SAR TEST REPORT

Application No.:	SZCR2404001237AT
Applicant:	VINFAST TRADING AND PRODUCTION JOINT STOCK COMPANY
Address of Applicant:	Dinh Vu Cat Hai Economic Zone, Cat Hai Island Cat Hai Town, Cat Hai District, Hai Phong City, Vietnam
Manufacturer:	VINFAST TRADING AND PRODUCTION JOINT STOCK COMPANY
Address of Manufacturer:	Dinh Vu - Cat Hai Economic Zone, Cat Hai Island, Cat Hai Town, Cat Hai District, Hai Phong City, Vietnam
Equipment Under Test (EUT):	
Product Name:	Smart Module Unit
Model No.(EUT):	VF-EB23U
Trade mark:	VINFAST
FCC ID:	2A6HEVF-EB23U
Standard(s) :	FCC 47CFR §2.1093
Date of Receipt:	2024-05-08
Date of Test:	2024-05-11 to 2024-6-03
Date of Issue:	2024-06-04
Test Result:	**Pass***

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

Keny Xu
EMC Laboratory Manager

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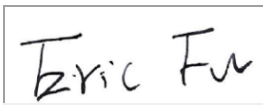
Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2024-06-04	/

Authorized for issue by:				
				
		Roman Pan/Project Engineer		
				
		Eric Fu/Reviewer		

TEST SUMMARY

Test Summary	
Frequency Band	**Max Reported SAR1g(W/kg)**
	Body
WCDMA Band II	1.297
WCDMA Band IV	1.297
WCDMA Band V	0.137
LTE Band 2	1.333
LTE Band 4	1.173
LTE Band 5	0.184
LTE Band 12	0.353
LTE Band 13	0.295
LTE Band 14	0.248
LTE Band 66	1.297
LTE Band 71	0.523
BT	0.020
Maximum Simultaneous SAR	1.346
SAR Limited(W/kg)	1.6

1 CONTENTS

2 General Information

2.1 General Description of EUT

Product Name:	Smart Module Unit		
Model No.(EUT):	VF-EB23U		
Trade Mark:	VINFAST		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
Hardware Version:	1.0.1		
Software Version:	1.2.9		
IMEI/SN:	008490012		
Antenna Type:	PIFA antenna		
Device Operating Configurations :			
Modulation Mode:	**WCDMA**: QPSK,16QAM; **LTE**: QPSK,16QAM; **BT**: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	14	HSUPA UE Category:	6
DC-HSDPA UE Category:			
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	WCDMA B2	1850-1910	1850-1910
	WCDMA B4	1710 ~ 1755	2110 ~ 2155
	WCDMA B5	824-849	824-849
	LTE Band 2	1850-1910	1850-1910
	LTE Band 4	1710-1755	1710-1755
	LTE Band 5	824-849	824-849
	LTE Band 12	2500-2570	2500-2570
	LTE Band 13	777 – 787	746 – 756
	LTE Band 14	788 – 798	758 – 768
	LTE Band 66	1710 – 1780	2110 – 2200
	LTE Band 71	663 – 698	617 – 652
	BT	2402~2480	2402~2480
Battery Information1#:	Model:	KM103450	
	Normal Voltage:	DC 3.7V	

	Rated capacity :	1800mAh
	Battery Type :	Rechargeable Li-ion Battery
	Manufacturer	Dongguan kang min electronic technology co. ltd

2.1.1 DUT Antenna Locations

Please see the Appendix D

2.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radio frequency Radiation Exposure Evaluation: Portable Devices
IEEE Std C95.1 – 1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz
IEEE Std 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 D01	3G SAR Measurement Procedures v03r01
KDB 447498 D04v01	RF Exposure Procedures and Equipment Authorization Policies for Mobile and Portable Devices
KDB 941225 D05 v02r05	SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES
KDB 865664 D01 v01r04	SAR Measurement Requirements for 100 MHz to 6 GHz
KDB 865664 D01 v01r02	RF Exposure Compliance Reporting and Documentation Considerations

2.3 RF exposure limits

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

Notes:

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

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

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

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

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

2.4 Test Location

All tests were performed at:

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

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

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

No tests were sub-contracted.

2.5 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.

3 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.	

4 SAR Measurements System Configuration

4.1 The SAR Measurement System

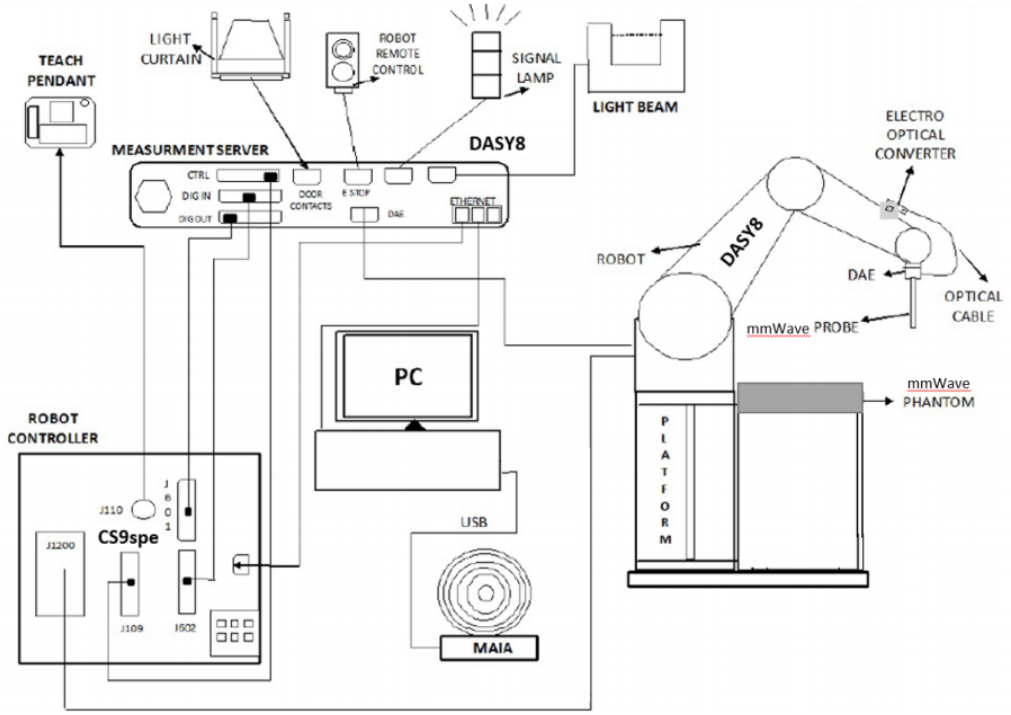
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

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

- 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 validat the proper functioning of the system.

4.2 Isotropic E-field Probe EX3DV4

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

4.3 Data Acquisition Electronics (DAE)

Model	DAE4
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)
Input Offset Voltage	< 5µV (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm

4.4 SAM Twin Phantom

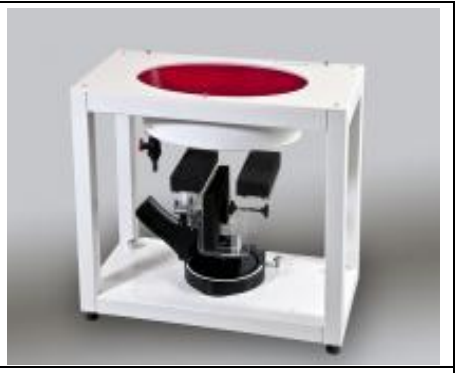
Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)
Dimensions **(incl. Wooden Support)**	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume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

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

4.5 ELI Phantom

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



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

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

4.6 Device Holder for Transmitters

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

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

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

4.7 Measurement procedure

4.7.1 Scanning procedure

Step 1: Power reference measurement

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

Step 2: *Area scan*

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

Step 3: *Zoom scan*

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

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

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

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

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

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

Step 4: Power reference measurement (drift)

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

4.7.2 Data Storage

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

4.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

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

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

cf = crest factor of exciting field (DASY parameter)
dcp i = diode compression point (DASY parameter)

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

E-field probes:

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

H-field probes:

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

With Vi = compensated signal of channel i (i = x, y, z)
Normi = sensor sensitivity of channel I (i = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel i in V/m
Hi = magnetic field strength of channel i in A/m

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

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

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

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

With SAR = local specific absorption rate in mW/g
Etot = total field strength in V/m
σ= conductivity in [mho/m] or [Siemens/m]
ε= equivalent tissue density in g/cm3

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

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

with Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m

5 SAR measurement variability and uncertainty

5.1 SAR measurement variability

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

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

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

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

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

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

5.2 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.

6 Description of Test Position

6.1 The Body Test Position

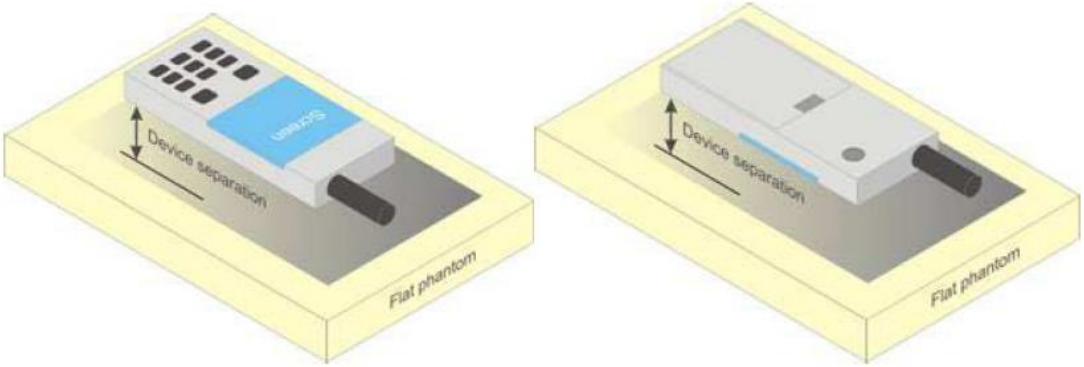
6.1.1 Body-worn accessory exposure conditions

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D04 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



F-11.Test positions for body-worn devices

7 SAR System Verification Procedure

7.1 Tissue Simulate Liquid

7.1.1 Recipes for Tissue Simulate Liquid

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

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

HSL5GHz is composed of the following ingredients：

Water：50-65%

Mineral oil：10-30%

Emulsifiers：8-25%

Sodium salt：0-1.5%

MSL5GHz is composed of the following ingredients：

Water：64-78%

Mineral oil：11-18%

Emulsifiers：9-15%

Sodium salt：2-3%

7.1.2 Test Liquids Confirmation

Simulated tissue liquid parameter confirmation

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

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

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

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

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

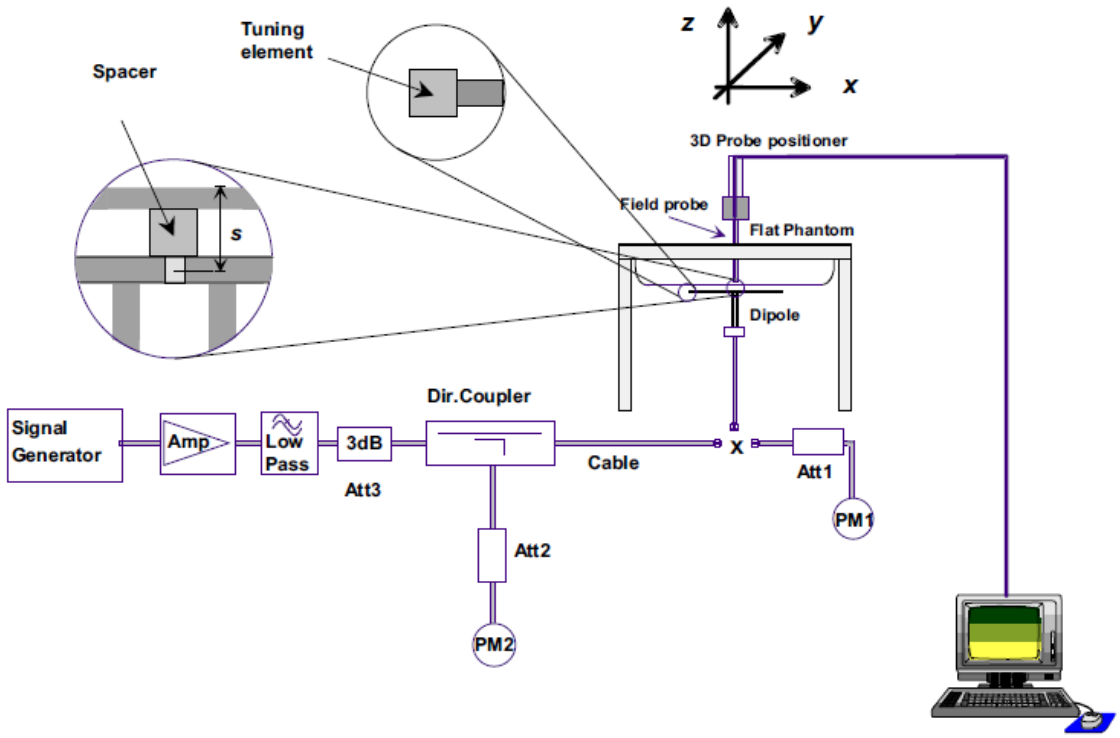
7.1.3 Measurement for Tissue Simulate Liquid

The dielectric properties for this Tissue Simulate Liquids were measured by using the SPEAG DAK3.5 dielectric probe kit in conjunction with Agilent Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Measurement for Tissue Simulate Liquid									
Tissue Type	Measured Frequency（MHz）	Measured Tissue		Target Tissue (±5%)		Deviation (Within ±5%)		Liquid Temp. (℃)	Test Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	ε_r	σ(S/m)		
750 Head	750	43.900	0.885	41.90	0.89	4.77%	-0.56%	22.3	2025/5/18
835 Head	835	42.800	0.919	41.50	0.90	3.13%	2.11%	22.2	2024/5/17
1750 Head	1750	41.900	1.340	40.10	1.37	4.49%	-2.19%	22.2	2024/5/16
1900 Head	1900	41.700	1.440	40.00	1.40	4.25%	2.86%	22.0	2024/5/15
2450 Head	2450	41.000	1.820	39.20	1.80	4.59%	1.11%	22.1	2024/5/22

7.2 SAR System Check

The microwave circuit arrangement for system check is sketched in bellow figure. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 10% from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table. During the tests, the ambient temperature of the laboratory was in the range 22±2°C, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



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

7.2.1 Justification for Extended SAR Dipole Calibrations

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

a) There is no physical damage on the dipole;

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

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

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

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

7.2.2 Summary System Check Result(s)

SAR System Validation 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 ±10%)		Liquid Temp. (℃)	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	2.15	1.42	8.60	5.68	8.37	5.53	2.75%	2.71%	22.3	2025/5/18
D835V2	Head	2.43	1.60	9.72	6.40	9.53	6.29	1.99%	1.75%	22.2	2024/5/17
D1750V2	Head	9.44	4.98	37.76	19.92	36.60	19.30	3.17%	3.21%	22.2	2024/5/16
D1900V2	Head	9.98	5.32	39.92	21.28	39.50	20.60	1.06%	3.30%	22.0	2024/5/15
D2450V2	Head	13.30	6.28	53.20	25.12	52.20	24.30	1.92%	3.37%	22.1	2024/5/22

7.2.3 Detailed System Check Results

Please see the Appendix A

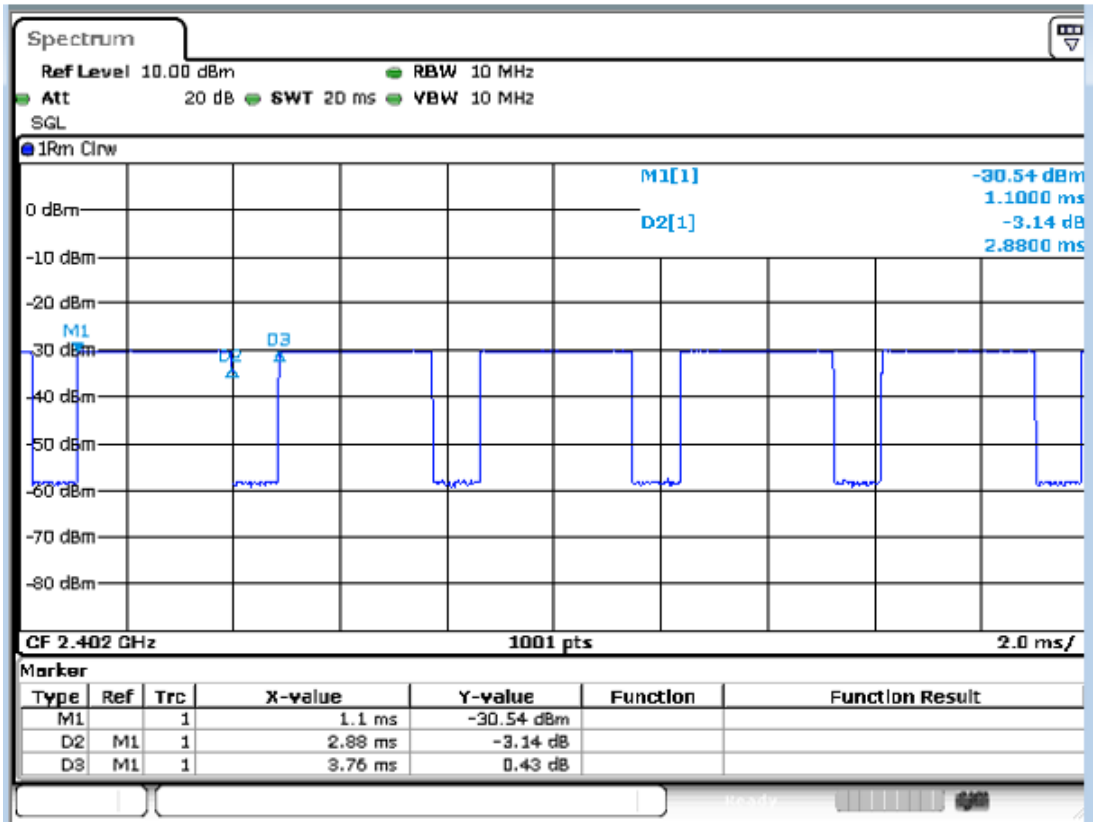
8 Test Configuration

8.1 BluetoothTest Configuration

For the Bluetooth SAR tests, a communication link is set up with the test mode software for BT mode test. Bluetooth USES frequency hopping technology to divide the transmitted data into packets and transmit the packets respectively through 79 designated Bluetooth channels, 1MHz Bandwidth, frequency hops at 1600 hops/second per the Bluetooth standard. The Radio Frequency Channel Number (RFCN) is allocated to 0, 39 and 78 respectively in the case of 2402~2480 MHz during the test at each test frequency channel, the EUT is operated at the RF continuous emission mode.

8.1.1 Duty cycle

BT duty cycle: 5.76%



8.1.2 LTE Test Configuration

Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The R&S CMW500 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:

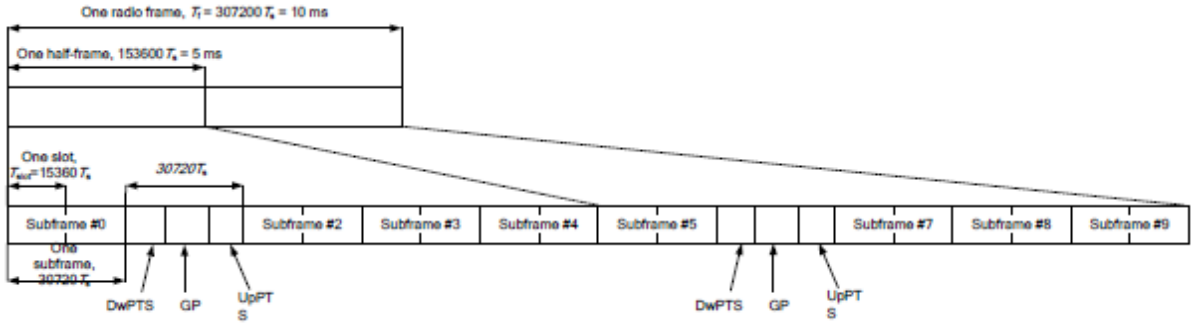


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts			7680.Ts	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts		
6	19760.Ts			23040.Ts		
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 (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

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 measured SAR is ≤ 1.0 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 measured SAR of a required test channel is > 1.80 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation
For QPSK with 50% RB allocation, SAR is only required measure for the worst case of 1RB allocation used the highest maximum output power.

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 measured SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 1.0 W/kg. Otherwise, SAR is measured for the highest output power channel and if the measured SAR is > 1.80 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 measured SAR for the QPSK configuration is > 1.80 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 measured SAR of a configuration for the largest channel bandwidth is > 1.80 W/kg.

9 Measurement RF Conducted Power

9.1 Conducted Power Of Bluebooth

BT			Average Conducted Power(dBm)	Tune up (dBm)
Modulation	Channel	Frequency(MHz)		
GFSK	0	2402	6.98	7
	39	2441	6.52	7
	78	2480	6.85	7
π/4DQPSK	0	2402	8.44	9
	39	2441	8	9
	78	2480	8.33	9
8DPSK	0	2402	8.65	9
	39	2441	8.22	9
	78	2480	8.55	9

9.2 Conducted Power Of WCDMA

WCDMA Band II					
Average Conducted Power(dBm)					
Channel		9262	9400	9538	Tune up
WCDMA	12.2kbps RMC	23.17	**23.22**	23.09	23.5
HSDPA	Subtest 1	22.13	22.03	21.96	22.5
	Subtest 2	22.12	22.01	21.94	22.5
	Subtest 3	21.61	21.46	21.43	22.5
	Subtest 4	21.6	21.57	21.46	22.5
HSUPA	Subtest 1	22.19	22.05	21.98	22.5
	Subtest 2	21.59	21.4	21.4	22.5
	Subtest 3	22.05	21.88	21.89	22.5
	Subtest 4	21.51	21.37	21.37	22.5
	Subtest 5	22.12	22.03	21.95	22.5
DC-HSDPA	Subtest 1	22.51	22.37	22.36	22.5
	Subtest 2	22.5	22.36	22.35	22.5
	Subtest 3	22.08	21.85	21.86	22.5
	Subtest 4	22.07	21.84	21.85	22.5
HSPA+	16QAM	20.08	20.02	20.01	21

WCDMA Band IV					
Average Conducted Power(dBm)					
Channel		1312	1412	1513	Tune up
	12.2kbps RMC	23.31	**23.34**	23.25	23.5
HSDPA	Subtest 1	22.36	22.16	22.19	23
	Subtest 2	22.44	22.14	22.26	23
	Subtest 3	21.83	21.64	21.78	23
	Subtest 4	21.92	21.69	21.76	23
HSUPA	Subtest 1	22.13	22.15	22.07	22.5
	Subtest 2	21.8	21.73	21.63	22.5
	Subtest 3	22.27	22.21	22.12	22.5
	Subtest 4	22.37	22.13	22.16	22.5
	Subtest 5	22.44	22.18	22.19	22.5
DC-HSDPA	Subtest 1	22.73	22.7	22.82	23
	Subtest 2	22.72	22.69	22.58	23
	Subtest 3	22.3	22.18	22.09	23
	Subtest 4	22.29	22.17	22.34	23
HSPA+	16QAM	20.25	20.14	20.28	21

WCDMA Band V					
Average Conducted Power(dBm)					
Channel		4132	4182	4233	Tune up
WCDMA	12.2kbps RMC	**23.01**	23	22.99	23.5
HSDPA	Subtest 1	22.14	22.18	22.16	22.5
	Subtest 2	22.2	22.21	22.15	22.5
	Subtest 3	21.64	21.6	21.66	22
	Subtest 4	21.61	21.59	21.65	22
HSUPA	Subtest 1	21.39	21.38	21.37	22
	Subtest 2	19.38	19.37	19.36	20
	Subtest 3	20.36	20.36	20.35	21
	Subtest 4	19.35	19.35	19.34	20
	Subtest 5	22.12	22.14	22.13	22.5
DC-HSDPA	Subtest 1	22.35	22.36	22.33	22.5
	Subtest 2	22.34	22.35	22.32	22.5
	Subtest 3	21.92	21.84	21.83	22
	Subtest 4	21.91	21.83	21.82	22
HSPA+	16QAM	21.17	21.01	21.16	22

9.3 Conducted Power Of LTE

LTE Band 2				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 18607	Channel 18900	Channel 19193	Tune up
1.4MHz	QPSK	1	0	23.37	23.41	23.69	24
		1	2	23.41	23.79	23.69	24
		1	5	23.33	23.26	23.61	24
		3	0	23.35	23.29	23.12	24
		3	2	23.18	23.09	23.21	24
		3	3	23.37	23.26	22.9	24
		6	0	22.23	22.49	22.07	23
	16QAM	1	0	22.36	22.91	22.68	23
		1	2	22.41	22.94	23	23
		1	5	22.2	22.95	23.02	23
		3	0	22.33	22.19	22.16	23
		3	2	22.42	22.16	22.07	23
		3	3	22.31	22.29	22.06	23
		6	0	21.36	21.29	21.3	22
Bandwidth	Modulation	RB size	RB offset	Channel 18615	Channel 18900	Channel 19185	Tune up
3MHz	QPSK	1	0	23.39	23.45	23.72	24
		1	7	23.44	23.84	23.73	24
		1	14	23.36	23.31	23.65	24
		8	0	22.45	22.41	22.25	23
		8	4	22.3	22.19	22.33	23
		8	7	22.47	22.37	22	23
		15	0	22.26	22.53	22.1	23
	16QAM	1	0	22.39	22.93	22.71	23
		1	7	22.44	22.99	23.04	23
		1	14	22.22	22.99	23.05	23
		8	0	21.44	24.32	21.28	22
		8	4	21.53	21.29	21.19	22
		8	7	21.41	21.41	21.19	22
		15	0	21.39	21.33	21.33	22
Bandwidth	Modulation	RB size	RB offset	Channel 18625	Channel 18900	Channel 19175	Tune up
5MHz	QPSK	1	0	23.36	23.43	23.68	24
		1	13	23.42	23.8	23.7	24
		1	24	23.33	23.26	23.61	24

		12	0	22.42	22.36	22.21	23
		12	6	22.28	22.15	22.28	23
		12	13	22.45	22.35	21.96	23
		25	0	22.24	22.52	22.08	23
	16QAM	1	0	22.36	22.89	22.68	23
		1	13	22.41	22.97	23.01	23
		1	24	22.19	22.97	23.01	23
		12	0	21.42	21.28	21.25	22
		12	6	21.5	21.24	21.15	22
		12	13	21.38	21.36	21.15	22
		25	0	21.37	21.29	21.28	22
Bandwidth	Modulation	RB size	RB offset	Channel 18650	Channel 18900	Channel 19150	Tune up
10MHz	QPSK	1	0	23.38	23.44	23.71	24
		1	25	23.45	23.85	23.74	24
		1	49	23.35	23.3	23.64	24
		25	0	22.45	22.41	22.25	23
		25	13	22.31	22.2	22.32	23
		25	25	22.47	22.39	22.01	23
		50	0	22.32	22.54	22.12	23
	16QAM	1	0	22.38	22.92	22.7	23
		1	25	22.44	23.01	23.04	23
		1	49	22.22	22.99	23.04	23
		25	0	21.45	21.33	21.29	22
		25	13	21.52	21.28	21.18	22
		25	25	21.41	21.41	21.19	22
		50	0	21.4	21.34	21.32	22
Bandwidth	Modulation	RB size	RB offset	Channel 18675	Channel 18900	Channel 19125	Tune up
15MHz	QPSK	1	0	23.37	23.4	23.69	24
		1	38	23.43	23.84	23.71	24
		1	74	23.32	23.25	23.6	24
		36	0	22.43	22.37	22.22	23
		36	18	22.28	22.15	22.28	23
		36	39	22.44	22.36	21.97	23
		75	0	22.3	22.5	22.07	23
	16QAM	1	0	22.33	22.9	22.68	23
		1	38	22.42	22.98	23.02	23
		1	74	22.19	22.95	23.01	23
		36	0	21.42	21.31	21.26	22
		36	18	21.49	21.23	21.14	22
		36	39	21.39	21.37	21.16	22

		75	0	21.37	21.29	21.28	22
Bandwidth	Modulation	RB size	RB offset	Channel 18700	Channel 18900	Channel 19100	Tune up
20MHz	QPSK	1	0	23.34	23.36	23.66	24
		1	50	23.76	23.8	23.69	24
		1	99	23.59	23.24	23.57	24
		50	0	22.4	22.32	22.18	23
		50	25	22.26	22.11	22.25	23
		50	50	22.41	22.31	21.93	23
		100	0	22.27	22.45	22.03	23
	16QAM	1	0	22.31	22.86	22.63	23
		1	50	22.38	22.96	22.98	23
		1	99	22.17	22.92	22.99	23
		50	0	21.39	21.27	21.23	22
		50	25	21.46	21.21	21.11	22
		50	50	21.36	21.32	21.12	22
		100	0	21.35	21.25	21.25	22

LTE Band 4				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 19957	Channel 20175	Channel 20393	Tune up
1.4MHz	QPSK	1	0	23.55	23.2	23.42	24
		1	2	23.44	23.53	23.46	24
		1	5	23.2	23.54	23.68	24
		3	0	23.32	23.22	23.55	24
		3	2	23.28	23.33	23.4	24
		3	3	23.31	23.42	23.39	24
		6	0	22.3	22.4	22.64	23
	16QAM	1	0	22.45	22.25	23.27	23
		1	2	22.52	22.79	23.15	23
		1	5	22.38	22.98	23.37	23
		3	0	22.23	22.32	22.43	23
		3	2	22.32	22.39	22.26	23
		3	3	22.39	22.47	22.47	23
		6	0	21.34	21.48	21.68	22
Bandwidth	Modulation	RB size	RB offset	Channel 19965	Channel 20175	Channel 20385	Tune up
3MHz	QPSK	1	0	23.57	23.24	23.45	24
		1	7	23.47	23.58	23.5	24
		1	14	23.23	23.59	23.72	24
		8	0	22.42	22.34	22.68	23

		8	4	22.4	22.43	22.52	23
		8	7	22.41	22.53	22.49	23
		15	0	22.33	22.44	22.67	23
	16QAM	1	0	22.48	22.27	23.3	23
		1	7	22.55	22.84	23.19	23
		1	14	22.4	23.02	23.4	23
		8	0	21.34	21.45	21.55	22
		8	4	21.43	21.52	21.38	22
		8	7	21.49	21.59	21.6	22
		15	0	21.37	21.52	21.71	22
Bandwidth	Modulation	RB size	RB offset	Channel 19975	Channel 20175	Channel 20375	Tune up
5MHz	QPSK	1	0	23.54	23.22	23.41	24
		1	13	23.45	23.54	23.47	24
		1	24	23.2	23.54	23.68	24
		12	0	22.39	22.29	22.64	23
		12	6	22.38	22.39	22.47	23
		12	13	22.39	22.51	22.45	23
		25	0	22.31	22.43	22.65	23
	16QAM	1	0	22.45	22.23	23.27	23
		1	13	22.52	22.82	23.16	23
		1	24	22.37	23	23.36	23
		12	0	21.32	21.41	21.52	22
		12	6	21.4	21.47	21.34	22
		12	13	21.46	21.54	21.56	22
		25	0	21.35	21.48	21.66	22
Bandwidth	Modulation	RB size	RB offset	Channel 20000	Channel 20175	Channel 20350	Tune up
10MHz	QPSK	1	0	23.56	23.23	23.44	24
		1	25	23.48	23.59	23.51	24
		1	49	23.22	23.58	23.71	24
		25	0	22.42	22.34	22.68	23
		25	13	22.41	22.44	22.51	23
		25	25	22.41	22.55	22.5	23
		50	0	22.39	22.45	22.69	23
	16QAM	1	0	22.47	22.26	23.29	23
		1	25	22.55	22.86	23.19	23
		1	49	22.4	23.02	23.39	23
		25	0	21.35	21.46	21.56	22
		25	13	21.42	21.51	21.37	22
		25	25	21.49	21.59	21.6	22
		50	0	21.38	21.53	21.7	22

Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20025	20175	20325	
15MHz	QPSK	1	0	23.55	23.19	23.42	24
		1	38	23.46	23.58	23.48	24
		1	74	23.19	23.53	23.67	24
		36	0	22.4	22.3	22.65	23
		36	18	22.38	22.39	22.47	23
		36	39	22.38	22.52	22.46	23
		75	0	22.37	22.41	22.64	23
	16QAM	1	0	22.42	22.24	23.27	23
		1	38	22.53	22.83	23.17	23
		1	74	22.37	22.98	23.36	23
		36	0	21.32	21.44	21.53	22
		36	18	21.39	21.46	21.33	22
		36	39	21.47	21.55	21.57	22
		75	0	21.35	21.48	21.66	22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20050	20175	20300	
20MHz	QPSK	1	0	23.52	23.15	23.39	24
		1	50	23.45	23.54	23.46	24
		1	99	23.17	23.52	23.64	24
		50	0	22.37	22.25	22.61	23
		50	25	22.36	22.35	22.44	23
		50	50	22.35	22.47	22.42	23
		100	0	22.34	22 36	22.6	23
	16QAM	1	0	22.4	22.2	23.22	23
		1	50	22.49	22.81	23.13	23
		1	99	22.35	22.95	23.34	23
		50	0	21.29	21.4	21.5	22
		50	25	21.36	21.44	21.3	22
		50	50	21.44	21.5	21.53	22
		100	0	21.33	21.44	21.63	22

LTE Band 5				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				20407	20525	20643	
1.4MHz	QPSK	1	0	22.98	23.11	23.15	24
		1	2	23.07	23.44	23.25	24
		1	5	23.09	23.19	23.17	24

		3	0	23	23.31	23.15	24
		3	2	23.01	23.26	22.94	24
		3	3	23.14	23.05	23.22	24
		6	0	22.11	22.13	22.14	23
	16QAM	1	0	22	21.77	21.82	23
		1	2	21.69	21.74	21.69	23
		1	5	21.88	21.72	21.65	23
		3	0	22.07	22.31	22.06	23
		3	2	22	22.08	21.92	23
		3	3	22.2	22.22	21.86	23
		6	0	20.91	23.03	20.86	22
Bandwidth	Modulation	RB size	RB offset	Channel 20415	Channel 20525	Channel 20635	Tune up
3MHz	QPSK	1	0	23.05	23.13	23.24	24
		1	7	22.94	23.46	23.15	24
		1	14	23.18	23.13	23.15	24
		8	0	22.08	22.17	22.13	23
		8	4	21.98	22.15	22.04	23
		8	7	22.06	22.06	22.06	23
		15	0	22.06	22.14	22.08	23
	16QAM	1	0	21.84	21.65	21.78	23
		1	7	21.79	21.91	21.87	23
		1	14	21.91	21.73	21.68	23
		8	0	20.95	21.28	21.15	22
		8	4	20.93	21.07	20.87	22
		8	7	21.17	21.27	20.88	22
		15	0	20.98	23.06	20.98	22
Bandwidth	Modulation	RB size	RB offset	Channel 20425	Channel 20525	Channel 20625	Tune up
5MHz	QPSK	1	0	22.95	23.01	23.32	24
		1	13	23.01	23.52	23.25	24
		1	24	23.16	23.18	23.23	24
		12	0	22.14	22.26	22.06	23
		12	6	21.91	22.29	21.98	23
		12	13	22.12	22.14	22.08	23
		25	0	21.96	22.15	22.19	23
	16QAM	1	0	21.94	21.71	21.75	23
		1	13	21.8	21.77	21.86	23
		1	24	21.89	21.76	21.76	23
		12	0	21.03	21.29	21.12	22
		12	6	21.03	21.01	20.98	22
		12	13	21.23	21.17	20.93	22

		25	0	20.81	23.07	20.99	22
Bandwidth	Modulation	RB size	RB offset	Channel 20450	Channel 20525	Channel 20600	Tune up
10MHz	QPSK	1	0	23.13	23.16	23.32	24
		1	25	23.09	23.61	23.35	24
		1	49	23.2	23.23	23.28	24
		25	0	22.17	22.31	22.23	23
		25	13	22.07	22.33	22.14	23
		25	25	22.18	22.22	22.22	23
		50	0	22.16	22.27	22.21	23
	16QAM	1	0	22.01	21.85	21.94	23
		1	25	21.85	21.94	21.88	23
		1	49	21.92	21.82	21.83	23
		25	0	21.13	21.37	21.21	22
		25	13	21.08	21.2	21.07	22
		25	25	21.27	21.28	21.01	22
		50	0	21	23.14	21.02	22

LTE FDD Band 12				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel 23017	Channel 23095	Channel 23173	Tune up
1.4MHz	QPSK	1	0	23.63	23.64	23.61	24
		1	2	23.67	23.57	23.69	24
		1	5	23.61	23.5	23.7	24
		3	0	23.5	23.54	23.63	24
		3	2	23.45	23.5	23.54	24
		3	3	23.66	23.62	23.63	24
		6	0	22.61	22.57	22.65	23
	16QAM	1	0	22.95	22.18	22.96	23
		1	2	22.94	22.55	23.2	23
		1	5	22.76	22.36	22.86	23
		3	0	22.58	22.6	22.74	23
		3	2	22.52	22.5	22.51	23
		3	3	22.52	22.58	22.46	23
		6	0	21.71	21.63	21.84	22
Bandwidth	Modulation	RB size	RB offset	Channel 23025	Channel 23095	Channel 23165	Tune up
3MHz	QPSK	1	0	23.65	23.68	23.64	24
		1	7	23.7	23.62	23.73	24
		1	14	23.64	23.55	23.74	24
		8	0	22.6	22.66	22.76	23

		8	4	22.57	22.6	22.66	23
		8	7	22.76	22.73	22.73	23
		15	0	22.64	22.61	22.68	23
	16QAM	1	0	22.98	22.2	22.99	23
		1	7	22.97	22.6	23.24	23
		1	14	22.78	22.4	22.89	23
		8	0	21.69	21.73	21.86	22
		8	4	21.63	21.63	21.63	22
		8	7	21.62	21.7	21.59	22
		15	0	21.74	21.67	21.87	22
Bandwidth	Modulation	RB size	RB offset	Channel 23035	Channel 23095	Channel 23155	Tune up
5MHz	QPSK	1	0	23.63	23.63	23.61	24
		1	13	23.69	23.62	23.71	24
		1	24	23.6	23.49	23.69	24
		12	0	22.58	22.62	22.73	23
		12	6	22.55	22.56	22.61	23
		12	13	22.73	22.72	22.7	23
		25	0	22.68	22.58	22.65	23
	16QAM	1	0	22.92	22.17	22.96	23
		1	13	22.95	22.59	23.22	23
		1	24	22.75	22.36	22.85	23
		12	0	21.67	21.72	21.84	22
		12	6	21.59	21.57	21.58	22
		12	13	21.6	21.66	21.56	22
		25	0	21.72	21.63	21.82	22
Bandwidth	Modulation	RB size	RB offset	Channel 23060	Channel 23095	Channel 23130	Tune up
10MHz	QPSK	1	0	23.6	23.59	23.58	24
		1	25	23.68	23.58	23.69	24
		1	49	23.58	23.48	23.66	24
		25	0	22.55	22.57	22.69	23
		25	13	22.53	22.52	22.58	23
		25	25	22.7	22.67	22.66	23
		50	0	22.65	22.53	22.61	23
	16QAM	1	0	22.9	22.13	22.91	23
		1	25	22.91	22.57	23.18	23
		1	49	22.73	22.33	22.83	23
		25	0	21.64	21.68	21.81	22
		25	13	21.56	21.55	21.55	22
		25	25	21.57	21.61	21.52	22
		50	0	21.7	21.59	21.79	22

LTE FDD Band 13				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23205	23230	23255	
5MHz	QPSK	1	0	23.72	23.63	23.78	24
		1	13	23.79	23.68	23.77	24
		1	24	23.58	23.69	23.65	24
		12	0	22.87	22.77	22.82	23
		12	6	22.85	22.8	22.86	23
		12	13	22.75	22.82	22.83	23
		25	0	22.81	22.74	22.8	23
	16QAM	1	0	23.06	22.41	22.6	23
		1	13	23.14	22.45	22.35	23
		1	24	23.03	22.16	22.43	23
		12	0	21.5	21.52	21.68	22
		12	6	21.63	21.75	21.65	22
		12	13	21.76	21.6	21.57	22
		25	0	21.74	21.96	21.62	22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				/	23230	/	
10MHz	QPSK	1	0	/	23.76	/	24
		1	25	/	23.85	/	24
		1	49	/	23.71	/	24
		25	0	/	22.87	/	23
		25	13	/	22.79	/	23
		25	25	/	22.88	/	23
		50	0	/	22.74	/	23
	16QAM	1	0	/	23.11	/	23
		1	25	/	23.41	/	23
		1	49	/	22.94	/	23
		25	0	/	21.78	/	22
		25	13	/	21.83	/	22
		25	25	/	21.88	/	22
		50	0	/	21.82	/	22

LTE FDD Band 14				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				23305	23330	23355	
5MHz	QPSK	1	0	23.81	23.59	23.59	24

		1	13	23.64	23.84	23.75	24
		1	24	23.68	23.88	23.9	24
		12	0	22.83	22.83	22.75	23
		12	6	22.77	22.8	22.71	23
		12	13	22.82	22.85	22.77	23
		25	0	22.89	22.76	22.73	23
	16QAM	1	0	22.5	22.47	22.42	23
		1	13	22.38	22.61	22.54	23
		1	24	22.21	22.57	22.22	23
		12	0	21.65	21.68	21.74	22
		12	6	21.84	21.59	21.85	22
		12	13	21.67	21.5	21.65	22
		25	0	21.77	21.73	21.69	22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				/	23330	/	
10MHz	QPSK	1	0	/	23.73	/	24
		1	25	/	23.85	/	24
		1	49	/	23.53	/	24
		25	0	/	22.84	/	23
		25	13	/	22.78	/	23
		25	25	/	22.82	/	23
		50	0	/	22.83	/	23
	16QAM	1	0	/	22.7	/	23
		1	25	/	23.38	/	23
		1	49	/	22.85	/	23
		25	0	/	21.64	/	22
		25	13	/	21.8	/	22
		25	25	/	21.76	/	22
		50	0	/	21.77	/	22

LTE Band 66				**Conducted Power(dBm)**			
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				131979	132322	132665	
1.4MHz	QPSK	1	0	23.42	23.57	23.56	24
		1	2	23.3	23.76	23.57	24
		1	5	23.37	23.64	23.45	24
		3	0	23.47	23.58	23.26	24
		3	2	23.35	23.75	23.33	24
		3	3	23.59	23.55	23.36	24
		6	0	22.51	22.73	22.34	23
	16QAM	1	0	22.84	22.38	22.2	23

		1	2	22.43	22.76	22.57	23
		1	5	22.57	22.42	22.22	23
		3	0	22.53	22.57	22.27	23
		3	2	22.32	22.76	22.43	23
		3	3	22.69	22.62	22.45	23
		6	0	21.65	21.84	21.45	22
Bandwidth	Modulation	RB size	RB offset	Channel 131987	Channel 132322	Channel 132657	Tune up
3MHz	QPSK	1	0	23.44	23.61	23.59	24
		1	7	23.33	23.81	23.61	24
		1	14	23.4	23.69	23.49	24
		8	0	22.57	22.7	22.39	23
		8	4	22.47	22.85	22.45	23
		8	7	22.69	22.66	22.46	23
		15	0	22.54	22.77	22.37	23
	16QAM	1	0	22.87	22.4	22.23	23
		1	7	22.46	22.81	22.61	23
		1	14	22.59	22.46	22.25	23
		8	0	21.64	21.7	21.39	22
		8	4	21.43	21.89	21.55	22
		8	7	21.79	21.74	21.58	22
		15	0	21.68	21.88	21.48	22
Bandwidth	Modulation	RB size	RB offset	Channel 131997	Channel 132322	Channel 132647	Tune up
5MHz	QPSK	1	0	23.41	23.59	23.55	24
		1	13	23.31	23.77	23.58	24
		1	24	23.37	23.64	23.45	24
		12	0	22.54	22.65	22.35	23
		12	6	22.45	22.81	22.4	23
		12	13	22.67	22.64	22.42	23
		25	0	22.52	22.76	22.35	23
	16QAM	1	0	22.84	22.36	22.2	23
		1	13	22.43	22.79	22.58	23
		1	24	22.56	22.44	22.21	23
		12	0	21.62	21.66	21.36	22
		12	6	21.4	21.84	21.51	22
		12	13	21.76	21.69	21.54	22
		25	0	21.66	21.84	21.43	22
Bandwidth	Modulation	RB size	RB offset	Channel 132022	Channel 132322	Channel 132622	Tune up
10MHz	QPSK	1	0	23.43	23.6	23.58	24
		1	25	23.34	23.82	23.62	24

		1	49	23.39	23.68	23.48	24
		25	0	22.57	22.7	22.39	23
		25	13	22.48	22.86	22.44	23
		25	25	22.69	22.68	22.47	23
		50	0	22.6	22.78	22.39	23
	16QAM	1	0	22.86	22.39	22.22	23
		1	25	22.46	22.83	22.61	23
		1	49	22.59	22.46	22.24	23
		25	0	21.65	21.71	21.4	22
		25	13	21.42	21.88	21.54	22
		25	25	21.79	21.74	21.58	22
		50	0	21.69	21.89	21.47	22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132047	132322	132597	
15MHz	QPSK	1	0	23.42	23.56	23.56	24
		1	38	23.32	23.81	23.59	24
		1	74	23.36	23.63	23.44	24
		36	0	22.55	22.66	22.36	23
		36	18	22.45	22.81	22.4	23
		36	39	22.66	22.65	22.43	23
		75	0	22.58	22.74	22.34	23
	16QAM	1	0	22.81	22.37	22.2	23
		1	38	22.44	22.8	22.59	23
		1	74	22.56	22.42	22.21	23
		36	0	21.62	21.69	21.37	22
		36	18	21.39	21.83	21.5	22
		36	39	21.77	21.7	21.55	22
		75	0	21.66	21.84	21.43	22
Bandwidth	Modulation	RB size	RB offset	Channel	Channel	Channel	Tune up
				132072	132322	132572	
20MHz	QPSK	1	0	23.39	23.52	23.53	24
		1	50	23.31	23.77	23.57	24
		1	99	23.34	23.62	23.41	24
		50	0	22.52	22.61	22.32	23
		50	25	22.43	22.77	22.37	23
		50	50	22.63	22.6	22.39	23
		100	0	22.55	22.69	22.3	23
	16QAM	1	0	22.79	22.33	22.15	23
		1	50	22.4	22.78	22.55	23
		1	99	22.54	22.39	22.19	23
		50	0	21.59	21.65	21.34	22
		50	25	21.36	21.81	21.47	22

		50	50	21.74	21.86	21.51	22
		100	0	21.64	21.8	21.4	22

LTE Band 71				Conducted Power(dBm)			
Bandwidth	Modulation	RB size	RB offset	Channel 133147	Channel 133297	Channel 133447	Tune up
5MHz	QPSK	1	0	23.15	23.23	22.96	24
		1	13	23.44	23.23	23.08	24
		1	24	23.25	23.06	23.07	24
		12	0	22.15	22.33	22.29	23
		12	6	22.2	22.19	22.21	23
		12	13	22.38	22.36	22.33	23
		25	0	22.17	22.4	22.2	23
	16QAM	1	0	22.08	22.64	22.9	23
		1	13	22.2	22.85	22.91	23
		1	24	22.22	22.43	22.78	23
		12	0	21.29	21.23	21.07	22
		12	6	21.25	21.28	21.26	22
		12	13	21.38	21.23	21.13	22
		25	0	21.32	21.5	21.31	22
Bandwidth	Modulation	RB size	RB offset	Channel 133172	Channel 133297	Channel 133422	Tune up
10MHz	QPSK	1	0	23.17	23.24	22.99	24
		1	25	23.47	23.28	23.12	24
		1	49	23.27	23.1	23.1	24
		25	0	22.18	22.38	22.33	23
		25	13	22.23	22.24	22.25	23
		25	25	22.4	22.4	22.38	23
		50	0	22.25	22.42	22.24	23
	16QAM	1	0	22.1	22.67	22.92	23
		1	25	22.23	22.89	22.94	23
		1	49	22.25	22.45	22.81	23
		25	0	21.32	21.28	21.11	22
		25	13	21.27	21.32	21.29	22
		25	25	21.41	21.28	21.17	22
		50	0	21.35	21.55	21.35	22
Bandwidth	Modulation	RB size	RB offset	Channel 133197	Channel 133297	Channel 133397	Tune up
15MHz	QPSK	1	0	23.16	23.01	22.97	24
		1	38	23.45	23.11	23.09	24
		1	74	23.24	23.09	23.06	24

		36	0	22.16	22.25	22.3	23
		36	18	22.2	22.21	22.21	23
		36	39	22.37	22.09	22.34	23
		75	0	22.23	22.11	22.19	23
	16QAM	1	0	22.05	22.07	22.9	23
		1	38	22.21	22.09	22.92	23
		1	74	22.22	22.22	22.78	23
		36	0	21.29	21.25	21.08	22
		36	18	21.24	21.2	21.25	22
		36	39	21.39	21.12	21.14	22
		75	0	21.32	21.11	21.31	22
Bandwidth	Modulation	RB size	RB offset	Channel 133222	Channel 133322	Channel 133372	Tune up
20MHz	QPSK	1	0	23.13	23.16	22.94	24
		1	50	23.44	23.23	23.07	24
		1	99	23.22	23.04	23.03	24
		50	0	22.13	22.29	22.26	23
		50	25	22.18	22.15	22.18	23
		50	50	22.34	22.32	22.3	23
		100	0	22.2	22.33	22.15	23
	16QAM	1	0	22.03	22.61	22.85	23
		1	50	22.17	22.84	22.88	23
		1	99	22.2	22.38	22.76	23
		50	0	21.26	21.22	21.05	22
		50	25	21.21	21.25	21.22	22
		50	50	21.36	21.19	21.1	22
		100	0	21.3	21.46	21.28	22

9.4 Measurement of SAR Data

Note:

1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B

2) Per FCC KDB Publication 447498 D04, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (2.0W/kg for 10g) then testing at the other channels is not required for such test configuration(s).

3) "*" is repeated measurement.

9.4.1 SAR Result Of WCMDA Ⅱ

WB4 SAR Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body Test data(Separate 10mm)											
Front side	RMC	9400/1880	1:1	0.404	0.223	-0.02	23.22	23.50	1.067	0.431	22.1
Back side	RMC	9400/1880	1:1	0.507	0.295	-0.04	23.22	23.50	1.067	0.541	22.1
Left side	RMC	9400/1880	1:1	1.150	0.646	-0.08	23.22	23.50	1.067	**1.227**	22.1
Right side	RMC	9400/1880	1:1	0.005	0.002	0.03	23.22	23.50	1.067	0.005	22.1
Top side	RMC	9400/1880	1:1	0.273	0.167	-0.07	23.22	23.50	1.067	0.291	22.1
Bottom side	RMC	9400/1880	1:1	0.156	0.095	0.02	23.22	23.50	1.067	0.166	22.1
Left side	RMC	9262/1852.4	1:1	1.080	0.788	-0.09	23.17	23.50	1.079	1.165	22.1
Left side	RMC	9538/1907.6	1:1	1.020	0.759	-0.08	23.09	23.50	1.099	1.121	22.1
Left side-Repeatd	RMC	9262/1852.4	1:1	1.010	0.768	-0.09	23.22	23.50	1.067	1.077	22.1
Front side	RMC	9400/1880	1:1	0.404	0.223	-0.02	23.22	23.50	1.067	0.431	22.1
Back side	RMC	9400/1880	1:1	0.507	0.295	-0.04	23.22	23.50	1.067	0.541	22.1

9.4.2 SAR Result Of WCMDA Ⅳ

WB4 SAR Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body Test data(Separate 10mm)											
Front side	RMC	1412/1732.4	1:1	0.453	0.261	-0.01	23.34	23.50	1.038	0.470	22.1
Back side	RMC	1412/1732.4	1:1	0.934	0.575	-0.03	23.34	23.50	1.038	0.969	22.1
Left side	RMC	1412/1732.4	1:1	1.250	0.708	-0.16	23.34	23.50	1.038	**1.297**	22.1
Right side	RMC	1412/1732.4	1:1	0.004	0.002	0.05	23.34	23.50	1.038	0.004	22.1
Top side	RMC	1412/1732.4	1:1	0.388	0.239	0.09	23.34	23.50	1.038	0.403	22.1
Bottom side	RMC	1412/1732.4	1:1	0.178	0.109	-0.02	23.34	23.50	1.038	0.185	22.1
Back side	RMC	1312/1712.4	1:1	1.090	0.675	0.00	23.31	23.50	1.045	1.139	22.1
Back side	RMC	1513/1752.6	1:1	0.828	0.507	0.03	23.25	23.50	1.059	0.877	22.1
Left side	RMC	1312/1712.4	1:1	1.180	0.721	-0.01	23.31	23.50	1.045	1.233	22.1
Left side	RMC	1513/1752.6	1:1	1.020	0.576	-0.03	23.25	23.50	1.059	1.080	22.1
Left side-Repeated	RMC	1412/1732.4	1:1	1.140	0.695	-0.01	23.34	23.50	1.038	1.183	22.1

9.4.3 SAR Result Of WCMDA V

WB5 SAR Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body Test data(Separate 10mm)											
Front side	RMC	4182/836.4	1:1	0.088	0.062	0.08	23.00	23.50	1.122	0.099	22.3
Back side	RMC	4182/836.4	1:1	0.114	0.068	0.08	23.00	23.50	1.122	0.128	22.3
Left side	RMC	4182/836.4	1:1	0.122	0.067	-0.04	23.00	23.50	1.122	**0.137**	22.3
Right side	RMC	4182/836.4	1:1	0.002	0.000	0.01	23.00	23.50	1.122	0.002	22.3
Top side	RMC	4182/836.4	1:1	0.027	0.019	0.06	23.00	23.50	1.122	0.030	22.3
Bottom side	RMC	4182/836.4	1:1	0.051	0.035	-0.11	23.00	23.50	1.122	0.057	22.3

9.4.4 SAR Result Of LTE Band 2

LTE 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	20	QPSK 1_50	18900/1880	1:1	0.373	0.207	0.06	23.80	24.00	1.047	0.391	22
Back side	20	QPSK 1_50	18900/1880	1:1	0.523	0.330	0.04	23.80	24.00	1.047	0.548	22
Left side	20	QPSK 1_50	18900/1880	1:1	1.210	0.765	0.02	23.80	24.00	1.047	1.267	22.1
Right side	20	QPSK 1_50	18900/1880	1:1	0.003	0.002	0.02	23.80	24.00	1.047	0.003	22.1
Top side	20	QPSK 1_50	18900/1880	1:1	0.379	0.227	-0.04	23.80	24.00	1.047	0.397	22.1
Bottom side	20	QPSK 1_50	18900/1880	1:1	0.063	0.039	-0.05	23.80	24.00	1.047	0.066	22.1
Left side	20	QPSK 1_50	18700/1860	1:1	1.180	0.693	-0.01	23.76	24.00	1.057	1.247	22.1
Left side	20	QPSK 1_50	19100/1900	1:1	1.330	0.725	-0.15	23.99	24.00	1.002	**1.333**	22.1
Left side-Repeated	20	QPSK 1_50	19100/1900	1:1	1.280	0.755	0.02	23.99	24.00	1.002	1.283	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_50	18700/1860	1:1	0.285	0.160	0.05	22.41	23.00	1.146	0.326	22
Back side	20	QPSK 50_50	18700/1860	1:1	0.390	0.231	0.01	22.41	23.00	1.146	0.447	22
Left side	20	QPSK 50_50	18700/1860	1:1	1.040	0.573	-0.17	22.41	23.00	1.146	1.191	22.1
Right side	20	QPSK 50_50	18700/1860	1:1	0.002	0.001	0.01	22.41	23.00	1.146	0.002	22.1
Top side	20	QPSK 50_50	18700/1860	1:1	0.302	0.182	-0.13	22.41	23.00	1.146	0.346	22.1
Bottom side	20	QPSK 50_50	18700/1860	1:1	0.045	0.027	-0.01	22.41	23.00	1.146	0.052	22.1
Left side	20	QPSK 50_0	18900/1880	1:1	1.030	0.549	-0.07	22.32	23.00	1.169	1.205	22.1
Left side	20	QPSK 50_25	19100/1900	1:1	1.010	0.535	-0.02	22.25	23.00	1.189	1.200	22.1
Body Test data (Separate 10mm 100%RB)												
Left side	20	QPSK 100_0	18900/1880	1:1	0.978	0.553	-0.12	22.45	23.00	1.135	1.110	22.1

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated SAR (1g)	Ratio	2nd Repeated SAR (1g)	2nd Repeated SAR (1g)	3rd Repeated SAR (1g)
Left side	19100/1900	1.4	1.36	1.02941176	N/A	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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

3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

9.4.5 SAR Result Of LTE Band 4

LTE 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	20	QPSK 1_99	20300/1745	1:1	0.374	0.234	0.02	23.64	24.00	1.086	0.406	22
Back side	20	QPSK 1_99	20300/1745	1:1	0.739	0.443	0.01	23.64	24.00	1.086	0.803	22
Left side	20	QPSK 1_99	20300/1745	1:1	1.080	0.578	-0.12	23.64	24.00	1.086	**1.173**	22.1
Right side	20	QPSK 1_99	20300/1745	1:1	0.004	0.002	0.03	23.64	24.00	1.086	0.004	22.1
Top side	20	QPSK 1_99	20300/1745	1:1	0.383	0.238	-0.04	23.64	24.00	1.086	0.416	22
Bottom side	20	QPSK 1_99	20300/1745	1:1	0.142	0.087	-0.04	23.64	24.00	1.086	0.154	22
Back side	20	QPSK 1_0	20050/1720	1:1	0.789	0.484	0.06	23.52	24.00	1.117	0.881	22
Back side	20	QPSK 1_50	20175/1732.5	1:1	0.890	0.539	-0.04	23.54	24.00	1.112	0.989	22
Left side	20	QPSK 1_0	20050/1720	1:1	1.040	0.680	-0.17	23.52	24.00	1.117	1.162	22.1
Left side	20	QPSK 1_50	20175/1732.5	1:1	1.050	0.573	-0.01	23.54	24.00	1.112	1.167	22.1
Left side-Repeated	20	QPSK 1_0	20300/1745	1:1	0.998	0.672	-0.17	23.64	24.00	1.086	1.084	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_0	20300/1745	1:1	0.316	0.200	0.04	22.61	23.00	1.094	0.346	22
Back side	20	QPSK 50_0	20300/1745	1:1	0.624	0.378	0.07	22.61	23.00	1.094	0.683	22
Left side	20	QPSK 50_0	20300/1745	1:1	0.806	0.448	0.06	22.61	23.00	1.094	0.882	22.1
Right side	20	QPSK 50_0	20300/1745	1:1	0.003	0.001	0.01	22.61	23.00	1.094	0.003	22.1
Top side	20	QPSK 50_0	20300/1745	1:1	0.281	0.175	-0.08	22.61	23.00	1.094	0.307	22
Bottom side	20	QPSK 50_0	20300/1745	1:1	0.120	0.074	-0.07	22.61	23.00	1.094	0.131	22
Left side	20	QPSK 50_0	20050/1720	1:1	0.908	0.502	-0.03	22.37	23.00	1.156	1.050	22.1
Left side	20	QPSK 50_50	20175/1732.5	1:1	0.842	0.456	-0.02	22.47	23.00	1.130	0.951	22.1
Body Test data (Separate 10mm 100%RB)												
Back side	20	QPSK 100_0	20300/1745	1:1	0.611	0.372	-0.14	22.60	23.00	1.096	0.670	22
Left side	20	QPSK 100_0	20300/1745	1:1	0.850	0.492	-0.15	22.60	23.00	1.096	0.932	22.1

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)	SAR (1g)
Left side	20050/1720	1.24	1.18	1.050847458	N/A	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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

3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ⩾ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is >

1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

9.4.6 SAR Result Of LTE Band 5

LTE Band 5 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	10	QPSK 1_25	20525/836.5	1:1	0.157	0.108	0.04	23.61	24.00	1.094	0.172	22
Back side	10	QPSK 1_25	20525/836.5	1:1	0.168	0.102	0.07	23.61	24.00	1.094	**0.184**	22
Left side	10	QPSK 1_25	20525/836.5	1:1	0.146	0.078	0.19	23.61	24.00	1.094	0.160	22.1
Right side	10	QPSK 1_25	20525/836.5	1:1	0.002	0.001	0.03	23.61	24.00	1.094	0.002	22.1
Top side	10	QPSK 1_25	20525/836.5	1:1	0.053	0.036	0.01	23.61	24.00	1.094	0.058	22.1
Bottom side	10	QPSK 1_25	20525/836.5	1:1	0.105	0.072	-0.02	23.61	24.00	1.094	0.115	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	10	QPSK 25_13	20525/836.5	1:1	0.114	0.079	0.02	22.33	23.00	1.167	0.133	22
Back side	10	QPSK 25_13	20525/836.5	1:1	0.129	0.078	-0.04	22.33	23.00	1.167	0.151	22
Left side	10	QPSK 25_13	20525/836.5	1:1	0.113	0.070	-0.05	22.33	23.00	1.167	0.132	22.1
Right side	10	QPSK 25_13	20525/836.5	1:1	0.001	0.000	0.06	22.33	23.00	1.167	0.001	22.1
Top side	10	QPSK 25_13	20525/836.5	1:1	0.041	0.028	-0.15	22.33	23.00	1.167	0.048	22.1
Bottom side	10	QPSK 25_13	20525/836.5	1:1	0.079	0.054	-0.01	22.33	23.00	1.167	0.092	22.1

9.4.7 SAR Result Of LTE Band 12

LTE 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	10	QPSK 1_25	23130/711	1:1	0.241	0.173	0.01	23.69	24.00	1.074	0.259	22
Back side	10	QPSK 1_25	23130/711	1:1	0.312	0.205	0.05	23.69	24.00	1.074	0.335	22
Left side	10	QPSK 1_25	23130/711	1:1	0.246	0.140	0.09	23.69	24.00	1.074	0.264	22.1
Right side	10	QPSK 1_25	23130/711	1:1	0.003	0.001	0.02	23.69	24.00	1.074	0.003	22.1
Top side	10	QPSK 1_25	23130/711	1:1	0.084	0.059	-0.14	23.69	24.00	1.074	0.090	22.1
Bottom side	10	QPSK 1_25	23130/711	1:1	0.124	0.086	-0.08	23.69	24.00	1.074	0.133	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	10	QPSK 25_25	23060/704	1:1	0.253	0.182	0.04	22.70	23.00	1.072	0.271	22
Back side	10	QPSK 25_25	23060/704	1:1	0.329	0.215	0.07	22.70	23.00	1.072	**0.353**	22
Left side	10	QPSK 25_25	23060/704	1:1	0.207	0.133	-0.05	22.70	23.00	1.072	0.222	22.1
Right side	10	QPSK 25_25	23060/704	1:1	0.002	0.001	0.03	22.70	23.00	1.072	0.002	22.1
Top side	10	QPSK 25_25	23060/704	1:1	0.080	0.056	0.06	22.70	23.00	1.072	0.086	22.1
Bottom side	10	QPSK 25_25	23060/704	1:1	0.121	0.084	-0.08	22.70	23.00	1.072	0.130	22.1

9.4.8 SAR Result Of LTE Band 13

LTE 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	10	QPSK 1_25	23230/782	1:1	0.231	0.164	0.02	23.85	24.00	1.035	0.239	22
Back side	10	QPSK 1_25	23230/782	1:1	0.285	0.182	0.04	23.85	24.00	1.035	**0.295**	22
Left side	10	QPSK 1_25	23230/782	1:1	0.187	0.108	-0.06	23.85	24.00	1.035	0.194	22.1
Right side	10	QPSK 1_25	23230/782	1:1	0.003	0.002	0.05	23.85	24.00	1.035	0.003	22.1
Top side	10	QPSK 1_25	23230/782	1:1	0.093	0.064	0.08	23.85	24.00	1.035	0.096	22.1
Bottom side	10	QPSK 1_25	23230/782	1:1	0.098	0.067	-0.06	23.85	24.00	1.035	0.101	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	10	QPSK 25_25	23230/782	1:1	0.190	0.133	0.04	22.88	23.00	1.028	0.195	22
Back side	10	QPSK 25_25	23230/782	1:1	0.226	0.147	0.01	22.88	23.00	1.028	0.232	22
Left side	10	QPSK 25_25	23230/782	1:1	0.140	0.090	-0.02	22.88	23.00	1.028	0.144	22.1
Right side	10	QPSK 25_25	23230/782	1:1	0.002	0.001	0.02	22.88	23.00	1.028	0.002	22.1
Top side	10	QPSK 25_25	23230/782	1:1	0.077	0.053	0.11	22.88	23.00	1.028	0.079	22.1
Bottom side	10	QPSK 25_25	23230/782	1:1	0.079	0.054	-0.19	22.88	23.00	1.028	0.081	22.1

9.4.9 SAR Result Of LTE Band 14

LTE Band 14 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	10	QPSK 1_25	23330/793	1:1	0.231	0.157	0.07	23.85	24.00	1.035	0.239	22
Back side	10	QPSK 1_25	23330/793	1:1	0.240	0.170	0.06	23.85	24.00	1.035	**0.248**	22
Left side	10	QPSK 1_25	23330/793	1:1	0.210	0.119	-0.17	23.85	24.00	1.035	0.217	22.1
Right side	10	QPSK 1_25	23330/793	1:1	0.005	0.002	0.01	23.85	24.00	1.035	0.005	22.1
Top side	10	QPSK 1_25	23330/793	1:1	0.101	0.069	-0.01	23.85	24.00	1.035	0.105	22.1
Bottom side	10	QPSK 1_25	23330/793	1:1	0.105	0.072	-0.10	23.85	24.00	1.035	0.109	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	10	QPSK 25_0	23330/793	1:1	0.197	0.134	0.04	22.84	23.00	1.038	0.204	22
Back side	10	QPSK 25_0	23330/793	1:1	0.199	0.141	0.06	22.84	23.00	1.038	0.206	22
Left side	10	QPSK 25_0	23330/793	1:1	0.155	0.088	-0.05	22.84	23.00	1.038	0.161	22.1
Right side	10	QPSK 25_0	23330/793	1:1	0.003	0.001	0.02	22.84	23.00	1.038	0.003	22.1
Top side	10	QPSK 25_0	23330/793	1:1	0.083	0.057	-0.08	22.84	23.00	1.038	0.086	22.1
Bottom side	10	QPSK 25_0	23330/793	1:1	0.081	0.056	0.03	22.84	23.00	1.038	0.084	22.1

9.4.10 SAR Result Of LTE Band 66

LTE 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	20	QPSK 1_50	132322/1745	1:1	0.411	0.247	-0.11	23.77	24.00	1.054	0.433	22.1
Back side	20	QPSK 1_50	132322/1745	1:1	0.930	0.581	-0.15	23.77	24.00	1.054	0.981	22.1
Left side	20	QPSK 1_50	132322/1745	1:1	1.230	0.683	-0.07	23.77	24.00	1.054	**1.297**	22.1
Right side	20	QPSK 1_50	132322/1745	1:1	0.003	0.002	0.01	23.77	24.00	1.054	0.003	22.1
Top side	20	QPSK 1_50	132322/1745	1:1	0.433	0.261	0.06	23.77	24.00	1.054	0.457	22.1
Bottom side	20	QPSK 1_50	132322/1745	1:1	0.128	0.080	-0.08	23.77	24.00	1.054	0.135	22.1
Back side	20	QPSK 1_0	132072/1720	1:1	0.729	0.439	-0.10	23.39	24.00	1.151	0.839	22.1
Back side	20	QPSK 1_50	132572/1770	1:1	0.594	0.360	-0.14	23.57	24.00	1.104	0.656	22.1
Left side	20	QPSK 1_0	132072/1720	1:1	1.120	0.740	-0.05	23.39	24.00	1.151	1.289	22.1
Left side	20	QPSK 1_50	132572/1770	1:1	1.090	0.678	-0.04	23.57	24.00	1.104	1.203	22.1
Left side-Repeated	20	QPSK 1_50	132322/1745	1:1	1.180	0.721	-0.05	23.77	24.00	1.054	1.244	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_25	132322/1745	1:1	0.388	0.227	0.16	22.77	23.00	1.054	0.409	22.1
Back side	20	QPSK 50_25	132322/1745	1:1	0.725	0.440	-0.15	22.77	23.00	1.054	0.764	22.1
Left side	20	QPSK 50_25	132322/1745	1:1	1.050	0.586	-0.06	22.77	23.00	1.054	1.107	22.1
Right side	20	QPSK 50_25	132322/1745	1:1	0.002	0.001	0.02	22.77	23.00	1.054	0.002	22.1
Top side	20	QPSK 50_25	132322/1745	1:1	0.347	0.210	-0.10	22.77	23.00	1.054	0.366	22.1
Bottom side	20	QPSK 50_25	132322/1745	1:1	0.098	0.061	-0.06	22.77	23.00	1.054	0.103	22.1
Left side	20	QPSK 50_50	132072/1720	1:1	0.986	0.553	-0.14	22.60	23.00	1.096	1.081	22.1
Left side	20	QPSK 50_50	132572/1770	1:1	0.808	0.450	-0.13	22.39	23.00	1.151	0.930	22.1
Body Test data (Separate 10mm 100%RB)												
Back side	20	QPSK 100_0	132322/1745	1:1	0.497	0.312	-0.04	22.69	23.00	1.074	0.534	22
Left side	20	QPSK 100_0	132322/1745	1:1	1.040	0.601	-0.04	22.69	23.00	1.074	1.117	22

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)	SAR (1g)
Left side	132322/1745	1.23	1.18	1.042372881	N/A	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.							
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).							
3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is >							

1.20.
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

9.4.11 SAR Result Of LTE Band 71

LTE Band 71 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.(℃)
Body Test data (Separate 10mm 1RB)												
Front side	20	QPSK 1_50	133222/673	1:1	0.344	0.243	-0.07	23.44	24.00	1.138	0.391	22.1
Back side	20	QPSK 1_50	133222/673	1:1	0.460	0.306	-0.13	23.44	24.00	1.138	**0.523**	22.1
Left side	20	QPSK 1_50	133222/673	1:1	0.301	0.169	-0.06	23.44	24.00	1.138	0.342	22.1
Right side	20	QPSK 1_50	133222/673	1:1	0.004	0.002	0.01	23.44	24.00	1.138	0.005	22.1
Top side	20	QPSK 1_50	133222/673	1:1	0.108	0.077	-0.14	23.44	24.00	1.138	0.123	22.1
Bottom side	20	QPSK 1_50	133222/673	1:1	0.141	0.099	-0.09	23.44	24.00	1.138	0.160	22.1
Body Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_50	133222/673	1:1	0.251	0.174	-0.09	22.34	23.00	1.164	0.292	22.1
Back side	20	QPSK 50_50	133222/673	1:1	0.328	0.231	-0.17	22.34	23.00	1.164	0.382	22.1
Left side	20	QPSK 50_50	133222/673	1:1	0.220	0.142	-0.02	22.34	23.00	1.164	0.256	22.1
Right side	20	QPSK 50_50	133222/673	1:1	0.002	0.001	0.05	22.34	23.00	1.164	0.002	22.1
Top side	20	QPSK 50_50	133222/673	1:1	0.085	0.060	-0.17	22.34	23.00	1.164	0.099	22.1
Bottom side	20	QPSK 50_50	133222/673	1:1	0.103	0.072	-0.10	22.34	23.00	1.164	0.120	22.1

9.4.12 SAR Result Of BT

Bluetooth SAR Test Record ANT4												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Body Test data (Separate 10mm)												
Front side	3DH5	0/2402	76.60%	1.305	0.013	0.007	-0.09	8.65	9.00	1.084	0.014	22.1
Back side	3DH5	0/2402	76.60%	1.305	0.018	0.011	0.04	8.65	9.00	1.084	**0.020**	22.1
Left side	3DH5	0/2402	76.60%	1.305	0.012	0.006	0.04	8.65	9.00	1.084	0.013	22.1
Right side	3DH5	0/2402	76.60%	1.305	0.000	0.000	0.00	8.65	9.00	1.084	0.000	22.1
Top side	3DH5	0/2402	76.60%	1.305	0.011	0.006	0.09	8.65	9.00	1.084	0.012	22.1
Bottom side	3DH5	0/2402	76.60%	1.305	0.016	0.009	0.06	8.65	9.00	1.084	0.017	22.1
Back side	3DH5	39/2441	76.60%	1.305	0.009	0.006	0.02	8.22	9.00	1.197	0.011	22.1
Back side	3DH5	78/2480	76.60%	1.305	0.012	0.008	-0.04	8.55	9.00	1.109	0.013	22.1

9.5 Multiple Transmitter Evaluation

9.5.1 Simultaneous SAR SAR test evaluation

Simultaneous Transmission

NO.	Simultaneous Transmission Configuration	Extremity
1	WWAN	Yes
2	WWAN + BT	Yes

Simultaneous Transmission SAR Summation Scenario for Limbs

Test position		SARmax (W/kg)		Summed SAR
		Main	BT	
		1	2	1+2
WCDMA Band2	Front side	0.431	0.014	0.445
	Back side	0.541	0.020	0.561
	Left side	1.227	0.013	1.240
	Right side	0.005	0.000	0.005
	Top side	0.291	0.012	0.303
	Bottom side	0.166	0.017	0.183
WCDMA Band4	Front side	0.470	0.014	0.484
	Back side	1.139	0.020	1.159
	Left side	1.297	0.013	1.310
	Right side	0.004	0.000	0.004
	Top side	0.403	0.012	0.415
	Bottom side	0.185	0.017	0.202
WCDMA Band5	Front side	0.099	0.014	0.113
	Back side	0.128	0.020	0.148
	Left side	0.137	0.013	0.150
	Right side	0.002	0.000	0.002
	Top side	0.030	0.012	0.042
	Bottom side	0.057	0.017	0.074
LTE Band2	Front side	0.391	0.014	0.405
	Back side	0.548	0.020	0.568
	Left side	1.333	0.013	1.346
	Right side	0.003	0.000	0.003
	Top side	0.397	0.012	0.409
	Bottom side	0.066	0.017	0.083
LTE Band4	Front side	0.406	0.014	0.420
	Back side	0.989	0.020	1.009
	Left side	1.173	0.013	1.186
	Right side	0.004	0.000	0.004
	Top side	0.416	0.012	0.428
	Bottom side	0.154	0.017	0.171
LTE Band5	Front side	0.172	0.014	0.186
	Back side	0.184	0.020	0.204
	Left side	0.160	0.013	0.173
	Right side	0.002	0.000	0.002
	Top side	0.058	0.012	0.070

	Bottom side	0.115	0.017	0.132
LTE Band12	Front side	0.271	0.014	0.285
	Back side	0.353	0.020	0.373
	Left side	0.264	0.013	0.277
	Right side	0.003	0.000	0.003
	Top side	0.090	0.012	0.102
	Bottom side	0.133	0.017	0.150
LTE Band13	Front side	0.239	0.014	0.253
	Back side	0.295	0.020	0.315
	Left side	0.194	0.013	0.207
	Right side	0.003	0.000	0.003
	Top side	0.096	0.012	0.108
	Bottom side	0.101	0.017	0.118
LTE Band14	Front side	0.239	0.014	0.253
	Back side	0.248	0.020	0.268
	Left side	0.217	0.013	0.230
	Right side	0.005	0.000	0.005
	Top side	0.105	0.012	0.117
	Bottom side	0.109	0.017	0.126
LTE Band66	Front side	0.433	0.014	0.447
	Back side	0.981	0.020	1.001
	Left side	1.297	0.013	1.310
	Right side	0.003	0.000	0.003
	Top side	0.457	0.012	0.469
	Bottom side	0.135	0.017	0.152
LTE Band71	Front side	0.391	0.014	0.405
	Back side	0.523	0.020	0.543
	Left side	0.342	0.013	0.355
	Right side	0.005	0.000	0.005
	Top side	0.123	0.012	0.135
	Bottom side	0.160	0.017	0.177

10 Equipment list

Test Platform	SPEAG DASY Professional
Description	SAR Test System (Frequency range 300MHz-6GHz)
Software Reference	DASY8 Module SAR V16.2.4.2524

Hardware Reference

	Equipment	Manufacturer	Model	Inventory no	Calibration Date	Due date of calibration
☒	DAE	SPEAG	DAE4ip	SZ-WSR-M-078	2023/9/12	2024/9/11
☒	E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-075	2023/7/17	2024/07/16
☒	Validation Kits	SPEAG	D750V3	SZ-WSR-M-032	2022/06/06	2025/06/05
☒	Validation Kits	SPEAG	D835V2	SZ-WSR-M-033	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D1750V2	SZ-WSR-M-035	2022/06/17	2025/06/16
☒	Validation Kits	SPEAG	D1950V2	SZ-WSR-M-037	2022/10/31	2025/10/30
☒	Validation Kits	SPEAG	D2450V2	SZ-WSR-M-039	2022/11/02	2025/11/01
☒	Test software	SPEAG	DASY8	SZ-WSR-S-006	NCR	NCR
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	SZ-WSR-M-053	2023/06/15	2024/06/14
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	SZ-WSR-M-054	2023/6/07	2024/6/06
☒	Radio Communication Analyzer	Anritsu	MT8820C	SZ-WSR-M-005	2024/01/30	2025/01/29
☒	RF Bi-Directional Coupler	Agilent	86205-60001	SZ-WSR-A-004	NCR	NCR
☒	Signal Generator	Agilent	N5171B	SZ-WSR-M-006	2024/1/30	2025/1/29
☒	Preamplifier	Mini-Circuits	ZHL-42W	SZ-WSR-A-001	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	SZ-WSR-A-002	NCR	NCR
☒	Power Meter	Agilent	E4416A	SZ-WSR-M-007	2024/01/30	2025/01/29
☒	Power Sensor	Agilent	8481H	SZ-WSR-M-008	2024/01/30	2025/01/29
☒	Power Sensor	R&S	NRP-Z92	SZ-WSR-M-009	2024/01/30	2025/01/29
☒	Attenuator	SHX	TS2-3dB	SZ-WSR-A-012	NCR	NCR
☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-001	2024/01/31	2025/01/30

11 Calibration certificate

Please see the Appendix C

12 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

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