

## SAR TEST REPORT

Project No. : JB-Z1410-B  
 Client : Murata Manufacturing Co., Ltd.  
 Address : 10-1 Higashikotari 1-chome, Nagaokakyo-shi, Kyoto 617-8555 Japan  
 Type of Equipment : Communication Module  
 Model No. : Type1VY (\* installed in Digital Camera 1VY012)  
 FCC-ID : VPYLB1VY  
 Regulation Applied : FCC 47 CFR 2.1093

SAR Limits :

| Exposure Characteristics | SAR averaged over any 1 g of tissue |
|--------------------------|-------------------------------------|
| General Public Exposure  | 1.6 W/kg                            |

The Highest Reported SAR :

| RF Exposure Conditions | SAR           |             |            |
|------------------------|---------------|-------------|------------|
|                        | Wi-Fi 2.4 GHz | Wi-Fi 5 GHz | Bluetooth  |
| Body-Worn              | 0.243 W/kg    | 0.625 W/kg  | 0.095 W/kg |
| Simultaneous Tx        | 0.722 W/kg    |             |            |

**Test Result : Complied**

Sample Receipt : February 25, 2025  
 Testing : November 15, 2021 - August 22, 2024 (for conducted power measurements)  
 March 11, 2025 - April 10, 2025 (for SAR measurements)  
 Reported : May 21, 2025

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- \* This report replaces and supersedes all previous versions. Refer to Revision History on the following page.



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**Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory, Main Lab.**

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**REVISION HISTORY**

| Project No. | Revision | Page        | Description                                                                                      | Issued date  |
|-------------|----------|-------------|--------------------------------------------------------------------------------------------------|--------------|
| JB-Z1410    | Original | -           | -                                                                                                | May 9, 2025  |
| JB-Z1410-A  | 1        | 6, 7        | Corrected the Nominal and Maximum Possible Power Table.                                          | May 15, 2025 |
| JB-Z1410-B  | 2        | 8, 136      | Revised the RF Exposure Conditions table.                                                        | May 21, 2025 |
|             |          | 9, 136, 137 | Corrected the Minimum Distance from Edges or Sides of Host Platform and the related information. |              |
|             |          | 24          | Corrected the Dielectric Parameter Measurement of Tissue Simulating Liquids table.               |              |
|             |          | 39          | Corrected the Simultaneous Transmission SAR evaluation table.                                    |              |
|             |          | 136         | Corrected the typos.                                                                             |              |
|             |          |             |                                                                                                  |              |

**DISCLAIMER**

This report includes the information provided by the customer as below;

- Cover page : Client and product related information
- Clause 1.1 : Description of Device Under Test (DUT)
- Clause 1.2 : Antenna Placement
- Clause 1.3 : Simultaneous Transmission Conditions
- Clause 1.4 : Nominal and Maximum Possible Power (Maximum Tune-up Tolerance Limit)

\* The laboratory is not responsible for results affected by the above information.

Note(s)

- ☒ - indicates that the listed condition, standard or equipment is applicable for this report.  
☐ - indicates that the listed condition, standard or equipment is not applicable for this report.

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# 1. General Information

## 1.1. Description of Device Under Test (DUT)

### DUT Description

|                                                                          | DUT                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of Equipment                                                        | Communication Module                                                                                                                                                                                                                             |
| Model No.                                                                | Type1VY                                                                                                                                                                                                                                          |
| FCC-ID                                                                   | VPYLB1VY                                                                                                                                                                                                                                         |
| Test Sample Condition                                                    | <input type="checkbox"/> Prototype<br><input type="checkbox"/> Pre-production<br><input checked="" type="checkbox"/> Mass-production<br>* Not for sale: The sample is equivalent to mass-production items.<br>* No modification by the test lab. |
| Serial No.                                                               | 34                                                                                                                                                                                                                                               |
| Rating                                                                   | DC 3.3 V (VDD_3P3, VDD_FEM, SWREG_IN, VDDIO_GPIO, VDDIO_AO)<br>* Supplied from the host.                                                                                                                                                         |
| Head/Body-Worn Accessories (supplied with the device)                    | n/a                                                                                                                                                                                                                                              |
| Device Dimension (W x H x D)                                             | 10.25 mm x 7.5 mm x 1.15 mm                                                                                                                                                                                                                      |
| Device Category                                                          | Portable                                                                                                                                                                                                                                         |
| Exposure Category                                                        | General population/ Uncontrolled environment                                                                                                                                                                                                     |
| Note(s):<br>* Please refer to Appendix D for Host Platform Descriptions. |                                                                                                                                                                                                                                                  |

### Wireless Technologies

| Wireless Technologies                                                                                                                     | Frequency Bands | Operating Mode                                                 | Power Setting Mode |
|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------|--------------------|
| Wi-Fi                                                                                                                                     | 2.4 GHz         | 802.11b<br>802.11g<br>802.11n (HT20)                           | Low Power Mode     |
|                                                                                                                                           | 5 GHz           | 802.11a<br>802.11n (HT20/HT40)<br>802.11ac (VHT20/VHT40/VHT80) | High Power Mode    |
| Bluetooth                                                                                                                                 | 2.4 GHz         | BR/EDR/LE                                                      | n/a                |
| Note(s):<br>* The DUT installed in the Host does not support the Wi-Fi 2.4 GHz High Power Mode and Wi-Fi 5 GHz Low power Mode operations. |                 |                                                                |                    |

### Radio Specification

|                                                                                             |                                                                     | Chain 0                                  | Chain 1                                  |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------|------------------------------------------|
| Wireless Technologies                                                                       |                                                                     | Wi-Fi 2.4 / 5 GHz,<br>Bluetooth          | Wi-Fi 2.4 / 5 GHz                        |
| Antenna Type                                                                                |                                                                     | Dual Monopole antenna                    | Dual Monopole antenna                    |
| Antenna Gain                                                                                | Original Approval                                                   | +0.93 dBi (2.4 GHz)<br>+1.04 dBi (5 GHz) | +1.98 dBi (2.4 GHz)<br>+1.98 dBi (5 GHz) |
|                                                                                             | Class II Permissive Change<br>(*The DUT is installed in this host.) | -4.08 dBi (2.4 GHz)<br>-0.38 dBi (5 GHz) | -6.44 dBi (2.4 GHz)<br>+0.10 dBi (5 GHz) |
| Note(s):<br>* The antenna is of the same type and lower gain than in the original approval. |                                                                     |                                          |                                          |

## 1.2. Antenna Placement

| Antenna | Minimum Distance from Edges or Sides of Host Platform (mm) |             |      |      |       |     |        |
|---------|------------------------------------------------------------|-------------|------|------|-------|-----|--------|
|         | Front                                                      | Front-Right | Back | Left | Right | Top | Bottom |
| Chain 0 | *1                                                         | *1          | *1   | *1   | *1    | *1  | *1     |
| Chain 1 | *1                                                         | *1          | *1   | *1   | *1    | *1  | *1     |

\*1 Please refer to Appendix D.

## 1.3. Simultaneous Transmission Conditions

| RF Exposure Conditions | No. | Capable Transmit Configurations |         |             |         |           |
|------------------------|-----|---------------------------------|---------|-------------|---------|-----------|
|                        |     | Wi-Fi 2.4 GHz                   |         | Wi-Fi 5 GHz |         | Bluetooth |
|                        |     | Chain 0                         | Chain 1 | Chain 0     | Chain 1 |           |
| Body-Worn              | 1   | Yes                             | Yes     | -           | -       | -         |
|                        | 2   | -                               | -       | Yes         | Yes     | -         |
|                        | 3   | -                               | -       | Yes         | Yes     | Yes       |

## 1.4. Nominal and Maximum Possible Power (Maximum Tune-up Tolerance Limit)

## Chain 0

| Wireless Technologies | Mode             | Band    | Frequency Band (MHz) |        | Channel | Data Rate /MCS | Full Power (Burst Averaged) | Ant. Gain (dBi) | Effective Radiated Power (dBm) *1 |
|-----------------------|------------------|---------|----------------------|--------|---------|----------------|-----------------------------|-----------------|-----------------------------------|
|                       |                  |         | Lower                | Higher |         |                | Max. Tune-up Limit (dBm)    |                 |                                   |
| Wi-Fi                 | 802.11b          | 2.4 GHz | 2412                 | 2462   | All     | All            | 9.50                        | -4.08           | 3.27                              |
|                       | 802.11g          |         |                      |        | All     | All            | 9.50                        | -4.08           | 3.27                              |
|                       | 802.11n (HT20)   |         |                      |        | All     | All            | 9.50                        | -4.08           | 3.27                              |
|                       | 802.11a          | 5.2 GHz | 5180                 | 5240   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       | 802.11n (HT20)   | 5.2 GHz | 5180                 | 5240   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       | 802.11n (HT40)   | 5.2 GHz | 5190                 | 5230   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.3 GHz | 5270                 | 5310   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.6 GHz | 5510                 | 5670   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.8 GHz | 5755                 | 5795   | All     | All            | 11.50                       | -0.38           | 8.97                              |
|                       | 802.11ac (VHT20) | 5.2 GHz | 5180                 | 5240   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       | 802.11ac (VHT40) | 5.2 GHz | 5190                 | 5230   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       |                  | 5.3 GHz | 5270                 | 5310   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       |                  | 5.6 GHz | 5510                 | 5670   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       |                  | 5.8 GHz | 5755                 | 5795   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       | 802.11ac (VHT80) | 5.2 GHz | 5210                 |        | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       |                  | 5.3 GHz | 5290                 |        | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       |                  | 5.6 GHz | 5530                 | 5610   | All     | MCS 0-8        | 11.50                       | -0.38           | 8.97                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | -0.38           | 7.97                              |
|                       | 5.8 GHz          | 5775    |                      | All    | MCS 0-8 | 11.50          | -0.38                       | 8.97            |                                   |
|                       |                  |         |                      |        |         |                | MCS 9                       | 10.50           | -0.38                             |
| Bluetooth             | BR               | 2.4 GHz | 2402                 | 2480   | All     | -              | 10.10                       | -4.08           | 3.87                              |
|                       | EDR              |         |                      |        | All     | -              | 9.90                        | -4.08           | 3.67                              |
|                       | LE               |         |                      |        | All     | -              | 10.10                       | -4.08           | 3.87                              |

\*1 Effective Radiated Power (dBm) = Max. Tune-up Limit (dBm) + Ant. Gain (dBi) – 2.15 dB

Chain 1

| Wireless Technologies | Mode             | Band    | Frequency Band (MHz) |        | Channel | Data Rate /MCS | Full Power (Burst Averaged) | Ant. Gain (dBi) | Effective Radiated Power (dBm) *1 |
|-----------------------|------------------|---------|----------------------|--------|---------|----------------|-----------------------------|-----------------|-----------------------------------|
|                       |                  |         | Lower                | Higher |         |                | Max. Tune-up Limit (dBm)    |                 |                                   |
| Wi-Fi                 | 802.11b          | 2.4 GHz | 2412                 | 2462   | All     | All            | 9.50                        | -6.44           | 0.91                              |
|                       | 802.11g          |         |                      |        | All     | All            | 9.50                        | -6.44           | 0.91                              |
|                       | 802.11n (HT20)   |         |                      |        | All     | All            | 9.50                        | -6.44           | 0.91                              |
|                       | 802.11a          | 5.2 GHz | 5180                 | 5240   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       | 802.11n (HT20)   | 5.2 GHz | 5180                 | 5240   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       | 802.11n (HT40)   | 5.2 GHz | 5190                 | 5230   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.3 GHz | 5270                 | 5310   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.6 GHz | 5510                 | 5670   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.8 GHz | 5755                 | 5795   | All     | All            | 11.50                       | +0.10           | 9.45                              |
|                       | 802.11ac (VHT20) | 5.2 GHz | 5180                 | 5240   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.3 GHz | 5260                 | 5320   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.6 GHz | 5500                 | 5700   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  | 5.8 GHz | 5745                 | 5825   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       | 802.11ac (VHT40) | 5.2 GHz | 5190                 | 5230   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.3 GHz | 5270                 | 5310   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.6 GHz | 5510                 | 5670   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.8 GHz | 5755                 | 5795   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       | 802.11ac (VHT80) | 5.2 GHz | 5210                 |        | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.3 GHz | 5290                 |        | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.6 GHz | 5530                 | 5610   | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |
|                       |                  | 5.8 GHz | 5775                 |        | All     | MCS 0-8        | 11.50                       | +0.10           | 9.45                              |
|                       |                  |         |                      |        |         | MCS 9          | 10.50                       | +0.10           | 8.45                              |

\*1 Effective Radiated Power (dBm) = Max. Tune-up Limit (dBm) + Ant. Gain (dBi) – 2.15 dB

## 1.5. RF Exposure Conditions

| Wireless Technologies | RF Exposure Conditions | User-to-Host Distance (mm) | Test Position | Host-to-Ant. Distance (mm) |         | SAR to be considered | Note(s) |
|-----------------------|------------------------|----------------------------|---------------|----------------------------|---------|----------------------|---------|
|                       |                        |                            |               | Chain 0                    | Chain 1 |                      |         |
| Wi-Fi/<br>Bluetooth   | Body-Worn              | 0                          | Front         | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Front-Right   | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Back          | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Left          | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Right         | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Top           | *1                         | *1      | Yes                  | -       |
|                       |                        |                            | Bottom        | *1                         | *1      | Yes                  | -       |

\*1 Please refer to Appendix D.

## 1.6. RF Exposure Limits

| Human Exposure                                                       | General Population/<br>Uncontrolled Exposure | Occupational/<br>Controlled Exposure |
|----------------------------------------------------------------------|----------------------------------------------|--------------------------------------|
| Spatial Peak SAR (Head and Trunk)<br>averaged over any 1 g of tissue | <b>1.6 W/kg*</b>                             | 8 W/kg                               |
| Spatial Average SAR (Whole Body)<br>averaged over the whole body     | 0.08 W/kg                                    | 0.4 W/kg                             |
| Spatial Peak SAR (Limbs)<br>averaged over any 10 g of tissue         | 4 W/kg                                       | 20 W/kg                              |

\* The limit(s) applied in this report.

## 1.7. SAR Test Exclusion

☒ SAR test exclusion is applied according to KDB 447498 D01.

The 1-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot$$

$$[\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where:}$$

- \*  $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- \* Power and distance are rounded to the nearest mW and mm before calculation
- \* The result is rounded to one decimal place for comparison
- \* When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion

## Body-Worn SAR (1-g SAR) Test Exclusion as per KDB 447498 D01 - Chain 0

| Freq. Band    | Freq. (MHz) | Test Position | Host-to-Ant Distance (mm) | User-to-Ant Distance (mm) | Min. Test Sep. Distance (mm) | Max. Possible Power |              |            |              | Exclusion Threshold | SAR Required (> 3.0) | SAR Tested |
|---------------|-------------|---------------|---------------------------|---------------------------|------------------------------|---------------------|--------------|------------|--------------|---------------------|----------------------|------------|
|               |             |               |                           |                           |                              | Chain0 (dBm)        | Chain1 (dBm) | Total (mW) | rounded (mW) |                     |                      |            |
| Wi-Fi 2.4 GHz | 2450        | Front         | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Front-Right   | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Back          | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | -          |
|               | 2450        | Left          | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Right         | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | Yes                  | Yes        |
|               | 2450        | Top           | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | -          |
|               | 2450        | Bottom        | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
| Wi-Fi 5 GHz   | 5800        | Front         | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | Yes *2     |
|               | 5800        | Front-Right   | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
|               | 5800        | Back          | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | -          |
|               | 5800        | Left          | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | Yes *2     |
|               | 5800        | Right         | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
|               | 5800        | Top           | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | -          |
|               | 5800        | Bottom        | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
| Bluetooth     | 2450        | Front         | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | Yes *2     |
|               | 2450        | Front-Right   | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | Yes *2     |
|               | 2450        | Back          | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | -          |
|               | 2450        | Left          | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | Yes *2     |
|               | 2450        | Right         | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | Yes                  | Yes        |
|               | 2450        | Top           | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | -          |
|               | 2450        | Bottom        | *1                        | *1                        | *1                           | 10.10               | N/A          | 10.23      | 10           | *1                  | No                   | Yes *2     |

\*1 Please refer to Appendix D.

\*2 Tested because its exclusion thresholds are close to 3.0, or for the simultaneous transmission analysis.

Body-Worn SAR (1-g SAR) Test Exclusion as per KDB 447498 D01 - Chain 1

| Freq. Band    | Freq. (MHz) | Test Position | Host-to-Ant Distance (mm) | User-to-Ant Distance (mm) | Min. Test Sep. Distance (mm) | Max. Possible Power |              |            |              | Exclusion Threshold | SAR Required (> 3.0) | SAR Tested |
|---------------|-------------|---------------|---------------------------|---------------------------|------------------------------|---------------------|--------------|------------|--------------|---------------------|----------------------|------------|
|               |             |               |                           |                           |                              | Chain0 (dBm)        | Chain1 (dBm) | Total (mW) | rounded (mW) |                     |                      |            |
| Wi-Fi 2.4 GHz | 2450        | Front         | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Front-Right   | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | Yes                  | Yes        |
|               | 2450        | Back          | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | -          |
|               | 2450        | Left          | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Right         | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
|               | 2450        | Top           | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | -          |
|               | 2450        | Bottom        | *1                        | *1                        | *1                           | 9.50                | 9.50         | 17.82      | 18           | *1                  | No                   | Yes *2     |
| Wi-Fi 5 GHz   | 5800        | Front         | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
|               | 5800        | Front-Right   | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
|               | 5800        | Back          | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | -          |
|               | 5800        | Left          | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |
|               | 5800        | Right         | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | Yes *2     |
|               | 5800        | Top           | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | No                   | -          |
|               | 5800        | Bottom        | *1                        | *1                        | *1                           | 11.50               | 11.50        | 28.26      | 28           | *1                  | Yes                  | Yes        |

\*1 Please refer to Appendix D.

\*2 Tested because its exclusion thresholds are close to 3.0, or for the simultaneous transmission analysis.

## 1.8. Test Specification, Methods and Procedures

Test Specification

- ☒ FCC 47 CFR 2.1093      Radiofrequency radiation exposure evaluation: portable devices

Test Methods

- ☒ IEEE Std 1528-2013      IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
- ☒ IEC/IEEE 62209-1528: 2020      Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices –Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
- ☒ KDB 248227 D01    v02r02      SAR Guidance for IEEE 802.11 (Wi-Fi) Transmitters
- ☒ KDB 447498 D01    v06      Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
- ☐ KDB 447498 D02    v02r01      SAR Measurement Procedures for USB Dongle Transmitters
- ☐ KDB 447498 D04    v01      RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
- ☐ KDB 615223 D01    v01r01      802.16e/WiMax SAR Measurement Guidance
- ☐ KDB 616217 D04    v01r02      SAR Evaluation Considerations for Laptop, Notebook, Netbook and Tablet Computers
- ☐ KDB 648474 D03    v01r04      Evaluation and Approval Considerations for Handsets with Specific Wireless Charging Battery Covers
- ☐ KDB 648474 D04    v01r03      SAR Evaluation Considerations for Wireless Handsets
- ☒ KDB 865664 D01    v01r04      SAR Measurement Requirements for 100 MHz to 6 GHz
- ☐ KDB 941225 D01    v03r01      3G SAR Measurement Procedures
- ☐ KDB 941225 D05    v02r05      SAR Evaluation Considerations for LTE Devices
- ☐ KDB 941225 D06    v02r01      SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
- ☐ KDB 941225 D07    v01r02      SAR Evaluation Procedures for UMPC Mini-Tablet Devices
- ☒ TCB Workshop (Oct. 2016)      RF Exposure Procedures; Bluetooth Duty Factor

Test Procedures

The SAR tests were performed according to the procedures of Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory, the Document No. NV3-2 and NV3-16, available upon request.

- ☒ No deviation from the procedures
- ☐ Deviation from the procedures
- ☐ \_\_\_\_\_

## References

- [1] ICNIRP. Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz). Health Physics 74(4): 494-522, 1998.
- [2] ICNIRP. Guidelines for limiting exposure to electromagnetic fields (100 kHz to 300 GHz). Health Physics 118(5): 483-524, 2020.
- [3] American National Standards Institute (ANSI), "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE C95.1-1992.
- [4] Health Canada, "Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz," Safety Code 6 (2015).
- [5] Health Canada, "Notice: Localized human exposure limits for radiofrequency fields in the range of 6 GHz to 300 GHz," January 2021.
- [6] European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) (Official Journal L 199 of 30 July 1999).
- [7] REDCA Technical Guidance Note 20 (TGN 20), SAR Testing and Assessment Guidance, Version 6.5, October 2020.
- [8] Australian Communications and Media Authority (ACMA), Radiocommunications Equipment (General) Rules 2021.
- [9] Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), "Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz, Radiation Protection Series S-1 (Rev. 1)," February 2021.
- [10] Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), RPS S-1 Advisory Note: Compliance of mobile or portable transmitting equipment (100 kHz to 300 GHz).
- [11] Schmid & Partner Engineering AG (SPEAG), DASY52 System Handbook, April 2014.
- [12] Schmid & Partner Engineering AG (SPEAG), DASY8 Module SAR System Handbook, October 2022.
- [13] Schmid & Partner Engineering AG (SPEAG), DASY8 Module mmWave System Handbook, December 2022.
- [14] Schmid & Partner Engineering AG (SPEAG), Safety Data Sheet, Doc No 772-SLAAX0yy-J, June 14, 2013.
- [15] Schmid & Partner Engineering AG (SPEAG), Safety Data Sheet, Doc No 772-SLAAX1yy-I, October 18, 2013.
- [16] Schmid & Partner Engineering AG (SPEAG), Safety Data Sheet, Doc No 772-SLAAX6yy-H, September 26, 2013.
- [17] Schmid & Partner Engineering AG (SPEAG), Material Safety Data Sheet, Doc No 772-SLAAXH502A-D, August 9, 2013.
- [18] Schmid & Partner Engineering AG (SPEAG), Material Safety Data Sheet, Doc No 772-SLAAX4yy-J, August 9, 2013.
- [19] Schmid & Partner Engineering AG (SPEAG), Material Safety Data Sheet, Doc No 772-SLAAXU16B-C, June 9, 2015.

## 1.9. Test Facilities and Accreditation

### Test Facilities

|                    |                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------|
| Test Facility Name | : Sony Global Manufacturing & Operations Corporation<br>EMC/ RF Test Laboratory Main Lab. |
| Address            | : 8-4 Shiomi Kisarazu-shi Chiba-ken, 292-0834, Japan                                      |
| Shielded Room Used | : ☒ 4th Site Shielded Room 3                                                              |

### A2LA Accreditation

|                 |                    |
|-----------------|--------------------|
| Certificate No. | : 3203.01          |
| Expiration      | : October 31, 2025 |

## 2. Test Set-up

### 2.1. Test Equipment and Measurement Software Lists

Table 2-1      Test Equipment List

| Used                                                                                                                                 | Control No. | Equipment Description        | Model No.     | Serial No.         | Manufacturer                 | Cal. Int. | Last Cal.  | Note(s) |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------|---------------|--------------------|------------------------------|-----------|------------|---------|
| <input checked="" type="checkbox"/>                                                                                                  | M5583       | Robot                        | TX2-60L spe   | F/24/0057614/A/002 | Staubli                      | N/A       | N/A *1     | -       |
| <input type="checkbox"/>                                                                                                             | W0082       | Twin SAM Phantom             | Twin SAM      | TP-1325            | SPEAG                        | N/A       | N/A *1     | -       |
| <input type="checkbox"/>                                                                                                             | W0127       | Twin SAM Phantom             | Twin SAM      | TP-1852            | SPEAG                        | N/A       | N/A *1     | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0119       | ELI Phantom                  | ELI V5.0      | 1259               | SPEAG                        | N/A       | N/A *1     | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WA0052      | E-Field Probe                | EX3DV4        | 7452               | SPEAG                        | 1Y        | 2025.02.13 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WA0060      | E-Field Probe                | EX3DV4        | 7372               | SPEAG                        | 1Y        | 2024.06.18 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0096       | Data Acquisition Electronics | DAE4          | 482                | SPEAG                        | 1Y        | 2025.01.13 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WA0026      | System Validation Dipole     | D2450V2       | 936                | SPEAG                        | 1Y        | 2024.06.14 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WA0028      | System Validation Dipole     | D5GHzV2       | 1183               | SPEAG                        | 1Y        | 2024.06.19 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0121       | Vector Reflectometer         | DAKS_VNA R140 | 0111013            | Copper Mountain Technologies | 1Y        | 2024.08.16 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WA0029      | Dielectric Probe             | DAKS-3.5      | 1034               | SPEAG                        | 1Y        | 2024.08.07 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | M1037       | Signal Generator             | N5173B        | MY53270166         | Agilent                      | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | M5582       | Power Amp                    | RAMP01M22G A  | 00652106320        | RF Lambda                    | N/A       | N/A *1     | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0104       | Power Sensor                 | U2021XA       | MY54040006         | Agilent                      | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0105       | Power Sensor                 | U2021XA       | MY54080005         | Agilent                      | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0120       | Directional Coupler          | 4226-20       | -                  | narda                        | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0117       | Attenuator                   | 8493B 3 dB    | MY39260857         | Agilent                      | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0118       | Attenuator                   | AT-110 10 dB  | 932968             | Hirose                       | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0148       | Attenuator                   | AT-103 3 dB   | 980711             | Hirose                       | 1Y        | 2024.11.08 | -       |
| <input type="checkbox"/>                                                                                                             | WC0022      | RF Cable                     | SUCOFLEX 106  | 503094/6           | HUBER+SUHNER                 | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WC0017      | RF Cable                     | SUCOFLEX 104  | 253269/4           | HUBER+SUHNER                 | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WC0024      | RF Cable                     | SUCOFLEX 126E | MY1150/26E         | HUBER+SUHNER                 | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | CA5069      | RF Cable                     | SUCOFLEX 104  | 35533/4            | HUBER+SUHNER                 | 1Y        | 2024.11.08 | -       |
| <input type="checkbox"/>                                                                                                             | CA5071      | RF Cable                     | SUCOFLEX 104  | 37196/4            | HUBER+SUHNER                 | 1Y        | 2024.05.12 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | WC0021      | RF Cable                     | SUCOFLEX 106  | 503095/6           | HUBER+SUHNER                 | 1Y        | 2024.11.08 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | M3114       | Thermometer                  | 608-H2        | 41403750           | testo                        | 1Y        | 2024.11.06 | -       |
| <input type="checkbox"/>                                                                                                             | M5189       | Thermometer                  | 608-H2        | 41476111           | testo                        | 1Y        | Under cal. | -       |
| <input type="checkbox"/>                                                                                                             | W0113       | Water Thermometer            | 735-1         | 02788580           | testo                        | 1Y        | 2024.11.11 | -       |
| <input checked="" type="checkbox"/>                                                                                                  | W0116       | Water Thermometer            | 735-1         | 02788596           | testo                        | 1Y        | 2024.07.16 | -       |
| Note(s):<br>* The calibration is valid until the end of the expiration month.<br>*1 In-house verification is conducted periodically. |             |                              |               |                    |                              |           |            |         |

Table 2-2      Measurement Software List

| Used                                | Control No. | Software Description                | Model No.         | Ver.         | Manufacturer |
|-------------------------------------|-------------|-------------------------------------|-------------------|--------------|--------------|
| <input checked="" type="checkbox"/> | SW-5033     | SAR/APD measurement software        | DASY8 Module SAR  | V16.4.0.5005 | SPEAG        |
| <input checked="" type="checkbox"/> | SW-0403     | Dielectric measurement software     | DAK               | 2.6.0.5      | SPEAG        |
| <input checked="" type="checkbox"/> | SW-0406     | SAR/APD/IPD measurement spreadsheet | -                 | 2.00         | Main Lab.    |
| <input checked="" type="checkbox"/> | SW-5035     | Power measurement software          | Keysight BenchVue | 2024         | Keysight     |

## 2.2. Measurement System Description

### <SAR Measurement System>

The DASY8 system for SAR measurements consists of the following items:

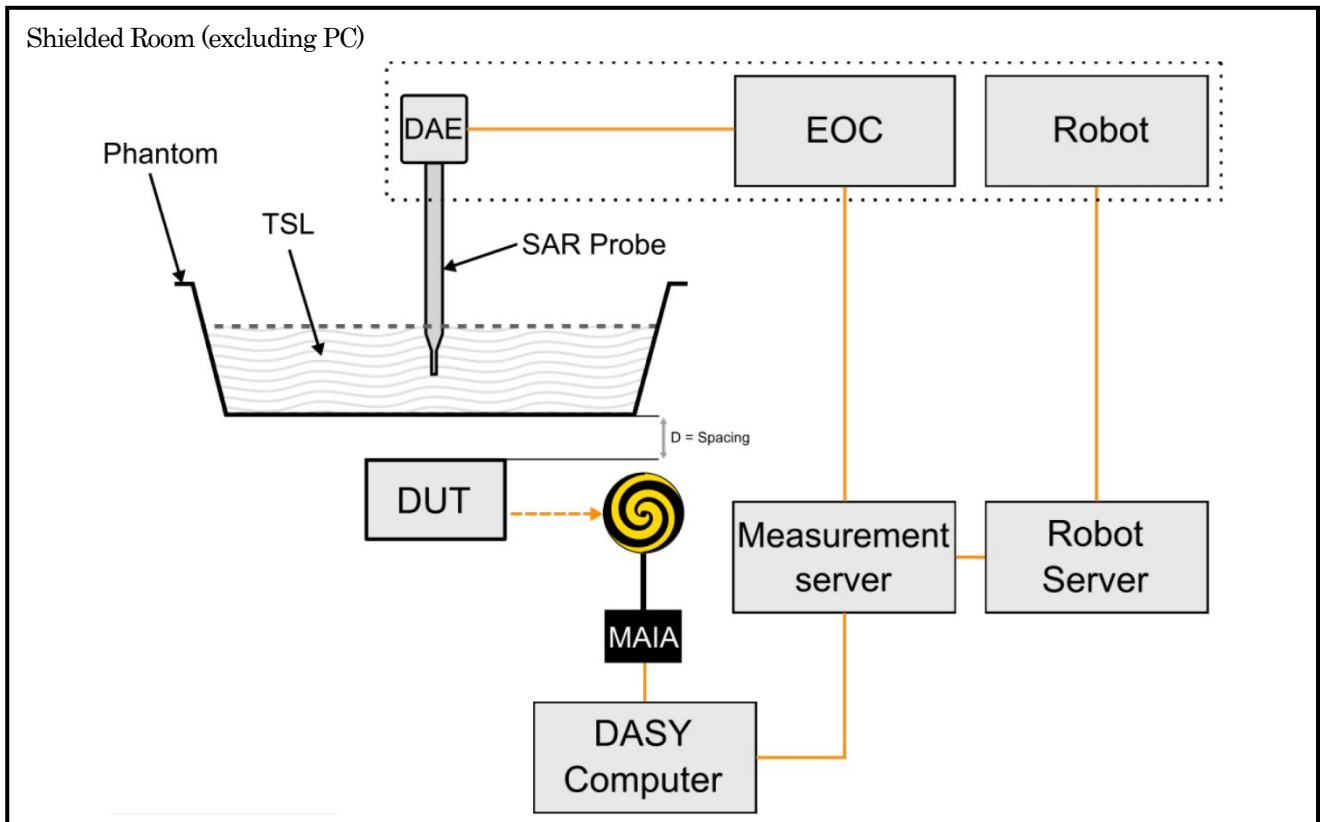


Figure 2-1 SAR Measurement System Description

- 6-axis robotic arm (Stäubli TX2-60L) for positioning the probe.
- Mounting Platform for keeping the phantoms at a fixed location relative to the robot.
- Measurement Server for handling all time-critical tasks, such as measurement data acquisition and supervision of safety features.
- EOC (Electrical to Optical Converter) for converting the optical signal from the DAE to electrical before being transmitted to the measurement server.
- LB (Light-Beam unit) for probe alignment (measurement of the exact probe length and eccentricity).
- SAR probe (EX3DV4 probes) for measuring the E-field distribution in the phantom. The SAR distribution and the psSAR (peak spatial averaged SAR) are derived from the E-field measurement.
- SAR phantom that represents a physical model with an equivalent human anatomy. A Specific Anthropomorphic Mannequin (SAM) head is usually used for handheld devices, and a Flat phantom is used for body-worn devices.
- TSL (Tissue Simulating Liquid) representing the dielectric properties of used tissue, e.g. Head Simulating Liquid, HSL.
- DAE (Data Acquisition Electronics) for reading the probe voltages and transmitting it to the DASY8 PC.
- Device Holder for positioning the DUT beneath the phantom.
- MAIA (Modulation and Interference Analyzer) for confirming the accuracy of the probe linearization parameters.
- Control PC for running the DASY8 software to define/execute the measurements.
- System validation kits for system check/validation purposes.

## 2.3. Measurement System Main Components

### Robot (Positioner)

|                       | Shielded Room 3 |
|-----------------------|-----------------|
| Manufacturer          | Staubli SA      |
| Model No.             | TX2-60L         |
| Number of Axis        | 6               |
| Reach at Wrist        | 920 mm          |
| Repeatability         | +/- 0.03 mm     |
| Nominal Load Capacity | 2 kg            |
| Maximum Load Capacity | 3.7 kg          |
| Control Unit          | CS9c            |
| Weight                | 52.9 kg         |

### E-Field Probe

|               |                                                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer  | Schmid & Partner Engineering AG (SPEAG)                                                                                                                     |
| Model No.     | EX3DV4                                                                                                                                                      |
| Construction  | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| Frequency     | 4 MHz to 10 GHz<br>Linearity: $\pm 0.2$ dB (30 MHz to 10 GHz)                                                                                               |
| Directivity   | $\pm 0.1$ dB in TSL (rotation around probe axis)<br>$\pm 0.3$ dB in TSL (rotation normal to probe axis)                                                     |
| Dynamic Range | 10 $\mu$ W/g to > 100 mW/g<br>Linearity: $\pm 0.2$ dB (noise: typically < 1 $\mu$ W/g)                                                                      |
| Dimensions    | Overall length: 337 mm (Tip length: 20 mm)<br>Tip diameter: 2.5 mm (Body diameter: 12 mm)<br>Typical distance from probe tip to dipole centers: 1 mm        |

### Data Acquisition Electronics (DAE)

|                        |                                                                                                                                                                                                                                                                 |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer           | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                                                                                                         |
| Model No.              | DAE4                                                                                                                                                                                                                                                            |
| Construction           | High precision 3-channel differential voltmeter for use with SPEAG's field, SAR probes.<br>Serial optical link for communication with the DASY8 measurement server.<br>Two-step probe touch detector for mechanical surface detection and emergency robot stop. |
| Measurement Range      | -100 to +300 mV (16-bit resolution and two range settings: 4 mV, 400 mV)                                                                                                                                                                                        |
| Input Offset Voltage   | < 5 $\mu$ V (with auto zero)                                                                                                                                                                                                                                    |
| Input Resistance       | 200 M $\Omega$                                                                                                                                                                                                                                                  |
| Input Bias Current     | < 50 fA                                                                                                                                                                                                                                                         |
| Battery Power          | > 10 hours of operation (with two 9.6 V NiMH batteries)                                                                                                                                                                                                         |
| Dimensions (L x W x H) | 60 x 60 x 68 mm                                                                                                                                                                                                                                                 |

### DASY8 Measurement Server

|              |                                                                                             |
|--------------|---------------------------------------------------------------------------------------------|
| Manufacturer | Schmid & Partner Engineering AG (SPEAG)                                                     |
| Model No.    | DASY8 Measurement Server                                                                    |
| Description  | The DASY8 measurement server establishes the connection between the DASY8 PC and the robot. |

Phantoms (Twin SAM Phantom)

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer         | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Model No.            | Twin SAM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Description          | The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEC/IEEE 62209-1528. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.<br>Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure. |
| Material             | Vinylester, glass fiber reinforced (VE-GF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Liquid Compatibility | Compatible with all SPEAG tissue simulating liquids (sugar and oil based)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Shell Thickness      | 2 ± 0.2 mm (6 ± 0.2 mm at ear point)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Dimensions           | Length: 1000 mm<br>Width: 500 mm<br>Height: adjustable feet                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Filling Volume       | Approx. 25 liters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Support              | SPEAG standard-size platform slot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Phantoms (ELI Phantom)

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer         | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Model No.            | ELI V5.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Description          | Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. ELI is fully compatible with the IEC/IEC 62209-1528 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables.<br>A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.<br>ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure. |
| Material             | Vinylester, glass fiber reinforced (VE-GF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Liquid Compatibility | Compatible with all SPEAG tissue simulating liquids (sugar and oil based)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Shell Thickness      | 2.0 ± 0.2 mm (bottom plate)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Dimensions           | Major axis: 600 mm<br>Minor axis: 400 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Filling Volume       | Approx. 30 liters                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Support              | SPEAG standard-size platform slot                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

Device Holder (Mounting Device for Hand-Held Transmitters)

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Model No.    | MD4HHTV5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Description  | In combination with the Twin SAM or ELI Phantoms, the Mounting Device for Hand-Held Transmitters enables rotation of the mounted transmitter device to specified spherical coordinates. At the heads, the rotation axis is at the ear opening. Transmitter devices can be easily and accurately positioned according to IEC 62209-1, IEEE 1528, FCC, or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). |
| Material     | Polyoxymethylene (POM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Device Holder (Mounting Device Adaptor for Ultra Wide Transmitters)

|              |                                                                                                                                                                         |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                 |
| Model No.    | MDA4WTV5                                                                                                                                                                |
| Description  | An upgrade kit to Mounting Device to enable easy mounting of wider devices like big smart-phones, e-books, small tablets, etc. It holds devices with width up to 140mm. |
| Material     | Polyoxymethylene (POM)                                                                                                                                                  |

Device Holder (Mounting Device Adaptor for Laptops)

|              |                                                                                                                                                                                                                                                                                                                                                    |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                                                                                                                                                                                            |
| Model No.    | MDA4LAP                                                                                                                                                                                                                                                                                                                                            |
| Description  | A simple but effective and easy-to-use extension for the Mounting Device; facilitates testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.); lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin SAM, ELI Phantoms. |
| Material     | Polyoxymethylene (POM), PET-G, Foam                                                                                                                                                                                                                                                                                                                |

System Validation Dipole Kits

|                  |                                                                                                                                                                        |               |                |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------|
| Manufacturer     | Schmid & Partner Engineering AG (SPEAG)                                                                                                                                |               |                |
| Model No.        | D-Series                                                                                                                                                               |               |                |
| Construction     | Symmetrical dipole with 1/4 balun<br>Enables measurement of feedpoint impedance with NWA<br>Matched for use near flat phantoms filled with tissue simulating solutions |               |                |
| Frequency        | 2450 MHz, 5100 to 5800 MHz, and 6500 MHz                                                                                                                               |               |                |
| Return Loss      | > 20 dB at specified validation position                                                                                                                               |               |                |
| Power Capability | > 100 W ( $f < 1$ GHz); > 40 W ( $f > 1$ GHz)                                                                                                                          |               |                |
| Accessories      | Distance holder, tripod adaptor, tripod                                                                                                                                |               |                |
| Dimensions       | Product                                                                                                                                                                | Dipole length | Overall height |
|                  | D2450V2                                                                                                                                                                | 52.0 mm       | 290.0 mm       |
|                  | D5GHzV2                                                                                                                                                                | 20.6 mm       | 300.0 mm       |

## 2.4. Tissue Simulating Liquids

### Recipes for tissue simulating liquids manufactured by SPEAG

| Ingredients<br>(% by weight) | Frequency (MHz)             |                             |                             |                             |                                     |                            |
|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------------|----------------------------|
|                              | 1900 to 3800                |                             | 3500 to 5800                |                             | 600 to 6000 / 10000                 |                            |
| Used                         | <input type="checkbox"/>    | <input type="checkbox"/>    | <input type="checkbox"/>    | <input type="checkbox"/>    | <input checked="" type="checkbox"/> | <input type="checkbox"/>   |
| Tissue Simulating Liquids    | HBBL<br>1900-<br>3800<br>V3 | MBBL<br>1900-<br>3800<br>V3 | HBBL<br>3500-<br>5800<br>V5 | MBBL<br>3500-<br>5800<br>V5 | HBBL<br>600-<br>10000<br>V6         | MBBL<br>600-<br>6000<br>V6 |
| Tissue Type                  | Head                        | Body                        | Head                        | Body                        | Head                                | Body                       |
| H <sub>2</sub> O             | 50 – 73 %                   |                             | 50 – 65 %                   |                             | 60 – 80 %                           |                            |
| Non-ionic detergents         | 25 – 50 %                   |                             | –                           |                             | –                                   |                            |
| NaCl                         | 0 – 2 %                     |                             | 0 – 1.5 %                   |                             | 0 – 1.5 %                           |                            |
| Preventol-D7                 | 0.05 – 0.1 %                |                             | –                           |                             | –                                   |                            |
| Ethanediol                   | –                           |                             | –                           |                             | < 5.2 %                             |                            |
| Sodium Petroleum Sulfonate   | –                           |                             | –                           |                             | < 2.9 %                             |                            |
| Hexylene Glycol              | –                           |                             | –                           |                             | < 2.9 %                             |                            |
| Alkoxylated Alcohol          | –                           |                             | –                           |                             | < 2.0 %                             |                            |
| Mineral Oil                  | –                           |                             | 10 – 30 %                   |                             | < 20 %                              |                            |
| Emulsifiers                  | –                           |                             | 8 – 25 %                    |                             | 20 – 40 %                           |                            |

For the SAR measurement, the phantom must be filled with tissue simulating liquid to a depth of at least 15 cm.



HBBL600-10000 V6

Figure 2-2      Photos: Liquid Depth (at the center of the flat phantom)

## 2.5. SAR Measurement

### Step 1: Power Reference Measurement

Before an area scan and after the zoom scan, single point SAR measurements are performed at defined locations to estimate the SAR measurement drift due to device output power variations.

### Step 2: Area Scan

An area scan is performed according to the requirements in Table 2-3.

### Step 3: Zoom Scan

A zoom scan is performed according to the requirements in Table 2-3.

### Step 4: Power Drift Measurement

Before an area scan and after the zoom scan, single point SAR measurements are performed at defined locations to estimate the SAR measurement drift due to device output power variations.

Table 2-3 Area Scan and Zoom Scan Parameters

|                                                                                                        |                                           |                                                                                    | DUT Transmit Frequency being Tested                                                                                                                                                                                                                                    |                                                                                                                               |                                                                                                |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                                                                        |                                           |                                                                                    | $f \leq 3 \text{ GHz}$                                                                                                                                                                                                                                                 | $3 \text{ GHz} < f \leq 6 \text{ GHz}$                                                                                        | $6 \text{ GHz} < f \leq 8.5 \text{ GHz}$                                                       |
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface |                                           |                                                                                    | $5 \pm 1 \text{ mm}$                                                                                                                                                                                                                                                   | $\frac{1}{2} \delta \ln(2) \pm 0.5 \text{ mm}$                                                                                | $\frac{1}{2} \delta \ln(2) \pm 0.5 \text{ mm}$                                                 |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location              |                                           |                                                                                    | $30^\circ \pm 1^\circ$                                                                                                                                                                                                                                                 | $20^\circ \pm 1^\circ$                                                                                                        | $5^\circ \pm 1^\circ$ (flat phantoms only)<br>$20^\circ \pm 1^\circ$ (other phantoms)          |
| Maximum area scan spatial resolution:<br>$\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$              |                                           |                                                                                    | $\leq 2 \text{ GHz}: \leq 15 \text{ mm}$<br>$2 - 3 \text{ GHz}: \leq 12 \text{ mm}$                                                                                                                                                                                    | $3 - 4 \text{ GHz}: \leq 12 \text{ mm}$<br>$4 - 6 \text{ GHz}: \leq 10 \text{ mm}$                                            | $\leq 60 / f \text{ mm}$ , or half of the corresponding zoom scan length, whichever is smaller |
|                                                                                                        |                                           |                                                                                    | When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device. |                                                                                                                               |                                                                                                |
| Maximum zoom scan spatial resolution:<br>$\Delta x_{\text{Zoom}}, \Delta y_{\text{Zoom}}$              |                                           |                                                                                    | $\leq 2 \text{ GHz}: \leq 8 \text{ mm}$<br>$2 - 3 \text{ GHz}: \leq 5 \text{ mm}$                                                                                                                                                                                      | $3 - 4 \text{ GHz}: \leq 5 \text{ mm}$<br>$4 - 6 \text{ GHz}: \leq 4 \text{ mm}$                                              | $\leq 24 / f \text{ mm}$                                                                       |
| Maximum zoom scan spatial resolution, normal to phantom surface                                        | uniform grid: $\Delta z_{\text{Zoom}}(n)$ |                                                                                    | $\leq 5 \text{ mm}$                                                                                                                                                                                                                                                    | $3 - 4 \text{ GHz}: \leq 4 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 3 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$    | $\leq 10 / (f \cdot 1) \text{ mm}$                                                             |
|                                                                                                        | graded grid                               | $\Delta z_{\text{Zoom}}(1)$ :<br>between 1st two points closest to phantom surface | $\leq 4 \text{ mm}$                                                                                                                                                                                                                                                    | $3 - 4 \text{ GHz}: \leq 3 \text{ mm}$<br>$4 - 5 \text{ GHz}: \leq 2.5 \text{ mm}$<br>$5 - 6 \text{ GHz}: \leq 2 \text{ mm}$  | $\leq 12 / f \text{ mm}$                                                                       |
|                                                                                                        |                                           | $\Delta z_{\text{Zoom}}(n>1)$ :<br>between subsequent points                       | $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$                                                                                                                                                                                                                           |                                                                                                                               |                                                                                                |
| Minimum zoom scan volume                                                                               | x, y, z                                   |                                                                                    | $\geq 30 \text{ mm}$                                                                                                                                                                                                                                                   | $3 - 4 \text{ GHz}: \geq 28 \text{ mm}$<br>$4 - 5 \text{ GHz}: \geq 25 \text{ mm}$<br>$5 - 6 \text{ GHz}: \geq 22 \text{ mm}$ | $\geq 22 \text{ mm}$                                                                           |
| Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium.      |                                           |                                                                                    |                                                                                                                                                                                                                                                                        |                                                                                                                               |                                                                                                |

## 2.6. Measurement Uncertainty

☒ Table 2-4      DASY8 Uncertainty Budget for SAR Tests

| For SAR Testing ( IEC/IEEE 62209-1528:2020; SR3; DASY8, 0.3 GHz to 3 GHz ) |                                           |                   |                  |      |             |      |      |         |        |            |   |
|----------------------------------------------------------------------------|-------------------------------------------|-------------------|------------------|------|-------------|------|------|---------|--------|------------|---|
| Symbol                                                                     | Source of Uncertainty                     | Uncertainty of Xi |                  |      | u(Xi)       | Ci   |      | Ciu(Xi) |        | Vi<br>Veff |   |
|                                                                            |                                           | Xi                | Prob.<br>Dist.   | Div. |             | 1g   | 10g  | 1g      | 10g    |            |   |
| Measurement System Errors                                                  |                                           |                   |                  |      |             |      |      |         |        |            |   |
| CF                                                                         | Probe Calibration                         | ±11.1%            | N ( <i>k</i> =2) | 2    | ±5.6%       | 1    | 1    | ±5.6%   | ±5.6%  | ∞          |   |
| CF <sub>drift</sub>                                                        | Probe Calibration Drift                   | ±1.7%             | R                | 1.73 | ±1.0%       | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |   |
| LIN                                                                        | Probe Linearity                           | ±4.7%             | R                | 1.73 | ±2.7%       | 1    | 1    | ±2.7%   | ±2.7%  | ∞          |   |
| BBS                                                                        | Broadband Signal                          | ±3.0%             | R                | 1.73 | ±1.7%       | 1    | 1    | ±1.7%   | ±1.7%  | ∞          |   |
| ISO                                                                        | Probe Isotropy                            | ±7.6%             | R                | 1.73 | ±4.4%       | 1    | 1    | ±4.4%   | ±4.4%  | ∞          |   |
| DAE                                                                        | Other Probe + Electronic                  | ±0.7%             | N                | 1    | ±0.7%       | 1    | 1    | ±0.7%   | ±0.7%  | ∞          |   |
| AMB                                                                        | RF Ambient                                | ±1.8%             | N                | 1    | ±1.8%       | 1    | 1    | ±1.8%   | ±1.8%  | ∞          |   |
| Δ <sub>xyz</sub>                                                           | Probe Positioning                         | ±0.006mm          | N                | 1    | ±0.6%       | 0.14 | 0.14 | ±0.1%   | ±0.1%  | ∞          |   |
| DAT                                                                        | Data Processing                           | ±1.2%             | N                | 1    | ±1.2%       | 1    | 1    | ±1.2%   | ±1.2%  | ∞          |   |
| Phantom and DUT Errors                                                     |                                           |                   |                  |      |             |      |      |         |        |            |   |
| LIQ (σ)                                                                    | Conductivity (meas.)                      | ±2.5%             | N                | 1    | ±2.5%       | 0.78 | 0.71 | ±2.0%   | ±1.8%  | ∞          |   |
| LIQ (T <sub>c</sub> )                                                      | Conductivity (temp.)                      | ±3.3%             | R                | 1.73 | ±1.9%       | 0.78 | 0.71 | ±1.5%   | ±1.4%  | ∞          |   |
| EPS                                                                        | Phantom Permittivity                      | ±14.0%            | R                | 1.73 | ±8.1%       | 0    | 0    | ±0.0%   | ±0.0%  | ∞          |   |
| DIS                                                                        | Distance DUT - TSL                        | ±2.0%             | N                | 1    | ±2.0%       | 2    | 2    | ±4.0%   | ±4.0%  | ∞          |   |
| D <sub>xyz</sub>                                                           | Positioning Repeatability                 | ±1.0%             | N                | 1    | ±1.0%       | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |   |
| H                                                                          | Device Holder                             | ±3.6%             | N                | 1    | ±3.6%       | 1    | 1    | ±3.6%   | ±3.6%  | 7          |   |
| MOD                                                                        | DUT Modulation                            | ±2.4%             | R                | 1.73 | ±1.4%       | 1    | 1    | ±1.4%   | ±1.4%  | ∞          |   |
| TAS                                                                        | Time-averaged SAR                         | ±1.7%             | R                | 1.73 | ±1.0%       | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |   |
| RF <sub>drift</sub>                                                        | DUT Drift                                 | ±2.9%             | N                | 1    | ±2.9%       | 1    | 1    | ±2.9%   | ±2.9%  | ∞          |   |
| Corrections to the SAR result                                              |                                           |                   |                  |      |             |      |      |         |        |            |   |
| C(ε', σ)                                                                   | Deviation to Target                       | ±1.9%             | N                | 1    | ±1.9%       | 1    | 0.84 | ±1.9%   | ±1.6%  | ∞          |   |
| C(R)                                                                       | SAR Scaling                               | ±0.0%             | R                | 1.73 | ±0.0%       | 1    | 1    | ±0.0%   | ±0.0%  | ∞          |   |
| u(ΔSAR)                                                                    | Combined Standard Uncertainty RSS         |                   |                  |      |             |      |      | ±10.8%  | ±10.7% | 574        |   |
| U                                                                          | Expanded Uncertainty (95% conf. interval) |                   |                  |      | <i>k</i> =2 |      |      |         | ±21.7% | ±21.5%     | - |

☒ Table 2-5 DASY8 Uncertainty Budget for SAR Tests

| For SAR Testing ( IEC/IEEE 62209-1528:2020; SR3; DASY8, 3 GHz to 6 GHz ) |                                                       |                   |                  |      |       |      |      |         |        |            |
|--------------------------------------------------------------------------|-------------------------------------------------------|-------------------|------------------|------|-------|------|------|---------|--------|------------|
| Symbol                                                                   | Source of Uncertainty                                 | Uncertainty of Xi |                  |      | u(Xi) | Ci   |      | Ciu(Xi) |        | Vi<br>Veff |
|                                                                          |                                                       | Xi                | Prob.<br>Dist.   | Div. |       | 1g   | 10g  | 1g      | 10g    |            |
| Measurement System Errors                                                |                                                       |                   |                  |      |       |      |      |         |        |            |
| CF                                                                       | Probe Calibration                                     | ±13.1%            | N ( <i>k</i> =2) | 2    | ±6.6% | 1    | 1    | ±6.6%   | ±6.6%  | ∞          |
| CF <sub>drift</sub>                                                      | Probe Calibration Drift                               | ±1.7%             | R                | 1.73 | ±1.0% | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |
| LIN                                                                      | Probe Linearity                                       | ±4.7%             | R                | 1.73 | ±2.7% | 1    | 1    | ±2.7%   | ±2.7%  | ∞          |
| BBS                                                                      | Broadband Signal                                      | ±2.6%             | R                | 1.73 | ±1.5% | 1    | 1    | ±1.5%   | ±1.5%  | ∞          |
| ISO                                                                      | Probe Isotropy                                        | ±7.6%             | R                | 1.73 | ±4.4% | 1    | 1    | ±4.4%   | ±4.4%  | ∞          |
| DAE                                                                      | Other Probe + Electronic                              | ±1.2%             | N                | 1    | ±1.2% | 1    | 1    | ±1.2%   | ±1.2%  | ∞          |
| AMB                                                                      | RF Ambient                                            | ±1.8%             | N                | 1    | ±1.8% | 1    | 1    | ±1.8%   | ±1.8%  | ∞          |
| Δ <sub>xyz</sub>                                                         | Probe Positioning                                     | ±0.005mm          | N                | 1    | ±0.5% | 0.28 | 0.28 | ±0.2%   | ±0.2%  | ∞          |
| DAT                                                                      | Data Processing                                       | ±2.3%             | N                | 1    | ±2.3% | 1    | 1    | ±2.3%   | ±2.3%  | ∞          |
| Phantom and DUT Errors                                                   |                                                       |                   |                  |      |       |      |      |         |        |            |
| LIQ (o)                                                                  | Conductivity (meas.)                                  | ±2.5%             | N                | 1    | ±2.5% | 0.78 | 0.71 | ±2.0%   | ±1.8%  | ∞          |
| LIQ (T <sub>o</sub> )                                                    | Conductivity (temp.)                                  | ±3.4%             | R                | 1.73 | ±1.9% | 0.78 | 0.71 | ±1.5%   | ±1.4%  | ∞          |
| EPS                                                                      | Phantom Permittivity                                  | ±14.0%            | R                | 1.73 | ±8.1% | 0.25 | 0.25 | ±2.0%   | ±2.0%  | ∞          |
| DIS                                                                      | Distance DUT - TSL                                    | ±2.0%             | N                | 1    | ±2.0% | 2    | 2    | ±4.0%   | ±4.0%  | ∞          |
| D <sub>xyz</sub>                                                         | Positioning Repeatability                             | ±1.0%             | N                | 1    | ±1.0% | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |
| H                                                                        | Device Holder                                         | ±3.6%             | N                | 1    | ±3.6% | 1    | 1    | ±3.6%   | ±3.6%  | 7          |
| MOD                                                                      | DUT Modulation                                        | ±2.4%             | R                | 1.73 | ±1.4% | 1    | 1    | ±1.4%   | ±1.4%  | ∞          |
| TAS                                                                      | Time-averaged SAR                                     | ±1.7%             | R                | 1.73 | ±1.0% | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |
| RF <sub>drift</sub>                                                      | DUT Drift                                             | ±2.9%             | N                | 1    | ±2.9% | 1    | 1    | ±2.9%   | ±2.9%  | ∞          |
| Corrections to the SAR result                                            |                                                       |                   |                  |      |       |      |      |         |        |            |
| C(ε', o)                                                                 | Deviation to Target                                   | ±1.9%             | N                | 1    | ±1.9% | 1    | 0.84 | ±1.9%   | ±1.6%  | ∞          |
| C(R)                                                                     | SAR Scaling                                           | ±0.0%             | R                | 1.73 | ±0.0% | 1    | 1    | ±0.0%   | ±0.0%  | ∞          |
| u(ΔSAR)                                                                  | Combined Standard Uncertainty RSS                     |                   |                  |      |       |      |      | ±11.7%  | ±11.7% | 792        |
| U                                                                        | Expanded Uncertainty (95% conf. interval) <i>k</i> =2 |                   |                  |      |       |      |      | ±23.5%  | ±23.3% | -          |

☒ Table 2-6      DASY8 Uncertainty Budget for SAR System Check

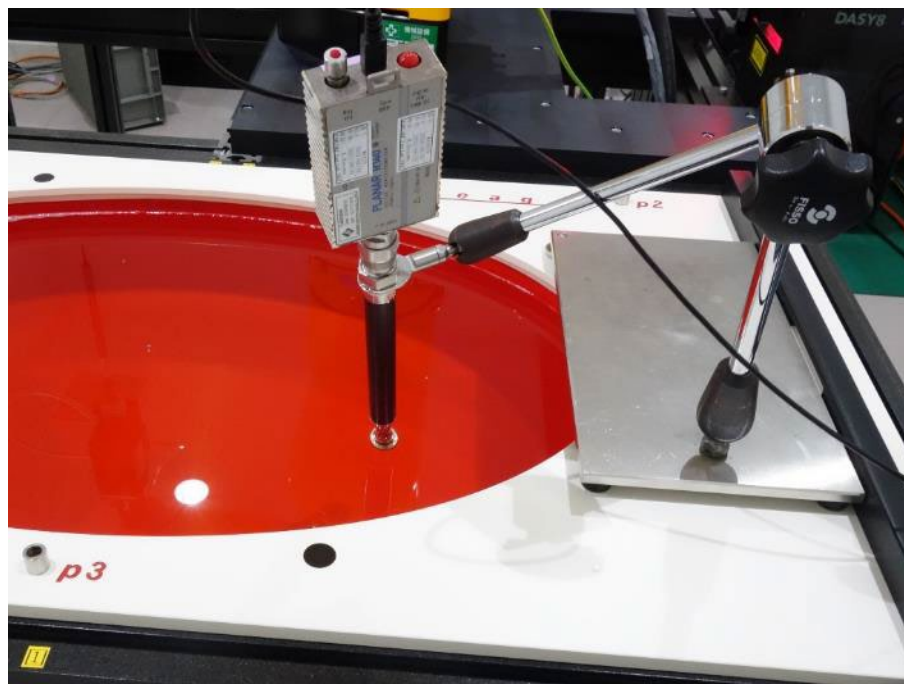
| For SAR System Check ( IEC/IEEE 62209-1528:2020: SR3; DASY8, 0.3 GHz to 6 GHz ) |                                                       |                   |                  |      |       |      |      |         |        |            |
|---------------------------------------------------------------------------------|-------------------------------------------------------|-------------------|------------------|------|-------|------|------|---------|--------|------------|
| Symbol                                                                          | Source of Uncertainty                                 | Uncertainty of Xi |                  |      | u(Xi) | Ci   |      | Ciu(Xi) |        | Vi<br>Veff |
|                                                                                 |                                                       | Xi                | Prob.<br>Dist.   | Div. |       | 1g   | 10g  | 1g      | 10g    |            |
| Measurement System Errors                                                       |                                                       |                   |                  |      |       |      |      |         |        |            |
| CF                                                                              | Probe Calibration                                     | ±13.1%            | N ( <i>k</i> =2) | 2    | ±6.6% | 1    | 1    | ±6.6%   | ±6.6%  | ∞          |
| CF <sub>drift</sub>                                                             | Probe Calibration Drift                               | ±1.7%             | R                | 1.73 | ±1.0% | 1    | 1    | ±1.0%   | ±1.0%  | ∞          |
| LIN                                                                             | Probe Linearity                                       | ±4.7%             | R                | 1.73 | ±2.7% | 1    | 1    | ±2.7%   | ±2.7%  | ∞          |
| BBS                                                                             | Broadband Signal                                      | ±0.0%             | N ( <i>k</i> =2) | 2    | ±0.0% | 1    | 1    | ±0.0%   | ±0.0%  | ∞          |
| ISO                                                                             | Probe Isotropy (axial)                                | ±4.7%             | R                | 1.73 | ±2.7% | 1    | 1    | ±2.7%   | ±2.7%  | ∞          |
| DAE                                                                             | Other Probe + Electronic                              | ±1.2%             | N                | 1    | ±1.2% | 1    | 1    | ±1.2%   | ±1.2%  | ∞          |
| AMB                                                                             | RF Ambient                                            | ±0.6%             | N                | 1    | ±0.6% | 1    | 1    | ±0.6%   | ±0.6%  | ∞          |
| Δ <sub>xyz</sub>                                                                | Probe Positioning                                     | ±0.005mm          | N                | 1    | ±0.5% | 0.28 | 0.28 | ±0.2%   | ±0.2%  | ∞          |
| DAT                                                                             | Data Processing                                       | ±0.6%             | N                | 1    | ±0.6% | 1    | 1    | ±0.6%   | ±0.6%  | ∞          |
| Phantom and DUT Errors                                                          |                                                       |                   |                  |      |       |      |      |         |        |            |
| LIQ (o)                                                                         | Conductivity (meas.)                                  | ±2.5%             | N                | 1    | ±2.5% | 0.78 | 0.71 | ±2.0%   | ±1.8%  | ∞          |
| LIQ (T <sub>c</sub> )                                                           | Conductivity (temp.)                                  | ±3.4%             | R                | 1.73 | ±1.9% | 0.78 | 0.71 | ±1.5%   | ±1.4%  | ∞          |
| EPS                                                                             | Phantom Permittivity                                  | ±14.0%            | R                | 1.73 | ±8.1% | 0.25 | 0.25 | ±2.0%   | ±2.0%  | ∞          |
| DIS                                                                             | Distance DUT - TSL                                    | ±1.3%             | N                | 1    | ±1.3% | 2    | 2    | ±2.6%   | ±2.6%  | ∞          |
| D <sub>xyz</sub>                                                                | Positioning Repeatability                             | ±1.2%             | N                | 1    | ±1.2% | 1    | 1    | ±1.2%   | ±1.2%  | ∞          |
| MOD                                                                             | DUT Modulation                                        | ±0.0%             | R                | 1.73 | ±0.0% | 1    | 1    | ±0.0%   | ±0.0%  | ∞          |
| TAS                                                                             | Time-averaged SAR                                     | ±0.0%             | R                | 1.73 | ±0.0% | 1    | 1    | ±0.0%   | ±0.0%  | ∞          |
| VAL                                                                             | Validation Antenna                                    | ±3.2%             | N                | 1    | ±3.2% | 1    | 1    | ±3.2%   | ±3.2%  | ∞          |
| P <sub>in</sub>                                                                 | Accepted Power                                        | ±2.0%             | N                | 1    | ±2.0% | 1    | 1    | ±2.0%   | ±2.0%  | ∞          |
| Corrections to the SAR result                                                   |                                                       |                   |                  |      |       |      |      |         |        |            |
| C( <i>e'</i> , o)                                                               | Deviation to Target                                   | ±1.9%             | N                | 1    | ±1.9% | 1    | 0.84 | ±1.9%   | ±1.6%  | ∞          |
| u(ΔSAR)                                                                         | Combined Standard Uncertainty RSS                     |                   |                  |      |       |      |      | ±9.8%   | ±9.7%  | ∞          |
| U                                                                               | Expanded Uncertainty (95% conf. interval) <i>k</i> =2 |                   |                  |      |       |      |      | ±19.7%  | ±19.5% | -          |

## 2.7. Dielectric Parameter Measurement of Tissue Simulating Liquids

The dielectric properties of the tissue simulating liquids used were verified within 24 hours before the SAR measurement.



(a) Dielectric Parameter Measurement System



(b) Example Photo: Dielectric Parameter Measurement

Figure 2-3      Dielectric Parameter Measurement Set-up

## 4th Site Shielded Room 3

| TSL                     | Freq.<br>(MHz) | Param.         | Target<br>*1 | Meas. | Dev.<br>(%)<br>*2 | Date       | Amb.<br>Temp.<br>(deg. C) | Rel.<br>Hum.<br>(%RH) | Liquid<br>Temp.<br>(deg. C) |
|-------------------------|----------------|----------------|--------------|-------|-------------------|------------|---------------------------|-----------------------|-----------------------------|
| HBBL<br>600-10000<br>V6 | 2402           | $\epsilon_r$   | 39.29        | 39.80 | 1.30              | 2025/03/11 | 20.7                      | 41.1                  | 21.1                        |
|                         |                | $\sigma$ (S/m) | 1.76         | 1.69  | -3.90             |            |                           |                       |                             |
|                         | 2402           | $\epsilon_r$   | 39.29        | 40.63 | 3.43              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.76         | 1.72  | -2.41             |            |                           |                       |                             |
|                         | 2412           | $\epsilon_r$   | 39.27        | 40.61 | 3.42              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.77         | 1.72  | -2.39             |            |                           |                       |                             |
|                         | 2412           | $\epsilon_r$   | 39.27        | 40.73 | 3.72              | 2025/04/07 | 20.3                      | 44.0                  | 20.8                        |
|                         |                | $\sigma$ (S/m) | 1.77         | 1.72  | -2.54             |            |                           |                       |                             |
|                         | 2437           | $\epsilon_r$   | 39.22        | 40.57 | 3.43              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.79         | 1.75  | -2.33             |            |                           |                       |                             |
|                         | 2437           | $\epsilon_r$   | 39.22        | 40.69 | 3.74              | 2025/04/07 | 20.3                      | 44.0                  | 20.8                        |
|                         |                | $\sigma$ (S/m) | 1.79         | 1.74  | -2.58             |            |                           |                       |                             |
|                         | 2440           | $\epsilon_r$   | 39.22        | 39.71 | 1.25              | 2025/03/11 | 20.7                      | 41.1                  | 21.1                        |
|                         |                | $\sigma$ (S/m) | 1.79         | 1.72  | -4.07             |            |                           |                       |                             |
|                         | 2441           | $\epsilon_r$   | 39.22        | 40.56 | 3.43              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.79         | 1.75  | -2.31             |            |                           |                       |                             |
|                         | 2462           | $\epsilon_r$   | 39.18        | 40.52 | 3.41              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.81         | 1.77  | -2.31             |            |                           |                       |                             |
|                         | 2462           | $\epsilon_r$   | 39.18        | 40.64 | 3.73              | 2025/04/07 | 20.3                      | 44.0                  | 20.8                        |
|                         |                | $\sigma$ (S/m) | 1.81         | 1.76  | -2.71             |            |                           |                       |                             |
|                         | 2480           | $\epsilon_r$   | 39.16        | 39.64 | 1.22              | 2025/03/11 | 20.7                      | 41.1                  | 21.1                        |
|                         |                | $\sigma$ (S/m) | 1.83         | 1.76  | -4.01             |            |                           |                       |                             |
|                         | 2480           | $\epsilon_r$   | 39.16        | 40.50 | 3.40              | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 1.83         | 1.79  | -2.34             |            |                           |                       |                             |
|                         | 5290           | $\epsilon_r$   | 35.88        | 35.68 | -0.55             | 2025/03/19 | 20.3                      | 50.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 4.75         | 4.74  | -0.06             |            |                           |                       |                             |
|                         | 5530           | $\epsilon_r$   | 35.61        | 36.87 | 3.54              | 2025/04/09 | 18.8                      | 59.0                  | 20.0                        |
|                         |                | $\sigma$ (S/m) | 4.99         | 4.98  | -0.32             |            |                           |                       |                             |
|                         | 5530           | $\epsilon_r$   | 35.61        | 36.88 | 3.57              | 2025/04/10 | 20.0                      | 50.5                  | 19.6                        |
|                         |                | $\sigma$ (S/m) | 4.99         | 5.02  | 0.63              |            |                           |                       |                             |
|                         | 5610           | $\epsilon_r$   | 35.52        | 36.60 | 3.04              | 2025/04/09 | 18.8                      | 59.0                  | 20.0                        |
|                         |                | $\sigma$ (S/m) | 5.08         | 5.11  | 0.63              |            |                           |                       |                             |
|                         | 5610           | $\epsilon_r$   | 35.52        | 36.55 | 2.90              | 2025/04/10 | 20.0                      | 50.5                  | 19.6                        |
|                         |                | $\sigma$ (S/m) | 5.08         | 5.17  | 1.77              |            |                           |                       |                             |
|                         | 5775           | $\epsilon_r$   | 35.33        | 34.25 | -3.04             | 2025/03/17 | 20.1                      | 55.3                  | 20.0                        |
|                         |                | $\sigma$ (S/m) | 5.24         | 5.08  | -3.09             |            |                           |                       |                             |
|                         | 5775           | $\epsilon_r$   | 35.33        | 34.82 | -1.44             | 2025/03/21 | 21.3                      | 48.1                  | 19.2                        |
|                         |                | $\sigma$ (S/m) | 5.24         | 5.21  | -0.57             |            |                           |                       |                             |

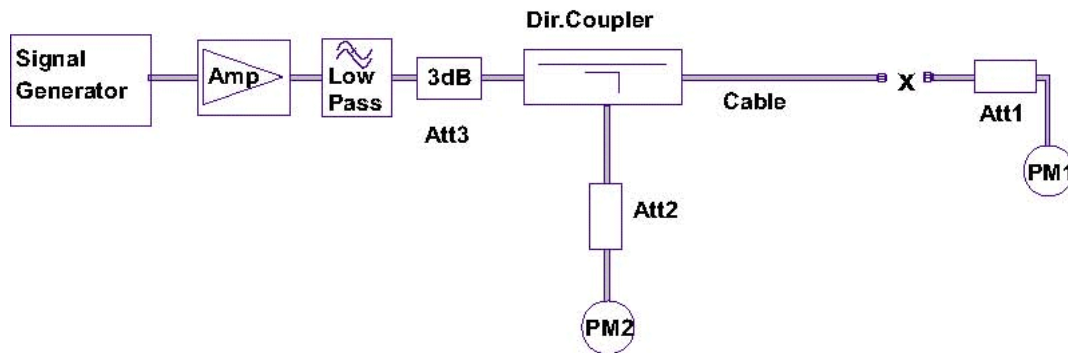
\*1 Target values are linearly interpolated between the values defined in KDB 865664 D01, when necessary.

\*2 The deviation of measured values from target values must be within +/-5 %.

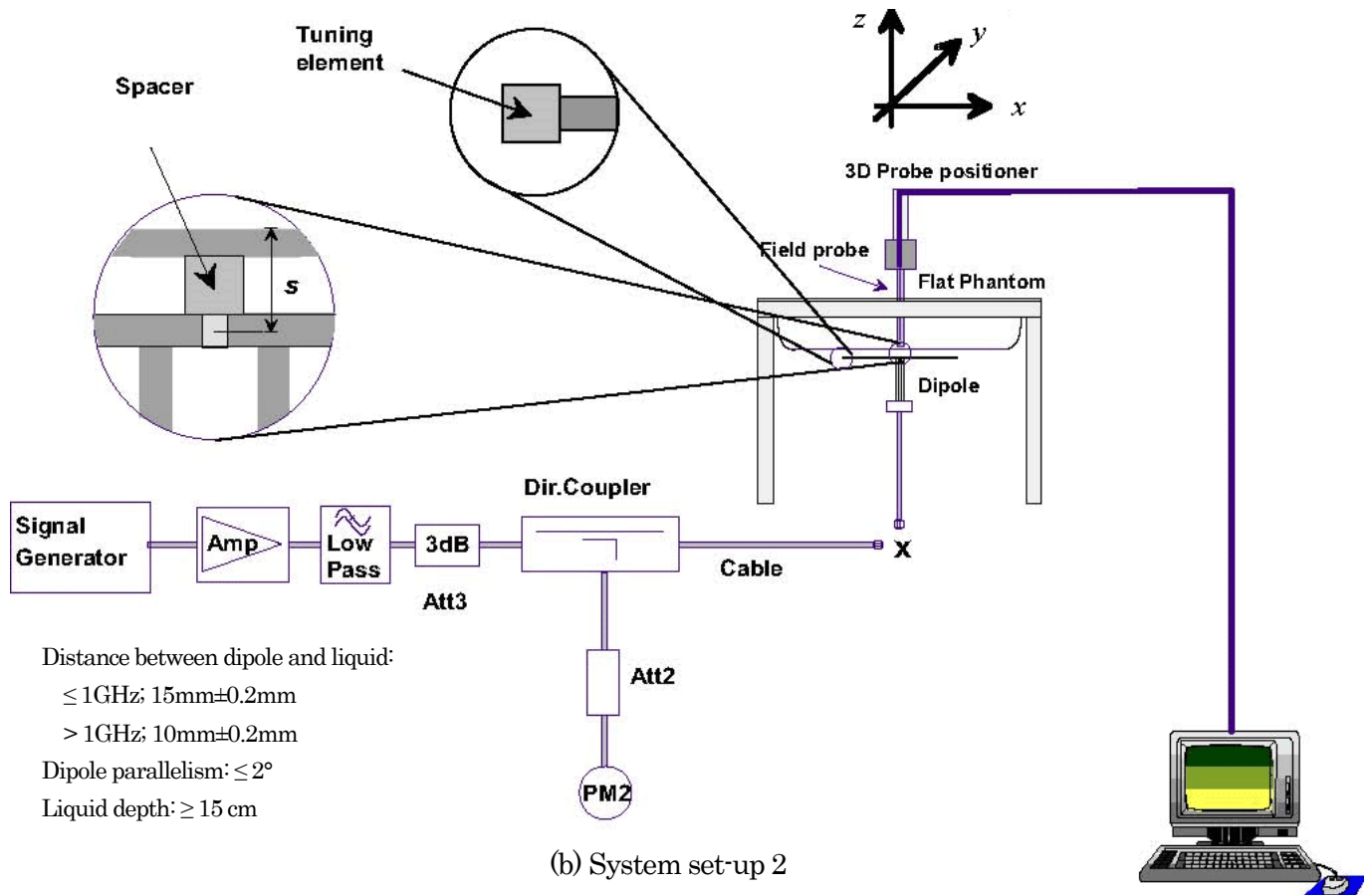
## 2.8. System Check Measurement

### <SAR Measurement System Check>

The system check was performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium.



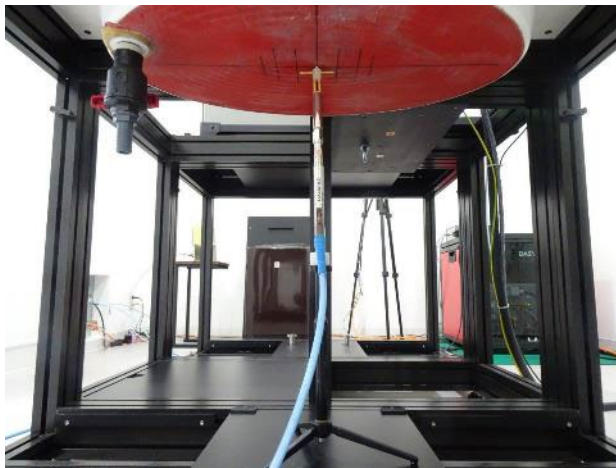
(a) System set-up 1



(b) System set-up 2

Figure 2-4

SAR System Check Measurement Set-up



D2450V2



D5GHzV2

(c) Photo: System Validation Dipole Placement

Figure 2-4      SAR System Check Measurement Set-up (continued)

4th Site Shielded Room 3

| System Validation Dipole | Freq. (MHz) | Param.   | 250 mW Meas. (W/kg) | 1 W Norm. (W/kg) *1 | 1 W Target (W/kg) *2 | Dev. (%) *3 | Date       | Amb. Temp. (deg. C) | Rel. Hum. (%RH) | Liquid Temp. (deg. C) | Note(s) |
|--------------------------|-------------|----------|---------------------|---------------------|----------------------|-------------|------------|---------------------|-----------------|-----------------------|---------|
| D2450V2                  | 2450        | 1-g SAR  | 13.30               | 53.20               | 53.60                | -0.75       | 2025/03/11 | 20.7                | 41.1            | 21.1                  | -       |
|                          |             | 10-g SAR | 6.28                | 25.12               | 25.10                | 0.08        |            |                     |                 |                       |         |
| D2450V2                  | 2450        | 1-g SAR  | 13.50               | 54.00               | 53.60                | 0.75        | 2025/03/21 | 21.3                | 48.1            | 19.2                  | -       |
|                          |             | 10-g SAR | 6.37                | 25.48               | 25.10                | 1.51        |            |                     |                 |                       |         |
| D2450V2                  | 2450        | 1-g SAR  | 13.40               | 53.60               | 53.60                | 0.00        | 2025/04/07 | 23.4                | 45.1            | 20.8                  | -       |
|                          |             | 10-g SAR | 6.28                | 25.12               | 25.10                | 0.08        |            |                     |                 |                       |         |

| System Validation Dipole | Freq. (MHz) | Param.   | 100 mW Meas. (W/kg) | 1 W Norm. (W/kg) *1 | 1 W Target (W/kg) *2 | Dev. (%) *3 | Date       | Amb. Temp. (deg. C) | Rel. Hum. (%RH) | Liquid Temp. (deg. C) | Note(s) |
|--------------------------|-------------|----------|---------------------|---------------------|----------------------|-------------|------------|---------------------|-----------------|-----------------------|---------|
| D5GHzV2                  | 5300        | 1-g SAR  | 7.89                | 78.90               | 80.70                | -2.23       | 2025/03/19 | 20.7                | 45.1            | 19.0                  | -       |
|                          |             | 10-g SAR | 2.25                | 22.50               | 23.10                | -2.60       |            |                     |                 |                       |         |
| D5GHzV2                  | 5600        | 1-g SAR  | 8.91                | 89.10               | 82.30                | 8.26        | 2025/04/09 | 19.0                | 53.4            | 19.3                  | -       |
|                          |             | 10-g SAR | 2.54                | 25.40               | 23.40                | 8.55        |            |                     |                 |                       |         |
| D5GHzV2                  | 5600        | 1-g SAR  | 8.92                | 89.20               | 82.30                | 8.38        | 2025/04/10 | 20.0                | 51.5            | 19.6                  | -       |
|                          |             | 10-g SAR | 2.56                | 25.60               | 23.40                | 9.40        |            |                     |                 |                       |         |
| D5GHzV2                  | 5800        | 1-g SAR  | 7.40                | 74.00               | 79.30                | -6.68       | 2025/03/17 | 21.4                | 43.0            | 19.7                  | -       |
|                          |             | 10-g SAR | 2.09                | 20.90               | 22.40                | -6.70       |            |                     |                 |                       |         |
| D5GHzV2                  | 5800        | 1-g SAR  | 7.77                | 77.70               | 79.30                | -2.02       | 2025/03/21 | 22.0                | 43.3            | 19.5                  | -       |
|                          |             | 10-g SAR | 2.21                | 22.10               | 22.40                | -1.34       |            |                     |                 |                       |         |

\*1 The normalized values (1 W) were calculated by normalizing the measured values to 1-W forward input power.

\*2 The target values (1 W) are defined in IEEE Std 1528 and/or the calibration certificate of system validation dipoles used.

\*3 The deviation of normalized values from target values must be within +/-10 %.

### 3. Conducted Power Measurements

#### ☒ <The Initial Test Configuration Procedures for Wi-Fi>

According to KDB 248227 D01,

the initial test configuration is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band.

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined by applying the following steps sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations in a frequency band with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n.

#### 3.1. Conducted Power Measurement Results

##### Wi-Fi 2.4 GHz

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2024/7/10           | 20.5                        | 50.4                    | Yu Inoue    |
| 2024/7/31           | 20.3                        | 61.4                    | Yu Inoue    |

| Mode              | Freq. Band | Ch. | Freq. (MHz) | Data Rate /MCS | Meas. Frame Averaged Power (dBm) |        | Meas. Burst Averaged Power (dBm) *1 |        | Max. Poss. Power (dBm) |        | Within 2 dB of Max. Poss. Power | SAR Tested | Note(s)  |
|-------------------|------------|-----|-------------|----------------|----------------------------------|--------|-------------------------------------|--------|------------------------|--------|---------------------------------|------------|----------|
|                   |            |     |             |                | Chain0                           | Chain1 | Chain0                              | Chain1 | Chain0                 | Chain1 |                                 |            |          |
| 802.11b           | 2.4 GHz    | 1   | 2412        | 1.0 Mbps       | 8.77                             | 8.73   | 8.77                                | 8.73   | 9.50                   | 9.50   | Yes                             | Yes        |          |
|                   |            | 6   | 2437        | 1.0 Mbps       | 8.81                             | 8.86   | 8.81                                | 8.86   | 9.50                   | 9.50   | Yes                             | Yes        |          |
|                   |            | 11  | 2462        | 1.0 Mbps       | 9.04                             | 9.07   | 9.04                                | 9.08   | 9.50                   | 9.50   | Yes                             | Yes        | Worst Ch |
| 802.11g *2        |            | 1   | 2412        | 6.0 Mbps       | 8.62                             | 8.55   | 8.65                                | 8.58   | 9.50                   | 9.50   | Yes                             | -          |          |
|                   |            | 6   | 2437        | 6.0 Mbps       | 8.65                             | 8.68   | 8.68                                | 8.70   | 9.50                   | 9.50   | Yes                             | -          |          |
|                   |            | 11  | 2462        | 6.0 Mbps       | 8.87                             | 8.88   | 8.89                                | 8.91   | 9.50                   | 9.50   | Yes                             | -          |          |
| 802.11n (HT20) *2 |            | 1   | 2412        | MCS-0          | 8.61                             | 8.61   | 8.63                                | 8.64   | 9.50                   | 9.50   | Yes                             | -          |          |
|                   |            | 6   | 2437        | MCS-0          | 8.54                             | 8.76   | 8.56                                | 8.78   | 9.50                   | 9.50   | Yes                             | -          |          |
|                   |            | 11  | 2462        | MCS-0          | 8.74                             | 8.99   | 8.77                                | 9.02   | 9.50                   | 9.50   | Yes                             | -          |          |

\*1 Used for confirmation that the DUT's output power is within +0/-2 dB of the maximum tune-up tolerance limits (max. poss. power), since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 SAR is not required for 802.11g/n channels when the highest reported SAR for DSSS (802.11b) is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), according to KDB 248227 D01.

Wi-Fi 5 GHz (5.2 GHz and 5.3 GHz)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2024/7/10           | 20.5                        | 50.4                    | Yu Inoue    |
| 2024/8/1            | 22.0                        | 57.5                    | Yu Inoue    |
| 2024/8/2            | 21.5                        | 63.3                    | Yu Inoue    |

**The Initial Test Configuration (ITC) : IEEE 802.11ac (VHT80) in 5.3 GHz (\*2)(\*3)**

| Mode             | Freq. Band | Ch. | Freq. (MHz) | Data Rate /MCS | Meas. Frame Averaged Power (dBm) |              | Meas. Burst Averaged Power (dBm) *1 |        | Max. Poss. Power (dBm) |        | Within 2 dB of Max. Poss. Power | SAR Tested | Note(s) |
|------------------|------------|-----|-------------|----------------|----------------------------------|--------------|-------------------------------------|--------|------------------------|--------|---------------------------------|------------|---------|
|                  |            |     |             |                | Chain0                           | Chain1       | Chain0                              | Chain1 | Chain0                 | Chain1 |                                 |            |         |
| 802.11a          | 5.2 GHz    | 36  | 5180        | 6.0 Mbps       | 10.71                            | <b>10.42</b> | 10.73                               | 10.44  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 40  | 5200        | 6.0 Mbps       | <b>10.79</b>                     | 10.35        | 10.81                               | 10.37  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 44  | 5220        | 6.0 Mbps       | 10.49                            | 10.39        | 10.52                               | 10.41  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 48  | 5240        | 6.0 Mbps       | 10.51                            | 10.30        | 10.54                               | 10.33  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 52  | 5260        | 6.0 Mbps       | <b>10.59</b>                     | 10.30        | 10.62                               | 10.32  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 56  | 5280        | 6.0 Mbps       | 10.37                            | <b>10.41</b> | 10.39                               | 10.44  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 60  | 5300        | 6.0 Mbps       | 10.42                            | 10.37        | 10.44                               | 10.39  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 64  | 5320        | 6.0 Mbps       | 10.46                            | 10.33        | 10.49                               | 10.35  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT20)   | 5.2 GHz    | 36  | 5180        | MCS-0          | <b>10.40</b>                     | <b>10.18</b> | 10.42                               | 10.21  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 40  | 5200        | MCS-0          | 10.36                            | 10.15        | 10.39                               | 10.17  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 44  | 5220        | MCS-0          | 10.09                            | 10.16        | 10.11                               | 10.18  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 48  | 5240        | MCS-0          | 10.12                            | 10.11        | 10.14                               | 10.13  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 52  | 5260        | MCS-0          | <b>10.20</b>                     | 10.06        | 10.22                               | 10.09  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 56  | 5280        | MCS-0          | 9.97                             | <b>10.19</b> | 9.99                                | 10.22  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 60  | 5300        | MCS-0          | 10.06                            | 10.14        | 10.09                               | 10.17  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 64  | 5320        | MCS-0          | 10.14                            | 10.11        | 10.17                               | 10.14  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT40)   | 5.2 GHz    | 38  | 5190        | MCS-0          | <b>11.01</b>                     | <b>10.68</b> | 11.06                               | 10.73  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 46  | 5230        | MCS-0          | 10.69                            | 10.66        | 10.74                               | 10.71  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 54  | 5270        | MCS-0          | <b>10.81</b>                     | 10.54        | 10.85                               | 10.58  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 62  | 5310        | MCS-0          | 10.64                            | <b>10.64</b> | 10.69                               | 10.68  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT20) | 5.2 GHz    | 36  | 5180        | MCS-0          | 10.39                            | <b>10.22</b> | 10.41                               | 10.24  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 40  | 5200        | MCS-0          | <b>10.44</b>                     | 10.17        | 10.46                               | 10.19  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 44  | 5220        | MCS-0          | 10.09                            | 10.17        | 10.12                               | 10.20  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 48  | 5240        | MCS-0          | 10.15                            | 10.14        | 10.18                               | 10.17  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 52  | 5260        | MCS-0          | <b>10.22</b>                     | 10.10        | 10.24                               | 10.12  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 56  | 5280        | MCS-0          | 10.02                            | <b>10.20</b> | 10.05                               | 10.23  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 60  | 5300        | MCS-0          | 10.09                            | 10.16        | 10.12                               | 10.18  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 64  | 5320        | MCS-0          | 10.17                            | 10.10        | 10.20                               | 10.13  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT40) | 5.2 GHz    | 38  | 5190        | MCS-0          | <b>11.05</b>                     | <b>10.67</b> | 11.10                               | 10.72  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 46  | 5230        | MCS-0          | 10.74                            | 10.64        | 10.79                               | 10.69  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 54  | 5270        | MCS-0          | <b>10.84</b>                     | 10.56        | 10.89                               | 10.60  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 62  | 5310        | MCS-0          | 10.68                            | <b>10.63</b> | 10.73                               | 10.68  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT80) | 5.2 GHz    | 42  | 5210        | MCS-0          | <b>10.36</b>                     | <b>10.37</b> | 10.47                               | 10.48  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  | 5.3 GHz    | 58  | 5290        | MCS-0          | <b>10.32</b>                     | <b>10.35</b> | 10.42                               | 10.45  | 11.50                  | 11.50  | Yes                             | Yes        | ITC     |

\*1 Used for confirmation that the DUT's output power is within +0/-2 dB of the maximum tune-up tolerance limits (max. poss. power), since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 When the same maximum output power is specified for U-NII-1 and U-NII-2A bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), SAR is not required for U-NII-1 band for that configuration.

\*3 SAR is not required for the remaining 802.11 transmission configurations (802.11a/n-HT20/n-HT40/ac-VHT20/ac-VHT40) when the highest reported SAR for the initial test configuration (802.11 ac-VHT80) is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), according to KDB 248227 D01.

Wi-Fi 5 GHz (5.6 GHz)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2024/7/10           | 20.5                        | 50.4                    | Yu Inoue    |
| 2024/8/20           | 20.0                        | 60.5                    | Yu Inoue    |
| 2024/8/21           | 20.5                        | 61.6                    | Yu Inoue    |

**The Initial Test Configuration (ITC) : IEEE 802.11ac (VHT80) (\*3)**

| Mode             | Freq. Band | Ch.  | Freq. (MHz) | Data Rate /MCS | Meas. Frame Averaged Power (dBm) |              | Meas. Burst Averaged Power (dBm) *1 |        | Max. Poss. Power (dBm) |        | Within 2 dB of Max. Poss. Power | SAR Tested | Note(s) |
|------------------|------------|------|-------------|----------------|----------------------------------|--------------|-------------------------------------|--------|------------------------|--------|---------------------------------|------------|---------|
|                  |            |      |             |                | Chain0                           | Chain1       | Chain0                              | Chain1 | Chain0                 | Chain1 |                                 |            |         |
| 802.11a          | 5.6 GHz    | 100  | 5500        | 6.0 Mbps       | 9.99                             | 10.41        | 10.01                               | 10.44  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 120  | 5600        | 6.0 Mbps       | 10.57                            | <b>10.42</b> | 10.59                               | 10.44  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 140  | 5700        | 6.0 Mbps       | <b>11.07</b>                     | 10.41        | 11.09                               | 10.43  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT20)   |            | 100  | 5500        | MCS-0          | 9.69                             | <b>10.27</b> | 9.72                                | 10.29  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 120  | 5600        | MCS-0          | 10.20                            | 10.23        | 10.23                               | 10.25  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 140  | 5700        | MCS-0          | <b>10.68</b>                     | 10.23        | 10.71                               | 10.25  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT20) |            | 100  | 5500        | MCS-0          | 9.59                             | 10.23        | 9.61                                | 10.26  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 120  | 5600        | MCS-0          | 10.14                            | 10.24        | 10.17                               | 10.27  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 140  | 5700        | MCS-0          | <b>10.56</b>                     | <b>10.25</b> | 10.59                               | 10.27  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT40)   |            | 102  | 5510        | MCS-0          | 10.28                            | 10.78        | 10.33                               | 10.83  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 118  | 5590        | MCS-0          | 10.67                            | 10.80        | 10.72                               | 10.85  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 134  | 5670        | MCS-0          | <b>10.99</b>                     | <b>10.83</b> | 11.04                               | 10.88  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT40) |            | 102  | 5510        | MCS-0          | 10.31                            | 10.77        | 10.36                               | 10.81  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 118  | 5590        | MCS-0          | 10.70                            | 10.79        | 10.75                               | 10.83  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 134  | 5670        | MCS-0          | <b>11.04</b>                     | <b>10.86</b> | 11.09                               | 10.91  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT80) | 106        | 5530 | MCS-0       | 10.09          | 10.26                            | 10.20        | 10.36                               | 11.50  | 11.50                  | Yes    | Yes                             | -          |         |
|                  | 122        | 5610 | MCS-0       | <b>10.52</b>   | <b>10.31</b>                     | 10.62        | 10.41                               | 11.50  | 11.50                  | Yes    | Yes                             | ITC        |         |

\*1 Used for confirmation that the DUT's output power is within +0/-2 dB of the maximum tune-up tolerance limits (max. poss. power), since the maximum tune-up tolerance limits are defined as burst averaged values.

\*3 SAR is not required for the remaining 802.11 transmission configurations (802.11 a/n-HT20/n-HT40/ac-VHT20/ac-VHT40) when the highest reported SAR for the initial test configuration (802.11 ac-VHT80) is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), according to KDB 248227 D01.

Wi-Fi 5 GHz (5.8 GHz)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2024/7/10           | 20.5                        | 50.4                    | Yu Inoue    |
| 2024/8/22           | 21.3                        | 63.1                    | Yu Inoue    |

**The Initial Test Configuration (ITC) : IEEE 802.11ac (VHT80) (\*3)**

| Mode             | Freq. Band | Ch. | Freq. (MHz) | Data Rate /MCS | Meas. Frame Averaged Power (dBm) |              | Meas. Burst Averaged Power (dBm) *1 |        | Max. Poss. Power (dBm) |        | Within 2 dB of Max. Poss. Power | SAR Tested | Note(s) |
|------------------|------------|-----|-------------|----------------|----------------------------------|--------------|-------------------------------------|--------|------------------------|--------|---------------------------------|------------|---------|
|                  |            |     |             |                | Chain0                           | Chain1       | Chain0                              | Chain1 | Chain0                 | Chain1 |                                 |            |         |
| 802.11a          | 5.8 GHz    | 149 | 5745        | 6.0 Mbps       | <b>10.97</b>                     | 11.01        | 10.99                               | 11.04  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 157 | 5785        | 6.0 Mbps       | 10.57                            | <b>11.14</b> | 10.59                               | 11.16  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 165 | 5825        | 6.0 Mbps       | 10.79                            | 10.97        | 10.81                               | 11.00  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT20)   |            | 149 | 5745        | MCS-0          | <b>10.68</b>                     | 10.83        | 10.71                               | 10.85  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 157 | 5785        | MCS-0          | 10.16                            | <b>10.87</b> | 10.19                               | 10.89  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 165 | 5825        | MCS-0          | 10.29                            | 10.76        | 10.31                               | 10.78  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT20) |            | 149 | 5745        | MCS-0          | <b>10.58</b>                     | 10.83        | 10.61                               | 10.86  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 157 | 5785        | MCS-0          | 10.13                            | <b>10.91</b> | 10.16                               | 10.94  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 165 | 5825        | MCS-0          | 10.36                            | 10.80        | 10.38                               | 10.83  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11n (HT40)   |            | 151 | 5755        | MCS-0          | <b>11.26</b>                     | 10.30        | 11.31                               | 10.35  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 159 | 5795        | MCS-0          | 10.85                            | <b>10.41</b> | 10.90                               | 10.46  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT40) |            | 151 | 5755        | MCS-0          | <b>11.26</b>                     | 10.23        | 11.31                               | 10.28  | 11.50                  | 11.50  | Yes                             | -          | -       |
|                  |            | 159 | 5795        | MCS-0          | 10.83                            | <b>10.39</b> | 10.88                               | 10.44  | 11.50                  | 11.50  | Yes                             | -          | -       |
| 802.11ac (VHT80) |            |     | 151         | 5755           | MCS-0                            | <b>11.08</b> | <b>10.93</b>                        | 11.19  | 11.03                  | 11.50  | 11.50                           | Yes        | Yes     |

\*1 Used for confirmation that the DUT's output power is within +0/-2 dB of the maximum tune-up tolerance limits (max. poss. power), since the maximum tune-up tolerance limits are defined as burst averaged values.

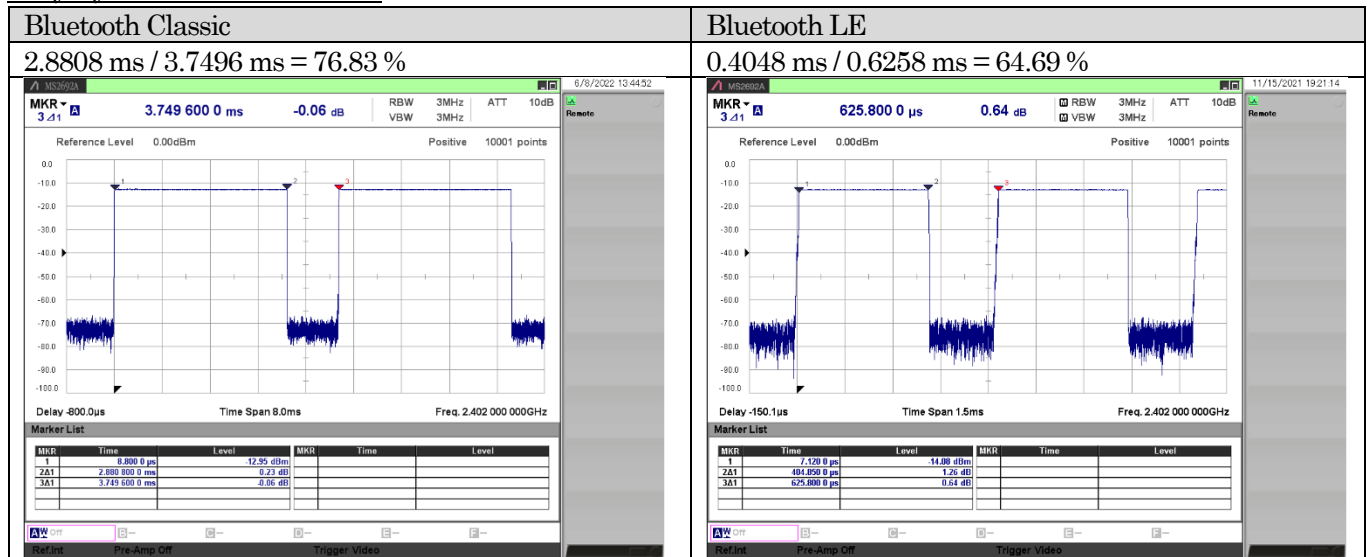
\*3 SAR is not required for the remaining 802.11 transmission configurations (802.11 a/n-HT20/n-HT40/ac-VHT20/ac-VHT40) when the highest reported SAR for the initial test configuration (802.11 ac-VHT80) is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), according to KDB 248227 D01.

Bluetooth

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by    |
|---------------------|-----------------------------|-------------------------|----------------|
| 2021/11/15          | 22.4                        | 48.6                    | Shingo Onotora |
| 2022/6/8            | 21.7                        | 61.7                    | Yu Inoue       |

| Mode    | Ch. | Freq. (MHz) | Packet Type | Meas. Frame Averaged Power (dBm) | Meas. Burst Averaged Power (dBm) *1 | Max. Poss. Power (dBm) | Within 2 dB of Max Poss. Power | SAR Tested | Note(s)  |
|---------|-----|-------------|-------------|----------------------------------|-------------------------------------|------------------------|--------------------------------|------------|----------|
| Classic | 0   | 2402        | DH5         | 7.39                             | 8.53                                | 10.10                  | Yes                            | Yes        | -        |
|         | 39  | 2441        | DH5         | 7.64                             | 8.79                                | 10.10                  | Yes                            | Yes        | -        |
|         | 78  | 2480        | DH5         | <b>7.97</b>                      | 9.12                                | 10.10                  | Yes                            | Yes        | Worst Ch |
| LE      | 0   | 2402        | 1.0 Mbps    | 6.64                             | 8.53                                | 10.10                  | Yes                            | Yes        | -        |
|         | 19  | 2440        | 1.0 Mbps    | 6.94                             | 8.83                                | 10.10                  | Yes                            | Yes        | -        |
|         | 39  | 2480        | 1.0 Mbps    | <b>7.22</b>                      | 9.12                                | 10.10                  | Yes                            | Yes        | Worst Ch |

\*1 Used for confirmation that the DUT's output power is within +0/-2 dB of the maximum tune-up tolerance limits (max. poss. power), since the maximum tune-up tolerance limits are defined as burst averaged values.

Duty Cycle Plot(s) for Bluetooth

## 4. SAR Measurements

### ☒ <SAR Correction/Scaling>

According to KDB 447498 D01, KDB 248227 D01, and/or KDB 865664 D01, the maximum SAR values are determined by taking account of the following correction or scaling factors.

The maximum 1-g SAR and/or 10-g SAR values (reported SAR) are calculated by applying the  $\Delta$ SAR positive correction for deviations of the tissue-equivalent liquid and the power scaling for the maximum duty factor and maximum possible power levels (maximum tune-up tolerance limit) to each measured 1-g SAR and/or 10-g SAR value:

$$\begin{aligned} \text{Reported SAR (W/kg)} &= \text{Measured SAR (W/kg)} * \Delta\text{SAR positive correction factor} \\ &\quad * \text{Duty cycle scaling factor} * \text{Tune-up scaling factor} \end{aligned}$$

where;

$$\Delta\text{SAR positive correction factor} = (100 - \Delta\text{SAR}^{*1}) / 100$$

$$\text{Duty cycle scaling factor} = \text{Max. possible duty cycle} / \text{Measured duty cycle used for the SAR measurement}$$

$$\text{Tune-up scaling factor} = \text{Max. possible power (mW)} / \text{Measured power used for the SAR measurement (mW)}$$

$$*1 \quad \Delta\text{SAR} (\%) = c_e * \Delta\epsilon_r + c_o * \Delta\sigma$$

<For 1-g SAR>

$$c_e = -7.854 * 10^{-4} f^3 + 9.402 * 10^{-3} f^2 - 2.742 * 10^{-2} f - 0.2026$$

$$c_o = 9.804 * 10^{-3} f^3 - 8.661 * 10^{-2} f^2 + 2.981 * 10^{-2} f + 0.7829$$

<For 10-g SAR>

$$c_e = 3.456 * 10^{-3} f^3 - 3.531 * 10^{-2} f^2 + 7.675 * 10^{-2} f - 0.1860$$

$$c_o = 4.479 * 10^{-3} f^3 - 1.586 * 10^{-2} f^2 - 0.1972 f + 0.7717$$

where;

$c_e$     coefficient representing the sensitivity of SAR to permittivity

$\Delta\epsilon_r$     percent change in permittivity

$c_o$     coefficient representing the sensitivity of SAR to conductivity

$\Delta\sigma$     percent change in conductivity

$f$     frequency in GHz

A negative  $\Delta$ SAR would translate to a lower measured SAR value than what would be measured if using dielectric properties equal to the target values.

A positive  $\Delta$ SAR would translate to a higher measured SAR value than what would be measured if using dielectric properties equal to the target values.

SAR correction shall not be made when the  $\Delta$ SAR has a positive sign to provide a conservative SAR value.

The SAR is only corrected when  $\Delta$ SAR has a negative sign.

☒ <SAR Test Reduction for Wi-Fi>

SAR test reduction for Wi-Fi is applied according to KDB 248227 D01.

For 2.4 GHz 802.11g/n OFDM configurations

SAR is not required for the following 2.4 GHz OFDM conditions.

- 1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively).

For U-NII-1 (5.2 GHz) and U-NII-2A (5.3 GHz) Bands

When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies.

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, each band is tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is  $\leq 1.2$  W/kg or 3 W/kg (1-g or 10-g respectively), SAR is not required for the band with lower maximum output power in that test configuration; otherwise, each band is tested independently for SAR.

## 4.1. SAR Measurement Results

## &lt;Body-Worn SAR&gt;

Wi-Fi 2.4 GHz

(Chain 0)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/3/21           | 21.1                        | 39.6                    | Yosuke Kamiko |

| Mode                                     | Ch. | Freq.<br>(MHz) | Pos.        | Dis.<br>(mm) | Max.<br>Poss.<br>Power<br>(dBm) | Meas.<br>Power<br>(dBm) | Max.<br>Duty<br>Cycle<br>(%) | Meas.<br>Duty<br>Cycle<br>(%) | Meas.<br>1-g SAR<br>(W/kg) | Reported<br>1-g SAR<br>(W/kg) | Liquid<br>Temp.<br>(deg. C) | Plot<br>No. |
|------------------------------------------|-----|----------------|-------------|--------------|---------------------------------|-------------------------|------------------------------|-------------------------------|----------------------------|-------------------------------|-----------------------------|-------------|
| Step 1: Worst Position Check             |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11b                                  | 11  | 2462           | Front       | 0            | 9.50                            | 9.04                    | 100.00                       | 99.89                         | 0.003                      | 0.003                         | 20.0                        | -           |
|                                          |     |                | Front-Right |              | 9.50                            | 9.04                    | 100.00                       | 99.89                         | 0.013                      | 0.014                         | 20.0                        | -           |
|                                          |     |                | Left        |              | 9.50                            | 9.04                    | 100.00                       | 99.89                         | N/D                        | N/D                           | 20.0                        | -           |
|                                          |     |                | Right       |              | 9.50                            | 9.04                    | 100.00                       | 99.89                         | 0.218                      | <b>0.243</b>                  | 20.1                        | 1           |
|                                          |     |                | Bottom      |              | 9.50                            | 9.04                    | 100.00                       | 99.89                         | 0.007                      | 0.008                         | 20.0                        | -           |
| Step 2: Worst Channel Check (for Step 1) |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11b                                  | 1   | 2412           | Right       | 0            | 9.50                            | 8.77                    | 100.00                       | 99.89                         | 0.198                      | 0.234                         | 20.0                        | -           |
|                                          | 6   | 2437           |             |              | 9.50                            | 8.81                    | 100.00                       | 99.89                         | 0.200                      | 0.235                         | 19.9                        | -           |

(Chain 1)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/4/7            | 24.0                        | 45.8                    | Yosuke Kamiko |

| Mode                                     | Ch. | Freq.<br>(MHz) | Pos.        | Dis.<br>(mm) | Max.<br>Poss.<br>Power<br>(dBm) | Meas.<br>Power<br>(dBm) | Max.<br>Duty<br>Cycle<br>(%) | Meas.<br>Duty<br>Cycle<br>(%) | Meas.<br>1-g SAR<br>(W/kg) | Reported<br>1-g SAR<br>(W/kg) | Liquid<br>Temp.<br>(deg. C) | Plot<br>No. |
|------------------------------------------|-----|----------------|-------------|--------------|---------------------------------|-------------------------|------------------------------|-------------------------------|----------------------------|-------------------------------|-----------------------------|-------------|
| Step 1: Worst Position Check             |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11b                                  | 11  | 2462           | Front       | 0            | 9.50                            | 9.08                    | 100.00                       | 99.89                         | 0.031                      | <b>0.034</b>                  | 21.1                        | 2           |
|                                          |     |                | Front-Right |              | 9.50                            | 9.08                    | 100.00                       | 99.89                         | 0.027                      | 0.030                         | 21.1                        | -           |
|                                          |     |                | Left        |              | 9.50                            | 9.08                    | 100.00                       | 99.89                         | 0.015                      | 0.017                         | 21.3                        | -           |
|                                          |     |                | Right       |              | 9.50                            | 9.08                    | 100.00                       | 99.89                         | 0.001                      | 0.001                         | 21.4                        | -           |
|                                          |     |                | Bottom      |              | 9.50                            | 9.08                    | 100.00                       | 99.89                         | N/D                        | N/D                           | 21.4                        | -           |
| Step 2: Worst Channel Check (for Step 1) |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11b                                  | 1   | 2412           | Front       | 0            | 9.50                            | 8.73                    | 100.00                       | 99.89                         | 0.028                      | 0.033                         | 21.5                        | -           |
|                                          | 6   | 2437           |             |              | 9.50                            | 8.86                    | 100.00                       | 99.89                         | 0.027                      | 0.031                         | 21.4                        | -           |

\* N/D: Not Detected.

\*1 The burst averaged power values are used for power scaling since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 Reported SAR (W/kg) = Measured SAR (W/kg) \* Duty cycle scaling factor \* Tune-up scaling factor

where;

Duty cycle scaling factor = Max. possible duty cycle (%) / Measured duty cycle used for the SAR measurement (%)

Tune-up scaling factor = Max. possible power (mW) (\* equal to 100% duty cycle) / Measured power used for the SAR measurement (mW)

Wi-Fi 5 GHz (5.3 GHz)

(Chain 0)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/3/19           | 21.8                        | 44.9                    | Yosuke Kamiko |

| Mode             | Ch. | Freq. (MHz) | Pos.        | Dis. (mm) | Max. Poss. Power (dBm) | Meas. Power (dBm) | Max. Duty Cycle (%) | Meas. Duty Cycle (%) | Meas. 1-g SAR (W/kg) | Reported 1-g SAR (W/kg) | Liquid Temp. (deg. C) | Plot No. |
|------------------|-----|-------------|-------------|-----------|------------------------|-------------------|---------------------|----------------------|----------------------|-------------------------|-----------------------|----------|
| 802.11ac (VHT80) | 58  | 5290        | Front       | 0         | 11.50                  | 10.42             | 100.00              | 97.64                | 0.012                | 0.016                   | 19.5                  | -        |
|                  |     |             | Front-Right |           | 11.50                  | 10.42             | 100.00              | 97.64                | 0.040                | 0.053                   | 19.5                  | -        |
|                  |     |             | Left        |           | 11.50                  | 10.42             | 100.00              | 97.64                | 0.002                | 0.003                   | 19.5                  | -        |
|                  |     |             | Right       |           | 11.50                  | 10.42             | 100.00              | 97.64                | 0.476                | <b>0.625</b>            | 19.5                  | 3        |
|                  |     |             | Bottom      |           | 11.50                  | 10.42             | 100.00              | 97.64                | 0.018                | 0.024                   | 19.5                  | -        |

(Chain 1)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/3/19           | 20.8                        | 39.8                    | Yosuke Kamiko |

| Mode             | Ch. | Freq. (MHz) | Pos.        | Dis. (mm) | Max. Poss. Power (dBm) | Meas. Power (dBm) | Max. Duty Cycle (%) | Meas. Duty Cycle (%) | Meas. 1-g SAR (W/kg) | Reported 1-g SAR (W/kg) | Liquid Temp. (deg. C) | Plot No. |
|------------------|-----|-------------|-------------|-----------|------------------------|-------------------|---------------------|----------------------|----------------------|-------------------------|-----------------------|----------|
| 802.11ac (VHT80) | 58  | 5290        | Front       | 0         | 11.50                  | 10.45             | 100.00              | 97.64                | 0.184                | 0.240                   | 19.3                  | -        |
|                  |     |             | Front-Right |           | 11.50                  | 10.45             | 100.00              | 97.64                | 0.196                | <b>0.255</b>            | 19.3                  | 4        |
|                  |     |             | Left        |           | 11.50                  | 10.45             | 100.00              | 97.64                | 0.024                | 0.031                   | 19.3                  | -        |
|                  |     |             | Right       |           | 11.50                  | 10.45             | 100.00              | 97.64                | N/D                  | N/D                     | 19.4                  | -        |
|                  |     |             | Bottom      |           | 11.50                  | 10.45             | 100.00              | 97.64                | 0.010                | 0.013                   | 19.3                  | -        |

\* N/D: Not Detected.

\*1 The burst averaged power values are used for power scaling since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 Reported SAR (W/kg) = Measured SAR (W/kg) \* Duty cycle scaling factor \* Tune-up scaling factor

where:

Duty cycle scaling factor = Max. possible duty cycle (%) / Measured duty cycle used for the SAR measurement (%)

Tune-up scaling factor = Max. possible power (mW) (\* equal to 100% duty cycle) / Measured power used for the SAR measurement (mW)

Wi-Fi 5 GHz (5.6 GHz)

(Chain 0)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/4/9            | 23.2                        | 40.9                    | Yosuke Kamiko |

| Mode                                     | Ch. | Freq.<br>(MHz) | Pos.        | Dis.<br>(mm) | Max.<br>Poss.<br>Power<br>(dBm) | Meas.<br>Power<br>(dBm) | Max.<br>Duty<br>Cycle<br>(%) | Meas.<br>Duty<br>Cycle<br>(%) | Meas.<br>1-g SAR<br>(W/kg) | Reported<br>1-g SAR<br>(W/kg) | Liquid<br>Temp.<br>(deg. C) | Plot<br>No. |
|------------------------------------------|-----|----------------|-------------|--------------|---------------------------------|-------------------------|------------------------------|-------------------------------|----------------------------|-------------------------------|-----------------------------|-------------|
| Step 1: Worst Position Check             |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11ac<br>(VHT80)                      | 122 | 5610           | Front       | 0            | 11.50                           | 10.62                   | 100.00                       | 97.64                         | 0.005                      | 0.006                         | 19.5                        | -           |
|                                          |     |                | Front-Right |              | 11.50                           | 10.62                   | 100.00                       | 97.64                         | 0.015                      | 0.019                         | 19.6                        | -           |
|                                          |     |                | Left        |              | 11.50                           | 10.62                   | 100.00                       | 97.64                         | 0.003                      | 0.004                         | 19.8                        | -           |
|                                          |     |                | Right       |              | 11.50                           | 10.62                   | 100.00                       | 97.64                         | 0.433                      | <b>0.543</b>                  | 19.8                        | 5           |
|                                          |     |                | Bottom      |              | 11.50                           | 10.62                   | 100.00                       | 97.64                         | 0.021                      | 0.026                         | 19.4                        | -           |
| Step 2: Worst Channel Check (for Step 1) |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11ac<br>(VHT80)                      | 106 | 5530           | Right       | 0            | 11.50                           | 10.20                   | 100.00                       | 97.64                         | 0.381                      | 0.527                         | 19.9                        | -           |

(Chain 1)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2025/4/10           | 19.6                        | 52.5                    | Yu Inoue    |

| Mode                                     | Ch. | Freq.<br>(MHz) | Pos.        | Dis.<br>(mm) | Max.<br>Poss.<br>Power<br>(dBm) | Meas.<br>Power<br>(dBm) | Max.<br>Duty<br>Cycle<br>(%) | Meas.<br>Duty<br>Cycle<br>(%) | Meas.<br>1-g SAR<br>(W/kg) | Reported<br>1-g SAR<br>(W/kg) | Liquid<br>Temp.<br>(deg. C) | Plot<br>No. |
|------------------------------------------|-----|----------------|-------------|--------------|---------------------------------|-------------------------|------------------------------|-------------------------------|----------------------------|-------------------------------|-----------------------------|-------------|
| Step 1: Worst Position Check             |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11ac<br>(VHT80)                      | 122 | 5610           | Front       | 0            | 11.50                           | 10.41                   | 100.00                       | 97.64                         | 0.229                      | 0.301                         | 19.5                        | -           |
|                                          |     |                | Front-Right |              | 11.50                           | 10.41                   | 100.00                       | 97.64                         | 0.247                      | <b>0.325</b>                  | 19.5                        | 6           |
|                                          |     |                | Left        |              | 11.50                           | 10.41                   | 100.00                       | 97.64                         | 0.013                      | 0.017                         | 19.4                        | -           |
|                                          |     |                | Right       |              | 11.50                           | 10.41                   | 100.00                       | 97.64                         | 0.001                      | 0.001                         | 19.5                        | -           |
|                                          |     |                | Bottom      |              | 11.50                           | 10.41                   | 100.00                       | 97.64                         | 0.018                      | 0.024                         | 19.6                        | -           |
| Step 2: Worst Channel Check (for Step 1) |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| 802.11ac<br>(VHT80)                      | 106 | 5530           | Front-Right | 0            | 11.50                           | 10.36                   | 100.00                       | 97.64                         | 0.207                      | 0.276                         | 19.6                        | -           |

\* N/D: Not Detected.

\*1 The burst averaged power values are used for power scaling since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 Reported SAR (W/kg) = Measured SAR (W/kg) \* Duty cycle scaling factor \* Tune-up scaling factor

where:

Duty cycle scaling factor = Max. possible duty cycle (%) / Measured duty cycle used for the SAR measurement (%)

Tune-up scaling factor = Max. possible power (mW) (\* equal to 100% duty cycle) / Measured power used for the SAR measurement (mW)

Wi-Fi 5 GHz (5.8 GHz)

(Chain 0)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/3/17           | 20.9                        | 39.4                    | Yosuke Kamiko |

| Mode             | Ch. | Freq. (MHz) | Pos.        | Dis. (mm) | Max. Poss. Power (dBm) | Meas. Power (dBm) | Max. Duty Cycle (%) | Meas. Duty Cycle (%) | Meas. 1-g SAR (W/kg) | Reported 1-g SAR (W/kg) | Liquid Temp. (deg. C) | Plot No. |
|------------------|-----|-------------|-------------|-----------|------------------------|-------------------|---------------------|----------------------|----------------------|-------------------------|-----------------------|----------|
| 802.11ac (VHT80) | 155 | 5775        | Front       | 0         | 11.50                  | 11.19             | 100.00              | 97.64                | 0.005                | 0.006                   | 19.7                  | -        |
|                  |     |             | Front-Right |           | 11.50                  | 11.19             | 100.00              | 97.64                | 0.024                | 0.026                   | 19.7                  | -        |
|                  |     |             | Left        |           | 11.50                  | 11.19             | 100.00              | 97.64                | 0.004                | 0.004                   | 19.5                  | -        |
|                  |     |             | Right       |           | 11.50                  | 11.19             | 100.00              | 97.64                | 0.497                | <b>0.547</b>            | 19.5                  | 7        |
|                  |     |             | Bottom      |           | 11.50                  | 11.19             | 100.00              | 97.64                | 0.016                | 0.018                   | 19.5                  | -        |

(Chain 1)

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by |
|---------------------|-----------------------------|-------------------------|-------------|
| 2025/3/21           | 23.0                        | 40.8                    | Yu Inoue    |

| Mode             | Ch. | Freq. (MHz) | Pos.        | Dis. (mm) | Max. Poss. Power (dBm) | Meas. Power (dBm) | Max. Duty Cycle (%) | Meas. Duty Cycle (%) | Meas. 1-g SAR (W/kg) | Reported 1-g SAR (W/kg) | Liquid Temp. (deg. C) | Plot No. |
|------------------|-----|-------------|-------------|-----------|------------------------|-------------------|---------------------|----------------------|----------------------|-------------------------|-----------------------|----------|
| 802.11ac (VHT80) | 155 | 5775        | Front       | 0         | 11.50                  | 11.03             | 100.00              | 97.64                | 0.334                | 0.381                   | 20.0                  | -        |
|                  |     |             | Front-Right |           | 11.50                  | 11.03             | 100.00              | 97.64                | 0.362                | <b>0.413</b>            | 19.7                  | 8        |
|                  |     |             | Left        |           | 11.50                  | 11.03             | 100.00              | 97.64                | 0.014                | 0.016                   | 19.7                  | -        |
|                  |     |             | Right       |           | 11.50                  | 11.03             | 100.00              | 97.64                | 0.002                | 0.002                   | 19.7                  | -        |
|                  |     |             | Bottom      |           | 11.50                  | 11.03             | 100.00              | 97.64                | 0.023                | 0.026                   | 19.7                  | -        |

\* N/D: Not Detected.

\*1 The burst averaged power values are used for power scaling since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 Reported SAR (W/kg) = Measured SAR (W/kg) \* Duty cycle scaling factor \* Tune-up scaling factor

where:

Duty cycle scaling factor = Max. possible duty cycle (%) / Measured duty cycle used for the SAR measurement (%)

Tune-up scaling factor = Max. possible power (mW) (\* equal to 100% duty cycle) / Measured power used for the SAR measurement (mW)

Bluetooth

| Date of measurement | Ambient temperature (deg.C) | Relative humidity (%RH) | Measured by   |
|---------------------|-----------------------------|-------------------------|---------------|
| 2025/3/11           | 23.6                        | 37.5                    | Sho Fukushima |
| 2025/3/21           | 21.9                        | 39.2                    | Yosuke Kamiko |

| Mode                                     | Ch. | Freq.<br>(MHz) | Pos.        | Dis.<br>(mm) | Max.<br>Poss.<br>Power<br>(dBm) | Meas.<br>Power<br>(dBm) | Max.<br>Duty<br>Cycle<br>(%) | Meas.<br>Duty<br>Cycle<br>(%) | Meas.<br>1-g SAR<br>(W/kg) | Reported<br>1-g SAR<br>(W/kg) | Liquid<br>Temp.<br>(deg. C) | Plot<br>No. |
|------------------------------------------|-----|----------------|-------------|--------------|---------------------------------|-------------------------|------------------------------|-------------------------------|----------------------------|-------------------------------|-----------------------------|-------------|
| Step 1: Worst Position Check             |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| Classic                                  | 78  | 2480           | Front       | 0            | 10.10                           | 9.12                    | 83.33                        | 76.83                         | N/D                        | N/D                           | 20.3                        | -           |
|                                          |     |                | Front-Right |              | 10.10                           | 9.12                    | 83.33                        | 76.83                         | 0.005                      | 0.007                         | 20.4                        | -           |
|                                          |     |                | Left        |              | 10.10                           | 9.12                    | 83.33                        | 76.83                         | N/D                        | N/D                           | 20.4                        |             |
|                                          |     |                | Right       |              | 10.10                           | 9.12                    | 83.33                        | 76.83                         | 0.063                      | 0.086                         | 20.4                        |             |
|                                          |     |                | Bottom      |              | 10.10                           | 9.12                    | 83.33                        | 76.83                         | 0.003                      | 0.004                         | 20.4                        | -           |
| Step 2: Worst Channel Check (for Step 1) |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| Classic                                  | 0   | 2402           | Right       | 0            | 10.10                           | 8.53                    | 83.33                        | 76.83                         | 0.053                      | 0.083                         | 20.3                        | -           |
|                                          | 39  | 2441           |             |              | 10.10                           | 8.79                    | 83.33                        | 76.83                         | 0.053                      | 0.078                         | 20.3                        | -           |
| Step 3: Worst Mode Check (for Step 1)    |     |                |             |              |                                 |                         |                              |                               |                            |                               |                             |             |
| LE                                       | 0   | 2402           | Right       | 0            | 10.10                           | 8.53                    | 100.00                       | 64.69                         | 0.041                      | 0.091                         | 20.7                        | -           |
|                                          | 19  | 2440           |             |              | 10.10                           | 8.83                    | 100.00                       | 64.69                         | 0.042                      | 0.087                         | 20.8                        | -           |
|                                          | 39  | 2480           |             |              | 10.10                           | 9.12                    | 100.00                       | 64.69                         | 0.049                      | <b>0.095</b>                  | 20.8                        | 9           |

\* N/D: Not Detected.

\*1 The burst averaged power values are used for power scaling since the maximum tune-up tolerance limits are defined as burst averaged values.

\*2 Reported SAR (W/kg) = Measured SAR (W/kg) \* Duty cycle scaling factor \* Tune-up scaling factor

where;

Duty cycle scaling factor = Max. possible duty cycle (%) / Measured duty cycle used for the SAR measurement (%)

Tune-up scaling factor = Max. possible power (mW) (\* equal to 100% duty cycle) / Measured power used for the SAR measurement (mW)

## 5. Simultaneous Transmission SAR evaluation

### ☒ <SAR Summation Analysis>

Simultaneous transmission SAR evaluation is determined according to KDB 447498 D01, Evaluation by summation of Reported SAR values, as the reference method.

- 1) If Reported SAR summation > 1.6W/kg, SAR test exclusion is determined by the SPLSR.
- 2)  $SPLSR = (SAR_1 + SAR_2)^{1.5} / (\text{minimum separation distance})$ , and the peak separation distance is determined from the square root of  $[(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2]$  where  $(x_1, y_1, z_1)$  and  $(x_2, y_2, z_2)$  are the coordinates of the extrapolated peak SAR location in the zoom scan.
- 3) If  $SPLSR \leq 0.04$ , simultaneously transmission SAR measurement is not necessary.

| RF Exposure Conditions | Test Position | (1)<br>Wi-Fi<br>2.4 GHz<br>Chain 0<br>(Measured) | (2)<br>Wi-Fi<br>2.4 GHz<br>Chain 1<br>(Measured) | (3)<br>Wi-Fi<br>5 GHz<br>Chain 0<br>(Measured) | (4)<br>Wi-Fi<br>5 GHz<br>Chain 1<br>(Measured) | (5)<br>Bluetooth<br>(Measured) | $\Sigma$ 1-g SAR<br>(W/kg) |           |                 |
|------------------------|---------------|--------------------------------------------------|--------------------------------------------------|------------------------------------------------|------------------------------------------------|--------------------------------|----------------------------|-----------|-----------------|
|                        |               |                                                  |                                                  |                                                |                                                |                                | (1) + (2)                  | (3) + (4) | (3) + (4) + (5) |
| Body-Worn              | Front         | 0.003                                            | 0.034                                            | 0.016                                          | 0.381                                          | N/D                            | 0.037                      | 0.397     | 0.397           |
|                        | Front-Right   | 0.014                                            | 0.030                                            | 0.053                                          | 0.413                                          | 0.007                          | 0.044                      | 0.466     | 0.473           |
|                        | Left          | N/D                                              | 0.017                                            | 0.004                                          | 0.031                                          | N/D                            | 0.017                      | 0.035     | 0.035           |
|                        | Right         | 0.243                                            | 0.001                                            | 0.625                                          | 0.002                                          | 0.095                          | 0.244                      | 0.627     | <b>0.722</b>    |
|                        | Bottom        | 0.008                                            | N/D                                              | 0.026                                          | 0.026                                          | 0.004                          | 0.008                      | 0.052     | 0.056           |

\*N/D: Not Detected.

## Appendix A. Plots of SAR Measurement

Please see the following pages.

Plot No. 1

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 2.4 GHz(Chain 0\_11b\_1Mbps\_11ch)\_Right\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Right)      | 103.6 x 77.8 x 129.7 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Right           | 0.00                | 1.77                   | 40.5             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 2.4GHz     | WLAN                   | 2462.000        | 11                  | 7.02                   |                  |

Hardware Setup

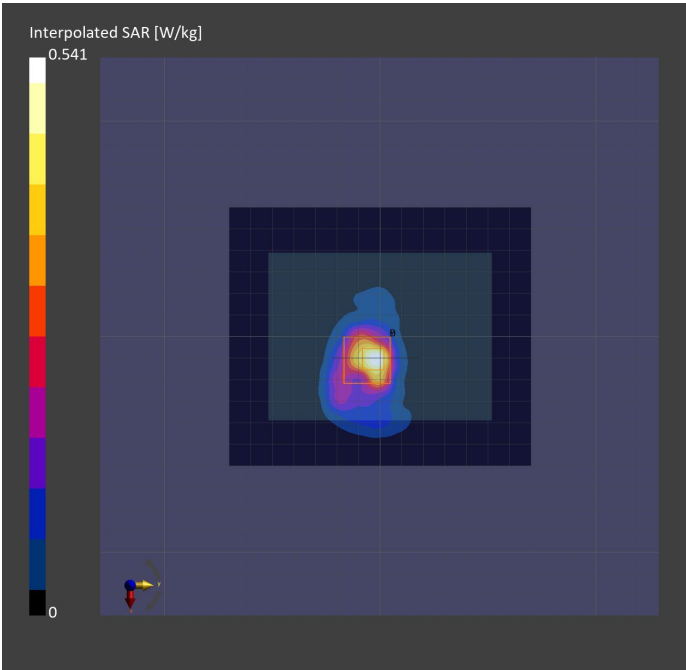
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-21) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 140.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.5               |
| MAIA                |               | N/A               |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-21    |
| psSAR1g [W/kg]            | 0.236     | 0.218         |
| psSAR10g [W/kg]           | 0.102     | 0.096         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.03         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 73.7          |
| Dist 3dB Peak [mm]        | N/A       | 6.5           |



Plot No. 2

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 2.4 GHz(Chain 1\_11b\_1Mbps\_11ch)\_Front\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Front)      | 129.7 x 77.8 x 103.6 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Front           | 0.00                | 1.76                   | 40.6             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 2.4GHz     | WLAN                   | 2462.000        | 11                  | 7.51                   |                  |

Hardware Setup

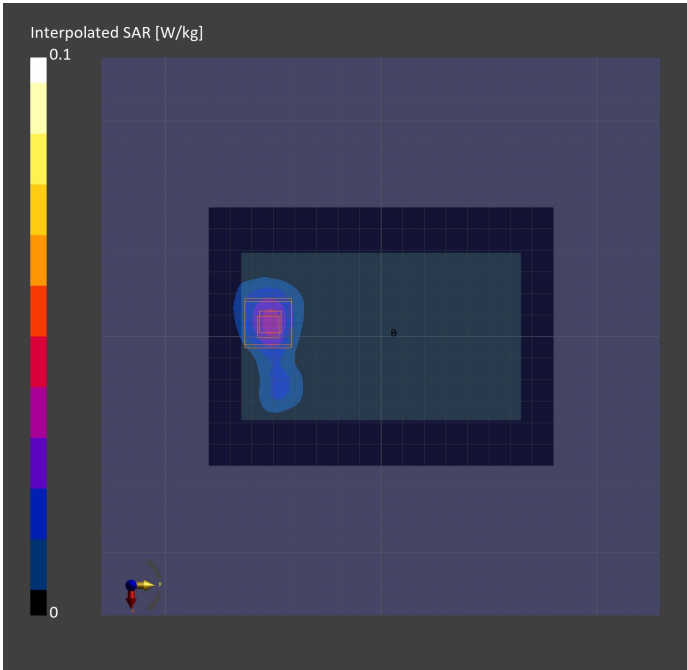
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-07) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 160.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/AN/A        | Yes               |
| Grading Ratio       | N/AN/A        | 1.5               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-07    |
| psSAR1g [W/kg]            | 0.029     | 0.031         |
| psSAR10g [W/kg]           | 0.014     | 0.014         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.00          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 83.0          |
| Dist 3dB Peak [mm]        | N/A       | 9.1           |



Plot No. 3

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.3 GHz(Chain 0\_11ac\_VHT80\_MCS0\_58ch)\_Right\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Right)      | 103.6 x 77.8 x 129.7 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Right           | 0.00                | 4.74                   | 35.7             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5290.000        | 58                  | 5.38                   |                  |

Hardware Setup

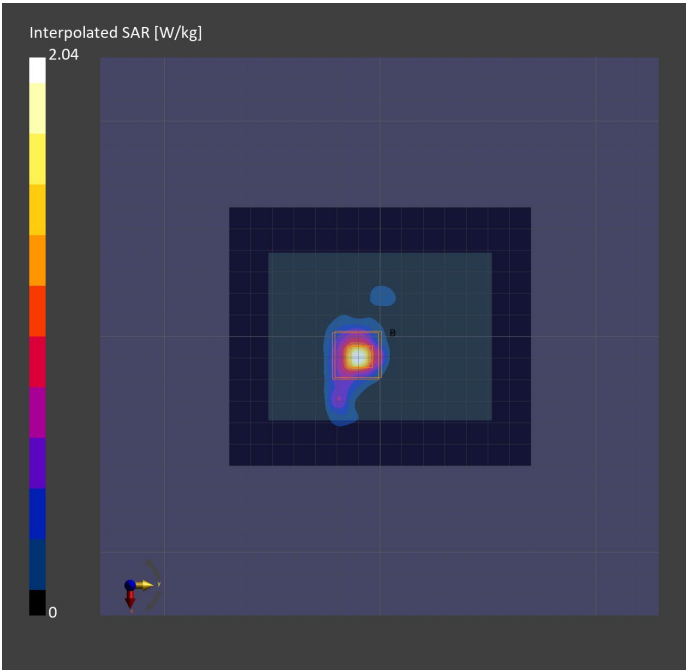
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-19) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 140.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | N/A               |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-19    |
| psSAR1g [W/kg]            | 0.436     | 0.476         |
| psSAR10g [W/kg]           | 0.128     | 0.133         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.10          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 63.7          |
| Dist 3dB Peak [mm]        | N/A       | 5.6           |



Plot No. 4

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.3 GHz(Chain 1\_11ac\_VHT80\_MCS0\_58ch)\_Front-Right\_0mm

Device under Test Properties

| Model, Manufacturer  | Dimensions [mm]      | Serial Number |
|----------------------|----------------------|---------------|
| 1VY012 (Front-Right) | 140.0 x 77.8 x 103.6 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Front-Right     | 0.00                | 4.74                   | 35.7             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5290.000        | 58                  | 5.38                   |                  |

Hardware Setup

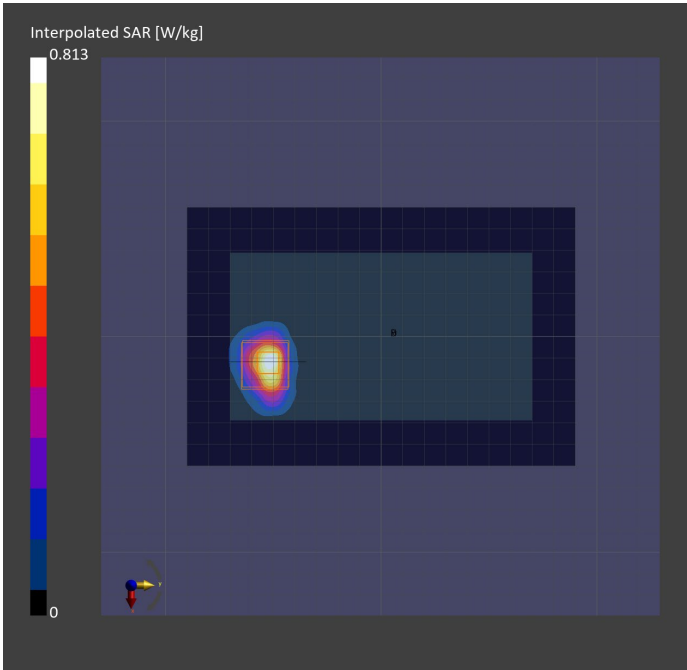
| DASY8 Software Version  | Phantom                      | TSL (Measured Date) |                             | Probe (Calibration Date) |              |
|-------------------------|------------------------------|---------------------|-----------------------------|--------------------------|--------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- | 1259                | HBBL-600-10000 (2025-03-19) | EX3DV4 - SN7452          | (2025-02-13) |
| DAE (Calibration Date)  |                              |                     |                             |                          |              |
| DAE4 Sn482 (2025-01-13) |                              |                     |                             |                          |              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 180.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-19    |
| psSAR1g [W/kg]            | 0.188     | 0.196         |
| psSAR10g [W/kg]           | 0.060     | 0.057         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.00          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 61.3          |
| Dist 3dB Peak [mm]        | N/A       | 6.4           |



Plot No. 5

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.6 GHz(Chain 0\_11ac\_VHT80\_MCS0\_122ch)\_Right\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Right)      | 103.6 x 77.8 x 129.7 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Right           | 0.00                | 5.11                   | 36.6             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5610.000        | 122                 | 4.19                   |                  |

Hardware Setup

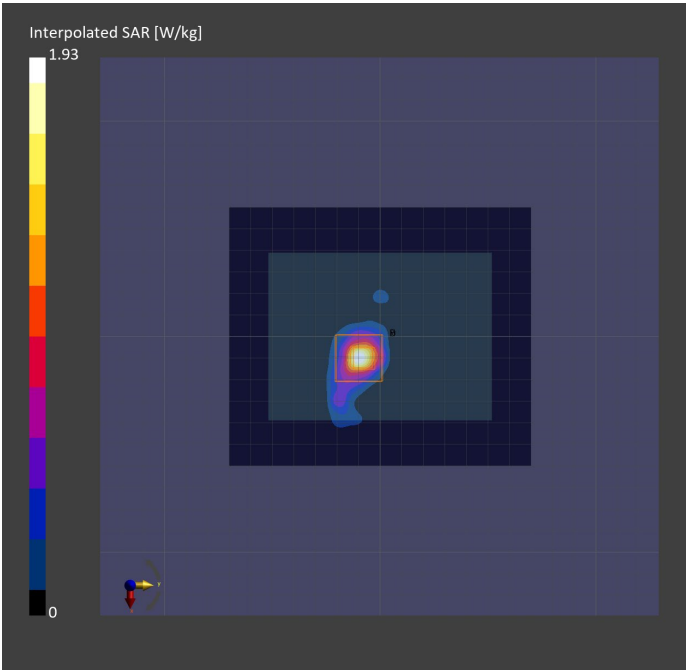
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-09) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 140.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-09    |
| psSAR1g [W/kg]            | 0.391     | 0.433         |
| psSAR10g [W/kg]           | 0.111     | 0.117         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.07          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 62.7          |
| Dist 3dB Peak [mm]        | N/A       | 6.1           |



Plot No. 6

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.6 GHz(Chain 1\_11ac\_VHT80\_MCS0\_122ch)\_Front-Right\_0mm

Device under Test Properties

| Model, Manufacturer  | Dimensions [mm]      | Serial Number |
|----------------------|----------------------|---------------|
| 1VY012 (Front-Right) | 140.0 x 77.8 x 103.6 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Front-Right     | 0.00                | 5.17                   | 36.6             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5610.000        | 122                 | 4.19                   |                  |

Hardware Setup

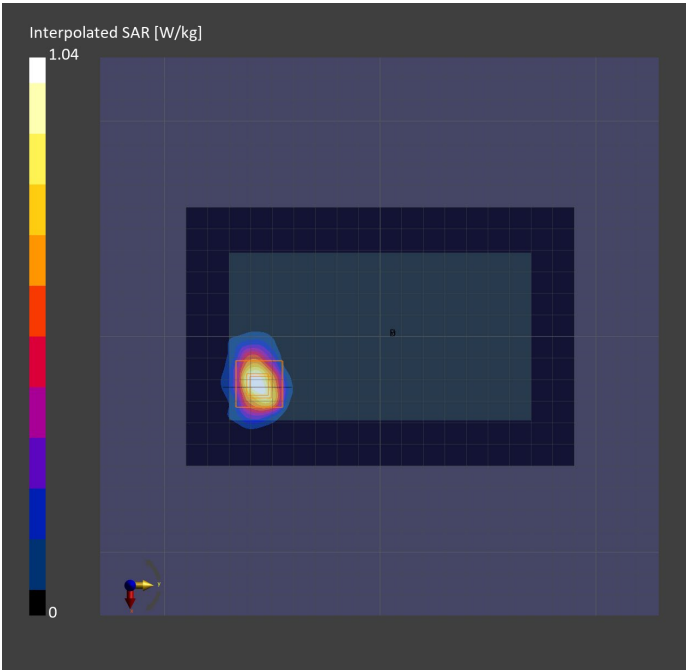
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-10) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 180.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-10    |
| psSAR1g [W/kg]            | 0.219     | 0.247         |
| psSAR10g [W/kg]           | 0.074     | 0.069         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.00          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 60.0          |
| Dist 3dB Peak [mm]        | N/A       | 6.5           |



Plot No. 7

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.8 GHz(Chain 0\_11ac\_VHT80\_MCS0\_155ch)\_Right\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Right)      | 103.6 x 77.8 x 129.7 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Right           | 0.00                | 5.08                   | 34.3             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5775.000        | 155                 | 5.08                   |                  |

Hardware Setup

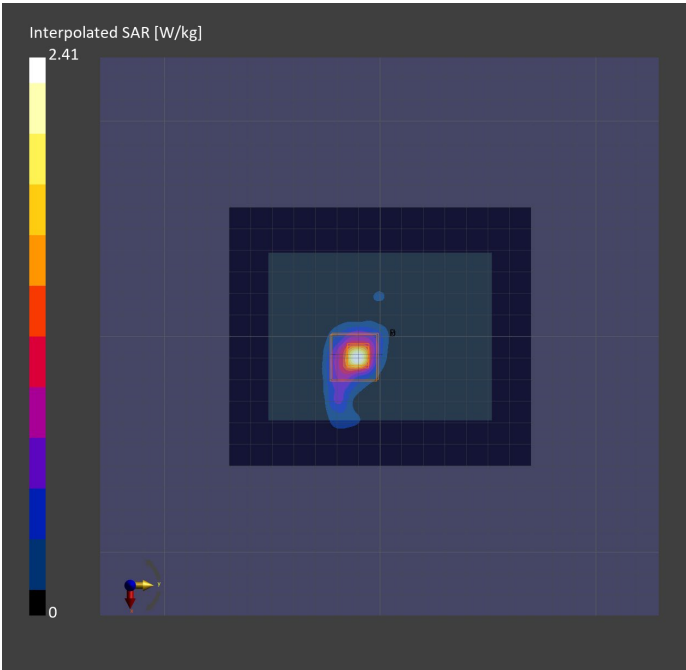
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-17) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 140.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | N/A               |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-17    |
| psSAR1g [W/kg]            | 0.473     | 0.497         |
| psSAR10g [W/kg]           | 0.132     | 0.134         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.18         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 59.6          |
| Dist 3dB Peak [mm]        | N/A       | 5.7           |



Plot No. 8

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Wi-Fi 5.8 GHz(Chain 1\_11ac\_VHT80\_MCS0\_155ch)\_Front-Right\_0mm

Device under Test Properties

| Model, Manufacturer  | Dimensions [mm]      | Serial Number |
|----------------------|----------------------|---------------|
| 1VY012 (Front-Right) | 140.0 x 77.8 x 103.6 | 0008265       |

Exposure Conditions

| Phantom Section | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating Liquid | Front-Right     | 0.00                | 5.21                   | 34.8             |
| Band            | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| WLAN 5GHz       | WLAN                   | 5775.000        | 155                 | 5.08                   |                  |

Hardware Setup

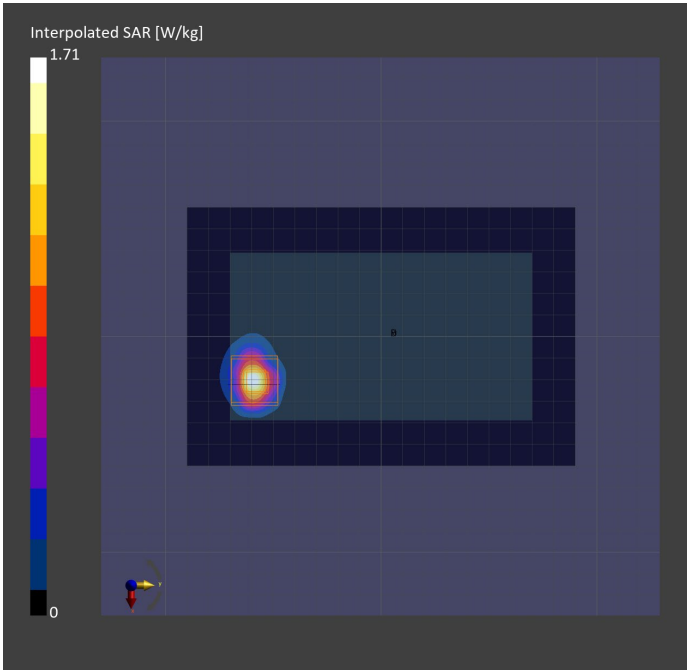
| DASY8 Software Version  | Phantom                           | TSL (Measured Date) |              | Probe (Calibration Date) |              |
|-------------------------|-----------------------------------|---------------------|--------------|--------------------------|--------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000      | (2025-03-21) | EX3DV4 - SN7452          | (2025-02-13) |
| DAE (Calibration Date)  |                                   |                     |              |                          |              |
| DAE4 Sn482 (2025-01-13) |                                   |                     |              |                          |              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 180.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.4               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-21    |
| psSAR1g [W/kg]            | 0.320     | 0.362         |
| psSAR10g [W/kg]           | 0.093     | 0.094         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.00          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 60.2          |
| Dist 3dB Peak [mm]        | N/A       | 6.4           |



Plot No. 9

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for 1VY012\_Bluetooth LE(1Mbps\_39ch)\_Right\_0mm

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]      | Serial Number |
|---------------------|----------------------|---------------|
| 1VY012 (Right)      | 103.6 x 77.8 x 129.7 | 0008265       |

Exposure Conditions

| Phantom Section  | TSL                    | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|------------------|------------------------|-----------------|---------------------|------------------------|------------------|
| Flat             | Head Simulating Liquid | Right           | 0.00                | 1.76                   | 39.6             |
| Band             | Group                  | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| ISM 2.4 GHz Band | Bluetooth LE           | 2480.000        | 39                  | 7.02                   |                  |

Hardware Setup

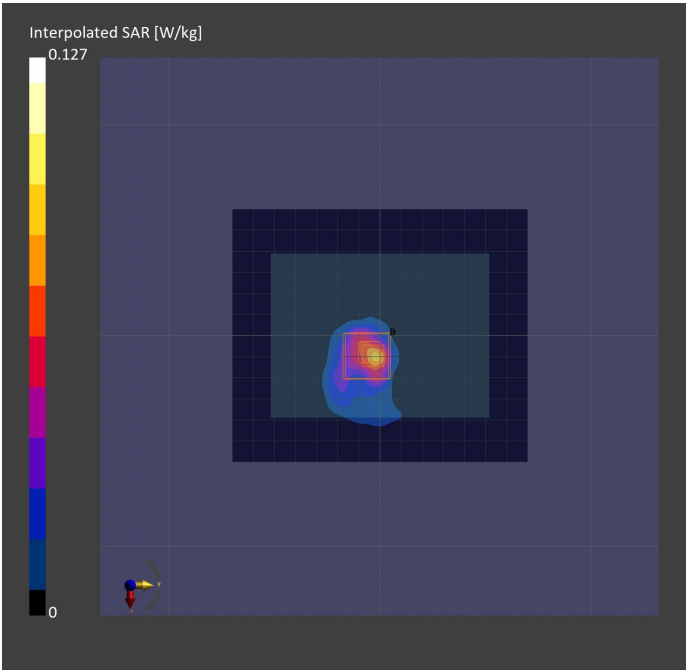
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-11) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan     | Zoom Scan         |
|---------------------|---------------|-------------------|
| Grid Extents [mm]   | 120.0 x 140.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0   | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0           | 1.4               |
| Graded Grid         | N/A           | Yes               |
| Grading Ratio       | N/A           | 1.5               |
| MAIA                |               | Y                 |
| Surface Detection   |               | VMS + 6p          |
| Scan Method         |               | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-11    |
| psSAR1g [W/kg]            | 0.051     | 0.049         |
| psSAR10g [W/kg]           | 0.022     | 0.020         |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.06         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 71.4          |
| Dist 3dB Peak [mm]        | N/A       | 5.9           |



## Appendix B. Plots of System Check

Please see the following pages.

Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D2450\_HSL (1)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D2450V2 - SN936     | 50.0 x 10.0 x 290.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 1.73                   | 39.7             |
| Band            | Liquid          | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 2450.000        | 0                   | 7.02                   |                  |

Hardware Setup

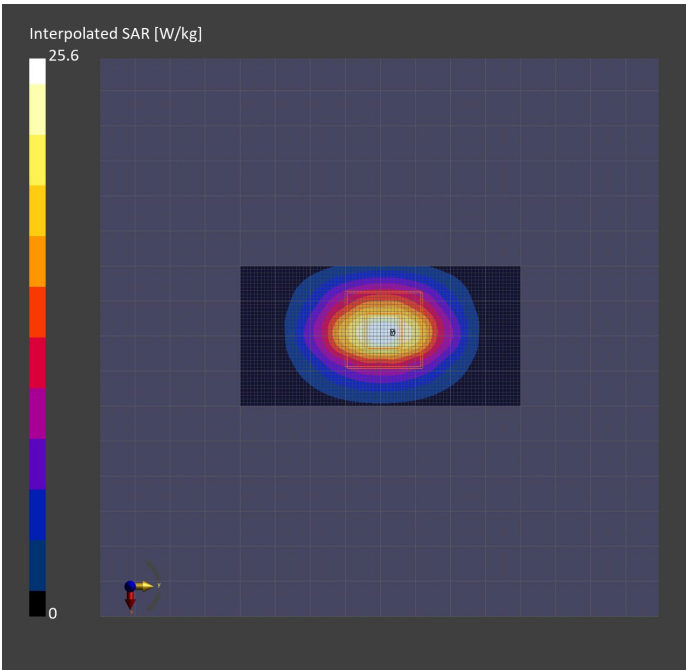
| DASY8 Software Version  | Phantom                      |      | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|------------------------------|------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- | 1259 | HBBL-600-10000 (2025-03-11) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                              |      |                             |                              |
| DAE4 Sn482 (2025-01-13) |                              |      |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.5               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-11    |
| psSAR1g [W/kg]            | 13.6      | 13.3          |
| psSAR10g [W/kg]           | 6.29      | 6.28          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.02         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 82.9          |
| Dist 3dB Peak [mm]        | N/A       | 9.0           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D2450\_HSL (2)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D2450V2 - SN936     | 50.0 x 10.0 x 290.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 1.76                   | 40.5             |
| Band            | Liquid          | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 2450.000        | 0                   | 7.02                   |                  |

Hardware Setup

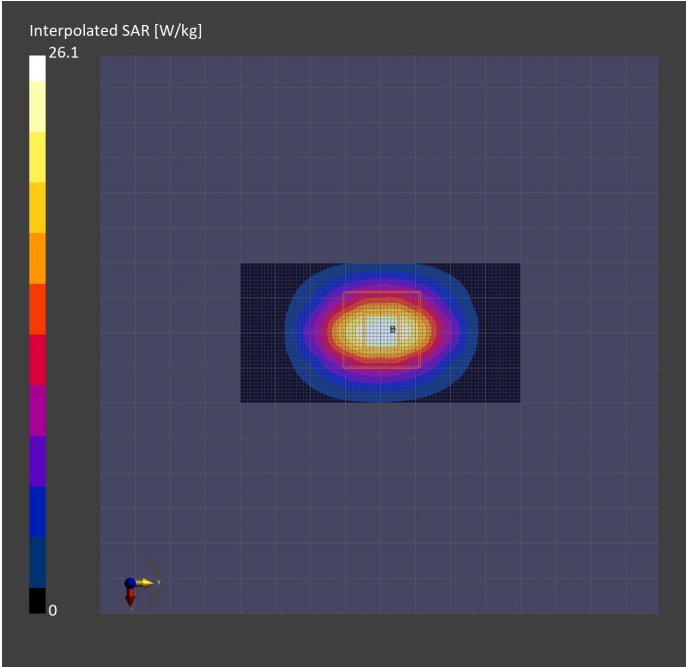
| DASY8 Software Version  | Phantom                      |      | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|------------------------------|------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- | 1259 | HBBL-600-10000 (2025-03-21) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                              |      |                             |                              |
| DAE4 Sn482 (2025-01-13) |                              |      |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.5               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-21    |
| psSAR1g [W/kg]            | 13.9      | 13.5          |
| psSAR10g [W/kg]           | 6.36      | 6.37          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.01          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 82.8          |
| Dist 3dB Peak [mm]        | N/A       | 9.0           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D2450\_HSL (3)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D2450V2 - SN936     | 50.0 x 10.0 x 290.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 1.75                   | 40.7             |
| Band            | Liquid          | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 2450.000        | 0                   | 7.51                   |                  |

Hardware Setup

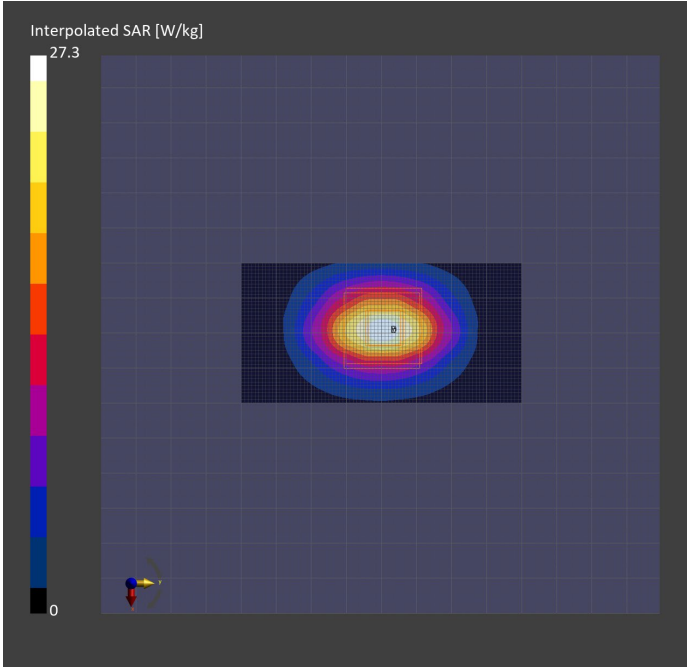
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-07) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 30.0 x 30.0 x30.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 5.0 x 5.0 x1.5    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.5               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-07    |
| psSAR1g [W/kg]            | 13.8      | 13.4          |
| psSAR10g [W/kg]           | 6.41      | 6.28          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.05         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 80.9          |
| Dist 3dB Peak [mm]        | N/A       | 9.0           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D5300\_HSL

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D5GHzV2 - SN1183    | 50.0 x 10.0 x 300.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 4.76                   | 35.7             |
| Band            | Group           | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 5300.000        | 0                   | 5.38                   |                  |

Hardware Setup

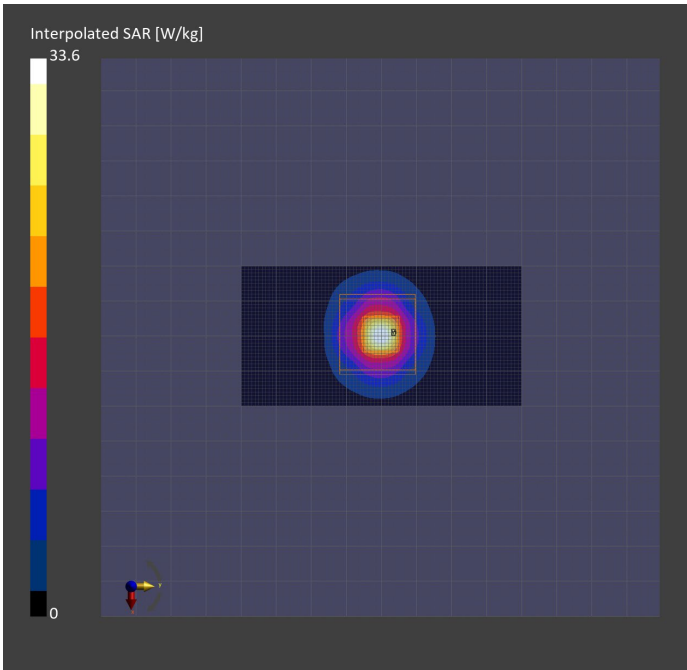
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-19) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.4               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-19    |
| psSAR1g [W/kg]            | 7.67      | 7.89          |
| psSAR10g [W/kg]           | 2.16      | 2.25          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.06          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 62.8          |
| Dist 3dB Peak [mm]        | N/A       | 7.3           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D5600\_HSL (1)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D5GHzV2 - SN1183    | 50.0 x 10.0 x 300.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position | Test Distance [mm] | TSL Conductivity [S/m] | TSL Permittivity  |
|-----------------|-----------------|----------|--------------------|------------------------|-------------------|
| Flat            | Head Simulating | -        | -                  | 5.09                   | 36.6              |
| Band            | Liquid          | Group    | Frequency [MHz]    | Channel Number [Ch]    | Conversion Factor |
| -               | CW              |          | 5600.000           | 0                      | 4.19              |

Hardware Setup

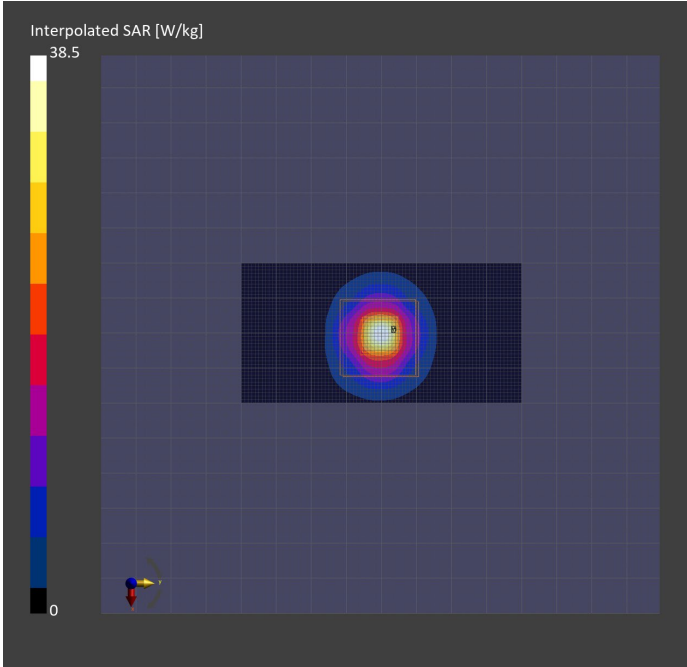
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-09) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.4               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-09    |
| psSAR1g [W/kg]            | 8.67      | 8.91          |
| psSAR10g [W/kg]           | 2.44      | 2.54          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.02          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 62.2          |
| Dist 3dB Peak [mm]        | N/A       | 7.4           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D5600\_HSL (2)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D5GHzV2 - SN1183    | 50.0 x 10.0 x 300.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position | Test Distance [mm] | TSL Conductivity [S/m] | TSL Permittivity  |
|-----------------|-----------------|----------|--------------------|------------------------|-------------------|
| Flat            | Head Simulating | -        | -                  | 5.14                   | 36.6              |
| Band            | Liquid          | Group    | Frequency [MHz]    | Channel Number [Ch]    | Conversion Factor |
| -               | CW              |          | 5600.000           | 0                      | 4.19              |

Hardware Setup

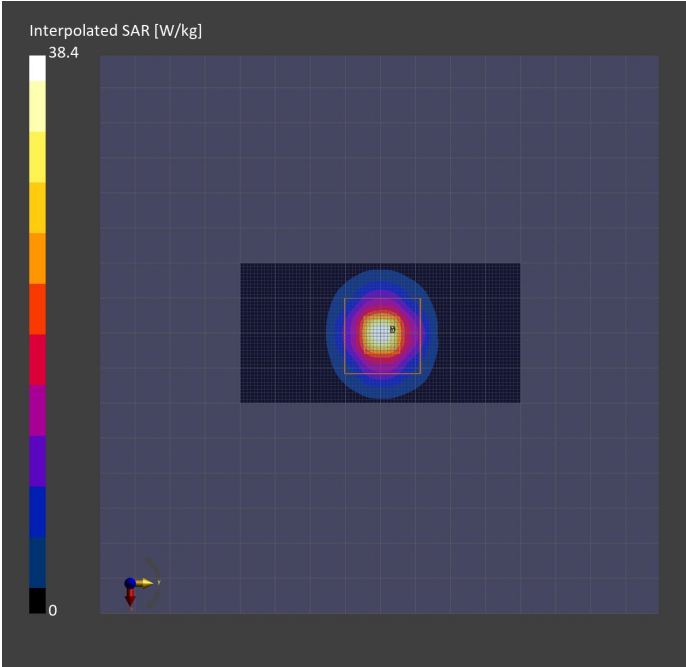
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-04-10) | EX3DV4 - SN7372 (2024-06-18) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.4               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-04-10    |
| psSAR1g [W/kg]            | 8.72      | 8.92          |
| psSAR10g [W/kg]           | 2.45      | 2.56          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.08          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 62.1          |
| Dist 3dB Peak [mm]        | N/A       | 7.2           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D5800\_HSL (1)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D5GHzV2 - SN1183    | 50.0 x 10.0 x 300.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 5.09                   | 34.3             |
| Band            | Liquid          | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 5800.000        | 0                   | 5.08                   |                  |

Hardware Setup

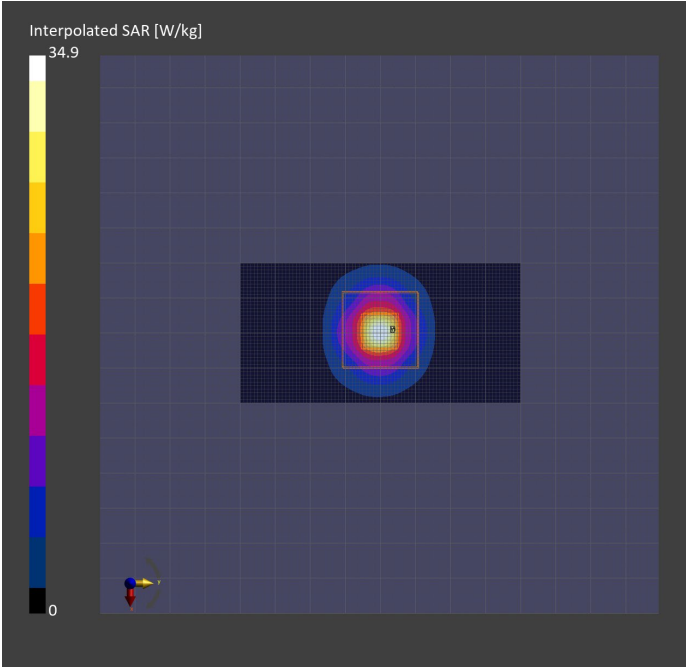
| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-17) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.4               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-17    |
| psSAR1g [W/kg]            | 6.71      | 7.40          |
| psSAR10g [W/kg]           | 1.88      | 2.09          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | 0.19          |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 58.8          |
| Dist 3dB Peak [mm]        | N/A       | 7.2           |



Test Laboratory: Sony Global Manufacturing & Operations Corporation EMC/RF Test Laboratory Main Lab. 4th Site Shielded Room 3

Measurement Report for System Check\_D5800\_HSL (2)

Device under Test Properties

| Model, Manufacturer | Dimensions [mm]     | Serial Number |
|---------------------|---------------------|---------------|
| D5GHzV2 - SN1183    | 50.0 x 10.0 x 300.0 | -             |

Exposure Conditions

| Phantom Section | TSL             | Position        | Test Distance [mm]  | TSL Conductivity [S/m] | TSL Permittivity |
|-----------------|-----------------|-----------------|---------------------|------------------------|------------------|
| Flat            | Head Simulating | -               | -                   | 5.20                   | 34.9             |
| Band            | Liquid          | Frequency [MHz] | Channel Number [Ch] | Conversion Factor      |                  |
| -               | CW              | 5800.000        | 0                   | 5.08                   |                  |

Hardware Setup

| DASY8 Software Version  | Phantom                           | TSL (Measured Date)         | Probe (Calibration Date)     |
|-------------------------|-----------------------------------|-----------------------------|------------------------------|
| 16.4.0.5005             | ELI V5.0 (20deg probe tilt)- 1259 | HBBL-600-10000 (2025-03-21) | EX3DV4 - SN7452 (2025-02-13) |
| DAE (Calibration Date)  |                                   |                             |                              |
| DAE4 Sn482 (2025-01-13) |                                   |                             |                              |

Scan Setup

|                     | Area Scan   | Zoom Scan         |
|---------------------|-------------|-------------------|
| Grid Extents [mm]   | 40.0 x 80.0 | 22.0 x 22.0 x22.0 |
| Grid Steps [mm]     | 10.0 x 10.0 | 4.0 x 4.0 x1.4    |
| Sensor Surface [mm] | 3.0         | 1.4               |
| Graded Grid         | N/A         | Yes               |
| Grading Ratio       | N/A         | 1.4               |
| MAIA                |             | N/A               |
| Surface Detection   |             | VMS + 6p          |
| Scan Method         |             | Measured          |

Measurement Results

|                           | Area Scan | Zoom Scan     |
|---------------------------|-----------|---------------|
| Date                      |           | 2025-03-21    |
| psSAR1g [W/kg]            | 7.54      | 7.77          |
| psSAR10g [W/kg]           | 2.13      | 2.21          |
| psAPD (1.0cm2, sq) [W/m2] | N/A       | N/A           |
| psAPD (4.0cm2, sq) [W/m2] | N/A       | N/A           |
| Power Drift [dB]          |           | -0.08         |
| Power Scaling             |           | Disabled      |
| TSL Correction            |           | Positive only |
| M2/M1 [%]                 | N/A       | 58.1          |
| Dist 3dB Peak [mm]        | N/A       | 7.3           |

