

## Report on the RF Testing of:

Wacom Co., Ltd.

Active Electrostatic Stylus, Model: CS-322A

FCC ID: HV4CS322A

## In accordance with FCC Part 15 Subpart C

Prepared for: Wacom Co., Ltd.  
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Japan

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## COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-19058-0

### SIGNATURE

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### NAME

### JOB TITLE

### RESPONSIBLE FOR

### ISSUE DATE

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Approved Signatory

13 MAR 2019

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

### EXECUTIVE SUMMARY

A sample(s) of this product was tested and found to be compliant with FCC Part 15 Subpart C.



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## 1 Summary of Test

### 1.1 Modification history of the test report

| Document Number | Modification History | Issue Date              |
|-----------------|----------------------|-------------------------|
| JPD-TR-19058-0  | First Issue          | Refer to the cover page |

### 1.2 Standards

CFR47 FCC Part 15 Subpart C

### 1.3 Test methods

ANSI C63.10-2013,  
KDB 558074 D01 15.247 Meas Guidance v05

### 1.4 Deviation from standards

None

### 1.5 List of applied test(s) of the EUT

| Test item section             | Test item                                      | Condition             | Result | Remark |
|-------------------------------|------------------------------------------------|-----------------------|--------|--------|
| 15.247(a)(2)                  | 6dB Bandwidth                                  | Conducted             | PASS   | -      |
| 15.247(b)(3)                  | Maximum Peak Output Power                      | Conducted             | PASS   | -      |
| 15.247(d)                     | Band Edge Compliance of RF Conducted Emissions | Conducted             | PASS   | -      |
| 15.247(d)<br>15.205<br>15.209 | Spurious Emissions                             | Conducted<br>Radiated | PASS   | -      |
| 15.247(d)<br>15.205<br>15.209 | Restricted Bands of Operation                  | Radiated              | PASS   | -      |
| 15.247(e)                     | Transmitter Power Spectral Density             | Conducted             | PASS   | -      |
| 15.207                        | AC Power Line Conducted Emissions              | Conducted             | PASS   | -      |

### 1.6 Test information

None

### 1.7 Test set up

Table-top

### 1.8 Test period

02-February-2019 - 07-March-2019

## 2 Equipment Under Test

### 2.1 EUT information

|                             |                                                                                                                        |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------|
| Applicant                   | Wacom Co., Ltd.<br>2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148, Japan<br>Phone: +81-480-78-1257 Fax: +81-480-78-1404 |
| Equipment Under Test (EUT)  | Active Stylus for Tablet                                                                                               |
| Model number                | CS-322A                                                                                                                |
| Serial number               | N/A                                                                                                                    |
| Trade name                  | Wacom                                                                                                                  |
| Number of sample(s)         | 1                                                                                                                      |
| EUT condition               | Pre-production                                                                                                         |
| Power rating                | Battery: DC 3.7 V                                                                                                      |
| Size                        | Length 153.0mm<br>Diameter (excluding the rear cap part) 10.1mm                                                        |
| Environment                 | Indoor and Outdoor use                                                                                                 |
| Terminal limitation         | Temperature: 5°C to 40°C<br>Humidity: 30% to 80%                                                                       |
| RF Specification            |                                                                                                                        |
| Protocol                    | Bluetooth 5.0                                                                                                          |
| Frequency range             | 2402 MHz-2480 MHz                                                                                                      |
| Number of RF Channels       | 40 Channels                                                                                                            |
| Modulation method/Data rate | GFSK (1 Mbps)                                                                                                          |
| Channel separation          | 2 MHz                                                                                                                  |
| Conducted power             | 0.589 mW                                                                                                               |
| Antenna type                | Internal antenna                                                                                                       |
| Antenna gain                | 1.6 dBi                                                                                                                |

### 2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

| Modification State       | Description of Modification  | Modification fitted by | Date of Modification |
|--------------------------|------------------------------|------------------------|----------------------|
| Model: CS-322A, S/N: N/A |                              |                        |                      |
| 0                        | As supplied by the applicant | Not Applicable         | Not Applicable       |

## 2.3 Variation of family model(s)

### 2.3.1 List of family model(s)

Not applicable

### 2.3.2 Reason for selection of EUT

Not applicable

## 2.4 Operating channels and frequencies

| Channel | Frequency [MHz] | Channel | Frequency [MHz] |
|---------|-----------------|---------|-----------------|
| 0       | 2402            | 20      | 2442            |
| 1       | 2404            | 21      | 2444            |
| 2       | 2406            | 22      | 2446            |
| 3       | 2408            | 23      | 2448            |
| 4       | 2410            | 24      | 2450            |
| 5       | 2412            | 25      | 2452            |
| 6       | 2414            | 26      | 2454            |
| 7       | 2416            | 27      | 2456            |
| 8       | 2418            | 28      | 2458            |
| 9       | 2420            | 29      | 2460            |
| 10      | 2422            | 30      | 2462            |
| 11      | 2424            | 31      | 2464            |
| 12      | 2426            | 32      | 2466            |
| 13      | 2428            | 33      | 2468            |
| 14      | 2430            | 34      | 2470            |
| 15      | 2432            | 35      | 2472            |
| 16      | 2434            | 36      | 2474            |
| 17      | 2436            | 37      | 2476            |
| 18      | 2438            | 38      | 2478            |
| 19      | 2440            | 39      | 2480            |

## 2.5 Operating mode

The EUT had been tested under operating condition.  
There are three channels have been tested as following:

| Tested Channel | Frequency [MHz] |
|----------------|-----------------|
| Low            | 2402            |
| Middle         | 2440            |
| High           | 2480            |

The pre-test has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

| Tested Channel    | Modulation Type | Data Rate |
|-------------------|-----------------|-----------|
| Low, Middle, High | GFSK            | 1 Mbps    |

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.

The worst emission was found in Z-axis, Open and the worst case recorded.



Japan

## 2.6 Operating flow

[Tx mode]

i) Pen test setup by PC

ii) Select a Test mode

Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2440 MHz, Channel High: 2480 MHz

iii) Start test mode

[Rx mode]

i) Pen test setup by PC

ii) Select a Test mode

Operating frequency: Channel Low: 2402 MHz, Channel Middle: 2440 MHz, Channel High: 2480 MHz

iii) Start test mode

### 3 Configuration of Equipment

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the lists in “3.1 Equipment used” and “3.2 Cable(s) used”.

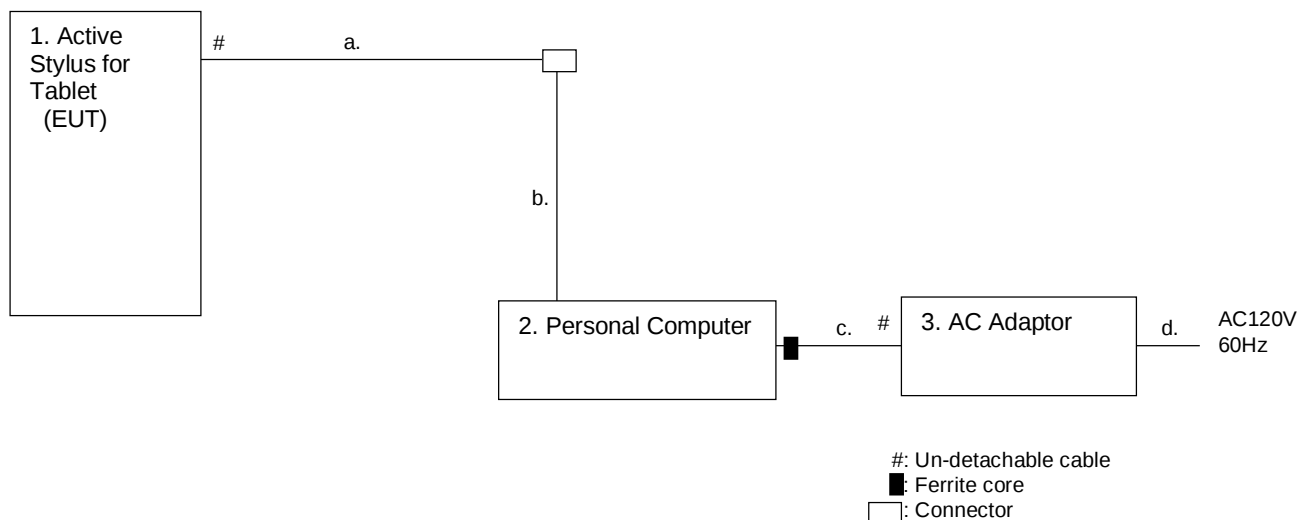
#### 3.1 Equipment used

| No. | Equipment                          | Company | Model No. | Serial No. | FCC ID / DoC | Comment |
|-----|------------------------------------|---------|-----------|------------|--------------|---------|
| 1   | Active Stylus for Tablet           | MITSUMI | CS-322A   | N/A        | HV4CS322A    | EUT     |
| 2   | Personal Computer                  | HP      | HP 250 G6 | CND8253G8T | DoC          | -       |
| 3   | AC Adaptor (for Personal Computer) | HP      | TPN-FA02  | N/A        | -            | -       |

#### 3.2 Cable(s) used

| No. | Cable        | Length[m] | Shield | Connector | Comment |
|-----|--------------|-----------|--------|-----------|---------|
| a   | Signal cable | 0.3       | No     | Plastic   | -       |
| b   | USB cable    | 5.0       | Yes    | Metal     | -       |
| c   | DC cable     | 1.8       | No     | Plastic   | -       |
| d   | AC cable     | 0.8       | No     | Plastic   | -       |

#### 3.3 System configuration



## 4 Test Result

### 4.1 6dB Bandwidth

#### 4.1.1 Measurement procedure

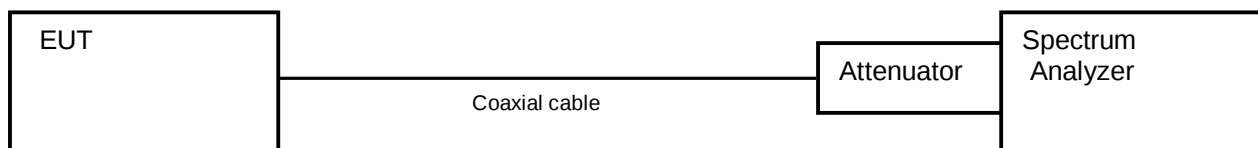
##### [FCC 15.247(a)(2), KDB558074 D01 v05]

The bandwidth at 6 dB down from the highest inband spectral density is measured with spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;

- a) RBW = 100 kHz
- b) VBW  $\geq 3 \times$  RBW
- c) Sweep time = auto-couple
- d) Detector = peak
- e) Trace mode = max hold

- Test configuration



#### 4.1.2 Limit

The minimum permissible 6dB bandwidth is 500kHz.

#### 4.1.3 Measurement result

Date : 7-March-2019

Temperature : 20.6 [°C]

Humidity : 25.9 [%]

Test place : Shielded room No.4

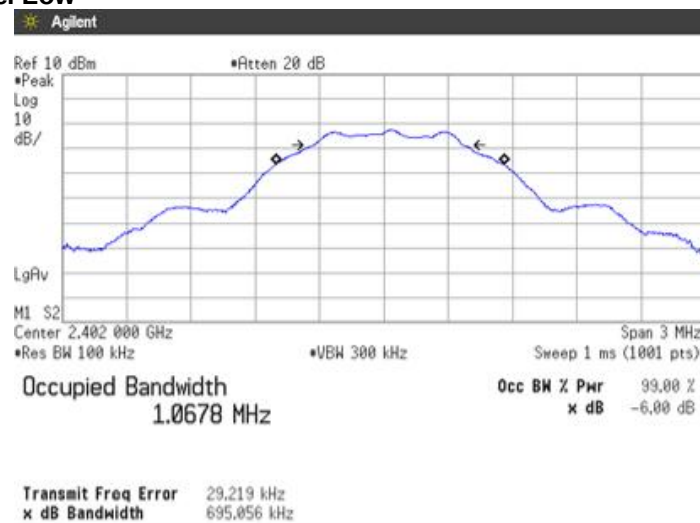
Test engineer :

Taiki Watanabe

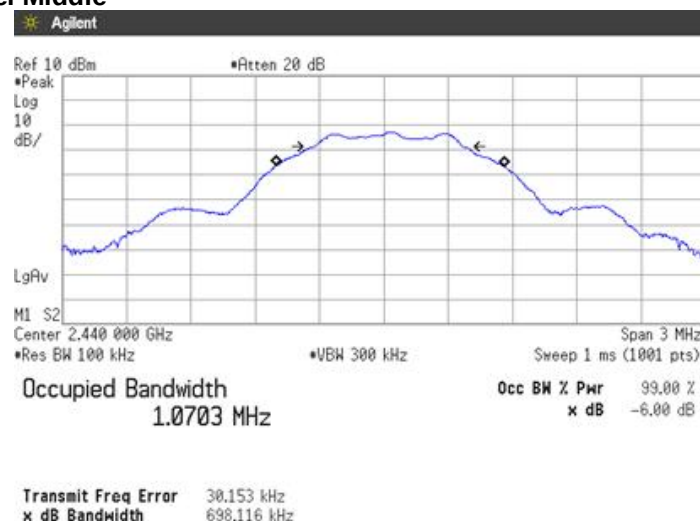
| Channel | Frequency [MHz] | 6 dB bandwidth [MHz] |
|---------|-----------------|----------------------|
| Low     | 2402            | 0.695                |
| Middle  | 2440            | 0.698                |
| High    | 2480            | 0.685                |

#### 4.1.4 Trace data

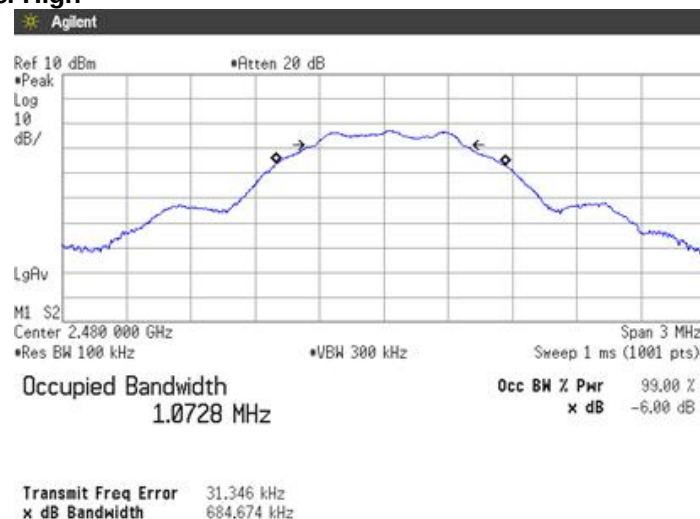
##### Channel Low



##### Channel Middle



##### Channel High



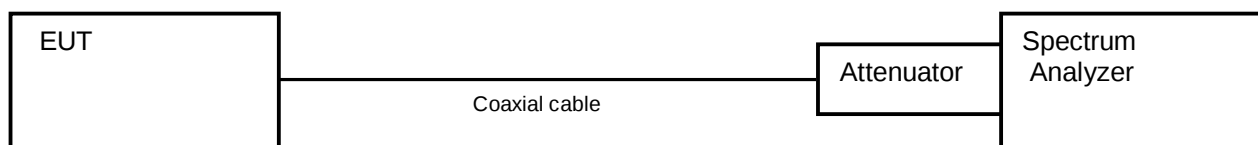
## 4.2 Maximum Peak Output Power

### 4.2.1 Measurement procedure

#### [FCC 15.247(b)(3), KDB558074 D01 v05]

The peak power is measured with a power sensor connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

- Test configuration



### 4.2.2 Limit

1 W(1000 mW) or less

### 4.2.3 Measurement result

Date : 7-March-2019  
 Temperature : 20.6 [°C]  
 Humidity : 25.9 [%]  
 Test place : Shielded room No.4

Test engineer : Taiki Watanabe

Battery Full

| Channel | Center Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Peak Output Power (mW) | Limit (mW) | Result |
|---------|------------------------|---------------|-------------|-------------|------------------------|------------|--------|
| Low     | 2402                   | -12.83        | 10.48       | -2.35       | 0.582                  | ≤1000      | PASS   |
| Middle  | 2440                   | -12.83        | 10.48       | -2.35       | 0.582                  | ≤1000      | PASS   |
| High    | 2480                   | -12.78        | 10.48       | -2.30       | 0.589                  | ≤1000      | PASS   |

Calculation;

Reading (dBm) + Factor (dB) = Level (dBm)

$10\log P = \text{Level (dBm)}$

$P = 10^{(\text{Maximum Peak Output Power} / 10)} \text{ (mW)}$

### 4.3 Band Edge Compliance of RF Conducted Emissions

#### 4.3.1 Measurement procedure

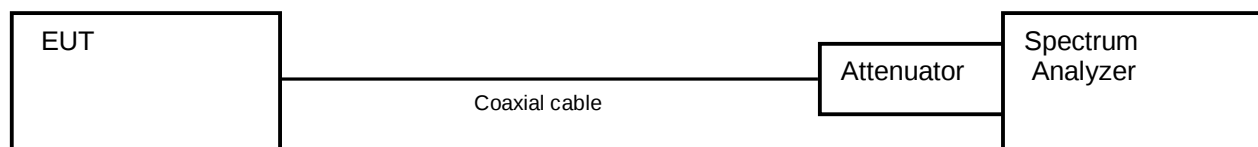
##### [FCC 15.247(d), KDB558074 D01 v05]

The Band Edge is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;

- a) Span = Arbitrary setting. (Setting suitable for measurement.)
- b) RBW = 100 kHz
- c) VBW  $\geq 3 \times$  RBW
- d) Sweep time = auto-couple
- e) Detector = peak
- f) Trace mode = max hold

- Test configuration



#### 4.3.2 Limit

In any 100kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

#### 4.3.3 Measurement result

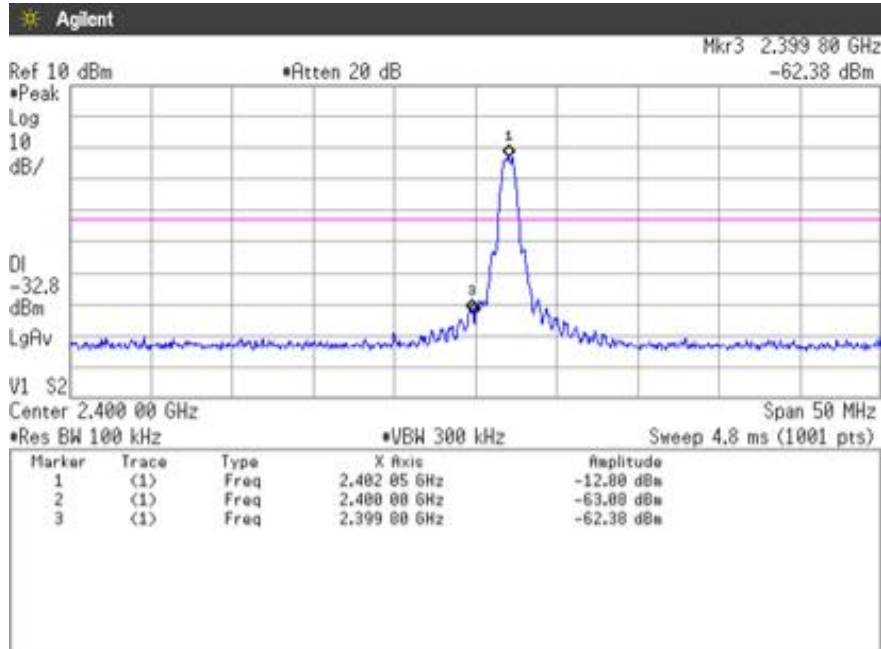
Date : 7-March-2019  
 Temperature : 20.6 [°C]  
 Humidity : 25.9 [%]  
 Test place : Shielded room No.4

Test engineer :  
Taiki Watanabe

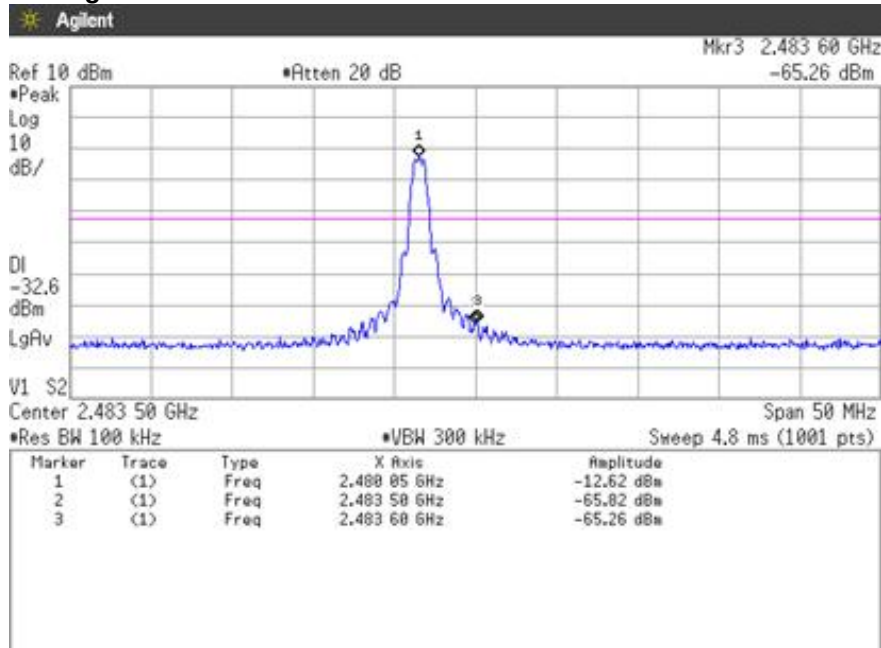
| Channel | Frequency (MHz) | RF Power Level (dBm) | Band-edge Frequency (MHz) | Band-edge Level (dBm) | Difference Level (dBm) | Limit (dBm)                         | Result |
|---------|-----------------|----------------------|---------------------------|-----------------------|------------------------|-------------------------------------|--------|
| Low     | 2402            | -12.80               | 2399.80                   | -62.38                | 49.58                  | At least 20dB below from peak of RF | PASS   |
| High    | 2480            | -12.62               | 2483.60                   | -65.26                | 52.64                  | At least 20dB below from peak of RF | PASS   |

#### 4.3.4 Trace data

##### Channel: Low



##### Channel: High



#### 4.4 Spurious emissions - Conducted -

##### 4.4.1 Measurement procedure

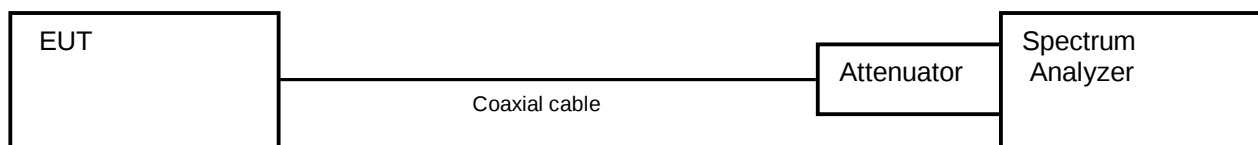
###### [FCC 15.247(d), KDB558074 D01 v05]

The spurious emissions (Conducted) are measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;

- a) Span = wide enough to fully capture the emission being measured.
- b) RBW = 100 kHz
- c) VBW  $\geq$  RBW
- d) Sweep time = auto-couple
- e) Detector = peak
- f) Trace mode = max hold

- Test configuration



##### 4.4.2 Limit

In any 100kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

##### 4.4.3 Measurement result

Date : 7-March-2019

Temperature : 20.6 [°C]

Humidity : 35.9 [%]

Test place : Shielded room No.4

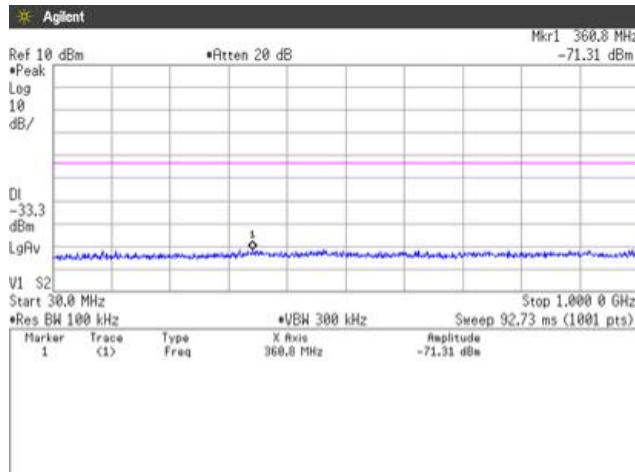
Test engineer :

Taiki Watanabe

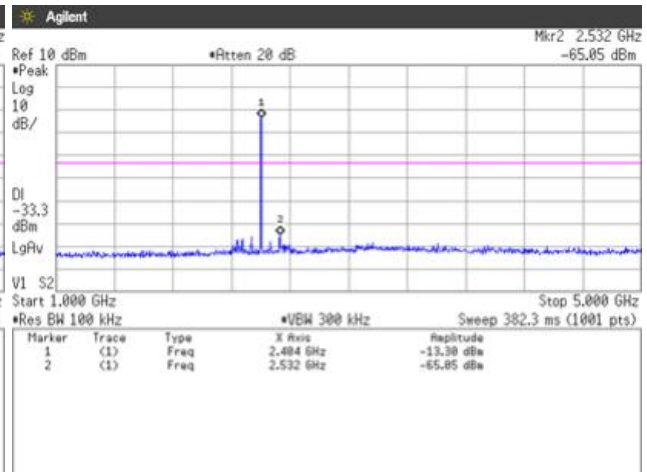
| Channel | Frequency [MHz] | Limit [dB]                          | Results Chart      | Result |
|---------|-----------------|-------------------------------------|--------------------|--------|
| Low     | 2402            | At least 20dB below from peak of RF | See the trace Data | PASS   |
| Middle  | 2440            | At least 20dB below from peak of RF | See the trace Data | PASS   |
| High    | 2480            | At least 20dB below from peak of RF | See the trace Data | PASS   |

#### 4.4.4 Trace data

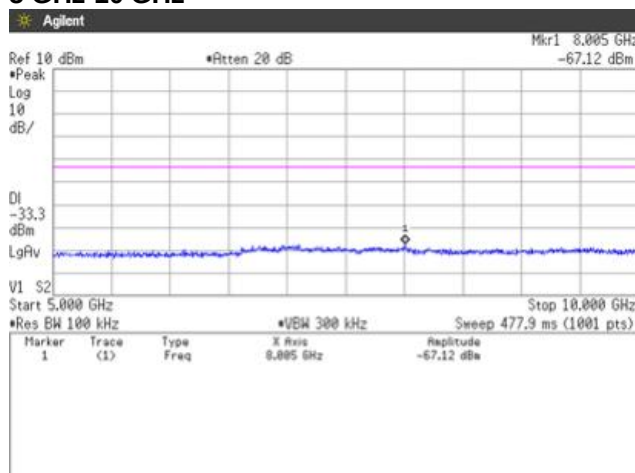
**Channel: Low**  
**30 MHz-1 GHz**



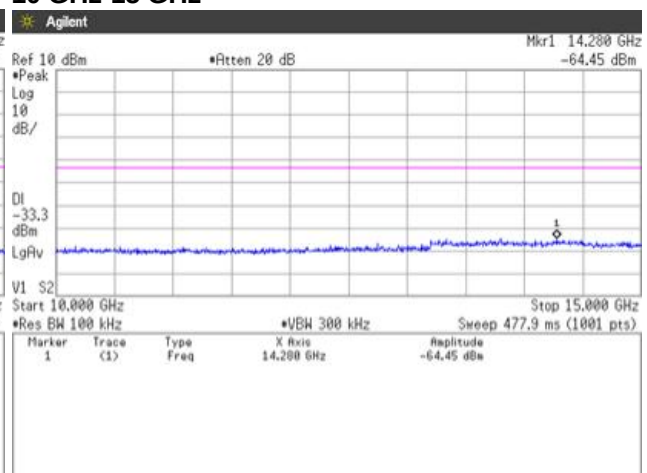
**1 GHz-5 GHz**



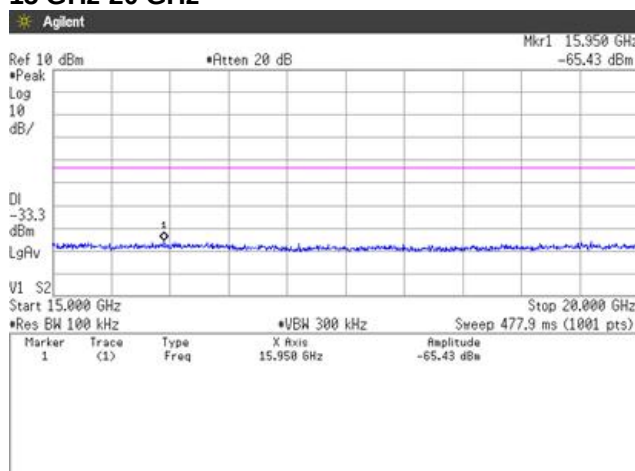
**5 GHz-10 GHz**



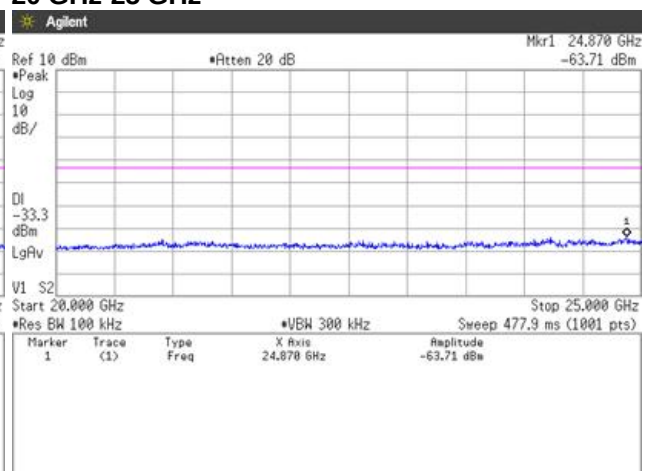
**10 GHz-15 GHz**



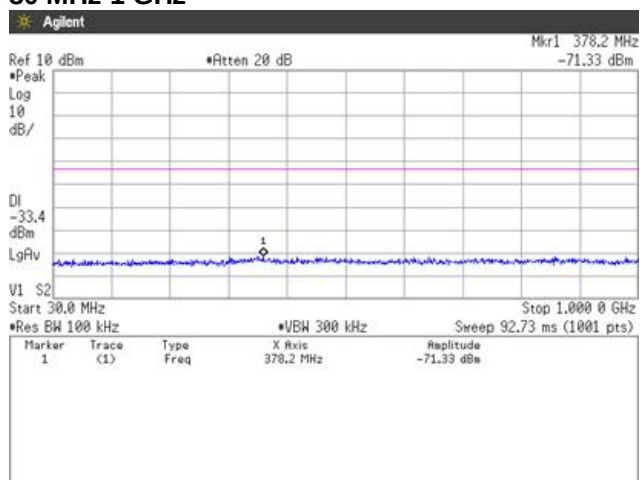
**15 GHz-20 GHz**



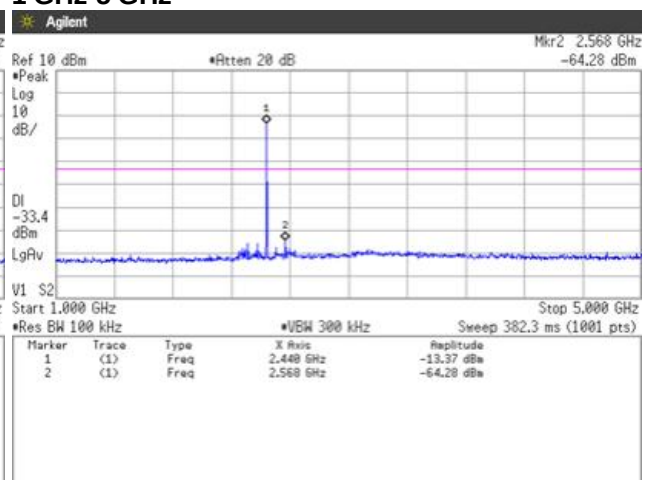
**20 GHz-25 GHz**



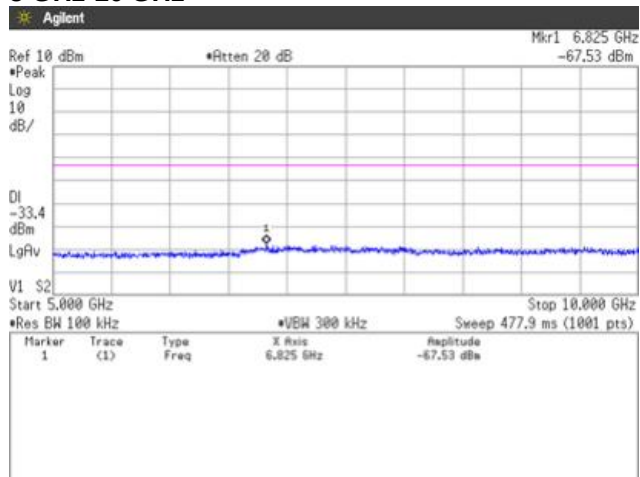
### Channel: Middle 30 MHz-1 GHz



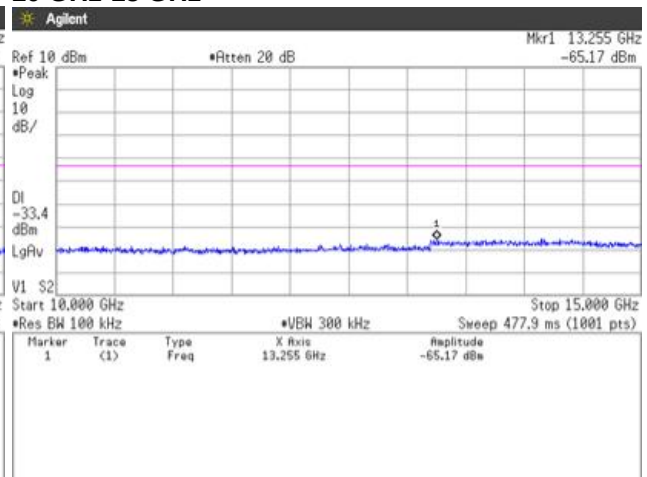
### 1 GHz-5 GHz



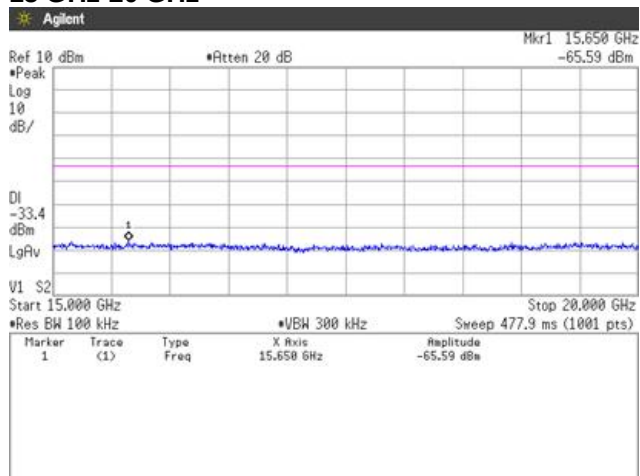
### 5 GHz-10 GHz



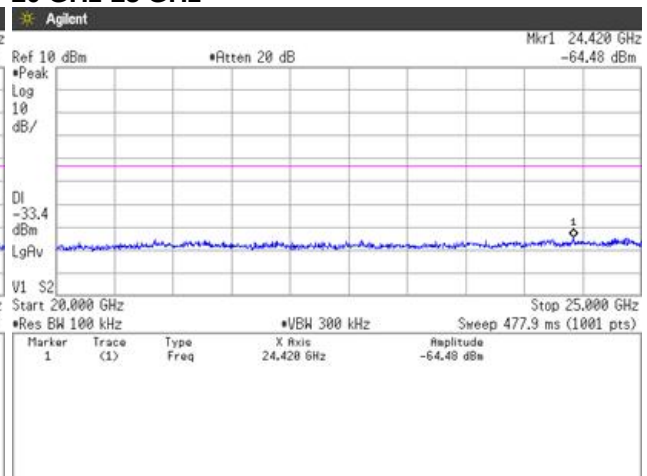
### 10 GHz-15 GHz



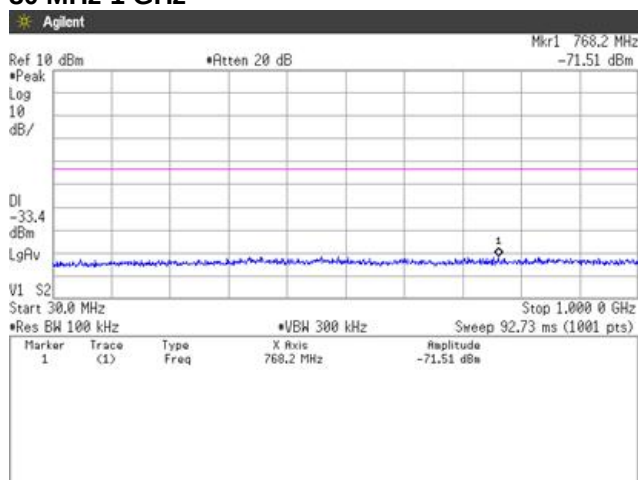
### 15 GHz-20 GHz



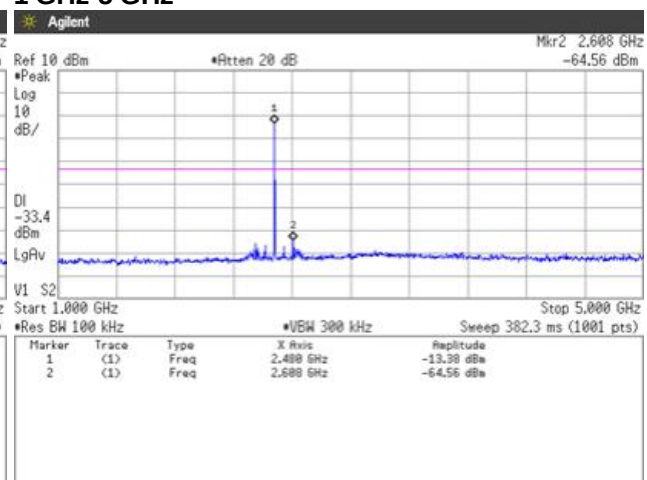
### 20 GHz-25 GHz



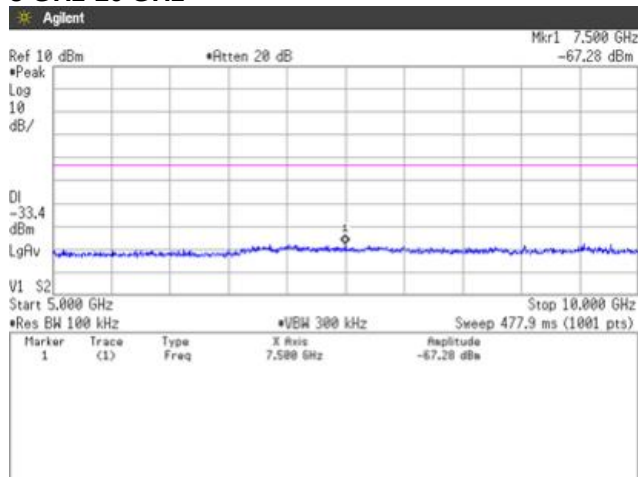
### Channel: High 30 MHz-1 GHz



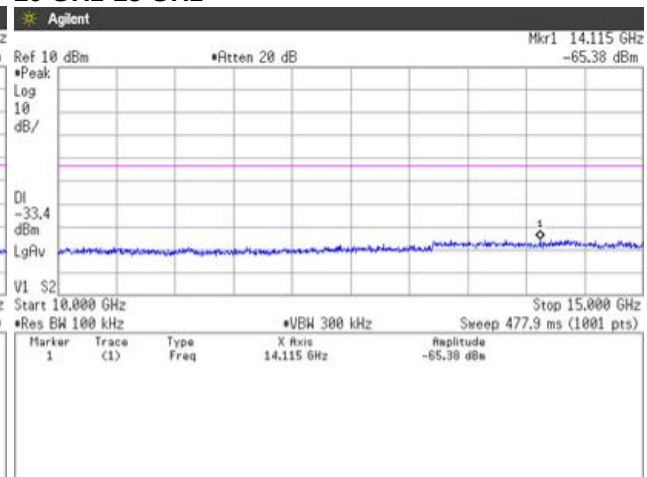
### 1 GHz-5 GHz



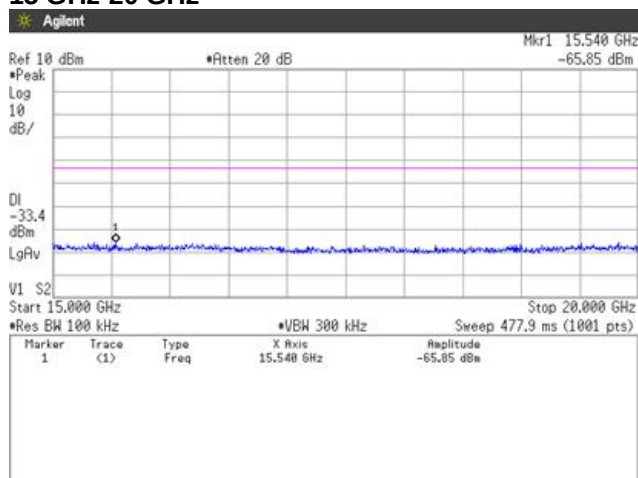
### 5 GHz-10 GHz



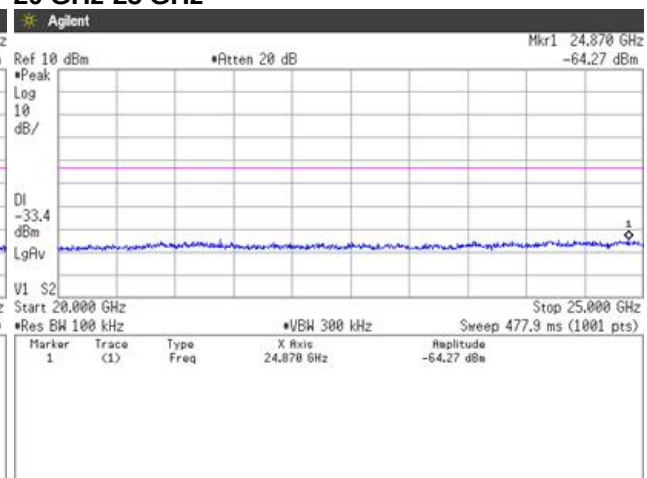
### 10 GHz-15 GHz



### 15 GHz-20 GHz



### 20 GHz-25 GHz



#### 4.5 Spurious Emissions - Radiated -

##### 4.5.1 Measurement procedure

[FCC 15.247(d), 15.205, 15.209, KDB558074 D01 v05]

Test was applied by following conditions.

|                           |                                                                                                                            |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Test method               | : ANSI C63.10                                                                                                              |
| Frequency range           | : 9kHz to 25GHz                                                                                                            |
| Test place                | : 3m Semi-anechoic chamber                                                                                                 |
| EUT was placed on         | : Styrofoam table / (W)1.0m × (D)1.0m × (H)0.8m (below 1GHz)<br>Styrofoam table / (W)0.6m × (D)0.6m × (H)1.5m (above 1GHz) |
| Antenna distance          | : 3m                                                                                                                       |
| Test receiver setting     | Below 1GHz                                                                                                                 |
| - Detector                | : Average (9kHz-90kHz, 110kHz-490kHz), Quasi-peak                                                                          |
| - Bandwidth               | : 200Hz, 120kHz                                                                                                            |
| Spectrum analyzer setting | Above 1GHz                                                                                                                 |
| - Peak                    | : RBW=1MHz, VBW=3MHz, Span=0Hz, Sweep=auto                                                                                 |
| - Average                 | : RBW=1MHz, VBW=3kHz, Span=0Hz, Sweep=auto<br>Display mode=Linear                                                          |

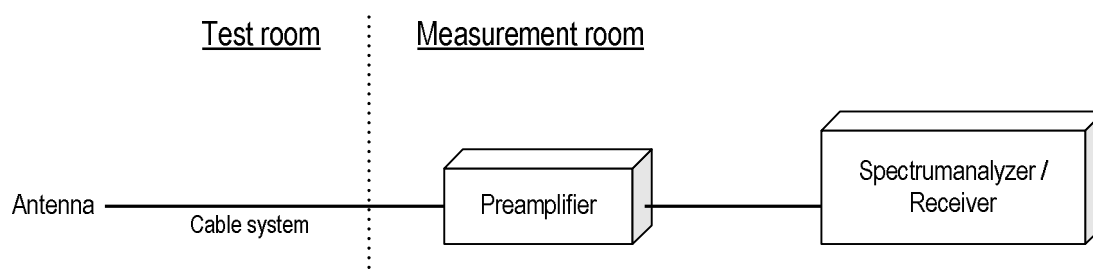
Average Measurement Setting [VBW]

| Mode             | Duty Cycle (%) | T <sub>on</sub> (us) | T <sub>off</sub> (us) | 1/T <sub>on</sub> (kHz) | Determined VBW Setting |
|------------------|----------------|----------------------|-----------------------|-------------------------|------------------------|
| Bluetooth 4.1 LE | 62.56          | 391                  | 234                   | 2.558                   | 3kHz                   |

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

Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna, Double ridged guide antenna and Broad-band horn Antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission. As for the Loop antenna, it is positioned with its plane vertical, and the center of the Loop antenna is 1m above the ground plane. The EUT is Placed on a turntable, which is 0.8m/1.5m above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. The test results represent the worst case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation. Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

- Test configuration



#### 4.5.2 Calculation method

[9kHz to 150kHz]

Emission level = Reading + (Ant factor + Cable system loss)

Margin = Limit – Emission level

[150kHz to 25GHz]

Emission level = Reading + (Ant factor + Cable system loss - Amp. Gain)

Margin = Limit – Emission level

Example:

Limit @ 4804.0MHz : 74.0dBuV/m (Peak Limit)

S.A Reading = 39.9dBuV Cable system loss = 8.3dB

Result = 39.9 + 8.3 = 48.2dBuV/m

Margin = 74.0 - 48.2 = 25.8dB

#### 4.5.3 Limit

| Frequency<br>[MHz] | Field strength  |               | Distance<br>[m] |
|--------------------|-----------------|---------------|-----------------|
|                    | [uV/m]          | [dBuV/m]      |                 |
| 0.009-0.490        | 2400 / F [kHz]  | 20logE [uV/m] | 300             |
| 0.490-1.705        | 24000 / F [kHz] | 20logE [uV/m] | 30              |
| 1.705-30           | 30              | 29.5          | 30              |
| 30-88              | 100             | 40.0          | 3               |
| 88-216             | 150             | 43.5          | 3               |
| 216-960            | 200             | 46.0          | 3               |
| Above 960          | 500             | 54.0          | 3               |

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level [dBuV/m] = 20log Emission [uV/m]
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition modulation.



Japan

#### 4.5.4 Test data

Date : 4-February-2019  
Temperature : 20.8 [°C]  
Humidity : 25.9 [%]  
Test place : 3m Semi-anechoic chamber

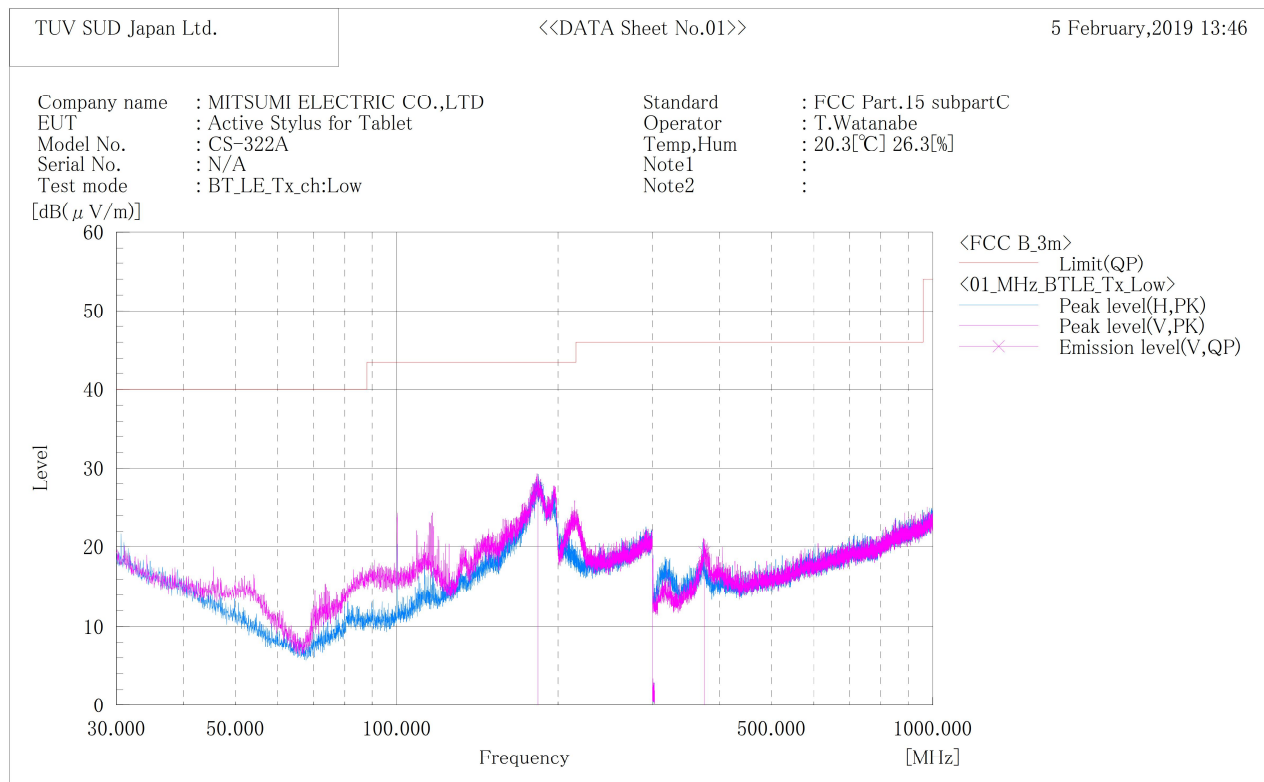
Test engineer : Taiki Watanabe

Date : 5-February-2019  
Temperature : 20.3 [°C]  
Humidity : 26.3 [%]  
Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

**[Transmit mode]  
Channel: Low  
BELOW 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
[ 3m Semi-anechoic chamber ]



**Final Result**

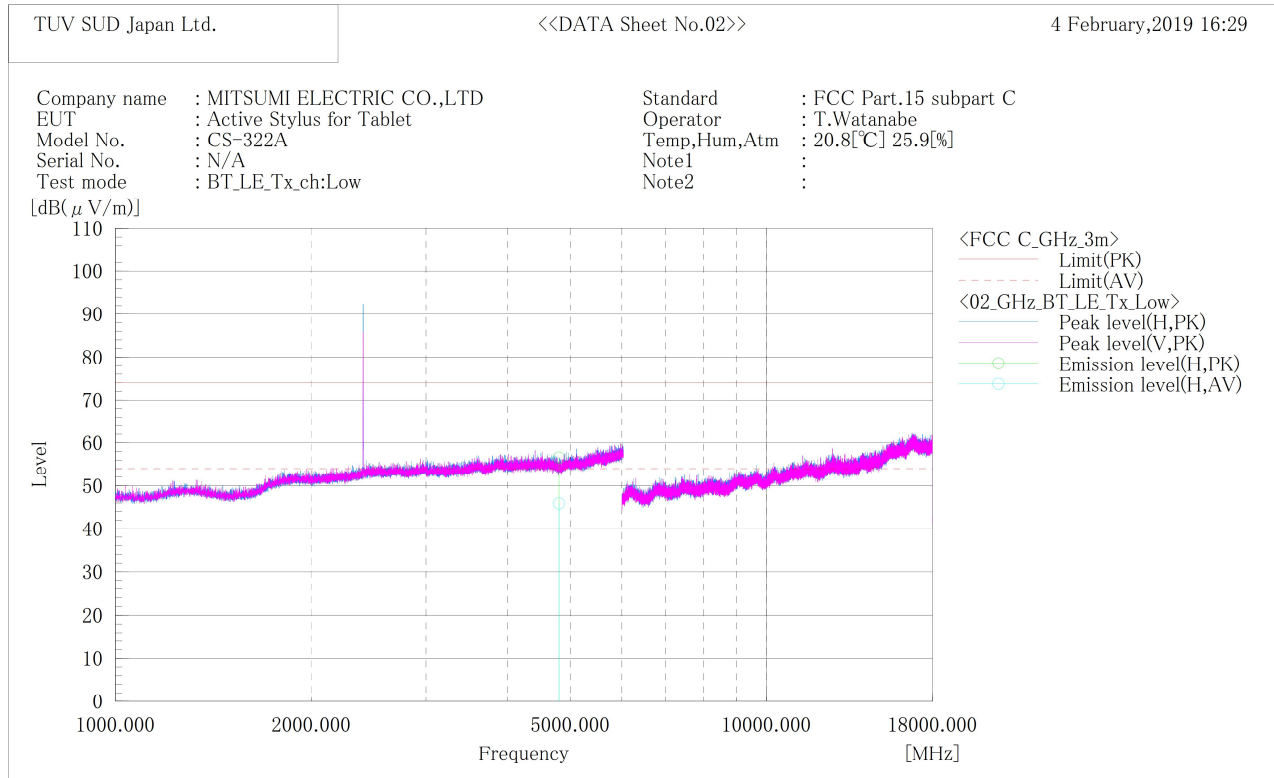
| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c. f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|---------------------|----------------|----------------------|---------------------|----------------|-------------|-----------|--------|
| 1   | 183.480         | V   | 35.4                | -8.2           | 27.2                 | 43.5                | 16.3           | 100.0       | 268.0     |        |
| 2   | 374.870         | V   | 31.1                | -11.8          | 19.3                 | 46.0                | 26.7           | 118.0       | 115.0     |        |

**Note:**

1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

**Channel: Low**  
**ABOVE 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
 [ 3m Semi-anechoic chamber ]



## Final Result

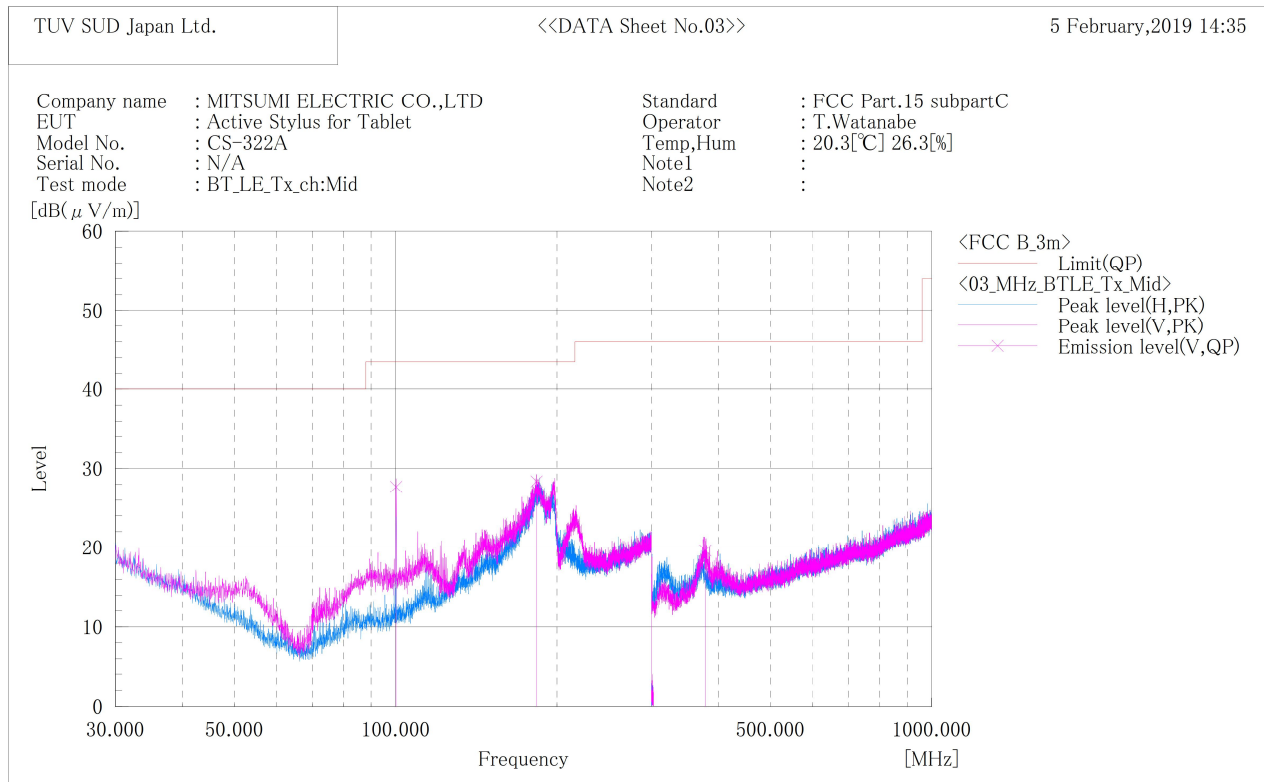
| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c. f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|---------------------|---------------------|----------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|--------|
| 1   | 4804.000        | H   | 47.7                | 37.0                | 8.9            | 56.6                 | 45.9                 | 74.0                | 54.0                | 17.4           | 8.1            | 140.0       | 268.0     |        |

## Note:

1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

**Channel: Middle**  
**BELOW 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
 [ 3m Semi-anechoic chamber ]



## Final Result

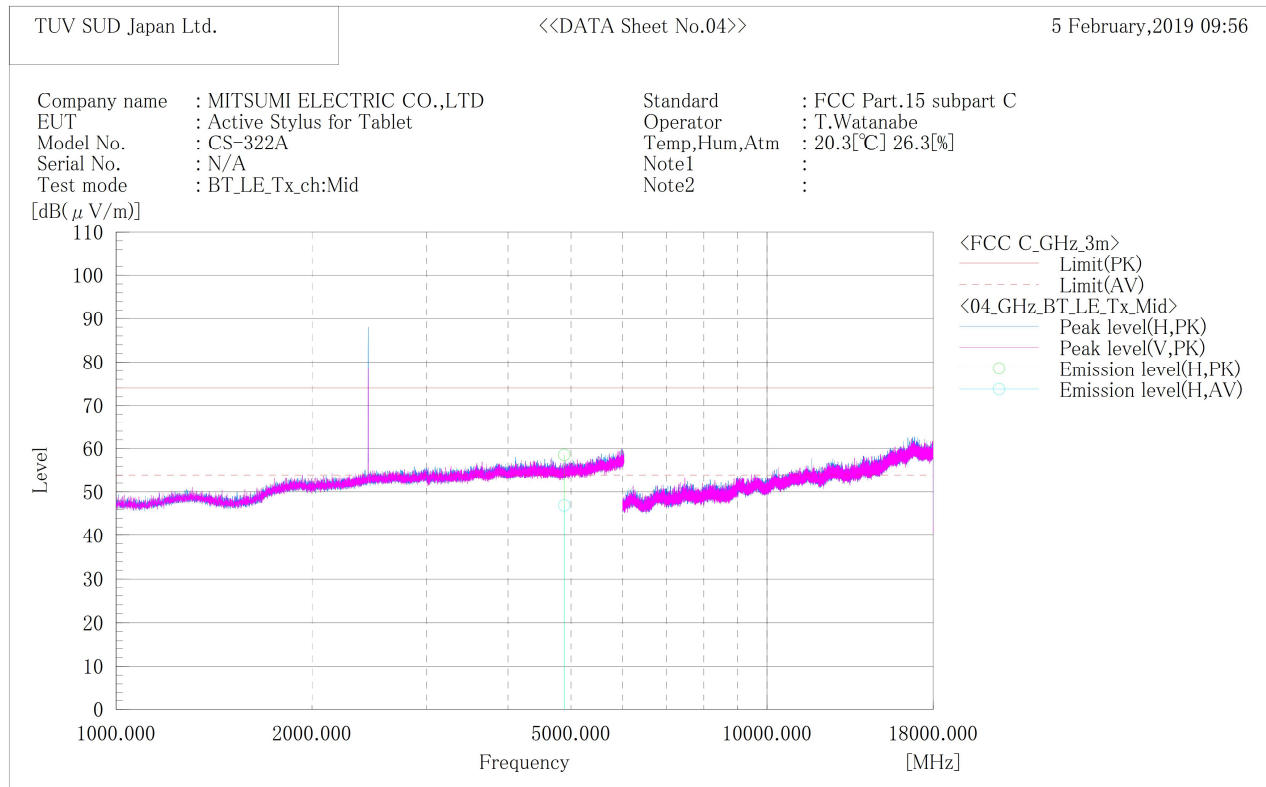
| No. | Frequency [MHz] | (P) | Reading QP [dB(μV)] | c. f [dB(1/m)] | Result QP [dB(μV/m)] | Limit QP [dB(μV/m)] | Margin QP [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|---------------------|----------------|----------------------|---------------------|----------------|-------------|-----------|--------|
| 1   | 100.202         | V   | 42.4                | -14.7          | 27.7                 | 43.5                | 15.8           | 100.0       | 118.0     |        |
| 2   | 183.193         | V   | 36.6                | -8.2           | 28.4                 | 43.5                | 15.1           | 100.0       | 300.0     |        |
| 3   | 378.100         | V   | 31.2                | -11.6          | 19.6                 | 46.0                | 26.4           | 100.0       | 121.0     |        |

## Note:

- Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

**Channel: Middle**  
**ABOVE 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
 [ 3m Semi-anechoic chamber ]



## Final Result

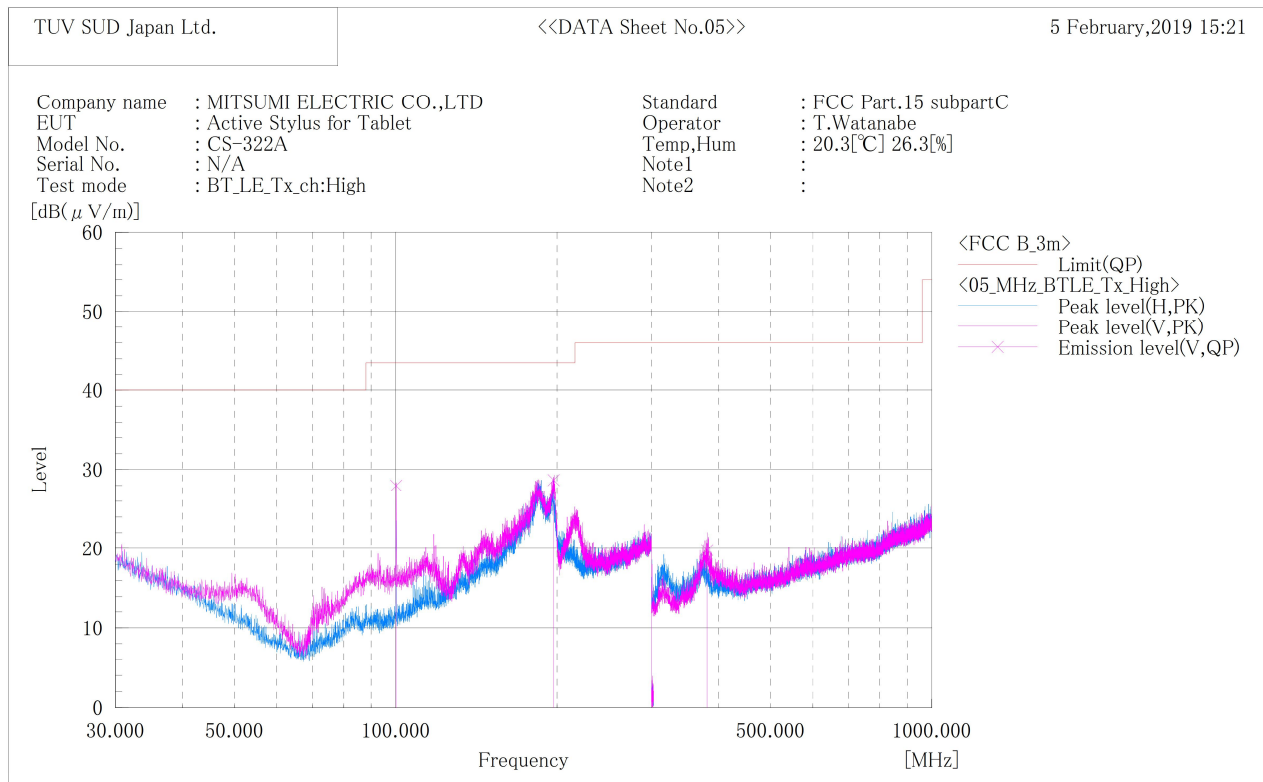
| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c. f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|---------------------|---------------------|----------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|--------|
| 1   | 4880.000        | H   | 49.4                | 37.7                | 9.2            | 58.6                 | 46.9                 | 74.0                | 54.0                | 15.4           | 7.1            | 163.0       | 293.0     |        |

## Note:

1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.

**Channel: High**  
**BELOW 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
 [ 3m Semi-anechoic chamber ]



## Final Result

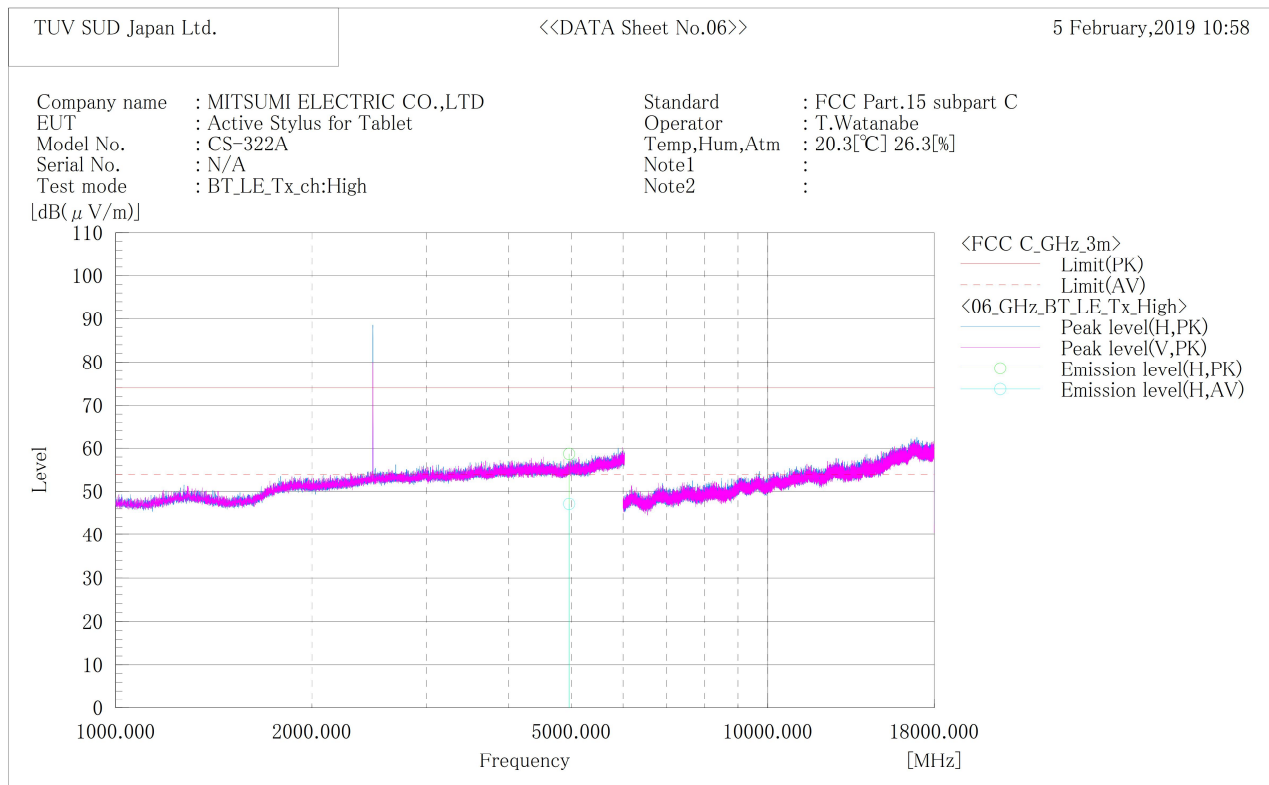
| No. | Frequency [MHz] | (P) | Reading [dB(μV)] | c. f [dB(1/m)] | Result [dB(μV/m)] | Limit [dB(μV/m)] | Margin [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|------------------|----------------|-------------------|------------------|-------------|-------------|-----------|--------|
|     |                 |     | QP               |                | QP                | QP               | QP          |             |           |        |
| 1   | 100.169         | V   | 42.7             | -14.7          | 28.0              | 43.5             | 15.5        | 100.0       | 106.0     |        |
| 2   | 197.040         | V   | 36.8             | -8.1           | 28.7              | 43.5             | 14.8        | 100.0       | 346.0     |        |
| 3   | 380.900         | V   | 31.3             | -11.5          | 19.8              | 46.0             | 26.2        | 105.0       | 129.0     |        |

## Note:

- Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
- No emission were detected in frequency range 9kHz to 30MHz at the 3 meters distance.

**Channel: High**  
**ABOVE 1 GHz**

\*\*\*\*\* RADIATED EMISSION \*\*\*\*\*  
 [ 3m Semi-anechoic chamber ]



## Final Result

| No. | Frequency [MHz] | (P) | Reading PK [dB(μV)] | Reading AV [dB(μV)] | c.f [dB(1/m)] | Result PK [dB(μV/m)] | Result AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Margin PK [dB] | Margin AV [dB] | Height [cm] | Angle [°] | Remark |
|-----|-----------------|-----|---------------------|---------------------|---------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-----------|--------|
| 1   | 4960.000        | H   | 48.9                | 37.3                | 9.8           | 58.7                 | 47.1                 | 74.0                | 54.0                | 15.3           | 6.9            | 129.0       | 101.0     |        |

## Note:

- Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
- No emission were detected in frequency range 18GHz to 25GHz at the 3 meters distance.