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# FCC 2.1093
# SAR Test Report

# for

# LG Electronics Inc.

## 222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do, 17709 Republic of Korea

| | | |
|---|---|---|
| **Product Name** | **:** | **Notebook PC** |
| **Model Name** | **:** | **(1)15ZB90Q (2)15ZG90Q** |
| **Brand** | | **LG** |
| **FCC ID** | **:** | **BEJNT-15ZB90Q** |

| | | |
|---|---|---|
| **Prepared by:** | **:** | **AUDIX Technology Corporation, EMC Department** |

Testing Laboratory
1724

The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

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# TEST REPORT

| | | |
|---|---|---|
| Applicant | : | LG Electronics Inc. |
| Manufacturer | : | LG Electronics Inc. |
| Factory | : | LG Electronics Nanjing New Technology Co., Ltd. |
| EUT Description | | |
| (1) Product | : | Notebook PC |
| (2) Model | : | (1)15ZB90Q (2)15ZG90Q |
| (3) Brand | : | LG |
| (4) Power Supply | : | DC 20V, 3.25A |

Applicable Standards:

47 CFR FCC Part 2(§2.1093)

***Audix Technology Corp.*** tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.
***Audix Technology Corp.*** does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2022. 08. 19

Reviewed by: Sunnie Huang (Sunnie Huang/Administrator)

Approved by: Johnny Hsueh (Johnny Hsueh/Section Manager)

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# 1. REVISION RECORD OF TEST REPORT

| Edition No | Issued Date | Revision Summary | Report Number |
|---|---|---|---|
| 0 | 2022. 08. 19 | Original Report | EM-SR220060 |

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# 2. SUMMARY OF TEST RESULTS

| Highest Transmission SAR | Reported Body $SAR_{1g}$ | Limit |
|---|---|---|
| WLAN 2.4G | 0.540 W/kg | 1.6 W/kg |
| BT | 0.017 W/kg | 1.6 W/kg |
| WLAN 5G | 0.938 W/kg | 1.6 W/kg |

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# 3. GENERAL INFORMATION

## 3.1. Description of Application

| | |
|---|---|
| Applicant | LG Electronics Inc.<br>222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do, 17709 Republic of Korea |
| Manufacturer | LG Electronics Inc.<br>222, LG-ro, Jinwi-myeon Pyeongtaek-Si, Gyeonggi-Do, 17709 Republic of Korea |
| Factory | LG Electronics Nanjing New Technology Co., Ltd.<br>No.346,Yaoxin Road, Economic & Technical Development Zone, Nanjing, China. |
| Product | Notebook PC |
| Model | (1)15ZB90Q (2)15ZG90Q<br>The difference between all models is different in the sales customers and color difference. |
| Brand | LG |

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## 3.2. Description of EUT

<table>
<tr><td>Test Model</td><td>15ZB90Q</td></tr>
<tr><td>Serial Number</td><td>N/A</td></tr>
<tr><td>Power Rating</td><td>DC 20V, 3.25A</td></tr>
<tr><td>Software Version</td><td>XY (X, Y can be 0 to 9 for different SW version not influence RF parameter)</td></tr>
<tr><td>RF Features</td><td>WLAN:802.11 a/b/g/n/ac/ax<br>Bluetooth: BT and BLE (BT 5.1)</td></tr>
<tr><td>Transmit Type</td><td>
<table>
<tr><th colspan="2">2.4 GHz</th></tr>
<tr><td>802.11b</td><td>1T1R</td></tr>
<tr><td>802.11g</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11ax-HE40</td><td>2T2R</td></tr>
<tr><td>BT/BLE</td><td>1T1R</td></tr>
</table>
<table>
<tr><th colspan="2">U-NII Bands</th></tr>
<tr><td>802.11a</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20/802.11ac-VHT20/802.11ax-HE20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40/802.11ac-VHT40/802.11ax-HE40</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT80/802.11ax-HE80</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT160/802.11ax-HE160</td><td>2T2R</td></tr>
</table>
The MIMO is uncorrelated and supported SDM mode only.
</td></tr>
<tr><td>Software Version</td><td>N/A</td></tr>
<tr><td>Sample Status</td><td>Trial sample</td></tr>
<tr><td>Test Sample</td><td>
<table>
<tr><th>Sample No.</th><th>Test Item</th><th>Firmware</th></tr>
<tr><td>04</td><td>SAR</td><td>N/A</td></tr>
</table>
</td></tr>
<tr><td>Date of Receipt</td><td>2022. 06. 30</td></tr>
<tr><td>Date of Test</td><td>2022. 07. 19 ~ 08. 19</td></tr>
<tr><td>Interface Ports of EUT</td><td>• One HDMI Port<br>• Two USB Type C Port<br>• One Earphone Port<br>• One Micro SD Card Slot<br>• Two USB 3.0 Ports</td></tr>
<tr><td>Accessories Supplied</td><td>• AC Adapter<br>• LAN Gender</td></tr>
</table>

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## 3.3. Reference Test Guidance

IEEE 1528-2013
IEC/IEEE 62209-1528:2020
KDB 447498 D04 Interim General RF Exposure Guidance v01
KDB 865664 D01 SAR Measurement 100MHz to 6GHz v01r04
KDB 616217 D04 SAR for laptop and tablets v01r02
KDB 248227 D01 802 11 Wi-Fi SAR v02r02

## 3.4. Antenna Information

| No. | Antenna Part Number | Manufacture | Antenna Type | Frequency (MHz) | Max Gain(dBi) | |
|---|---|---|---|---|---|---|
| | | | | | Main | AUX |
| 1. | WA-P-LELE-04-026 | INPAQ | Mono-Pole | 2400 | 3.1 | 1.9 |
| | | | | 2425 | 4.8 | 2.3 |
| | | | | 2450 | 4.4 | 2.2 |
| | | | | 2475 | 4.5 | 3.2 |
| | | | | 2500 | 5.3 | 3.4 |
| | | | | 5150 | 2.7 | 2.7 |
| | | | | 5250 | 3.7 | 3.7 |
| | | | | 5350 | 3.1 | 3.1 |
| | | | | 5725 | 3.1 | 3.1 |
| | | | | 5825 | 3.0 | 3.0 |
| | | | | 5925 | 2.0 | 2.3 |
| | | | | 6525 | 1.9 | 2.2 |
| | | | | 7125 | 1.9 | 2.1 |

According to KDB 662911 D01 d) ii), transmit signals are completely uncorrelated, then
Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \ldots + 10^{GN/10})/N_{ANT}]$ dBi

Note 1. 2.4G: Directional gain =
2400MHz: Directional gain = $10 \log[(10^{3.1/10} + 10^{1.9/10})/2] = 2.54$dBi
2425MHz: Directional gain = $10 \log[(10^{4.8/10} + 10^{2.3/10})/2] = 3.73$dBi
2450MHz: Directional gain = $10 \log[(10^{4.4/10} + 10^{2.2/10})/2] = 3.44$dBi
2475MHz: Directional gain = $10 \log[(10^{4.5/10} + 10^{3.2/10})/2] = 3.90$dBi

Note 2. 5G: Directional gain =
5150MHz: = $10 \log[(10^{2.7/10} + 10^{2.7/10})/2] = 2.70$dBi
5250MHz: = $10 \log[(10^{3.7/10} + 10^{3.7/10})/2] = 3.70$dBi
5350MHz: = $10 \log[(10^{3.1/10} + 10^{3.1/10})/2] = 3.10$dBi
5725MHz: = $10 \log[(10^{3.1/10} + 10^{3.1/10})/2] = 3.10$dBi
5825MHz: = $10 \log[(10^{3.0/10} + 10^{3.0/10})/2] = 3.00$dBi

Note 3. UNII Band (WLAN 6G):
5925MHz: Directional gain = $10 \log[(10^{2.0/10} + 10^{2.3/10})/2] = 2.15$dBi
6525MHz: Directional gain = $10 \log[(10^{1.9/10} + 10^{2.2/10})/2] = 2.05$dBi
7125MHz: Directional gain = $10 \log[(10^{1.9/10} + 10^{2.1/10})/2] = 2.00$dBi

We chose the antenna gain corresponding to the frequency listed on the table which is closer to center frequency of WLAN.

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## 3.5. EUT Specifications Assessed in Current Report

| 2.4GHz | | |
|---|---|---|
| Mode | Fundamental Range (MHz) | Channel Number |
| 802.11b | 2412-2472 | 13 |
| 802.11g | | 13 |
| 802.11n-HT20 | | 13 |
| 802.11n-HT40 | 2422-2462 | 9 |
| Bluetooth | 2402-2480 | 79 |
| BLE | 2402-2480 | 40 |

| 5GHz | | | |
|---|---|---|---|
| Mode | U-NII Band | Fundamental Range (MHz) | Channel Number |
| 802.11a | I | 5180-5240 | 4 |
| | 2A | 5260-5320 | 4 |
| | 2C | 5500-5720 | 12 |
| | 3 | 5745-5825 | 5 |
| 802.11n-HT20/ 802.11ac-VHT20 802.11ax-HE20 | I | 5180-5240 | 4 |
| | 2A | 5260-5320 | 4 |
| | 2C | 5500-5720 | 12 |
| | 3 | 5745-5825 | 5 |
| 802.11n-HT40/ 802.11ac-VHT40 802.11ax-HE40 | I | 5190-5230 | 2 |
| | 2A | 5270-5310 | 2 |
| | 2C | 5510-5710 | 6 |
| | 3 | 5755-5795 | 2 |
| 802.11ac-VHT80 802.11ax-HE80 | I | 5210 | 1 |
| | 2A | 5290 | 1 |
| | 2C | 5530-5690 | 3 |
| | 3 | 5775 | 1 |
| 802.11ac-VHT160 /802.11ax-HE160 | I | 5250 | 1 |
| | 2A | | |
| | 2C | 5570 | 1 |
| Remark: U-NII Band 2A and 2C (DFS Function, Slave/no In service monitor, no Ad-Hoc mode) | | | |

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| Mode | Modulation | Data Rate (Mbps) |
|---|---|---|
| 802.11b | DSSS (DBPSK/DQPSK/CCK) | Up to 11 |
| 802.11g | OFDM (BPSK/QPSK/16QAM/64QAM) | Up to 54 |
| 802.11a | OFDM (BPSK/QPSK/16QAM/64QAM) | Up to 54 |
| 802.11n-HT20 | OFDM (BPSK/QPSK/16QAM/64QAM) | Up to 144.4 |
| 802.11n-HT40 | | Up to 300 |
| 802.11ac-VHT20 | OFDM (BPSK/QPSK/16QAM/64QAM/256QAM) | Up to 173.3 |
| 802.11ac-VHT40 | | Up to 400 |
| 802.11ac-VHT80 | | Up to 866.7 |
| 802.11ac-VHT160 | | Up to 1733.3 |
| 802.11ax-HE20 | OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/1024QAM) | Up to 287 |
| 802.11ax-HE40 | | Up to 574 |
| 802.11ax-HE80 | | Up to 1201 |
| 802.11ax-HE160 | | Up to 2402 |
| Bluetooth | FHSS (GFSK, $\pi$/4 DQPSK, 8-DPSK) | 1/2/3 |
| BLE | GFSK (1Mbps, 2Mbps, PHY Coded S8, PHY Coded S2) | 2 |

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## 3.6. Description of Key Components

### 3.6.1. For the All Component Lists

| Item | Supplier | Model / Type | Character |
|---|---|---|---|
| System | Microsoft | Win 10 | --- |
| | | Win 10 Pro | --- |
| | | Win 11 | --- |
| Main Board | LG | Queen LP4X MAIN B/D PCB | Main Board<br>Manufacturer:<br>#1 HannstarBoardTech(Jiang Yin)Corp.,Ltd.<br>#2 Elec&Eltek Company (MCO) Limited. |
| WLAN SUB Board | LG | 15Z90Q B2B SUB B/D | Manufacturer:<br>#1 HannstarBoardTech(Jiang Yin)Corp.,Ltd.<br>#2 Elec&Eltek Company (MCO) Limited.<br>#3 JiangSuHuaShen Electronic co.,ltd (HXF) |
| CPU<br>(Socket: BGA1744) | Intel | i7-1260P | 2.5GHz |
| | Intel | i7-1255U | 2.5GHz |
| | Intel | i5-1240P | 2.1GHz |
| | Intel | i5-1235U | 2.1GHz |
| | Intel | i3-1220P | 1.5GHz |
| | Intel | i3-1215U | 1.5GHz |
| 15” LCD Panel | LG Display | LP156WQ1 (SP)(Z2) | Resolution: 1920 x 1080, 60Hz<br>FHD IPS |
| Storage (SSD) | SK hynix | --- | 1TB |
| | | --- | 512GB |
| | | --- | 256GB |
| | Samsung | --- | 1TB |
| | | --- | 512GB |
| | | --- | 256GB |
| Memory (RAM) | Samsung | --- | 32GB LPDDR4x(On Board) |
| | | --- | 16GB LPDDR4x(On Board) |
| | | --- | 8GB LPDDR4x(On Board) |
| | SK Hynix | --- | 32GB LPDDR4x(On Board) |
| | | --- | 16GB LPDDR4x(On Board) |
| | | --- | 8GB LPDDR4x(On Board) |
| Battery Pack | LG | LBV7227E | DC7.74V, 80Wh Typ 10336mAh |
| WLAN Combo Card | Intel | AX211D2W | WLAN and BT, 2x2 PCle M.2 1216 SD adapter card<br>FCC ID: PD9AX211D2<br>IC: 1000M-AX211D2 |
| WLAN Combo Antenna | LG (INPAQ) | WA-P-LELE-04-026 | PCB, Mono-pole Type<br>Main: Black, Aux: Gray |
| Keyboard | TIC | KT0120B8E | --- |
| | LITE ON | SN8101 | --- |
| Touch Pad | LITE-ON | SP8000(SG-A0620-00A) | LGPN (EBD63285207) |
| | ELAN | SD068D-26H0 | LGPN (EBD62827905) |
| Web Camera | Chicony | CKFKH33-0 | EBP63421711 |
| | Luxvisions | 0BF108N3 | EBP63421709 |

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| Item | Supplier | Model / Type | Character |
|---|---|---|---|
| LAN Gender (Type C to LAN) | SUZHOU MEC ELECTRONICS | 80-5946-111 | (White) 10/100Megabit Ethernet |
| | | 80-5946-101 | (Black) 10/100 Megabit Ethernet |
| | ARIN TECH CO. LTD | GD-08MF-36-WH-LP10 | (White) 10/100Megabit Ethernet |
| | | GD-08MF-36-BK-LP11 | (Black) 10/100 Megabit Ethernet |
| | HUIZHOU DEHONG TECHNOLOGY CO.,LTD. | 370-50713 | (White) 10/100Megabit Ethernet |
| | | 370-50714 | (Black) 10/100 Megabit Ethernet |
| | Type C to LAN: Shielded, Undetached, 0.12m | | |
| AC Adapter (65W) | LG (HONOR) | ADT-65DSU-D03-2 | I/P: AC 100-240V, 1.6A, 50-60Hz<br>O/P: DC 20V, 3.25A |
| | DC Power Cord: Non-Shielded, Undetached, 1.5m<br>AC Power Cord: Non-Shielded, Detached, 1.0m (2C) (For Other Countries)<br>AC Power Cord: Non-Shielded, Detached, 1.55m (2C) (For US, Canada, Mexico) | | |

Remark: For more detailed features description, please refer to the manufacturer's specifications or the user manual.

3.6.1.The EUT collocates with following worst components, which are used to establish a basic configuration of system during test:

| SKU (Mode) 1 | | | |
|---|---|---|---|
| Main Board | | LG, Queen LP4X MAIN B/D PCB | |
| SUB Board | | LG, 15Z90Q B2B SUB B/D | |
| CPU | | Intel, i7-1260P | |
| 15" LCD Panel | | LG Display, LP156WQ1 (SP)(Z2) | |
| Storage (SSD) | | SK hynix, 1TB | |
| | | Samsung, 1TB | |
| Memory (RAM) | | 32GB | |
| Battery Pack | | LG, 80Wh | |
| Keyboard | | TIC, KT0120B8E | |
| Touch Pad | | LITE-ON, SP8000(SG-A0620-00A) | |
| Web Camera | | Chicony, CKFKH33-0 | |
| WLAN Combo Card | | Intel, AX211D2W | |
| | | WL 2.4G+BT | |
| WLAN Combo Antenna | | LG (INPAQ), WA-P-LELE-04-026 | |
| HDMI | | 1920 x 1080, 60Hz | |
| Type C #1 | AC Adapter | LG (HONOR), ADT-65DSU-D03-2 | |
| Type C #2 | Link to LAN Gender | MEC (Black) | 10/100Mbps |

## 3.7. Test Environment

Ambient conditions in the laboratory:

| Item | Require | Actual |
|---|---|---|
| Temperature (℃) | 18-25 | 22 ±2 |
| Humidity (%RH) | 30-70 | 48 ± 2 |

## 3.8. Description of Test Facility

| | |
|---|---|
| Name of Test Firm | Audix Technology Corporation / EMC Department<br>No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan<br>Tel: +886-2-26092133<br>Fax: +886-2-26099303<br>Website : www.audixtech.com<br>Contact e-mail: attemc_report@audixtech.com |
| Accreditations | The laboratory is accredited by following organizations under ISO/IEC 17025:2017<br>(1) NVLAP(USA)<br>NVLAP Lab Code 200077-0<br>(2) TAF(Taiwan)<br>No. 1724 |
| Test Facilities | FCC OET Designation Number under APEC MRA by NCC is : TW1724<br>(1) SAR Room |

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## 3.9. Measurement Uncertainty

**DASY5 Uncertainty**
According to IEEE 1528-2013 and IEC 62209-1/2016 (0.3 - 6 GHz range)

| Error Description | Uncert. value | Prob. Dist. | Div. | ($c_i$) 1g | ($c_i$) 10g | Std. Unc. (1g) | Std. Unc. (10g) | ($v_i$) $v_{eff}$ |
|---|---|---|---|---|---|---|---|---|
| **Measurement System** | | | | | | | | |
| Probe Calibration | ±6.0% | N | 1 | 1 | 1 | ±6.0% | ±6.0% | ∞ |
| Axial Isotropy | ±4.7% | R | $\sqrt{3}$ | 0.7 | 0.7 | ±1.9% | ±1.9% | ∞ |
| Hemispherical Isotropy | ±9.6% | R | $\sqrt{3}$ | 0.7 | 0.7 | ±3.9% | ±3.9% | ∞ |
| Boundary Effects | ±1.0% | R | $\sqrt{3}$ | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Linearity | ±4.7% | R | $\sqrt{3}$ | 1 | 1 | ±2.7% | ±2.7% | ∞ |
| System Detection Limits | ±1.0% | R | $\sqrt{3}$ | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Readout Electronics | ±0.3% | N | 1 | 1 | 1 | ±0.3% | ±0.3% | ∞ |
| Response Time | ±0.8% | R | $\sqrt{3}$ | 1 | 1 | ±0.5% | ±0.5% | ∞ |
| Integration Time | ±2.6% | R | $\sqrt{3}$ | 1 | 1 | ±1.5% | ±1.5% | ∞ |
| RF Ambient Noise | ±3.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| RF Ambient Reflections | ±3.0% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Probe Positioner | ±0.4% | R | $\sqrt{3}$ | 1 | 1 | ±0.2% | ±0.2% | ∞ |
| Probe Positioning | ±2.9% | R | $\sqrt{3}$ | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Max. SAR Eval. | ±1.0% | R | $\sqrt{3}$ | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| **Test Sample Related** | | | | | | | | |
| Device Positioning | ±2.9% | N | 1 | 1 | 1 | ±2.9% | ±2.9% | 145 |
| Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% | 5 |
| Power Drift | ±5.0% | R | $\sqrt{3}$ | 1 | 1 | ±2.9% | ±2.9% | ∞ |
| **Phantom and Setup** | | | | | | | | |
| Phantom Uncertainty | ±4.0% | R | $\sqrt{3}$ | 1 | 1 | ±2.3% | ±2.3% | ∞ |
| Liquid Conductivity (target) | ±5.0% | R | $\sqrt{3}$ | 0.64 | 0.43 | ±1.8% | ±1.2% | ∞ |
| Liquid Conductivity (meas.) | ±2.5% | N | 1 | 0.64 | 0.43 | ±1.6% | ±1.1% | ∞ |
| Liquid Permittivity (target) | ±5.0% | R | $\sqrt{3}$ | 0.6 | 0.49 | ±1.7% | ±1.4% | ∞ |
| Liquid Permittivity (meas.) | ±2.5% | N | 1 | 0.6 | 0.49 | ±1.5% | ±1.2% | ∞ |
| **Combined Std. Uncertainty** | | | | | | ±11% | ±10.8% | 387 |
| **Expanded STD Uncertainty** | | | | | | ±22% | ±21.5% | |

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## DASY5 Uncertainty

According to IEC 62209-2/2010 (30 MHz - 6 GHz range)

| Error Description | Uncert. value | Prob. Dist. | Div. | (ci) 1g | (ci) 10g | Std. Unc. (1g) | Std. Unc. (10g) | (vi) Veff |
|---|---|---|---|---|---|---|---|---|
| **Measurement System** | | | | | | | | |
| Probe Calibration | ±6.0% | N | 1 | 1 | 1 | ±6.0% | ±6.0% | ∞ |
| Axial Isotropy | ±4.7% | R | √3 | 0.7 | 0.7 | ±1.9% | ±1.9% | ∞ |
| Hemispherical Isotropy | ±9.6% | R | √3 | 0.7 | 0.7 | ±3.9% | ±3.9% | ∞ |
| Boundary Effects | ±1.0% | R | √3 | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Linearity | ±4.7% | R | √3 | 1 | 1 | ±2.7% | ±2.7% | ∞ |
| System Detection Limits | ±1.0% | R | √3 | 1 | 1 | ±0.6% | ±0.6% | ∞ |
| Readout Electronic | ±0.3% | N | 1 | 1 | 1 | ±0.3% | ±0.3% | ∞ |
| Response Time | ±0.8% | R | √3 | 1 | 1 | ±0.5% | ±0.5% | ∞ |
| Integration Time | ±2.6% | R | √3 | 1 | 1 | ±1.5% | ±1.5% | ∞ |
| RF Ambient Noise | ±3.0% | R | √3 | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| RF Ambient Reflections | ±3.0% | R | √3 | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Probe Positioner | ±0.4% | R | √3 | 1 | 1 | ±0.2% | ±0.2% | ∞ |
| Probe Positioning | ±2.9% | R | √3 | 1 | 1 | ±1.7% | ±1.7% | ∞ |
| Modulation Response | ±2.5% | R | √3 | 1 | 1 | ±1.45 % | ±1.45 % | ∞ |
| Post-processing | ±3.8% | R | √3 | 1 | 1 | ±2.2% | ±2.2% | ∞ |
| **Test Sample Related** | | | | | | | | |
| Test Sample Positioning | ±2.9% | N | 1 | 1 | 1 | ±2.9% | ±2.9% | 145 |
| Device Holder | ±3.6% | N | 1 | 1 | 1 | ±3.6% | ±3.6% | 5 |
| Power Drift | ±5.0% | R | √3 | 1 | 1 | ±2.9% | ±2.9% | ∞ |
| Power Scaling | ±0.0% | R | √3 | 1 | 1 | ±0.0% | ±0.0% | ∞ |
| **Phantom and Setup** | | | | | | | | |
| Phantom Uncertainty | ±4.5% | R | √3 | 1 | 1 | ±2.4% | ±2.4% | ∞ |
| SAR correction | ±1.9% | R | √3 | 1 | 0.84 | ±1.9% | ±1.9% | ∞ |
| Liquid Conductivity (target) | ±5.0% | R | √3 | 0.64 | 0.43 | ±1.8% | ±1.2% | ∞ |
| Liquid Conductivity (mea.)DAK | ±2.5% | R | √3 | 0.64 | 0.43 | ±0.9% | ±0.6% | ∞ |
| Liquid Permittivity (target) | ±5.0% | R | √3 | 0.6 | 0.49 | ±1.7% | ±1.4% | ∞ |
| Liquid Permittivity(mea.)DAK | ±2.5% | R | √3 | 0.6 | 0.49 | ±0.9% | ±0.7% | ∞ |
| **Combined Std. Uncertainty** | | | | | | ±11.0% | ±10.9% | 387 |
| **Expanded STD Uncertainty** | | | | | | ±22.1% | ±21.8% | |

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# 4. MEASUREMENT EQUIPMENTLIST

| Item | Type | Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Stäubli Robot TX90 XL | Stäubli | TX90 | F12/5K9SA1/A101 | N/A | N/A |
| 2. | Controller | SPEAG | CS8c | N/A | N/A | N/A |
| 3. | SAM Twin Phantom | SPEAG | N/A | 1706 | N/A | N/A |
| 4. | ELI5 Phantom | SPEAG | N/A | 1170 | N/A | N/A |
| 5. | Device Holder | SPEAG | N/A | N/A | N/A | N/A |
| 6. | Data Acquisition Electronic | SPEAG | DAE4 | 1337 | 2022. 03. 29 | 1 Year |
| 7. | E-Field Probe | SPEAG | EX3DV4 | 3855 | 2021. 09. 24 | 1 Year |
| 8. | SAR Software | SPEAG | DASY52 | V.52.8.8.1222 | N/A | N/A |
| 9. | ENA Network Analyzer | Agilent | E5071C-480 | MY46214331 | 2021. 10. 08 | 1 Year |
| 10. | Signal Generator | Aglient | N5181A | MY50143917 | 2021. 09. 15 | 1 Year |
| 11. | Power Meter | Aglient | ML2487A | MY52180007 | 2021. 09. 15 | 1 Year |
| 12. | Power Sensor | Aglient | N8481 | MY52080006 | 2021. 09. 15 | 1 Year |
| 13. | Dipole Antenna | SPEAG | D2450V2 | 888 | 2021. 09. 13 | 3 Years |
| 14. | Dipole Antenna | SPEAG | D5GHzV2 | 1124 | 2021. 09. 27 | 3 Years |

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# 5. SAR MEASUREMENT SYSTEM

## 5.1. Definition of Specific Absorption Rate (SAR)

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength.

## 5.2. SPEAG DASY System

DASY system consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

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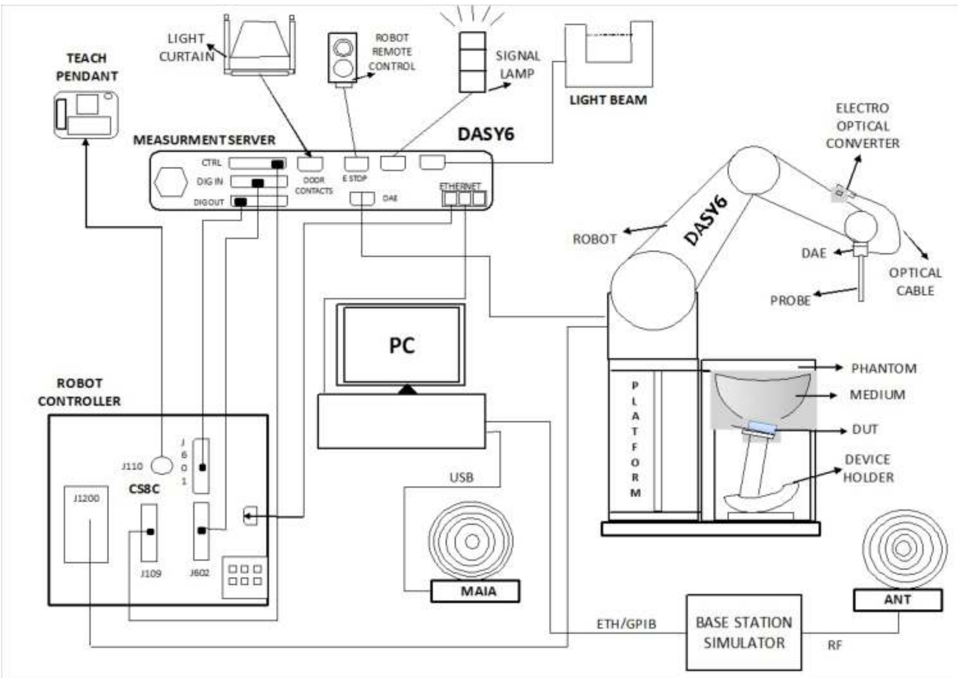


**Fig-3.1 DASY6 System Setup**

5.2.1. Robot

The DASY6 system uses the high precision robots from Stäubli SA (France). For the 6-axis controller system, the robot controller version (DASY5: CS8c) from Stäubli is used. The Stäubli robot series have many features that are important for our application:

- High precision (repeatability ±0.035 mm)
- High reliability (industrial design)
- Jerk-free straight movements
- Low ELF interference (the closed metallic construction shields against motor control fields)

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### 5.2.2. Probes

| | |
|---|---|
| Model | EX3DV4 |
| Construction | Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE) |
| Frequency | 10 MHz to 6 GHz<br>Linearity: ± 0.2 dB |
| Directivity | ± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis) |
| Dynamic Range | 10 µW/g to 100 mW/g<br>Linearity: ± 0.2 dB (noise: typically < 1 µW/g) |
| Dimensions | Overall length: 337 mm (Tip: 20 mm)<br>Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm |

### 5.2.3. Data Acquisition Electronics (DAE)

| | |
|---|---|
| Model | DAE4 |
| Construction | Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop. |
| Measurement Range | -100 to +300 mV (16 bit resolution and two range settings: 4mV, 400mV) |
| Input Offset Voltage | < 5µV (with auto zero) |
| Input Bias Current | < 50 fA |
| Dimensions | 60 x 60 x 68 mm |

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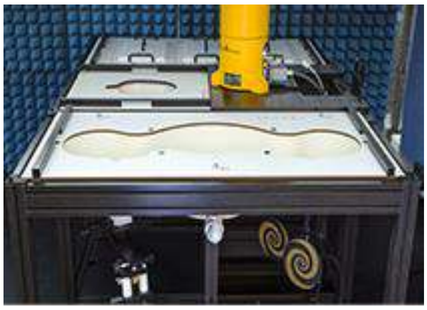
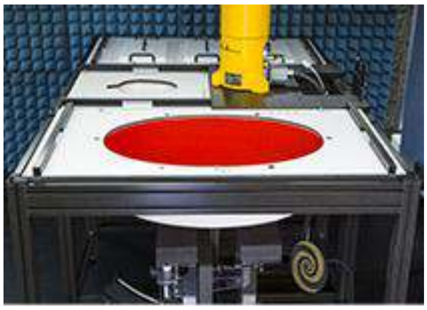
### 5.2.4. Phantom

| | |
|---|---|
| Model | Twin SAM |
| Construction | The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot. |
| Material | Vinylester, glass fiber reinforced (VE-GF) |
| Shell Thickness | 2 ± 0.2 mm (6 ± 0.2 mm at ear point) |
| Dimensions | Length: 1000 mm<br>Width: 500 mm<br>Height: adjustable feet |
| Filling Volume | approx. 25 liters |



| | |
|---|---|
| Model | ELI |
| Construction | Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles. |
| Material | Vinylester, glass fiber reinforced (VE-GF) |
| Shell Thickness | 2.0 ± 0.2 mm (bottom plate) |
| Dimensions | Major axis: 600 mm<br>Minor axis: 400 mm |
| Filling Volume | approx. 30 liters |



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5.2.5. Device Holder

| Model | Mounting Device |
|---|---|
| Construction | In combination with the Twin SAM Phantom or ELI4, the Mounting Device enables the rotation of the mounted transmitter device in spherical coordinates. Rotation point is the ear opening point. Transmitter devices can be easily and accurately positioned according to IEC, IEEE, FCC or other specifications. The device holder can be locked for positioning at different phantom sections (left head, right head, flat). |
| Material | POM |

| Model | Laptop Extensions Kit |
|---|---|
| Construction | Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices according to IEC 62209-2 (e.g., laptops, cameras, etc.). It is lightweight and fits easily on the upper part of the Mounting Device in place of the phone positioner. |
| Material | POM, Acrylic glass, Foam |

5.2.6. Reference Dipole

| Model | System Validation Dipoles |
|---|---|
| Construction | Symmetrical dipole with l/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions. |
| Frequency | 750 MHz to 5800 MHz |
| Return Loss | > 20 dB |
| Power Capability | > 100 W (f < 1GHz), > 40 W (f > 1GHz) |

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5.2.7. Tissue Simulating Liquids

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed in Table-5.1.

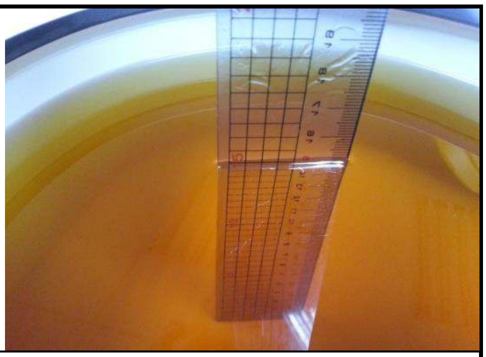

Photo of Liquid Height

The dielectric properties of the head tissue simulating liquids are defined in IEEE 1528 and FCC OET 65 Supplement C Appendix C. For the body tissue simulating liquids, the dielectric properties are defined in FCC OET 65 Supplement C Appendix C. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using an Agilent 85070D Dielectric Probe Kit and an Agilent Network Analyzer.

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**Table-5.1 Targets of Tissue Simulating Liquid**

| Target Frequency [MHz] | Target Permittivity (εr) | Range of ± 5% | Target Conductivity σ[s/m] | Range of ± 5% |
|---|---|---|---|---|
| 750 | 41.9 | 39.805 ~ 43.995 | 0.89 | 0.846 ~ 0.935 |
| 835 | 41.5 | 39.425 ~ 43.575 | 0.90 | 0.855 ~ 0.945 |
| 900 | 41.5 | 39.425 ~ 43.575 | 0.97 | 0.922 ~ 1.019 |
| 1450 | 40.5 | 38.475 ~ 42.525 | 1.20 | 1.140 ~ 1.260 |
| 1640 | 40.3 | 38.285 ~ 42.315 | 1.29 | 1.226 ~ 1.355 |
| 1750 | 40.1 | 38.095 ~ 42.105 | 1.37 | 1.302 ~ 1.439 |
| 1800 | 40.0 | 38.000 ~ 42.000 | 1.40 | 1.330 ~ 1.470 |
| 1900 | 40.0 | 38.000 ~ 42.000 | 1.40 | 1.330 ~ 1.470 |
| 2000 | 40.0 | 38.000 ~ 42.000 | 1.40 | 1.330 ~ 1.470 |
| 2300 | 39.5 | 37.525 ~ 41.475 | 1.67 | 1.587 ~ 1.754 |
| 2450 | 39.2 | 37.240 ~ 41.160 | 1.80 | 1.710 ~ 1.890 |
| 2600 | 39.0 | 37.050 ~ 40.950 | 1.96 | 1.862 ~ 2.058 |
| 3500 | 37.9 | 36.005 ~ 39.795 | 2.91 | 2.765 ~ 3.056 |
| 5200 | 36.0 | 34.2.00 ~ 37.800 | 4.66 | 4.427 ~ 4.893 |
| 5300 | 35.9 | 34.105 ~ 37.695 | 4.76 | 4.522 ~ 4.998 |
| 5500 | 35.6 | 33.820 ~ 37.380 | 4.96 | 4.712 ~ 5.208 |
| 5600 | 35.5 | 33.725 ~ 37.275 | 5.07 | 4.817 ~ 5.324 |
| 5800 | 35.3 | 33.535 ~ 37.065 | 5.27 | 5.007 ~ 5.534 |
| 6000 | 35.1 | 33.345~ 36.855 | 5.48 | 5.206 ~ 5.754 |
| 6500 | 34.5 | 32.775 ~ 36.225 | 6.07 | 5.767 ~ 6.374 |
| 7000 | 33.9 | 32.205 ~ 35.595 | 6.65 | 6.318 ~ 6.983 |

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## Table-5.2-1 Recipes of Tissue Simulating Liquid, 30MHz to 900MHz

| **Frequency (MHz)** | **30** | **50** | | **144** | | **450** | | **835** | **900** | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Recipe source number** | 3 | 3 | 2 | 2 | 3 | 2 | 4 | 2 | 2 | 4 |
| **Ingredients (% by weight)** | | | | | | | | | | |
| De-ionized water | 48,30 | 48,30 | 53,53 | 55,12 | 48,30 | 48,53 | 56 | 50,36 | 50,31 | 56 |
| Tween 20 | | | 44,70 | 43,31 | | 49,51 | | 48,39 | 48,34 | |
| Oxidized mineral oil | | | | | | | 44 | | | 44 |
| Diethylenglycol monohexylether | | | | | | | | | | |
| Triton X-100 | | | | | | | | | | |
| Diacetin | 50,00 | 50,00 | | | 50,00 | | | | | |
| DGBE | | | | | | | | | | |
| NaCl | 1,60 | 1,60 | 1,77 | 1,57 | 1,60 | 1,96 | | 1,25 | 1,35 | |
| Additives and salt | 0,10 | 0,10 | | | 0,10 | | | | | |
| **Measured temperature dependence** | | | | | | | | | | |
| **Temp. (°C)** | | | 21 | 21 | | 21 | 20 | 21 | 21 | 20 |
| $\varepsilon_{\text{liquid temp. unc.}}$ (%) | 0,8 | 0,1 | | | 0,1 | 0,1 | | 0,04 | 0,04 | |
| $\sigma_{\text{liquid temp. unc.}}$ (%) | 2,8 | 2,8 | | | 2,6 | 4,2 | | 1,6 | 1,6 | |

## Table-5.2-2 Recipes of Tissue Simulating Liquid, 1800MHz to 10000MHz

| **Frequency (MHz)** | **1 800** | | **2 450** | **4 000** | **5 000** | **5 200** | **5 800** | **6 000** | **8 000** | **10 000** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Recipe source number** | 2 | 4 | 4 | 4 | 4 | 1 | 1 | 4 | 5 | 5 |
| **Ingredients (% by weight)** | | | | | | | | | | |
| De-ionized water | 54,23 | 56 | 56 | 56 | 56 | 65,53 | 65,53 | 56 | 67,8 | 66,0 |
| Tween | 45,27 | | | | | | | | 31,1 | 33,0 |
| Oxidized mineral oil | | 44 | 44 | 44 | 44 | | | 44 | | |
| Diethylenglycol monohexylether | | | | | | 17,24 | 17,24 | | | |
| Triton X-100 | | | | | | 17,24 | 17,24 | | | |
| Diacetin | | | | | | | | | | |
| DGBE | | | | | | | | | | |
| NaCl | 0,50 | | | | | | | | | |
| Additives and salt | | | | | | | | | | |
| **Measured temperature dependence** | | | | | | | | | | |
| **Temp. (°C)** | 21 | 20 | 20 | 20 | 20 | 22 | 22 | 20 | 20 | 20 |
| $\varepsilon_{\text{liquid temp. unc.}}$ (%) | 0,4 | | | | | 1,7 | 1,8 | | | |
| $\sigma_{\text{liquid temp. unc.}}$ (%) | 2,3 | | | | | 2,7 | 2,6 | | | |

NOTE 1 Multiple columns under a single frequency indicate optional recipes.

NOTE 2 Recipe source numbers: 1 verified by different labs, 2 Reference [59], 3 developed by IT'IS Foundation, 4 developed by IT'IS Foundation, 5 Reference [60].

NOTE 3 The values of $\varepsilon_{\text{liquid temp. unc.}}$ and $\sigma_{\text{liquid temp. unc.}}$ are liquid temperature uncertainties described in O.9.6, based on measurements of the applicable liquid recipes given above. These are not part of the original publications but have been subsequently developed by the project team.

NOTE 4 The recipes at 8 000 MHz and 10 000 MHz are sufficiently broadband that they cover the frequency range of 6 000 MHz to 10 000 MHz within a tolerance of ±10 % for permittivity and conductivity.

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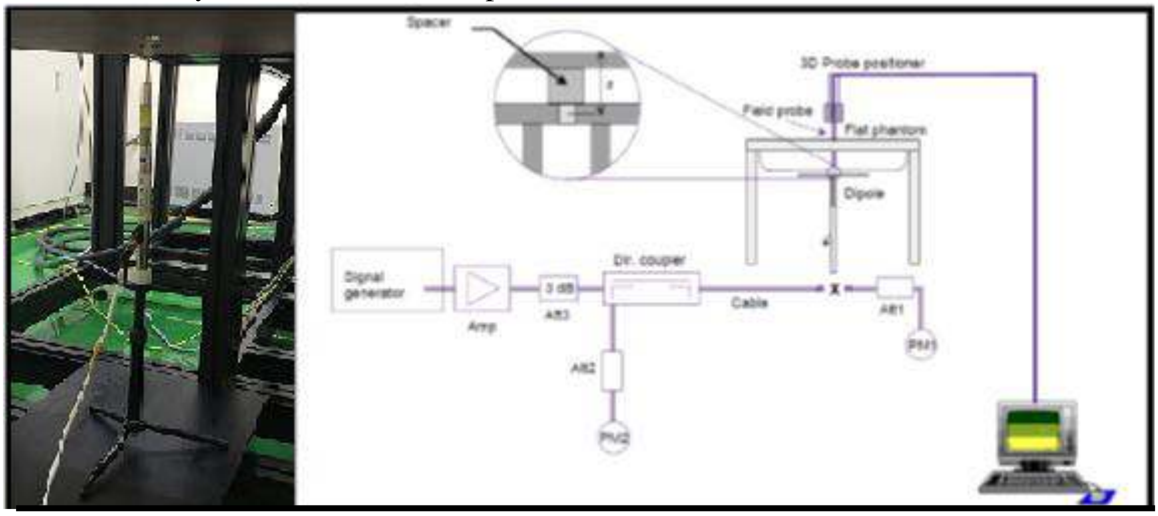
## 5.3. SAR System Verification

The system check verifies that the system operates within its specifications. It is performed daily or before every SAR measurement. The system check uses normal SAR measurements in the flat section of the phantom with a matched dipole at a specified distance. The system verification setup is shown as below.




The validation dipole is placed beneath the flat phantom with the specific spacer in place. The distance spacer is touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The power meter PM1 measures the forward power at the loation of the system check dipole connector. The signal generator is adjusted for the desired forward power (250 mW is used for 700 MHz to 3 GHz, 100 mW is used for 3.5 GHz to 6 GHz) at the dipole connector and the power meter PM2 is read at that level. After connecting the cable to the dipole, the signal generator is readjusted for the same reading at power meter PM2.

After system check testing, the SAR result will be normalized to 1W forward input power and compared with the reference SAR value derived from validation dipole certificate report. The deviation of system check should be within 10 %.

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### 5.3.1. SAR System Verification Result

| Dipole Kit: D2450V2<br><br>Test Date: 2022. 07. 22 | | | | | | Liquid Temp. [℃]: 20.0 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | 1g SAR | | | | | 10g SAR | | | | | |
| 2450MHz | Zoom Scan to 250mW | Normalize to 1W | Target Value Reference result ± 10% window | | | Zoom Scan to 250mW | Normalize to 1W | Target Value Reference result ± 10% window | | | |
| | 13.3 | 53.20 | 52.9 | | | 6.25 | 25.00 | 24.8 | | | |
| | | | 47.61 | to | 58.19 | | | 22.32 | to | 27.28 | |

| Dipole Kit: D2450V2<br><br>Test Date: 2022. 08. 19 | | | | | | Liquid Temp. [℃]: 20.0 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | 1g SAR | | | | | 10g SAR | | | | | |
| 2450MHz | Zoom Scan to 250mW | Normalize to 1W | Target Value Reference result ± 10% window | | | Zoom Scan to 250mW | Normalize to 1W | Target Value Reference result ± 10% window | | | |
| | 13.6 | 54.40 | 52.9 | | | 6.23 | 24.92 | 24.8 | | | |
| | | | 47.61 | to | 58.19 | | | 22.32 | to | 27.28 | |

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Dipole Kit: D5GHzV2

Test Date: 2022. 07. 19 Liquid Temp. [℃]: 21.0

| Frequency [MHz] | 1g SAR | | | | | 10g SAR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5300MHz | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | |
| | 8.26 | 82.60 | 83.2 | | | 2.28 | 22.80 | 23.5 | | |
| | | | 74.88 | to | 91.52 | | | 21.15 | to | 25.85 |

Dipole Kit: D5GHzV2

Test Date: 2022. 07. 20 Liquid Temp. [℃]: 21.0

| Frequency [MHz] | 1g SAR | | | | | 10g SAR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5600MHz | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | |
| | 8.05 | 80.50 | 83.9 | | | 2.31 | 23.10 | 23.8 | | |
| | | | 75.51 | to | 92.29 | | | 21.42 | to | 26.18 |

Dipole Kit: D5GHzV2

Test Date: 2022. 07. 21 Liquid Temp. [℃]: 20.0

| Frequency [MHz] | 1g SAR | | | | | 10g SAR | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5800MHz | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | | Zoom Scan to 100mW | Normalize to 1W | Target Value Reference result ± 10% window | | |
| | 8.06 | 80.60 | 81.8 | | | 2.32 | 23.20 | 22.9 | | |
| | | | 73.62 | to | 89.98 | | | 20.61 | to | 25.19 |

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### 5.3.2. SAR System Check Data

Date: 7/22/2022

Test Laboratory: Audix_SAR Lab

**System Check_H2450**

**DUT: D2450V2 - SN888**

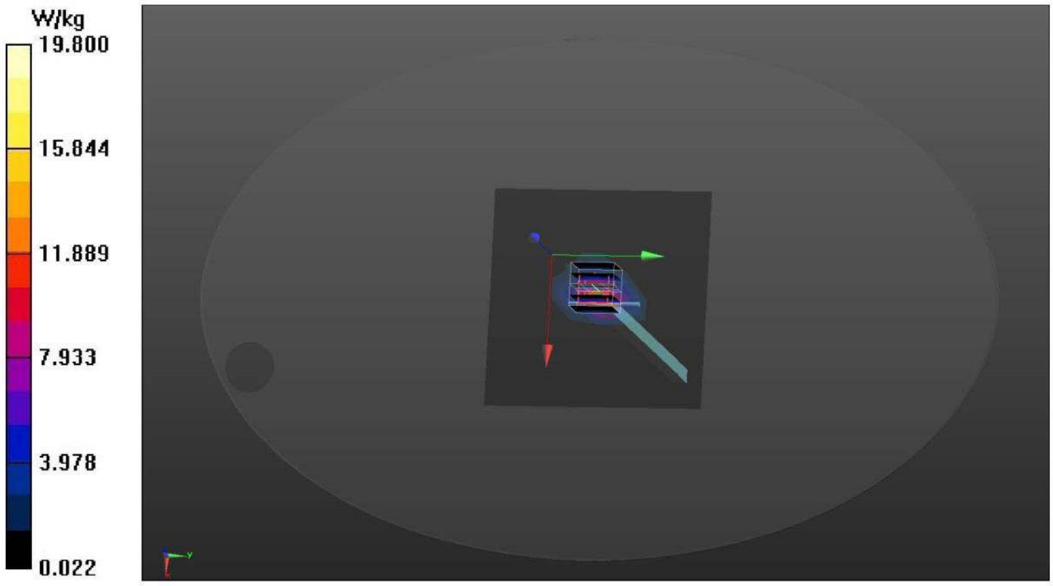
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle:1:1
Medium parameters used: f = 2450 MHz; $\sigma$ = 1.761 S/m; $\varepsilon_r$ = 38.93; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2450 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**P=250mW/Area Scan (9x9x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 21.7 W/kg

**P=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 111.24 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 27.2 W/kg
**SAR(1 g) = 13.3 W/kg; SAR(10 g) = 6.25 W/kg**
Smallest distance from peaks to all points 3 dB below = 9.8 mm
Ratio of SAR at M2 to SAR at M1 = 51.3%
Maximum value of SAR (measured) = 19.8 W/kg



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Date: 8/19/2022

Test Laboratory: Audix_SAR Lab

## System Check_H2450

### DUT: D2450V2 - SN888

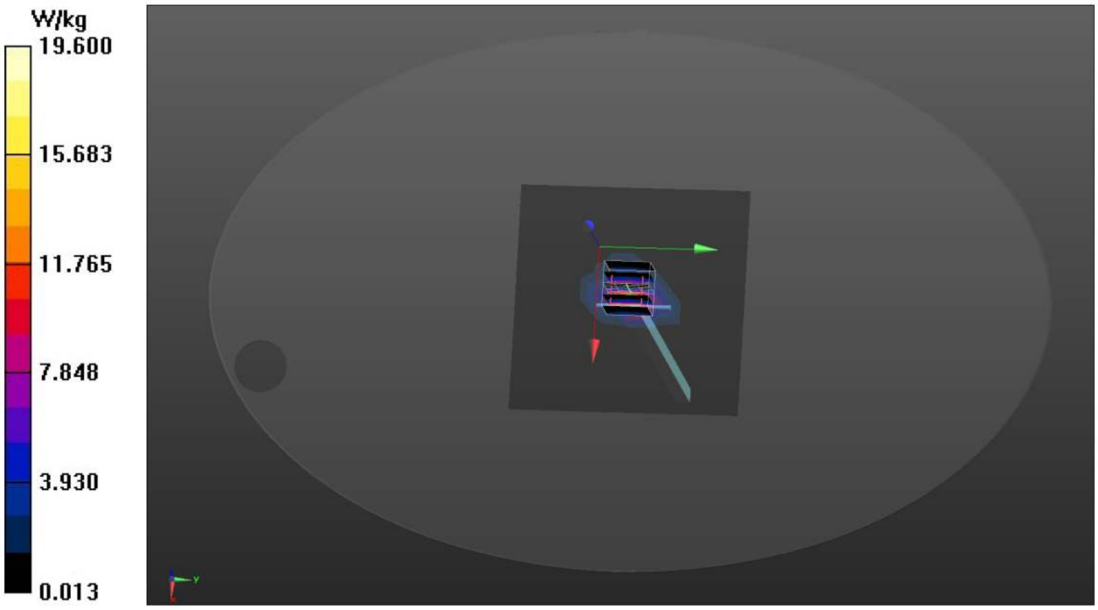
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle:1:1
Medium parameters used: f = 2450 MHz; $\sigma$ = 1.765 S/m; $\varepsilon_r$ = 37.544; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2450 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**P=250mW/Area Scan (9x9x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 17.6 W/kg

**P=250mW/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 113.22 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 26.7 W/kg
**SAR(1 g) = 13.6 W/kg; SAR(10 g) = 6.23 W/kg**
Smallest distance from peaks to all points 3 dB below = 9.8 mm
Ratio of SAR at M2 to SAR at M1 = 52.5%
Maximum value of SAR (measured) = 19.6 W/kg



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Test Laboratory: Audix_SAR Lab

## System Check_H5300

### DUT: D5GHzV2 - SN1124

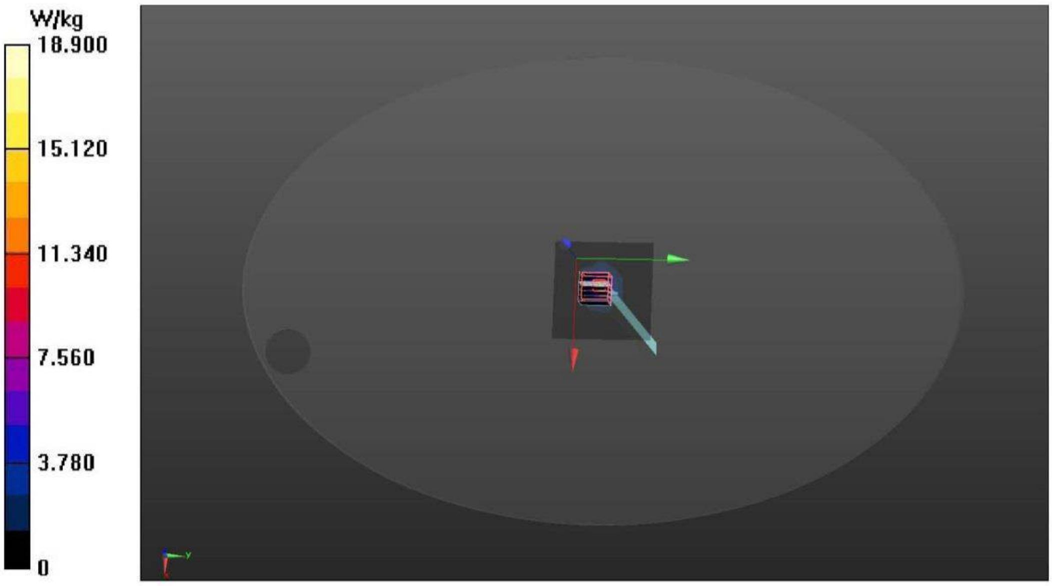
Communication System: UID 0, CW (0); Frequency: 5300 MHz;Duty Cycle:1:1
Medium parameters used: f = 5300 MHz; $\sigma$ = 4.875 S/m; $\varepsilon_r$ = 36.9; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(5.15, 5.15, 5.15) @ 5300 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**P=100mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 16.5 W/kg

**P=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 72.53 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 37.4 W/kg
**SAR(1 g) = 8.26 W/kg; SAR(10 g) = 2.28 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 54.9%
Maximum value of SAR (measured) = 18.9 W/kg



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Test Laboratory: Audix_SAR Lab

## System Check_H5600

**DUT: D5GHzV2 - SN1124**

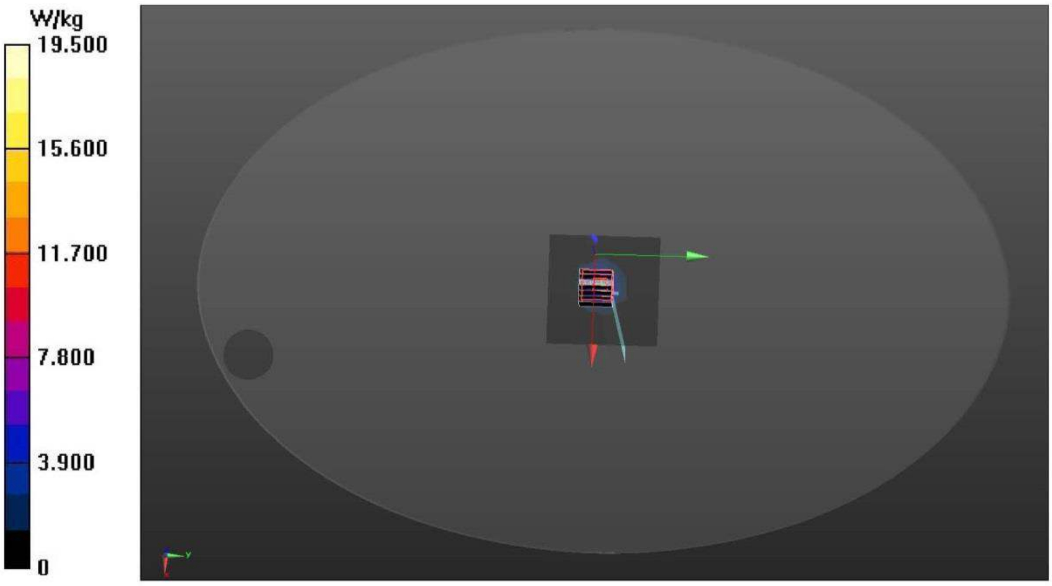
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle:1:1
Medium parameters used: f = 5600 MHz; $\sigma$ = 5.259 S/m; $\varepsilon_r$ = 36.237; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.7, 4.7, 4.7) @ 5600 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**P=100mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 17.9 W/kg

**P=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 78.24 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 29.6 W/kg
**SAR(1 g) = 8.05 W/kg; SAR(10 g) = 2.31 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.8 mm
Ratio of SAR at M2 to SAR at M1 = 59.6%
Maximum value of SAR (measured) = 19.5 W/kg



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Date: 7/21/2022

Test Laboratory: Audix_SAR Lab

**System Check_H5800**

**DUT: D5GHzV2 - SN1124**

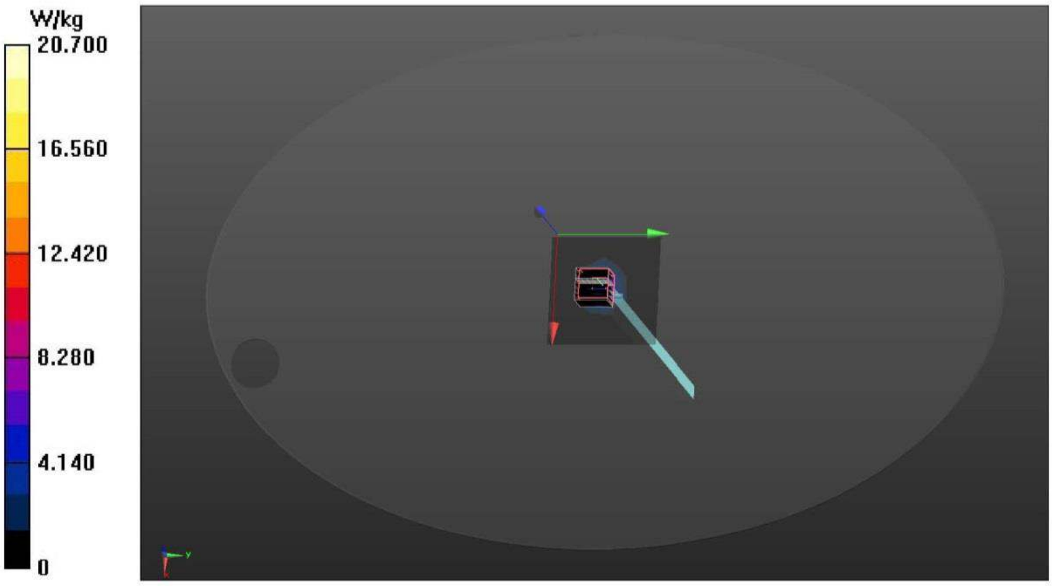
Communication System: UID 0, CW (0); Frequency: 5800 MHz;Duty Cycle:1:1
Medium parameters used: f = 5800 MHz; $\sigma = 5.509$ S/m; $\varepsilon_r = 35.808$; $\rho = 1000$ kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.8, 4.8, 4.8) @ 5800 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**P=100mW/Area Scan (9x9x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 18.5 W/kg

**P=100mW/Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 71.62 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 42.2 W/kg
**SAR(1 g) = 8.06 W/kg; SAR(10 g) = 2.32 W/kg**
Smallest distance from peaks to all points 3 dB below = 7.3 mm
Ratio of SAR at M2 to SAR at M1 = 52.8%
Maximum value of SAR (measured) = 20.7 W/kg



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## 5.4. SAR Measurement Procedure

According to the SAR test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

(a) Power reference measurement
(b) Area scan
(c) Zoom scan
(d) Power drift measurement

The SAR measurement procedures for each of test conditions are as follows:

(a) Make EUT to transmit maximum output power
(b) Measure conducted output power through RF cable
(c) Place the EUT in the specific position of phantom
(d) Perform SAR testing steps on the DASY system
(e) Record the SAR value

### 5.4.1. Area &Zoom Scan Procedure

According to IEC/IEEE 62209-1528, the resolution for Area and Zoom scan is specified in the table below.

| Items | ≤ 2 GHz | 2-3 GHz | 3-4 GHz | 4-5 GHz | 5-6 GHz |
|---|---|---|---|---|---|
| Area Scan (Δx, Δy) | ≤ 15mm | ≤ 12mm | ≤ 12mm | ≤ 10mm | ≤ 10mm |
| Zoom Scan (Δx, Δy) | ≤ 8mm | ≤ 5mm | ≤ 5mm | ≤ 4mm | ≤ 4mm |
| Zoom Scan (Δz) | ≤ 5mm | ≤ 5mm | ≤ 4mm | ≤ 3mm | ≤ 2mm |
| Zoom Scan Volume | ≥30mm | ≥30mm | ≥28mm | ≥25mm | ≥22mm |

Note:
When zoom scan is required and report SAR is <= 1.4 W/kg, the zoom scan resolution of Δx / Δy (2-3GHz: ≤ 8 mm, 3-4GHz: ≤ 7 mm, 4-6GHz: ≤ 5 mm) may be applied.

According to IEC/IEEE 62209-1528, if the zoom scan measured as specified in the preceding paragraphs complies with both of the following items, or if the peak spatial-average SAR is below 0.1 W/kg, no additional measurements are needed:

(1) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal gird steps in both x and y directions (Δx, Δy). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance $z_{M1}$.
(2) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x, y location of the measured mazimum SAR value shall be at least 30%.

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5.4.2. Volume Scan Procedure

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing. When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to calculating the multiband SAR.

5.4.3. Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

5.4.4. Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

(a) Extraction of the measured data (grid and values) from the Zoom Scan
(b) Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
(c) Generation of a high-resolution mesh within the measured volume
(d) Interpolation of all measured values form the measurement grid to the high-resolution grid
(e) Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
(f) Calculation of the averaged SAR within masses of 1g and 10g

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5.4.5. SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

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# 6. SAR MEASUREMENT EVALUATION

## 6.1. Test Configuration and EUT setting

The standalone SAR test exclusion shall be refer to FCC § 1.1307 (b)(3)(i)(B) SAR-Based exemption which device determined the distance from antenna to user/bystander. The formula is

$P_{th}$ (mW) = $ERP_{20cm}$ (d / 20) for distance d ≤ 20cm

$P_{th}$ (mW) = $ERP_{20cm}$ for distance 20cm < d ≤ 40cm

$X = -\log10\left(\frac{60}{ERP20cm\sqrt{f}}\right)$

$ERP_{20cm}$(mW) 0.3 GHz ≤ f < 1.5 GHz: 2040f

1.5 GHz ≤ f ≤ 6 GHz: 3060

F = GHz

$P_{th}$ (mW) = available maximum time-average power or effective radiated power, whichever is greater.

D = the separation distance (cm)

From KDB 616217 D04 section 4.2 to 4.3, The SAR exclusion threshold can be applied to KDB 447498 to determine if SAR necessary test.

Test program "DRTU" is used for enabling EUT BT or WLAN function under continues transmitting and choosing data rate/ channel and supported stable power rating.

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## 6.2. EUT Testing Position

SAR-Based exemption table

| Centre Frequency (MHz) | 5 | 10 | 15 | 20 | 25 | Distance(mm) |
|---|---|---|---|---|---|---|
| 2450 | 3.000 | 10.000 | 22.000 | 38.000 | 59.000 | Power(mW) |
| 5200 | 2.000 | 6.000 | 15.000 | 26.000 | 42.000 | |
| 5500 | 1.000 | 6.000 | 14.000 | 26.000 | 41.000 | |
| 5800 | 1.000 | 6.000 | 14.000 | 25.000 | 40.000 | |
| | 30 | 35 | 40 | 45 | 50 | Distance(mm) |
| 2450 | 83.000 | 111.000 | 143.000 | 179.000 | 219.000 | Power(mW) |
| 5200 | 61.000 | 84.000 | 110.000 | 110.000 | 110.000 | |
| 5500 | 59.000 | 82.000 | 108.000 | 108.000 | 108.000 | |
| 5800 | 58.000 | 80.000 | 106.000 | 106.000 | 106.000 | |
| | 7 | 10 | 15 | 20 | 25 | Distance(cm) |
| 2450 | 415.000 | 819.000 | 1770.000 | 3060.000 | 4678.000 | Power(mW) |
| 5200 | 350.000 | 731.000 | 1689.000 | 3060.000 | 4852.000 | |
| 5500 | 345.000 | 725.000 | 1683.000 | 3060.000 | 4865.000 | |
| 5800 | 341.000 | 719.000 | 1678.000 | 3060.000 | 4877.000 | |
| | 30 | 33 | 35 | 37 | 40 | Distance(cm |
| 2450 | 6617.000 | 7932.000 | 8872.000 | 8872.000 | 11437.000 | Power(mW) |
| 5200 | 7071.000 | 8609.000 | 9722.000 | 9722.000 | 12809.000 | |
| 5500 | 7106.000 | 8662.000 | 9788.000 | 9788.000 | 12918.000 | |
| 5800 | 7139.000 | 8712.000 | 9851.000 | 9851.000 | 13021.000 | |

The SAR testing required mode is listed as below.

| Antenna | Front Face | Rear Face | Top Side | Bottom Side | Left Side | Right Side | Screen Side |
|---|---|---|---|---|---|---|---|
| WLAN | | | | √ | | | √ |

According to SAR-Based exemption table, the laptop only need evaluate bottom side and screen side.

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## 6.3. Tissue Calibration Result

The dielectric parameters of the liquids were verified prior to the SAR evaluation using Agilent Dielectric Probe Kit and Agilent E5071C Vector Network Analyzer.

| Body Tissue Simulate Measurement | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | | | | | Liquid Temp. [℃] |
| | | $\varepsilon_r$ | | | σ[s/m] | | | |
| 2450MHz | Reference result | 39.2 | | | 1.8 | | | N/A |
| | ± 5% window | 37.240 | to | 41.160 | 1.710 | to | 1.890 | |
| | 2022. 07. 22 | 38.930 | | | 1.761 | | | 20.0 |
| | 2022. 08. 19 | 37.544 | | | 1.765 | | | 20.0 |

| Body Tissue Simulate Measurement | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | | | | | Liquid Temp. [℃] |
| | | $\varepsilon_r$ | | | σ[s/m] | | | |
| 5300MHz | Reference result | 35.9 | | | 4.76 | | | N/A |
| | ± 5% window | 34.105 | to | 37.695 | 4.522 | to | 4.998 | |
| | 2022. 07. 19 | 36.900 | | | 4.875 | | | 21.0 |

| Body Tissue Simulate Measurement | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | | | | | Liquid Temp. [℃] |
| | | $\varepsilon_r$ | | | σ[s/m] | | | |
| 5600MHz | Reference result | 35.50 | | | 5.07 | | | N/A |
| | ± 5% window | 33.725 | to | 37.275 | 4.817 | to | 5.324 | |
| | 2022. 07. 20 | 36.237 | | | 5.259 | | | 21.0 |

| Body Tissue Simulate Measurement | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Frequency [MHz] | Description | Dielectric Parameters | | | | | | Liquid Temp. [℃] |
| | | $\varepsilon_r$ | | | σ[s/m] | | | |
| 5800MHz | Reference result | 35.3 | | | 5.27 | | | N/A |
| | ± 5% window | 33.535 | to | 37.065 | 5.007 | to | 5.534 | |
| | 2022. 07. 21 | 35.808 | | | 5.509 | | | 20.0 |

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## 6.4. SAR Exposure Limits

SAR assessments have been made in line with the requirements of IEEE-1528, FCC Supplement C, and comply with ANSI/IEEE C95.1-1992 "Uncontrolled Environments" limits. These limits apply to a location which is deemed as "Uncontrolled Environment" which can be described as a situation where the general public may be exposed to an RF source with no prior knowledge or control over their exposure.

Limits for General Population/Uncontrolled Exposure (W/kg)

| Type Exposure | Uncontrolled Environment Limit |
|---|---|
| Spatial Peak SAR (1g cube tissue for brain or body) | 1.60 W/kg |
| Spatial Average SAR (whole body) | 0.08 W/kg |
| Spatial Peak SAR<br>(10g for hands, feet, ankles and wrist) | 4.00 W/kg |

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## 6.5. Conducted Power Measurement

**Note:**

1. Per KDB 447498 D04 the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.
   Scale Factor = tune-up limit power (mW)/EUT Conducted power (mW), where tune-up limit is the maximum rated power among all production units.
   Scale SAR(W/kg)= Measured SAR(W/kg)* Scaling Factor
2. Per KDB 447498 D04 for each exposure position, if the highest output channel reported SAR ≤0.8W/kg, other channels SAR testing is not necessary.
3. Per KDB 248227 D01, for OFDM transmission configuration in the 2.4G and 5G bands. An initial test configuration is determined by the highest maximum output power including tune-up tolerance. When multiple transmission modes(802.11a/g/n/ac/ax) have same maximum power, largest channel bandwidth , lowest order modulation and lowest data rate, lowest order 802.11 mode is selected.( i.e. a, g, n, ac then ax)
4. Per KDB 248227 D01, when the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
5. Per KDB 248227 D01,U-NII-1 and U-NII-2A bands have the same specified maximum output and tolerance; SAR is measured for U-NII-2A band first. Adjusted SAR of U-NII-2A band is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band. When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, each band is tested independently for SAR.
6. Per KDB 248227 D01, When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested.
7. Pursuant section 2.8.1(2) KDB 865664 D01, when the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
8. Pursuant section 2.8.1(3) KDB 865664 D01, 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)

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6.5.1. For WLAN Function

| Type of Network | Channel | Frequency (MHz) | Output Power (dBm) | | | | | | SAR Test |
|---|---|---|---|---|---|---|---|---|---|
| | | | ANT AUX | | | ANT Main | | | |
| | | | Average Power | Tune-Up Limit | Scale Factor | Average Power | Tune-Up Limit | Scale Factor | |
| 802.11b | CH 1 | 2412 | 20.15 | 21.00 | --- | 19.54 | 20.30 | --- | No[NOTE2] |
| | CH 7 | 2442 | 19.97 | 20.50 | 1.129 | 20.19 | 21.00 | 1.205 | Yes |
| | CH 11 | 2462 | 19.57 | 20.30 | --- | 20.12 | 21.00 | --- | No[NOTE2] |
| | CH 12 | 2467 | 19.64 | 20.30 | --- | 18.88 | 19.50 | --- | |
| | CH 13 | 2472 | 17.02 | 18.00 | --- | 16.09 | 17.00 | --- | |
| 802.11g | CH 1 | 2412 | 16.73 | 17.30 | --- | 17.30 | 18.00 | --- | No[NOTE6] |
| | CH 2 | 2417 | 18.74 | 19.30 | --- | 19.02 | 20.00 | --- | |
| | CH 7 | 2442 | 19.63 | 20.30 | --- | 19.96 | 20.50 | --- | |
| | CH 10 | 2457 | 18.42 | 19.00 | --- | 18.45 | 19.00 | --- | |
| | CH 11 | 2462 | 16.53 | 17.30 | --- | 17.15 | 18.00 | --- | |
| | CH 12 | 2467 | 14.81 | 15.50 | --- | 15.03 | 16.00 | --- | |
| | CH 13 | 2472 | 11.55 | 12.30 | --- | 11.05 | 12.00 | --- | |

| Type of Network | Channel | Frequency (MHz) | Output Power (dBm) | | | | | | SAR Test |
|---|---|---|---|---|---|---|---|---|---|
| | | | ANT AUX | | | ANT Main | | | |
| | | | Average Power | Tune-Up Limit | Scale Factor | Average Power | Tune-Up Limit | Scale Factor | |
| 802.11n-HT20 | CH 1 | 2412 | 15.307 | 16.00 | --- | 15.757 | 16.30 | --- | No[NOTE4、3] |
| | CH 2 | 2417 | 16.857 | 17.50 | --- | 16.837 | 17.50 | --- | |
| | CH 3 | 2422 | 18.327 | 19.00 | --- | 18.117 | 19.00 | --- | |
| | CH 7 | 2442 | 19.207 | 20.00 | --- | 19.837 | 20.50 | --- | |
| | CH 10 | 2457 | 17.597 | 18.30 | --- | 17.867 | 18.50 | --- | |
| | CH 11 | 2462 | 14.227 | 15.00 | --- | 14.777 | 15.30 | --- | |
| | CH 12 | 2467 | 10.777 | 11.30 | --- | 10.917 | 11.50 | --- | |
| | CH 13 | 2472 | 7.987 | 8.50 | --- | 8.027 | 9.00 | --- | |
| 802.11n-HT40 | CH 3 | 2422 | 13.834 | 14.50 | --- | 14.374 | 15.00 | --- | |
| | CH 7 | 2442 | 15.234 | 16.00 | --- | 15.204 | 16.00 | --- | |
| | CH 9 | 2452 | 14.384 | 15.00 | --- | 13.904 | 14.50 | --- | |
| | CH 10 | 2457 | 11.774 | 12.30 | --- | 11.534 | 12.30 | --- | |
| | CH 11 | 2462 | 8.264 | 9.00 | --- | 7.954 | 8.50 | --- | |

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| Type of Network | Channel | Frequency (MHz) | Output Power (dBm) | | | | | | SAR Test |
|---|---|---|---|---|---|---|---|---|---|
| | | | ANT AUX | | | ANT Main | | | |
| | | | Average Power | Tune-Up Limit | Scale Factor | Average Power | Tune-Up Limit | Scale Factor | |
| 802.11ax-HE20 | CH 1 | 2412 | 15.80 | 16.50 | --- | 15.56 | 16.30 | --- | No NOTE4、3 |
| | CH 2 | 2417 | 16.49 | 17.00 | --- | 17.17 | 18.00 | --- | |
| | CH 3 | 2422 | 17.49 | 18.00 | --- | 17.68 | 18.30 | --- | |
| | CH 7 | 2442 | 19.53 | 20.30 | --- | 20.02 | 21.00 | --- | |
| | CH 10 | 2457 | 17.89 | 18.50 | --- | 18.06 | 19.00 | --- | |
| | CH 11 | 2462 | 14.51 | 15.30 | --- | 14.87 | 15.50 | --- | |
| | CH 12 | 2467 | 10.42 | 11.00 | --- | 10.62 | 11.30 | --- | |
| | CH 13 | 2472 | 7.05 | 8.00 | --- | 8.13 | 9.00 | --- | |
| 802.11ax-HE40 | CH 3 | 2422 | 13.936 | 14.50 | --- | 13.936 | 14.50 | --- | |
| | CH 7 | 2442 | 14.706 | 15.30 | --- | 15.056 | 16.00 | --- | |
| | CH 9 | 2452 | 13.836 | 14.50 | --- | 13.696 | 14.30 | --- | |
| | CH 10 | 2457 | 14.036 | 15.00 | --- | 13.766 | 14.30 | --- | |
| | CH 11 | 2462 | 8.216 | 9.00 | --- | 8.246 | 9.00 | --- | |

| Type of Network | RU Config | Frequency (MHz) | Output Power (dBm) | | | | | | SAR Test |
|---|---|---|---|---|---|---|---|---|---|
| | | | ANT AUX | | | ANT Main | | | |
| | | | Average Power | Tune-Up Limit | Scale Factor | Average Power | Tune-Up Limit | Scale Factor | |
| 802.11ax-HE20 | 26/0 | 2412 | 17.83 | 18.50 | --- | 17.59 | 18.30 | --- | No NOTE4、3 |
| | 52/37 | | 17.64 | 18.30 | --- | 18.36 | 19.00 | --- | |
| | 106/53 | | 18.05 | 19.00 | --- | 18.21 | 19.00 | --- | |
| | 26/8 | 2472 | 4.85 | 5.50 | --- | 5.03 | 6.00 | --- | |
| | 52/40 | | 6.48 | 7.00 | --- | 6.37 | 7.00 | --- | |
| | 106/54 | | 6.31 | 7.00 | --- | 6.30 | 7.00 | --- | |
| 802.11ax-HE40 | 242/61 | 2422 | 14.82 | 15.50 | --- | 15.08 | 16.00 | --- | |
| | 242/62 | 2462 | 8.00 | 9.00 | --- | 8.11 | 9.00 | --- | |

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| Type of Network | U-NII Band | Channel | Frequency (MHz) | Output Power (dBm) ANT AUX Average Power | ANT AUX Tune-Up Limit | ANT AUX Scale Factor | ANT Main Average Power | ANT Main Tune-Up Limit | ANT Main Average Power | SAR Test |
|---|---|---|---|---|---|---|---|---|---|---|
| 802.11a | 1 | CH 36 | 5180 | 15.69 | 16.30 | --- | 16.31 | 17.00 | --- | No[NOTE5、3] |
| | | CH 40 | 5200 | 15.79 | 16.30 | --- | 15.99 | 16.50 | --- | |
| | | CH 48 | 5240 | 15.66 | 16.30 | --- | 15.26 | 16.00 | --- | |
| | 2A | CH 52 | 5260 | 15.42 | 16.00 | --- | 15.33 | 16.00 | --- | No[NOTE2] |
| | | CH 60 | 5300 | 16.39 | 17.00 | 1.150 | 16.12 | 17.00 | 1.224 | Yes |
| | | CH 64 | 5320 | 16.28 | 17.00 | --- | 15.96 | 16.50 | --- | No[NOTE2] |
| | 2C | CH 100 | 5500 | 15.86 | 16.50 | --- | 16.10 | 17.00 | --- | No[NOTE2、3] |
| | | CH 116 | 5580 | 16.47 | 17.00 | 1.129 | 15.92 | 16.50 | 1.142 | Yes |
| | | CH 140 | 5700 | 15.74 | 16.30 | --- | 15.72 | 16.30 | --- | No[NOTE2、3] |
| | | CH 144 | 5720 | 15.69 | 16.30 | --- | 16.38 | 17.00 | --- | |
| | 3 | CH 149 | 5745 | 16.05 | 17.00 | --- | 16.07 | 17.00 | --- | No[NOTE2、3] |
| | | CH 157 | 5785 | 15.56 | 16.30 | --- | 15.85 | 16.50 | --- | |
| | | CH 165 | 5825 | 16.30 | 17.00 | 1.174 | 15.83 | 16.50 | 1.166 | Yes |

| Type of Network | U-NII Band | Channel | Frequency (MHz) | Output Power (dBm) ANT AUX Average Power | ANT AUX Tune-Up Limit | ANT AUX Scale Factor | ANT Main Average Power | ANT Main Tune-Up Limit | ANT Main Average Power | SAR Test |
|---|---|---|---|---|---|---|---|---|---|---|
| 802.11n-HT20 | 1 | CH 36 | 5180 | 16.13 | 17.00 | --- | 14.90 | 15.50 | --- | No[NOTE4、3] |
| | | CH 40 | 5200 | 15.46 | 16.00 | --- | 15.37 | 16.00 | --- | |
| | | CH 48 | 5240 | 14.81 | 15.50 | --- | 15.14 | 16.00 | --- | |
| | 2A | CH 52 | 5260 | 15.78 | 16.30 | --- | 15.67 | 16.30 | --- | |
| | | CH 60 | 5300 | 15.65 | 16.30 | --- | 15.81 | 16.50 | --- | |
| | | CH 64 | 5320 | 15.74 | 16.30 | --- | 15.82 | 16.50 | --- | |
| | 2C | CH 100 | 5500 | 15.53 | 16.30 | --- | 15.68 | 16.30 | --- | |
| | | CH 116 | 5580 | 15.32 | 16.00 | --- | 15.46 | 16.00 | --- | |
| | | CH 140 | 5700 | 15.33 | 16.00 | --- | 16.02 | 17.00 | --- | |
| | | CH 144 | 5720 | 14.95 | 15.50 | --- | 15.98 | 16.50 | --- | |
| | 3 | CH 149 | 5745 | 15.29 | 16.00 | --- | 15.98 | 16.50 | --- | |
| | | CH 157 | 5785 | 15.29 | 16.00 | --- | 15.32 | 16.00 | --- | |
| | | CH 165 | 5825 | 15.46 | 16.00 | --- | 16.06 | 17.00 | --- | |

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| Type of Network | U-NII Band | Channel | Frequency (MHz) | Output Power (dBm) | | | | | | SAR Test |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ANT AUX | | | ANT Main | | | |
| | | | | Average Power | Tune-Up Limit | Scale Factor | Average Power | Tune-Up Limit | Averag e Power | |
| 802.11n-HT40 | 1 | CH 38 | 5190 | 15.05 | 16.00 | --- | 14.82 | 15.50 | --- | No NOTE4、3 |
| | | CH 46 | 5230 | 15.55 | 16.30 | --- | 15.46 | 16.00 | --- | |
| | 2A | CH 54 | 5270 | 16.20 | 17.00 | --- | 15.40 | 16.00 | --- | |
| | | CH 62 | 5310 | 15.08 | 16.00 | --- | 14.03 | 15.00 | --- | |
| | 2C | CH 102 | 5510 | 15.51 | 16.30 | --- | 15.58 | 16.30 | --- | |
| | | CH 110 | 5550 | 14.72 | 15.30 | --- | 15.05 | 16.00 | --- | |
| | | CH 134 | 5670 | 15.71 | 16.30 | --- | 15.25 | 16.00 | --- | |
| | | CH 142 | 5710 | 15.76 | 16.30 | --- | 15.19 | 16.00 | --- | |
| | 3 | CH 151 | 5755 | 15.47 | 16.00 | --- | 15.49 | 16.00 | --- | |
| | | CH 159 | 5795 | 15.92 | 16.50 | --- | 16.18 | 17.00 | --- | |
| 802.11ac-VHT80 | 1 | CH 52 | 5210 | 13.98 | 14.50 | --- | 13.93 | 14.50 | --- | No NOTE4、3 |
| | 2A | CH 58 | 5290 | 15.30 | 16.00 | --- | 14.76 | 15.30 | --- | |
| | 2C | CH 106 | 5530 | 15.28 | 16.00 | --- | 15.05 | 16.00 | --- | |
| | | CH 133 | 5610 | 15.18 | 16.00 | --- | 14.42 | 15.00 | --- | |
| | | CH 138 | 5690 | 15.52 | 16.30 | --- | 14.79 | 15.30 | --- | |
| | 3 | CH 155 | 5775 | 15.71 | 16.30 | --- | 15.40 | 16.00 | --- | |
| 802.11ac-VHT160 | 1/2A | CH 50 | 5250 | 10.977 | 11.50 | --- | 10.697 | 11.30 | --- | No NOTE4、3 |
| | 2C | CH 114 | 5570 | 14.107 | 15.00 | --- | 14.167 | 15.00 | --- | |

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| Type of Network | U-NII Band | Channel | Frequency (MHz) | Output Power (dBm) ANT AUX Average Power | ANT AUX Tune-Up Limit | ANT AUX Scale Factor | ANT Main Average Power | ANT Main Tune-Up Limit | ANT Main Average Power | SAR Test |
|---|---|---|---|---|---|---|---|---|---|---|
| 802.11ax -HE20 | 1 | CH 36 | 5180 | 15.402 | 16.00 | --- | 15.822 | 16.50 | --- | No NOTE4、3 |
| | | CH 40 | 5200 | 15.962 | 16.50 | --- | 15.052 | 16.00 | --- | |
| | | CH 48 | 5240 | 15.032 | 16.00 | --- | 15.502 | 16.30 | --- | |
| | 2A | CH 52 | 5260 | 15.282 | 16.00 | --- | 15.412 | 16.00 | --- | |
| | | CH 60 | 5300 | 15.302 | 16.00 | --- | 15.752 | 16.30 | --- | |
| | | CH 64 | 5320 | 15.272 | 16.00 | --- | 15.402 | 16.00 | --- | |
| | 2C | CH 100 | 5500 | 15.552 | 16.30 | --- | 16.182 | 17.00 | --- | |
| | | CH 116 | 5580 | 15.482 | 16.00 | --- | 15.742 | 16.30 | --- | |
| | | CH 140 | 5700 | 15.822 | 16.50 | --- | 15.552 | 16.30 | --- | |
| | | CH 144 | 5720 | 15.922 | 16.50 | --- | 15.382 | 16.00 | --- | |
| | 3 | CH 149 | 5745 | 15.242 | 16.00 | --- | 15.942 | 16.50 | --- | |
| | | CH 157 | 5785 | 15.652 | 16.30 | --- | 15.842 | 16.50 | --- | |
| | | CH 165 | 5825 | 15.342 | 16.00 | --- | 15.822 | 16.50 | --- | |
| 802.11ax -HE40 | 1 | CH 38 | 5190 | 14.76 | 15.30 | --- | 15.01 | 16.00 | --- | No NOTE4、3 |
| | | CH 46 | 5230 | 15.40 | 16.00 | --- | 15.88 | 16.50 | --- | |
| | 2A | CH 54 | 5270 | 15.97 | 16.50 | --- | 15.09 | 16.00 | --- | |
| | | CH 62 | 5310 | 15.94 | 16.50 | --- | 15.57 | 16.30 | --- | |
| | 2C | CH 102 | 5510 | 15.37 | 16.00 | --- | 15.41 | 16.00 | --- | |
| | | CH 110 | 5550 | 15.61 | 16.30 | --- | 15.28 | 16.00 | --- | |
| | | CH 134 | 5670 | 15.67 | 16.30 | --- | 15.11 | 16.00 | --- | |
| | | CH 142 | 5710 | 15.11 | 16.00 | --- | 15.35 | 16.00 | --- | |
| | 3 | CH 151 | 5755 | 15.31 | 16.00 | --- | 15.80 | 16.50 | --- | |
| | | CH 159 | 5795 | 16.00 | 17.00 | --- | 16.41 | 17.00 | --- | |
| 802.11ax -HE80 | 1 | CH 52 | 5210 | 13.54 | 14.30 | --- | 13.54 | 14.30 | --- | No NOTE4、3 |
| | 2A | CH 58 | 5290 | 14.54 | 15.30 | --- | 14.63 | 15.30 | --- | |
| | 2C | CH 106 | 5530 | 14.93 | 15.50 | --- | 14.71 | 15.30 | --- | |
| | | CH 133 | 5610 | 14.53 | 15.30 | --- | 14.42 | 15.00 | --- | |
| | | CH 138 | 5690 | 14.70 | 15.30 | --- | 14.50 | 15.30 | --- | |
| | 3 | CH 155 | 5775 | 14.02 | 15.00 | --- | 14.82 | 15.50 | --- | |
| 802.11ax -HE160 | 1/2A | CH 50 | 5250 | 10.838 | 11.50 | --- | 10.748 | 11.30 | --- | No NOTE4、3 |
| | 2C | CH 114 | 5570 | 14.158 | 15.00 | --- | 13.978 | 14.50 | --- | |

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| Type of Network | U-NII Band | Channel | Frequency (MHz) | RU Config | ANT AUX Average Power (dBm) | ANT AUX Tune-Up Limit (dBm) | ANT AUX Scale Factor | ANT Main Average Power (dBm) | ANT Main Tune-Up Limit (dBm) | ANT Main Average Power | SAR Test |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 802.11ax -HE20 | 1 | CH 36 | 5180 | 26/0 | 9.67 | 10.30 | --- | 10.26 | 11.00 | --- | No NOTE 4、3 |
| | | | | 52/37 | 12.72 | 13.30 | --- | 13.49 | 14.00 | --- | |
| | | | | 106/53 | 15.31 | 16.00 | --- | 15.15 | 16.00 | --- | |
| | 2A | CH 64 | 5320 | 26/8 | 10.07 | 11.00 | --- | 10.05 | 11.00 | --- | |
| | | | | 52/40 | 13.72 | 14.30 | --- | 13.55 | 14.30 | --- | |
| | | | | 106/54 | 15.10 | 16.00 | --- | 14.59 | 15.30 | --- | |
| | 2C | CH 100 | 5500 | 26/0 | 9.85 | 10.50 | --- | 10.07 | 11.00 | --- | |
| | | | | 52/37 | 13.13 | 14.00 | --- | 12.94 | 13.50 | --- | |
| | | | | 106/53 | 14.53 | 15.30 | --- | 13.39 | 14.00 | --- | |
| | | CH 140 | 5700 | 26/8 | 9.37 | 10.00 | --- | 10.12 | 11.00 | --- | |
| | | | | 52/40 | 12.86 | 13.50 | --- | 12.66 | 13.30 | --- | |
| | | | | 106/54 | 14.88 | 15.50 | --- | 14.45 | 15.00 | --- | |
| | 3 | CH 149 | 5745 | 26/0 | 15.38 | 16.00 | --- | 14.95 | 15.50 | --- | |
| | | | | 52/37 | 15.28 | 16.00 | --- | 14.58 | 15.30 | --- | |
| | | | | 106/53 | 15.57 | 16.30 | --- | 15.53 | 16.30 | --- | |
| | | CH 165 | 5825 | 26/8 | 16.01 | 17.00 | --- | 15.31 | 16.00 | --- | |
| | | | | 52/40 | 13.34 | 14.00 | --- | 13.74 | 14.30 | --- | |
| | | | | 106/54 | 15.82 | 16.50 | --- | 15.22 | 16.00 | --- | |
| 802.11ax -HE40 | 1 | CH 38 | 5190 | 242/61 | 15.38 | 16.00 | --- | 15.15 | 16.00 | --- | No NOTE 4、3 |
| | 2A | CH 62 | 5310 | 242/62 | 16.88 | 17.50 | --- | 16.73 | 17.30 | --- | |
| | 2C | CH 102 | 5510 | 242/61 | 15.51 | 16.30 | --- | 15.12 | 16.00 | --- | |
| | | CH 142 | 5710 | 242/62 | 16.25 | 17.00 | --- | 15.75 | 16.30 | --- | |
| | 3 | CH 151 | 5755 | 242/61 | 15.29 | 16.00 | --- | 15.42 | 16.00 | --- | |
| | | CH 159 | 5795 | 242/62 | 16.11 | 17.00 | --- | 15.67 | 16.30 | --- | |
| 802.11ax -HE80 | 1 | CH 52 | 5210 | 484/65 | 14.65 | 15.30 | --- | 14.74 | 15.30 | --- | No NOTE 4、3 |
| | 2A | CH 58 | 5290 | 484/66 | 11.50 | 12.30 | --- | 11.63 | 12.30 | --- | |
| | 2C | CH 106 | 5530 | 484/65 | 14.58 | 15.30 | --- | 14.32 | 15.00 | --- | |
| | | CH 133 | 5610 | 484/66 | 15.55 | 16.30 | --- | 14.95 | 15.50 | --- | |
| | 3 | CH 155 | 5775 | 484/65 | 15.45 | 16.00 | --- | 15.46 | 16.00 | --- | |
| | | | | 484/66 | 15.32 | 16.00 | --- | 15.34 | 16.00 | --- | |
| 802.11ax -HE160 | 2A | CH 50 | 5250 | 996/67 | 13.89 | 14.50 | --- | 13.84 | 14.50 | --- | No NOTE 4、3 |
| | | | | 996/S67 | 12.19 | 13.00 | --- | 11.92 | 12.50 | --- | |
| | 2C | CH 114 | 5570 | 996/67 | 14.05 | 15.00 | --- | 13.72 | 14.30 | --- | |
| | | | | 996/S67 | 15.57 | 16.30 | --- | 14.46 | 15.00 | --- | |

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6.5.2. For BT Function

| Type of Network | Channel | Frequency (MHz) | Max Output Power (dBm) | Tune-Up Limit | Scale Factor | SAR Test |
|---|---|---|---|---|---|---|
| Bluetooth-GFSK | CH 0 | 2402 | 9.030 | 10.00 | --- | No |
| | CH 39 | 2441 | 9.460 | 10.00 | --- | No |
| | CH 78 | 2480 | 9.660 | 10.30 | 1.158 | Yes |
| Bluetooth-8-DPSK | CH 0 | 2402 | 7.210 | 8.00 | --- | No |
| | CH 39 | 2441 | 7.590 | 8.30 | --- | No |
| | CH 78 | 2480 | 7.550 | 8.30 | --- | No |
| BLE (1Mbps) | CH 37 | 2402 | 5.490 | 6.00 | --- | No |
| | CH 17 | 2440 | 5.880 | 6.50 | --- | No |
| | CH 39 | 2480 | 5.660 | 6.30 | --- | No |
| BLE (2Mbps) | CH 37 | 2402 | 5.580 | 6.30 | --- | No |
| | CH 17 | 2440 | 5.890 | 6.50 | --- | No |
| | CH 39 | 2480 | 5.670 | 6.30 | --- | No |
| BLE (PHY Coded S2) | CH 37 | 2402 | 5.590 | 6.30 | --- | No |
| | CH 17 | 2440 | 5.900 | 6.50 | --- | No |
| | CH 39 | 2480 | 5.670 | 6.30 | --- | No |
| BLE (PHY Coded S8) | CH 37 | 2402 | 5.400 | 6.00 | --- | No |
| | CH 17 | 2440 | 5.650 | 6.30 | --- | No |
| | CH 39 | 2480 | 5.640 | 6.30 | --- | No |

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## 6.6. SAR Test Result

### 6.6.1. WiFi 2.4G/Bluetooth

| Test Date | 2022. 07. 21 ~ 08. 19 | Temp./Hum. | 21℃/46-49% |
|---|---|---|---|
| Test Voltage | AC 120V, 60Hz (with AC Adapter) | Tested by | Brian Hsieh |

| Liquid Temperature : 20.0℃ | | | | | | | Depth of Liquid: ＞15cm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Test Mode: 2.4GHz** | | | | | | | | | | |
| Plot No. | Test Position: Body | Antenna Position | Separation Distance (cm) | Frequency | Conducted Power (dBm) | Maximum Tune-up (dBm) | SAR 1g (W/kg) | Scale Factor | Reported SAR | Limit (W/kg) |
| 802.11b | | | | | | | | | | |
| Antenna: ANT 1-AUX | | | | | | | | | | |
| 13 | Screen | Fixed | 0.5 | 2442 | 19.97 | 20.50 | 0.088 | 1.129 | 0.099 | 1.60 |
| 15 | Bottom | Fixed | 0 | 2442 | 19.97 | 20.50 | 0.015 | 1.129 | 0.017 | 1.60 |
| Antenna: ANT 2-Main | | | | | | | | | | |
| 14 | Screen | Fixed | 0.5 | 2442 | 20.19 | 21.00 | 0.448 | 1.205 | **0.540** | 1.60 |
| 16 | Bottom | Fixed | 0 | 2442 | 20.19 | 21.00 | 0.101 | 1.205 | 0.122 | 1.60 |

| Liquid Temperature : 20.0℃ | | | | | | | Depth of Liquid: ＞15cm | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Test Mode: BT-GFSK** | | | | | | | | | | |
| Plot No. | Test Position: Body | Antenna Position | Separation Distance (cm) | Frequency | Conducted Power (dBm) | Maximum Tune-up (dBm) | SAR 1g (W/kg) | Scale Factor | Reported SAR | Limit (W/kg) |
| Antenna: ANT 1-AUX | | | | | | | | | | |
| 11 | Screen | Fixed | 0.5 | 2480 | 9.66 | 10.30 | 0.015 | 1.158 | **0.017** | 1.60 |
| 12 | Bottom | Fixed | 0 | 2480 | 9.66 | 10.30 | 0.012 | 1.158 | 0.014 | 1.60 |

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### 6.6.2. WiFi 5G

| Test Date | 2022. 07. 19 ~ 21 | Temp./Hum. | 21-22℃/44-46% |
|---|---|---|---|
| Test Voltage | AC 120V, 60Hz (with AC Adapter) | Tested by | Brian Hsieh |

| Liquid Temperature : 20.0℃ | | | | | | Depth of Liquid:＞15cm | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Test Mode: 5GHz** | | | | | | | | | | |
| Plot No. | Test Position: Body | Antenna Position | Separation Distance (cm) | Frequency | Conducted Power (dBm) | Maximum Tune-up (dBm) | SAR 1g (W/kg) | Scale Factor | Reported SAR | Limit (W/kg) |
| 802.11a (UNII Band 2A) | | | | | | | | | | |
| Antenna: ANT 1-AUX | | | | | | | | | | |
| 3 | Screen | Fixed | 0.5 | 5300 | 16.39 | 17.00 | 0.415 | 1.150 | 0.477 | 1.60 |
| Antenna: ANT 2-Main | | | | | | | | | | |
| 4 | Screen | Fixed | 0.5 | 5300 | 16.12 | 17.00 | 0.476 | 1.224 | 0.583 | 1.60 |
| 802.11a (UNII Band 2C) | | | | | | | | | | |
| Antenna: ANT 1-AUX | | | | | | | | | | |
| 5 | Screen | Fixed | 0.5 | 5580 | 16.47 | 17.00 | 0.437 | 1.129 | 0.493 | 1.60 |
| Antenna:ANT 2-Main | | | | | | | | | | |
| 6 | Screen | Fixed | 0.5 | 5580 | 15.92 | 16.50 | 0.662 | 1.142 | 0.756 | 1.60 |
| 802.11a (UNII Band 3) | | | | | | | | | | |
| Antenna: ANT 1-AUX | | | | | | | | | | |
| 1 | Screen | Fixed | 0.5 | 5825 | 16.30 | 17.00 | 0.799 | 1.174 | **0.938** | 1.60 |
| 7 | Bottom | Fixed | 0 | 5825 | 16.30 | 17.00 | 0.176 | 1.174 | 0.207 | 1.60 |
| Antenna: ANT 2-Main | | | | | | | | | | |
| 2 | Screen | Fixed | 0.5 | 5825 | 15.83 | 16.50 | 0.621 | 1.166 | **0.724** | 1.60 |
| 8 | Bottom | Fixed | 0 | 5825 | 15.83 | 16.50 | 0.286 | 1.166 | 0.333 | 1.60 |

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### 6.6.3. Highest Simultaneous Transmission SAR

| Highest Simultaneous Transmission SAR | Reported Body $SAR_{1g}$ |
|---|---|
| WLAN 2.4G (2442MHz) ANT Main+<br>WLAN 2.4G (2442MHz) ANT AUX | 0.639 (W/kg) |
| WLAN 2.4G (2442MHz) ANT Main +<br>BT (2480MHz ) ANT AUX | 0.557 (W/kg) |
| WLAN 5G (5825MHz) ANT AUX+<br>BT (2480MHz )ANT AUX | 0.955 (W/kg) |
| WLAN 5G (5825MHz) ANT Main+<br>WLAN 5 (5825MHz) ANT AUX | 1.662 (W/kg) NOTE 3 |
| WLAN 5G (5825MHz) ANT Main+<br>WLAN 5 (5825MHz) ANT AUX + BT (2480MHz )ANT AUX | 1.679 (W/kg) NOTE 3 |

Note: 1. The SAR limit (SAR1g 1.6 W/kg) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093).
2. It is calculated from scale SAR.
3. It is larger than the limit 1.6(W/kg), SAR test exclusion is determined by the SAR to peak location separation ratio.

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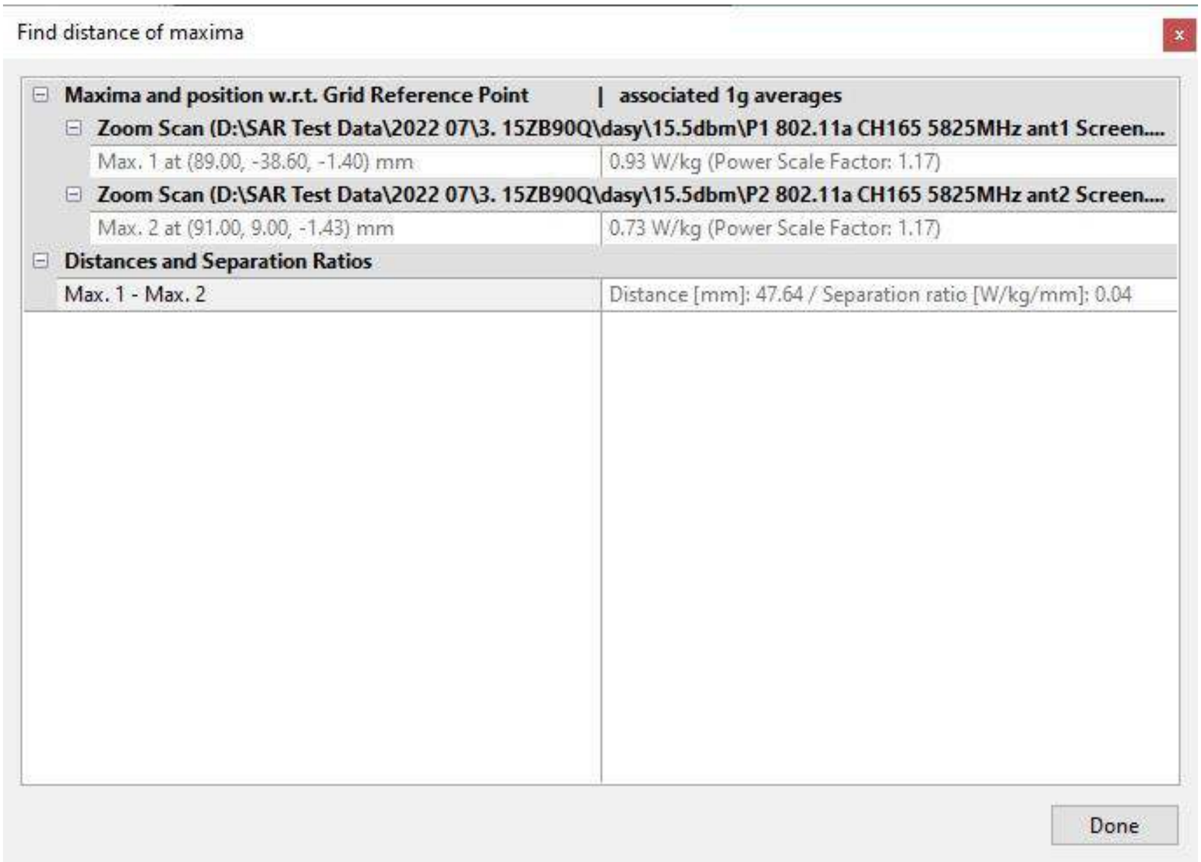
**Subsequent highest output channel**

| Simultaneous Transmission SAR | Frequency | Reported Body $SAR_{1g}$ (SAR1+SAR2)[Note2] | Ri (mm) [Note2] | SPLSR[Note2] |
|---|---|---|---|---|
| WLAN 5G ANT Main+ WLAN 5 ANT AUX | 5825MHz | 1.662 (W/kg)[Note 2] | 47.64 | 0.04 |

Note: 1. The SAR limit (SAR1g 1.6 W/kg) for general population / uncontrolled exposure is specified in FCC 47 CFR part 2 (2.1093).
2. SPLSR=$(SAR1+SAR2)^{1.5}$/Ri must ≤0.04



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# APPENDIX A

## GRAPH RESULT

(Model: 15ZB90Q)

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Test Laboratory: Audix_SAR Lab

## P13 802.11b CH7 2442MHz ant1 Screen

**DUT: 15ZB90Q**

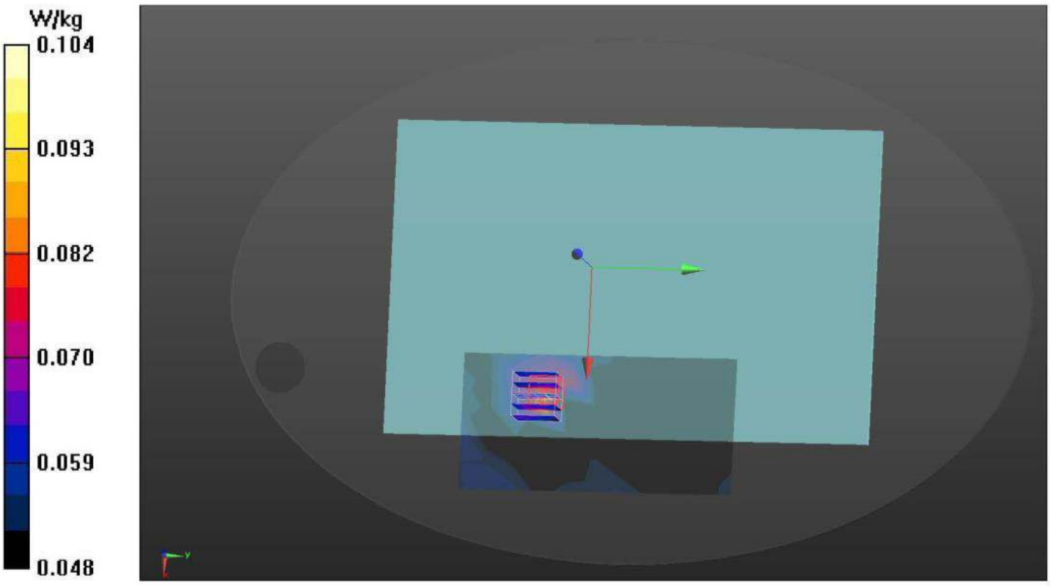
Communication System: UID 0, WIFI 2.4G 802.11B (0); Frequency: 2442 MHz;Duty Cycle:1:1
Medium parameters used: f = 2442 MHz; $\sigma$ = 1.756 S/m; $\varepsilon_r$ = 37.56; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2442 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = -9.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (6x11x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0896 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.477 V/m; Power Drift = -0.62 dB
Peak SAR (extrapolated) = 0.131 W/kg
**SAR(1 g) = 0.088 W/kg; SAR(10 g) = 0.071 W/kg**
Smallest distance from peaks to all points 3 dB below = 17.6 mm
Ratio of SAR at M2 to SAR at M1 = 79.2%
Maximum value of SAR (measured) = 0.104 W/kg



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Test Laboratory: Audix_SAR Lab

**P15 802.11b CH7 2442MHz ant1 Bottom**

**DUT: 15ZB90Q**

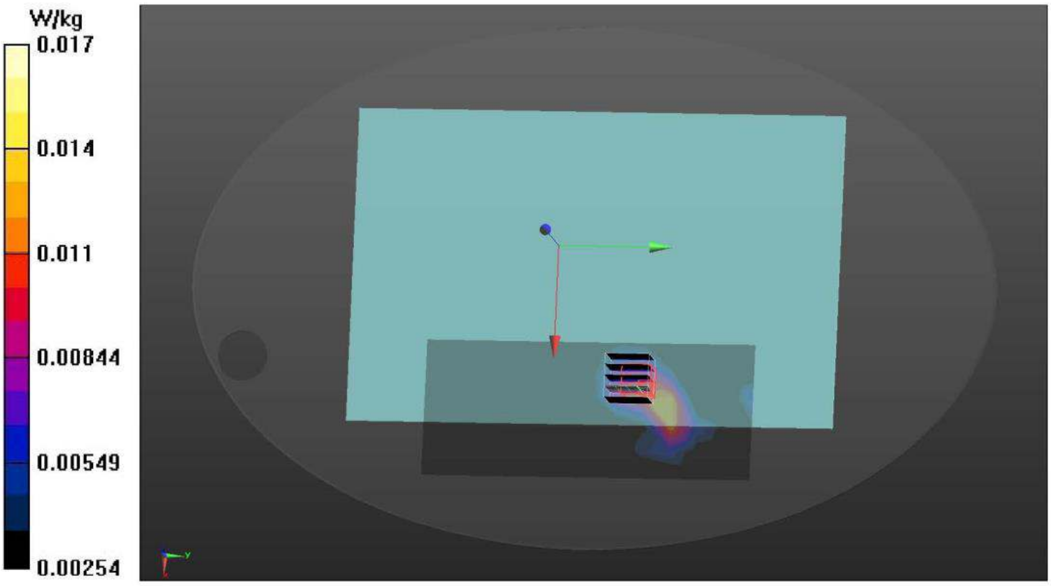
Communication System: UID 0, WIFI 2.4G 802.11B (0); Frequency: 2442 MHz;Duty Cycle:1:1
Medium parameters used: f = 2442 MHz; $\sigma$ = 1.756 S/m; $\varepsilon_r$ = 37.56; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2442 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (6x13x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0136 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.3955 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.0690 W/kg
**SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.00571 W/kg**
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 42.1%
Maximum value of SAR (measured) = 0.0173 W/kg



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Test Laboratory: Audix_SAR Lab

**P14 802.11b CH7 2442MHz ant2 Screen**

**DUT: 15ZB90Q**

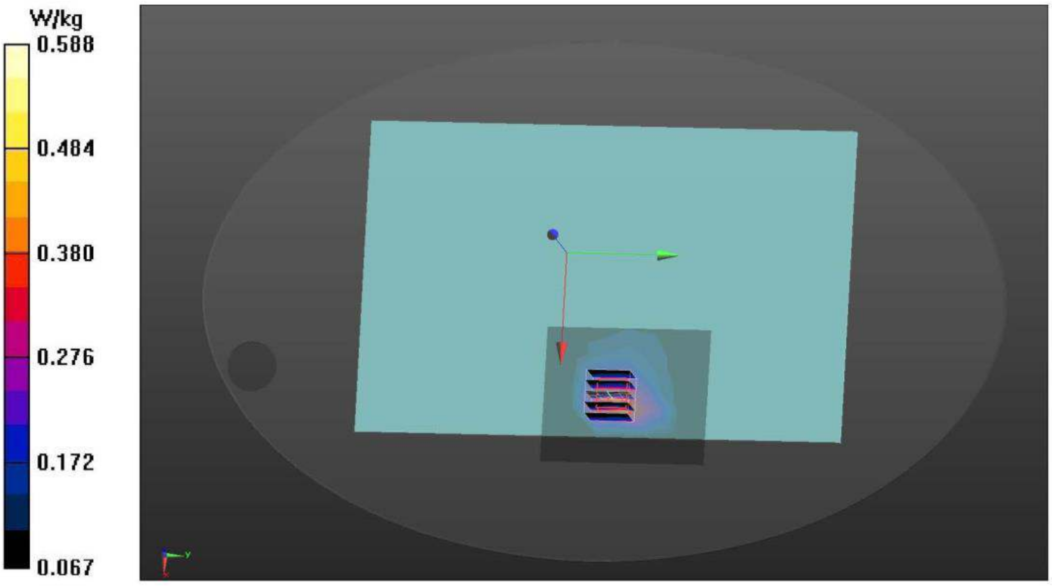
Communication System: UID 0, WIFI 2.4G 802.11B (0); Frequency: 2442 MHz;Duty Cycle:1:1
Medium parameters used: f = 2442 MHz; $\sigma$ = 1.756 S/m; $\varepsilon_r$ = 37.56; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2442 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (6x7x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.418 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.678 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.760 W/kg
**SAR(1 g) = 0.448 W/kg; SAR(10 g) = 0.253 W/kg**
Smallest distance from peaks to all points 3 dB below = 11.2 mm
Ratio of SAR at M2 to SAR at M1 = 62.4%
Maximum value of SAR (measured) = 0.588 W/kg



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Test Laboratory: Audix_SAR Lab

**P16 802.11b CH7 2442MHz ant2 Bottom**

**DUT: 15ZB90Q**

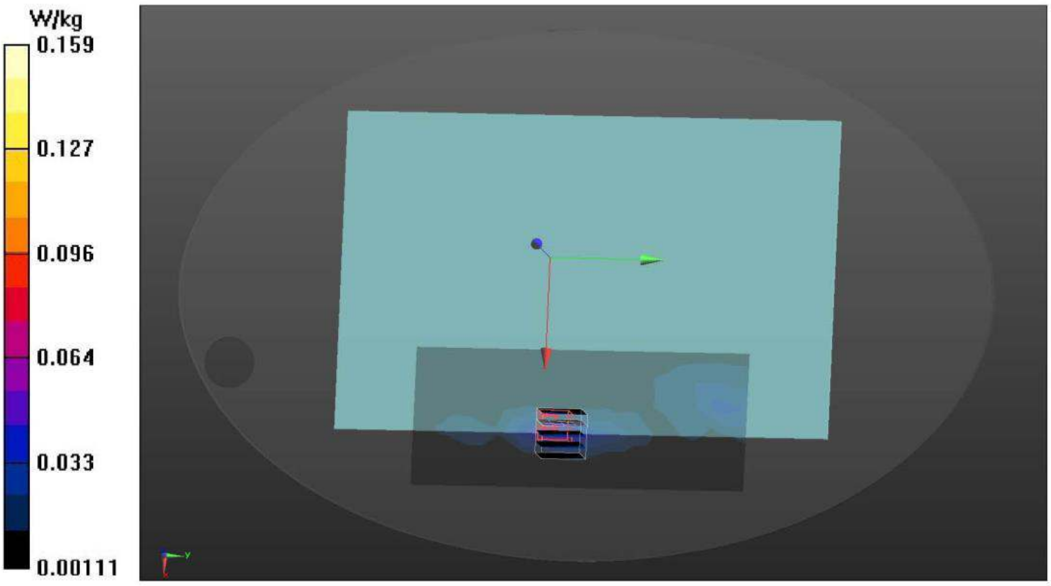
Communication System: UID 0, WIFI 2.4G 802.11B (0); Frequency: 2442 MHz;Duty Cycle:1:1
Medium parameters used: f = 2442 MHz; $\sigma$ = 1.756 S/m; $\varepsilon_r$ = 37.56; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2442 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (6x13x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0742 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.3683 V/m; Power Drift = 0.42 dB
Peak SAR (extrapolated) = 0.191 W/kg
**SAR(1 g) = 0.101 W/kg; SAR(10 g) = 0.042 W/kg**
Smallest distance from peaks to all points 3 dB below = 8.1 mm
Ratio of SAR at M2 to SAR at M1 = 53.2%
Maximum value of SAR (measured) = 0.159 W/kg



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Test Laboratory: Audix_SAR Lab

**P11 GFSK CH78 2480MHz Screen**

**DUT: 15ZB90Q**

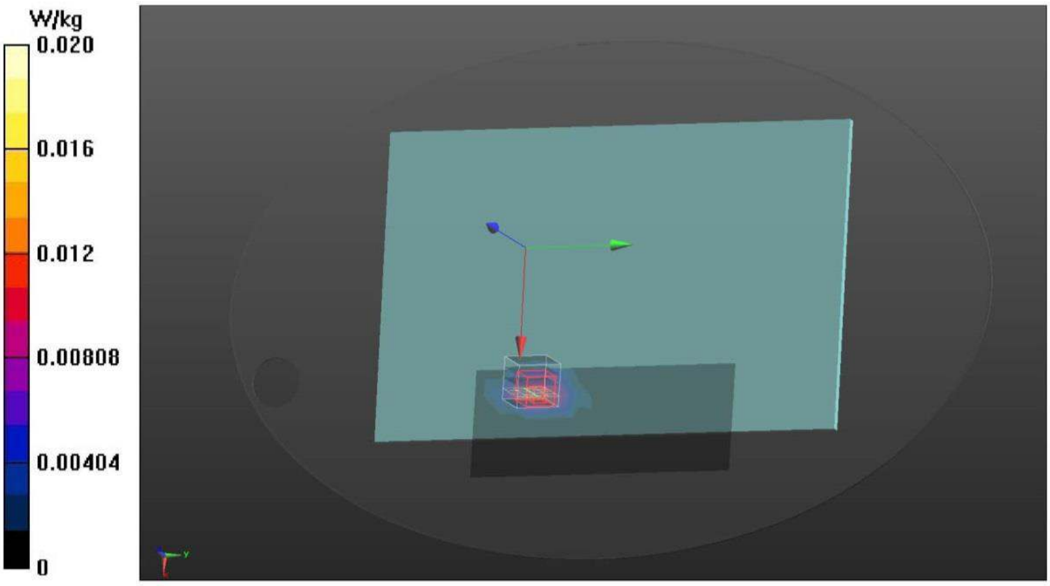
Communication System: UID 0, BT (0); Frequency: 2480 MHz;Duty Cycle:1:1.3
Medium parameters used: f = 2480 MHz; $\sigma$ = 1.803 S/m; $\varepsilon_r$ = 38.907; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2480 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (5x11x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0133 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.2322 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.0400 W/kg
**SAR(1 g) = 0.015 W/kg; SAR(10 g) = 0.00682 W/kg**
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 49.2%
Maximum value of SAR (measured) = 0.0202 W/kg



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Test Laboratory: Audix_SAR Lab

**P12 GFSK CH78 2480MHz Bottom**

**DUT: 15ZB90Q**

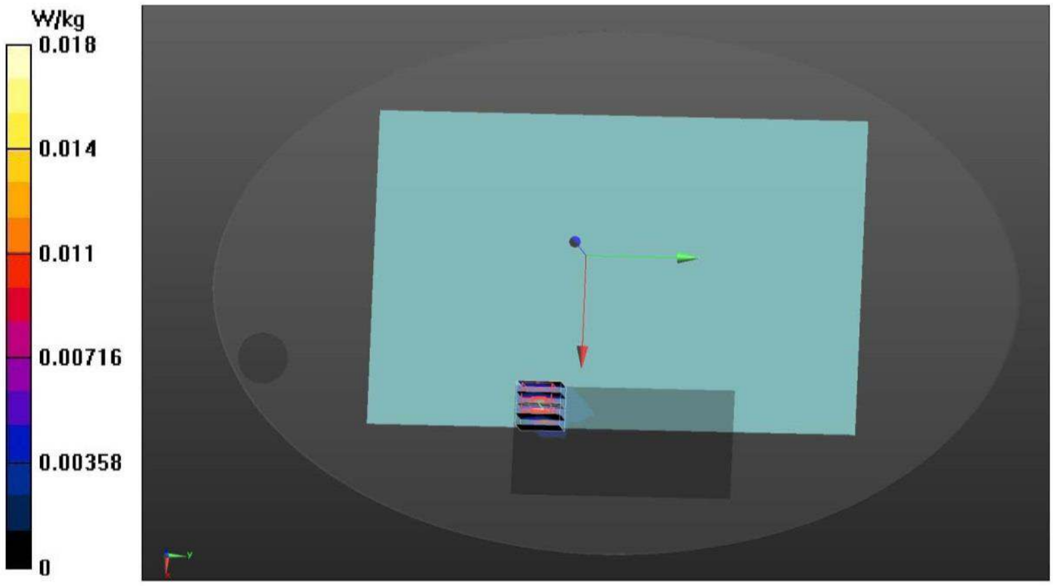
Communication System: UID 0, BT (0); Frequency: 2480 MHz;Duty Cycle:1:1.3
Medium parameters used: f = 2480 MHz; $\sigma$ = 1.803 S/m; $\varepsilon_r$ = 38.907; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(7.7, 7.7, 7.7) @ 2480 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (5x9x1):** Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (measured) = 0.0143 W/kg

**Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.2774 V/m; Power Drift = 0.74 dB
Peak SAR (extrapolated) = 0.0290 W/kg
**SAR(1 g) = 0.012 W/kg; SAR(10 g) = 0.00395 W/kg**
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 53%
Maximum value of SAR (measured) = 0.0179 W/kg



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Test Laboratory: Audix_SAR Lab

**P3 802.11a CH60 5300MHz ant1 Screen**

**DUT: 15ZB90Q**

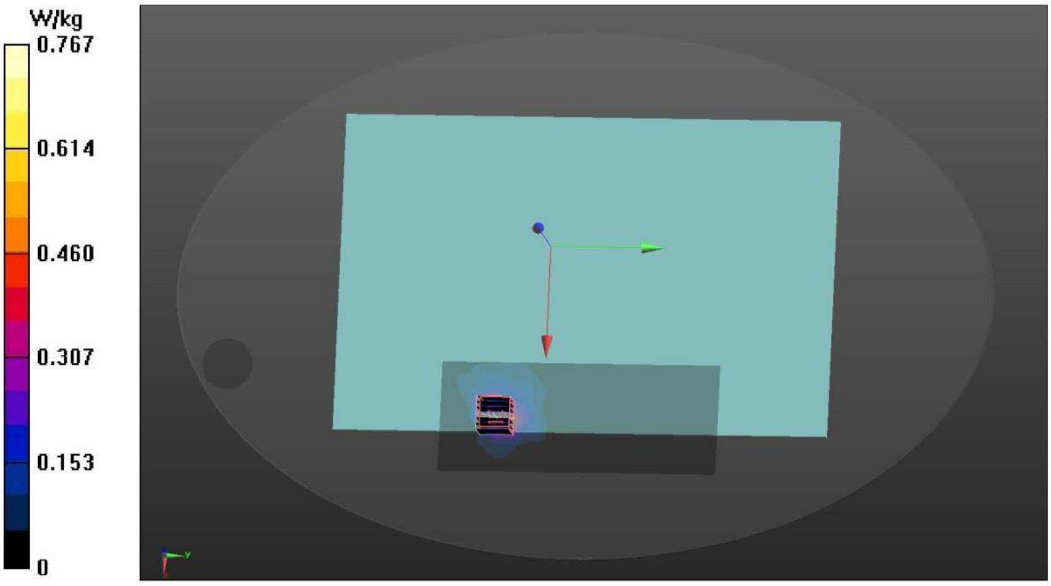
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5300 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5300 MHz; $\sigma$ = 4.875 S/m; $\varepsilon_r$ = 36.9; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(5.15, 5.15, 5.15) @ 5300 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.773 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.6540 V/m; Power Drift = -0.90 dB
Peak SAR (extrapolated) = 1.54 W/kg
**SAR(1 g) = 0.415 W/kg; SAR(10 g) = 0.139 W/kg**
Smallest distance from peaks to all points 3 dB below = 5.6 mm
Ratio of SAR at M2 to SAR at M1 = 57%
Maximum value of SAR (measured) = 0.767 W/kg



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Test Laboratory: Audix_SAR Lab

**P4 802.11a CH60 5300MHz ant2 Screen**

**DUT: 15ZB90Q**

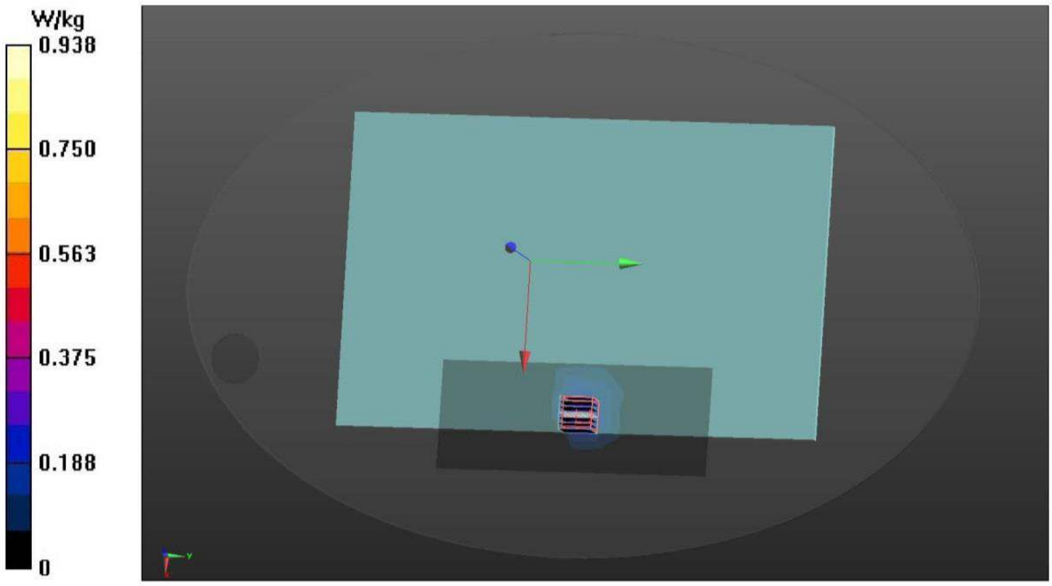
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5300 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5300 MHz; $\sigma$ = 4.875 S/m; $\varepsilon_r$ = 36.9; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(5.15, 5.15, 5.15) @ 5300 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.386 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.727 V/m; Power Drift = 0.74 dB
Peak SAR (extrapolated) = 1.71 W/kg
**SAR(1 g) = 0.476 W/kg; SAR(10 g) = 0.151 W/kg**
Smallest distance from peaks to all points 3 dB below = 6.4 mm
Ratio of SAR at M2 to SAR at M1 = 58.6%
Maximum value of SAR (measured) = 0.938 W/kg



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Test Laboratory: Audix_SAR Lab

**P5 802.11a CH116 5580MHz ant1 Screen**

**DUT: 15ZB90Q**

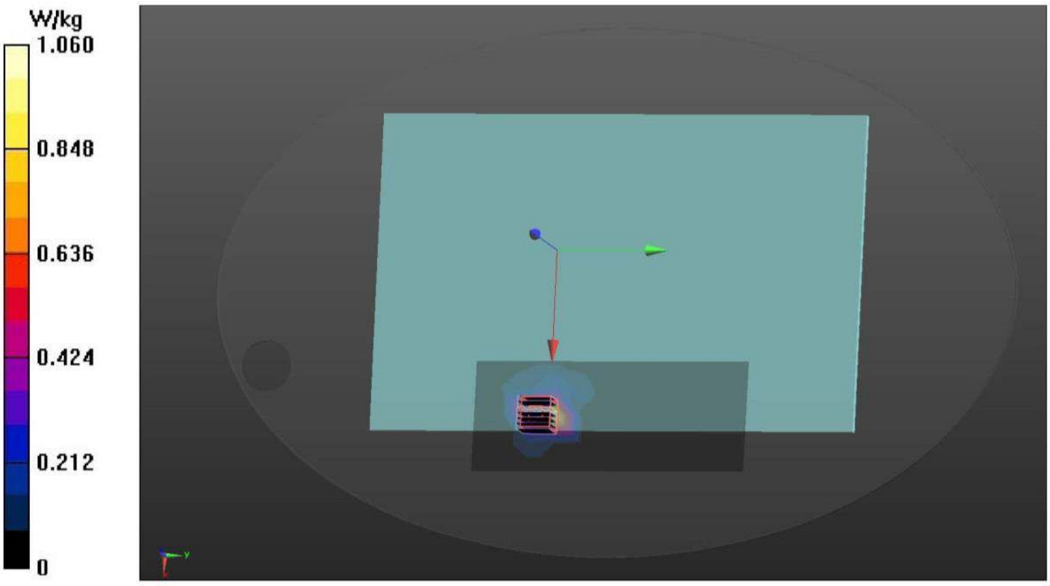
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5580 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5580 MHz; $\sigma$ = 5.236 S/m; $\varepsilon_r$ = 36.295; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.7, 4.7, 4.7) @ 5580 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.918 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.638 V/m; Power Drift = 0.41 dB
Peak SAR (extrapolated) = 2.56 W/kg
**SAR(1 g) = 0.437 W/kg; SAR(10 g) = 0.154 W/kg**
Smallest distance from peaks to all points 3 dB below = 4.3 mm
Ratio of SAR at M2 to SAR at M1 = 57.7%
Maximum value of SAR (measured) = 1.06 W/kg



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Test Laboratory: Audix_SAR Lab

**P6 802.11a CH116 5580MHz ant2 Screen**

**DUT: 15ZB90Q**

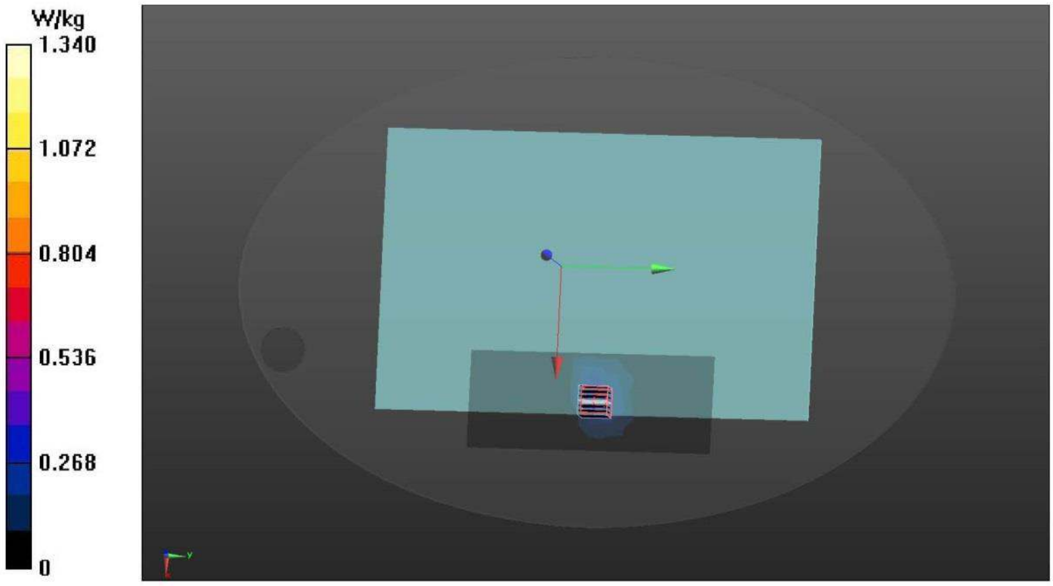
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5580 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5580 MHz; $\sigma$ = 5.236 S/m; $\varepsilon_r$ = 36.295; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.7, 4.7, 4.7) @ 5580 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.424 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.4340 V/m; Power Drift = 0.64 dB
Peak SAR (extrapolated) = 2.57 W/kg
**SAR(1 g) = 0.662 W/kg; SAR(10 g) = 0.205 W/kg**
Smallest distance from peaks to all points 3 dB below = 6.6 mm
Ratio of SAR at M2 to SAR at M1 = 56.4%
Maximum value of SAR (measured) = 1.34 W/kg



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Test Laboratory: Audix_SAR Lab

**P1 802.11a CH165 5825MHz ant1 Screen**

**DUT: 15ZB90Q**

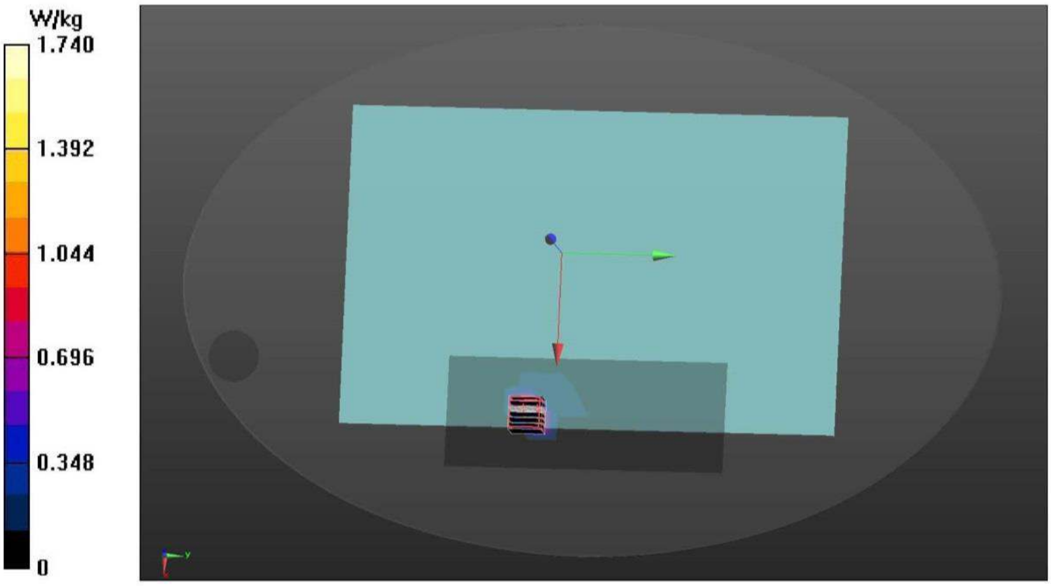
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5825 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5825 MHz; $\sigma$ = 5.523 S/m; $\varepsilon_r$ = 35.753; $\rho$ = 1000 kg/$m^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.8, 4.8, 4.8) @ 5825 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.68 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.268 V/m; Power Drift = 0.65 dB
Peak SAR (extrapolated) = 3.99 W/kg
**SAR(1 g) = 0.799 W/kg; SAR(10 g) = 0.237 W/kg**
Smallest distance from peaks to all points 3 dB below = 4.1 mm
Ratio of SAR at M2 to SAR at M1 = 49.2%
Maximum value of SAR (measured) = 1.74 W/kg



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Test Laboratory: Audix_SAR Lab

**P7 802.11a CH165 5825MHz ant1 Bottom**

**DUT: 15ZB90Q**

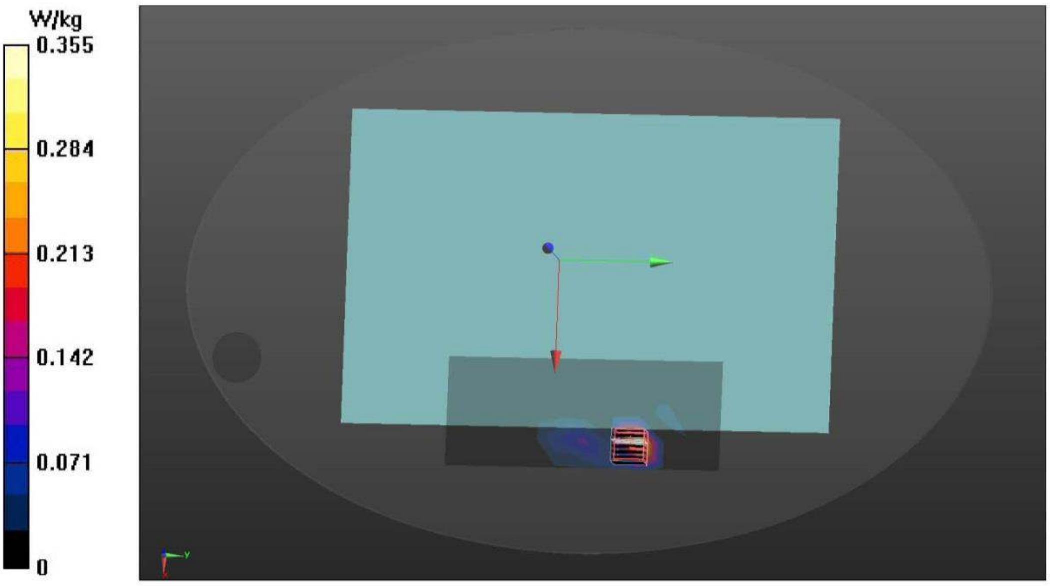
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5825 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5825 MHz; $\sigma$ = 5.523 S/m; $\varepsilon_r$ = 35.753; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.8, 4.8, 4.8) @ 5825 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.394 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.324 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.791 W/kg
**SAR(1 g) = 0.176 W/kg; SAR(10 g) = 0.047 W/kg**
Smallest distance from peaks to all points 3 dB below = 6.6 mm
Ratio of SAR at M2 to SAR at M1 = 49.9%
Maximum value of SAR (measured) = 0.355 W/kg



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Date: 7/21/2022

Test Laboratory: Audix_SAR Lab

**P2 802.11a CH165 5825MHz ant2 Screen**

**DUT: 15ZB90Q**

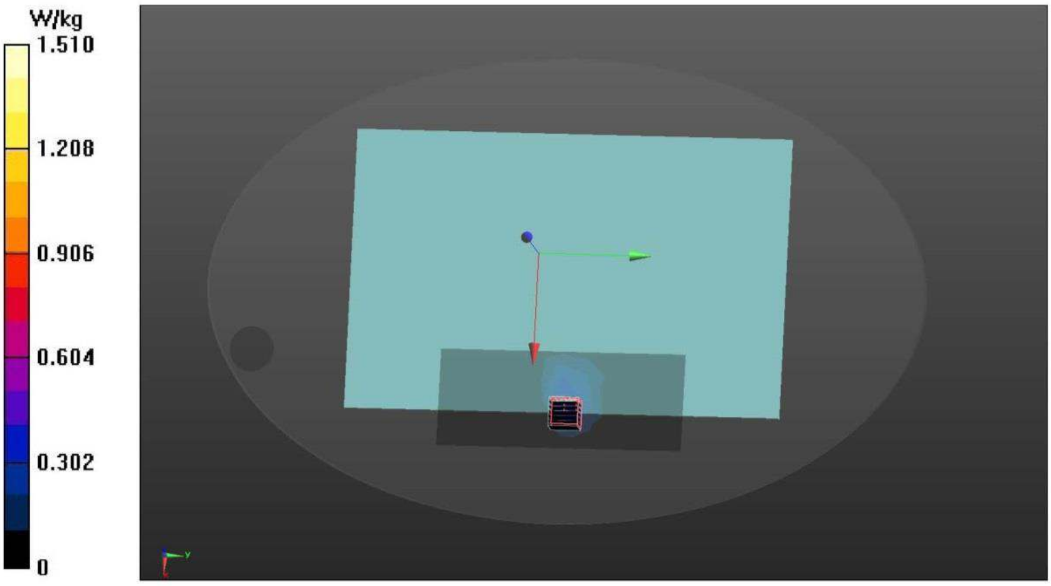
Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5825 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5825 MHz; $\sigma$ = 5.523 S/m; $\varepsilon_r$ = 35.753; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.8, 4.8, 4.8) @ 5825 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.412 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.106 V/m; Power Drift = 0.72 dB
Peak SAR (extrapolated) = 3.03 W/kg
**SAR(1 g) = 0.621 W/kg; SAR(10 g) = 0.142 W/kg**
Smallest distance from peaks to all points 3 dB below = 6.8 mm
Ratio of SAR at M2 to SAR at M1 = 53.5%
Maximum value of SAR (measured) = 1.51 W/kg



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Date: 7/21/2022

Test Laboratory: Audix_SAR Lab

**P8 802.11a CH165 5825MHz ant2 Bottom**

**DUT: 15ZB90Q**

Communication System: UID 0, WIFI 5G 802.11a (0); Frequency: 5825 MHz;Duty Cycle:1:1.026
Medium parameters used: f = 5825 MHz; $\sigma$ = 5.523 S/m; $\varepsilon_r$ = 35.753; $\rho$ = 1000 kg/m$^3$
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3855; ConvF(4.8, 4.8, 4.8) @ 5825 MHz; Calibrated: 9/24/2021
- Sensor-Surface: 2mm (Mechanical Surface Detection), z = 1.0, 31.0
- Electronics: DAE4 Sn1337; Calibrated: 3/29/2022
- Phantom: ELI V5.0 (20deg probe tilt); Type: QD OVA 002 AA; Serial: 1170
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

**Area Scan (9x21x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.529 W/kg

**Zoom Scan (7x7x12)/Cube 0:** Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.277 V/m; Power Drift = 0.78 dB
Peak SAR (extrapolated) = 1.18 W/kg
**SAR(1 g) = 0.286 W/kg; SAR(10 g) = 0.084 W/kg**
Smallest distance from peaks to all points 3 dB below = 8.9 mm
Ratio of SAR at M2 to SAR at M1 = 53.5%
Maximum value of SAR (measured) = 0.576 W/kg