# RF Exposure report

The following samples were submitted and identified on behalf of the client as:

| | |
|---|---|
| **EUT Description** | Handheld Ultrasound Scanner |
| **Brand Name** | NUSONO (Nurodata) |
| **Model No.** | NUSONO-C35 |
| **Family Model No.** | NUSONO-L75; NUSONO-P25 |
| **Model Difference** | Refer to Section 1.3 |
| **Applicant** | Nurodata Inc.<br>5 F.-3, No. 6-2, Sec. 2, Shengyi Rd., Hsinchu Science Park, Zhubei City, Hsinchu County 302058, Taiwan (R.O.C.) |
| **Standards** | IEEE/ANSI C95.1-1992, IEEE 1528-2013 |
| **FCC ID** | 2BOKR-NUSONO242681 |
| **Date of EUT Receipt** | Dec. 16, 2024 |
| **Date of Test(s)** | Mar. 25, 2025 |
| **Date of Issue** | Apr. 23, 2025 |

In the configuration tested, the EUT complied with the standards specified above.

**Remarks:**

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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**Signed on behalf of SGS**

| Clerk / Cindy Chou | PM / Tom Chiang | Approved By / John Yeh |
|---|---|---|
| Cindy Chou | Tom Chiang | John Yeh |

**Date: Apr. 23, 2025**

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# Revision History

| Report Number | Revision | Description | Issue Date | Revised By | Remark |
|---|---|---|---|---|---|
| TESA2410000683E5 | 00 | Initial creation of document | Apr. 23, 2025 | Cindy Chou | |
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Note:

1. The mark " * " is the revised version of the report due to comments submitted by the certification.
2. Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received.

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# 1 GENERAL INFORMATION

## 1.1 Test Methodology

The SAR testing method and procedure for this device is in accordance with the following standards:
IEEE/ANSI C95.1-1992
IEEE 1528-2013
KDB447498D01v06
KDB865664D01v01r04
KDB865664D02v01r02
KDB248227D01v02r01

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## 1.2 Description of EUT

| | | |
|---|---|---|
| EUT Description | Handheld Ultrasound Scanner | |
| Brand Name | NUSONO (Nurodata) | |
| Model No. | NUSONO-C35 | |
| Family Model No. | NUSONO-L75; NUSONO-P25 | |
| Model Difference | Refer to Section 1.3 | |
| Duty Cycle | WLAN 802.11 | Please refer to section 3 |
| Supported radios (TX Frequency Range, MHz) | 802.11a/n/ac | 5.2GHz (5150.0 –5250.0 MHz) |

## 1.3 Model Difference

| Diversity Description | Original Model | Series Model | |
|---|---|---|---|
| | NUSONO-C35 | NUSONO-L75 | NUSONO-P25 |
| Components | The probe frequency and probe shell appearance are different | | |
| Function | Frequency 3.5MHz; Measurement depth 4-18.5cm; Applicable to lungs/abdomen/ gynecology/obstetrics/bladder | Frequency 7.5MHz; Measuring depth 1-8cm; Applicable to breast/lung/ bone and muscle/ superficial tissue/ blood vessels | Frequency 2.5MHz; Measuring depth 4-18.5cm; Applicable to heart/lungs/ abdomen/bladder |
| Size、Appearance | 3.5Mhz Convex probe | 7.5Mhz Linear probe | 2.5Mhz Phased array probe |

## 1.4 Maximum value

| Summary of Maximum SAR and Power Density Value | | | |
|---|---|---|---|
| Mode | Highest SAR 1g (W/kg) | Highest APD (W/m^2) | Highest PD (W/m^2) |
| 5G WLAN | 0.33 | N/A | N/A |

## 1.5 Antenna Information

| | |
|---|---|
| Vendor | **Dongguan chuang jie Electronics Co., Ltd.** |
| Antenna | **ANTENNA** |
| Part Number | WP408-IPX1-10cm |
| Frequency(MHz) | 5150~5350 |
| Gain (dBi) | 5.00 |

Note: Antenna information is provided by the applicant.

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# 2 MEASUREMENT SYSTEM

## 2.1 Test Facility

| Laboratory | Test Site Address | Test Site Name | FCC Designation number | IC CAB identifier |
|---|---|---|---|---|
| SGS Taiwan Ltd. Central RF Lab. (TAF code 3702) | 1F, No. 8, Alley 15, Lane 120, Sec. 1, NeiHu Road, Neihu District, Taipei City, 11493, Taiwan. | SAR 2 | TW0029 | TW3702 |
| | | SAR 6 | | |
| | | SAR 8 | | |
| | **No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 33383, Taiwan** | **SAR 1** | TW0028 | |
| | | SAR 4 | | |
| | No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan | SAR 3 | TW0027 | |
| | | SAR 7 | | |
| **Note:** Test site name is remarked on a bolded mark as an indication where measurements occurred in specific test site and address. | | | | |

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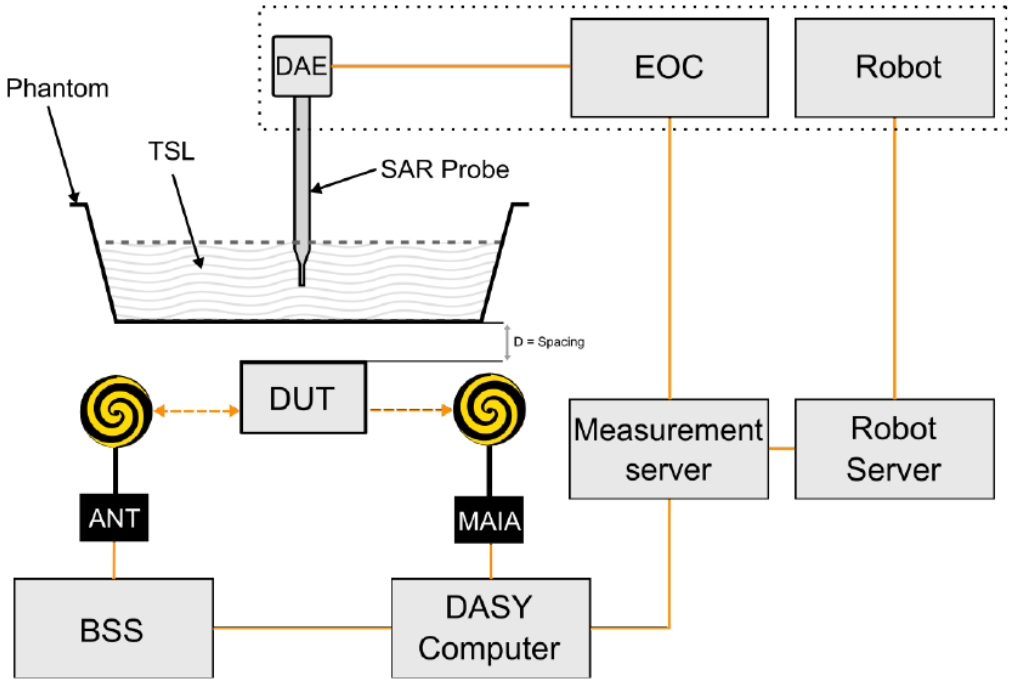
## 2.2 SAR System

### Block Diagram (DASY8)

The DASY system used for performing compliance tests consists of the following items:




- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Windows and the DASY software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

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## EX3DV4 E-Field Probe

| | | |
|---|---|---|
| Construction | Symmetrical design with triangular core<br>Built-in shielding against static charges<br>PEEK enclosure material (resistant to organic solvents, e.g., DGBE) | |
| Calibration | Basic Broad Band Calibration in air Conversion Factors (CF) for HSL<br>5250 MHz Additional CF for other liquids and frequencies upon request | |
| Frequency | 10 MHz to > 6 GHz | |
| Directivity | ± 0.3 dB in HSL (rotation around probe axis)<br>± 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 | Tip diameter: 2.5 mm | |
| Application | High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%. | |

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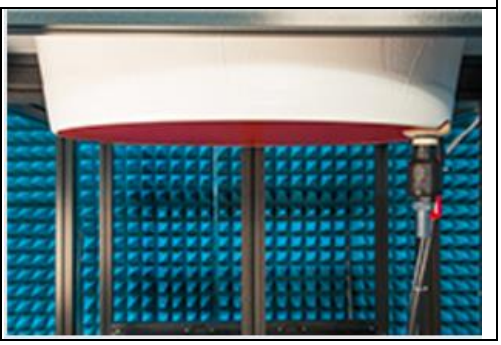
## PHANTOM (ELI)

| | | |
|---|---|---|
| Model | ELI | |
| Construction | The ELI phantom is used 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. | |
| Shell Thickness | 2 ± 0.2 mm |  |
| Filling Volume | Approx. 30 liters | |
| Dimensions | Major axis: 600 mm<br>Minor axis: 400 mm | |

## DEVICE HOLDER

| | | |
|---|---|---|
| Construction | The device holder (Supporter) for Notebook is made by POM (polyoxymethylene resin ) , which is non-metal and non-conductive. The height can be adjusted to fit varies kind of notebooks. | <br>Device Holder |

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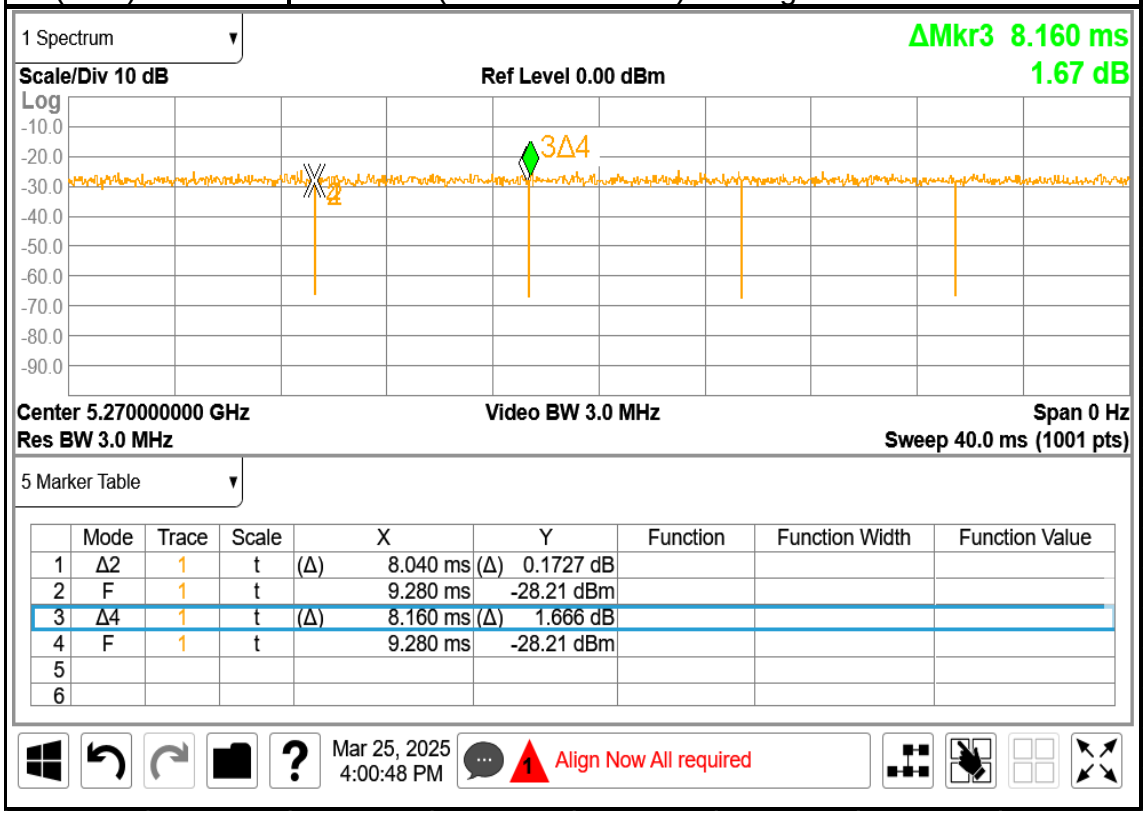
## 3 DUTY CYCLE

| n(40M) 5G-C35 | (8.04/8.16=0.985) Scaling Factor=1.015 |
|---|---|




| | Mode | Trace | Scale | X | Y | Function | Function Width | Function Value |
|---|---|---|---|---|---|---|---|---|
| 1 | Δ2 | 1 | t | (Δ) 8.040 ms | (Δ) 0.1727 dB | | | |
| 2 | F | 1 | t | 9.280 ms | -28.21 dBm | | | |
| 3 | Δ4 | 1 | t | (Δ) 8.160 ms | (Δ) 1.666 dB | | | |
| 4 | F | 1 | t | 9.280 ms | -28.21 dBm | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

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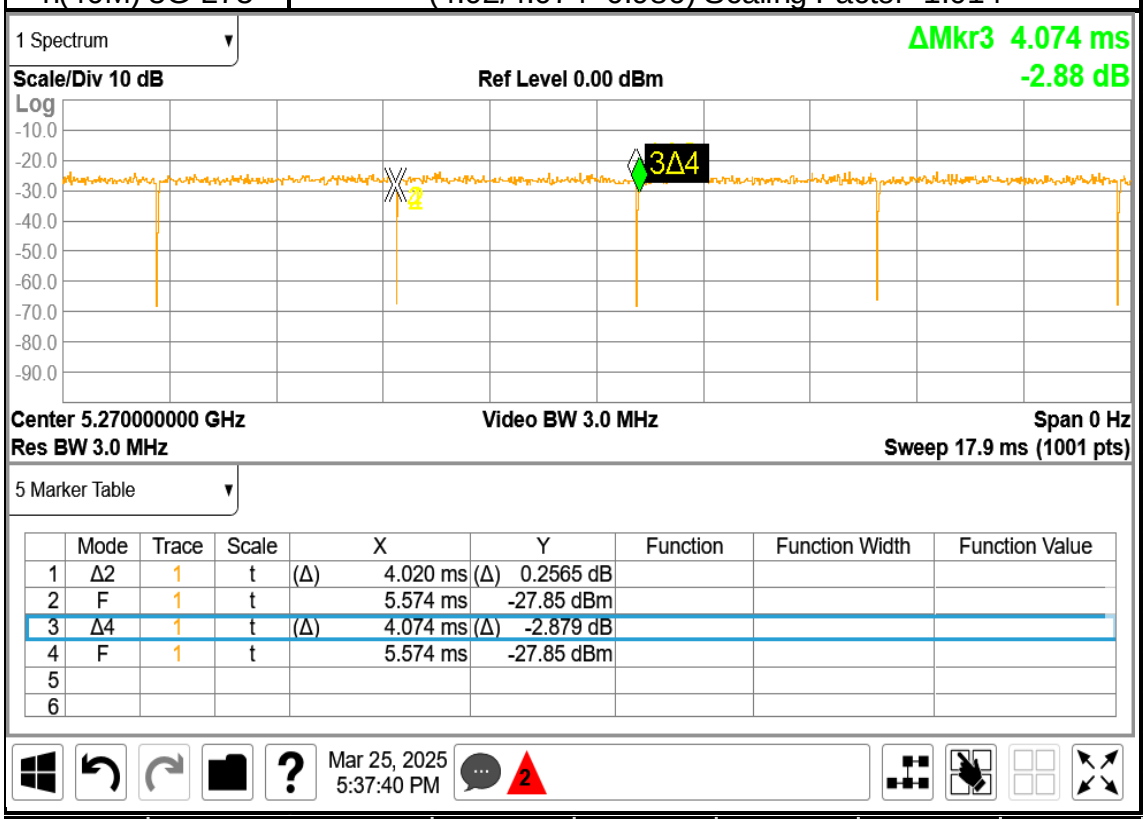
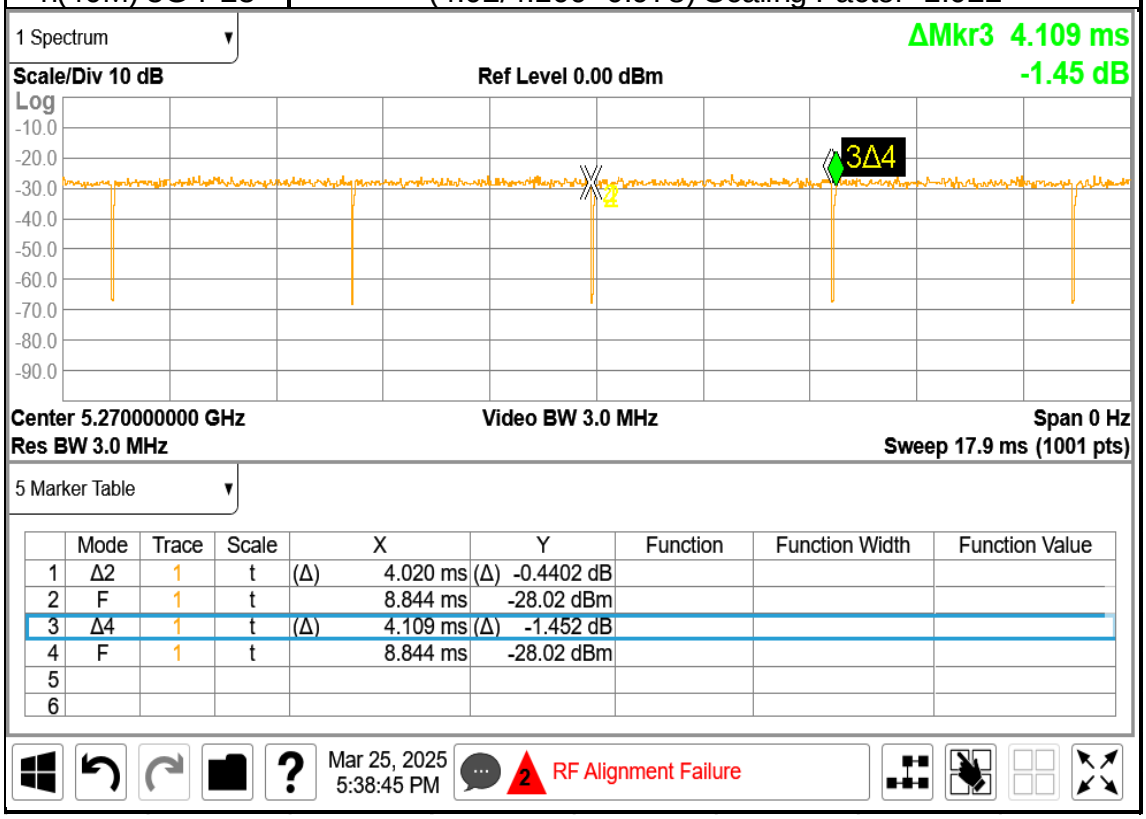
| n(40M) 5G-L75 | (4.02/4.074=0.986) Scaling Factor=1.014 |
|---|---|




| | Mode | Trace | Scale | X | Y | Function | Function Width | Function Value |
|---|---|---|---|---|---|---|---|---|
| 1 | Δ2 | 1 | t | (Δ) 4.020 ms | (Δ) 0.2565 dB | | | |
| 2 | F | 1 | t | 5.574 ms | -27.85 dBm | | | |
| 3 | Δ4 | 1 | t | (Δ) 4.074 ms | (Δ) -2.879 dB | | | |
| 4 | F | 1 | t | 5.574 ms | -27.85 dBm | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

| n(40M) 5G-P25 | (4.02/4.109=0.978) Scaling Factor=1.022 |
|---|---|




| | Mode | Trace | Scale | X | Y | Function | Function Width | Function Value |
|---|---|---|---|---|---|---|---|---|
| 1 | Δ2 | 1 | t | (Δ) 4.020 ms | (Δ) -0.4402 dB | | | |
| 2 | F | 1 | t | 8.844 ms | -28.02 dBm | | | |
| 3 | Δ4 | 1 | t | (Δ) 4.109 ms | (Δ) -1.452 dB | | | |
| 4 | F | 1 | t | 8.844 ms | -28.02 dBm | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

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# 4 SAR SYSTEM VERIFICATION

## 4.1 Tissue Simulating Liquid

For the measurement of the field distribution inside the SAM phantom with DASY, the phantom must be filled with homogeneous tissue simulating liquid. For head SAR testing, the liquid height from the ear rint (ERP) of the phantom to the liquid top surface is larger than 15cm. For body SAR testing, the liquid height fromeference po the center of the flat phantom to the liquid top surface is larger than 15cm.

## 4.2 Tissue Simulant Liquid measurement

The dielectric properties for this Head-simulant fluid were measured by using the SPEAG Dielectric Assessment Kit (DAKS-3.5)
All dielectric parameters of tissue simulates were measured within 24 hours of SAR measurements. The measured conductivity and permittivity are all within ± 5% of the target values.

## 4.3 Measurement results of Tissue Simulant Liquid

| Measured Frequency (MHz) | Target Dielectric Constant, εr | Target Conductivity, σ (S/m) | Measured Dielectric Constant, εr | Measured Conductivity, σ (S/m) | % dev εr | % dev σ | Limit | Measurement Date |
|---|---|---|---|---|---|---|---|---|
| 5190 | 36.010 | 4.650 | 36.309 | 4.713 | 0.83% | 1.37% | ± 5% | Mar. 25, 2025 |
| 5250 | 35.950 | 4.710 | 36.241 | 4.775 | 0.81% | 1.38% | ± 5% | |

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### 4.4 The composition of the tissue simulating liquid:

Simulating Liquids for 600 MHz -10 GHz, Manufactured by SPEAG:

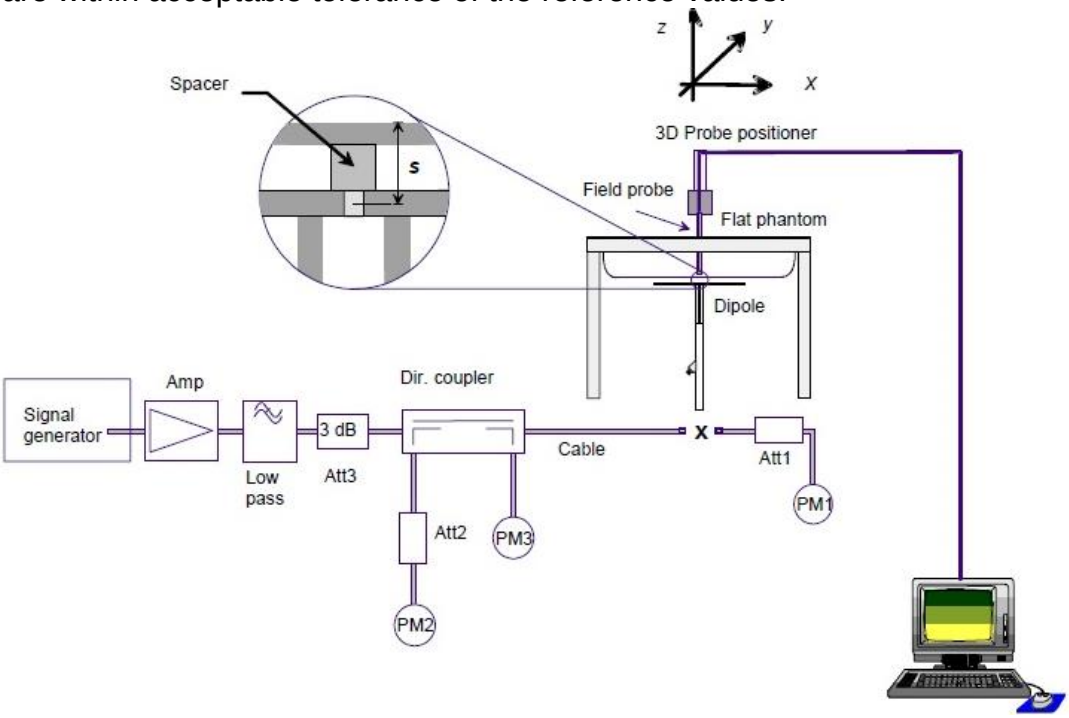
| Broad-band head tissue simulating liquids | SPEAG Product | Frequency range (MHz) | Main Ingredients |
|---|---|---|---|
| | HBBL600-10000V6 | 600 - 10000 | Water, Oil |

### 4.5 System check

The microwave circuit arrangement for system check is sketched in below. The daily system accuracy verification occurs within the flat section of the SAM phantom and ELI phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values.

The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed with SAR values normalized to 1W forward power delivered to the dipole.

During the tests, the liquid depth from the center of the flat phantom to the liquid top surface was 15 cm above in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.




The block diagram of system check

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## 4.6 System check results

| Validation Kit | S/N | Frequency (MHz) | 1W Target 1g-SAR (W/kg) | pin=100mW Measured 1g-SAR (W/kg) | Normalized to 1W 1g-SAR (W/kg) | Deviation (%) | Limit | Measurement Date |
|---|---|---|---|---|---|---|---|---|
| D5GHzV2 | 1203 | 5250 | 78.8 | 7.79 | 77.9 | -1.14 | ± 10% | Mar.25,2025 |

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# 5 TEST CONFIGURATIONS

## 5.1 Test Environment

Ambient Temperature: 22±2° C
Tissue Simulating Liquid: 22±2° C

## 5.2 Test Note

- **General:** Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s).
- **General:** The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
- **General:** During the SAR testing, the DASY system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
- **General:** According to KDB447498D01v06, testing of other required channels is not required when the reported 1-g SAR for the highest output channel is ≤ 0.8 W/kg, when the transmission band is ≤ 100 MHz.
- **General:** According to KDB865664D01v01r04, SAR measurement variability must be assessed for each frequency band. When the original highest measured SAR is ≥ 0.8 W/kg, repeated that measurement once. 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).
- **WLAN 5GHz:** Initial Test Configuration: An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for the subsequent next highest measured output power channel(s) in the initial test configuration until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. Since the highest reported SAR for the initial test configuration 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 subsequent test configuration.

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## 5.3 Test position

SAR is tested for all surfaces with 0mm test distance.

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## 5.4 Test limit

§ 2.1093(d)(1)
Applications for equipment authorization of portable RF sources subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in § 1.1310 as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request. The SAR limits specified in § 1.1310(a) through (c) of this chapter shall be used for evaluation of portable devices transmitting in the frequency range from 100 kHz to 6 GHz. Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to § 1.1310(e)(1). A minimum separation distance applicable to the operating configurations and exposure conditions of the device shall be used for the evaluation. In general, maximum time-averaged power levels must be used for evaluation. All unlicensed personal communications service (PCS) devices and unlicensed NII devices shall be subject to the limits for general population/uncontrolled exposure.
Radiofrequency radiation exposure limits.
§ 1.1310(a)
Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) within the frequency range of 100 kHz to 6 GHz (inclusive).
§ 1.1310(b)
The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled exposure is 20 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 6 minutes to determine compliance with occupational/controlled SAR limits.
§ 1.1310(c)
The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

Note to paragraphs (a) through (c):
SAR is a measure of the rate of energy absorption due to exposure to RF electromagnetic energy. These SAR limits to be used for evaluation are based generally on criteria published by the American National Standards Institute (ANSI) for localized SAR in Section 4.2 of "IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," NCRP Report No. 86, Section 17.4.5, copyright 1986 by NCRP, Bethesda, Maryland 20814. Limits for whole body SAR and peak spatial-average SAR are based

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on recommendations made in both of these documents. The MPE limits in Table 1 are based generally on criteria published by the NCRP in “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” NCRP Report No. 86, Sections 17.4.1, 17.4.1.1, 17.4.2 and 17.4.3, copyright 1986 by NCRP, Bethesda, Maryland 20814. In the frequency range from 100 MHz to 1500 MHz, these MPE exposure limits for field strength and power density are also generally based on criteria recommended by the ANSI in Section 4.1 of “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” ANSI/IEEE Std C95.1-1992, copyright 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017.

Portable devices that transmit at frequencies above 6 GHz shall be evaluated in terms of the MPE limits specified in Table 1 to § 1.1310(e)(1).
According to ANSI/IEEE C95.1-1992, the criteria listed in the following Table shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.
Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm2 per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes

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| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| (i) Limits for Occupational/Controlled Exposure | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | ≤6 |
| 3.0-30 | 1842/f | 4.89/f | *($900/f^2$) | <6 |
| 30-300 | 61.4 | 0.163 | 1.0 | <6 |
| 300-1,500 | | | f/300 | <6 |
| 1,500-100,000 | | | 5 | <6 |
| (ii) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | <30 |
| 1.34-30 | 824/f | 2.19/f | *($180/f^2$) | <30 |
| 30-300 | 27.5 | 0.073 | 0.2 | <30 |
| 300-1,500 | | | f/1500 | <30 |
| 1,500-100,000 | | | 1.0 | <30 |

f = frequency in MHz. * = Plane-wave equivalent power density.
Table 1 to § 1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

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# 6 MAXIMUM OUTPUT POWER

## 6.1 WLAN

| Ant 1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Band | Mode | Channel | Frequency (MHz) | Data Rate | Set | Max. Rated Avg. Power + Max. Tolerance (dBm) | Average power (dBm) |
| 5.15-5.25 GHz | 802.11a | 36 | 5180 | 6Mbps | Default | 13.00 | 12.55 |
| | 802.11n20-HT0 | 36 | 5180 | MCS0 | Default | 13.00 | 12.94 |
| | 802.11ac20-VHT0 | 36 | 5180 | MCS0 | Default | 13.00 | 12.72 |
| | 802.11n40-HT0 | 38 | 5190 | MCS0 | Default | 14.00 | 13.73 |
| | 802.11ac40-VHT0 | 38 | 5190 | MCS0 | Default | 12.50 | 12.37 |
| | 802.11ac80-VHT0 | 42 | 5210 | MCS0 | Default | 11.50 | 11.20 |

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# 7 SUMMARY OF RESULTS

## 7.1 Decision rules

Reported measurement data comply with Test Methodology in section 1.1.
Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

## 7.2 Summary of SAR Results

| Band | Antenna | Position | Distance (mm) | Channel | Freq. (MHz) | Max. Rated Avg. Power + Max. Tolerance (dBm) | Measured Avg. Power (dBm) | Duty cycle scaling | Power scaling | Averaged SAR over 1g (W/kg) | | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Measured | Reported | |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Front Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.032 | 0.035 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Back Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.307 | 0.332 | 001 |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Top Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Bottom Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.046 | 0.050 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Right Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Left Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| Band | Antenna | Position | Distance (mm) | Channel | Freq. (MHz) | Max. Rated Avg. Power + Max. Tolerance (dBm) | Measured Avg. Power (dBm) | Duty cycle scaling | Power scaling | Averaged SAR over 1g (W/kg) | | ID |
| | | | | | | | | | | Measured | Reported | |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Front Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.029 | 0.031 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Back Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.283 | 0.306 | 002 |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Top Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Bottom Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.042 | 0.045 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Right Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Left Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| Band | Antenna | Position | Distance (mm) | Channel | Freq. (MHz) | Max. Rated Avg. Power + Max. Tolerance (dBm) | Measured Avg. Power (dBm) | Duty cycle scaling | Power scaling | Averaged SAR over 1g (W/kg) | | ID |
| | | | | | | | | | | Measured | Reported | |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Front Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.023 | 0.025 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Back Surface | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.227 | 0.245 | 003 |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Top Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Bottom Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.034 | 0.037 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Right Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |
| WLAN 802.11n(40M) 5.2G | Ant 1 | Left Edge | 0 | 38 | 5190 | 14.00 | 13.73 | 1.02 | 106.41% | 0.001 | 0.001 | - |

**Note:**
Reported SAR = measured SAR * Power scaling * Duty cycle scaling

## 7.3 Reporting statements of conformity

The conformity statement in this report is based solely on the test results, measurement uncertainty is excluded.

## 7.4 Conclusion

The device is compliant because all the standalone results are less than their corresponding criteria.

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# 8 INSTRUMENTS LIST

| Equipment List | | | | | |
|---|---|---|---|---|---|
| Manufacturer | Device | Type | Serial number | Date of last calibration | Date of next calibration |
| SPEAG | Data acquisition Electronics | DAE4 | 1665 | Mar/11/2025 | Mar/10/2026 |
| SPEAG | Dosimetric E-Field Probe | EX3DV4 | 7642 | Feb/19/2025 | Feb/18/2026 |
| SPEAG | System Validation Dipole | D5GHzV2 | 1203 | Dec/12/2024 | Dec/11/2025 |
| SPEAG | Dielectric Assessment Kit | DAK-3.5 | 1342 | May/21/2024 | May/20/2025 |
| Keysight | EXA Signal Analyzer | N9010B | MY59071571 | Jun/04/2024 | Jun/03/2025 |
| R&S | MXG Analog Signal Generator | SMB100A03 | 182012 | May/21/2024 | May/20/2025 |
| Agilent | Dual-directional coupler | 772D | MY46151258 | Sep/30/2024 | Sep/29/2025 |
| Agilent | Dual-directional coupler | 778D | MY46151242 | Sep/03/2024 | Sep/02/2025 |
| EMCI | Amplifier | ZHL-42 | 980189 | Calibration not required | Calibration not required |
| EMCI | Amplifier | ZVE-8G | 980190 | Calibration not required | Calibration not required |
| R&S | Power Sensor | NRP18S | 109066 | Oct/28/2024 | Oct/27/2025 |
| R&S | Power Meter | NRX | 105651 | Nov/11/2024 | Nov/10/2025 |
| R&S | Power Sensor | NRP6A | 104247 | Nov/11/2024 | Nov/10/2025 |
| SPEAG | Dielectric Assessment Kit | DAK-3.5 | 1342 | May/21/2024 | May/20/2025 |
| Agilent | Network Analyzer | E5071C | MY46107530 | May/03/2024 | May/02/2025 |
| SPEAG | Software | DASY 8 V16.0.2.83 | N/A | Calibration not required | Calibration not required |
| SPEAG | Phantom | ELI | N/A | Calibration not required | Calibration not required |
| LKM | Digital thermometer | DTM3000 | 3896 | Dec/26/2024 | Dec/25/2025 |
| TECPEL | Digital thermometer | DTM-303A | TP130077 | Oct/14/2024 | Oct/13/2025 |

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# 9 UNCERTAINTY BUDGET

Measurement Uncertainty evaluation template for DUT SAR test (3-6G)

| A | c | D | e | | f | g | h=c * f / e | i=c * g / e | k |
|---|---|---|---|---|---|---|---|---|---|
| Source of Uncertainty | Tolerance/ Uncertainty | Probability Distributio | Div | Div Value | ci (1g) | ci (10g) | Standard uncertainty | Standard uncertainty | vi, or Veff |
| | | | | | | | | | |
| **Measurement system** | | | | | | | | | |
| Probe calibration | 6.55% | N | 1 | 1 | 1 | 1 | 6.55% | 6.55% | ∞ |
| ***Isotropy , Axial*** | 3.50% | R | √3 | 1.732 | 1 | 1 | 2.02% | 2.02% | ∞ |
| ***Isotropy, Hemispherical*** | 9.60% | R | √3 | 1.732 | 1 | 1 | 5.54% | 5.54% | ∞ |
| Modulation Response | 2.40% | R | √3 | 1.732 | 1 | 1 | 1.40% | 1.40% | ∞ |
| Boundary Effect | 1.00% | R | √3 | 1.732 | 1 | 1 | 0.58% | 0.58% | ∞ |
| Linearity | 4.70% | R | √3 | 1.732 | 1 | 1 | 2.71% | 2.71% | ∞ |
| Detection Limits | 1.00% | R | √3 | 1.732 | 1 | 1 | 0.58% | 0.58% | ∞ |
| Readout Electronics | 0.30% | N | 1 | 1 | 1 | 1 | 0.30% | 0.30% | ∞ |
| Response time | 0.80% | R | √3 | 1.732 | 1 | 1 | 0.46% | 0.46% | ∞ |
| Integration Time | 2.60% | R | √3 | 1.732 | 1 | 1 | 1.50% | 1.50% | ∞ |
| ***Measurement drift (class A evaluation)*** | 1.75% | R | √3 | 1.732 | 1 | 1 | 1.01% | 1.01% | ∞ |
| RF ambient condition - noise | 3.00% | R | √3 | 1.732 | 1 | 1 | 1.73% | 1.73% | ∞ |
| RF ambient conditions - reflections | 3.00% | R | √3 | 1.732 | 1 | 1 | 1.73% | 1.73% | ∞ |
| Probe positioner Mechanical restrictions | 0.40% | R | √3 | 1.732 | 1 | 1 | 0.23% | 0.23% | ∞ |
| Probe Positioning with respect to phantom shell | 2.90% | R | √3 | 1.732 | 1 | 1 | 1.67% | 1.67% | ∞ |
| Post-processing | 1.00% | R | √3 | 1.732 | 1 | 1 | 0.58% | 0.58% | ∞ |
| Max SAR Eval | 1.00% | R | √3 | 1.732 | 1 | 1 | 0.58% | 0.58% | ∞ |
| | | | | | | | | | |
| **Test Sample related** | | | | | | | | | |
| Test sample positioning | 2.90% | N | 1 | 1 | 1 | 1 | 2.90% | 2.90% | M-1 |
| Device Holder Uncertainty | 3.60% | N | 1 | 1 | 1 | 1 | 3.60% | 3.60% | M-1 |
| Drift of output power | 5.00% | R | √3 | 1.732 | 1 | 1 | 2.89% | 2.89% | ∞ |
| | | | | | | | | | |
| **Phantom and Setup** | | | | | | | | | |
| Phantom Uncertainty | 4.00% | R | √3 | 1.732 | 1 | 1 | 2.31% | 2.31% | ∞ |
| Liquid permittivity (mea.) | 0.83% | N | 1 | 1 | 0.64 | 0.43 | 0.53% | 0.36% | M |
| Liquid Conductivity (mea.) | 1.38% | N | 1 | 1 | 0.6 | 0.49 | 0.83% | 0.68% | M |
| Combined standard uncertainty | | RSS | | | | | 11.76% | 11.73% | |
| Expant uncertainty (95% confidence interval), K=2 | | | | | | | 23.51% | 23.46% | |

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# 10 SAR MEASUREMENT RESULTS

**ID: 001**
**Report No. : TESA2410000683E5**
**Measurement Report_WLAN 802.11n(40M) 5.2G_Body_Back Surface_CH 38_0mm_Ant1**
**Ambient temperature: 22.3°C; Liquid temperature: 21.2°C**

**Exposure Conditions**

| Phantom Section, TSL | Position, Test Distance [mm] | Frequency [MHz], Channel Number | Conversion Factor | TSL Conductivity [S/m] | TSL Permittivity |
|---|---|---|---|---|---|
| Flat,HSL | Back Surface, 0.00 | 5190.0, 38 | 5.82 | 4.713 | 36.309 |

**Hardware Setup**

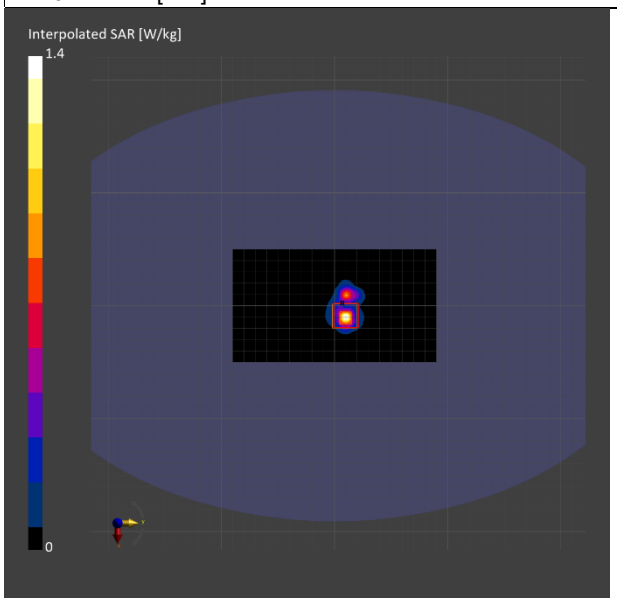
| Phantom | Probe, Calibration Date | DAE, Calibration Date |
|---|---|---|
| ELI | EX3DV4 - SN3665, 2024-09-04 | DAE4 Sn1260, 2024-09-19 |

**Scans Setup**

| | Area Scan | Zoom Scan |
|---|---|---|
| Grid Extents [mm] | 100.0 x 180.0 | 24.0 x 24.0 x 22.0 |
| Grid Steps [mm] | 10.0 x 10.0 | 4.0 x 4.0 x 2.0 |
| Sensor Surface [mm] | 3.0 | 1.4 |

**Measurement Results**

| | Area Scan | Zoom Scan |
|---|---|---|
| Date | 2025-03-25 | 2025-03-25 |
| psSAR1g [W/kg] | 0.287 | 0.307 |
| psSAR8g [W/kg] | 0.087 | 0.087 |
| psSAR10g [W/kg] | 0.073 | 0.074 |
| Power Drift [dB] | -0.01 | -0.03 |
| M2/M1 [%] | | 58.8 |
| Dist 3dB Peak [mm] | | 6.4 |

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**ID: 002**
**Report No. : TESA2410000683E5**
**Measurement Report_WLAN 802.11n(40M) 5.2G_Body_Back Surface_CH 38_0mm_Ant1**
**Ambient temperature: 22.3°C; Liquid temperature: 21.2°C**

## Exposure Conditions

| Phantom Section, TSL | Position, Test Distance [mm] | Frequency [MHz], Channel Number | Conversion Factor | TSL Conductivity [S/m] | TSL Permittivity |
|---|---|---|---|---|---|
| Flat,HSL | Back Surface, 0.00 | 5190.0, 38 | 5.82 | 4.713 | 36.309 |

## Hardware Setup

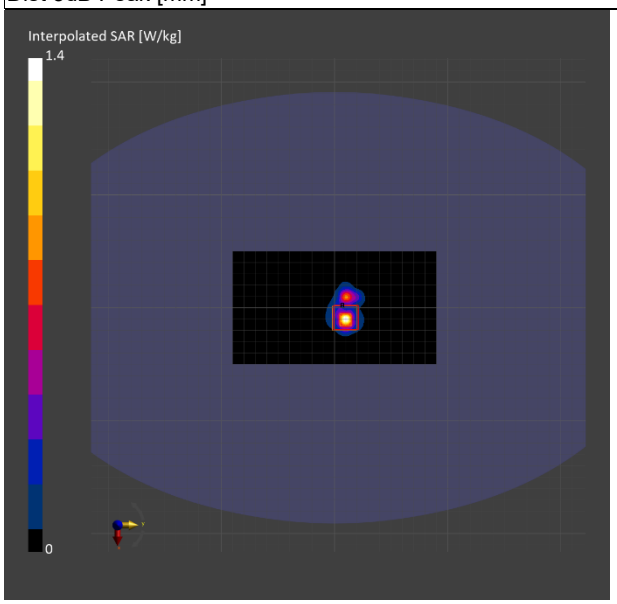
| Phantom | Probe, Calibration Date | DAE, Calibration Date |
|---|---|---|
| ELI | EX3DV4 - SN3665, 2024-09-04 | DAE4 Sn1260, 2024-09-19 |

## Scans Setup

| | Area Scan | Zoom Scan |
|---|---|---|
| Grid Extents [mm] | 100.0 x 180.0 | 24.0 x 24.0 x 22.0 |
| Grid Steps [mm] | 10.0 x 10.0 | 4.0 x 4.0 x 2.0 |
| Sensor Surface [mm] | 3.0 | 1.4 |

## Measurement Results

| | Area Scan | Zoom Scan |
|---|---|---|
| Date | 2025-03-25 | 2025-03-25 |
| psSAR1g [W/kg] | 0.276 | 0.283 |
| psSAR8g [W/kg] | 0.077 | 0.079 |
| psSAR10g [W/kg] | 0.062 | 0.064 |
| Power Drift [dB] | 0.02 | 0.05 |
| M2/M1 [%] | | 52.7 |
| Dist 3dB Peak [mm] | | 5.8 |

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**ID: 003**
**Report No. : TESA2410000683E5**
**Measurement Report_WLAN 802.11n(40M) 5.2G_Body_Back Surface_CH 38_0mm_Ant1**
**Ambient temperature: 22.3°C; Liquid temperature: 21.2°C**

## Exposure Conditions

| Phantom Section, TSL | Position, Test Distance [mm] | Frequency [MHz], Channel Number | Conversion Factor | TSL Conductivity [S/m] | TSL Permittivity |
|---|---|---|---|---|---|
| Flat,HSL | Back Surface, 0.00 | 5190.0, 38 | 5.82 | 4.713 | 36.309 |

## Hardware Setup

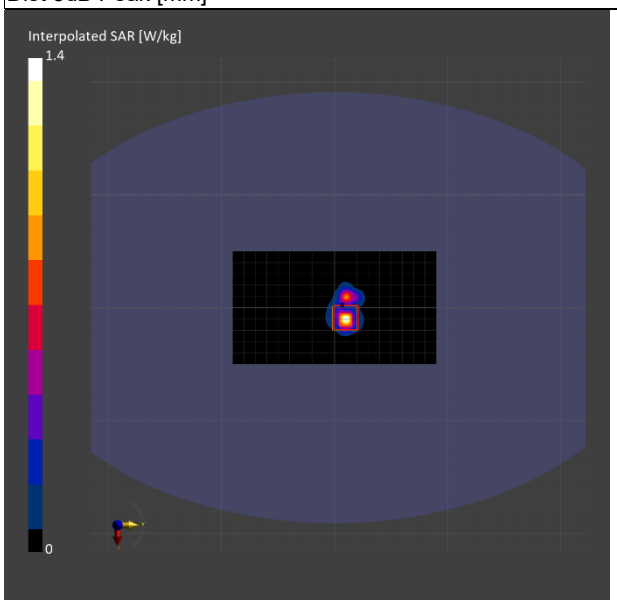
| Phantom | Probe, Calibration Date | DAE, Calibration Date |
|---|---|---|
| ELI | EX3DV4 - SN3665, 2024-09-04 | DAE4 Sn1260, 2024-09-19 |

## Scans Setup

| | Area Scan | Zoom Scan |
|---|---|---|
| Grid Extents [mm] | 100.0 x 180.0 | 24.0 x 24.0 x 22.0 |
| Grid Steps [mm] | 10.0 x 10.0 | 4.0 x 4.0 x 2.0 |
| Sensor Surface [mm] | 3.0 | 1.4 |

## Measurement Results

| | Area Scan | Zoom Scan |
|---|---|---|
| Date | 2025-03-25 | 2025-03-25 |
| psSAR1g [W/kg] | 0.219 | 0.227 |
| psSAR8g [W/kg] | 0.062 | 0.064 |
| psSAR10g [W/kg] | 0.053 | 0.055 |
| Power Drift [dB] | -0.04 | -0.04 |
| M2/M1 [%] | | 51.3 |
| Dist 3dB Peak [mm] | | 5.9 |

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# 11 SAR SYSTEM CHECK RESULTS

**Report No. : TESA2410000683E5**
**Measurement Report**
**Dipole_D5250-SN:1203**
**Ambient temperature: 22.3°C; Liquid temperature: 21.2°C**

**Exposure Conditions**

| Phantom Section, TSL | Position, Test Distance [mm] | Conversion Factor | TSL Conductivity [S/m] | TSL Permittivity |
|---|---|---|---|---|
| Flat,HSL | FRONT, 10.00 | 5.82 | 4.775 | 36.241 |

**Hardware Setup**

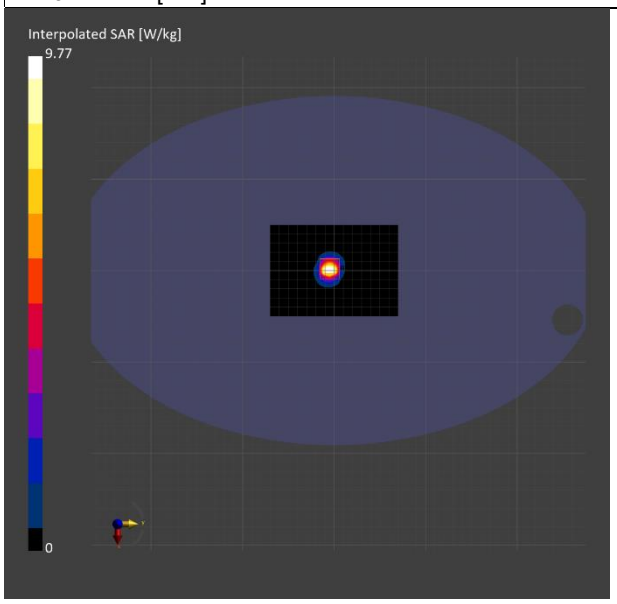
| Phantom | Probe, Calibration Date | DAE, Calibration Date |
|---|---|---|
| ELI | EX3DV4 - SN7642, 2025-02-19 | DAE4 Sn1665, 2025-03-11 |

**Scans Setup**

| | Area Scan | Zoom Scan |
|---|---|---|
| Grid Extents [mm] | 100.0 x 140.0 | 24.0 x 24.0 x 22.0 |
| Grid Steps [mm] | 10.0 x 10.0 | 4.0 x 4.0 x 2.0 |
| Sensor Surface [mm] | 3.0 | 1.4 |

**Measurement Results**

| | Area Scan | Zoom Scan |
|---|---|---|
| Date | 2025-03-25 | 2025-03-25 |
| psSAR1g [W/kg] | 7.01 | 7.79 |
| psSAR8g [W/kg] | 2.53 | 2.65 |
| psSAR10g [W/kg] | 2.20 | 2.28 |
| Power Drift [dB] | -0.02 | -0.02 |
| M2/M1 [%] | | 59.1 |
| Dist 3dB Peak [mm] | | 8.5 |

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# 12 APPENDIXES

**Refer to separated files for the following appendixes.**

## 12.1 SAR_Appendix A Photographs

## 12.2 SAR_Appendix B DAE & Probe Cal. Certificate

## 12.3 SAR_Appendix C Phantom Description & Dipole Cal. Certificate

**- End of report -**

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