



# TEST REPORT



Report No. : KES-EM252488

Page 1 / 36

**KES Co., Ltd.**

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## 1. Client

Applicant : Thatway Inc.

Applicant Address : C-806, 357, Guseong-ro, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea

## 2. Sample Description

Product name : Portable Beauty Device

Model/Type No. : Ollier.S1

Variant Model : -

Manufacturer : Thatway Inc.

Manufacturer Address : C-806, 357, Guseong-ro, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea

3. FCC ID : 2BR5U-OLLIERS1

4. Date of Receipt : Jul. 11, 2025

5. Test date : Jul. 24, 2025 ~ Jul. 25, 2025

6. Date of Issue : Nov. 24, 2025

7. Test Results : In Compliance

Tested by

Reviewed by

  
[김효진]2025/11/24

  
[강동훈]2025/11/24

Hyo Jin, Kim  
EMC Test Engineer

Dong Hun, Jang  
EMC Technical Manager

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

KES-QP16-F01(00-23-01-01)

KES Co., Ltd.

The authenticity of this test report can be found on the verification page of our website (www.kes.co.kr)



REPORT REVISION HISTORY

| Date          | Test Report No. | Revision History |
|---------------|-----------------|------------------|
| Nov. 24, 2025 | KES-EM252488    | Issued           |
|               |                 |                  |
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## 1.0 General Product Description

Main Specifications of EUT are:

| Division                             |             | Specificity                                                  |
|--------------------------------------|-------------|--------------------------------------------------------------|
| Internal highest operating frequency |             | 32 MHz                                                       |
| Power                                | Rated Power | Charging: DC 5 V(USB)<br>Operating: DC 7.4 V(Battery)        |
|                                      | Test Power  | Charging: AC 120 V, 60 Hz<br>Operating: DC 7.4 V             |
| Ports                                | I/O Port    | USB C-type, Contact part                                     |
|                                      | Unused Port | NA                                                           |
| Components                           |             | Main Body 1 EA, Cable 1 EA,<br>SONO Head 1 EA, HIFU Head 1EA |
| Radio Frequency                      |             | Bluetooth                                                    |



## 1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

☒ AC 120 V, 60 Hz    ☒ DC 7.4 V

## 1.2 Variant Model Differences

Not applicable

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

| Description            | Model Number    | Serial Number | Manufacturer                                  | Remarks |
|------------------------|-----------------|---------------|-----------------------------------------------|---------|
| Portable Beauty Device | Ollier.S1       | -             | Thatway Inc.                                  | EUT     |
| SONO Head              | -               | -             | Thatway Inc.                                  | -       |
| HIFU Head              | -               | -             | Thatway Inc.                                  | -       |
| Battery                | HY18650-2400-2S | -             | ShenZhen Huayu New Energy Technology CO., LTD | -       |

## 1.5 Support Equipments

| Description | Model Number     | Serial Number | Manufacturer                          | Remarks |
|-------------|------------------|---------------|---------------------------------------|---------|
| Adapter     | IBD165B-1U2C-65W | -             | Dougguan Galasea Technology Co., Ltd. | -       |
| Cell Phone  | A1905            |               | Apple Inc.                            | -       |



## 1.6 External I/O Cabling

### ■ mode 1

| Start                        |              | END             |              | Cable Spec. |        |
|------------------------------|--------------|-----------------|--------------|-------------|--------|
| Description                  | I/O Port     | Description     | I/O Port     | Length      | Shield |
| Portable Beauty Device (EUT) | USB C-type   | Adapter         | USB A-type   | 0.5         | U      |
|                              | Contact part | SONO Head (EUT) | Contact part | -           | -      |

\* Unshielded=U, Shielded=S

### ■ mode 2

| Start                        |              | END             |              | Cable Spec. |        |
|------------------------------|--------------|-----------------|--------------|-------------|--------|
| Description                  | I/O Port     | Description     | I/O Port     | Length      | Shield |
| Portable Beauty Device (EUT) | Contact part | SONO Head (EUT) | Contact part | -           | -      |
|                              | Wireless     | Cell Phone      | Wireless     | -           | -      |

\* Unshielded=U, Shielded=S

### ■ mode 3

| Start                        |              | END             |              | Cable Spec. |        |
|------------------------------|--------------|-----------------|--------------|-------------|--------|
| Description                  | I/O Port     | Description     | I/O Port     | Length      | Shield |
| Portable Beauty Device (EUT) | Contact part | HIFU Head (EUT) | Contact part | -           | -      |
|                              | Wireless     | Cell Phone      | Wireless     | -           | -      |

\* Unshielded=U, Shielded=S

**1.7 EUT Operating Mode(s)**

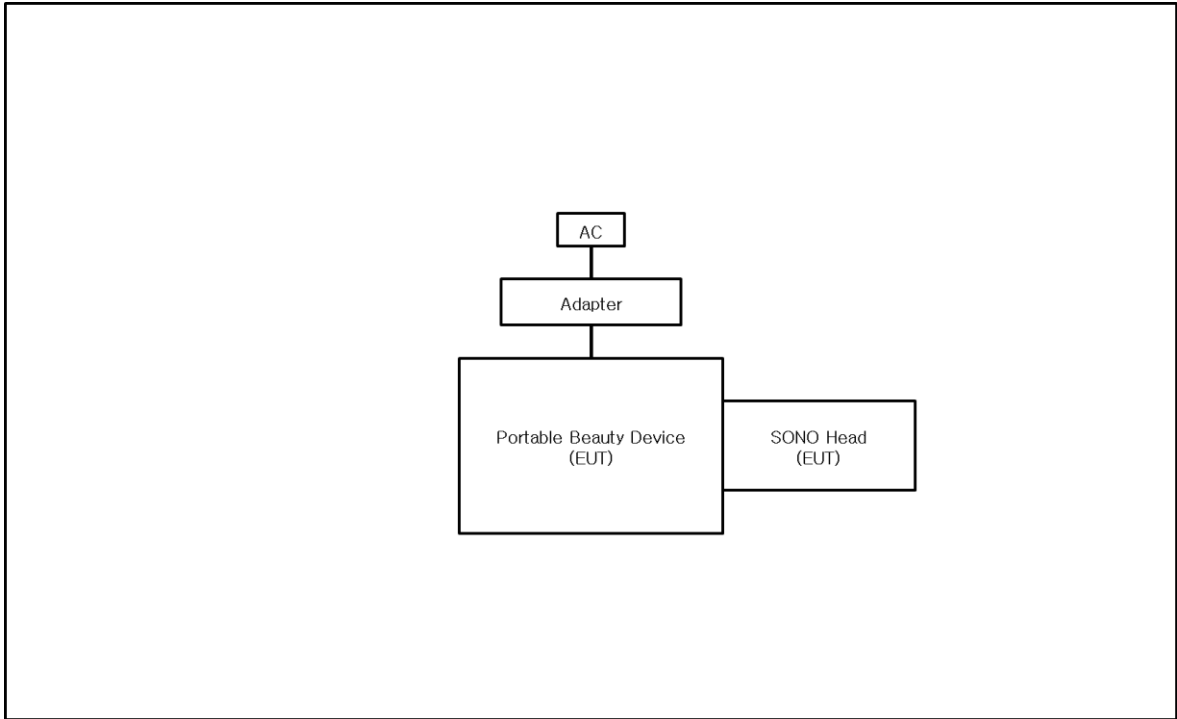
| Test No. | Test mode                    | Normal operating                                                                      |
|----------|------------------------------|---------------------------------------------------------------------------------------|
| mode 1   | AC Power<br>(AC 120 V 60 Hz) | Check normal charging status.                                                         |
| mode 2   | Battery<br>(DC 7.4 V)        | Check normal operation status.<br>It was tested with the wireless function activated. |
| mode 3   | Battery<br>(DC 7.4 V)        | Check normal operation status.<br>It was tested with the wireless function activated. |

| EUT Test operating S/W |         |                     |
|------------------------|---------|---------------------|
| Name                   | Version | Manufacture Company |
| -                      | -       | -                   |

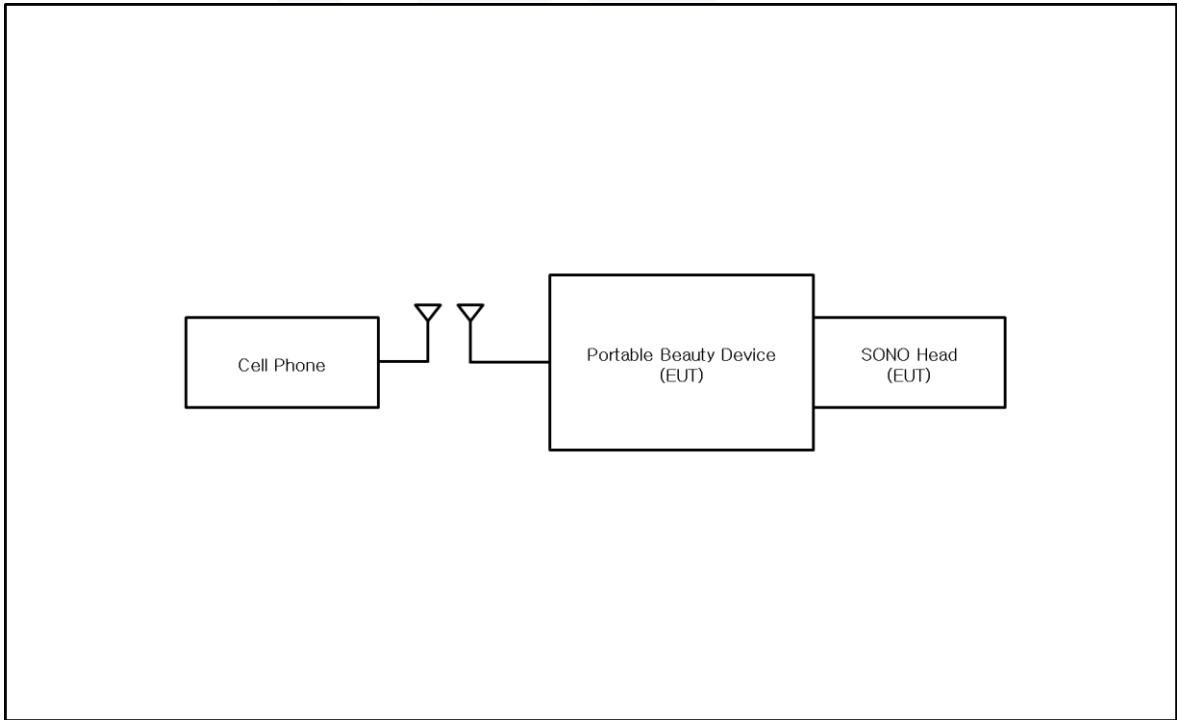


1.8 Configuration

■ mode 1

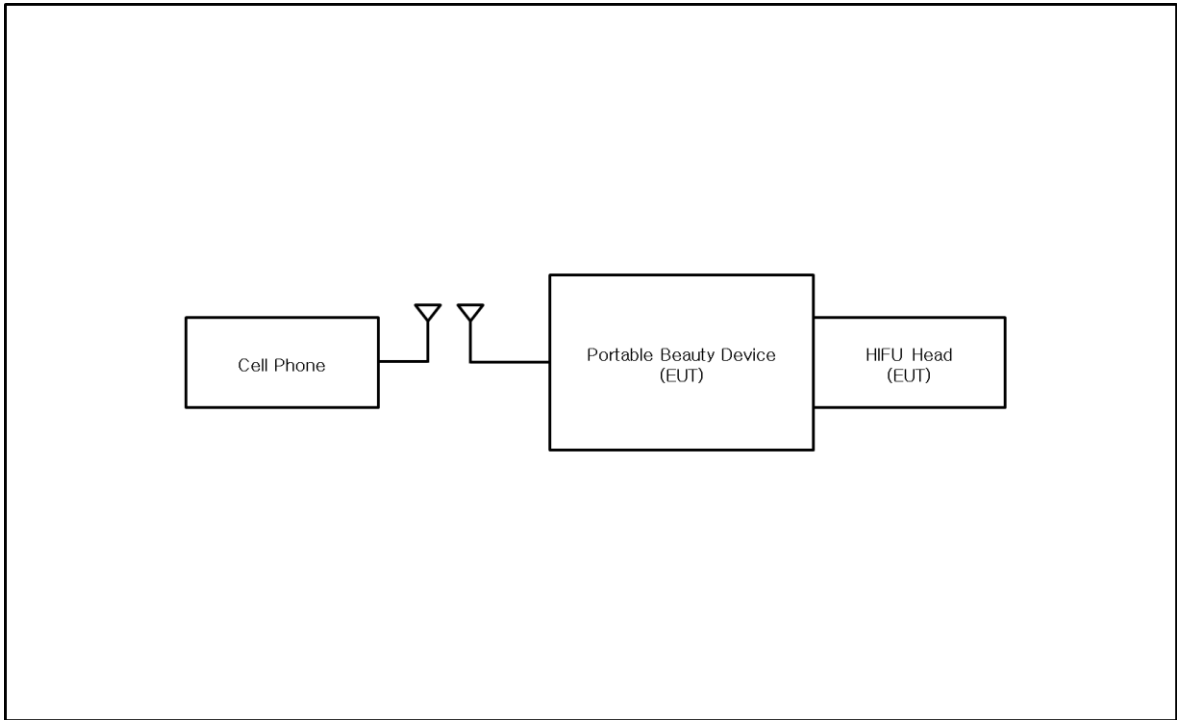


■ mode 2





■ mode 3





## 1.9 Remarks when standards applied

Bluetooth Always working during testing

## 1.10 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

## 1.11 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Korea, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

## 1.12 Measurement Procedure

### - Conducted Emissions

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

### - Radiated Electric Field Emissions

The test was done at a SEMI ANECHOIC CHAMBER with quasi-peak detector. The final test data was measured using a Quasi-Peak detector below 1 GHz at 10 m or 3 m distance and a Peak and Average detector above 1 GHz at 3 m distance. Test was proceeded worst case test mode and cable configuration.

Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Measurement procedures was In accordance with ANSI C63.4-2014 7.3.3, 7.3.4, 8.3.1.1, 8.3.1.2, 8.3.2.1, 8.3.2.2

**1.13 Laboratory Accreditations and Listings**

| Country       | Agency  | Scope of Accreditation                                                                                                                  | Logo                                                                                                                           |
|---------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| KOREA         | RRA     | EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | <br>KR0100                                  |
| International | KOLAS   | EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | <br>KT489                                   |
| USA           | FCC     | 3 m & 10 m Semi-Anechoic Chamber<br>Conducted test site to perform FCC Part 15/18 measurements.                                         | <br>KR0100                                  |
| Canada        | ISED    | 3 m & 10 m Semi-Anechoic Chamber and Conducted test site                                                                                | <br>23298                                  |
| JAPAN         | VCCI    | EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)                                                                          | <br>C-20136, T-20137,<br>R-20181, G-20176 |
| Europe        | TÜV SÜD | EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions) | <br>CARAT 001633 0008                     |



## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ 47 CFR Part 15, Subpart B

☒ ANSI C63.4a-2017

☐ Class A

☒ Class B





## 2.1 Conducted Emissions at Mains Power Ports

**Test Date**

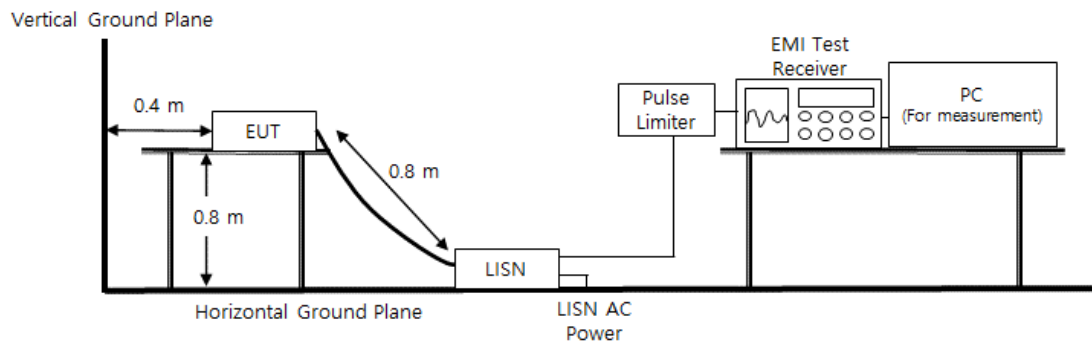
Jul. 24, 2025

**Test Location**

SHIELD ROOM #6

**Test Equipment**

| Used                                | Description              | Model Number | Manufacturer | Serial Number | Cal. Due     | calibration interval |
|-------------------------------------|--------------------------|--------------|--------------|---------------|--------------|----------------------|
| <input checked="" type="checkbox"/> | EMI Test S/W             | EMC32        | R & S        | 9.12.00       | -            | -                    |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER        | ESR3         | R & S        | 101783        | 11, 06, 2025 | 1 Year               |
| <input checked="" type="checkbox"/> | LISN                     | ENV216       | R & S        | 101786        | 01, 09, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | ARTIFICIAL MAINS NETWORK | ESH2-Z5      | R & S        | 100450        | 11, 06, 2025 | 1 Year               |
| <input checked="" type="checkbox"/> | PULSE LIMITER            | ESH3-Z2      | R & S        | 101915        | 11, 06, 2025 | 1 Year               |

**Diagram of test setup**



### Test Conditions

Temperature: (25,3 ± 0,2) °C  
Relative Humidity: (52,5 ± 0,1) % R.H.

### Frequency Range of Measurement

150 kHz to 30 MHz

### Instrument Settings

IF Band Width: 9 kHz

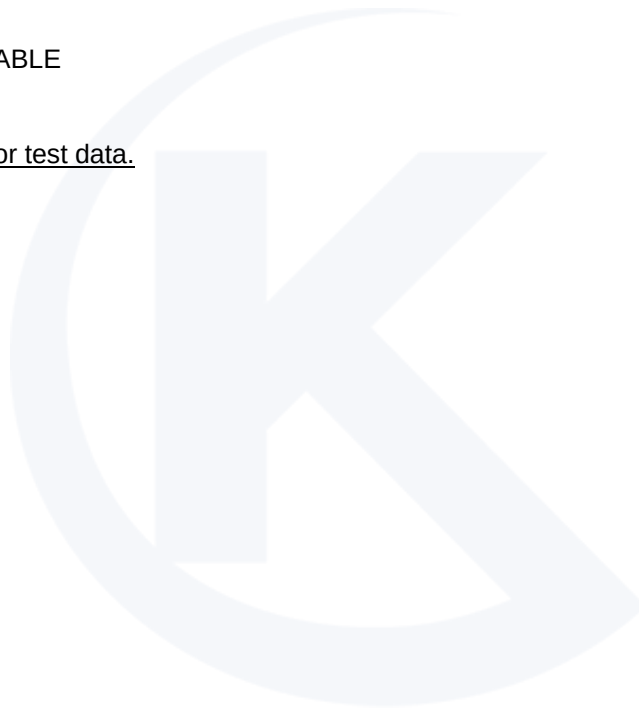
### Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.





## 2.2 Radiated Electric Field Emissions(Below 1 GHz)

### Test Date

Jul. 24, 2025

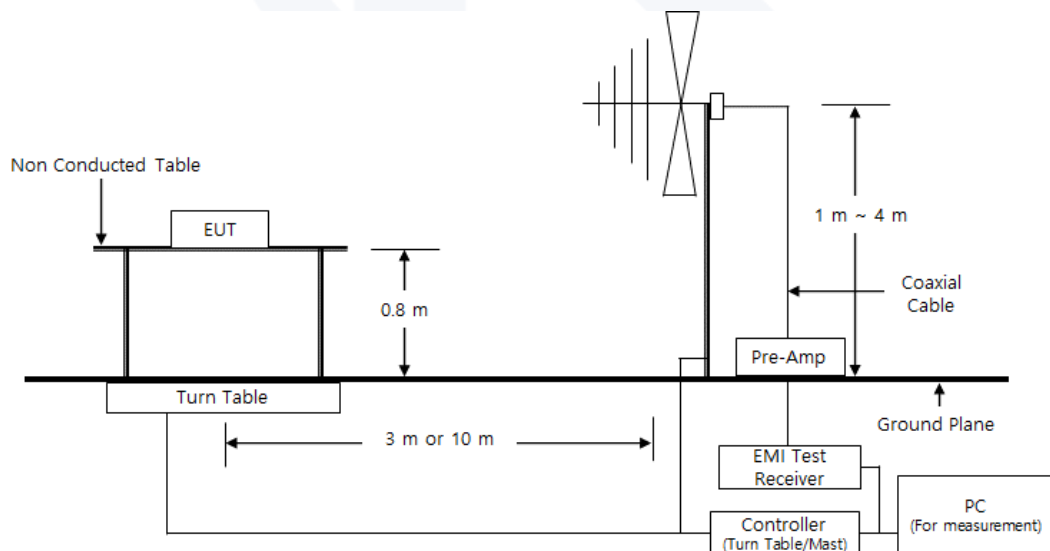
### Test Location

☒ SEMI ANECHOIC CHAMBER #6 (3 m)

### Test Equipment

| Used                                | Description              | Model Number | Manufacturer      | Serial Number | Cal. Due     | calibration interval |
|-------------------------------------|--------------------------|--------------|-------------------|---------------|--------------|----------------------|
| <input checked="" type="checkbox"/> | EMI Test S/W             | ES10/RE      | TOYO Corporation  | 2022.01.000   | -            | -                    |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER        | ESR7         | R & S             | 101190        | 04, 30, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | AMPLIFIER                | 310N         | SONOMA INSTRUMENT | 401123        | 02, 13, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | TRILOG-BROADBAND ANTENNA | VULB9163     | Schwarzbeck       | 714           | 04, 19, 2026 | 2 Year               |
| <input checked="" type="checkbox"/> | ATTENUATOR               | 6806.17.A    | HUBER+SUHNER      | -             | 02, 16, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | Cable                    | -            | -                 | -             | 08, 16, 2025 | 0.5 Year             |
| <input checked="" type="checkbox"/> | Cable                    | -            | -                 | -             | 08, 16, 2025 | 0.5 Year             |

### Diagram of test setup





### Test Conditions

Temperature:  $(23,6 \pm 1,3) ^\circ\text{C}$   
Relative Humidity:  $(48,2 \pm 1,9) \% \text{ R.H.}$

### Frequency Range of Measurement

30 MHz to 1 GHz

### Instrument Settings

IF Band Width: 120 kHz

### Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.

mode 2: It was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

mode 3: It was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.



## 2.3 Radiated Electric Field Emissions(Above 1 GHz)

### Test Date

Jul. 25, 2025

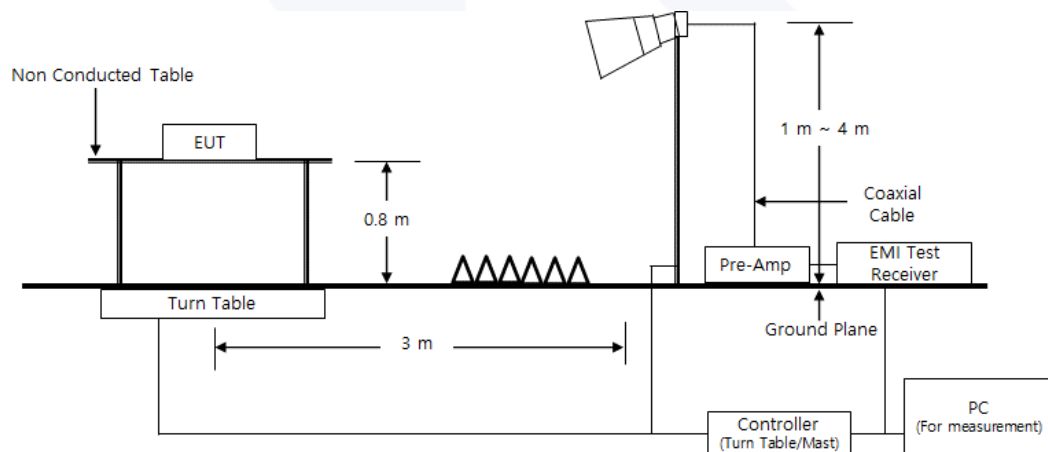
### Test Location

SEMI ANECHOIC CHAMBER #5

### Test Equipment

| Used                                | Description       | Model Number | Manufacturer     | Serial Number | Cal. Due     | calibration interval |
|-------------------------------------|-------------------|--------------|------------------|---------------|--------------|----------------------|
| <input checked="" type="checkbox"/> | EMI Test S/W      | ES10/RE      | TOYO Corporation | 2022.01.000   | -            | -                    |
| <input checked="" type="checkbox"/> | EMI TEST RECEIVER | ESU26        | Rohde & Schwarz  | 100552        | 02, 13, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | HORN ANTENNA      | BBHA 9120D   | SCHWARZBECK      | 9120D-1802    | 11, 04, 2025 | 1 Year               |
| <input checked="" type="checkbox"/> | PREAMPLIFIER      | 8449B        | HP               | 3008A00538    | 04, 30, 2025 | 1 Year               |
| <input checked="" type="checkbox"/> | ATTENUATOR        | 8491B        | HP               | 23094         | 02, 13, 2026 | 1 Year               |
| <input checked="" type="checkbox"/> | Cable             | SUCOFLEX106  | HUBER_SUHNER     | -             | 08, 16, 2025 | 0.5 Year             |
| <input checked="" type="checkbox"/> | Cable             | SUCOFLEX106  | HUBER_SUHNER     | -             | 08, 16, 2025 | 0.5 Year             |
| <input checked="" type="checkbox"/> | Cable             | LH21D/2Xsma  | OSI Cable        |               | 08, 16, 2025 | 0.5 Year             |

### Diagram of test setup





### Test Conditions

Temperature:  $(25,7 \pm 0,2)^{\circ}\text{C}$   
Relative Humidity:  $(49,9 \pm 0,2) \% \text{ R.H.}$

### Frequency Range of Measurement

1 GHz to 13 GHz

### Instrument Settings

IF Band Width: 1 MHz

### Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

### Remarks

See Appendix A for test data.





## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

■ mode 1

HOT LINE

Test Description:

Job No.:

Phase:

Mode:

Operator Name:

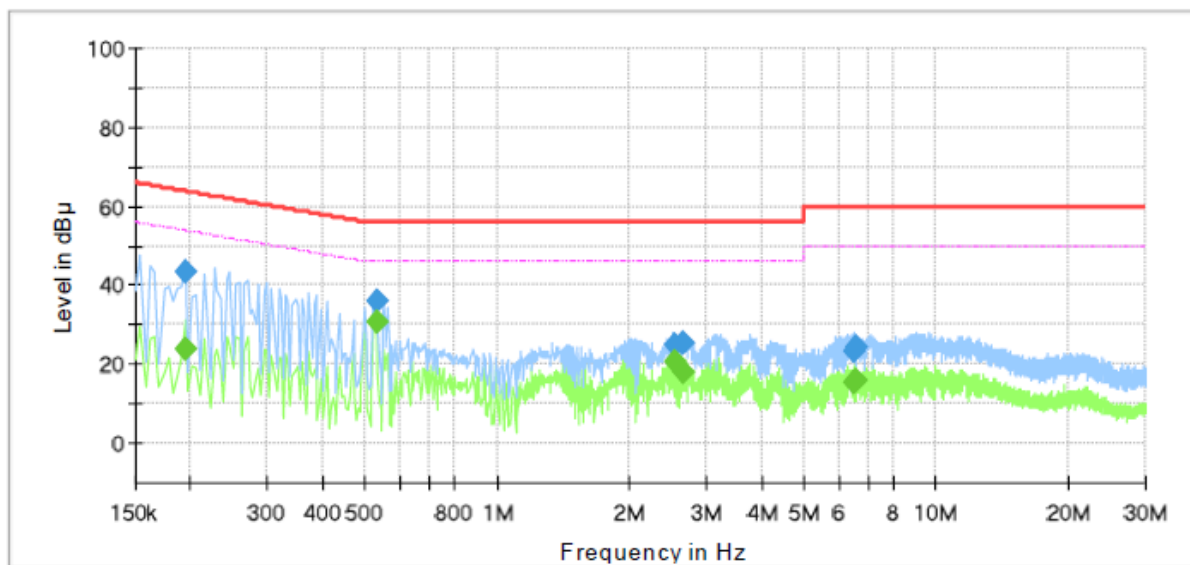
Conducted Emission

KES-EM252488

L

mode 1

KES



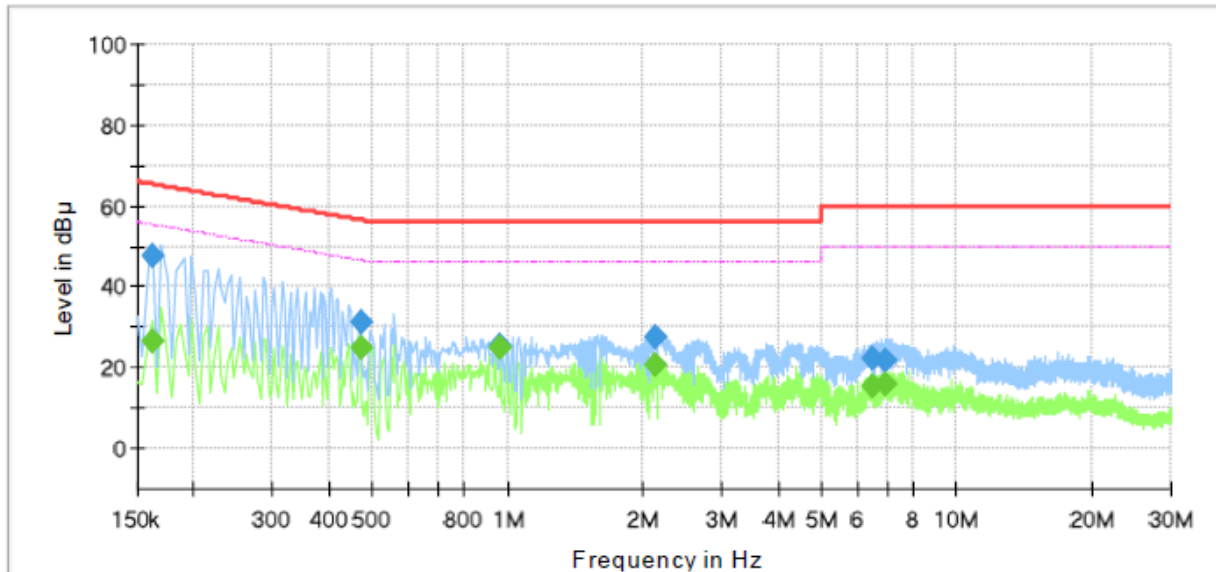
### Final\_Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.194000        | ---              | 23.84           | 53.86        | 30.02       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.194000        | 43.52            | ---             | 63.86        | 20.34       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.530000        | ---              | 30.52           | 46.00        | 15.48       | 1000.0          | 9.000           | L1   | 19.6       |
| 0.530000        | 35.88            | ---             | 56.00        | 20.12       | 1000.0          | 9.000           | L1   | 19.6       |
| 2.542000        | ---              | 20.43           | 46.00        | 25.57       | 1000.0          | 9.000           | L1   | 19.7       |
| 2.542000        | 25.15            | ---             | 56.00        | 30.85       | 1000.0          | 9.000           | L1   | 19.7       |
| 2.650000        | ---              | 18.04           | 46.00        | 27.96       | 1000.0          | 9.000           | L1   | 19.7       |
| 2.650000        | 25.50            | ---             | 56.00        | 30.50       | 1000.0          | 9.000           | L1   | 19.7       |
| 6.478000        | ---              | 15.42           | 50.00        | 34.58       | 1000.0          | 9.000           | L1   | 20.0       |
| 6.478000        | 23.47            | ---             | 60.00        | 36.53       | 1000.0          | 9.000           | L1   | 20.0       |
| 6.582000        | ---              | 16.05           | 50.00        | 33.95       | 1000.0          | 9.000           | L1   | 20.0       |
| 6.582000        | 24.16            | ---             | 60.00        | 35.84       | 1000.0          | 9.000           | L1   | 20.0       |



## NEUTRAL LINE

Test Description: Conducted Emission  
Job No.: KES-EM252488  
Phase: N  
Mode: mode 1  
Operator Name: KES



## Final\_Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.162000        | ---              | 26.23           | 55.36        | 29.13       | 1000.0          | 9.000           | N    | 19.5       |
| 0.162000        | 47.82            | ---             | 65.36        | 17.54       | 1000.0          | 9.000           | N    | 19.5       |
| 0.470000        | ---              | 24.95           | 46.51        | 21.56       | 1000.0          | 9.000           | N    | 19.5       |
| 0.470000        | 31.50            | ---             | 56.51        | 25.01       | 1000.0          | 9.000           | N    | 19.5       |
| 0.966000        | ---              | 24.95           | 46.00        | 21.05       | 1000.0          | 9.000           | N    | 19.6       |
| 0.966000        | 25.43            | ---             | 56.00        | 30.57       | 1000.0          | 9.000           | N    | 19.6       |
| 2.138000        | ---              | 20.89           | 46.00        | 25.11       | 1000.0          | 9.000           | N    | 19.6       |
| 2.138000        | 27.29            | ---             | 56.00        | 28.71       | 1000.0          | 9.000           | N    | 19.6       |
| 6.526000        | ---              | 15.36           | 50.00        | 34.64       | 1000.0          | 9.000           | N    | 19.9       |
| 6.526000        | 22.42            | ---             | 60.00        | 37.58       | 1000.0          | 9.000           | N    | 19.9       |
| 6.922000        | ---              | 15.86           | 50.00        | 34.14       | 1000.0          | 9.000           | N    | 20.0       |
| 6.922000        | 21.86            | ---             | 60.00        | 38.14       | 1000.0          | 9.000           | N    | 20.0       |

## ◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

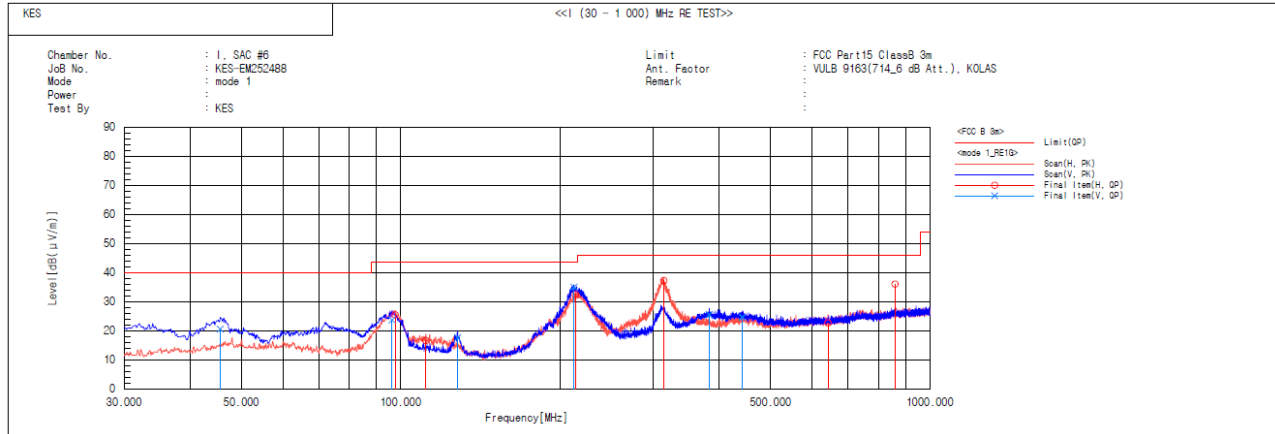
QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

**Radiated Electric Field Emissions(Below 1 GHz)**

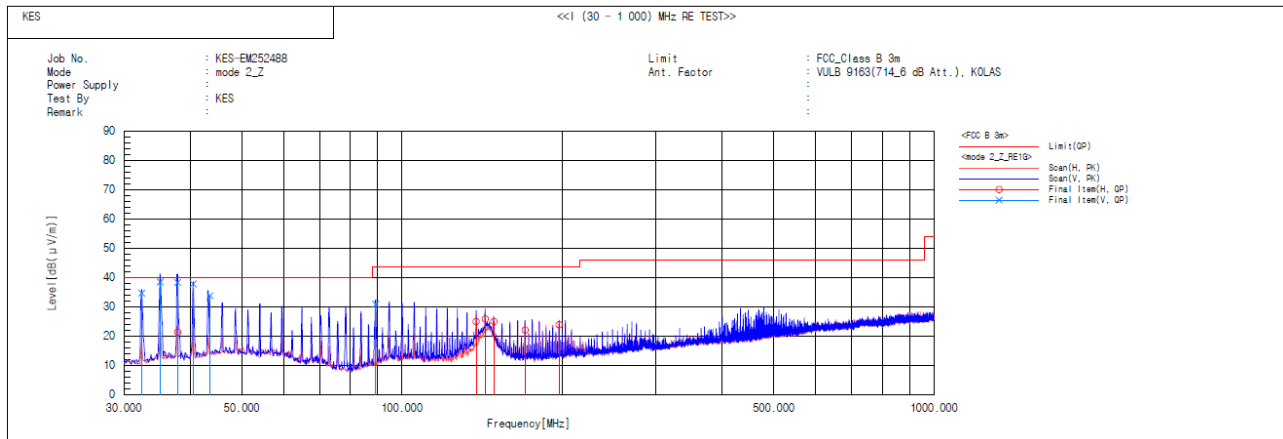
■ mode 1

**Final Result**

| No. | Frequency<br>[MHz] | Pol | Reading<br>QP<br>[dB(μV)] | c.f<br>[dB(1/m)] | Result<br>QP<br>[dB(μV/m)] | Limit<br>QP<br>[dB(μV/m)] | Margin<br>QP<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark |
|-----|--------------------|-----|---------------------------|------------------|----------------------------|---------------------------|----------------------|----------------|----------------|--------|
| 1   | 45.641             | V   | 33.6                      | -13.0            | 20.6                       | 40.0                      | 19.4                 | 102.0          | 99.5           |        |
| 2   | 96.324             | V   | 38.4                      | -14.7            | 23.7                       | 43.5                      | 19.8                 | 108.0          | 0.0            |        |
| 3   | 97.658             | H   | 39.9                      | -14.4            | 25.5                       | 43.5                      | 18.0                 | 206.0          | 345.3          |        |
| 4   | 111.601            | H   | 31.5                      | -14.8            | 16.7                       | 43.5                      | 26.8                 | 207.0          | 278.4          |        |
| 5   | 128.213            | V   | 33.6                      | -15.9            | 17.7                       | 43.5                      | 25.8                 | 100.0          | 189.7          |        |
| 6   | 212.603            | V   | 47.9                      | -12.9            | 35.0                       | 43.5                      | 8.5                  | 143.0          | 308.7          |        |
| 7   | 213.936            | H   | 45.3                      | -12.8            | 32.5                       | 43.5                      | 11.0                 | 203.0          | 234.2          |        |
| 8   | 314.453            | H   | 47.1                      | -9.8             | 37.3                       | 46.0                      | 8.7                  | 100.0          | 284.0          |        |
| 9   | 383.080            | V   | 33.6                      | -8.0             | 25.6                       | 46.0                      | 20.4                 | 150.0          | 83.5           |        |
| 10  | 442.493            | V   | 31.8                      | -7.1             | 24.7                       | 46.0                      | 21.3                 | 115.0          | 189.7          |        |
| 11  | 642.313            | H   | 25.9                      | -3.1             | 22.8                       | 46.0                      | 23.2                 | 397.0          | 37.1           |        |
| 12  | 859.471            | H   | 35.9                      | 0.2              | 36.1                       | 46.0                      | 9.9                  | 184.0          | 29.4           |        |



■ mode 2  
- Z orientation

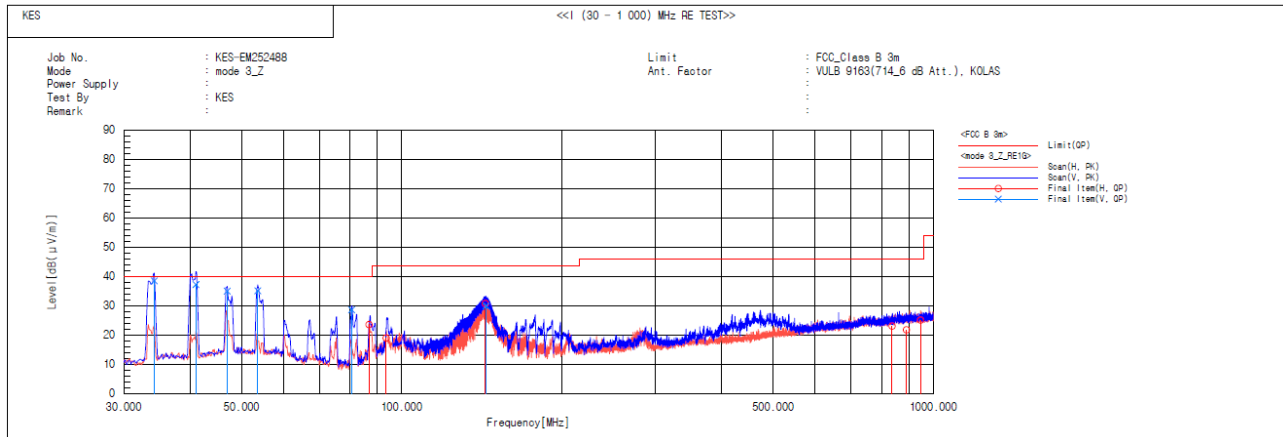


## Final Result

| No. | Frequency [MHz] | Pol | 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 [deg] | Remark |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-------------|--------|
| 1   | 32.425          | V   | 50.4                | -15.7         | 34.7                 | 40.0                | 5.3            | 154.0       | 238.6       |        |
| 2   | 35.162          | V   | 53.5                | -15.0         | 38.5                 | 40.0                | 1.5            | 136.0       | 195.0       |        |
| 3   | 37.881          | V   | 52.8                | -14.5         | 38.3                 | 40.0                | 1.7            | 136.0       | 238.6       |        |
| 4   | 37.881          | H   | 35.9                | -14.5         | 21.4                 | 40.0                | 18.6           | 335.0       | 107.6       |        |
| 5   | 40.549          | V   | 51.7                | -13.9         | 37.8                 | 40.0                | 2.2            | 186.0       | 238.6       |        |
| 6   | 43.591          | V   | 47.2                | -13.4         | 33.8                 | 40.0                | 6.2            | 115.0       | 195.0       |        |
| 7   | 89.291          | V   | 46.8                | -15.9         | 30.9                 | 43.5                | 12.6           | 142.0       | 308.7       |        |
| 8   | 137.963         | H   | 41.5                | -16.5         | 25.0                 | 43.5                | 18.5           | 258.0       | 261.7       |        |
| 9   | 143.516         | H   | 42.7                | -16.8         | 25.9                 | 43.5                | 17.6           | 244.0       | 330.4       |        |
| 10  | 148.874         | H   | 42.1                | -17.1         | 25.0                 | 43.5                | 18.5           | 187.0       | 261.7       |        |
| 11  | 170.446         | H   | 37.6                | -15.5         | 22.1                 | 43.5                | 21.4           | 274.0       | 231.7       |        |
| 12  | 197.446         | H   | 37.4                | -13.5         | 23.9                 | 43.5                | 19.6           | 189.0       | 76.4        |        |



■ mode 3  
- Z orientation



## Final Result

| No. | Frequency [MHz] | Pol | 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 [deg] | Remark |
|-----|-----------------|-----|---------------------|---------------|----------------------|---------------------|----------------|-------------|-------------|--------|
| 1   | 34.244          | V   | 53.7                | -15.2         | 38.5                 | 40.0                | 1.5            | 102.0       | 99.6        |        |
| 2   | 41.034          | V   | 51.0                | -13.8         | 37.2                 | 40.0                | 2.8            | 102.0       | 99.6        |        |
| 3   | 46.975          | V   | 47.8                | -12.8         | 35.0                 | 40.0                | 5.0            | 104.0       | 300.5       |        |
| 4   | 53.644          | V   | 47.9                | -12.8         | 35.1                 | 40.0                | 4.9            | 106.0       | 323.5       |        |
| 5   | 80.561          | V   | 47.2                | -18.6         | 28.6                 | 40.0                | 11.4           | 110.0       | 300.5       |        |
| 6   | 86.866          | H   | 40.2                | -16.6         | 23.6                 | 40.0                | 16.4           | 206.0       | 330.4       |        |
| 7   | 93.535          | H   | 34.1                | -15.1         | 19.0                 | 43.5                | 24.5           | 107.0       | 2.1         |        |
| 8   | 143.733         | H   | 47.6                | -16.8         | 30.8                 | 43.5                | 12.7           | 357.0       | 330.4       |        |
| 9   | 144.218         | V   | 46.8                | -16.8         | 30.0                 | 43.5                | 13.5           | 102.0       | 300.5       |        |
| 10  | 837.404         | H   | 23.4                | -0.3          | 23.1                 | 46.0                | 22.9           | 300.0       | 330.4       |        |
| 11  | 890.633         | H   | 21.1                | 0.7           | 21.8                 | 46.0                | 24.2           | 200.0       | 261.3       |        |
| 12  | 947.135         | H   | 23.6                | 1.5           | 25.1                 | 46.0                | 20.9           | 394.0       | 284.7       |        |

## ◆ Calculation

Result(QP) [dB(μV/m)] = (Reading(QP)[dB(μV)] + c.f[dB(1/m)])

Margin(QP)[dB] = Limit[dB(μV/m)] - Result(QP) [dB(μV/m)]

Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

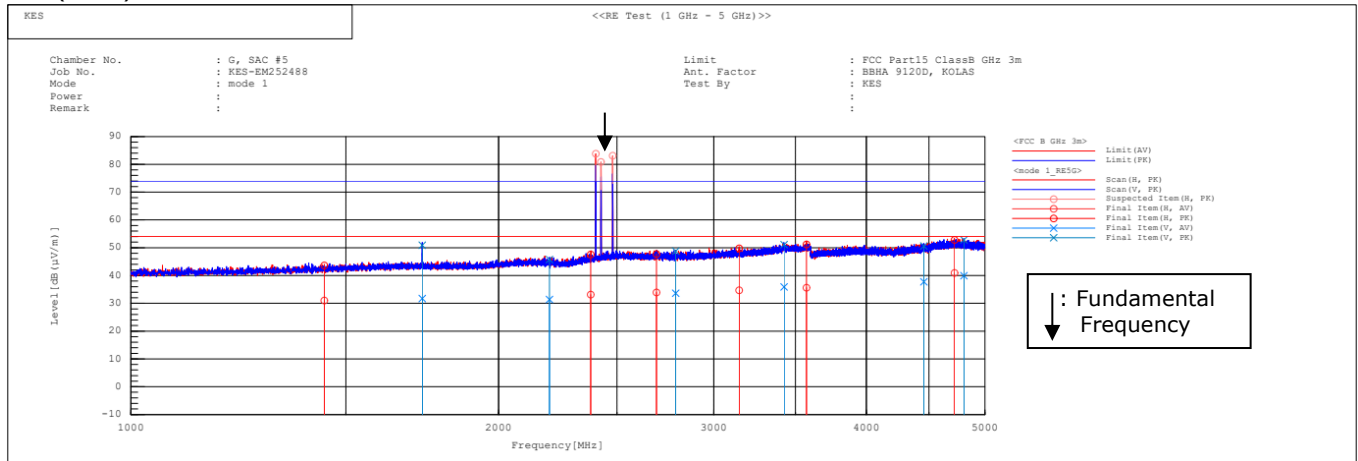


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## Radiated Electric Field Emissions(Above 1 GHz)

■ mode 1  
- (1 ~ 5) GHz



### Final Result

| No. | Frequency | Pol | Reading  | Reading  | c.f       | Result     | Result     | Limit      | Limit      | Margin | Margin | Height | Angle | Remark |
|-----|-----------|-----|----------|----------|-----------|------------|------------|------------|------------|--------|--------|--------|-------|--------|
|     | [MHz]     |     | AV       | PK       |           | AV         | PK         | AV         | PK         | AV     | PK     | [cm]   | [deg] |        |
|     |           |     | [dB(μV)] | [dB(μV)] | [dB(1/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB]   | [dB]   |        |       |        |
| 1   | 1440.148  | H   | 30.2     | 42.8     | 0.8       | 31.0       | 43.6       | 54.0       | 74.0       | 23.0   | 30.4   | 187.0  | 341.7 |        |
| 2   | 1732.116  | V   | 29.7     | 48.9     | 2.0       | 31.7       | 50.9       | 54.0       | 74.0       | 22.3   | 23.1   | 101.0  | 101.8 |        |
| 3   | 2201.267  | V   | 27.6     | 41.9     | 3.8       | 31.4       | 45.7       | 54.0       | 74.0       | 22.6   | 28.3   | 106.0  | 107.5 |        |
| 4   | 2379.336  | H   | 28.5     | 43.0     | 4.6       | 33.1       | 47.6       | 54.0       | 74.0       | 20.9   | 26.4   | 387.0  | 354.1 |        |
| 5   | 2693.109  | H   | 28.3     | 42.1     | 5.6       | 33.9       | 47.7       | 54.0       | 74.0       | 20.1   | 26.3   | 398.0  | 101.5 |        |
| 6   | 2792.832  | V   | 27.8     | 43.0     | 5.8       | 33.6       | 48.8       | 54.0       | 74.0       | 20.4   | 25.2   | 151.0  | 282.3 |        |
| 7   | 3146.349  | H   | 28.1     | 43.2     | 6.6       | 34.7       | 49.8       | 54.0       | 74.0       | 19.3   | 24.2   | 100.0  | 29.4  |        |
| 8   | 3424.843  | V   | 28.7     | 43.9     | 7.2       | 35.9       | 51.1       | 54.0       | 74.0       | 18.1   | 22.9   | 110.0  | 144.6 |        |
| 9   | 3572.044  | H   | 28.2     | 43.8     | 7.4       | 35.6       | 51.2       | 54.0       | 74.0       | 18.4   | 22.8   | 397.0  | 318.1 |        |
| 10  | 4458.001  | V   | 26.9     | 39.8     | 10.8      | 37.7       | 50.6       | 54.0       | 74.0       | 16.3   | 23.4   | 396.0  | 186.7 |        |
| 11  | 4721.638  | H   | 29.3     | 41.2     | 11.6      | 40.9       | 52.8       | 54.0       | 74.0       | 13.1   | 21.2   | 202.0  | 4.9   |        |
| 12  | 4807.477  | V   | 28.1     | 41.0     | 11.8      | 39.9       | 52.8       | 54.0       | 74.0       | 14.1   | 21.2   | 147.0  | 325.0 |        |
| 13  | 2402.000  | H   | -----    | -----    | 4.7       | -----      | -----      | -----      | -----      | -----  | -----  | 100.0  | 208.1 |        |
| 14  | 2425.600  | H   | -----    | -----    | 4.8       | -----      | -----      | -----      | -----      | -----  | -----  | 100.0  | 1.2   |        |
| 15  | 2480.000  | H   | -----    | -----    | 4.9       | -----      | -----      | -----      | -----      | -----  | -----  | 100.0  | 122.0 |        |

\* Exclusion bands

- Fundamental Frequency: (2 402 ~ 2 480) MHz



- (5 ~ 13) GHz

- PK

| Frequency<br>(MHz) | Reading<br>PK (dBuV) | Polarization | Height<br>( m ) | ANT Factor<br>(dB) | Cable Loss<br>(dB) | Preamplifier<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|----------------------|--------------|-----------------|--------------------|--------------------|--------------------------------|--------------------|-------------------|----------------|
| 5 755.300          | 41.500               | H            | 1.000           | 33.020             | 8.890              | 33.710                         | 49.700             | 80.000            | 30.300         |
| 6 910.800          | 40.100               | V            | 1.000           | 36.050             | 9.970              | 34.670                         | 51.450             | 80.000            | 28.550         |

- CISPR AV

| Frequency<br>(MHz) | Reading<br>CISPR AV<br>(dBuV) | Polarization | Height<br>( m ) | ANT Factor<br>(dB) | Cable Loss<br>(dB) | Preamplifier<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|-------------------------------|--------------|-----------------|--------------------|--------------------|--------------------------------|--------------------|-------------------|----------------|
| 5 755.300          | 27.500                        | H            | 1.000           | 33.020             | 8.890              | 33.710                         | 35.700             | 60.000            | 24.300         |
| 6 910.800          | 27.400                        | V            | 1.000           | 36.050             | 9.970              | 34.670                         | 38.750             | 60.000            | 21.250         |

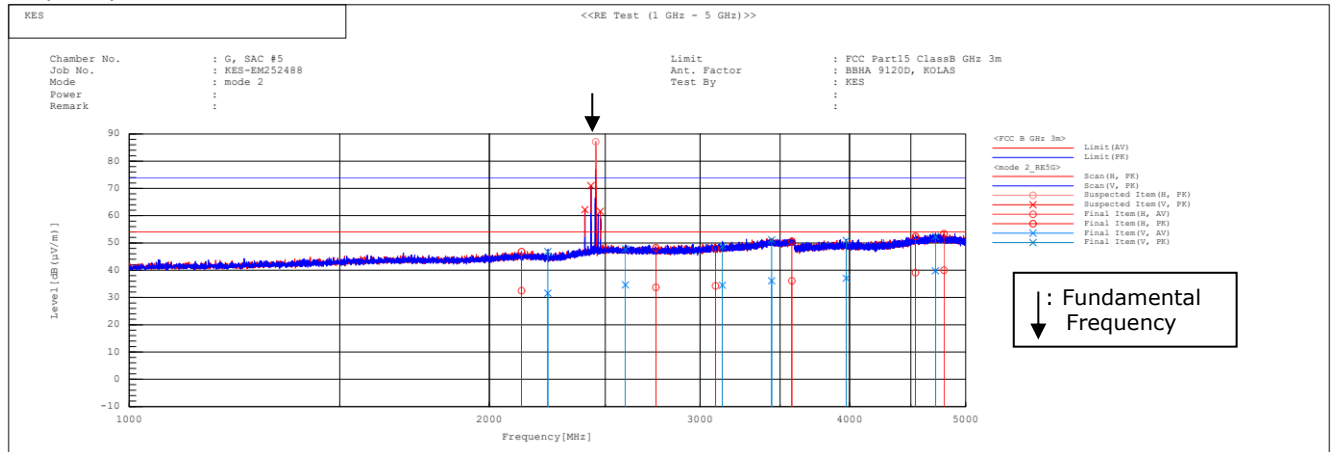




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■ mode 2  
- (1 ~ 5) GHz



#### Final Result

| No. | Frequency [MHz] | Pol | Reading AV [dB (μV)] | Reading PK [dB (μV)] | c.f [dB (1/m)] | Result AV [dB (μV/m)] | Result PK [dB (μV/m)] | Limit AV [dB (μV/m)] | Limit PK [dB (μV/m)] | Margin AV [dB] | Margin PK [dB] | Height [cm] | Angle [deg] | Remark |
|-----|-----------------|-----|----------------------|----------------------|----------------|-----------------------|-----------------------|----------------------|----------------------|----------------|----------------|-------------|-------------|--------|
| 1   | 2127.379        | H   | 29.0                 | 43.3                 | 3.5            | 32.5                  | 46.8                  | 54.0                 | 74.0                 | 21.5           | 27.2           | 104.0       | 209.8       |        |
| 2   | 2238.424        | V   | 27.6                 | 42.8                 | 4.0            | 31.6                  | 46.8                  | 54.0                 | 74.0                 | 22.4           | 27.2           | 100.0       | 21.9        |        |
| 3   | 2599.392        | V   | 29.3                 | 42.5                 | 5.3            | 34.6                  | 47.8                  | 54.0                 | 74.0                 | 19.4           | 26.2           | 100.0       | 165.4       |        |
| 4   | 2755.623        | H   | 28.0                 | 42.5                 | 5.7            | 33.7                  | 48.2                  | 54.0                 | 74.0                 | 20.3           | 25.8           | 100.0       | 310.8       |        |
| 5   | 3090.820        | H   | 27.8                 | 41.5                 | 6.5            | 34.3                  | 48.0                  | 54.0                 | 74.0                 | 19.7           | 26.0           | 100.0       | 269.3       |        |
| 6   | 3132.022        | V   | 27.9                 | 42.2                 | 6.6            | 34.5                  | 48.8                  | 54.0                 | 74.0                 | 19.5           | 25.2           | 149.0       | 208.9       |        |
| 7   | 3442.268        | V   | 28.9                 | 43.9                 | 7.2            | 36.1                  | 51.1                  | 54.0                 | 74.0                 | 17.9           | 22.9           | 153.0       | 175.4       |        |
| 8   | 3579.245        | H   | 28.7                 | 43.2                 | 7.4            | 36.1                  | 50.6                  | 54.0                 | 74.0                 | 17.9           | 23.4           | 100.0       | 358.9       |        |
| 9   | 3973.678        | V   | 28.1                 | 42.0                 | 8.9            | 37.0                  | 50.9                  | 54.0                 | 74.0                 | 17.0           | 23.1           | 398.0       | 51.3        |        |
| 10  | 4541.369        | H   | 28.0                 | 41.3                 | 11.1           | 39.1                  | 52.4                  | 54.0                 | 74.0                 | 14.9           | 21.6           | 201.0       | 106.4       |        |
| 11  | 4718.882        | V   | 28.2                 | 40.8                 | 11.6           | 39.8                  | 52.4                  | 54.0                 | 74.0                 | 14.2           | 21.6           | 399.0       | 129.7       |        |
| 12  | 4796.412        | H   | 28.2                 | 41.6                 | 11.8           | 40.0                  | 53.4                  | 54.0                 | 74.0                 | 14.0           | 20.6           | 200.0       | 104.6       |        |
| 13  | 2404.000        | V   | -----                | -----                | 4.7            | -----                 | -----                 | -----                | -----                | -----          | -----          | 400.0       | 239.3       |        |
| 14  | 2431.600        | V   | -----                | -----                | 4.8            | -----                 | -----                 | -----                | -----                | -----          | -----          | 100.0       | 123.8       |        |
| 15  | 2454.400        | H   | -----                | -----                | 4.9            | -----                 | -----                 | -----                | -----                | -----          | -----          | 100.0       | 241.4       |        |
| 16  | 2476.000        | V   | -----                | -----                | 4.9            | -----                 | -----                 | -----                | -----                | -----          | -----          | 100.0       | 308.1       |        |

\* Exclusion bands

- Fundamental Frequency: (2 402 ~ 2 480) MHz



- (5 ~ 13) GHz

- PK

| Frequency<br>(MHz) | Reading<br>PK (dBuV) | Polarization | Height<br>( m ) | ANT Factor<br>(dB) | Cable Loss<br>(dB) | Preamplifier<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|----------------------|--------------|-----------------|--------------------|--------------------|--------------------------------|--------------------|-------------------|----------------|
| 5 627.100          | 40.600               | V            | 1.000           | 32.510             | 8.830              | 33.890                         | 48.050             | 80.000            | 31.950         |
| 6 786.600          | 41.100               | H            | 1.000           | 35.430             | 10.340             | 34.710                         | 52.160             | 80.000            | 27.840         |

- CISPR AV

| Frequency<br>(MHz) | Reading<br>CISPR AV<br>(dBuV) | Polarization | Height<br>( m ) | ANT Factor<br>(dB) | Cable Loss<br>(dB) | Preamplifier<br>Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) |
|--------------------|-------------------------------|--------------|-----------------|--------------------|--------------------|--------------------------------|--------------------|-------------------|----------------|
| 5 627.100          | 27.400                        | V            | 1.000           | 32.510             | 8.830              | 33.890                         | 34.850             | 60.000            | 25.150         |
| 6 786.600          | 28.000                        | H            | 1.000           | 35.430             | 10.340             | 34.710                         | 39.060             | 60.000            | 20.940         |

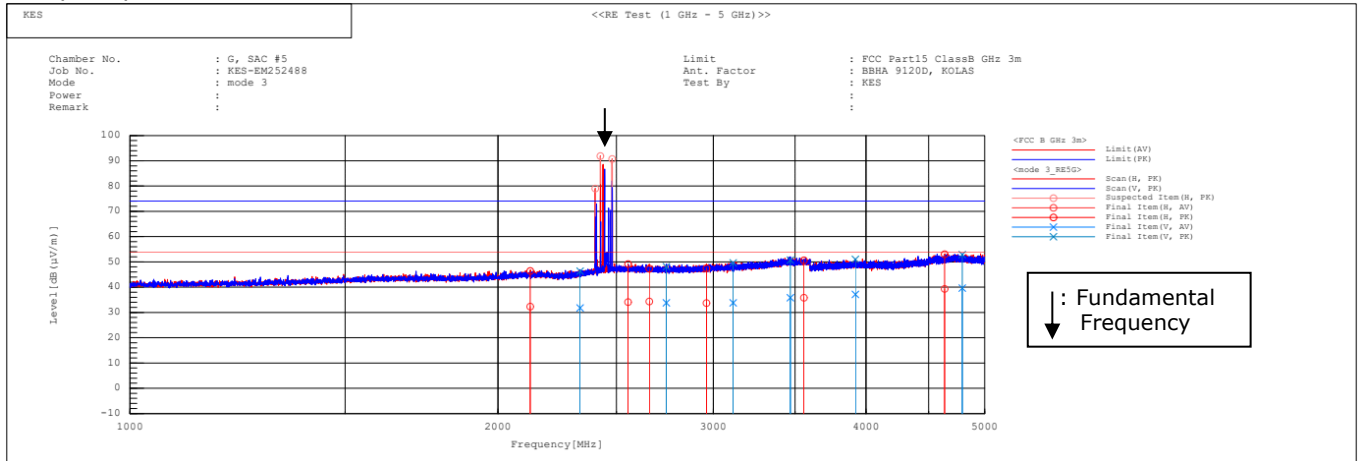




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■ mode 3  
- (1 ~ 5) GHz



#### Final Result

| No. | Frequency [MHz] | Pol | Reading AV [dB(μV)] | Reading PK [dB(μV)] | c.f [dB(1/m)] | Result AV [dB(μV/m)] | Result PK [dB(μV/m)] | Limit AV [dB(μV/m)] | Limit PK [dB(μV/m)] | Margin AV [dB] | Margin PK [dB] | Height [cm] | Angle [deg] | Remark |
|-----|-----------------|-----|---------------------|---------------------|---------------|----------------------|----------------------|---------------------|---------------------|----------------|----------------|-------------|-------------|--------|
| 1   | 2125.124        | H   | 28.8                | 42.9                | 3.5           | 32.3                 | 46.4                 | 54.0                | 74.0                | 21.7           | 27.6           | 196.0       | 137.2       |        |
| 2   | 2334.785        | V   | 27.4                | 41.9                | 4.4           | 31.8                 | 46.3                 | 54.0                | 74.0                | 22.2           | 27.7           | 101.0       | 81.6        |        |
| 3   | 2555.326        | H   | 28.9                | 43.9                | 5.2           | 34.1                 | 49.1                 | 54.0                | 74.0                | 19.9           | 24.9           | 108.0       | 11.7        |        |
| 4   | 2659.266        | H   | 28.8                | 41.8                | 5.5           | 34.3                 | 47.3                 | 54.0                | 74.0                | 19.7           | 26.7           | 183.0       | 195.0       |        |
| 5   | 2746.770        | V   | 28.1                | 42.4                | 5.7           | 33.8                 | 48.1                 | 54.0                | 74.0                | 20.2           | 25.9           | 155.0       | 241.8       |        |
| 6   | 2961.779        | H   | 27.4                | 41.2                | 6.3           | 33.7                 | 47.5                 | 54.0                | 74.0                | 20.3           | 26.5           | 100.0       | 332.2       |        |
| 7   | 3114.776        | V   | 27.2                | 43.0                | 6.6           | 33.8                 | 49.6                 | 54.0                | 74.0                | 20.2           | 24.4           | 143.0       | 154.1       |        |
| 8   | 3468.323        | V   | 28.6                | 43.5                | 7.2           | 35.8                 | 50.7                 | 54.0                | 74.0                | 18.2           | 23.3           | 330.0       | 178.5       |        |
| 9   | 3558.401        | H   | 28.4                | 43.2                | 7.4           | 35.8                 | 50.6                 | 54.0                | 74.0                | 18.2           | 23.4           | 110.0       | 79.4        |        |
| 10  | 3919.777        | V   | 28.4                | 42.3                | 8.7           | 37.1                 | 51.0                 | 54.0                | 74.0                | 16.9           | 23.0           | 100.0       | 8.5         |        |
| 11  | 4638.111        | H   | 27.9                | 41.6                | 11.4          | 39.3                 | 53.0                 | 54.0                | 74.0                | 14.7           | 21.0           | 199.0       | 323.6       |        |
| 12  | 4794.321        | V   | 27.9                | 41.2                | 11.7          | 39.6                 | 52.9                 | 54.0                | 74.0                | 14.4           | 21.1           | 113.0       | 111.2       |        |
| 13  | 2402.000        | H   | -----               | -----               | 4.7           | -----                | -----                | -----               | -----               | -----          | -----          | 200.0       | 122.4       |        |
| 14  | 2425.600        | H   | -----               | -----               | 4.8           | -----                | -----                | -----               | -----               | -----          | -----          | 200.0       | 156.8       |        |
| 15  | 2480.000        | H   | -----               | -----               | 4.9           | -----                | -----                | -----               | -----               | -----          | -----          | 200.0       | 156.8       |        |

\* Exclusion bands

- Fundamental Frequency: (2 402 ~ 2 480) MHz



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- (5 ~ 13) GHz

- PK

| Frequency (MHz) | Reading PK (dBuV) | Polarization | Height ( m ) | ANT Factor (dB) | Cable Loss (dB) | Preamp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-------------------|--------------|--------------|-----------------|-----------------|--------------------|-----------------|----------------|-------------|
| 5 621.300       | 40.600            | V            | 1.000        | 32.490          | 8.830           | 33.900             | 48.020          | 80.000         | 31.980      |
| 6 698.500       | 41.100            | H            | 1.000        | 34.990          | 10.160          | 34.740             | 51.510          | 80.000         | 28.490      |

- CISPR AV

| Frequency (MHz) | Reading CISPR AV (dBuV) | Polarization | Height ( m ) | ANT Factor (dB) | Cable Loss (dB) | Preamp Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|-------------------------|--------------|--------------|-----------------|-----------------|--------------------|-----------------|----------------|-------------|
| 5 621.300       | 27.400                  | V            | 1.000        | 32.490          | 8.830           | 33.900             | 34.820          | 60.000         | 25.180      |
| 6 698.500       | 28.000                  | H            | 1.000        | 34.990          | 10.160          | 34.740             | 38.410          | 60.000         | 21.590      |

## ◆ Calculation

$$\text{Result(PK/CAV)} [\text{dB}(\mu\text{V/m})] = (\text{Reading(QP)}[\text{dB}(\mu\text{V})] + \text{c.f}[\text{dB}(1/\text{m})])$$
$$\text{Margin(PK/CAV)}[\text{dB}] = \text{Limit}[\text{dB}(\mu\text{V/m})] - \text{Result(QP)} [\text{dB}(\mu\text{V/m})]$$

Reading(PK/CAV) : Reading value, Result(QP) : Reading value + Factor value

Limit(PK/CAV) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value