

FCC SAR TEST REPORT



Report No: E5/2020/B0019
Applicant: GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Manufacturer: GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Factory: GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Product Name: Mobile Phone
Model No.(EUT): CPH2173
Trade Mark: OPPO
FCC ID: R9C-CPH2173
Standards: FCC 47CFR §2.1093
Date of Receipt: 2020-12-01
Date of Test: 2020-12-01 to 2021-01-08
Date of Issue: 2021-01-14
Test conclusion: **PASS ***

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

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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Signed on behalf of SGS

Engineer

Asst. Manager

Jay Tseng

Date: Jan. 14, 2021

John Yeh

Date: Jan. 14, 2021

REVISION HISTORY

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-01-14		Original

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.77	0.32	0.65	/
GSM1900	0.74	0.28	0.79	/
WCDMA Band II	0.77	0.28	0.66	/
WCDMA Band IV	0.79	0.18	0.53	/
WCDMA Band V	0.77	0.37	0.79	/
LTE Band 2	0.68	0.36	0.77	/
LTE Band 4	0.95	0.21	0.53	/
LTE Band 5	0.73	0.39	0.78	/
LTE Band 7	0.79	0.34	0.74	/
LTE Band 12	0.45	0.32	0.54	/
LTE Band 13	0.40	0.30	0.41	/
LTE Band 17	0.33	0.35	0.46	/
LTE Band 25	1.17	0.30	0.77	/
LTE Band 26	0.71	0.38	0.68	/
LTE Band 38	0.93	0.43	0.86	/
LTE Band 41	0.71	0.40	0.92	/
LTE Band 66	0.83	0.28	0.88	/
NR Band n5	0.92	0.33	0.69	/
NR Band n7	1.00	0.31	0.71	/
NR Band n38	1.09	0.47	1.05	/
WI-FI (2.4GHz)	1.13	0.24	0.98	/
WI-FI (5GHz)	0.97	0.33	0.70	2.28
BT	0.46	0.03	0.09	/
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.59	1.04	1.59	2.28
SPLSR	N/A	N/A	N/A	N/A
SPLSR Limited	0.04			0.1

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1 General Information

1.1 Details of Client

Applicant:	GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Address:	NO.18 HaiBin Road, Wusha Village, Chang An Town, DongGuan City , GuangDong,China
Manufacturer:	GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Address:	NO.18 HaiBin Road, Wusha Village, Chang An Town, DongGuan City , GuangDong,China
Factory:	GuangDong OPPO Mobile Telecommunications Corp., Ltd.
Address:	NO.18 HaiBin Road, Wusha Village, Chang An Town, DongGuan City , GuangDong,China

1.2 Test Location

Company	SGS Taiwan Ltd. Central RF Lab
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1.3 General Description of EUT

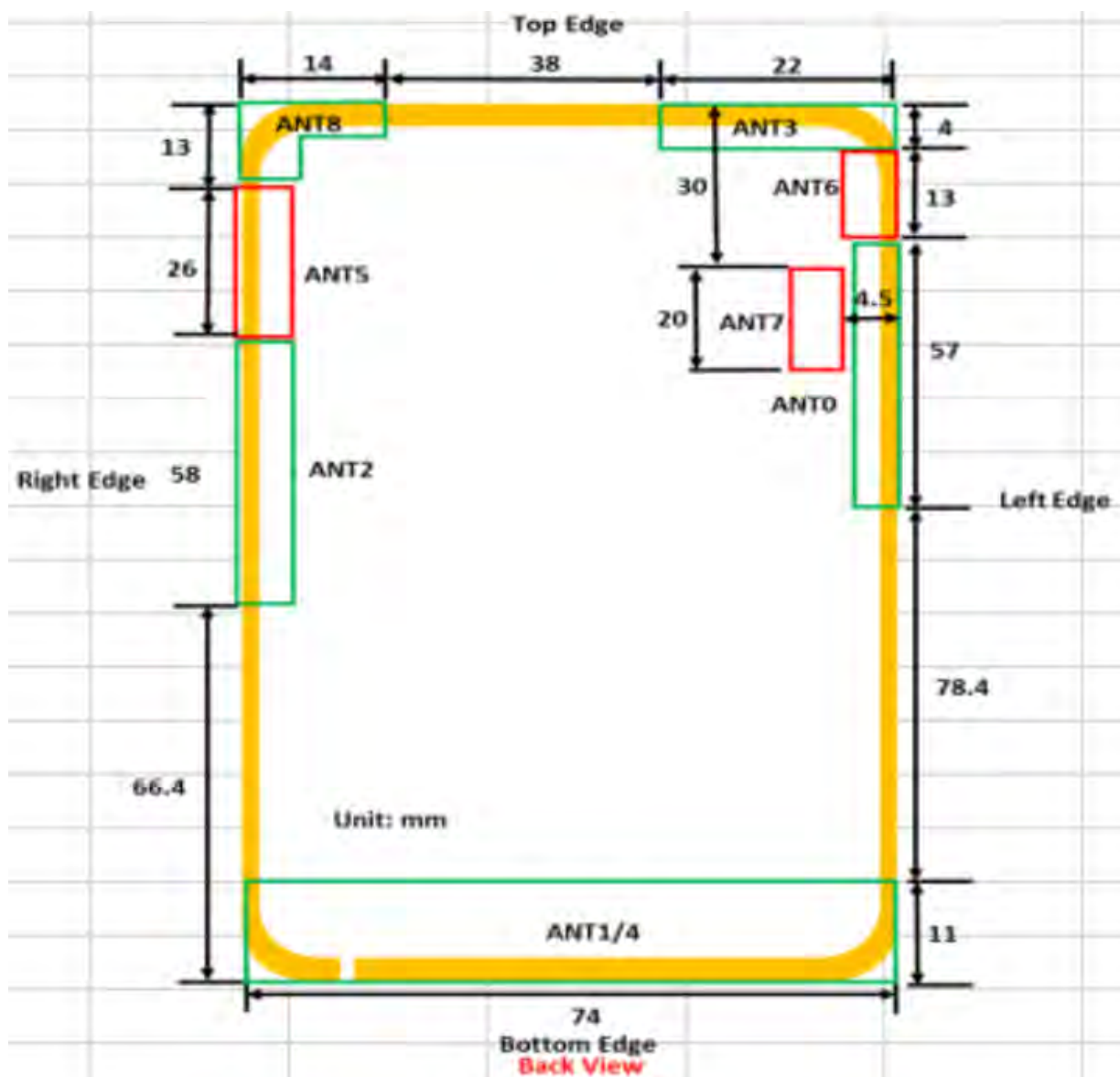
Product Name:	Mobile Phone		
Model No.(EUT):	CPH2173		
Trade Mark:	OPPO		
FCC ID:	R9C-CPH2173		
Product Phase:	production unit		
Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
SN:	cac751b1/7b02d74/b8065446/d18fa481/e369c66/6ab09956/9e4ff105		
Hardware Version:	11		
Software Version:	ColorOS V11.2		
Antenna Type:	Internal Antenna		
Device Operating Configurations :			
Modulation Mode:	GSM: GMSK, 8PSK; WCDMA: QPSK, 16QAM(HSPA+); LTE: QPSK , 16QAM, 64QAM; 5G NR: DFT-s-OFDM (QPSK, 16QAM, 64QAM, 256QAM), CP-OFDM (QPSK, 16QAM, 64QAM, 256QAM); WIFI: DSSS; OFDM; BT: GFSK, $\pi/4$ DQPSK,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 2/4/5/7/12/13/17/25/26/38/41/66)		
Frequency Bands:	Band	Tx (MHz)	Rx (MHz)
	GSM850	824-849	869-894
	GSM1900	1850-1910	1930-1990
	WCDMA Band V	824-849	869-894
	WCDMA Band IV	1710-1755	2110-2155
	WCDMA Band II	1850-1910	1930-1990
	LTE Band 2	1850-1910	1930-1990
	LTE Band 4	1710-1755	2110-2155
	LTE Band 5	824-849	869-894
	LTE Band 7	2500-2570	2620-2690
	LTE Band 12	699-716	729-746
	LTE Band 13	777-787	746-756
	LTE Band 17	704-716	734-746
	LTE Band 25	1850-1915	1930-1995

	LTE Band 26	814-849	859-894
	LTE Band 38	2570-2620	2570-2620
	LTE Band 41	2496-2690	2496-2690
	LTE Band 66	1710-1780	2110-2200
	NR Band n5	824-849	869-894
	NR Band n7	2500-2570	2620-2690
	NR Band n38	2570-2620	2570-2620
	WIFI 2.4G	2400-2483.5	2400-2483.5
	Wi-Fi 5G	5150-5250 5250-5350 5470-5725 5725-5850	5150-5250 5250-5350 5470-5725 5725-5850
	BT	2402-2480	2402-2480
Battery Information:	Model:	BLP831	
	Normal Voltage:	7.74V	
	Rated capacity:	2200mAh	
Headset Information:	Model:	MH147	

Note:

For the ESIM is test the worst exposure position for head and body of overall.

1.3.1 DUT Antenna Locations



Note:

The test device is a mobile phone. The display diagonal dimension is 16.2 cm and the overall diagonal dimension of this device is 16.8 cm.

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

Antennas Description	
WWAN UAT	Ant0 / Ant3
WWAN LAT	Ant1 / Ant4
WiFi 2.4G(chain0)/WiFi 5G(chain0)/BT	Ant8
WiFi 2.4G(chain1)/WiFi 5G(chain1)	Ant2

EUT Sides for SAR Testing						
Mode	Front	Back	Left	Right	Top	Bottom
Ant0	Yes	Yes	Yes	No	Yes	No
Ant1	Yes	Yes	Yes	Yes	No	Yes
Ant2	Yes	Yes	No	Yes	No	No
Ant3	Yes	Yes	Yes	No	Yes	No
Ant4	Yes	Yes	Yes	Yes	No	Yes
Ant8	Yes	Yes	No	Yes	Yes	No

Table 1: EUT Sides for SAR Testing

Note:

- 1) When the antenna-to-edge distance is greater than 2.5cm, such position does not need to be tested.
- 2) The Ant5, Ant6 and Ant7 do not support transmitter function.

1.3.2 Downlink and Uplink LTE CA additional specification

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

- Intra-band and inter-band carrier aggregation requirements for both uplink and downlink.
- Support of contiguous and non-contiguous component carriers for intra-band aggregation for intra-band aggregation requirements for downlink.
- Support of contiguous component carriers for intra-band aggregation requirements for uplink.

The possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101 V15.0.0. The conducted power measurement results of downlink and uplink LTE CA are provided in Section 8 of this report per 3GPP TS 36.521-1 V14.4.0. According to KDB 941225 D05A, the downlink LTE CA SAR test is not required and PAG requirements can be excluded.

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

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

Intra-band contiguous CA operating bands:

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band			Downlink (DL) operating band			Duplex Mode
		BS receive / UE transmit			BS transmit / UE receive			
		F _{UL_low} – F _{UL_high}			F _{DL_low} – F _{DL_high}			
CA_7	7	2500 MHz	–	2570 MHz	2620 MHz	–	2690 MHz	FDD
CA_38	38	2570 MHz	–	2620 MHz	2570 MHz	–	2620 MHz	TDD
CA_41	41	2496MHz	–	2690 MHz	2496 MHz	–	2690 MHz	TDD

1.3.3 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) This device supports the receiver detection mechanism, the main purpose is to minimize triggering associated with power reduction scenarios by receiver detection mechanisms and provide enhanced user experience. It uses the receiver to indicate whether the user is making a call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. It can determine proximity to head or body and set the relevant power level for 2G&3G&4G/NR and Wi-Fi antennas accordingly.
- 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.

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 this report.

Antenna Power Level (dBm)	Ant0						
Power Reduction Scenario	GSM850	WCDMA Band V	LTE Band 5	LTE Band 12	LTE Band 13	LTE Band 17	LTE Band 26
receiver on	34.0	25.0	23.5	25.0	24.0	25.0	23.5
Receiver on+WiFi/BT	32.0	22.0	21.4	25.0	24.0	25.0	21.4
receiver off	34.0	25.0	25.2	25.0	24.0	25.0	25.0
Receiver off+WiFi/BT	34.0	25.0	25.2	25.0	24.0	25.0	25.0

Antenna Power Level (dBm)	Ant3									
Power Reduction Scenario	GSM1900	WCDMA Band II	WCDMA Band IV	LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 25	LTE Band 38	LTE Band 41	LTE Band 66
receiver on	24.5	14.4	20.0	14.7	21.0	15.0	16.0	17.0	17.4	20.5
Receiver on+WiFi/BT	22.5	13.0	19.2	13.5	19.9	13.9	14.6	16.5	16.7	19.5
receiver off	30.0	20.0	20.0	20.0	21.0	19.5	20.5	21.5	22.5	22.0
Receiver off+WiFi/BT	28.1	17.8	17.9	18.3	18.3	16.9	18.1	18.9	19.8	20.0

Antenna Power Level (dBm)	Ant4								
Power Reduction Scenario	WCDMA Band II	WCDMA Band IV	LTE Band 2	LTE Band 4	LTE Band 7	LTE Band 25	LTE Band 38	LTE Band 41	LTE Band 66
receiver on	24.8	24.0	24.0	24.0	24.5	24.0	24.5	26.0	24.0
Receiver on+WiFi/BT	24.8	24.0	24.0	24.0	24.5	24.0	24.5	26.0	24.0
receiver off	21.8	23.0	23.0	22.5	22.5	22.5	24.5	26.0	24.0
Receiver off+WiFi/BT	20.8	22.1	22.3	22.4	21.6	22.2	23.7	24.9	22.5

WiFi 2.4G Power Level (dBm)															
Antenna Power Level (dBm)	WiFi 2.4G Ant8(Chain0)					WiFi 2.4G Ant2(Chain1)					WiFi 2.4G MIMO (Chain0+Chain1)				
Antenna Power Reduction Scenario	802.11b	802.11g	802.11n20	802.11ac20	802.11ax20	802.11b	802.11g	802.11n20	802.11ac20	802.11ax20	802.11b	802.11g	802.11n20	802.11ac20	802.11ax20
receiver on	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	18.0	18.0	18.0	18.0	18.0
Synchronous Transmission_5G WIFI(chain0) receiver on	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	16.0	16.0	16.0	16.0	16.0
Synchronous Transmission_5G WIFI(chain1) receiver on	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	16.0	16.0	16.0	16.0	16.0
Synchronous Transmission_WWAN receiver on	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	16.0	16.0	16.0	16.0	16.0
Synchronous Transmission_BT receiver on	/	/	/	/	/	13.0	13.0	13.0	13.0	13.0	/	/	/	/	/
Synchronous Transmission_WWAN+5G WIFI(chain0) receiver on	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	13.0	13.0	13.0	13.0	13.0
Synchronous Transmission_WWAN+5G WIFI(chain1) receiver on	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	13.0	13.0	13.0	13.0	13.0
receiver off	19.5	19.0	18.0	18.0	19.0	18.5	18.0	17.0	17.0	18.0	22.0	21.5	20.5	20.5	21.5
Synchronous Transmission_5G WIFI(chain1) receiver off	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	20.5	20.5	20.5	20.5	20.5
Synchronous Transmission_5G WIFI(chain0) receiver off	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	20.5	20.5	20.5	20.5	20.5
Synchronous Transmission_WWAN receiver off	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	20.5	20.5	20.5	20.5	20.5
Synchronous Transmission_BT receiver off	/	/	/	/	/	17.5	17.5	17.5	17.5	17.5	/	/	/	/	/
Synchronous Transmission_WWAN+5G WIFI(chain0) receiver off	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	17.5	17.5	17.5	17.5	17.5
Synchronous Transmission_WWAN+5G WIFI(chain1) receiver off	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	17.5	17.5	17.5	17.5	17.5

[illegible]

[illegible]

Antenna Power Level (dBm)	WiFi 5G MIMO (Chain0+Chain1)										
Antenna Power Reduction Scenario	802.11a	802.11nHT20	802.11nHT40	802.11acHT20	802.11acHT40	802.11acHT80	802.11acHT160	802.11axHT20	802.11axHT40	802.11axHT80	802.11axHT160
receiver on	16.51	16.51	16.51	16.51	16.51	16.51	16.27	16.51	16.51	16.51	16.27
Synchronous Transmission_2.4G WIFI(chain0) receiver on	14.51	14.51	14.51	14.51	14.51	14.51	14.27	14.51	14.51	14.51	14.27
Synchronous Transmission_2.4G WIFI(chain1) receiver on	14.51	14.51	14.51	14.51	14.51	14.51	14.27	14.51	14.51	14.51	14.27
Synchronous Transmission_WWAN/BT/(WWAN+BT) receiver on	14.51	14.51	14.51	14.51	14.51	14.51	14.27	14.51	14.51	14.51	14.27
Synchronous Transmission_WWAN+2.4G WIFI(chain0) receiver on	11.51	11.51	11.51	11.51	11.51	11.51	11.27	11.51	11.51	11.51	11.27
Synchronous Transmission_WWAN+2.4G WIFI(chain1) receiver on	11.51	11.51	11.51	11.51	11.51	11.51	11.27	11.51	11.51	11.51	11.27
receiver off	21.27	21.27	21.27	21.27	21.27	21.27	17.01	21.27	21.27	21.27	17.01
Synchronous Transmission_2.4G WIFI(chain0) receiver off	19.51	19.51	19.51	19.51	19.51	19.51	17.01	19.51	19.51	19.51	17.01
Synchronous Transmission_2.4G WIFI(chain1) receiver off	19.51	19.51	19.51	19.51	19.51	19.51	17.01	19.51	19.51	19.51	17.01
Synchronous Transmission_WWAN/BT/(WWAN+BT) receiver off	19.51	19.51	19.51	19.51	19.51	19.51	17.01	19.51	19.51	19.51	17.01
Synchronous Transmission_WWAN+2.4G WIFI(chain0) receiver off	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51
Synchronous Transmission_WWAN+2.4G WIFI(chain1) receiver off	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51	16.51

SAR test Plan:

For Head SAR test, standalone SAR is evaluated with receiver on mode.

For Body SAR test, standalone SAR is evaluated with receiver off mode.

1.4 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1 – 1992	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 Procedures v03r01	3G SAR Measurement Procedures
KDB 941225 D05 SAR for LTE Devices v02r05	SAR Evaluation Considerations for LTE Devices
KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02	Rel. 10 LTE SAR Test Guidance and KDB Inquiries
KDB 941225 D06 Hotspot Mode SAR v02r01	SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities
KDB 248227 D01 802.11 Wi-Fi SAR v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 648474 D04 Handset SAR v01r03	SAR Evaluation Considerations for Wireless Handsets
KDB447498 D01 General RF Exposure Guidance v06	Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies
KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04	SAR Measurement Requirements for 100 MHz to 6 GHz
KDB 865664 D02 RF Exposure Reporting v01r02	RF Exposure Compliance Reporting and Documentation Considerations
KDB 690783 D01	SAR Listings on Grants v01r03

1.5 RF exposure limits

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

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.)

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

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.

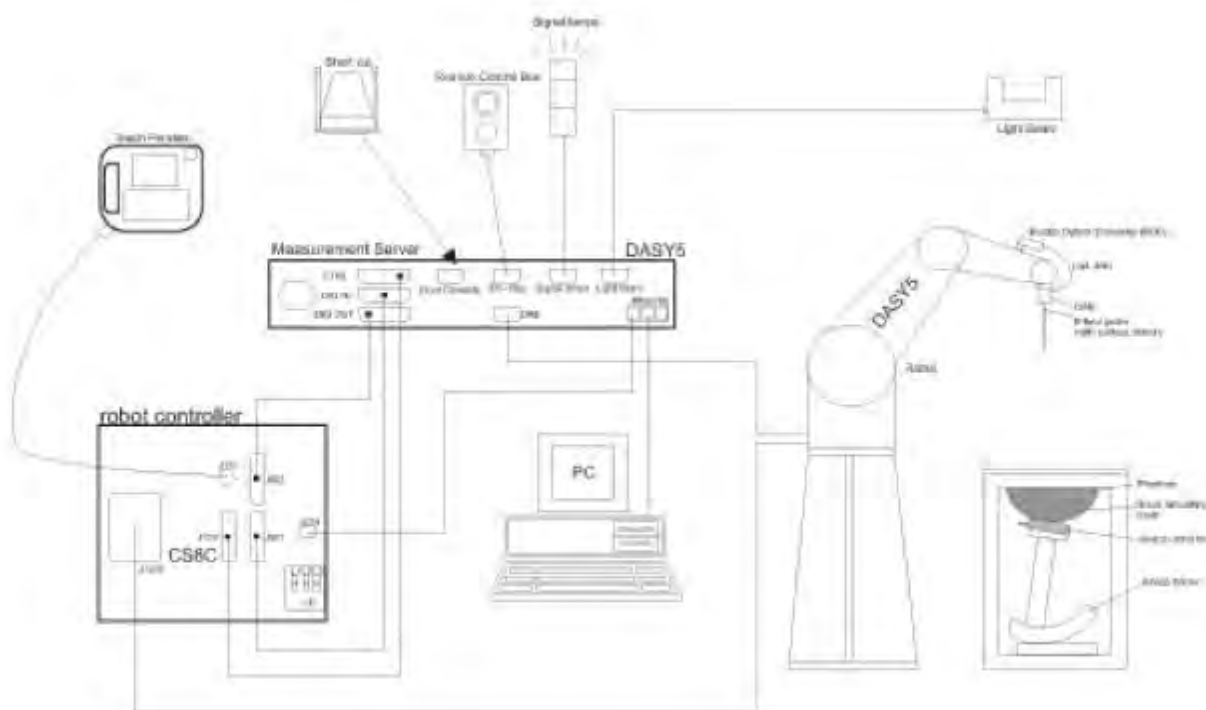
The DASY5 system for performing compliance tests consists of the following items:

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

- 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	< 5 μ V (with auto zero)
Input Bias Current	< 50 f A
Dimensions	60 x 60 x 68 mm



3.4 SAM Twin Phantom

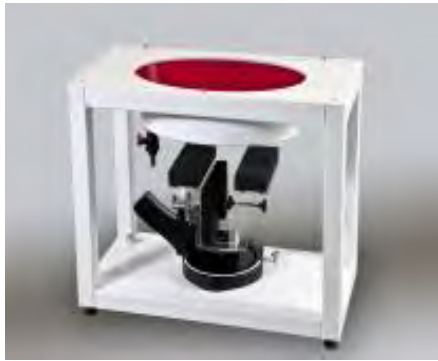
Material	Vinylester, glass fiber reinforced (VE-GF)
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)
Shell Thickness	2 $\pm$ 0.2 mm (6 $\pm$ 0.2 mm at ear point)
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet
Filling Volume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

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

Step 4: Power reference measurement (drift)

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

3.7.2 Data Storage

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

3.7.3 Data Evaluation by SEMCAD

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

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

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

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

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power.

The formula for each channel can be given as:

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

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

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

cf = crest factor of exciting field (DASY parameter)

dcp i = diode compression point (DASY parameter)

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

E-field probes:

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

H-field probes:

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

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

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

[mV/(V/m)²] for E-field Probes

$ConvF$ = sensitivity enhancement in solution

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

f = carrier frequency [GHz]

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

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

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

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

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

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

with SAR = local specific absorption rate in mW/g

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

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

ϵ = equivalent tissue density in g/cm³

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

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

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

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

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

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.

5 Description of Test Position

5.1 Head Exposure Condition

5.1.1 SAM Phantom Shape

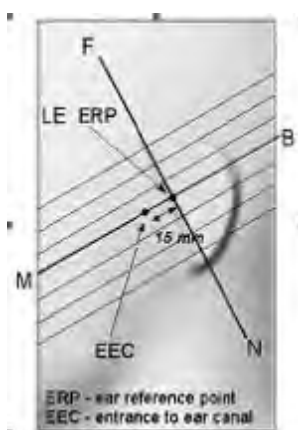


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

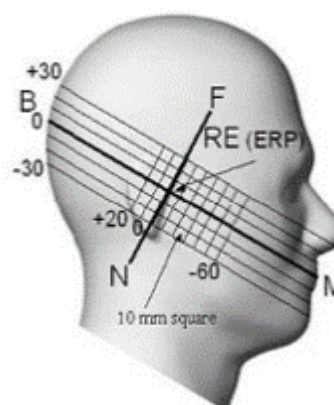
Note: The centre strip including the nose region has a different thickness tolerance.



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

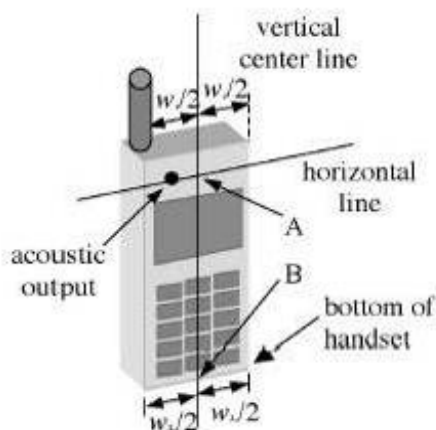


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

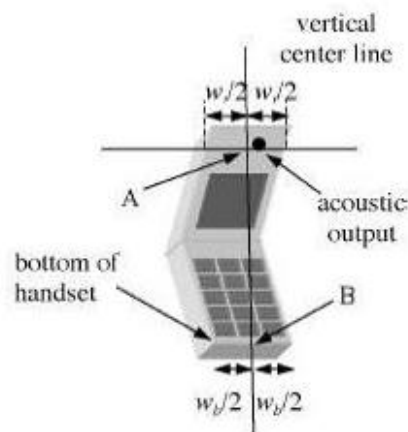


F-6. Side view of the phantom showing relevant markings and seven cross-sectional plane locations

5.1.2 EUT constructions



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



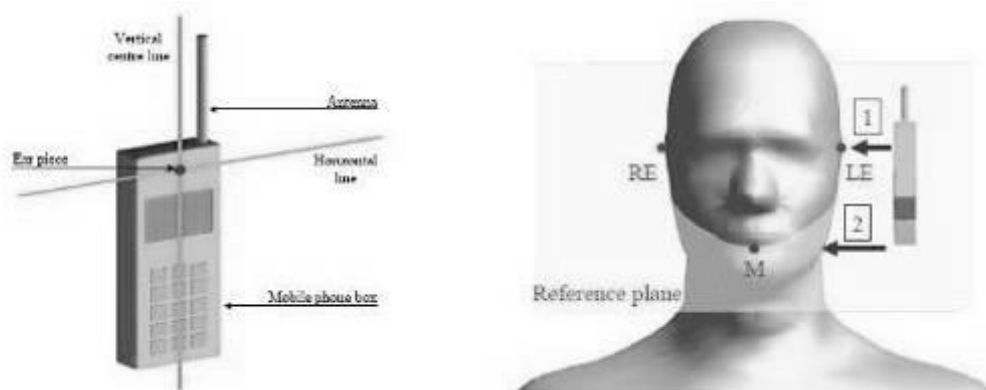
F-8. Handset vertical and horizontal reference lines-“clam-shell case”

5.1.3 Definition of the “cheek” position

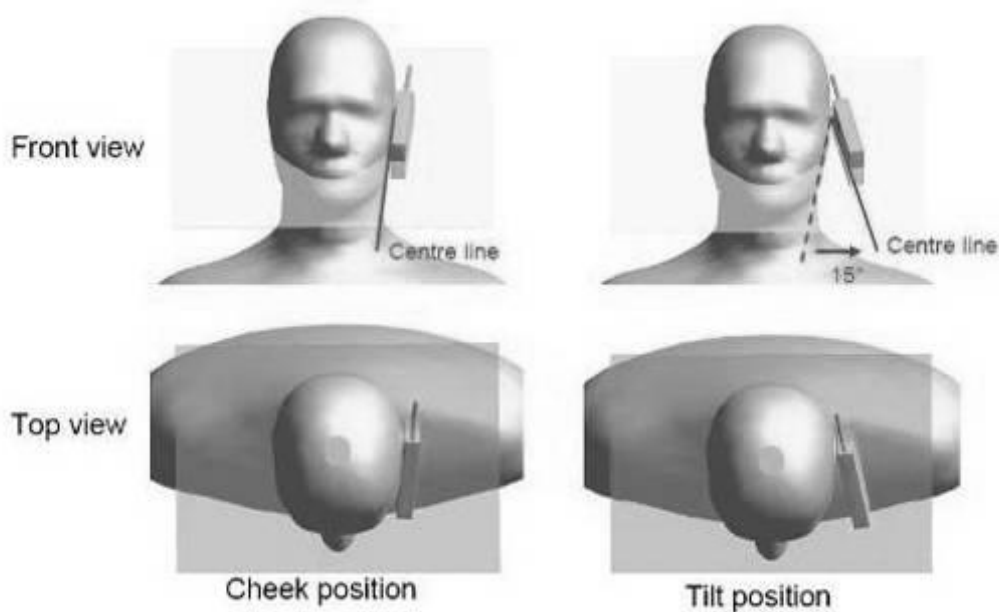
- Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom (“initial position”). While maintaining the device in this plane, align the vertical centre line with the 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

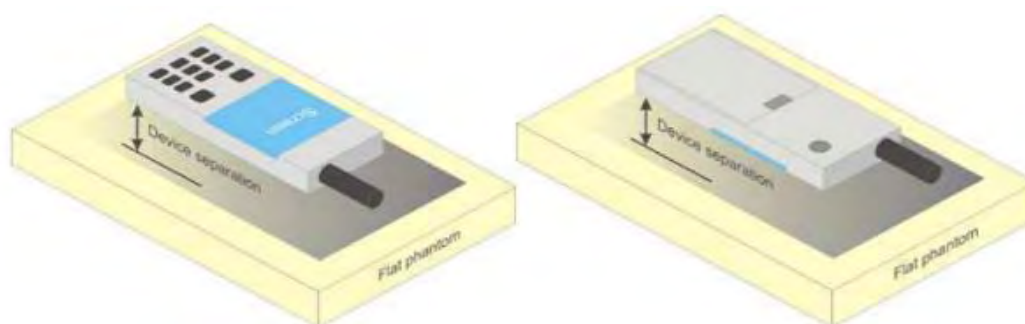
5.2.1 Body-worn accessory exposure conditions

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, the main antenna frequency bands are not required to test with 0mm for the Product Specific 10-g SAR.

6 SAR System Check 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	1800-2000	2300-2500	2500-4200
Tissue Type	Head				
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

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

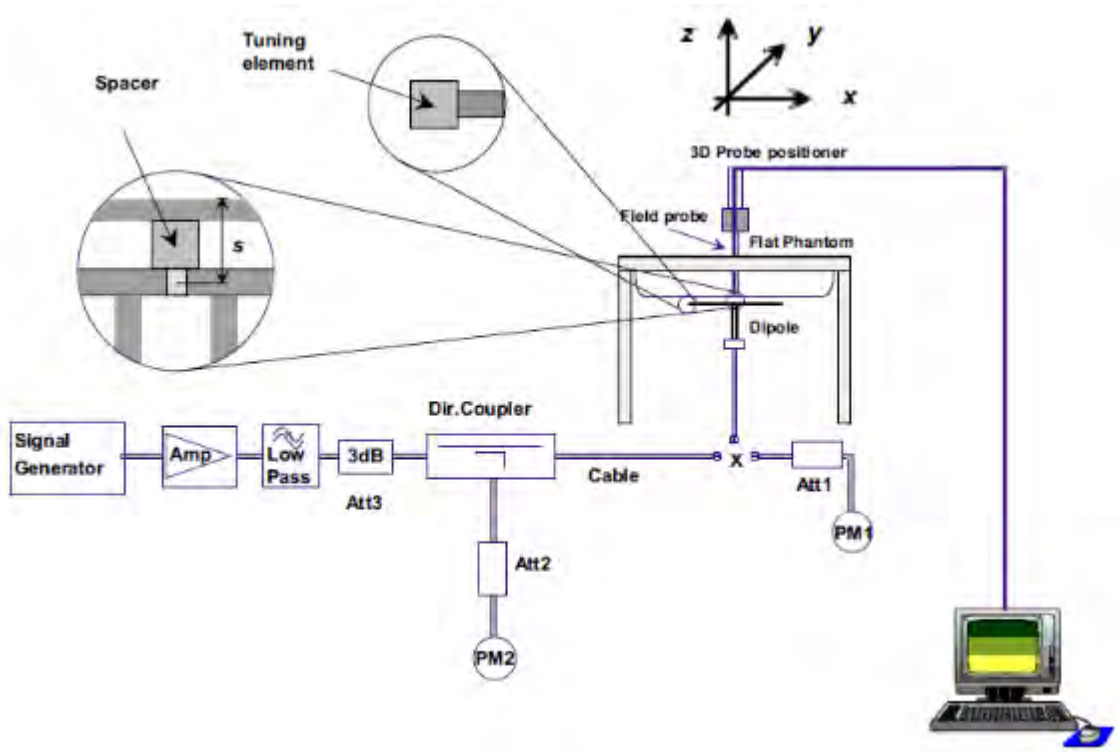
Tissue Type	Measured Frequency (MHz)	Target Tissue ($\pm 5\%$)		Measured Tissue		Liquid Temp. ($^\circ\text{C}$)	Measured Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
750 Head	750	41.9 (39.81~44)	0.89 (0.85~0.94)	43.209	0.906	22.1	2020/12/5
750 Head	750	41.9 (39.81~44)	0.89 (0.85~0.94)	41.649	0.895	22.1	2020/12/6
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	40.79	0.884	22.1	2020/12/1
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	43.024	0.93	22.1	2020/12/2
835 Head	835	41.5 (39.43~43.58)	0.90 (0.86~0.95)	42.883	0.927	22.1	2020/12/3
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	40.271	1.309	22.2	2020/12/8
1750 Head	1750	40.1 (38.10~42.11)	1.37 (1.30~1.44)	40.794	1.33	22.2	2020/12/9
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.029	1.362	22.3	2020/12/15
1900 Head	1900	40.0 (38.00~42.00)	1.40 (1.33~1.47)	40.341	1.394	22.3	2020/12/16
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	38.384	1.863	20.8	2020/12/20
2450 Head	2450	39.20 (37.24~41.16)	1.80 (1.71~1.89)	38.393	1.865	22.0	2020/12/21
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	38.658	1.982	22.1	2020/12/17
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	39.726	1.967	22.3	2020/12/18
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	38.734	1.973	22.5	2020/12/29
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	39.652	1.957	22.1	2021/1/6
2600 Head	2600	39.0 (37.05~40.95)	1.96 (1.86~2.06)	39.679	1.966	21.7	2021/1/7

5250Head	5250	35.9 (34.11~37.70)	4.71 (4.47~4.95)	36.514	4.734	22.2	2020/12/27
5600 Head	5600	35.5 (33.73~37.28)	5.07 (4.82~5.32)	35.646	5.118	22.5	2020/12/31
5750 Head	5750	35.4 (33.63~37.17)	5.22 (4.96~5.48)	35.605	5.286	21.8	2020/12/28

Table 4: Measurement result of Tissue electric parameters

6.2 SAR System Check

The microwave circuit arrangement for system check is sketched in below figure. 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 ± 0.5 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



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

6.2.1 Justification for Extended SAR Dipole Calibrations

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

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

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

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	2.21	1.45	8.84	5.8	8.39 (7.55~9.23)	5.63 (5.07~6.19)	22.1	2020/12/5
D750V3	Head	2.17	1.39	8.68	5.56	8.39 (7.55~9.23)	5.63 (5.07~6.19)	22.1	2020/12/6
D835V2	Head	2.45	1.6	9.8	6.4	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/12/1
D835V2	Head	2.59	1.68	10.36	6.72	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/12/2
D835V2	Head	2.56	1.66	10.24	6.64	9.64 (8.68~10.60)	6.29 (5.66~6.92)	22.1	2020/12/3
D1750V2	Head	9.09	4.84	36.36	19.36	36.3 (32.67~39.93)	19.2 (17.28~21.12)	22.2	2020/12/8
D1750V2	Head	9.49	5.04	37.96	20.16	36.3 (32.67~39.93)	19.2 (17.28~21.12)	22.2	2020/12/9
D1900V2	Head	10.1	5.21	40.4	20.84	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.3	2020/12/15
D1900V2	Head	10.3	5.33	41.2	21.32	39.3 (35.37~43.23)	20.2 (18.18~22.22)	22.3	2020/12/16
D2450V2	Head	13.6	6.37	54.4	25.48	51.9 (46.71~57.09)	23.8 (21.42~26.18)	22.0	2020/12/20
D2450V2	Head	13.4	6.26	53.6	25.04	51.9 (46.71~57.09)	23.8 (21.42~26.18)	22.1	2020/12/21
D2600V2	Head	13.9	6.26	55.6	25.04	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.3	2020/12/17
D2600V2	Head	13.6	6.17	54.4	24.68	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.5	2020/12/18
D2600V2	Head	14.2	6.4	56.8	25.6	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.1	2020/12/29
D2600V2	Head	13.8	6.22	55.2	24.88	56.8 (51.12~62.48)	24.9 (22.41~27.39)	21.7	2021/1/6
D2600V2	Head	13.1	6.31	52.4	25.24	56.8 (51.12~62.48)	24.9 (22.41~27.39)	22.4	2021/1/7
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)	7.99	2.3	79.9	23	75.2 (67.68~82.72)	21.5 (19.35~23.65)	22.2	2020/12/27
	Head (5.6GHz)	8.5	2.42	85	24.2	80 (72~88)	22.7 (20.43~24.97)	22.5	2020/12/31

	Head (5.75GHz)	7.85	2.23	78.5	22.3	78.7 (70.83~86.57)	22.3 (20.07~24.53)	21.8	2020/12/28
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Table 5: SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

7 Test Configuration

7.1 Operation Configurations

7.2 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.

7.3 Operation Configurations

7.3.1 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 CMU200 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

7.3.2 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.

Sub-test	β_c	Bd	$\beta_d(\text{SF})$	β_c/β_d	β_{hs}	CM(dB)	MPR (dB)
1	2/15	15/15	64	2/15	4/15	0.0	0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0	0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5
Note1: ΔACK, ΔNACK and $\Delta\text{CQI} = 8$ 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 $\Delta\text{NACK} = 8$ (Ahs = 30/15) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta\text{CQI} = 7$ (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

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	MaximumH S-DSCH Transport BlockBits/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.

Sub-test ^o	β_c ^o	β_d ^o	β_d (SF) ^o	β_c/β_d ^o	$\beta_{hs}^{(1)}$ ^o	β_{ec} ^o	β_{ed} ^o	β_c (SF) ^o	β_{ed} (code) ^o	CM ⁽²⁾ (dB) ^o	MP R ^o (dB) ^o	AG ⁽⁴⁾ Index ^o	E-TFC I ^o
1 ^o	11/15 ⁽³⁾	15/15 ⁽³⁾	64 ^o	11/15 ⁽³⁾	22/15 ^o	209/225 ^o	1039/225 ^o	4 ^o	1 ^o	1.0 ^o	0.0 ^o	20 ^o	75 ^o
2 ^o	6/15 ^o	15/15 ^o	64 ^o	6/15 ^o	12/15 ^o	12/15 ^o	94/75 ^o	4 ^o	1 ^o	3.0 ^o	2.0 ^o	12 ^o	67 ^o
3 ^o	15/15 ^o	9/15 ^o	64 ^o	15/9 ^o	30/15 ^o	30/15 ^o	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4 ^o	2 ^o	2.0 ^o	1.0 ^o	15 ^o	92 ^o
4 ^o	2/15 ^o	15/15 ^o	64 ^o	2/15 ^o	4/15 ^o	2/15 ^o	56/75 ^o	4 ^o	1 ^o	3.0 ^o	2.0 ^o	17 ^o	71 ^o
5 ^o	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64 ^o	15/15 ⁽⁴⁾	30/15 ^o	24/15 ^o	134/15 ^o	4 ^o	1 ^o	1.0 ^o	0.0 ^o	21 ^o	81 ^o
Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference. 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 $\beta_d = 15/15$. 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 $\beta_d = 15/15$. Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g. Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.													

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

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.

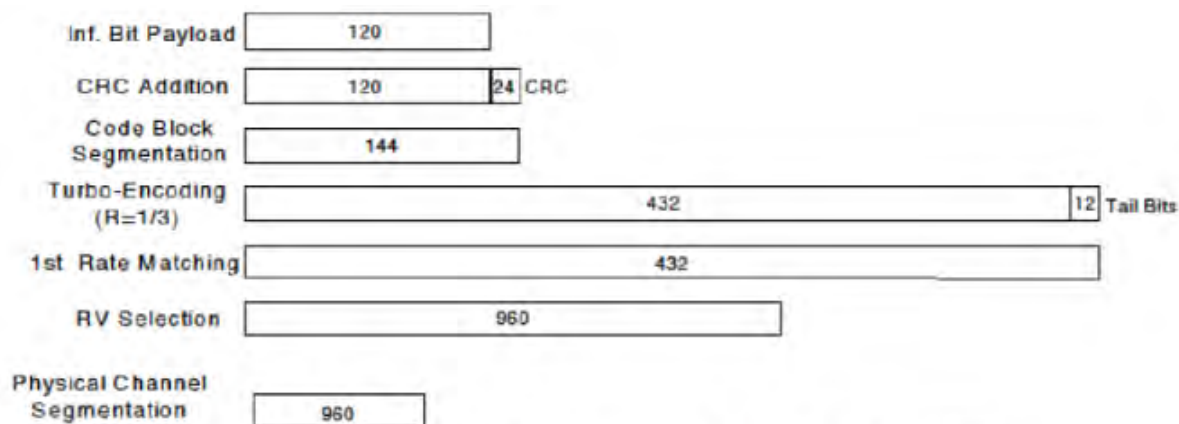


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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
Note1: Δ ACK, Δ NACK and Δ CQI=8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$ Note2: 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. Note3: 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.

Per KDB 941225D01, SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode. Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

Sub-test	$\beta_{c \downarrow}$ (Note3)	β_d	$\beta_{HS \downarrow}$ (Note1)	$\beta_{ec \downarrow}$	$\beta_{ed \downarrow}$ (2xSF2) (Note 4)	$\beta_{ed \downarrow}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}: 30/15$ $\beta_{ed2}: 30/15$	$\beta_{ed3}: 24/15$ $\beta_{ed4}: 24/15$	3.5	2.5	14	105	105

Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

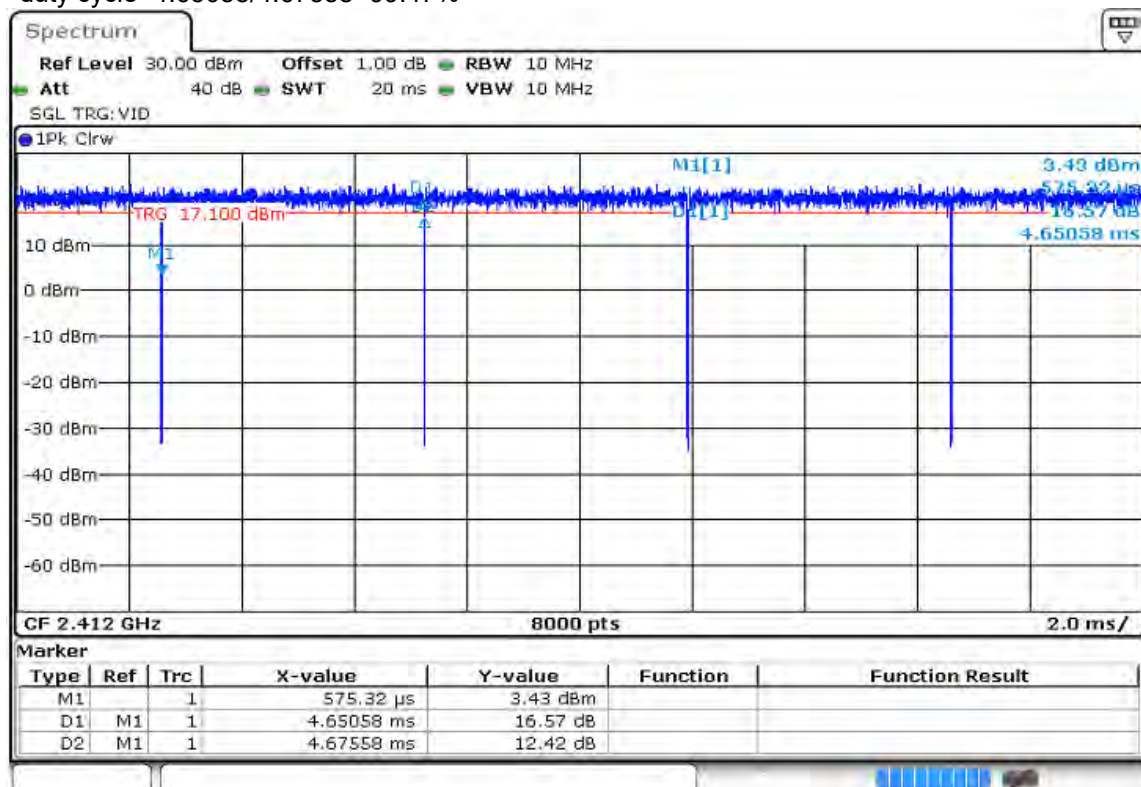
7.3.3 WiFi Test Configuration

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.

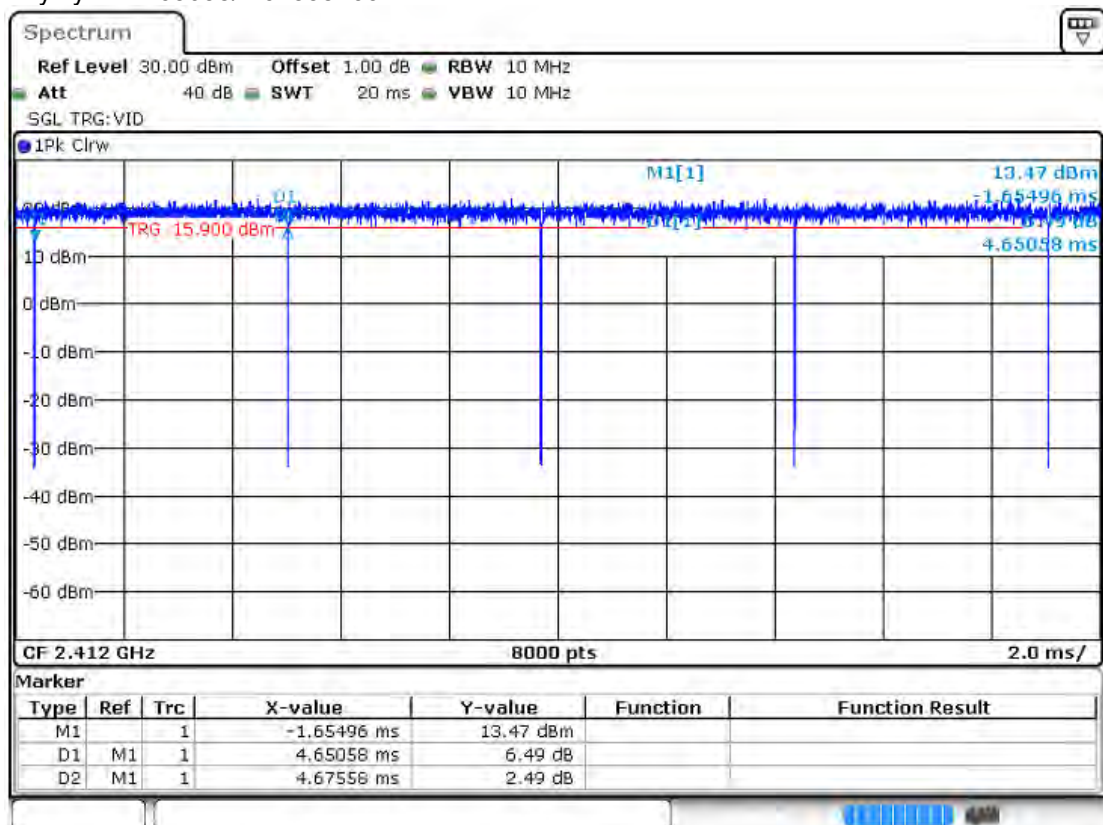
7.3.3.1 Duty cycle

2.4GHz Wi-Fi Ant8 802.11b:

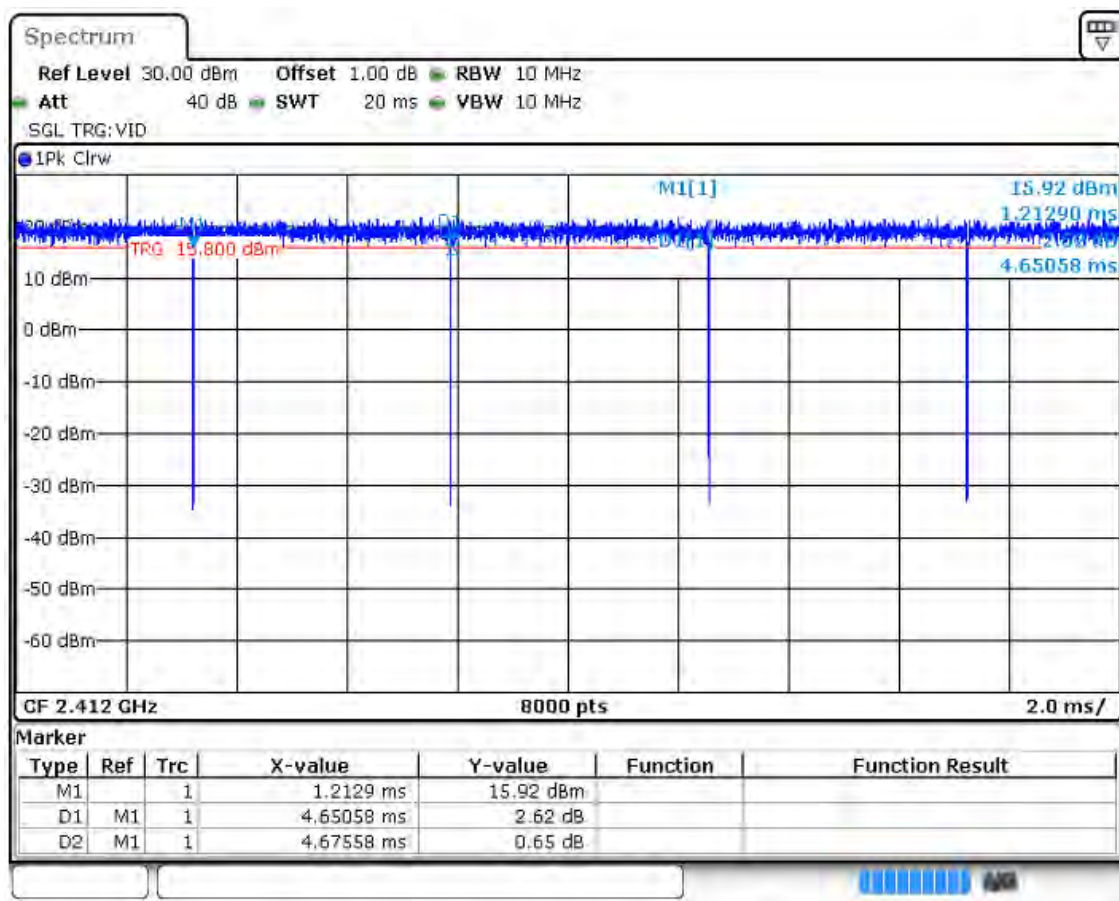
duty cycle= $4.65058/4.67558=99.47\%$



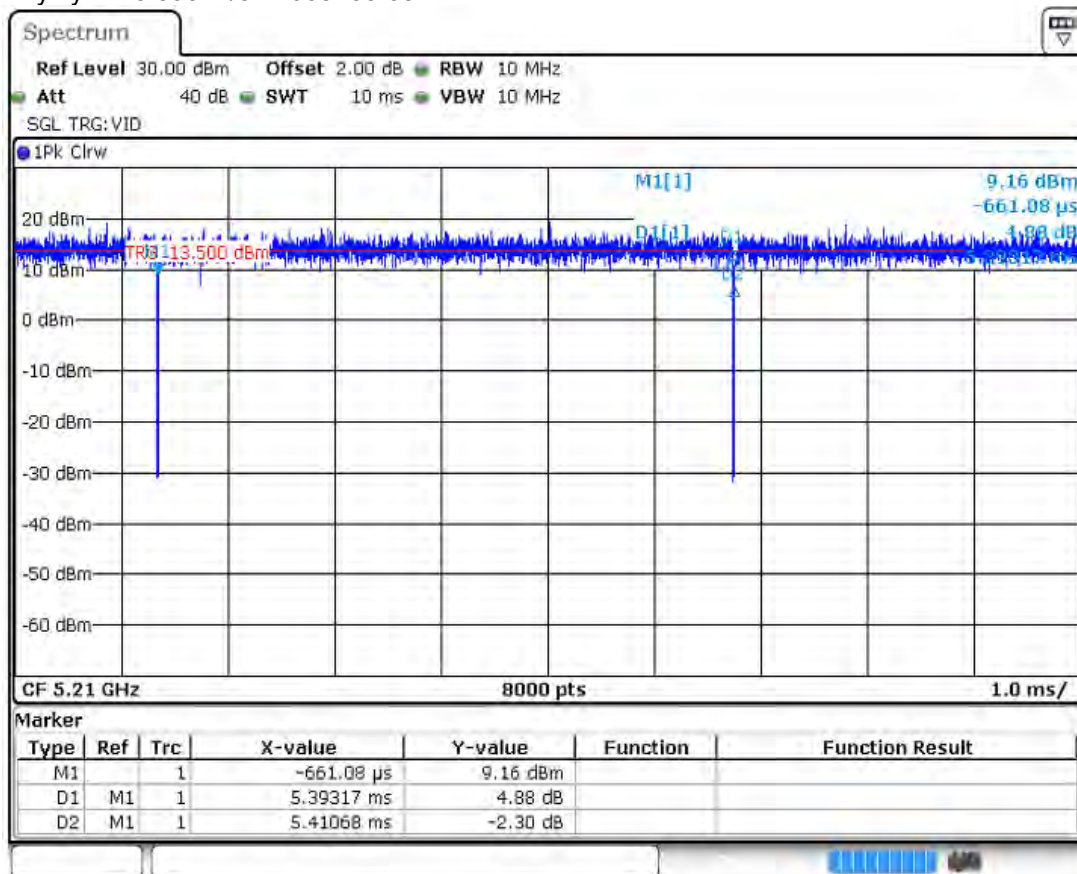
2.4GHz Wi-Fi Ant2 802.11b:
duty cycle= $4.65058/4.67558=99.47\%$



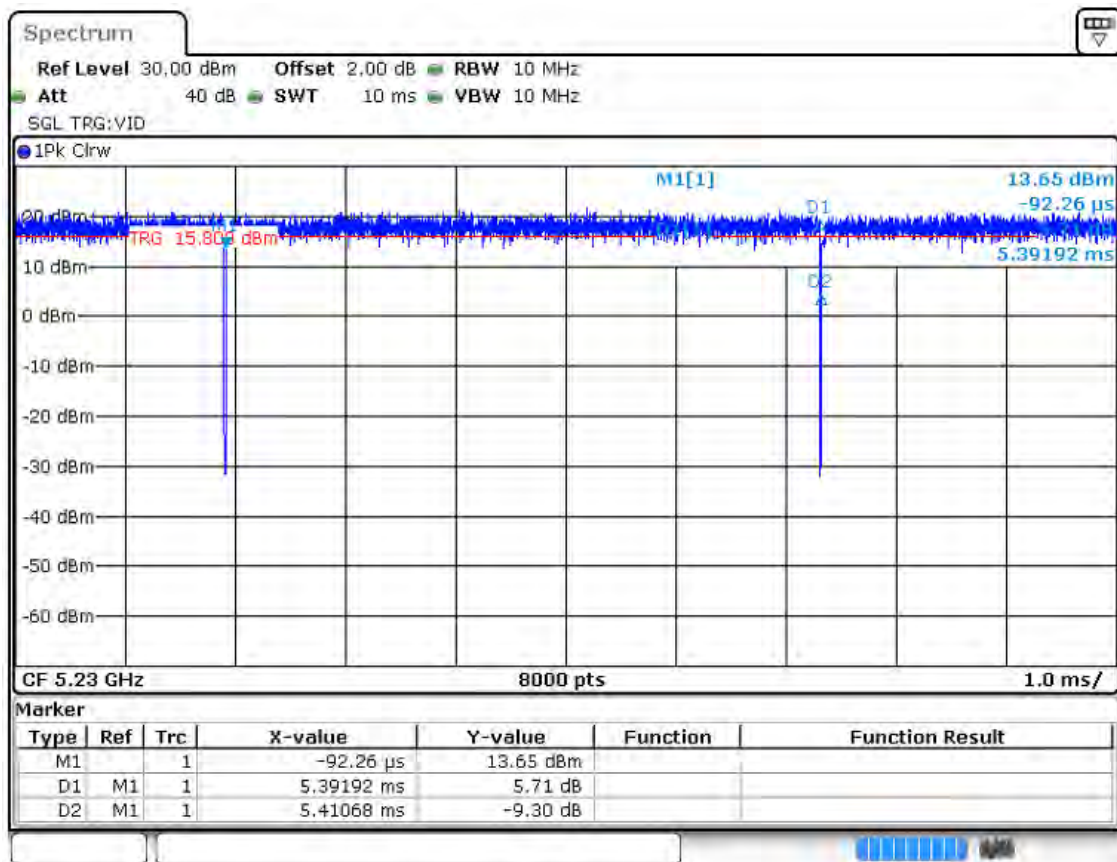
2.4GHz Wi-Fi MIMO 802.11b CDD:
duty cycle=4.65058/4.67558=99.47%



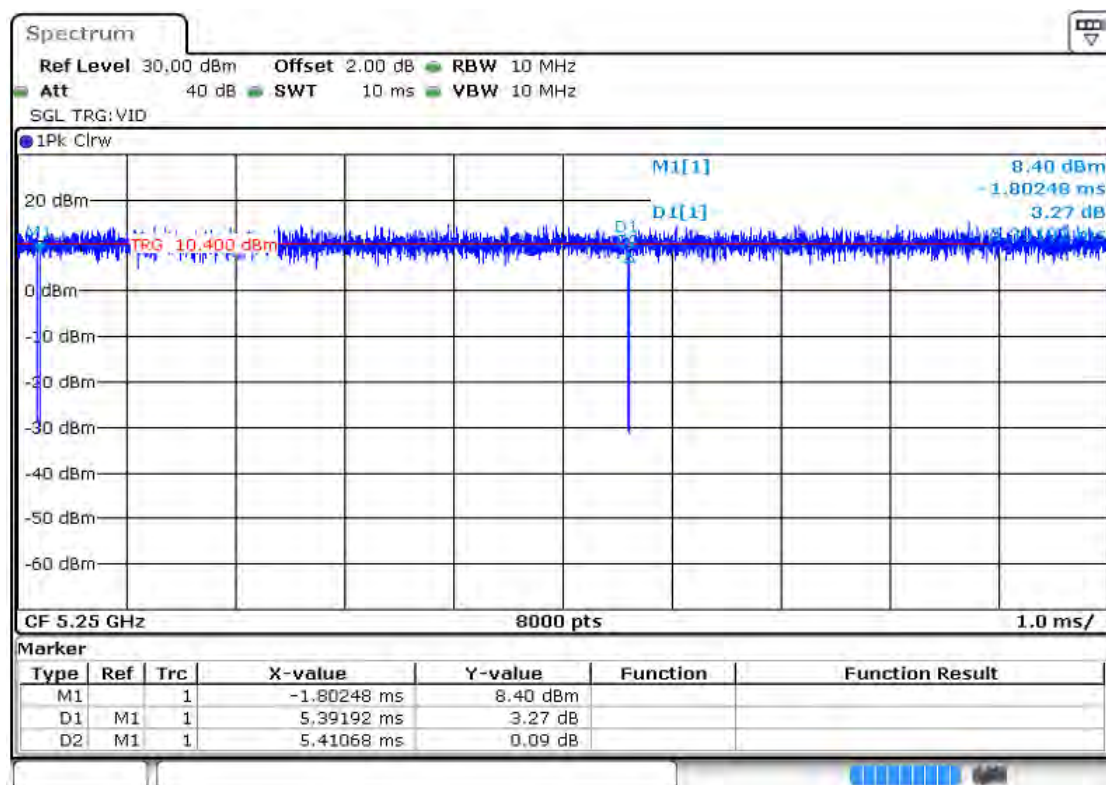
5GHz Wi-Fi Ant8 802.11ac 80M:
duty cycle=5.39317/5.41068=99.68%



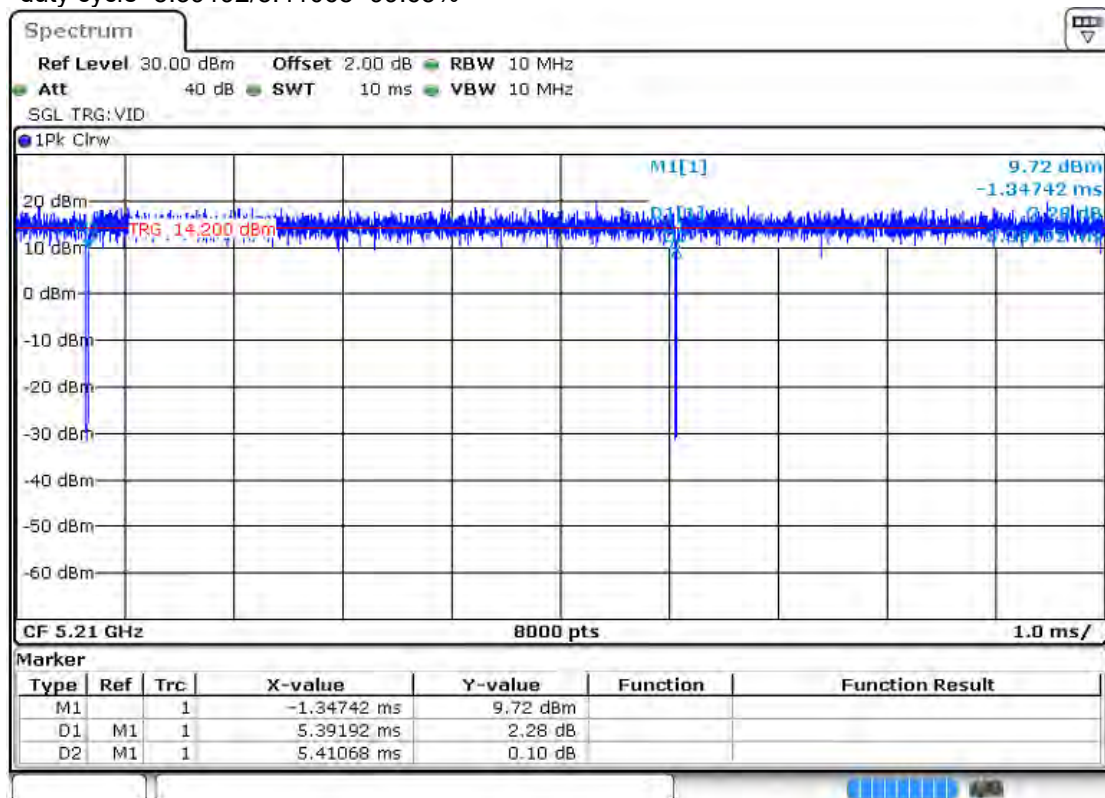
5GHz Wi-Fi Ant8 802.11n 40M:
duty cycle=5.39192/5.41068=99.65%



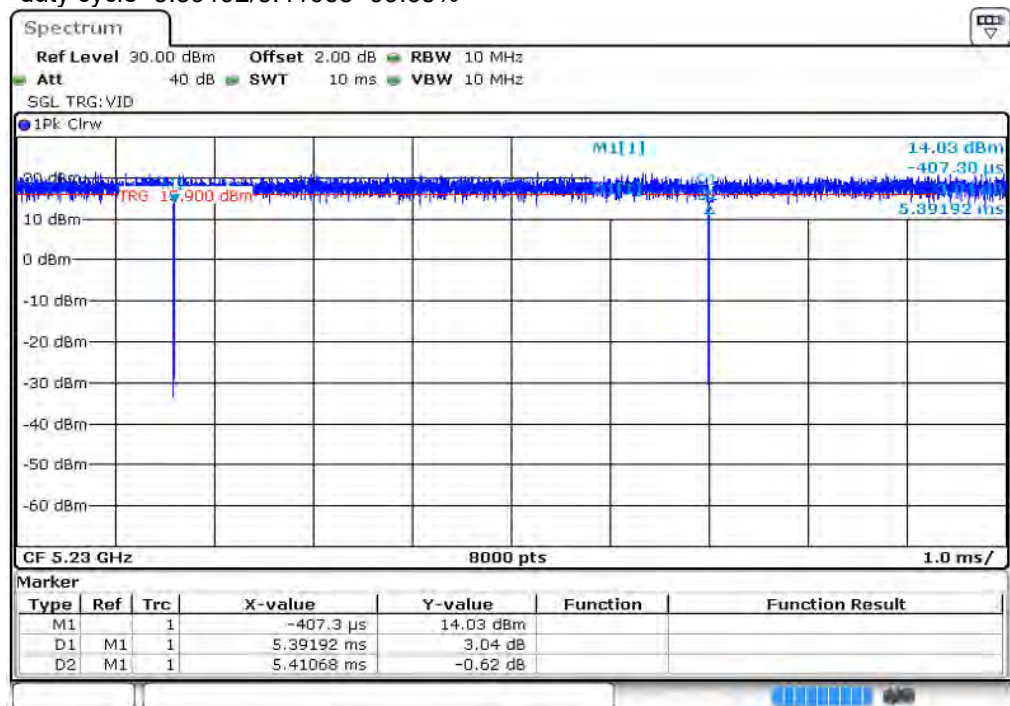
5GHz Wi-Fi Ant8 802.11ac 160M:
duty cycle=5.39192/5.41068=99.65%



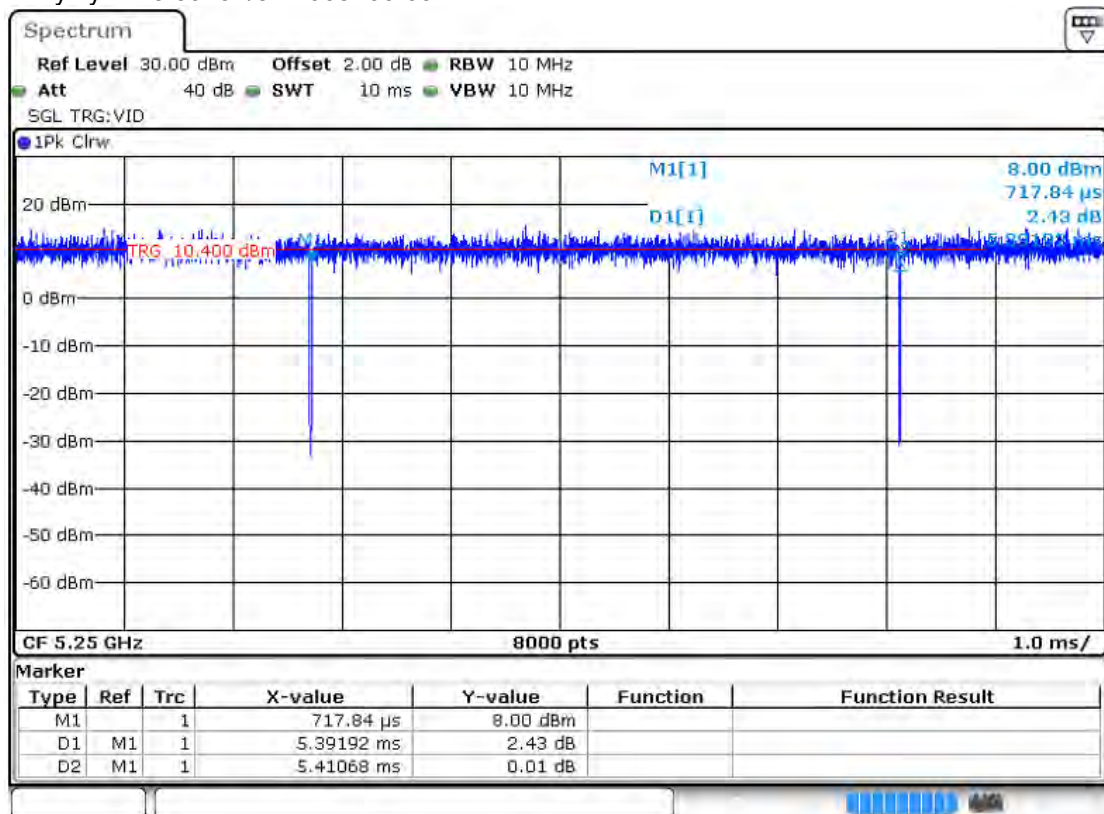
5GHz Wi-Fi Ant2 802.11ac 80M:
duty cycle=5.39192/5.41068=99.65%



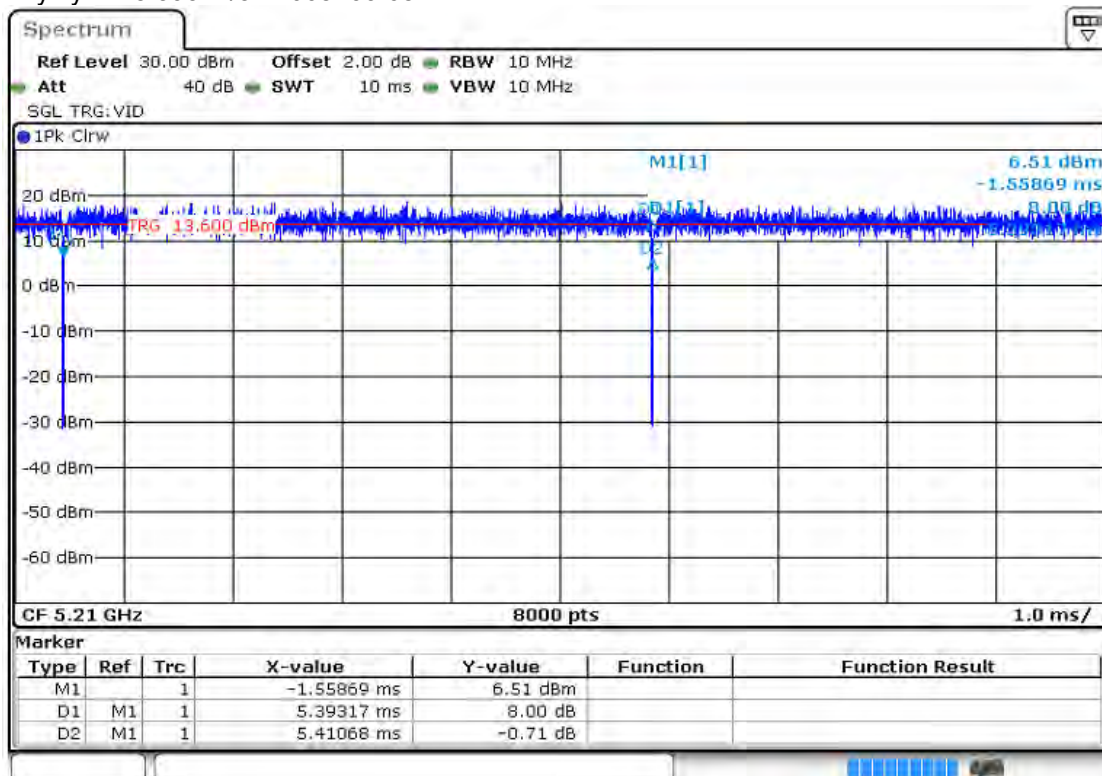
5GHz Wi-Fi Ant2 802.11n 40M:
duty cycle=5.39192/5.41068=99.65%



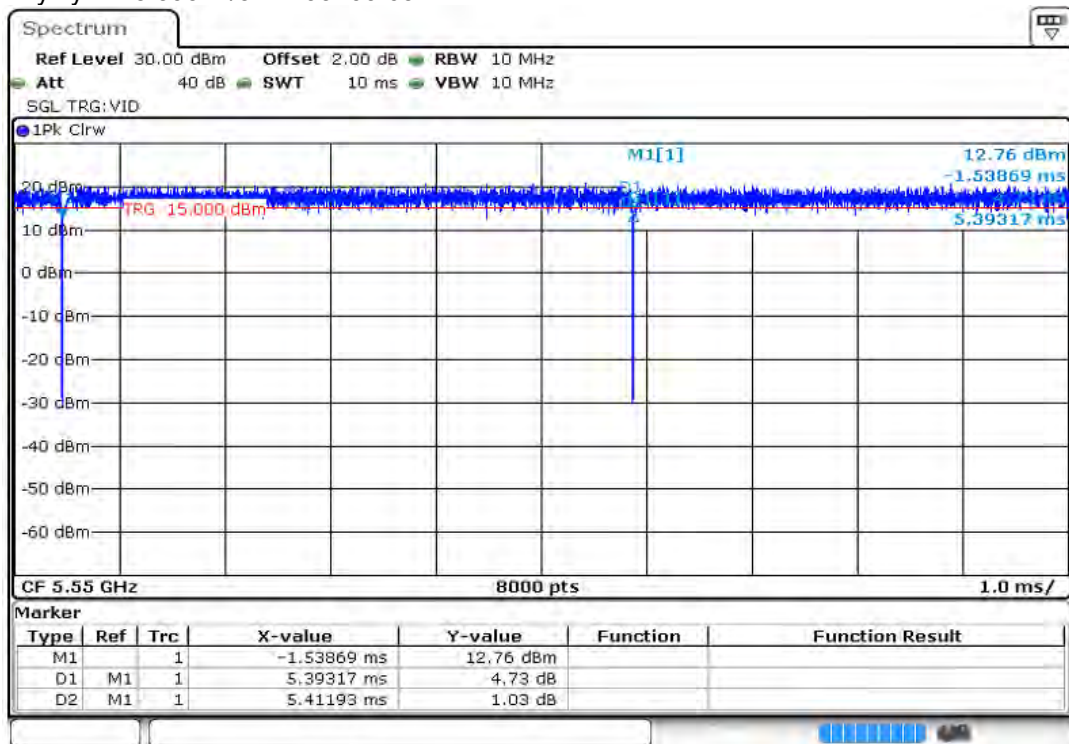
5GHz Wi-Fi Ant2 802.11ac 160M:
duty cycle= $5.39192/5.41068=99.65\%$



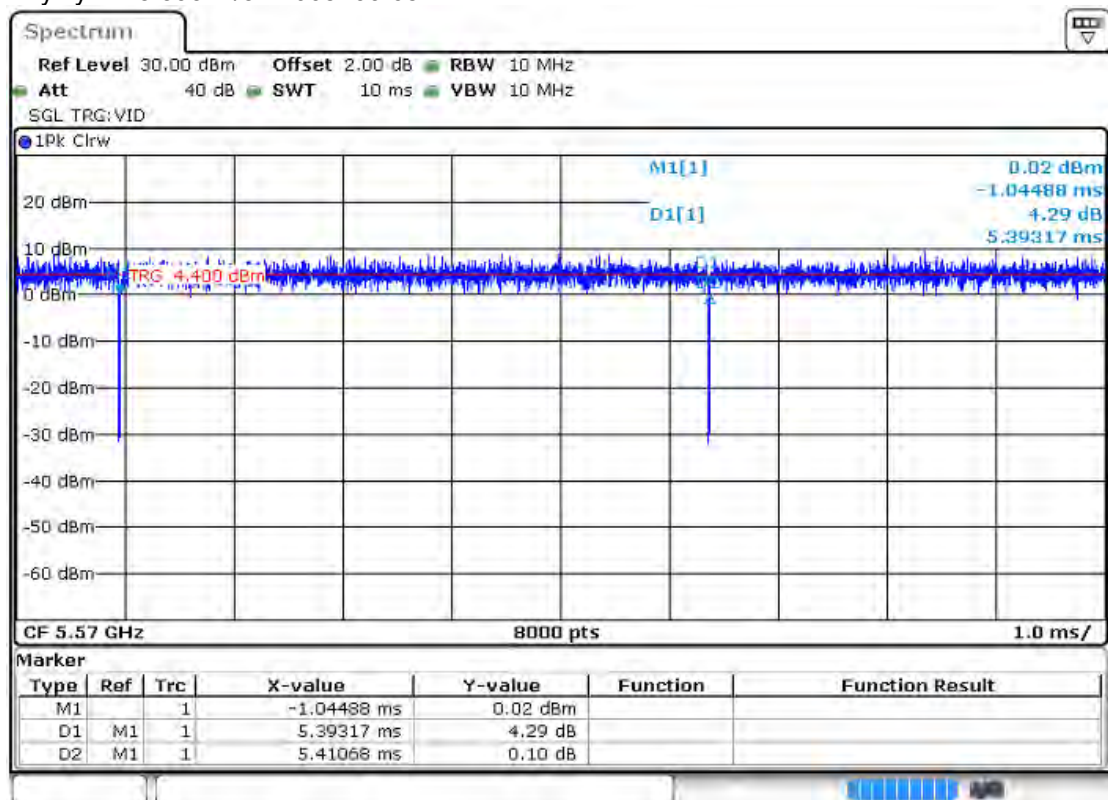
5GHz Wi-Fi MIMO 802.11ac 80M:
duty cycle=5.39317/5.41068=99.68%



5GHz Wi-Fi MIMO 802.11n 40M:
duty cycle=5.39317/5.41193=99.65%



5GHz Wi-Fi MIMO 802.11ac 160M:
duty cycle=5.39317/5.41068=99.68%



7.3.3.2 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.

7.3.3.3 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.

7.3.3.4 Subsequent Test Configuration Procedures

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

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
 - 2) . When the highest *reported* SAR for the initial test configuration (when applicable, include subsequent highest output channels), according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.
 - 3) . The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.
 - a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.
 - b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the *reported* SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.
 - 4) . SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:
 - a) replace "subsequent test configuration" with "next subsequent test configuration" (i.e., subsequent next highest specified maximum output power configuration)
 - b) replace "initial test configuration" with "all tested higher output power configurations"
-

7.3.3.5 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.

7.3.3.6 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.

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

- **SAR Test Requirements for OFDM configurations**

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

7.3.3.7 WiFi CDD/MIMO SAR Considerations

Per KDB 248227D01v02r02, simultaneous transmission provisions in KDB Publication 447498 should be used to determine simultaneous transmission SAR test exclusion for WiFi MIMO. If the sum of 1-g SAR single transmission SAR measurement is $<1.6\text{W/kg}$, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

7.3.4 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 R&S CMW500 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.

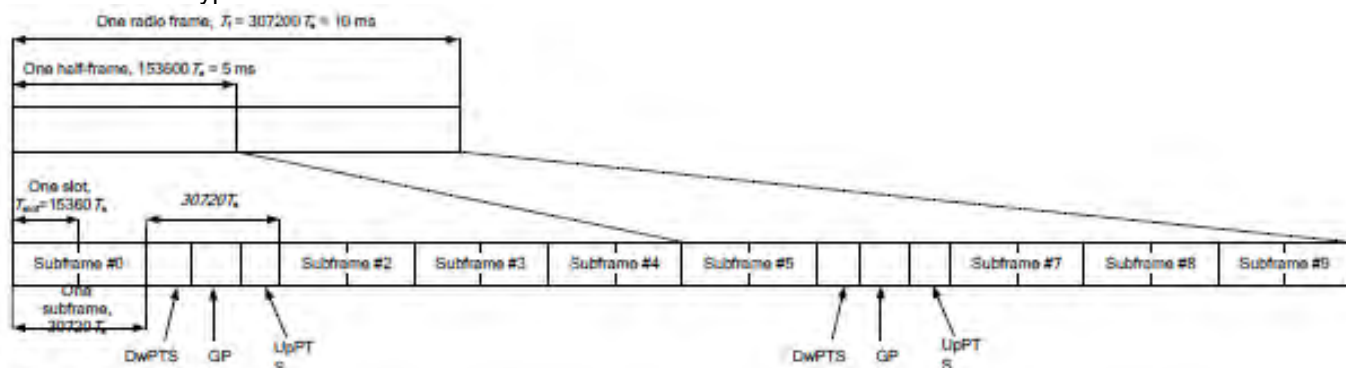
TDD LTE test consideration

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	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.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

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 V13.5.0 (2016-09) 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.

7.3.5 NR Band Test Configuration

1. NR Band n5/n7/n38 only support SA mode.
 2. The following NR Band power for NR Band n5 performed 20/15/10/5MHz base on DFT-s-OFDM/CP-OFDM QPSK/16QAM/64QAM/256QAM SCS 15kHz declared by manufacturer.
 3. The following NR Band n7 performed 50/40/30/25/20/15/10/5MHz base on DFT-s-OFDM/CP-OFDM QPSK/16QAM /64QAM/256QAM SCS 15kHz declared by manufacturer.
 4. The following NR Band n38 performed 20MHz base on DFT-s-OFDM/CP-OFDM QPSK/16QAM /64QAM/256QAM SCS 30kHz declared by manufacturer.
 5. For 5G NR test procedure was following step similar FCC KDB 941225 D05:
 - a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
 - b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for 16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM/64QMA/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.
 - c. SAR testing start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
 - d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
 - e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
 - f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
 - g. Smaller bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device
-

6. MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS 38.101-1 Section 6.2.2 under Table 6.2.2 -1.

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	PI/2 BPSK	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0^2
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability powerBoosting-pi2BPSK and if the IE powerBoostPi2BPSK is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE powerBoostPi2BPSK is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

7. For NR Band operation does not have the fixed UL/DL frame structure, but during the transmitting/ receiving it can be operated in the slot structure of 100% UL duty cycle, we are proposing the conservative way to evaluate SAR at 100% duty cycle. For the purpose of test NR Band standalone SAR, and also test SAR level at 100% TX duty cycle.

8. For TDD NR Band operation and final implementation, TDD NR slot configuration extended cyclic prefix uplink duty cycle =92.5%; However, EN-DC transmission on test DUT is only possible using FTM mode with continuous transmission (duty cycle =100%). SAR testing was performed using FTM mode at maximum output power adjusted for duty cycle to mimic final 92.5% cycle.

5G NR(SA) Antenna Power Level (dBm)	Not Adjusted for duty cycle		Adjusted for duty cycle	
	Ant3	Ant4	Ant3	Ant4
Power Reduction Scenario	n38	n38	n38	n38
receiver on	15.70	24.30	15.4	24.0
Receiver on+ WIFI 2.4G/5G	12.30	24.30	12.0	24.0
Receiver on+WIFI 2.4G+5G				
receiver off	17.70	22.60	17.4	22.3
Receiver off+WIFI 2.4G/5G	16.10	22.10	15.8	21.8
Receiver off+WIFI 2.4G+5G				

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

- 1) For SA SISO, each NR Tx antenna is set to the maximum transmit power level respectively and test the SAR respectively in all applicable RF exposure conditions.

8 Test Result

8.1 Measurement of RF Conducted Power

The detailed conducted power table can refer to Appendix E.

8.1.1 Conducted Power of GSM

Note:

- 1) . Test equipment 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

Note: Conducted Power Results refer to Appendix.

8.1.4 Conducted Power of Downlink and Uplink LTE CA

The following conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion. Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

Power test equipment: Anritsu Radio Communication Analyzer MT8821C were used.

8.1.4.1 Conducted Power of Uplink LTE CA

Note:

- 1) This device supports uplink carrier aggregation for LTE CA_7C, CA_38C, CA_41C with a maximum of two 20MHz component carriers.
 - 2) According to FCC guidance, the output power with uplink CA active was measured for the high / middle / low channel configuration with the highest reported SAR for each exposure condition, the power was measured with wideband signal integration over both component carriers.
 - 3) In applying the power measurement procedures of KDB 941225 D05A for DL CA to qualify for UL SAR test exclusion, power measurement is required only for the subset in each row with the largest combination of frequency bands and CCs.
 - 4) Maximum output power measurement is required for each UL CA configuration for the required test channels described in KDB 941225 D05.
-

8.1.4.2 Conducted Power of Downlink LTE CA

According to 201711 FCC RF Exposure TCB workshop slides, in applying the existing power measurement procedures for DL CA SAR test exclusion, the configurations that require power measurements are highlighted in the table as below:

1 Band / 2CC	1 Band / 3CC	2 Bands / 2CC	2 Bands / 3CC	2 Bands / 4CC
CA_7B			CA_4A-7C	
CA_7C			CA_5A-7C	
CA_7A-7A				
CA_38C				
CA_41C	CA_41A-41C			
CA_41A-41A		CA_2A-5A		
CA_66A-66A		CA_4A-5A		
	CA_41D	CA_4A-7A	CA_7A-66A-66A	
		CA_5A-7A		CA_7C-66A-66A
		CA_5A-41A		

Note:

- 1) Only green highlighted cells need power measurement.
- 2) The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

8.1.5 Conducted Power of WIFI and BT

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.

BT DH5 Duty Cycle=2.8829/3.7536=76.80%



8.2 Stand-alone SAR test evaluation

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity 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	2.45	Head	15.00	31.62	0	9.9	3	N
		Body-worn	19.50	89.13	15	9.3	3	N
		hotspot	19.50	89.13	10	14.0	3	N
Wi-Fi	5	Head	13.50	22.39	0	10.0	3	N
		Body-worn	18.50	70.79	15	10.6	3	N
		hotspot	18.50	70.79	10	15.8	3	N
Bluetooth	2.48	Head	13.1	20.42	0	6.5	3	N
		Body-worn	13.1	20.42	15	2.2	3	Y
		hotspot	13.1	20.42	10	3.3	3	N

Note:

1) * - maximum possible output power declared by manufacturer

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:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$$
 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.

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	0.482	0.09	33.35	34.00	1.161	0.560	22.1
Left tilted	GSM	190/836.6	1:8.3	0.117	0.02	33.35	34.00	1.161	0.136	22.1
Right cheek	GSM	190/836.6	1:8.3	0.666	0.12	33.35	34.00	1.161	0.774	22.1
Right tilted	GSM	190/836.6	1:8.3	0.121	-0.01	33.35	34.00	1.161	0.141	22.1
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.166	0.120	33.35	34.00	1.161	0.193	22.1
Back side	GSM	190/836.6	1:8.3	0.194	-0.030	33.35	34.00	1.161	0.225	22.1
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	190/836.6	1:2.77	0.256	-0.02	28.47	30.00	1.422	0.364	22.1
Back side	GPRS 3TS	190/836.6	1:2.77	0.338	-0.09	28.47	30.00	1.422	0.481	22.1
Left side	GPRS 3TS	190/836.6	1:2.77	0.454	-0.04	28.47	30.00	1.422	0.646	22.1
Top side	GPRS 3TS	190/836.6	1:2.77	0.020	-0.06	28.47	30.00	1.422	0.028	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	0.111	0.05	33.85	34.00	1.035	0.115	22.1
Left tilted	GSM	190/836.6	1:8.3	0.089	0.11	33.85	34.00	1.035	0.092	22.1
Right cheek	GSM	190/836.6	1:8.3	0.005	-0.06	33.85	34.00	1.035	0.005	22.1
Right tilted	GSM	190/836.6	1:8.3	0.004	0.08	33.85	34.00	1.035	0.004	22.1
Body worn Test data(Separate 15mm)										
Front side	GSM	190/836.6	1:8.3	0.268	0.07	33.85	34.00	1.035	0.277	22.1
Back side	GSM	190/836.6	1:8.3	0.313	-0.04	33.85	34.00	1.035	0.324	22.1
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	190/836.6	1:2.77	0.412	-0.12	29.34	30.00	1.164	0.480	22.1
Back side	GPRS 3TS	190/836.6	1:2.77	0.475	0.05	29.34	30.00	1.164	0.553	22.1
Left side	GPRS 3TS	190/836.6	1:2.77	0.133	0.06	29.34	30.00	1.164	0.155	22.1
Right side	GPRS 3TS	190/836.6	1:2.77	0.384	0.18	29.34	30.00	1.164	0.447	22.1
Bottom side	GPRS 3TS	190/836.6	1:2.77	0.332	0.06	29.34	30.00	1.164	0.386	22.1

Table 11: SAR of GSM850 for Head and Body.

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 multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.

8.3.2 SAR Result of GSM1900

Ant3 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	0.494	0.06	24.16	24.50	1.081	0.534	22.3
Left tilted	GSM	661/1880	1:8.3	0.660	-0.10	24.16	24.50	1.081	0.714	22.3
Right cheek	GSM	661/1880	1:8.3	0.554	-0.05	24.16	24.50	1.081	0.599	22.3
Right tilted	GSM	661/1880	1:8.3	0.685	-0.03	24.16	24.50	1.081	0.741	22.3
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.169	0.04	29.35	30.00	1.161	0.196	22.3
Back side	GSM	661/1880	1:8.3	0.213	-0.03	29.35	30.00	1.161	0.247	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	661/1880	1:2.77	0.280	0.18	24.95	26.00	1.274	0.357	22.3
Back side	GPRS 3TS	661/1880	1:2.77	0.342	-0.12	24.95	26.00	1.274	0.436	22.3
Left side	GPRS 3TS	661/1880	1:2.77	0.040	-0.09	24.95	26.00	1.274	0.051	22.3
Top side	GPRS 3TS	661/1880	1:2.77	0.622	-0.14	24.95	26.00	1.274	0.792	22.3
Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G&WIFI 5G))										
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 tilted	GSM	661/1880	1:8.3	0.354	0.15	22.41	22.50	1.021	0.361	22.3
Ant4 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	0.036	0.07	30.63	31.00	1.089	0.039	22.3
Left tilted	GSM	661/1880	1:8.3	0.021	0.06	30.63	31.00	1.089	0.023	22.3
Right cheek	GSM	661/1880	1:8.3	0.050	0.07	30.63	31.00	1.089	0.054	22.3
Right tilted	GSM	661/1880	1:8.3	0.018	0.14	30.63	31.00	1.089	0.020	22.3
Body worn Test data(Separate 15mm)										
Front side	GSM	661/1880	1:8.3	0.167	0.13	30.63	31.00	1.089	0.182	22.3
Back side	GSM	661/1880	1:8.3	0.253	0.01	30.63	31.00	1.089	0.275	22.3
Hotspot Test data(Separate 10mm)										
Front side	GPRS 3TS	661/1880	1:2.77	0.218	-0.01	25.77	27.00	1.327	0.289	22.3
Back side	GPRS 3TS	661/1880	1:2.77	0.318	0.10	25.77	27.00	1.327	0.422	22.3
Left side	GPRS 3TS	661/1880	1:2.77	0.030	0.02	25.77	27.00	1.327	0.039	22.3
Right side	GPRS 3TS	661/1880	1:2.77	0.165	0.14	25.77	27.00	1.327	0.219	22.3
Bottom side	GPRS 3TS	661/1880	1:2.77	0.485	-0.13	25.77	27.00	1.327	0.644	22.3

Table 12: SAR of GSM1900 for Head and Body.

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 multiple slots can be used, SAR should be tested to account for the maximum source-based time-averaged output power.

8.3.3 SAR Result of WCDMA Band II

Ant3 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	0.320	-0.06	13.51	14.40	1.227	0.393	22.3
Left tilted	RMC	9400/1880	1:1	0.491	-0.09	13.51	14.40	1.227	0.603	22.3
Right cheek	RMC	9400/1880	1:1	0.462	-0.18	13.51	14.40	1.227	0.567	22.3
Right tilted	RMC	9400/1880	1:1	0.628	-0.06	13.51	14.40	1.227	0.771	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.092	0.14	19.10	20.00	1.230	0.114	22.3
Back side	RMC	9400/1880	1:1	0.113	-0.15	19.10	20.00	1.230	0.139	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.176	0.01	19.10	20.00	1.230	0.217	22.3
Back side	RMC	9400/1880	1:1	0.217	0.08	19.10	20.00	1.230	0.267	22.3
Left side	RMC	9400/1880	1:1	0.027	-0.05	19.10	20.00	1.230	0.033	22.3
Top side	RMC	9400/1880	1:1	0.379	-0.02	19.10	20.00	1.230	0.466	22.3
Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G&WIFI 5G))										
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 tilted	RMC	9400/1880	1:1	0.312	0.00	12.34	13.00	1.164	0.363	22.3
Ant4 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	0.088	-0.03	23.93	24.80	1.222	0.108	22.3
Left tilted	RMC	9400/1880	1:1	0.033	0.07	23.93	24.80	1.222	0.040	22.3
Right cheek	RMC	9400/1880	1:1	0.054	0.06	23.93	24.80	1.222	0.066	22.3
Right tilted	RMC	9400/1880	1:1	0.018	0.06	23.93	24.80	1.222	0.022	22.3
Body worn Test data(Separate 15mm)										
Front side	RMC	9400/1880	1:1	0.249	0.02	21.38	21.80	1.102	0.274	22.3
Back side	RMC	9400/1880	1:1	0.251	-0.02	21.38	21.80	1.102	0.276	22.3
Hotspot Test data(Separate 10mm)										
Front side	RMC	9400/1880	1:1	0.262	0.02	21.38	21.80	1.102	0.289	22.3
Back side	RMC	9400/1880	1:1	0.364	0.03	21.38	21.80	1.102	0.401	22.3
Left side	RMC	9400/1880	1:1	0.044	-0.07	21.38	21.80	1.102	0.048	22.3
Right side	RMC	9400/1880	1:1	0.215	-0.04	21.38	21.80	1.102	0.237	22.3
Bottom side	RMC	9400/1880	1:1	0.598	-0.03	21.38	21.80	1.102	0.659	22.3

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

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).

8.3.4 SAR Result of WCDMA Band IV

Ant3 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	0.242	-0.10	18.62	20.00	1.374	0.333	22.2
Left tilted	RMC	1412/1732.4	1:1	0.402	-0.09	18.62	20.00	1.374	0.552	22.2
Right cheek	RMC	1412/1732.4	1:1	0.428	-0.03	18.62	20.00	1.374	0.588	22.2
Right tilted	RMC	1412/1732.4	1:1	0.577	-0.06	18.62	20.00	1.374	0.793	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.035	-0.19	18.62	20.00	1.374	0.048	22.2
Back side	RMC	1412/1732.4	1:1	0.040	-0.12	18.62	20.00	1.374	0.055	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.069	0.01	18.62	20.00	1.374	0.094	22.2
Back side	RMC	1412/1732.4	1:1	0.080	-0.05	18.62	20.00	1.374	0.110	22.2
Left side	RMC	1412/1732.4	1:1	0.021	-0.06	18.62	20.00	1.374	0.029	22.2
Top side	RMC	1412/1732.4	1:1	0.148	-0.01	18.62	20.00	1.374	0.203	22.2
Ant4 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	-0.19	23.11	24.00	1.227	0.111	22.2
Left tilted	RMC	1412/1732.4	1:1	0.063	0.00	23.11	24.00	1.227	0.077	22.2
Right cheek	RMC	1412/1732.4	1:1	0.039	-0.03	23.11	24.00	1.227	0.048	22.2
Right tilted	RMC	1412/1732.4	1:1	0.028	0.02	23.11	24.00	1.227	0.034	22.2
Body worn Test data(Separate 15mm)										
Front side	RMC	1412/1732.4	1:1	0.113	-0.13	22.25	23.00	1.189	0.134	22.2
Back side	RMC	1412/1732.4	1:1	0.153	-0.03	22.25	23.00	1.189	0.182	22.2
Hotspot Test data(Separate 10mm)										
Front side	RMC	1412/1732.4	1:1	0.195	-0.01	22.25	23.00	1.189	0.232	22.2
Back side	RMC	1412/1732.4	1:1	0.283	-0.18	22.25	23.00	1.189	0.336	22.2
Left side	RMC	1412/1732.4	1:1	0.033	-0.09	22.25	23.00	1.189	0.040	22.2
Right side	RMC	1412/1732.4	1:1	0.222	-0.04	22.25	23.00	1.189	0.264	22.2
Bottom side	RMC	1412/1732.4	1:1	0.442	-0.03	22.25	23.00	1.189	0.525	22.2

Table 14: SAR of WCDMA Band IV for Head and Body.

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).

8.3.5 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	0.468	0.11	23.25	25.00	1.496	0.700	22.1
Left tilted	RMC	4182/836.4	1:1	0.130	-0.02	23.25	25.00	1.496	0.195	22.1
Right cheek	RMC	4182/836.4	1:1	0.514	-0.02	23.25	25.00	1.496	0.769	22.1
Right tilted	RMC	4182/836.4	1:1	0.155	-0.17	23.25	25.00	1.496	0.232	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.130	-0.02	23.25	25.00	1.496	0.195	22.1
Back side	RMC	4182/836.4	1:1	0.202	-0.03	23.25	25.00	1.496	0.302	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.224	-0.19	23.25	25.00	1.496	0.335	22.1
Back side	RMC	4182/836.4	1:1	0.360	-0.07	23.25	25.00	1.496	0.539	22.1
Left side	RMC	4182/836.4	1:1	0.527	-0.16	23.25	25.00	1.496	0.789	22.1
Top side	RMC	4182/836.4	1:1	0.017	-0.14	23.25	25.00	1.496	0.026	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	0.141	0.05	24.27	25.00	1.183	0.167	22.1
Left tilted	RMC	4182/836.4	1:1	0.105	-0.04	24.27	25.00	1.183	0.124	22.1
Right cheek	RMC	4182/836.4	1:1	0.200	-0.18	24.27	25.00	1.183	0.237	22.1
Right tilted	RMC	4182/836.4	1:1	0.078	0.05	24.27	25.00	1.183	0.093	22.1
Body worn Test data(Separate 15mm)										
Front side	RMC	4182/836.4	1:1	0.269	0.03	24.27	25.00	1.183	0.318	22.1
Back side	RMC	4182/836.4	1:1	0.310	0.02	24.27	25.00	1.183	0.367	22.1
Hotspot Test data(Separate 10mm)										
Front side	RMC	4182/836.4	1:1	0.469	0.06	24.27	25.00	1.183	0.555	22.1
Back side	RMC	4182/836.4	1:1	0.531	0.04	24.27	25.00	1.183	0.628	22.1
Left side	RMC	4182/836.4	1:1	0.165	-0.19	24.27	25.00	1.183	0.195	22.1
Right side	RMC	4182/836.4	1:1	0.353	-0.18	24.27	25.00	1.183	0.418	22.1
Bottom side	RMC	4182/836.4	1:1	0.395	-0.05	24.27	25.00	1.183	0.467	22.1

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

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).

8.3.6 SAR Result of LTE Band 2

Ant3 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	0.271	-0.11	14.21	14.70	1.119	0.303	22.3
Left tilted	20	QPSK 1RB_50	18900/1880	1:1	0.444	-0.19	14.21	14.70	1.119	0.497	22.3
Right cheek	20	QPSK 1RB_50	18900/1880	1:1	0.416	-0.09	14.21	14.70	1.119	0.466	22.3
Right tilted	20	QPSK 1RB_50	18900/1880	1:1	0.572	-0.04	14.21	14.70	1.119	0.640	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_25	18900/1880	1:1	0.263	-0.12	13.87	14.70	1.211	0.318	22.3
Left tilted	20	QPSK 50RB_25	18900/1880	1:1	0.442	-0.16	13.87	14.70	1.211	0.535	22.3
Right cheek	20	QPSK 50RB_25	18900/1880	1:1	0.483	-0.03	13.87	14.70	1.211	0.585	22.3
Right tilted	20	QPSK 50RB_25	18900/1880	1:1	0.565	-0.02	13.87	14.70	1.211	0.684	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_0	18900/1880	1:1	0.136	0.07	19.58	20.00	1.102	0.150	22.3
Back side	20	QPSK 1RB_0	18900/1880	1:1	0.169	-0.01	19.58	20.00	1.102	0.186	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_50	18900/1880	1:1	0.131	0.03	19.18	20.00	1.208	0.158	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.163	-0.04	19.18	20.00	1.208	0.197	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_0	18900/1880	1:1	0.257	0.06	19.58	20.00	1.102	0.283	22.3
Back side	20	QPSK 1RB_0	18900/1880	1:1	0.283	-0.08	19.58	20.00	1.102	0.312	22.3
Left side	20	QPSK 1RB_0	18900/1880	1:1	0.047	-0.02	19.58	20.00	1.102	0.051	22.3
Top side	20	QPSK 1RB_0	18900/1880	1:1	0.643	-0.06	19.58	20.00	1.102	0.708	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	18900/1880	1:1	0.249	0.05	19.18	20.00	1.208	0.301	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.299	-0.06	19.18	20.00	1.208	0.361	22.3
Left side	20	QPSK 50RB_50	18900/1880	1:1	0.048	-0.02	19.18	20.00	1.208	0.058	22.3
Top side	20	QPSK 50RB_50	18900/1880	1:1	0.630	-0.05	19.18	20.00	1.208	0.761	22.3
Ant4 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_99	18900/1880	1:1	0.090	0.06	23.16	24.00	1.213	0.109	22.3
Left tilted	20	QPSK 1RB_99	18900/1880	1:1	0.051	-0.10	23.16	24.00	1.213	0.062	22.3
Right cheek	20	QPSK 1RB_99	18900/1880	1:1	0.097	0.17	23.16	24.00	1.213	0.117	22.3
Right tilted	20	QPSK 1RB_99	18900/1880	1:1	0.033	-0.04	23.16	24.00	1.213	0.040	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_25	19100/1900	1:1	0.076	0.09	22.21	23.00	1.199	0.091	22.3
Left tilted	20	QPSK 50RB_25	19100/1900	1:1	0.041	-0.02	22.21	23.00	1.199	0.049	22.3
Right cheek	20	QPSK 50RB_25	19100/1900	1:1	0.090	-0.07	22.21	23.00	1.199	0.107	22.3
Right tilted	20	QPSK 50RB_25	19100/1900	1:1	0.027	-0.06	22.21	23.00	1.199	0.032	22.3
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_50	18900/1880	1:1	0.236	0.13	22.82	23.00	1.042	0.246	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.316	-0.01	22.82	23.00	1.042	0.329	22.3
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_50	18900/1880	1:1	0.250	0.12	22.62	23.00	1.091	0.273	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.330	-0.13	22.62	23.00	1.091	0.360	22.3
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	18900/1880	1:1	0.396	0.10	22.82	23.00	1.042	0.413	22.3
Back side	20	QPSK 1RB_50	18900/1880	1:1	0.526	-0.01	22.82	23.00	1.042	0.548	22.3
Left side	20	QPSK 1RB_50	18900/1880	1:1	0.054	-0.06	22.82	23.00	1.042	0.057	22.3
Right side	20	QPSK 1RB_50	18900/1880	1:1	0.244	-0.01	22.82	23.00	1.042	0.254	22.3
Bottom side	20	QPSK 1RB_50	18900/1880	1:1	0.706	-0.09	22.82	23.00	1.042	0.736	22.3
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	18900/1880	1:1	0.406	0.10	22.62	23.00	1.091	0.443	22.3
Back side	20	QPSK 50RB_50	18900/1880	1:1	0.542	-0.03	22.62	23.00	1.091	0.592	22.3
Left side	20	QPSK 50RB_50	18900/1880	1:1	0.055	-0.08	22.62	23.00	1.091	0.060	22.3

Right side	20	QPSK 50RB 50	18900/1880	1:1	0.246	-0.01	22.62	23.00	1.091	0.268	22.3
Bottom side	20	QPSK 50RB 50	18900/1880	1:1	0.708	-0.07	22.62	23.00	1.091	0.773	22.3

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

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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8.3.7 SAR Result of LTE Band 4

Ant3 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	0.289	-0.15	20.63	21.00	1.089	0.315	22.2
Left tilted	20	QPSK 1RB_0	20175/1732.5	1:1	0.493	-0.09	20.63	21.00	1.089	0.537	22.2
Right cheek	20	QPSK 1RB_0	20175/1732.5	1:1	0.501	-0.07	20.63	21.00	1.089	0.546	22.2
Right tilted	20	QPSK 1RB_0	20175/1732.5	1:1	0.713	-0.07	20.63	21.00	1.089	0.776	22.2
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	20300/1745	1:1	0.317	-0.17	20.24	21.00	1.191	0.378	22.2
Left tilted	20	QPSK 50RB_0	20300/1745	1:1	0.549	-0.06	20.24	21.00	1.191	0.654	22.2
Right cheek	20	QPSK 50RB_0	20300/1745	1:1	0.682	-0.04	20.24	21.00	1.191	0.812	22.2
Right tilted	20	QPSK 50RB_0	20300/1745	1:1	0.801	-0.05	20.24	21.00	1.191	0.954	22.2
Right tilted-repeat	20	QPSK 50RB_0	20300/1745	1:1	0.789	-0.05	20.24	21.00	1.191	0.940	22.2
Right cheek	20	QPSK 50RB_25	20050/1720	1:1	0.626	-0.09	20.15	21.00	1.216	0.761	22.2
Right cheek	20	QPSK 50RB_0	20175/1732.5	1:1	0.676	-0.01	20.15	21.00	1.216	0.822	22.2
Right tilted	20	QPSK 50RB_25	20050/1720	1:1	0.684	-0.04	20.15	21.00	1.216	0.832	22.2
Right tilted	20	QPSK 50RB_0	20175/1732.5	1:1	0.747	-0.06	20.15	21.00	1.216	0.908	22.2
Head Test data(100%RB)											
Right cheek	20	QPSK 100RB_0	20300/1745	1:1	0.610	-0.07	20.25	21.00	1.189	0.725	22.2
Right tilted	20	QPSK 100RB_0	20300/1745	1:1	0.799	-0.07	20.25	21.00	1.189	0.950	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_0	20175/1732.5	1:1	0.036	-0.03	20.63	21.00	1.089	0.040	22.2
Back side	20	QPSK 1RB_0	20175/1732.5	1:1	0.043	0.06	20.63	21.00	1.089	0.047	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_0	20300/1745	1:1	0.038	0.03	20.24	21.00	1.191	0.046	22.2
Back side	20	QPSK 50RB_0	20300/1745	1:1	0.045	-0.02	20.24	21.00	1.191	0.054	22.2
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_0	20175/1732.5	1:1	0.072	-0.09	20.63	21.00	1.089	0.079	22.2
Back side	20	QPSK 1RB_0	20175/1732.5	1:1	0.082	-0.12	20.63	21.00	1.089	0.089	22.2
Left side	20	QPSK 1RB_0	20175/1732.5	1:1	0.020	-0.19	20.63	21.00	1.089	0.022	22.2
Top side	20	QPSK 1RB_0	20175/1732.5	1:1	0.179	-0.06	20.63	21.00	1.089	0.195	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	20300/1745	1:1	0.076	0.18	20.24	21.00	1.191	0.090	22.2
Back side	20	QPSK 50RB_0	20300/1745	1:1	0.089	0.18	20.24	21.00	1.191	0.106	22.2
Left side	20	QPSK 50RB_0	20300/1745	1:1	0.020	-0.17	20.24	21.00	1.191	0.024	22.2
Top side	20	QPSK 50RB_0	20300/1745	1:1	0.185	-0.03	20.24	21.00	1.191	0.220	22.2
Ant4 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	0.083	-0.03	23.32	24.00	1.169	0.097	22.2
Left tilted	20	QPSK 1RB_0	20175/1732.5	1:1	0.078	-0.01	23.32	24.00	1.169	0.092	22.2
Right cheek	20	QPSK 1RB_0	20175/1732.5	1:1	0.091	0.07	23.32	24.00	1.169	0.106	22.2
Right tilted	20	QPSK 1RB_0	20175/1732.5	1:1	0.080	-0.05	23.32	24.00	1.169	0.094	22.3
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	20050/1720	1:1	0.065	-0.13	22.19	23.00	1.205	0.078	22.2
Left tilted	20	QPSK 50RB_0	20050/1720	1:1	0.062	-0.18	22.19	23.00	1.205	0.075	22.2
Right cheek	20	QPSK 50RB_0	20050/1720	1:1	0.080	-0.17	22.19	23.00	1.205	0.096	22.2
Right tilted	20	QPSK 50RB_0	20050/1720	1:1	0.063	-0.12	22.19	23.00	1.205	0.076	22.2
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_0	20175/1732.5	1:1	0.136	0.19	22.20	22.50	1.072	0.146	22.2
Back side	20	QPSK 1RB_0	20175/1732.5	1:1	0.165	0.01	22.20	22.50	1.072	0.177	22.2
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_0	20175/1732.5	1:1	0.145	0.17	21.63	22.50	1.222	0.177	22.2
Back side	20	QPSK 50RB_0	20175/1732.5	1:1	0.171	-0.02	21.63	22.50	1.222	0.209	22.2

Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_0	20175/1732.5	1:1	0.248	0.07	22.12	22.50	1.091	0.271	22.2
Back side	20	QPSK 1RB_0	20175/1732.5	1:1	0.320	-0.02	22.12	22.50	1.091	0.349	22.2
Left side	20	QPSK 1RB_0	20175/1732.5	1:1	0.031	-0.05	22.12	22.50	1.091	0.034	22.2
Right side	20	QPSK 1RB_0	20175/1732.5	1:1	0.220	-0.01	22.12	22.50	1.091	0.240	22.2
Bottom side	20	QPSK 1RB_0	20175/1732.5	1:1	0.425	-0.08	22.12	22.50	1.091	0.464	22.2
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_0	20175/1732.5	1:1	0.249	0.07	21.63	22.50	1.222	0.304	22.2
Back side	20	QPSK 50RB_0	20175/1732.5	1:1	0.324	-0.07	21.63	22.50	1.222	0.396	22.2
Left side	20	QPSK 50RB_0	20175/1732.5	1:1	0.032	-0.09	21.63	22.50	1.222	0.039	22.2
Right side	20	QPSK 50RB_0	20175/1732.5	1:1	0.221	-0.08	21.63	22.50	1.222	0.270	22.2
Bottom side	20	QPSK 50RB_0	20175/1732.5	1:1	0.436	-0.05	21.63	22.50	1.222	0.533	22.2

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

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	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right tilted (Ant3)	20300/1745	0.801	0.789	1.015	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

Table 18: SAR Measurement Variability Results

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	20525/836.5	1:1	0.369	0.05	22.24	23.50	1.337	0.493	22.1
Left tilted	10	QPSK 1RB_25	20525/836.5	1:1	0.093	0.00	22.24	23.50	1.337	0.124	22.1
Right cheek	10	QPSK 1RB_25	20525/836.5	1:1	0.547	0.12	22.24	23.50	1.337	0.731	22.1
Right tilted	10	QPSK 1RB_25	20525/836.5	1:1	0.118	-0.02	22.24	23.50	1.337	0.158	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_25	20450/829	1:1	0.242	0.02	22.25	23.50	1.334	0.323	22.1
Left tilted	10	QPSK25RB_25	20450/829	1:1	0.077	-0.01	22.25	23.50	1.334	0.103	22.1
Right cheek	10	QPSK25RB_25	20450/829	1:1	0.472	-0.17	22.25	23.50	1.334	0.629	22.1
Right tilted	10	QPSK25RB_25	20450/829	1:1	0.095	0.13	22.25	23.50	1.334	0.127	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.127	0.09	23.66	25.20	1.426	0.181	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.197	-0.18	23.66	25.20	1.426	0.281	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_13	20600/844	1:1	0.103	0.03	22.68	24.20	1.419	0.146	22.1
Back side	10	QPSK25RB_13	20600/844	1:1	0.158	0.04	22.68	24.20	1.419	0.224	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_25	20600/844	1:1	0.249	0.05	23.66	25.20	1.426	0.355	22.1
Back side	10	QPSK 1RB_25	20600/844	1:1	0.392	-0.02	23.66	25.20	1.426	0.559	22.1
Left side	10	QPSK 1RB_25	20600/844	1:1	0.550	-0.03	23.66	25.20	1.426	0.784	22.1
Top side	10	QPSK 1RB_25	20600/844	1:1	0.019	0.03	23.66	25.20	1.426	0.027	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_13	20600/844	1:1	0.202	0.09	22.68	24.20	1.419	0.287	22.1
Back side	10	QPSK25RB_13	20600/844	1:1	0.319	0.05	22.68	24.20	1.419	0.453	22.1
Left side	10	QPSK25RB_13	20600/844	1:1	0.442	-0.02	22.68	24.20	1.419	0.627	22.1
Top side	10	QPSK25RB_13	20600/844	1:1	0.015	-0.01	22.68	24.20	1.419	0.021	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	20600/844	1:1	0.132	0.00	24.09	25.20	1.291	0.170	22.1
Left tilted	10	QPSK 1RB_49	20600/844	1:1	0.091	0.07	24.09	25.20	1.291	0.118	22.1
Right cheek	10	QPSK 1RB_49	20600/844	1:1	0.214	0.18	24.09	25.20	1.291	0.276	22.1
Right tilted	10	QPSK 1RB_49	20600/844	1:1	0.103	0.11	24.09	25.20	1.291	0.133	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB_13	20525/836.5	1:1	0.101	0.07	23.15	24.20	1.274	0.129	22.1
Left tilted	10	QPSK25RB_13	20525/836.5	1:1	0.072	0.02	23.15	24.20	1.274	0.092	22.1
Right cheek	10	QPSK25RB_13	20525/836.5	1:1	0.133	0.04	23.15	24.20	1.274	0.169	22.1
Right tilted	10	QPSK25RB_13	20525/836.5	1:1	0.066	0.10	23.15	24.20	1.274	0.084	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB_49	20600/844	1:1	0.298	0.03	24.09	25.20	1.291	0.385	22.1
Back side	10	QPSK 1RB_49	20600/844	1:1	0.255	0.00	24.09	25.20	1.291	0.329	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB_13	20525/836.5	1:1	0.205	-0.05	23.15	24.20	1.274	0.261	22.1
Back side	10	QPSK25RB_13	20525/836.5	1:1	0.247	0.04	23.15	24.20	1.274	0.315	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB_49	20600/844	1:1	0.523	0.03	24.09	25.20	1.291	0.675	22.1
Back side	10	QPSK 1RB_49	20600/844	1:1	0.599	0.01	24.09	25.20	1.291	0.773	22.1
Left side	10	QPSK 1RB_49	20600/844	1:1	0.150	-0.04	24.09	25.20	1.291	0.194	22.1
Right side	10	QPSK 1RB_49	20600/844	1:1	0.368	-0.07	24.09	25.20	1.291	0.475	22.1
Bottom side	10	QPSK 1RB_49	20600/844	1:1	0.502	-0.07	24.09	25.20	1.291	0.648	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB_13	20525/836.5	1:1	0.359	-0.02	23.15	24.20	1.274	0.457	22.1

Back side	10	QPSK25RB_13	20525/836.5	1:1	0.408	0.03	23.15	24.20	1.274	0.520	22.1
Left side	10	QPSK25RB_13	20525/836.5	1:1	0.108	-0.02	23.15	24.20	1.274	0.138	22.1
Right side	10	QPSK25RB_13	20525/836.5	1:1	0.240	-0.05	23.15	24.20	1.274	0.306	22.1
Bottom side	10	QPSK25RB_13	20525/836.5	1:1	0.356	-0.06	23.15	24.20	1.274	0.453	22.1

Table 19: SAR of LTE Band 5 for Head and Body.

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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8.3.9 SAR Result of LTE Band 7

Ant3 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 99	20850/2510	1:1	0.405	-0.16	14.25	15.00	1.189	0.481	22.1
Left tilted	20	QPSK 1RB 99	20850/2510	1:1	0.538	-0.04	14.25	15.00	1.189	0.639	22.1
Right cheek	20	QPSK 1RB 99	20850/2510	1:1	0.572	-0.03	14.25	15.00	1.189	0.680	22.1
Right tilted	20	QPSK 1RB 99	20850/2510	1:1	0.635	-0.07	14.25	15.00	1.189	0.755	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 50	20850/2510	1:1	0.443	-0.02	14.14	15.00	1.219	0.540	22.1
Left tilted	20	QPSK 50RB 50	20850/2510	1:1	0.516	-0.07	14.14	15.00	1.219	0.629	22.1
Right cheek	20	QPSK 50RB 50	20850/2510	1:1	0.579	-0.14	14.14	15.00	1.219	0.706	22.1
Right tilted	20	QPSK 50RB 50	20850/2510	1:1	0.646	-0.05	14.14	15.00	1.219	0.787	22.1
Right tilted	20	QPSK PCC 1 99	20850/2510	1:1	0.622	0.01	14.11	15.00	1.227	0.763	22.1
	20	QPSK SCC 1 0	21048/2529.8								
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB 99	20850/2510	1:1	0.034	-0.09	19.01	19.50	1.119	0.038	22.1
Back side	20	QPSK 1RB 99	20850/2510	1:1	0.048	0.00	19.01	19.50	1.119	0.054	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 25	20850/2510	1:1	0.036	0.00	18.67	19.50	1.211	0.043	22.1
Back side	20	QPSK 50RB 25	20850/2510	1:1	0.050	0.00	18.67	19.50	1.211	0.060	22.1
Back side	20	QPSK PCC 1 99	20850/2510	1:1	0.048	0.01	18.88	19.50	1.153	0.055	22.1
	20	QPSK SCC 1 0	21048/2529.8								
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 99	20850/2510	1:1	0.285	0.08	19.01	19.50	1.119	0.319	22.1
Back side	20	QPSK 1RB 99	20850/2510	1:1	0.376	-0.03	19.01	19.50	1.119	0.421	22.1
Left side	20	QPSK 1RB 99	20850/2510	1:1	0.074	0.05	19.01	19.50	1.119	0.083	22.1
Top side	20	QPSK 1RB 99	20850/2510	1:1	0.533	-0.08	19.01	19.50	1.119	0.597	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	20850/2510	1:1	0.287	-0.14	18.67	19.50	1.211	0.347	22.1
Back side	20	QPSK 50RB 25	20850/2510	1:1	0.386	-0.09	18.67	19.50	1.211	0.467	22.1
Left side	20	QPSK 50RB 25	20850/2510	1:1	0.074	-0.05	18.67	19.50	1.211	0.090	22.1
Top side	20	QPSK 50RB 25	20850/2510	1:1	0.613	-0.04	18.67	19.50	1.211	0.742	22.1
Top side	20	QPSK PCC 1 99	20850/2510	1:1	0.600	0.01	18.88	19.50	1.153	0.692	22.1
	20	QPSK SCC 1 0	21048/2529.8								
Ant4 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	0.088	0.12	23.55	24.50	1.245	0.110	22.1
Left tilted	20	QPSK 1RB 50	20850/2510	1:1	0.129	0.07	23.55	24.50	1.245	0.161	22.1
Right cheek	20	QPSK 1RB 50	20850/2510	1:1	0.107	0.17	23.55	24.50	1.245	0.133	22.1
Right tilted	20	QPSK 1RB 50	20850/2510	1:1	0.158	0.01	23.55	24.50	1.245	0.197	22.1
Right tilted	20	QPSK PCC 1 99	20850/2510	1:1	0.149	0.02	23.41	24.50	1.285	0.192	22.1
	20	QPSK SCC 1 0	21048/2529.8								
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 25	20850/2510	1:1	0.059	-0.06	22.54	23.50	1.247	0.073	22.1
Left tilted	20	QPSK 50RB 25	20850/2510	1:1	0.093	0.06	22.54	23.50	1.247	0.117	22.1
Right cheek	20	QPSK 50RB 25	20850/2510	1:1	0.091	0.19	22.54	23.50	1.247	0.114	22.1
Right tilted	20	QPSK 50RB 25	20850/2510	1:1	0.120	0.09	22.54	23.50	1.247	0.150	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB 50	20850/2510	1:1	0.189	-0.18	21.75	22.50	1.189	0.225	22.1
Back side	20	QPSK 1RB 50	20850/2510	1:1	0.253	0.11	21.75	22.50	1.189	0.301	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 50	20850/2510	1:1	0.223	0.11	21.67	22.50	1.211	0.270	22.1
Back side	20	QPSK 50RB 50	20850/2510	1:1	0.281	-0.02	21.67	22.50	1.211	0.340	22.1

Back side	20	QPSK PCC 1_99	20850/2510	1:1	0.273	0.01	21.59	22.50	1.233	0.337	22.1
	20	QPSK SCC 1_0	21048/2529.8								
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_50	20850/2510	1:1	0.347	0.06	21.75	22.50	1.189	0.412	22.1
Back side	20	QPSK 1RB_50	20850/2510	1:1	0.460	-0.04	21.75	22.50	1.189	0.547	22.1
Left side	20	QPSK 1RB_50	20850/2510	1:1	0.108	-0.01	21.75	22.50	1.189	0.128	22.1
Right side	20	QPSK 1RB_50	20850/2510	1:1	0.142	-0.05	21.75	22.50	1.189	0.169	22.1
Bottom side	20	QPSK 1RB_50	20850/2510	1:1	0.152	0.04	21.75	22.50	1.189	0.181	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_50	20850/2510	1:1	0.393	0.08	21.67	22.50	1.211	0.476	22.1
Back side	20	QPSK 50RB_50	20850/2510	1:1	0.506	-0.11	21.67	22.50	1.211	0.613	22.1
Back side	20	QPSK PCC 1_99	20850/2510	1:1	0.478	0.03	21.59	22.50	1.233	0.589	22.1
	20	QPSK SCC 1_0	21048/2529.8								
Left side	20	QPSK 50RB_50	20850/2510	1:1	0.049	0.03	21.67	22.50	1.211	0.059	22.1
Right side	20	QPSK 50RB_50	20850/2510	1:1	0.147	0.09	21.67	22.50	1.211	0.178	22.1
Bottom side	20	QPSK 50RB_50	20850/2510	1:1	0.159	0.11	21.67	22.50	1.211	0.192	22.1

Table 20: SAR of LTE Band 7 for Head and Body.

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).

8.3.10 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	0.322	0.17	23.86	25.00	1.300	0.419	22.1
Left tilted	10	QPSK 1RB 49	23095/707.5	1:1	0.057	0.12	23.86	25.00	1.300	0.074	22.1
Right cheek	10	QPSK 1RB 49	23095/707.5	1:1	0.349	-0.08	23.86	25.00	1.300	0.454	22.1
Right tilted	10	QPSK 1RB 49	23095/707.5	1:1	0.062	0.18	23.86	25.00	1.300	0.081	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB 25	23095/707.5	1:1	0.213	0.02	22.89	24.00	1.291	0.275	22.1
Left tilted	10	QPSK25RB 25	23095/707.5	1:1	0.038	-0.11	22.89	24.00	1.291	0.049	22.1
Right cheek	10	QPSK25RB 25	23095/707.5	1:1	0.231	0.09	22.89	24.00	1.291	0.298	22.1
Right tilted	10	QPSK25RB 25	23095/707.5	1:1	0.041	0.07	22.89	24.00	1.291	0.053	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 49	23095/707.5	1:1	0.128	0.05	23.86	25.00	1.300	0.166	22.1
Back side	10	QPSK 1RB 49	23095/707.5	1:1	0.245	0.03	23.86	25.00	1.300	0.319	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB 25	23095/707.5	1:1	0.098	-0.03	22.89	24.00	1.291	0.127	22.1
Back side	10	QPSK25RB 25	23095/707.5	1:1	0.197	-0.16	22.89	24.00	1.291	0.254	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 49	23095/707.5	1:1	0.203	-0.09	23.86	25.00	1.300	0.264	22.1
Back side	10	QPSK 1RB 49	23095/707.5	1:1	0.240	-0.14	23.86	25.00	1.300	0.312	22.1
Left side	10	QPSK 1RB 49	23095/707.5	1:1	0.414	-0.05	23.86	25.00	1.300	0.538	22.1
Top side	10	QPSK 1RB 49	23095/707.5	1:1	0.019	-0.01	23.86	25.00	1.300	0.025	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB 25	23095/707.5	1:1	0.164	0.18	22.89	24.00	1.291	0.212	22.1
Back side	10	QPSK25RB 25	23095/707.5	1:1	0.183	-0.14	22.89	24.00	1.291	0.236	22.1
Left side	10	QPSK25RB 25	23095/707.5	1:1	0.321	-0.05	22.89	24.00	1.291	0.414	22.1
Top side	10	QPSK25RB 25	23095/707.5	1:1	0.014	-0.08	22.89	24.00	1.291	0.019	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	23095/707.5	1:1	0.111	0.02	24.11	25.00	1.227	0.136	22.1
Left tilted	10	QPSK 1RB 25	23095/707.5	1:1	0.092	-0.04	24.11	25.00	1.227	0.113	22.1
Right cheek	10	QPSK 1RB 25	23095/707.5	1:1	0.147	0.07	24.11	25.00	1.227	0.180	22.1
Right tilted	10	QPSK 1RB 25	23095/707.5	1:1	0.091	-0.04	24.11	25.00	1.227	0.112	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK25RB 25	23095/707.5	1:1	0.078	-0.12	23.17	24.00	1.211	0.094	22.1
Left tilted	10	QPSK25RB 25	23095/707.5	1:1	0.073	-0.07	23.17	24.00	1.211	0.088	22.1
Right cheek	10	QPSK25RB 25	23095/707.5	1:1	0.115	0.02	23.17	24.00	1.211	0.139	22.1
Right tilted	10	QPSK25RB 25	23095/707.5	1:1	0.071	-0.03	23.17	24.00	1.211	0.086	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 25	23095/707.5	1:1	0.207	-0.04	24.11	25.00	1.227	0.254	22.1
Back side	10	QPSK 1RB 25	23095/707.5	1:1	0.224	-0.09	24.11	25.00	1.227	0.275	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK25RB 25	23095/707.5	1:1	0.164	-0.04	23.17	24.00	1.211	0.199	22.1
Back side	10	QPSK25RB 25	23095/707.5	1:1	0.177	-0.01	23.17	24.00	1.211	0.214	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 25	23095/707.5	1:1	0.228	-0.03	24.11	25.00	1.227	0.280	22.1
Back side	10	QPSK 1RB 25	23095/707.5	1:1	0.399	0.14	24.11	25.00	1.227	0.490	22.1
Left side	10	QPSK 1RB 25	23095/707.5	1:1	0.088	-0.01	24.11	25.00	1.227	0.109	22.1
Right side	10	QPSK 1RB 25	23095/707.5	1:1	0.172	-0.08	24.11	25.00	1.227	0.211	22.1
Bottom side	10	QPSK 1RB 25	23095/707.5	1:1	0.244	-0.02	24.11	25.00	1.227	0.299	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK25RB 25	23095/707.5	1:1	0.183	-0.07	23.17	24.00	1.211	0.222	22.1
Back side	10	QPSK25RB 25	23095/707.5	1:1	0.231	-0.02	23.17	24.00	1.211	0.280	22.1
Left side	10	QPSK25RB 25	23095/707.5	1:1	0.063	-0.08	23.17	24.00	1.211	0.077	22.1

Right side	10	QPSK25RB 25	23095/707.5	1:1	0.148	-0.05	23.17	24.00	1.211	0.179	22.1
Bottom side	10	QPSK25RB 25	23095/707.5	1:1	0.214	-0.09	23.17	24.00	1.211	0.259	22.1

Table 21: SAR of LTE Band 12 for Head and Body.

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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8.3.11 SAR Result of LTE Band 13

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	23230/782	1:1	0.176	-0.01	22.55	24.00	1.396	0.246	22.1
Left tilted	10	QPSK 1RB 25	23230/782	1:1	0.056	-0.09	22.55	24.00	1.396	0.078	22.1
Right cheek	10	QPSK 1RB 25	23230/782	1:1	0.280	0.02	22.55	24.00	1.396	0.391	22.1
Right tilted	10	QPSK 1RB 25	23230/782	1:1	0.053	-0.11	22.55	24.00	1.396	0.074	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB 25	23230/782	1:1	0.054	0.05	21.71	23.00	1.346	0.072	22.1
Left tilted	10	QPSK 25RB 25	23230/782	1:1	0.041	-0.02	21.71	23.00	1.346	0.055	22.1
Right cheek	10	QPSK 25RB 25	23230/782	1:1	0.296	-0.04	21.71	23.00	1.346	0.398	22.1
Right tilted	10	QPSK 25RB 25	23230/782	1:1	0.039	-0.07	21.71	23.00	1.346	0.052	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 25	23230/782	1:1	0.213	-0.03	22.55	24.00	1.396	0.297	22.1
Back side	10	QPSK 1RB 25	23230/782	1:1	0.176	-0.08	22.55	24.00	1.396	0.246	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB 25	23230/782	1:1	0.092	-0.15	21.71	23.00	1.346	0.124	22.1
Back side	10	QPSK 25RB 25	23230/782	1:1	0.126	-0.07	21.71	23.00	1.346	0.170	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 25	23230/782	1:1	0.207	-0.08	22.55	24.00	1.396	0.289	22.1
Back side	10	QPSK 1RB 25	23230/782	1:1	0.294	-0.02	22.55	24.00	1.396	0.411	22.1
Left side	10	QPSK 1RB 25	23230/782	1:1	0.064	-0.04	22.55	24.00	1.396	0.089	22.1
Top side	10	QPSK 1RB 25	23230/782	1:1	0.277	0.03	22.55	24.00	1.396	0.387	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB 25	23230/782	1:1	0.152	-0.18	21.71	23.00	1.346	0.205	22.1
Back side	10	QPSK 25RB 25	23230/782	1:1	0.211	-0.07	21.71	23.00	1.346	0.284	22.1
Left side	10	QPSK 25RB 25	23230/782	1:1	0.051	-0.19	21.71	23.00	1.346	0.068	22.1
Top side	10	QPSK 25RB 25	23230/782	1:1	0.063	-0.04	21.71	23.00	1.346	0.085	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 0	23230/782	1:1	0.075	0.07	22.76	24.00	1.330	0.100	22.1
Left tilted	10	QPSK 1RB 0	23230/782	1:1	0.049	-0.06	22.76	24.00	1.330	0.065	22.1
Right cheek	10	QPSK 1RB 0	23230/782	1:1	0.109	0.06	22.76	24.00	1.330	0.145	22.1
Right tilted	10	QPSK 1RB 0	23230/782	1:1	0.054	-0.11	22.76	24.00	1.330	0.072	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB 13	23230/782	1:1	0.052	0.06	21.92	23.00	1.282	0.067	22.1
Left tilted	10	QPSK 25RB 13	23230/782	1:1	0.033	-0.04	21.92	23.00	1.282	0.043	22.1
Right cheek	10	QPSK 25RB 13	23230/782	1:1	0.075	0.08	21.92	23.00	1.282	0.097	22.1
Right tilted	10	QPSK 25RB 13	23230/782	1:1	0.037	-0.10	21.92	23.00	1.282	0.047	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 0	23230/782	1:1	0.177	-0.06	22.76	24.00	1.330	0.235	22.1
Back side	10	QPSK 1RB 0	23230/782	1:1	0.200	0.01	22.76	24.00	1.330	0.266	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB 13	23230/782	1:1	0.120	-0.02	21.92	23.00	1.282	0.154	22.1
Back side	10	QPSK 25RB 13	23230/782	1:1	0.137	-0.12	21.92	23.00	1.282	0.176	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 0	23230/782	1:1	0.225	-0.06	22.76	24.00	1.330	0.299	22.1
Back side	10	QPSK 1RB 0	23230/782	1:1	0.303	-0.05	22.76	24.00	1.330	0.403	22.1
Left side	10	QPSK 1RB 0	23230/782	1:1	0.078	-0.06	22.76	24.00	1.330	0.103	22.1
Right side	10	QPSK 1RB 0	23230/782	1:1	0.105	-0.01	22.76	24.00	1.330	0.140	22.1
Bottom side	10	QPSK 1RB 0	23230/782	1:1	0.236	-0.02	22.76	24.00	1.330	0.314	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB 13	23230/782	1:1	0.175	-0.10	21.92	23.00	1.282	0.224	22.1
Back side	10	QPSK 25RB 13	23230/782	1:1	0.228	0.02	21.92	23.00	1.282	0.292	22.1
Left side	10	QPSK 25RB 13	23230/782	1:1	0.060	-0.07	21.92	23.00	1.282	0.077	22.1

Right side	10	QPSK 25RB 13	23230/782	1:1	0.084	-0.17	21.92	23.00	1.282	0.108	22.1
Bottom side	10	QPSK 25RB 13	23230/782	1:1	0.178	-0.02	21.92	23.00	1.282	0.228	22.1

Table 22: SAR of LTE Band 13 for Head and Body.

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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8.3.12 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	0.142	-0.04	23.84	25.00	1.306	0.185	22.1
Left tilted	10	QPSK 1RB 25	23790/710	1:1	0.033	-0.14	23.84	25.00	1.306	0.043	22.1
Right cheek	10	QPSK 1RB 25	23790/710	1:1	0.256	-0.09	23.84	25.00	1.306	0.334	22.1
Right tilted	10	QPSK 1RB 25	23790/710	1:1	0.047	0.09	23.84	25.00	1.306	0.062	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB 13	23800/711	1:1	0.114	0.17	22.85	24.00	1.303	0.149	22.1
Left tilted	10	QPSK 25RB 13	23800/711	1:1	0.025	0.04	22.85	24.00	1.303	0.033	22.1
Right cheek	10	QPSK 25RB 13	23800/711	1:1	0.232	0.04	22.85	24.00	1.303	0.302	22.1
Right tilted	10	QPSK 25RB 13	23800/711	1:1	0.033	-0.18	22.85	24.00	1.303	0.043	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 25	23790/710	1:1	0.166	-0.08	23.84	25.00	1.306	0.217	22.1
Back side	10	QPSK 1RB 25	23790/710	1:1	0.134	-0.07	23.84	25.00	1.306	0.175	22.1
Body worn Test data(Separate 15mm 50%RB)											
Front side	10	QPSK 25RB 13	23800/711	1:1	0.085	-0.06	22.85	24.00	1.303	0.110	22.1
Back side	10	QPSK 25RB 13	23800/711	1:1	0.129	-0.08	22.85	24.00	1.303	0.168	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 25	23790/710	1:1	0.215	-0.05	23.84	25.00	1.306	0.281	22.1
Back side	10	QPSK 1RB 25	23790/710	1:1	0.309	-0.01	23.84	25.00	1.306	0.404	22.1
Left side	10	QPSK 1RB 25	23790/710	1:1	0.124	-0.05	23.84	25.00	1.306	0.162	22.1
Top side	10	QPSK 1RB 25	23790/710	1:1	0.299	0.15	23.84	25.00	1.306	0.391	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB 13	23800/711	1:1	0.220	-0.19	22.85	24.00	1.303	0.287	22.1
Back side	10	QPSK 25RB 13	23800/711	1:1	0.320	-0.07	22.85	24.00	1.303	0.417	22.1
Left side	10	QPSK 25RB 13	23800/711	1:1	0.094	-0.16	22.85	24.00	1.303	0.122	22.1
Top side	10	QPSK 25RB 13	23800/711	1:1	0.231	-0.12	22.85	24.00	1.303	0.301	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	23790/710	1:1	0.123	0.13	23.87	25.00	1.297	0.160	22.1
Left tilted	10	QPSK 1RB 49	23790/710	1:1	0.110	-0.08	23.87	25.00	1.297	0.143	22.1
Right cheek	10	QPSK 1RB 49	23790/710	1:1	0.153	0.05	23.87	25.00	1.297	0.198	22.1
Right tilted	10	QPSK 1RB 49	23790/710	1:1	0.105	-0.04	23.87	25.00	1.297	0.136	22.1
Head Test data(50%RB)											
Left cheek	10	QPSK 25RB 13	23780/709	1:1	0.095	0.04	22.94	24.00	1.276	0.121	22.1
Left tilted	10	QPSK 25RB 13	23780/709	1:1	0.088	-0.06	22.94	24.00	1.276	0.112	22.1
Right cheek	10	QPSK 25RB 13	23780/709	1:1	0.119	0.06	22.94	24.00	1.276	0.152	22.1
Right tilted	10	QPSK 25RB 13	23780/709	1:1	0.080	-0.02	22.94	24.00	1.276	0.102	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	10	QPSK 1RB 49	23790/710	1:1	0.235	-0.05	23.87	25.00	1.297	0.305	22.1
Back side	10	QPSK 1RB 49	23790/710	1:1	0.266	-0.16	23.87	25.00	1.297	0.345	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	10	QPSK 25RB 13	23780/709	1:1	0.188	-0.02	22.94	24.00	1.276	0.240	22.1
Back side	10	QPSK 25RB 13	23780/709	1:1	0.199	0.13	22.94	24.00	1.276	0.254	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	10	QPSK 1RB 49	23790/710	1:1	0.275	-0.03	23.87	25.00	1.297	0.357	22.1
Back side	10	QPSK 1RB 49	23790/710	1:1	0.356	0.01	23.87	25.00	1.297	0.462	22.1
Left side	10	QPSK 1RB 49	23790/710	1:1	0.097	-0.09	23.87	25.00	1.297	0.126	22.1
Right side	10	QPSK 1RB 49	23790/710	1:1	0.227	-0.15	23.87	25.00	1.297	0.294	22.1
Bottom side	10	QPSK 1RB 49	23790/710	1:1	0.340	-0.07	23.87	25.00	1.297	0.441	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	10	QPSK 25RB 13	23780/709	1:1	0.228	-0.04	22.94	24.00	1.276	0.291	22.1

Back side	10	QPSK 25RB 13	23780/709	1:1	0.294	-0.01	22.94	24.00	1.276	0.375	22.1
Left side	10	QPSK 25RB 13	23780/709	1:1	0.082	-0.12	22.94	24.00	1.276	0.104	22.1
Right side	10	QPSK 25RB 13	23780/709	1:1	0.190	-0.16	22.94	24.00	1.276	0.243	22.1
Bottom side	10	QPSK 25RB 13	23780/709	1:1	0.286	-0.06	22.94	24.00	1.276	0.365	22.1

Table 23: SAR of LTE Band 17 for Head and Body.

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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8.3.13 SAR Result of LTE Band 25

Ant3 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	26140/1860	1:1	0.276	-0.12	15.16	16.00	1.213	0.335	22.1
Left tilted	20	QPSK 1RB_50	26140/1860	1:1	0.389	-0.07	15.16	16.00	1.213	0.472	22.1
Right cheek	20	QPSK 1RB_50	26140/1860	1:1	0.566	-0.07	15.16	16.00	1.213	0.687	22.1
Right tilted	20	QPSK 1RB_50	26140/1860	1:1	0.630	-0.04	15.16	16.00	1.213	0.764	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_25	26140/1860	1:1	0.293	-0.11	14.93	16.00	1.279	0.375	22.1
Left tilted	20	QPSK 50RB_25	26140/1860	1:1	0.405	-0.07	14.93	16.00	1.279	0.518	22.1
Right cheek	20	QPSK 50RB_25	26140/1860	1:1	0.597	-0.07	14.93	16.00	1.279	0.764	22.1
Right tilted	20	QPSK 50RB_25	26140/1860	1:1	0.763	-0.04	14.93	16.00	1.279	0.976	22.1
Right tilted	20	QPSK 50RB_25	26365/1882.5	1:1	0.771	-0.03	14.69	16.00	1.352	1.042	22.1
Right tilted	20	QPSK 50RB_50	26590/1905	1:1	0.893	-0.05	14.83	16.00	1.309	1.169	22.1
Right tilted-repeat	20	QPSK 50RB_50	26590/1905	1:1	0.886	-0.08	14.83	16.00	1.309	1.160	22.1
Head Test data(100%RB)											
Right tilted	20	QPSK 100RB_0	26590/1905	1:1	0.851	-0.13	14.83	16.00	1.309	1.114	22.1
Head test at the worst case with ESIM											
Right tilted	20	QPSK 50RB_50	26590/1905	1:1	0.881	-0.01	14.83	16.00	1.309	1.153	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_99	26140/1860	1:1	0.114	-0.01	19.93	20.50	1.140	0.130	22.1
Back side	20	QPSK 1RB_99	26140/1860	1:1	0.136	-0.03	19.93	20.50	1.140	0.155	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_25	26140/1860	1:1	0.122	-0.05	19.62	20.50	1.225	0.149	22.1
Back side	20	QPSK 50RB_25	26140/1860	1:1	0.144	-0.17	19.62	20.50	1.225	0.176	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_99	26140/1860	1:1	0.213	0.06	19.93	20.50	1.140	0.243	22.1
Back side	20	QPSK 1RB_99	26140/1860	1:1	0.252	-0.02	19.93	20.50	1.140	0.287	22.1
Left side	20	QPSK 1RB_99	26140/1860	1:1	0.037	-0.03	19.93	20.50	1.140	0.043	22.1
Top side	20	QPSK 1RB_99	26140/1860	1:1	0.483	-0.08	19.93	20.50	1.140	0.551	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_25	26140/1860	1:1	0.224	0.05	19.62	20.50	1.225	0.274	22.1
Back side	20	QPSK 50RB_25	26140/1860	1:1	0.269	-0.16	19.62	20.50	1.225	0.329	22.1
Left side	20	QPSK 50RB_25	26140/1860	1:1	0.039	-0.02	19.62	20.50	1.225	0.047	22.1
Top side	20	QPSK 50RB_25	26140/1860	1:1	0.511	-0.04	19.62	20.50	1.225	0.626	22.1
Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G&WIFI 5G)											
Ant3 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(50%RB)											
Left tilted	20	QPSK 50RB_25	26140/1860	1:1	0.281	0.03	13.70	14.60	1.230	0.346	22.1
Right tilted	20	QPSK 50RB_50	26590/1905	1:1	0.534	0.15	13.70	14.60	1.230	0.657	22.1

Ant4 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	26140/1860	1:1	0.073	-0.03	23.21	24.00	1.199	0.087	22.1
Left tilted	20	QPSK 1RB_0	26140/1860	1:1	0.033	0.01	23.21	24.00	1.199	0.039	22.1
Right cheek	20	QPSK 1RB_0	26140/1860	1:1	0.094	0.02	23.21	24.00	1.199	0.112	22.1
Right tilted	20	QPSK 1RB_0	26140/1860	1:1	0.035	0.03	23.21	24.00	1.199	0.042	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB_0	26140/1860	1:1	0.058	0.05	22.37	23.00	1.156	0.067	22.1
Left tilted	20	QPSK 50RB_0	26140/1860	1:1	0.028	0.11	22.37	23.00	1.156	0.032	22.1
Right cheek	20	QPSK 50RB_0	26140/1860	1:1	0.077	0.09	22.37	23.00	1.156	0.089	22.1
Right tilted	20	QPSK 50RB_0	26140/1860	1:1	0.027	0.03	22.37	23.00	1.156	0.031	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB_99	26140/1860	1:1	0.164	-0.08	21.76	22.50	1.186	0.194	22.1
Back side	20	QPSK 1RB_99	26140/1860	1:1	0.237	-0.08	21.76	22.50	1.186	0.281	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB_25	26140/1860	1:1	0.167	-0.05	21.60	22.50	1.230	0.205	22.1
Back side	20	QPSK 50RB_25	26140/1860	1:1	0.243	-0.06	21.60	22.50	1.230	0.299	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB_99	26140/1860	1:1	0.278	-0.08	21.76	22.50	1.186	0.330	22.1
Back side	20	QPSK 1RB_99	26140/1860	1:1	0.434	-0.05	21.76	22.50	1.186	0.515	22.1
Left side	20	QPSK 1RB_99	26140/1860	1:1	0.099	0.01	21.76	22.50	1.186	0.117	22.1
Right side	20	QPSK 1RB_99	26140/1860	1:1	0.280	-0.07	21.76	22.50	1.186	0.332	22.1
Bottom side	20	QPSK 1RB_99	26140/1860	1:1	0.603	-0.04	21.76	22.50	1.186	0.715	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB_25	26140/1860	1:1	0.287	-0.06	21.60	22.50	1.230	0.353	22.1
Back side	20	QPSK 50RB_25	26140/1860	1:1	0.443	-0.10	21.60	22.50	1.230	0.545	22.1
Left side	20	QPSK 50RB_25	26140/1860	1:1	0.080	0.15	21.60	22.50	1.230	0.098	22.1
Right side	20	QPSK 50RB_25	26140/1860	1:1	0.279	-0.09	21.60	22.50	1.230	0.343	22.1
Bottom side	20	QPSK 50RB_25	26140/1860	1:1	0.622	-0.04	21.60	22.50	1.230	0.765	22.1

Table 24: SAR of LTE Band 25 for Head and Body.

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).

8.3.14 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	0.332	0.12	22.02	23.50	1.406	0.467	22.1
Left tilted	15	QPSK 1RB 74	26865/831.5	1:1	0.077	0.19	22.02	23.50	1.406	0.108	22.1
Right cheek	15	QPSK 1RB 74	26865/831.5	1:1	0.478	0.16	22.02	23.50	1.406	0.672	22.1
Right tilted	15	QPSK 1RB 74	26865/831.5	1:1	0.098	0.12	22.02	23.50	1.406	0.138	22.1
Head Test data(50%RB)											
Left cheek	15	QPSK 36RB 18	26865/831.5	1:1	0.351	-0.04	22.00	23.50	1.413	0.496	22.1
Left tilted	15	QPSK 36RB 18	26865/831.5	1:1	0.079	0.19	22.00	23.50	1.413	0.112	22.1
Right cheek	15	QPSK 36RB 18	26865/831.5	1:1	0.505	0.05	22.00	23.50	1.413	0.713	22.1
Right tilted	15	QPSK 36RB 18	26865/831.5	1:1	0.106	0.01	22.00	23.50	1.413	0.150	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1RB 74	26865/831.5	1:1	0.179	0.12	23.44	25.00	1.432	0.256	22.1
Back side	15	QPSK 1RB 74	26865/831.5	1:1	0.228	-0.01	23.44	25.00	1.432	0.327	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	15	QPSK 36RB 18	26865/831.5	1:1	0.136	0.09	22.57	24.00	1.390	0.189	22.1
Back side	15	QPSK 36RB 18	26865/831.5	1:1	0.188	0.01	22.57	24.00	1.390	0.261	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1RB 74	26865/831.5	1:1	0.275	0.16	23.44	25.00	1.432	0.394	22.1
Back side	15	QPSK 1RB 74	26865/831.5	1:1	0.379	0.03	23.44	25.00	1.432	0.543	22.1
Left side	15	QPSK 1RB 74	26865/831.5	1:1	0.471	-0.08	23.44	25.00	1.432	0.675	22.1
Top side	15	QPSK 1RB 74	26865/831.5	1:1	0.022	0.02	23.44	25.00	1.432	0.032	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	15	QPSK 36RB 0	26865/831.5	1:1	0.225	0.17	22.57	24.00	1.390	0.313	22.1
Back side	15	QPSK 36RB 0	26865/831.5	1:1	0.309	0.00	22.57	24.00	1.390	0.429	22.1
Left side	15	QPSK 36RB 0	26865/831.5	1:1	0.404	-0.01	22.57	24.00	1.390	0.562	22.1
Top side	15	QPSK 36RB 0	26865/831.5	1:1	0.016	0.03	22.57	24.00	1.390	0.022	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	0.108	0.04	23.87	25.00	1.297	0.140	22.1
Left tilted	15	QPSK 1RB 74	26865/831.5	1:1	0.078	0.13	23.87	25.00	1.297	0.101	22.1
Right cheek	15	QPSK 1RB 74	26865/831.5	1:1	0.170	0.02	23.87	25.00	1.297	0.221	22.1
Right tilted	15	QPSK 1RB 74	26865/831.5	1:1	0.085	0.14	23.87	25.00	1.297	0.110	22.1
Head Test data(50%RB)											
Left cheek	15	QPSK 36RB 18	26865/831.5	1:1	0.098	0.05	22.89	24.00	1.291	0.126	22.1
Left tilted	15	QPSK 36RB 18	26865/831.5	1:1	0.071	0.11	22.89	24.00	1.291	0.092	22.1
Right cheek	15	QPSK 36RB 18	26865/831.5	1:1	0.132	0.02	22.89	24.00	1.291	0.170	22.1
Right tilted	15	QPSK 36RB 18	26865/831.5	1:1	0.065	0.07	22.89	24.00	1.291	0.084	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	15	QPSK 1RB 74	26865/831.5	1:1	0.257	-0.04	23.87	25.00	1.297	0.333	22.1
Back side	15	QPSK 1RB 74	26865/831.5	1:1	0.292	0.01	23.87	25.00	1.297	0.379	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	15	QPSK 36RB 18	26865/831.5	1:1	0.218	0.03	22.89	24.00	1.291	0.281	22.1
Back side	15	QPSK 36RB 18	26865/831.5	1:1	0.247	0.07	22.89	24.00	1.291	0.319	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	15	QPSK 1RB 74	26865/831.5	1:1	0.466	0.00	23.87	25.00	1.297	0.604	22.1
Back side	15	QPSK 1RB 74	26865/831.5	1:1	0.520	0.02	23.87	25.00	1.297	0.675	22.1
Left side	15	QPSK 1RB 74	26865/831.5	1:1	0.131	0.15	23.87	25.00	1.297	0.170	22.1
Right side	15	QPSK 1RB 74	26865/831.5	1:1	0.324	-0.07	23.87	25.00	1.297	0.420	22.1
Bottom side	15	QPSK 1RB 74	26865/831.5	1:1	0.425	-0.03	23.87	25.00	1.297	0.551	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	15	QPSK 36RB 18	26865/831.5	1:1	0.346	0.04	22.89	24.00	1.291	0.447	22.1

Back side	15	QPSK 36RB	18	26865/831.5	1:1	0.372	0.00	22.89	24.00	1.291	0.480	22.1
Left side	15	QPSK 36RB	18	26865/831.5	1:1	0.099	-0.04	22.89	24.00	1.291	0.128	22.1
Right side	15	QPSK 36RB	18	26865/831.5	1:1	0.197	-0.07	22.89	24.00	1.291	0.254	22.1
Bottom side	15	QPSK 36RB	18	26865/831.5	1:1	0.314	-0.02	22.89	24.00	1.291	0.405	22.1

Table 25: SAR of LTE Band 26 for Head and Body.

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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8.3.15 SAR Result of LTE Band 38

Ant3 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	37850/2580	1:1.58	0.385	0.01	16.06	17.00	1.242	0.478	22.1
Left tilted	20	QPSK 1RB 50	37850/2580	1:1.58	0.563	-0.15	16.06	17.00	1.242	0.699	22.1
Right cheek	20	QPSK 1RB 50	37850/2580	1:1.58	0.600	-0.12	16.06	17.00	1.242	0.745	22.1
Right tilted	20	QPSK 1RB 50	37850/2580	1:1.58	0.697	-0.05	16.06	17.00	1.242	0.865	22.1
Right tilted	20	QPSK 1RB 0	38000/2595	1:1.58	0.721	-0.13	16.02	17.00	1.253	0.904	22.1
Right tilted	20	QPSK 1RB 0	38150/2610	1:1.58	0.647	0.00	16.03	17.00	1.250	0.809	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 25	38150/2610	1:1.58	0.435	-0.09	16.10	17.00	1.230	0.535	22.1
Left tilted	20	QPSK 50RB 25	38150/2610	1:1.58	0.633	0.00	16.10	17.00	1.230	0.779	22.1
Right cheek	20	QPSK 50RB 25	38150/2610	1:1.58	0.602	-0.18	16.10	17.00	1.230	0.741	22.1
Right tilted	20	QPSK 50RB 25	38150/2610	1:1.58	0.740	-0.17	16.10	17.00	1.230	0.910	22.1
Right tilted	20	QPSK 50RB 25	37850/2580	1:1.58	0.713	-0.12	16.09	17.00	1.233	0.879	22.1
Right tilted	20	QPSK 50RB 25	38000/2595	1:1.58	0.753	-0.12	16.09	17.00	1.233	0.929	22.1
Right tilted	20	QPSK PCC 1 99	37850/2580	1:1.58	0.719	0.01	15.89	17.00	1.291	0.928	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Head Test data(100%RB)											
Right tilted	20	QPSK 100RB 0	38000/2595	1:1.58	0.756	-0.03	16.11	17.00	1.227	0.928	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK 1RB 0	38000/2595	1:1.58	0.040	-0.09	20.71	21.50	1.199	0.048	22.1
Back side	20	QPSK 1RB 0	38000/2595	1:1.58	0.049	0.00	20.71	21.50	1.199	0.059	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 25	38000/2595	1:1.58	0.045	0.03	20.61	21.50	1.227	0.056	22.1
Back side	20	QPSK 50RB 25	38000/2595	1:1.58	0.059	0.00	20.61	21.50	1.227	0.073	22.1
Back side	20	QPSK PCC 1 99	37850/2580	1:1.58	0.049	0.03	20.55	21.50	1.245	0.061	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 0	38000/2595	1:1.58	0.189	0.09	20.71	21.50	1.199	0.227	22.1
Back side	20	QPSK 1RB 0	38000/2595	1:1.58	0.295	0.07	20.71	21.50	1.199	0.354	22.1
Left side	20	QPSK 1RB 0	38000/2595	1:1.58	0.072	0.04	20.71	21.50	1.199	0.087	22.1
Top side	20	QPSK 1RB 0	38000/2595	1:1.58	0.646	-0.01	20.71	21.50	1.199	0.775	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	38000/2595	1:1.58	0.196	0.07	20.61	21.50	1.227	0.241	22.1
Back side	20	QPSK 50RB 25	38000/2595	1:1.58	0.260	-0.09	20.61	21.50	1.227	0.319	22.1
Left side	20	QPSK 50RB 25	38000/2595	1:1.58	0.076	0.09	20.61	21.50	1.227	0.093	22.1
Top side	20	QPSK 50RB 25	38000/2595	1:1.58	0.703	-0.06	20.61	21.50	1.227	0.863	22.1
Top side	20	QPSK PCC 1 99	37850/2580	1:1.58	0.691	0.04	20.55	21.50	1.245	0.860	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Top side	20	QPSK 50RB 25	37850/2580	1:1.58	0.691	0.02	20.61	21.50	1.227	0.848	22.1
Top side	20	QPSK 50RB 50	38150/2610	1:1.58	0.685	-0.05	20.57	21.50	1.239	0.849	22.1
Hotspot Test data (Separate 10mm 100%RB)											
Top side	20	QPSK 50RB 25	37850/2580	1:1.58	0.669	0.15	20.65	21.50	1.216	0.814	22.1
Ant4 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	0.058	0.01	23.46	24.50	1.271	0.074	22.1
Left tilted	20	QPSK 1RB50	38000/2595	1:1.58	0.048	0.03	23.46	24.50	1.271	0.060	22.1
Right cheek	20	QPSK 1RB50	38000/2595	1:1.58	0.081	0.07	23.46	24.50	1.271	0.102	22.1
Right tilted	20	QPSK PCC 1 99	37850/2580	1:1.58	0.077	0.02	23.31	24.50	1.315	0.101	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Right tilted	20	QPSK 1RB50	38000/2595	1:1.58	0.028	0.06	23.46	24.50	1.271	0.036	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 25	38000/2595	1:1.58	0.048	0.08	22.71	23.50	1.199	0.058	22.1
Left tilted	20	QPSK 50RB 25	38000/2595	1:1.58	0.042	0.01	22.71	23.50	1.199	0.050	22.1

Right cheek	20	QPSK 50RB 25	38000/2595	1:1.58	0.066	0.07	22.71	23.50	1.199	0.079	22.1
Right tilted	20	QPSK 50RB 25	38000/2595	1:1.58	0.027	0.08	22.71	23.50	1.199	0.032	22.1
Body worn Test data (Separate 15mm 1RB)											
Front side	20	QPSK 1RB50	38000/2595	1:1.58	0.227	0.07	23.46	24.50	1.271	0.288	22.1
Back side	20	QPSK 1RB50	38000/2595	1:1.58	0.340	0.14	23.46	24.50	1.271	0.432	22.1
Back side	20	QPSK PCC 1 99	37850/2580	1:1.58	0.328	-0.01	23.31	24.50	1.315	0.431	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Body worn Test data (Separate 15mm 50%RB)											
Front side	20	QPSK 50RB 25	38000/2595	1:1.58	0.186	0.02	22.71	23.50	1.199	0.223	22.1
Back side	20	QPSK 50RB 25	38000/2595	1:1.58	0.297	0.07	22.71	23.50	1.199	0.356	22.1
Hotspot Test data (Separate 10mm 1RB)											
Front side	20	QPSK 1RB50	38000/2595	1:1.58	0.443	-0.03	23.46	24.50	1.271	0.563	22.1
Back side	20	QPSK 1RB50	38000/2595	1:1.58	0.654	0.01	23.46	24.50	1.271	0.831	22.1
Left side	20	QPSK 1RB50	38000/2595	1:1.58	0.084	-0.09	23.46	24.50	1.271	0.106	22.1
Right side	20	QPSK 1RB50	38000/2595	1:1.58	0.228	0.16	23.46	24.50	1.271	0.290	22.1
Bottom side	20	QPSK 1RB50	38000/2595	1:1.58	0.175	0.19	23.46	24.50	1.271	0.222	22.1
Back side	20	QPSK 1RB99	37850/2580	1:1.58	0.666	0.07	23.44	24.50	1.276	0.850	22.1
Back side	20	QPSK PCC 1 99	37850/2580	1:1.58	0.641	0.05	23.31	24.50	1.315	0.843	22.1
	20	QPSK SCC 1 0	38048/2599.8								
Back side	20	QPSK 1RB99	38150/2610	1:1.58	0.622	0.07	23.45	24.50	1.274	0.792	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	38000/2595	1:1.58	0.360	0.04	22.71	23.50	1.199	0.432	22.1
Back side	20	QPSK 50RB 25	38000/2595	1:1.58	0.538	0.07	22.71	23.50	1.199	0.645	22.1
Left side	20	QPSK 50RB 25	38000/2595	1:1.58	0.039	0.12	22.71	23.50	1.199	0.047	22.1
Right side	20	QPSK 50RB 25	38000/2595	1:1.58	0.129	0.06	22.71	23.50	1.199	0.155	22.1
Bottom side	20	QPSK 50RB 25	38000/2595	1:1.58	0.187	0.17	22.71	23.50	1.199	0.224	22.1
Hotspot Test data (Separate 10mm 100%RB)											
Back side	20	QPSK 100RB0	38000/2595	1:1.58	0.497	0.07	22.69	23.50	1.205	0.599	22.1

Table 26: SAR of LTE Band 38 for Head and Body.

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).

8.3.16 SAR Result of LTE Band 41

Ant3 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 Class 3	20	QPSK 1RB_0	40620/2593	1:1.58	0.330	-0.01	16.72	17.40	1.169	0.386	22.1
Left tilted Class 3	20	QPSK 1RB_0	40620/2593	1:1.58	0.364	0.09	16.72	17.40	1.169	0.426	22.1
Right cheek Class 3	20	QPSK 1RB_0	40620/2593	1:1.58	0.489	-0.08	16.72	17.40	1.169	0.572	22.1
Right tilted Class 3	20	QPSK 1RB_0	40620/2593	1:1.58	0.545	-0.04	16.72	17.40	1.169	0.637	22.1
Right tilted Class 3	20	QPSK 1RB_0	39750/2506	1:1.58	0.498	0.01	16.71	17.40	1.172	0.584	22.1
Right tilted Class 3	20	QPSK 1RB_99	40185/2549.5	1:1.58	0.512	-0.12	16.43	17.40	1.250	0.640	22.1
Right tilted Class 3	20	QPSK 1RB_0	41055/2636.5	1:1.58	0.499	-0.10	16.40	17.40	1.259	0.628	22.1
Right tilted Class 3	20	QPSK 1RB_0	41490/2680	1:1.58	0.540	-0.09	16.22	17.40	1.312	0.709	22.1
Head Test data(50%RB)											
Left cheek Class 3	20	QPSK 50RB_0	40620/2593	1:1.58	0.341	-0.11	16.74	17.40	1.164	0.397	22.1
Left tilted Class 3	20	QPSK 50RB_0	40620/2593	1:1.58	0.375	0.01	16.74	17.40	1.164	0.437	22.1
Right cheek Class 3	20	QPSK 50RB_0	40620/2593	1:1.58	0.506	-0.04	16.74	17.40	1.164	0.589	22.1
Right tilted Class 3	20	QPSK 50RB_0	40620/2593	1:1.58	0.606	-0.07	16.74	17.40	1.164	0.705	22.1
Right tilted Class 3	20	QPSK PCC 1_0	40620/2593	1:1.58	0.510	0.03	16.59	17.40	1.205	0.615	22.1
Right tilted-class2	20	QPSK SCC 1_99	40422/2573.2	1:2.31	0.557	-0.03	16.74	17.40	1.164	0.648	22.1
Right tilted Class 3	20	QPSK 50RB_0	39750/2506	1:1.58	0.587	-0.11	16.65	17.40	1.189	0.698	22.1
Right tilted Class 3	20	QPSK 50RB_25	40185/2549.5	1:1.58	0.585	-0.08	16.60	17.40	1.202	0.703	22.1
Right tilted Class 3	20	QPSK 50RB_0	41055/2636.5	1:1.58	0.571	0.06	16.51	17.40	1.227	0.701	22.1
Right tilted Class 3	20	QPSK 50RB_25	41490/2680	1:1.58	0.550	-0.19	16.34	17.40	1.276	0.702	22.1
Body worn Test data(Separate 15mm 1RB)											
Front side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.162	-0.06	21.71	22.50	1.199	0.194	22.1
Back side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.221	-0.07	21.71	22.50	1.199	0.265	22.1
Back side Class 3	20	QPSK PCC 1_99	40620/2593	1:1.58	0.190	0.14	21.52	22.50	1.253	0.238	22.1
Back side Class 2	20	QPSK SCC 1_0	40818/2612.8	1:2.31	0.185	0.06	21.71	22.50	1.199	0.222	22.1
Body worn Test data (Separate 15mm 50%RB)											
Front side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.169	0.05	21.84	22.50	1.164	0.197	22.1
Back side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.227	-0.08	21.84	22.50	1.164	0.264	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.358	0.03	21.71	22.50	1.199	0.429	22.1
Back side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.426	-0.03	21.71	22.50	1.199	0.511	22.1
Left side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.076	-0.08	21.71	22.50	1.199	0.092	22.1
Top side Class 3	20	QPSK 1RB_99	40620/2593	1:1.58	0.711	-0.09	21.71	22.50	1.199	0.853	22.1
Top side Class 3	20	QPSK 1RB_0	39750/2506	1:1.58	0.620	-0.03	21.70	22.50	1.202	0.745	22.1
Top side Class 3	20	QPSK 1RB_0	40185/2549.5	1:1.58	0.650	0.12	21.50	22.50	1.259	0.818	22.1
Top side Class 3	20	QPSK 1RB_0	41055/2636.5	1:1.58	0.710	0.03	21.61	22.50	1.227	0.871	22.1
Top side Class 3	20	QPSK 1RB_50	41490/2680	1:1.58	0.750	-0.11	21.62	22.50	1.225	0.918	22.1
Top side Class 3	20	QPSK PCC 1_0	41490/2680	1:1.58	0.680	0.13	21.47	22.50	1.268	0.862	22.1
Top side Class 3	20	QPSK SCC 1_99	41292/2660.2	1:2.31	0.670	0.02	21.52	22.50	1.253	0.840	22.1
Top side Class 2	20	QPSK 1RB_50	41490/2680	1:2.31	0.670	0.02	21.52	22.50	1.253	0.840	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.449	-0.08	21.84	22.50	1.164	0.523	22.1
Back side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.566	0.09	21.84	22.50	1.164	0.659	22.1
Left side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.079	0.06	21.84	22.50	1.164	0.092	22.1
Top side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.702	0.00	21.84	22.50	1.164	0.817	22.1
Top side Class 3	20	QPSK 50RB_50	39750/2506	1:1.58	0.624	-0.15	21.83	22.50	1.167	0.728	22.1
Top side Class 3	20	QPSK 50RB_0	40185/2549.5	1:1.58	0.650	0.10	21.72	22.50	1.197	0.778	22.1
Top side Class 3	20	QPSK 50RB_25	41055/2636.5	1:1.58	0.710	0.09	21.64	22.50	1.219	0.865	22.1
Top side Class 3	20	QPSK 50RB_25	41490/2680	1:1.58	0.715	-0.03	21.46	22.50	1.271	0.908	22.1
Hotspot Test data (Separate 10mm 100%RB)											
Top side	20	QPSK 100RB_0	40620/2593	1:1.58	0.711	0.04	21.98	22.50	1.127	0.801	22.1

Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G&WIFI 5G)												
Ant3 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(50%RB)												
Left tilted Class 3	20	QPSK 50RB 0	40620/2593	1:1.58	0.311	0.12	16.53	16.70	1.040	0.323		22.1
Ant4 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 Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.052	0.04	23.18	24.50	1.355	0.070		22.1
Left tilted Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.036	0.09	23.18	24.50	1.355	0.049		22.1
Right cheek Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.074	0.03	23.18	24.50	1.355	0.100		22.1
Right cheek Class 3	20	QPSK PCC 1 0	40620/2593	1:1.58	0.062	-0.01	23.05	24.50	1.396	0.087		22.1
		QPSK SCC 1 99	40422/2573.2									
Right cheek Class 2	20	QPSK 1RB 0	40620/2593	1:2.31	0.074	0.04	25.19	26.00	1.205	0.089		22.1
Right tilted Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.024	0.02	23.18	24.50	1.355	0.032		22.1
Head Test data(50%RB)												
Left cheek Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.049	0.10	22.29	23.50	1.321	0.065		22.1
Left tilted Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.033	0.08	22.29	23.50	1.321	0.043		22.1
Right cheek Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.064	0.01	22.29	23.50	1.321	0.084		22.1
Right tilted Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.021	0.05	22.29	23.50	1.321	0.027		22.1
Body worn Test data(Separate 15mm 1RB)												
Front side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.190	0.01	23.18	24.50	1.355	0.257		22.1
Back side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.297	0.15	23.18	24.50	1.355	0.402		22.1
Back side Class 3	20	QPSK PCC 1 0	40620/2593	1:1.58	0.262	-0.13	23.05	24.50	1.396	0.366		22.1
		QPSK SCC 1 99	40422/2573.2									
Back side Class 2	20	QPSK 1RB 0	40620/2593	1:2.31	0.231	0.06	25.19	26.00	1.205	0.278		22.1
Body worn Test data (Separate 15mm 50%RB)												
Front side Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.150	0.06	22.29	23.50	1.321	0.198		22.1
Back side Class 3	20	QPSK 50RB 25	40620/2593	1:1.58	0.241	0.11	22.29	23.50	1.321	0.318		22.1
Hotspot Test data(Separate 10mm 1RB)												
Front side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.298	0.16	23.18	24.50	1.355	0.404		22.1
Back side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.446	0.15	23.18	24.50	1.355	0.604		22.1
Back side Class 3	20	QPSK 1RB 0	40620/2593	1:2.31	0.300	0.17	25.19	26.00	1.205	0.362		22.1
Left side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.229	0.14	23.18	24.50	1.355	0.310		22.1
Right side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.356	0.11	23.18	24.50	1.355	0.482		22.1
Bottom side Class 3	20	QPSK 1RB 0	40620/2593	1:1.58	0.276	0.07	23.18	24.50	1.355	0.374		22.1
Back side Class 3	20	QPSK 1RB 0	39750/2506	1:1.58	0.253	0.09	23.14	24.50	1.368	0.346		22.1
Back side Class 3	20	QPSK 1RB 50	40185/2549.5	1:1.58	0.267	0.01	23.08	24.50	1.387	0.370		22.1
Back side Class 3	20	QPSK 1RB 99	41055/2636.5	1:1.58	0.374	0.09	23.09	24.50	1.384	0.517		22.1
Back side Class 3	20	QPSK 1RB 0	41490/2680	1:1.58	0.368	0.00	23.13	24.50	1.371	0.504		22.1

Hotspot Test data (Separate 10mm 50%RB)											
Front side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.359	-0.03	22.29	23.50	1.321	0.474	22.1
Back side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.566	0.06	22.29	23.50	1.321	0.748	22.1
Back side Class 3	20	QPSK PCC 1_0	40620/2593	1:1.58	0.522	-0.03	23.05	24.50	1.396	0.729	22.1
		QPSK SCC 1_99	40422/2573.2								
Back side Class 2	20	QPSK 50RB_25	40620/2593	1:2.31	0.511	0.03	24.19	25.00	1.205	0.616	22.1
Back side Class 3	20	QPSK 50RB_50	39750/2506	1:1.58	0.510	-0.11	22.24	23.50	1.337	0.682	22.1
Back side Class 3	20	QPSK 50RB_25	40185/2549.5	1:1.58	0.540	0.03	22.29	23.50	1.321	0.713	22.1
Back side Class 3	20	QPSK 50RB_50	41055/2636.5	1:1.58	0.480	0.14	22.17	23.50	1.358	0.652	22.1
Back side Class 3	20	QPSK 50RB_50	41490/2680	1:1.58	0.500	-0.16	22.25	23.50	1.334	0.667	22.1
Left side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.061	0.15	22.29	23.50	1.321	0.081	22.1
Right side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.195	0.01	22.29	23.50	1.321	0.258	22.1
Bottom side Class 3	20	QPSK 50RB_25	40620/2593	1:1.58	0.285	0.16	22.29	23.50	1.321	0.377	22.1

Table 27: SAR of LTE Band 41 for Head and Body.

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 KDB447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - ≤ 0.8 W/kg for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is ≤ 100 MHz.
 - ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz.

8.3.17 SAR Result of LTE Band 66

Ant3 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	132322/1745	1:1	0.285	-0.19	19.85	20.50	1.161	0.331	22.1
Left tilted	20	QPSK 1RB 50	132322/1745	1:1	0.453	-0.03	19.85	20.50	1.161	0.526	22.1
Right cheek	20	QPSK 1RB 50	132322/1745	1:1	0.659	0.05	19.85	20.50	1.161	0.765	22.1
Right tilted	20	QPSK 1RB 50	132322/1745	1:1	0.674	-0.03	19.85	20.50	1.161	0.783	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 25	132322/1745	1:1	0.358	0.02	19.70	20.50	1.202	0.430	22.1
Left tilted	20	QPSK 50RB 25	132322/1745	1:1	0.486	0.07	19.70	20.50	1.202	0.584	22.1
Right cheek	20	QPSK 50RB 25	132322/1745	1:1	0.668	-0.17	19.70	20.50	1.202	0.803	22.1
Right tilted	20	QPSK 50RB 25	132322/1745	1:1	0.693	-0.01	19.70	20.50	1.202	0.833	22.1
Right cheek	20	QPSK 50RB 25	132072/1720	1:1	0.625	0.17	19.69	20.50	1.205	0.753	22.1
Right cheek	20	QPSK 50RB 0	132572/1770	1:1	0.630	-0.15	19.64	20.50	1.219	0.768	22.1
Right tilted	20	QPSK 50RB 25	132072/1720	1:1	0.661	-0.10	19.69	20.50	1.205	0.797	22.1
Right tilted	20	QPSK 50RB 0	132572/1770	1:1	0.652	0.08	19.64	20.50	1.219	0.795	22.1
Head Test data(100%RB)											
Right cheek	20	QPSK 100RB 0	132072/1720	1:1	0.657	0.03	19.66	20.50	1.213	0.797	22.1
Right tilted	20	QPSK 100RB 0	132072/1720	1:1	0.670	0.12	19.66	20.50	1.213	0.813	22.1
Body worn Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 50	132322/1745	1:1	0.048	0.03	21.26	22.00	1.186	0.057	22.1
Back side	20	QPSK 1RB 50	132322/1745	1:1	0.055	-0.06	21.26	22.00	1.186	0.066	22.1
Body worn Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 50	132322/1745	1:1	0.048	0.07	21.27	22.00	1.183	0.057	22.1
Back side	20	QPSK 50RB 50	132322/1745	1:1	0.056	-0.18	21.27	22.00	1.183	0.067	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 50	132322/1745	1:1	0.089	0.03	21.26	22.00	1.186	0.106	22.1
Back side	20	QPSK 1RB 50	132322/1745	1:1	0.106	-0.10	21.26	22.00	1.186	0.126	22.1
Left side	20	QPSK 1RB 50	132322/1745	1:1	0.020	-0.09	21.26	22.00	1.186	0.024	22.1
Top side	20	QPSK 1RB 50	132322/1745	1:1	0.201	-0.11	21.26	22.00	1.186	0.238	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	132322/1745	1:1	0.090	0.01	21.27	22.00	1.183	0.107	22.1
Back side	20	QPSK 50RB 25	132322/1745	1:1	0.108	-0.07	21.27	22.00	1.183	0.128	22.1
Left side	20	QPSK 50RB 25	132322/1745	1:1	0.021	-0.04	21.27	22.00	1.183	0.025	22.1
Top side	20	QPSK 50RB 25	132322/1745	1:1	0.204	-0.06	21.27	22.00	1.183	0.241	22.1
Ant4 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	132322/1745	1:1	0.067	0.01	23.23	24.00	1.194	0.080	22.1
Left tilted	20	QPSK 1RB 0	132322/1745	1:1	0.068	-0.18	23.23	24.00	1.194	0.081	22.1
Right cheek	20	QPSK 1RB 0	132322/1745	1:1	0.077	0.07	23.23	24.00	1.194	0.093	22.1
Right tilted	20	QPSK 1RB 0	132322/1745	1:1	0.058	-0.17	23.23	24.00	1.194	0.069	22.1
Head Test data(50%RB)											
Left cheek	20	QPSK 50RB 50	132322/1745	1:1	0.051	-0.10	22.29	23.00	1.178	0.060	22.1
Left tilted	20	QPSK 50RB 50	132322/1745	1:1	0.049	-0.19	22.29	23.00	1.178	0.058	22.1
Right cheek	20	QPSK 50RB 50	132322/1745	1:1	0.066	-0.05	22.29	23.00	1.178	0.078	22.1
Right tilted	20	QPSK 50RB 50	132322/1745	1:1	0.047	-0.11	22.29	23.00	1.178	0.055	22.1
Body worn Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 0	132322/1745	1:1	0.174	-0.12	23.23	24.00	1.194	0.208	22.1
Back side	20	QPSK 1RB 0	132322/1745	1:1	0.232	-0.07	23.23	24.00	1.194	0.277	22.1
Body worn Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	132322/1745	1:1	0.142	-0.15	22.29	23.00	1.178	0.167	22.1
Back side	20	QPSK 50RB 25	132322/1745	1:1	0.188	-0.12	22.29	23.00	1.178	0.221	22.1
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK 1RB 0	132322/1745	1:1	0.318	0.15	23.23	24.00	1.194	0.380	22.1
Back side	20	QPSK 1RB 0	132322/1745	1:1	0.438	-0.03	23.23	24.00	1.194	0.523	22.1

Left side	20	QPSK 1RB 0	132322/1745	1:1	0.078	0.08	23.23	24.00	1.194	0.093	22.1
Right side	20	QPSK 1RB 0	132322/1745	1:1	0.381	-0.11	23.23	24.00	1.194	0.455	22.1
Bottom side	20	QPSK 1RB 0	132322/1745	1:1	0.680	-0.06	23.23	24.00	1.194	0.812	22.1
Bottom side	20	QPSK 1RB 0	132072/1720	1:1	0.661	-0.04	23.22	24.00	1.197	0.791	22.1
Bottom side	20	QPSK 1RB 0	132572/1770	1:1	0.713	-0.02	23.11	24.00	1.227	0.875	22.1
Hotspot Test data (Separate 10mm 50%RB)											
Front side	20	QPSK 50RB 25	132322/1745	1:1	0.244	0.07	22.29	23.00	1.178	0.287	22.1
Back side	20	QPSK 50RB 25	132322/1745	1:1	0.356	-0.04	22.29	23.00	1.178	0.419	22.1
Left side	20	QPSK 50RB 25	132322/1745	1:1	0.064	0.05	22.29	23.00	1.178	0.075	22.1
Right side	20	QPSK 50RB 25	132322/1745	1:1	0.309	-0.08	22.29	23.00	1.178	0.364	22.1
Bottom side	20	QPSK 50RB 25	132322/1745	1:1	0.556	-0.05	22.29	23.00	1.178	0.655	22.1
Hotspot Test data (Separate 10mm 100%RB)											
Bottom side	20	QPSK 100RB 0	132072/1720	1:1	0.626	-0.03	22.24	23.00	1.191	0.746	22.1

Table 28: SAR of LTE Band 66 for Head and Body.

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).

8.3.18 SAR Result of 5G NR n5

Ant0 Test Record												
Test position	Test mode			Test ch./Freq.	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
	BW	Modulation	RB Size_ RB offset									
Head Test Data 1RB												
Left cheek	20	QPSK	1 1	167800/839	0.481	0.274	0.05	22.48	24.20	1.486	0.715	22.1
Left tilted	20	QPSK	1 1	167800/839	0.102	0.065	0.15	22.48	24.20	1.486	0.152	22.1
Right cheek	20	QPSK	1 1	167800/839	0.549	0.285	0.06	22.48	24.20	1.486	0.816	22.1
Right tilted	20	QPSK	1 1	167800/839	0.112	0.074	0.07	22.48	24.20	1.486	0.166	22.1
Head Test Data 50%RB												
Left cheek	20	QPSK	50 28	166800/834	0.422	0.244	0.09	22.35	24.20	1.531	0.646	22.1
Left tilted	20	QPSK	50 28	166800/834	0.096	0.065	0.05	22.35	24.20	1.531	0.147	22.1
Right cheek	20	QPSK	50 28	166800/834	0.598	0.307	0.08	22.35	24.20	1.531	0.916	22.1
Right tilted	20	QPSK	50 28	166800/834	0.128	0.082	0.11	22.35	24.20	1.531	0.196	22.1
Right cheek	20	QPSK	50 28	167300/836.5	0.526	0.271	0.07	22.19	24.20	1.589	0.836	22.1
Right cheek	20	QPSK	50 28	167800/839	0.584	0.293	0.11	22.30	24.20	1.549	0.905	22.1
Head Test Data 100%RB												
Right cheek	20	QPSK	100_0	167300/836.5	0.424	0.216	0.12	21.33	23.00	1.469	0.623	22.1
Body worn Test Data (15mm 1RB)												
Front side	20	QPSK	1 1	167800/839	0.132	0.089	0.09	22.48	24.20	1.486	0.196	22.1
Back side	20	QPSK	1 1	167800/839	0.190	0.127	-0.01	22.48	24.20	1.486	0.282	22.1
Body worn Test Data (15mm 50%RB)												
Front side	20	QPSK	50 28	166800/834	0.124	0.085	0.08	22.35	24.20	1.531	0.190	22.1
Back side	20	QPSK	50 28	166800/834	0.168	0.114	-0.14	22.35	24.20	1.531	0.257	22.1
Hotspot Test Data (10mm 1RB)												
Front side	20	QPSK	1 1	167800/839	0.211	0.134	-0.09	22.48	24.20	1.486	0.314	22.1
Back side	20	QPSK	1 1	167800/839	0.295	0.187	-0.13	22.48	24.20	1.486	0.438	22.1
Left side	20	QPSK	1 1	167800/839	0.421	0.243	-0.07	22.48	24.20	1.486	0.626	22.1
Top side	20	QPSK	1 1	167800/839	0.016	0.011	0.13	22.48	24.20	1.486	0.023	22.1
Hotspot Test Data (10mm 50%RB)												
Front side	20	QPSK	50 28	166800/834	0.221	0.141	0.06	22.35	24.20	1.531	0.338	22.1
Back side	20	QPSK	50 28	166800/834	0.300	0.189	0.03	22.35	24.20	1.531	0.459	22.1
Left side	20	QPSK	50 28	166800/834	0.452	0.257	-0.11	22.35	24.20	1.531	0.692	22.1
Top side	20	QPSK	50 28	166800/834	0.014	0.010	-0.02	22.35	24.20	1.531	0.022	22.1
Ant1 Test Record												
Test position	Test mode			Test ch./Freq.	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
	BW	Modulation	RB Size_ RB offset									
Head Test Data 1RB												
Left cheek	20	QPSK	1 53	166800/834	0.103	0.081	0.02	22.91	24.20	1.346	0.139	22.1
Left tilted	20	QPSK	1 53	166800/834	0.073	0.054	0.05	22.91	24.20	1.346	0.098	22.1
Right cheek	20	QPSK	1 53	166800/834	0.150	0.120	0.10	22.91	24.20	1.346	0.202	22.1
Right tilted	20	QPSK	1 53	166800/834	0.088	0.070	0.10	22.91	24.20	1.346	0.118	22.1
Head Test Data 50%RB												
Left cheek	20	QPSK	50 28	166800/834	0.144	0.109	0.02	22.90	24.20	1.349	0.194	22.1
Left tilted	20	QPSK	50 28	166800/834	0.090	0.065	0.13	22.90	24.20	1.349	0.121	22.1
Right cheek	20	QPSK	50 28	166800/834	0.179	0.138	0.05	22.90	24.20	1.349	0.241	22.1
Right tilted	20	QPSK	50 28	166800/834	0.091	0.073	0.08	22.90	24.20	1.349	0.123	22.1
Body worn Test Data (15mm 1RB)												
Front side	20	QPSK	1 53	166800/834	0.186	0.140	-0.03	22.91	24.20	1.346	0.250	22.1
Back side	20	QPSK	1 53	166800/834	0.213	0.158	0.03	22.91	24.20	1.346	0.287	22.1
Body worn Test Data (15mm 50%RB)												
Front side	20	QPSK	50 28	166800/834	0.246	0.184	0.01	22.90	24.20	1.349	0.332	22.1
Back side	20	QPSK	50 28	166800/834	0.223	0.166	-0.08	22.90	24.20	1.349	0.301	22.1
Hotspot Test Data (10mm 1RB)												
Front side	20	QPSK	1 53	166800/834	0.345	0.216	-0.07	22.91	24.20	1.346	0.464	22.1

Back side	20	QPSK	1 53	166800/834	0.362	0.225	0.10	22.91	24.20	1.346	0.487	22.1
Left side	20	QPSK	1 53	166800/834	0.109	0.061	-0.11	22.91	24.20	1.346	0.147	22.1
Right side	20	QPSK	1 53	166800/834	0.237	0.165	-0.04	22.91	24.20	1.346	0.319	22.1
Bottom side	20	QPSK	1 53	166800/834	0.316	0.175	0.11	22.91	24.20	1.346	0.425	22.1
Hotspot Test Data (10mm 50%RB)												
Front side	20	QPSK	50 28	166800/834	0.327	0.204	-0.17	22.90	24.20	1.349	0.441	22.1
Back side	20	QPSK	50 28	166800/834	0.378	0.236	-0.17	22.90	24.20	1.349	0.510	22.1
Left side	20	QPSK	50 28	166800/834	0.112	0.062	-0.01	22.90	24.20	1.349	0.151	22.1
Right side	20	QPSK	50 28	166800/834	0.244	0.170	-0.08	22.90	24.20	1.349	0.329	22.1
Bottom side	20	QPSK	50 28	166800/834	0.324	0.181	-0.02	22.90	24.20	1.349	0.437	22.1

Table 29: SAR of 5G NR n5 for Head and Body.

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).

8.3.19 SAR Result of 5G NR n7

Ant3 Test Record											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left cheek	50	QPSK	1 1	507000/2535	0.290	0.14	14.48	15.50	1.265	0.367	21.9
Left tilted	50	QPSK	1 1	507000/2535	0.410	0.08	14.48	15.50	1.265	0.519	21.9
Right cheek	50	QPSK	1 1	507000/2535	0.635	0.11	14.48	15.50	1.265	0.803	21.9
Right tilted	50	QPSK	1 1	507000/2535	0.681	-0.14	14.48	15.50	1.265	0.861	21.9
Right tilted	50	QPSK	1 1	505000/2525	0.774	0.00	14.40	15.50	1.288	0.997	21.9
Right tilted	50	QPSK	1 1	509000/2545	0.766	-0.14	14.43	15.50	1.279	0.980	21.9
Head Test data(50%RB)											
Left cheek	50	QPSK	135 69	507000/2535	0.374	0.06	14.54	15.50	1.247	0.467	21.9
Left tilted	50	QPSK	135 69	507000/2535	0.455	0.02	14.54	15.50	1.247	0.568	21.9
Right cheek	50	QPSK	135 69	507000/2535	0.702	-0.06	14.54	15.50	1.247	0.876	21.9
Right tilted	50	QPSK	135 69	507000/2535	0.798	0.04	14.54	15.50	1.247	0.995	21.9
Right cheek	50	QPSK	135 69	505000/2525	0.682	-0.13	14.48	15.50	1.265	0.863	21.9
Right cheek	50	QPSK	135 69	509000/2545	0.693	0.05	14.49	15.50	1.262	0.874	21.9
Right tilted	50	QPSK	135 69	505000/2525	0.701	0.04	14.48	15.50	1.265	0.887	21.9
Right tilted	50	QPSK	135 69	509000/2545	0.734	0.00	14.49	15.50	1.262	0.926	21.9
Head Test data(100%RB)											
Right cheek	50	QPSK	270 0	509000/2545	0.659	0.05	14.48	15.50	1.265	0.833	21.9
Right tilted	50	QPSK	270 0	509000/2545	0.702	-0.03	14.48	15.50	1.265	0.888	21.9
Body worn Test data(Separate 15mm 1RB)											
Front side	50	QPSK	1 271	509000/2545	0.161	0.14	18.63	19.50	1.222	0.197	21.9
Back side	50	QPSK	1 271	509000/2545	0.181	0.03	18.63	19.50	1.222	0.221	21.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	50	QPSK	135 69	509000/2545	0.167	0.02	18.48	19.50	1.265	0.211	21.9
Back side	50	QPSK	135 69	509000/2545	0.194	0.09	18.48	19.50	1.265	0.245	21.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	50	QPSK	1 271	509000/2545	0.206	-0.06	18.63	19.50	1.222	0.252	21.9
Back side	50	QPSK	1 271	509000/2545	0.246	-0.03	18.63	19.50	1.222	0.301	21.9
Left side	50	QPSK	1 271	509000/2545	0.064	0.07	18.63	19.50	1.222	0.078	21.9
Top side	50	QPSK	1 271	509000/2545	0.456	0.06	18.63	19.50	1.259	0.574	21.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	50	QPSK	135 69	509000/2545	0.212	-0.05	18.48	19.50	1.265	0.268	21.9
Back side	50	QPSK	135 69	509000/2545	0.244	-0.09	18.48	19.50	1.265	0.309	21.9
Left side	50	QPSK	135 69	509000/2545	0.064	-0.07	18.48	19.50	1.265	0.081	21.9
Top side	50	QPSK	135 69	509000/2545	0.540	0.05	18.48	19.50	1.265	0.683	21.9
Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G)&(WWAN+WiFi 2.4G+WiFi 5G)											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left tilted	50	QPSK	1 1	507000/2535	0.365	0.05	13.72	14.70	1.253	0.457	21.9
Ant4 Test Record											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left cheek	50	QPSK	1 1	507000/2535	0.057	0.05	23.06	24.20	1.300	0.075	21.9
Left tilted	50	QPSK	1 1	507000/2535	0.103	-0.04	23.06	24.20	1.300	0.134	21.9
Right cheek	50	QPSK	1 1	507000/2535	0.076	0.06	23.06	24.20	1.300	0.099	21.9
Right tilted	50	QPSK	1 1	507000/2535	0.117	0.05	23.06	24.20	1.300	0.152	21.9
Head Test data(50%RB)											
Left cheek	50	QPSK	135 69	507000/2535	0.067	-0.08	22.95	24.20	1.334	0.089	21.9
Left tilted	50	QPSK	135 69	507000/2535	0.059	0.09	22.95	24.20	1.334	0.079	21.9
Right cheek	50	QPSK	135 69	507000/2535	0.094	0.02	22.95	24.20	1.334	0.126	21.9

Right tilted	50	QPSK	135_69	507000/2535	0.071	-0.08	22.95	24.20	1.334	0.094	21.9
Body worn Test data(Separate 15mm 1RB)											
Front side	50	QPSK	1_1	507000/2535	0.175	0.09	21.47	22.30	1.211	0.212	21.9
Back side	50	QPSK	1_1	507000/2535	0.245	0.18	21.47	22.30	1.211	0.297	21.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	50	QPSK	135_69	505000/2525	0.173	-0.12	21.31	22.30	1.256	0.217	21.9
Back side	50	QPSK	135_69	505000/2525	0.250	0.03	21.31	22.30	1.256	0.314	21.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	50	QPSK	1_1	507000/2535	0.382	0.14	21.47	22.30	1.211	0.462	21.9
Back side	50	QPSK	1_1	507000/2535	0.538	-0.09	21.47	22.30	1.211	0.651	21.9
Left side	50	QPSK	1_1	507000/2535	0.077	0.05	21.47	22.30	1.211	0.093	21.9
Right side	50	QPSK	1_1	507000/2535	0.214	0.13	21.47	22.30	1.211	0.259	21.9
Bottom side	50	QPSK	1_1	507000/2535	0.253	0.12	21.47	22.30	1.211	0.306	21.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	50	QPSK	135_69	505000/2525	0.388	0.03	21.31	22.30	1.256	0.487	21.9
Back side	50	QPSK	135_69	505000/2525	0.566	-0.09	21.31	22.30	1.256	0.711	21.9
Left side	50	QPSK	135_69	505000/2525	0.072	0.01	21.31	22.30	1.256	0.091	21.9
Right side	50	QPSK	135_69	505000/2525	0.207	0.15	21.31	22.30	1.256	0.260	21.9
Bottom side	50	QPSK	135_69	505000/2525	0.258	0.06	21.31	22.30	1.256	0.324	21.9

Table 30: SAR of 5G NR n7 for Head and Body.

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).

8.3.20 SAR Result of 5G NR n38

Ant3 Test Record											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left cheek	20	QPSK	1 1	522000/2610	0.479	0.03	14.46	15.40	1.242	0.595	21.9
Left tilted	20	QPSK	1 1	522000/2610	0.693	0.18	14.46	15.40	1.242	0.860	21.9
Right cheek	20	QPSK	1 1	522000/2610	0.730	-0.15	14.46	15.40	1.242	0.906	21.9
Right tilted	20	QPSK	1 1	522000/2610	0.872	-0.16	14.46	15.40	1.242	1.083	21.9
Left tilted	20	QPSK	1 53	516000/2580	0.745	0.02	14.46	15.40	1.242	0.925	21.9
Left tilted	20	QPSK	1 53	519000/2595	0.727	0.02	14.36	15.40	1.271	0.924	21.9
Right cheek	20	QPSK	1 1	516000/2580	0.702	0.00	14.46	15.40	1.242	0.872	21.9
Right cheek	20	QPSK	1 1	519000/2595	0.768	-0.05	14.36	15.40	1.271	0.976	21.9
Right tilted	20	QPSK	1 1	516000/2580	0.789	-0.01	14.46	15.40	1.242	0.980	21.9
Right tilted	20	QPSK	1 1	519000/2595	0.808	0.00	14.36	15.40	1.271	1.027	21.9
Head Test data(50%RB)											
Left cheek	20	QPSK	50 28	516000/2580	0.473	-0.08	14.53	15.40	1.222	0.578	21.9
Left tilted	20	QPSK	50 28	516000/2580	0.668	0.09	14.53	15.40	1.222	0.816	21.9
Right cheek	20	QPSK	50 28	516000/2580	0.697	-0.06	14.53	15.40	1.222	0.852	21.9
Right tilted	20	QPSK	50 28	516000/2580	0.810	-0.05	14.53	15.40	1.222	0.990	21.9
Left tilted	20	QPSK	50 0	519000/2595	0.684	0.00	14.37	15.40	1.268	0.867	21.9
Left tilted	20	QPSK	50 0	522000/2610	0.698	-0.04	14.49	15.40	1.233	0.861	21.9
Right cheek	20	QPSK	50 0	519000/2595	0.741	-0.05	14.37	15.40	1.268	0.939	21.9
Right cheek	20	QPSK	50 0	522000/2610	0.733	-0.03	14.49	15.40	1.233	0.904	21.9
Right tilted	20	QPSK	50 28	519000/2595	0.828	-0.02	14.37	15.40	1.268	1.050	21.9
Right tilted	20	QPSK	50 28	522000/2610	0.883	0.02	14.49	15.40	1.233	1.089	21.9
Right tilted-repeat	20	QPSK	50 28	522000/2610	0.865	0.01	14.49	15.40	1.233	1.067	21.9
Head Test data(100%RB)											
Left tilted	20	QPSK	100 0	522000/2610	0.746	-0.16	14.45	15.40	1.245	0.928	21.9
Right cheek	20	QPSK	100 0	522000/2610	0.606	-0.07	14.45	15.40	1.245	0.754	21.9
Right tilted	20	QPSK	100 0	522000/2610	0.872	-0.03	14.45	15.40	1.245	1.085	21.9
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK	1 1	516000/2580	0.110	0.01	16.98	17.40	1.102	0.121	21.9
Back side	20	QPSK	1 1	516000/2580	0.141	0.00	16.98	17.40	1.102	0.155	21.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK	50 0	516000/2580	0.084	0.03	16.82	17.40	1.143	0.096	21.9
Back side	20	QPSK	50 0	516000/2580	0.114	0.09	16.82	17.40	1.143	0.130	21.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK	1 1	516000/2580	0.198	0.01	16.98	17.40	1.102	0.218	21.9
Back side	20	QPSK	1 1	516000/2580	0.217	-0.08	16.98	17.40	1.102	0.239	21.9
Left side	20	QPSK	1 1	516000/2580	0.064	0.01	16.98	17.40	1.102	0.070	21.9
Top side	20	QPSK	1 1	516000/2580	0.494	-0.05	16.98	17.40	1.102	0.544	21.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK	50 0	516000/2580	0.213	0.02	16.82	17.40	1.143	0.243	21.9
Back side	20	QPSK	50 0	516000/2580	0.230	0.01	16.82	17.40	1.143	0.263	21.9
Left side	20	QPSK	50 0	516000/2580	0.050	0.04	16.82	17.40	1.143	0.057	21.9
Top side	20	QPSK	50 0	516000/2580	0.445	-0.10	16.82	17.40	1.143	0.509	21.9
Ant3 Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G)&(WWAN+WiFi 2.4G+WiFi 5G)											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left tilted	20	QPSK	50 28	516000/2580	0.619	0.02	13.87	14.70	1.211	0.749	21.9

Ant4 Test Record											
Test position	BW	Modulation	RB Size_RB offset	Test ch./Freq.	SAR (W/kg) 1-g	Power drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp. (°C)
Head Test data(1RB)											
Left cheek	20	QPSK	1_1	522000/2610	0.060	0.02	22.57	24.00	1.390	0.083	21.9
Left tilted	20	QPSK	1_1	522000/2610	0.048	0.02	22.57	24.00	1.390	0.067	21.9
Right cheek	20	QPSK	1_1	522000/2610	0.104	-0.02	22.57	24.00	1.390	0.145	21.9
Right tilted	20	QPSK	1_1	522000/2610	0.033	-0.07	22.57	24.00	1.390	0.046	21.9
Head Test data(50%RB)											
Left cheek	20	QPSK	50_28	516000/2580	0.059	0.00	22.45	23.00	1.135	0.067	21.9
Left tilted	20	QPSK	50_28	516000/2580	0.051	0.09	22.45	23.00	1.135	0.058	21.9
Right cheek	20	QPSK	50_28	516000/2580	0.093	0.06	22.45	23.00	1.135	0.105	21.9
Right tilted	20	QPSK	50_28	516000/2580	0.029	0.09	22.45	23.00	1.135	0.033	21.9
Body worn Test data(Separate 15mm 1RB)											
Front side	20	QPSK	1_1	522000/2610	0.213	0.10	21.16	22.30	1.300	0.277	21.9
Back side	20	QPSK	1_1	522000/2610	0.361	-0.07	21.16	22.30	1.300	0.469	21.9
Body worn Test data(Separate 15mm 50%RB)											
Front side	20	QPSK	50_28	516000/2580	0.200	0.05	21.27	22.30	1.268	0.254	21.9
Back side	20	QPSK	50_28	516000/2580	0.358	0.08	21.27	22.30	1.268	0.454	21.9
Body worn test at the worst case with ESIM											
Back side	20	QPSK	1_1	522000/2610	0.356	0.01	21.16	22.30	1.300	0.463	21.9
Hotspot Test data(Separate 10mm 1RB)											
Front side	20	QPSK	1_1	522000/2610	0.400	-0.02	21.16	22.30	1.300	0.520	21.9
Back side	20	QPSK	1_1	522000/2610	0.765	0.17	21.16	22.30	1.300	0.995	21.9
Left side	20	QPSK	1_1	522000/2610	0.077	0.08	21.16	22.30	1.300	0.100	21.9
Right side	20	QPSK	1_1	522000/2610	0.179	-0.08	21.16	22.30	1.300	0.233	21.9
Bottom side	20	QPSK	1_1	522000/2610	0.307	0.00	21.16	22.30	1.300	0.399	21.9
Back side	20	QPSK	1_1	516000/2580	0.676	-0.07	21.14	22.30	1.306	0.883	21.9
Back side	20	QPSK	1_1	519000/2595	0.750	-0.10	21.00	22.30	1.349	1.012	21.9
Hotspot Test data(Separate 10mm 50%RB)											
Front side	20	QPSK	50_28	516000/2580	0.413	-0.08	21.27	22.30	1.268	0.524	21.9
Back side	20	QPSK	50_28	516000/2580	0.713	-0.17	21.27	22.30	1.268	0.904	21.9
Left side	20	QPSK	50_28	516000/2580	0.093	0.06	21.27	22.30	1.268	0.118	21.9
Right side	20	QPSK	50_28	516000/2580	0.196	-0.11	21.27	22.30	1.268	0.248	21.9
Bottom side	20	QPSK	50_28	516000/2580	0.330	-0.02	21.27	22.30	1.268	0.418	21.9
Back side	20	QPSK	50_28	519000/2595	0.824	-0.10	21.23	22.30	1.279	1.054	21.9
Back side-repeat	20	QPSK	50_28	519000/2595	0.802	-0.10	21.23	22.30	1.279	1.026	21.9
Back side	20	QPSK	50_28	522000/2610	0.743	-0.05	21.14	22.30	1.306	0.970	21.9
Hotspot Test data(Separate 10mm 100%RB)											
Back side	20	QPSK	100_0	522000/2610	0.702	0.10	21.11	22.30	1.315	0.923	21.9
Hotspot test at the worst case with ESIM											
Back side	20	QPSK	50_28	519000/2595	0.811	0.03	21.23	22.30	1.279	1.038	21.9

Table 31: SAR of 5G NR n38 for Head and Body.

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	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right tilted (Ant3)	522000/2610	0.883	0.865	1.021	N/A	N/A
Back side (Ant4)	519000/2595	0.824	0.802	1.027	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

Table 32: SAR Measurement Variability Results

8.3.21 SAR Result of WIFI 2.4G

ANT8 Test Record Chain0											
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	11/2462	99.47%	1.005	0.489	0.17	14.08	15.00	1.236	0.608	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.602	0.03	14.08	15.00	1.236	0.748	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.249	0.20	14.08	15.00	1.236	0.309	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.303	-0.03	14.08	15.00	1.236	0.377	22
Body worn Test data(Separate 15mm)											
Front side	802.11b	1/2412	99.47%	1.005	0.081	-0.11	18.38	19.50	1.294	0.106	22
Back side	802.11b	1/2412	99.47%	1.005	0.088	-0.03	18.38	19.50	1.294	0.114	22
Hotspot Test data (Separate 10mm)											
Front side	802.11b	1/2412	99.47%	1.005	0.149	-0.07	18.38	19.50	1.294	0.194	22
Back side	802.11b	1/2412	99.47%	1.005	0.201	-0.07	18.38	19.50	1.294	0.262	22
Right side	802.11b	1/2412	99.47%	1.005	0.107	0.13	18.38	19.50	1.294	0.139	22
Top side	802.11b	1/2412	99.47%	1.005	0.372	0.15	18.38	19.50	1.294	0.484	22
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+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	1/2412	99.47%	1.005	0.313	0.05	12.26	13.00	1.186	0.373	22
Left tilted	802.11b	1/2412	99.47%	1.005	0.347	0.09	12.26	13.00	1.186	0.414	22
Right cheek	802.11b	1/2412	99.47%	1.005	0.117	0.16	12.26	13.00	1.186	0.139	22
Right tilted	802.11b	1/2412	99.47%	1.005	0.165	0.05	12.26	13.00	1.186	0.197	22
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+WIFI 2.4G+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											
Left cheek	802.11b	11/2462	99.47%	1.005	0.125	0.02	9.01	10.00	1.256	0.158	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.188	0.06	9.01	10.00	1.256	0.237	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.078	0.00	9.01	10.00	1.256	0.098	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.113	0.02	9.01	10.00	1.256	0.143	22
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	1/2412	99.47%	1.005	0.135	-0.12	16.74	17.50	1.191	0.162	22
Right side	802.11b	1/2412	99.47%	1.005	0.069	0.05	16.74	17.50	1.191	0.083	22
Top side	802.11b	1/2412	99.47%	1.005	0.286	-0.15	16.74	17.50	1.191	0.343	22
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+WIFI 2.4G+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	1/2412	99.47%	1.005	0.078	0.06	13.71	14.50	1.199	0.094	22
Right side	802.11b	1/2412	99.47%	1.005	0.041	0.13	13.71	14.50	1.199	0.049	22
Top side	802.11b	1/2412	99.47%	1.005	0.125	-0.15	13.71	17.50	2.393	0.301	22
ANT2 Test Record Chain1											
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	11/2462	99.47%	1.005	0.109	0.05	13.40	15.00	1.445	0.158	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.023	0.09	13.40	15.00	1.445	0.033	22

Right cheek	802.11b	11/2462	99.47%	1.005	0.120	0.01	13.40	15.00	1.445	0.174	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.009	-0.06	13.40	15.00	1.445	0.013	22
Body worn Test data(Separate 15mm)											
Front side	802.11b	11/2462	99.47%	1.005	0.059	-0.08	17.52	18.50	1.253	0.075	22
Back side	802.11b	11/2462	99.47%	1.005	0.082	0.05	17.52	18.50	1.253	0.104	22
Hotspot Test data (Separate 10mm)											
Front side	802.11b	11/2462	99.47%	1.005	0.137	-0.03	17.52	18.50	1.253	0.173	22
Back side	802.11b	11/2462	99.47%	1.005	0.222	-0.04	17.52	18.50	1.253	0.280	22
Right side	802.11b	11/2462	99.47%	1.005	0.388	0.17	17.52	18.50	1.253	0.489	22
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+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	11/2462	99.47%	1.005	0.081	0.06	11.33	13.00	1.469	0.120	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.016	-0.18	11.33	13.00	1.469	0.024	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.074	0.06	11.33	13.00	1.469	0.109	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.005	-0.14	11.33	13.00	1.469	0.007	22
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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											
Left cheek	802.11b	11/2462	99.47%	1.005	0.059	0.10	8.45	10.00	1.429	0.085	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.012	-0.03	8.45	10.00	1.429	0.017	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.045	0.02	8.45	10.00	1.429	0.065	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.003	0.10	8.45	10.00	1.429	0.004	22
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	1/2412	99.47%	1.005	0.215	0.18	16.72	17.50	1.197	0.259	22
Right side	802.11b	1/2412	99.47%	1.005	0.367	0.01	16.72	17.50	1.197	0.442	22
Top side	802.11b	1/2412	99.47%	1.005	0.003	-0.09	16.72	17.50	1.197	0.004	22
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	6/2437	99.47%	1.005	0.095	0.04	13.90	14.50	1.148	0.110	22
Right side	802.11b	6/2437	99.47%	1.005	0.175	0.17	13.90	14.50	1.148	0.202	22
Top side	802.11b	6/2437	99.47%	1.005	0.001	0.13	13.90	14.50	1.148	0.001	22

MIMO Test Record Chain01											
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	11/2462	99.47%	1.005	0.652	-0.01	16.76	18.00	1.330	0.872	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.845	0.00	16.76	18.00	1.330	1.130	22
Left tilted-repeat	802.11b	11/2462	99.47%	1.005	0.839	0.01	16.76	18.00	1.330	1.122	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.340	0.14	16.76	18.00	1.330	0.455	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.467	-0.01	16.76	18.00	1.330	0.625	22
Left cheek	802.11b	1/2412	99.47%	1.005	0.495	0.10	16.68	18.00	1.355	0.674	22
Left cheek	802.11b	6/2437	99.47%	1.005	0.657	0.04	16.69	18.00	1.352	0.893	22
Left tilted	802.11b	1/2412	99.47%	1.005	0.598	0.07	16.68	18.00	1.355	0.815	22
Left tilted	802.11b	6/2437	99.47%	1.005	0.778	0.02	16.69	18.00	1.352	1.058	22
Body worn Test data(Separate 15mm)											
Front side	802.11b	11/2462	99.47%	1.005	0.120	0.05	20.81	22.00	1.316	0.159	22
Back side	802.11b	11/2462	99.47%	1.005	0.182	0.01	20.81	22.00	1.316	0.241	22
Hotspot Test data (Separate 10mm)											
Front side	802.11b	11/2462	99.47%	1.005	0.287	-0.08	20.81	22.00	1.316	0.380	22
Back side	802.11b	11/2462	99.47%	1.005	0.406	-0.07	20.81	22.00	1.316	0.537	22
Right side	802.11b	11/2462	99.47%	1.005	0.740	-0.04	20.81	22.00	1.316	0.979	22
Top side	802.11b	11/2462	99.47%	1.005	0.480	0.02	20.81	22.00	1.316	0.635	22
Right side	802.11b	1/2412	99.47%	1.005	0.580	0.09	20.79	22.00	1.321	0.770	22
Right side	802.11b	6/2437	99.47%	1.005	0.497	0.02	20.74	22.00	1.337	0.668	22
MIMO Additional Test data(simultaneous transmission with (WWAN+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	1/2412	99.47%	1.005	0.483	0.07	14.80	16.01	1.321	0.642	22
Left tilted	802.11b	1/2412	99.47%	1.005	0.583	0.13	14.80	16.01	1.321	0.775	22
Right cheek	802.11b	1/2412	99.47%	1.005	0.210	0.01	14.80	16.01	1.321	0.279	22
Right tilted	802.11b	1/2412	99.47%	1.005	0.250	0.12	14.80	16.01	1.321	0.332	22
MIMO Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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											
Left cheek	802.11b	11/2462	99.47%	1.005	0.228	0.09	11.71	13.01	1.349	0.309	22
Left tilted	802.11b	11/2462	99.47%	1.005	0.346	0.02	11.71	13.01	1.349	0.469	22
Right cheek	802.11b	11/2462	99.47%	1.005	0.107	0.02	11.71	13.01	1.349	0.145	22
Right tilted	802.11b	11/2462	99.47%	1.005	0.153	0.14	11.71	13.01	1.349	0.208	22
MIMO Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	1/2412	99.47%	1.005	0.351	0.02	19.74	20.50	1.191	0.420	22
Right side	802.11b	1/2412	99.47%	1.005	0.625	-0.14	19.74	20.50	1.191	0.749	22
Top side	802.11b	1/2412	99.47%	1.005	0.501	0.13	19.74	20.50	1.191	0.600	22
MIMO Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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
Hotspot Test data (Separate 10mm)											
Back side	802.11b	1/2412	99.47%	1.005	0.164	0.15	16.80	17.50	1.175	0.194	22
Right side	802.11b	1/2412	99.47%	1.005	0.299	0.17	16.80	17.50	1.175	0.353	22
Top side	802.11b	1/2412	99.47%	1.005	0.223	-0.07	16.80	17.50	1.175	0.263	22

Table 33 : SAR of WIFI 2.4G for Head and Body.

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B.
- 2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (≤ 2.0 W/kg for 10g) 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 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, 802.11g/n OFDM SAR Test is not required.

Test Position	Channel/ Frequency	Measured SAR (1g)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Left tilted MIMO (Ant2&8)	11/2462	0.845	0.839	1.007	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						

Table 34: SAR Measurement Variability Results

8.3.22 SAR Result of WIFI 5G

ANT8 Test Record chain0											
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-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.608	0.02	12.74	13.50	1.191	0.727	22.2
Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.745	0.07	12.74	13.50	1.191	0.890	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.184	0.02	12.74	13.50	1.191	0.220	22.2
Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.351	0.06	12.74	13.50	1.191	0.419	22.2
Head Test data of U-NII-2C											
Left cheek	802.11ac 80M	106/5530	99.68%	1.003	0.512	0.08	12.98	13.50	1.127	0.579	22.2
Left tilted	802.11ac 80M	106/5530	99.68%	1.003	0.495	0.04	12.98	13.50	1.127	0.560	22.2
Right cheek	802.11ac 80M	106/5530	99.68%	1.003	0.172	0.03	12.98	13.50	1.127	0.195	22.2
Right tilted	802.11ac 80M	106/5530	99.68%	1.003	0.170	0.09	12.98	13.50	1.127	0.192	22.2
Head Test data of U-NII-3											
Left cheek	802.11ac 80M	155/5775	99.68%	1.003	0.365	0.06	12.93	13.50	1.140	0.418	22.2
Left tilted	802.11ac 80M	155/5775	99.68%	1.003	0.300	0.08	12.93	13.50	1.140	0.343	22.2
Right cheek	802.11ac 80M	155/5775	99.68%	1.003	0.141	0.06	12.93	13.50	1.140	0.161	22.2
Right tilted	802.11ac 80M	155/5775	99.68%	1.003	0.144	0.03	12.93	13.50	1.140	0.165	22.2
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	0.096	0.09	17.26	18.50	1.330	0.128	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.133	-0.06	17.26	18.50	1.330	0.178	22.2
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11ac 80M	138/5690	99.68%	1.003	0.082	0.01	17.18	18.50	1.355	0.111	22.2
Back side	802.11ac 80M	138/5690	99.68%	1.003	0.062	0.00	17.18	18.50	1.355	0.085	22.2
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11ac 80M	155/5775	99.68%	1.003	0.086	0.01	17.00	18.50	1.413	0.122	22.2
Back side	802.11ac 80M	155/5775	99.68%	1.003	0.048	0.01	17.00	18.50	1.413	0.068	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11n 40M	46/5230	99.65%	1.003	0.166	0.09	17.25	18.50	1.334	0.222	22.2
Back side	802.11n 40M	46/5230	99.65%	1.003	0.231	0.00	17.25	18.50	1.334	0.309	22.2
Right side	802.11n 40M	46/5230	99.65%	1.003	0.098	-0.02	17.25	18.50	1.334	0.131	22.2
Top side	802.11n 40M	46/5230	99.65%	1.003	0.301	-0.18	17.25	18.50	1.334	0.403	22.2
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11ac 80M	155/5775	99.68%	1.003	0.181	0.01	17.00	18.50	1.413	0.256	22.2
Back side	802.11ac 80M	155/5775	99.68%	1.003	0.071	0.00	17.00	18.50	1.413	0.101	22.2
Right side	802.11ac 80M	155/5775	99.68%	1.003	0.069	0.02	17.00	18.50	1.413	0.097	22.2
Top side	802.11ac 80M	155/5775	99.68%	1.003	0.171	0.05	17.00	18.50	1.413	0.242	22.2
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+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 of U-NII-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.372	0.06	10.78	11.50	1.180	0.441	22.2
Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.561	0.07	10.78	11.50	1.180	0.664	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.102	0.05	10.78	11.50	1.180	0.121	22.2
Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.217	0.01	10.78	11.50	1.180	0.257	22.2
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.187	0.02	7.25	8.50	1.334	0.250	22.2

Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.222	0.02	7.25	8.50	1.334	0.297	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.078	0.09	7.25	8.50	1.334	0.104	22.2
Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.046	0.09	7.25	8.50	1.334	0.061	22.2
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11ac 80M	42/5210	99.68%	1.003	0.193	0.02	15.39	16.50	1.291	0.250	22.2
Right side	802.11ac 80M	42/5210	99.68%	1.003	0.077	0.14	15.39	16.50	1.291	0.100	22.2
Top side	802.11ac 80M	42/5210	99.68%	1.003	0.236	-0.13	15.39	16.50	1.291	0.306	22.2
Ant8(Chain 0) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11ac 160M	50/5250	99.65%	1.003	0.105	-0.15	12.03	13.50	1.403	0.148	22.2
Right side	802.11ac 160M	50/5250	99.65%	1.003	0.026	-0.11	12.03	13.50	1.403	0.037	22.2
Top side	802.11ac 160M	50/5250	99.65%	1.003	0.121	0.15	12.03	13.50	1.403	0.170	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 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	1.430	0.09	17.26	18.50	1.330	1.909	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.695	0.08	17.26	18.50	1.330	0.928	22.2
Right side	802.11n 40M	54/5270	99.65%	1.003	0.194	0.01	17.26	18.50	1.330	0.259	22.2
Top side	802.11n 40M	54/5270	99.65%	1.003	1.390	-0.07	17.26	18.50	1.330	1.856	22.2
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11ac 80M	138/5690	99.68%	1.003	1.300	0.00	17.18	18.50	1.355	1.767	22.2
Back side	802.11ac 80M	138/5690	99.68%	1.003	0.183	0.09	17.18	18.50	1.355	0.249	22.2
Right side	802.11ac 80M	138/5690	99.68%	1.003	0.108	0.02	17.18	18.50	1.355	0.147	22.2
Top side	802.11ac 80M	138/5690	99.68%	1.003	0.586	-0.02	17.18	18.50	1.355	0.797	22.2
ANT2 Test Record chain1											
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-2A											
Left cheek	802.11ac 80M	58/5290	99.65%	1.003	0.139	-0.02	12.56	13.50	1.242	0.173	22.2
Left tilted	802.11ac 80M	58/5290	99.65%	1.003	0.050	0.04	12.56	13.50	1.242	0.062	22.2
Right cheek	802.11ac 80M	58/5290	99.65%	1.003	0.057	0.09	12.56	13.50	1.242	0.071	22.2
Right tilted	802.11ac 80M	58/5290	99.65%	1.003	0.021	0.09	12.56	13.50	1.242	0.026	22.2
Head Test data of U-NII-2C											
Left cheek	802.11ac 80M	106/5530	99.65%	1.003	0.117	0.09	12.78	13.50	1.180	0.139	22.2
Left tilted	802.11ac 80M	106/5530	99.65%	1.003	0.011	0.09	12.78	13.50	1.180	0.013	22.2
Right cheek	802.11ac 80M	106/5530	99.65%	1.003	0.035	0.02	12.78	13.50	1.180	0.041	22.2
Right tilted	802.11ac 80M	106/5530	99.65%	1.003	0.004	0.08	12.78	13.50	1.180	0.005	22.2
Head Test data of U-NII-3											
Left cheek	802.11ac 80M	155/5775	99.65%	1.003	0.033	0.01	12.61	13.50	1.227	0.041	22.2
Left tilted	802.11ac 80M	155/5775	99.65%	1.003	0.002	0.03	12.61	13.50	1.227	0.002	22.2
Right cheek	802.11ac 80M	155/5775	99.65%	1.003	0.046	0.06	12.61	13.50	1.227	0.057	22.2
Right tilted	802.11ac 80M	155/5775	99.65%	1.003	0.012	0.04	12.61	13.50	1.227	0.014	22.2
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	0.068	0.09	17.28	18.00	1.180	0.080	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.159	-0.02	17.28	18.00	1.180	0.188	22.2
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11ac 80M	122/5610	99.65%	1.003	0.078	0.02	17.24	18.00	1.191	0.094	22.2

Back side	802.11ac 80M	122/5610	99.65%	1.003	0.272	-0.07	17.24	18.00	1.191	0.325	22.2
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11ac 80M	155/5775	99.65%	1.003	0.052	0.09	16.85	18.00	1.303	0.069	22.2
Back side	802.11ac 80M	155/5775	99.65%	1.003	0.147	0.03	16.85	18.00	1.303	0.192	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11n 40M	38/5190	99.65%	1.003	0.093	-0.03	17.14	18.00	1.219	0.114	22.2
Back side	802.11n 40M	38/5190	99.65%	1.003	0.236	-0.09	17.14	18.00	1.219	0.289	22.2
Right side	802.11n 40M	38/5190	99.65%	1.003	0.511	0.02	17.14	18.00	1.219	0.625	22.2
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11ac 80M	155/5775	99.65%	1.003	0.115	0.04	16.85	18.00	1.303	0.150	22.2
Back side	802.11ac 80M	155/5775	99.65%	1.003	0.259	0.09	16.85	18.00	1.303	0.339	22.2
Right side	802.11ac 80M	155/5775	99.65%	1.003	0.406	0.07	16.85	18.00	1.303	0.531	22.2
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+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 of U-NII-2C											
Left cheek	802.11ac 160M	114/5570	99.65%	1.003	0.089	-0.16	10.63	11.50	1.222	0.109	22.2
Left tilted	802.11ac 160M	114/5570	99.65%	1.003	0.041	-0.04	10.63	11.50	1.222	0.050	22.2
Right cheek	802.11ac 160M	114/5570	99.65%	1.003	0.051	-0.08	10.63	11.50	1.222	0.063	22.2
Right tilted	802.11ac 160M	114/5570	99.65%	1.003	0.023	0.02	10.63	11.50	1.222	0.028	22.2
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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-2C											
Left cheek	802.11ac 160M	114/5570	99.65%	1.003	0.068	0.02	7.18	8.50	1.355	0.092	22.2
Left tilted	802.11ac 160M	114/5570	99.65%	1.003	0.031	0.02	7.18	8.50	1.355	0.042	22.2
Right cheek	802.11ac 160M	114/5570	99.65%	1.003	0.029	0.15	7.18	8.50	1.355	0.039	22.2
Right tilted	802.11ac 160M	114/5570	99.65%	1.003	0.019	0.18	7.18	8.50	1.355	0.026	22.2
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11ac 80M	42/5210	99.65%	1.003	0.138	-0.01	15.11	16.50	1.377	0.191	22.2
Right side	802.11ac 80M	42/5210	99.65%	1.003	0.274	0.07	15.11	16.50	1.377	0.379	22.2
Top side	802.11ac 80M	42/5210	99.65%	1.003	0.022	0.06	15.11	16.50	1.377	0.030	22.2
Ant2(Chain 1) Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11ac 160M	50/5250	99.65%	1.003	0.069	0.11	12.05	13.50	1.396	0.097	22.2
Right side	802.11ac 160M	50/5250	99.65%	1.003	0.174	0.07	12.05	13.50	1.396	0.244	22.2
Top side	802.11ac 160M	50/5250	99.65%	1.003	0.013	-0.05	12.05	13.50	1.396	0.018	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 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	0.376	0.00	17.28	18.00	1.180	0.445	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.362	0.08	17.28	18.00	1.180	0.429	22.2
Right side	802.11n 40M	54/5270	99.65%	1.003	0.770	-0.08	17.28	18.00	1.180	0.912	22.2
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11ac 80M	122/5610	99.65%	1.003	0.438	0.04	17.24	18.00	1.191	0.524	22.2

Back side	802.11ac 80M	122/5610	99.65%	1.003	0.613	0.05	17.24	18.00	1.191	0.733	22.2
Right side	802.11ac 80M	122/5610	99.65%	1.003	0.948	-0.10	17.24	18.00	1.191	1.133	22.2
MIMO Test Record chain01											
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-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.721	0.03	15.56	16.51	1.245	0.900	22.2
Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.773	0.07	15.56	16.51	1.245	0.965	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.314	0.09	15.56	16.51	1.245	0.392	22.2
Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.301	0.11	15.56	16.51	1.245	0.376	22.2
Head Test data of U-NII-2C											
Left cheek	802.11ac 80M	106/5530	99.68%	1.003	0.550	0.15	15.89	16.51	1.153	0.636	22.2
Left tilted	802.11ac 80M	106/5530	99.68%	1.003	0.476	0.09	15.89	16.51	1.153	0.551	22.2
Right cheek	802.11ac 80M	106/5530	99.68%	1.003	0.195	0.05	15.89	16.51	1.153	0.226	22.2
Right tilted	802.11ac 80M	106/5530	99.68%	1.003	0.141	0.09	15.89	16.51	1.153	0.163	22.2
Head Test data of U-NII-3											
Left cheek	802.11ac 80M	155/5775	99.68%	1.003	0.389	0.07	15.78	16.51	1.183	0.462	22.2
Left tilted	802.11ac 80M	155/5775	99.68%	1.003	0.331	0.09	15.78	16.51	1.183	0.393	22.2
Right cheek	802.11ac 80M	155/5775	99.68%	1.003	0.164	0.03	15.78	16.51	1.183	0.195	22.2
Right tilted	802.11ac 80M	155/5775	99.68%	1.003	0.142	0.04	15.78	16.51	1.183	0.169	22.2
Body worn Test data of U-NII-2A (Separate 15mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	0.144	0.08	20.28	21.27	1.256	0.181	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.198	0.09	20.28	21.27	1.256	0.250	22.2
Body worn Test data of U-NII-2C(Separate 15mm)											
Front side	802.11ac 80M	122/5610	99.68%	1.003	0.188	0.18	20.21	21.27	1.276	0.241	22.2
Back side	802.11ac 80M	122/5610	99.68%	1.003	0.229	0.01	20.21	21.27	1.276	0.293	22.2
Body worn Test data of U-NII-3(Separate 15mm)											
Front side	802.11ac 80M	155/5775	99.68%	1.003	0.137	0.12	19.94	21.27	1.358	0.187	22.2
Back side	802.11ac 80M	155/5775	99.68%	1.003	0.183	0.09	19.94	21.27	1.358	0.249	22.2
Hotspot Test data of U-NII-1(Separate 10mm)											
Front side	802.11n 40M	46/5230	99.65%	1.003	0.209	0.09	20.15	21.27	1.294	0.271	22.2
Back side	802.11n 40M	46/5230	99.65%	1.003	0.325	0.03	20.15	21.27	1.294	0.422	22.2
Right side	802.11n 40M	46/5230	99.65%	1.003	0.482	-0.11	20.15	21.27	1.294	0.626	22.2
Top side	802.11n 40M	46/5230	99.65%	1.003	0.447	0.11	20.15	21.27	1.294	0.581	22.2
Hotspot Test data of U-NII-3 (Separate 10mm)											
Front side	802.11ac 80M	155/5775	99.68%	1.003	0.272	0.01	19.94	21.27	1.358	0.371	22.2
Back side	802.11ac 80M	155/5775	99.68%	1.003	0.306	0.09	19.94	21.27	1.358	0.417	22.2
Right side	802.11ac 80M	155/5775	99.68%	1.003	0.511	-0.14	19.94	21.27	1.358	0.696	22.2
Top side	802.11ac 80M	155/5775	99.68%	1.003	0.187	0.09	19.94	21.27	1.358	0.255	22.2
MIMO Additional Test data(simultaneous transmission with (WWAN+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 of U-NII-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.414	0.01	13.68	14.51	1.210	0.503	22.2
Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.632	0.09	13.68	14.51	1.210	0.767	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.239	0.02	13.68	14.51	1.210	0.290	22.2
Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.250	0.05	13.68	14.51	1.210	0.304	22.2
MIMO Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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-2A											
Left cheek	802.11ac 80M	58/5290	99.68%	1.003	0.211	0.02	10.29	11.51	1.326	0.281	22.2
Left tilted	802.11ac 80M	58/5290	99.68%	1.003	0.230	0.04	10.29	11.51	1.326	0.306	22.2
Right cheek	802.11ac 80M	58/5290	99.68%	1.003	0.079	0.09	10.29	11.51	1.326	0.105	22.2

Right tilted	802.11ac 80M	58/5290	99.68%	1.003	0.082	0.06	10.29	11.51	1.326	0.110	22.2
MIMO Additional Test data(simultaneous transmission with (WWAN+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11n 40M	46/5230	99.65%	1.003	0.145	0.02	18.26	19.51	1.334	0.194	22.2
Right side	802.11n 40M	46/5230	99.65%	1.003	0.265	-0.16	18.26	19.51	1.334	0.355	22.2
Top side	802.11n 40M	46/5230	99.65%	1.003	0.345	-0.07	18.26	19.51	1.334	0.462	22.2
MIMO Additional Test data(simultaneous transmission with (WWAN+WiFi 2.4G+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
Hotspot Test data of U-NII-1(Separate 10mm)											
Back side	802.11ac 160M	50/5250	99.68%	1.003	0.074	0.18	15.05	16.51	1.400	0.104	22.2
Right side	802.11ac 160M	50/5250	99.68%	1.003	0.109	0.03	15.05	16.51	1.400	0.153	22.2
Top side	802.11ac 160M	50/5250	99.68%	1.003	0.147	0.01	15.05	16.51	1.400	0.206	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 10gSAR Test data of U-NII-2A(Separate 0mm)											
Front side	802.11n 40M	54/5270	99.65%	1.003	1.530	0.09	20.28	21.27	1.256	1.928	22.2
Back side	802.11n 40M	54/5270	99.65%	1.003	0.610	0.04	20.28	21.27	1.256	0.769	22.2
Right side	802.11n 40M	54/5270	99.65%	1.003	0.802	-0.03	20.28	21.27	1.256	1.011	22.2
Top side	802.11n 40M	54/5270	99.65%	1.003	1.810	-0.03	20.28	21.27	1.256	2.281	22.2
Top side	802.11n 40M	62/5310	99.65%	1.003	1.560	-0.07	19.79	21.01	1.324	2.073	22.2
Product specific 10gSAR Test data of U-NII-2C(Separate 0mm)											
Front side	802.11ac 80M	122/5610	99.68%	1.003	1.610	0.00	20.21	21.27	1.276	2.062	22.2
Back side	802.11ac 80M	122/5610	99.68%	1.003	0.557	0.09	20.21	21.27	1.276	0.713	22.2
Right side	802.11ac 80M	122/5610	99.68%	1.003	1.010	-0.10	20.21	21.27	1.276	1.293	22.2
Top side	802.11ac 80M	122/5610	99.68%	1.003	1.140	-0.08	20.21	21.27	1.276	1.460	22.2
Front side	802.11ac 80M	106/5530	99.68%	1.003	0.978	0.09	17.85	19.01	1.306	1.282	22.2
Front side	802.11ac 80M	138/5690	99.68%	1.003	1.320	0.09	20.13	21.27	1.300	1.722	22.2
Product specific 10gSAR test at the worst case with ESIM											
Top side	802.11n 40M	54/5270	99.65%	1.003	1.740	0.05	20.28	21.27	1.256	2.193	22.2

Table 35 : SAR of WIFI 5G for Head and Body.

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B.
- 2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (≤ 2.0 W/kg for 10g) 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.

8.3.23 SAR Result of BT

Ant8 Test Record											
Test position	Test mode	Test Ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg)1-g	Power drift(dB)	Conducted power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR(W/kg)	Liquid Temp.
Head Test data											
Left cheek	DH5	39/2441	76.80%	1.302	0.157	0.04	11.19	13.10	1.552	0.317	22
Left tilted	DH5	39/2441	76.80%	1.302	0.225	0.05	11.19	13.10	1.552	0.455	22
Right cheek	DH5	39/2441	76.80%	1.302	0.080	0.01	11.19	13.10	1.552	0.162	22
Right tilted	DH5	39/2441	76.80%	1.302	0.106	0.17	11.19	13.10	1.552	0.214	22
Body worn Test data(Separate 15mm)											
Front side	DH5	39/2441	76.80%	1.302	0.013	0.06	11.19	13.10	1.552	0.027	22
Back side	DH5	39/2441	76.80%	1.302	0.007	0.00	11.19	13.10	1.552	0.014	22
Hotspot Test data (Separate 10mm)											
Front side	DH5	39/2441	76.80%	1.302	0.019	0.03	11.19	13.10	1.552	0.039	22
Back side	DH5	39/2441	76.80%	1.302	0.024	0.09	11.19	13.10	1.552	0.048	22
Right side	DH5	39/2441	76.80%	1.302	0.017	0.02	11.19	13.10	1.552	0.034	22
Top side	DH5	39/2441	76.80%	1.302	0.044	0.00	11.19	13.10	1.552	0.089	22

Table 36 : SAR of BT for Head and Body.

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph Results refer to Appendix B.
- 2) If the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg (≤ 2.0 W/kg for 10g) then testing at the other channels is not required for such test configuration(s).

8.4 Multiple Transmitter Evaluation

8.4.1 Simultaneous Transmission

NO.	Simultaneous Tx Combination	Head	Body-worn	Hotspot	Product specific 10g SAR
1	WLAN 2.4GHz(chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A
2	WLAN 2.4GHz(chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
3	WLAN 2.4GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A
4	WLAN 5GHz(chain 0) + BT(chain 0)	Yes	Yes	Yes	Yes
5	WLAN 5GHz(chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
6	WLAN 5GHz MIMO + BT(chain 0)	Yes	Yes	Yes	Yes
7	WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
8	WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
9	WLAN 2.4GHz (chain 0) + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
10	WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
11	WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
12	WLAN 2.4GHz (chain 1) + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
13	WLAN 2.4GHz MIMO + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
14	WLAN 2.4GHz MIMO + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
15	WLAN 2.4GHz MIMO + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
16	WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A
17	WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 1) + BT(chain 0)	N/A	N/A	N/A	N/A
18	WLAN 2.4GHz (chain 0) + WLAN 5GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A
19	WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 0) + BT(chain 0)	Yes	Yes	Yes	Yes
20	WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
21	WLAN 2.4GHz (chain 1) + WLAN 5GHz MIMO + BT(chain 0)	Yes	Yes	Yes	Yes
22	WLAN 2.4GHz MIMO + WLAN 5GHz (chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A
23	WLAN 2.4GHz MIMO + WLAN 5GHz (chain 1) + BT(chain 0)	N/A	N/A	N/A	N/A
24	WLAN 2.4GHz MIMO + WLAN 5GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A
25	WWAN + WLAN 2.4GHz(chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A
26	WWAN + WLAN 2.4GHz(chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
27	WWAN + WLAN 2.4GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A
28	WWAN + WLAN 5GHz(chain 0) + BT(chain 0)	Yes	Yes	Yes	Yes
29	WWAN + WLAN 5GHz(chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
30	WWAN + WLAN 5GHz MIMO + BT(chain 0)	Yes	Yes	Yes	Yes
31	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
32	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
33	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
34	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
35	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
36	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
37	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz (chain 0)	Yes	Yes	Yes	Yes
38	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz (chain 1)	Yes	Yes	Yes	Yes
39	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz MIMO	Yes	Yes	Yes	Yes
40	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A

NO.	Simultaneous Tx Combination	Head	Body-worn	Hotspot	Product specific 10g SAR
41	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz (chain 1) + BT(chain 0)	N/A	N/A	N/A	N/A
42	WWAN + WLAN 2.4GHz (chain 0) + WLAN 5GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A
43	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 0) + BT(chain 0)	Yes	Yes	Yes	Yes
44	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz (chain 1) + BT(chain 0)	Yes	Yes	Yes	Yes
45	WWAN + WLAN 2.4GHz (chain 1) + WLAN 5GHz MIMO + BT(chain 0)	Yes	Yes	Yes	Yes
46	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz (chain 0) + BT(chain 0)	N/A	N/A	N/A	N/A
47	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz (chain 1) + BT(chain 0)	N/A	N/A	N/A	N/A
48	WWAN + WLAN 2.4GHz MIMO + WLAN 5GHz MIMO + BT(chain 0)	N/A	N/A	N/A	N/A

Note:

1) The device does not support DTM function.

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

3) WLAN 2.4GHz (chain 0) and BT(chain 0) can not work at the same time.

8.4.2 Simultaneous Transmission SAR Summation Scenario

Head:

(Ant0)

Band	Exposure position	SARmax (W/kg)																			
		1	2	2a	2b	3	3a	3b	4	4a	4b	5	5a	5b	6	6a	6b	7	7a	7b	8
		WiFi 2.4G										WiFi 5G									
		Ant0	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	BT
		State1	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1
GSM850	Left Touch	0.560	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.136	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
	Right Touch	0.774	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
	Right Tilt	0.141	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
WCDMA B5	Left Touch	0.700	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.195	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
	Right Touch	0.769	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
	Right Tilt	0.232	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
LTE Band 5	Left Touch	0.493	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.124	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
	Right Touch	0.731	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
	Right Tilt	0.158	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
LTE Band 12	Left Touch	0.419	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900			

0.593	0.628	0.733	0.575	0.525	0.744	0.616	0.790	0.737	0.687	0.906	0.656	0.591	0.657	0.623	0.699	0.624	0.703	0.638	0.704	0.785	0.861	0.786
0.278	0.094	0.413	0.338	0.107	0.385	0.295	0.308	0.552	0.321	0.599	0.285	0.250	0.334	0.146	0.120	0.195	0.350	0.315	0.399	0.360	0.334	0.409
0.619	0.404	0.888	0.687	0.419	0.749	0.563	0.721	1.004	0.736	1.066	0.654	0.496	0.685	0.581	0.577	0.612	0.805	0.647	0.836	0.898	0.894	0.929
0.492	0.111	0.853	0.742	0.140	0.845	0.533	0.566	1.197	0.595	1.300	0.612	0.357	0.621	0.392	0.173	0.401	0.844	0.589	0.853	0.847	0.628	0.856
0.537	0.572	0.677	0.519	0.469	0.688	0.560	0.734	0.681	0.631	0.850	0.600	0.535	0.601	0.567	0.643	0.568	0.647	0.582	0.648	0.729	0.805	0.730
0.271	0.087	0.406	0.331	0.100	0.378	0.288	0.301	0.545	0.314	0.592	0.278	0.243	0.327	0.139	0.113	0.188	0.343	0.308	0.392	0.353	0.327	0.402
0.558	0.343	0.827	0.626	0.358	0.688	0.502	0.660	0.943	0.675	1.005	0.593	0.435	0.624	0.520	0.516	0.551	0.744	0.586	0.775	0.837	0.833	0.868
0.457	0.076	0.818	0.707	0.105	0.810	0.498	0.531	1.162	0.560	1.265	0.577	0.322	0.586	0.357	0.138	0.366	0.809	0.554	0.818	0.812	0.593	0.821
0.473	0.508	0.613	0.455	0.405	0.624	0.496	0.670	0.617	0.567	0.786	0.536	0.471	0.537	0.503	0.579	0.504	0.583	0.518	0.584	0.665	0.741	0.666
0.259	0.075	0.394	0.319	0.088	0.366	0.276	0.289	0.533	0.302	0.580	0.266	0.231	0.315	0.127	0.101	0.176	0.331	0.296	0.380	0.341	0.315	0.390
0.869	0.654	1.138	0.937	0.669	0.999	0.813	0.971	1.254	0.986	1.316	0.904	0.746	0.935	0.831	0.827	0.862	1.055	0.897	1.086	1.148	1.144	1.179
0.526	0.145	0.887	0.776	0.174	0.879	0.567	0.600	1.231	0.629	1.334	0.646	0.391	0.655	0.426	0.207	0.435	0.878	0.623	0.887	0.881	0.662	0.890
0.852	0.887	0.992	0.834	0.784	1.003	0.875	1.049	0.996	0.946	1.165	0.915	0.850	0.916	0.882	0.958	0.883	0.962	0.897	0.963	1.044	1.120	1.045
0.347	0.163	0.482	0.407	0.176	0.454	0.364	0.377	0.621	0.390	0.668	0.354	0.319	0.403	0.215	0.189	0.264	0.419	0.384	0.468	0.429	0.403	0.478
1.088	0.873	1.357	1.156	0.888	1.218	1.032	1.190	1.473	1.205	1.535	1.123	0.965	1.154	1.050	1.046	1.081	1.274	1.116	1.305	1.367	1.363	1.398
0.566	0.185	0.927	0.816	0.214	0.919	0.607	0.640	1.271	0.669	1.374	0.686	0.431	0.695	0.466	0.247	0.475	0.918	0.663	0.927	0.921	0.702	0.930
1.055	1.090	1.195	1.037	0.987	1.206	1.078	1.252	1.199	1.149	1.368	1.118	1.053	1.119	1.085	1.161	1.086	1.165	1.100	1.166	1.247	1.323	1.248

Summe d SAR (1+2a)	Summe d SAR (1+3)	Summe d SAR (1+4a)	Summe d SAR (1+5a)	Summe d SAR (1+6)	Summe d SAR (1+7a)	Summe d SAR (1+8)	Summe d SAR (1+3+8)	Summe d SAR (1+5a+8)	Summe d SAR (1+6+8)	Summe d SAR (1+7a+8)	Summe d SAR (1+2b+5b)	Summe d SAR (1+2b+6b)	Summe d SAR (1+2b+7b)	Summe d SAR (1+3b+5b)	Summe d SAR (1+3+6)	Summe d SAR (1+3b+7b)	Summe d SAR (1+4b+5b)	Summe d SAR (1+4b+6b)	Summe d SAR (1+4b+7b)	Summe d SAR (1+3b+5b+8)	Summe d SAR (1+3+6+8)	Summe d SAR (1+3+7+8)
State2	State2	State2	State2	State2	State2	State2	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	State3	
0.488	0.273	0.757	0.556	0.288	0.618	0.432	0.590	0.873	0.605	0.935	0.523	0.365	0.554	0.450	0.446	0.481	0.674	0.516	0.705	0.767	0.763	0.798
0.506	0.125	0.867	0.756	0.154	0.859	0.547	0.580	1.211	0.609	1.314	0.626	0.371	0.635	0.406	0.187	0.415	0.858	0.603	0.867	0.861	0.642	0.870
0.144	0.179	0.284	0.126	0.076	0.295	0.167	0.341	0.288	0.238	0.457	0.207	0.142	0.208	0.174	0.250	0.175	0.254	0.189	0.255	0.336	0.412	0.337
0.201	0.017	0.336	0.261	0.030	0.308	0.218	0.231	0.475	0.244	0.522	0.208	0.173	0.257	0.069	0.043	0.118	0.273	0.238	0.322	0.283	0.257	0.332
0.540	0.325	0.809	0.608	0.340	0.670	0.484	0.642	0.925	0.657	0.987	0.575	0.417	0.606	0.502	0.498	0.533	0.726	0.568	0.757	0.819	0.815	0.850
0.538	0.157	0.899	0.788	0.186	0.891	0.579	0.612	1.243	0.641	1.346	0.658	0.403	0.667	0.438	0.219	0.447	0.890	0.635	0.899	0.893	0.674	0.902
0.376	0.411	0.516	0.358	0.308	0.527	0.399	0.573	0.520	0.470	0.689	0.439	0.374	0.440	0.406	0.482	0.407	0.486	0.421	0.487	0.568	0.644	0.569
0.290	0.106	0.425	0.350	0.119	0.397	0.307	0.320	0.564	0.333	0.611	0.297	0.262	0.346	0.158	0.132	0.207	0.362	0.327	0.411	0.372	0.346	0.421
0.543	0.328	0.812	0.611	0.343	0.673	0.487	0.645	0.928	0.660	0.990	0.578	0.420	0.609	0.505	0.501	0.536	0.729	0.571	0.760	0.822	0.818	0.853
0.532	0.151	0.893	0.782	0.180	0.885	0.573	0.606	1.237	0.635	1.340	0.652	0.397	0.661	0.432	0.213	0.441	0.884	0.629	0.893	0.887	0.668	0.896
0.415	0.450	0.555	0.397	0.347	0.566	0.438	0.612	0.559	0.509	0.728	0.478	0.413	0.479	0.445	0.521	0.446	0.525	0.460	0.526	0.607	0.683	0.608
0.330	0.146	0.465	0.390	0.159	0.437	0.347	0.360	0.604	0.373	0.651	0.337	0.302	0.386	0.198	0.172	0.247	0.402	0.367	0.451	0.412	0.386	0.461
0.509	0.294	0.778	0.577	0.309	0.639	0.453	0.611	0.894	0.626	0.956	0.544	0.386	0.575	0.471	0.467	0.502	0.695	0.537	0.726	0.788	0.784	0.819

	Right Touch	0.585	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162	0.585	0.309
	Right Tilt	0.684	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214	0.684	0.377
LTE Band 4	Left Touch	0.378	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317	0.378	0.608
	Left Tilt	0.654	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455	0.654	0.748
	Right Touch	0.822	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162	0.822	0.309
	Right Tilt	0.950	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214	0.950	0.377
LTE Band 7	Left Touch	0.540	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317	0.540	0.608
	Left Tilt	0.639	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455	0.639	0.748
	Right Touch	0.706	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162	0.706	0.309
	Right Tilt	0.763	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214	0.763	0.377
LTE Band 25	Left Touch	0.375	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317	0.375	0.608
	Left Tilt	0.518	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455	0.518	0.748
	Right Touch	0.764	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162	0.764	0.309
	Right Tilt	1.150	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214	1.170	0.377
LTE Band 38	Left Touch	0.535	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317	0.535	0.608

0.751	0.536	1.020	0.819	0.551	0.881	0.695	0.853	1.136	0.868	1.198	0.786	0.628	0.817	0.713	0.709	0.744	0.937	0.779	0.968	1.030	1.026	1.061
1.068	0.687	1.429	1.318	0.716	1.421	1.109	1.142	1.461	1.171	1.564	1.188	0.933	1.197	0.968	0.749	0.977	1.420	1.165	1.429	1.423	1.204	1.432
0.961	0.996	1.101	0.943	0.893	1.112	0.984	1.158	1.105	1.055	1.274	1.024	0.959	1.025	0.991	1.067	0.992	1.071	1.006	1.072	1.153	1.229	1.154
1.147	0.963	1.282	1.207	0.976	1.254	1.164	1.177	1.421	1.190	1.468	1.154	1.119	1.203	1.015	0.989	1.064	1.219	1.184	1.268	1.229	1.203	1.278
0.913	0.698	1.182	0.981	0.713	1.043	0.857	1.015	1.298	1.030	1.360	0.948	0.790	0.979	0.875	0.871	0.906	1.099	0.941	1.130	1.192	1.188	1.223
1.053	0.672	1.414	1.303	0.701	1.406	1.094	1.127	1.487	1.156	1.590	1.173	0.918	1.182	0.953	0.734	0.962	1.405	1.150	1.414	1.408	1.189	1.417
0.845	0.880	0.985	0.827	0.777	0.996	0.868	1.042	0.989	0.939	1.158	0.908	0.843	0.909	0.875	0.951	0.876	0.955	0.890	0.956	1.037	1.113	1.038
0.960	0.776	1.095	1.020	0.789	1.067	0.977	0.990	1.234	1.003	1.281	0.967	0.932	1.016	0.828	0.802	0.877	1.032	0.997	1.081	1.042	1.016	1.091
0.748	0.533	1.017	0.816	0.548	0.878	0.692	0.850	1.133	0.865	1.195	0.783	0.625	0.814	0.710	0.706	0.741	0.934	0.776	0.965	1.027	1.023	1.058
0.932	0.551	1.293	1.182	0.580	1.285	0.973	1.006	1.465	1.035	1.568	1.052	0.797	1.061	0.832	0.613	0.841	1.284	1.029	1.293	1.287	1.068	1.296
0.903	0.938	1.043	0.885	0.835	1.054	0.926	1.100	1.047	0.997	1.216	0.966	0.901	0.967	0.933	1.009	0.934	1.013	0.948	1.014	1.095	1.171	1.096
1.347	1.163	1.482	1.407	1.176	1.454	1.364	1.377	1.128	1.390	1.175	1.354	1.319	1.403	1.215	1.189	1.264	1.419	1.384	1.468	1.429	1.403	1.478
0.908	0.693	1.177	0.976	0.708	1.038	0.852	1.010	1.293	1.025	1.355	0.943	0.785	0.974	0.870	0.866	0.901	1.094	0.936	1.125	1.187	1.183	1.218
1.193	0.812	1.554	1.443	0.841	1.546	1.234	1.267	1.462	1.296	1.565	1.313	1.058	1.322	1.093	0.874	1.102	1.545	1.290	1.554	1.548	1.329	1.557
0.884	0.919	1.024	0.866	0.816	1.035	0.907	1.081	1.028	0.978	1.197	0.947	0.882	0.948	0.914	0.990	0.915	0.994	0.929	0.995	1.076	1.152	1.077
1.126	0.942	1.261	1.186	0.955	1.233	1.143	1.156															

LTE Band 25	Left Touch	0.087	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.039	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
	Right Touch	0.112	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
LTE Band 38	Right Tilt	0.042	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
	Left Touch	0.074	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.060	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
LTE Band 41	Right Touch	0.102	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
	Right Tilt	0.036	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
	Left Touch	0.070	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
LTE Band 66	Left Tilt	0.049	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455
	Right Touch	0.100	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162
	Right Tilt	0.032	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214
NR N7	Left Touch	0.080	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317
	Left Tilt	0.081	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767		

0.233	0.049	0.368	0.293	0.062	0.340	0.250	0.263	0.507	0.276	0.554	0.240	0.205	0.289	0.101	0.075	0.150	0.305	0.270	0.354	0.315	0.289	0.364
0.443	0.228	0.712	0.511	0.243	0.573	0.387	0.545	0.828	0.560	0.890	0.478	0.320	0.509	0.405	0.401	0.436	0.629	0.471	0.660	0.722	0.718	0.753
0.463	0.082	0.824	0.713	0.111	0.816	0.504	0.537	1.168	0.566	1.271	0.583	0.328	0.592	0.363	0.144	0.372	0.815	0.560	0.824	0.818	0.599	0.827
0.239	0.274	0.379	0.221	0.171	0.390	0.262	0.436	0.383	0.333	0.552	0.302	0.237	0.303	0.269	0.345	0.270	0.349	0.284	0.350	0.431	0.507	0.432
0.229	0.045	0.364	0.289	0.058	0.336	0.246	0.259	0.503	0.272	0.550	0.236	0.201	0.285	0.097	0.071	0.146	0.301	0.266	0.350	0.311	0.285	0.360
0.453	0.238	0.722	0.521	0.253	0.583	0.397	0.555	0.838	0.570	0.900	0.488	0.330	0.519	0.415	0.411	0.446	0.639	0.481	0.670	0.732	0.728	0.763
0.495	0.114	0.856	0.745	0.143	0.848	0.536	0.569	1.200	0.598	1.303	0.615	0.360	0.624	0.395	0.176	0.404	0.847	0.592	0.856	0.850	0.631	0.859
0.232	0.267	0.372	0.214	0.164	0.383	0.255	0.429	0.376	0.326	0.545	0.295	0.230	0.296	0.262	0.338	0.263	0.342	0.277	0.343	0.424	0.500	0.425
0.266	0.082	0.401	0.326	0.095	0.373	0.283	0.296	0.540	0.309	0.587	0.273	0.238	0.322	0.134	0.108	0.183	0.338	0.303	0.387	0.348	0.322	0.397
0.462	0.247	0.731	0.530	0.262	0.592	0.406	0.564	0.847	0.579	0.909	0.497	0.339	0.528	0.424	0.420	0.455	0.648	0.490	0.679	0.741	0.737	0.772
0.548	0.167	0.909	0.798	0.196	0.901	0.589	0.622	1.253	0.651	1.356	0.668	0.413	0.677	0.448	0.229	0.457	0.900	0.645	0.909	0.903	0.684	0.912
0.265	0.300	0.405	0.247	0.197	0.416	0.288	0.462	0.409	0.359	0.578	0.328	0.263	0.329	0.295	0.371	0.296	0.375	0.310	0.376	0.457	0.533	0.458
0.349	0.165	0.484	0.409	0.178	0.456	0.366	0.379	0.623	0.392	0.670	0.356	0.321	0.405	0.217	0.191	0.266	0.421	0.366	0.470	0.431	0.405	0.480
0.456	0.241	0.725	0.524	0.256	0.586	0.400	0.558	0.841	0.573	0.903	0.491	0.333	0.522	0.418	0.414	0.449	0.642	0.484	0.673	0.735	0.731	0.766
0.481	0.100	0.842	0.731	0.129	0.834	0.522	0.555	1.186	0.584	1.289	0.601	0.346	0.610	0.381	0.162	0.390	0.833	0.578	0.842	0.836	0.617	0.845
0.284	0.319	0.424	0.266	0.216	0.435	0.307	0.481	0.428	0.378	0.597	0.347	0.282	0.348	0.314	0.390	0.315	0.394	0.329	0.395	0.476	0.552	0.477
0.243	0.059	0.378	0.303	0.072	0.350	0.260	0.273	0.517	0.286	0.564	0.250	0.215	0.299	0.111	0.085	0.160	0.315	0.280	0.364	0.325	0.299	0.374

Exposure position	SARmax (W/kg)																			
	2	2a	2b	3	3a	3b	4	4a	4b	5	5a	5b	6	6a	6b	7	7a	7b	8	
	WiFi 2.4G									WiFi 5G									BT	
	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	Ant8 (chian0)	
	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	
Left Touch	0.608	0.373	0.158	0.158	0.120	0.085	0.893	0.642	0.309	0.727	0.441	0.250	0.173	0.109	0.092	0.900	0.503	0.281	0.317	
Left Tilt	0.748	0.414	0.237	0.033	0.024	0.017	1.130	0.775	0.469	0.890	0.664	0.297	0.062	0.050	0.042	0.965	0.767	0.306	0.455	
Right Touch	0.309	0.139	0.098	0.174	0.109	0.065	0.455	0.279	0.145	0.220	0.121	0.104	0.071	0.063	0.039	0.392	0.290	0.105	0.162	
Right Tilt	0.377	0.197	0.143	0.013	0.007	0.004	0.625	0.332	0.208	0.419	0.257	0.061	0.026	0.028	0.026	0.376	0.304	0.110	0.214	

3+8	5+8	6+8	7+8	2a+5a	2+6	2a+7a	3+5	3+6	3+7	4a+5a	4+6	4a+7a	2+5+8	2+6+8	2+7+8
Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)
State2	State2	State2	State2	State2	State2	State2	State2	State2	State2	State2	State2	State2	State3	State3	State3
0.475	1.044	0.490	1.217	0.814	0.781	0.876	0.885	0.331	1.058	1.083	1.066	1.145	1.202	0.648	1.375
0.488	1.345	0.517	1.420	1.078	0.810	1.181	0.923	0.095	0.998	1.439	1.192	1.542	1.378	0.550	1.453
0.336	0.382	0.233	0.554	0.260	0.380	0.429	0.394	0.245	0.566	0.400	0.526	0.569	0.556	0.407	0.728
0.227	0.633	0.240	0.590	0.454	0.403	0.501	0.432	0.039	0.389	0.589	0.651	0.636	0.646	0.253	0.603

Body-worn: (Ant0)

Band	Exposure position	SARmax (W/kg)								Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+5)	Summed SAR (1+6)	Summed SAR (1+7)	
		1	2	3	4	5	6	7	8							
		Main	WiFi 2.4G				WiFi 5G									BT
		Ant0	Ant8 (chian0)	Ant2 (chian1)	MIMO	Ant8 (chian0)	Ant2 (chian1)	MIMO								
GSM850	Front	0.193	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.299	0.268	0.352	0.321	0.287	0.434	
	Back	0.225	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.339	0.329	0.466	0.403	0.550	0.518	
WCDMA Band V	Front	0.195	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.301	0.270	0.354	0.323	0.289	0.436	
	Back	0.302	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.416	0.406	0.543	0.480	0.627	0.595	
LTE Band 5	Front	0.181	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.287	0.256	0.340	0.309	0.275	0.422	
	Back	0.281	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.395	0.385	0.522	0.459	0.606	0.574	
LTE Band 12	Front	0.166	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.272	0.241	0.325	0.294	0.260	0.407	
	Back	0.319	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.433	0.423	0.560	0.497	0.644	0.612	
LTE Band 13	Front	0.297	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.403	0.372	0.456	0.425	0.391	0.538	
	Back	0.246	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.360	0.350	0.487	0.424	0.571	0.539	
LTE Band 17	Front	0.217	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.323	0.292	0.376	0.345	0.311	0.458	

	Back	0.175	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.289	0.279	0.416	0.353	0.500	0.468
LTE Band 26	Front	0.256	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.362	0.331	0.415	0.384	0.350	0.497
	Back	0.327	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.441	0.431	0.568	0.505	0.652	0.620
NR N5	Front	0.196	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.302	0.271	0.355	0.324	0.290	0.437
	Back	0.282	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.396	0.386	0.523	0.460	0.607	0.575

Summe d SAR (1+8)	Summe d SAR (1+3+8)	Summe d SAR (1+5+8)	Summe d SAR (1+6+8)	Summe d SAR (1+7+8)	Summe d SAR (1+2+5)	Summe d SAR (1+2+6)	Summe d SAR (1+2+7)	Summe d SAR (1+3+5)	Summe d SAR (1+3+6)	Summe d SAR (1+3+7)	Summe d SAR (1+4+5)	Summe d SAR (1+4+6)	Summe d SAR (1+4+7)	Summed SAR (1+3+5+8)	Summed SAR (1+3+6+8)	Summed SAR (1+3+7+8)
0.220	0.295	0.348	0.314	0.461	0.427	0.393	0.540	0.396	0.362	0.509	0.480	0.446	0.593	0.423	0.389	0.536
0.239	0.343	0.417	0.564	0.532	0.517	0.664	0.632	0.507	0.654	0.622	0.644	0.791	0.759	0.521	0.668	0.636
0.222	0.297	0.350	0.316	0.463	0.429	0.395	0.542	0.398	0.364	0.511	0.482	0.448	0.595	0.425	0.391	0.538
0.316	0.420	0.494	0.641	0.609	0.594	0.741	0.709	0.584	0.731	0.699	0.721	0.868	0.836	0.598	0.745	0.713
0.208	0.283	0.336	0.302	0.449	0.415	0.381	0.528	0.384	0.350	0.497	0.468	0.434	0.581	0.411	0.377	0.524
0.295	0.399	0.473	0.620	0.588	0.573	0.720	0.688	0.563	0.710	0.678	0.700	0.847	0.815	0.577	0.724	0.692
0.193	0.268	0.321	0.287	0.434	0.400	0.366	0.513	0.369	0.335	0.482	0.453	0.419	0.566	0.396	0.362	0.509
0.333	0.437	0.511	0.658	0.626	0.611	0.758	0.726	0.601	0.748	0.716	0.738	0.885	0.853	0.615	0.762	0.730
0.324	0.399	0.452	0.418	0.565	0.531	0.497	0.644	0.500	0.466	0.613	0.584	0.550	0.697	0.527	0.493	0.640
0.260	0.364	0.438	0.585	0.553	0.538	0.685	0.653	0.528	0.675	0.643	0.665	0.812	0.780	0.542	0.689	0.657
0.244	0.319	0.372	0.338	0.485	0.451	0.417	0.564	0.420	0.386	0.533	0.504	0.470	0.617	0.447	0.413	0.560
0.189	0.293	0.367	0.514	0.482	0.467	0.614	0.582	0.457	0.604	0.572	0.594	0.741	0.709	0.471	0.618	0.586
0.283	0.358	0.411	0.377	0.524	0.490	0.456	0.603	0.459	0.425	0.572	0.543	0.509	0.656	0.486	0.452	0.599
0.341	0.445	0.519	0.666	0.634	0.619	0.766	0.734	0.609	0.756	0.724	0.746	0.893	0.861	0.623	0.770	0.738
0.223	0.298	0.351	0.317	0.464	0.430	0.396	0.543	0.399	0.365	0.512	0.483	0.449	0.596	0.426	0.392	0.539
0.296	0.400	0.474	0.621	0.589	0.574	0.721	0.689	0.564	0.711	0.679	0.701	0.848	0.816	0.578	0.725	0.693

(Ant1)

Band	Exposure position	SARmax (W/kg)								Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+5)	Summed SAR (1+6)	Summed SAR (1+7)
		1	2	3	4	5	6	7	8						
		Main	WiFi 2.4G			WiFi 5G			BT						
		Ant1	Ant8 (chian0)	Ant2 (chian1)	MIMO	Ant8 (chian0)	Ant2 (chian1)	MIMO							
GSM850	Front	0.277	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.383	0.352	0.436	0.405	0.371	0.518
	Back	0.324	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.438	0.428	0.565	0.502	0.649	0.617
WCDMA Band V	Front	0.318	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.424	0.393	0.477	0.446	0.412	0.559
	Back	0.367	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.481	0.471	0.608	0.545	0.692	0.660
LTE Band 5	Front	0.385	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.491	0.460	0.544	0.513	0.479	0.626
	Back	0.329	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.443	0.433	0.570	0.507	0.654	0.622
LTE Band 12	Front	0.254	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.360	0.329	0.413	0.382	0.348	0.495
	Back	0.275	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.389	0.379	0.516	0.453	0.600	0.568
LTE Band 13	Front	0.235	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.341	0.310	0.394	0.363	0.329	0.476
	Back	0.266	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.380	0.370	0.507	0.444	0.591	0.559
LTE Band 17	Front	0.305	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.411	0.380	0.464	0.433	0.399	0.546
	Back	0.345	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.459	0.449	0.586	0.523	0.670	0.638
LTE Band 26	Front	0.333	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.439	0.408	0.492	0.461	0.427	0.574
	Back	0.379	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.493	0.483	0.620	0.557	0.704	0.672
NR N5	Front	0.332	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.438	0.407	0.491	0.460	0.426	0.573
	Back	0.301	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.415	0.405	0.542	0.479	0.626	0.594

Summe d SAR (1+8)	Summe d SAR (1+3+8)	Summe d SAR (1+5+8)	Summe d SAR (1+6+8)	Summe d SAR (1+7+8)	Summe d SAR (1+2+5)	Summe d SAR (1+2+6)	Summe d SAR (1+2+7)	Summe d SAR (1+3+5)	Summe d SAR (1+3+6)	Summe d SAR (1+3+7)	Summe d SAR (1+4+5)	Summe d SAR (1+4+6)	Summe d SAR (1+4+7)	Summed SAR (1+3+5+8)	Summed SAR (1+3+6+8)	Summed SAR (1+3+7+8)
0.304	0.379	0.432	0.398	0.545	0.511	0.477	0.624	0.480	0.446	0.593	0.564	0.530	0.677	0.507	0.473	0.620
0.338	0.442	0.516	0.663	0.631	0.616	0.763	0.731	0.606	0.753	0.721	0.743	0.890	0.858	0.620	0.767	0.735
0.345	0.420	0.473	0.439	0.586	0.552	0.518	0.665	0.521	0.487	0.634	0.605	0.571	0.718	0.548	0.514	0.661
0.381	0.485	0.559	0.706	0.674	0.659	0.806	0.774	0.649	0.796	0.764	0.786	0.933	0.901	0.663	0.810	0.778
0.412	0.487	0.540	0.506	0.653	0.619	0.585	0.732	0.588	0.554	0.701	0.672	0.638	0.785	0.615	0.581	0.728

0.343	0.447	0.521	0.668	0.636	0.621	0.768	0.736	0.611	0.758	0.726	0.748	0.895	0.863	0.625	0.772	0.740
0.281	0.356	0.409	0.375	0.522	0.488	0.454	0.601	0.457	0.423	0.570	0.541	0.507	0.654	0.484	0.450	0.597
0.289	0.393	0.467	0.614	0.582	0.567	0.714	0.682	0.557	0.704	0.672	0.694	0.841	0.809	0.571	0.718	0.686
0.262	0.337	0.390	0.356	0.503	0.469	0.435	0.582	0.438	0.404	0.551	0.522	0.488	0.635	0.465	0.431	0.578
0.280	0.384	0.458	0.605	0.573	0.558	0.705	0.673	0.548	0.695	0.663	0.685	0.832	0.800	0.562	0.709	0.677
0.332	0.407	0.460	0.426	0.573	0.539	0.505	0.652	0.508	0.474	0.621	0.592	0.558	0.705	0.535	0.501	0.648
0.359	0.463	0.537	0.684	0.652	0.637	0.784	0.752	0.627	0.774	0.742	0.764	0.911	0.879	0.641	0.788	0.756
0.360	0.435	0.488	0.454	0.601	0.567	0.533	0.680	0.536	0.502	0.649	0.620	0.586	0.733	0.563	0.529	0.676
0.393	0.497	0.571	0.718	0.686	0.671	0.818	0.786	0.661	0.808	0.776	0.798	0.945	0.913	0.675	0.822	0.790
0.359	0.434	0.487	0.453	0.600	0.566	0.532	0.679	0.535	0.501	0.648	0.619	0.585	0.732	0.562	0.528	0.675
0.315	0.419	0.493	0.640	0.608	0.593	0.740	0.708	0.583	0.730	0.698	0.720	0.867	0.835	0.597	0.744	0.712

(Ant3)

Band	Exposure position	SARmax (W/kg)								Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+5)	Summed SAR (1+6)	Summed SAR (1+7)
		1	2	3	4	5	6	7	8						
		Main	WiFi 2.4G			WiFi 5G			BT						
		Ant3	Ant8 (chian0)	Ant2 (chian1)	MIMO	Ant8 (chian0)	Ant2 (chian1)	MIMO							
GSM1900	Front	0.196	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.302	0.271	0.355	0.324	0.290	0.437
	Back	0.247	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.361	0.351	0.488	0.425	0.572	0.540
WCDMA Band II	Front	0.114	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.220	0.189	0.273	0.242	0.208	0.355
	Back	0.139	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.253	0.243	0.380	0.317	0.464	0.432
WCDMA Band IV	Front	0.048	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.154	0.123	0.207	0.176	0.142	0.289
	Back	0.055	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.169	0.159	0.296	0.233	0.380	0.348
LTE Band 2	Front	0.158	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.264	0.233	0.317	0.286	0.252	0.399
	Back	0.197	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.311	0.301	0.438	0.375	0.522	0.490
LTE Band 4	Front	0.046	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.152	0.121	0.205	0.174	0.140	0.287
	Back	0.054	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.168	0.158	0.295	0.232	0.379	0.347
LTE Band 7	Front	0.043	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.149	0.118	0.202	0.171	0.137	0.284
	Back	0.060	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.174	0.164	0.301	0.238	0.385	0.353
LTE Band 25	Front	0.149	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.255	0.224	0.308	0.277	0.243	0.390
	Back	0.176	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.290	0.280	0.417	0.354	0.501	0.469
LTE Band 38	Front	0.056	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.162	0.131	0.215	0.184	0.150	0.297
	Back	0.073	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.187	0.177	0.314	0.251	0.398	0.366
LTE Band 41	Front	0.197	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.303	0.272	0.356	0.325	0.291	0.438
	Back	0.265	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.379	0.369	0.506	0.443	0.590	0.558
LTE Band 66	Front	0.057	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.163	0.132	0.216	0.185	0.151	0.298
	Back	0.067	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.181	0.171	0.308	0.245	0.392	0.360
NR N7	Front	0.211	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.317	0.286	0.370	0.339	0.305	0.452
	Back	0.245	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.359	0.349	0.486	0.423	0.570	0.538
NR N38	Front	0.121	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.227	0.196	0.280	0.249	0.215	0.362
	Back	0.155	0.114	0.104	0.241	0.178	0.325	0.293	0.						

Summed SAR (1+8)	Summed SAR (1+3+8)	Summed SAR (1+5+8)	Summed SAR (1+6+8)	Summed SAR (1+7+8)	Summed SAR (1+2+5)	Summed SAR (1+2+6)	Summed SAR (1+2+7)	Summed SAR (1+3+5)	Summed SAR (1+3+6)	Summed SAR (1+3+7)	Summed SAR (1+4+5)	Summed SAR (1+4+6)	Summed SAR (1+4+7)	Summed SAR (1+3+5+8)	Summed SAR (1+3+6+8)	Summed SAR (1+3+7+8)
0.223	0.298	0.351	0.317	0.464	0.430	0.396	0.543	0.399	0.365	0.512	0.483	0.449	0.596	0.426	0.392	0.539
0.261	0.365	0.439	0.586	0.554	0.539	0.686	0.654	0.529	0.676	0.644	0.666	0.813	0.781	0.543	0.690	0.658
0.141	0.216	0.269	0.235	0.382	0.348	0.314	0.461	0.317	0.283	0.430	0.401	0.367	0.514	0.344	0.310	0.457
0.153	0.257	0.331	0.478	0.446	0.431	0.578	0.546	0.421	0.568	0.536	0.558	0.705	0.673	0.435	0.582	0.550
0.075	0.150	0.203	0.169	0.316	0.282	0.248	0.395	0.251	0.217	0.364	0.335	0.301	0.448	0.278	0.244	0.391
0.069	0.173	0.247	0.394	0.362	0.347	0.494	0.462	0.337	0.484	0.452	0.474	0.621	0.589	0.351	0.498	0.466
0.185	0.260	0.313	0.279	0.426	0.392	0.358	0.505	0.361	0.327	0.474	0.445	0.411	0.558	0.388	0.354	0.501
0.211	0.315	0.389	0.536	0.504	0.489	0.636	0.604	0.479	0.626	0.594	0.616	0.763	0.731	0.493	0.640	0.608
0.073	0.148	0.201	0.167	0.314	0.280	0.246	0.393	0.249	0.215	0.362	0.333	0.299	0.446	0.276	0.242	0.389
0.068	0.172	0.246	0.393	0.361	0.346	0.493	0.461	0.336	0.483	0.451	0.473	0.620	0.588	0.350	0.497	0.465
0.070	0.145	0.198	0.164	0.311	0.277	0.243	0.390	0.246	0.212	0.359	0.330	0.296	0.443	0.273	0.239	0.386
0.074	0.178	0.252	0.399	0.367	0.352	0.499	0.467	0.342	0.489	0.457	0.479	0.626	0.594	0.356	0.503	0.471
0.176	0.251	0.304	0.270	0.417	0.383	0.349	0.496	0.352	0.318	0.465	0.436	0.402	0.549	0.379	0.345	0.492
0.190	0.294	0.368	0.515	0.483	0.468	0.615	0.583	0.458	0.605	0.573	0.595	0.742	0.710	0.472	0.619	0.587

0.083	0.158	0.211	0.177	0.324	0.290	0.256	0.403	0.259	0.225	0.372	0.343	0.309	0.456	0.286	0.252	0.399
0.087	0.191	0.265	0.412	0.380	0.365	0.512	0.480	0.355	0.502	0.470	0.492	0.639	0.607	0.369	0.516	0.484
0.224	0.299	0.352	0.318	0.465	0.431	0.397	0.544	0.400	0.366	0.513	0.484	0.450	0.597	0.427	0.393	0.540
0.279	0.383	0.457	0.604	0.572	0.557	0.704	0.672	0.547	0.694	0.662	0.684	0.831	0.799	0.561	0.708	0.676
0.084	0.159	0.212	0.178	0.325	0.291	0.257	0.404	0.260	0.226	0.373	0.344	0.310	0.457	0.287	0.253	0.400
0.081	0.185	0.259	0.406	0.374	0.359	0.506	0.474	0.349	0.496	0.464	0.486	0.633	0.601	0.363	0.510	0.478
0.238	0.313	0.366	0.332	0.479	0.445	0.411	0.558	0.414	0.380	0.527	0.498	0.464	0.611	0.441	0.407	0.554
0.259	0.363	0.437	0.584	0.552	0.537	0.684	0.652	0.527	0.674	0.642	0.664	0.811	0.779	0.541	0.688	0.656
0.148	0.223	0.276	0.242	0.389	0.355	0.321	0.468	0.324	0.290	0.437	0.408	0.374	0.521	0.351	0.317	0.464
0.169	0.273	0.347	0.494	0.462	0.447	0.594	0.562	0.437	0.584	0.552	0.574	0.721	0.689	0.451	0.598	0.566

(Ant4)

Band	Exposure position	SARmax (W/kg)								Summed SAR (1+2)	Summed SAR (1+3)	Summed SAR (1+4)	Summed SAR (1+5)	Summed SAR (1+6)	Summed SAR (1+7)
		1	2	3	4	5	6	7	8						
		Main	WiFi 2.4G			WiFi 5G			BT						
		Ant4	Ant8 (chian0)	Ant2 (chian1)	MIMO	Ant8 (chian0)	Ant2 (chian1)	MIMO							
GSM1900	Front	0.182	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.288	0.257	0.341	0.310	0.276	0.423
	Back	0.275	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.389	0.379	0.516	0.453	0.600	0.568
WCDMA Band II	Front	0.274	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.380	0.349	0.433	0.402	0.368	0.515
	Back	0.276	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.390	0.380	0.517	0.454	0.601	0.569
WCDMA Band IV	Front	0.134	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.240	0.209	0.293	0.262	0.228	0.375
	Back	0.182	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.296	0.286	0.423	0.360	0.507	0.475
LTE Band 2	Front	0.273	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.379	0.348	0.432	0.401	0.367	0.514
	Back	0.360	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.474	0.464	0.601	0.538	0.685	0.653
LTE Band 4	Front	0.177	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.283	0.252	0.336	0.305	0.271	0.418
	Back	0.209	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.323	0.313	0.450	0.387	0.534	0.502
LTE Band 7	Front	0.270	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.376	0.345	0.429	0.398	0.364	0.511
	Back	0.340	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.454	0.444	0.581	0.518	0.665	0.633
LTE Band 25	Front	0.205	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.311	0.280	0.364	0.333	0.299	0.446
	Back	0.299	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.413	0.403	0.540	0.477	0.624	0.592
LTE Band 38	Front	0.288	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.394	0.363	0.447	0.416	0.382	0.529
	Back	0.432	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.546	0.536	0.673	0.610	0.757	0.725
LTE Band 41	Front	0.257	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.363	0.332	0.416	0.385	0.351	0.498
	Back	0.402	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.516	0.506	0.643	0.580	0.727	0.695
LTE Band 66	Front	0.208	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.314	0.283	0.367	0.336	0.302	0.449
	Back	0.277	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.391	0.381	0.518	0.455	0.602	0.570
NR N7	Front	0.217	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.323	0.292	0.376	0.345	0.311	0.458
	Back	0.314	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.428	0.418	0.555	0.492	0.639	0.607
NR N38	Front	0.277	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.383	0.352	0.436	0.405	0.371	0.518
	Back	0.469	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.583	0.573	0.710	0.647	0.794	0.762

Summe d SAR (1+8)	Summe d SAR (1+3+8)	Summe d SAR (1+5+8)	Summe d SAR (1+6+8)	Summe d SAR (1+7+8)	Summe d SAR (1+2+5)	Summe d SAR (1+2+6)	Summe d SAR (1+2+7)	Summe d SAR (1+3+5)	Summe d SAR (1+3+6)	Summe d SAR (1+3+7)	Summe d SAR (1+4+5)	Summe d SAR (1+4+6)	Summe d SAR (1+4+7)	Summed SAR (1+3+5+8)	Summed SAR (1+3+6+8)	Summed SAR (1+3+7+8)
0.209	0.284	0.337	0.303	0.450	0.416	0.382	0.529	0.385	0.351	0.498	0.469	0.435	0.582	0.412	0.378	0.525
0.289	0.393	0.467	0.614	0.582	0.567	0.714	0.682	0.557	0.704	0.672	0.694	0.841	0.809	0.571	0.718	0.686
0.301	0.376	0.429	0.395	0.542	0.508	0.474	0.621	0.477	0.443	0.590	0.561	0.527	0.674	0.504	0.470	0.617
0.290	0.394	0.468	0.615	0.583	0.568	0.715	0.683	0.558	0.705	0.673	0.695	0.842	0.810	0.572	0.719	0.687
0.161	0.236	0.289	0.255	0.402	0.368	0.334	0.481	0.337	0.303	0.450	0.421	0.387	0.534	0.364	0.330	0.477
0.196	0.300	0.374	0.521	0.489	0.474	0.621	0.589	0.464	0.611	0.579	0.601	0.748	0.716	0.478	0.625	0.593
0.300	0.375	0.428	0.394	0.541	0.507	0.473	0.620	0.476	0.442	0.589	0.560	0.526	0.673	0.503	0.469	0.616
0.374	0.478	0.552	0.699	0.667	0.652	0.799	0.767	0.642	0.789	0.757	0.779	0.926	0.894	0.656	0.803	0.771
0.204	0.279	0.332	0.298	0.445	0.411	0.377	0.524	0.380	0.346	0.493	0.464	0.430	0.577	0.407	0.373	0.520
0.223	0.327	0.401	0.548	0.516	0.501	0.648	0.616	0.491	0.638	0.606	0.628	0.775	0.743	0.505	0.652	0.620
0.297	0.372	0.425	0.391	0.538	0.504	0.470	0.617	0.473	0.439	0.586	0.557	0.523	0.670	0.500	0.466	0.613
0.354	0.458	0.532	0.679	0.647	0.632	0.779	0.747	0.622	0.769	0.737	0.759	0.906	0.874	0.636	0.783	0.751
0.232	0.307	0.360	0.326	0.473	0.439	0.405	0.552	0.408	0.374	0.521	0.492	0.458	0.605	0.435	0.401	0.548
0.313	0.417	0.491	0.638	0.606	0.591	0.738	0.706	0.581	0.728	0.696	0.718	0.865	0.833	0.595	0.742	0.710
0.315	0.390	0.443	0.409	0.556	0.522	0.488	0.635	0.491	0.457	0.604	0.575	0.541	0.688	0.518	0.484	0.631
0.446	0.550	0.624	0.771	0.739	0.724	0.871	0.839	0.714	0.861	0.829	0.851	0.998	0.966	0.728	0.875	0.843
0.284	0.359	0.412	0.378	0.525	0.491	0.457	0.604	0.460	0.426	0.573	0.544	0.510	0.657	0.487	0.453	0.600
0.416	0.520	0.594	0.741	0.709	0.694	0.841	0.809	0.684	0.831	0.799	0.821	0.968	0.936	0.698	0.845	0.813
0.235	0.310	0.363	0.329	0.476	0.442	0.408	0.555	0.411	0.377	0.524	0.495	0.461	0.608	0.438	0.404	0.551
0.291	0.395	0.469	0.616	0.584	0.569	0.716	0.684	0.559	0.706	0.674	0.696	0.843	0.811	0.573	0.720	0.688
0.244	0.319	0.372	0.338	0.485	0.451	0.417	0.564	0.420	0.386	0.533	0.504	0.470	0.617	0.447	0.413	0.560
0.328	0.432	0.506	0.653	0.621	0.606	0.753	0.721	0.596	0.743	0.711	0.733	0.880	0.848	0.610	0.757	0.725
0.304	0.379	0.432	0.398	0.545	0.511	0.477	0.624	0.480	0.446	0.593	0.564	0.530	0.677	0.507	0.473	0.620
0.483	0.587	0.661	0.808	0.776	0.761	0.908	0.876	0.751	0.898	0.866	0.888	1.035	1.003	0.765	0.912	0.880

Exposure position	SARmax (W/kg)							2+8	5+8	6+8	7+8	1+5	1+6	1+7	2+5	2+6	2+7	3+5	3+6	3+7	2+5+8	2+6+8	2+7+8
	1	2	3	5	6	7	8	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	Summed SAR (W/kg)	
	WiFi 2.4G			WiFi 5G			BT																
	Ant8 (chian0)	Ant2 (chian1)	MIMO	Ant8 (chian0)	Ant2 (chian1)	MIMO																	
Front	0.106	0.075	0.159	0.128	0.094	0.241	0.027	0.102	0.155	0.121	0.268	0.234	0.200	0.347	0.203	0.169	0.316	0.287	0.253	0.400	0.230	0.196	0.343
Back	0.114	0.104	0.241	0.178	0.325	0.293	0.014	0.118	0.192	0.339	0.307	0.292	0.439	0.407	0.282	0.429	0.397	0.419	0.566	0.534	0.296	0.443	0.411

Hotspot: (Ant0)

Band	Exposure position	SARmax (W/kg)																			
		1	2	2a	2b	3	3a	3b	4	4a	4b	5	5a	5b	6	6a	6b	7	7a	7b	8
		WiFi 2.4G										WiFi 5G									
		Main	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	Ant8 (chian0)	Ant8 (chian0)	Ant8 (chian0)	Ant2 (chian1)	Ant2 (chian1)	Ant2 (chian1)	MIMO	MIMO	MIMO	BT
		State1	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1	State2	State3	State1
GSM850	Front	0.364	0.194	0.194	0.194	0.173	0.173	0.173	0.380	0.380	0.380	0.256	0.256	0.256	0.150	0.150	0.150	0.371	0.371	0.371	0.039
	Back	0.481	0.262	0.162	0.094	0.280	0.259	0.110	0.537	0.420	0.194	0.309	0.250	0.148	0.339	0.191	0.097	0.422	0.194	0.104	0.048
	Left	0.646	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	Right	/	0.139	0.083	0.049	0.489	0.442	0.202	0.979	0.749	0.353	0.131	0.100	0.037	0.625	0.379	0.244	0.696	0.355	0.153	0.034
	Top	0.028	0.484	0.343	0.301	0.000	0.004	0.001	0.635	0.600	0.263	0.403	0.306	0.170	/	/	/	0.581	0.462	0.206	0.089
	Bottom	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
WCDMA B5	Front	0.335	0.194	0.194	0.194	0.173	0.173	0.173	0.380	0.380	0.380	0.256	0.256	0.256	0.150	0.150	0.150	0.371	0.371	0.371	0.039
	Back	0.539	0.262	0.162	0.094	0.280	0.259	0.110	0.537	0.420	0.194	0.309	0.250	0.148	0.339	0.191	0.097	0.422	0.194	0.104	0.048
	Left	0.789	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
	Right	/	0.139	0.083	0.049	0.489	0.442	0.202	0.979	0.749	0.353	0.131	0.100	0.037	0.625	0.379	0.244	0.696	0.355	0.153	0.034
	Top	0.026	0.484	0.343	0.301	0.000	0.004	0.001	0.635												

Note: WWAN part of the test does not need to test Product specific 10g SAR, so there is no calculation to synchronize transmission with the WWLN part.

9 Equipment list

Test Platform		SPEAG DASY5 Professional				
Description		SAR Test System (Frequency range 300MHz-6GHz)				
Software Reference		DASY52 52; SEMCAD X				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Twin Phantom	SPEAG	SAM 1	1640	NCR	NCR
☒	Twin Phantom	SPEAG	SAM 2	1913	NCR	NCR
☒	Twin Phantom	SPEAG	SAM 7	1027	NCR	NCR
☒	DAE	SPEAG	DAE4	1267	2020-06-12	2021-06-11
☒	DAE	SPEAG	DAE4	1428	2020-03-03	2021-03-02
☒	E-Field Probe	SPEAG	EX3DV4	3962	2020-04-01	2021-03-31
☒	E-Field Probe	SPEAG	EX3DV4	3793	2020-05-09	2021-05-08
☒	Validation Kits	SPEAG	D750V3	1160	2019-05-22	2022-05-21
☒	Validation Kits	SPEAG	D835V2	4d105	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D1750V2	1149	2019-05-21	2022-05-20
☒	Validation Kits	SPEAG	D1900V2	5d028	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D2450V2	733	2019-12-17	2022-12-16
☒	Validation Kits	SPEAG	D2600V2	1125	2019-05-20	2022-05-19
☒	Validation Kits	SPEAG	D5GHzV2	1165	2019-12-20	2022-12-19
☒	Agilent Network Analyzer	Agilent	E5071C	MY46523591	2020-04-16	2021-04-15
☒	Dielectric Probe Kit	Agilent	85070E	US01440210	NCR	NCR
☒	Universal Radio Communication Tester	R&S	CMU200	123090	2020-06-11	2021-06-10
☒	Universal Radio Communication Tester	R&S	CMW500	111637	2020-04-16	2021-04-15

☒	Radio Communication Analyzer	Anritsu	MT8821C	6201502984	2020-06-11	2021-06-10
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	Agilent	N5171B	MY53050736	2020-04-15	2021-04-14
☒	Preamplifier	Mini-Circuits	ZHL-42W	15542	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	073501433	NCR	NCR
☒	Power Meter	Agilent	E4416A	GB41292095	2020-04-15	2021-04-14
☒	Power Sensor	Agilent	8481H	MY41091234	2020-04-15	2021-04-14
☒	Power Sensor	R&S	NRP-Z92	100025	2020-04-16	2021-04-15
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
☒	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
☒	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR
☒	Speed reading thermometer	MingGao	T809	NA	2020-04-21	2021-04-20
☒	Humidity and Temperature Indicator	KIMTOKA	KIMTOKA	NA	2020-04-21	2021-04-20

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

10 Calibration certificate

Please see the Appendix C

11 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

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