# SAR TEST REPORT

## Test Report No. 14203075S-A-R3

| | |
|---|---|
| **Customer** | **Seiko Epson Corporation** |
| **Description of EUT** | **Printer** |
| **Model Number of EUT** | **M382A** |
| **FCC ID** | **BKMFBM382A** |
| **Test Regulation** | **FCC 47CFR Part 2 (2.1093)** |
| **Test Result** | **Complied (Refer to SECTION 3)** |
| **Issue Date** | **July 8, 2022** |
| **Remarks** | **-** |

| Representative Test Engineer | Approved By |
|---|---|
| Hiroshi Naka<br>Engineer | Toyokazu Imamura<br>Leader |

CERTIFICATE 1266.03

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# REVISION HISTORY

## Original Test Report No.: 14203075S-A

This report is a revised version of 14203075S-A-R2. 14203075S-A-R2 is replaced with this report.

| Revision | Test Report No. | Date | Page Revised Contents |
|---|---|---|---|
| - (Original) | 14203075S-A | May 23, 2022 | - |
| -R1 | 14203075S-A-R1 | June 24, 2022 | (p10)Corrected ERP calculation formula and calculated results in table.<br>(was) ERP (dBm) = (max. conducted output power, dBm) + (antenna gain, dBi ) – 2.54<br>(corrected) ERP (dBm) = (max. conducted output power, dBm) + (antenna gain, dBi ) – 2.15<br>(p14)Corrected the wrong frequency in table (antenna 1, bottom). (5785 -> 5825)<br>(p14)Corrected the appendix number of SAR plot in table. (Appx 2-2 -> Appx.2) |
| -R2 | 14203075S-A-R2 | July 6, 2022 | (p14)Corrected SAR plot symbol of antenna 1 and 2., 5.6 GHz band. (antenna 1: 3a -> 3b, antenna 2: 3b->3a)<br>(p14)Corrected SAR plot symbol of antenna 1 and 2, 5.8 GHz band. (antenna 1: 4a -> 4b, antenna 2: 4b->4a)<br>(p14)Corrected SAR plot number. (Left: 4a-5 -> 4a-4, 4b-5 -> 4b-4, Bottom: 4a-4 -> 4a-5, 4b-4 -> 4b-5)<br>(p16)(clause 6.4) Added the repeated data of 5.3 GHz band. Added the comment of "SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements."<br>Changed comment of *1. "Repeated test was only applied to the highest measured SAR (1g) condition representatively on 5.2 GHz and 5.3 GHz band."<br>(p26) Added the repeated SAR plot data of 5.3 GHz band.<br>(p57) Added "KSDA-01" to table of "Equipment used". |
| -R3 | 14203075S-A-R3 | July 8, 2022 | (p10) Corrected the Table of *1. (Antenna 1&2, Front, SAR type: SAR10g(was)->SAR1g(new))<br>(p14)Corrected the source power of 5.2&5.3GHz band. (Battery (was)->USB (new))<br>(p14)Corrected the channel number of 5.3GHz band. (antenna 1, front, for (5260, 5300, 5320) MHz) |

## Reference : Abbreviations (Including words undescribed in this report) (radio_r0v09s02_211221)

| | |
|---|---|
| A2LA | The American Association for Laboratory Accreditation |
| AC | Alternating Current |
| AFH | Adaptive Frequency Hopping |
| AM | Amplitude Modulation |
| Amp, AMP | Amplifier |
| ANSI | American National Standards Institute |
| Ant, ANT | Antenna |
| AP | Access Point |
| ASK | Amplitude Shift Keying |
| Atten., ATT | Attenuator |
| AV | Average |
| BPSK | Binary Phase-Shift Keying |
| BR | Bluetooth Basic Rate |
| BT | Bluetooth |
| BT LE | Bluetooth Low Energy |
| BW | BandWidth |
| Cal Int | Calibration Interval |
| CCK | Complementary Code Keying |
| CDD | Cyclic Delay Diversity |
| Ch., CH | Channel |
| CISPR | Comite International Special des Perturbations Radioelectriques |
| CW | Continuous Wave |
| DBPSK | Differential BPSK |
| DC | Direct Current |
| D-factor | Distance factor |
| DFS | Dynamic Frequency Selection |
| DQPSK | Differential QPSK |
| DSSS | Direct Sequence Spread Spectrum |
| DUT | Device Under Test |
| EDR | Enhanced Data Rate |
| EIRP, e.i.r.p. | Equivalent Isotropically Radiated Power |
| EMC | ElectroMagnetic Compatibility |
| EMI | ElectroMagnetic Interference |
| EN | European Norm |
| ERP, e.r.p. | Effective Radiated Power |
| ETSI | European Telecommunications Standards Institute |
| EU | European Union |
| EUT | Equipment Under Test |
| Fac. | Factor |
| FCC | Federal Communications Commission |
| FHSS | Frequency Hopping Spread Spectrum |
| FM | Frequency Modulation |
| Freq. | Frequency |
| FSK | Frequency Shift Keying |
| GFSK | Gaussian Frequency-Shift Keying |
| GNSS | Global Navigation Satellite System |
| GPS | Global Positioning System |
| Hori. | Horizontal |
| ICES | Interference-Causing Equipment Standard |
| IEC | International Electrotechnical Commission |
| IEEE | Institute of Electrical and Electronics Engineers |
| IF | Intermediate Frequency |
| ILAC | International Laboratory Accreditation Conference |
| ISED | Innovation, Science and Economic Development Canada |
| ISO | International Organization for Standardization |
| JAB | Japan Accreditation Board |
| LAN | Local Area Network |
| LIMS | Laboratory Information Management System |
| MCS | Modulation and Coding Scheme |
| MIMO | Multiple Input Multiple Output (Radio) |
| MRA | Mutual Recognition Arrangement |
| MU-MIMO | Multi-User Multiple Input Multiple Output (Radio) |
| N/A | Not Applicable, Not Applied |
| NII | National Information Infrastructure (Radio) |
| NIST | National Institute of Standards and Technology |
| NS | No signal detect. |
| NSA | Normalized Site Attenuation |
| OBW | Occupied Band Width |
| OFDM | Orthogonal Frequency Division Multiplexing |
| P/M | Power meter |
| PCB | Printed Circuit Board |
| PER | Packet Error Rate |
| PHY | Physical Layer |
| PK | Peak |
| PN | Pseudo random Noise |
| PRBS | Pseudo-Random Bit Sequence |
| PSD | Power Spectral Density |
| QAM | Quadrature Amplitude Modulation |
| QP | Quasi-Peak |
| QPSK | Quadrature Phase Shift Keying |
| RBW | Resolution Band Width |
| RDS | Radio Data System |
| RE | Radio Equipment |
| RF | Radio Frequency |
| RMS | Root Mean Square |
| RSS | Radio Standards Specifications |
| Rx | Receiving |
| SA, S/A | Spectrum Analyzer |
| SAR | Specific Absorption Rate |
| SISO | Single Input Single Output (Radio) |
| SG | Signal Generator |
| SPLSR | SAR to Peak Location Separation Ratio |
| SVSWR | Site-Voltage Standing Wave Ratio |
| T/R | Test Receiver |
| Tx | Transmitting |
| U-NII | Unlicensed National Information Infrastructure (Radio) |
| VBW | Video BandWidth |
| Vert. | Vertical |
| WLAN | Wireless LAN |

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# SECTION 1: Customer information

| | |
|---|---|
| Company Name | Seiko Epson Corporation |
| Address | 80 Harashinden, Hirooka, Shiojiri-shi, Nagano 399-0785, Japan |
| Telephone Number | +81-263-52-2552 |
| Contact Person | Takayuki Kuwahara |

The information provided from the customer is as follows;
- Customer name, Company name, Type of Equipment, Model No., FCC ID on the cover and other relevant pages
- SECTION 1: Customer information
- SECTION 2: Equipment under test (EUT)
- SECTION 4: Operation of EUT during testing
- Appendix 1: The part of Antenna location information, Description of EUT and Support Equipment

* The laboratory is exempted from liability of any test results affected from the above information in SECTION 2, SECTION 4 and Appendix 1.

# SECTION 2: Equipment under test (EUT)

## 2.1 Identification of EUT

| | |
|---|---|
| Type | Printer |
| Model Number | M382A |
| Serial Number | EHLF000009 |
| Condition of sample | Engineering prototype (Not for sale: The sample is equivalent to mass-produced items.) |
| Receipt Date of sample | April 19, 2022 (*. No modification by the Lab.) |
| Test Date (SAR) | May 10~12, 2022 |

## 2.2 Product Description

### General description for EUT

| | |
|---|---|
| Feature of EUT | Model: M382A (referred to as the EUT in this report) is a Printer which has WLAN operation. |
| Rating | DC 7.2 V (Battery, Refer to Appendix 1-2) |
| SAR type | Portable device (*. Since EUT may contact to a human body during WLAN operation, the partial-body SAR (1g) shall be observed.) |
| Exposure Category | General Population/Uncontrolled Exposure: |
| SAR Accessory | Belt strap (Non-metal, The influence to a body touch SAR test of this accessary was not considered.)<br>Shoulder strap (Non-metal, The influence to a body touch SAR test of this accessary was not considered.) |

### Radio specification of EUT

| | | | | | |
|---|---|---|---|---|---|
| Equipment type | Transceiver | | | | |
| Model number | J26H005 | FCC ID | BKMFBJ26H005 | ISED certification number | 1052C-J26H005 |
| Frequency of operation | *. The operation frequency in each operation band refer to remarks in below. | | | | |
| Channel spacing | 5 MHz (2.4GHz band), 20 MHz (5GHz band) | | | | |
| Bandwidth | 20 MHz (11b, 11g, 11a, 11n20, 11ac20), 40 MHz (11n40, 11ac40), 80 MHz (11ac80) | | | | |
| Type of modulation | DSSS: DBPSK, DQPSK, CCK (11b);<br>OFDM: BPSK, QPSK, 16QAM, 64QAM, 256QAM (11g, 11a, 11 n20, 11ac20, 11n40, 11ac40, 11ac80) (*.256QAM is only for 11ac80) | | | | |
| Typical and maximum transmit power | *. The specification of typical and maximum tune-up tolerance limit power refer to remarks in below table.<br>*. The measured output power (conducted) as SAR reference power refers to section 5 in this report. | | | | |
| Antenna quantity | 2 pcs. (*. 1 Tx diversity, Transmission is performed from one of antenna 2 or antenna 1.) | | | | |

| | Antenna 1 | | | | | Antenna 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency [GHz] | 2.4~2.4835 | 5.15~5.25 | 5.25~5.35 | 5.47~5.725 | 5.725~5.85 | 2.4~2.4835 | 5.15~5.25 | 5.25~5.35 | 5.47~5.725 | 5.725~5.85 |
| Antenna gain [dBi] (*.Peak) | 3.09 | 5.94 | 5.94 | 6.29 | 7.12 | 2.53 | 3.94 | 3.94 | 5.10 | 5.23 |
| Antenna type / Connector type | Antenna type: PCB Printed / Connector type: none | | | | | Antenna type: PCB Printed / Connector type: none | | | | |

*. Typical power and tune-up limit power (as "maximum power")

| Tx Mode | Data rate, MCS Index | Output power (Typical and maximum) [dBm] (*. The measured output power (conducted) refers to section 5 in this report.) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2.4 GHz band | | | U-NII-1 (5.2GHz band) | | | U-NII-2A (5.3 GHz band) | | | U-NII-2C (5.6 GHz band) (*1) | | | U-NII-3 (5.8 GHz band) | | |
| | | F [MHz] | Typical | Max. | F [MHz] | Typical | Max. | F [MHz] | Typical | Max. | F [MHz] | Typical | Max. | F [MHz] | Typical | Max. |
| 11b | (1~11) Mbps | 2412~2462 | 13 | **14.5** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 11g | (6~54) Mbps | 2412~2462 | 13 | **14.5** | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 11a | (6~54) Mbps | N/A | N/A | N/A | 5180~5240 | 13 | **14.5** | 5260~5320 | 13 | **14.5** | 5500~5580, 5660~5700 | 13 | **14.5** | 5745~5825 | 13 | **14.5** |
| 11n20-SISO | MCS0~7 | 2412~2462 | 13 | **14.5** | 5180~5240 | 12 | **13.5** | 5260~5320 | 12 | **13.5** | 5500~5580, 5660~5700 | 12 | **13.5** | 5745~5825 | 12 | **13.5** |
| 11ac20-SISO | MCS0~8 | N/A | N/A | N/A | 5180~5240 | 12 | **13.5** | 5260~5320 | 12 | **13.5** | 5500~5580, 5660~5700 | 12 | **13.5** | 5745~5825 | 12 | **13.5** |
| 11n40-SISO | MCS0~7 | N/A | N/A | N/A | 5190, 5230 | 12 | **13.5** | 5270, 5310 | 12 | **13.5** | 5510, 5550, 5670 | 12 | **13.5** | 5755, 5795 | 12 | **13.5** |
| 11ac40-SISO | MCS0~9 | N/A | N/A | N/A | 5190, 5230 | 12 | **13.5** | 5270, 5310 | 12 | **13.5** | 5510, 5550, 5670 | 12 | **13.5** | 5755, 5795 | 12 | **13.5** |
| 11ac80-SISO | MCS0~9 | N/A | N/A | N/A | 5210 | 11 | **12.5** | 5290 | 10 | **11.5** | 5530 | 12 | **13.5** | 5775 | 12 | **13.5** |

*. F: Frequency; Max.: maximum; N/A: Not applicable.; (mode) 11b: IEEE 802.11b, 11g: IEEE 802.11g, 11a: IEEE 802.11a, 11n20-SISO: IEEE 802.11n(20HT)-SISO, 11n40-SISO: IEEE 802.11n(40HT)-SISO, 11ac20-SISO: IEEE 802.11ac(20VHT)-SISO, 11ac40-SISO: IEEE 802.11n (40VHT)-SISO, 11ac80-SISO: IEEE 802.11ac(80VHT)-SISO.

*. The EUT do not use the special transmitting technique such as "beam-forming" and "time-space code diversity."

*. Maximum tune-up tolerance limit is conducted burst average power and is defined by a customer as Duty cycle 100% (continuous transmitting).

*1. US and Canadian models have the same firmware, so WLAN operation of 5.6 GHz to 5.65 GHz is not supported.

# SECTION 3: Maximum SAR value, test specification and procedures

## 3.1 Summary of Maximum SAR Value

| Band | Max. power [dBm] | Summary of Highest Reported SAR [W/kg] | | | |
|---|---|---|---|---|---|
| | | Body-worn (Separation 0 mm, Flat phantom) | | Head (Separation 0 mm, SAM phantom) | |
| | | SAR (1g) | | SAR (1g) | |
| | | Antenna 1 standalone | Antenna 2 standalone | Antenna 1 standalone | Antenna 2 standalone |
| DTS, 2.4 GHz WLAN | 14.5 | **< 0.10** (0.09) | **0.30** | **N/A** | **N/A** |
| U-NII-1, 5.2 GHz WLAN | 14.5 | **0.43** | **1.08** | **N/A** | **N/A** |
| U-NII-2A, 5.3 GHz WLAN | 14.5 | **0.54** | **1.08** | **N/A** | **N/A** |
| U-NII-2C, 5.6 GHz WLAN | 14.5 | **0.84** | **1.14** | **N/A** | **N/A** |
| U-NII-3, 5.8 GHz WLAN | 14.5 | **0.89** | **1.10** | **N/A** | **N/A** |
| Simultaneous SAR (*1) | | *. This EUT is not support the simultaneous transmission and MIMO mode (co-location). | | | |
| Criteria | Partial body (head & body): 1.6 W/kg (SAR (1g)) for general population/uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093). | | | | |
| Test Procedure | SAR measurement: KDB 447498 D01, KDB 248227 D01, KDB 865664 D01, IEC Std. 1528,<br>UL Japan's SAR Work Procedures No.13-EM-W0429 and 13-EM-W0430. | | | | |
| Category | FCC 47CFR §2.1093 (Portable device) | | | | |
| SAR type | Partial body (head & body) | | | | |

*1. A transmission is performed from one of antenna 2 or antenna 1 (diversity).
*. "yellow marker" in the table; the highest Reported SAR (1g) of each band (2.4 GHz band, 5 GHz band) are shaded with yellow marker.

**This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg for partial body) specified in FCC 47 CFR part 2 (2.1093) and had been tested in accordance with the measurement methods and procedures specified in FCC KDB publications and IEEE 1528-2013.**

## 3.2 Test specification

The tests documented in this report were performed in accordance with the following standard: FCC 47 CFR Parts 2 (2.1093), IEEE Std.1528-2013, and the following FCC Published RF exposure KDB procedures:

| | |
|---|---|
| **FCC 47 CFR part 2 (2.1093)** | Radiofrequency radiation exposure evaluation: portable devices |
| **ANSI/IEEE C95.1-1992** | IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 KHz to 300 GHz |
| **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. |
| **KDB 248227 D01** | SAR Guidance for IEEE 802.11 (Wi-Fi) transmitters v02r02 |
| **KDB 447498 D04** | Interim General RF Exposure Guidance v01 |
| **KDB 447498 D03** | OET Bulletin 65, Supplement C Cross-Reference v01 |
| **KDB 865664 D01** | SAR measurement 100 MHz to 6 GHz v01r04 |
| **KDB 865664 D02** | RF exposure compliance reporting and documentation considerations v01r02 |

In addition to the above, the following information was used:

| | |
|---|---|
| TCB workshop, October 2016 | RF Exposure Procedure, DUT Holder Perturbations<br>When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification is required for each antenna, using the highest SAR configuration among all applicable frequency bands. |
| TCB workshop, April 2019 | RF Exposure Procedure, 802.11ax SAR Testing |
| TCB workshop, October 2019 | RF Exposure Procedure, Tissue Simulating Liquids (TSL)<br>-Effective February 19, 2019, FCC has permitted the use of single head tissue simulating liquid specified in IEC 62209 for all SAR tests.<br>-Mix and Match of traditional FCC SAR TSLs and IEC 62209 TSL in a single application is not permitted.<br>-TSL can be changed in a Permissive Change. If SAR increases and original SAR > 1.2 W/kg, additional SAR tests will be required.<br>-If FCC parameters are used, 5 % tolerance. If IEC parameters, 10 %. |

## 3.3 Exposure limit

| Environments of exposure limit | Whole-Body (averaged over the entire body) | Partial-Body (averaged over any 1g of tissue) | Hands, Wrists, Feet and Ankles (averaged over any 10g of tissue) |
|---|---|---|---|
| **(A) Limits for Occupational /Controlled Exposure (W/kg)** | 0.4 | 8.0 | 20.0 |
| **(B) Limits for General population /Uncontrolled Exposure (W/kg)** | 0.08 | 1.6 | 4.0 |

*. Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).
*. General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

**The limit applied to this device which tested in this report is;**

**General population / uncontrolled exposure, Partial-Body (averaged over any 1g of tissue) limit: 1.6 W/kg**

## 3.4 Addition, deviation and exclusion to the test procedure

No addition, exclusion nor deviation has been made from the test procedure.

## 3.5 Test Location

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*. A2LA Certificate Number: 1266.03 (FCC Test Firm Registration Number: 626366, ISED Lab Company Number: 2973D / CAB identifier: JP0001)

| Place | Width × Depth × Height (m) | Size of reference ground plane (m) / horizontal conducting plane |
|---|---|---|
| No.7 Shielded room | 2.76 × 3.76 × 2.4 | 2.76 × 3.76 |

## 3.6 SAR measurement procedure

### 3.6.1 Normal SAR measurement procedure

**Step 1: Confirmation before SAR testing**

Before SAR test, the RF wiring for the sample had been switched to the antenna conducted power measurement line from the antenna line and the average power was measured. The SAR test reference power measurement and the SAR test were proceeded with the lowest data rate (which has the higher time-based average power typically) on each operation mode. Therefore, the average output power was measured on the lower, middle (or near middle), upper and specified channels with the lowest data rate of each operation mode. The power of other data rate was also measured to confirm the time-base average power and when if it's required. The power measurement result is shown in Section 5.

*. The EUT transmission power was verified that it was not more than 2 dB lower than the maximum tune-up tolerance limit when it was set the rated power. (KDB447498 D04 (v01))

**Step 2: Power reference measurement**

Measurement of the E-field at a fixed location above the central position of flat phantom (or/and furthermore an interpolated peak SAR location of area scan in step 2) was used as a reference value for assessing the power drop.

**Step 3: Area Scan** (Area scan parameters: KDB 865664 D01 (v01r04).)

The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and suitable horizontal grid spacing of EUT. Based on these data, the area of the maximum absorption was determined by splines interpolation.

| | ≤ 3 GHz | > 3 GHz |
|---|---|---|
| Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface | 5 ± 1 mm | ½·δ·ln(2) ± 0.5 mm |
| Maximum probe angle from probe axis to phantom surface normal at the measurement location | 30° ± 1° | 20° ± 1° |
| Maximum area scan spatial resolution: $\Delta x_{Area}$, $\Delta y_{Area}$ | ≤ 2 GHz: ≤ 15 mm<br>2 – 3 GHz: ≤ 12 mm | 3 – 4 GHz: ≤ 12 mm<br>4 – 6 GHz: ≤ 10 mm |
| | 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 ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device. | |

**Step 4: Zoom Scan and post-processing** (Zoom scan parameters: KDB 865664 D01 (v01r04).)

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure.

A volume of 30 mm (X) × 30 mm (Y) × 30 mm (Z) (or more) was assessed by measuring 7×7×7 points (or more), ≤ 3 GHz.

A volume of 28 mm (X) × 28 mm (Y) × 24mm (Z) (or more) was assessed by measuring 8×8×7 points (or more) (by "Ratio step" method (*1)), > 3 GHz.

When the SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are proceeded for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR. If the zoom scan measured as defined above complies with both of the following criteria. or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed.

*. The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x and y directions and recorded.

*. The ratio of the SAR at the second measured point to the SAR at the closest measured point at the x-y location of the measured maximum SAR value shall be at least 30 % and recorded.

| | | | | f ≤ 3 GHz | 3 GHz < f ≤ 6 GHz |
|---|---|---|---|---|---|
| 1 | Maximum zoom scan spatial resolution: $\Delta x_{Zoom}$, $\Delta y_{Zoom}$ | | | ≤ 2 GHz: ≤ 8 mm<br>2 – 3 GHz: ≤ 5 mm* | 3 – 4 GHz: ≤ 5 mm*<br>4 – 6 GHz: ≤ 4 mm* |
| 2 | Maximum zoom scan spatial resolution, normal to phantom surface | uniform grid: $\Delta z_{Zoom}(n)$ | | ≤ 5 mm | 3 – 4 GHz: ≤ 4 mm<br>4 – 5 GHz: ≤ 3 mm<br>5 – 6 GHz: ≤ 2 mm |
| 3 | | graded grid | $\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface | ≤ 4 mm | 3 – 4 GHz: ≤ 3 mm<br>4 – 5 GHz: ≤ 2.5 mm<br>5 – 6 GHz: ≤ 2 mm |
| 4 | | | $\Delta z_{Zoom}(n>1)$: between subsequent points | ≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm | |
| 5 | Minimum zoom scan volume | x, y, z | | ≥ 30 mm | 3 – 4 GHz: ≥ 28 mm<br>4 – 5 GHz: ≥ 25 mm<br>5 – 6 GHz: ≥ 22 mm |
| | * The asterisk table-footnote is per KDB Pub. 865664 D01 v01r04.<br>NOTE For uniformity purposes the integer frequency increments of rows 1 to 3 and 5 apply, rather than the corresponding variable and fixed parameters given in IEC 62209-1:2016 and IEC 62209-2:2010/AMD1:2019. | | | | |

**Step 5: Power drift measurement**

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 2. It was checked that the power drift is within ±5% in the evaluation procedure of SAR testing. The verification of power drift during the SAR test is that DASY system calculates the power drift by measuring the e-filed at the same location at beginning and the end of the scan measurement for each test position. The result is shown in SAR plot data of APPENDIX 2.

*. DASY system calculation Power drift value[dB] =20log(Ea)/(Eb) (where, Before SAR testing: Eb[V/m] / After SAR testing: Ea[V/m])
Limit of power drift[W] = ±5%; Power drift limit (X) [dB] = 10log(P_drift)=10log(1.05/1) = 10log(1.05)-10log(1) = <u>0.21dB</u>
from E-filed relations with power; S=E×H=E^2/η=P/(4×π×r^2) (η: Space impedance) → P=(E^2×4×π×r^2)/η
Therefore, The correlation of power and the E-filed
Power drift limit (X) dB=10log(P_drift) = 10log(E_drift)^2=20log(E_drift)
From the above mentioned, **<u>the calculated power drift of DASY system must be the less than (±) 0.21 dB.</u>**

**Step 6: Z-Scan**

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be larger than the step size in Z-direction.

*. The all SAR tests were conservatively performed with test separation distance 0 mm. The phantom bottom thickness is approx. 2mm. Typical distance from probe tip to dipole centers is 1mm. The distance between the SAR probe tip to the surface of test device which is touched the bottom surface of the phantom is approx. 3 mm for 2.4GHz band and 2.4 mm for 5GHz band.

*1. "Ratio step" method parameters used; the first measurement point: "1.4mm" from the phantom surface, the initial z grid separation: "1.4mm", subsequent graded grid ratio: "1.4". These parameters comply with the requirement of KDB 865664 D01and recommended by Schmid & Partner Engineering AG (DASY5 manual).

# SECTION 4: Operation of EUT during testing

## 4.1 Operating modes for SAR testing

The EUT has two antenna (1Tx diversity), operation mode of IEEE 802.11b/11g/11a/11n20-SISO/11n40-SISO/11ac20-SISO/11ac40-SISO/11ac80-SISO continuous transmission. The frequency and the modulation (data rate) used in the SAR testing are shown as a following.

| Operation mode | 11b | 11g | 11n20 | 11a | 11n20 | 11ac20 | 11n40 | 11ac40 | 11ac80 | 11a | 11n20 | 11ac20 | 11n40 | 11ac40 | 11ac80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| band | 2.4GHz band | | | U-NII-1 (5.2 GHz) | | | | | | U-NII-2A (5.3 GHz) | | | | | |
| Tx band [MHz] | 2412~2462 | | | 5180~5240 | | | 5190, 5230 | | 5210 | 5260~5320 | | | 5270, 5310 | | 5290 |
| Antenna # (*1) | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 |
| Bandwidth [MHz] | 20 | 20 | 20 | 20 | 20 | 20 | 40 | 40 | 80 | 20 | 20 | 20 | 40 | 40 | 80 |
| Max.power [dBm] | **14.5** | **14.5** | **14.5** | **14.5** | 13.5 | 13.5 | 13.5 | 13.5 | 12.5 | **14.5** | 13.5 | 13.5 | 13.5 | 13.5 | 11.5 |
| | | | | | *. lower power than 11a. | | | | | | *. lower power than 11a. | | | | |
| Modulation | DSSS | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM |
| D/R [Mbps, MCS#] | 1 | 6 | MCS0 | 6 | MCS0 | MCS0 | MCS0 | MCS0 | MCS0 | 6 | MCS0 | MCS0 | MCS0 | MCS0 | MCS0 |
| Frequency tested [MHz] | 2412, 2437, 2462 | n/a (*2) | n/a (*2) | 5180, 5220, 5240 | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | 5260, 5300, 5320 | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) |

| Operation mode | 11a | 11n20 | 11ac20 | 11n40 | 11ac40 | 11ac80 | 11a | 11n20 | 11ac20 | 11n40 | 11ac40 | 11ac80 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| band | U-NII-2C (5.6 GHz) | | | | | | U-NII-3 (5.8 GHz) | | | | | |
| Tx band [MHz] | 5500~5580, 5660~5700 | | | 5510,5550,5670 | | 5530 | 5745~5825 | | | 5755, 5795 | | 5775 |
| Antenna # (*1) | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 | 1, 2 |
| Bandwidth [MHz] | 20 | 20 | 20 | 40 | 40 | 80 | 20 | 20 | 20 | 40 | 40 | 80 |
| Max.power [dBm] | **14.5** | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | **14.5** | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |
| | | *. lower power than 11a. | | | | | | *. lower power than 11a. | | | | |
| Modulation | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM | OFDM |
| D/R [Mbps, MCS#] | 6 | MCS0 | MCS0 | MCS0 | MCS0 | MCS0 | 6 | MCS0 | MCS0 | MCS0 | MCS0 | MCS0 |
| Frequency tested [MHz] | 5500, 5580, 5700 | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | 5745, 5785, 5825 | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) | n/a (*3) |

| Controlled software | Test name | Software name | Version | Date | Storage location / Remarks |
|---|---|---|---|---|---|
| | Power measurement, SAR test | REALTEK 11ac 8821CU NIC Massproduction kit | v3.01 | 2022/03/14 | *. Installed the host PC |

*. Max.power: Maximum power (tune-up limit power), D/R: Data rate, n/a: SAR test was not applied.
*. (KDB 248227 D01) Initial SAR test was applied to the operation mode that has higher bandwidth with the highest tune-up power, lowest data rate (lowest modulation).
*1. A transmission is performed from one of antenna 2 or antenna 1 (diversity).
*2. (KDB 248227 D01) Since reported SAR (1g) of DSSS mode was ≤ 1.2 W/kg, SAR test of OFDM mode was omitted.
*3. Since the maximum output power was lower than other mode, the SAR test was reduced.

***. OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**

(KDB 248227 D01, , SAR Guidance for Wi-Fi Transmitters) The initial test configuration for 2.4 GHz and 5 GHz OFDM transmission modes 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. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures.
When multiple channel bandwidth configurations in a frequency band 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.

***. SAR test reduction considerations**

(KDB 447498 D04(v01), General RF Exposure Guidance) Testing of other required channels within the operating mode of a frequency band is not required when the reported 1g or 10g SAR for the mid-band or highest output power channel is:
(1) ≤ 0.8 W/kg for 1g , or 2.0 W/kg for 10g respectively, when the transmission band is ≤ 100 MHz
(2) ≤ 0.6 W/kg for 1g, or 1.5 W/kg for 10g respectively, when the transmission band is between 100 MHz and 200 MHz
(3) ≤ 0.4 W/kg for 1g, or 1.0 W/kg for 10g respectively, when the transmission band is ≥ 200 MHz
The SAR has been measured with highest transmission duty factor supported by the test mode tool for WLAN and/or Bluetooth. When the transmission duty factor could not be 100%, the reported SAR will be scaled to 100% transmission duty factor to determine compliance. When SAR is not measured at the maximum power level allowed for production unit, the measured SAR will be scaled to the maximum tune-up tolerance limit to determine compliance.

(KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters) When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.

For 2.4GHz band, the highest measured maximum output power channel of DSSS was selected for SAR measurement, When the reported SAR is ≤ 0.8 W/kg, no further SAR test is required in this exposure configuration. Otherwise, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required 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 ≤ 1.2 W/kg.

For 5GHz band, the initial test configuration was selected accordance to the transmission mode with the highest maximum output power. When the reported SAR is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SRA result is ≤ 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

## 4.2 RF exposure conditions

After considering the outline of EUT, the SAR test was applied to the EUT surface in follows.

| Setup | Explanation of SAR test setup plan (*. Refer to Appendix 1 for test setup photographs which had been tested.) | Antenna 1 | | Antenna 2 | | SAR type |
|---|---|---|---|---|---|---|
| | | D [mm] | SAR Tested / Reduced (*1) | D [mm] | SAR Tested / Reduced (*1) | |
| **Front** | A front surface (paper ejection side) of EUT was touched to the Flat phantom. | **8.4** | **Tested** | **8.4** | **Tested** | Partial-body touch |
| **Bottom** | A bottom surface of EUT was touched to the Flat phantom. | **26.4** | **Tested** | **18.4** | **Tested** | |
| **Rear** | A rear surface (belt-clip side) of EUT was touched to the Flat phantom. | **35.3** | **Tested** | **35.3** | **Tested** | |
| **Left** | A left surface of EUT was touched to the Flat phantom. | **38.9** | **Tested** | **18.9** | **Tested** | |
| **Right** | A right surface of EUT was touched to the Flat phantom. | **58.1** | **Tested** | **66.1** | **Tested** | |
| **Top** | A top surface of EUT was touched to the Flat phantom. | **91.6** | **Tested** | **111.6** | **Tested** | |

*. **D:** Antenna separation distance. It is the distance from the antenna inside EUT the outer surface of EUT which user may touch.
*. Size of EUT: Refer to Appendix 1-1.
*1. [SAR test exemption consideration by KDB 447498 D04 (v01)]

| Tx mode | Higher frequency [MHz] | Max. conducted output power | | Antenna 1 | | | Antenna 2 | | | Judge of SAR test exemption ("Test "or "Exempt") (upper row) / SAR based Threshold power (lower row) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Antenna 1 separation distance | | | | | | Antenna 2 separation distance | | | | | |
| | | | | Gain | ERP | | Gain | ERP | | 8 mm | 26 mm | 35 mm | 39 mm | 58 mm (> 50 mm) | 92 mm (> 50 mm) | 8 mm | 18 mm | 19 mm | 35 mm | 66 mm (> 50 mm) | 112 mm (> 50 mm) |
| | | | | | | | | | | Front | Bottom | Rear | Left | Right | Top | Front | Bottom | Left | Rear | Right | Top |
| | | [dBm] | [mW] | [dBi] | [dBm] | [mW] | [dBi] | [dBm] | [mW] | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g | SAR1g |
| WLAN 2.4 GHz | 2462 | 14.5 | 28 | 3.09 | 15.44 | **35** | 2.53 | 14.88 | **31** | **Test** 7 mW | Exempt 63 mW | Exempt 111 mW | Exempt > 111 mW | Exempt > 111 mW | Exempt > 111 mW | **Test** 7 mW | Exempt 31 mW | Exempt 35 mW | Exempt > 35 mW | Exempt > 35 mW | Exempt > 35 mW |
| WLAN 5.2 GHz | 5240 | 14.5 | 28 | 5.94 | 18.29 | **67** | 3.94 | 16.29 | **43** | **Test** 4 mW | **Test** 45 mW | Exempt 83 mW | Exempt > 83 mW | Exempt > 83 mW | Exempt > 83 mW | **Test** 4 mW | **Test** 21 mW | **Test** 24 mW | Exempt 83 mW | Exempt > 83 mW | Exempt > 83 mW |
| WLAN 5.3 GHz | 5320 | 14.5 | 28 | 5.94 | 18.29 | **67** | 3.94 | 16.29 | **43** | **Test** 4 mW | **Test** 45 mW | Exempt 82 mW | Exempt > 82 mW | Exempt > 82 mW | Exempt > 82 mW | **Test** 4 mW | **Test** 21 mW | **Test** 24 mW | Exempt 82 mW | Exempt > 82 mW | Exempt > 82 mW |
| WLAN 5.6 GHz | 5700 | 14.5 | 28 | 6.29 | 18.64 | **73** | 5.10 | 17.45 | **56** | **Test** 4 mW | **Test** 43 mW | Exempt 81 mW | Exempt > 81 mW | Exempt > 81 mW | Exempt > 81 mW | **Test** 4 mW | **Test** 20 mW | **Test** 23 mW | Exempt 81 mW | Exempt > 81 mW | Exempt > 81 mW |
| WLAN 5.8 GHz | 5825 | 14.5 | 28 | 7.12 | 19.47 | **89** | 5.23 | 17.58 | **57** | **Test** 4 mW | **Test** 43 mW | **Test** 80 mW | Exempt > 100 mW | Exempt > 100 mW | Exempt > 100 mW | **Test** 4 mW | **Test** 20 mW | **Test** 22 mW | Exempt 80 mW | Exempt > 80 mW | Exempt > 80 mW |

*. Antenna separation distance is rounded to the nearest integer numbers (in mm) before calculation.
*. (Calculating formula) ERP (dBm) = (max. conducted output power, dBm) + (antenna gain, dBi ) – 2.15

**<Conclusion for consideration for SAR test reduction>**

1) **The all SAR tests were conservatively performed with test separation distance 0 mm.**
2) **All surfaces of EUT for both antenna 1 and antenna 2 are applied the SAR test because of the EUT is the wearable device and the small device.**

SAR-based thresholds (Pth (mW) shown below table of "Example Power Thresholds [mW]" are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged effective radiated power (ERP), whichever is greater. The SAR-based exemption is calculated by Formula (B.2) in below, applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold Pth (mW).
When 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.
*. This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).

Table: Example Power Thresholds [mW] (SAR(1g), KDB 447498 D01 (v07))

| Frequency [MHz] | Distance [mm] 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 35 | 40 | 45 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2402 | 3 | 4 | 5 | 7 | 9 | 10 | 12 | 15 | 17 | 20 | 22 | 25 | 28 | 32 | 35 | 39 | 42 | 46 | 50 | 55 | 59 | 64 | 68 | 73 | 78 | 84 | 112 | 144 | 180 | 220 |
| 2412 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 15 | 17 | 20 | 22 | 25 | 28 | 32 | 35 | 39 | 42 | 46 | 50 | 55 | 59 | 64 | 68 | 73 | 78 | 83 | 112 | 144 | 180 | 220 |
| 2450 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 15 | 17 | 19 | 22 | 25 | 28 | 31 | 35 | 38 | 42 | 46 | 50 | 54 | 59 | 63 | 68 | 73 | 78 | 83 | 111 | 143 | 179 | 219 |
| 2462 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 14 | 17 | 19 | 22 | 25 | 28 | 31 | 35 | 38 | 42 | 46 | 50 | 54 | 58 | 63 | 68 | 73 | 78 | 83 | 111 | 143 | 179 | 219 |
| 2480 | 3 | 4 | 5 | 7 | 8 | 10 | 12 | 14 | 17 | 19 | 22 | 25 | 28 | 31 | 35 | 38 | 42 | 46 | 50 | 54 | 58 | 63 | 67 | 72 | 77 | 82 | 111 | 143 | 179 | 218 |
| 3600 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 11 | 13 | 16 | 18 | 20 | 23 | 26 | 29 | 32 | 35 | 38 | 42 | 45 | 49 | 53 | 57 | 62 | 66 | 71 | 96 | 125 | 158 | 195 |
| 5180 | 2 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 24 | 26 | 29 | 32 | 35 | 38 | 42 | 45 | 49 | 53 | 57 | 61 | 84 | 110 | 141 | 175 |
| 5240 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 11 | 13 | 14 | 17 | 19 | 21 | 24 | 26 | 29 | 32 | 35 | 38 | 42 | 45 | 49 | 53 | 57 | 61 | 83 | 110 | 140 | 174 |
| 5260 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 11 | 13 | 14 | 16 | 19 | 21 | 24 | 26 | 29 | 32 | 35 | 38 | 42 | 45 | 49 | 52 | 56 | 61 | 83 | 110 | 140 | 174 |
| 5320 | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 9 | 11 | 12 | 14 | 16 | 19 | 21 | 23 | 26 | 29 | 32 | 35 | 38 | 41 | 45 | 48 | 52 | 56 | 60 | 83 | 109 | 139 | 173 |
| 5500 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 21 | 23 | 26 | 28 | 31 | 34 | 37 | 41 | 44 | 48 | 51 | 55 | 59 | 82 | 108 | 138 | 172 |
| 5700 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 23 | 25 | 28 | 31 | 34 | 37 | 40 | 43 | 47 | 51 | 55 | 59 | 81 | 107 | 136 | 170 |
| 5745 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 28 | 31 | 34 | 37 | 40 | 43 | 47 | 51 | 54 | 58 | 80 | 106 | 136 | 169 |
| 5800 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 28 | 30 | 33 | 36 | 40 | 43 | 47 | 50 | 54 | 58 | 80 | 106 | 136 | 169 |
| 5825 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 25 | 28 | 30 | 33 | 36 | 40 | 43 | 47 | 50 | 54 | 58 | 80 | 106 | 135 | 169 |

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

| RF Source Frequency | | | Minimum Distance | | | Threshold ERP |
|---|---|---|---|---|---|---|
| $f_L$ MHz | | $f_H$ MHz | $\lambda_L / 2\pi$ | | $\lambda_H / 2\pi$ | W |
| 0.3 | – | 1.34 | 159 m | – | 35.6 m | $1.920\ R^2$ |
| 1.34 | – | 30 | 35.6 m | – | 1.6 m | $3{,}450\ R^2/f^2$ |
| 30 | – | 300 | 1.6 m | – | 159 mm | $3.83\ R^2$ |
| 300 | – | 1,500 | 159 mm | – | 31.8 mm | $0.0128\ R^2 f$ |
| 1,500 | – | 100,000 | 31.8 mm | – | 0.5 mm | $19.2 R^2$ |

Subscripts L and H are low and high; λ is wavelength.
From §1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.

R is in meter; f is in MHz
Threshold ERP [W] = 19.2 × R^2 (~formula (A.1))

Calculating formula:

$$P_{th}\ (\text{mW}) = ERP_{20\ \text{cm}}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \quad \text{(B.1)}$$

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^x & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B.2)} \qquad x = -\log_{10}\left(\frac{60}{ERP_{20\ \text{cm}}\sqrt{f}}\right)$$

and $f$ is in GHz, $d$ is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).

# SECTION 5: Confirmation before testing

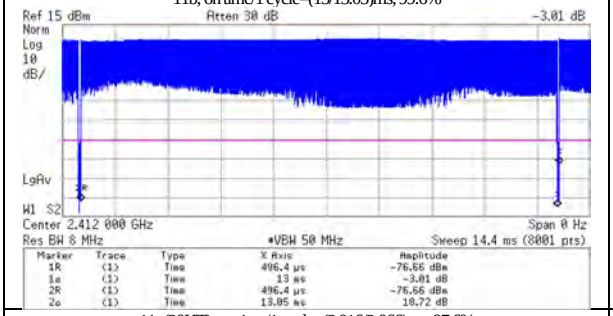
## 5.1 SAR reference power measurement (antenna terminal conducted average power of EUT) (P.Table_FCC&IC_20220422)

| Mode | Data rate [Mbps] or Index# | Frequency | | Power spec. | | Duty cycle | | | Antenna terminal conducted power | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Typical | Tune-up limit (Max.) | Duty cycle | Duty factor | Scaled factor | Setting power | Burst average | | Δ from Max. | Tune-up factor | Time average | |
| | | [MHz] | CH | [dBm] | [dBm] | [%] | [dB] | [-] | [-] | [dBm] | [mW] | [dB] | [-] | [dBm] | [mW] |
| 11b | 1 | 2412 | 1 | 13 | 14.5 | 99.6 | 0.02 | 1.00 | 29 | **14.06** | 25.47 | -0.44 | 1.11 | 14.04 | 25.35 |
| | 1 | 2437 | 6 | 13 | 14.5 | 99.6 | 0.02 | 1.00 | 29 | **13.77** | 23.82 | -0.73 | 1.18 | 13.75 | 23.71 |
| | 1 | 2462 | 11 | 13 | 14.5 | 99.6 | 0.02 | 1.00 | 29 | **13.17** | 20.75 | -1.33 | 1.36 | 13.15 | 20.65 |
| 11g | 6 | 2412 | 1 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 39 | **14.21** | 26.36 | -0.29 | 1.07 | 14.11 | 25.76 |
| | 6 | 2437 | 6 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 39 | **13.83** | 24.15 | -0.67 | 1.17 | 13.73 | 23.60 |
| | 6 | 2462 | 11 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 40 | **13.85** | 24.27 | -0.65 | 1.16 | 13.75 | 23.71 |
| 11n20 -SISO | MCS0 | 2412 | 1 | 13 | 14.5 | 97.6 | 0.11 | 1.02 | 37 | **13.10** | 20.42 | -1.40 | 1.38 | 12.99 | 19.91 |
| | MCS0 | 2437 | 6 | 13 | 14.5 | 97.6 | 0.11 | 1.02 | 37 | **12.74** | 18.79 | -1.76 | 1.50 | 12.63 | 18.32 |
| | MCS0 | 2462 | 11 | 13 | 14.5 | 97.6 | 0.11 | 1.02 | 38 | **12.98** | 19.86 | -1.52 | 1.42 | 12.87 | 19.36 |
| 11a | 6 | 5180 | 36 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **12.79** | 19.01 | -1.71 | 1.48 | 12.69 | 18.58 |
| | 6 | 5200 | 40 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **12.99** | 19.91 | -1.51 | 1.42 | 12.89 | 19.45 |
| | 6 | 5220 | 44 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.39** | 21.83 | -1.11 | 1.29 | 13.29 | 21.33 |
| | 6 | 5240 | 48 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.58** | 22.80 | -0.92 | 1.24 | 13.48 | 22.28 |
| | 6 | 5260 | 52 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.43** | 22.03 | -1.07 | 1.28 | 13.33 | 21.53 |
| | 6 | 5280 | 56 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.57** | 22.75 | -0.93 | 1.24 | 13.47 | 22.23 |
| | 6 | 5300 | 60 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.60** | 22.91 | -0.90 | 1.23 | 13.50 | 22.39 |
| | 6 | 5320 | 64 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 37 | **13.67** | 23.28 | -0.83 | 1.21 | 13.57 | 22.75 |
| | 6 | 5500 | 100 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **12.80** | 19.05 | -1.70 | 1.48 | 12.70 | 18.62 |
| | 6 | 5580 | 116 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **13.32** | 21.48 | -1.18 | 1.31 | 13.22 | 20.99 |
| | 6 | 5700 | 140 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **13.96** | 24.89 | -0.54 | 1.13 | 13.86 | 24.32 |
| | 6 | 5745 | 149 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **12.90** | 19.50 | -1.60 | 1.45 | 12.80 | 19.05 |
| | 6 | 5785 | 157 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **12.96** | 19.77 | -1.54 | 1.43 | 12.86 | 19.32 |
| | 6 | 5825 | 165 | 13 | 14.5 | 97.7 | 0.10 | 1.02 | 38 | **13.07** | 20.28 | -1.43 | 1.39 | 12.97 | 19.82 |
| 11n20 -SISO (HT20) | MCS0 | 5180 | 36 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **11.96** | 15.70 | -1.54 | 1.43 | 11.85 | 15.31 |
| | MCS0 | 5200 | 40 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.23** | 16.71 | -1.27 | 1.34 | 12.12 | 16.29 |
| | MCS0 | 5220 | 44 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.39** | 17.34 | -1.11 | 1.29 | 12.28 | 16.90 |
| | MCS0 | 5240 | 48 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.68** | 18.54 | -0.82 | 1.21 | 12.57 | 18.07 |
| | MCS0 | 5260 | 52 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.53** | 17.91 | -0.97 | 1.25 | 12.42 | 17.46 |
| | MCS0 | 5280 | 56 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.49** | 17.74 | -1.01 | 1.26 | 12.38 | 17.30 |
| | MCS0 | 5300 | 60 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.46** | 17.62 | -1.04 | 1.27 | 12.35 | 17.18 |
| | MCS0 | 5320 | 64 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.43** | 17.50 | -1.07 | 1.28 | 12.32 | 17.06 |
| | MCS0 | 5500 | 100 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.64** | 14.59 | -1.86 | 1.53 | 11.53 | 14.22 |
| | MCS0 | 5580 | 116 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **12.50** | 17.78 | -1.00 | 1.26 | 12.39 | 17.34 |
| | MCS0 | 5700 | 140 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **12.98** | 19.86 | -0.52 | 1.13 | 12.87 | 19.36 |
| | MCS0 | 5745 | 149 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.72** | 14.86 | -1.78 | 1.51 | 11.61 | 14.49 |
| | MCS0 | 5785 | 157 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.81** | 15.17 | -1.69 | 1.48 | 11.70 | 14.79 |
| | MCS0 | 5825 | 165 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.75** | 14.96 | -1.75 | 1.50 | 11.64 | 14.59 |
| 11ac20 -SISO (VHT20) | MCS0 | 5180 | 36 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **11.85** | 15.31 | -1.65 | 1.46 | 11.74 | 14.93 |
| | MCS0 | 5200 | 40 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.26** | 16.83 | -1.24 | 1.33 | 12.15 | 16.41 |
| | MCS0 | 5220 | 44 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.42** | 17.46 | -1.08 | 1.28 | 12.31 | 17.02 |
| | MCS0 | 5240 | 48 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.58** | 18.11 | -0.92 | 1.24 | 12.47 | 17.66 |
| | MCS0 | 5260 | 52 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.46** | 17.62 | -1.04 | 1.27 | 12.35 | 17.18 |
| | MCS0 | 5280 | 56 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.54** | 17.95 | -0.96 | 1.25 | 12.43 | 17.50 |
| | MCS0 | 5300 | 60 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.46** | 17.62 | -1.04 | 1.27 | 12.35 | 17.18 |
| | MCS0 | 5320 | 64 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 35 | **12.49** | 17.74 | -1.01 | 1.26 | 12.38 | 17.30 |
| | MCS0 | 5500 | 100 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.71** | 14.83 | -1.79 | 1.51 | 11.60 | 14.45 |
| | MCS0 | 5580 | 116 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **12.48** | 17.70 | -1.02 | 1.26 | 12.37 | 17.26 |
| | MCS0 | 5700 | 140 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **13.04** | 20.14 | -0.52 | 1.13 | 12.93 | 19.63 |
| | MCS0 | 5745 | 149 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **12.15** | 16.41 | -1.35 | 1.36 | 12.04 | 16.00 |
| | MCS0 | 5785 | 157 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **12.18** | 16.52 | -1.32 | 1.36 | 12.07 | 16.11 |
| | MCS0 | 5825 | 165 | 12 | 13.5 | 97.5 | 0.11 | 1.03 | 36 | **11.73** | 14.89 | -1.77 | 1.50 | 11.62 | 14.52 |
| 11n40 -SISO (HT40) | MCS0 | 5190 | 38 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 34 | **11.89** | 15.45 | -1.61 | 1.45 | 11.67 | 14.69 |
| | MCS0 | 5230 | 46 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 34 | **12.43** | 17.50 | -1.07 | 1.28 | 12.21 | 16.63 |
| | MCS0 | 5270 | 54 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 34 | **12.24** | 16.75 | -1.26 | 1.34 | 12.02 | 15.92 |
| | MCS0 | 5310 | 62 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 34 | **12.23** | 16.71 | -1.27 | 1.34 | 12.01 | 15.89 |
| | MCS0 | 5510 | 102 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 35 | **11.57** | 14.35 | -1.93 | 1.56 | 11.35 | 13.65 |
| | MCS0 | 5550 | 110 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 35 | **12.00** | 15.85 | -1.50 | 1.41 | 11.78 | 15.07 |
| | MCS0 | 5670 | 134 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 35 | **12.19** | 16.56 | -1.31 | 1.35 | 11.97 | 15.74 |
| | MCS0 | 5755 | 151 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 35 | **11.61** | 14.49 | -1.89 | 1.55 | 11.39 | 13.77 |
| | MCS0 | 5795 | 159 | 12 | 13.5 | 95.1 | 0.22 | 1.05 | 35 | **11.62** | 14.52 | -1.88 | 1.54 | 11.40 | 13.80 |
| 11ac40 -SISO (VHT40) | MCS0 | 5190 | 38 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 34 | **11.97** | 15.74 | -1.53 | 1.42 | 11.76 | 15.00 |
| | MCS0 | 5230 | 46 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 34 | **12.48** | 17.70 | -1.02 | 1.26 | 12.27 | 16.87 |
| | MCS0 | 5270 | 54 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 34 | **12.37** | 17.26 | -1.13 | 1.30 | 12.16 | 16.44 |
| | MCS0 | 5310 | 62 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 34 | **12.30** | 16.98 | -1.20 | 1.32 | 12.09 | 16.18 |
| | MCS0 | 5510 | 102 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 35 | **11.63** | 14.55 | -1.87 | 1.54 | 11.42 | 13.87 |
| | MCS0 | 5550 | 110 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 35 | **12.13** | 16.33 | -1.37 | 1.37 | 11.92 | 15.56 |
| | MCS0 | 5670 | 134 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 35 | **12.03** | 15.96 | -1.47 | 1.40 | 11.82 | 15.21 |
| | MCS0 | 5755 | 151 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 35 | **11.60** | 14.45 | -1.90 | 1.55 | 11.39 | 13.77 |
| | MCS0 | 5795 | 159 | 12 | 13.5 | 95.2 | 0.21 | 1.05 | 35 | **11.65** | 14.62 | -1.85 | 1.53 | 11.44 | 13.93 |
| 11ac80 -SISO (VHT80) | MCS0 | 5210 | 42 | 11 | 12.5 | 90.4 | 0.44 | 1.11 | 35 | **12.08** | 16.14 | -0.42 | 1.10 | 11.64 | 14.59 |
| | MCS0 | 5290 | 58 | 10 | 11.5 | 90.4 | 0.44 | 1.11 | 30 | **10.30** | 10.72 | -1.20 | 1.32 | 9.86 | 9.68 |
| | MCS0 | 5530 | 106 | 12 | 13.5 | 90.4 | 0.44 | 1.11 | 37 | **12.15** | 16.41 | -1.35 | 1.36 | 11.71 | 14.83 |
| | MCS0 | 5775 | 155 | 12 | 13.5 | 90.4 | 0.44 | 1.11 | 37 | **12.18** | 16.52 | -1.32 | 1.36 | 11.74 | 14.93 |

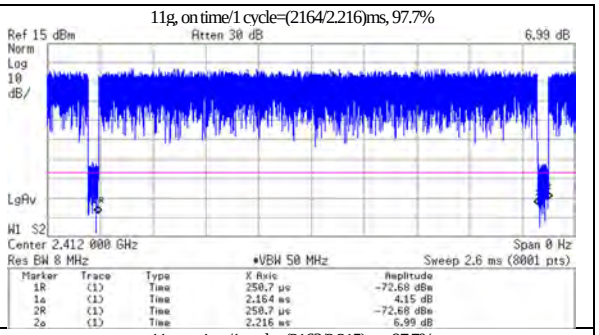
*. The SAR test powers by setting power were not more than 2dB lower than maximum tune-up power (KDB 447498 D04 (v01) requirement).

*. CH: Channel; Max: Maximum.
*. Calculating formula: Burst average power (dBm) = (P/M Reading, dBm)+(Cable loss, dB)+(Attenuator, dB)+(duty factor, dB)
Time average power (dBm) = (P/M Reading, dBm)+(Cable loss, dB)+(Attenuator, dB)
Duty cycle: (duty cycle, %) = (Tx on time, ms) / (1 cycle time, ms) × 100, where Duty factor (dBm) = 10 × log (100/(duty cycle, %))
Duty cycle scaled factor: Duty cycle correction factor for obtained SAR value, Duty scaled factor [-] = 100(%) / (duty cycle, %)
Δ from max. (Deviation form maximum power, dB) = (Burst power measured (average, dBm)) - (Max.tune-up limit power (average, dBm))
Power scaled factor [-] = 1 / (10 ^ ("Δ from max., dB" / 10))
*. Date measured: April 1 (23 deg.C./ 43 %RH) and April 7 (24 deg.C./ 62 %RH), 2022 / Measured by: H. Naka/ Place: Preparation room of No. 7 shield room.
*. Uncertainty of antenna port conducted test (Average power); 1.3 dB / Uncertainty of Duty cycle and time measurement: 0.27 %
*. Chart of the worst duty cycle for each operation mode in right and in follows.

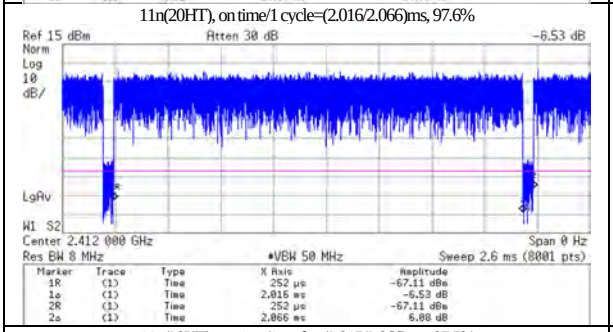
11b, on time/1 cycle=(13/13.05)ms, 99.6%



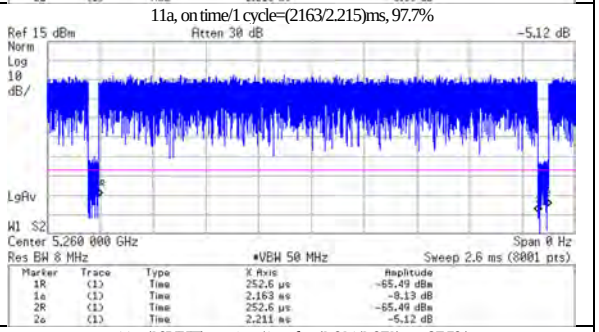

11g, on time/1 cycle=(2164/2.216)ms, 97.7%



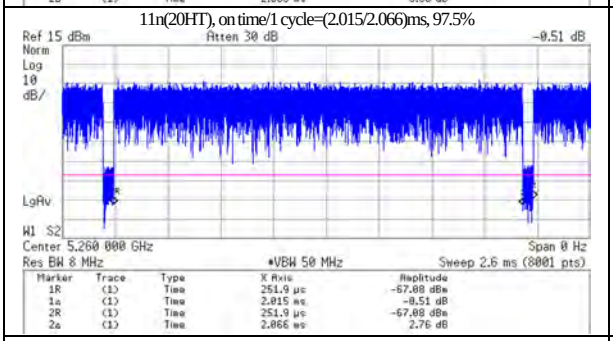

11n(20HT), on time/1 cycle=(2.016/2.066)ms, 97.6%



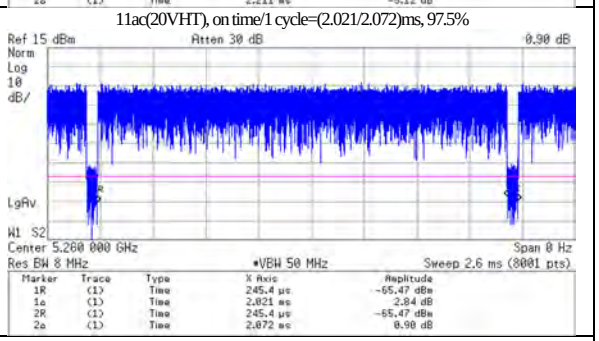

11a, on time/1 cycle=(2163/2.215)ms, 97.7%



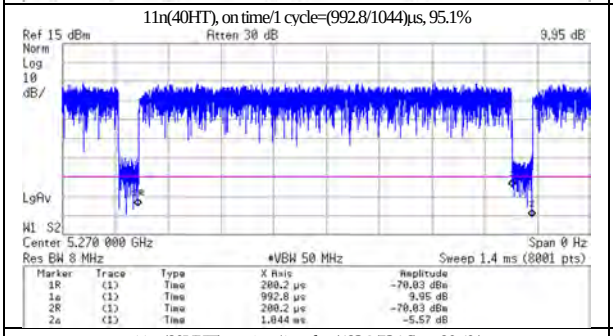

11n(20HT), on time/1 cycle=(2.015/2.066)ms, 97.5%



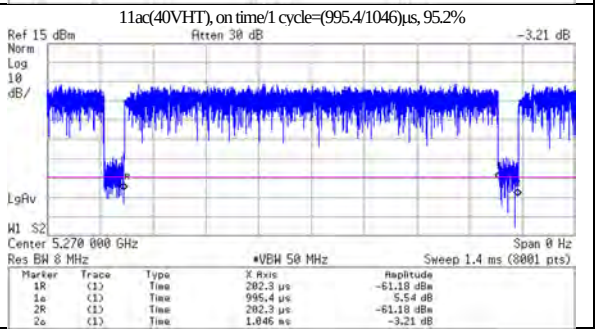

11ac(20VHT), on time/1 cycle=(2.021/2.072)ms, 97.5%



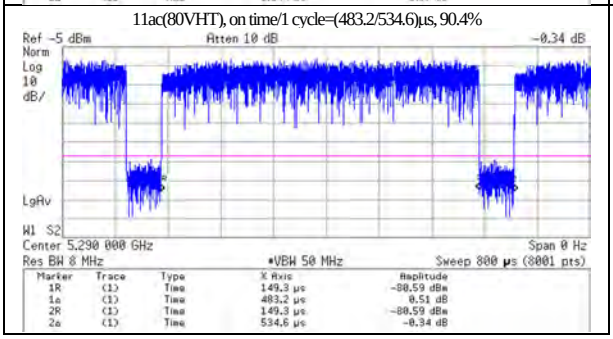

11n(40HT), on time/1 cycle=(992.8/1044)µs, 95.1%




11ac(40VHT), on time/1 cycle=(995.4/1046)µs, 95.2%




11ac(80VHT), on time/1 cycle=(483.2/534.6)µs, 90.4%



# SECTION 6: SAR Measurement results

## 6.1 Tissue simulating liquid measurement

### 6.1.1 Target of tissue simulating liquid

Nominal dielectric values of the tissue simulating liquids in the phantom are listed in the following table. (Appendix A, KDB 865664 v01r04)

| Target Frequency | Head | | Body | |
|---|---|---|---|---|
| (MHz) | $\varepsilon_r$ | σ(S/m) | $\varepsilon_r$ | σ(S/m) |
| 1800~2000 | 40.0 | 1.40 | 53.3 | 1.52 |
| 2450 | 39.2 | 1.80 | 52.7 | 1.95 |

| Target Frequency | Head | | Body | |
|---|---|---|---|---|
| (MHz) | $\varepsilon_r$ | σ(S/m) | $\varepsilon_r$ | σ(S/m) |
| 3000 | 38.5 | 2.40 | 52.0 | 2.73 |
| 5800 | 35.3 | 5.27 | 48.2 | 6.00 |

### 6.1.2 Liquid measurement (Liquid verification)

| Frequency [MHz] | Liquid type | Liquid parameters (*a) | | | | | | | | | | | | | ΔSAR Coefficients(*b) | | | Date measured |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Liquid Temp. [deg.C.] | Liquid depth of phantom [mm] | Permittivity (εr) [-] | | | | | | Conductivity [S/m] | | | | | ΔSAR | | Correction required? (*c) | |
| | | | | Target value | Measured | | | | Δend, >48hrs [%] (*1) | Target value | Measured | | | | Δend, >48hrs [%] (*1) | (1g) [%] | (10g) [%] | | |
| | | | | | Value | Δεr [%] | Interpolated | Limit [%] | | | Value | Δσ [%] | Interpolated | Limit [%] | | | | | |
| 2412 | Head | 22.5 | 150 | ***39.27*** | 39.74 | 1.2 | ☑ | 10 | begin | ***1.766*** | 1.824 | 3.3 | ☑ | 10 | begin | 1.3 | 0.7 | not required. | |
| 2437 | | | | ***39.22*** | 39.71 | 1.2 | ☑ | 10 | begin | ***1.788*** | 1.846 | 3.2 | ☑ | 10 | begin | 1.3 | 0.6 | not required. | |
| 2462 | | | | ***39.18*** | 39.65 | 1.2 | ☑ | 10 | begin | ***1.813*** | 1.864 | 2.8 | ☑ | 10 | begin | 1.1 | 0.5 | not required. | |
| 5180 | | | | ***36.01*** | 35.22 | -2.2 | ☐ | 10 | begin | ***4.635*** | 4.459 | -3.8 | ☐ | 10 | begin | 0.5 | 0.8 | not required. | |
| 5220 | | | | ***35.96*** | 35.15 | -2.3 | ☐ | 10 | begin | ***4.676*** | 4.507 | -3.6 | ☐ | 10 | begin | 0.6 | 0.8 | not required. | |
| 5240 | | | | ***35.94*** | 35.11 | -2.3 | ☐ | 10 | begin | ***4.696*** | 4.527 | -3.6 | ☐ | 10 | begin | 0.6 | 0.8 | not required. | |
| 5260 | | | | ***35.92*** | 35.07 | -2.4 | ☐ | 10 | begin | ***4.717*** | 4.549 | -3.6 | ☐ | 10 | begin | 0.6 | 0.8 | not required. | May 10, 2022 |
| 5300 | | | | ***35.87*** | 35.01 | -2.4 | ☐ | 10 | begin | ***4.758*** | 4.588 | -3.6 | ☐ | 10 | begin | 0.6 | 0.8 | not required. | (It was used until May 12, |
| 5320 | | | | ***35.85*** | 35.01 | -2.3 | ☐ | 10 | begin | ***4.778*** | 4.614 | -3.4 | ☐ | 10 | begin | 0.6 | 0.8 | not required. | 2022) |
| 5500 | | | | ***35.64*** | 34.69 | -2.7 | ☐ | 10 | begin | ***4.963*** | 4.804 | -3.2 | ☐ | 10 | begin | 0.7 | 0.8 | not required. | |
| 5580 | | | | ***35.55*** | 34.54 | -2.8 | ☐ | 10 | begin | ***5.045*** | 4.895 | -3.0 | ☐ | 10 | begin | 0.7 | 0.9 | not required. | |
| 5700 | | | | ***35.41*** | 34.32 | -3.1 | ☐ | 10 | begin | ***5.168*** | 5.035 | -2.6 | ☐ | 10 | begin | 0.7 | 0.9 | not required. | |
| 5745 | | | | ***35.36*** | 34.28 | -3.1 | ☑ | 10 | begin | ***5.214*** | 5.093 | -2.3 | ☑ | 10 | begin | 0.7 | 0.9 | not required. | |
| 5785 | | | | ***35.32*** | 34.21 | -3.1 | ☑ | 10 | begin | ***5.255*** | 5.129 | -2.4 | ☑ | 10 | begin | 0.7 | 0.9 | not required. | |
| 5825 | | | | ***35.27*** | 34.12 | -3.3 | ☑ | 10 | begin | ***5.296*** | 5.172 | -2.3 | ☑ | 10 | begin | 0.8 | 0.9 | not required. | |
| 2412 | Head | 22.5 | 150 | ***39.27*** | 39.60 | 0.8 | ☑ | 10 | -0.4 | ***1.766*** | 1.815 | 2.8 | ☑ | 10 | -0.5 | 1.2 | 0.6 | not required. | |
| 5240 | | | | ***35.94*** | 35.07 | -2.4 | ☐ | 10 | -0.1 | ***4.696*** | 4.493 | -4.3 | ☐ | 10 | -0.8 | 0.6 | 0.8 | not required. | May 12, 2022 |
| 5320 | | | | ***35.85*** | 34.93 | -2.6 | ☐ | 10 | -0.2 | ***4.778*** | 4.578 | -4.2 | ☐ | 10 | -0.8 | 0.7 | 0.9 | not required. | (at 48 hrs.) |
| 5700 | | | | ***35.41*** | 34.30 | -3.2 | ☐ | 10 | -0.1 | ***5.168*** | 5.002 | -3.2 | ☐ | 10 | -0.7 | 0.8 | 0.9 | not required. | Reference purpose only. |
| 5825 | | | | ***35.27*** | 34.09 | -3.3 | ☑ | 10 | -0.1 | ***5.296*** | 5.139 | -3.0 | ☑ | 10 | -0.6 | 0.8 | 0.9 | not required. | |

*1. "begin": SAR test has ended within 24 hours from the liquid parameter measurement, "< 48 hrs.": Since SAR test has ended within 48 hours (2 days) from the liquid parameter measurement and a change in the liquid temperature was within 1 degree, liquid parameters measured on first day were used on next day continuously, "value (%)": Since the SAR test series took longer than 48 hours, the liquid parameters were measured on every 48 hours period and on the date which was end of test series. Since the difference of liquid parameters between the beginning and next measurement was smaller than 5%, the liquid parameters measured in beginning were used until end of each test series.
Calculating formula: "Δend(>48 hrs.) (%)"" = {(dielectric properties, end of test series) / (dielectric properties, beginning of test series) -1} × 100

*a. The target values of (2000, 2450, 3000, 5800) MHz are parameters defined in Appendix A of KDB 865664 D01. For other frequencies, the target nominal dielectric values shall be obtained by linear interpolation between the higher and lower tabulated figures. Above 5800MHz were obtained using linear extrapolation.

*b. The coefficients in below are parameters defined in IEEE Std.1528-2013.
Calculating formula: $\Delta SAR(1g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = -7.854E\text{-}4 \times f^3 + 9.402E\text{-}3 \times f^2 - 2.742E\text{-}2 \times f - 0.2026$ / $C\sigma = 9.804E\text{-}3 \times f^3 - 8.661E\text{-}2 \times f^2 + 2.981E\text{-}2 \times f + 0.7829$
Calculating formula: $\Delta SAR(10g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = 3.456 \times 10^{-3} \times f^3 - 3.531 \times 10^{-2} \times f^2 + 7.675 \times 10^{-2} \times f - 0.1860$ / $C\sigma = 4.479 \times 10^{-3} \times f^3 - 1.586 \times 10^{-2} \times f^2 - 0.1972 \times f + 0.7717$
Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction.
Calculating formula: ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100

*. Calibration frequency of the SAR measurement probe (and used conversion factors for each frequency.)
The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

| Liquid | SAR test frequency | Probe calibration frequency | Validity | Conversion factor | Uncertainty |
|---|---|---|---|---|---|
| Head | (2412, 2437, 2462) MHz | 2450 MHz | within ± 5 0MHz of calibration frequency | 7.49 | ± 12.0 % |
| Head | (5180, 5220, 5240, 5260, 5300, 5320) MHz | 5250 MHz | within ± 110 MHz of calibration frequency | 5.20 | ± 13.1 % |
| Head | (5500, 5580, 5700) MHz | 5600 MHz | within ± 110 MHz of calibration frequency | 4.57 | ± 13.1 % |
| Head | (5745, 5785, 5825) MHz | 5800 MHz | within ± 110 MHz of calibration frequency | 4.65 | ± 13.1 % |

## 6.2 SAR results

| Test setup | | | | Mode and Frequency (*2) | | | Duty cycle | | Power correction | | | SAR results [W/kg] (Max.value of multi-peak) | | | | SAR type | SAR Limit [W/kg] | SAR plot # in Appx. 2 | Setup photo# in Appx. 1-3 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ANT # | Test position | Gap [mm] | Source power: Battery ID | Mode (D/R) | [MHz] | CH | Duty [%] | Duty scaled factor | Max. tune-up limit [dBm] | Measured conducted [dBm] | Power scaled factor | Measured | ΔSAR [%] | ΔSAR corrected | Scaled (*b) | | | | | |
| | | | | Mark with "*" is the initial mode & frequency. | | | | | | | | | | | | | | | | |
| **1) 2.4 GHz Band** (*1) | | | | | | | | | | | | | | | | | | | | |
| 1 | Front | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.070 | +sign | n/a (*a) | **0.078** | 1g | 1.6 | 1b-2 | P1 | Wide area scan |
| 1 | Front | 0 | USB | 11b (1 Mbps)* | 2437 | 6 | 99.6 | 1.00 | 14.5 | 13.77 | 1.18 | 0.070 | +sign | n/a (*a) | **0.083** | 1g | 1.6 | 1b-3 | P1 | - |
| 1 | Front | 0 | USB | 11b (1 Mbps)* | 2462 | 11 | 99.6 | 1.00 | 14.5 | 13.17 | 1.36 | 0.068 | +sign | n/a (*a) | **0.092** | 1g | 1.6 | 1b-1 | P1 | - |
| 1 | Left | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.00301 | +sign | n/a (*a) | **0.003** | 1g | 1.6 | 1b-4 | P2 | - |
| 1 | Bottom | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.019 | +sign | n/a (*a) | **0.021** | 1g | 1.6 | 1b-5 | P3 | - |
| 1 | Right | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 1b-6 | P4 | - |
| 1 | Rear | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | | | | | | 1b-7 | P5 | - |
| 1 | Top | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | | | | | | 1b-8 | P6 | - |
| 2 | Front | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.140 | +sign | n/a (*a) | **0.155** | 1g | 1.6 | 1a-2 | P1 | Wide area scan |
| 2 | Front | 0 | USB | 11b (1 Mbps)* | 2437 | 6 | 99.6 | 1.00 | 14.5 | 13.77 | 1.18 | 0.179 | +sign | n/a (*a) | **0.211** | 1g | 1.6 | 1a-3 | P1 | - |
| 2 | Front | 0 | USB | 11b (1 Mbps)* | 2462 | 11 | 99.6 | 1.00 | 14.5 | 13.17 | 1.36 | 0.219 | +sign | n/a (*a) | **0.298** | 1g | 1.6 | 1a-1 | P1 | - |
| 2 | Left | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.011 | +sign | n/a (*a) | **0.012** | 1g | 1.6 | 1a-4 | P3 | - |
| 2 | Bottom | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | 0.011 | +sign | n/a (*a) | **0.012** | 1g | 1.6 | 1a-5 | P2 | - |
| 2 | Right | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 1a-6 | P4 | - |
| 2 | Rear | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | | | | | | 1a-7 | P5 | - |
| 2 | Top | 0 | USB | 11b (1 Mbps)* | 2412* | 1 | 99.6 | 1.00 | 14.5 | 14.06 | 1.11 | n/a | | | | | | 1a-8 | P6 | - |
| **2) U-NII-2A (5.3 GHz) (and U-NII-1 (5.2 GHz)) Band** (*2) | | | | | | | | | | | | | | | | | | | | |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5260 | 52 | 97.7 | 1.02 | 14.5 | 13.43 | 1.28 | 0.339 | +sign | n/a (*a) | **0.443** | 1g | 1.6 | 2b-2 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5300 | 60 | 97.7 | 1.02 | 14.5 | 13.60 | 1.23 | 0.418 | +sign | n/a (*a) | **0.524** | 1g | 1.6 | 2b-3 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.435 | +sign | n/a (*a) | **0.537** | 1g | 1.6 | 2b-1 | P1 | Wide area scan |
| 1 | Left | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.164 | +sign | n/a (*a) | **0.202** | 1g | 1.6 | 2b-4 | P2 | - |
| 1 | Bottom | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.042 | +sign | n/a (*a) | **0.052** | 1g | 1.6 | 2b-5 | P3 | - |
| 1 | Right | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 2b-6 | P4 | - |
| 1 | Rear | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | | | | | | 2b-7 | P5 | - |
| 1 | Top | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | | | | | | 2b-8 | P6 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5260 | 52 | 97.7 | 1.02 | 14.5 | 13.43 | 1.28 | 0.781 | +sign | n/a (*a) | **1.020** | 1g | 1.6 | 2a-2 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5300 | 60 | 97.7 | 1.02 | 14.5 | 13.60 | 1.23 | 0.859 | +sign | n/a (*a) | **1.078** | 1g | 1.6 | 2a-1 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.855 | +sign | n/a (*a) | **1.055** | 1g | 1.6 | 2a-3 | P1 | Wide area scan |
| 2 | Left | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.128 | +sign | n/a (*a) | **0.158** | 1g | 1.6 | 2a-4 | P2 | - |
| 2 | Bottom | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | 0.061 | +sign | n/a (*a) | **0.075** | 1g | 1.6 | 2a-5 | P3 | - |
| 2 | Right | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 2a-6 | P4 | - |
| 2 | Rear | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | | | | | | 2a-7 | P5 | - |
| 2 | Top | 0 | USB | 11a (6 Mbps)* | 5320* | 64 | 97.7 | 1.02 | 14.5 | 13.67 | 1.21 | n/a | | | | | | 2a-8 | P6 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5180 | 36 | 97.7 | 1.02 | 14.5 | 12.79 | 1.48 | 0.208 | +sign | n/a (*a) | **0.314** | 1g | 1.6 | 2d-2 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5220 | 44 | 97.7 | 1.02 | 14.5 | 13.39 | 1.29 | 0.289 | +sign | n/a (*a) | **0.380** | 1g | 1.6 | 2d-3 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5240* | 48 | 97.7 | 1.02 | 14.5 | 13.58 | 1.24 | 0.343 | +sign | n/a (*a) | **0.434** | 1g | 1.6 | 2d-1 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5180 | 36 | 97.7 | 1.02 | 14.5 | 12.79 | 1.48 | 0.576 | +sign | n/a (*a) | **0.870** | 1g | 1.6 | 2c-2 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5220 | 44 | 97.7 | 1.02 | 14.5 | 13.39 | 1.29 | 0.762 | +sign | n/a (*a) | **1.003** | 1g | 1.6 | 2c-3 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5240* | 48 | 97.7 | 1.02 | 14.5 | 13.58 | 1.24 | 0.851 | +sign | n/a (*a) | **1.076** | 1g | 1.6 | 2c-1 | P1 | - |
| **3) U-NII-2C (5.6 GHz) Band** (*2) | | | | | | | | | | | | | | | | | | | | |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5500 | 100 | 97.7 | 1.02 | 14.5 | 12.80 | 1.48 | 0.556 | +sign | n/a (*a) | **0.839** | 1g | 1.6 | 3b-1 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5580 | 116 | 97.7 | 1.02 | 14.5 | 13.32 | 1.31 | 0.607 | +sign | n/a (*a) | **0.811** | 1g | 1.6 | 3b-2 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | 0.691 | +sign | n/a (*a) | **0.796** | 1g | 1.6 | 3b-3 | P1 | - |
| 1 | Left | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | 0.186 | +sign | n/a (*a) | **0.214** | 1g | 1.6 | 3b-4 | P2 | - |
| 1 | Bottom | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 3b-5 | P3 | - |
| 1 | Right | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | | | | | | 3b-6 | P4 | - |
| 1 | Rear | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | | | | | | 3b-7 | P5 | - |
| 1 | Top | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | | | | | | 3b-8 | P6 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5500 | 100 | 97.7 | 1.02 | 14.5 | 12.80 | 1.48 | 0.753 | +sign | n/a (*a) | **1.137** | 1g | 1.6 | 3a-1 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5580 | 116 | 97.7 | 1.02 | 14.5 | 13.32 | 1.31 | 0.779 | +sign | n/a (*a) | **1.041** | 1g | 1.6 | 3a-2 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | 0.860 | +sign | n/a (*a) | **0.991** | 1g | 1.6 | 3a-3 | P1 | - |
| 2 | Left | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | 0.201 | +sign | n/a (*a) | **0.232** | 1g | 1.6 | 3a-4 | P2 | - |
| 2 | Bottom | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | 0.080 | +sign | n/a (*a) | **0.092** | 1g | 1.6 | 3a-5 | P3 | - |
| 2 | Right | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 3a-6 | P4 | - |
| 2 | Rear | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | | | | | | 3a-7 | P5 | - |
| 2 | Top | 0 | USB | 11a (6 Mbps)* | 5700* | 140 | 97.7 | 1.02 | 14.5 | 13.96 | 1.13 | n/a | | | | | | 3a-8 | P6 | - |
| **4) U-NII-3 (5.8 GHz) Band** (*2) | | | | | | | | | | | | | | | | | | | | |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5745 | 149 | 97.7 | 1.02 | 14.5 | 12.90 | 1.45 | 0.485 | +sign | n/a (*a) | **0.717** | 1g | 1.6 | 4b-2 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5785 | 157 | 97.7 | 1.02 | 14.5 | 12.96 | 1.43 | 0.538 | +sign | n/a (*a) | **0.785** | 1g | 1.6 | 4b-3 | P1 | - |
| 1 | Front | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | 0.629 | +sign | n/a (*a) | **0.892** | 1g | 1.6 | 4b-1 | P1 | - |
| 1 | Left | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | 0.178 | +sign | n/a (*a) | **0.252** | 1g | 1.6 | 4b-4 | P2 | - |
| 1 | Bottom | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 4b-5 | P3 | - |
| 1 | Right | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | | | | | | 4b-6 | P4 | - |
| 1 | Rear | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | | | | | | 4b-7 | P5 | - |
| 1 | Top | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | | | | | | 4b-8 | P6 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5745 | 149 | 97.7 | 1.02 | 14.5 | 12.90 | 1.45 | 0.685 | +sign | n/a (*a) | **1.013** | 1g | 1.6 | 4a-2 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5785 | 157 | 97.7 | 1.02 | 14.5 | 12.96 | 1.43 | 0.718 | +sign | n/a (*a) | **1.047** | 1g | 1.6 | 4a-3 | P1 | - |
| 2 | Front | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | 0.772 | +sign | n/a (*a) | **1.095** | 1g | 1.6 | 4a-1 | P1 | - |
| 2 | Left | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | 0.175 | +sign | n/a (*a) | **0.248** | 1g | 1.6 | 4a-4 | P2 | - |
| 2 | Bottom | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | 0.070 | +sign | n/a (*a) | **0.099** | 1g | 1.6 | 4a-5 | P3 | - |
| 2 | Right | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | *. Since measured interpolated max. SAR value of area scan was very small, zoom scan was not performed. | | | | | 4a-6 | P4 | - |
| 2 | Rear | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | | | | | | 4a-7 | P5 | - |
| 2 | Top | 0 | USB | 11a (6 Mbps)* | 5825* | 165 | 97.7 | 1.02 | 14.5 | 13.07 | 1.39 | n/a | | | | | | 4a-8 | P6 | - |

**Notes:** *. The higher scaled (reported) SAR on each antenna and in each operation band is marked (shaded yellow marker)

**Notes:** *****. Appx. Appendix, ant: antenna; Max.: maximum.; n/a: not applied. Gap: It is the separation distance between the product surface and the bottom outer surface of EUT. During test, the EUT was operated by USB bus power via IF cable.
*. During SAR test, the radiated power is always monitored by Spectrum Analyzer.

*a. Since the calculated ΔSAR values of the tested liquid had shown positive correction, the measured SAR was not converted by ΔSAR correction.
Calculating formula: ΔSAR corrected SAR (W/kg) = (Measured SAR (W/kg)) × (100 - (ΔSAR(%)) / 100
*b. Calculating formula: Scaled SAR (W/kg) = (Measured SAR (W/kg)) × (Duty scaled factor) × (Power scaled factor)
where, Duty scaled factor [-] = 100(%) / (duty cycle, %), Power scaled factor [-] = 10 ^ (((Max.tune-up limit, dBm) - (Measured conducted, dBm)) / 10)

*1. (KDB 248227 D01) 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 ≤ 1.2 W/kg, SAR test of OFDM mode was reduced.

| OFDM mode | Maximum tune-up tolerance limit | | | | OFDM scaled factor [-] | DSSS worst reported SAR(1g) value | | | **Estimated SAR value: OFDM [W/kg]** | Exclusion limit [W/kg] | Standalone SAR test of OFDM mode require? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | DSSS | | OFDM | | | | | | | | |
| | [dBm] | [mW] (a) | [dBm] | [mW] (b) | (b)/(a)×100 | Setup | Antenna | [W/kg] | | | |
| 11g | 14.5 | 28 | 14.5 | 28 | 1.000 | Front | Antenna 2 | 0.298 | **0.30** | **≤ 1.2** | **No** |
| 11n20-SISO | 14.5 | 28 | 14.5 | 28 | 1.000 | Front | Antenna 2 | 0.298 | **0.30** | **≤ 1.2** | **No** |

*2. (KDB 248227 D01) For 5GHz band, for other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

| Band | Mode | Maximum tune-up tolerance limit | | | | Power scaled factor [-] | Initial mode's worst reported SAR(1g) value | | | **Estimated SAR value: other mode [W/kg]** | Exclusion limit [W/kg] | Standalone SAR test of other mode require? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Initial mode | | other mode | | | | | | | | |
| | | [dBm] | [mW] (a) | [dBm] | [mW] (b) | (b)/(a)×100 | Setup | Antenna | [W/kg] | | | |
| 5.2 GHz WLAN | 11n20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.076** | **0.85** | **≤ 1.2** | **No** |
| 5.2 GHz WLAN | 11ac20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.076** | **0.85** | **≤ 1.2** | **No** |
| 5.2 GHz WLAN | 11n40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.076** | **0.85** | **≤ 1.2** | **No** |
| 5.2 GHz WLAN | 11ac40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.076** | **0.85** | **≤ 1.2** | **No** |
| 5.2 GHz WLAN | 11ac80-SISO | 14.5 | 28 | 12.5 | 18 | 0.643 | Front | Antenna 2 | **1.076** | **0.69** | **≤ 1.2** | **No** |
| 5.3 GHz WLAN | 11n20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.078** | **0.85** | **≤ 1.2** | **No** |
| 5.3 GHz WLAN | 11ac20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.078** | **0.85** | **≤ 1.2** | **No** |
| 5.3 GHz WLAN | 11n40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.078** | **0.85** | **≤ 1.2** | **No** |
| 5.3 GHz WLAN | 11ac40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.078** | **0.85** | **≤ 1.2** | **No** |
| 5.3 GHz WLAN | 11ac80-SISO | 14.5 | 28 | 11.5 | 14 | 0.5 | Front | Antenna 2 | **1.078** | **0.54** | **≤ 1.2** | **No** |
| 5.6 GHz WLAN | 11n20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.137** | **0.89** | **≤ 1.2** | **No** |
| 5.6 GHz WLAN | 11ac20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.137** | **0.89** | **≤ 1.2** | **No** |
| 5.6 GHz WLAN | 11n40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.137** | **0.89** | **≤ 1.2** | **No** |
| 5.6 GHz WLAN | 11ac40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.137** | **0.89** | **≤ 1.2** | **No** |
| 5.6 GHz WLAN | 11ac80-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.137** | **0.89** | **≤ 1.2** | **No** |
| 5.8 GHz WLAN | 11n20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.095** | **0.86** | **≤ 1.2** | **No** |
| 5.8 GHz WLAN | 11ac20-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.095** | **0.86** | **≤ 1.2** | **No** |
| 5.8 GHz WLAN | 11n40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.095** | **0.86** | **≤ 1.2** | **No** |
| 5.8 GHz WLAN | 11ac40-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.095** | **0.86** | **≤ 1.2** | **No** |
| 5.8 GHz WLAN | 11ac80-SISO | 14.5 | 28 | 13.5 | 22 | 0.786 | Front | Antenna 2 | **1.095** | **0.86** | **≤ 1.2** | **No** |

## 6.3 Simultaneous transmission evaluation

**Since the EUT has single transmission mode operation (diversity), simultaneous transmission evaluation is not required.**

<SAR Summation Analysis>
Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR of all simultaneous transmitting antennas in an operating mode and exposure condition is within the SAR limit (SAR(1g): 1.6 W/kg, SAR(10g): 4 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR is greater than the SAR limit (SAR(1g): 1.6 W/kg, SAR(10g): 4 W/kg), SAR test exclusion is determined by the SPLSR.
(Calculating formula) Per KDB447498 D01(v07), SPLSR = (SAR1 + SAR2)^1.5 / (minimum antenna separation distance, mm)
where; the minimum antenna separation distance is determined by the closest physical separation of the antennas, according to geometric center of the antennas.

## 6.4 SAR Measurement Variability (Repeated measurement requirement)

**Result: Pass** ( "Largest to Smallest SAR Ratio" is smaller than KDB 865664 D01 requirement.)

*. In accordance with published RF Exposure KDB procedure 865664 D01 (v01r04) SAR measurement 100 MHz to 6 GHz. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.
SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements.

1) Repeated measurement is not required when the original highest measured SAR(1g) is < 0.80 W/kg; steps 2) through 4) do not apply.
2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

| EUT setup | | Band [GHz] | Mode | Frequency [MHz] | Measured SAR(1g) [W/kg] | | | | | | | | | | SAR plot # in Appendix 2-2 / Setup photo# in Appendix 1-3 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Antenna | Position | | | | Original | | 1st Repeated | | | | 2nd Repeated | | | | Original | 1st Repeated | 2nd Repeated |
| | | | | | Highest | Judge | Measured | Judge | Ratio | Judge | Measured | Judge | Ratio | Judge | | | |
| Antenna 1 | **Front** | 2.4 | 11b (1Mbps) | 2412 | **0.070** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 1 | **Front** | 5.2 | 11a (6Mbps) | 5240 | **0.343** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 1 | **Front** | 5.3 | 11a (6Mbps) | 5320 | **0.435** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 1 | **Front** | 5.6 | 11a (6Mbps) | 5700 | **0.691** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 1 | **Front** | 5.8 | 11a (6Mbps) | 5825 | **0.629** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 2 | **Front** | 2.4 | 11b (1Mbps) | 2462 | **0.219** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |
| Antenna 2 | **Front** | 5.2 | 11a (6Mbps) | 5240 | **0.851** | ≥ 0.8 | **n/a** (*1) | - | - | - | - | - | - | - | - | - | - |
| Antenna 2 | **Front** | 5.3 | 11a (6Mbps) | 5300 | **0.859** | ≥ 0.8 | **0.880** | < 1.45 | **1.02** | < 1.20 | **n/a** | - | - | - | Plot 2a-1 /Photo. P1 | Plot 5-2 /Photo. P7 | - |
| Antenna 2 | **Front** | 5.6 | 11a (6Mbps) | 5700 | **0.860** | ≥ 0.8 | **0.873** | < 1.45 | **1.02** | < 1.20 | **n/a** | - | - | - | Plot 3b-3 /Photo. P1 | Plot 5-1 /Photo. P7 | - |
| Antenna 2 | **Front** | 5.8 | 11a (6Mbps) | 5785 | **0.772** | < 0.8 | **n/a** | - | - | - | - | - | - | - | - | - | - |

*. Calculating formula: "Ratio": Largest to Smallest SAR Ratio (%) = (Largest SAR (W/kg)) / Smallest SAR (W/kg)
*1. Repeated test was only applied to the highest measured SAR (1g) condition representatively on 5.2 GHz and 5.3 GHz band.

## 6.5 Device holder perturbation verification

**Result: Not required** (*. Since all the reported (scaled) SAR are less than 1.2 W/kg (SAR(1g)), the "device holder perturbation verification" measurement is not performed.

When the highest reported SAR of an antenna is > 1.2 W/kg, holder perturbation verification (by Urethane form alone) is required by using the highest SAR configuration among all applicable frequency bands.

# APPENDIX 2: SAR Measurement data

## Appendix 2-1: Worst Scaled (Reported) SAR Plot on each antenna and in each operation band

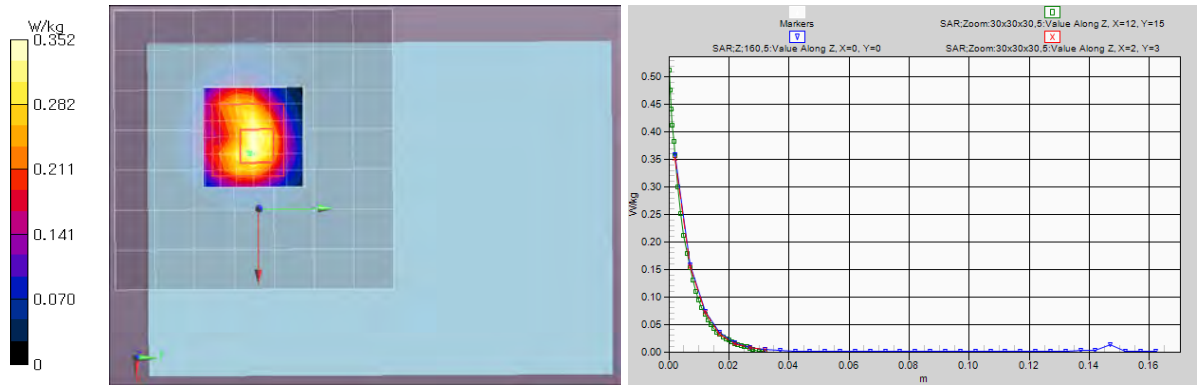
### Plot 1a-1: 2.4GHz band, Antenna 2; Front & touch / 11b (1Mbps) / 2462 MHz
### EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2462 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2462 MHz; σ = 1.864 S/m; $\varepsilon_r$ = 39.65; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2462 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

**touch,frt,24/24h3,ant2,2462,frt&d0,b(1m)/**
**Area:84x84,12 (8x8x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.257 W/kg
**Area:84x84,12 (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.378 W/kg
**Z;160,5 (1x1x33):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 0.359 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 13.97 V/m; Power Drift = 0.04 dB; Maximum value of SAR (measured) = 0.352 W/kg; Peak SAR (extrapolated) = 0.512 W/kg
**SAR(1 g) = 0.219 W/kg; SAR(10 g) = 0.100 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.5 mm; Ratio of SAR at M2 to SAR at M1 = 44.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

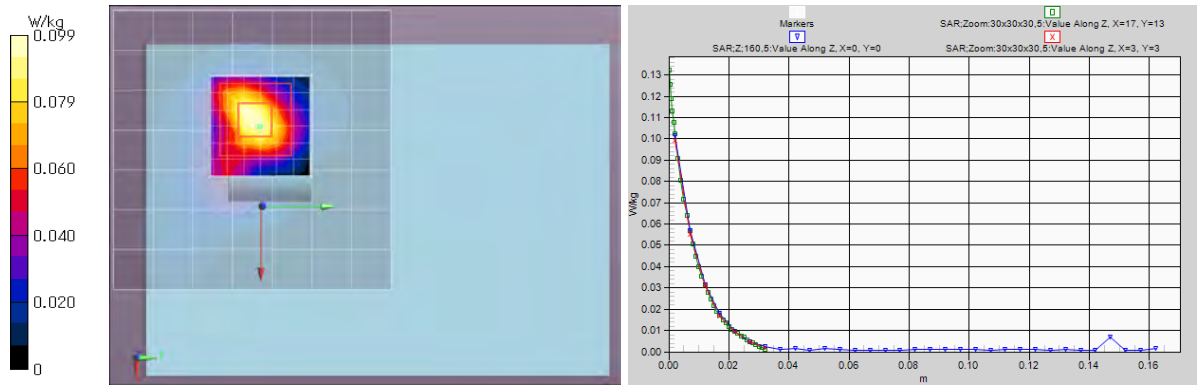
### Plot 1b-1: 2.4GHz band, Antenna 1; Front & touch / 11b (1Mbps) / 2462 MHz
### EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2462 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2462 MHz; σ = 1.864 S/m; $\varepsilon_r$ = 39.65; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2462 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

**touch,frt,24/24h4,ant1,2462,frt&d0,b(1m)/**
**Area:84x84,12 (8x8x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.0977 W/kg
**Area:84x84,12 (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.109 W/kg
**Z;160,5 (1x1x33):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 0.102 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 7.497 V/m; Power Drift = 0.12 dB; Maximum value of SAR (measured) = 0.0993 W/kg; Peak SAR (extrapolated) = 0.132 W/kg
**SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.030 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.2 mm; Ratio of SAR at M2 to SAR at M1 = 55.4%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

APPENDIX 2: SAR Measurement data / Appendix 2-1: Worst Scaled (Reported) SAR Plot (cont'd)

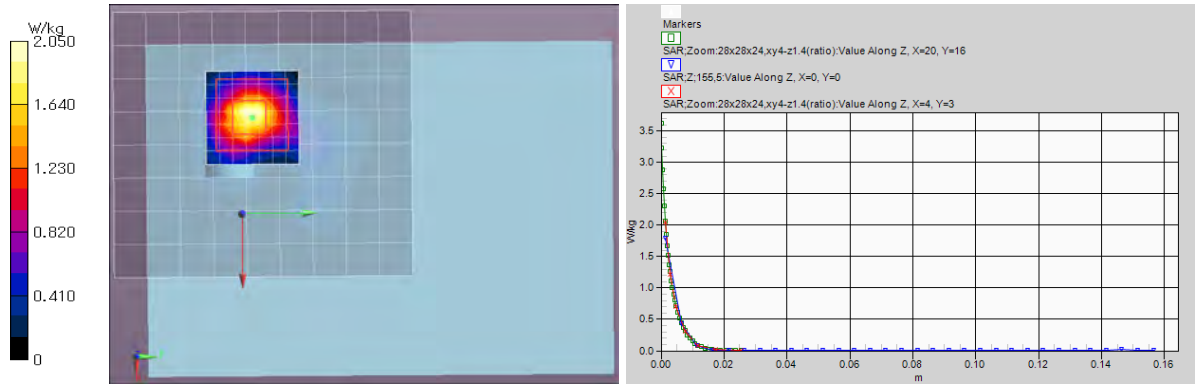
## Plot 2a-1: 5.3GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5300 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5300 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5300 MHz; σ = 4.588 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5300 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gb/5h6,53.4.ant2,5300,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.75 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.87 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.80 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 23.91 V/m; Power Drift = -0.05 dB; Maximum value of SAR (measured) = 2.05 W/kg; Peak SAR (extrapolated) = 3.62 W/kg
**SAR(1 g) = 0.859 W/kg; SAR(10 g) = 0.266 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.2 mm; Ratio of SAR at M2 to SAR at M1 = 59.3%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

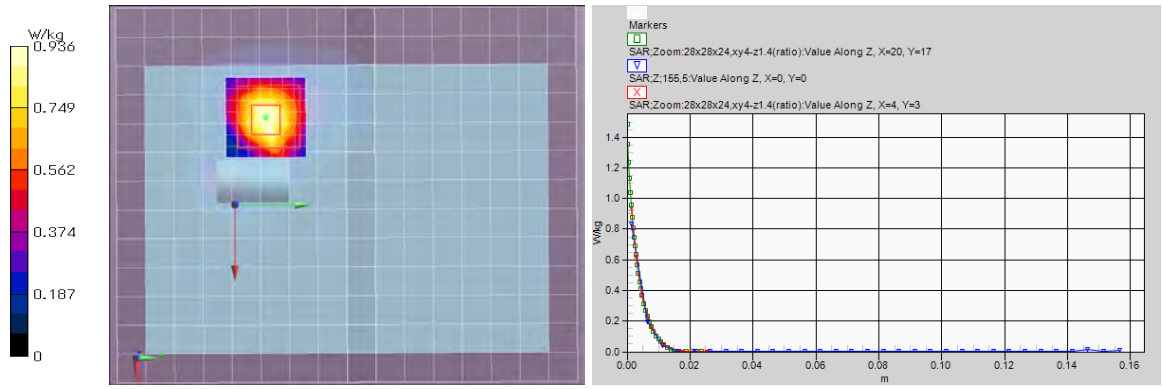
## Plot 2b-1: 5.3GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5320 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5ga/5h2,53.2.ant1,5320,frt&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.976 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.03 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 0.832 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 15.31 V/m; Power Drift = 0.02 dB; Maximum value of SAR (measured) = 0.936 W/kg; Peak SAR (extrapolated) = 1.48 W/kg
**SAR(1 g) = 0.435 W/kg; SAR(10 g) = 0.161 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 10.4 mm; Ratio of SAR at M2 to SAR at M1 = 66.9%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

APPENDIX 2: SAR Measurement data / Appendix 2-1: Worst Scaled (Reported) SAR Plot (cont'd)

## Plot 2c-1: 5.2GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5240 MHz

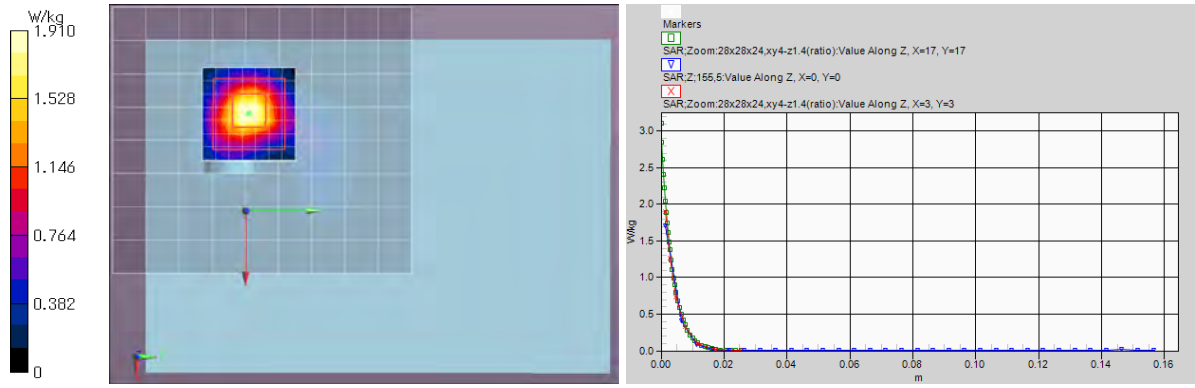
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5240 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5240 MHz; σ = 4.527 S/m; $\varepsilon_r$ = 35.11; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5240 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gb/5h8,52.2.ant2,5240,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.95 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 2.09 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.71 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 23.41 V/m; Power Drift = -0.03 dB; Maximum value of SAR (measured) = 1.91 W/kg; Peak SAR (extrapolated) = 3.10 W/kg
**SAR(1 g) = 0.851 W/kg; SAR(10 g) = 0.264 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.6 mm; Ratio of SAR at M2 to SAR at M1 = 66.6%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2d-1: 5.2GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5240 MHz

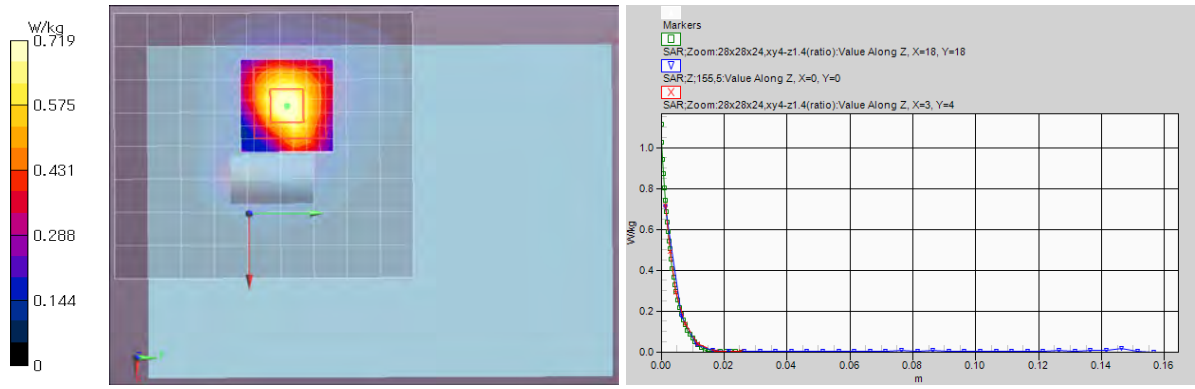
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5240 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5240 MHz; σ = 4.527 S/m; $\varepsilon_r$ = 35.11; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5240 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gc/5h25,52.5.ant1,5240,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.726 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.771 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 0.712 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 13.39 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.719 W/kg; Peak SAR (extrapolated) = 1.11 W/kg
**SAR(1 g) = 0.343 W/kg; SAR(10 g) = 0.128 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.1 mm; Ratio of SAR at M2 to SAR at M1 = 68.3%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

APPENDIX 2: SAR Measurement data / Appendix 2-1: Worst Scaled (Reported) SAR Plot (cont'd)

## Plot 3a-1: 5.6GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5500 MHz

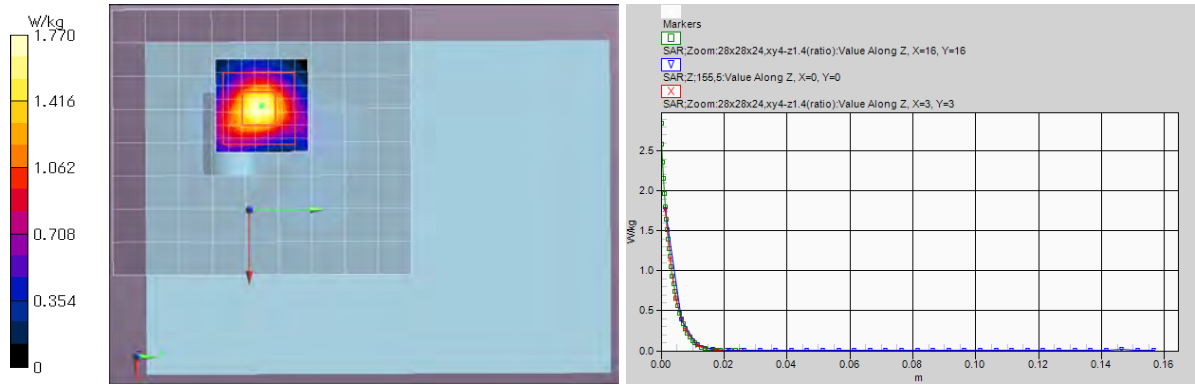
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5500 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5500 MHz; σ = 4.804 S/m; $\varepsilon_r$ = 34.69; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5500 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gb/5h10,56.2.ant2,5500,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.46 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.66 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.76 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 21.19 V/m; Power Drift = -0.05 dB; Maximum value of SAR (measured) = 1.77 W/kg; Peak SAR (extrapolated) = 2.84 W/kg
**SAR(1 g) = 0.753 W/kg; SAR(10 g) = 0.237 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.9 mm; Ratio of SAR at M2 to SAR at M1 = 64.9%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3b-1: 5.6GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5500 MHz

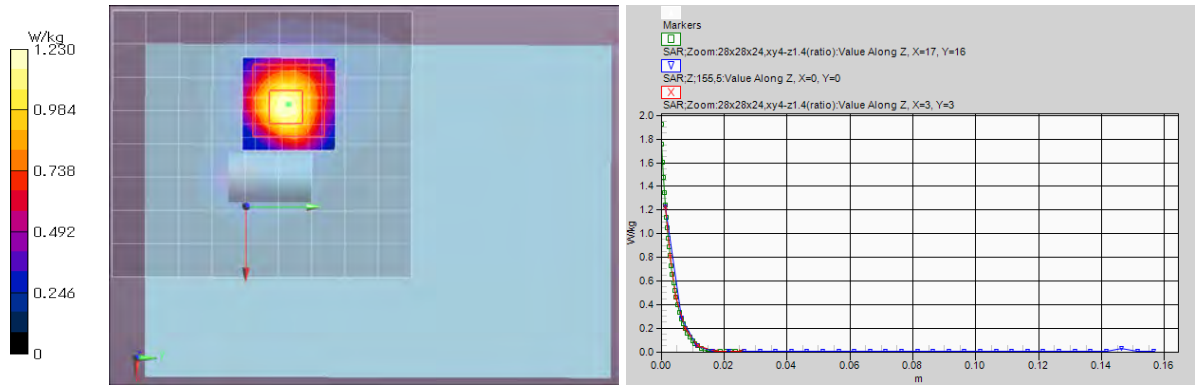
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5500 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5500 MHz; σ = 4.804 S/m; $\varepsilon_r$ = 34.69; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5500 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gc/5h17,56.6.ant1,5500,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.23 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.31 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.22 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 17.69 V/m; Power Drift = -0.05 dB; Maximum value of SAR (measured) = 1.23 W/kg; Peak SAR (extrapolated) = 1.92 W/kg
**SAR(1 g) = 0.556 W/kg; SAR(10 g) = 0.200 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.1 mm; Ratio of SAR at M2 to SAR at M1 = 66%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

APPENDIX 2: SAR Measurement data / Appendix 2-1: Worst Scaled (Reported) SAR Plot (cont'd)

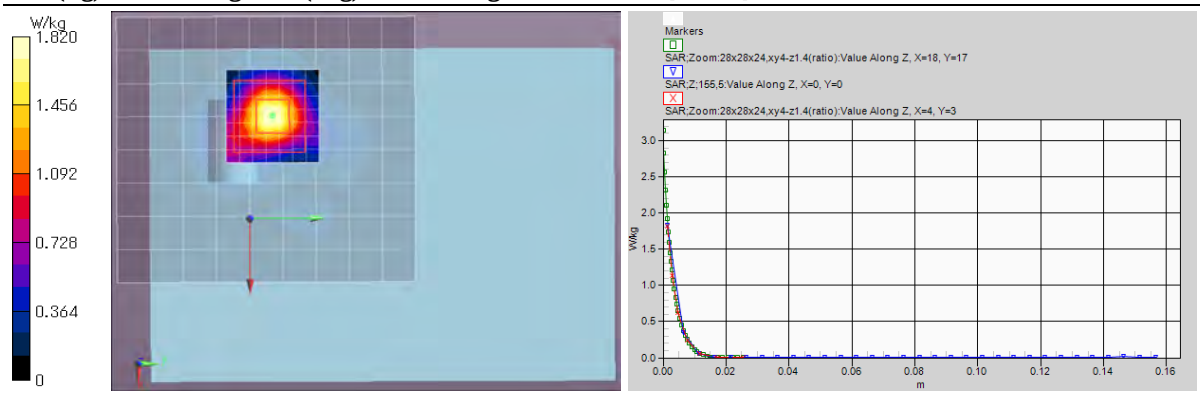
## Plot 4a-1: 5.8GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5825 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gb/5h4,58.1.ant2,5825,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.79 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.95 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.83 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 21.29 V/m; Power Drift = -0.15 dB; Maximum value of SAR (measured) = 1.82 W/kg; Peak SAR (extrapolated) = 3.14 W/kg
**SAR(1 g) = 0.772 W/kg; SAR(10 g) = 0.240 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.2 mm; Ratio of SAR at M2 to SAR at M1 = 62.8%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

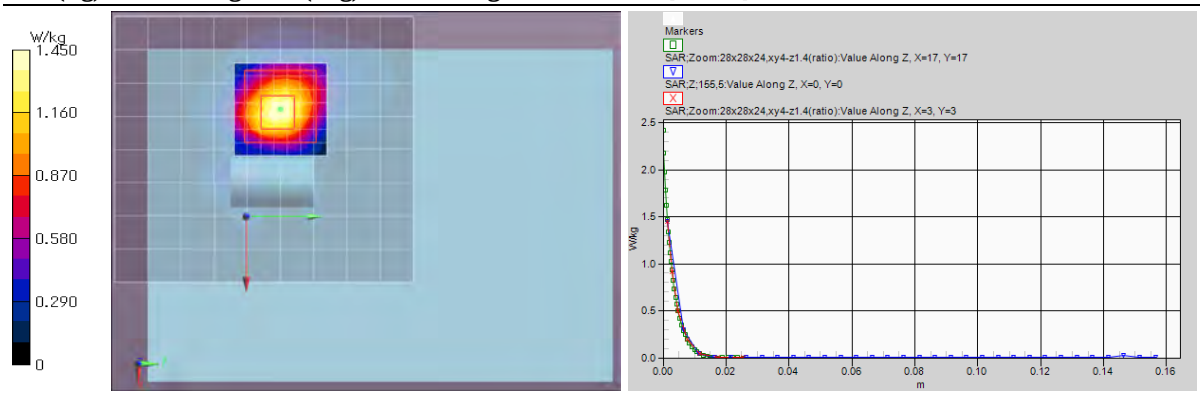
## Plot 4b-1: 5.8GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5825 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5gc/5h16,58.4.ant1,5825,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.52 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.60 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.45 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 18.63 V/m; Power Drift = -0.01 dB; Maximum value of SAR (measured) = 1.45 W/kg; Peak SAR (extrapolated) = 2.42 W/kg
**SAR(1 g) = 0.629 W/kg; SAR(10 g) = 0.216 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.9 mm; Ratio of SAR at M2 to SAR at M1 = 62.9%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data (cont'd)

## Appendix 2-2: Repeat test (SAR measurement variability); SAR(1g) Plot

### Plot 5-1: (Repeat) 5.6GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt-repeat/5h27(3re),56.1re.ant2,5700,frt&d0,a(6m)/**

**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.79 W/kg

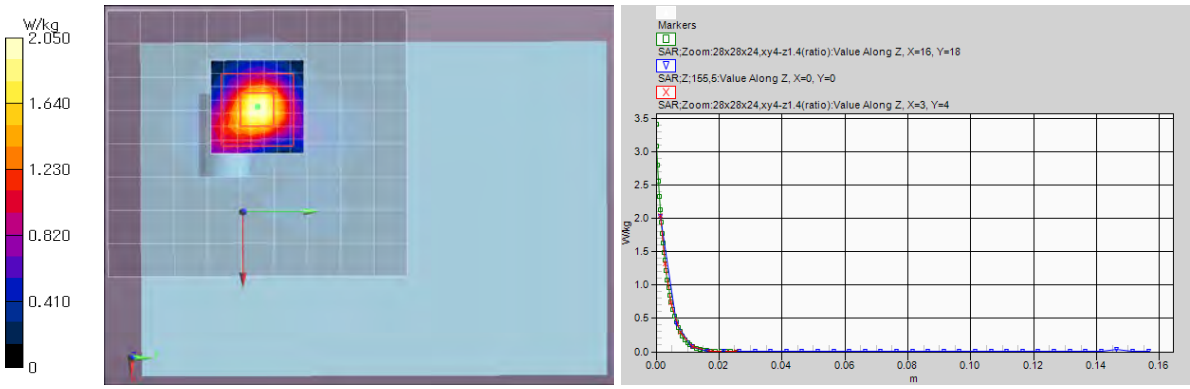
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 2.14 W/kg

**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.03 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 22.92 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 2.05 W/kg; Peak SAR (extrapolated) = 3.41 W/kg

**SAR(1 g) = 0.873 W/kg; SAR(10 g) = 0.275 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.9 mm; Ratio of SAR at M2 to SAR at M1 = 64.3%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

### Plot 5-2: (Repeat) 5.3GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5300 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5300 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5300 MHz; σ = 4.588 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5300 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt-rep2/5h27b,52.2re.ant2,5300,frt&d0,a(6m)/**

**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 2.02 W/kg

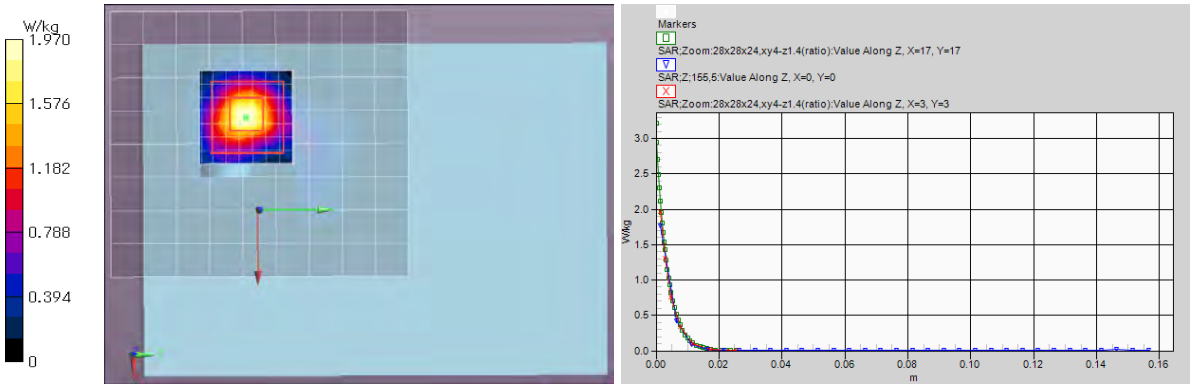
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 2.16 W/kg

**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 1.77 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 23.65 V/m; Power Drift = -0.03 dB; Maximum value of SAR (measured) = 1.97 W/kg; Peak SAR (extrapolated) = 3.21 W/kg

**SAR(1 g) = 0.880 W/kg; SAR(10 g) = 0.273 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.6 mm; Ratio of SAR at M2 to SAR at M1 = 66.6%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data (cont'd)

## Appendix 2-3: Other SAR Plots

### Plot 1a-2: 2.4GHz band, Antenna 2; Front & touch / 11b (1Mbps) / 2412 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

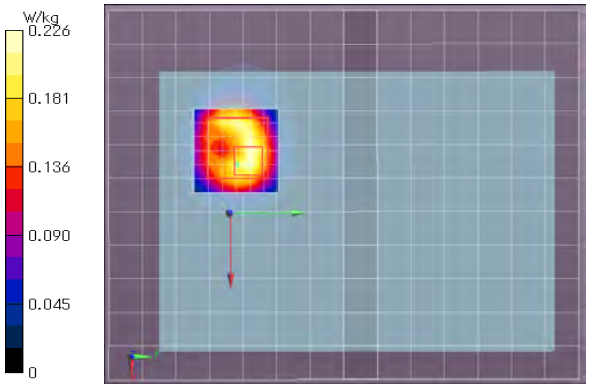
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,frt,24/24h1,ant2,2412,frt&d0,b(1m)/**
**Area:132x168,12 (12x15x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.195 W/kg
**Area:132x168,12 (111x141x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.275 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 10.67 V/m; Power Drift = -0.02 dB; Maximum value of SAR (measured) = 0.226 W/kg; Peak SAR (extrapolated) = 0.329 W/kg

**SAR(1 g) = 0.140 W/kg; SAR(10 g) = 0.068 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.5 mm; Ratio of SAR at M2 to SAR at M1 = 44.9%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

### Plot 1a-3: 2.4GHz band, Antenna 2; Front & touch / 11b (1Mbps) / 2437 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2437 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2437 MHz; σ = 1.846 S/m; $\varepsilon_r$ = 39.71; ρ = 1000 kg/m$^3$**

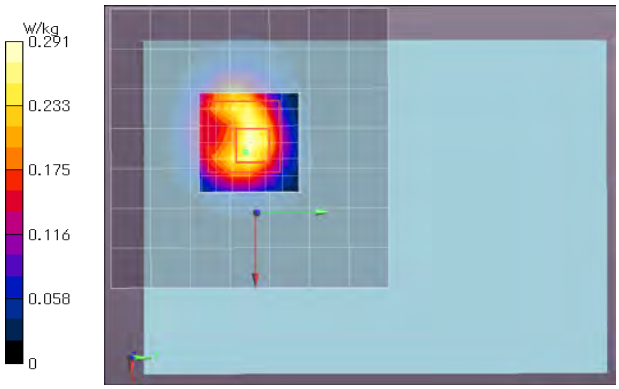
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2437 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,frt,24/24h5,ant2,2437,frt&d0,b(1m)/**
**Area:84x84,12 (8x8x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.229 W/kg
**Area:84x84,12 (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.302 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 12.66 V/m; Power Drift = 0.04 dB; Maximum value of SAR (measured) = 0.291 W/kg; Peak SAR (extrapolated) = 0.418 W/kg

**SAR(1 g) = 0.179 W/kg; SAR(10 g) = 0.084 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.2 mm; Ratio of SAR at M2 to SAR at M1 = 42.4%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1a-4: 2.4GHz band, Antenna 2; Left & touch / 11b (1Mbps) / 2412 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,L/24h13,ant2,2412,L&d0,b(1m)/**

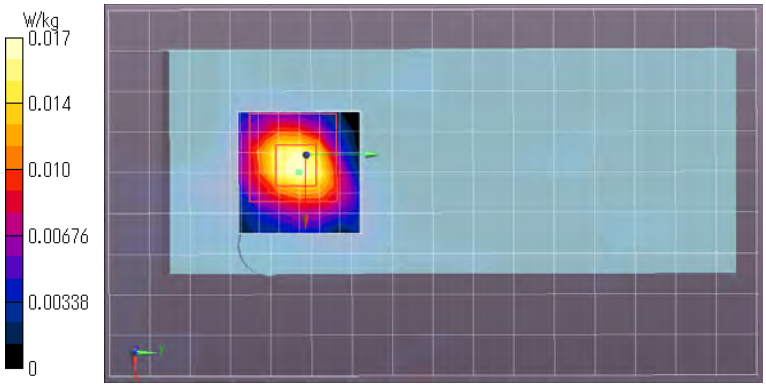
**Area:90x160,10 (10x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0223 W/kg

**Area:90x160,10 (91x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0242 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;

Reference Value = 3.231 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.0169 W/kg; Peak SAR (extrapolated) = 0.0230 W/kg

**SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00421 W/kg** (*. Ratio of SAR at M2 to SAR at M1 = 48.4%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 1a-5: 2.4GHz band, Antenna 2; Bottom & touch / 11b (1Mbps) / 2412 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,bottom/24h17,ant2,2412,btm&d0,b(1m)/**

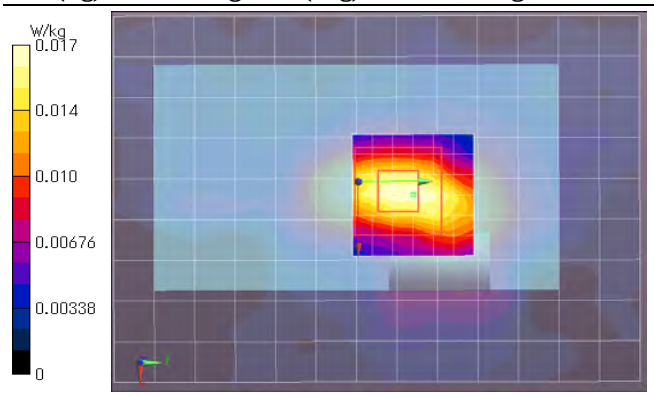
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0209 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0231 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;

Reference Value = 3.310 V/m; Power Drift = 0.04 dB; Maximum value of SAR (measured) = 0.0169 W/kg; Peak SAR (extrapolated) = 0.0390 W/kg

**SAR(1 g) = 0.011 W/kg; SAR(10 g) = 0.00591 W/kg** (*. Ratio of SAR at M2 to SAR at M1 = 51.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1a-6: 2.4GHz band, Antenna 2; Right & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

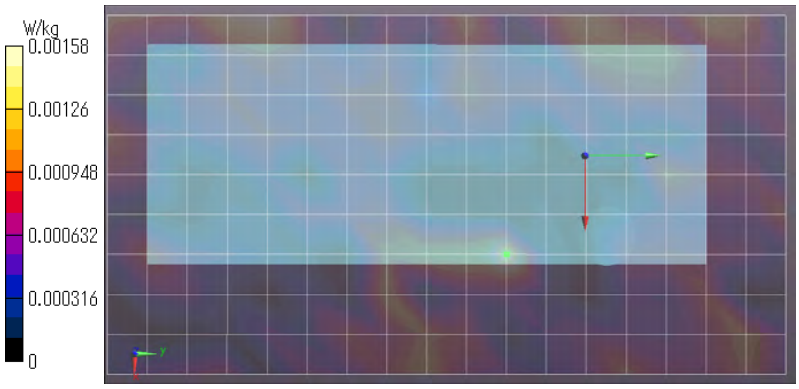
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/24h15,ant2,2412,right&d0,b(1m)/**

**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.00158 W/kg

**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.00158 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 1a-7: 2.4GHz band, Antenna 2; Rear & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

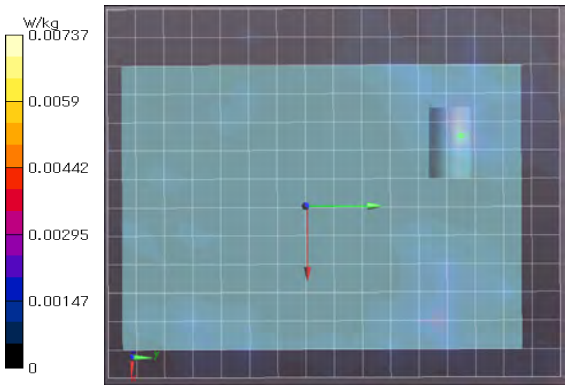
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/24h11,ant2,2412,bk&d0,b(1m)/**

**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.00238 W/kg

**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.00737 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

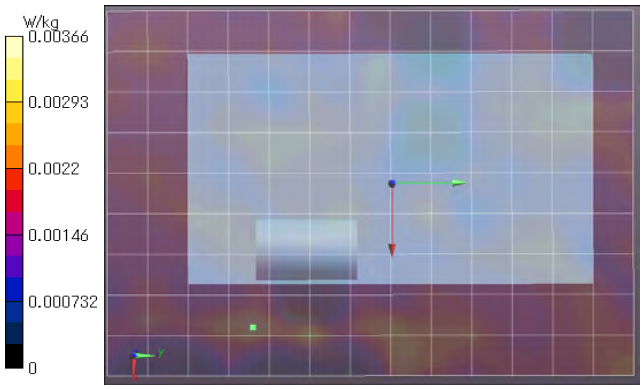
Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1a-8: 2.4GHz band, Antenna 2; Top & touch / 11b (1Mbps) / 2412 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/24h19,ant2,2412,top&d0,b(1m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.00316 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.00366 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

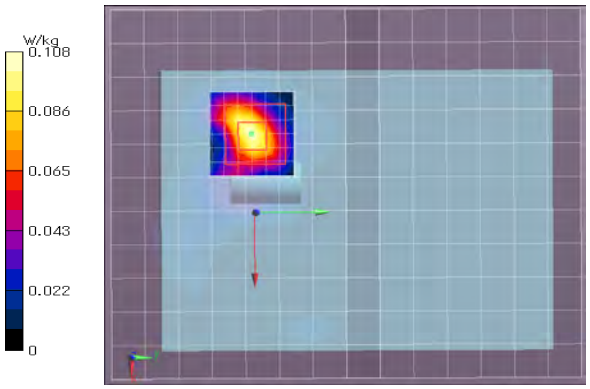
## Plot 1b-2: 2.4GHz band, Antenna 1; Front & touch / 11b (1Mbps) / 2412 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,frt,24/24h2,ant1,2412,frt&d0,b(1m)/**
**Area:132x96,12 (12x9x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.107 W/kg
**Area:132x96,12 (111x81x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.116 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 7.900 V/m; Power Drift = 0.06 dB; Maximum value of SAR (measured) = 0.108 W/kg; Peak SAR (extrapolated) = 0.144 W/kg
**SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.030 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.6 mm; Ratio of SAR at M2 to SAR at M1 = 53.8%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1b-3: 2.4GHz band, Antenna 1; Front & touch / 11b (1Mbps) / 2437 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2437 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2437 MHz; σ = 1.846 S/m; $\varepsilon_r$ = 39.71; ρ = 1000 kg/m$^3$**

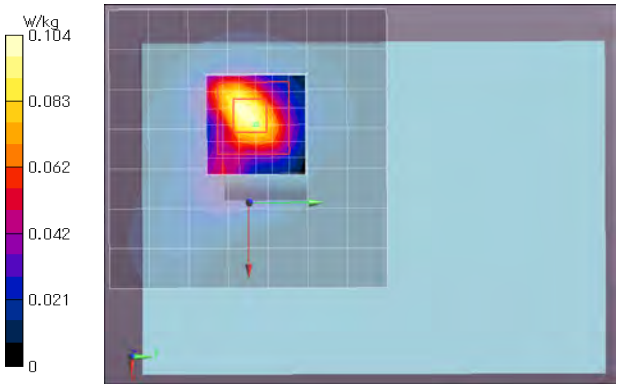
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2437 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,frt,24/24h6,ant1,2437,frt&d0,b(1m)/**
**Area:84x84,12 (8x8x1):** Measurement grid: dx=12mm, dy=12mm; Maximum value of SAR (measured) = 0.0966 W/kg
**Area:84x84,12 (71x71x1):** Interpolated grid: dx=1.200 mm, dy=1.200 mm; Maximum value of SAR (interpolated) = 0.109 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 7.523 V/m; Power Drift = 0.17 dB; Maximum value of SAR (measured) = 0.104 W/kg; Peak SAR (extrapolated) = 0.139 W/kg

**SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.030 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.2 mm; Ratio of SAR at M2 to SAR at M1 = 49.2%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 1b-4: 2.4GHz band, Antenna 1; Left & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

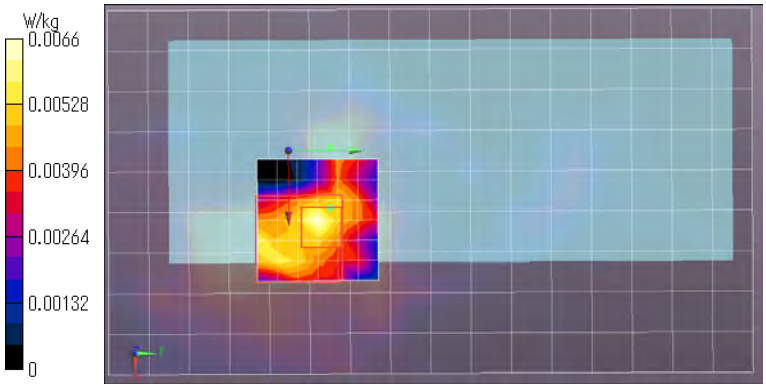
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,L1/24h14,ant1,2412,L&d0,b(1m)/**
**Area:90x160,10 (10x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0102 W/kg
**Area:90x160,10 (91x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0139 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 1.872 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.00660 W/kg; Peak SAR (extrapolated) = 0.0140 W/kg

**SAR(1 g) = 0.00301 W/kg; SAR(10 g) = 0.0012 W/kg** (*. Ratio of SAR at M2 to SAR at M1 = 38.7%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1b-5: 2.4GHz band, Antenna 1; Bottom & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

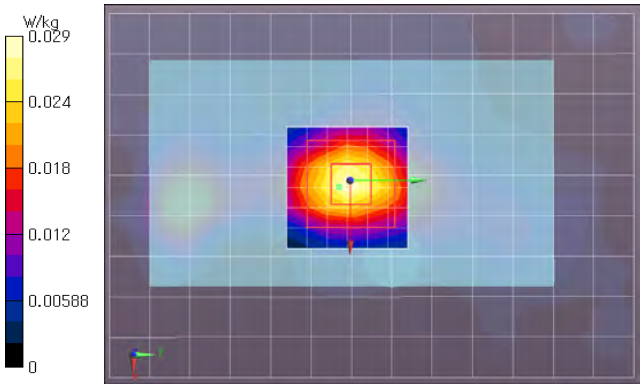
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0

**touch,bottom/24h18,ant1,2412,btm&d0,b(1m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0379 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0397 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 4.288 V/m; Power Drift = -0.18 dB; Maximum value of SAR (measured) = 0.0294 W/kg; Peak SAR (extrapolated) = 0.0420 W/kg

**SAR(1 g) = 0.019 W/kg; SAR(10 g) = 0.00898 W/kg** (*. Ratio of SAR at M2 to SAR at M1 = 48.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 1b-6: 2.4GHz band, Antenna 1; Right & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

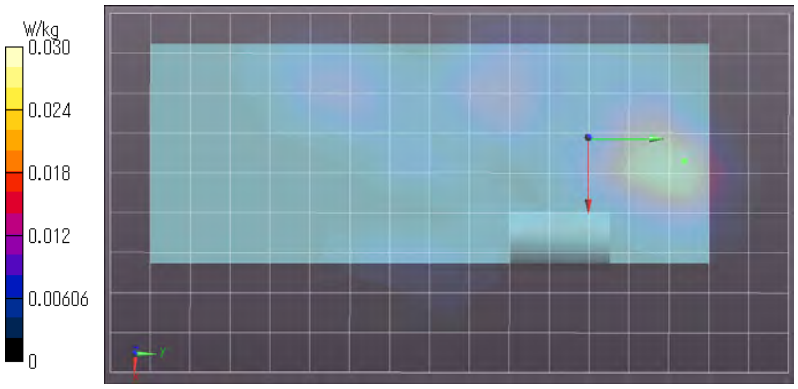
**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/24h16,ant1,2412,right&d0,b(1m)/**
**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0271 W/kg
**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0303 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 1b-7: 2.4GHz band, Antenna 1; Rear & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

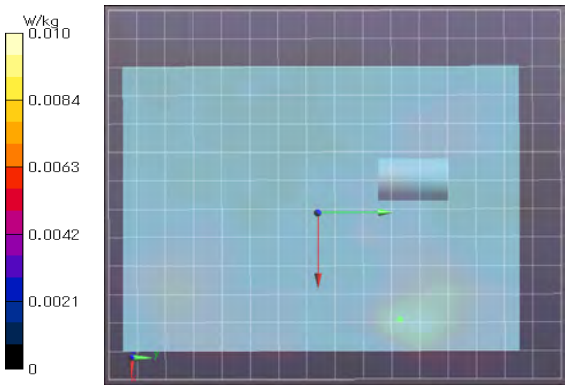
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/24h12,ant1,2412,bk&d0,b(1m)/**

**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.00967 W/kg

**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0105 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 1b-8: 2.4GHz band, Antenna 1; Top & touch / 11b (1Mbps) / 2412 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11b(1Mbps, DSSS)** (UID: 0, Wi-fi_2.4GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 2412 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 2412 MHz; σ = 1.824 S/m; $\varepsilon_r$ = 39.74; ρ = 1000 kg/m$^3$**

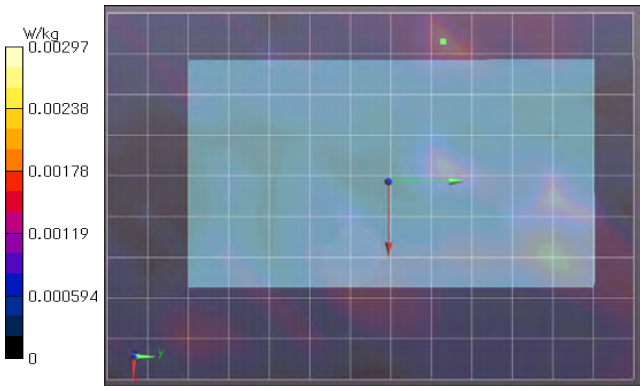
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2412 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/24h20,ant1,2412,top&d0,b(1m)/**

**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.00220 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.00297 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

**Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)**

## Plot 2a-2: 5.3GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5260 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5260 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5260 MHz; σ = 4.549 S/m; $\varepsilon_r$ = 35.07; ρ = 1000 kg/m$^3$**

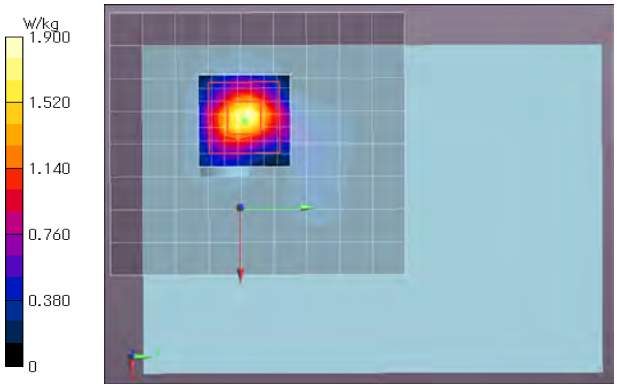
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5260 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h5,53.3.ant2,5260,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.67 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.79 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 21.88 V/m; Power Drift = -0.08 dB; Maximum value of SAR (measured) = 1.90 W/kg; Peak SAR (extrapolated) = 2.91 W/kg

**SAR(1 g) = 0.781 W/kg; SAR(10 g) = 0.245 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.2 mm; Ratio of SAR at M2 to SAR at M1 = 67.3%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2a-3: 5.3GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

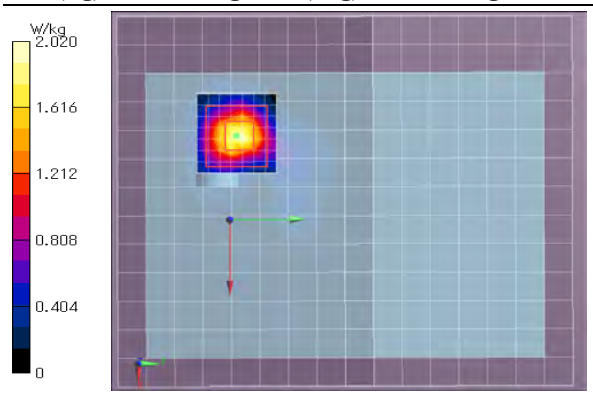
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

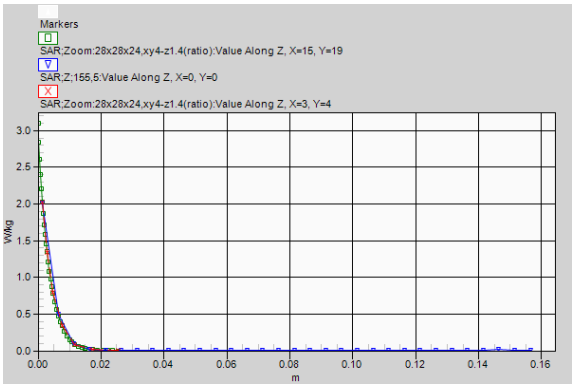
**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**touch,frt,5ga/5h1,53.1.ant2,5320,frt&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.82 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 2.01 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 2.01 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 22.63 V/m; Power Drift = -0.14 dB; Maximum value of SAR (measured) = 2.02 W/kg; Peak SAR (extrapolated) = 3.10 W/kg

**SAR(1 g) = 0.855 W/kg; SAR(10 g) = 0.271 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.2 mm; Ratio of SAR at M2 to SAR at M1 = 66.6%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2a-4: 5.3GHz band, Antenna 2; Left & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,L/5h34,53.9.ant2,5320,L&d0,a(6m)/**

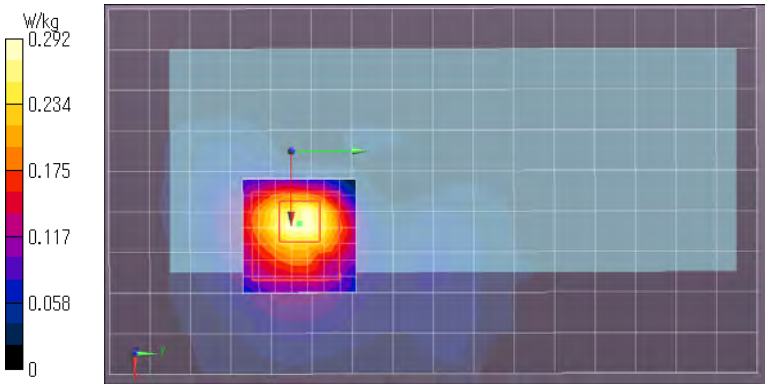
**Area:90x160,10 (10x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.279 W/kg

**Area:90x160,10 (91x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.338 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 8.943 V/m; Power Drift = -0.08 dB; Maximum value of SAR (measured) = 0.292 W/kg; Peak SAR (extrapolated) = 0.464 W/kg

**SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.048 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8 mm; Ratio of SAR at M2 to SAR at M1 = 64.5%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2a-5: 5.3GHz band, Antenna 2; Bottom & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,bottom/5h46,53.13.ant2,5320,btm&d0,a(6m)/**

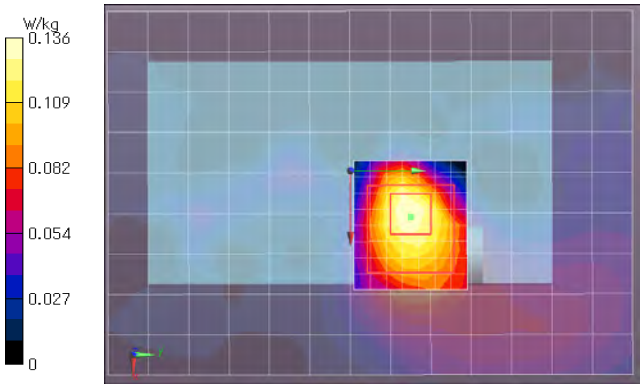
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.124 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.155 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (9x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 6.074 V/m; Power Drift = -0.15 dB; Maximum value of SAR (measured) = 0.136 W/kg; Peak SAR (extrapolated) = 0.205 W/kg

**SAR(1 g) = 0.061 W/kg; SAR(10 g) = 0.024 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.6 mm; Ratio of SAR at M2 to SAR at M1 = 65.7%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2a-6: 5.3GHz band, Antenna 2; Right & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

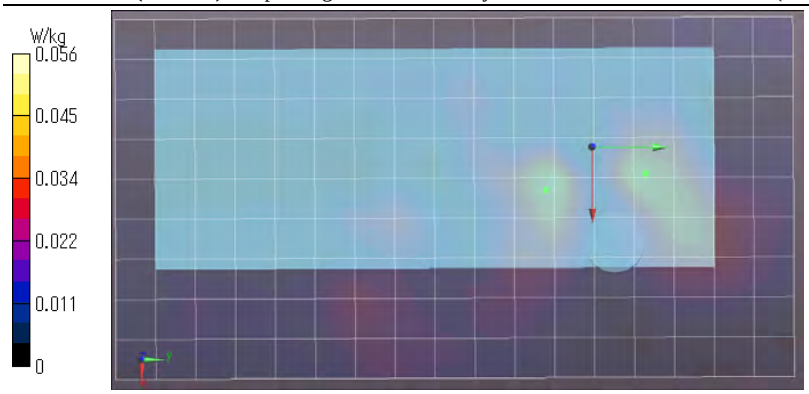
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h40,53.11.ant2,5320,right&d0,a(6m)/**

**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0499 W/kg

**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0561 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2a-7: 5.3GHz band, Antenna 2; Rear & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

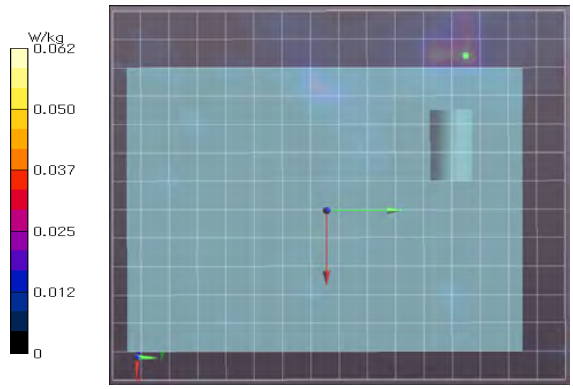
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h28,53.7.ant2,5320,bk&d0,a(6m)/**

**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0171 W/kg

**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0622 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2a-8: 5.3GHz band, Antenna 2; Top & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

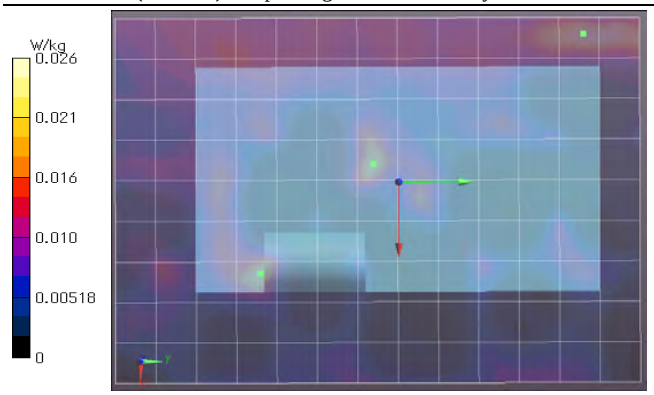
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h52,53.15.ant2,5320,top&d0,a(6m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0131 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0259 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2b-2: 5.3GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5260 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5260 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5260 MHz; σ = 4.549 S/m; $\varepsilon_r$ = 35.07; ρ = 1000 kg/m$^3$**

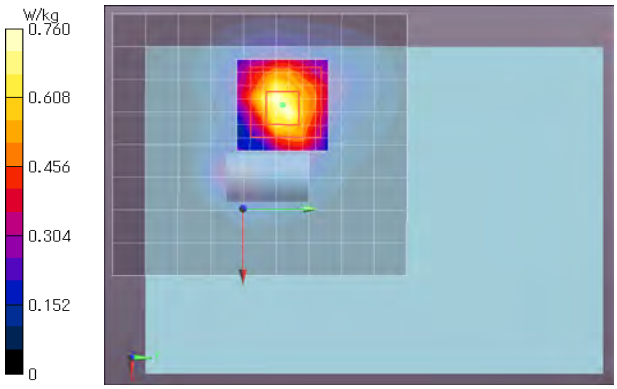
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5260 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h22,53.5.ant1,5260,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.708 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.747 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 13.68 V/m; Power Drift = -0.06 dB; Maximum value of SAR (measured) = 0.760 W/kg; Peak SAR (extrapolated) = 1.25 W/kg

**SAR(1 g) = 0.339 W/kg; SAR(10 g) = 0.126 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.1 mm; Ratio of SAR at M2 to SAR at M1 = 63.4%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2b-3: 5.3GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5300 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5300 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5300 MHz; σ = 4.588 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

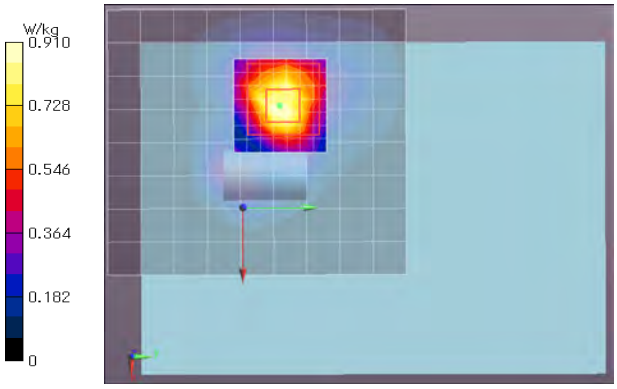
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5300 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h23,53.6.ant1,5300,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.954 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.984 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 16.00 V/m; Power Drift = -0.02 dB; Maximum value of SAR (measured) = 0.910 W/kg; Peak SAR (extrapolated) = 1.44 W/kg

**SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.153 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.9 mm; Ratio of SAR at M2 to SAR at M1 = 67.7%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2b-4: 5.3GHz band, Antenna 1; Left & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

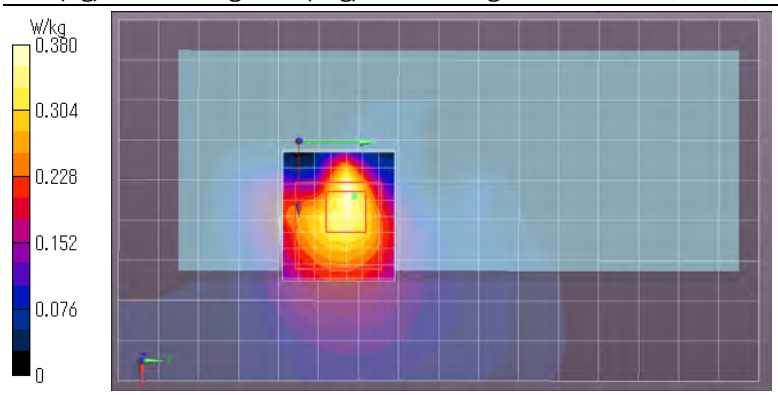
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,L/5h35,53.10.ant1,5320,L&d0,a(6m)/**
**Area:90x160,10 (10x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.348 W/kg
**Area:90x160,10 (91x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.390 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (9x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 9.765 V/m; Power Drift = -0.01 dB; Maximum value of SAR (measured) = 0.380 W/kg; Peak SAR (extrapolated) = 0.613 W/kg

**SAR(1 g) = 0.164 W/kg; SAR(10 g) = 0.064 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 5.8 mm; Ratio of SAR at M2 to SAR at M1 = 63.6%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2b-5: 5.3GHz band, Antenna 1; Bottom & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,bottom/5h47,53.14.ant1,5320,btm&d0,a(6m)/**

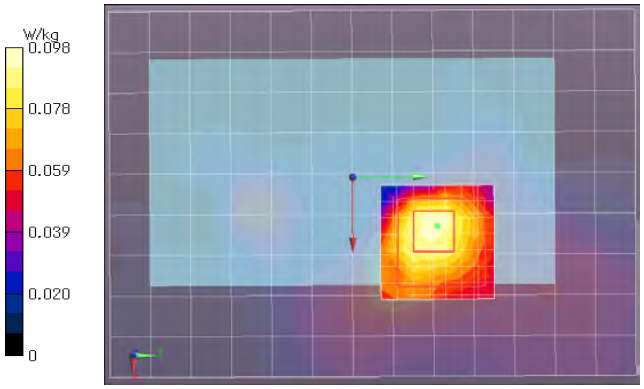
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.104 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.115 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 5.150 V/m; Power Drift = -0.04 dB; Maximum value of SAR (measured) = 0.0981 W/kg; Peak SAR (extrapolated) = 0.156 W/kg

**SAR(1 g) = 0.042 W/kg; SAR(10 g) = 0.017 W/kg** (*. Ratio of SAR at M2 to SAR at M1 = 61.2%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2b-6: 5.3GHz band, Antenna 1; Right & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

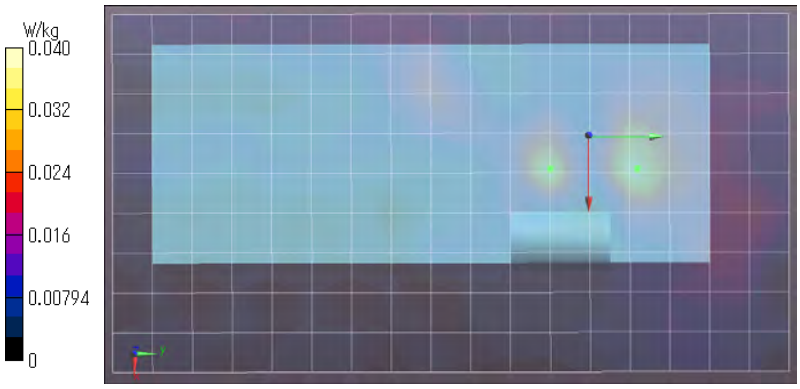
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h41,53.12.ant1,5320,right&d0,a(6m)/**

**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0374 W/kg

**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0397 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2b-7: 5.3GHz band, Antenna 1; Rear & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

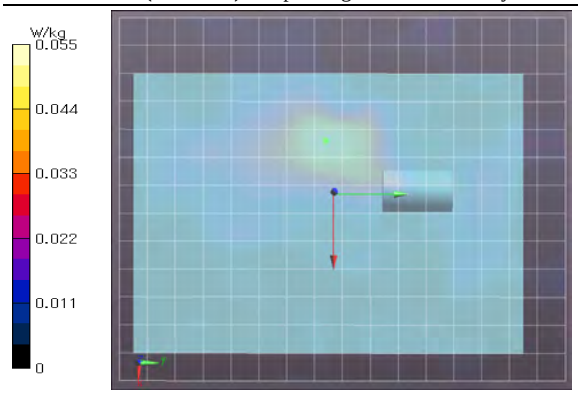
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h29,53.8.ant1,5320,bk&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0487 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0553 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2b-8: 5.3GHz band, Antenna 1; Top & touch / 11a (6Mbps) / 5320 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

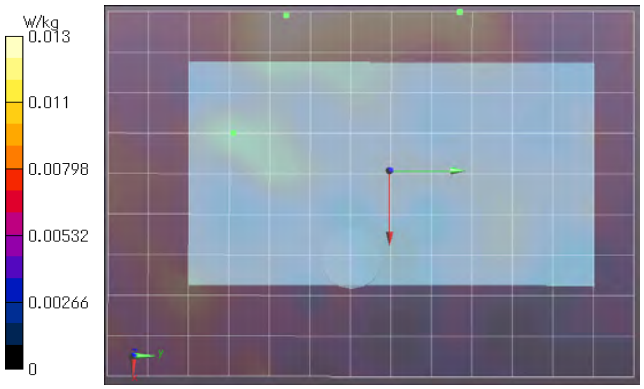
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5320 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5320 MHz; σ = 4.614 S/m; $\varepsilon_r$ = 35.01; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5320 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h53,53.16.ant1,5320,top&d0,a(6m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0125 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm;Maximum value of SAR (interpolated) = 0.0133 W/kg




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2c-2: 5.2GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5180 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5180 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5180 MHz; σ = 4.459 S/m; $\varepsilon_r$ = 35.22; ρ = 1000 kg/m$^3$**

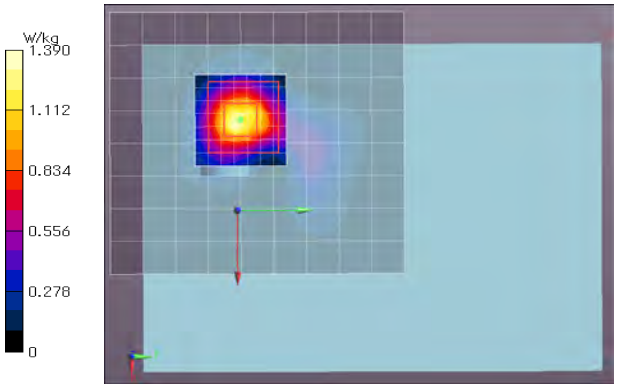
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5180 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h7,52.1.ant2,5180,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.16 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.28 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 18.80 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 1.39 W/kg; Peak SAR (extrapolated) = 2.16 W/kg

**SAR(1 g) = 0.576 W/kg; SAR(10 g) = 0.185 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.2 mm; Ratio of SAR at M2 to SAR at M1 = 66.3%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2c-3: 5.2GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5220 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5220 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5220 MHz; σ = 4.507 S/m; $\varepsilon_r$ = 35.15; ρ = 1000 kg/m$^3$**

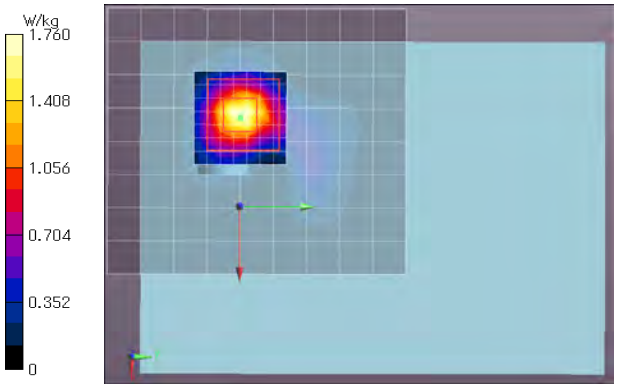
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5220 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h9,52.3.ant2,5220,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.47 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.57 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 22.19 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 1.76 W/kg; Peak SAR (extrapolated) = 2.80 W/kg

**SAR(1 g) = 0.762 W/kg; SAR(10 g) = 0.236 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.5 mm; Ratio of SAR at M2 to SAR at M1 = 66.3%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 2d-2: 5.2GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5180 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5180 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5180 MHz; σ = 4.459 S/m; $\varepsilon_r$ = 35.22; ρ = 1000 kg/m$^3$**

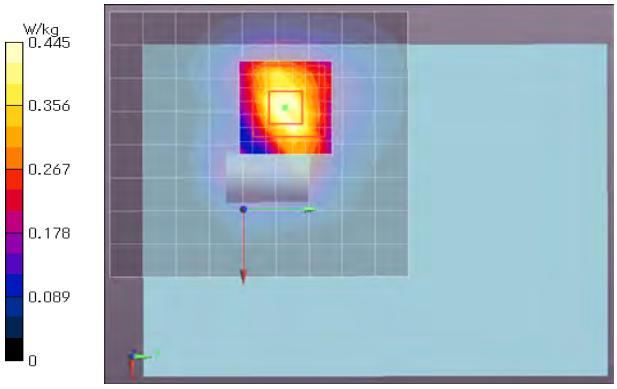
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5180 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h24,52.4.ant1,5180,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.452 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.475 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 10.61 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.445 W/kg; Peak SAR (extrapolated) = 0.679 W/kg

**SAR(1 g) = 0.208 W/kg; SAR(10 g) = 0.081 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.9 mm; Ratio of SAR at M2 to SAR at M1 = 67.9%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 2d-3: 5.2GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5220 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5220 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5220 MHz; σ = 4.507 S/m; $\varepsilon_r$ = 35.15; ρ = 1000 kg/m$^3$**

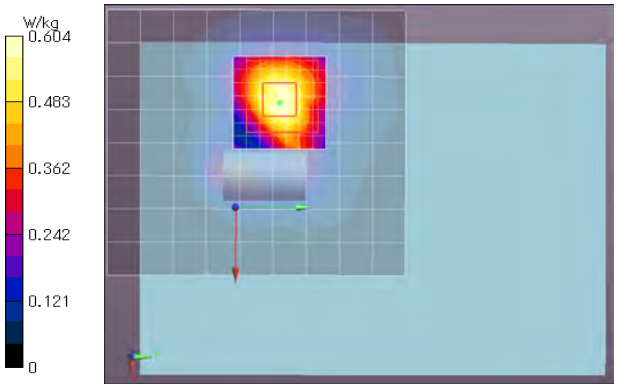
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5220 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h26,52.6.ant1,5220,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.614 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.651 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 12.22 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.604 W/kg; Peak SAR (extrapolated) = 0.887 W/kg

**SAR(1 g) = 0.289 W/kg; SAR(10 g) = 0.108 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.7 mm; Ratio of SAR at M2 to SAR at M1 = 68.2%)




Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

**Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)**

## Plot 3a-2: 5.6GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5580 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5580 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5580 MHz; σ = 4.895 S/m; $\varepsilon_r$ = 34.54; ρ = 1000 kg/m$^3$**

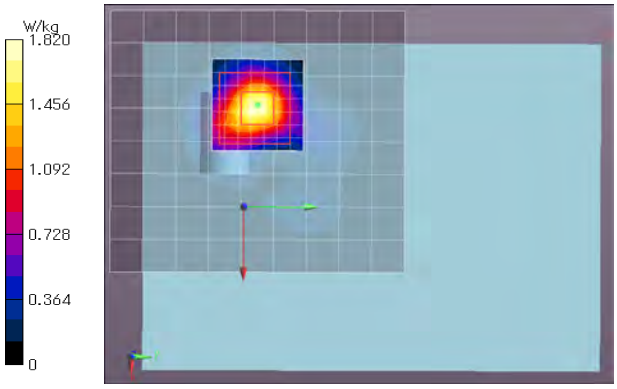
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5580 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h11,56.3.ant2,5580,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.50 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.73 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 21.84 V/m; Power Drift = -0.10 dB; Maximum value of SAR (measured) = 1.82 W/kg; Peak SAR (extrapolated) = 2.96 W/kg

**SAR(1 g) = 0.779 W/kg; SAR(10 g) = 0.249 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.2 mm; Ratio of SAR at M2 to SAR at M1 = 64.6%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3a-3: 5.6GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

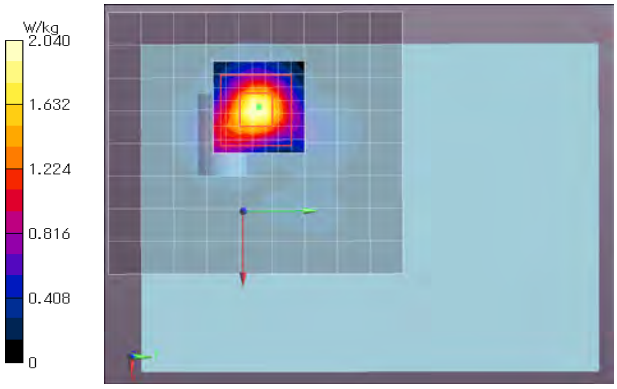
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h3,56.1.ant2,5700,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.80 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 2.08 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 22.84 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 2.04 W/kg; Peak SAR (extrapolated) = 3.37 W/kg

**SAR(1 g) = 0.860 W/kg; SAR(10 g) = 0.274 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8 mm; Ratio of SAR at M2 to SAR at M1 = 63.9%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3a-4: 5.6GHz band, Antenna 2; Left & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,L2/5h36,56.11.ant2,5700,L&d0,a(6m)/**

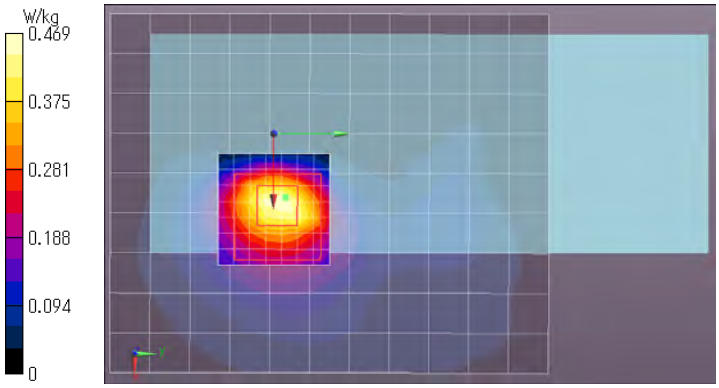
**Area:90x110,10 (10x12x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.499 W/kg

**Area:90x110,10 (91x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.617 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 11.20 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 0.469 W/kg; Peak SAR (extrapolated) = 0.762 W/kg

**SAR(1 g) = 0.201 W/kg; SAR(10 g) = 0.074 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.4 mm; Ratio of SAR at M2 to SAR at M1 = 62.8%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3a-5: 5.6GHz band, Antenna 2; Bottom & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,bottom/5h48,56.15.ant2,5700,btm&d0,a(6m)/**

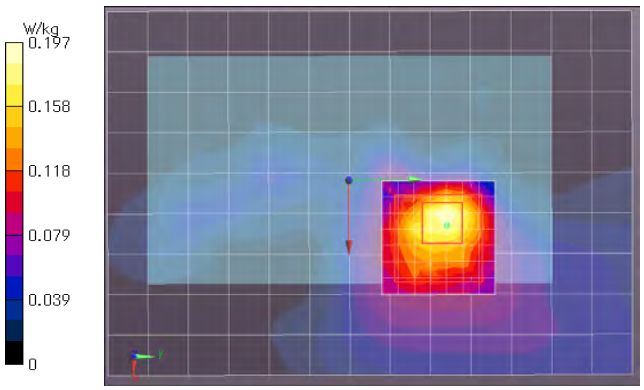
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.184 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.207 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;

Reference Value = 6.931 V/m; Power Drift = 0.03 dB; Maximum value of SAR (measured) = 0.197 W/kg; Peak SAR (extrapolated) = 0.356 W/kg

**SAR(1 g) = 0.080 W/kg; SAR(10 g) = 0.030 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.6 mm; Ratio of SAR at M2 to SAR at M1 = 58.9%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

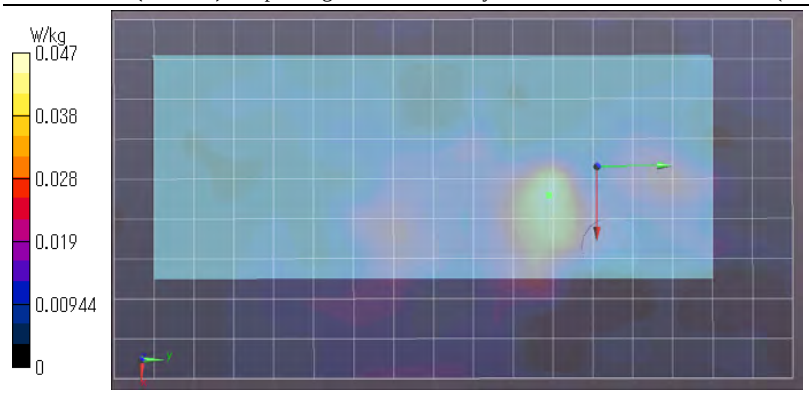
Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3a-6: 5.6GHz band, Antenna 2; Right& touch / 11a (6Mbps) / 5700 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h42,56.13.ant2,5700,right&d0,a(6m)/**
**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0400 W/kg
**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0472 W/kg



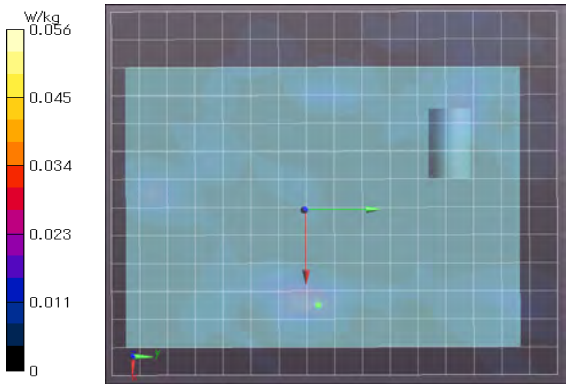

Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3a-7: 5.6GHz band, Antenna 2; Rear & touch / 11a (6Mbps) / 5700 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h30,56.9.ant2,5700,bk&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0210 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0563 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

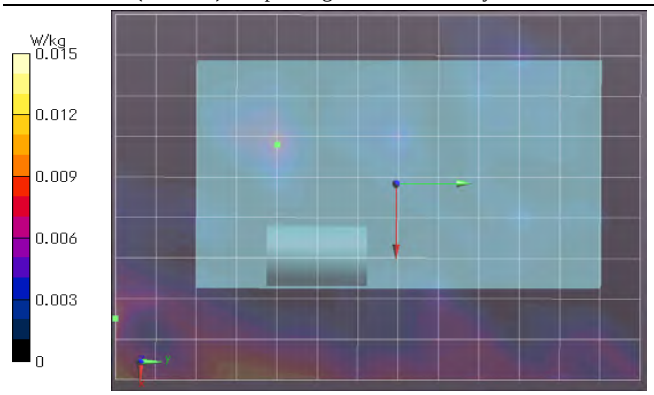
Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3a-8: 5.6GHz band, Antenna 2; Top & touch / 11a (6Mbps) / 5700 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h54,56.17.ant2,5700,top&d0,a(6m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0110 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0150 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

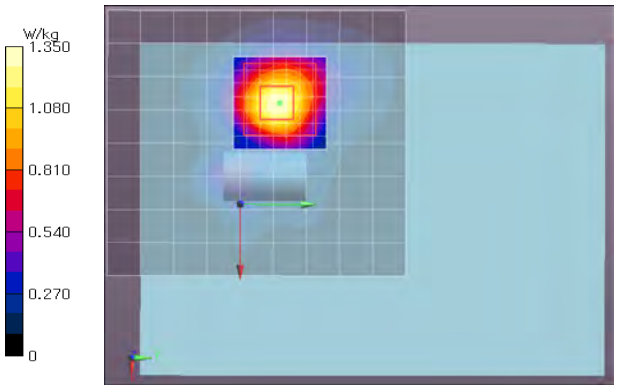
## Plot 3b-2: 5.6GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5580 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5580 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5580 MHz; σ = 4.895 S/m; $\varepsilon_r$ = 34.54; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5580 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h18,56.7.ant1,5580,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.41 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.48 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 18.57 V/m; Power Drift = -0.01 dB; Maximum value of SAR (measured) = 1.35 W/kg; Peak SAR (extrapolated) = 2.16 W/kg
**SAR(1 g) = 0.607 W/kg; SAR(10 g) = 0.218 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.7 mm; Ratio of SAR at M2 to SAR at M1 = 65.1%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3b-3: 5.6GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

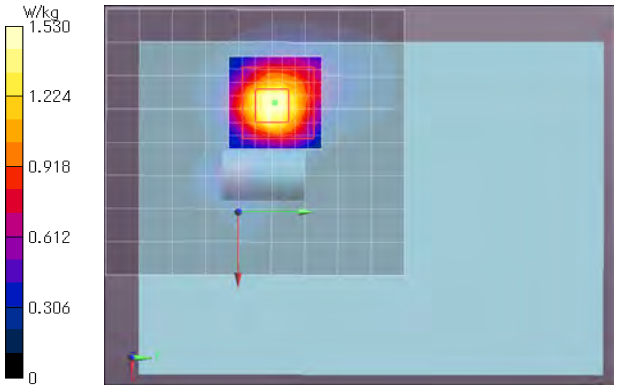
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h15,56.5.ant1,5700,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.56 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.60 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 19.09 V/m; Power Drift = -0.08 dB; Maximum value of SAR (measured) = 1.53 W/kg; Peak SAR (extrapolated) = 2.55 W/kg

**SAR(1 g) = 0.691 W/kg; SAR(10 g) = 0.239 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9.6 mm; Ratio of SAR at M2 to SAR at M1 = 64.1%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3b-4: 5.6GHz band, Antenna 1; Left & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

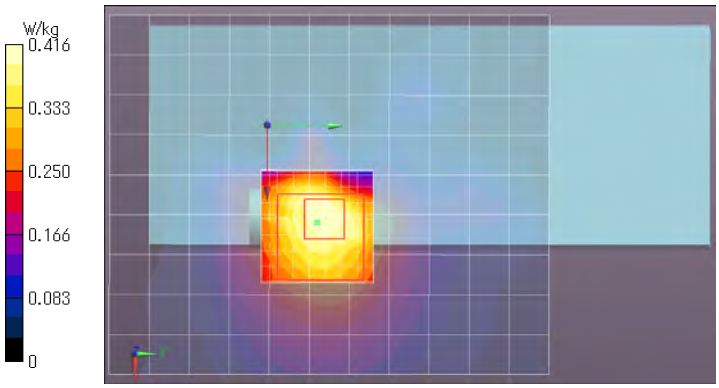
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,L2/5h37,56.12.ant1,5700,L&d0,a(6m)/**
**Area:90x110,10 (10x12x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.466 W/kg
**Area:90x110,10 (91x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.484 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 10.10 V/m; Power Drift = -0.01 dB; Maximum value of SAR (measured) = 0.416 W/kg; Peak SAR (extrapolated) = 0.680 W/kg

**SAR(1 g) = 0.186 W/kg; SAR(10 g) = 0.079 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 10.7 mm; Ratio of SAR at M2 to SAR at M1 = 63.7%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3b-5: 5.6GHz band, Antenna 1; Bottom & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

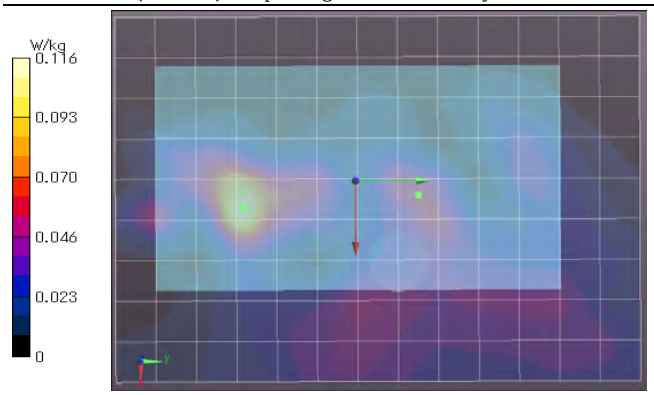
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bottom/5h49,56.16.ant1,5700,btm&d0,a(6m)/**

**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.101 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.116 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3b-6: 5.6GHz band, Antenna 1; Right& touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

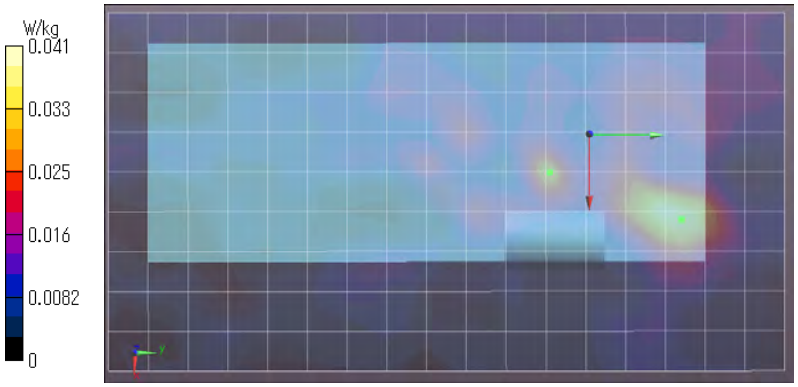
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h43,56.14.ant1,5700,right&d0,a(6m)/**

**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0400 W/kg

**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0410 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 3b-7: 5.6GHz band, Antenna 1; Rear & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

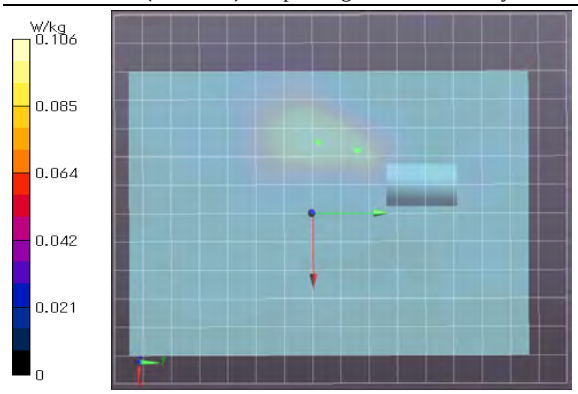
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h31,56.10.ant1,5700,bk&d0,a(6m)/**

**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0959 W/kg

**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.106 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 3b-8: 5.6GHz band, Antenna 1; Top & touch / 11a (6Mbps) / 5700 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5700 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5700 MHz; σ = 5.035 S/m; $\varepsilon_r$ = 34.32; ρ = 1000 kg/m$^3$**

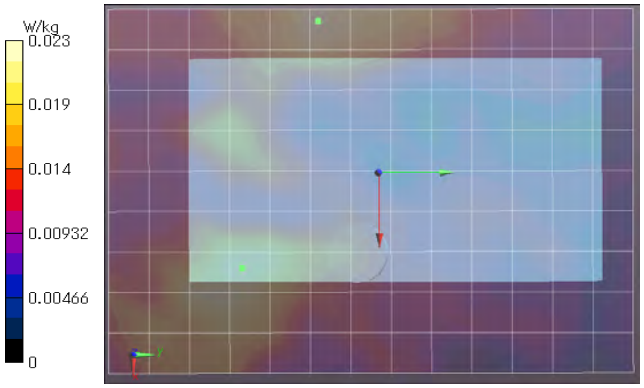
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5700 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h55,56.18.ant1,5700,top&d0,a(6m)/**

**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0217 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0233 W/kg




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4a-2: 5.8GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5745 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5745 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5745 MHz; σ = 5.093 S/m; $\varepsilon_r$ = 34.28; ρ = 1000 kg/m$^3$**

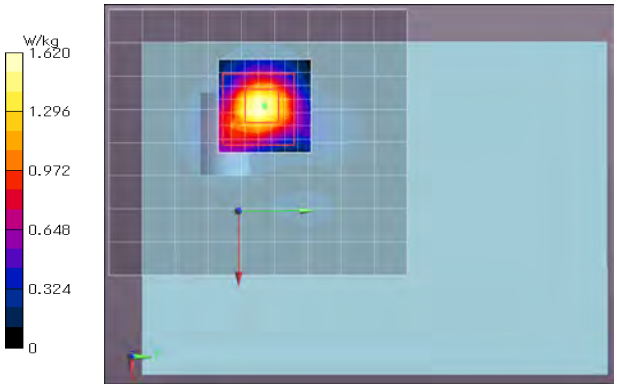
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5745 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h13,58.2.ant2,5745,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.38 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.53 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 19.87 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 1.62 W/kg; Peak SAR (extrapolated) = 2.71 W/kg

**SAR(1 g) = 0.685 W/kg; SAR(10 g) = 0.219 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.9 mm; Ratio of SAR at M2 to SAR at M1 = 63.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4a-3: 5.8GHz band, Antenna 2; Front & touch / 11a (6Mbps) / 5785 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5785 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5785 MHz; σ = 5.129 S/m; $\varepsilon_r$ = 34.21; ρ = 1000 kg/m$^3$**

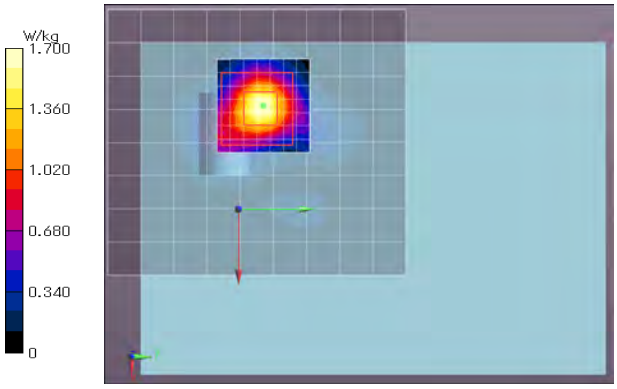
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5785 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gb/5h14,58.3.ant2,5785,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.50 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.65 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 20.64 V/m; Power Drift = -0.08 dB; Maximum value of SAR (measured) = 1.70 W/kg; Peak SAR (extrapolated) = 2.86 W/kg

**SAR(1 g) = 0.718 W/kg; SAR(10 g) = 0.224 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.5 mm; Ratio of SAR at M2 to SAR at M1 = 63.2%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4a-4: 5.8GHz band, Antenna 2; Left & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

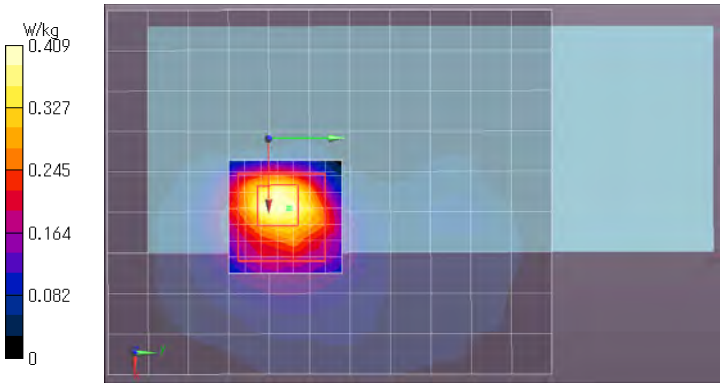
**touch,L2/5h38,58.9.ant2,5825,L&d0,a(6m)/**

**Area:90x110,10 (10x12x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.398 W/kg

**Area:90x110,10 (91x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.443 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 9.810 V/m; Power Drift = 0.20 dB; Maximum value of SAR (measured) = 0.409 W/kg; Peak SAR (extrapolated) = 0.695 W/kg

**SAR(1 g) = 0.175 W/kg; SAR(10 g) = 0.061 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.6 mm; Ratio of SAR at M2 to SAR at M1 = 62.5%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4a-5: 5.8GHz band, Antenna 2; Bottom & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

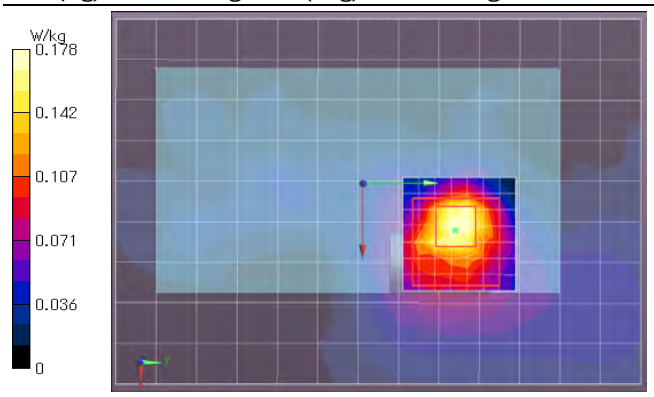
**touch,bottom/5h50,58.13.ant2,5825,btm&d0,a(6m)/**

**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.184 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.206 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 6.629 V/m; Power Drift = -0.20 dB; Maximum value of SAR (measured) = 0.178 W/kg; Peak SAR (extrapolated) = 0.902 W/kg

**SAR(1 g) = 0.070 W/kg; SAR(10 g) = 0.023 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 5.8 mm; Ratio of SAR at M2 to SAR at M1 = 57.5%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

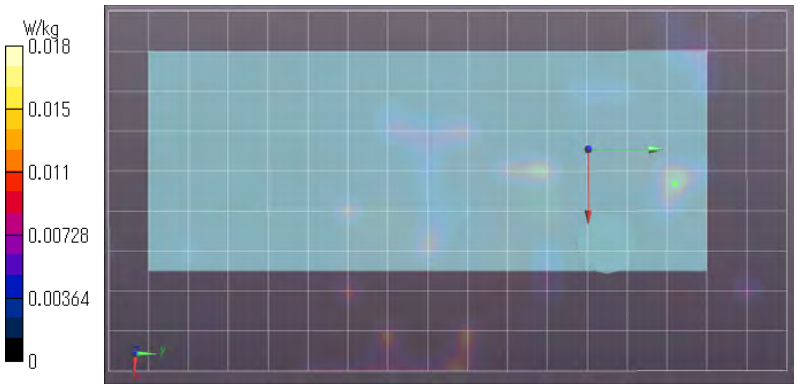
Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4a-6: 5.8GHz band, Antenna 2; Right & touch / 11a (6Mbps) / 5825 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h44,58.11.ant2,5825,right&d0,a(6m)/**
**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0162 W/kg
**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0182 W/kg



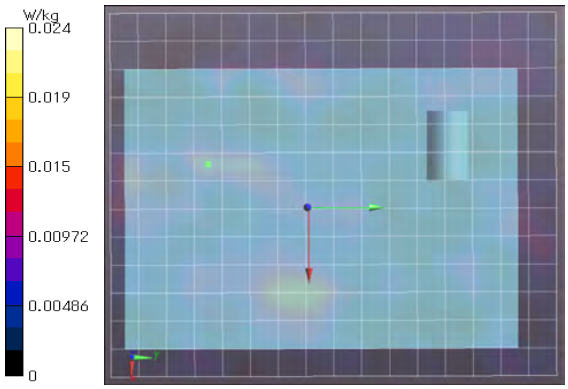

Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4a-7: 5.8GHz band, Antenna 2; Rear & touch / 11a (6Mbps) / 5825 MHz
## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h32,58.7.ant2,5825,bk&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0176 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0243 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4a-8: 5.8GHz band, Antenna 2; Top & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

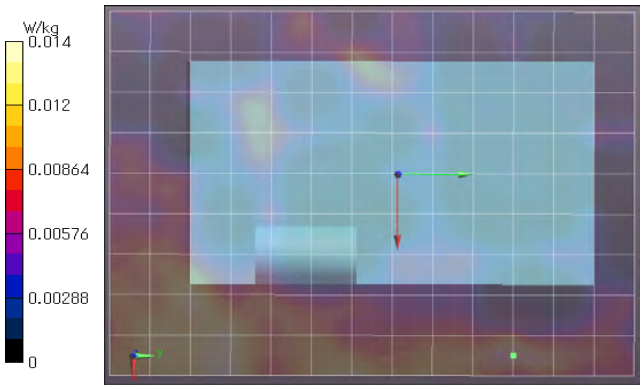
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h56,58.15.ant2,5825,top&d0,a(6m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0137 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0144 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4b-2: 5.8GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5745 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5745 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5745 MHz; σ = 5.093 S/m; $\varepsilon_r$ = 34.28; ρ = 1000 kg/m$^3$**

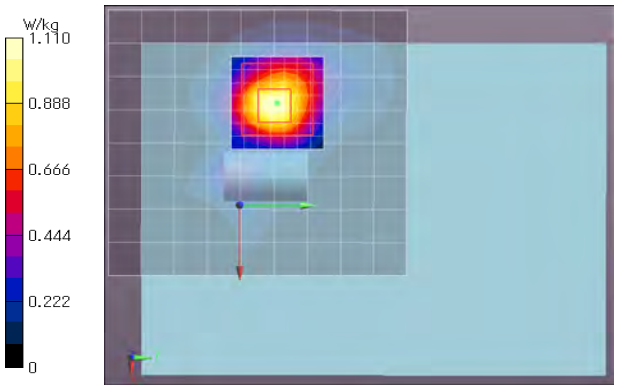
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5745 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h20,58.5.ant1,5745,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.16 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.20 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 16.39 V/m; Power Drift = -0.05 dB; Maximum value of SAR (measured) = 1.11 W/kg; Peak SAR (extrapolated) = 1.89 W/kg

**SAR(1 g) = 0.485 W/kg; SAR(10 g) = 0.168 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.9 mm; Ratio of SAR at M2 to SAR at M1 = 64.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4b-3: 5.8GHz band, Antenna 1; Front & touch / 11a (6Mbps) / 5785 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5785 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5785 MHz; σ = 5.129 S/m; $\varepsilon_r$ = 34.21; ρ = 1000 kg/m$^3$**

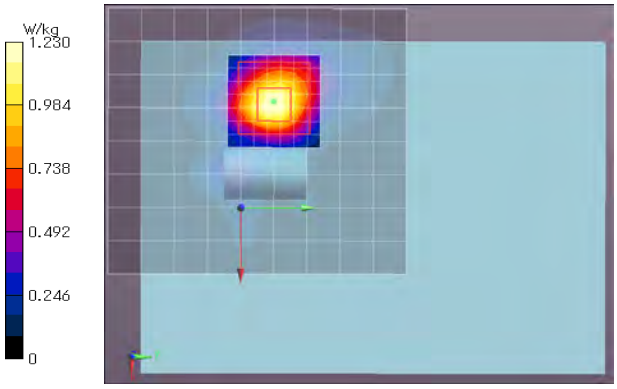
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5785 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,frt,5gc/5h21,58.6.ant1,5785,frt&d0,a(6m)/**
**Area:80x90,10 (9x10x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 1.29 W/kg
**Area:80x90,10 (81x91x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 1.35 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 17.26 V/m; Power Drift = -0.05 dB; Maximum value of SAR (measured) = 1.23 W/kg; Peak SAR (extrapolated) = 2.04 W/kg

**SAR(1 g) = 0.538 W/kg; SAR(10 g) = 0.185 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 8.6 mm; Ratio of SAR at M2 to SAR at M1 = 63.6%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4b-4: 5.8GHz band, Antenna 1; Left & touch / 11a (6Mbps) / 5825 MHz

**EUT: Printer; Type: M382A; Serial: EHLF000009**

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

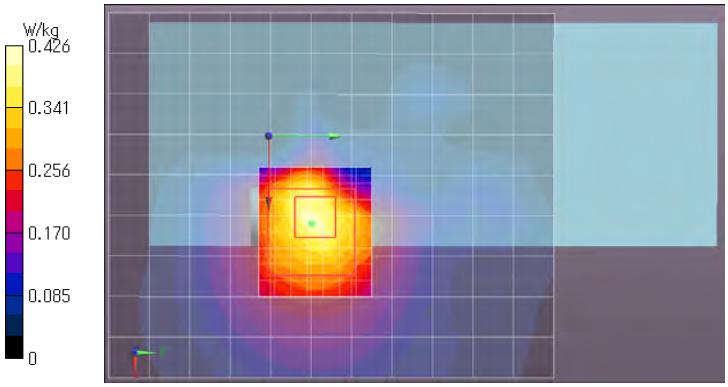
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0

**touch,L2/5h39,58.10.ant1,5825,L&d0,a(6m)/**
**Area:90x110,10 (10x12x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.400 W/kg
**Area:90x110,10 (91x111x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.409 W/kg

**Zoom:28x28x24,xy4-z1.4(ratio) (9x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 9.504 V/m; Power Drift = -0.04 dB; Maximum value of SAR (measured) = 0.426 W/kg; Peak SAR (extrapolated) = 0.681 W/kg

**SAR(1 g) = 0.178 W/kg; SAR(10 g) = 0.073 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 11.1 mm; Ratio of SAR at M2 to SAR at M1 = 63.6%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4b-5: 5.8GHz band, Antenna 1; Bottom & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

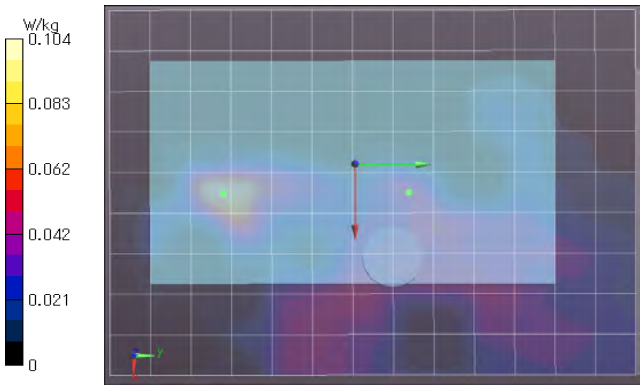
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bottom/5h51,58.14.ant1,5825,btm&d0,a(6m)/**

**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0639 W/kg

**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.104 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4b-6: 5.8GHz band, Antenna 1; Right & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

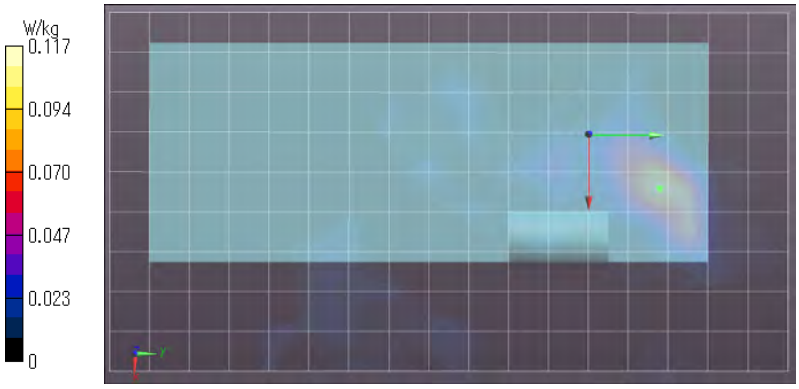
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section -DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19 -Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,R/5h45,58.12.ant1,5825,right&d0,a(6m)/**

**Area:90x170,10 (10x18x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0723 W/kg

**Area:90x170,10 (91x171x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.117 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

Appendix 2: SAR measurement data / Appendix 2-3: Other SAR Plots (cont'd)

## Plot 4b-7: 5.8GHz band, Antenna 1; Rear & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

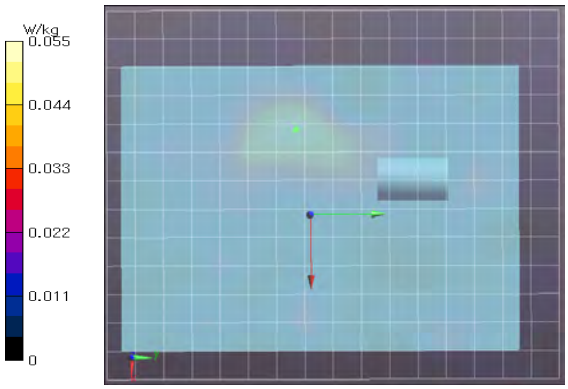
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,bk/5h33,58.8.ant1,5825,bk&d0,a(6m)/**
**Area:130x160,10 (14x17x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0498 W/kg
**Area:130x160,10 (131x161x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0549 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Plot 4b-8: 5.8GHz band, Antenna 1; Top & touch / 11a (6Mbps) / 5825 MHz

## EUT: Printer; Type: M382A; Serial: EHLF000009

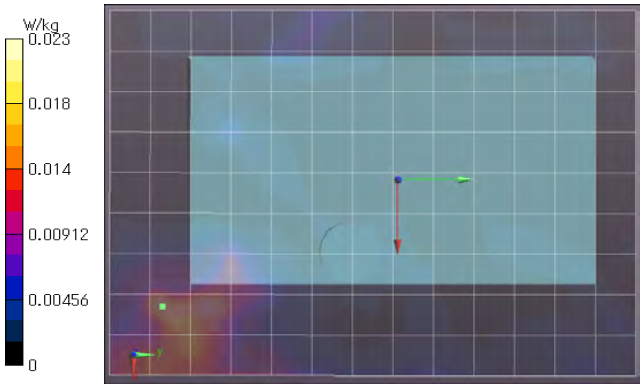
**Mode: 11a(6Mbps, OFDM)** (UID: 0, Wi-fi_5GHz (0), Frame Length in ms: 0; PAR: 0; PMF: 1); **Frequency: 5825 MHz; Crest Factor: 1.0**

**Medium: HSL5GHz(v6.2205); Medium parameters used (interpolated): f = 5825 MHz; σ = 5.172 S/m; $\varepsilon_r$ = 34.12; ρ = 1000 kg/m$^3$**

Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5825 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0

**touch,top/5h57,58.16.ant1,5825,top&d0,a(6m)/**
**Area:90x130,10 (10x14x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 0.0155 W/kg
**Area:90x130,10 (91x131x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 0.0228 W/kg




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of EUT to phantom: 0 mm (2 mm to liquid); ambient: (23~24) deg.C. / (50~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

# APPENDIX 3: Test instruments

## Appendix 3-1: Equipment used

| Test Name | Local ID | LIMS ID | Description | Manufacturer | Model | Serial | Calibration | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Last Date | Interval (Month) |
| AT | SAT10-SARP1 | 160520 | Attenuator | Weinschel - API Technologies Corp | 4M-10 | - | 2021/12/01 | 12 |
| AT | SAT20-SAR2 | 215438 | Attenuator | To-Conne Co., Ltd. | SA-PJ-20 | - | 2022/02/07 | 12 |
| AT | SCC-G66 | 196947 | Coaxial Cable | Huber+Suhner | SUCOFLEX 102 | 803478/2 | 2022/03/02 | 12 |
| AT | SPM-13 | 169910 | Power Meter | Keysight Technologies Inc | 8990B | MY51000448 | 2022/01/25 | 12 |
| AT | SPSS-06 | 169911 | Power sensor | Keysight Technologies Inc | N1923A | MY57270004 | 2022/01/25 | 12 |
| AT | SRENT-22 | 202830 | Spectrum Analyzer | Keysight Technologies Inc | E4440A | MY48250036 | 2021/12/01 | 12 |
| AT,SAR | SOS-26 | 191844 | Humidity Indicator | CUSTOM. Inc | CTH-201 | - | 2021/08/02 | 12 |
| SAR | COTS-SSAR-02 | 144885 | DASY52 software | Schmid&Partner Engineering AG | DASY5 PRO | Ver.52.10.3.1513 | - | - |
| SAR | COTS-SSEP-02 | 144886 | Dielectric assessment software | Schmid&Partner Engineering AG | DAK | Ver.DAK1.10.317.11 | - | - |
| SAR | KAT10-P1 | 144882 | Attenuator | Weinschel - API Technologies Corp | 24-10-34 | BY5927 | 2021/12/01 | 12 |
| SAR | KCPL-07 | 146100 | Directional Coupler | Pulsar Microwave Corp. | CCS30-B26 | 621 | - | - |
| SAR | KDAE-01 | 144944 | Data Acquisition Electronics | Schmid&Partner Engineering AG | DAE4 | 626 | 2021/12/08 | 12 |
| SAR | KIU-08 | 145059 | Power sensor | Rohde & Schwarz | NRV-Z4 | 100372 | 2021/09/18 | 12 |
| SAR | KIU-09 | 145099 | Power sensor | Rohde & Schwarz | NRV-Z4 | 100371 | 2021/09/18 | 12 |
| SAR | KOS-14 | 144986 | Thermo-Hygrometer data logger | SATO KEIRYOKI | SK-L200THIIα/SK-LTHIIα-2 | 015246/08169 | 2021/10/13 | 12 |
| SAR | KPA-12 | 145359 | RF Power Amplifier | Milmega | AS2560-50 | 1018582 | - | - |
| SAR | KPFL-01 | 145560 | Flat Phantom | Schmid&Partner Engineering AG | Oval flat phantom ELI 4.0 | 1059 | 2021/08/18 | 12 |
| SAR | KPM-06 | 144989 | Power Meter | Rohde & Schwarz | NRVD | 101599 | 2021/09/18 | 12 |
| SAR | KPM-08 | 145105 | Power meter | Anritsu Corporation | ML2495A | 6K00003356 | 2021/09/18 | 12 |
| SAR | KPSS-04 | 144991 | Power sensor | Anritsu Corporation | MA2411B | 12088 | 2021/09/18 | 12 |
| SAR | KRU-02 | 145106 | Ruler(150mm,L) | SHINWA | 12103 | - | 2022/02/16 | 12 |
| SAR | KRU-04 | 145086 | Ruler(300mm) | SHINWA | 13134 | - | 2022/02/16 | 12 |
| SAR | KRU-05 | 145087 | Ruler(100x50mm,L) | SHINWA | 12101 | - | 2022/02/16 | 12 |
| SAR | KSDH-01 | 145596 | Device holder | Schmid&Partner Engineering AG | Mounting device for transmitter | - | 2021/09/14 | 12 |
| SAR | KSG-08 | 145109 | Signal Generator | Rohde & Schwarz | SMT06 | 100763 | 2021/09/19 | 12 |
| SAR | SALC-01 | 146112 | Primepure Ethanol | Kanto Chemical Co., Inc. | 14032-79 | - | - | - |
| SAR | SAT6-SAR1 | 145160 | Attenuator | Huber+Suhner | 6806.17.A | 766429-1 | 2021/12/01 | 12 |
| SAR | SCC-SAR2 | 145405 | Coaxial Cable | Huber+Suhner | SF104A/11PC3542/11N451/4M | MY699/4A | 2021/12/01 | 12 |
| SAR | SEPP-R04 | 206293 | Dielectric probe(~20GHz) | Schmid & Partner Engineering AG | DAK3.5 | 1079 | 2021/06/16 | 12 |
| SAR | SOS-SAR2 | 201967 | Digital thermomoter | HANNA | Checktemp-4 | A01440226111 | 2021/10/13 | 12 |
| SAR | SOS-SAR3 | 201968 | Digital thermomoter | HANNA | Checktemp-4 | A01310946111 | 2021/10/13 | 12 |
| SAR | SPB-02 | 146235 | Dosimetric E-Field Probe | Schmid&Partner Engineering AG | EX3DV4 | 3907 | 2022/04/19 | 12 |
| SAR | SRU-06 | 150560 | Measuring Tool, Ruler | SHINWA | 14001 | -- | 2022/02/16 | 12 |
| SAR | SSA-04 | 146176 | Spectrum Analyzer | ADVANTEST | R3272 | 101100994 | - | - |
| SAR | SSAR-02 | 146177 | SAR measurement system | Schmid&Partner Engineering AG | DASY5 | 1324 | - | - |
| SAR | SSDA-R02 | 145592 | Dipole Antenna | Schmid&Partner Engineering AG | D5GHzV2 | 1092 | 2021/10/15 | 12 |
| SAR | SSLHV6-01 | 207714 | Head Tissue Simulating Liquid | Schmid&Partner Engineering AG | HBBL600-10000V6 | SL AAH U16 BC | - | - |
| SAR | SSNA-01 | 146258 | Network Analyzer | Keysight Technologies Inc | 8753ES | US39171777 | 2021/11/09 | 12 |
| SAR | SSRBT-02 | 145621 | SAR robot | Schmid&Partner Engineering AG | TX60 Lspeag | F12/5L2QA1/A/01 | 2021/09/14 | 12 |
| SAR | SWTR-03 | 146185 | DI water | MonotaRo | 34557433 | - | - | - |
| SAR | KSDA-01 | 145090 | Dipole Antenna | Schmid&Partner Engineering AG | D2450V2 | 822 | 2021/12/09 | 12 |

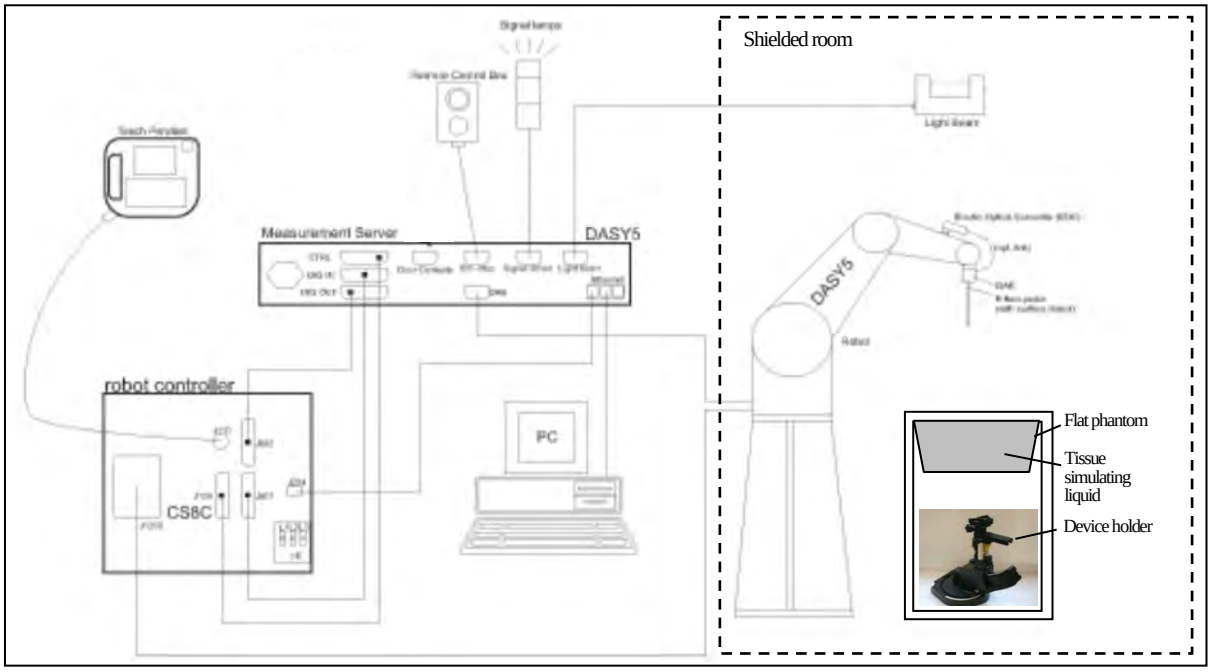
*. AT (antenna terminal conducted power measurement) was measured April 1and April 7, 2022. (Refer to Section 5 in this report.)
*. Local ID: SALC-01, the parameters of primepure Ethanol (as reference liquid) used for the simulated tissue parameter confirmation was defined the NPL Report MAT23 (http://www.npl.co.uk/content/conpublication/4295)

The expiration date of calibration is the end of the expired month.
As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chain of calibrations.
All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or international standards.
*. Hyphens for Last Calibration Date and Cal Int (month) are instruments that Calibration is not required (e.g. software), or instruments checked in advance before use.

**[Test Item]** SAR: Specific Absorption Rate, AT: Antenna terminal conducted power

## Appendix 3-2: Configuration and peripherals

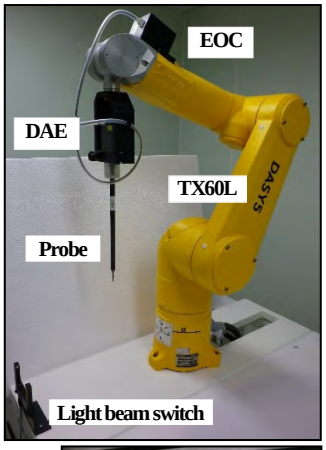
These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetry probes EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.




The DASY5 system for performing compliance tests consist of the following items:

| | |
|---|---|
| 1 | A standard high precision 6-axis robot (Stäubli TX/RX family) with controller, teach pendant and software.<br>An arm extension for accommodating the data acquisition electronics (DAE). |
| 2 | An isotropic field probe optimized and calibrated for the targeted measurement. |
| 3 | A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC. |
| 4 | The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server. |
| 5 | The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts. |
| 6 | The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning. |
| 7 | A computer running Win7 professional operating system and the DASY5 software. |
| 8 | R Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc. |
| 9 | The phantom. |
| 10 | The device holder for EUT. (low-loss dielectric palette) (*. when it was used.) |
| 11 | Tissue simulating liquid mixed according to the given recipes. |
| 12 | Validation dipole kits allowing to validate the proper functioning of the system. |

## Appendix 3-3: Test system specification




**TX60 Lsepag robot/CS8Csepag-TX60 robot controller**

•Number of Axes : 6 •Repeatability : ±0.02 mm
•Manufacture : Stäubli Unimation Corp.

**DASY5 Measurement server**

•Features : The DASY5 measurement server is based on a PC/104 CPU board with a 400MHz intel ULV Celeron, 128MB chip-disk and 128MB RAM. The necessary circuits for communication with the DAE4 electronics box, as well as the 16 bit AD converter system for optical detection and digital I/O interface are contained on the DASY5 I/O board, which is directly connected to the PC/104 bus of the CPU board.
•Calibration : No calibration required.
•Manufacture : Schmid & Partner Engineering AG

**Data Acquisition Electronic (DAE)**

•Features : Signal amplifier, multiplexer, A/D converter and control logic.
Serial optical link for communication with DASY5 embedded system (fully remote controlled).
2 step probe touch detector for mechanical surface detection and emergency robot stop (not in -R version)
•Measurement Range : 1 µV to > 200 mV (16bit resolution and 2 range settings: 4 mV, 400 mV)
•Input Offset voltage : < 1 µV (with auto zero)
•Input Resistance : 200 MΩ
•Battery Power : > 10 hrs. of operation (with two 9 V battery)
•Manufacture : Schmid & Partner Engineering AG

**Electro-Optical Converter (EOC61)**

•Manufacture : Schmid & Partner Engineering AG

**Light Beam Switch (LB5/80)**

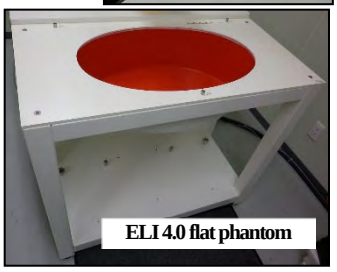
•Manufacture : Schmid & Partner Engineering AG

**SAR measurement software**

•Item : Dosimetric Assessment System DASY5
•Software version : Refer to Appendix 3-1 (Equipment used)
•Manufacture : Schmid & Partner Engineering AG

**E-Field Probe**

•Model : EX3DV4 (serial number: 3907)
•Construction : Symmetrical design with triangular core.
Built-in shielding against static charges.
PEEK enclosure material (resistant to organic solvents, e.g., DGBE).
•Frequency : 10MHz to 6GHz, Linearity: ±0.2 dB (30MHz to 6GHz)
•Conversion Factors (CF) : Head: (2.45, 5.25, 5.6, 5.8) GHz which were used.
•Directivity : ±0.3 dB in HSL (rotation around probe axis)
±0.5 dB in tissue material (rotation normal to probe axis)
•Dynamic Range : 10µW/g to > 100 mW/g; Linearity: ±0.2 dB (noise: typically < 1 µW/g)
•Dimension : Overall length: 330 mm (Tip: 20 mm)
Tip diameter: 2.5 mm (Body: 12 mm)
Typical distance from probe tip to dipole centers: 1mm
•Application : High precision dosimetric measurement in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6GHz with precision of better 30%.
•Manufacture : Schmid & Partner Engineering AG




**Phantom**

•Model Number : **ELI 4.0 oval flat phantom**
•Shell Material : Fiberglass •Shell Thickness : Bottom plate: 2 ±0.2 mm
•Dimensions : Bottom elliptical: 600×400 mm, Depth: 190 mm (Volume: Approx. 30 liters)
•Manufacture : Schmid & Partner Engineering AG

**Device Holder**

☒ Urethane foam
☐ Device holder: In combination with the ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Transmitter devices can be easily and accurately positioned. The low-loss dielectric urethane foam was used for the mounting section of device holder.
•Material : Polyoxymethylene (POM) •Manufacture : Schmid & Partner Engineering AG
☐ Laptop holder: A simple but effective and easy-to-use extension for the Mounting Device; facilitates testing of larger devices (e.g., laptops, cameras, etc.) according to IEC 62209-2.
•Material : Polyoxymethylene (POM), PET-G, Foam
•Manufacture : Schmid & Partner Engineering AG

**Data storage and evaluation (postprocessing)**

The DASY5 software stores the measured voltage acquired by the Data Acquisition Electronics (DAE) as raw data together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and communication system parameters) in measurement files with the extension ".da5x". The postprocessing software evaluates the data every time the data is visualized or exported.
The fields and SAR are calculated from the measured voltage (probe voltage acquired by the DAE) and the following parameters:

| | | |
|---|---|---|
| Probe parameters: | - Sensitivity | *normi, ai0, ai1, ai2* |
| | - Conversion Factor | *convFi* |
| | - Diode Compression Point | *dcpi* |
| | - Probe Modulation Response Factors | *ai, bi, ci, d* |
| Device parameters: | - Frequency | *f* |
| | - Crest factor | *cf* |
| Media parameters: | - Conductivity | $\sigma$ |
| | - Relative Permittivity | $\rho$ |

This parameters are stored in the DASY5 V52 measurement file.
These parameters must be correctly set in the DASY5 V52 software setup. They are available as configuration file and can be imported into the measurement file. The values displayed in the multimeter window are assessed using the parameters of the actual system setup. In the scan visualization and export modes, the parameters stored in the measurement file are used.
The measured voltage is not proportional to the exciting. It must be first linearized.

Approximated Probe Response Linearization using Crest Factor;
This linearization method is enabled when a custom defined communication system is measured. The compensation applied is a function of the measured voltage, the detector diode compression point and the crest factor of the measured signal.

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

| | | | |
|---|---|---|---|
| with | $V_i$ | = linearized voltage of channel i in µV | (i = x,y,z) |
| | $U_i$ | = measured voltage of channel i in µV | (i = x,y,z) |
| | $cf$ | = crest factor of exciting field | (DASY parameter) |
| | $dcp_i$ | = diode compression point of channel i in µV | (Probe parameter, i = x,y,z) |

The resulting linearized voltage is only approximated because the probe is not calibrated to this specific signal.

Field and SAR Calculation
The primary field data for each channel are calculated using the linearized voltage:

$$\text{E} - \text{fieldprobes}: \qquad E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

| | | | |
|---|---|---|---|
| with | $V_i$ | = linearized voltage of channel i in µV | (i = x,y,z) |
| | $Norm_i$ | = sensor sensitivity of channel i in µV/(V/m)$^2$ for E-field Probes | (i = x,y,z) |
| | $ConvF$ | = sensitivity enhancement in solution | |
| | $E_i$ | = electric field strength of channel i in V/m | (i = x,y,z) |

The RMS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

| | | |
|---|---|---|
| with | SAR | = local specific absorption rate in mW/g |
| | Etot | = total field strength in V/m |
| | $\sigma$ | = conductivity in [mho/m] or [Siemens/m] |
| | $\rho$ | = equivalent tissue density in g/cm$^3$ |

## Appendix 3-4: Simulated tissue composition and parameter confirmation

| Liquid type | Head | Control No. | SSLHV6-01 | Model No. / Product No. | HBBL600-10000V6 / SL AAH U16 BC |
|---|---|---|---|---|---|
| Ingredient: Mixture [%] | Water: >77, Ethanediol: <5.2, Sodium petroleum sulfonate:<2.9, Hexylene Glycol: <2.9, alkoxylated alcohol (>$C_{16}$):<2.0 | | | | |
| Tolerance specification | ± 10% | | | | |
| Temperature gradients [% / deg.C] | permittivity: -0.19 / conductivity: -0.57 (at 2.6 GHz), permittivity: +0.31 / conductivity: -1.43 (at 5.5 GHz) (*1) | | | | |
| Manufacture | Schmid & Partner Engineering AG | Note: *1. speag_920-SLAAxyy-E_1.12.15CL (Maintenance of tissue simulating liquid) | | | |

*. The dielectric parameters were checked prior to assessment using the DAK3.5 dielectric probe kit.

| Date measured | Frequency [MHz] | Liquid type | Ambient/ [deg.C.] | Ambient/ [%RH] | Liquid temp. [deg.C.] | Liquid depth of phantom [mm] | Liquid parameters (*a) Permittivity (εr) [-] Target | Measured Meas. | Δεr[%] | Limit | Δend, >48hrs | Conductivity [S/m] Target | Measured Meas. | Δσ[%] | Limit | Δend, >48hrs | ΔSAR (*b) 1g [%] | 10g [%] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 10, 2022 | 2450 | Head | 24 | 40~50 | 22.5 | 150 | *39.2* | 39.67 | 1.2 | 10% | - | *1.80* | 1.856 | 3.1 | 10% | - | 1.2 | 0.6 |
| May 10, 2022 | 5250 | Head | | | | | *35.93* | 35.08 | -2.4 | 10% | - | *4.706* | 4.535 | -3.6 | 10% | - | 0.6 | 0.8 |
| May 10, 2022 | 5600 | Head | | | | | *35.53* | 34.52 | -2.9 | 10% | - | *5.065* | 4.926 | -2.7 | 10% | - | 0.7 | 0.9 |
| May 10, 2022 | 5800 | Head | | | | | *35.3* | 34.18 | -3.2 | 10% | - | *5.27* | 5.146 | -2.4 | 10% | - | 0.7 | 0.9 |
| Re-check, May 12, 2022 | 2450 | Head | 23 | 40~50 | 22.5 | 150 | *39.2* | 39.52 | 0.8 | 10% | -0.4 % | *1.80* | 1.844 | 2.4 | 10% | -0.6 % | 1.0 | 0.5 |
| Re-check, May 12, 2022 | 5250 | Head | | | | | *35.93* | 35.04 | -2.5 | 10% | -0.1 % | *4.706* | 4.504 | -4.3 | 10% | -0.7 % | 0.6 | 0.9 |
| Re-check, May 12, 2022 | 5600 | Head | | | | | *35.53* | 34.46 | -3.0 | 10% | -0.2 % | *5.065* | 4.888 | -3.5 | 10% | -0.8 % | 0.8 | 0.9 |
| Re-check, May 12, 2022 | 5800 | Head | | | | | *35.3* | 34.14 | -3.3 | 10% | -0.1 % | *5.27* | 5.115 | -2.9 | 10% | -0.6 % | 0.8 | 0.9 |

*. Calculating formula: Δend(>48 hrs.) (%) = {(dielectric properties, end of test series) / (dielectric properties, beginning of test series) -1} × 100

*. The dielectric parameters on May 12 were reference purpose only.

*a. The target values of (2000, 2450, 3000 and 5800) MHz are parameters defined in Appendix A of KDB 865664 D01. For other frequencies, the target nominal dielectric values shall be obtained by linear interpolation between the higher and lower tabulated figures.

| Standard | | | | | | | | | | *Interpolated & Extrapolated* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| f (MHz) | Head Tissue εr | Head Tissue σ [S/m] | Body Tissue εr | Body Tissue σ [S/m] | f (MHz) | Head Tissue εr | Head Tissue σ [S/m] | Body Tissue εr | Body Tissue σ [S/m] | f (MHz) | Head Tissue εr | Head Tissue σ [S/m] | Body Tissue εr | Body Tissue σ [S/m] | f (MHz) | Head Tissue εr | Head Tissue σ [S/m] | Body Tissue εr | Body Tissue σ [S/m] |
| (1800-)2000 | **40.0** | **1.40** | **53.3** | **1.52** | 3000 | **38.5** | **2.40** | **52.0** | **2.73** | *5250* | *35.93* | *4.706* | *48.95* | *5.358* | *5750* | *35.36* | *5.219* | *48.27* | *5.942* |
| 2450 | **39.2** | **1.80** | **52.7** | **1.95** | 5800 | **35.3** | **5.27** | **48.2** | **6.00** | *5600* | *35.53* | *5.065* | *48.47* | *5.766* | | | | | |

*b. The coefficients are parameters defined in IEEE Std. 1528-2013.

$\Delta SAR(1g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = -7.854E\text{-}4 \times f^3 + 9.402E\text{-}3 \times f^2 - 2.742E\text{-}2 \times f - 0.2026$ / $C\sigma = 9.804E\text{-}3 \times f^3 - 8.661E\text{-}2 \times f^2 + 2.981E\text{-}2 \times f + 0.7829$

$\Delta SAR(10g) = C\varepsilon r \times \Delta\varepsilon r + C\sigma \times \Delta\sigma$, $C\varepsilon r = 3.456 \times 10^{-3} \times f^3 - 3.531 \times 10^{-2} \times f^2 + 7.675 \times 10^{-2} \times f - 0.1860$ / $C\sigma = 4.479 \times 10^{-3} \times f^3 - 1.586 \times 10^{-2} \times f^2 - 0.1972 \times f + 0.7717$

## Appendix 3-5: Daily check results

*. Prior to the SAR assessment of EUT, the Daily check was performed to test whether the SAR system was operating within its target of ±10%. The Daily check results are in the table below.

| Date | Frequency [MHz] | ΔSAR Liquid Type | ΔSAR 1g [%] | ΔSAR 10g [%] | Daily check results (*. Meas.: Measured, Cal.: Calibration value, STD: Standard value; n/a: not applicable) SAR (1g) [W/kg] (*d) Meas. (*c) | ΔSAR-correct | 1W scaled | Target Cal. (*e) | Target STD (*f) | Deviation Cal. [%] | Deviation STD [%] | Limit [%] | Pass ? | SAR (10g) [W/kg] (*d) Meas. (*c) | ΔSAR-correct | 1W scaled | Target Cal. (*e) | Target STD (*f) | Deviation Cal. [%] | Deviation STD [%] | Limit [%] | Pass ? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 10, 2022 | 5250 | Head | 0.6 | 0.8 | 7.55 | 7.5 | 75 | 80 | n/a | -6.3 | - | ±10 | Pass | 2.19 | 2.17 | 21.7 | 22.8 | n/a | -4.8 | - | ±10 | Pass |
| May 11, 2022 | 5600 | Head | 0.7 | 0.9 | 8.39 | 8.33 | 83.3 | 85.1 | n/a | -2.1 | - | ±10 | Pass | 2.39 | 2.37 | 23.7 | 22.8 | n/a | 3.9 | - | ±10 | Pass |
| May 12, 2022 | 5800 | Head | 0.7 | 0.9 | 7.87 | 7.81 | 78.1 | 83 | 78 | -5.9 | 0.1 | ±10 | Pass | 2.25 | 2.23 | 22.3 | 23.3 | 21.9 | -4.3 | 1.8 | ±10 | Pass |
| May 12, 2022 | 2450 | Head | 1.2 | 0.6 | 13.1 | 12.94 | 51.76 | 52 | 52.4 | -0.5 | -1.2 | ±10 | Pass | 6.1 | 6.06 | 24.24 | 24.4 | 24 | -0.7 | 1.0 | ±10 | Pass |

*. Calculating formula:
ΔSAR corrected SAR (1g,10g) (W/kg) = (Measured SAR(1g,10g) (W/kg)) × (100 - (ΔSAR(%)) / 100

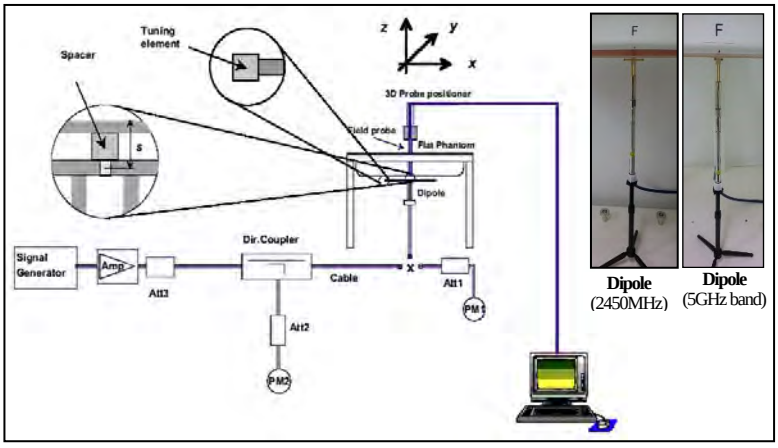
*c. The "Meas. (Measured)" SAR value is obtained at 250 mW for 2450MHz, 100 mW for (5250, 5600, 5800) MHz

*d. The measured SAR value of Daily check was compensated for tissue dielectric deviations (ΔSAR) and scaled to 1W of output power in order to compare with the manufacture's calibration target value which was normalized.

*e. The target value is a parameter defined in the calibration data sheet of D2450V2 (sn:822) and D5GHZV2 (sn:1092) dipole calibrated by Schmid & Partner Engineering AG (Certification No. D2450V2-822_Dec21 and D5GHzV2-1092_Oct21, the data sheet was filed in this report).

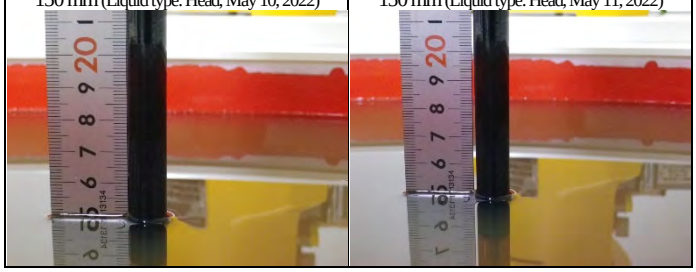
*f. The target value (normalized to 1W) is defined in IEEE Std.1528.

**Test setup for the system performance check->**



## Appendix 3-6: Daily check measurement data

| Photographs of Liquid depth | |
|---|---|
| 150 mm (Liquid type: Head, May 10, 2022) | 150 mm (Liquid type: Head, May 11, 2022) |

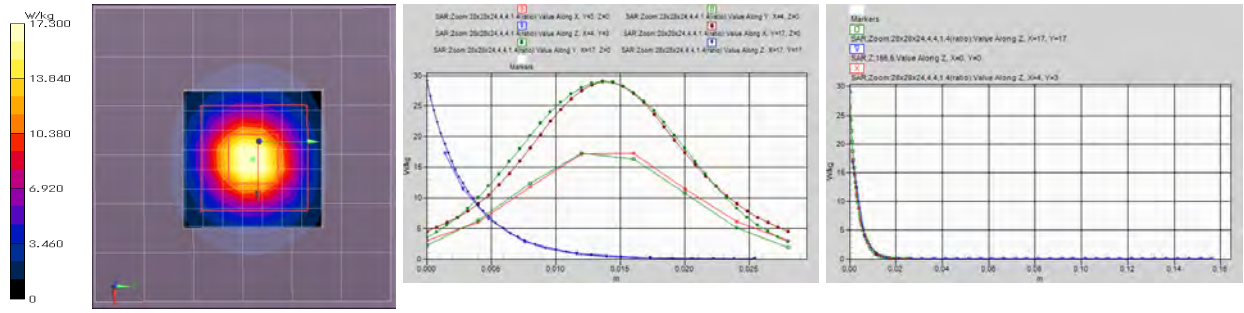


**EUT: Dipole(5GHz); Type: D5GHzV2; Serial: 1092; Power; 100 mW**
**Communication System: UID 0, CW (0);** (Frame Length in ms: 0; Communication System PAR: 0; PMF: 1); **Frequency: 5250 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5250 MHz; σ = 4.535 S/m; $\varepsilon_r$ = 35.08; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(5.2, 5.2, 5.2) @ 5250 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**Area:60x60,10 (7x7x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 17.7 W/kg
**Area:60x60,10 (61x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 18.3 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 16.7 W/kg

**Zoom:28x28x24,4,4,1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 69.04 V/m; Power Drift = 0.04 dB; Maximum value of SAR (measured) = 17.3 W/kg; Peak SAR (extrapolated) = 29.0 W/kg
**SAR(1 g) = 7.55 W/kg; SAR(10 g) = 2.19 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.4 mm; Ratio of SAR at M2 to SAR at M1 = 66.5%)



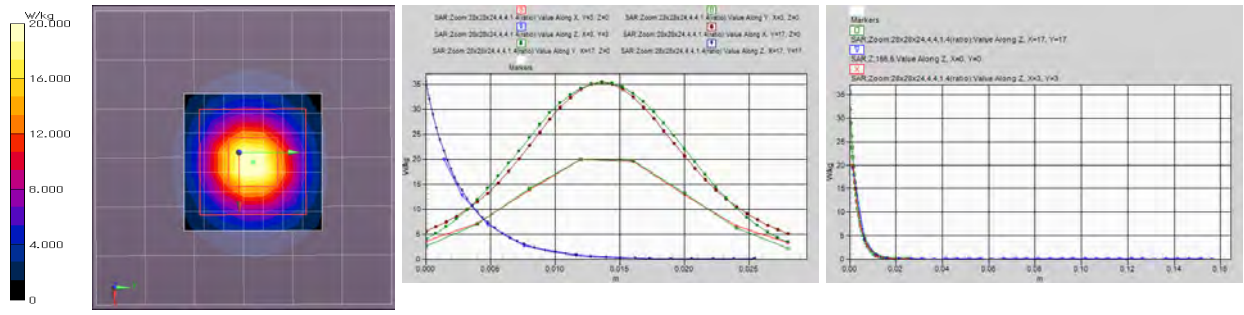

Remarks: *. Date tested: 2022/5/10; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of dipole to phantom: 8mm (10mm to liquid); ambient: (23~24) deg.C. / (60~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

**EUT: Dipole(5GHz); Type: D5GHzV2; Serial: 1092; Power; 100 mW**
**Communication System: UID 0, CW (0);** (Frame Length in ms: 0; Communication System PAR: 0; PMF: 1); **Frequency: 5600 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5600 MHz; σ = 4.926 S/m; $\varepsilon_r$ = 34.52; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.57, 4.57, 4.57) @ 5600 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**Area:60x60,10 (7x7x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 20.1 W/kg
**Area:60x60,10 (61x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 21.2 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 19.3 W/kg

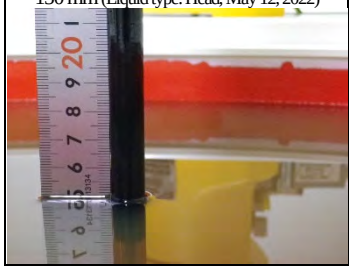
**Zoom:28x28x24,4,4,1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 71.07 V/m; Power Drift = -0.01 dB; Maximum value of SAR (measured) = 20.0 W/kg; Peak SAR (extrapolated) = 35.4 W/kg
**SAR(1 g) = 8.39 W/kg; SAR(10 g) = 2.39 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.5 mm; Ratio of SAR at M2 to SAR at M1 = 63.4%)




Remarks: *. Date tested: 2022/5/11; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of dipole to phantom: 8mm (10mm to liquid); ambient: (23~24) deg.C. / (60~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

**Appendix 3-6: Daily check measurement data (cont'd)**

Photographs of Liquid depth
150 mm (Liquid type: Head, May 12, 2022)

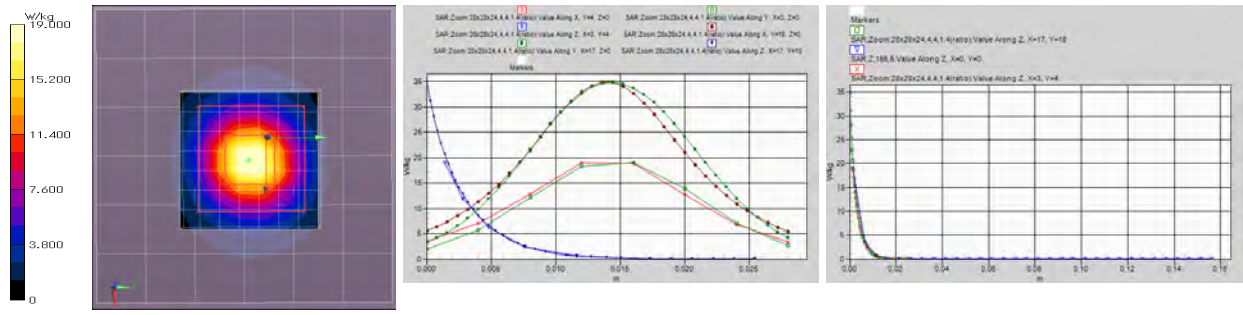


**EUT: Dipole(5GHz); Type: D5GHzV2; Serial: 1092; Power; 100 mW**
**Communication System: UID 0, CW (0);** (Frame Length in ms: 0; Communication System PAR: 0; PMF: 1); **Frequency: 5800 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 5800 MHz; σ = 5.146 S/m; $\varepsilon_r$ = 34.18; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(4.65, 4.65, 4.65) @ 5800 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 1.0, 25.0, 156.0

**Area:60x60,10 (7x7x1):** Measurement grid: dx=10mm, dy=10mm; Maximum value of SAR (measured) = 19.7 W/kg
**Area:60x60,10 (61x61x1):** Interpolated grid: dx=1.000 mm, dy=1.000 mm; Maximum value of SAR (interpolated) = 20.4 W/kg
**Z;155,5 (1x1x32):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 19.0 W/kg

**Zoom:28x28x24,4,4,1.4(ratio) (8x8x7)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=1.4mm;
Reference Value = 69.12 V/m; Power Drift = -0.03 dB; Maximum value of SAR (measured) = 19.0 W/kg; Peak SAR (extrapolated) = 34.8 W/kg
**SAR(1 g) = 7.87 W/kg; SAR(10 g) = 2.25 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 7.4 mm; Ratio of SAR at M2 to SAR at M1 = 62.1%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of dipole to phantom: 8mm (10mm to liquid); ambient: (23~24) deg.C. / (60~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

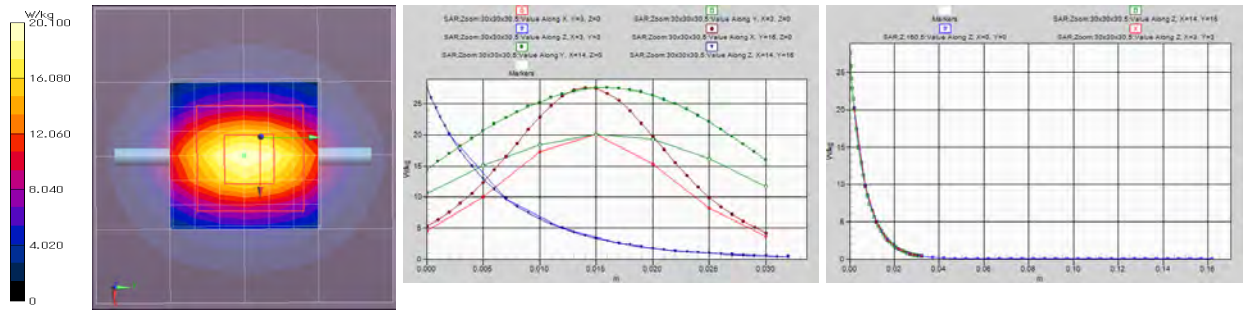
Test Laboratory: Shonan EMC Lab., UL Japan, Inc./Date/Time: 2022/05/09 15:04:22

**EUT: Dipole(2.4GHz); Type: D2450V2; Serial:822; Power; 250 mW**
**Communication System: UID 0, CW (0);** (Frame Length in ms: 0; Communication System PAR: 0; PMF: 1); **Frequency: 2450 MHz; Crest Factor: 1.0**
**Medium: HSL5GHz(v6.2205); Medium parameters used: f = 2450 MHz; σ = 1.856 S/m; $\varepsilon_r$ = 39.67; ρ = 1000 kg/m$^3$**
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

**DASY Configuration:** -Electronics: DAE4 Sn626; Calibrated: 2021/12/08 / -Phantom: ELI v4.0; Type: QDOVA001BA; Serial: 1059; Phantom section: Flat Section
-DASY52 52.10.3(1513); SEMCAD X 14.6.13(7474) / -Probe: EX3DV4 - SN3907; ConvF(7.49, 7.49, 7.49) @ 2450 MHz; Calibrated: 2022/04/19
-Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0, 161.0

**Area:60x60,15 (5x5x1):** Measurement grid: dx=15mm, dy=15mm; Maximum value of SAR (measured) = 20.0 W/kg
**Area:60x60,15 (41x41x1):** Interpolated grid: dx=1.500 mm, dy=1.500 mm; Maximum value of SAR (interpolated) = 20.0 W/kg
**Z;160,5 (1x1x33):** Measurement grid: dx=20mm, dy=20mm, dz=5mm; Maximum value of SAR (measured) = 20.2 W/kg

**Zoom:30x30x30,5 (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm;
Reference Value = 104.3 V/m; Power Drift = 0.04 dB; Maximum value of SAR (measured) = 20.1 W/kg; Peak SAR (extrapolated) = 27.6 W/kg
**SAR(1 g) = 13.1 W/kg; SAR(10 g) = 6.1 W/kg** (*. Smallest distance from peaks to all points 3 dB below = 9 mm; Ratio of SAR at M2 to SAR at M1 = 48.2%)




Remarks: *. Date tested: 2022/5/12; Tested by: Hiroshi Naka; Tested place:No.7 shielded room,
*. liquid depth: 150 mm; Position: distance of dipole to phantom: 8mm (10mm to liquid); ambient: (23~24) deg.C. / (60~70) %RH,
*. liquid temperature: 22.5 deg.C ± 0.5 deg.C.( 22.5 deg.C, in check); *.White cubic: zoom scan area, Red cubic: big=SAR(10g )/small=SAR(1g)

## Appendix 3-7: Uncertainty Assessment (SAR measurement/Daily check)

*. Although this standard determines only the limit value of uncertainty, there is no applicable rule of uncertainty in this. Therefore, the following results are derived depending on whether or not laboratory uncertainty is applied.

| Uncertainty of SAR measurement (2.4GHz~6GHz) (*.v6h,ε&σ: 10%, DAK3.5, Tx: ≈100% duty cycle) (v09r02) | 1g SAR | 10g SAR |
|---|---|---|
| Combined measurement uncertainty of the measurement system (k=1) | ± 13.2 % | ± 13.1 % |
| Expanded uncertainty (k=2) | ± 26.4 % | ± 26.2 % |

| | Error Description (2.4-6GHz) | Uncertainty Value | Probability distribution | Divisor | ci (1g) | ci (10g) | ui (1g) | ui (10g) | Vi, veff |
|---|---|---|---|---|---|---|---|---|---|
| A | **Measurement System** (DASY5) | | | | | | (std. uncertainty) | (std. uncertainty) | |
| 1 | Probe Calibration Error | ±7.0 % | Normal | 1 | 1 | 1 | ±7.0 % | ±7.0 % | ∞ |
| 2 | Axial isotropy Error | ±4.7 % | Rectangular | √3 | 0.71 | 0.71 | ±1.9 % | ±1.9 % | ∞ |
| 3 | Hemispherical isotropy Error | ±9.6 % | Rectangular | √3 | 0.71 | 0.71 | ±3.9 % | ±3.9 % | ∞ |
| 4 | Linearity Error | ±4.7 % | Rectangular | √3 | 1 | 1 | ±2.7 % | ±2.7 % | ∞ |
| 5 | Probe modulation response (v09) | ±5.5 % | Rectangular | √3 | 1 | 1 | ±3.2 % | ±3.2 % | ∞ |
| 6 | Sensitivity Error (detection limit) | ±1.0 % | Rectangular | √3 | 1 | 1 | ±0.6 % | ±0.6 % | ∞ |
| 7 | Boundary effects Error | ±4.3% | Rectangular | √3 | 1 | 1 | ±2.5 % | ±2.5 % | ∞ |
| 8 | Readout Electronics Error(DAE) | ±0.3 % | Rectangular | √3 | 1 | 1 | ±0.3 % | ±0.3 % | ∞ |
| 9 | Response Time Error | ±0.8 % | Normal | 1 | 1 | 1 | ±0.5 % | ±0.5 % | ∞ |
| 10 | Integration Time Error (≈100% duty cycle) | ±0 % | Rectangular | √3 | 1 | 1 | 0 % | 0 % | ∞ |
| 11 | RF ambient conditions-noise (v09) | ±1.0 % | Rectangular | √3 | 1 | 1 | ±0.6 % | ±0.6 % | ∞ |
| 12 | RF ambient conditions-reflections | ±3.0 % | Rectangular | √3 | 1 | 1 | ±1.7 % | ±1.7 % | ∞ |
| 13 | Probe positioner mechanical tolerance | ±3.3 % | Rectangular | √3 | 1 | 1 | ±1.9 % | ±1.9 % | ∞ |
| 14 | Probe Positioning with respect to phantom shell | ±6.7 % | Rectangular | √3 | 1 | 1 | ±3.9 % | ±3.9 % | ∞ |
| 15 | Max. SAR evaluation (Post-processing) | ±4.0 % | Rectangular | √3 | 1 | 1 | ±2.3 % | ±2.3 % | ∞ |
| B | **Test Sample Related** | | | | | | | | |
| 16 | Device Holder or Positioner Tolerance (v09) | ±3.2 % | Normal | 1 | 1 | 1 | ±3.2 % | ±3.2 % | 5 |
| 17 | Test Sample Positioning Error (v09) | ±2.1 % | Normal | 1 | 1 | 1 | ±2.1 % | ±2.1 % | 10 |
| 18 | Power scaling | ±0 % | Rectangular | √3 | 1 | 1 | ±0 % | ±0 % | ∞ |
| 19 | Drift of output power (measured, <0.2dB) | ±5.0 % | Rectangular | √3 | 1 | 1 | ±2.9 % | ±2.9 % | ∞ |
| C | **Phantom and Setup** | | | | | | | | |
| 20 | Phantom uncertainty (shape, thickness tolerances) | ±7.5 % | Rectangular | √3 | 1 | 1 | ±4.3 % | ±4.3 % | ∞ |
| 21 | Algorithm for correcting SAR (e',σ: 10%) | ±1.9 % | Normal | 1 | 1 | 0.84 | ±1.9 % | ±1.6 % | ∞ |
| 22 | Measurement Liquid Conductivity Error (DAK3.5) | ±3.0 % | Normal | 1 | 0.78 | 0.71 | ±2.3 % | ±2.1 % | 7 |
| 23 | Measurement Liquid Permittivity Error (DAK3.5) | ±3.1 % | Normal | 1 | 0.23 | 0.26 | ±0.7 % | ±0.8 % | 7 |
| 24 | Liquid Conductivity-temp.uncertainty (≤2deg.C.v6h) | ±3.0 % | Rectangular | √3 | 0.78 | 0.71 | ±1.4 % | ±1.2 % | ∞ |
| 25 | Liquid Permittivity-temp.uncertainty (≤2deg.C.v6h) | ±1.0 % | Rectangular | √3 | 0.23 | 0.26 | ±0.1 % | ±0.2 % | ∞ |
| | **Combined Standard Uncertainty** (v09r02) | | | | | | **± 13.2** % | **± 13.1** % | 945 |
| | **Expanded Uncertainty (k=2)** (v09r02) | | | | | | **± 26.4 %** | **± 26.2 %** | |

*. This measurement uncertainty budget is suggested by IEEE Std.1528(2013) and determined by Schmid & Partner Engineering AG (DASY5 Uncertainty Budget). Per KDB 865664 D01 (v01r04) SAR Measurement 100 MHz to 6 GHz, Section 2.8.1., when the highest measured SAR(1g) within a frequency band is < 1.5W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std.1528 (2013) is not required in SAR reports submitted for equipment approval.

| Uncertainty of daily check (2.4~6GHz) (*.v6h,ε&σ tolerance: 10%, DAK3.5, CW) (v09r02) | 1g SAR | 10g SAR |
|---|---|---|
| Combined measurement uncertainty of the measurement system (k=1) | ± 10.8 % | ± 10.7 % |
| Expanded uncertainty (k=2) | ± 21.6 % | ± 21.4 % |

| | Error Description (2.4-6GHz) | Uncertainty Value | Probability distribution | Divisor | ci (1g) | ci (10g) | ui (1g) | ui (10g) | Vi, veff |
|---|---|---|---|---|---|---|---|---|---|
| A | **Measurement System** (DASY5) | | | | | | (std. uncertainty) | (std. uncertainty) | |
| 1 | Probe Calibration Error | ±7.0 % | Normal | 1 | 1 | 1 | ±7.0 % | ±7.0 % | ∞ |
| 2 | Axial isotropy error | ±4.7 % | Rectangular | √3 | 0.71 | 0.71 | ±1.9 % | ±1.9 % | ∞ |
| 3 | Hemispherical isotropy error | ±9.6 % | Rectangular | √3 | 0 | 0 | 0 % | 0 % | ∞ |
| 4 | Probe linearity | ±4.7 % | Rectangular | √3 | 1 | 1 | ±2.7 % | ±2.7 % | ∞ |
| 5 | Probe modulation response (CW) | ±0.0 % | Rectangular | √3 | 1 | 1 | 0 % | 0 % | ∞ |
| 6 | System detection limit | ±1.0 % | Rectangular | √3 | 1 | 1 | ±0.6 % | ±0.6 % | ∞ |
| 7 | Boundary effects | ±4.3 % | Rectangular | √3 | 1 | 1 | ±2.5 % | ±2.5 % | ∞ |
| 8 | System readout electronics (DAE) | ±0.3 % | Normal | 1 | 1 | 1 | ±0.3 % | ±0.3 % | ∞ |
| 9 | Response Time Error (<5ms/100ms wait) | ±0.0 % | Rectangular | √3 | 1 | 1 | 0 % | 0 % | ∞ |
| 10 | Integration Time Error (CW) | ±0.0 % | Rectangular | √3 | 1 | 1 | 0 % | 0 % | ∞ |
| 11 | RF ambient conditions-noise | ±3.0 % | Rectangular | √3 | 1 | 1 | ±1.7 % | ±1.7 % | ∞ |
| 12 | RF ambient conditions-reflections | ±3.0 % | Rectangular | √3 | 1 | 1 | ±1.7 % | ±1.7 % | ∞ |
| 13 | Probe positioner mechanical tolerance | ±3.3 % | Rectangular | √3 | 1 | 1 | ±1.9 % | ±1.9 % | ∞ |
| 14 | Probe positioning with respect to phantom shell | ±6.7 % | Rectangular | √3 | 1 | 1 | ±3.9 % | ±3.9 % | ∞ |
| 15 | Max. SAR evaluation (Post-processing) | ±4.0 % | Rectangular | √3 | 1 | 1 | ±2.3 % | ±2.3 % | ∞ |
| B | **Test Sample Related** | | | | | | | | |
| 16 | Deviation of the experimental source | ±1.9 % | Normal | 1 | 1 | 1 | ±1.9 % | ±1.9 % | ∞ |
| 17 | Dipole to liquid distance (10mm±0.2mm,<2deg.) | ±2.0 % | Rectangular | √3 | 1 | 1 | ±1.2 % | ±1.2 % | ∞ |
| 18 | Drift of output power (measured, <0.1dB) | ±2.3 % | Rectangular | √3 | 1 | 1 | ±1.3 % | ±1.3 % | ∞ |
| C | **Phantom and Setup** | | | | | | | | |
| 19 | Phantom uncertainty | ±2.0 % | Rectangular | √3 | 1 | 1 | ±1.2 % | ±1.2% | ∞ |
| 20 | Algorithm for correcting SAR (e',σ: 10%) | ±1.9 % | Normal | 1 | 1 | 0.84 | ±1.9 % | ±1.6 % | ∞ |
| 21 | Liquid conductivity (meas.) (DAK3.5) | ±3.0 % | Normal | 1 | 0.78 | 0.71 | ±2.3 % | ±2.1 % | ∞ |
| 22 | Liquid permittivity (meas.) (DAK3.5) | ±3.1 % | Normal | 1 | 0.23 | 0.26 | ±0.7 % | ±0.8 % | ∞ |
| 23 | Liquid Conductivity-temp.uncertainty (≤2deg.C.v6h) | ±3.0 % | Rectangular | √3 | 0.78 | 0.71 | ±1.4 % | ±1.2 % | ∞ |
| 24 | Liquid Permittivity-temp.uncertainty (≤2deg.C.v6h) | ±1.0 % | Rectangular | √3 | 0.23 | 0.26 | ±0.1 % | ±0.2 % | ∞ |
| | **Combined Standard Uncertainty** (v09r02) | | | | | | **±10.8** % | **±10.7** % | |
| | **Expanded Uncertainty (k=2)** (v09r02) | | | | | | **±21.6** % | **±21.4** % | |

*. This measurement uncertainty budget is suggested by IEEE Std. 1528(2013) and determined by Schmid & Partner Engineering AG (DASY5 Uncertainty Budget).

*. Table of uncertainties are listed for ISO/IEC 17025.