

FCC SAR TEST REPORT

Application No.: SEWM2311000454RG
Applicant: Xiaomi Communications Co., Ltd.
Manufacturer: Xiaomi Communications Co., Ltd.
Product Name: Mobile Phone
Model No.(EUT): XIG05
Trade Mark: Redmi
FCC ID: 2AFZZRA50J
Standards: FCC 47CFR §2.1093
Date of Receipt: 2023-11-11
Date of Test: 2023-11-16 to 2023-12-18
Date of Issue: 2023-12-22
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
SEWM2311000454RG09	01	Original	2023-12-22



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.79	0.62	0.71	1.99
GSM1900	1.05	0.25	0.75	/
WCDMA Band II	1.03	0.85	0.99	/
WCDMA Band IV	1.07	1.07	0.94	/
WCDMA Band V	0.96	0.57	0.94	/
LTE Band 2	1.09	1.01	1.06	2.37
LTE Band 4	1.01	0.93	0.70	/
LTE Band 7	0.92	0.82	0.85	/
LTE Band 12	0.66	0.54	1.05	/
LTE Band 13	0.83	0.91	0.90	1.45
LTE Band 26	0.78	0.69	0.97	/
LTE Band 41	0.81	0.67	0.55	/
LTE Band 66	1.03	0.93	1.04	/
NR Band n5	0.98	0.40	1.01	/
NR Band n7	0.95	0.73	0.63	/
NR Band n41	1.04	0.88	0.69	/
NR Band n66	1.04	0.77	0.86	/
NR Band n77	0.92	0.75	0.64	/
WI-FI (2.4GHz)	1.06	0.28	0.62	/
WI-FI (5GHz)	1.08	0.40	0.75	2.39
BT	0.18	<0.1	<0.1	/
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	1.58	1.50	1.57	2.39
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 n41/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.

Reviewed by

Prepared by

Leon Xu



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Nick Hu

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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 mm. Per KDB 648474 D04, because the diagonal distance of this device is $\geq 160\text{mm}$, so it is a phablet.
- 2) Ant 4 is sensor pad 1
 Ant 3/7 is sensor pad 2

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	No	Yes	No	Yes
Ant 1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	No
Ant 2	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	No	No
Ant 3	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 4	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes
Ant 5	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 6	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 7	Hotspot/Product specific 10g SAR	Yes	Yes	No	No	Yes	No
Ant 8	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 10	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 11	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 12	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	No	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:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085
Manufacturer:	Xiaomi Communications Co., Ltd.
Address:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

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:	Alan-Zhang, Leon-Xu



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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:	Mobile Phone		
Model No.(EUT):	XIG05		
FCC ID:	2AFZZRA50J		
Trade Mark:	Redmi		
Product Phase:	Identical Prototype		
IMEI:	1# 864594070003084/864594070003055 2# 864594070019903/864594070019911 3# 864594070003469/864594070003477		
Hardware Version:	13510N16		
Software Version:	Xiaomi HyperOS 1.0		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK,16QAM; LTE: QPSK,16QAM,64QAM; 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:	33	EGPRS Multi-slots Class:	33
HSDPA UE Category:	24	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 IV	1710-1755	2110-2155
	WCDMA Band V	824-849	869-894
	LTE Band 2	1850 -1910	1930 -1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 13	777 - 787	746 - 756
	LTE Band 17	704-716	734-746
	LTE Band 26	814-849	859-894
	LTE Band 66	1710-1780	2110-2200
	LTE Band 38	2570-2620	2570-2620
LTE Band 41	2496-2690	2496-2690	
NR Band n5	824-849	869-894	



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	NR Band n7	2500-2570	2620-2690
	NR Band n38	2570-2620	2570-2620
	NR Band n41	2496-2690	2496-2690
	NR Band n66	1710-1780	2110-2200
	NR Band n77	3450-3550	3450-3550
		3700-3980	3700-3980
	NR Band n78	3450-3550	3450-3550
		3700-3800	3700-3800
	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 aplicant <input type="checkbox"/> Provided by the laboratory		
1# Battery Information:	Model:	BM5V	
	Normal Voltage:	+3.91V	
	Rated capacity:	5020mAh	
	Manufacturer:	NVT	
<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 intra-band contiguous uplink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

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

The possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.4.0. The conducted power measurement results of downlink and uplink LTE CA are provided in Section 8 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.

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

- 1) Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05
 - UL PCC configuration is determined by the required test channel
 - SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.
- 2) SAR for UL CA is required in each exposure condition and frequency band combination
- 3) For this device, as the maximum output for Intra-band uplink LTE CA is \leq standalone LTE mode (without CA),
 - PCC is configured according to the highest standalone SAR configuration tested.
 - SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC
- 4) When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)
- 5) UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

Intra-band contiguous CA operating bands:

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band		Downlink (DL) operating band			Duplex Mode
		BS receive / UE transmit		BS transmit / UE receive			
		F _{UL_low} – F _{UL_high}		F _{DL_low} – F _{DL_high}			
CA_7C	7	2502.5 MHz	– 2567.5 MHz	2620 MHz	– 2690 MHz	FDD	
CA_38C	38	2572.5 MHz	– 2617.5 MHz	2572.5MHz	– 2617.5 MHz	TDD	



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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 ≤ the LTE Band, the SAR data of the LTE Band is used instead of the SAR data of the LTE Inter-band uplink band.

2CC Downlink Carrier Aggregation	DL 4x4 MIMO	3CC Downlink Carrier Aggregation	DL 4x4 MIMO
CA_2C	-	CA_2A-4A-5A	-
CA_2A-2A	-	CA_2A-4A-7A	7A
CA_2A-4A	-	CA_2A-5A-7A	7A
CA_2A-5A	-	CA_2A-5A-66A	66A
CA_2A-7A	7A	CA_2A-7A-7A	7A, 7A-7A
CA_2A-26A	-	CA_2A-7C	7C
CA_2A-66A	66A	CA_2A-7A-66A	7A
CA_4A-4A	4A-4A	CA_4A-7C	4A,7C
CA_4A-5A	4A	CA_5A-7A-7A	7A, 7A-7A
CA_4A-7A	4A-7A	CA_5A-7C	7C
CA_5A-7A	7A	CA_5A-66A-66A	66A, 66A-66A
CA_5A-66A	66A	CA_7A-66A-66A	7A
CA_7A-7A	7A-7A	CA_41A-41A-41A	41A-41A
CA_7C	7C	CA_41D	-
CA_7A-26A	7A		
CA_7A-66A	7A,66A		
CA_12A-66A	66A		
CA_26A-41A	41A		
CA_38C	38C		
CA_41C	41C		
CA_41A-41A	41A-41A		
CA_66A-66A	66A-66A		
CA_66C	66C		
CA_66B	66B		



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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 simultaneously transmitting with the other antennas in certain simultaneous transmission conditions. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction
- 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.

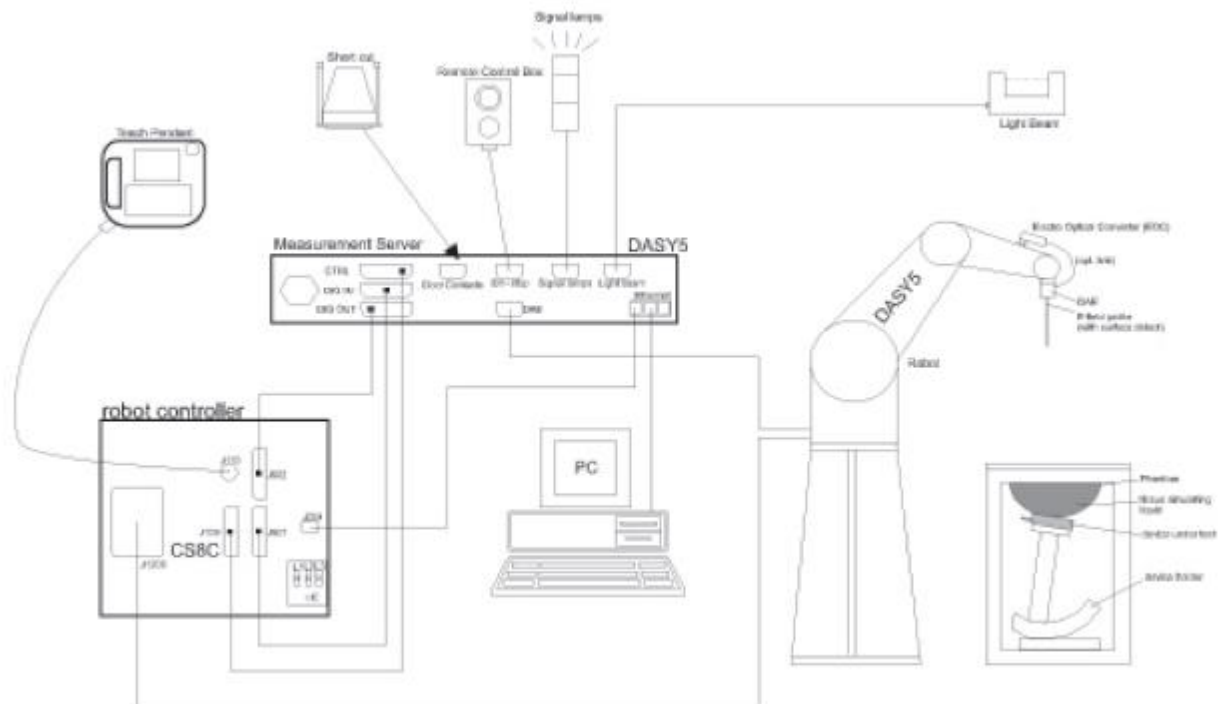
The DASY5 system for performing compliance tests consists of the following items:

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

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 6 GHz with precision of better 30%.
Compatibility	DASY3, DASY4, DASY52 SAR and higher, EASY4/MRI



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

Step 4: Power reference measurement (drift)

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



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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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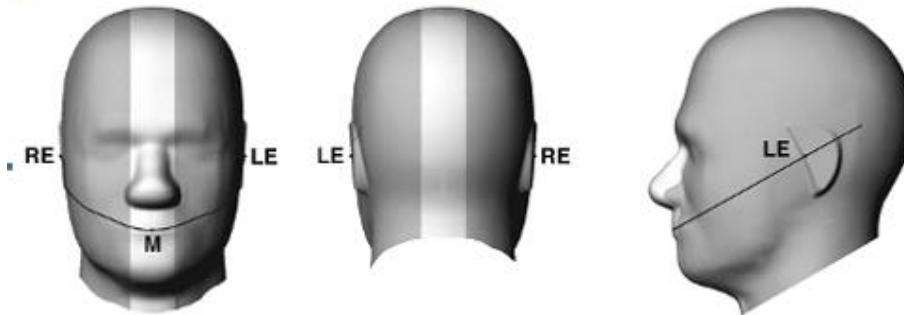
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6 Description of Test Position

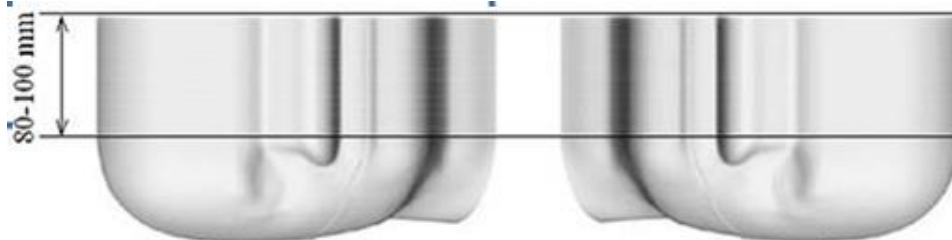
6.1 Head Exposure Condition

6.1.1 SAM Phantom Shape

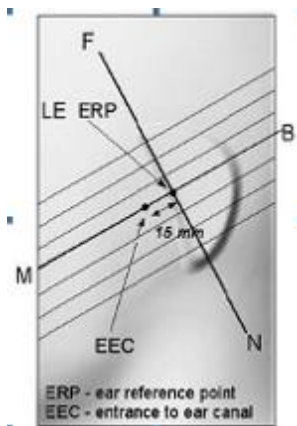


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

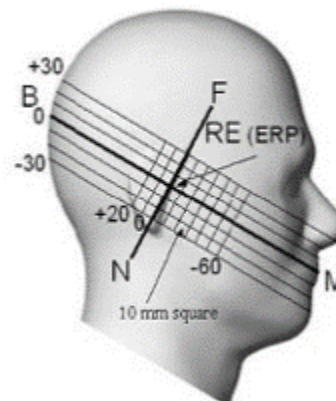
Note: The centre strip including the nose region has a different thickness tolerance.



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



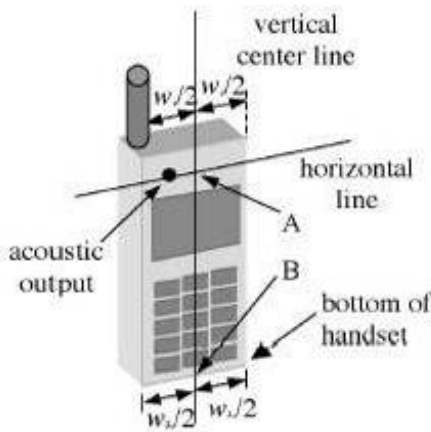
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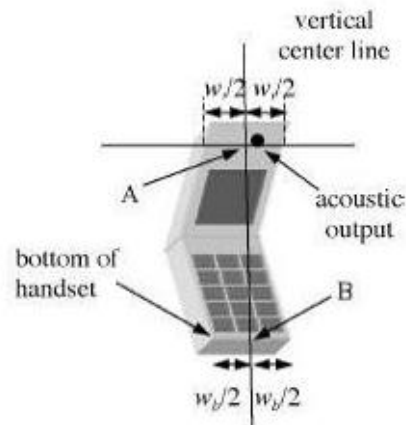
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6.1.2 EUT constructions



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.

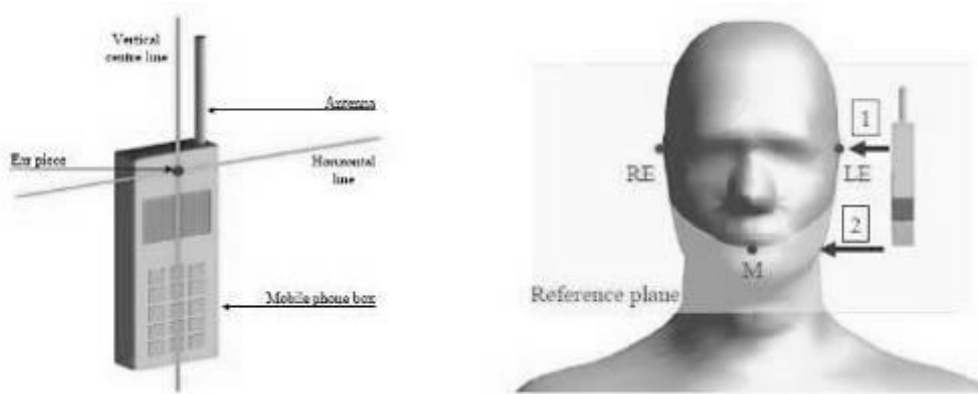


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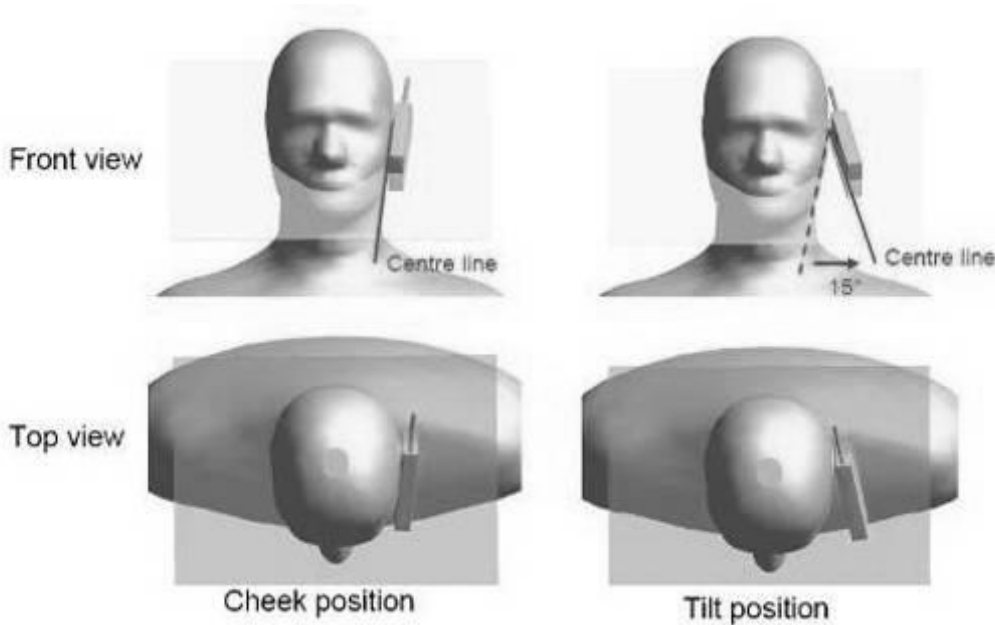
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6.1.4 Definition of the “tilted” position

- 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

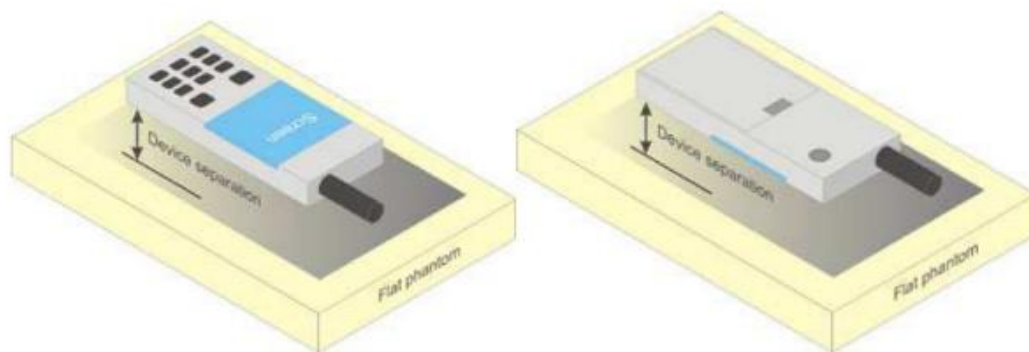
6.2.1 Body-worn accessory exposure conditions

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 $> 1.2 \text{ W/kg}$, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

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



F-11. Test positions for body-worn devices



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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 $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$ that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leq 25 \text{ mm}$ from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. Due to the SAR result, 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.



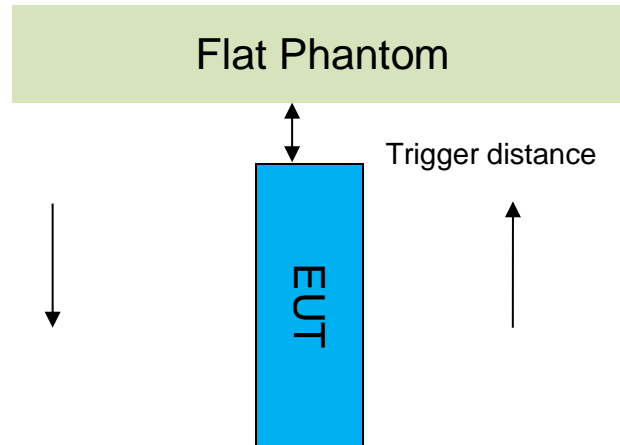
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6.4 Proximity Sensor Triggering Test

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)				
Ant4				
Position	Front	Back	Right Side	Bottom Side
Minimum	16	16	16	16
Required SAR Test	15	15	15	15
Ant3/7				
Position	Front	Back	Top Side	
Minimum	6	6	6	
Required SAR Test	5	5	5	

Note:

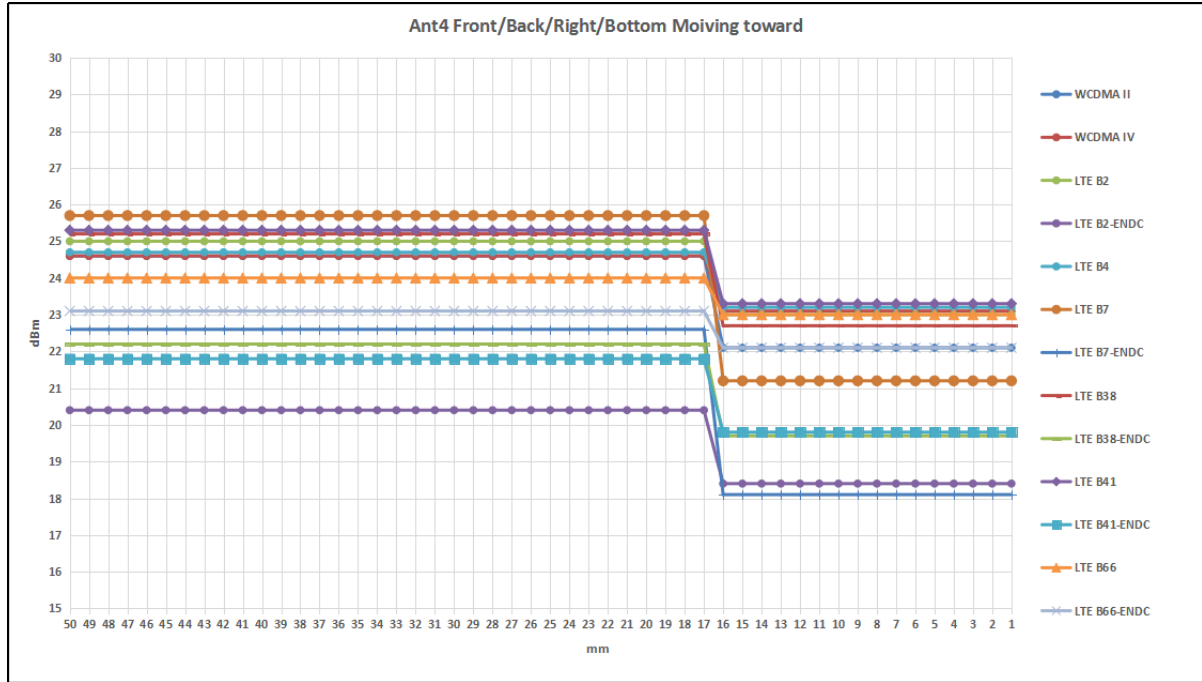
SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the maximum power level with sensor off.



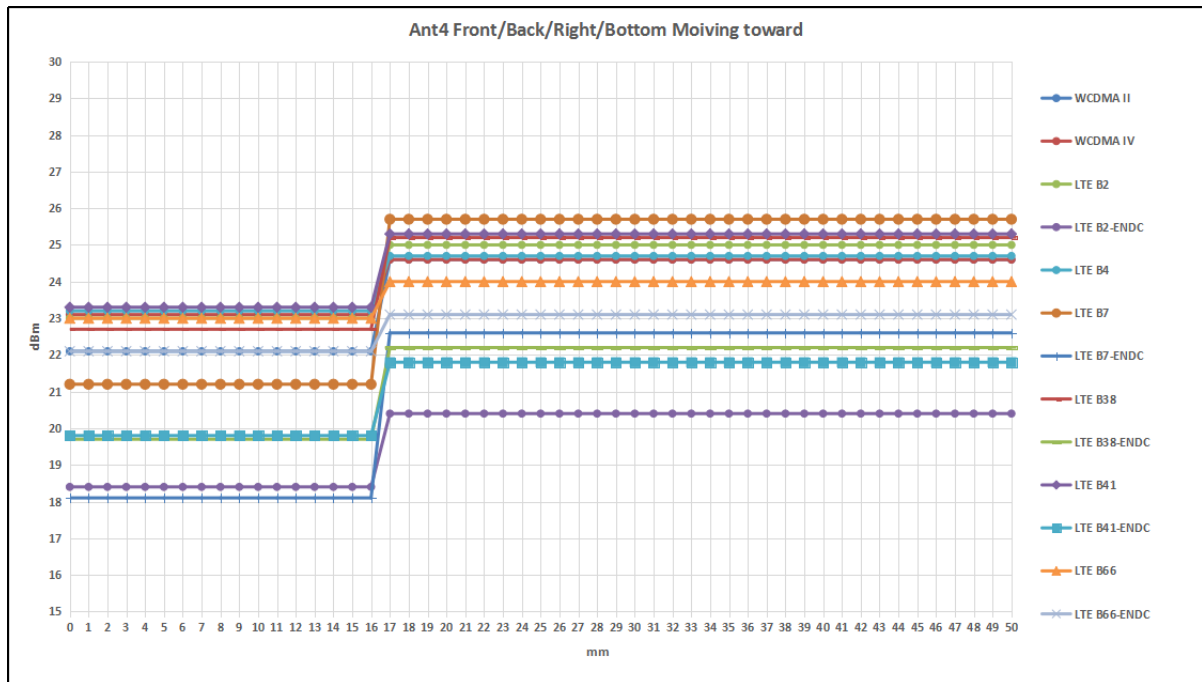
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● Ant 4 DUT Moving Toward(Trigger)the Phantom



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



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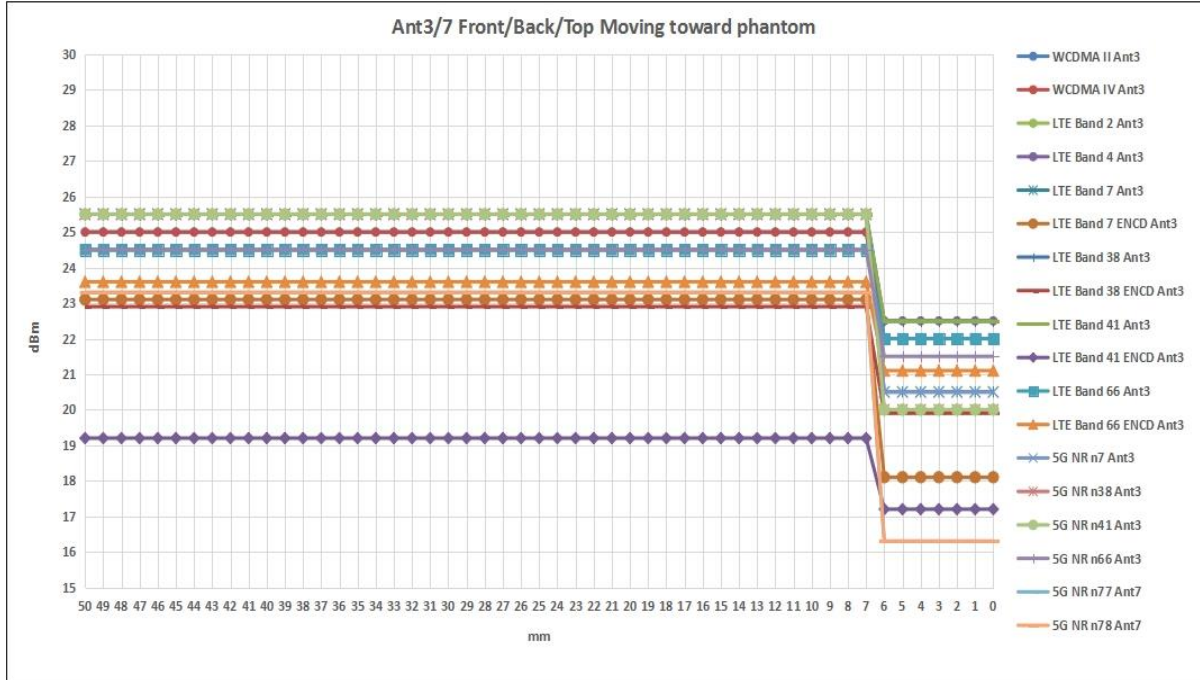
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Rev.: 01
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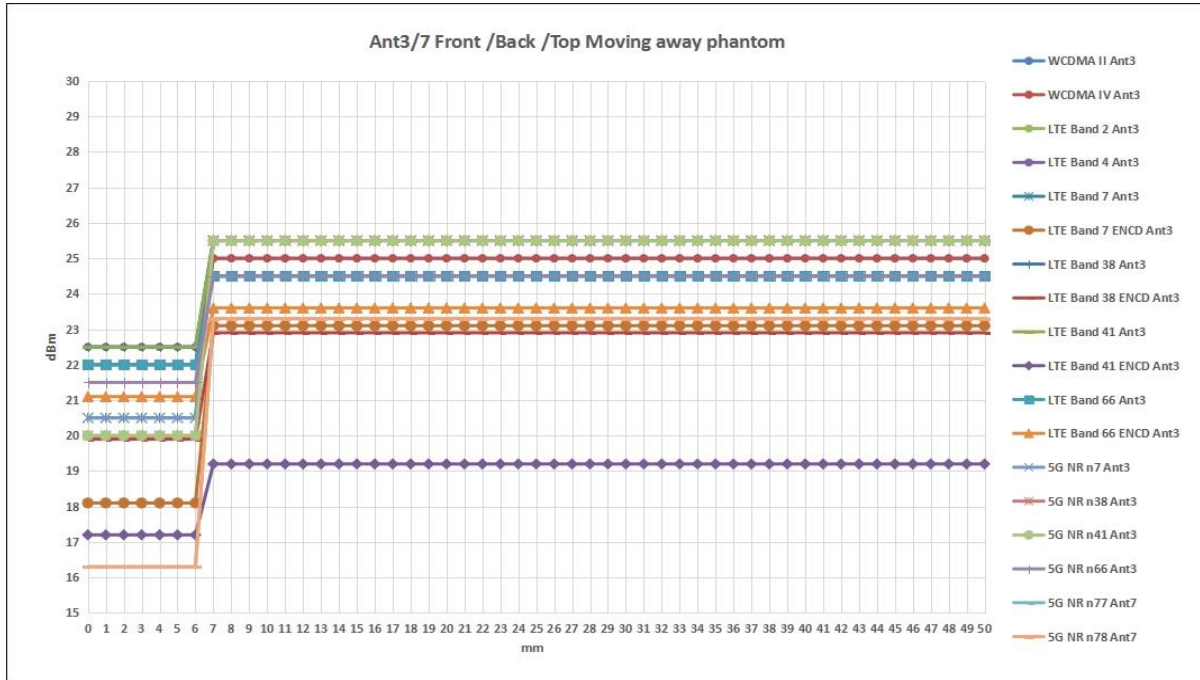
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● Ant 3/7 DUT Moving Toward(Trigger)the Phantom



● Ant 3/7 DUT Moving Away(Release) from the Phantom



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Proximity sensor coverage

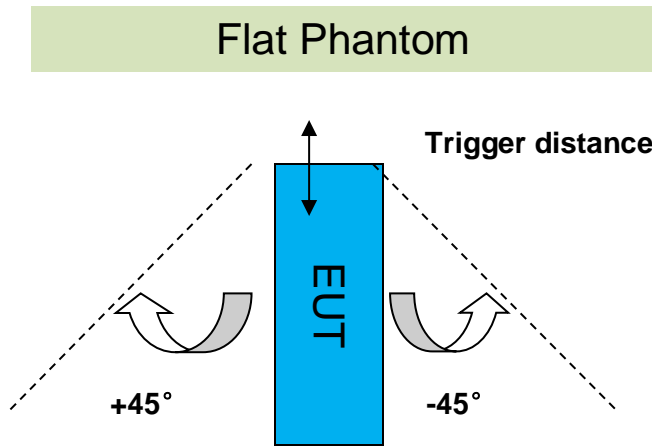
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, 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°
Ant4	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
Ant3/7	Top side:6mm	Top side:6mm	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 MQ+ 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 $22\pm 2^{\circ}\text{C}$.

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	$\sigma(\text{S/m})$		
750 Head	750	41.9	0.89	42.914	0.883	22.2	2023-11-16
835 Head	835	41.5	0.9	41.888	0.935	22.4	2023-11-18
835 Head	835	41.5	0.9	41.999	0.933	22.5	2023-11-20
1750 Head	1750	40.1	1.37	39.138	1.342	22.3	2023-11-22
1750 Head	1750	40.1	1.37	39.240	1.339	22.4	2023-11-24
1750 Head	1750	40.1	1.37	39.259	1.338	22.2	2023-11-26
1750 Head	1750	40.1	1.37	39.269	1.340	22.1	2023-11-28
1950 Head	1950	40.0	1.40	38.922	1.455	22.2	2023-11-30
1950 Head	1950	40.0	1.40	39.055	1.451	22.5	2023-12-02
2450 Head	2450	39.2	1.80	40.247	1.778	22.5	2023-12-16
2600 Head	2600	39.0	1.96	37.691	1.962	22.5	2023-12-04
2600 Head	2600	39.0	1.96	37.798	1.951	22.5	2023-12-06
2600 Head	2600	39.0	1.96	37.775	1.950	22.1	2023-12-08
2600 Head	2600	39.0	1.96	37.695	1.940	22.2	2023-12-10
3500 Head	3500	37.9	2.91	39.187	2.882	22.3	2023-12-12
3900 Head	3900	37.5	3.32	37.227	3.432	22.2	2023-12-14
5250 Head	5250	35.9	4.66	36.897	4.807	22.5	2023-12-16
5600 Head	5600	35.5	5.07	36.029	5.196	22.3	2023-12-18
5750 Head	5750	35.4	5.22	35.848	5.392	22.5	2023-12-18

Table 4: Measurement result of Tissue electric parameters.



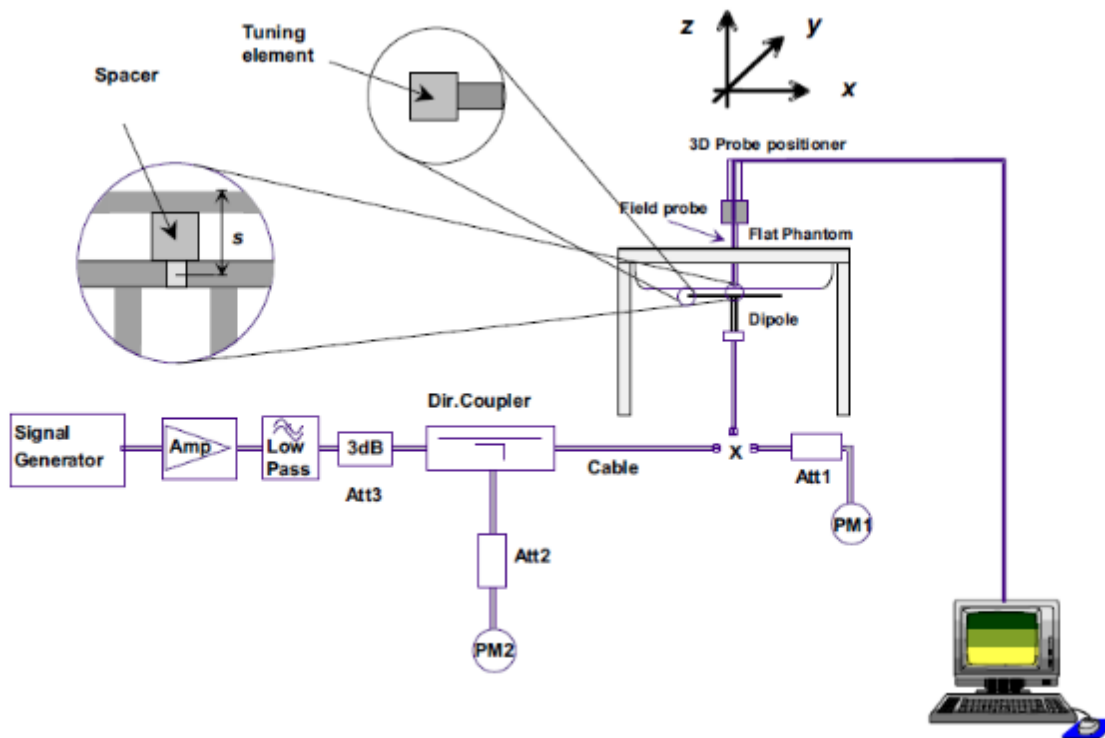
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7.2 SAR System Check

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 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	2.16	1.43	8.64	5.72	8.48	5.56	1.89%	2.88%	22.2	2023-11-16
D835V2	Head	2.36	1.55	9.44	6.20	9.60	6.16	-1.67%	0.65%	22.4	2023-11-18
D835V2	Head	2.43	1.61	9.72	6.44	9.60	6.16	1.25%	4.55%	22.5	2023-11-20
D1750V2	Head	9.15	4.78	36.60	19.12	37.00	19.30	-1.08%	-0.93%	22.3	2023-11-22
D1750V2	Head	9.23	4.89	36.92	19.56	37.00	19.30	-0.22%	1.35%	22.4	2023-11-24
D1750V2	Head	9.21	4.84	36.84	19.36	37.00	19.30	-0.43%	0.31%	22.2	2023-11-26
D1750V2	Head	9.19	4.86	36.76	19.44	37.00	19.30	-0.65%	0.73%	22.1	2023-11-28
D1950V2	Head	10.40	5.36	41.60	21.44	40.40	20.80	2.97%	3.08%	22.2	2023-11-30
D1950V2	Head	10.10	5.21	40.40	20.84	40.40	20.80	0.00%	0.19%	22.5	2023-12-02
D2450V2	Head	12.80	5.93	51.20	23.72	52.70	24.60	-2.85%	-3.58%	22.5	2023-12-16
D2600V2	Head	13.80	6.17	55.20	24.68	57.10	25.40	-3.33%	-2.83%	22.5	2023-12-04
D2600V2	Head	14.50	6.47	58.00	25.88	57.10	25.40	1.58%	1.89%	22.5	2023-12-06
D2600V2	Head	14.30	6.43	57.20	25.72	57.10	25.40	0.18%	1.26%	22.1	2023-12-08
D2600V2	Head	13.90	6.28	55.60	25.12	57.10	25.40	-2.63%	-1.10%	22.2	2023-12-10

Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within ±10%)		Liquid Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D3500V2	Head(3.5GHz)	6.59	2.48	65.90	24.80	66.60	24.90	-1.05%	-0.40%	22.3	2023-12-12
D3900V2	Head(3.9GHz)	6.83	2.33	68.30	23.30	69.70	24.00	-2.01%	-2.92%	22.2	2023-12-14
D5GHzV2	Head(5.25GHz)	7.63	2.14	76.30	21.40	78.00	21.80	-2.18%	-1.83%	22.5	2023-12-16
	Head(5.6GHz)	7.74	2.17	77.40	21.70	79.90	22.50	-3.13%	-3.56%	22.3	2023-12-18
	Head(5.75GHz)	7.37	2.06	73.70	20.60	76.40	21.20	-3.53%	-2.83%	22.5	2023-12-18

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: ΔACK , $\Delta NACK$ 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 ^c	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	Maximum E-DCH	Number of HARQ Processes	of E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	4	10	4	7110	0.7296
2	2	8	8	2	4	2798	1.4592
	2	4	4	10	4	14484	
3	2	4	4	10	4	14484	1.4592
4	2	8	8	2	2	5772	2.9185
	2	4	4	10	2	20000	2.00
5	2	4	4	10	2	20000	2.00
6 (No DPDCH)	4	8	8	10	2SF2&2SF	11484	5.76
	4	4	4	2		20000	2.00
7 (No DPDCH)	4	8	8	2	2SF2&2SF	22996	?
	4	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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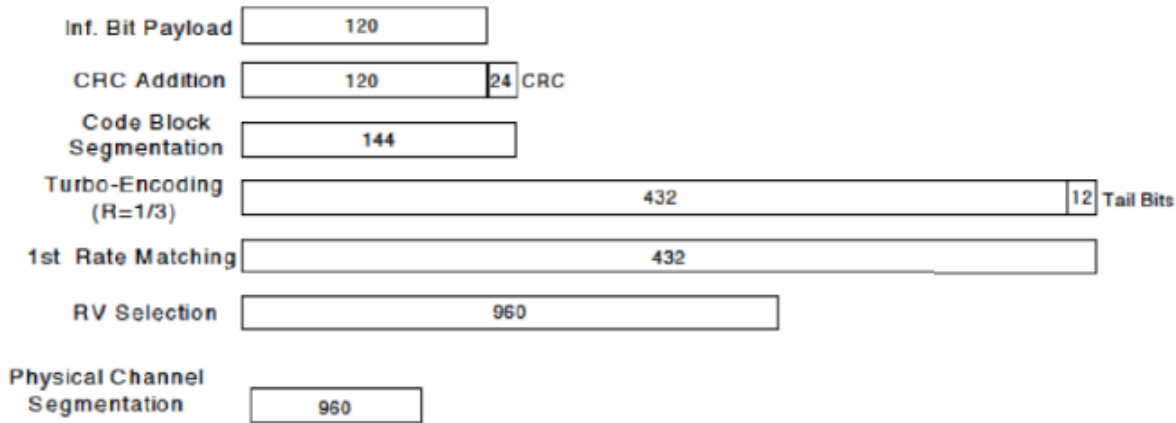


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

Note 1: 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 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.
 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 $\beta_d = 15/15$

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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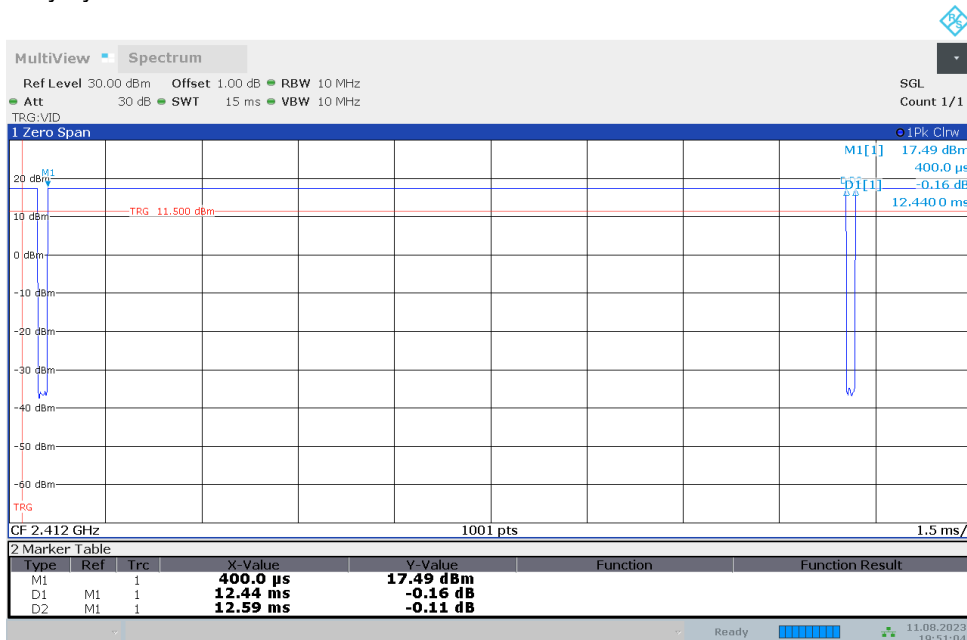
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8.2.3 WiFi Test Configuration

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=98.81%



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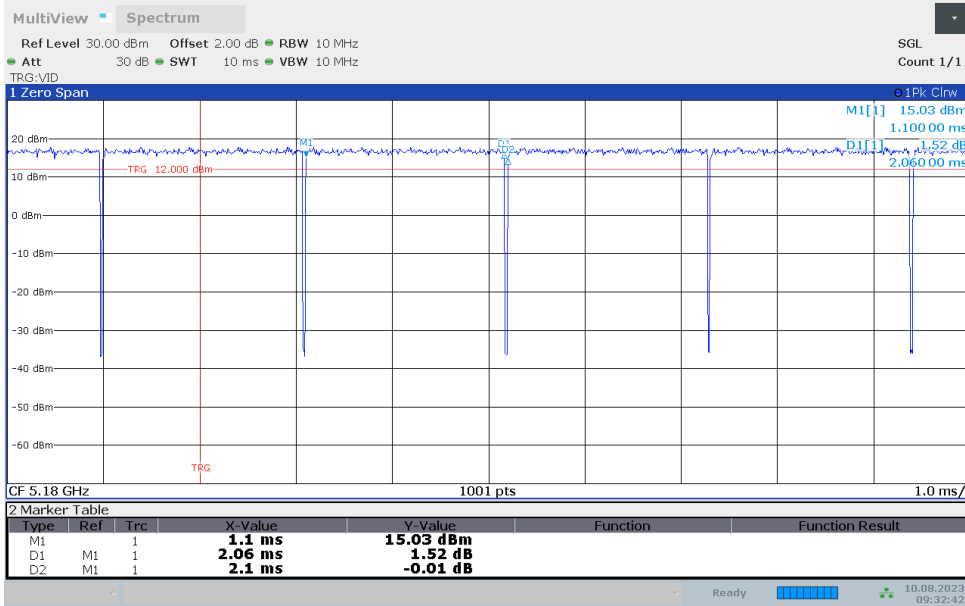


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Wi-Fi 5GHz 802.11a:
Duty cycle=98.1%



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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



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.

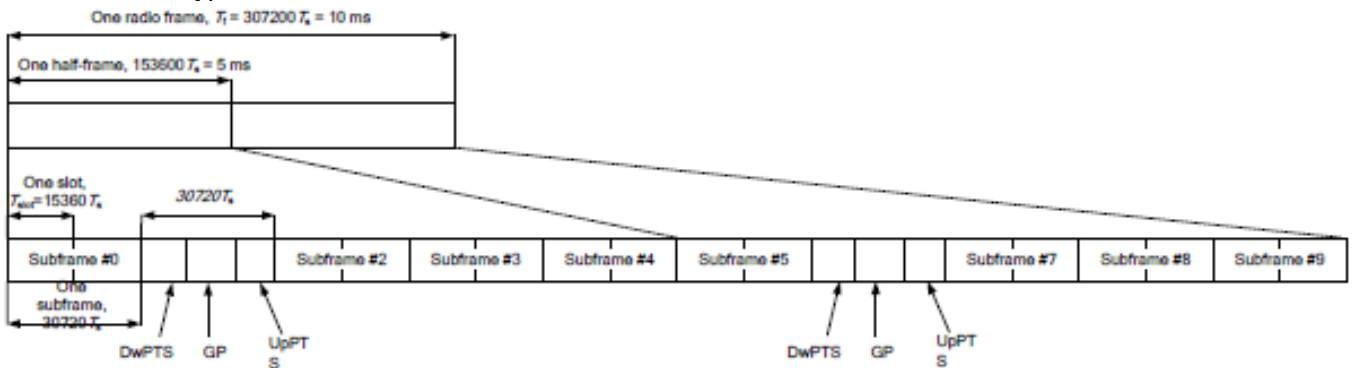
TDD LTE test consideration

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
256 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
1024 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	LTE Band 2		LTE Band 26		LTE Band 7				LTE Band 66				LTE Band 38				LTE Band 41				
	Ant 4	Ant 5	Ant 0	Ant 1	Ant 2	Ant 3	Ant 4	Ant 5	Ant 2	Ant 3	Ant 4	Ant 5	Ant 2	Ant 3	Ant 4	Ant 5	Ant 2	Ant 3	Ant 4	Ant 5	
n5	Ant 0	x	x	x	x	√	√	√	√	x	x	x	x	x	x	x	x	x	x	x	x
	Ant 1	x	x	x	x	√	√	√	√	x	x	x	x	x	x	x	x	x	x	x	x
n7	Ant 2	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 3	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 4	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 5	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
n38	Ant 2	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 3	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 4	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 5	x	x	x	x	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
n41	Ant 2	x	x	√	√	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 3	x	x	√	√	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 4	x	x	√	√	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
	Ant 5	x	x	√	√	x	x	x	x	√	x	x	√	x	x	x	x	x	x	x	x
n78	Ant 1	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Ant 6	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Ant 7	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Ant 8	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√



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

Band			n5	n7	n38	n41	n66	n77 CP3	n77 CP2	n78 CP3	n78 CP2	
Modulation	DFT-s-OFDM	PI/2 BPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
		256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
	CP-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Duty Cycle			100%	100%	100%	100%	100%	100%	50%	100%	50%	

Band	SCS	Bandwidth												
		5Mhz	10Mhz	15Mhz	20Mhz	25Mhz	30Mhz	40Mhz	50Mhz	60Mhz	70Mhz	80Mhz	90Mhz	100Mhz
N5	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N7	15KHZ	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
N66	15KHZ	Yes	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
N38	30KHZ	N/A	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
N41	30KHZ	N/A	N/A	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n77	30KHZ	N/A	N/A	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n78	30KHZ	N/A	N/A	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	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 n41, n77, n78. The reference power of 0 dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n41, n77, n78 with Pi/2 BPSK modulation and if the IE powerBoostPi2BPSK is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n41, n77, n78.

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_7A_n5 (UL two bands) with DL DC_7C_n5 (DL two bands)

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

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

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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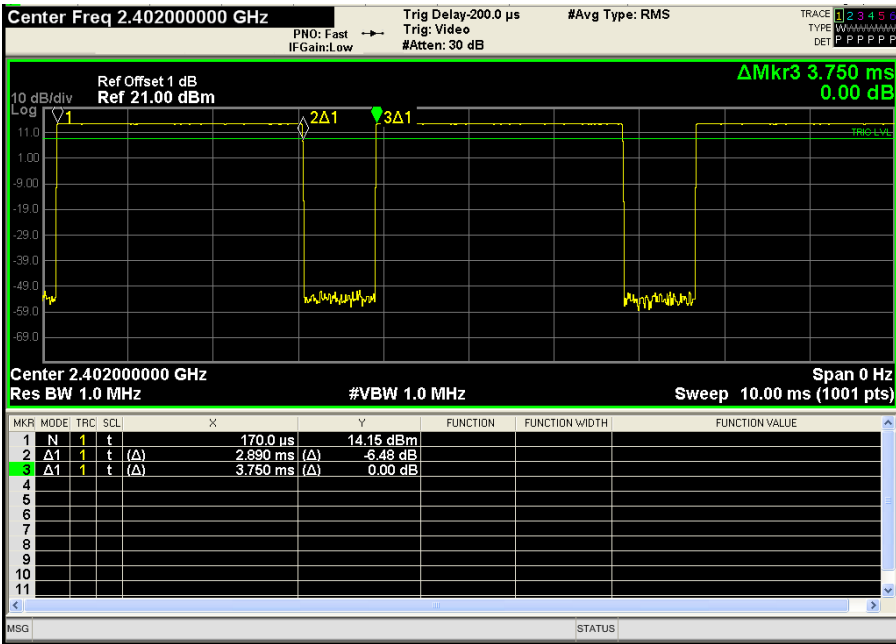
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- 1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
- 2) When the same highest maximum 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=77.07%



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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	0.181	0.07	25.83	27.50	1.469	0.266	22.4
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.091	-0.01	25.83	27.50	1.469	0.134	22.4
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.156	-0.16	25.83	27.50	1.469	0.229	22.4
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.107	0.19	25.83	27.50	1.469	0.157	22.4
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.155	0.03	25.83	27.50	1.469	0.228	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.174	0.07	25.83	27.50	1.469	0.256	22.4
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.152	0.18	25.83	27.50	1.469	0.223	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.238	-0.13	25.83	27.50	1.469	0.350	22.4
Right side	GPRS 4TS	190/836.6	1:2.075	0.176	-0.01	25.83	27.50	1.469	0.259	22.4
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.143	0.12	25.83	27.50	1.469	0.210	22.4
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	GPRS 4TS	190/836.6	1:2.075	0.594	0.08	23.55	24.80	1.334	0.792	22.4
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.231	0.01	23.55	24.80	1.334	0.308	22.4
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.336	-0.08	23.55	24.80	1.334	0.448	22.4
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.175	0.14	23.55	24.80	1.334	0.233	22.4
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.313	0.14	26.31	27.80	1.409	0.441	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.443	-0.08	26.31	27.80	1.409	0.624	22.4
Back side	GPRS 4TS	128/824.2	1:2.075	0.362	0.19	26.24	27.80	1.432	0.518	22.4
Back side	GPRS 4TS	251/848.8	1:2.075	0.426	0.10	26.18	27.80	1.452	0.619	22.4
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.265	0.16	23.55	24.80	1.334	0.353	22.4
Back side	GPRS 4TS	190/836.6	1:2.075	0.387	-0.04	23.55	24.80	1.334	0.516	22.4
Left side	GPRS 4TS	190/836.6	1:2.075	0.535	-0.03	23.55	24.80	1.334	0.713	22.4
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(Separate 0mm)										
Left side	GPRS 4TS	190/836.6	1:2.075	1.410	0.08	26.31	27.80	1.409	1.987	22.4

Table 11: SAR of GSM850 for Head and Body.



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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 4TS	661/1880	1:2.075	0.486	0.17	22.22	23.50	1.343	0.653	22.2
Left tilted	GPRS 4TS	661/1880	1:2.075	0.554	0.12	22.22	23.50	1.343	0.744	22.2
Right cheek	GPRS 4TS	661/1880	1:2.075	0.711	0.16	22.22	23.50	1.343	0.955	22.2
Right cheek	GPRS 4TS	512/1850.2	1:2.075	0.683	0.14	22.18	23.50	1.355	0.926	22.2
Right cheek	GPRS 4TS	810/1909.8	1:2.075	0.671	0.12	22.15	23.50	1.365	0.916	22.2
Right tilted	GPRS 4TS	661/1880	1:2.075	0.781	0.09	22.22	23.50	1.343	1.049	22.2
Right tilted	GPRS 4TS	512/1850.2	1:2.075	0.754	0.02	22.18	23.50	1.355	1.022	22.2
Right tilted	GPRS 4TS	810/1909.8	1:2.075	0.732	0.18	22.15	23.50	1.365	0.999	22.2
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.062	0.14	22.59	24.50	1.552	0.096	22.2
Back side	GPRS 4TS	661/1880	1:2.075	0.160	-0.07	22.59	24.50	1.552	0.248	22.2
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.145	-0.18	22.22	23.50	1.343	0.195	22.2
Back side	GPRS 4TS	661/1880	1:2.075	0.307	-0.12	22.22	23.50	1.343	0.412	22.2
Left side	GPRS 4TS	661/1880	1:2.075	0.052	0.01	22.22	23.50	1.343	0.070	22.2
Top side	GPRS 4TS	661/1880	1:2.075	0.405	-0.04	22.22	23.50	1.343	0.544	22.2
Ant 4 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	661/1880	1:2.075	0.067	0.19	22.29	24.00	1.483	0.099	22.2
Left tilted	GPRS 4TS	661/1880	1:2.075	0.000	0.02	22.29	24.00	1.483	0.000	22.2
Right cheek	GPRS 4TS	661/1880	1:2.075	0.085	-0.18	22.29	24.00	1.483	0.126	22.2
Right tilted	GPRS 4TS	661/1880	1:2.075	0.000	-0.13	22.29	24.00	1.483	0.000	22.2
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.098	-0.04	22.29	24.00	1.483	0.145	22.2
Back side	GPRS 4TS	661/1880	1:2.075	0.128	-0.17	22.29	24.00	1.483	0.190	22.2
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.244	-0.12	22.29	24.00	1.483	0.362	22.2
Back side	GPRS 4TS	661/1880	1:2.075	0.334	-0.16	22.29	24.00	1.483	0.495	22.2
Left side	GPRS 4TS	661/1880	1:2.075	0.098	-0.07	22.29	24.00	1.483	0.145	22.2
Bottom side	GPRS 4TS	661/1880	1:2.075	0.503	-0.02	22.29	24.00	1.483	0.746	22.2

Table 12: SAR of GSM1900 for Head and Body.



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9.2.3 SAR Result of WCDMA Band II

W B2 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	0.499	0.18	17.88	19.00	1.294	0.646	22.2
Left tilted	RMC	9400/1880	1:1	0.586	0.08	17.88	19.00	1.294	0.758	22.2
Right cheek	RMC	9400/1880	1:1	0.658	0.18	17.88	19.00	1.294	0.852	22.2
Right cheek	RMC	9262/1852.4	1:1	0.714	0.08	17.87	19.00	1.297	0.926	22.2
Right cheek	RMC	9538/1907.6	1:1	0.622	-0.03	17.86	19.00	1.300	0.809	22.2
Right tilted	RMC	9400/1880	1:1	0.676	0.17	17.88	19.00	1.294	0.875	22.2
Right tilted	RMC	9262/1852.4	1:1	0.796	-0.01	17.87	19.00	1.297	1.033	22.2
Right tilted	RMC	9538/1907.6	1:1	0.639	0.09	17.86	19.00	1.300	0.831	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.260	-0.02	23.31	25.00	1.476	0.384	22.2
Back side	RMC	9400/1880	1:1	0.565	-0.02	23.31	25.00	1.476	0.834	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.150	-0.09	17.88	19.00	1.294	0.194	22.2
Back side	RMC	9400/1880	1:1	0.372	0.16	17.88	19.00	1.294	0.481	22.2
Left side	RMC	9400/1880	1:1	0.072	-0.16	17.88	19.00	1.294	0.093	22.2
Top side	RMC	9400/1880	1:1	0.407	0.04	17.88	19.00	1.294	0.527	22.2
Ant 4 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	0.312	0.17	22.91	24.60	1.476	0.460	22.2
Left tilted	RMC	9400/1880	1:1	0.179	0.13	22.91	24.60	1.476	0.264	22.2
Right cheek	RMC	9400/1880	1:1	0.368	0.09	22.91	24.60	1.476	0.543	22.2
Right tilted	RMC	9400/1880	1:1	0.138	0.09	22.91	24.60	1.476	0.204	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.422	-0.12	22.91	24.60	1.476	0.623	22.2
Back side	RMC	9400/1880	1:1	0.578	0.15	22.91	24.60	1.476	0.853	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.361	-0.15	19.46	21.10	1.459	0.527	22.2
Back side	RMC	9400/1880	1:1	0.486	-0.12	19.46	21.10	1.459	0.709	22.2
Left side	RMC	9400/1880	1:1	0.157	0.12	19.46	21.10	1.459	0.229	22.2
Bottom side	RMC	9400/1880	1:1	0.674	0.09	19.46	21.10	1.459	0.983	22.2
Bottom side	RMC	9262/1852.4	1:1	0.622	-0.09	19.45	21.10	1.462	0.909	22.2
Bottom side	RMC	9538/1907.6	1:1	0.670	-0.02	19.39	21.10	1.483	0.993	22.2

Table 13: SAR of WCDMA Band II for Head and Body.



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9.2.4 SAR Result of WCDMA Band IV

W B4 SAR Test Record										
Ant 2 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.615	0.05	19.53	20.70	1.309	0.805	22.3
Left cheek	RMC	1312/1712.4	1:1	0.594	0.05	19.51	20.70	1.315	0.781	22.3
Left cheek	RMC	1513/1752.6	1:1	0.603	0.05	19.50	20.70	1.318	0.795	22.3
Left tilted	RMC	1412/1732.4	1:1	0.145	-0.05	19.53	20.70	1.309	0.190	22.3
Right cheek	RMC	1412/1732.4	1:1	0.377	0.14	19.53	20.70	1.309	0.494	22.3
Right tilted	RMC	1412/1732.4	1:1	0.085	0.12	19.53	20.70	1.309	0.111	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.099	0.04	19.53	20.70	1.309	0.130	22.3
Back side	RMC	1412/1732.4	1:1	0.145	-0.09	19.53	20.70	1.309	0.190	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.197	-0.17	19.53	20.70	1.309	0.258	22.3
Back side	RMC	1412/1732.4	1:1	0.273	0.05	19.53	20.70	1.309	0.357	22.3
Right side	RMC	1412/1732.4	1:1	0.476	0.05	19.53	20.70	1.309	0.623	22.3
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	1412/1732.4	1:1	0.398	-0.09	17.12	18.50	1.374	0.547	22.3
Left tilted	RMC	1412/1732.4	1:1	0.561	0.16	17.12	18.50	1.374	0.771	22.3
Right cheek	RMC	1412/1732.4	1:1	0.722	-0.15	17.12	18.50	1.374	0.992	22.3
Right cheek	RMC	1312/1712.4	1:1	0.685	-0.03	17.08	18.50	1.387	0.950	22.3
Right cheek	RMC	1513/1752.6	1:1	0.746	-0.12	16.93	18.50	1.435	1.071	22.3
Right tilted	RMC	1412/1732.4	1:1	0.658	0.03	17.12	18.50	1.374	0.904	22.3
Right tilted	RMC	1312/1712.4	1:1	0.624	0.07	17.08	18.50	1.387	0.865	22.3
Right tilted	RMC	1513/1752.6	1:1	0.690	-0.02	16.93	18.50	1.435	0.990	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.402	-0.04	23.32	25.00	1.472	0.592	22.3
Back side	RMC	1412/1732.4	1:1	0.649	-0.04	23.32	25.00	1.472	0.956	22.3
Back side	RMC	1312/1712.4	1:1	0.679	0.08	23.24	25.00	1.500	1.018	22.3
Back side	RMC	1513/1752.6	1:1	0.713	0.05	23.23	25.00	1.503	1.072	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.175	0.11	17.12	18.50	1.374	0.240	22.3
Back side	RMC	1412/1732.4	1:1	0.375	-0.08	17.12	18.50	1.374	0.515	22.3
Left side	RMC	1412/1732.4	1:1	0.069	-0.18	17.12	18.50	1.374	0.095	22.3
Top side	RMC	1412/1732.4	1:1	0.384	0.16	17.12	18.50	1.374	0.528	22.3
Ant 4 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.122	-0.13	23.00	24.60	1.445	0.176	22.3
Left tilted	RMC	1412/1732.4	1:1	0.088	-0.04	23.00	24.60	1.445	0.127	22.3
Right cheek	RMC	1412/1732.4	1:1	0.151	-0.09	23.00	24.60	1.445	0.218	22.3
Right tilted	RMC	1412/1732.4	1:1	0.070	0.03	23.00	24.60	1.445	0.101	22.3



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Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.246	-0.10	23.00	24.60	1.445	0.356	22.3
Back side	RMC	1412/1732.4	1:1	0.315	-0.11	23.00	24.60	1.445	0.455	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.323	0.17	21.54	23.10	1.432	0.463	22.3
Back side	RMC	1412/1732.4	1:1	0.434	-0.08	21.54	23.10	1.432	0.622	22.3
Left side	RMC	1412/1732.4	1:1	0.125	-0.05	21.54	23.10	1.432	0.179	22.3
Bottom side	RMC	1412/1732.4	1:1	0.584	0.17	21.54	23.10	1.432	0.836	22.3
Bottom side	RMC	1312/1712.4	1:1	0.496	-0.06	21.49	23.10	1.449	0.719	22.3
Bottom side	RMC	1513/1752.6	1:1	0.656	0.02	21.53	23.10	1.435	0.942	22.3
Ant 5 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	1412/1732.4	1:1	0.156	-0.11	19.66	20.60	1.242	0.194	22.3
Left tilted	RMC	1412/1732.4	1:1	0.122	-0.07	19.66	20.60	1.242	0.151	22.3
Right cheek	RMC	1412/1732.4	1:1	0.681	0.16	19.66	20.60	1.242	0.846	22.3
Right cheek	RMC	1312/1712.4	1:1	0.561	-0.11	19.58	20.60	1.265	0.710	22.3
Right cheek	RMC	1513/1752.6	1:1	0.810	0.16	19.61	20.60	1.256	1.017	22.3
Right cheek-repeated	RMC	1513/1752.6	1:1	0.806	-0.01	19.61	20.60	1.256	1.012	22.3
Right tilted	RMC	1412/1732.4	1:1	0.278	0.17	19.66	20.60	1.242	0.345	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.084	-0.19	19.66	20.60	1.242	0.104	22.3
Back side	RMC	1412/1732.4	1:1	0.165	0.01	19.66	20.60	1.242	0.205	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.135	0.04	19.66	20.60	1.242	0.168	22.3
Back side	RMC	1412/1732.4	1:1	0.299	-0.19	19.66	20.60	1.242	0.371	22.3
Left side	RMC	1412/1732.4	1:1	0.297	0.12	19.66	20.60	1.242	0.369	22.3
Top side	RMC	1412/1732.4	1:1	0.042	0.15	19.66	20.60	1.242	0.052	22.3

Table 14: SAR of WCDMA Band IV 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)
Right cheek	1513/1752.6	0.810	0.806	1.004962779	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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9.2.5 SAR Result of WCDMA Band V

W B5 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	0.188	-0.09	23.50	25.00	1.413	0.266	22.4
Left tilted	RMC	4182/836.4	1:1	0.114	0.02	23.50	25.00	1.413	0.161	22.4
Right cheek	RMC	4182/836.4	1:1	0.228	-0.02	23.50	25.00	1.413	0.322	22.4
Right tilted	RMC	4182/836.4	1:1	0.150	0.10	23.50	25.00	1.413	0.212	22.4
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.209	0.12	23.50	25.00	1.413	0.295	22.4
Back side	RMC	4182/836.4	1:1	0.252	0.18	23.50	25.00	1.413	0.356	22.4
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.386	0.01	23.50	25.00	1.413	0.545	22.4
Back side	RMC	4182/836.4	1:1	0.472	0.00	23.50	25.00	1.413	0.667	22.4
Right side	RMC	4182/836.4	1:1	0.431	-0.07	23.50	25.00	1.413	0.609	22.4
Bottom side	RMC	4182/836.4	1:1	0.278	0.03	23.50	25.00	1.413	0.393	22.4
Ant 1 Test Record										
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data										
Left cheek	RMC	4182/836.4	1:1	0.738	0.05	21.07	22.00	1.239	0.914	22.4
Left cheek	RMC	4132/826.4	1:1	0.554	-0.15	21.03	22.00	1.250	0.693	22.4
Left cheek	RMC	4233/846.6	1:1	0.763	-0.01	21.02	22.00	1.253	0.956	22.4
Left tilted	RMC	4182/836.4	1:1	0.101	-0.14	21.07	22.00	1.239	0.125	22.4
Right cheek	RMC	4182/836.4	1:1	0.422	-0.06	21.07	22.00	1.239	0.523	22.4
Right tilted	RMC	4182/836.4	1:1	0.082	0.10	21.07	22.00	1.239	0.102	22.4
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.259	0.04	21.38	23.00	1.452	0.376	22.4
Back side	RMC	4182/836.4	1:1	0.389	-0.11	21.38	23.00	1.452	0.565	22.4
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.437	-0.02	21.07	22.00	1.239	0.541	22.4
Back side	RMC	4182/836.4	1:1	0.601	0.09	21.07	22.00	1.239	0.745	22.4
Left side	RMC	4182/836.4	1:1	0.755	0.07	21.07	22.00	1.239	0.935	22.4
Left side	RMC	4132/826.4	1:1	0.698	-0.07	21.03	22.00	1.250	0.873	22.4
Left side	RMC	4233/846.6	1:1	0.718	0.05	21.02	22.00	1.253	0.900	22.4

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



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9.2.6 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 Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.413	0.19	18.88	20.00	1.294	0.535	22.5
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.509	-0.09	18.88	20.00	1.294	0.659	22.5
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.642	0.00	18.88	20.00	1.294	0.831	22.5
Right cheek	20	QPSK 1_0	18700/1860	1:1	0.648	-0.06	18.77	20.00	1.327	0.860	22.5
Right cheek	20	QPSK 1_0	19100/1900	1:1	0.574	0.06	18.79	20.00	1.321	0.758	22.5
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.641	-0.17	18.88	20.00	1.294	0.830	22.5
Right tilted	20	QPSK 1_0	18700/1860	1:1	0.627	-0.05	18.77	20.00	1.327	0.832	22.5
Right tilted	20	QPSK 1_0	19100/1900	1:1	0.690	-0.09	18.79	20.00	1.321	0.912	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.431	0.06	18.84	20.00	1.306	0.563	22.5
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.519	0.04	18.84	20.00	1.306	0.678	22.5
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.717	-0.10	18.84	20.00	1.306	0.937	22.5
Right cheek	20	QPSK 50_0	18700/1860	1:1	0.739	-0.16	18.73	20.00	1.340	0.990	22.5
Right cheek	20	QPSK 50_0	19100/1900	1:1	0.566	0.00	18.72	20.00	1.343	0.760	22.5
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.833	-0.01	18.84	20.00	1.306	1.088	22.5
Right tilted	20	QPSK 50_0	18700/1860	1:1	0.642	0.19	18.73	20.00	1.340	0.860	22.5
Right tilted	20	QPSK 50_0	19100/1900	1:1	0.553	-0.11	18.72	20.00	1.343	0.743	22.5
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	18900/1880	1:1	0.509	-0.03	18.77	20.00	1.327	0.676	22.5
Right tilted	20	QPSK 100_0	18900/1880	1:1	0.600	-0.10	18.77	20.00	1.327	0.796	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.340	0.01	23.85	25.50	1.462	0.497	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.692	0.02	23.85	25.50	1.462	1.012	22.5
Back side	20	QPSK 1_0	18700/1860	1:1	0.631	-0.05	23.83	25.50	1.469	0.927	22.5
Back side	20	QPSK 1_0	19100/1900	1:1	0.677	0.07	23.76	25.50	1.493	1.011	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.228	-0.09	22.80	24.50	1.479	0.337	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.565	0.09	22.80	24.50	1.479	0.836	22.5
Back side	20	QPSK 50_0	18700/1860	1:1	0.513	0.01	22.71	24.50	1.510	0.775	22.5
Back side	20	QPSK 50_0	19100/1900	1:1	0.544	-0.12	22.68	24.50	1.521	0.827	22.5
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	18900/1880	1:1	0.541	0.03	22.73	24.50	1.503	0.813	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.187	0.04	18.88	20.00	1.294	0.242	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.359	-0.06	18.88	20.00	1.294	0.465	22.5
Left side	20	QPSK 1_0	18900/1880	1:1	0.060	-0.03	18.88	20.00	1.294	0.078	22.5
Top side	20	QPSK 1_0	18900/1880	1:1	0.370	0.14	18.88	20.00	1.294	0.479	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.145	0.08	18.84	20.00	1.306	0.189	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.394	-0.09	18.84	20.00	1.306	0.515	22.5
Left side	20	QPSK 50_0	18900/1880	1:1	0.059	-0.02	18.84	20.00	1.306	0.077	22.5
Top side	20	QPSK 50_0	18900/1880	1:1	0.376	-0.05	18.84	20.00	1.306	0.491	22.5
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)											



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Left cheek	20	QPSK 1_0	18900/1880	1:1	0.240	-0.10	23.79	25.00	1.321	0.317	22.5
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.189	0.02	23.79	25.00	1.321	0.250	22.5
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.376	-0.19	23.79	25.00	1.321	0.497	22.5
Right cheek-ENDC	20	QPSK 1_0	18900/1880	1:1	0.233	-0.05	19.37	20.40	1.268	0.295	22.5
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.131	-0.02	23.79	25.00	1.321	0.173	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.185	0.14	22.77	24.00	1.327	0.246	22.5
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.154	0.15	22.77	24.00	1.327	0.204	22.5
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.258	-0.03	22.77	24.00	1.327	0.342	22.5
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.073	0.06	22.77	24.00	1.327	0.097	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.536	0.07	23.79	25.00	1.321	0.708	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.683	-0.04	23.79	25.00	1.321	0.902	22.5
Back side	20	QPSK 1_0	18700/1860	1:1	0.631	0.09	23.63	25.00	1.371	0.865	22.5
Back side	20	QPSK 1_0	19100/1900	1:1	0.688	0.07	23.67	25.00	1.358	0.935	22.5
Back side-ENDC	20	QPSK 1_0	18900/1880	1:1	0.421	0.14	19.37	20.40	1.268	0.534	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.404	0.01	22.77	24.00	1.327	0.536	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.540	-0.01	22.77	24.00	1.327	0.717	22.5
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	18900/1880	1:1	0.539	0.07	22.66	24.00	1.361	0.734	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.431	0.01	20.99	22.00	1.262	0.544	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.564	0.00	20.99	22.00	1.262	0.712	22.5
Left side	20	QPSK 1_0	18900/1880	1:1	0.165	-0.13	20.99	22.00	1.262	0.208	22.5
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.843	0.04	20.99	22.00	1.262	1.064	22.5
Bottom side-repeated	20	QPSK 1_0	18900/1880	1:1	0.839	0.02	20.99	22.00	1.262	1.059	22.5
Bottom side-ENDC	20	QPSK 1_0	18900/1880	1:1	0.453	-0.01	16.41	17.40	1.256	0.569	22.5
Bottom side	20	QPSK 1_0	18700/1860	1:1	0.768	-0.03	20.85	22.00	1.303	1.001	22.5
Bottom side	20	QPSK 1_0	19100/1900	1:1	0.791	0.01	20.86	22.00	1.300	1.028	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.455	0.11	20.93	22.00	1.279	0.582	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.561	-0.05	20.93	22.00	1.279	0.718	22.5
Left side	20	QPSK 50_0	18900/1880	1:1	0.185	0.13	20.93	22.00	1.279	0.237	22.5
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.830	0.02	20.93	22.00	1.279	1.062	22.5
Bottom side	20	QPSK 50_0	18700/1860	1:1	0.764	0.09	20.76	22.00	1.330	1.016	22.5
Bottom side	20	QPSK 50_0	19100/1900	1:1	0.782	0.03	20.86	22.00	1.300	1.017	22.5
Hotspot Test data(Separate 10mm 100%RB)											
Bottom side	20	QPSK 100_0	18900/1880	1:1	0.805	0.01	20.84	22.00	1.306	1.051	22.5
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(Separate 0mm 1RB)											
Bottom side	20	QPSK 1_0	18900/1880	1:1	1.890	0.07	22.02	23.00	1.253	2.368	22.5
Bottom side-ENDC	20	QPSK 1_0	18900/1880	1:1	1.430	0.09	17.48	18.40	1.236	1.767	22.5
Bottom side	20	QPSK 1_0	18700/1860	1:1	1.740	0.17	21.95	23.00	1.274	2.216	22.5
Bottom side	20	QPSK 1_0	19100/1900	1:1	1.830	-0.15	21.94	23.00	1.276	2.336	22.5
Product specific 10g SAR(Separate 0mm 50%RB)											
Bottom side	20	QPSK 50_0	18900/1880	1:1	1.830	0.03	22.01	23.00	1.256	2.299	22.5
Bottom side	20	QPSK 50_0	18700/1860	1:1	1.680	0.17	21.97	23.00	1.268	2.130	22.5
Bottom side	20	QPSK 50_0	19100/1900	1:1	1.730	-0.14	21.91	23.00	1.285	2.224	22.5
Product specific 10g SAR(Separate 0mm 100%RB)											
Bottom side	20	QPSK 100_0	18900/1880	1:1	1.740	-0.16	21.89	23.00	1.291	2.247	22.5
Ant 5 Test Record											



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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 Test Data(1RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.129	0.15	16.17	17.50	1.358	0.175	22.5
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.040	-0.02	16.17	17.50	1.358	0.054	22.5
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.452	-0.04	16.17	17.50	1.358	0.614	22.5
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.142	-0.08	16.17	17.50	1.358	0.193	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.117	0.16	15.91	17.50	1.442	0.169	22.5
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.038	-0.11	15.91	17.50	1.442	0.055	22.5
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.427	0.05	15.91	17.50	1.442	0.616	22.5
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.135	-0.16	15.91	17.50	1.442	0.195	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.077	0.01	20.63	21.50	1.222	0.094	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.104	0.09	20.63	21.50	1.222	0.127	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.068	-0.09	20.49	21.50	1.262	0.086	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.108	0.19	20.49	21.50	1.262	0.136	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.070	-0.05	16.17	17.50	1.358	0.095	22.5
Back side	20	QPSK 1_0	18900/1880	1:1	0.098	-0.14	16.17	17.50	1.358	0.133	22.5
Left side	20	QPSK 1_0	18900/1880	1:1	0.166	-0.02	16.17	17.50	1.358	0.225	22.5
Top side	20	QPSK 1_0	18900/1880	1:1	0.026	0.13	16.17	17.50	1.358	0.035	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.062	-0.03	15.91	17.50	1.442	0.089	22.5
Back side	20	QPSK 50_0	18900/1880	1:1	0.095	0.07	15.91	17.50	1.442	0.137	22.5
Left side	20	QPSK 50_0	18900/1880	1:1	0.144	0.16	15.91	17.50	1.442	0.208	22.5
Top side	20	QPSK 50_0	18900/1880	1:1	0.019	-0.07	15.91	17.50	1.442	0.027	22.5

Table 16: SAR of LTE Band 2 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)
Bottom side	18900/1880	0.843	0.839	1.00476758	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



9.2.7 SAR Result of LTE Band 4

LTE Band 4 SAR Test Record												
Ant 2 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	20175/1732.5	1:1	0.571	0.09	19.37	20.80	1.390	0.794	22.4	
Left tilted	20	QPSK 1_0	20175/1732.5	1:1	0.149	0.07	19.37	20.80	1.390	0.207	22.4	
Right cheek	20	QPSK 1_0	20175/1732.5	1:1	0.505	0.02	19.37	20.80	1.390	0.702	22.4	
Right tilted	20	QPSK 1_0	20175/1732.5	1:1	0.119	0.16	19.37	20.80	1.390	0.165	22.4	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	20175/1732.5	1:1	0.536	-0.19	19.28	20.80	1.419	0.761	22.4	
Left tilted	20	QPSK 50_0	20175/1732.5	1:1	0.120	0.07	19.28	20.80	1.419	0.170	22.4	
Right cheek	20	QPSK 50_0	20175/1732.5	1:1	0.397	0.00	19.28	20.80	1.419	0.563	22.4	
Right tilted	20	QPSK 50_0	20175/1732.5	1:1	0.096	0.03	19.28	20.80	1.419	0.136	22.4	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.099	-0.15	19.37	20.80	1.390	0.138	22.4	
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.128	-0.16	19.37	20.80	1.390	0.178	22.4	
Body worn Test data(Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.086	0.02	19.28	20.80	1.419	0.122	22.4	
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.127	-0.07	19.28	20.80	1.419	0.180	22.4	
Hotspot Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.165	-0.15	19.37	20.80	1.390	0.229	22.4	
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.252	-0.17	19.37	20.80	1.390	0.350	22.4	
Right side	20	QPSK 1_0	20175/1732.5	1:1	0.410	-0.08	19.37	20.80	1.390	0.570	22.4	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.127	0.01	19.28	19.80	1.127	0.143	22.4	
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.212	0.18	19.28	19.80	1.127	0.239	22.4	
Right side	20	QPSK 50_0	20175/1732.5	1:1	0.338	-0.04	19.28	19.80	1.127	0.381	22.4	
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 Test Data(1RB)												
Left cheek	20	QPSK 1_0	20175/1732.5	1:1	0.495	-0.12	17.35	19.00	1.462	0.724	22.4	
Left tilted	20	QPSK 1_0	20175/1732.5	1:1	0.574	0.09	17.35	19.00	1.462	0.839	22.4	
Right cheek	20	QPSK 1_0	20175/1732.5	1:1	0.690	-0.05	17.35	19.00	1.462	1.009	22.4	
Right tilted	20	QPSK 1_0	20175/1732.5	1:1	0.642	-0.19	17.35	19.00	1.462	0.939	22.4	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	20175/1732.5	1:1	0.451	-0.06	17.29	19.00	1.483	0.669	22.4	
Left tilted	20	QPSK 50_0	20175/1732.5	1:1	0.518	0.04	17.29	19.00	1.483	0.768	22.4	
Right cheek	20	QPSK 50_0	20175/1732.5	1:1	0.642	0.19	17.29	19.00	1.483	0.952	22.4	
Right tilted	20	QPSK 50_0	20175/1732.5	1:1	0.606	-0.08	17.29	19.00	1.483	0.898	22.4	
Head Test Data(100%RB)												
Right cheek	20	QPSK 100_0	20175/1732.5	1:1	0.617	0.02	17.26	19.00	1.493	0.921	22.4	
Right tilted	20	QPSK 100_0	20175/1732.5	1:1	0.609	0.07	17.26	19.00	1.493	0.909	22.4	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.424	-0.12	22.87	24.50	1.455	0.617	22.4	
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.639	-0.03	22.87	24.50	1.455	0.930	22.4	
Body worn Test data(Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.354	-0.14	22.72	24.50	1.507	0.533	22.4	
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.541	-0.09	22.72	24.50	1.507	0.815	22.4	
Body worn Test data(Separate 15mm 100%RB)												



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Back side	20	QPSK 100_0	20175/1732.5	1:1	0.571	0.10	22.65	24.50	1.531	0.874	22.4
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.055	-0.01	13.97	15.50	1.422	0.078	22.4
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.133	-0.16	13.97	15.50	1.422	0.189	22.4
Left side	20	QPSK 1_0	20175/1732.5	1:1	0.000	0.18	13.97	15.50	1.422	0.000	22.4
Top side	20	QPSK 1_0	20175/1732.5	1:1	0.127	0.17	13.97	15.50	1.422	0.181	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.056	-0.05	13.95	15.50	1.429	0.080	22.4
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.135	-0.12	13.95	15.50	1.429	0.193	22.4
Left side	20	QPSK 50_0	20175/1732.5	1:1	0.009	0.16	13.95	15.50	1.429	0.013	22.4
Top side	20	QPSK 50_0	20175/1732.5	1:1	0.126	-0.10	13.95	15.50	1.429	0.180	22.4
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	20175/1732.5	1:1	0.137	0.12	23.41	24.70	1.346	0.184	22.4
Left tilted	20	QPSK 1_0	20175/1732.5	1:1	0.092	0.02	23.41	24.70	1.346	0.124	22.4
Right cheek	20	QPSK 1_0	20175/1732.5	1:1	0.178	0.07	23.41	24.70	1.346	0.240	22.4
Right tilted	20	QPSK 1_0	20175/1732.5	1:1	0.101	0.04	23.41	24.70	1.346	0.136	22.4
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	20175/1732.5	1:1	0.099	0.01	22.27	23.70	1.390	0.138	22.4
Left tilted	20	QPSK 50_0	20175/1732.5	1:1	0.065	0.14	22.27	23.70	1.390	0.090	22.4
Right cheek	20	QPSK 50_0	20175/1732.5	1:1	0.150	0.13	22.27	23.70	1.390	0.208	22.4
Right tilted	20	QPSK 50_0	20175/1732.5	1:1	0.077	-0.07	22.27	23.70	1.390	0.107	22.4
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.241	0.00	23.41	24.70	1.346	0.324	22.4
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.319	-0.18	23.41	24.70	1.346	0.429	22.4
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.205	-0.12	22.27	23.70	1.390	0.285	22.4
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.261	0.15	22.27	23.70	1.390	0.363	22.4
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.271	-0.09	22.03	23.20	1.309	0.355	22.4
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.366	-0.04	22.03	23.20	1.309	0.479	22.4
Left side	20	QPSK 1_0	20175/1732.5	1:1	0.093	0.19	22.03	23.20	1.309	0.122	22.4
Bottom side	20	QPSK 1_0	20175/1732.5	1:1	0.507	-0.03	22.03	23.20	1.309	0.664	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.269	0.08	21.99	23.20	1.321	0.355	22.4
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.358	0.18	21.99	23.20	1.321	0.473	22.4
Left side	20	QPSK 50_0	20175/1732.5	1:1	0.102	0.05	21.99	23.20	1.321	0.135	22.4
Bottom side	20	QPSK 50_0	20175/1732.5	1:1	0.531	-0.01	21.99	23.20	1.321	0.702	22.4
Ant 5 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	20175/1732.5	1:1	0.149	-0.09	19.10	20.40	1.349	0.201	22.4
Left tilted	20	QPSK 1_0	20175/1732.5	1:1	0.071	-0.04	19.10	20.40	1.349	0.096	22.4
Right cheek	20	QPSK 1_0	20175/1732.5	1:1	0.495	-0.17	19.10	20.40	1.349	0.668	22.4
Right tilted	20	QPSK 1_0	20175/1732.5	1:1	0.157	-0.01	19.10	20.40	1.349	0.212	22.4
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	20175/1732.5	1:1	0.148	-0.19	19.06	20.40	1.361	0.201	22.4
Left tilted	20	QPSK 50_0	20175/1732.5	1:1	0.078	0.12	19.06	20.40	1.361	0.106	22.4
Right cheek	20	QPSK 50_0	20175/1732.5	1:1	0.554	0.10	19.06	20.40	1.361	0.754	22.4
Right tilted	20	QPSK 50_0	20175/1732.5	1:1	0.150	-0.17	19.06	20.40	1.361	0.204	22.4



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Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.056	0.05	20.24	21.40	1.306	0.073	22.4
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.125	-0.10	20.24	21.40	1.306	0.163	22.4
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.062	-0.06	20.17	21.40	1.327	0.082	22.4
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.128	0.14	20.17	21.40	1.327	0.170	22.4
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.076	-0.16	19.10	20.40	1.349	0.103	22.4
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.189	-0.13	19.10	20.40	1.349	0.255	22.4
Left side	20	QPSK 1_0	20175/1732.5	1:1	0.172	0.04	19.10	20.40	1.349	0.232	22.4
Top side	20	QPSK 1_0	20175/1732.5	1:1	0.000	-0.16	19.10	20.40	1.349	0.000	22.4
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.078	-0.05	19.06	20.40	1.361	0.106	22.4
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.100	-0.14	19.06	20.40	1.361	0.136	22.4
Left side	20	QPSK 50_0	20175/1732.5	1:1	0.184	-0.11	19.06	20.40	1.361	0.251	22.4
Top side	20	QPSK 50_0	20175/1732.5	1:1	0.000	0.19	19.06	20.40	1.361	0.000	22.4

Table 17: SAR of LTE Band 4 for Head and Body.



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9.2.8 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record												
Ant 2 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head Test Data(1RB)												
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.415	-0.12	17.35	18.30	1.245	0.516	22.5	
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.142	-0.16	17.35	18.30	1.245	0.177	22.5	
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.635	0.12	17.35	18.30	1.245	0.790	22.5	
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.082	0.04	17.35	18.30	1.245	0.102	22.5	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.396	0.14	17.17	18.30	1.297	0.514	22.5	
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.141	-0.08	17.17	18.30	1.297	0.183	22.5	
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.690	-0.02	17.17	18.30	1.297	0.895	22.5	
Right cheek	20	QPSK 50_0	20850/2510	1:1	0.612	0.07	17.11	18.30	1.315	0.805	22.5	
Right cheek	20	QPSK 50_0	21350/2560	1:1	0.644	0.02	17.07	18.30	1.327	0.855	22.5	
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.672	-0.01	17.17	18.30	1.297	0.872	22.5	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.651	0.01	17.17	18.30	1.297	0.844	22.5	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_0	21100/2535	1:1	0.165	0.15	18.21	19.30	1.285	0.212	22.5	
Back side	20	QPSK 1_0	21100/2535	1:1	0.256	0.03	18.21	19.30	1.285	0.329	22.5	
Body worn Test data(Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	21100/2535	1:1	0.174	0.10	18.11	19.30	1.315	0.229	22.5	
Back side	20	QPSK 50_0	21100/2535	1:1	0.263	-0.13	18.11	19.30	1.315	0.346	22.5	
Hotspot Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_0	21100/2535	1:1	0.263	0.00	17.35	18.30	1.245	0.327	22.5	
Back side	20	QPSK 1_0	21100/2535	1:1	0.369	-0.04	17.35	18.30	1.245	0.459	22.5	
Right side	20	QPSK 1_0	21100/2535	1:1	0.685	-0.09	17.35	18.30	1.245	0.852	22.5	
Right side	20	QPSK 1_0	20850/2510	1:1	0.648	0.03	17.32	18.30	1.253	0.812	22.5	
Right side	20	QPSK 1_0	21350/2560	1:1	0.674	0.09	17.29	18.30	1.262	0.850	22.5	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	20	QPSK 50_0	21100/2535	1:1	0.259	0.19	17.17	18.30	1.297	0.336	22.5	
Back side	20	QPSK 50_0	21100/2535	1:1	0.390	0.00	17.17	18.30	1.297	0.506	22.5	
Right side	20	QPSK 50_0	21100/2535	1:1	0.627	-0.04	17.17	18.30	1.297	0.813	22.5	
Right side	20	QPSK 50_0	20850/2510	1:1	0.593	-0.08	17.11	18.30	1.315	0.780	22.5	
Right side	20	QPSK 50_0	21350/2560	1:1	0.595	0.07	17.07	18.30	1.327	0.790	22.5	
Hotspot Test data(Separate 10mm 100%RB)												
Right side	20	QPSK 100_0	21100/2535	1:1	0.613	0.01	17.19	18.30	1.291	0.792	22.5	
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 Test Data(1RB)												
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.316	0.10	17.99	19.00	1.262	0.399	22.5	
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.386	-0.13	17.99	19.00	1.262	0.487	22.5	
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.609	0.01	17.99	19.00	1.262	0.768	22.5	
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.732	-0.06	17.99	19.00	1.262	0.924	22.5	
Right tilted-ENDC	20	QPSK 1_0	21100/2535	1:1	0.531	-0.03	15.78	16.60	1.208	0.641	22.5	
Right tilted CA_7C	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.612	-0.02	17.85	19.00	1.303	0.798	22.5	
Right tilted	20	QPSK 1_0	20850/2510	1:1	0.622	-0.15	17.96	19.00	1.271	0.790	22.5	
Right tilted	20	QPSK 1_0	21350/2560	1:1	0.646	0.19	17.90	19.00	1.288	0.832	22.5	



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Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.304	0.12	17.96	19.00	1.271	0.386	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.389	0.19	17.96	19.00	1.271	0.494	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.587	0.12	17.96	19.00	1.271	0.746	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.672	0.01	17.96	19.00	1.271	0.854	22.5
Right tilted	20	QPSK 50_0	20850/2510	1:1	0.652	-0.14	17.87	19.00	1.297	0.846	22.5
Right tilted	20	QPSK 50_0	21350/2560	1:1	0.600	-0.05	17.80	19.00	1.318	0.791	22.5
Head Test Data(100%RB)											
Right tilted	20	QPSK 100_0	21100/2535	1:1	0.678	0.18	17.85	19.00	1.303	0.884	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.404	0.01	24.29	25.50	1.321	0.534	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.623	0.14	24.29	25.50	1.321	0.823	22.5
Back side-ENDC	20	QPSK 1_0	21100/2535	1:1	0.591	0.11	22.06	23.10	1.271	0.751	22.5
Back side CA_7C	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.603	0.05	24.16	25.50	1.361	0.821	22.5
Back side	20	QPSK 1_0	20850/2510	1:1	0.543	0.07	24.21	25.50	1.346	0.731	22.5
Back side	20	QPSK 1_0	21350/2560	1:1	0.591	-0.11	24.25	25.50	1.334	0.788	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.294	-0.02	23.37	24.50	1.297	0.381	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.563	0.18	23.37	24.50	1.297	0.730	22.5
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	21100/2535	1:1	0.566	0.02	23.29	24.50	1.321	0.748	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.135	0.01	17.99	19.00	1.262	0.170	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.321	-0.15	17.99	19.00	1.262	0.405	22.5
Back side-ENDC	20	QPSK 1_0	21100/2535	1:1	0.219	0.12	15.78	16.60	1.208	0.265	22.5
Back side CA_7C	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.247	0.07	17.85	19.00	1.303	0.322	22.5
Left side	20	QPSK 1_0	21100/2535	1:1	0.076	0.15	17.99	19.00	1.262	0.096	22.5
Top side	20	QPSK 1_0	21100/2535	1:1	0.217	-0.16	17.99	19.00	1.262	0.274	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.139	0.11	17.96	19.00	1.271	0.177	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.315	0.14	17.96	19.00	1.271	0.400	22.5
Left side	20	QPSK 50_0	21100/2535	1:1	0.070	-0.01	17.96	19.00	1.271	0.089	22.5
Top side	20	QPSK 50_0	21100/2535	1:1	0.226	0.11	17.96	19.00	1.271	0.287	22.5
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	21100/2535	1:1	0.178	0.15	23.82	25.70	1.542	0.274	22.5
Left cheek-ENDC	20	QPSK 1_0	21100/2535	1:1	0.132	0.07	21.63	22.60	1.250	0.165	22.5
Left cheek CA_7C	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.158	0.18	23.64	25.70	1.607	0.254	22.5
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.067	0.07	23.82	25.70	1.542	0.103	22.5
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.109	-0.15	23.82	25.70	1.542	0.168	22.5
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.090	-0.12	23.82	25.70	1.542	0.139	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.145	-0.19	22.95	24.70	1.496	0.217	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.074	-0.11	22.95	24.70	1.496	0.111	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.097	0.18	22.95	24.70	1.496	0.145	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.067	-0.16	22.95	24.70	1.496	0.100	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.344	-0.06	23.82	25.70	1.542	0.530	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.509	0.18	23.82	25.70	1.542	0.785	22.5
Back side-ENDC	20	QPSK 1_0	21100/2535	1:1	0.463	-0.13	21.63	22.60	1.250	0.579	22.5
Back side CA_7C	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.467	0.18	23.64	25.70	1.607	0.750	22.5



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Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.275	-0.08	22.95	24.70	1.496	0.411	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.420	0.08	22.95	24.70	1.496	0.628	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.205	0.03	19.71	21.20	1.409	0.289	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.330	-0.14	19.71	21.20	1.409	0.465	22.5
Left side	20	QPSK 1_0	21100/2535	1:1	0.088	-0.09	19.71	21.20	1.409	0.124	22.5
Bottom side	20	QPSK 1_0	21100/2535	1:1	0.377	-0.04	19.71	21.20	1.409	0.531	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.209	-0.12	19.66	21.20	1.426	0.298	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.330	-0.14	19.66	21.20	1.426	0.470	22.5
Left side	20	QPSK 50_0	21100/2535	1:1	0.085	0.09	19.66	21.20	1.426	0.121	22.5
Bottom side	20	QPSK 50_0	21100/2535	1:1	0.373	-0.13	19.66	21.20	1.426	0.532	22.5
Bottom side-ENDC	20	QPSK 50_0	21100/2535	1:1	0.159	0.08	17.16	18.10	1.242	0.197	22.5
Bottom side CA_7C	20	QPSK 50_0	21100+20902/2535+2515.2	1:1	0.316	-0.07	19.48	21.20	1.486	0.470	22.5
Ant 5 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.128	-0.07	16.59	18.00	1.384	0.177	22.5
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.094	0.12	16.59	18.00	1.384	0.130	22.5
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.394	0.07	16.59	18.00	1.384	0.545	22.5
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.161	-0.16	16.59	18.00	1.384	0.223	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.127	-0.17	16.53	18.00	1.403	0.178	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.089	0.02	16.53	18.00	1.403	0.125	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.480	0.04	16.53	18.00	1.403	0.673	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.169	-0.18	16.53	18.00	1.403	0.237	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.191	-0.13	19.13	20.50	1.371	0.262	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.391	0.11	19.13	20.50	1.371	0.536	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.175	-0.15	19.11	20.50	1.377	0.241	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.377	0.09	19.11	20.50	1.377	0.519	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.176	0.00	16.59	18.00	1.384	0.244	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.366	0.11	16.59	18.00	1.384	0.506	22.5
Left side	20	QPSK 1_0	21100/2535	1:1	0.330	-0.18	16.59	18.00	1.384	0.457	22.5
Top side	20	QPSK 1_0	21100/2535	1:1	0.092	-0.01	16.59	18.00	1.384	0.127	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.163	-0.14	16.53	18.00	1.403	0.229	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.333	-0.03	16.53	18.00	1.403	0.467	22.5
Left side	20	QPSK 50_0	21100/2535	1:1	0.353	0.18	16.53	18.00	1.403	0.495	22.5
Top side	20	QPSK 50_0	21100/2535	1:1	0.083	0.17	16.53	18.00	1.403	0.116	22.5

Table 18: SAR of LTE Band 7 for Head and Body.

9.2.9 SAR Result of LTE Band 13

LTE Band 13 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)											



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Left cheek	10	QPSK 1_0	23230/782	1:1	0.111	0.06	23.91	25.50	1.442	0.160	22.2
Left tilted	10	QPSK 1_0	23230/782	1:1	0.069	-0.04	23.91	25.50	1.442	0.100	22.2
Right cheek	10	QPSK 1_0	23230/782	1:1	0.126	0.15	23.91	25.50	1.442	0.182	22.2
Right tilted	10	QPSK 1_0	23230/782	1:1	0.079	-0.01	23.91	25.50	1.442	0.114	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23230/782	1:1	0.090	0.18	22.99	24.50	1.416	0.127	22.2
Left tilted	10	QPSK 25_0	23230/782	1:1	0.053	-0.18	22.99	24.50	1.416	0.075	22.2
Right cheek	10	QPSK 25_0	23230/782	1:1	0.120	-0.04	22.99	24.50	1.416	0.170	22.2
Right tilted	10	QPSK 25_0	23230/782	1:1	0.073	-0.19	22.99	24.50	1.416	0.103	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.302	0.17	23.91	25.50	1.442	0.436	22.2
Back side	10	QPSK 1_0	23230/782	1:1	0.376	0.05	23.91	25.50	1.442	0.542	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.255	-0.03	22.99	24.50	1.416	0.361	22.2
Back side	10	QPSK 25_0	23230/782	1:1	0.300	-0.16	22.99	24.50	1.416	0.425	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.346	0.13	23.91	25.50	1.442	0.499	22.2
Back side	10	QPSK 1_0	23230/782	1:1	0.429	-0.07	23.91	25.50	1.442	0.619	22.2
Right side	10	QPSK 1_0	23230/782	1:1	0.404	0.07	23.91	25.50	1.442	0.583	22.2
Bottom side	10	QPSK 1_0	23230/782	1:1	0.240	0.14	23.91	25.50	1.442	0.346	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.317	-0.14	22.99	24.50	1.416	0.449	22.2
Back side	10	QPSK 25_0	23230/782	1:1	0.345	0.01	22.99	24.50	1.416	0.488	22.2
Right side	10	QPSK 25_0	23230/782	1:1	0.314	0.16	22.99	24.50	1.416	0.445	22.2
Bottom side	10	QPSK 25_0	23230/782	1:1	0.190	-0.03	22.99	24.50	1.416	0.269	22.2
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23230/782	1:1	0.682	0.09	22.87	23.70	1.211	0.826	22.2
Left tilted	10	QPSK 1_0	23230/782	1:1	0.119	0.15	22.87	23.70	1.211	0.144	22.2
Right cheek	10	QPSK 1_0	23230/782	1:1	0.487	0.07	22.87	23.70	1.211	0.590	22.2
Right tilted	10	QPSK 1_0	23230/782	1:1	0.079	-0.19	22.87	23.70	1.211	0.096	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23230/782	1:1	0.496	-0.13	22.84	23.70	1.219	0.605	22.2
Left tilted	10	QPSK 25_0	23230/782	1:1	0.080	0.07	22.84	23.70	1.219	0.098	22.2
Right cheek	10	QPSK 25_0	23230/782	1:1	0.328	-0.04	22.84	23.70	1.219	0.400	22.2
Right tilted	10	QPSK 25_0	23230/782	1:1	0.052	0.09	22.84	23.70	1.219	0.063	22.2
Head Test Data(100%RB)											
Left cheek	10	QPSK 50_0	23230/782	1:1	0.460	-0.11	22.71	23.70	1.256	0.578	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.433	-0.12	24.06	25.70	1.459	0.632	22.2
Back side	10	QPSK 1_0	23230/782	1:1	0.623	0.02	24.06	25.70	1.459	0.909	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.342	0.07	23.21	24.70	1.409	0.482	22.2
Back side	10	QPSK 25_0	23230/782	1:1	0.474	0.15	23.21	24.70	1.409	0.668	22.2
Body worn Test data(Separate 15mm 50%RB)											
Back side	10	QPSK 50_0	23230/782	1:1	0.469	0.18	23.04	24.70	1.466	0.687	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23230/782	1:1	0.380	0.15	21.87	22.70	1.211	0.460	22.2
Back side	10	QPSK 1_0	23230/782	1:1	0.594	-0.08	21.87	22.70	1.211	0.719	22.2
Left side	10	QPSK 1_0	23230/782	1:1	0.747	-0.02	21.87	22.70	1.211	0.904	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23230/782	1:1	0.362	0.10	21.73	22.70	1.250	0.453	22.2



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Back side	10	QPSK 25_0	23230/782	1:1	0.560	-0.01	21.73	22.70	1.250	0.700	22.2
Left side	10	QPSK 25_0	23230/782	1:1	0.702	0.19	21.73	22.70	1.250	0.878	22.2
Hotspot Test data(Separate 10mm 100%RB)											
Left side	10	QPSK 50_0	23230/782	1:1	0.651	0.09	21.70	22.70	1.259	0.820	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 SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR(Separate 0mm 1RB)											
Back side	10	QPSK 1_0	23230/782	1:1	0.929	0.12	24.06	25.70	1.459	1.355	22.2
Left side	10	QPSK 1_0	23230/782	1:1	0.996	0.04	24.06	25.70	1.459	1.453	22.2
Product specific 10g SAR(Separate 0mm 50%RB)											
Back side	10	QPSK 25_0	23230/782	1:1	0.856	-0.18	23.21	24.70	1.409	1.206	22.2
Left side	10	QPSK 25_0	23230/782	1:1	0.978	0.02	23.21	24.70	1.409	1.378	22.2

Table 19: SAR of LTE Band 13 for Head and Body.



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9.2.10 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	0.226	0.00	24.43	25.50	1.279	0.289	22.5	
Left tilted	15	QPSK 1_0	26865/831.5	1:1	0.128	-0.12	24.43	25.50	1.279	0.164	22.5	
Right cheek	15	QPSK 1_0	26865/831.5	1:1	0.239	-0.16	24.43	25.50	1.279	0.306	22.5	
Right cheek-ENDC	15	QPSK 1_0	26865/831.5	1:1	0.205	-0.13	24.05	25.00	1.245	0.255	22.5	
Right tilted	15	QPSK 1_0	26865/831.5	1:1	0.145	-0.18	24.43	25.50	1.279	0.186	22.5	
Head Test Data(50%RB)												
Left cheek	15	QPSK 36_0	26865/831.5	1:1	0.186	0.06	23.49	24.50	1.262	0.235	22.5	
Left tilted	15	QPSK 36_0	26865/831.5	1:1	0.092	0.05	23.49	24.50	1.262	0.116	22.5	
Right cheek	15	QPSK 36_0	26865/831.5	1:1	0.173	-0.05	23.49	24.50	1.262	0.218	22.5	
Right tilted	15	QPSK 36_0	26865/831.5	1:1	0.115	-0.02	23.49	24.50	1.262	0.145	22.5	
Body worn Test data(Separate 15mm 1RB)												
Front side	15	QPSK 1_0	26865/831.5	1:1	0.111	0.12	24.43	25.50	1.279	0.142	22.5	
Back side	15	QPSK 1_0	26865/831.5	1:1	0.125	0.07	24.43	25.50	1.279	0.160	22.5	
Back side-ENDC	15	QPSK 1_0	26865/831.5	1:1	0.112	-0.19	24.05	25.00	1.245	0.139	22.5	
Body worn Test data(Separate 15mm 50%RB)												
Front side	15	QPSK 36_0	26865/831.5	1:1	0.086	-0.03	23.49	24.50	1.262	0.109	22.5	
Back side	15	QPSK 36_0	26865/831.5	1:1	0.104	-0.17	23.49	24.50	1.262	0.131	22.5	
Hotspot Test data(Separate 10mm 1RB)												
Front side	15	QPSK 1_0	26865/831.5	1:1	0.117	0.12	24.43	25.50	1.279	0.150	22.5	
Back side	15	QPSK 1_0	26865/831.5	1:1	0.298	-0.03	24.43	25.50	1.279	0.381	22.5	
Back side-ENDC	15	QPSK 1_0	26865/831.5	1:1	0.174	-0.02	24.05	25.00	1.245	0.217	22.5	
Right side	15	QPSK 1_0	26865/831.5	1:1	0.161	-0.19	24.43	25.50	1.279	0.206	22.5	
Bottom side	15	QPSK 1_0	26865/831.5	1:1	0.130	-0.07	24.43	25.50	1.279	0.166	22.5	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	15	QPSK 36_0	26865/831.5	1:1	0.194	0.14	23.49	24.50	1.262	0.245	22.5	
Back side	15	QPSK 36_0	26865/831.5	1:1	0.291	-0.04	23.49	24.50	1.262	0.367	22.5	
Right side	15	QPSK 36_0	26865/831.5	1:1	0.135	0.06	23.49	24.50	1.262	0.170	22.5	
Bottom side	15	QPSK 36_0	26865/831.5	1:1	0.112	-0.08	23.49	24.50	1.262	0.141	22.5	
Ant 1 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	
Head Test Data(1RB)												
Left cheek	15	QPSK 1_0	26865/831.5	1:1	0.606	0.06	21.61	22.70	1.285	0.779	22.5	
Left cheek-ENDC	15	QPSK 1_0	26865/831.5	1:1	0.534	0.18	21.64	22.50	1.219	0.651	22.5	
Left tilted	15	QPSK 1_0	26865/831.5	1:1	0.076	0.05	21.61	22.70	1.285	0.098	22.5	
Right cheek	15	QPSK 1_0	26865/831.5	1:1	0.367	0.06	21.61	22.70	1.285	0.472	22.5	
Right tilted	15	QPSK 1_0	26865/831.5	1:1	0.079	-0.14	21.61	22.70	1.285	0.102	22.5	
Head Test Data(50%RB)												
Left cheek	15	QPSK 36_0	26865/831.5	1:1	0.565	-0.01	21.58	22.70	1.294	0.731	22.5	
Left tilted	15	QPSK 36_0	26865/831.5	1:1	0.080	-0.14	21.58	22.70	1.294	0.104	22.5	
Right cheek	15	QPSK 36_0	26865/831.5	1:1	0.373	-0.03	21.58	22.70	1.294	0.483	22.5	
Right tilted	15	QPSK 36_0	26865/831.5	1:1	0.067	-0.14	21.58	22.70	1.294	0.087	22.5	
Body worn Test data(Separate 15mm 1RB)												
Front side	15	QPSK 1_0	26865/831.5	1:1	0.312	0.10	21.61	22.70	1.285	0.401	22.5	
Back side	15	QPSK 1_0	26865/831.5	1:1	0.537	0.08	21.61	22.70	1.285	0.690	22.5	
Back side-ENDC	15	QPSK 1_0	26865/831.5	1:1	0.478	-0.05	21.64	22.50	1.219	0.583	22.5	



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Body worn Test data(Separate 15mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.270	0.03	21.58	22.70	1.294	0.349	22.5
Back side	15	QPSK 36_0	26865/831.5	1:1	0.442	0.09	21.58	22.70	1.294	0.572	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1_0	26865/831.5	1:1	0.306	0.10	21.61	22.70	1.285	0.393	22.5
Back side	15	QPSK 1_0	26865/831.5	1:1	0.505	0.01	21.61	22.70	1.285	0.649	22.5
Left side	15	QPSK 1_0	26865/831.5	1:1	0.704	-0.05	21.61	22.70	1.285	0.905	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	15	QPSK 36_0	26865/831.5	1:1	0.339	-0.19	21.58	22.70	1.294	0.439	22.5
Back side	15	QPSK 36_0	26865/831.5	1:1	0.694	-0.13	21.58	22.70	1.294	0.898	22.5
Left side	15	QPSK 36_0	26865/831.5	1:1	0.749	-0.05	21.58	22.70	1.294	0.969	22.5
Left side-ENDC	15	QPSK 36_0	26865/831.5	1:1	0.651	0.16	21.49	22.50	1.262	0.821	22.5
Hotspot Test data(Separate 10mm 100%RB)											
Left side	15	QPSK 75_0	26865/831.5	1:1	0.739	-0.06	21.59	22.70	1.291	0.954	22.5

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



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9.2.11 SAR Result of LTE Band 41

LTE Band 41 SAR Test Record												
Ant 2 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	40620/2593	1:1.58	0.316	0.14	17.23	18.70	1.403	0.443	22.5	
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.073	0.12	17.23	18.70	1.403	0.102	22.5	
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.420	-0.16	17.23	18.70	1.403	0.589	22.5	
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.072	0.08	17.23	18.70	1.403	0.101	22.5	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.300	0.16	17.13	18.70	1.435	0.431	22.5	
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.132	0.00	17.13	18.70	1.435	0.189	22.5	
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.329	0.12	17.13	18.70	1.435	0.472	22.5	
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.076	-0.12	17.13	18.70	1.435	0.109	22.5	
Body worn Test data(Separate 15mm 1RB)												
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.151	-0.03	18.66	20.20	1.426	0.215	22.5	
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.205	0.03	18.66	20.20	1.426	0.292	22.5	
Body worn Test data(Separate 15mm 50%RB)												
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.126	-0.16	18.57	20.20	1.455	0.183	22.5	
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.201	0.10	18.57	20.20	1.455	0.293	22.5	
Hotspot Test data(Separate 10mm 1RB)												
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.161	-0.11	17.23	18.70	1.403	0.226	22.5	
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.237	0.03	17.23	18.70	1.403	0.332	22.5	
Right side	20	QPSK 1_0	40620/2593	1:1.58	0.377	-0.08	17.23	18.70	1.403	0.529	22.5	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.155	-0.06	17.13	18.70	1.435	0.223	22.5	
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.199	0.18	17.13	18.70	1.435	0.286	22.5	
Right side	20	QPSK 50_0	40620/2593	1:1.58	0.351	-0.19	17.13	18.70	1.435	0.504	22.5	
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 Test Data(1RB)												
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.297	0.03	19.75	20.50	1.189	0.353	22.5	
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.334	-0.12	19.75	20.50	1.189	0.397	22.5	
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.595	-0.07	19.75	20.50	1.189	0.707	22.5	
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.674	-0.09	19.75	20.50	1.189	0.801	22.5	
Right tilted	20	QPSK 1_0	39750/2506	1:1.58	0.677	0.03	19.71	20.50	1.199	0.812	22.5	
Right tilted-ENDC	20	QPSK 1_0	39750/2506	1:1	0.431	-0.02	16.02	17.20	1.312	0.566	22.5	
Right tilted CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.594	0.01	19.35	20.50	1.303	0.774	22.5	
Right tilted	20	QPSK 1_0	40185/2549.5	1:1.58	0.670	0.14	19.68	20.50	1.208	0.809	22.5	
Right tilted	20	QPSK 1_0	41055/2636.5	1:1.58	0.647	0.17	19.66	20.50	1.213	0.785	22.5	
Right tilted	20	QPSK 1_0	41490/2680	1:1.58	0.648	-0.10	19.68	20.50	1.208	0.783	22.5	
Head Test Data(50%RB)												
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.244	-0.07	19.65	20.50	1.216	0.297	22.5	
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.339	0.00	19.65	20.50	1.216	0.412	22.5	
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.561	0.05	19.65	20.50	1.216	0.682	22.5	
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.605	-0.09	19.65	20.50	1.216	0.736	22.5	
Head Test Data(100%RB)												
Right tilted	20	QPSK 100_0	40620/2593	1:1.58	0.586	-0.17	19.64	20.50	1.219	0.714	22.5	



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Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.220	0.15	23.81	25.50	1.476	0.325	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.454	-0.10	23.81	25.50	1.476	0.670	22.5
Back side-ENDC	20	QPSK 1_0	40620/2593	1:1.58	0.237	0.01	21.23	22.20	1.250	0.296	22.5
Back side CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.401	-0.08	23.78	25.50	1.486	0.596	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.180	-0.17	22.87	24.50	1.455	0.262	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.353	-0.16	22.87	24.50	1.455	0.514	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.107	-0.03	19.75	20.50	1.189	0.127	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.294	-0.16	19.75	20.50	1.189	0.349	22.5
Back side-ENDC	20	QPSK 1_0	40620/2593	1:1.58	0.144	-0.12	16.17	17.20	1.268	0.183	22.5
Back side CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.149	0.12	19.35	20.50	1.303	0.194	22.5
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.063	0.19	19.75	20.50	1.189	0.075	22.5
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.233	-0.05	19.75	20.50	1.189	0.277	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.103	0.12	19.65	20.50	1.216	0.125	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.234	0.19	19.65	20.50	1.216	0.285	22.5
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.059	0.13	19.65	20.50	1.216	0.072	22.5
Top side	20	QPSK 50_0	40620/2593	1:1.58	0.228	0.04	19.65	20.50	1.216	0.277	22.5
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	40620/2593	1:1.58	0.188	-0.10	23.59	25.30	1.483	0.279	22.5
Left cheek-ENDC	20	QPSK 1_0	40620/2593	1:1.58	0.146	-0.16	20.77	21.80	1.268	0.185	22.5
Left cheek CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.173	-0.16	23.22	25.20	1.578	0.273	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.069	-0.16	23.59	25.30	1.483	0.102	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.112	0.02	23.59	25.30	1.483	0.166	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.068	0.11	23.59	25.30	1.483	0.101	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.147	0.04	22.68	24.30	1.452	0.213	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.055	0.16	22.68	24.30	1.452	0.080	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.098	0.15	22.68	24.30	1.452	0.142	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.074	-0.02	22.68	24.30	1.452	0.107	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.220	0.12	23.59	25.30	1.483	0.326	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.346	-0.19	23.59	25.30	1.483	0.513	22.5
Back side-ENDC	20	QPSK 1_0	40620/2593	1:1.58	0.205	0.11	20.77	21.80	1.268	0.260	22.5
Back side CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.201	0.08	23.22	25.20	1.578	0.317	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.196	-0.08	22.68	24.30	1.452	0.285	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.284	0.05	22.68	24.30	1.452	0.412	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.227	0.17	21.97	23.30	1.358	0.308	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.385	-0.13	21.97	23.30	1.358	0.523	22.5
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.075	-0.13	21.97	23.30	1.358	0.102	22.5
Bottom side	20	QPSK 1_0	40620/2593	1:1.58	0.405	0.01	21.97	23.30	1.358	0.550	22.5
Bottom side-ENDC	20	QPSK 1_0	39750/2506	1:1.58	0.245	0.13	18.76	19.80	1.271	0.311	22.5
Bottom side CA_38C	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.371	0.05	21.11	22.70	1.442	0.535	22.5
Hotspot Test data(Separate 10mm 50%RB)											



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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)
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.224	0.19	21.96	23.30	1.361	0.305	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.364	0.15	21.96	23.30	1.361	0.496	22.5
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.094	-0.05	21.88	23.30	1.387	0.130	22.5
Bottom side	20	QPSK 50_0	40620/2593	1:1.58	0.401	0.17	21.96	23.30	1.361	0.546	22.5
Ant 5 Test Record											
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.078	-0.05	15.77	17.00	1.327	0.104	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.059	-0.15	15.77	17.00	1.327	0.078	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.391	0.07	15.77	17.00	1.327	0.519	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.097	-0.17	15.77	17.00	1.327	0.129	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.085	0.01	15.73	17.00	1.340	0.114	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.053	0.18	15.73	17.00	1.340	0.071	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.343	-0.16	15.73	17.00	1.340	0.460	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.142	0.16	15.73	17.00	1.340	0.190	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.083	0.07	18.24	19.50	1.337	0.111	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.159	-0.10	18.24	19.50	1.337	0.213	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.083	0.19	18.17	19.50	1.358	0.113	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.162	-0.04	18.17	19.50	1.358	0.220	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.060	-0.09	15.77	17.00	1.327	0.080	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.116	0.15	15.77	17.00	1.327	0.154	22.5
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.130	0.16	15.77	17.00	1.327	0.173	22.5
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.000	-0.02	15.77	17.00	1.327	0.000	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.059	-0.01	15.73	17.00	1.340	0.079	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.125	-0.04	15.73	17.00	1.340	0.167	22.5
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.143	0.18	15.73	17.00	1.340	0.192	22.5
Top side	20	QPSK 50_0	40620/2593	1:1.58	0.000	0.10	15.73	17.00	1.340	0.000	22.5

Table 21: SAR of LTE Band 41 for Head and Body.



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9.2.1 SAR Result of LTE Band 66

LTE Band 66 SAR Test Record											
Ant 2 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	132322/1745	1:1	0.779	0.01	20.51	21.70	1.315	1.025	22.2
Left cheek	20	QPSK 1_0	132072/1720	1:1	0.744	0.06	20.46	21.70	1.330	0.990	22.2
Left cheek	20	QPSK 1_0	132572/1770	1:1	0.735	0.02	20.42	21.70	1.343	0.987	22.2
Left cheek-DL CA	20	QPSK 1_0	132572/1770	1:1	0.612	0.01	18.43	19.70	1.340	0.820	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.169	-0.19	20.51	21.70	1.315	0.222	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.409	-0.18	20.51	21.70	1.315	0.538	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.073	-0.18	20.51	21.70	1.315	0.096	22.2
Head Test Data(100%RB)											
Left cheek	20	QPSK 100_0	132322/1745	1:1	0.396	-0.11	20.40	21.70	1.349	0.534	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.074	-0.09	21.54	22.70	1.306	0.097	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.116	0.14	21.54	22.70	1.306	0.152	22.2
Back side-DL CA	20	QPSK 1_0	132322/1745	1:1	0.075	-0.07	19.48	20.70	1.324	0.099	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.077	-0.03	20.59	21.70	1.291	0.099	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.119	0.01	20.59	21.70	1.291	0.154	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.151	0.12	20.51	21.70	1.315	0.199	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.228	-0.13	20.51	21.70	1.315	0.300	22.2
Right side	20	QPSK 1_0	132322/1745	1:1	0.596	0.17	20.51	21.70	1.315	0.784	22.2
Right side-DL CA	20	QPSK 1_0	132322/1745	1:1	0.468	0.01	18.48	19.70	1.324	0.620	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.138	-0.13	20.46	21.70	1.330	0.184	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.231	-0.18	20.46	21.70	1.330	0.307	22.2
Right side	20	QPSK 50_0	132322/1745	1:1	0.496	-0.06	20.46	21.70	1.330	0.660	22.2
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 Test Data(1RB)											
Left cheek	20	QPSK 1_0	132322/1745	1:1	0.237	-0.13	17.56	19.00	1.393	0.330	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.300	0.13	17.56	19.00	1.393	0.418	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.385	-0.08	17.56	19.00	1.393	0.536	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.405	0.07	17.56	19.00	1.393	0.564	22.2
Right tilted-ENDC	20	QPSK 1_0	132322/1745	1:1	0.351	0.18	17.15	18.10	1.245	0.437	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.240	-0.04	17.43	19.00	1.435	0.345	22.2
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.256	-0.19	17.43	19.00	1.435	0.367	22.2
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.379	0.19	17.43	19.00	1.435	0.544	22.2
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.387	0.18	17.43	19.00	1.435	0.556	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.338	-0.06	22.88	24.50	1.452	0.491	22.2



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Back side	20	QPSK 1_0	132322/1745	1:1	0.637	-0.04	22.88	24.50	1.452	0.925	22.2
Back side-ENDC	20	QPSK 1_0	132322/1745	1:1	0.428	-0.05	22.68	23.60	1.236	0.529	22.2
Back side	20	QPSK 1_0	132072/1720	1:1	0.543	-0.14	22.73	24.50	1.503	0.816	22.2
Back side	20	QPSK 1_0	132572/1770	1:1	0.511	0.09	22.76	24.50	1.493	0.763	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.251	0.09	21.83	23.50	1.469	0.369	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.514	-0.10	21.83	23.50	1.469	0.755	22.2
Body worn Test data(Separate 15mm 100%RB)											
Back side	20	QPSK 100_0	132322/1745	1:1	0.502	0.06	21.71	23.50	1.510	0.758	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.165	-0.02	17.56	19.00	1.393	0.230	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.442	0.04	17.56	19.00	1.393	0.616	22.2
Left side	20	QPSK 1_0	132322/1745	1:1	0.067	-0.10	17.56	19.00	1.393	0.093	22.2
Top side	20	QPSK 1_0	132322/1745	1:1	0.451	-0.07	17.56	19.00	1.393	0.628	22.2
Top side-ENDC	20	QPSK 1_0	132322/1745	1:1	0.311	0.07	17.15	18.10	1.245	0.387	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.164	-0.17	17.43	19.00	1.435	0.235	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.434	-0.17	17.43	19.00	1.435	0.623	22.2
Left side	20	QPSK 50_0	132322/1745	1:1	0.072	0.07	17.43	19.00	1.435	0.103	22.2
Top side	20	QPSK 50_0	132322/1745	1:1	0.409	0.18	17.43	19.00	1.435	0.587	22.2
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	132322/1745	1:1	0.076	0.06	22.49	24.00	1.416	0.108	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.051	0.03	22.49	24.00	1.416	0.072	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.079	-0.09	22.49	24.00	1.416	0.112	22.2
Right cheek-ENDC	20	QPSK 1_0	132322/1745	1:1	0.054	-0.18	22.09	23.10	1.262	0.068	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.039	0.02	22.49	24.00	1.416	0.055	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.050	-0.01	21.52	23.00	1.406	0.070	22.2
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.029	-0.13	21.52	23.00	1.406	0.041	22.2
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.068	-0.13	21.52	23.00	1.406	0.096	22.2
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.052	0.10	21.52	23.00	1.406	0.073	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.203	0.06	22.49	24.00	1.416	0.287	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.261	-0.10	22.49	24.00	1.416	0.370	22.2
Back side-ENDC	20	QPSK 1_0	132322/1745	1:1	0.199	0.13	22.09	23.10	1.262	0.251	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.169	0.06	21.52	23.00	1.406	0.238	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.222	0.11	21.52	23.00	1.406	0.312	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.375	0.10	21.62	23.00	1.374	0.515	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.480	0.17	21.62	23.00	1.374	0.660	22.2
Left side	20	QPSK 1_0	132322/1745	1:1	0.145	-0.01	21.62	23.00	1.374	0.199	22.2
Bottom side	20	QPSK 1_0	132322/1745	1:1	0.692	0.01	21.62	23.00	1.374	0.951	22.2
Bottom side	20	QPSK 1_0	132072/1720	1:1	0.525	0.11	21.52	23.00	1.406	0.738	22.2
Bottom side	20	QPSK 1_0	132572/1770	1:1	0.671	0.02	21.49	23.00	1.416	0.950	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.385	0.04	21.51	23.00	1.409	0.543	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.491	0.01	21.51	23.00	1.409	0.692	22.2
Left side	20	QPSK 50_0	132322/1745	1:1	0.151	0.06	21.51	23.00	1.409	0.213	22.2
Bottom side	20	QPSK 50_0	132322/1745	1:1	0.717	-0.03	21.51	23.00	1.409	1.010	22.2
Bottom side	20	QPSK 50_0	132072/1720	1:1	0.546	0.02	21.44	23.00	1.432	0.782	22.2



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Bottom side	20	QPSK 50_0	132572/1770	1:1	0.730	0.01	21.47	23.00	1.422	1.038	22.2
Bottom side-ENDC	20	QPSK 50_0	132572/1770	1:1	0.531	0.12	21.13	22.10	1.250	0.664	22.2
Hotspot Test data(Separate 10mm 100%RB)											
Bottom side	20	QPSK 100_0	132322/1745	1:1	0.658	0.08	21.45	23.00	1.429	0.940	22.2
Ant 5 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	132322/1745	1:1	0.190	-0.01	20.18	21.50	1.355	0.257	22.2
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.065	0.06	20.18	21.50	1.355	0.088	22.2
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.473	-0.01	20.18	21.50	1.355	0.641	22.2
Right cheek-DL CA	20	QPSK 1_0	132322/1745	1:1	0.268	0.11	17.80	19.20	1.380	0.370	22.2
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.149	0.02	20.18	21.50	1.355	0.202	22.2
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.178	0.08	20.17	21.50	1.358	0.242	22.2
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.098	-0.08	20.17	21.50	1.358	0.133	22.2
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.410	-0.06	20.17	21.50	1.358	0.557	22.2
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.162	-0.06	20.17	21.50	1.358	0.220	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.074	0.02	20.18	21.50	1.355	0.100	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.104	-0.16	20.18	21.50	1.355	0.141	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.076	0.19	20.17	21.50	1.358	0.103	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.105	0.12	20.17	21.50	1.358	0.143	22.2
Back side-DL CA	20	QPSK 50_0	132322/1745	1:1	0.078	-0.01	17.50	19.20	1.479	0.115	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.145	-0.15	20.18	21.50	1.355	0.197	22.2
Back side	20	QPSK 1_0	132322/1745	1:1	0.246	-0.10	20.18	21.50	1.355	0.333	22.2
Left side	20	QPSK 1_0	132322/1745	1:1	0.318	0.15	20.18	21.50	1.355	0.431	22.2
Top side	20	QPSK 1_0	132322/1745	1:1	0.000	-0.04	20.18	21.50	1.355	0.000	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.149	-0.02	20.17	21.50	1.358	0.202	22.2
Back side	20	QPSK 50_0	132322/1745	1:1	0.274	0.10	20.17	21.50	1.358	0.372	22.2
Left side	20	QPSK 50_0	132322/1745	1:1	0.324	0.07	20.17	21.50	1.358	0.440	22.2
Left side-DL CA	20	QPSK 50_0	132322/1745	1:1	0.295	-0.10	17.50	19.20	1.479	0.436	22.2
Top side	20	QPSK 50_0	132322/1745	1:1	0.000	-0.03	20.17	21.50	1.358	0.000	22.2

Table 22: SAR of LTE Band 66 for Head and Body.



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9.2.1 SAR Result of 5G NR n5

SA N5 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	167300/836.5	1:1	0.287	-0.12	24.64	25.50	1.219	0.350	22.5
Left tilted	20	QPSK 1_1	167300/836.5	1:1	0.147	0.13	24.64	25.50	1.219	0.179	22.5
Right cheek	20	QPSK 1_1	167300/836.5	1:1	0.291	0.07	24.64	25.50	1.219	0.355	22.5
Right tilted	20	QPSK 1_1	167300/836.5	1:1	0.181	0.05	24.64	25.50	1.219	0.221	22.5
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	167300/836.5	1:1	0.297	0.01	24.61	25.50	1.227	0.365	22.5
Left tilted	20	QPSK 50_28	167300/836.5	1:1	0.136	0.06	24.61	25.50	1.227	0.167	22.5
Right cheek	20	QPSK 50_28	167300/836.5	1:1	0.307	-0.02	24.61	25.50	1.227	0.377	22.5
Right tilted	20	QPSK 50_28	167300/836.5	1:1	0.191	0.05	24.61	25.50	1.227	0.234	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.252	0.01	24.64	25.50	1.219	0.307	22.5
Back side	20	QPSK 1_1	167300/836.5	1:1	0.266	0.09	24.64	25.50	1.219	0.324	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.243	-0.12	24.61	25.50	1.227	0.298	22.5
Back side	20	QPSK 50_28	167300/836.5	1:1	0.252	0.10	24.61	25.50	1.227	0.309	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.271	0.04	24.64	25.50	1.219	0.330	22.5
Back side	20	QPSK 1_1	167300/836.5	1:1	0.497	-0.03	24.64	25.50	1.219	0.606	22.5
Right side	20	QPSK 1_1	167300/836.5	1:1	0.413	-0.10	24.64	25.50	1.219	0.503	22.5
Bottom side	20	QPSK 1_1	167300/836.5	1:1	0.315	0.03	24.64	25.50	1.219	0.384	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.357	-0.12	24.61	25.50	1.227	0.438	22.5
Back side	20	QPSK 50_28	167300/836.5	1:1	0.503	0.13	24.61	25.50	1.227	0.617	22.5
Right side	20	QPSK 50_28	167300/836.5	1:1	0.403	0.14	24.61	25.50	1.227	0.495	22.5
Bottom side	20	QPSK 50_28	167300/836.5	1:1	0.304	0.04	24.61	25.50	1.227	0.373	22.5
Ant1 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	167300/836.5	1:1	0.868	-0.17	22.22	22.70	1.117	0.969	22.5
Left tilted	20	QPSK 1_1	167300/836.5	1:1	0.103	-0.10	22.22	22.70	1.117	0.115	22.5
Right cheek	20	QPSK 1_1	167300/836.5	1:1	0.586	-0.07	22.22	22.70	1.117	0.654	22.5
Right tilted	20	QPSK 1_1	167300/836.5	1:1	0.077	-0.03	22.22	22.70	1.117	0.086	22.5
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	167300/836.5	1:1	0.874	0.02	22.20	22.70	1.122	0.981	22.5
Left cheek-repeated	20	QPSK 50_28	167300/836.5	1:1	0.864	0.01	22.20	22.70	1.122	0.969	22.5
Left tilted	20	QPSK 50_28	167300/836.5	1:1	0.088	-0.18	22.20	22.70	1.122	0.099	22.5
Right cheek	20	QPSK 50_28	167300/836.5	1:1	0.568	0.11	22.20	22.70	1.122	0.637	22.5
Right tilted	20	QPSK 50_28	167300/836.5	1:1	0.090	-0.15	22.20	22.70	1.122	0.101	22.5
Head Test data(50%RB)											
Left cheek	20	QPSK 100_0	167300/836.5	1:1	0.861	0.02	22.19	22.70	1.125	0.968	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.170	0.16	22.22	22.70	1.117	0.190	22.5
Back side	20	QPSK 1_1	167300/836.5	1:1	0.297	0.19	22.22	22.70	1.117	0.332	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.202	-0.14	22.20	22.70	1.122	0.227	22.5



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Back side	20	QPSK 50_28	167300/836.5	1:1	0.359	-0.10	22.20	22.70	1.122	0.403	22.5
Hotspot Test data (Separate 10mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.263	-0.10	22.22	22.70	1.117	0.294	22.5
Back side	20	QPSK 1_1	167300/836.5	1:1	0.379	-0.08	22.22	22.70	1.117	0.423	22.5
Left side	20	QPSK 1_1	167300/836.5	1:1	0.537	-0.19	22.22	22.70	1.117	0.600	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.445	0.02	22.20	22.70	1.122	0.499	22.5
Back side	20	QPSK 50_28	167300/836.5	1:1	0.702	-0.19	22.20	22.70	1.122	0.788	22.5
Left side	20	QPSK 50_28	167300/836.5	1:1	0.903	0.19	22.20	22.70	1.122	1.013	22.5
Hotspot Test data (Separate 10mm 100%RB)											
Left side	20	QPSK 100_0	167300/836.5	1:1	0.872	-0.14	22.13	22.70	1.140	0.994	22.5

Table 23: SAR of 5G NR n5 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	167300/836.5	0.874	0.864	1.011574074	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



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9.2.2 SAR Result of 5G NR n7

SA N7 SAR Test Record												
Ant2 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	40	QPSK 1_1	507000/2535	1:1	0.307	-0.18	17.98	19.00	1.265	0.388	22.1	
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.106	0.07	17.98	19.00	1.265	0.134	22.1	
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.481	0.13	17.98	19.00	1.265	0.608	22.1	
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.069	0.18	17.98	19.00	1.265	0.087	22.1	
Head Test data(50%RB)												
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.324	-0.13	17.96	19.00	1.271	0.412	22.1	
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.096	-0.11	17.96	19.00	1.271	0.122	22.1	
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.510	-0.09	17.96	19.00	1.271	0.648	22.1	
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.060	0.07	17.96	19.00	1.271	0.076	22.1	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	507000/2535	1:1	0.104	0.07	18.93	20.00	1.278	0.133	22.1	
Back side	40	QPSK 1_1	507000/2535	1:1	0.175	-0.10	18.93	20.00	1.278	0.224	22.1	
Body worn Test data(Separate 15mm 50%RB)												
Front side	40	QPSK 108_54	507000/2535	1:1	0.127	0.19	18.91	20.00	1.285	0.163	22.1	
Back side	40	QPSK 108_54	507000/2535	1:1	0.192	0.03	18.91	20.00	1.285	0.247	22.1	
Hotspot Test data(Separate 10mm 1RB)												
Front side	40	QPSK 1_1	507000/2535	1:1	0.155	0.06	17.98	19.00	1.265	0.196	22.1	
Back side	40	QPSK 1_1	507000/2535	1:1	0.199	0.02	17.98	19.00	1.265	0.252	22.1	
Right side	40	QPSK 1_1	507000/2535	1:1	0.453	-0.05	17.98	19.00	1.265	0.573	22.1	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	40	QPSK 108_54	507000/2535	1:1	0.148	-0.05	17.96	19.00	1.271	0.188	22.1	
Back side	40	QPSK 108_54	507000/2535	1:1	0.264	0.03	17.96	19.00	1.271	0.335	22.1	
Right side	40	QPSK 108_54	507000/2535	1:1	0.495	-0.04	17.96	19.00	1.271	0.629	22.1	
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 Test data(1RB)												
Left cheek	40	QPSK 1_1	507000/2535	1:1	0.413	-0.10	17.48	18.00	1.127	0.466	22.1	
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.430	-0.08	17.48	18.00	1.127	0.485	22.1	
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.801	-0.13	17.48	18.00	1.127	0.903	22.1	
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.716	0.10	17.48	18.00	1.127	0.807	22.1	
Head Test data(50%RB)												
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.368	-0.10	17.41	18.00	1.146	0.422	22.1	
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.373	0.13	17.41	18.00	1.146	0.427	22.1	
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.573	-0.01	17.41	18.00	1.146	0.656	22.1	
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.707	-0.12	17.41	18.00	1.146	0.810	22.1	
Head Test data(100%RB)												
Right cheek	40	QPSK 216_0	507000/2535	1:1	0.805	0.03	18.30	19.00	1.175	0.946	22.1	
Right cheek-repeated	40	QPSK 216_0	507000/2535	1:1	0.794	0.02	18.30	19.00	1.175	0.933	22.1	
Right tilted	40	QPSK 216_0	507000/2535	1:1	0.753	-0.07	18.30	19.00	1.175	0.885	22.1	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	507000/2535	1:1	0.288	0.11	24.76	25.50	1.186	0.342	22.1	
Back side	40	QPSK 1_1	507000/2535	1:1	0.617	0.05	24.76	25.50	1.186	0.732	22.1	
Body worn Test data(Separate 15mm 50%RB)												
Front side	40	QPSK 108_54	507000/2535	1:1	0.267	-0.14	24.75	25.50	1.189	0.317	22.1	



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Back side	40	QPSK 108_54	507000/2535	1:1	0.532	-0.17	24.75	25.50	1.189	0.632	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.133	0.18	17.48	18.00	1.127	0.150	22.1
Back side	40	QPSK 1_1	507000/2535	1:1	0.228	0.19	17.48	18.00	1.127	0.257	22.1
Left side	40	QPSK 1_1	507000/2535	1:1	0.060	-0.04	17.48	18.00	1.127	0.068	22.1
Top side	40	QPSK 1_1	507000/2535	1:1	0.237	-0.16	17.48	18.00	1.127	0.267	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.135	-0.03	17.41	18.00	1.146	0.155	22.1
Back side	40	QPSK 108_54	507000/2535	1:1	0.305	-0.01	17.41	18.00	1.146	0.349	22.1
Left side	40	QPSK 108_54	507000/2535	1:1	0.059	0.14	17.41	18.00	1.146	0.068	22.1
Top side	40	QPSK 108_54	507000/2535	1:1	0.266	0.12	17.41	18.00	1.146	0.305	22.1
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 Test data(1RB)											
Left cheek	40	QPSK 1_1	507000/2535	1:1	0.185	-0.06	24.97	25.70	1.183	0.219	22.1
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.070	0.17	24.97	25.70	1.183	0.083	22.1
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.170	-0.09	24.97	25.70	1.183	0.201	22.1
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.094	0.15	24.97	25.70	1.183	0.111	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.246	-0.14	24.95	25.70	1.189	0.292	22.1
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.063	0.10	24.95	25.70	1.189	0.075	22.1
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.171	-0.13	24.95	25.70	1.189	0.203	22.1
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.102	-0.18	24.95	25.70	1.189	0.121	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.283	-0.11	24.97	25.70	1.183	0.335	22.1
Back side	40	QPSK 1_1	507000/2535	1:1	0.468	-0.17	24.97	25.70	1.183	0.554	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.251	-0.14	24.95	25.70	1.189	0.298	22.1
Back side	40	QPSK 108_54	507000/2535	1:1	0.340	-0.08	24.95	25.70	1.189	0.404	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.197	0.19	20.23	20.70	1.114	0.220	22.1
Back side	40	QPSK 1_1	507000/2535	1:1	0.307	-0.08	20.23	20.70	1.114	0.342	22.1
Left side	40	QPSK 1_1	507000/2535	1:1	0.074	0.05	20.23	20.70	1.114	0.082	22.1
Bottom side	40	QPSK 1_1	507000/2535	1:1	0.335	-0.16	20.23	20.70	1.114	0.373	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.190	0.18	20.21	20.70	1.119	0.213	22.1
Back side	40	QPSK 108_54	507000/2535	1:1	0.278	-0.05	20.21	20.70	1.119	0.311	22.1
Left side	40	QPSK 108_54	507000/2535	1:1	0.077	-0.10	20.21	20.70	1.119	0.086	22.1
Bottom side	40	QPSK 108_54	507000/2535	1:1	0.357	0.10	20.21	20.70	1.119	0.400	22.1
Ant5 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	40	QPSK 1_1	507000/2535	1:1	0.174	-0.06	16.93	17.70	1.194	0.208	22.1
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.103	0.00	16.93	17.70	1.194	0.123	22.1
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.594	-0.19	16.93	17.70	1.194	0.709	22.1
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.176	0.01	16.93	17.70	1.194	0.210	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.147	0.07	16.91	17.70	1.199	0.176	22.1
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.111	-0.09	16.91	17.70	1.199	0.133	22.1



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Right cheek	40	QPSK 108_54	507000/2535	1:1	0.443	-0.06	16.91	17.70	1.199	0.531	22.1
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.169	-0.18	16.91	17.70	1.199	0.203	22.1
Head Test data(100%RB)											
Right cheek	40	QPSK 216_0	507000/2535	1:1	0.463	-0.10	16.76	17.70	1.242	0.575	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.112	-0.06	19.89	20.70	1.205	0.135	22.1
Back side	40	QPSK 1_1	507000/2535	1:1	0.187	0.00	19.89	20.70	1.205	0.225	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.103	0.11	19.88	20.70	1.208	0.124	22.1
Back side	40	QPSK 108_54	507000/2535	1:1	0.180	-0.03	19.88	20.70	1.208	0.217	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.127	-0.11	16.93	17.70	1.194	0.152	22.1
Back side	40	QPSK 1_1	507000/2535	1:1	0.258	-0.02	16.93	17.70	1.194	0.308	22.1
Left side	40	QPSK 1_1	507000/2535	1:1	0.267	-0.03	16.93	17.70	1.194	0.319	22.1
Top side	40	QPSK 1_1	507000/2535	1:1	0.061	0.02	16.93	17.70	1.194	0.073	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.129	-0.05	16.91	17.70	1.199	0.155	22.1
Back side	40	QPSK 108_54	507000/2535	1:1	0.288	0.00	16.91	17.70	1.199	0.345	22.1
Left side	40	QPSK 108_54	507000/2535	1:1	0.273	-0.13	16.91	17.70	1.199	0.327	22.1
Top side	40	QPSK 108_54	507000/2535	1:1	0.082	-0.01	16.91	17.70	1.199	0.098	22.1

Table 24: SAR of 5G NR n7 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)
Right cheek	507000/2535	0.805	0.794	1.013853904	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



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9.2.3 SAR Result of 5G NR n41

SA N41 SAR Test Record												
Ant2 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	100	QPSK 1_1	518598/2592.99	1:1	0.408	0.05	18.45	19.50	1.274	0.520	22.2	
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.125	-0.06	18.45	19.50	1.274	0.159	22.2	
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.675	0.14	18.45	19.50	1.274	0.860	22.2	
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.074	-0.17	18.45	19.50	1.274	0.094	22.2	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.321	-0.14	18.42	19.50	1.282	0.412	22.2	
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.089	0.03	18.42	19.50	1.282	0.114	22.2	
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.782	0.11	18.42	19.50	1.282	1.003	22.2	
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.071	-0.05	18.42	19.50	1.282	0.091	22.2	
Head Test data(100%RB)												
Right cheek	100	QPSK 270_0	518598/2592.99	1:1	0.807	0.13	18.38	19.50	1.294	1.044	22.2	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.162	0.08	18.93	20.00	1.279	0.207	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.259	-0.12	18.93	20.00	1.279	0.331	22.2	
Body worn Test data(Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.159	-0.14	18.87	20.00	1.297	0.206	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.262	0.15	18.87	20.00	1.297	0.340	22.2	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.195	-0.13	18.45	19.50	1.274	0.248	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.312	0.11	18.45	19.50	1.274	0.397	22.2	
Right side	100	QPSK 1_1	518598/2592.99	1:1	0.545	0.02	18.45	19.50	1.274	0.694	22.2	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.215	-0.08	18.42	19.50	1.282	0.276	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.347	-0.16	18.42	19.50	1.282	0.445	22.2	
Right side	100	QPSK 135_69	518598/2592.99	1:1	0.523	0.12	18.42	19.50	1.282	0.671	22.2	
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 Test data(1RB)												
Left cheek	100	QPSK 1_1	518598/2592.99	1:1	0.214	0.02	16.81	17.50	1.172	0.251	22.2	
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.209	-0.04	16.81	17.50	1.172	0.245	22.2	
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.385	0.17	16.81	17.50	1.172	0.451	22.2	
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.404	0.00	16.81	17.50	1.172	0.474	22.2	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.197	-0.18	16.78	17.50	1.180	0.233	22.2	
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.209	0.18	16.78	17.50	1.180	0.247	22.2	
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.382	0.13	16.78	17.50	1.180	0.451	22.2	
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.410	-0.19	16.78	17.50	1.180	0.484	22.2	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.285	-0.13	23.99	25.50	1.416	0.404	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.623	-0.02	23.99	25.50	1.416	0.882	22.2	
Body worn Test data(Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.332	0.01	23.98	25.50	1.419	0.471	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.601	-0.02	23.98	25.50	1.419	0.853	22.2	
Body worn Test data(Separate 15mm 50%RB)												
Back side	100	QPSK 270_0	518598/2592.99	1:1	0.589	0.04	22.96	24.50	1.426	0.840	22.2	



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Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.089	-0.04	16.81	17.50	1.172	0.104	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.218	-0.09	16.81	17.50	1.172	0.256	22.2	
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.055	-0.07	16.81	17.50	1.172	0.064	22.2	
Top side	100	QPSK 1_1	518598/2592.99	1:1	0.190	0.08	16.81	17.50	1.172	0.223	22.2	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.097	-0.01	16.78	17.50	1.180	0.114	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.204	-0.18	16.78	17.50	1.180	0.241	22.2	
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.076	-0.13	16.78	17.50	1.180	0.090	22.2	
Top side	100	QPSK 135_69	518598/2592.99	1:1	0.199	-0.05	16.78	17.50	1.180	0.235	22.2	
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 Test data(1RB)												
Left cheek	100	QPSK 1_1	518598/2592.99	1:1	0.286	0.03	24.89	25.70	1.205	0.345	22.2	
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.088	0.14	24.89	25.70	1.205	0.106	22.2	
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.210	0.00	24.89	25.70	1.205	0.253	22.2	
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.108	0.05	24.89	25.70	1.205	0.130	22.2	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.278	0.17	24.82	25.70	1.225	0.340	22.2	
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.083	-0.03	24.82	25.70	1.225	0.102	22.2	
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.193	-0.04	24.82	25.70	1.225	0.236	22.2	
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.094	0.05	24.82	25.70	1.225	0.115	22.2	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.325	0.08	24.89	25.70	1.205	0.392	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.496	0.14	24.89	25.70	1.205	0.598	22.2	
Body worn Test data (Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.342	-0.14	24.82	25.70	1.225	0.419	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.521	-0.09	24.82	25.70	1.225	0.638	22.2	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.200	0.04	20.77	20.70	0.984	0.197	22.2	
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.318	-0.19	20.77	20.70	0.984	0.313	22.2	
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.083	0.12	20.77	20.70	0.984	0.082	22.2	
Bottom side	100	QPSK 1_1	518598/2592.99	1:1	0.358	0.06	20.77	20.70	0.984	0.352	22.2	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.204	-0.09	20.69	20.70	1.002	0.204	22.2	
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.322	-0.17	20.69	20.70	1.002	0.323	22.2	
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.073	0.00	20.69	20.70	1.002	0.073	22.2	
Bottom side	100	QPSK 135_69	518598/2592.99	1:1	0.374	0.09	20.69	20.70	1.002	0.375	22.2	
Ant5 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	100	QPSK 1_1	518598/2592.99	1:1	0.119	-0.10	17.26	18.30	1.271	0.151	22.2	
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.081	0.11	17.26	18.30	1.271	0.103	22.2	
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.541	-0.09	17.26	18.30	1.271	0.687	22.2	
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.154	0.10	17.26	18.30	1.271	0.196	22.2	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.104	-0.06	17.23	18.30	1.279	0.133	22.2	
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.061	-0.13	17.23	18.30	1.279	0.078	22.2	
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.365	-0.08	17.23	18.30	1.279	0.467	22.2	
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.151	0.06	17.23	18.30	1.279	0.193	22.2	
Head Test data(100%RB)												



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Right cheek	100	QPSK 270_0	518598/2592.99	1:1	0.452	0.16	17.19	18.30	1.291	0.584	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.102	0.07	20.21	21.30	1.285	0.131	22.2
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.177	-0.07	20.21	21.30	1.285	0.227	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.090	0.06	20.19	21.30	1.291	0.116	22.2
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.149	0.03	20.19	21.30	1.291	0.192	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.103	-0.06	17.26	18.30	1.271	0.131	22.2
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.197	0.05	17.26	18.30	1.271	0.250	22.2
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.215	0.18	17.26	18.30	1.271	0.273	22.2
Top side	100	QPSK 1_1	518598/2592.99	1:1	0.062	-0.16	17.26	18.30	1.271	0.079	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.090	-0.02	17.23	18.30	1.279	0.115	22.2
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.187	0.09	17.23	18.30	1.279	0.239	22.2
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.225	-0.07	17.23	18.30	1.279	0.288	22.2
Top side	100	QPSK 135_69	518598/2592.99	1:1	0.045	0.05	17.23	18.30	1.279	0.058	22.2

Table 25: SAR of 5G NR n41 for Head and Body.



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9.2.4 SAR Result of 5G NR n66

SA N66 SAR Test Record											
Ant2 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	40	QPSK 1_1	349000/1745	1:1	0.506	0.12	19.53	20.50	1.250	0.633	22.1
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.109	-0.01	19.53	20.50	1.250	0.136	22.1
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.286	0.07	19.53	20.50	1.250	0.358	22.1
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.084	0.08	19.53	20.50	1.250	0.105	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.459	-0.10	19.42	20.50	1.282	0.589	22.1
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.114	0.15	19.42	20.50	1.282	0.146	22.1
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.233	0.18	19.42	20.50	1.282	0.299	22.1
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.071	0.01	19.42	20.50	1.282	0.091	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.070	0.17	19.53	20.50	1.250	0.088	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.110	0.06	19.53	20.50	1.250	0.138	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.088	0.12	19.42	20.50	1.282	0.113	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.115	-0.17	19.42	20.50	1.282	0.147	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.143	0.08	19.53	20.50	1.250	0.179	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.195	0.06	19.53	20.50	1.250	0.244	22.1
Right side	40	QPSK 1_1	349000/1745	1:1	0.371	-0.04	19.53	20.50	1.250	0.464	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.165	0.18	19.42	20.50	1.282	0.212	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.245	0.08	19.42	20.50	1.282	0.314	22.1
Right side	40	QPSK 108_54	349000/1745	1:1	0.405	-0.12	19.42	20.50	1.282	0.519	22.1
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 Test data(1RB)											
Left cheek	40	QPSK 1_1	349000/1745	1:1	0.507	0.06	18.37	19.00	1.156	0.586	22.1
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.548	-0.01	18.37	19.00	1.156	0.634	22.1
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.703	-0.01	18.37	19.00	1.156	0.813	22.1
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.901	-0.03	18.37	19.00	1.156	1.042	22.1
Right tilted-repeated	40	QPSK 1_1	349000/1745	1:1	0.899	-0.03	18.37	19.00	1.156	1.039	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.545	0.11	18.36	19.00	1.159	0.632	22.1
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.602	0.02	18.36	19.00	1.159	0.698	22.1
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.755	0.07	18.36	19.00	1.159	0.875	22.1
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.752	-0.18	18.36	19.00	1.159	0.871	22.1
Head Test data(100%RB)											
Right cheek	40	QPSK 216_0	349000/1745	1:1	0.754	0.08	18.32	19.00	1.169	0.882	22.1
Right tilted	40	QPSK 216_0	349000/1745	1:1	0.730	-0.16	18.32	19.00	1.169	0.854	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.292	0.13	23.75	24.50	1.189	0.347	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.649	0.08	23.75	24.50	1.189	0.771	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.296	-0.15	23.73	24.50	1.194	0.353	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.507	0.01	23.73	24.50	1.194	0.605	22.1



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Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.205	-0.08	18.37	19.00	1.156	0.237	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.338	-0.01	18.37	19.00	1.156	0.391	22.1
Left side	40	QPSK 1_1	349000/1745	1:1	0.082	0.11	18.37	19.00	1.156	0.095	22.1
Top side	40	QPSK 1_1	349000/1745	1:1	0.443	-0.16	18.37	19.00	1.156	0.512	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.187	0.10	18.36	19.00	1.159	0.217	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.443	-0.04	18.36	19.00	1.159	0.513	22.1
Left side	40	QPSK 108_54	349000/1745	1:1	0.086	0.15	18.36	19.00	1.159	0.100	22.1
Top side	40	QPSK 108_54	349000/1745	1:1	0.423	-0.07	18.36	19.00	1.159	0.490	22.1
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 Test data(1RB)											
Left cheek	40	QPSK 1_1	349000/1745	1:1	0.089	-0.01	23.29	23.80	1.125	0.100	22.1
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.063	0.08	23.29	23.80	1.125	0.071	22.1
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.123	-0.19	23.29	23.80	1.125	0.138	22.1
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.056	0.18	23.29	23.80	1.125	0.063	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.100	-0.09	23.28	23.80	1.127	0.113	22.1
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.080	-0.05	23.28	23.80	1.127	0.090	22.1
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.140	-0.14	23.28	23.80	1.127	0.158	22.1
Right tilted	40	QPSK 108_54	349000/1745	1:1	0.073	-0.10	23.28	23.80	1.127	0.082	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.079	0.00	23.29	23.80	1.125	0.089	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.103	-0.16	23.29	23.80	1.125	0.116	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.084	0.17	23.28	23.80	1.127	0.095	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.114	-0.15	23.28	23.80	1.127	0.129	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.406	0.07	22.94	23.30	1.086	0.441	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.514	-0.12	22.94	23.30	1.086	0.558	22.1
Left side	40	QPSK 1_1	349000/1745	1:1	0.155	-0.07	22.94	23.30	1.086	0.168	22.1
Bottom side	40	QPSK 1_1	349000/1745	1:1	0.705	-0.02	22.94	23.30	1.086	0.766	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.449	-0.14	22.87	23.30	1.104	0.496	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.569	-0.17	22.87	23.30	1.104	0.628	22.1
Left side	40	QPSK 108_54	349000/1745	1:1	0.178	0.00	22.87	23.30	1.104	0.197	22.1
Bottom side	40	QPSK 108_54	349000/1745	1:1	0.782	0.07	22.87	23.30	1.104	0.863	22.1
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	40	QPSK 216_0	349000/1745	1:1	0.631	0.09	22.11	22.80	1.172	0.740	22.1
Ant5 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	40	QPSK 1_1	349000/1745	1:1	0.221	0.14	19.98	20.70	1.180	0.261	22.1
Left tilted	40	QPSK 1_1	349000/1745	1:1	0.140	0.19	19.98	20.70	1.180	0.165	22.1
Right cheek	40	QPSK 1_1	349000/1745	1:1	0.819	0.18	19.98	20.70	1.180	0.967	22.1
Right tilted	40	QPSK 1_1	349000/1745	1:1	0.321	0.15	19.98	20.70	1.180	0.379	22.1
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	349000/1745	1:1	0.210	0.11	19.96	20.70	1.186	0.249	22.1
Left tilted	40	QPSK 108_54	349000/1745	1:1	0.096	-0.12	19.96	20.70	1.186	0.114	22.1
Right cheek	40	QPSK 108_54	349000/1745	1:1	0.841	0.07	19.96	20.70	1.186	0.997	22.1



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Right tilted	40	QPSK 108_54	349000/1745	1:1	0.296	0.19	19.96	20.70	1.186	0.351	22.1
Head Test data(100%RB)											
Right cheek	40	QPSK 216_0	349000/1745	1:1	0.719	-0.16	20.67	21.70	1.268	0.911	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.071	-0.05	20.39	21.20	1.205	0.086	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.129	-0.13	20.39	21.20	1.205	0.155	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.083	-0.06	20.36	21.20	1.213	0.101	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.167	-0.08	20.36	21.20	1.213	0.203	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	349000/1745	1:1	0.167	-0.04	19.98	20.70	1.180	0.197	22.1
Back side	40	QPSK 1_1	349000/1745	1:1	0.283	0.16	19.98	20.70	1.180	0.334	22.1
Left side	40	QPSK 1_1	349000/1745	1:1	0.327	-0.03	19.98	20.70	1.180	0.386	22.1
Top side	40	QPSK 1_1	349000/1745	1:1	0.045	0.08	19.98	20.70	1.180	0.053	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	349000/1745	1:1	0.182	0.08	19.96	20.70	1.186	0.216	22.1
Back side	40	QPSK 108_54	349000/1745	1:1	0.362	0.08	19.96	20.70	1.186	0.429	22.1
Left side	40	QPSK 108_54	349000/1745	1:1	0.432	-0.10	19.96	20.70	1.186	0.512	22.1
Top side	40	QPSK 108_54	349000/1745	1:1	0.053	-0.17	19.96	20.70	1.186	0.063	22.1

Table 26: SAR of 5G NR n66 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Right tilted	349000/1745	0.901	0.899	1.002224694	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



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

SA N77 SAR Test Record												
Ant1 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	100	QPSK 1_1	633334/3500	1:1	0.135	-0.15	19.59	20.60	1.262	0.170	22.3	
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.061	-0.16	19.59	20.60	1.262	0.077	22.3	
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.256	-0.05	19.59	20.60	1.262	0.323	22.3	
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.113	-0.14	19.59	20.60	1.262	0.143	22.3	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.113	0.11	19.54	20.60	1.276	0.144	22.3	
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.032	-0.04	19.54	20.60	1.276	0.041	22.3	
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.201	-0.04	19.54	20.60	1.276	0.257	22.3	
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.071	-0.13	19.54	20.60	1.276	0.091	22.3	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.094	0.08	17.16	18.10	1.242	0.117	22.3	
Back side	100	QPSK 1_1	633334/3500	1:1	0.098	-0.07	17.16	18.10	1.242	0.122	22.3	
Body worn Test data(Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.107	0.13	17.15	18.10	1.245	0.133	22.3	
Back side	100	QPSK 135_69	633334/3500	1:1	0.139	0.17	17.15	18.10	1.245	0.173	22.3	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.202	-0.05	17.16	18.10	1.242	0.251	22.3	
Back side	100	QPSK 1_1	633334/3500	1:1	0.302	0.07	17.16	18.10	1.242	0.375	22.3	
Left side	100	QPSK 1_1	633334/3500	1:1	0.508	0.12	17.16	18.10	1.242	0.631	22.3	
Hotspot Test data(Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.205	-0.19	17.15	18.10	1.245	0.255	22.3	
Back side	100	QPSK 135_69	633334/3500	1:1	0.302	0.19	17.15	18.10	1.245	0.376	22.3	
Left side	100	QPSK 135_69	633334/3500	1:1	0.517	0.07	17.15	18.10	1.245	0.643	22.3	
Ant6 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	100	QPSK 1_1	633334/3500	1:1	0.186	0.12	14.90	15.20	1.072	0.199	22.3	
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.227	0.00	14.90	15.20	1.072	0.243	22.3	
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.725	-0.17	14.90	15.20	1.072	0.777	22.3	
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.626	0.08	14.90	15.20	1.072	0.671	22.3	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.182	0.07	14.89	15.20	1.074	0.195	22.3	
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.231	-0.09	14.89	15.20	1.074	0.248	22.3	
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.737	0.03	14.89	15.20	1.074	0.792	22.3	
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.715	-0.07	14.89	15.20	1.074	0.768	22.3	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.186	-0.16	14.90	15.20	1.072	0.199	22.3	
Back side	100	QPSK 1_1	633334/3500	1:1	0.307	0.05	14.90	15.20	1.072	0.329	22.3	
Body worn Test data (Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.180	-0.05	14.89	15.20	1.074	0.193	22.3	
Back side	100	QPSK 135_69	633334/3500	1:1	0.350	-0.05	14.89	15.20	1.074	0.376	22.3	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.234	-0.04	14.90	15.20	1.072	0.251	22.3	
Back side	100	QPSK 1_1	633334/3500	1:1	0.518	-0.18	14.90	15.20	1.072	0.555	22.3	
Left side	100	QPSK 1_1	633334/3500	1:1	0.112	0.15	14.90	15.20	1.072	0.120	22.3	



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Top side	100	QPSK 1_1	633334/3500	1:1	0.584	-0.10	14.90	15.20	1.072	0.626	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.243	0.02	14.89	15.20	1.074	0.261	22.3
Back side	100	QPSK 135_69	633334/3500	1:1	0.536	-0.02	14.89	15.20	1.074	0.576	22.3
Left side	100	QPSK 135_69	633334/3500	1:1	0.119	-0.06	14.89	15.20	1.074	0.128	22.3
Top side	100	QPSK 135_69	633334/3500	1:1	0.587	-0.18	14.89	15.20	1.074	0.630	22.3
Ant7 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	100	QPSK 1_1	633334/3500	1:1	0.607	0.09	16.27	16.80	1.130	0.686	22.3
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.666	0.11	16.27	16.80	1.130	0.752	22.3
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.471	0.02	16.27	16.80	1.130	0.532	22.3
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.683	-0.18	16.27	16.80	1.130	0.772	22.3
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.594	0.10	16.19	16.80	1.151	0.684	22.3
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.646	-0.13	16.19	16.80	1.151	0.743	22.3
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.523	0.03	16.19	16.80	1.151	0.602	22.3
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.614	-0.10	16.19	16.80	1.151	0.707	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.201	-0.03	22.06	23.30	1.330	0.267	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.408	-0.06	22.06	23.30	1.330	0.543	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.208	-0.19	22.01	23.30	1.346	0.280	22.3
Back side	100	QPSK 135_69	633334/3500	1:1	0.464	-0.05	22.01	23.30	1.346	0.624	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.193	0.01	15.77	16.30	1.130	0.218	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.476	-0.17	15.77	16.30	1.130	0.538	22.3
Top side	100	QPSK 1_1	633334/3500	1:1	0.565	0.01	15.77	16.30	1.130	0.638	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.089	-0.17	15.72	16.30	1.143	0.102	22.3
Back side	100	QPSK 135_69	633334/3500	1:1	0.208	-0.18	15.72	16.30	1.143	0.238	22.3
Top side	100	QPSK 135_69	633334/3500	1:1	0.239	0.08	15.72	16.30	1.143	0.273	22.3
Ant8 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	100	QPSK 1_1	633334/3500	1:1	0.584	0.00	17.36	18.10	1.186	0.692	22.3
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.252	0.11	17.36	18.10	1.186	0.299	22.3
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.124	-0.07	17.36	18.10	1.186	0.147	22.3
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.116	-0.12	17.36	18.10	1.186	0.138	22.3
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.529	-0.03	17.32	18.10	1.197	0.633	22.3
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.266	-0.14	17.32	18.10	1.197	0.318	22.3
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.101	-0.13	17.32	18.10	1.197	0.121	22.3
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.134	-0.16	17.32	18.10	1.197	0.160	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.121	-0.14	18.49	19.60	1.291	0.156	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.313	0.06	18.49	19.60	1.291	0.404	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.133	0.08	18.40	19.60	1.318	0.175	22.3
Back side	100	QPSK 135_69	633334/3500	1:1	0.381	0.12	18.40	19.60	1.318	0.502	22.3
Hotspot Test data(Separate 10mm 1RB)											



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Front side	100	QPSK 1_1	633334/3500	1:1	0.141	-0.14	17.36	18.10	1.186	0.167	22.3
Back side	100	QPSK 1_1	633334/3500	1:1	0.372	0.07	17.36	18.10	1.186	0.441	22.3
Right side	100	QPSK 1_1	633334/3500	1:1	0.514	-0.11	17.36	18.10	1.186	0.609	22.3
Top side	100	QPSK 1_1	633334/3500	1:1	0.104	0.14	17.36	18.10	1.186	0.123	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.171	0.01	17.32	18.10	1.197	0.205	22.3
Back side	100	QPSK 135_69	633334/3500	1:1	0.427	0.13	17.32	18.10	1.197	0.511	22.3
Right side	100	QPSK 135_69	633334/3500	1:1	0.533	-0.18	17.32	18.10	1.197	0.638	22.3
Top side	100	QPSK 135_69	633334/3500	1:1	0.102	0.17	17.32	18.10	1.197	0.122	22.3

Table 27: SAR of 5G NR n77(3450~3550) for Head and Body.



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

SA N77 SAR Test Record											
Ant1 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	100	QPSK 1_1	656000/3840	1:1	0.313	0.15	19.33	20.60	1.340	0.419	22.1
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.089	0.11	19.33	20.60	1.340	0.119	22.1
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.506	-0.13	19.33	20.60	1.340	0.678	22.1
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.168	0.13	19.33	20.60	1.340	0.225	22.1
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.203	0.07	19.31	20.60	1.346	0.273	22.1
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.087	-0.01	19.31	20.60	1.346	0.117	22.1
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.392	0.09	19.31	20.60	1.346	0.528	22.1
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.161	0.14	19.31	20.60	1.346	0.217	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.061	0.06	16.81	18.10	1.346	0.082	22.1
Back side	100	QPSK 1_1	656000/3840	1:1	0.072	-0.05	16.81	18.10	1.346	0.097	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.054	-0.16	16.79	18.10	1.352	0.065	22.1
Back side	100	QPSK 135_69	656000/3840	1:1	0.055	0.05	16.79	18.10	1.352	0.074	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.048	0.05	16.81	18.10	1.346	0.065	22.1
Back side	100	QPSK 1_1	656000/3840	1:1	0.111	0.12	16.81	18.10	1.346	0.149	22.1
Left side	100	QPSK 1_1	656000/3840	1:1	0.144	0.15	16.81	18.10	1.346	0.194	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.050	0.13	16.79	18.10	1.352	0.068	22.1
Back side	100	QPSK 135_69	656000/3840	1:1	0.066	-0.12	16.79	18.10	1.352	0.089	22.1
Left side	100	QPSK 135_69	656000/3840	1:1	0.103	-0.05	16.79	18.10	1.352	0.139	22.1
Ant6 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	100	QPSK 1_1	656000/3840	1:1	0.155	0.05	14.87	15.20	1.079	0.167	22.1
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.124	-0.11	14.87	15.20	1.079	0.134	22.1
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.554	0.02	14.87	15.20	1.079	0.598	22.1
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.312	0.18	14.87	15.20	1.079	0.337	22.1
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.111	0.07	14.83	15.20	1.089	0.121	22.1
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.095	-0.06	14.83	15.20	1.089	0.103	22.1
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.341	0.06	14.83	15.20	1.089	0.371	22.1
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.270	0.09	14.83	15.20	1.089	0.294	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.040	0.10	14.87	15.20	1.079	0.043	22.1
Back side	100	QPSK 1_1	656000/3840	1:1	0.069	0.09	14.87	15.20	1.079	0.074	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.054	-0.04	14.83	15.20	1.089	0.059	22.1
Back side	100	QPSK 135_69	656000/3840	1:1	0.074	-0.19	14.83	15.20	1.089	0.081	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.063	-0.12	14.87	15.20	1.079	0.068	22.1
Back side	100	QPSK 1_1	656000/3840	1:1	0.105	-0.10	14.87	15.20	1.079	0.113	22.1
Left side	100	QPSK 1_1	656000/3840	1:1	0.188	-0.05	14.87	15.20	1.079	0.203	22.1



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Top side	100	QPSK 1_1	656000/3840	1:1	0.066	-0.12	14.87	15.20	1.079	0.071	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.046	-0.10	14.83	15.20	1.089	0.050	22.1
Back side	100	QPSK 135_69	656000/3840	1:1	0.066	-0.09	14.83	15.20	1.089	0.072	22.1
Left side	100	QPSK 135_69	656000/3840	1:1	0.135	0.01	14.83	15.20	1.089	0.147	22.1
Top side	100	QPSK 135_69	656000/3840	1:1	0.056	0.04	14.83	15.20	1.089	0.061	22.1
Ant7 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	100	QPSK 1_1	656000/3840	1:1	0.684	0.09	16.37	16.80	1.104	0.755	22.2
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.834	0.04	16.37	16.80	1.104	0.921	22.2
Left tilted-repeated	100	QPSK 1_1	656000/3840	1:1	0.831	0.08	16.37	16.80	1.104	0.917	22.2
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.627	-0.07	16.37	16.80	1.104	0.692	22.2
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.676	-0.10	16.37	16.80	1.104	0.746	22.2
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.620	-0.04	16.36	16.80	1.107	0.686	22.2
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.710	-0.16	16.36	16.80	1.107	0.786	22.2
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.585	-0.14	16.36	16.80	1.107	0.647	22.2
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.636	0.18	16.36	16.80	1.107	0.704	22.2
Head Test data(100%RB)											
Left tilted	100	QPSK 270_0	656000/3840	1:1	0.801	-0.06	16.35	16.80	1.109	0.888	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.252	-0.04	22.01	23.30	1.346	0.339	22.2
Back side	100	QPSK 1_1	656000/3840	1:1	0.556	0.06	22.01	23.30	1.346	0.748	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.243	-0.17	21.99	23.30	1.352	0.329	22.2
Back side	100	QPSK 135_69	656000/3840	1:1	0.533	0.06	21.99	23.30	1.352	0.721	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.085	0.08	15.83	16.30	1.114	0.095	22.2
Back side	100	QPSK 1_1	656000/3840	1:1	0.209	0.01	15.83	16.30	1.114	0.233	22.2
Top side	100	QPSK 1_1	656000/3840	1:1	0.342	0.08	15.83	16.30	1.114	0.381	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.090	0.10	15.79	16.30	1.125	0.101	22.2
Back side	100	QPSK 135_69	656000/3840	1:1	0.114	-0.08	15.79	16.30	1.125	0.128	22.2
Top side	100	QPSK 135_69	656000/3840	1:1	0.276	-0.15	15.79	16.30	1.125	0.310	22.2
Ant8 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	100	QPSK 1_1	656000/3840	1:1	0.453	0.11	17.26	18.10	1.213	0.550	22.2
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.111	-0.12	17.26	18.10	1.213	0.135	22.2
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.063	-0.11	17.26	18.10	1.213	0.076	22.2
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.057	-0.16	17.26	18.10	1.213	0.069	22.2
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.498	-0.08	17.24	18.10	1.219	0.607	22.2
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.135	-0.08	17.24	18.10	1.219	0.165	22.2
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.097	0.02	17.24	18.10	1.219	0.118	22.2
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.089	-0.07	17.24	18.10	1.219	0.108	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.119	-0.05	18.42	19.60	1.312	0.156	22.2
Back side	100	QPSK 1_1	656000/3840	1:1	0.297	0.04	18.42	19.60	1.312	0.390	22.2
Body worn Test data (Separate 15mm 50%RB)											



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Front side	100	QPSK 135_69	656000/3840	1:1	0.122	-0.12	18.39	19.60	1.321	0.161	22.2
Back side	100	QPSK 135_69	656000/3840	1:1	0.309	-0.16	18.39	19.60	1.321	0.408	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.119	-0.03	17.26	18.10	1.213	0.144	22.2
Back side	100	QPSK 1_1	656000/3840	1:1	0.278	0.03	17.26	18.10	1.213	0.337	22.2
Right side	100	QPSK 1_1	656000/3840	1:1	0.295	-0.16	17.26	18.10	1.213	0.358	22.2
Top side	100	QPSK 1_1	656000/3840	1:1	0.089	-0.05	17.26	18.10	1.213	0.108	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.111	-0.14	17.24	18.10	1.219	0.135	22.2
Back side	100	QPSK 135_69	656000/3840	1:1	0.265	0.07	17.24	18.10	1.219	0.323	22.2
Right side	100	QPSK 135_69	656000/3840	1:1	0.303	0.19	17.24	18.10	1.219	0.369	22.2
Top side	100	QPSK 135_69	656000/3840	1:1	0.081	0.16	17.24	18.10	1.219	0.099	22.2

Table 28: 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 tilted	656000/3840	0.834	0.831	#DIV/0!	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



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9.2.7 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record											
MIMO 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 For Receiver on Standalone											
Left cheek	802.11b	6/2437	98.81%	1.012	0.932	-0.16	19.49	20.00	1.125	1.061	22.5
Left cheek-repeated	802.11b	6/2437	98.81%	1.012	0.931	-0.08	19.49	20.00	1.125	1.060	22.5
Left cheek	802.11b	1/2412	98.81%	1.012	0.876	-0.19	19.45	20.00	1.136	1.007	22.5
Left cheek	802.11b	11/2462	98.81%	1.012	0.903	0.18	19.38	20.00	1.155	1.055	22.5
Left tilted	802.11b	6/2437	98.81%	1.012	0.536	0.18	19.49	20.00	1.125	0.610	22.5
Right cheek	802.11b	6/2437	98.81%	1.012	0.259	0.15	19.49	20.00	1.125	0.295	22.5
Right tilted	802.11b	6/2437	98.81%	1.012	0.246	0.08	19.49	20.00	1.125	0.280	22.5
Head Test data For Receiver on Simultaneous											
Left cheek	802.11b	6/2437	98.81%	1.012	0.237	0.17	12.51	13.50	1.257	0.302	22.5
Left tilted	802.11b	6/2437	98.81%	1.012	0.137	-0.09	12.51	13.50	1.257	0.174	22.5
Right cheek	802.11b	6/2437	98.81%	1.012	0.066	-0.06	12.51	13.50	1.257	0.084	22.5
Right tilted	802.11b	6/2437	98.81%	1.012	0.063	-0.14	12.51	13.50	1.257	0.080	22.5
Body worn Test data (Separate 15mm)											
Front side	802.11b	6/2437	98.81%	1.012	0.157	0.07	19.49	20.00	1.125	0.179	22.5
Back side	802.11b	6/2437	98.81%	1.012	0.248	-0.04	19.49	20.00	1.125	0.282	22.5
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	98.81%	1.012	0.291	0.12	19.49	20.00	1.125	0.331	22.5
Back side	802.11b	6/2437	98.81%	1.012	0.461	0.04	19.49	20.00	1.125	0.525	22.5
Right side	802.11b	6/2437	98.81%	1.012	0.548	0.07	19.49	20.00	1.125	0.624	22.5
Top side	802.11b	6/2437	98.81%	1.012	0.157	-0.02	19.49	20.00	1.125	0.179	22.5

Table 29: 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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9.2.1 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record											
MIMO 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 of U-NII-2A For Receiver on Standalone											
Left cheek	802.11a	52/5260	98.10%	1.019	0.625	-0.16	17.08	18.00	1.237	0.788	22.5
Left tilted	802.11a	52/5260	98.10%	1.019	0.826	-0.11	17.08	18.00	1.237	1.042	22.5
Left tilted	802.11a	60/5300	98.10%	1.019	0.726	0.17	16.48	18.00	1.420	1.051	22.5
Left tilted	802.11a	64/5320	98.10%	1.019	0.845	0.05	16.54	17.50	1.249	1.076	22.5
Left tilted-repeated	802.11a	64/5320	98.10%	1.019	0.839	-0.16	16.54	17.50	1.249	1.068	22.5
Right cheek	802.11a	52/5260	98.10%	1.019	0.379	0.15	17.08	18.00	1.237	0.478	22.5
Right tilted	802.11a	52/5260	98.10%	1.019	0.399	0.16	17.08	18.00	1.237	0.503	22.5
Head Test data of U-NII-2C For Receiver on Standalone											
Left cheek	802.11a	140/5700	98.10%	1.019	0.680	0.09	17.89	18.50	1.151	0.798	22.5
Left cheek	802.11a	100/5500	98.10%	1.019	0.601	0.04	16.35	17.00	1.161	0.711	22.3
Left cheek	802.11a	116/5580	98.10%	1.019	0.636	0.18	17.28	18.00	1.182	0.766	22.3
Left tilted	802.11a	140/5700	98.10%	1.019	0.772	0.02	17.89	18.50	1.151	0.906	22.5
Left tilted	802.11a	100/5500	98.10%	1.019	0.690	0.16	16.35	17.00	1.161	0.816	22.3
Left tilted	802.11a	116/5580	98.10%	1.019	0.712	-0.03	17.28	18.00	1.182	0.858	22.3
Right cheek	802.11a	140/5700	98.10%	1.019	0.452	0.05	17.89	18.50	1.151	0.530	22.5
Right tilted	802.11a	140/5700	98.10%	1.019	0.537	0.10	17.89	18.50	1.151	0.630	22.5
Head Test data of U-NII-3 For Receiver on Standalone											
Left cheek	802.11a	149/5745	98.10%	1.019	0.641	0.11	16.19	17.00	1.205	0.787	22.5
Left tilted	802.11a	149/5745	98.10%	1.019	0.711	-0.02	16.19	17.00	1.205	0.873	22.5
Left tilted	802.11a	157/5785	98.10%	1.019	0.742	-0.10	15.76	16.50	1.187	0.898	22.5
Left tilted	802.11a	165/5825	98.10%	1.019	0.838	0.01	16.10	17.00	1.229	1.050	22.5
Left tilted-repeated	802.11a	165/5825	98.10%	1.019	0.832	-0.07	16.10	17.00	1.229	1.043	22.5
Right cheek	802.11a	149/5745	98.10%	1.019	0.417	-0.12	16.19	17.00	1.205	0.512	22.5
Right tilted	802.11a	149/5745	98.10%	1.019	0.562	0.01	16.19	17.00	1.205	0.690	22.5
Head Test data of U-NII-2A For Receiver on Simultaneous											
Left cheek	802.11a	52/5260	98.10%	1.019	0.266	0.02	12.95	14.00	1.272	0.345	22.5
Left tilted	802.11a	52/5260	98.10%	1.019	0.343	0.03	12.95	14.00	1.272	0.445	22.5
Right cheek	802.11a	52/5260	98.10%	1.019	0.154	0.15	12.95	14.00	1.272	0.200	22.5
Right tilted	802.11a	52/5260	98.10%	1.019	0.162	-0.13	12.95	14.00	1.272	0.210	22.5
Head Test data of U-NII-2C For Receiver on Simultaneous											
Left cheek	802.11a	140/5700	98.10%	1.019	0.276	0.14	14.02	14.50	1.116	0.314	22.5
Left tilted	802.11a	140/5700	98.10%	1.019	0.313	-0.11	14.02	14.50	1.116	0.356	22.5
Right cheek	802.11a	140/5700	98.10%	1.019	0.183	0.03	14.02	14.50	1.116	0.208	22.5
Right tilted	802.11a	140/5700	98.10%	1.019	0.218	-0.14	14.02	14.50	1.116	0.248	22.5
Head Test data of U-NII-3 For Receiver on Simultaneous											
Left cheek	802.11a	149/5745	98.10%	1.019	0.305	0.14	13.67	14.50	1.210	0.376	22.5
Left tilted	802.11a	149/5745	98.10%	1.019	0.391	-0.05	13.67	14.50	1.210	0.482	22.5
Right cheek	802.11a	149/5745	98.10%	1.019	0.239	0.05	13.67	14.50	1.210	0.295	22.5
Right tilted	802.11a	149/5745	98.10%	1.019	0.322	0.15	13.67	14.50	1.210	0.397	22.5
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11a	52/5260	98.10%	1.019	0.179	0.01	19.96	21.00	1.272	0.232	22.5
Back side	802.11a	52/5260	98.10%	1.019	0.259	0.10	19.96	21.00	1.272	0.336	22.5
Body worn Test data of U-NII-2C (Separate 15mm)											
Front side	802.11a	140/5700	98.10%	1.019	0.208	-0.11	19.86	20.50	1.159	0.246	22.5
Back side	802.11a	140/5700	98.10%	1.019	0.243	-0.13	19.86	20.50	1.159	0.287	22.5
Body worn Test data of U-NII-3 (Separate 15mm)											



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Front side	802.11a	149/5745	98.10%	1.019	0.236	0.06	20.59	21.50	1.233	0.297	22.5
Back side	802.11a	149/5745	98.10%	1.019	0.315	0.08	20.59	21.50	1.233	0.396	22.5
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11a	40/5200	98.10%	1.019	0.170	0.05	20.14	21.00	1.220	0.211	22.5
Back side	802.11a	40/5200	98.10%	1.019	0.319	0.17	20.14	21.00	1.220	0.397	22.5
Right side	802.11a	40/5200	98.10%	1.019	0.387	0.19	20.14	21.00	1.220	0.481	22.5
Top side	802.11a	40/5200	98.10%	1.019	0.449	0.17	20.14	21.00	1.220	0.558	22.5
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11a	149/5745	98.10%	1.019	0.306	-0.09	20.59	21.50	1.233	0.384	22.5
Back side	802.11a	149/5745	98.10%	1.019	0.422	0.03	20.59	21.50	1.233	0.530	22.5
Right side	802.11a	149/5745	98.10%	1.019	0.467	-0.01	20.59	21.50	1.233	0.587	22.5
Top side	802.11a	149/5745	98.10%	1.019	0.595	0.05	20.59	21.50	1.233	0.748	22.5
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 Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	52/5260	98.10%	1.019	0.542	0.05	19.96	21.00	1.272	0.703	22.5
Back side	802.11a	52/5260	98.10%	1.019	0.451	-0.16	19.96	21.00	1.272	0.585	22.5
Right side	802.11a	52/5260	98.10%	1.019	1.490	-0.01	19.96	21.00	1.272	1.932	22.5
Top side	802.11a	52/5260	98.10%	1.019	1.840	0.18	19.96	21.00	1.272	2.386	22.5
Product specific 10g SAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11a	140/5700	98.10%	1.019	0.529	0.05	19.86	20.50	1.159	0.625	22.5
Back side	802.11a	140/5700	98.10%	1.019	0.466	0.19	19.86	20.50	1.159	0.551	22.5
Right side	802.11a	140/5700	98.10%	1.019	1.790	0.04	19.86	20.50	1.159	2.115	22.5
Top side	802.11a	140/5700	98.10%	1.019	1.350	0.03	19.86	20.50	1.159	1.595	22.5

Table 30: SAR of WIFI 5G 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	64/5320	0.845	0.839	1.007151371	N/A	N/A
Left tilted	165/5825	0.838	0.832	1.007211538	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

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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9.2.2 SAR Result of BT

Bluetooth SAR Test Record											
Ant10 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 Receiver on											
Left cheek	DH5	39/2441	77.07%	1.298	0.104	0.09	10.82	12.00	1.314	0.177	22.5
Left tilted	DH5	39/2441	77.07%	1.298	0.088	-0.06	10.82	12.00	1.314	0.150	22.5
Right cheek	DH5	39/2441	77.07%	1.298	0.047	-0.09	10.82	12.00	1.314	0.080	22.5
Right tilted	DH5	39/2441	77.07%	1.298	0.052	-0.08	10.82	12.00	1.314	0.089	22.5
Body worn Test data(Separate 15mm)											
Front side	DH5	39/2441	77.07%	1.298	0.009	0.02	14.76	16.00	1.332	0.016	22.5
Back side	DH5	39/2441	77.07%	1.298	0.016	-0.07	14.76	16.00	1.332	0.028	22.5
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	77.07%	1.298	0.035	0.12	14.76	16.00	1.332	0.060	22.5
Back side	DH5	39/2441	77.07%	1.298	0.049	-0.10	14.76	16.00	1.332	0.085	22.5
Right side	DH5	39/2441	77.07%	1.298	0.078	-0.12	14.76	16.00	1.332	0.135	22.5
Top side	DH5	39/2441	77.07%	1.298	0.054	-0.10	14.76	16.00	1.332	0.093	22.5

Table 31: 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 MIMO	Y	Y	Y	Y
2	WWAN + WIFI5G MIMO	Y	Y	Y	Y
3	WIFI5G MIMO + BT	Y	Y	Y	Y
4	WWAN + BT	Y	Y	Y	Y
5	WWAN + WIFI5G MIMO + 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 MIMO	WiFi 5G MIMO	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Left cheek	0.792	0.302	0.376	0.177	1.094	1.345
	Left tilted	0.308	0.174	0.482	0.150	0.482	0.940
	Right cheek	0.448	0.084	0.295	0.080	0.532	0.823
	Right tilted	0.233	0.080	0.397	0.089	0.313	0.719
GSM1900	Left cheek	0.653	0.302	0.376	0.177	0.955	1.206
	Left tilted	0.744	0.174	0.482	0.150	0.918	1.376
	Right cheek	0.955	0.084	0.295	0.080	1.039	1.330
	Right tilted	1.049	0.080	0.397	0.089	1.129	1.535
WCDMA Band II	Left cheek	0.646	0.302	0.376	0.177	0.948	1.199
	Left tilted	0.758	0.174	0.482	0.150	0.932	1.390
	Right cheek	0.926	0.084	0.295	0.080	1.010	1.301
	Right tilted	1.033	0.080	0.397	0.089	1.113	1.519
WCDMA Band IV	Left cheek	0.805	0.302	0.376	0.177	1.107	1.358
	Left tilted	0.771	0.174	0.482	0.150	0.945	1.403
	Right cheek	1.071	0.084	0.295	0.080	1.155	1.446
	Right tilted	0.990	0.080	0.397	0.089	1.070	1.476
WCDMA Band V	Left cheek	0.956	0.302	0.376	0.177	1.258	1.509
	Left tilted	0.161	0.174	0.482	0.150	0.335	0.793
	Right cheek	0.523	0.084	0.295	0.080	0.607	0.898
	Right tilted	0.212	0.080	0.397	0.089	0.292	0.698
LTE Band 2	Left cheek	0.563	0.302	0.376	0.177	0.865	1.116
	Left tilted	0.678	0.174	0.482	0.150	0.852	1.310
	Right cheek	0.990	0.084	0.295	0.080	1.074	1.365
	Right tilted	1.088	0.080	0.397	0.089	1.168	1.574
LTE Band 4	Left cheek	0.794	0.302	0.376	0.177	1.096	1.347
	Left tilted	0.000	0.174	0.482	0.150	0.174	0.632
	Right cheek	1.009	0.084	0.295	0.080	1.093	1.384
	Right tilted	0.000	0.080	0.397	0.089	0.080	0.486
LTE Band 7	Left cheek	0.844	0.302	0.376	0.177	1.146	1.397
	Left tilted	0.494	0.174	0.482	0.150	0.668	1.126
	Right cheek	0.895	0.084	0.295	0.080	0.979	1.270
	Right tilted	0.924	0.080	0.397	0.089	1.004	1.410
LTE Band 12	Left cheek	0.657	0.302	0.376	0.177	0.959	1.210
	Left tilted	0.104	0.174	0.482	0.150	0.278	0.736
	Right cheek	0.491	0.084	0.295	0.080	0.575	0.866
	Right tilted	0.092	0.080	0.397	0.089	0.172	0.578
LTE Band 13	Left cheek	0.826	0.302	0.376	0.177	1.128	1.379
	Left tilted	0.144	0.174	0.482	0.150	0.318	0.776
	Right cheek	0.590	0.084	0.295	0.080	0.674	0.965
	Right tilted	0.114	0.080	0.397	0.089	0.194	0.600
LTE Band 26	Left cheek	0.779	0.302	0.376	0.177	1.081	1.332
	Left tilted	0.164	0.174	0.482	0.150	0.338	0.796
	Right cheek	0.483	0.084	0.295	0.080	0.567	0.858
	Right tilted	0.186	0.080	0.397	0.089	0.266	0.672
LTE Band 41	Left cheek	0.443	0.302	0.376	0.177	0.745	0.996
	Left tilted	0.412	0.174	0.482	0.150	0.586	1.044
	Right cheek	0.707	0.084	0.295	0.080	0.791	1.082



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	Right tilted	0.812	0.080	0.397	0.089	0.892	1.298
LTE Band 66	Left cheek	1.025	0.302	0.376	0.177	1.327	1.578
	Left tilted	0.418	0.174	0.482	0.150	0.592	1.050
	Right cheek	0.641	0.084	0.295	0.080	0.725	1.016
	Right tilted	0.564	0.080	0.397	0.089	0.644	1.050
5G NR n5	Left cheek	0.981	0.302	0.376	0.177	1.283	1.534
	Left tilted	0.179	0.174	0.482	0.150	0.353	0.811
	Right cheek	0.654	0.084	0.295	0.080	0.738	1.029
	Right tilted	0.234	0.080	0.397	0.089	0.314	0.720
5G NR n7	Left cheek	0.466	0.302	0.376	0.177	0.768	1.019
	Left tilted	0.485	0.174	0.482	0.150	0.659	1.117
	Right cheek	0.946	0.084	0.295	0.080	1.030	1.321
	Right tilted	0.885	0.080	0.397	0.089	0.965	1.371
5G NR n41	Left cheek	0.520	0.302	0.376	0.177	0.822	1.073
	Left tilted	0.247	0.174	0.482	0.150	0.421	0.879
	Right cheek	1.044	0.084	0.295	0.080	1.128	1.419
	Right tilted	0.484	0.080	0.397	0.089	0.564	0.970
5G NR n66	Left cheek	0.633	0.302	0.376	0.177	0.935	1.186
	Left tilted	0.698	0.174	0.482	0.150	0.872	1.330
	Right cheek	0.997	0.084	0.295	0.080	1.081	1.372
	Right tilted	1.042	0.080	0.397	0.089	1.122	1.528
5G NR n77 Part27Q	Left cheek	0.692	0.302	0.376	0.177	0.994	1.245
	Left tilted	0.752	0.174	0.482	0.150	0.926	1.384
	Right cheek	0.792	0.084	0.295	0.080	0.876	1.167
	Right tilted	0.772	0.080	0.397	0.089	0.852	1.258
5G NR n77 Part27O	Left cheek	0.755	0.302	0.376	0.177	1.057	1.308
	Left tilted	0.921	0.174	0.482	0.150	1.095	1.553
	Right cheek	0.692	0.084	0.295	0.080	0.776	1.067
	Right tilted	0.746	0.080	0.397	0.089	0.826	1.232



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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 MIMO	WiFi 5G MIMO	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Front side	0.441	0.179	0.297	0.016	0.738	0.754
	Back side	0.624	0.282	0.397	0.028	1.021	1.049
GSM1900	Front side	0.145	0.179	0.297	0.016	0.442	0.458
	Back side	0.248	0.282	0.397	0.028	0.645	0.673
WCDMA Band II	Front side	0.623	0.179	0.297	0.016	0.920	0.936
	Back side	0.853	0.282	0.397	0.028	1.250	1.278
WCDMA Band IV	Front side	0.592	0.179	0.297	0.016	0.889	0.905
	Back side	1.072	0.282	0.397	0.028	1.469	1.497
WCDMA Band V	Front side	0.376	0.179	0.297	0.016	0.673	0.689
	Back side	0.565	0.282	0.397	0.028	0.962	0.990
LTE Band 2	Front side	0.708	0.179	0.297	0.016	1.005	1.021
	Back side	1.012	0.282	0.397	0.028	1.409	1.437
LTE Band 4	Front side	0.617	0.179	0.297	0.016	0.914	0.930
	Back side	0.930	0.282	0.397	0.028	1.327	1.355
LTE Band 7	Front side	0.534	0.179	0.297	0.016	0.831	0.847
	Back side	0.823	0.282	0.397	0.028	1.220	1.248
LTE Band 12	Front side	0.378	0.179	0.297	0.016	0.675	0.691
	Back side	0.537	0.282	0.397	0.028	0.934	0.962
LTE Band 13	Front side	0.632	0.179	0.297	0.016	0.929	0.945
	Back side	0.909	0.282	0.397	0.028	1.306	1.334
LTE Band 26	Front side	0.401	0.179	0.297	0.016	0.698	0.714
	Back side	0.690	0.282	0.397	0.028	1.087	1.115
LTE Band 41	Front side	0.326	0.179	0.297	0.016	0.623	0.639
	Back side	0.670	0.282	0.397	0.028	1.067	1.095
LTE Band 66	Front side	0.491	0.179	0.297	0.016	0.788	0.804
	Back side	0.925	0.282	0.397	0.028	1.322	1.350
5G NR n5	Front side	0.307	0.179	0.297	0.016	0.604	0.620
	Back side	0.403	0.282	0.397	0.028	0.800	0.828
5G NR n7	Front side	0.342	0.179	0.297	0.016	0.639	0.655
	Back side	0.732	0.282	0.397	0.028	1.129	1.157
5G NR n41	Front side	0.471	0.179	0.297	0.016	0.768	0.784
	Back side	0.882	0.282	0.397	0.028	1.279	1.307
5G NR n66	Front side	0.353	0.179	0.297	0.016	0.650	0.666
	Back side	0.771	0.282	0.397	0.028	1.168	1.196
5G NR n77 Part27Q	Front side	0.280	0.179	0.297	0.016	0.577	0.593
	Back side	0.624	0.282	0.397	0.028	1.021	1.049
5G NR n77 Part27O	Front side	0.339	0.179	0.297	0.016	0.636	0.652
	Back side	0.748	0.282	0.397	0.028	1.145	1.173



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Hotspot:

Test position		SARmax (W/kg)				Summed SAR	
		Main	WiFi 2.4G MIMO	WiFi 5G MIMO	BT		
		1	2	3	4	1+2	1+3+4
GSM850	Front side	0.353	0.331	0.384	0.060	0.684	0.797
	Back side	0.516	0.525	0.530	0.085	1.041	1.131
	Left side	0.713	0.000	0.000	0.000	0.713	0.713
	Right side	0.259	0.624	0.587	0.135	0.883	0.981
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.210	0.000	0.000	0.000	0.210	0.210
GSM1900	Front side	0.362	0.331	0.384	0.060	0.693	0.806
	Back side	0.495	0.525	0.530	0.085	1.020	1.110
	Left side	0.145	0.000	0.000	0.000	0.145	0.145
	Right side	0.000	0.624	0.587	0.135	0.624	0.722
	Top side	0.544	0.179	0.748	0.093	0.723	1.385
	Bottom side	0.746	0.000	0.000	0.000	0.746	0.746
WCDMA Band II	Front side	0.527	0.331	0.384	0.060	0.858	0.971
	Back side	0.709	0.525	0.530	0.085	1.234	1.324
	Left side	0.229	0.000	0.000	0.000	0.229	0.229
	Right side	0.000	0.624	0.587	0.135	0.624	0.722
	Top side	0.527	0.179	0.748	0.093	0.706	1.368
	Bottom side	0.993	0.000	0.000	0.000	0.993	0.993
WCDMA Band IV	Front side	0.463	0.331	0.384	0.060	0.794	0.907
	Back side	0.622	0.525	0.530	0.085	1.147	1.237
	Left side	0.369	0.000	0.000	0.000	0.369	0.369
	Right side	0.623	0.624	0.587	0.135	1.247	1.345
	Top side	0.528	0.179	0.748	0.093	0.707	1.369
	Bottom side	0.942	0.000	0.000	0.000	0.942	0.942
WCDMA Band V	Front side	0.545	0.331	0.384	0.060	0.876	0.989
	Back side	0.745	0.525	0.530	0.085	1.270	1.360
	Left side	0.935	0.000	0.000	0.000	0.935	0.935
	Right side	0.609	0.624	0.587	0.135	1.233	1.331
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.393	0.000	0.000	0.000	0.393	0.393
LTE Band 2	Front side	0.582	0.331	0.384	0.060	0.913	1.026
	Back side	0.718	0.525	0.530	0.085	1.243	1.333
	Left side	0.237	0.000	0.000	0.000	0.237	0.237
	Right side	0.000	0.624	0.587	0.135	0.624	0.722
	Top side	0.491	0.179	0.748	0.093	0.670	1.332
	Bottom side	1.064	0.000	0.000	0.000	1.064	1.064
LTE Band 4	Front side	0.355	0.331	0.384	0.060	0.686	0.799
	Back side	0.479	0.525	0.530	0.085	1.004	1.094
	Left side	0.251	0.000	0.000	0.000	0.251	0.251
	Right side	0.570	0.624	0.587	0.135	1.194	1.292
	Top side	0.181	0.179	0.748	0.093	0.360	1.022
	Bottom side	0.702	0.000	0.000	0.000	0.702	0.702
LTE Band 7	Front side	0.336	0.331	0.384	0.060	0.667	0.780
	Back side	0.506	0.525	0.530	0.085	1.031	1.121
	Left side	0.495	0.000	0.000	0.000	0.495	0.495
	Right side	0.852	0.624	0.587	0.135	1.476	1.574
	Top side	0.287	0.179	0.748	0.093	0.466	1.128
	Bottom side	0.532	0.000	0.000	0.000	0.532	0.532



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LTE Band 12	Front side	0.440	0.331	0.384	0.060	0.771	0.884
	Back side	0.764	0.525	0.530	0.085	1.289	1.379
	Left side	1.051	0.000	0.000	0.000	1.051	1.051
	Right side	0.274	0.624	0.587	0.135	0.898	0.996
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.110	0.000	0.000	0.000	0.110	0.110
LTE Band 13	Front side	0.499	0.331	0.384	0.060	0.830	0.943
	Back side	0.719	0.525	0.530	0.085	1.244	1.334
	Left side	0.904	0.000	0.000	0.000	0.904	0.904
	Right side	0.583	0.624	0.587	0.135	1.207	1.305
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.346	0.000	0.000	0.000	0.346	0.346
LTE Band 26	Front side	0.439	0.331	0.384	0.060	0.770	0.883
	Back side	0.898	0.525	0.530	0.085	1.423	1.513
	Left side	0.969	0.000	0.000	0.000	0.969	0.969
	Right side	0.206	0.624	0.587	0.135	0.830	0.928
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.166	0.000	0.000	0.000	0.166	0.166
LTE Band 41	Front side	0.308	0.331	0.384	0.060	0.639	0.752
	Back side	0.523	0.525	0.530	0.085	1.048	1.138
	Left side	0.192	0.000	0.000	0.000	0.192	0.192
	Right side	0.529	0.624	0.587	0.135	1.153	1.251
	Top side	0.277	0.179	0.748	0.093	0.456	1.118
	Bottom side	0.550	0.000	0.000	0.000	0.550	0.550
LTE Band 66	Front side	0.543	0.331	0.384	0.060	0.874	0.987
	Back side	0.692	0.525	0.530	0.085	1.217	1.307
	Left side	0.440	0.000	0.000	0.000	0.440	0.440
	Right side	0.784	0.624	0.587	0.135	1.408	1.506
	Top side	0.628	0.179	0.748	0.093	0.807	1.469
	Bottom side	1.038	0.000	0.000	0.000	1.038	1.038
5G NR n5	Front side	0.499	0.331	0.384	0.060	0.830	0.943
	Back side	0.788	0.525	0.530	0.085	1.313	1.403
	Left side	1.013	0.000	0.000	0.000	1.013	1.013
	Right side	0.503	0.624	0.587	0.135	1.127	1.225
	Top side	0.000	0.179	0.748	0.093	0.179	0.841
	Bottom side	0.384	0.000	0.000	0.000	0.384	0.384
5G NR n7	Front side	0.220	0.331	0.384	0.060	0.551	0.664
	Back side	0.349	0.525	0.530	0.085	0.874	0.964
	Left side	0.327	0.000	0.000	0.000	0.327	0.327
	Right side	0.629	0.624	0.587	0.135	1.253	1.351
	Top side	0.305	0.179	0.748	0.093	0.484	1.146
	Bottom side	0.400	0.000	0.000	0.000	0.400	0.400
5G NR n41	Front side	0.276	0.331	0.384	0.060	0.607	0.720
	Back side	0.445	0.525	0.530	0.085	0.970	1.060
	Left side	0.288	0.000	0.000	0.000	0.288	0.288
	Right side	0.694	0.624	0.587	0.135	1.318	1.416
	Top side	0.235	0.179	0.748	0.093	0.414	1.076
	Bottom side	0.375	0.000	0.000	0.000	0.375	0.375
5G NR n66	Front side	0.496	0.331	0.384	0.060	0.827	0.940
	Back side	0.628	0.525	0.530	0.085	1.153	1.243
	Left side	0.512	0.000	0.000	0.000	0.512	0.512
	Right side	0.519	0.624	0.587	0.135	1.143	1.241
	Top side	0.512	0.179	0.748	0.093	0.691	1.353
	Bottom side	0.863	0.000	0.000	0.000	0.863	0.863



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5G NR n77 Part27Q	Front side	0.261	0.331	0.384	0.060	0.592	0.705
	Back side	0.576	0.525	0.530	0.085	1.101	1.191
	Left side	0.643	0.000	0.000	0.000	0.643	0.643
	Right side	0.638	0.624	0.587	0.135	1.262	1.360
	Top side	0.638	0.179	0.748	0.093	0.817	1.479
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000
5G NR n77 Part27O	Front side	0.144	0.331	0.384	0.060	0.475	0.588
	Back side	0.337	0.525	0.530	0.085	0.862	0.952
	Left side	0.203	0.000	0.000	0.000	0.203	0.203
	Right side	0.369	0.624	0.587	0.135	0.993	1.091
	Top side	0.381	0.179	0.748	0.093	0.560	1.222
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000

Product specific 10gSAR:

Test position	SARmax (W/kg)		Summed SAR	
	Main	WiFi 5G MIMO		
	1	2	1+2	
GSM850	Front side	0.000	0.703	0.703
	Back side	0.000	0.585	0.585
	Left side	1.987	0.000	1.987
	Right side	0.000	2.115	2.115
	Top side	0.000	2.386	2.386
	Bottom side	0.000	0.000	0.000
WCDMA V	Front side	0.000	0.573	0.573
	Back side	0.000	0.444	0.444
	Left side	1.330	0.000	1.330
	Right side	0.000	1.690	1.690
	Top side	0.000	1.997	1.997
	Bottom side	0.000	0.000	0.000
LTE Band 2	Front side	0.000	0.573	0.573
	Back side	0.000	0.444	0.444
	Left side	0.000	0.000	0.000
	Right side	0.000	1.690	1.690
	Top side	0.000	1.997	1.997
	Bottom side	2.368	0.000	2.368
LTE Band 13	Front side	0.000	0.703	0.703
	Back side	1.663	0.585	2.248
	Left side	1.453	0.000	1.453
	Right side	0.000	2.115	2.115
	Top side	0.000	2.386	2.386
	Bottom side	0.000	0.000	0.000



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9.3.3 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	0.090	-0.17	23.55	25.00	1.396	0.126	22.2
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.045	-0.16	23.55	25.00	1.396	0.063	22.2
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.077	0.13	23.55	25.00	1.396	0.108	22.2
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.049	0.17	23.55	25.00	1.396	0.068	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.076	-0.18	22.63	24.00	1.371	0.104	22.2
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.040	-0.16	22.63	24.00	1.371	0.055	22.2
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.069	0.07	22.63	24.00	1.371	0.095	22.2
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.047	-0.10	22.63	24.00	1.371	0.064	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23095/707.5	1:1	0.121	-0.12	23.55	25.00	1.396	0.169	22.2
Back side	10	QPSK 1_0	23095/707.5	1:1	0.143	-0.16	23.55	25.00	1.396	0.200	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23095/707.5	1:1	0.147	0.07	22.63	24.00	1.371	0.202	22.2
Back side	10	QPSK 25_0	23095/707.5	1:1	0.136	0.14	22.63	24.00	1.371	0.186	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23095/707.5	1:1	0.176	-0.08	23.55	25.00	1.396	0.246	22.2
Back side	10	QPSK 1_0	23095/707.5	1:1	0.210	0.16	23.55	25.00	1.396	0.293	22.2
Right side	10	QPSK 1_0	23095/707.5	1:1	0.196	-0.17	23.55	25.00	1.396	0.274	22.2
Bottom side	10	QPSK 1_0	23095/707.5	1:1	0.079	-0.19	23.55	25.00	1.396	0.110	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23095/707.5	1:1	0.165	-0.06	22.63	24.00	1.371	0.226	22.2
Back side	10	QPSK 25_0	23095/707.5	1:1	0.200	0.09	22.63	24.00	1.371	0.274	22.2
Right side	10	QPSK 25_0	23095/707.5	1:1	0.181	-0.07	22.63	24.00	1.371	0.248	22.2
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.073	-0.13	22.63	24.00	1.371	0.100	22.2
Ant 1 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	23095/707.5	1:1	0.431	0.14	23.57	25.40	1.524	0.657	22.2
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.068	-0.17	23.57	25.40	1.524	0.104	22.2
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.297	-0.12	23.57	25.40	1.524	0.453	22.2
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.054	-0.03	23.57	25.40	1.524	0.082	22.2
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.422	0.19	22.55	24.40	1.531	0.646	22.2
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.060	0.03	22.55	24.40	1.531	0.092	22.2
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.321	-0.07	22.55	24.40	1.531	0.491	22.2
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.060	-0.08	22.55	24.40	1.531	0.092	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	23095/707.5	1:1	0.154	0.09	23.57	25.40	1.524	0.235	22.2
Back side	10	QPSK 1_0	23095/707.5	1:1	0.295	0.09	23.57	25.40	1.524	0.450	22.2
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	23095/707.5	1:1	0.247	0.11	22.55	24.40	1.531	0.378	22.2
Back side	10	QPSK 25_0	23095/707.5	1:1	0.351	0.19	22.55	24.40	1.531	0.537	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	23095/707.5	1:1	0.289	-0.17	23.57	25.40	1.524	0.440	22.2



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Back side	10	QPSK 1_0	23095/707.5	1:1	0.501	-0.15	23.57	25.40	1.524	0.764	22.2
Left side	10	QPSK 1_0	23095/707.5	1:1	0.686	0.04	23.57	25.40	1.524	1.046	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	23095/707.5	1:1	0.265	-0.16	22.55	24.40	1.531	0.406	22.2
Back side	10	QPSK 25_0	23095/707.5	1:1	0.399	0.06	22.55	24.40	1.531	0.611	22.2
Left side	10	QPSK 25_0	23095/707.5	1:1	0.587	0.07	22.55	24.40	1.531	0.899	22.2
Hotspot Test data(Separate 10mm 50%RB)											
Left side	10	QPSK 50_0	23095/707.5	1:1	0.691	0.17	22.58	24.40	1.521	1.051	22.2

Table 32: SAR of LTE Band 12 for Head and Body.



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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	SAM 1	1769	NCR	NCR
<input checked="" type="checkbox"/>	Twin Phantom	SPEAG	SAM 3	1770	NCR	NCR
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4	1374	2023-06-05	2024-06-04
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	3982	2023-01-06	2024-01-05
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	7466	2023-01-26	2024-01-25
<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	2024-08-24
<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	2024-05-03
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D2450V2	922	2023-08-28	2024-08-27
<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	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	2023-09-13	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	SUW201-30-01	2023-09-14	2024-09-13
<input checked="" type="checkbox"/>	Humidity and Temperature Indicator	MingGao	MingGao	NA	2023-09-14	2024-09-13

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

---END---



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