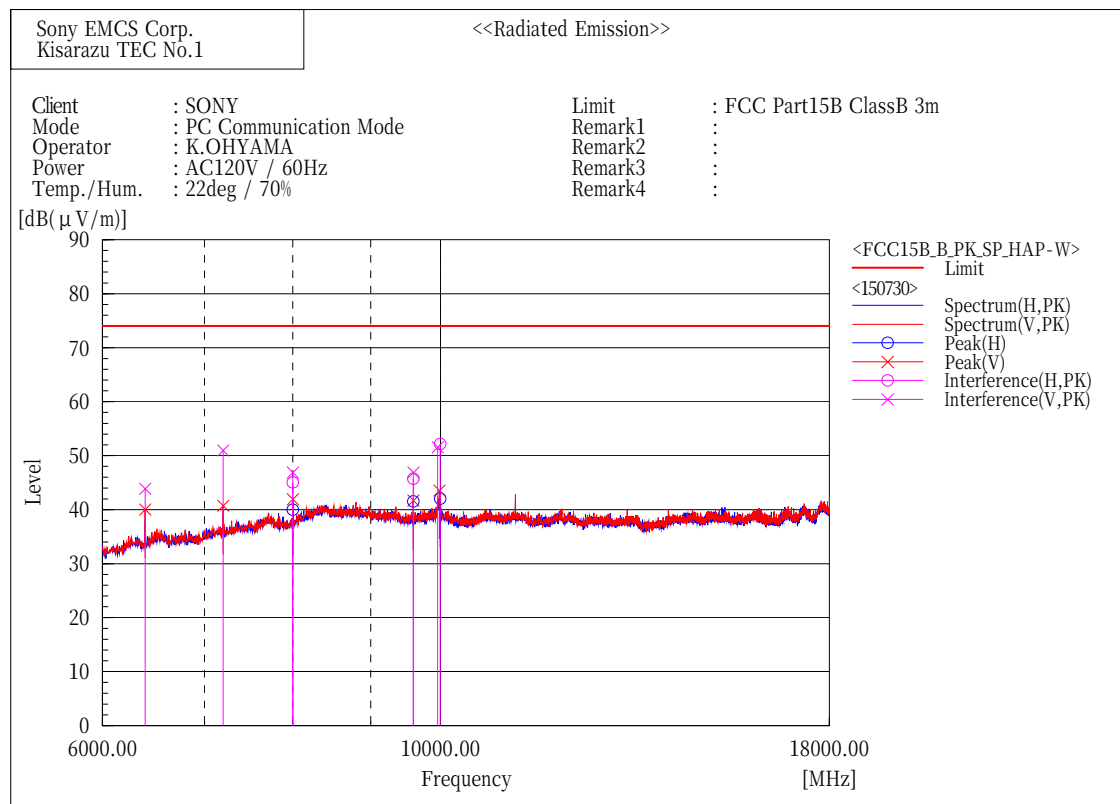
## --- Horizontal Polarization (AV)---

| 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   | 2399.799        | 46.3             | -7.1          | 39.2              | 54.0             | 14.8        | 129.5       | 313.4     |
| 2   | 4799.551        | 44.3             | 2.6           | 46.9              | 54.0             | 7.1         | 111.6       | 311.1     |
| 3   | 4998.560        | 35.6             | 2.2           | 37.8              | 54.0             | 16.2        | 365.0       | 322.7     |

## --- 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   | 2399.736        | 43.6             | -7.1          | 36.5              | 54.0             | 17.5        | 173.2       | 18.5      |
| 2   | 3999.596        | 43.5             | -0.2          | 43.3              | 54.0             | 10.7        | 100.0       | 32.0      |
| 3   | 4799.533        | 44.1             | 2.6           | 46.7              | 54.0             | 7.3         | 404.2       | 357.5     |
| 4   | 4999.231        | 36.1             | 2.2           | 38.3              | 54.0             | 15.7        | 217.8       | 32.4      |

6 GHz - 10 GHz (Peak)  
PC Communication mode



## Final Result

## --- Horizontal Polarization (PK)---

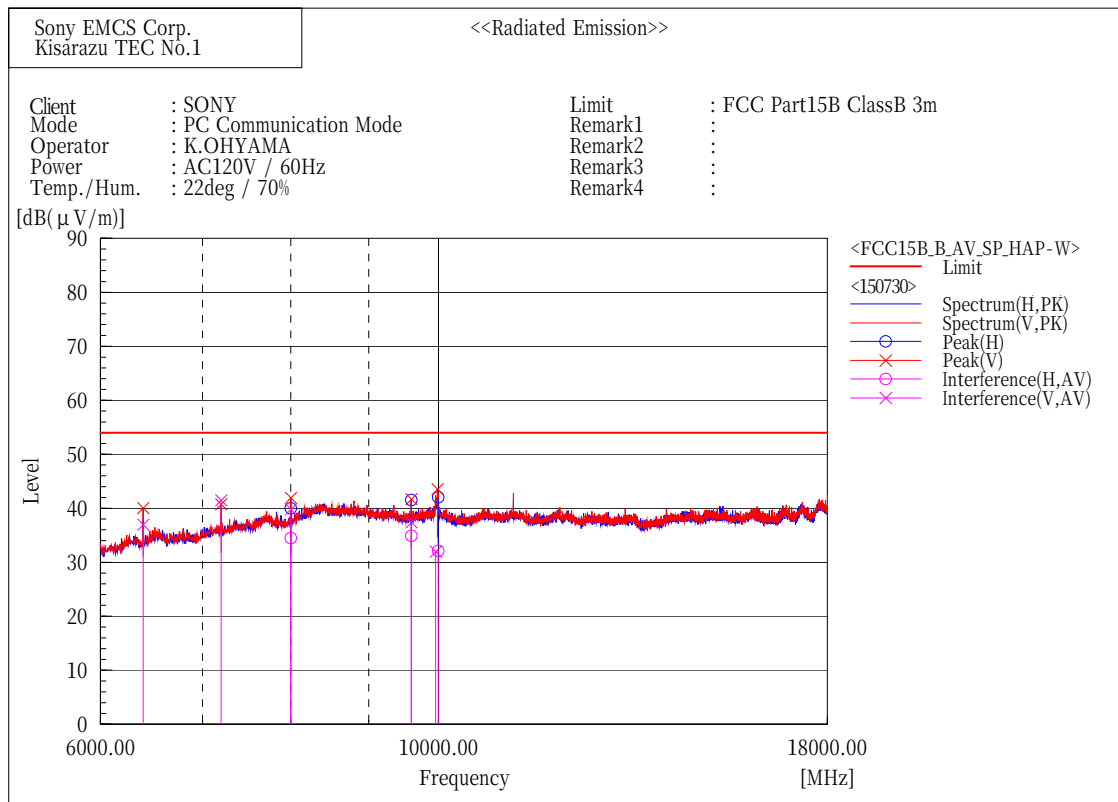
| No. | Frequency [MHz] | Reading [dB(μV)] | c.f [dB(1/m)] | Result [dB(μV/m)] | Limit [dB(μV/m)] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-----------------|------------------|---------------|-------------------|------------------|-------------|-------------|-----------|
| 1   | 7999.323        | 53.6             | -8.5          | 45.1              | 74.0             | 28.9        | 164.6       | 207.4     |
| 2   | 9598.943        | 51.7             | -5.9          | 45.8              | 74.0             | 28.2        | 117.9       | 333.6     |
| 3   | 9997.210        | 57.3             | -5.1          | 52.2              | 74.0             | 21.8        | 166.0       | 57.0      |

## --- 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   | 6399.235        | 54.7             | -10.8         | 43.9              | 74.0             | 30.1        | 267.2       | 32.2      |
| 2   | 7199.614        | 61.4             | -10.4         | 51.0              | 74.0             | 23.0        | 182.0       | 31.0      |
| 3   | 7998.809        | 55.4             | -8.5          | 46.9              | 74.0             | 27.1        | 277.9       | 30.3      |
| 4   | 9598.860        | 52.8             | -5.9          | 46.9              | 74.0             | 27.1        | 324.5       | 12.0      |
| 5   | 9957.024        | 56.7             | -5.1          | 51.6              | 74.0             | 22.4        | 316.2       | 12.7      |

## 6 GHz - 10 GHz (Average)

## PC Communication mode



## Final Result

## --- Horizontal Polarization (AV)---

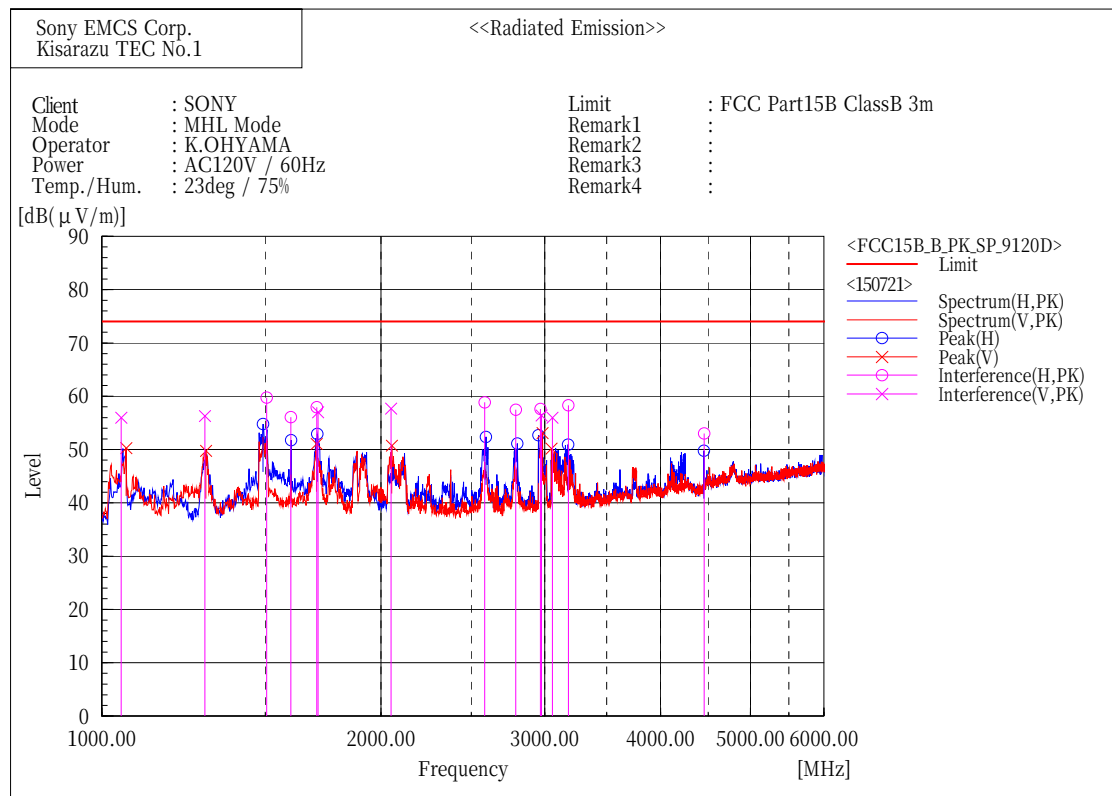
| No. | Frequency [MHz] | Reading [dB(μV)] | c.f [dB(1/m)] | Result [dB(μV/m)] | Limit [dB(μV/m)] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-----------------|------------------|---------------|-------------------|------------------|-------------|-------------|-----------|
| 1   | 7999.190        | 43.0             | -8.5          | 34.5              | 54.0             | 19.5        | 164.6       | 207.4     |
| 2   | 9599.005        | 40.8             | -5.9          | 34.9              | 54.0             | 19.1        | 117.9       | 333.5     |
| 3   | 9997.142        | 37.2             | -5.1          | 32.1              | 54.0             | 21.9        | 166.0       | 57.0      |

## --- 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   | 6399.353        | 47.8             | -10.8         | 37.0              | 54.0             | 17.0        | 267.1       | 32.2      |
| 2   | 7199.445        | 51.9             | -10.4         | 41.5              | 54.0             | 12.5        | 182.0       | 31.0      |
| 3   | 7999.301        | 48.3             | -8.5          | 39.8              | 54.0             | 14.2        | 277.8       | 30.3      |
| 4   | 9599.056        | 43.3             | -5.9          | 37.4              | 54.0             | 16.6        | 324.4       | 12.0      |
| 5   | 9957.044        | 37.1             | -5.1          | 32.0              | 54.0             | 22.0        | 316.1       | 12.7      |

## 1 GHz - 6 GHz (Peak)

## MHL mode



## Final Result

## --- Horizontal Polarization (PK)---

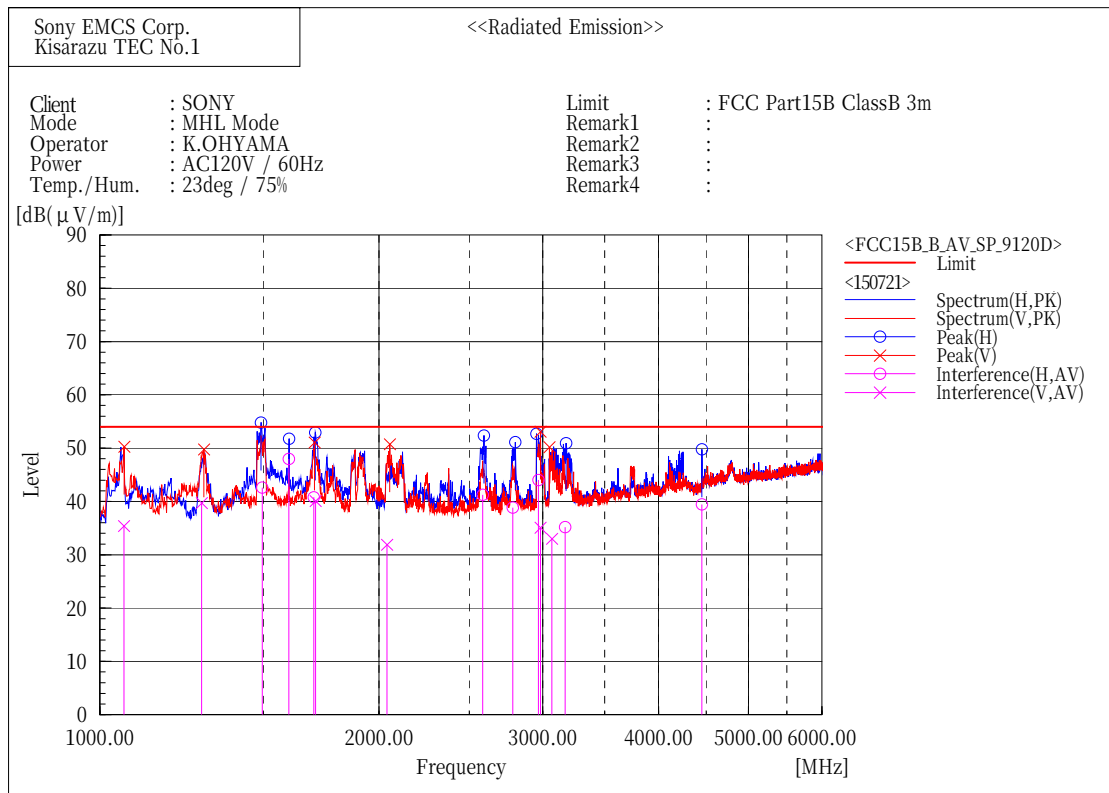
| No. | Frequency [MHz] | Reading [dB(μV)] | c.f [dB(1/m)] | Result [dB(μV/m)] | Limit [dB(μV/m)] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-----------------|------------------|---------------|-------------------|------------------|-------------|-------------|-----------|
| 1   | 1505.184        | 70.7             | -11.0         | 59.7              | 74.0             | 14.3        | 100.0       | 233.0     |
| 2   | 1598.786        | 67.0             | -10.9         | 56.1              | 74.0             | 17.9        | 125.4       | 222.4     |
| 3   | 1704.965        | 68.5             | -10.6         | 57.9              | 74.0             | 16.1        | 100.0       | 134.8     |
| 4   | 2584.957        | 65.0             | -6.2          | 58.8              | 74.0             | 15.2        | 134.0       | 131.8     |
| 5   | 2792.675        | 62.0             | -4.5          | 57.5              | 74.0             | 16.5        | 100.0       | 151.3     |
| 6   | 2970.252        | 62.0             | -4.4          | 57.6              | 74.0             | 16.4        | 276.2       | 204.4     |
| 7   | 3182.278        | 61.5             | -3.2          | 58.3              | 74.0             | 15.7        | 118.1       | 119.9     |
| 8   | 4456.631        | 51.9             | 1.1           | 53.0              | 74.0             | 21.0        | 100.0       | 210.1     |

## --- Vertical Polarization (PK)---

| No. | Frequency [MHz] | Reading [dB(μV)] | c.f [dB(1/m)] | Result [dB(μV/m)] | Limit [dB(μV/m)] | Margin [dB] | Height [cm] | Angle [°] |
|-----|-----------------|------------------|---------------|-------------------|------------------|-------------|-------------|-----------|
| 1   | 1049.533        | 68.6             | -12.6         | 56.0              | 74.0             | 18.0        | 100.0       | 169.9     |
| 2   | 1291.916        | 67.5             | -11.2         | 56.3              | 74.0             | 17.7        | 170.7       | 202.4     |
| 3   | 1710.433        | 67.6             | -10.6         | 57.0              | 74.0             | 17.0        | 184.1       | 179.4     |
| 4   | 2049.252        | 66.4             | -8.7          | 57.7              | 74.0             | 16.3        | 349.5       | 189.2     |
| 5   | 2977.768        | 60.8             | -4.4          | 56.4              | 74.0             | 17.6        | 430.4       | 191.3     |
| 6   | 3059.879        | 59.6             | -3.6          | 56.0              | 74.0             | 18.0        | 282.6       | 168.8     |

## 1 GHz - 6 GHz (Average)

## MHL mode



## Final Result

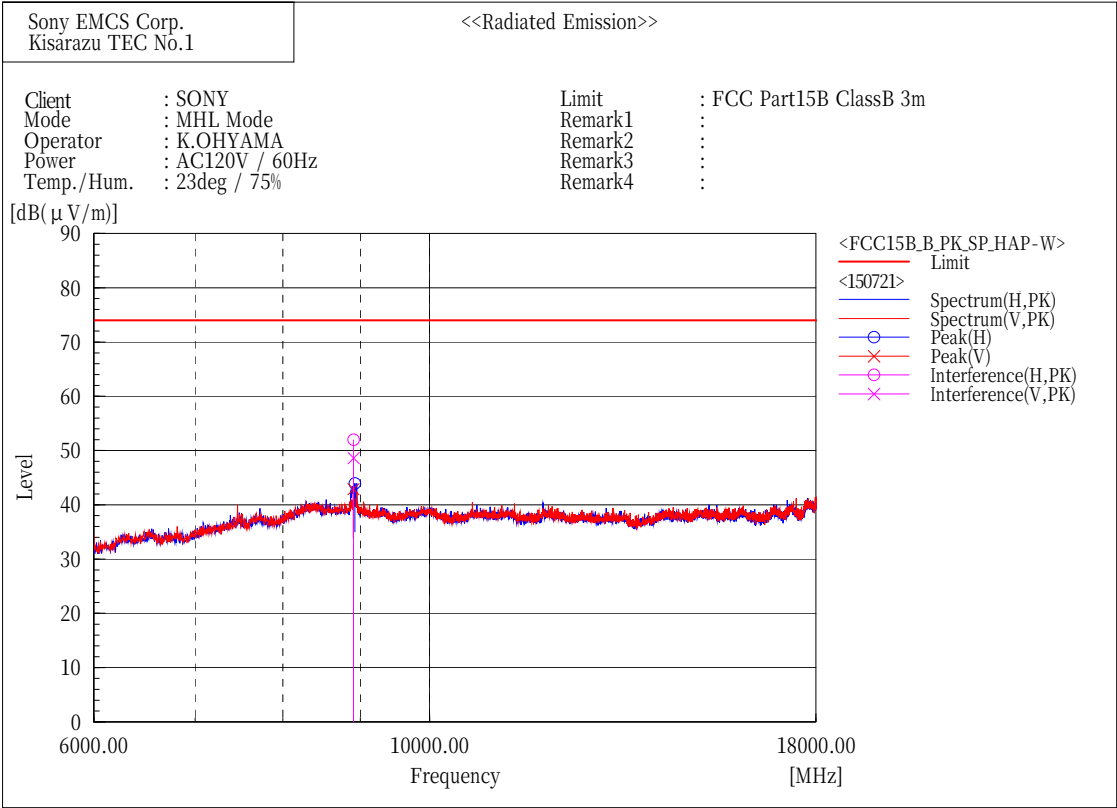
## --- Horizontal Polarization (AV)---

| 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   | 1496.066        | 53.6             | -11.0         | 42.6              | 54.0             | 11.4        | 100.0       | 233.0     |
| 2   | 1598.872        | 58.9             | -10.9         | 48.0              | 54.0             | 6.0         | 125.4       | 222.4     |
| 3   | 1700.306        | 51.5             | -10.7         | 40.8              | 54.0             | 13.2        | 100.0       | 134.9     |
| 4   | 2586.161        | 47.4             | -6.2          | 41.2              | 54.0             | 12.8        | 134.0       | 131.9     |
| 5   | 2786.557        | 43.4             | -4.6          | 38.8              | 54.0             | 15.2        | 100.0       | 151.4     |
| 6   | 2970.038        | 48.4             | -4.4          | 44.0              | 54.0             | 10.0        | 276.1       | 204.4     |
| 7   | 3172.462        | 38.4             | -3.2          | 35.2              | 54.0             | 18.8        | 118.1       | 120.0     |
| 8   | 4455.020        | 38.3             | 1.1           | 39.4              | 54.0             | 14.6        | 100.0       | 210.1     |

## --- 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   | 1061.977        | 48.0             | -12.6         | 35.4              | 54.0             | 18.6        | 100.0       | 170.0     |
| 2   | 1287.478        | 50.9             | -11.2         | 39.7              | 54.0             | 14.3        | 170.6       | 202.4     |
| 3   | 1708.030        | 50.7             | -10.6         | 40.1              | 54.0             | 13.9        | 184.0       | 179.5     |
| 4   | 2039.627        | 40.7             | -8.8          | 31.9              | 54.0             | 22.1        | 349.3       | 189.3     |
| 5   | 2984.915        | 39.4             | -4.3          | 35.1              | 54.0             | 18.9        | 430.2       | 191.4     |
| 6   | 3069.998        | 36.5             | -3.5          | 33.0              | 54.0             | 21.0        | 282.5       | 168.9     |

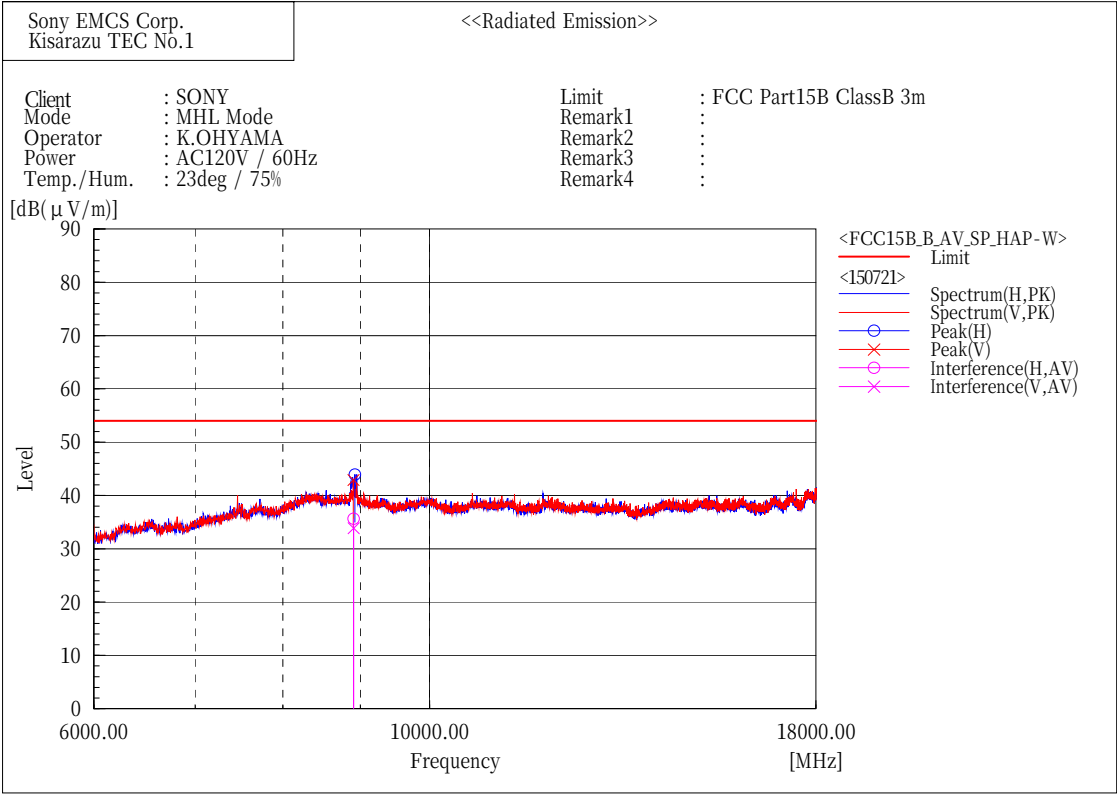
6 GHz - 10 GHz (Peak)  
MHL mode



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                                   | 8910.071  | 58.5     | -6.5      | 52.0       | 74.0       | 22.0   | 132.0  | 178.5 |
| --- 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                                   | 8909.711  | 55.1     | -6.5      | 48.6       | 74.0       | 25.4   | 225.8  | 188.1 |

6 GHz - 10 GHz (Average)  
MHL mode



Final Result

|                                     |           |          |           |            |            |        |        |       |
|-------------------------------------|-----------|----------|-----------|------------|------------|--------|--------|-------|
| --- Horizontal Polarization (AV)--- |           |          |           |            |            |        |        |       |
| 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                                   | 8910.116  | 42.1     | -6.5      | 35.6       | 54.0       | 18.4   | 130.7  | 178.0 |
| --- Vertical Polarization (AV)---   |           |          |           |            |            |        |        |       |
| 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                                   | 8910.179  | 40.4     | -6.5      | 33.9       | 54.0       | 20.1   | 228.1  | 187.0 |

## 5. Method of Calculation

### 5.1. Conducted Emissions Measurement

|                              |         |   |          |
|------------------------------|---------|---|----------|
| 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.

### 5.2. Radiated Emissions Measurement

|                              |         |   |           |
|------------------------------|---------|---|-----------|
| The Software for Calculation | Name    | : | V-Scan    |
|                              | Version | : | Ver4.0.30 |

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

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)



## 6. List of Test Equipment

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

\* In case the margin in peak detection mode was more than 6 dB, we reported the data in the spectrum analyzer as final result.

Note: Marked "S" is used on Spectrum measurement. Marked "F" is used on Final Measurement.

### EMI Shielded Room 1

|                                     | Control No. | Equipment                    | Model No. | Manufacture      | Serial No. | Cal.Int. | Last Cal. |
|-------------------------------------|-------------|------------------------------|-----------|------------------|------------|----------|-----------|
| <input checked="" type="checkbox"/> | F -         | Shield Room                  | -         | Otsuka Science   | 9407838    | -        | -         |
| <input checked="" type="checkbox"/> | F M484      | EMI Receiver                 | ESCI      | Rohde&Schwarz    | 100607     | 12       | 14.09.25  |
| <input checked="" type="checkbox"/> | F CS015     | 3m CE Cable SYS              | None      | TOYO Corporation | None       | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M569      | HIGH FREQUENCY FUSE          | MP612A    | Anritsu          | None       | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M663      | 6dB Attenuator               | 6806.01.A | HUBER+SUHNER     | None       | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M130      | RF Selector                  | NS4903    | Toyo             | 0109001    | 12       | 14.10.01  |
| <input type="checkbox"/>            | F M605      | LISN                         | ENV216    | Rohde & Schwarz  | 101305     | 12       | 15.07.10  |
| <input checked="" type="checkbox"/> | F M606      | LISN (for EUT)               | ENV216    | Rohde & Schwarz  | 101306     | 12       | 15.06.30  |
| <input checked="" type="checkbox"/> | F M111      | LISN (for Peripheral)        | ESH3-Z5   | Rohde & Schwarz  | 100062     | 12       | 14.09.15  |
| <input checked="" type="checkbox"/> | F M621      | LISN (for Peripheral)        | KNW-407   | Kyoritsu         | 8-665-11   | 12       | 14.09.19  |
| <input checked="" type="checkbox"/> | F M056      | 50 ohm Terminator (for M111) | CT-01     | TME              | None       | 12       | 15.01.30  |
| <input checked="" type="checkbox"/> | F M155      | 50 ohm Terminator (for M621) | T1302     | Stack            | None       | 12       | 15.01.30  |
| <input type="checkbox"/>            | F M166      | 50 ohm Terminator            | T1302     | Stack            | None       | 12       | 15.01.30  |
| <input checked="" type="checkbox"/> | F M688      | Thermo Meter                 | AD-5640A  | AND              | 201302     | 12       | 14.10.06  |

### 3 meters Semi-Anechoic Chamber 1

|                                     | Control No. | Equipment             | Model No.  | Manufacture          | Serial No.  | Cal.Int. | Last Cal. |
|-------------------------------------|-------------|-----------------------|------------|----------------------|-------------|----------|-----------|
| <input checked="" type="checkbox"/> | F M115      | Semi-Anechoic Chamber | None       | Otsuka Science       | 7D1-8A11    | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M685      | EMI Receiver          | N9038A     | Agilent Technologies | MY52260159  | 12       | 14.11.18  |
| <input checked="" type="checkbox"/> | F A089      | Biconical Antenna     | BBA9106    | Schwarzbeck          | VHA91032835 | 12       | 15.01.29  |
| <input checked="" type="checkbox"/> | F A088      | Logperiodic Antenna   | UHALP9108  | Schwarzbeck          | 0643        | 12       | 15.01.30  |
| <input checked="" type="checkbox"/> | F A064      | Horn Antenna          | BBHA9120D  | Schwarzbeck          | 746         | 12       | 15.01.26  |
| <input checked="" type="checkbox"/> | F A078      | Horn Antenna          | HAP06-18W  | TOYO Corporation     | 00000070    | 12       | 15.02.17  |
| <input type="checkbox"/>            | F A026      | Horn Antenna          | BBHA9120B  | Schwarzbeck          | 222         | 12       | 15.01.26  |
| <input checked="" type="checkbox"/> | F CS017     | 3m RE Cable SYS1      | None       | TOYO Corporation     | None        | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F CS018     | 3m RE Cable SYS2      | None       | TOYO Corporation     | None        | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M128      | Attenuator (3dB)      | 8491A      | Agilent              | 53541       | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M127      | RF Pre-Amp            | 8447D      | Hewlett-Packard      | 2944A10241  | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M124      | RF Selector           | NS4903DR   | TOYO Corporation     | 0109022     | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M609      | Attenuator            | 8491B      | Agilent              | 100050      | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M126      | Step Attenuator       | 8494H      | Hewlett-Packard      | 100050      | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M129      | RF Pre-Amp            | TPA0108-40 | TOYO Corporation     | 100050      | 12       | 14.10.01  |
| <input type="checkbox"/>            | F M546      | BAND REJECT FILTER    | NF-49BT    | TOYO Corporation     | 001         | 12       | 14.10.01  |
| <input checked="" type="checkbox"/> | F M687      | Thermo Meter          | AD-5640A   | AND                  | 201301      | 12       | 14.10.06  |

### Measurement software

|                                     | Control No. | Description                 | Model No. | Ver. No. | Manufacturer     |
|-------------------------------------|-------------|-----------------------------|-----------|----------|------------------|
| <input checked="" type="checkbox"/> | F SW-010    | Conducted Emission Software | EP5/ CE   | 5.0.0    | TOYO Corporation |
| <input checked="" type="checkbox"/> | F SW-009    | Radiated Emission Software  | V-Scan    | 4.0.30   | TOYO Corporation |

About calibration interval

Valid until the day of the month, 1 year from the calibration