

TEST REPORT FOR SAR TESTING

Report No.: SRTC2020-9004(F)-20092401(H)

Product Name: LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile

Product Model: ZTE Blade A51

Applicant: ZTE CORPORATION

Manufacturer: ZTE CORPORATION

Specification: Part 2.1093

IEEE Std 1528

KDB Procedures

FCC ID: SRQ-ZTEA51

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District, Beijing, P.R. China

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1. GENERAL INFORMATION

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).

The test results relate only to individual items of the samples which have been tested.

The certification and accreditation identifiers used in this report shall not be applicable to the tested or calibrated samples thereof. The manufacturer shall not mark the tested samples or items (or a separate part of the item) with the identifiers of certification and accreditation to mislead relevant parties about the tested samples or items.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District, Beijing P.R. China
City:	Beijing
Country or Region:	P.R. China
Contacted person:	Liu Jia
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1.3 Applicant's details

Company:	ZTE CORPORATION
Address:	Electronic Testing Building, No. 43 Shahe Road, Xili street, Nanshan District
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Ren Shijia
Tel:	86-13709193069
Email:	ren.shijia@zte.com.cn

1.4 Manufacturer's details

Company:	ZTE CORPORATION
Address:	Electronic Testing Building, No. 43 Shahe Road, Xili street, Nanshan District
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Ren Shijia
Tel:	86-13709193069
Email:	ren.shijia@zte.com.cn

1.5 Test Environment

Date of Receipt of test sample at SRTC:	2020.09.24
Testing Start Date:	2020.10.09
Testing End Date:	2020.10.26

Environmental Data:	Temperature (°C)	Humidity (%)
Ambient	20	40

Normal Supply Voltage (Vdc.):	3.85
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2. DESCRIPTION OF THE DEVICE UNDER TEST

2.1 Final Equipment Build Status

Wireless Technology and Frequency Bands	<input checked="" type="checkbox"/> GSM Band: GSM850/GSM1900 <input checked="" type="checkbox"/> WCDMA Band: FDD II/IV/V <input checked="" type="checkbox"/> LTE Band: 2/4/5/7/26/66 <input checked="" type="checkbox"/> Wi-Fi Band: 2.4GHz <input checked="" type="checkbox"/> BT/BLE																				
Mode	GSM <input checked="" type="checkbox"/> GPRS (GMSK) <input checked="" type="checkbox"/> EGPRS (GMSK/8PSK) WCDMA <input checked="" type="checkbox"/> UMTS Rel. 99 <input checked="" type="checkbox"/> HSDPA (Rel. 5) <input checked="" type="checkbox"/> HSUPA (Rel. 6) <input type="checkbox"/> HSPA+ (Rel.7) <input type="checkbox"/> DC-HSDPA (Rel.8) Wi-Fi <input checked="" type="checkbox"/> 802.11b <input checked="" type="checkbox"/> 802.11g <input checked="" type="checkbox"/> 802.11n HT20 LTE <input checked="" type="checkbox"/> QPSK <input checked="" type="checkbox"/> 16QAM <input checked="" type="checkbox"/> 64QAM																				
Duty Cycle*	GSM:12.5%(1solts up) , 25%(2solts up), 37.5%(3solts up), 50%(4solts up) WCDMA: 100% LTE(FDD): 100% LTE(TDD): 63.3% maximum WIFI2.4GHz: <table border="1" data-bbox="580 1305 1291 1456"> <thead> <tr> <th>Mode</th> <th>Duty Cycle</th> </tr> </thead> <tbody> <tr> <td>802.11b</td> <td>99.45%</td> </tr> <tr> <td>802.11g</td> <td>97.42%</td> </tr> <tr> <td>802.11n HT20</td> <td>97.24%</td> </tr> </tbody> </table> BT: <table border="1" data-bbox="580 1487 1291 1637"> <thead> <tr> <th>Mode</th> <th>Duty Cycle</th> </tr> </thead> <tbody> <tr> <td>GFSK(DH5)</td> <td>77.11%</td> </tr> <tr> <td>π/4DQPSK(DH5)</td> <td>77.12%</td> </tr> <tr> <td>8DPSK(DH5)</td> <td>77.13%</td> </tr> </tbody> </table> BLE: <table border="1" data-bbox="580 1700 1291 1778"> <thead> <tr> <th>Mode</th> <th>Duty Cycle</th> </tr> </thead> <tbody> <tr> <td>GFSK(1Mbps)</td> <td>86.41%</td> </tr> </tbody> </table>	Mode	Duty Cycle	802.11b	99.45%	802.11g	97.42%	802.11n HT20	97.24%	Mode	Duty Cycle	GFSK(DH5)	77.11%	π/4DQPSK(DH5)	77.12%	8DPSK(DH5)	77.13%	Mode	Duty Cycle	GFSK(1Mbps)	86.41%
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Mode	Duty Cycle																				
GFSK(1Mbps)	86.41%																				
Multi-Slot Class for GPRS/EDGE	<input type="checkbox"/> Class 8 - One Up <input type="checkbox"/> Class 10 - Two Up <input checked="" type="checkbox"/> Class 12 - Four Up <input type="checkbox"/> Class 33- Four Up																				

Mobile Phone Capability	<input type="checkbox"/> Class A - Mobile phones can be connected to both GPRS and GSM services simultaneously. <input checked="" type="checkbox"/> Class B - Mobile phones can be attached to both GPRS and GSM services, using one service at a time. <input type="checkbox"/> Class C - Mobile phones are attached to either GPRS or GSM voice service. You need to switch manually between services
DTM	Not Supported
Note	For licensed cellular network duty cycle is inherent. For unlicensed network WLAN Duty cycle is depends on the data traffic, and the traffic allocation in operating mode could be the most conservative condition which with 100% duty cycle. SAR measurement also use non signalling mode, so the duty factor shall be taken into consideration.

2.2 Support Equipment

The following support equipment was used to exercise the DUT during testing:

State of sample	Normal
H/W Version	zc7A
S/W Version	TEL_MX_ZTE_Blade_A51V1.0
IMEI	1 st supply:867934050002577 2 nd supply: 867934050002841
Notes	As the information described above, we use test sample offered by the customer. The relevant tests have been performed in order to verify in which combination case the EUT would have the worst features. The difference between 1 st and 2 nd is that 2 nd supply add the battery Manufacturer <Ningbo Veken Battery Co., Ltd.>

3. REFERENCE SPECIFICATION

Specification	Version	Title
Part 2.1093	2019	Radiofrequency radiation exposure evaluation: portable devices.
IEEE Std 1528	2013	IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
KDB 447498 D01	v06	General RF Exposure Guidance
KDB 447498 D02	v02r01	SAR MEASUREMENT PROCEDURES FOR USB DONGLE TRANSMITTERS
KDB 648474 D04	v01r03	Handset SAR
KDB 941225 D01	v03r01	3G SAR Procedures
KDB 248227 D01	v02r02	SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS
KDB 865664 D01	v01r04	SAR Measurement from 100 MHz to 6 GHz
KDB 865664 D02	v01r02	RF Exposure Reporting
KDB 941225 D05	v02r05	SAR for LTE Devices

4. TEST CONDITIONS

4.1 Picture to demonstrate the required liquid depth

The liquid depth is large than 15cm in the used SAM phantoms in flat section, and the depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.



Liquid depth for SAR Measurement

4.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

In all operating bands the measurements were performed on middle channel, and few of them were also performed on lowest and highest channels.

4.3 SAR Measurement Set-up

The system is based on a high precision robot (working range greater than 0.9m), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit. A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the

robot motors.

The PC consists of the Micron Pentium IV computer with Win7 system and SAR Measurement Software DASY5 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot.

A data acquisition electronic (DAE) circuit performs the signal amplification; signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines.

The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection

The robot uses its own controller with a built in VME-bus computer.

4.4 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twin headed "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

The SPEAG device holder was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

4.5 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528. All tests were carried out using simulants whose dielectric parameters were within $\pm 10\%$ below 3GHz and $\pm 5\%$ above 3GHz of the recommended values when use DASY system according to KDB865664D01. All tests were carried out within 24 hours of measuring the dielectric parameters.

Tissue Stimulant Recipes	
Name	Broadband tissue-equivalent liquid
Type	HBBL600-6000V6 Simulating Liquid
Note: The stimulant could be the same for head and body.	

4.6 DESCRIPTION OF THE TEST PROCEDURE

4.6.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.



Device holder supplied by SPEAG

4.6.2 Test Exposure Conditions

4.6.2.1 Head Configuration

Measurements were made in “cheek” and “tilt” positions on both the left hand and right-hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 "IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

4.6.2.2 Body Worn Configuration

The device was placed in the SPEAG holder below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance using a separate flat spacer that was removed before the start of the measurements. And the distance is normally determined according to the actual scene which might be the worst use condition for general exposure. The device's front and rear were oriented facing the phantom since these orientations give higher results for most regular portable devices.

4.6.2.3 Hotspot Configuration

Hotspot mode SAR is measured for all edges and surfaces of the device with a transmitting antenna located within 25 mm from that surface or edge; for the data modes, wireless technologies and frequency bands supporting hotspot mode.

4.6.3 Scan Procedure

First, area scans were used for determination of the field distribution and the approximate location of the local peak SAR values. The SAR distribution is scanned along the inside surface, at least for an area larger than the projection of the handset and antenna. The angle between the probe axis and the surface normal line is recommended but not required to be less than 30°. The SAR distribution is first measured on a 2-D coarse grid. The scan region should cover all areas that are exposed and encompassed by the projection of the handset. There are 15 mm x 15 mm (equal or less than 2GHz), 12 mm x 12 mm (from 2GHz~4GHz) and 10mm x 10mm (from 4GHz~6GHz) measurement grid used when two staggered one-dimensional cubic splines are used to estimate the maximum SAR location.

When the reported 1g-SAR estimated by area scan is less than 1.40 w/kg.

Zoom scan was performed by using the configuration mentioned below or more conservative scan area and step to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

Below 3GHz: 32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps

2GHz-3GHz: 32mmX32mmX30mm scan area with 8 mm X8 mm X5 mm steps

3GHz-4GHz: 28mmX28mmX28mm scan area with 7 mm X7 mm X4 mm steps

4GHz-5GHz: 25mmX25mmX24mm scan area with 5 mm X5 mm X3 mm steps

5GHz-6GHz: 25mmX25mmX22mm scan area with 5 mm X5 mm X2 mm steps

4.6.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within DASY5 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation of Large Sets of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A triradiate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighboring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.




5 RESULT SUMMAR

The maximum reported SAR values for Head/Body-Worn/Hotspot exposure conditions are given as follows. The device conforms to the requirements of the standard(s) when the maximum reported SAR value is less than or equal to the limit.

Standalone Transmission Summary(1g- SAR)						
Exposure Position	Frequency Band	SAR Result(W/kg)	Highest SAR Result(W/kg)		Limit(W/kg)	Result
Head	GSM 850	0.14	0.52			
	GSM 1900	0.06				
	WCDMA Band II	0.12				
	WCDMA Band IV	0.12				
	WCDMA Band V	0.09				
	LTE Band 2	0.12				
	LTE Band 4	0.13				
	LTE Band 5	0.09				
	LTE Band 7	0.28				
	LTE Band 26	0.12				
	LTE Band 66	0.13				
	BT/BLE	0.38				
	WLAN 2.4GHz	0.52				
Body-Worn (10mm Gap)	GSM 850	0.32	1.20	1.20	1.60	Pass
	GSM 1900	0.34				
	WCDMA Band II	0.68				
	WCDMA Band IV	0.69				
	WCDMA Band V	0.21				
	LTE Band 2	0.55				
	LTE Band 4	0.71				
	LTE Band 5	0.21				
	LTE Band 7	1.20				
	LTE Band 26	0.27				
	LTE Band 66	0.69				
	BT/BLE	0.19				
	WLAN 2.4GHz	0.43				
Hotspot (10mm Gap)	GSM 850	0.32	1.20			
	GSM 1900	0.35				
	WCDMA Band II	0.68				
	WCDMA Band IV	0.90				
	WCDMA Band V	0.21				
	LTE Band 2	0.66				
	LTE Band 4	0.98				
	LTE Band 5	0.21				
	LTE Band 7	1.20				
	LTE Band 26	0.27				
	LTE Band 66	0.95				
	BT/BLE	0.19				
	WLAN 2.4GHz	0.43				

Simultaneous Transmission Summary

Simultaneous Transmission Summary(1g- SAR)					
Exposure Position	Frequency Band	SAR Result(W/kg)	Highest SAR Result(W/kg)	Limit(W/kg)	Result
Head	WWAN+WLAN/BT	0.80	1.35	1.60	Pass
Body-Worn	WWAN+WLAN/BT	1.35			
Hotspot	WWAN+WLAN/BT	1.35			

This Test Report Is Approved by: Mr. Peng Zhen 	Review by: Mr. Li Bin 
Tested and issued by: Mr. Chang Tianyu 	Approved date: 2020/10/28

6 TEST RESULT

6.1 Average conducted power and tune up

Average conducted power GSM

GSM850

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)	Frame average power(dBm)
824.2	128	33.26	24.23
836.4	189	33.31	24.28
848.8	251	33.25	24.22

GPRS/EGPRS (GMSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)	Frame average power(dBm)
824.2	128	4Downlink1uplink	33.25	24.22
836.4	189		33.31	24.28
848.8	251		33.25	24.22
824.2	128	3Downlink2uplink	31.31	25.29
836.4	189		31.22	25.20
848.8	251		31.13	25.11
824.2	128	2Downlink3uplink	29.36	25.10
836.4	189		29.31	25.05
848.8	251		29.21	24.95
824.2	128	1Downlink4uplink	27.23	24.22
836.4	189		27.18	24.17
848.8	251		27.12	24.11

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)	Frame average power(dBm)
824.2	128	8PSK 4Downlink1uplink	26.39	17.36
836.4	189		26.93	17.90
848.8	251		26.86	17.83
824.2	128	8PSK 3Downlink2uplink	26.31	20.29
836.4	189		26.72	20.70
848.8	251		26.69	20.67
824.2	128	8PSK 2Downlink3uplink	25.15	20.89
836.4	189		25.66	21.40
848.8	251		25.57	21.31
824.2	128	8PSK 1Downlink4uplink	22.61	19.60
836.4	189		23.24	20.23
848.8	251		23.05	20.04

PCS1900

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)	Frame average power(dBm)
1850.2	512	29.73	20.70
1880.0	661	29.77	20.74
1909.8	810	29.78	20.75

GPRS/EGPRS (GMSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)	Frame average power(dBm)
1850.2	512	4Downlink1uplink	29.75	20.72
1880.0	661		29.78	20.75
1909.8	810		29.79	20.76
1850.2	512	3Downlink2uplink	27.78	21.76
1880.0	661		27.60	21.58
1909.8	810		27.34	21.32
1850.2	512	2Downlink3uplink	26.24	21.98
1880.0	661		26.04	21.78
1909.8	810		25.75	21.49
1850.2	512	1Downlink4uplink	24.08	21.07
1880.0	661		23.89	20.88
1909.8	810		23.60	20.59

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	RF Power Output (dBm)	Frame average power(dBm)
1850.2	512	8PSK 4Downlink1uplink	26.27	17.24
1880.0	661		26.91	17.88
1909.8	810		26.42	17.39
1850.2	512	8PSK 3Downlink2uplink	26.11	20.09
1880.0	661		26.73	20.71
1909.8	810		26.16	20.14
1850.2	512	8PSK 2Downlink3uplink	23.98	19.72
1880.0	661		24.73	20.47
1909.8	810		24.11	19.85
1850.2	512	8PSK 1Downlink4uplink	20.54	17.53
1880.0	661		21.83	18.82
1909.8	810		21.06	18.05

Division Factors (for Measured Power and Frame Average Power):

To average the power, the division factor is as follows:

1TX-slot (1uplink) = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots(2uplink) = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots (3uplink) = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots (4uplink) = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the frame average conducted power, Body-worn SAR measurements are performed with **2Txslots (2uplink)** of GMSK for GPRS850 and **3Txslots (3uplink)** for GPRS1900.

WCDMA

Release 99

The following procedures are according to FCC KDB Publication 941225 D01.

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	RMC mode AMR mode	12.2kbps RMC 12.2kbps RMC in 3.4 kbps SRB
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

Release 5

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	CM(dB) ⁽²⁾
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15 ⁽³⁾	15/15 ⁽³⁾	64	12/15 ⁽³⁾	24/15	1.0
3	15/15	8/15	64	15/18	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

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

Note2: CM=1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$.

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 signaled gain factors for the reference TFC(TF1,TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

Release 6

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

Sub-test	β_c	β_d	β_d (S F)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (S F)	β_{ed} (code s)	CM ⁽²⁾ (dB)	MP R (dB)	AG ⁽⁴⁾ Index	E-TF CI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/25	1039/25	4	1	1.0	2.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	4	2	2.0	2.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	2.0	21	81

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

Note2: CM=1 for $\beta_c/\beta_d = 12/15, \beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note3: 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 signaled gain factors for the reference TFC(TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note4: 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 signaled gain factors for the reference TFC(TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

NOTE5: Testing UE using E-DPDCH Physical layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

NOTE6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

WCDMA band II

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
Release 99	RMC,12.2kbps	1852.4	9262	23.86
		1880.0	9400	23.88
		1907.6	9538	23.93
HSDPA	Subtest 1	1852.4	9262	22.28
		1880.0	9400	22.34
		1907.6	9538	22.35
	Subtest 2	1852.4	9262	22.32
		1880.0	9400	22.35
		1907.6	9538	22.37
	Subtest 3	1852.4	9262	22.28
		1880.0	9400	22.36
		1907.6	9538	22.39
	Subtest 4	1852.4	9262	22.31
		1880.0	9400	22.32
		1907.6	9538	22.39
HSUPA	Subtest 1	1852.4	9262	22.29
		1880.0	9400	22.35
		1907.6	9538	22.37
	Subtest 2	1852.4	9262	22.31
		1880.0	9400	22.32
		1907.6	9538	22.36
	Subtest 3	1852.4	9262	22.27
		1880.0	9400	22.37
		1907.6	9538	22.41
	Subtest 4	1852.4	9262	22.28
		1880.0	9400	22.36
		1907.6	9538	22.35
	Subtest 5	1852.4	9262	22.26
		1880.0	9400	22.38
		1907.6	9538	22.37

WCDMA band IV

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
Release 99	RMC, 12.2kbps	1712.4	1312	23.94
		1732.4	1412	23.90
		1752.6	1513	23.94
HSDPA	Subtest 1	1712.4	1312	22.37
		1732.4	1412	22.31
		1752.6	1513	22.36
	Subtest 2	1712.4	1312	22.42
		1732.4	1412	22.38
		1752.6	1513	22.37
	Subtest 3	1712.4	1312	22.43
		1732.4	1412	22.31
		1752.6	1513	22.44
	Subtest 4	1712.4	1312	22.40
		1732.4	1412	22.37
		1752.6	1513	22.39
HSUPA	Subtest 1	1712.4	1312	22.43
		1732.4	1412	22.39
		1752.6	1513	22.41
	Subtest 2	1712.4	1312	22.34
		1732.4	1412	22.38
		1752.6	1513	22.35
	Subtest 3	1712.4	1312	22.41
		1732.4	1412	22.40
		1752.6	1513	22.38
	Subtest 4	1712.4	1312	22.42
		1732.4	1412	22.30
		1752.6	1513	22.42
	Subtest 5	1712.4	1312	22.39
		1732.4	1412	22.33
		1752.6	1513	22.36

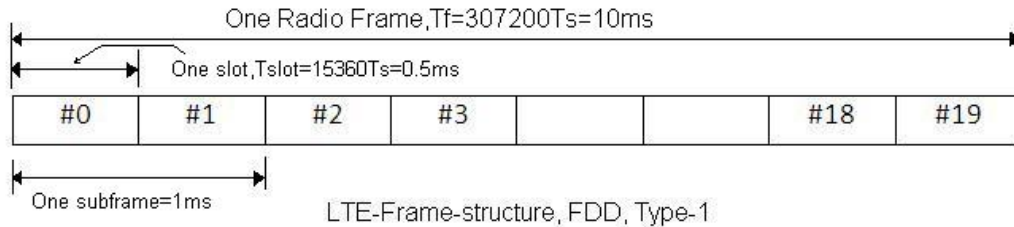
WCDMA band V

Mode		Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
Release 99	RMC, 12.2kbps	826.4	4132	24.12
		836.6	4183	24.18
		846.6	4233	24.13
HSDPA	Subtest 1	826.4	4132	22.56
		836.6	4183	22.65
		846.6	4233	22.63
	Subtest 2	826.4	4132	22.60
		836.6	4183	22.68
		846.6	4233	22.61
	Subtest 3	826.4	4132	22.58
		836.6	4183	22.61
		846.6	4233	22.54
	Subtest 4	826.4	4132	22.61
		836.6	4183	22.65
		846.6	4233	22.53
HSUPA	Subtest 1	826.4	4132	22.57
		836.6	4183	22.58
		846.6	4233	22.59
	Subtest 2	826.4	4132	22.59
		836.6	4183	22.61
		846.6	4233	22.62
	Subtest 3	826.4	4132	22.58
		836.6	4183	22.63
		846.6	4233	22.61
	Subtest 4	826.4	4132	22.59
		836.6	4183	22.58
		846.6	4233	22.58
	Subtest 5	826.4	4132	22.54
		836.6	4183	22.58
		846.6	4233	22.53

Note: UMTS SAR was tested under Rel.99 RMC 12.2kbps mode per KDB Publication 941225 D01. for other higher release configuration, SAR was not required since any average output power was not more than 0.25 dB higher than the RMC level.

LTE

**General description:
 FDD-LTE frame structure**



Type 1 is used as LTE FDD frame structure. As shown in the figure above, an LTE TDD frame is made of total 20 slots, each of 0.5ms. Two consecutive time slots will form one subframe. 10 such subframes form one radio frame. One subframe duration is about 1 ms. and the duty cycle is inherent as 100%

Band 2

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1850.7	18607	1.4	1	0	23.36
				1	5	23.24
				3	2	22.27
				6	0	22.45
	1880	18900		1	0	23.50
				1	5	23.37
				3	2	22.37
				6	0	22.25
	1909.3	19193		1	0	23.34
				1	5	23.29
				3	2	22.37
				6	0	22.40
16QAM	1850.7	18607	1.4	1	0	22.67
				1	5	22.39
				3	2	21.50
				6	0	21.52
	1880	18900		1	0	22.55
				1	5	22.40
				3	2	21.44
				6	0	21.60
	1909.3	19193		1	0	22.95
				1	5	22.66
				3	2	21.37
				6	0	21.48
64QAM	1850.7	18607	1.4	1	0	22.53
				1	5	22.35
				3	2	21.46
				6	0	21.56
	1880	18900		1	0	22.46
				1	5	22.43
				3	2	21.37
				6	0	21.44
	1909.3	19193		1	0	22.75
				1	5	22.69
				3	2	21.36
				6	0	21.32

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1851.5	18615	3	1	0	23.46
				1	14	23.34
				8	4	22.35
				15	0	22.48
	1880	18900		1	0	23.51
				1	14	23.46
				8	4	22.41
				15	0	22.32
	1908.5	19185		1	0	23.36
				1	14	23.19
				8	4	22.44
				15	0	22.42
16QAM	1851.5	18615	3	1	0	22.59
				1	14	22.41
				8	4	21.49
				15	0	21.44
	1880	18900		1	0	22.49
				1	14	22.48
				8	4	21.55
				15	0	21.50
	1908.5	19185		1	0	22.86
				1	14	22.73
				8	4	21.49
				15	0	21.49
64QAM	1851.5	18615	3	1	0	22.61
				1	14	22.36
				8	4	21.38
				15	0	21.51
	1880	18900		1	0	22.44
				1	14	22.50
				8	4	21.44
				15	0	21.45
	1908.5	19185		1	0	22.81
				1	14	22.70
				8	4	21.39
				15	0	21.44

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1852.5	18625	5	1	0	23.39
				1	24	23.36
				12	6	22.29
				25	0	22.44
	1880	18900		1	0	23.43
				1	24	23.42
				12	6	22.41
				25	0	22.29
	1907.5	19175		1	0	23.37
				1	24	23.20
				12	6	22.37
				25	0	22.39
16QAM	1852.5	18625	5	1	0	22.54
				1	24	22.37
				12	6	21.50
				25	0	21.52
	1880	18900		1	0	22.44
				1	24	22.55
				12	6	21.53
				25	0	21.61
	1907.5	19175		1	0	22.90
				1	24	22.65
				12	6	21.49
				25	0	21.51
64QAM	1852.5	18625	5	1	0	22.59
				1	24	22.31
				12	6	21.48
				25	0	21.45
	1880	18900		1	0	22.43
				1	24	22.46
				12	6	21.40
				25	0	21.48
	1907.5	19175		1	0	22.86
				1	24	22.68
				12	6	21.43
				25	0	21.36

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1855	18650	10	1	0	23.50
				1	49	23.35
				24	12	22.34
				50	0	22.48
	1880	18900		1	0	23.49
				1	49	23.46
				24	12	22.38
				50	0	22.29
	1905	19150		1	0	23.40
				1	49	23.31
				24	12	22.42
				50	0	22.30
16QAM	1855	18650	10	1	0	22.55
				1	49	22.33
				24	12	21.53
				50	0	21.46
	1880	18900		1	0	22.51
				1	49	22.53
				24	12	21.41
				50	0	21.57
	1905	19150		1	0	22.90
				1	49	22.70
				24	12	21.46
				50	0	21.46
64QAM	1855	18650	10	1	0	22.61
				1	49	22.36
				24	12	21.47
				50	0	21.51
	1880	18900		1	0	22.43
				1	49	22.42
				24	12	21.45
				50	0	21.45
	1905	19150		1	0	22.82
				1	49	22.74
				24	12	21.35
				50	0	21.32

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1857.5	18675	15	1	0	23.45
				1	74	23.37
				40	18	22.24
				75	0	22.52
	1880	18900		1	0	23.52
				1	74	23.48
				40	18	22.33
				75	0	22.29
	1902.5	19125		1	0	23.37
				1	74	23.19
				40	18	22.38
				75	0	22.32
16QAM	1857.5	18675	15	1	0	22.58
				1	74	22.36
				40	18	21.51
				75	0	21.56
	1880	18900		1	0	22.56
				1	74	22.55
				40	18	21.41
				75	0	21.52
	1902.5	19125		1	0	22.92
				1	74	22.78
				40	18	21.40
				75	0	21.53
64QAM	1857.5	18675	15	1	0	22.57
				1	74	22.29
				40	18	21.44
				75	0	21.42
	1880	18900		1	0	22.53
				1	74	22.51
				40	18	21.45
				75	0	21.41
	1902.5	19125		1	0	22.86
				1	74	22.74
				40	18	21.36
				75	0	21.34

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1860	18700	20	1	0	23.51
				1	99	23.37
				50	25	22.39
				100	0	22.52
	1880	18900		1	0	23.57
				1	99	23.52
				50	25	22.42
				100	0	22.39
	1900	19100		1	0	23.43
				1	99	23.32
				50	25	22.48
				100	0	22.42
16QAM	1860	18700	20	1	0	22.69
				1	99	22.48
				50	25	21.59
				100	0	21.57
	1880	18900		1	0	22.57
				1	99	22.55
				50	25	21.56
				100	0	21.62
	1900	19100		1	0	22.95
				1	99	22.79
				50	25	21.52
				100	0	21.58
64QAM	1860	18700	20	1	0	22.67
				1	99	22.43
				50	25	21.52
				100	0	21.56
	1880	18900		1	0	22.56
				1	99	22.52
				50	25	21.47
				100	0	21.53
	1900	19100		1	0	22.86
				1	99	22.78
				50	25	21.49
				100	0	21.46

Band 4

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1710.7	19957	1.4	1	0	24.11
				1	5	23.62
				3	2	23.07
				6	0	22.49
	1732.5	20175		1	0	23.90
				1	5	23.56
				3	2	22.50
				6	0	22.70
	1754.3	20393		1	0	23.65
				1	5	23.53
				3	2	22.51
				6	0	22.52
16QAM	1710.7	19957	1.4	1	0	23.65
				1	5	23.15
				3	2	22.08
				6	0	21.52
	1732.5	20175		1	0	23.26
				1	5	23.07
				3	2	21.66
				6	0	21.84
	1754.3	20393		1	0	23.46
				1	5	23.33
				3	2	21.78
				6	0	21.58
64QAM	1710.7	19957	1.4	1	0	23.60
				1	5	23.12
				3	2	22.22
				6	0	21.60
	1732.5	20175		1	0	23.10
				1	5	23.11
				3	2	21.60
				6	0	21.71
	1754.3	20393		1	0	23.27
				1	5	23.25
				3	2	21.75
				6	0	21.58

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1711.5	19965	3	1	0	24.16
				1	14	23.67
				8	4	23.01
				15	0	22.43
	1732.5	20175		1	0	23.91
				1	14	23.63
				8	4	22.49
				15	0	22.63
	1753.5	20385		1	0	23.67
				1	14	23.60
				8	4	22.47
				15	0	22.51
16QAM	1711.5	19965	3	1	0	23.62
				1	14	23.18
				8	4	22.07
				15	0	21.57
	1732.5	20175		1	0	23.29
				1	14	23.09
				8	4	21.70
				15	0	21.75
	1753.5	20385		1	0	23.46
				1	14	23.35
				8	4	21.70
				15	0	21.49
64QAM	1711.5	19965	3	1	0	23.53
				1	14	23.18
				8	4	22.19
				15	0	21.62
	1732.5	20175		1	0	23.07
				1	14	23.01
				8	4	21.63
				15	0	21.62
	1753.5	20385		1	0	23.24
				1	14	23.28
				8	4	21.71
				15	0	21.62

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1712.5	19975	5	1	0	24.08
				1	24	23.66
				12	6	23.02
				25	0	22.53
	1732.5	20175		1	0	23.96
				1	24	23.56
				12	6	22.59
				25	0	22.60
	1752.5	20375		1	0	23.61
				1	24	23.52
				12	6	22.50
				25	0	22.47
16QAM	1712.5	19975	5	1	0	23.58
				1	24	23.18
				12	6	22.10
				25	0	21.48
	1732.5	20175		1	0	23.28
				1	24	23.07
				12	6	21.59
				25	0	21.81
	1752.5	20375		1	0	23.40
				1	24	23.34
				12	6	21.74
				25	0	21.63
64QAM	1712.5	19975	5	1	0	23.62
				1	24	23.18
				12	6	22.10
				25	0	21.58
	1732.5	20175		1	0	23.17
				1	24	22.97
				12	6	21.64
				25	0	21.60
	1752.5	20375		1	0	23.26
				1	24	23.29
				12	6	21.67
				25	0	21.66

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1715	20000	10	1	0	24.09
				1	49	23.71
				24	12	23.04
				50	0	22.53
	1732.5	20175		1	0	23.92
				1	49	23.64
				24	12	22.51
				50	0	22.71
	1750	20350		1	0	23.62
				1	49	23.58
				24	12	22.47
				50	0	22.53
16QAM	1715	20000	10	1	0	23.61
				1	49	23.15
				24	12	22.08
				50	0	21.58
	1732.5	20175		1	0	23.28
				1	49	23.09
				24	12	21.69
				50	0	21.88
	1750	20350		1	0	23.38
				1	49	23.33
				24	12	21.74
				50	0	21.54
64QAM	1715	20000	10	1	0	23.66
				1	49	23.12
				24	12	22.17
				50	0	21.58
	1732.5	20175		1	0	23.08
				1	49	23.02
				24	12	21.56
				50	0	21.66
	1750	20350		1	0	23.27
				1	49	23.21
				24	12	21.71
				50	0	21.69

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1717.5	20025	15	1	0	24.17
				1	74	23.63
				40	18	23.08
				75	0	22.46
	1732.5	20175		1	0	23.90
				1	74	23.56
				40	18	22.57
				75	0	22.63
	1747.5	20325		1	0	23.60
				1	74	23.57
				40	18	22.50
				75	0	22.54
16QAM	1717.5	20025	15	1	0	23.62
				1	74	23.11
				40	18	22.20
				75	0	21.49
	1732.5	20175		1	0	23.29
				1	74	23.05
				40	18	21.59
				75	0	21.79
	1747.5	20325		1	0	23.37
				1	74	23.37
				40	18	21.69
				75	0	21.55
64QAM	1717.5	20025	15	1	0	23.56
				1	74	23.17
				40	18	22.18
				75	0	21.59
	1732.5	20175		1	0	23.19
				1	74	23.02
				40	18	21.58
				75	0	21.62
	1747.5	20325		1	0	23.34
				1	74	23.21
				40	18	21.62
				75	0	21.65

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1720	20050	20	1	0	24.19
				1	99	23.73
				50	25	23.14
				100	0	22.57
	1732.5	20175		1	0	23.97
				1	99	23.68
				50	25	22.63
				100	0	22.71
	1745	20300		1	0	23.74
				1	99	23.64
				50	25	22.56
				100	0	22.61
16QAM	1720	20050	20	1	0	23.72
				1	99	23.24
				50	25	22.21
				100	0	21.59
	1732.5	20175		1	0	23.29
				1	99	23.14
				50	25	21.72
				100	0	21.89
	1745	20300		1	0	23.49
				1	99	23.37
				50	25	21.78
				100	0	21.64
64QAM	1720	20050	20	1	0	23.68
				1	99	23.21
				50	25	22.24
				100	0	21.63
	1732.5	20175		1	0	23.21
				1	99	23.12
				50	25	21.68
				100	0	21.74
	1745	20300		1	0	23.38
				1	99	23.32
				50	25	21.76
				100	0	21.69

Band 5

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	824.7	20407	1.4	1	0	23.97
				1	5	23.83
				3	2	22.91
				6	0	23.07
	836.5	20525		1	0	23.83
				1	5	24.03
				3	2	22.82
				6	0	22.88
	848.3	20643		1	0	23.86
				1	5	24.22
				3	2	22.74
				6	0	22.99
16QAM	824.7	20407	1.4	1	0	23.12
				1	5	23.26
				3	2	22.01
				6	0	22.19
	836.5	20525		1	0	23.16
				1	5	23.26
				3	2	22.01
				6	0	21.91
	848.3	20643		1	0	23.33
				1	5	23.55
				3	2	21.99
				6	0	21.81
64QAM	824.7	20407	1.4	1	0	22.87
				1	5	23.09
				3	2	23.10
				6	0	22.16
	836.5	20525		1	0	23.21
				1	5	23.23
				3	2	22.10
				6	0	21.94
	848.3	20643		1	0	23.27
				1	5	23.20
				3	2	22.01
				6	0	21.96

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	825.5	20415	3	1	0	23.90
				1	14	23.86
				8	4	22.92
				15	0	23.04
	836.5	20525		1	0	23.85
				1	14	23.98
				8	4	22.91
				15	0	22.86
	847.5	20635		1	0	23.88
				1	14	24.22
				8	4	22.69
				15	0	23.05
16QAM	825.5	20415	3	1	0	23.15
				1	14	23.31
				8	4	22.01
				15	0	22.12
	836.5	20525		1	0	23.12
				1	14	23.27
				8	4	21.92
				15	0	21.85
	847.5	20635		1	0	23.25
				1	14	23.64
				8	4	21.98
				15	0	21.83
64QAM	825.5	20415	3	1	0	22.78
				1	14	23.10
				8	4	23.19
				15	0	22.15
	836.5	20525		1	0	23.17
				1	14	23.17
				8	4	22.08
				15	0	21.94
	847.5	20635		1	0	23.17
				1	14	23.19
				8	4	22.03
				15	0	21.98

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	826.5	20425	5	1	0	23.99
				1	24	23.82
				12	6	22.82
				25	0	23.10
	836.5	20525		1	0	23.81
				1	24	24.01
				12	6	22.84
				25	0	22.94
	846.5	20625		1	0	23.94
				1	24	24.36
				12	6	22.69
				25	0	22.92
16QAM	826.5	20425	5	1	0	23.13
				1	24	23.30
				12	6	22.09
				25	0	22.20
	836.5	20525		1	0	23.24
				1	24	23.15
				12	6	21.94
				25	0	21.96
	846.5	20625		1	0	23.30
				1	24	23.63
				12	6	21.97
				25	0	21.83
64QAM	826.5	20425	5	1	0	22.86
				1	24	23.10
				12	6	23.17
				25	0	22.10
	836.5	20525		1	0	23.13
				1	24	23.21
				12	6	21.98
				25	0	22.03
	846.5	20625		1	0	23.23
				1	24	23.25
				12	6	21.98
				25	0	21.91

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	829	20450	10	1	0	24.02
				1	49	23.95
				24	12	22.94
				50	0	23.12
	836.5	20525		1	0	23.92
				1	49	24.11
				24	12	22.94
				50	0	22.96
	844	20600		1	0	23.98
				1	49	24.36
				24	12	22.83
				50	0	23.05
16QAM	829	20450	10	1	0	23.21
				1	49	23.32
				24	12	22.14
				50	0	22.24
	836.5	20525		1	0	23.26
				1	49	23.28
				24	12	22.04
				50	0	21.97
	844	20600		1	0	23.34
				1	49	23.65
				24	12	22.01
				50	0	21.91
64QAM	829	20450	10	1	0	22.87
				1	49	23.21
				24	12	23.19
				50	0	22.19
	836.5	20525		1	0	23.27
				1	49	23.31
				24	12	22.13
				50	0	22.06
	844	20600		1	0	23.32
				1	49	23.27
				24	12	22.12
				50	0	22.03

Band 7

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	2502.5	20775	5	1	0	22.23
				1	24	22.26
				12	6	21.16
				25	0	21.18
	2535	21100		1	0	21.96
				1	24	22.11
				12	6	21.19
				25	0	21.02
	2567.5	21425		1	0	21.71
				1	24	21.72
				12	6	20.92
				25	0	20.78
16QAM	2502.5	20775	5	1	0	21.31
				1	24	21.30
				12	6	20.34
				25	0	20.32
	2535	21100		1	0	21.50
				1	24	21.56
				12	6	20.31
				25	0	20.24
	2567.5	21425		1	0	21.52
				1	24	21.41
				12	6	19.94
				25	0	19.95
64QAM	2502.5	20775	5	1	0	21.21
				1	24	21.15
				12	6	20.23
				25	0	20.28
	2535	21100		1	0	21.42
				1	24	21.41
				12	6	20.32
				25	0	20.23
	2567.5	21425		1	0	21.42
				1	24	21.44
				12	6	19.94
				25	0	19.91

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	2505	20800	10	1	0	22.19
				1	49	22.28
				24	12	21.21
				50	0	21.18
	2535	21100		1	0	21.95
				1	49	22.01
				24	12	21.12
				50	0	21.12
	2565	21400		1	0	21.82
				1	49	21.69
				24	12	20.91
				50	0	20.75
16QAM	2505	20800	10	1	0	21.24
				1	49	21.39
				24	12	20.33
				50	0	20.33
	2535	21100		1	0	21.39
				1	49	21.53
				24	12	20.19
				50	0	20.28
	2565	21400		1	0	21.47
				1	49	21.47
				24	12	19.94
				50	0	19.86
64QAM	2505	20800	10	1	0	21.23
				1	49	21.19
				24	12	20.29
				50	0	20.27
	2535	21100		1	0	21.52
				1	49	21.38
				24	12	20.28
				50	0	20.25
	2565	21400		1	0	21.44
				1	49	21.37
				24	12	19.97
				50	0	19.87

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	2507.5	20825	15	1	0	22.20
				1	74	22.34
				40	18	21.22
				75	0	21.19
	2535	21100		1	0	21.96
				1	74	22.05
				40	18	21.18
				75	0	21.04
	2562.5	21375		1	0	21.82
				1	74	21.78
				40	18	20.90
				75	0	20.72
16QAM	2507.5	20825	15	1	0	21.23
				1	74	21.39
				40	18	20.33
				75	0	20.35
	2535	21100		1	0	21.44
				1	74	21.45
				40	18	20.26
				75	0	20.23
	2562.5	21375		1	0	21.54
				1	74	21.47
				40	18	20.00
				75	0	19.82
64QAM	2507.5	20825	15	1	0	21.17
				1	74	21.26
				40	18	20.24
				75	0	20.30
	2535	21100		1	0	21.42
				1	74	21.35
				40	18	20.27
				75	0	20.26
	2562.5	21375		1	0	21.44
				1	74	21.41
				40	18	19.91
				75	0	19.86

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	2510	20850	20	1	0	22.26
				1	99	22.41
				50	25	21.30
				100	0	21.27
	2535	21100		1	0	22.04
				1	99	22.15
				50	25	21.24
				100	0	21.16
	2560	21350		1	0	21.83
				1	99	21.81
				50	25	20.94
				100	0	20.86
16QAM	2510	20850	20	1	0	21.31
				1	99	21.43
				50	25	20.41
				100	0	20.44
	2535	21100		1	0	21.54
				1	99	21.57
				50	25	20.33
				100	0	20.34
	2560	21350		1	0	21.56
				1	99	21.55
				50	25	20.04
				100	0	19.95
64QAM	2510	20850	20	1	0	21.32
				1	99	21.28
				50	25	20.37
				100	0	20.36
	2535	21100		1	0	21.56
				1	99	21.49
				50	25	20.32
				100	0	20.29
	2560	21350		1	0	21.47
				1	99	21.46
				50	25	19.98
				100	0	19.96

Band 26 (824~849MHz)

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	824.7	26797	1.4	1	0	24.53
				1	5	24.50
				3	2	23.64
				6	0	23.61
	836.5	26915		1	0	24.47
				1	5	24.49
				3	2	23.69
				6	0	23.52
	848.3	27033		1	0	24.66
				1	5	24.43
				3	2	23.47
				6	0	23.56
16QAM	824.7	26797	1.4	1	0	24.20
				1	5	24.24
				3	2	22.60
				6	0	22.65
	836.5	26915		1	0	24.28
				1	5	24.23
				3	2	22.70
				6	0	22.56
	848.3	27033		1	0	24.28
				1	5	24.13
				3	2	22.71
				6	0	22.64
64QAM	824.7	26797	1.4	1	0	24.12
				1	5	24.27
				3	2	22.66
				6	0	22.60
	836.5	26915		1	0	24.27
				1	5	24.14
				3	2	22.61
				6	0	22.54
	848.3	27033		1	0	24.23
				1	5	24.12
				3	2	22.70
				6	0	22.54

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	825.5	26805	3	1	0	24.55
				1	14	24.55
				8	4	23.62
				15	0	23.66
	836.5	26915		1	0	24.51
				1	14	24.45
				8	4	23.63
				15	0	23.54
	847.5	27025		1	0	24.64
				1	14	24.44
				8	4	23.61
				15	0	23.61
16QAM	825.5	26805	3	1	0	24.15
				1	14	24.25
				8	4	22.61
				15	0	22.57
	836.5	26915		1	0	24.27
				1	14	24.20
				8	4	22.60
				15	0	22.53
	847.5	27025		1	0	24.38
				1	14	24.19
				8	4	22.72
				15	0	22.55
64QAM	825.5	26805	3	1	0	24.17
				1	14	24.22
				8	4	22.70
				15	0	22.52
	836.5	26915		1	0	24.31
				1	14	24.09
				8	4	22.66
				15	0	22.57
	847.5	27025		1	0	24.28
				1	14	24.21
				8	4	22.68
				15	0	22.56

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	826.5	26815	5	1	0	24.51
				1	24	24.60
				12	6	23.72
				25	0	23.67
	836.5	26915		1	0	24.52
				1	24	24.41
				12	6	23.64
				25	0	23.56
	846.5	27015		1	0	24.59
				1	24	24.46
				12	6	23.46
				25	0	23.68
16QAM	826.5	26815	5	1	0	24.24
				1	24	24.18
				12	6	22.72
				25	0	22.56
	836.5	26915		1	0	24.31
				1	24	24.16
				12	6	22.59
				25	0	22.59
	846.5	27015		1	0	24.33
				1	24	24.20
				12	6	22.68
				25	0	22.65
64QAM	826.5	26815	5	1	0	24.12
				1	24	24.15
				12	6	22.60
				25	0	22.54
	836.5	26915		1	0	24.22
				1	24	24.21
				12	6	22.68
				25	0	22.62
	846.5	27015		1	0	24.25
				1	24	24.09
				12	6	22.59
				25	0	22.54

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	829	26840	10	1	0	24.55
				1	49	24.53
				24	12	23.66
				50	0	23.59
	836.5	26915		1	0	24.56
				1	49	24.49
				24	12	23.64
				50	0	23.63
	844	26990		1	0	24.58
				1	49	24.47
				24	12	23.52
				50	0	23.59
16QAM	829	26840	10	1	0	24.17
				1	49	24.21
				24	12	22.64
				50	0	22.67
	836.5	26915		1	0	24.31
				1	49	24.19
				24	12	22.58
				50	0	22.63
	844	26990		1	0	24.32
				1	49	24.21
				24	12	22.69
				50	0	22.55
64QAM	829	26840	10	1	0	24.18
				1	49	24.15
				24	12	22.71
				50	0	22.61
	836.5	26915		1	0	24.19
				1	49	24.20
				24	12	22.70
				50	0	22.51
	844	26990		1	0	24.23
				1	49	24.11
				24	12	22.67
				50	0	22.55

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	831.5	26865	15	1	0	24.62
				1	74	24.63
				40	18	23.75
				75	0	23.72
	836.5	26915		1	0	24.60
				1	74	24.52
				40	18	23.69
				75	0	23.63
	841.5	26965		1	0	24.67
				1	74	24.51
				40	18	23.61
				75	0	23.71
16QAM	831.5	26865	15	1	0	24.27
				1	74	24.31
				40	18	22.74
				75	0	22.69
	836.5	26915		1	0	24.32
				1	74	24.29
				40	18	22.71
				75	0	22.68
	841.5	26965		1	0	24.39
				1	74	24.26
				40	18	22.76
				75	0	22.68
64QAM	831.5	26865	15	1	0	24.26
				1	74	24.28
				40	18	22.73
				75	0	22.65
	836.5	26915		1	0	24.31
				1	74	24.24
				40	18	22.73
				75	0	22.63
	841.5	26965		1	0	24.35
				1	74	24.24
				40	18	22.71
				75	0	22.62

Band 26 (814~824MHz)

Modulation	Carrier frequency (MHz)	UL Channel	B W	RB Size	RB Offset	Conducted power (dBm)
QPSK	814.7	26697	1.4	1	0	24.65
				1	5	24.60
				3	2	23.68
				6	0	23.73
	819	26740		1	0	24.66
				1	5	24.69
				3	2	23.60
				6	0	23.60
	823.3	26783		1	0	24.55
				1	5	24.48
				3	2	23.62
				6	0	23.49
16QAM	814.7	26697	1.4	1	0	22.83
				1	5	22.82
				3	2	22.73
				6	0	22.53
	819	26740		1	0	22.84
				1	5	22.67
				3	2	22.56
				6	0	22.47
	823.3	26783		1	0	22.74
				1	5	22.77
				3	2	22.58
				6	0	22.75
64QAM	814.7	26697	1.4	1	0	22.74
				1	5	22.80
				3	2	22.71
				6	0	22.61
	819	26740		1	0	22.74
				1	5	22.68
				3	2	22.40
				6	0	22.47
	823.3	26783		1	0	22.70
				1	5	22.80
				3	2	22.52
				6	0	22.76

Modulation	Carrier frequency (MHz)	UL Channel	B W	RB Size	RB Offset	Conducted power (dBm)
QPSK	815.5	26705	3	1	0	24.70
				1	14	24.61
				8	4	23.71
				15	0	23.71
	819	26740		1	0	24.55
				1	14	24.60
				8	4	23.57
				15	0	23.72
	822.5	26775		1	0	24.51
				1	14	24.52
				8	4	23.71
				15	0	23.47
16QAM	815.5	26705	3	1	0	22.83
				1	14	22.90
				8	4	22.68
				15	0	22.58
	819	26740		1	0	22.79
				1	14	22.76
				8	4	22.54
				15	0	22.42
	822.5	26775		1	0	22.81
				1	14	22.79
				8	4	22.61
				15	0	22.73
64QAM	815.5	26705	3	1	0	22.82
				1	14	22.77
				8	4	22.66
				15	0	22.58
	819	26740		1	0	22.79
				1	14	22.67
				8	4	22.45
				15	0	22.39
	822.5	26775		1	0	22.73
				1	14	22.81
				8	4	22.52
				15	0	22.73

Modulation	Carrier frequency (MHz)	UL Channel	B W	RB Size	RB Offset	Conducted power (dBm)
QPSK	816.5	26715	5	1	0	24.77
				1	24	24.73
				12	6	23.73
				25	0	23.74
	819	26740		1	0	24.67
				1	24	24.69
				12	6	23.69
				25	0	23.73
	821.5	26765		1	0	24.65
				1	24	24.59
				12	6	23.71
				25	0	23.59
16QAM	816.5	26715	5	1	0	22.93
				1	24	22.91
				12	6	22.74
				25	0	22.68
	819	26740		1	0	22.86
				1	24	22.79
				12	6	22.58
				25	0	22.49
	821.5	26765		1	0	22.84
				1	24	22.86
				12	6	22.67
				25	0	22.81
64QAM	816.5	26715	5	1	0	22.87
				1	24	22.91
				12	6	22.72
				25	0	22.69
	819	26740		1	0	22.84
				1	24	22.73
				12	6	22.54
				25	0	22.47
	821.5	26765		1	0	22.82
				1	24	22.85
				12	6	22.62
				25	0	22.81

Modulation	Carrier frequency (MHz)	UL Channel	B W	RB Size	RB Offset	Conducted power (dBm)
QPSK	819	26740	10	1	0	24.67
				1	49	24.69
				24	12	23.69
				50	0	23.73
16QAM	819	26740	10	1	0	22.86
				1	49	22.79
				24	12	22.58
				50	0	22.49
64QAM	819	26740	10	1	0	22.84
				1	49	22.73
				24	12	22.54
				50	0	22.47

Band 66

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1710.7	131979	1.4	1	0	24.11
				1	5	23.73
				3	2	22.64
				6	0	22.53
	1745	132322		1	0	24.05
				1	5	24.03
				3	2	22.85
				6	0	22.70
	1779.3	132665		1	0	24.09
				1	5	24.05
				3	2	23.04
				6	0	22.98
16QAM	1710.7	131979	1.4	1	0	23.58
				1	5	23.67
				3	2	22.36
				6	0	21.68
	1745	132322		1	0	23.48
				1	5	23.50
				3	2	21.91
				6	0	21.92
	1779.3	132665		1	0	22.96
				1	5	23.11
				3	2	22.08
				6	0	22.03
64QAM	1710.7	131979	1.4	1	0	23.59
				1	5	23.58
				3	2	22.35
				6	0	21.56
	1745	132322		1	0	23.40
				1	5	23.57
				3	2	21.88
				6	0	21.86
	1779.3	132665		1	0	22.90
				1	5	23.06
				3	2	22.03
				6	0	22.10

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1711.5	131987	3	1	0	24.15
				1	14	23.71
				8	4	22.56
				15	0	22.58
	1745	132322		1	0	23.95
				1	14	23.97
				8	4	22.83
				15	0	22.70
	1778.5	132657		1	0	24.08
				1	14	24.15
				8	4	23.05
				15	0	22.96
16QAM	1711.5	131987	3	1	0	23.63
				1	14	23.68
				8	4	22.28
				15	0	21.66
	1745	132322		1	0	23.57
				1	14	23.57
				8	4	21.81
				15	0	21.83
	1778.5	132657		1	0	23.00
				1	14	23.05
				8	4	22.13
				15	0	22.10
64QAM	1711.5	131987	3	1	0	23.60
				1	14	23.64
				8	4	22.29
				15	0	21.64
	1745	132322		1	0	23.40
				1	14	23.51
				8	4	21.91
				15	0	21.84
	1778.5	132657		1	0	22.89
				1	14	23.07
				8	4	22.12
				15	0	22.06

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1712.5	131997	5	1	0	24.09
				1	24	23.77
				12	6	22.70
				25	0	22.51
	1745	132322		1	0	24.07
				1	24	24.10
				12	6	22.78
				25	0	22.67
	1777.5	132647		1	0	24.06
				1	24	24.20
				12	6	22.93
				25	0	23.01
16QAM	1712.5	131997	5	1	0	23.57
				1	24	23.63
				12	6	22.34
				25	0	21.59
	1745	132322		1	0	23.46
				1	24	23.50
				12	6	21.93
				25	0	21.92
	1777.5	132647		1	0	22.91
				1	24	22.99
				12	6	22.14
				25	0	22.05
64QAM	1712.5	131997	5	1	0	23.51
				1	24	23.63
				12	6	22.43
				25	0	21.62
	1745	132322		1	0	23.39
				1	24	23.59
				12	6	21.89
				25	0	21.94
	1777.5	132647		1	0	22.94
				1	24	23.00
				12	6	22.09
				25	0	22.10

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1715	132022	10	1	0	24.08
				1	49	23.69
				24	12	22.63
				50	0	22.57
	1745	132322		1	0	23.97
				1	49	24.05
				24	12	22.89
				50	0	22.63
	1775	132622		1	0	24.12
				1	49	24.17
				24	12	22.98
				50	0	23.07
16QAM	1715	132022	10	1	0	23.58
				1	49	23.62
				24	12	22.40
				50	0	21.62
	1745	132322		1	0	23.45
				1	49	23.52
				24	12	21.95
				50	0	21.91
	1775	132622		1	0	22.93
				1	49	23.08
				24	12	22.06
				50	0	22.14
64QAM	1715	132022	10	1	0	23.52
				1	49	23.70
				24	12	22.33
				50	0	21.70
	1745	132322		1	0	23.38
				1	49	23.63
				24	12	21.89
				50	0	21.93
	1775	132622		1	0	22.92
				1	49	23.05
				24	12	22.13
				50	0	22.02

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1717.5	132047	15	1	0	24.14
				1	74	23.72
				40	18	22.71
				75	0	22.55
	1745	132322		1	0	24.04
				1	74	24.11
				40	18	22.79
				75	0	22.73
	1772.5	132597		1	0	24.08
				1	74	24.12
				40	18	23.01
				75	0	23.08
16QAM	1717.5	132047	15	1	0	23.65
				1	74	23.64
				40	18	22.34
				75	0	21.68
	1745	132322		1	0	23.55
				1	74	23.56
				40	18	21.83
				75	0	21.90
	1772.5	132597		1	0	23.04
				1	74	23.03
				40	18	22.06
				75	0	22.04
64QAM	1717.5	132047	15	1	0	23.58
				1	74	23.63
				40	18	22.38
				75	0	21.70
	1745	132322		1	0	23.45
				1	74	23.61
				40	18	21.84
				75	0	21.94
	1772.5	132597		1	0	22.88
				1	74	23.05
				40	18	22.10
				75	0	22.12

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	1720	132072	20	1	0	24.17
				1	99	23.82
				50	25	22.71
				100	0	22.58
	1745	132322		1	0	24.09
				1	99	24.12
				50	25	22.91
				100	0	22.75
	1770	132572		1	0	24.18
				1	99	24.20
				50	25	23.07
				100	0	23.08
16QAM	1720	132072	20	1	0	23.68
				1	99	23.71
				50	25	22.41
				100	0	21.70
	1745	132322		1	0	23.59
				1	99	23.62
				50	25	21.95
				100	0	21.97
	1770	132572		1	0	23.05
				1	99	23.12
				50	25	22.15
				100	0	22.14
64QAM	1720	132072	20	1	0	23.65
				1	99	23.72
				50	25	22.43
				100	0	21.71
	1745	132322		1	0	23.52
				1	99	23.63
				50	25	21.94
				100	0	21.95
	1770	132572		1	0	23.03
				1	99	23.12
				50	25	22.14
				100	0	22.12

BT

Modulation type	Average Power Output (dBm)		
	2402MHz	2441MHz	2480MHz
GFSK	8.56	9.24	8.68
$\pi/4$ DQPSK	5.45	5.89	5.00
8DPSK	5.41	5.87	5.06

BLE

Modulation type	Average Power Output (dBm)		
	2402MHz (Ch0)	2440MHz (Ch19)	2480MHz (Ch39)
GFSK (LE 1Mbps)	5.69	6.54	6.44

WLAN 2.4GHz

Modulation type	Average power output (dBm)		
	2412MHz	2437MHz	2462MHz
11b	16.96	19.24	18.36
11g	13.59	18.16	17.75
11n HT20	14.58	17.06	15.54

Tune up

GSM850

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	Tune up (dBm)
824.2	128	33.5
836.4	189	
848.8	251	

GPRS/EGPRS (GMSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Tune up (dBm)
824.2	128	4Downlink1uplink	33.5
836.4	189		
848.8	251		
824.2	128	3Downlink2uplink	31.5
836.4	189		
848.8	251		
824.2	128	2Downlink3uplink	29.5
836.4	189		
848.8	251		
824.2	128	1Downlink4uplink	27.5
836.4	189		
848.8	251		

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Tune up (dBm)
824.2	128	8PSK 4Downlink1uplink	27
836.4	189		
848.8	251		
824.2	128	8PSK 3Downlink2uplink	27
836.4	189		
848.8	251		
824.2	128	8PSK 2Downlink3uplink	26
836.4	189		
848.8	251		
824.2	128	8PSK 1Downlink4uplink	23.5
836.4	189		
848.8	251		

PCS1900

GSM Measured Power:

Carrier frequency (MHz)	Channel No.	Tune up (dBm)
1850.2	512	30
1880	661	
1909.8	810	

GPRS/EGPRS (GMSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Tune up (dBm)
1850.2	512	4Downlink1uplink	30
1880	661		
1909.8	810		
1850.2	512	3Downlink2uplink	28
1880	661		
1909.8	810		
1850.2	512	2Downlink3uplink	26.5
1880	661		
1909.8	810		
1850.2	512	1Downlink4uplink	24.5
1880	661		
1909.8	810		

EGPRS (8PSK) Measured Power:

Carrier frequency (MHz)	Channel No.	TX Mode	Tune up (dBm)
1850.2	512	8PSK 4Downlink1uplink	27
1880	661		
1909.8	810		
1850.2	512	8PSK 3Downlink2uplink	27
1880	661		
1909.8	810		
1850.2	512	8PSK 2Downlink3uplink	25
1880	661		
1909.8	810		
1850.2	512	8PSK 1Downlink4uplink	22
1880	661		
1909.8	810		

WCDMA band II

Mode		Carrier frequency	Channel No.	Tune up
		(MHz)		(dBm)
Release 99	RMC,12.2kbps	1852.4	9262	24
		1880	9400	
		1907.6	9538	
HSDPA	Subtest 1	1852.4	9262	22.5
		1880	9400	
		1907.6	9538	
	Subtest 2	1852.4	9262	
		1880	9400	
		1907.6	9538	
	Subtest 3	1852.4	9262	
		1880	9400	
		1907.6	9538	
	Subtest 4	1852.4	9262	
		1880	9400	
		1907.6	9538	
HSUPA	Subtest 1	1852.4	9262	22.5
		1880	9400	
		1907.6	9538	
	Subtest 2	1852.4	9262	
		1880	9400	
		1907.6	9538	
	Subtest 3	1852.4	9262	
		1880	9400	
		1907.6	9538	
	Subtest 4	1852.4	9262	
		1880	9400	
		1907.6	9538	
	Subtest 5	1852.4	9262	
		1880	9400	
		1907.6	9538	

WCDMA band IV

Mode		Carrier frequency	Channel No.	Tune up
		(MHz)		(dBm)
Release 99	RMC,12.2kbps	1712.4	1312	24
		1732.4	1412	
		1752.6	1513	
HSDPA	Subtest 1	1712.4	1312	22.5
		1732.4	1412	
		1752.6	1513	
	Subtest 2	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
	Subtest 3	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
	Subtest 4	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
HSUPA	Subtest 1	1712.4	1312	22.5
		1732.4	1412	
		1752.6	1513	
	Subtest 2	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
	Subtest 3	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
	Subtest 4	1712.4	1312	
		1732.4	1412	
		1752.6	1513	
	Subtest 5	1712.4	1312	
		1732.4	1412	
		1752.6	1513	

WCDMA band V

Mode		Carrier frequency	Channel No.	Tune up
		(MHz)		(dBm)
Release 99	RMC,12.2kbps	826.4	4132	24.5
		836.6	4183	
		846.6	4233	
HSDPA	Subtest 1	826.4	4132	23
		836.6	4183	
		846.6	4233	
	Subtest 2	826.4	4132	
		836.6	4183	
		846.6	4233	
	Subtest 3	826.4	4132	
		836.6	4183	
		846.6	4233	
	Subtest 4	826.4	4132	
		836.6	4183	
		846.6	4233	
HSUPA	Subtest 1	826.4	4132	23
		836.6	4183	
		846.6	4233	
	Subtest 2	826.4	4132	
		836.6	4183	
		846.6	4233	
	Subtest 3	826.4	4132	
		836.6	4183	
		846.6	4233	
	Subtest 4	826.4	4132	
		836.6	4183	
		846.6	4233	
	Subtest 5	826.4	4132	
		836.6	4183	
		846.6	4233	

LTE

Note: RB allocation mentioned below is for all Bandwidths, and the Frequency Range are divided to 3 ranges (Low, Mid, High)

LTE Band 2

BW	Modulation	RB allocation with different offset	Frequency range	Tune up (dBm)
All Bandwidth	QPSK	1	Low	24.0
			Mid	
			High	
		50%	Low	22.5
			Mid	
			High	
		100%	Low	23.0
			Mid	
			High	
	16QAM	1	Low	23.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	23.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

LTE Band 4

BW	Modulation	RB allocation with different offset	Frequency range	Tune-up (dBm)
All Bandwidth	QPSK	1	Low	24.5
			Mid	
			High	
		50%	Low	23.5
			Mid	
			High	
		100%	Low	23.0
			Mid	
			High	
	16QAM	1	Low	24.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	24.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

LTE Band 5

BW	Modulation	RB allocation with different offset	Frequency range	Tune-up (dBm)
All Bandwidth	QPSK	1	Low	24.5
			Mid	
			High	
		50%	Low	23.0
			Mid	
			High	
		100%	Low	23.5
			Mid	
			High	
	16QAM	1	Low	23.5
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	23.5
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

LTE Band 7

BW	Modulation	RB allocation with different offset	Frequency range	Tune-up (dBm)
All Bandwidth	QPSK	1	Low	22.5
			Mid	
			High	
		50%	Low	21.5
			Mid	
			High	
		100%	Low	21.5
			Mid	
			High	
	16QAM	1	Low	22.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	22.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

LTE Band 26

BW	Modulation	RB allocation with different offset	Frequency range	Tune-up (dBm)
All Bandwidth	QPSK	1	Low	25.0
			Mid	
			High	
		50%	Low	24.0
			Mid	
			High	
		100%	Low	24.0
			Mid	
			High	
	16QAM	1	Low	24.5
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	24.5
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

LTE Band 66

BW	Modulation	RB allocation with different offset	Frequency range	Tune-up (dBm)
All Bandwidth	QPSK	1	Low	24.5
			Mid	
			High	
		50%	Low	23.5
			Mid	
			High	
		100%	Low	23.5
			Mid	
			High	
	16QAM	1	Low	24.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
		100%	Low	
			Mid	
			High	
	64QAM	1	Low	24.0
			Mid	
			High	
		50%	Low	
			Mid	
			High	
100%		Low		
		Mid		
		High		

Bluetooth

Modulation type	Tune-up (dBm)		
	2402MHz(Ch0)	2441MHz(Ch39)	2480MHz(Ch78)
GFSK	9.5		
$\pi/4$ DQPSK	6.0		
8DPSK	6.0		

Bluetooth (BLE)

Modulation type	Tune-up (dBm)		
	2402MHz (Ch0)	2440MHz (Ch19)	2480MHz (Ch39)
GFSK (LE 1Mbps)	7.0		

WLAN 2.4GHz

Modulation type	Tune-up (dBm)		
	2412MHz	2437MHz	2462MHz
11b	19.5		
11g	18.5		
11n HT20	17.5		

6.2 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Method1:

According to the KDB447498 4.3.1 (1)

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

This is equivalent to $[(\text{max. power of channel, including tune-up tolerance, mW}) / (60 / \sqrt{f} (\text{GHz}) \text{ mW})] \cdot [20 \text{ mm} / (\text{min. test separation distance, mm})] \leq 1.0$ for 1-g SAR; also see Appendix A for approximate exclusion threshold values at selected frequencies and distances.

Method2:

According to the KDB447498 appendix A

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	<i>SAR Test Exclusion Threshold (mW)</i>
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Summary of Transmitters

Band/Mode	Max conducted power adjusted for tune-up tolerance		Exposure condition	SAR test exclusion threshold (mW)	Standalone SAR Required
	dBm	mW			
BT/BLE	9.5	8.91	Head	10	No
			Body-worn/Hotspot	19	No
Wi-Fi 2.4GHz	19.5	89.1	Head	10	Yes
			Body-worn/Hotspot	19	Yes

6.3 RF exposure conditions

Refer to the follow picture “Antenna information” for the specific details of the antenna-to-antenna and antenna-to-edge(s) distances.



Note: we defined these position when we face the screen of EUT, the reason why we perform SAR test for these edges is that the structures of antennas is close to our body, and for the other edges do not necessary cause we already consider the worst case.

6.3.1 Head Exposure Conditions For WWAN

Test Configurations	SAR Required	Note
Left Touch	Yes	---
Left Tilt (15°)	Yes	
Right Touch	Yes	
Right Tilt (15°)	Yes	

For WLAN

Test Configurations	SAR Required	Note
Left Touch	Yes	---
Left Tilt (15°)	Yes	
Right Touch	Yes	
Right Tilt (15°)	Yes	

For BT/BLE

Test Configurations	SAR Required	Note
Left Touch	No	Excluded from SAR test
Left Tilt (15°)	No	
Right Touch	No	
Right Tilt (15°)	No	

6.3.2 Body Worn Exposure conditions

For WWAN

Test Configurations	SAR Required	Note
Back	Yes	---
Front	Yes	

For WLAN

Test Configurations	SAR Required	Note
Back	Yes	---
Front	Yes	

For BT/BLE

Test Configurations	SAR Required	Note
Back	No	Excluded from SAR test
Front	No	

6.3.3 Hotspot Exposure conditions For WWAN

Test Configurations	SAR Required	Antenna-to-edge(s) distances
Back	Yes*	<25mm
Front	Yes*	<25mm
Top	No	>25mm
Bottom	Yes	<25mm
Left	Yes	<25mm
Right	Yes	<25mm

For WLAN

Test Configurations	SAR Required	Antenna-to-edge(s) distances
Back	Yes*	<25mm
Front	Yes*	<25mm
Top	Yes	<25mm
Bottom	No	>25mm
Left	No	>25mm
Right	Yes	<25mm

For BT/BLE

Test Configurations	SAR Required	Antenna-to-edge(s) distances	Note
Back	No	<25mm	Excluded from SAR test(Product support "Bluetooth tethering" sharing internet connection via Bluetooth, that's a kind of hotspot mode)
Front	No	<25mm	
Top	No	<25mm	
Bottom	No	>25mm	
Left	No	>25mm	
Right	No	<25mm	

Note*: For hotspot mode, it's not necessary to retest Rear and Front position for bands which haven't "hotspot power reduction" scheme. Because we already test these positions in Body-worn Exposure condition with the same separation distance, So we adopt the data of body worn as hotspots mode.

6.4 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. For the measurement of the following parameters the SPEAG DAKS-3.5 dielectric parameter probe is used, representing the open-ended coaxial probe measurement procedure.

Date Tested	Freq. (MHz)	Liquid parameters	measured	Target	Delta (%)	Tolerance (%)
2020.10.26	835	ϵ_r	40.266	41.50	-2.97	± 10
		σ [S/m]	0.911	0.90	1.22	± 10
2020.10.09	1800	ϵ_r	40.688	40.00	1.72	± 10
		σ [S/m]	1.418	1.40	1.29	± 10
2020.10.22	2450	ϵ_r	38.343	39.20	-2.19	± 10
		σ [S/m]	1.866	1.80	3.67	± 10
2020.10.20	2600	ϵ_r	39.672	39.00	1.72	± 10
		σ [S/m]	1.951	1.96	-0.46	± 10

Note: For DASY system, the conservative tolerance 5% could expand to 10% when the frequency under 3GHz

A system check measurement was made following once the determination of the dielectric parameters of the simulant, using the dipole validation kit. The system checking results (dielectric parameters and SAR values) are given in the table below.

Date Tested	System dipole	SAR measured (normalized to 1W)		Target (Ref. Value)	Delta (%)	Tolerance (%)
2020.10.26	D835V3	1g	9.56	9.37	2.03	± 10
2020.10.09	D1800V2	1g	37.96	38.9	-2.42	± 10
2020.10.22	D2450V2	1g	54.00	52.4	3.05	± 10
2020.10.20	D2600V2	1g	56.40	56.6	-0.35	± 10

6.5 SAR TEST RESULT

In order to determine the largest value of the peak spatial-average SAR of a handset, all device positions, configurations, and operational modes should be tested for each frequency band according to Steps 1 to 3 below.

Step 1: The tests should be performed at the channel that is closest to the center of the transmit frequency band.

- a) All device positions (cheek and tilt, for both left and right sides of the SAM phantom),
- b) All configurations for each device position in a), e.g., antenna extended and retracted, and
- c) All operational modes for each device position in item a) and configuration in item b) in each frequency band, e.g., analog and digital, If more than three frequencies need to be tested (i.e., $N_c > 3$), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing the highest peak spatial-average SAR determined in Step 1 for each frequency, perform all tests at all other test frequency channels, e.g., lowest and highest frequencies. In addition, for all other conditions (device position, configuration, and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies should be tested as well.

Step 3: Examine all data to determine the largest value of the peak.

Note:

1. Per KDB 447498 D01v06, the reported SAR is the measured SAR value adjusted for maximum tune-up tolerance.

Scaling Factor = tune-up limit power (mW) / EUT RF power (mW), where tune-up limit is the maximum rated power among all production units.

Duty Factor = 1 / Duty Cycle(%)

For cellular network:

Reported SAR (W/kg) = Measured SAR (W/kg) * Scaling Factor

For WLAN

Reported SAR (W/kg) = Measured SAR (W/kg) * Scaling Factor * Duty factor

2. Per KDB 447498 D01v06, for each exposure position, if the highest output channel reported SAR ≤ 0.8 W/kg, other channels SAR testing are not necessary.

3. The distance between the EUT and the phantom bottom is 10mm.

Changed battery manufacture between 1st and 2nd supply .So we check the worst case of each exposure condition among all the frequency bands of secondary supply based on main supply.

Exposure condition	Worst case of 1 st supply	Check 2 nd supply
Head	WIIF2.4GHz	WIIF2.4GHz
Body-worn	LTE B7	LTE B7
Hotspot	LTE B7	LTE B7

Mode: GSM 850

fL(MHz)=824.2MHz

fM(MHz)=836.5MHz

fH(MHz)= 848.8MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
Mode	Exposure condition	Position	Channel				First	Second	First	Second
GPRS/EDGE GMSK 2slot	Head	Left touch	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.133	---	0.142	---
			H	31.13	31.50	1.09	---	---	---	---
		Left tilt	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.087	---	0.093	---
			H	31.13	31.50	1.09	---	---	---	---
		Right touch	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.068	---	0.073	---
			H	31.13	31.50	1.09	---	---	---	---
		Right tilt	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.042	---	0.045	---
			H	31.13	31.50	1.09	---	---	---	---
	Body-worn	Back	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.302	---	0.323	---
			H	31.13	31.50	1.09	---	---	---	---
		Front	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.165	---	0.177	---
			H	31.13	31.50	1.09	---	---	---	---
	Hotspot	Back	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.302	---	0.323	---
			H	31.13	31.50	1.09	---	---	---	---
		Front	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.165	---	0.177	---
			H	31.13	31.50	1.09	---	---	---	---
		Top	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	---	---	---	---
			H	31.13	31.50	1.09	---	---	---	---
		Bottom	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.163	---	0.174	---
			H	31.13	31.50	1.09	---	---	---	---
		Left	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.089	---	0.095	---
			H	31.13	31.50	1.09	---	---	---	---
		Right	L	31.31	31.50	1.04	---	---	---	---
			M	31.22	31.50	1.07	0.213	---	0.228	---
			H	31.13	31.50	1.09	---	---	---	---

Mode: GSM1900

fL (MHz)=1850.2MHz

fM (MHz)=1880.0MHz

fH (MHz)=1909.8MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)			
Mode	Exposure condition	Position	Channel				First	Second	First	Second		
GPRS/EDGE GMSK 3slot	Head	Left touch	L	26.24	26.50	1.06	---	---	---	---		
			M	26.04	26.50	1.11	0.052	---	0.057	---		
			H	25.75	26.50	1.19	---	---	---	---		
		Left tilt	L	26.24	26.50	1.06	---	---	---	---		
			M	26.04	26.50	1.11	0.030	---	0.033	---		
			H	25.75	26.50	1.19	---	---	---	---		
		Right touch	L	26.24	26.50	1.06	---	---	---	---		
			M	26.04	26.50	1.11	0.038	---	0.043	---		
			H	25.75	26.50	1.19	---	---	---	---		
		Right tilt	L	26.24	26.50	1.06	---	---	---	---		
			M	26.04	26.50	1.11	0.021	---	0.023	---		
			H	25.75	26.50	1.19	---	---	---	---		
		Body-worn	Back	L	26.24	26.50	1.06	---	---	---	---	
				M	26.04	26.50	1.11	0.305	---	0.339	---	
				H	25.75	26.50	1.19	---	---	---	---	
			Front	L	26.24	26.50	1.06	---	---	---	---	
				M	26.04	26.50	1.11	0.148	---	0.164	---	
				H	25.75	26.50	1.19	---	---	---	---	
			Hotspot	Back	L	26.24	26.50	1.06	---	---	---	---
					M	26.04	26.50	1.11	0.305	---	0.339	---
					H	25.75	26.50	1.19	---	---	---	---
				Front	L	26.24	26.50	1.06	---	---	---	---
					M	26.04	26.50	1.11	0.148	---	0.164	---
					H	25.75	26.50	1.19	---	---	---	---
	Top	L		26.24	26.50	1.06	---	---	---	---		
		M		26.04	26.50	1.11	---	---	---	---		
		H		25.75	26.50	1.19	---	---	---	---		
	Bottom	L		26.24	26.50	1.06	---	---	---	---		
		M		26.04	26.50	1.11	0.312	---	0.346	---		
		H		25.75	26.50	1.19	---	---	---	---		
	Left	L		26.24	26.50	1.06	---	---	---	---		
		M	26.04	26.50	1.11	0.088	---	0.098	---			
		H	25.75	26.50	1.19	---	---	---	---			
	Right	L	26.24	26.50	1.06	---	---	---	---			
		M	26.04	26.50	1.11	0.005	---	0.006	---			
		H	25.75	26.50	1.19	---	---	---	---			

Mode: WCDMA BAND II

fL (MHz)= 1852.4MHz fM (MHz)= 1880.0MHz fH (MHz)= 1907.6MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)			
Mode	Exposure condition	Position	Channel				First	Second	First	Second		
Rel.99	Head	Left touch	L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.117	---	0.121	---		
			H	23.93	24.00	1.02	---	---	---	---		
		Left tilt	L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.064	---	0.066	---		
			H	23.93	24.00	1.02	---	---	---	---		
		Right touch	L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.084	---	0.087	---		
			H	23.93	24.00	1.02	---	---	---	---		
		Right tilt	L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.048	---	0.049	---		
			H	23.93	24.00	1.02	---	---	---	---		
		Body-worn	Back	L	23.86	24.00	1.03	---	---	---	---	
				M	23.88	24.00	1.03	0.656	---	0.676	---	
				H	23.93	24.00	1.02	---	---	---	---	
			Front	L	23.86	24.00	1.03	---	---	---	---	
				M	23.88	24.00	1.03	0.334	---	0.344	---	
				H	23.93	24.00	1.02	---	---	---	---	
		Hotspot	Back	L	23.86	24.00	1.03	---	---	---	---	
				M	23.88	24.00	1.03	0.656	---	0.676	---	
				H	23.93	24.00	1.02	---	---	---	---	
				Front	L	23.86	24.00	1.03	---	---	---	---
					M	23.88	24.00	1.03	0.334	---	0.344	---
					H	23.93	24.00	1.02	---	---	---	---
	Top		L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	---	---	---	---		
			H	23.93	24.00	1.02	---	---	---	---		
	Bottom		L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.619	---	0.638	---		
			H	23.93	24.00	1.02	---	---	---	---		
	Left		L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.194	---	0.200	---		
			H	23.93	24.00	1.02	---	---	---	---		
	Right		L	23.86	24.00	1.03	---	---	---	---		
			M	23.88	24.00	1.03	0.085	---	0.088	---		
			H	23.93	24.00	1.02	---	---	---	---		

Mode: WCDMA BAND IV

fL (MHz)=1712.4MHz fM (MHz)=1732.4MHz fH (MHz)= 1752.6MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)			
Mode	Exposure condition	Position	Channel				First	Second	First	Second		
Rel.99	Head	Left touch	L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.115	---	0.117	---		
			H	23.94	24.00	1.01	---	---	---	---		
		Left tilt	L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.069	---	0.070	---		
			H	23.94	24.00	1.01	---	---	---	---		
		Right touch	L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.067	---	0.069	---		
			H	23.94	24.00	1.01	---	---	---	---		
		Right tilt	L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.036	---	0.037	---		
			H	23.94	24.00	1.01	---	---	---	---		
		Body-worn	Back	L	23.94	24.00	1.01	---	---	---	---	
				M	23.90	24.00	1.02	0.673	---	0.686	---	
				H	23.94	24.00	1.01	---	---	---	---	
			Front	L	23.94	24.00	1.01	---	---	---	---	
				M	23.90	24.00	1.02	0.458	---	0.467	---	
				H	23.94	24.00	1.01	---	---	---	---	
		Hotspot	Back	L	23.94	24.00	1.01	---	---	---	---	
				M	23.90	24.00	1.02	0.673	---	0.686	---	
				H	23.94	24.00	1.01	---	---	---	---	
				Front	L	23.94	24.00	1.01	---	---	---	---
					M	23.90	24.00	1.02	0.458	---	0.467	---
					H	23.94	24.00	1.01	---	---	---	---
	Top		L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	---	---	---	---		
			H	23.94	24.00	1.01	---	---	---	---		
	Bottom		L	23.94	24.00	1.01	0.875	0.872	0.884	0.881		
			M	23.90	24.00	1.02	0.881	0.880	0.899	0.898		
			H	23.94	24.00	1.01	0.878	0.871	0.887	0.880		
	Left		L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.165	---	0.168	---		
			H	23.94	24.00	1.01	---	---	---	---		
	Right		L	23.94	24.00	1.01	---	---	---	---		
			M	23.90	24.00	1.02	0.191	---	0.195	---		
			H	23.94	24.00	1.01	---	---	---	---		

Mode: LTE Band 2

fL (MHz)= 1860MHz

fM (MHz)= 1880MHz

fH (MHz)= 1900MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)		
Mode	Exposure condition	Position	Channel				First	Second	First	Second	
QPSK 1RB	Head	Left touch	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.112	---	0.123	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Left tilt	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.053	---	0.058	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Right touch	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.068	---	0.074	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Right tilt	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.033	---	0.036	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Body-worn	Back	L	23.51	24.00	1.12	---	---	---	---
				M	23.57	24.00	1.10	0.500	---	0.550	---
				H	23.43	24.00	1.14	---	---	---	---
			Front	L	23.51	24.00	1.12	---	---	---	---
				M	23.57	24.00	1.10	0.277	---	0.305	---
				H	23.43	24.00	1.14	---	---	---	---
	Hotspot	Back	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.500	---	0.550	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Front	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.277	---	0.305	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Top	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	---	---	---	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Bottom	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.604	---	0.664	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Left	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.173	---	0.190	---	
			H	23.43	24.00	1.14	---	---	---	---	
		Right	L	23.51	24.00	1.12	---	---	---	---	
			M	23.57	24.00	1.10	0.084	---	0.092	---	
			H	23.43	24.00	1.14	---	---	---	---	
QPSK 50%RB	Head	Left touch	L	22.39	22.50	1.03	---	---	---	---	
			M	22.42	22.50	1.02	0.082	---	0.084	---	
			H	22.48	22.50	1.00	---	---	---	---	

		Left tilt	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.042	---	0.043	---
			H	22.48	22.50	1.00	---	---	---	---
		Right touch	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.053	---	0.054	---
			H	22.48	22.50	1.00	---	---	---	---
		Right tilt	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.028	---	0.029	---
			H	22.48	22.50	1.00	---	---	---	---
	Body-worn	Back	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.405	---	0.413	---
			H	22.48	22.50	1.00	---	---	---	---
		Front	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.230	---	0.235	---
			H	22.48	22.50	1.00	---	---	---	---
	Hotspot	Back	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.405	---	0.413	---
			H	22.48	22.50	1.00	---	---	---	---
		Front	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.230	---	0.235	---
			H	22.48	22.50	1.00	---	---	---	---
		Top	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	---	---	---	---
			H	22.48	22.50	1.00	---	---	---	---
		Bottom	L	22.39	22.50	1.03	---	---	---	---
			M	22.42	22.50	1.02	0.491	---	0.501	---
			H	22.48	22.50	1.00	---	---	---	---
Left		L	22.39	22.50	1.03	---	---	---	---	
		M	22.42	22.50	1.02	0.149	---	0.152	---	
		H	22.48	22.50	1.00	---	---	---	---	
Right		L	22.39	22.50	1.03	---	---	---	---	
		M	22.42	22.50	1.02	0.062	---	0.063	---	
		H	22.48	22.50	1.00	---	---	---	---	

Mode: LTE Band 4

fL (MHz)= 1720MHz

fM (MHz)= 1732.5MHz

fH (MHz)= 1745MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)		
Mode	Exposure condition	Position	Channel				First	Second	First	Second	
QPSK 1RB	Head	Left touch	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.119	---	0.134	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Left tilt	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.074	---	0.084	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Right touch	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.066	---	0.074	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Right tilt	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.036	---	0.041	---	
			H	23.74	24.50	1.19	---	---	---	---	
	Body-worn	Back	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.626	---	0.707	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Front	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.446	---	0.504	---	
			H	23.74	24.50	1.19	---	---	---	---	
	Hotspot	Back	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.626	---	0.707	---	
			H	23.74	24.50	1.19	---	---	---	---	
			Front	L	24.19	24.50	1.07	---	---	---	---
				M	23.97	24.50	1.13	0.446	---	0.504	---
				H	23.74	24.50	1.19	---	---	---	---
		Top	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	---	---	---	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Bottom	L	24.19	24.50	1.07	0.831	0.830	0.889	0.888	
			M	23.97	24.50	1.13	0.844	0.842	0.954	0.951	
			H	23.74	24.50	1.19	0.820	0.819	0.976	0.975	
		Left	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.155	---	0.175	---	
			H	23.74	24.50	1.19	---	---	---	---	
		Right	L	24.19	24.50	1.07	---	---	---	---	
			M	23.97	24.50	1.13	0.175	---	0.198	---	
			H	23.74	24.50	1.19	---	---	---	---	
QPSK 50%RB	Head	Left touch	L	23.14	23.50	1.09	---	---	---	---	
			M	22.63	23.50	1.22	0.078	---	0.095	---	
			H	22.56	23.50	1.24	---	---	---	---	
		Left	L	23.14	23.50	1.09	---	---	---	---	

	Body-worn	tilt	M	22.63	23.50	1.22	0.053	---	0.065	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Right touch	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.040	---	0.049	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Right tilt	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.018	---	0.022	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Back	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.510	---	0.622	---		
			H	22.56	23.50	1.24	---	---	---	---		
			Front	L	23.14	23.50	1.09	---	---	---	---	
	M			22.63	23.50	1.22	0.374	---	0.456	---		
	H			22.56	23.50	1.24	---	---	---	---		
	Hotspot	Back	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.510	---	0.622	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Front	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.374	---	0.456	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Top	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	---	---	---	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Bottom	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.700	---	0.854	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Left	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.118	---	0.144	---		
			H	22.56	23.50	1.24	---	---	---	---		
		Right	L	23.14	23.50	1.09	---	---	---	---		
			M	22.63	23.50	1.22	0.147	---	0.179	---		
			H	22.56	23.50	1.24	---	---	---	---		
		QPSK 100%RB	Head	Left touch	L	22.57	23.00	1.10	---	---	---	---
					M	22.71	23.00	1.07	---	---	---	---
					H	22.61	23.00	1.09	---	---	---	---
				Left tilt	L	22.57	23.00	1.10	---	---	---	---
M					22.71	23.00	1.07	---	---	---	---	
H					22.61	23.00	1.09	---	---	---	---	
Right touch	L			22.57	23.00	1.10	---	---	---	---		
	M			22.71	23.00	1.07	---	---	---	---		
	H			22.61	23.00	1.09	---	---	---	---		
Right tilt	L			22.57	23.00	1.10	---	---	---	---		
	M			22.71	23.00	1.07	---	---	---	---		

	Body-worn	Back	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
		Front	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
	Hotspot	Back	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
		Front	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
		Top	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
		Bottom	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	0.710	---	0.760	---
		Left	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---
		Right	H	22.61	23.00	1.09	---	---	---	---
			L	22.57	23.00	1.10	---	---	---	---
			M	22.71	23.00	1.07	---	---	---	---

Mode: LTE Band 5

fL (MHz)=829 MHz

fM (MHz)=836.5MHz

fH (MHz)= 844MHz

Limit of SAR (W/kg) : <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
Mode	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left touch	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.081	---	0.088	---
			H	24.36	24.50	1.03	---	---	---	---
		Left tilt	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.034	---	0.037	---
			H	24.36	24.50	1.03	---	---	---	---
		Right touch	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.047	---	0.051	---
			H	24.36	24.50	1.03	---	---	---	---
		Right tilt	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.026	---	0.028	---
			H	24.36	24.50	1.03	---	---	---	---
	Body-worn	Back	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.196	---	0.214	---
			H	24.36	24.50	1.03	---	---	---	---
		Front	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.104	---	0.113	---
			H	24.36	24.50	1.03	---	---	---	---
	Hotspot	Back	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.196	---	0.214	---
			H	24.36	24.50	1.03	---	---	---	---
		Front	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.104	---	0.113	---
			H	24.36	24.50	1.03	---	---	---	---
		Top	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	---	---	---	---
			H	24.36	24.50	1.03	---	---	---	---
		Bottom	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.107	---	0.117	---
			H	24.36	24.50	1.03	---	---	---	---
		Left	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.070	---	0.076	---
			H	24.36	24.50	1.03	---	---	---	---
		Right	L	23.95	24.50	1.14	---	---	---	---
			M	24.11	24.50	1.09	0.121	---	0.132	---
			H	24.36	24.50	1.03	---	---	---	---
QPSK 50%RB	Head	Left touch	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.060	---	0.061	---
			H	22.83	23.00	1.04	---	---	---	---

	Left tilt	L	22.94	23.00	1.01	---	---	---	---	
		M	22.94	23.00	1.01	0.025	---	0.025	---	
		H	22.83	23.00	1.04	---	---	---	---	
		Right touch	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.032	---	0.032	---
			H	22.83	23.00	1.04	---	---	---	---
		Right tilt	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.017	---	0.017	---
			H	22.83	23.00	1.04	---	---	---	---
	Body-worn	Back	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.157	---	0.159	---
			H	22.83	23.00	1.04	---	---	---	---
		Front	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.078	---	0.079	---
			H	22.83	23.00	1.04	---	---	---	---
	Hotspot	Back	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.157	---	0.159	---
			H	22.83	23.00	1.04	---	---	---	---
		Front	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.078	---	0.079	---
			H	22.83	23.00	1.04	---	---	---	---
		Top	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	---	---	---	---
			H	22.83	23.00	1.04	---	---	---	---
		Bottom	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.086	---	0.087	---
			H	22.83	23.00	1.04	---	---	---	---
		Left	L	22.94	23.00	1.01	---	---	---	---
			M	22.94	23.00	1.01	0.047	---	0.047	---
			H	22.83	23.00	1.04	---	---	---	---
Right		L	22.94	23.00	1.01	---	---	---	---	
		M	22.94	23.00	1.01	0.096	---	0.097	---	
		H	22.83	23.00	1.04	---	---	---	---	

Mode: LTE Band 7

fL (MHz)=2510 MHz

fM (MHz)=2535MHz

fH (MHz)= 2560MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)		
Mode	Exposure condition	Position	Channel				First	Second	First	Second	
QPSK 1RB	Head	Left touch	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.256	---	0.276	---	
			H	21.81	22.50	1.17	---	---	---	---	
		Left tilt	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.142	---	0.153	---	
			H	21.81	22.50	1.17	---	---	---	---	
		Right touch	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.110	---	0.119	---	
			H	21.81	22.50	1.17	---	---	---	---	
		Right tilt	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.061	---	0.066	---	
			H	21.81	22.50	1.17	---	---	---	---	
	Body-worn	Back	L	22.41	22.50	1.02	1.100	1.080	1.122	1.102	
			M	22.15	22.50	1.08	1.110	1.090	1.199	1.177	
			H	21.81	22.50	1.17	1.010	1.000	1.182	1.170	
			L2	22.41	22.50	1.02	1.080	1.050	1.102	1.071	
			M2	22.15	22.50	1.08	1.100	1.070	1.188	1.156	
			H2	21.81	22.50	1.17	0.998	0.996	1.168	1.165	
		Front	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.466	---	0.503	---	
			H	21.81	22.50	1.17	---	---	---	---	
		Hotspot	Back	L	22.41	22.50	1.02	1.100	1.080	1.122	1.102
				M	22.15	22.50	1.08	1.110	1.090	1.199	1.177
				H	21.81	22.50	1.17	1.010	1.000	1.182	1.170
	L2			22.41	22.50	1.02	1.080	1.050	1.102	1.071	
	M2			22.15	22.50	1.08	1.100	1.070	1.188	1.156	
	H2			21.81	22.50	1.17	0.998	0.996	1.168	1.165	
	Front		L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.466	---	0.503	---	
			H	21.81	22.50	1.17	---	---	---	---	
	Top		L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	---	---	---	---	
			H	21.81	22.50	1.17	---	---	---	---	
	Bottom		L	22.41	22.50	1.02	1.010	0.997	1.030	1.017	
			M	22.15	22.50	1.08	1.020	1.010	1.102	1.091	
			H	21.81	22.50	1.17	0.941	0.938	1.101	1.097	
	Left		L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.376	---	0.406	---	

			H	21.81	22.50	1.17	---	---	---	---	
		Right	L	22.41	22.50	1.02	---	---	---	---	
			M	22.15	22.50	1.08	0.102	---	0.110	---	
			H	21.81	22.50	1.17	---	---	---	---	
QPSK 50%RB	Head	Left touch	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.201	---	0.213	---	
			H	20.94	21.50	1.14	---	---	---	---	
		Left tilt	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.102	---	0.108	---	
			H	20.94	21.50	1.14	---	---	---	---	
		Right touch	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.090	---	0.095	---	
			H	20.94	21.50	1.14	---	---	---	---	
		Right tilt	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.040	---	0.042	---	
			H	20.94	21.50	1.14	---	---	---	---	
	Body-worn	Back	L	21.30	21.50	1.05	0.982	0.980	1.031	1.029	
			M	21.24	21.50	1.06	1.010	0.997	1.071	1.057	
			H	20.94	21.50	1.14	0.921	0.918	1.050	1.047	
		Front	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.370	---	0.392	---	
			H	20.94	21.50	1.14	---	---	---	---	
	Hotspot	Back	L	21.30	21.50	1.05	0.982	0.980	1.031	1.029	
			M	21.24	21.50	1.06	1.010	0.997	1.071	1.057	
			H	20.94	21.50	1.14	0.921	0.918	1.050	1.047	
			Front	L	21.30	21.50	1.05	---	---	---	---
				M	21.24	21.50	1.06	0.370	---	0.392	---
				H	20.94	21.50	1.14	---	---	---	---
		Top	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	---	---	---	---	
			H	20.94	21.50	1.14	---	---	---	---	
		Bottom	L	21.30	21.50	1.05	0.850	0.848	0.893	0.890	
			M	21.24	21.50	1.06	0.852	0.852	0.903	0.903	
			H	20.94	21.50	1.14	0.768	0.764	0.876	0.871	
		Left	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.307	---	0.325	---	
			H	20.94	21.50	1.14	---	---	---	---	
		Right	L	21.30	21.50	1.05	---	---	---	---	
			M	21.24	21.50	1.06	0.082	---	0.087	---	
			H	20.94	21.50	1.14	---	---	---	---	
QPSK 100%RB	Head	Left touch	L	21.27	21.50	1.05	---	---	---	---	
			M	21.16	21.50	1.08	---	---	---	---	
			H	20.86	21.50	1.16	---	---	---	---	

		Left tilt	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
		Right touch	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
		Right tilt	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
	Body-worn	Back	L	21.27	21.50	1.05	0.974	0.972	1.023	1.021
			M	21.16	21.50	1.08	0.997	0.997	1.077	1.077
			H	20.86	21.50	1.16	0.923	0.921	1.071	1.068
		Front	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
	Hotspot	Back	L	21.27	21.50	1.05	0.974	0.972	1.023	1.021
			M	21.16	21.50	1.08	0.997	0.997	1.077	1.077
			H	20.86	21.50	1.16	0.923	0.921	1.071	1.068
		Front	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
		Top	L	21.27	21.50	1.05	---	---	---	---
			M	21.16	21.50	1.08	---	---	---	---
			H	20.86	21.50	1.16	---	---	---	---
		Bottom	L	21.27	21.50	1.05	0.845	0.842	0.887	0.884
			M	21.16	21.50	1.08	0.848	0.845	0.916	0.913
			H	20.86	21.50	1.16	0.744	0.739	0.863	0.857
Left		L	21.27	21.50	1.05	---	---	---	---	
		M	21.16	21.50	1.08	---	---	---	---	
		H	20.86	21.50	1.16	---	---	---	---	
Right	L	21.27	21.50	1.05	---	---	---	---		
	M	21.16	21.50	1.08	---	---	---	---		
	H	20.86	21.50	1.16	---	---	---	---		

Note1: L2/M2/H2 means secondary supply.

Mode: LTE Band 26

fL (MHz)= 821.5 MHz

fM (MHz)= 831.5MHz

fH (MHz)= 841.5MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)	
Mode	Exposure condition	Position	Channel				First	Second	First	Second
QPSK 1RB	Head	Left touch	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.111	---	0.121	---
			H	24.21	25.00	1.20	---	---	---	---
		Left tilt	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.072	---	0.078	---
			H	24.21	25.00	1.20	---	---	---	---
		Right touch	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.043	---	0.047	---
			H	24.21	25.00	1.20	---	---	---	---
		Right tilt	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.019	---	0.021	---
			H	24.21	25.00	1.20	---	---	---	---
	Body-worn	Back	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.251	---	0.274	---
			H	24.21	25.00	1.20	---	---	---	---
		Front	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.139	---	0.152	---
			H	24.21	25.00	1.20	---	---	---	---
	Hotspot	Back	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.251	---	0.274	---
			H	24.21	25.00	1.20	---	---	---	---
		Front	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.139	---	0.152	---
			H	24.21	25.00	1.20	---	---	---	---
		Top	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	---	---	---	---
			H	24.21	25.00	1.20	---	---	---	---
		Bottom	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.144	---	0.157	---
			H	24.21	25.00	1.20	---	---	---	---
		Left	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.081	---	0.088	---
			H	24.21	25.00	1.20	---	---	---	---
		Right	L	24.52	25.00	1.12	---	---	---	---
			M	24.63	25.00	1.09	0.163	---	0.178	---
			H	24.21	25.00	1.20	---	---	---	---
QPSK 50%RB	Head	Left touch	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.100	---	0.106	---
			H	23.42	24.00	1.14	---	---	---	---

	Left tilt	L	23.50	24.00	1.12	---	---	---	---	
		M	23.75	24.00	1.06	0.052	---	0.055	---	
		H	23.42	24.00	1.14	---	---	---	---	
		Right touch	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.035	---	0.037	---
			H	23.42	24.00	1.14	---	---	---	---
		Right tilt	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.013	---	0.014	---
			H	23.42	24.00	1.14	---	---	---	---
	Body-worn	Back	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.200	---	0.212	---
			H	23.42	24.00	1.14	---	---	---	---
		Front	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.102	---	0.108	---
			H	23.42	24.00	1.14	---	---	---	---
	Hotspot	Back	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.200	---	0.212	---
			H	23.42	24.00	1.14	---	---	---	---
		Front	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.102	---	0.108	---
			H	23.42	24.00	1.14	---	---	---	---
		Top	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	---	---	---	---
			H	23.42	24.00	1.14	---	---	---	---
		Bottom	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.104	---	0.110	---
			H	23.42	24.00	1.14	---	---	---	---
		Left	L	23.50	24.00	1.12	---	---	---	---
			M	23.75	24.00	1.06	0.062	---	0.066	---
			H	23.42	24.00	1.14	---	---	---	---
Right		L	23.50	24.00	1.12	---	---	---	---	
		M	23.75	24.00	1.06	0.122	---	0.129	---	
		H	23.42	24.00	1.14	---	---	---	---	

Mode: LTE Band 66

fL (MHz)= 1720 MHz

fM (MHz)= 1745MHz

fH (MHz)= 1770MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Meas SAR(w/kg)		Report SAR(w/kg)		
Mode	Exposure condition	Position	Channel				First	Second	First	Second	
QPSK 1RB	Head	Left touch	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.115	---	0.125	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Left tilt	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.080	---	0.087	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Right touch	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.071	---	0.077	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Right tilt	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.042	---	0.046	---	
			H	24.20	24.50	1.07	---	---	---	---	
	Body-worn	Back	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.635	---	0.692	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Front	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.438	---	0.477	---	
			H	24.20	24.50	1.07	---	---	---	---	
	Hotspot	Back	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.635	---	0.692	---	
			H	24.20	24.50	1.07	---	---	---	---	
			Front	L	24.17	24.50	1.08	---	---	---	---
				M	24.12	24.50	1.09	0.438	---	0.477	---
				H	24.20	24.50	1.07	---	---	---	---
		Top	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	---	---	---	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Bottom	L	24.17	24.50	1.08	0.872	0.871	0.942	0.941	
			M	24.12	24.50	1.09	0.875	0.875	0.954	0.954	
			H	24.20	24.50	1.07	0.873	0.870	0.934	0.931	
		Left	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.161	---	0.175	---	
			H	24.20	24.50	1.07	---	---	---	---	
		Right	L	24.17	24.50	1.08	---	---	---	---	
			M	24.12	24.50	1.09	0.186	---	0.203	---	
			H	24.20	24.50	1.07	---	---	---	---	
QPSK 50%RB	Head	Left touch	L	22.71	23.50	1.20	---	---	---	---	
			M	22.91	23.50	1.15	0.084	---	0.097	---	
			H	23.07	23.50	1.10	---	---	---	---	

		Left tilt	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.042	---	0.048	---
			H	23.07	23.50	1.10	---	---	---	---
		Right touch	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.052	---	0.060	---
			H	23.07	23.50	1.10	---	---	---	---
		Right tilt	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.029	---	0.033	---
			H	23.07	23.50	1.10	---	---	---	---
	Body-worn	Back	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.511	---	0.588	---
			H	23.07	23.50	1.10	---	---	---	---
		Front	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.350	---	0.403	---
			H	23.07	23.50	1.10	---	---	---	---
	Hotspot	Back	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.511	---	0.588	---
			H	23.07	23.50	1.10	---	---	---	---
		Front	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.350	---	0.403	---
			H	23.07	23.50	1.10	---	---	---	---
		Top	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	---	---	---	---
			H	23.07	23.50	1.10	---	---	---	---
		Bottom	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.696	---	0.800	---
			H	23.07	23.50	1.10	---	---	---	---
		Left	L	22.71	23.50	1.20	---	---	---	---
			M	22.91	23.50	1.15	0.126	---	0.145	---
			H	23.07	23.50	1.10	---	---	---	---
Right		L	22.71	23.50	1.20	---	---	---	---	
		M	22.91	23.50	1.15	0.151	---	0.174	---	
		H	23.07	23.50	1.10	---	---	---	---	
QPSK 100%RB	Head	Left touch	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Left tilt	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Right touch	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Right	L	22.58	23.50	1.24	---	---	---	---

		tilt	M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
	Body-worn	Back	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Front	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
	Hotspot	Back	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Front	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Top	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Bottom	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	0.670	---	0.797	---
			H	23.08	23.50	1.10	---	---	---	---
		Left	L	22.58	23.50	1.24	---	---	---	---
			M	22.75	23.50	1.19	---	---	---	---
			H	23.08	23.50	1.10	---	---	---	---
		Right	L	22.58	23.50	1.24	---	---	---	---
M			22.75	23.50	1.19	---	---	---	---	
H			23.08	23.50	1.10	---	---	---	---	

Mode: BT

fL (MHz)=2402 MHz

fM (MHz)=2441MHz

fH (MHz)= 2480MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

MAX power (dBm)	Head SAR (w/kg)	Body-worn SAR (w/kg)
9.50	0.375	0.187

Mode: Wi-Fi 2.4GHz

fL (MHz)=2412MHz fM (MHz)=2437MHz fH (MHz)= 2462MHz

Limit of SAR (W/kg): <1.6W/kg (1g Average)

Test case				Meas power(dBm)	Tune-up(dBm)	Scaling factor	Duty factor	Meas SAR(w/kg)		Report SAR(w/kg)		
Mode	Exposure condition	Position	Channel					First	Second	First	Second	
802.11b	Head	Left touch	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.488	---	0.520	---	
			M2	19.24	19.50	1.06	1.01	0.466	---	0.499	---	
		Left tilt	L	---	---	---	---	---	---	---	---	---
			M	19.24	19.50	1.06	1.01	0.252	---	0.269	---	
			H	---	---	---	---	---	---	---	---	
		Right touch	L	---	---	---	---	---	---	---	---	---
			M	19.24	19.50	1.06	1.01	0.224	---	0.239	---	
			H	---	---	---	---	---	---	---	---	
		Right tilt	L	---	---	---	---	---	---	---	---	---
			M	19.24	19.50	1.06	1.01	0.127	---	0.135	---	
			H	---	---	---	---	---	---	---	---	
	Body-worn	Back	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.406	---	0.433	---	
			H	---	---	---	---	---	---	---	---	
		Front	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.091	---	0.097	---	
			H	---	---	---	---	---	---	---	---	
	Hotspot	Back	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.406	---	0.433	---	
			H	---	---	---	---	---	---	---	---	
		Front	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.091	---	0.097	---	
			H	---	---	---	---	---	---	---	---	
		Top	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.074	---	0.079	---	
			H	---	---	---	---	---	---	---	---	
		Bottom	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	---	---	---	---	
			H	---	---	---	---	---	---	---	---	
		Left	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	---	---	---	---	
			H	---	---	---	---	---	---	---	---	
		Right	L	---	---	---	---	---	---	---	---	
			M	19.24	19.50	1.06	1.01	0.169	---	0.180	---	
			H	---	---	---	---	---	---	---	---	

Note1: M2means secondary supply.

6.6 SAR Measurement Variability

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. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20

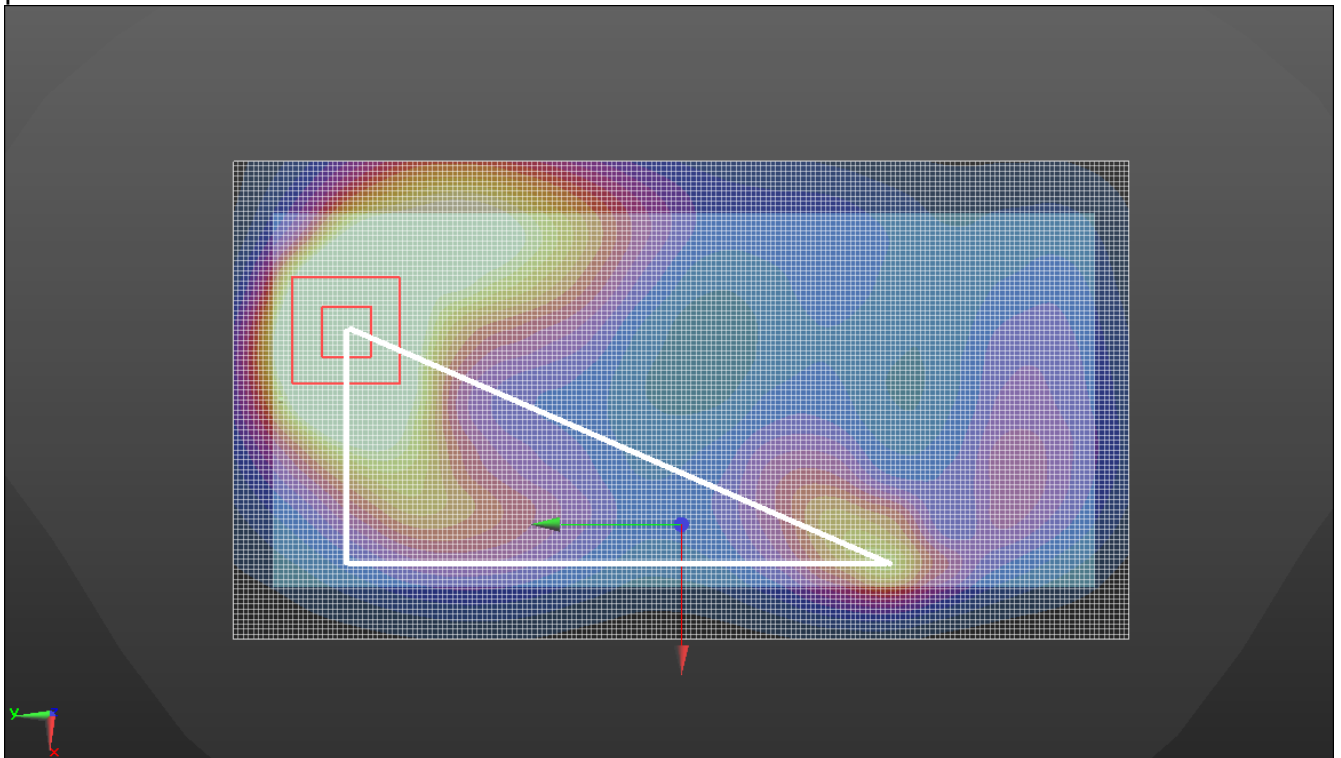
6.7 Simultaneous Transmission SAR Analysis

Maximum Antenna numbers of Simultaneous Transmission	Antennas of Simultaneous Transmission	Simultaneous Transmission Modes
Two	WWAN + WLAN/BT/BLE	Celluar2/3/4G +WIFI 2.4GHz Celluar2/3/4G +BT/BLE

The worst case for 2TX simultaneous transmission happened in back position

The summation of following condition exceed limit 1.6, but this method is the most conservative which is over estimate. So according to KDB447498D01 4.3.2.c)

When the sum of SAR is larger than the limit, SAR test exclusion is determined by the SAR to peak location separation ratio. The ratio is determined by $(SAR1 + SAR2)^{1.5}/R_i$, rounded to two decimal digits, and must be ≤ 0.04 for all antenna pairs in the configuration to qualify for 1-g SAR test exclusion. SAR1 and SAR2 are the highest reported or estimated SAR values for each antenna in the pair, and R_i is the separation distance in mm between the peak SAR locations for the antenna pair.



Distance $\approx 119\text{mm}$ (BT/WIFI share the same antenna, so peak SAR location is the same.)
 SAR1 =1.199(LTE7)
 SAR2=0.433(WIFI)
 Splsr (LTE BAND 7+WIFI2.4GHz) $= (1.199+0.433)^{1.5}/119 \approx 0.018 < 0.04$

The worst combined result is similar to standalone SAR value. So there is no risk for the condition mentioned above. The antenna pairs qualify for simultaneous transmission SAR test exclusion, enlarged zoom scan and volume scan post-processing procedures do not apply. And the following result is final worst case for Simultaneous Transmission

Position of worst case	Licensed band	Unlicensed band	Simultaneous SAR(w/kg)
Back	LTE Band7	WIFI 2.4GHz	1.352

POSITION			WWAN+MAX(WLAN,BT,BLE)
Head	LEFT	CHEEK	0.797
		TILT	0.528
	RIGHT	CHEEK	0.494
		TILT	0.441
Body worn	Back	1.352	
	Front	0.691	
Hotspot	Back	1.352	
	Front	0.691	
	top	0.187	
	bottom	1.102	
	Left	0.406	
	Right	0.415	

According to the above tables, all the exposure condition of SAR values $< 1.6\text{W/kg}$.

7 MEASUREMENT UNCERTAINTY

(0.3 - 3 GHz range)								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.0 %	N	1	1	1	±6.0 %	±6.0 %	∞
Axial Isotropy	±4.7 %	R	$\sqrt{3}$	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	$\sqrt{3}$	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Linearity	±4.7 %	R	$\sqrt{3}$	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Modulation Response ^m	±2.4 %	R	$\sqrt{3}$	1	1	±1.4 %	±1.4 %	∞
Readout Electronics	±0.3 %	N	1	1	1	±0.3 %	±0.3 %	∞
Response Time	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	$\sqrt{3}$	1	1	±1.5 %	±1.5 %	∞
RF Ambient Noise	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
RF Ambient Reflections	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.4 %	R	$\sqrt{3}$	1	1	±0.2 %	±0.2 %	∞
Probe Positioning	±2.9 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Max. SAR Eval.	±2.0 %	R	$\sqrt{3}$	1	1	±1.2 %	±1.2 %	∞
Test Sample Related								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	145
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	$\sqrt{3}$	1	1	±2.9 %	±2.9 %	∞
Power Scaling ^P	±0 %	R	$\sqrt{3}$	1	1	±0.0 %	±0.0 %	∞
Phantom and Setup								
Phantom Uncertainty	±6.1 %	R	$\sqrt{3}$	1	1	±3.5 %	±3.5 %	∞
SAR correction	±1.9 %	R	$\sqrt{3}$	1	0.84	±1.1 %	±0.9 %	∞
Liquid Conductivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.78	0.71	±1.1 %	±1.0 %	∞
Liquid Permittivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.26	0.26	±0.3 %	±0.4 %	∞
Temp. unc. - Conductivity ^{BB}	±3.4 %	R	$\sqrt{3}$	0.78	0.71	±1.5 %	±1.4 %	∞
Temp. unc. - Permittivity ^{BB}	±0.4 %	R	$\sqrt{3}$	0.23	0.26	±0.1 %	±0.1 %	∞
Combined Std. Uncertainty						±11.2 %	±11.1 %	361
Expanded STD Uncertainty						±22.3 %	±22.2 %	

(3 - 6 GHz range)								
Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)	(v_i) v_{eff}
Measurement System								
Probe Calibration	±6.55 %	N	1	1	1	±6.55 %	±6.55 %	∞
Axial Isotropy	±4.7 %	R	$\sqrt{3}$	0.7	0.7	±1.9 %	±1.9 %	∞
Hemispherical Isotropy	±9.6 %	R	$\sqrt{3}$	0.7	0.7	±3.9 %	±3.9 %	∞
Boundary Effects	±2.0 %	R	$\sqrt{3}$	1	1	±1.2 %	±1.2 %	∞
Linearity	±4.7 %	R	$\sqrt{3}$	1	1	±2.7 %	±2.7 %	∞
System Detection Limits	±1.0 %	R	$\sqrt{3}$	1	1	±0.6 %	±0.6 %	∞
Modulation Response ^m	±2.4 %	R	$\sqrt{3}$	1	1	±1.4 %	±1.4 %	∞
Readout Electronics	±0.3 %	N	1	1	1	±0.3 %	±0.3 %	∞
Response Time	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Integration Time	±2.6 %	R	$\sqrt{3}$	1	1	±1.5 %	±1.5 %	∞
RF Ambient Noise	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
RF Ambient Reflections	±3.0 %	R	$\sqrt{3}$	1	1	±1.7 %	±1.7 %	∞
Probe Positioner	±0.8 %	R	$\sqrt{3}$	1	1	±0.5 %	±0.5 %	∞
Probe Positioning	±6.7 %	R	$\sqrt{3}$	1	1	±3.9 %	±3.9 %	∞
Max. SAR Eval.	±4.0 %	R	$\sqrt{3}$	1	1	±2.3 %	±2.3 %	∞
Test Sample Related								
Device Positioning	±2.9 %	N	1	1	1	±2.9 %	±2.9 %	145
Device Holder	±3.6 %	N	1	1	1	±3.6 %	±3.6 %	5
Power Drift	±5.0 %	R	$\sqrt{3}$	1	1	±2.9 %	±2.9 %	∞
Power Scaling ^P	±0 %	R	$\sqrt{3}$	1	1	±0.0 %	±0.0 %	∞
Phantom and Setup								
Phantom Uncertainty	±6.6 %	R	$\sqrt{3}$	1	1	±3.8 %	±3.8 %	∞
SAR correction	±1.9 %	R	$\sqrt{3}$	1	0.84	±1.1 %	±0.9 %	∞
Liquid Conductivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.78	0.71	±1.1 %	±1.0 %	∞
Liquid Permittivity (mea.) ^{DAK}	±2.5 %	R	$\sqrt{3}$	0.26	0.26	±0.3 %	±0.4 %	∞
Temp. unc. - Conductivity ^{BB}	±3.4 %	R	$\sqrt{3}$	0.78	0.71	±1.5 %	±1.4 %	∞
Temp. unc. - Permittivity ^{BB}	±0.4 %	R	$\sqrt{3}$	0.23	0.26	±0.1 %	±0.1 %	∞
Combined Std. Uncertainty						±12.3 %	±12.2 %	748
Expanded STD Uncertainty						±24.6 %	±24.5 %	

8 TEST EQUIPMENTS

The measurements were performed using an automated near-field scanning system, DASY5, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the 'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
DAE	DAE4	720	2020.09.30	2021.09.29
Dosimetric E-field Probe	ES3DV3	3127	2020.09.01	2021.08.31
Dipole Validation Kit	D835V2	4d023	2020.10.16	2021.10.15
Dipole Validation Kit	D1800V2	2d084	2020.10.18	2021.10.17
Dipole Validation Kit	D2450V2	738	2020.10.13	2021.10.12
Dipole Validation Kit	D2600V2	1166	2019.11.08	2020.11.07

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration date	Calibration Due data
Signal Generator	E4428C	MY45280865	2020.08.20	2021.08.19
Signal Generator	SML 03	103514	2020.08.20	2021.08.19
Power meter	E4417A	MY45101182	2020.08.20	2021.08.19
Power Sensor	E4412A	MY41502214	2020.08.20	2021.08.19
Power Sensor	E4412A	MY41502130	2020.08.20	2021.08.19
Power meter	E4417A	MY45101004	2020.08.20	2021.08.19
Power Sensor	E9300B	MY41496001	2020.08.20	2021.08.19
Power Sensor	E9300B	MY41496003	2020.08.20	2021.08.19
Communication Tester	E5515C	MY48367401	2020.08.20	2021.08.19
Communication Tester	CMW500	161702	2020.08.20	2021.08.19
Communication Tester	MT8820C	6201300660	2020.08.20	2021.08.19
Communication Tester	MT8821C	6201547819	2020.08.20	2021.08.19
Vector Network Analyzer	VNA R140	0011213	2019.11.24	2020.11.23
Dielectric Parameter Probe	DAKS-3.5	1042	2019.11.24	2020.11.23

Detailed information of Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Dynamic Range	5 μ W/g to > 100 W/kg; Linearity: ± 0.2 dB
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

Detailed information of Isotropic E-field Probe Type EX3DV4

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Optical Surface Detection	± 0.3 mm repeatability in air and clear liquids over diffuse reflecting surfaces
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
Dynamic Range	10 μ W/g to > 100 W/kg Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
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%.

TEST PLOTS

Please refer to the attachment.