SAR TEST REPORT

Application No.:	KSCR2403000473AT(SZCR2401000122AT)
FCC ID:	OWLQ161
Applicant:	Vanstone Electronic (Beijing) Co., Ltd.
Address of Applicant:	3F No.2 Building, Aisino Corporation Park 18A, Xingshikou Road, Haidian District, Beijing, China 100195
Manufacturer:	Vanstone Electronic (Beijing) Co., Ltd.
Address of Manufacturer:	3F No.2 Building, Aisino Corporation Park 18A, Xingshikou Road, Haidian District, Beijing, China 100195
Product Name:	QR Code Terminal
Model No.(EUT):	Q161
Standard(s) :	FCC 47CFR §2.1093
Date of Receipt:	2024-04-12
Date of Test:	2024-04-24 to 2024-04-28
Date of Issue:	2024-04-28
Test Result:	**Pass***

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

Version	Description	Date	Remark
00	Original	2024-04-28	/

Authorized for issue by:				
Tested By				
		Richard.Kong / Project Engineer		
Approved By				
		Terry Hou / Reviewer		

TEST SUMMARY

Frequency Band	Extremity (W/kg)
GSM850	2.23
GSM1900	2.39
LTE Band 2	0.86
LTE Band 4	0.56
LTE Band 5	0.30
LTE Band 7	0.82
LTE Band 66	0.71
WI-FI (2.4GHz)	0.06
Sum	2.45
SAR Limited	4.0

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1 General Information

1.1 General Description of EUT

Device Type:	Portable device		
Exposure Category:	Uncontrolled environment / general population		
SN:	00060000624		
Hardware Version:	V1.00		
Software Version:	V1.00		
Antenna Gain:	WIFI 2.4G: 0.65dBi (Provided by Manufacturer) GSM850: 0.99dBi (Provided by Manufacturer) PCS1900: 1.43dBi (Provided by Manufacturer) LTE: B2: 1.43 dBi (Provided by Manufacturer) B4: 0.38dBi (Provided by Manufacturer) B5: 0.99dBi (Provided by Manufacturer) B7: 3.07 dBi (Provided by Manufacturer) B66: 0.38 dBi (Provided by Manufacturer)		
Antenna Type:	PCB Antenna		
Device Operating Configurations:			
Modulation Mode:	WIFI: CCK, DSSS, OFDM GSM:GMSK, 8PSK LTE:QPSK,16QAM		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824-849	869-894
	GSM1900	1850-1910	1930-1990
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110- 2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620- 2690
	LTE Band 66	1710~1780	2110~2180
	WIFI2.4G	2412-2462	2412-2462
Battery Information 1#:	Model:	INR18650-2000mAh	
	Normal Voltage:	DC3.70V	
	Rated capacity:	2000mAh	
	Battery Type:	Rechargeable Li-ion Cell	
	Manufacturer:	ZHUHAI GREAT POWER ENERGY CO.,LTD	
Battery Information 2#:	Model:	18650 2000mAh	
	Normal Voltage:	DC3.70V	
	Rated capacity:	2000mAh	
	Battery Type:	Rechargeable Li-ion Cell	
	Manufacturer:	MEI ZHOU BO FU NENG TECHNOLOGY CO.,LTD	

1.1.1 DUT Antenna Locations

Please see the Appendix D

1.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radio frequency Radiation Exposure Evaluation: Portable Devices
IEEE Std C95.1 – 1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 447498 D04	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
KDB 865664 D01 v01r04	SAR Measurement Requirements for 100 MHz to 6 GHz
KDB 865664 D02 v01r02	RF Exposure Compliance Reporting and Documentation Considerations
KDB 248227 D01 v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 941225 D05 v02r05	SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES

1.3 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain*Trunk)	1.60 W/kg	8.00 W/kg
Spatial Average SAR** (Whole Body)	0.08 W/kg	0.40 W/kg
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 W/kg	20.00 W/kg

Notes:

* The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time

** The Spatial Average value of the SAR averaged over the whole body.

*** The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation.)

1.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

3. Sample source: sent by customer.

1.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E; CAB identifier: CN0072

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

3 SAR Measurements System Configuration

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY8 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

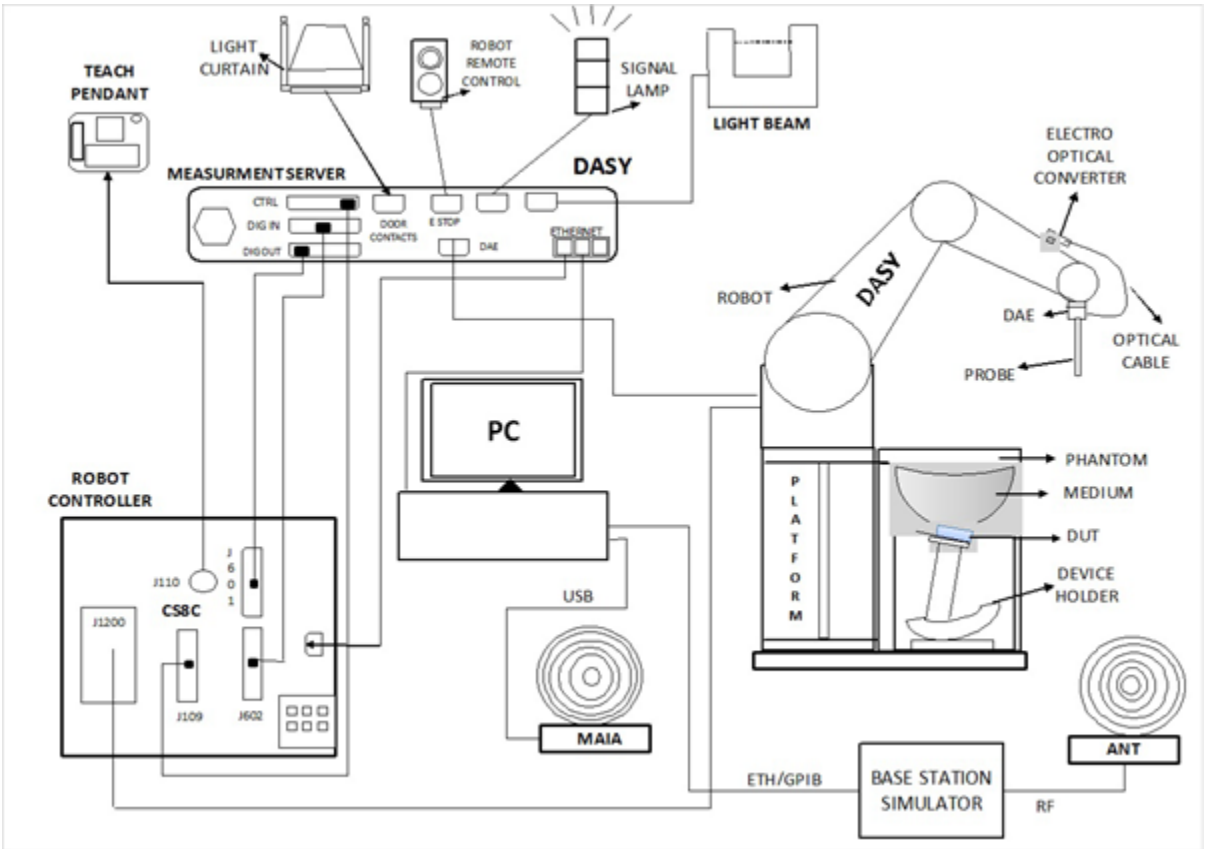
The DASY5 system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

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 between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration

- 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.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validat the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI

3.3 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 f A
Dimensions	60 x 60 x 68 mm

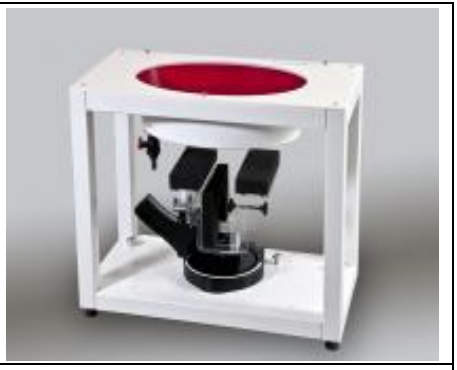
3.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions **(incl. Wooden Support)**	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx. 25 liters
Wooden Support	SPEAG standard phantom table

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.

Twin SAM V8.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	
Wooden Support	SPEAG standard phantom table	

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.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

3.6 Device Holder for Transmitters

F-2. **Device Holder for Transmitters**

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.

- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: *Area scan*

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm.Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: *Zoom scan*

Around this point, a volume of 30mm*30mm*30mm (fine resolution volume scan, zoom scan) was assessed by measuring 5x5x7 points (≤2GHz) and 7x7x7 points (≥2GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification).The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.

* When zoom scan is required and the *reported* SAR from the *area scan based 1-g SAR estimation* procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max. ± 5 %

3.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension ".DAE3". The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
	- Conversion factor	ConvFi
	- Diode compression point	Dcpi
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	ε
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcp_i$$

With Vi = compensated signal of channel i (i = x, y, z)

Ui = input signal of channel i (i = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1} f + a_{i2} f^2) / f$$

With Vi = compensated signal of channel i (i = x, y, z)

Normi = sensor sensitivity of channel I (i = x, y, z)

[mV/(V/m)2] for E-field Probes

ConvF = sensitivity enhancement in solution

aij = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

Ei = electric field strength of channel i in V/m

Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

With SAR = local specific absorption rate in mW/g

Etot = total field strength in V/m

σ= conductivity in [mho/m] or [Siemens/m]

ε= equivalent tissue density in g/cm3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = E_{tot}{}^2{}_2 / 3770 \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with Ppwe = equivalent power density of a plane wave in mW/cm2

Etot = total electric field strength in V/m

Htot = total magnetic field strength in A/m

4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

4.2 SAR measurement uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg (<3.75 W/kg for 10g), the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

5 Description of Test Position

5.1 Extremity exposure conditions

SAR can test the sides near the antenna, the surface of the device should be tested for SAR compliance with device touching the phantom. The SAR Exclusion Threshold in KDB 447498 D04 for FCC can be applied to determine SAR test exclusion for adjacent edge configurations. The closest distance from the antenna to an adjacent device surface is used to determine if SAR testing is required for the adjacent surfaces, with the adjacent surface positioned against the phantom and the surface containing the antenna positioned perpendicular to the phantom.

This product is a Handheld cash register. Therefore, we use 0mm to evaluate the Extremity SAR.

6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands：

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

HSL5GHz is composed of the following ingredients：

Water：50-65%

Mineral oil：10-30%

Emulsifiers：8-25%

Sodium salt：0-1.5%

MSL5GHz is composed of the following ingredients：

Water：64-78%

Mineral oil：11-18%

Emulsifiers：9-15%

Sodium salt：2-3%

6.1.2 Test Liquids Confirmation

Simulated tissue liquid parameter confirmation

The dielectric parameters were checked prior to assessment using the SPEAG DAK3.5 dielectric probe kit. The dielectric parameters measured are reported in each correspondent section.

IEEE SCC-34/SC-2 P1528 recommended tissue dielectric parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in P1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in P1528

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800-2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

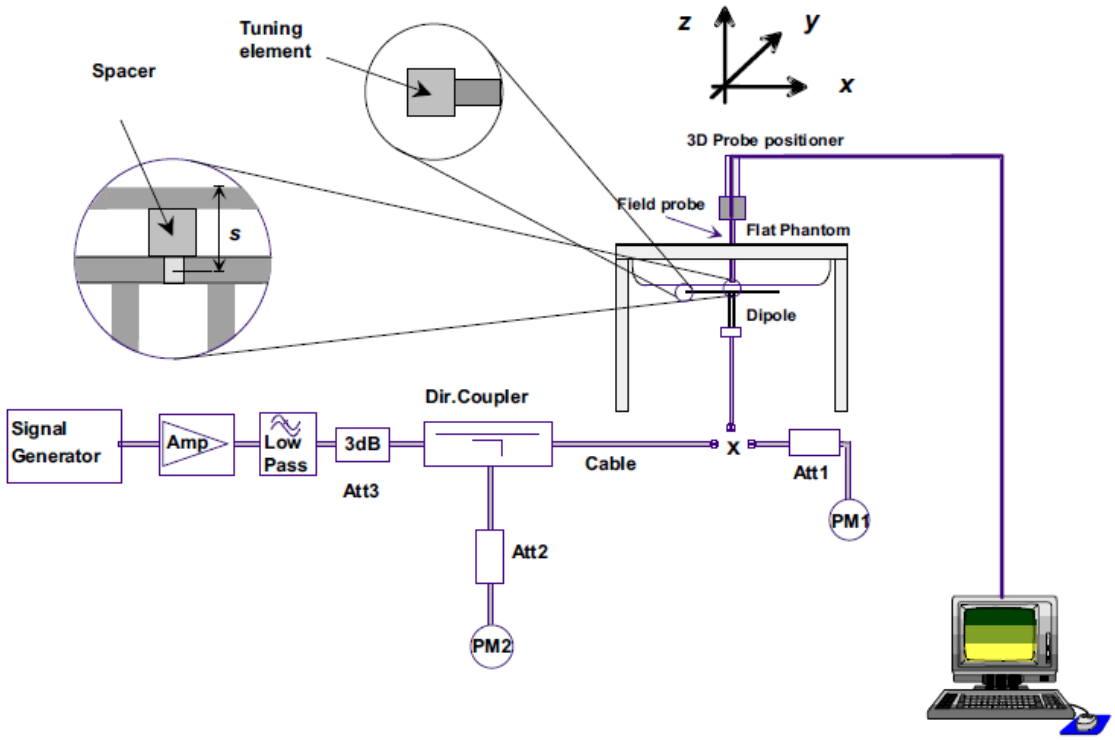
6.1.3 Measurement for Tissue Simulate Liquid

The dielectric properties for this Tissue Simulate Liquids were measured by using the SPEAG DAK3.5 dielectric probe kit in conjunction with Agilent Network Analyzer. The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency （MHz）	Conductivity (σ)	Permittivity (ε_r)	Conductivity Target (σ)	Permittivity Target (ε_r)	Delta (σ) (%)	Delta (ε_r) (%)	Limit (%)	Liquid Temp. (℃)	Date
835 Head	835	0.895	41.8	0.90	41.50	-0.56	0.72	±5	22.1	2024/4/24
1800 Head	1800	1.35	41.7	1.40	40.00	-3.57	4.25	±5	22.2	2024/4/25
1900 Head	1900	1.40	41.4	1.40	40.00	0.00	3.50	±5	22.3	2024/4/26
2450 Head	2450	1.84	40.4	1.80	39.20	2.22	3.06	±5	22.0	2024/4/27
2600 Head	2600	2.02	39.9	1.96	39.00	3.06	2.31	±5	22.1	2024/4/28

6.2 SAR System Check

The microwave circuit arrangement for system check is sketched in bellow figure. The daily system accuracy verification occurs within the flat section of the SAM 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 EUT. The obtained results from the system accuracy verification are displayed in the following table. During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 cm 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.



F-3. the microwave circuit arrangement used for SAR system verification

6.2.1 Justification for Extended SAR Dipole Calibrations

1) Referring to KDB865664 D01 requirements for dipole calibration, instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

a) There is no physical damage on the dipole;

b) System check with specific dipole is within 10% of calibrated value;

c) Return-loss is within 10% of calibrated measurement;

d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1w)	Measured SAR (normalized to 1w)	Target SAR (normalized to 1w) (±10%)	Target SAR (normalized to 1w) (±10%)	Liquid Temp. (℃)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D835V2	Head	2.32	1.43	9.28	5.72	9.40 (8.46~10.34)	6.12 (5.51~6.73)	22.1	2024/4/24
D1800V2	Head	9.33	4.94	37.32	19.76	38.9 (35.01~42.79)	20.4 (18.36~22.44)	22.2	2024/4/25
D1900V2	Head	10.2	5.34	40.8	21.36	40.0 (36.00~44.00)	20.3 (18.72~22.88)	22.3	2024/4/26
D2450V2	Head	12.5	5.84	50.0	23.36	53 (47.70~58.30)	24.7 (22.23~27.17)	22.0	2024/4/27
D2600V2	Head	12.9	5.85	51.6	23.4	54.8 (49.32~60.28)	24.5 (22.05~26.95)	22.1	2024/4/28

6.2.3 Detailed System Check Results

Please see the Appendix A

7 Test Configuration

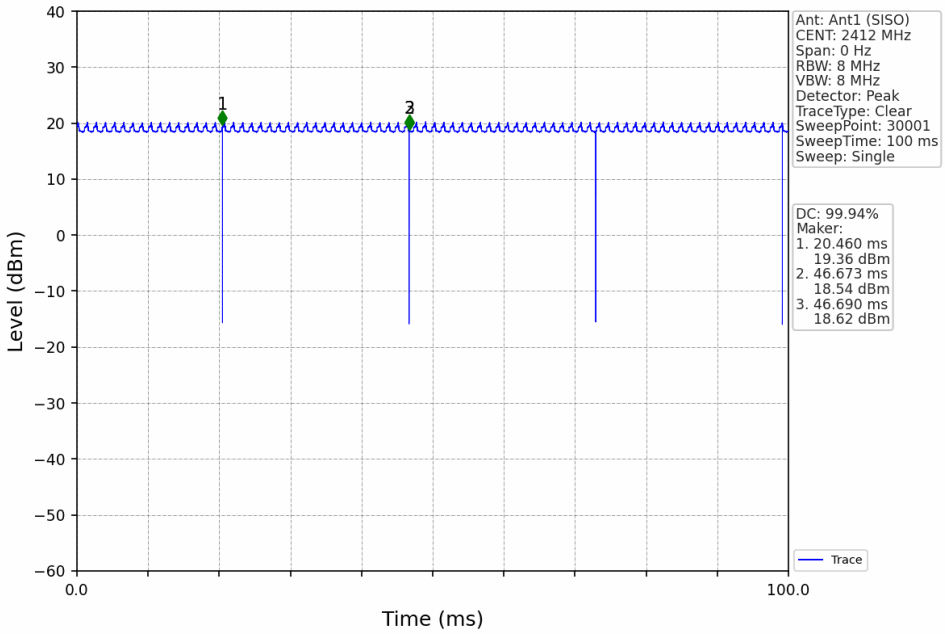
7.1.1 Wi-Fi Test Configuration

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.1.1.1 Duty cycle

1) 2.4GHz Wi-Fi:

802.11b: Duty cycle= 99.94%



7.1.1.2 Initial Test Position SAR Test Reduction Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1）. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).

2）. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.

3）. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

7.1.1.3 Initial Test Configuration Procedures

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. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

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

7.1.1.4 Subsequent Test Configuration Procedures

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

1）. When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.

2）. 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.

3）. The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.

a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.

b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.

4）. SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:

a) replace “subsequent test configuration” with “next subsequent test configuration” (i.e., subsequent next highest specified maximum output power configuration)

b) replace “initial test configuration” with “all tested higher output power configurations”

8 Test Result

8.1 Measurement of RF Conducted Power

8.1.1 Conducted Power Of GSM

GSM 850										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		128	190	251			128	190	251	
GPRS/EGPRS (GMSK)	1 TX Slot	33.52	33.80	33.60	34.00	-9.03	24.49	24.77	24.57	24.97
	2 TX Slots	31.53	**31.75**	31.02	**32.00**	-6.02	25.51	25.73	25.00	25.98
	3 TX Slots	29.56	29.04	29.58	30.00	-4.26	25.30	24.78	25.32	25.74
	4 TX Slots	27.59	27.50	27.74	28.00	-3.01	24.58	24.49	24.73	24.99
EGPRS(8PSK)	1 TX Slot	28.39	28.66	28.70	29.00	-9.03	19.36	19.63	19.67	19.97
	2 TX Slots	26.47	**26.82**	26.15	**27.00**	-6.02	20.45	20.80	20.13	20.98
	3 TX Slots	24.59	24.01	24.61	25.00	-4.26	20.33	19.75	20.35	20.74
	4 TX Slots	22.66	22.60	22.76	23.00	-3.01	19.65	19.59	19.75	19.99
GSM 1900										
Burst Output Power(dBm)					Tune up	Division Factors	Frame-Average Output Power(dBm)			Tune up
Channel		512	661	810			512	661	810	
GPRS/EGPRS (GMSK)	1 TX Slot	30.88	30.74	30.28	31.00	-9.03	21.85	21.71	21.25	21.97
	2 TX Slots	29.01	**29.04**	28.95	**30.00**	-6.02	22.99	23.02	22.93	23.98
	3 TX Slots	26.89	26.94	26.81	28.00	-4.26	22.63	22.68	22.55	23.74
	4 TX Slots	24.94	25.13	24.90	26.00	-3.01	21.93	22.12	21.89	22.99
EGPRS(8PSK)	1 TX Slot	25.81	25.88	25.23	26.00	-9.03	16.78	16.85	16.20	16.97
	2 TX Slots	24.04	**24.14**	24.04	**25.00**	-6.02	18.02	18.12	18.02	18.98
	3 TX Slots	22.03	21.95	21.93	23.00	-4.26	17.77	17.69	17.67	18.74
	4 TX Slots	19.80	20.13	19.79	21.00	-3.01	16.79	17.12	16.78	17.99

8.1.2 Conducted Power Of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	23.52	24.77	23.91	25.00
		1	2	23.30	24.65	23.97	25.00
		1	5	23.37	23.73	23.88	25.00
		3	0	23.39	24.63	23.73	25.00
		3	2	23.42	24.17	23.88	25.00
		3	3	23.20	23.97	23.62	25.00
		6	0	22.86	23.38	22.48	24.00
	16QAM	1	0	22.33	24.00	22.64	24.00
		1	2	22.39	23.83	22.90	24.00
		1	5	22.44	22.90	22.01	24.00
		3	0	22.53	22.68	22.87	23.00
		3	2	22.58	22.24	22.04	23.00
		3	3	22.25	22.05	22.81	23.00
		6	0	20.89	21.45	21.68	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	23.59	24.76	23.96	25.00
		1	7	23.53	24.84	24.17	25.00
		1	14	23.76	23.26	24.59	25.00
		8	0	23.71	24.86	24.15	25.00
		8	4	23.22	24.58	24.21	25.00
		8	7	23.83	24.52	24.34	25.00
		15	0	22.97	23.47	23.15	24.00
	16QAM	1	0	23.06	23.94	23.70	24.00
		1	7	23.18	23.01	23.98	24.00
		1	14	22.28	22.50	22.19	24.00
		8	0	22.94	22.93	22.56	23.00
		8	4	22.36	22.68	22.34	23.00
		8	7	22.01	22.61	22.52	23.00
		15	0	20.97	21.60	21.21	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	23.14	24.75	24.00	25.00
		1	13	23.93	24.28	23.76	25.00
		1	24	23.95	24.38	23.61	25.00
		12	0	23.40	24.73	23.92	25.00
		12	6	23.43	24.67	23.73	25.00
		12	13	23.52	24.18	23.61	25.00
		25	0	22.04	23.45	22.92	24.00
	16QAM	1	0	22.97	23.99	23.17	24.00
		1	13	22.88	23.60	22.93	24.00
		1	24	22.01	23.73	22.85	24.00
		12	0	22.45	22.86	22.07	23.00

		12	6	22.41	22.77	22.93	23.00
		12	13	22.55	22.17	22.85	23.00
		25	0	20.95	21.37	21.12	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	23.53	24.02	23.72	25.00
		1	25	23.97	24.14	23.92	25.00
		1	49	23.92	23.00	23.46	25.00
		25	0	23.89	23.99	23.71	25.00
		25	13	23.80	24.27	24.46	25.00
		25	25	24.00	23.99	24.02	25.00
		50	0	22.15	23.36	22.99	24.00
	16QAM	1	0	22.14	23.27	22.60	24.00
		1	25	22.56	23.49	23.00	24.00
		1	49	22.44	22.34	22.65	24.00
		12	0	21.95	22.13	22.92	23.00
		12	19	22.16	22.45	22.15	23.00
		12	38	22.07	22.93	23.00	23.00
		27	0	21.95	21.56	21.72	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	23.42	24.44	23.69	25.00
		1	38	23.24	24.01	23.72	25.00
		1	74	23.53	23.63	23.53	25.00
		36	0	23.62	24.56	23.88	25.00
		36	18	23.92	24.44	23.77	25.00
		36	39	23.78	24.11	24.47	25.00
		75	0	22.40	23.35	22.89	24.00
	16QAM	1	0	22.95	23.80	22.87	24.00
		1	38	22.90	23.40	23.06	24.00
		1	74	23.22	22.96	22.93	24.00
		12	0	22.02	22.42	22.12	23.00
		12	31	22.54	22.28	22.97	23.00
		12	63	22.60	22.58	21.95	23.00
		27	0	21.03	21.57	21.43	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	23.18	**24.39**	23.80	**25.00**
		1	50	23.77	24.18	23.75	25.00
		1	99	23.84	23.56	23.52	25.00
		50	0	24.10	**24.98**	23.88	**25.00**
		50	25	24.39	24.83	24.93	25.00
		50	50	24.37	24.35	24.28	25.00
		100	0	22.44	23.13	22.53	24.00
	16QAM	1	0	22.33	23.65	23.28	24.00
		1	50	23.03	23.50	23.37	24.00
		1	99	23.17	22.87	23.23	24.00
		12	0	21.68	22.24	22.78	23.00
		12	44	22.84	22.43	22.98	23.00

		12	88	22.50	22.16	21.40	23.00
		27	0	21.90	21.43	21.91	22.00

LTE Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	24.74	24.12	24.13	25.00
		1	2	24.84	24.64	24.26	25.00
		1	5	24.00	23.27	24.56	25.00
		3	0	24.68	24.14	24.53	25.00
		3	2	24.74	24.57	24.64	25.00
		3	3	24.59	24.25	24.03	25.00
		6	0	23.87	23.38	23.11	24.00
	16QAM	1	0	23.68	23.31	23.02	24.00
		1	2	23.98	23.75	23.20	24.00
		1	5	23.27	23.01	23.57	24.00
		3	0	22.02	22.21	22.34	23.00
		3	2	22.16	22.54	22.45	23.00
		3	3	22.90	22.36	22.71	23.00
		6	0	21.09	21.46	21.77	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	24.91	24.27	24.88	25.00
		1	7	24.06	24.95	24.35	25.00
		1	14	23.42	23.35	24.77	25.00
		8	0	24.85	24.57	24.02	25.00
		8	4	24.83	24.59	24.14	25.00
		8	7	24.83	24.59	24.28	25.00
		15	0	23.94	23.47	23.26	24.00
	16QAM	1	0	23.28	23.31	23.35	24.00
		1	7	23.59	23.35	23.35	24.00
		1	14	22.90	23.26	23.31	24.00
		8	0	22.07	22.28	22.46	23.00
		8	4	22.10	22.29	22.39	23.00
		8	7	22.22	22.29	22.35	23.00
		15	0	21.06	21.25	21.23	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	24.96	24.00	24.16	25.00
		1	13	24.35	24.22	24.82	25.00
		1	24	24.13	23.49	24.84	25.00
		12	0	24.70	24.39	24.06	25.00
		12	6	24.51	24.42	24.97	25.00
		12	13	24.73	24.45	24.24	25.00
		25	0	23.82	23.51	23.28	24.00
	16QAM	1	0	23.73	23.47	23.38	24.00
		1	13	23.32	23.54	23.15	24.00
		1	24	23.00	22.84	23.17	24.00

		12	0	22.03	22.55	22.22	23.00
		12	6	22.70	22.58	22.14	23.00
		12	13	22.90	22.61	22.43	23.00
		25	0	21.93	21.60	21.46	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	24.82	23.82	24.47	25.00
		1	25	24.86	24.50	24.96	25.00
		1	49	24.40	23.94	24.44	25.00
		25	0	24.35	24.13	24.73	25.00
		25	13	24.00	24.27	24.04	25.00
		25	25	24.95	24.28	24.76	25.00
		50	0	23.13	23.63	23.54	24.00
	16QAM	1	0	23.22	23.03	23.47	24.00
		1	25	23.40	23.74	23.13	24.00
		1	49	23.79	23.29	23.70	24.00
		12	0	22.69	22.07	22.90	23.00
		12	19	22.18	22.67	22.23	23.00
		12	38	22.17	22.32	22.76	23.00
		27	0	21.08	21.59	21.95	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20025	Channel 20175	Channel 20325	Tune up
15MHz	QPSK	1	0	24.27	24.14	24.18	25.00
		1	38	24.23	24.30	24.59	25.00
		1	74	24.82	24.10	24.74	25.00
		36	0	24.12	24.39	24.95	25.00
		36	18	24.22	24.63	24.84	25.00
		36	39	24.36	24.57	24.83	25.00
		75	0	23.44	23.58	23.85	24.00
	16QAM	1	0	23.68	23.33	23.34	24.00
		1	38	23.79	23.61	23.97	24.00
		1	74	23.40	23.37	23.11	24.00
		12	0	22.42	22.08	22.98	23.00
		12	31	22.45	22.51	22.82	23.00
		12	63	22.23	22.33	22.09	23.00
		27	0	21.28	21.36	21.45	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20050	Channel 20175	Channel 20300	Tune up
20MHz	QPSK	1	0	24.39	24.22	**24.98**	**25.00**
		1	50	24.25	24.62	24.55	25.00
		1	99	24.76	23.88	24.15	25.00
		50	0	24.18	24.62	24.69	25.00
		50	25	24.13	24.74	**24.75**	**25.00**
		50	50	24.01	24.61	24.09	25.00
		100	0	23.18	23.37	23.51	24.00
	16QAM	1	0	23.52	23.30	23.35	24.00
		1	50	23.57	23.77	23.19	24.00
		1	99	23.02	23.20	23.79	24.00
		12	0	22.06	22.75	22.53	23.00

		12	44	22.41	22.72	22.82	23.00
		12	88	22.02	22.08	22.54	23.00
		27	0	21.99	21.03	21.95	22.00

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 20407	Channel 20525	Channel 20643	Tune up
1.4MHz	QPSK	1	0	24.19	24.51	23.79	25.00
		1	2	24.34	24.57	24.37	25.00
		1	5	24.18	23.62	24.18	25.00
		3	0	24.03	24.26	24.30	25.00
		3	2	24.21	24.29	24.56	25.00
		3	3	24.02	24.18	24.33	25.00
		6	0	23.11	23.26	23.20	24.00
	16QAM	1	0	23.28	23.63	22.75	24.00
		1	2	23.51	23.76	23.36	24.00
		1	5	23.27	22.84	23.22	24.00
		3	0	23.18	23.30	23.46	24.00
		3	2	23.48	23.34	23.69	24.00
		3	3	23.28	23.14	23.46	24.00
		6	0	22.34	22.25	22.21	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	24.05	24.47	23.69	25.00
		1	7	24.70	24.73	24.72	25.00
		1	14	24.06	23.14	24.14	25.00
		8	0	24.44	24.41	24.63	25.00
		8	4	24.50	24.45	24.45	25.00
		8	7	24.48	24.64	24.66	25.00
		15	0	23.45	23.41	23.41	24.00
	16QAM	1	0	23.57	23.70	22.62	24.00
		1	7	23.22	23.04	23.81	24.00
		1	14	23.42	22.48	23.28	24.00
		8	0	23.59	23.51	23.77	24.00
		8	4	23.67	23.57	23.60	24.00
		8	7	23.66	23.74	23.82	24.00
		15	0	22.55	22.40	22.52	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625	Tune up
5MHz	QPSK	1	0	24.29	24.18	23.61	25.00
		1	13	24.15	24.18	24.25	25.00
		1	24	24.19	23.76	24.13	25.00
		12	0	24.22	24.17	24.25	25.00
		12	6	24.35	24.08	24.24	25.00
		12	13	24.35	24.24	24.35	25.00
		25	0	23.49	23.38	23.40	24.00
	16QAM	1	0	23.43	23.39	22.76	24.00
		1	13	23.31	23.46	23.45	24.00

		1	24	23.31	23.06	23.44	24.00
		12	0	23.39	23.23	23.37	24.00
		12	6	23.42	23.12	23.40	24.00
		12	13	23.42	23.31	23.53	24.00
		25	0	22.54	22.40	22.58	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	24.22	24.19	23.70	25.00
		1	25	**24.42**	24.41	24.39	**25.00**
		1	49	24.34	23.74	24.03	25.00
		25	0	24.17	24.06	24.28	25.00
		25	13	**24.63**	24.46	24.38	**25.00**
		25	25	24.47	24.26	24.30	25.00
		50	0	23.57	23.51	23.41	24.00
	16QAM	1	0	23.75	23.29	22.68	24.00
		1	25	23.95	23.54	23.48	24.00
		1	49	23.69	22.90	23.20	24.00
		12	0	23.17	23.16	23.37	24.00
		12	19	23.65	23.45	23.54	24.00
		12	38	23.39	23.16	23.36	24.00
		27	0	22.49	22.65	22.48	23.00

LTE Band 7				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 20775	Channel 21100	Channel 21425	Tune up
5MHz	QPSK	1	0	22.85	23.13	23.49	24.00
		1	13	22.70	23.08	23.63	24.00
		1	24	22.84	23.66	22.69	24.00
		12	0	23.02	23.31	23.00	24.00
		12	6	22.95	23.15	23.82	24.00
		12	13	23.01	23.07	23.49	24.00
		25	0	21.74	22.36	22.07	23.00
	16QAM	1	0	21.74	22.36	22.36	23.00
		1	13	21.78	22.48	22.95	23.00
		1	24	21.93	22.07	22.59	23.00
		12	0	22.21	22.46	22.24	23.00
		12	6	22.12	22.42	22.07	23.00
		12	13	22.20	22.31	22.75	23.00
		25	0	20.93	21.55	21.30	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20800	Channel 21100	Channel 21400	Tune up
10MHz	QPSK	1	0	22.45	23.47	23.92	24.00
		1	25	22.71	23.27	23.93	24.00
		1	49	22.92	23.43	22.49	24.00
		25	0	22.37	23.15	23.20	24.00
		25	13	23.36	23.12	23.95	24.00
		25	25	23.09	23.89	23.61	24.00
		50	0	21.70	22.55	22.33	23.00

	16QAM	1	0	22.03	22.69	22.45	23.00
		1	25	22.31	22.62	22.17	23.00
		1	49	22.42	22.78	22.31	23.00
		12	0	21.60	22.43	22.53	23.00
		12	19	21.91	22.57	22.24	23.00
		12	38	21.16	22.85	22.65	23.00
		27	0	21.90	21.77	21.93	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20825	Channel 21100	Channel 21375	Tune up
15MHz	QPSK	1	0	22.75	23.69	23.30	24.00
		1	38	22.32	23.20	23.99	24.00
		1	74	23.10	23.66	22.87	24.00
		36	0	22.56	23.45	23.18	24.00
		36	18	22.49	23.20	23.92	24.00
		36	39	23.38	23.19	23.71	24.00
		75	0	21.41	22.51	22.34	23.00
	16QAM	1	0	22.08	22.90	22.60	23.00
		1	38	21.83	22.54	22.40	23.00
		1	74	22.59	22.00	22.62	23.00
		12	0	21.78	22.98	22.65	23.00
		12	31	21.52	22.50	22.24	23.00
		12	63	21.97	22.69	22.30	23.00
		27	0	21.76	21.99	21.74	22.00
Bandwidth	Modulation	RB size	RB offset	Channel 20850	Channel 21100	Channel 21350	Tune up
20MHz	QPSK	1	0	22.62	**23.92**	23.68	**24.00**
		1	50	22.67	23.35	23.10	24.00
		1	99	23.46	23.46	22.60	24.00
		50	0	22.57	23.03	23.37	24.00
		50	25	**23.91**	23.72	23.79	**24.00**
		50	50	23.61	23.12	23.18	24.00
		100	0	21.49	22.36	22.14	23.00
	16QAM	1	0	21.81	22.15	22.14	23.00
		1	50	22.01	22.71	22.73	23.00
		1	99	22.82	22.43	22.59	23.00
		12	0	21.74	22.73	22.12	23.00
		12	44	21.80	22.53	22.37	23.00
		12	88	21.02	22.21	21.86	23.00
		27	0	21.81	21.94	21.33	22.00

LTE Band 66				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 131979	Channel 132322	Channel 132665	Tune up
1.4MHz	QPSK	1	0	24.37	23.87	23.20	25.00
		1	2	24.45	24.04	23.42	25.00
		1	5	23.72	23.22	23.09	25.00
		3	0	24.25	23.93	23.11	25.00
		3	1	24.26	23.90	23.85	25.00

		3	3	24.06	23.69	23.62	25.00
		6	0	23.43	22.79	22.17	24.00
	16QAM	1	0	23.54	22.83	22.30	24.00
		1	2	23.70	23.10	22.60	24.00
		1	5	22.98	22.30	22.32	24.00
		3	0	23.35	23.04	22.39	24.00
		3	1	23.39	22.96	23.19	24.00
		3	3	23.21	22.75	22.94	24.00
		6	0	22.57	21.74	21.35	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	24.18	23.68	24.05	25.00
		1	7	24.46	24.30	23.51	25.00
		1	14	23.02	23.65	23.22	25.00
		8	0	24.37	24.12	23.30	25.00
		8	4	24.32	23.98	23.37	25.00
		8	7	24.34	24.13	23.28	25.00
		15	0	23.45	22.79	22.16	24.00
	16QAM	1	0	23.69	22.91	23.98	24.00
		1	7	23.99	23.53	23.66	24.00
		1	14	22.52	23.83	23.37	24.00
		8	0	23.69	23.10	22.45	24.00
		8	4	23.68	23.08	22.51	24.00
		8	7	23.73	23.24	22.43	24.00
		15	0	22.63	21.85	21.29	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 131997	Channel 132322	Channel 132647	Tune up
5MHz	QPSK	1	0	24.08	23.55	23.87	25.00
		1	13	23.88	23.59	23.86	25.00
		1	24	23.46	23.59	23.25	25.00
		12	0	24.16	23.81	24.05	25.00
		12	6	23.97	23.77	24.12	25.00
		12	13	24.12	23.99	23.19	25.00
		25	0	23.20	22.78	22.03	24.00
	16QAM	1	0	22.99	22.81	23.01	24.00
		1	13	22.88	22.95	22.11	24.00
		1	24	22.47	22.94	22.54	24.00
		12	0	23.41	22.93	22.12	24.00
		12	6	23.22	22.90	22.21	24.00
		12	13	23.36	23.15	22.26	24.00
		25	0	22.43	21.86	21.12	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 132022	Channel 132322	Channel 132622	Tune up
10MHz	QPSK	1	0	24.08	23.09	23.98	25.00
		1	25	24.08	23.82	23.98	25.00
		1	49	23.65	23.07	23.12	25.00
		25	0	23.91	23.38	23.60	25.00
		25	13	24.26	23.65	23.98	25.00
		25	25	24.20	23.43	23.04	25.00

		50	0	23.45	22.88	23.11	24.00
	16QAM	1	0	23.60	23.23	22.91	24.00
		1	25	23.63	23.07	22.14	24.00
		1	49	23.17	23.34	22.37	24.00
		12	0	23.29	23.44	22.76	24.00
		12	19	23.37	23.01	22.24	24.00
		12	38	23.38	23.39	22.31	24.00
		27	0	22.47	22.98	22.29	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 132047	Channel 132322	Channel 132597	Tune up
15MHz	QPSK	1	0	24.38	23.33	23.94	25.00
		1	38	24.38	23.80	23.87	25.00
		1	74	23.95	24.00	23.15	25.00
		36	0	24.05	23.60	23.89	25.00
		36	18	24.07	23.59	23.94	25.00
		36	39	24.43	24.62	23.14	25.00
		75	0	23.63	22.80	23.09	24.00
	16QAM	1	0	23.85	23.50	23.28	24.00
		1	38	23.03	22.97	23.28	24.00
		1	74	23.60	22.28	22.55	24.00
		12	0	23.86	22.79	23.04	24.00
		12	31	23.76	22.81	22.99	24.00
		12	63	23.49	23.20	23.04	24.00
		27	0	22.68	23.00	22.17	23.00
Bandwidth	Modulation	RB size	RB offset	Channel 132072	Channel 132322	Channel 132572	Tune up
20MHz	QPSK	1	0	**24.48**	23.97	23.82	**25.00**
		1	50	24.24	23.75	23.99	25.00
		1	99	23.57	24.44	23.30	25.00
		50	0	24.70	24.40	23.28	25.00
		50	25	24.27	24.43	23.60	25.00
		50	50	24.10	**24.89**	23.35	**25.00**
		100	0	23.26	22.48	22.16	24.00
	16QAM	1	0	23.75	23.26	23.34	24.00
		1	50	23.62	23.12	22.69	24.00
		1	99	23.97	22.80	22.99	24.00
		12	0	23.27	22.56	22.90	24.00
		12	44	23.48	22.93	22.22	24.00
		12	88	23.92	22.53	22.74	24.00
		27	0	22.15	22.62	21.90	23.00

8.1.3 Conducted Power Of WIFI 2.4G

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Average Power (dBm)	Tune up
802.11b	1	2412	1	9.20	11.00
	6	2437		**10.55**	**11.00**
	11	2462		10.43	11.00
802.11g	1	2412	6	10.84	11.00
	6	2437		10.30	11.00
	11	2462		10.29	11.00
802.11n HT20	1	2412	MCS0	10.72	11.00
	6	2437		10.24	11.00
	11	2462		10.14	11.00

Note:

a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.

b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.

1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.

2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.

c) For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured.

8.2 Measurement of SAR Data

Note:

1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B
2) Per FCC KDB Publication 447498 D04, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0W/kg for 10g) then testing at the other channels is not required for such test configuration(s).
3) The scaled SAR = Measured SAR(W/kg) * Duty Cycle Scaled factor * Scaled factor
4) Duty Cycle Scaled factor = 100% / Measured Duty Cycle

WiFi 2.4G

1) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). Per Kdb248227 D01, When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel.
2) Each channel was tested at the lowest data rate.
3) Per KDB248227 D01, for Body SAR test of Wi-Fi2.4G, SAR is measured for 2.4 GHz 802.11b DSSS using the initial test position procedure. The highest reported SAR for DSSS is adjusted by the ratio of OFDM 802.11g/n to DSSS specified maximum output power and the adjusted SAR is < 1.2 W/kg, so SAR for 802.11g/n is not required.

8.2.1 SAR Result Of GSM850

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg) 10-g
Extremity Test data (Separate 0mm)												
Front side	GPRS 2TS	190/836.6	1:2.075	1.39	0.555	0.13	31.75	32.00	1.059	0.588	22.1	4.0
Back side	GPRS 2TS	190/836.6	1:2.075	1.57	0.655	0.02	31.75	32.00	1.059	0.694	22.1	4.0
Left side	GPRS 2TS	190/836.6	1:2.075	0.006	0.003	-0.06	31.75	32.00	1.059	0.003	22.1	4.0
Right side	GPRS 2TS	190/836.6	1:2.075	3.68	1.99	-0.08	31.75	32.00	1.059	2.108	22.1	4.0
Top side	GPRS 2TS	190/836.6	1:2.075	0.012	0.006	0.03	31.75	32.00	1.059	0.006	22.1	4.0
Bottom side	GPRS 2TS	190/836.6	1:2.075	0.002	0.001	0.06	31.75	32.00	1.059	0.001	22.1	4.0
Right side	GPRS 2TS	128/824.2	1:2.075	3.43	1.85	-0.19	31.53	32.00	1.114	2.061	22.1	4.0
Right side	GPRS 2TS	251/848.8	1:2.075	3.29	1.78	0.06	31.02	32.00	1.253	**2.231**	22.1	4.0
Right side	EGPRS 2TS	190/836.6	1:2.075	1.12	0.614	-0.12	26.82	27.00	1.042	0.640	22.1	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	GPRS 2TS	251/848.8	1:2.075	3.13	1.71	-0.19	31.02	32.00	1.253	2.143	22.1	4.0

8.2.2 SAR Result Of PCS1900

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift(dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp	SAR limit (W/kg) 10-g
Extremity Test data (Separate 0mm)												
Front side	GPRS 2TS	661/1880	1:2.075	0.541	0.247	0.19	29.04	30.00	1.247	0.308	22.3	4.0
Back side	GPRS 2TS	661/1880	1:2.075	0.910	0.393	-0.04	29.04	30.00	1.247	0.490	22.3	4.0
Left side	GPRS 2TS	661/1880	1:2.075	0.293	0.117	0.14	29.04	30.00	1.247	0.146	22.3	4.0
Right side	GPRS 2TS	661/1880	1:2.075	4.45	1.69	-0.1	29.04	30.00	1.247	2.108	22.3	4.0
Top side	GPRS 2TS	661/1880	1:2.075	0.178	0.084	0.11	29.04	30.00	1.247	0.105	22.3	4.0
Bottom side	GPRS 2TS	661/1880	1:2.075	1.06	0.464	-0.05	29.04	30.00	1.247	0.579	22.3	4.0
Right side	GPRS 2TS	512/1850.2	1:2.075	4.30	1.77	0.11	29.01	30.00	1.256	2.226	22.3	4.0
Right side	GPRS 2TS	810/1909.8	1:2.075	4.55	1.88	-0.02	28.95	30.00	1.274	**2.394**	22.3	4.0
Right side	EGPRS 2TS	661/1880	1:2.075	1.35	0.636	0.09	24.14	25.00	1.219	0.775	22.3	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	GPRS 2TS	661/1880	1:2.075	4.25	1.74	0.1	29.04	30.00	1.247	2.170	22.3	4.0

8.2.3 SAR Result Of LTE Band 2

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data (Separate 0mm)												
Front side	20M_QPSK 1RB_0	18900/1880	1:1	0.285	0.135	0.18	24.39	25.00	1.151	0.155	22.3	4.0
Back side	20M_QPSK 1RB_0	18900/1880	1:1	0.244	0.150	0.11	24.39	25.00	1.151	0.173	22.3	4.0
Left side	20M_QPSK 1RB_0	18900/1880	1:1	0.054	0.034	0.11	24.39	25.00	1.151	0.039	22.3	4.0
Right side	20M_QPSK 1RB_0	18900/1880	1:1	1.65	0.743	0.01	24.39	25.00	1.151	**0.855**	22.3	4.0
Top side	20M_QPSK 1RB_0	18900/1880	1:1	0.023	0.014	0.19	24.39	25.00	1.151	0.016	22.3	4.0
Bottom side	20M_QPSK 1RB_0	18900/1880	1:1	0.285	0.155	-0.08	24.39	25.00	1.151	0.178	22.3	4.0
Front side	20M_QPSK 50RB_0	18900/1880	1:1	0.314	0.149	-0.04	24.98	25.00	1.005	0.150	22.3	4.0
Back side	20M_QPSK 50RB_0	18900/1880	1:1	0.268	0.165	-0.01	24.98	25.00	1.005	0.166	22.3	4.0
Left side	20M_QPSK 50RB_0	18900/1880	1:1	0.059	0.037	0.12	24.98	25.00	1.005	0.037	22.3	4.0
Right side	20M_QPSK 50RB_0	18900/1880	1:1	1.82	0.817	-0.02	24.98	25.00	1.005	0.821	22.3	4.0
Top side	20M_QPSK 50RB_0	18900/1880	1:1	0.025	0.015	-0.13	24.98	25.00	1.005	0.015	22.3	4.0
Bottom side	20M_QPSK 50RB_0	18900/1880	1:1	0.314	0.171	-0.19	24.98	25.00	1.005	0.172	22.3	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	20M_QPSK 1RB_0	18900/1880	1:1	1.61	0.729	-0.14	24.39	25.00	1.151	0.839	22.3	4.0

8.2.4 SAR Result Of LTE Band 4

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data(Separate 0mm 1RB_0 offset)												
Front side	20M_QPSK 1RB_0	20300/1745	1:1	0.501	0.262	0.07	24.98	25.00	1.005	0.263	22.2	4.0
Back side	20M_QPSK 1RB_0	20300/1745	1:1	0.090	0.051	0.02	24.98	25.00	1.005	0.051	22.2	4.0
Left side	20M_QPSK 1RB_0	20300/1745	1:1	0.035	0.026	0.17	24.98	25.00	1.005	0.026	22.2	4.0
Right side	20M_QPSK 1RB_0	20300/1745	1:1	1.19	0.561	0.09	24.98	25.00	1.005	**0.564**	22.2	4.0
Top side	20M_QPSK 1RB_0	20300/1745	1:1	0.014	0.009	0.03	24.98	25.00	1.005	0.009	22.2	4.0
Bottom side	20M_QPSK 1RB_0	20300/1745	1:1	0.223	0.155	-0.14	24.98	25.00	1.005	0.156	22.2	4.0
Front side	20M_QPSK 50RB_25	20300/1745	1:1	0.455	0.238	0.13	24.75	25.00	1.059	0.252	22.2	4.0
Back side	20M_QPSK 50RB_25	20300/1745	1:1	0.082	0.046	-0.11	24.75	25.00	1.059	0.049	22.2	4.0
Left side	20M_QPSK 50RB_25	20300/1745	1:1	0.032	0.024	-0.09	24.75	25.00	1.059	0.025	22.2	4.0
Right side	20M_QPSK 50RB_25	20300/1745	1:1	1.08	0.510	0.11	24.75	25.00	1.059	0.540	22.2	4.0
Top side	20M_QPSK 50RB_25	20300/1745	1:1	0.013	0.008	-0.17	24.75	25.00	1.059	0.008	22.2	4.0
Bottom side	20M_QPSK 50RB_25	20300/1745	1:1	0.203	0.141	0.17	24.75	25.00	1.059	0.149	22.2	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	20M_QPSK 1RB_0	20300/1745	1:1	1.12	0.557	-0.16	24.98	25.00	1.005	0.560	22.2	4.0

8.2.5 SAR Result Of LTE Band 5

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data(Separate 0mm 1RB_0 offset)												
Front side	10M_QPSK 1RB_25	20450/829	1:1	0.146	0.083	-0.16	24.42	25.00	1.143	0.095	22.1	4.0
Back side	10M_QPSK 1RB_25	20450/829	1:1	0.246	0.105	0.12	24.42	25.00	1.143	0.120	22.1	4.0
Left side	10M_QPSK 1RB_25	20450/829	1:1	0.021	0.013	-0.15	24.42	25.00	1.143	0.015	22.1	4.0
Right side	10M_QPSK 1RB_25	20450/829	1:1	0.474	0.266	0.02	24.42	25.00	1.143	**0.304**	22.1	4.0
Top side	10M_QPSK 1RB_25	20450/829	1:1	0.012	0.008	-0.05	24.42	25.00	1.143	0.009	22.1	4.0
Bottom side	10M_QPSK 1RB_25	20450/829	1:1	0.088	0.054	-0.15	24.42	25.00	1.143	0.062	22.1	4.0
Front side	10M_QPSK 25RB_13	20450/829	1:1	0.133	0.075	0.04	24.63	25.00	1.089	0.082	22.1	4.0
Back side	10M_QPSK 25RB_13	20450/829	1:1	0.224	0.095	-0.04	24.63	25.00	1.089	0.103	22.1	4.0
Left side	10M_QPSK 25RB_13	20450/829	1:1	0.019	0.012	0.13	24.63	25.00	1.089	0.013	22.1	4.0
Right side	10M_QPSK 25RB_13	20450/829	1:1	0.431	0.242	-0.18	24.63	25.00	1.089	0.264	22.1	4.0
Top side	10M_QPSK 25RB_13	20450/829	1:1	0.011	0.007	-0.08	24.63	25.00	1.089	0.008	22.1	4.0
Bottom side	10M_QPSK 25RB_13	20450/829	1:1	0.080	0.049	0.15	24.63	25.00	1.089	0.053	22.1	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	10M_QPSK 1RB_25	20450/829	1:1	0.452	0.263	0.16	24.42	25.00	1.143	0.301	22.1	4.0

8.2.6 SAR Result Of LTE Band 7

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data(Separate 0mm 1RB_0 offset)												
Front side	20M_QPSK 1RB_0	21100/2535	1:1	0.131	0.060	0.07	23.92	24.00	1.019	0.061	22.1	4.0
Back side	20M_QPSK 1RB_0	21100/2535	1:1	0.861	0.465	-0.07	23.92	24.00	1.019	0.474	22.1	4.0
Left side	20M_QPSK 1RB_0	21100/2535	1:1	0.024	0.013	0.09	23.92	24.00	1.019	0.013	22.1	4.0
Right side	20M_QPSK 1RB_0	21100/2535	1:1	1.77	0.809	0.09	23.92	24.00	1.019	**0.824**	22.1	4.0
Top side	20M_QPSK 1RB_0	21100/2535	1:1	0.036	0.021	0.03	23.92	24.00	1.019	0.021	22.1	4.0
Bottom side	20M_QPSK 1RB_0	21100/2535	1:1	0.501	0.254	-0.02	23.92	24.00	1.019	0.259	22.1	4.0
Front side	20M_QPSK 50RB_25	20850/2510	1:1	0.124	0.057	-0.04	23.91	24.00	1.021	0.058	22.1	4.0
Back side	20M_QPSK 50RB_25	20850/2510	1:1	0.812	0.439	0.09	23.91	24.00	1.021	0.448	22.1	4.0
Left side	20M_QPSK 50RB_25	20850/2510	1:1	0.023	0.012	-0.14	23.91	24.00	1.021	0.012	22.1	4.0
Right side	20M_QPSK 50RB_25	20850/2510	1:1	1.67	0.763	0.02	23.91	24.00	1.021	0.779	22.1	4.0
Top side	20M_QPSK 50RB_25	20850/2510	1:1	0.034	0.020	-0.17	23.91	24.00	1.021	0.020	22.1	4.0
Bottom side	20M_QPSK 50RB_25	20850/2510	1:1	0.473	0.240	-0.18	23.91	24.00	1.021	0.245	22.1	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	20M_QPSK 1RB_0	21100/2535.5	1:1	1.71	0.802	-0.14	23.92	24.00	1.019	0.817	22.1	4.0

8.2.7 SAR Result Of LTE Band 66

Test position	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power Drift (dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data(Separate 0mm 1RB_0 offset)												
Front side	20M_QPSK 1RB_0	132072/1720	1:1	1.06	0.442	-0.02	24.48	25.00	1.127	0.498	22.2	4.0
Back side	20M_QPSK 1RB_0	132072/1720	1:1	0.280	0.180	-0.13	24.48	25.00	1.127	0.203	22.2	4.0
Left side	20M_QPSK 1RB_0	132072/1720	1:1	0.067	0.040	0.12	24.48	25.00	1.127	0.045	22.2	4.0
Right side	20M_QPSK 1RB_0	132072/1720	1:1	1.32	0.627	0.01	24.48	25.00	1.127	**0.707**	22.2	4.0
Top side	20M_QPSK 1RB_0	132072/1720	1:1	0.018	0.010	-0.18	24.48	25.00	1.127	0.011	22.2	4.0
Bottom side	20M_QPSK 1RB_0	132072/1720	1:1	0.537	0.320	-0.02	24.48	25.00	1.127	0.361	22.2	4.0
Front side	20M_QPSK 50RB_50	132322/1745	1:1	1.14	0.477	0.12	24.89	25.00	1.026	0.489	22.2	4.0
Back side	20M_QPSK 50RB_50	132322/1745	1:1	0.302	0.194	-0.19	24.89	25.00	1.026	0.199	22.2	4.0
Left side	20M_QPSK 50RB_50	132322/1745	1:1	0.072	0.043	-0.03	24.89	25.00	1.026	0.044	22.2	4.0
Right side	20M_QPSK 50RB_50	132322/1745	1:1	1.43	0.677	0.08	24.89	25.00	1.026	0.694	22.2	4.0
Top side	20M_QPSK 50RB_50	132322/1745	1:1	0.019	0.011	-0.17	24.89	25.00	1.026	0.011	22.2	4.0
Bottom side	20M_QPSK 50RB_50	132322/1745	1:1	0.580	0.346	-0.18	24.89	25.00	1.026	0.355	22.2	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)												
Right side	20M_QPSK 1RB_0	132072/1720	1:1	1.28	0.615	-0.16	24.48	25.00	1.127	0.693	22.2	4.0

8.2.8 SAR Result Of 2.4GHz Wi-Fi

Test position	Test mode	Test Ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR (W/kg) 10-g	Liquid Temp.	SAR limit (W/kg) 10-g
Extremity Test data (Separate 0mm)													
Front side	802.11b	6/2437	99.94%	1.001	0.034	0.019	-0.01	10.55	11.00	1.109	0.021	22.0	4.0
Back side	802.11b	6/2437	99.94%	1.001	0.012	0.005	0.09	10.55	11.00	1.109	0.006	22.0	4.0
Left side	802.11b	6/2437	99.94%	1.001	0.005	0.002	0.09	10.55	11.00	1.109	0.002	22.0	4.0
Right side	802.11b	6/2437	99.94%	1.001	0.113	0.054	0.07	10.55	11.00	1.109	**0.060**	22.0	4.0
Top side	802.11b	6/2437	99.94%	1.001	0.016	0.007	-0.08	10.55	11.00	1.109	0.008	22.0	4.0
Bottom side	802.11b	6/2437	99.94%	1.001	0.004	0.002	0.03	10.55	11.00	1.109	0.002	22.0	4.0
Extremity Test data at the worst case with Battery2(Separate 0mm)													
Right side	802.11b	6/2437	99.94%	1.001	0.105	0.051	0.04	10.55	11.00	1.109	0.057	22.0	4.0

8.3 Multiple Transmitter Evaluation

Simultaneous Transmission

NO.	Simultaneous Transmission Configuration	Extremity
1	WWAN + WIFI 2.4GHz	Yes

Simultaneous Transmission SAR Summation Scenario for Extremity

0	Exposure position	①MAX. WWAN SAR (W/kg)	②MAX. WLAN2.4G SAR (W/kg)	Summed SAR ①+②	Volume scan
GSM850	Front	0.588	0.021	0.609	NO
	Back	0.694	0.006	0.700	NO
	Left	0.003	0.002	0.005	NO
	Right	2.231	0.060	2.291	NO
	Top	0.006	0.008	0.014	NO
	Bottom	0.001	0.002	0.003	NO
GSM1900	Front	0.308	0.021	0.329	NO
	Back	0.490	0.006	0.496	NO
	Left	0.146	0.002	0.148	NO
	Right	2.394	0.060	**2.454**	NO
	Top	0.105	0.008	0.113	NO
	Bottom	0.579	0.002	0.581	NO
LTE Band 2	Front	0.155	0.021	0.176	NO
	Back	0.173	0.006	0.179	NO
	Left	0.039	0.002	0.041	NO
	Right	0.855	0.060	0.915	NO
	Top	0.016	0.008	0.024	NO
	Bottom	0.178	0.002	0.180	NO
LTE Band 4	Front	0.263	0.021	0.284	NO
	Back	0.051	0.006	0.057	NO
	Left	0.026	0.002	0.028	NO
	Right	0.564	0.060	0.624	NO
	Top	0.009	0.008	0.017	NO
	Bottom	0.156	0.002	0.158	NO
LTE Band 5	Front	0.095	0.021	0.116	NO
	Back	0.120	0.006	0.126	NO
	Left	0.015	0.002	0.017	NO
	Right	0.304	0.060	0.364	NO
	Top	0.009	0.008	0.017	NO
	Bottom	0.062	0.002	0.064	NO
LTE Band 7	Front	0.061	0.021	0.082	NO
	Back	0.474	0.006	0.480	NO
	Left	0.013	0.002	0.015	NO
	Right	0.824	0.060	0.884	NO
	Top	0.021	0.008	0.029	NO
	Bottom	0.259	0.002	0.261	NO
LTE Band 66	Front	0.498	0.021	0.519	NO

	Back	0.203	0.006	0.209	NO
	Left	0.045	0.002	0.047	NO
	Right	0.707	0.060	0.767	NO
	Top	0.011	0.008	0.019	NO
	Bottom	0.361	0.002	0.363	NO

9 Equipment list

Test Platform		SPEAG DASY8 Professional				
Description		SAR Test System (Frequency range 600MHz-6GHz)				
Software Reference		DASY8; SEMCAD				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	DAE	SPEAG	DAE4ip	1826	2023/12/27	2024/12/26
☒	E-field PROBE	SPEAG	EX3DV4	7833	2023/08/24	2024/08/23
☒	Dipole	SPEAG	D835V2	4d114	2022/03/31	2025/03/30
☒	Dipole	SPEAG	D1800V2	2d170	2022/03/31	2025/03/30
☒	Dipole	SPEAG	D1900V2	5d136	2022/06/07	2025/06/06
☒	Dipole	SPEAG	D2450V2	817	2022/04/01	2025/03/31
☒	Dipole	SPEAG	D2600V2	1158	2022/03/31	2025/03/30
☒	Signal Generator	R&S	SMBV100B	103571	2024/03/16	2025/03/15
☒	S-Parameter Network Analyzer	Agilent	E5071C	MY46417539	2024/03/19	2025/03/18
☒	Communication System	Anritsu	CMW500	159275	2023/08/22	2024/08/23
☒	Power meter	Anritsu	ML2495A	1445010	2024/03/19	2025/03/18
☒	Power sensor	Anritsu	MA2411B	1339220	2024/03/19	2025/03/18
☒	Signal Analyzer	KEYSIGHT	N9030B	MY61330164	2024/01/15	2025/01/13
☒	Electro Thermometer	DF	TH608	N/A	2024/02/26	2025/02/25
☒	SAM PHANTOM (ELI4 v4.0)	SPEAG	QDOVA004AA	2217	N/A	N/A
☒	Twin SAM Phantom	SPEAG	QD000P41AA	2155	N/A	N/A
☒	DAK-3.5 probe	SPEAG	DAK-3.5	1333	N/A	N/A

Note: All the equipments are within the valid period when the tests are performed.

10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

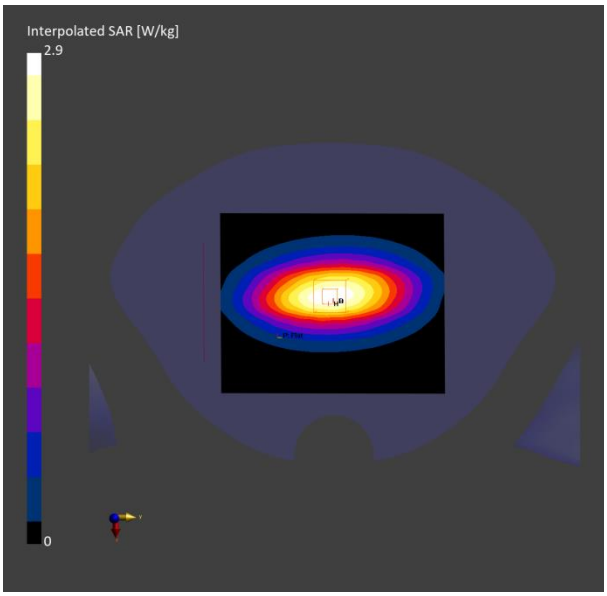
Appendix A: Detailed System Check Results

The plots are showing as followings.

Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
D835, CW
Measurement Report for Dipole 835 MHz; Type: 4d114
Communication System: D835; Frequency: 835.000
Medium: HSL. Medium parameters used: f= 835.000 MHz; σ= 0.895 S/m; ε_r = 41.8

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.57, 8.62, 8.04); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

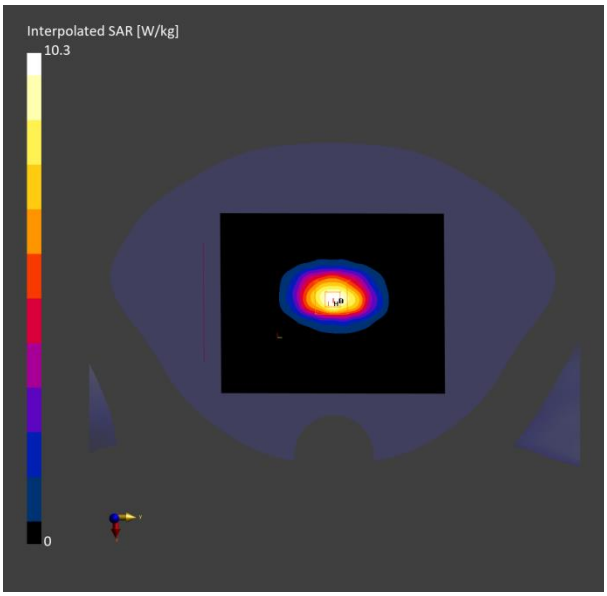
Area Scan (120.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 2.37 W/kg; SAR (10g) = 1.50 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = -0.02 dB
SAR (1g) = 2.32 W/kg; SAR (10g) = 1.43 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
D1800, CW
Measurement Report for Device
Communication System: D1800; Frequency: 1800.000
Medium: HSL. Medium parameters used: f= 1800.000 MHz; σ= 1.35 S/m; ε_r = 41.7

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.08, 8.09, 7.65); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

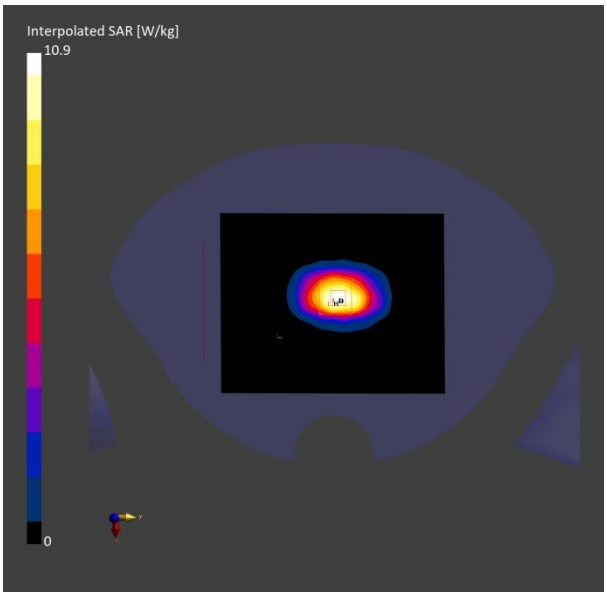
Area Scan (120.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 8.46 W/kg; SAR (10g) = 4.69 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.01 dB
SAR (1g) = 9.33 W/kg; SAR (10g) = 4.94 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
D1900, CW
Measurement Report for Device
Communication System: D1900; Frequency: 1900.000
Medium: HSL. Medium parameters used: f= 1900.000 MHz; σ= 1.40 S/m; ε_r = 41.4

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(6.39, 7.28, 6.93); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

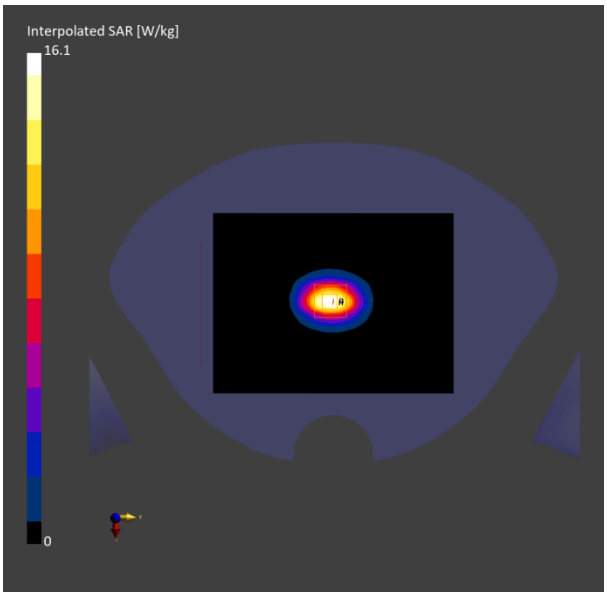
Area Scan (120.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 9.12 W/kg; SAR (10g) = 5.02 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = -0.01dB
SAR (1g) = 10.2 W/kg; SAR (10g) = 5.34 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
D2450, CW
Measurement Report for Device
Communication System: D2450; Frequency: 2450.000
Medium: HSL. Medium parameters used: f= 2450.000 MHz; σ= 1.84 S/m; ε_r = 40.4

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(5.96, 6.77, 6.44); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: MSTV1 Electronics; Calibrated: 1899-12-30
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

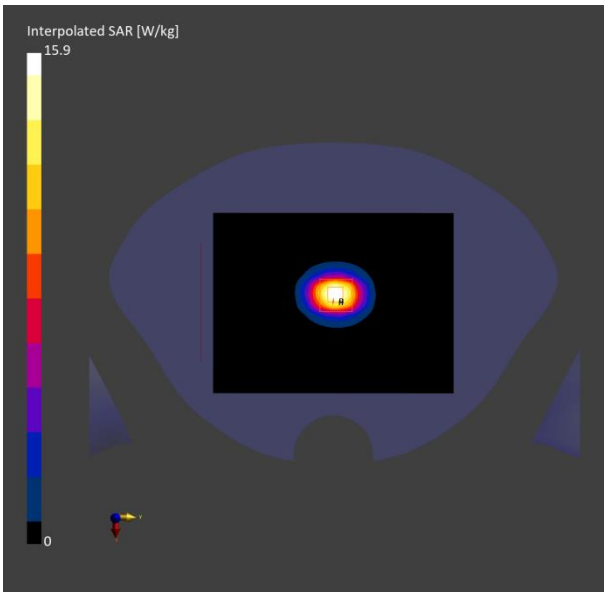
Area Scan (120.0 mm x 160.0 mm): Measurement Grid: 10.0 mm x 10.0 mm
SAR (1g) = 12.4 W/kg; SAR (10g) = 5.83 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 5.0 mm x 5.0 mm x 1.5 mm
Power Drift = -0.12 dB
SAR (1g) = 12.5 W/kg; SAR (10g) = 5.84 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
D2600, CW
Measurement Report for Device
Communication System: D2600; Frequency: 2600.000
Medium: HSL. Medium parameters used: f= 2600.000 MHz; σ= 2.02 S/m; ε_r = 39.9

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(6.11, 6.91, 6.58); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

Area Scan (120.0 mm x 160.0 mm): Measurement Grid: 10.0 mm x 10.0 mm
SAR (1g) = 12.5 W/kg; SAR (10g) = 5.88 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 5.0 mm x 5.0 mm x 1.5 mm
Power Drift = -0.01 dB
SAR (1g) = 12.9 W/kg; SAR (10g) = 5.85 W/kg;



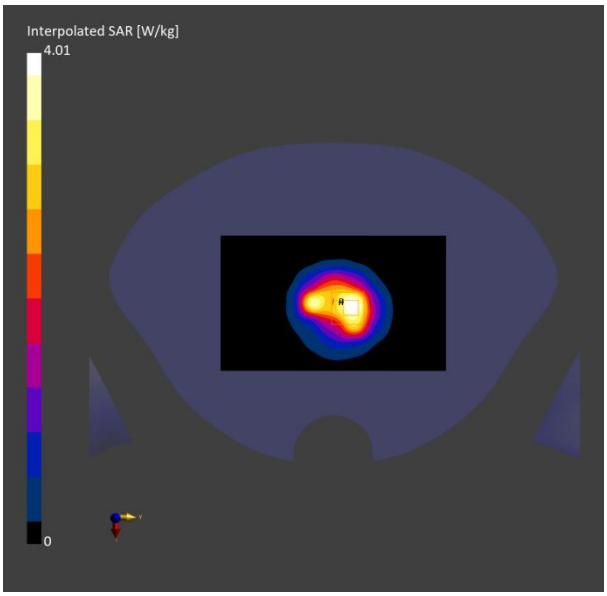
Appendix B: Detailed Test Results

The plots of worse case are showing as followings.

Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
GSM 850, GPRS-FDD (TDMA, GMSK, TN 0), Channel 251
Measurement Report for Q161
Communication System: GSM 850; Frequency: 848.800, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 848.800 MHz; σ= 0.905 S/m; ε_r = 41.6

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.57, 8.62, 8.04); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

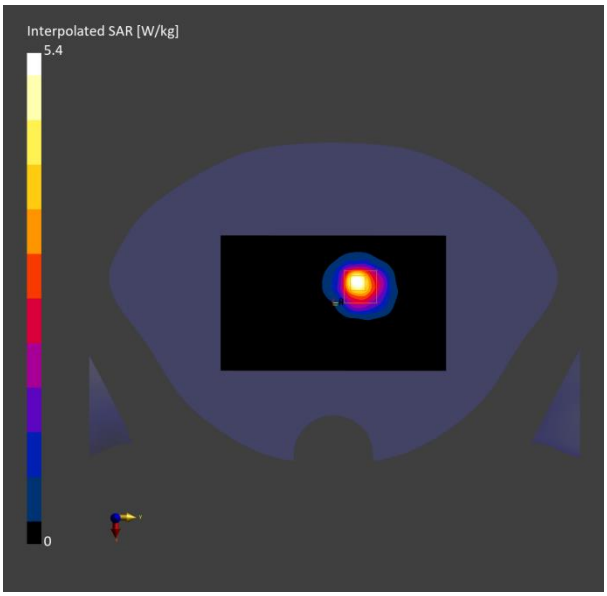
Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 3.34 W/kg; SAR (10g) = 2.05 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.06 dB
SAR (1g) = 3.29 W/kg; SAR (10g) = 1.78 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
PCS 1900, GPRS-FDD (TDMA, GMSK, TN 0), Channel 810
Measurement Report for Q161
Communication System: PCS 1900; Frequency: 1909.800, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 1909.800 MHz; σ= 1.41 S/m; ε_r = 41.3

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(6.39, 7.28, 6.93); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

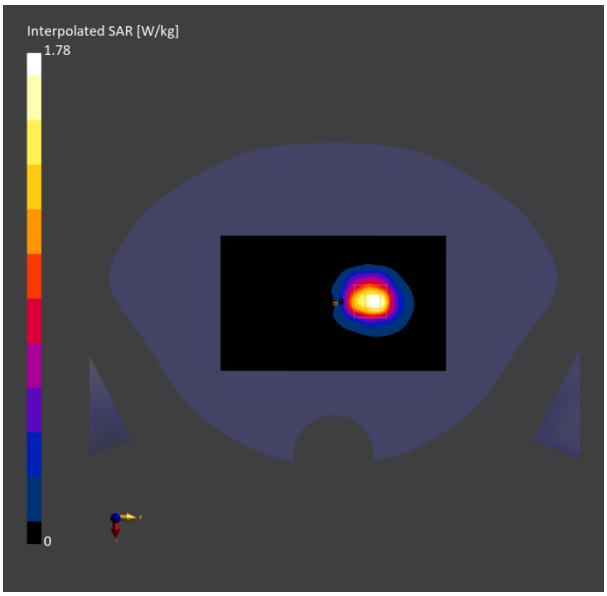
Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 4.04 W/kg; SAR (10g) = 1.90 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = -0.02 dB
SAR (1g) = 4.55 W/kg; SAR (10g) = 1.88 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
Band 2, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO, Channel 18900 Measurement Report for Q161
Communication System: Band 2; Frequency: 1880.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 1880.000 MHz; σ= 1.38 S/m; ε_r = 41.4

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(6.39, 7.28, 6.93); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 1.41 W/kg; SAR (10g) = 0.708 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.01 dB
SAR (1g) = 1.65 W/kg; SAR (10g) = 0.743 W/kg;

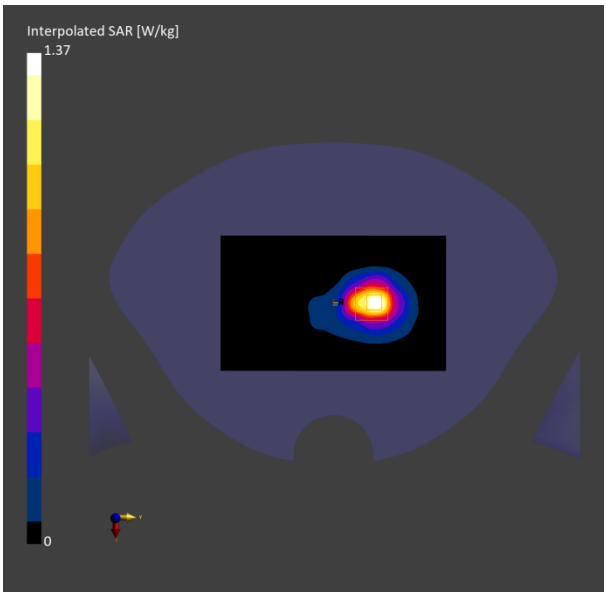


Date: 2024/04/25

Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
Band 4, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO, Channel 20300
Measurement Report for Q161
Communication System: Band 4; Frequency: 1745.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 1745.000 MHz; σ= 1.29 S/m; ε_r = 41.9

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.08, 8.09, 7.65); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

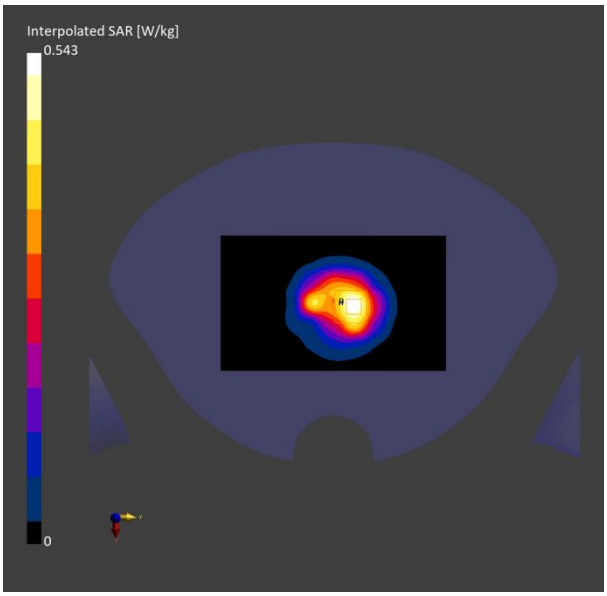
Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 1.08 W/kg; SAR (10g) = 0.556 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.09 dB
SAR (1g) = 1.19 W/kg; SAR (10g) = 0.561 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
Band 5, LTE-FDD (SC-FDMA, 1 RB, 10 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO, Channel 20450 Measurement Report for Q161
Communication System: Band 5; Frequency: 829.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 829.000 MHz; σ= 0.895 S/m; ε_r = 42.0

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.57, 8.62, 8.04); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 0.453 W/kg; SAR (10g) = 0.279 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.02 dB
SAR (1g) = 0.474 W/kg; SAR (10g) = 0.266 W/kg;

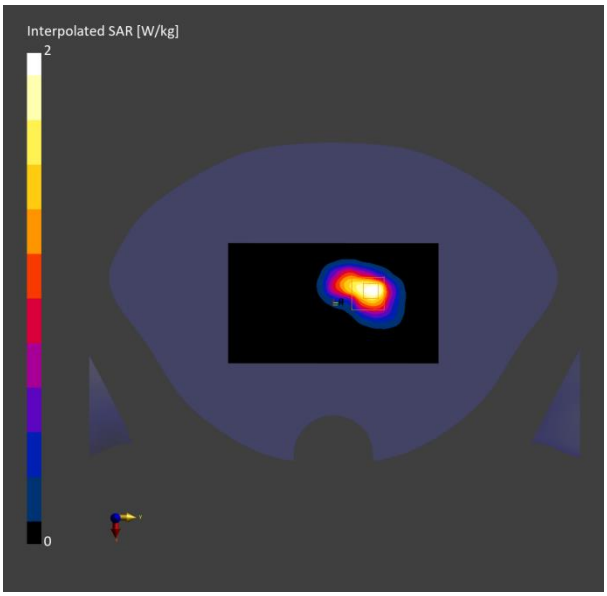


Date: 2024/04/28

Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
Band 7, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO, Channel 21100 Measurement Report for Q161
Communication System: Band 7; Frequency: 2535.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 2535.000 MHz; σ= 1.94 S/m; ε_r = 40.1

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(6.11, 6.91, 6.58); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

Area Scan (80.0 mm x 140.0 mm): Measurement Grid: 10.0 mm x 10.0 mm
SAR (1g) = 1.53 W/kg; SAR (10g) = 0.707 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 5.0 mm x 5.0 mm x 1.5 mm
Power Drift = 0.09 dB
SAR (1g) = 1.77 W/kg; SAR (10g) = 0.809 W/kg;

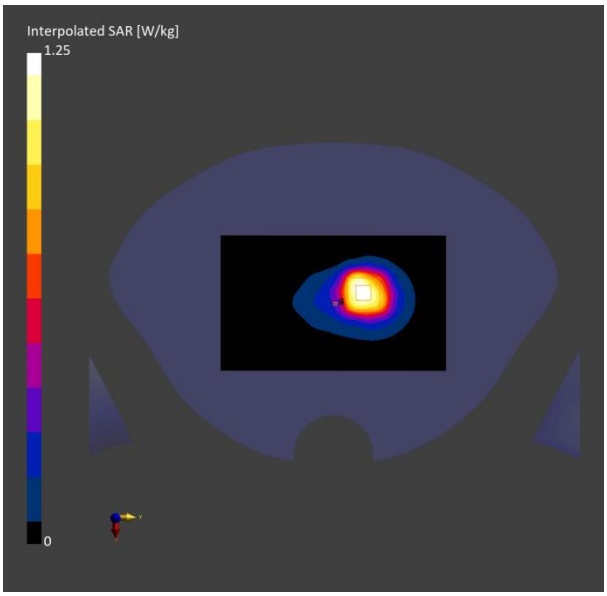


Date: 2024/04/25

Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
Band 66, LTE-FDD (SC-FDMA, 1 RB, 20 MHz, QPSK) RBPosition:Mid AntennaCfg:SISO, Channel 132072 Measurement Report for Q161
Communication System: Band 66; Frequency: 1720.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 1720.000 MHz; σ= 1.27 S/m; ε_r = 42.0

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(7.08, 8.09, 7.65); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

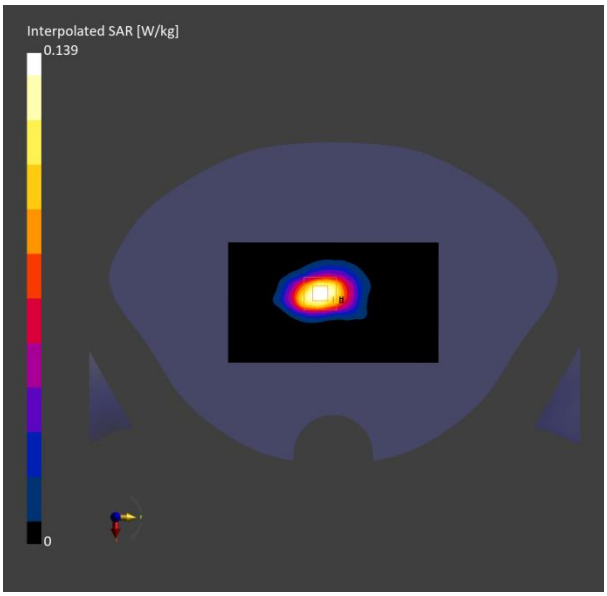
Area Scan (90.0 mm x 150.0 mm): Measurement Grid: 15.0 mm x 15.0 mm
SAR (1g) = 1.07 W/kg; SAR (10g) = 0.594 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 6.0 mm x 6.0 mm x 1.5 mm
Power Drift = 0.01 dB
SAR (1g) = 1.32 W/kg; SAR (10g) = 0.627 W/kg;



Test Laboratory: Compliance Certification Services (Kunshan) Inc. SAR Lab 1
WLAN 2.4GHz, IEEE 802.11b WiFi 2.4 GHz (DSSS, 1 Mbps), Channel 6
Measurement Report for Q161
Communication System: WLAN 2.4GHz; Frequency: 2437.000, EDGE RIGHT
Medium: HSL. Medium parameters used: f= 2437.000 MHz; σ= 1.82 S/m; ε_r = 40.5

DASY8 Configuration:
- Probe: EX3DV4 - SN7833; ConvF(5.96, 6.77, 6.44); Calibrated: 2023-08-24
- Sensor-Surface: 1.4 mm
- Electronics: DAE4ip Sn1826; Calibrated: 2023-12-27
- Phantom: Twin-SAM V8.0 (30deg probe tilt); Serial: 2155
- Measurement Software: cDASY8 V16.2.4.2524

Area Scan (80.0 mm x 140.0 mm): Measurement Grid: 10.0 mm x 10.0 mm
SAR (1g) = 0.111 W/kg; SAR (10g) = 0.055 W/kg;
Zoom Scan (30.0 mm x 30.0 mm x 30.0 mm): Measurement Grid: 5.0 mm x 5.0 mm x 1.5 mm
Power Drift = 0.07 dB
SAR (1g) = 0.113 W/kg; SAR (10g) = 0.054 W/kg;



Appendix C: Calibration certificate

Appendix D: Photographs

- End of the Report -