FCC SAR Compliance Test Report

For

Hong Kong Yushengchang Technology Co.,Limited

Unit 1801 18/ F office plus @Wan Chai No.303 Hennessy Road ,

Wanchai HK

Model: Y41

Test Engineer:	Liu Yuhao
Report Number:	WSCT-A2LA-R&E260900035A-SAR
Report Date:	29 September 2026
FCC ID:	2BH5J-Y41
Check By:	Jiang Xuling
Approved By:	Li Huaibi
Prepared By:	World Standardization Certification & Testing Group (Shenzhen) Co., Ltd. Building J-7F and Building D, Dongjiang Science & Technology Park, Tangjia Community, Fenghuang Street, Guangming District, Shenzhen City, Guangdong Province, China Tel: +86-755-23695561 Fax: +86-755-86376605

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Modified History

REV.	Modification Description	Issued Date	Remark
REV.1.0	Initial Test Report Relesse	29 September 2026	Li Huaibi

1 General information

1.1 Notes

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1.2 Application details

Date of receipt of test item:	2026-09-14
Start of test:	2026-09-15
End of test:	2026-09-29

1.3 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for Y41 is as below:

Band	MAX Reported SAR(W/kg)
	1g Head SAR (Separation 0mm)
GSM850	1.102
GSM1900	0.632
LTE Band 2	1.119
LTE Band 5	0.745
LTE Band 7	0.246
Max Head SAR Level(s) Measured: (Limit: 1.6W/Kg):	1.119W/kg 1g Head SAR

NOTE:

1. The device is in compliance with Specific Absorption Rate（SAR）for general population/uncontraolled exposure limits of 1.6 W/Kg as averaged over any 1g tissue(10g Extremity SAR limits of 4 W/Kg) according to the FCC rule the ANSI/IEEE C95.1:2005, the INCRP Report Number 86 for uncontrolled environment,and had been tested in accordance with the measurement methods and procedures specified in IEEE Std 1528-2013.
2. EUT does not support multiple transmitters operating simultaneously, so there is no need to consider the increase in TER due to synchronous transmission.

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1.4 EUT Information

Device Information:	
Product Type:	Pendant
Product Name:	4G GPS tracker watch
Model:	Y41
FCC ID:	2BH5J-Y41
Trade Mark:	4P-Touch™
Software Version	V1.0
Hardware Version	V1.0
IMEL Number:	351258730184016
Device Type:	Portable device
Exposure Category:	uncontrolled environment / general population
Production Unit or Identical Prototype:	Production Unit
Antenna Type :	Internal Antenna
Device Operating Configurations:	
Supporting Mode(s) :	GSM850, PCS 1900 LTE Band 2/LTE Band 5/LTE Band 7
Modulation:	GSM: GMSK LTE: QPSK/16QAM
Operating Frequency Range(s) :	GSM850: 824-849MHz (TX), 869-894MHz (RX); PCS1900: 1850-1910MHz (TX), 1930-1990MHz (RX); LTE Band2: 1850-1910MHz (TX), 1930-1990MHz (RX); LTE Band5: 824-849MHz (TX), 869-894MHz (RX); LTE Band7: 2500-2570MHz (TX), 2620-2690MHz (RX);

Antenna gain:	GSM 850: 1.62dbi PCS 1900: 1.90dbi LTE B2:-1.90dbi LTE B5: 1.62dbi LTE B7: 2.13dBi
Radiated Power (EIRP/ERP) Limit	GSM 850/LTE B5:7.00W(38.45dBm) PCS 1900/LTE B2: 2.00W(33.01dBm) LTE B7: 2.00W(33.01dBm)
Power Source:	DC 5V/1A 3.85V/1000mAh

Note: 1. N/A stands for no applicable.

2. The antenna gain is provided by the customer. For any reported data issues caused by the antenna gain, World Standardization Certification&Testing Group (Shenzhen) Co., Ltd assumes no responsibility.

3. The laboratory shall be responsible for all information in the report, except for the information provided by the client. The data provided by the client should be clearly identified. In addition, when the information provided by the client may affect the validity of the results, a disclaimer should be included in the report. When the laboratory is not responsible for sampling (such as when the sample is provided by the customer), the results should be declared in the report as applicable to the received sample.

2 Testing laboratory

Test Site	World Standardization Certification & Testing Group (Shenzhen) Co., Ltd.
Laboratory :	Building J-7F and Building D, Dongjiang Science & Technology Park, Tangjia Community, Fenghuang Street, Guangming District, Shenzhen City, Guangdong Province, China
TEL:	+86-755-23695561
FAX:	+86-755-86376605

3 ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:2017

China	**CNAS (Registration Number: L3732)**
USA	**A2LA (Certificate Number: 5768.01)**
Canada	**ISED(CAB identifier:CN0111)**

Copies of granted accreditation certificates are available for downloading from our web site, http://www.wsct-cert.com

4 Test Environment

	Required	Actual
Ambient temperature:	18 – 25 °C	22 ± 2 °C
Tissue Simulating liquid:	22 ± 2 °C	22 ± 2 °C
Relative humidity content:	30 – 70 %	30 – 70 %

5 Applicant and Manufacturer

Applicant/Client Name:	Hong Kong Yushengchang Technology Co.,Limited
Applicant Address:	Unit 1801 18/ F office plus @Wan Chai No.303 Hennessy Road , Wanchai HK
Manufacturer Name:	Shenzhen Yushengchang Technology Co.,LTD
Manufacturer Address:	F6, Jinhai building , songgang Town, Bao'an Zone, Shenzhen

6 Test standards:

No.	Identity	Document Title
1	47 CFR Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices
2	IEC/IEEE 62209-1528	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate in the Human Head from Wireless Communications Devices: Measurement Techniques
3	KDB447498 D04	Interim General RF Exposure Guidance v01
4	KDB865664 D01	SAR measurement 100MHz to 6GHz v01r04
5	KDB865664 D02	RF Exposure Reporting v01r02
6	KDB941225 D05	SAR for LTE Devices v02r05
7	KDB941225 D06	Hotspot Mode v02r01
8	KDB648474 D04	Handset SAR v01r03
9	KDB690783 D01	SAR Listings on Grant v01r03

6.1 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Head)	1.60W/Kg	8.00 W/Kg
Whole Body SAR	0.08W/Kg	0.4W/Kg
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 W/Kg	20.00 W/Kg

The limit applied in this test report is shown in bold letters

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.

6.2 SAR Definition

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (dW) absorbed by(dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ).

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

SAR is expressed in units of watts per kilogram (W/kg). SAR can be related to the electric field at a point by

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

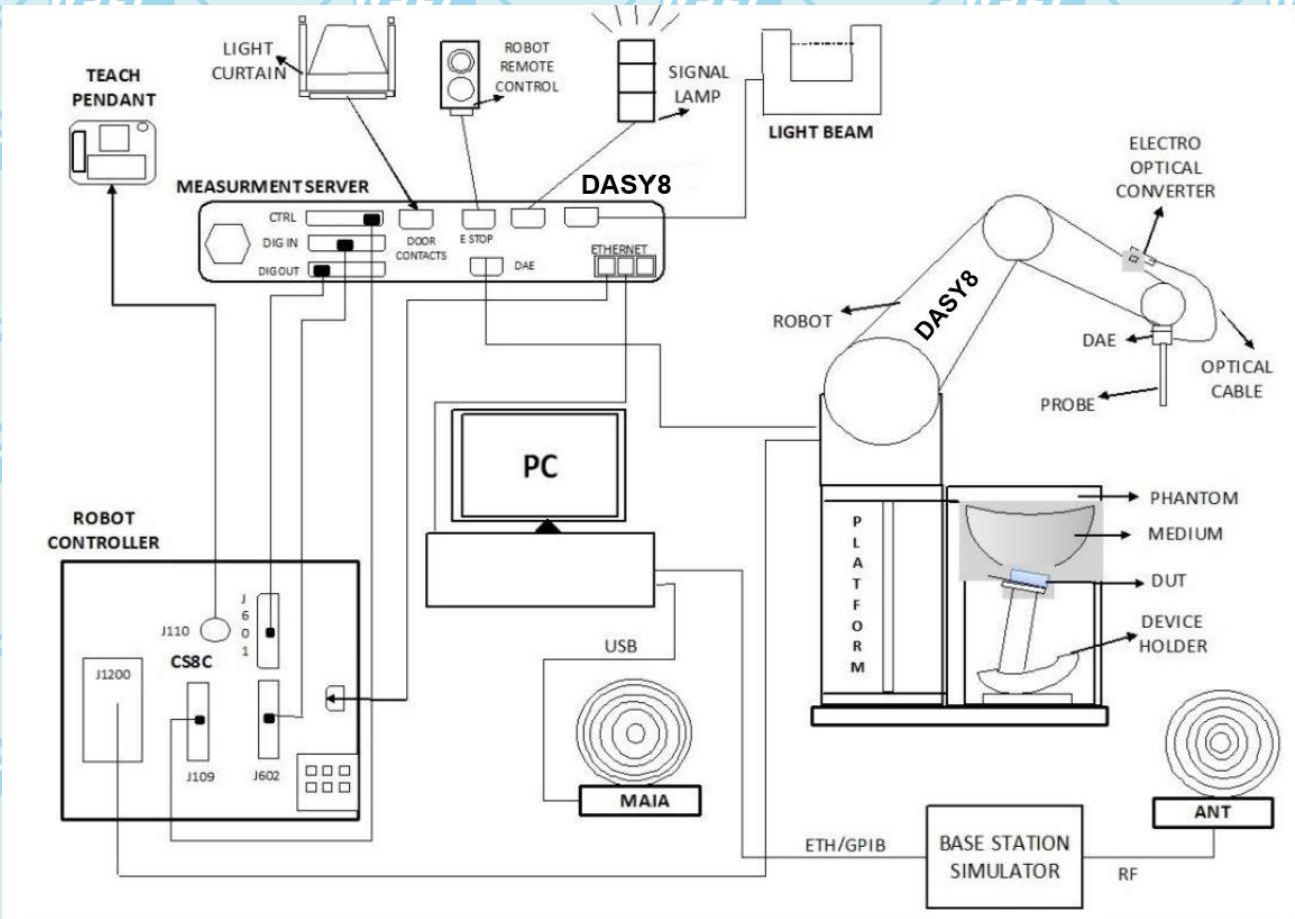
where:

σ = conductivity of the tissue (S/m)
ρ = mass density of the tissue (kg/m^3)
E = rms electric field strength (V/m)

7 SAR Measurement System

7.1 The Measurement System

DASY8 is a flexible, high-precision near-field scanner optimized for automated measurements in free-space and tissue simulating liquids (TSL), using the most advanced probes covering the frequency range from 3 kHz to 110 GHz. The software enables point, area, and volume measurements and conformal scanning of complex geometries.



The DASY8 SAR module consists of an isotropic dosimetric probe (SAR) mounted on the TX2 precision robot, which allows field scanning inside anthropomorphic phantoms filled with tissue-simulating liquids. The probes are miniaturized, sensitive, isotopic, linear, stable and calibrated with precise boundary compensation. The spatial accuracy of probe positioning within the phantom is better than 0.2 mm. Scanning is optimized and adaptive to the induced field. The spatial SAR peak is determined without reconstruction.

7.2 Robot

The DASY8 system uses the high-precision industrial robots TX2-60L and TX2-90XL from Stäubli SA (France). The TX2 family of robots provides the ideal combination of speed, rigidity, size, and precision:

- High precision (repeatability 0.03 mm)
- High reliability and low maintenance costs (industrial design)
- ELF interference (motor control fields are shielded by the closed metallic construction)
- Hygienic encapsulated 6-axis arm enabled by a hollow shaft gearbox, no external cables.

7.3 Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by SPEAG).The probe is specially designed and callbrated for use in liquid with high pemitivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

For the measurements the Specific Dosimetric E-Field Probe EX3DV4 with following specifications is used

Frequency: 4MHz – 10GHz ;
Linearity: ±0.2dB (30MHz – 10GHz)

Dynamic Range: 10μW/g–>100 mW/g
Linearity: ±0.2dB (noise: typically <1μW/g)

Directivity (typical): ±0.1 dB in TSL (rotation around probe axis)
±0.3 dB in TSL (rotation normal to probe axis)

Sensor Arrangement	Triangular
Connector Angle	46.9°
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm

7.4 DAE

DAE4ip– Data Acquisition Electronics 4 with Integrated Power

Data Acquisition Electronics 4 with an integrated power supply for time unlimited measurements.

Performance:

- Measurement range: -100–+300 mV (16-bit resolution and two range settings: 4 mV, 400 mV)
- Input offset voltage:<5μV (with auto zero)
- Input resistance:200MOhm
- Input bias current:<50 FA
- Power supply: integrated (from the DASY8 measurement server)
- Dimensions(L × W × H):60×60×68 mm
- Calibration: ISO/IEC 17025 calibration service available.

7.5 Phantom

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEC/IEEE 62209-1528. 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 the liquid from evaporating. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Material	Vinyl ester, fiberglass reinforced (VE-GF)
Liquid Compatibility	The phantom shell is compatible with SPEAG's tissue-simulating liquids (sugar and oil-based). However, using other liquids may render the phantom warranty void (see note or consult SPEAG support).
Shell Thickness	2 ± 0.2mm (6 ± 0.2mm at ear point)
Dimensions (incl. Wooden Support)	Length:1000 mm Width: 500 mm Height: adjustable feet
Filling Volume	approx.25 liters
Support	DASY6/8: standard-size platform slot DASY52 stand-alone: SPEAG standard phantom table
Accessories	Mounting Device and Adaptors

7.6 Device Holder

The DASY instrument holder is designed to accommodate the various positions specified in the standard. It has two scales for instrument rotation (with respect to the body axis) and instrument tilt (with respect to the line between the ear reference points). The center of rotation for both scales is the Ear Reference Point (ERP). This eliminates the need to reposition the instrument when changing angles.

The DASY instrument holder is made of low-loss POM material with the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material in the immediate vicinity of the device was reduced because measurements indicated that the influence of the clamp on the test results could be reduced.

Device holder

The positioning system allows obtaining cheek and tilting position with a very good accuracy. In compliance with CENELEC, the tilt angle uncertainty is lower than 1°.

7.7 SAR Scan General Requirement

According to kdb865664 D01 v01r04:

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.The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports, unless further guidance has been provided by the FCC.

			≤ 3 GHz	>3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 mm ± 1 mm	½δln(2) mm ±0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30° ± 1°	20° ± 1°
Maximum area sean 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: ΔxZoom , ΔyZoom			≤ 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: Δz Zoom (n)		≤5 mm	3- 4 GHz: ≤4 mm 4- 5 GHz: ≤ 3 mm 5- 6 GHz: ≤ 2 mm
	graded grid	ΔzZoom (1): between 1 st two points closest to phantom surface	≤4 mm	3-4 GHz: ≤ 3 mm 4-5 GHz: ≤ 2.5 mm 5-6 GHz: ≤ 2 mm
		ΔzZoom (n>1): between subsequent points	≤1.5·ΔzZoom (n-1) mm	
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 IEEE Std 1528-2013 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 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.

7.8 Measurement procedure

Power Drift :

All SAR tests were performed with a fully charged battery under the DUT and transmitting at maximum output power. The DASY measurement software uses the power reference measurement and power drift measurement procedures to monitor the power drift of the DUT during SAR testing. Both methods measure the field value at a specified reference position before and after the SAR test. The software calculates the field difference in dB. If the power drift exceeds 5%, the SAR is retested.

Area scan:

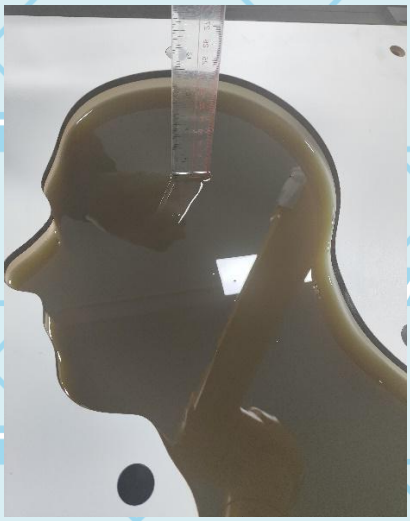
All antennas and radiating structures that may contribute to the measured SAR or influence the SAR distribution must be included in the area scan. The areas of the transmitter(s), antenna(s) and host device, when projected onto the phantom, must be within the area scan measurement region. The area scan measurement resolution must enable the extrapolation algorithms of the SAR system to correctly identify the peak SAR location(s) for subsequent zoom scan measurements to correctly determine the 1-g SAR. Area scans are performed at a constant distance from the phantom surface, determined by the measurement frequencies.

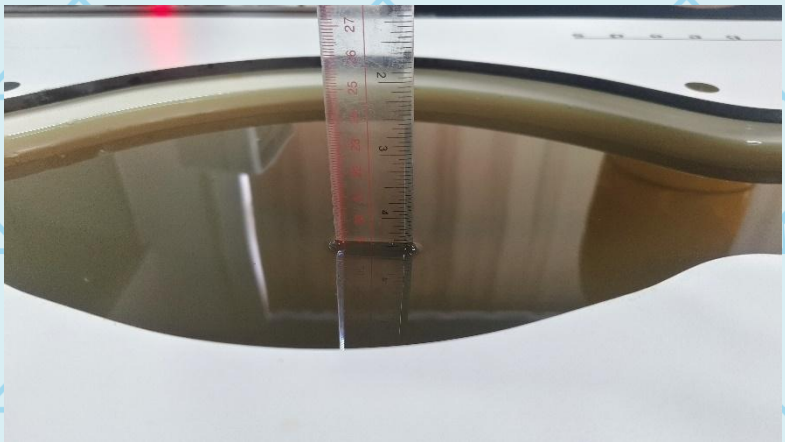
Zoom Scan:

Except when area scan based 1-g SAR estimation applies, a zoom scan measurement is required at the highest peak SAR location determined in the area scan to determine the 1-g SAR. When the 1-g SAR of the highest peak is within 2 dB of the SAR limit, additional zoom scans are required for other peaks within 2 dB of the highest peak that have not been included in any zoom scan to ensure there is no increase in SAR. The zoom scan volume must be larger than the required minimum dimensions described 7.7. There must be at least one measurement point within the first 5 mm from the phantom surface for measurements ≤ 3 GHz, two measurement points for measurements ≤ 5 GHz and three measurement points for measurements above 5 GHz.When graded grids are used, which only applies in the direction normal to the phantom surface, the initial grid separation closest to the phantom surface and subsequent graded grid increment ratios must satisfy the required protocols in 7.7 .The 1-g SAR averaging volume must be fully contained within the zoom scan measurement volume oundaries;otherwise, the measurement must be repeated by shifting or expanding the zoom scan volume. The similar requirements also apply to 10-g SAR measurements.

7.9 Tissue simulating liquids: dielectric properties

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The 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 ± 10% of the target values.





Simulating Head Liquid for 5G(HBBL600-10000MHz V6), Manufactured by SPEAG:

Ingredients	(% by weight)
Water	50-65%
Mineral oil	10-30%
Emulsifiers	8-25%
Sodium salt	0-1.5%

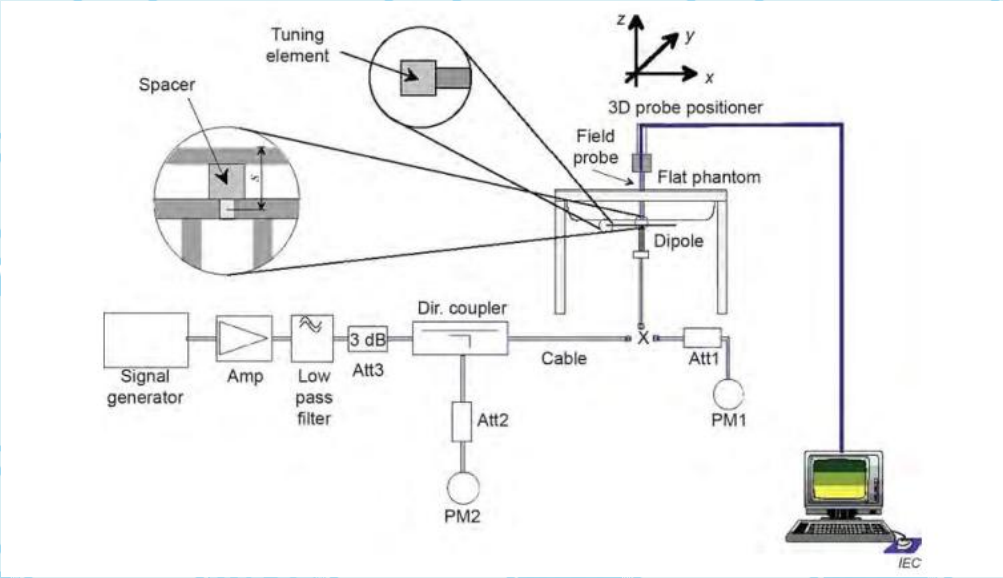
7.10 Tissue simulating liquids: parameters

Used Target Frequency	Target Tissue		Measured Tissue		Liquid Temp.	Test Date
	ε_r (+/-10%)	σ (S/m) (+/-10%)	ε_r	σ (S/m)		
835MHz Head	41.50 (37.35~45.65)	0.91 (0.82~1.00)	43.60	0.914	21.6°C	2026-09-28
1750MHz Head	40.10 (36.09~44.11)	1.37 (1.24~1.50)	41.90	1.34	21.6°C	2026-09-28
1900MHz Head	40.00 (36.00~44.00)	1.40 (1.26~1.54)	41.70	1.44	21.6°C	2026-09-29
2550MHz Head	39.10 (35.19~43.01)	1.91 (1.72~2.1)	40.80	1.90	21.6°C	2026-09-29
ε_r= Relative permittivity, σ= Conductivity						

8 System Check

8.1 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 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 100 mW. 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 validation 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 (result on plot).
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.



8.2 System check results

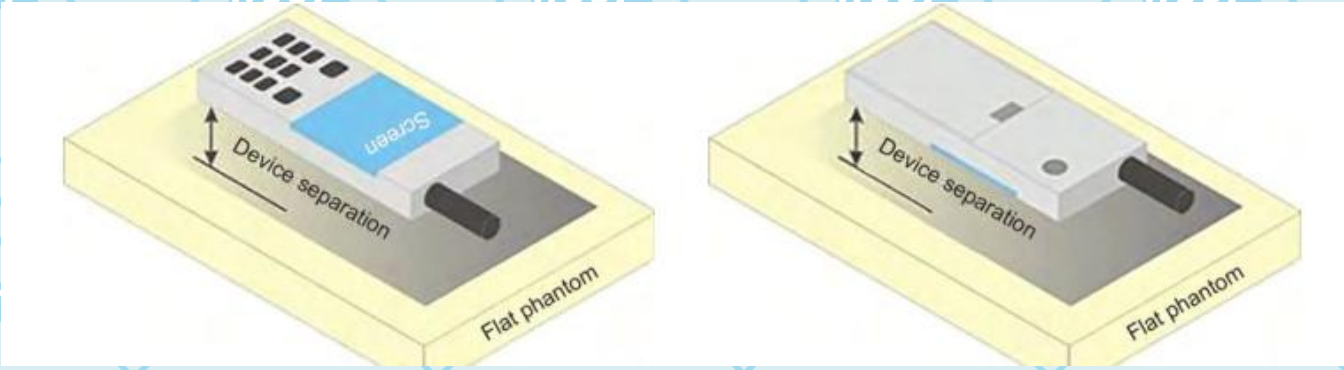
The system Check is performed for verifying the accuracy of the complete measurement system and performance of the software.The following table shows System check results for all frequency bands and tissue liquids used during the tests (plot(s) see annex A).

System Check	Target SAR (1W) (+/-10%)		Measured SAR (Normalized to 1W)		Liquid Temp.	Test Date
	1-g (W/kg)	10-g (W/kg)	1-g (W/kg)	10-g (W/kg)		
D835V2 Body	9.68 (8.72~10.64)	6.44 (5.80~7.08)	9.93	6.51	21.6°C	2026-09-28
D1750V2 Body	36.40 (32.76~40.04)	19.60 (17.64~21.56)	36.10	19.80	21.6°C	2026-09-28
D1900V2 Body	39.70 (35.73~43.67)	21.00 (18.90~23.10)	40.30	21.50	21.6°C	2026-09-29
D2550V2 Body	54.10 (48.69~59.51)	24.70 (22.23~27.17)	54.90	25.30	21.6°C	2026-09-29
Note: 1.All SAR values are normalized to 1W forward power. 2. The actual forward power output to the dipole antenna is 20dbm(100mw), so the measured value differs ten times from the table						

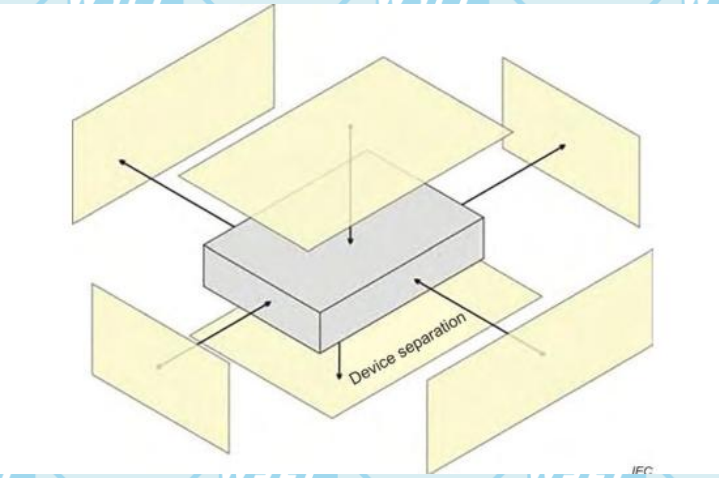
9 Test Position Configurations

9.1 Body Exposure Condition

According to 447498 :Devices that support transmission while used with body-worn accessories must be tested for SAR compliance related to each body-worn condition of use. SAR evaluation is required for body-worn accessories supplied with the device they are attached to.
The general informing principle is that the selected test configurations must conservatively capture the various body-worn accessory use conditions expected by users. For instance, devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, must be tested for SAR compliance using a conservative minimum test separation distance for all use conditions required by the device.



Test positions for body-worn devices



Possible test positions for a generic device

Testing of all six faces of the DUT (see Figure) might not be required; justification shall be provided when omitting testing of some faces.

10 SAR Test Configuration

10.1 GSM Test Configurations

SAR tests for GSM850 and GSM1900, a communication link is set up with a base station by air link. Using CMU200 the power lever is set to “5”and “0” in SAR of GSM850 and GSM1900. The tests in the band of GSM 850 and GSM 1900 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.

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 8-PSK.

10.2 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 WideBand 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 (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.

5) TDD LTE test configuration

According to KDB 941225 D05 SAR for LTE Devices v02r04, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

11 Detailed Test Results

11.1 Conducted Power measurements

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

11.1.1 Conducted Power of GSM

Mode: GSM850		Maximum Tune-up(dBm)	Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
			CH128	CH190	CH251		CH128	CH190	CH251
			824.2MHz	836.6MHz	848.8MHz		824.2MHz	836.6MHz	848.8MHz
GSM(CS)		33.00	32.44	32.43	32.58	-9.03	23.41	23.40	23.55
GPRS (GMSK)	\	\	\	\	\	-9.03	\	\	\
	\	\	\	\	\	-6.02	\	\	\
	\	\	\	\	\	4.26	\	\	\
	\	\	\	\	\	-3.01	\	\	\
Mode: GSM1900		Maximum Tune-up(dBm)	Burst Average Power (dBm)			Division Factors	Frame-Average Power (dBm)		
			CH512	CH661	CH810		CH512	CH661	CH810
			1850.2MHz	1880.0MHz	1909.8MHz		1850.2MHz	1880.0MHz	1909.8MHz
GSM(CS)		29.50	28.54	28.99	29.23	-9.03	19.51	19.96	20.2
GPRS (GMSK)	\	\	\	\	\	-9.03	\	\	\
	\	\	\	\	\	-6.02	\	\	\
	\	\	\	\	\	4.26	\	\	\
	\	\	\	\	\	-3.01	\	\	\

Note:

Division Factors

To average the power, the division factor is as follows:

1Tx-slots = 1 transmit time slots out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2Tx-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3Tx-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4Tx-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

11.1.2 Conducted Power of LTE

The following data is taken from "AB26070210_Appendix E_LTE"
For detailed data, please refer to the attached file above.

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		18607	18900	19193
					1850.7MHz	1880.0MHz	1909.3MHz
1.4MHz	QPSK	1	0	22.50	22.27	21.44	21.11
			2	22.50	22.17	21.43	21.09
			5	22.50	22.14	21.42	21.03
		3	0	22.50	22.12	21.41	21.01
			2	22.00	21.97	21.37	21.00
			3	22.00	21.92	21.34	21.00
		6	0	21.00	20.89	20.33	20.05
	16QAM	1	0	21.50	21.31	20.62	20.23
			2	21.50	21.23	20.6	20.22
			5	21.50	21.13	20.59	20.22
		3	0	21.50	21.1	20.58	20.99
			2	21.50	21.06	20.56	20.97
			3	21.00	20.98	20.55	20.95
		6	0	20.50	20.09	20.48	20.27
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18615	18900	19185
					1851.5MHz	1880.0MHz	1908.5MHz
3MHz	QPSK	1	0	23.00	22.6	21.46	21.26
			7	22.50	22.37	21.38	21.17
			14	22.00	21.97	21.27	21.02
		8	0	21.50	21.5	20.35	20.17
			4	21.50	21.3	20.33	20.15
			7	21.50	21.28	20.32	20.12
		15	0	21.50	21.05	20.27	20.04
	16QAM	1	0	22.00	21.96	20.61	20.13
			7	22.00	21.72	20.53	20.05
			14	21.50	21.26	20.4	20.83
		8	0	21.00	20.55	20.42	20.26
			4	20.50	20.38	20.36	20.24
			7	20.50	20.29	20.35	20.22
		15	0	20.50	20.14	20.3	20.1
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18625	18900	19175
					1852.5MHz	1880.0MHz	1907.5MHz
5MHz	QPSK	1	0	23.50	23.22	21.56	21.58
			13	23.00	22.78	21.5	21.3
			24	22.50	22.16	21.37	20.99
		12	0	22.00	21.99	20.36	20.38
			6	22.00	21.66	20.29	20.33
			13	22.00	21.64	20.27	20.23
		25	0	21.50	21.31	20.2	20.07
	16QAM	1	0	23.00	22.65	20.76	20.91
			13	22.50	22.18	20.74	20.64
			24	22.00	21.58	20.62	20.32
		12	0	21.00	20.97	20.38	20.46
			6	21.00	20.66	20.34	20.45
			13	21.00	20.56	20.29	20.3
		25	0	20.50	20.25	20.21	20.18

LTE-FDD Band 2				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		18650	18900	19150
					1855.0MHz	1880.0MHz	1905.0MHz
10MHz	QPSK	1	0	23.50	23.3	21.62	22.84
			25	23.50	23.21	21.47	21.79
			49	22.50	22.36	21.24	21.3
		25	0	22.50	22.18	20.29	21.14
			13	22.50	22.17	20.16	20.82
			25	22.00	22	20.14	20.78
		50	0	22.00	21.55	20.97	20.13
	16QAM	1	0	23.00	22.67	20.71	21.69
			25	23.00	22.53	20.55	20.64
			49	22.00	21.51	20.32	20.44
		25	0	21.50	21.45	20.33	20.4
			13	21.50	21.22	20.2	20.95
			25	21.00	20.57	20.2	20.86
		50	0	21.00	20.56	20.01	20.2
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18675	18900	19125
					1857.5MHz	1880.0MHz	1902.5MHz
15MHz	QPSK	1	0	23.50	23.47	22.01	23.32
			38	23.50	23.15	21.64	22.01
			74	23.00	22.93	21.61	21.98
		36	0	22.50	22.5	21.34	21.53
			18	22.50	22.45	20.61	21.27
			39	22.50	22.3	20.55	20.63
		75	0	22.50	22.08	20.4	20.62
	16QAM	1	0	23.00	22.84	21.1	22.44
			38	23.00	22.58	20.8	21.57
			74	22.00	21.72	20.74	21.18
		36	0	22.00	21.72	20.61	20.61
			18	21.50	21.5	20.54	20.29
			39	21.00	20.92	20.33	20.43
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	18700	18900	19100
					1860.0MHz	1880.0MHz	1900.0MHz
20MHz	QPSK	1	0	24.00	23.51	22.48	22.83
			50	23.00	22.9	22.33	22.63
			99	23.00	22.71	21.9	22.04
		50	0	23.00	22.59	21.73	21.93
			25	23.00	22.55	20.72	21.62
			50	22.50	22.39	20.71	21.15
		100	0	22.50	22.27	20.62	21.01
	16QAM	1	0	23.00	22.8	21.52	22.07
			50	22.50	22.04	21.4	21.59
			99	22.00	21.91	21	21.09
		50	0	22.00	21.76	20.71	20.78
			25	21.50	21.21	20.68	20.25
			50	21.00	20.97	20.55	20.27

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20407 824.7MHz	20525 836.5MHz	20643 848.3MHz
1.4MHz	QPSK	1	0	24.00	23.50	23.27	23.44
			2	23.50	23.49	23.25	23.39
			5	23.50	23.47	23.23	23.3
		3	0	23.50	23.45	23.21	23.29
			2	23.50	23.4	23.18	23.25
			3	23.50	23.39	23.16	23.14
		6	0	22.50	22.37	22.21	22.09
	16QAM	1	0	23.00	22.59	22.33	22.42
			2	23.00	22.58	22.25	22.41
			5	23.00	22.56	22.23	22.41
		3	0	23.00	22.56	22.09	22.41
			2	23.00	22.55	22.02	22.41
			3	22.50	22.48	21.92	22.41
		6	0	22.00	21.55	21.35	21.21
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20415 825.5MHz	20525 836.5MHz	20635 847.5MHz
3MHz	QPSK	1	0	23.50	23.27	23.17	23.32
			7	23.50	23.26	23.14	23.22
			14	23.00	22.81	22.86	22.99
		8	0	22.50	22.29	22.22	22.09
			4	22.50	22.24	22.15	22.06
			7	22.50	22.17	22.15	22.05
		15	0	22.50	22.06	22.1	21.96
	16QAM	1	0	23.00	22.6	22.35	22.02
			7	23.00	22.58	22.33	22.00
			14	22.50	22.17	22.03	21.79
		8	0	21.50	21.27	21.21	21.08
			4	21.50	21.22	21.21	21.04
			7	21.50	21.17	21.15	20.97
		15	0	21.50	21.09	21.04	20.88

LTE-FDD Band 5				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20425 826.5MHz	20525 836.5MHz	20625 846.5MHz
5MHz	QPSK	1	0	23.50	23.39	23.42	23.36
			13	23.50	23.01	23.23	23.03
			24	23.50	22.66	23.08	22.92
		12	0	22.50	22.1	22.3	22.04
			6	22.50	21.92	22.24	22.03
			13	22.50	21.82	22.12	22
		25	0	22.00	21.62	22	21.87
	16QAM	1	0	23.00	22.74	22.65	22.52
			13	22.50	22.44	22.44	22.41
			24	22.50	22.12	22.29	22.19
		12	0	21.50	21.13	21.23	21.01
			6	21.50	20.97	21.16	20.94
			13	21.50	20.82	21.15	20.93
		25	0	21.00	20.64	20.94	20.91
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20450 829.0MHz	20525 836.5MHz	20600 844.0MHz
10MHz	QPSK	1	0	24.00	23.27	23.37	23.52
			25	23.50	22.95	23.11	23.47
			49	23.00	22.61	22.7	23
		25	0	22.50	21.54	22.26	22.12
			13	22.50	21.46	22.17	21.85
			25	22.50	21.45	22.07	21.79
		50	0	22.00	21.34	21.87	21.62
	16QAM	1	0	23.00	22.6	22.52	22.28
			25	22.50	22.22	22.29	22.07
			49	22.00	21.95	21.77	21.77
		25	0	21.50	20.62	21.24	21.16
			13	21.50	20.6	21.11	21.06
			25	21.00	20.5	20.84	20.85
		50	0	21.00	20.39	20.83	20.75

LTE-FDD Band 7				Maximum Tune-up(dBm)	Conducted Power(dBm)		
Bandwidth	Modulation	RB allocation	RB offset		20775	21100	21425
					2502.5MHz	2535.0MHz	2567.5MHz
5MHz	QPSK	1	0	21.00	20.72	18.5	18.8
			13	21.00	20.82	18.82	18.24
			24	21.00	20.9	18.88	18.26
		12	0	21.00	20.98	19.1	18.64
			6	22.00	21.82	20.21	18.84
			13	21.50	21.07	20.56	19.35
		25	0	21.50	21.37	21.22	20.18
	16QAM	1	0	20.00	19.56	18.28	18.5
			13	20.00	19.56	18.63	18.85
			24	20.00	19.6	18.68	18.94
		12	0	20.00	19.76	18.9	18.24
			6	21.00	20.88	18.87	18.27
			13	21.00	21	19.41	18.7
		25	0	21.50	21.35	19.88	18.92
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20800	21100	21400
					2505.0MHz	2535.0MHz	2565.0MHz
10MHz	QPSK	1	0	20.50	20.05	18.94	18.07
			25	20.50	20.34	18.62	18.46
			49	20.50	20.5	18.73	18.48
		25	0	21.00	20.68	19.13	18.88
			13	21.00	20.87	19.97	18.46
			25	22.00	21.54	20.33	18.59
		50	0	22.00	21.22	21.52	20.13
	16QAM	1	0	19.00	18.9	18.78	18.82
			25	19.50	19.26	18.88	18.91
			49	19.50	19.33	18.48	18.24
		25	0	19.50	19.33	18.92	18.58
			13	20.50	20.04	18.17	18.48
			25	20.50	20.49	19.03	18.54

Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	20825	21100	21375
					2057.5MHz	2535.0MHz	2562.5MHz
15MHz	QPSK	1	0	19.50	19.33	18.88	18.38
			38	20.50	20.07	18.83	18.38
			74	20.50	20.18	19.34	18.73
		36	0	21.00	20.51	19.53	18.15
			18	21.50	21.06	20	18.18
			39	21.50	21.22	20.37	18.79
		75	0	21.50	21.15	21.18	19.95
	16QAM	1	0	19.00	18.98	18.49	18.2
			38	19.00	18.92	18.59	18.34
			74	19.00	18.92	18.7	18.57
		36	0	19.50	19.34	18.45	18.55
			18	20.00	19.98	19.1	18.22
			39	21.50	21.22	20.02	18.43
Bandwidth	Modulation	RB allocation	RB offset	Maximum Tune-up(dBm)	21350	21100	21350
					2560.0MHz	2535.0MHz	2560.0MHz
20MHz	QPSK	1	0	19.00	18.57	18.66	18.51
			50	20.00	19.51	18.84	18.57
			99	20.00	19.63	19.43	18.06
		50	0	20.00	19.94	19.54	18.05
			25	20.50	20.29	19.74	19.46
			50	21.00	20.73	20.45	19.7
		100	0	22.50	21.96	21.13	19.77
	16QAM	1	0	19.00	18.82	18.04	18.28
			50	19.00	18.94	18.63	18.34
			99	19.00	18.48	18.67	18.34
		50	0	19.50	19.23	18.63	18.75
			25	20.00	19.54	19.16	18.38
			50	21.50	21.22	19.91	18.57

11.1.3 Tune-up power tolerance

Band	Tune-up power tolerance(dBm)	
GSM850	GMSK	Max output power =33.00
GSM1900	GMSK	Max output power =29.50
LTE B2	Max output power =24.00	
LTE B5	Max output power =24.00	
LTE B7	Max output power =22.50	

11.2 SAR test results

Notes:

1) Per KDB447498 ,the SAR test shall be performed at the high, middle and low frequency channels of each operating mode. If the scaled SAR measured at mid-band channel for each test configuration is at least 3.0 dB lower than the SAR limit (< 0.8 W/kg), testing at the high and low channels is optional.

2) Per KDB447498 , 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 KDB447498 , All measurement SAR result is scaled-up to account for tune-up tolerance is compliant.

4) Per KDB648474 D04v01r02, body-worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn with headset SAR.

5) Per KDB865664 D01v01r04,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.

6)Per KDB 941225 D05, SAR Evaluation Considerations for LTE Devices

(1)QPSK with 1 RB and 50% RB allocation

Start with the largest channel bandwidth and measure SAR, using the RB offset and required test channel combination with the highest maximum output power among 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; 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.

(2)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 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

(3)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 > 1/2 dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

(4)Other channel bandwidth

SAR is required when the highest maximum output power of the smaller channel bandwidth is > 1/2 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.

11.2.1 Results overview of GSM

Mode	Position	Ch.	Freq. (MHz)	Power Drift (db)	1g Meas. Head SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)
GSM 850 (voice)	Front 0mm	251	848.8	0.040	0.635	100	1.00	32.58	33.00	1.102	0.699
	Back 0mm	251	848.8	-0.010	1.000	100	1.00	32.58	33.00	1.102	1.102
		190	836.6	0.050	0.928	100	1.00	32.43	32.50	1.016	0.943

Mode	Position	Ch.	Freq. (MHz)	Power Drift (db)	1g Meas. Head SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)
GSM 1900 (voice)	Front 0mm	810	1909.8	-0.030	0.502	100	1.00	29.23	29.50	1.064	0.534
	Back 0mm	810	1909.8	0.020	0.594	100	1.00	29.23	29.50	1.064	0.632

11.2.2 Results overview of LTE

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (db)	1g Meas. Head SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)
Band 2	1RB	Front 0mm	18700	1860.0	0.010	0.703	100	1.00	23.51	24.00	1.119	0.787
		Back 0mm	18700	1860.0	0.010	1.000	100	1.00	23.51	24.00	1.119	1.119
		Back 0mm	18900	1880	0.060	0.781	100	1.00	22.48	23.00	1.127	0.880
	50%RB	Front 0mm	18700	1860.0	0.040	0.627	100	1.00	23.51	24.00	1.119	0.702
		Back 0mm	18700	1860.0	0.070	0.915	100	1.00	23.51	24.00	1.119	1.024

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (db)	1g Meas. Head SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)
Band 5	1RB	Front 0mm	20600	844.0	-0.040	0.524	100	1.00	23.52	24.00	1.117	0.585
		Back 0mm	20600	844.0	0.020	0.667	100	1.00	23.52	24.00	1.117	0.745
	50%RB	Front 0mm	20600	844.0	0.080	0.485	100	1.00	23.52	24.00	1.117	0.542
		Back 0mm	20600	844.0	-0.030	0.618	100	1.00	23.52	24.00	1.117	0.690

Mode	Channel Type	Position	Ch.	Freq. (MHz)	Power Drift (db)	1g Meas. Head SAR (W/kg)	Duty cycle (%)	Duty cycle Factor	Meas. Power (dBm)	Max. tune-up power (dBm)	Scaling Factor	1g Scaled SAR (W/kg)
Band 7	1RB	Front 0mm	20850	2510.0	-0.160	0.046	100	1.00	21.96	22.50	1.132	0.052
		Back 0mm	20850	2510.0	-0.060	0.217	100	1.00	21.96	22.50	1.132	0.246
	50%RB	Front 0mm	20850	2510.0	0.050	0.042	100	1.00	21.96	22.50	1.132	0.048
		Back 0mm	20850	2510.0	0.130	0.202	100	1.00	21.96	22.50	1.132	0.229

Note:

1.The maximum SAR Value of each test band is marked bold.

2.SAR plot is provided only for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.

3.Per KDB 447498 , for each exposure position, if the highest output power channel Reported SAR ≤ 0.8W/kg(≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g), other channels SAR testing is not necessary.

4.Per KDB 447498 , head/body-worn use is evaluated with the device positioned at 0mm/10 mm from a head/flat phantom respectively filled with head tissue-equivalent medium.

5.Per KDB 447498, the report SAR is measured SAR value adjusted for maximum tune-up tolerance. Scaling Factor=10^[(tune-up limit power(dBm) - Ave.power power (dBm))/10], where tune-up limit is the maximum rated power among all production units.

6.Reported SAR(W/kg)=Measured SAR (W/kg)*Scaling Factor.

12 Simultaneous Transmission Possibilities

EUT does not support multiple transmitters operating simultaneously, so there is no need to consider the increase in TER due to synchronous transmission.

Note: The relevant synchronous transmission technical specification materials are provided by the applicant.

13 Measurement uncertainty evaluation

13.1 Measurement uncertainty evaluation for SAR test

The following table includes the uncertainty table of the IEEE 1528. The values are determined by SPEAG.The breakdown of the individual uncertainties is as follows:

DASY8 Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 300MHz–3GHz range)								
Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) (1g)	(c_i) (10g)	Std.Unc. (1g)	Std.Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±13.3%	N	2	1	1	±6.7%	±6.7%
CF_{drift}	Probe Calibration Drift	±1.7%	R	$\sqrt{3}$	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±2.8%	R	$\sqrt{3}$	1	1	±1.6%	±1.6%
ISO	Probe Isotropy	±7.6%	R	$\sqrt{3}$	1	1	±4.4%	±4.4%
DAE	Other Probe+Electronic	±0.8%	N	1	1	1	±0.8%	±0.8%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{sys}	Probe Positioning	±0.006 mm	N	1	0.14	0.14	±0.10%	±0.10%
DAT	Data Processing	±1.2%	N	1	1	1	±1.2%	±1.2%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)DAK	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)BB	±3.3%	R	$\sqrt{3}$	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	$\sqrt{3}$	0	0	±0%	±0%
DIS	Distance DUT – TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
D_{xyz}	Device Positioning	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%
MOD	DUT Modulation^{m}	±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	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc.^{val}	±0.0%	N	1	1	1	±0.0%	±0.0%
RF_{in}	Unc.Input Power^{val}	±0.0%	N	1	1	1	±0.0%	±0.0%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling^{p}	±0.0%	R	$\sqrt{3}$	1	1	±0.0%	±0.0%
u(ΔSAR)	Combined Uncertainty						±11.3%	±11.2%
U	**Expanded Uncertainty**						±22.6%	±22.5%

DASY8 Uncertainty Budget

According to IEC/IEEE 62209-1528
(Frequency band: 3GHz–6GHz range)

Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) (1g)	(c_i) (10g)	Std.Unc. (1g)	Std.Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±13.1%	N	2	1	1	±6.55%	±6.55%
CF_{drift}	Probe Calibration Drift	±1.7%	R	$\sqrt{3}$	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%
ISO	Probe Isotropy	±7.6%	R	$\sqrt{3}$	1	1	±4.4%	±4.4%
DAE	Other Probe+Electronic	±1.2%	N	1	1	1	±1.2%	±1.2%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{sys}	Probe Positioning	±0.005 mm	N	1	0.29	0.29	±0.2%	±0.20%
DAT	Data Processing	±2.3%	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)DAK	±2.5%	N	1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)BB	±3.4%	R	$\sqrt{3}$	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	$\sqrt{3}$	0.25	0.25	±2.0%	±2.0%
DIS	Distance DUT – TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
D_{xyz}	Device Positioning	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	1	1	1	±3.6%	±3.6%
MOD	DUT Modulation^{m}	±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	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc.^{val}	±0.0%	N	1	1	1	±0.0%	±0.0%
RF_{in}	Unc.Input Power^{val}	±0.0%	N	1	1	1	±0.0%	±0.0%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling^{p}	±0.0%	R	$\sqrt{3}$	1	1	±0.0%	±0.0%
u(ΔSAR)	Combined Uncertainty						±11.6%	±11.6%
U	**Expanded Uncertainty**						±23.3%	±23.1%

13.2 Measurement uncertainty evaluation for system check

The following table includes the uncertainty table of the IEEE 1528. The values are determined by SPEAG.The breakdown of the individual uncertainties is as follows:

Uncertainty For System Performance Check								
Uncertainty Component	Tol. (±%)	Prob. Dist.	Div.	C_i 1g	C_i 10g	1g U_i(±%)	10g U_i (±%)	V_i
measurement system								
Probe Calibration	6.7	N	1	1	1	6.70	6.70	∞
Axial Isotropy	4.7	R	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.6	R	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary Effect	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.7	R	$\sqrt{3}$	1	1	2.71	2.71	∞
system detection Limits	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Modulation response	0	N	1	1	1	0.00	0.00	∞
Readout Electronics	0.3	N	1	1	1	0.30	0.30	∞
Response Time	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
Integration Time	0	R	$\sqrt{3}$	1	1	0.00	0.00	∞
RF ambient Conditions - Noise	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
RF ambient Conditions – Reflections	1	R	$\sqrt{3}$	1	1	0.58	0.58	∞
Probe positioned Mechanical Tolerance	0.8	R	$\sqrt{3}$	1	1	0.46	0.46	∞
Probe positioning with respect to Phantom Shell	6.7	R	$\sqrt{3}$	1	1	3.87	3.87	∞
Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Dipole								
Deviation of experimental source from numerical source	5.5	N	1	1	1	3.18	3.18	∞
Input power and SAR drift measurement	2.0	R	$\sqrt{3}$	1	1	1.15	1.15	∞
Dipole axis to liquid Distance	3.4	R	$\sqrt{3}$	1	1	1.96	1.96	∞
Phantom and Tissue Parameters								
Phantom Uncertainty (shape and thickness tolerances)	4.0	R	$\sqrt{3}$	1	1	2.31	2.31	∞
Uncertainty in SAR correction for deviation (in permittivity and conductivity)	2	N	1	1	0.84	2.0	1.68	∞
Liquid conductivity（meas.）	2.5	N	1	0.78	0.71	1.13	1.03	5
Liquid conductivity (target.)	5	R	$\sqrt{3}$	0.78	0.71	3.90	3.55	5
Liquid Permittivity（meas.）	2.5	N	1	0.23	0.26	0.33	0.38	∞
Liquid Permittivity (target.)	5	R	$\sqrt{3}$	0.23	0.26	1.15	1.30	∞
Combined Standard Uncertainty		Rss				11.29	11.18	
Expanded Uncertainty (95% Confidence interval)		k				20.57	19.95	

14 Test equipment and ancillaries used for tests

To simplify the identification of the test equipment and/or ancillaries which were used, the reporting of the relevant test cases only refer to the test item number as specified in the table below.

	Manufacturer	Device Type	Type(Model)	Serial number	calibration	
					Last Cal.	Due Date
☒	SPEAG	E-Field PROBE	EX3DV4	7961	2025-11-11	2026-11-10
☒	SPEAG	Validation Kits	D835V2	4d203	2024-08-20	2027-08-19
☒	SPEAG	Validation Kits	D1750V2	1143	2024-08-20	2027-08-19
☒	SPEAG	Validation Kits	D1900V2	5d211	2024-08-19	2027-08-18
☒	SPEAG	Validation Sources	D2550V2	1015	2024-08-16	2027-08-15
☒	SPEAG	DAE	DAE4ip	1926	2025-11-11	2026-11-11
☒	R & S	Universal Radio Communication Tester	CMW500	144459	2025-11-27	2026-11-26
☒	HP	Network Analyser	8753D	3410A08889	2025-11-27	2026-11-26
☒	HP	Signal Generator	E4421B	GB39340770	2025-11-27	2026-11-26
☒	SATIMO	Amplifier	Power Amplifier	MODU-023-A-0004	2025-11-27	2026-11-26
☒	Agilent	Power Meter	E4418B	GB43312909	2025-11-27	2026-11-26
☒	Agilent	Power Meter Sensor	E4412A	MY41500046	2025-11-27	2026-11-26

Annex A:System Check

(Please See the SAR Measurement Plots of annex A.)

Annex B:Measurement Results

(Please See the SAR Measurement Plots of annex B.)

Annex C:Calibration Reports

(Please See the Calibration reports of annex C.)

Annex D: Test Photographs

(Please see SAR test setup photos.)