TESTING
NVLAP LAB CODE 600354-0

FCC SAR Test Report

FCC ID: 2AVE6TG5B

Project No.	:	2502C204
Equipment	:	Tractive CAT Mini
Brand Name	:	Tractive
Test Model	:	TG5
Series Model	:	N/A
Date of Receipt	:	Feb. 20, 2025
Date of Test	:	Feb. 25, 2025 ~ May 07, 2025
Issued Date	:	May 15, 2025
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2025022073.
Standard(s)	:	Please refer to page 2.
Applicant	:	Tractive GmbH
Address	:	Poststrasse 4, 4061 Pasching, Austria
Manufacturer	:	Tractive GmbH
Address	:	Poststrasse 4, 4061 Pasching, Austria
Factory	:	Tractive GmbH
Address	:	Poststrasse 4, 4061 Pasching, Austria

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

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Standard(s)	:	**IEEE Std C95.1:2019** IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 kHz to 300 GHz **IEEE Std 1528™-2013** IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques **IEC/IEEE 62209-1528:2020** Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz) **KDB865664 D01** SAR measurement 100 MHz to 6 GHz v01r04 **KDB447498 D04** Interim General RF Exposure Guidance v01
Test method	:	**KDB865664 D02** SAR Reporting v01r02 **KDB941225 D05** SAR for LTE Devices v02r05 **KDB648474 D04** Handset SAR v01r03 **KDB690783 D01** SAR Listings on Grants v01r03

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. BTL assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by BTL.

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This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCC SAR-1-2502C204	R00	Original Report.	May 15, 2025	Valid

1. GENERAL INFORMATION

1.1 STATEMENT OF COMPLIANCE

Mode	Highest Reported Body-worn SAR-1g (W/kg)
GSM850	0.283
GSM1900	1.459
LTE B2	1.080
LTE B4	0.510
LTE B5	0.081
LTE B12	0.145
LTE B13	0.138

Note:
1) The device is in compliance with Specific Absorption Rate (SAR) for general population uncontrolled exposure limits according to the FCC rule §2.1093, the ANSI/IEEE C95.1, the NCRP Report Number 86 for uncontrolled environment and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528.

1.2 LABORATORY ENVIRONMENT

Temperature	Min. = 20ºC, Max. = 24ºC
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5Ω
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.	

1.3 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td colspan="5">Tractive CAT Mini</td></tr>
<tr><td>Brand Name</td><td colspan="5">Tractive</td></tr>
<tr><td>Test Model</td><td colspan="5">TG5</td></tr>
<tr><td>Series Model</td><td colspan="5">N/A</td></tr>
<tr><td>Model Difference(s)</td><td colspan="5">N/A</td></tr>
<tr><td>Modulation</td><td colspan="5">GSM(GMSK/8PSK), LTE CAT-M1(QPSK/16QAM)</td></tr>
<tr><td rowspan="8">Operation Frequency Range(s)</td><td>Band</td><td colspan="2">TX (MHz)</td><td colspan="2">RX (MHz)</td></tr>
<tr><td>GSM850</td><td colspan="2">824~849</td><td colspan="2">869~894</td></tr>
<tr><td>GSM1900</td><td colspan="2">1850~1910</td><td colspan="2">1930~1990</td></tr>
<tr><td>LTE B2</td><td colspan="2">1850~1910</td><td colspan="2">1930~1990</td></tr>
<tr><td>LTE B4</td><td colspan="2">1710~1755</td><td colspan="2">2110~2155</td></tr>
<tr><td>LTE B5</td><td colspan="2">824~849</td><td colspan="2">869~894</td></tr>
<tr><td>LTE B12</td><td colspan="2">699~716</td><td colspan="2">729~746</td></tr>
<tr><td>LTE B13</td><td colspan="2">777~787</td><td colspan="2">746~756</td></tr>
<tr><td rowspan="3">GPRS/EDGE Multislot Class(12)</td><td colspan="3">Max Number of Timeslots in Uplink:</td><td colspan="2">4</td></tr>
<tr><td colspan="3">Max Number of Timeslots in Downlink:</td><td colspan="2">4</td></tr>
<tr><td colspan="3">Max Total Timeslot:</td><td colspan="2">5</td></tr>
<tr><td rowspan="3">Power Class</td><td colspan="5">4,tested with power level 5(GSM850)</td></tr>
<tr><td colspan="5">1,tested with power level 0(GSM1900)</td></tr>
<tr><td colspan="5">3, tested with power control “all Max” (LTE B2/4/5/12/13)</td></tr>
<tr><td rowspan="7">Test Channels (low-mid-high)</td><td colspan="5">128-190-251 (GSM850)</td></tr>
<tr><td colspan="5">512-661-810 (GSM1900)</td></tr>
<tr><td colspan="5">18700-18900-19100 (LTE B2 BW=20MHz)</td></tr>
<tr><td colspan="5">20050-20175-20300 (LTE B4 BW=20MHz)</td></tr>
<tr><td colspan="5">20450-20525-20600 (LTE B5 BW=10MHz)</td></tr>
<tr><td colspan="5">23060-23095-23130 (LTE B12 BW=10MHz)</td></tr>
<tr><td colspan="5">23230 (LTE B13 BW=10MHz)</td></tr>
<tr><td rowspan="8">Antenna Information</td><td>Brand Name</td><td>P/N</td><td>Antenna Type</td><td>Gain (dBi)</td><td>Band</td></tr>
<tr><td rowspan="7">KYOCERA AVX</td><td rowspan="7">9001939</td><td rowspan="7">FPC</td><td>-3.3</td><td>GSM850</td></tr>
<tr><td>0.9</td><td>GSM1900</td></tr>
<tr><td>0.9</td><td>LTE B2</td></tr>
<tr><td>0.9</td><td>LTE B4</td></tr>
<tr><td>-3.3</td><td>LTE B5</td></tr>
<tr><td>-3.3</td><td>LTE B12</td></tr>
<tr><td>-3.3</td><td>LTE B13</td></tr>
<tr><td colspan="6">Other Information</td></tr>
<tr><td rowspan="2">Battery</td><td>Model Name</td><td colspan="4">402339</td></tr>
<tr><td>Power Rating</td><td colspan="4">DC 3.8V, 450mAh/1.7Wh</td></tr>
</table>

Note: The antenna gain is provided by the manufacturer.

1.4 MAIN TEST INSTRUMENTS

Item	Equipment	Manufacturer	Model	Serial No.	Cal. Date	Cal. Interval
1	Data Acquisition Electronics	Speag	DAE4	1390	Nov. 14, 2024	1 Year
2	E-field Probe	Speag	EX3DV4	3809	Jan. 24, 2025	1 Year
3	E-field Probe	Speag	EX3DV4	7693	Nov. 20, 2024	1 Year
4	System Validation Dipole	Speag	D750V3	1095	Sep. 16, 2024	3 Years
5	System Validation Dipole	Speag	D835V2	4d160	Apr. 25, 2024	3 Years
6	System Validation Dipole	Speag	D1750V2	1101	Apr. 25, 2024	3 Years
7	System Validation Dipole	Speag	D1900V2	5d179	Apr. 25, 2024	3 Years
8	Twin Sam Phantom	Speag	Twin Sam Phantom V5.0	1469	N/A	N/A
9	Radio Communication Analver	Anritsu	MT8821C	6261915479	Jun. 29, 2024	1 Year
10	Wideband Radio Communication Tester	R&S	CMW500	165848	Jan. 11, 2025	1 Year
11	Power Amplifier	Mini-Circuits	ZHL-42W+	QA1333003	Jun. 29, 2024	1 Year
12	DC Source metter	Iteck	IT6154	0061041267682 01001	Jun. 29, 2024	1 Year
13	Vector Network Analyzer	Agilent	E5071C	MY46102965	Jan. 11, 2025	1 Year
14	Signal Generator	Agilent	N5172B	MY53050758	Jan. 11, 2025	1 Year
15	Smart Power Sensor	R&S	NRP18S	101333	Jun. 01, 2024	1 Year
16	Smart Power Sensor	R&S	NRP-Z21	102209	Jan. 12, 2025	1 Year
17	3.5mm Economy Calibration Kit	Agilent	85052D	MY43252246	Nov. 04, 2024	1 Year
18	Dielectric Assessment Kit	Speag	DAK-3.5	1226	Jan. 20, 2025	3 Years
19	Directional Coupler	Talent Microwave	TC-05180-20S	210628013	Jan. 11, 2025	1 Year
20	Liquid Thermometer	Nscing Es	YZ6021S	/	Nov. 24, 2024	1 Year

Remark:
1. “N/A” denotes no model name, serial No. or calibration specified.
2.
1) Per KDB865664 D01 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. 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) The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement;
d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.
2) Network analyzer probe calibration against air, distilled water and a short block performed before measuring liquid parameters.

2. RF EMISSIONS MEASUREMENT

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is SAR room at the location of Room 108, Building 2, No. 1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong 523000.
BTL's Registration Number for FCC: 568794.
BTL's Designation Number for FCC: CN5041.

2.2 MEASUREMENT UNCERTAINTY

Uncertainty Budget for Frequency range of 300 MHz to 3 GHz

Symbol	Input quantity *Xi* (source of uncertainty)	Unc. Value	Prob. Dist.	Div.	ci (1g)	ci (10g)	Std.Unc. (1g) (±%)	Std.Unc. (10g) (±%)
Measurement system errors								
CF	Probe calibration(±%)	11.0	N	2	1	1	5.5	5.5
CF_{drift}	Probe calibration drift(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0
LIN	Probe linearity and detection limit(±%)	4.7	R	$\sqrt{3}$	1	1	2.7	2.7
BBS	Broadband signal(±%)	3.0	R	$\sqrt{3}$	1	1	1.7	1.7
ISO	Probe isotropy(±%)	7.6	R	$\sqrt{3}$	1	1	4.4	4.4
DAE	Other probe and data acquisition errors(±%)	0.7	N	1	1	1	0.7	0.7
AMB	RF ambient and noise(±%)	1.8	N	1	1	1	1.8	1.8
Δ_{xyz}	Probe positioning errors(±mm)	0.006	N	1	0.14	0.14	0.08	0.08
DAT	Data processing errors(±%)	1.2	N	1	1	1	1.2	1.2
Phantom and device (DUT or validation antenna) errors								
$LIQ(\sigma)$	Conductivity (meas.)(±%)	0.8	N	1	0.78	0.71	0.7	0.6
$LIQ(T_c)$	Conductivity (temp.)(±%)	4.16	R	$\sqrt{3}$	0.78	0.71	1.9	1.7
EPS	Phantom Permittivity(±%)	14	R	$\sqrt{3}$	0	0	0.0	0.0
DIS	Distance DUT - TSL(±%)	2	N	1	2	2	4.0	4.0
D_{xyz}	Device Positioning(±%)	1.5	N	1	1	1	1.5	1.5
H	Device Holder(±%)	2	N	1	1	1	2.0	2.0
MOD	DUT Modulationm(±%)	2.4	R	$\sqrt{3}$	1	1	1.4	1.4
TAS	Time-average SAR(±%)	1.7	R	$\sqrt{3}$	1	1	1.0	1.0
RF_{drift}	DUT drift(±%)	2	N	1	1	1	2.0	2.0
VAL	Val Antenna Unc.(±%)	0	N	1	1	1	0.0	0.0
P_{in}	Unc. Input Power(±%)	0	N	1	1	1	0.0	0.0
Corrections to the SAR result								
$C(\varepsilon',\sigma)$	Deviation to Target(±%)	1.9	N	1	1	0.84	1.9	1.6
$C(R)$	SAR scaling(±%)	0	R	$\sqrt{3}$	1	1	0.0	0.0
$u(\Delta SAR)$	Combined uncertainty						10.1	10.0
	Coverage Factor for 95%						k=2	k=2
U	Expanded uncertainty					*U* =	20.3	20.1
a Other probability distributions and divisors may be used if they better represent available knowledge of the quantities concerned.								

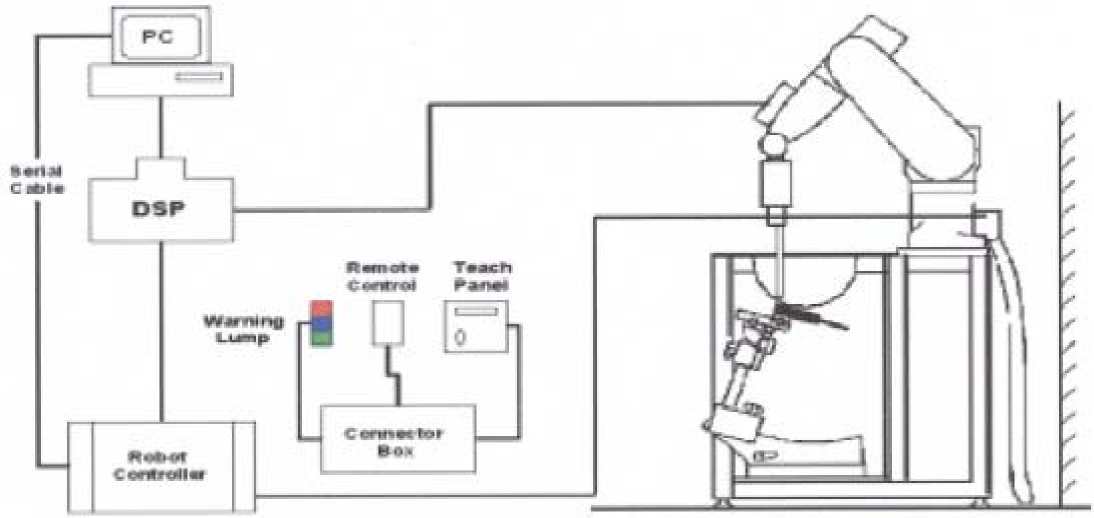
3. SAR MEASUREMENTS SYSTEM CONFIGURATION

3.1 SAR MEASUREMENT SET-UP

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

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. 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.
3. A data acquisition electronic (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. A unit to operate the optical surface detector which is connected to the EOC.
5. The Electro-Optical Coupler (EOC) performs the conversion from the optical into a digital electric signal of the DAE. The EOC is connected to the DASY5 measurement server.
6. TheDASY5 measurement server, which performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. A computer operating Windows 7
7. DASY5 software and SEMCAD data evaluation software.
8. Remote control with teach panel and additional circuitry for robot safety such as warning lamps, etc.
9. The generic twin phantom enabling the testing of left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. System validation dipoles allowing to validate the proper functioning of the system.

3.1.1 TEST SETUP LAYOUT



3.2 DASY5 E-FIELD PROBE SYSTEM

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation.

3.2.1 PROBE SPECIFICATION

EX3DV4

Construction	Symmetrical design with triangular core Interleaved sensors 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 HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 μW/g to > 100 mW/g Linearity:± 0.2dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Distance from probe tip to dipole centers: 1.0 mm


E-field Probe

3.2.2 E-FIELD PROBE CALIBRATION

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$\mathbf{SAR} = \mathbf{C}\frac{\Delta T}{\Delta t}$$

Where: Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (brain or muscle),

ΔT = Temperature increase due to RF exposure.

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

Where: σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m3).

3.2.3 OTHER TEST EQUIPMENT

3.2.3.1. Device Holder for Transmitters

Construction: Simple but effective and easy-to-use extension for Mounting Device that facilitates the testing of larger devices (e.g., laptops, cameras, etc.) It is light weight and fits easily on the upper part of the Mounting Device in place of the phone positioner. The extension is fully compatible with the Twin SAM, ELI and SAM v6.0 Phantoms.
Material: POM, Acrylic glass, Foam

3.2.3.2 Phantom

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

3.2.4 SCANNING PROCEDURE

The DASY5 installation includes predefined files with recommended procedures for measurements and validation. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

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. The indicated drift is mainly the variation of the DUT’s output power and should vary max. ± 5 %.

The “surface check” measurement tests the optical surface detection system of the DASY5 system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ± 0.1mm). To prevent wrong results tests are only executed when the liquid is free of air bubbles. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ± 30°.)

- Area Scan

The “area scan” measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The standard scan uses large grid spacing for faster measurement. Standard grid spacing for head measurements is 15 mm in x- and y- dimension (≤2GHz), 12 mm in x- and y- dimension (2-4 GHz) and 10mm in x- and y- dimension (4-6GHz). If a finer resolution is needed, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation.

- Zoom Scan

A “zoom scan” measures the field in a volume around the 2D peak SAR value acquired in the previous “coarse” scan. This is a fine grid with maximum scan spatial resolution: Δx_{zoom}, Δy_{zoom}≤2GHz -≤8mm, 2-4GHz -≤5 mm and 4-6 GHz-≤4mm; Δz_{zoom}≤3GHz -≤5 mm, 3-4 GHz-≤4mm and 4-6GHz-≤2mm where the robot additionally moves the probe along the z-axis away from the bottom of the Phantom. DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in Appendix B. Test results relevant for the specified standard (see chapter 1.4.) are shown in table form in chapter 7.2.

A Z-axis scan measures the total SAR value at the x-and y-position of the maximum SAR value found during the cube scan. The probe is moved away in z-direction from the bottom of the SAM phantom in 2 mm steps. This measurement shows the continuity of the liquid and can - depending in the field strength – also show the liquid depth.

The following table summarizes the area scan and zoom scan resolutions per FCC KDB 865664D01:

Frequency	Maximun Area Scan resolution (Δx_{area}, Δy_{area})	Maximun Zoom Scan spatial resolution (Δx_{Zoom}, Δy_{Zoom})	Maximun Zoom Scan spatial resolution			Minimum zoom scan volume (x,y,z)
			Uniform Grid	Graded Grad		
			$\Delta z_{Zoom}(n)$	$\Delta z_{Zoom}(1)$*	$\Delta z_{Zoom}(n>1)$*	
≤2GHz	≤15mm	≤8mm	≤5mm	≤4mm	≤1.5*Δz_{Zoom}(n-1)	≥30mm
2-3GHz	≤12mm	≤5mm	≤5mm	≤4mm	≤1.5*Δz_{Zoom}(n-1)	≥30mm
3-4GHz	≤12mm	≤5mm	≤4mm	≤3mm	≤1.5*Δz_{Zoom}(n-1)	≥28mm
4-5GHz	≤10mm	≤4mm	≤3mm	≤2.5mm	≤1.5*Δz_{Zoom}(n-1)	≥25mm
5-6GHz	≤10mm	≤4mm	≤2mm	≤2mm	≤1.5*Δz_{Zoom}(n-1)	≥22mm

3.2.5 SPATIAL PEAK SAR EVALUATION

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of 5 x 5 x 7 points (with 8mm horizontal resolution) or 7 x 7 x 7 points (with 5mm horizontal resolution) or 8 x 8 x 7 points (with 4mm horizontal resolution). The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting “Graph Evaluated”.
- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.
- All neighboring volumes are evaluated until no neighboring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computer mathematic, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computer mathematic, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY5 uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

3.2.6 DATA STORAGE AND EVALUATION

3.2.6.1 Data Storage

The DASY5 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 “DAE”. 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], [mW/g], [mW/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.

3.2.7 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	$Norm_i, a_{i0}, a_{i1}, a_{i2}$
	Conversion factor	$ConvF_i$
	Diode compression point	Dcp_i
Device parameters:	Frequency	f
	Crest factor	cf
Media parameters:	Conductivity	
	Density	

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 DASY5 components. In the direct measuring mode of the multi meter 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	V_i = compensated signal of channel i	(i = x, y, z)
	U_i = 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 V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = 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]

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

H_i = 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.

$$SAR = (E_{tot})^2 \cdot \boldsymbol{\sigma} / (\boldsymbol{\rho} \cdot 1000)$$

With SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

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

= equivalent tissue density in g/cm^3

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.

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

With P_{pwe} = equivalent power density of a plane wave in mW/cm^2

E_{tot} = total field strength in V/m

H_{tot} = total magnetic field strength in A/m

4. SYSTEM VERIFICATION PROCEDURE

4.1 TISSUE VERIFICATION

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectic parameter are within the tolerances of the specified target values. The measured conductivity and relative permittivity should be within ± 5% of the target values.

The following materials are used for producing the tissue-equivalent materials.

Tissue Type	Bactericide	DGBE	HEC	NaCl	Sucrose	Triton X-100	Water	Diethylene Glycol Mono-hexylether
Head 750	0.2	-	0.2	1.5	56.0	-	42.1	-
Head 835	0.2	-	0.2	1.5	57.0	-	41.1	-
Head 1750	-	47.0	-	0.4	-	-	52.6	-
Head 1900	-	44.5	-	0.2	-	-	55.3	-

Salt: 99+% Pure Sodium Chloride; Sugar: 98+% Pure Sucrose; Water: De-ionized, 16M + resistivity
HEC: Hydroxyethyl Cellulose; DGBE: 99+% Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy)ethanol]
Triton X-100(ultra pure): Polyethylene glycol mono [4-(1,1,3,3-tetramethylbutyl)phenyl]ether

Tissue Verification									
Tissue Type	Frequency (MHz)	Liquid Temp. (℃)	Conductivity (σ)	Permittivity (εr)	Targeted Conductivity (σ)	Targeted Permittivity (εr)	Deviation Conductivity (σ) (%)	Deviation Permittivity (εr) (%)	Date
Head	750	22.5	0.883	42.776	0.89	41.9	-0.79	2.09	May 05, 2025
Head	835	22.5	0.928	42.398	0.90	41.5	3.11	2.16	May 05, 2025
Head	1750	22.4	1.340	39.988	1.37	40.1	-2.19	-0.28	May 06, 2025
Head	1900	22.4	1.367	41.508	1.40	40.0	-2.36	3.77	May 06, 2025

Note:
1) The dielectric parameters of the tissue-equivalent liquid should be measured under similar ambient conditions and within 2 °C of the conditions expected during the SAR evaluation to satisfy protocol requirements.
2) KDB 865664 was ensured to be applied for probe calibration frequencies greater than or equal to 50MHz of the EUT frequencies.
3) The above measured tissue parameters were used in the DASY software to perform interpolation via the DASY software to determine actual dielectric parameters at the test frequencies. The SAR test plots may slightly differ from the table above since the DASY rounds to three significant digits.

4.2 SYSTEM CHECK

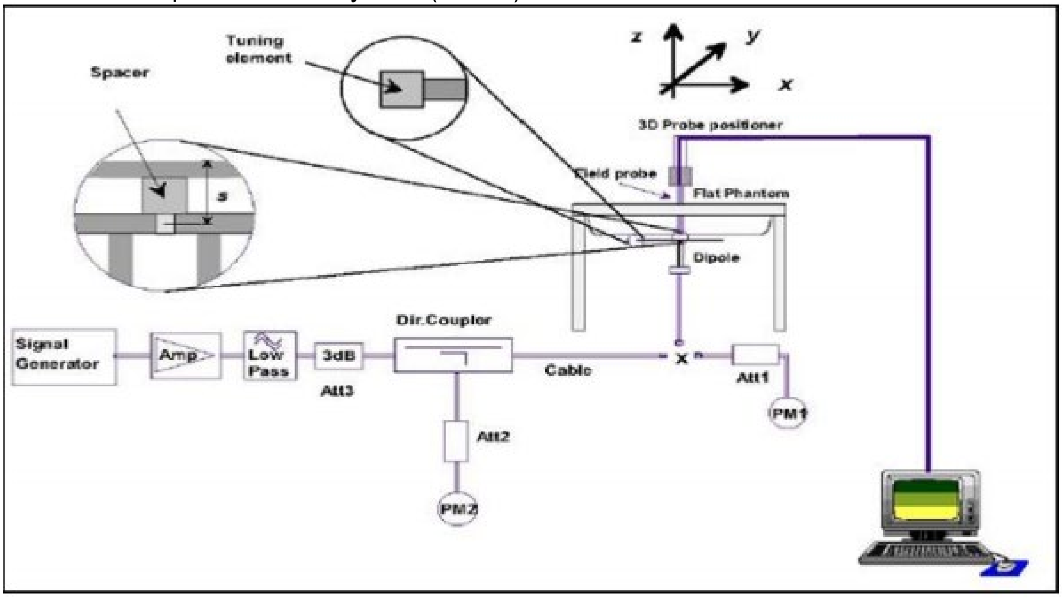
The system check is performed for verifying the accuracy of the complete measurement system and performance of the software. The system check is performed with tissue equivalent material according to IEEE 1528 (described above). The following table shows system check results for all frequency bands and tissue liquids used during the tests.

System Check	Date	Frequency (MHz)	Targeted SAR 1g (W/kg)	Measured SAR 1g (W/kg)	normalized SAR 1g (W/kg)	Deviation 1g (%)	Dipole S/N
Head	May 05, 2025	750	8.59	2.09	8.36	-2.68	1095
Head	May 05, 2025	835	9.52	2.33	9.32	-2.10	4d160
Head	May 06, 2025	1750	36.40	8.84	35.36	-2.86	1101
Head	May 06, 2025	1900	39.60	9.67	38.68	-2.32	5d179

4.3 SYSTEM CHECK PROCEDURE

The system check is performed by using a system check dipole which is positioned parallel to the planar part of the SAM phantom at the reference point. The distance of the dipole to the SAM phantom is determined by a plexiglass spacer. The dipole is connected to the signal source consisting of signal generator and amplifier via a directional coupler, N-connector cable and adaption to SMA. It is fed with a power of 250mW (below 3GHz) or 100mW (3-6GHz). To adjust this power a power meter is used.
The power sensor is connected to the cable before the system check to measure the power at this point and do adjustments at the signal generator. At the outputs of the directional coupler both return loss as well as forward power are controlled during the system check to make sure that emitted power at the dipole is kept constant. This can also be checked by the power drift measurement after the test.

System check results have to be equal or near the values determined during dipole calibration (target SAR in table above) with the relevant liquids and test system (±10 %).



5. SAR MEASUREMENT VARIABILITY AND UNCERTAINTY

5.1 SAR MEASUREMENT VARIABILITY

Per KDB865664 D01 SAR measurement 100 MHz to 6 GHz, 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.

The detailed repeated measurement results are shown in Section 7.2.

6. OPERATIONAL CONDITIONS DURING TEST

6.1 GENERAL DESCRIPTION OF TEST PROCEDURES

Connection to the EUT is established via air interface with R&S CMW500, and the EUT is set to maximum output power by R&S CMW500. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. The antenna connected to the output of the base station simulator shall be placed at least 50cm away from the EUT. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the EUT by at least 30dB.

6.2 SAR TEST CONFIGURATION

6.2.1 GSM TEST CONFIGURATION

SAR tests for GSM850 and GSM1900, a communication link is set up with a base station by air link.
Using 8960 Series the power lever is set to “5” and “0” in SAR of GSM850 and GSM1900. The tests in the band of GSM850 and GSM1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 12 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8PSK.

According to specification 3GPP TS 51.010, the maximum power of the GSM can do the power reduction for the multi-slot.

The allowed power reduction in the multi-slot configuration is as following:

Number of timeslots in uplink assignment		Reduction of maximum output power (dB)		
Band	Time Slots	GPRS (GMSK)	EGPRS (GMSK)	EGPRS (8PSK)
GSM850	1 TX slot	0.0	0.0	6.4
	2 TX slots	3.0	3.0	9.4
	3 TX slots	4.8	4.8	11.2
	4 TX slots	6.0	6.0	12.4
GSM1900	1 TX slot	0.0	0.0	4.3
	2 TX slots	3.0	3.0	7.3
	3 TX slots	4.8	4.8	9.1
	4 TX slots	6.0	6.0	10.3

6.2.2 LTE TEST CONFIGURATION

SAR for LTE band exposure configurations is measured according to the procedures of KDB 941225 D05 SAR for LTE Devices. The CMW500 Wide Band Radio Communication Tester was used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR test were performed with the same number of RB and RB offsets transmitting on all TTI frames (Maximum TTI).

1. Spectrum Plots for RB configurations

A properly configured base station simulator was used for LTE output power measurements and SAR testing. Therefore, spectrum plots for RB configurations were not required to be included in this report.

2. MPR

When MPR is implemented permanently within the UE, regardless of network requirements, only those RB configurations allowed by 3GPP for the channel bandwidth and modulation. Combinations may be tested with MPR active. Configurations with RB allocations less than the RB thresholds required by 3GPP must be tested without MPR.
The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101:

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

3. A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by using Network Signalling Value of "NS_01" on the base station simulator.

4. LTE procedures for SAR testing

A) Largest channel bandwidth standalone SAR test requirements

i) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

ii) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in i) are applied to measure the SAR for QPSK with 50% RB allocation.

iii) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in i) and ii) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

iv) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

B) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

6.3 TEST POSITION

6.3.1 TEST CONFIGURATION

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in Figure 4. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer.
If the intended use is not specified, all surfaces of the DUT shall be tested directly against the flat phantom.
The surface of the generic device (or the surface of the carry accessory holding the DUT) pointing towards the flat phantom shall be parallel to the surface of the phantom.

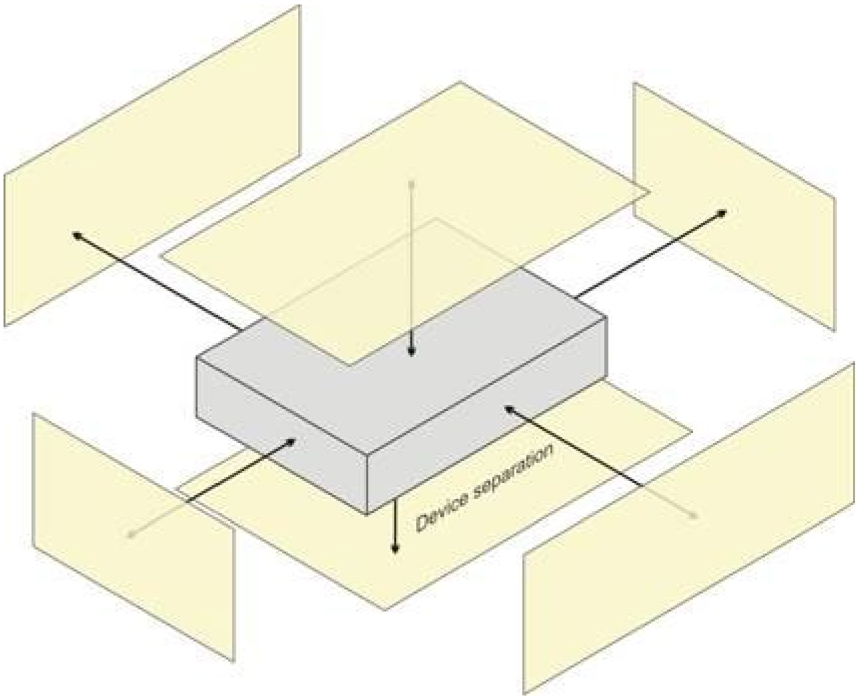


Figure 4: Test positions for a generic device

Note: The customer's product is equipped with matching shell fixture (but the customer did not provide it), so we assessment test at 5mm.

EUT with matching shell fixture


The location of the antenna inside EUT is as below:

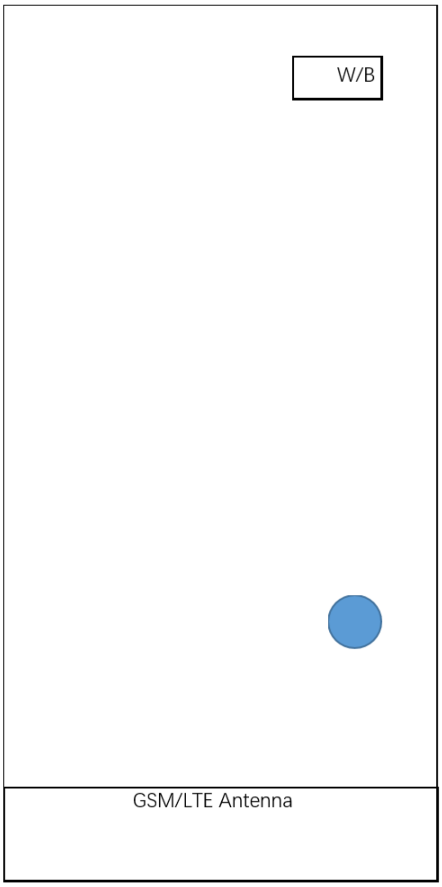


Figure: The location of the antennas

For each antenna, the EUT is tested SAR at the following test positions:

Antenna	Front Face	Rear Face	Left Side	Right Side	Top Side	Bottom Side
GSM/LTE Antenna	Yes	Yes	Yes	Yes	Yes	Yes

7. TEST RESULT

7.1 CONDUCTED POWER RESULTS

The conducted power is provided by the customer.

7.1.1 CONDUCTED POWER MEASUREMENTS RESULTS

1. Conducted power measurements of GSM850

GSM850		Max Burst Average Power (dBm)				Max Frame Average Power (dBm)			
		Max. Tune-up	Channel/Frequency(MHz)			Max. Tune-up	Channel/Frequency(MHz)		
			128/824.2	190/836.6	251/848.8		128/824.2	190/836.6	251/848.8
GPRS/ EDGE (GMSK)	1 Tx Slot	31.00	**30.12**	**30.32**	**30.25**	21.81	20.93	21.13	21.06
	2 Tx Slot	28.00	27.00	27.54	27.78	21.87	20.87	21.41	21.65
	3 Tx Slot	27.00	25.96	26.43	26.53	22.58	21.54	22.01	22.11
	4 Tx Slot	26.00	24.70	25.22	25.24	22.82	21.52	22.04	22.06
EDGE (8PSK)	1 Tx Slot	25.00	24.88	24.36	24.89	15.81	15.69	15.17	15.70
	2 Tx Slot	25.50	24.60	24.02	24.21	19.37	18.47	17.89	18.08
	3 Tx Slot	25.00	24.23	24.15	24.25	20.58	19.81	19.73	19.83
	4 Tx Slot	24.50	23.89	24.43	24.33	21.32	20.71	21.25	21.15

Note:
1) The conducted power of GSM850 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log (Burst-averaged power mW x Slot used/8)
4) The tested channel results are marks in bold.

2. Conducted power measurements of GSM1900

GSM1900		Max Burst Average Power (dBm)				Max Frame Average Power (dBm)			
		Max. Tune-up	Channel/Frequency(MHz)			Max. Tune-up	Channel/Frequency(MHz)		
			512/1850.2	661/1880	810/1909.8		512/1850.2	661/1880	810/1909.8
GPRS/ EDGE (GMSK)	1 Tx Slot	25.50	**25.10**	**25.11**	**25.00**	16.31	15.91	15.92	15.81
	2 Tx Slot	24.00	23.29	23.57	23.74	17.87	17.16	17.44	17.61
	3 Tx Slot	22.00	21.68	21.68	21.51	17.58	17.26	17.26	17.09
	4 Tx Slot	21.00	20.47	20.34	20.17	17.82	17.29	17.16	16.99
EDGE (8PSK)	1 Tx Slot	22.00	21.86	21.87	21.79	12.81	12.67	12.68	12.60
	2 Tx Slot	22.00	21.09	21.62	21.69	15.87	14.96	15.49	15.56
	3 Tx Slot	22.00	21.23	21.74	21.85	17.58	16.81	17.32	17.43
	4 Tx Slot	21.00	20.36	20.85	20.96	17.82	17.18	17.67	17.78

Note:
1) The conducted power of GSM1900 is measured with RMS detector.
2) Frame-averaged output power was calculated from the measured burst-averaged output power by converting the slot powers into linear units and calculating the energy over 8 time slots.
3) The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power=10 x log (Burst-averaged power mW x Slot used/8)
4) The tested channel results are marks in bold.

3. Conducted power measurement results of LTE B2

LTE B2/BW=1.4M		Average Conducted Power(dBm)				LTE B2/BW=3M		Average Conducted Power(dBm)			
Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			18607/ 1850.7	18900/ 1880	19193/ 1909.3				18615/ 1851.5	18900/ 1880	19185/ 1908.5
QPSK	1/0	21.00	20.37	20.10	20.60	QPSK	1/0	21.00	20.22	20.54	20.29
	1/2	21.00	20.22	20.06	20.70		1/2	21.00	20.06	20.47	20.44
	1/5	21.00	20.22	20.06	20.66		1/5	21.00	20.07	20.47	20.43
	3/0	21.00	20.23	20.01	20.61		3/0	21.00	20.03	20.26	20.33
	3/1	21.00	20.06	20.54	20.52		3/1	21.00	20.64	20.71	20.28
	3/3	21.00	20.10	20.56	20.49		3/3	21.00	20.48	20.69	20.27
	6/0	21.00	20.13	19.99	19.55		6/0	21.00	19.98	19.77	19.34
16QAM	1/0	21.00	20.11	20.25	20.55	16QAM	1/0	21.00	20.08	20.76	20.22
	1/2	21.00	20.68	20.47	20.61		1/2	21.00	20.04	20.59	20.39
	1/5	21.00	20.08	20.57	20.66		1/5	21.00	20.72	20.74	20.36
	3/0	21.00	20.25	20.04	19.72		3/0	21.00	20.22	19.89	19.43
	3/1	21.00	20.16	19.84	19.63		3/1	21.00	19.99	19.75	19.42
	3/3	21.00	20.10	19.90	19.60		3/3	21.00	19.96	19.71	19.55
	6/0	21.00	20.21	19.96	19.54		6/0	21.00	19.96	19.88	19.42
LTE B2/BW=5M		Average Conducted Power(dBm)				LTE B2/BW=10M		Average Conducted Power(dBm)			
Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			18625/ 1852.5	18900/ 1880	19175/ 1907.5				18650/ 1855	18900/ 1880	19150/ 1905
QPSK	1/0	21.00	20.01	20.71	20.31	QPSK	1/0	21.00	20.72	20.75	20.25
	1/2	21.00	20.54	20.60	20.18		1/2	21.00	20.02	20.61	20.24
	1/5	21.00	20.28	20.67	20.15		1/5	21.00	20.28	20.59	20.21
	3/0	21.00	20.48	20.65	20.25		3/0	21.00	20.47	20.69	20.10
	3/1	21.00	20.73	20.53	20.07		3/1	21.00	20.67	20.48	20.10
	3/3	21.00	20.71	20.52	20.06		3/3	21.00	20.65	20.46	20.10
	6/0	21.00	20.75	20.56	20.13		6/0	21.00	20.75	20.61	20.09
16QAM	1/0	21.00	20.57	20.75	20.30	16QAM	1/0	21.00	20.59	20.26	20.29
	1/2	21.00	20.26	20.72	20.25		1/2	21.00	20.01	20.70	20.29
	1/5	21.00	20.42	20.76	20.32		1/5	21.00	20.45	20.25	20.28
	3/0	21.00	20.00	20.74	20.39		3/0	21.00	20.45	20.65	20.24
	3/1	21.00	20.56	20.59	20.18		3/1	21.00	20.25	20.56	20.29
	3/3	21.00	20.47	20.58	20.17		3/3	21.00	20.75	20.54	20.28
	6/0	21.00	20.74	20.56	20.12		6/0	21.00	20.75	20.61	20.10
LTE B2/BW=15M		Average Conducted Power(dBm)				LTE B2/BW=20M		Average Conducted Power(dBm)			
Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			18675/ 1857.5	18900/ 1880	19125/ 1902.5				18700/ 1860	18900/ 1880	19100/ 1900
QPSK	1/0	21.00	20.74	20.69	20.24	QPSK	1/0	21.00	**20.86**	**20.70**	**20.38**
	1/2	21.00	20.28	20.58	20.18		1/2	21.00	20.27	20.57	20.14
	1/5	21.00	20.35	20.56	20.16		1/5	21.00	20.45	20.56	20.12
	3/0	21.00	20.73	20.52	20.10		3/0	21.00	**20.61**	20.54	20.25
	3/1	21.00	20.56	20.48	20.74		3/1	21.00	20.54	20.41	20.58
	3/3	21.00	20.53	20.47	20.26		3/3	21.00	20.53	20.41	20.25
	6/0	21.00	20.64	20.53	20.11		6/0	21.00	20.26	20.46	20.10
16QAM	1/0	21.00	20.42	20.74	20.30	16QAM	1/0	21.00	20.45	20.74	20.37
	1/2	21.00	20.24	20.66	20.23		1/2	21.00	20.24	20.68	20.22
	1/5	21.00	20.24	20.65	20.22		1/5	21.00	20.72	20.67	20.21
	3/0	21.00	20.68	20.68	20.28		3/0	21.00	20.48	20.63	20.42
	3/1	21.00	20.68	20.56	20.06		3/1	21.00	20.47	20.48	20.14
	3/3	21.00	20.65	20.56	20.16		3/3	21.00	20.26	20.48	20.13
	6/0	21.00	20.63	20.53	20.11		6/0	21.00	20.49	20.46	20.09

Note: The tested channel results are marks in bold.

4. Conducted power measurement results of LTE B4

LTE B4/BW=1.4M		Average Conducted Power(dBm)				LTE B4/BW=3M		Average Conducted Power(dBm)			
Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			19957/ 1710.7	20175/ 1732.5	20393/ 1754.3				19965/ 1711.5	20175/ 1732.5	20385/ 1753.5
QPSK	1/0	23.00	21.91	21.79	22.38	QPSK	1/0	23.00	21.88	21.74	21.99
	1/2	23.00	21.99	22.22	22.04		1/2	23.00	21.68	22.05	22.22
	1/5	23.00	21.99	22.19	21.98		1/5	23.00	21.73	22.03	22.22
	3/0	22.00	21.02	20.99	21.23		3/0	22.00	20.80	20.84	21.10
	3/1	22.00	20.81	21.11	20.82		3/1	22.00	20.59	20.95	21.11
	3/3	22.00	20.84	21.09	20.91		3/3	22.00	20.56	20.95	21.11
	6/0	21.00	19.90	20.05	20.11		6/0	21.00	19.78	19.88	20.13
16QAM	1/0	22.00	20.68	20.61	21.26	16QAM	1/0	22.00	20.77	20.56	20.93
	1/2	22.00	20.86	21.01	20.97		1/2	22.00	20.71	20.84	21.16
	1/5	22.00	20.76	20.99	20.92		1/5	22.00	20.67	20.83	21.14
	3/0	21.00	20.03	20.07	20.37		3/0	21.00	19.90	19.87	20.21
	3/1	21.00	19.90	20.11	19.93		3/1	21.00	19.73	19.95	20.22
	3/3	21.00	19.84	20.09	20.01		3/3	21.00	19.78	19.94	20.21
	6/0	21.00	19.87	20.04	20.10		6/0	21.00	19.79	19.88	20.12
LTE B4/BW=5M		Average Conducted Power(dBm)				LTE B4/BW=10M		Average Conducted Power(dBm)			
Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			19975/ 1712.5	20175/ 1732.5	20375/ 1752.5				20000/ 1715	20175/ 1732.5	20350/ 1750
QPSK	1/0	23.00	21.74	21.69	21.99	QPSK	1/0	23.00	21.62	21.98	21.70
	1/2	23.00	21.60	21.54	21.93		1/2	23.00	21.55	21.93	22.01
	1/5	23.00	21.67	21.53	21.90		1/5	23.00	21.62	22.01	22.00
	3/0	22.00	20.64	20.53	20.99		3/0	22.00	21.56	21.95	21.78
	3/1	22.00	20.51	20.47	20.74		3/1	22.00	21.36	21.81	21.80
	3/3	22.00	20.49	20.47	20.73		3/3	22.00	21.35	21.79	21.79
	6/0	21.00	20.53	20.47	20.85		6/0	21.00	20.46	20.88	20.90
16QAM	1/0	23.00	21.71	21.67	21.99	16QAM	1/0	23.00	21.66	21.97	21.85
	1/2	23.00	21.64	21.58	22.00		1/2	23.00	21.57	21.97	22.04
	1/5	23.00	21.71	21.56	21.97		1/5	23.00	21.63	22.08	22.02
	3/0	22.00	20.78	20.61	21.17		3/0	22.00	21.65	21.89	21.99
	3/1	22.00	20.63	20.53	20.90		3/1	22.00	21.50	21.86	21.96
	3/3	22.00	20.60	20.52	20.88		3/3	22.00	21.48	21.84	21.85
	6/0	21.00	20.52	20.47	20.85		6/0	21.00	20.45	20.88	20.90
LTE B4/BW=15M		Average Conducted Power(dBm)				LTE B4/BW=20M		Average Conducted Power(dBm)			
Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			20025/ 1717.5	20175/ 1732.5	20325/ 1747.5				20050/ 1720	20175/ 1732.5	20300/ 1745
QPSK	1/0	23.00	21.36	21.64	21.81	QPSK	1/0	23.00	21.54	**21.79**	**22.11**
	1/2	23.00	21.47	21.46	21.76		1/2	23.00	**21.66**	21.79	21.94
	1/5	23.00	22.14	21.45	21.75		1/5	23.00	21.63	21.78	21.92
	3/0	22.00	21.35	21.44	21.67		3/0	22.00	21.49	**21.68**	21.58
	3/1	22.00	21.74	21.34	21.59		3/1	22.00	21.53	21.64	21.62
	3/3	22.00	21.89	21.34	21.59		3/3	22.00	21.51	21.63	21.61
	6/0	22.00	21.74	21.40	21.64		6/0	22.00	21.52	21.76	21.76
16QAM	1/0	23.00	21.24	21.67	21.99	16QAM	1/0	23.00	21.62	21.85	22.73
	1/2	23.00	21.96	21.52	21.88		1/2	23.00	21.68	21.89	22.08
	1/5	23.00	21.65	21.51	21.87		1/5	23.00	21.66	21.88	22.06
	3/0	22.00	21.89	21.48	21.90		3/0	22.00	21.60	21.78	21.73
	3/1	22.00	21.68	21.50	21.78		3/1	22.00	21.65	21.71	21.83
	3/3	22.00	21.85	21.50	21.77		3/3	22.00	21.63	21.70	21.82
	6/0	22.00	21.57	21.40	21.64		6/0	22.00	21.52	21.63	21.77

Note: The tested channel results are marks in bold.

5. Conducted power measurement results of LTE B5

LTE B5/BW=1.4M		Average Conducted Power(dBm)				LTE B5/BW=3M		Average Conducted Power(dBm)			
Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			20407/ 824.7	20525/ 836.5	20643/ 848.3				20415/ 825.5	20525/ 836.5	20635/ 847.5
QPSK	1/0	22.00	20.43	20.93	20.93	QPSK	1/0	22.00	20.46	20.87	20.93
	1/2	22.00	20.34	20.81	20.78		1/2	22.00	20.39	20.72	20.75
	1/5	22.00	20.44	20.77	20.74		1/5	22.00	20.45	20.82	20.73
	3/0	21.00	19.37	19.80	19.73		3/0	21.00	19.41	19.76	19.75
	3/1	21.00	19.29	19.66	19.53		3/1	21.00	19.22	19.62	19.57
	3/3	21.00	19.26	19.65	19.52		3/3	21.00	19.21	19.62	19.54
	6/0	20.00	18.29	18.78	18.69		6/0	20.00	18.39	18.75	18.74
16QAM	1/0	21.00	19.32	19.78	19.81	16QAM	1/0	21.00	19.48	19.65	19.85
	1/2	21.00	19.37	19.67	19.76		1/2	21.00	19.38	19.71	19.77
	1/5	21.00	19.30	19.72	19.73		1/5	21.00	19.42	19.68	19.75
	3/0	20.00	18.54	18.92	18.90		3/0	20.00	18.56	18.86	18.92
	3/1	20.00	18.36	18.73	18.69		3/1	20.00	18.40	18.69	18.75
	3/3	20.00	18.33	18.71	18.68		3/3	20.00	18.40	18.69	18.73
	6/0	20.00	18.29	18.78	18.69		6/0	20.00	18.40	18.74	18.74
LTE B5/BW=5M		**Average Conducted Power(dBm)**				**LTE B5/BW=10M**		**Average Conducted Power(dBm)**			
Modula-tion	**RB Size/ Offset**	**Max. Tune-up**	**Channel/Frequency(MHz)**			**Modula-tion**	**RB Size/ Offset**	**Max. Tune-up**	**Channel/Frequency(MHz)**		
			20425/ 826.5	**20525/ 836.5**	**20625/ 846.5**				**20450/ 829**	**20525/ 836.5**	**20600/ 844**
QPSK	1/0	22.00	20.36	20.73	20.92	QPSK	1/0	22.00	20.54	20.67	**20.99**
	1/2	22.00	20.30	20.60	20.74		1/2	22.00	20.35	20.51	20.74
	1/5	22.00	20.25	20.58	20.73		1/5	22.00	20.30	20.53	20.62
	3/0	21.00	19.30	19.63	19.72		3/0	21.00	**20.24**	**20.49**	**20.60**
	3/1	21.00	19.15	19.50	19.55		3/1	21.00	20.09	20.38	20.45
	3/3	21.00	19.13	19.50	19.55		3/3	21.00	20.15	20.37	20.54
	6/0	20.00	19.20	19.56	19.64		6/0	20.00	19.18	19.40	19.59
16QAM	1/0	22.00	20.50	20.80	20.87	16QAM	1/0	22.00	20.69	20.74	20.87
	1/2	22.00	20.41	20.73	20.89		1/2	22.00	20.43	20.68	20.76
	1/5	22.00	20.47	20.71	20.88		1/5	22.00	20.39	20.67	20.75
	3/0	21.00	19.56	19.83	19.98		3/0	21.00	20.40	20.63	20.79
	3/1	21.00	19.38	19.67	19.79		3/1	21.00	20.38	20.50	20.68
	3/3	21.00	19.36	19.66	19.80		3/3	21.00	20.36	20.49	20.76
	6/0	20.00	19.19	19.56	19.64		6/0	20.00	19.19	19.40	19.60

Note: The tested channel results are marks in bold.

6. Conducted power measurement results of LTE B12

LTE B12/BW=1.4M		Average Conducted Power(dBm)				LTE B12/BW=3M		Average Conducted Power(dBm)			
Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula -tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)		
			23017/ 699.7	23095/ 707.5	23173/ 715.3				23025/ 700.5	23095/ 707.5	23165/ 714.5
QPSK	1/0	20.00	18.46	18.96	19.56	QPSK	1/0	20.00	18.43	18.88	19.43
	1/2	20.00	18.43	18.87	19.51		1/2	20.00	18.46	18.84	19.44
	1/5	20.00	18.39	18.93	19.49		1/5	20.00	18.44	18.81	19.43
	3/0	19.00	17.35	17.88	18.49		3/0	19.00	17.49	17.77	18.43
	3/1	19.00	17.25	17.80	18.34		3/1	19.00	17.35	17.71	18.30
	3/3	19.00	17.33	17.80	18.34		3/3	19.00	17.34	17.79	18.31
	6/0	18.00	16.37	16.82	17.41		6/0	18.00	16.43	16.82	17.38
16QAM	1/0	19.00	17.29	17.79	18.60	16QAM	1/0	19.00	17.45	17.73	18.49
	1/2	19.00	17.34	17.86	18.54		1/2	19.00	17.51	17.74	18.48
	1/5	19.00	17.31	17.84	18.52		1/5	19.00	17.50	17.74	18.48
	3/0	18.00	16.46	17.00	17.65		3/0	18.00	16.65	16.89	17.59
	3/1	18.00	16.36	16.88	17.51		3/1	18.00	16.53	16.87	17.48
	3/3	18.00	16.41	16.87	17.50		3/3	18.00	16.52	16.88	17.47
	6/0	18.00	16.36	16.83	17.41		6/0	18.00	16.42	16.81	17.38
LTE B12/BW=5M		**Average Conducted Power(dBm)**				**LTE B12/BW=10M**		**Average Conducted Power(dBm)**			
Modula -tion	**RB Size/ Offset**	**Max. Tune-up**	**Channel/Frequency(MHz)**			**Modula -tion**	**RB Size/ Offset**	**Max. Tune-up**	**Channel/Frequency(MHz)**		
			23035/ 701.5	**23095/ 707.5**	**23155/ 713.5**				**23060/ 704**	**23095/ 707.5**	**23130/ 711**
QPSK	1/0	20.00	18.43	18.79	19.30	QPSK	1/0	20.00	18.43	18.63	18.87
	1/2	20.00	18.41	18.73	19.22		1/2	20.00	18.44	**19.63**	18.81
	1/5	20.00	18.44	18.71	19.20		1/5	20.00	18.42	18.62	18.81
	3/0	19.00	17.42	17.66	18.18		3/0	19.00	**18.37**	**18.58**	**18.76**
	3/1	19.00	17.30	17.66	18.07		3/1	19.00	18.27	18.49	18.67
	3/3	19.00	17.28	17.64	18.07		3/3	19.00	18.26	18.49	18.67
	6/0	18.00	17.39	17.67	17.12		6/0	18.00	17.32	17.52	17.70
16QAM	1/0	20.00	18.58	18.97	19.36	16QAM	1/0	20.00	18.62	18.70	18.97
	1/2	20.00	18.53	18.87	19.36		1/2	20.00	18.56	18.76	18.94
	1/5	20.00	18.57	18.83	19.35		1/5	20.00	18.54	18.75	18.93
	3/0	19.00	17.64	17.83	18.42		3/0	19.00	18.53	18.71	18.92
	3/1	19.00	17.50	17.81	18.30		3/1	19.00	18.47	18.61	18.88
	3/3	19.00	17.57	17.79	18.29		3/3	19.00	18.46	18.61	18.87
	6/0	18.00	17.39	17.66	17.19		6/0	18.00	17.32	17.52	17.70

Note: The tested channel results are marks in bold.

7. Conducted power measurement results of LTE B13

LTE B13/BW=5M		Average Conducted Power(dBm)				LTE B13/BW=10M		Average Conducted Power(dBm)	
Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)			Modula-tion	RB Size/ Offset	Max. Tune-up	Channel/Frequency(MHz)
			23205/ 779.5	23230/ 782	23255/ 784.5				23230/ 782
QPSK	1/0	22.00	20.52	20.39	20.38	QPSK	1/0	22.00	**20.69**
	1/2	22.00	20.46	20.24	20.31		1/2	22.00	20.34
	1/5	22.00	20.48	20.30	20.28		1/5	22.00	20.60
	3/0	21.00	19.52	19.35	19.35		3/0	21.00	**20.34**
	3/1	21.00	19.36	19.20	19.21		3/1	21.00	20.17
	3/3	21.00	19.41	19.19	19.20		3/3	21.00	20.15
	6/0	20.00	19.46	19.23	19.26		6/0	20.00	19.29
16QAM	1/0	22.00	20.57	20.45	20.50	16QAM	1/0	22.00	20.59
	1/2	22.00	20.55	20.45	20.44		1/2	22.00	20.43
	1/5	22.00	20.57	20.41	20.41		1/5	22.00	20.58
	3/0	21.00	19.60	19.45	19.51		3/0	21.00	20.50
	3/1	21.00	19.50	19.27	19.34		3/1	21.00	20.37
	3/3	21.00	19.48	19.25	19.33		3/3	21.00	20.35
	6/0	20.00	19.44	19.23	19.25		6/0	20.00	19.29

Note: The tested channel results are marks in bold.

7.2 SAR TEST RESULTS

General Notes:

1) Per KDB447498 D04, all measurement SAR results are scaled to the maximum tune-up tolerance limit to demonstrate compliant.
2) Per KDB447498 D04, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is: ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.
3) Per KDB865664 D01, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8W/kg; if the deviation among the repeated measurement is ≤ 20%, and the measured SAR < 1.45W/kg, only one repeated measurement is required.
4) Per KDB941225 D06, the DUT Dimension is bigger than 9 cm x 5 cm, so 10mm is chosen as the test separation distance for Hotspot mode. When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
5) Per KDB648474 D04, SAR is evaluated without a headset connected to the device. When the standalone reported body-worn SAR is ≤1.2 W/kg, no additional SAR evaluations using a headset are required.
6) Per KDB865664 D02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is > 1.5 W/kg, or > 7.0 W/kg for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing.

GSM Notes:

1) Per KDB648474 D04, body-worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
2) Per KDB941225 D01, SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

LTE Notes:

1) The LTE test configurations are determined according to KDB941225 D05 SAR for LTE Devices. The general test procedures used for SAR testing can be found in Section 7.1.3.
2) A-MPR was disabled for all SAR test by setting NS_01 on the base station simulator. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

7.2.1 SAR MEASUREMENT RESULT OF BODY-WORN

1. Body-worn SAR test results of GSM

Test No.	Band	Mode	Channel	Test Position	Separation Distance (mm)	Maximum Tune-up (dBm)	Conducted Power (dBm)	Power Drift (dB)	SAR 1g (W/kg)	SAR 10g (W/kg)	Reported 1g SAR (W/kg)
G01	GSM 850	GPRS1TX	190	Front Face	5	31	30.32	-0.04	0.223	0.134	0.261
G02	GSM 850	GPRS1TX	190	Rear Face	5	31	30.32	-0.18	0.214	0.132	0.250
G03	GSM 850	GPRS1TX	128	Front Face	5	31	30.12	-0.02	**0.231**	**0.140**	**0.283**
G04	GSM 850	GPRS1TX	251	Front Face	5	31	30.25	0.03	0.226	0.138	0.269
G06	GSM 1900	GPRS1TX	661	Front Face	5	25.5	25.11	0.17	0.935	0.556	1.023
G07	GSM 1900	GPRS1TX	661	Rear Face	5	25.5	25.11	0.15	0.819	0.524	0.896
G08	GSM 1900	GPRS1TX	512	Front Face	5	25.5	25.10	0.04	0.988	0.562	1.083
G09	GSM 1900	GPRS1TX	810	Front Face	5	25.5	25.00	-0.03	**1.300**	**0.760**	**1.459**

Note: The value with boldface is the maximum SAR Value of each test band.

2. Body-worn SAR test results of LTE

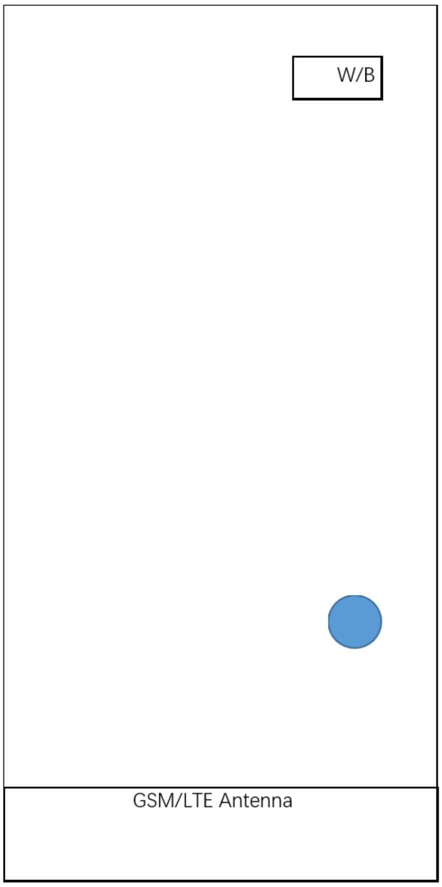
Test No.	Band	Mode	Channel	RB	offset	Test Position	Separation Distance (mm)	Maximum Tune-up (dBm)	Conducted Power (dBm)	Power Drift (dB)	SAR 1g (W/kg)	SAR 10g (W/kg)	Reported 1g SAR (W/kg)
L01	LTE B2	QPSK20M	18700	1	0	Front Face	5	21	20.86	0.07	0.772	0.446	0.797
L02	LTE B2	QPSK20M	18700	1	0	Rear Face	5	21	20.86	-0.08	0.499	0.288	0.515
L03	LTE B2	QPSK20M	18700	3	0	Front Face	5	21	20.61	-0.11	0.678	0.406	0.742
L04	LTE B2	QPSK20M	18700	3	0	Rear Face	5	21	20.61	0.01	0.433	0.257	0.474
L05	LTE B2	QPSK20M	18900	1	0	Front Face	5	21	20.70	0.02	0.824	0.479	0.883
L06	LTE B2	QPSK20M	19100	1	0	Front Face	5	21	20.38	-0.13	**0.936**	**0.548**	**1.080**
L08	LTE B4	QPSK20M	20300	1	0	Front Face	5	23	22.11	-0.01	0.373	0.255	0.458
L09	LTE B4	QPSK20M	20300	1	0	Rear Face	5	23	22.11	-0.01	0.252	0.173	0.309
L10	LTE B4	QPSK20M	20175	3	0	Front Face	5	22	21.68	0.1	0.385	0.261	0.414
L11	LTE B4	QPSK20M	20175	3	0	Rear Face	5	22	21.68	-0.09	0.227	0.157	0.244
L12	LTE B4	QPSK20M	20050	1	2	Front Face	5	23	21.66	0.1	0.359	0.242	0.489
L13	LTE B4	QPSK20M	20175	1	0	Front Face	5	23	21.79	-0.02	**0.386**	**0.244**	**0.510**
L15	LTE B5	QPSK10M	20600	1	0	Front Face	5	22	20.99	-0.1	0.053	0.035	0.067
L16	LTE B5	QPSK10M	20600	1	0	Rear Face	5	22	20.99	-0.08	0.054	0.039	0.069
L17	LTE B5	QPSK10M	20600	3	0	Front Face	5	21	20.60	-0.04	0.066	0.042	0.072
L18	LTE B5	QPSK10M	20600	3	0	Rear Face	5	21	20.60	0.09	0.052	0.038	0.057
L19	LTE B5	QPSK10M	20450	3	0	Front Face	5	21	20.24	-0.08	**0.068**	**0.042**	**0.081**
L20	LTE B5	QPSK10M	20525	3	0	Front Face	5	21	20.49	0.05	0.068	0.041	0.077
L22	LTE B12	QPSK10M	23095	1	2	Front Face	5	20	19.63	0.08	0.112	0.065	0.122
L23	LTE B12	QPSK10M	23095	1	2	Rear Face	5	20	19.63	0.13	0.109	0.063	0.119
L24	LTE B12	QPSK10M	23130	3	0	Front Face	5	19	18.76	0.01	0.117	0.067	0.124
L25	LTE B12	QPSK10M	23130	3	0	Rear Face	5	19	18.76	0.05	0.095	0.060	0.100
L26	LTE B12	QPSK10M	23060	3	0	Front Face	5	19	18.37	-0.06	**0.125**	**0.072**	**0.145**
L27	LTE B12	QPSK10M	23095	3	0	Front Face	5	19	18.58	0.02	0.096	0.057	0.106
L29	LTE B13	QPSK10M	23230	1	0	Front Face	5	22	20.69	-0.08	**0.102**	**0.062**	**0.138**
L30	LTE B13	QPSK10M	23230	1	0	Rear Face	5	22	20.69	-0.12	0.092	0.058	0.125
L31	LTE B13	QPSK10M	23230	3	0	Front Face	5	21	20.34	-0.04	0.097	0.061	0.113
L32	LTE B13	QPSK10M	23230	3	0	Rear Face	5	21	20.34	0.17	0.094	0.059	0.109

Note: The value with boldface is the maximum SAR Value of each test band.

7.3 MULTIPLE TRANSMITTER EVALUATION

The following tables list information which is relevant for the decision if a simultaneous transmit evaluation is necessary according to FCC KDB447498 D04 Interim General RF Exposure Guidance v01.

The location of the antenna inside EUT is as below:

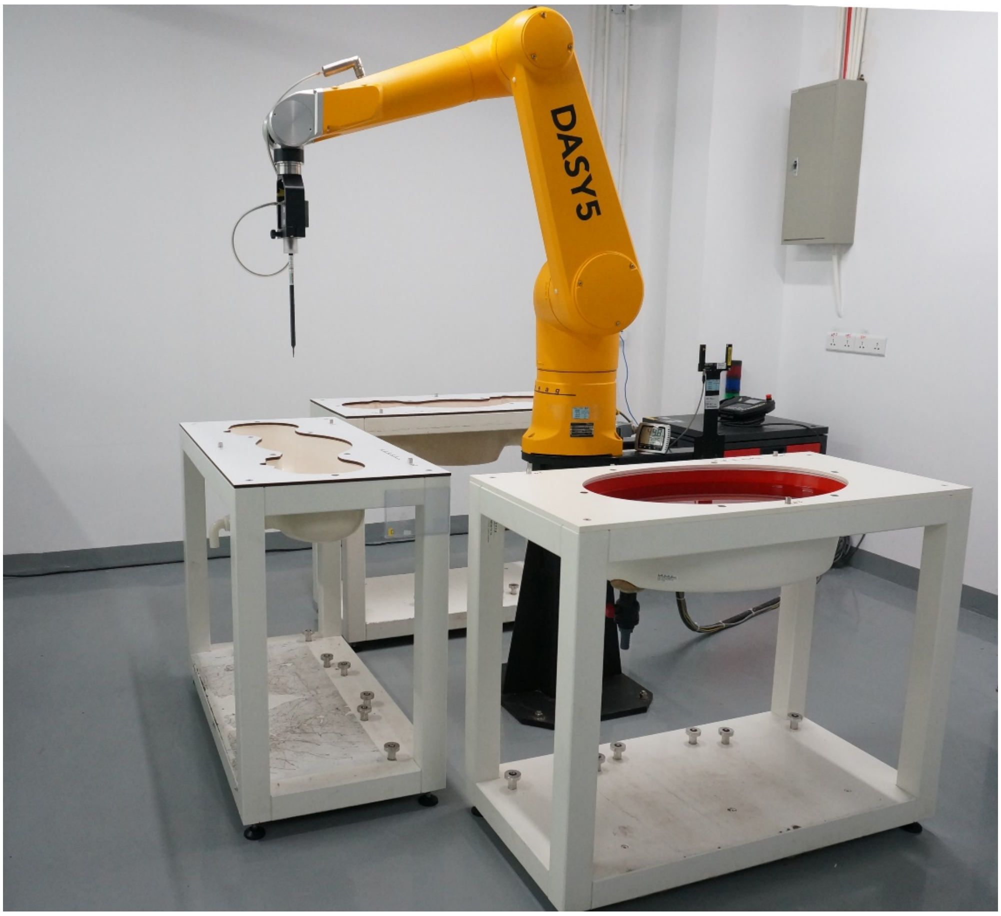


Note: 2G&4G share the same Tx antenna and can’t transmit simultaneously.

APPENDIX

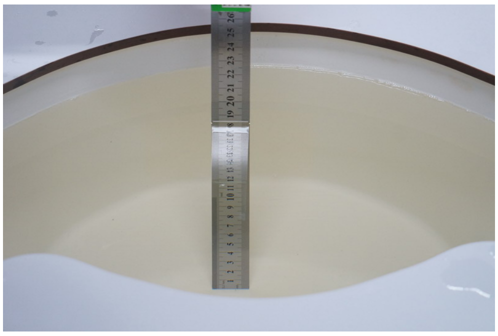
1. TEST LAYOUT

Specific Absorption Rate Test Layout

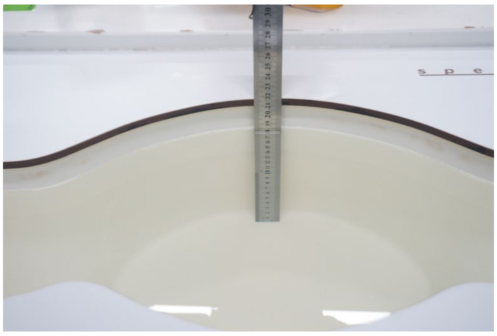


Liquid depth in the flat Phantom (≥15cm depth)

Body_695-925_18.5cm



Body_1700-1900_18.1cm



Body_1900-2300_18.5cm

Appendix A. SAR Plots of System Verification

(Pls See BTL-FCC SAR-1-2502C204_Appendix A.)

Appendix B. SAR Plots of SAR Measurement

(Pls See BTL-FCC SAR-1-2502C204_Appendix B.)

Appendix C. Calibration Certificate

(Pls See BTL-FCC SAR-1-2502C204_Appendix C.)

Appendix D. Photographs of the Test Set-Up

(Pls See BTL-FCC SAR-1-2502C204_Appendix D.)

End of Test Report