



FCC SAR TEST REPORT

Report No: AR/2020/A0003
Applicant: Xiaomi Communications Co., Ltd.
Manufacturer: Xiaomi Communications Co., Ltd.
Product Name: Mobile Phone
Model No.(EUT): M2007J22R
Trade Mark: Redmi
FCC ID: 2AFZZJ22G
Standards: FCC 47CFR §2.1093
Date of Receipt: 2020-10-29
Date of Test: 2020-10-29 to 2020-11-06
Date of Issue: 2020-11-11
Test conclusion: **PASS ***

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

Authorized Signature:

Derek Yang

Wireless Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



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REVISION HISTORY

Report Number	Revision	Description	Issue Date
AR/2020/A000305	01	Original	2020-11-11



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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.790	0.275	0.495	/
GSM1900	1.073	0.489	0.696	/
WCDMA Band II	1.054	0.783	0.906	1.730
WCDMA Band IV	0.932	0.676	0.771	1.786
WCDMA Band V	0.879	0.378	0.514	/
LTE Band 2	1.010	0.949	0.883	1.979
LTE Band 4	0.968	1.049	0.939	2.395
LTE Band 5	0.991	0.335	0.504	/
LTE Band 7	0.552	0.474	0.779	/
LTE Band 12	0.721	0.248	0.290	/
LTE Band 17	0.546	0.290	0.311	/
LTE Band 26	0.782	0.351	0.580	/
LTE Band 38	0.570	0.433	0.545	/
WI-FI (2.4GHz)	0.859	0.266	0.512	/
WI-FI (5GHz)	0.905	0.485	0.817	1.663
BT	0.078	0.012	0.025	/
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	1.593	1.546	1.531	2.931
SPLSR	N/A	N/A	N/A	N/A
SPLSR Limited	0.04			0.1

Note:

The Simultaneous transmission SAR is the same test position of the WWAN antenna + WiFi/BT antenna.

Approved & Released by

Simon Ling

SAR Manager

Tested by

Jackson Li

SAR Engineer



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1 General Information

1.1 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

1.2 Test Location

Company: SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch E&E Lab
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1.3 Test Facility

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

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006

IC#: 4620C.



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1.4 General Description of EUT

Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Product Name:	Mobile Phone		
Model No.(EUT):	M2007J22R		
FCC ID:	2AFZZJ22G		
Trade Mark:	Redmi		
Product Phase:	Identical Prototype		
IMEI:	860250050001528/860250050001486/860250050001627/860250050001643		
Hardware Version:	P2		
Software Version:	MIUI12		
Antenna Type:	PIFA Antenna		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK; LTE: QPSK,16QAM,64QAM WIFI: DSSS, OFDM; BT: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	12	EGPRS Multi-slots Class:	12
HSDPA UE Category:	14	HSUPA UE Category	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 II/IV/V)		
	3, tested with power control Max Power(LTE Band 2/4/5/7/12/17/26/38)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824~849	869~894
	GSM1900	1850~1910	1930~1990
	WCDMA Band II	1850~1910	1930~1990
	WCDMA Band IV	1710~1755	2110~2155
	WCDMA Band V	824~849	869~894
	LTE Band 2	1850 ~1910	1930 ~1990
	LTE Band 4	1710~1755	2110~2155
	LTE Band 5	824~849	869-894
	LTE Band 7	2500~2570	2620~2690
	LTE Band 12	699~716	729~746
	LTE Band 17	704~716	734~746
	LTE Band 26	814~849	859~894
	LTE Band 38	2570~2620	2570~2620
	Bluetooth	2400~2483.5	2400~2483.5
	Wi-Fi 2.4G	2402~2472	2402~2472
	Wi-Fi 5G	5150~5250	5150~5250
		5250~5350	5250~5350
		5470~5725	5470~5725
		5725~5835	5725~5835



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Remark:

The differences between M2007J22R and previous model M2007J22G are as below:

Model name	M2007J22R	M2007J22G	difference
PCB layout	same	same	same
SIM card	single card	dual card	
GSM	GSM850/900/1800/1900	GSM850/900/1800/1900	same
WCDMA	Band 1/2/4/5/8	Band 1/2/4/5/8	Software changes
	3GPP Release R6	3GPP Release R7	
	Category 6	Category 7	
LTE	Band 1/2/3/4/5/7/8/12/17/ 18/19/26/28/38/40/42 UL CA: NA DL CA:CA_42C,CA_1A-3A,CA_1A- -8A,CA_3A-8A,CA_1A-28A ,CA_3A- -28A,CA_1A-42A,C A_3A-42A,CA_28A-42A, CA_1A-3A-28A,CA_1A-3A-8A ,CA_ 3A-42C,CA_28A-4 2C,CA_1A-42C,CA_1A-3A-42A,CA_ _1A-28A-42A,CA_3 A-28A-42A ,CA_1A_3A_42 C,CA_1A_28A_42C, CA_3A_28A_42C,	Band 1/2/3/4/5/7/8/12/17/ 18/19/20/26/28/32/38/40/41/4 2 ULCA: 3C,7C,38C,40C DL CA:CA_2C,CA_3A-3A ,CA_3C,CA_7A-7A,CA_7C ,CA_38C,CA_40A- 40A,CA_40C,CA_41A- 41A,CA_1A-1A,CA_1A- 3A,CA_1A-5A ,CA_1A-7A,CA_1A-8A ,CA_1A-20A,CA_1A-28A ,CA_1A-38A,CA_1A-41A ,CA_2A-5A,CA_3A-5A ,CA_3A-7A,CA_3A-8A ,CA_3A-20A,CA_3A-28A ,CA_3A-32A,CA_3A-38A ,CA_3A-41A,CA_4A- 28A,CA_4A-5A,CA_5A- 7A,CA_7A-8A,CA_7A- 20A,CA_7A-28A,CA_7A- 32A,CA_8A-38A,CA_20A- 32A,CA_20A-38A ,CA_28A-38A,CA_1A-1A- 3A,CA_1A-1A-7A,CA_1A- 3A-3A,CA_1A-3A- 5A,CA_1A-3A-7A,CA_1A- 3A-8A,CA_1A-3A- 20A,CA_1A-3A-28A,CA_1A- 3A-38A,CA_1A-3A- 41A,CA_1A-3C,CA_1A-5A- 7A,CA_1A-7A-7A,CA_1A- 7A-8A,CA_1A-7A- 20A,CA_1A-7A-28A,CA_1A- 7C,CA_1A-8A-38A,CA_3A- 3A-7A,CA_3A-3A- 20A,CA_3A-3A-41A,CA_3A- 5A-7A,CA_3A-7A- 7A,CA_3A-7A-8A,CA_3A- 7A-20A,CA_3A-7A- 28A,CA_3A-7A-32A,CA_3A-	Software changes



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		7C ,CA_3A-8A-38A,CA_3A-20A- 32A,CA_3C-7A,CA_3C- 8A,CA_3C-20A,CA_3C-28A ,CA_3C-32A,CA_3C-38A ,CA_5A-7A-7A,CA_5A-7C ,CA_7C-20A,CA_7C-28A	
5G NR SA	NA	N1/3/5/7/8/20/28/38/41/77/78 /79	Software changes
5G NR NSA	DC_8A_n3A,DC_1A_n3A,DC_1A- 8A_n3A,DC_1A_n77A,DC_3A_n77 A,DC_8A_n77A,DC_28A_n77A,DC _1A-3A_n77A,DC_1A- 8A_n77A,DC_3A-8A_n77A,DC_3A- 28A_n77A DC_1A-28A_n77A,DC_1A-3A- 28A_n77A,DC_1A-3A- 8A_n77A,DC_1A_n28A,DC_3A_n2 8A,DC_1A- 3A_n28A,DC_1A_n78A,DC_3A_n7 8A,DC_8A_n78A,DC_28A_n78A	DC_3A_n1A,DC_7A_n1A,D C_8A_n1A,DC_20A_n1A,DC _28A_n1A,DC_40A_n1A,DC _3C_n1A,DC_3A_3A_n1A, DC_7A_7A_n1A,DC_7C_n1 A,DC_3A-7A_n1A,DC_3A- 8A_n1A,DC_3A- 20A_n1A,DC_7A- 8A_n1A,DC_7A-20A_n1A, DC_1A_n3A,DC_3A_n3A,D C_7A_n3A,DC_8A_n3A,DC_ 20A_n3A,DC_28A_n3A,DC_ 7C_n3A,DC_1C_n3A,DC_1A -7A_n3A DC_1A-8A_n3A,DC_1A- 20A_n3A,DC_1A- 28A_n3A,DC_7A- 20A_n3A,DC_7A- 28A_n3A,DC_1A_n5A,DC_3 A_n5A DC_7A_n5A,DC_1A- 3A_n5A,DC_3A- 7A_n5A,DC_1A- 7A_n5A,DC_1A-3A- 7A_n5A,DC_1A_n7A,DC_3A _n7A,DC_20A_n7A DC_7A_n7A,DC_28A_n7A,D C_1A-1A_n7A,DC_3A- 3A_n7A,DC_7A- 28A_n7A,DC_1A- 3A_n7A,DC_1A-20A_n7A DC_1A- 28A_n7A,DC_3C_n7A,DC_3 A-20A_n7A,DC_3A- 28A_n7A,DC_1A_n8A,DC_3 A_n8A,DC_7A_n8A,DC_1A- 7A_n8A DC_1A_n20A,DC_3A_n20A, DC_7A_n20A,DC_1A- 7A_n20A,DC_1A_n28A,DC_ 3A_n28A,DC_7A_n28A,DC_ 3C_n28A DC_7C_n28A,DC_1A- 3A_n28A,DC_1A- 7A_n28A,DC_3A-	Software changes



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		7A_n28A,DC_1A_n38A,DC_3A_n38A,DC_20A_n38A,DC_1A-20A_n38A,DC_3C_n38A,DC_3A-20A_n38A,DC_1A_n41A,DC_3A_n41A,DC_8A_n41A,DC_28A_n41A,DC_1A_n77A,DC_3A_n77A,DC_1A-3A_n77A,DC_1A_n78A,DC_3A_n78A,DC_5A_n78A,DC_7A_n78A,DC_8A_n78A,DC_20A_n78A,DC_28A_n78A,DC_38A_n78A,DC_40A_n78A,DC_20A-38A_n78A,DC_7C_n78A,DC_1A-3A_n78A,DC_1A-5A_n78A,DC_1A-7A_n78A,DC_1A-8A_n78A,DC_1A-20A_n78A,DC_1A-28A_n78A,DC_1A-38A_n78A,DC_3C_n78A,DC_3A-3A_n78A,DC_3A-5A_n78A,DC_3A-7A_n78A,DC_3A-8A_n78A,DC_3A-20A_n78A,DC_3A-28A_n78A,DC_3A-38A_n78A,DC_5A-7A_n78A,DC_7A-7A_n78A,DC_7A-8A_n78A,DC_7A-20A_n78A,DC_7A-28A_n78A,DC_8A-38A_n78A,DC_20A-32A_n78A,DC_28A-38A_n78A,DC_1A_n79A,DC_3A_n79A,DC_8A_n79A,DC_40A_n79A	
BT/WIFI/GNSS	same	same	same
NFC	SN100F	SN100T	Pin to pin change IC NFC antenna changes

Except listings above, the others are all the same as previous version.

Note:

According to the difference description above, for M2007J22R are test at the worst case on the M2007J22G original report (report No.: AR/2020/8000508) in this report.





1.4.1 DUT Antenna Locations(Back View)

Refer to Appendix D Photographs

Note:

- 1) The test device is a smart phone. The overall diagonal dimension of this device is 174 mm. Per KDB 648474 D04, because the diagonal distance of this device is $\geq 160\text{mm}$, so it is a phablet.

According to the distance between 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
Ant0	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	No	Yes
Ant1	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	Yes	Yes	No
Ant3	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	Yes	No
Ant4	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No
Ant5	Hotspot/Product specific 10g SAR	Yes	Yes	Yes	No	No	Yes
Ant6	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	No	Yes
Ant2(WIFI & BT)	Hotspot/Product specific 10g SAR	Yes	Yes	No	Yes	Yes	No

Table 1: EUT Sides for SAR Testing

Note:

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



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1.4.2 Power reduction specification

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

- 1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.
- 2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction
- 3) A fixed level power reduction is applied for some frequency bands when handset operate "held to the ear" condition, the power reduction triggered by audio receiver detection. The audio receiver detection is used to determine head or body scenario.
- 4) The proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of main antenna to ensure SAR compliance(Refer to section 5.4 for detailed proximity Sensor information and validation data per KDB 616217).

The following tables summarize the key power reduction information. The detailed full power which is the Max. power the state can use and reduced tune-up specifications and conducted power measurement results are provided in Section 8 of this report.

Main antenna(Ant0) Power Level(dBm)							
Power Reduction Scenario	GSM1900	WCDMA Band II	WCDMA Band IV	LTE B2	LTE B4	LTE B7	LTE B38
Hotspot off	31.0	23.0	25.0	25.0	24.0	23.0	25.0
Hotspot on	29.5	20.5	19.5	20.5	20.5	20.0	23.0

Main antenna(Ant0) Power Level(dBm)				
Power Reduction Scenario	WCDMA Band II	WCDMA Band IV	LTE B2	LTE B4
Sensor off	25.0	25.0	25.0	24.0
Sensor on	19.0	19.5	24.5	20.5

Main antenna(Ant0) Power Level(dBm)			
Power Reduction Scenario	WCDMA Band II	LTE B4	LTE B7
Receiver off	23.0	24.0	23.0
Receiver on	25.0	25.0	25.0



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Main antenna(Ant1) Power Level(dBm)								
Power Reduction Scenario	GSM1900	WCDMA Band II	WCDMA Band IV	LTE B2	LTE B4	LTE B7	LTE B26	LTE B38
Hotspot off	29.5	21.0	20.1	20.9	19.6	18.8	25.0	22.2
Hotspot on	28.0	19.0	17.6	19.4	17.6	17.8	23.5	20.2

Main antenna(Ant1) Power Level(dBm)											
Power Reduction Scenario	GSM 850	GSM 1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE B2	LTE B4	LTE B5	LTE B7	LTE B26	LTE B38
Receiver off	33.5	29.5	21.0	20.1	25.0	20.9	19.6	25.0	18.8	25.0	22.2
Receiver on	32.5	28.0	19.0	17.6	23.5	16.9	17.6	22.0	17.8	23.5	20.2

WiFi antenna Power Level(dBm)							
Power Reduction Scenario		Receiver off	Receiver on	Hotspot off	Hotspot on	WWAN transmit simultaneously with WiFi (Receiver on)	WWAN transmit simultaneously with WiFi (Hotspot on)
WiFi 2.4G	802.11 b	20.0	18.0	20.0	20.0	18.0	20.0
	802.11 g	16.0	14.0	16.0	16.0	14.0	16.0
	802.11 n 20M	14.0	12.0	14.0	14.0	12.0	14.0
	802.11 n 40M	12.0	10.0	12.0	12.0	10.0	12.0
WiFi 5G	802.11a U-NII-1	18.0	17.0	18.0	17.0	16.5	15.0
	802.11a U-NII-2A	16.8	16.8	16.8	/	16.3	/
	802.11a U-NII-2C	14.0	14.0	14.0	/	14.0	/
	802.11a U-NII-3	19.0	19.0	19.0	19.0	18.0	19.0
	802.11n 20M U-NII-1	17.0	17.0	17.0	16.0	15.5	14.0
	802.11n 20M U-NII-2A	16.8	16.8	16.8	/	16.3	/
	802.11n 20M U-NII-2C	14.0	14.0	14.0	/	14.0	/
	802.11n 20M U-NII-3	19.0	19.0	19.0	19.0	18.0	19.0
	802.11n 40M U-NII-1	16.0	16.0	16.0	16.0	14.5	14.0
	802.11n 40M U-NII-2A	15.0	15.0	15.0	/	15.0	/
	802.11n 40M U-NII-2C	15.0	15.0	15.0	/	15.0	/
	802.11n 40M U-NII-3	17.0	17.0	17.0	17.0	17.0	17.0
	802.11ac 20M U-NII-1	17.0	17.0	17.0	16.0	15.5	14.0
	802.11ac 20M U-NII-2A	16.8	16.8	16.8	/	16.3	/
	802.11ac 20M U-NII-2C	14.0	14.0	14.0	/	14.0	/
	802.11ac 20M U-NII-3	18.0	18.0	18.0	18.0	18.0	18.0
	802.11ac 40M U-NII-1	16.0	16.0	16.0	16.0	14.5	14.0
	802.11ac 40M U-NII-2A	15.0	15.0	15.0	/	15.0	/
	802.11ac 40M U-NII-2C	15.0	15.0	15.0	/	15.0	/
	802.11ac 40M U-NII-3	17.0	17.0	17.0	17.0	17.0	17.0
	802.11ac 80M U-NII-1	15.0	15.0	15.0	15.0	13.5	14.0
	802.11ac 80M U-NII-2A	15.0	15.0	15.0	/	15.0	/
	802.11ac 80M U-NII-2C	14.0	14.0	14.0	/	14.0	/
	802.11ac 80M U-NII-3	15.0	15.0	15.0	15.0	14.0	15.0



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1.5 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
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
KDB447498 D01	General RF Exposure Guidance v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03
KDB 616217 D04	SAR for laptop and tablets v01r02



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1.6 RF exposure limits

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

Notes:

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

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

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

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

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



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2 Laboratory Environment

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

Table 2: The Ambient Conditions



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3 SAR Measurements System Configuration

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG 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.

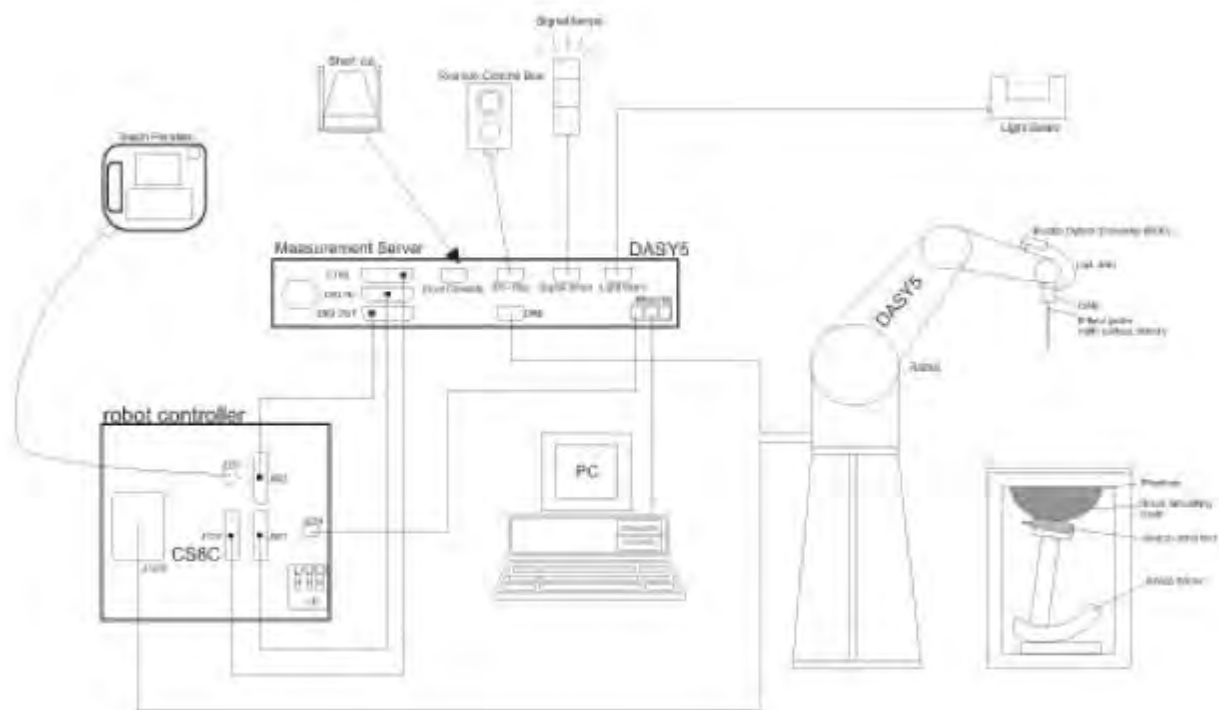
The DASY5 system for performing compliance tests consists of the following items:

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.

3.2 Isotropic E-field Probe EX3DV4

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

3.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)	
Input Offset Voltage	< 5μV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

3.4 SAM Twin Phantom

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

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 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.

3.5 ELI Phantom

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



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all SPEAG dosimetric probes and dipoles.

ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4, but has reinforced top structure.

3.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

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



3.7 Measurement procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

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

Step 2: Area scan

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

Step 3: Zoom scan

Around this point, a volume of 32mm*32mm*30mm ($f \leq 2\text{GHz}$), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points ($f \leq 2\text{GHz}$), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification). The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

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



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

Step 4: Power reference measurement (drift)

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



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3.7.2 Data Storage

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

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

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

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

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

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

E-field probes:

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



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H-field probes:

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

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

Normi = sensor sensitivity of channel i ($i = x, y, z$)
[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

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

f = carrier frequency [GHz]

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

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

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

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

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

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

with SAR = local specific absorption rate in mW/g

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

σ = conductivity in [mho/m] or [Siemens/m]

ϵ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

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

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

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

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



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4 SAR measurement variability and uncertainty

4.1 SAR measurement variability

Per 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 ($\sim 10\%$ from the 1-g SAR limit).
 - 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
- The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

4.2 SAR measurement uncertainty

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



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5 Description of Test Position

5.1 Head Exposure Condition

5.1.1 SAM Phantom Shape

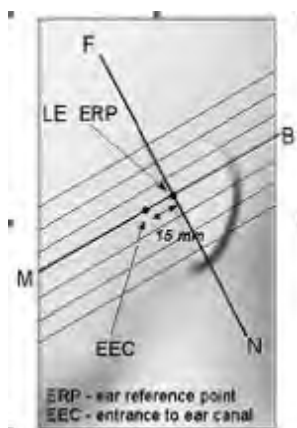


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

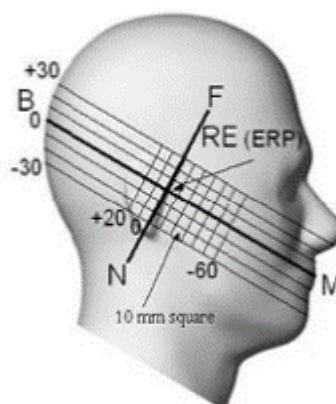
Note: The centre strip including the nose region has a different thickness tolerance.



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

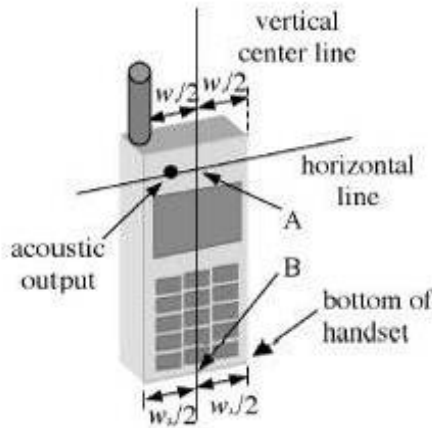


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

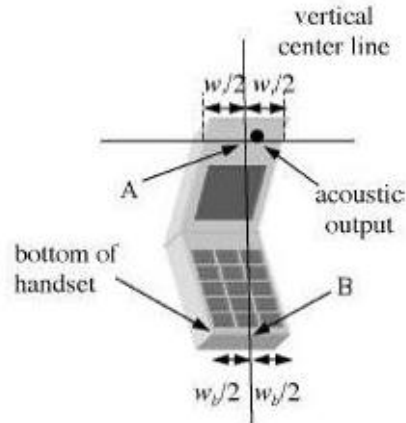


F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

5.1.2 EUT constructions



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



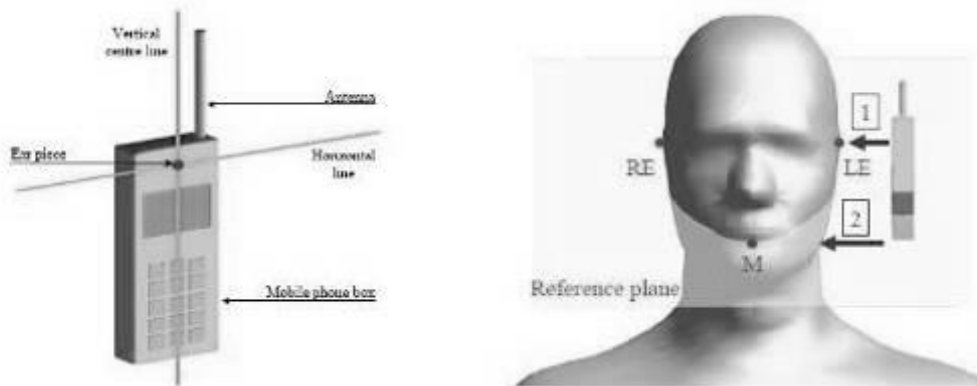
F-8. Handset vertical and horizontal reference lines-"clam-shell case"

5.1.3 Definition of the "cheek" position

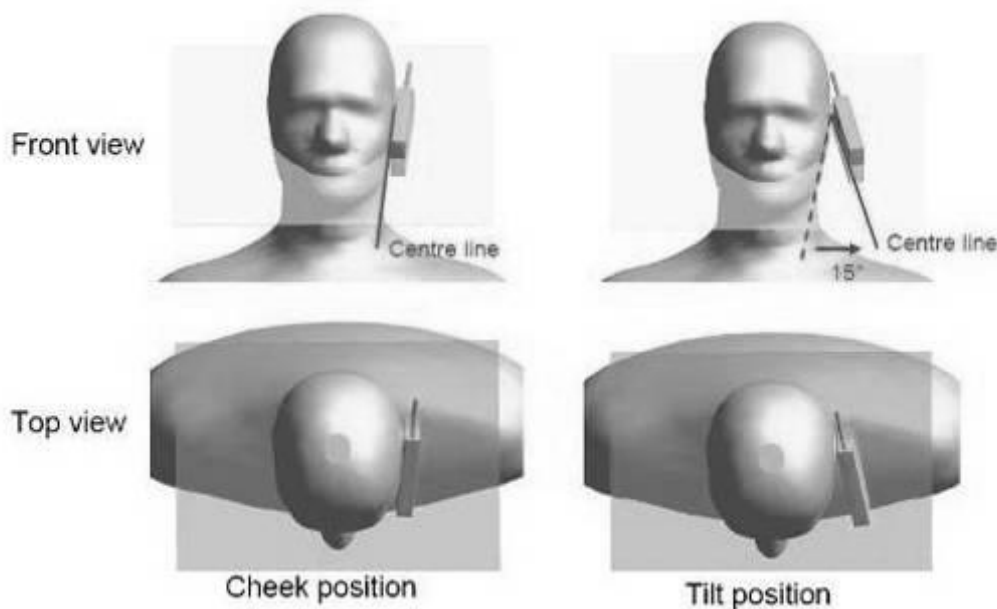
- Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom ("initial position"). While maintaining the device in this plane, align the vertical centre line with the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

5.1.4 Definition of the “tilted” position

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



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



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

5.2 Body Exposure Condition

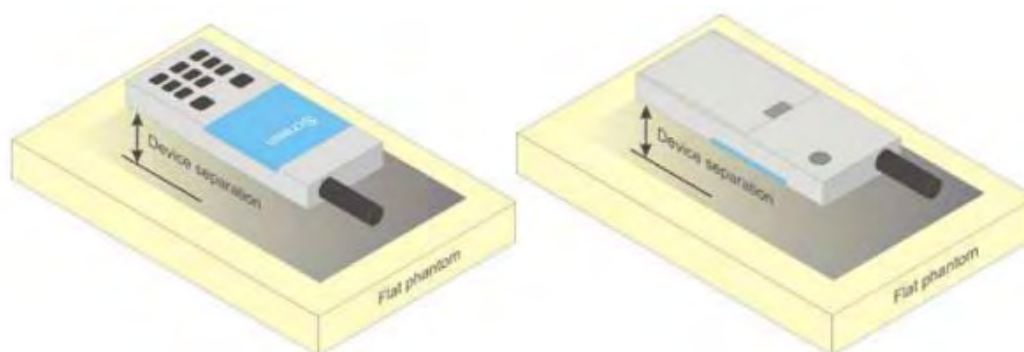
5.2.1 Body-worn accessory exposure conditions

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

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 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



5.2.2 Wireless Router exposure conditions

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

5.3 Extremity exposure conditions

Per FCC KDB 648474D04, for smart phones with a display diagonal dimension $> 15.0 \text{ cm}$ or an overall diagonal dimension $> 16.0 \text{ cm}$ that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as "Phablet". The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at $\leq 25 \text{ mm}$ from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2 \text{ W/kg}$; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, only the following frequency bands need to test with 0mm for the Product Specific 10-g SAR, the others are not required.

WCDMA Band II(Ant0):

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)	Product Specific 10-g SAR SAR Exclusion
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.163	-0.14	19.34	23.00	2.323	0.379	Yes
Back side	RMC	9400/1880	1:1	0.542	0.06	19.34	23.00	2.323	1.259	No
Left side	RMC	9400/1880	1:1	0.058	0.17	19.34	23.00	2.323	0.135	Yes
Right side	RMC	9400/1880	1:1	0.051	0.00	19.34	23.00	2.323	0.118	Yes
Bottom side	RMC	9400/1880	1:1	0.680	-0.01	19.34	23.00	2.323	1.579	No
Bottom side	RMC	9262/1852.4	1:1	0.689	-0.02	19.31	23.00	2.339	1.611	No
Bottom side	RMC	9538/1907.6	1:1	0.662	-0.07	19.30	23.00	2.344	1.552	No

WCDMA Band IV(Ant0):

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)	Product Specific 10-g SAR SAR Exclusion
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.228	0.06	18.77	25.00	4.198	0.957	Yes
Back side	RMC	1412/1732.4	1:1	0.651	0.11	18.77	25.00	4.198	2.733	No
Left side	RMC	1412/1732.4	1:1	0.061	0.14	18.77	25.00	4.198	0.256	Yes
Right side	RMC	1412/1732.4	1:1	0.054	-0.05	18.77	25.00	4.198	0.227	Yes
Bottom side	RMC	1412/1732.4	1:1	0.652	-0.09	18.77	25.00	4.198	2.737	No



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LTE Band 2(Ant0):

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(W/kg)	Product Specific 10-g SAR SAR Exclusion
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_0	18900/1880	1:1	0.154	0.08	19.73	25.00	3.365	0.518	Yes
Back side	20	QPSK 1RB_0	18900/1880	1:1	0.458	0.18	19.73	25.00	3.365	1.541	No
Left side	20	QPSK 1RB_0	18900/1880	1:1	0.057	-0.16	19.73	25.00	3.365	0.192	Yes
Right side	20	QPSK 1RB_0	18900/1880	1:1	0.047	0.07	19.73	25.00	3.365	0.158	Yes
Bottom side	20	QPSK 1RB_0	18900/1880	1:1	0.626	-0.04	19.73	25.00	3.365	2.107	No
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	18900/1880	1:1	0.156	-0.05	19.26	24.00	2.979	0.465	Yes
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.445	-0.13	19.26	24.00	2.979	1.325	No
Left side	20	QPSK 50RB_0	18900/1880	1:1	0.059	0.17	19.26	24.00	2.979	0.176	Yes
Right side	20	QPSK 50RB_0	18900/1880	1:1	0.045	-0.05	19.26	24.00	2.979	0.134	Yes
Bottom side	20	QPSK 50RB_0	18900/1880	1:1	0.626	-0.05	19.26	24.00	2.979	1.865	No
Bottom side	20	QPSK 50RB_0	18700/1860	1:1	0.656	0.16	19.21	24.00	3.013	1.977	No
Bottom side	20	QPSK 50RB_0	19100/1900	1:1	0.591	0.03	19.16	24.00	3.048	1.801	No
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB_0	18700/1860	1:1	0.627	-0.03	19.19	24.00	3.027	1.898	No

LTE Band 4(Ant0):

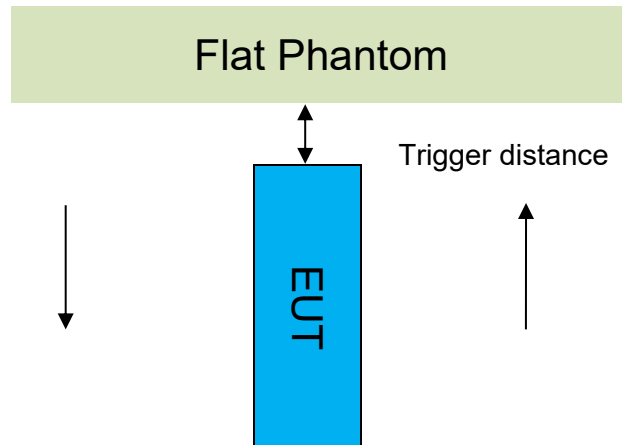
Test position	BW.	Test mode	Test Ch./Freq.	Duty Cycle	SAR (W/kg)1-g	Power Drift(dB)	Conducted power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR(W/kg)	Product Specific 10-g SAR SAR Exclusion
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	20175/1732.5	1:1	0.187	0.10	19.48	24.00	2.831	0.529	Yes
Back side	20	QPSK 1RB_50	20175/1732.5	1:1	0.578	0.05	19.48	24.00	2.831	1.637	No
Left side	20	QPSK 1RB_50	20175/1732.5	1:1	0.054	-0.01	19.48	24.00	2.831	0.153	Yes
Right side	20	QPSK 1RB_50	20175/1732.5	1:1	0.047	-0.06	19.48	24.00	2.831	0.133	Yes
Bottom side	20	QPSK 1RB_50	20175/1732.5	1:1	0.670	-0.08	19.48	24.00	2.831	1.897	No
Bottom side	20	QPSK 1RB_50	20050/1720	1:1	0.616	-0.08	19.30	24.00	2.951	1.818	No
Bottom side	20	QPSK 1RB_50	20300/1745	1:1	0.688	-0.03	19.15	24.00	3.055	2.102	No
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	20175/1732.5	1:1	0.188	0.14	19.35	24.00	2.917	0.548	No
Back side	20	QPSK 50RB_0	20175/1732.5	1:1	0.578	0.08	19.35	24.00	2.917	1.686	No
Left side	20	QPSK 50RB_0	20175/1732.5	1:1	0.056	-0.04	19.35	24.00	2.917	0.163	Yes
Right side	20	QPSK 50RB_0	20175/1732.5	1:1	0.048	-0.18	19.35	24.00	2.917	0.140	Yes
Bottom side	20	QPSK 50RB_0	20175/1732.5	1:1	0.630	-0.13	19.35	24.00	2.917	1.838	No
Bottom side	20	QPSK 50RB_25	20050/1720	1:1	0.602	0.06	18.93	24.00	3.214	1.935	No
Bottom side	20	QPSK 50RB_0	20300/1745	1:1	0.656	0.03	18.97	24.00	3.184	2.089	No
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB_0	20175/1732.5	1:1	0.611	-0.10	18.87	24.00	3.258	1.991	No



5.1 Proximity Sensor Triggering Test

Proximity sensor triggering distances:

The Proximity sensor triggering was applied to WCDMA Band II/IV(Ant 0) and LTE Band 2/4(Ant0). 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)			
Position	Front side	Back side	Bottom side
Minimum	16	16	16
Required SAR Test	15	15	15

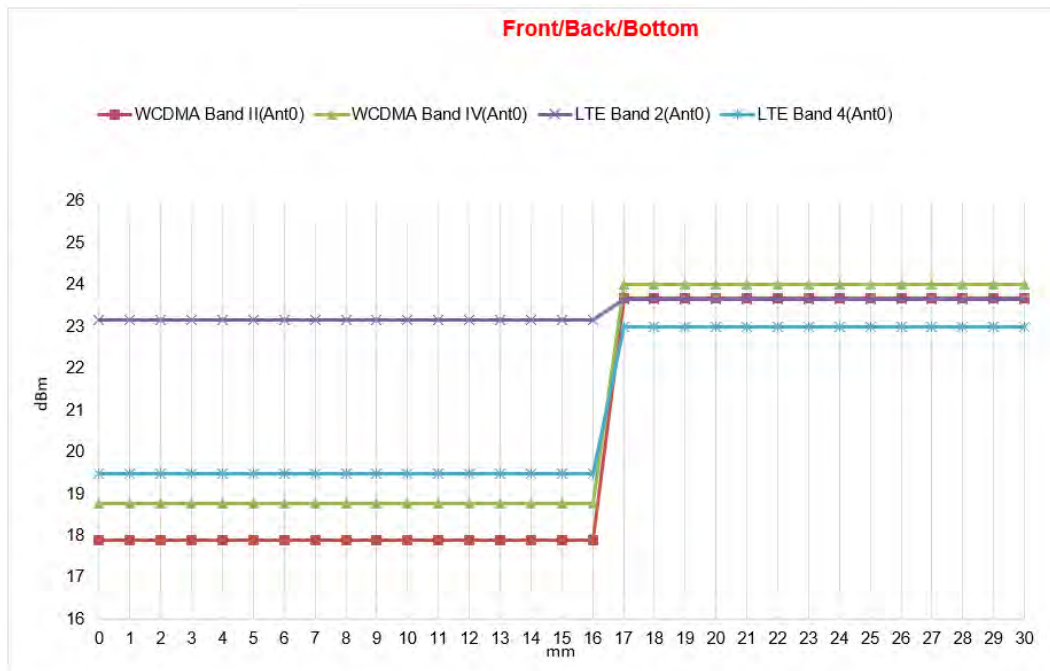
Note:

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.

● DUT Moving Toward(Trigger)the Phantom



● DUT Moving Away(Release) from the Phantom



Proximity sensor coverage

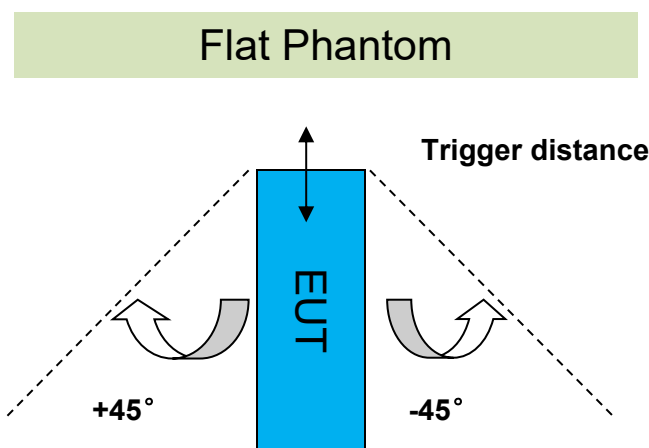
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, 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, at 16mm separation.

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°
WCDMA Band II (Ant 0)	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
WCDMA Band II (Ant 0)	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 2 (Ant 0)	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on
LTE Band 4 (Ant 0)	Bottom side:16mm	Bottom side:16mm	on	on	on	on	on	on	on	on	on	on	on

SAR test plan:

For front/back/bottom side, the worst trigger distance of proximity sensor is 16mm, thus we test front/back/bottom side SAR in 15mm without power reduction and 0mm with power reduction.



6 SAR System Verification Procedure

6.1 Tissue Simulate Liquid

6.1.1 Recipes for Tissue Simulate Liquid

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

Ingredients (% by weight)	Frequency (MHz)				
	450	700-900	1750-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99 ⁺ % Pure Sodium Chloride Water: De-ionized, 16 MΩ ⁺ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate			Sucrose: 98 ⁺ % Pure Sucrose HEC: Hydroxyethyl Cellulose		
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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6.1.2 Measurement for Tissue Simulate Liquid

The dielectric properties for this Tissue Simulate Liquids were measured by using the Agilent Model 85070E Dielectric Probe in conjunction with Agilent E5071C Network Analyzer (300 KHz-8500 MHz). The Conductivity (σ) and Permittivity (ρ) are listed in below 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. ($^\circ\text{C}$)	Measured Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
750 Head	750	41.9 (39.81~44)	0.89 (0.85~0.94)	43.021	0.879	22.1	2020/11/4
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	42.354	0.929	22.1	2020/10/29
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	40.271	1.309	22.2	2020/10/30
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.178	1.378	22.3	2020/10/30
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	40.738	1.784	22.0	2020/10/31
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	40.228	1.953	22.1	2020/11/1
5250Head	5250	35.9 (34.11~37.70)	4.71 (4.47~4.95)	35.669	4.658	22.2	2020/11/6

Table 4: Measurement result of Tissue electric parameters

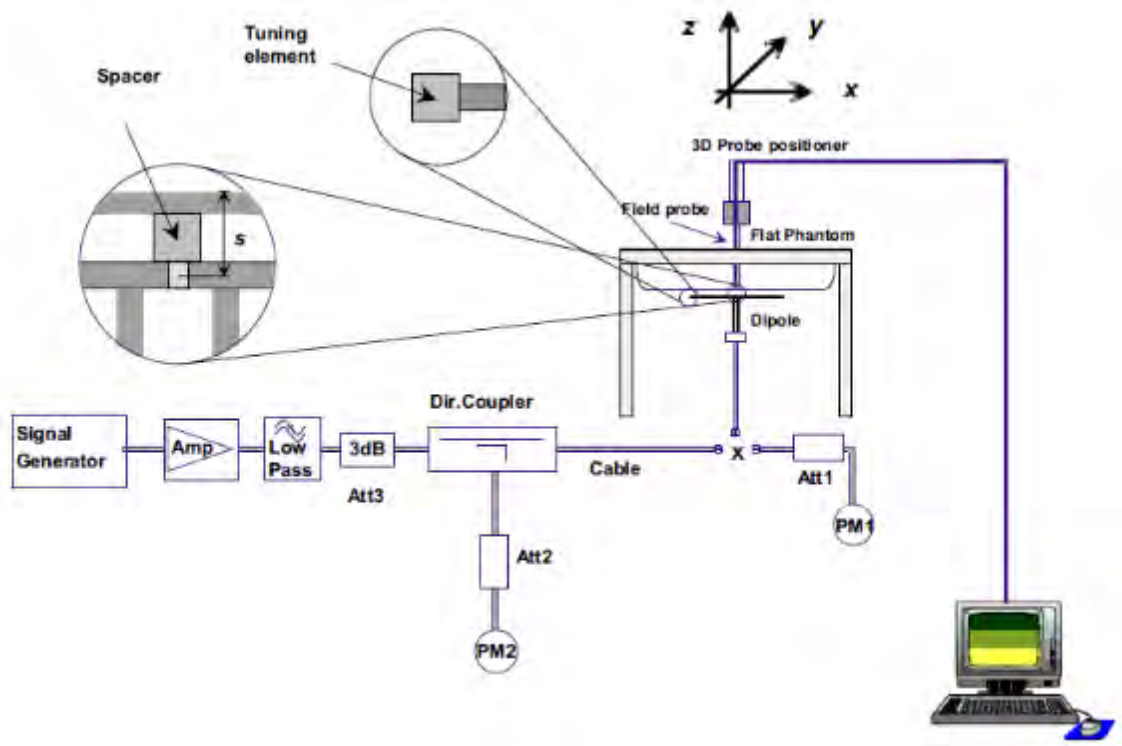


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6.2 SAR System Check

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



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



6.2.1 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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6.2.2 Summary System Check Result(s)

Validation Kit		Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (°C)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D750V3	Head	2.14	1.40	8.56	5.60	8.39 (7.55~9.23)	5.63 (5.07~6.19)	22.1	2020/11/4
D835V2	Head	2.48	1.62	9.92	6.48	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/10/29
D1750V2	Head	9.11	4.84	36.44	19.36	36.3 (32.67~39.93)	19.2 (17.28~21.12)	22.2	2020/10/30
D1900V2	Head	10.20	5.26	40.80	21.04	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.3	2020/10/30
D2450V2	Head	13.00	5.98	52.00	23.92	51.9 (46.71~57.09)	23.8 (21.42~26.18)	22.0	2020/10/31
D2600V2	Head	13.60	6.04	54.40	24.16	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.1	2020/11/1
Validation Kit		Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W) (±10%)	Target SAR (normalized to 1W) (±10%)	Liquid Temp. (°C)	Measured Date
		1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)		
D5GHzV2	Head (5.25GHz)	7.86	2.27	78.60	22.70	75.2 (67.68~82.72)	21.5 (19.35~23.65)	22.2	2020/11/6

Table 5: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A



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7 Test Configuration

7.1 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.

7.2 Operation Configurations

7.2.1 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 12 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 12 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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7.2.2 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	βc	Bd	$\beta d(SF)$	$\beta c/\beta d$	β_{hs}	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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

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

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

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



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

Table 7: HSDPA UE category

b) HSUPA

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



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Sub-test ¹	β_c ²	β_d ³	β_d (SF) ⁴	β_c/β_d ⁵	β_{hs} ⁽¹⁾	β_{ec} ⁶	β_{ed} ⁷	β_c (SF) ⁸	β_{ed} (code) ⁹	CM ⁽²⁾ (dB) ¹⁰	MP R ¹¹ (dB) ¹²	AG ⁽⁴⁾ Inde x ¹³	E-TFC I ¹⁴
1 ¹	11/15 ⁽³⁾	15/15 ⁽³⁾	64 ⁴	11/15 ⁽³⁾	22/15 ⁵	209/225 ⁶	1039/225 ⁷	4 ⁸	1 ⁹	1.0 ¹⁰	0.0 ¹¹	20 ¹³	75 ¹⁴
2 ¹	6/15 ²	15/15 ³	64 ⁴	6/15 ⁵	12/15 ⁵	12/15 ⁶	94/75 ⁷	4 ⁸	1 ⁹	3.0 ¹⁰	2.0 ¹¹	12 ¹³	67 ¹⁴
3 ¹	15/15 ²	9/15 ³	64 ⁴	15/9 ⁵	30/15 ⁵	30/15 ⁶	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4 ⁸	2 ⁹	2.0 ¹⁰	1.0 ¹¹	15 ¹³	92 ¹⁴
4 ¹	2/15 ²	15/15 ³	64 ⁴	2/15 ⁵	4/15 ⁵	2/15 ⁶	56/75 ⁷	4 ⁸	1 ⁹	3.0 ¹⁰	2.0 ¹¹	17 ¹³	71 ¹⁴
5 ¹	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64 ⁴	15/15 ⁽⁴⁾	30/15 ⁵	24/15 ⁶	134/15 ⁷	4 ⁸	1 ⁹	1.0 ¹⁰	0.0 ¹¹	21 ¹³	81 ¹⁴
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 difference¹⁵ 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 $\beta_d = 15/15$¹⁶ 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 $\beta_d = 15/15$¹⁶ Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g¹⁷ Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.¹⁸													

Table 8: Subtests for UMTS Release 6 HSUPA

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

Table 9: HSUPA UE category



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c) **DC-HSDPA**

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

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these settings are illustrated below:

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

Table E.5.0: Levels for HSDPA connection setup

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

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

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

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

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

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

Note:

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



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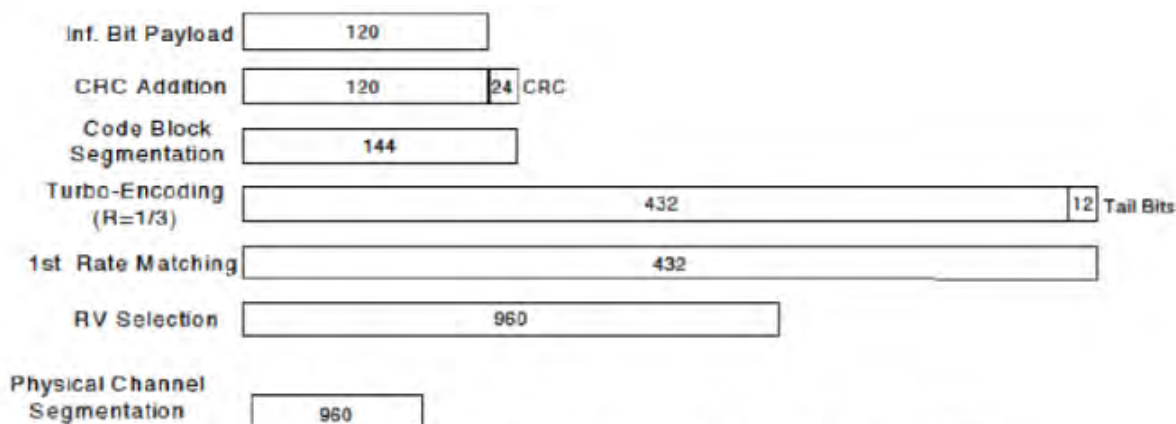


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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

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

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

Note:

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

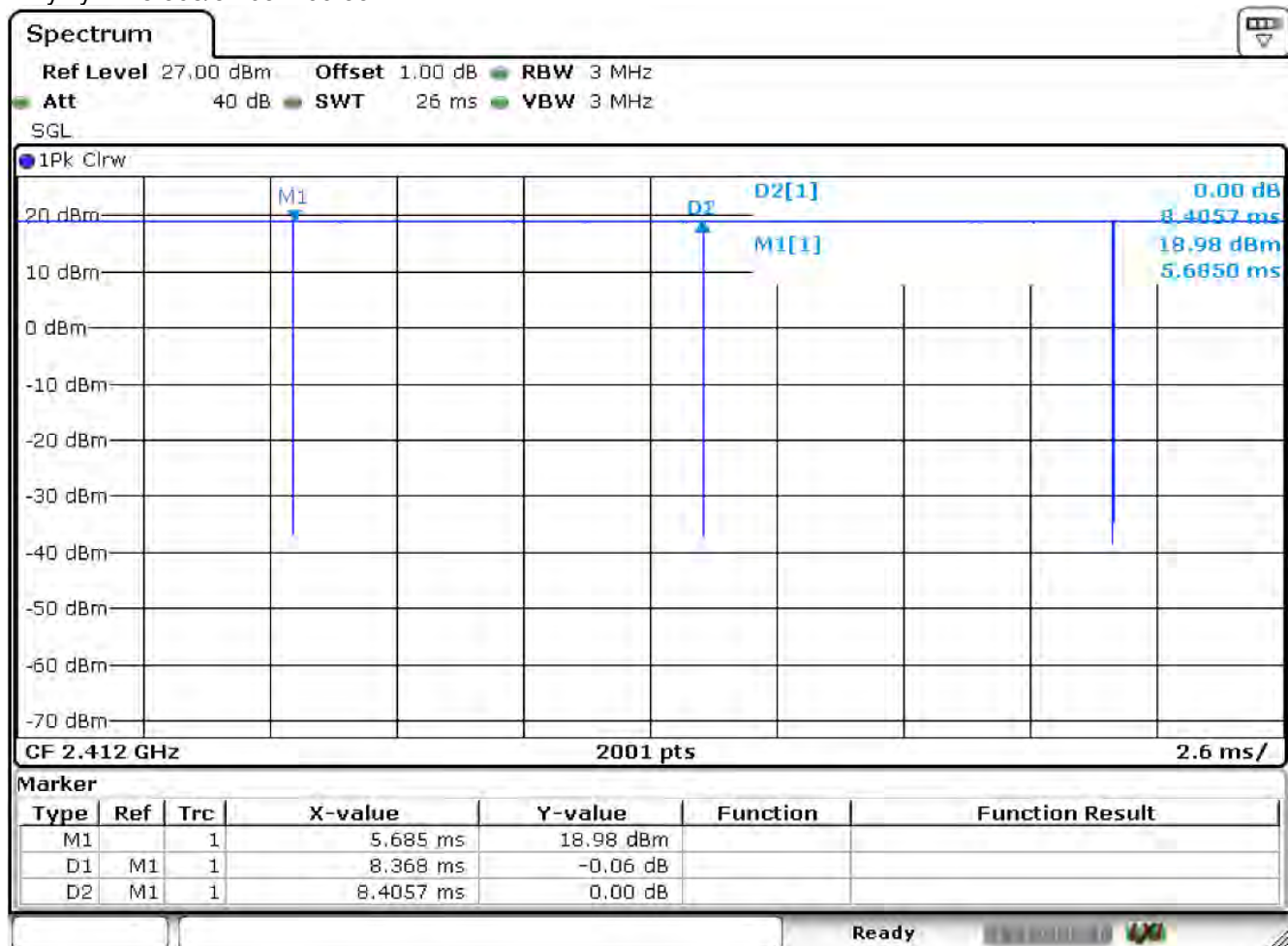
7.2.3 WiFi Test Configuration

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.

7.2.3.1 Duty cycle

1) Wi-Fi 2.4GHz 802.11b:

Duty cycle=8.368/8.4057=99.55%



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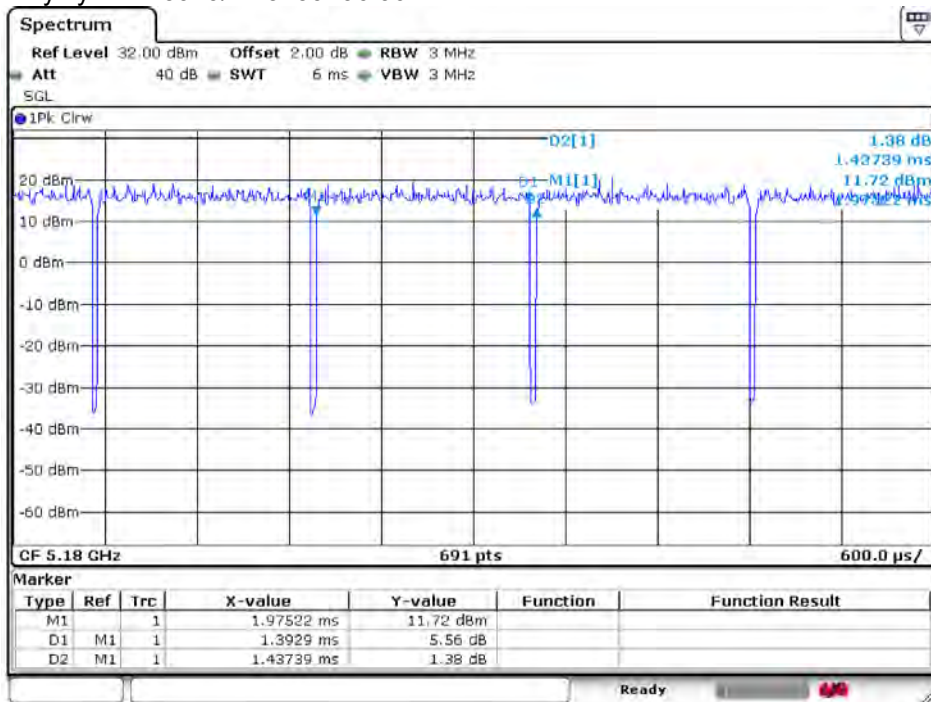
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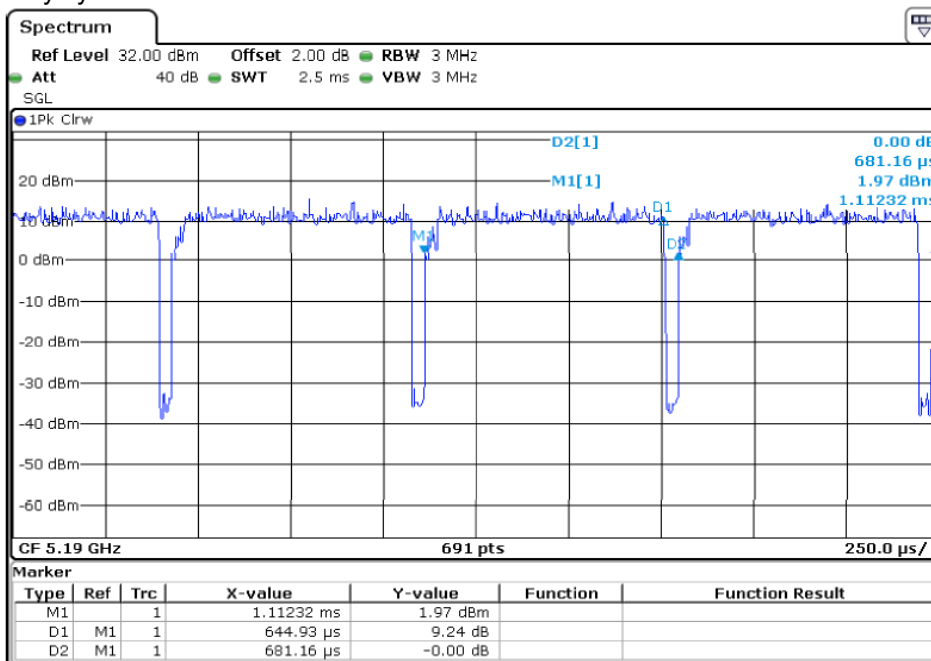
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2) Wi-Fi 5GHz 802.11a:
Duty cycle=1.3929/1.43739=96.90%



3) Wi-Fi 5GHz 802.11n 40M:
Duty cycle=644.93/681.16=94.68%



7.2.3.2 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.

7.2.3.3 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.

7.2.3.4 Subsequent Test Configuration Procedures

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

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



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



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7.2.3.5 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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7.2.3.6 5 GHz WiFi SAR Procedures

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

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

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

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

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

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



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• **OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements**

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

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

• **SAR Test Requirements for OFDM configurations**

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



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7.2.4 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 MT8821C 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:





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 $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.



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8 Test Result

8.1 Measurement of RF conducted Power

Note: The detailed conducted power table can refer to Appendix E.

8.1.1 Conducted Power of GSM

Note:

- 1) . CMW500 measures GSM peak and average output power for active timeslots. For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

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

- 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 = $10 \times \log (\text{Burst-averaged power mW} \times \text{Slot used} / 8)$
- 3) . When the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel must be used

8.1.2 Conducted Power of WCDMA

Note:

- 1) when the maximum output power variation across the required test channels is $> \frac{1}{2}$ dB, instead of the middle channel, the highest output power channel must be used.

8.1.3 Conducted Power of LTE

8.1.4 Conducted Power of WIFI

Note:

- a) Power must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band.
- b) Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.
- 1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.
- 2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.
- c) 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.



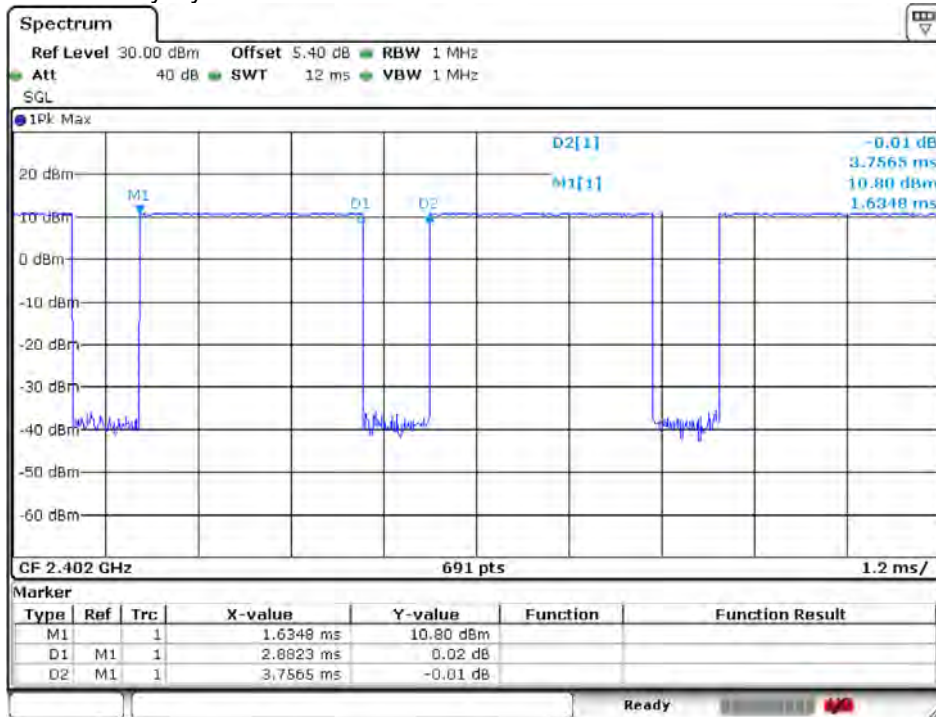
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8.1.5 Conducted Power of BT

BT DH5 Duty Cycle=2.8823/3.7565 =76.73%



Note:

1)The conducted power of BT is measured with RMS detector.



8.2 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and Product specific 10g SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

Freq. Band	Frequency (GHz)	Position	Average Power		Test Separation (mm)	Calculate Value	Exclusion Threshold	Exclusion (Y/N)
			dBm	mW				
Wi-Fi 2.4G	2.472	Head	18.0	63.10	5	19.84	3	N
		Body-worn	20.0	100.00	15	10.48	3	N
		Hotspot	20.0	100.00	10	15.72	3	N
Wi-Fi 5G	5.835	Head	19.0	79.43	5	38.38	3	N
		Body-worn	19.0	79.43	15	12.79	3	N
		Hotspot	19.0	79.43	10	19.19	3	N
Bluetooth	2.48	Head	11.0	12.59	5	3.97	3	N
		Body-worn	11.0	12.59	15	1.32	3	Y
		Hotspot	11.0	12.59	10	1.98	3	Y

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt[3]{f(\text{GHz})}] \leq 3.0$$
for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.



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8.3 Measurement of SAR Data

8.3.1 SAR Result of GSM850

Ant0 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	190/836.6	1:8.3	0.214	0.01	33.01	34.00	1.256	0.269	22.1
Left tilted	GSM	190/836.6	1:8.3	0.121	-0.03	33.01	34.00	1.256	0.152	22.1
Right cheek	GSM	190/836.6	1:8.3	0.217	0.05	33.01	34.00	1.256	0.273	22.1
Right tilted	GSM	190/836.6	1:8.3	0.141	-0.03	33.01	34.00	1.256	0.177	22.1
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.206	-0.14	33.01	34.00	1.256	0.259	22.1
Back side	GSM	190/836.6	1:8.3	0.219	0.01	33.01	34.00	1.256	0.275	22.1
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.198	-0.01	26.82	28.00	1.312	0.260	22.1
Back side	GPRS 4TS	190/836.6	1:2.075	0.358	-0.03	26.82	28.00	1.312	0.470	22.1
Left side	GPRS 4TS	190/836.6	1:2.075	0.144	0.03	26.82	28.00	1.312	0.189	22.1
Right side	GPRS 4TS	190/836.6	1:2.075	0.165	0.02	26.82	28.00	1.312	0.217	22.1
Bottom side	GPRS 4TS	190/836.6	1:2.075	0.303	-0.04	26.82	28.00	1.312	0.398	22.1
Ant1 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	190/836.6	1:8.3	0.551	0.03	31.34	32.50	1.306	0.720	22.1
Left tilted	GSM	190/836.6	1:8.3	0.406	0.00	31.34	32.50	1.306	0.530	22.1
Right cheek	GSM	190/836.6	1:8.3	0.599	0.03	31.34	32.50	1.306	0.782	22.1
Right tilted	GSM	190/836.6	1:8.3	0.437	0.06	31.34	32.50	1.306	0.571	22.1
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.119	0.18	32.27	33.50	1.327	0.158	22.1
Back side	GSM	190/836.6	1:8.3	0.164	0.01	32.27	33.50	1.327	0.218	22.1
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	190/836.6	1:2.075	0.112	-0.11	25.77	27.50	1.489	0.167	22.1
Back side	GPRS 4TS	190/836.6	1:2.075	0.179	0.00	25.77	27.50	1.489	0.267	22.1
Left side	GPRS 4TS	190/836.6	1:2.075	0.109	0.04	25.77	27.50	1.489	0.162	22.1
Right side	GPRS 4TS	190/836.6	1:2.075	0.094	-0.02	25.77	27.50	1.489	0.140	22.1
Top side	GPRS 4TS	190/836.6	1:2.075	0.099	-0.18	25.77	27.50	1.489	0.147	22.1

Table 11: SAR of GSM850 for Head and Body(original report AR/2020/8000508)



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Ant0 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	GSM	190/836.6	1:8.3	0.230	0.03	33.01	34.00	1.256	0.289	22.1
Body worn Test data at the worst case(Separate 15mm)										
Back side	GSM	190/836.6	1:8.3	0.193	0.03	33.01	34.00	1.256	0.242	22.1
Hotspot Test data at the worst case(Separate 10mm)										
Back side	GPRS 4TS	190/836.6	1:2.075	0.377	0.02	26.82	28.00	1.312	0.495	22.1
Ant1 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	GSM	190/836.6	1:8.3	0.605	-0.09	31.34	32.50	1.306	0.790	22.1
Body worn Test data at the worst case(Separate 15mm)										
Back side	GSM	190/836.6	1:8.3	0.191	0.07	32.27	33.50	1.327	0.254	22.1
Hotspot Test data at the worst case(Separate 10mm)										
Back side	GPRS 4TS	190/836.6	1:2.075	0.284	0.00	25.77	27.50	1.489	0.423	22.1

Table 12: SAR of GSM850 for Head and Body(Variant)

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.



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8.3.2 SAR Result of GSM1900

Ant0 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	661/1880	1:8.3	0.047	-0.19	29.92	31.00	1.282	0.060	22.3
Left tilted	GSM	661/1880	1:8.3	0.031	-0.02	29.92	31.00	1.282	0.040	22.3
Right cheek	GSM	661/1880	1:8.3	0.053	0.03	29.92	31.00	1.282	0.068	22.3
Right tilted	GSM	661/1880	1:8.3	0.034	0.13	29.92	31.00	1.282	0.044	22.3
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.139	0.07	29.92	31.00	1.282	0.178	22.3
Back side	GSM	661/1880	1:8.3	0.320	-0.01	29.92	31.00	1.282	0.410	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 1TS	661/1880	1:8.3	0.140	0.09	28.51	29.50	1.256	0.176	22.3
Back side	GPRS 1TS	661/1880	1:8.3	0.417	0.03	28.51	29.50	1.256	0.524	22.3
Left side	GPRS 1TS	661/1880	1:8.3	0.068	-0.08	28.51	29.50	1.256	0.085	22.3
Right side	GPRS 1TS	661/1880	1:8.3	0.063	-0.05	28.51	29.50	1.256	0.079	22.3
Bottom side	GPRS 1TS	661/1880	1:8.3	0.548	-0.13	28.51	29.50	1.256	0.688	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	GSM	661/1880	1:8.3	0.413	0.09	26.77	28.00	1.327	0.548	22.3
Left tilted	GSM	661/1880	1:8.3	0.574	-0.11	26.77	28.00	1.327	0.762	22.3
Right cheek	GSM	661/1880	1:8.3	0.565	0.01	26.77	28.00	1.327	0.750	22.3
Right tilted	GSM	661/1880	1:8.3	0.760	-0.06	26.77	28.00	1.327	1.009	22.3
Right tilted	GSM	512/1850.2	1:8.3	0.783	-0.09	26.85	28.00	1.303	1.020	22.3
Right tilted	GSM	810/1909.8	1:8.3	0.786	-0.03	26.65	28.00	1.365	1.073	22.3
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.116	-0.14	28.12	29.50	1.374	0.159	22.3
Back side	GSM	661/1880	1:8.3	0.120	-0.03	28.12	29.50	1.374	0.165	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 4TS	661/1880	1:2.075	0.231	0.08	20.85	22.00	1.303	0.301	22.3
Back side	GPRS 4TS	661/1880	1:2.075	0.408	-0.07	20.85	22.00	1.303	0.532	22.3
Left side	GPRS 4TS	661/1880	1:2.075	0.023	0.00	20.85	22.00	1.303	0.030	22.3
Right side	GPRS 4TS	661/1880	1:2.075	0.012	0.02	20.85	22.00	1.303	0.016	22.3
Top side	GPRS 4TS	661/1880	1:2.075	0.534	-0.17	20.85	22.00	1.303	0.696	22.3

Table 13: SAR of GSM1900 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	GSM	661/1880	1:8.3	0.053	0.12	29.92	31.00	1.282	0.068	22.3
Body worn Test data at the worst case(Separate 15mm)										
Back side	GSM	661/1880	1:8.3	0.381	0.04	29.92	31.00	1.282	0.489	22.3
Hotspot Test data at the worst case(Separate 10mm)										
Bottom side	GPRS 1TS	661/1880	1:8.3	0.530	-0.03	28.51	29.50	1.256	0.666	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right tilted	GSM	810/1909.8	1:8.3	0.483	-0.01	26.65	28.00	1.365	0.659	22.3
Body worn Test data at the worst case(Separate 15mm)										
Back side	GSM	661/1880	1:8.3	0.195	-0.03	28.12	29.50	1.374	0.268	22.3
Hotspot Test data at the worst case(Separate 10mm)										
Top side	GPRS 4TS	661/1880	1:2.075	0.254	-0.02	20.85	22.00	1.303	0.331	22.3

Table 14: SAR of GSM1900 for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).



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8.3.3 SAR Result of WCDMA Band II

Ant0 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	9400/1880	1:1	0.152	0.02	23.68	25.00	1.355	0.206	22.3
Left tilted	RMC	9400/1880	1:1	0.130	0.15	23.68	25.00	1.355	0.176	22.3
Right cheek	RMC	9400/1880	1:1	0.180	-0.02	23.68	25.00	1.355	0.244	22.3
Right tilted	RMC	9400/1880	1:1	0.117	-0.07	23.68	25.00	1.355	0.159	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.366	-0.10	21.97	23.00	1.268	0.464	22.3
Back side	RMC	9400/1880	1:1	0.618	-0.04	21.97	23.00	1.268	0.783	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.163	-0.14	19.34	20.50	1.306	0.213	22.3
Back side	RMC	9400/1880	1:1	0.542	0.06	19.34	20.50	1.306	0.708	22.3
Left side	RMC	9400/1880	1:1	0.058	0.17	19.34	20.50	1.306	0.076	22.3
Right side	RMC	9400/1880	1:1	0.051	0.00	19.34	20.50	1.306	0.067	22.3
Bottom side	RMC	9400/1880	1:1	0.680	-0.01	19.34	20.50	1.306	0.888	22.3
Bottom side	RMC	9262/1852.4	1:1	0.689	-0.02	19.31	20.50	1.315	0.906	22.3
Bottom side	RMC	9538/1907.6	1:1	0.662	-0.07	19.30	20.50	1.318	0.873	22.3
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data with sensor on(Separate 0mm)										
Back side	RMC	9400/1880	1:1	0.797	0.05	17.89	19.00	1.291	1.029	22.3
Bottom side	RMC	9400/1880	1:1	1.340	-0.19	17.89	19.00	1.291	1.730	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.384	0.02	23.68	25.00	1.355	0.520	22.3
Bottom side	RMC	9400/1880	1:1	0.556	0.08	23.68	25.00	1.355	0.753	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	9400/1880	1:1	0.411	-0.17	17.41	19.00	1.442	0.593	22.3
Left tilted	RMC	9400/1880	1:1	0.544	-0.11	17.41	19.00	1.442	0.785	22.3
Right cheek	RMC	9400/1880	1:1	0.633	-0.14	17.41	19.00	1.442	0.913	22.3
Right cheek	RMC	9262/1852.4	1:1	0.535	0.15	17.53	19.00	1.403	0.751	22.3
Right cheek	RMC	9538/1907.6	1:1	0.587	-0.09	17.51	19.00	1.409	0.827	22.3
Right tilted	RMC	9400/1880	1:1	0.655	-0.01	17.41	19.00	1.442	0.945	22.3
Right tilted	RMC	9262/1852.4	1:1	0.751	-0.04	17.53	19.00	1.403	1.054	22.3
Right tilted	RMC	9538/1907.6	1:1	0.566	-0.04	17.51	19.00	1.409	0.798	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.116	0.12	19.65	21.00	1.365	0.158	22.3
Back side	RMC	9400/1880	1:1	0.131	0.05	19.65	21.00	1.365	0.179	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.139	-0.10	17.41	19.00	1.442	0.200	22.3
Back side	RMC	9400/1880	1:1	0.302	0.05	17.41	19.00	1.442	0.436	22.3
Left side	RMC	9400/1880	1:1	0.019	-0.19	17.41	19.00	1.442	0.027	22.3
Right side	RMC	9400/1880	1:1	0.010	-0.01	17.41	19.00	1.442	0.014	22.3
Top side	RMC	9400/1880	1:1	0.445	-0.19	17.41	19.00	1.442	0.642	22.3

Table 15: SAR of WCDMA Band II for Head and Body and Product specific 10g SAR(original report AR/2020/8000508).





Ant0 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	RMC	9400/1880	1:1	0.166	-0.02	23.68	25.00	1.355	0.225	22.3
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.603	0.05	21.97	23.00	1.268	0.764	22.3
Hotspot Test data at the worst case(Separate 10mm)										
Bottom side	RMC	9262/1852.4	1:1	0.466	-0.08	19.31	20.50	1.315	0.613	22.3
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(℃)
Product specific 10g SAR Test data at the worst case(Separate 0mm)										
Bottom side	RMC	9400/1880	1:1	1.130	-0.07	17.89	19.00	1.291	1.459	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right tilted	RMC	9262/1852.4	1:1	0.572	-0.09	17.53	19.00	1.403	0.802	22.3
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	9400/1880	1:1	0.118	0.02	19.65	21.00	1.365	0.161	22.3
Hotspot Test data at the worst case(Separate 10mm)										
Top side	RMC	9400/1880	1:1	0.316	-0.17	17.41	19.00	1.442	0.456	22.3

Table 16: SAR of WCDMA Band II for Head and Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).



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8.3.4 SAR Result of WCDMA Band IV

Ant0 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	1412/1732.4	1:1	0.090	0.06	24.01	25.00	1.256	0.113	22.2
Left tilted	RMC	1412/1732.4	1:1	0.071	0.03	24.01	25.00	1.256	0.090	22.2
Right cheek	RMC	1412/1732.4	1:1	0.165	0.05	24.01	25.00	1.256	0.207	22.2
Right tilted	RMC	1412/1732.4	1:1	0.073	0.09	24.01	25.00	1.256	0.091	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.237	-0.06	24.01	25.00	1.256	0.298	22.2
Back side	RMC	1412/1732.4	1:1	0.393	0.02	24.01	25.00	1.256	0.494	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.228	0.06	18.77	19.50	1.183	0.270	22.2
Back side	RMC	1412/1732.4	1:1	0.651	0.11	18.77	19.50	1.183	0.770	22.2
Left side	RMC	1412/1732.4	1:1	0.061	0.14	18.77	19.50	1.183	0.072	22.2
Right side	RMC	1412/1732.4	1:1	0.054	-0.05	18.77	19.50	1.183	0.064	22.2
Bottom side	RMC	1412/1732.4	1:1	0.652	-0.09	18.77	19.50	1.183	0.771	22.2
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data with sensor on(Separate 0mm)										
Back side	RMC	1412/1732.4	1:1	1.230	0.04	18.77	19.50	1.183	1.455	22.3
Bottom side	RMC	1412/1732.4	1:1	1.510	-0.05	18.77	19.50	1.183	1.786	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm)										
Back side	RMC	1412/1732.4	1:1	0.243	0.02	24.01	25.00	1.256	0.305	22.3
Bottom side	RMC	1412/1732.4	1:1	0.582	-0.01	24.01	25.00	1.256	0.731	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	1412/1732.4	1:1	0.482	-0.03	16.29	17.60	1.352	0.652	22.2
Left tilted	RMC	1412/1732.4	1:1	0.584	0.00	16.29	17.60	1.352	0.790	22.2
Right cheek	RMC	1412/1732.4	1:1	0.638	0.10	16.29	17.60	1.352	0.863	22.2
Right cheek	RMC	1312/1712.4	1:1	0.580	0.07	16.31	17.60	1.346	0.781	22.2
Right cheek	RMC	1513/1752.6	1:1	0.633	-0.02	16.25	17.60	1.365	0.864	22.2
Right tilted	RMC	1412/1732.4	1:1	0.689	-0.09	16.29	17.60	1.352	0.932	22.2
Right tilted	RMC	1312/1712.4	1:1	0.692	-0.07	16.31	17.60	1.346	0.931	22.2
Right tilted	RMC	1513/1752.6	1:1	0.586	-0.05	16.25	17.60	1.365	0.800	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.137	0.09	18.87	20.10	1.327	0.182	22.2
Back side	RMC	1412/1732.4	1:1	0.167	0.11	18.87	20.10	1.327	0.222	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.146	0.06	16.29	17.60	1.352	0.197	22.2
Back side	RMC	1412/1732.4	1:1	0.334	0.01	16.29	17.60	1.352	0.452	22.2
Left side	RMC	1412/1732.4	1:1	0.012	0.00	16.29	17.60	1.352	0.016	22.2
Right side	RMC	1412/1732.4	1:1	0.008	0.09	16.29	17.60	1.352	0.011	22.2
Top side	RMC	1412/1732.4	1:1	0.409	-0.03	16.29	17.60	1.352	0.553	22.2

Table 17: SAR of WCDMA Band IV for Head and Body and Product specific 10g SAR(original report AR/2020/8000508).





Ant0 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	RMC	1412/1732.4	1:1	0.149	0.11	24.01	25.00	1.256	0.187	22.2
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	1412/1732.4	1:1	0.538	0.19	24.01	25.00	1.256	0.676	22.2
Hotspot Test data at the worst case(Separate 10mm)										
Bottom side	RMC	1412/1732.4	1:1	0.634	-0.09	18.77	19.50	1.183	0.750	22.2
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data at the worst case(Separate 0mm)										
Bottom side	RMC	1412/1732.4	1:1	1.340	-0.02	18.77	19.50	1.183	1.585	22.3
Ant1 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right tilted	RMC	1412/1732.4	1:1	0.510	-0.08	16.29	17.60	1.352	0.690	22.2
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	1412/1732.4	1:1	0.177	0.06	18.87	20.10	1.327	0.235	22.2
Hotspot Test data at the worst case(Separate 10mm)										
Top side	RMC	1412/1732.4	1:1	0.307	-0.08	16.29	17.60	1.352	0.415	22.2

Table 18: SAR of WCDMA Band IV for Head and Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).



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8.3.5 SAR Result of WCDMA Band V

Ant0 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	4182/836.4	1:1	0.243	0.19	23.62	25.00	1.374	0.334	22.1
Left tilted	RMC	4182/836.4	1:1	0.133	-0.05	23.62	25.00	1.374	0.183	22.1
Right cheek	RMC	4182/836.4	1:1	0.249	0.06	23.62	25.00	1.374	0.342	22.1
Right tilted	RMC	4182/836.4	1:1	0.145	0.11	23.62	25.00	1.374	0.199	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.228	-0.07	23.62	25.00	1.374	0.313	22.1
Back side	RMC	4182/836.4	1:1	0.275	0.08	23.62	25.00	1.374	0.378	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.231	-0.18	23.62	25.00	1.374	0.317	22.1
Back side	RMC	4182/836.4	1:1	0.374	0.02	23.62	25.00	1.374	0.514	22.1
Left side	RMC	4182/836.4	1:1	0.172	0.16	23.62	25.00	1.374	0.236	22.1
Right side	RMC	4182/836.4	1:1	0.236	-0.06	23.62	25.00	1.374	0.324	22.1
Bottom side	RMC	4182/836.4	1:1	0.251	-0.12	23.62	25.00	1.374	0.345	22.1
Ant1 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(W/kg)	Liquid Temp
Head Test data										
Left cheek	RMC	4182/836.4	1:1	0.570	0.01	22.68	23.50	1.208	0.688	22.1
Left tilted	RMC	4182/836.4	1:1	0.437	0.01	22.68	23.50	1.208	0.528	22.1
Right cheek	RMC	4182/836.4	1:1	0.638	0.02	22.68	23.50	1.208	0.771	22.1
Right tilted	RMC	4182/836.4	1:1	0.495	0.03	22.68	23.50	1.208	0.598	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.137	-0.02	23.75	25.00	1.334	0.183	22.1
Back side	RMC	4182/836.4	1:1	0.208	0.12	23.75	25.00	1.334	0.277	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.167	0.03	23.75	25.00	1.334	0.223	22.1
Back side	RMC	4182/836.4	1:1	0.305	0.02	23.75	25.00	1.334	0.407	22.1
Left side	RMC	4182/836.4	1:1	0.152	0.14	23.75	25.00	1.334	0.203	22.1
Right side	RMC	4182/836.4	1:1	0.124	-0.01	23.75	25.00	1.334	0.165	22.1
Top side	RMC	4182/836.4	1:1	0.018	0.14	23.75	25.00	1.334	0.024	22.1

Table 19: SAR of WCDMA Band V for Head and Body(original report AR/2020/8000508).





Ant0 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	RMC	4182/836.4	1:1	0.266	0.09	23.62	25.00	1.374	0.365	22.1
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	4182/836.4	1:1	0.259	0.06	23.62	25.00	1.374	0.356	22.1
Hotspot Test data at the worst case(Separate 10mm)										
Back side	RMC	4182/836.4	1:1	0.368	-0.04	23.62	25.00	1.374	0.506	22.1
Ant1 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(W/kg)	Liquid Temp
Head Test Data at the worst case										
Right cheek	RMC	4182/836.4	1:1	0.728	-0.02	22.68	23.50	1.208	0.879	22.1
Right cheek	RMC	4132/826.4	1:1	0.633	0.02	22.74	23.50	1.191	0.754	22.1
Right cheek	RMC	4233/846.6	1:1	0.643	0.00	22.64	23.50	1.219	0.784	22.1
Body worn Test data at the worst case(Separate 15mm)										
Back side	RMC	4182/836.4	1:1	0.240	-0.02	23.75	25.00	1.334	0.320	22.1
Hotspot Test data at the worst case(Separate 10mm)										
Back side	RMC	4182/836.4	1:1	0.297	-0.01	23.75	25.00	1.334	0.396	22.1

Table 20: SAR of WCDMA Band V for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.



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8.3.6 SAR Result of LTE Band 2

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	18900/1880	1:1	0.101	-0.09	23.66	25.00	1.361	0.138	22.3
Left tilted	20	QPSK 1RB_50	18900/1880	1:1	0.088	-0.09	23.66	25.00	1.361	0.120	22.3
Right cheek	20	QPSK 1RB_50	18900/1880	1:1	0.116	0.08	23.66	25.00	1.361	0.158	22.3
Right tilted	20	QPSK 1RB_50	18900/1880	1:1	0.095	-0.03	23.66	25.00	1.361	0.129	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	18900/1880	1:1	0.080	-0.10	23.25	24.00	1.189	0.095	22.3
Left tilted	20	QPSK 50RB_0	18900/1880	1:1	0.073	0.10	23.25	24.00	1.189	0.087	22.3
Right cheek	20	QPSK 50RB_0	18900/1880	1:1	0.089	0.07	23.25	24.00	1.189	0.106	22.3
Right tilted	20	QPSK 50RB_0	18900/1880	1:1	0.077	-0.10	23.25	24.00	1.189	0.092	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_50	18900/1880	1:1	0.242	0.01	23.66	25.00	1.361	0.329	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.680	0.01	23.66	25.00	1.361	0.926	22.3
Back side	20	QPSK 1RB_50	18700/1860	1:1	0.657	0.03	23.62	25.00	1.374	0.903	22.3
Back side	20	QPSK 1RB_50	19100/1900	1:1	0.678	-0.02	23.54	25.00	1.400	0.949	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_0	18900/1880	1:1	0.192	-0.18	23.25	24.00	1.189	0.228	22.3
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.542	-0.07	23.25	24.00	1.189	0.644	22.3
Body worn Test data (Separate 15mm 100%RB)											
Back side	20	QPSK 100RB_0	18700/1860	1:1	0.553	0.03	23.35	24.00	1.161	0.642	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_0	18900/1880	1:1	0.154	0.08	19.73	20.50	1.194	0.184	22.3
Back side	20	QPSK 1RB_0	18900/1880	1:1	0.458	0.18	19.73	20.50	1.194	0.547	22.3
Left side	20	QPSK 1RB_0	18900/1880	1:1	0.057	-0.16	19.73	20.50	1.194	0.068	22.3
Right side	20	QPSK 1RB_0	18900/1880	1:1	0.047	0.07	19.73	20.50	1.194	0.056	22.3
Bottom side	20	QPSK 1RB_0	18900/1880	1:1	0.626	-0.04	19.73	20.50	1.194	0.747	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	18900/1880	1:1	0.156	-0.05	19.26	20.50	1.330	0.208	22.3
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.445	-0.13	19.26	20.50	1.330	0.592	22.3
Left side	20	QPSK 50RB_0	18900/1880	1:1	0.059	0.17	19.26	20.50	1.330	0.078	22.3
Right side	20	QPSK 50RB_0	18900/1880	1:1	0.045	-0.05	19.26	20.50	1.330	0.060	22.3
Bottom side	20	QPSK 50RB_0	18900/1880	1:1	0.626	-0.05	19.26	20.50	1.330	0.833	22.3
Bottom side	20	QPSK 50RB_0	18700/1860	1:1	0.656	0.16	19.21	20.50	1.346	0.883	22.3
Bottom side	20	QPSK 50RB_0	19100/1900	1:1	0.591	0.03	19.16	20.50	1.361	0.805	22.3
Hotspot Test data (Separate 15mm 100%RB)											
Bottom side	20	QPSK 100RB_0	18700/1860	1:1	0.627	-0.03	19.19	20.50	1.352	0.848	22.3
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(W/kg)	Liquid Temp.
Product specific 10g SAR Test data with sensor on(Separate 0mm 1RB)											
Back side	20	QPSK 1RB_0	18900/1880	1:1	0.896	0.12	23.18	24.50	1.355	1.214	22.3
Bottom side	20	QPSK 1RB_0	18900/1880	1:1	1.460	-0.04	23.18	24.50	1.355	1.979	22.3
Product specific 10g SAR Test data with sensor on(Separate 0mm 50%RB)											
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.905	0.04	22.76	23.50	1.186	1.073	22.3
Bottom side	20	QPSK 50RB_0	18900/1880	1:1	1.530	-0.08	22.76	23.50	1.186	1.814	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm 1RB)											
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.354	-0.13	23.66	25.00	1.361	0.482	22.3
Bottom side	20	QPSK 1RB_50	18900/1880	1:1	0.515	-0.17	23.66	25.00	1.361	0.701	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm 50%RB)											



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Back side	20	QPSK 50RB_0	18900/1880	1:1	0.276	0.03	23.25	24.00	1.189	0.328	22.3
Bottom side	20	QPSK 50RB_0	18900/1880	1:1	0.397	-0.07	23.25	24.00	1.189	0.472	22.3
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	18900/1880	1:1	0.269	0.06	15.33	16.90	1.435	0.386	22.3
Left tilted	20	QPSK 1RB_50	18900/1880	1:1	0.363	0.03	15.33	16.90	1.435	0.521	22.3
Right cheek	20	QPSK 1RB_50	18900/1880	1:1	0.362	0.01	15.33	16.90	1.435	0.520	22.3
Right tilted	20	QPSK 1RB_50	18900/1880	1:1	0.429	-0.01	15.33	16.90	1.435	0.616	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	18900/1880	1:1	0.377	-0.05	15.46	16.90	1.393	0.525	22.3
Left tilted	20	QPSK 50RB_50	18900/1880	1:1	0.502	-0.05	15.46	16.90	1.393	0.699	22.3
Right cheek	20	QPSK 50RB_50	18900/1880	1:1	0.510	0.04	15.46	16.90	1.393	0.711	22.3
Right tilted	20	QPSK 50RB_50	18900/1880	1:1	0.684	-0.03	15.46	16.90	1.393	0.953	22.3
Right tilted	20	QPSK 50RB_25	18700/1860	1:1	0.723	-0.15	15.45	16.90	1.396	1.010	22.3
Right tilted	20	QPSK 50RB_0	19100/1900	1:1	0.624	-0.15	15.29	16.90	1.449	0.904	22.3
Head Test data(100%RB)											
Right tilted	20	QPSK 100RB_0	18900/1880	1:1	0.688	-0.02	15.40	16.90	1.413	0.972	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_99	18900/1880	1:1	0.113	-0.03	20.07	20.90	1.211	0.137	22.3
Back side	20	QPSK 1RB_99	18900/1880	1:1	0.152	0.04	20.07	20.90	1.211	0.184	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_0	18900/1880	1:1	0.116	-0.12	19.55	20.90	1.365	0.158	22.3
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.153	0.07	19.55	20.90	1.365	0.209	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	18900/1880	1:1	0.158	-0.06	18.47	19.40	1.239	0.196	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.331	0.10	18.47	19.40	1.239	0.410	22.3
Left side	20	QPSK 1RB_50	18900/1880	1:1	0.012	-0.14	18.47	19.40	1.239	0.015	22.3
Right side	20	QPSK 1RB_50	18900/1880	1:1	0.010	-0.19	18.47	19.40	1.239	0.012	22.3
Top side	20	QPSK 1RB_50	18900/1880	1:1	0.523	-0.02	18.47	19.40	1.239	0.648	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	18900/1880	1:1	0.157	0.02	17.98	19.40	1.387	0.218	22.3
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.332	-0.05	17.98	19.40	1.387	0.460	22.3
Left side	20	QPSK 50RB_0	18900/1880	1:1	0.012	0.01	17.98	19.40	1.387	0.017	22.3
Right side	20	QPSK 50RB_0	18900/1880	1:1	0.009	-0.19	17.98	19.40	1.387	0.012	22.3
Top side	20	QPSK 50RB_0	18900/1880	1:1	0.531	-0.04	17.98	19.40	1.387	0.736	22.3

Table 21: SAR of LTE Band 2 for Head and Body and Product specific 10g SAR(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	20	QPSK 1RB_50	18900/1880	1:1	0.113	0.07	23.66	25.00	1.361	0.154	22.3
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 1RB_50	19100/1900	1:1	0.639	0.03	23.54	25.00	1.400	0.894	22.3
Hotspot Test data at the worst case(Separate 10mm)											
Bottom side	20	QPSK 50RB_0	18700/1860	1:1	0.629	-0.02	19.21	20.50	1.346	0.847	22.3
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(W/kg)	Liquid Temp.
Product specific 10g SAR Test data at the worst case(Separate 0mm)											
Bottom side	20	QPSK 1RB_0	18900/1880	1:1	1.420	-0.19	23.18	24.50	1.355	1.924	22.3
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right tilted	20	QPSK 50RB_25	18700/1860	1:1	0.536	-0.07	15.45	16.90	1.396	0.748	22.3
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 50RB_0	18900/1880	1:1	0.170	0.03	19.55	20.90	1.365	0.232	22.3
Hotspot Test data at the worst case(Separate 10mm)											
Top side	20	QPSK 50RB_0	18900/1880	1:1	0.327	-0.09	17.98	19.40	1.387	0.453	22.3

Table 22: SAR of LTE Band 2 for Head and Body and Product specific 10g SAR.

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).





8.3.7 SAR Result of LTE Band 4

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB 50	20175/1732.5	1:1	0.088	-0.06	23.89	25.00	1.291	0.114	22.2
Left tilted	20	QPSK 1RB 50	20175/1732.5	1:1	0.062	-0.10	23.89	25.00	1.291	0.080	22.2
Right cheek	20	QPSK 1RB 50	20175/1732.5	1:1	0.127	0.08	23.89	25.00	1.291	0.164	22.2
Right tilted	20	QPSK 1RB 50	20175/1732.5	1:1	0.068	-0.07	23.89	25.00	1.291	0.088	22.2
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 0	20300/1745	1:1	0.069	-0.09	22.90	24.00	1.288	0.089	22.2
Left tilted	20	QPSK 50RB 0	20300/1745	1:1	0.050	0.17	22.90	24.00	1.288	0.064	22.2
Right cheek	20	QPSK 50RB 0	20300/1745	1:1	0.100	0.07	22.90	24.00	1.288	0.128	22.2
Right tilted	20	QPSK 50RB 0	20300/1745	1:1	0.057	-0.03	22.90	24.00	1.288	0.073	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB 0	20175/1732.5	1:1	0.245	-0.18	23.09	24.00	1.233	0.302	22.2
Back side	20	QPSK 1RB 0	20175/1732.5	1:1	0.807	0.14	23.09	24.00	1.233	0.995	22.2
Back side	20	QPSK 1RB 50	20050/1720	1:1	0.788	0.17	23.08	24.00	1.236	0.974	22.2
Back side	20	QPSK 1RB 50	20300/1745	1:1	0.841	0.02	23.04	24.00	1.247	1.049	22.2
Back side-repeat	20	QPSK 1RB 50	20300/1745	1:1	0.832	0.11	23.04	24.00	1.247	1.038	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 0	20175/1732.5	1:1	0.246	-0.08	22.90	24.00	1.288	0.317	22.2
Back side	20	QPSK 50RB 0	20175/1732.5	1:1	0.632	0.07	22.90	24.00	1.288	0.814	22.2
Back side	20	QPSK 50RB 50	20050/1720	1:1	0.635	0.11	22.85	24.00	1.303	0.828	22.2
Back side	20	QPSK 50RB 0	20300/1745	1:1	0.638	0.11	22.90	24.00	1.288	0.822	22.2
Body worn Test data (Separate 15mm 100%RB)											
Back side	20	QPSK 100RB 0	20175/1732.5	1:1	0.637	0.12	22.80	24.00	1.318	0.840	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 50	20175/1732.5	1:1	0.187	0.10	19.48	20.50	1.265	0.237	22.2
Back side	20	QPSK 1RB 50	20175/1732.5	1:1	0.578	0.05	19.48	20.50	1.265	0.731	22.2
Left side	20	QPSK 1RB 50	20175/1732.5	1:1	0.054	-0.01	19.48	20.50	1.265	0.068	22.2
Right side	20	QPSK 1RB 50	20175/1732.5	1:1	0.047	-0.06	19.48	20.50	1.265	0.059	22.2
Bottom side	20	QPSK 1RB 50	20175/1732.5	1:1	0.670	-0.08	19.48	20.50	1.265	0.847	22.2
Bottom side	20	QPSK 1RB 50	20050/1720	1:1	0.616	-0.08	19.30	20.50	1.318	0.812	22.2
Bottom side	20	QPSK 1RB 50	20300/1745	1:1	0.688	-0.03	19.15	20.50	1.365	0.939	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 0	20175/1732.5	1:1	0.188	0.14	19.35	20.50	1.303	0.245	22.2
Back side	20	QPSK 50RB 0	20175/1732.5	1:1	0.578	0.08	19.35	20.50	1.303	0.753	22.2
Left side	20	QPSK 50RB 0	20175/1732.5	1:1	0.056	-0.04	19.35	20.50	1.303	0.073	22.2
Right side	20	QPSK 50RB 0	20175/1732.5	1:1	0.048	-0.18	19.35	20.50	1.303	0.063	22.2
Bottom side	20	QPSK 50RB 0	20175/1732.5	1:1	0.630	-0.13	19.35	20.50	1.303	0.821	22.2
Bottom side	20	QPSK 50RB 25	20050/1720	1:1	0.602	0.06	18.93	20.50	1.435	0.864	22.2
Bottom side	20	QPSK 50RB 0	20300/1745	1:1	0.656	0.03	18.97	20.50	1.422	0.933	22.2
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB 0	20175/1732.5	1:1	0.611	-0.10	18.87	20.50	1.455	0.889	22.2
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(W/kg)	Liquid Temp.
Product specific 10g SAR Test data with sensor on(Separate 0mm 1RB)											
Back side	20	QPSK 1RB 50	20175/1732.5	1:1	1.570	0.08	19.48	20.50	1.265	1.986	22.3
Bottom side	20	QPSK 1RB 50	20175/1732.5	1:1	1.801	-0.18	19.48	20.50	1.265	2.278	22.3
Bottom side	20	QPSK 1RB 50	20050/1720	1:1	1.817	-0.06	19.30	20.50	1.318	2.395	22.3
Bottom side	20	QPSK 1RB 50	20300/1745	1:1	1.720	-0.05	19.15	20.50	1.365	2.347	22.3
Product specific 10g SAR Test data with sensor on(Separate 0mm 50%RB)											
Back side	20	QPSK 50RB 0	20175/1732.5	1:1	1.530	0.04	19.35	20.50	1.303	1.994	22.3
Bottom side	20	QPSK 50RB 0	20175/1732.5	1:1	1.620	-0.09	19.35	20.50	1.303	2.111	22.3
Bottom side	20	QPSK 50RB 25	20050/1720	1:1	1.600	-0.01	18.93	20.50	1.435	2.297	22.3
Bottom side	20	QPSK 50RB 0	20300/1745	1:1	1.630	-0.08	18.97	20.50	1.422	2.318	22.3
Product specific 10g SAR Test data with sensor on(Separate 0mm 100%RB)											
Bottom side	20	QPSK 100RB 0	20175/1732.5	1:1	1.590	0.04	18.87	20.50	1.455	2.314	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm 1RB)											



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Back side	20	QPSK 1RB 50	20175/1732.5	1:1	0.546	-0.08	23.89	25.00	1.291	0.705	22.3
Bottom side	20	QPSK 1RB 50	20175/1732.5	1:1	0.539	-0.02	23.89	25.00	1.291	0.696	22.3
Product specific 10g SAR Test data with sensor off(Separate 15mm 50%RB)											
Back side	20	QPSK 50RB 0	20300/1745	1:1	0.435	-0.07	22.84	24.00	1.306	0.568	22.3
Bottom side	20	QPSK 50RB 0	20300/1745	1:1	0.429	-0.09	22.84	24.00	1.306	0.560	22.3
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB 0	20175/1732.5	1:1	0.465	-0.16	16.45	17.60	1.303	0.606	22.2
Left tilted	20	QPSK 1RB 0	20175/1732.5	1:1	0.601	0.00	16.45	17.60	1.303	0.783	22.2
Right cheek	20	QPSK 1RB 0	20175/1732.5	1:1	0.554	-0.05	16.45	17.60	1.303	0.722	22.2
Right tilted	20	QPSK 1RB 0	20175/1732.5	1:1	0.706	-0.06	16.45	17.60	1.303	0.920	22.3
Right tilted	20	QPSK 1RB 50	20050/1720	1:1	0.703	-0.06	16.32	17.60	1.343	0.944	22.3
Right tilted	20	QPSK 1RB 0	20300/1745	1:1	0.696	-0.03	16.31	17.60	1.346	0.937	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 0	20175/1732.5	1:1	0.461	0.03	16.49	17.60	1.291	0.595	22.2
Left tilted	20	QPSK 50RB 0	20175/1732.5	1:1	0.611	0.13	16.49	17.60	1.291	0.789	22.2
Right cheek	20	QPSK 50RB 0	20175/1732.5	1:1	0.553	-0.06	16.49	17.60	1.291	0.714	22.2
Right tilted	20	QPSK 50RB 0	20175/1732.5	1:1	0.713	-0.12	16.49	17.60	1.291	0.921	22.2
Right tilted	20	QPSK 50RB 50	20050/1720	1:1	0.723	-0.14	16.44	17.60	1.306	0.944	22.3
Right tilted	20	QPSK 50RB 0	20300/1745	1:1	0.726	-0.15	16.43	17.60	1.309	0.950	22.3
Head Test data(100%RB)											
Right tilted	20	QPSK 100RB 0	20050/1720	1:1	0.729	-0.01	16.37	17.60	1.327	0.968	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB 50	20175/1732.5	1:1	0.127	0.12	18.87	19.60	1.183	0.150	22.2
Back side	20	QPSK 1RB 50	20175/1732.5	1:1	0.169	0.05	18.87	19.60	1.183	0.200	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 50	20050/1720	1:1	0.125	0.00	18.32	19.60	1.343	0.168	22.2
Back side	20	QPSK 50RB 50	20050/1720	1:1	0.168	0.02	18.32	19.60	1.343	0.226	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 0	20175/1732.5	1:1	0.157	0.19	16.45	17.60	1.303	0.205	22.2
Back side	20	QPSK 1RB 0	20175/1732.5	1:1	0.348	0.13	16.45	17.60	1.303	0.454	22.2
Left side	20	QPSK 1RB 0	20175/1732.5	1:1	0.038	0.05	16.45	17.60	1.303	0.050	22.2
Right side	20	QPSK 1RB 0	20175/1732.5	1:1	0.016	-0.10	16.45	17.60	1.303	0.021	22.2
Top side	20	QPSK 1RB 0	20175/1732.5	1:1	0.448	-0.05	16.45	17.60	1.303	0.584	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 0	20175/1732.5	1:1	0.156	0.08	16.49	17.60	1.291	0.201	22.2
Back side	20	QPSK 50RB 0	20175/1732.5	1:1	0.346	0.03	16.49	17.60	1.291	0.447	22.2
Left side	20	QPSK 50RB 0	20175/1732.5	1:1	0.026	-0.10	16.49	17.60	1.291	0.034	22.2
Right side	20	QPSK 50RB 0	20175/1732.5	1:1	0.013	0.05	16.49	17.60	1.291	0.017	22.2
Top side	20	QPSK 50RB 0	20175/1732.5	1:1	0.453	0.02	16.49	17.60	1.291	0.585	22.2

Table 23: SAR of LTE Band 4 for Head and Body and Product specific 10g SAR(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	20	QPSK 1RB_50	20175/1732.5	1:1	0.143	0.05	23.89	25.00	1.291	0.185	22.2
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 1RB_50	20300/1745	1:1	0.743	0.08	23.04	24.00	1.247	0.927	22.2
Hotspot Test data at the worst case(Separate 10mm)											
Bottom side	20	QPSK 1RB_50	20300/1745	1:1	0.617	-0.07	19.15	20.50	1.365	0.842	22.2
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(W/kg)	Liquid Temp.
Product specific 10g SAR Test data at the worst case(Separate 0mm)											
Bottom side	20	QPSK 1RB_50	20050/1720	1:1	1.390	-0.07	19.30	20.50	1.318	1.832	22.3
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right tilted	20	QPSK 100RB_0	20050/1720	1:1	0.637	-0.01	16.37	17.60	1.327	0.846	22.3
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 50RB_50	20050/1720	1:1	0.173	0.07	18.32	19.60	1.343	0.232	22.2
Hotspot Test data at the worst case(Separate 10mm)											
Top side	20	QPSK 50RB_0	20175/1732.5	1:1	0.384	-0.18	16.49	17.60	1.291	0.496	22.2

Table 24: SAR of LTE Band 4 for Head and Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated SAR (1g)	Ratio	2 nd Repeated SAR (1g)	3 rd Repeated SAR (1g)
Back Side 15mm(Ant0)	20300/1745	0.841	0.832	1.011	N/A	N/A

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

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

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

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



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8.3.8 SAR Result of LTE Band 5

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	20600/844	1:1	0.191	0.06	23.62	25.00	1.374	0.262	22.1
Left tilted	10	QPSK 1RB_25	20600/844	1:1	0.094	0.16	23.62	25.00	1.374	0.129	22.1
Right cheek	10	QPSK 1RB_25	20600/844	1:1	0.186	0.07	23.62	25.00	1.374	0.256	22.1
Right tilted	10	QPSK 1RB_25	20600/844	1:1	0.095	-0.05	23.62	25.00	1.374	0.131	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_13	20600/844	1:1	0.156	0.15	23.16	24.00	1.213	0.189	22.1
Left tilted	10	QPSK25RB_13	20600/844	1:1	0.083	-0.12	23.16	24.00	1.213	0.101	22.1
Right cheek	10	QPSK25RB_13	20600/844	1:1	0.152	-0.05	23.16	24.00	1.213	0.184	22.1
Right tilted	10	QPSK25RB_13	20600/844	1:1	0.08	0.09	23.16	24.00	1.213	0.097	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.170	-0.18	23.62	25.00	1.374	0.234	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.212	0.07	23.62	25.00	1.374	0.291	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_13	20600/844	1:1	0.138	0.02	23.16	24.00	1.213	0.167	22.1
Back side	10	QPSK25RB_13	20600/844	1:1	0.175	-0.07	23.16	24.00	1.213	0.212	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.180	-0.18	23.62	25.00	1.374	0.247	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.364	0.01	23.62	25.00	1.374	0.500	22.1
Left side	10	QPSK 1RB_25	20600/844	1:1	0.117	0.00	23.62	25.00	1.374	0.161	22.1
Right side	10	QPSK 1RB_25	20600/844	1:1	0.171	0.17	23.62	25.00	1.374	0.235	22.1
Bottom side	10	QPSK 1RB_25	20600/844	1:1	0.194	0.17	23.62	25.00	1.374	0.267	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_13	20600/844	1:1	0.145	-0.19	23.16	24.00	1.213	0.176	22.1
Back side	10	QPSK25RB_13	20600/844	1:1	0.240	0.06	23.16	24.00	1.213	0.291	22.1
Left side	10	QPSK25RB_13	20600/844	1:1	0.098	-0.09	23.16	24.00	1.213	0.119	22.1
Right side	10	QPSK25RB_13	20600/844	1:1	0.143	-0.03	23.16	24.00	1.213	0.174	22.1
Bottom side	10	QPSK25RB_13	20600/844	1:1	0.155	-0.12	23.16	24.00	1.213	0.188	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	20600/844	1:1	0.301	0.02	20.48	22.00	1.419	0.427	22.1
Left tilted	10	QPSK 1RB_25	20600/844	1:1	0.232	-0.06	20.48	22.00	1.419	0.329	22.1
Right cheek	10	QPSK 1RB_25	20600/844	1:1	0.337	-0.07	20.48	22.00	1.419	0.478	22.1
Right tilted	10	QPSK 1RB_25	20600/844	1:1	0.260	-0.03	20.48	22.00	1.419	0.369	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_0	20525/836.5	1:1	0.512	0.08	20.47	22.00	1.422	0.728	22.1
Left tilted	10	QPSK25RB_0	20525/836.5	1:1	0.470	0.09	20.47	22.00	1.422	0.668	22.1
Right cheek	10	QPSK25RB_0	20525/836.5	1:1	0.677	-0.16	20.47	22.00	1.422	0.963	22.1
Right tilted	10	QPSK25RB_0	20525/836.5	1:1	0.536	-0.03	20.47	22.00	1.422	0.762	22.1
Right cheek	10	QPSK25RB_25	20450/829	1:1	0.679	0.02	20.36	22.00	1.459	0.991	22.1
Right cheek	10	QPSK25RB_13	20600/844	1:1	0.646	0.05	20.44	22.00	1.432	0.925	22.1
Head Test data(100%RB)											
Right cheek	10	QPSK50RB_0	20600/844	1:1	0.651	-0.12	20.46	22.00	1.426	0.928	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_49	20600/844	1:1	0.094	0.14	23.48	25.00	1.419	0.133	22.1
Back side	10	QPSK 1RB_49	20600/844	1:1	0.178	-0.07	23.48	25.00	1.419	0.253	22.1



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Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_0	20525/836.5	1:1	0.080	0.12	22.44	24.00	1.432	0.115	22.1
Back side	10	QPSK25RB_0	20525/836.5	1:1	0.144	0.19	22.44	24.00	1.432	0.206	22.1
Hotspot Test data (Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.151	-0.15	23.48	25.00	1.419	0.214	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.355	-0.15	23.48	25.00	1.419	0.504	22.1
Left side	10	QPSK 1RB_25	20600/844	1:1	0.111	-0.13	23.48	25.00	1.419	0.158	22.1
Right side	10	QPSK 1RB_25	20600/844	1:1	0.096	-0.04	23.48	25.00	1.419	0.136	22.1
Top side	10	QPSK 1RB_25	20600/844	1:1	0.326	0.08	23.48	25.00	1.419	0.463	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_0	20525/836.5	1:1	0.117	0.07	22.44	24.00	1.432	0.168	22.1
Back side	10	QPSK25RB_0	20525/836.5	1:1	0.234	0.08	22.44	24.00	1.432	0.335	22.1
Left side	10	QPSK25RB_0	20525/836.5	1:1	0.094	-0.10	22.44	24.00	1.432	0.135	22.1
Right side	10	QPSK25RB_0	20525/836.5	1:1	0.080	0.15	22.44	24.00	1.432	0.115	22.1
Top side	10	QPSK25RB_0	20525/836.5	1:1	0.213	-0.10	22.44	24.00	1.432	0.305	22.1

Table 25: SAR of LTE Band 5 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	10	QPSK 1RB_25	20600/844	1:1	0.251	0.07	23.62	25.00	1.374	0.345	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK 1RB_25	20600/844	1:1	0.244	0.02	23.62	25.00	1.374	0.335	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_25	20600/844	1:1	0.349	0.01	23.62	25.00	1.374	0.480	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	10	QPSK25RB_25	20450/829	1:1	0.459	-0.03	20.36	22.00	1.459	0.670	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK 1RB_49	20600/844	1:1	0.196	-0.01	23.48	25.00	1.419	0.278	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_25	20600/844	1:1	0.244	0.03	23.48	25.00	1.419	0.346	22.1

Table 26: SAR of LTE Band 5 for Head and Body(Variant).

Note:

- 1)The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2)Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.





8.3.9 SAR Result of LTE Band 7

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	20850/2510	1:1	0.349	0.03	23.55	25.00	1.396	0.487	22.1
Left tilted	20	QPSK 1RB_50	20850/2510	1:1	0.287	-0.10	23.55	25.00	1.396	0.401	22.1
Right cheek	20	QPSK 1RB_50	20850/2510	1:1	0.209	-0.06	23.55	25.00	1.396	0.292	22.1
Right tilted	20	QPSK 1RB_50	20850/2510	1:1	0.235	0.09	23.55	25.00	1.396	0.328	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	20850/2510	1:1	0.280	0.02	22.58	24.00	1.387	0.388	22.1
Left tilted	20	QPSK 50RB_50	20850/2510	1:1	0.235	0.08	22.58	24.00	1.387	0.326	22.1
Right cheek	20	QPSK 50RB_50	20850/2510	1:1	0.141	0.06	22.58	24.00	1.387	0.196	22.1
Right tilted	20	QPSK 50RB_50	20850/2510	1:1	0.180	0.04	22.58	24.00	1.387	0.250	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_50	20850/2510	1:1	0.281	-0.17	21.91	23.00	1.285	0.361	22.1
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.347	-0.07	21.91	23.00	1.285	0.446	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.275	0.08	21.74	23.00	1.337	0.368	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.287	0.04	21.74	23.00	1.337	0.384	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	20850/2510	1:1	0.342	-0.19	19.17	20.00	1.211	0.414	22.1
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.359	0.15	19.17	20.00	1.211	0.435	22.1
Left side	20	QPSK 1RB_50	20850/2510	1:1	0.143	-0.15	19.17	20.00	1.211	0.173	22.1
Right side	20	QPSK 1RB_50	20850/2510	1:1	0.078	0.08	19.17	20.00	1.211	0.094	22.1
Bottom side	20	QPSK 1RB_50	20850/2510	1:1	0.378	0.19	19.17	20.00	1.211	0.458	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.343	-0.08	18.76	20.00	1.330	0.456	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.435	0.11	18.76	20.00	1.330	0.579	22.1
Left side	20	QPSK 50RB_50	20850/2510	1:1	0.154	0.14	18.76	20.00	1.330	0.205	22.1
Right side	20	QPSK 50RB_50	20850/2510	1:1	0.079	-0.15	18.76	20.00	1.330	0.105	22.1
Bottom side	20	QPSK 50RB_50	20850/2510	1:1	0.418	0.01	18.76	20.00	1.330	0.556	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_50	20850/2510	1:1	0.118	-0.07	16.58	17.80	1.324	0.156	22.1
Left tilted	20	QPSK 1RB_50	20850/2510	1:1	0.150	-0.04	16.58	17.80	1.324	0.199	22.1
Right cheek	20	QPSK 1RB_50	20850/2510	1:1	0.158	-0.02	16.58	17.80	1.324	0.209	22.1
Right tilted	20	QPSK 1RB_50	20850/2510	1:1	0.200	-0.09	16.58	17.80	1.324	0.265	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_50	20850/2510	1:1	0.124	-0.15	16.61	17.80	1.315	0.163	22.1
Left tilted	20	QPSK 50RB_50	20850/2510	1:1	0.177	-0.03	16.61	17.80	1.315	0.233	22.1



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Right cheek	20	QPSK 50RB_50	20850/2510	1:1	0.195	0.01	16.61	17.80	1.315	0.256	22.1
Right tilted	20	QPSK 50RB_50	20850/2510	1:1	0.288	-0.05	16.61	17.80	1.315	0.379	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_99	20850/2510	1:1	0.091	0.15	18.20	18.80	1.148	0.104	22.1
Back side	20	QPSK 1RB_99	20850/2510	1:1	0.213	-0.04	18.20	18.80	1.148	0.245	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_25	21100/2535	1:1	0.093	0.15	17.69	18.80	1.291	0.120	22.1
Back side	20	QPSK 50RB_25	21100/2535	1:1	0.213	-0.04	17.69	18.80	1.291	0.275	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	20850/2510	1:1	0.147	0.11	16.58	17.80	1.324	0.195	22.1
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.588	0.10	16.58	17.80	1.324	0.779	22.1
Left side	20	QPSK 1RB_50	20850/2510	1:1	0.056	0.11	16.58	17.80	1.324	0.074	22.1
Right side	20	QPSK 1RB_50	20850/2510	1:1	0.026	0.14	16.58	17.80	1.324	0.034	22.1
Top side	20	QPSK 1RB_50	20850/2510	1:1	0.505	0.08	16.58	17.80	1.324	0.669	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.154	0.15	16.61	17.80	1.315	0.203	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.438	-0.18	16.61	17.80	1.315	0.576	22.1
Left side	20	QPSK 50RB_50	20850/2510	1:1	0.059	0.10	16.61	17.80	1.315	0.078	22.1
Right side	20	QPSK 50RB_50	20850/2510	1:1	0.020	-0.06	16.61	17.80	1.315	0.026	22.1
Top side	20	QPSK 50RB_50	20850/2510	1:1	0.433	0.09	16.61	17.80	1.315	0.569	22.1

Table 27: SAR of LTE Band 7 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	20	QPSK 1RB_50	20850/2510	1:1	0.395	-0.01	23.55	25.00	1.396	0.552	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.369	-0.09	21.91	23.00	1.285	0.474	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.358	0.08	18.76	20.00	1.330	0.476	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right tilted	20	QPSK 50RB_50	20850/2510	1:1	0.353	0.03	16.61	17.80	1.315	0.464	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 50RB_25	21100/2535.5	1:1	0.121	0.08	17.69	18.80	1.291	0.156	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.530	0.09	16.58	17.80	1.324	0.702	22.1

Table 28: SAR of LTE Band 7 for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.





8.3.10 SAR Result of LTE Band 12

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_49	23095/707.5	1:1	0.102	0.16	23.39	25.00	1.449	0.148	22.1
Left tilted	10	QPSK 1RB_49	23095/707.5	1:1	0.056	0.06	23.39	25.00	1.449	0.081	22.1
Right cheek	10	QPSK 1RB_49	23095/707.5	1:1	0.097	0.01	23.39	25.00	1.449	0.141	22.1
Right tilted	10	QPSK 1RB_49	23095/707.5	1:1	0.051	0.07	23.39	25.00	1.449	0.074	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_25	23095/707.5	1:1	0.088	-0.12	22.31	24.00	1.476	0.130	22.1
Left tilted	10	QPSK25RB_25	23095/707.5	1:1	0.045	-0.11	22.31	24.00	1.476	0.066	22.1
Right cheek	10	QPSK25RB_25	23095/707.5	1:1	0.079	-0.06	22.31	24.00	1.476	0.117	22.1
Right tilted	10	QPSK25RB_25	23095/707.5	1:1	0.026	-0.09	22.31	24.00	1.476	0.038	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_49	23095/707.5	1:1	0.152	0.17	23.39	25.00	1.449	0.220	22.1
Back side	10	QPSK 1RB_49	23095/707.5	1:1	0.165	0.02	23.39	25.00	1.449	0.239	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_25	23095/707.5	1:1	0.124	-0.18	22.31	24.00	1.476	0.183	22.1
Back side	10	QPSK25RB_25	23095/707.5	1:1	0.168	0.02	22.31	24.00	1.476	0.248	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_49	23095/707.5	1:1	0.140	0.13	23.39	25.00	1.449	0.203	22.1
Back side	10	QPSK 1RB_49	23095/707.5	1:1	0.189	-0.01	23.39	25.00	1.449	0.274	22.1
Left side	10	QPSK 1RB_49	23095/707.5	1:1	0.136	0.11	23.39	25.00	1.449	0.197	22.1
Right side	10	QPSK 1RB_49	23095/707.5	1:1	0.180	0.03	23.39	25.00	1.449	0.261	22.1
Bottom side	10	QPSK 1RB_49	23095/707.5	1:1	0.121	0.06	23.39	25.00	1.449	0.175	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_25	23095/707.5	1:1	0.114	0.11	22.31	24.00	1.476	0.168	22.1
Back side	10	QPSK25RB_25	23095/707.5	1:1	0.178	-0.18	22.31	24.00	1.476	0.263	22.1
Left side	10	QPSK25RB_25	23095/707.5	1:1	0.108	-0.12	22.31	24.00	1.476	0.159	22.1
Right side	10	QPSK25RB_25	23095/707.5	1:1	0.145	0.03	22.31	24.00	1.476	0.214	22.1
Bottom side	10	QPSK25RB_25	23095/707.5	1:1	0.106	0.05	22.31	24.00	1.476	0.156	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_49	23095/707.5	1:1	0.489	0.03	23.52	24.80	1.343	0.657	22.1
Left tilted	10	QPSK 1RB_49	23095/707.5	1:1	0.466	0.15	23.52	24.80	1.343	0.626	22.1
Right cheek	10	QPSK 1RB_49	23095/707.5	1:1	0.533	0.01	23.52	24.80	1.343	0.716	22.1
Right tilted	10	QPSK 1RB_49	23095/707.5	1:1	0.537	-0.15	23.52	24.80	1.343	0.721	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_25	23095/707.5	1:1	0.413	0.07	22.45	23.80	1.365	0.564	22.1
Left tilted	10	QPSK25RB_25	23095/707.5	1:1	0.391	0.10	22.45	23.80	1.365	0.534	22.1
Right cheek	10	QPSK25RB_25	23095/707.5	1:1	0.507	0.16	22.45	23.80	1.365	0.692	22.1
Right tilted	10	QPSK25RB_25	23095/707.5	1:1	0.443	0.15	22.45	23.80	1.365	0.605	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_49	23095/707.5	1:1	0.138	0.06	23.52	24.80	1.343	0.185	22.1
Back side	10	QPSK 1RB_49	23095/707.5	1:1	0.184	0.06	23.52	24.80	1.343	0.247	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_25	23095/707.5	1:1	0.115	0.12	22.45	23.80	1.365	0.157	22.1
Back side	10	QPSK25RB_25	23095/707.5	1:1	0.175	0.03	22.45	23.80	1.365	0.239	22.1
Hotspot Test data(Separate 10mm 1RB)											



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Front side	10	QPSK 1RB_0	23095/707.5	1:1	0.127	-0.15	23.52	24.80	1.343	0.171	22.1
Back side	10	QPSK 1RB_0	23095/707.5	1:1	0.216	0.01	23.52	24.80	1.343	0.290	22.1
Left side	10	QPSK 1RB_0	23095/707.5	1:1	0.158	-0.08	23.52	24.80	1.343	0.212	22.1
Right side	10	QPSK 1RB_0	23095/707.5	1:1	0.131	-0.11	23.52	24.80	1.343	0.176	22.1
Top side	10	QPSK 1RB_0	23095/707.5	1:1	0.206	-0.06	23.52	24.80	1.343	0.277	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_0	23095/707.5	1:1	0.107	0.09	22.45	23.80	1.365	0.146	22.1
Back side	10	QPSK25RB_0	23095/707.5	1:1	0.206	-0.03	22.45	23.80	1.365	0.281	22.1
Left side	10	QPSK25RB_0	23095/707.5	1:1	0.132	0.03	22.45	23.80	1.365	0.180	22.1
Right side	10	QPSK25RB_0	23095/707.5	1:1	0.109	-0.01	22.45	23.80	1.365	0.149	22.1
Top side	10	QPSK25RB_0	23095/707.5	1:1	0.202	0.05	22.45	23.80	1.365	0.276	22.1

Table 29: SAR of LTE Band 12 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	10	QPSK 1RB_49	23095/707.5	1:1	0.124	0.05	23.39	25.00	1.449	0.180	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK25RB_25	23095/707.5	1:1	0.129	-0.03	22.31	24.00	1.476	0.190	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_49	23095/707.5	1:1	0.181	-0.07	23.39	25.00	1.449	0.262	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right tilted	10	QPSK 1RB_49	23095/707.5	1:1	0.351	-0.01	23.52	24.80	1.343	0.471	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK 1RB_49	23095/707.5	1:1	0.169	-0.18	23.52	24.80	1.343	0.227	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_0	23095/707.5	1:1	0.197	-0.09	23.52	24.80	1.343	0.265	22.1

Table 30: SAR of LTE Band 12 for Head and Body(Variant).

Note:

- 4) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 5) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 6) Per KDB648474D04, 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.



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8.3.11 SAR Result of LTE Band 17

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	23790/710	1:1	0.106	-0.04	23.31	25.00	1.476	0.156	22.1
Left tilted	10	QPSK 1RB_25	23790/710	1:1	0.064	-0.16	23.31	25.00	1.476	0.094	22.1
Right cheek	10	QPSK 1RB_25	23790/710	1:1	0.102	0.03	23.31	25.00	1.476	0.151	22.1
Right tilted	10	QPSK 1RB_25	23790/710	1:1	0.060	-0.04	23.31	25.00	1.476	0.089	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_0	23800/711	1:1	0.093	-0.18	22.19	24.00	1.517	0.141	22.1
Left tilted	10	QPSK 25RB_0	23800/711	1:1	0.054	-0.03	22.19	24.00	1.517	0.082	22.1
Right cheek	10	QPSK 25RB_0	23800/711	1:1	0.082	0.17	22.19	24.00	1.517	0.124	22.1
Right tilted	10	QPSK 25RB_0	23800/711	1:1	0.049	-0.04	22.19	24.00	1.517	0.074	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	23790/710	1:1	0.171	0.03	23.31	25.00	1.476	0.252	22.1
Back side	10	QPSK 1RB_25	23790/710	1:1	0.194	-0.12	23.31	25.00	1.476	0.286	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_0	23800/711	1:1	0.133	-0.12	22.19	24.00	1.517	0.202	22.1
Back side	10	QPSK 25RB_0	23800/711	1:1	0.191	0.10	22.19	24.00	1.517	0.290	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	23790/710	1:1	0.149	-0.04	23.31	25.00	1.476	0.220	22.1
Back side	10	QPSK 1RB_25	23790/710	1:1	0.208	0.00	23.31	25.00	1.476	0.307	22.1
Left side	10	QPSK 1RB_25	23790/710	1:1	0.152	-0.18	23.31	25.00	1.476	0.224	22.1
Right side	10	QPSK 1RB_25	23790/710	1:1	0.199	-0.04	23.31	25.00	1.476	0.294	22.1
Bottom side	10	QPSK 1RB_25	23790/710	1:1	0.123	-0.09	23.31	25.00	1.476	0.182	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_0	23800/711	1:1	0.119	0.00	22.19	24.00	1.517	0.181	22.1
Back side	10	QPSK 25RB_0	23800/711	1:1	0.189	-0.13	22.19	24.00	1.517	0.287	22.1
Left side	10	QPSK 25RB_0	23800/711	1:1	0.121	0.13	22.19	24.00	1.517	0.184	22.1
Right side	10	QPSK 25RB_0	23800/711	1:1	0.159	0.08	22.19	24.00	1.517	0.241	22.1
Bottom side	10	QPSK 25RB_0	23800/711	1:1	0.100	-0.12	22.19	24.00	1.517	0.152	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	10	QPSK 1RB_25	23790/710	1:1	0.307	-0.18	23.15	24.80	1.462	0.449	22.1
Left tilted	10	QPSK 1RB_25	23790/710	1:1	0.299	-0.07	23.15	24.80	1.462	0.437	22.1
Right cheek	10	QPSK 1RB_25	23790/710	1:1	0.360	0.15	23.15	24.80	1.462	0.526	22.1
Right tilted	10	QPSK 1RB_25	23790/710	1:1	0.362	0.13	23.15	24.80	1.462	0.529	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB_0	23780/709	1:1	0.282	0.00	22.09	23.80	1.483	0.418	22.1
Left tilted	10	QPSK 25RB_0	23780/709	1:1	0.250	0.14	22.09	23.80	1.483	0.371	22.1
Right cheek	10	QPSK 25RB_0	23780/709	1:1	0.368	0.15	22.09	23.80	1.483	0.546	22.1
Right tilted	10	QPSK 25RB_0	23780/709	1:1	0.301	-0.15	22.09	23.80	1.483	0.446	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	23790/710	1:1	0.087	-0.08	23.15	24.80	1.462	0.127	22.1
Back side	10	QPSK 1RB_25	23790/710	1:1	0.123	0.05	23.15	24.80	1.462	0.180	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB_0	23780/709	1:1	0.073	-0.10	22.09	23.80	1.483	0.108	22.1
Back side	10	QPSK 25RB_0	23780/709	1:1	0.116	-0.19	22.09	23.80	1.483	0.172	22.1
Hotspot Test data(Separate 10mm 1RB)											



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Front side	10	QPSK 1RB_25	23790/710	1:1	0.077	0.04	23.15	24.80	1.462	0.113	22.1
Back side	10	QPSK 1RB_25	23790/710	1:1	0.147	0.05	23.15	24.80	1.462	0.215	22.1
Left side	10	QPSK 1RB_25	23790/710	1:1	0.102	-0.04	23.15	24.80	1.462	0.149	22.1
Right side	10	QPSK 1RB_25	23790/710	1:1	0.081	0.12	23.15	24.80	1.462	0.118	22.1
Top side	10	QPSK 1RB_25	23790/710	1:1	0.119	-0.15	23.15	24.80	1.462	0.174	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB_0	23780/709	1:1	0.066	0.12	22.09	23.80	1.483	0.098	22.1
Back side	10	QPSK 25RB_0	23780/709	1:1	0.138	0.05	22.09	23.80	1.483	0.205	22.1
Left side	10	QPSK 25RB_0	23780/709	1:1	0.083	-0.19	22.09	23.80	1.483	0.123	22.1
Right side	10	QPSK 25RB_0	23780/709	1:1	0.068	0.06	22.09	23.80	1.483	0.101	22.1
Top side	10	QPSK 25RB_0	23780/709	1:1	0.116	0.00	22.09	23.80	1.483	0.172	22.1

Table 31: SAR of LTE Band 17 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	10	QPSK 1RB_25	23790/710	1:1	0.136	0.02	23.31	25.00	1.476	0.201	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK 25RB_0	23800/711	1:1	0.170	-0.06	22.19	24.00	1.517	0.258	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_25	23790/710	1:1	0.211	-0.08	23.31	25.00	1.476	0.311	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	10	QPSK 25RB_0	23780/709	1:1	0.319	-0.01	22.09	23.80	1.483	0.473	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	10	QPSK 1RB_25	23790/710	1:1	0.110	-0.11	23.15	24.80	1.462	0.161	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	10	QPSK 1RB_25	23790/710	1:1	0.129	-0.15	23.15	24.80	1.462	0.189	22.1

Table 32: SAR of LTE Band 17 for Head and Body(Variant).

Note:

- 7) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 8) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 9) Per KDB648474D04, 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.



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8.3.12 SAR Result of LTE Band 26

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	15	QPSK 1RB_74	26865/831.5	1:1	0.184	0.06	23.22	25.00	1.507	0.277	22.1
Left tilted	15	QPSK 1RB_74	26865/831.5	1:1	0.092	-0.14	23.22	25.00	1.507	0.139	22.1
Right cheek	15	QPSK 1RB_74	26865/831.5	1:1	0.181	-0.04	23.22	25.00	1.507	0.273	22.1
Right tilted	15	QPSK 1RB_74	26865/831.5	1:1	0.093	0.08	23.22	25.00	1.507	0.140	22.1
Head Test data(50%RB)											
Left cheek	15	QPSK 36RB_0	26865/831.5	1:1	0.154	-0.19	22.13	24.00	1.538	0.237	22.1
Left tilted	15	QPSK 36RB_0	26865/831.5	1:1	0.079	-0.03	22.13	24.00	1.538	0.122	22.1
Right cheek	15	QPSK 36RB_0	26865/831.5	1:1	0.156	0.03	22.13	24.00	1.538	0.240	22.1
Right tilted	15	QPSK 36RB_0	26865/831.5	1:1	0.081	0.04	22.13	24.00	1.538	0.125	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1RB_74	26865/831.5	1:1	0.162	-0.02	23.22	25.00	1.507	0.244	22.1
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.201	0.01	23.22	25.00	1.507	0.303	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	15	QPSK 36RB_0	26865/831.5	1:1	0.141	0.00	22.13	24.00	1.538	0.217	22.1
Back side	15	QPSK 36RB_0	26865/831.5	1:1	0.176	0.01	22.13	24.00	1.538	0.271	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1RB_74	26865/831.5	1:1	0.173	-0.04	23.22	25.00	1.507	0.261	22.1
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.352	0.01	23.22	25.00	1.507	0.530	22.1
Left side	15	QPSK 1RB_74	26865/831.5	1:1	0.115	-0.07	23.22	25.00	1.507	0.173	22.1
Right side	15	QPSK 1RB_74	26865/831.5	1:1	0.167	0.08	23.22	25.00	1.507	0.252	22.1
Bottom side	15	QPSK 1RB_74	26865/831.5	1:1	0.192	0.03	23.22	25.00	1.507	0.289	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	15	QPSK 36RB_0	26865/831.5	1:1	0.147	-0.06	22.13	24.00	1.538	0.226	22.1
Back side	15	QPSK 36RB_0	26865/831.5	1:1	0.245	0.17	22.13	24.00	1.538	0.377	22.1
Left side	15	QPSK 36RB_0	26865/831.5	1:1	0.100	-0.02	22.13	24.00	1.538	0.154	22.1
Right side	15	QPSK 36RB_0	26865/831.5	1:1	0.145	0.11	22.13	24.00	1.538	0.223	22.1
Bottom side	15	QPSK 36RB_0	26865/831.5	1:1	0.157	-0.15	22.13	24.00	1.538	0.241	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	15	QPSK 1RB_74	26865/831.5	1:1	0.478	-0.01	22.66	23.50	1.213	0.580	22.1
Left tilted	15	QPSK 1RB_74	26865/831.5	1:1	0.354	-0.18	22.66	23.50	1.213	0.430	22.1
Right cheek	15	QPSK 1RB_74	26865/831.5	1:1	0.539	-0.01	22.66	23.50	1.213	0.654	22.1
Right tilted	15	QPSK 1RB_74	26865/831.5	1:1	0.378	0.08	22.66	23.50	1.213	0.459	22.1
Head Test data(50%RB)											
Left cheek	15	QPSK 36RB_39	26765/821.5	1:1	0.504	0.18	22.56	23.50	1.242	0.626	22.1
Left tilted	15	QPSK 36RB_39	26765/821.5	1:1	0.462	0.18	22.56	23.50	1.242	0.574	22.1
Right cheek	15	QPSK 36RB_39	26765/821.5	1:1	0.563	0.00	22.56	23.50	1.242	0.699	22.1
Right tilted	15	QPSK 36RB_39	26765/821.5	1:1	0.525	0.14	22.56	23.50	1.242	0.652	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1RB_74	26865/831.5	1:1	0.090	0.19	23.59	25.00	1.384	0.125	22.1
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.207	0.09	23.59	25.00	1.384	0.286	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	15	QPSK 36RB_0	26765/821.5	1:1	0.080	0.19	22.48	24.00	1.419	0.114	22.1
Back side	15	QPSK 36RB_0	26765/821.5	1:1	0.144	0.01	22.48	24.00	1.419	0.204	22.1
Hotspot Test data(Separate 10mm 1RB)											



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Front side	15	QPSK 1RB_74	26865/831.5	1:1	0.146	0.05	22.66	23.50	1.213	0.177	22.1
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.304	0.07	22.66	23.50	1.213	0.369	22.1
Left side	15	QPSK 1RB_74	26865/831.5	1:1	0.107	0.11	22.66	23.50	1.213	0.130	22.1
Right side	15	QPSK 1RB_74	26865/831.5	1:1	0.093	0.19	22.66	23.50	1.213	0.113	22.1
Top side	15	QPSK 1RB_74	26865/831.5	1:1	0.226	-0.13	22.66	23.50	1.213	0.274	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	15	QPSK 36RB_39	26765/821.5	1:1	0.118	0.10	22.56	23.50	1.242	0.147	22.1
Back side	15	QPSK 36RB_39	26765/821.5	1:1	0.233	0.12	22.56	23.50	1.242	0.289	22.1
Left side	15	QPSK 36RB_39	26765/821.5	1:1	0.094	0.03	22.56	23.50	1.242	0.117	22.1
Right side	15	QPSK 36RB_39	26765/821.5	1:1	0.080	0.13	22.56	23.50	1.242	0.099	22.1
Top side	15	QPSK 36RB_39	26765/821.5	1:1	0.168	-0.17	22.56	23.50	1.242	0.209	22.1

Table 33: SAR of LTE Band 26 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	15	QPSK 1RB_74	26865/831.5	1:1	0.241	0.05	23.22	25.00	1.507	0.363	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.233	0.01	23.22	25.00	1.507	0.351	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.385	0.03	23.22	25.00	1.507	0.580	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	15	QPSK 36RB_39	26765/821.5	1:1	0.630	-0.06	22.56	23.50	1.242	0.782	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.214	-0.04	23.59	25.00	1.384	0.296	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	15	QPSK 1RB_74	26865/831.5	1:1	0.269	0.01	22.66	23.50	1.213	0.326	22.1

Table 34: SAR of LTE Band 26 for Head and Body(Variant).

Note:

- 10) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 11) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 12) Per KDB648474D04, 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.





8.3.13 SAR Result of LTE Band 38

Ant0 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB_0	38000/2595	1:1.58	0.207	0.01	23.56	25.00	1.393	0.288	22.1
Left tilted	20	QPSK 1RB_0	38000/2595	1:1.58	0.143	0.10	23.56	25.00	1.393	0.199	22.1
Right cheek	20	QPSK 1RB_0	38000/2595	1:1.58	0.116	0.03	23.56	25.00	1.393	0.162	22.1
Right tilted	20	QPSK 1RB_0	38000/2595	1:1.58	0.125	0.06	23.56	25.00	1.393	0.174	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_25	38150/2610	1:1.58	0.164	0.06	22.53	24.00	1.403	0.230	22.1
Left tilted	20	QPSK 50RB_25	38150/2610	1:1.58	0.115	0.04	22.53	24.00	1.403	0.161	22.1
Right cheek	20	QPSK 50RB_25	38150/2610	1:1.58	0.084	0.09	22.53	24.00	1.403	0.118	22.1
Right tilted	20	QPSK 50RB_25	38150/2610	1:1.58	0.109	-0.08	22.53	24.00	1.403	0.153	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_0	38000/2595	1:1.58	0.224	0.10	23.56	25.00	1.393	0.312	22.1
Back side	20	QPSK 1RB_0	38000/2595	1:1.58	0.239	0.07	23.56	25.00	1.393	0.333	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_25	38150/2610	1:1.58	0.178	0.11	22.53	24.00	1.403	0.250	22.1
Back side	20	QPSK 50RB_25	38150/2610	1:1.58	0.184	0.06	22.53	24.00	1.403	0.258	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	38000/2595	1:1.58	0.239	0.18	21.66	23.00	1.361	0.325	22.1
Back side	20	QPSK 1RB_50	38000/2595	1:1.58	0.250	-0.14	21.66	23.00	1.361	0.340	22.1
Left side	20	QPSK 1RB_50	38000/2595	1:1.58	0.121	-0.06	21.66	23.00	1.361	0.165	22.1
Right side	20	QPSK 1RB_50	38000/2595	1:1.58	0.045	-0.04	21.66	23.00	1.361	0.061	22.1
Bottom side	20	QPSK 1RB_50	38000/2595	1:1.58	0.243	0.18	21.66	23.00	1.361	0.331	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	38150/2610	1:1.58	0.239	-0.09	21.62	23.00	1.374	0.328	22.1
Back side	20	QPSK 50RB_0	38150/2610	1:1.58	0.259	0.17	21.62	23.00	1.374	0.356	22.1
Left side	20	QPSK 50RB_0	38150/2610	1:1.58	0.119	0.16	21.62	23.00	1.374	0.164	22.1
Right side	20	QPSK 50RB_0	38150/2610	1:1.58	0.046	-0.13	21.62	23.00	1.374	0.063	22.1
Bottom side	20	QPSK 50RB_0	38150/2610	1:1.58	0.247	-0.15	21.62	23.00	1.374	0.339	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test data(1RB)											
Left cheek	20	QPSK 1RB50	38000/2595	1:1.58	0.179	0.03	18.76	20.20	1.393	0.249	22.1
Left tilted	20	QPSK 1RB50	38000/2595	1:1.58	0.200	0.07	18.76	20.20	1.393	0.279	22.1
Right cheek	20	QPSK 1RB50	38000/2595	1:1.58	0.378	-0.01	18.76	20.20	1.393	0.527	22.1
Right tilted	20	QPSK 1RB50	38000/2595	1:1.58	0.341	-0.02	18.76	20.20	1.393	0.475	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	38000/2595	1:1.58	0.019	0.01	18.80	20.20	1.380	0.026	22.1
Left tilted	20	QPSK 50RB_0	38000/2595	1:1.58	0.210	0.01	18.80	20.20	1.380	0.290	22.1
Right cheek	20	QPSK 50RB_0	38000/2595	1:1.58	0.361	-0.01	18.80	20.20	1.380	0.498	22.1
Right tilted	20	QPSK 50RB_0	38000/2595	1:1.58	0.344	-0.04	18.80	20.20	1.380	0.475	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB50	38000/2595	1:1.58	0.091	-0.13	20.76	22.20	1.393	0.127	22.1
Back side	20	QPSK 1RB50	38000/2595	1:1.58	0.193	0.08	20.76	22.20	1.393	0.269	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_0	38000/2595	1:1.58	0.071	0.12	20.77	22.20	1.390	0.099	22.1
Back side	20	QPSK 50RB_0	38000/2595	1:1.58	0.139	0.13	20.77	22.20	1.390	0.193	22.1
Hotspot Test data(Separate 10mm 1RB)											



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Front side	20	QPSK 1RB50	38000/2595	1:1.58	0.176	0.06	18.76	20.20	1.393	0.245	22.1
Back side	20	QPSK 1RB50	38000/2595	1:1.58	0.375	0.06	18.76	20.20	1.393	0.522	22.1
Left side	20	QPSK 1RB50	38000/2595	1:1.58	0.052	0.00	18.76	20.20	1.393	0.072	22.1
Right side	20	QPSK 1RB50	38000/2595	1:1.58	0.048	0.14	18.76	20.20	1.393	0.067	22.1
Top side	20	QPSK 1RB50	38000/2595	1:1.58	0.391	0.05	18.76	20.20	1.393	0.545	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	38000/2595	1:1.58	0.138	0.11	18.80	20.20	1.380	0.190	22.1
Back side	20	QPSK 50RB_0	38000/2595	1:1.58	0.324	-0.14	18.80	20.20	1.380	0.447	22.1
Left side	20	QPSK 50RB_0	38000/2595	1:1.58	0.044	-0.06	18.80	20.20	1.380	0.061	22.1
Right side	20	QPSK 50RB_0	38000/2595	1:1.58	0.029	0.01	18.80	20.20	1.380	0.040	22.1
Top side	20	QPSK 50RB_0	38000/2595	1:1.58	0.337	0.02	18.80	20.20	1.380	0.465	22.1

Table 35: SAR of LTE Band 38 for Head and Body(original report AR/2020/8000508).



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Ant0 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	20	QPSK 1RB_0	38000/2595	1:1.58	0.221	0.11	23.56	25.00	1.393	0.308	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 1RB_0	38000/2595	1:1.58	0.311	-0.08	23.56	25.00	1.393	0.433	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Back side	20	QPSK 50RB_0	38150/2610	1:1.58	0.348	-0.04	21.62	23.00	1.374	0.478	22.1
Ant1 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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Right cheek	20	QPSK 1RB50	38000/2595	1:1.58	0.409	-0.02	18.76	20.20	1.393	0.570	22.1
Body worn Test data at the worst case(Separate 15mm)											
Back side	20	QPSK 1RB50	38000/2595	1:1.58	0.178	0.09	20.76	22.20	1.393	0.248	22.1
Hotspot Test data at the worst case(Separate 10mm)											
Top side	20	QPSK 1RB50	38000/2595	1:1.58	0.234	-0.02	18.76	20.20	1.393	0.326	22.1

Table 36: SAR of LTE Band 38 for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.



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8.3.14 SAR Result of WIFI 2.4G

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(W/kg)	Liquid Temp.
Head Test data											
Left cheek	802.11b	6/2437	99.55%	1.005	0.533	-0.03	17.12	18.00	1.225	0.656	22
Left tilted	802.11b	6/2437	99.55%	1.005	0.481	0.09	17.12	18.00	1.225	0.592	22
Right cheek	802.11b	6/2437	99.55%	1.005	0.306	0.01	17.12	18.00	1.225	0.376	22
Right tilted	802.11b	6/2437	99.55%	1.005	0.260	-0.19	17.12	18.00	1.225	0.320	22
Body worn Test data(Separate 15mm)											
Front side	802.11b	6/2437	99.55%	1.005	0.162	-0.01	19.03	20.00	1.250	0.203	22
Back side	802.11b	6/2437	99.55%	1.005	0.212	0.10	19.03	20.00	1.250	0.266	22
Hotspot Test data (Separate 10mm)											
Front side	802.11b	6/2437	99.55%	1.005	0.256	0.06	19.03	20.00	1.250	0.322	22
Back side	802.11b	6/2437	99.55%	1.005	0.404	-0.08	19.03	20.00	1.250	0.507	22
Right side	802.11b	6/2437	99.55%	1.005	0.270	0.02	19.03	20.00	1.250	0.339	22
Top side	802.11b	6/2437	99.55%	1.005	0.207	0.01	19.03	20.00	1.250	0.260	22

Table 37: SAR of WIFI 2.4G for Head and Body(original report AR/2020/8000508).





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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	802.11b	6/2437	99.55%	1.005	0.698	0.15	17.12	18.00	1.225	0.859	22
Left cheek	802.11b	1/2412	99.55%	1.005	0.484	0.03	16.96	18.00	1.271	0.618	22
Left cheek	802.11b	11/2462	99.55%	1.005	0.542	-0.10	16.87	18.00	1.297	0.706	22
Body worn Test data at the worst case(Separate 15mm)											
Back side	802.11b	6/2437	99.55%	1.005	0.173	0.02	19.03	20.00	1.250	0.217	22
Hotspot Test data at the worst case(Separate 10mm)											
Back side	802.11b	6/2437	99.55%	1.005	0.408	0.19	19.03	20.00	1.250	0.512	22

Table 38: SAR of WIFI 2.4G for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 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 ≤ 1.2 W/kg, SAR test for the other 802.11 modes are not required.



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8.3.15 SAR Result of WIFI 5G

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(W/kg)	Liquid Temp.
Head Test data of U-NII-1											
Left cheek	802.11a	48/5240	96.90%	1.032	0.670	-0.01	16.91	17.00	1.021	0.706	22.2
Left tilted	802.11a	48/5240	96.90%	1.032	0.811	0.04	16.91	17.00	1.021	0.854	22.2
Right cheek	802.11a	48/5240	96.90%	1.032	0.309	0.12	16.91	17.00	1.021	0.326	22.2
Right tilted	802.11a	48/5240	96.90%	1.032	0.420	-0.07	16.91	17.00	1.021	0.442	22.2
Left tilted	802.11a	36/5180	96.90%	1.032	0.847	0.04	16.87	17.00	1.030	0.901	22.2
Left tilted	802.11a	44/5220	96.90%	1.032	0.725	0.08	16.86	17.00	1.033	0.773	22.2
Head Test data of U-NII-2C											
Left cheek	802.11n-HT40	134/5670	94.68%	1.056	0.177	0.07	14.58	15.00	1.102	0.206	22.2
Left tilted	802.11n-HT40	134/5670	94.68%	1.056	0.279	0.19	14.58	15.00	1.102	0.325	22.2
Right cheek	802.11n-HT40	134/5670	94.68%	1.056	0.188	0.05	14.58	15.00	1.102	0.219	22.2
Right tilted	802.11n-HT40	134/5670	94.68%	1.056	0.267	0.07	14.58	15.00	1.102	0.311	22.2
Head Test data of U-NII-3											
Left cheek	802.11a	157/5785	96.90%	1.032	0.557	-0.01	18.56	19.00	1.107	0.636	22.2
Left tilted	802.11a	157/5785	96.90%	1.032	0.637	0.09	18.56	19.00	1.107	0.727	22.2
Right cheek	802.11a	157/5785	96.90%	1.032	0.391	-0.05	18.56	19.00	1.107	0.447	22.2
Right tilted	802.11a	157/5785	96.90%	1.032	0.442	0.14	18.56	19.00	1.107	0.505	22.2
Body worn Test data of U-NII-1(Separate 15mm)											
Front side	802.11a	48/5240	96.90%	1.032	0.025	-0.03	17.83	18.00	1.040	0.027	22.2
Back side	802.11a	48/5240	96.90%	1.032	0.452	0.00	17.83	18.00	1.040	0.485	22.2
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11n-HT40	134/5670	94.68%	1.056	0.011	0.00	14.58	15.00	1.102	0.013	22.2
Back side	802.11n-HT40	134/5670	94.68%	1.056	0.136	0.05	14.58	15.00	1.102	0.158	22.2
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11a	157/5785	96.90%	1.032	0.058	0.07	18.35	19.00	1.161	0.070	22.2
Back side	802.11a	157/5785	96.90%	1.032	0.382	0.09	18.35	19.00	1.161	0.458	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11a	48/5240	96.90%	1.032	0.111	0.09	16.91	17.00	1.021	0.117	22.2
Back side	802.11a	48/5240	96.90%	1.032	0.764	-0.08	16.91	17.00	1.021	0.805	22.2
Right side	802.11a	48/5240	96.90%	1.032	0.195	-0.18	16.91	17.00	1.021	0.205	22.2
Top side	802.11a	48/5240	96.90%	1.032	0.738	-0.13	16.91	17.00	1.021	0.778	22.2
Back side	802.11a	44/5220	96.90%	1.032	0.767	0.05	16.86	17.00	1.033	0.817	22.2
Back side	802.11a	36/5180	96.90%	1.032	0.683	-0.11	16.73	17.00	1.064	0.750	22.2
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11a	157/5785	96.90%	1.032	0.097	0.02	18.56	19.00	1.107	0.111	22.2
Back side	802.11a	157/5785	96.90%	1.032	0.547	0.08	18.56	19.00	1.107	0.625	22.2
Right side	802.11a	157/5785	96.90%	1.032	0.399	0.04	18.56	19.00	1.107	0.456	22.2
Top side	802.11a	157/5785	96.90%	1.032	0.496	0.07	18.56	19.00	1.107	0.566	22.2
Test position	Test mode	Test Ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg)10-g	Power drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11a	52/5260	96.90%	1.032	0.300	0.09	16.97	17.00	1.007	0.312	22.2
Back side	802.11a	52/5260	96.90%	1.032	0.902	0.16	16.97	17.00	1.007	0.937	22.2
Right side	802.11a	52/5260	96.90%	1.032	0.313	0.01	16.97	17.00	1.007	0.325	22.2
Top side	802.11a	52/5260	96.90%	1.032	1.600	0.02	16.97	17.00	1.007	1.663	22.2
Product specific 10g SAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11n-HT40	134/5670	94.68%	1.056	0.066	0.00	14.58	15.00	1.102	0.077	22.2
Back side	802.11n-HT40	134/5670	94.68%	1.056	0.386	0.00	14.58	15.00	1.102	0.449	22.2



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Right side	802.11n-HT40	134/5670	94.68%	1.056	0.163	-0.18	14.58	15.00	1.102	0.190	22.2
Top side	802.11n-HT40	134/5670	94.68%	1.056	0.546	0.06	14.58	15.00	1.102	0.635	22.2
Additional Test data(simultaneous transmission with (WWAN+WiFi 5G/WiFi 5G+BT)											
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(W/kg)	Liquid Temp.
Head Test data of U-NII-1											
Left tilted	802.11a	48/5240	96.90%	1.032	0.682	-0.05	16.49	16.50	1.002	0.705	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11a	44/5220	96.90%	1.032	0.485	0.02	14.88	15.00	1.028	0.515	22.2

Table 39: SAR of WIFI 5G for Head, Body and Product specific 10g SAR(original report AR/2020/8000508).



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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(W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left tilted	802.11a	36/5180	96.90%	1.032	0.851	0.04	16.87	17.00	1.030	0.905	22.2
Body worn Test data at the worst case(Separate 15mm)											
Back side	802.11a	48/5240	96.90%	1.032	0.444	0.05	17.83	18.00	1.040	0.476	22.2
Hotspot Test data at the worst case(Separate 10mm)											
Back side	802.11a	44/5220	96.90%	1.032	0.732	0.05	16.86	17.00	1.033	0.780	22.2
Test position	Test mode	Test Ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg)10-g	Power drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Product specific 10g SAR Test data at the worst case(Separate 0mm)											
Top side	802.11a	52/5260	96.90%	1.032	1.220	-0.12	16.97	17.00	1.007	1.268	22.2

Table 40: SAR of WIFI 5G for Head, Body and Product specific 10g SAR(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Each channel was tested at the lowest data rate.
- 4) 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 ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration.
- 5) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.
- 6) 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.

Test Position	Channel/ Frequency (MHz)	Measured SAR (1g)	1 st Repeated SAR (1g)	Ratio	2 nd Repeated SAR (1g)	3 rd Repeated SAR (1g)
Left tilted	36/5180	0.847	0.835	1.014	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was preformed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was 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						





8.3.16 SAR Result of BT

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 (W/kg)	Liquid Temp.
Head Test data											
Left cheek	DH5	39/2441	76.73%	1.303	0.041	0.04	9.34	11.00	1.466	0.078	22.0
Left tilted	DH5	39/2441	76.73%	1.303	0.040	-0.08	9.34	11.00	1.466	0.076	22.0
Right cheek	DH5	39/2441	76.73%	1.302	0.023	0.07	9.34	11.00	1.466	0.043	22.0
Right tilted	DH5	39/2441	76.73%	1.303	0.021	-0.04	9.34	11.00	1.466	0.040	22.0
Body worn Test data (Separate 15mm)											
Front side	DH5	39/2441	76.73%	1.303	0.005	-0.09	9.34	11.00	1.466	0.010	22.0
Back side	DH5	39/2441	76.73%	1.303	0.006	0.09	9.34	11.00	1.466	0.012	22.0
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	76.73%	1.303	0.010	-0.09	9.34	11.00	1.466	0.019	22.0
Back side	DH5	39/2441	76.73%	1.303	0.013	-0.01	9.34	11.00	1.466	0.025	22.0
Right side	DH5	39/2441	76.73%	1.303	0.013	0.03	9.34	11.00	1.466	0.024	22.0
Top side	DH5	39/2441	76.73%	1.303	0.009	-0.02	9.34	11.00	1.466	0.017	22.0

Table 41: SAR of BT for Head and Body(original report AR/2020/8000508).

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 (W/kg)	Liquid Temp.
Head Test Data at the worst case											
Left cheek	DH5	39/2441	76.73%	1.303	0.039	-0.03	9.34	11.00	1.466	0.075	22.0
Body worn Test data at the worst case(Separate 15mm)											
Back side	DH5	39/2441	76.73%	1.303	0.004	-0.05	9.34	11.00	1.466	0.008	22.0
Hotspot Test data at the worst case(Separate 10mm)											
Back side	DH5	39/2441	76.73%	1.303	0.013	-0.01	9.34	11.00	1.466	0.025	22.0

Table 42: SAR of BT for Head and Body(Variant).

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Per FCC KDB Publication 447498 D01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s).
- 3) Per KDB648474D04, 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.





8.4 Multiple Transmitter Evaluation

8.4.1 Simultaneous SAR test evaluation

- Simultaneous Transmission Possibilities

NO	Simultaneous TX Combination	Head	Body-worn	Hotspot	Product Specific 10-g (0mm)
1	WWAN+BT	Y	Y	Y	Y
2	WWAN+WIFI 2.4G	Y	Y	Y	Y
3	WWAN+WIFI 5G	Y	Y	Y	Y
4	WWAN+BT+WIFI 5G	Y	Y	Y	Y
5	BT+WIFI 5G	Y	Y	Y	Y

Note:

- The device does not support DTM function.
- For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.



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8.4.2 Simultaneous Transmission SAR Summation Scenario

Simultaneous Transmission SAR Summation Scenario for WLAN Head:

Test position		Ant0 SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G	WiFi 5G	BT						
		1														2	3	4					
Head	Left cheek	0.269	0.060	0.206	0.113	0.334	0.138	0.114	0.345	0.552	0.180	0.201	0.363	0.308	0.859	0.706	0.078	1.411	1.258	0.630	1.336	0.784	
	Left tilted	0.152	0.040	0.176	0.090	0.183	0.120	0.080	0.129	0.401	0.081	0.094	0.139	0.199	0.592	0.905	0.076	0.993	1.306	0.477	1.382	0.981	
	Right cheek	0.289	0.068	0.244	0.207	0.365	0.158	0.185	0.256	0.292	0.141	0.151	0.273	0.162	0.376	0.447	0.043	0.741	0.812	0.408	0.855	0.490	
	Right tilted	0.177	0.044	0.159	0.091	0.199	0.129	0.088	0.131	0.328	0.074	0.089	0.140	0.174	0.320	0.442	0.040	0.648	0.770	0.368	0.810	0.482	

Test position		Ant1 SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G Ant0	WiFi 5G	BT						
		1														2	4	6					
Head	Left cheek	0.720	0.548	0.593	0.652	0.688	0.525	0.606	0.728	0.163	0.657	0.449	0.626	0.249	0.859	0.706	0.078	1.587	1.434	0.806	1.512	0.784	
	Left tilted	0.530	0.762	0.785	0.790	0.528	0.699	0.789	0.668	0.233	0.626	0.437	0.574	0.290	0.592	0.727	0.076	1.382	1.517	0.866	1.593	0.803	
	Right cheek	0.790	0.750	0.913	0.864	0.879	0.711	0.722	0.991	0.256	0.716	0.546	0.782	0.570	0.376	0.447	0.043	1.367	1.438	1.034	1.481	0.490	
	Right tilted	0.571	1.073	1.054	0.932	0.598	1.010	0.968	0.762	0.464	0.721	0.529	0.652	0.475	0.320	0.442	0.040	1.393	1.515	1.113	1.555	0.482	

Simultaneous Transmission SAR Summation Scenario for WLAN Body:

Body-worn:

Test position		Ant1 Antenna SARmax (W/kg)												WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)	
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G	WiFi 5G						BT
		1												2	3	4						
Body worn	Front side	0.259	0.178	0.464	0.298	0.313	0.329	0.317	0.234	0.368	0.220	0.252	0.244	0.312	0.203	0.070	0.010	0.667	0.534	0.474	0.544	0.080
	Back side	0.275	0.489	0.783	0.676	0.378	0.949	1.049	0.335	0.474	0.248	0.290	0.351	0.433	0.266	0.485	0.012	1.315	1.534	1.061	1.546	0.497

Test position		Ant1 Antenna SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G Ant0	WiFi 5G	BT						
		1														2	4	6					
Body worn	Front side	0.158	0.159	0.158	0.182	0.183	0.158	0.168	0.133	0.120	0.185	0.127	0.125	0.127	0.203	0.070	0.010	0.388	0.255	0.195	0.265	0.080	
	Back side	0.254	0.268	0.179	0.235	0.320	0.232	0.232	0.278	0.275	0.247	0.180	0.286	0.269	0.266	0.485	0.012	0.586	0.805	0.332	0.817	0.497	



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Hotspot:

Test position		Ant0 Antenna SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G	WiFi 5G	BT						
		1														2	3	4					
Hotspot 10mm	Front side	0.260	0.176	0.213	0.270	0.317	0.208	0.245	0.247	0.456	0.203	0.220	0.261	0.328	0.322	0.117	0.019	0.778	0.573	0.475	0.592	0.136	
	Back side	0.495	0.524	0.708	0.770	0.514	0.592	0.753	0.500	0.579	0.274	0.311	0.580	0.478	0.512	0.625	0.025	1.282	1.395	0.795	1.420	0.650	
	Left side	0.189	0.085	0.076	0.072	0.236	0.078	0.073	0.161	0.205	0.197	0.224	0.173	0.165	/	/	/	0.236	0.236	0.236	0.236	/	
	Right side	0.217	0.079	0.067	0.064	0.324	0.060	0.063	0.235	0.105	0.261	0.294	0.252	0.063	0.339	0.456	0.024	0.663	0.780	0.348	0.804	0.480	
	Top side	/	/	/	/	/	/	/	/	/	/	/	/	/	0.260	0.778	0.017	0.260	0.778	0.017	0.795	0.795	
	Bottom side	0.398	0.688	0.906	0.771	0.345	0.883	0.939	0.267	0.556	0.175	0.182	0.289	0.339	/	/	/	0.939	0.939	0.939	0.939	/	

Test position		Ant1 Antenna SARmax (W/kg)												WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)	
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G Ant0	WiFi 5G						BT
		1												2	4	6						
Hotspot 10mm	Front side	0.167	0.301	0.200	0.197	0.223	0.218	0.205	0.214	0.203	0.171	0.113	0.177	0.245	0.322	0.117	0.019	0.623	0.418	0.320	0.437	0.136
	Back side	0.423	0.532	0.436	0.452	0.407	0.460	0.454	0.504	0.779	0.290	0.215	0.369	0.522	0.512	0.625	0.025	1.291	1.404	0.804	1.429	0.650
	Left side	0.162	0.030	0.027	0.016	0.203	0.017	0.050	0.158	0.078	0.212	0.149	0.130	0.072	/	/	/	0.212	0.212	0.212	0.212	/
	Right side	0.140	0.016	0.014	0.011	0.165	0.012	0.021	0.136	0.034	0.176	0.118	0.113	0.067	0.339	0.456	0.024	0.515	0.632	0.200	0.656	0.480
	Top side	0.147	0.696	0.642	0.553	0.024	0.736	0.585	0.463	0.669	0.277	0.174	0.274	0.545	0.260	0.778	0.017	0.996	1.514	0.753	1.531	0.795
	Bottom side	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Product specific 10g SAR:

Test position		Main Antenna SARmax (W/kg)														WiFi/BT Antenna SARmax (W/kg)			Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+3+4)	Summed SAR (3+4)
		GSM850	GSM1900	WCDMA Band II	WCDMA Band IV	WCDMA Band V	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 17	LTE Band 26	LTE Band 38	WiFi 2.4G	WiFi 5G	BT						
		1														2	3	4					
Product specific 10g SAR	Front side	/	/	/	/	/	/	/	/	/	/	/	/	/	/	0.312	/	/	0.312	/	0.312	0.312	
	Back side	/	/	1.029	1.455	/	1.214	1.994	/	/	/	/	/	/	/	0.937	/	1.994	2.931	1.994	2.931	0.937	
	Left side	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
	Right side	/	/	/	/	/	/	/	/	/	/	/	/	/	/	0.325	/	/	0.325	/	0.325	0.325	
	Top side	/	/	/	/	/	/	/	/	/	/	/	/	/	/	1.663	/	/	1.663	/	1.663	1.663	
	Bottom side	/	/	1.730	1.786	/	1.979	2.395	/	/	/	/	/	/	/	/	/	/	2.395	2.395	2.395	2.395	/

