

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

Szsar-TRF-01 Rev. A/0 May15,2023

Report No.: SZCR250600264403

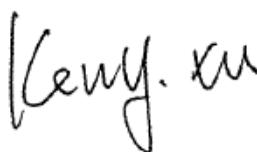
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FCC SAR TEST REPORT

Application No.: SZCR2506002644ME
Applicant: Guangdong Transtek Medical Electronics Co., Ltd.
Address of Applicant: Zone A, No.105, Dongli Road, Torch Development District, 528437 Zhongshan, Guangdong, China
Manufacturer: Guangdong Transtek Medical Electronics Co., Ltd.
Address of Manufacturer: Zone A, No.105, Dongli Road, Torch Development District, 528437 Zhongshan, Guangdong, China
EUT Description: Transtek Tel Blood Glucose Meter
Model No.: GBY43-A
FCC ID: OU9GBY43-A
Standards: FCC 47CFR §2.1093
Date of Receipt: 2025-07-12
Date of Test: 2025-07-14 to 2025-07-17
Date of Issue: 2025-07-17

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Inspection & Testing Services Laboratory

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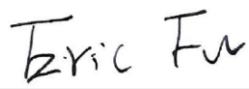
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2025-07-17		Original

Authorized for issue by:				
				
		Edison Li/Project Engineer		
				
		Eric Fu/Reviewer		



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)
	Body
CatM1 Band 2	0.52
CatM1 Band 4	0.55
CatM1 Band 12	0.25
CatM1 Band 13	0.20
CatM1 Band 66	0.51
SAR Limited(W/kg)	1.6

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1 General Information

1.1 General Description of EUT

Product Name:	Transtek Tel Blood Glucose Meter	
Model No.:	GBY43-A	
Trade Mark:	/	
Product Phase:	production unit	
Device Type:	portable device	
Exposure Category:	uncontrolled environment / general population	
IMEI:	868508063872991	
Hardware Version:	V1.1	
Software Version:	A.02	
Antenna Type:	FPC Antenna	
Antenna Gain:	CatM1 Band 2: 2.33dBi, CatM1 Band 4: 2.58dBi, CatM1 Band 12: 1.31dBi, CatM1 Band 13: 1.89dBi, CatM1 Band 66: 2.58dBi	
Device Operating Configurations:		
Modulation Mode:	QPSK,16QAM	
Frequency Bands:	Band	Tx(MHz)
	CatM1 Band 2	1850 ~1910
	CatM1 Band 4	1710~1755
	CatM1 Band 12	699~716
	CatM1 Band 13	777~787
	CatM1 Band 66	1710~1780
RF Cable:	<input checked="" type="checkbox"/> Provided by applicant <input type="checkbox"/> Provided by the laboratory	
Battery Information:	Model:	ZWD633248M
	Normal Voltage:	3.7V
	Rated capacity:	1080mAh
	Manufacturer:	ZHONGSHAN ZHONGWANGDE NEW ENERGY TECHNOLOGY CO., LTD.
Note:		
*Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.		
Remark:		
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1.1.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix D



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1.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
IEEE std C95.1-2019	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 447498 D04	Interim General RF Exposure Guidance v01
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02



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1.3 RF exposure limits

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

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.)



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1.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

1.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



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2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω

Ambient noise is checked and found very low and in compliance with requirement of standards.
Reflection of surrounding objects is minimized and in compliance with requirement of standards.



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3 SAR Measurements System Configuration

3.1 The SAR Measurement System

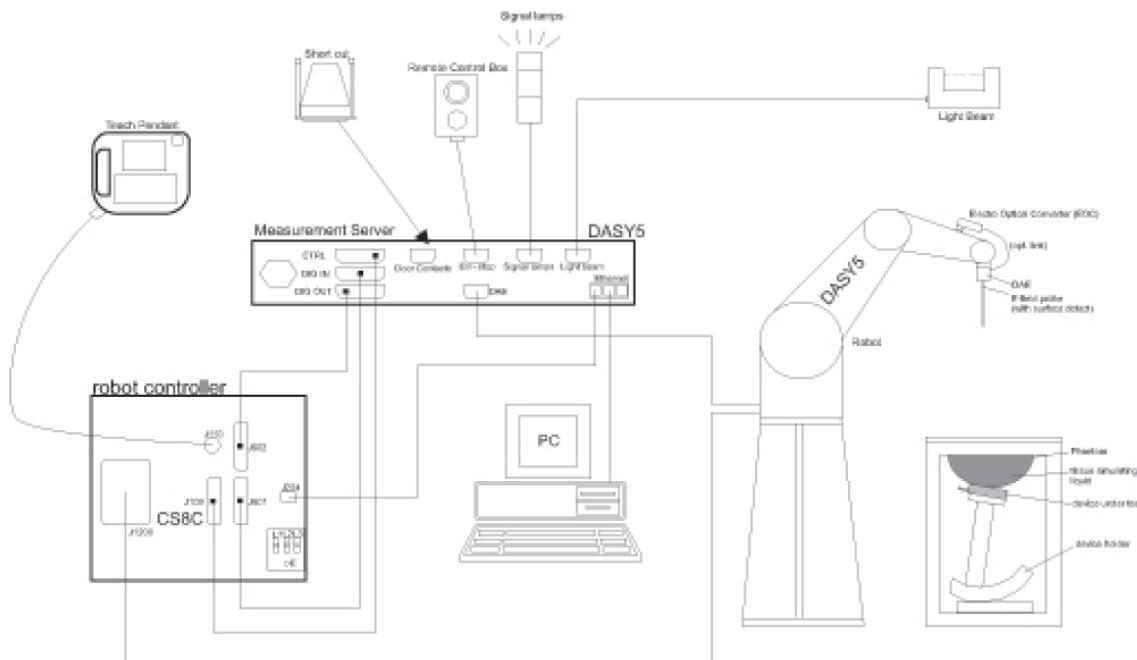
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|Ei|^2) / \rho$ where σ and ρ are the conductivity and mass density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

The DASY system for performing compliance tests consists of the following items:
A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software. An arm extension for accommodation the data acquisition electronics (DAE).

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

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



F-1. SAR Measurement System Configuration



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- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows system.
- DASY software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.



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3.2 Isotropic E-field Probe EX3DV4

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

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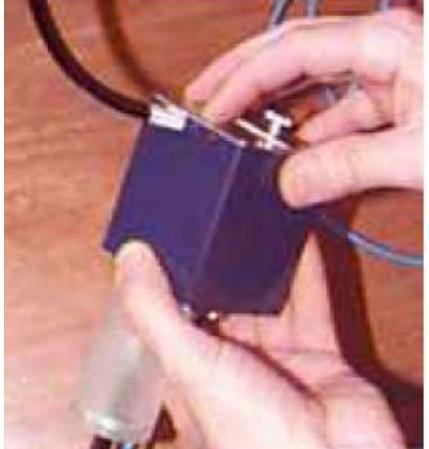
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3.3 Data Acquisition Electronics (DAE)

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

3.4 SAM Twin Phantom

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

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot. Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.



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3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)		
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)		
Shell Thickness	2.0 ± 0.2 mm(bottom plate)		
Dimensions	Major axis: 600 mm Minor axis: 400 mm		
Filling Volume	pprox.. 30 liters		
Wooden Support	SPEAG standard phantom table		
Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.			
ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4 but has reinforced top structure.			



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3.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon=3$ and loss tangent $\delta=0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.



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3.7 Measurement Procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

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

Step 2: Area scan

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

Step 3: Zoom scan

Around this point, a volume of 32mm*32mm*30mm (f≤2GHz), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points (f≤2GHz), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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

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



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		≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
		≤ 2 GHz: ≤ 15 mm $2 - 3$ GHz: ≤ 12 mm	$3 - 4$ GHz: ≤ 12 mm $4 - 6$ GHz: ≤ 10 mm
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}			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 \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm $2 - 3$ GHz: ≤ 5 mm*	$3 - 4$ GHz: ≤ 5 mm* $4 - 6$ GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{\text{Zoom}}(n)$		$3 - 4$ GHz: ≤ 4 mm $4 - 5$ GHz: ≤ 3 mm $5 - 6$ GHz: ≤ 2 mm
		≤ 5 mm	
	graded grid	$\Delta z_{\text{Zoom}}(1)$: between 1 st two points closest to phantom surface $\Delta z_{\text{Zoom}}(n > 1)$: between subsequent points	$3 - 4$ GHz: ≤ 3 mm $4 - 5$ GHz: ≤ 2.5 mm $5 - 6$ GHz: ≤ 2 mm $\leq 1.5 \cdot \Delta z_{\text{Zoom}}(n-1)$
Minimum zoom scan volume	x, y, z	≥ 30 mm	$3 - 4$ GHz: ≥ 28 mm $4 - 5$ GHz: ≥ 25 mm $5 - 6$ GHz: ≥ 22 mm

Step 4: Power reference measurement (drift)

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

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3.7.2 Data storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension "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], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

With 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:



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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

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

4.2 SAR measurement uncertainty

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



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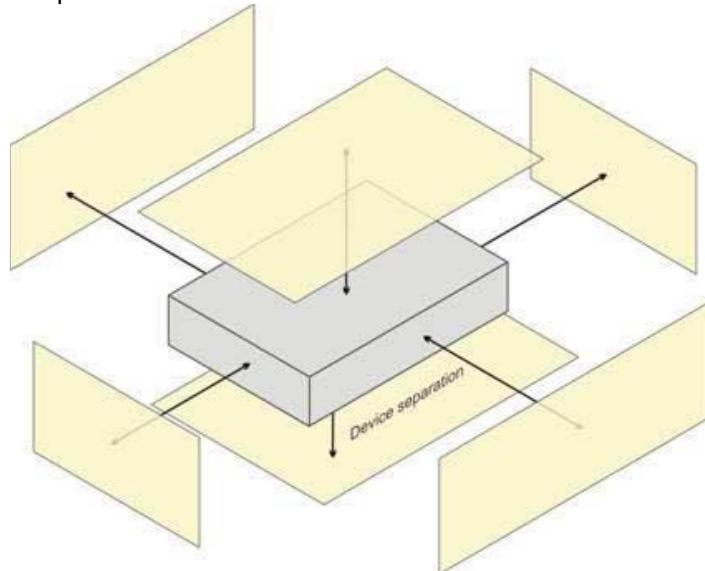
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5 Description of Test Position

5.1 Generic device

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in the below Figure. 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.



a) Test positions for a generic device



6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

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

Ingredients (% by weight)	Frequency (MHz)				
	450	700-1000	1700-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride	Sucrose: 98+% Pure Sucrose				
Water: De-ionized, 16 MΩ+ resistivity	HEC: Hydroxyethyl Cellulose				
Tween: Polyoxyethylene (20) sorbitan monolaurate					
HSL5GHz is composed of the following ingredients: (Manufactured by SPEAG)					
Water: 50-65%					
Mineral oil: 10-30%					
Emulsifiers: 8-25%					
Sodium salt: 0-1.5%					

Table 1 : Recipe of Tissue Simulate Liquid



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6.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ϵ_r) are listed in Table 2. For the SAR measurement given in this report.

The temperature variation of the Tissue Simulate Liquids was $22\pm2^\circ\text{C}$.

Tissue Type	Measured Frequency (MHz)	Measured Tissue		Target Tissue ($\pm 5\%$)		Deviation (Within $\pm 5\%$)		Liquid Temp. (°C)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
750 Head	750	40.439	0.902	41.90	0.89	-3.49%	1.33%	22.4	2025/7/14
1750 Head	1750	40.572	1.390	40.10	1.37	1.18%	1.43%	22.1	2025/7/17
1900 Head	1900	40.473	1.416	40.00	1.40	1.18%	1.11%	22.3	2025/7/16

Table 2 : Measurement result of Tissue electric parameters



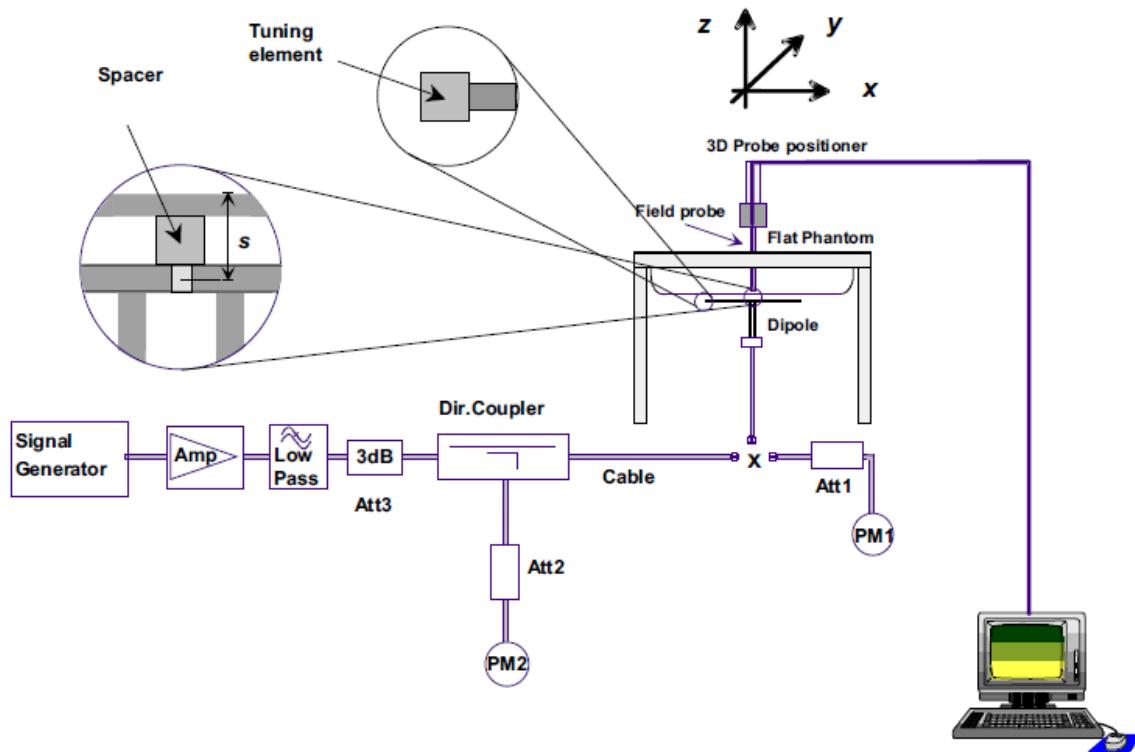
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6.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 10\%$ from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range $22 \pm 2^\circ\text{C}$, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 ± 0.5 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-12.The microwave circuit arrangement used for SAR system Check



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6.2.1 Justification for Extended SAR Dipole Calibrations

- 1) Instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.
 - a) There is no physical damage on the dipole;
 - b) System check with specific dipole is within 10% of calibrated value;
 - c) Return-loss is within 20% of calibrated measurement;
 - d) Impedance is within 5Ω from the previous measurement.
- 2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

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to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are valid for 60 days from the date of testing.
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6.2.2 Summary System Check Result(s)

Validation Kit	Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within $\pm 10\%$)		Liquid Temp. (°C)	Test Date
	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3_Head	2.06	1.39	8.24	5.56	8.42	5.49	-2.14%	1.28%	22.4	2025/7/14
D1750V2_Head	9.16	4.98	36.64	19.92	36.20	19.10	1.22%	4.29%	22.1	2025/7/17
D1950V3_Head	10.40	5.48	41.60	21.92	40.50	20.80	2.72%	5.38%	22.3	2025/7/16

Table 3 : SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

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7 Test Configuration

7.1 Operation Configurations

7.1.1 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Radio Communication Analyzer was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

TDD LTE test consideration

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.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:

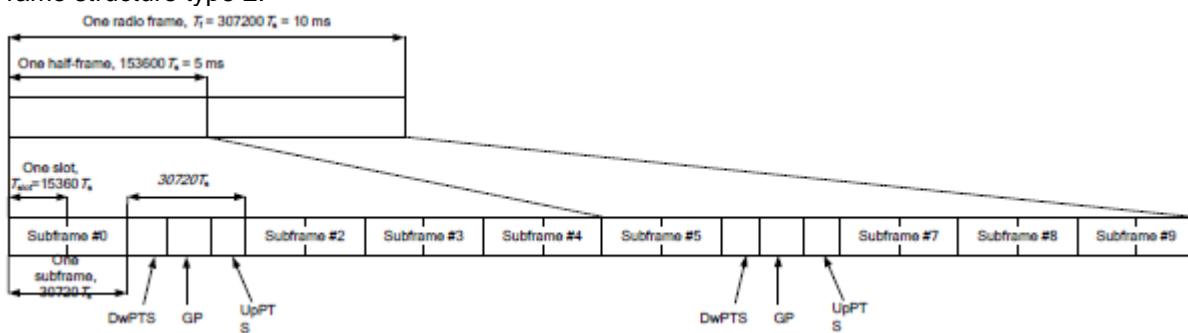


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink	
	DwPTS	UpPTS		DwPTS	UpPTS
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		
0	6592.Ts			7680.Ts	
1	19760.Ts			20480.Ts	
2	21952.Ts			23040.Ts	
3	24144.Ts			25600.Ts	
4	26336.Ts			7680.Ts	
5	6592.Ts			20480.Ts	
6	19760.Ts	4384.Ts	5120.Ts	23040.Ts	5120.Ts

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7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Table 4.2-2: Uplink-downlink configurations.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

A) Spectrum Plots for RB Configurations

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

B) MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36.101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

Modulation	Channel bandwidth/Transmission bandwidth						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1



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16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3
256QAM				≥1			5

C) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

D) Largest channel bandwidth standalone SAR test requirements

1) 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.

2) QPSK with 50% RB allocation

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

3) 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 1) and 2) 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.

4) 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.

E) 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.



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8 Test Result

8.1 Measurement of RF Conducted Power

CatM1 Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18607	18900	19193	
1.4MHz	QPSK	1	0	21.64	21.64	21.69	22.00
		1	2	21.59	21.74	21.74	22.00
		1	5	21.39	21.63	21.56	22.00
		3	0	21.57	21.62	21.59	22.00
		3	2	21.68	21.71	21.64	22.00
		3	3	21.46	21.57	21.56	22.00
		6	0	20.62	20.83	20.80	21.50
	16QAM	1	0	21.44	21.15	21.17	21.50
		1	2	20.75	21.12	21.12	21.50
		1	5	20.71	21.27	20.92	21.50
		3	0	21.08	21.38	20.98	21.50
		3	2	21.11	21.22	21.19	21.50
		3	3	21.02	21.06	21.21	21.50
		6	0	21.06	20.82	20.84	21.50
3MHz	QPSK	1	0	21.76	21.97	21.76	22.00
		1	7	21.42	21.59	21.93	22.00
		1	14	21.31	21.45	21.75	22.00
		8	0	20.54	20.49	20.53	22.00
		8	4	20.49	20.47	20.52	22.00
		8	7	20.53	20.45	20.57	22.00
		15	0	20.49	20.94	20.66	21.50
	16QAM	1	0	21.44	21.36	20.92	21.50
		1	7	20.72	21.16	20.75	21.50
		1	14	20.52	21.42	21.02	21.50
		8	0	20.57	20.75	20.62	21.50
		8	4	20.45	20.78	20.67	21.50
		8	7	20.58	20.86	20.62	21.50
		15	0	20.55	20.78	20.54	21.50
5MHz	QPSK	1	0	Channel	Channel	Channel	Tune up
				18625	18900	19175	

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		1	13	21.59	21.79	21.96	22.00
		1	24	21.42	21.53	21.72	22.00
		12	0	20.41	20.39	20.48	22.00
		12	6	20.39	20.52	20.37	22.00
		12	13	20.52	20.45	20.46	22.00
		25	0	20.38	20.81	20.66	21.50
		1	0	21.43	21.23	20.88	21.50
		1	13	20.63	20.82	20.82	21.50
		1	24	20.69	21.13	21.31	21.50
		12	0	20.76	20.89	20.65	21.50
		12	6	20.66	20.82	20.63	21.50
		12	13	20.46	20.77	20.66	21.50
		25	0	20.44	20.59	20.43	21.50
		Bandwidth	Modulation	RB size	RB offset	Channel	Channel
						18650	18900
10MHz	QPSK	1	0	21.82	21.98	21.85	22.00
		1	25	21.89	21.72	21.96	22.00
		1	49	21.64	21.76	21.69	22.00
		25	0	20.53	20.57	20.65	22.00
		25	13	20.68	20.53	20.58	22.00
		25	25	20.51	20.45	20.53	22.00
		50	0	20.39	20.95	20.77	21.50
	16QAM	1	0	21.48	21.27	20.75	21.50
		1	25	20.94	20.88	21.11	21.50
		1	49	20.55	21.14	21.46	21.50
		25	0	20.78	20.81	20.65	21.50
		25	13	20.55	20.71	20.77	21.50
		25	25	20.88	20.77	20.63	21.50
		50	0	20.76	20.69	20.61	21.50
15MHz	QPSK	1	0	21.84	21.91	21.67	22.00
		1	38	21.77	21.63	21.65	22.00
		1	74	21.64	21.75	21.63	22.00
		36	0	20.58	20.55	20.57	22.00
		36	18	20.62	20.43	20.52	22.00
		36	39	20.60	20.49	20.57	22.00
		75	0	20.58	20.91	20.75	21.50
	16QAM	1	0	21.42	21.05	20.72	21.50
		1	38	20.65	20.87	20.88	21.50

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		1	74	20.81	21.08	21.48	21.50
		36	0	20.58	20.88	20.62	21.50
		36	18	20.56	20.77	20.72	21.50
		36	39	20.85	20.78	20.68	21.50
		75	0	20.74	20.71	20.65	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				18700	18900	19100	
20MHz	QPSK	1	0	21.92	21.87	21.79	22.00
		1	50	21.99	21.86	21.89	22.00
		1	99	21.72	21.69	21.76	22.00
		50	0	20.54	20.53	20.47	22.00
		50	25	20.74	20.57	20.68	22.00
		50	50	20.68	20.53	20.55	22.00
		100	0	20.69	20.94	20.65	21.50
	16QAM	1	0	21.29	20.91	20.76	21.50
		1	50	20.56	21.11	20.88	21.50
		1	99	21.14	20.86	21.36	21.50
		50	0	20.75	20.69	20.75	21.50
		50	25	20.75	20.81	20.71	21.50
		50	50	20.84	20.68	20.69	21.50
		100	0	20.77	20.65	20.61	21.50

CatM1 Band 4				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19957	20175	20393	
1.4MHz	QPSK	1	0	21.94	21.67	21.65	22.00
		1	2	21.71	21.44	21.72	22.00
		1	5	21.74	21.87	21.49	22.00
		3	0	20.69	20.78	20.84	22.00
		3	2	20.71	20.74	20.95	22.00
		3	3	20.27	20.49	20.95	22.00
		6	0	20.64	20.75	20.43	21.50
1.4MHz	16QAM	1	0	20.95	20.86	20.61	21.50
		1	2	20.47	20.42	20.36	21.50
		1	5	20.48	20.57	20.65	21.50
		3	0	20.45	20.61	20.26	21.50
		3	2	20.33	20.45	20.36	21.50
		3	3	20.66	20.25	20.45	21.50
		6	0	20.44	20.34	20.20	21.50



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Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19965	20175	20385	
3MHz	QPSK	1	0	21.49	21.83	21.38	22.00
		1	7	21.68	21.87	21.66	22.00
		1	14	21.67	21.73	21.52	22.00
		8	0	20.67	21.12	21.15	22.00
		8	4	20.81	21.17	20.92	22.00
		8	7	20.74	20.98	20.82	22.00
		15	0	20.69	21.17	20.38	21.50
	16QAM	1	0	21.06	21.21	21.47	21.50
		1	7	20.45	20.34	20.47	21.50
		1	14	20.43	20.55	21.03	21.50
		8	0	20.41	20.63	20.24	21.50
		8	4	20.36	20.46	20.47	21.50
		8	7	20.71	20.54	20.27	21.50
		15	0	20.48	20.69	20.32	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				19975	20175	20375	
5MHz	QPSK	1	0	21.89	21.66	21.68	22.00
		1	13	21.48	21.59	21.82	22.00
		1	24	21.64	21.53	21.64	22.00
		12	0	20.79	20.72	20.75	22.00
		12	6	20.73	20.75	20.86	22.00
		12	13	20.65	20.87	20.83	22.00
		25	0	20.71	21.15	20.49	21.50
	16QAM	1	0	20.98	21.18	20.68	21.50
		1	13	20.46	20.29	20.34	21.50
		1	24	20.42	20.91	20.68	21.50
		12	0	20.51	20.62	20.76	21.50
		12	6	20.35	20.74	20.28	21.50
		12	13	20.66	20.35	20.44	21.50
		25	0	20.45	20.72	20.58	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20000	20175	20350	
10MHz	QPSK	1	0	21.52	21.66	21.75	22.00
		1	25	21.39	21.54	21.84	22.00
		1	49	21.77	21.65	21.58	22.00
		25	0	20.73	20.72	20.93	22.00
		25	13	20.75	20.77	20.91	22.00
		25	25	20.67	20.89	20.89	22.00



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		50	0	20.61	20.72	20.49	21.50
16QAM	16QAM	1	0	20.93	21.25	20.63	21.50
		1	25	20.47	20.55	20.04	21.50
		1	49	20.29	20.83	20.98	21.50
		25	0	20.43	20.65	20.75	21.50
		25	13	20.74	20.26	20.53	21.50
		25	25	20.65	20.26	20.47	21.50
		50	0	20.43	20.71	20.42	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	21.48	21.99	21.82	22.00
		1	38	21.71	21.67	21.83	22.00
		1	74	21.25	21.64	21.43	22.00
		36	0	20.75	20.79	20.92	22.00
		36	18	20.73	20.72	20.94	22.00
		36	39	20.73	20.83	20.95	22.00
		75	0	20.69	20.74	20.58	21.50
	16QAM	1	0	20.95	21.24	21.36	21.50
		1	38	20.57	20.69	20.54	21.50
		1	74	20.23	20.84	21.03	21.50
		36	0	20.51	20.65	20.27	21.50
		36	18	20.59	20.72	20.31	21.50
		36	39	20.59	20.25	20.28	21.50
		75	0	20.45	20.39	20.33	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	21.59	21.54	21.87	22.00
		1	50	21.48	21.69	21.75	22.00
		1	99	21.27	21.67	21.39	22.00
		50	0	20.75	21.02	20.88	22.00
		50	25	20.71	20.68	20.78	22.00
		50	50	20.78	20.88	20.82	22.00
		100	0	20.65	21.12	20.42	21.50
	16QAM	1	0	21.07	21.04	21.09	21.50
		1	50	20.27	20.73	20.78	21.50
		1	99	20.44	20.86	21.04	21.50
		50	0	20.42	20.25	20.43	21.50
		50	25	20.32	20.46	20.63	21.50
		50	50	20.64	20.25	20.31	21.50
		100	0	20.43	20.32	20.57	21.50



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CatM1 Band 12				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23017	23095	23173	
1.4MHz	QPSK	1	0	21.67	21.62	21.63	22.00
		1	2	21.48	21.47	21.70	22.00
		1	5	21.43	21.45	21.53	22.00
		3	0	20.26	20.74	20.99	22.00
		3	2	20.44	20.86	20.88	22.00
		3	3	20.33	20.87	20.87	22.00
		6	0	20.46	20.83	20.61	21.50
	16QAM	1	0	20.85	21.14	20.63	21.50
		1	2	20.47	20.65	20.77	21.50
		1	5	20.46	20.49	20.75	21.50
		3	0	20.52	20.85	20.78	21.50
		3	2	20.09	20.71	20.85	21.50
		3	3	20.18	20.79	20.87	21.50
		6	0	20.06	20.27	20.79	21.50
3MHz	QPSK	1	0	21.43	21.78	21.75	22.00
		1	7	21.39	21.28	21.62	22.00
		1	14	21.37	21.41	21.27	22.00
		8	0	20.56	20.79	20.91	22.00
		8	4	20.51	20.86	21.02	22.00
		8	7	20.38	20.94	20.93	22.00
		15	0	20.54	20.95	20.61	21.50
	16QAM	1	0	20.69	20.82	20.62	21.50
		1	7	20.87	20.31	20.51	21.50
		1	14	20.82	20.46	20.49	21.50
		8	0	20.76	20.45	20.42	21.50
		8	4	20.84	20.37	20.53	21.50
		8	7	20.39	20.34	20.51	21.50
		15	0	20.35	20.31	20.46	21.50
5MHz	QPSK	RB size	RB offset	Channel	Channel	Channel	Tune up
				23035	23095	23155	
		1	0	21.38	21.74	21.45	22.00
		1	13	21.46	21.55	21.75	22.00
		1	24	20.96	21.18	21.46	22.00
	12	0	20.18	20.77	20.87	22.00	

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		12	6	20.33	20.76	20.96	22.00
		12	13	20.45	20.78	20.93	22.00
		25	0	20.63	20.99	20.65	21.50
	16QAM	1	0	21.14	21.19	20.46	21.50
		1	13	20.67	20.25	21.07	21.50
		1	24	20.78	20.59	20.79	21.50
		12	0	20.88	20.41	20.89	21.50
		12	6	20.72	20.49	20.78	21.50
		12	13	20.36	20.61	20.77	21.50
		25	0	20.32	20.44	20.62	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23060	23095	23130	
10MHz	QPSK	1	0	21.32	21.91	21.55	22.00
		1	25	21.46	21.59	21.79	22.00
		1	49	21.28	21.58	21.51	22.00
		25	0	20.26	20.85	20.73	22.00
		25	13	20.43	20.87	20.97	22.00
		25	25	20.44	20.81	20.88	22.00
		50	0	20.63	20.88	20.59	21.50
	16QAM	1	0	21.17	20.47	20.37	21.50
		1	25	21.12	20.84	21.21	21.50
		1	49	20.94	20.45	21.05	21.50
		25	0	20.47	20.83	21.09	21.50
		25	13	20.42	20.45	20.83	21.50
		25	25	20.36	20.61	20.89	21.50
		50	0	20.12	20.37	20.47	21.50

CatM1 Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23205	23230	23255	
5MHz	QPSK	1	0	21.49	21.58	21.54	22.00
		1	13	21.44	21.35	21.45	22.00
		1	24	21.37	21.25	21.37	22.00
		12	0	20.49	20.63	20.88	22.00
		12	6	20.55	20.54	20.84	22.00
		12	13	20.52	20.66	20.93	22.00
		25	0	20.64	20.62	20.55	21.50
	16QAM	1	0	20.92	21.38	21.45	21.50
		1	13	20.66	21.13	21.13	21.50



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		1	24	20.62	20.57	20.91	21.50
		12	0	20.37	20.63	20.69	21.50
		12	6	20.39	20.57	20.68	21.50
		12	13	20.45	20.51	20.74	21.50
		25	0	20.36	20.44	20.71	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				/	23230	/	
10MHz	QPSK	1	0	/	21.62	/	22.00
		1	25	/	21.35	/	22.00
		1	49	/	21.25	/	22.00
		25	0	/	20.63	/	22.00
		25	13	/	20.54	/	22.00
		25	25	/	20.62	/	22.00
		50	0	/	20.62	/	21.50
	16QAM	1	0	/	21.38	/	21.50
		1	25	/	21.13	/	21.50
		1	49	/	20.57	/	21.50
		25	0	/	20.63	/	21.50
		25	13	/	20.57	/	21.50
		25	25	/	20.54	/	21.50
		50	0	/	20.44	/	21.50

CatM1 Band 66				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	21.65	21.73	21.74	22.00
		1	2	21.81	21.79	21.77	22.00
		1	5	21.73	21.77	21.69	22.00
		3	0	21.74	21.75	21.68	22.00
		3	1	21.71	21.71	21.67	22.00
		3	3	21.75	21.72	21.65	22.00
		6	0	21.09	20.75	20.81	21.50
	16QAM	1	0	21.14	20.98	21.08	21.50
		1	2	21.16	21.12	21.03	21.50
		1	5	21.25	21.01	21.05	21.50
		3	0	20.93	20.78	20.84	21.50
		3	1	20.89	20.92	20.79	21.50
		3	3	20.66	20.54	20.59	21.50
		6	0	20.37	20.35	20.07	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up



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				131987	132322	132657	
3MHz	QPSK	1	0	21.57	21.51	21.66	22.00
		1	7	21.86	21.75	21.72	22.00
		1	14	21.59	21.67	21.53	22.00
		8	0	20.91	20.76	20.87	22.00
		8	4	20.84	20.84	20.83	22.00
		8	7	20.74	20.85	20.79	22.00
		15	0	21.04	20.79	20.77	21.50
	16QAM	1	0	21.05	20.81	20.99	21.50
		1	7	21.11	21.09	21.18	21.50
		1	14	20.98	21.07	20.94	21.50
		8	0	20.31	20.46	20.26	21.50
		8	4	20.33	20.25	20.15	21.50
		8	7	20.23	20.25	20.13	21.50
		15	0	20.21	20.17	20.06	21.50
		RB size	RB offset	Channel	Channel	Channel	Tune up
				131997	132322	132647	
5MHz	QPSK	1	0	21.85	21.74	21.90	22.00
		1	13	21.79	21.77	21.72	22.00
		1	24	21.75	21.88	21.68	22.00
		12	0	20.97	20.78	20.86	22.00
		12	6	20.74	20.85	20.97	22.00
		12	13	20.71	20.95	20.99	22.00
		25	0	21.15	20.87	20.98	21.50
	16QAM	1	0	21.37	20.98	21.17	21.50
		1	13	21.11	21.23	21.45	21.50
		1	24	20.94	21.35	21.21	21.50
		12	0	20.26	20.15	20.27	21.50
		12	6	20.22	20.22	20.25	21.50
		12	13	20.15	20.31	20.29	21.50
		25	0	20.22	20.22	20.26	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132022	132322	132622	
10MHz	QPSK	1	0	21.69	21.66	21.67	22.00
		1	25	21.54	21.89	21.97	22.00
		1	49	21.35	21.89	21.94	22.00
		25	0	20.89	20.84	20.83	22.00
		25	13	20.59	21.04	20.92	22.00
		25	25	20.43	21.08	20.97	22.00
		50	0	20.89	20.99	20.90	21.50



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	16QAM	1	0	21.27	21.13	20.93	21.50
		1	25	20.89	21.26	21.21	21.50
		1	49	20.72	21.49	21.29	21.50
		25	0	21.06	21.06	21.11	21.50
		25	13	20.96	21.33	21.25	21.50
		25	25	20.72	21.41	21.29	21.50
		50	0	20.23	20.25	20.39	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	21.78	21.48	21.84	22.00
		1	38	21.22	21.99	21.73	22.00
		1	74	20.84	21.96	21.81	22.00
		36	0	20.86	20.76	20.76	22.00
		36	18	20.37	21.01	20.84	22.00
		36	39	20.16	21.14	20.99	22.00
		75	0	21.23	20.98	20.86	21.50
	16QAM	1	0	21.27	20.86	21.22	21.50
		1	38	20.66	21.39	21.15	21.50
		1	74	20.21	21.49	21.18	21.50
		36	0	20.53	20.96	21.09	21.50
		36	18	20.76	20.69	20.78	21.50
		36	39	20.33	20.44	20.64	21.50
		75	0	20.18	20.06	20.41	21.50
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	21.58	21.27	21.88	22.00
		1	50	21.07	21.95	21.63	22.00
		1	99	20.83	21.79	21.98	22.00
		50	0	20.62	20.72	20.92	22.00
		50	25	20.25	21.01	20.87	22.00
		50	50	20.05	21.16	20.99	22.00
		100	0	21.29	20.95	20.95	21.50
	16QAM	1	0	21.24	20.67	21.21	21.50
		1	50	20.64	21.35	20.88	21.50
		1	99	20.26	21.47	21.24	21.50
		50	0	21.22	20.74	21.29	21.50
		50	25	20.59	21.34	21.06	21.50
		50	50	20.23	21.32	21.38	21.50
		100	0	20.18	20.19	20.48	21.50

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8.2 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M, and L channels may not fully apply.
- 3) 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:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.

When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR test for the other 802.11 modes are not required.



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8.2.1 SAR Result of CatM1 Band 2

CatM1 Band 2 SAR Test Record													
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Body Test data (Separate 0mm 1RB)													
Front side	20	QPSK 1_2	18700/1860	1:1	0.484	0.270	-0.03	21.99	22.00	1.002	0.271	22.3	
Back side	20	QPSK 1_2	18700/1860	1:1	0.504	0.272	0.06	21.99	22.00	1.002	0.273	22.3	
Left side	20	QPSK 1_2	18700/1860	1:1	0.165	0.087	-0.02	21.99	22.00	1.002	0.087	22.3	
Right side	20	QPSK 1_2	18700/1860	1:1	0.601	0.305	-0.07	21.99	22.00	1.002	0.306	22.3	
Top side	20	QPSK 1_2	18700/1860	1:1	0.088	0.044	0.00	21.99	22.00	1.002	0.044	22.3	
Bottom side	20	QPSK 1_2	18700/1860	1:1	0.493	0.227	0.06	21.99	22.00	1.002	0.228	22.3	
Body Test data (Separate 0mm 50%RB)													
Front side	20	QPSK 3_2	18700/1860	1:1	0.485	0.270	-0.05	20.74	22.00	1.337	0.361	22.3	
Back side	20	QPSK 3_2	18700/1860	1:1	0.506	0.269	-0.02	20.74	22.00	1.337	0.360	22.3	
Left side	20	QPSK 3_2	18700/1860	1:1	0.150	0.081	0.10	20.74	22.00	1.337	0.108	22.3	
Right side	20	QPSK 3_2	18700/1860	1:1	0.700	0.386	0.03	20.74	22.00	1.337	0.516	22.3	
Top side	20	QPSK 3_2	18700/1860	1:1	0.079	0.043	0.07	20.74	22.00	1.337	0.057	22.3	
Bottom side	20	QPSK 3_2	18700/1860	1:1	0.523	0.240	-0.01	20.74	22.00	1.337	0.321	22.3	

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8.2.2 SAR Result of CatM1 Band 4

CatM1 Band 4 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Body Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_0	20300/1745	1:1	0.435	0.245	-0.08	21.87	22.00	1.030	0.252	22.1
Back side	20	QPSK 1_0	20300/1745	1:1	0.457	0.259	0.09	21.87	22.00	1.030	0.267	22.1
Left side	20	QPSK 1_0	20300/1745	1:1	0.143	0.080	-0.04	21.87	22.00	1.030	0.082	22.1
Right side	20	QPSK 1_0	20300/1745	1:1	0.673	0.352	0.06	21.87	22.00	1.030	0.363	22.1
Top side	20	QPSK 1_0	20300/1745	1:1	0.094	0.051	-0.03	21.87	22.00	1.030	0.053	22.1
Bottom side	20	QPSK 1_0	20300/1745	1:1	0.548	0.250	-0.01	21.87	22.00	1.030	0.258	22.1
Body Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 3_0	20175/1732.5	1:1	0.405	0.228	-0.07	21.02	22.00	1.253	0.286	22.1
Back side	20	QPSK 3_0	20175/1732.5	1:1	0.455	0.278	0.03	21.02	22.00	1.253	0.348	22.1
Left side	20	QPSK 3_0	20175/1732.5	1:1	0.117	0.064	0.01	21.02	22.00	1.253	0.080	22.1
Right side	20	QPSK 3_0	20175/1732.5	1:1	0.774	0.441	0.02	21.02	22.00	1.253	0.553	22.1
Top side	20	QPSK 3_0	20175/1732.5	1:1	0.091	0.047	0.04	21.02	22.00	1.253	0.059	22.1
Bottom side	20	QPSK 3_0	20175/1732.5	1:1	0.592	0.270	0.06	21.02	22.00	1.253	0.338	22.1

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8.2.3 SAR Result of CatM1 Band 12

CatM1 Band 12 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Body Test data (Separate 0mm 1RB)												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.249	0.159	-0.09	21.91	22.00	1.021	0.162	22.4
Back side	10	QPSK 1_0	23095/707.5	1:1	0.246	0.154	0.09	21.91	22.00	1.021	0.157	22.4
Left side	10	QPSK 1_0	23095/707.5	1:1	0.237	0.120	-0.04	21.91	22.00	1.021	0.123	22.4
Right side	10	QPSK 1_0	23095/707.5	1:1	0.264	0.147	0.09	21.91	22.00	1.021	0.150	22.4
Top side	10	QPSK 1_0	23095/707.5	1:1	0.048	0.024	0.00	21.91	22.00	1.021	0.025	22.4
Bottom side	10	QPSK 1_0	23095/707.5	1:1	0.162	0.057	-0.01	21.91	22.00	1.021	0.058	22.4
Body Test data (Separate 0mm 50%RB)												
Front side	10	QPSK 3_2	23130/711	1:1	0.241	0.151	0.04	20.97	22.00	1.268	0.191	22.4
Back side	10	QPSK 3_2	23130/711	1:1	0.295	0.199	0.08	20.97	22.00	1.268	0.252	22.4
Left side	10	QPSK 3_2	23130/711	1:1	0.179	0.104	0.04	20.97	22.00	1.268	0.132	22.4
Right side	10	QPSK 3_2	23130/711	1:1	0.228	0.141	-0.02	20.97	22.00	1.268	0.179	22.4
Top side	10	QPSK 3_2	23130/711	1:1	0.051	0.025	-0.03	20.97	22.00	1.268	0.032	22.4
Bottom side	10	QPSK 3_2	23130/711	1:1	0.138	0.048	-0.02	20.97	22.00	1.268	0.061	22.4

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8.2.4 SAR Result of CatM1 Band 13

CatM1 Band 13 SAR Test Record													
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Body Test data (Separate 0mm 1RB)													
Front side	10	QPSK 1_0	23230/782	1:1	0.213	0.145	-0.09	21.62	22.00	1.091	0.158	22.4	
Back side	10	QPSK 1_0	23230/782	1:1	0.212	0.133	-0.09	21.62	22.00	1.091	0.145	22.4	
Left side	10	QPSK 1_0	23230/782	1:1	0.150	0.077	-0.10	21.62	22.00	1.091	0.084	22.4	
Right side	10	QPSK 1_0	23230/782	1:1	0.167	0.103	0.02	21.62	22.00	1.091	0.112	22.4	
Top side	10	QPSK 1_0	23230/782	1:1	0.044	0.022	0.00	21.62	22.00	1.091	0.024	22.4	
Bottom side	10	QPSK 1_0	23230/782	1:1	0.090	0.040	-0.10	21.62	22.00	1.091	0.044	22.4	
Body Test data (Separate 0mm 50%RB)													
Front side	10	QPSK 3_0	23230/782	1:1	0.174	0.114	0.06	20.63	22.00	1.371	0.156	22.4	
Back side	10	QPSK 3_0	23230/782	1:1	0.222	0.149	-0.05	20.63	22.00	1.371	0.204	22.4	
Left side	10	QPSK 3_0	23230/782	1:1	0.132	0.069	0.07	20.63	22.00	1.371	0.095	22.4	
Right side	10	QPSK 3_0	23230/782	1:1	0.177	0.109	-0.05	20.63	22.00	1.371	0.149	22.4	
Top side	10	QPSK 3_0	23230/782	1:1	0.047	0.023	-0.02	20.63	22.00	1.371	0.032	22.4	
Bottom side	10	QPSK 3_0	23230/782	1:1	0.088	0.037	0.05	20.63	22.00	1.371	0.051	22.4	

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SZSAR-TRF-01 Rev. A/0 May15,2023

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8.2.5 SAR Result of CatM1 Band 66

CatM1 Band 66 SAR Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Body Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_5	132572/1770	1:1	0.418	0.230	0.09	21.98	22.00	1.005	0.231	22.1
Back side	20	QPSK 1_5	132572/1770	1:1	0.441	0.257	-0.07	21.98	22.00	1.005	0.258	22.1
Left side	20	QPSK 1_5	132572/1770	1:1	0.154	0.082	0.06	21.98	22.00	1.005	0.082	22.1
Right side	20	QPSK 1_5	132572/1770	1:1	0.594	0.308	-0.02	21.98	22.00	1.005	0.309	22.1
Top side	20	QPSK 1_5	132572/1770	1:1	0.097	0.047	0.10	21.98	22.00	1.005	0.047	22.1
Bottom side	20	QPSK 1_5	132572/1770	1:1	0.572	0.260	0.01	21.98	22.00	1.005	0.261	22.1
Body Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 3_3	132322/1745	1:1	0.391	0.223	0.07	21.16	22.00	1.213	0.271	22.1
Back side	20	QPSK 3_3	132322/1745	1:1	0.451	0.258	-0.07	21.16	22.00	1.213	0.313	22.1
Left side	20	QPSK 3_3	132322/1745	1:1	0.119	0.066	0.06	21.16	22.00	1.213	0.080	22.1
Right side	20	QPSK 3_3	132322/1745	1:1	0.736	0.419	0.08	21.16	22.00	1.213	0.508	22.1
Top side	20	QPSK 3_3	132322/1745	1:1	0.099	0.048	0.07	21.16	22.00	1.213	0.058	22.1
Bottom side	20	QPSK 3_3	132322/1745	1:1	0.554	0.229	0.06	21.16	22.00	1.213	0.278	22.1

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9 Equipment list

Test Platform	SPEAG DASY Professional					
Description	SAR Test System					
Software Reference	DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)					
Hardware Reference						
Equipment	Manufacturer	Model	Inventory No.	Calibration Date	Due date of calibration	
<input checked="" type="checkbox"/> Test Phantom	SPEAG	SAM Twin	SZ-WSR-A-020	NCR	NCR	
<input checked="" type="checkbox"/> Test Phantom	SPEAG	SAM Twin	SZ-WSR-A-022	NCR	NCR	
<input checked="" type="checkbox"/> DAE	SPEAG	DAE4	SZ-WSR-M-029	2025/01/20	2026/01/19	
<input checked="" type="checkbox"/> DAE	SPEAG	DAE4	SZ-WSR-M-081	2024/08/15	2025/08/14	
<input checked="" type="checkbox"/> E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-069	2024/07/29	2025/07/28	
<input checked="" type="checkbox"/> E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-082	2024/09/19	2025/09/18	
<input checked="" type="checkbox"/> Validation Kits	SPEAG	D750V3	SZ-WSR-M-032	2025/06/18	2028/06/17	
<input checked="" type="checkbox"/> Validation Kits	SPEAG	D1750V2	SZ-WSR-M-035	2025/06/18	2028/06/17	
<input checked="" type="checkbox"/> Validation Kits	SPEAG	D1950V3	SZ-WSR-M-037	2022/10/31	2025/10/30	
<input checked="" type="checkbox"/> Dielectric parameter probes	SPEAG	DAK-3.5	SZ-WSR-M-093	2024/11/18	2025/11/17	
<input checked="" type="checkbox"/> Agilent Network Analyzer	Agilent	E5071C	SZ-WSR-M-067	2024/12/19	2025/12/18	
<input checked="" type="checkbox"/> RF Bi-Directional Coupler	Agilent	86205-60001	SZ-WSR-A-004	NCR	NCR	
<input checked="" type="checkbox"/> Signal Generator	Agilent	N5171B	SZ-WSR-M-006	2025/01/07	2026/01/06	
<input checked="" type="checkbox"/> Preamplifier	Mini-Circuits	ZHL-42W	SZ-WSR-A-001	NCR	NCR	
<input checked="" type="checkbox"/> Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	SZ-WSR-A-002	NCR	NCR	
<input checked="" type="checkbox"/> Power Meter	Agilent	E4416A	SZ-WSR-M-007	2025/01/07	2026/01/06	
<input checked="" type="checkbox"/> Power Sensor	Agilent	8481H	SZ-WSR-M-008	2025/01/07	2026/01/06	
<input checked="" type="checkbox"/> Power Sensor	R&S	NRP-Z92	SZ-WSR-M-009	2025/01/08	2026/01/07	
<input checked="" type="checkbox"/> Attenuator	SHX	TS2-3dB	SZ-WSR-A-012	NCR	NCR	
<input checked="" type="checkbox"/> Speed reading thermometer	Zhengzhou Boyang Instrument	TP3001	SZ-WSR-M-014	2025/05/19	2026/05/18	
<input checked="" type="checkbox"/> Temperature	MingGao	T809	SZ-WSR-M-015	2025/05/19	2026/05/18	
<input checked="" type="checkbox"/> Temperature	MingGao	T809	SZ-WSR-M-016	2025/05/19	2026/05/18	
<input checked="" type="checkbox"/> Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-012	2025/05/16	2026/05/15	
<input checked="" type="checkbox"/> Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-011	2025/05/19	2026/05/18	

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



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10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

--- End of report ---



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