

SAR TEST REPORT

Application No.: SUCR2603000161WM
Applicant: CROSSCALL
Address of Applicant: 245, Rue Paul Langevin 13290, Aix-en-Provence, France
Manufacturer: CROSSCALL
Address of Manufacturer: 245, Rue Paul Langevin 13290, Aix-en-Provence, France
EUT Description: Mobile Phone
Model No.: 54237-1
Trade Mark: CROSSCALL
FCC ID: 2BSUT-54237
Standards: FCC 47CFR §2.1093
Date of Receipt: 2025-10-22 (for original report SUCR251000102603)
Date of Test: 2025-11-18 to 2025-12-15
Date of Issue: 2026-03-11

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

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Revision Record			
Version	Description	Date	Remark
00	Original	2026-03-11	/

Authorized for issue by:		
Prepared By		Leon Liu
		Leon Liu/ Project Engineer
Approved By		Nick Hu
		Nick Hu/ Reviewer

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
WCDMA Band II	1.13	1.16	1.05	/
WCDMA Band IV	1.16	1.15	0.82	/
WCDMA Band V	0.99	0.80	0.52	/
LTE Band 2	1.16	0.93	0.71	/
LTE Band 5	1.10	1.08	0.51	/
LTE Band 7	0.99	1.15	1.05	/
LTE Band 12	0.63	0.49	0.46	/
LTE Band 14	0.88	0.72	0.71	/
LTE Band 17	0.65	0.56	0.63	/
LTE Band 30	0.96	1.13	0.65	/
LTE Band 41 (38)	1.08	1.16	0.75	/
LTE Band 42	1.15	0.62	1.06	/
LTE Band 43	1.12	0.65	1.17	/
LTE Band 48	1.14	0.51	1.06	/
LTE Band 66 (4)	1.15	1.15	1.04	/
NR Band n2	1.13	1.06	0.97	/
NR Band n5	0.98	0.86	0.47	/
NR Band n7	1.11	1.09	1.10	/
NR Band n14	1.15	0.64	0.60	/
NR Band n30	1.00	1.10	0.92	/
NR Band n66	1.07	1.12	1.08	/
NR Band n77	1.10	0.78	1.05	/
WI-FI (2.4GHz)	0.24	0.56	0.40	/
WI-FI (5GHz)	0.96	1.09	0.70	0.68
WI-FI 6E	0.12	0.24	/	0.15
BT	<0.10	0.12	<0.10	/
NFC	/	/	/	<0.10
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.59	1.59	1.59	/
SPLSR	/	/	/	/
SPLSR Limited	0.04			0.1

Note:

1) The Simultaneous transmission SAR is the same test position of the WWAN Antenna + WiFi/BT Antenna.
2) According to TCB workshop October, 2014 RF Exposure Procedures Update (Overlapping Bands): SAR for LTE Band 4/38 is respectively covered by LTE Band 66/41 due to similar frequency range, same maximum tune up limit and same channel bandwidth. Because the frequency range is similar, the maximum tuning limit is the same, and the channel bandwidth and other operating parameters for the smaller band is fully supported by the larger band.

Frequency Band	Report Power Density (W/m²)
WIFI 6E	8.37
PD Limited(W/m²)	10.0



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Remark :

This test report (Report No.: SUCR260300016103 issue on 2026-03-11) is based on the original test report (Report No.: SUCR251000102603 issue on 2025-12-19).

Review this report and original report, this report just changing the parts according to the declaration letter from client.

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report only added the WI-FI 6E data and the other test data please based on the previous report with report number SUCR251000102603 issue on 2025-12-19.

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1 General Information

1.1 General Description of EUT

Product Name:	Mobile Phone		
Model No.:	54237-1		
Trade Mark:	CROSSCALL		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
IMEI:	352047350007378/352047350007386		
Hardware Version:	V1.0		
Software Version:	N2161V.6.01.01.US01		
Antenna Type:	Integrated Antenna		
Device Operating Configurations:			
Test Mode Configuration:	WCDMA:QPSK,16QAM LTE:QPSK,16QAM,64QAM,256QAM 5G NR:DFT-s-OFDM(PI/2 BPSK,QPSK,16QAM,64QAM,256QAM) CP-OFDM(QPSK,16QAM,64QAM,256QAM) WIFI:DSSS,OFDM,OFDMA; BT:GFSK, π/4DQPSK,8DPSK NFC:ASK		
HSDPA UE Category:	24	HSUPA UE Category:	6
Power Class:	3, tested with power control “all 1”(WCDMA Band)		
	3, tested with power control “max power”(LTE Band)		
Frequency Bands:	Band	Tx(MHz)	
	WCDMA Band II	1850~1910	
	WCDMA Band IV	1710~1755	
	WCDMA Band V	824~849	
	LTE Band 2	1850~1910	
	LTE Band 4	1710~1755	
	LTE Band 5	824~849	
	LTE Band 7	2500~2570	
	LTE Band 12	699~716	
	LTE Band 14	788~798	
	LTE Band 17	704~716	
	LTE Band 30	2305~2315	
	LTE Band 38	2570~2620	
	LTE Band 41	2496~2690	
	LTE Band 42	3400~3600	
	LTE Band 43	3600~3800	
	LTE Band 48	3550~3700	

	LTE Band 66	1710~1780
	NR Band n2	1850 ~1910
	NR Band n5	824~849
	NR Band n7	2500~2570
	NR Band n14	788~798
	NR Band n30	2305~2315
	NR Band n66	1710~1780
	NR Band n77	3450~3550
		3700~3980
	WIFI 2.4G	2412~2462
	WIFI 5G	5150~5250
		5250~5350
		5470~5725
		5725~5850
	WIFI 6E	5925~6425
		6425~6525
		6525~6875
		6875~7125
	BT	2402~2480
RF Cable:	☒ Provided by applicant ☐ Provided by the laboratory	
Battery Information:	Model:	LPN387383
	Normal Voltage:	3.87V
	Rated capacity:	3830mAh
	Manufacturer:	Shenzhen EPT Battery 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.		

1.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 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
IEC/IEEE 62209-1528:2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices –Part 1528: Human models, instrumentation, and procedures(Frequency range of 4 MHz to 10 GHz)
IEC/IEEE 63195-1:2022	Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz) – Part 1: Measurement procedure
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802.11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
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
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 616217 D04	SAR for laptop and tablets v01r02

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.)

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

Note: 1.0 mW/cm² is equal to 10 W/m²

1.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu)
Pilot Free Trade Zone

No tests were sub-contracted.

1.5 Test Engineer

Test Engineer: Alan Zhang, Cyrus Sun

1.6 Test Facility

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

- **A2LA (Certificate No. 6336.01)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA).

- **FCC (Designation Number: CN1312)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory.

Test Firm Registration Number: 717327

- **ISED (CAB Identifier: CN0120)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594

2 Laboratory Environment

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

3 SAR Measurements System Configuraion

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 $SAR = \sigma (|E|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

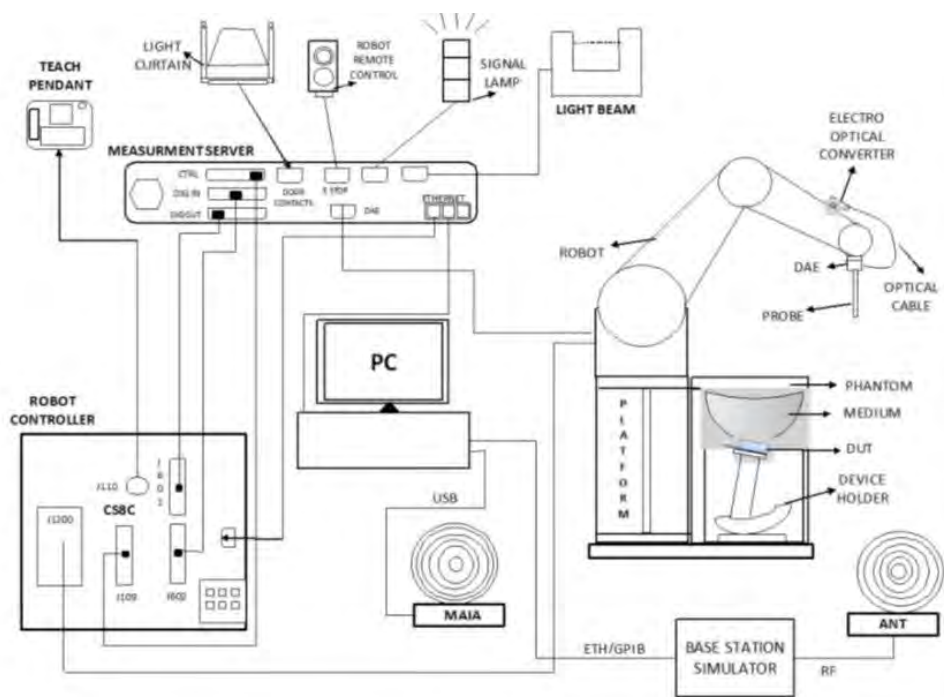
The DASY system for performing compliance tests consists of the following items:

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

- 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.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 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

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	< 5μV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

3.4 SAM Twin Phantom

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

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom. 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.

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 4 MHz to 10 GHz. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles. ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4 but has reinforced top structure.

3.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon=3$ 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.

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 ($f \leq 2\text{GHz}$), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points ($f \leq 2\text{GHz}$), 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 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.

If the zoom scan measured as specified in the preceding paragraphs complies with both i) and ii), or if the psSAR is below 0,1 W/kg, no additional measurements are needed.

i) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x- and y-directions (Δx , Δy). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance zM1. The minimum distance shall be recorded in the SAR test report.

ii) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum SAR value shall be at least 30 %. This ratio (in %) shall be recorded in the SAR test report.

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

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 $\pm 5 \%$.

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:

$$V_i = U_i + U_i^2 \cdot c f / d c p_i$$

With V_i = compensated signal of channel I (I = x, y, z)

U_i = input signal of channel I (I = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcp I = diode compression point (DASY parameter)

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

E-field probes:

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

H-field probes:

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

With V_i = compensated signal of channel I (I = x, y, z)

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

[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

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

H_i = magnetic field strength of channel I in A/m

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

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

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

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

with SAR = local specific absorption rate in mW/g

E_{tot} = 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.

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

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

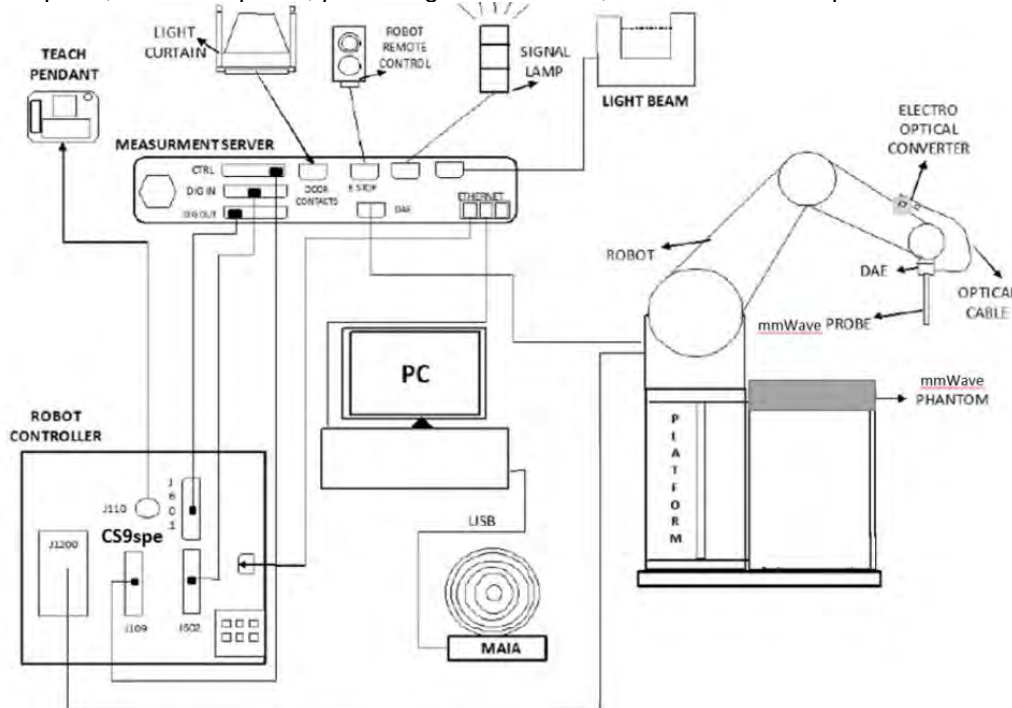
E_{tot} = total electric field strength in V/m

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

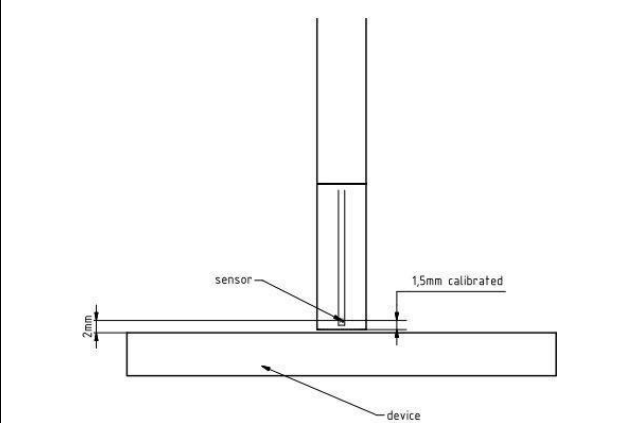
4 PD Measurements System Configuraion

4.1 Power density measurement system

Power density measurements for mmWave frequencies were performed using SPEAG DASY8 or Higher with mmWave module. The system included a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the mmWave phantom cover.



4.2 EUmW probe

Frequency	750 MHz – 110 GHz
Probe Overall Length	320 mm
Probe Body Diameter	8.0 mm
Tip Length	23.0 mm
Tip Diameter	8.0 mm
Probe's two dipoles length	0.9 mm – Diode loaded
Dynamic Range	< 20 V/m - 10000 V/m with PRE-10 (min < 50 V/m - 3000 V/m)
Position Precision	< 0.2 mm
Distance between diode sensors and probe's tip	1.5 mm
Minimum Mechanical separation between probe tip and a Surface	0.5 mm
Applications	E-field measurements of 5G devices and other mm-wave transmitters operating above 10GHz in < 2 mm distance from device (free-space) Power density, H-field and far-field analysis using total field reconstruction.
Compatibility	cDASY8 + 5G-Module SW1.0 and higher
 	

The EUmW probe is based on the pseudo-vector probe design, which not only measures the field magnitude but also derives its polarization ellipse. The design entails two small 0.8mm dipole sensors mechanically protected by high-density foam, printed on both sides of a 0.9mm wide and 0.12mm thick glass substrate. The body of the probe is specifically constructed to minimize distortion by the scattered fields. The probe consists of two sensors with different angles (1 and 2) arranged in the same plane in the probe axis. Three or more measurements of the two sensors are taken for different probe rotational angles to derive the amplitude and polarization information. The probe design allows measurements at distances as small as 2mm from the sensors to the surface of the device under test (DUT). The typical sensor to probe tip distance is 1.5 mm. The exact distance is calibrated.

4.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY 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 Measurement Procedure

Fine-resolution scans on 2 different planes are performed to reconstruct the E- and H-fields as well as the power density; the z-distance between the 2 planes is set to $\lambda/4$. The (x, y) grid step is also set $\lambda/4$, the grid extent is set to sufficiently large to identify the field pattern and the peak.

5 SAR measurement variability and uncertainty

5.1 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.

5.2 SAR measurement uncertainty

Per KDB 865664 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 PD measurement uncertainty

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multi plying Factor ^(a)	1/ κ ^(b)	1/ $\sqrt{3}$	1/ $\sqrt{6}$	1/ $\sqrt{2}$

Standard Uncertainty for Assumed Distribution

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

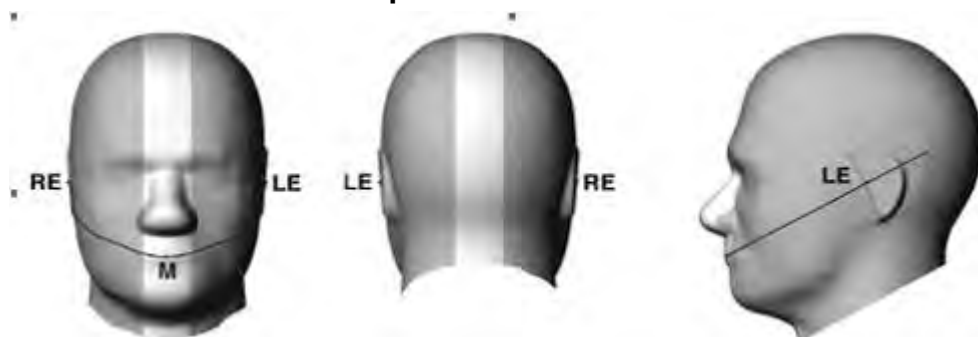
Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

a	b	c	d	e	f=b*e/d	g
Error Description	Uncertainty Value (±dB)	Probability	Div.	Ci	Standard Uncertainty (±dB)	Vi (Veff)
Probe Calibration	0.49	N	1	1	0.49	∞
Probe correction	0.00	R	1.732	1	0.00	∞
Frequency response (BW ≤1 GHz)	0.20	R	1.732	1	0.12	∞
Sensor cross coupling	0.00	R	1.732	1	0.00	∞
Isotropy	0.50	R	1.732	1	0.29	∞
Linearity	0.20	R	1.732	1	0.12	∞
Probe scattering	0.00	R	1.732	1	0.00	∞
Probe positioning offset	0.30	R	1.732	1	0.17	∞
Probe positioning repeatability	0.04	R	1.732	1	0.02	∞
Sensor mechanical offset	0.00	R	1.732	1	0.00	∞
Probe spatial resolution	0.00	R	1.732	1	0.00	∞
Field impedance dependance	0.00	R	1.732	1	0.00	∞
Amplitude and phase drift	0.00	R	1.732	1	0.00	∞
Amplitude and phase noise	0.04	R	1.732	1	0.02	∞
Measurement area truncation	0.00	R	1.732	1	0.00	∞
Data acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.732	1	0.00	∞
Field reconstruction	2.00	R	1.732	1	1.15	∞
Forward transformation	0.00	R	1.732	1	0.00	∞
Power density scaling	0.00	R	1.732	1	0.00	∞
Spatial averaging	0.10	R	1.732	1	0.06	∞
System detection limit	0.04	R	1.732	1	0.02	∞
Probe coupling with DUT	0.00	R	1.732	1	0.00	∞
Modulation response	0.40	R	1.732	1	0.23	∞
Integration time	0.00	R	1.732	1	0.00	∞
Response time	0.00	R	1.732	1	0.00	∞
Device holder influence	0.10	R	1.732	1	0.06	∞
DUT alignment	0.00	R	1.732	1	0.00	∞
RF ambient conditions	0.04	R	1.732	1	0.02	∞
Ambient reflections	0.04	R	1.732	1	0.02	∞
Immunity / secondary reception	0.00	R	1.732	1	0.00	∞
Drift of the DUT		R	1.732	1	0.00	∞
Combined Std. Uncertainty					1.33	
Expanded STD Uncertainty (95%), K=2					2.67	

7 Description of Test Position

7.1 The Head Test Position

7.1.1 SAM Phantom Shape

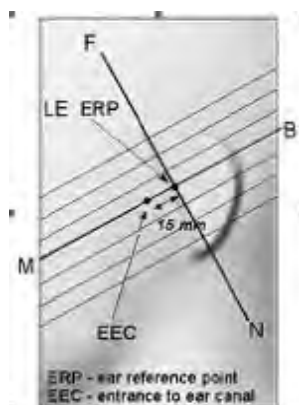


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

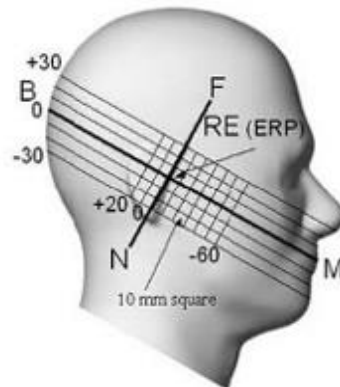
Note: The centre strip including the nose region has a different thickness tolerance.



F-4. Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)

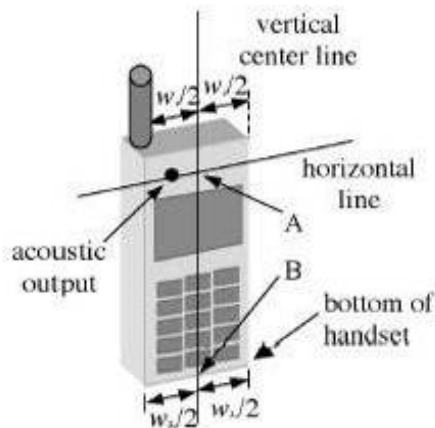


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

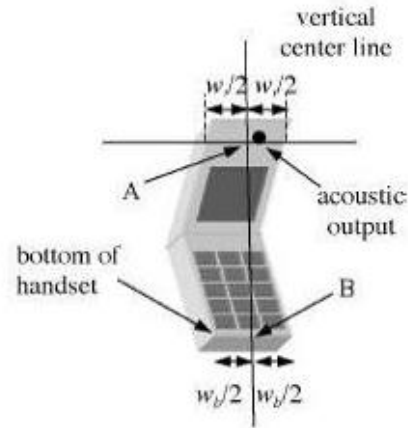


F-6.Side view of the phantom showing relevant markings and seven cross-sectional plane locations

7.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines-
“fixed case”



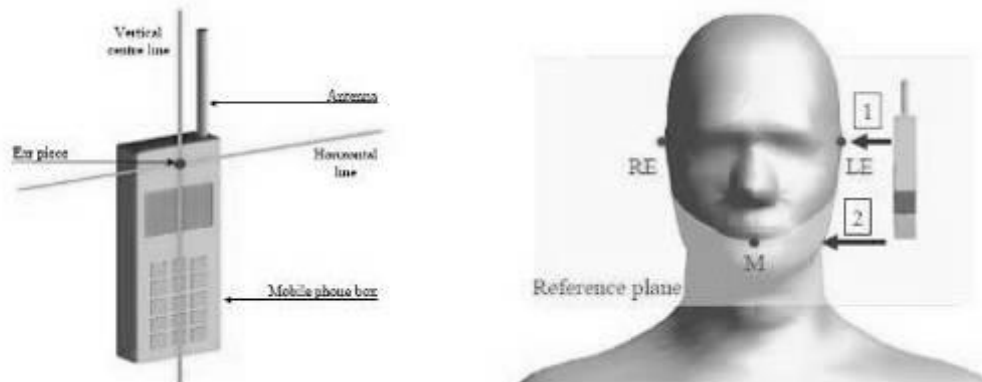
F-8.Handset vertical and horizontal reference lines-
“clam-shell case”

7.1.3 Definition of the “check” position

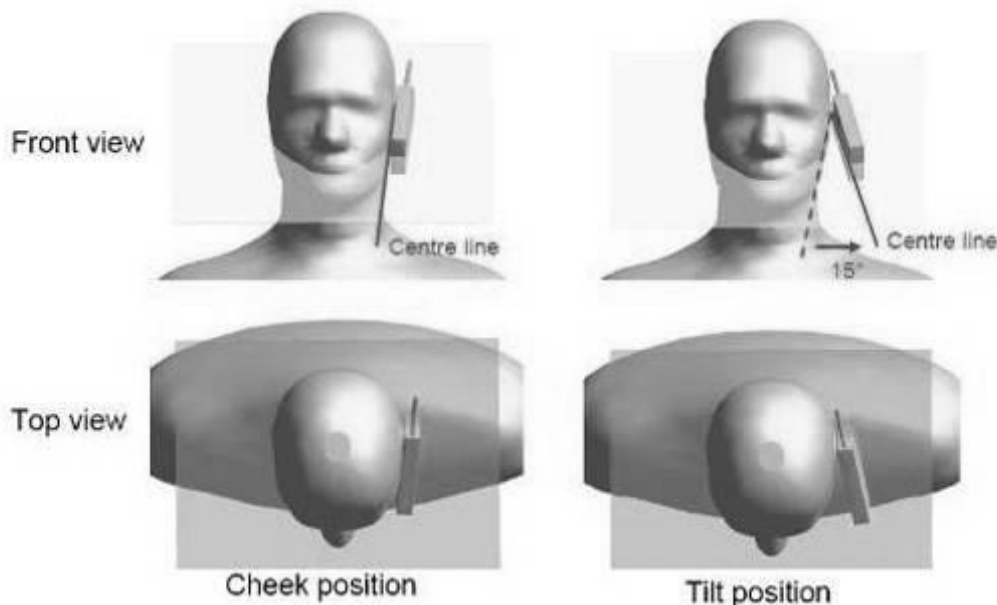
- Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom (“initial position”). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE.
- Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until telephone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

7.1.4 Definition of the “tilted” position

- Position the device in the “cheek” position described above.
- While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.



F-9. Definition of the reference lines and points, on the phone and on the phantom and initial position



F-10. “Cheek” and “tilt” positions of the mobile phone on the left side

7.2 The Body Test Position

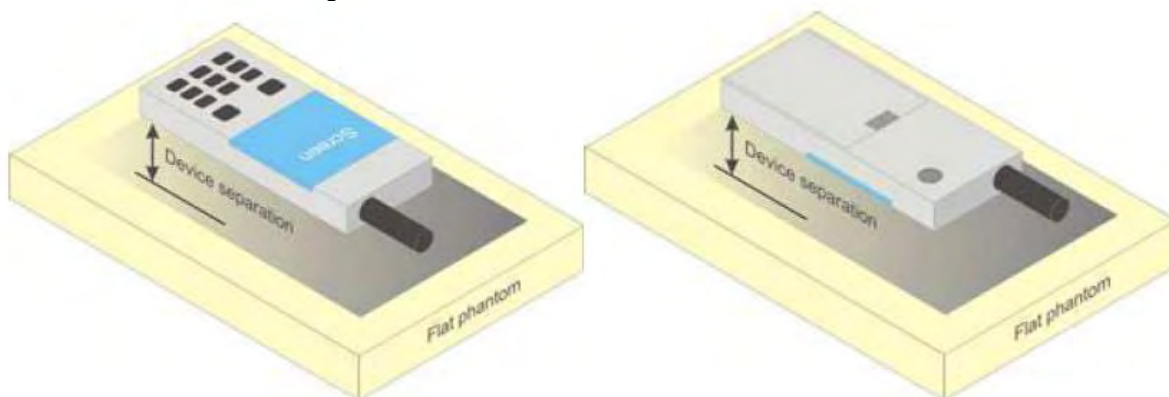
7.2.1 Body-worn exposure conditions

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 $> 1.2 \text{ W/kg}$, 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

7.2.2 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed-use conditions for this type of devices. For devices with form factors smaller than $9 \text{ cm} \times 5 \text{ cm}$, a test separation distance of 5 mm is required.

7.3 Extremity exposure conditions

Per FCC KDB 648474 D04, for smart phones with a display diagonal dimension $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$ that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as "Phablet".

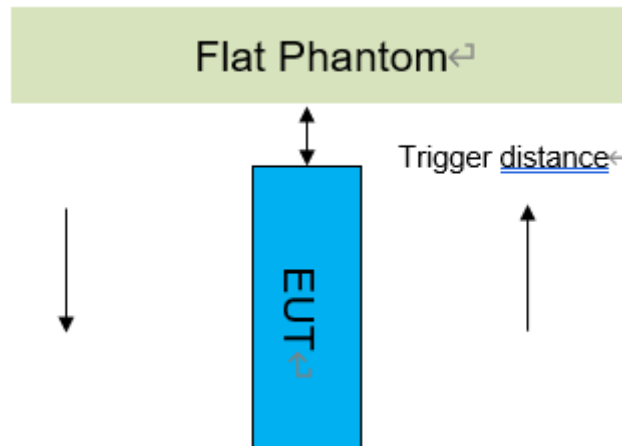
The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leq 25 \text{ mm}$ from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, only the WLAN 5G/6E/NFC frequency bands need to test with 0mm for the Product Specific 10-g SAR, the others are not required.

7.4 Proximity Sensor Triggering Test

7.4.1 Proximity sensor triggering distances

The Proximity sensor triggering was applied to the below table list antenna. Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.

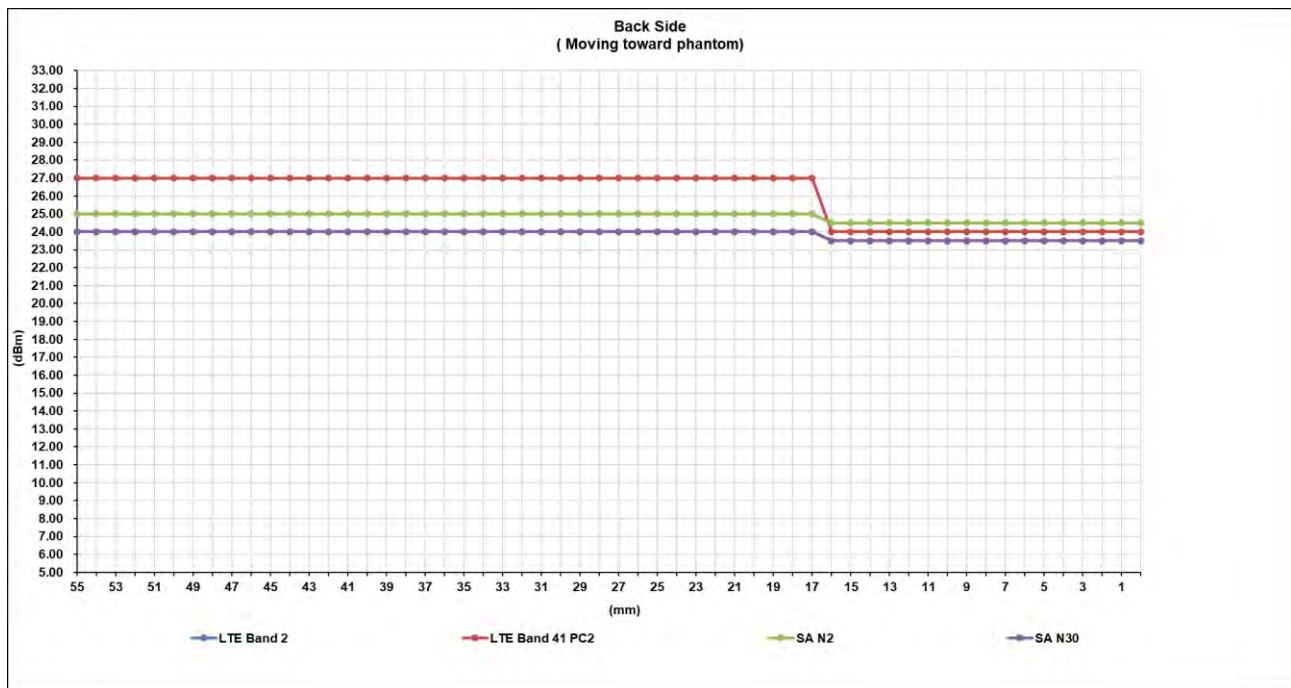
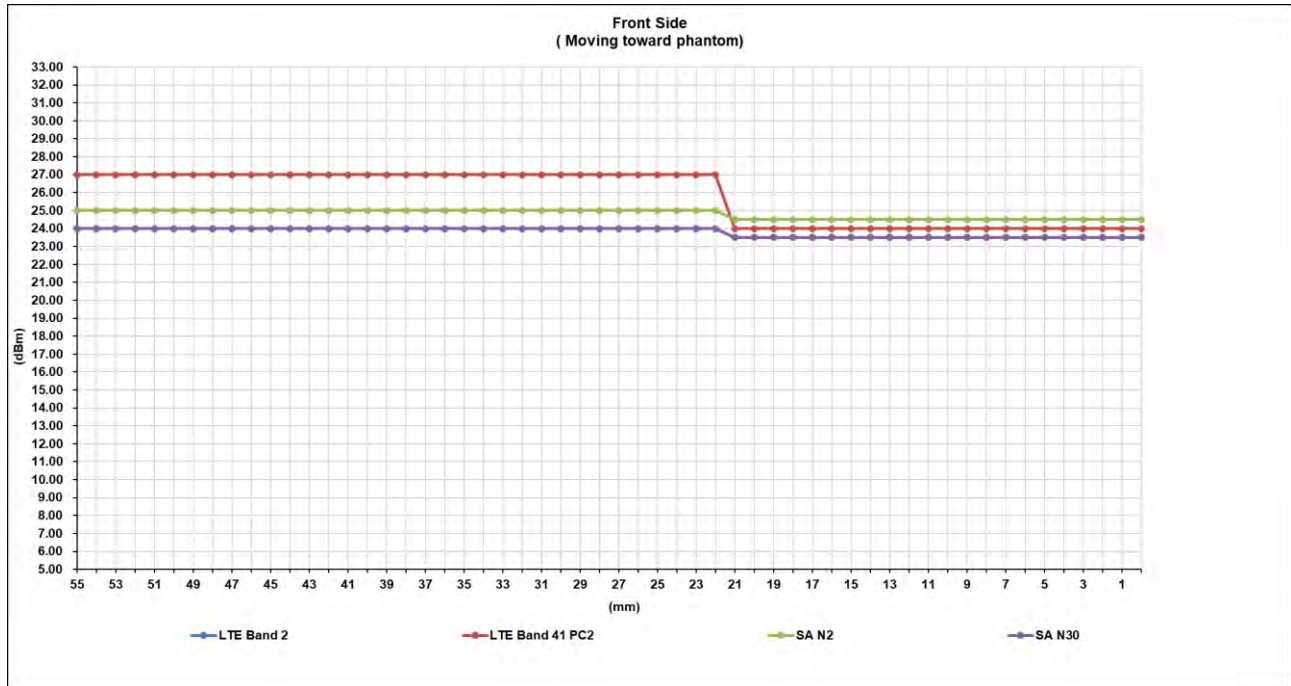


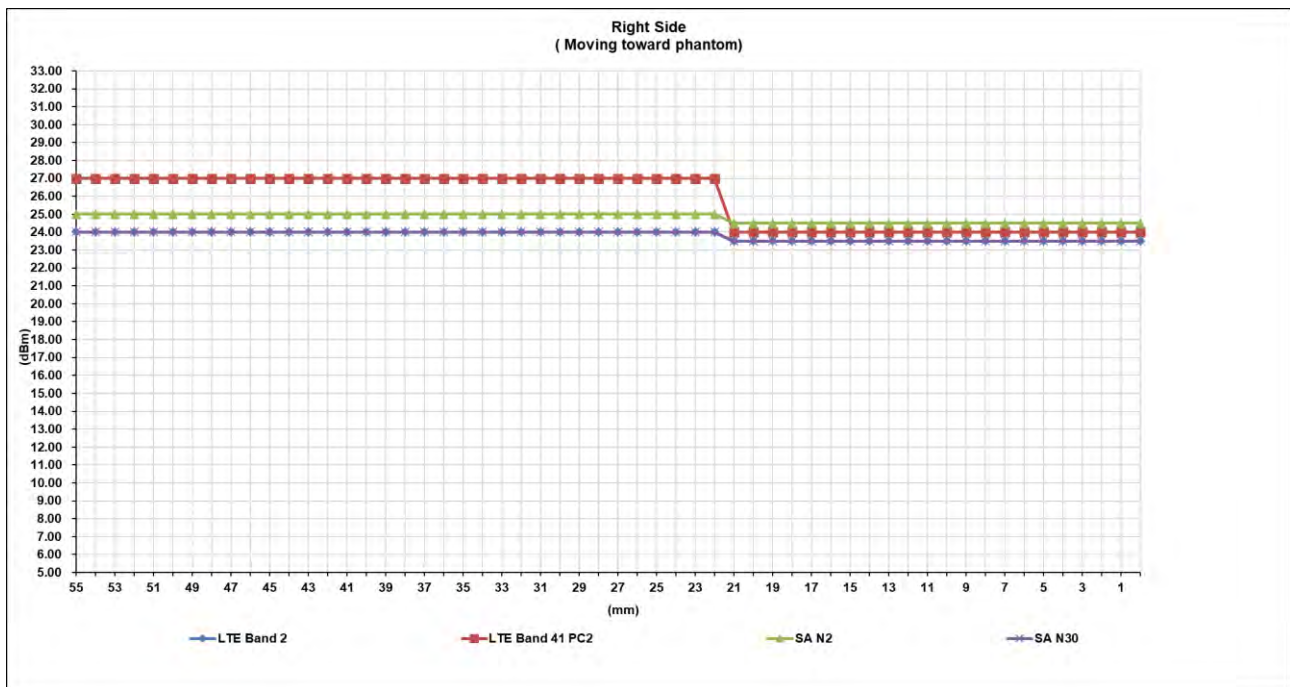
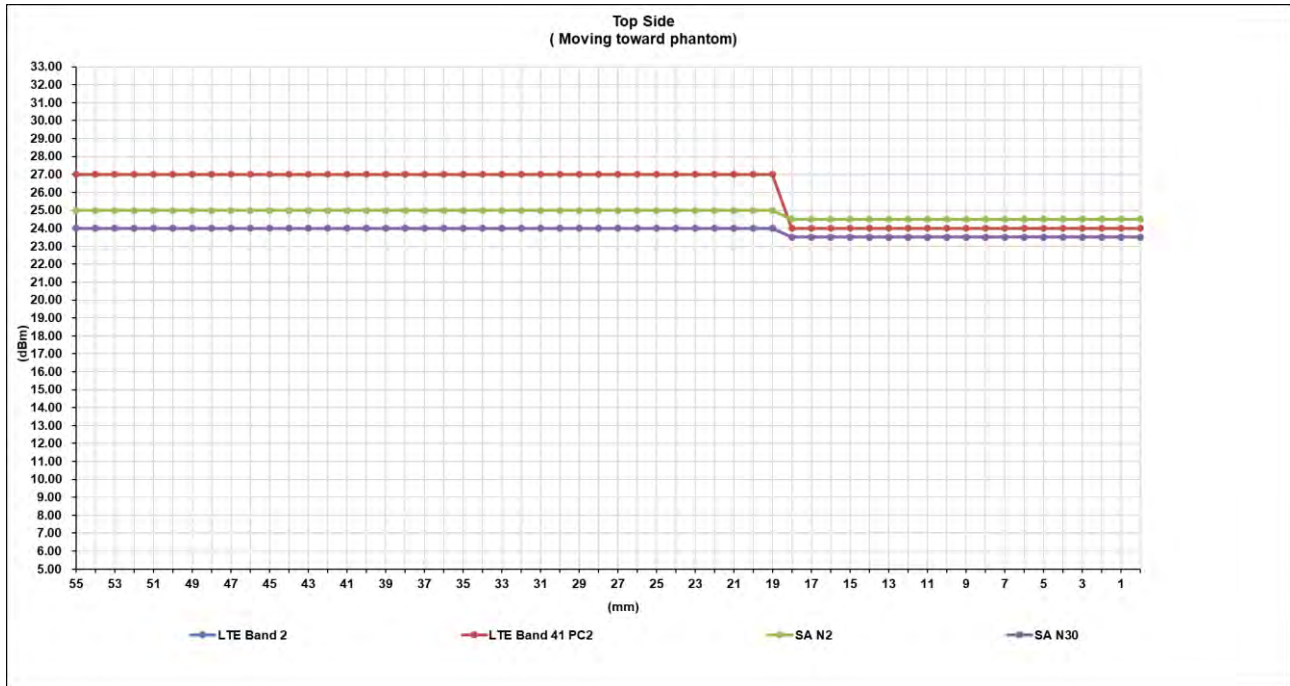
Proximity Sensor Triggering Distance(mm)				
Ant.0				
Position	Front side	Back side	Top Side	Right Side
Minimum	21	16	18	21
An.1				
Position	Front side	Back side	Bottom side	Top Side
Minimum	22	19	16	NA
Ant.4				
Position	Front side	Back side	Left side	Top Side
Minimum	13	16	16	NA

Note:

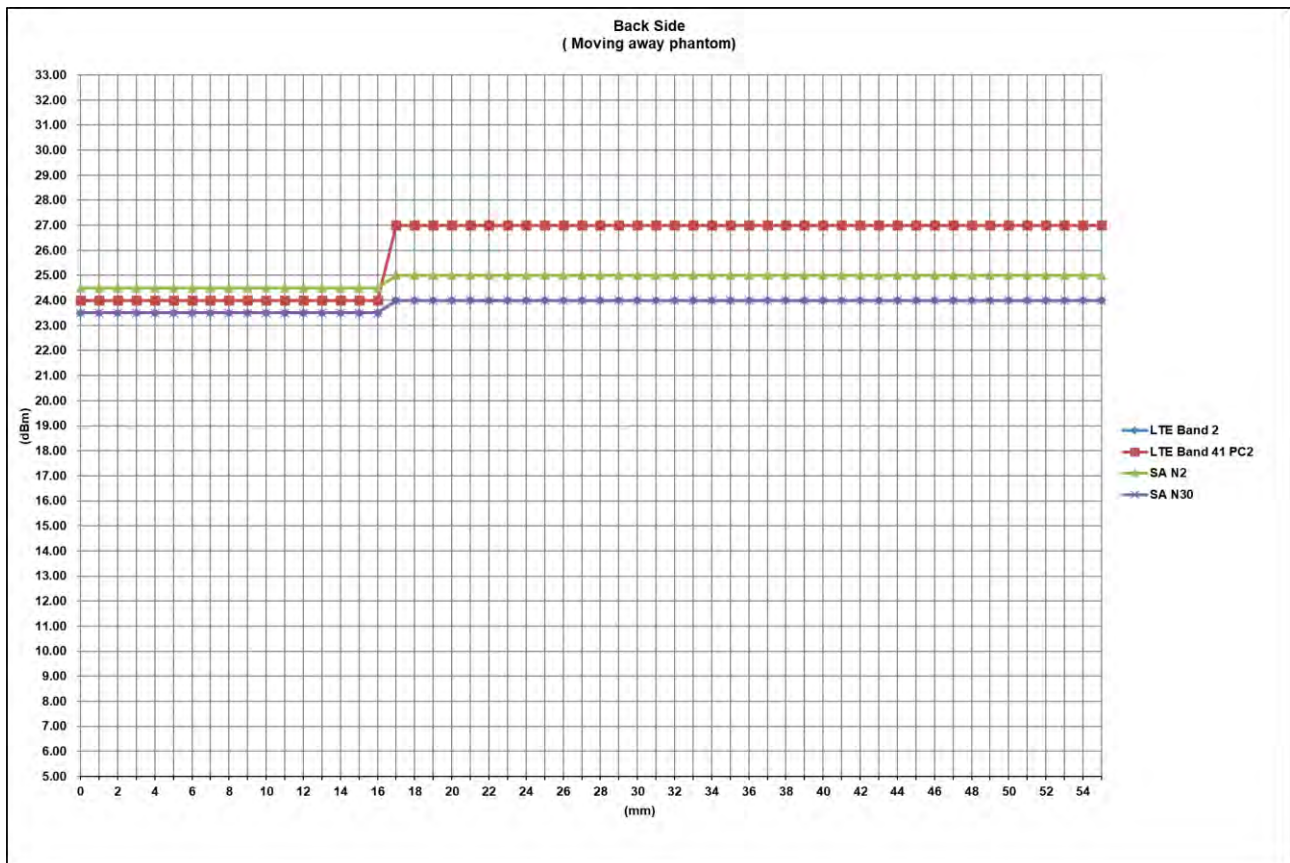
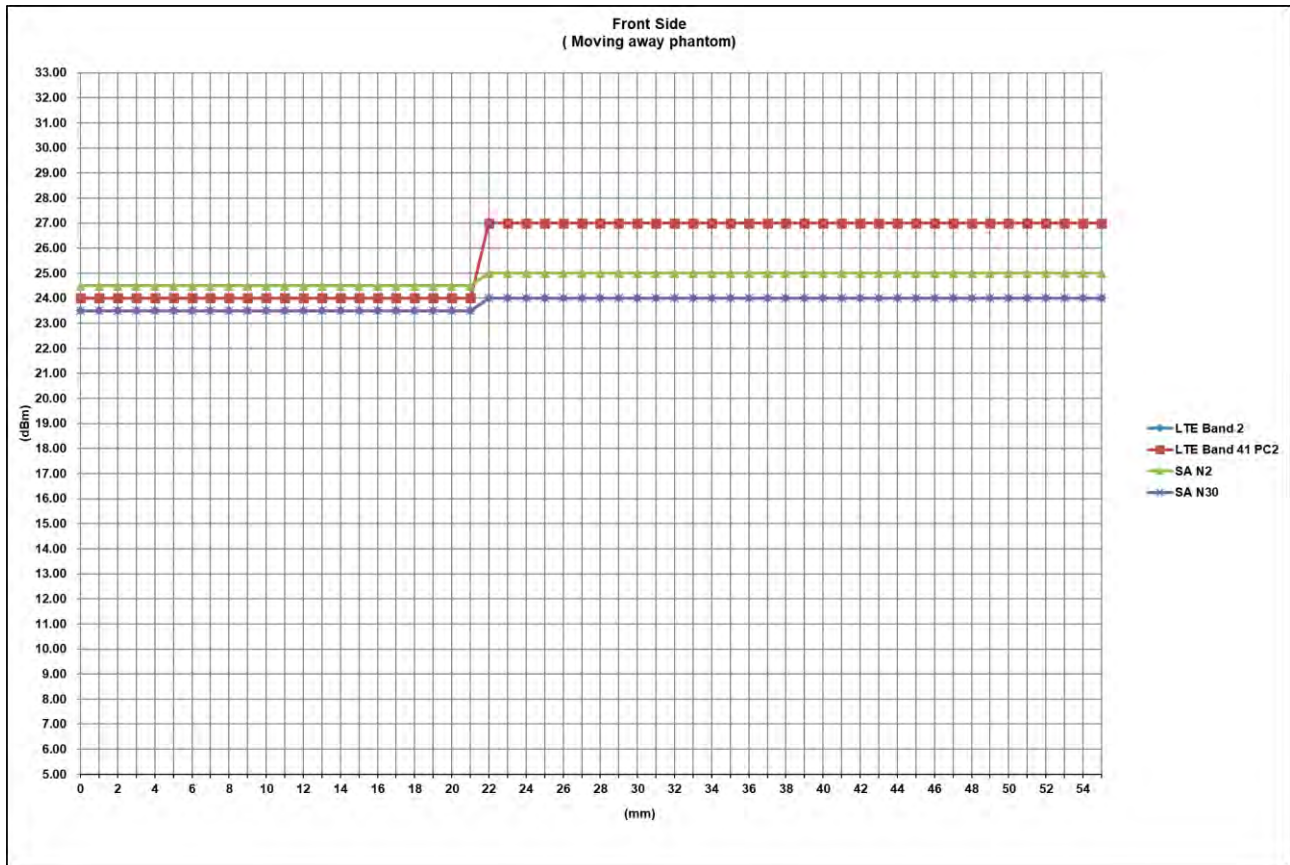
SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.

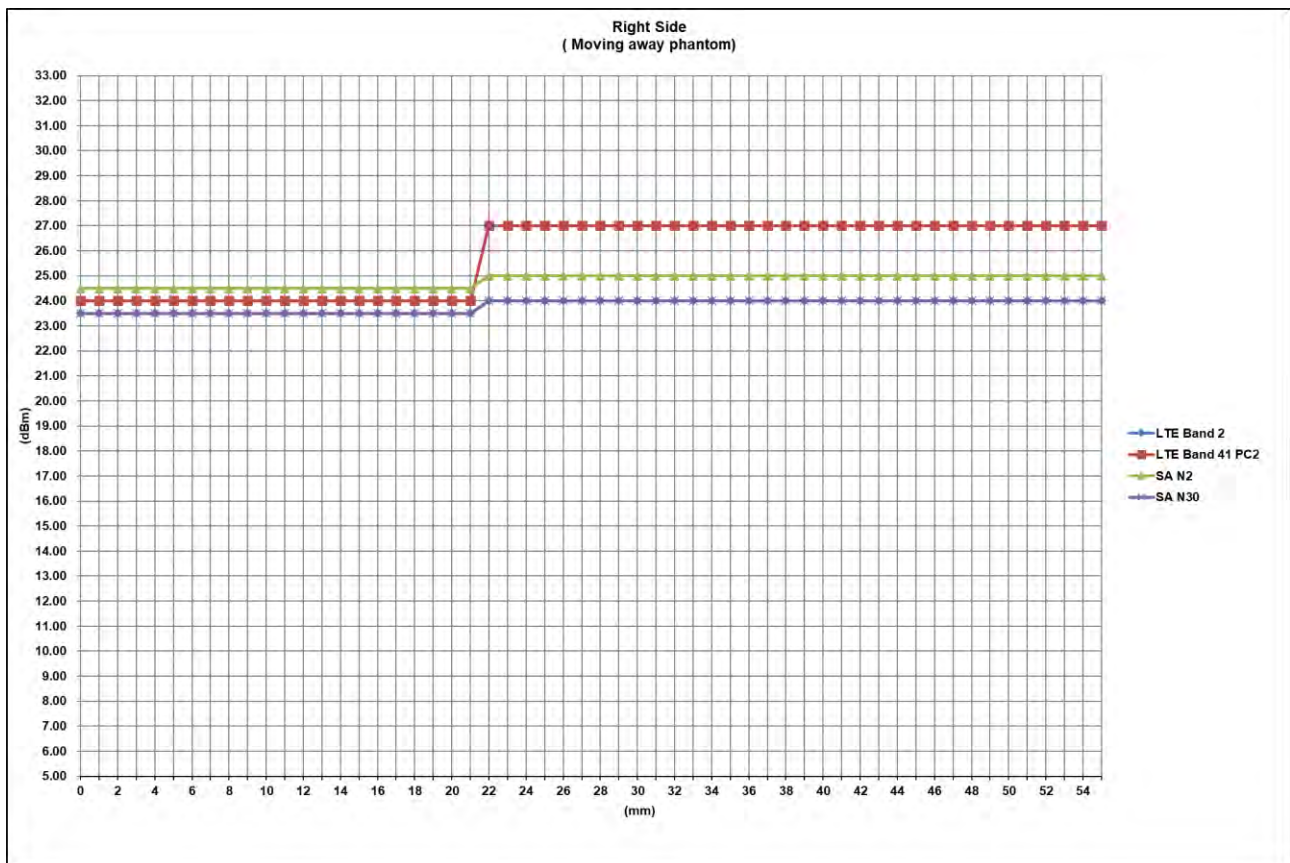
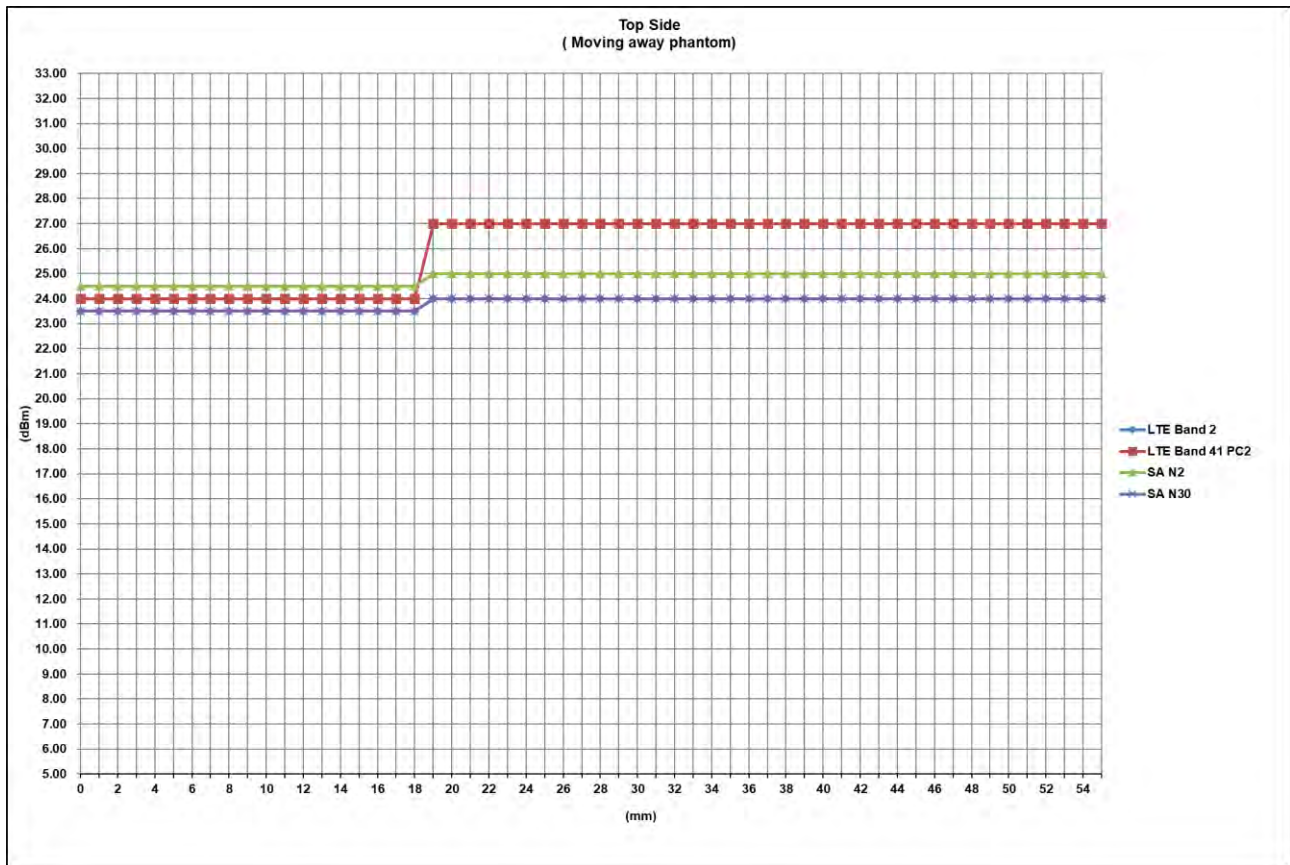
● Ant 0 DUT Moving Toward(Trigger)the Phantom



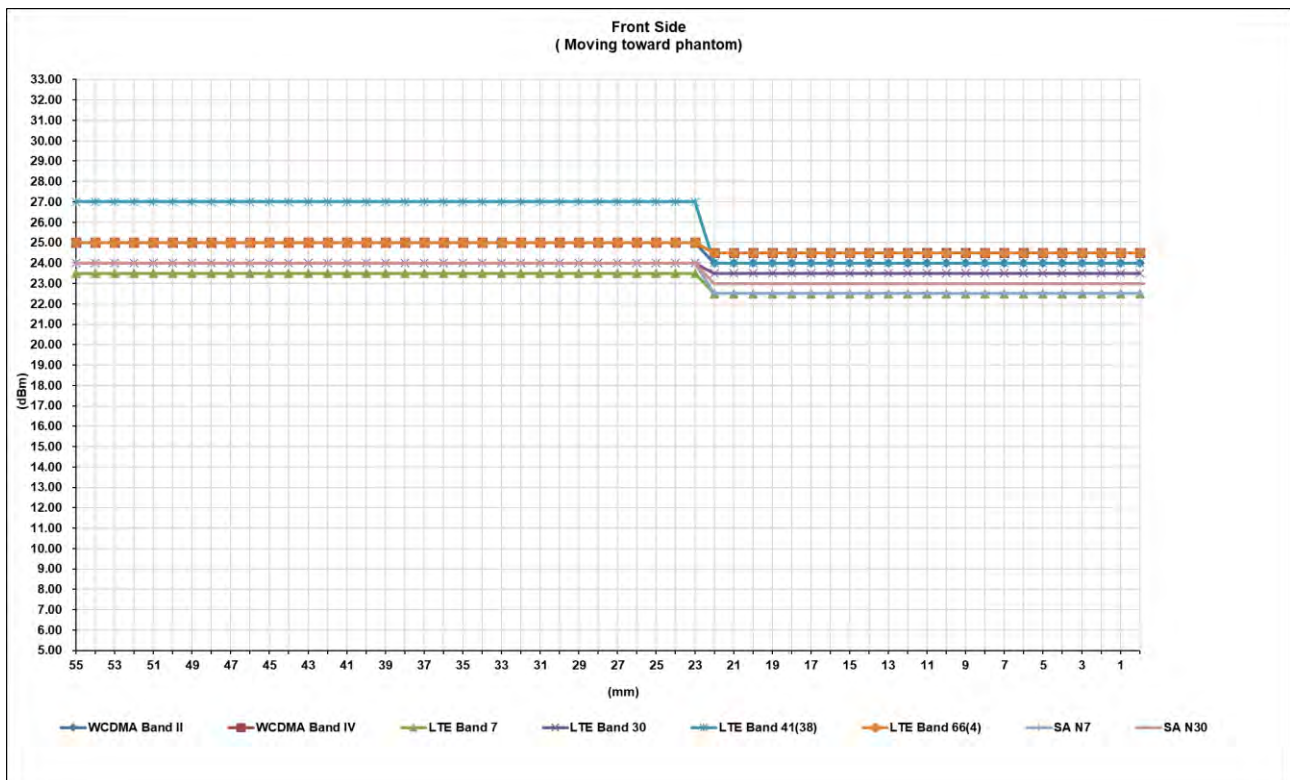
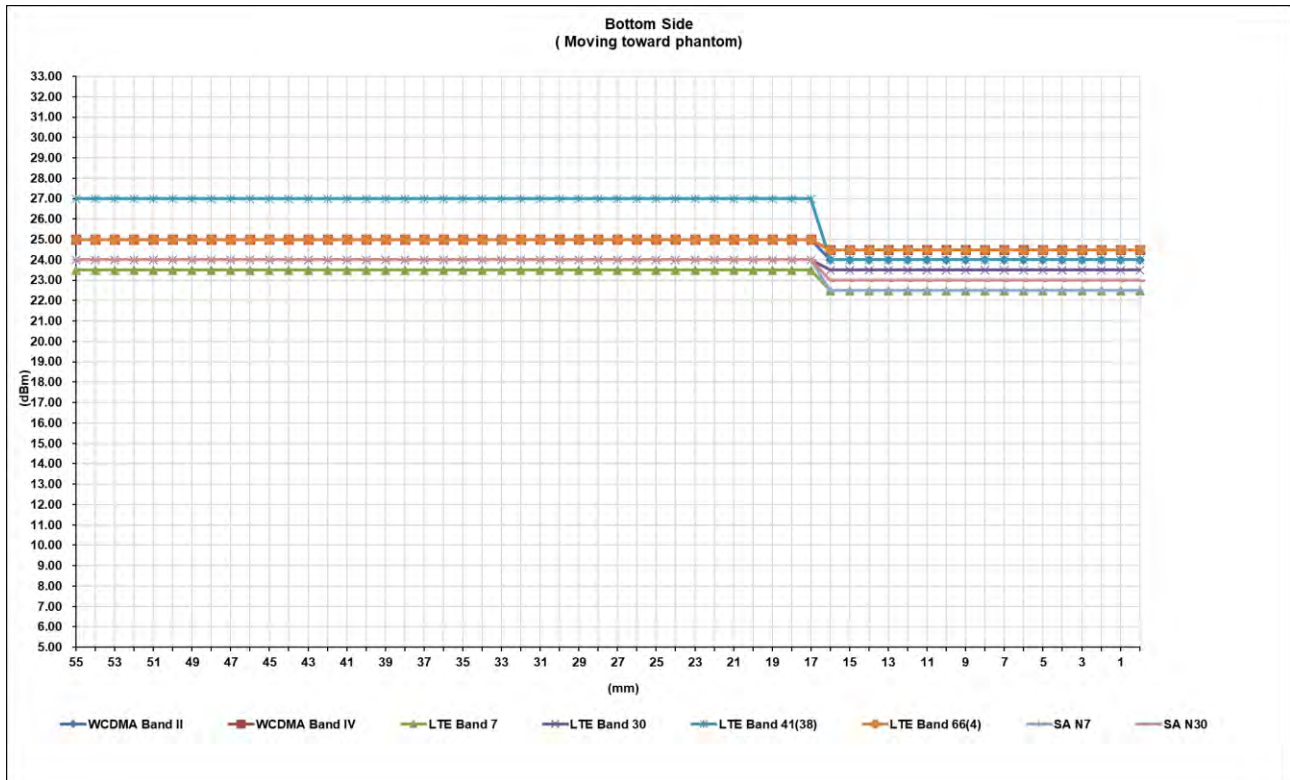


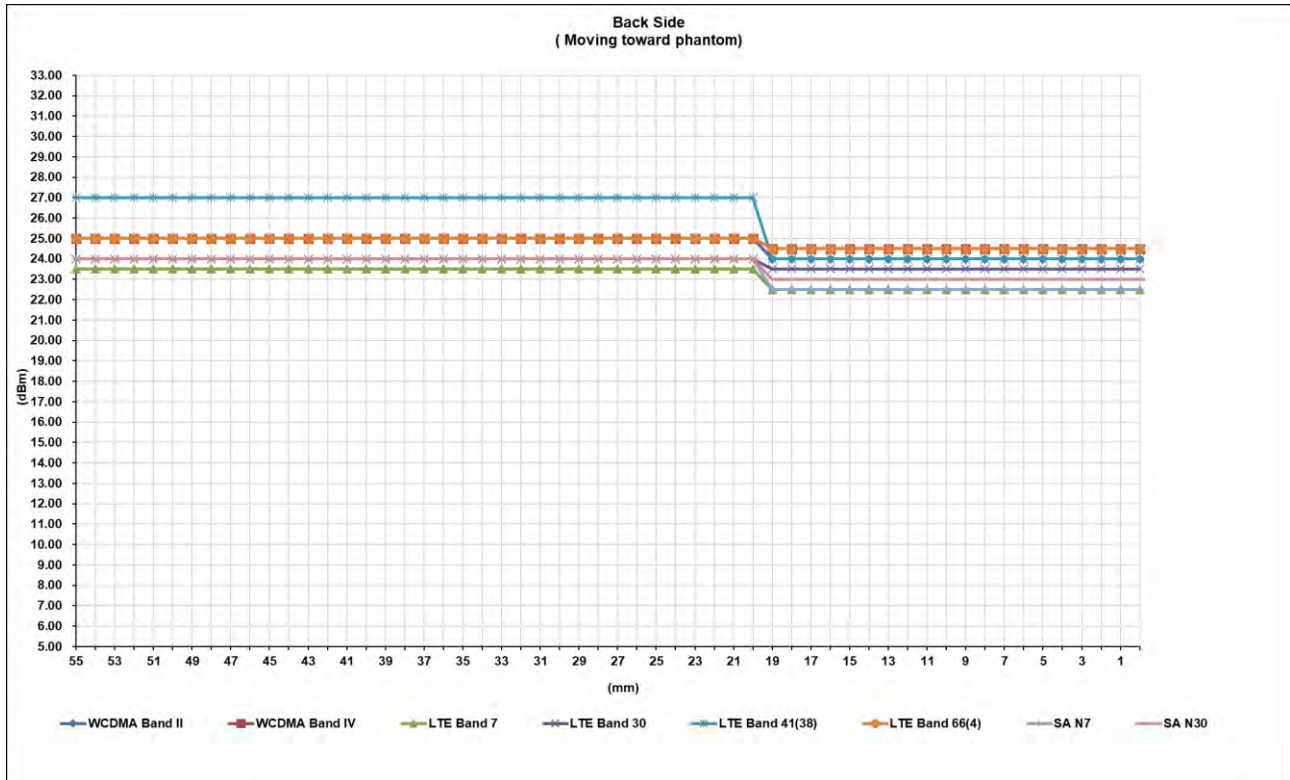
● Ant 0 DUT Moving Away(Release) from the Phantom



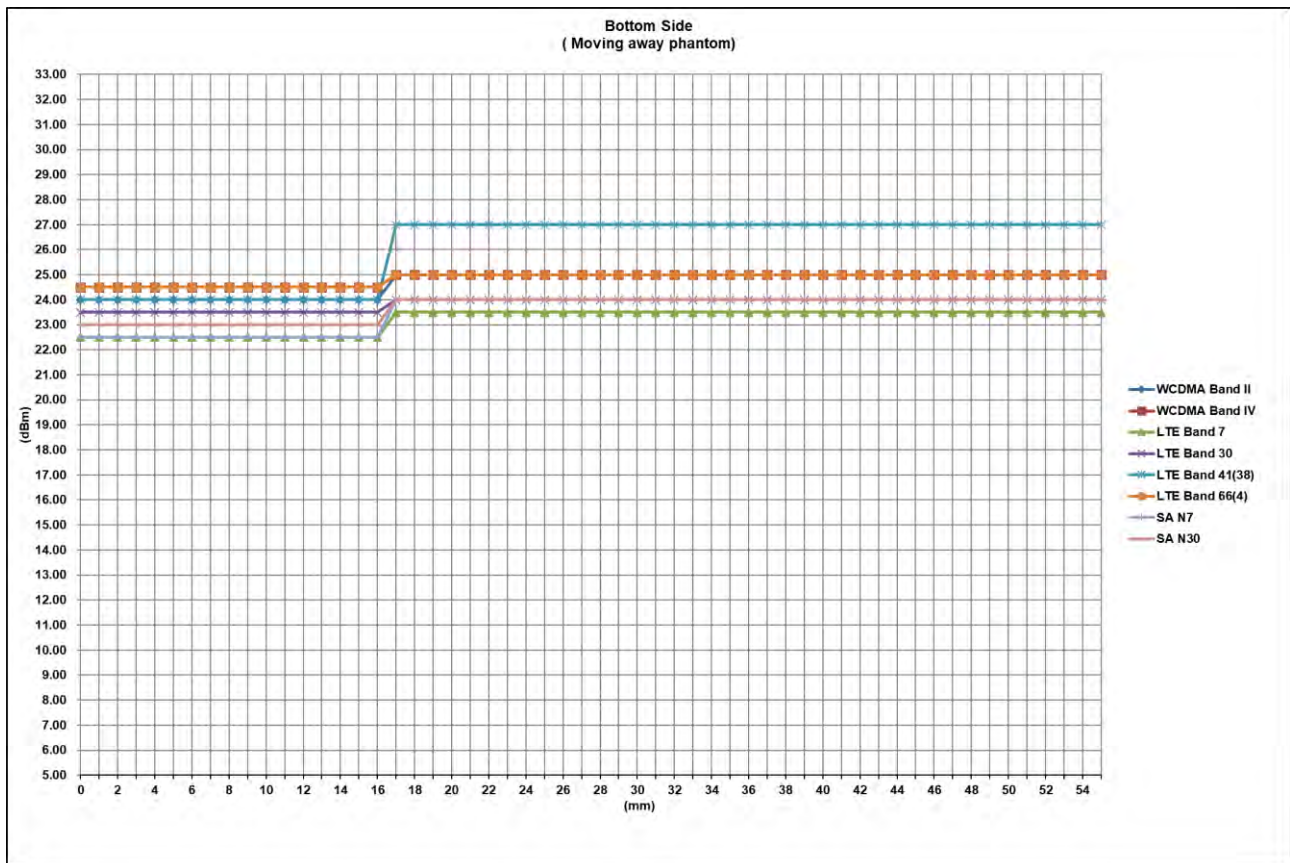


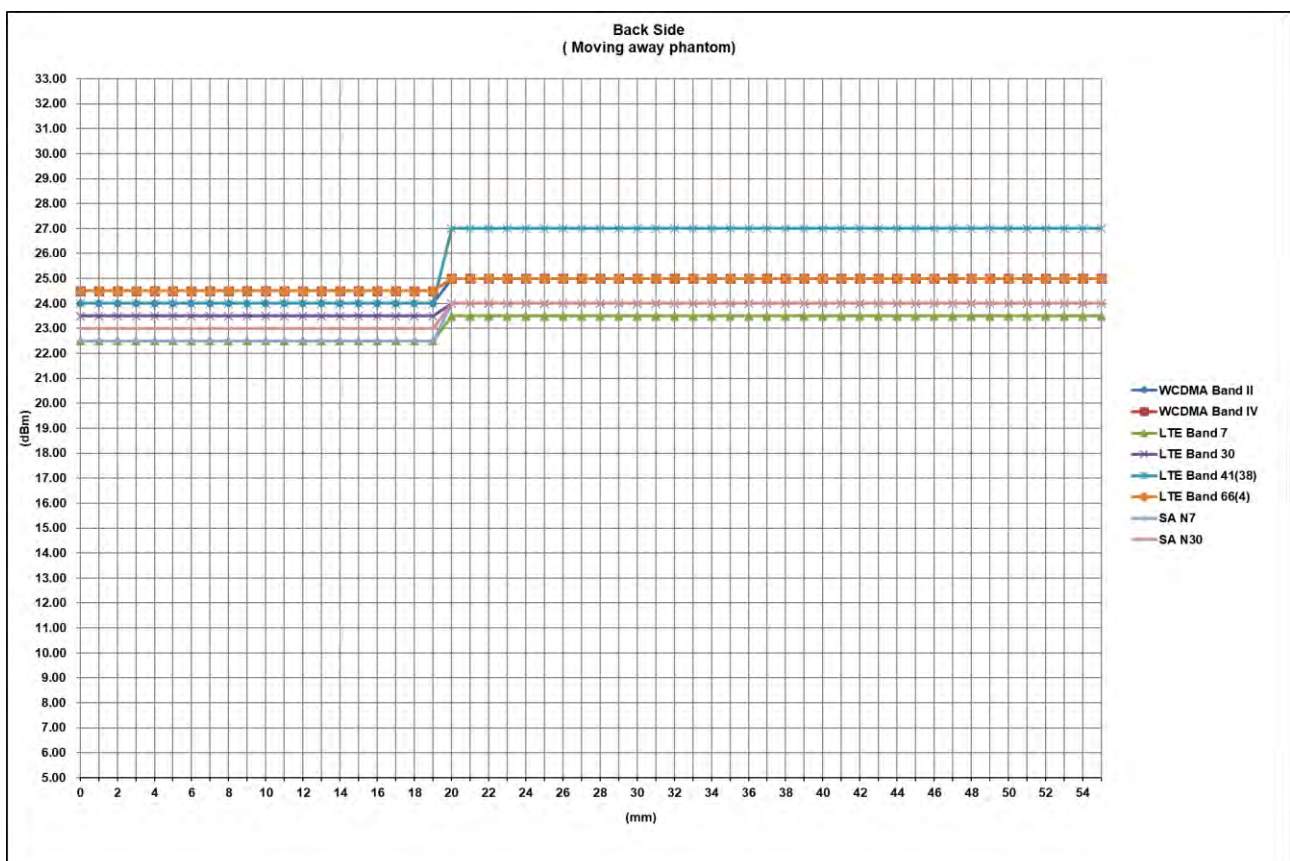
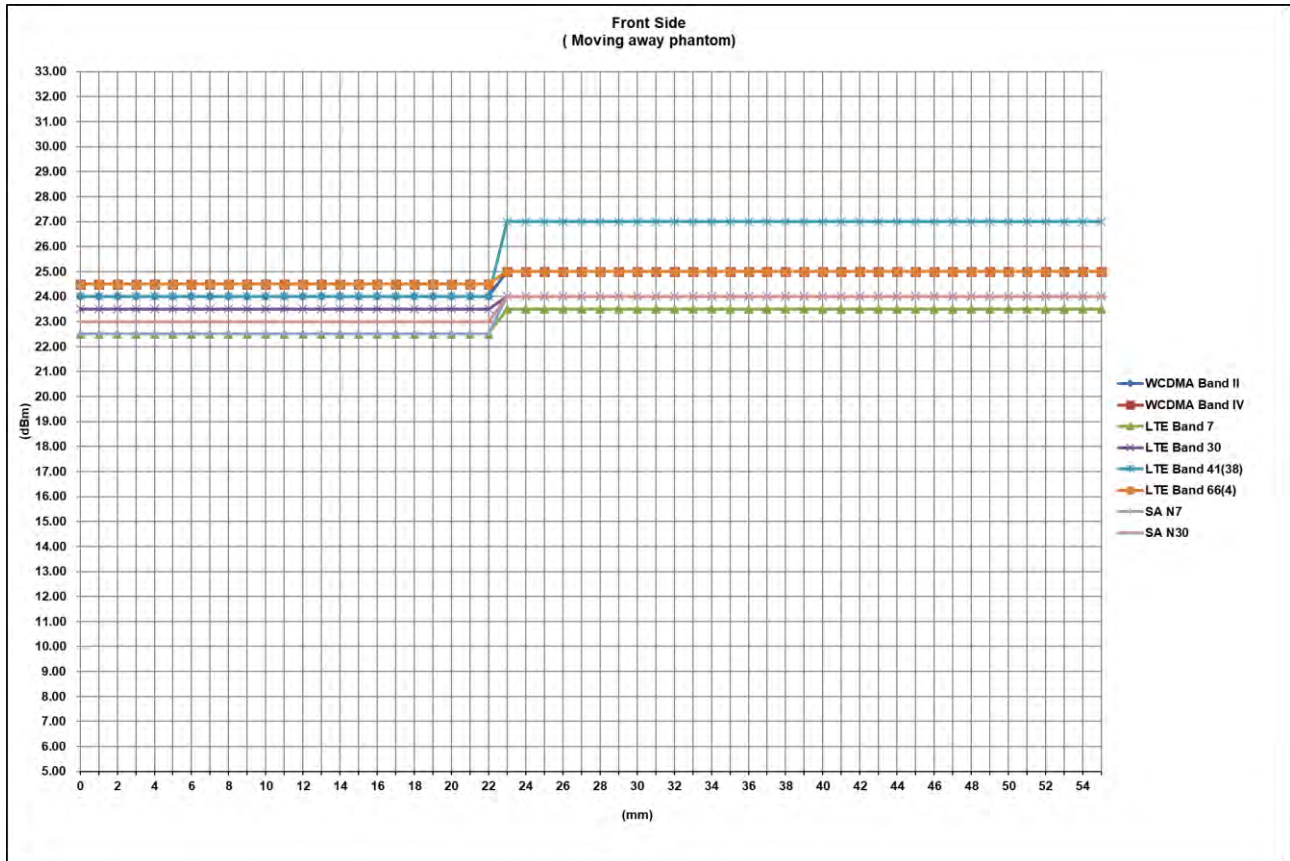
● Ant 1 DUT Moving Toward(Trigger)the Phantom



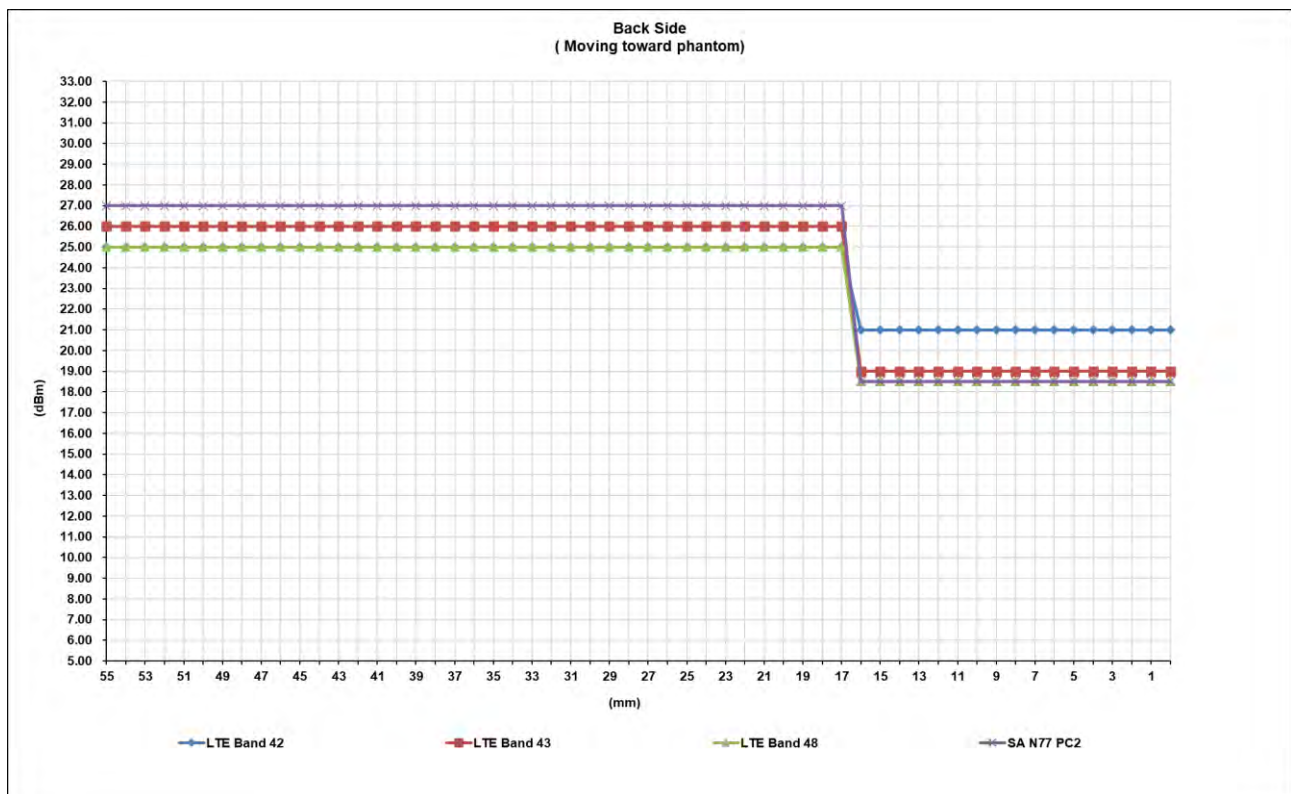
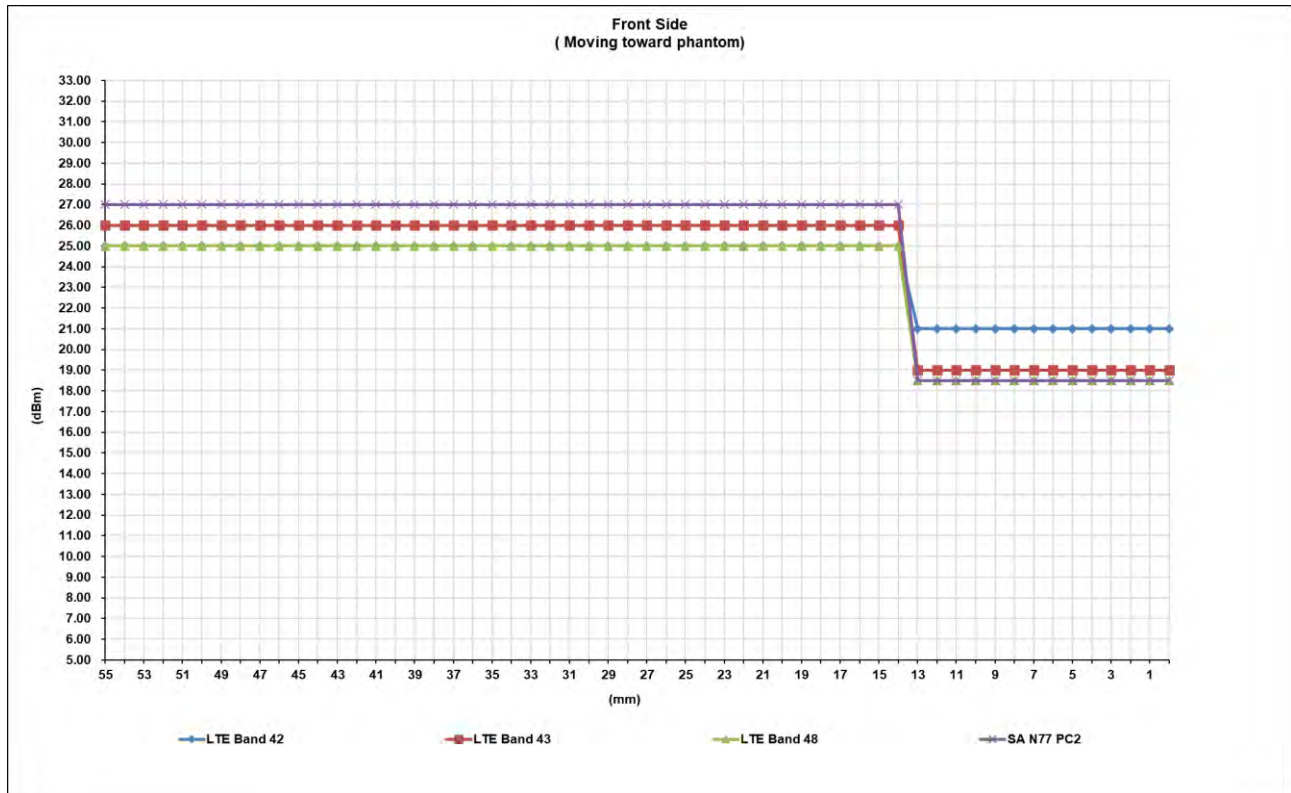


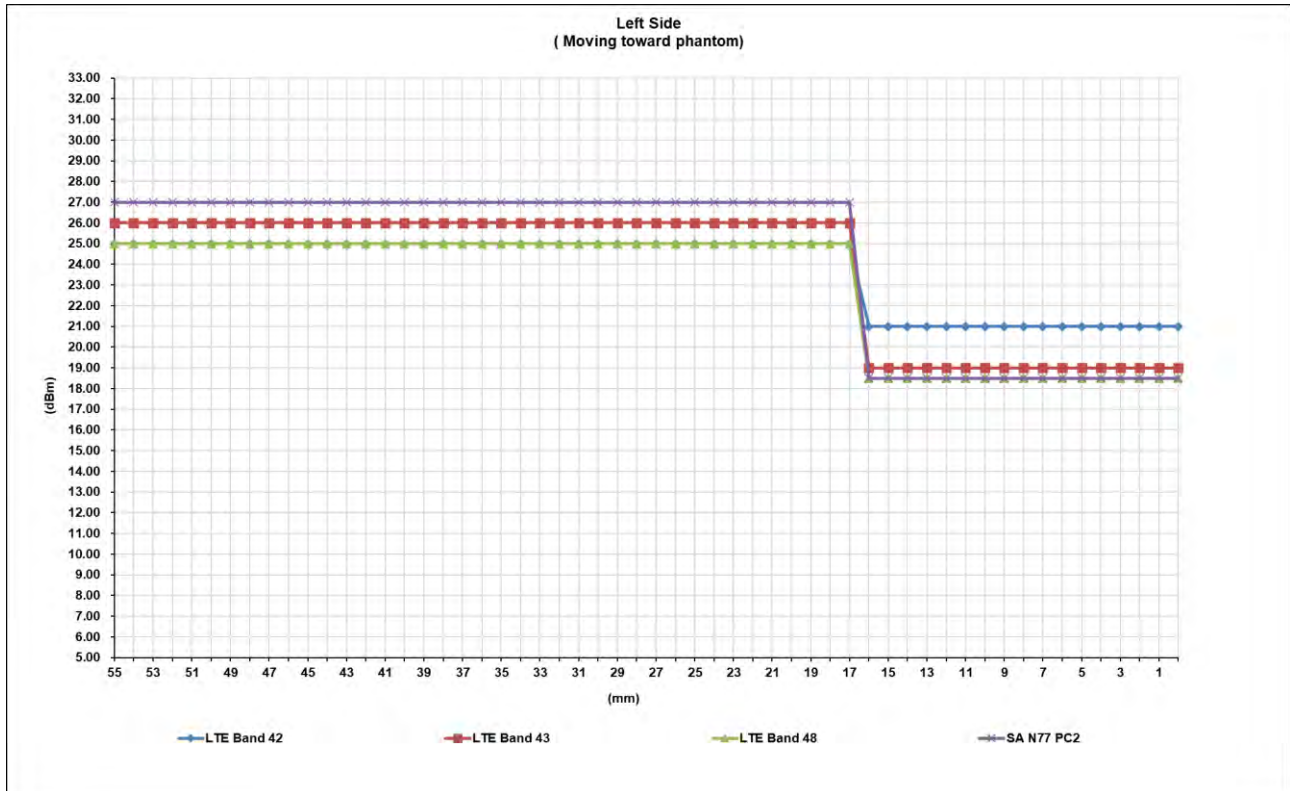
● Ant 1 DUT Moving Away(Release) from the Phantom



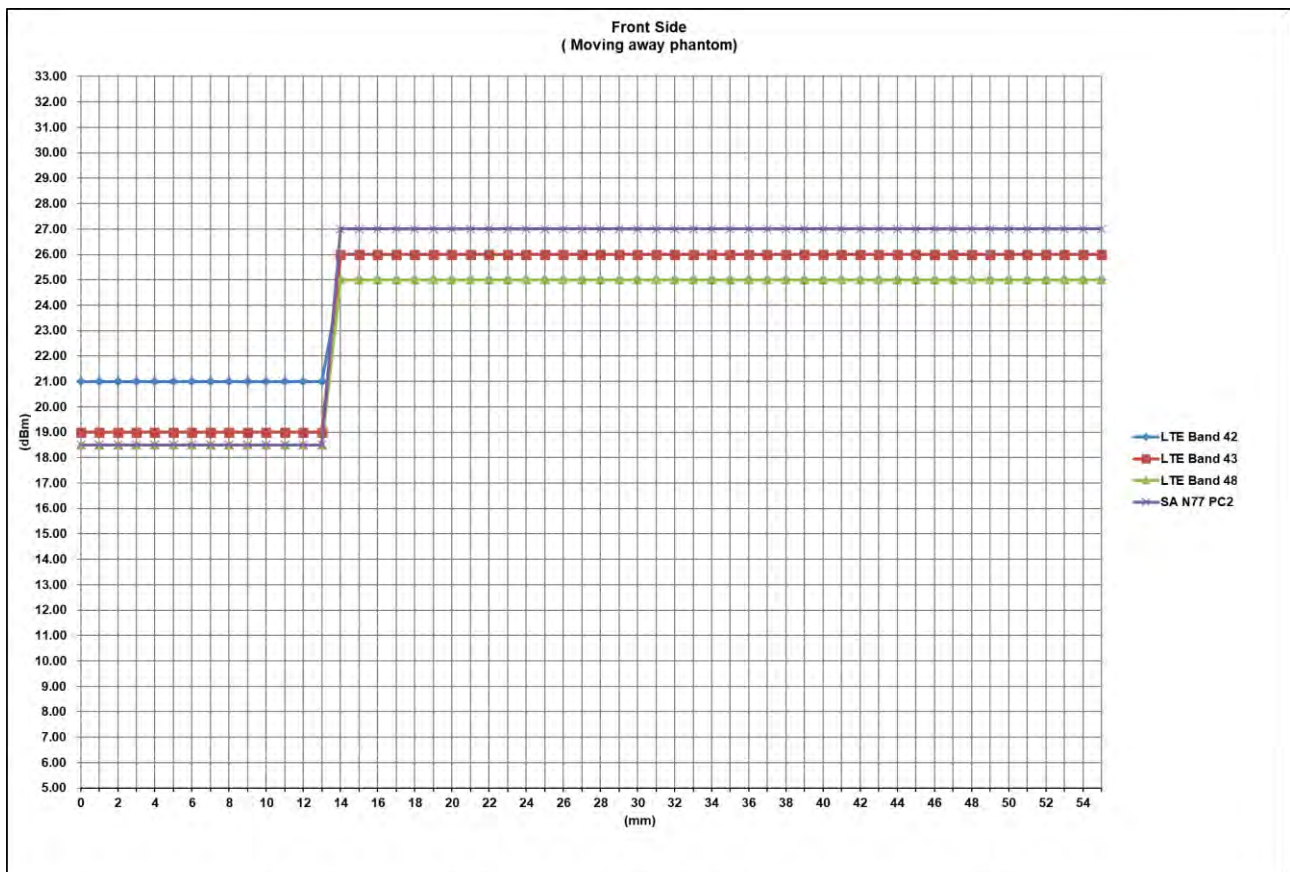


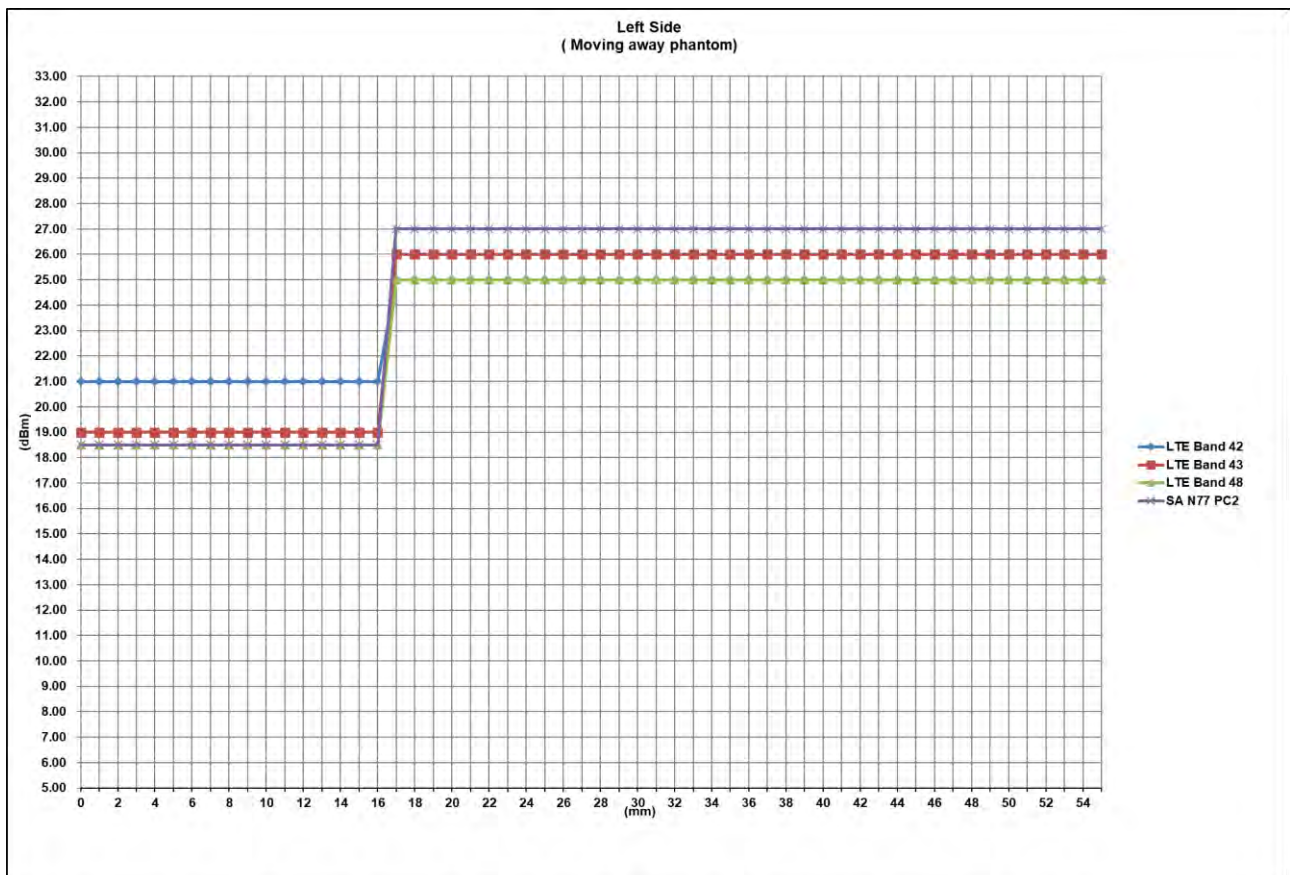
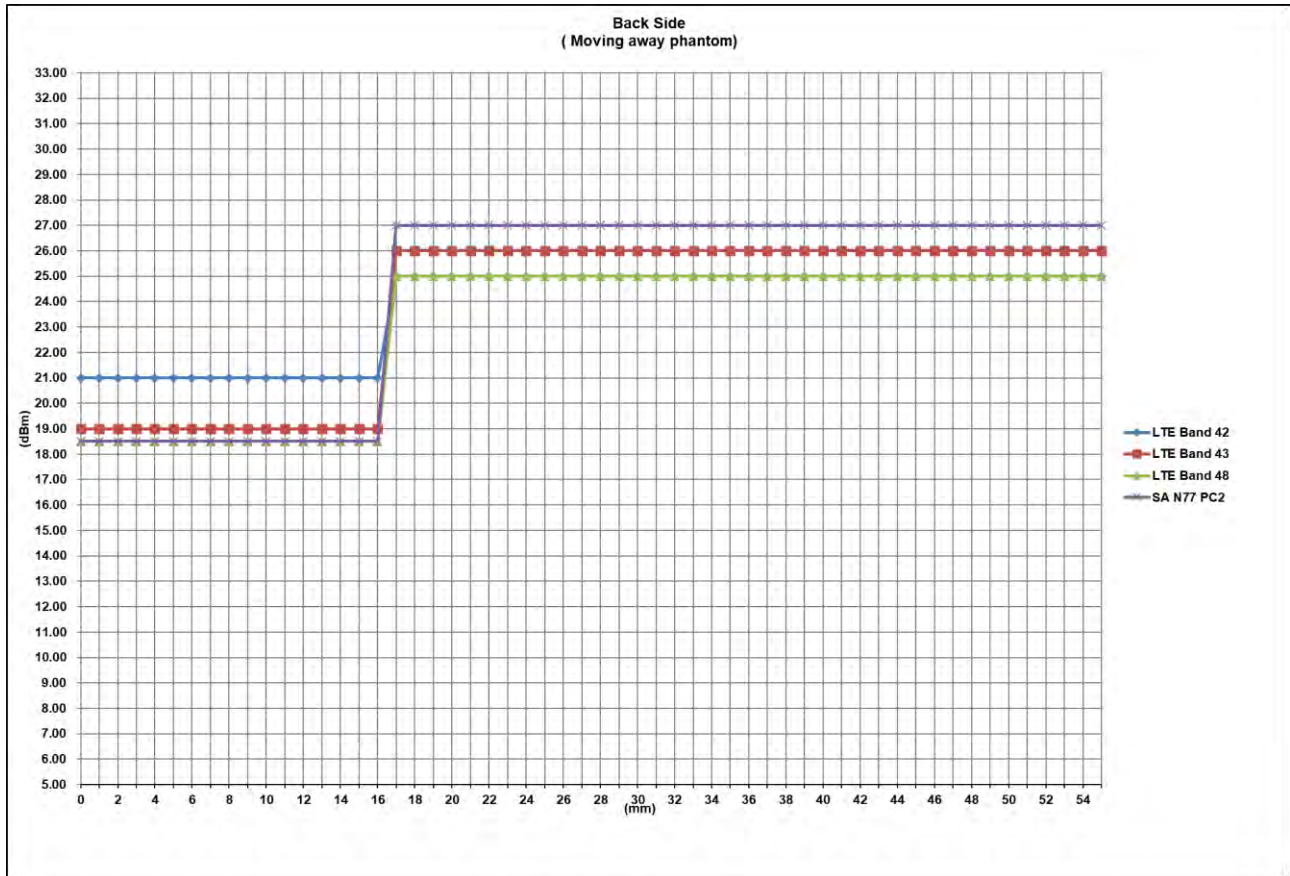
● Ant 4 DUT Moving Toward(Trigger)the Phantom





● Ant 4 DUT Moving Away(Release) from the Phantom





7.4.2 Proximity sensor coverage

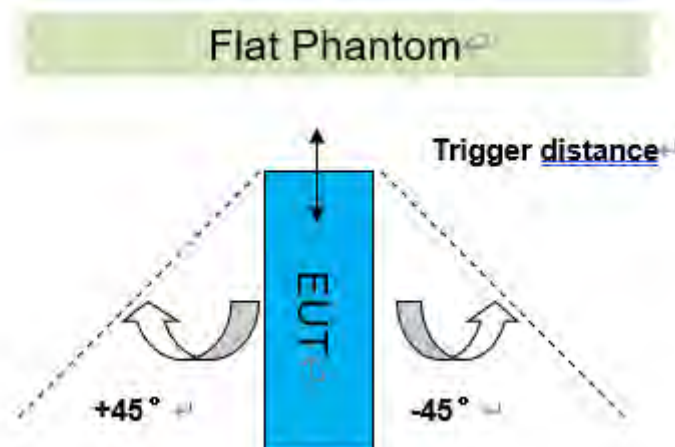
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user, but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.

The proximity sensor and main antenna use same metallic electrode, so there is no spatial offset.

7.4.3 Device tilt angle influences on proximity sensor triggering

The influence of device tilt angles to proximity sensor triggering was determined by positioning each tablet edge that contains a transmitting antenna, perpendicular to the flat phantom.

Rotating the tablet around the edge next to the phantom in $\leq 10^\circ$ increments until the tablet is $\pm 45^\circ$ from the vertical position at 0° , and the maximum output power remains in the reduced mode.



Summary of Tablet Tilt Angle Influence on Proximity Sensor Triggering for Edge Side													
Band (MHz)	Minimum trigger distance Per KDB616217S6.2	Minimum trigger distance at which power reduction was maintained over $\pm 45^\circ$	Power Reduction Status										
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
Ant 0	Top side 18mm Right Side 21mm	Top side 18mm Right Side 21mm	on	on	on	on	on	on	on	on	on	on	on
Ant 1	Bottom side 16mm	Bottom side 16mm	on	on	on	on	on	on	on	on	on	on	on
Ant 4	Left Side 16mm	Left Side 16mm	on	on	on	on	on	on	on	on	on	on	on

8 SAR System Verificaion Procedure

8.1 Tissue Simulate Liquid

8.1.1 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	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 Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose					
Head Tissue Simulate Liquid (HBBL600-10000V6) 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

8.1.2 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 $22 \pm 2^\circ\text{C}$.

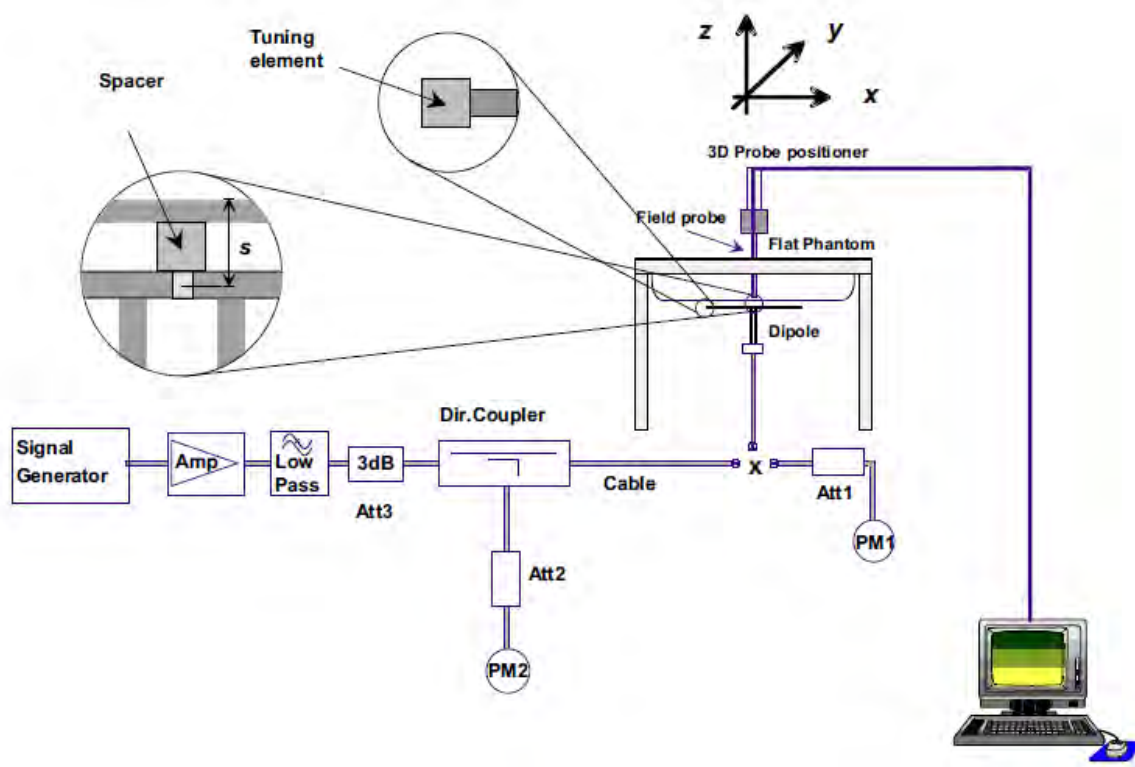
Tissue Type	Measured Frequency (MHz)	Measured Tissue		Target Tissue ($\pm 5\%$)		Deviation (Within $\pm 5\%$)		Liquid Temp. ($^\circ\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
13 Head	13	55.825	0.725	55.00	0.75	1.50%	-3.33%	22.8	2025/12/11
750 Head	750	40.954	0.886	41.90	0.89	-2.26%	-0.45%	22.2	2025/11/18
835 Head	835	40.668	0.909	41.50	0.90	-2.00%	1.00%	22.4	2025/11/20
1750 Head	1750	39.159	1.332	40.10	1.37	-2.35%	-2.77%	22.4	2025/11/22
1950 Head	1950	38.671	1.411	40.00	1.40	-3.32%	0.79%	22.3	2025/11/24
2300 Head	2300	38.986	1.653	39.50	1.67	-1.30%	-1.02%	22.6	2025/11/26
2450 Head	2450	38.019	1.852	39.20	1.80	-3.01%	2.89%	22.5	2025/11/28
2600 Head	2600	37.439	2.028	39.00	1.96	-4.00%	3.47%	22.4	2025/11/30
3400 Head	3400	38.916	2.870	38.10	2.85	2.14%	0.70%	22.5	2025/12/1
3500 Head	3500	38.615	2.989	37.90	2.91	1.89%	2.71%	22.5	2025/12/3
3700 Head	3700	37.946	3.221	37.70	3.12	0.65%	3.24%	22.5	2025/12/5
3900 Head	3900	37.317	3.454	37.50	3.32	-0.49%	4.04%	22.5	2025/12/7
4100 Head	4100	37.025	3.563	37.20	3.53	-0.47%	0.93%	22.5	2025/12/9
5250 Head	5250	35.666	4.675	35.90	4.71	-0.65%	-0.74%	22.7	2025/12/12
5600 Head	5600	34.994	5.145	35.50	5.07	-1.43%	1.48%	22.7	2025/12/12
5750 Head	5750	34.622	5.328	35.40	5.22	-2.20%	2.07%	22.7	2025/12/12
6500 Head	6500	34.600	6.300	34.50	6.07	0.29%	3.79%	22.7	2025/12/14

(for original report SUCR251000102603)

Table 2 : Measurement result of Tissue electric parameters

8.2 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

8.2.1 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.

8.2.2 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 ±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)		
CLA13_Head	0.11	0.07	0.43	0.27	0.42	0.27	2.38%	0.00%	22.8	2025/12/11
D750V3_Head	2.07	1.41	8.28	5.64	8.54	5.80	-3.04%	-2.76%	22.2	2025/11/18
D835V2_Head	2.34	1.54	9.36	6.16	9.60	6.16	-2.50%	0.00%	22.4	2025/11/20
D1750V2_Head	9.51	5.04	38.04	20.16	36.30	19.30	4.79%	4.46%	22.4	2025/11/22
D1950V3_Head	9.41	4.87	37.64	19.48	40.40	20.80	-6.83%	-6.35%	22.3	2025/11/24
D2300V2_Head	12.80	6.06	51.20	24.24	49.00	23.50	4.49%	3.15%	22.6	2025/11/26
D2450V2_Head	13.30	6.24	53.20	24.96	52.70	24.60	0.95%	1.46%	22.5	2025/11/28
D2600V2_Head	14.50	6.48	58.00	25.92	55.20	24.70	5.07%	4.94%	22.4	2025/11/30
Validation Kit	Measured SAR 100mW	Measured SAR 100mW	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. (°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)		
D3400V2_Head	6.90	2.63	69.00	26.30	68.60	26.10	0.58%	0.77%	22.5	2025/12/1
D3500V2_Head	6.65	2.66	66.50	26.60	64.50	24.50	3.10%	8.57%	22.5	2025/12/3
D3700V2_Head	6.54	2.51	65.40	25.10	65.60	24.10	-0.30%	4.15%	22.5	2025/12/5
D3900V2_3.9GHz_Head	6.70	2.33	67.00	23.30	67.60	23.50	-0.89%	-0.85%	22.5	2025/12/7
D3900V2_4.1GHz_Head	7.26	2.49	72.60	24.90	67.90	23.40	6.92%	6.41%	22.5	2025/12/9
D5GHzV2_5.25G_Head	7.60	2.13	76.00	21.30	77.20	21.90	-1.55%	-2.74%	22.7	2025/12/12
D5GHzV2_5.6G_Head	8.13	2.25	81.30	22.50	81.10	22.80	0.25%	-1.32%	22.7	2025/12/12
D5GHzV2_5.75G_Head	8.11	2.25	81.10	22.50	77.80	21.70	4.24%	3.69%	22.7	2025/12/12
D6500V2_Head	30.20	5.61	302.00	56.10	297.00	54.30	1.68%	3.31%	22.7	2025/12/14

Table 3 : SAR System Check Result
(for original report SUCR251000102603)

8.2.3 Detailed System Check Results

Please see the Appendix A

9 PD System Verification Procedure

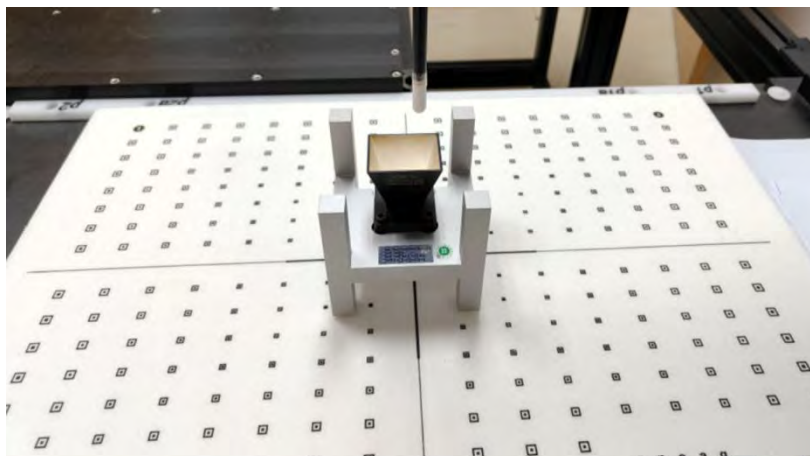
9.1 PD System Check Setting

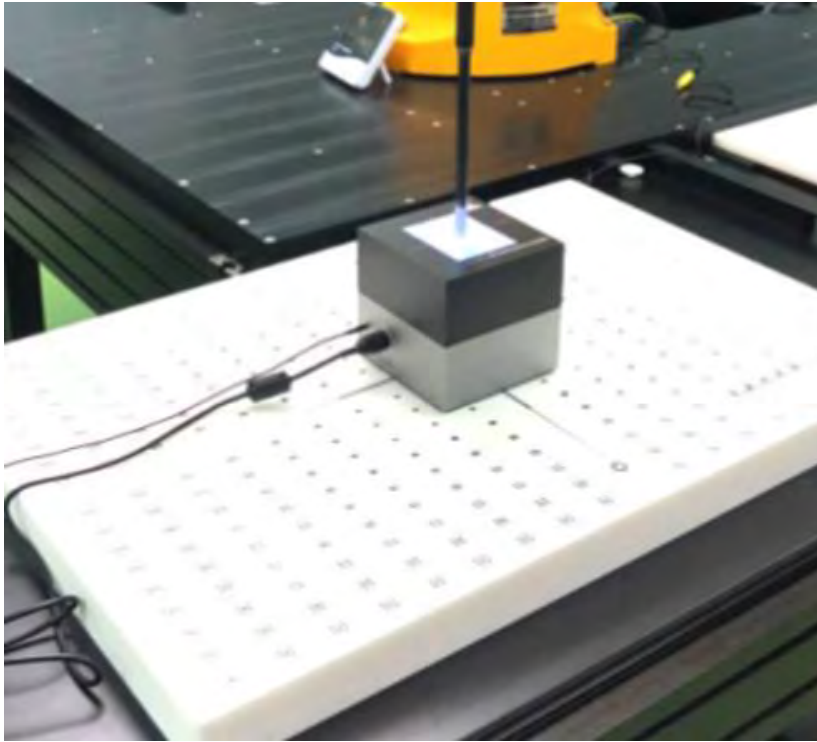
The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

Settings for measurement of verification sources

Frequency [GHz]	Grid step	Grid extent X/Y [mm]	Measurement points
10	$0.25 \left(\frac{\lambda}{4}\right)$	120/120	16×16
30	$0.25 \left(\frac{\lambda}{4}\right)$	60/60	24×24
60	$0.25 \left(\frac{\lambda}{4}\right)$	32.5/32.5	26×26
90	$0.25 \left(\frac{\lambda}{4}\right)$	30/30	36×36





System Verification Setup Photo

9.2 PD System Check Results

Frequent	Measured PD W/m ²	Target PD W/m ²	Circular Deviation (Within ±0.66dB)	Test Date
	4cm ²	4cm ²	4cm ²	
10G HZ Source	199	183	0.36	2025/12/15

(for new report SUCR260300016103)

9.3 Detailed System Check Results

Please see the Appendix A

10 Test Configuration

10.1 Operation Configurations

10.1.1 WCDMA Test Configuration

1) Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

2) Head SAR

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

3) Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4) HSDPA / HSUPA

RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power for production units in HSDPA / HSUPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest measured SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.5 W/kg, SAR measurement is not required for HSDPA / HSUPA.

a) HSDPA

HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors (β_c , β_d), and HS-DPCCH power offset parameters (Δ_{ACK} , Δ_{NACK} , Δ_{CQI}) are set according to values indicated in the following table. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	β_c	Bd	β_d (SF)	β_c/β_d	β_{hs}	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8$ Ahs = $\beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1.A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 8$ (Ahs=30/15) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 7$ (Ahs=24/15) with $\beta_{hs} = 24/15 * \beta_c$.

Note3: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 4 : settings of required H-Set 1 QPSK acc. to 3GPP 34.121

HS-DSCH Category	MaximumHS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumHS-DSCH TransportBlockBits/HS-DSCH TTI	TotalSoft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 5 : HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the WCDMA Handset and Release 5 HSUPA Data Device sections of 3G device.

Sub-test [⌚]	β_c [⌚]	β_d [⌚]	β_d (SF) [⌚]	β_c/β_d [⌚]	β_{hs} ⁽¹⁾ [⌚]	β_{ac} [⌚]	β_{ad} [⌚]	β_c ^(SF) [⌚]	β_{ad} ^(code) [⌚]	CM ⁽²⁾ (dB) [⌚]	MP R [⌚] (dB) [⌚]	AG ⁽⁴⁾ Inde x [⌚]	E- TFC I [⌚]
1 [⌚]	11/15 ⁽³⁾ [⌚]	15/15 ⁽³⁾ [⌚]	64 [⌚]	11/15 ⁽³⁾ [⌚]	22/15 [⌚]	209/225 [⌚]	1039/225 [⌚]	4 [⌚]	1 [⌚]	1.0 [⌚]	0.0 [⌚]	20 [⌚]	75 [⌚]
2 [⌚]	6/15 [⌚]	15/15 [⌚]	64 [⌚]	6/15 [⌚]	12/15 [⌚]	12/15 [⌚]	94/75 [⌚]	4 [⌚]	1 [⌚]	3.0 [⌚]	2.0 [⌚]	12 [⌚]	67 [⌚]
3 [⌚]	15/15 [⌚]	9/15 [⌚]	64 [⌚]	15/9 [⌚]	30/15 [⌚]	30/15 [⌚]	$\beta_{ad1}:47/15$ $\beta_{ad2}:47/15$ [⌚]	4 [⌚]	2 [⌚]	2.0 [⌚]	1.0 [⌚]	15 [⌚]	92 [⌚]
4 [⌚]	2/15 [⌚]	15/15 [⌚]	64 [⌚]	2/15 [⌚]	4/15 [⌚]	2/15 [⌚]	56/75 [⌚]	4 [⌚]	1 [⌚]	3.0 [⌚]	2.0 [⌚]	17 [⌚]	71 [⌚]
5 [⌚]	15/15 ⁽⁴⁾ [⌚]	15/15 ⁽⁴⁾ [⌚]	64 [⌚]	15/15 ⁽⁴⁾ [⌚]	30/15 [⌚]	24/15 [⌚]	134/15 [⌚]	4 [⌚]	1 [⌚]	1.0 [⌚]	0.0 [⌚]	21 [⌚]	81 [⌚]
Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI=8$ $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference [⌚] Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$ [⌚] Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$ [⌚] Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g [⌚] Note 6: β_{ad} can not be set directly; it is set by Absolute Grant Value. [⌚]													

Table 6 : Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?
NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM. (TS25.306-7.3.0).						

Table 7 : HSUPA UE category

d) HSPA+

SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode. Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_{c} (Note3)	β_{d}	β_{HS} (Note1)	β_{ecl}	β_{ed1} (2xSF2) (Note 4)	β_{ed3} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105
Note 1: $\Delta_{\text{ACK}}, \Delta_{\text{NACK}}$ and $\Delta_{\text{CQI}} = 30/15$ with $\beta_{\text{HS}} = 30/15 * \beta_{\text{c}}$. Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0). Note 3: DPDCH is not configured, therefore the β_{c} is set to 1 and $\beta_{\text{d}} = 0$ by default. Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value. Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.											

5) 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following procedures, the mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is $\leq 1/4$ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as "otherwise" in the applicable procedures; SAR measurement is required for the secondary mode.

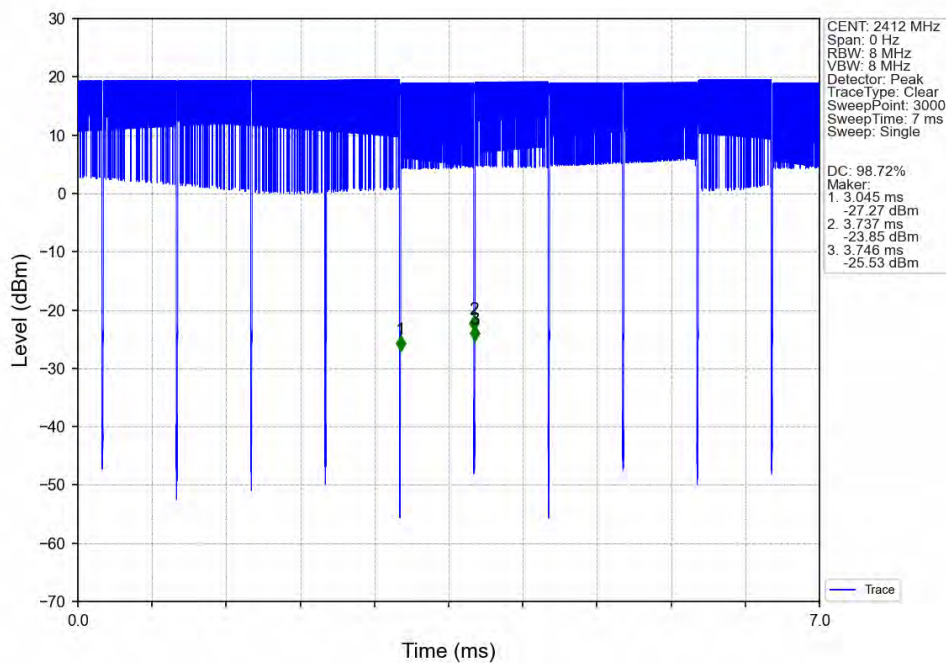
10.1.2 WIFI Test Configuration

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

10.1.2.1 Duty cycle

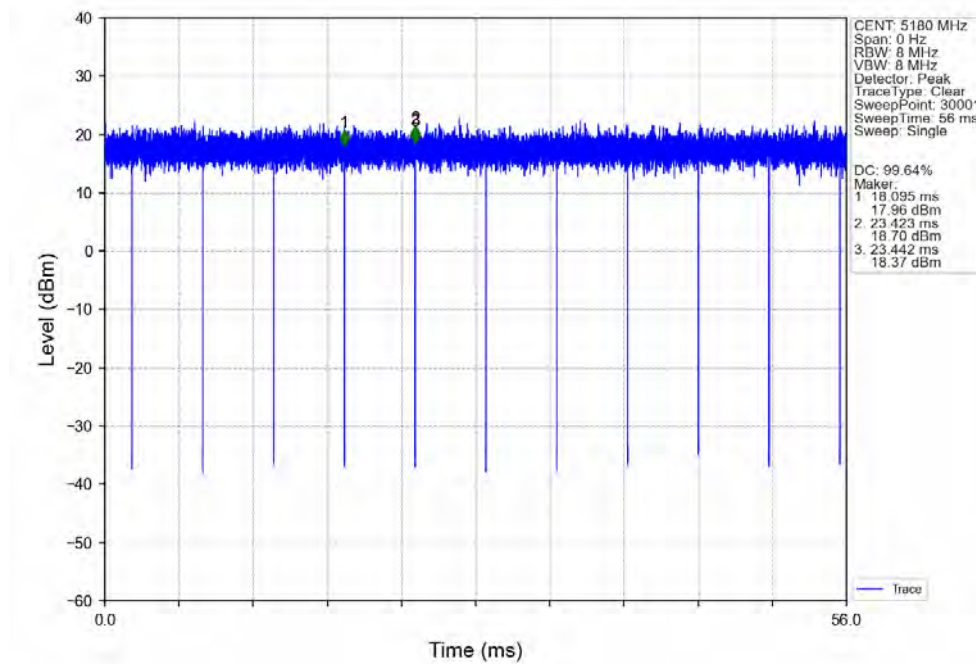
1) Wi-Fi 2.4GHz 802.11b:

Duty cycle=98.72%



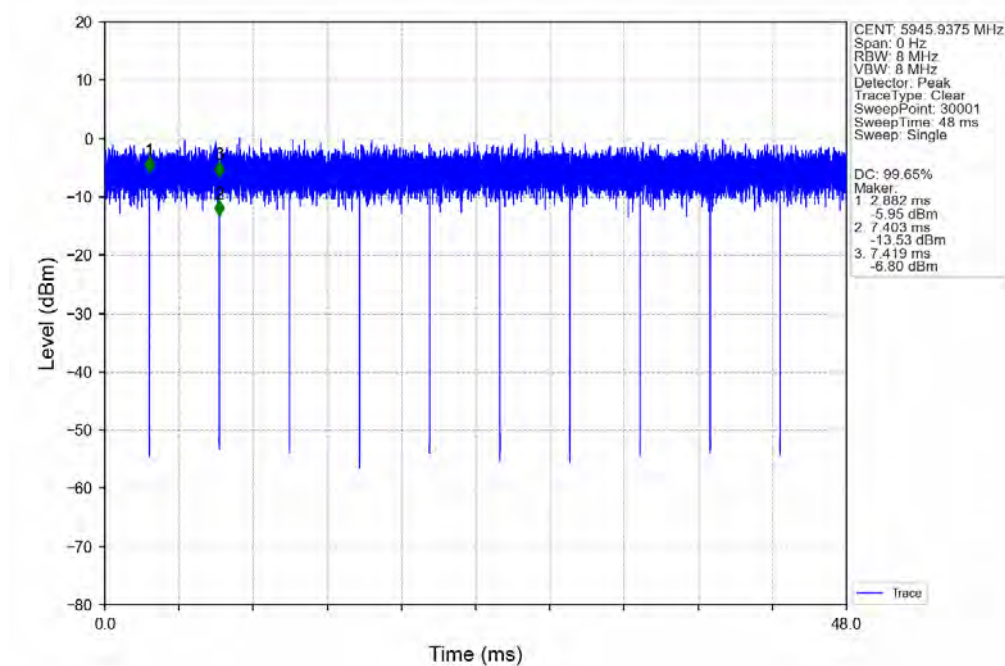
2) Wi-Fi 5GHz 802.11a/n20:

Duty cycle=99.64%



3) Wi-Fi 6GHz 802.11ax160:

Duty cycle=99.65%



10.1.2.2 Initial Test Position SAR Test Reduction Procedure

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

- 1) . When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
- 2) . When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
- 3) . For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

10.1.2.3 Subsequent Test Configuration Procedures

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

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
- 2) . When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
- 3) . The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.
 - a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.
 - b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the reported SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.
- 4) . SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:
 - a) replace "subsequent test configuration" with "next subsequent test configuration" (i.e., subsequent next highest specified maximum output power configuration)
 - b) replace "initial test configuration" with "all tested higher output power configurations"

10.1.2.4 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

SAR is measured for 2.4 GHz 802.11b DSSS using either a fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

- 1) . When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
- 2) . When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3, including sub-sections). SAR is not required for the following 2.4 GHz OFDM conditions.

- 1) . When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
- 2) . When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

- **SAR Test Requirements for OFDM configurations**

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

10.1.2.5 5 GHz WiFi SAR Procedures

- **U-NII-1 and U-NII-2A Bands**

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
- 3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

- **U-NII-2C and U-NII-3 Bands**

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n. After an initial test configuration is determined, if multiple test channels have the same measured maximum output power, the channel chosen for SAR measurement is determined according to the following. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
 - a) The channel closest to mid-band frequency is selected for SAR measurement.
 - b) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

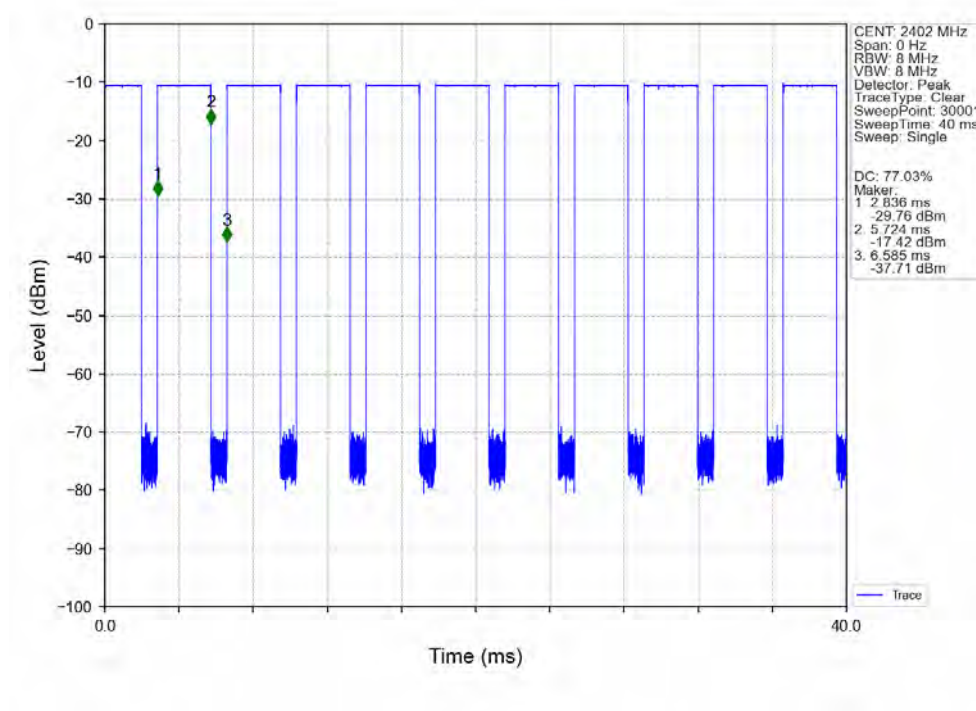
• SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

10.1.3 BT Test 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, frequency hops at 1600 hops/second per the Bluetooth standard, the EUT is operated at the RF continuous emission mode.

BT DH5 Duty Cycle=77.03%



10.1.4 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:

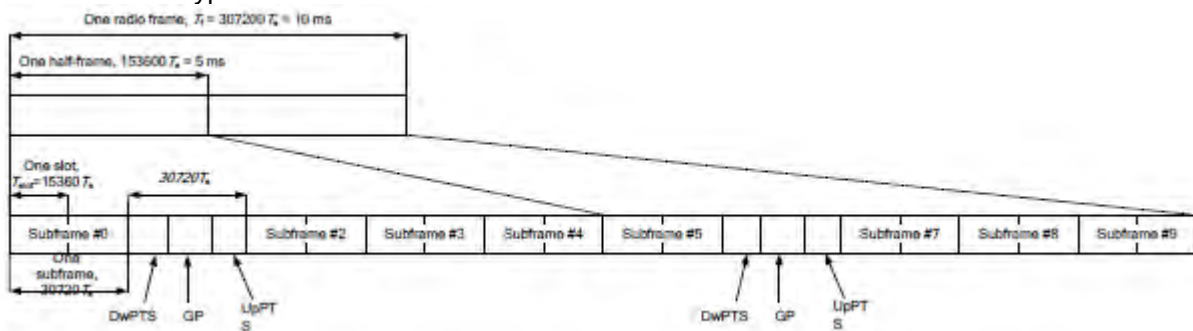


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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		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	4384.Ts	5120.Ts	7680.Ts	4384.Ts	5120.Ts
5	6592.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						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
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 $> \frac{1}{2}$ 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 $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

F) LTE CA additional specification

The device supports intra-band contiguous and inter-band discontinuous uplink and downlink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

- a) Intra-band carrier aggregation requirements for uplink.
- b) Intra-band and inter-band carrier aggregation requirements for downlink.

The downlink LTE CA test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

SAR test procedure for intra-band contiguous UL LTE CA as below:

1)Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05

- UL PCC configuration is determined by the required test channel
- SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.

2)SAR for UL CA is required in each exposure condition and frequency band combination

3)For this device , as the maximum output for Intra-band uplink LTE CA is $\leq$ standalone LTE mode (without CA),

- PCC is configured according to the highest standalone SAR configuration tested.
- SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC

4)When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)

5)UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

6)General PCC and SCC configuration selection procedure

- PCC uplink channel, channel bandwidth, modulation and RB configurations were selected based on section C)3)b)ii) of KDB 941225 D05 V01r02. All LTE bandwidth conducted powers needed for PCC uplink configuration selection can be found in appendix E. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.

- To maximize aggregated bandwidth, highest channel bandwidth available for that CA combination was selected for SCC. For inter-band CA, the SCC downlink channels were selected near the middle of their transmission bands. For contiguous intra-band CA, the downlink channel spacing between the component carriers was set to multiple of 300 kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521. For non-contiguous intra-band CA, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.

All selected PCC and SCC(s) remained fully within the uplink/downlink transmission band of the respective component carrier.



DL CA Power Measurement Setup

- c) Inter-band carrier aggregation requirements for uplink

For Inter band Uplink CA SAR, as the existing SAR test system cannot test the multiple different frequency bands simultaneous Transmission SAR at the same time, we suggest that the conservative “max + max” multi-Tx and SAR scaling method can be used to evaluate the inter-band Uplink CA SAR from standalone SAR test results of each LTE component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each Inter band Uplink CA component band as the inter-band Uplink CA SAR.

The Inter band Uplink CA as below table:

Band/Antenna		LTE Band 2		LTE Band 4		LTE Band 5		LTE Band 12		LTE Band 14	
		Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1
LTE Band 5	Ant0	√	√								
	Ant1	√	√								
LTE Band 12	Ant0	√	√	√	√						
	Ant1	√	√	√	√						
LTE Band 30	Ant0					√	√	√	√	√	√
	Ant1					√	√	√	√	√	√
LTE Band 66	Ant0					√	√	√	√		
	Ant1					√	√	√	√		

10.1.5 NR Band Test Configuration

1. The general information supported by the NR band is as following table:

Band			n2	n5	n7	n14	n30	n66	n77
Modulation	DFT-s-OFDM	PI/2 BPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CP-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max Duty cycle			100%	100%	100%	100%	100%	100%	100%

Band	SCS	Bandwidth												
		5Mhz	10Mhz	15Mhz	20Mhz	25Mhz	30Mhz	40Mhz	50Mhz	60Mhz	70Mhz	80Mhz	90Mhz	100Mhz
n2	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n5	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n7	15KHZ	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
n14	15KHZ	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n30	15KHZ	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n66	15KHZ	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
n77	30KHZ	N/A	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

2. For 5G NR test procedure was following step similar FCC KDB 941225 D05:

- a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
- b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth.
- c. SAR testing start with the largest SCS and 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.
- d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
- e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not $\frac{1}{2}$ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
- g. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device.

3. 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 TS 38.101-1 Section 6.2.2 under Table 6.2.2 -1 and Table 6.2.2 -2.

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		
NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability <i>powerBoosting-pi2BPSK</i> and if the IE <i>powerBoostPi2BPSK</i> is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26 dBm.				
NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE <i>powerBoostPi2BPSK</i> is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.				

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	Pi/2 BPSK	≤ 3.5	≤ 0.5	0
	QPSK	≤ 3.5	≤ 1	0
	16 QAM	≤ 3.5	≤ 2	≤ 1
	64 QAM	≤ 3.5	≤ 2.5	
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3.5	≤ 3	≤ 1.5
	16 QAM	≤ 3.5	≤ 3	≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

4. For FDD NR Band operation does not have the fixed UL/DL frame structure, but during the transmitting/receiving it can be operated in the slot structure of 100% UL duty cycle, we are proposing the conservative way to evaluate SAR at 100% duty cycle. For the purpose of test NR Band standalone SAR, and also test SAR level at 100% TX duty cycle.

5. For 5G NR Sub6GHz SISO Mode, SAR Test plan as below:

For 5G NR NSA mode with the same UL EN_DC combination but different DL EN_DC combinations, eg: EN-DC configuration: UL DC_7A_n5 (UL two bands) with DL DC_7C_n5 (DL two bands)

a) The UL EN-DC configuration, including the Tx antenna configuration, RF path, the channel bandwidth and other operating parameters are the same.

b) The maximum output power, including tolerance, for the UL EN-DC configuration with DL two or more bands must be $\leq$ the same UL EN-DC configuration with DL two bands only to qualify for the SAR test exclusion.

6. For EN-DC SAR

For EN-DC mode, as the existing SAR test system cannot test the multiple different frequency bands simultaneous Transmission SAR at the same time, we suggest that the conservative “max + max” multi-Tx and SAR scaling method can be used to evaluate the inter-band Uplink EN-DC SAR from standalone SAR test results of each LTE and NR EN-DC component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each EN-DC component band as the inter-band Uplink EN-DC SAR. All Simultaneous Transmission Scenarios will be evaluated independently in the final SAR report. When the reported SAR for and EN DC configuration is greater than 1.2 W/kg, EN DC SAR is also required for other NR based test channels. EN DC SAR is also required for standalone NR configurations greater than 1.2 W/kg when scaled to the EN DC power level.

LTE+NR Band operations are possible only with LTE under EN-DC mode and the operations are possible as following table:

Band/Antenna		LTE Band 2		LTE Band 5		LTE Band 12		LTE Band 14		LTE Band 30		LTE Band 66	
		Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1
n2	Ant0			√	√	√	√	√	√	√	√	√	√
	Ant1			√	√	√	√	√	√	√	√	√	√
n5	Ant0	√	√							√	√	√	√
	Ant1	√	√							√	√	√	√
n66	Ant0	√	√			√	√	√	√	√	√		
	Ant1	√	√			√	√	√	√	√	√		
n77	Ant2	√	√	√	√	√	√	√	√	√	√	√	√
	Ant4	√	√	√	√	√	√	√	√	√	√	√	√

7. Inter-band carrier aggregation requirements for uplink

For Inter band Uplink CA SAR, as the existing SAR test system cannot test the multiple different frequency bands simultaneous Transmission SAR at the same time, we suggest that the conservative “max + max” multi-Tx and SAR scaling method can be used to evaluate the inter-band Uplink CA SAR from standalone SAR test results of each NR component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each Inter band Uplink CA component band as the inter-band Uplink CA SAR.

The Inter band Uplink CA as below table:

Band/Antenna		N2		N5		N14		N30		N66	
		Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1	Ant0	Ant1
n2	Ant0		√							√	√
	Ant1	√								√	√
n5	Ant0	√	√								
	Ant1	√	√								
n14	Ant0	√	√								
	Ant1	√	√								
n30	Ant0	√	√	√	√	√	√				
	Ant1	√	√	√	√	√	√				
n66	Ant0	√	√	√	√	√	√	√	√		
	Ant1	√	√	√	√	√	√	√	√		
n77	Ant2	√	√	√	√	√	√	√	√	√	√
	Ant4	√	√	√	√	√	√	√	√	√	√

11 Test Result

11.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix D

Note:

- 1) The test device is a smart phone, and the diagonal distance of this device is $\geq 160\text{mm}$ but $\leq 200\text{mm}$, so it is a Phablet per KDB 648474 D04.
- 2) The distance between the antennas and the sides of the EUT show as below table, when the antenna-to-edge distance is greater than 25mm, such position does not need to be SAR tested.

EUT Sides for SAR Testing							
Mode	Exposure Condition	Front	Back	Left	Right	Top	Bottom
Ant 0	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	Yes	No
Ant 1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Ant 2	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	No
Ant 4	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 6	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	Yes	No
Ant 7	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes

11.2 Measurement of RF Conducted Power

11.2.1 RF Conducted Power reduction specification

This device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation

- 1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.
- 2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions.
- 3) This device uses the receiver to indicate whether the user is making a voice call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. A fixed level power reduction is applied for some frequency bands when the audio receiver is on.
- 4) The proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of main antenna to ensure SAR compliance.

11.2.2 RF Conducted Power Data

The detailed power data can be referred to Appendix E Conducted RF Output Power.

11.3 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per KDB 447498 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 $\geq 200\text{ MHz}$.
- 3) The device does not support DTM function.
- 4) For WiFi 5G,U-NII-2A and U-NII-2C band does not support hotspot function.
- 5) For WiFi 6E does not support hotspot function.
- 6) For WiFi SAR test, as the highest reported SAR is smaller than 1.2 W/kg , and the tune-up of the other 802.11 modes are not higher than SAR measurement mode, therefore the adjusted SAR is $\leq 1.2\text{ W/kg}$ for other 802.11 modes, SAR test for the other 802.11 modes are not required. For Product specific 10gSAR the highest reported SAR is smaller than 3.0 W/kg , SAR test for the other 802.11 modes are also not required.
- 7) WIFI 6E SAR is measured by using 6-7GHz parameters per IEC/IEEE 62209-1528:2020.
- 8) NFC is different from the working scenario of WWAN/WIFI(Head/Body-worn/Hotspot) and does not participate in the simultaneous transmission.
- 9) According to TCB workshop (Overlapping LTE Bands): SAR in LTE band 4/38 is respectively covered by LTE band 66/41. Because the frequency range is similar, the maximum tuning limit is the same, and the channel bandwidth and other operating parameters for the smaller band is fully supported by the larger band.
- 10) The simultaneous transmission is reduced by XdB (the detailed power reduced can be referred to Conducted Power Appendix E), therefore, those SAR of simultaneous transmission mode are scaled based on standalone SAR results.

11.3.1 SAR Result of WCDMA Band II

WCDMA Band II SAR Test Record										
Ant 0 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Receiver on Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.847	-0.18	21.75	23.00	1.334	1.130	22.3
Left cheek-Repeat SAR	RMC	9400/1880	1:1	0.839	0.11	21.75	23.00	1.334	1.119	22.3
Left cheek	RMC	9262/1852.4	1:1	0.816	0.03	21.67	23.00	1.358	1.108	22.3
Left cheek	RMC	9538/1907.6	1:1	0.805	0.07	21.62	23.00	1.374	1.106	22.3
Left tilted	RMC	9400/1880	1:1	0.643	0.06	21.75	23.00	1.334	0.858	22.3
Left tilted	RMC	9262/1852.4	1:1	0.609	0.03	21.67	23.00	1.358	0.827	22.3
Left tilted	RMC	9538/1907.6	1:1	0.621	0.12	21.62	23.00	1.374	0.853	22.3
Right cheek	RMC	9400/1880	1:1	0.470	-0.05	21.75	23.00	1.334	0.627	22.3
Right tilted	RMC	9400/1880	1:1	0.408	0.01	21.75	23.00	1.334	0.544	22.3
Body worn Test data(Separate 5mm)										
Front side	RMC	9400/1880	1:1	0.704	0.05	23.31	25.00	1.476	1.039	22.3
Front side	RMC	9262/1852.4	1:1	0.659	0.09	23.21	25.00	1.510	0.995	22.3
Front side	RMC	9538/1907.6	1:1	0.666	0.01	23.13	25.00	1.538	1.024	22.3
Back side	RMC	9400/1880	1:1	0.771	-0.06	23.31	25.00	1.476	1.138	22.3
Back side	RMC	9262/1852.4	1:1	0.729	-0.03	23.21	25.00	1.510	1.101	22.3
Back side	RMC	9538/1907.6	1:1	0.711	0.02	23.13	25.00	1.538	1.094	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.370	0.07	23.31	25.00	1.476	0.546	22.3
Back side	RMC	9400/1880	1:1	0.538	0.18	23.31	25.00	1.476	0.794	22.3
Left side	RMC	9400/1880	1:1	0.131	0.11	23.31	25.00	1.476	0.193	22.3
Right side	RMC	9400/1880	1:1	0.377	-0.10	23.31	25.00	1.476	0.556	22.3
Top side	RMC	9400/1880	1:1	0.137	0.05	23.31	25.00	1.476	0.202	22.3
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.129	0.06	23.32	25.00	1.472	0.190	22.3
Left tilted	RMC	9400/1880	1:1	0.000	-0.07	23.32	25.00	1.472	0.000	22.3
Right cheek	RMC	9400/1880	1:1	0.166	0.05	23.32	25.00	1.472	0.244	22.3
Right tilted	RMC	9400/1880	1:1	0.056	-0.11	23.32	25.00	1.472	0.082	22.3
Sensor on Body worn Test data(Separate 5mm)										
Front side	RMC	9400/1880	1:1	0.790	0.11	22.34	24.00	1.466	1.158	22.3
Front side	RMC	9262/1852.4	1:1	0.756	0.08	22.17	24.00	1.524	1.152	22.3
Front side	RMC	9538/1907.6	1:1	0.731	-0.01	22.21	24.00	1.510	1.104	22.3
Back side	RMC	9400/1880	1:1	0.642	0.02	22.34	24.00	1.466	0.941	22.3
Back side	RMC	9262/1852.4	1:1	0.608	0.03	22.17	24.00	1.524	0.927	22.3
Back side	RMC	9538/1907.6	1:1	0.601	0.08	22.21	24.00	1.510	0.908	22.3
Sensor off Body worn Test data										
Front side-21mm	RMC	9400/1880	1:1	0.234	0.01	23.32	25.00	1.472	0.344	22.3
Back side-18mm	RMC	9400/1880	1:1	0.225	-0.08	23.32	25.00	1.472	0.331	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.590	0.03	22.34	24.00	1.466	0.865	22.3
Front side	RMC	9262/1852.4	1:1	0.536	-0.01	22.17	24.00	1.524	0.817	22.3
Front side	RMC	9538/1907.6	1:1	0.525	0.03	22.21	24.00	1.510	0.793	22.3

Back side	RMC	9400/1880	1:1	0.473	-0.04	22.34	24.00	1.466	0.693	22.3
Left side	RMC	9400/1880	1:1	0.120	0.06	22.34	24.00	1.466	0.176	22.3
Right side	RMC	9400/1880	1:1	0.189	-0.01	22.34	24.00	1.466	0.277	22.3
Bottom side	RMC	9400/1880	1:1	0.719	0.06	22.34	24.00	1.466	1.054	22.3
Bottom side	RMC	9262/1852.4	1:1	0.678	0.08	22.17	24.00	1.524	1.033	22.3
Bottom side	RMC	9538/1907.6	1:1	0.652	-0.11	22.21	24.00	1.510	0.985	22.3

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	9400/1880	0.847	0.839	1.010	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 performed 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 performed 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.

(for original report SUCR251000102603)

11.3.2 SAR Result of WCDMA Band IV

WCDMA Band IV SAR Test Record										
Ant 0 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Receiver on Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.942	-0.04	21.58	22.50	1.236	1.164	22.4
Left cheek-Repeat SAR	RMC	1412/1732.4	1:1	0.937	0.05	21.58	22.50	1.236	1.158	22.4
Left cheek	RMC	1312/1712.4	1:1	0.903	-0.17	21.43	22.50	1.279	1.155	22.4
Left cheek	RMC	1513/1752.6	1:1	0.922	0.18	21.50	22.50	1.259	1.161	22.4
Left tilted	RMC	1412/1732.4	1:1	0.595	-0.01	21.58	22.50	1.236	0.735	22.4
Right cheek	RMC	1412/1732.4	1:1	0.596	-0.06	21.58	22.50	1.236	0.737	22.4
Right tilted	RMC	1412/1732.4	1:1	0.536	0.15	21.58	22.50	1.236	0.662	22.4
Body worn Test data(Separate 5mm)										
Front side	RMC	1412/1732.4	1:1	0.639	-0.14	23.57	25.00	1.390	0.888	22.4
Front side	RMC	1312/1712.4	1:1	0.602	0.05	23.43	25.00	1.435	0.864	22.4
Front side	RMC	1513/1752.6	1:1	0.611	0.19	23.47	25.00	1.422	0.869	22.4
Back side	RMC	1412/1732.4	1:1	0.815	0.09	23.57	25.00	1.390	1.133	22.4
Back side	RMC	1312/1712.4	1:1	0.789	0.17	23.43	25.00	1.435	1.132	22.4
Back side	RMC	1513/1752.6	1:1	0.782	-0.18	23.47	25.00	1.422	1.112	22.4
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.409	-0.09	23.57	25.00	1.390	0.569	22.4
Back side	RMC	1412/1732.4	1:1	0.485	-0.12	23.57	25.00	1.390	0.674	22.4
Left side	RMC	1412/1732.4	1:1	0.125	-0.18	23.57	25.00	1.390	0.174	22.4
Right side	RMC	1412/1732.4	1:1	0.415	0.02	23.57	25.00	1.390	0.577	22.4
Top side	RMC	1412/1732.4	1:1	0.186	-0.09	23.57	25.00	1.390	0.259	22.4
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.235	0.13	24.18	25.00	1.208	0.284	22.4
Left tilted	RMC	1412/1732.4	1:1	0.069	-0.17	24.18	25.00	1.208	0.083	22.4
Right cheek	RMC	1412/1732.4	1:1	0.401	-0.12	24.18	25.00	1.208	0.484	22.4
Right tilted	RMC	1412/1732.4	1:1	0.110	-0.08	24.18	25.00	1.208	0.133	22.4
Sensor on Body worn Test data(Separate 5mm)										
Front side	RMC	1412/1732.4	1:1	0.951	0.18	23.67	24.50	1.211	1.152	22.4
Front side-Repeat SAR	RMC	1412/1732.4	1:1	0.944	0.01	23.67	24.50	1.211	1.143	22.4
Front side	RMC	1312/1712.4	1:1	0.911	-0.13	23.54	24.50	1.247	1.136	22.4
Front side	RMC	1513/1752.6	1:1	0.923	-0.10	23.61	24.50	1.227	1.133	22.4
Back side	RMC	1412/1732.4	1:1	0.806	0.10	23.67	24.50	1.211	0.976	22.4
Back side	RMC	1312/1712.4	1:1	0.769	0.10	23.54	24.50	1.247	0.959	22.4
Back side	RMC	1513/1752.6	1:1	0.782	0.00	23.61	24.50	1.227	0.960	22.4
Sensor off Body worn Test data										
Front side-21mm	RMC	1412/1732.4	1:1	0.197	0.12	24.18	25.00	1.208	0.238	22.4
Back side-18mm	RMC	1412/1732.4	1:1	0.203	0.17	24.18	25.00	1.208	0.245	22.4
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.559	0.02	23.67	24.50	1.211	0.677	22.4
Back side	RMC	1412/1732.4	1:1	0.494	-0.17	23.67	24.50	1.211	0.598	22.4
Left side	RMC	1412/1732.4	1:1	0.038	-0.16	23.67	24.50	1.211	0.046	22.4
Right side	RMC	1412/1732.4	1:1	0.357	0.09	23.67	24.50	1.211	0.432	22.4

Bottom side	RMC	1412/1732.4	1:1	0.674	0.01	23.67	24.50	1.211	0.816	22.4
Bottom side	RMC	1312/1712.4	1:1	0.643	-0.18	23.54	24.50	1.247	0.802	22.4
Bottom side	RMC	1513/1752.6	1:1	0.650	0.16	23.61	24.50	1.227	0.798	22.4

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	1412/1732.4	0.942	0.937	1.005	N/A	N/A
Front side-5mm	1412/1732.4	0.951	0.944	1.007	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 performed 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 ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed 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.

(for original report SUCR251000102603)

11.3.3 SAR Result of WCDMA Band V

WCDMA Band V SAR Test Record										
Ant 0 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Receiver on Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.637	-0.16	22.41	24.00	1.442	0.919	22.5
Left cheek	RMC	4132/826.4	1:1	0.625	-0.11	22.35	24.00	1.462	0.914	22.5
Left cheek	RMC	4233/846.6	1:1	0.631	-0.03	22.35	24.00	1.462	0.923	22.5
Left tilted	RMC	4182/836.4	1:1	0.686	0.03	22.41	24.00	1.442	0.989	22.5
Left tilted	RMC	4132/826.4	1:1	0.671	0.02	22.35	24.00	1.462	0.981	22.5
Left tilted	RMC	4233/846.6	1:1	0.673	0.15	22.35	24.00	1.462	0.984	22.5
Right cheek	RMC	4182/836.4	1:1	0.492	0.17	22.41	24.00	1.442	0.709	22.5
Right tilted	RMC	4182/836.4	1:1	0.553	0.01	22.41	24.00	1.442	0.797	22.5
Body worn Test data(Separate 5mm)										
Front side	RMC	4182/836.4	1:1	0.403	0.14	23.19	25.00	1.517	0.611	22.5
Back side	RMC	4182/836.4	1:1	0.415	0.03	23.19	25.00	1.517	0.630	22.5
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.225	0.05	23.19	25.00	1.517	0.341	22.5
Back side	RMC	4182/836.4	1:1	0.218	0.07	23.19	25.00	1.517	0.331	22.5
Left side	RMC	4182/836.4	1:1	0.064	-0.06	23.19	25.00	1.517	0.097	22.5
Right side	RMC	4182/836.4	1:1	0.138	-0.10	23.19	25.00	1.517	0.209	22.5
Top side	RMC	4182/836.4	1:1	0.147	0.02	23.19	25.00	1.517	0.223	22.5
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.675	-0.10	23.53	25.00	1.403	0.947	22.5
Left cheek	RMC	4132/826.4	1:1	0.651	-0.17	23.43	25.00	1.435	0.934	22.5
Left cheek	RMC	4233/846.6	1:1	0.669	0.19	23.45	25.00	1.429	0.956	22.5
Left tilted	RMC	4182/836.4	1:1	0.334	-0.01	23.53	25.00	1.403	0.469	22.5
Right cheek	RMC	4182/836.4	1:1	0.595	0.02	23.53	25.00	1.403	0.835	22.5
Right cheek	RMC	4132/826.4	1:1	0.579	0.10	23.43	25.00	1.435	0.831	22.5
Right cheek	RMC	4233/846.6	1:1	0.582	-0.13	23.45	25.00	1.429	0.832	22.5
Right tilted	RMC	4182/836.4	1:1	0.323	0.00	23.53	25.00	1.403	0.453	22.5
Body worn Test data(Separate 5mm)										
Front side	RMC	4182/836.4	1:1	0.569	0.15	23.53	25.00	1.403	0.798	22.5
Back side	RMC	4182/836.4	1:1	0.555	-0.06	23.53	25.00	1.403	0.779	22.5
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.371	0.19	23.53	25.00	1.403	0.521	22.5
Back side	RMC	4182/836.4	1:1	0.356	0.05	23.53	25.00	1.403	0.499	22.5
Left side	RMC	4182/836.4	1:1	0.342	-0.14	23.53	25.00	1.403	0.480	22.5
Right side	RMC	4182/836.4	1:1	0.198	-0.03	23.53	25.00	1.403	0.278	22.5
Bottom side	RMC	4182/836.4	1:1	0.182	-0.15	23.53	25.00	1.403	0.255	22.5

(for original report SUCR251000102603)

11.3.4 SAR Result of LTE Band 2

LTE Band 2 SAR Test Record											
Ant 0 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Receiver on Head Test Data (1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.950	0.13	21.63	22.50	1.222	1.161	22.3
Left cheek-Repeat SAR	20	QPSK 1_0	18900/1880	1:1	0.946	-0.11	21.63	22.50	1.222	1.156	22.3
Left cheek	20	QPSK 1_0	18700/1860	1:1	0.919	0.12	21.58	22.50	1.236	1.136	22.3
Left cheek	20	QPSK 1_0	19100/1900	1:1	0.925	0.15	21.55	22.50	1.245	1.152	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.734	0.08	21.63	22.50	1.222	0.897	22.3
Left tilted	20	QPSK 1_0	18700/1860	1:1	0.706	0.17	21.58	22.50	1.236	0.873	22.3
Left tilted	20	QPSK 1_0	19100/1900	1:1	0.711	0.08	21.55	22.50	1.245	0.885	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.529	-0.04	21.63	22.50	1.222	0.646	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.378	0.00	21.63	22.50	1.222	0.462	22.3
Receiver on Head Test Data (50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.784	-0.12	21.60	22.50	1.230	0.964	22.3
Left cheek	20	QPSK 50_0	18700/1860	1:1	0.761	-0.02	21.43	22.50	1.279	0.973	22.3
Left cheek	20	QPSK 50_0	19100/1900	1:1	0.758	0.18	21.48	22.50	1.265	0.959	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.597	-0.13	21.60	22.50	1.230	0.734	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.425	0.14	21.60	22.50	1.230	0.523	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.299	-0.17	21.60	22.50	1.230	0.368	22.3
Receiver on Head Test Data (100%RB)											
Left cheek	20	QPSK 100_0	18900/1880	1:1	0.657	-0.07	21.62	22.50	1.225	0.805	22.3
Left tilted	20	QPSK 100_0	18900/1880	1:1	0.563	0.08	21.62	22.50	1.225	0.690	22.3
Receiver on Head Evaluate Data (1RB) For Simultaneous											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.950	0.13	21.63	19.00	0.546	0.519	22.3
Left cheek	20	QPSK 1_0	18700/1860	1:1	0.919	0.12	21.58	19.00	0.552	0.507	22.3
Left cheek	20	QPSK 1_0	19100/1900	1:1	0.925	0.15	21.55	19.00	0.556	0.514	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.734	0.08	21.63	19.00	0.546	0.401	22.3
Left tilted	20	QPSK 1_0	18700/1860	1:1	0.706	0.17	21.58	19.00	0.552	0.390	22.3
Left tilted	20	QPSK 1_0	19100/1900	1:1	0.711	0.08	21.55	19.00	0.556	0.395	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.529	-0.04	21.63	19.00	0.546	0.289	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.378	0.00	21.63	19.00	0.546	0.206	22.3
Receiver on Head Evaluate Data (50%RB) For Simultaneous											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.784	-0.12	21.60	19.00	0.550	0.431	22.3
Left cheek	20	QPSK 50_0	18700/1860	1:1	0.761	-0.02	21.43	19.00	0.571	0.435	22.3
Left cheek	20	QPSK 50_0	19100/1900	1:1	0.758	0.18	21.48	19.00	0.565	0.428	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.597	-0.13	21.60	19.00	0.550	0.328	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.425	0.14	21.60	19.00	0.550	0.234	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.299	-0.17	21.60	19.00	0.550	0.164	22.3
Receiver on Head Evaluate Data (100%RB) For Simultaneous											
Left cheek	20	QPSK 100_0	18900/1880	1:1	0.657	-0.07	21.62	19.00	0.547	0.359	22.3
Left tilted	20	QPSK 100_0	18900/1880	1:1	0.563	0.08	21.62	19.00	0.547	0.308	22.3
Sensor on Body worn Test data (Separate 5mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.557	0.19	22.34	23.50	1.306	0.727	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.711	0.03	22.34	23.50	1.306	0.929	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.678	-0.14	22.19	23.50	1.352	0.917	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.666	-0.05	22.24	23.50	1.337	0.890	22.3
Sensor on Body worn Test data (Separate 5mm 50%RB)											

Front side	20	QPSK 50_0	18900/1880	1:1	0.538	-0.05	21.80	23.00	1.318	0.709	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.678	0.18	21.80	23.00	1.318	0.894	22.3
Back side	20	QPSK 50_0	18700/1860	1:1	0.641	0.06	21.76	23.00	1.330	0.853	22.3
Back side	20	QPSK 50_0	19100/1900	1:1	0.625	0.10	21.71	23.00	1.346	0.841	22.3
Sensor on Body worn Test data (Separate 5mm 100%RB)											
Back side	20	QPSK 100_0	18900/1880	1:1	0.624	0.11	21.78	23.00	1.324	0.826	22.3
Sensor on Body worn Evaluate data (Separate 5mm 1RB) For Simultaneous											
Front side	20	QPSK 1_0	18900/1880	1:1	0.557	0.19	22.34	21.00	0.735	0.409	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.711	0.03	22.34	21.00	0.735	0.523	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.678	-0.14	22.19	21.00	0.760	0.515	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.666	-0.05	22.24	21.00	0.752	0.501	22.3
Sensor on Body worn Evaluate data (Separate 5mm 50%RB) For Simultaneous											
Front side	20	QPSK 50_0	18900/1880	1:1	0.538	-0.05	21.80	21.00	0.832	0.448	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.678	0.18	21.80	21.00	0.832	0.564	22.3
Back side	20	QPSK 50_0	18700/1860	1:1	0.641	0.06	21.76	21.00	0.839	0.538	22.3
Back side	20	QPSK 50_0	19100/1900	1:1	0.625	0.10	21.71	21.00	0.849	0.531	22.3
Sensor on Body worn Evaluate data (Separate 5mm 100%RB) For Simultaneous											
Back side	20	QPSK 100_0	18900/1880	1:1	0.624	0.11	21.78	21.00	0.836	0.522	22.3
Sensor off Body worn Test data 1RB											
Front side-20mm	20	QPSK 1_0	18900/1880	1:1	0.231	0.08	22.79	24.00	1.321	0.305	22.3
Back side-15mm	20	QPSK 1_0	18900/1880	1:1	0.256	-0.09	22.79	24.00	1.321	0.338	22.3
Sensor off Body worn Test data 50%RB											
Front side-20mm	20	QPSK 50_0	18900/1880	1:1	0.201	0.07	21.80	23.00	1.318	0.265	22.3
Back side-15mm	20	QPSK 50_0	18900/1880	1:1	0.233	0.16	21.80	23.00	1.318	0.307	22.3
Hotspot Test data (Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.335	0.15	22.34	23.50	1.306	0.438	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.540	0.02	22.34	23.50	1.306	0.705	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.163	-0.04	22.34	23.50	1.306	0.213	22.3
Right side	20	QPSK 1_0	18900/1880	1:1	0.326	-0.06	22.34	23.50	1.306	0.426	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	0.135	-0.09	22.34	23.50	1.306	0.176	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.276	0.13	21.80	23.00	1.318	0.364	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.427	-0.06	21.80	23.00	1.318	0.563	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.130	0.13	21.80	23.00	1.318	0.171	22.3
Right side	20	QPSK 50_0	18900/1880	1:1	0.263	0.02	21.80	23.00	1.318	0.347	22.3
Top side	20	QPSK 50_0	18900/1880	1:1	0.118	0.12	21.80	23.00	1.318	0.156	22.3
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.129	-0.13	22.49	24.00	1.416	0.183	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.000	0.14	22.49	24.00	1.416	0.000	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.192	0.18	22.49	24.00	1.416	0.272	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.061	-0.01	22.49	24.00	1.416	0.086	22.3
Head Test Data (50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.105	-0.02	21.49	23.00	1.416	0.149	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.000	0.04	21.49	23.00	1.416	0.000	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.154	-0.06	21.49	23.00	1.416	0.218	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.053	0.04	21.49	23.00	1.416	0.075	22.3
Body worn Test data (Separate 5mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.634	0.19	22.49	24.00	1.416	0.898	22.3

Front side	20	QPSK 1_0	18700/1860	1:1	0.611	0.00	22.35	24.00	1.462	0.893	22.3
Front side	20	QPSK 1_0	19100/1900	1:1	0.623	-0.02	22.39	24.00	1.449	0.903	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.605	-0.18	22.49	24.00	1.416	0.857	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.589	0.15	22.35	24.00	1.462	0.861	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.591	0.11	22.39	24.00	1.449	0.856	22.3
Body worn Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.570	-0.14	21.49	23.00	1.416	0.807	22.3
Front side	20	QPSK 50_0	18700/1860	1:1	0.563	-0.03	21.37	23.00	1.455	0.819	22.3
Front side	20	QPSK 50_0	19100/1900	1:1	0.555	0.08	21.39	23.00	1.449	0.804	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.531	-0.15	21.49	23.00	1.416	0.752	22.3
Body worn Test data (Separate 5mm 100%RB)											
Front side	20	QPSK 100_0	18900/1880	1:1	0.528	0.04	21.50	23.00	1.413	0.746	22.3
Back side	20	QPSK 100_0	18900/1880	1:1	0.478	0.03	21.50	23.00	1.413	0.675	22.3
Body worn Evaluate data (Separate 5mm 1RB) For Simultaneous											
Front side	20	QPSK 1_0	18900/1880	1:1	0.634	0.19	22.49	21.50	0.796	0.505	22.3
Front side	20	QPSK 1_0	18700/1860	1:1	0.611	0.00	22.35	21.50	0.822	0.502	22.3
Front side	20	QPSK 1_0	19100/1900	1:1	0.623	-0.02	22.39	21.50	0.815	0.508	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.605	-0.18	22.49	21.50	0.796	0.482	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.589	0.15	22.35	21.50	0.822	0.484	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.591	0.11	22.39	21.50	0.815	0.482	22.3
Body worn Evaluate data (Separate 5mm 50%RB) For Simultaneous											
Front side	20	QPSK 50_0	18900/1880	1:1	0.570	-0.14	21.49	21.50	1.002	0.571	22.3
Front side	20	QPSK 50_0	18700/1860	1:1	0.563	-0.03	21.37	21.50	1.030	0.580	22.3
Front side	20	QPSK 50_0	19100/1900	1:1	0.555	0.08	21.39	21.50	1.026	0.569	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.531	-0.15	21.49	21.50	1.002	0.532	22.3
Body worn Evaluate data (Separate 5mm 100%RB) For Simultaneous											
Front side	20	QPSK 100_0	18900/1880	1:1	0.528	0.04	21.50	21.50	1.000	0.528	22.3
Back side	20	QPSK 100_0	18900/1880	1:1	0.478	0.03	21.50	21.50	1.000	0.478	22.3
Hotspot Test data (Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.388	-0.14	22.49	24.00	1.416	0.549	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.365	0.09	22.49	24.00	1.416	0.517	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.047	0.02	22.49	24.00	1.416	0.067	22.3
Right side	20	QPSK 1_0	18900/1880	1:1	0.227	0.01	22.49	24.00	1.416	0.321	22.3
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.485	0.15	22.49	24.00	1.416	0.687	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.305	0.00	21.49	23.00	1.416	0.432	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.295	-0.09	21.49	23.00	1.416	0.418	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.000	-0.03	21.49	23.00	1.416	0.000	22.3
Right side	20	QPSK 50_0	18900/1880	1:1	0.192	0.07	21.49	23.00	1.416	0.272	22.3
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.385	0.09	21.49	23.00	1.416	0.545	22.3

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	18900/1880	0.950	0.946	1.004	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 performed 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 performed 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.						

(for original report SUCR251000102603)

11.3.5 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record											
Ant 0 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Receiver on Head Test Data (1RB)											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.739	0.18	21.73	23.00	1.340	0.990	22.5
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.821	-0.01	21.73	23.00	1.340	1.100	22.5
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.581	0.00	21.73	23.00	1.340	0.779	22.5
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.670	-0.02	21.73	23.00	1.340	0.898	22.5
Receiver on Head Test Data (50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.478	-0.07	21.63	23.00	1.371	0.655	22.5
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.512	-0.01	21.63	23.00	1.371	0.702	22.5
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.333	0.15	21.63	23.00	1.371	0.457	22.5
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.402	0.17	21.63	23.00	1.371	0.551	22.5
Receiver on Head Test Data (100%RB)											
Left cheek	10	QPSK 50_0	20525/836.5	1:1	0.433	0.14	21.60	23.00	1.380	0.598	22.5
Left tilted	10	QPSK 50_0	20525/836.5	1:1	0.479	0.10	21.60	23.00	1.380	0.661	22.5
Right tilted	10	QPSK 50_0	20525/836.5	1:1	0.367	-0.14	21.60	23.00	1.380	0.506	22.5
Receiver on Head Evaluate Data (1RB) For Simultaneous											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.739	0.18	21.73	20.00	0.671	0.496	22.5
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.821	-0.01	21.73	20.00	0.671	0.551	22.5
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.581	0.00	21.73	20.00	0.671	0.390	22.5
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.670	-0.02	21.73	20.00	0.671	0.450	22.5
Receiver on Head Evaluate Data (50%RB) For Simultaneous											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.478	-0.07	21.63	20.00	0.687	0.328	22.5
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.512	-0.01	21.63	20.00	0.687	0.352	22.5
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.333	0.15	21.63	20.00	0.687	0.229	22.5
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.402	0.17	21.63	20.00	0.687	0.276	22.5
Receiver on Head Evaluate Data (100%RB) For Simultaneous											
Left cheek	10	QPSK 50_0	20525/836.5	1:1	0.433	0.14	21.60	20.00	0.692	0.300	22.5
Left tilted	10	QPSK 50_0	20525/836.5	1:1	0.479	0.10	21.60	20.00	0.692	0.331	22.5
Right tilted	10	QPSK 50_0	20525/836.5	1:1	0.367	-0.14	21.60	20.00	0.692	0.254	22.5
Body worn Test data (Separate 5mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.532	0.03	23.76	25.00	1.330	0.708	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.587	-0.19	23.76	25.00	1.330	0.781	22.5
Body worn Test data (Separate 5mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.455	0.18	22.66	24.00	1.361	0.619	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.490	-0.05	22.66	24.00	1.361	0.667	22.5
Body worn Evaluate data (Separate 5mm 1RB) For Simultaneous											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.532	0.03	23.76	23.50	0.942	0.501	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.587	-0.19	23.76	23.50	0.942	0.553	22.5
Body worn Evaluate data (Separate 5mm 50%RB) For Simultaneous											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.455	0.18	22.66	23.50	1.213	0.552	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.490	-0.05	22.66	23.50	1.213	0.594	22.5
Hotspot Test data (Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.324	0.10	23.76	25.00	1.330	0.431	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.343	0.14	23.76	25.00	1.330	0.456	22.5
Left side	10	QPSK 1_0	20525/836.5	1:1	0.150	-0.10	23.76	25.00	1.330	0.200	22.5
Right side	10	QPSK 1_0	20525/836.5	1:1	0.167	-0.13	23.76	25.00	1.330	0.222	22.5

Top side	10	QPSK 1_0	20525/836.5	1:1	0.210	0.08	23.76	25.00	1.330	0.279	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.270	0.00	22.66	24.00	1.361	0.367	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.285	-0.17	22.66	24.00	1.361	0.388	22.5
Left side	10	QPSK 25_0	20525/836.5	1:1	0.122	-0.14	22.66	24.00	1.361	0.166	22.5
Right side	10	QPSK 25_0	20525/836.5	1:1	0.142	0.11	22.66	24.00	1.361	0.193	22.5
Top side	10	QPSK 25_0	20525/836.5	1:1	0.159	0.06	22.66	24.00	1.361	0.216	22.5
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB)											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.862	-0.13	23.97	25.00	1.268	1.093	22.5
Left cheek-Repeat SAR	10	QPSK 1_0	20525/836.5	1:1	0.860	0.03	23.97	25.00	1.268	1.090	22.5
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.342	0.05	23.97	25.00	1.268	0.434	22.5
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.822	0.02	23.97	25.00	1.268	1.042	22.5
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.285	-0.15	23.97	25.00	1.268	0.361	22.5
Head Test Data (50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.736	0.04	22.85	24.00	1.303	0.959	22.5
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.274	-0.06	22.85	24.00	1.303	0.357	22.5
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.669	0.09	22.85	24.00	1.303	0.872	22.5
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.236	-0.08	22.85	24.00	1.303	0.308	22.5
Head Test Data (100%RB)											
Left cheek	10	QPSK 50_0	20525/836.5	1:1	0.678	-0.18	22.87	24.00	1.297	0.879	22.5
Right cheek	10	QPSK 50_0	20525/836.5	1:1	0.608	0.07	22.87	24.00	1.297	0.789	22.5
Receiver on Head Evaluate Data (1RB) For Simultaneous											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.862	-0.13	23.97	22.00	0.635	0.547	22.5
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.342	0.05	23.97	22.00	0.635	0.217	22.5
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.822	0.02	23.97	22.00	0.635	0.522	22.5
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.285	-0.15	23.97	22.00	0.635	0.181	22.5
Receiver on Head Evaluate Data (50%RB) For Simultaneous											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.736	0.04	22.85	22.00	0.822	0.605	22.5
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.274	-0.06	22.85	22.00	0.822	0.225	22.5
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.669	0.09	22.85	22.00	0.822	0.550	22.5
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.236	-0.08	22.85	22.00	0.822	0.194	22.5
Receiver on Head Evaluate Data (100%RB) For Simultaneous											
Left cheek	10	QPSK 50_0	20525/836.5	1:1	0.678	-0.18	22.87	22.00	0.818	0.555	22.5
Right cheek	10	QPSK 50_0	20525/836.5	1:1	0.608	0.07	22.87	22.00	0.818	0.497	22.5
Body worn Test data (Separate 5mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.810	-0.12	23.97	25.00	1.268	1.027	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.851	0.02	23.97	25.00	1.268	1.079	22.5
Back side-Repeat SAR	10	QPSK 1_0	20525/836.5	1:1	0.848	-0.13	23.97	25.00	1.268	1.075	22.5
Body worn Test data (Separate 5mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.635	-0.14	22.85	24.00	1.303	0.827	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.691	0.02	22.85	24.00	1.303	0.900	22.5
Body worn Test data (Separate 5mm 100%RB)											
Front side	10	QPSK 50_0	20525/836.5	1:1	0.593	-0.14	22.87	24.00	1.297	0.769	22.5
Back side	10	QPSK 50_0	20525/836.5	1:1	0.631	-0.13	22.87	24.00	1.297	0.818	22.5
Body worn Evaluate data (Separate 5mm 1RB) For Simultaneous											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.810	-0.12	23.97	22.00	0.635	0.514	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.851	0.02	23.97	22.00	0.635	0.540	22.5
Body worn Evaluate data (Separate 5mm 50%RB) For Simultaneous											

Front side	10	QPSK 25_0	20525/836.5	1:1	0.635	-0.14	22.85	22.00	0.822	0.522	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.691	0.02	22.85	22.00	0.822	0.568	22.5
Body worn Evaluate data (Separate 5mm 100%RB) For Simultaneous											
Front side	10	QPSK 50_0	20525/836.5	1:1	0.593	-0.14	22.87	22.00	0.818	0.485	22.5
Back side	10	QPSK 50_0	20525/836.5	1:1	0.631	-0.13	22.87	22.00	0.818	0.516	22.5
Hotspot Test data (Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.405	0.11	23.97	25.00	1.268	0.514	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.366	-0.13	23.97	25.00	1.268	0.464	22.5
Left side	10	QPSK 1_0	20525/836.5	1:1	0.392	0.12	23.97	25.00	1.268	0.497	22.5
Right side	10	QPSK 1_0	20525/836.5	1:1	0.154	0.08	23.97	25.00	1.268	0.195	22.5
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.176	-0.08	23.97	25.00	1.268	0.223	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.330	-0.08	22.85	24.00	1.303	0.430	22.5
Back side	10	QPSK 25_0	20525/836.5	1:1	0.290	0.16	22.85	24.00	1.303	0.378	22.5
Left side	10	QPSK 25_0	20525/836.5	1:1	0.309	-0.04	22.85	24.00	1.303	0.403	22.5
Right side	10	QPSK 25_0	20525/836.5	1:1	0.162	-0.06	22.85	24.00	1.303	0.211	22.5
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.137	0.14	22.85	24.00	1.303	0.179	22.5

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	20525/836.5	0.862	0.860	1.002	N/A	N/A
Back side-5mm	20525/836.5	0.851	0.848	1.004	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 performed 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 ($\sim 10\%$ from the 1-g SAR limit).

3) A third repeated measurement was performed 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.

(for original report SUCR251000102603)

11.3.6 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record											
Ant 0 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.678	0.14	21.84	23.50	1.466	0.994	22.4
Left cheek	20	QPSK 1_0	20850/2510	1:1	0.644	-0.18	21.73	23.50	1.503	0.968	22.4
Left cheek	20	QPSK 1_0	21350/2560	1:1	0.652	-0.15	21.75	23.50	1.496	0.975	22.4
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.542	-0.02	21.84	23.50	1.466	0.795	22.4
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.394	-0.10	21.84	23.50	1.466	0.578	22.4
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.430	-0.18	21.84	23.50	1.466	0.630	22.4
Head Test Data (50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.577	-0.11	20.84	22.50	1.466	0.846	22.4
Left cheek	20	QPSK 50_0	20850/2510	1:1	0.559	-0.01	20.74	22.50	1.500	0.839	22.4
Left cheek	20	QPSK 50_0	21350/2560	1:1	0.571	0.11	20.86	22.50	1.459	0.833	22.4
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.461	0.12	20.84	22.50	1.466	0.676	22.4
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.352	-0.13	20.84	22.50	1.466	0.516	22.4
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.351	-0.09	20.84	22.50	1.466	0.515	22.4
Head Test Data (100%RB)											
Left cheek	20	QPSK 100_0	21100/2535	1:1	0.529	0.12	20.78	22.50	1.486	0.786	22.4
Body worn Test data (Separate 5mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.359	0.15	21.84	23.50	1.466	0.526	22.4
Back side	20	QPSK 1_0	21100/2535	1:1	0.320	-0.12	21.84	23.50	1.466	0.469	22.4
Body worn Test data (Separate 5mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.278	-0.05	20.84	22.50	1.466	0.408	22.4
Back side	20	QPSK 50_0	21100/2535	1:1	0.258	0.03	20.84	22.50	1.466	0.378	22.4
Hotspot Test data (Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.167	-0.18	21.84	23.50	1.466	0.245	22.4
Back side	20	QPSK 1_0	21100/2535	1:1	0.188	0.16	21.84	23.50	1.466	0.276	22.4
Left side	20	QPSK 1_0	21100/2535	1:1	0.056	-0.13	21.84	23.50	1.466	0.082	22.4
Right side	20	QPSK 1_0	21100/2535	1:1	0.098	-0.16	21.84	23.50	1.466	0.144	22.4
Top side	20	QPSK 1_0	21100/2535	1:1	0.336	-0.02	21.84	23.50	1.466	0.493	22.4
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.139	0.04	20.84	22.50	1.466	0.204	22.4
Back side	20	QPSK 50_0	21100/2535	1:1	0.145	-0.06	20.84	22.50	1.466	0.213	22.4
Left side	20	QPSK 50_0	21100/2535	1:1	0.048	-0.12	20.84	22.50	1.466	0.070	22.4
Right side	20	QPSK 50_0	21100/2535	1:1	0.084	-0.17	20.84	22.50	1.466	0.123	22.4
Top side	20	QPSK 50_0	21100/2535	1:1	0.224	0.17	20.84	22.50	1.466	0.328	22.4
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.271	-0.01	22.17	23.50	1.358	0.368	22.4
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.137	-0.14	22.17	23.50	1.358	0.186	22.4
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.498	-0.18	22.17	23.50	1.358	0.676	22.4
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.102	0.04	22.17	23.50	1.358	0.139	22.4
Head Test Data (50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.236	-0.17	21.04	22.50	1.400	0.330	22.4
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.122	-0.15	21.04	22.50	1.400	0.171	22.4
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.438	-0.13	21.04	22.50	1.400	0.613	22.4
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.086	-0.10	21.04	22.50	1.400	0.120	22.4
Sensor on Body worn Test data (Separate 5mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.881	-0.10	21.35	22.50	1.303	1.148	22.4
Front side-Repeat SAR	20	QPSK 1_0	21100/2535	1:1	0.876	0.13	21.35	22.50	1.303	1.141	22.4