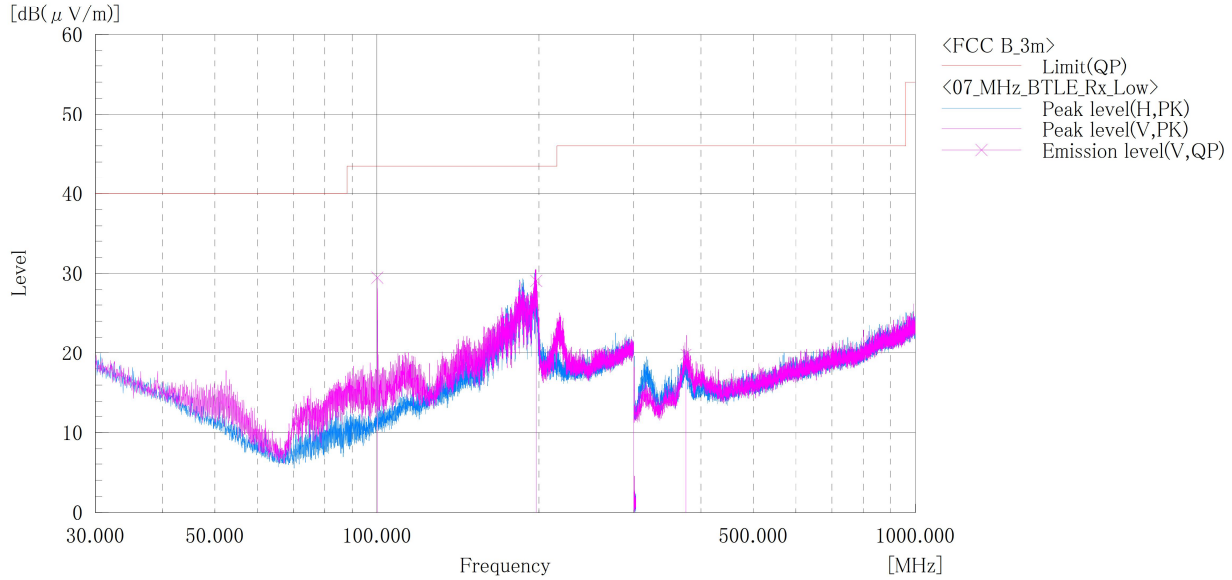
**[Receive mode]**
**Channel: Low**
**BELOW 1 GHz**

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

TUV SUD Japan Ltd. <<DATA Sheet No.07>> 5 February,2019 16:23

| | | | |
|---|---|---|---|
| Company name | : MITSUMI ELECTRIC CO.,LTD | Standard | : FCC Part.15 subpartC |
| EUT | : Active Stylus for Tablet | Operator | : T.Watanabe |
| Model No. | : CS-322A | Temp,Hum | : 20.3[℃] 26.3[%] |
| Serial No. | : N/A | Note1 | : |
| Test mode | : BT_LE_Rx_ch:Low | Note2 | : |




Final Result

| No. | Frequency | (P) | Reading QP | c.f | Result QP | Limit QP | Margin QP | Height | Angle | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | | [dBμV] | [dB(1/m)] | [dBμV/m] | [dBμV/m] | [dB] | [cm] | [° ] | |
| 1 | 100.193 | V | 44.2 | -14.7 | 29.5 | 43.5 | 14.0 | 100.0 | 146.0 | |
| 2 | 197.550 | V | 37.2 | -8.1 | 29.1 | 43.5 | 14.4 | 128.0 | 0.0 | |
| 3 | 374.880 | V | 31.6 | -11.8 | 19.8 | 46.0 | 26.2 | 103.0 | 110.0 | |

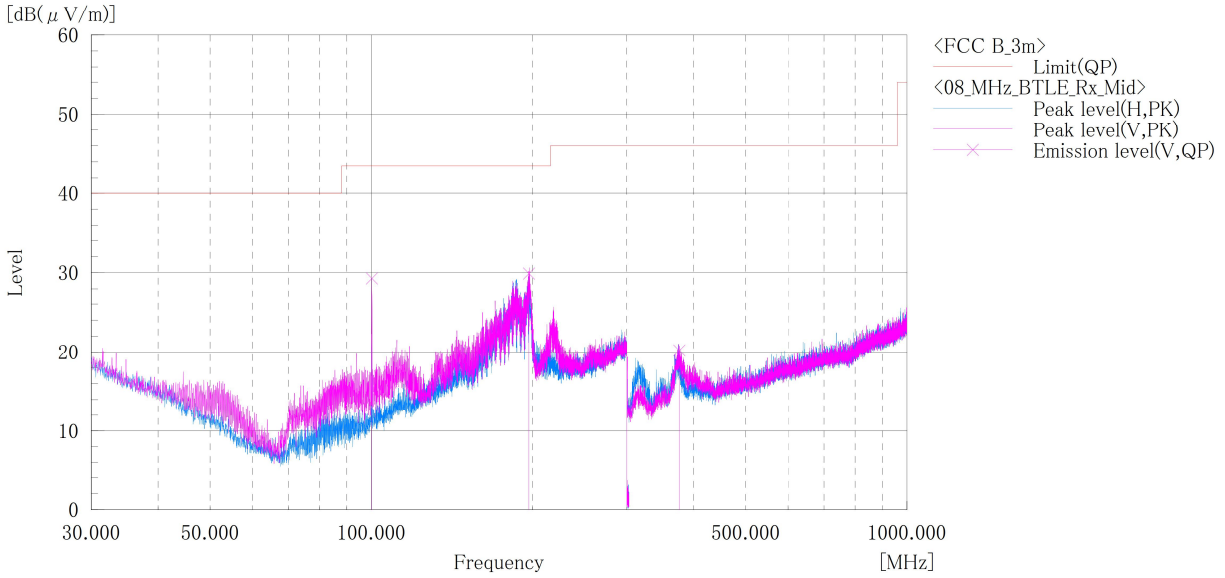
Note:
1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.

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

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

TUV SUD Japan Ltd. <<DATA Sheet No.08>> 5 February,2019 17:07

| | | | |
|---|---|---|---|
| Company name | : MITSUMI ELECTRIC CO.,LTD | Standard | : FCC Part.15 subpartC |
| EUT | : Active Stylus for Tablet | Operator | : T.Watanabe |
| Model No. | : CS-322A | Temp,Hum | : 20.3[℃] 26.3[%] |
| Serial No. | : N/A | Note1 | : |
| Test mode | : BT_LE_Rx_ch:Mid | Note2 | : |




Final Result

| No. | Frequency | (P) | Reading QP | c.f | Result QP | Limit QP | Margin QP | Height | Angle | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | | [dB(μV)] | [dB(1/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB] | [cm] | [° ] | |
| 1 | 100.224 | V | 44.0 | -14.7 | 29.3 | 43.5 | 14.2 | 100.0 | 123.0 | |
| 2 | 196.900 | V | 38.0 | -8.1 | 29.9 | 43.5 | 13.6 | 100.0 | 260.0 | |
| 3 | 375.795 | V | 32.0 | -11.8 | 20.2 | 46.0 | 25.8 | 100.0 | 126.0 | |

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.

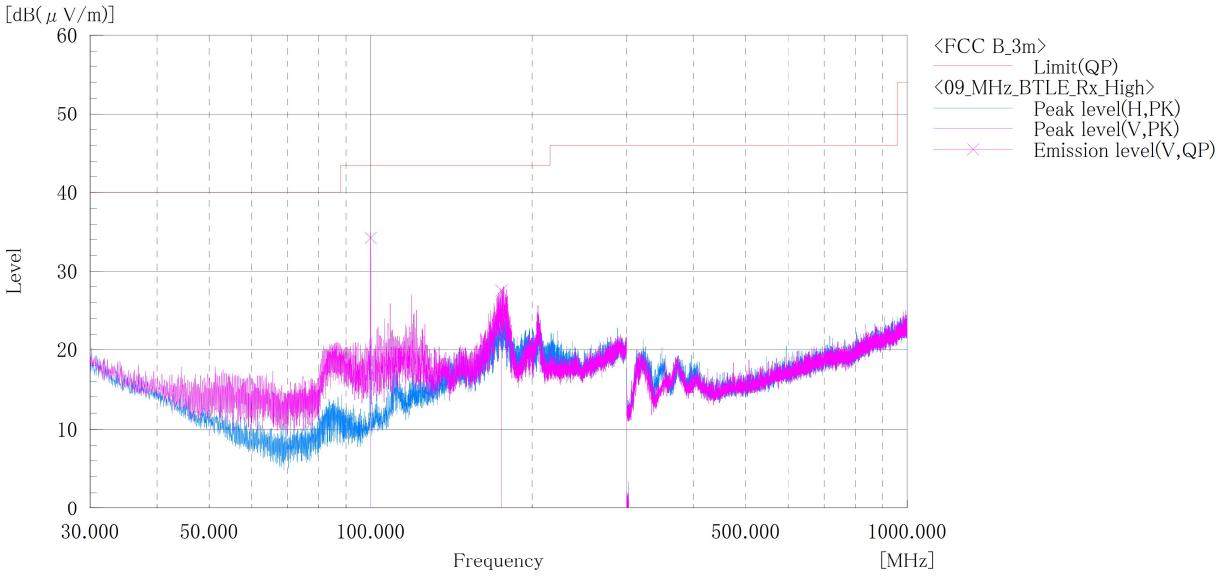
Japan

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

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

TUV SUD Japan Ltd. <<DATA Sheet No.09>> 5 February,2019 17:32

| | | | |
|---|---|---|---|
| Company name | : MITSUMI ELECTRIC CO.,LTD | Standard | : FCC Part.15 subpartC |
| EUT | : Active Stylus for Tablet | Operator | : T.Watanabe |
| Model No. | : CS-322A | Temp,Hum | : 20.3[℃] 26.3[%] |
| Serial No. | : N/A | Note1 | : |
| Test mode | : BT_LE_Rx_ch:High | Note2 | : |




Final Result

| No. | Frequency | (P) | Reading QP | c.f | Result QP | Limit QP | Margin QP | Height | Angle | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | | [dB(μV)] | [dB(1/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB] | [cm] | [° ] | |
| 1 | 100.030 | V | 49.4 | -15.2 | 34.2 | 43.5 | 9.3 | 110.0 | 198.0 | |
| 2 | 175.340 | V | 36.4 | -8.9 | 27.5 | 43.5 | 16.0 | 100.0 | 108.0 | |

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor ( Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 30MHz and 1GHz to 25GHz at the 3 meters distance.

## 4.6 Restricted Band of Operation

### 4.6.1 Measurement procedure

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

Test was applied by following conditions.

| | | |
|---|---|---|
| Test method | : | ANSI C63.10 |
| 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 |
| Spectrum analyzer setting | | |
| - Peak | : | RBW=1MHz, VBW=3MHz, Span=Arbitrary setting, Sweep=auto |
| - Average | : | RBW=1MHz, VBW=3kHz, Span=Arbitrary setting, Sweep=auto<br>Display mode=Linear |

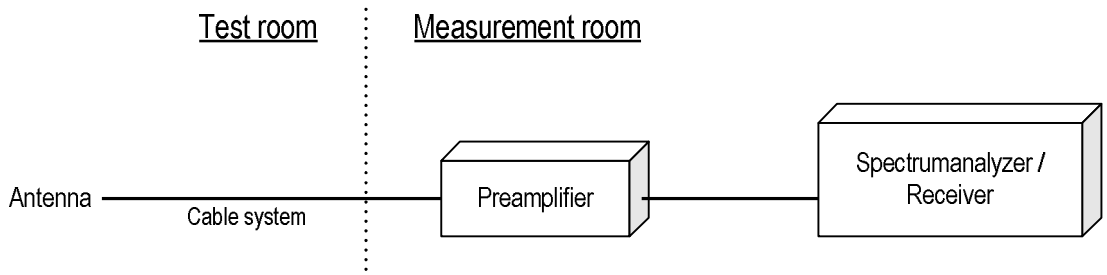
Average Measurement Setting [VBW]

| Mode | Duty Cycle (%) | $T_{on}$ (us) | $T_{off}$ (us) | $1/T_{on}$ (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 are 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



Japan

### 4.6.2 Limit

Emission at the boundary of the restricted band provided by 15.205 shall be lower than 15.209 limit.

### 4.6.3 Measurement result

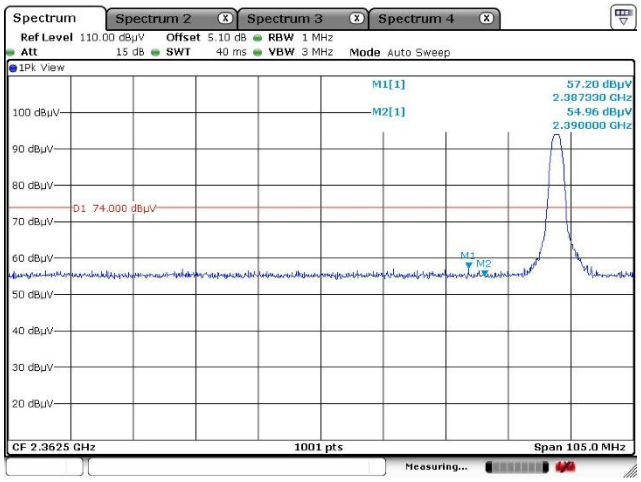
| Channel | Frequency [MHz] | Results Chart | Result |
|---|---|---|---|
| Low | 2402 | See the Trace Data | Pass |
| High | 2480 | See the Trace Data | Pass |

### 4.6.4 Test data

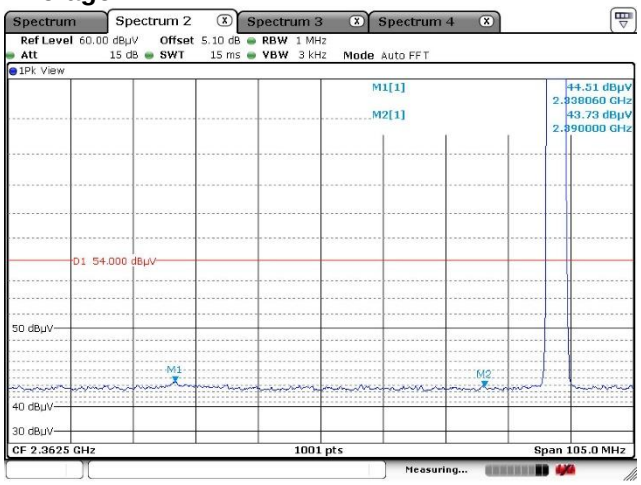
Date : 20-February-2019
Temperature : 19.0 [˚C]
Humidity : 25.0 [%]
Test place : 3m Semi-anechoic chamber

Test engineer : Chiaki Kanno

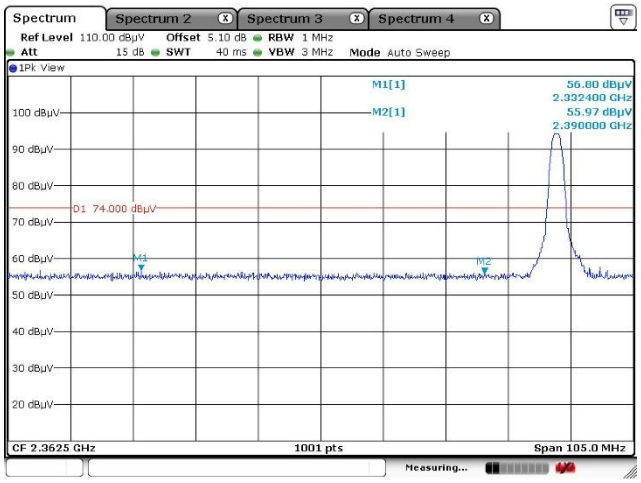
**Channel: Low**
**Horizontal**
**Peak**



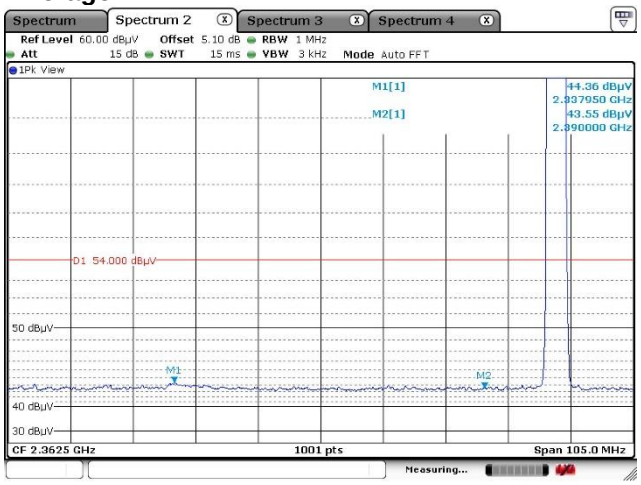

**Average**



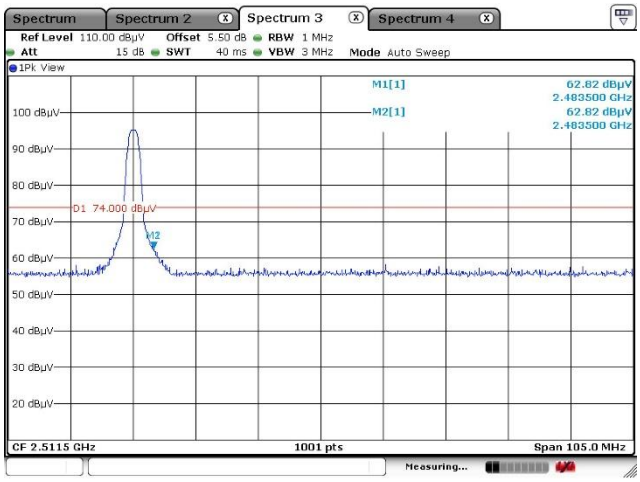

**Vertical**
**Peak**



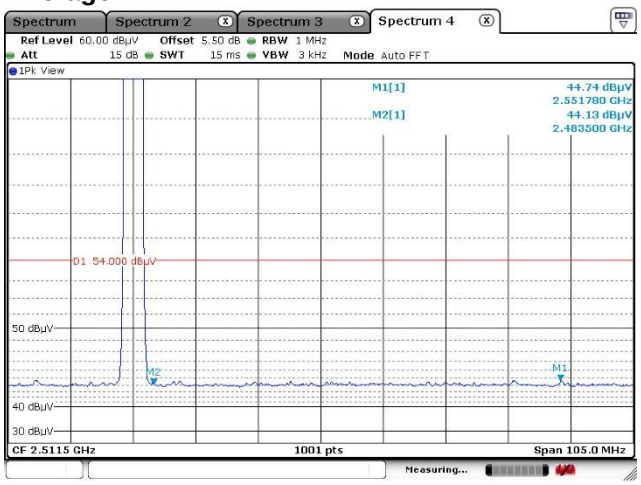

**Average**



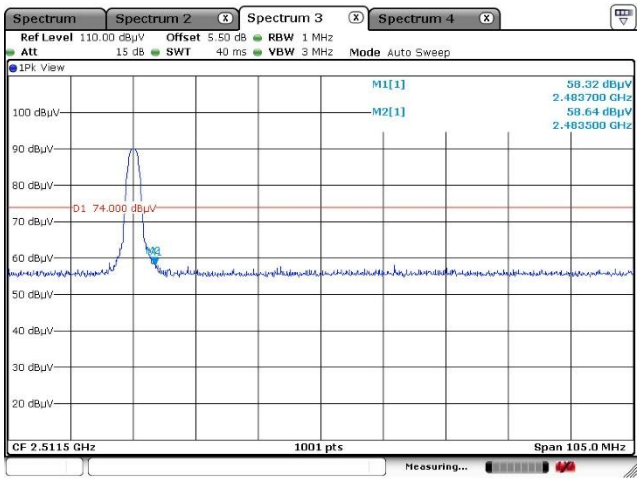
**Channel: High**
**Horizontal**
**Peak**



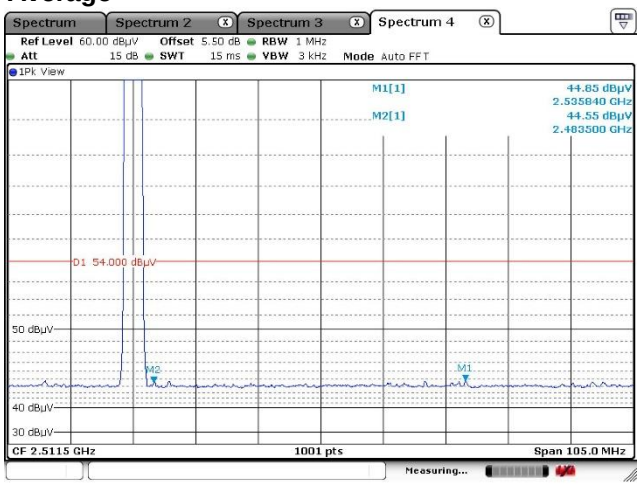

**Average**




**Vertical**
**Peak**




**Average**



Japan

## 4.7 Transmitter Power Spectral Density

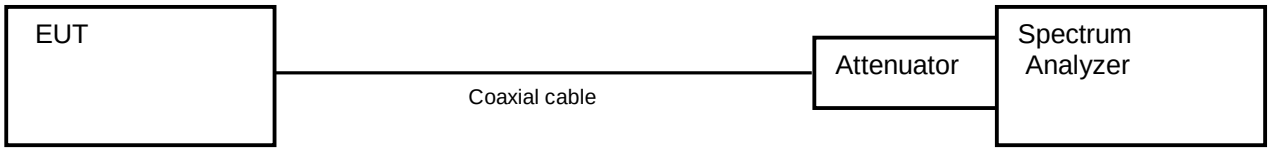
### 4.7.1 Measurement procedure

**[FCC 15.247(e), KDB558074 D01 v05]**

The peak power 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 = 1.5 times the 6 dB bandwidth.
b) RBW = 3kHz - 100kHz.
c) VBW ≥ 3 x RBW.
d) Sweep time = auto-couple.
e) Detector = peak.
f) Trace mode = max hold.

- Test configuration




### 4.7.2 Limit

The peak power spectral density shall not be greater than 8dBm in any 3kHz band.

### 4.7.3 Measurement result

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

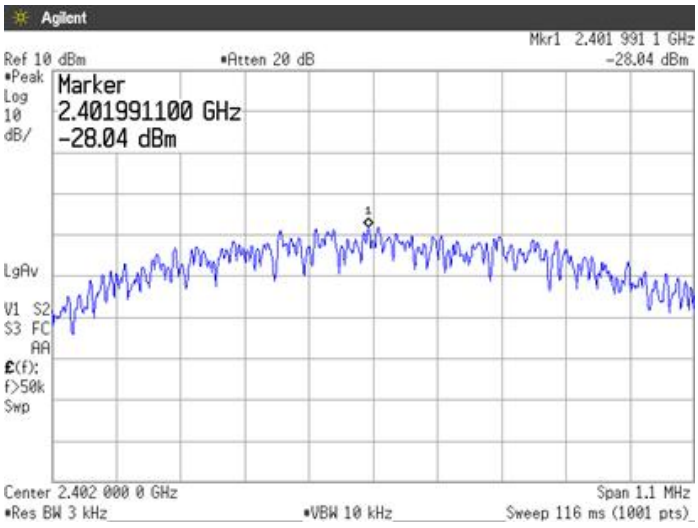
Test engineer : Taiki Watanabe

| Channel | Center Frequency (MHz) | Reading (dBm) | Factor (dB) | Level (dBm) | Limit (dBm) | Margin (dBm) | Result |
|---|---|---|---|---|---|---|---|
| Low | 2402 | -28.04 | 10.37 | -17.67 | 8.00 | 25.67 | PASS |
| Middle | 2440 | -28.03 | 10.37 | -17.66 | 8.00 | 25.66 | PASS |
| High | 2480 | -28.12 | 10.37 | -17.75 | 8.00 | 25.75 | PASS |

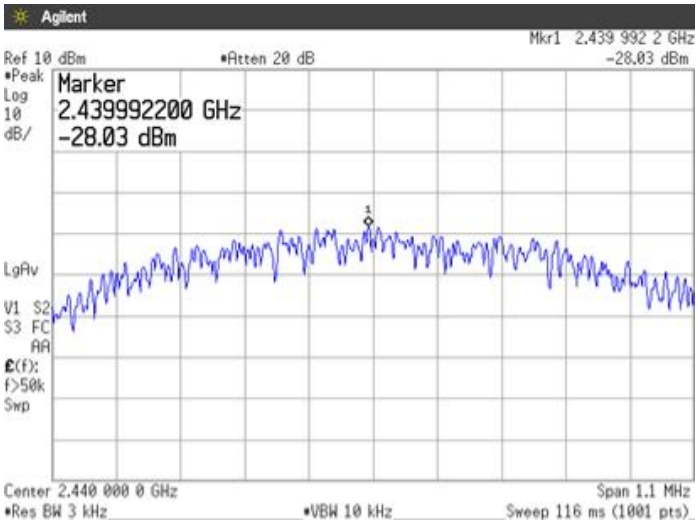
Calculation;
Transmitter Power Spectral Density Level (Margin) = Limit – (Reading + Factor)

### 4.7.4 Trace data

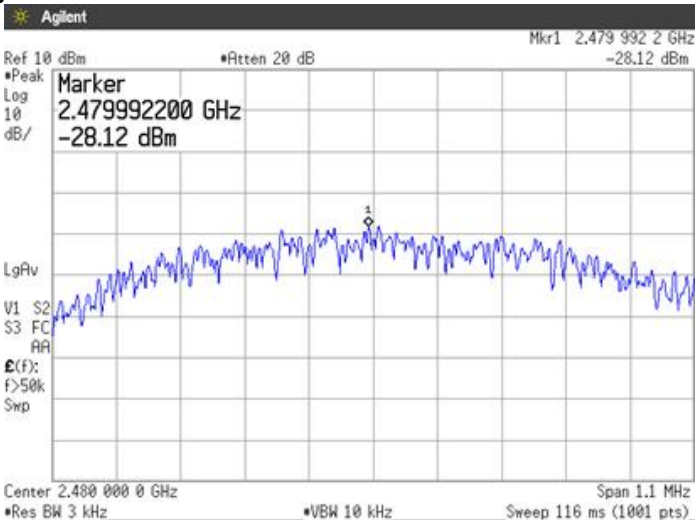
**Channel Low**




**Channel Middle**




**Channel High**



Japan

## 4.8 AC Power Line Conducted Emissions

### 4.8.1 Measurement procedure

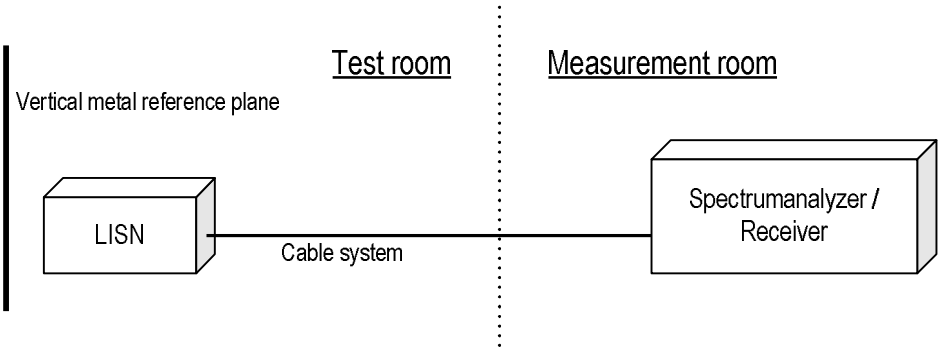
**[FCC 15.207]**

Test was applied by following conditions.

| | | |
|---|---|---|
| Test method | : | ANSI C63.10 |
| Frequency range | : | 0.15 MHz to 30 MHz |
| Test place | : | 3 m Semi-anechoic chamber |
| EUT was placed on | : | FRP table / (W)2.0 m × (D)1.0 m × (H)0.8 m |
| Vertical Metal Reference Plane | : | (W)2.0 m × (H)2.0 m  0.4 m away from EUT |
| Test receiver setting | | |
| - Detector | : | Quasi-peak, Average |
| - Bandwidth | : | 9 kHz |

EUT and peripherals are connected to 50Ω/50μH Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC power cable is bundled in center.
LISN for peripheral is terminated in 50Ω.
EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



### 4.8.2 Calculation method

Emission level = Reading + (LISN. Factor + Cable system loss)
Margin = Limit – Emission level

Example:
Limit @ 6.770 MHz : 60.0 dBµV(Quasi-peak)
: 50.0 dBµV(Average)
(Quasi peak) Reading = 41.2 dBµV c.f = 10.3 dB
Emission level = 41.2 + 10.3 = 51.5 dBµV
Margin = 60.0 – 51.5 = 8.5 dB
(Average) Reading = 35.0 dBµV c.f = 10.3 dB
Emission level = 35.0 + 10.3 = 45.3 dBµV
Margin = 50.0 – 45.3 = 4.7 dB

### 4.8.3 Limit

| Frequency [MHz] | Limit | |
|---|---|---|
| | QP [dBuV] | AV [dBuV] |
| 0.15-0.5 | 66-56* | 56-46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

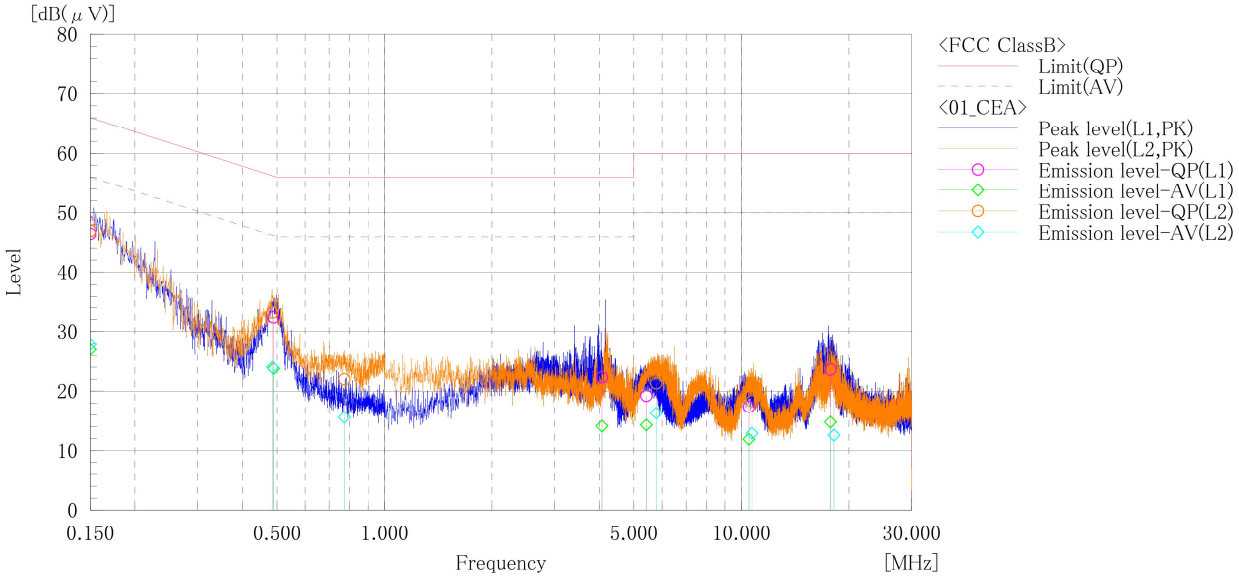
Japan

### 4.8.4 Test data

*****  CONDUCTED EMISSION at MAINS PORT  *****
[  10m semi-anechoic chamber #1  ]

TUV SUD Japan Ltd. | <<DATA Sheet No.01>> | 2 February,2019 06:48

| | | | |
|---|---|---|---|
| Company name | : MITSUMI | Standard | : FCC Part.15 Class B |
| EUT | : Active Stylus for Tablet | Operator | : Tsuyoshi Okumura |
| Model No. | : CS-322A | Temp,Hum,Atm | : 15.5[℃] 26.5[%] 985[hPa] |
| Serial No. | : N/A | Note1 | : |
| Test mode | : Charge mode | Note2 | : |




Final Result

--- L1 Phase ---

| No. | Frequency [MHz] | Reading QP [dB(μV)] | Reading AV [dB(μV)] | c.f [dB] | Result QP [dB(μV)] | Result AV [dB(μV)] | Limit QP [dB(μV)] | Limit AV [dB(μV)] | Margin QP [dB] | Margin AV [dB] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.150 | 35.9 | 16.5 | 10.6 | 46.5 | 27.1 | 66.0 | 56.0 | 19.5 | 28.9 |
| 2 | 0.489 | 22.0 | 13.4 | 10.4 | 32.4 | 23.8 | 56.2 | 46.2 | 23.8 | 22.4 |
| 3 | 4.070 | 11.5 | 3.3 | 10.8 | 22.3 | 14.1 | 56.0 | 46.0 | 33.7 | 31.9 |
| 4 | 5.417 | 8.3 | 3.4 | 10.9 | 19.2 | 14.3 | 60.0 | 50.0 | 40.8 | 35.7 |
| 5 | 10.499 | 6.3 | 0.8 | 11.1 | 17.4 | 11.9 | 60.0 | 50.0 | 42.6 | 38.1 |
| 6 | 17.750 | 12.2 | 3.4 | 11.4 | 23.6 | 14.8 | 60.0 | 50.0 | 36.4 | 35.2 |

--- L2 Phase ---

| No. | Frequency [MHz] | Reading QP [dB(μV)] | Reading AV [dB(μV)] | c.f [dB] | Result QP [dB(μV)] | Result AV [dB(μV)] | Limit QP [dB(μV)] | Limit AV [dB(μV)] | Margin QP [dB] | Margin AV [dB] |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.150 | 36.5 | 17.4 | 10.5 | 47.0 | 27.9 | 66.0 | 56.0 | 19.0 | 28.1 |
| 2 | 0.486 | 22.8 | 13.6 | 10.4 | 33.2 | 24.0 | 56.2 | 46.2 | 23.0 | 22.2 |
| 3 | 0.772 | 11.6 | 5.2 | 10.4 | 22.0 | 15.6 | 56.0 | 46.0 | 34.0 | 30.4 |
| 4 | 5.770 | 10.4 | 5.4 | 10.9 | 21.3 | 16.3 | 60.0 | 50.0 | 38.7 | 33.7 |
| 5 | 10.695 | 7.2 | 1.8 | 11.1 | 18.3 | 12.9 | 60.0 | 50.0 | 41.7 | 37.1 |
| 6 | 18.156 | 9.9 | 1.2 | 11.4 | 21.3 | 12.6 | 60.0 | 50.0 | 38.7 | 37.4 |

Japan

# 5 Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.
The antenna is a special antenna mounted inside of the EUT. Therefore, the EUT complies with the antenna requirement of FCC section 15.203.

Japan

# 6 Measurement Uncertainty

Expanded uncertainties stated are calculated with a coverage Factor k=2.
Please note that these results are not taken into account when measurement uncertainty considerations contained in ETSI TR 100 028-0011 determining compliance or non-compliance with test result.

| Test item | Measurement uncertainty |
|---|---|
| Conducted emission, AMN (9 kHz – 150 kHz) | ±3.8 dB |
| Conducted emission, AMN (150 kHz – 30 MHz) | ±3.3 dB |
| Radiated emission (9 kHz – 30 MHz) | ±3.0 dB |
| Radiated emission (30 MHz – 1000 MHz) | ±4.7 dB |
| Radiated emission (1 GHz – 6 GHz) | ±4.9 dB |
| Radiated emission (6 GHz – 18 GHz) | ±5.2 dB |
| Radiated emission (18 GHz – 40 GHz) | ±5.8 dB |

Japan

# 7 Laboratory Information

Testing was performed and the report was issued at:

**TÜV SÜD Japan Ltd. Yonezawa Testing Center**

Address: 5-4149-7 Hachimanpara, Yonezawa-shi, Yamagata, 992-1128 Japan
Phone: +81-238-28-2881
Fax: +81-238-28-2888

**Accreditation and Registration**
NVLAP
LAB CODE: 200306-0

VLAC
Accreditation No.: VLAC-013

BSMI
Laboratory Code: SL2-IN-E-6018, SL2-A1-E-6018

Innovation, Science and Economic Development Canada

| Site number | Facility | Expiration date |
|---|---|---|
| 4224A-4 | 3 m Semi-anechoic chamber | 27-November-2020 |
| 4224A-5 | 10 m Semi-anechoic chamber No. 1 | 27-November-2020 |
| 4224A-6 | 10 m Semi-anechoic chamber No. 2 | 14-December-2019 |

VCCI Council

| Registration number | Expiration date |
|---|---|
| A-0166 | 03-July-2019 |

# Appendix A. Test Equipment

### Antenna port conducted test

| Equipment | Company | Model No. | Serial No. | Cal. Due | Cal. Date |
|---|---|---|---|---|---|
| Spectrum analyzer | Agilent Technologies | E4440A | US44302655 | 31-Jul-2019 | 02-Jul-2018 |
| Attenuator | Weinschel | 56-10 | J4180 | 31-Jul-2019 | 12-Jul-2018 |
| Power meter | ROHDE&SCHWARZ | NRP2 | 103269 | 31-Aug-2019 | 01-Aug-2018 |
| Power sensor | ROHDE&SCHWARZ | NRP-Z81 | 102467 | 31-Aug-2019 | 01-Aug-2018 |

### Radiated emission

| Equipment | Company | Model No. | Serial No. | Cal. Due | Cal. Date |
|---|---|---|---|---|---|
| EMI Receiver | ROHDE&SCHWARZ | ESCI | 100765 | 30-Sep-2019 | 20-Sep-2018 |
| Spectrum analyzer | ROHDE&SCHWARZ | FSV40 | 101731 | 31-Dec-2019 | 07-Dec-2018 |
| Spectrum analyzer | Agilent Technologies | E4440A | US40420937 | 31-Oct-2019 | 12-Oct-2018 |
| Preamplifier | SONOMA | 310 | 372170 | 30-Sep-2019 | 20-Sep-2018 |
| Loop antenna | ROHDE&SCHWARZ | HFH2-Z2 | 100515 | 28-Feb-2019 | 20-Feb-2018 |
| Loop antenna | ROHDE&SCHWARZ | HFH2-Z2 | 892246/010 | 30-Jun-2019 | 12-Jun-2018 |
| Attenuator | TDC | TAT-43B-06 | N/A(S209) | 31-Jul-2019 | 11-Jul-2018 |
| Biconical antenna | Schwarzbeck | VHA9103/BBA9106 | VHA91032155 | 31-Aug-2019 | 06-Aug-2018 |
| Log periodic antenna | Schwarzbeck | UHALP9108A | 0560 | 31-Aug-2019 | 06-Aug-2018 |
| Attenuator | TAMAGAWA.ELEC | CFA-01/6dB | N/A(S465) | 31-May-2019 | 16-May-2018 |
| Attenuator | TAMAGAWA.ELEC | CFA-10/3dB | N/A(S503) | 31-Jul-2019 | 11-Jul-2018 |
| Preamplifier | TSJ | MLA-100M18-B02-40 | 1929118 | 31-Jan-2020 | 17-Jan-2019 |
| Attenuator | AEROFLEX | 26A-10 | 081217-08 | 31-Jan-2019 | 18-Jan-2018 |
| | | | | 31-Jan-2020 | 17-Jan-2019 |
| Double ridged guide antenna | ETS LINDGREN | 3117 | 00052315 | 31-Mar-2019 | 14-Mar-2018 |
| Attenuator | Agilent Technologies | 8491B | MY39268633 | 31-Mar-2019 | 14-Mar-2018 |
| Double ridged guide antenna | A.H.Systems Inc. | SAS-574 | 469 | 31-Aug-2019 | 24-Aug-2018 |
| Preamplifier | TSJ | MLA-1840-B03-35 | 1240332 | 31-Aug-2019 | 24-Aug-2018 |
| Notch filter | Micro-Tronics | BRM50702 | 045 | 31-May-2019 | 16-May-2018 |
| Microwave cable | HUBER+SUHNER | SUCOFLEX104/9m | MY30037/4 | 31-Jan-2020 | 16-Jan-2019 |
| | | SUCOFLEX104/1m | my24610/4 | 31-Jan-2020 | 16-Jan-2019 |
| | | SUCOFLEX104/8m | SN MY30031/4 | 31-Jan-2020 | 16-Jan-2019 |
| | | SUCOFLEX104 | MY32976/4 | 31-Jan-2020 | 16-Jan-2019 |
| | | SUCOFLEX104/1.5m | MY19309/4 | 31-Jan-2020 | 16-Jan-2019 |
| | | SUCOFLEX104/7m | 41625/6 | 31-Jan-2020 | 16-Jan-2019 |
| PC | DELL | DIMENSION E521 | 75465BX | N/A | N/A |
| Software | TOYO Corporation | EP5/RE-AJ | 0611193/V5.6.0 | N/A | N/A |
| Absorber | RIKEN | PFP30 | N/A | N/A | N/A |
| 3m Semi an-echoic Chamber | TOKIN | N/A | N/A(9002-NSA) | 31-May-2019 | 21-May-2018 |
| 3m Semi an-echoic Chamber | TOKIN | N/A | N/A(9002-SVSWR) | 31-May-2019 | 22-May-2018 |

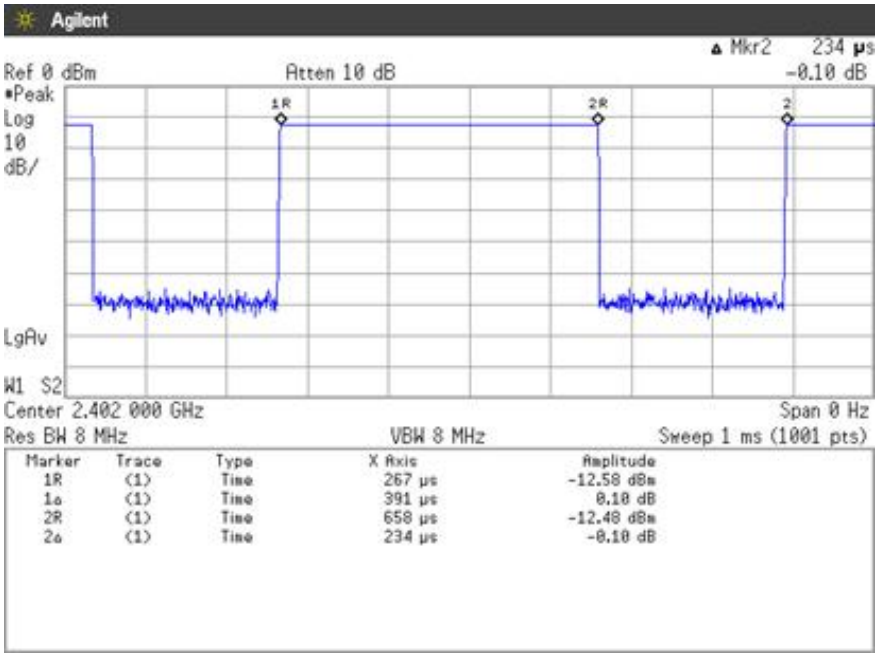
**Conducted emission at mains port**

| Equipment | Company | Model No. | Serial No. | Cal. Due | Cal. Date |
|---|---|---|---|---|---|
| EMI Receiver | ROHDE&SCHWARZ | ESCI | 100765 | 30-Sep-2019 | 20-Sep-2018 |
| Attenuator | HUBER+SUHNER | 6810.01.A | N/A (S411) | 31-Jan-2020 | 17-Jan-2019 |
| Line impedance stabilization network | Kyoritsu Electrical Works, Ltd. | KNW-407F | 8-2003-1 | 28-Feb-2019 | 28-Feb-2018 |
| Coaxial cable | FUJIKURA | 5D-2W/4m | N/A (S350) | 31-Jan-2020 | 16-Jan-2019 |
| Coaxial cable | FUJIKURA | 5D-2W/1m | N/A (S193) | 31-Jan-2020 | 16-Jan-2019 |
| Coaxial cable | HUBER+SUHNER | RG214/U/10m | N/A (S194) | 31-Jan-2020 | 16-Jan-2019 |
| PC | DELL | DIMENSION | 75465BX | N/A | N/A |
| Software | TOYO Corporation | EP5/CE-AJ | 0611193/V5.4.11 | N/A | N/A |

*: The calibrations of the above equipment are traceable to NIST or equivalent standards of the reference organizations.

# Appendix B. Duty Cycle

**[Plot & Calculation]**




Duty Cycle = Ton / (Ton + Toff) = 391[µs] / (391[µs] + 234[µs]) = 62.56[%]