

FCC SAR TEST REPORT

Application No.: SUCR2403000065AT
Applicant: COOSEA GROUP (HK) COMPANY LIMITED
Manufacturer: COOSEA GROUP (HK) COMPANY LIMITED
Product Name: Smart Phone
Model No.(EUT): SN339D
FCC ID: 2A28USN339D
Standards: FCC 47CFR §2.1093
Date of Receipt: 2023-03-18
Date of Test: 2024-03-18 to 2024-03-22
Date of Issue: 2024-03-26
Test conclusion: **PASS ***

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

Authorized Signature:

Well Wei

Wireless Laboratory Manager



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REVISION HISTORY

Report Number	Revision	Description	Issue Date
SUCR2403000065AT	01	Original	2024-03-26



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.44	0.50	0.81	/
GSM1900	0.89	0.70	0.93	3.04
WCDMA Band II	0.79	1.04	0.81	2.24
WCDMA Band V	0.33	0.34	0.48	/
LTE Band 2	0.99	0.88	1.11	2.70
LTE Band 12(17)	0.26	0.40	0.44	/
LTE Band 14	0.28	0.36	0.42	/
LTE Band 26(5)	0.29	0.39	0.49	/
LTE Band 30	1.20	0.92	1.16	2.72
LTE Band 48	0.68	0.30	0.73	/
LTE Band 66(4)	1.07	0.66	0.98	2.24
LTE Band 71	0.23	0.34	0.44	/
NR Band n2	0.93	0.75	1.09	3.13
NR Band n25	1.11	1.00	1.06	3.15
NR Band n26	0.41	0.36	0.68	/
NR Band n30	1.13	0.94	1.03	2.67
NR Band n41	1.19	0.94	1.05	2.96
NR Band n66	1.11	0.91	0.77	2.74
NR Band n70	1.18	0.62	0.99	/
NR Band n71	0.35	0.51	0.64	/
NR Band n48	1.12	0.59	1.08	2.89
NR Band n77-3500	1.08	0.51	1.12	2.38
NR Band n77-3900	1.15	1.19	1.11	/
WI-FI (2.4GHz)	0.38	0.36	0.36	/
WI-FI (5GHz)	0.38	0.34	0.35	0.73
BT	0.24	<0.10	<0.10	/
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.52	1.55	1.51	3.88
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 5 (Frequency range:824 - 849 MHz)/ LTE Band 17 (Frequency range:704-716 MHz)/LTE Band 38 (Frequency range:2570 - 2620 MHz)/ n78 (Frequency range:3300 - 3800 MHz) is respectively covered by LTE Band 26 (Frequency range:814 - 849 MHz)/ LTE Band 12 (Frequency range:699-716 MHz)/LTE Band41 (Frequency range:2496 - 2690 MHz)/ n78 (Frequency range:3300 - 3800 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.
- 2) For LTE band 4/5/12/13/26 and n7/n41/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.
- 3) According to the manufacturer's statement, perform validation testing on Ant 3 in the original report (original report No. SEWM2311000466RG09), and choose the worst SAR value to present.

Reviewed by

Nick Hu

Prepared by

Koller Chen



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1.1.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations (Back View) can refer to Appendix D.

Note:

- 1) The test device is a smart phone. The overall diagonal dimension of this device is 178.1 mm. Per KDB 648474 D04, because the diagonal distance of this device is ≥ 160 mm, so it is a phablet.
- 2) Ant 0 is sensor CS0
Ant 3 is sensor CS3
Ant 5 is sensor CS2

According to the distance between 5G NR/LTE/WCDMA/GSM&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 2	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 3	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 4	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 5	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1: EUT Sides for SAR Testing

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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2 General Information

2.1 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

2.2 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:	Koller Chen



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2.3 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.

IC#: 27594.

- **FCC –Designation Number: CN1312**

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

Designation Number: CN1312.

Test Firm Registration Number: 717327



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2.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Smart Phone		
Model No.(EUT):	SN339D		
FCC ID:	2A28USN339D		
Product Phase:	Identical Prototype		
IMEI:	1# 356704760005501 2# 356704760004603 3# 356704760003746		
Hardware Version:	1.0		
Software Version:	SN339DD10010		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK,16QAM; LTE: QPSK,16QAM,64QAM,256QAM; 5G NR: DFT-s-OFDM (PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM), CP-OFDM (QPSK, 16QAM, 64QAM, 256QAM) WIFI: DSSS, OFDM, OFDMA; BT: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	14	HSUPA UE Category	7
DC-HSDPA UE Category:	24		
Power Class	4, tested with power level 5(GSM850)		
	1, tested with power level 0(GSM1900)		
	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)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	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 12	699~716	729~746
	LTE Band 14	788~798	758~768
	LTE Band 17	704~716	734~746
	LTE Band 26	814~849	859~894
	LTE Band 30	2305~2315	2350~2360
	LTE Band 48	3550~3700	3550~3700
	LTE Band 66	1710~1780	2110~2200
	LTE Band 71	663~698	617~652
	NR Band n2	1850~1910	1930~1990
NR Band n5	824~849	869~894	
NR Band n25	1850~1915	1930~1995	



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	NR Band n26	814~849	859~894
	NR Band n30	2305~2315	2350~2360
	NR Band n41	2496~ 2690	2496~269
	NR Band n48	3550~3700	3550~3700
	NR Band n66	1710~1780	2110~2200
	NR Band n70	1695~1710	1995~2020
	NR Band n71	663~698	617~652
	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	
RF Cable:	<input checked="" type="checkbox"/> Provided by the applicant <input type="checkbox"/> Provided by the laboratory		
1# Battery Information:	Model:	BL-A62CT	
	Normal Voltage:	3.87V	
	Typical capacity:	4900mAh	
	Manufacturer:	Guangdong Fenghua New Energy Co.,Ltd.	
<p>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.</p> <p>Remark: 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.</p>			



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2.4.1 LTE CA additional specification

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

a) 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 of this report per 3GPP TS 36.521-1 V14.4.0. 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.

2CC Downlink Carrier Aggregation	2CC Downlink Carrier Aggregation
CA_2A-2A	CA_5A-30A
CA_2A-4A	CA_5A-66A
CA_2A-5A	CA_12A-30A
CA_2A-12A	CA_12A-66A
CA_2A-14A	CA_14A-30A
CA_2A-29A	CA_14A-66A
CA_2A-30A	CA_29A-30A
CA_2A-48A	CA_29A-66A
CA_2A-66A	CA_30A-66A
CA_2A-71A	CA_48C
CA_2C	CA_48B
CA_4A-4A	CA_48A-66A
CA_4A-5A	CA_66C
CA_4A-12A	CA_66B
CA_4A-71A	CA_66A-66A
CA_4A-29A	CA_66A-71A
CA_4A-30A	

b) Intra-band carrier aggregation requirements for uplink.

2CC Uplink Carrier Aggregation	2CC Uplink Carrier Aggregation
CA_2A-12A	CA_2A-5A
CA_12A-66A	CA_2A-14A
CA_4A-12A	CA_5A-66A



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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.



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- c) The device supports Inter-band uplink LTE CA for CA_2A-4A,CA_4A-7A with two component carriers in the uplink.
- 1. For Inter-band uplink LTE 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 LTE CA SAR from standalone SAR test results of each LTE component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each Inter-band uplink LTE CA component band as the inter-band Uplink LTE CA SAR. All Simultaneous Transmission Scenarios will be evaluated independently in the final SAR report. Since the maximum output power of the LTE Inter-band uplink band is \leq the LTE Band, the SAR data of the LTE Band is used instead of the SAR data of the LTE Inter-band uplink band.



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2.4.2 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 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.
- 3) 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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2.5 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
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 D01	General RF Exposure Guidance v06
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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2.6 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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3 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 2: The Ambient Conditions



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4 SAR Measurements System Configuration

4.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY5 professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

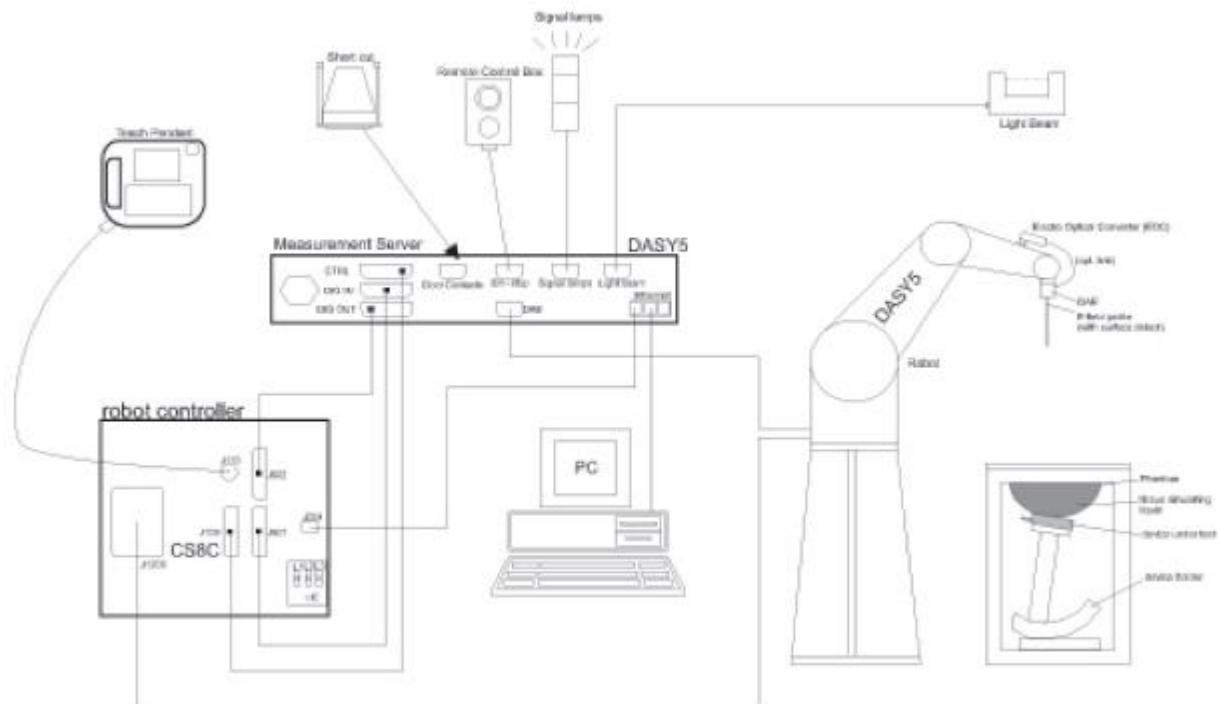
The DASY5 system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software .An arm extension for accommodation the data acquisition electronics (DAE).

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

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

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



F-1. SAR Measurement System Configuration



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- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7.
- DASY5 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.

4.2 Isotropic E-field Probe EX3DV4

	<p>Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)</p>
<p>Calibration</p>	<p>ISO/IEC 17025 calibration service available.</p>
<p>Frequency</p>	<p>10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)</p>
<p>Directivity</p>	<p>± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)</p>
<p>Dynamic Range</p>	<p>10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)</p>
<p>Dimensions</p>	<p>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</p>
<p>Application</p>	<p>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%.</p>
<p>Compatibility</p>	<p>DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI</p>



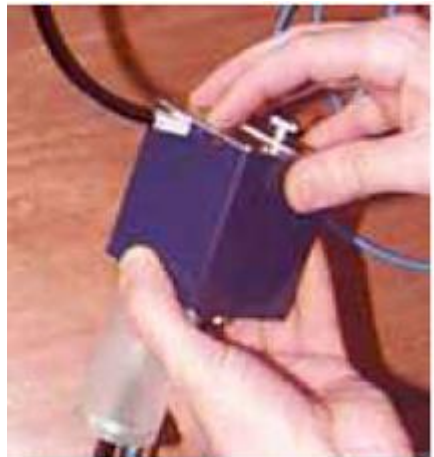
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4.3 Data Acquisition Electronics (DAE)

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	

4.4 SAM Twin Phantom

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

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

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



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4.5 ELI Phantom

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

The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. ELI is fully compatible with the IEC/IEEE 62209-1528 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 of SPEAG's dosimetric probes and dipoles.

ELI V5.0 and higher has the same shell geometry and is manufactured from the same material as ELI V4.0 but has a reinforced top structure.



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4.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

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



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4.7 Measurement procedure

4.7.1 Scanning procedure

Step 1: Power reference measurement

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

Step 2: Area scan

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

Step 3: Zoom scan

Around this point, a volume of 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. $\pm 5\%$



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4.7.2 Data Storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “.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.

4.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

- With V_i = compensated signal of channel i ($i = x, y, z$)
- U_i = input signal of channel i ($i = x, y, z$)
- cf = crest factor of exciting field (DASY parameter)
- dcp i = diode compression point (DASY parameter)

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

E-field probes:

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



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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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5 SAR measurement variability and uncertainty

5.1 SAR measurement variability

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

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
 - 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
 - 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
 - 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

5.2 SAR measurement uncertainty

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



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6 Description of Test Position

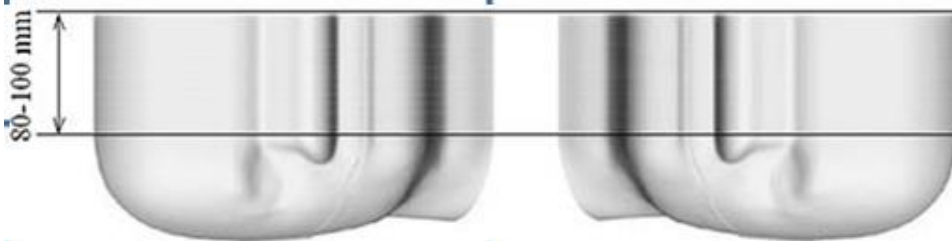
6.1 Head Exposure Condition

6.1.1 SAM Phantom Shape

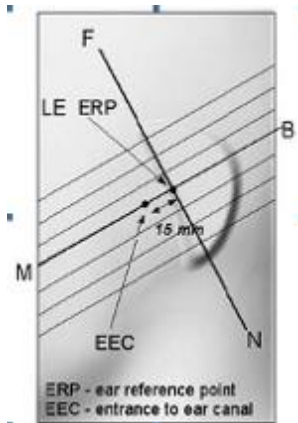


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

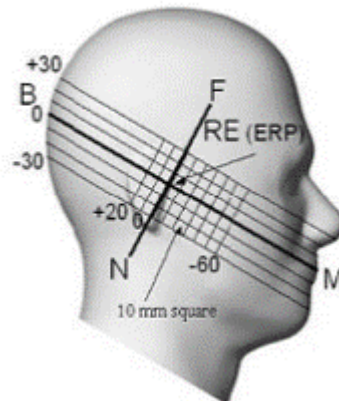
Note: The centre strip including the nose region has a different thickness tolerance.



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



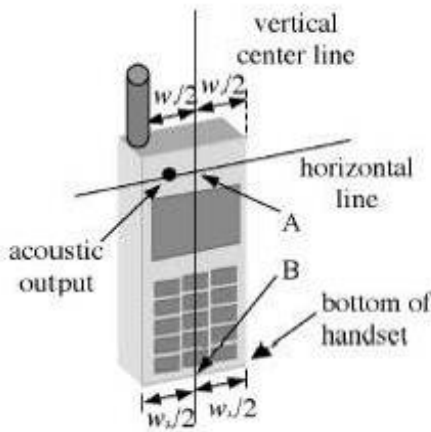
F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations



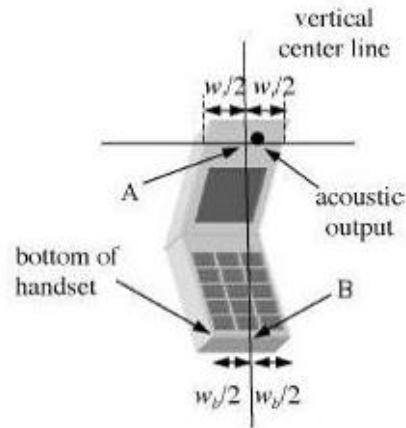
F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations



6.1.2 EUT constructions



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



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

6.1.3 Definition of the “cheek” position

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



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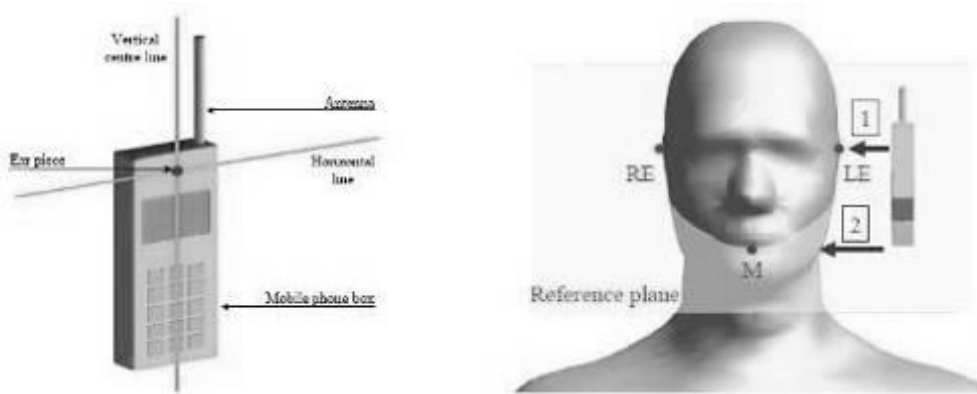
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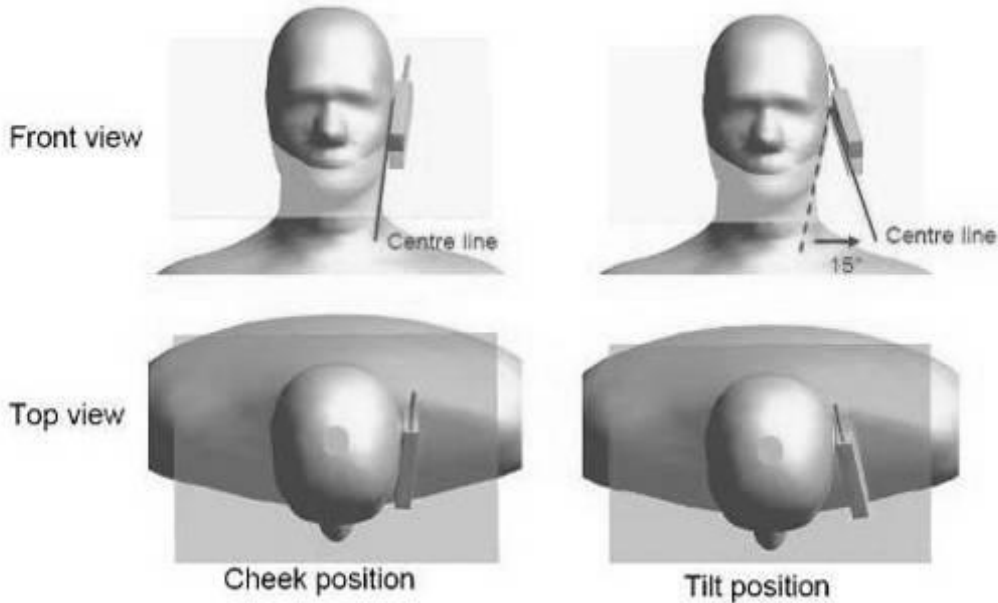
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6.1.4 Definition of the “tilted” position

- 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.



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



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6.2 Body Exposure Condition

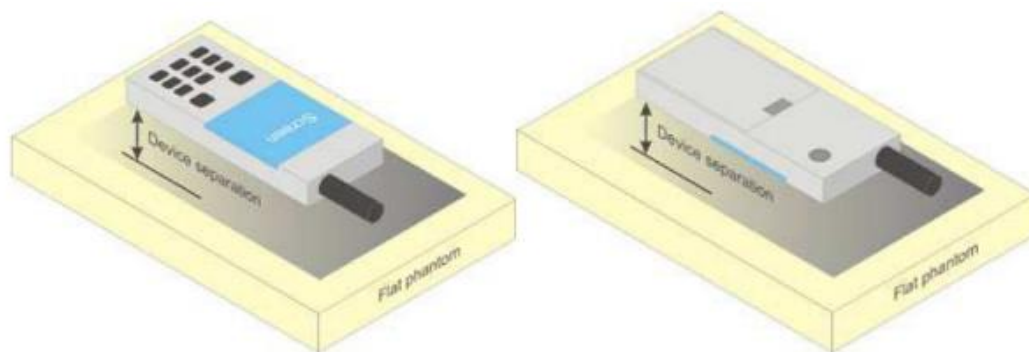
6.2.1 Body-worn accessory exposure conditions

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 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

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



F-11. Test positions for body-worn devices



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6.2.2 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.

6.3 Extremity exposure conditions

Per FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 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 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, hotspot power levels, and product specific 10g SAR power levels are the same, no frequency bands need to test with 0mm for the Product Specific 10-g SAR are not required.



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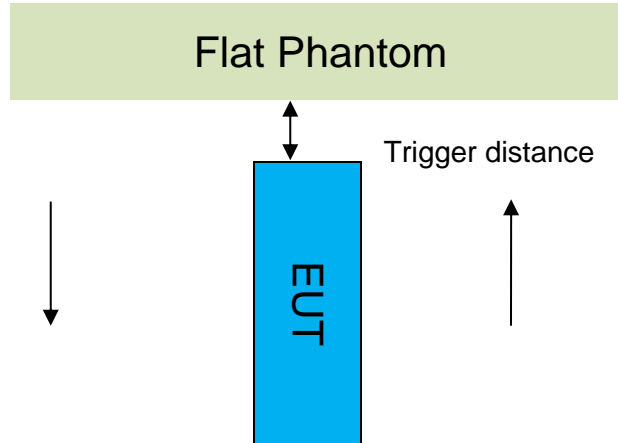
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6.4 Proximity Sensor Triggering Test

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)				
Ant5				
Position	Front	Back	Right Side	Top Side
Minimum	10	19	17	19
Required SAR Test	9	18	16	18
Ant3				
Position	Front	Back	Top Side	
Minimum	6	19	18	
Required SAR Test	5	18	17	

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.

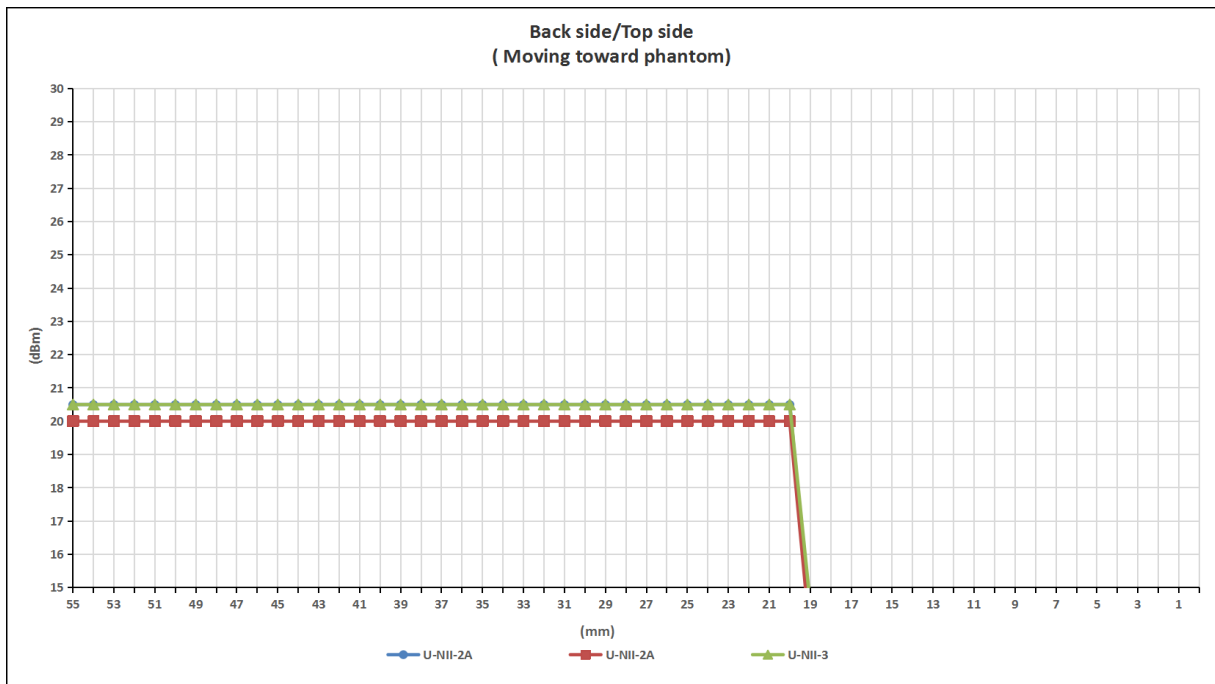
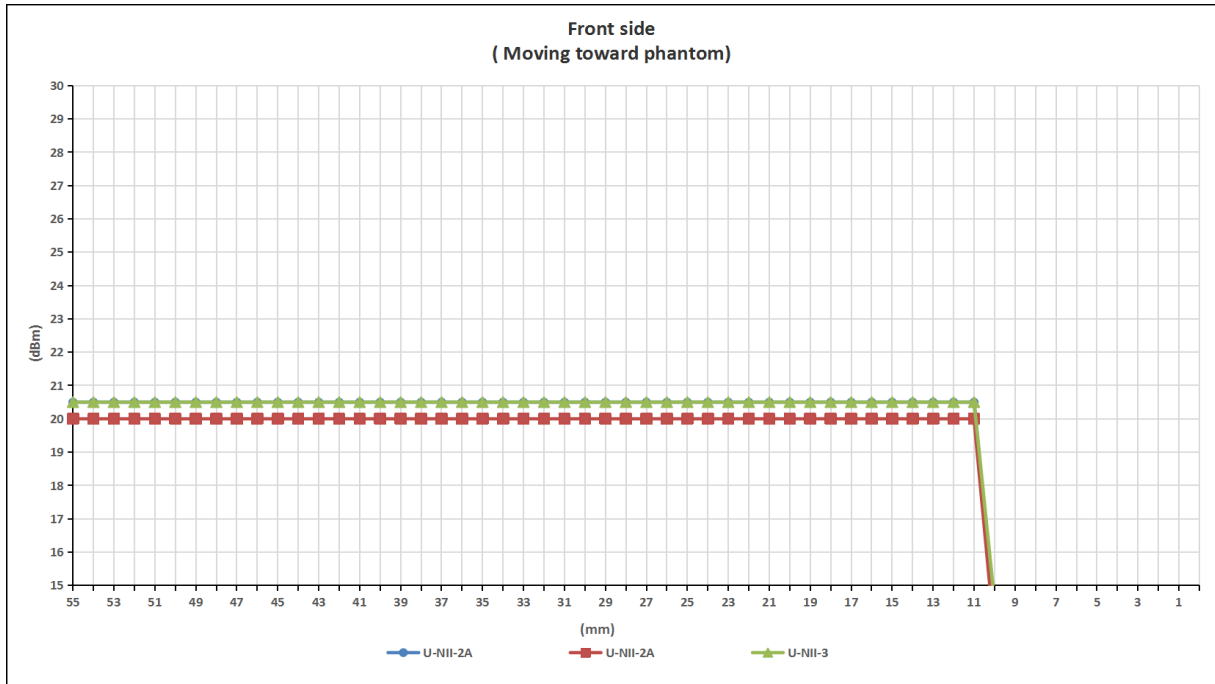


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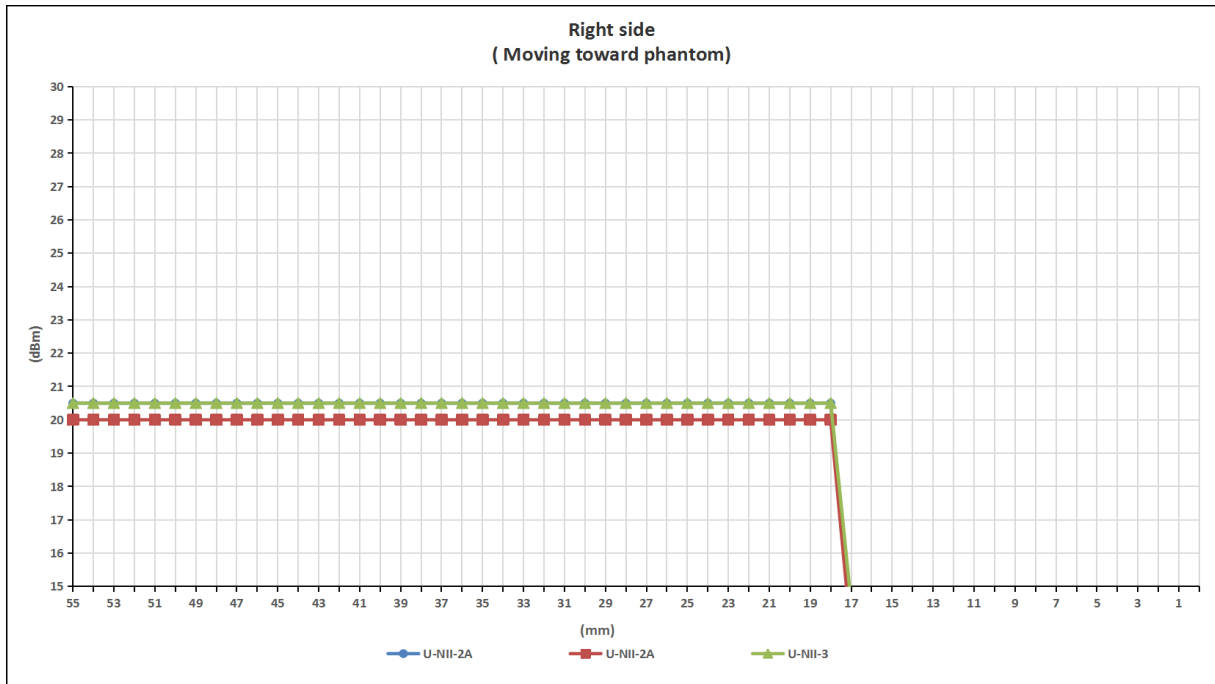
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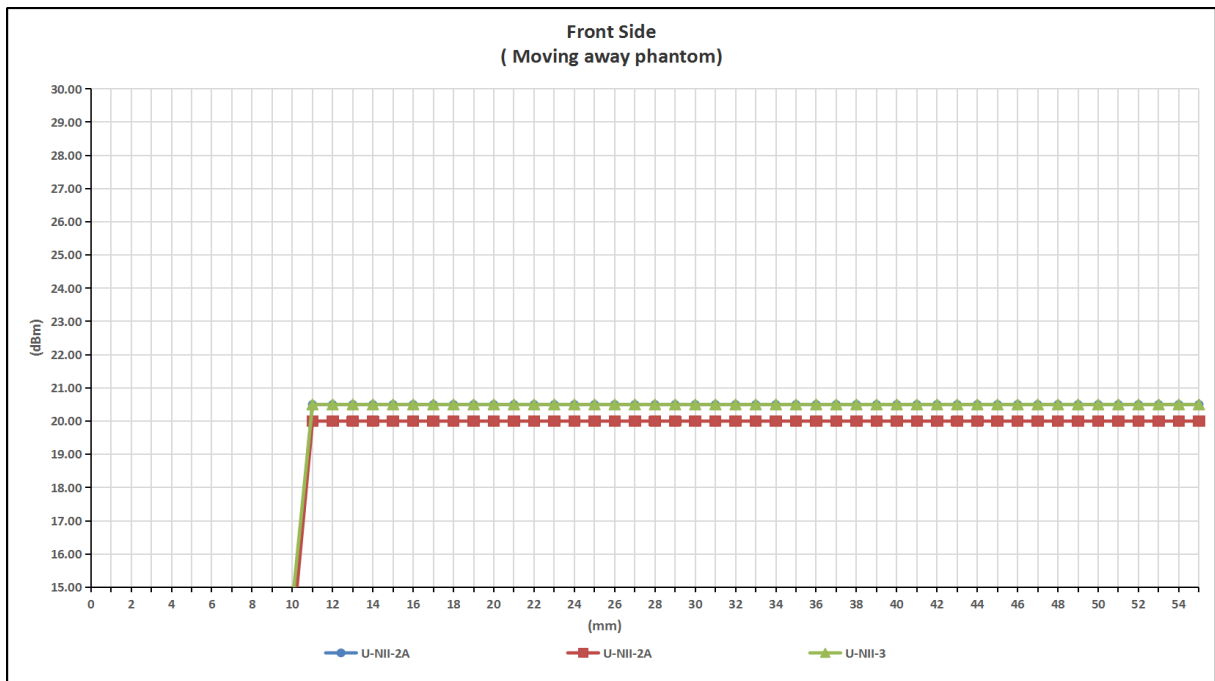
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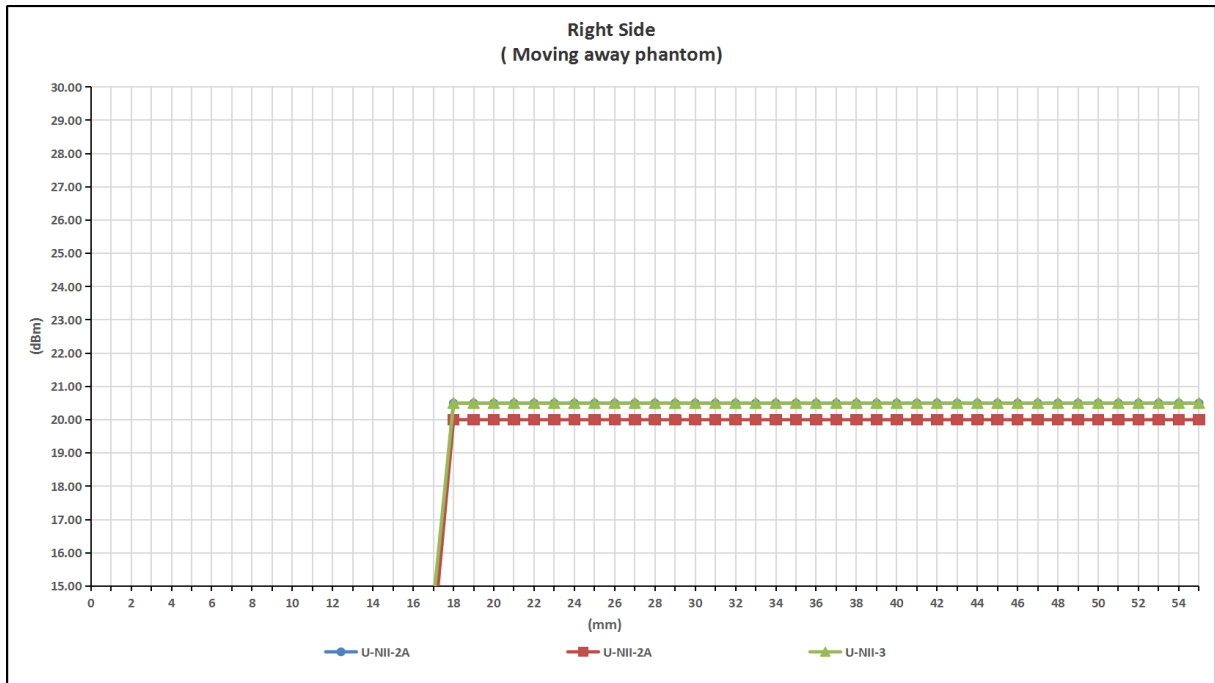
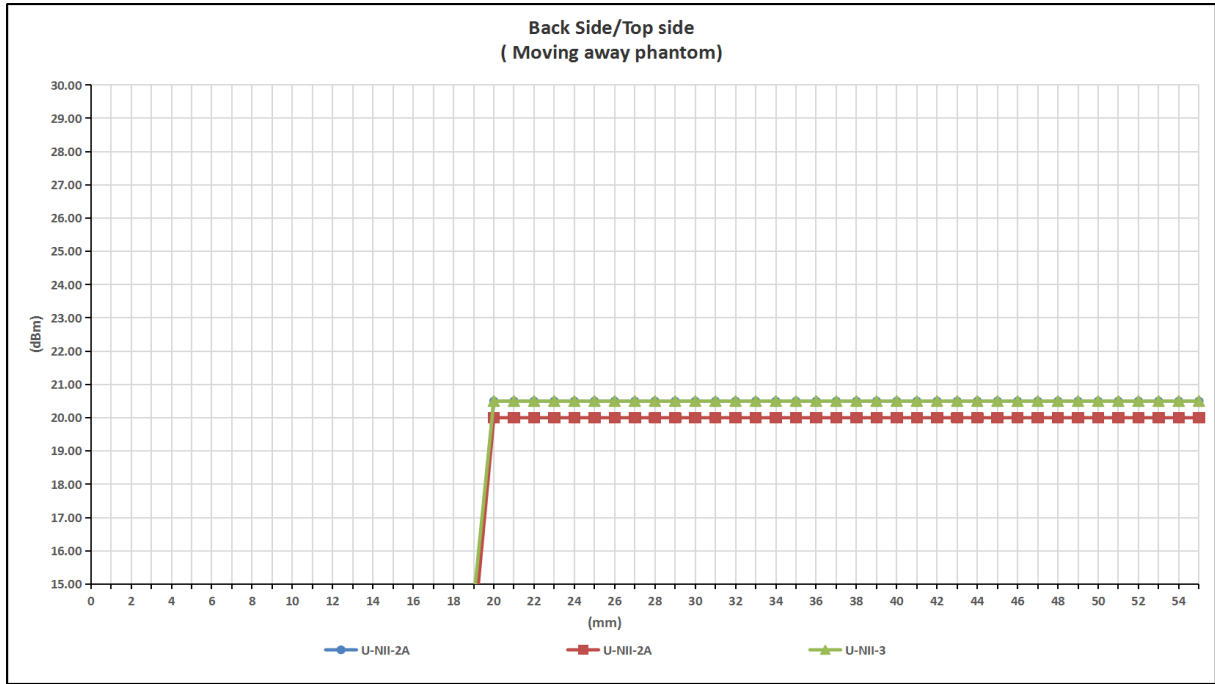
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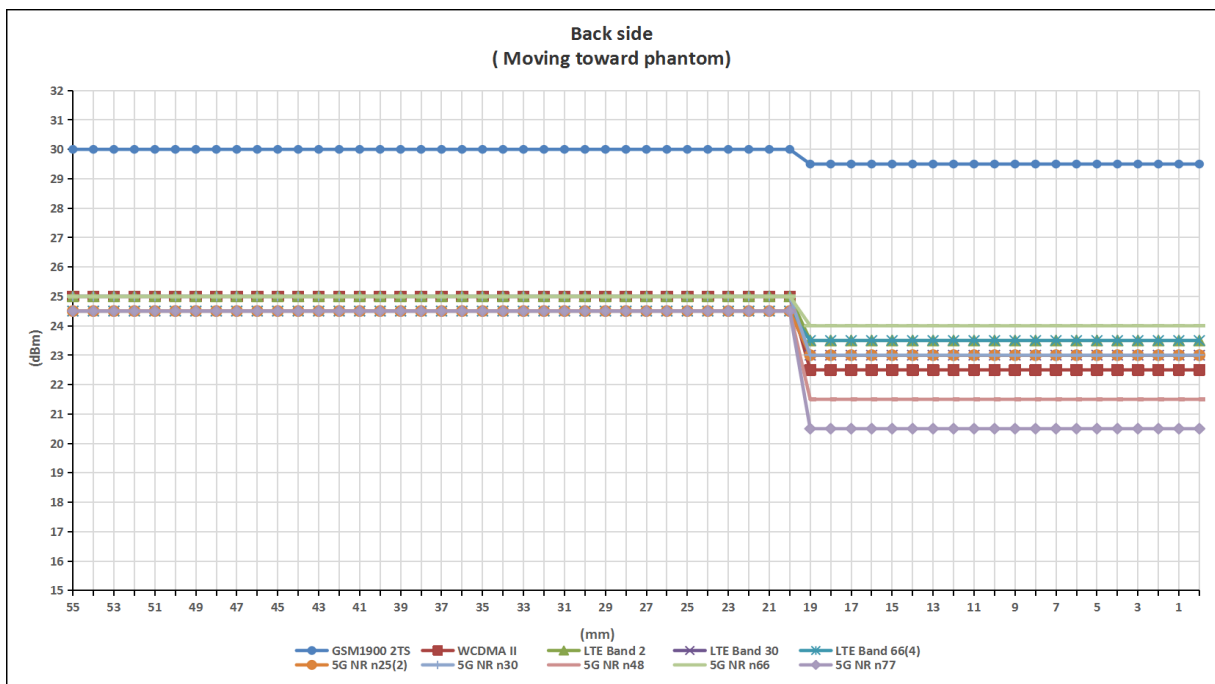
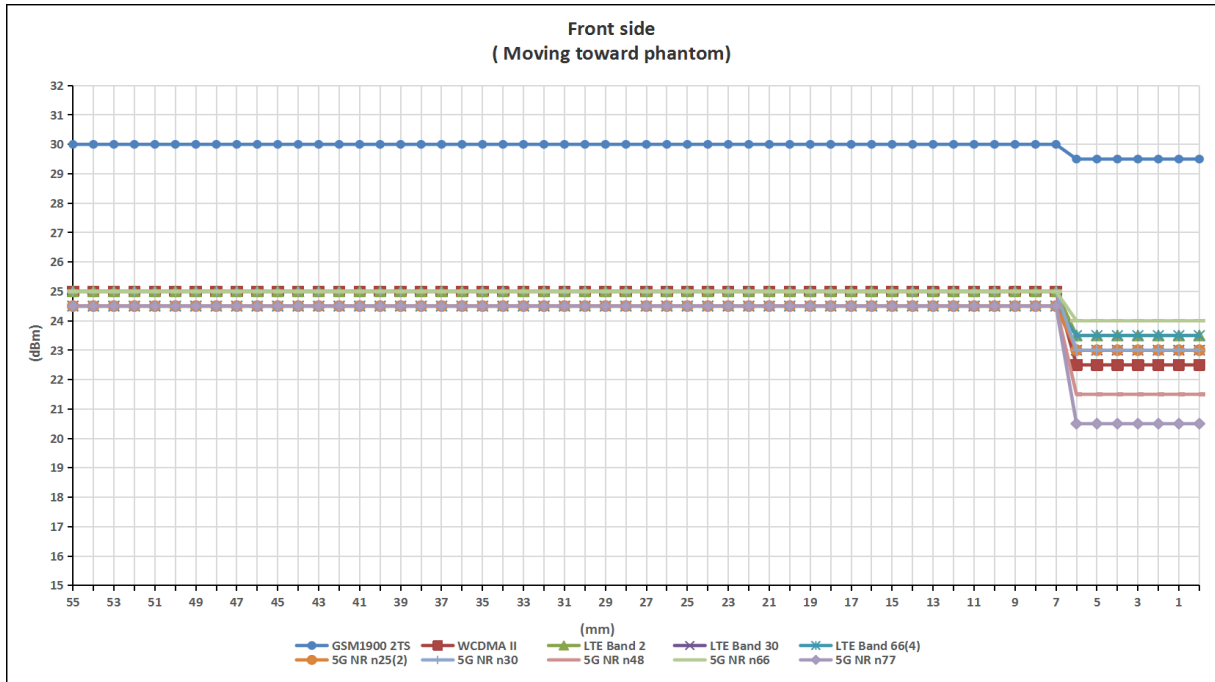


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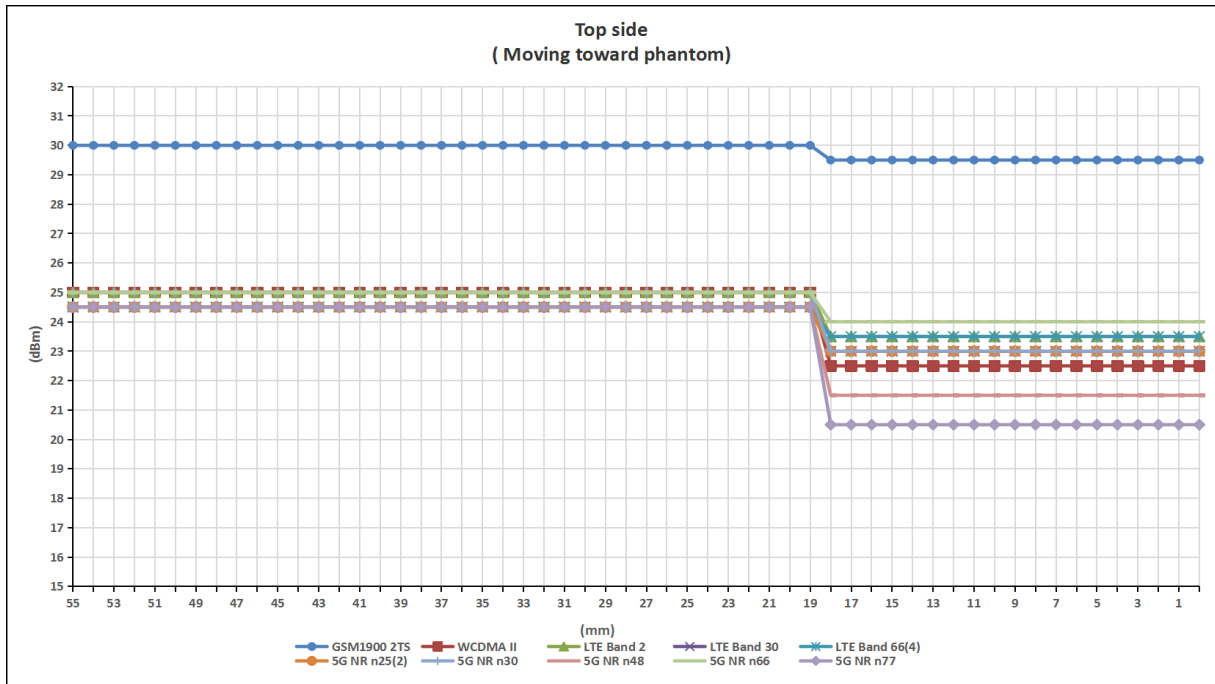
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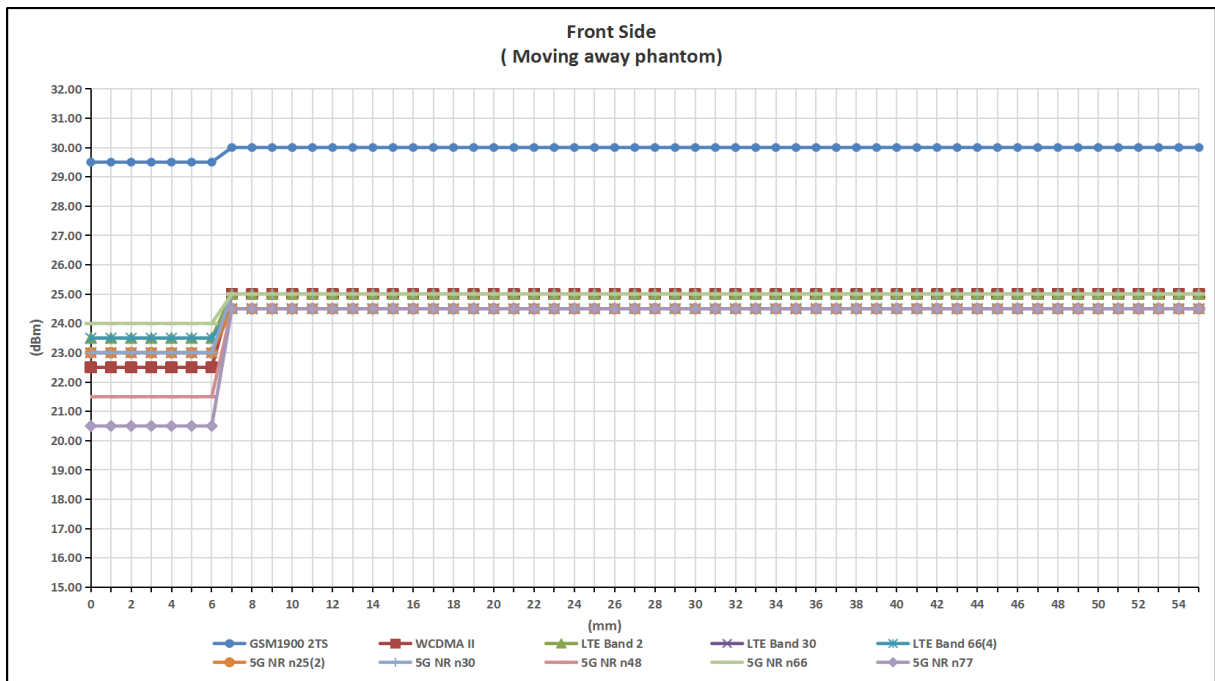
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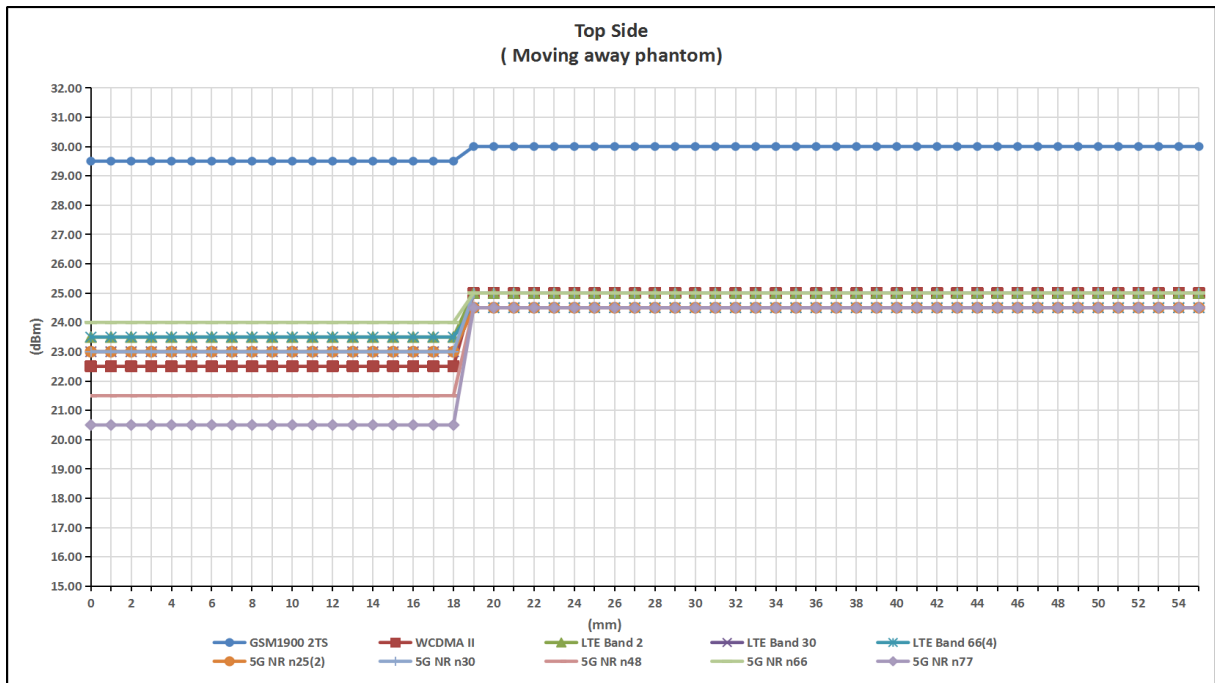
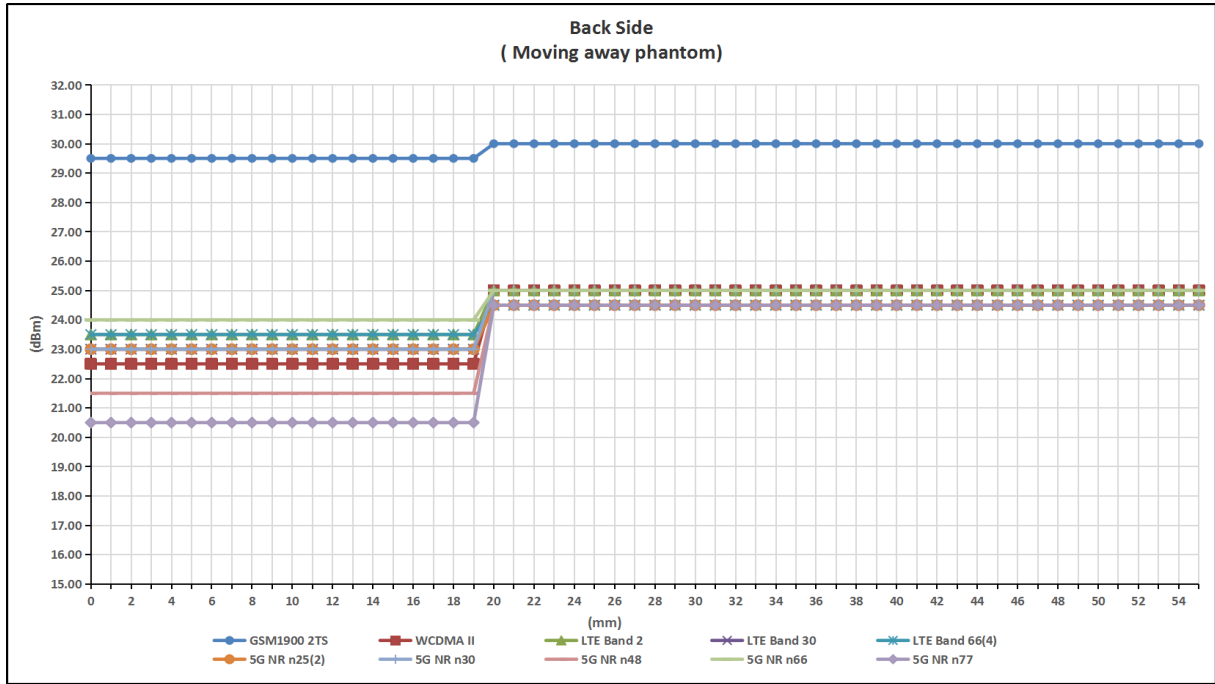
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Proximity sensor coverage

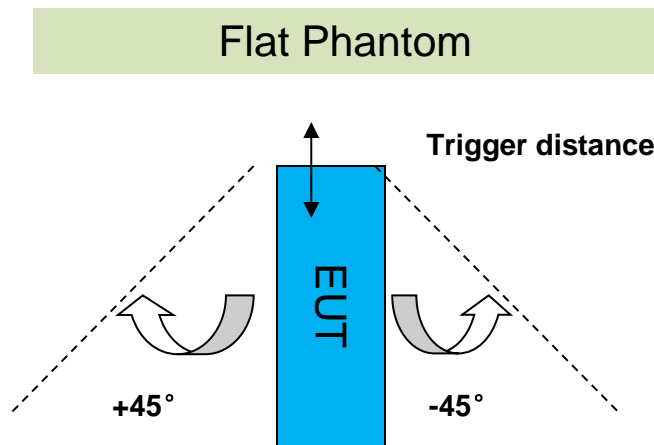
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing,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

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

Device tilt angle influences to proximity sensor triggering

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

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



Summary of Tablet Tilt Angle Influence to Proximity Sensor Triggering for Top Side													
Band (MHz)	Minimum trigger distance Per KDB616217§6.2	Minimum trigger distance at which power reduction was maintained over $\pm 45^\circ$	Power Reduction Status										
			-45°	-35°	-25°	-15°	-5°	0°	5°	15°	25°	35°	45°
Ant5	Top side:19mm	Top side:19mm	on	on	on	on	on	on	on	on	on	on	on
Ant3	Top side:18mm	Top side:18mm	on	on	on	on	on	on	on	on	on	on	on



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7 SAR System Verification Procedure

7.1 Tissue Simulate Liquid

7.1.1 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 Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose		
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 3: Recipe of Tissue Simulate Liquid



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7.1.2 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 $22\pm 2^{\circ}\text{C}$.

Measurement for Tissue Simulate Liquid							
Tissue Type	Measured Frequency (MHz)	Target Tissue ($\pm 5\%$)		Measured Tissue		Liquid Temp. ($^{\circ}\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
1750 Head	1750	40.1	1.37	40.314	1.374	22.3	2024-3-18
1950 Head	1950	40.0	1.40	40.507	1.417	22.1	2024-3-19
1950 Head	1950	40.0	1.40	40.571	1.429	22.2	2024-3-20
2300 Head	2300	39.5	1.67	39.047	1.644	21.9	2024-3-21
2600 Head	2600	39.0	1.96	37.927	1.978	22.1	2024-3-22

Table 4: Measurement result of Tissue electric parameters.



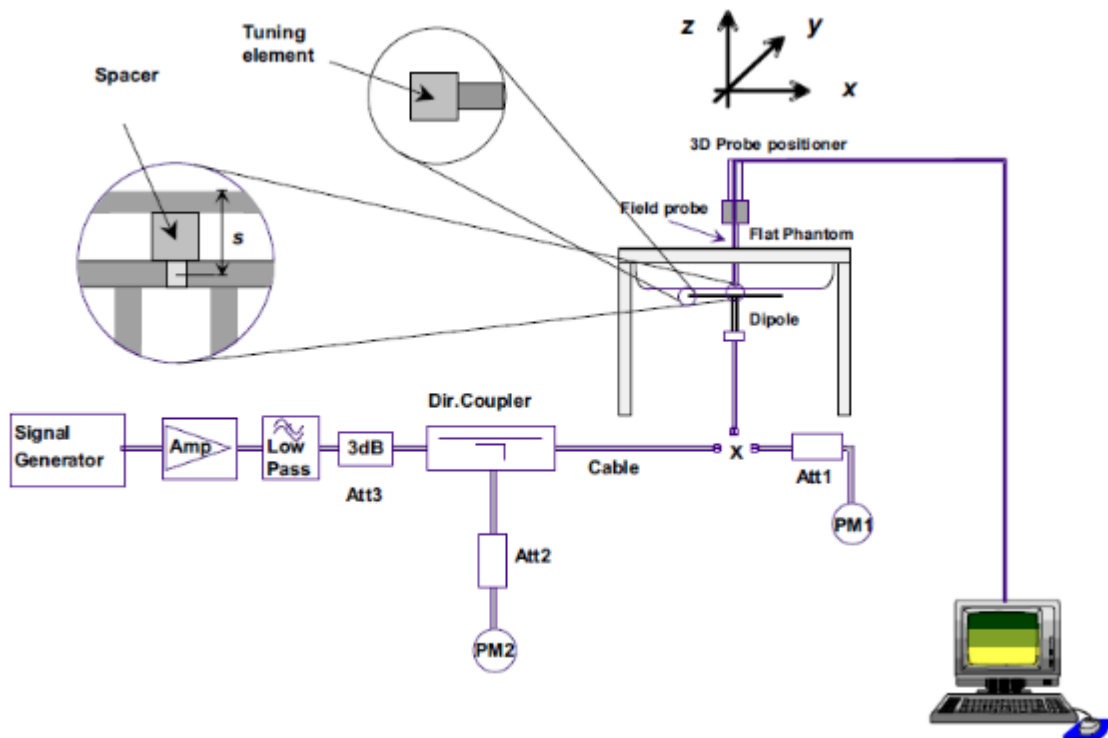
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7.2 SAR System Check

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



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



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7.2.1 Justification for Extended SAR Dipole Calibrations

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

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

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



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7.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW		Measured SAR (normalized to 1W)		Target SAR (normalized to 1W)		Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D1750V2	Head	8.69	4.61	34.76	18.44	35.30	18.70	-1.53%	-1.39%	22.3	2024-3-18
D1950V2	Head	9.92	5.08	39.68	20.32	39.70	20.30	-0.05%	0.10%	22.1	2024-3-19
D1950V2	Head	9.98	5.15	39.92	20.60	39.70	20.30	0.55%	1.48%	22.2	2024-3-20
D2300V2	Head	12.10	5.79	48.40	23.16	48.70	23.30	-0.62%	-0.60%	21.9	2024-3-21
D2600V2	Head	14.20	6.36	56.80	25.44	57.10	25.40	-0.53%	0.16%	22.1	2024-3-22

Table 5: SAR System Check Result.

7.2.3 Detailed System Check Results

Please see the Appendix A



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8 Test Configuration

8.1 3G SAR Test Reduction Procedure

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

8.2 Operation Configurations

8.2.1 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMW500 the power lever is set to “5” and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS/EGPRS function. Since the GPRS class is 33 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is 5. The EGPRS class is 33 for this EUT, it has at most 4 timeslots in uplink, and at most 4 timeslots in downlink, the maximum total timeslot is 5.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. 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 and tolerance, 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



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8.2.2 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 Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4) . HSDPA / HSUPA / DC-HSDPA

According to KDB 941225 D01v03, RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power and tune-up tolerance specified for production units in HSDPA / HSUPA / DC-HSDPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest reported SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power and tune-up tolerance of HSDPA / HSUPA / DC-HSDPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for HSDPA / HSUPA / DC-HSDPA

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.



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Sub-test	β_c	Bd	$\beta_d(SF)$	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: $\Delta ACK, \Delta NACK$ 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, ΔACK 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 6: 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 H S-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 7: 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.



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Sub-test ^c	β_c ^c	β_d ^c	β_d (SF) ^c	β_c/β_d ^c	β_{hs} ⁽¹⁾	β_{ec} ^c	β_{ed} ^c	β_c (SF) ^c	β_{ed} (code) ^c	CM ⁽²⁾ (dB) ^c	MP R ⁽³⁾ (dB) ^c	AG ⁽⁴⁾ Inde ^x	E-TFC I ^c
1 ^c	11/15 ⁽³⁾	15/15 ⁽³⁾	64 ^c	11/15 ⁽³⁾	22/15 ^c	209/225 ^c	1039/225 ^c	4 ^c	1 ^c	1.0 ^c	0.0 ^c	20 ^c	75 ^c
2 ^c	6/15 ^c	15/15 ^c	64 ^c	6/15 ^c	12/15 ^c	12/15 ^c	94/75 ^c	4 ^c	1 ^c	3.0 ^c	2.0 ^c	12 ^c	67 ^c
3 ^c	15/15 ^c	9/15 ^c	64 ^c	15/9 ^c	30/15 ^c	30/15 ^c	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4 ^c	2 ^c	2.0 ^c	1.0 ^c	15 ^c	92 ^c
4 ^c	2/15 ^c	15/15 ^c	64 ^c	2/15 ^c	4/15 ^c	2/15 ^c	56/75 ^c	4 ^c	1 ^c	3.0 ^c	2.0 ^c	17 ^c	71 ^c
5 ^c	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64 ^c	15/15 ⁽⁴⁾	30/15 ^c	24/15 ^c	134/15 ^c	4 ^c	1 ^c	1.0 ^c	0.0 ^c	21 ^c	81 ^c

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 MPR is based on the relative CM difference^c
 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 $\beta_d = 15/15$ ^c
 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 $\beta_d = 15/15$ ^c
 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^c
 Note 6 : β_{ed} can not be set directly; it is set by Absolute Grant Value.^c

Table 8: Subtests for UMTS Release 6 HSUPA

UE Category	E-DCH Codes Transmitted	Number of HARQ Processes	of 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		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10		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 9: HSUPA UE category



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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 10: settings of required H-Set 12 QPSK acc. to 3GPP 34.121

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.



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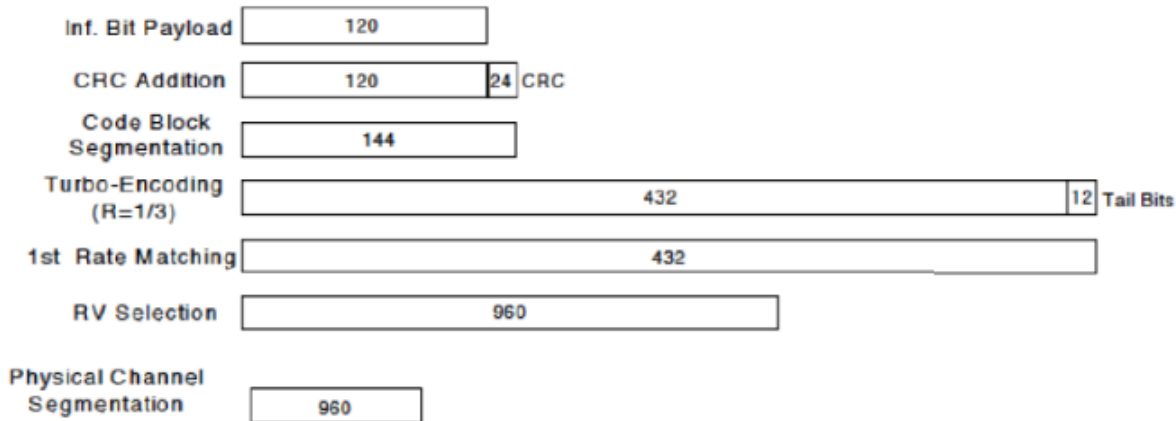


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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	β_{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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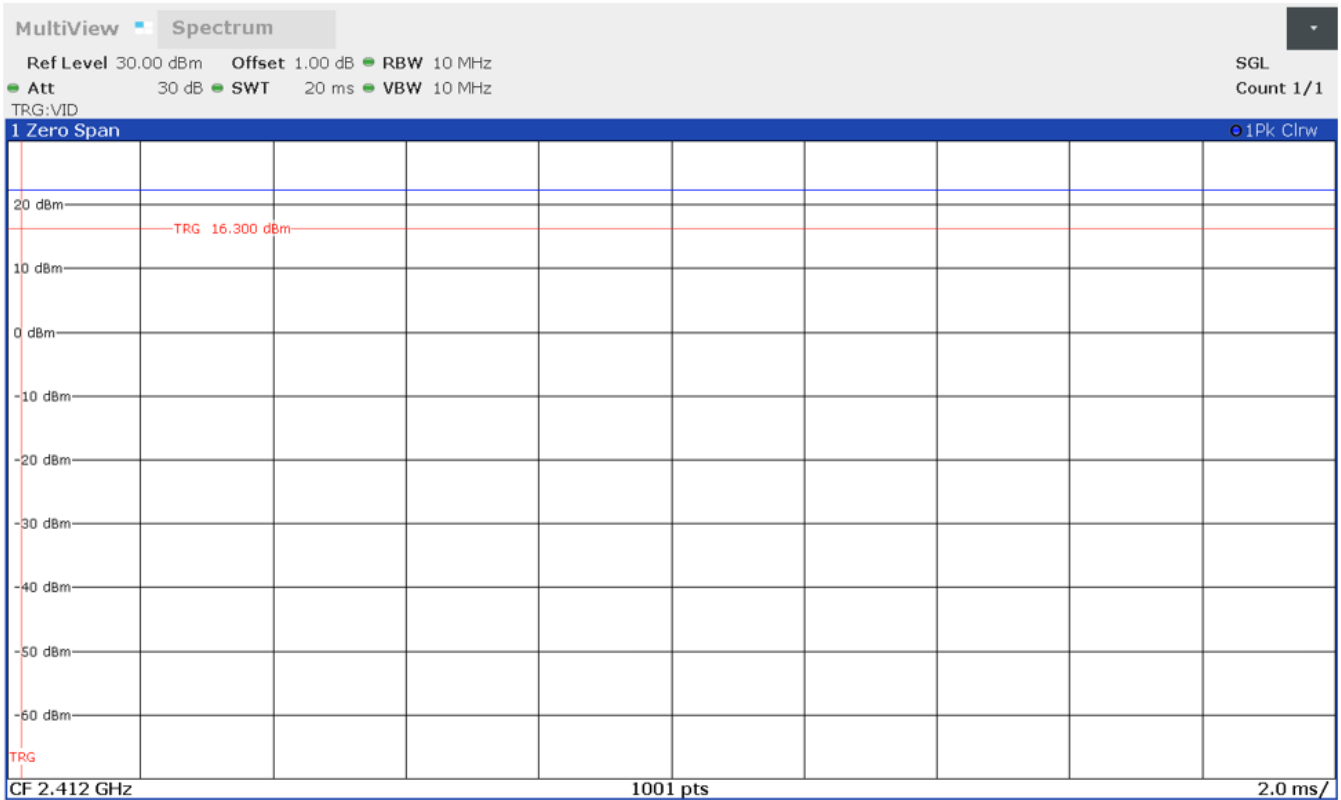
8.2.3 WiFi Test Configuration

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

8.2.3.1 Duty cycle

Wi-Fi 2.4GHz 802.11b:

Duty cycle=100%



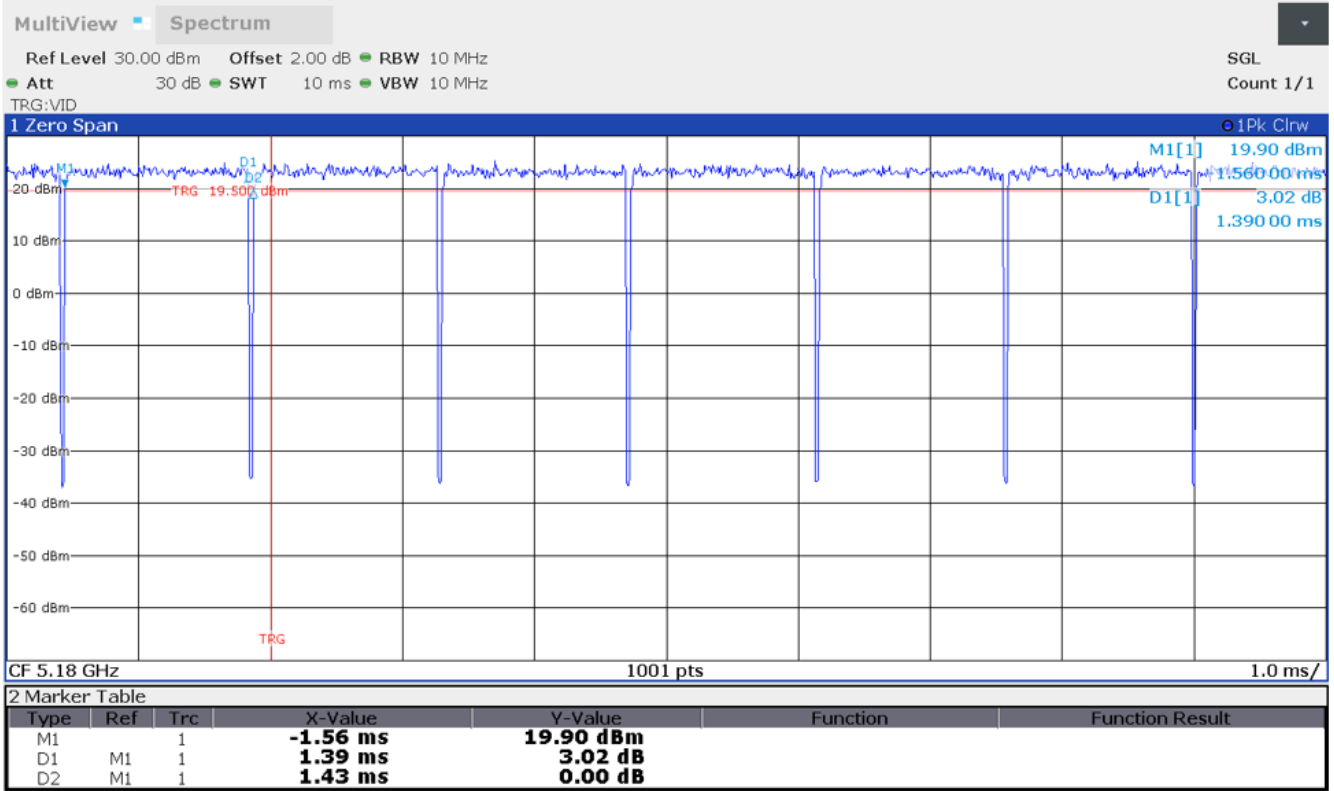
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Duty cycle=97.2%



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8.2.3.2 Initial Test Position SAR Test Reduction Procedure

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

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

8.2.3.3 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.

8.2.3.4 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



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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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8.2.3.5 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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8.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The 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.

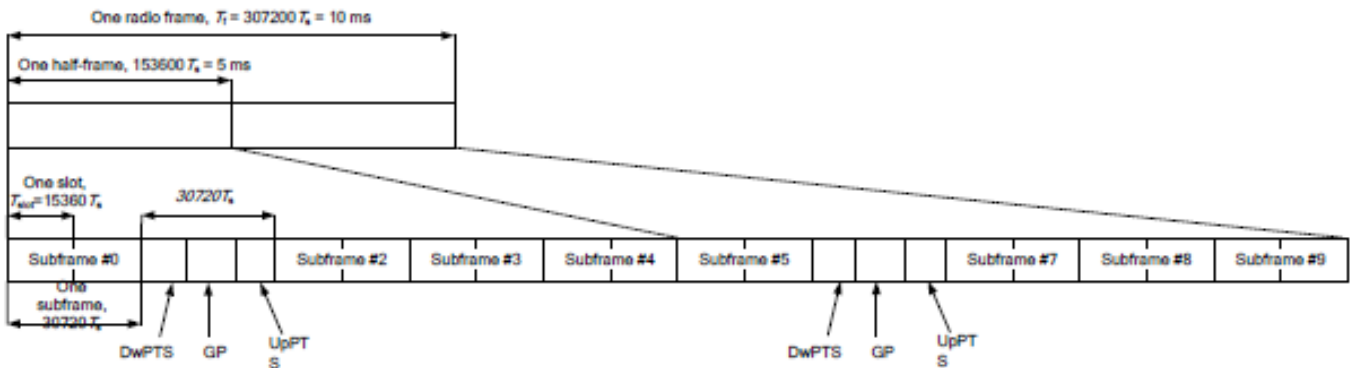
TDD LTE test consideration

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:



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Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.Ts	2192.Ts	2560.Ts	7680.Ts	2192.Ts	2560.Ts
1	19760.Ts			20480.Ts		
2	21952.Ts			23040.Ts		
3	24144.Ts			25600.Ts		
4	26336.Ts			7680.Ts		
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts	4384.Ts	5120.Ts
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-		
9	13168.Ts			-		

Uplink-downlink configurations.

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

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

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



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A) Spectrum Plots for RB Configurations

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

B) MPR

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

Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3

C) A-MPR

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

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.



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8.2.5 NR Band Test Configuration

1. NR Band n5/n7/n38/n41/n66/n77/n78 support SA mode and n5/n7/n38/n41/n66/n78 support 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	n25	n41	n66		n71	n77
		Ant2	Ant3	Ant0	Ant3	Ant3	Ant2	Ant3	Ant0	Ant4
LTE Band 2	Ant2		✓			✓		✓		
	Ant3			✓					✓	
LTE Band 5	Ant0		✓		✓			✓		✓
LTE Band 12	Ant0		✓		✓			✓		✓
LTE Band 14	Ant0		✓		✓			✓		✓
LTE Band 25	Ant2		✓		✓	✓		✓		✓
	Ant3			✓					✓	
LTE Band 30	Ant2									✓
	Ant3	✓		✓			✓		✓	
LTE Band 41	Ant3	✓		✓			✓		✓	
LTE Band 66	Ant2		✓		✓	✓		✓		✓
	Ant3			✓					✓	



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

Band			N2	N5	N25	N26	N30	N41	N48	N66	N70	N71	n77 PC3	n77 PC3	
Modulation	DFT-s-OFDM	PI/2 BPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	CP-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
256QAM		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Duty Cycle			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50%	

Band	SCS	Bandwidth												
		5Mh Z	10Mh Z	15Mh Z	20Mh Z	25Mh Z	30Mh Z	40Mh Z	50Mh Z	60Mh Z	70Mh Z	80Mh Z	90Mh Z	100Mh Z
N2	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N5	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N25	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N26	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N30	15KH Z	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N41	30KH Z	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes
N48	30KH Z	N/A	Yes	Yes	Yes	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
N66	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
N70	15KH Z	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N71	15KH Z	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n77 PC3	30KH Z	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes
n77 PC2	30KH Z	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes



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3. 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 ½ 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 ½ 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 ½ 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 ½ 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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4. 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	
	256 QAM		≤ 4.5	
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM		≤ 3.5	
	256 QAM		≤ 6.5	

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability 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 n77. 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 n77 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 n77.

5. 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.

6. 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_2A_n5 (UL 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.

7. 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.

8. 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.

9. 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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9 Test Result

9.1 Measurement of RF conducted Power

The detailed conducted power table can refer to Appendix E.

Note:

- 1) . For GSM 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

- 2) . 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
- 3) . When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used
- 4) . 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.
- 5) . 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.
- 6) . Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05.
- 7) . 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 ¼ dB higher than the maximum output power measured when downlink carrier aggregation 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
- 8) . 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.



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- 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.

9) . The conducted power of BT is measured with RMS detector.
BT DH5 Duty Cycle=76.80%



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9.2 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is select the worst presentation of the original report SEWM2304000137RG09 and this report. Graph results refer to Appendix B.
- 2) Per KDB447498 D01, 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.

WiFi 2.4G:

- 1) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.

WiFi 5G:

- 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. As the highest reported SAR for a test configuration is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band for that configuration.
- 2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.
- 3) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.



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9.2.1 SAR Result of GSM850

GSM850 SAR Test Record										
Ant 0 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	GPRS 4TS	190/836.6	1:2.075	0.238	-0.19	28.99	30.00	1.262	0.300	22.4
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.196	-0.07	28.99	30.00	1.262	0.247	22.4
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.345	-0.05	28.99	30.00	1.262	0.435	22.4
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.229	0.02	28.99	30.00	1.262	0.289	22.4
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.267	0.16	28.99	30.00	1.262	0.337	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.397	-0.08	28.99	30.00	1.262	0.501	22.4
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.428	-0.12	28.99	30.00	1.262	0.540	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.640	0.08	28.99	30.00	1.262	0.808	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.632	0.03	28.99	30.00	1.262	0.797	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.638	0.01	28.99	30.00	1.262	0.805	22.4
Left side	GPRS 4TS	190/836.6	1:2.075	0.000	0.00	28.99	30.00	1.262	0.000	22.4

Table 11: SAR of GSM850 for Head and Body.

9.2.2 SAR Result of GSM1900

GSM1900 SAR Test Record										
Ant 3 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	GPRS 2TS	661/1880	1:4.15	0.305	0.18	22.74	23.50	1.191	0.363	21.9
Left tilted	GPRS 2TS	661/1880	1:4.15	0.373	-0.13	22.74	23.50	1.191	0.444	21.9
Right cheek	GPRS 2TS	661/1880	1:4.15	0.595	0.08	22.74	23.50	1.191	0.709	21.9
Right tilted	GPRS 2TS	661/1880	1:4.15	0.749	0.11	22.74	23.50	1.191	0.892	21.9
Right tilted	GPRS 2TS	512/1850.2	1:4.15	0.716	0.07	22.62	23.50	1.225	0.877	21.9
Right tilted	GPRS 2TS	810/1909.8	1:4.15	0.725	-0.05	22.65	23.50	1.216	0.882	21.9
Body worn Test data(Separate 15mm)										
Front side	GPRS 2TS	661/1880	1:4.15	0.384	0.02	29.41	30.00	1.146	0.440	21.9
Back side	GPRS 2TS	661/1880	1:4.15	0.612	0.10	29.41	30.00	1.146	0.701	21.9
Hotspot Test data(Separate 10mm)										
Front side	GPRS 2TS	661/1880	1:4.15	0.403	0.08	27.15	28.00	1.216	0.490	21.9
Back side	GPRS 2TS	661/1880	1:4.15	0.517	0.02	27.15	28.00	1.216	0.629	21.9
Left side	GPRS 2TS	661/1880	1:4.15	0.134	-0.05	27.15	28.00	1.216	0.163	21.9
Right side	GPRS 2TS	661/1880	1:4.15	0.048	-0.08	27.15	28.00	1.216	0.058	21.9
Top side	GPRS 2TS	661/1880	1:4.15	0.659	0.11	27.15	28.00	1.216	0.801	21.9
Top side	GPRS 2TS	512/1850.2	1:4.15	0.628	0.04	27.09	28.00	1.233	0.774	21.9
Top side	GPRS 2TS	810/1909.8	1:4.15	0.759	-0.08	27.11	28.00	1.227	0.932	21.9
Test position	Test mode	Test ch./Freq.	Duty Cycle	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 10g SAR Test data(Separate 0mm)										
Back side	GPRS 2TS	661/1880	1:4.15	1.860	0.06	29.41	30.00	1.146	2.131	21.9
Back side	GPRS 2TS	512/1850.2	1:4.15	1.660	0.13	29.37	30.00	1.156	1.919	21.9
Back side	GPRS 2TS	810/1909.8	1:4.15	1.740	0.04	29.38	30.00	1.153	2.007	21.9



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Top side	GPRS 2TS	661/1880	1:4.15	2.650	-0.06	29.41	30.00	1.146	3.036	21.9
Top side	GPRS 2TS	512/1850.2	1:4.15	2.580	-0.17	29.37	30.00	1.156	2.983	21.9
Top side	GPRS 2TS	810/1909.8	1:4.15	2.630	-0.15	29.38	30.00	1.153	3.034	21.9
Top side - Repeat	GPRS 2TS	661/1880	1:4.15	2.590	-0.01	29.41	30.00	1.146	2.967	21.9

Table 12: SAR of GSM1900 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (10g)		SAR (10g)	SAR (10g)
Top side	661/1880	2.65	2.59	1.023166023	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

9.2.3 SAR Result of WCDMA Band II

WCDMA Band II SAR Test Record										
Ant 3 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	9400/1880	1:1	0.330	0.07	15.11	16.00	1.227	0.405	21.9
Left tilted	RMC	9400/1880	1:1	0.395	0.05	15.11	16.00	1.227	0.485	21.9
Right cheek	RMC	9400/1880	1:1	0.558	-0.05	15.11	16.00	1.227	0.685	21.9
Right tilted	RMC	9400/1880	1:1	0.645	0.06	15.11	16.00	1.227	0.792	21.9
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.621	0.02	24.35	25.00	1.161	0.721	21.9
Back side	RMC	9400/1880	1:1	0.893	0.16	24.35	25.00	1.161	1.037	21.9
Back side	RMC	9262/1852.4	1:1	0.855	0.02	24.28	25.00	1.180	1.009	21.9
Back side	RMC	9538/1907.6	1:1	0.843	-0.01	24.14	25.00	1.219	1.028	21.9
Back side -Repeat	RMC	9400/1880	1:1	0.886	0.04	24.35	25.00	1.161	1.029	21.9
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.341	-0.02	19.59	20.50	1.233	0.420	21.9
Back side	RMC	9400/1880	1:1	0.466	-0.10	19.59	20.50	1.233	0.575	21.9
Left side	RMC	9400/1880	1:1	0.113	0.02	19.59	20.50	1.233	0.139	21.9
Right side	RMC	9400/1880	1:1	0.029	-0.06	19.59	20.50	1.233	0.036	21.9
Top side	RMC	9400/1880	1:1	0.651	0.10	19.59	20.50	1.233	0.803	21.9
Top side	RMC	9262/1852.4	1:1	0.443	0.02	19.53	20.50	1.250	0.554	21.9
Top side	RMC	9538/1907.6	1:1	0.644	-0.17	19.51	20.50	1.256	0.809	21.9
Test position	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm)										
Front side	RMC	9400/1880	1:1	1.700	0.01	21.69	22.50	1.205	2.049	21.9
Front side	RMC	9262/1852.4	1:1	1.610	0.06	21.64	22.50	1.219	1.963	21.9
Front side	RMC	9538/1907.6	1:1	1.670	0.10	21.60	22.50	1.230	2.055	21.9
Back side	RMC	9400/1880	1:1	1.420	0.09	21.69	22.50	1.205	1.711	21.9
Top side	RMC	9400/1880	1:1	1.750	-0.09	21.69	22.50	1.205	2.109	21.9
Top side	RMC	9262/1852.4	1:1	1.580	0.01	21.64	22.50	1.219	1.926	21.9
Top side	RMC	9538/1907.6	1:1	1.820	-0.06	21.60	22.50	1.230	2.239	21.9
Product specific (Sensro off) 10g SAR Test data										
Front side-5mm	RMC	9538/1907.6	1:1	1.350	0.08	24.14	25.00	1.219	1.646	21.9



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Back side-18mm	RMC	9400/1880	1:1	0.369	0.02	24.35	25.00	1.161	0.429	21.9
Top side-17mm	RMC	9538/1907.6	1:1	0.575	-0.10	24.14	25.00	1.219	0.701	21.9

Test Position	Channel/ Frequency		Measured SAR (1g)	1 st Repeated		Ratio	2 nd Repeated		3 rd Repeated	
	(MHz)			SAR (1g)			SAR (1g)		SAR (1g)	
Back side	9400/1880		0.893	0.886		1.007900677	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

Table 13: SAR of WCDMA Band II for Head and Body(original report No:SEWM2311000466RG09).

WCDMA Band II SAR Test Record										
Ant 3 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Right tilted	RMC	9400/1880	1:1	0.484	-0.02	15.11	16.00	1.227	0.594	22.1
Body worn Test data(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.628	0.10	24.35	25.00	1.161	0.729	22.1
Hotspot Test data(Separate 10mm)										
Top side	RMC	9538/1907.6	1:1	0.590	0.06	19.51	20.50	1.256	0.741	22.1
Test position	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm)										
Top side	RMC	9538/1907.6	1:1	1.800	0.07	21.60	22.50	1.230	2.214	22.1

Table 14: SAR of WCDMA Band II for Head and Body(Variant).

9.2.4 SAR Result of WCDMA Band V

WCDMA Band V SAR Test Record										
Ant 0 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.213	0.11	23.91	24.50	1.146	0.244	22.4
Left tilted	RMC	4182/836.4	1:1	0.160	0.18	23.91	24.50	1.146	0.183	22.4
Right cheek	RMC	4182/836.4	1:1	0.285	-0.01	23.91	24.50	1.146	0.326	22.4
Right tilted	RMC	4182/836.4	1:1	0.169	0.05	23.91	24.50	1.146	0.194	22.4
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.232	-0.10	23.91	24.50	1.146	0.266	22.4
Back side	RMC	4182/836.4	1:1	0.296	0.11	23.91	24.50	1.146	0.339	22.4
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.278	0.12	23.91	24.50	1.146	0.318	22.4
Back side	RMC	4182/836.4	1:1	0.417	0.09	23.91	24.50	1.146	0.478	22.4
Left side	RMC	4182/836.4	1:1	0.000	0.00	23.91	24.50	1.146	0.000	22.4
Right side	RMC	4182/836.4	1:1	0.051	-0.10	23.91	24.50	1.146	0.058	22.4
Bottom side	RMC	4182/836.4	1:1	0.291	-0.03	23.91	24.50	1.146	0.333	22.4

Table 15: SAR of WCDMA Band V for Head and Body.



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9.2.5 SAR Result of LTE Band 2

LTE Band 2 SAR Test Record											
Ant 3 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.316	0.07	16.25	17.00	1.189	0.376	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.361	0.01	16.25	17.00	1.189	0.429	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.563	0.07	16.25	17.00	1.189	0.669	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.635	0.07	16.25	17.00	1.189	0.755	22.3
Head Test (Receiver on) Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.254	0.10	16.20	17.00	1.202	0.305	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.283	-0.10	16.20	17.00	1.202	0.340	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.451	0.01	16.20	17.00	1.202	0.542	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.507	0.05	16.20	17.00	1.202	0.610	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.524	0.01	24.37	25.00	1.156	0.606	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.764	0.01	24.37	25.00	1.156	0.883	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.689	0.03	24.05	25.00	1.245	0.857	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.716	-0.02	24.23	25.00	1.194	0.855	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.399	-0.11	23.33	24.00	1.167	0.466	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.594	0.03	23.33	24.00	1.167	0.693	22.3
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	18900/1880	1:1	0.572	0.04	22.18	23.00	1.208	0.691	22.3
Hotspot on Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.411	-0.10	20.62	21.50	1.225	0.503	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.561	0.10	20.62	21.50	1.225	0.687	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.120	0.08	20.62	21.50	1.225	0.147	22.3
Right side	20	QPSK 1_0	18900/1880	1:1	0.048	0.10	20.62	21.50	1.225	0.059	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	0.800	-0.04	20.62	21.50	1.225	0.980	22.3
Top side	20	QPSK 1_0	18700/1860	1:1	0.602	-0.11	20.54	21.50	1.247	0.751	22.3
Top side	20	QPSK 1_0	19100/1900	1:1	0.621	0.07	20.59	21.50	1.233	0.766	22.3
Hotspot on Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.315	-0.09	20.54	21.50	1.247	0.393	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.449	0.09	20.54	21.50	1.247	0.560	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.089	-0.02	20.54	21.50	1.247	0.111	22.3
Right side	20	QPSK 50_0	18900/1880	1:1	0.034	0.08	20.54	21.50	1.247	0.042	22.3
Top side	20	QPSK 50_0	18900/1880	1:1	0.639	-0.01	20.54	21.50	1.247	0.797	22.3
Hotspot on Test data(Separate 10mm 100%RB)											
Top side	20	QPSK 100_0	18900/1880	1:1	0.609		20.50	21.50	1.259	0.767	22.3
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	1.860	-0.03	22.63	23.50	1.222	2.273	22.3
Front side	20	QPSK 1_0	18700/1860	1:1	1.880	-0.02	22.54	23.50	1.247	2.345	22.3
Front side	20	QPSK 1_0	19100/1900	1:1	1.810	-0.10	22.57	23.50	1.239	2.242	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	1.490	-0.03	22.63	23.50	1.222	1.820	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	1.890	-0.03	22.63	23.50	1.222	2.309	22.3
Top side	20	QPSK 1_0	18700/1860	1:1	2.040	0.01	22.54	23.50	1.247	2.545	22.3
Top side	20	QPSK 1_0	19100/1900	1:1	2.180	-0.01	22.57	23.50	1.239	2.701	22.3



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Top side - Repeat SAR	20	QPSK 1_0	19100/1900	1:1	2.060	0.05	22.57	23.50	1.239	2.552	22.3
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	1.630	0.01	22.59	23.50	1.233	2.010	22.3
Front side	20	QPSK 50_0	18700/1860	1:1	1.460	0.10	22.56	23.50	1.242	1.813	22.3
Front side	20	QPSK 50_0	19100/1900	1:1	1.560	-0.02	22.52	23.50	1.253	1.955	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	1.440	0.11	22.59	23.50	1.233	1.776	22.3
Top side	20	QPSK 50_0	18900/1880	1:1	1.810	0.00	22.59	23.50	1.233	2.232	22.3
Top side	20	QPSK 50_0	18700/1860	1:1	1.630	0.09	22.56	23.50	1.242	2.024	22.3
Top side	20	QPSK 50_0	19100/1900	1:1	1.800	0.02	22.52	23.50	1.253	2.256	22.3
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 100%RB)											
Front side	20	QPSK 100_0	18900/1880	1:1	1.340	-0.10	22.53	23.50	1.250	1.675	22.3
Top side	20	QPSK 100_0	18900/1880	1:1	1.750	0.03	22.53	23.50	1.250	2.188	22.3
Product specific (Sensro off) 10g SAR Test data											
Front side-5mm	20	QPSK 1_0	18700/1860	1:1	1.080	0.01	24.05	25.00	1.245	1.344	22.3
Back side-18mm	20	QPSK 1_0	18900/1880	1:1	0.274	0.02	24.37	25.00	1.156	0.317	22.3
Top side-17mm	20	QPSK 1_0	19100/1900	1:1	0.422	0.01	24.23	25.00	1.194	0.504	22.3
Ant 2 Test Record for END C											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.481	0.01	22.11	23.00	1.227	0.590	22.3
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.219	0.03	22.11	23.00	1.227	0.269	22.3
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.807	0.17	22.11	23.00	1.227	0.991	22.3
Right cheek	20	QPSK 1_0	18700/1860	1:1	0.640	0.08	22.06	23.00	1.242	0.795	22.3
Right cheek	20	QPSK 1_0	19100/1900	1:1	0.772	0.04	22.03	23.00	1.250	0.965	22.3
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.223	0.04	22.11	23.00	1.227	0.274	22.3
Head Test (Receiver on) Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.339	-0.05	22.05	23.00	1.245	0.422	22.3
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.163	0.04	22.05	23.00	1.245	0.203	22.3
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.651	0.00	22.05	23.00	1.245	0.810	22.3
Right cheek	20	QPSK 50_0	18700/1860	1:1	0.541	0.03	22.01	23.00	1.256	0.680	22.3
Right cheek	20	QPSK 50_0	19100/1900	1:1	0.636	-0.04	22.03	23.00	1.250	0.795	22.3
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.172	-0.04	22.05	23.00	1.245	0.214	22.3
Head Test (Receiver on) Data(100%RB)											
Right cheek	20	QPSK 100_0	18900/1880	1:1	0.638	0.02	22.02	23.00	1.253	0.800	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.214	0.01	23.90	25.00	1.288	0.276	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.475	-0.02	23.90	25.00	1.288	0.612	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.162	0.03	22.69	24.00	1.352	0.219	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.361	-0.11	22.69	24.00	1.352	0.488	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.360	0.01	23.90	25.00	1.288	0.464	22.3
Back side	20	QPSK 1_0	18900/1880	1:1	0.858	-0.17	23.90	25.00	1.288	1.105	22.3
Back side	20	QPSK 1_0	18700/1860	1:1	0.801	-0.16	23.90	25.00	1.288	1.032	22.3
Back side	20	QPSK 1_0	19100/1900	1:1	0.832	0.09	23.90	25.00	1.288	1.072	22.3
Back side - Repeat	20	QPSK 1_0	18900/1880	1:1	0.841	-0.02	23.90	25.00	1.288	1.083	22.3
Left side	20	QPSK 1_0	18900/1880	1:1	0.698	0.17	23.90	25.00	1.288	0.899	22.3
Left side	20	QPSK 1_0	18700/1860	1:1	0.652	0.06	23.90	25.00	1.288	0.840	22.3
Left side	20	QPSK 1_0	19100/1900	1:1	0.679	-0.11	23.90	25.00	1.288	0.875	22.3
Top side	20	QPSK 1_0	18900/1880	1:1	0.253	0.18	23.90	25.00	1.288	0.326	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.269	-0.12	22.69	24.00	1.352	0.364	22.3
Back side	20	QPSK 50_0	18900/1880	1:1	0.692	-0.06	22.69	24.00	1.352	0.936	22.3



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Back side	20	QPSK 50_0	18700/1860	1:1	0.677	0.05	22.69	24.00	1.352	0.915	22.3
Back side	20	QPSK 50_0	19100/1900	1:1	0.681	0.04	22.69	24.00	1.352	0.921	22.3
Left side	20	QPSK 50_0	18900/1880	1:1	0.491	-0.11	22.69	24.00	1.352	0.664	22.3
Top side	20	QPSK 50_0	18900/1880	1:1	0.176	0.05	22.69	24.00	1.352	0.238	22.3
Hotspot Test data(Separate 10mm 100%RB)											
Back side	20	QPSK 1_0	18900/1880	1:1	0.709	0.04	23.90	24.00	1.023	0.726	22.3

Test Position	Channel/ Frequency		Measured SAR (1g)	1 st Repeated		Ratio	2 nd Repeated		3 rd Repeated	
	(MHz)			SAR (1g)			SAR (1g)		SAR (1g)	
Back side	18900/1880		0.858	0.841		1.020214031	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

Test Position	Channel/ Frequency		Measured SAR (10g)	1 st Repeated		Ratio	2 nd Repeated		3 rd Repeated	
	(MHz)			SAR (10g)			SAR (10g)		SAR (10g)	
Top side	19100/1900		2.18	2.06		1.058252427	N/A		N/A	

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 16: SAR of LTE Band 2 for Head and Body(original report No:SEWM2311000466RG09).

LTE Band 2 SAR Test Record											
Ant 3 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.484	-0.02	15.11	16.00	1.227	0.594	22.1
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	18900/1880	1:1	0.628	0.10	24.35	25.00	1.161	0.729	22.1
Hotspot on Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_0	18900/1880	1:1	0.590	0.06	19.51	20.50	1.256	0.741	22.1
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Top side	20	QPSK 1_0	19100/1900	1:1	1.800	0.07	21.60	22.50	1.230	2.214	22.1

Test Position	Channel/ Frequency		Measured SAR (10g)	1 st Repeated		Ratio	2 nd Repeated		3 rd Repeated	
	(MHz)			SAR (10g)			SAR (10g)		SAR (10g)	
Top side	19100/1900		2.11	2.08		1.01442308	N/A		N/A	

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 17: SAR of LTE Band 2 for Head and Body(Variant).



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9.2.6 SAR Result of LTE Band 12

LTE Band 12 SAR Test Record												
Ant 0 Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head Test Data(1RB)												
Left cheek	10	QPSK 1_0	23095/707.5	1:1	0.107	-0.18	24.27	25.00	1.183	0.127	22.1	
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.064	-0.02	24.27	25.00	1.183	0.076	22.1	
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.219	0.08	24.27	25.00	1.183	0.259	22.1	
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.075	-0.09	24.27	25.00	1.183	0.089	22.1	
Head Test Data(50%RB)												
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.086	0.14	23.33	24.00	1.167	0.100	22.1	
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.054	0.04	23.33	24.00	1.167	0.063	22.1	
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.104	-0.08	23.33	24.00	1.167	0.121	22.1	
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.112	-0.18	23.33	24.00	1.167	0.131	22.1	
Body worn Test data(Separate 15mm 1RB)												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.246	-0.15	24.27	25.00	1.183	0.291	22.1	
Back side	10	QPSK 1_0	23095/707.5	1:1	0.341	-0.02	24.27	25.00	1.183	0.403	22.1	
Body worn Test data(Separate 15mm 50%RB)												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.201	-0.11	23.33	24.00	1.167	0.235	22.1	
Back side	10	QPSK 25_0	23095/707.5	1:1	0.298	-0.02	23.33	24.00	1.167	0.348	22.1	
Hotspot Test data(Separate 10mm 1RB)												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.244	0.03	24.27	25.00	1.183	0.289	22.1	
Back side	10	QPSK 1_0	23095/707.5	1:1	0.373	-0.13	24.27	25.00	1.183	0.441	22.1	
Left side	10	QPSK 1_0	23095/707.5	1:1	0.000	0.00	24.27	25.00	1.183	0.000	22.1	
Right side	10	QPSK 1_0	23095/707.5	1:1	0.000	0.00	24.27	25.00	1.183	0.000	22.1	
Bottom side	10	QPSK 1_0	23095/707.5	1:1	0.262	0.12	24.27	25.00	1.183	0.310	22.1	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.197	-0.17	23.33	24.00	1.167	0.230	22.1	
Back side	10	QPSK 25_0	23095/707.5	1:1	0.300	-0.08	23.33	24.00	1.167	0.350	22.1	
Left side	10	QPSK 25_0	23095/707.5	1:1	0.000	0.00	23.33	24.00	1.167	0.000	22.1	
Right side	10	QPSK 25_0	23095/707.5	1:1	0.000	0.00	23.33	24.00	1.167	0.000	22.1	
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.202	-0.09	23.33	24.00	1.167	0.236	22.1	

Table 18: SAR of LTE Band 12 for Head and Body.



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9.2.7 SAR Result of LTE Band 14

LTE Band 14 SAR Test Record												
Ant 0 Test Record												
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head Test Data(1RB)												
Left cheek	10	QPSK 1_0	23330/793	1:1	0.116	0.19	24.36	25.00	1.159	0.134	22.1	
Left tilted	10	QPSK 1_0	23330/793	1:1	0.070	-0.09	24.36	25.00	1.159	0.081	22.1	
Right cheek	10	QPSK 1_0	23330/793	1:1	0.238	0.08	24.36	25.00	1.159	0.276	22.1	
Right tilted	10	QPSK 1_0	23330/793	1:1	0.085	0.03	24.36	25.00	1.159	0.098	22.1	
Head Test Data(50%RB)												
Left cheek	10	QPSK 25_0	23330/793	1:1	0.095	-0.13	23.40	24.00	1.148	0.109	22.1	
Left tilted	10	QPSK 25_0	23330/793	1:1	0.057	-0.04	23.40	24.00	1.148	0.065	22.1	
Right cheek	10	QPSK 25_0	23330/793	1:1	0.134	-0.11	23.40	24.00	1.148	0.154	22.1	
Right tilted	10	QPSK 25_0	23330/793	1:1	0.107	-0.02	23.40	24.00	1.148	0.123	22.1	
Body worn Test data(Separate 15mm 1RB)												
Front side	10	QPSK 1_0	23330/793	1:1	0.231	0.05	24.36	25.00	1.159	0.268	22.1	
Back side	10	QPSK 1_0	23330/793	1:1	0.308	0.06	24.36	25.00	1.159	0.357	22.1	
Body worn Test data(Separate 15mm 50%RB)												
Front side	10	QPSK 25_0	23330/793	1:1	0.181	0.04	23.40	24.00	1.148	0.208	22.1	
Back side	10	QPSK 25_0	23330/793	1:1	0.256	-0.09	23.40	24.00	1.148	0.294	22.1	
Hotspot Test data(Separate 10mm 1RB)												
Front side	10	QPSK 1_0	23330/793	1:1	0.244	-0.06	24.36	25.00	1.159	0.283	22.1	
Back side	10	QPSK 1_0	23330/793	1:1	0.366	0.07	24.36	25.00	1.159	0.424	22.1	
Left side	10	QPSK 1_0	23330/793	1:1	0.000	0.00	24.36	25.00	1.159	0.000	22.1	
Right side	10	QPSK 1_0	23330/793	1:1	0.000	0.00	24.36	25.00	1.159	0.000	22.1	
Bottom side	10	QPSK 1_0	23330/793	1:1	0.108	0.15	24.36	25.00	1.159	0.125	22.1	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	10	QPSK 25_0	23330/793	1:1	0.202	0.14	23.40	24.00	1.148	0.232	22.1	
Back side	10	QPSK 25_0	23330/793	1:1	0.291	-0.18	23.40	24.00	1.148	0.334	22.1	
Left side	10	QPSK 25_0	23330/793	1:1	0.000	0.00	23.40	24.00	1.148	0.000	22.1	
Right side	10	QPSK 25_0	23330/793	1:1	0.000	0.00	23.40	24.00	1.148	0.000	22.1	
Bottom side	10	QPSK 25_0	23330/793	1:1	0.150	-0.08	23.40	24.00	1.148	0.172	22.1	

Table 19: SAR of LTE Band 14 for Head and Body.



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9.2.8 SAR Result of LTE Band 26

LTE Band 26 SAR Test Record											
Ant 0 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	15	QPSK 1_0	26865/831.5	1:1	0.207	-0.12	23.96	24.50	1.132	0.234	22.3
Left tilted	15	QPSK 1_0	26865/831.5	1:1	0.135	0.08	23.96	24.50	1.132	0.153	22.3
Right cheek	15	QPSK 1_0	26865/831.5	1:1	0.259	0.05	23.96	24.50	1.132	0.293	22.3
Right tilted	15	QPSK 1_0	26865/831.5	1:1	0.154	0.18	23.96	24.50	1.132	0.174	22.3
Head Test Data(50%RB)											
Left cheek	15	QPSK 36_0	26865/831.5	1:1	0.166	0.14	22.92	23.50	1.143	0.190	22.3
Left tilted	15	QPSK 36_0	26865/831.5	1:1	0.127	0.16	22.92	23.50	1.143	0.145	22.3
Right cheek	15	QPSK 36_0	26865/831.5	1:1	0.236	0.19	22.92	23.50	1.143	0.270	22.3
Right tilted	15	QPSK 36_0	26865/831.5	1:1	0.148	-0.06	22.92	23.50	1.143	0.169	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.268	0.04	23.96	24.50	1.132	0.303	22.3
Back side	15	QPSK 1_0	26865/831.5	1:1	0.346	0.07	23.96	24.50	1.132	0.392	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.220	0.10	22.92	23.50	1.143	0.251	22.3
Back side	15	QPSK 36_0	26865/831.5	1:1	0.293	-0.19	22.92	23.50	1.143	0.335	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.272	0.16	23.96	24.50	1.132	0.308	22.3
Back side	15	QPSK 1_0	26865/831.5	1:1	0.434	0.12	23.96	24.50	1.132	0.491	22.3
Left side	15	QPSK 1_0	26865/831.5	1:1	0.000	0.00	23.96	24.50	1.132	0.000	22.3
Right side	15	QPSK 1_0	26865/831.5	1:1	0.000	0.00	23.96	24.50	1.132	0.000	22.3
Bottom side	15	QPSK 1_0	26865/831.5	1:1	0.292	-0.09	23.96	24.50	1.132	0.331	22.3
Hotspot Test data(Separate 10mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.230	0.10	22.92	23.50	1.143	0.263	22.3
Back side	15	QPSK 36_0	26865/831.5	1:1	0.364	-0.10	22.92	23.50	1.143	0.416	22.3
Left side	15	QPSK 36_0	26865/831.5	1:1	0.000	0.00	22.92	23.50	1.143	0.000	22.3
Right side	15	QPSK 36_0	26865/831.5	1:1	0.000	0.00	22.92	23.50	1.143	0.000	22.3
Bottom side	15	QPSK 36_0	26865/831.5	1:1	0.210	0.07	22.92	23.50	1.143	0.240	22.3

Table 20: SAR of LTE Band 26 for Head and Body.



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9.2.9 SAR Result of LTE Band 30

LTE Band 30 SAR Test Record											
Ant 3 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Left cheek	10	QPSK 1_0	27710/2310	1:1	0.672	0.05	20.22	21.00	1.197	0.804	22.4
Left tilted	10	QPSK 1_0	27710/2310	1:1	0.812	-0.17	20.22	21.00	1.197	0.972	22.4
Right cheek	10	QPSK 1_0	27710/2310	1:1	0.843	0.14	20.22	21.00	1.197	1.009	22.4
Right tilted	10	QPSK 1_0	27710/2310	1:1	0.936	-0.11	20.22	21.00	1.197	1.120	22.4
Head Test (Receiver on) Data(50%RB)											
Left cheek	10	QPSK 25_0	27710/2310	1:1	0.548	-0.18	20.14	21.00	1.219	0.668	22.4
Left tilted	10	QPSK 25_0	27710/2310	1:1	0.662	0.13	20.14	21.00	1.219	0.807	22.4
Right cheek	10	QPSK 25_0	27710/2310	1:1	0.677	-0.15	20.14	21.00	1.219	0.825	22.4
Right tilted	10	QPSK 25_0	27710/2310	1:1	0.755	-0.09	20.14	21.00	1.219	0.920	22.4
Head Test (Receiver on) Data(100%RB)											
Left cheek	10	QPSK 50_0	27710/2310	1:1	0.522	0.19	20.05	21.00	1.245	0.650	22.4
Left tilted	10	QPSK 50_0	27710/2310	1:1	0.626	-0.14	20.05	21.00	1.245	0.779	22.4
Right cheek	10	QPSK 50_0	27710/2310	1:1	0.652	0.12	20.05	21.00	1.245	0.811	22.4
Right tilted	10	QPSK 50_0	27710/2310	1:1	0.755	-0.11	20.05	21.00	1.245	0.940	22.4
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	27710/2310	1:1	0.208	0.02	23.45	24.50	1.274	0.265	22.4
Back side	10	QPSK 1_0	27710/2310	1:1	0.548	0.05	23.45	24.50	1.274	0.698	22.4
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	27710/2310	1:1	0.179	0.02	22.37	23.50	1.297	0.232	22.4
Back side	10	QPSK 25_0	27710/2310	1:1	0.442	0.05	22.37	23.50	1.297	0.573	22.4
Hotspot on Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	27710/2310	1:1	0.349	0.07	22.61	23.50	1.227	0.428	22.4
Back side	10	QPSK 1_0	27710/2310	1:1	0.940	-0.03	22.61	23.50	1.227	1.154	22.4
Back side - Repeat SAR	10	QPSK 1_0	27710/2310	1:1	0.921	0.09	22.61	23.50	1.227	1.130	22.4
Left side	10	QPSK 1_0	27710/2310	1:1	0.383	0.01	22.61	23.50	1.227	0.470	22.4
Top side	10	QPSK 1_0	27710/2310	1:1	0.334	0.03	22.61	23.50	1.227	0.410	22.4
Hotspot on Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	27710/2310	1:1	0.269	0.02	22.54	23.50	1.247	0.336	22.4
Back side	10	QPSK 25_0	27710/2310	1:1	0.789	-0.01	22.54	23.50	1.247	0.984	22.4
Left side	10	QPSK 25_0	27710/2310	1:1	0.323	-0.08	22.54	23.50	1.247	0.403	22.4
Top side	10	QPSK 25_0	27710/2310	1:1	0.415	0.04	22.54	23.50	1.247	0.518	22.4
Hotspot on Test data(Separate 10mm 100%RB)											
Back side	10	QPSK 50_0	27710/2310	1:1	0.737	0.09	22.52	23.50	1.253	0.924	22.4
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Back side	10	QPSK 1_0	27710/2310	1:1	2.040	0.10	22.16	23.00	1.213	2.475	22.4
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 50%RB)											
Back side	10	QPSK 25_0	27710/2310	1:1	1.680	0.04	22.16	23.00	1.213	2.038	22.4
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 100%RB)											
Back side	10	QPSK 50_0	27710/2310	1:1	1.720	-0.02	22.16	23.00	1.213	2.087	22.4
Product specific (Sensro off) 10g SAR Test data											
Back side-18mm	10	QPSK 1_0	27710/2310	1:1	0.185	-0.11	23.45	24.50	1.274	0.236	22.4
Ant 2 Test Record for ENDC											



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Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Left cheek	10	QPSK 1_0	27710/2310	1:1	0.470	0.09	19.21	20.00	1.199	0.564	22.4
Left tilted	10	QPSK 1_0	27710/2310	1:1	0.169	-0.06	19.21	20.00	1.199	0.203	22.4
Right cheek	10	QPSK 1_0	27710/2310	1:1	0.845	-0.14	19.21	20.00	1.199	1.014	22.4
Right tilted	10	QPSK 1_0	27710/2310	1:1	0.243	0.03	19.21	20.00	1.199	0.291	22.4
Head Test (Receiver on) Data(50%RB)											
Left cheek	10	QPSK 25_0	27710/2310	1:1	0.376	-0.10	19.08	20.00	1.236	0.465	22.4
Left tilted	10	QPSK 25_0	27710/2310	1:1	0.132	-0.03	19.08	20.00	1.236	0.163	22.4
Right cheek	10	QPSK 25_0	27710/2310	1:1	0.652	0.10	19.08	20.00	1.236	0.806	22.4
Right tilted	10	QPSK 25_0	27710/2310	1:1	0.196	-0.15	19.08	20.00	1.236	0.242	22.4
Head Test (Receiver on) Data(100%RB)											
Right cheek	10	QPSK 50_0	27710/2310	1:1	0.642	0.02	19.05	20.00	1.245	0.799	22.4
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	27710/2310	1:1	0.354	-0.05	23.77	24.50	1.183	0.419	22.4
Back side	10	QPSK 1_0	27710/2310	1:1	0.780	0.02	23.77	24.50	1.183	0.923	22.4
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	27710/2310	1:1	0.166	0.01	22.64	23.50	1.219	0.202	22.4
Back side	10	QPSK 25_0	27710/2310	1:1	0.371	0.06	22.64	23.50	1.219	0.452	22.4
Body worn Test data(Separate 15mm 100%RB)											
Back side	10	QPSK 50_0	27710/2310	1:1	0.416	-0.11	22.48	23.50	1.265	0.526	22.4
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	27710/2310	1:1	0.293	0.03	20.21	21.00	1.199	0.351	22.4
Back side	10	QPSK 1_0	27710/2310	1:1	0.707	-0.07	20.21	21.00	1.199	0.848	22.4
Left side	10	QPSK 1_0	27710/2310	1:1	0.351	0.07	20.21	21.00	1.199	0.421	22.4
Top side	10	QPSK 1_0	27710/2310	1:1	0.082	0.05	20.21	21.00	1.199	0.098	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	27710/2310	1:1	0.142	0.04	20.06	21.00	1.242	0.176	22.4
Back side	10	QPSK 25_0	27710/2310	1:1	0.431	0.07	20.06	21.00	1.242	0.535	22.4
Left side	10	QPSK 25_0	27710/2310	1:1	0.158	0.10	20.06	21.00	1.242	0.196	22.4
Top side	10	QPSK 25_0	27710/2310	1:1	0.255	-0.09	20.06	21.00	1.242	0.317	22.4
Hotspot Test data(Separate 10mm 100%RB)											
Back side	10	QPSK 50_0	27710/2310	1:1	0.441	0.01	20.09	21.00	1.233	0.544	22.4
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	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 10g SAR Test data (Separate 0mm 1RB)											
Back side	10	QPSK 1_0	27710/2310	1:1	2.300	0.04	23.77	24.50	1.183	2.721	22.4
Back side - Repeat SAR	10	QPSK 1_0	27710/2310	1:1	2.190	-0.12	23.77	24.50	1.183	2.591	22.4
Product specific 10g SAR Test data (Separate 0mm 50%RB)											
Back side	10	QPSK 25_0	27710/2310	1:1	1.890	0.03	22.64	23.50	1.219	2.304	22.4
Product specific 10g SAR Test data (Separate 0mm 100%RB)											
Back side	10	QPSK 50_0	27710/2310	1:1	1.950	-0.01	22.48	23.50	1.265	2.466	22.4

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Back side	27710/2310	0.940	0.921	1.02062975	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



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Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Back side	27710/2310	2.30	2.19	1.050228311	N/A	N/A

- Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 21: SAR of LTE Band 30 for Head and Body(original report No:SEWM2311000466RG09).

LTE Band 30 SAR Test Record											
Ant 3 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Right tilted	10	QPSK 1_0	27710/2310	1:1	1.000	0.08	20.22	21.00	1.197	1.197	21.9
Body worn Test data(Separate 15mm 1RB)											
Back side	10	QPSK 1_0	27710/2310	1:1	0.465	0.19	23.45	24.50	1.274	0.592	21.9
Hotspot on Test data(Separate 10mm 1RB)											
Back side	10	QPSK 1_0	27710/2310	1:1	0.948	0.06	22.61	23.50	1.227	1.164	21.9
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Back side	10	QPSK 1_0	27710/2310	1:1	1.900	0.09	22.16	23.00	1.213	2.305	21.9

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	27710/2310	1.000	0.986	1.014198783	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

Table 22: SAR of LTE Band 30 for Head and Body(Variant).



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9.2.10 SAR Result of LTE Band 48

LTE Band 48 SAR Test Record											
Ant 4 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	56150/3641	1:1.58	0.587	-0.08	20.35	21.00	1.161	0.682	22.1
Left tilted	20	QPSK 1_0	56150/3641	1:1.58	0.556	0.13	20.35	21.00	1.161	0.646	22.1
Right cheek	20	QPSK 1_0	56150/3641	1:1.58	0.381	-0.14	20.35	21.00	1.161	0.443	22.1
Right tilted	20	QPSK 1_0	56150/3641	1:1.58	0.374	0.09	20.35	21.00	1.161	0.434	22.1
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	56150/3641	1:1.58	0.470	-0.05	20.22	21.00	1.197	0.562	22.1
Left tilted	20	QPSK 50_0	56150/3641	1:1.58	0.439	0.15	20.22	21.00	1.197	0.525	22.1
Right cheek	20	QPSK 50_0	56150/3641	1:1.58	0.312	0.01	20.22	21.00	1.197	0.373	22.1
Right tilted	20	QPSK 50_0	56150/3641	1:1.58	0.306	-0.07	20.22	21.00	1.197	0.366	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	56150/3641	1:1.58	0.153	-0.12	23.42	24.50	1.282	0.196	22.1
Back side	20	QPSK 1_0	56150/3641	1:1.58	0.234	0.05	23.42	24.50	1.282	0.300	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	56150/3641	1:1.58	0.099	0.04	22.46	23.50	1.271	0.126	22.1
Back side	20	QPSK 50_0	56150/3641	1:1.58	0.152	0.07	22.46	23.50	1.271	0.193	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	56150/3641	1:1.58	0.281	0.16	23.42	24.50	1.282	0.360	22.1
Back side	20	QPSK 1_0	56150/3641	1:1.58	0.568	0.06	23.42	24.50	1.282	0.728	22.1
Left side	20	QPSK 1_0	56150/3641	1:1.58	0.134	0.04	23.42	24.50	1.282	0.172	22.1
Right side	20	QPSK 1_0	56150/3641	1:1.58	0.152	0.12	23.42	24.50	1.282	0.195	22.1
Top side	20	QPSK 1_0	56150/3641	1:1.58	0.435	-0.03	23.42	24.50	1.282	0.558	22.1
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	56150/3641	1:1.58	0.234	-0.07	22.46	23.50	1.271	0.297	22.1
Back side	20	QPSK 50_0	56150/3641	1:1.58	0.426	0.01	22.46	23.50	1.271	0.541	22.1
Left side	20	QPSK 50_0	56150/3641	1:1.58	0.119	0.19	22.46	23.50	1.271	0.151	22.1
Right side	20	QPSK 50_0	56150/3641	1:1.58	0.116	-0.11	22.46	23.50	1.271	0.147	22.1
Top side	20	QPSK 50_0	56150/3641	1:1.58	0.335	0.03	22.46	23.50	1.271	0.426	22.1

Table 23: SAR of LTE Band 48 for Head and Body.



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9.2.11 SAR Result of LTE Band 66

LTE Band 66 SAR Test Record											
Ant 3 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.441	0.12	17.38	18.00	1.153	0.509	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.558	-0.01	17.38	18.00	1.153	0.644	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.796	0.06	17.38	18.00	1.153	0.918	22.2
Right cheek	20	QPSK 1_0	132072/1720	1:1	0.765	0.02	17.33	18.00	1.167	0.893	22.2
Right cheek	20	QPSK 1_0	132572/1770	1:1	0.831	0.07	17.29	18.00	1.178	0.979	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.834	-0.07	17.38	18.00	1.153	0.962	22.2
Right tilted	20	QPSK 1_0	132072/1720	1:1	0.773	-0.04	17.33	18.00	1.167	0.902	22.2
Right tilted	20	QPSK 1_0	132572/1770	1:1	0.908	0.02	17.29	18.00	1.178	1.069	22.2
Right tilted - Repeat	20	QPSK 1_0	132572/1770	1:1	0.892	-0.11	17.29	18.00	1.178	1.050	22.2
Head Test (Receiver on) Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.372	0.04	17.24	18.00	1.191	0.443	22.2
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.454	-0.07	17.24	18.00	1.191	0.541	22.2
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.677	0.11	17.24	18.00	1.191	0.806	22.2
Right cheek	20	QPSK 50_0	132072/1720	1:1	0.613	-0.19	17.16	18.00	1.213	0.744	22.2
Right cheek	20	QPSK 50_0	132572/1770	1:1	0.719	0.09	17.17	18.00	1.211	0.870	22.2
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.698	-0.08	17.24	18.00	1.191	0.831	22.2
Right tilted	20	QPSK 50_0	132072/1720	1:1	0.632	-0.05	17.16	18.00	1.213	0.767	22.2
Right tilted	20	QPSK 50_0	132572/1770	1:1	0.778	0.02	17.17	18.00	1.211	0.942	22.2
Head Test (Receiver on) Data(100%RB)											
Right cheek	20	QPSK 100_0	132322/1745	1:1	0.640	0.01	17.21	18.00	1.199	0.768	22.2
Right tilted	20	QPSK 100_0	132322/1745	1:1	0.688	0.02	17.21	18.00	1.199	0.825	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.341	0.01	23.96	24.50	1.132	0.386	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.474	0.02	23.96	24.50	1.132	0.537	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.277	-0.02	22.77	23.50	1.183	0.328	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.398	0.05	22.77	23.50	1.183	0.471	22.2
Hotspot on Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.500	0.03	22.32	23.00	1.169	0.585	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.731	-0.18	22.32	23.00	1.169	0.855	22.2
Back side	20	QPSK 1_0	132072/1720	1:1	0.593	0.09	22.24	23.00	1.191	0.706	22.2
Back side	20	QPSK 1_0	132572/1770	1:1	0.820	0.18	22.28	23.00	1.180	0.968	22.2
Left side	20	QPSK 1_0	132322/1745	1:1	0.115	-0.03	22.32	23.00	1.169	0.134	22.2
Top side	20	QPSK 1_0	132322/1745	1:1	0.718	0.11	22.32	23.00	1.169	0.840	22.2
Top side	20	QPSK 1_0	132072/1720	1:1	0.664	0.19	22.24	23.00	1.191	0.791	22.2
Top side	20	QPSK 1_0	132572/1770	1:1	0.813	0.03	22.28	23.00	1.180	0.960	22.2
Hotspot on Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.413	-0.03	22.25	23.00	1.189	0.491	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.625	0.05	22.25	23.00	1.189	0.743	22.2
Left side	20	QPSK 50_0	132322/1745	1:1	0.085	-0.04	22.25	23.00	1.189	0.101	22.2
Top side	20	QPSK 50_0	132322/1745	1:1	0.525	-0.02	22.25	23.00	1.189	0.624	22.2
Hotspot on Test data(Separate 10mm 100%RB)											
Back side	20	QPSK 100_0	132322/1745	1:1	0.616	0.02	22.18	23.00	1.208	0.744	22.2
Top side	20	QPSK 100_0	132322/1745	1:1	0.508	-0.10	22.18	23.00	1.208	0.614	22.2
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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)



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Product specific (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Back side	20	QPSK 1_0	132322/1745	1:1	1.760	0.17	22.66	23.50	1.213	2.136	22.2
Back side	20	QPSK 1_0	132072/1720	1:1	1.750	-0.10	22.62	23.50	1.225	2.143	22.2
Back side	20	QPSK 1_0	132572/1770	1:1	1.810	0.08	22.57	23.50	1.239	2.242	22.2
Top side	20	QPSK 1_0	132322/1745	1:1	1.750	-0.06	22.66	23.50	1.213	2.123	22.2
Top side	20	QPSK 1_0	132072/1720	1:1	1.720	0.12	22.62	23.50	1.225	2.106	22.2
Top side	20	QPSK 1_0	132572/1770	1:1	1.770	0.16	22.57	23.50	1.239	2.193	22.2
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 50%RB)											
Back side	20	QPSK 50_0	132322/1745	1:1	1.360	0.17	22.58	23.50	1.236	1.681	22.2
Top side	20	QPSK 50_0	132322/1745	1:1	1.300	-0.06	22.58	23.50	1.236	1.607	22.2
Product specific (Sensro on) 10g SAR Test data (Separate 0mm 100%RB)											
Back side	20	QPSK 100_0	132322/1745	1:1	1.260	-0.04	22.46	23.50	1.271	1.601	22.2
Top side	20	QPSK 100_0	132322/1745	1:1	1.190	-0.01	22.46	23.50	1.271	1.512	22.2
Product specific (Sensro on) 10g SAR Test data											
Back side-18mm	20	QPSK 1_0	132572/1770	1:1	0.219	-0.05	23.77	24.50	1.183	0.259	22.2
Top side-17mm	20	QPSK 1_0	132572/1770	1:1	0.272	0.02	23.77	24.50	1.183	0.322	22.2
Ant 2 Test Record for END C											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.225	-0.16	23.75	24.50	1.189	0.267	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.099	0.19	23.75	24.50	1.189	0.118	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.442	0.09	23.75	24.50	1.189	0.525	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.149	0.04	23.75	24.50	1.189	0.177	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.181	0.10	22.64	23.50	1.219	0.221	22.2
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.083	-0.04	22.64	23.50	1.219	0.101	22.2
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.391	-0.13	22.64	23.50	1.219	0.477	22.2
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.112	0.11	22.64	23.50	1.219	0.137	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.095	0.14	23.75	24.50	1.189	0.113	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.277	0.05	23.75	24.50	1.189	0.329	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.082	0.03	22.64	23.50	1.219	0.100	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.259	-0.11	22.64	23.50	1.219	0.316	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.128	0.01	23.75	24.50	1.189	0.152	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.438	-0.06	23.75	24.50	1.189	0.521	22.2
Left side	20	QPSK 1_0	132322/1745	1:1	0.277	0.02	23.75	24.50	1.189	0.329	22.2
Top side	20	QPSK 1_0	132322/1745	1:1	0.096	-0.14	23.75	24.50	1.189	0.114	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.115	0.18	22.64	23.50	1.219	0.140	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.379	-0.04	22.64	23.50	1.219	0.462	22.2
Left side	20	QPSK 50_0	132322/1745	1:1	0.248	-0.16	22.64	23.50	1.219	0.302	22.2
Top side	20	QPSK 50_0	132322/1745	1:1	0.062	-0.18	22.64	23.50	1.219	0.076	22.2

Test Position	Channel/Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	132572/1770	0.908	0.892	1.01793722	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
 2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).



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- 3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

Table 24: SAR of LTE Band 66 for Head and Body(original report No:SEWM2311000466RG09).

LTE Band 66 SAR Test Record											
Ant 3 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test Data(1RB)											
Right tilted	20	QPSK 1_0	132572/1770	1:1	0.842	-0.01	17.29	18.00	1.178	0.992	22.3
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_0	132322/1745	1:1	0.584	0.04	23.96	24.50	1.132	0.661	22.3
Hotspot on Test data(Separate 10mm 1RB)											
Back side	20	QPSK 1_0	132572/1770	1:1	0.834	-0.03	22.28	23.00	1.180	0.984	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data(Separate 0mm 1RB)											
Back side	20	QPSK 1_0	132572/1770	1:1	1.790	-0.15	22.57	23.50	1.239	2.217	22.3

Test Position	Channel/Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	132572/1770	0.842	0.836	1.007177033	N/A	N/A

- Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
- 2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

Table 25: SAR of LTE Band 66 for Head and Body(Variant).



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9.2.12 SAR Result of LTE Band 71

LTE Band 71 SAR Test Record											
Ant 0 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	133297/680.5	1:1	0.116	-0.10	24.45	25.00	1.135	0.132	22.2
Left tilted	20	QPSK 1_0	133297/680.5	1:1	0.085	-0.04	24.45	25.00	1.135	0.096	22.2
Right cheek	20	QPSK 1_0	133297/680.5	1:1	0.199	0.07	24.45	25.00	1.135	0.226	22.2
Right tilted	20	QPSK 1_0	133297/680.5	1:1	0.090	0.03	24.45	25.00	1.135	0.102	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	133297/680.5	1:1	0.089	0.04	23.32	24.00	1.169	0.104	22.2
Left tilted	20	QPSK 50_0	133297/680.5	1:1	0.078	-0.18	23.32	24.00	1.169	0.091	22.2
Right cheek	20	QPSK 50_0	133297/680.5	1:1	0.152	-0.18	23.32	24.00	1.169	0.178	22.2
Right tilted	20	QPSK 50_0	133297/680.5	1:1	0.071	-0.05	23.32	24.00	1.169	0.083	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	133297/680.5	1:1	0.219	-0.07	24.45	25.00	1.135	0.249	22.2
Back side	20	QPSK 1_0	133297/680.5	1:1	0.302	-0.04	24.45	25.00	1.135	0.343	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	133297/680.5	1:1	0.201	-0.11	23.32	24.00	1.169	0.235	22.2
Back side	20	QPSK 50_0	133297/680.5	1:1	0.268	0.03	23.32	24.00	1.169	0.313	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	133297/680.5	1:1	0.248	-0.10	24.45	25.00	1.135	0.281	22.2
Back side	20	QPSK 1_0	133297/680.5	1:1	0.386	0.15	24.45	25.00	1.135	0.438	22.2
Right side	20	QPSK 1_0	133297/680.5	1:1	0.045	-0.07	24.45	25.00	1.135	0.051	22.2
Bottom side	20	QPSK 1_0	133297/680.5	1:1	0.153	-0.16	24.45	25.00	1.135	0.174	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	133297/680.5	1:1	0.205	0.02	23.32	24.00	1.169	0.240	22.2
Back side	20	QPSK 50_0	133297/680.5	1:1	0.316	-0.03	23.32	24.00	1.169	0.370	22.2
Right side	20	QPSK 50_0	133297/680.5	1:1	0.065	0.10	23.32	24.00	1.169	0.076	22.2
Bottom side	20	QPSK 50_0	133297/680.5	1:1	0.228	0.13	23.32	24.00	1.169	0.267	22.2

Table 26: SAR of LTE Band 71 for Head and Body.



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9.2.13 SAR Result of 5G NR n2

SA N2 SAR Test Record												
Ant2 Test Record for END C												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head (Receiver on) Test data(1RB)												
Left cheek	20	QPSK 1_1	376000/1880	1:1	0.354	-0.11	17.68	18.50	1.208	0.428	22.3	
Left tilted	20	QPSK 1_1	376000/1880	1:1	0.428	-0.11	17.68	18.50	1.208	0.517	22.3	
Right cheek	20	QPSK 1_1	376000/1880	1:1	0.697	0.17	17.68	18.50	1.208	0.842	22.3	
Right cheek	20	QPSK 1_1	372000/1860	1:1	0.629	-0.13	17.62	18.50	1.225	0.770	22.3	
Right cheek	20	QPSK 1_1	380000/1900	1:1	0.656	0.16	17.66	18.50	1.213	0.796	22.3	
Right tilted	20	QPSK 1_1	376000/1880	1:1	0.730	-0.19	17.68	18.50	1.208	0.882	22.3	
Right tilted	20	QPSK 1_1	372000/1860	1:1	0.613	0.15	17.62	18.50	1.225	0.751	22.3	
Right tilted	20	QPSK 1_1	380000/1900	1:1	0.684	-0.10	17.66	18.50	1.213	0.830	22.3	
Head (Receiver on) Test data(50%RB)												
Left cheek	20	QPSK 50_28	376000/1880	1:1	0.379	0.02	17.61	18.50	1.227	0.465	22.3	
Left tilted	20	QPSK 50_28	376000/1880	1:1	0.444	0.06	17.61	18.50	1.227	0.545	22.3	
Right cheek	20	QPSK 50_28	376000/1880	1:1	0.725	-0.06	17.61	18.50	1.227	0.890	22.3	
Right cheek	20	QPSK 50_28	372000/1860	1:1	0.629	0.02	17.53	18.50	1.250	0.786	22.3	
Right cheek	20	QPSK 50_28	380000/1900	1:1	0.695	0.17	17.49	18.50	1.262	0.877	22.3	
Right tilted	20	QPSK 50_28	376000/1880	1:1	0.760	0.01	17.61	18.50	1.227	0.933	22.3	
Right tilted	20	QPSK 50_28	372000/1860	1:1	0.651	0.08	17.53	18.50	1.250	0.814	22.3	
Right tilted	20	QPSK 50_28	380000/1900	1:1	0.716	-0.01	17.49	18.50	1.262	0.903	22.3	
Head (Receiver on) Test data(100%RB)												
Right cheek	20	QPSK 100_00	376000/1880	1:1	0.629	0.02	17.56	18.50	1.242	0.781	22.3	
Right tilted	20	QPSK 100_00	376000/1880	1:1	0.662	-0.04	17.56	18.50	1.242	0.822	22.3	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_1	376000/1880	1:1	0.353	0.11	23.72	24.50	1.197	0.422	22.3	
Back side	20	QPSK 1_1	376000/1880	1:1	0.624	0.12	23.72	24.50	1.197	0.747	22.3	
Body worn Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_28	376000/1880	1:1	0.267	0.14	23.72	24.50	1.197	0.320	22.3	
Back side	20	QPSK 50_28	376000/1880	1:1	0.505	-0.01	23.72	24.50	1.197	0.604	22.3	
Hotspot on Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_1	376000/1880	1:1	0.379	-0.18	21.59	22.50	1.233	0.467	22.3	
Back side	20	QPSK 1_1	376000/1880	1:1	0.685	0.03	21.59	22.50	1.233	0.845	22.3	
Back side	20	QPSK 1_1	372000/1860	1:1	0.662	0.05	21.55	22.50	1.245	0.824	22.3	
Back side	20	QPSK 1_1	380000/1900	1:1	0.673	-0.05	21.53	22.50	1.250	0.841	22.3	
Left side	20	QPSK 1_1	376000/1880	1:1	0.095	-0.01	21.59	22.50	1.233	0.117	22.3	
Top side	20	QPSK 1_1	376000/1880	1:1	0.881	-0.06	21.59	22.50	1.233	1.086	22.3	
Top side	20	QPSK 1_1	372000/1860	1:1	0.819	0.02	21.55	22.50	1.245	1.019	22.3	
Top side	20	QPSK 1_1	380000/1900	1:1	0.859	-0.09	21.53	22.50	1.250	1.074	22.3	
Top side - Repeat	20	QPSK 1_1	376000/1880	1:1	0.874	0.14	21.59	22.50	1.233	1.078	22.3	
Hotspot on Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_28	376000/1880	1:1	0.315	0.19	21.55	22.50	1.245	0.392	22.3	
Back side	20	QPSK 50_28	376000/1880	1:1	0.544	0.17	21.55	22.50	1.245	0.677	22.3	
Left side	20	QPSK 50_28	376000/1880	1:1	0.107	0.19	21.55	22.50	1.245	0.133	22.3	
Top side	20	QPSK 50_28	376000/1880	1:1	0.774	0.09	21.55	22.50	1.245	0.963	22.3	
Top side	20	QPSK 50_28	372000/1860	1:1	0.685	0.06	21.53	22.50	1.250	0.856	22.3	
Top side	20	QPSK 50_28	380000/1900	1:1	0.752	-0.07	21.49	22.50	1.262	0.949	22.3	
Hotspot on Test data (Separate 10mm 100%RB)												
Back side	20	QPSK 100_00	376000/1880	1:1	0.544	-0.11	21.51	22.50	1.256	0.683	22.3	
Top side	20	QPSK 100_00	376000/1880	1:1	0.640	0.14	21.51	22.50	1.256	0.804	22.3	



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Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	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)											
Back side	20	QPSK 1_1	376000/1880	1:1	1.840	0.07	23.72	24.50	1.197	2.202	22.3
Back side	20	QPSK 1_1	372000/1860	1:1	1.730	0.04	23.63	24.50	1.222	2.114	22.3
Back side	20	QPSK 1_1	380000/1900	1:1	1.800	-0.19	23.66	24.50	1.213	2.184	22.3
Top side	20	QPSK 1_1	376000/1880	1:1	2.480	0.14	23.72	24.50	1.197	2.968	22.3
Top side	20	QPSK 1_1	372000/1860	1:1	2.340	-0.12	23.63	24.50	1.222	2.859	22.3
Top side	20	QPSK 1_1	380000/1900	1:1	2.380	-0.11	23.66	24.50	1.213	2.888	22.3
Product specific 10g SAR Test data(Separate 0mm 50%RB)											
Back side	20	QPSK 50_28	376000/1880	1:1	1.900	0.13	23.68	24.50	1.208	2.295	22.3
Back side	20	QPSK 50_28	372000/1860	1:1	1.800	0.14	23.50	24.50	1.259	2.266	22.3
Back side	20	QPSK 50_28	380000/1900	1:1	1.880	0.15	23.63	24.50	1.222	2.297	22.3
Top side	20	QPSK 50_28	376000/1880	1:1	2.590	0.06	23.68	24.50	1.208	3.128	22.3
Top side	20	QPSK 50_28	372000/1860	1:1	2.440	-0.01	23.50	24.50	1.259	3.072	22.3
Top side	20	QPSK 50_28	380000/1900	1:1	2.510	0.05	23.63	24.50	1.222	3.067	22.3
Top side - Repeat	20	QPSK 50_28	376000/1880	1:1	2.540	0.12	23.68	24.50	1.208	3.068	22.3
Product specific 10g SAR Test data(Separate 0mm 100%RB)											
Back side	20	QPSK 100_00	376000/1880	1:1	1.800	-0.07	22.69	23.50	1.205	2.169	22.3
Top side	20	QPSK 100_00	376000/1880	1:1	2.260	-0.11	22.69	23.50	1.205	2.723	22.3

Table 27: SAR of 5G NR n2 for Head and Body.

Test Position	Channel/Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Top side	376000/1880	0.881	0.874	1.008009153	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
 2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
 3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
 4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

Test Position	Channel/Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Top side	376000/1880	2.59	2.54	1.019685039	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 W/kg, the measurement was repeated once.
 2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 3.63 W/kg (~ 10% from the 1-g SAR limit).
 3) A third repeated measurement was preformed only if the original, first or second repeated measurement was ≥ 3.75 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 < 2.0 W/kg



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9.2.14 SAR Result of 5G NR n25

SA N25 SAR Test Record												
Ant3 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head (Receiver on) Test data(1RB)												
Left cheek	20	QPSK 1_1	376500/1882.5	1:1	0.422	0.08	17.11	18.00	1.227	0.518	22.3	
Left tilted	20	QPSK 1_1	376500/1882.5	1:1	0.459	-0.13	17.11	18.00	1.227	0.563	22.3	
Right cheek	20	QPSK 1_1	376500/1882.5	1:1	0.854	0.02	17.11	18.00	1.227	1.048	22.3	
Right cheek	20	QPSK 1_1	372000/1850	1:1	0.791	0.06	17.07	18.00	1.239	0.980	22.3	
Right cheek	20	QPSK 1_1	381000/1905	1:1	0.837	-0.11	17.08	18.00	1.236	1.034	22.3	
Right tilted	20	QPSK 1_1	376500/1882.5	1:1	0.815	-0.06	17.11	18.00	1.227	1.000	22.3	
Right tilted	20	QPSK 1_1	372000/1850	1:1	0.812	-0.17	17.07	18.00	1.239	1.006	22.3	
Right tilted	20	QPSK 1_1	381000/1905	1:1	0.841	0.05	17.08	18.00	1.236	1.039	22.3	
Head (Receiver on) Test data(50%RB)												
Left cheek	20	QPSK 50_28	376500/1882.5	1:1	0.438	0.02	17.05	18.00	1.245	0.545	22.3	
Left tilted	20	QPSK 50_28	376500/1882.5	1:1	0.476	0.06	17.05	18.00	1.245	0.592	22.3	
Right cheek	20	QPSK 50_28	376500/1882.5	1:1	0.876	0.13	17.05	18.00	1.245	1.090	22.3	
Right cheek	20	QPSK 50_28	372000/1850	1:1	0.791	-0.17	17.03	18.00	1.250	0.989	22.3	
Right cheek	20	QPSK 50_28	381000/1905	1:1	0.858	0.09	17.01	18.00	1.256	1.078	22.3	
Right tilted	20	QPSK 50_28	376500/1882.5	1:1	0.891	0.04	17.05	18.00	1.245	1.109	22.3	
Right tilted	20	QPSK 50_28	372000/1850	1:1	0.733	-0.15	17.03	18.00	1.250	0.916	22.3	
Right tilted	20	QPSK 50_28	381000/1905	1:1	0.854	-0.14	17.01	18.00	1.256	1.073	22.3	
Right tilted - Repeat	20	QPSK 50_28	376500/1882.5	1:1	0.877	0.04	17.05	18.00	1.245	1.091	22.3	
Head (Receiver on) Test data(100%RB)												
Right cheek	20	QPSK 100_0	376500/1882.5	1:1	0.858	0.03	17.01	18.00	1.256	1.078	22.3	
Right tilted	20	QPSK 100_0	376500/1882.5	1:1	0.837	0.01	17.01	18.00	1.256	1.051	22.3	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_1	376500/1882.5	1:1	0.551	-0.03	23.69	24.50	1.205	0.664	22.3	
Back side	20	QPSK 1_1	376500/1882.5	1:1	0.774	0.08	23.69	24.50	1.205	0.933	22.3	
Back side	20	QPSK 1_1	372000/1850	1:1	0.677	0.08	23.53	24.50	1.250	0.846	22.3	
Back side	20	QPSK 1_1	381000/1905	1:1	0.802	0.07	23.54	24.50	1.247	1.000	22.3	
Body worn Test data (Separate 15mm 50%RB)												
Front side	20	QPSK 50_28	376500/1882.5	1:1	0.518	-0.07	23.54	24.50	1.247	0.646	22.3	
Back side	20	QPSK 50_28	376500/1882.5	1:1	0.776	0.05	23.54	24.50	1.247	0.968	22.3	
Back side	20	QPSK 50_28	372000/1850	1:1	0.673	0.09	23.51	24.50	1.256	0.845	22.3	
Back side	20	QPSK 50_28	381000/1905	1:1	0.762	0.02	23.54	24.50	1.247	0.951	22.3	
Body worn Test data (Separate 15mm 100%RB)												
Back side	20	QPSK 100_0	376500/1882.5	1:1	0.754	-0.14	22.59	23.50	1.233	0.930	22.3	
Hotspot on Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_1	376500/1882.5	1:1	0.499	0.15	20.51	21.50	1.256	0.627	22.3	
Back side	20	QPSK 1_1	376500/1882.5	1:1	0.688	-0.05	20.51	21.50	1.256	0.864	22.3	
Back side	20	QPSK 1_1	372000/1850	1:1	0.589	-0.19	20.46	21.50	1.271	0.748	22.3	
Back side	20	QPSK 1_1	381000/1905	1:1	0.657	0.06	20.50	21.50	1.259	0.827	22.3	
Left side	20	QPSK 1_1	376500/1882.5	1:1	0.139	0.19	20.51	21.50	1.256	0.175	22.3	
Right side	20	QPSK 1_1	376500/1882.5	1:1	0.050	-0.17	20.51	21.50	1.256	0.063	22.3	
Top side	20	QPSK 1_1	376500/1882.5	1:1	0.841	-0.12	20.51	21.50	1.256	1.056	22.3	
Top side	20	QPSK 1_1	372000/1850	1:1	0.823	0.05	20.46	21.50	1.271	1.046	22.3	
Top side	20	QPSK 1_1	381000/1905	1:1	0.841	-0.11	20.50	21.50	1.259	1.059	22.3	
Hotspot on Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_28	376500/1882.5	1:1	0.449	0.01	20.35	21.50	1.303	0.585	22.3	
Back side	20	QPSK 50_28	376500/1882.5	1:1	0.643	0.10	20.35	21.50	1.303	0.838	22.3	
Back side	20	QPSK 50_28	372000/1850	1:1	0.544	0.10	20.23	21.50	1.340	0.729	22.3	



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Back side	20	QPSK 50_28	381000/1905	1:1	0.594	-0.05	20.34	21.50	1.306	0.776	22.3
Left side	20	QPSK 50_28	376500/1882.5	1:1	0.179	0.06	20.35	21.50	1.303	0.233	22.3
Right side	20	QPSK 50_28	376500/1882.5	1:1	0.045	0.03	20.35	21.50	1.303	0.059	22.3
Top side	20	QPSK 50_28	376500/1882.5	1:1	0.522	0.02	20.35	21.50	1.303	0.680	22.3
Hotspot on Test data (Separate 10mm 100%RB)											
Back side	20	QPSK 100_0	376500/1882.5	1:1	0.607	0.01	20.34	21.50	1.306	0.793	22.3
Top side	20	QPSK 100_0	376500/1882.5	1:1	0.472	0.12	20.34	21.50	1.306	0.617	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensro on) 10g SAR Test data (Separate 0mm 1RB)											
Front side	20	QPSK 1_1	376500/1882.5	1:1	2.250	-0.06	22.11	23.00	1.227	2.762	22.3
Front side	20	QPSK 1_1	372000/1850	1:1	2.160	-0.04	22.03	23.00	1.250	2.701	22.3
Front side	20	QPSK 1_1	381000/1905	1:1	2.210	-0.04	22.07	23.00	1.239	2.738	22.3
Back side	20	QPSK 1_1	376500/1882.5	1:1	2.030	0.02	22.11	23.00	1.227	2.492	22.3
Back side	20	QPSK 1_1	372000/1850	1:1	1.930	-0.03	22.03	23.00	1.250	2.413	22.3
Back side	20	QPSK 1_1	381000/1905	1:1	1.960	-0.07	22.07	23.00	1.239	2.428	22.3
Top side	20	QPSK 1_1	376500/1882.5	1:1	2.370	-0.17	22.11	23.00	1.227	2.909	22.3
Top side	20	QPSK 1_1	372000/1850	1:1	2.260	0.16	22.03	23.00	1.250	2.826	22.3
Top side	20	QPSK 1_1	381000/1905	1:1	2.350	0.02	22.07	23.00	1.239	2.911	22.3
Product specific (Sensro on) 10gSAR Test data (Separate 0mm 50%RB)											
Front side	20	QPSK 50_28	376500/1882.5	1:1	1.640	-0.02	22.05	23.00	1.245	2.041	22.3
Front side	20	QPSK 50_28	372000/1850	1:1	1.530	-0.09	22.01	23.00	1.256	1.922	22.3
Front side	20	QPSK 50_28	381000/1905	1:1	1.580	-0.15	22.03	23.00	1.250	1.975	22.3
Back side	20	QPSK 50_28	376500/1882.5	1:1	1.840	0.05	22.05	23.00	1.245	2.290	22.3
Back side	20	QPSK 50_28	372000/1850	1:1	1.730	-0.11	22.01	23.00	1.256	2.173	22.3
Back side	20	QPSK 50_28	381000/1905	1:1	1.800	0.02	22.03	23.00	1.250	2.250	22.3
Top side	20	QPSK 50_28	376500/1882.5	1:1	2.530	-0.07	22.05	23.00	1.245	3.149	22.3
Top side	20	QPSK 50_28	372000/1850	1:1	2.410	0.09	22.01	23.00	1.256	3.027	22.3
Top side	20	QPSK 50_28	381000/1905	1:1	2.440	0.03	22.03	23.00	1.250	3.051	22.3
Top side - Repeat	20	QPSK 50_28	376500/1882.5	1:1	2.460	0.01	22.05	23.00	1.245	3.062	22.3
Product specific (Sensro on) 10gSAR Test data (Separate 0mm 100%RB)											
Front side	20	QPSK 100_0	376500/1882.5	1:1	1.550	0.12	22.02	23.00	1.253	1.942	22.3
Back side	20	QPSK 100_0	376500/1882.5	1:1	1.750	0.13	22.02	23.00	1.253	2.193	22.3
Top side	20	QPSK 100_0	376500/1882.5	1:1	2.280	-0.17	22.02	23.00	1.253	2.857	22.3
Product specific (Sensro off) 10g SAR Test data											
Front side-5mm	20	QPSK 1_1	376500/1882.5	1:1	1.100	0.03	23.69	24.50	1.205	1.326	22.3
Back side-18mm	20	QPSK 1_1	376500/1882.5	1:1	0.295	-0.18	23.69	24.50	1.205	0.355	22.3
Top side-17mm	20	QPSK 50_28	376500/1882.5	1:1	0.457	0.07	23.54	24.50	1.247	0.570	22.3

Test Position	Channel/Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	376500/1882.5	0.891	0.877	1.015963512	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



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Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Top side	376500/1882.5	2.53	2.46	1.028455285	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 28: SAR of 5G NR n25 for Head and Body(original report No:SEWM2311000466RG09).

SA N25 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(50%RB)											
Right tilted	20	QPSK 50_28	376500/1882.5	1:1	0.616	0.05	17.05	18.00	1.245	0.767	22.2
Body worn Test data(Separate 15mm 1RB)											
Back side	20	QPSK 1_1	381000/1905	1:1	0.458	-0.03	23.54	24.50	1.247	0.571	22.2
Hotspot on Test data(Separate 10mm 1RB)											
Top side	20	QPSK 1_1	381000/1905	1:1	0.669	0.19	20.50	21.50	1.259	0.842	22.2
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensro on) 10gSAR Test data (Separate 0mm 50%RB)											
Top side	20	QPSK 50_28	376500/1882.5	1:1	2.520	0.17	22.05	23.00	1.245	3.136	22.2

Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Top side	376500/1882.5	2.52	2.44	1.03278689	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 29: SAR of 5G NR n25 for Head and Body(Variant).



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9.2.15 SAR Result of 5G NR n26

SA N26 SAR Test Record												
Ant0 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head Test data(1RB)												
Left cheek	20	QPSK 1_1	166300/831.5	1:1	0.187	-0.14	23.63	25.00	1.371	0.256	22.3	
Left tilted	20	QPSK 1_1	166300/831.5	1:1	0.145	-0.16	23.63	25.00	1.371	0.199	22.3	
Right cheek	20	QPSK 1_1	166300/831.5	1:1	0.283	0.02	23.63	25.00	1.371	0.388	22.3	
Right tilted	20	QPSK 1_1	166300/831.5	1:1	0.175	0.13	23.63	25.00	1.371	0.240	22.3	
Head Test data(50%RB)												
Left cheek	20	QPSK 50_28	166300/831.5	1:1	0.218	-0.18	23.63	25.00	1.371	0.299	22.3	
Left tilted	20	QPSK 50_28	166300/831.5	1:1	0.172	0.11	23.63	25.00	1.371	0.236	22.3	
Right cheek	20	QPSK 50_28	166300/831.5	1:1	0.302	-0.06	23.63	25.00	1.371	0.414	22.3	
Right tilted	20	QPSK 50_28	166300/831.5	1:1	0.206	0.14	23.63	25.00	1.371	0.282	22.3	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_1	166300/831.5	1:1	0.193	0.09	23.63	25.00	1.371	0.265	22.3	
Back side	20	QPSK 1_1	166300/831.5	1:1	0.259	0.07	23.63	25.00	1.371	0.355	22.3	
Body worn Test data(Separate 15mm 50%RB)												
Front side	20	QPSK 50_28	166300/831.5	1:1	0.198	-0.05	23.63	25.00	1.371	0.271	22.3	
Back side	20	QPSK 50_28	166300/831.5	1:1	0.258	-0.17	23.63	25.00	1.371	0.354	22.3	
Hotspot Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_1	166300/831.5	1:1	0.289	0.03	23.63	25.00	1.371	0.396	22.3	
Back side	20	QPSK 1_1	166300/831.5	1:1	0.494	0.06	23.63	25.00	1.371	0.677	22.3	
Left side	20	QPSK 1_1	166300/831.5	1:1	0.000	0.00	23.63	25.00	1.371	0.000	22.3	
Right side	20	QPSK 1_1	166300/831.5	1:1	0.000	0.00	23.63	25.00	1.371	0.000	22.3	
Bottom side	20	QPSK 1_1	166300/831.5	1:1	0.208	-0.05	23.63	25.00	1.371	0.285	22.3	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	20	QPSK 50_28	166300/831.5	1:1	0.323	0.12	23.63	25.00	1.371	0.443	22.3	
Back side	20	QPSK 50_28	166300/831.5	1:1	0.493	-0.04	23.63	25.00	1.371	0.676	22.3	
Left side	20	QPSK 50_28	166300/831.5	1:1	0.000	0.00	23.63	25.00	1.371	0.000	22.3	
Right side	20	QPSK 50_28	166300/831.5	1:1	0.000	0.00	23.63	25.00	1.371	0.000	22.3	
Bottom side	20	QPSK 50_28	166300/831.5	1:1	0.325	-0.18	23.63	25.00	1.371	0.446	22.3	

Table 30: SAR of 5G NR n26 for Head and Body.



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9.2.16 SAR Result of 5G NR n30

SA N30 SAR Test Record												
Ant3 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head (Receiver on) Test data(1RB)												
Left cheek	10	QPSK 1_1	462000/2310	1:1	0.301	0.06	20.06	21.00	1.242	0.374	22.4	
Left tilted	10	QPSK 1_1	462000/2310	1:1	0.362	0.17	20.06	21.00	1.242	0.449	22.4	
Right cheek	10	QPSK 1_1	462000/2310	1:1	0.857	-0.13	20.06	21.00	1.242	1.064	22.4	
Right tilted	10	QPSK 1_1	462000/2310	1:1	0.909	0.02	20.06	21.00	1.242	1.129	22.4	
Right tilted - Repeat	10	QPSK 1_1	462000/2310	1:1	0.892	0.09	20.06	21.00	1.242	1.108	22.4	
Head (Receiver on) Test data(50%RB)												
Left cheek	10	QPSK 25_14	462000/2310	1:1	0.298	-0.10	20.04	21.00	1.247	0.372	22.4	
Left tilted	10	QPSK 25_14	462000/2310	1:1	0.360	0.02	20.04	21.00	1.247	0.449	22.4	
Right cheek	10	QPSK 25_14	462000/2310	1:1	0.827	0.01	20.04	21.00	1.247	1.032	22.4	
Right tilted	10	QPSK 25_14	462000/2310	1:1	0.866	-0.10	20.04	21.00	1.247	1.080	22.4	
Head (Receiver on) Test data(100%RB)												
Right cheek	10	QPSK 50_0	462000/2310	1:1	0.745	-0.06	20.01	21.00	1.256	0.936	22.4	
Right tilted	10	QPSK 50_0	462000/2310	1:1	0.827	-0.02	20.01	21.00	1.256	1.039	22.4	
Body worn Test data(Separate 15mm 1RB)												
Front side	10	QPSK 1_1	462000/2310	1:1	0.256	-0.15	23.82	25.00	1.312	0.336	22.4	
Back side	10	QPSK 1_1	462000/2310	1:1	0.638	0.06	23.82	25.00	1.312	0.837	22.4	
Body worn Test data(Separate 15mm 50%RB)												
Front side	10	QPSK 25_14	462000/2310	1:1	0.280	0.01	23.59	25.00	1.384	0.387	22.4	
Back side	10	QPSK 25_14	462000/2310	1:1	0.682	0.05	23.59	25.00	1.384	0.944	22.4	
Body worn Test data(Separate 15mm 100%RB)												
Back side	10	QPSK 50_0	462000/2310	1:1	0.541	0.18	22.65	24.00	1.365	0.738	22.4	
Hotspot on Test data(Separate 10mm 1RB)												
Front side	10	QPSK 1_1	462000/2310	1:1	0.300	-0.09	21.59	22.50	1.233	0.370	22.4	
Back side	10	QPSK 1_1	462000/2310	1:1	0.810	-0.15	21.59	22.50	1.233	0.999	22.4	
Left side	10	QPSK 1_1	462000/2310	1:1	0.332	0.07	21.59	22.50	1.233	0.409	22.4	
Top side	10	QPSK 1_1	462000/2310	1:1	0.741	-0.03	21.59	22.50	1.233	0.914	22.4	
Hotspot on Test data (Separate 10mm 50%RB)												
Front side	10	QPSK 25_14	462000/2310	1:1	0.307	-0.12	21.52	22.50	1.253	0.385	22.4	
Back side	10	QPSK 25_14	462000/2310	1:1	0.824	-0.10	21.52	22.50	1.253	1.033	22.4	
Left side	10	QPSK 25_14	462000/2310	1:1	0.337	0.19	21.52	22.50	1.253	0.422	22.4	
Top side	10	QPSK 25_14	462000/2310	1:1	0.727	0.15	21.52	22.50	1.253	0.911	22.4	
Hotspot on Test data (Separate 10mm 100%RB)												
Back side	10	QPSK 50_0	462000/2310	1:1	0.699	-0.08	21.49	22.50	1.262	0.882	22.4	
Top side	10	QPSK 50_0	462000/2310	1:1	0.679	-0.14	21.49	22.50	1.262	0.857	22.4	
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10gSAR Test data (Separate 0mm 1RB)												
Back side	10	QPSK 1_1	462000/2310	1:1	2.180	0.08	22.14	23.00	1.219	2.657	22.4	
Back side - Repeat	10	QPSK 1_1	462000/2310	1:1	2.120	0.16	22.14	23.00	1.219	2.584	22.4	
Top side	10	QPSK 1_1	462000/2310	1:1	1.320	-0.19	22.14	23.00	1.219	1.609	22.4	
Product specific (Sensor on) 10gSAR Test data (Separate 0mm 50%RB)												
Back side	10	QPSK 25_14	462000/2310	1:1	2.160	0.07	22.08	23.00	1.236	2.670	22.4	
Top side	10	QPSK 25_14	462000/2310	1:1	1.380	0.06	22.08	23.00	1.236	1.706	22.4	
Product specific (Sensor on) 10gSAR Test data (Separate 0mm 100%RB)												
Back side	10	QPSK 50_0	462000/2310	1:1	1.680	-0.16	22.02	23.00	1.253	2.105	22.4	
Product specific (Sensor off) 10gSAR Test data												



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Back side-18mm	10	QPSK 1_1	462000/2310	1:1	0.200	-0.16	23.82	25.00	1.312	0.262	22.4
Top side-17mm	10	QPSK 25_14	462000/2310	1:1	0.234	-0.18	23.59	25.00	1.384	0.324	22.4

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	462000/2310	0.909	0.892	1.019058296	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

Test Position	Channel/ Frequency (MHz)	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (10g)		SAR (10g)	SAR (10g)
Back side	462000/2310	2.18	2.12	1.028301887	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 31: SAR of 5G NR n30 for Head and Body(original report No:SEWM2311000466RG09).

SA N30 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Right tilted	10	QPSK 1_1	462000/2310	1:1	0.591	-0.01	20.06	21.00	1.242	0.734	21.9
Body worn Test data(Separate 15mm 50%RB)											
Back side	10	QPSK 25_14	462000/2310	1:1	0.525	0.04	23.59	25.00	1.384	0.726	21.9
Hotspot on Test data (Separate 10mm 50%RB)											
Back side	10	QPSK 25_14	462000/2310	1:1	0.595	-0.12	21.52	22.50	1.253	0.746	21.9
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10gSAR Test data (Separate 0mm 1RB)											
Back side	10	QPSK 1_1	462000/2310	1:1	1.270	-0.02	22.14	23.00	1.219	1.548	21.9

Table 32: SAR of 5G NR n30 for Head and Body(Variant).



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9.2.17 SAR Result of 5G NR n41

SA N41 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Left cheek	100	QPSK 1_1	518598/2592.99	1:1	0.447	-0.08	18.20	19.00	1.202	0.537	22.2
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.266	-0.04	18.20	19.00	1.202	0.320	22.2
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.905	-0.03	18.20	19.00	1.202	1.088	22.2
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.740	0.05	18.20	19.00	1.202	0.890	22.2
Head (Receiver on) Test data(50%RB)											
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.494	-0.07	18.11	19.00	1.227	0.606	22.2
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.281	0.09	18.11	19.00	1.227	0.345	22.2
Right cheek PC3&PC2	100	QPSK 135_69	518598/2592.99	1:1	0.971	0.02	18.11	19.00	1.227	1.192	22.2
Right cheek PC3&PC2 - Repeat	100	QPSK 135_69	518598/2592.99	1:1	0.966	0.04	18.11	19.00	1.227	1.186	22.2
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.805	-0.12	18.11	19.00	1.227	0.988	22.2
Head (Receiver on) Test data(100%RB)											
Right cheek	100	QPSK 270_0	518598/2592.99	1:1	0.894	-0.01	18.05	1.00	0.020	0.018	22.2
Right tilted	100	QPSK 270_0	518598/2592.99	1:1	0.669	0.14	18.05	1.00	0.020	0.013	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.247	0.04	22.59	23.00	1.099	0.271	22.2
Back side PC3	100	QPSK 1_1	518598/2592.99	1:1	0.543	0.02	22.59	23.00	1.099	0.597	22.2
Back side PC2	100	QPSK 1_1	518598/2592.99	1:1	0.688	-0.05	25.52	26.00	1.117	0.768	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.253	0.01	22.55	23.00	1.109	0.281	22.2
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.513	-0.08	22.55	23.00	1.109	0.569	22.2
Hotspot on Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.351	-0.17	20.62	21.50	1.225	0.430	22.2
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.824	0.19	20.62	21.50	1.225	1.009	22.2
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.475	-0.11	20.62	21.50	1.225	0.582	22.2
Top side	100	QPSK 1_1	518598/2592.99	1:1	0.566	0.17	20.62	21.50	1.225	0.693	22.2
Hotspot on Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.348	-0.16	20.54	21.50	1.247	0.434	22.2
Back side PC3&PC2	100	QPSK 135_69	518598/2592.99	1:1	0.845	0.18	20.54	21.50	1.247	1.054	22.2
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.431	0.10	20.54	21.50	1.247	0.538	22.2
Top side	100	QPSK 135_69	518598/2592.99	1:1	0.550	0.07	20.54	21.50	1.247	0.686	22.2
Hotspot on Test data (Separate 10mm 100%RB)											
Back side	100	QPSK 270_0	518598/2592.99	1:1	0.764	0.09	20.46	21.50	1.271	0.971	22.2
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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)											
Back side PC3&PC2	100	QPSK 1_1	518598/2592.99	1:1	2.690	0.08	22.59	23.00	1.099	2.956	22.2
Back side PC3&PC2 - Repeat	100	QPSK 1_1	518598/2592.99	1:1	2.610	0.04	22.59	23.00	1.099	2.868	22.2
Product specific 10g SAR Test data (Separate 0mm 50%RB)											
Back side	100	QPSK 135_69	518598/2592.99	1:1	2.400	0.14	22.55	23.00	1.109	2.662	22.2

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right cheek	518598/2592.99	0.971	0.966	1.005175983	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

Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Back side	518598/2592.99	2.69	2.61	1.030651341	N/A	N/A

- Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 33: SAR of 5G NR n41 for Head and Body(original report No:SEWM2311000466RG09).

SA N41 SAR Test Record											
Ant3 Test Record											
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(50%RB)											
Right cheek PC3&PC2	100	QPSK 135_69	518598/2592.99	1:1	0.719	0.04	18.11	19.00	1.227	0.883	22.1
Body worn Test data(Separate 15mm 1RB)											
Back side PC2	100	QPSK 1_1	518598/2592.99	1:1	0.842	-0.07	25.52	26.00	1.117	0.940	22.1
Hotspot on Test data (Separate 10mm 50%RB)											
Back side PC3&PC2	100	QPSK 135_69	518598/2592.99	1:1	0.633	-0.07	20.54	21.50	1.247	0.790	22.1
Test position	BW	Test mode	Test Ch./Freq.	Duty Cycle	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)											
Back side PC3&PC2	100	QPSK 1_1	518598/2592.99	1:1	1.610	0.19	22.59	23.00	1.099	1.769	22.1

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Back side	518598/2592.99	0.842	0.835	1.00838323	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

Table 34: SAR of 5G NR n41 for Head and Body(Variant).



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9.2.18 SAR Result of 5G NR n66

SA N66 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Left cheek	40	QPSK 1_1	349000/1745	1:1	0.570	-0.19	17.09	18.00	1.233	0.703	22.2
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.604	0.19	17.09	18.00	1.233	0.745	22.2
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.809	-0.16	17.09	18.00	1.233	0.998	22.2
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.871	-0.10	17.09	18.00	1.233	1.074	22.2
Head (Receiver on) Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.587	0.06	17.05	18.00	1.245	0.731	22.2
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.618	0.01	17.05	18.00	1.245	0.769	22.2
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.850	-0.06	17.05	18.00	1.245	1.058	22.2
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.891	0.03	17.05	18.00	1.245	1.109	22.2
Right tilted - Repeat	40	QPSK 108_54	349000/1745	1:1	0.886	0.01	17.05	18.00	1.245	1.103	22.2
Head (Receiver on) Test data(100%RB)											
Right cheek	40	QPSK 216_0	349000/1745	1:1	0.754	0.05	17.02	18.00	1.253	0.945	22.2
Right tilted	40	QPSK 216_0	349000/1745	1:1	0.843	0.11	17.02	18.00	1.253	1.056	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.519	-0.04	23.74	25.00	1.337	0.694	22.2
Back side	40	QPSK 1_1	349000/1745	1:1	0.659	0.03	23.74	25.00	1.337	0.881	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.556	0.07	23.66	25.00	1.361	0.757	22.2
Back side	40	QPSK 108_54	349000/1745	1:1	0.669	0.10	23.66	25.00	1.361	0.911	22.2
Hotspot on Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.391	-0.02	21.13	22.00	1.222	0.478	22.2
Back side	40	QPSK 1_1	349000/1745	1:1	0.495	0.08	21.13	22.00	1.222	0.605	22.2
Left side	40	QPSK 1_1	349000/1745	1:1	0.137	0.11	21.13	22.00	1.222	0.167	22.2
Right side	40	QPSK 1_1	349000/1745	1:1	0.063	-0.10	21.13	22.00	1.222	0.077	22.2
Top side	40	QPSK 1_1	349000/1745	1:1	0.589	-0.18	21.13	22.00	1.222	0.720	22.2
Hotspot on Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.396	-0.18	21.09	22.00	1.233	0.488	22.2
Back side	40	QPSK 108_54	349000/1745	1:1	0.553	-0.18	21.09	22.00	1.233	0.682	22.2
Left side	40	QPSK 108_54	349000/1745	1:1	0.149	-0.03	21.09	22.00	1.233	0.184	22.2
Right side	40	QPSK 108_54	349000/1745	1:1	0.070	-0.06	21.09	22.00	1.233	0.086	22.2
Top side	40	QPSK 108_54	349000/1745	1:1	0.625	0.17	21.09	22.00	1.233	0.771	22.2
Hotspot on Test data (Separate 10mm 100%RB)											
Top side	40	QPSK 216_0	349000/1745	1:1	0.544	-0.19	21.05	22.00	1.245	0.677	22.2
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10g SAR Test data (Separate 0mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	1.610	-0.04	23.20	24.00	1.202	1.936	22.2
Back side	40	QPSK 1_1	349000/1745	1:1	1.910	0.06	23.20	24.00	1.202	2.296	22.2
Top side	40	QPSK 1_1	349000/1745	1:1	2.280	0.08	23.20	24.00	1.202	2.741	22.2
Top side - Repeat	40	QPSK 1_1	349000/1745	1:1	2.210	0.04	23.20	24.00	1.202	2.657	22.2
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	1.790	0.10	23.13	24.00	1.222	2.187	22.2
Back side	40	QPSK 108_54	349000/1745	1:1	2.190	0.02	23.13	24.00	1.222	2.676	22.2
Top side	40	QPSK 108_54	349000/1745	1:1	2.200	-0.18	23.13	24.00	1.222	2.688	22.2
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 100%RB)											
Front side	40	QPSK 216_0	349000/1745	1:1	1.470	-0.03	23.10	24.00	1.230	1.808	22.2



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Back side	40	QPSK 216_0	349000/1745	1:1	1.670	-0.07	23.10	24.00	1.230	2.055	22.2
Top side	40	QPSK 216_0	349000/1745	1:1	2.050	0.04	23.10	24.00	1.230	2.522	22.2
Product specific (Sensor off) 10g SAR Test data											
Front side-5mm	40	QPSK 108_54	349000/1745	1:1	0.804	-0.17	23.66	25.00	1.361	1.095	22.2
Back side-19mm	40	QPSK 108_54	349000/1745	1:1	0.196	-0.02	23.66	25.00	1.361	0.267	22.2
Top side-18mm	40	QPSK 1_1	349000/1745	1:1	0.249	0.09	23.74	25.00	1.337	0.333	22.2
Ant2 Test Record for ENDC											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test data(1RB)											
Left cheek	40	QPSK 1_1	349000/1745	1:1	0.085	-0.13	23.64	25.00	1.368	0.116	22.2
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.102	0.12	23.64	25.00	1.368	0.140	22.2
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.134	-0.13	23.64	25.00	1.368	0.183	22.2
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.142	-0.02	23.64	25.00	1.368	0.194	22.2
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.095	0.03	23.62	25.00	1.374	0.131	22.2
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.113	0.19	23.62	25.00	1.374	0.155	22.2
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.143	-0.15	23.62	25.00	1.374	0.196	22.2
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.162	-0.15	23.62	25.00	1.374	0.223	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.084	0.15	23.64	25.00	1.368	0.115	22.2
Back side	40	QPSK 1_1	349000/1745	1:1	0.240	0.05	23.64	25.00	1.368	0.328	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.070	0.18	23.62	25.00	1.374	0.096	22.2
Back side	40	QPSK 108_54	349000/1745	1:1	0.216	0.06	23.62	25.00	1.374	0.297	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.133	0.06	23.64	25.00	1.368	0.182	22.2
Back side	40	QPSK 1_1	349000/1745	1:1	0.470	0.04	23.64	25.00	1.368	0.643	22.2
Left side	40	QPSK 1_1	349000/1745	1:1	0.326	-0.10	23.64	25.00	1.368	0.446	22.2
Top side	40	QPSK 1_1	349000/1745	1:1	0.107	0.02	23.64	25.00	1.368	0.146	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.123	-0.14	23.62	25.00	1.374	0.169	22.2
Back side	40	QPSK 108_54	349000/1745	1:1	0.455	0.01	23.62	25.00	1.374	0.625	22.2
Left side	40	QPSK 108_54	349000/1745	1:1	0.285	0.15	23.62	25.00	1.374	0.392	22.2
Top side	40	QPSK 108_54	349000/1745	1:1	0.105	-0.09	23.62	25.00	1.374	0.144	22.2

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	349000/1745	0.891	0.886	1.005643341	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

Test Position	Channel/ Frequency (MHz)	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (10g)		SAR (10g)	SAR (10g)
Top side	349000/1745	2.28	2.21	1.031674208	N/A	N/A

- Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 35: SAR of 5G NR n66 for Head and Body(original report No:SEWM2311000466RG09).

SA N66 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(50%RB)											
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.682	0.10	17.05	18.00	1.245	0.849	22.3
Body worn Test data(Separate 15mm 50%RB)											
Back side	40	QPSK 108_54	349000/1745	1:1	0.582	0.19	23.66	25.00	1.361	0.792	22.3
Hotspot on Test data (Separate 10mm 50%RB)											
Top side	40	QPSK 108_54	349000/1745	1:1	0.578	0.01	21.09	22.00	1.233	0.713	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10g SAR Test data (Separate 0mm 1RB)											
Top side	40	QPSK 1_1	349000/1745	1:1	2.260	0.08	23.20	24.00	1.202	2.717	22.3

Test Position	Channel/Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Top side	349000/1745	2.26	2.22	1.01801802	N/A	N/A

- Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg

Table 36: SAR of 5G NR n66 for Head and Body(Variant).



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9.2.19 SAR Result of 5G NR n70

SA N70 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Left cheek	15	QPSK 1_1	340500/1702.5	1:1	0.460	-0.12	18.66	19.50	1.213	0.558	22.2
Left tilted	15	QPSK 1_1	340500/1702.5	1:1	0.496	-0.04	18.66	19.50	1.213	0.602	22.2
Right cheek	15	QPSK 1_1	340500/1702.5	1:1	0.670	-0.01	18.66	19.50	1.213	0.813	22.2
Right tilted	15	QPSK 1_1	340500/1702.5	1:1	0.715	0.14	18.66	19.50	1.213	0.868	22.2
Head (Receiver on) Test data(50%RB)											
Left cheek	15	QPSK 36_22	340500/1702.5	1:1	0.499	0.14	18.58	19.50	1.236	0.617	22.2
Left tilted	15	QPSK 36_22	340500/1702.5	1:1	0.517	0.07	18.58	19.50	1.236	0.639	22.2
Right cheek	15	QPSK 36_22	340500/1702.5	1:1	0.688	-0.10	18.58	19.50	1.236	0.850	22.2
Right tilted	15	QPSK 36_22	340500/1702.5	1:1	0.730	0.05	18.58	19.50	1.236	0.902	22.2
Head (Receiver on) Test data(100%RB)											
Right cheek	15	QPSK 75_0	340500/1702.5	1:1	0.610	-0.10	18.52	19.50	1.253	0.764	22.2
Right tilted	15	QPSK 75_0	340500/1702.5	1:1	0.676	0.05	18.52	19.50	1.253	0.847	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1_1	340500/1702.5	1:1	0.309	0.11	23.55	24.50	1.245	0.385	22.2
Back side	15	QPSK 1_1	340500/1702.5	1:1	0.422	-0.03	23.55	24.50	1.245	0.525	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	15	QPSK 36_22	340500/1702.5	1:1	0.311	0.02	23.48	24.50	1.265	0.393	22.2
Back side	15	QPSK 36_22	340500/1702.5	1:1	0.453	0.01	23.48	24.50	1.265	0.573	22.2
Hotspot on Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1_1	340500/1702.5	1:1	0.529	-0.16	23.11	24.00	1.227	0.649	22.2
Back side	15	QPSK 1_1	340500/1702.5	1:1	0.785	-0.14	23.11	24.00	1.227	0.964	22.2
Left side	15	QPSK 1_1	340500/1702.5	1:1	0.250	-0.13	23.11	24.00	1.227	0.307	22.2
Right side	15	QPSK 1_1	340500/1702.5	1:1	0.103	0.06	23.11	24.00	1.227	0.126	22.2
Top side	15	QPSK 1_1	340500/1702.5	1:1	0.757	-0.01	23.11	24.00	1.227	0.929	22.2
Hotspot on Test data (Separate 10mm 50%RB)											
Front side	15	QPSK 36_22	340500/1702.5	1:1	0.491	-0.05	23.04	24.00	1.247	0.612	22.2
Back side	15	QPSK 36_22	340500/1702.5	1:1	0.788	0.02	23.04	24.00	1.247	0.983	22.2
Left side	15	QPSK 36_22	340500/1702.5	1:1	0.283	0.11	23.04	24.00	1.247	0.353	22.2
Right side	15	QPSK 36_22	340500/1702.5	1:1	0.105	0.07	23.04	24.00	1.247	0.131	22.2
Top side	15	QPSK 36_22	340500/1702.5	1:1	0.778	0.07	23.04	24.00	1.247	0.970	22.2
Hotspot on Test data (Separate 10mm 100%RB)											
Back side	15	QPSK 75_0	340500/1702.5	1:1	0.755	0.09	22.52	23.50	1.253	0.946	22.2
Top side	15	QPSK 75_0	340500/1702.5	1:1	0.730	0.17	22.52	23.50	1.253	0.915	22.2

Table 37: SAR of 5G NR n70 for Head and Body(original report No:SEWM2311000466RG09).

SA N70 SAR Test Record											
Ant3 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(50%RB)											
Right tilted	15	QPSK 36_22	340500/1702.5	1:1	0.730	0.05	18.58	19.50	1.236	0.902	22.2
Body worn Test data (Separate 15mm 50%RB)											
Back side	15	QPSK 36_22	340500/1702.5	1:1	0.453	0.01	23.48	24.50	1.265	0.573	22.2
Hotspot on Test data (Separate 10mm 50%RB)											
Back side	15	QPSK 36_22	340500/1702.5	1:1	0.788	0.02	23.04	24.00	1.247	0.983	22.2



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Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	340500/1702.5	0.957	0.942	1.015923567	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

Table 38: SAR of 5G NR n70 for Head and Body(Variant).

9.2.20 SAR Result of 5G NR n71

SA N71 SAR Test Record											
Ant0 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test data(1RB)											
Left cheek	20	QPSK 1_1	136100/680.5	1:1	0.168	-0.03	23.65	25.00	1.365	0.229	22.2
Left tilted	20	QPSK 1_1	136100/680.5	1:1	0.118	0.16	23.65	25.00	1.365	0.161	22.2
Right cheek	20	QPSK 1_1	136100/680.5	1:1	0.226	0.05	23.65	25.00	1.365	0.308	22.2
Right tilted	20	QPSK 1_1	136100/680.5	1:1	0.134	-0.16	23.65	25.00	1.365	0.183	22.2
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	136100/680.5	1:1	0.196	0.04	23.61	25.00	1.377	0.270	22.2
Left tilted	20	QPSK 50_28	136100/680.5	1:1	0.135	-0.10	23.61	25.00	1.377	0.186	22.2
Right cheek	20	QPSK 50_28	136100/680.5	1:1	0.257	0.03	23.61	25.00	1.377	0.354	22.2
Right tilted	20	QPSK 50_28	136100/680.5	1:1	0.136	0.09	23.61	25.00	1.377	0.187	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	136100/680.5	1:1	0.245	-0.01	23.65	25.00	1.365	0.334	22.2
Back side	20	QPSK 1_1	136100/680.5	1:1	0.344	0.04	23.65	25.00	1.365	0.469	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	136100/680.5	1:1	0.270	0.19	23.61	25.00	1.377	0.372	22.2
Back side	20	QPSK 50_28	136100/680.5	1:1	0.370	0.06	23.61	25.00	1.377	0.510	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	136100/680.5	1:1	0.279	0.10	23.65	25.00	1.365	0.381	22.2
Back side	20	QPSK 1_1	136100/680.5	1:1	0.441	0.09	23.65	25.00	1.365	0.602	22.2
Left side	20	QPSK 1_1	136100/680.5	1:1	0.000	0.00	23.65	25.00	1.365	0.000	22.2
Right side	20	QPSK 1_1	136100/680.5	1:1	0.055	0.16	23.65	25.00	1.365	0.075	22.2
Bottom side	20	QPSK 1_1	136100/680.5	1:1	0.266	0.03	23.65	25.00	1.365	0.363	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	136100/680.5	1:1	0.297	-0.03	23.61	25.00	1.377	0.409	22.2
Back side	20	QPSK 50_28	136100/680.5	1:1	0.463	-0.05	23.61	25.00	1.377	0.638	22.2
Left side	20	QPSK 50_28	136100/680.5	1:1	0.000	0.00	23.61	25.00	1.377	0.000	22.2
Right side	20	QPSK 50_28	136100/680.5	1:1	0.044	0.01	23.61	25.00	1.377	0.061	22.2
Bottom side	20	QPSK 50_28	136100/680.5	1:1	0.316	0.08	23.61	25.00	1.377	0.435	22.2

Table 39: SAR of 5G NR n71 for Head and Body.



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9.2.21 SAR Result of 5G NR n48

SA N48 SAR Test Record												
Ant4 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head (Receiver on) Test data(1RB)												
Left cheek	40	QPSK 1_1	641666/3624.99	1:1	0.849	0.14	17.21	18.00	1.199	1.018	22.1	
Left cheek	40	QPSK 1_1	638000/3570	1:1	0.763	-0.13	17.14	18.00	1.219	0.930	22.1	
Left cheek	40	QPSK 1_1	645332/3679.98	1:1	0.810	0.11	17.19	18.00	1.205	0.976	22.1	
Left tilted	40	QPSK 1_1	641666/3624.99	1:1	0.715	-0.18	17.21	18.00	1.199	0.858	22.1	
Left tilted	40	QPSK 1_1	638000/3570	1:1	0.637	-0.06	17.14	18.00	1.219	0.776	22.1	
Left tilted	40	QPSK 1_1	645332/3679.98	1:1	0.667	0.17	17.19	18.00	1.205	0.804	22.1	
Right cheek	40	QPSK 1_1	641666/3624.99	1:1	0.625	0.05	17.21	18.00	1.199	0.750	22.1	
Right tilted	40	QPSK 1_1	641666/3624.99	1:1	0.577	0.15	17.21	18.00	1.199	0.692	22.1	
Head (Receiver on) Test data(50%RB)												
Left cheek	40	QPSK 50_28	641666/3624.99	1:1	0.831	-0.18	17.16	18.00	1.213	1.008	22.1	
Left cheek	40	QPSK 50_28	638000/3570	1:1	0.745	0.06	17.10	18.00	1.230	0.917	22.1	
Left cheek	40	QPSK 50_28	645332/3679.98	1:1	0.786	-0.01	17.13	18.00	1.222	0.960	22.1	
Left tilted	40	QPSK 50_28	641666/3624.99	1:1	0.921	-0.01	17.16	18.00	1.213	1.118	22.1	
Left tilted	40	QPSK 50_28	638000/3570	1:1	0.783	-0.07	17.10	18.00	1.230	0.963	22.1	
Left tilted	40	QPSK 50_28	645332/3679.98	1:1	0.840	0.02	17.13	18.00	1.222	1.026	22.1	
Left tilted - Repeat	40	QPSK 50_28	641666/3624.99	1:1	0.908	0.09	17.16	18.00	1.213	1.102	22.1	
Right cheek	40	QPSK 50_28	641666/3624.99	1:1	0.604	-0.14	17.16	18.00	1.213	0.733	22.1	
Right tilted	40	QPSK 50_28	641666/3624.99	1:1	0.577	-0.10	17.16	18.00	1.213	0.700	22.1	
Head (Receiver on) Test data(100%RB)												
Left cheek	40	QPSK 100_0	641666/3624.99	1:1	0.763	-0.12	17.09	18.00	1.233	0.941	22.1	
Left tilted	40	QPSK 100_0	641666/3624.99	1:1	0.691	-0.10	17.09	18.00	1.233	0.852	22.1	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.227	0.02	23.24	24.50	1.337	0.303	22.1	
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.436	-0.03	23.24	24.50	1.337	0.583	22.1	
Body worn Test data(Separate 15mm 50%RB)												
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.249	0.03	23.23	24.50	1.340	0.334	22.1	
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.442	0.01	23.23	24.50	1.340	0.592	22.1	
Hotspot on Test data(Separate 10mm 1RB)												
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.524	-0.01	22.71	23.50	1.199	0.629	22.1	
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.897	0.07	22.71	23.50	1.199	1.076	22.1	
Back side	40	QPSK 1_1	638000/3570	1:1	0.717	-0.12	22.63	23.50	1.222	0.876	22.1	
Back side	40	QPSK 1_1	645332/3679.98	1:1	0.817	-0.16	22.66	23.50	1.213	0.991	22.1	
Left side	40	QPSK 1_1	641666/3624.99	1:1	0.284	0.19	22.71	23.50	1.199	0.341	22.1	
Right side	40	QPSK 1_1	641666/3624.99	1:1	0.315	0.18	22.71	23.50	1.199	0.378	22.1	
Top side	40	QPSK 1_1	641666/3624.99	1:1	0.832	-0.18	22.71	23.50	1.199	0.998	22.1	
Top side	40	QPSK 1_1	638000/3570	1:1	0.645	0.08	22.63	23.50	1.222	0.788	22.1	
Top side	40	QPSK 1_1	645332/3679.98	1:1	0.760	-0.14	22.66	23.50	1.213	0.922	22.1	
Hotspot on Test data (Separate 10mm 50%RB)												
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.430	0.12	22.69	23.50	1.205	0.518	22.1	
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.803	-0.16	22.69	23.50	1.205	0.968	22.1	
Back side	40	QPSK 50_28	638000/3570	1:1	0.645	0.12	22.60	23.50	1.230	0.794	22.1	
Back side	40	QPSK 50_28	645332/3679.98	1:1	0.675	-0.07	22.59	23.50	1.233	0.832	22.1	
Left side	40	QPSK 50_28	641666/3624.99	1:1	0.224	-0.02	22.69	23.50	1.205	0.270	22.1	
Right side	40	QPSK 50_28	641666/3624.99	1:1	0.180	0.16	22.69	23.50	1.205	0.217	22.1	
Top side	40	QPSK 50_28	641666/3624.99	1:1	0.550	0.04	22.69	23.50	1.205	0.663	22.1	
Hotspot on Test data (Separate 10mm 100%RB)												
Back side	40	QPSK 100_0	641666/3624.99	1:1	0.745	0.17	22.56	23.50	1.242	0.925	22.1	



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Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10g SAR Test data (Separate 0mm 1RB)											
Top side	40	QPSK 100_0	641666/3624.99	1:1	0.637	0.08	22.56	23.50	1.242	0.791	22.1
Back side	40	QPSK 1_1	641666/3624.99	1:1	2.360	0.01	20.62	21.50	1.225	2.890	22.1
Back side	40	QPSK 1_1	638000/3570	1:1	2.240	0.06	20.54	21.50	1.247	2.794	22.1
Back side	40	QPSK 1_1	645332/3679.98	1:1	2.290	-0.11	20.57	21.50	1.239	2.837	22.1
Back side - Repeat	40	QPSK 1_1	641666/3624.99	1:1	2.290	0.02	20.62	21.50	1.225	2.804	22.1
Top side	40	QPSK 1_1	641666/3624.99	1:1	1.010	0.19	20.62	21.50	1.225	1.237	22.1
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 50%RB)											
Back side	40	QPSK 50_28	641666/3624.99	1:1	2.040	0.11	20.55	21.50	1.245	2.539	22.1
Back side	40	QPSK 50_28	638000/3570	1:1	1.960	0.04	20.51	21.50	1.256	2.462	22.1
Back side	40	QPSK 50_28	645332/3679.98	1:1	1.990	-0.01	20.53	21.50	1.250	2.488	22.1
Top side	40	QPSK 50_28	641666/3624.99	1:1	1.140	0.10	20.55	21.50	1.245	1.419	22.1
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 100%RB)											
Back side	40	QPSK 100_0	641666/3624.99	1:1	1.970	-0.03	20.52	21.50	1.253	2.469	22.1
Product specific (Sensor off) 10g SAR Test data											
Back side-18mm	40	QPSK 1_1	641666/3624.99	1:1	0.165	0.01	23.24	24.50	1.337	0.221	22.1
Top side-17mm	40	QPSK 50_28	641666/3624.99	1:1	0.237	0.05	23.23	24.50	1.340	0.318	22.1

Table 40: SAR of 5G NR n48 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Left tilted	641666/3624.99	0.921	0.908	1.014317181	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

Test Position	Channel/ Frequency (MHz)	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (10g)		SAR (10g)	SAR (10g)
Back side	641666/3624.99	2.36	2.29	1.030567686	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 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 ≥ 3.63 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 ≥ 3.75 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 < 2.0 W/kg



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9.2.22 SAR Result of 5G NR n77(3450~3550)

SA N77 SAR Test Record											
Ant4 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Left cheek	100	QPSK 1_1	633334/3500	1:1	0.897	0.07	16.69	17.50	1.205	1.081	22.3
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.862	0.16	16.69	17.50	1.205	1.039	22.3
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.656	0.06	16.69	17.50	1.205	0.791	22.3
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.611	0.18	16.69	17.50	1.205	0.736	22.3
Head (Receiver on) Test data(50%RB)											
Left cheek PC3&PC2	100	QPSK 135_69	633334/3500	1:1	0.911	-0.07	16.68	17.50	1.208	1.100	22.3
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.883	-0.07	16.68	17.50	1.208	1.066	22.3
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.695	0.17	16.68	17.50	1.208	0.839	22.3
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.623	0.02	16.68	17.50	1.208	0.752	22.3
Head (Receiver on) Test data(100%RB)											
Left cheek	100	QPSK 270_0	633334/3500	1:1	0.827	-0.09	16.52	17.50	1.253	1.036	22.3
Left tilted	100	QPSK 270_0	633334/3500	1:1	0.771	0.18	16.52	17.50	1.253	0.966	22.3
Right cheek	100	QPSK 270_0	633334/3500	1:1	0.541	-0.19	16.52	17.50	1.253	0.678	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.230	0.02	23.59	24.50	1.233	0.284	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.415	0.01	23.59	24.50	1.233	0.512	22.3
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.243	0.03	23.56	24.50	1.242	0.302	22.3
Back side PC3	100	QPSK 135_69	633334/3500	1:1	0.428	-0.01	23.56	24.50	1.242	0.531	22.3
Back side PC2	100	QPSK 135_69	633334/3500	1:1	0.706	0.03	26.37	27.50	1.297	0.916	22.3
Body worn Test data(Separate 15mm 100%RB)											
Back side PC2	100	QPSK 270_0	633334/3500	1:1	0.593	0.02	25.38	26.50	1.294	0.767	22.3
Hotspot on Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.423	-0.19	21.73	22.50	1.194	0.505	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.891	-0.16	21.73	22.50	1.194	1.064	22.3
Left side	100	QPSK 1_1	633334/3500	1:1	0.144	-0.03	21.73	22.50	1.194	0.172	22.3
Right side	100	QPSK 1_1	633334/3500	1:1	0.266	0.10	21.73	22.50	1.194	0.318	22.3
Top side	100	QPSK 1_1	633334/3500	1:1	0.779	-0.05	21.73	22.50	1.194	0.930	22.3
Hotspot on Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.505	-0.04	21.67	22.50	1.211	0.611	22.3
Back side PC3&PC2	100	QPSK 135_69	633334/3500	1:1	0.982	0.01	21.67	22.50	1.211	1.189	22.3
Back side PC3&PC2 - Repeat	100	QPSK 135_69	633334/3500	1:1	0.974	0.03	21.67	22.50	1.211	1.179	22.3
Left side	100	QPSK 135_69	633334/3500	1:1	0.177	-0.06	21.67	22.50	1.211	0.214	22.3
Right side	100	QPSK 135_69	633334/3500	1:1	0.457	-0.08	21.67	22.50	1.211	0.553	22.3
Top side	100	QPSK 135_69	633334/3500	1:1	0.925	-0.02	21.67	22.50	1.211	1.120	22.3
Hotspot on Test data (Separate 10mm 100%RB)											
Back side	100	QPSK 270_0	633334/3500	1:1	0.786	0.02	21.56	22.50	1.242	0.976	22.3
Top side	100	QPSK 270_0	633334/3500	1:1	0.689	0.04	21.56	22.50	1.242	0.855	22.3
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	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 (Sensor on) 10g SAR Test data (Separate 0mm 1RB)											
Back side	100	QPSK 1_1	633334/3500	1:1	1.940	-0.11	19.72	20.50	1.197	2.322	22.3
Top side	100	QPSK 1_1	633334/3500	1:1	0.841	-0.06	19.72	20.50	1.197	1.006	22.3
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 50%RB)											
Back side PC3&PC2	100	QPSK 135_69	633334/3500	1:1	1.990	0.01	19.60	20.50	1.230	2.448	22.3



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Top side	100	QPSK 135_69	633334/3500	1:1	0.871	-0.13	19.60	20.50	1.230	1.072	22.3
Product specific (Sensor on) 10g SAR Test data (Separate 0mm 100%RB)											
Back side	100	QPSK 270_0	633334/3500	1:1	1.910	0.04	19.54	20.50	1.247	2.383	22.3
Product specific (Sensor off) 10g SAR Test data											
Back side-18mm	100	QPSK 135_69	633334/3500	1:1	0.184	-0.10	23.56	24.50	1.242	0.228	22.3
Top side-17mm	100	QPSK 135_69	633334/3500	1:1	0.287	-0.12	23.56	24.50	1.242	0.356	22.3

Table 41: SAR of 5G NR n77(3450~3550) for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Back side	633334/3500	0.982	0.974	1.008213552	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

9.2.23 SAR Result of 5G NR n77(3700~3980)

SA N77 SAR Test Record											
Ant4 Test Record											
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data(1RB)											
Left cheek	100	QPSK 1_1	656000/3840	1:1	0.916	-0.16	17.26	18.00	1.186	1.086	22.4
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.727	0.03	17.26	18.00	1.186	0.862	22.4
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.586	0.05	17.26	18.00	1.186	0.695	22.4
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.572	0.08	17.26	18.00	1.186	0.678	22.4
Head (Receiver on) Test data(50%RB)											
Left cheek PC3&PC2	100	QPSK 135_69	656000/3840	1:1	0.946	-0.19	17.16	18.00	1.213	1.148	22.4
Left cheek PC3&PC2 - Repeat	100	QPSK 135_69	656000/3840	1:1	0.932	0.11	17.16	18.00	1.213	1.131	22.4
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.747	0.12	17.16	18.00	1.213	0.906	22.4
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.603	-0.07	17.16	18.00	1.213	0.732	22.4
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.555	0.06	17.16	18.00	1.213	0.673	22.4
Head (Receiver on) Test data(100%RB)											
Left cheek	100	QPSK 270_0	656000/3840	1:1	0.845	0.17	17.13	18.00	1.222	1.032	22.4
Left tilted	100	QPSK 270_0	656000/3840	1:1	0.683	0.10	17.13	18.00	1.222	0.834	22.4
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.244	0.05	23.65	24.50	1.216	0.297	22.4
Back side	100	QPSK 1_1	656000/3840	1:1	0.382	0.01	23.65	24.50	1.216	0.465	22.4
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.351	0.02	23.56	24.50	1.242	0.436	22.4
Back side PC3	100	QPSK 135_69	656000/3840	1:1	0.442	0.08	23.56	24.50	1.242	0.549	22.4
Back side PC2	100	QPSK 135_69	656000/3840	1:1	0.929	0.09	26.43	27.50	1.279	1.189	22.4
Body worn Test data(Separate 15mm 100%RB)											
Back side PC2	100	QPSK 270_0	656000/3840	1:1	0.746	0.01	25.33	26.50	1.309	0.977	22.4
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.499	-0.18	23.65	24.50	1.216	0.607	22.4
Back side	100	QPSK 1_1	656000/3840	1:1	0.714	0.13	23.65	24.50	1.216	0.868	22.4
Left side	100	QPSK 1_1	656000/3840	1:1	0.161	0.02	23.65	24.50	1.216	0.196	22.4
Right side	100	QPSK 1_1	656000/3840	1:1	0.127	-0.14	23.65	24.50	1.216	0.154	22.4



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Top side	100	QPSK 1_1	656000/3840	1:1	0.511	0.14	23.65	24.50	1.216	0.621	22.4
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.739	0.16	23.56	24.50	1.242	0.918	22.4
Back side PC3&PC2	100	QPSK 135_69	656000/3840	1:1	0.891	0.03	23.56	24.50	1.242	1.106	22.4
Left side	100	QPSK 135_69	656000/3840	1:1	0.186	-0.15	23.56	24.50	1.242	0.231	22.4
Right side	100	QPSK 135_69	656000/3840	1:1	0.172	-0.19	23.56	24.50	1.242	0.214	22.4
Top side	100	QPSK 135_69	656000/3840	1:1	0.771	0.04	23.56	24.50	1.242	0.957	22.4
Hotspot Test data (Separate 10mm 100%RB)											
Front side	100	QPSK 270_0	656000/3840	1:1	0.608	-0.15	23.56	24.50	1.242	0.755	22.4
Back side	100	QPSK 270_0	656000/3840	1:1	0.722	0.15	22.59	23.50	1.233	0.890	22.4
Top side	100	QPSK 270_0	656000/3840	1:1	0.572	0.03	22.59	23.50	1.233	0.705	22.4

Table 42: SAR of 5G NR n77(3700~3980) for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	656000/3840	0.946	0.932	1.015021459	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



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9.2.24 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record											
Ant5 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data											
Left cheek	802.11b	6/2437	100.00%	1.000	0.304	0.02	10.59	11.50	1.233	0.375	22.2
Left tilted	802.11b	6/2437	100.00%	1.000	0.198	0.17	10.59	11.50	1.233	0.244	22.2
Right cheek	802.11b	6/2437	100.00%	1.000	0.109	0.12	10.59	11.50	1.233	0.134	22.2
Right tilted	802.11b	6/2437	100.00%	1.000	0.096	0.02	10.59	11.50	1.233	0.118	22.2
Body worn Test data(Separate 15mm)											
Front side	802.11b	6/2437	100.00%	1.000	0.175	0.14	20.52	21.50	1.253	0.219	22.2
Back side	802.11b	6/2437	100.00%	1.000	0.285	0.04	20.52	21.50	1.253	0.357	22.2
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	100.00%	1.000	0.182	-0.08	15.88	16.50	1.153	0.210	22.2
Back side	802.11b	6/2437	100.00%	1.000	0.311	0.11	15.88	16.50	1.153	0.359	22.2
Right side	802.11b	6/2437	100.00%	1.000	0.157	0.10	15.88	16.50	1.153	0.181	22.2
Top side	802.11b	6/2437	100.00%	1.000	0.255	0.13	15.88	16.50	1.153	0.294	22.2

Table 43: SAR of WIFI 2.4G for Head and Body.

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



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9.2.25 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record											
Ant5 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head (Receiver on) Test data of U-NII-2A											
Left cheek	802.11a	64/5320	97.20%	1.029	0.251	0.08	14.18	15.00	1.208	0.312	22.2
Left tilted	802.11a	64/5320	97.20%	1.029	0.306	0.07	14.18	15.00	1.208	0.380	22.2
Right cheek	802.11a	64/5320	97.20%	1.029	0.187	0.17	14.18	15.00	1.208	0.232	22.2
Right tilted	802.11a	64/5320	97.20%	1.029	0.228	0.11	14.18	15.00	1.208	0.283	22.2
Head (Receiver on) Test data of U-NII-2C											
Left cheek	802.11a	100/5500	97.20%	1.029	0.221	0.01	15.08	15.50	1.102	0.250	22.2
Left tilted	802.11a	100/5500	97.20%	1.029	0.294	0.07	15.08	15.50	1.102	0.333	22.2
Right cheek	802.11a	100/5500	97.20%	1.029	0.195	-0.11	15.08	15.50	1.102	0.221	22.2
Right tilted	802.11a	100/5500	97.20%	1.029	0.231	0.09	15.08	15.50	1.102	0.262	22.2
Head (Receiver on) Test data of U-NII-3											
Left cheek	802.11a	157/5785	97.20%	1.029	0.246	-0.17	15.06	16.00	1.242	0.314	22.2
Left tilted	802.11a	157/5785	97.20%	1.029	0.287	0.01	15.06	16.00	1.242	0.367	22.2
Right cheek	802.11a	157/5785	97.20%	1.029	0.230	-0.11	15.06	16.00	1.242	0.294	22.2
Right tilted	802.11a	157/5785	97.20%	1.029	0.243	0.14	15.06	16.00	1.242	0.310	22.2
Body worn (Sensor on) Test data of U-NII-2A(Separate 15mm)											
Front side	802.11a	64/5320	97.20%	1.029	0.027	-0.09	13.27	14.00	1.183	0.033	22.2
Back side	802.11a	64/5320	97.20%	1.029	0.279	0.01	13.27	14.00	1.183	0.340	22.2
Body worn (Sensor on) Test data of U-NII-2C(Separate 15mm)											
Front side	802.11a	100/5500	97.20%	1.029	0.023	0.15	12.86	13.50	1.159	0.027	22.2
Back side	802.11a	100/5500	97.20%	1.029	0.242	0.02	12.86	13.50	1.159	0.289	22.2
Body worn (Sensor on) Test data of U-NII-3(Separate 15mm)											
Front side	802.11a	157/5785	97.20%	1.029	0.034	-0.04	13.59	14.50	1.233	0.043	22.2
Back side	802.11a	157/5785	97.20%	1.029	0.248	-0.03	13.59	14.50	1.233	0.315	22.2
Hotspot on Test data of U-NII-1(Separate 10mm)											
Front side	802.11a	48/5240	97.20%	1.029	0.024	0.08	11.73	12.50	1.194	0.029	22.2
Back side	802.11a	48/5240	97.20%	1.029	0.285	0.09	11.73	12.50	1.194	0.350	22.2
Right side	802.11a	48/5240	97.20%	1.029	0.077	0.02	11.73	12.50	1.194	0.095	22.2
Top side	802.11a	48/5240	97.20%	1.029	0.175	0.15	11.73	12.50	1.194	0.215	22.2
Hotspot on Test data of U-NII-3(Separate 10mm)											
Front side	802.11a	157/5785	97.20%	1.029	0.033	-0.14	11.68	12.50	1.208	0.041	22.2
Back side	802.11a	157/5785	97.20%	1.029	0.284	0.01	11.68	12.50	1.208	0.353	22.2
Right side	802.11a	157/5785	97.20%	1.029	0.098	-0.10	11.68	12.50	1.208	0.122	22.2
Top side	802.11a	157/5785	97.20%	1.029	0.176	0.01	11.68	12.50	1.208	0.219	22.2
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	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 (Sensor on) Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	64/5320	97.20%	1.029	0.097	-0.09	13.27	14.00	1.183	0.118	22.2
Back side	802.11a	64/5320	97.20%	1.029	0.526	-0.17	13.27	14.00	1.183	0.640	22.2
Right side	802.11a	64/5320	97.20%	1.029	0.128	0.08	13.27	14.00	1.183	0.156	22.2
Top side	802.11a	64/5320	97.20%	1.029	0.603	0.02	13.27	14.00	1.183	0.734	22.2
Product specific 10gSAR (Sensor on) Test data of U-NII-2C(Separate 0mm)											
Front side	802.11a	100/5500	97.20%	1.029	0.091	0.06	12.86	13.50	1.159	0.108	22.2
Back side	802.11a	100/5500	97.20%	1.029	0.589	-0.01	12.86	13.50	1.159	0.702	22.2
Right side	802.11a	100/5500	97.20%	1.029	0.159	0.10	12.86	13.50	1.159	0.190	22.2
Top side	802.11a	100/5500	97.20%	1.029	0.544	0.12	12.86	13.50	1.159	0.649	22.2



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Product specific 10gSAR (Sensor off) Test data											
Front side-9mm	802.11a	64/5320	97.20%	1.029	0.078	0.01	19.06	20.50	1.393	0.112	22.2
Back side-18mm	802.11a	100/5500	97.20%	1.029	0.232	0.02	19.21	20.00	1.199	0.286	22.2
Right side-16mm	802.11a	100/5500	97.20%	1.029	0.103	0.06	19.21	20.00	1.199	0.127	22.2
Top side-18mm	802.11a	64/5320	97.20%	1.029	0.152	0.15	19.06	20.50	1.393	0.218	22.2

Table 44: SAR of WIFI 5G for Head and Body.

Note:

- As the 802.11a highest reported SAR is smaller than 1.2 W/kg , and the tune-up of the other 802.11 modes are not higher than 802.11a,therefore the adjusted SAR is ≤ 1.2 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.



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9.2.26 SAR Result of BT

Bluetooth SAR Test Record											
Ant5 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test data											
Left cheek	DH5	39/2441	76.80%	1.302	0.148	-0.07	10.53	11.50	1.250	0.241	22.2
Left tilted	DH5	39/2441	76.80%	1.302	0.106	-0.19	10.53	11.50	1.250	0.173	22.2
Right cheek	DH5	39/2441	76.80%	1.302	0.066	-0.14	10.53	11.50	1.250	0.107	22.2
Right tilted	DH5	39/2441	76.80%	1.302	0.056	0.04	10.53	11.50	1.250	0.091	22.2
Body worn Test data(Separate 15mm)											
Front side	DH5	39/2441	76.80%	1.302	0.000	-0.02	10.53	11.50	1.250	0.000	22.2
Back side	DH5	39/2441	76.80%	1.302	0.018	0.17	10.53	11.50	1.250	0.029	22.2
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	76.80%	1.302	0.000	0.02	10.53	11.50	1.250	0.000	22.2
Back side	DH5	39/2441	76.80%	1.302	0.023	0.16	10.53	11.50	1.250	0.037	22.2
Right side	DH5	39/2441	76.80%	1.302	0.018	-0.01	10.53	11.50	1.250	0.029	22.2
Top side	DH5	39/2441	76.80%	1.302	0.025	0.08	10.53	11.50	1.250	0.041	22.2

Table 45: SAR of BT for Head and Body.



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9.3 Multiple Transmitter Evaluation

9.3.1 Simultaneous SAR test evaluation

- Simultaneous Transmission Possibilities

NO	Simultaneous Tx Combination	Head	Body- worn	Hotspot	Product Specific 10-g (0mm)
1	WWAN + WIFI2.4G	Y	Y	Y	Y
2	WWAN + WIFI5G	Y	Y	Y	Y
4	WWAN + BT	Y	Y	Y	Y

Note:

- 1) The device support DTM function.
- 2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.
- 3) NFC is different from the working scenario of WWAN/WIFI(Head/Body-worn/Hotspot) and does not participate in the simultaneous transmission.
- 4) Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required it 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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9.3.2 Simultaneous Transmission SAR Summation Scenario
Simultaneous Transmission SAR Summation Scenario for WLAN Head:

Test position		SARmax (W/kg)				Summed SAR		
		Main	WiFi 2.4G Ant5	WiFi 5G Ant5	BT Ant5			
		1	2	3	4	1+2	1+3	1+4
GSM850	Left cheek	0.300	0.375	0.314	0.241	0.675	0.614	0.541
	Left tilted	0.247	0.244	0.380	0.173	0.491	0.627	0.420
	Right cheek	0.435	0.134	0.294	0.107	0.569	0.729	0.542
	Right tilted	0.289	0.118	0.310	0.091	0.407	0.599	0.380
GSM1900	Left cheek	0.363	0.375	0.314	0.241	0.738	0.677	0.604
	Left tilted	0.444	0.244	0.380	0.173	0.688	0.824	0.617
	Right cheek	0.709	0.134	0.294	0.107	0.843	1.003	0.816
	Right tilted	0.892	0.118	0.310	0.091	1.010	1.202	0.983
WCDMA II	Left cheek	0.405	0.375	0.314	0.241	0.780	0.719	0.646
	Left tilted	0.485	0.244	0.380	0.173	0.729	0.865	0.658
	Right cheek	0.685	0.134	0.294	0.107	0.819	0.979	0.792
	Right tilted	0.792	0.118	0.310	0.091	0.910	1.102	0.883
WCDMA V	Left cheek	0.244	0.375	0.314	0.241	0.619	0.558	0.485
	Left tilted	0.183	0.244	0.380	0.173	0.427	0.563	0.356
	Right cheek	0.326	0.134	0.294	0.107	0.460	0.620	0.433
	Right tilted	0.194	0.118	0.310	0.091	0.312	0.504	0.285
LTE B2	Left cheek	0.590	0.375	0.314	0.241	0.965	0.904	0.831
	Left tilted	0.429	0.244	0.380	0.173	0.673	0.809	0.602
	Right cheek	0.991	0.134	0.294	0.107	1.125	1.285	1.098
	Right tilted	0.755	0.118	0.310	0.091	0.873	1.065	0.846
LTE B12	Left cheek	0.127	0.375	0.314	0.241	0.502	0.441	0.368
	Left tilted	0.076	0.244	0.380	0.173	0.320	0.456	0.249
	Right cheek	0.259	0.134	0.294	0.107	0.393	0.553	0.366
	Right tilted	0.131	0.118	0.310	0.091	0.249	0.441	0.222
LTE B14	Left cheek	0.134	0.375	0.314	0.241	0.509	0.448	0.375
	Left tilted	0.081	0.244	0.380	0.173	0.325	0.461	0.254
	Right cheek	0.276	0.134	0.294	0.107	0.410	0.570	0.383
	Right tilted	0.123	0.118	0.310	0.091	0.241	0.433	0.214
LTE B26	Left cheek	0.234	0.375	0.314	0.241	0.609	0.548	0.475
	Left tilted	0.153	0.244	0.380	0.173	0.397	0.533	0.326
	Right cheek	0.293	0.134	0.294	0.107	0.427	0.587	0.400
	Right tilted	0.174	0.118	0.310	0.091	0.292	0.484	0.265
LTE B30	Left cheek	0.804	0.375	0.314	0.241	1.179	1.118	1.045
	Left tilted	0.972	0.244	0.380	0.173	1.216	1.352	1.145
	Right cheek	1.014	0.134	0.294	0.107	1.148	1.308	1.121
	Right tilted	1.197	0.118	0.310	0.091	1.315	1.507	1.288
LTE B48	Left cheek	0.682	0.375	0.314	0.241	1.057	0.996	0.923
	Left tilted	0.646	0.244	0.380	0.173	0.890	1.026	0.819
	Right cheek	0.443	0.134	0.294	0.107	0.577	0.737	0.550
	Right tilted	0.434	0.118	0.310	0.091	0.552	0.744	0.525
LTE B66	Left cheek	0.509	0.375	0.314	0.241	0.884	0.823	0.750
	Left tilted	0.644	0.244	0.380	0.173	0.888	1.024	0.817
	Right cheek	0.979	0.134	0.294	0.107	1.113	1.273	1.086
	Right tilted	1.069	0.118	0.310	0.091	1.187	1.379	1.160
LTE B71	Left cheek	0.132	0.375	0.314	0.241	0.507	0.446	0.373
	Left tilted	0.096	0.244	0.380	0.173	0.340	0.476	0.269
	Right cheek	0.226	0.134	0.294	0.107	0.360	0.520	0.333



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	Right tilted	0.102	0.118	0.310	0.091	0.220	0.412	0.193
NR n2	Left cheek	0.465	0.375	0.314	0.241	0.840	0.779	0.706
	Left tilted	0.545	0.244	0.380	0.173	0.789	0.925	0.718
	Right cheek	0.890	0.134	0.294	0.107	1.024	1.184	0.997
	Right tilted	0.933	0.118	0.310	0.091	1.051	1.243	1.024
NR n25	Left cheek	0.545	0.375	0.314	0.241	0.920	0.859	0.786
	Left tilted	0.592	0.244	0.380	0.173	0.836	0.972	0.765
	Right cheek	1.090	0.134	0.294	0.107	1.224	1.384	1.197
	Right tilted	1.109	0.118	0.310	0.091	1.227	1.419	1.200
NR n26	Left cheek	0.299	0.375	0.314	0.241	0.674	0.613	0.540
	Left tilted	0.236	0.244	0.380	0.173	0.480	0.616	0.409
	Right cheek	0.414	0.134	0.294	0.107	0.548	0.708	0.521
	Right tilted	0.282	0.118	0.310	0.091	0.400	0.592	0.373
NR n30	Left cheek	0.374	0.375	0.314	0.241	0.749	0.688	0.615
	Left tilted	0.449	0.244	0.380	0.173	0.693	0.829	0.622
	Right cheek	1.064	0.134	0.294	0.107	1.198	1.358	1.171
	Right tilted	1.129	0.118	0.310	0.091	1.247	1.439	1.220
NR n41	Left cheek	0.606	0.375	0.314	0.241	0.981	0.920	0.847
	Left tilted	0.345	0.244	0.380	0.173	0.589	0.725	0.518
	Right cheek	1.192	0.134	0.294	0.107	1.326	1.486	1.299
	Right tilted	0.988	0.118	0.310	0.091	1.106	1.298	1.079
NR n66	Left cheek	0.731	0.375	0.314	0.241	1.106	1.045	0.972
	Left tilted	0.769	0.244	0.380	0.173	1.013	1.149	0.942
	Right cheek	1.058	0.134	0.294	0.107	1.192	1.352	1.165
	Right tilted	1.109	0.118	0.310	0.091	1.227	1.419	1.200
NR n70	Left cheek	0.617	0.375	0.314	0.241	0.992	0.931	0.858
	Left tilted	0.639	0.244	0.380	0.173	0.883	1.019	0.812
	Right cheek	0.850	0.134	0.294	0.107	0.984	1.144	0.957
	Right tilted	1.183	0.118	0.310	0.091	1.301	1.493	1.274
NR n71	Left cheek	0.270	0.375	0.314	0.241	0.645	0.584	0.511
	Left tilted	0.186	0.244	0.380	0.173	0.430	0.566	0.359
	Right cheek	0.354	0.134	0.294	0.107	0.488	0.648	0.461
	Right tilted	0.187	0.118	0.310	0.091	0.305	0.497	0.278
NR n48	Left cheek	1.018	0.375	0.314	0.241	1.393	1.332	1.259
	Left tilted	1.118	0.244	0.380	0.173	1.362	1.498	1.291
	Right cheek	0.750	0.134	0.294	0.107	0.884	1.044	0.857
	Right tilted	0.700	0.118	0.310	0.091	0.818	1.010	0.791
NR n77-3500	Left cheek	1.081	0.375	0.314	0.241	1.456	1.395	1.322
	Left tilted	1.066	0.244	0.380	0.173	1.310	1.446	1.239
	Right cheek	0.839	0.134	0.294	0.107	0.973	1.133	0.946
	Right tilted	0.752	0.118	0.310	0.091	0.870	1.062	0.843
NR n77-3900	Left cheek	1.148	0.375	0.314	0.241	1.523	1.462	1.389
	Left tilted	0.906	0.244	0.380	0.173	1.150	1.286	1.079
	Right cheek	0.732	0.134	0.294	0.107	0.866	1.026	0.839
	Right tilted	0.678	0.118	0.310	0.091	0.796	0.988	0.769



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

Test position		SARmax (W/kg)				Summed SAR		
		Main	WiFi 2.4G Ant5	WiFi 5G Ant5	BT Ant5			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.337	0.219	0.043	0.000	0.556	0.380	0.337
	Back side	0.501	0.357	0.340	0.029	0.858	0.841	0.530
GSM1900	Front side	0.440	0.219	0.043	0.000	0.659	0.483	0.440
	Back side	0.701	0.357	0.340	0.029	1.058	1.041	0.730
WCDMA II	Front side	0.721	0.219	0.043	0.000	0.940	0.764	0.721
	Back side	1.037	0.357	0.340	0.029	1.394	1.377	1.066
WCDMA V	Front side	0.266	0.219	0.043	0.000	0.485	0.309	0.266
	Back side	0.339	0.357	0.340	0.029	0.696	0.679	0.368
LTE B2	Front side	0.606	0.219	0.043	0.000	0.825	0.649	0.606
	Back side	0.883	0.357	0.340	0.029	1.240	1.223	0.912
LTE B12	Front side	0.291	0.219	0.043	0.000	0.510	0.334	0.291
	Back side	0.403	0.357	0.340	0.029	0.760	0.743	0.432
LTE B14	Front side	0.268	0.219	0.043	0.000	0.487	0.311	0.268
	Back side	0.357	0.357	0.340	0.029	0.714	0.697	0.386
LTE B26	Front side	0.303	0.219	0.043	0.000	0.522	0.346	0.303
	Back side	0.392	0.357	0.340	0.029	0.749	0.732	0.421
LTE B30	Front side	0.419	0.219	0.043	0.000	0.638	0.462	0.419
	Back side	0.923	0.357	0.340	0.029	1.280	1.263	0.952
LTE B48	Front side	0.196	0.219	0.043	0.000	0.415	0.239	0.196
	Back side	0.300	0.357	0.340	0.029	0.657	0.640	0.329
LTE B66	Front side	0.386	0.219	0.043	0.000	0.605	0.429	0.386
	Back side	0.661	0.357	0.340	0.029	1.018	1.001	0.690
LTE B71	Front side	0.249	0.219	0.043	0.000	0.468	0.292	0.249
	Back side	0.343	0.357	0.340	0.029	0.700	0.683	0.372
NR n2	Front side	0.422	0.219	0.043	0.000	0.641	0.465	0.422
	Back side	0.747	0.357	0.340	0.029	1.104	1.087	0.776
NR n25	Front side	0.664	0.219	0.043	0.000	0.883	0.707	0.664
	Back side	1.000	0.357	0.340	0.029	1.357	1.340	1.029
NR n26	Front side	0.271	0.219	0.043	0.000	0.490	0.314	0.271
	Back side	0.355	0.357	0.340	0.029	0.712	0.695	0.384
NR n30	Front side	0.387	0.219	0.043	0.000	0.606	0.430	0.387
	Back side	0.944	0.357	0.340	0.029	1.301	1.284	0.973
NR n41	Front side	0.281	0.219	0.043	0.000	0.500	0.324	0.281
	Back side	0.940	0.357	0.340	0.029	1.297	1.280	0.969
NR n66	Front side	0.757	0.219	0.043	0.000	0.976	0.800	0.757
	Back side	0.911	0.357	0.340	0.029	1.268	1.251	0.940
NR n70	Front side	0.393	0.219	0.043	0.000	0.612	0.436	0.393
	Back side	0.621	0.357	0.340	0.029	0.978	0.961	0.650
NR n71	Front side	0.372	0.219	0.043	0.000	0.591	0.415	0.372
	Back side	0.510	0.357	0.340	0.029	0.867	0.850	0.539
NR n48	Front side	0.334	0.219	0.043	0.000	0.553	0.377	0.334
	Back side	0.592	0.357	0.340	0.029	0.949	0.932	0.621
NR n77-3500	Front side	0.302	0.219	0.043	0.000	0.521	0.345	0.302
	Back side	0.512	0.357	0.340	0.029	0.869	0.852	0.541
NR n77-3900	Front side	0.436	0.219	0.043	0.000	0.655	0.479	0.436
	Back side	1.189	0.357	0.340	0.029	1.546	1.529	1.218



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Hotspot:

Test position		SARmax (W/kg)				Summed SAR		
		Main	WiFi 2.4G Ant5	WiFi 5G Ant5	BT Ant5			
		1	2	3	4	1+2	1+3	1+4
GSM850	Front side	0.540	0.210	0.041	-	0.750	0.581	0.540
	Back side	0.808	0.359	0.353	0.037	1.167	1.161	0.845
	Left side	-	-	-	-	-	-	-
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.204	-	-	-	0.204	0.204	0.204
GSM1900	Front side	0.490	0.210	0.041	-	0.700	0.531	0.490
	Back side	0.629	0.359	0.353	0.037	0.988	0.982	0.666
	Left side	0.163	-	-	-	0.163	0.163	0.163
	Right side	0.058	0.181	0.122	0.029	0.239	0.180	0.087
	Top side	0.932	0.294	0.219	0.041	1.226	1.151	0.973
	Bottom side	-	-	-	-	-	-	-
WCDMA II	Front side	0.420	0.210	0.041	-	0.630	0.461	0.420
	Back side	0.575	0.359	0.353	0.037	0.934	0.928	0.612
	Left side	0.139	-	-	-	0.139	0.139	0.139
	Right side	0.036	0.181	0.122	0.029	0.217	0.158	0.065
	Top side	0.809	0.294	0.219	0.041	1.103	1.028	0.850
	Bottom side	-	-	-	-	-	-	-
WCDMA V	Front side	0.318	0.210	0.041	-	0.528	0.359	0.318
	Back side	0.478	0.359	0.353	0.037	0.837	0.831	0.515
	Left side	-	-	-	-	-	-	-
	Right side	0.058	0.181	0.122	0.029	0.239	0.180	0.087
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.333	-	-	-	0.333	0.333	0.333
LTE B2	Front side	0.503	0.210	0.041	-	0.713	0.544	0.503
	Back side	1.105	0.359	0.353	0.037	1.464	1.458	1.142
	Left side	0.899	-	-	-	0.899	0.899	0.899
	Right side	0.059	0.181	0.122	0.029	0.240	0.181	0.088
	Top side	0.980	0.294	0.219	0.041	1.274	1.199	1.021
	Bottom side	-	-	-	-	-	-	-
LTE B12	Front side	0.289	0.210	0.041	-	0.499	0.330	0.289
	Back side	0.441	0.359	0.353	0.037	0.800	0.794	0.478
	Left side	-	-	-	-	-	-	-
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.310	-	-	-	0.310	0.310	0.310
LTE B14	Front side	0.283	0.210	0.041	-	0.493	0.324	0.283
	Back side	0.424	0.359	0.353	0.037	0.783	0.777	0.461
	Left side	-	-	-	-	-	-	-
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.172	-	-	-	0.172	0.172	0.172
LTE B26	Front side	0.308	0.210	0.041	-	0.518	0.349	0.308
	Back side	0.491	0.359	0.353	0.037	0.850	0.844	0.528
	Left side	-	-	-	-	-	-	-
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.331	-	-	-	0.331	0.331	0.331



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LTE B30	Front side	0.428	0.210	0.041	-	0.638	0.469	0.428
	Back side	1.164	0.359	0.353	0.037	1.523	1.517	1.201
	Left side	0.470	-	-	-	0.470	0.470	0.470
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	0.518	0.294	0.219	0.041	0.812	0.737	0.559
	Bottom side	-	-	-	-	-	-	-
LTE B48	Front side	0.360	0.210	0.041	-	0.570	0.401	0.360
	Back side	0.728	0.359	0.353	0.037	1.087	1.081	0.765
	Left side	0.172	-	-	-	0.172	0.172	0.172
	Right side	0.195	0.181	0.122	0.029	0.376	0.317	0.224
	Top side	0.558	0.294	0.219	0.041	0.852	0.777	0.599
	Bottom side	-	-	-	-	-	-	-
LTE B66	Front side	0.585	0.210	0.041	-	0.795	0.626	0.585
	Back side	0.984	0.359	0.353	0.037	1.343	1.337	1.021
	Left side	0.329	-	-	-	0.329	0.329	0.329
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	0.960	0.294	0.219	0.041	1.254	1.179	1.001
	Bottom side	-	-	-	-	-	-	-
LTE B71	Front side	0.281	0.210	0.041	-	0.491	0.322	0.281
	Back side	0.438	0.359	0.353	0.037	0.797	0.791	0.475
	Left side	-	-	-	-	-	-	-
	Right side	0.076	0.181	0.122	0.029	0.257	0.198	0.105
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.267	-	-	-	0.267	0.267	0.267
NR n2	Front side	0.467	0.210	0.041	-	0.677	0.508	0.467
	Back side	0.845	0.359	0.353	0.037	1.204	1.198	0.882
	Left side	0.133	-	-	-	0.133	0.133	0.133
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	1.086	0.294	0.219	0.041	1.380	1.305	1.127
	Bottom side	-	-	-	-	-	-	-
NR n25	Front side	0.627	0.210	0.041	-	0.837	0.668	0.627
	Back side	0.864	0.359	0.353	0.037	1.223	1.217	0.901
	Left side	0.233	-	-	-	0.233	0.233	0.233
	Right side	0.063	0.181	0.122	0.029	0.244	0.185	0.092
	Top side	1.059	0.294	0.219	0.041	1.353	1.278	1.100
	Bottom side	-	-	-	-	-	-	-
NR n26	Front side	0.443	0.210	0.041	-	0.653	0.484	0.443
	Back side	0.677	0.359	0.353	0.037	1.036	1.030	0.714
	Left side	-	-	-	-	-	-	-
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.446	-	-	-	0.446	0.446	0.446
NR n30	Front side	0.385	0.210	0.041	-	0.595	0.426	0.385
	Back side	1.033	0.359	0.353	0.037	1.392	1.386	1.070
	Left side	0.422	-	-	-	0.422	0.422	0.422
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	0.914	0.294	0.219	0.041	1.208	1.133	0.955
	Bottom side	-	-	-	-	-	-	-
NR n41	Front side	0.434	0.210	0.041	-	0.644	0.475	0.434
	Back side	1.054	0.359	0.353	0.037	1.413	1.407	1.091
	Left side	0.582	-	-	-	0.582	0.582	0.582
	Right side	-	0.181	0.122	0.029	0.181	0.122	0.029
	Top side	0.693	0.294	0.219	0.041	0.987	0.912	0.734
	Bottom side	-	-	-	-	-	-	-



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NR n66	Front side	0.488	0.210	0.041	-	0.698	0.529	0.488
	Back side	0.682	0.359	0.353	0.037	1.041	1.035	0.719
	Left side	0.446	-	-	-	0.446	0.446	0.446
	Right side	0.086	0.181	0.122	0.029	0.267	0.208	0.115
	Top side	0.771	0.294	0.219	0.041	1.065	0.990	0.812
	Bottom side	-	-	-	-	-	-	-
NR n70	Front side	0.649	0.210	0.041	-	0.859	0.690	0.649
	Back side	0.993	0.359	0.353	0.037	1.352	1.346	1.030
	Left side	0.353	-	-	-	0.353	0.353	0.353
	Right side	0.131	0.181	0.122	0.029	0.312	0.253	0.160
	Top side	0.970	0.294	0.219	0.041	1.264	1.189	1.011
	Bottom side	-	-	-	-	-	-	-
NR n71	Front side	0.409	0.210	0.041	-	0.619	0.450	0.409
	Back side	0.638	0.359	0.353	0.037	0.997	0.991	0.675
	Left side	-	-	-	-	-	-	-
	Right side	0.075	0.181	0.122	0.029	0.256	0.197	0.104
	Top side	-	0.294	0.219	0.041	0.294	0.219	0.041
	Bottom side	0.435	-	-	-	0.435	0.435	0.435
NR n48	Front side	0.629	0.210	0.041	-	0.839	0.670	0.629
	Back side	1.076	0.359	0.353	0.037	1.435	1.429	1.113
	Left side	0.341	-	-	-	0.341	0.341	0.341
	Right side	0.378	0.181	0.122	0.029	0.559	0.500	0.407
	Top side	0.998	0.294	0.219	0.041	1.292	1.217	1.039
	Bottom side	-	-	-	-	-	-	-
NR n77-3500	Front side	0.611	0.210	0.041	-	0.821	0.652	0.611
	Back side	1.064	0.359	0.353	0.037	1.423	1.417	1.101
	Left side	0.214	-	-	-	0.214	0.214	0.214
	Right side	0.553	0.181	0.122	0.029	0.734	0.675	0.582
	Top side	1.120	0.294	0.219	0.041	1.414	1.339	1.161
	Bottom side	-	-	-	-	-	-	-
NR n77-3900	Front side	0.918	0.210	0.041	-	1.128	0.959	0.918
	Back side	1.106	0.359	0.353	0.037	1.465	1.459	1.143
	Left side	0.231	-	-	-	0.231	0.231	0.231
	Right side	0.214	0.181	0.122	0.029	0.395	0.336	0.243
	Top side	0.957	0.294	0.219	0.041	1.251	1.176	0.998
	Bottom side	-	-	-	-	-	-	-



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Product specific 10g SAR :

Test position	SARmax (W/kg)		Summed SAR	
	Main	WiFi 5G Ant5		
	1	2	1+2	
GSM1900	Front side	-	0.118	0.118
	Back side	2.131	0.702	2.833
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	3.036	0.734	3.770
	Bottom side	-	-	-
WCDMA II	Front side	2.055	0.118	2.173
	Back side	1.711	0.702	2.413
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	2.239	0.734	2.973
	Bottom side	-	-	-
LTE B2	Front side	2.345	0.118	2.463
	Back side	1.820	0.702	2.522
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	2.701	0.734	3.435
	Bottom side	-	-	-
LTE B30	Front side	-	0.118	0.118
	Back side	2.721	0.702	3.423
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	-	0.734	0.734
	Bottom side	-	-	-
LTE B66	Front side	-	0.118	0.118
	Back side	2.242	0.702	2.944
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	2.193	0.734	2.927
	Bottom side	-	-	-
NR n2	Front side	-	0.118	0.118
	Back side	2.297	0.702	2.999
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	3.128	0.734	3.862
	Bottom side	-	-	-
NR n25	Front side	2.762	0.118	2.880
	Back side	2.492	0.702	3.194
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	3.149	0.734	3.883
	Bottom side	-	-	-
NR n30	Front side	-	0.118	0.118
	Back side	2.670	0.702	3.372
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	1.706	0.734	2.440
	Bottom side	-	-	-
NR n41	Front side	-	0.118	0.118



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	Back side	2.956	0.702	3.658
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	-	0.734	0.734
	Bottom side	-	-	-
NR n66	Front side	2.187	0.118	2.305
	Back side	2.676	0.702	3.378
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	2.741	0.734	3.475
	Bottom side	-	-	-
NR n48	Front side	-	0.118	0.118
	Back side	2.890	0.702	3.592
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	1.419	0.734	2.153
	Bottom side	-	-	-
NR n77-3500	Front side	-	0.118	0.118
	Back side	2.383	0.702	3.085
	Left side	-	-	-
	Right side	-	0.190	0.190
	Top side	1.072	0.734	1.806
	Bottom side	-	-	-



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10 Equipment list

Test Platform		SPEAG DASY5 Professional				
Description		SAR Test System (Frequency range 300MHz-6GHz)				
Software Reference		DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)				
Hardware Reference						
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration	
<input checked="" type="checkbox"/>	Twin Phantom	SPEAG	SAM1	1769	NCR	NCR
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4	1327	2023-11-17	2024-11-16
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	7735	2023-10-17	2024-10-26
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D750V3	1210	2021-09-08	2024-09-07
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D835V2	4d161	2023-08-25	2026-08-24
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D1750V2	1038	2021-12-16	2024-12-15
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D1950V3	1218	2023-05-04	2026-05-03
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2300V2	1072	2022-06-16	2025-06-15
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2450V2	922	2023-08-28	2026-08-27
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2600V2	1180	2021-05-12	2024-05-11
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D3500V2	1124	2021-05-17	2024-05-16
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D3700V2	1094	2021-05-17	2024-05-16
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D3900V2	1071	2021-05-20	2024-05-19
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D5GHZV2	1313	2022-01-25	2025-01-24
<input checked="" type="checkbox"/>	Dielectric parameter probes	SPEAG	DAKS-3.5	1120	2023-06-06	2024-06-05
<input checked="" type="checkbox"/>	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	0050920	2023-06-06	2024-06-05
<input checked="" type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	111637	2023-09-13	2024-09-12
<input checked="" type="checkbox"/>	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
<input checked="" type="checkbox"/>	Signal Generator	R&S	SMB100A	182393	2023-02-06	2024-02-05
<input checked="" type="checkbox"/>	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
<input checked="" type="checkbox"/>	Power Sensor	Keysight	U2002H	121251	2023-9-13	2024-09-12
<input checked="" type="checkbox"/>	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
<input checked="" type="checkbox"/>	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
<input checked="" type="checkbox"/>	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
<input checked="" type="checkbox"/>	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR
<input checked="" type="checkbox"/>	Speed reading thermometer	LKM	DTM3000	SUW201-19-02	2023-09-15	2024-09-14
<input checked="" type="checkbox"/>	Humidity and Temperature Indicator	MingGao	MingGao	NA	2023-09-15	2024-09-14

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



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11 Calibration certificate

Please see the Appendix C

12 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

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