



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

Report No.: SUCR250400032011

Rev.: 01

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FCC SAR TEST REPORT

Application No.: SUCR2504000320WM

Applicant: COOSEA GROUP (HK) COMPANY LIMITED

Manufacturer: COOSEA GROUP (HK) COMPANY LIMITED

Product Name: Smart Phone

Model No.(EUT): SN333A/SN333C -----♣

♣ Please refer to section 1.4 of this report which indicates which model was actually tested and which were electrically identical.

FCC ID: 2A28USN333

Standards: FCC 47CFR §2.1093

Date of Receipt: 2025-4-25

Date of Test: 2025-4-29 to 2025-5-25

Date of Issue: 2025-05-29

Test conclusion: **PASS ***

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

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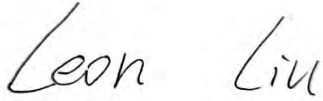
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Revision Record			
Version	Description	Date	Remark
01	Original	2025/05/25	/

Authorized for issue by:		
Prepared By		
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Approved By		
		Nick Hu/ Technical Manager



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
WCDMA Band II	1.14	0.73	0.94	2.43
WCDMA Band IV	1.16	0.60	1.17	2.52
WCDMA Band V	0.27	0.27	0.40	/
LTE Band 2	1.14	0.73	1.14	2.98
LTE Band 5	0.28	0.26	0.45	/
LTE Band 7	0.87	0.19	0.52	/
LTE Band 12(17)	0.23	0.37	0.43	/
LTE Band 14	0.21	0.24	0.31	/
LTE Band 30	1.12	0.89	1.06	2.36
LTE Band 66(4)	1.05	0.68	0.97	3.14
NR Band n2	1.15	0.96	1.09	3.00
NR Band n5	0.19	0.33	0.69	/
NR Band n30	1.15	0.90	1.05	2.92
NR Band n66	1.14	0.72	1.19	2.87
NR Band n77	1.11	0.90	1.03	2.81
WI-FI (2.4GHz)	1.17	0.20	0.29	/
WI-FI (5GHz)	1.12	0.59	0.34	2.99
BT	0.24	<0.10	<0.10	/
NFC	/	/	/	<0.10
SAR Limited(W/kg)	1.60			4.00
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.59	1.56	1.56	3.98
SPLSR	/	/	/	/
SPLSR Limited	0.04			0.1

Note:

1) According to TCB workshop October,2014 RF Exposure Procedures Update (Overlapping Bands): SAR for LTE Band 4 (Frequency range:1710 - 1755 MHz)/LTE Band 17 (Frequency range:704-716 MHz) is respectively covered by LTE Band66 (Frequency range:1710 - 1780 MHz)/ LTE Band 12 (Frequency range:699-716 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.

2) For LTE band 4/5/12/14/17/30 and n5/n30/n66/n77 that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.

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1 General Information

1.1 Details of Client

Applicant:	COOSEA GROUP (HK) COMPANY LIMITED
Address:	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL
Manufacturer:	COOSEA GROUP (HK) COMPANY LIMITED
Address:	UNIT 5-6 16/F MULTIFIELD PLAZA 3-7A PRAT AVENUE TSIMSHATSUI KL

1.2 Test Location

Company:	SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.
Address:	South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu) Pilot Free Trade Zone
Post code:	215000
Test Engineer:	Leon Xu

1.3 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). Certificate No. 6336.01.

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

SGS-CSTC STANDARDS TECHNICAL SERVICES (SUZHOU) CO., LTD. has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0120.

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- **FCC –Designation Number: CN1312**

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Designation Number: CN1312.

Test Firm Registration Number: 0031225543

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1.4 General Description of EUT

Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Smart Phone		
Model No.(EUT):	SN333A/SN333C		
Product Phase:	Production Unit		
Hardware Version:	1.0		
Software Version:	SN333A10008		
IMEI:	355006370009506/355006370009514; 355006370008664/355006370008672		
Device Operating Configurations:			
Modulation Mode:	WCDMA: QPSK,16QAM; LTE: QPSK,16QAM,64QAM,256QAM; 5G NR: DFT-s-OFDM (QPSK, 16QAM, 64QAM, 256QAM), CP-OFDM (QPSK, 16QAM, 64QAM, 256QAM) WIFI: DSSS, OFDM; BT: GFSK, $\pi/4$ DQPSK,8DPSK NFC: ASK		
HSDPA UE Category:	24	HSUPA UE Category	7
DC-HSDPA UE Category:	24		
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)	Rx (MHz)
	WCDMA Band II	1850 - 1910	1930 - 1990
	WCDMA Band IV	1710 - 1755	2110 - 2155
	WCDMA Band V	824 - 849	869 - 894
	LTE Band 2	1850 - 1910	1930 - 1990
	LTE Band 4	1710 - 1755	2110 - 2155
	LTE Band 5	824 - 849	869 - 894
	LTE Band 7	2500 - 2570	2620 - 2690
	LTE Band 12	699 - 716	729 - 746
	LTE Band 14	788 - 798	758 - 768
	LTE Band 17	704 - 716	734 - 746
	LTE Band 30	2305 - 2315	2350 - 2360
	LTE Band 66	1710 - 1780	2110 - 2200
	NR Band n2	1850 - 1910	1930 - 1990
	NR Band n5	824 - 849	869 - 894
	NR Band n30	2305 - 2315	2350 - 2360
	NR Band n66	1710 - 1780	2110 - 2200
	NR Band n77	3450-3550	3450-3550
		3700-3980	3700-3980
	Bluetooth	2400 - 2483.5	2400 - 2483.5
	Wi-Fi 2.4G	2402 - 2462	2402 - 2462
	Wi-Fi 5G	5150 - 5250	5150 - 5250
		5250 - 5350	5250 - 5350
		5470 - 5725	5470 - 5725
		5725 - 5850	5725 - 5850



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	NFC	13.56MHz	13.56MHz
RF Cable:	☒ Provided by the applicant ☐ Provided by the laboratory		
Battery Information:	Model:	BL-A97CT	
	Normal Voltage:	3.87V	
	Rated capacity:	4900mAh	
	Manufacturer:	Shenzhen Aerospace Electronic Co.,Ltd.	
Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.. Remark: 1. As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information. 2. The two models named SN333A, SN333C are the same product except that their model names are different for different market segments.			

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1.4.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix D

Ant	Band:
Ant0	WCDMA: B5 LTE: B5/12/14/17 5G NR: N5
Ant1	LTE: B2/30/66 5G NR: N2/66
Ant3	LTE: B2/4/7/30/66 5G NR: N2/30/66
Ant4	5G NR: N77
Ant5	WIFI2.4G,WIFI5G,Bluetooth
Ant8	NFC

Note:

- 1) The test device is a smart phone. The overall diagonal dimension of this device is 168.8 mm. Per KDB 648474 D04, because the diagonal distance of this device is $\geq 160\text{mm}$, so it is a phablet.

According to the distance between 5G NR/LTE/WCDMA/WIFI/BT antennas and the sides of the EUT we can draw the conclusion that:

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	No	Yes
Ant 1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes
Ant 3	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 4	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 5	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 8	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	Yes	Yes

Note:

- 1) When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.



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1.4.2 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. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction
- 3) A fixed level power reduction is applied for some frequency bands when handset operate "held to the ear" condition, the power reduction triggered by audio receiver detection. The audio receiver detection is used to determine head or body scenario.
- 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 (Refer to section 5.4 for detailed proximity Sensor information and validation data per KDB 616217)

The detailed power reduction information can be referred to Appendix E.



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1.5 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)
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	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



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1.6 RF exposure limits

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

Notes:

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

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

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

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

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



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2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
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.	

Table 1: The Ambient Conditions



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3 SAR Measurements System Configuration

3.1 The SAR Measurement System

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

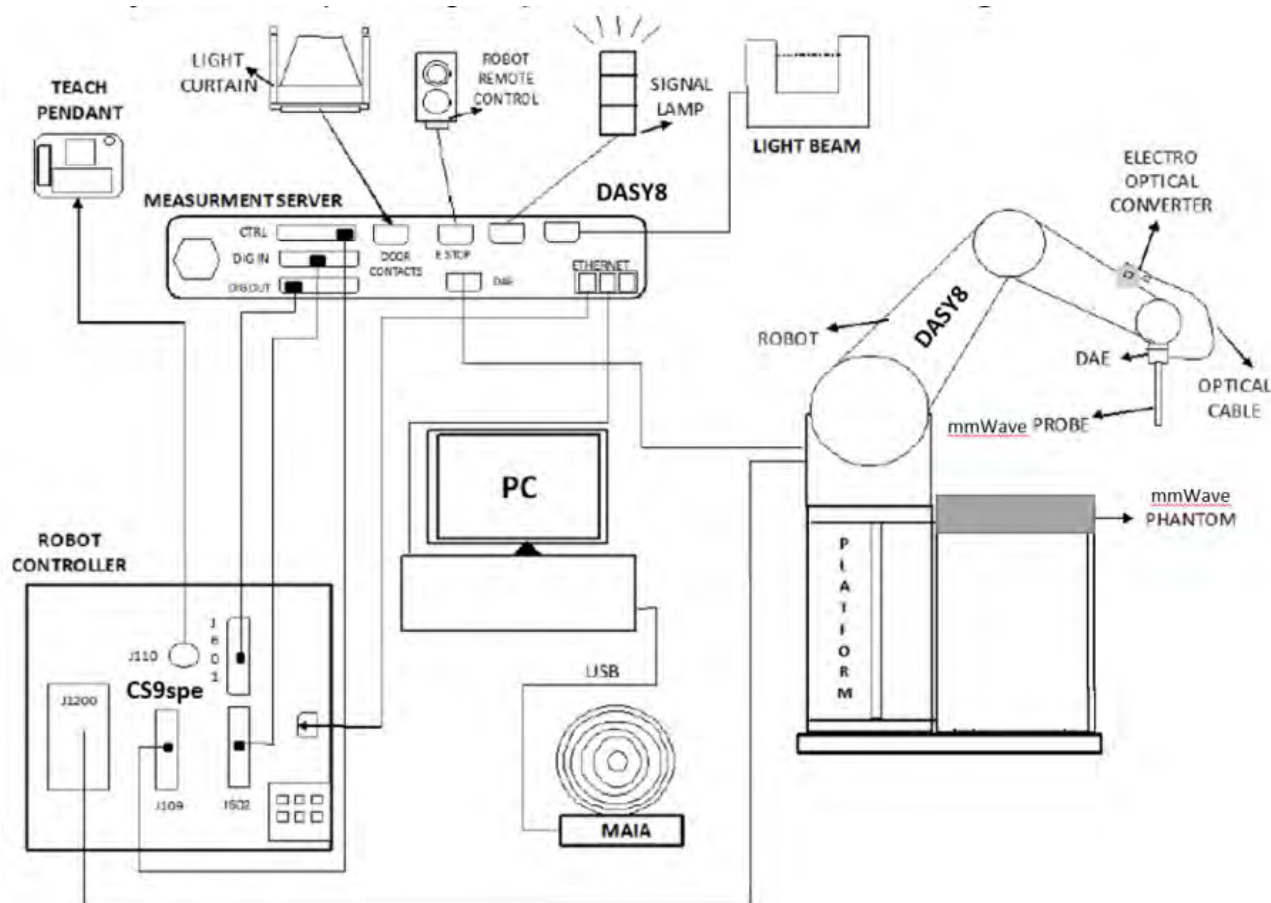
The DASY system for performing compliance tests consists of the following items:

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 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY52 SAR and higher, EASY4/MRI

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	approx. 25 liters	
Wooden Support	SPEAG standard phantom table	

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

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

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3.5 ELI Phantom

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

Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEEE 1528 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles. ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

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.

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

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

Step 4: Power reference measurement (drift)

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

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 “.DAE4”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

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

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

cf = crest factor of exciting field (DASY parameter)

dcp i = diode compression point (DASY parameter)

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

E-field probes:

$$E_i = (V_i / \text{Norm}_i \cdot \text{ConvF})^{1/2}$$

H-field probes:

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

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

Norm_i = sensor sensitivity of channel i ($i = x, y, z$)

[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

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



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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

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

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

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

4.2 SAR measurement uncertainty

Per 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.

5 Description of Test Position

5.1 Head Exposure Condition

5.1.1 SAM Phantom Shape

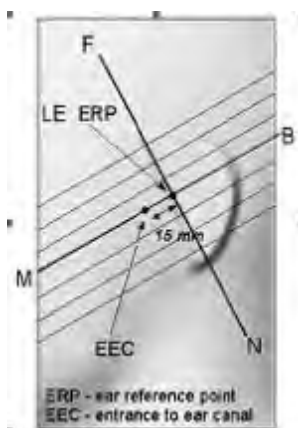


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

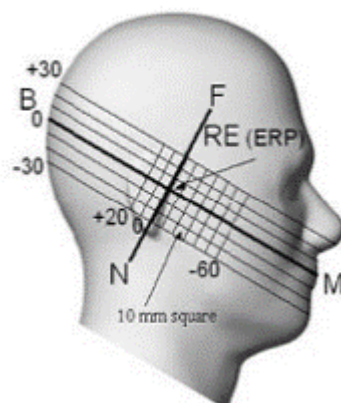
Note: The centre strip including the nose region has a different thickness tolerance.



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

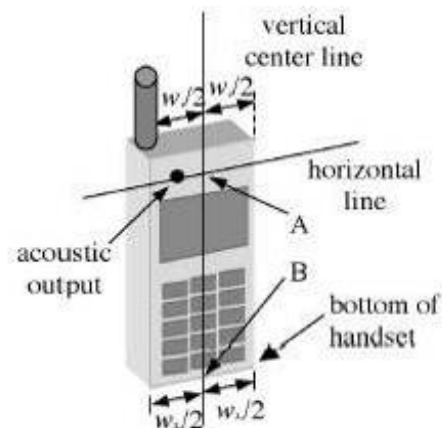


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

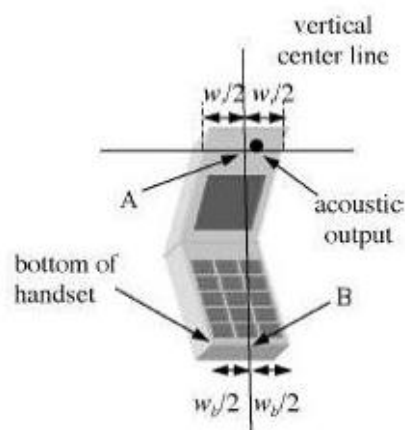


F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

5.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines—"fixed case"



F-8. Handset vertical and horizontal reference lines—"clam-shell case"

5.1.3 Definition of the "cheek" position

a) 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.

b) 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.

5.1.4 Definition of the "tilted" position

a) Position the device in the "cheek" position described above;

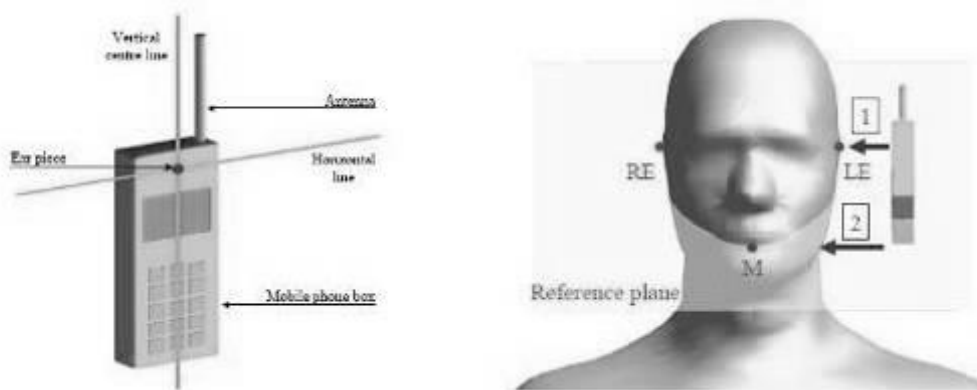
b) While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost.

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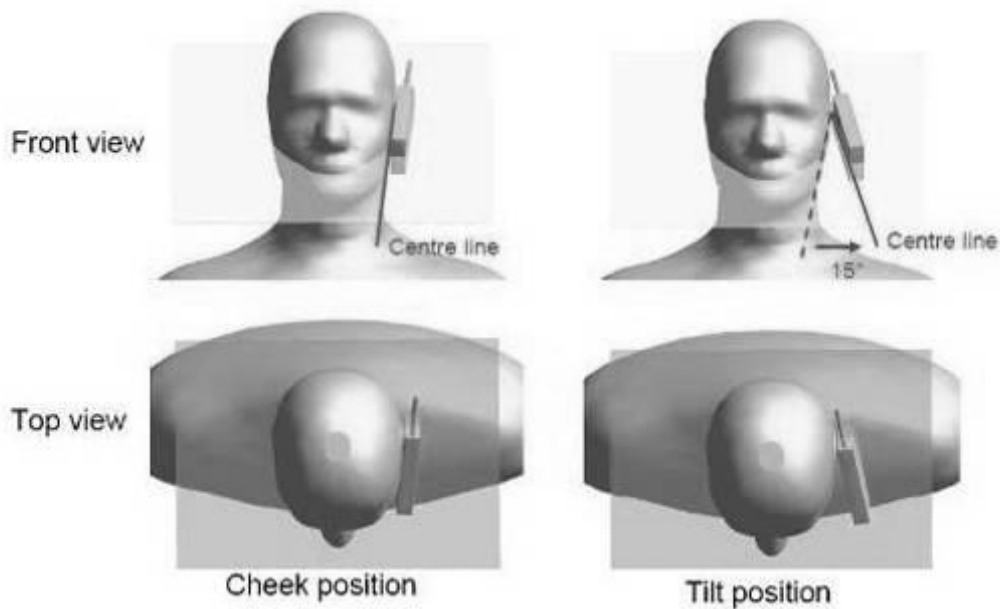
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F-9. Definition of the reference lines and points, on the phone and on the phantom and initial position



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

5.2 Body Exposure Condition

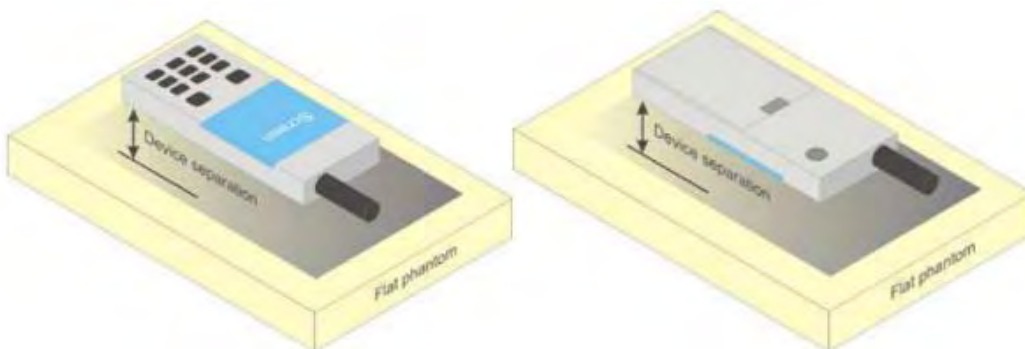
5.2.1 Body-worn accessory exposure conditions

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

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



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5.2.2 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 cm x 5 cm, a test separation distance of 5 mm is required.

5.3 Extremity exposure conditions

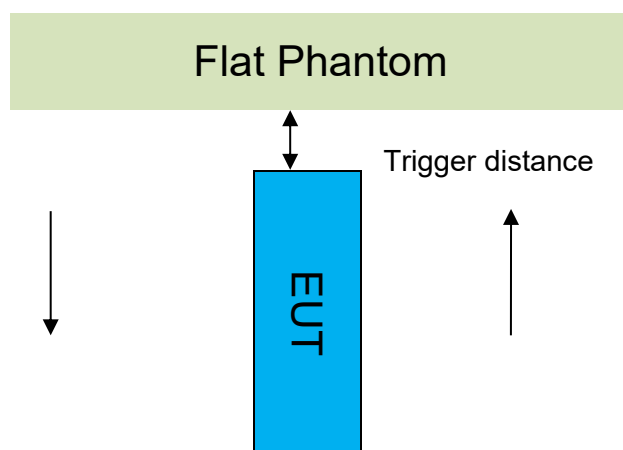
Per FCC KDB 648474 D04, for smart phones with a display diagonal dimension $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$ that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device 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 WCDMA Band 2/4, LTE Band 2/30/66, n2/30/66/77, WIFI 5G, NFC frequency bands need to test with 0mm for the Product Specific 10-g SAR, the others are not required.

5.4 Proximity Sensor Triggering Test

Proximity sensor triggering distances:

The Proximity sensor triggering was applied to WWAN 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)				
Ant3				
Position	Front	Back	Left Side	Top Side
Minimum	11	14	5	15
Required SAR Test	10	13	4	14
Ant4				
Position	Back		Left Side	
Minimum	5		5	
Required SAR Test	4		4	
Ant5				
Position	Front	Back	Right Side	Top Side
Minimum	11	14	15	10
Required SAR Test	10	13	14	9

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.

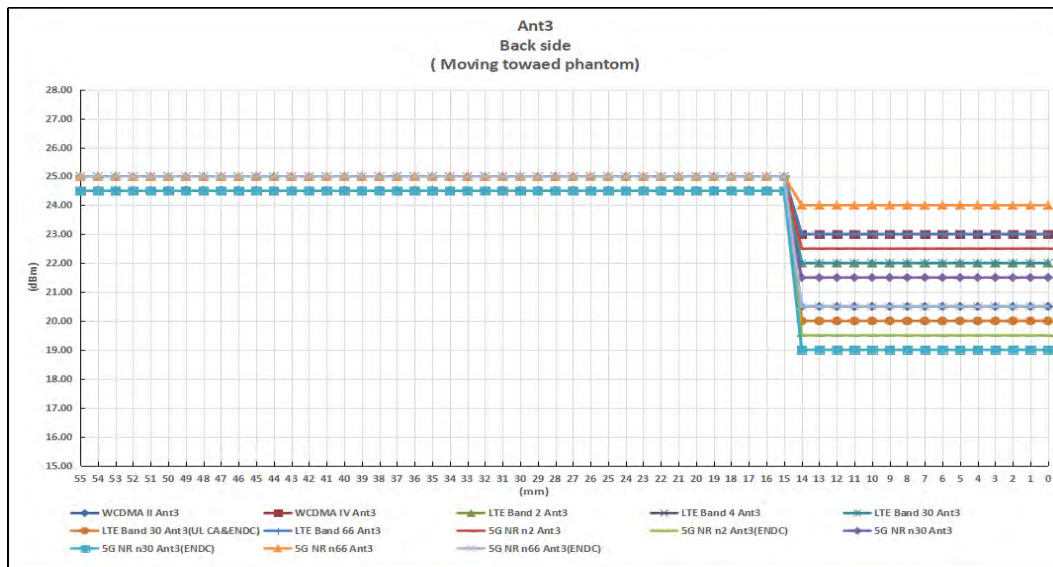
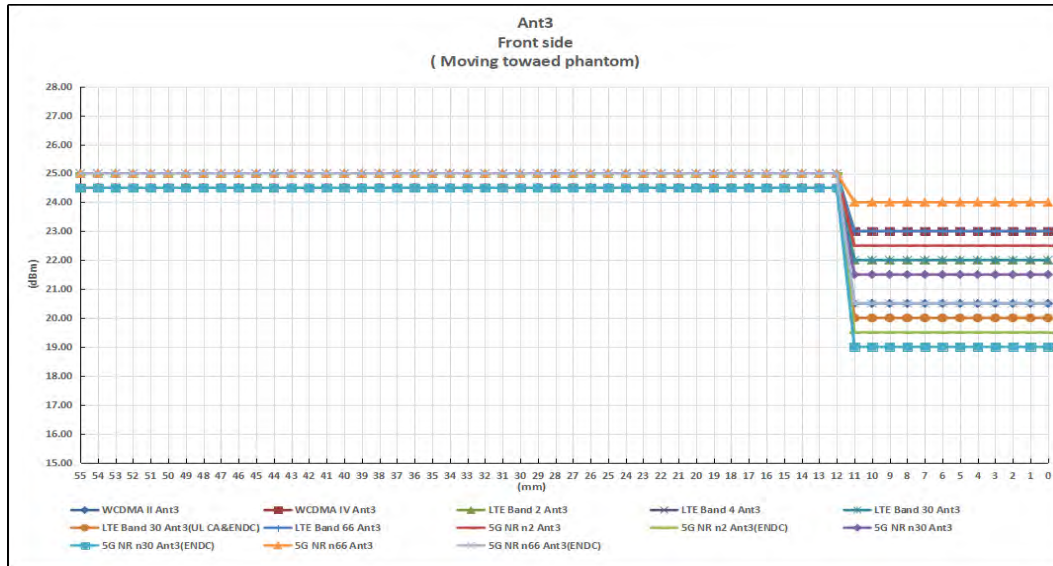
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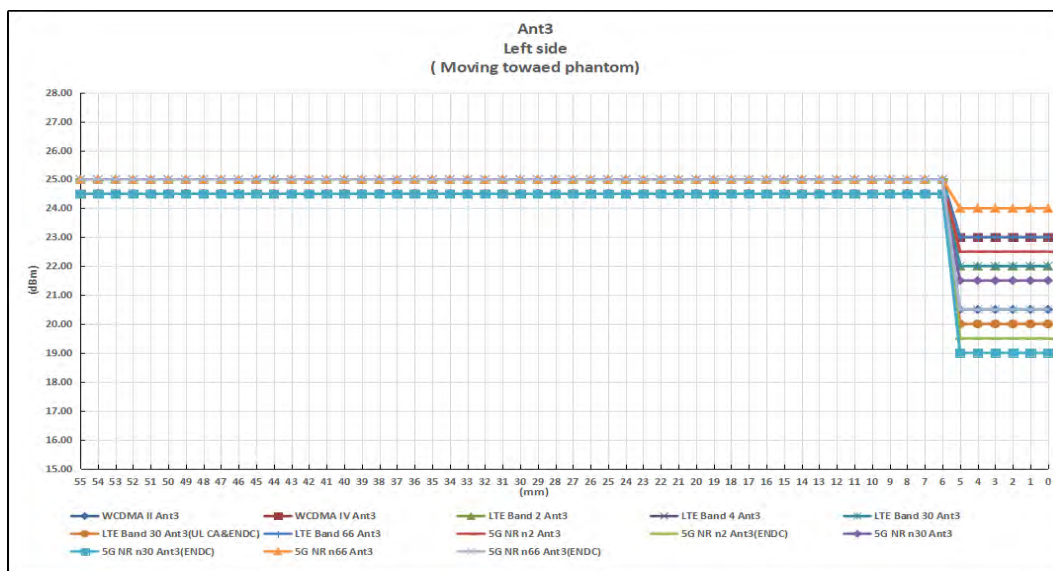
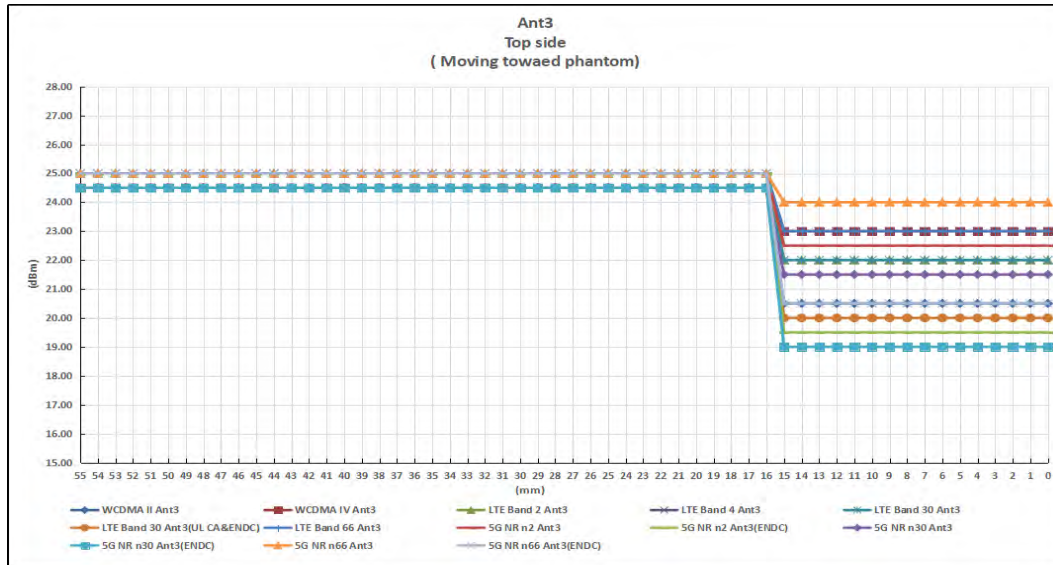
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● Ant 3 DUT Moving Toward(Trigger)the Phantom





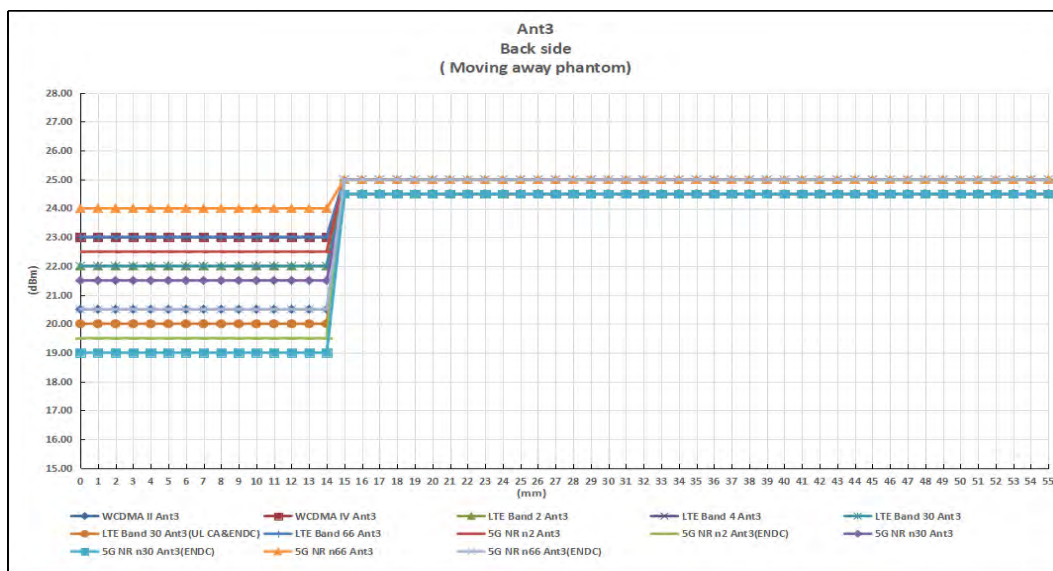
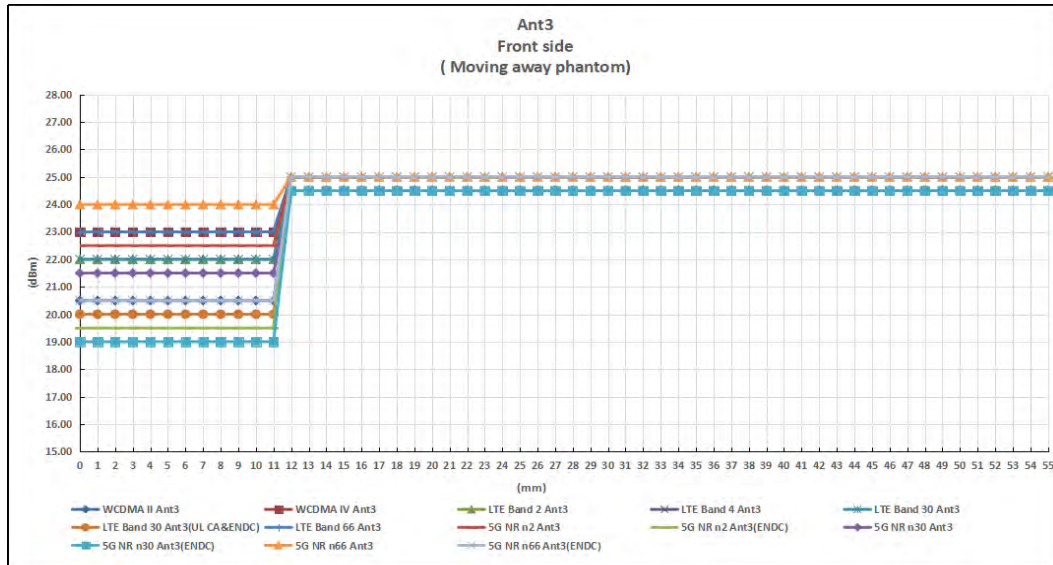
- Ant 3 DUT Moving Away(Release) from the Phantom

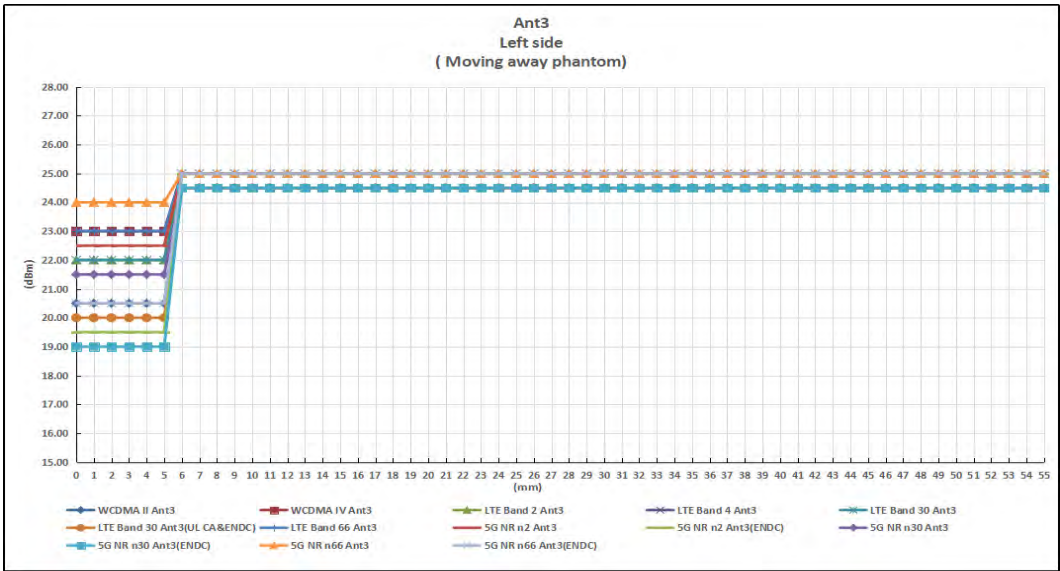
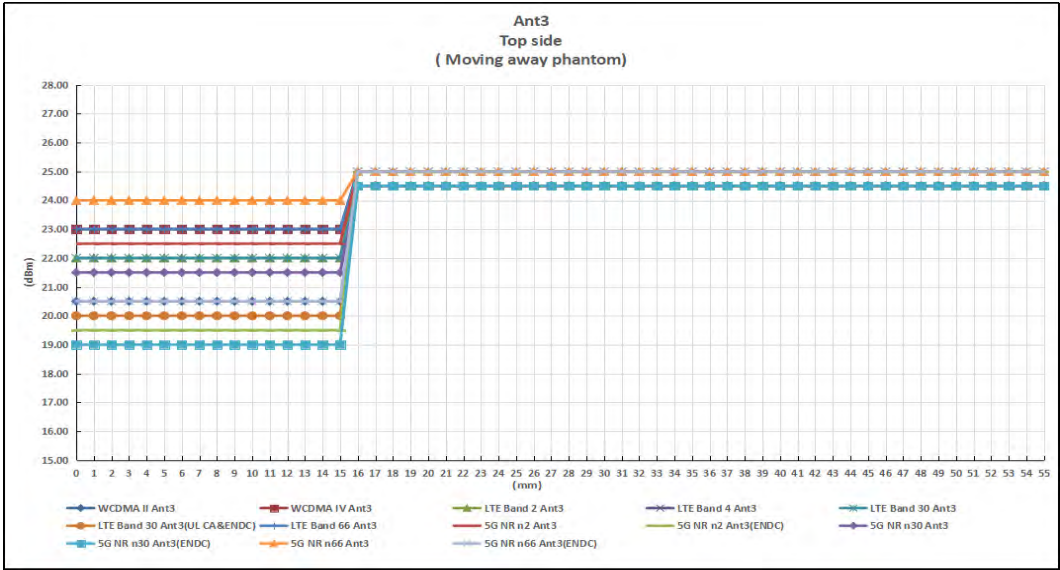
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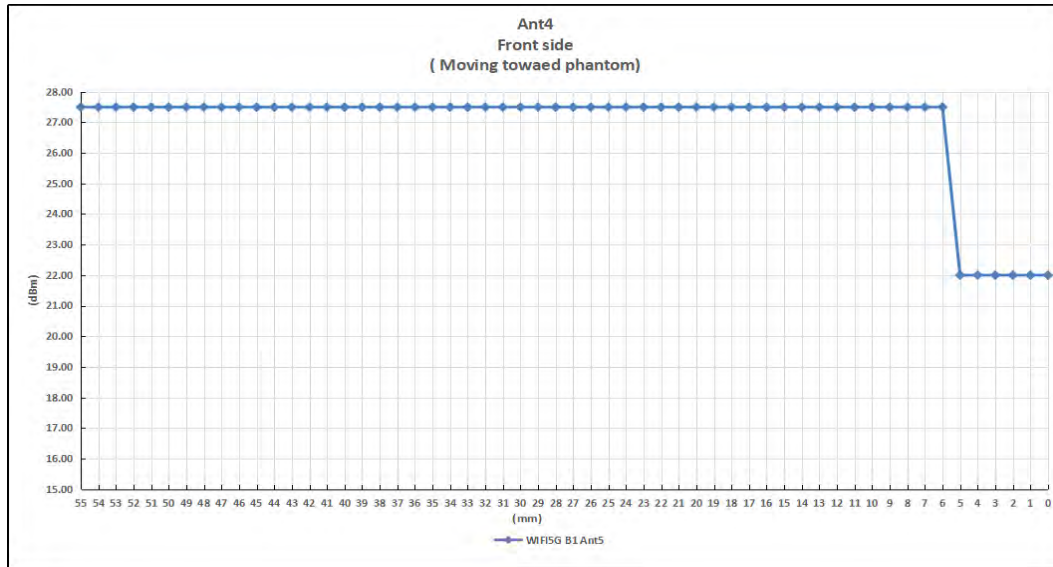
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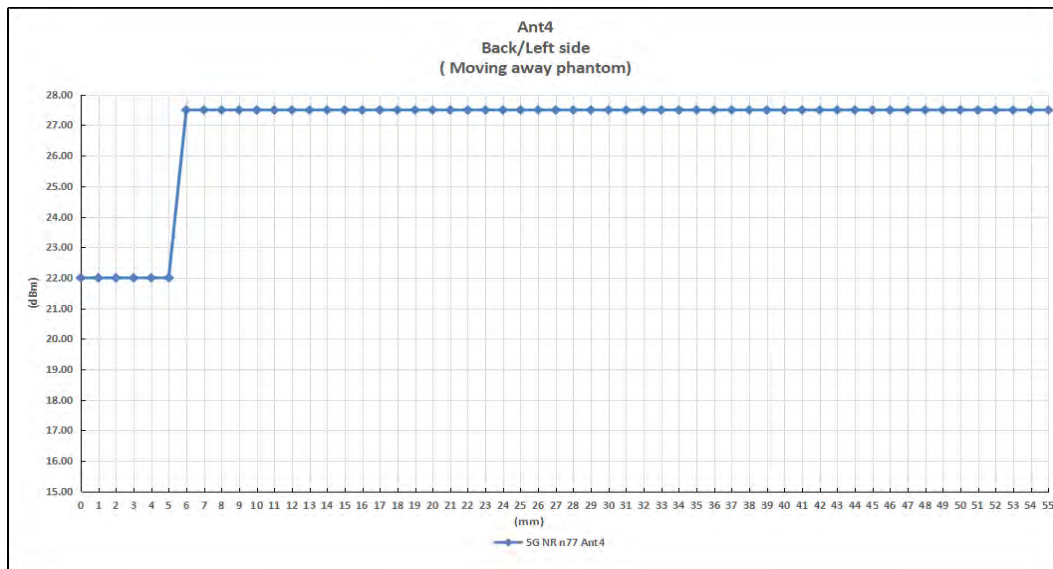




- Ant 4 DUT Moving Toward(Trigger)the Phantom



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

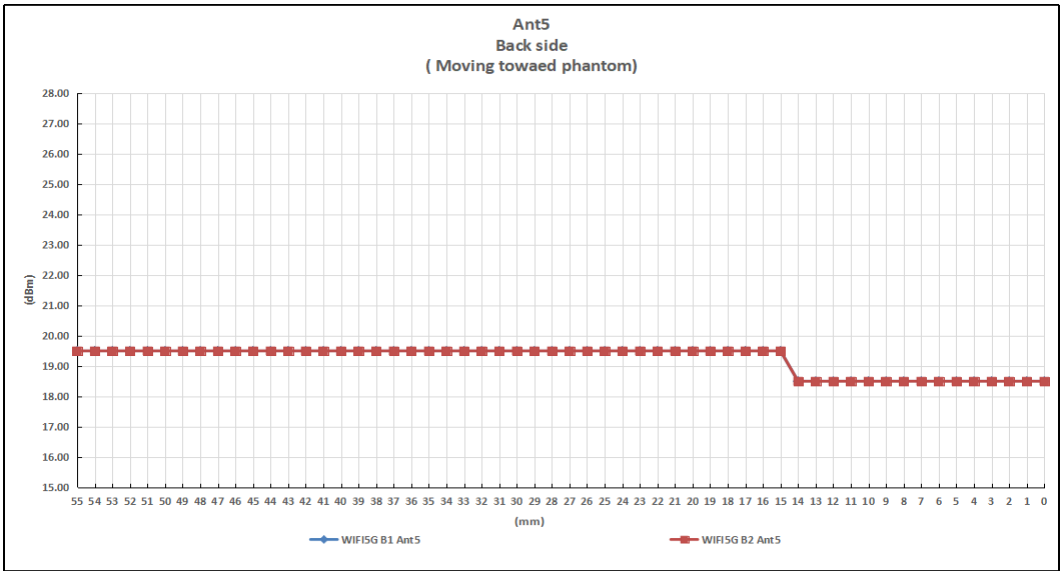
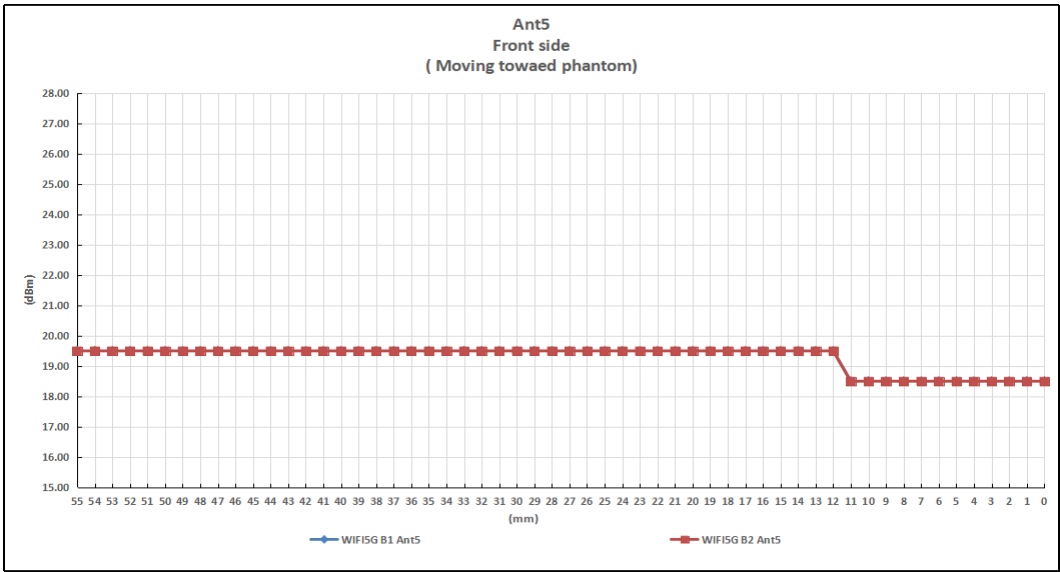


- Ant 5 DUT Moving Toward(Trigger)the Phantom



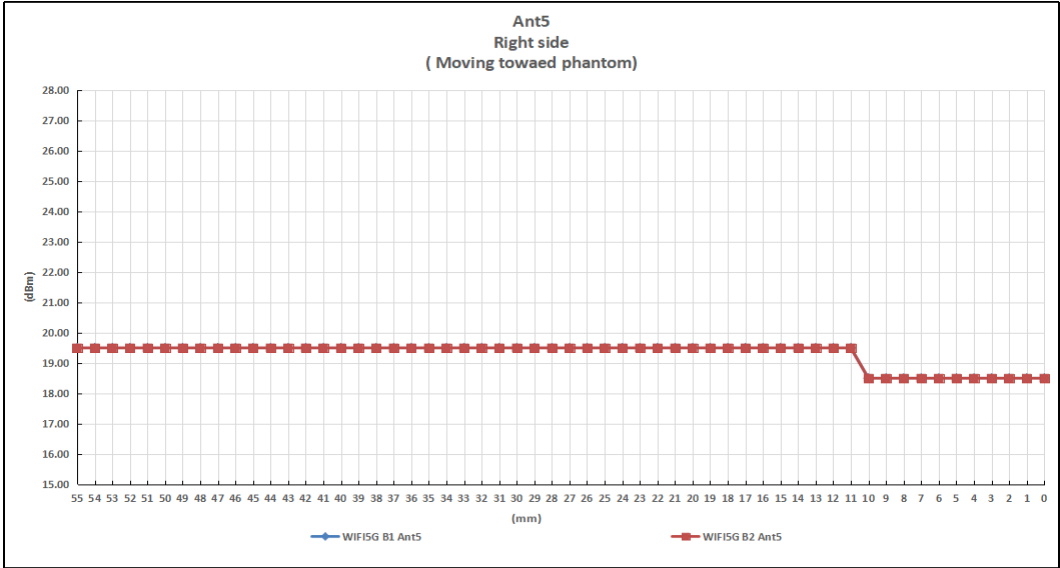
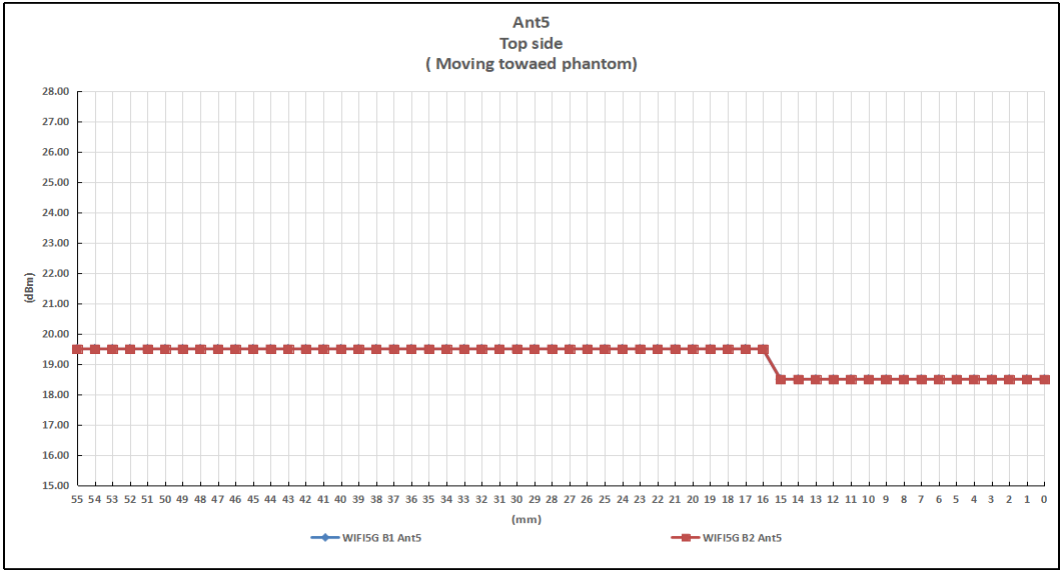
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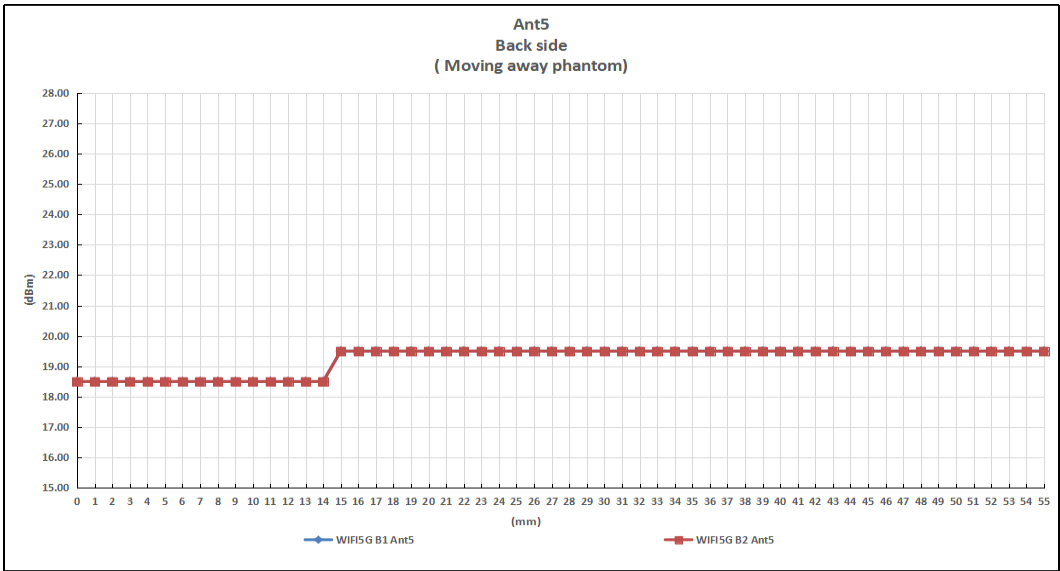
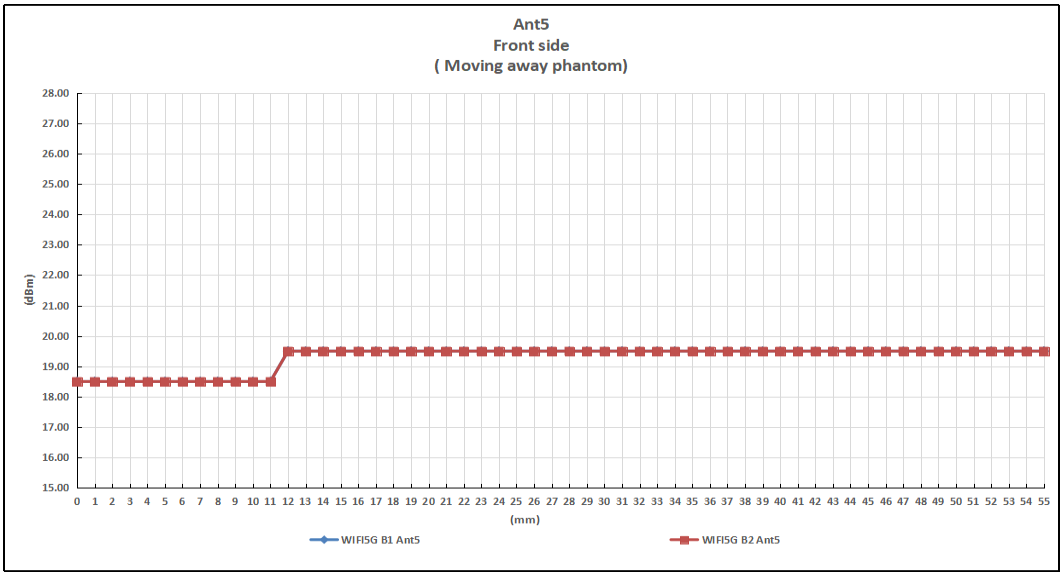


- Ant 5 DUT Moving Away(Release) from the Phantom



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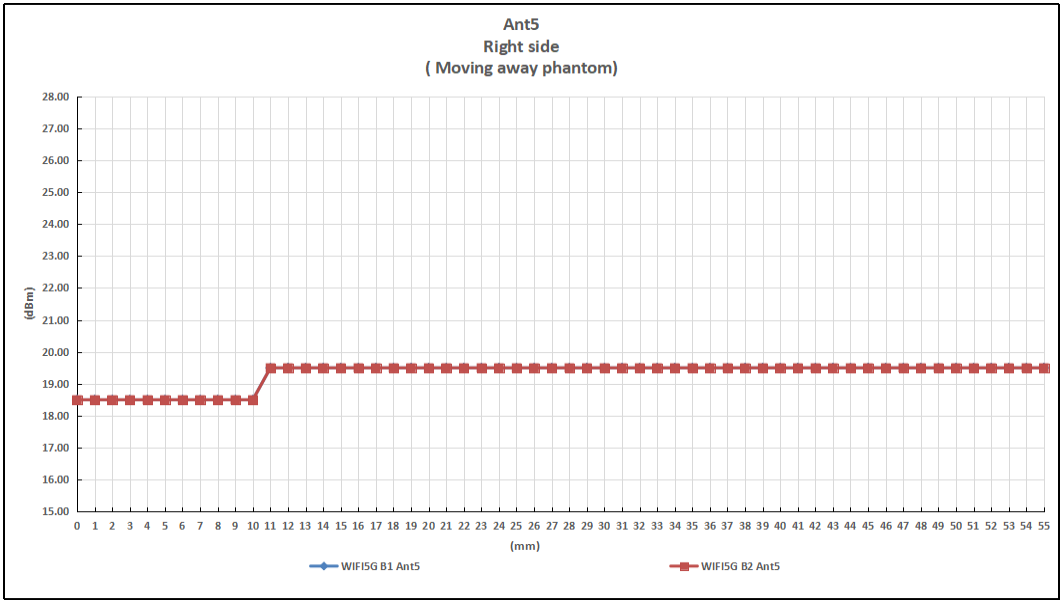
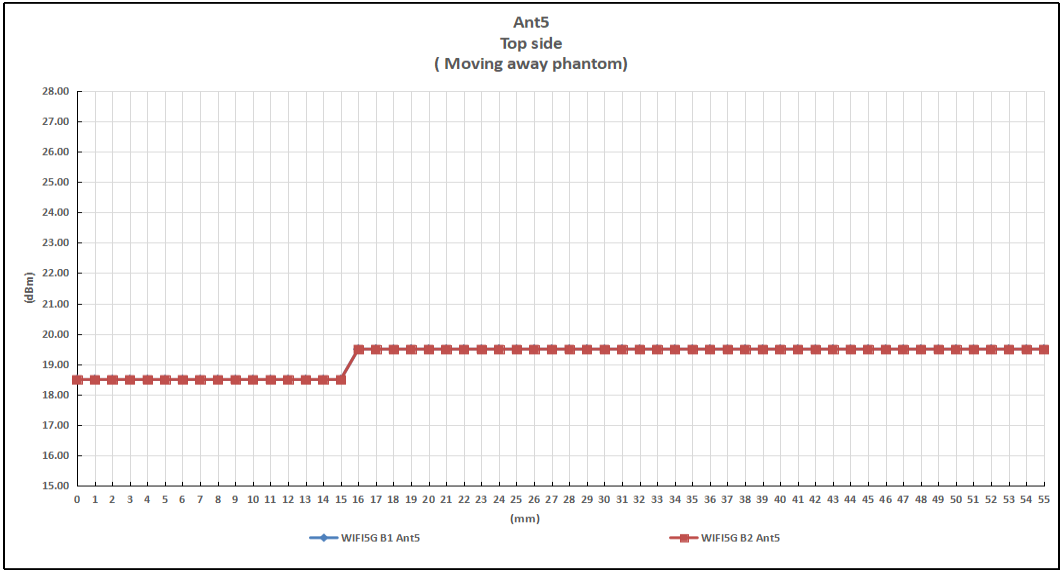
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6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

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

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Sucrose: 98+% Pure Sucrose Water: De-ionized, 16 MΩ ⁺ resistivity HEC: Hydroxyethyl Cellulose Tween: Polyoxyethylene (20) sorbitan monolaurate					
HSL13MHz is composed of the following ingredients: Water: 50-90% Non-ionic detergents: 5-50% Nacl: 0-2% Preservative: 0.03-0.1% HSL5GHz is composed of the following ingredients: Water: 50-65% Mineral oil: 10-30% Emulsifiers: 8-25% Sodium salt: 0-1.5%					

Table 2: Recipe of Tissue Simulate Liquid



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6.1.2 Measurement for Tissue Simulate Liquid

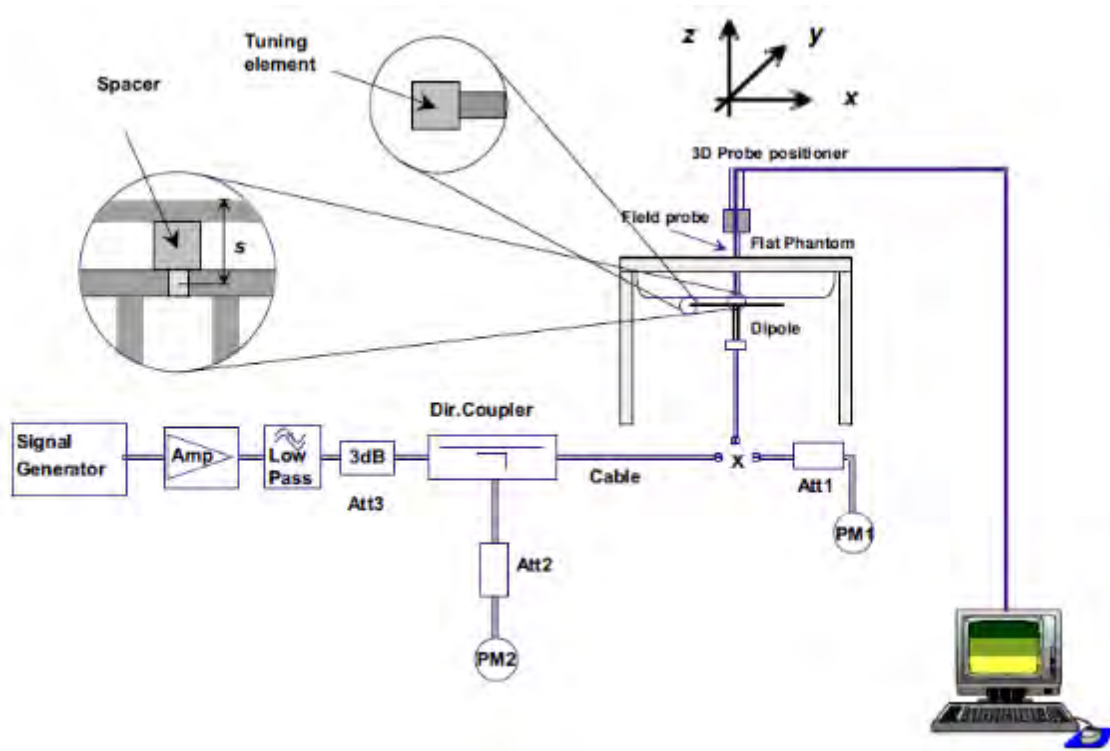
The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was $22\pm2^{\circ}\text{C}$.

Tissue Type	Measured Frequency (MHz)	Measured Tissue		Target Tissue ($\pm 5\%$)		Liquid Temp. ($^{\circ}\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
13 Head	13	55.7	0.747	56.2	0.761	22.4	2025-05-25
750 Head	750	41.9	0.912	41.9	0.890	22.3	2025-04-29
835 Head	835	41.4	0.923	41.5	0.900	22.4	2025-05-01
1750 Head	1750	41.0	1.38	40.1	1.37	22.3	2025-05-08
1950 Head	1950	40.6	1.42	40.0	1.40	22.3	2025-05-10
2300 Head	2300	39.3	1.69	39.5	1.67	22.3	2025-05-06
2450 Head	2450	38.8	1.85	39.2	1.80	22.4	2025-05-18
2600 Head	2600	38.3	1.94	39.0	1.96	22.3	2025-05-12
3500 Head	3500	38.1	2.96	37.9	2.91	22.3	2025-05-14
3900 Head	3900	37.3	3.36	37.5	3.32	22.4	2025-05-16
5250 Head	5250	36.7	4.68	35.9	4.71	22.3	2025-05-20
5600 Head	5600	35.8	5.07	35.5	5.07	22.2	2025-05-22
5750 Head	5750	35.7	5.26	35.4	5.22	22.2	2025-05-24

Table 3: Measurement result of Tissue electric parameters.

6.2 SAR System Check

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



F-12. the microwave circuit arrangement used for SAR system check



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6.2.1 Justification for Extended SAR Dipole Calibrations

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

- a) There is no physical damage on the dipole;
- b) System check with specific dipole is within 10% of calibrated value;
- c) Return-loss is within 20% of calibrated measurement;
- d) Impedance is within 5Ω from the previous measurement.

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



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6.2.2 Summary System Check Result(s)

Validation Kit	Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	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)		
CLA-13_Head	0.106	0.067	0.424	0.268	0.421	0.266	22.4	2025-05-25
D750V3_Head	2.19	1.50	8.76	6.00	8.54	5.80	22.3	2025-04-29
D835V2_Head	2.43	1.57	9.72	6.28	9.60	6.16	22.4	2025-05-01
D1750V2_Head	9.33	5.01	37.3	20.0	36.3	19.3	22.3	2025-05-08
D1950V3_Head	10.4	5.37	41.6	21.5	40.4	20.8	22.3	2025-05-10
D2300V2_Head	12.2	5.88	48.8	23.52	49.0	23.5	22.3	2025-05-06
D2450V2_Head	12.9	6.03	51.6	24.12	52.7	24.6	22.4	2025-05-18
D2600V2_Head	13.3	6.01	53.2	24.04	55.2	24.7	22.3	2025-05-12
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)	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)		
D3500V2_3.5GHz_Head	6.49	2.47	64.9	24.7	65.8	25.0	22.3	2025-05-14
D3900V2_3.9GHz_Head	6.63	2.31	66.3	23.1	67.6	23.5	22.4	2025-05-16
D5GHzV2_5.25G_Head	7.43	2.11	74.3	21.1	77.2	21.9	22.3	2025-05-20
D5GHzV2_5.6G_Head	7.72	2.16	77.2	21.6	81.1	22.8	22.2	2025-05-22
D5GHzV2_5.75G_Head	7.49	2.08	74.9	20.8	77.8	21.7	22.2	2025-05-24

Table 4: SAR System Check Result.

6.2.3 Detailed System Check Results

Please see the Appendix A

7 Test Configuration

7.1 Operation Configurations

7.1.1 GSM Test Configuration

SAR tests for GSM frequency band, a communication link is set up with a base station by air link. Using Radio Communication Analyzer, the power lever is set to “5” or “0” in SAR of GSM frequency band. The tests in the GSM frequency band are performed in the mode of GPRS/EGPRS function.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power, the higher number time-slot configuration should be tested.

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

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8).

7.1.2 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

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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	β_d	$\beta_d(SF)$	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 1: settings of required H-Set 1 QPSK acc. to 3GPP 34.121

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HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum HS-DSCH Transport Block Bits/HS-DSCH TTI	Total Soft 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 2: 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 ^a	β_c ^a	β_d ^a	β_d (SF) ^a	β_c/β_d ^a	β_{hs} ⁽¹⁾ ^a	β_{acc} ^a	β_{ad} ^a	β_c ^a (SF) ^a	β_{ad} ^a (code) ^a	CM ⁽²⁾ ^a (dB) ^a	MP R ^a (dB) ^a	AG ⁽⁴⁾ Index ^a	E-TFC I ^a
1 ^a	11/15 ⁽³⁾ ^a	15/15 ⁽³⁾ ^a	64 ^a	11/15 ⁽³⁾ ^a	22/15 ^a	209/225 ^a	1039/225 ^a	4 ^a	1 ^a	1.0 ^a	0.0 ^a	20 ^a	75 ^a
2 ^a	6/15 ^a	15/15 ^a	64 ^a	6/15 ^a	12/15 ^a	12/15 ^a	94/75 ^a	4 ^a	1 ^a	3.0 ^a	2.0 ^a	12 ^a	67 ^a
3 ^a	15/15 ^a	9/15 ^a	64 ^a	15/9 ^a	30/15 ^a	30/15 ^a	β_{ad1} : 47/15 ^a β_{ad2} : 47/15 ^a	4 ^a	2 ^a	2.0 ^a	1.0 ^a	15 ^a	92 ^a
4 ^a	2/15 ^a	15/15 ^a	64 ^a	2/15 ^a	4/15 ^a	2/15 ^a	56/75 ^a	4 ^a	1 ^a	3.0 ^a	2.0 ^a	17 ^a	71 ^a
5 ^a	15/15 ⁽⁴⁾ ^a	15/15 ⁽⁴⁾ ^a	64 ^a	15/15 ⁽⁴⁾ ^a	30/15 ^a	24/15 ^a	134/15 ^a	4 ^a	1 ^a	1.0 ^a	0.0 ^a	21 ^a	81 ^a
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, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MP is based on the relative CM difference^a 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 $\beta_d = 15/15$^a 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 $\beta_d = 15/15$^a 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^a Note 6: β_{ad} can not be set directly; it is set by Absolute Grant Value.^a													

Table 3: Subtests for UMTS Release 6 HSUPA

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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 4: HSUPA UE category

c) DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a Second serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0.

A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 5: settings of required H-Set 12 QPSK acc. To 3GPP 34.121

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Note:

1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

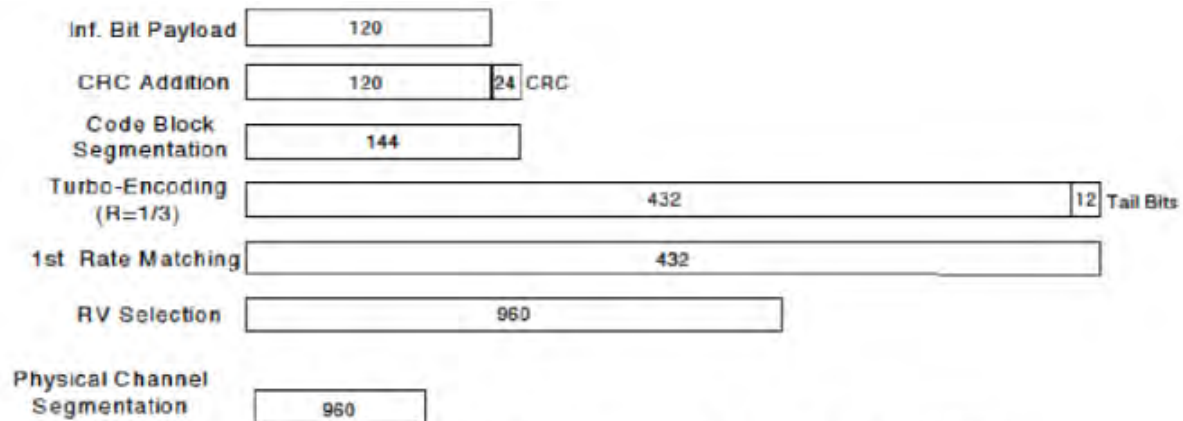


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

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

Note 1: Δ ACK, Δ NACK and Δ CQI=8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ ^o

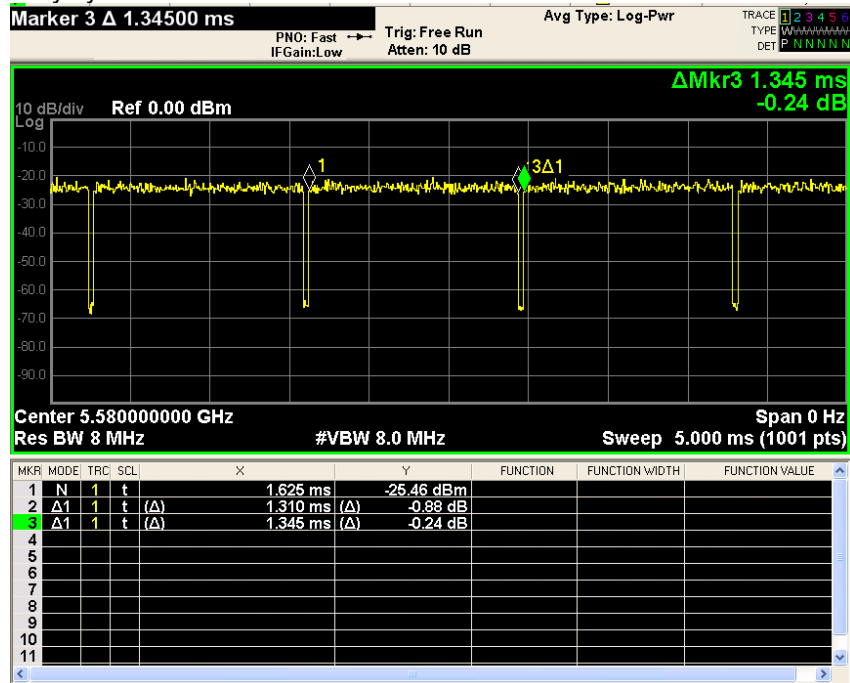
Note 2: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.^o

Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$ ^o

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve Ues configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.





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7.1.4.1 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.

7.1.4.2 Initial Test Configuration Procedures

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the *reported* SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until *reported* SAR is ≤ 1.2 W/kg or all required channels are tested.



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7.1.4.3 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"



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7.1.4.4 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.



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7.1.4.5 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.



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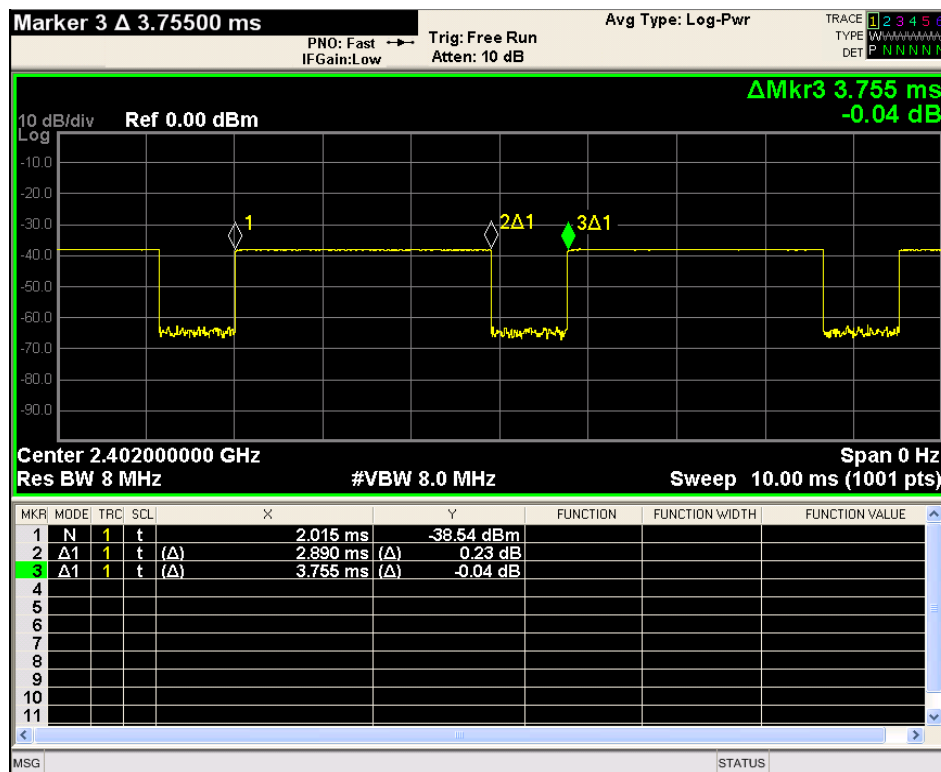
OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

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.



7.1.6 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 Anritsu MT8820C 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:

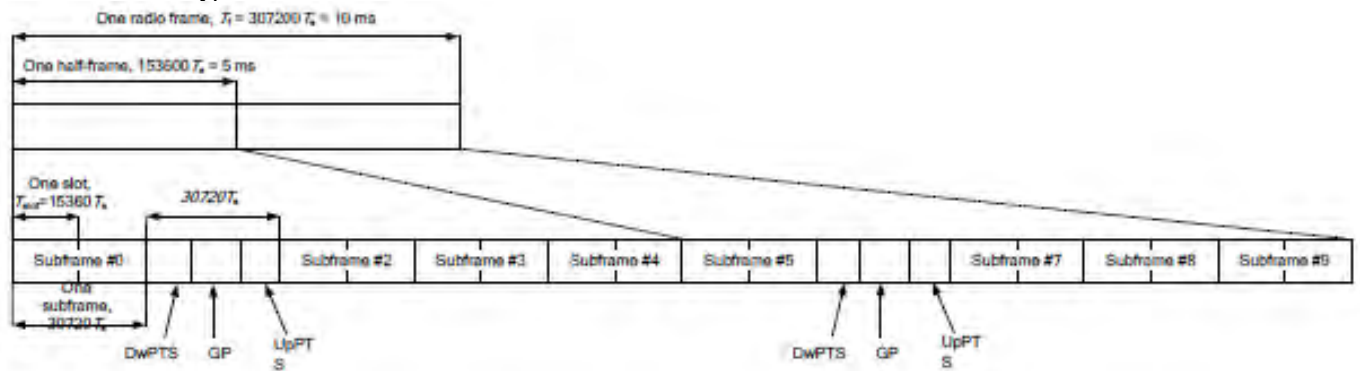


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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.



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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



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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.



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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 possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The conducted power measurement results of downlink and uplink LTE CA are provided in Appendix E (Conducted RF Output Power). The downlink LTE CA SAR 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 is 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.

Intra-band contiguous CA operating bands:

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band			Downlink (DL) operating band			Duplex Mode
		BS receive / UE transmit			BS transmit / UE receive			
		F _{UL_low} – F _{UL_high}			F _{DL_low} – F _{DL_high}			
CA_5B	5	826.5 MHz	–	846.5 MHz	869 MHz	–	894 MHz	FDD
CA_66B	66	1710 MHz	–	1780 MHz	2110 MHz	–	2200MHz	FDD
CA_66C	66	1710 MHz	–	1780 MHz	2110 MHz	–	2200MHz	FDD

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.

1. 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 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 LTE component band as the inter-band Uplink SAR. All Simultaneous Transmission Scenarios will be evaluated independently in the final SAR report.

The Inter band Uplink CA as below table:

Band/ Antenna		LTE B5	LTE B12	LTE B14	LTE B30	LTE B66
		Ant0	Ant0	Ant0	Ant3	Ant3
LTE B2	Ant3	√	√	√		
LTE B4	Ant0		√			
LTE B5	Ant0				√	√
LTE B12	Ant0				√	√
LTE B14	Ant0				√	√



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7.1.7 NR Band Test Configuration

2. NR Band n2/5/30/66/77 support SA and NSA mode. LTE+NR Band operations are possible only with LTE under EN-DC mode and the operations are possible as following table:

Band/ Antenna		n2		n5	n30	n66		n77
		Ant1	Ant3	Ant0	Ant3	Ant1	Ant3	Ant4
LTE B2	Ant1		√		√		√	√
	Ant3			√				
LTE B5	Ant0		√		√		√	√
LTE B12	Ant0		√		√		√	√
LTE B14	Ant0		√		√		√	√
LTE B30	Ant1							√
	Ant3	√		√		√		
LTE B66	Ant1				√		√	√
	Ant3			√				

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

Band			N2	n5	N30	N66	N77
Modulation	DFT-s-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes
	CP-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes
Duty Cycle			100%	100%	100%	100%	100%

Band	SCS	Bandwidth														
		5Mhz	10Mhz	15Mhz	20Mhz	25Mhz	30Mhz	35Mhz	40Mhz	45Mhz	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	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	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	N/A	N/A
N66	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N77	15KHZ	N/A	Yes	Yes	Yes	N/A	N/A	N/A	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A
N77	30KHZ	N/A	Yes	Yes	Yes	N/A	N/A	N/A	Yes	N/A	Yes	Yes	N/A	Yes	Yes	Yes



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4. 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



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5. 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.

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		
CP-OFDM	256 QAM	≤ 4.5		
	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 powerBoosting-pi2BPSK and if the IE powerBoostPi2BPSK is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n41,n78. The reference power of 0 dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n41,n78 with Pi/2 BPSK modulation and if the IE powerBoostPi2BPSK is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n41,n78.

6. 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.

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

- 1) 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.

8. For EN-DC 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 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.

9. 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.

10. EN DC SAR is also required for standalone NR configurations greater than 1.2 W/kg when scaled to the EN DC power level.



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8 Test Result

8.1 Measurement of RF Conducted Power

The detailed conducted power table can refer to Appendix E.

Note:

- 1) . The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
Frame-averaged power = $10 \times \log (\text{Burst-averaged power mW} \times \text{Slot used} / 8)$
- 2) . When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel must be used
- 3) . According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
- 4) . In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs.
- 5) . Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05.
- 6) . Conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A. Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than $\frac{1}{4}$ dB higher than the maximum output power measured when downlink carrier aggregation is inactive, therefore SAR evaluation with downlink carrier aggregation can be excluded.
The possible downlink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The detailed conducted power measurement results of downlink LTE CA are provided in the SAR report per 3GPP TS 36.521-1 V14.4.0. According to KDB 941225 D05A, the downlink only carrier aggregation conditions for this device can be excluded from SAR testing.
The conducted power measurement results of downlink LTE CA Conducted Power are as Appendix E conducted RF output power, so the downlink only carrier aggregation conditions for this device can be excluded from SAR testing.
- 7) . For conducted power of WIFI must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band. For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured. Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
 - 1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
 - 2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.



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8.2 Measurement of SAR Data

Note:

- 1) The maximum reported SAR value is marked in **bold**. Graph results refer to Appendix B
- 2) Per KDB447498 D04, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ 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) Maximum bandwidth does not support at least three non-overlapping channels in certain channel bandwidths. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing.
- 4) 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.
- 5) For Wi-Fi 5G, U-NII-1 (5150–5250 MHz) and U-NII-3 (5725-5850 MHz) bands does support hotspot function.



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8.2.1 SAR Result of WCDMA Band II

Ant 3 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data State3											
Left cheek	RMC	9400/1880	1:1	0.271	0.149	-0.19	15.36	16.50	1.300	0.352	22.3
Left tilted	RMC	9400/1880	1:1	0.322	0.174	0.06	15.36	16.50	1.300	0.419	22.3
Right cheek	RMC	9400/1880	1:1	0.518	0.265	0.16	15.36	16.50	1.300	0.673	22.3
Right tilted	RMC	9400/1880	1:1	0.739	0.310	-0.18	15.36	16.50	1.300	0.961	22.3
Right tilted	RMC	9262/1852.4	1:1	0.704	0.326	0.03	15.32	16.50	1.312	0.924	22.3
Right tilted	RMC	9538/1907.6	1:1	0.863	0.365	-0.07	15.29	16.50	1.321	1.140	22.3
Right tilte-repeated	RMC	9538/1907.6	1:1	0.859	0.362	0.03	15.36	16.50	1.300	1.117	22.3
Body worn Test data(Separate 15mm) State0											
Front side	RMC	9400/1880	1:1	0.505	0.208	0.12	23.08	24.50	1.387	0.700	22.3
Back side	RMC	9400/1880	1:1	0.525	0.225	0.01	23.08	24.50	1.387	0.728	22.3
Hotspot Test data(Separate 10mm) State4											
Front side	RMC	9400/1880	1:1	0.323	0.179	0.16	19.38	20.50	1.294	0.418	22.3
Back side	RMC	9400/1880	1:1	0.409	0.217	-0.15	19.38	20.50	1.294	0.529	22.3
Left side	RMC	9400/1880	1:1	0.053	0.032	0.06	19.38	20.50	1.294	0.069	22.3
Top side	RMC	9400/1880	1:1	0.653	0.324	-0.17	19.38	20.50	1.294	0.845	22.3
Top side	RMC	9262/1852.4	1:1	0.637	0.336	0.08	19.33	20.50	1.309	0.834	22.3
Top side	RMC	9538/1907.6	1:1	0.707	0.347	0.01	19.25	20.50	1.334	0.943	22.3
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 10-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm) State1											
Back side	RMC	9400/1880	1:1	2.950	1.180	-0.07	19.38	20.50	1.294	1.527	22.3
Top side	RMC	9400/1880	1:1	4.370	1.620	0.17	19.38	20.50	1.294	2.097	22.3
Top side	RMC	9262/1852.4	1:1	4.330	1.630	-0.11	19.38	20.50	1.294	2.110	22.3
Top side	RMC	9538/1907.6	1:1	5.060	1.880	0.13	19.38	20.50	1.294	2.433	22.3
Product specific 10g SAR Test data State0											
Back side-13mm	RMC	9400/1880	1:1	0.584	0.217	0.06	23.08	24.50	1.387	0.301	22.3
Top side-14mm	RMC	9400/1880	1:1	1.170	0.648	0.07	23.08	24.50	1.387	0.899	22.3

Table 5: SAR of WCDMA Band II for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	9538/1907.6	0.863	0.859	1.005	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).



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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.



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8.2.2 SAR Result of WCDMA Band IV

Ant 3 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data State3											
Left cheek	RMC	1412/1732.4	1:1	0.528	0.263	-0.11	17.25	18.00	1.189	0.628	22.3
Left tilted	RMC	1412/1732.4	1:1	0.571	0.287	0.15	17.25	18.00	1.189	0.679	22.3
Right cheek	RMC	1412/1732.4	1:1	0.833	0.382	-0.13	17.25	18.00	1.189	0.990	22.3
Right cheek	RMC	1312/1712.4	1:1	0.813	0.373	0.15	17.21	18.00	1.199	0.975	22.3
Right cheek	RMC	1513/1752.6	1:1	0.930	0.430	0.07	17.22	18.00	1.197	1.113	22.3
Right tilted	RMC	1412/1732.4	1:1	0.870	0.394	0.18	17.25	18.00	1.189	1.034	22.3
Right tilted	RMC	1312/1712.4	1:1	0.849	0.387	-0.15	17.21	18.00	1.199	1.018	22.3
Right tilted	RMC	1513/1752.6	1:1	0.973	0.440	-0.11	17.22	18.00	1.197	1.164	22.3
Right tilted-repeated	RMC	1513/1752.6	1:1	0.968	0.432	0.01	17.22	18.00	1.197	1.158	22.3
Body worn Test data(Separate 15mm) State0											
Front side	RMC	1412/1732.4	1:1	0.445	0.265	-0.09	23.17	24.50	1.358	0.604	22.3
Back side	RMC	1412/1732.4	1:1	0.415	0.262	-0.08	23.17	24.50	1.358	0.564	22.3
Hotspot Test data(Separate 10mm) State4											
Front side	RMC	1412/1732.4	1:1	0.667	0.387	-0.13	22.14	23.00	1.219	0.813	22.3
Front side	RMC	1312/1712.4	1:1	0.574	0.314	0.02	22.12	23.00	1.225	0.703	22.3
Front side	RMC	1513/1752.6	1:1	0.685	0.401	0.07	22.08	23.00	1.236	0.847	22.3
Back side	RMC	1412/1732.4	1:1	0.611	0.362	-0.12	22.14	23.00	1.219	0.745	22.3
Left side	RMC	1412/1732.4	1:1	0.212	0.131	0.08	22.14	23.00	1.219	0.258	22.3
Top side	RMC	1412/1732.4	1:1	0.911	0.478	0.06	22.14	23.00	1.219	1.110	22.3
Top side	RMC	1312/1712.4	1:1	0.825	0.439	-0.06	22.12	23.00	1.225	1.010	22.3
Top side	RMC	1513/1752.6	1:1	0.950	0.494	-0.02	22.08	23.00	1.236	1.174	22.3
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm) State1											
Top side	RMC	1412/1732.4	1:1	5.180	2.030	-0.08	22.14	23.00	1.219	2.475	22.3
Top side	RMC	1312/1712.4	1:1	4.870	1.990	-0.07	22.14	23.00	1.219	2.426	22.3
Top side	RMC	1513/1752.6	1:1	5.270	2.070	-0.05	22.14	23.00	1.219	2.523	22.3
Top side-repeated	RMC	1513/1752.6	1:1	5.260	2.040	0.07	22.14	23.00	1.219	2.487	22.3
Product specific 10g SAR Test data State0											
Top side-14mm	RMC	1412/1732.4	1:1	1.210	0.637	0.09	23.17	24.50	1.358	0.865	22.3

Table 6: SAR of WCDMA Band IV for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	1513/1752.6	0.973	0.968	1.005	N/A	N/A
Top side 0mm	1513/1752.6	2.070	2.040	1.015	N/A	N/A

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



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| 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. |



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8.2.3 SAR Result of WCDMA Band V

Ant 0 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data State3											
Left cheek	RMC	4182/836.4	1:1	0.215	0.160	0.17	23.93	24.50	1.140	0.245	22.3
Left tilted	RMC	4182/836.4	1:1	0.107	0.081	0.03	23.93	24.50	1.140	0.122	22.3
Right cheek	RMC	4182/836.4	1:1	0.239	0.179	0.02	23.93	24.50	1.140	0.273	22.3
Right tilted	RMC	4182/836.4	1:1	0.086	0.066	-0.01	23.93	24.50	1.140	0.098	22.3
Body worn Test data(Separate 15mm) State0											
Front side	RMC	4182/836.4	1:1	0.171	0.146	-0.03	23.93	24.50	1.140	0.195	22.3
Back side	RMC	4182/836.4	1:1	0.233	0.174	-0.01	23.93	24.50	1.140	0.266	22.3
Hotspot Test data(Separate 10mm) State4											
Front side	RMC	4182/836.4	1:1	0.252	0.153	0.19	23.93	24.50	1.140	0.287	22.3
Back side	RMC	4182/836.4	1:1	0.348	0.212	-0.03	23.93	24.50	1.140	0.397	22.3
Left side	RMC	4182/836.4	1:1	0.089	0.060	0.17	23.93	24.50	1.140	0.101	22.3
Right side	RMC	4182/836.4	1:1	0.213	0.140	-0.03	23.93	24.50	1.140	0.243	22.3
Bottom side	RMC	4182/836.4	1:1	0.283	0.150	0.02	23.93	24.50	1.140	0.323	22.3

Table 7: SAR of WCDMA Band V for Head, Body and Hotspot.



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8.2.4 SAR Result of LTE Band 2

Ant 3 Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.391	0.184	0.10	15.81	17.00	1.315	0.514	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.472	0.213	-0.12	15.81	17.00	1.315	0.621	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.745	0.315	-0.01	15.81	17.00	1.315	0.980	22.3
Right cheek	20	QPSK 1_0	18700/1860	1:1	0.674	0.279	0.08	15.65	17.00	1.365	0.920	22.3
Right cheek	20	QPSK 1_0	19100/1900	1:1	0.753	0.324	0.09	15.75	17.00	1.334	1.004	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.843	0.351	-0.01	15.81	17.00	1.315	1.109	22.3
Right tilted	20	QPSK 1_0	18700/1860	1:1	0.763	0.311	-0.13	15.65	17.00	1.365	1.041	22.3
Right tilted	20	QPSK 1_0	19100/1900	1:1	0.852	0.361	-0.16	15.75	17.00	1.334	1.136	22.3
Right tilted-repeated	20	QPSK 1_0	19100/1900	1:1	0.849	0.357	0.03	15.75	17.00	1.334	1.132	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.322	0.156	0.04	15.62	17.00	1.374	0.442	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.393	0.188	0.03	15.62	17.00	1.374	0.540	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.685	0.292	0.04	15.62	17.00	1.374	0.941	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.620	0.259	-0.09	15.56	17.00	1.393	0.864	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.692	0.300	-0.12	15.54	17.00	1.400	0.969	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.744	0.304	0.18	15.62	17.00	1.374	1.022	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.673	0.269	-0.12	15.56	17.00	1.393	0.938	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.752	0.313	-0.10	15.54	17.00	1.400	1.052	22.3
Head Test Data (100%RB) State3												
Right cheek	20	QPSK 100_0	18900/1880	1:1	0.632	0.265	-0.08	15.54	17.00	1.400	0.885	22.3
Right tilted	20	QPSK 100_0	18900/1880	1:1	0.738	0.304	0.19	15.54	17.00	1.400	1.033	22.3
Head Test Data (1RB) State3 (UL CA&ENDC)												
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.391	0.184	0.10	15.81	13.50	0.587	0.230	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.472	0.213	-0.12	15.81	13.50	0.587	0.277	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.745	0.315	-0.01	15.81	13.50	0.587	0.438	22.3
Right cheek	20	QPSK 1_0	18700/1860	1:1	0.674	0.279	0.08	15.65	13.50	0.610	0.411	22.3
Right cheek	20	QPSK 1_0	19100/1900	1:1	0.753	0.324	0.09	15.75	13.50	0.596	0.449	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.843	0.351	-0.01	15.81	13.50	0.587	0.495	22.3
Right tilted	20	QPSK 1_0	18700/1860	1:1	0.763	0.311	-0.13	15.65	13.50	0.610	0.465	22.3
Right tilted	20	QPSK 1_0	19100/1900	1:1	0.852	0.361	-0.16	15.75	13.50	0.596	0.508	22.3
Right tilted-repeated	20	QPSK 1_0	19100/1900	1:1	0.849	0.357	0.03	15.75	13.50	0.596	0.506	22.3
Head Test Data (50%RB) State3(UL CA&ENDC)												
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.322	0.156	0.04	15.62	13.50	0.614	0.198	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.393	0.188	0.03	15.62	13.50	0.614	0.241	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.685	0.292	0.04	15.62	13.50	0.614	0.420	22.3



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Right cheek	20	QPSK 50_0	18900/1880	1:1	0.620	0.259	-0.09	15.56	13.50	0.622	0.386	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.692	0.300	-0.12	15.54	13.50	0.625	0.433	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.744	0.304	0.18	15.62	13.50	0.614	0.457	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.673	0.269	-0.12	15.56	13.50	0.622	0.419	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.752	0.313	-0.10	15.54	13.50	0.625	0.470	22.3
Head Test Data (100%RB) State3(UL CA&ENDC)												
Right cheek	20	QPSK 100_0	18900/1880	1:1	0.632	0.265	-0.08	15.54	13.50	0.625	0.395	22.3
Right tilted	20	QPSK 100_0	18900/1880	1:1	0.738	0.304	0.19	15.54	13.50	0.625	0.461	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_0	18900/1880	1:1	0.445	0.254	0.10	23.58	25.00	1.387	0.617	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.529	0.301	-0.08	23.58	25.00	1.387	0.734	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_0	18900/1880	1:1	0.365	0.212	-0.08	22.21	24.00	1.510	0.551	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.427	0.244	0.08	22.21	24.00	1.510	0.645	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_0	18900/1880	1:1	0.368	0.188	-0.08	20.68	22.00	1.355	0.499	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.430	0.209	0.13	20.68	22.00	1.355	0.583	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.063	0.035	-0.07	20.68	22.00	1.355	0.085	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	0.603	0.279	-0.05	20.68	22.00	1.355	0.817	22.3
Top side	20	QPSK 1_0	18700/1860	1:1	0.579	0.258	-0.08	20.64	22.00	1.368	0.792	22.3
Top side	20	QPSK 1_0	19100/1900	1:1	0.822	0.404	-0.06	20.59	22.00	1.384	1.137	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_0	18900/1880	1:1	0.398	0.193	-0.19	20.53	22.00	1.403	0.558	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.413	0.210	0.00	20.53	22.00	1.403	0.579	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.064	0.037	-0.05	20.53	22.00	1.403	0.090	22.3
Top side	20	QPSK 50_0	18900/1880	1:1	0.584	0.276	0.03	20.53	22.00	1.403	0.819	22.3
Top side	20	QPSK 50_0	18700/1860	1:1	0.532	0.243	0.06	20.43	22.00	1.435	0.764	22.3
Top side	20	QPSK 50_0	19100/1900	1:1	0.577	0.261	-0.06	20.47	22.00	1.422	0.821	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Top side	20	QPSK 100_0	18900/1880	1:1	0.611	0.279	-0.13	20.41	22.00	1.442	0.881	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (UL CA&ENDC)												
Front side	20	QPSK 1_0	18900/1880	1:1	0.368	0.188	-0.08	20.68	19.00	0.679	0.250	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.430	0.209	0.13	20.68	19.00	0.679	0.292	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.063	0.035	-0.07	20.68	19.00	0.679	0.043	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	0.603	0.279	-0.05	20.68	19.00	0.679	0.410	22.3
Top side	20	QPSK 1_0	18700/1860	1:1	0.579	0.258	-0.08	20.64	19.00	0.685	0.397	22.3
Top side	20	QPSK 1_0	19100/1900	1:1	0.822	0.404	-0.06	20.59	19.00	0.693	0.570	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (UL CA&ENDC)												
Front side	20	QPSK 50_0	18900/1880	1:1	0.398	0.193	-0.19	20.53	19.00	0.703	0.280	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.413	0.210	0.00	20.53	19.00	0.703	0.290	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.064	0.037	-0.05	20.53	19.00	0.703	0.045	22.3

Top side	20	QPSK 50_0	18900/1880	1:1	0.584	0.276	0.03	20.53	19.00	0.703	0.411	22.3
Top side	20	QPSK 50_0	18700/1860	1:1	0.532	0.243	0.06	20.43	19.00	0.719	0.383	22.3
Top side	20	QPSK 50_0	19100/1900	1:1	0.577	0.261	-0.06	20.47	19.00	0.713	0.411	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (UL CA&ENDC)												
Top side	20	QPSK 100_0	18900/1880	1:1	0.611	0.279	-0.13	20.41	19.00	0.723	0.442	22.3
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Top side	20	QPSK 1_0	18900/1880	1:1	5.250	2.060	-0.19	20.68	22.00	1.355	2.792	22.3
Top side	20	QPSK 1_0	18700/1860	1:1	3.890	1.980	0.17	20.64	22.00	1.368	2.708	22.3
Top side	20	QPSK 1_0	19100/1900	1:1	5.750	2.150	-0.06	20.59	22.00	1.384	2.975	22.3
Top side-repeated	20	QPSK 1_0	19100/1900	1:1	5.710	2.110	0.02	20.59	22.00	1.384	2.919	22.3
Product specific 10g SAR Test data (Separate 0mm 50RB) State1												
Top side	20	QPSK 50_0	18900/1880	1:1	5.200	1.970	-0.13	20.53	22.00	1.403	2.764	22.3
Top side	20	QPSK 50_0	18700/1860	1:1	5.110	1.750	0.13	20.43	22.00	1.435	2.512	22.3
Top side	20	QPSK 50_0	19100/1900	1:1	5.720	2.090	0.14	20.47	22.00	1.422	2.973	22.3
Product specific 10g SAR Test data (Separate 0mm 50RB) State1												
Top side	20	QPSK 100_0	18900/1880	1:1	5.080	1.930	-0.12	20.41	22.00	1.442	2.783	22.3
Product specific 10g SAR Test data State0												
Top side-14mm	20	QPSK 1_0	18900/1880	1:1	1.270	0.743	0.02	23.58	25.00	1.387	1.030	22.3
Ant 1 Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.263	0.151	-0.01	23.72	25.00	1.343	0.353	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.129	0.077	0.02	23.72	25.00	1.343	0.173	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.169	0.102	0.04	23.72	25.00	1.343	0.227	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.099	0.060	0.18	23.72	25.00	1.343	0.133	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.202	0.117	-0.09	22.55	24.00	1.396	0.282	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.100	0.060	-0.03	22.55	24.00	1.396	0.140	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.108	0.065	0.18	22.55	24.00	1.396	0.151	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.076	0.046	0.13	22.55	24.00	1.396	0.106	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_0	18900/1880	1:1	0.193	0.125	-0.13	23.72	25.00	1.343	0.259	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.244	0.152	0.03	23.72	25.00	1.343	0.328	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_0	18900/1880	1:1	0.161	0.102	0.16	22.55	24.00	1.396	0.225	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.209	0.126	-0.01	22.55	24.00	1.396	0.292	22.3
Hotspot Test data (Separate 10mm 1RB) State4												



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Front side	20	QPSK 1_0	18900/1880	1:1	0.342	0.214	-0.17	23.72	25.00	1.343	0.459	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.484	0.290	-0.05	23.72	25.00	1.343	0.650	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.277	0.162	-0.02	23.72	25.00	1.343	0.372	22.3
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.419	0.240	-0.14	23.72	25.00	1.343	0.563	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_0	18900/1880	1:1	0.281	0.174	-0.03	22.55	24.00	1.396	0.392	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.397	0.236	0.12	22.55	24.00	1.396	0.554	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.236	0.140	0.04	22.55	24.00	1.396	0.330	22.3
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.358	0.205	0.04	22.55	24.00	1.396	0.500	22.3

Table 8: SAR of LTE Band 2 for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	19100/1900	0.852	0.849	1.004	N/A	N/A
Top side 0mm	19100/1900	2.150	2.110	1.019	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.



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8.2.5 SAR Result of LTE Band 5

Ant 0 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.220	0.174	-0.18	24.26	25.00	1.186	0.261	22.3
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.124	0.095	0.18	24.26	25.00	1.186	0.147	22.3
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.233	0.174	0.05	24.26	25.00	1.186	0.276	22.3
Right cheek-UL CA_5B	10	QPSK 1_0	20501/834.1	1:1	0.224	0.171	-0.12	24.23	25.00	1.194	0.267	22.3
		QPSK 1_49	20600/844	1:1								
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.130	0.099	-0.13	24.26	25.00	1.186	0.154	22.3
Head Test Data (50%RB) DSI												
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.188	0.140	-0.15	22.85	24.00	1.303	0.245	22.3
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.095	0.072	-0.01	22.85	24.00	1.303	0.124	22.3
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.192	0.144	0.17	22.85	24.00	1.303	0.250	22.3
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.104	0.078	-0.18	22.85	24.00	1.303	0.136	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.165	0.147	-0.09	24.26	25.00	1.186	0.196	22.3
Back side	10	QPSK 1_0	20525/836.5	1:1	0.222	0.165	-0.03	24.26	25.00	1.186	0.263	22.3
Back side-UL CA_5B	10	QPSK 1_0	20501/834.1	1:1	0.214	0.155	0.09	24.23	25.00	1.194	0.256	22.3
	10	QPSK 1_49	20600/844	1:1								
Body worn Test data (Separate 15mm 50%RB) DSI												
Front side	10	QPSK 25_0	20525/836.5	1:1	0.130	0.097	0.15	22.85	24.00	1.303	0.169	22.3
Back side	10	QPSK 25_0	20525/836.5	1:1	0.181	0.132	0.02	22.85	24.00	1.303	0.236	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.271	0.165	-0.03	24.26	25.00	1.186	0.321	22.3
Back side	10	QPSK 1_0	20525/836.5	1:1	0.383	0.233	-0.01	24.26	25.00	1.186	0.454	22.3
Back side	10	QPSK 1_0	20501/834.1	1:1	0.372	0.261	0.03	24.23	25.00	1.194	0.444	22.3
		QPSK 1_49	20600/844	1:1								
Left side	10	QPSK 1_0	20525/836.5	1:1	0.138	0.067	-0.14	24.26	25.00	1.186	0.164	22.3
Right side	10	QPSK 1_0	20525/836.5	1:1	0.231	0.152	0.09	24.26	25.00	1.186	0.274	22.3
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.337	0.180	0.11	24.26	25.00	1.186	0.400	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	10	QPSK 25_0	20525/836.5	1:1	0.228	0.137	0.03	22.85	24.00	1.303	0.297	22.3
Back side-UL CA_5B	10	QPSK 25_0	20525/836.5	1:1	0.306	0.186	0.12	22.85	24.00	1.303	0.399	22.3
Left side	10	QPSK 25_0	20525/836.5	1:1	0.111	0.056	-0.17	22.85	24.00	1.303	0.145	22.3
Right side	10	QPSK 25_0	20525/836.5	1:1	0.190	0.123	-0.14	22.85	24.00	1.303	0.248	22.3
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.282	0.151	-0.10	22.85	24.00	1.303	0.367	22.3

Table 9: SAR of LTE Band 5 for Head, Body and Hotspot.



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8.2.6 SAR Result of LTE Band 7

Ant 3 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.167	0.072	0.14	21.65	23.00	1.365	0.228	22.3
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.225	0.095	-0.16	21.65	23.00	1.365	0.307	22.3
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.534	0.229	-0.13	21.65	23.00	1.365	0.729	22.3
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.634	0.259	0.03	21.65	23.00	1.365	0.865	22.3
Right tilted	20	QPSK 1_0	20850/2510	1:1	0.613	0.248	-0.02	21.65	23.00	1.365	0.836	22.3
Right tilted	20	QPSK 1_0	21350/2560	1:1	0.475	0.214	0.06	21.65	23.00	1.365	0.648	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.173	0.072	0.13	21.61	23.00	1.377	0.238	22.3
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.219	0.095	0.03	21.61	23.00	1.377	0.302	22.3
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.506	0.222	-0.16	21.61	23.00	1.377	0.697	22.3
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.621	0.253	-0.16	21.61	23.00	1.377	0.855	22.3
Head Test Data (50%RB) State3												
Right tilted	20	QPSK 100_0	21100/2535	1:1	0.622	0.248	0.13	21.61	23.00	1.377	0.857	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_0	21100/2535	1:1	0.074	0.041	0.13	23.52	25.00	1.406	0.104	22.3
Back side	20	QPSK 1_0	21100/2535	1:1	0.134	0.066	-0.04	23.52	25.00	1.406	0.188	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_0	21100/2535	1:1	0.058	0.031	0.09	22.51	24.00	1.409	0.082	22.3
Back side	20	QPSK 50_0	21100/2535	1:1	0.109	0.053	-0.07	22.51	24.00	1.409	0.154	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_0	21100/2535	1:1	0.175	0.091	-0.06	23.52	25.00	1.406	0.246	22.3
Back side	20	QPSK 1_0	21100/2535	1:1	0.365	0.171	-0.17	23.52	25.00	1.406	0.513	22.3
Left side	20	QPSK 1_0	21100/2535	1:1	0.171	0.092	-0.09	23.52	25.00	1.406	0.240	22.3
Top side	20	QPSK 1_0	21100/2535	1:1	0.367	0.160	-0.16	23.52	25.00	1.406	0.516	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_0	21100/2535	1:1	0.140	0.069	-0.12	22.51	24.00	1.409	0.197	22.3
Back side	20	QPSK 50_0	21100/2535	1:1	0.274	0.130	0.17	22.51	24.00	1.409	0.386	22.3
Left side	20	QPSK 50_0	21100/2535	1:1	0.141	0.076	0.03	22.51	24.00	1.409	0.199	22.3
Top side	20	QPSK 50_0	21100/2535	1:1	0.292	0.127	-0.18	22.51	24.00	1.409	0.412	22.3

Table 10: SAR of LTE Band 7 for Head, Body and Hotspot.



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8.2.7 SAR Result of LTE Band 12

Ant 0 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	10	QPSK 1_0	23095/707.5	1:1	0.178	0.137	0.15	24.11	25.00	1.227	0.218	22.3
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.099	0.077	-0.09	24.11	25.00	1.227	0.122	22.3
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.189	0.145	0.03	24.11	25.00	1.227	0.232	22.3
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.120	0.092	0.17	24.11	25.00	1.227	0.147	22.3
Head Test Data (50%RB) State3												
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.139	0.106	-0.12	23.02	24.00	1.253	0.174	22.3
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.081	0.064	-0.10	23.02	24.00	1.253	0.102	22.3
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.144	0.112	-0.01	23.02	24.00	1.253	0.180	22.3
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.098	0.075	0.00	23.02	24.00	1.253	0.123	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.223	0.170	-0.08	24.11	25.00	1.227	0.274	22.3
Back side	10	QPSK 1_0	23095/707.5	1:1	0.297	0.223	-0.14	24.11	25.00	1.227	0.365	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.182	0.136	0.12	23.02	24.00	1.253	0.228	22.3
Back side	10	QPSK 25_0	23095/707.5	1:1	0.242	0.181	-0.11	23.02	24.00	1.253	0.303	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.205	0.126	-0.19	24.11	25.00	1.227	0.252	22.3
Back side	10	QPSK 1_0	23095/707.5	1:1	0.280	0.204	0.10	24.11	25.00	1.227	0.344	22.3
Left side	10	QPSK 1_0	23095/707.5	1:1	0.129	0.075	-0.10	24.11	25.00	1.227	0.158	22.3
Right side	10	QPSK 1_0	23095/707.5	1:1	0.349	0.242	0.07	24.11	25.00	1.227	0.428	22.3
Bottom side	10	QPSK 1_0	23095/707.5	1:1	0.268	0.145	0.09	24.11	25.00	1.227	0.329	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.174	0.104	0.03	23.02	24.00	1.253	0.218	22.3
Back side	10	QPSK 25_0	23095/707.5	1:1	0.228	0.166	0.19	23.02	24.00	1.253	0.286	22.3
Left side	10	QPSK 25_0	23095/707.5	1:1	0.102	0.064	0.17	23.02	24.00	1.253	0.128	22.3
Right side	10	QPSK 25_0	23095/707.5	1:1	0.267	0.179	0.03	23.02	24.00	1.253	0.335	22.3
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.203	0.110	0.02	23.02	24.00	1.253	0.254	22.3

Table 11: SAR of LTE Band 12 for Head, Body and Hotspot is covering LTE Band 17.



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8.2.8 SAR Result of LTE Band 14

Ant 0 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) DSI												
Left cheek	10	QPSK 1_0	23330/793	1:1	0.167	0.120	0.01	24.15	25.00	1.216	0.203	22.3
Left tilted	10	QPSK 1_0	23330/793	1:1	0.104	0.079	0.19	24.15	25.00	1.216	0.126	22.3
Right cheek	10	QPSK 1_0	23330/793	1:1	0.170	0.129	0.06	24.15	25.00	1.216	0.207	22.3
Right tilted	10	QPSK 1_0	23330/793	1:1	0.106	0.082	0.00	24.15	25.00	1.216	0.129	22.3
Head Test Data (50%RB) DSI												
Left cheek	10	QPSK 25_0	23330/793	1:1	0.161	0.121	0.13	23.02	24.00	1.253	0.202	22.3
Left tilted	10	QPSK 25_0	23330/793	1:1	0.087	0.067	0.10	23.02	24.00	1.253	0.109	22.3
Right cheek	10	QPSK 25_0	23330/793	1:1	0.163	0.128	0.06	23.02	24.00	1.253	0.204	22.3
Right tilted	10	QPSK 25_0	23330/793	1:1	0.094	0.071	-0.17	23.02	24.00	1.253	0.118	22.3
Body worn Test data (Separate 15mm 1RB) DSI												
Front side	10	QPSK 1_0	23330/793	1:1	0.159	0.119	0.19	24.15	25.00	1.216	0.193	22.3
Back side	10	QPSK 1_0	23330/793	1:1	0.201	0.150	0.03	24.15	25.00	1.216	0.244	22.3
Body worn Test data (Separate 15mm 50%RB) DSI												
Front side	10	QPSK 25_0	23330/793	1:1	0.135	0.099	-0.11	23.02	24.00	1.253	0.169	22.3
Back side	10	QPSK 25_0	23330/793	1:1	0.165	0.124	-0.18	23.02	24.00	1.253	0.207	22.3
Hotspot Test data (Separate 10mm 1RB) DSI												
Front side	10	QPSK 1_0	23330/793	1:1	0.183	0.110	0.09	24.15	25.00	1.216	0.223	22.3
Back side	10	QPSK 1_0	23330/793	1:1	0.249	0.148	0.18	24.15	25.00	1.216	0.303	22.3
Left side	10	QPSK 1_0	23330/793	1:1	0.107	0.058	0.09	24.15	25.00	1.216	0.130	22.3
Right side	10	QPSK 1_0	23330/793	1:1	0.210	0.137	-0.04	24.15	25.00	1.216	0.255	22.3
Bottom side	10	QPSK 1_0	23330/793	1:1	0.256	0.139	-0.02	24.15	25.00	1.216	0.311	22.3
Hotspot Test data (Separate 10mm 50%RB) DSI												
Front side	10	QPSK 25_0	23330/793	1:1	0.147	0.087	0.14	23.02	24.00	1.253	0.184	22.3
Back side	10	QPSK 25_0	23330/793	1:1	0.201	0.117	0.05	23.02	24.00	1.253	0.252	22.3
Left side	10	QPSK 25_0	23330/793	1:1	0.069	0.045	0.11	23.02	24.00	1.253	0.086	22.3
Right side	10	QPSK 25_0	23330/793	1:1	0.172	0.111	0.03	23.02	24.00	1.253	0.216	22.3
Bottom side	10	QPSK 25_0	23330/793	1:1	0.208	0.112	0.06	23.02	24.00	1.253	0.261	22.3

Table 12: SAR of LTE Band 14 for Head, Body and Hotspot.

Ant 3 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	10	QPSK 1_0	27710/2310	1:1	0.271	0.113	-0.06	16.97	17.50	1.130	0.306	22.3
Left tilted	10	QPSK 1_0	27710/2310	1:1	0.469	0.190	-0.05	16.97	17.50	1.130	0.530	22.3
Right cheek	10	QPSK 1_0	27710/2310	1:1	0.886	0.341	0.14	16.97	17.50	1.130	1.001	22.3
Right tilted	10	QPSK 1_0	27710/2310	1:1	0.991	0.402	0.07	16.97	17.50	1.130	1.120	22.3
Right tilted-repeated	10	QPSK 1_0	27710/2310	1:1	0.987	0.394	0.02	16.97	17.50	1.130	1.115	22.3
Head Test Data (50%RB) State3												
Left cheek	10	QPSK 25_0	27710/2310	1:1	0.240	0.101	0.07	16.82	17.50	1.169	0.281	22.3
Left tilted	10	QPSK 25_0	27710/2310	1:1	0.416	0.170	-0.12	16.82	17.50	1.169	0.487	22.3
Right cheek	10	QPSK 25_0	27710/2310	1:1	0.784	0.302	-0.06	16.82	17.50	1.169	0.917	22.3
Right tilted	10	QPSK 25_0	27710/2310	1:1	0.840	0.345	-0.17	16.82	17.50	1.169	0.982	22.3
Head Test Data (100%RB) State3												
Right cheek	10	QPSK 50_0	27710/2310	1:1	0.715	0.266	-0.12	16.75	17.50	1.189	0.850	22.3
Right tilted	10	QPSK 50_0	27710/2310	1:1	0.777	0.294	0.04	16.75	17.50	1.189	0.923	22.3
Head Test Data (1RB) State3(UL CA&ENDC)												
Left cheek	10	QPSK 1_0	27710/2310	1:1	0.271	0.113	-0.06	16.97	14.50	0.566	0.153	22.3
Left tilted	10	QPSK 1_0	27710/2310	1:1	0.469	0.190	-0.05	16.97	14.50	0.566	0.266	22.3
Right cheek	10	QPSK 1_0	27710/2310	1:1	0.886	0.341	0.14	16.97	14.50	0.566	0.502	22.3
Right tilted	10	QPSK 1_0	27710/2310	1:1	0.991	0.402	0.07	16.97	14.50	0.566	0.561	22.3
Right tilted-repeated	10	QPSK 1_0	27710/2310	1:1	0.987	0.394	0.02	16.97	14.50	0.566	0.559	22.3
Head Test Data (50%RB) State3(UL CA&ENDC)												
Left cheek	10	QPSK 25_0	27710/2310	1:1	0.240	0.101	0.07	16.82	14.50	0.586	0.141	22.3
Left tilted	10	QPSK 25_0	27710/2310	1:1	0.416	0.170	-0.12	16.82	14.50	0.586	0.244	22.3
Right cheek	10	QPSK 25_0	27710/2310	1:1	0.784	0.302	-0.06	16.82	14.50	0.586	0.460	22.3
Right tilted	10	QPSK 25_0	27710/2310	1:1	0.840	0.345	-0.17	16.82	14.50	0.586	0.492	22.3
Head Test Data (100%RB) State3(UL CA&ENDC)												
Right cheek	10	QPSK 50_0	27710/2310	1:1	0.715	0.266	-0.12	16.75	14.50	0.596	0.426	22.3
Right tilted	10	QPSK 50_0	27710/2310	1:1	0.777	0.294	0.04	16.75	14.50	0.596	0.463	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	10	QPSK 1_0	27710/2310	1:1	0.369	0.206	0.18	23.83	24.50	1.167	0.431	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.760	0.383	-0.07	23.83	24.50	1.167	0.887	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	10	QPSK 25_0	27710/2310	1:1	0.302	0.171	0.03	22.68	23.50	1.208	0.365	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.610	0.319	0.15	22.68	23.50	1.208	0.737	22.3
Body worn Test data (Separate 15mm 100%RB) State0												
Back side	10	QPSK 50_0	27710/2310	1:1	0.582	0.308	-0.09	22.47	23.50	1.268	0.738	22.3
Body worn Test data (Separate 15mm 1RB) State0 (UL CA&ENDC)												



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Front side	10	QPSK 1_0	27710/2310	1:1	0.369	0.206	0.18	23.83	20.00	0.414	0.153	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.760	0.383	-0.07	23.83	20.00	0.414	0.315	22.3
Body worn Test data (Separate 15mm 50%RB) State0 (UL CA&ENDC)												
Front side	10	QPSK 25_0	27710/2310	1:1	0.302	0.171	0.03	22.68	20.00	0.540	0.163	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.610	0.319	0.15	22.68	20.00	0.540	0.329	22.3
Body worn Test data (Separate 15mm 100%RB) State0 (UL CA&ENDC)												
Back side	10	QPSK 50_0	27710/2310	1:1	0.582	0.308	-0.09	22.47	20.00	0.566	0.330	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	10	QPSK 1_0	27710/2310	1:1	0.340	0.155	0.19	19.79	20.50	1.178	0.400	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.771	0.303	-0.11	19.79	20.50	1.178	0.908	22.3
Left side	10	QPSK 1_0	27710/2310	1:1	0.122	0.064	0.06	19.79	20.50	1.178	0.144	22.3
Top side	10	QPSK 1_0	27710/2310	1:1	0.903	0.403	-0.02	19.79	20.50	1.178	1.063	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	10	QPSK 25_0	27710/2310	1:1	0.266	0.118	-0.01	19.65	20.50	1.216	0.324	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.588	0.235	0.17	19.65	20.50	1.216	0.715	22.3
Left side	10	QPSK 25_0	27710/2310	1:1	0.114	0.060	0.02	19.65	20.50	1.216	0.139	22.3
Top side	10	QPSK 25_0	27710/2310	1:1	0.756	0.303	-0.16	19.65	20.50	1.216	0.919	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Back side	10	QPSK 50_0	27710/2310	1:1	0.576	0.229	0.08	19.59	20.50	1.233	0.710	22.3
Top side	10	QPSK 50_0	27710/2310	1:1	0.713	0.291	0.14	19.59	20.50	1.233	0.879	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (UL CA&ENDC)												
Front side	10	QPSK 1_0	27710/2310	1:1	0.340	0.155	0.19	19.79	17.50	0.590	0.201	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.771	0.303	-0.11	19.79	17.50	0.590	0.455	22.3
Left side	10	QPSK 1_0	27710/2310	1:1	0.122	0.064	0.06	19.79	17.50	0.590	0.072	22.3
Top side	10	QPSK 1_0	27710/2310	1:1	0.903	0.403	-0.02	19.79	17.50	0.590	0.533	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (UL CA&ENDC)												
Front side	10	QPSK 25_0	27710/2310	1:1	0.266	0.118	-0.01	19.65	17.50	0.610	0.162	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.588	0.235	0.17	19.65	17.50	0.610	0.358	22.3
Left side	10	QPSK 25_0	27710/2310	1:1	0.114	0.060	0.02	19.65	17.50	0.610	0.069	22.3
Top side	10	QPSK 25_0	27710/2310	1:1	0.756	0.303	-0.16	19.65	17.50	0.610	0.461	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (UL CA&ENDC)												
Back side	10	QPSK 50_0	27710/2310	1:1	0.576	0.229	0.08	19.59	17.50	0.618	0.356	22.3
Top side	10	QPSK 50_0	27710/2310	1:1	0.713	0.291	0.14	19.59	17.50	0.618	0.441	22.3
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Back side	20	QPSK 1_0	27710/2310	1:1	5.320	1.870	0.03	21.28	22.00	1.180	2.207	22.3
Top side	20	QPSK 1_0	27710/2310	1:1	5.610	2.000	-0.08	21.28	22.00	1.180	2.361	22.3
Top side-repeated	20	QPSK 1_0	27710/2310	1:1	5.580	1.960	0.02	21.28	22.00	1.180	2.313	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Back side	20	QPSK 25_0	27710/2310	1:1	4.640	1.720	-0.01	21.14	22.00	1.219	2.097	22.3



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Top side	20	QPSK 25_0	27710/2310	1:1	4.990	1.920	0.17	21.14	22.00	1.219	2.340	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Back side	20	QPSK 50_0	27710/2310	1:1	4.690	1.670	0.09	20.90	22.00	1.288	2.151	22.3
Top side	20	QPSK 50_0	27710/2310	1:1	5.030	1.810	-0.02	20.90	22.00	1.288	2.332	22.3
Product specific 10g SAR Test data (Separate 0mm 1RB) State1 (ENDC)												
Back side	20	QPSK 1_0	27710/2310	1:1	5.320	1.870	0.03	21.28	20.00	0.745	1.393	22.3
Top side	20	QPSK 1_0	27710/2310	1:1	5.610	2.000	-0.08	21.28	20.00	0.745	1.489	22.3
Top side-repeated	20	QPSK 1_0	27710/2310	1:1	5.580	1.960	0.02	21.28	20.00	0.745	1.460	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1 (ENDC)												
Back side	20	QPSK 25_0	27710/2310	1:1	4.640	1.720	-0.01	21.14	20.00	0.769	1.323	22.3
Top side	20	QPSK 25_0	27710/2310	1:1	4.990	1.920	0.17	21.14	20.00	0.769	1.477	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1 (ENDC)												
Back side	20	QPSK 50_0	27710/2310	1:1	4.690	1.670	0.09	20.90	20.00	0.813	1.357	22.3
Top side	20	QPSK 50_0	27710/2310	1:1	5.030	1.810	-0.02	20.90	20.00	0.813	1.471	22.3
Product specific 10g SAR Test data State0												
Back side-13mm	20	QPSK 1_0	27710/2310	1:1	0.841	0.422	0.07	23.83	24.50	1.167	0.492	22.3
Top side-15mm	20	QPSK 1_0	27710/2310	1:1	1.140	0.568	0.09	23.83	24.50	1.167	0.663	22.3
Ant 1 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	10	QPSK 1_0	27710/2310	1:1	0.335	0.289	-0.14	23.19	24.50	1.352	0.453	22.3
Left tilted	10	QPSK 1_0	27710/2310	1:1	0.133	0.156	-0.04	23.19	24.50	1.352	0.180	22.3
Right cheek	10	QPSK 1_0	27710/2310	1:1	0.220	0.191	0.16	23.19	24.50	1.352	0.297	22.3
Right tilted	10	QPSK 1_0	27710/2310	1:1	0.191	0.156	0.03	23.19	24.50	1.352	0.258	22.3
Head Test Data (50%RB) State3												
Left cheek	10	QPSK 25_0	27710/2310	1:1	0.267	0.139	-0.16	22.07	23.50	1.390	0.371	22.3
Left tilted	10	QPSK 25_0	27710/2310	1:1	0.218	0.072	0.09	22.07	23.50	1.390	0.303	22.3
Right cheek	10	QPSK 25_0	27710/2310	1:1	0.203	0.081	-0.07	22.07	23.50	1.390	0.282	22.3
Right tilted	10	QPSK 25_0	27710/2310	1:1	0.176	0.131	0.02	22.07	23.50	1.390	0.245	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	10	QPSK 1_0	27710/2310	1:1	0.255	0.150	-0.06	23.19	24.50	1.352	0.345	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.315	0.171	-0.15	23.19	24.50	1.352	0.426	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	10	QPSK 25_0	27710/2310	1:1	0.214	0.125	-0.16	22.07	23.50	1.390	0.297	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.259	0.135	-0.01	22.07	23.50	1.390	0.360	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	10	QPSK 1_0	27710/2310	1:1	0.463	0.257	-0.03	23.19	24.50	1.352	0.626	22.3
Back side	10	QPSK 1_0	27710/2310	1:1	0.680	0.349	0.11	23.19	24.50	1.352	0.919	22.3
Left side	10	QPSK 1_0	27710/2310	1:1	0.425	0.215	0.13	23.19	24.50	1.352	0.575	22.3
Bottom side	10	QPSK 1_0	27710/2310	1:1	0.532	0.288	0.08	23.19	24.50	1.352	0.719	22.3



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Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	10	QPSK 25_0	27710/2310	1:1	0.360	0.196	0.08	22.07	23.50	1.390	0.500	22.3
Back side	10	QPSK 25_0	27710/2310	1:1	0.519	0.264	-0.18	22.07	23.50	1.390	0.721	22.3
Left side	10	QPSK 25_0	27710/2310	1:1	0.374	0.187	-0.10	22.07	23.50	1.390	0.520	22.3
Bottom side	10	QPSK 25_0	27710/2310	1:1	0.415	0.223	-0.07	22.07	23.50	1.390	0.577	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Back side	10	QPSK 50_0	27710/2310	1:1	0.245	0.127	0.11	22.06	23.50	1.393	0.341	22.3

Table 13: SAR of LTE Band 30 for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	27710/2310	0.991	0.987	1.004	N/A	N/A
Top side 0mm	27710/2310	2.000	1.960	1.020	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.



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8.2.10 SAR Result of LTE Band 66

Ant 3 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.403	0.212	0.14	16.40	17.50	1.288	0.519	22.3
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.447	0.233	0.19	16.40	17.50	1.288	0.576	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.697	0.313	-0.17	16.40	17.50	1.288	0.898	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.619	0.295	0.09	16.35	17.50	1.303	0.807	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.758	0.342	-0.12	16.25	17.50	1.334	1.011	22.3
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.726	0.325	-0.04	16.40	17.50	1.288	0.935	22.3
Right tilted	20	QPSK 1_0	132072/1720	1:1	0.645	0.306	0.12	16.35	17.50	1.303	0.841	22.3
Right tilted	20	QPSK 1_0	132572/1770	1:1	0.790	0.355	-0.16	16.25	17.50	1.334	1.053	22.3
Right tilted -UL CA_66B	15	QPSK 1_0	132572/1770	1:1	0.772	0.326	-0.07	16.09	17.50	1.384	1.068	22.3
	5	QPSK 1_99	132479/1760.7									
Right tilted-UL CA_66C	20	QPSK 1_0	132572/1770	1:1	0.773	0.331	0.08	16.07	17.50	1.390	1.074	22.3
	20	QPSK 1_99	132374/1750.2									
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.367	0.196	0.14	16.26	17.50	1.330	0.488	22.3
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.428	0.210	0.09	16.26	17.50	1.330	0.569	22.3
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.592	0.281	0.16	16.26	17.50	1.330	0.788	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.614	0.287	-0.11	16.26	17.50	1.330	0.817	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.545	0.255	0.07	16.18	17.50	1.355	0.739	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.668	0.312	-0.07	16.18	17.50	1.355	0.905	22.3
Head Test Data (100%RB) State3												
Right cheek	20	QPSK 100_0	132322/1745	1:1	0.600	0.271	-0.10	16.08	17.50	1.387	0.832	22.3
Right tilted	20	QPSK 100_0	132322/1745	1:1	0.618	0.292	0.09	16.08	17.50	1.387	0.857	22.3
Head Test Data (1RB) State3(UL CA&ENDC)												
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.403	0.212	0.14	16.40	14.50	0.646	0.260	22.3
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.447	0.233	0.19	16.40	14.50	0.646	0.289	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.697	0.313	-0.17	16.40	14.50	0.646	0.450	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.619	0.295	0.09	16.35	14.50	0.653	0.404	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.758	0.342	-0.12	16.25	14.50	0.668	0.507	22.3
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.726	0.325	-0.04	16.40	14.50	0.646	0.469	22.3
Right tilted	20	QPSK 1_0	132072/1720	1:1	0.645	0.306	0.12	16.35	14.50	0.653	0.421	22.3
Right tilted	20	QPSK 1_0	132572/1770	1:1	0.790	0.355	-0.16	16.25	14.50	0.668	0.528	22.3
Head Test Data (50%RB) State3(UL CA&ENDC)												
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.367	0.196	0.14	16.26	14.50	0.667	0.245	22.3
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.428	0.210	0.09	16.26	14.50	0.667	0.285	22.3
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.592	0.281	0.16	16.26	14.50	0.667	0.395	22.3



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Right tilted	20	QPSK 50_0	132322/1745	1:1	0.614	0.287	-0.11	16.26	14.50	0.667	0.409	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.545	0.255	0.07	16.18	14.50	0.679	0.370	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.668	0.312	-0.07	16.18	14.50	0.679	0.454	22.3
Head Test Data (100%RB) State3(UL CA&ENDC)												
Right cheek	20	QPSK 100_0	132322/1745	1:1	0.600	0.271	-0.10	16.08	14.50	0.695	0.417	22.3
Right tilted	20	QPSK 100_0	132322/1745	1:1	0.618	0.292	0.09	16.08	14.50	0.695	0.430	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_0	132322/1745	1:1	0.506	0.290	-0.16	23.74	25.00	1.337	0.676	22.3
Front side-UL CA_66B	15	QPSK 1_0	132322/1745	1:1	0.482	0.271	0.06	23.68	25.00	1.355	0.653	22.3
	5	QPSK 1_99	132124/1725.2									
Front side-UL CA_66C	20	QPSK 1_0	132322/1745	1:1	0.479	0.228	-0.09	23.68	25.00	1.355	0.649	22.3
	20	QPSK 1_99	132124/1725.2									
Back side	20	QPSK 1_0	132322/1745	1:1	0.469	0.280	0.01	23.74	25.00	1.337	0.627	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_0	132322/1745	1:1	0.427	0.244	-0.10	22.58	24.00	1.387	0.592	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.377	0.229	-0.04	22.58	24.00	1.387	0.523	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_0	132322/1745	1:1	0.494	0.257	-0.02	20.81	22.00	1.315	0.650	22.3
Back side	20	QPSK 1_0	132322/1745	1:1	0.450	0.253	0.05	20.81	22.00	1.315	0.592	22.3
Left side	20	QPSK 1_0	132322/1745	1:1	0.140	0.080	-0.08	20.81	22.00	1.315	0.184	22.3
Top side	20	QPSK 1_0	132322/1745	1:1	0.615	0.306	0.03	20.81	22.00	1.315	0.809	22.3
Top side	20	QPSK 1_0	132072/1720	1:1	0.557	0.273	-0.01	20.72	22.00	1.343	0.748	22.3
Top side	20	QPSK 1_0	132572/1770	1:1	0.731	0.375	-0.08	20.77	22.00	1.327	0.970	22.3
Top side-UL CA_66B	15	QPSK 1_0	132572/1770	1:1	0.706	0.359	0.03	20.65	22.00	1.365	0.963	22.3
	5	QPSK 1_99	132479/1760.7									
Top side-UL CA_66C	20	QPSK 1_0	132572/1770	1:1	0.704	0.364	0.08	20.69	22.00	1.352	0.952	22.3
	20	QPSK 1_99	132374/1750.2									
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_0	132322/1745	1:1	0.515	0.267	-0.03	20.58	22.00	1.387	0.714	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.442	0.253	-0.18	20.58	22.00	1.387	0.613	22.3
Left side	20	QPSK 50_0	132322/1745	1:1	0.104	0.058	0.16	20.58	22.00	1.387	0.144	22.3
Top side	20	QPSK 50_0	132322/1745	1:1	0.616	0.303	0.11	20.58	22.00	1.387	0.854	22.3
Top side	20	QPSK 50_0	132072/1720	1:1	0.557	0.273	0.07	20.57	22.00	1.390	0.774	22.3
Top side	20	QPSK 50_0	132572/1770	1:1	0.677	0.326	-0.18	20.57	22.00	1.390	0.941	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Top side	20	QPSK 100_0	132322/1745	1:1	0.588	0.298	0.10	20.53	22.00	1.403	0.825	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (UL CA&ENDC)												
Front side	20	QPSK 1_0	132322/1745	1:1	0.494	0.257	-0.02	20.81	19.00	0.659	0.326	22.3
Back side	20	QPSK 1_0	132322/1745	1:1	0.450	0.253	0.05	20.81	19.00	0.659	0.297	22.3

Left side	20	QPSK 1_0	132322/1745	1:1	0.140	0.080	-0.08	20.81	19.00	0.659	0.092	22.3
Top side	20	QPSK 1_0	132322/1745	1:1	0.615	0.306	0.03	20.81	19.00	0.659	0.405	22.3
Top side	20	QPSK 1_0	132072/1720	1:1	0.557	0.273	-0.01	20.72	19.00	0.673	0.375	22.3
Top side	20	QPSK 1_0	132572/1770	1:1	0.731	0.375	-0.08	20.77	19.00	0.665	0.486	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (UL CA&ENDC)												
Front side	20	QPSK 50_0	132322/1745	1:1	0.515	0.267	-0.03	20.58	19.00	0.695	0.358	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.442	0.253	-0.18	20.58	19.00	0.695	0.307	22.3
Left side	20	QPSK 50_0	132322/1745	1:1	0.104	0.058	0.16	20.58	19.00	0.695	0.072	22.3
Top side	20	QPSK 50_0	132322/1745	1:1	0.616	0.303	0.11	20.58	19.00	0.695	0.428	22.3
Top side	20	QPSK 50_0	132072/1720	1:1	0.557	0.273	0.07	20.57	19.00	0.697	0.388	22.3
Top side	20	QPSK 50_0	132572/1770	1:1	0.677	0.326	-0.18	20.57	19.00	0.697	0.472	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (UL CA&ENDC)												
Top side	20	QPSK 100_0	132322/1745	1:1	0.588	0.298	0.10	20.53	19.00	0.703	0.413	22.3
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Front side	20	QPSK 1_0	132322/1745	1:1	3.970	1.660	0.05	22.18	23.00	1.208	2.005	22.3
Front side	20	QPSK 1_0	132072/1720	1:1	4.400	1.740	0.18	22.11	23.00	1.227	2.136	22.3
Front side	20	QPSK 1_0	132572/1770	1:1	4.220	1.850	-0.19	22.06	23.00	1.242	2.297	22.3
Back side	20	QPSK 1_0	132322/1745	1:1	3.410	1.480	-0.05	22.18	23.00	1.208	1.788	22.3
Top side	20	QPSK 1_0	132322/1745	1:1	4.470	1.840	0.04	22.18	23.00	1.208	2.222	22.3
Top side	20	QPSK 1_0	132072/1720	1:1	4.900	1.800	-0.11	22.11	23.00	1.227	2.209	22.3
Top side	20	QPSK 1_0	132572/1770	1:1	7.400	2.530	-0.05	22.06	23.00	1.242	3.141	22.3
Top side-UL CA_66B	15	QPSK 1_0	132572/1770	1:1	7.210	2.360	0.12	21.89	23.00	1.291	3.047	22.3
	5	QPSK 1_99	132479/1760.7									
Top side-UL CA_66C	20	QPSK 1_0	132572/1770	1:1	7.170	2.410	0.09	21.89	23.00	1.291	3.112	22.3
	20	QPSK 1_99	132374/1750.2									
Top side-repeated	20	QPSK 1_0	132572/1770	1:1	7.350	2.490	0.11	22.06	23.00	1.242	3.092	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Front side	20	QPSK 50_0	132322/1745	1:1	4.120	1.770	0.17	22.12	23.00	1.225	2.168	22.3
Front side	20	QPSK 50_0	132072/1720	1:1	4.440	1.680	-0.19	21.97	23.00	1.268	2.130	22.3
Front side	20	QPSK 50_0	132572/1770	1:1	4.370	1.850	-0.14	22.04	23.00	1.247	2.308	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	3.220	1.540	-0.12	22.12	23.00	1.225	1.886	22.3
Top side	20	QPSK 50_0	132322/1745	1:1	5.130	1.980	-0.04	22.12	23.00	1.225	2.425	22.3
Top side	20	QPSK 50_0	132072/1720	1:1	4.880	1.810	-0.08	21.97	23.00	1.268	2.294	22.3
Top side	20	QPSK 50_0	132572/1770	1:1	5.530	2.010	-0.01	22.04	23.00	1.247	2.507	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Front side	20	QPSK 100_0	132322/1745	1:1	4.640	1.880	0.12	21.87	23.00	1.297	2.439	22.3
Top side	20	QPSK 100_0	132322/1745	1:1	5.050	1.930	-0.14	21.87	23.00	1.297	2.504	22.3
Product specific 10g SAR Test data State0												



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Front side-10mm	20	QPSK 1_0	132322/1745	1:1	0.644	0.326	-0.03	23.74	25.00	1.337	0.436	22.3
Back side-13mm	20	QPSK 1_0	132322/1745	1:1	0.547	0.295	0.09	23.74	25.00	1.337	0.394	22.3
Top side-14mm	20	QPSK 1_0	132322/1745	1:1	0.854	0.517	0.09	23.74	25.00	1.337	0.691	22.3
Ant 1 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.158	0.095	0.18	23.73	25.00	1.340	0.212	22.3
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.080	0.049	0.10	23.73	25.00	1.340	0.107	22.3
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.090	0.055	-0.14	23.73	25.00	1.340	0.121	22.3
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.047	0.029	-0.07	23.73	25.00	1.340	0.063	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.129	0.076	-0.02	22.55	24.00	1.396	0.180	22.3
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.057	0.035	0.11	22.55	24.00	1.396	0.080	22.3
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.071	0.044	0.03	22.55	24.00	1.396	0.099	22.3
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.035	0.021	0.15	22.55	24.00	1.396	0.049	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_0	132322/1745	1:1	0.142	0.091	0.11	23.73	25.00	1.340	0.190	22.3
Back side	20	QPSK 1_0	132322/1745	1:1	0.235	0.142	0.03	23.73	25.00	1.340	0.315	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_0	132322/1745	1:1	0.116	0.074	-0.03	22.55	24.00	1.396	0.162	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.184	0.111	-0.03	22.55	24.00	1.396	0.257	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_0	132322/1745	1:1	0.254	0.161	-0.03	23.73	25.00	1.340	0.340	22.3
Back side	20	QPSK 1_0	132322/1745	1:1	0.446	0.261	-0.15	23.73	25.00	1.340	0.597	22.3
Left side	20	QPSK 1_0	132322/1745	1:1	0.232	0.137	-0.11	23.73	25.00	1.340	0.311	22.3
Bottom side	20	QPSK 1_0	132322/1745	1:1	0.366	0.214	0.18	23.73	25.00	1.340	0.490	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_0	132322/1745	1:1	0.197	0.125	-0.15	22.55	24.00	1.396	0.275	22.3
Back side	20	QPSK 50_0	132322/1745	1:1	0.361	0.213	0.02	22.55	24.00	1.396	0.504	22.3
Left side	20	QPSK 50_0	132322/1745	1:1	0.169	0.099	-0.05	22.55	24.00	1.396	0.236	22.3
Bottom side	20	QPSK 50_0	132322/1745	1:1	0.279	0.161	0.12	22.55	24.00	1.396	0.390	22.3

Table 14: SAR of LTE Band 66 for Head, Body and Hotspot.



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8.2.11 SAR Result of 5G NR n2

Ant3 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_1	376000/1880	100%	0.294	0.150	0.13	15.82	17.00	1.312	0.386	22.3
Left tilted	20	QPSK 1_1	376000/1880	100%	0.389	0.184	-0.02	15.82	17.00	1.312	0.510	22.3
Right cheek	20	QPSK 1_1	376000/1880	100%	0.587	0.265	-0.02	15.82	17.00	1.312	0.770	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.744	0.367	0.07	15.82	17.00	1.312	0.976	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.582	0.295	-0.02	15.60	17.00	1.380	0.803	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.763	0.384	-0.12	15.65	17.00	1.365	1.041	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_28	376000/1880	100%	0.305	0.158	0.17	15.70	17.00	1.349	0.411	22.3
Left tilted	20	QPSK 50_28	376000/1880	100%	0.386	0.190	-0.14	15.70	17.00	1.349	0.521	22.3
Right cheek	20	QPSK 50_28	376000/1880	100%	0.693	0.318	0.00	15.70	17.00	1.349	0.935	22.3
Right cheek	20	QPSK 50_28	372000/1860	100%	0.597	0.247	0.01	15.68	17.00	1.355	0.809	22.3
Right cheek	20	QPSK 50_28	380000/1900	100%	0.705	0.326	0.10	15.56	17.00	1.393	0.982	22.3
Right tilted	20	QPSK 50_28	376000/1880	100%	0.810	0.346	0.01	15.70	17.00	1.349	1.093	22.3
Right tilted	20	QPSK 50_28	372000/1860	100%	0.647	0.318	0.16	15.68	17.00	1.355	0.877	22.3
Right tilted	20	QPSK 50_28	380000/1900	100%	0.823	0.353	-0.09	15.56	17.00	1.393	1.147	22.3
Right tilted-repeated	20	QPSK 50_28	380000/1900	100%	0.814	0.349	0.02	15.56	17.00	1.393	1.134	22.3
Head Test Data (100%RB) State3												
Right cheek	20	QPSK 100_0	376000/1880	100%	0.533	0.217	0.18	15.62	17.00	1.374	0.732	22.3
Right tilted	20	QPSK 100_0	376000/1880	100%	0.761	0.332	0.07	15.62	17.00	1.374	1.046	22.3
Head Test Data (1RB) State3 (ENDC)												
Left cheek	20	QPSK 1_1	376000/1880	100%	0.294	0.150	0.13	15.82	14.00	0.658	0.193	22.3
Left tilted	20	QPSK 1_1	376000/1880	100%	0.389	0.184	-0.02	15.82	14.00	0.658	0.256	22.3
Right cheek	20	QPSK 1_1	376000/1880	100%	0.587	0.265	-0.02	15.82	14.00	0.658	0.386	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.744	0.367	0.07	15.82	14.00	0.658	0.489	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.582	0.295	-0.02	15.60	14.00	0.692	0.403	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.763	0.384	-0.12	15.65	14.00	0.684	0.522	22.3
Head Test Data (50%RB) (ENDC)												
Left cheek	20	QPSK 50_28	376000/1880	100%	0.305	0.158	0.17	15.70	14.00	0.676	0.206	22.3
Left tilted	20	QPSK 50_28	376000/1880	100%	0.386	0.190	-0.14	15.70	14.00	0.676	0.261	22.3
Right cheek	20	QPSK 50_28	376000/1880	100%	0.693	0.318	0.00	15.70	14.00	0.676	0.469	22.3
Right cheek	20	QPSK 50_28	372000/1860	100%	0.597	0.247	0.01	15.68	14.00	0.679	0.405	22.3



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Right cheek	20	QPSK 50_28	380000/1900	100%	0.705	0.326	0.10	15.56	14.00	0.698	0.492	22.3
Right tilted	20	QPSK 50_28	376000/1880	100%	0.810	0.346	0.01	15.70	14.00	0.676	0.548	22.3
Right tilted	20	QPSK 50_28	372000/1860	100%	0.647	0.318	0.16	15.68	14.00	0.679	0.439	22.3
Right tilted	20	QPSK 50_28	380000/1900	100%	0.823	0.353	-0.09	15.56	14.00	0.698	0.575	22.3
Right tilted-repeated	20	QPSK 50_28	380000/1900	100%	0.814	0.349	0.02	15.56	14.00	0.698	0.568	22.3
Head Test Data (100%RB) (ENDC)												
Right cheek	20	QPSK 100_0	376000/1880	100%	0.533	0.217	0.18	15.62	14.00	0.689	0.367	22.3
Right tilted	20	QPSK 100_0	376000/1880	100%	0.761	0.332	0.07	15.62	14.00	0.689	0.524	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_1	376000/1880	100%	0.549	0.309	-0.16	23.82	25.00	1.312	0.720	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.639	0.364	-0.01	23.82	25.00	1.312	0.838	22.3
Back side	20	QPSK 1_1	372000/1860	100%	0.626	0.359	0.16	23.64	25.00	1.368	0.856	22.3
Back side	20	QPSK 1_1	380000/1900	100%	0.679	0.375	-0.07	23.72	25.00	1.343	0.912	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_28	376000/1880	100%	0.571	0.322	0.16	23.79	25.00	1.321	0.754	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.677	0.376	-0.14	23.79	25.00	1.321	0.895	22.3
Back side	20	QPSK 50_28	372000/1860	100%	0.653	0.366	-0.08	23.77	25.00	1.327	0.867	22.3
Back side	20	QPSK 50_28	380000/1900	100%	0.696	0.379	-0.01	23.62	25.00	1.374	0.956	22.3
Body worn Test data (Separate 15mm 100%RB) State0												
Back side	20	QPSK 100_0	376000/1880	100%	0.538	0.298	-0.11	22.63	24.00	1.371	0.738	22.3
Body worn Test data (Separate 15mm 1RB) State0 (ENDC)												
Front side	20	QPSK 1_1	376000/1880	100%	0.549	0.309	-0.16	23.82	19.50	0.370	0.203	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.639	0.364	-0.01	23.82	19.50	0.370	0.236	22.3
Back side	20	QPSK 1_1	372000/1860	100%	0.626	0.359	0.16	23.64	19.50	0.385	0.241	22.3
Back side	20	QPSK 1_1	380000/1900	100%	0.679	0.375	-0.07	23.72	19.50	0.378	0.257	22.3
Body worn Test data (Separate 15mm 50%RB) State0 (ENDC)												
Front side	20	QPSK 50_28	376000/1880	100%	0.571	0.322	0.16	23.79	19.50	0.372	0.213	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.677	0.376	-0.14	23.79	19.50	0.372	0.252	22.3
Back side	20	QPSK 50_28	372000/1860	100%	0.653	0.366	-0.08	23.77	19.50	0.374	0.244	22.3
Back side	20	QPSK 50_28	380000/1900	100%	0.696	0.379	-0.01	23.62	19.50	0.387	0.270	22.3
Body worn Test data (Separate 15mm 100%RB) State0 (ENDC)												
Back side	20	QPSK 100_0	376000/1880	100%	0.538	0.298	-0.11	22.63	19.50	0.486	0.262	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_1	376000/1880	100%	0.450	0.232	-0.15	20.28	21.50	1.324	0.596	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.541	0.277	-0.14	20.28	21.50	1.324	0.716	22.3
Left side	20	QPSK 1_1	376000/1880	100%	0.077	0.044	0.17	20.28	21.50	1.324	0.102	22.3



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Top side	20	QPSK 1_1	376000/1880	100%	0.744	0.359	0.01	20.28	21.50	1.324	0.985	22.3
Top side	20	QPSK 1_1	372000/1860	100%	0.711	0.332	0.03	20.26	21.50	1.330	0.946	22.3
Top side	20	QPSK 1_1	380000/1900	100%	0.811	0.389	0.07	20.23	21.50	1.340	1.086	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_28	376000/1880	100%	0.479	0.240	-0.19	20.23	21.50	1.340	0.642	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.554	0.284	-0.17	20.23	21.50	1.340	0.742	22.3
Left side	20	QPSK 50_28	376000/1880	100%	0.088	0.052	-0.07	20.23	21.50	1.340	0.118	22.3
Top side	20	QPSK 50_28	376000/1880	100%	0.793	0.379	0.07	20.23	21.50	1.340	1.062	22.3
Top side	20	QPSK 50_28	372000/1860	100%	0.711	0.338	0.03	20.18	21.50	1.355	0.964	22.3
Top side	20	QPSK 50_28	380000/1900	100%	0.810	0.395	-0.03	20.21	21.50	1.346	1.090	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Top side	20	QPSK 100_0	376000/1880	100%	0.678	0.322	-0.17	19.08	20.50	1.387	0.940	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (ENDC)												
Front side	20	QPSK 1_1	376000/1880	100%	0.450	0.232	-0.15	20.28	18.00	0.592	0.266	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.541	0.277	-0.14	20.28	18.00	0.592	0.320	22.3
Left side	20	QPSK 1_1	376000/1880	100%	0.077	0.044	0.17	20.28	18.00	0.592	0.046	22.3
Top side	20	QPSK 1_1	376000/1880	100%	0.744	0.359	0.01	20.28	18.00	0.592	0.440	22.3
Top side	20	QPSK 1_1	372000/1860	100%	0.711	0.332	0.03	20.26	18.00	0.594	0.423	22.3
Top side	20	QPSK 1_1	380000/1900	100%	0.811	0.389	0.07	20.23	18.00	0.598	0.485	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (ENDC)												
Front side	20	QPSK 50_28	376000/1880	100%	0.479	0.240	-0.19	20.23	18.00	0.598	0.287	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.554	0.284	-0.17	20.23	18.00	0.598	0.332	22.3
Left side	20	QPSK 50_28	376000/1880	100%	0.088	0.052	-0.07	20.23	18.00	0.598	0.053	22.3
Top side	20	QPSK 50_28	376000/1880	100%	0.793	0.379	0.07	20.23	18.00	0.598	0.475	22.3
Top side	20	QPSK 50_28	372000/1860	100%	0.711	0.338	0.03	20.18	18.00	0.605	0.430	22.3
Top side	20	QPSK 50_28	380000/1900	100%	0.810	0.395	-0.03	20.21	18.00	0.601	0.487	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (ENDC)												
Top side	20	QPSK 100_0	376000/1880	100%	0.678	0.322	-0.17	19.08	18.00	0.780	0.529	22.3
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Front side	20	QPSK 1_1	376000/1880	100%	4.711	1.827	0.01	21.29	22.50	1.321	2.414	22.3
Front side	20	QPSK 1_1	372000/1860	100%	4.445	1.717	-0.03	21.13	22.50	1.371	2.354	22.3
Front side	20	QPSK 1_1	380000/1900	100%	5.118	1.809	0.19	21.17	22.50	1.358	2.457	22.3
Back side	20	QPSK 1_1	376000/1880	100%	3.853	1.520	0.01	21.29	22.50	1.321	2.008	22.3
Top side	20	QPSK 1_1	376000/1880	100%	5.619	2.139	0.10	21.29	22.50	1.321	2.826	22.3

Top side	20	QPSK 1_1	372000/1860	100%	5.820	2.190	-0.02	21.13	22.50	1.371	3.002	22.3
Top side-repeated	20	QPSK 1_1	372000/1860	100%	5.770	2.140	0.09	21.13	22.50	1.371	2.934	22.3
Top side	20	QPSK 1_1	380000/1900	100%	5.368	2.112	-0.09	21.17	22.50	1.358	2.869	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Front side	20	QPSK 50_28	376000/1880	100%	4.270	1.533	-0.11	21.25	22.50	1.334	2.044	22.3
Front side	20	QPSK 50_28	372000/1860	100%	4.275	1.713	0.06	21.18	22.50	1.355	2.321	22.3
Front side	20	QPSK 50_28	380000/1900	100%	4.992	1.731	0.04	21.03	22.50	1.403	2.428	22.3
Back side	20	QPSK 50_28	376000/1880	100%	4.250	1.446	-0.07	21.25	22.50	1.334	1.928	22.3
Top side	20	QPSK 50_28	376000/1880	100%	5.067	2.016	0.14	21.25	22.50	1.334	2.688	22.3
Top side	20	QPSK 50_28	372000/1860	100%	5.619	2.025	-0.04	21.18	22.50	1.355	2.744	22.3
Top side	20	QPSK 50_28	380000/1900	100%	6.171	2.121	-0.16	21.03	22.50	1.403	2.975	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Front side	20	QPSK 100_0	376000/1880	100%	3.211	1.276	0.14	21.10	22.50	1.380	1.761	22.3
Top side	20	QPSK 100_0	376000/1880	100%	4.285	1.612	-0.04	21.10	22.50	1.380	2.225	22.3
Product specific 10g SAR Test data (Separate 0mm 1RB) State1 (ENDC)												
Front side	20	QPSK 1_1	376000/1880	100%	4.711	1.827	0.01	21.29	19.50	0.662	1.210	22.3
Front side	20	QPSK 1_1	372000/1860	100%	4.445	1.717	-0.03	21.13	19.50	0.687	1.180	22.3
Front side	20	QPSK 1_1	380000/1900	100%	5.118	1.809	0.19	21.17	19.50	0.681	1.232	22.3
Back side	20	QPSK 1_1	376000/1880	100%	3.853	1.520	0.01	21.29	19.50	0.662	1.007	22.3
Top side	20	QPSK 1_1	376000/1880	100%	5.619	2.139	0.10	21.29	19.50	0.662	1.416	22.3
Top side	20	QPSK 1_1	372000/1860	100%	5.820	2.190	-0.02	21.13	19.50	0.687	1.505	22.3
Top side-repeated	20	QPSK 1_1	372000/1860	100%	5.770	2.140	0.09	21.13	19.50	0.687	1.470	22.3
Top side	20	QPSK 1_1	380000/1900	100%	5.368	2.112	-0.09	21.17	19.50	0.681	1.438	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1 (ENDC)												
Front side	20	QPSK 50_28	376000/1880	100%	4.270	1.533	-0.11	21.25	19.50	0.668	1.025	22.3
Front side	20	QPSK 50_28	372000/1860	100%	4.275	1.713	0.06	21.18	19.50	0.679	1.163	22.3
Front side	20	QPSK 50_28	380000/1900	100%	4.992	1.731	0.04	21.03	19.50	0.703	1.217	22.3
Back side	20	QPSK 50_28	376000/1880	100%	4.250	1.446	-0.07	21.25	19.50	0.668	0.966	22.3
Top side	20	QPSK 50_28	376000/1880	100%	5.067	2.016	0.14	21.25	19.50	0.668	1.347	22.3
Top side	20	QPSK 50_28	372000/1860	100%	5.619	2.025	-0.04	21.18	19.50	0.679	1.375	22.3
Top side	20	QPSK 50_28	380000/1900	100%	6.171	2.121	-0.16	21.03	19.50	0.703	1.491	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1 (ENDC)												
Front side	20	QPSK 100_0	376000/1880	100%	3.211	1.276	0.14	21.10	19.50	0.692	0.883	22.3
Top side	20	QPSK 100_0	376000/1880	100%	4.285	1.612	-0.04	21.10	19.50	0.692	1.115	22.3
Product specific 10g SAR Test data State0												



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Front side-10mm	20	QPSK 1_1	376000/1880	100%	0.602	0.317	0.12	23.82	25.00	1.312	0.416	22.3
Back side-13mm	20	QPSK 1_1	376000/1880	100%	0.762	0.415	0.09	23.82	25.00	1.312	0.545	22.3
Top side-14mm	20	QPSK 1_1	376000/1880	100%	1.170	0.543	-0.17	23.82	25.00	1.312	0.713	22.3
Ant1 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_1	376000/1880	100%	0.246	0.141	0.09	23.88	25.00	1.294	0.318	22.3
Left tilted	20	QPSK 1_1	376000/1880	100%	0.119	0.071	-0.03	23.88	25.00	1.294	0.154	22.3
Right cheek	20	QPSK 1_1	376000/1880	100%	0.163	0.098	-0.02	23.88	25.00	1.294	0.211	22.3
Right tilted	20	QPSK 1_1	376000/1880	100%	0.091	0.055	-0.05	23.88	25.00	1.294	0.118	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_28	376000/1880	100%	0.250	0.143	0.04	23.74	25.00	1.337	0.334	22.3
Left tilted	20	QPSK 50_28	376000/1880	100%	0.124	0.075	-0.06	23.74	25.00	1.337	0.166	22.3
Right cheek	20	QPSK 50_28	376000/1880	100%	0.173	0.104	-0.18	23.74	25.00	1.337	0.231	22.3
Right tilted	20	QPSK 50_28	376000/1880	100%	0.097	0.057	0.04	23.74	25.00	1.337	0.130	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_1	376000/1880	100%	0.206	0.130	-0.02	23.88	25.00	1.294	0.267	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.233	0.148	0.11	23.88	25.00	1.294	0.302	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_28	376000/1880	100%	0.152	0.097	0.03	23.74	25.00	1.337	0.203	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.180	0.113	-0.13	23.74	25.00	1.337	0.241	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_1	376000/1880	100%	0.332	0.206	-0.01	23.88	25.00	1.294	0.430	22.3
Back side	20	QPSK 1_1	376000/1880	100%	0.423	0.258	-0.09	23.88	25.00	1.294	0.547	22.3
Left side	20	QPSK 1_1	376000/1880	100%	0.282	0.164	0.11	23.88	25.00	1.294	0.365	22.3
Bottom side	20	QPSK 1_1	376000/1880	100%	0.399	0.228	-0.13	23.88	25.00	1.294	0.516	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_28	376000/1880	100%	0.267	0.166	0.03	23.74	25.00	1.337	0.357	22.3
Back side	20	QPSK 50_28	376000/1880	100%	0.377	0.226	0.06	23.74	25.00	1.337	0.504	22.3
Left side	20	QPSK 50_28	376000/1880	100%	0.241	0.141	-0.19	23.74	25.00	1.337	0.322	22.3
Bottom side	20	QPSK 50_28	376000/1880	100%	0.343	0.195	0.08	23.74	25.00	1.337	0.458	22.3

Table 15: SAR of 5G NR n2 for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	380000/1900	0.823	0.814	1.011	N/A	N/A
Top side 0mm	372000/1860	2.190	2.140	1.023	N/A	N/A

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



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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.
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.



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8.2.12 SAR Result of 5G NR n5

Ant0 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	20	QPSK 1_1	167300/836.5	100%	0.120	0.082	-0.19	24.14	25.00	1.219	0.146	22.3
Left tilted	20	QPSK 1_1	167300/836.5	100%	0.065	0.045	0.10	24.14	25.00	1.219	0.079	22.3
Right cheek	20	QPSK 1_1	167300/836.5	100%	0.118	0.082	-0.13	24.14	25.00	1.219	0.144	22.3
Right tilted	20	QPSK 1_1	167300/836.5	100%	0.058	0.040	0.14	24.14	25.00	1.219	0.071	22.3
Head Test Data (50%RB) State3												
Left cheek	20	QPSK 50_28	167300/836.5	100%	0.135	0.093	0.09	24.11	25.00	1.227	0.166	22.3
Left tilted	20	QPSK 50_28	167300/836.5	100%	0.076	0.052	-0.19	24.11	25.00	1.227	0.093	22.3
Right cheek	20	QPSK 50_28	167300/836.5	100%	0.157	0.122	0.02	24.11	25.00	1.227	0.193	22.3
Right tilted	20	QPSK 50_28	167300/836.5	100%	0.066	0.046	-0.18	24.11	25.00	1.227	0.081	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	20	QPSK 1_1	167300/836.5	100%	0.186	0.134	-0.19	24.14	25.00	1.219	0.227	22.3
Back side	20	QPSK 1_1	167300/836.5	100%	0.259	0.161	0.11	24.14	25.00	1.219	0.316	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	20	QPSK 50_28	167300/836.5	100%	0.216	0.132	0.08	24.11	25.00	1.227	0.265	22.3
Back side	20	QPSK 50_28	167300/836.5	100%	0.272	0.204	-0.02	24.11	25.00	1.227	0.334	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	20	QPSK 1_1	167300/836.5	100%	0.347	0.208	-0.16	24.14	25.00	1.219	0.423	22.3
Back side	20	QPSK 1_1	167300/836.5	100%	0.478	0.286	-0.07	24.14	25.00	1.219	0.583	22.3
Left side	20	QPSK 1_1	167300/836.5	100%	0.116	0.065	0.03	24.14	25.00	1.219	0.141	22.3
Right side	20	QPSK 1_1	167300/836.5	100%	0.269	0.177	-0.11	24.14	25.00	1.219	0.328	22.3
Bottom side	20	QPSK 1_1	167300/836.5	100%	0.447	0.238	0.08	24.14	25.00	1.219	0.545	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	20	QPSK 50_28	167300/836.5	100%	0.401	0.238	-0.03	24.11	25.00	1.227	0.492	22.3
Back side	20	QPSK 50_28	167300/836.5	100%	0.565	0.342	0.17	24.11	25.00	1.227	0.694	22.3
Left side	20	QPSK 50_28	167300/836.5	100%	0.126	0.073	-0.17	24.11	25.00	1.227	0.155	22.3
Right side	20	QPSK 50_28	167300/836.5	100%	0.322	0.213	0.06	24.11	25.00	1.227	0.395	22.3
Bottom side	20	QPSK 50_28	167300/836.5	100%	0.500	0.273	0.11	24.11	25.00	1.227	0.614	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (ENDC)												
Front side	20	QPSK 1_1	167300/836.5	100%	0.347	0.208	-0.16	24.14	24.00	0.968	0.336	22.3
Back side	20	QPSK 1_1	167300/836.5	100%	0.478	0.286	-0.07	24.14	24.00	0.968	0.463	22.3
Left side	20	QPSK 1_1	167300/836.5	100%	0.116	0.065	0.03	24.14	24.00	0.968	0.112	22.3
Right side	20	QPSK 1_1	167300/836.5	100%	0.269	0.177	-0.11	24.14	24.00	0.968	0.260	22.3
Bottom side	20	QPSK 1_1	167300/836.5	100%	0.447	0.238	0.08	24.14	24.00	0.968	0.433	22.3
Hotspot Test data (Separate 10mm 50%RB) State4(ENDC)												
Front side	20	QPSK 50_28	167300/836.5	100%	0.401	0.238	-0.03	24.11	24.00	0.975	0.391	22.3
Back side	20	QPSK 50_28	167300/836.5	100%	0.565	0.342	0.17	24.11	24.00	0.975	0.551	22.3
Left side	20	QPSK 50_28	167300/836.5	100%	0.126	0.073	-0.17	24.11	24.00	0.975	0.123	22.3



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Right side	20	QPSK 50_28	167300/836.5	100%	0.322	0.213	0.06	24.11	24.00	0.975	0.314	22.3
Bottom side	20	QPSK 50_28	167300/836.5	100%	0.500	0.273	0.11	24.11	24.00	0.975	0.487	22.3

Table 16: SAR of 5G NR n5 for Head, Body and Hotspot.



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8.2.13 SAR Result of 5G NR n30

Ant3 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	10	QPSK 1_1	462000/2310	100%	0.269	0.114	-0.04	16.99	18.00	1.262	0.339	22.3
Left tilted	10	QPSK 1_1	462000/2310	100%	0.480	0.199	0.08	16.99	18.00	1.262	0.606	22.3
Right cheek	10	QPSK 1_1	462000/2310	100%	0.831	0.323	0.16	16.99	18.00	1.262	1.049	22.3
Right tilted	10	QPSK 1_1	462000/2310	100%	0.908	0.361	-0.17	16.99	18.00	1.262	1.146	22.3
Right tilted-repeated	10	QPSK 1_1	462000/2310	100%	0.899	0.357	0.01	16.99	18.00	1.262	1.134	22.3
Head Test Data (50%RB) State3												
Left cheek	10	QPSK 25_14	462000/2310	100%	0.259	0.107	0.19	16.97	18.00	1.268	0.328	22.3
Left tilted	10	QPSK 25_14	462000/2310	100%	0.454	0.187	0.07	16.97	18.00	1.268	0.576	22.3
Right cheek	10	QPSK 25_14	462000/2310	100%	0.767	0.299	-0.01	16.97	18.00	1.268	0.972	22.3
Right tilted	10	QPSK 25_14	462000/2310	100%	0.877	0.342	0.11	16.97	18.00	1.268	1.112	22.3
Head Test Data (100%RB) State3												
Right cheek	10	QPSK 50_0	462000/2310	100%	0.739	0.287	-0.11	16.82	18.00	1.312	0.970	22.3
Right tilted	10	QPSK 50_0	462000/2310	100%	0.844	0.335	0.12	16.82	18.00	1.312	1.107	22.3
Head Test Data (1RB) State3 (ENDC)												
Left cheek	10	QPSK 1_1	462000/2310	100%	0.269	0.114	-0.04	16.99	15.00	0.632	0.170	22.3
Left tilted	10	QPSK 1_1	462000/2310	100%	0.480	0.199	0.08	16.99	15.00	0.632	0.304	22.3
Right cheek	10	QPSK 1_1	462000/2310	100%	0.831	0.323	0.16	16.99	15.00	0.632	0.526	22.3
Right tilted	10	QPSK 1_1	462000/2310	100%	0.908	0.361	-0.17	16.99	15.00	0.632	0.574	22.3
Right tilted-repeated	10	QPSK 1_1	462000/2310	100%	0.899	0.357	0.01	16.99	15.00	0.632	0.569	22.3
Head Test Data (50%RB) State3 (ENDC)												
Left cheek	10	QPSK 25_14	462000/2310	100%	0.259	0.107	0.19	16.97	15.00	0.635	0.165	22.3
Left tilted	10	QPSK 25_14	462000/2310	100%	0.454	0.187	0.07	16.97	15.00	0.635	0.288	22.3
Right cheek	10	QPSK 25_14	462000/2310	100%	0.767	0.299	-0.01	16.97	15.00	0.635	0.487	22.3
Right tilted	10	QPSK 25_14	462000/2310	100%	0.877	0.342	0.11	16.97	15.00	0.635	0.557	22.3
Head Test Data (100%RB) State3 (ENDC)												
Right cheek	10	QPSK 50_0	462000/2310	100%	0.739	0.287	-0.11	16.82	15.00	0.658	0.486	22.3
Right tilted	10	QPSK 50_0	462000/2310	100%	0.844	0.335	0.12	16.82	15.00	0.658	0.555	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	10	QPSK 1_1	462000/2310	100%	0.382	0.194	-0.16	23.58	24.50	1.236	0.472	22.3
Back side	10	QPSK 1_1	462000/2310	100%	0.731	0.362	-0.05	23.58	24.50	1.236	0.903	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	10	QPSK 25_14	462000/2310	100%	0.355	0.177	-0.09	23.56	24.50	1.242	0.441	22.3



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Back side	10	QPSK 25_14	462000/2310	100%	0.703	0.328	-0.04	23.56	24.50	1.242	0.873	22.3
Body worn Test data (Separate 15mm 100%RB) State0												
Back side	10	QPSK 50_0	462000/2310	100%	0.538	0.262	0.01	22.35	23.50	1.303	0.701	22.3
Body worn Test data (Separate 15mm 1RB) State0 (ENDC)												
Front side	10	QPSK 1_1	462000/2310	100%	0.382	0.194	-0.16	23.58	19.00	0.348	0.133	22.3
Back side	10	QPSK 1_1	462000/2310	100%	0.731	0.362	-0.05	23.58	19.00	0.348	0.255	22.3
Body worn Test data (Separate 15mm 50%RB) State0 (ENDC)												
Front side	10	QPSK 25_14	462000/2310	100%	0.355	0.177	-0.09	23.56	19.00	0.350	0.124	22.3
Back side	10	QPSK 25_14	462000/2310	100%	0.703	0.328	-0.04	23.56	19.00	0.350	0.246	22.3
Body worn Test data (Separate 15mm 100%RB) State0 (ENDC)												
Back side	10	QPSK 50_0	462000/2310	100%	0.538	0.262	0.01	22.35	19.00	0.462	0.249	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	10	QPSK 1_1	462000/2310	100%	0.314	0.153	-0.17	19.98	21.00	1.265	0.397	22.3
Back side	10	QPSK 1_1	462000/2310	100%	0.631	0.289	0.06	19.98	21.00	1.265	0.798	22.3
Left side	10	QPSK 1_1	462000/2310	100%	0.132	0.074	0.18	19.98	21.00	1.265	0.167	22.3
Top side	10	QPSK 1_1	462000/2310	100%	0.829	0.367	-0.07	19.98	21.00	1.265	1.048	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	10	QPSK 25_14	462000/2310	100%	0.274	0.135	-0.11	19.92	21.00	1.282	0.351	22.3
Back side	10	QPSK 25_14	462000/2310	100%	0.560	0.258	-0.07	19.92	21.00	1.282	0.718	22.3
Left side	10	QPSK 25_14	462000/2310	100%	0.102	0.058	-0.16	19.92	21.00	1.282	0.131	22.3
Top side	10	QPSK 25_14	462000/2310	100%	0.736	0.340	-0.12	19.92	21.00	1.282	0.944	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Top side	10	QPSK 50_0	462000/2310	100%	0.587	0.265	0.15	19.82	21.00	1.312	0.770	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (ENDC)												
Front side	10	QPSK 1_1	462000/2310	100%	0.314	0.153	-0.17	19.98	18.00	0.634	0.199	22.3
Back side	10	QPSK 1_1	462000/2310	100%	0.631	0.289	0.06	19.98	18.00	0.634	0.400	22.3
Left side	10	QPSK 1_1	462000/2310	100%	0.132	0.074	0.18	19.98	18.00	0.634	0.084	22.3
Top side	10	QPSK 1_1	462000/2310	100%	0.829	0.367	-0.07	19.98	18.00	0.634	0.525	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (ENDC)												
Front side	10	QPSK 25_14	462000/2310	100%	0.274	0.135	-0.11	19.92	18.00	0.643	0.176	22.3
Back side	10	QPSK 25_14	462000/2310	100%	0.560	0.258	-0.07	19.92	18.00	0.643	0.360	22.3
Left side	10	QPSK 25_14	462000/2310	100%	0.102	0.058	-0.16	19.92	18.00	0.643	0.066	22.3
Top side	10	QPSK 25_14	462000/2310	100%	0.736	0.340	-0.12	19.92	18.00	0.643	0.473	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (ENDC)												
Top side	10	QPSK 50_0	462000/2310	100%	0.587	0.265	0.15	19.82	18.00	0.658	0.386	22.3
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(℃)



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Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Back side	10	QPSK 1_1	462000/2310	100%	5.010	1.900	-0.08	20.56	21.50	1.242	2.359	22.3
Top side	10	QPSK 1_1	462000/2310	100%	6.670	2.350	-0.19	20.56	21.50	1.242	2.918	22.3
Top side-repeated	10	QPSK 1_1	462000/2310	100%	6.590	2.290	-0.02	20.56	21.50	1.242	2.843	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Back side	10	QPSK 25_14	462000/2310	100%	5.290	2.010	0.01	20.51	21.50	1.256	2.525	22.3
Top side	10	QPSK 25_14	462000/2310	100%	6.490	2.130	0.02	20.51	21.50	1.256	2.675	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Back side	10	QPSK 50_0	462000/2310	100%	3.880	1.400	-0.09	20.33	21.50	1.309	1.833	22.3
Top side	10	QPSK 50_0	462000/2310	100%	4.400	1.740	0.09	20.33	21.50	1.309	2.278	22.3
Product specific 10g SAR Test data State0												
Back side-13mm	10	QPSK 1_1	462000/2310	100%	1.080	0.471	0.08	23.58	24.50	1.236	0.582	22.3
Top side-14mm	10	QPSK 1_1	462000/2310	100%	1.260	0.534	-0.11	23.58	24.50	1.236	0.660	22.3

Table 17: SAR of 5G NR n30 for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right tilted	462000/2310	0.908	0.899	1.010	N/A	N/A
Top side 0mm	462000/2310	2.350	2.290	1.026	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.



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8.2.14 SAR Result of 5G NR n66

Ant3 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycl e	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Powe r drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data (1RB) State3												
Left cheek	40	QPSK 1_1	349000/1745	100%	0.502	0.259	0.01	17.64	18.50	1.219	0.612	22.3
Left tilted	40	QPSK 1_1	349000/1745	100%	0.557	0.275	0.03	17.64	18.50	1.219	0.679	22.3
Right cheek	40	QPSK 1_1	349000/1745	100%	0.811	0.393	0.07	17.64	18.50	1.219	0.989	22.3
Right tilted	40	QPSK 1_1	349000/1745	100%	0.869	0.409	-0.14	17.64	18.50	1.219	1.059	22.3
Head Test Data (50%RB) State3												
Left cheek	40	QPSK 108_54	349000/1745	100%	0.502	0.259	0.00	17.62	18.50	1.225	0.615	22.3
Left tilted	40	QPSK 108_54	349000/1745	100%	0.583	0.286	-0.10	17.62	18.50	1.225	0.714	22.3
Right cheek	40	QPSK 108_54	349000/1745	100%	0.831	0.409	0.03	17.62	18.50	1.225	1.018	22.3
Right tilted	40	QPSK 108_54	349000/1745	100%	0.929	0.422	-0.06	17.62	18.50	1.225	1.138	22.3
Right tilted-repeated	40	QPSK 108_54	349000/1745	100%	0.926	0.419	0.08	17.62	18.50	1.225	1.134	22.3
Head Test Data (100%RB) State3												
Right tilted	40	QPSK 216_0	349000/1745	100%	0.874	0.412	-0.18	17.62	18.50	1.225	1.070	22.3
Head Test Data (1RB) State3 (ENDC)												
Left cheek	40	QPSK 1_1	349000/1745	100%	0.502	0.259	0.01	17.64	15.50	0.611	0.307	22.3
Left tilted	40	QPSK 1_1	349000/1745	100%	0.557	0.275	0.03	17.64	15.50	0.611	0.340	22.3
Right cheek	40	QPSK 1_1	349000/1745	100%	0.811	0.393	0.07	17.64	15.50	0.611	0.495	22.3
Right tilted	40	QPSK 1_1	349000/1745	100%	0.869	0.409	-0.14	17.64	15.50	0.611	0.531	22.3
Head Test Data (50%RB) State3 (ENDC)												
Left cheek	40	QPSK 108_54	349000/1745	100%	0.502	0.259	0.00	17.62	15.50	0.614	0.308	22.3
Left tilted	40	QPSK 108_54	349000/1745	100%	0.583	0.286	-0.10	17.62	15.50	0.614	0.358	22.3
Right cheek	40	QPSK 108_54	349000/1745	100%	0.831	0.409	0.03	17.62	15.50	0.614	0.510	22.3
Right tilted	40	QPSK 108_54	349000/1745	100%	0.929	0.422	-0.06	17.62	15.50	0.614	0.570	22.3
Right tilted-repeated	40	QPSK 108_54	349000/1745	100%	0.926	0.419	0.08	17.62	15.50	0.614	0.568	22.3
Head Test Data (100%RB) State3 (ENDC)												
Right tilted	40	QPSK 216_0	349000/1745	100%	0.874	0.412	-0.18	17.62	15.50	0.614	0.536	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	40	QPSK 1_1	349000/1745	100%	0.464	0.276	-0.19	23.94	25.00	1.276	0.592	22.3
Back side	40	QPSK 1_1	349000/1745	100%	0.512	0.305	0.14	23.94	25.00	1.276	0.654	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	40	QPSK 108_54	349000/1745	100%	0.558	0.315	0.11	23.92	25.00	1.282	0.716	22.3
Back side	40	QPSK 108_54	349000/1745	100%	0.509	0.301	0.08	23.92	25.00	1.282	0.653	22.3
Hotspot Test data (Separate 10mm 1RB) State4												



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Front side	40	QPSK 1_1	349000/1745	100%	0.694	0.389	-0.09	22.93	24.00	1.279	0.888	22.3
Back side	40	QPSK 1_1	349000/1745	100%	0.597	0.368	0.08	22.93	24.00	1.279	0.764	22.3
Left side	40	QPSK 1_1	349000/1745	100%	0.171	0.106	-0.06	22.93	24.00	1.279	0.219	22.3
Top side	40	QPSK 1_1	349000/1745	100%	0.910	0.484	0.00	22.93	24.00	1.279	1.164	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	40	QPSK 108_54	349000/1745	100%	0.687	0.385	0.08	22.90	24.00	1.288	0.885	22.3
Back side	40	QPSK 108_54	349000/1745	100%	0.594	0.359	-0.12	22.90	24.00	1.288	0.765	22.3
Left side	40	QPSK 108_54	349000/1745	100%	0.206	0.130	-0.14	22.90	24.00	1.288	0.265	22.3
Top side	40	QPSK 108_54	349000/1745	100%	0.927	0.491	-0.03	22.90	24.00	1.288	1.194	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Front side	40	QPSK 216_0	349000/1745	100%	0.533	0.298	-0.06	21.58	23.00	1.387	0.739	22.3
Top side	40	QPSK 216_0	349000/1745	100%	0.719	0.385	-0.13	21.58	23.00	1.387	0.997	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (ENDC)												
Front side	40	QPSK 1_1	349000/1745	100%	0.694	0.389	-0.09	22.93	20.50	0.571	0.397	22.3
Back side	40	QPSK 1_1	349000/1745	100%	0.597	0.368	0.08	22.93	20.50	0.571	0.341	22.3
Left side	40	QPSK 1_1	349000/1745	100%	0.171	0.106	-0.06	22.93	20.50	0.571	0.098	22.3
Top side	40	QPSK 1_1	349000/1745	100%	0.910	0.484	0.00	22.93	20.50	0.571	0.520	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (ENDC)												
Front side	40	QPSK 108_54	349000/1745	100%	0.687	0.385	0.08	22.90	20.50	0.575	0.395	22.3
Back side	40	QPSK 108_54	349000/1745	100%	0.594	0.359	-0.12	22.90	20.50	0.575	0.342	22.3
Left side	40	QPSK 108_54	349000/1745	100%	0.206	0.130	-0.14	22.90	20.50	0.575	0.119	22.3
Top side	40	QPSK 108_54	349000/1745	100%	0.927	0.491	-0.03	22.90	20.50	0.575	0.533	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (ENDC)												
Front side	40	QPSK 216_0	349000/1745	100%	0.533	0.298	-0.06	21.58	20.50	0.780	0.416	22.3
Top side	40	QPSK 216_0	349000/1745	100%	0.719	0.385	-0.13	21.58	20.50	0.780	0.561	22.3
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Top side	40	QPSK 1_1	349000/1745	100%	5.530	2.240	-0.08	22.93	24.00	1.279	2.866	22.3
Top side-repeated	40	QPSK 1_1	349000/1745	100%	5.490	2.210	0.07	22.93	24.00	1.279	2.827	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Top side	40	QPSK 108_54	349000/1745	100%	5.580	2.230	-0.04	22.90	24.00	1.288	2.873	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Top side	40	QPSK 216_0	349000/1745	100%	4.490	1.780	0.07	21.58	23.00	1.387	2.468	22.3
Product specific 10g SAR Test data (Separate 0mm 1RB) State1 (ENDC)												
Top side	40	QPSK 1_1	349000/1745	100%	5.530	2.240	-0.08	22.93	20.50	0.571	1.280	22.3
Top side-repeated	40	QPSK 1_1	349000/1745	100%	5.490	2.210	0.07	22.93	20.50	0.571	1.263	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1 (ENDC)												



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Top side	40	QPSK 108_54	349000/1745	100%	5.580	2.230	-0.04	22.90	20.50	0.575	1.283	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1 (ENDC)												
Top side	40	QPSK 216_0	349000/1745	100%	4.490	1.780	0.07	21.58	20.50	0.780	1.388	22.3
Product specific 10g SAR Test data State0												
Top side-14mm	40	QPSK 1_1	349000/1745	100%	1.430	0.855	0.02	23.94	25.00	1.276	1.091	22.3
Ant1 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	40	QPSK 1_1	349000/1745	100%	0.157	0.092	-0.07	24.18	25.00	1.208	0.190	22.3
Left tilted	40	QPSK 1_1	349000/1745	100%	0.069	0.043	0.11	24.18	25.00	1.208	0.083	22.3
Right cheek	40	QPSK 1_1	349000/1745	100%	0.101	0.062	0.19	24.18	25.00	1.208	0.122	22.3
Right tilted	40	QPSK 1_1	349000/1745	100%	0.041	0.025	-0.06	24.18	25.00	1.208	0.050	22.3
Head Test Data (50%RB) State3												
Left cheek	40	QPSK 108_54	349000/1745	100%	0.160	0.095	0.16	24.11	25.00	1.227	0.196	22.3
Left tilted	40	QPSK 108_54	349000/1745	100%	0.071	0.043	-0.18	24.11	25.00	1.227	0.087	22.3
Right cheek	40	QPSK 108_54	349000/1745	100%	0.108	0.067	-0.19	24.11	25.00	1.227	0.133	22.3
Right tilted	40	QPSK 108_54	349000/1745	100%	0.036	0.022	0.13	24.11	25.00	1.227	0.044	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	40	QPSK 1_1	349000/1745	100%	0.128	0.083	0.17	24.18	25.00	1.208	0.155	22.3
Back side	40	QPSK 1_1	349000/1745	100%	0.217	0.132	-0.17	24.18	25.00	1.208	0.262	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	40	QPSK 108_54	349000/1745	100%	0.148	0.097	0.17	24.11	25.00	1.227	0.182	22.3
Back side	40	QPSK 108_54	349000/1745	100%	0.235		-0.03	24.11	25.00	1.227	0.288	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	40	QPSK 1_1	349000/1745	100%	0.242	0.153	-0.17	24.18	25.00	1.208	0.292	22.3
Back side	40	QPSK 1_1	349000/1745	100%	0.431	0.253	-0.10	24.18	25.00	1.208	0.521	22.3
Left side	40	QPSK 1_1	349000/1745	100%	0.207	0.123	0.13	24.18	25.00	1.208	0.250	22.3
Bottom side	40	QPSK 1_1	349000/1745	100%	0.360	0.210	-0.12	24.18	25.00	1.208	0.435	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	40	QPSK 108_54	349000/1745	100%	0.260	0.165	0.06	24.11	25.00	1.227	0.319	22.3
Back side	40	QPSK 108_54	349000/1745	100%	0.468	0.278	-0.02	24.11	25.00	1.227	0.574	22.3
Left side	40	QPSK 108_54	349000/1745	100%	0.266	0.157	-0.10	24.11	25.00	1.227	0.326	22.3
Bottom side	40	QPSK 108_54	349000/1745	100%	0.343	0.200	-0.16	24.11	25.00	1.227	0.421	22.3

Table 18: SAR of 5G NR n66 for Head, Body and Hotspot.



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8.2.15 SAR Result of 5G NR n77 (3450-3550 MHz)

Ant4 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) State3												
Left cheek	100	QPSK 1_1	633334/3500	100%	0.200	0.091	0.01	16.93	18.00	1.279	0.256	22.3
Left tilted	100	QPSK 1_1	633334/3500	100%	0.194	0.088	-0.06	16.93	18.00	1.279	0.248	22.3
Right cheek	100	QPSK 1_1	633334/3500	100%	0.734	0.313	0.07	16.93	18.00	1.279	0.939	22.3
Right tilted	100	QPSK 1_1	633334/3500	100%	0.447	0.190	-0.04	16.93	18.00	1.279	0.572	22.3
Head Test Data (50%RB) State3												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.225	0.104	0.19	16.90	18.00	1.288	0.290	22.3
Left tilted	100	QPSK 135_69	633334/3500	100%	0.198	0.082	-0.10	16.90	18.00	1.288	0.255	22.3
Right cheek	100	QPSK 135_69	633334/3500	100%	0.708	0.303	0.15	16.90	18.00	1.288	0.912	22.3
Right tilted	100	QPSK 135_69	633334/3500	100%	0.434	0.181	-0.12	16.90	18.00	1.288	0.559	22.3
Head Test Data (50%RB) State3												
Right cheek	100	QPSK 270_0	633334/3500	100%	0.694	0.278	-0.04	16.91	18.00	1.285	0.892	22.3
Head Test Data (1RB) State3 (ENDC)												
Left cheek	100	QPSK 1_1	633334/3500	100%	0.200	0.091	0.01	16.93	15.00	0.641	0.128	22.3
Left tilted	100	QPSK 1_1	633334/3500	100%	0.194	0.088	-0.06	16.93	15.00	0.641	0.124	22.3
Right cheek	100	QPSK 1_1	633334/3500	100%	0.734	0.313	0.07	16.93	15.00	0.641	0.471	22.3
Right tilted	100	QPSK 1_1	633334/3500	100%	0.447	0.190	-0.04	16.93	15.00	0.641	0.287	22.3
Head Test Data (50%RB) State3 (ENDC)												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.225	0.104	0.19	16.90	15.00	0.646	0.145	22.3
Left tilted	100	QPSK 135_69	633334/3500	100%	0.198	0.082	-0.10	16.90	15.00	0.646	0.128	22.3
Right cheek	100	QPSK 135_69	633334/3500	100%	0.708	0.303	0.15	16.90	15.00	0.646	0.457	22.3
Right tilted	100	QPSK 135_69	633334/3500	100%	0.434	0.181	-0.12	16.90	15.00	0.646	0.280	22.3
Head Test Data (50%RB) State3 (ENDC)												
Right cheek	100	QPSK 270_0	633334/3500	100%	0.694	0.278	-0.04	16.91	15.00	0.644	0.447	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	100	QPSK 1_1	633334/3500	100%	0.452	0.221	0.16	26.44	27.50	1.276	0.577	22.3
Back side	100	QPSK 1_1	633334/3500	100%	0.487	0.233	-0.18	26.44	27.50	1.276	0.622	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	100	QPSK 135_69	633334/3500	100%	0.551	0.269	-0.07	26.42	27.50	1.282	0.707	22.3
Back side	100	QPSK 135_69	633334/3500	100%	0.503	0.247	0.10	26.42	27.50	1.282	0.645	22.3
Body worn Test data (Separate 15mm 1RB) State0 (ENDC)												
Front side	100	QPSK 1_1	633334/3500	100%	0.452	0.221	0.16	26.44	25.50	0.805	0.364	22.3
Back side	100	QPSK 1_1	633334/3500	100%	0.487	0.233	-0.18	26.44	25.50	0.805	0.392	22.3
Body worn Test data (Separate 15mm 50%RB) State0 (ENDC)												
Front side	100	QPSK 135_69	633334/3500	100%	0.551	0.269	-0.07	26.42	25.50	0.809	0.446	22.3
Back side	100	QPSK 135_69	633334/3500	100%	0.503	0.247	0.10	26.42	25.50	0.809	0.407	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	100	QPSK 1_1	633334/3500	100%	0.347	0.168	0.08	20.89	22.00	1.291	0.448	22.3



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Back side	100	QPSK 1_1	633334/3500	100%	0.424	0.195	0.19	20.89	22.00	1.291	0.547	22.3
Left side	100	QPSK 1_1	633334/3500	100%	0.543	0.247	-0.08	20.89	22.00	1.291	0.701	22.3
Top side	100	QPSK 1_1	633334/3500	100%	0.223	0.096	-0.02	20.89	22.00	1.291	0.288	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	100	QPSK 135_69	633334/3500	100%	0.391	0.194	0.03	20.82	22.00	1.312	0.513	22.3
Back side	100	QPSK 135_69	633334/3500	100%	0.459	0.206	0.17	20.82	22.00	1.312	0.602	22.3
Left side	100	QPSK 135_69	633334/3500	100%	0.616	0.281	-0.09	20.82	22.00	1.312	0.808	22.3
Top side	100	QPSK 135_69	633334/3500	100%	0.234	0.109	0.11	20.82	22.00	1.312	0.307	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Left side	100	QPSK 270_0	633334/3500	100%	0.559	0.244	0.06	20.72	22.00	1.343	0.751	22.3
Hotspot Test data (Separate 10mm 1RB) State4 (ENDC)												
Front side	100	QPSK 1_1	633334/3500	100%	0.347	0.168	0.08	20.89	19.00	0.647	0.225	22.3
Back side	100	QPSK 1_1	633334/3500	100%	0.424	0.195	0.19	20.89	19.00	0.647	0.274	22.3
Left side	100	QPSK 1_1	633334/3500	100%	0.543	0.247	-0.08	20.89	19.00	0.647	0.351	22.3
Top side	100	QPSK 1_1	633334/3500	100%	0.223	0.096	-0.02	20.89	19.00	0.647	0.144	22.3
Hotspot Test data (Separate 10mm 50%RB) State4 (ENDC)												
Front side	100	QPSK 135_69	633334/3500	100%	0.391	0.194	0.03	20.82	19.00	0.658	0.257	22.3
Back side	100	QPSK 135_69	633334/3500	100%	0.459	0.206	0.17	20.82	19.00	0.658	0.302	22.3
Left side	100	QPSK 135_69	633334/3500	100%	0.616	0.281	-0.09	20.82	19.00	0.658	0.405	22.3
Top side	100	QPSK 135_69	633334/3500	100%	0.234	0.109	0.11	20.82	19.00	0.658	0.154	22.3
Hotspot Test data (Separate 10mm 100%RB) State4 (ENDC)												
Left side	100	QPSK 270_0	633334/3500	100%	0.559	0.244	0.06	20.72	19.00	0.673	0.376	22.3
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												
Front side	100	QPSK 1_1	633334/3500	100%	1.540	0.595	-0.07	20.89	22.00	1.291	0.768	22.3
Back side	100	QPSK 1_1	633334/3500	100%	2.390	0.913	-0.10	20.89	22.00	1.291	1.179	22.3
Left side	100	QPSK 1_1	633334/3500	100%	4.440	1.320	-0.01	20.89	22.00	1.291	1.704	22.3
Top side	100	QPSK 1_1	633334/3500	100%	1.000	0.376	-0.13	20.89	22.00	1.291	0.485	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Front side	100	QPSK 135_69	633334/3500	100%	1.550	0.641	-0.07	20.82	22.00	1.312	0.841	22.3
Back side	100	QPSK 135_69	633334/3500	100%	2.980	1.140	-0.08	20.82	22.00	1.312	1.496	22.3
Left side	100	QPSK 135_69	633334/3500	100%	5.090	1.550	-0.03	20.82	22.00	1.312	2.034	22.3
Top side	100	QPSK 135_69	633334/3500	100%	1.240	0.460	0.00	20.82	22.00	1.312	0.604	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Left side	100	QPSK 270_0	633334/3500	100%	4.090	1.240	-0.03	20.72	22.00	1.343	1.665	22.3
Product specific 10g SAR Test data State0												
Left side-4mm	100	QPSK 1_1	633334/3500	100%	5.650	1.570	0.04	26.44	27.50	1.276	2.004	22.3

Table 19: SAR of 5G NR n77 (3450-3550 MHz) for Head, Body and Hotspot.



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8.2.16 SAR Result of 5G NR n77 (3700-3980MHz)

Ant4 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data (1RB) State3												
Left cheek	100	QPSK 1_1	656000/3840	100%	0.282	0.119	0.10	17.00	18.00	1.259	0.355	22.3
Left tilted	100	QPSK 1_1	656000/3840	100%	0.224	0.097	0.19	17.00	18.00	1.259	0.282	22.3
Right cheek	100	QPSK 1_1	656000/3840	100%	0.700	0.278	-0.05	17.00	18.00	1.259	0.881	22.3
Right tilted	100	QPSK 1_1	656000/3840	100%	0.450	0.169	0.11	17.00	18.00	1.259	0.567	22.3
Head Test Data (50%RB) State3												
Left cheek	100	QPSK 135_69	656000/3840	100%	0.271	0.116	-0.13	16.98	18.00	1.265	0.343	22.3
Left tilted	100	QPSK 135_69	656000/3840	100%	0.250	0.107	0.02	16.98	18.00	1.265	0.316	22.3
Right cheek	100	QPSK 135_69	656000/3840	100%	0.878	0.349	0.18	16.98	18.00	1.265	1.110	22.3
Right cheek-repeated	100	QPSK 135_69	656000/3840	100%	0.866	0.342	0.07	16.98	18.00	1.265	1.095	22.3
Right tilted	100	QPSK 135_69	656000/3840	100%	0.514	0.197	-0.03	16.98	18.00	1.265	0.650	22.3
Head Test Data (100%RB) State3												
Right cheek	100	QPSK 270_0	656000/3840	100%	0.765	0.297	0.01	16.59	18.00	1.384	1.058	22.3
Head Test Data (1RB) State3 (ENDC)												
Left cheek	100	QPSK 1_1	656000/3840	100%	0.282	0.119	0.10	17.00	15.00	0.631	0.178	22.3
Left tilted	100	QPSK 1_1	656000/3840	100%	0.224	0.097	0.19	17.00	15.00	0.631	0.141	22.3
Right cheek	100	QPSK 1_1	656000/3840	100%	0.700	0.278	-0.05	17.00	15.00	0.631	0.442	22.3
Right tilted	100	QPSK 1_1	656000/3840	100%	0.450	0.169	0.11	17.00	15.00	0.631	0.284	22.3
Head Test Data (50%RB) State3 (ENDC)												
Left cheek	100	QPSK 135_69	656000/3840	100%	0.271	0.116	-0.13	16.98	15.00	0.634	0.172	22.3
Left tilted	100	QPSK 135_69	656000/3840	100%	0.250	0.107	0.02	16.98	15.00	0.634	0.158	22.3
Right cheek	100	QPSK 135_69	656000/3840	100%	0.878	0.349	0.18	16.98	15.00	0.634	0.557	22.3
Right cheek-repeated	100	QPSK 135_69	656000/3840	100%	0.866	0.342	0.07	16.98	15.00	0.634	0.549	22.3
Right tilted	100	QPSK 135_69	656000/3840	100%	0.514	0.197	-0.03	16.98	15.00	0.634	0.326	22.3
Head Test Data (100%RB) State3 (ENDC)												
Right cheek	100	QPSK 270_0	656000/3840	100%	0.765	0.297	0.01	16.59	15.00	0.693	0.530	22.3
Body worn Test data (Separate 15mm 1RB) State0												
Front side	100	QPSK 1_1	656000/3840	100%	0.701	0.354	-0.01	26.44	27.50	1.276	0.895	22.3
Back side	100	QPSK 1_1	656000/3840	100%	0.644	0.329	0.09	26.44	27.50	1.276	0.822	22.3
Body worn Test data (Separate 15mm 50%RB) State0												
Front side	100	QPSK 135_69	656000/3840	100%	0.656	0.328	0.13	26.37	27.50	1.297	0.851	22.3
Back side	100	QPSK 135_69	656000/3840	100%	0.556	0.286	0.17	26.37	27.50	1.297	0.721	22.3
Body worn Test data (Separate 15mm 100%RB) State0												



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Front side	100	QPSK 270_0	656000/3840	100%	0.487	0.245	0.00	25.15	26.50	1.365	0.665	22.3
Back side	100	QPSK 270_0	656000/3840	100%	0.390	0.198	-0.02	25.15	26.50	1.365	0.532	22.3
Body worn Test data (Separate 15mm 1RB) State0 (ENDC)												
Front side	100	QPSK 1_1	656000/3840	100%	0.701	0.354	-0.01	26.44	25.50	0.805	0.565	22.3
Back side	100	QPSK 1_1	656000/3840	100%	0.644	0.329	0.09	26.44	25.50	0.805	0.519	22.3
Body worn Test data (Separate 15mm 50%RB) State0 (ENDC)												
Front side	100	QPSK 135_69	656000/3840	100%	0.656	0.328	0.13	26.37	25.50	0.818	0.537	22.3
Back side	100	QPSK 135_69	656000/3840	100%	0.556	0.286	0.17	26.37	25.50	0.818	0.455	22.3
Body worn Test data (Separate 15mm 100%RB) State0 (ENDC)												
Front side	100	QPSK 270_0	656000/3840	100%	0.487	0.245	0.00	25.15	25.50	1.084	0.528	22.3
Back side	100	QPSK 270_0	656000/3840	100%	0.390	0.198	-0.02	25.15	25.50	1.084	0.423	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	100	QPSK 1_1	656000/3840	100%	0.496	0.245	0.06	20.99	22.00	1.262	0.626	22.3
Back side	100	QPSK 1_1	656000/3840	100%	0.496	0.246	0.00	20.99	22.00	1.262	0.626	22.3
Left side	100	QPSK 1_1	656000/3840	100%	0.814	0.365	-0.14	20.99	22.00	1.262	1.027	22.3
Top side	100	QPSK 1_1	656000/3840	100%	0.238	0.125	0.06	20.99	22.00	1.262	0.300	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	100	QPSK 135_69	656000/3840	100%	0.485	0.250	0.05	20.95	22.00	1.274	0.618	22.3
Back side	100	QPSK 135_69	656000/3840	100%	0.490	0.245	-0.16	20.95	22.00	1.274	0.624	22.3
Left side	100	QPSK 135_69	656000/3840	100%	0.797	0.382	-0.19	20.95	22.00	1.274	1.015	22.3
Top side	100	QPSK 135_69	656000/3840	100%	0.290	0.138	0.10	20.95	22.00	1.274	0.369	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Left side	100	QPSK 270_0	656000/3840	100%	0.746	0.348	0.03	20.76	22.00	1.331	0.993	22.3
Hotspot Test data (Separate 10mm 1RB) State4												
Front side	100	QPSK 1_1	656000/3840	100%	0.496	0.245	0.06	20.99	19.00	0.632	0.314	22.3
Back side	100	QPSK 1_1	656000/3840	100%	0.496	0.246	0.00	20.99	19.00	0.632	0.314	22.3
Left side	100	QPSK 1_1	656000/3840	100%	0.814	0.365	-0.14	20.99	19.00	0.632	0.515	22.3
Top side	100	QPSK 1_1	656000/3840	100%	0.238	0.125	0.06	20.99	19.00	0.632	0.151	22.3
Hotspot Test data (Separate 10mm 50%RB) State4												
Front side	100	QPSK 135_69	656000/3840	100%	0.485	0.250	0.05	20.95	19.00	0.638	0.310	22.3
Back side	100	QPSK 135_69	656000/3840	100%	0.490	0.245	-0.16	20.95	19.00	0.638	0.313	22.3
Left side	100	QPSK 135_69	656000/3840	100%	0.797	0.382	-0.19	20.95	19.00	0.638	0.509	22.3
Top side	100	QPSK 135_69	656000/3840	100%	0.290	0.138	0.10	20.95	19.00	0.638	0.185	22.3
Hotspot Test data (Separate 10mm 100%RB) State4												
Left side	100	QPSK 270_0	656000/3840	100%	0.746	0.348	0.03	20.76	19.00	0.667	0.498	22.3
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled 10-g SAR(W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data (Separate 0mm 1RB) State1												



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Front side	100	QPSK 1_1	656000/3840	100%	3.750	1.220	0.15	20.99	22.00	1.262	1.539	22.3
Back side	100	QPSK 1_1	656000/3840	100%	4.470	1.980	-0.13	20.99	22.00	1.262	2.498	22.3
Left side	100	QPSK 1_1	656000/3840	100%	7.700	2.230	0.06	20.99	22.00	1.262	2.814	22.3
Left side-repeated	100	QPSK 1_1	656000/3840	100%	7.690	2.180	0.03	20.99	22.00	1.262	2.751	22.3
Top side	100	QPSK 1_1	656000/3840	100%	1.910	0.679	0.11	20.99	22.00	1.262	0.857	22.3
Product specific 10g SAR Test data (Separate 0mm 50%RB) State1												
Front side	100	QPSK 135_69	656000/3840	100%	2.830	1.037	0.17	20.95	22.00	1.274	1.321	22.3
Back side	100	QPSK 135_69	656000/3840	100%	4.060	1.550	-0.19	20.95	22.00	1.274	1.974	22.3
Left side	100	QPSK 135_69	656000/3840	100%	6.500	2.000	-0.03	20.95	22.00	1.274	2.547	22.3
Top side	100	QPSK 135_69	656000/3840	100%	1.610	0.599	-0.19	20.95	22.00	1.274	0.763	22.3
Product specific 10g SAR Test data (Separate 0mm 100%RB) State1												
Back side	100	QPSK 270_0	656000/3840	100%	4.680	1.400	0.17	20.76	22.00	1.331	1.863	22.3
Left side	100	QPSK 270_0	656000/3840	100%	5.700	1.700	0.19	20.76	22.00	1.331	2.262	22.3
Product specific 10g SAR Test data State0												
Back side-4mm	100	QPSK 1_1	656000/3840	100%	5.630	1.350	0.08	25.15	26.50	1.365	1.842	22.3
Left side-4mm	100	QPSK 1_1	656000/3840	100%	6.840	1.870	0.03	25.15	26.50	1.365	2.552	22.3

Table 20: SAR of 5G NR n77 (3700 - 3980MHz) for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Right cheek	656000/3840	0.878	0.866	1.014	N/A	N/A
Left side 0mm	656000/3840	2.230	2.180	1.023	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.



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8.2.17 SAR Result of WIFI 2.4G

Ant5 Test Record chain0												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(℃)
Head Test Data Standalone												
Left cheek	802.11b	6/2437	100.00%	1.000	0.881	0.428	-0.01	18.26	19.50	1.330	1.172	22.3
Left cheek-repeated	802.11b	6/2437	100.00%	1.000	0.879	0.423	0.09	18.26	19.50	1.330	1.169	22.3
Left cheek	802.11b	1/2412	100.00%	1.000	0.780	0.387	-0.17	18.12	19.50	1.374	1.072	22.3
Left cheek	802.11b	11/2462	100.00%	1.000	0.827	0.406	0.11	18.23	19.50	1.340	1.108	22.3
Left tilted	802.11b	6/2437	100.00%	1.000	0.666	0.312	-0.09	18.26	19.50	1.330	0.886	22.3
Right cheek	802.11b	6/2437	100.00%	1.000	0.242	0.134	-0.11	18.26	19.50	1.330	0.322	22.3
Right tilted	802.11b	6/2437	100.00%	1.000	0.256	0.138	0.02	18.26	19.50	1.330	0.341	22.3
Head Test Data Simultaneous												
Left cheek	802.11b	6/2437	100.00%	1.000	0.881	0.428	-0.01	18.26	18.50	1.057	0.931	22.3
Left cheek-repeated	802.11b	6/2437	100.00%	1.000	0.879	0.423	0.09	18.26	18.50	1.057	0.929	22.3
Left cheek	802.11b	1/2412	100.00%	1.000	0.780	0.387	-0.17	18.12	18.50	1.091	0.851	22.3
Left cheek	802.11b	11/2462	100.00%	1.000	0.827	0.406	0.11	18.23	18.50	1.064	0.880	22.3
Left tilted	802.11b	6/2437	100.00%	1.000	0.666	0.312	-0.09	18.26	18.50	1.057	0.704	22.3
Right cheek	802.11b	6/2437	100.00%	1.000	0.242	0.134	-0.11	18.26	18.50	1.057	0.256	22.3
Right tilted	802.11b	6/2437	100.00%	1.000	0.256	0.138	0.02	18.26	18.50	1.057	0.271	22.3
Body worn Test data (Separate 15mm)												
Front side	802.11b	6/2437	100.00%	1.000	0.116	0.067	-0.11	18.26	19.50	1.330	0.154	22.3
Back side	802.11b	6/2437	100.00%	1.000	0.148	0.080	-0.01	18.26	19.50	1.330	0.197	22.3
Hotspot Test data (Separate 10mm)												
Front side	802.11b	6/2437	100.00%	1.000	0.218	0.120	-0.10	18.26	18.00	0.942	0.205	22.3
Back side	802.11b	6/2437	100.00%	1.000	0.306	0.158	-0.08	18.26	18.00	0.942	0.288	22.3
Right side	802.11b	6/2437	100.00%	1.000	0.263	0.133	-0.19	18.26	18.00	0.942	0.248	22.3
Top side	802.11b	6/2437	100.00%	1.000	0.257	0.119	-0.10	18.26	18.00	0.942	0.242	22.3

Table 21: SAR of WIFI 2.4G for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	6/2437	0.881	0.879	1.002	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 $< 0.80 \text{ W/kg}$

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.



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Mode	Tune-up (dBm)	Tune-up (mw)	Highest Reported SAR1-g(W/kg)	Adjusted SAR1-g(W/kg)	SAR test
Head					
802.11b	19.50	89.13	1.172	/	/
802.11g	18.50	70.79	/	0.931	No
802.11n 20M	18.50	70.79	/	0.931	No
Body worn Test data(Separate 15mm) DSI					
802.11b	19.50	89.13	0.197	/	/
802.11g	18.50	70.79	/	0.156	No
802.11n 20M	18.50	70.79	/	0.156	No
Hotspot Test data (Separate 10mm)					
802.11b	18.00	63.10	0.288	/	/
802.11g	18.00	63.10	/	0.288	No
802.11n 20M	18.00	63.10	/	0.288	No

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8.2.18 SAR Result of WIFI 5G

Ant5 Test Record chain0												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data of U-NII-2A Standalone												
Left cheek	802.11a	64/5320	97.55%	1.025	0.930	0.288	0.11	16.87	17.50	1.156	1.102	22.3
Left cheek-repeated	802.11a	64/5320	97.55%	1.025	0.926	0.283	0.07	16.87	17.50	1.156	1.097	22.3
Left cheek	802.11a	52/5260	97.55%	1.025	0.759	0.251	0.00	16.71	17.50	1.199	0.933	22.3
Left cheek	802.11a	56/5280	97.55%	1.025	0.746	0.242	0.07	16.55	17.50	1.245	0.952	22.3
Left cheek	802.11a	60/5300	97.55%	1.025	0.737	0.236	0.08	16.51	17.50	1.256	0.949	22.3
Left tilted	802.11a	64/5320	97.55%	1.025	0.912	0.317	0.14	16.87	17.50	1.156	1.081	22.3
Right cheek	802.11a	64/5320	97.55%	1.025	0.470	0.166	0.07	16.87	17.50	1.156	0.557	22.3
Right tilted	802.11a	64/5320	97.55%	1.025	0.549	0.230	-0.14	16.87	17.50	1.156	0.651	22.3
Head Test Data of U-NII-2C Standalone												
Left cheek	802.11ac 80M	106/5530	97.40%	1.027	0.792	0.208	-0.01	15.83	16.50	1.167	0.949	22.2
Left tilted	802.11ac 80M	106/5530	97.40%	1.027	0.938	0.247	0.03	15.83	16.50	1.167	1.124	22.2
Left tilted-repeated	802.11ac 80M	106/5530	97.40%	1.027	0.933	0.241	-0.02	15.83	16.50	1.167	1.118	22.2
Right cheek	802.11ac 80M	106/5530	97.40%	1.027	0.499	0.151	-0.15	15.83	16.50	1.167	0.598	22.2
Right tilted	802.11ac 80M	106/5530	97.40%	1.027	0.532	0.202	0.18	15.83	16.50	1.167	0.637	22.2
Head Test Data of U-NII-3 Standalone												
Left cheek	802.11ac 80M	155/5775	97.40%	1.027	0.738	0.189	-0.04	15.19	16.50	1.352	1.024	22.2
Left tilted	802.11ac 80M	155/5775	97.40%	1.027	0.767	0.207	0.01	15.19	16.50	1.352	1.065	22.2
Right cheek	802.11ac 80M	155/5775	97.40%	1.027	0.519	0.165	-0.19	15.19	16.50	1.352	0.720	22.2
Right tilted	802.11ac 80M	155/5775	97.40%	1.027	0.548	0.217	0.09	15.19	16.50	1.352	0.761	22.2
Head Test Data of U-NII-2A Simultaneous												
Left cheek	802.11a	64/5320	97.55%	1.025	0.930	0.288	0.11	16.87	13.00	0.410	0.391	22.3
Left cheek-repeated	802.11a	64/5320	97.55%	1.025	0.926	0.283	0.07	16.87	13.00	0.410	0.389	22.3
Left cheek	802.11a	52/5260	97.55%	1.025	0.759	0.251	0.00	16.71	13.00	0.426	0.331	22.3
Left cheek	802.11a	56/5280	97.55%	1.025	0.746	0.242	0.07	16.55	13.00	0.442	0.338	22.3
Left cheek	802.11a	60/5300	97.55%	1.025	0.737	0.236	0.08	16.51	13.00	0.446	0.337	22.3
Left tilted	802.11a	64/5320	97.55%	1.025	0.912	0.317	0.14	16.87	13.00	0.410	0.383	22.3
Right cheek	802.11a	64/5320	97.55%	1.025	0.470	0.166	0.07	16.87	13.00	0.410	0.198	22.3
Right tilted	802.11a	64/5320	97.55%	1.025	0.549	0.230	-0.14	16.87	13.00	0.410	0.231	22.3
Head Test Data of U-NII-2C Simultaneous												
Left cheek	802.11ac 80M	106/5530	97.40%	1.027	0.792	0.208	-0.01	15.83	12.50	0.465	0.378	22.2
Left tilted	802.11ac 80M	106/5530	97.40%	1.027	0.938	0.247	0.03	15.83	12.50	0.465	0.447	22.2
Left tilted-repeated	802.11ac 80M	106/5530	97.40%	1.027	0.933	0.241	-0.02	15.83	12.50	0.465	0.445	22.2
Right cheek	802.11ac 80M	106/5530	97.40%	1.027	0.499	0.151	-0.15	15.83	12.50	0.465	0.238	22.2
Right tilted	802.11ac 80M	106/5530	97.40%	1.027	0.532	0.202	0.18	15.83	12.50	0.465	0.254	22.2
Head Test Data of U-NII-3 Simultaneous												
Left cheek	802.11ac 80M	155/5775	97.40%	1.027	0.738	0.189	-0.04	15.19	12.50	0.538	0.408	22.2
Left tilted	802.11ac 80M	155/5775	97.40%	1.027	0.767	0.207	0.01	15.19	12.50	0.538	0.424	22.2
Right cheek	802.11ac 80M	155/5775	97.40%	1.027	0.519	0.165	-0.19	15.19	12.50	0.538	0.287	22.2
Right tilted	802.11ac 80M	155/5775	97.40%	1.027	0.548	0.217	0.09	15.19	12.50	0.538	0.303	22.2
Body worn Test data of U-NII-2A (Separate 15mm) Standalone												
Front side	802.11a	64/5320	97.55%	1.025	0.172	0.072	0.00	18.58	19.50	1.236	0.218	22.3
Back side	802.11a	64/5320	97.55%	1.025	0.310	0.132	0.09	18.58	19.50	1.236	0.393	22.3
Body worn Test data of U-NII-2C (Separate 15mm) Standalone												
Front side	802.11a	116/5580	97.55%	1.025	0.260	0.102	-0.17	18.22	19.50	1.343	0.358	22.2
Back side	802.11a	116/5580	97.55%	1.025	0.425	0.178	0.04	18.22	19.50	1.343	0.585	22.2
Body worn Test data of U-NII-3 (Separate 15mm) Standalone												
Front side	802.11a	157/5785	97.55%	1.025	0.235	0.093	0.13	18.51	19.50	1.256	0.303	22.2
Back side	802.11a	157/5785	97.55%	1.025	0.431	0.171	0.01	18.51	19.50	1.256	0.555	22.2
Body worn Test data of U-NII-2A (Separate 15mm) Simultaneous												
Front side	802.11a	64/5320	97.55%	1.025	0.172	0.072	0.00	18.58	13.00	0.277	0.049	22.3
Back side	802.11a	64/5320	97.55%	1.025	0.310	0.132	0.09	18.58	13.00	0.277	0.088	22.3
Body worn Test data of U-NII-2C (Separate 15mm) Simultaneous												
Front side	802.11a	116/5580	97.55%	1.025	0.260	0.102	-0.17	18.22	16.00	0.600	0.160	22.2
Back side	802.11a	116/5580	97.55%	1.025	0.425	0.178	0.04	18.22	16.00	0.600	0.261	22.2
Body worn Test data of U-NII-3 (Separate 15mm) Simultaneous												
Front side	802.11a	157/5785	97.55%	1.025	0.235	0.093	0.13	18.01	16.00	0.630	0.152	22.2
Back side	802.11a	157/5785	97.55%	1.025	0.431	0.171	0.01	18.01	16.00	0.630	0.278	22.2
Hotspot Test data of U-NII-1 (Separate 10mm)												
Front side	802.11ac 80M	42/5210	97.40%	1.027	0.068	0.024	-0.12	12.68	14.00	1.355	0.095	22.3
Back side	802.11ac 80M	42/5210	97.40%	1.027	0.138	0.049	0.12	12.68	14.00	1.355	0.192	22.3



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Right side	802.11ac 80M	42/5210	97.40%	1.027	0.046	0.020	0.14	12.68	14.00	1.355	0.064	22.3
Top side	802.11ac 80M	42/5210	97.40%	1.027	0.242	0.084	-0.13	12.68	14.00	1.355	0.337	22.3
Hotspot Test data of U-NII-3 (Separate 10mm)												
Front side	802.11ac 80M	155/5775	97.40%	1.027	0.112	0.040	-0.08	13.13	14.50	1.371	0.158	22.2
Back side	802.11ac 80M	155/5775	97.40%	1.027	0.191	0.073	-0.18	13.13	14.50	1.371	0.269	22.2
Right side	802.11ac 80M	155/5775	97.40%	1.027	0.095	0.039	-0.08	13.13	14.50	1.371	0.134	22.2
Top side	802.11ac 80M	155/5775	97.40%	1.027	0.231	0.087	-0.19	13.13	14.50	1.371	0.325	22.2
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10gSAR Test data of U-NII-1 (Separate 0mm) Standalone												
Top side	802.11a	48/5240	97.55%	1.025	7.930	1.360	0.03	17.28	18.50	1.324	1.846	22.3
Top side	802.11a	36/5180	97.55%	1.025	11.900	2.030	0.01	16.96	18.50	1.426	2.967	22.3
Top side-repeated	802.11a	36/5180	97.55%	1.025	11.700	2.010	0.08	16.96	18.50	1.426	2.937	22.3
Top side	802.11a	40/5200	97.55%	1.025	8.800	1.680	0.15	16.98	18.50	1.419	2.444	22.3
Top side	802.11a	44/5220	97.55%	1.025	10.900	1.860	-0.02	17.10	18.50	1.380	2.632	22.3
Product specific 10gSAR Test data of U-NII-2A (Separate 0mm) Standalone												
Front side	802.11a	64/5320	97.55%	1.025	2.440	0.585	0.18	17.24	18.50	1.337	0.802	22.3
Back side	802.11a	64/5320	97.55%	1.025	2.350	0.516	0.15	17.24	18.50	1.337	0.707	22.3
Right side	802.11a	64/5320	97.55%	1.025	0.875	0.298	0.03	17.24	18.50	1.337	0.408	22.3
Top side	802.11a	64/5320	97.55%	1.025	8.050	1.430	0.01	17.24	18.50	1.337	1.959	22.3
Top side	802.11a	52/5260	97.55%	1.025	11.900	2.080	-0.07	17.03	18.50	1.403	2.991	22.3
Top side-repeated	802.11a	52/5260	97.55%	1.025	11.600	2.030	0.03	17.03	18.50	1.403	2.919	22.3
Top side	802.11a	56/5280	97.55%	1.025	8.460	1.540	-0.03	16.99	18.50	1.416	2.235	22.3
Top side	802.11a	60/5300	97.55%	1.025	8.840	1.600	-0.14	17.12	18.50	1.374	2.254	22.3
Product specific 10gSAR Test data of U-NII-2C (Separate 0mm) Standalone												
Front side	802.11a	116/5580	97.55%	1.025	2.630	0.679	0.00	18.22	19.50	1.343	0.935	22.2
Back side	802.11a	116/5580	97.55%	1.025	1.750	0.562	0.02	18.22	19.50	1.343	0.774	22.2
Right side	802.11a	116/5580	97.55%	1.025	0.839	0.288	-0.03	18.22	19.50	1.343	0.396	22.2
Top side	802.11a	116/5580	97.55%	1.025	6.480	1.340	0.03	18.22	19.50	1.343	1.844	22.2
Product specific 10gSAR Test data of U-NII-1 (Separate 0mm) Simultaneous												
Top side	802.11a	48/5240	97.55%	1.025	7.930	1.360	0.03	17.28	13.00	0.373	0.520	22.3
Top side	802.11a	36/5180	97.55%	1.025	11.900	2.030	0.01	16.96	13.00	0.402	0.836	22.3
Top side-repeated	802.11a	36/5180	97.55%	1.025	11.700	2.010	0.08	16.96	13.00	0.402	0.828	22.3
Top side	802.11a	40/5200	97.55%	1.025	8.800	1.680	0.15	16.98	13.00	0.400	0.689	22.3
Top side	802.11a	44/5220	97.55%	1.025	10.900	1.860	-0.02	17.10	13.00	0.389	0.742	22.3
Product specific 10gSAR Test data of U-NII-2A (Separate 0mm) Simultaneous												
Front side	802.11a	64/5320	97.55%	1.025	2.440	0.585	0.18	17.24	13.00	0.377	0.226	22.3
Back side	802.11a	64/5320	97.55%	1.025	2.350	0.516	0.15	17.24	13.00	0.377	0.199	22.3
Right side	802.11a	64/5320	97.55%	1.025	0.875	0.298	0.03	17.24	13.00	0.377	0.115	22.3
Top side	802.11a	64/5320	97.55%	1.025	8.050	1.430	0.01	17.24	13.00	0.377	0.552	22.3
Top side	802.11a	52/5260	97.55%	1.025	11.900	2.080	-0.07	17.03	13.00	0.395	0.843	22.3
Top side-repeated	802.11a	52/5260	97.55%	1.025	11.600	2.030	0.03	17.03	13.00	0.395	0.823	22.3
Top side	802.11a	56/5280	97.55%	1.025	8.460	1.540	-0.03	16.99	13.00	0.399	0.630	22.3
Top side	802.11a	60/5300	97.55%	1.025	8.840	1.600	-0.14	17.12	13.00	0.387	0.635	22.3
Product specific 10gSAR Test data of U-NII-2C (Separate 0mm) Simultaneous												
Front side	802.11a	116/5580	97.55%	1.025	2.630	0.679	0.03	18.22	16.00	0.600	0.417	22.2
Back side	802.11a	116/5580	97.55%	1.025	1.750	0.562	0.02	18.22	16.00	0.600	0.346	22.2
Right side	802.11a	116/5580	97.55%	1.025	0.839	0.288	-0.03	18.22	16.00	0.600	0.177	22.2
Top side	802.11a	116/5580	97.55%	1.025	6.480	1.340	0.03	18.22	16.00	0.600	0.824	22.2
Product specific 10gSAR Test data of U-NII-1 (Separate 0mm) Sensor off												
Top side-14mm	802.11a	48/5240	97.55%	1.025	0.561	0.257	0.09	18.31	19.50	1.315	0.346	22.3
Product specific 10gSAR Test data of U-NII-2A (Separate 0mm) Standalone												
Front side-10mm	802.11a	64/5320	97.55%	1.025	0.261	0.154	0.06	18.58	19.50	1.236	0.195	22.3
Back side-13mm	802.11a	64/5320	97.55%	1.025	0.306	0.211	-0.07	18.58	19.50	1.236	0.267	22.3
Right side-9mm	802.11a	64/5320	97.55%	1.025	0.106	0.076	0.04	18.58	19.50	1.236	0.096	22.3
Top side-14mm	802.11a	64/5320	97.55%	1.025	0.502	0.231	0.07	18.58	19.50	1.236	0.293	22.3

Table 22: SAR of WIFI 5G for Head, Body and Hotspot.

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	64/5320	0.930	0.926	1.004	N/A	N/A
Left cheek	106/5530	0.938	0.933	1.005	N/A	N/A
Top side 0mm	36/5180	2.030	2.010	1.010	N/A	N/A
Top side 0mm	52/5260	2.080	2.030	1.025	N/A	N/A



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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.



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8.2.19 SAR Result of BT

Ant5 Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data												
Left cheek	DH5	0/2402	76.96%	1.299	0.164	0.079	0.17	10.93	11.50	1.140	0.243	22.3
Left tilted	DH5	0/2402	76.96%	1.299	0.145	0.070	-0.01	10.93	11.50	1.140	0.215	22.3
Right cheek	DH5	0/2402	76.96%	1.299	0.055	0.031	-0.10	10.93	11.50	1.140	0.081	22.3
Right tilted	DH5	0/2402	76.96%	1.299	0.060	0.032	-0.08	10.93	11.50	1.140	0.089	22.3
Body worn Test data (Separate 15mm)												
Front side	DH5	0/2402	76.96%	1.299	0.013	0.008	0.04	10.93	11.50	1.140	0.019	22.3
Back side	DH5	0/2402	76.96%	1.299	0.019	0.010	0.10	10.93	11.50	1.140	0.028	22.3
Hotspot Test data (Separate 10mm)												
Front side	DH5	0/2402	76.96%	1.299	0.021	0.012	0.19	10.93	11.50	1.140	0.031	22.3
Back side	DH5	0/2402	76.96%	1.299	0.041	0.021	-0.09	10.93	11.50	1.140	0.061	22.3
Right side	DH5	0/2402	76.96%	1.299	0.020	0.008	0.06	10.93	11.50	1.140	0.030	22.3
Top side	DH5	0/2402	76.96%	1.299	0.025	0.018	-0.07	10.93	11.50	1.140	0.037	22.3

Table 23: SAR of BT for Head, Body and Hotspot.



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8.2.20 SAR Result of NFC

NFC SAR Test Record									
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 10-g	Power drift (dB)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
NFC Test data (Separate 0mm)									
Front side	NFC	13.56MHz	100.00%	1.000	0.001	-0.09	1.000	0.001	22.4
Back side	NFC	13.56MHz	100.00%	1.000	0.027	0.05	1.000	0.027	22.4
Left side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.4
Right side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.4
Top side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.4
Bottom side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.4

Table 24: SAR of NFC for Product specific 10g SAR.



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8.3 Multiple Transmitter Evaluation

8.3.1 Simultaneous SAR test evaluation

•Simultaneous Transmission Possibilities

No.	Simultaneous Tx Combination	Head	Body	Hotspot	Product Specific 10-g (0mm)
1	WWAN + WLAN 2.4GHz	Yes	Yes	Yes	Yes
2	WWAN + WLAN 5GHz	Yes	Yes	Yes	Yes
3	WWAN + WLAN 5GHz + BT	Yes	Yes	Yes	Yes
4	WWAN + WLAN 2.4GHz + NFC	/	/	/	Yes
5	WWAN + WLAN 5GHz + NFC	/	/	/	Yes
6	WWAN + WLAN 5GHz + BT + NFC	/	/	/	Yes

Note:

- 1) NFC is different from the working scenario of WWAN/WIFI(Head/Body-worn/Hotspot) and does not participate in the simultaneous transmission.
- 2) Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR(Scaled to the maximum output power ,including tolerance) < 1.2 W/Kg. Therefore, no further analysis beyond tables included in this section was required to determine that possible Simultaneous transmission scenarios would not exceed the SAR limit.



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8.3.2 Simultaneous Transmission SAR Summation Scenario

Head:

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant0	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
WCDMA V	Left cheek	0.245	0.931	0.408	0.243	1.176	0.896
	Left tilted	0.122	0.704	0.447	0.215	0.826	0.784
	Right cheek	0.273	0.256	0.287	0.081	0.529	0.641
	Right tilted	0.098	0.271	0.303	0.089	0.369	0.490
LTE Band 5	Left cheek	0.261	0.931	0.408	0.243	1.192	0.912
	Left tilted	0.147	0.704	0.447	0.215	0.851	0.809
	Right cheek	0.276	0.256	0.287	0.081	0.532	0.644
	Right tilted	0.154	0.271	0.303	0.089	0.425	0.546
LTE Band 12	Left cheek	0.218	0.931	0.408	0.243	1.149	0.869
	Left tilted	0.122	0.704	0.447	0.215	0.826	0.784
	Right cheek	0.232	0.256	0.287	0.081	0.488	0.600
	Right tilted	0.147	0.271	0.303	0.089	0.418	0.539
LTE Band 14	Left cheek	0.203	0.931	0.408	0.243	1.134	0.854
	Left tilted	0.126	0.704	0.447	0.215	0.830	0.788
	Right cheek	0.207	0.256	0.287	0.081	0.463	0.575
	Right tilted	0.129	0.271	0.303	0.089	0.400	0.521
5G NR n5	Left cheek	0.166	0.931	0.408	0.243	1.097	0.817
	Left tilted	0.093	0.704	0.447	0.215	0.797	0.755
	Right cheek	0.193	0.256	0.287	0.081	0.449	0.561
	Right tilted	0.081	0.271	0.303	0.089	0.352	0.473

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant3	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
WCDMA II	Left cheek	0.352	0.931	0.408	0.243	1.283	1.003
	Left tilted	0.419	0.704	0.447	0.215	1.123	1.081
	Right cheek	0.673	0.256	0.287	0.081	0.929	1.041
	Right tilted	1.140	0.271	0.303	0.089	1.411	1.532
WCDMA IV	Left cheek	0.628	0.931	0.408	0.243	1.559	1.279
	Left tilted	0.679	0.704	0.447	0.215	1.383	1.341
	Right cheek	1.113	0.256	0.287	0.081	1.369	1.481
	Right tilted	1.164	0.271	0.303	0.089	1.435	1.556
LTE Band 2	Left cheek	0.514	0.931	0.408	0.243	1.445	1.165
	Left tilted	0.621	0.704	0.447	0.215	1.325	1.283
	Right cheek	1.004	0.256	0.287	0.081	1.260	1.372
	Right tilted	1.136	0.271	0.303	0.089	1.407	1.528
LTE Band 7	Left cheek	0.238	0.931	0.408	0.243	1.169	0.889



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	Left tilted	0.307	0.704	0.447	0.215	1.011	0.969
	Right cheek	0.729	0.256	0.287	0.081	0.985	1.097
	Right tilted	0.865	0.271	0.303	0.089	1.136	1.257
LTE Band 30	Left cheek	0.306	0.931	0.408	0.243	1.237	0.957
	Left tilted	0.530	0.704	0.447	0.215	1.234	1.192
	Right cheek	1.001	0.256	0.287	0.081	1.257	1.369
	Right tilted	1.120	0.271	0.303	0.089	1.391	1.512
LTE Band 66	Left cheek	0.519	0.931	0.408	0.243	1.450	1.170
	Left tilted	0.576	0.704	0.447	0.215	1.280	1.238
	Right cheek	1.011	0.256	0.287	0.081	1.267	1.379
	Right tilted	1.074	0.271	0.303	0.089	1.345	1.466
5G NR n2	Left cheek	0.411	0.931	0.408	0.243	1.342	1.062
	Left tilted	0.521	0.704	0.447	0.215	1.225	1.183
	Right cheek	0.982	0.256	0.287	0.081	1.238	1.350
	Right tilted	1.147	0.271	0.303	0.089	1.418	1.539
5G NR n30	Left cheek	0.339	0.931	0.408	0.243	1.270	0.990
	Left tilted	0.606	0.704	0.447	0.215	1.310	1.268
	Right cheek	1.049	0.256	0.287	0.081	1.305	1.417
	Right tilted	1.146	0.271	0.303	0.089	1.417	1.538
5G NR n66	Left cheek	0.615	0.931	0.408	0.243	1.546	1.266
	Left tilted	0.714	0.704	0.447	0.215	1.418	1.376
	Right cheek	1.018	0.256	0.287	0.081	1.274	1.386
	Right tilted	1.138	0.271	0.303	0.089	1.409	1.530

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant4	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
5G NR n77	Left cheek	0.355	0.931	0.408	0.243	1.286	1.006
	Left tilted	0.316	0.704	0.447	0.215	1.020	0.978
	Right cheek	1.110	0.256	0.287	0.081	1.366	1.478
	Right tilted	0.650	0.271	0.303	0.089	0.921	1.042

Test position		SARmax (W/kg)				Summed SAR	
		Inter-band UL CA	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
CA_2A-5A	Left cheek	0.491	0.931	0.408	0.243	1.422	1.142
	Left tilted	0.424	0.704	0.447	0.215	1.128	1.086
	Right cheek	0.725	0.256	0.287	0.081	0.981	1.093
	Right tilted	0.662	0.271	0.303	0.089	0.933	1.054
CA_2A-12A	Left cheek	0.448	0.704	0.447	0.215	1.152	1.110
	Left tilted	0.399	0.256	0.287	0.081	0.655	0.767
	Right cheek	0.681	0.271	0.303	0.089	0.952	1.073



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	Right tilted	0.655	0.931	0.408	0.243	1.586	1.306
CA_2A-14A	Left cheek	0.433	0.256	0.287	0.081	0.689	0.801
	Left tilted	0.403	0.271	0.303	0.089	0.674	0.795
	Right cheek	0.656	0.000	0.000	0.000	0.656	0.656
	Right tilted	0.637	0.000	0.000	0.000	0.637	0.637
CA_4A-12A	Left cheek	0.478	0.256	0.287	0.081	0.734	0.846
	Left tilted	0.411	0.271	0.303	0.089	0.682	0.803
	Right cheek	0.739	0.000	0.000	0.000	0.739	0.739
	Right tilted	0.675	0.000	0.000	0.000	0.675	0.675
CA_5A-30A	Left cheek	0.414	0.256	0.287	0.081	0.670	0.782
	Left tilted	0.413	0.271	0.303	0.089	0.684	0.805
	Right cheek	0.778	0.000	0.000	0.000	0.778	0.778
	Right tilted	0.715	0.000	0.000	0.000	0.715	0.715
CA_5A-66A	Left cheek	0.521	0.256	0.287	0.081	0.777	0.889
	Left tilted	0.436	0.271	0.303	0.089	0.707	0.828
	Right cheek	0.783	0.000	0.000	0.000	0.783	0.783
	Right tilted	0.682	0.000	0.000	0.000	0.682	0.682
CA_12A-30A	Left cheek	0.371	0.256	0.287	0.081	0.627	0.739
	Left tilted	0.388	0.271	0.303	0.089	0.659	0.780
	Right cheek	0.734	0.000	0.000	0.000	0.734	0.734
	Right tilted	0.708	0.000	0.000	0.000	0.708	0.708
CA_12A-66A	Left cheek	0.478	0.256	0.287	0.081	0.734	0.846
	Left tilted	0.411	0.271	0.303	0.089	0.682	0.803
	Right cheek	0.739	0.000	0.000	0.000	0.739	0.739
	Right tilted	0.675	0.000	0.000	0.000	0.675	0.675
CA_14A-30A	Left cheek	0.356	0.256	0.287	0.081	0.612	0.724
	Left tilted	0.392	0.271	0.303	0.089	0.663	0.784
	Right cheek	0.709	0.000	0.000	0.000	0.709	0.709
	Right tilted	0.690	0.000	0.000	0.000	0.690	0.690
CA_14A-66A	Left cheek	0.463	0.256	0.287	0.081	0.719	0.831
	Left tilted	0.415	0.271	0.303	0.089	0.686	0.807
	Right cheek	0.714	0.000	0.000	0.000	0.714	0.714
	Right tilted	0.657	0.000	0.000	0.000	0.657	0.657

Test position		SARmax (W/kg)				Summed SAR	
		EN-DC Max SAR	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
DC_2A_n2A	Left cheek	0.206	0.931	0.408	0.243	1.137	0.857
	Left tilted	0.261	0.704	0.447	0.215	0.965	0.923
	Right cheek	0.492	0.256	0.287	0.081	0.748	0.860
	Right tilted	0.575	0.271	0.303	0.089	0.846	0.967
DC_2A_n30A	Left cheek	0.523	0.931	0.408	0.243	1.454	1.174



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	Left tilted	0.477	0.704	0.447	0.215	1.181	1.139
	Right cheek	0.753	0.256	0.287	0.081	1.009	1.121
	Right tilted	0.707	0.271	0.303	0.089	0.978	1.099
DC_2A_n66A	Left cheek	0.661	0.931	0.408	0.243	1.592	1.312
	Left tilted	0.531	0.704	0.447	0.215	1.235	1.193
	Right cheek	0.737	0.256	0.287	0.081	0.993	1.105
	Right tilted	0.703	0.271	0.303	0.089	0.974	1.095
DC_2A_n77A	Left cheek	0.531	0.931	0.408	0.243	1.462	1.182
	Left tilted	0.331	0.704	0.447	0.215	1.035	0.993
	Right cheek	0.784	0.256	0.287	0.081	1.040	1.152
	Right tilted	0.459	0.271	0.303	0.089	0.730	0.851
DC_2A_n5A	Left cheek	0.396	0.931	0.408	0.243	1.327	1.047
	Left tilted	0.370	0.704	0.447	0.215	1.074	1.032
	Right cheek	0.642	0.256	0.287	0.081	0.898	1.010
	Right tilted	0.589	0.271	0.303	0.089	0.860	0.981
DC_5A_n2A	Left cheek	0.467	0.931	0.408	0.243	1.398	1.118
	Left tilted	0.408	0.704	0.447	0.215	1.112	1.070
	Right cheek	0.768	0.256	0.287	0.081	1.024	1.136
	Right tilted	0.729	0.271	0.303	0.089	1.000	1.121
DC_5A_n30A	Left cheek	0.170	0.931	0.408	0.243	1.101	0.821
	Left tilted	0.304	0.704	0.447	0.215	1.008	0.966
	Right cheek	0.526	0.256	0.287	0.081	0.782	0.894
	Right tilted	0.574	0.271	0.303	0.089	0.845	0.966
DC_5A_n66A	Left cheek	0.569	0.931	0.408	0.243	1.500	1.220
	Left tilted	0.505	0.704	0.447	0.215	1.209	1.167
	Right cheek	0.786	0.256	0.287	0.081	1.042	1.154
	Right tilted	0.724	0.271	0.303	0.089	0.995	1.116
DC_5A_n77A	Left cheek	0.439	0.931	0.408	0.243	1.370	1.090
	Left tilted	0.305	0.704	0.447	0.215	1.009	0.967
	Right cheek	0.833	0.256	0.287	0.081	1.089	1.201
	Right tilted	0.480	0.271	0.303	0.089	0.751	0.872
DC_12A_n2A	Left cheek	0.559	0.931	0.408	0.243	1.490	1.210
	Left tilted	0.434	0.704	0.447	0.215	1.138	1.096
	Right cheek	0.719	0.256	0.287	0.081	0.975	1.087
	Right tilted	0.708	0.271	0.303	0.089	0.979	1.100
DC_12A_n30A	Left cheek	0.523	0.931	0.408	0.243	1.454	1.174
	Left tilted	0.477	0.704	0.447	0.215	1.181	1.139
	Right cheek	0.753	0.256	0.287	0.081	1.009	1.121
	Right tilted	0.707	0.271	0.303	0.089	0.978	1.099
DC_12A_n66A	Left cheek	0.661	0.931	0.408	0.243	1.592	1.312
	Left tilted	0.531	0.704	0.447	0.215	1.235	1.193
	Right cheek	0.737	0.256	0.287	0.081	0.993	1.105



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	Right tilted	0.703	0.271	0.303	0.089	0.974	1.095
DC_12A_n77A	Left cheek	0.531	0.931	0.408	0.243	1.462	1.182
	Left tilted	0.331	0.704	0.447	0.215	1.035	0.993
	Right cheek	0.784	0.256	0.287	0.081	1.040	1.152
	Right tilted	0.459	0.271	0.303	0.089	0.730	0.851
DC_14A_n2A	Left cheek	0.409	0.931	0.408	0.243	1.340	1.060
	Left tilted	0.387	0.704	0.447	0.215	1.091	1.049
	Right cheek	0.699	0.256	0.287	0.081	0.955	1.067
	Right tilted	0.704	0.271	0.303	0.089	0.975	1.096
DC_14A_n30A	Left cheek	0.373	0.931	0.408	0.243	1.304	1.024
	Left tilted	0.430	0.704	0.447	0.215	1.134	1.092
	Right cheek	0.733	0.256	0.287	0.081	0.989	1.101
	Right tilted	0.703	0.271	0.303	0.089	0.974	1.095
DC_14A_n66A	Left cheek	0.511	0.931	0.408	0.243	1.442	1.162
	Left tilted	0.484	0.704	0.447	0.215	1.188	1.146
	Right cheek	0.717	0.256	0.287	0.081	0.973	1.085
	Right tilted	0.699	0.271	0.303	0.089	0.970	1.091
DC_14A_n77A	Left cheek	0.381	0.931	0.408	0.243	1.312	1.032
	Left tilted	0.284	0.704	0.447	0.215	0.988	0.946
	Right cheek	0.764	0.256	0.287	0.081	1.020	1.132
	Right tilted	0.455	0.271	0.303	0.089	0.726	0.847
DC_30A_n77A	Left cheek	0.631	0.931	0.408	0.243	1.562	1.282
	Left tilted	0.461	0.704	0.447	0.215	1.165	1.123
	Right cheek	0.854	0.256	0.287	0.081	1.110	1.222
	Right tilted	0.584	0.271	0.303	0.089	0.855	0.976
DC_30A_n2A	Left cheek	0.359	0.931	0.408	0.243	1.290	1.010
	Left tilted	0.527	0.704	0.447	0.215	1.231	1.189
	Right cheek	0.994	0.256	0.287	0.081	1.250	1.362
	Right tilted	1.136	0.271	0.303	0.089	1.407	1.528
DC_30A_n5A	Left cheek	0.319	0.931	0.408	0.243	1.250	0.970
	Left tilted	0.359	0.704	0.447	0.215	1.063	1.021
	Right cheek	0.695	0.256	0.287	0.081	0.951	1.063
	Right tilted	0.642	0.271	0.303	0.089	0.913	1.034
DC_30A_n66A	Left cheek	0.461	0.931	0.408	0.243	1.392	1.112
	Left tilted	0.624	0.704	0.447	0.215	1.328	1.286
	Right cheek	1.012	0.256	0.287	0.081	1.268	1.380
	Right tilted	1.131	0.271	0.303	0.089	1.402	1.523
DC_66A_n30A	Left cheek	0.382	0.931	0.408	0.243	1.313	1.033
	Left tilted	0.411	0.704	0.447	0.215	1.115	1.073
	Right cheek	0.647	0.256	0.287	0.081	0.903	1.015
	Right tilted	0.637	0.271	0.303	0.089	0.908	1.029
DC_66A_n66A	Left cheek	0.520	0.931	0.408	0.243	1.451	1.171



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	Left tilted	0.465	0.704	0.447	0.215	1.169	1.127
	Right cheek	0.631	0.256	0.287	0.081	0.887	0.999
	Right tilted	0.633	0.271	0.303	0.089	0.904	1.025
DC_66A_n77A	Left cheek	0.390	0.931	0.408	0.243	1.321	1.041
	Left tilted	0.265	0.704	0.447	0.215	0.969	0.927
	Right cheek	0.678	0.256	0.287	0.081	0.934	1.046
	Right tilted	0.389	0.271	0.303	0.089	0.660	0.781
DC_66A_n5A	Left cheek	0.426	0.931	0.408	0.243	1.357	1.077
	Left tilted	0.382	0.704	0.447	0.215	1.086	1.044
	Right cheek	0.700	0.256	0.287	0.081	0.956	1.068
	Right tilted	0.609	0.271	0.303	0.089	0.880	1.001

Simultaneous Transmission SAR Summation Scenario for WLAN Body: Body-worn:

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant0	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
WCDMA V	Front side	0.195	0.154	0.160	0.019	0.349	0.374
	Back side	0.266	0.197	0.278	0.028	0.463	0.572
LTE Band 5	Front side	0.196	0.154	0.160	0.019	0.350	0.375
	Back side	0.263	0.197	0.278	0.028	0.460	0.569
LTE Band 12	Front side	0.274	0.154	0.160	0.019	0.428	0.453
	Back side	0.365	0.197	0.278	0.028	0.562	0.671
LTE Band 14	Front side	0.193	0.154	0.160	0.019	0.347	0.372
	Back side	0.244	0.197	0.278	0.028	0.441	0.550
5G NR n5	Front side	0.265	0.154	0.160	0.019	0.419	0.444
	Back side	0.334	0.197	0.278	0.028	0.531	0.640

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant3	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
WCDMA II	Front side	0.700	0.154	0.160	0.019	0.854	0.879
	Back side	0.728	0.197	0.278	0.028	0.925	1.034
WCDMA IV	Front side	0.604	0.154	0.160	0.019	0.758	0.783
	Back side	0.564	0.197	0.278	0.028	0.761	0.870
LTE Band 2	Front side	0.617	0.154	0.160	0.019	0.771	0.796
	Back side	0.734	0.197	0.278	0.028	0.931	1.040
LTE Band 7	Front side	0.104	0.154	0.160	0.019	0.258	0.283
	Back side	0.188	0.197	0.278	0.028	0.385	0.494
LTE Band 30	Front side	0.431	0.154	0.160	0.019	0.585	0.610
	Back side	0.887	0.197	0.278	0.028	1.084	1.193



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LTE Band 66	Front side	0.676	0.154	0.160	0.019	0.830	0.855
	Back side	0.627	0.197	0.278	0.028	0.824	0.933
5G NR n2	Front side	0.754	0.154	0.160	0.019	0.908	0.933
	Back side	0.956	0.197	0.278	0.028	1.153	1.262
5G NR n30	Front side	0.472	0.154	0.160	0.019	0.626	0.651
	Back side	0.903	0.197	0.278	0.028	1.100	1.209
5G NR n66	Front side	0.716	0.154	0.160	0.019	0.870	0.895
	Back side	0.654	0.197	0.278	0.028	0.851	0.960

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant4	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
5G NR n77	Front side	0.895	0.154	0.160	0.019	1.049	1.074
	Back side	0.822	0.197	0.278	0.028	1.019	1.128

Test position		SARmax (W/kg)				Summed SAR	
		Inter-band UL CA	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
CA_2A-5A	Front side	0.813	0.154	0.160	0.019	0.967	0.992
	Back side	0.997	0.197	0.278	0.028	1.194	1.303
CA_2A-12A	Front side	0.891	0.154	0.160	0.019	1.045	1.070
	Back side	1.099	0.197	0.278	0.028	1.296	1.405
CA_2A-14A	Front side	0.810	0.154	0.160	0.019	0.964	0.989
	Back side	0.978	0.197	0.278	0.028	1.175	1.284
CA_4A-12A	Front side	0.950	0.154	0.160	0.019	1.104	1.129
	Back side	0.992	0.197	0.278	0.028	1.189	1.298
CA_5A-30A	Front side	0.627	0.154	0.160	0.019	0.781	0.806
	Back side	1.150	0.197	0.278	0.028	1.347	1.456
CA_5A-66A	Front side	0.872	0.154	0.160	0.019	1.026	1.051
	Back side	0.890	0.197	0.278	0.028	1.087	1.196
CA_12A-30A	Front side	0.705	0.154	0.160	0.019	0.859	0.884
	Back side	1.252	0.197	0.278	0.028	1.449	1.558
CA_12A-66A	Front side	0.950	0.154	0.160	0.019	1.104	1.129
	Back side	0.992	0.197	0.278	0.028	1.189	1.298
CA_14A-30A	Front side	0.624	0.154	0.160	0.019	0.778	0.803
	Back side	1.131	0.197	0.278	0.028	1.328	1.437
CA_14A-66A	Front side	0.869	0.154	0.160	0.019	1.023	1.048
	Back side	0.871	0.197	0.278	0.028	1.068	1.177



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Test position		SARmax (W/kg)				Summed SAR	
		EN-DC Max SAR	WiFi 2.4G Ant6(chain0)	WiFi 5G Ant6(chain0)	BT		
		1	2	3	4	1+2	1+3+4
DC_2A_n2A	Front side	0.472	0.154	0.160	0.019	0.626	0.651
	Back side	0.598	0.197	0.278	0.028	0.795	0.904
DC_2A_n30A	Front side	0.392	0.154	0.160	0.019	0.546	0.571
	Back side	0.583	0.197	0.278	0.028	0.780	0.889
DC_2A_n66A	Front side	0.975	0.154	0.160	0.019	1.129	1.154
	Back side	0.982	0.197	0.278	0.028	1.179	1.288
DC_2A_n77A	Front side	0.824	0.154	0.160	0.019	0.978	1.003
	Back side	0.847	0.197	0.278	0.028	1.044	1.153
DC_2A_n5A	Front side	0.882	0.154	0.160	0.019	1.036	1.061
	Back side	1.068	0.197	0.278	0.028	1.265	1.374
DC_5A_n2A	Front side	0.409	0.154	0.160	0.019	0.563	0.588
	Back side	0.533	0.197	0.278	0.028	0.730	0.839
DC_5A_n30A	Front side	0.329	0.154	0.160	0.019	0.483	0.508
	Back side	0.518	0.197	0.278	0.028	0.715	0.824
DC_5A_n66A	Front side	0.912	0.154	0.160	0.019	1.066	1.091
	Back side	0.917	0.197	0.278	0.028	1.114	1.223
DC_5A_n77A	Front side	0.761	0.154	0.160	0.019	0.915	0.940
	Back side	0.782	0.197	0.278	0.028	0.979	1.088
DC_12A_n2A	Front side	0.487	0.154	0.160	0.019	0.641	0.666
	Back side	0.635	0.197	0.278	0.028	0.832	0.941
DC_12A_n30A	Front side	0.407	0.154	0.160	0.019	0.561	0.586
	Back side	0.620	0.197	0.278	0.028	0.817	0.926
DC_12A_n66A	Front side	0.990	0.154	0.160	0.019	1.144	1.169
	Back side	1.019	0.197	0.278	0.028	1.216	1.325
DC_12A_n77A	Front side	0.839	0.154	0.160	0.019	0.993	1.018
	Back side	0.884	0.197	0.278	0.028	1.081	1.190
DC_14A_n2A	Front side	0.406	0.154	0.160	0.019	0.560	0.585
	Back side	0.514	0.197	0.278	0.028	0.711	0.820
DC_14A_n30A	Front side	0.326	0.154	0.160	0.019	0.480	0.505
	Back side	0.499	0.197	0.278	0.028	0.696	0.805
DC_14A_n66A	Front side	0.909	0.154	0.160	0.019	1.063	1.088
	Back side	0.898	0.197	0.278	0.028	1.095	1.204
DC_14A_n77A	Front side	0.758	0.154	0.160	0.019	0.912	0.937
	Back side	0.763	0.197	0.278	0.028	0.960	1.069
DC_30A_n77A	Front side	0.910	0.154	0.160	0.019	1.064	1.089
	Back side	0.945	0.197	0.278	0.028	1.142	1.251
DC_30A_n2A	Front side	0.376	0.154	0.160	0.019	0.530	0.555
	Back side	0.600	0.197	0.278	0.028	0.797	0.906



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DC_30A_n5A	Front side	0.428	0.154	0.160	0.019	0.582	0.607
	Back side	0.664	0.197	0.278	0.028	0.861	0.970
DC_30A_n66A	Front side	0.879	0.154	0.160	0.019	1.033	1.058
	Back side	0.984	0.197	0.278	0.028	1.181	1.290
DC_66A_n30A	Front side	0.323	0.154	0.160	0.019	0.477	0.502
	Back side	0.570	0.197	0.278	0.028	0.767	0.876
DC_66A_n66A	Front side	0.906	0.154	0.160	0.019	1.060	1.085
	Back side	0.969	0.197	0.278	0.028	1.166	1.275
DC_66A_n77A	Front side	0.755	0.154	0.160	0.019	0.909	0.934
	Back side	0.834	0.197	0.278	0.028	1.031	1.140
DC_66A_n5A	Front side	0.941	0.154	0.160	0.019	1.095	1.120
	Back side	0.961	0.197	0.278	0.028	1.158	1.267

Hotspot:

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant0	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
WCDMA V	Front side	0.287	0.205	0.158	0.031	0.492	0.476
	Back side	0.397	0.288	0.269	0.061	0.685	0.727
	Left side	0.101	/	/	/	0.101	0.101
	Right side	0.243	0.248	0.134	0.030	0.491	0.407
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.323	/	/	/	0.323	0.323
LTE Band 5	Front side	0.321	0.205	0.158	0.031	0.526	0.510
	Back side	0.454	0.288	0.269	0.061	0.742	0.784
	Left side	0.164	/	/	/	0.164	0.164
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.400	/	/	/	0.400	0.400
LTE Band 12	Front side	0.252	0.205	0.158	0.031	0.457	0.441
	Back side	0.344	0.288	0.269	0.061	0.632	0.674
	Left side	0.158	/	/	/	0.158	0.158
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.329	/	/	/	0.329	0.329
LTE Band 14	Front side	0.223	0.205	0.158	0.031	0.428	0.412
	Back side	0.303	0.288	0.269	0.061	0.591	0.633
	Left side	0.130	/	/	/	0.130	0.130
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.311	/	/	/	0.311	0.311



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5G NR n5	Front side	0.492	0.205	0.158	0.031	0.697	0.681
	Back side	0.694	0.288	0.269	0.061	0.982	1.024
	Left side	0.155	/	/	/	0.155	0.155
	Right side	0.395	0.248	0.134	0.030	0.643	0.559
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.614	/	/	/	0.614	0.614

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant3	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
WCDMA II	Front side	0.418	0.205	0.158	0.031	0.623	0.607
	Back side	0.529	0.288	0.269	0.061	0.817	0.859
	Left side	0.069	/	/	/	0.069	0.069
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.943	0.242	0.337	0.037	1.185	1.317
	Bottom side	/	/	/	/	/	/
WCDMA IV	Front side	0.628	0.205	0.158	0.031	0.833	0.817
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.628	/	/	/	0.628	0.628
	Right side	0.679	0.248	0.134	0.030	0.927	0.843
	Top side	1.113	0.242	0.337	0.037	1.355	1.487
	Bottom side	1.164	/	/	/	1.164	1.164
LTE Band 2	Front side	0.514	0.205	0.158	0.031	0.719	0.703
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.514	/	/	/	0.514	0.514
	Right side	0.621	0.248	0.134	0.030	0.869	0.785
	Top side	1.004	0.242	0.337	0.037	1.246	1.378
	Bottom side	1.136	/	/	/	1.136	1.136
LTE Band 7	Front side	0.238	0.205	0.158	0.031	0.443	0.427
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.238	/	/	/	0.238	0.238
	Right side	0.307	0.248	0.134	0.030	0.555	0.471
	Top side	0.729	0.242	0.337	0.037	0.971	1.103
	Bottom side	0.865	/	/	/	0.865	0.865
LTE Band 30	Front side	0.306	0.205	0.158	0.031	0.511	0.495
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.306	/	/	/	0.306	0.306
	Right side	0.530	0.248	0.134	0.030	0.778	0.694
	Top side	1.001	0.242	0.337	0.037	1.243	1.375
	Bottom side	1.120	/	/	/	1.120	1.120
LTE Band 66	Front side	0.519	0.205	0.158	0.031	0.724	0.708



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	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.519	/	/	/	0.519	0.519
	Right side	0.576	0.248	0.134	0.030	0.824	0.740
	Top side	1.011	0.242	0.337	0.037	1.253	1.385
	Bottom side	1.074	/	/	/	1.074	1.074
5G NR n2	Front side	0.411	0.205	0.158	0.031	0.616	0.600
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.411	/	/	/	0.411	0.411
	Right side	0.521	0.248	0.134	0.030	0.769	0.685
	Top side	0.982	0.242	0.337	0.037	1.224	1.356
	Bottom side	1.147	/	/	/	1.147	1.147
5G NR n30	Front side	0.339	0.205	0.158	0.031	0.544	0.528
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.339	/	/	/	0.339	0.339
	Right side	0.606	0.248	0.134	0.030	0.854	0.770
	Top side	1.049	0.242	0.337	0.037	1.291	1.423
	Bottom side	1.146	/	/	/	1.146	1.146
5G NR n66	Front side	0.615	0.205	0.158	0.031	0.820	0.804
	Back side	/	0.288	0.269	0.061	0.288	0.330
	Left side	0.615	/	/	/	0.615	0.615
	Right side	0.714	0.248	0.134	0.030	0.962	0.878
	Top side	1.018	0.242	0.337	0.037	1.260	1.392
	Bottom side	1.138	/	/	/	1.138	1.138

Test position		SARmax (W/kg)				Summed SAR	
		Main Ant4	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
5G NR n77	Front side	0.626	0.205	0.158	0.031	0.831	0.815
	Back side	0.626	0.288	0.269	0.061	0.914	0.956
	Left side	1.027	/	/	/	1.027	1.027
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.369	0.242	0.337	0.037	0.611	0.743
	Bottom side	/	/	/	/	/	/

Test position		SARmax (W/kg)				Summed SAR	
		Inter-band UL CA	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
CA_2A-5A	Front side	0.601	0.205	0.158	0.031	0.806	0.790
	Back side	0.746	0.288	0.269	0.061	1.034	1.076
	Left side	0.209	/	/	/	0.209	0.209
	Right side	0.274	0.248	0.134	0.030	0.522	0.438



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	Top side	0.570	0.242	0.337	0.037	0.812	0.944
	Bottom side	0.400	/	/	/	0.400	0.400
CA_2A-12A	Front side	0.532	0.205	0.158	0.031	0.737	0.721
	Back side	0.636	0.288	0.269	0.061	0.924	0.966
	Left side	0.203	/	/	/	0.203	0.203
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.570	0.242	0.337	0.037	0.812	0.944
	Bottom side	0.329	/	/	/	0.329	0.329
CA_2A-14A	Front side	0.503	0.205	0.158	0.031	0.708	0.692
	Back side	0.595	0.288	0.269	0.061	0.883	0.925
	Left side	0.175	/	/	/	0.175	0.175
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.570	0.242	0.337	0.037	0.812	0.944
	Bottom side	0.311	/	/	/	0.311	0.311
CA_4A-12A	Front side	0.610	0.205	0.158	0.031	0.815	0.799
	Back side	0.651	0.288	0.269	0.061	0.939	0.981
	Left side	0.250	/	/	/	0.250	0.250
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.486	0.242	0.337	0.037	0.728	0.860
	Bottom side	0.329	/	/	/	0.329	0.329
CA_5A-30A	Front side	0.522	0.205	0.158	0.031	0.727	0.711
	Back side	0.909	0.288	0.269	0.061	1.197	1.239
	Left side	0.236	/	/	/	0.236	0.236
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	0.533	0.242	0.337	0.037	0.775	0.907
	Bottom side	0.400	/	/	/	0.400	0.400
CA_5A-66A	Front side	0.223	0.205	0.158	0.031	0.428	0.412
	Back side	0.303	0.288	0.269	0.061	0.591	0.633
	Left side	0.130	/	/	/	0.130	0.130
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	/	0.242	0.337	0.037	0.242	0.374
	Bottom side	0.311	/	/	/	0.311	0.311
CA_12A-30A	Front side	0.453	0.205	0.158	0.031	0.658	0.642
	Back side	0.799	0.288	0.269	0.061	1.087	1.129
	Left side	0.230	/	/	/	0.230	0.230
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.533	0.242	0.337	0.037	0.775	0.907
	Bottom side	0.329	/	/	/	0.329	0.329
CA_12A-66A	Front side	0.610	0.205	0.158	0.031	0.815	0.799
	Back side	0.651	0.288	0.269	0.061	0.939	0.981
	Left side	0.250	/	/	/	0.250	0.250
	Right side	0.428	0.248	0.134	0.030	0.676	0.592



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	Top side	0.486	0.242	0.337	0.037	0.728	0.860
	Bottom side	0.329	/	/	/	0.329	0.329
CA_14A-30A	Front side	0.424	0.205	0.158	0.031	0.629	0.613
	Back side	0.758	0.288	0.269	0.061	1.046	1.088
	Left side	0.202	/	/	/	0.202	0.202
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.533	0.242	0.337	0.037	0.775	0.907
	Bottom side	0.311	/	/	/	0.311	0.311
CA_14A-66A	Front side	0.581	0.205	0.158	0.031	0.786	0.770
	Back side	0.610	0.288	0.269	0.061	0.898	0.940
	Left side	0.222	/	/	/	0.222	0.222
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.486	0.242	0.337	0.037	0.728	0.860
	Bottom side	0.311	/	/	/	0.311	0.311

Test position		SARmax (W/kg)				Summed SAR	
		EN-DC Max SAR	WiFi 2.4G Ant5	WiFi 5G Ant5	BT		
		1	2	3	4	1+2	1+3+4
DC_2A_n2A	Front side	0.746	0.205	0.158	0.031	0.951	0.935
	Back side	0.982	0.288	0.269	0.061	1.270	1.312
	Left side	0.425	/	/	/	0.425	0.425
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.529	0.242	0.337	0.037	0.771	0.903
	Bottom side	0.563	/	/	/	0.563	0.563
DC_2A_n30A	Front side	0.658	0.205	0.158	0.031	0.863	0.847
	Back side	1.050	0.288	0.269	0.061	1.338	1.380
	Left side	0.456	/	/	/	0.456	0.456
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.525	0.242	0.337	0.037	0.767	0.899
	Bottom side	0.563	/	/	/	0.563	0.563
DC_2A_n66A	Front side	0.875	0.205	0.158	0.031	1.080	1.064
	Back side	0.992	0.288	0.269	0.061	1.280	1.322
	Left side	0.491	/	/	/	0.491	0.491
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.561	0.242	0.337	0.037	0.803	0.935
	Bottom side	0.563	/	/	/	0.563	0.563
DC_2A_n77A	Front side	0.773	0.205	0.158	0.031	0.978	0.962
	Back side	0.964	0.288	0.269	0.061	1.252	1.294
	Left side	0.887	/	/	/	0.887	0.887
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.185	0.242	0.337	0.037	0.427	0.559



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	Bottom side	0.563	/	/	/	0.563	0.563
DC_2A_n5A	Front side	0.671	0.205	0.158	0.031	0.876	0.860
	Back side	0.843	0.288	0.269	0.061	1.131	1.173
	Left side	0.168	/	/	/	0.168	0.168
	Right side	0.314	0.248	0.134	0.030	0.562	0.478
	Top side	0.570	0.242	0.337	0.037	0.812	0.944
	Bottom side	0.487	/	/	/	0.487	0.487
DC_5A_n2A	Front side	0.608	0.205	0.158	0.031	0.813	0.797
	Back side	0.786	0.288	0.269	0.061	1.074	1.116
	Left side	0.217	/	/	/	0.217	0.217
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	0.529	0.242	0.337	0.037	0.771	0.903
	Bottom side	0.400	/	/	/	0.400	0.400
DC_5A_n30A	Front side	0.520	0.205	0.158	0.031	0.725	0.709
	Back side	0.854	0.288	0.269	0.061	1.142	1.184
	Left side	0.248	/	/	/	0.248	0.248
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	0.525	0.242	0.337	0.037	0.767	0.899
	Bottom side	0.400	/	/	/	0.400	0.400
DC_5A_n66A	Front side	0.737	0.205	0.158	0.031	0.942	0.926
	Back side	0.796	0.288	0.269	0.061	1.084	1.126
	Left side	0.283	/	/	/	0.283	0.283
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	0.561	0.242	0.337	0.037	0.803	0.935
	Bottom side	0.400	/	/	/	0.400	0.400
DC_5A_n77A	Front side	0.635	0.205	0.158	0.031	0.840	0.824
	Back side	0.768	0.288	0.269	0.061	1.056	1.098
	Left side	0.679	/	/	/	0.679	0.679
	Right side	0.274	0.248	0.134	0.030	0.522	0.438
	Top side	0.185	0.242	0.337	0.037	0.427	0.559
	Bottom side	0.400	/	/	/	0.400	0.400
DC_12A_n2A	Front side	0.539	0.205	0.158	0.031	0.744	0.728
	Back side	0.676	0.288	0.269	0.061	0.964	1.006
	Left side	0.211	/	/	/	0.211	0.211
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.529	0.242	0.337	0.037	0.771	0.903
	Bottom side	0.329	/	/	/	0.329	0.329
DC_12A_n30A	Front side	0.451	0.205	0.158	0.031	0.656	0.640
	Back side	0.744	0.288	0.269	0.061	1.032	1.074
	Left side	0.242	/	/	/	0.242	0.242
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.525	0.242	0.337	0.037	0.767	0.899



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	Bottom side	0.329	/	/	/	0.329	0.329
DC_12A_n66A	Front side	0.668	0.205	0.158	0.031	0.873	0.857
	Back side	0.686	0.288	0.269	0.061	0.974	1.016
	Left side	0.277	/	/	/	0.277	0.277
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.561	0.242	0.337	0.037	0.803	0.935
	Bottom side	0.329	/	/	/	0.329	0.329
DC_12A_n77A	Front side	0.566	0.205	0.158	0.031	0.771	0.755
	Back side	0.658	0.288	0.269	0.061	0.946	0.988
	Left side	0.673	/	/	/	0.673	0.673
	Right side	0.428	0.248	0.134	0.030	0.676	0.592
	Top side	0.185	0.242	0.337	0.037	0.427	0.559
	Bottom side	0.329	/	/	/	0.329	0.329
DC_14A_n2A	Front side	0.510	0.205	0.158	0.031	0.715	0.699
	Back side	0.635	0.288	0.269	0.061	0.923	0.965
	Left side	0.183	/	/	/	0.183	0.183
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.529	0.242	0.337	0.037	0.771	0.903
	Bottom side	0.311	/	/	/	0.311	0.311
DC_14A_n30A	Front side	0.422	0.205	0.158	0.031	0.627	0.611
	Back side	0.703	0.288	0.269	0.061	0.991	1.033
	Left side	0.214	/	/	/	0.214	0.214
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.525	0.242	0.337	0.037	0.767	0.899
	Bottom side	0.311	/	/	/	0.311	0.311
DC_14A_n66A	Front side	0.639	0.205	0.158	0.031	0.844	0.828
	Back side	0.645	0.288	0.269	0.061	0.933	0.975
	Left side	0.249	/	/	/	0.249	0.249
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.561	0.242	0.337	0.037	0.803	0.935
	Bottom side	0.311	/	/	/	0.311	0.311
DC_14A_n77A	Front side	0.537	0.205	0.158	0.031	0.742	0.726
	Back side	0.617	0.288	0.269	0.061	0.905	0.947
	Left side	0.645	/	/	/	0.645	0.645
	Right side	0.255	0.248	0.134	0.030	0.503	0.419
	Top side	0.185	0.242	0.337	0.037	0.427	0.559
	Bottom side	0.311	/	/	/	0.311	0.311
DC_30A_n77A	Front side	0.940	0.205	0.158	0.031	1.145	1.129
	Back side	1.233	0.288	0.269	0.061	1.521	1.563
	Left side	1.090	/	/	/	1.090	1.090
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.185	0.242	0.337	0.037	0.427	0.559



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	Bottom side	0.719	/	/	/	0.719	0.719
DC_30A_n2A	Front side	0.488	0.205	0.158	0.031	0.693	0.677
	Back side	0.787	0.288	0.269	0.061	1.075	1.117
	Left side	0.125	/	/	/	0.125	0.125
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	1.062	0.242	0.337	0.037	1.304	1.436
	Bottom side	/	/	/	/	/	/
DC_30A_n5A	Front side	0.592	0.205	0.158	0.031	0.797	0.781
	Back side	1.006	0.288	0.269	0.061	1.294	1.336
	Left side	0.195	/	/	/	0.195	0.195
	Right side	0.314	0.248	0.134	0.030	0.562	0.478
	Top side	0.533	0.242	0.337	0.037	0.775	0.907
	Bottom side	0.487	/	/	/	0.487	0.487
DC_30A_n66A	Front side	0.617	0.205	0.158	0.031	0.822	0.806
	Back side	0.797	0.288	0.269	0.061	1.085	1.127
	Left side	0.191	/	/	/	0.191	0.191
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	1.094	0.242	0.337	0.037	1.336	1.468
	Bottom side	/	/	/	/	/	/
DC_66A_n30A	Front side	0.539	0.205	0.158	0.031	0.744	0.728
	Back side	0.997	0.288	0.269	0.061	1.285	1.327
	Left side	0.395	/	/	/	0.395	0.395
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.525	0.242	0.337	0.037	0.767	0.899
	Bottom side	0.490	/	/	/	0.490	0.490
DC_66A_n66A	Front side	0.756	0.205	0.158	0.031	0.961	0.945
	Back side	0.939	0.288	0.269	0.061	1.227	1.269
	Left side	0.430	/	/	/	0.430	0.430
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.561	0.242	0.337	0.037	0.803	0.935
	Bottom side	0.490	/	/	/	0.490	0.490
DC_66A_n77A	Front side	0.654	0.205	0.158	0.031	0.859	0.843
	Back side	0.911	0.288	0.269	0.061	1.199	1.241
	Left side	0.826	/	/	/	0.826	0.826
	Right side	/	0.248	0.134	0.030	0.248	0.164
	Top side	0.185	0.242	0.337	0.037	0.427	0.559
	Bottom side	0.490	/	/	/	0.490	0.490
DC_66A_n5A	Front side	0.731	0.205	0.158	0.031	0.936	0.920
	Back side	1.148	0.288	0.269	0.061	1.436	1.478
	Left side	0.434	/	/	/	0.434	0.434
	Right side	0.314	0.248	0.134	0.030	0.562	0.478
	Top side	/	0.242	0.337	0.037	0.242	0.374



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	Bottom side	0.977	/	/	/	0.977	0.977
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Product specific 10g SAR:

Test position		SARmax (W/kg)			Summed SAR
		Main Ant3	WiFi 5G Ant5	NFC	
		1	2	3	
WCDMA II	Front side	/	0.417	0.001	0.418
	Back side	1.527	0.346	0.027	1.9
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.433	0.843	/	3.276
	Bottom side	/	/	/	/
WCDMA IV	Front side	/	0.417	0.001	0.418
	Back side	/	0.346	0.027	0.373
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.523	0.843	/	3.366
	Bottom side	/	/	/	/
LTE Band 2	Front side	/	0.417	0.001	0.418
	Back side	/	0.346	0.027	0.373
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.975	0.843	/	3.818
	Bottom side	/	/	/	/
LTE Band 30	Front side	/	0.417	0.001	0.418
	Back side	2.207	0.346	0.027	2.58
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.361	0.843	/	3.204
	Bottom side	/	/	/	/
LTE Band 66	Front side	2.439	0.417	0.001	2.857
	Back side	1.886	0.346	0.027	2.259
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	3.141	0.843	/	3.984
	Bottom side	/	/	/	/
5G NR n2	Front side	2.457	0.417	0.001	2.875
	Back side	2.008	0.346	0.027	2.381
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	3.002	0.843	/	3.845
	Bottom side	/	/	/	/
5G NR n30	Front side	/	0.417	0.001	0.418
	Back side	2.525	0.346	0.027	2.898
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.918	0.843	/	3.761
	Bottom side	/	/	/	/
5G NR n66	Front side	/	0.417	0.001	0.418
	Back side	/	0.346	0.027	0.373
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.873	0.843	/	3.716
	Bottom side	/	/	/	/



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Test position		SARmax (W/kg)			Summed SAR
		Main Ant4	WiFi 5G Ant5	NFC	
		1	2	3	
5G NR n77	Front side	1.539	0.417	0.001	1.957
	Back side	2.498	0.346	0.027	2.871
	Left side	2.814	/	/	2.814
	Right side	/	0.177	/	0.177
	Top side	0.857	0.843	/	1.700
	Bottom side	/	/	/	/

Test position		SARmax (W/kg)			Summed SAR
		EN-DC Max SAR	WiFi 5G Ant6(chain0)	NFC	
		1	2	3	
DC_30A_n2A	Front side	1.232	0.417	0.001	1.650
	Back side	2.400	0.346	0.027	2.773
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.994	0.843	/	3.837
	Bottom side	/	/	/	/
DC_30A_n66A	Front side	/	0.417	0.001	0.418
	Back side	1.393	0.346	0.027	1.766
	Left side	/	/	/	/
	Right side	/	0.177	/	0.177
	Top side	2.877	0.843	/	3.720
	Bottom side	/	/	/	/



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9 Equipment list

Test Platform		SPEAG DASY8 Professional				
Description		SAR Test System				
Software Reference		cDASY8 V16.4.0.5005				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Twin Phantom	SPEAG	ELI V8.0	2217	NCR	NCR
☒	Twin Phantom	SPEAG	Twin-SAM V8.0	2155	NCR	NCR
☒	DAE	SPEAG	DAE4 _{ip}	1826	2025-02-17	2026-02-16
☒	E-Field Probe	SPEAG	EX3DV4	7767	2024-12-31	2025-12-30
☒	E-Field Probe	SPEAG	EX3DV4	7735	2025-01-29	2026-01-28
☒	Validation Kits	SPEAG	CLA13	1032	2023-02-09	2026-02-08
☒	Validation Kits	SPEAG	D750V3	1214	2025-04-01	2028-03-31
☒	Validation Kits	SPEAG	D835V2	4d161	2023-08-25	2026-08-24
☒	Validation Kits	SPEAG	D1750V2	1105	2023-11-03	2026-11-02
☒	Validation Kits	SPEAG	D1950V3	1218	2023-05-04	2026-05-03
☒	Validation Kits	SPEAG	D2300V2	1096	2025-04-01	2028-03-31
☒	Validation Kits	SPEAG	D2450V2	922	2023-08-28	2026-08-27
☒	Validation Kits	SPEAG	D2600V2	1158	2025-03-31	2028-03-30
☒	Validation Kits	SPEAG	D5GHzV2	1174	2023-08-23	2026-08-22
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	1120	2024-08-20	2025-08-19
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	50920	2024-08-19	2025-08-18
☒	Dielectric parameter probes	SPEAG	DAKS-12	1043	2024-08-20	2025-08-19
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R60	21423005	2024-08-20	2025-08-19
☒	Universal Radio Communication Tester	R&S	CMW500	111637	2024-09-16	2025-09-15
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	R&S	SMB100A	182393	2025-02-05	2026-02-04
☒	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
☒	USB Average Power Sensor	Keysight	U2002H	MY5639004	2024-09-10	2025-09-09
☒	USB Average Power Sensor	Agilent	U2002H	MY48200110	2024-11-21	2025-11-20
☒	Average Power Sensor	R&S	NRP6A	103953	2024-11-20	2025-11-19
☒	Average Power Sensor	R&S	NRP6A	103954	2024-11-20	2025-11-19
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
☒	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
☒	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR



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☒	Speed reading thermometer	LKM	DTM3000	NA	2024-09-16	2025-09-15
☒	Humidity and Temperature Indicator	MingGao	MingGao	NA	2024-09-16	2025-09-15

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



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10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

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