

FCC SAR TEST REPORT Part1

Application No.: SEWM2309000386RG
Applicant: Xiaomi Communications Co., Ltd.
Manufacturer: Xiaomi Communications Co., Ltd.
Product Name: Mobile Phone
Model No.(EUT): 23113RKC6G
Trade Mark: POCO
FCC ID: 2AFZZRKC6G
Standards: FCC 47CFR §2.1093
Date of Receipt: 2023-09-20
Date of Test: 2023-09-22 to 2023-11-17
Date of Issue: 2023-11-17
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
SEWM2309000386RG09	01	Original	2023-11-17



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.84	0.30	0.28	/
GSM1900	0.57	0.21	0.70	/
WCDMA Band II	0.11	0.48	0.75	/
WCDMA Band IV	1.09	0.48	1.05	/
WCDMA Band V	0.49	0.43	0.49	/
LTE Band 2	1.01	0.46	0.79	/
LTE Band 4	0.92	0.55	0.79	/
LTE Band 5	0.71	0.47	0.45	/
LTE Band 7	1.08	0.61	0.54	/
LTE Band 41(38)	0.97	0.29	0.54	/
LTE Band 48	0.85	0.42	0.61	/
LTE Band 66	0.92	0.55	0.79	/
NR Band n2	0.55	0.52	0.90	/
NR Band n5	0.85	0.57	0.43	/
NR Band n7	0.91	0.55	0.45	/
NR Band n41(38)	0.89	1.08	0.64	/
NR Band n48	0.84	0.98	0.74	/
NR Band n77	0.96	0.95	0.92	/
NR Band n78	0.78	0.93	0.92	/
WI-FI (2.4GHz)	1.00	0.51	0.25	2.59
WI-FI (5GHz)	0.99	0.39	0.25	2.58
BT	0.13	0.12	0.13	/
NFC	/	/	/	<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	1.59	1.48	1.33	3.80
SPLSR	/	/	/	/
SPLSR Limited	0.04			0.1

Note:

- 1) According to TCB workshop October,2014 RF Exposure Procedures Update (Overlapping Bands): SAR for LTE Band 4 (Frequency range:1710 - 1755 MHz)/ LTE Band 38 (Frequency range:2570 - 2620 MHz)/n38 (Frequency range:2570 - 2620 MHz)/ n78 (Frequency range:3300 - 3800 MHz) is respectively covered by LTE Band 66 (Frequency range:1710 - 1780 MHz)/LTE Band41 (Frequency range:2496 - 2690 MHz)/ n41 (Frequency range:2496 - 2690 MHz)/ n77 (Frequency range:3300 - 3980 MHz) due to similar frequency range, same maximum tune up limit and same channel bandwidth.
- 2) For LTE band 4/5/12/13/26 and n7/n41/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

Nick Hu

Prepared by

Leon Xu



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CONTENTS

1	DUT ANTENNA LOCATIONS (BACK VIEW).....	7
2	GENERAL INFORMATION.....	8
2.1	DETAILS OF CLIENT	8
2.2	TEST LOCATION.....	8
2.3	TEST FACILITY.....	9
2.4	GENERAL DESCRIPTION OF EUT	10
2.4.1	LTE CA additional specification.....	12
2.4.2	Power reduction specification.....	14
2.5	TEST SPECIFICATION	15
2.6	RF EXPOSURE LIMITS	16
3	LABORATORY ENVIRONMENT	17
4	SAR MEASUREMENTS SYSTEM CONFIGURATION.....	18
4.1	THE SAR MEASUREMENT SYSTEM.....	18
4.2	ISOTROPIC E-FIELD PROBE EX3DV4	19
4.3	DATA ACQUISITION ELECTRONICS (DAE)	20
4.4	SAM TWIN PHANTOM.....	20
4.5	ELI PHANTOM	21
4.6	DEVICE HOLDER FOR TRANSMITTERS.....	22
4.7	MEASUREMENT PROCEDURE	23
4.7.1	Scanning procedure	23
4.7.2	Data Storage.....	25
4.7.3	Data Evaluation by SEMCAD.....	25
5	SAR MEASUREMENT VARIABILITY AND UNCERTAINTY	27
5.1	SAR MEASUREMENT VARIABILITY	27
5.2	SAR MEASUREMENT UNCERTAINTY.....	27
6	DESCRIPTION OF TEST POSITION.....	29
6.1	HEAD EXPOSURE CONDITION	29
6.1.1	SAM Phantom Shape.....	29
6.1.2	EUT constructions	30
6.1.3	Definition of the “cheek” position.....	30
6.1.4	Definition of the “tilted” position	31
6.2	BODY EXPOSURE CONDITION	32
6.2.1	Body-worn accessory exposure conditions	32
6.2.2	Wireless Router exposure conditions.....	33
6.3	EXTREMITY EXPOSURE CONDITIONS.....	33
6.4	PROXIMITY SENSOR TRIGGERING TEST	34
7	SAR SYSTEM VERIFICATION PROCEDURE	38
7.1	TISSUE SIMULATE LIQUID	38
7.1.1	Recipes for Tissue Simulate Liquid.....	38



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7.1.2	Measurement for Tissue Simulate Liquid.....	39
7.2	SAR SYSTEM CHECK.....	40
7.2.1	Justification for Extended SAR Dipole Calibrations	41
7.2.2	Summary System Check Result(s)	42
7.2.3	Detailed System Check Results	42
8	TEST CONFIGURATION	43
8.1	3G SAR TEST REDUCTION PROCEDURE.....	43
8.2	OPERATION CONFIGURATIONS	43
8.2.1	GSM Test Configuration.....	43
8.2.2	WCDMA Test Configuration.....	44
8.2.3	WiFi Test Configuration.....	50
8.2.4	LTE Test Configuration	56
8.2.5	NR Band Test Configuration.....	59
9	TEST RESULT	63
9.1	MEASUREMENT OF RF CONDUCTED POWER.....	63
9.2	MEASUREMENT OF SAR DATA	65
9.2.1	SAR Result of GSM850.....	66
9.2.2	SAR Result of GSM1900	66
9.2.3	SAR Result of WCDMA Band II.....	67
9.2.4	SAR Result of WCDMA Band IV	68
9.2.5	SAR Result of WCDMA Band V	69
9.2.6	SAR Result of LTE Band 2.....	70
9.2.7	SAR Result of LTE Band 4.....	71
9.2.8	SAR Result of LTE Band 5.....	71
9.2.9	SAR Result of LTE Band 7.....	73
9.2.10	SAR Result of LTE Band 41.....	75
9.2.11	SAR Result of LTE Band 48.....	79
9.2.12	SAR Result of LTE Band 66.....	81
9.2.1	SAR Result of 5G NR n2.....	83
9.2.2	SAR Result of 5G NR n5.....	85
9.2.3	SAR Result of 5G NR n7.....	86
9.2.4	SAR Result of 5G NR n41.....	88
9.2.5	SAR Result of 5G NR n48.....	91
9.2.6	SAR Result of 5G NR n77(3450~3550).....	93
9.2.7	SAR Result of 5G NR n77(3700~3980).....	96
9.2.8	SAR Result of 5G NR n78(350~3550).....	98
9.2.9	SAR Result of 5G NR n78(3700~3800).....	99
9.2.10	SAR Result of WIFI 2.4G.....	100
9.2.1	SAR Result of WIFI 5G	101
9.2.2	SAR Result of BT.....	104
9.2.1	SAR Result of NFC.....	105
9.3	MULTIPLE TRANSMITTER EVALUATION	106
9.3.1	Simultaneous SAR SAR test evaluation	106
9.3.2	Simultaneous Transmission SAR Summation Scenario.....	107
10	EQUIPMENT LIST	113



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Report No.: SEWM2309000386RG09
Rev.: 01
Page: 6 of 114

11 CALIBRATION CERTIFICATE.....114
12 PHOTOGRAPHS114
APPENDIX A: DETAILED SYSTEM CHECK RESULTS.....114
APPENDIX B: DETAILED TEST RESULTS114
APPENDIX C: CALIBRATION CERTIFICATE114
APPENDIX D: PHOTOGRAPHS114
APPENDIX E: CONDUCTED RF OUTPUT POWER.....114



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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 170 mm. Per KDB 648474 D04, because the diagonal distance of this device is $\geq 160\text{mm}$, so it is a phablet.
- 2) Ant 0/5 is sensor pad 1
 Ant 1/3/4/6/8/9 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	Yes	No	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	Yes	No
Ant 5	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	No	Yes
Ant 6	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 7	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 8	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 9	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant 16	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant 17	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1: EUT Sides for SAR Testing

Note:

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



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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t (86-512) 62992980 www.sgs.com.cn
 t (86-512) 62992980 sgs.china@sgs.com

2.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Mobile Phone		
Model No.(EUT):	23113RKC6G		
FCC ID:	2AFZZRKC6G		
Trade Mark:	POCO		
Product Phase:	Identical Prototype		
IMEI:	1# 867826060041241/867826060041248 2# 867826060041142/867826060041159 3# 867826060044021/867826060044039		
Hardware Version:	13510N11		
Software Version:	Xiaomi HyperOS 1.0		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK,16QAM; LTE: QPSK,16QAM,64QAM,256QAM; 5G NR: DFT-s-OFDM (PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM), CP-OFDM (QPSK, 16QAM, 64QAM, 256QAM) WIFI: DSSS, OFDM, OFDMA; BT: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	33	EGPRS Multi-slots Class:	33
HSDPA UE Category:	24	HSUPA UE Category	6
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 38	2570 - 2620	2570 - 2620
	LTE Band 41	2496 - 2690	2496 - 2690
	LTE Band 48	3550 - 3700	3550 - 3700
	LTE Band 66	1710 - 1780	2110 - 2200
	NR Band n2	1850 - 1910	1930 - 1990
	NR Band n5	824 - 849	869 - 894
NR Band n7	2500 - 2570	2620 - 2690	
NR Band n38	2570 - 2620	2570 - 2620	



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Report No.: SEWM2309000386RG09

Rev.: 01

Page: 11 of 114

	NR Band n41	2496 - 2690	2496 - 2690
	NR Band n48	3550 - 3700	3550 - 3700
	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	5725 - 5850
RF Cable:	<input checked="" type="checkbox"/> Provided by the applicant <input type="checkbox"/> Provided by the laboratory		
1# Battery Information:	Model:	BM5W	
	Normal Voltage:	+3.89V	
	Rated capacity:	4880mAh	
	Brand Name:	MI	
Note: *Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion. Remark: 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.			



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

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



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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
IEC/IEEE 62209-1528:2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB 447498 D04	General RF Exposure Guidance v01
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 616217 D04	SAR for laptop and tablets v01r02



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

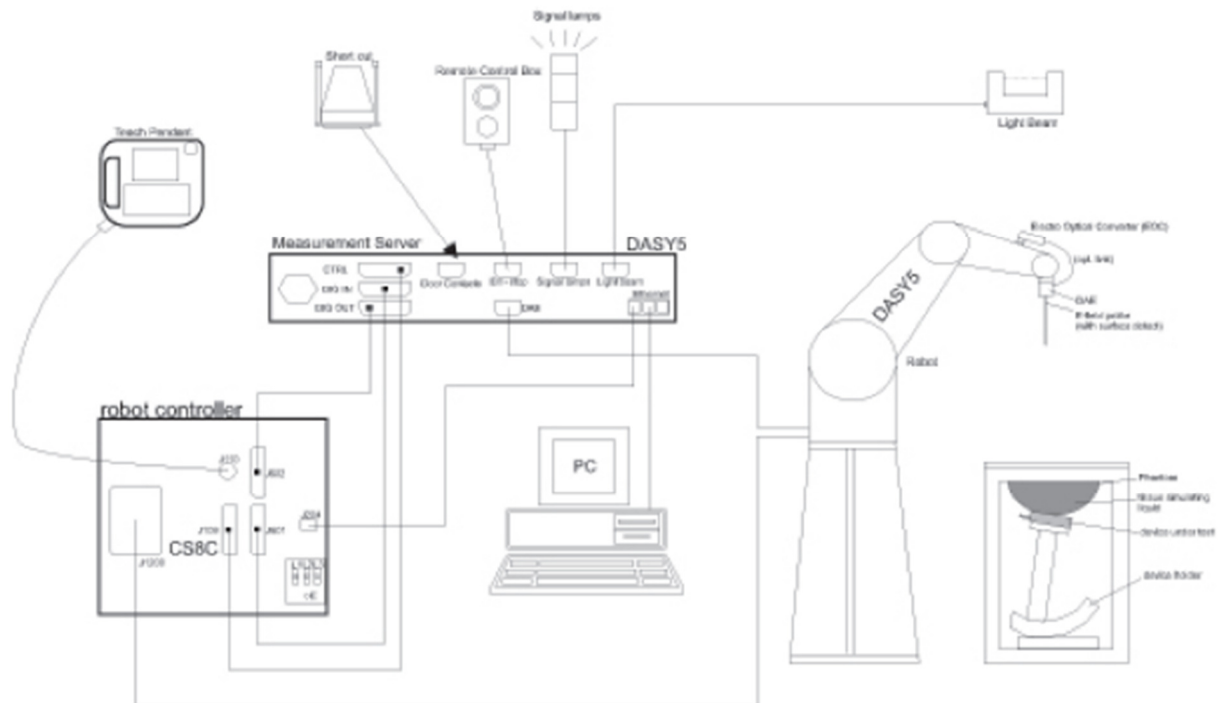
The DASY5 system for performing compliance tests consists of the following items:

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

Step 4: Power reference measurement (drift)

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



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4.7.2 Data Storage

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

4.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

- 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:

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



H-field probes:

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

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

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.

IEC- 62209-1528 sets out the general test methods to be followed when carrying out an RF exposure compliance assessment of wireless devices implementing device-based time-averaging methods for the management and/or mitigation of specific absorption rate (SAR) in the 4 MHz to 6 GHz frequency band. It does not cover requirements that are based on power density above 6 GHz or requirements to protect against nerve stimulation for the frequency range from 3 kHz to 10MHz.

Measurements and results are all in compliance with the standards listed. All measurements and results are recorded and maintained at the laboratory performing the tests and measurement uncertainties are taken into account when comparing measurements to pass/ fail criteria. The Expanded uncertainty (95% CONFIDENCE INTERVAL) is **23.34%**.

a	b	c	d	e = f(d,k)	g	i = C*g/e	K
Uncertainty Component	Section in P1528	Tol (%)	Prob.Dist.	Div.	Ci (1g)	1g ui (%)	Vi(Veff)
Measurement system							
Probe calibration	7.2.2.1	7.4	N	1	1	7.40	∞



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Axial isotropy	7.2.2.2	1.2	R	$\sqrt{3}$	1	0.69	∞
hemispherical isotropy	7.2.2.2	3.2	R	$\sqrt{3}$	1	1.85	∞
Linearity	7.2.2.3	0.9	R	$\sqrt{3}$	1	0.52	∞
Probe modulation response	7.2.2.4	0	R	$\sqrt{3}$	1	0.00	∞
Detection limits	7.2.2.5	0.25	R	$\sqrt{3}$	1	0.14	∞
Boundary effect	7.2.2.6	1.0	R	$\sqrt{3}$	1	0.58	∞
Readout electronics	7.2.2.7	0.3	N	1	1	0.30	∞
Response time	7.2.2.8	0	R	$\sqrt{3}$	1	0.00	∞
Integration time	7.2.2.9	2.6	R	$\sqrt{3}$	1	1.50	∞
RF ambient conditions – noise	7.2.4.5	3	R	$\sqrt{3}$	1	1.73	∞
RF ambient conditions – reflections	7.2.4.5	3	R	$\sqrt{3}$	1	1.73	∞
Probe positioner mech. restrictions	7.2.3.1	1.5	R	$\sqrt{3}$	1	0.87	∞
Probe positioning with respect to phantom shell	7.2.3.3	2.9	R	$\sqrt{3}$	1	1.67	∞
Post-processing	7.2.5	1	R	$\sqrt{3}$	1	0.58	∞
Test sample related							
Device holder uncertainty	7.2.3.4.2	3.6	N	1	1	3.60	∞
Test sample positioning	7.2.3.4.3	3.7	N	1	1	3.70	9
Power scaling	L.3	5.0	R	$\sqrt{3}$	1	2.89	∞
Drift of output power (measured SAR drift)	7.2.2.10	5	R	$\sqrt{3}$	1	2.89	∞
Phantom and set-up							
Phantom uncertainty (shape and thickness tolerances)	7.2.3.2	4	R	$\sqrt{3}$	1	2.31	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	7.2.4.3	1.9	N	1	1	1.90	∞
Liquid conductivity (meas.)	7.2.4.3	5.78	N	1	0.78	4.51	4
Liquid permittivity (meas.)	7.2.4.3	0.62	N	1	0.23	0.14	5
Liquid permittivity – temperature uncertainty	7.2.4.4	0.2	R	$\sqrt{3}$	0.78	0.09	∞
Liquid conductivity – temperature uncertainty	7.2.4.4	5.37	R	$\sqrt{3}$	0.23	0.71	∞
Combined standard uncertainty	RSS					11.67	417
Expanded uncertainty (95% CONFIDENCE INTERVAL)			K=2			23.34	



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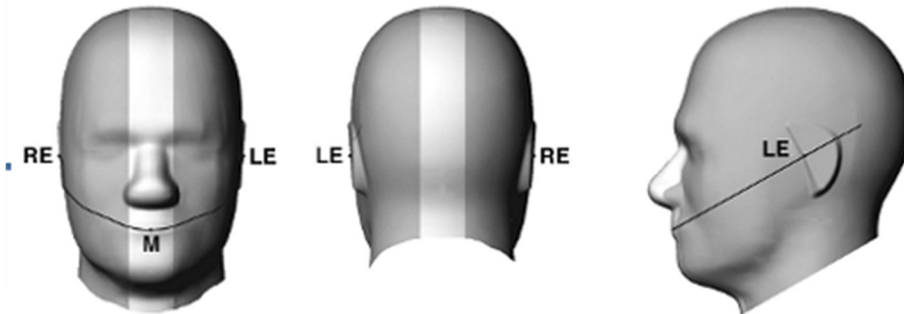
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6 Description of Test Position

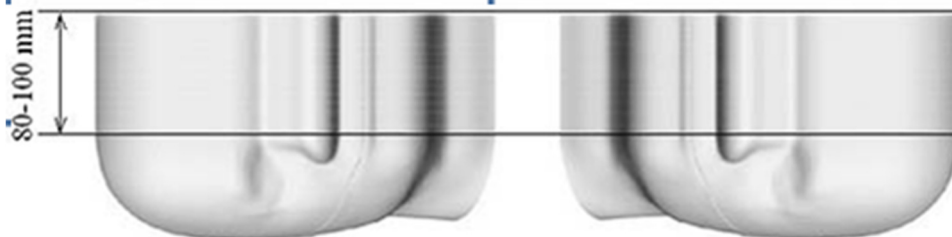
6.1 Head Exposure Condition

6.1.1 SAM Phantom Shape

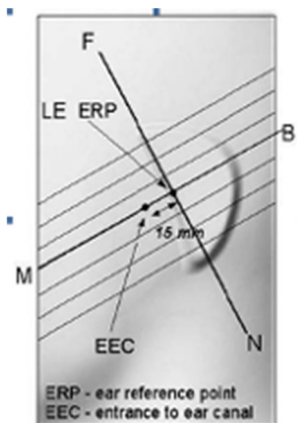


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

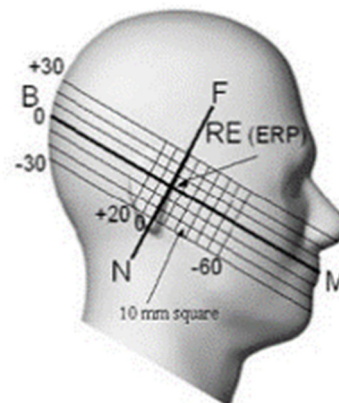
Note: The centre strip including the nose region has a different thickness tolerance.



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

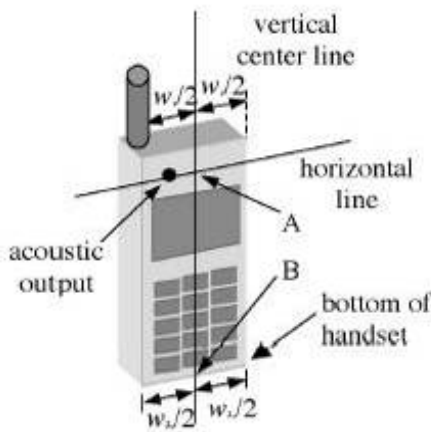


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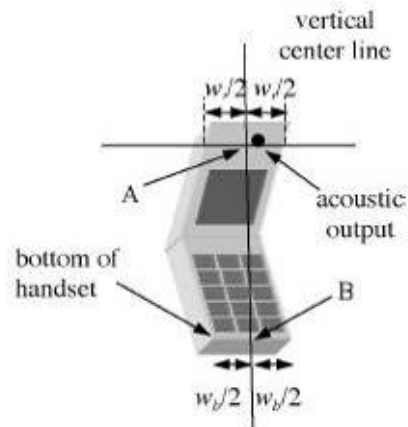
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6.1.2 EUT constructions



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

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



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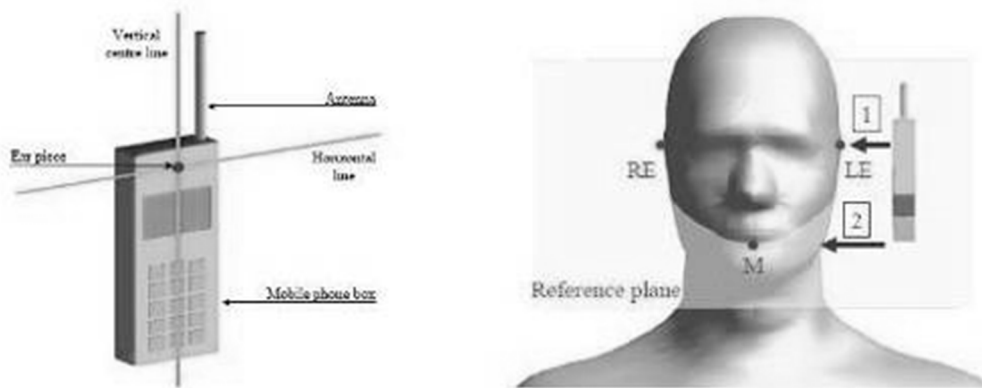
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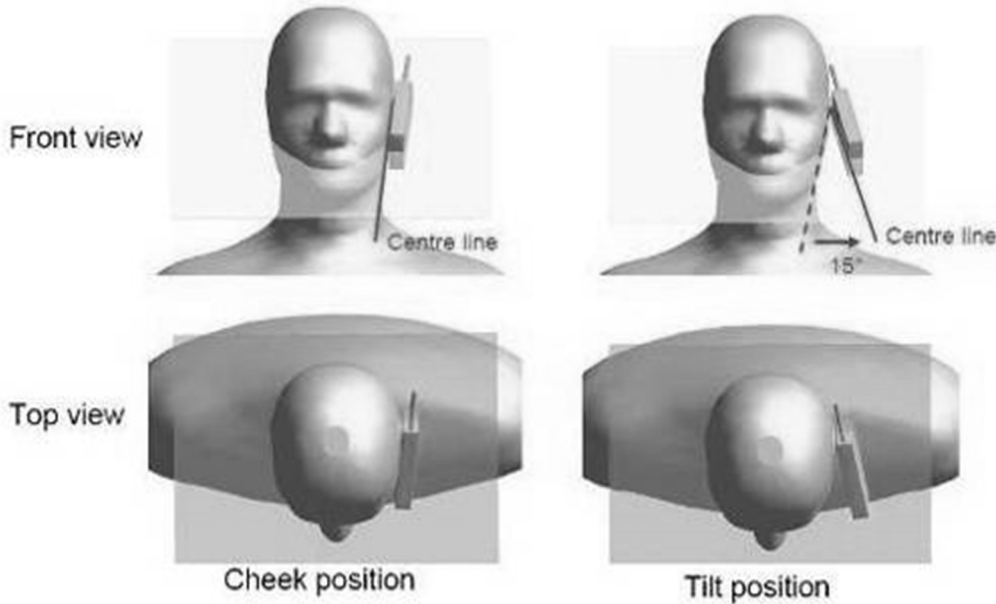
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6.1.4 Definition of the “tilted” position

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



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



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



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6.2 Body Exposure Condition

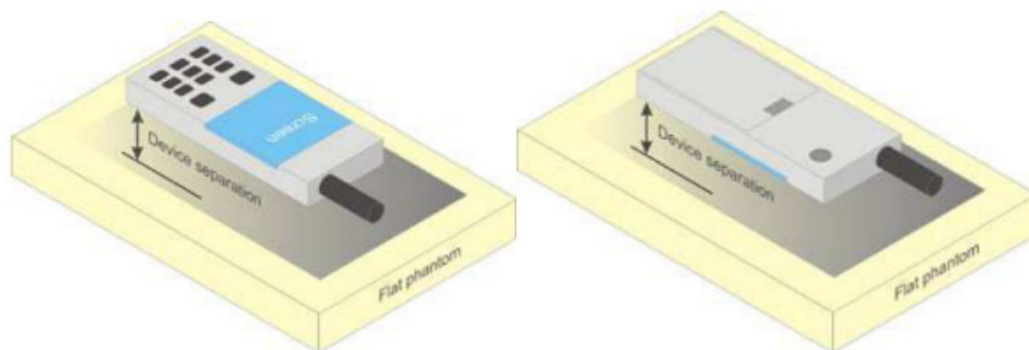
6.2.1 Body-worn accessory exposure conditions

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

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is $> 1.2 \text{ W/kg}$, 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 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as “Phablet”. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leq 25 \text{ mm}$ from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, hotspot power levels, and product specific 10g SAR power levels are the same, no frequency bands need to test with 0mm for the Product Specific 10-g SAR are not required.



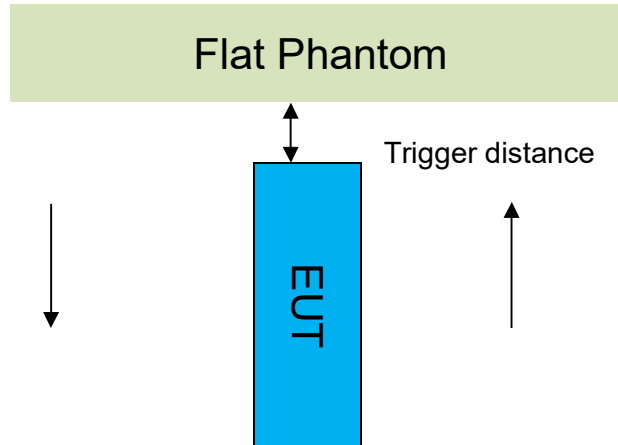
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6.4 Proximity Sensor Triggering Test

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)				
Ant0/5				
Position	Front Side	Back Side	Left Side	Bottom Side
Minimum	16	16	16	16
Required SAR Test	15	15	15	15
Ant1/3/4/6/8/9				
Position	Front Side	Back Side	Left Side	Top Side
Minimum	6	6	6	6
Required SAR Test	5	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.



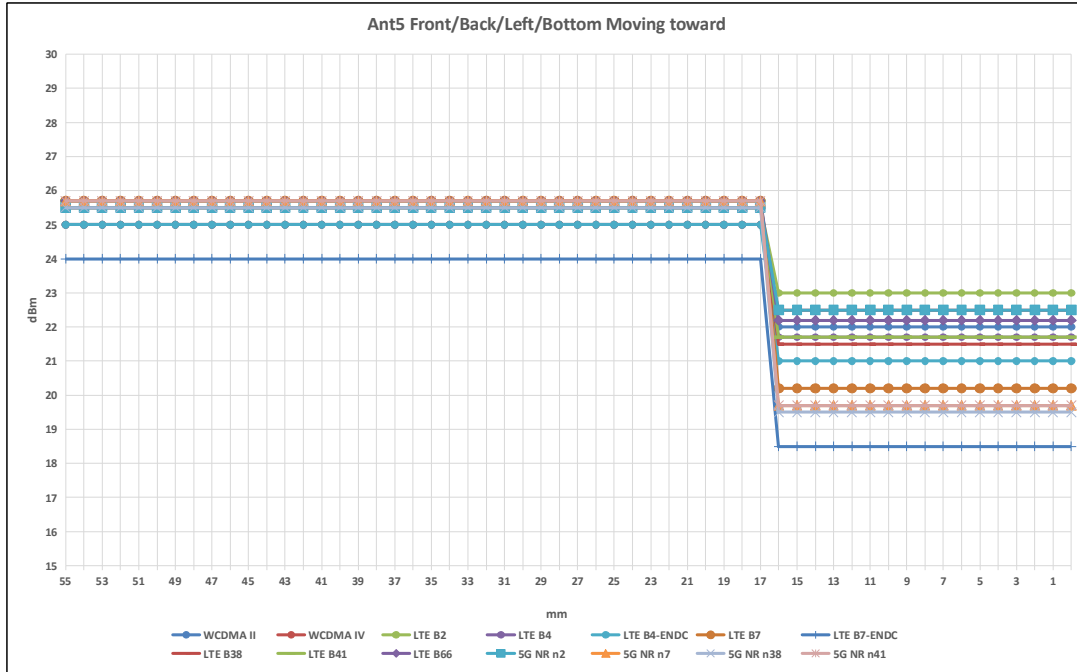
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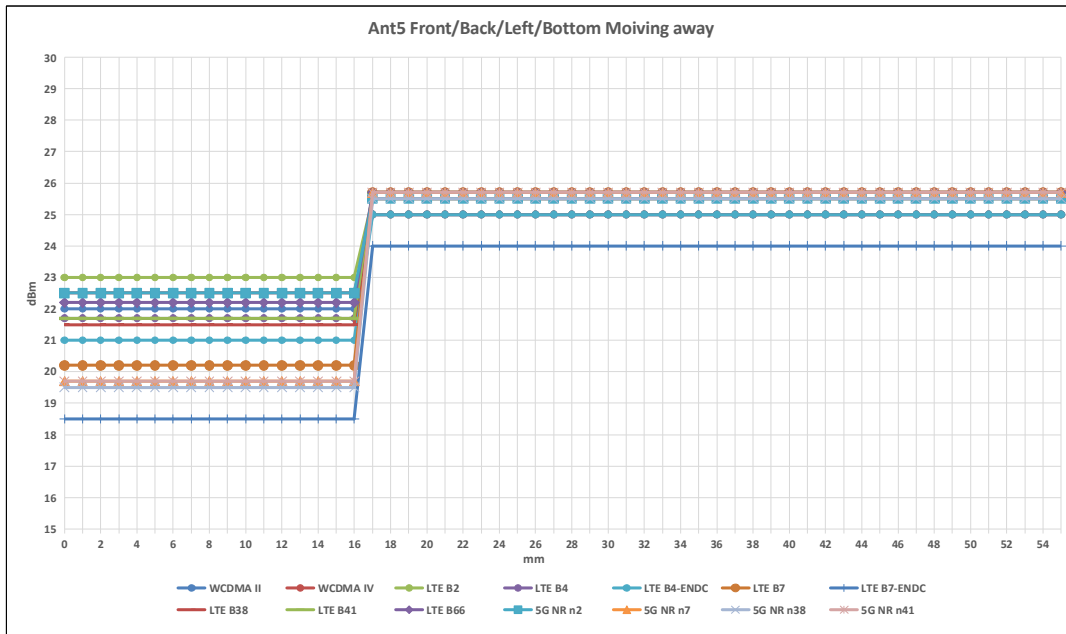
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● Ant 5 DUT Moving Toward(Trigger)the Phantom



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



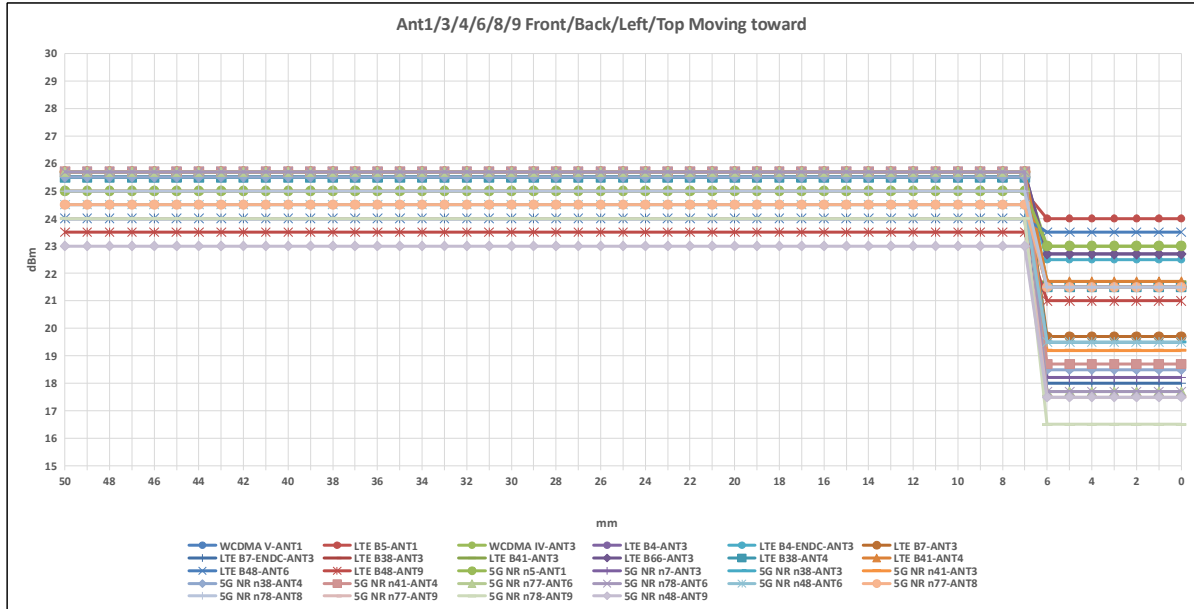
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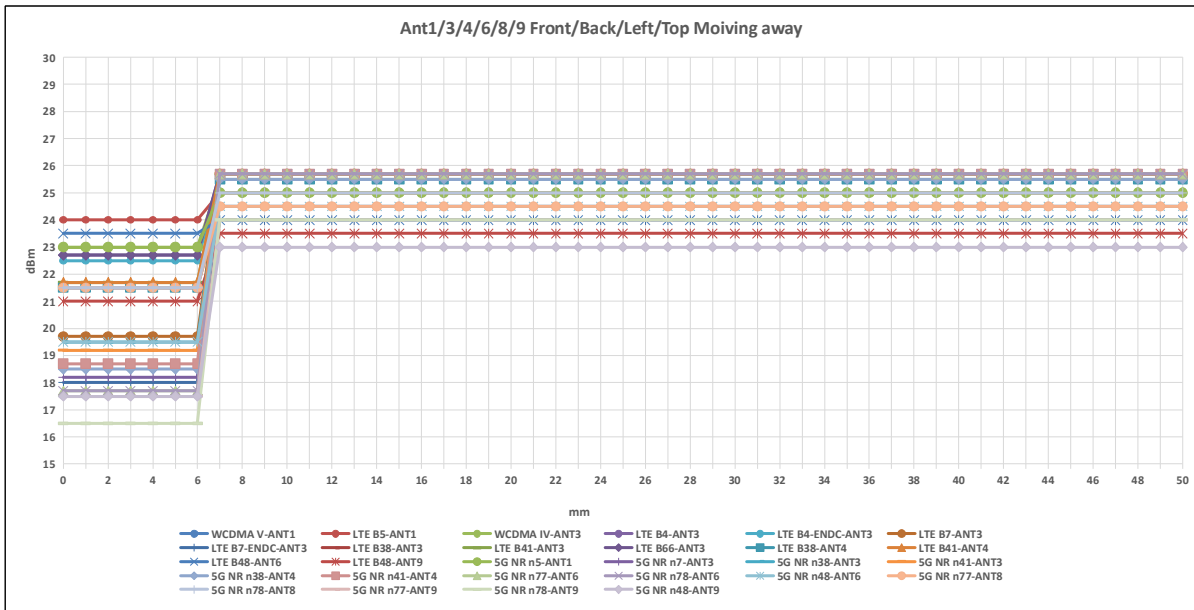
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● Ant 1/3/4/6/8/9 DUT Moving Toward(Trigger)the Phantom



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



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Proximity sensor coverage

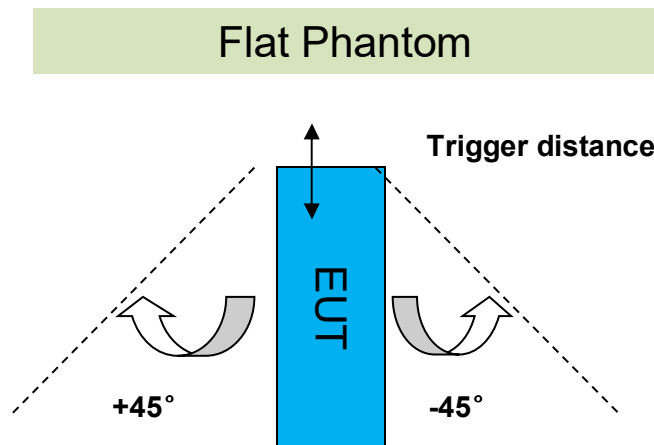
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, 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°
Ant0/5	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
Ant1/3/4/6/8/9	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 MΩ ⁺ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose		
HSL13MHz is composed of the following ingredients: Water: 50-90% Non-ionic detergents: 5-50% Nacl: 0-2% Preservative: 0.03-0.1%					
HSL5GHz is composed of the following ingredients: Water: 50-65% Mineral oil: 10-30% Emulsifiers: 8-25% Sodium salt: 0-1.5%					

Table 3: Recipe of Tissue Simulate Liquid



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7.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. For the SAR measurement given in this report. The temperature variation of the Tissue Simulate Liquids was $22\pm 2^{\circ}\text{C}$.

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	$\sigma(\text{S/m})$		
13 Head	13	55.00	0.75	54.100	0.736	22.5	2023/9/25
835 Head	835	41.50	0.90	43.100	0.885	22.6	2023/10/2
1750 Head	1750	40.10	1.37	40.400	1.350	22.7	2023/9/22
1750 Head	1750	40.10	1.37	40.500	1.340	22.7	2023/9/24
1950 Head	1950	40.00	1.40	40.400	1.360	22.8	2023/10/5
1950 Head	1950	40.00	1.40	40.300	1.370	22.8	2023/10/8
2450 Head	2450	39.20	1.80	39.205	1.808	22.5	2023/10/20
2600 Head	2600	39.00	1.96	37.800	1.960	22.5	2023/10/11
2600 Head	2600	39.00	1.96	37.100	1.890	22.5	2023/10/15
3500 Head	3500	37.90	2.91	38.000	3.010	22.8	2023/9/25
3700 Head	3700	37.70	3.12	39.400	3.060	22.9	2023/9/28
3900 Head	3900	37.50	3.32	39.100	3.280	22.8	2023/9/28
5250 Head	5250	35.90	4.66	35.818	4.590	22.5	2023/10/22
5600 Head	5600	35.50	5.07	35.146	5.055	22.5	2023/10/24
5750 Head	5750	35.40	5.22	34.744	5.235	22.5	2023/10/26
835 Head	835	41.50	0.90	43.000	0.930	22.6	2023/11/16
1750 Head	1750	40.10	1.37	39.600	1.330	22.7	2023/11/16
3500 Head	3500	37.90	2.91	38.600	2.990	22.8	2023/11/17
3700 Head	3700	37.70	3.12	38.400	3.250	22.9	2023/11/17

Table 4: Measurement result of Tissue electric parameters.



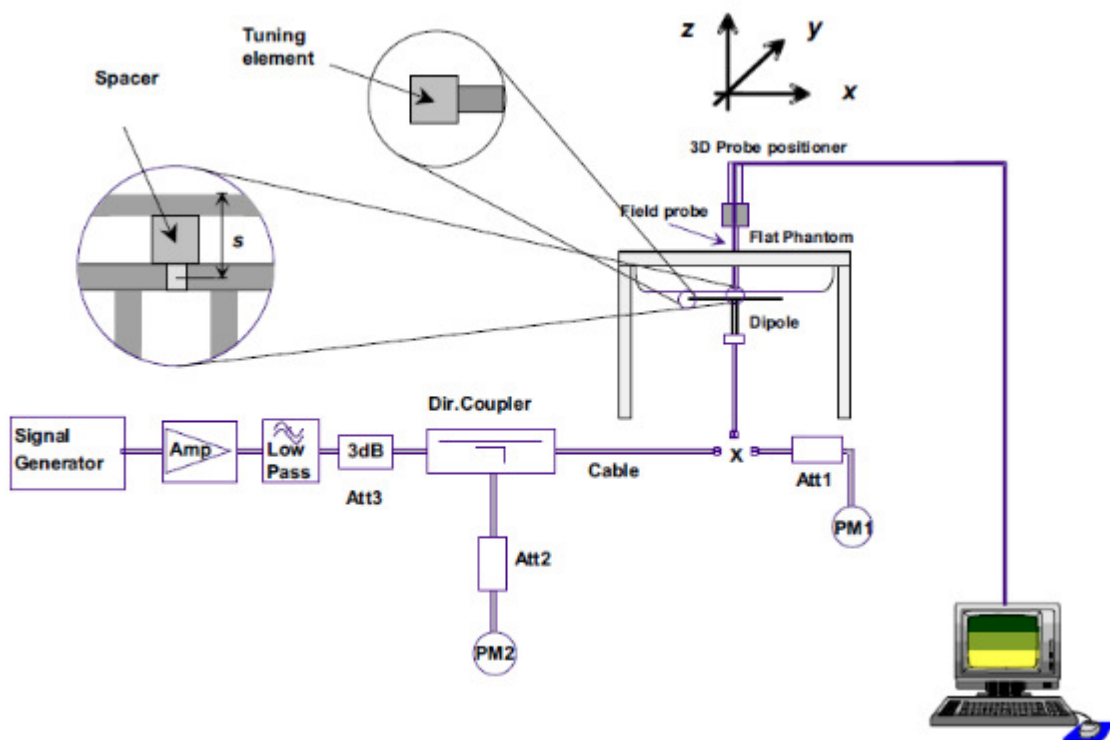
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7.2 SAR System Check

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 $15\pm 0.5\text{ cm}$ in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



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



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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		Measure d SAR 250mW	Measure d SAR 250mW	Measured SAR (normalize d to 1W)	Measured SAR (normalize d to 1W)	Target SAR (normalize d to 1W)	Target SAR (normalize d to 1W)	Deviation (Within ±10%)		Liqui d Temp. (°C)	Test Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
CLA13	Head	0.11	0.07	0.46	0.29	0.42	0.27	8.31%	8.27%	22.6	2023/10/2
D835V2	Head	2.30	1.49	9.20	5.96	9.52	6.17	-3.36%	-3.40%	22.6	2023/10/2
D835V2	Head	2.41	1.57	9.64	6.28	9.52	6.17	1.26%	1.78%	22.6	2023/11/16
D1750V2	Head	9.16	4.89	36.64	19.56	35.30	18.70	3.80%	4.60%	22.7	2023/9/22
D1750V2	Head	9.01	4.68	36.04	18.72	35.30	18.70	2.10%	0.11%	22.7	2023/9/24
D1750V2	Head	9.06	4.83	36.24	19.32	35.30	18.70	2.66%	3.32%	22.7	2023/11/16
D1900V2	Head	9.3	4.82	37.20	19.28	39.70	20.30	-6.30%	-5.02%	22.8	2023/10/5
D1900V2	Head	9.25	4.75	37.00	19.00	39.70	20.30	-6.80%	-6.40%	22.8	2023/10/8
D2450V2	Head	12.50	5.75	50.00	23.00	52.20	24.50	-4.21%	-6.12%	22.5	2023/10/20
D2600V2	Head	13.80	6.44	55.20	25.76	57.10	25.40	-3.33%	1.42%	22.5	2023/10/11
D2600V2	Head	14.70	6.66	58.80	26.64	57.10	25.40	2.98%	4.88%	22.5	2023/10/15
Validation Kit		Measure d SAR 100mW	Measure d SAR 100mW	Measured SAR (normalize d to 1W)	Measured SAR (normalize d to 1W)	Target SAR (normalize d to 1W)	Target SAR (normalize d to 1W)	Deviation (Within ±10%)		Liqui d 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)	6.06	2.33	60.60	23.30	66.60	24.90	-9.01%	-6.43%	22.8	2023/9/25
D3700V2	Head(3.7GHz)	6.33	2.36	63.30	23.60	68.00	24.60	-6.91%	-4.07%	22.9	2023/9/28
D3500V2	Head(3.5GHz)	6.14	2.36	61.40	23.60	66.60	24.90	-7.81%	-5.22%	22.8	2023/11/17
D3700V2	Head(3.7GHz)	6.88	2.45	68.80	24.50	68.00	24.60	1.18%	-0.41%	22.9	2023/11/17
D3900V2	Head(3.9GHz)	6.54	2.33	65.40	23.30	69.70	24.00	-6.17%	-2.92%	22.8	2023/9/28
D5GHzV2	Head(5.25GHz)	7.24	2.08	72.40	20.80	78.00	21.80	-7.18%	-4.59%	22.5	2023/10/22
	Head(5.6GHz)	7.24	2.07	72.40	20.70	79.90	22.50	-9.39%	-8.00%	22.5	2023/10/24
	Head(5.75GHz)	7.13	2.03	71.30	20.30	76.40	21.20	-6.68%	-4.25%	22.5	2023/10/26

Table 5: SAR System Check Result.

7.2.3 Detailed System Check Results

Please see the Appendix A



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8 Test Configuration

8.1 3G SAR Test Reduction Procedure

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

8.2 Operation Configurations

8.2.1 GSM Test Configuration

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

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

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

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



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8.2.2 WCDMA Test Configuration

1) . Output Power Verification

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

2) . Head SAR

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

3) . Body SAR

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

4) . HSDPA / HSUPA / DC-HSDPA

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

a) HSDPA

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



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

Note1: $\Delta ACK, \Delta NACK$ and $\Delta CQI = 8$ Ahs = $\beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
 Note2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1.A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, ΔACK and $\Delta NACK = 8$ (Ahs = 30/15) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta CQI = 7$ (Ahs = 24/15) with $\beta_{hs} = 24/15 * \beta_c$.
 Note3: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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

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

Table 6: settings of required H-Set 1 QPSK acc. to 3GPP 34.121



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

Table 7: HSDPA UE category

b) HSUPA

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



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

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI = 8$ $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$
 Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference^c
 Note 3 : For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$ ^c
 Note 4 : For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$ ^c
 Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g^c
 Note 6 : β_{ed} can not be set directly; it is set by Absolute Grant Value.^c

Table 8: Subtests for UMTS Release 6 HSUPA

UE Category	E-DCH Codes Transmitted	Number of HARQ Processes	of E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM. (TS25.306-7.3.0).

Table 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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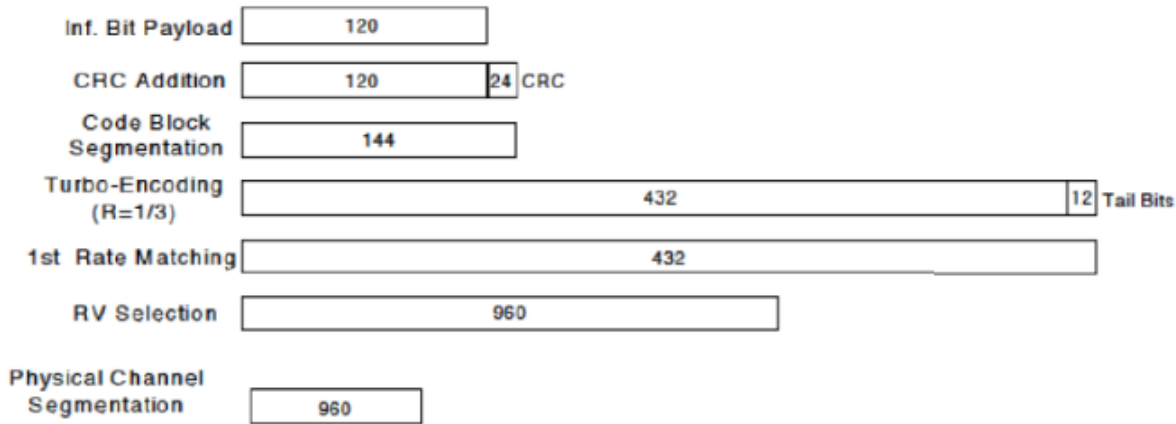


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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 $\Delta CQI = 8$ $A_{hs} = \beta_{hs} / \beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ ^o
 Note 2: CM=1 for $\beta_c / \beta_d = 12/15$, $\beta_{hs} / \beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.^o
 Note 3: For subtest 2 the β_c / β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$ ^o

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

Note:

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



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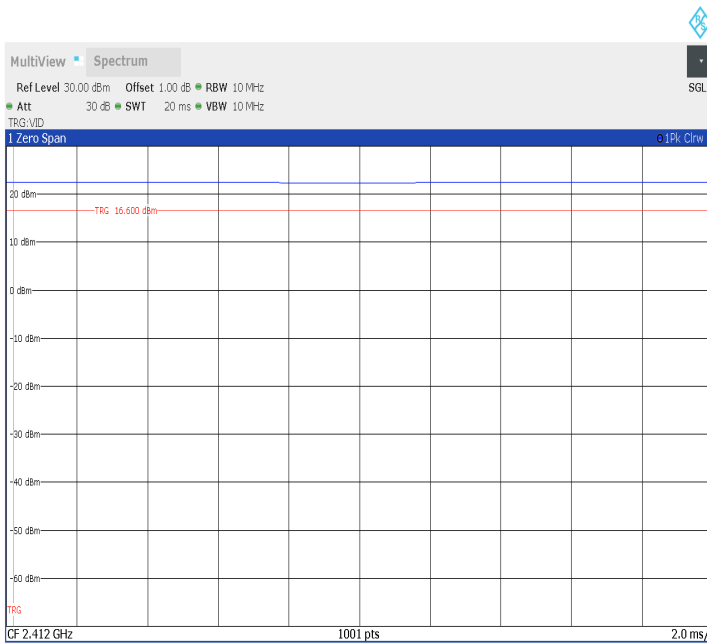
8.2.3 WiFi Test Configuration

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

8.2.3.1 Duty cycle

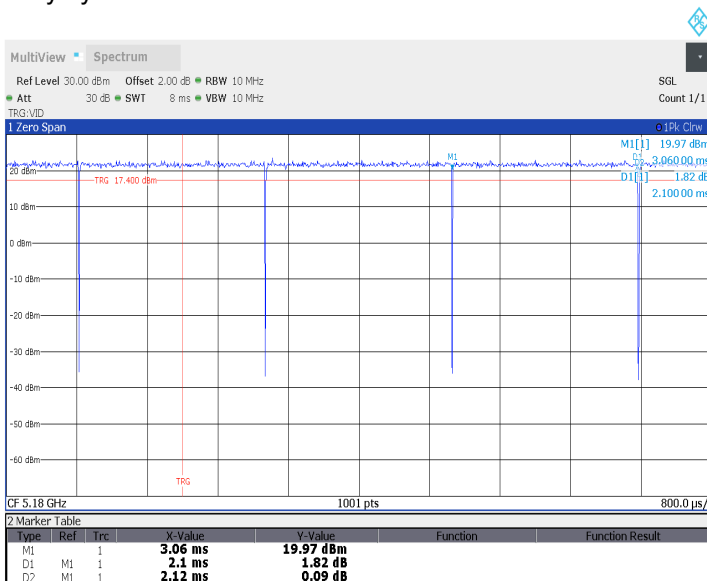
Wi-Fi 2.4GHz 802.11b:

Duty cycle=100%



Wi-Fi 5GHz 802.11a:

Duty cycle=99.06%



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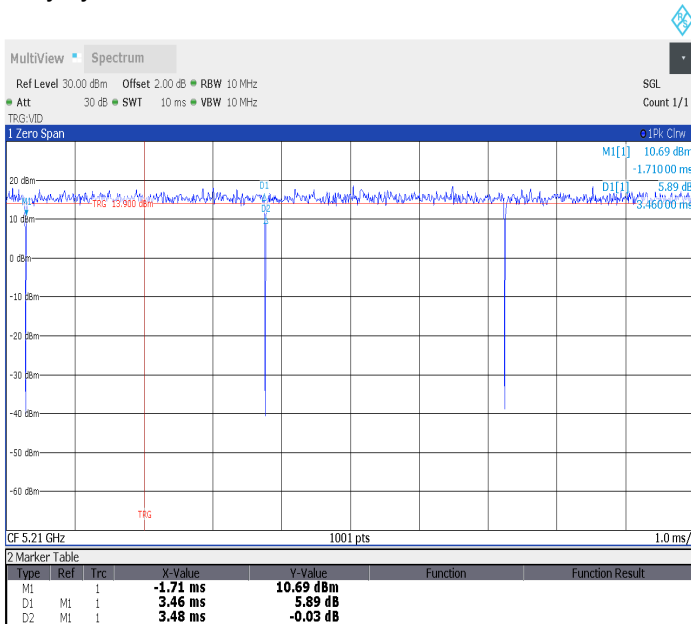
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Page: 52 of 114



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8.2.3.2 Initial Test Position SAR Test Reduction Procedure

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

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

8.2.3.3 Initial Test Configuration Procedures

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to *reported* SAR of the initial test configuration. For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

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

8.2.3.4 Subsequent Test Configuration Procedures

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

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated



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band and exposure configuration.

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



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8.2.3.5 2.4 GHz WiFi SAR Procedures

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

- **802.11b DSSS SAR Test Requirements**

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

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

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

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

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

- **SAR Test Requirements for OFDM configurations**

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



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8.2.4 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Anritsu MT8820C was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

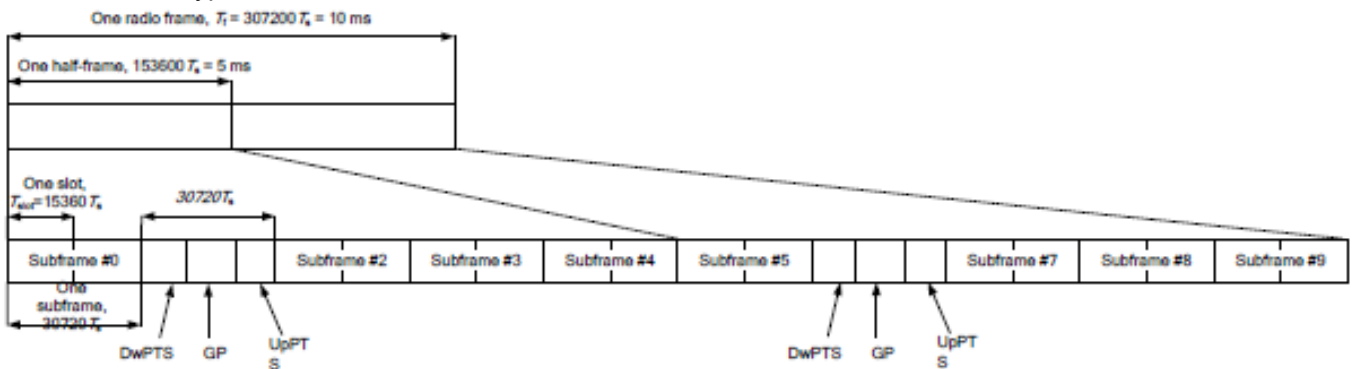
TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



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

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

Uplink-downlink configurations.

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

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

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



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A) Spectrum Plots for RB Configurations

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

B) MPR

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

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

C) A-MPR

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

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

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

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

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

4) Higher order modulations

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

E) Other channel bandwidth standalone SAR test requirements

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



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8.2.5 NR Band Test Configuration

1. NR Band n2/5/38/41/48/77/78 support SA mode and n5/38/41/77/78 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		n5		n78			
		Ant0	Ant1	Ant7	Ant8	Ant6	Ant9
LTE Band 2	Ant2	x	x	√	√	√	√
	Ant5	x	x	√	√	√	√
LTE Band 5	Ant0	x	x	√	√	√	√
	Ant1	x	x	√	√	√	√
LTE Band 7	Ant2	√	√	√	√	√	√
	Ant3	√	√	√	√	√	√
	Ant5	√	√	√	√	√	√
LTE Band 41	Ant2	x	x	√	√	√	√
	Ant3	x	x	√	√	√	√
	Ant5	x	x	√	√	√	√
	Ant4	x	x	√	√	√	√



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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	
	CP-OFDM	256QAM	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
		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
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
N2	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N5	15KHZ	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N7	15KHZ	Yes	Yes	Yes	Yes	Yes	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	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N48	30KHZ	N/A	Yes	Yes	Yes	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
n77	30KHZ	N/A	Yes	Yes	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n78	30KHZ	N/A	Yes	Yes	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 1/2 dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
 - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not 1/2 dB higher than the same configuration in the largest supported bandwidth.
 - c. SAR testing start with the largest SCS and largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
 - f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not 1/2 dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
 - g. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not 1/2 dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device



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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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- 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.

NFC:

- 1) NFC SAR is measured for all edges and surfaces of the device.
- 2) NFC 13.56MHz antenna port is not available on the device to support conducted power measurement, therefore the measured results are referred to as reported SAR.
- 3) NFC SAR test tissue-simulating liquid parameter refer to IEC/IEEE 62209-1528 2020.



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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	0.136	0.04	25.57	27.00	1.390	0.189	22.6
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.078	0.01	25.57	27.00	1.390	0.108	22.6
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.114	-0.05	25.57	27.00	1.390	0.158	22.6
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.058	0.04	25.57	27.00	1.390	0.081	22.6
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.109	-0.03	25.57	27.00	1.390	0.152	22.6
Back side	GPRS 4TS	190/836.6	1:2.075	0.119	0.07	25.57	27.00	1.390	0.165	22.6
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.135	0.09	25.57	27.00	1.390	0.188	22.6
Back side	GPRS 4TS	190/836.6	1:2.075	0.173	0.04	25.57	27.00	1.390	0.240	22.6
Left side	GPRS 4TS	190/836.6	1:2.075	0.181	0.10	25.57	27.00	1.390	0.252	22.6
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.129	0.08	25.57	27.00	1.390	0.179	22.6
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	0.666	0.04	22.97	24.00	1.268	0.844	22.6
Left cheek	GPRS 4TS	128/824.2	1:2.075	0.636	0.02	22.87	24.00	1.297	0.825	22.6
Left cheek	GPRS 4TS	251/848.8	1:2.075	0.546	0.03	22.83	24.00	1.309	0.715	22.6
Left tilted	GPRS 4TS	190/836.6	1:2.075	0.081	-0.02	22.97	24.00	1.268	0.103	22.6
Right cheek	GPRS 4TS	190/836.6	1:2.075	0.394	0.09	22.97	24.00	1.268	0.499	22.6
Right tilted	GPRS 4TS	190/836.6	1:2.075	0.070	-0.02	22.97	24.00	1.268	0.089	22.6
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.229	0.05	25.89	27.00	1.291	0.296	22.6
Back side	GPRS 4TS	190/836.6	1:2.075	0.212	0.02	25.89	27.00	1.291	0.274	22.6
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.145	0.09	22.97	24.00	1.268	0.184	22.6
Back side	GPRS 4TS	190/836.6	1:2.075	0.163	-0.02	22.97	24.00	1.268	0.207	22.6
Left side	GPRS 4TS	190/836.6	1:2.075	0.219	-0.01	22.97	24.00	1.268	0.278	22.6

Table 11: SAR of GSM850 for Head and Body.

9.2.2 SAR Result of GSM1900

GSM1900 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	GPRS 4TS	661/1880	1:2.075	0.443	0.18	20.39	21.50	1.291	0.572	22.8
Left tilted	GPRS 4TS	661/1880	1:2.075	0.088	0.09	20.39	21.50	1.291	0.114	22.8
Right cheek	GPRS 4TS	661/1880	1:2.075	0.433	0.06	20.39	21.50	1.291	0.559	22.8
Right tilted	GPRS 4TS	661/1880	1:2.075	0.059	0.05	20.39	21.50	1.291	0.076	22.8
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.164	-0.03	23.89	25.00	1.291	0.212	22.8
Back side	GPRS 4TS	661/1880	1:2.075	0.157	0.15	23.89	25.00	1.291	0.203	22.8



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Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.167	-0.03	20.39	21.50	1.291	0.216	22.8
Back side	GPRS 4TS	661/1880	1:2.075	0.161	0.09	20.39	21.50	1.291	0.208	22.8
Right side	GPRS 4TS	661/1880	1:2.075	0.310	0.01	20.39	21.50	1.291	0.400	22.8
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	GPRS 4TS	661/1880	1:2.075	0.063	-0.01	23.54	25.00	1.400	0.088	22.8
Left tilted	GPRS 4TS	661/1880	1:2.075	0.007	0.08	23.54	25.00	1.400	0.010	22.8
Right cheek	GPRS 4TS	661/1880	1:2.075	0.055	0.01	23.54	25.00	1.400	0.077	22.8
Right tilted	GPRS 4TS	661/1880	1:2.075	0.005	-0.05	23.54	25.00	1.400	0.007	22.8
Body worn Test data(Separate 15mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.114	0.08	23.54	25.00	1.400	0.160	22.8
Back side	GPRS 4TS	661/1880	1:2.075	0.131	0.01	23.54	25.00	1.400	0.183	22.8
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.183	0.09	23.54	25.00	1.400	0.256	22.8
Back side	GPRS 4TS	661/1880	1:2.075	0.214	0.04	23.54	25.00	1.400	0.300	22.8
Right side	GPRS 4TS	661/1880	1:2.075	0.088	0.01	23.54	25.00	1.400	0.123	22.8
Bottom side	GPRS 4TS	661/1880	1:2.075	0.499	0.04	23.54	25.00	1.400	0.698	22.8

Table 12: SAR of GSM1900 for Head and Body.

9.2.3 SAR Result of WCDMA Band II

W B2 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	9400/1880	1:1	0.475	-0.12	18.63	19.50	1.222	0.580	22.8
Left tilted	RMC	9400/1880	1:1	0.086	0.08	18.63	19.50	1.222	0.105	22.8
Right cheek	RMC	9400/1880	1:1	0.525	0.01	18.63	19.50	1.222	0.641	22.8
Right tilted	RMC	9400/1880	1:1	0.062	0.03	18.63	19.50	1.222	0.076	22.8
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.188	0.08	21.12	22.00	1.225	0.230	22.8
Back side	RMC	9400/1880	1:1	0.182	0.01	21.12	22.00	1.225	0.223	22.8
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.214	0.07	18.63	19.50	1.222	0.261	22.8
Back side	RMC	9400/1880	1:1	0.199	-0.04	18.63	19.50	1.222	0.243	22.8
Right side	RMC	9400/1880	1:1	0.391	0.05	18.63	19.50	1.222	0.478	22.8
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	9400/1880	1:1	0.098	-0.03	24.33	25.00	1.167	0.114	22.8
Left tilted	RMC	9400/1880	1:1	0.065	-0.01	24.33	25.00	1.167	0.076	22.8
Right cheek	RMC	9400/1880	1:1	0.085	-0.05	24.33	25.00	1.167	0.099	22.8
Right tilted	RMC	9400/1880	1:1	0.043	0.07	24.33	25.00	1.167	0.050	22.8
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.362	0.07	21.38	22.00	1.153	0.418	22.8
Back side	RMC	9400/1880	1:1	0.418	-0.09	21.38	22.00	1.153	0.482	22.8



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Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.246	-0.08	21.38	22.00	1.153	0.284	22.8
Back side	RMC	9400/1880	1:1	0.291	0.11	21.38	22.00	1.153	0.336	22.8
Right side	RMC	9400/1880	1:1	0.105	0.07	21.38	22.00	1.153	0.121	22.8
Bottom side	RMC	9400/1880	1:1	0.648	0.03	21.38	22.00	1.153	0.747	22.8

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

9.2.4 SAR Result of WCDMA Band IV

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	0.430	0.06	18.73	19.50	1.194	0.513	22.7
Left tilted	RMC	1412/1732.4	1:1	0.077	0.04	18.73	19.50	1.194	0.092	22.7
Right cheek	RMC	1412/1732.4	1:1	0.445	0.09	18.73	19.50	1.194	0.531	22.7
Right tilted	RMC	1412/1732.4	1:1	0.057	0.07	18.73	19.50	1.194	0.068	22.7
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.188	0.07	22.21	23.00	1.199	0.226	22.7
Back side	RMC	1412/1732.4	1:1	0.179	-0.05	22.21	23.00	1.199	0.215	22.7
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.203	0.04	18.73	19.50	1.194	0.242	22.7
Back side	RMC	1412/1732.4	1:1	0.163	-0.02	18.73	19.50	1.194	0.195	22.7
Right side	RMC	1412/1732.4	1:1	0.368	0.09	18.73	19.50	1.194	0.439	22.7
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	0.286	0.10	18.80	19.50	1.175	0.336	22.7
Left tilted	RMC	1412/1732.4	1:1	0.200	0.01	18.80	19.50	1.175	0.235	22.7
Right cheek	RMC	1412/1732.4	1:1	0.865	0.05	18.80	19.50	1.175	1.016	22.7
Right cheek	RMC	1312/1712.4	1:1	0.904	0.03	18.69	19.50	1.205	1.089	22.7
Right cheek-repeated	RMC	1312/1712.4	1:1	0.895	0.02	18.69	19.50	1.205	1.079	22.7
Right cheek	RMC	1513/1752.6	1:1	0.831	0.09	18.66	19.50	1.213	1.008	22.7
Right tilted	RMC	1412/1732.4	1:1	0.370	0.02	18.80	19.50	1.175	0.435	22.7
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.256	-0.04	24.88	25.50	1.153	0.295	22.7
Back side	RMC	1412/1732.4	1:1	0.337	0.09	24.88	25.50	1.153	0.389	22.7
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.162	0.02	18.80	19.50	1.175	0.190	22.7
Back side	RMC	1412/1732.4	1:1	0.179	-0.02	18.80	19.50	1.175	0.210	22.7
Left side	RMC	1412/1732.4	1:1	0.328	0.06	18.80	19.50	1.175	0.385	22.7
Top side	RMC	1412/1732.4	1:1	0.113	-0.02	18.80	19.50	1.175	0.133	22.7
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	0.130	-0.04	24.27	25.00	1.183	0.154	22.7
Left tilted	RMC	1412/1732.4	1:1	0.058	-0.02	24.27	25.00	1.183	0.069	22.7
Right cheek	RMC	1412/1732.4	1:1	0.117	0.09	24.27	25.00	1.183	0.138	22.7
Right tilted	RMC	1412/1732.4	1:1	0.054	-0.01	24.27	25.00	1.183	0.064	22.7
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.351	0.01	24.27	25.00	1.183	0.415	22.7



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Back side	RMC	1412/1732.4	1:1	0.403	0.09	24.27	25.00	1.183	0.477	22.7
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.418	-0.04	21.78	22.50	1.180	0.493	22.7
Back side	RMC	1412/1732.4	1:1	0.470	0.01	21.78	22.50	1.180	0.555	22.7
Right side	RMC	1412/1732.4	1:1	0.179	0.03	21.78	22.50	1.180	0.211	22.7
Bottom side	RMC	1412/1732.4	1:1	0.885	-0.02	21.78	22.50	1.180	1.045	22.7
Bottom side	RMC	1312/1712.4	1:1	0.827	0.07	21.72	22.50	1.197	0.990	22.7
Bottom side	RMC	1513/1752.6	1:1	0.824	0.05	21.77	22.50	1.183	0.975	22.7

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	1312/1712.4	0.904	0.895	1.010055866	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

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	0.181	0.01	24.13	24.50	1.089	0.197	22.6
Left tilted	RMC	4182/836.4	1:1	0.106	-0.01	24.13	24.50	1.089	0.115	22.6
Right cheek	RMC	4182/836.4	1:1	0.143	0.04	24.13	24.50	1.089	0.156	22.6
Right tilted	RMC	4182/836.4	1:1	0.094	0.10	24.13	24.50	1.089	0.102	22.6
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.152	-0.04	24.13	24.50	1.089	0.166	22.6
Back side	RMC	4182/836.4	1:1	0.164	-0.02	24.13	24.50	1.089	0.179	22.6
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.219	-0.03	24.13	24.50	1.089	0.238	22.6
Back side	RMC	4182/836.4	1:1	0.271	0.04	24.13	24.50	1.089	0.295	22.6
Left side	RMC	4182/836.4	1:1	0.232	0.09	24.13	24.50	1.089	0.253	22.6
Bottom side	RMC	4182/836.4	1:1	0.188	0.15	24.13	24.50	1.089	0.205	22.6
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	0.766	0.08	19.99	20.50	1.125	0.861	22.6
Left cheek	RMC	4132/826.4	1:1	0.775	0.07	19.89	20.50	1.151	0.892	22.6
Left cheek	RMC	4233/846.6	1:1	0.725	-0.01	19.88	20.50	1.153	0.836	22.6
Left tilted	RMC	4182/836.4	1:1	0.092	-0.03	19.99	20.50	1.125	0.103	22.6
Right cheek	RMC	4182/836.4	1:1	0.384	0.10	19.99	20.50	1.125	0.432	22.6
Right tilted	RMC	4182/836.4	1:1	0.075	0.09	19.99	20.50	1.125	0.084	22.6
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.402	-0.04	24.18	24.50	1.076	0.433	22.6
Back side	RMC	4182/836.4	1:1	0.376	-0.13	24.18	24.50	1.076	0.405	22.6
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.312	0.14	19.99	20.50	1.125	0.351	22.6



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Back side	RMC	4182/836.4	1:1	0.304	0.11	19.99	20.50	1.125	0.342	22.6
Left side	RMC	4182/836.4	1:1	0.432	-0.01	19.99	20.50	1.125	0.486	22.6

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

9.2.6 SAR Result of LTE Band 2

LTE Band 2 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	18900/1880	1:1	0.795	0.08	18.45	19.20	1.189	0.945	22.8
Left cheek	20	QPSK 1_0	18700/1860	1:1	0.821	-0.04	18.38	19.20	1.208	0.992	22.8
Left cheek	20	QPSK 1_0	19100/1900	1:1	0.705	-0.01	18.36	19.20	1.213	0.855	22.8
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.129	-0.04	18.45	19.20	1.189	0.153	22.8
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.711	0.15	18.45	19.20	1.189	0.845	22.8
Right cheek	20	QPSK 1_0	18700/1860	1:1	0.775	0.10	18.38	19.20	1.208	0.936	22.8
Right cheek	20	QPSK 1_0	19100/1900	1:1	0.638	0.05	18.36	19.20	1.213	0.774	22.8
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.092	-0.04	18.45	19.20	1.189	0.109	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.777	-0.08	18.41	19.20	1.199	0.932	22.8
Left cheek	20	QPSK 50_0	18700/1860	1:1	0.834	-0.11	18.39	19.20	1.205	1.005	22.8
Left cheek-repeated	20	QPSK 50_0	18700/1860	1:1	0.826	0.02	18.39	19.20	1.205	0.995	22.8
Left cheek	20	QPSK 50_0	19100/1900	1:1	0.750	0.09	18.40	19.20	1.202	0.902	22.8
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.129	0.00	18.41	19.20	1.199	0.155	22.8
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.699	0.07	18.41	19.20	1.199	0.838	22.8
Right cheek	20	QPSK 50_0	18700/1860	1:1	0.743	0.03	18.39	19.20	1.205	0.895	22.8
Right cheek	20	QPSK 50_0	19100/1900	1:1	0.664	0.13	18.40	19.20	1.202	0.798	22.8
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.096	0.02	18.41	19.20	1.199	0.115	22.8
Head Test Data(100%RB)											
Left cheek	20	QPSK 1_0	18900/1880	1:1	0.762	-0.17	18.31	19.20	1.227	0.935	22.8
Right cheek	20	QPSK 1_0	18900/1880	1:1	0.678	-0.17	18.31	19.20	1.227	0.832	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.206	0.05	22.02	22.70	1.169	0.241	22.8
Back side	20	QPSK 1_0	18900/1880	1:1	0.202	-0.11	22.02	22.70	1.169	0.236	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.216	-0.11	21.93	22.70	1.194	0.258	22.8
Back side	20	QPSK 50_0	18900/1880	1:1	0.204	-0.05	21.93	22.70	1.194	0.244	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.242	-0.15	18.45	19.20	1.189	0.288	22.8
Back side	20	QPSK 1_0	18900/1880	1:1	0.223	-0.11	18.45	19.20	1.189	0.265	22.8
Right side	20	QPSK 1_0	18900/1880	1:1	0.445	-0.11	18.45	19.20	1.189	0.529	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.234	0.03	18.41	19.20	1.199	0.281	22.8
Back side	20	QPSK 50_0	18900/1880	1:1	0.218	0.17	18.41	19.20	1.199	0.261	22.8
Right side	20	QPSK 50_0	18900/1880	1:1	0.434	-0.05	18.41	19.20	1.199	0.521	22.8
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	18900/1880	1:1	0.094	0.10	25.38	25.50	1.028	0.097	22.8
Left tilted	20	QPSK 1_0	18900/1880	1:1	0.077	0.03	25.38	25.50	1.028	0.079	22.8



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Right cheek	20	QPSK 1_0	18900/1880	1:1	0.108	-0.13	25.38	25.50	1.028	0.111	22.8
Right tilted	20	QPSK 1_0	18900/1880	1:1	0.041	0.19	25.38	25.50	1.028	0.042	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	18900/1880	1:1	0.094	-0.15	24.32	24.50	1.042	0.098	22.8
Left tilted	20	QPSK 50_0	18900/1880	1:1	0.064	0.00	24.32	24.50	1.042	0.067	22.8
Right cheek	20	QPSK 50_0	18900/1880	1:1	0.082	-0.19	24.32	24.50	1.042	0.085	22.8
Right tilted	20	QPSK 50_0	18900/1880	1:1	0.032	0.11	24.32	24.50	1.042	0.033	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.389	-0.09	25.38	25.50	1.028	0.400	22.8
Back side	20	QPSK 1_0	18900/1880	1:1	0.443	-0.02	25.38	25.50	1.028	0.455	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.363	-0.06	24.32	24.50	1.042	0.378	22.8
Back side	20	QPSK 50_0	18900/1880	1:1	0.382	-0.08	24.32	24.50	1.042	0.398	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	18900/1880	1:1	0.240	-0.17	22.93	23.00	1.016	0.244	22.8
Back side	20	QPSK 1_0	18900/1880	1:1	0.268	-0.15	22.93	23.00	1.016	0.272	22.8
Right side	20	QPSK 1_0	18900/1880	1:1	0.094	0.14	22.93	23.00	1.016	0.096	22.8
Bottom side	20	QPSK 1_0	18900/1880	1:1	0.774	-0.15	22.93	23.00	1.016	0.787	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	18900/1880	1:1	0.238	-0.06	22.86	23.00	1.033	0.246	22.8
Back side	20	QPSK 50_0	18900/1880	1:1	0.265	-0.14	22.86	23.00	1.033	0.274	22.8
Right side	20	QPSK 50_0	18900/1880	1:1	0.092	-0.07	22.86	23.00	1.033	0.095	22.8
Bottom side	20	QPSK 50_0	18900/1880	1:1	0.723	-0.11	22.86	23.00	1.033	0.747	22.8

Table 16: SAR of LTE Band 2 for Head and Body.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	18700/1860	0.834	0.826	1.00968523	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

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)
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	20175/1732.5	1:1	0.192	0.03	22.53	22.70	1.040	0.200	22.7
Back side	20	QPSK 1_0	20175/1732.5	1:1	0.171	-0.08	22.53	22.70	1.040	0.178	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	20175/1732.5	1:1	0.210	-0.04	22.39	22.70	1.074	0.226	22.7
Front side - DLCA	20	QPSK 50_0	20175/1732.5	1:1	0.156	-0.18	21.40	22.00	1.148	0.179	22.7
Back side	20	QPSK 50_0	20175/1732.5	1:1	0.190	0.01	22.39	22.70	1.074	0.204	22.7

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

9.2.8 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record											
Ant 0 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	10	QPSK 1_0	20525/836.5	1:1	0.223	0.01	24.64	25.00	1.086	0.242	22.6
Left cheek - For ENDC	10	QPSK 1_0	20525/836.5	1:1	0.203	-0.18	24.38	25.00	1.153	0.234	22.6
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.095	0.01	24.64	25.00	1.086	0.103	22.6
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.141	0.14	24.64	25.00	1.086	0.153	22.6
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.084	-0.05	24.64	25.00	1.086	0.091	22.6
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.173	-0.04	23.55	24.00	1.109	0.192	22.6
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.074	-0.16	23.55	24.00	1.109	0.082	22.6
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.114	0.10	23.55	24.00	1.109	0.126	22.6
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.067	0.14	23.55	24.00	1.109	0.074	22.6
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.148	0.13	24.64	25.00	1.086	0.161	22.6
Back side	10	QPSK 1_0	20525/836.5	1:1	0.162	0.09	24.64	25.00	1.086	0.176	22.6
Back side - For ENDC	10	QPSK 1_0	20525/836.5	1:1	0.141	-0.19	24.38	25.00	1.153	0.163	22.6
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.114	0.03	23.55	24.00	1.109	0.126	22.6
Back side	10	QPSK 25_0	20525/836.5	1:1	0.134	-0.09	23.55	24.00	1.109	0.149	22.6
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.222	0.10	24.64	25.00	1.086	0.241	22.6
Back side	10	QPSK 1_0	20525/836.5	1:1	0.288	0.10	24.64	25.00	1.086	0.313	22.6
Back side - For ENDC	10	QPSK 1_0	20525/836.5	1:1	0.268	-0.15	24.38	25.00	1.153	0.309	22.6
Left side	10	QPSK 1_0	20525/836.5	1:1	0.284	0.16	24.64	25.00	1.086	0.309	22.6
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.209	0.08	24.64	25.00	1.086	0.227	22.6
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.194	-0.12	23.55	24.00	1.109	0.215	22.6
Back side	10	QPSK 25_0	20525/836.5	1:1	0.237	-0.12	23.55	24.00	1.109	0.263	22.6
Left side	10	QPSK 25_0	20525/836.5	1:1	0.259	0.09	23.55	24.00	1.109	0.287	22.6
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.167	0.14	23.55	24.00	1.109	0.185	22.6
Ant 1 Test Record											
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.607	0.05	19.84	20.50	1.164	0.707	22.6
Left cheek - For ENDC	10	QPSK 1_0	20525/836.5	1:1	0.486	0.01	19.55	20.50	1.245	0.605	22.6
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.087	0.10	19.84	20.50	1.164	0.101	22.6
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.403	-0.12	19.84	20.50	1.164	0.469	22.6
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.065	0.16	19.84	20.50	1.164	0.076	22.6
Head Test Data(50%RB)											
Left cheek	10	QPSK 25_0	20525/836.5	1:1	0.597	0.16	19.79	20.50	1.178	0.703	22.6
Left tilted	10	QPSK 25_0	20525/836.5	1:1	0.086	0.09	19.79	20.50	1.178	0.101	22.6
Right cheek	10	QPSK 25_0	20525/836.5	1:1	0.393	-0.11	19.79	20.50	1.178	0.463	22.6
Right tilted	10	QPSK 25_0	20525/836.5	1:1	0.062	-0.10	19.79	20.50	1.178	0.073	22.6
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1_0	20525/836.5	1:1	0.387	0.02	23.24	24.00	1.191	0.461	22.6
Back side	10	QPSK 1_0	20525/836.5	1:1	0.397	-0.15	23.24	24.00	1.191	0.473	22.6
Back side - For ENDC	10	QPSK 1_0	20525/836.5	1:1	0.309	-0.18	22.97	24.00	1.268	0.392	22.6
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.383	0.05	23.19	24.00	1.205	0.462	22.6
Back side	10	QPSK 25_0	20525/836.5	1:1	0.390	-0.16	23.19	24.00	1.205	0.470	22.6
Hotspot Test data(Separate 10mm 1RB)											



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Front side	10	QPSK 1_0	20525/836.5	1:1	0.309	0.15	19.84	20.50	1.164	0.360	22.6
Back side	10	QPSK 1_0	20525/836.5	1:1	0.314	0.15	19.84	20.50	1.164	0.366	22.6
Left side	10	QPSK 1_0	20525/836.5	1:1	0.358	-0.17	19.84	20.50	1.164	0.417	22.6
Hotspot Test data(Separate 10mm 50%RB)											
Front side	10	QPSK 25_0	20525/836.5	1:1	0.306	-0.14	19.79	20.50	1.178	0.360	22.6
Back side	10	QPSK 25_0	20525/836.5	1:1	0.301	-0.05	19.79	20.50	1.178	0.354	22.6
Left side	10	QPSK 25_0	20525/836.5	1:1	0.381	0.01	19.79	20.50	1.178	0.449	22.6
Left side - For ENDC	10	QPSK 25_0	20525/836.5	1:1	0.287	-0.06	19.52	20.50	1.253	0.360	22.6

Table 18: SAR of LTE Band 5 for Head and Body.

9.2.9 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record											
Ant 2 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Dut y Cycl e	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.286	0.03	16.45	16.70	1.059	0.303	22.5
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.061	0.14	16.45	16.70	1.059	0.065	22.5
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.696	-0.15	16.45	16.70	1.059	0.737	22.5
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.049	-0.05	16.45	16.70	1.059	0.052	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.303	0.10	16.44	16.70	1.062	0.322	22.5
Left cheek	20	QPSK 50_0	20850/2510	1:1	0.265	0.14	16.37	16.70	1.079	0.286	22.5
Left cheek	20	QPSK 50_0	21350/2560	1:1	0.321	-0.03	16.34	16.70	1.086	0.349	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.065	0.09	16.44	16.70	1.062	0.069	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.754	0.17	16.44	16.70	1.062	0.801	22.5
Right cheek	20	QPSK 50_0	20850/2510	1:1	0.678	-0.17	16.37	16.70	1.079	0.732	22.5
Right cheek	20	QPSK 50_0	21350/2560	1:1	0.774	-0.04	16.34	16.70	1.086	0.841	22.5
Right cheek - For ENDC	20	QPSK 50_0	21350/2560	1:1	0.551	0.09	14.31	15.00	1.172	0.646	22.5
Right cheek - UL CA	20	QPSK 50_0	21350+21152/2560+2540.2	1:1	0.569	-0.12	16.24	16.70	1.112	0.633	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.049	-0.14	16.44	16.70	1.062	0.052	22.5
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	21100/2535	1:1	0.742	-0.12	16.41	16.70	1.069	0.793	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.128	0.04	19.35	19.70	1.084	0.139	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.125	0.15	19.35	19.70	1.084	0.135	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.138	-0.07	19.26	19.70	1.107	0.153	22.5
Front side - For ENDC	20	QPSK 50_0	21100/2535	1:1	0.078	0.03	17.25	18.00	1.189	0.093	22.5
Front side - UL CA	20	QPSK 50_0	21100+20902/2535+2515.2	1:1	0.081	-0.11	19.17	19.70	1.130	0.092	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.136	-0.18	19.26	19.70	1.107	0.151	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.115	-0.16	16.45	16.70	1.059	0.122	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.107	0.18	16.45	16.70	1.059	0.113	22.5
Right side	20	QPSK 1_0	21100/2535	1:1	0.225	0.12	16.45	16.70	1.059	0.238	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.121	-0.10	16.44	16.70	1.062	0.128	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.115	-0.01	16.44	16.70	1.062	0.122	22.5
Right side	20	QPSK 50_0	21100/2535	1:1	0.238	0.02	16.44	16.70	1.062	0.253	22.5
Right side - For ENDC	20	QPSK 50_0	21100/2535	1:1	0.204	-0.04	14.46	15.00	1.132	0.231	22.5
Right side - UL CA	20	QPSK 50_0	21100+20902/2535+2515.2	1:1	0.211	-0.07	16.34	16.70	1.086	0.229	22.5



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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)	Scale factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.292	-0.06	17.09	17.70	1.151	0.336	22.5
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.281	-0.17	17.09	17.70	1.151	0.323	22.5
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.887	-0.02	17.09	17.70	1.151	1.021	22.5
Right cheek	20	QPSK 1_0	20850/2510	1:1	0.835	-0.16	17.03	17.70	1.167	0.974	22.5
Right cheek	20	QPSK 1_0	21350/2560	1:1	0.898	0.17	17.03	17.70	1.167	1.048	22.5
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.471	-0.12	17.09	17.70	1.151	0.542	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.293	0.19	17.02	17.70	1.169	0.343	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.293	-0.17	17.02	17.70	1.169	0.343	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.913	-0.12	17.02	17.70	1.169	1.068	22.5
Right cheek	20	QPSK 50_0	20850/2510	1:1	0.870	0.00	17.01	17.70	1.172	1.020	22.5
Right cheek	20	QPSK 50_0	21350/2560	1:1	0.923	0.01	17.01	17.70	1.172	1.082	22.5
Right cheek-repeated	20	QPSK 50_0	21350/2560	1:1	0.921	0.05	17.01	17.70	1.172	1.080	22.5
Right cheek - For ENDC	20	QPSK 50_0	21350/2560	1:1	0.697	-0.04	15.02	16.00	1.253	0.873	22.5
Right cheek - UL CA	20	QPSK 50_0	21350+21152/2560+2540.2	1:1	0.711	0.12	16.85	17.70	1.216	0.865	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.494	0.05	17.02	17.70	1.169	0.578	22.5
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	21100/2535	1:1	0.878	-0.03	17.00	17.70	1.175	1.032	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.588	0.03	25.57	25.70	1.030	0.606	22.5
Front side - For ENDC	20	QPSK 1_0	21100/2535	1:1	0.389	0.01	22.83	24.00	1.309	0.509	22.5
Front side - UL CA	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.401	-0.16	23.93	24.70	1.194	0.479	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.572	0.17	25.57	25.70	1.030	0.589	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.484	0.14	25.57	25.70	1.030	0.499	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.479	0.04	25.57	25.70	1.030	0.494	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.200	-0.19	17.09	17.70	1.151	0.230	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.211	-0.02	17.09	17.70	1.151	0.243	22.5
Left side	20	QPSK 1_0	21100/2535	1:1	0.351	-0.08	17.09	17.70	1.151	0.404	22.5
Top side	20	QPSK 1_0	21100/2535	1:1	0.102	-0.04	17.09	17.70	1.151	0.117	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.209	-0.06	17.02	17.70	1.169	0.244	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.223	-0.13	17.02	17.70	1.169	0.261	22.5
Left side	20	QPSK 50_0	21100/2535	1:1	0.362	0.03	17.02	17.70	1.169	0.423	22.5
Left side - For ENDC	20	QPSK 50_0	21100/2535	1:1	0.258	0.03	15.05	16.00	1.245	0.321	22.5
Left side - UL CA	20	QPSK 50_0	21100+20902/2535+2515.2	1:1	0.306	0.13	16.87	17.70	1.211	0.370	22.5
Top side	20	QPSK 50_0	21100/2535	1:1	0.105	0.12	17.02	17.70	1.169	0.123	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)	Scale factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	21100/2535	1:1	0.126	0.12	25.57	25.70	1.030	0.130	22.5
Left tilted	20	QPSK 1_0	21100/2535	1:1	0.079	-0.13	25.57	25.70	1.030	0.081	22.5
Right cheek	20	QPSK 1_0	21100/2535	1:1	0.162	-0.15	25.57	25.70	1.030	0.167	22.5
Right cheek - For ENDC	20	QPSK 1_0	21100/2535	1:1	0.127	0.13	22.99	24.00	1.262	0.160	22.5



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Right cheek - UL CA	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.133	0.10	23.98	24.70	1.180	0.157	22.5
Right tilted	20	QPSK 1_0	21100/2535	1:1	0.090	-0.19	25.57	25.70	1.030	0.093	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	21100/2535	1:1	0.105	-0.13	24.48	24.70	1.052	0.110	22.5
Left tilted	20	QPSK 50_0	21100/2535	1:1	0.069	-0.07	24.48	24.70	1.052	0.073	22.5
Right cheek	20	QPSK 50_0	21100/2535	1:1	0.151	-0.12	24.48	24.70	1.052	0.159	22.5
Right tilted	20	QPSK 50_0	21100/2535	1:1	0.074	-0.15	24.48	24.70	1.052	0.078	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.306	0.12	25.57	25.70	1.030	0.315	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.422	0.03	25.57	25.70	1.030	0.435	22.5
Back side - For ENDC	20	QPSK 1_0	21100/2535	1:1	0.328	0.09	22.99	24.00	1.262	0.414	22.5
Back side - UL CA	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.357	-0.13	23.98	24.70	1.180	0.421	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.249	0.02	24.48	24.70	1.052	0.262	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.322	0.04	24.48	24.70	1.052	0.339	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	21100/2535	1:1	0.246	0.00	20.09	20.20	1.026	0.252	22.5
Back side	20	QPSK 1_0	21100/2535	1:1	0.285	-0.01	20.09	20.20	1.026	0.292	22.5
Right side	20	QPSK 1_0	21100/2535	1:1	0.097	-0.04	20.09	20.20	1.026	0.099	22.5
Bottom side	20	QPSK 1_0	21100/2535	1:1	0.524	-0.01	20.09	20.20	1.026	0.537	22.5
Bottom side - For ENDC	20	QPSK 1_0	21100/2535	1:1	0.451	0.12	17.76	18.50	1.186	0.535	22.5
Bottom side - UL CA	20	QPSK 1_0	21100+20902/2535+2515.2	1:1	0.504	0.03	20.03	20.20	1.040	0.524	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	21100/2535	1:1	0.246	0.18	20.06	20.20	1.033	0.254	22.5
Back side	20	QPSK 50_0	21100/2535	1:1	0.283	0.07	20.06	20.20	1.033	0.292	22.5
Right side	20	QPSK 50_0	21100/2535	1:1	0.094	0.09	20.06	20.20	1.033	0.097	22.5
Bottom side	20	QPSK 50_0	21100/2535	1:1	0.515	0.05	20.06	20.20	1.033	0.532	22.5

Table 19: SAR of LTE Band 7 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	21350/2560	0.923	0.921	1.002171553	N/A	N/A

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

9.2.10 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)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.386	-0.14	19.43	19.70	1.064	0.411	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.077	-0.07	19.43	19.70	1.064	0.082	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.913	0.01	19.43	19.70	1.064	0.972	22.5
Right cheek - Repeat SAR	20	QPSK 1_0	40620/2593	1:1.58	0.908	-0.05	19.43	19.70	1.064	0.966	22.5
Right cheek - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.763	0.10	19.33	19.50	1.040	0.793	22.5
Right cheek	20	QPSK 1_0	39750/2506	1:1.58	0.758	-0.17	19.37	19.70	1.079	0.818	22.5



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Right cheek	20	QPSK 1_0	40185/2549.5	1:1.58	0.848	0.00	19.38	19.70	1.076	0.913	22.5
Right cheek	20	QPSK 1_0	41055/2636.5	1:1.58	0.893	-0.07	19.39	19.70	1.074	0.959	22.5
Right cheek	20	QPSK 1_0	41490/2680	1:1.58	0.863	0.10	19.29	19.70	1.099	0.948	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.056	-0.03	19.43	19.70	1.064	0.060	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.380	-0.02	19.39	19.70	1.074	0.408	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.076	-0.12	19.39	19.70	1.074	0.082	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.900	0.00	19.39	19.70	1.074	0.967	22.5
Right cheek	20	QPSK 50_0	39750/2506	1:1.58	0.747	0.19	19.33	19.70	1.089	0.813	22.5
Right cheek	20	QPSK 50_0	40185/2549.5	1:1.58	0.833	0.16	19.37	19.70	1.079	0.899	22.5
Right cheek	20	QPSK 50_0	41055/2636.5	1:1.58	0.878	0.16	19.37	19.70	1.079	0.947	22.5
Right cheek	20	QPSK 50_0	41490/2680	1:1.58	0.840	-0.01	19.36	19.70	1.081	0.908	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.056	-0.13	19.39	19.70	1.074	0.060	22.5
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	40620/2593	1:1.58	0.885	-0.01	19.41	19.70	1.069	0.946	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.110	0.14	22.06	22.20	1.033	0.114	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.115	0.14	22.06	22.20	1.033	0.119	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.110	-0.11	21.97	22.20	1.054	0.116	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.116	0.04	21.97	22.20	1.054	0.122	22.5
Back side - Band38 ULCA	20	QPSK 50_0	37901+38099 /2585.1+2604.9	1:1.58	0.095	0.00	21.75	22.00	1.059	0.101	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.183	-0.14	19.43	19.70	1.064	0.195	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.174	0.17	19.43	19.70	1.064	0.185	22.5
Right side	20	QPSK 1_0	40620/2593	1:1.58	0.372	0.17	19.43	19.70	1.064	0.396	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.179	-0.06	19.39	19.70	1.074	0.192	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.166	0.18	19.39	19.70	1.074	0.178	22.5
Right side	20	QPSK 50_0	40620/2593	1:1.58	0.393	-0.16	19.39	19.70	1.074	0.422	22.5
Right side - Band38 ULCA	20	QPSK 50_0	37901+38099 /2585.1+2604.9	1:1.58	0.355	-0.04	19.23	19.50	1.064	0.378	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)	Scale d factor	Scale SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.251	0.15	19.44	19.70	1.062	0.266	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.246	0.02	19.44	19.70	1.062	0.261	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.872	-0.01	19.44	19.70	1.062	0.926	22.5
Right cheek - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.689	0.11	19.18	19.50	1.076	0.742	22.5
Right cheek	20	QPSK 1_0	39750/2506	1:1.58	0.844	0.05	19.35	19.70	1.084	0.915	22.5
Right cheek	20	QPSK 1_0	40185/2549.5	1:1.58	0.840	-0.02	19.30	19.70	1.096	0.921	22.5
Right cheek	20	QPSK 1_0	41055/2636.5	1:1.58	0.790	0.07	19.34	19.70	1.086	0.858	22.5
Right cheek	20	QPSK 1_0	41490/2680	1:1.58	0.725	0.18	19.35	19.70	1.084	0.786	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.476	0.05	19.44	19.70	1.062	0.505	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.250	0.12	19.41	19.70	1.069	0.267	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.241	0.00	19.41	19.70	1.069	0.258	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.866	-0.02	19.41	19.70	1.069	0.926	22.5
Right cheek	20	QPSK 50_0	39750/2506	1:1.58	0.823	0.15	19.37	19.70	1.079	0.888	22.5



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Right cheek	20	QPSK 50_0	40185/2549.5	1:1.58	0.838	0.12	19.33	19.70	1.089	0.913	22.5
Right cheek	20	QPSK 50_0	41055/2636.5	1:1.58	0.768	0.13	19.36	19.70	1.081	0.831	22.5
Right cheek	20	QPSK 50_0	41490/2680	1:1.58	0.715	-0.04	19.27	19.70	1.104	0.789	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.465	-0.16	19.41	19.70	1.069	0.497	22.5
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	40620/2593	1:1.58	0.796	0.10	19.39	19.70	1.074	0.855	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.230	0.13	25.58	25.70	1.028	0.236	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.261	0.04	25.58	25.70	1.028	0.268	22.5
Back side - Band38 ULCA	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.207	-0.04	23.52	24.50	1.253	0.259	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.197	0.13	24.50	24.70	1.047	0.206	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.203	0.07	24.50	24.70	1.047	0.213	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.198	0.05	19.44	19.70	1.062	0.210	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.241	-0.05	19.44	19.70	1.062	0.256	22.5
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.376	-0.12	19.44	19.70	1.062	0.399	22.5
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.046	-0.14	19.44	19.70	1.062	0.049	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.200	0.05	19.41	19.70	1.069	0.214	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.235	-0.15	19.41	19.70	1.069	0.251	22.5
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.375	0.11	19.41	19.70	1.069	0.401	22.5
Left side - Band38 ULCA	20	QPSK 50_0	37901+38099/2585.1+2604.9	1:1.58	0.334	-0.17	19.02	19.50	1.117	0.373	22.5
Top side	20	QPSK 50_0	40620/2593	1:1.58	0.041	0.04	19.41	19.70	1.069	0.044	22.5
Ant 4 Test Record											
Test position	BW	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg)	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scale factor	Scale SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.382	0.09	18.43	18.70	1.064	0.407	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.319	-0.01	18.43	18.70	1.064	0.339	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.498	0.00	18.43	18.70	1.064	0.530	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.734	0.13	18.43	18.70	1.064	0.781	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.381	-0.03	18.36	18.70	1.081	0.412	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.308	0.07	18.36	18.70	1.081	0.333	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.495	0.09	18.36	18.70	1.081	0.535	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.741	0.10	18.36	18.70	1.081	0.801	22.5
Right tilted	20	QPSK 50_0	39750/2506	1:1.58	0.823	-0.01	18.32	18.70	1.091	0.898	22.5
Right tilted - Band38 ULCA	20	QPSK 50_0	37901+38099/2585.1+2604.9	1:1.58	0.693	0.00	17.79	18.50	1.178	0.816	22.5
Right tilted	20	QPSK 50_0	40185/2549.5	1:1.58	0.689	-0.09	18.31	18.70	1.094	0.754	22.5
Right tilted	20	QPSK 50_0	41055/2636.5	1:1.58	0.586	0.08	18.30	18.70	1.096	0.643	22.5
Right tilted	20	QPSK 50_0	41490/2680	1:1.58	0.550	0.01	18.26	18.70	1.107	0.609	22.5
Head Test Data(100%RB)											
Right tilted	20	QPSK 100_0	40620/2593	1:1.58	0.728	-0.03	18.38	18.70	1.076	0.784	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.153	0.10	25.47	25.70	1.054	0.161	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.279	-0.02	25.47	25.70	1.054	0.294	22.5
Back side - Band38 ULCA	20	QPSK 1_0	37901+38099/2585.1+2604.9	1:1.58	0.204	-0.10	22.95	24.50	1.429	0.291	22.5



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Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.122	0.17	24.43	24.70	1.064	0.130	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.226	-0.03	24.43	24.70	1.064	0.240	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.159	0.10	18.43	18.70	1.064	0.169	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.312	0.18	18.43	18.70	1.064	0.332	22.5
Left side	20	QPSK 1_0	40620/2593	1:1.58	0.129	0.00	18.43	18.70	1.064	0.137	22.5
Top side	20	QPSK 1_0	40620/2593	1:1.58	0.503	0.01	18.43	18.70	1.064	0.535	22.5
Top side - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.428	-0.03	17.88	18.50	1.153	0.494	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.155	-0.09	18.36	18.70	1.081	0.168	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.314	-0.16	18.36	18.70	1.081	0.340	22.5
Left side	20	QPSK 50_0	40620/2593	1:1.58	0.128	-0.01	18.36	18.70	1.081	0.138	22.5
Top side	20	QPSK 50_0	40620/2593	1:1.58	0.491	-0.09	18.36	18.70	1.081	0.531	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)	Scale d factor	Scale d SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	40620/2593	1:1.58	0.076	0.15	25.56	25.70	1.033	0.078	22.5
Left tilted	20	QPSK 1_0	40620/2593	1:1.58	0.057	0.19	25.56	25.70	1.033	0.059	22.5
Right cheek	20	QPSK 1_0	40620/2593	1:1.58	0.091	-0.14	25.56	25.70	1.033	0.094	22.5
Right cheek - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.066	0.07	23.54	24.50	1.247	0.082	22.5
Right tilted	20	QPSK 1_0	40620/2593	1:1.58	0.046	-0.17	25.56	25.70	1.033	0.048	22.5
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	40620/2593	1:1.58	0.058	0.16	24.47	24.70	1.054	0.061	22.5
Left tilted	20	QPSK 50_0	40620/2593	1:1.58	0.045	-0.17	24.47	24.70	1.054	0.047	22.5
Right cheek	20	QPSK 50_0	40620/2593	1:1.58	0.072	0.12	24.47	24.70	1.054	0.076	22.5
Right tilted	20	QPSK 50_0	40620/2593	1:1.58	0.035	0.18	24.47	24.70	1.054	0.037	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.128	-0.05	25.56	25.70	1.033	0.132	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.161	-0.04	25.56	25.70	1.033	0.166	22.5
Back side - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.131	0.03	23.54	24.50	1.247	0.163	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.104	-0.12	24.47	24.70	1.054	0.110	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.128	-0.06	24.47	24.70	1.054	0.135	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	40620/2593	1:1.58	0.137	0.14	21.54	21.70	1.038	0.142	22.5
Back side	20	QPSK 1_0	40620/2593	1:1.58	0.160	0.17	21.54	21.70	1.038	0.166	22.5
Right side	20	QPSK 1_0	40620/2593	1:1.58	0.060	0.03	21.54	21.70	1.038	0.062	22.5
Bottom side	20	QPSK 1_0	40620/2593	1:1.58	0.365	0.01	21.54	21.70	1.038	0.379	22.5
Bottom side - Band38 ULCA	20	QPSK 1_0	37901+38099 /2585.1+2604.9	1:1.58	0.322	-0.14	20.99	21.50	1.125	0.362	22.5
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	40620/2593	1:1.58	0.136	-0.18	21.40	21.70	1.072	0.146	22.5
Back side	20	QPSK 50_0	40620/2593	1:1.58	0.166	-0.02	21.40	21.70	1.072	0.178	22.5
Right side	20	QPSK 50_0	40620/2593	1:1.58	0.061	0.03	21.40	21.70	1.072	0.065	22.5
Bottom side	20	QPSK 50_0	40620/2593	1:1.58	0.353	-0.16	21.40	21.70	1.072	0.378	22.5

Table 20: SAR of LTE Band 41 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)



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Right cheek	40620/2593	0.913	0.908	1.005506608	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						

9.2.11 SAR Result of LTE Band 48

LTE Band 48 SAR Test Record											
Ant 6 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	55830/3609	1:1.58	0.448	-0.09	14.52	15.00	1.117	0.500	22.8
Left tilted	20	QPSK 1_0	55830/3609	1:1.58	0.513	-0.06	14.52	15.00	1.117	0.573	22.8
Right cheek	20	QPSK 1_0	55830/3609	1:1.58	0.180	-0.10	14.52	15.00	1.117	0.201	22.8
Right tilted	20	QPSK 1_0	55830/3609	1:1.58	0.225	-0.05	14.52	15.00	1.117	0.251	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	55830/3609	1:1.58	0.478	0.17	14.49	15.00	1.125	0.538	22.8
Left tilted	20	QPSK 50_0	55830/3609	1:1.58	0.535	0.04	14.49	15.00	1.125	0.602	22.8
Right cheek	20	QPSK 50_0	55830/3609	1:1.58	0.201	-0.16	14.49	15.00	1.125	0.226	22.8
Right tilted	20	QPSK 50_0	55830/3609	1:1.58	0.252	0.11	14.49	15.00	1.125	0.283	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.125	0.16	23.62	24.00	1.091	0.136	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.210	-0.09	23.62	24.00	1.091	0.229	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.098	0.17	22.58	23.00	1.102	0.108	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.168	-0.03	22.58	23.00	1.102	0.185	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.067	-0.07	14.52	15.00	1.117	0.075	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.100	0.01	14.52	15.00	1.117	0.112	22.8
Right side	20	QPSK 1_0	55830/3609	1:1.58	0.035	0.11	14.52	15.00	1.117	0.039	22.8
Top side	20	QPSK 1_0	55830/3609	1:1.58	0.142	0.15	14.52	15.00	1.117	0.159	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.064	0.05	14.49	15.00	1.125	0.072	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.107	0.19	14.49	15.00	1.125	0.120	22.8
Right side	20	QPSK 50_0	55830/3609	1:1.58	0.039	0.03	14.49	15.00	1.125	0.044	22.8
Top side	20	QPSK 50_0	55830/3609	1:1.58	0.149	-0.15	14.49	15.00	1.125	0.168	22.8
Ant 7 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	55830/3609	1:1.58	0.742	-0.15	17.19	17.50	1.074	0.797	22.8
Left tilted	20	QPSK 1_0	55830/3609	1:1.58	0.206	0.17	17.19	17.50	1.074	0.221	22.8
Right cheek	20	QPSK 1_0	55830/3609	1:1.58	0.110	-0.03	17.19	17.50	1.074	0.118	22.8
Right tilted	20	QPSK 1_0	55830/3609	1:1.58	0.068	-0.12	17.19	17.50	1.074	0.073	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	55830/3609	1:1.58	0.756	0.03	16.97	17.50	1.130	0.854	22.8
Left cheek	20	QPSK 50_0	55340/3560	1:1.58	0.727	0.12	16.92	17.50	1.143	0.831	22.8
Left cheek	20	QPSK 50_0	56150/3641	1:1.58	0.655	0.10	16.88	17.50	1.153	0.756	22.8
Left cheek	20	QPSK 50_0	56640/3690	1:1.58	0.585	-0.02	16.90	17.50	1.148	0.672	22.8



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Left tilted	20	QPSK 50_0	55830/3609	1:1.58	0.204	0.19	16.97	17.50	1.130	0.230	22.8
Right cheek	20	QPSK 50_0	55830/3609	1:1.58	0.089	0.08	16.97	17.50	1.130	0.101	22.8
Right tilted	20	QPSK 50_0	55830/3609	1:1.58	0.068	-0.14	16.97	17.50	1.130	0.077	22.8
Head Test Data(100%RB)											
Left cheek	20	QPSK 100_0	55830/3609	1:1.58	0.724	-0.14	16.94	17.50	1.138	0.824	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.122	-0.11	21.12	21.50	1.091	0.133	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.313	0.09	21.12	21.50	1.091	0.342	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.201	0.00	20.92	21.50	1.143	0.230	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.363	0.15	20.92	21.50	1.143	0.415	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.114	0.16	17.19	17.50	1.074	0.122	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.181	0.16	17.19	17.50	1.074	0.194	22.8
Right side	20	QPSK 1_0	55830/3609	1:1.58	0.267	-0.10	17.19	17.50	1.074	0.287	22.8
Top side	20	QPSK 1_0	55830/3609	1:1.58	0.050	0.19	17.19	17.50	1.074	0.054	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.113	-0.14	16.97	17.50	1.130	0.128	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.167	-0.08	16.97	17.50	1.130	0.189	22.8
Right side	20	QPSK 50_0	55830/3609	1:1.58	0.294	-0.10	16.97	17.50	1.130	0.332	22.8
Top side	20	QPSK 50_0	55830/3609	1:1.58	0.052	-0.11	16.97	17.50	1.130	0.059	22.8
Ant 8 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	55830/3609	1:1.58	0.078	0.05	23.71	24.00	1.069	0.083	22.8
Left tilted	20	QPSK 1_0	55830/3609	1:1.58	0.093	-0.11	23.71	24.00	1.069	0.099	22.8
Right cheek	20	QPSK 1_0	55830/3609	1:1.58	0.149	-0.18	23.71	24.00	1.069	0.159	22.8
Right tilted	20	QPSK 1_0	55830/3609	1:1.58	0.156	0.19	23.71	24.00	1.069	0.167	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	55830/3609	1:1.58	0.077	0.11	22.58	23.00	1.102	0.085	22.8
Left tilted	20	QPSK 50_0	55830/3609	1:1.58	0.074	-0.03	22.58	23.00	1.102	0.082	22.8
Right cheek	20	QPSK 50_0	55830/3609	1:1.58	0.132	0.15	22.58	23.00	1.102	0.145	22.8
Right tilted	20	QPSK 50_0	55830/3609	1:1.58	0.127	-0.18	22.58	23.00	1.102	0.140	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.053	-0.08	23.71	24.00	1.069	0.057	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.106	0.06	23.71	24.00	1.069	0.113	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.043	-0.06	22.58	23.00	1.102	0.047	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.081	-0.02	22.58	23.00	1.102	0.089	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.042	-0.11	23.71	24.00	1.069	0.045	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.194	0.01	23.71	24.00	1.069	0.207	22.8
Left side	20	QPSK 1_0	55830/3609	1:1.58	0.084	0.08	23.71	24.00	1.069	0.090	22.8
Top side	20	QPSK 1_0	55830/3609	1:1.58	0.073	-0.02	23.71	24.00	1.069	0.078	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.035	-0.09	22.58	23.00	1.102	0.039	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.165	0.12	22.58	23.00	1.102	0.182	22.8
Left side	20	QPSK 50_0	55830/3609	1:1.58	0.062	-0.07	22.58	23.00	1.102	0.068	22.8
Top side	20	QPSK 50_0	55830/3609	1:1.58	0.058	-0.15	22.58	23.00	1.102	0.064	22.8
Ant 9 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)



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t (86-512) 62992980 www.sgs.com.cn

中国·苏州·中国(江苏)自由贸易试验区苏州片区苏州工业园区湖胜路1号的6号厂房南楼 邮编: 215000

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Head Test Data(1RB)											
Left cheek	20	QPSK 1_0	55830/3609	1:1.58	0.270	0.11	21.19	21.50	1.074	0.290	22.8
Left tilted	20	QPSK 1_0	55830/3609	1:1.58	0.200	0.00	21.19	21.50	1.074	0.215	22.8
Right cheek	20	QPSK 1_0	55830/3609	1:1.58	0.463	-0.14	21.19	21.50	1.074	0.497	22.8
Right tilted	20	QPSK 1_0	55830/3609	1:1.58	0.348	0.01	21.19	21.50	1.074	0.374	22.8
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	55830/3609	1:1.58	0.225	0.12	21.11	21.50	1.094	0.246	22.8
Left tilted	20	QPSK 50_0	55830/3609	1:1.58	0.142	0.18	21.11	21.50	1.094	0.155	22.8
Right cheek	20	QPSK 50_0	55830/3609	1:1.58	0.387	0.07	21.11	21.50	1.094	0.423	22.8
Right tilted	20	QPSK 50_0	55830/3609	1:1.58	0.276	-0.05	21.11	21.50	1.094	0.302	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.108	0.08	23.23	23.50	1.064	0.115	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.257	-0.05	23.23	23.50	1.064	0.273	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.084	0.03	22.09	22.50	1.099	0.092	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.214	0.12	22.09	22.50	1.099	0.235	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	55830/3609	1:1.58	0.171	0.00	20.74	21.00	1.062	0.182	22.8
Back side	20	QPSK 1_0	55830/3609	1:1.58	0.513	-0.07	20.74	21.00	1.062	0.545	22.8
Left side	20	QPSK 1_0	55830/3609	1:1.58	0.263	-0.17	20.74	21.00	1.062	0.279	22.8
Top side	20	QPSK 1_0	55830/3609	1:1.58	0.086	-0.09	20.74	21.00	1.062	0.091	22.8
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	55830/3609	1:1.58	0.158	-0.02	20.69	21.00	1.074	0.170	22.8
Back side	20	QPSK 50_0	55830/3609	1:1.58	0.570	-0.01	20.69	21.00	1.074	0.612	22.8
Left side	20	QPSK 50_0	55830/3609	1:1.58	0.250	0.06	20.69	21.00	1.074	0.268	22.8
Top side	20	QPSK 50_0	55830/3609	1:1.58	0.097	0.10	20.69	21.00	1.074	0.104	22.8

Table 21: SAR of LTE Band 48 for Head and Body.

9.2.12 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	0.635	-0.10	18.53	18.70	1.040	0.660	22.7
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.092	0.05	18.53	18.70	1.040	0.096	22.7
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.620	-0.16	18.53	18.70	1.040	0.645	22.7
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.071	-0.12	18.53	18.70	1.040	0.074	22.7
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.662	-0.16	18.43	18.70	1.064	0.704	22.7
Left cheek - Band4 DLCA	20	QPSK 50_0	20175/1732.5	1:1	0.576	0.03	17.58	18.00	1.102	0.634	22.7
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.098	-0.03	18.43	18.70	1.064	0.104	22.7
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.628	0.09	18.43	18.70	1.064	0.668	22.7
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.073	-0.13	18.43	18.70	1.064	0.078	22.7
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.164	-0.01	21.98	22.20	1.052	0.173	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.154	-0.17	21.98	22.20	1.052	0.162	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.179	0.15	21.97	22.20	1.054	0.189	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.161	-0.15	21.97	22.20	1.054	0.170	22.7
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.237	-0.04	18.53	18.70	1.040	0.246	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.202	-0.03	18.53	18.70	1.040	0.210	22.7



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Right side	20	QPSK 1_0	132322/1745	1:1	0.412	-0.04	18.53	18.70	1.040	0.428	22.7
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.230	0.13	18.43	18.70	1.064	0.245	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.205	0.02	18.43	18.70	1.064	0.218	22.7
Right side	20	QPSK 50_0	132322/1745	1:1	0.425	-0.01	18.43	18.70	1.064	0.452	22.7
Right side - Band4 DLCA	20	QPSK 50_0	20175/1732.5	1:1	0.325	0.07	17.58	18.00	1.102	0.358	22.7
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	0.321	-0.05	19.02	19.20	1.042	0.335	22.7
Left tilted	20	QPSK 1_0	132322/1745	1:1	0.232	0.17	19.02	19.20	1.042	0.242	22.7
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.823	0.05	19.02	19.20	1.042	0.858	22.7
Right cheek	20	QPSK 1_0	132072/1720	1:1	0.866	0.10	18.96	19.20	1.057	0.915	22.7
Right cheek - Repeat SAR	20	QPSK 1_0	132072/1720	1:1	0.859	0.05	18.96	19.20	1.057	0.908	22.7
Right cheek - For Band4 ENDC	20	QPSK 1_0	20175/1732.5	1:1	0.548	0.15	17.95	19.00	1.274	0.698	22.7
Right cheek	20	QPSK 1_0	132572/1770	1:1	0.748	0.12	18.99	19.20	1.050	0.785	22.7
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.359	0.11	19.02	19.20	1.042	0.374	22.7
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.311	-0.11	18.99	19.20	1.050	0.326	22.7
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.227	-0.03	18.99	19.20	1.050	0.238	22.7
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.820	-0.09	18.99	19.20	1.050	0.861	22.7
Right cheek	20	QPSK 50_0	132072/1720	1:1	0.856	0.15	18.93	19.20	1.064	0.911	22.7
Right cheek	20	QPSK 50_0	132572/1770	1:1	0.764	0.01	18.98	19.20	1.052	0.804	22.7
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.361	-0.04	18.99	19.20	1.050	0.379	22.7
Head Test Data(100%RB)											
Right cheek	20	QPSK 100_0	132322/1745	1:1	0.805	0.15	18.97	19.20	1.054	0.849	22.7
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.279	0.12	25.57	25.70	1.030	0.287	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.339	-0.06	25.57	25.70	1.030	0.349	22.7
Back side - For Band4 ENDC	20	QPSK 1_0	20175/1732.5	1:1	0.267	-0.08	24.50	25.50	1.259	0.336	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.227	0.12	24.47	24.70	1.054	0.239	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.268	-0.17	24.47	24.70	1.054	0.283	22.7
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.135	0.17	19.02	19.20	1.042	0.141	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.154	-0.18	19.02	19.20	1.042	0.161	22.7
Left side	20	QPSK 1_0	132322/1745	1:1	0.281	0.11	19.02	19.20	1.042	0.293	22.7
Left side - For Band4 ENDC	20	QPSK 1_0	20175/1732.5	1:1	0.225	-0.19	17.95	19.00	1.274	0.287	22.7
Top side	20	QPSK 1_0	132322/1745	1:1	0.091	-0.03	19.02	19.20	1.042	0.095	22.7
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.130	0.13	18.99	19.20	1.050	0.136	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.142	0.00	18.99	19.20	1.050	0.149	22.7
Left side	20	QPSK 50_0	132322/1745	1:1	0.279	-0.04	18.99	19.20	1.050	0.293	22.7
Top side	20	QPSK 50_0	132322/1745	1:1	0.088	-0.03	18.99	19.20	1.050	0.092	22.7
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	0.148	-0.07	25.58	25.70	1.028	0.152	22.7



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Left tilted	20	QPSK 1_0	132322/1745	1:1	0.063	0.07	25.58	25.70	1.028	0.065	22.7
Right cheek	20	QPSK 1_0	132322/1745	1:1	0.163	0.04	25.58	25.70	1.028	0.168	22.7
Right cheek - For Band4 ENDC	20	QPSK 1_0	20175/1732.5	1:1	0.127	-0.18	23.81	25.00	1.315	0.167	22.7
Right tilted	20	QPSK 1_0	132322/1745	1:1	0.089	-0.03	25.58	25.70	1.028	0.091	22.7
Head Test Data(50%RB)											
Left cheek	20	QPSK 50_0	132322/1745	1:1	0.118	0.04	24.56	24.70	1.033	0.122	22.7
Left tilted	20	QPSK 50_0	132322/1745	1:1	0.057	-0.12	24.56	24.70	1.033	0.059	22.7
Right cheek	20	QPSK 50_0	132322/1745	1:1	0.131	0.13	24.56	24.70	1.033	0.135	22.7
Right tilted	20	QPSK 50_0	132322/1745	1:1	0.068	0.06	24.56	24.70	1.033	0.070	22.7
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.470	0.04	25.58	25.70	1.028	0.483	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.530	-0.01	25.58	25.70	1.028	0.545	22.7
Back side - For Band4 ENDC	20	QPSK 1_0	20175/1732.5	1:1	0.369	-0.15	23.81	25.00	1.315	0.485	22.7
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.364	0.18	24.56	24.70	1.033	0.376	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.435	-0.13	24.56	24.70	1.033	0.449	22.7
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_0	132322/1745	1:1	0.372	0.01	21.99	22.20	1.050	0.390	22.7
Back side	20	QPSK 1_0	132322/1745	1:1	0.389	0.08	21.99	22.20	1.050	0.408	22.7
Right side	20	QPSK 1_0	132322/1745	1:1	0.140	0.10	21.99	22.20	1.050	0.147	22.7
Bottom side	20	QPSK 1_0	132322/1745	1:1	0.709	0.07	21.99	22.20	1.050	0.744	22.7
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK 50_0	132322/1745	1:1	0.356	0.12	21.88	22.20	1.076	0.383	22.7
Back side	20	QPSK 50_0	132322/1745	1:1	0.398	0.07	21.88	22.20	1.076	0.428	22.7
Right side	20	QPSK 50_0	132322/1745	1:1	0.125	-0.12	21.88	22.20	1.076	0.135	22.7
Bottom side	20	QPSK 50_0	132322/1745	1:1	0.736	-0.01	21.88	22.20	1.076	0.792	22.7
Bottom side - For Band4 ENDC	20	QPSK 50_0	20175/1732.5	1:1	0.625	0.13	20.11	21.00	1.227	0.767	22.7

Table 22: SAR of LTE Band 66 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	132072/1720	0.866	0.859	1.00814901	N/A	N/A

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

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

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

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

9.2.1 SAR Result of 5G NR n2

SA N2 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	20	QPSK 1_1	376000/1880	1:1	0.521	-0.05	17.26	17.50	1.057	0.551	22.8
Left tilted	20	QPSK 1_1	376000/1880	1:1	0.091	-0.18	17.26	17.50	1.057	0.096	22.8



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Right cheek	20	QPSK 1_1	376000/1880	1:1	0.501	0.00	17.26	17.50	1.057	0.529	22.8
Right tilted	20	QPSK 1_1	376000/1880	1:1	0.061	0.01	17.26	17.50	1.057	0.064	22.8
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	376000/1880	1:1	0.476	-0.13	17.16	17.50	1.081	0.515	22.8
Left tilted	20	QPSK 50_28	376000/1880	1:1	0.084	-0.12	17.16	17.50	1.081	0.091	22.8
Right cheek	20	QPSK 50_28	376000/1880	1:1	0.466	-0.07	17.16	17.50	1.081	0.504	22.8
Right tilted	20	QPSK 50_28	376000/1880	1:1	0.055	-0.04	17.16	17.50	1.081	0.059	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	376000/1880	1:1	0.180	-0.05	21.26	21.50	1.057	0.190	22.8
Back side	20	QPSK 1_1	376000/1880	1:1	0.169	-0.16	21.26	21.50	1.057	0.179	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	376000/1880	1:1	0.179	-0.14	21.12	21.50	1.091	0.195	22.8
Back side	20	QPSK 50_28	376000/1880	1:1	0.164	-0.17	21.12	21.50	1.091	0.179	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	376000/1880	1:1	0.155	0.02	17.26	17.50	1.057	0.164	22.8
Back side	20	QPSK 1_1	376000/1880	1:1	0.098	0.06	17.26	17.50	1.057	0.104	22.8
Right side	20	QPSK 1_1	376000/1880	1:1	0.247	-0.15	17.26	17.50	1.057	0.261	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	376000/1880	1:1	0.148	-0.01	17.16	17.50	1.081	0.160	22.8
Back side	20	QPSK 50_28	376000/1880	1:1	0.136	0.03	17.16	17.50	1.081	0.147	22.8
Right side	20	QPSK 50_28	376000/1880	1:1	0.244	-0.13	17.16	17.50	1.081	0.264	22.8
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	20	QPSK 1_1	376000/1880	1:1	0.105	0.09	25.10	25.50	1.096	0.115	22.8
Left tilted	20	QPSK 1_1	376000/1880	1:1	0.073	-0.15	25.10	25.50	1.096	0.080	22.8
Right cheek	20	QPSK 1_1	376000/1880	1:1	0.135	0.11	25.10	25.50	1.096	0.148	22.8
Right tilted	20	QPSK 1_1	376000/1880	1:1	0.061	-0.02	25.10	25.50	1.096	0.067	22.8
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	376000/1880	1:1	0.090	0.00	24.89	25.50	1.151	0.104	22.8
Left tilted	20	QPSK 50_28	376000/1880	1:1	0.064	-0.08	24.89	25.50	1.151	0.074	22.8
Right cheek	20	QPSK 50_28	376000/1880	1:1	0.118	0.04	24.89	25.50	1.151	0.136	22.8
Right tilted	20	QPSK 50_28	376000/1880	1:1	0.058	-0.18	24.89	25.50	1.151	0.067	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	376000/1880	1:1	0.474	0.04	25.10	25.50	1.096	0.520	22.8
Back side	20	QPSK 1_1	376000/1880	1:1	0.331	-0.12	25.10	25.50	1.096	0.363	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	376000/1880	1:1	0.438	-0.08	24.89	25.50	1.151	0.504	22.8
Back side	20	QPSK 50_28	376000/1880	1:1	0.295	-0.18	24.89	25.50	1.151	0.339	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	376000/1880	1:1	0.291	0.03	22.17	22.50	1.079	0.314	22.8
Back side	20	QPSK 1_1	376000/1880	1:1	0.358	0.12	22.17	22.50	1.079	0.386	22.8
Right side	20	QPSK 1_1	376000/1880	1:1	0.348	0.16	22.17	22.50	1.079	0.375	22.8
Bottom side	20	QPSK 1_1	376000/1880	1:1	0.792	0.18	22.17	22.50	1.079	0.855	22.8
Bottom side	20	QPSK 1_1	372000/1860	1:1	0.775	0.17	21.98	22.50	1.127	0.874	22.8
Bottom side	20	QPSK 1_1	380000/1900	1:1	0.758	-0.16	22.14	22.50	1.086	0.824	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	376000/1880	1:1	0.345	-0.11	22.09	22.50	1.099	0.379	22.8
Back side	20	QPSK 50_28	376000/1880	1:1	0.364	-0.17	22.09	22.50	1.099	0.400	22.8
Right side	20	QPSK 50_28	376000/1880	1:1	0.377	-0.12	22.09	22.50	1.099	0.414	22.8
Bottom side	20	QPSK 50_28	376000/1880	1:1	0.815	0.02	22.09	22.50	1.099	0.896	22.8
Bottom side-repeated	20	QPSK 50_28	376000/1880	1:1	0.807	0.13	22.09	22.50	1.099	0.887	22.8
Bottom side	20	QPSK 50_28	372000/1860	1:1	0.808	-0.04	22.02	22.50	1.117	0.902	22.8



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Bottom side	20	QPSK 50_28	380000/1900	1:1	0.789	-0.14	21.93	22.50	1.140	0.900	22.8
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100_0	376000/1880	1:1	0.763	-0.11	21.95	22.50	1.135	0.866	22.8

Table 23: SAR of 5G NR n2 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)
Bottom side	376000/1880	0.815	0.807	1.009913259	N/A	N/A

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

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

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

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

9.2.2 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	0.255	0.08	24.39	25.00	1.151	0.293	22.6
Left tilted	20	QPSK 1_1	167300/836.5	1:1	0.133	0.16	24.39	25.00	1.151	0.153	22.6
Right cheek	20	QPSK 1_1	167300/836.5	1:1	0.156	0.12	24.39	25.00	1.151	0.180	22.6
Right tilted	20	QPSK 1_1	167300/836.5	1:1	0.089	-0.10	24.39	25.00	1.151	0.102	22.6
Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	167300/836.5	1:1	0.210	0.06	24.32	25.00	1.169	0.246	22.6
Left tilted	20	QPSK 50_28	167300/836.5	1:1	0.103	0.18	24.32	25.00	1.169	0.120	22.6
Right cheek	20	QPSK 50_28	167300/836.5	1:1	0.125	0.04	24.32	25.00	1.169	0.146	22.6
Right tilted	20	QPSK 50_28	167300/836.5	1:1	0.069	0.07	24.32	25.00	1.169	0.081	22.6
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.160	-0.04	24.39	25.00	1.151	0.184	22.6
Back side	20	QPSK 1_1	167300/836.5	1:1	0.155	0.11	24.39	25.00	1.151	0.178	22.6
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.106	-0.17	24.32	25.00	1.169	0.124	22.6
Back side	20	QPSK 50_28	167300/836.5	1:1	0.133	-0.19	24.32	25.00	1.169	0.156	22.6
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.209	-0.04	24.39	25.00	1.151	0.241	22.6
Back side	20	QPSK 1_1	167300/836.5	1:1	0.271	0.18	24.39	25.00	1.151	0.312	22.6
Left side	20	QPSK 1_1	167300/836.5	1:1	0.247	0.11	24.39	25.00	1.151	0.284	22.6
Bottom side	20	QPSK 1_1	167300/836.5	1:1	0.201	-0.04	24.39	25.00	1.151	0.231	22.6
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.176	0.12	24.32	25.00	1.169	0.206	22.6
Back side	20	QPSK 50_28	167300/836.5	1:1	0.249	-0.03	24.32	25.00	1.169	0.291	22.6
Left side	20	QPSK 50_28	167300/836.5	1:1	0.243	0.01	24.32	25.00	1.169	0.284	22.6
Bottom side	20	QPSK 50_28	167300/836.5	1:1	0.172	-0.05	24.32	25.00	1.169	0.201	22.6
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	0.678	-0.19	20.85	21.50	1.161	0.787	22.6
Left tilted	20	QPSK 1_1	167300/836.5	1:1	0.093	0.05	20.85	21.50	1.161	0.108	22.6
Right cheek	20	QPSK 1_1	167300/836.5	1:1	0.527	-0.17	20.85	21.50	1.161	0.612	22.6
Right tilted	20	QPSK 1_1	167300/836.5	1:1	0.095	-0.06	20.85	21.50	1.161	0.110	22.6



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Head Test data(50%RB)											
Left cheek	20	QPSK 50_28	167300/836.5	1:1	0.720	0.09	20.78	21.50	1.180	0.850	22.6
Left tilted	20	QPSK 50_28	167300/836.5	1:1	0.095	-0.12	20.78	21.50	1.180	0.112	22.6
Right cheek	20	QPSK 50_28	167300/836.5	1:1	0.555	0.11	20.78	21.50	1.180	0.655	22.6
Right tilted	20	QPSK 50_28	167300/836.5	1:1	0.106	0.18	20.78	21.50	1.180	0.125	22.6
Head Test data(100%RB)											
Left cheek	20	QPSK 100_0	167300/836.5	1:1	0.693	-0.15	20.71	21.50	1.199	0.831	22.6
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.452	0.15	24.16	25.00	1.213	0.548	22.6
Back side	20	QPSK 1_1	167300/836.5	1:1	0.473	-0.06	24.16	25.00	1.213	0.574	22.6
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.362	0.07	24.14	25.00	1.219	0.441	22.6
Back side	20	QPSK 50_28	167300/836.5	1:1	0.383	-0.13	24.14	25.00	1.219	0.467	22.6
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1_1	167300/836.5	1:1	0.284	-0.01	20.85	21.50	1.161	0.330	22.6
Back side	20	QPSK 1_1	167300/836.5	1:1	0.294	0.14	20.85	21.50	1.161	0.341	22.6
Left side	20	QPSK 1_1	167300/836.5	1:1	0.350	-0.04	20.85	21.50	1.161	0.407	22.6
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50_28	167300/836.5	1:1	0.305	0.07	20.78	21.50	1.180	0.360	22.6
Back side	20	QPSK 50_28	167300/836.5	1:1	0.308	0.18	20.78	21.50	1.180	0.364	22.6
Left side	20	QPSK 50_28	167300/836.5	1:1	0.364	0.03	20.78	21.50	1.180	0.430	22.6

Table 24: SAR of 5G NR n5 for Head and Body.

9.2.3 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	0.451	-0.15	17.58	17.70	1.028	0.464	22.5	
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.095	0.04	17.58	17.70	1.028	0.098	22.5	
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.803	-0.07	17.58	17.70	1.028	0.825	22.5	
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.064	0.16	17.58	17.70	1.028	0.066	22.5	
Head Test data(50%RB)												
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.476	0.04	17.42	17.70	1.067	0.508	22.5	
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.114	0.06	17.42	17.70	1.067	0.122	22.5	
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.853	0.04	17.42	17.70	1.067	0.910	22.5	
Right cheek-repeated	40	QPSK 108_54	507000/2535	1:1	0.846	0.11	17.42	17.70	1.067	0.902	22.5	
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.060	-0.02	17.42	17.70	1.067	0.064	22.5	
Head Test data(100%RB)												
Right cheek	40	QPSK 216_0	507000/2535	1:1	0.817	-0.05	16.41	16.70	1.069	0.873	22.5	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	507000/2535	1:1	0.082	-0.02	19.09	19.20	1.026	0.084	22.5	
Back side	40	QPSK 1_1	507000/2535	1:1	0.079	-0.16	19.09	19.20	1.026	0.081	22.5	
Body worn Test data(Separate 15mm 50%RB)												
Front side	40	QPSK 108_54	507000/2535	1:1	0.083	-0.03	18.97	19.20	1.054	0.088	22.5	
Back side	40	QPSK 108_54	507000/2535	1:1	0.084	0.19	18.97	19.20	1.054	0.089	22.5	
Hotspot Test data(Separate 10mm 1RB)												
Front side	40	QPSK 1_1	507000/2535	1:1	0.149	0.17	17.58	17.70	1.028	0.153	22.5	
Back side	40	QPSK 1_1	507000/2535	1:1	0.139	0.13	17.58	17.70	1.028	0.143	22.5	



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 中国·苏州·中国(江苏)自由贸易试验区苏州片区苏州工业园区润胜路1号的6号厂房南楼 邮编: 215000

t (86-512) 62992980 www.sgs.com.cn
 t (86-512) 62992980 sgs.china@sgs.com

Right side	40	QPSK 1_1	507000/2535	1:1	0.348	-0.14	17.58	17.70	1.028	0.358	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.141	0.14	17.42	17.70	1.067	0.150	22.5
Back side	40	QPSK 108_54	507000/2535	1:1	0.146	0.12	17.42	17.70	1.067	0.156	22.5
Right side	40	QPSK 108_54	507000/2535	1:1	0.309	0.17	17.42	17.70	1.067	0.330	22.5
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	0.132	0.13	16.40	16.70	1.072	0.141	22.5
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.103	-0.02	16.40	16.70	1.072	0.110	22.5
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.473	0.01	16.40	16.70	1.072	0.507	22.5
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.237	-0.07	16.40	16.70	1.072	0.254	22.5
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.135	-0.12	16.37	16.70	1.079	0.146	22.5
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.096	-0.03	16.37	16.70	1.079	0.104	22.5
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.513	0.06	16.37	16.70	1.079	0.553	22.5
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.242	-0.01	16.37	16.70	1.079	0.261	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.468	-0.17	25.58	25.70	1.028	0.481	22.5
Back side	40	QPSK 1_1	507000/2535	1:1	0.503	0.12	25.58	25.70	1.028	0.517	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.453	0.11	25.55	25.70	1.035	0.469	22.5
Back side	40	QPSK 108_54	507000/2535	1:1	0.469	-0.10	25.55	25.70	1.035	0.485	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.118	0.15	16.40	16.70	1.072	0.126	22.5
Back side	40	QPSK 1_1	507000/2535	1:1	0.132	0.19	16.40	16.70	1.072	0.141	22.5
Left side	40	QPSK 1_1	507000/2535	1:1	0.226	-0.12	16.40	16.70	1.072	0.242	22.5
Top side	40	QPSK 1_1	507000/2535	1:1	0.010	-0.01	16.40	16.70	1.072	0.011	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.113	-0.03	16.37	16.70	1.079	0.122	22.5
Back side	40	QPSK 108_54	507000/2535	1:1	0.127	0.11	16.37	16.70	1.079	0.137	22.5
Left side	40	QPSK 108_54	507000/2535	1:1	0.213	0.01	16.37	16.70	1.079	0.230	22.5
Top side	40	QPSK 108_54	507000/2535	1:1	0.008	0.11	16.37	16.70	1.079	0.009	22.5
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	0.117	-0.06	25.41	25.70	1.069	0.125	22.5
Left tilted	40	QPSK 1_1	507000/2535	1:1	0.091	0.15	25.41	25.70	1.069	0.097	22.5
Right cheek	40	QPSK 1_1	507000/2535	1:1	0.197	-0.02	25.41	25.70	1.069	0.211	22.5
Right tilted	40	QPSK 1_1	507000/2535	1:1	0.048	0.04	25.41	25.70	1.069	0.051	22.5
Head Test data(50%RB)											
Left cheek	40	QPSK 108_54	507000/2535	1:1	0.107	-0.11	25.32	25.70	1.091	0.117	22.5
Left tilted	40	QPSK 108_54	507000/2535	1:1	0.086	0.01	25.32	25.70	1.091	0.094	22.5
Right cheek	40	QPSK 108_54	507000/2535	1:1	0.174	0.14	25.32	25.70	1.091	0.190	22.5
Right tilted	40	QPSK 108_54	507000/2535	1:1	0.035	0.11	25.32	25.70	1.091	0.038	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.358	-0.06	25.41	25.70	1.069	0.383	22.5
Back side	40	QPSK 1_1	507000/2535	1:1	0.511	-0.03	25.41	25.70	1.069	0.546	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.307	-0.13	25.32	25.70	1.091	0.335	22.5
Back side	40	QPSK 108_54	507000/2535	1:1	0.494	-0.07	25.32	25.70	1.091	0.539	22.5



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t (86-512) 62992980 www.sgs.com.cn
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Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	507000/2535	1:1	0.191	-0.10	19.53	19.70	1.040	0.199	22.5
Back side	40	QPSK 1_1	507000/2535	1:1	0.276	0.11	19.53	19.70	1.040	0.287	22.5
Right side	40	QPSK 1_1	507000/2535	1:1	0.211	0.17	19.53	19.70	1.040	0.219	22.5
Bottom side	40	QPSK 1_1	507000/2535	1:1	0.415	-0.14	19.53	19.70	1.040	0.432	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 108_54	507000/2535	1:1	0.201	-0.06	19.40	19.70	1.072	0.215	22.5
Back side	40	QPSK 108_54	507000/2535	1:1	0.293	-0.18	19.40	19.70	1.072	0.314	22.5
Right side	40	QPSK 108_54	507000/2535	1:1	0.220	0.07	19.40	19.70	1.072	0.236	22.5
Bottom side	40	QPSK 108_54	507000/2535	1:1	0.420	-0.02	19.40	19.70	1.072	0.450	22.5

Table 25: SAR of 5G NR n7 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	507000/2535	0.853	0.846	1.008274232	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

9.2.4 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	0.463	0.05	18.56	18.70	1.033	0.478	22.5
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.073	0.07	18.56	18.70	1.033	0.075	22.5
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.744	-0.12	18.56	18.70	1.033	0.768	22.5
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.045	0.05	18.56	18.70	1.033	0.046	22.5
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.480	0.02	18.47	18.70	1.054	0.506	22.5
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.070	0.09	18.47	18.70	1.054	0.074	22.5
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.839	-0.07	18.47	18.70	1.054	0.885	22.5
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.058	0.01	18.47	18.70	1.054	0.061	22.5
Head Test data(100%RB)											
Right cheek	100	QPSK 270_0	518598/2592.99	1:1	0.782	0.01	17.28	17.70	1.102	0.861	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.105	-0.03	19.80	20.20	1.096	0.115	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.119	-0.15	19.80	20.20	1.096	0.130	22.5
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.101	-0.04	19.64	20.20	1.138	0.115	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.108	-0.14	19.64	20.20	1.138	0.123	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.155	0.02	18.56	18.70	1.033	0.160	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.157	-0.10	18.56	18.70	1.033	0.162	22.5
Right side	100	QPSK 1_1	518598/2592.99	1:1	0.404	-0.11	18.56	18.70	1.033	0.417	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.162	-0.12	18.47	18.70	1.054	0.171	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.167	0.17	18.47	18.70	1.054	0.176	22.5
Right side	100	QPSK 135_69	518598/2592.99	1:1	0.431	0.09	18.47	18.70	1.054	0.454	22.5



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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	0.095	0.13	18.73	19.20	1.114	0.106	22.5
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.068	0.13	18.73	19.20	1.114	0.076	22.5
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.347	0.01	18.73	19.20	1.114	0.387	22.5
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.155	-0.05	18.73	19.20	1.114	0.173	22.5
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.146	0.15	18.66	19.20	1.132	0.165	22.5
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.117	-0.06	18.66	19.20	1.132	0.132	22.5
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.453	-0.17	18.66	19.20	1.132	0.513	22.5
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.184	0.11	18.66	19.20	1.132	0.208	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.265	0.17	25.46	25.70	1.057	0.280	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.273	-0.01	25.46	25.70	1.057	0.289	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.183	0.18	25.33	25.70	1.089	0.199	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.191	-0.08	25.33	25.70	1.089	0.208	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.108	0.00	18.73	19.20	1.114	0.120	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.119	-0.13	18.73	19.20	1.114	0.133	22.5
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.197	-0.08	18.73	19.20	1.114	0.220	22.5
Top side	100	QPSK 1_1	518598/2592.99	1:1	0.048	-0.06	18.73	19.20	1.114	0.053	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.120	-0.01	18.66	19.20	1.132	0.136	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.128	0.13	18.66	19.20	1.132	0.145	22.5
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.246	-0.12	18.66	19.20	1.132	0.279	22.5
Top side	100	QPSK 135_69	518598/2592.99	1:1	0.057	-0.14	18.66	19.20	1.132	0.065	22.5
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	0.463	0.16	17.84	18.20	1.086	0.503	22.5
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.554	0.03	17.84	18.20	1.086	0.602	22.5
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.602	-0.17	17.84	18.20	1.086	0.654	22.5
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.768	-0.19	17.84	18.20	1.086	0.834	22.5
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.370	-0.05	17.58	18.20	1.153	0.427	22.5
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.442	-0.09	17.58	18.20	1.153	0.510	22.5
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.599	0.02	17.58	18.20	1.153	0.691	22.5
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.718	0.05	17.58	18.20	1.153	0.828	22.5
Head Test data(100%RB)											
Right tilted	100	QPSK 270_0	518598/2592.99	1:1	0.686	0.08	17.44	18.20	1.191	0.817	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.507	-0.13	25.31	25.70	1.094	0.555	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.989	0.06	25.31	25.70	1.094	1.082	22.5
Back side-repeated	100	QPSK 1_1	518598/2592.99	1:1	0.984	0.01	25.31	25.70	1.094	1.076	22.5
Back side	100	QPSK 1_1	509202/2546.01	1:1	0.828	0.10	25.31	25.70	1.094	0.906	22.5
Back side	100	QPSK 1_1	528000/2640	1:1	0.748	-0.04	25.31	25.70	1.094	0.818	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.476	-0.17	25.25	25.70	1.109	0.528	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.966	0.15	25.25	25.70	1.109	1.071	22.5



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Back side	100	QPSK 135_69	509202/2546.01	1:1	0.863	0.07	25.25	25.70	1.109	0.957	22.5
Back side	100	QPSK 135_69	528000/2640	1:1	0.618	-0.13	25.25	25.70	1.109	0.685	22.5
Body worn Test data (Separate 15mm 100%RB)											
Back side	100	QPSK 270_0	518598/2592.99	1:1	0.906	0.18	24.03	24.70	1.167	1.057	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.185	-0.01	17.84	18.20	1.086	0.201	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.358	0.12	17.84	18.20	1.086	0.389	22.5
Left side	100	QPSK 1_1	518598/2592.99	1:1	0.081	0.11	17.84	18.20	1.086	0.088	22.5
Top side	100	QPSK 1_1	518598/2592.99	1:1	0.586	0.01	17.84	18.20	1.086	0.637	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.182	-0.12	17.58	18.20	1.153	0.210	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.330	0.19	17.58	18.20	1.153	0.381	22.5
Left side	100	QPSK 135_69	518598/2592.99	1:1	0.089	-0.10	17.58	18.20	1.153	0.103	22.5
Top side	100	QPSK 135_69	518598/2592.99	1:1	0.477	0.19	17.58	18.20	1.153	0.550	22.5
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	0.108	0.18	25.57	25.70	1.030	0.111	22.5
Left tilted	100	QPSK 1_1	518598/2592.99	1:1	0.083	0.14	25.57	25.70	1.030	0.086	22.5
Right cheek	100	QPSK 1_1	518598/2592.99	1:1	0.165	0.17	25.57	25.70	1.030	0.170	22.5
Right tilted	100	QPSK 1_1	518598/2592.99	1:1	0.054	0.07	25.57	25.70	1.030	0.056	22.5
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	518598/2592.99	1:1	0.115	0.00	25.53	25.70	1.040	0.120	22.5
Left tilted	100	QPSK 135_69	518598/2592.99	1:1	0.080	-0.18	25.53	25.70	1.040	0.083	22.5
Right cheek	100	QPSK 135_69	518598/2592.99	1:1	0.163	-0.13	25.53	25.70	1.040	0.170	22.5
Right tilted	100	QPSK 135_69	518598/2592.99	1:1	0.053	-0.11	25.53	25.70	1.040	0.055	22.5
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.283	-0.13	25.57	25.70	1.030	0.292	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.338	-0.03	25.57	25.70	1.030	0.348	22.5
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.252	-0.04	25.53	25.70	1.040	0.262	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.353	0.02	25.53	25.70	1.040	0.367	22.5
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	518598/2592.99	1:1	0.148	-0.02	19.49	19.70	1.050	0.155	22.5
Back side	100	QPSK 1_1	518598/2592.99	1:1	0.174	-0.13	19.49	19.70	1.050	0.183	22.5
Right side	100	QPSK 1_1	518598/2592.99	1:1	0.078	-0.12	19.49	19.70	1.050	0.082	22.5
Bottom side	100	QPSK 1_1	518598/2592.99	1:1	0.376	0.14	19.49	19.70	1.050	0.395	22.5
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	518598/2592.99	1:1	0.138	0.02	19.36	19.70	1.081	0.149	22.5
Back side	100	QPSK 135_69	518598/2592.99	1:1	0.168	0.03	19.36	19.70	1.081	0.182	22.5
Right side	100	QPSK 135_69	518598/2592.99	1:1	0.071	0.16	19.36	19.70	1.081	0.077	22.5
Bottom side	100	QPSK 135_69	518598/2592.99	1:1	0.384	0.03	19.36	19.70	1.081	0.415	22.5

Table 26: SAR of 5G NR n41 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)
Back side	518598/2592.99	0.989	0.984	1.005081301	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 .



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t (86-512) 62992980 www.sgs.com.cn
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4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

9.2.5 SAR Result of 5G NR n48

SA N48 SAR Test Record												
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	40	QPSK 1_1	641666/3624.99	1:1	0.589	0.10	13.20	14.00	1.202	0.708	22.8	
Left tilted	40	QPSK 1_1	641666/3624.99	1:1	0.698	-0.01	13.20	14.00	1.202	0.839	22.8	
Left tilted	40	QPSK 1_1	638000/3570	1:1	0.664	0.00	13.01	14.00	1.256	0.834	22.8	
Left tilted	40	QPSK 1_1	645332/3679.98	1:1	0.593	0.17	13.16	14.00	1.213	0.720	22.8	
Right cheek	40	QPSK 1_1	641666/3624.99	1:1	0.250	0.02	13.20	14.00	1.202	0.301	22.8	
Right tilted	40	QPSK 1_1	641666/3624.99	1:1	0.343	0.11	13.20	14.00	1.202	0.412	22.8	
Head Test data(50%RB)												
Left cheek	40	QPSK 50_28	641666/3624.99	1:1	0.540	-0.07	13.13	14.00	1.222	0.660	22.8	
Left tilted	40	QPSK 50_28	641666/3624.99	1:1	0.618	0.06	13.13	14.00	1.222	0.755	22.8	
Right cheek	40	QPSK 50_28	641666/3624.99	1:1	0.217	0.06	13.13	14.00	1.222	0.265	22.8	
Right tilted	40	QPSK 50_28	641666/3624.99	1:1	0.324	-0.17	13.13	14.00	1.222	0.396	22.8	
Head Test data(50%RB)												
Left tilted	40	QPSK 100_0	641666/3624.99	1:1	0.563	-0.14	12.96	14.00	1.271	0.715	22.8	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.322	-0.17	23.78	24.50	1.180	0.380	22.8	
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.587	-0.08	23.78	24.50	1.180	0.693	22.8	
Body worn Test data(Separate 15mm 50%RB)												
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.239	-0.01	23.74	24.50	1.191	0.285	22.8	
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.455	0.19	23.74	24.50	1.191	0.542	22.8	
Hotspot Test data(Separate 10mm 1RB)												
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.112	0.14	13.20	14.00	1.202	0.135	22.8	
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.166	0.08	13.20	14.00	1.202	0.200	22.8	
Right side	40	QPSK 1_1	641666/3624.99	1:1	0.057	-0.05	13.20	14.00	1.202	0.069	22.8	
Top side	40	QPSK 1_1	641666/3624.99	1:1	0.227	0.12	13.20	14.00	1.202	0.273	22.8	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.103	-0.07	13.13	14.00	1.222	0.126	22.8	
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.161	0.00	13.13	14.00	1.222	0.197	22.8	
Right side	40	QPSK 50_28	641666/3624.99	1:1	0.055	0.01	13.13	14.00	1.222	0.067	22.8	
Top side	40	QPSK 50_28	641666/3624.99	1:1	0.214	0.02	13.13	14.00	1.222	0.261	22.8	
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	40	QPSK 1_1	641666/3624.99	1:1	0.497	-0.19	13.68	14.00	1.076	0.535	22.8	
Left tilted	40	QPSK 1_1	641666/3624.99	1:1	0.196	-0.07	13.68	14.00	1.076	0.211	22.8	
Right cheek	40	QPSK 1_1	641666/3624.99	1:1	0.050	-0.17	13.68	14.00	1.076	0.054	22.8	
Right tilted	40	QPSK 1_1	641666/3624.99	1:1	0.061	-0.08	13.68	14.00	1.076	0.066	22.8	
Head Test data(50%RB)												
Left cheek	40	QPSK 50_28	641666/3624.99	1:1	0.506	-0.02	13.67	14.00	1.079	0.546	22.8	
Left tilted	40	QPSK 50_28	641666/3624.99	1:1	0.214	-0.01	13.67	14.00	1.079	0.231	22.8	
Right cheek	40	QPSK 50_28	641666/3624.99	1:1	0.052	0.09	13.67	14.00	1.079	0.056	22.8	
Right tilted	40	QPSK 50_28	641666/3624.99	1:1	0.059	-0.03	13.67	14.00	1.079	0.064	22.8	
Body worn Test data(Separate 15mm 1RB)												
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.095	-0.15	16.69	17.00	1.074	0.102	22.8	



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Back side	40	QPSK 1_1	641666/3624.99	1:1	0.178	0.15	16.69	17.00	1.074	0.191	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.088	0.00	16.66	17.00	1.081	0.095	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.169	0.17	16.66	17.00	1.081	0.183	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.124	-0.17	13.68	14.00	1.076	0.133	22.8
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.187	-0.07	13.68	14.00	1.076	0.201	22.8
Right side	40	QPSK 1_1	641666/3624.99	1:1	0.298	-0.06	13.68	14.00	1.076	0.321	22.8
Top side	40	QPSK 1_1	641666/3624.99	1:1	0.051	-0.14	13.68	14.00	1.076	0.055	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.098	-0.15	13.67	14.00	1.079	0.106	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.180	-0.12	13.67	14.00	1.079	0.194	22.8
Right side	40	QPSK 50_28	641666/3624.99	1:1	0.289	-0.12	13.67	14.00	1.079	0.312	22.8
Top side	40	QPSK 50_28	641666/3624.99	1:1	0.046	-0.16	13.67	14.00	1.079	0.050	22.8
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	40	QPSK 1_1	641666/3624.99	1:1	0.147	-0.15	22.80	24.50	1.479	0.217	22.8
Left tilted	40	QPSK 1_1	641666/3624.99	1:1	0.155	-0.18	22.80	24.50	1.479	0.229	22.8
Right cheek	40	QPSK 1_1	641666/3624.99	1:1	0.295	-0.03	22.80	24.50	1.479	0.436	22.8
Right tilted	40	QPSK 1_1	641666/3624.99	1:1	0.213	-0.17	22.80	24.50	1.479	0.315	22.8
Head Test data(50%RB)											
Left cheek	40	QPSK 50_28	641666/3624.99	1:1	0.119	-0.07	22.72	24.50	1.507	0.179	22.8
Left tilted	40	QPSK 50_28	641666/3624.99	1:1	0.125	0.15	22.72	24.50	1.507	0.188	22.8
Right cheek	40	QPSK 50_28	641666/3624.99	1:1	0.265	-0.18	22.72	24.50	1.507	0.399	22.8
Right tilted	40	QPSK 50_28	641666/3624.99	1:1	0.185	0.07	22.72	24.50	1.507	0.279	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.055	0.07	22.80	24.50	1.479	0.081	22.8
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.290	-0.01	22.80	24.50	1.479	0.429	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.039	0.14	22.72	24.50	1.507	0.059	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.215	0.01	22.72	24.50	1.507	0.324	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.084	0.02	22.80	24.50	1.479	0.124	22.8
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.497	-0.14	22.80	24.50	1.479	0.735	22.8
Left side	40	QPSK 1_1	641666/3624.99	1:1	0.202	-0.03	22.80	24.50	1.479	0.299	22.8
Top side	40	QPSK 1_1	641666/3624.99	1:1	0.183	0.15	22.80	24.50	1.479	0.271	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.079	0.14	22.72	24.50	1.507	0.119	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.483	-0.10	22.72	24.50	1.507	0.728	22.8
Left side	40	QPSK 50_28	641666/3624.99	1:1	0.187	-0.11	22.72	24.50	1.507	0.282	22.8
Top side	40	QPSK 50_28	641666/3624.99	1:1	0.175	0.06	22.72	24.50	1.507	0.264	22.8
Ant9 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	641666/3624.99	1:1	0.318	0.18	16.02	17.00	1.253	0.398	22.8
Left tilted	40	QPSK 1_1	641666/3624.99	1:1	0.188	-0.08	16.02	17.00	1.253	0.236	22.8
Right cheek	40	QPSK 1_1	641666/3624.99	1:1	0.559	-0.14	16.02	17.00	1.253	0.701	22.8
Right tilted	40	QPSK 1_1	641666/3624.99	1:1	0.368	0.17	16.02	17.00	1.253	0.461	22.8
Head Test data(50%RB)											
Left cheek	40	QPSK 50_28	641666/3624.99	1:1	0.335	0.08	15.75	17.00	1.334	0.447	22.8



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Left tilted	40	QPSK 50_28	641666/3624.99	1:1	0.195	-0.01	15.75	17.00	1.334	0.260	22.8
Right cheek	40	QPSK 50_28	641666/3624.99	1:1	0.583	-0.11	15.75	17.00	1.334	0.777	22.8
Right tilted	40	QPSK 50_28	641666/3624.99	1:1	0.380	-0.18	15.75	17.00	1.334	0.507	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.343	-0.10	21.89	23.00	1.291	0.443	22.8
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.755	0.04	21.89	23.00	1.291	0.975	22.8
Back side	40	QPSK 1_1	638000/3570	1:1	0.708	-0.14	21.85	23.00	1.303	0.923	22.8
Back side	40	QPSK 1_1	645332/3679.98	1:1	0.683	-0.19	21.80	23.00	1.318	0.900	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.258	0.14	21.75	23.00	1.334	0.344	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.696	0.08	21.75	23.00	1.334	0.928	22.8
Back side	40	QPSK 50_28	638000/3570	1:1	0.627	-0.16	21.83	23.00	1.309	0.821	22.8
Back side	40	QPSK 50_28	645332/3679.98	1:1	0.589	-0.01	21.75	23.00	1.334	0.785	22.8
Body worn Test data (Separate 15mm 100%RB)											
Back side	40	QPSK 100_0	641666/3624.99	1:1	0.669	0.07	20.72	22.00	1.343	0.898	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	40	QPSK 1_1	641666/3624.99	1:1	0.115	0.10	15.37	16.50	1.297	0.149	22.8
Back side	40	QPSK 1_1	641666/3624.99	1:1	0.452	-0.06	15.37	16.50	1.297	0.586	22.8
Left side	40	QPSK 1_1	641666/3624.99	1:1	0.170	-0.07	15.37	16.50	1.297	0.221	22.8
Top side	40	QPSK 1_1	641666/3624.99	1:1	0.068	-0.05	15.37	16.50	1.297	0.088	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	40	QPSK 50_28	641666/3624.99	1:1	0.120	-0.15	15.20	16.50	1.349	0.162	22.8
Back side	40	QPSK 50_28	641666/3624.99	1:1	0.489	0.05	15.20	16.50	1.349	0.660	22.8
Left side	40	QPSK 50_28	641666/3624.99	1:1	0.183	-0.01	15.20	16.50	1.349	0.247	22.8
Top side	40	QPSK 50_28	641666/3624.99	1:1	0.064	-0.01	15.20	16.50	1.349	0.086	22.8

Table 27: SAR of 5G NR n48 for Head and Body.

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

SA N77 SAR Test Record											
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	0.429	-0.09	14.48	15.20	1.180	0.506	22.8
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.572	-0.04	14.48	15.20	1.180	0.675	22.8
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.257	-0.16	14.48	15.20	1.180	0.303	22.8
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.340	-0.18	14.48	15.20	1.180	0.401	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.439	0.10	14.35	15.20	1.216	0.534	22.8
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.589	-0.18	14.35	15.20	1.216	0.716	22.8
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.242	0.16	14.35	15.20	1.216	0.294	22.8
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.313	-0.02	14.35	15.20	1.216	0.381	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.349	-0.03	24.07	24.70	1.156	0.403	22.8
Back side	100	QPSK 1_1	633334/3500	1:1	0.743	0.12	24.07	24.70	1.156	0.859	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.414	0.00	23.95	24.70	1.189	0.492	22.8



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t (86-512) 62992980 www.sgs.com.cn
 t (86-512) 62992980 sgs.china@sgs.com

Back side	100	QPSK 135_69	633334/3500	1:1	0.797	0.07	23.95	24.70	1.189	0.947	22.8
Body worn Test data(Separate 15mm 50%RB)											
Back side	100	QPSK 270_0	633334/3500	1:1	0.769	-0.19	23.86	24.70	1.213	0.933	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.107	-0.09	14.48	15.20	1.180	0.126	22.8
Back side	100	QPSK 1_1	633334/3500	1:1	0.138	-0.11	14.48	15.20	1.180	0.163	22.8
Right side	100	QPSK 1_1	633334/3500	1:1	0.094	0.11	14.48	15.20	1.180	0.111	22.8
Top side	100	QPSK 1_1	633334/3500	1:1	0.235	0.05	14.48	15.20	1.180	0.277	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.110	0.14	14.35	15.20	1.216	0.134	22.8
Back side	100	QPSK 135_69	633334/3500	1:1	0.146	-0.18	14.35	15.20	1.216	0.178	22.8
Right side	100	QPSK 135_69	633334/3500	1:1	0.099	0.01	14.35	15.20	1.216	0.120	22.8
Top side	100	QPSK 135_69	633334/3500	1:1	0.240	0.10	14.35	15.20	1.216	0.292	22.8
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	0.778	-0.16	15.57	16.20	1.156	0.899	22.8
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.300	0.10	15.57	16.20	1.156	0.347	22.8
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.180	-0.03	15.57	16.20	1.156	0.208	22.8
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.106	-0.19	15.57	16.20	1.156	0.123	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.819	-0.02	15.53	16.20	1.167	0.956	22.8
Left cheek-repeated	100	QPSK 135_69	633334/3500	1:1	0.814	0.16	15.53	16.20	1.167	0.950	22.8
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.307	0.04	15.53	16.20	1.167	0.358	22.8
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.163	0.14	15.53	16.20	1.167	0.190	22.8
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.097	0.02	15.53	16.20	1.167	0.113	22.8
Head Test data(100%RB)											
Left cheek	100	QPSK 270_0	633334/3500	1:1	0.771	0.00	14.36	15.20	1.213	0.936	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.091	0.12	16.99	17.70	1.178	0.107	22.8
Back side	100	QPSK 1_1	633334/3500	1:1	0.129	0.13	16.99	17.70	1.178	0.152	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.094	0.18	16.96	17.70	1.186	0.111	22.8
Back side	100	QPSK 135_69	633334/3500	1:1	0.160	-0.09	16.96	17.70	1.186	0.190	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.122	-0.04	15.57	16.20	1.156	0.141	22.8
Back side	100	QPSK 1_1	633334/3500	1:1	0.176	-0.04	15.57	16.20	1.156	0.203	22.8
Right side	100	QPSK 1_1	633334/3500	1:1	0.256	-0.16	15.57	16.20	1.156	0.296	22.8
Top side	100	QPSK 1_1	633334/3500	1:1	0.019	0.18	15.57	16.20	1.156	0.022	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.129	-0.03	15.53	16.20	1.167	0.151	22.8
Back side	100	QPSK 135_69	633334/3500	1:1	0.193	-0.01	15.53	16.20	1.167	0.225	22.8
Right side	100	QPSK 135_69	633334/3500	1:1	0.287	0.02	15.53	16.20	1.167	0.335	22.8
Top side	100	QPSK 135_69	633334/3500	1:1	0.031	-0.05	15.53	16.20	1.167	0.036	22.8
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	0.252	0.15	23.37	24.50	1.297	0.327	22.8
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.053	-0.16	23.37	24.50	1.297	0.069	22.8
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.420	0.07	23.37	24.50	1.297	0.545	22.8
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.108	0.04	23.37	24.50	1.297	0.140	22.8



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Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.325	0.08	23.34	24.50	1.306	0.425	22.8	
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.065	-0.06	23.34	24.50	1.306	0.085	22.8	
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.505	0.04	23.34	24.50	1.306	0.660	22.8	
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.192	0.13	23.34	24.50	1.306	0.251	22.8	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.105	-0.06	22.90	24.00	1.288	0.135	22.8	
Back side	100	QPSK 1_1	633334/3500	1:1	0.587	-0.12	22.90	24.00	1.288	0.756	22.8	
Body worn Test data(Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.072	0.10	22.55	24.00	1.396	0.101	22.8	
Back side	100	QPSK 135_69	633334/3500	1:1	0.394	0.14	22.55	24.00	1.396	0.550	22.8	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.130	0.06	20.61	21.50	1.227	0.160	22.8	
Back side	100	QPSK 1_1	633334/3500	1:1	0.733	-0.01	20.61	21.50	1.227	0.900	22.8	
Left side	100	QPSK 1_1	633334/3500	1:1	0.296	0.13	20.61	21.50	1.227	0.363	22.8	
Top side	100	QPSK 1_1	633334/3500	1:1	0.313	0.04	20.61	21.50	1.227	0.384	22.8	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.077	0.02	20.51	21.50	1.256	0.097	22.8	
Back side	100	QPSK 135_69	633334/3500	1:1	0.549	-0.09	20.51	21.50	1.256	0.690	22.8	
Left side	100	QPSK 135_69	633334/3500	1:1	0.178	0.01	20.51	21.50	1.256	0.224	22.8	
Top side	100	QPSK 135_69	633334/3500	1:1	0.192	-0.16	20.51	21.50	1.256	0.241	22.8	
Hotspot Test data (Separate 10mm 100%RB)												
Back side	100	QPSK 270_0	633334/3500	1:1	0.511	-0.17	20.36	21.50	1.300	0.664	22.8	
Ant9 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	0.143	0.07	20.19	21.00	1.205	0.172	22.8	
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.131	0.09	20.19	21.00	1.205	0.158	22.8	
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.328	-0.19	20.19	21.00	1.205	0.395	22.8	
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.287	0.15	20.19	21.00	1.205	0.346	22.8	
Head Test data(50%RB)												
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.162	-0.17	20.00	21.00	1.259	0.204	22.8	
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.151	-0.01	20.00	21.00	1.259	0.190	22.8	
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.307	0.08	20.00	21.00	1.259	0.386	22.8	
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.278	0.11	20.00	21.00	1.259	0.350	22.8	
Body worn Test data(Separate 15mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.043	0.11	20.19	21.00	1.205	0.052	22.8	
Back side	100	QPSK 1_1	633334/3500	1:1	0.106	0.01	20.19	21.00	1.205	0.128	22.8	
Body worn Test data (Separate 15mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.057	0.13	20.00	21.00	1.259	0.072	22.8	
Back side	100	QPSK 135_69	633334/3500	1:1	0.137	0.17	20.00	21.00	1.259	0.172	22.8	
Hotspot Test data(Separate 10mm 1RB)												
Front side	100	QPSK 1_1	633334/3500	1:1	0.062	-0.15	16.70	17.50	1.202	0.075	22.8	
Back side	100	QPSK 1_1	633334/3500	1:1	0.206	0.08	16.70	17.50	1.202	0.248	22.8	
Left side	100	QPSK 1_1	633334/3500	1:1	0.084	0.11	16.70	17.50	1.202	0.101	22.8	
Top side	100	QPSK 1_1	633334/3500	1:1	0.022	-0.12	16.70	17.50	1.202	0.026	22.8	
Hotspot Test data (Separate 10mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	1:1	0.102	-0.11	16.48	17.50	1.265	0.129	22.8	
Back side	100	QPSK 135_69	633334/3500	1:1	0.256	0.01	16.48	17.50	1.265	0.324	22.8	
Left side	100	QPSK 135_69	633334/3500	1:1	0.105	0.07	16.48	17.50	1.265	0.133	22.8	
Top side	100	QPSK 135_69	633334/3500	1:1	0.050	0.18	16.48	17.50	1.265	0.063	22.8	

Table 28: SAR of 5G NR n77(3450~3550) for Head and Body.



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Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	633334/3500	0.819	0.814	1.006142506	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

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

SA N77 SAR Test Record											
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	0.196	0.13	14.30	15.00	1.175	0.230	22.8
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.300	0.10	14.30	15.00	1.175	0.352	22.8
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.122	-0.14	14.30	15.00	1.175	0.143	22.8
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.156	0.17	14.30	15.00	1.175	0.183	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.180	-0.08	14.21	15.00	1.199	0.216	22.8
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.269	-0.02	14.21	15.00	1.199	0.323	22.8
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.108	0.15	14.21	15.00	1.199	0.130	22.8
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.146	0.15	14.21	15.00	1.199	0.175	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.155	0.12	23.83	24.50	1.167	0.181	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.393	0.16	23.83	24.50	1.167	0.459	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.171	0.01	23.69	24.50	1.205	0.206	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.419	-0.09	23.69	24.50	1.205	0.505	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.049	-0.04	14.30	15.00	1.175	0.058	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.054	-0.07	14.30	15.00	1.175	0.063	22.8
Right side	100	QPSK 1_1	656000/3840	1:1	0.038	0.02	14.30	15.00	1.175	0.045	22.8
Top side	100	QPSK 1_1	656000/3840	1:1	0.094	-0.05	14.30	15.00	1.175	0.110	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.050	-0.14	14.21	15.00	1.199	0.060	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.058	-0.02	14.21	15.00	1.199	0.070	22.8
Right side	100	QPSK 135_69	656000/3840	1:1	0.042	0.11	14.21	15.00	1.199	0.050	22.8
Top side	100	QPSK 135_69	656000/3840	1:1	0.097	-0.08	14.21	15.00	1.199	0.116	22.8
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	0.598	0.07	15.49	16.20	1.178	0.704	22.8
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.287	-0.13	15.49	16.20	1.178	0.338	22.8
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.124	-0.01	15.49	16.20	1.178	0.146	22.8
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.098	0.09	15.49	16.20	1.178	0.115	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.567	0.05	15.42	16.20	1.197	0.679	22.8
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.279	0.12	15.42	16.20	1.197	0.334	22.8



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Right cheek	100	QPSK 135_69	656000/3840	1:1	0.120	-0.06	15.42	16.20	1.197	0.144	22.8
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.095	-0.09	15.42	16.20	1.197	0.114	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.036	-0.12	16.76	17.70	1.242	0.044	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.076	-0.03	16.76	17.70	1.242	0.094	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.039	0.12	16.72	17.70	1.253	0.049	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.095	0.11	16.72	17.70	1.253	0.119	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.076	0.02	15.49	16.20	1.178	0.089	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.093	0.14	15.49	16.20	1.178	0.110	22.8
Right side	100	QPSK 1_1	656000/3840	1:1	0.137	-0.15	15.49	16.20	1.178	0.161	22.8
Top side	100	QPSK 1_1	656000/3840	1:1	0.010	0.03	15.49	16.20	1.178	0.012	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.081	0.10	15.42	16.20	1.197	0.097	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.102	-0.15	15.42	16.20	1.197	0.122	22.8
Right side	100	QPSK 135_69	656000/3840	1:1	0.154	0.11	15.42	16.20	1.197	0.184	22.8
Top side	100	QPSK 135_69	656000/3840	1:1	0.018	-0.08	15.42	16.20	1.197	0.022	22.8
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	0.148	-0.12	23.29	24.50	1.321	0.196	22.8
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.069	0.07	23.29	24.50	1.321	0.091	22.8
Right cheek	100	QPSK 1_1	656000/3840	1:1	0.168	0.10	23.29	24.50	1.321	0.222	22.8
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.064	0.00	23.29	24.50	1.321	0.085	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.099	0.16	23.21	24.50	1.346	0.133	22.8
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.038	-0.08	23.21	24.50	1.346	0.051	22.8
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.200	0.13	23.21	24.50	1.346	0.269	22.8
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.079	-0.03	23.21	24.50	1.346	0.106	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.026	0.03	22.87	24.00	1.297	0.034	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.230	0.05	22.87	24.00	1.297	0.298	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.017	-0.12	22.54	24.00	1.400	0.024	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.132	-0.05	22.54	24.00	1.400	0.185	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.046	-0.13	20.65	21.50	1.216	0.056	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.289	0.18	20.65	21.50	1.216	0.351	22.8
Left side	100	QPSK 1_1	656000/3840	1:1	0.091	0.16	20.65	21.50	1.216	0.111	22.8
Top side	100	QPSK 1_1	656000/3840	1:1	0.098	-0.18	20.65	21.50	1.216	0.119	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.075	-0.15	20.48	21.50	1.265	0.095	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.362	-0.06	20.48	21.50	1.265	0.458	22.8
Left side	100	QPSK 135_69	656000/3840	1:1	0.148	0.00	20.48	21.50	1.265	0.187	22.8
Top side	100	QPSK 135_69	656000/3840	1:1	0.156	-0.07	20.48	21.50	1.265	0.197	22.8
Ant9 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	0.064	-0.17	20.56	21.50	1.242	0.079	22.8
Left tilted	100	QPSK 1_1	656000/3840	1:1	0.045	0.10	20.56	21.50	1.242	0.056	22.8



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Right cheek	100	QPSK 1_1	656000/3840	1:1	0.075	0.12	20.56	21.50	1.242	0.093	22.8
Right tilted	100	QPSK 1_1	656000/3840	1:1	0.054	0.10	20.56	21.50	1.242	0.067	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	656000/3840	1:1	0.055	0.02	20.38	21.50	1.294	0.071	22.8
Left tilted	100	QPSK 135_69	656000/3840	1:1	0.051	-0.02	20.38	21.50	1.294	0.066	22.8
Right cheek	100	QPSK 135_69	656000/3840	1:1	0.103	0.12	20.38	21.50	1.294	0.133	22.8
Right tilted	100	QPSK 135_69	656000/3840	1:1	0.090	-0.05	20.38	21.50	1.294	0.116	22.8
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.021	-0.04	20.56	21.50	1.242	0.026	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.608	0.05	20.56	21.50	1.242	0.755	22.8
Body worn Test data (Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.033	0.01	20.38	21.50	1.294	0.043	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.698	-0.06	20.38	21.50	1.294	0.903	22.8
Body worn Test data (Separate 15mm 50%RB)											
Back side	100	QPSK 270_0	656000/3840	1:1	0.616	-0.16	20.18	21.50	1.355	0.835	22.8
Hotspot Test data(Separate 10mm 1RB)											
Front side	100	QPSK 1_1	656000/3840	1:1	0.016	0.03	17.17	18.00	1.211	0.019	22.8
Back side	100	QPSK 1_1	656000/3840	1:1	0.681	0.07	17.17	18.00	1.211	0.824	22.8
Left side	100	QPSK 1_1	656000/3840	1:1	0.093	-0.05	17.17	18.00	1.211	0.113	22.8
Top side	100	QPSK 1_1	656000/3840	1:1	0.016	0.04	17.17	18.00	1.211	0.019	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Front side	100	QPSK 135_69	656000/3840	1:1	0.021	0.06	17.00	18.00	1.259	0.026	22.8
Back side	100	QPSK 135_69	656000/3840	1:1	0.728	0.01	17.00	18.00	1.259	0.916	22.8
Left side	100	QPSK 135_69	656000/3840	1:1	0.113	-0.13	17.00	18.00	1.259	0.142	22.8
Top side	100	QPSK 135_69	656000/3840	1:1	0.028	0.11	17.00	18.00	1.259	0.035	22.8
Hotspot Test data (Separate 10mm 50%RB)											
Back side	100	QPSK 270_0	656000/3840	1:1	0.687	-0.02	16.81	18.00	1.315	0.904	22.8

Table 29: SAR of 5G NR n77(3700~3980) for Head and Body.

9.2.8 SAR Result of 5G NR n78(350~3550)

SA N78 SAR Test Record											
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	0.399	-0.13	23.93	25.00	1.279	0.510	22.8
Left tilted	100	QPSK 1_1	633334/3500	1:1	0.080	0.16	23.93	25.00	1.279	0.102	22.8
Right cheek	100	QPSK 1_1	633334/3500	1:1	0.608	0.03	23.93	25.00	1.279	0.778	22.8
Right tilted	100	QPSK 1_1	633334/3500	1:1	0.236	-0.11	23.93	25.00	1.279	0.302	22.8
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	633334/3500	1:1	0.309	-0.07	23.87	25.00	1.297	0.401	22.8
Left tilted	100	QPSK 135_69	633334/3500	1:1	0.065	0.02	23.87	25.00	1.297	0.084	22.8
Right cheek	100	QPSK 135_69	633334/3500	1:1	0.516	0.08	23.87	25.00	1.297	0.669	22.8
Right tilted	100	QPSK 135_69	633334/3500	1:1	0.133	-0.19	23.87	25.00	1.297	0.173	22.8



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Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	633334/3500	1:1	0.122	-0.14	23.41	24.50	1.285	0.157	22.8
Back side	100	QPSK 1_1	633334/3500	1:1	0.598	-0.03	23.41	24.50	1.285	0.769	22.8
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	633334/3500	1:1	0.086	0.14	23.06	24.50	1.393	0.120	22.8
Back side	100	QPSK 135_69	633334/3500	1:1	0.395	-0.12	23.06	24.50	1.393	0.550	22.8

Table 30: SAR of 5G NR n78(3450~3550) for Head and Body.

9.2.9 SAR Result of 5G NR n78(3700~3800)

SA N78 SAR Test Record											
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	650000/3750	1:1	0.358	-0.11	23.98	25.00	1.265	0.453	22.9
Left tilted	100	QPSK 1_1	650000/3750	1:1	0.146	-0.06	23.98	25.00	1.265	0.185	22.9
Right cheek	100	QPSK 1_1	650000/3750	1:1	0.602	0.02	23.98	25.00	1.265	0.761	22.9
Right tilted	100	QPSK 1_1	650000/3750	1:1	0.237	0.06	23.98	25.00	1.265	0.300	22.9
Head Test data(50%RB)											
Left cheek	100	QPSK 135_69	650000/3750	1:1	0.244	0.18	23.93	25.00	1.279	0.312	22.9
Left tilted	100	QPSK 135_69	650000/3750	1:1	0.107	0.19	23.93	25.00	1.279	0.137	22.9
Right cheek	100	QPSK 135_69	650000/3750	1:1	0.504	0.02	23.93	25.00	1.279	0.645	22.9
Right tilted	100	QPSK 135_69	650000/3750	1:1	0.192	0.01	23.93	25.00	1.279	0.246	22.9
Body worn Test data(Separate 15mm 1RB)											
Front side	100	QPSK 1_1	650000/3750	1:1	0.143	-0.02	23.26	24.50	1.330	0.190	22.9
Back side	100	QPSK 1_1	650000/3750	1:1	0.701	0.05	23.26	24.50	1.330	0.933	22.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	100	QPSK 135_69	650000/3750	1:1	0.097	-0.17	22.94	24.50	1.432	0.139	22.9
Back side	100	QPSK 135_69	650000/3750	1:1	0.557	0.18	22.94	24.50	1.432	0.798	22.9
Body worn Test data(Separate 15mm 100%RB)											
Back side	100	QPSK 270_0	650000/3750	1:1	0.508	0.11	22.64	24.00	1.368	0.695	22.9

Table 31: SAR of 5G NR n78(3700~3800) for Head and Body.



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9.2.10 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											
Left cheek	802.11b	6/2437	100.00%	1.000	0.871	0.01	15.90	16.50	1.149	1.001	22.5
Left cheek-repeated	802.11b	6/2437	100.00%	1.000	0.859	0.03	15.90	16.50	1.149	0.987	22.5
Left cheek-Simultaneous	802.11b	6/2437	100.00%	1.000	0.871	0.01	15.90	13.00	0.513	0.447	22.5
Left cheek-DBS	802.11b	6/2437	100.00%	1.000	0.871	0.01	15.90	15.00	0.814	0.709	22.5
Left cheek-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	0.871	0.01	15.90	10.50	0.289	0.251	22.5
Left cheek	802.11b	1/2412	100.00%	1.000	0.776	-0.19	15.78	16.50	1.182	0.917	22.5
Left cheek	802.11b	11/2442	100.00%	1.000	0.819	0.17	15.74	16.50	1.192	0.976	22.5
Left tilted	802.11b	6/2437	100.00%	1.000	0.470	-0.07	15.90	16.50	1.149	0.540	22.5
Left tilted-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	0.470	-0.07	15.90	10.50	0.289	0.136	22.5
Right cheek	802.11b	6/2437	100.00%	1.000	0.198	0.15	15.90	16.50	1.149	0.228	22.5
Right cheek-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	0.198	0.15	15.90	10.50	0.289	0.057	22.5
Right tilted	802.11b	6/2437	100.00%	1.000	0.254	-0.14	15.90	16.50	1.149	0.292	22.5
Right tilted-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	0.254	-0.14	15.90	10.50	0.289	0.073	22.5
Body worn Test data(Separate 15mm)											
Front side	802.11b	6/2437	100.00%	1.000	0.363	0.06	22.43	23.00	1.141	0.414	22.5
Back side	802.11b	6/2437	100.00%	1.000	0.448	0.09	22.43	23.00	1.141	0.511	22.5
Back side-Simultaneous	802.11b	6/2437	100.00%	1.000	0.448	0.09	22.43	19.50	0.510	0.228	22.5
Back side-DBS	802.11b	6/2437	100.00%	1.000	0.448	0.09	22.43	21.50	0.808	0.362	22.5
Back side-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	0.448	0.09	22.43	16.50	0.256	0.114	22.5
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	100.00%	1.000	0.136	0.06	13.69	14.50	1.206	0.164	22.5
Back side	802.11b	6/2437	100.00%	1.000	0.152	-0.09	13.69	14.50	1.206	0.183	22.5
Right side	802.11b	6/2437	100.00%	1.000	0.203	-0.07	13.69	14.50	1.206	0.245	22.5
Top side	802.11b	6/2437	100.00%	1.000	0.157	-0.01	13.69	14.50	1.206	0.189	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 (Separate 0mm)											
Back side	802.11b	6/2437	100.00%	1.000	1.680	0.03	22.43	23.00	1.141	1.918	22.5
Right side	802.11b	6/2437	100.00%	1.000	2.270	0.03	22.43	23.00	1.141	2.591	22.5
Right side-repeated	802.11b	6/2437	100.00%	1.000	2.210	0.05	22.43	23.00	1.141	2.523	22.5
Right side-Simultaneous	802.11b	6/2437	100.00%	1.000	2.270	0.03	22.43	19.50	0.510	1.157	22.5
Right side-DBS	802.11b	6/2437	100.00%	1.000	2.270	0.03	22.43	21.50	0.808	1.834	22.5
Right side-DBS Simultaneous	802.11b	6/2437	100.00%	1.000	2.270	0.03	22.43	16.50	0.256	0.580	22.5
Right side	802.11b	1/2412	100.00%	1.000	1.970	0.03	22.36	23.00	1.159	2.282	22.5
Right side	802.11b	11/2462	100.00%	1.000	2.160	0.03	22.27	23.00	1.184	2.558	22.5
Top side	802.11b	6/2437	100.00%	1.000	1.730	0.03	22.43	23.00	1.141	1.975	22.5

Table 32: SAR of WIFI 2.4G for Head and Body.

Test Position	Channel/Frequency (MHz)	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
			SAR (1g)		SAR (1g)	SAR (1g)
Left cheek	6/2437	0.871	0.859	1.013969732	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).



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

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

Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Right side	6/2437	2.270	2.210	1.027149321	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 3.63 W/kg (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 3.75 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

4) Repeated measurements are not required when the original highest measured SAR is < 2.0 W/kg

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.

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											
Left cheek	802.11ac 80M	58/5290	99.43%	1.006	0.752	0.03	15.33	16.00	1.167	0.882	22.5
Left tilted	802.11ac 80M	58/5290	99.43%	1.006	0.828	0.08	15.33	16.00	1.167	0.972	22.5
Left tilted-repeater	802.11ac 80M	58/5290	99.43%	1.006	0.816	0.03	15.33	16.00	1.167	0.957	22.5
Left tilted-Simultaneous	802.11ac 80M	58/5290	99.43%	1.006	0.828	0.08	15.33	13.00	0.585	0.487	22.5
Left tilted-DBS	802.11ac 80M	58/5290	99.43%	1.006	0.828	0.08	15.33	15.00	0.927	0.772	22.5
Left tilted-DBS Simultaneous	802.11ac 80M	58/5290	99.43%	1.006	0.828	0.08	15.33	11.00	0.369	0.307	22.5
Right cheek	802.11ac 80M	58/5290	99.43%	1.006	0.511	0.01	15.33	16.00	1.167	0.600	22.5
Right tilted	802.11ac 80M	58/5290	99.43%	1.006	0.582	0.05	15.33	16.00	1.167	0.683	22.5
Head Test data of U-NII-2C											
Left cheek	802.11ac 80M	138/5690	99.43%	1.006	0.706	-0.04	15.32	13.00	0.586	0.416	22.5
Left cheek	802.11ac 80M	106/5530	99.43%	1.006	0.655	0.02	15.18	16.00	1.208	0.796	22.5
Left cheek	802.11ac 80M	122/5610	99.43%	1.006	0.689	-0.16	15.21	16.00	1.199	0.831	22.5
Left tilted	802.11ac 80M	138/5690	99.43%	1.006	0.791	0.05	15.32	16.00	1.169	0.930	22.5
Left tilted	802.11ac 80M	106/5530	99.43%	1.006	0.802	0.15	15.18	16.00	1.208	0.974	22.5
Left tilted-repeated	802.11ac 80M	106/5530	99.43%	1.006	0.795	0.04	15.18	16.00	1.208	0.966	22.5
Left tilted-Simultaneous	802.11ac 80M	106/5530	99.43%	1.006	0.802	0.15	15.18	13.00	0.605	0.488	22.5
Left tilted-DBS	802.11ac 80M	106/5530	99.43%	1.006	0.802	0.15	15.18	15.00	0.960	0.774	22.5
Left tilted-DBS Simultaneous	802.11ac 80M	106/5530	99.43%	1.006	0.802	0.15	15.18	11.00	0.382	0.308	22.5
Left tilted	802.11ac 80M	122/5610	99.43%	1.006	0.786	0.01	15.21	16.00	1.199	0.948	22.5
Right cheek	802.11ac 80M	138/5690	99.43%	1.006	0.438	-0.05	15.32	16.00	1.169	0.515	22.5
Right tilted	802.11ac 80M	138/5690	99.43%	1.006	0.512	0.01	15.32	16.00	1.169	0.602	22.5
Head Test data of U-NII-3											
Left cheek	802.11ac 80M	155/5775	99.43%	1.006	0.786	0.09	15.21	13.00	0.601	0.475	22.5
Left tilted	802.11ac 80M	155/5775	99.43%	1.006	0.820	-0.07	15.21	16.00	1.199	0.989	22.5
Left tilted-repeated	802.11ac 80M	155/5775	99.43%	1.006	0.816	0.04	15.21	16.00	1.199	0.984	22.5
Left tilted-Simultaneous	802.11ac 80M	155/5775	99.43%	1.006	0.820	-0.07	15.21	13.00	0.601	0.496	22.5
Left tilted-DBS	802.11ac 80M	155/5775	99.43%	1.006	0.820	-0.07	15.21	15.00	0.952	0.785	22.5
Left tilted-DBS Simultaneous	802.11ac 80M	155/5775	99.43%	1.006	0.820	-0.07	15.21	11.00	0.379	0.313	22.5



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Right cheek	802.11ac 80M	155/5775	99.43%	1.006	0.443	-0.03	15.21	16.00	1.199	0.534	22.5
Right tilted	802.11ac 80M	155/5775	99.43%	1.006	0.526	0.01	15.21	16.00	1.199	0.634	22.5
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11n 40M	54/5270	99.63%	1.004	0.193	0.08	19.85	21.00	1.302	0.252	22.5
Back side	802.11n 40M	54/5270	99.63%	1.004	0.211	0.05	19.85	21.00	1.302	0.276	22.5
Back side-Simultaneous	802.11n 40M	54/5270	99.63%	1.004	0.211	0.05	19.85	18.00	0.653	0.138	22.5
Back side-DBS	802.11n 40M	54/5270	99.63%	1.004	0.211	0.05	19.85	20.00	1.034	0.219	22.5
Back side-DBS Simultaneous	802.11n 40M	54/5270	99.63%	1.004	0.211	0.05	19.85	15.00	0.327	0.069	22.5
Body worn Test data of U-NII-2C (Separate 15mm)											
Front side	802.11ac 80M	138/5690	99.43%	1.006	0.148	-0.04	19.33	20.00	1.168	0.174	22.5
Back side	802.11ac 80M	138/5690	99.43%	1.006	0.253	0.03	19.33	20.00	1.168	0.297	22.5
Back side-Simultaneous	802.11ac 80M	138/5690	99.43%	1.006	0.253	0.03	19.33	16.50	0.522	0.133	22.5
Back side-DBS	802.11ac 80M	138/5690	99.43%	1.006	0.253	0.03	19.33	18.50	0.827	0.210	22.5
Back side-DBS Simultaneous	802.11ac 80M	138/5690	99.43%	1.006	0.253	0.03	19.33	13.50	0.261	0.067	22.5
Body worn Test data of U-NII-3 (Separate 15mm)											
Front side	802.11a	149/5745	99.06%	1.009	0.179	0.01	21.33	22.00	1.167	0.211	22.5
Back side	802.11a	149/5745	99.06%	1.009	0.334	0.09	21.33	22.00	1.167	0.393	22.5
Back side-DBS Simultaneous	802.11a	149/5745	99.06%	1.009	0.334	0.09	21.33	19.50	0.656	0.221	22.5
Hotspot Test data of U-NII-1 (Separate 10mm)											
Front side	802.11ac 80M	42/5210	99.43%	1.006	0.110	0.02	17.33	18.00	1.167	0.129	22.5
Back side	802.11ac 80M	42/5210	99.43%	1.006	0.193	-0.09	17.33	18.00	1.167	0.226	22.5
Right side	802.11ac 80M	42/5210	99.43%	1.006	0.197	0.11	17.33	18.00	1.167	0.231	22.5
Top side	802.11ac 80M	42/5210	99.43%	1.006	0.210	0.02	17.33	18.00	1.167	0.246	22.5
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11ac 80M	155/5775	99.43%	1.006	0.071	0.04	15.14	16.00	1.219	0.087	22.5
Back side	802.11ac 80M	155/5775	99.43%	1.006	0.103	0.01	15.14	16.00	1.219	0.126	22.5
Right side	802.11ac 80M	155/5775	99.43%	1.006	0.149	-0.08	15.14	16.00	1.219	0.183	22.5
Top side	802.11ac 80M	155/5775	99.43%	1.006	0.197	0.08	15.14	16.00	1.219	0.242	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	802.11n 40M	54/5270	99.63%	1.004	1.140	0.02	20.20	21.00	1.202	1.376	22.5
Back side	802.11n 40M	54/5270	99.63%	1.004	0.488	0.05	20.20	21.00	1.202	0.589	22.5
Right side	802.11n 40M	54/5270	99.63%	1.004	1.390	-0.01	20.20	21.00	1.202	1.677	22.5
Top side	802.11n 40M	54/5270	99.63%	1.004	2.050	0.02	20.20	21.00	1.202	2.474	22.5
Top side-repeated	802.11n 40M	54/5270	99.63%	1.004	2.010	0.03	20.20	21.00	1.202	2.426	22.5
Top side-Simultaneous	802.11n 40M	54/5270	99.63%	1.004	2.050	0.02	20.20	18.00	0.603	1.240	22.5
Top side-DBS	802.11n 40M	54/5270	99.63%	1.004	2.050	0.02	20.20	20.00	0.955	1.965	22.5
Top side-DBS Simultaneous	802.11n 40M	54/5270	99.63%	1.004	2.050	0.02	20.20	15.00	0.302	0.621	22.5
Top side	802.11n 40M	62/5310	99.63%	1.004	1.610	0.02	20.10	21.00	1.230	1.988	22.5
Product specific 10gSAR Test data of U-NII-2C (Separate 0mm)											
Front side	802.11ac 80M	138/5690	99.43%	1.006	0.894	0.19	19.33	20.00	1.168	1.050	22.5
Back side	802.11ac 80M	138/5690	99.43%	1.006	0.382	0.01	19.33	20.00	1.168	0.449	22.5
Right side	802.11ac 80M	138/5690	99.43%	1.006	1.510	0.01	19.33	20.00	1.168	1.773	22.5
Top side	802.11ac 80M	138/5690	99.43%	1.006	1.730	0.07	19.33	20.00	1.168	2.032	22.5
Top side	802.11ac 80M	106/5530	99.43%	1.006	2.150	-0.05	19.24	20.00	1.191	2.575	22.5
Top side-repeated	802.11ac 80M	106/5530	99.43%	1.006	2.080	0.09	19.24	20.00	1.191	2.492	22.5
Top side-Simultaneous	802.11ac 80M	106/5530	99.43%	1.006	2.150	-0.05	19.24	16.50	0.532	1.150	22.5
Top side-DBS	802.11ac 80M	106/5530	99.43%	1.006	2.150	-0.05	19.24	18.50	0.843	1.823	22.5
Top side-DBS Simultaneous	802.11ac 80M	106/5530	99.43%	1.006	2.150	-0.05	19.24	13.50	0.267	0.577	22.5



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Top side	802.11ac 80M	122/5610	99.43%	1.006	2.120	0.09	19.32	20.00	1.168	2.491	22.5
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Table 33: SAR of WIFI 5G 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)
Left tilted	58/5290	0.828	0.816	1.014705882	N/A	N/A
Left tilted	106/5530	0.802	0.795	1.008805031	N/A	N/A
Left tilted	155/5775	0.82	0.816	1.004901961	N/A	N/A

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

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

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

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

Test Position	Channel/ Frequency	Measured SAR (10g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (10g)		SAR (10g)	SAR (10g)
Left tilted	54/5270	2.05	2.01	1.019900498	N/A	N/A
Left tilted	106/5530	2.15	2.08	1.033653846	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 2.0 W/kg, the measurement was repeated once.

2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 3.63 W/kg (~ 10% from the 1-g SAR limit).

3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 3.75 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

4) Repeated measurements are not required when the original highest measured SAR is < 2.0 W/kg

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											
Ant16 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test data											
Left cheek	DH5	0/2402	77.01%	1.299	0.059	-0.17	7.94	9.50	1.432	0.110	22.5
Left tilted	DH5	0/2402	77.01%	1.299	0.066	-0.09	7.94	9.50	1.432	0.123	22.5
Right cheek	DH5	0/2402	77.01%	1.299	0.044	-0.02	7.94	9.50	1.432	0.082	22.5
Right tilted	DH5	0/2402	77.01%	1.299	0.052	-0.10	7.94	9.50	1.432	0.097	22.5
Body worn Test data(Separate 15mm)											
Front side	DH5	0/2402	77.01%	1.299	0.007	-0.06	14.98	16.50	1.419	0.013	22.5
Back side	DH5	0/2402	77.01%	1.299	0.034	-0.01	14.98	16.50	1.419	0.063	22.5
Hotspot Test data (Separate 10mm)											
Front side	DH5	0/2402	77.01%	1.299	0.022	0.01	10.86	12.50	1.459	0.042	22.5
Back side	DH5	0/2402	77.01%	1.299	0.026	-0.03	10.86	12.50	1.459	0.049	22.5
Right side	DH5	0/2402	77.01%	1.299	0.021	0.06	10.86	12.50	1.459	0.040	22.5
Top side	DH5	0/2402	77.01%	1.299	0.065	-0.07	10.86	12.50	1.459	0.123	22.5
Ant7 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test data											
Left cheek	DH5	39/2441	77.01%	1.299	0.081	-0.13	5.26	6.00	1.186	0.125	22.5
Left tilted	DH5	39/2441	77.01%	1.299	0.028	-0.09	5.26	6.00	1.186	0.043	22.5
Right cheek	DH5	39/2441	77.01%	1.299	0.017	0.03	5.26	6.00	1.186	0.026	22.5
Right tilted	DH5	39/2441	77.01%	1.299	0.010	0.17	5.26	6.00	1.186	0.015	22.5
Body worn Test data(Separate 15mm)											
Front side	DH5	39/2441	77.01%	1.299	0.060	0.16	15.32	16.50	1.312	0.102	22.5
Back side	DH5	39/2441	77.01%	1.299	0.069	-0.15	15.32	16.50	1.312	0.118	22.5
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	77.01%	1.299	0.028	0.12	12.13	13.50	1.371	0.050	22.5
Back side	DH5	39/2441	77.01%	1.299	0.032	0.17	12.13	13.50	1.371	0.057	22.5
Right side	DH5	39/2441	77.01%	1.299	0.070	0.13	12.13	13.50	1.371	0.125	22.5
Top side	DH5	39/2441	77.01%	1.299	0.000	0.05	12.13	13.50	1.371	0.000	22.5

Table 34: SAR of BT for Head and Body.



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9.2.1 SAR Result of NFC

Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 10-g	Power drift (dB)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
NFC Test data (Separate 0mm)									
Front side	NFC	13.56MHz	100.00%	1.000	0.001	0.03	1.000	0.001	22.3
Back side	NFC	13.56MHz	100.00%	1.000	0.050	0.02	1.000	0.050	22.3
Left side	NFC	13.56MHz	100.00%	1.000	0.001	-0.01	1.000	0.001	22.3
Right side	NFC	13.56MHz	100.00%	1.000	0.001	0.09	1.000	0.001	22.3
Top side	NFC	13.56MHz	100.00%	1.000	0.001	0.05	1.000	0.001	22.3
Bottom side	NFC	13.56MHz	100.00%	1.000	0.001	0.02	1.000	0.001	22.3

Table 35: SAR of NFC for 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	WIFI5G MIMO + BT (Ant16)	Y	Y	Y	Y
2	WIFI5G MIMO + BT (Ant7)	Y	Y	Y	Y
3	WIFI5G MIMO + BT (Ant16+7)	Y	Y	Y	Y
4	WIFI2.4G MIMO + WIFI5G MIMO	Y	Y	Y	Y
5	WWAN + WIFI2.4G MIMO	Y	Y	Y	Y
6	WWAN + WIFI5G MIMO	Y	Y	Y	Y
7	WWAN + WIFI2.4G MIMO+WIFI5G MIMO	Y	Y	Y	Y
8	WWAN + BT(Ant16)	Y	Y	Y	Y
9	WWAN + BT(Ant7)	Y	Y	Y	Y
10	WWAN + WIFI5G MIMO + BT (Ant16)	Y	Y	Y	Y
11	WWAN + WIFI5G MIMO + BT (Ant7)	Y	Y	Y	Y
12	WWAN + WIFI5G MIMO + BT (Ant16+7)	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 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 For Simultaneous	WiFi 2.4G MIMO For DBS	WiFi 2.4G MIMO For DBS Simultaneous	WiFi 5G MIMO For Simultaneous	WiFi 5G MIMO For DBS	WiFi 5G MIMO For DBS Simultaneous	BT ANT16	BT ANT7	1+2	1+5	1+4+7	1+7+8+9	3+6
		1	2	3	4	5	6	7	8	9					
GSM850	Left cheek	0.844	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.291	1.340	1.408	1.392	1.557
	Left tilted	0.108	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.555	0.604	0.557	0.587	1.557
	Right cheek	0.499	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	0.946	0.995	0.869	0.920	1.557
	Right tilted	0.089	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.536	0.585	0.475	0.514	1.557
GSM1900	Left cheek	0.572	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.019	1.068	1.136	1.120	1.557
	Left tilted	0.114	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.561	0.610	0.563	0.593	1.557
	Right cheek	0.559	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.006	1.055	0.929	0.980	1.557
	Right tilted	0.076	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.523	0.572	0.462	0.501	1.557
WCDMA II	Left cheek	0.641	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.088	1.137	1.205	1.189	1.557
	Left tilted	0.105	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.552	0.601	0.554	0.584	1.557
	Right cheek	0.641	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.088	1.137	1.011	1.062	1.557
	Right tilted	0.076	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.523	0.572	0.462	0.501	1.557
WCDMA IV	Left cheek	0.513	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.960	1.009	1.077	1.061	1.557
	Left tilted	0.235	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.682	0.731	0.684	0.714	1.557
	Right cheek	1.089	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.536	1.585	1.459	1.510	1.557
	Right tilted	0.435	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.882	0.931	0.821	0.860	1.557
WCDMA V	Left cheek	0.892	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.339	1.388	1.456	1.440	1.557
	Left tilted	0.115	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.562	0.611	0.564	0.594	1.557
	Right cheek	0.432	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	0.879	0.928	0.802	0.853	1.557
	Right tilted	0.102	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.549	0.598	0.488	0.527	1.557
LTE B2	Left cheek	1.005	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.452	1.501	1.569	1.553	1.557
	Left tilted	0.155	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.602	0.651	0.604	0.634	1.557
	Right cheek	0.936	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.383	1.432	1.306	1.357	1.557
	Right tilted	0.115	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.562	0.611	0.501	0.540	1.557
LTE B4	Left cheek	0.704	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.151	1.200	1.268	1.252	1.557
	Left tilted	0.242	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.689	0.738	0.691	0.721	1.557
	Right cheek	0.915	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.362	1.411	1.285	1.336	1.557
	Right tilted	0.379	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.826	0.875	0.765	0.804	1.557
LTE B5	Left cheek	0.707	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.154	1.203	1.271	1.255	1.557
	Left tilted	0.103	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.550	0.599	0.552	0.582	1.557
	Right cheek	0.469	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	0.916	0.965	0.839	0.890	1.557
	Right tilted	0.091	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.538	0.587	0.477	0.516	1.557
LTE B7	Left cheek	0.349	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.796	0.845	0.913	0.897	1.557
	Left tilted	0.343	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.790	0.839	0.792	0.822	1.557
	Right cheek	1.082	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.529	1.578	1.452	1.503	1.557
	Right tilted	0.578	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	1.025	1.074	0.964	1.003	1.557
LTE B41(38)	Left cheek	0.412	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.859	0.908	0.976	0.960	1.557
	Left tilted	0.339	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.786	0.835	0.788	0.818	1.557
	Right cheek	0.972	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.419	1.468	1.342	1.393	1.557
	Right tilted	0.898	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	1.345	1.394	1.284	1.323	1.557
LTE B48	Left cheek	0.854	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.301	1.350	1.418	1.402	1.557
	Left tilted	0.602	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	1.049	1.098	1.051	1.081	1.557
	Right cheek	0.497	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	0.944	0.993	0.867	0.918	1.557
	Right tilted	0.374	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.821	0.870	0.760	0.799	1.557
LTE B66	Left cheek	0.704	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.151	1.200	1.268	1.252	1.557
	Left tilted	0.242	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.689	0.738	0.691	0.721	1.557
	Right cheek	0.915	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.362	1.411	1.285	1.336	1.557
	Right tilted	0.379	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.826	0.875	0.765	0.804	1.557
5GNR n2	Left cheek	0.551	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.998	1.047	1.115	1.099	1.557
	Left tilted	0.096	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.543	0.592	0.545	0.575	1.557
	Right cheek	0.529	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	0.976	1.025	0.899	0.950	1.557
	Right tilted	0.067	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.514	0.563	0.453	0.492	1.557
5GNR n5	Left cheek	0.850	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.297	1.346	1.414	1.398	1.557
	Left tilted	0.153	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.600	0.649	0.602	0.632	1.557
	Right cheek	0.655	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.102	1.151	1.025	1.076	1.557
	Right tilted	0.125	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.572	0.621	0.511	0.550	1.557
5GNR n7	Left cheek	0.508	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.955	1.004	1.072	1.056	1.557
	Left tilted	0.122	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	0.569	0.618	0.571	0.601	1.557
	Right cheek	0.910	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.357	1.406	1.280	1.331	1.557
	Right tilted	0.261	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.708	0.757	0.647	0.686	1.557
5GNR n41(38)	Left cheek	0.506	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	0.953	1.002	1.070	1.054	1.557
	Left tilted	0.602	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	1.049	1.098	1.051	1.081	1.557
	Right cheek	0.885	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.332	1.381	1.255	1.306	1.557
	Right tilted	0.834	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	1.281	1.330	1.220	1.259	1.557
5GNR n48	Left cheek	0.708	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.155	1.204	1.272	1.256	1.557
	Left tilted	0.839	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	1.286	1.335	1.288	1.318	1.557



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Report No.: SEWM2309000386RG09

Rev.: 01

Page: 108 of 114

	Right cheek	0.777	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.224	1.273	1.147	1.198	1.557
	Right tilted	0.507	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.954	1.003	0.893	0.932	1.557
5GNR n77	Left cheek	0.956	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.403	1.452	1.520	1.504	1.557
	Left tilted	0.716	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	1.163	1.212	1.165	1.195	1.557
	Right cheek	0.660	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.107	1.156	1.030	1.081	1.557
	Right tilted	0.401	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.848	0.897	0.787	0.826	1.557
5GNR n78	Left cheek	0.956	0.447	0.772	0.251	0.496	0.785	0.313	0.110	0.125	1.403	1.452	1.520	1.504	1.557
	Left tilted	0.716	0.447	0.772	0.136	0.496	0.785	0.313	0.123	0.043	1.163	1.212	1.165	1.195	1.557
	Right cheek	0.778	0.447	0.772	0.057	0.496	0.785	0.313	0.082	0.026	1.225	1.274	1.148	1.199	1.557
	Right tilted	0.401	0.447	0.772	0.073	0.496	0.785	0.313	0.097	0.015	0.848	0.897	0.787	0.826	1.557



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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 For Simultaneous	WiFi 2.4G MIMO For DBS	WiFi 2.4G MIMO For DBS Simultaneous	WiFi 5G MIMO	WiFi 5G MIMO For Simultaneous	WiFi 5G MIMO For DBS	WiFi 5G MIMO For DBS Simultaneous	BT ANT16	BT ANT7	1+2	1+6	1+4+8	1+8+9+10	3+7	5+9+10	
	1	2	3	4	5	6	7	8	9	10							
GSM850	Front side	0.296	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.524	0.463	0.631	0.632	0.627	0.326
	Back side	0.274	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.502	0.441	0.609	0.676	0.627	0.574
GSM1900	Front side	0.212	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.440	0.379	0.547	0.548	0.627	0.326
	Back side	0.203	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.431	0.370	0.538	0.605	0.627	0.574
WCDMA II	Front side	0.418	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.646	0.585	0.753	0.754	0.627	0.326
	Back side	0.482	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.710	0.649	0.817	0.884	0.627	0.574
WCDMA IV	Front side	0.415	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.643	0.582	0.750	0.751	0.627	0.326
	Back side	0.477	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.705	0.644	0.812	0.879	0.627	0.574
WCDMA V	Front side	0.433	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.661	0.600	0.768	0.769	0.627	0.326
	Back side	0.405	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.633	0.572	0.740	0.807	0.627	0.574
LTE B2	Front side	0.400	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.628	0.567	0.735	0.736	0.627	0.326
	Back side	0.455	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.683	0.622	0.790	0.857	0.627	0.574
LTE B4	Front side	0.483	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.711	0.650	0.818	0.819	0.627	0.326
	Back side	0.545	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.773	0.712	0.880	0.947	0.627	0.574
LTE B5	Front side	0.462	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.690	0.629	0.797	0.798	0.627	0.326
	Back side	0.473	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.701	0.640	0.808	0.875	0.627	0.574
LTE B7	Front side	0.606	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.834	0.773	0.941	0.942	0.627	0.326
	Back side	0.589	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.817	0.756	0.924	0.991	0.627	0.574
LTE B41(38)	Front side	0.236	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.464	0.403	0.571	0.572	0.627	0.326
	Back side	0.294	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.522	0.461	0.629	0.696	0.627	0.574
LTE B48	Front side	0.230	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.458	0.397	0.565	0.566	0.627	0.326
	Back side	0.415	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.643	0.582	0.750	0.817	0.627	0.574
LTE 66	Front side	0.483	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.711	0.650	0.818	0.819	0.627	0.326
	Back side	0.545	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.773	0.712	0.880	0.947	0.627	0.574
5G NR n2	Front side	0.520	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.748	0.687	0.855	0.856	0.627	0.326
	Back side	0.363	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.591	0.530	0.698	0.765	0.627	0.574
5G NR n5	Front side	0.548	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.776	0.715	0.883	0.884	0.627	0.326
	Back side	0.574	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.802	0.741	0.909	0.976	0.627	0.574
5G NR n7	Front side	0.481	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.709	0.648	0.816	0.817	0.627	0.326
	Back side	0.546	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	0.774	0.713	0.881	0.948	0.627	0.574
5G NR n41(38)	Front side	0.555	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.783	0.722	0.890	0.891	0.627	0.326
	Back side	1.082	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	1.310	1.249	1.417	1.484	0.627	0.574
5G NR n48	Front side	0.443	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.671	0.610	0.778	0.779	0.627	0.326
	Back side	0.975	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	1.203	1.142	1.310	1.377	0.627	0.574
5G NR n77	Front side	0.492	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.720	0.659	0.827	0.828	0.627	0.326
	Back side	0.947	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	1.175	1.114	1.282	1.349	0.627	0.574
5G NR n78	Front side	0.492	0.228	0.362	0.114	0.211	0.167	0.265	0.221	0.013	0.102	0.720	0.659	0.827	0.828	0.627	0.326
	Back side	0.947	0.228	0.362	0.114	0.393	0.167	0.265	0.221	0.063	0.118	1.175	1.114	1.282	1.349	0.627	0.574



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Hotspot:

Test position	SARmax (W/kg)					Summed SAR		
	Main	WiFi 2.4G	WiFi 5G	BT ANT16	BT ANT7	1+2+3	1+3+4+5	
	1	2	3	4	5			
GSM850	Front side	0.188	0.164	0.129	0.042	0.050	0.481	0.409
	Back side	0.240	0.183	0.226	0.049	0.057	0.649	0.572
	Left side	0.278	0.000	0.000	0.000	0.000	0.278	0.278
	Right side	0.000	0.245	0.231	0.040	0.125	0.476	0.396
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.179	0.000	0.000	0.000	0.000	0.179	0.179
GSM1900	Front side	0.256	0.164	0.129	0.042	0.050	0.549	0.477
	Back side	0.300	0.183	0.226	0.049	0.057	0.709	0.632
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.400	0.245	0.231	0.040	0.125	0.876	0.796
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.698	0.000	0.000	0.000	0.000	0.698	0.698
WCDMA II	Front side	0.284	0.164	0.129	0.042	0.050	0.577	0.505
	Back side	0.336	0.183	0.226	0.049	0.057	0.745	0.668
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.478	0.245	0.231	0.040	0.125	0.954	0.874
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.747	0.000	0.000	0.000	0.000	0.747	0.747
WCDMA IV	Front side	0.493	0.164	0.129	0.042	0.050	0.786	0.714
	Back side	0.555	0.183	0.226	0.049	0.057	0.964	0.887
	Left side	0.385	0.000	0.000	0.000	0.000	0.385	0.385
	Right side	0.439	0.245	0.231	0.040	0.125	0.915	0.835
	Top side	0.133	0.189	0.246	0.123	0.000	0.568	0.502
	Bottom side	1.045	0.000	0.000	0.000	0.000	1.045	1.045
WCDMA V	Front side	0.351	0.164	0.129	0.042	0.050	0.644	0.572
	Back side	0.342	0.183	0.226	0.049	0.057	0.751	0.674
	Left side	0.486	0.000	0.000	0.000	0.000	0.486	0.486
	Right side	0.000	0.245	0.231	0.040	0.125	0.476	0.396
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.205	0.000	0.000	0.000	0.000	0.205	0.205
LTE B2	Front side	0.288	0.164	0.129	0.042	0.050	0.581	0.509
	Back side	0.274	0.183	0.226	0.049	0.057	0.683	0.606
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.529	0.245	0.231	0.040	0.125	1.005	0.925
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.787	0.000	0.000	0.000	0.000	0.787	0.787
LTE B4	Front side	0.390	0.164	0.129	0.042	0.050	0.683	0.611
	Back side	0.428	0.183	0.226	0.049	0.057	0.837	0.760
	Left side	0.293	0.000	0.000	0.000	0.000	0.293	0.293
	Right side	0.452	0.245	0.231	0.040	0.125	0.928	0.848
	Top side	0.095	0.189	0.246	0.123	0.000	0.530	0.464
	Bottom side	0.792	0.000	0.000	0.000	0.000	0.792	0.792
LTE B5	Front side	0.360	0.164	0.129	0.042	0.050	0.653	0.581
	Back side	0.366	0.183	0.226	0.049	0.057	0.775	0.698
	Left side	0.449	0.000	0.000	0.000	0.000	0.449	0.449
	Right side	0.000	0.245	0.231	0.040	0.125	0.476	0.396
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.227	0.000	0.000	0.000	0.000	0.227	0.227
LTE B7	Front side	0.254	0.164	0.129	0.042	0.050	0.547	0.475
	Back side	0.292	0.183	0.226	0.049	0.057	0.701	0.624
	Left side	0.423	0.000	0.000	0.000	0.000	0.423	0.423
	Right side	0.253	0.245	0.231	0.040	0.125	0.729	0.649
	Top side	0.123	0.189	0.246	0.123	0.000	0.558	0.492
	Bottom side	0.537	0.000	0.000	0.000	0.000	0.537	0.537
LTE B41(38)	Front side	0.214	0.164	0.129	0.042	0.050	0.507	0.435
	Back side	0.340	0.183	0.226	0.049	0.057	0.749	0.672
	Left side	0.401	0.000	0.000	0.000	0.000	0.401	0.401



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	Right side	0.422	0.245	0.231	0.040	0.125	0.898	0.818
	Top side	0.535	0.189	0.246	0.123	0.000	0.970	0.904
	Bottom side	0.379	0.000	0.000	0.000	0.000	0.379	0.379
LTE B48	Front side	0.182	0.164	0.129	0.042	0.050	0.475	0.403
	Back side	0.612	0.183	0.226	0.049	0.057	1.021	0.944
	Left side	0.279	0.000	0.000	0.000	0.000	0.279	0.279
	Right side	0.332	0.245	0.231	0.040	0.125	0.808	0.728
	Top side	0.168	0.189	0.246	0.123	0.000	0.603	0.537
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LTE 66	Front side	0.390	0.164	0.129	0.042	0.050	0.683	0.611
	Back side	0.428	0.183	0.226	0.049	0.057	0.837	0.760
	Left side	0.293	0.000	0.000	0.000	0.000	0.293	0.293
	Right side	0.452	0.245	0.231	0.040	0.125	0.928	0.848
	Top side	0.095	0.189	0.246	0.123	0.000	0.530	0.464
	Bottom side	0.792	0.000	0.000	0.000	0.000	0.792	0.792
5G NR n2	Front side	0.379	0.164	0.129	0.042	0.050	0.672	0.600
	Back side	0.400	0.183	0.226	0.049	0.057	0.809	0.732
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.414	0.245	0.231	0.040	0.125	0.890	0.810
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.902	0.000	0.000	0.000	0.000	0.902	0.902
5G NR n5	Front side	0.360	0.164	0.129	0.042	0.050	0.653	0.581
	Back side	0.364	0.183	0.226	0.049	0.057	0.773	0.696
	Left side	0.430	0.000	0.000	0.000	0.000	0.430	0.430
	Right side	0.000	0.245	0.231	0.040	0.125	0.476	0.396
	Top side	0.000	0.189	0.246	0.123	0.000	0.435	0.369
	Bottom side	0.231	0.000	0.000	0.000	0.000	0.231	0.231
5G NR n7	Front side	0.215	0.164	0.129	0.042	0.050	0.508	0.436
	Back side	0.314	0.183	0.226	0.049	0.057	0.723	0.646
	Left side	0.242	0.000	0.000	0.000	0.000	0.242	0.242
	Right side	0.358	0.245	0.231	0.040	0.125	0.834	0.754
	Top side	0.011	0.189	0.246	0.123	0.000	0.446	0.380
	Bottom side	0.450	0.000	0.000	0.000	0.000	0.450	0.450
5G NR n41(38)	Front side	0.292	0.164	0.129	0.042	0.050	0.585	0.513
	Back side	0.389	0.183	0.226	0.049	0.057	0.798	0.721
	Left side	0.279	0.000	0.000	0.000	0.000	0.279	0.279
	Right side	0.454	0.245	0.231	0.040	0.125	0.930	0.850
	Top side	0.637	0.189	0.246	0.123	0.000	1.072	1.006
	Bottom side	0.415	0.000	0.000	0.000	0.000	0.415	0.415
5G NR n48	Front side	0.162	0.164	0.129	0.042	0.050	0.455	0.383
	Back side	0.735	0.183	0.226	0.049	0.057	1.144	1.067
	Left side	0.299	0.000	0.000	0.000	0.000	0.299	0.299
	Right side	0.321	0.245	0.231	0.040	0.125	0.797	0.717
	Top side	0.273	0.189	0.246	0.123	0.000	0.708	0.642
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5G NR n77	Front side	0.160	0.164	0.129	0.042	0.050	0.453	0.381
	Back side	0.916	0.183	0.226	0.049	0.057	1.325	1.248
	Left side	0.363	0.000	0.000	0.000	0.000	0.363	0.363
	Right side	0.335	0.245	0.231	0.040	0.125	0.811	0.731
	Top side	0.384	0.189	0.246	0.123	0.000	0.819	0.753
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
5G NR n78	Front side	0.160	0.164	0.129	0.042	0.050	0.453	0.381
	Back side	0.916	0.183	0.226	0.049	0.057	1.325	1.248
	Left side	0.363	0.000	0.000	0.000	0.000	0.363	0.363
	Right side	0.335	0.245	0.231	0.040	0.125	0.811	0.731
	Top side	0.384	0.189	0.246	0.123	0.000	0.819	0.753
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000



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t (86-512) 62992980 www.sgs.com.cn
 t (86-512) 62992980 sgs.china@sgs.com

Product specific 10g SAR :

Test position	WiFi 2.4G MIMO For DBS	WiFi 5G MIMO For DBS	Summed SAR
	1	2	
	1+2		
Front side	1.834	1.965	3.799
Back side	1.834	1.965	3.799
Left side	1.834	1.965	3.799
Right side	1.834	1.965	3.799
Top side	1.834	1.965	3.799
Bottom side	1.834	1.965	3.799



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10 Equipment list

Test Platform		SPEAG DASY8 Professional				
Description		SAR Test System (Frequency range 10MHz-10GHz)				
Software Reference		DASY8 Module SAR V16.2.0.1425				
Hardware Reference						
Equipment	Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration	
<input checked="" type="checkbox"/>	Twin Phantom	SPEAG	Twin-SAM V8.0	2103	NCR	NCR
<input checked="" type="checkbox"/>	Twin Phantom	SPEAG	SAM 3	1770	NCR	NCR
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4	1484	2023-06-05	2024-06-04
<input checked="" type="checkbox"/>	DAE	SPEAG	DAE4	1374	2022-10-17	2023-10-16
<input checked="" type="checkbox"/>	E-Field Probe	SPEAG	EX3DV4	3793	2022-09-30	2023-09-29
<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	7636	2023-06-05	2024-06-04
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	CLA13	1032	2023-02-09	2024-02-08
<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	D3700V2	1094	2021-05-17	2024-05-16
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D3900V2	1071	2021-05-20	2024-05-19
<input checked="" type="checkbox"/>	Validation Kits	SPEAG	D5GHzV2	1313	2022-01-25	2025-01-24
<input checked="" type="checkbox"/>	Dielectric parameter probes	SPEAG	DAKS-3.5	1120	2023-06-06	2024-06-05
<input checked="" type="checkbox"/>	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	0050920	2023-06-06	2024-06-05
<input checked="" type="checkbox"/>	Universal Radio Communication Tester	R&S	CMW500	111637	2023-09-13	2024-09-12
<input checked="" type="checkbox"/>	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
<input checked="" type="checkbox"/>	Signal Generator	R&S	SMB100A	182393	2023-02-06	2024-02-05
<input checked="" type="checkbox"/>	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
<input checked="" type="checkbox"/>	Power Sensor	Keysight	U2002H	121251	2023-09-13	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	NA	2023-09-14	2024-09-13
<input checked="" type="checkbox"/>	Humidity and Temperature Indicator	MingGao	MingGao	NA	2023-09-14	2024-09-13



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

11 Calibration certificate

Please see the Appendix C

12 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

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