SAR TEST REPORT

No. 25T04Z100220-010

For

TCL Communication Ltd.

GSM/UMTS/LTE mobile phone

Model Name: T517A

with

Hardware Version: 05

Software Version: 3A4G

FCC ID: 2ACCJB236

Issued Date: 2025-03-24

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

Test Laboratory:

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
25T04Z100220-010	Rev.0	2025-03-24	Initial creation of test report

TABLE OF CONTENT

1 Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

1.2. Testing Location

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191

1.3. Testing Environment

Normal Temperature: 18-25℃

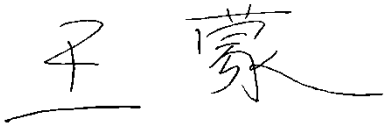
Relative Humidity: 30-70%

1.4. Project data

Testing Start Date: 2025-03-11

Testing End Date: 2025-03-24

1.5. Signature

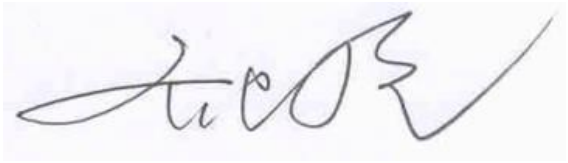


Wang Meng

(Prepared this test report)

Lin Jun

(Reviewed this test report)



Qi Dianyuan

Deputy Director of the laboratory

(Approved this test report)

2 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for TCL Communication Ltd. GSM/UMTS/LTE mobile phone T517A are as follows:

Table 2.1: Highest Reported SAR (1g)

Mode		Highest Reported SAR (1g)			
		1g SAR Head	1g SAR Hotspot	1g SAR Body-worn	10g SAR Phablet
GSM	GSM850	1.30	0.71	0.71	/
	GSM1900	0.12	0.67	0.58	
WCDMA	UMTS FDD 5	1.09	0.46	0.46	
	UMTS FDD 4	0.11	0.46	0.46	/
	UMTS FDD 2	0.15	0.45	0.36	/
LTE	LTE Band 2	0.06	0.60	0.40	/
	LTE Band 7	0.24	0.65	0.65	/
	LTE Band 12/17	0.11	0.28	0.28	/
	LTE Band 13	0.39	0.17	0.17	
	LTE Band 5/26	0.77	0.31	0.31	/
	LTE Band 41	0.20	0.79	0.65	/
	LTE Band 4/66	0.14	0.40	0.37	/
WLAN 2.4 GHz		0.60	0.28	0.28	/
WLAN 5 GHz		0.36	0.40	0.33	/
BT		<0.01	<0.01	<0.01	/

Note: Body-worn SAR results use more conservative hotspot results to evaluate the front and rear sides.

The SAR values found for the Mobile Phone are below the maximum recommended levels of 1.6 W/kg as averaged over any 1g tissue according to the ANSI C95.1-1992.

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10 mm between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output.

The measurement together with the test system set-up is described in annex C of this test report. A detailed description of the equipment under test can be found in chapter 4 of this test report. The highest reported SAR value is obtained at the case of **(Table 2.1),** and the values are**:**

Head: 1.30 W/kg(1g)

Hotspot: 0.79 W/kg(1g)

Body-worn: 0.71 W/kg(1g)

The device have similar frequency in some LTE bands ： LTE Band4/66, LTE Band5/26, LTE Band12/17 since the supported frequency spans for the smaller LTE bands are completely cover by the larger LTE bands and the channel bandwidth and other operating parameters for the smaller band be fully supported by the larger band, therefore, only larger LTE bands were required to be tested for SAR.

Table 2.2: The sum of SAR values for Main antenna + WiFi+BT

	Position	Main antenna	WiFi	BT	Sum
Highest SAR value for head	Right Tilt	1.30 GSM850	0.21 WiFi2.4G	/	**1.51**
Highest SAR value for body	Rear 10mm	0.71 GSM850	0.33 WiFi5G	<0.01	**1.04**

According to the above tables, the highest sum of reported SAR values is **1.51 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

Conclusion:

According to the above tables, the sum of reported SAR values is<1.6W/kg for 1g SAR. So the simultaneous transmission SAR with volume scans is not required.

3 Client Information

3.1 Applicant Information

Company Name:	TCL Communication Ltd.
Address/Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Ting Wang
Contact Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091
Fax	+86 755 36612000-81722

3.2 Manufacturer Information

Company Name:	TCL Communication Ltd.
Address/Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Ting Wang
Contact Email:	ting.wang.hz@tcl.com
Telephone:	+86 752 2639091
Fax	+86 755 36612000-81722

4 Equipment Under Test (EUT) and Ancillary Equipment (AE)

4.1 About EUT

Description:	GSM/UMTS/LTE mobile phone
Model name:	T517A
Tested Band:	GSM850/1900 WCDMA B2/4/B5 LTE Band2/4/5/7/12/13/17/26/41/66 BT, Wi-Fi(2.4G), Wi-Fi(5G)
Tx Frequency:	824 – 849 MHz (GSM 850)
	1850 – 1910 MHz (GSM 1900)
	824–849 MHz (WCDMA 850 Band V)
	1710 – 1755 MHz (WCDMA 1700 Band IV)
	1850–1910 MHz (WCDMA1900 Band II)
	1850 – 1910 MHz(LTE Band 2)
	1710 – 1755 MHz (LTE Band 4)
	824 – 849 MHz (LTE Band 5)
	2500 – 2570 MHz(LTE Band 7)
	699 – 716 MHz (LTE Band 12)
	777 –787 MHz (LTE Band 13)
	704 –716 MHz (LTE Band 17)
	814 – 849 MHz (LTE Band 26)
	2496 – 2690 MHz (LTE Band 41)
	1710 – 1780 MHz (LTE Band 66)
	2412 – 2462 MHz (Wi-Fi 2.4G)
	5180 – 5240 MHz (Wi-Fi 5.2G)
	5260 – 5320 MHz (Wi-Fi 5.3G)
	5500 – 5720 MHz (Wi-Fi 5.5G)
	5745 – 5825 MHz (Wi-Fi 5.8G)
	2400 – 2483.5 MHz (Bluetooth)
Test device production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Hotspot mode:	Support

4.2 Internal Identification of EUT used during the test

EUT ID*	IMEI	HW Version	SW Version
EUT1	351434670000252/351434670000260	05	3A4G
EUT2	351434670000278/351434670000286	05	3A4G
EUT3	351434670000492/351434670000500	05	3A4G
EUT4	351434670000013/351434670000021	05	3A4G

*EUT ID: is used to identify the test sample in the lab internally.

Note: It is performed to test SAR with the EUT1~3 and conducted power with the EUT4.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	TLp050C7	/	Dongguan Veken Battery Co., Ltd.
AE2	Battery	TLp050CB	/	Shenzhen Aerospace Electronic Co., Ltd.
AE3	Headset	JWEP1295-M01R	/	Huizhou Juwei Electronics Co.,Ltd

*AE ID: is used to identify the test sample in the lab internally.

5 TEST METHODOLOGY

5.1 Applicable Limit Regulations

ANSI C95.1–1992:IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

It specifies the maximum exposure limit of **4.0 W/kg** as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

5.2 Applicable Measurement Standards

IEEE 1528–2013: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques.

KDB447498 D01: General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

KDB648474 D04 Handset SAR v01r03: SAR Evaluation Considerations for Wireless Handsets.

KDB941225 D01 SAR test for 3G devices v03r01: SAR Measurement Procedures for 3G Devices

KDB941225 D05 SAR for LTE Devices v02r05: SAR Evaluation Considerations for LTE Devices

KDB941225 D06 Hotspot Mode SAR v02r01: SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities

KDB248227 D01 802.11 Wi-Fi SAR v02r02: SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS

KDB865664 D01 SAR measurement 100 MHz to 6 GHz v01r04: SAR Measurement Requirements for 100 MHz to 6 GHz.

KDB865664 D02 RF Exposure Reporting v01r02: RF Exposure Compliance Reporting and Documentation Considerations

6 Specific Absorption Rate (SAR)

6.1 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

6.2 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ) . The equation description is as below:

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dv}\right)$$

SAR is expressed in units of Watts per kilogram (W/kg)
SAR measurement can be either related to the temperature elevation in tissue by

$$SAR = c\left(\frac{\delta T}{\delta t}\right)$$

Where: C is the specific head capacity, δT is the temperature rise and δt is the exposure duration, or related to the electrical field in the tissue by

$$SAR = \frac{\sigma |E|^2}{\rho}$$

Where: σ is the conductivity of the tissue, ρ is the mass density of tissue and E is the RMS electrical field strength.

However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 Tissue Simulating Liquids

7.1 Targets for tissue simulating liquid

Table 7.1: Targets for tissue simulating liquid

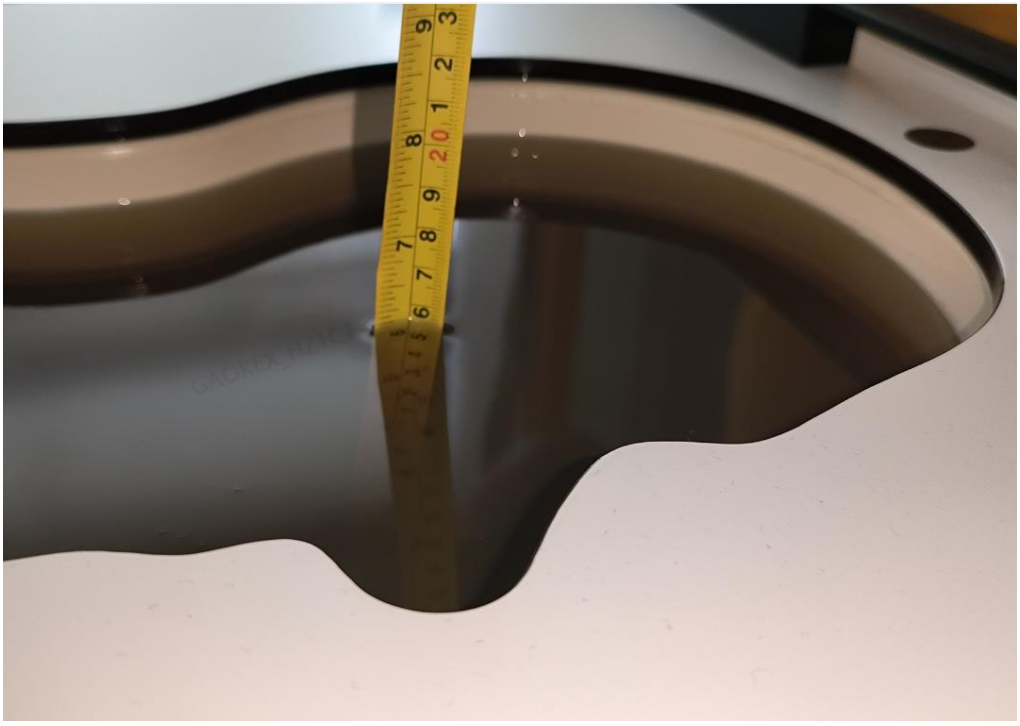
Frequency(MHz)	Liquid Type	Conductivity(σ)	±5% Range	Permittivity(ε)	± 5% Range
750	Head	0.89	0.85～0.93	41.94	39.8～44.0
835	Head	0.90	0.86～0.95	41.5	39.4～43.6
1750	Head	1.37	1.30～1.44	40.08	38.1～42.1
1900	Head	1.40	1.33～1.47	40.0	38.0～42.0
2450	Head	1.80	1.62～1.98	39.2	35.28～43.12
2600	Head	1.96	1.76～2.16	39.01	35.11～42.91
5250	Head	4.71	4.47～4.95	35.93	34.13～37.73
5600	Head	5.07	4.82～5.32	35.53	33.8～37.3
5750	Head	5.22	4.96～5.48	35.36	33.59～37.13

7.2 Dielectric Performance

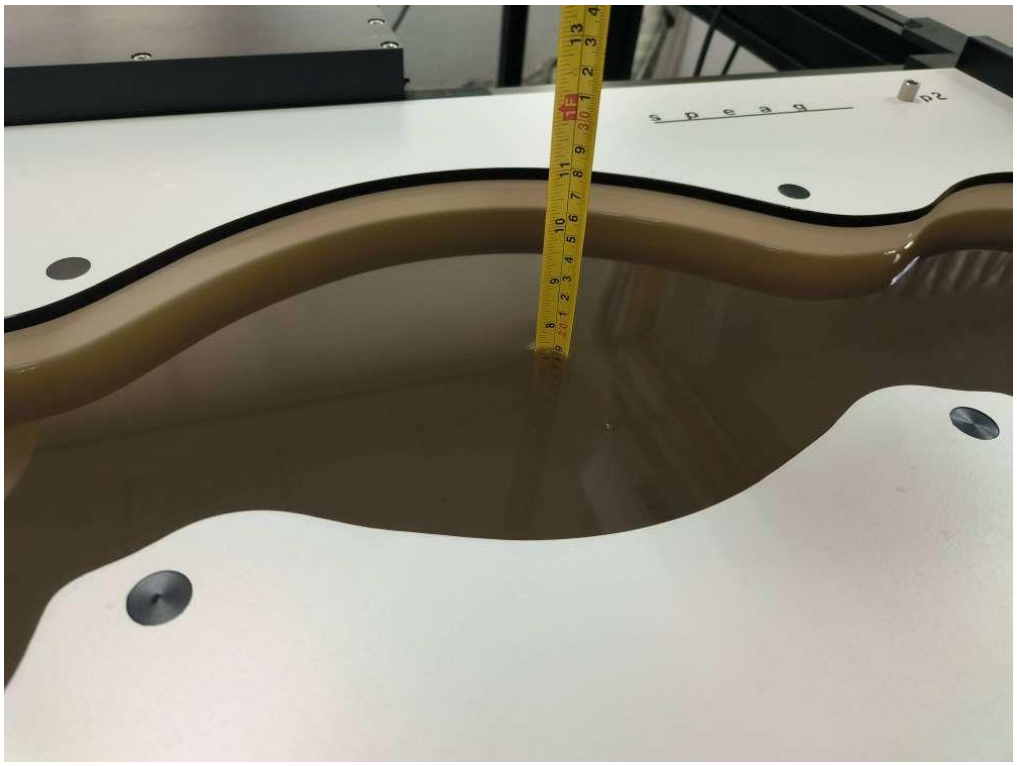
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2025/3/14	Head	750 MHz	41.93	-0.02	0.892	0.22
2025/3/16	Head	835 MHz	41.67	0.41	0.922	2.44
2025/3/17	Head	1750 MHz	39.93	-0.37	1.347	-1.68
2025/3/15	Head	1900 MHz	39.82	-0.45	1.434	2.43
2025/3/18	Head	2450 MHz	39.02	-0.46	1.807	0.39
2025/3/19	Head	2600 MHz	38.81	-0.51	1.92	-2.04
2025/3/20	Head	5250 MHz	36.35	1.17	4.522	-3.99
2025/3/20	Head	5600 MHz	35.78	0.70	4.906	-3.23
2025/3/20	Head	5750 MHz	35.56	0.57	5.074	-2.80

Note: The liquid temperature is 22.0℃



Picture 7-1 Liquid depth in the Head Phantom

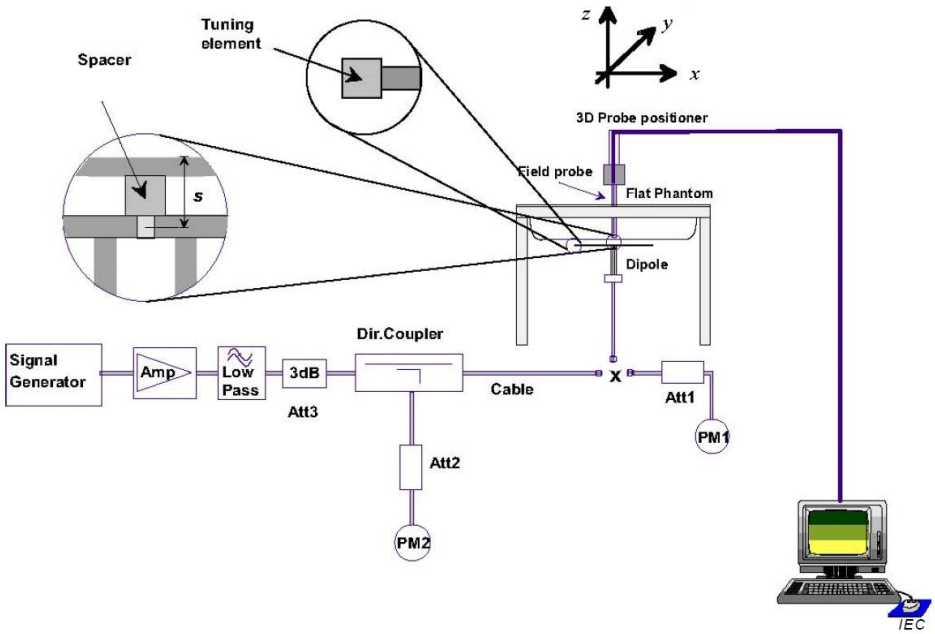


Picture 7-2 Liquid depth in the Flat Phantom

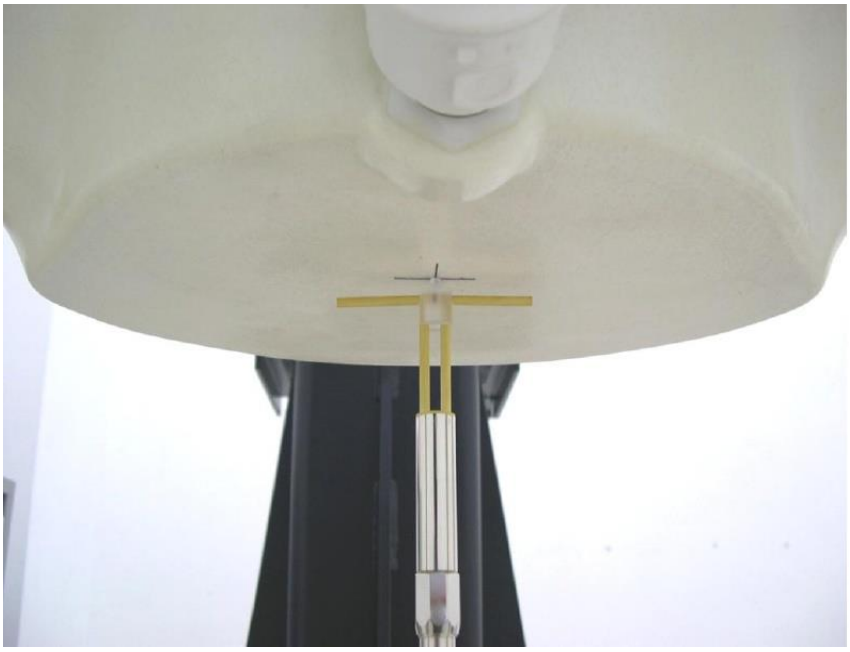
8 System verification

8.1 System Setup

In the simplified setup for system evaluation, the DUT is replaced by a calibrated dipole and the power source is replaced by a continuous wave that comes from a signal generator. The calibrated dipole must be placed beneath the flat phantom section of the SAM twin phantom with the correct distance holder. The distance holder should touch the phantom surface with a light pressure at the reference marking and be oriented parallel to the long side of the phantom. The equipment setup is shown below:



Picture 8-1 System Setup for System Evaluation



Picture 8-2 Photo of Dipole Setup

8.2 System Verification

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device.
The system verification results are required that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR.

Table 8.1: System Verification of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value(W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2025/3/14	750 MHz	5.53	8.52	5.68	8.56	2.71%	0.47%
2025/3/16	835 MHz	6.09	9.47	6.36	9.56	4.43%	0.95%
2025/3/17	1750 MHz	19.8	37.2	19.4	37.0	-1.82%	-0.65%
2025/3/15	1900 MHz	20.6	39.1	20.5	39.7	-0.58%	1.48%
2025/3/18	2450 MHz	24.5	52.2	23.6	51.2	-3.51%	-1.92%
2025/3/19	2600 MHz	24.8	54.9	25.1	56.8	1.13%	3.46%
2025/3/20	5250 MHz	22.4	78.3	22.2	77.6	-0.89%	-0.89%
2025/3/20	5600 MHz	23.2	81.7	23.6	82.3	1.72%	0.73%
2025/3/20	5750 MHz	22.8	79.9	22.5	78.6	-1.32%	-1.63%

9 Measurement Procedures

9.1 Tests to be performed

In order to determine the highest value of the peak spatial-average SAR of a handset, all device positions, configurations and operational modes shall be tested for each frequency band according to steps 1 to 3 below. A flowchart of the test process is shown in picture 9.1.

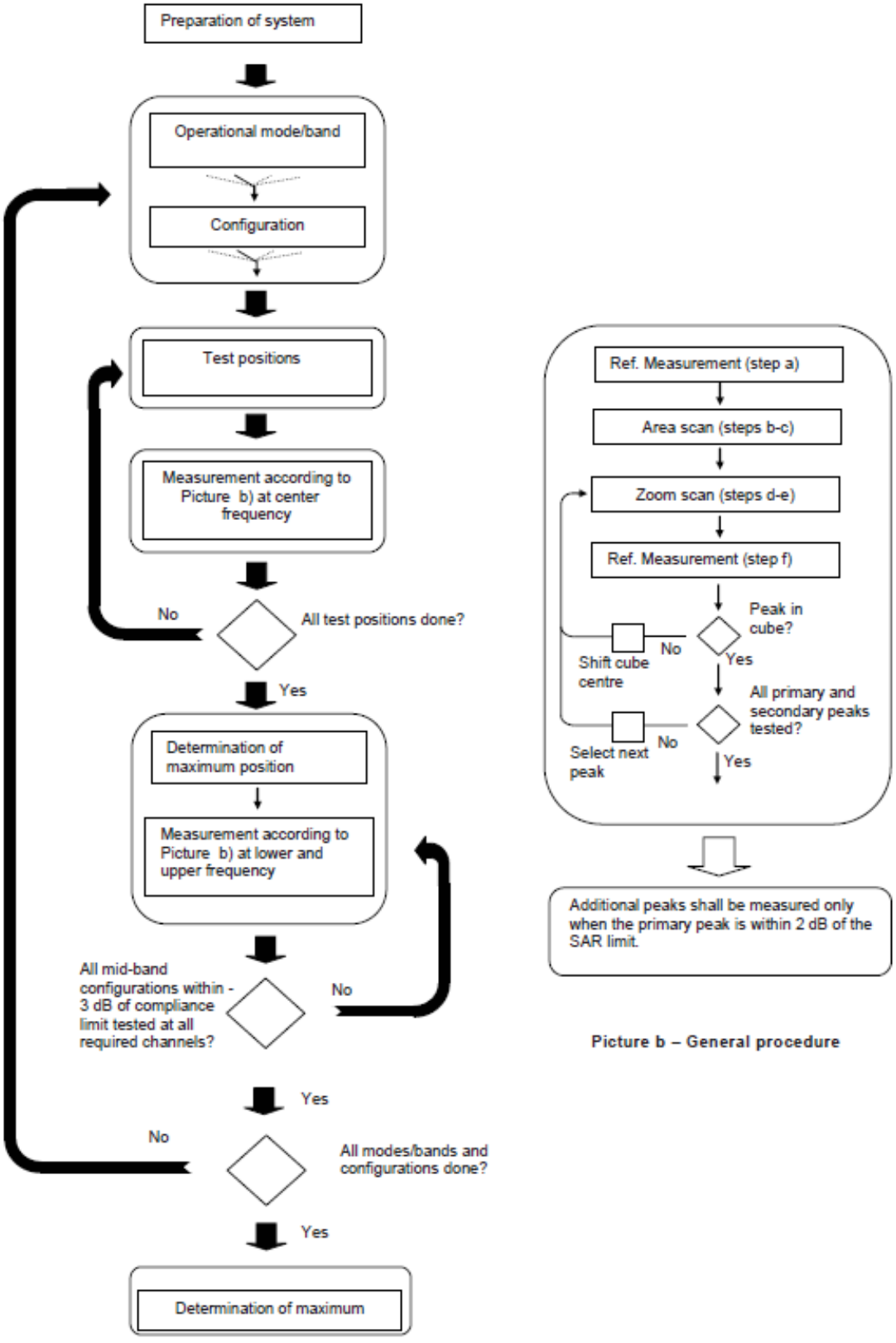
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

a) all device positions (cheek and tilt, for both left and right sides of the SAM phantom, as described in annex D),
b) all configurations for each device position in a), e.g., antenna extended and retracted, and
c) all operational modes, e.g., analogue and digital, for each device position in a) and configuration in b) in each frequency band.

If more than three frequencies need to be tested according to 11.1 (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 highest peak spatial-average SAR determined in Step 1,perform all tests described in 9.2 at all other test frequencies, i.e., 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 within3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

Step 3: Examine all data to determine the highest value of the peak spatial-average SAR found in Steps 1 to 2.



Picture 9-1 Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2003. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

9.3 WCDMA Measurement Procedures for SAR

The following procedures are applicable to WCDMA handsets operating under 3GPP Release99, Release 5 and Release 6. The default test configuration is to measure SAR with an established radio link between the DUT and a communication test set using a 12.2kbps RMC (reference measurement channel) configured in Test Loop Mode 1. SAR is selectively confirmed for other physical channel configurations (DPCCH & $DPDCH_n$), HSDPA and HSPA (HSUPA/HSDPA) modes according to output power, exposure conditions and device operating capabilities. Both uplink and downlink should be configured with the same RMC or AMR, when required. SAR for Release 5 HSDPA and Release 6 HSPA are measured using the applicable FRC (fixed reference channel) and E-DCH reference channel configurations. Maximum output power is verified according to applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. When Maximum Power Reduction (MPR) is not implemented according to Cubic Metric (CM) requirements for Release 6 HSPA, the following procedures do not apply.

For Release 5 HSDPA Data Devices:

Sub-test	β_c	β_d	β_d （SF）	β_c/β_d	β_{hs}	CM/dB
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15	15/15	64	12/15	24/25	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

For Release 6 HSPA Data Devices

Sub-test	β_c	β_d	β_d （SF）	β_c/β_d	β_{hs}	β_{ec}	β_{ed}	β_{ed} （SF）	β_{ed} （codes）	CM (dB)	MPR (dB)	AG Index	E-TFCI
1	11/15	15/15	64	11/15	22/15	209/225	1039/225	4	1	1.5	1.5	20	75
2	6/15	15/15	64	6/15	12/15	12/15	12/15	4	1	1.5	1.5	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	1.5	1.5	15	92
4	2/15	15/15	64	2/15	4/15	4/15	56/75	4	1	1.5	1.5	17	71
5	15/15	15/15	64	15/15	24/15	30/15	134/15	4	1	1.5	1.5	21	81

Rel.8 DC-HSDPA (Cat 24)

SAR test exclusion for Rel.8 DC-HSDPA must satisfy the SAR test exclusion requirements of Rel.5 HSDPA. SAR test exclusion for DC-HSDPA devices is determined by power measurements according to the H-Set 12, Fixed Reference Channel (FRC) configuration in Table C.8.1.12 of 3GPP TS 34.121-1. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to qualify for SAR test exclusion.

9.4 SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Rohde & Rchwarz CMW500. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the CMW 500.
It is performed for conducted power and SAR based on the KDB941225 D05.
SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

1) QPSK with 1 RB allocation
   Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.
2) QPSK with 50% RB allocation
   The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.
3) QPSK with 100% RB allocation
   For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 and the SAR test guidance provided in April 2013 TCB works hop notes. TDD is tested at the highest duty factor using UL-DL configuration 0 with special subframe configuration 6 and applying the FDD LTE procedures in KDB 941225 D05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

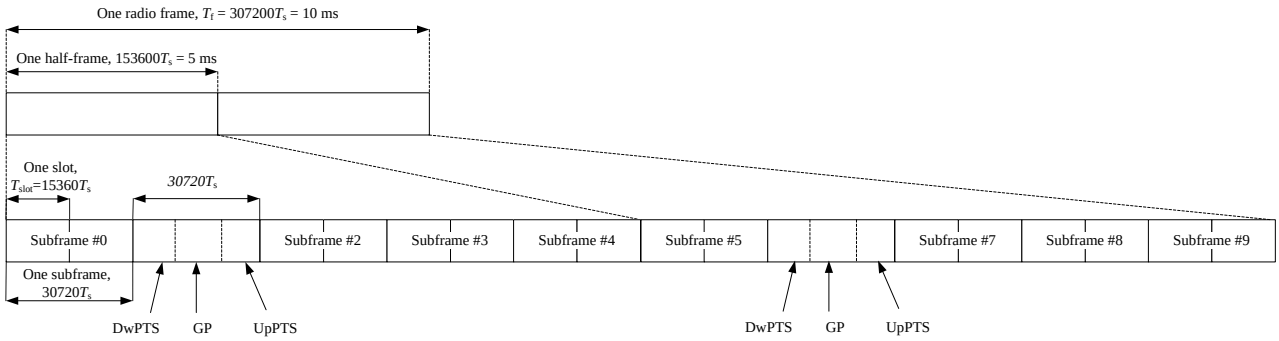


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

Table 9.1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	$6592\cdot T_s$	$2192\cdot T_s$	$2560\cdot T_s$	$7680\cdot T_s$	$2192\cdot T_s$	$2560\cdot T_s$
1	$19760\cdot T_s$			$20480\cdot T_s$		
2	$21952\cdot T_s$			$23040\cdot T_s$		
3	$24144\cdot T_s$			$25600\cdot T_s$		
4	$26336\cdot T_s$			$7680\cdot T_s$	$4384\cdot T_s$	$5120\cdot T_s$
5	$6592\cdot T_s$	$4384\cdot T_s$	$5120\cdot T_s$	$20480\cdot T_s$		
6	$19760\cdot T_s$			$23040\cdot T_s$		
7	$21952\cdot T_s$			$12800\cdot T_s$		
8	$24144\cdot T_s$			-	-	-
9	$13168\cdot T_s$			-	-	-

Table 9.2: Uplink-downlink configurations

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

Duty factor is calculated by:

Duty factor = uplink frame*6+UpPTS*2/one frame length

= (30720.T_s * 6+5120. T_s*2)/307200.T_s

= 0.633

9.5 Bluetooth & Wi-Fi Measurement Procedures for SAR

Normal network operating configurations are not suitable for measuring the SAR of 802.11 transmitters in general. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure that the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in a test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

9.6 Power Drift

To control the output power stability during the SAR test, DASY5 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in section14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

10 Area Scan Based 1-g SAR

10.1 Requirement of KDB

According to the KDB447498 D01, when the implementation is based the specific polynomial fit algorithm as presented at the 29th Bioelectromagnetics Society meeting (2007) and the estimated 1-gSAR is ≤ 1.2 W/kg, a zoom scan measurement is not required provided it is also not needed for any other purpose; for example, if the peak SAR location required for simultaneous transmission SAR test exclusion can be determined accurately by the SAR system or manually to discriminate between distinctive peaks and scattered noisy SAR distributions from area scans.

There must not be any warning or alert messages due to various measurement concerns identified by the SAR system; for example, noise in measurements, peaks too close to scan boundary, peaks are too sharp, spatial resolution and uncertainty issues etc. The SAR system verification must also demonstrate that the area scan estimated 1-g SAR is within 3% of the zoom scan 1-g SAR. When all the SAR results for each exposure condition in a frequency band and wireless mode are based on estimated 1-g SAR, the 1-g SAR for the highest SAR configuration must be determined by a zoom scan.

10.2 Fast SAR Algorithms

The approach is based on the area scan measurement applying a frequency dependent attenuation parameter. This attenuation parameter was empirically determined by analyzing a large number of phones. The MOTOROLA FAST SAR was developed and validated by the MOTOROLA Research Group in Ft. Lauderdale.

In the initial study, an approximation algorithm based on Linear fit was developed. The accuracy of the algorithm has been demonstrated across a broad frequency range (136-2450 MHz)and for both 1- and 10-g averaged SAR using a sample of 264 SAR measurements from 55wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm mare 1.2% and 5.8% for 1- and 10-g averaged SAR, respectively. The paper describing the algorithm in detail is expected to be published in August 2004 within the Special Issue of Transactions on MTT.

In the second step, the same research group optimized the fitting algorithm to an Polynomial fit whereby the frequency validity was extended to cover the range 30-6000MHz. Details of this study can be found in the BEMS 2007 Proceedings.

Both algorithms are implemented in DASY software.

11 Conducted Output Power

Receiver on	Receiver off
A	B

11.1 GSM Measurement result

GSM850_A/B

GSM 850 Speech (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.60	32.54	32.47	33.50	/	/	/	/
GSM 850 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.45	32.42	32.35	33.50	-9.03	23.42	23.39	23.32
2 Txslots	31.76	31.71	31.63	32.00	-6.02	25.74	25.69	25.61
3Txslots	29.97	29.94	29.84	30.00	-4.26	25.71	25.68	25.58
4 Txslots	28.91	28.82	28.71	29.50	-3.01	25.90	25.81	25.70
GSM 850 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.47	32.40	32.34	33.50	-9.03	23.44	23.37	23.31
2 Txslots	31.76	31.70	31.62	32.00	-6.02	25.74	25.68	25.60
3Txslots	29.96	29.93	29.82	30.00	-4.26	25.70	25.67	25.56
4 Txslots	28.91	28.81	28.69	29.50	-3.01	25.90	25.80	25.68
GSM 850 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	25.65	25.74	25.65	27.00	-9.03	16.62	16.71	16.62
2 Txslots	24.88	24.92	24.86	25.50	-6.02	18.86	18.90	18.84
3Txslots	23.22	23.21	23.13	23.50	-4.26	18.96	18.95	18.87
4 Txslots	22.27	22.24	22.15	23.00	-3.01	19.26	19.23	19.14

GSM1900_A/B

GSM 1900 Speech (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	29.09	29.31	29.41	30.00	/	/	/	/
GSM 1900 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	29.03	29.26	29.36	30.00	-9.03	20.00	20.23	20.33
2 Txslots	28.36	28.55	28.64	29.00	-6.02	22.34	22.53	22.62
3Txslots	26.51	26.62	26.67	27.00	-4.26	22.25	22.36	22.41
4 Txslots	25.25	25.53	25.56	26.00	-3.01	22.24	22.52	22.55
GSM 1900 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	29.05	29.27	29.36	30.00	-9.03	20.02	20.24	20.33
2 Txslots	28.38	28.56	28.64	29.00	-6.02	22.36	22.54	22.62
3Txslots	26.53	26.63	26.67	27.00	-4.26	22.27	22.37	22.41
4 Txslots	25.47	25.54	25.56	26.00	-3.01	22.46	22.53	22.55
GSM 1900 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)			Tune up	calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	25.71	25.72	25.69	26.00	-9.03	16.68	16.69	16.66
2 Txslots	24.66	24.65	24.15	25.00	-6.02	18.64	18.63	18.13
3Txslots	22.39	22.46	22.40	22.50	-4.26	18.13	18.20	18.14
4 Txslots	21.42	21.36	21.33	22.00	-3.01	18.41	18.35	18.32

11.2 WCDMA Measurement result

WCDMA1900_A

Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	Tune up
WCDMA	\	22.53	22.72	22.81	24.00
HSUPA	1	19.58	19.71	19.65	21.00
	2	19.69	19.74	19.64	21.00
	3	20.18	20.23	20.16	22.00
	4	19.30	19.46	19.54	20.50
	5	20.73	20.91	20.99	21.50
HSPA+	\	21.32	21.50	21.59	22.00
DC-HSDPA	1	20.66	20.84	20.92	21.00
	2	20.67	20.85	20.93	22.00
	3	20.72	20.90	20.98	21.50
	4	20.07	20.24	20.32	21.00

WCDMA1900_B

Item	band	FDDII result			
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)	Tune up
WCDMA	\	21.52	21.44	21.46	22.00
HSUPA	1	19.32	19.49	19.49	21.00
	2	19.51	19.63	19.50	21.00
	3	20.09	20.10	20.04	22.00
	4	19.07	19.20	19.40	20.50
	5	20.43	20.73	20.82	21.50
HSPA+	\	21.16	21.29	21.46	22.00
DC-HSDPA	1	20.37	20.60	20.68	21.00
	2	20.50	20.57	20.76	22.00
	3	20.53	20.78	20.68	21.50
	4	19.80	20.10	20.12	21.00

WCDMA1700_A

Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)	Tune up
WCDMA	\	22.73	22.66	22.85	24.00
HSUPA	1	20.05	20.13	20.04	21.00
	2	20.04	19.97	20.03	21.00
	3	20.89	20.79	20.98	22.00
	4	19.50	19.63	19.54	20.50
	5	21.07	21.11	21.02	21.50
HSPA+	\	21.57	21.56	21.52	22.00
DC-HSDPA	1	20.84	20.90	20.83	21.00
	2	20.86	20.88	20.93	22.00
	3	20.68	20.79	20.86	21.50
	4	20.39	20.31	20.34	21.00

WCDMA1700_B

Item	band	FDDIV result			
	ARFCN	1513 (1752.6MHz)	1412 (1732.4MHz)	1312 (1712.4MHz)	Tune up
WCDMA	\	21.60	21.58	21.66	22.00
HSUPA	1	19.94	19.96	19.76	21.00
	2	19.78	19.79	19.79	21.00
	3	20.74	20.49	20.83	22.00
	4	19.37	19.40	19.34	20.50
	5	20.83	20.88	20.91	21.50
HSPA+	\	21.47	21.28	21.32	22.50
DC-HSDPA	1	20.60	20.65	20.63	21.00
	2	20.67	20.63	20.77	22.00
	3	20.53	20.64	20.64	21.50
	4	20.13	20.16	20.12	21.00

WCDMA850_A/B

Item	band	FDDV result			
	ARFCN	4233 (846.6MHz)	4183 (836.6MHz)	4132 (826.4MHz)	Tune up
WCDMA	\	23.13	22.98	22.97	24.50
HSUPA	1	21.12	21.00	20.95	21.50
	2	21.01	21.01	20.94	21.50
	3	22.03	22.05	21.89	22.50
	4	20.36	20.31	20.43	21.50
	5	22.01	22.03	22.07	23.00
HSPA+	\	22.62	22.43	22.46	24.00
DC-HSDPA	1	21.87	21.97	21.79	23.50
	2	21.78	21.64	21.72	23.50
	3	21.37	21.02	21.19	23.00
	4	21.25	21.34	21.15	23.00

11.3 LTE Measurement result

Maximum Target Power for Production Unit

Band	Tune up (dBm)	
	A	B
Band 2	24.5	22
Band 7	24.5	21.5
Band 12/17	25	25
Band 13	25	25
Band 5/26	25	25
Band 41	24.5	24.5
Band 4/66	24.5	22

Maximum Power Reduction (MPR) for LTE

Modulation	1.4 MHz	MPR	3 MHz	MPR	5 MHz	MPR	10 MHz	MPR	15 MHz	MPR	20 MHz	MPR (dB)
QPSK	≤ 5	**0**	≤ 4	**0**	≤ 8	**0**	≤ 12	**0**	≤ 16	**0**	≤ 18	**0**
QPSK	> 5	1	> 4	1	> 8	1	> 12	1	> 16	1	> 18	1
16 QAM	≤ 5	1	≤ 4	1	≤ 8	1	≤ 12	1	≤ 16	1	≤ 18	1
16 QAM	> 5	2	> 4	2	> 8	2	> 12	2	> 16	2	> 18	2
64 QAM	≤ 5	2	≤ 4	2	≤ 8	2	≤ 12	2	≤ 16	2	≤ 18	2
64 QAM	> 5	3	> 4	3	> 8	3	> 12	3	> 16	3	> 18	3
256 QAM	≤ 5	5	≤ 4	5	≤ 8	5	≤ 12	5	≤ 16	5	≤ 18	5
256 QAM	> 5	5	> 4	5	> 8	5	> 12	5	> 16	5	> 18	5

LTE Band2_A

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1909.3 (19193)	23.45	22.17	21.42
		1880 (18900)	23.48	22.49	21.82
		1850.7 (18607)	23.09	22.42	21.80
	1RB-Middle (3)	1909.3 (19193)	23.55	22.24	21.68
		1880 (18900)	23.62	22.44	21.98
		1850.7 (18607)	23.19	22.60	21.83
	1RB-Low (0)	1909.3 (19193)	23.46	22.21	21.64
		1880 (18900)	23.50	22.43	21.76
		1850.7 (18607)	23.07	22.40	21.75
	3RB-High (3)	1909.3 (19193)	23.57	22.02	21.55
		1880 (18900)	23.54	22.28	21.78
		1850.7 (18607)	23.18	22.20	21.61
	3RB-Middle (1)	1909.3 (19193)	23.63	22.06	21.64
		1880 (18900)	23.65	22.20	21.86
		1850.7 (18607)	23.24	22.24	21.75
	3RB-Low (0)	1909.3 (19193)	23.56	22.07	21.65
		1880 (18900)	23.41	22.14	21.84
		1850.7 (18607)	23.19	22.21	21.69
	6RB (0)	1909.3 (19193)	22.57	21.36	20.59
		1880 (18900)	22.70	21.54	20.73
		1850.7 (18607)	22.29	21.44	20.74
3MHz	1RB-High (14)	1908.5 (19185)	23.47	22.63	21.67
		1880 (18900)	23.57	22.87	21.80
		1851.5 (18615)	23.60	22.94	21.85
	1RB-Middle (7)	1908.5 (19185)	23.63	22.88	21.88
		1880 (18900)	23.67	22.96	22.01
		1851.5 (18615)	23.70	22.92	21.96
	1RB-Low (0)	1908.5 (19185)	23.51	22.70	21.71
		1880 (18900)	23.57	22.84	21.85
		1851.5 (18615)	23.54	22.68	21.75
	8RB-High (7)	1908.5 (19185)	22.55	21.58	20.59
		1880 (18900)	22.62	21.71	20.71
		1851.5 (18615)	22.61	21.56	20.68
	8RB-Middle (4)	1908.5 (19185)	22.57	21.61	20.61
		1880 (18900)	22.68	21.78	20.72
		1851.5 (18615)	22.52	21.74	20.70
	8RB-Low (0)	1908.5 (19185)	22.59	21.65	20.61
		1880 (18900)	22.64	21.75	20.69
		1851.5 (18615)	22.51	21.53	20.70
	15RB (0)	1908.5 (19185)	22.60	21.59	20.60
		1880 (18900)	22.65	21.69	20.63
		1851.5 (18615)	22.37	21.58	20.65

5MHz	1RB-High (24)	1907.5 (19175)	23.41	22.54	21.63
		1880 (18900)	23.48	22.78	21.76
		1852.5 (18625)	23.50	22.70	21.75
	1RB-Middle (12)	1907.5 (19175)	23.70	22.98	21.91
		1880 (18900)	23.74	23.16	22.03
		1852.5 (18625)	23.72	23.11	22.11
	1RB-Low (0)	1907.5 (19175)	23.46	22.71	21.64
		1880 (18900)	23.47	22.86	21.72
		1852.5 (18625)	23.48	22.71	21.73
	12RB-High (13)	1907.5 (19175)	22.57	21.53	20.58
		1880 (18900)	22.65	21.66	20.70
		1852.5 (18625)	22.69	21.70	20.76
	12RB-Middle (6)	1907.5 (19175)	22.69	21.66	20.67
		1880 (18900)	22.71	21.70	20.74
		1852.5 (18625)	22.70	21.71	20.75
	12RB-Low (0)	1907.5 (19175)	22.59	21.59	20.63
		1880 (18900)	22.66	21.66	20.71
		1852.5 (18625)	22.65	21.63	20.70
	25RB (0)	1907.5 (19175)	22.64	21.60	20.61
		1880 (18900)	22.67	21.68	20.68
		1852.5 (18625)	22.69	21.64	20.70

10MHz	1RB-High (49)	1905 (19150)	23.53	22.76	21.69
		1880 (18900)	23.56	22.83	21.72
		1855 (18650)	23.56	22.77	21.66
	1RB-Middle (24)	1905 (19150)	23.68	22.86	21.86
		1880 (18900)	23.70	23.00	21.99
		1855 (18650)	23.70	23.00	21.93
	1RB-Low (0)	1905 (19150)	23.56	22.74	21.72
		1880 (18900)	23.63	22.86	21.90
		1855 (18650)	23.61	22.93	21.81
	25RB-High (25)	1905 (19150)	22.74	21.69	20.72
		1880 (18900)	22.71	21.73	20.74
		1855 (18650)	22.80	21.80	20.82
	25RB-Middle (12)	1905 (19150)	22.72	21.70	20.71
		1880 (18900)	22.72	21.73	20.72
		1855 (18650)	22.72	21.74	20.72
	25RB-Low (0)	1905 (19150)	22.77	21.75	20.76
		1880 (18900)	22.79	21.80	20.78
		1855 (18650)	22.73	21.72	20.73
	50RB (0)	1905 (19150)	22.75	21.73	20.73
		1880 (18900)	22.76	21.77	20.77
		1855 (18650)	22.77	21.75	20.76

15MHz	1RB-High (74)	1902.5 (19125)	23.43	22.56	21.59
		1880 (18900)	23.45	22.67	21.75
		1857.5 (18675)	23.47	22.69	21.64
	1RB-Middle (37)	1902.5 (19125)	23.54	22.67	21.74
		1880 (18900)	23.60	22.96	21.81
		1857.5 (18675)	23.59	22.84	21.72
	1RB-Low (0)	1902.5 (19125)	23.45	22.52	21.67
		1880 (18900)	23.49	22.81	21.77
		1857.5 (18675)	23.52	22.85	21.81
	36RB-High (38)	1902.5 (19125)	22.68	21.64	20.68
		1880 (18900)	22.71	21.71	20.75
		1857.5 (18675)	22.73	21.68	20.74
	36RB-Middle (19)	1902.5 (19125)	22.72	21.68	20.70
		1880 (18900)	22.72	21.71	20.73
		1857.5 (18675)	22.73	21.67	20.70
	36RB-Low (0)	1902.5 (19125)	22.71	21.67	20.71
		1880 (18900)	22.77	21.74	20.79
		1857.5 (18675)	22.69	21.65	20.68
	75RB (0)	1902.5 (19125)	22.72	21.68	20.69
		1880 (18900)	22.73	21.74	20.74
		1857.5 (18675)	22.71	21.70	20.71

20MHz	1RB-High (99)	1900 (19100)	23.27	22.47	21.45
		1880 (18900)	23.28	22.61	21.52
		1860 (18700)	23.36	22.51	21.58
	1RB-Middle (50)	1900 (19100)	23.59	22.86	21.79
		1880 (18900)	23.74	22.91	21.90
		1860 (18700)	23.62	22.73	21.82
	1RB-Low (0)	1900 (19100)	23.29	22.59	21.49
		1880 (18900)	23.35	22.67	21.55
		1860 (18700)	23.36	22.66	21.59
	50RB-High (50)	1900 (19100)	22.59	21.59	20.63
		1880 (18900)	22.71	21.70	20.74
		1860 (18700)	22.73	21.70	20.71
	50RB-Middle (25)	1900 (19100)	22.72	21.69	20.67
		1880 (18900)	22.73	21.74	20.76
		1860 (18700)	22.73	21.70	20.72
	50RB-Low (0)	1900 (19100)	22.67	21.64	20.65
		1880 (18900)	22.79	21.78	20.81
		1860 (18700)	22.58	21.56	20.60
	100RB (0)	1900 (19100)	22.65	21.60	20.62
		1880 (18900)	22.76	21.75	20.79
		1860 (18700)	22.63	21.60	20.65

LTE Band2_B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1909.3 (19193)	20.57	20.80	20.72
		1880 (18900)	20.59	20.91	20.77
		1850.7 (18607)	20.60	20.93	20.78
	1RB-Middle (3)	1909.3 (19193)	20.72	21.00	20.84
		1880 (18900)	20.73	20.99	20.92
		1850.7 (18607)	20.75	21.09	20.92
	1RB-Low (0)	1909.3 (19193)	20.54	20.88	20.82
		1880 (18900)	20.60	20.97	20.83
		1850.7 (18607)	20.59	20.92	20.82
	3RB-High (3)	1909.3 (19193)	20.63	20.65	20.72
		1880 (18900)	20.71	20.73	20.85
		1850.7 (18607)	20.73	20.73	20.86
	3RB-Middle (1)	1909.3 (19193)	20.69	20.74	20.76
		1880 (18900)	20.74	20.73	20.93
		1850.7 (18607)	20.77	20.82	20.83
	3RB-Low (0)	1909.3 (19193)	20.66	20.62	20.73
		1880 (18900)	20.71	20.72	20.82
		1850.7 (18607)	20.69	20.74	20.84
	6RB (0)	1909.3 (19193)	20.64	20.73	20.65
		1880 (18900)	20.70	20.85	20.73
		1850.7 (18607)	20.71	20.84	20.71
3MHz	1RB-High (14)	1908.5 (19185)	20.57	20.86	20.75
		1880 (18900)	20.65	20.94	20.86
		1851.5 (18615)	20.65	20.89	20.91
	1RB-Middle (7)	1908.5 (19185)	20.72	21.14	20.96
		1880 (18900)	20.82	21.07	20.99
		1851.5 (18615)	20.82	21.13	20.96
	1RB-Low (0)	1908.5 (19185)	20.60	20.90	20.81
		1880 (18900)	20.61	20.95	20.86
		1851.5 (18615)	20.65	20.90	20.82
	8RB-High (7)	1908.5 (19185)	20.59	20.69	20.59
		1880 (18900)	20.64	20.74	20.71
		1851.5 (18615)	20.64	20.73	20.73
	8RB-Middle (4)	1908.5 (19185)	20.63	20.68	20.65
		1880 (18900)	20.70	20.77	20.76
		1851.5 (18615)	20.67	20.78	20.74
	8RB-Low (0)	1908.5 (19185)	20.65	20.72	20.69
		1880 (18900)	20.64	20.77	20.74
		1851.5 (18615)	20.65	20.75	20.71
	15RB (0)	1908.5 (19185)	20.62	20.64	20.64
		1880 (18900)	20.61	20.69	20.66
		1851.5 (18615)	20.64	20.68	20.67

5MHz	1RB-High (24)	1907.5 (19175)	20.51	20.71	20.67
		1880 (18900)	20.52	20.95	20.78
		1852.5 (18625)	20.55	20.81	20.78
	1RB-Middle (12)	1907.5 (19175)	20.81	21.04	20.91
		1880 (18900)	20.78	21.19	20.98
		1852.5 (18625)	20.85	21.19	21.12
	1RB-Low (0)	1907.5 (19175)	20.56	20.83	20.68
		1880 (18900)	20.55	20.97	20.76
		1852.5 (18625)	20.53	20.87	20.72
	12RB-High (13)	1907.5 (19175)	20.60	20.62	20.63
		1880 (18900)	20.67	20.71	20.72
		1852.5 (18625)	20.74	20.73	20.76
	12RB-Middle (6)	1907.5 (19175)	20.72	20.71	20.71
		1880 (18900)	20.71	20.75	20.77
		1852.5 (18625)	20.71	20.73	20.75
	12RB-Low (0)	1907.5 (19175)	20.65	20.68	20.66
		1880 (18900)	20.68	20.70	20.72
		1852.5 (18625)	20.64	20.66	20.70
	25RB (0)	1907.5 (19175)	20.65	20.66	20.67
		1880 (18900)	20.67	20.73	20.71
		1852.5 (18625)	20.67	20.71	20.70

10MHz	1RB-High (49)	1905 (19150)	20.59	20.89	20.75
		1880 (18900)	20.63	20.86	20.87
		1855 (18650)	20.61	20.98	20.73
	1RB-Middle (24)	1905 (19150)	20.75	21.08	20.92
		1880 (18900)	20.81	21.19	20.97
		1855 (18650)	20.74	21.15	20.90
	1RB-Low (0)	1905 (19150)	20.66	20.95	20.84
		1880 (18900)	20.66	20.99	20.91
		1855 (18650)	20.65	21.06	20.96
	25RB-High (25)	1905 (19150)	20.75	20.76	20.74
		1880 (18900)	20.72	20.78	20.78
		1855 (18650)	20.72	20.81	20.81
	25RB-Middle (12)	1905 (19150)	20.73	20.76	20.73
		1880 (18900)	20.70	20.76	20.75
		1855 (18650)	20.71	20.74	20.72
	25RB-Low (0)	1905 (19150)	20.81	20.82	20.82
		1880 (18900)	20.78	20.81	20.82
		1855 (18650)	20.70	20.74	20.73
	50RB (0)	1905 (19150)	20.77	20.81	20.79
		1880 (18900)	20.74	20.81	20.79
		1855 (18650)	20.76	20.80	20.77

15MHz	1RB-High (74)	1902.5 (19125)	20.52	20.87	20.70
		1880 (18900)	20.54	20.82	20.70
		1857.5 (18675)	20.52	20.86	20.72
	1RB-Middle (37)	1902.5 (19125)	20.66	20.93	20.79
		1880 (18900)	20.69	20.98	20.87
		1857.5 (18675)	20.66	20.92	20.88
	1RB-Low (0)	1902.5 (19125)	20.54	20.85	20.73
		1880 (18900)	20.58	20.78	20.82
		1857.5 (18675)	20.59	21.01	20.84
	36RB-High (38)	1902.5 (19125)	20.72	20.71	20.78
		1880 (18900)	20.75	20.75	20.76
		1857.5 (18675)	20.73	20.71	20.76
	36RB-Middle (19)	1902.5 (19125)	20.74	20.71	20.74
		1880 (18900)	20.74	20.77	20.77
		1857.5 (18675)	20.72	20.72	20.72
	36RB-Low (0)	1902.5 (19125)	20.74	20.73	20.76
		1880 (18900)	20.72	20.80	20.84
		1857.5 (18675)	20.68	20.72	20.70
	75RB (0)	1902.5 (19125)	20.73	20.76	20.74
		1880 (18900)	20.74	20.79	20.77
		1857.5 (18675)	20.69	20.73	20.71

20MHz	1RB-High (99)	1900 (19100)	20.57	20.60	20.50
		1880 (18900)	20.59	20.75	20.62
		1860 (18700)	20.65	20.79	20.62
	1RB-Middle (50)	1900 (19100)	20.78	20.95	20.93
		1880 (18900)	20.79	21.06	21.07
		1860 (18700)	20.72	21.07	20.90
	1RB-Low (0)	1900 (19100)	20.60	20.77	20.66
		1880 (18900)	20.63	20.75	20.60
		1860 (18700)	20.64	20.84	20.72
	50RB-High (50)	1900 (19100)	20.67	20.69	20.69
		1880 (18900)	20.73	20.78	20.78
		1860 (18700)	20.70	20.74	20.72
	50RB-Middle (25)	1900 (19100)	20.74	20.75	20.76
		1880 (18900)	20.75	20.78	20.80
		1860 (18700)	20.73	20.75	20.74
	50RB-Low (0)	1900 (19100)	20.77	20.74	20.72
		1880 (18900)	20.83	20.84	20.82
		1860 (18700)	20.65	20.64	20.63
	100RB (0)	1900 (19100)	20.70	20.71	20.68
		1880 (18900)	20.79	20.80	20.81
		1860 (18700)	20.67	20.68	20.69

LTE Band7_A

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2567.5 (21425)	22.97	22.31	21.09
		2535 (21100)	22.79	22.11	21.03
		2502.5 (20775)	22.59	21.84	20.83
	1RB-Middle (12)	2567.5 (21425)	23.15	22.50	21.38
		2535 (21100)	23.03	22.24	21.22
		2502.5 (20775)	22.88	22.08	21.01
	1RB-Low (0)	2567.5 (21425)	22.92	22.27	21.18
		2535 (21100)	22.79	22.10	20.95
		2502.5 (20775)	22.63	21.86	20.82
	12RB-High (13)	2567.5 (21425)	22.17	21.11	20.15
		2535 (21100)	21.97	20.96	19.99
		2502.5 (20775)	21.78	20.77	19.79
	12RB-Middle (6)	2567.5 (21425)	22.21	21.15	20.18
		2535 (21100)	22.03	20.98	20.02
		2502.5 (20775)	21.82	20.77	19.83
	12RB-Low (0)	2567.5 (21425)	22.14	21.11	20.14
		2535 (21100)	21.95	20.92	19.97
		2502.5 (20775)	21.73	20.73	19.75
	25RB (0)	2567.5 (21425)	22.16	21.16	20.12
		2535 (21100)	22.00	20.98	19.96
		2502.5 (20775)	21.79	20.75	19.76
10MHz	1RB-High (49)	2565 (21400)	23.55	22.26	21.18
		2535 (21100)	22.92	22.21	21.07
		2505 (20800)	22.67	21.94	20.86
	1RB-Middle (24)	2565 (21400)	23.19	22.34	21.35
		2535 (21100)	23.02	22.23	21.20
		2505 (20800)	22.79	22.11	21.01
	1RB-Low (0)	2565 (21400)	23.08	22.36	21.28
		2535 (21100)	22.89	22.19	21.09
		2505 (20800)	22.72	22.02	20.92
	25RB-High (25)	2565 (21400)	22.19	21.19	20.16
		2535 (21100)	22.04	21.01	20.04
		2505 (20800)	21.83	20.82	19.85
	25RB-Middle (12)	2565 (21400)	22.18	21.16	20.16
		2535 (21100)	22.02	21.04	20.03
		2505 (20800)	21.83	20.80	19.79
	25RB-Low (0)	2565 (21400)	22.19	21.16	20.19
		2535 (21100)	22.01	20.99	20.00
		2505 (20800)	21.78	20.75	19.76
	50RB (0)	2565 (21400)	22.21	21.19	20.17
		2535 (21100)	22.04	21.02	20.00
		2505 (20800)	21.81	20.81	19.80

15MHz	1RB-High (74)	2562.5 (21375)	23.46	22.28	21.07
		2535 (21100)	22.81	22.04	21.09
		2507.5 (20825)	22.61	21.80	20.80
	1RB-Middle (37)	2562.5 (21375)	23.56	22.40	21.29
		2535 (21100)	22.93	22.26	21.16
		2507.5 (20825)	22.73	22.00	20.98
	1RB-Low (0)	2562.5 (21375)	23.44	22.29	21.16
		2535 (21100)	22.80	22.01	21.02
		2507.5 (20825)	22.66	21.95	20.93
	36RB-High (38)	2562.5 (21375)	22.46	21.14	20.13
		2535 (21100)	22.03	20.97	20.02
		2507.5 (20825)	21.83	20.75	19.85
	36RB-Middle (19)	2562.5 (21375)	22.24	21.13	20.16
		2535 (21100)	22.05	20.99	20.02
		2507.5 (20825)	21.84	20.76	20.12
	36RB-Low (0)	2562.5 (21375)	22.14	21.12	20.10
		2535 (21100)	22.01	20.96	19.98
		2507.5 (20825)	21.77	20.70	19.75
	75RB (0)	2562.5 (21375)	22.17	21.13	20.14
		2535 (21100)	22.01	20.99	19.97
		2507.5 (20825)	21.78	20.76	19.79

20MHz	1RB-High (99)	2560 (21350)	23.15	22.05	20.96
		2535 (21100)	22.66	21.97	20.95
		2510 (20850)	22.59	21.71	20.67
	1RB-Middle (50)	2560 (21350)	23.60	22.49	21.37
		2535 (21100)	22.94	22.27	21.21
		2510 (20850)	22.78	22.04	21.04
	1RB-Low (0)	2560 (21350)	23.17	21.99	20.97
		2535 (21100)	22.55	21.82	20.71
		2510 (20850)	22.52	21.77	20.68
	50RB-High (50)	2560 (21350)	22.54	21.11	20.08
		2535 (21100)	21.97	21.00	19.99
		2510 (20850)	21.75	20.74	19.76
	50RB-Middle (25)	2560 (21350)	22.45	21.18	20.17
		2535 (21100)	22.04	21.02	20.00
		2510 (20850)	21.84	20.81	19.77
	50RB-Low (0)	2560 (21350)	22.55	21.11	20.11
		2535 (21100)	21.95	20.95	19.97
		2510 (20850)	21.72	20.72	19.68
	100RB (0)	2560 (21350)	22.56	21.10	20.11
		2535 (21100)	21.98	20.96	19.95
		2510 (20850)	21.73	20.71	19.70

LTE Band7_B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2567.5 (21425)	20.05	19.92	19.74
		2535 (21100)	19.83	19.66	19.63
		2502.5 (20775)	20.09	20.05	19.96
	1RB-Middle (12)	2567.5 (21425)	20.33	20.10	19.97
		2535 (21100)	20.08	19.92	19.83
		2502.5 (20775)	20.23	20.53	20.07
	1RB-Low (0)	2567.5 (21425)	19.80	19.79	19.66
		2535 (21100)	19.78	19.70	19.60
		2502.5 (20775)	20.08	20.26	20.15
	12RB-High (13)	2567.5 (21425)	20.06	19.65	19.69
		2535 (21100)	20.03	19.58	19.59
		2502.5 (20775)	20.24	20.13	20.17
	12RB-Middle (6)	2567.5 (21425)	20.01	19.72	19.68
		2535 (21100)	20.01	19.62	19.63
		2502.5 (20775)	20.25	20.18	20.27
	12RB-Low (0)	2567.5 (21425)	19.87	19.62	19.65
		2535 (21100)	20.10	19.57	19.60
		2502.5 (20775)	20.20	20.19	20.17
	25RB (0)	2567.5 (21425)	19.68	19.67	19.65
		2535 (21100)	20.07	19.60	19.56
		2502.5 (20775)	20.22	20.10	19.93
10MHz	1RB-High (49)	2565 (21400)	20.17	20.01	19.83
		2535 (21100)	19.72	19.75	19.64
		2505 (20800)	20.16	19.95	19.89
	1RB-Middle (24)	2565 (21400)	20.23	19.97	19.82
		2535 (21100)	20.04	19.98	19.80
		2505 (20800)	20.29	20.66	20.30
	1RB-Low (0)	2565 (21400)	20.13	19.98	19.85
		2535 (21100)	19.74	19.98	19.80
		2505 (20800)	20.20	20.32	20.06
	25RB-High (25)	2565 (21400)	20.10	19.71	19.72
		2535 (21100)	19.93	19.62	19.61
		2505 (20800)	20.30	20.20	19.94
	25RB-Middle (12)	2565 (21400)	19.84	19.69	19.69
		2535 (21100)	19.90	19.67	19.63
		2505 (20800)	20.26	20.23	20.27
	25RB-Low (0)	2565 (21400)	19.76	19.68	19.71
		2535 (21100)	19.83	19.67	19.64
		2505 (20800)	20.25	20.25	20.26
	50RB (0)	2565 (21400)	19.72	19.74	19.70
		2535 (21100)	19.75	19.63	19.65
		2505 (20800)	20.29	20.21	19.83

15MHz	1RB-High (74)	2562.5 (21375)	20.06	20.34	19.74
		2535 (21100)	19.89	19.70	19.58
		2507.5 (20825)	20.08	19.91	20.01
	1RB-Middle (37)	2562.5 (21375)	20.16	20.36	20.10
		2535 (21100)	20.05	19.96	19.85
		2507.5 (20825)	20.20	20.41	20.47
	1RB-Low (0)	2562.5 (21375)	20.01	19.88	19.88
		2535 (21100)	19.82	19.81	19.75
		2507.5 (20825)	20.15	20.23	20.26
	36RB-High (38)	2562.5 (21375)	20.22	19.88	19.71
		2535 (21100)	20.12	19.60	19.62
		2507.5 (20825)	20.26	20.13	20.01
	36RB-Middle (19)	2562.5 (21375)	20.22	20.09	19.95
		2535 (21100)	20.18	19.63	19.65
		2507.5 (20825)	20.24	20.10	20.27
	36RB-Low (0)	2562.5 (21375)	20.17	19.72	19.88
		2535 (21100)	20.17	19.64	19.66
		2507.5 (20825)	20.25	20.12	20.26
	75RB (0)	2562.5 (21375)	20.18	19.91	19.67
		2535 (21100)	20.11	19.66	19.62
		2507.5 (20825)	20.25	20.26	19.98
20MHz	1RB-High (99)	2560 (21350)	19.82	19.87	19.60
		2535 (21100)	19.56	19.66	19.51
		2510 (20850)	19.81	19.95	19.55
	1RB-Middle (50)	2560 (21350)	20.25	20.33	20.22
		2535 (21100)	19.70	20.02	19.85
		2510 (20850)	20.24	20.55	20.44
	1RB-Low (0)	2560 (21350)	19.79	19.87	19.77
		2535 (21100)	19.62	19.73	19.54
		2510 (20850)	19.91	20.18	20.09
	50RB-High (50)	2560 (21350)	20.07	19.67	19.63
		2535 (21100)	19.64	19.62	19.61
		2510 (20850)	20.04	20.18	19.87
	50RB-Middle (25)	2560 (21350)	20.21	19.87	20.11
		2535 (21100)	19.81	19.66	19.66
		2510 (20850)	20.05	20.22	20.22
	50RB-Low (0)	2560 (21350)	20.17	19.69	19.96
		2535 (21100)	19.68	19.69	19.69
		2510 (20850)	20.02	20.06	20.08
	100RB (0)	2560 (21350)	19.93	19.82	19.65
		2535 (21100)	19.66	19.64	19.64
		2510 (20850)	20.25	20.15	19.97

LTE Band12_A/B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	715.3 (23173)	23.61	22.25	21.31
		707.5 (23095)	23.13	22.34	21.70
		699.7 (23017)	23.08	22.42	21.70
	1RB-Middle (3)	715.3 (23173)	23.72	22.37	21.44
		707.5 (23095)	23.25	22.44	21.63
		699.7 (23017)	23.21	22.44	21.87
	1RB-Low (0)	715.3 (23173)	23.60	22.29	21.32
		707.5 (23095)	23.11	22.35	21.56
		699.7 (23017)	23.09	22.40	21.63
	3RB-High (3)	715.3 (23173)	23.59	22.12	21.35
		707.5 (23095)	23.54	22.18	21.33
		699.7 (23017)	23.21	22.08	21.67
	3RB-Middle (1)	715.3 (23173)	23.69	22.21	21.39
		707.5 (23095)	23.48	22.25	21.63
		699.7 (23017)	23.21	22.24	21.75
	3RB-Low (0)	715.3 (23173)	23.29	22.23	21.34
		707.5 (23095)	23.54	22.18	21.46
		699.7 (23017)	23.18	22.15	21.40
	6RB (0)	715.3 (23173)	22.33	21.36	20.34
		707.5 (23095)	22.64	21.36	20.77
		699.7 (23017)	22.18	21.38	20.70
3MHz	1RB-High (14)	714.5 (23165)	23.66	22.31	21.80
		707.5 (23095)	23.52	22.53	21.92
		700.5 (23025)	23.65	22.85	21.99
	1RB-Middle (7)	714.5 (23165)	23.79	22.63	21.80
		707.5 (23095)	23.40	22.57	22.01
		700.5 (23025)	23.78	22.95	22.04
	1RB-Low (0)	714.5 (23165)	23.68	22.54	21.75
		707.5 (23095)	23.18	22.54	21.88
		700.5 (23025)	23.32	22.96	21.99
	8RB-High (7)	714.5 (23165)	22.68	21.30	20.76
		707.5 (23095)	22.32	21.32	20.79
		700.5 (23025)	22.70	21.79	20.79
	8RB-Middle (4)	714.5 (23165)	22.74	21.36	20.88
		707.5 (23095)	22.27	21.38	20.82
		700.5 (23025)	22.71	21.82	20.82
	8RB-Low (0)	714.5 (23165)	22.72	21.33	20.74
		707.5 (23095)	22.23	21.45	20.79
		700.5 (23025)	22.67	21.80	20.83
	15RB (0)	714.5 (23165)	22.70	21.26	20.73
		707.5 (23095)	22.39	21.37	20.77
		700.5 (23025)	22.67	21.76	20.77

5MHz	1RB-High (24)	713.5 (23155)	23.59	22.35	21.42
		707.5 (23095)	23.43	22.42	21.67
		701.5 (23035)	23.38	22.75	21.89
	1RB-Middle (12)	713.5 (23155)	23.82	22.69	21.66
		707.5 (23095)	23.52	22.56	22.03
		701.5 (23035)	23.68	23.05	22.07
	1RB-Low (0)	713.5 (23155)	23.60	22.44	21.33
		707.5 (23095)	23.11	22.35	21.79
		701.5 (23035)	23.30	22.62	21.88
	12RB-High (13)	713.5 (23155)	22.65	21.17	20.48
		707.5 (23095)	22.40	21.21	20.81
		701.5 (23035)	22.48	21.53	20.78
	12RB-Middle (6)	713.5 (23155)	22.78	21.40	20.77
		707.5 (23095)	22.29	21.49	20.82
		701.5 (23035)	22.25	21.67	20.86
	12RB-Low (0)	713.5 (23155)	22.77	21.27	20.80
		707.5 (23095)	22.26	21.24	20.78
		701.5 (23035)	22.39	21.70	20.77
	25RB (0)	713.5 (23155)	22.68	21.29	20.82
		707.5 (23095)	22.36	21.33	20.80
		701.5 (23035)	22.65	21.71	20.77

10MHz	1RB-High (49)	711 (23130)	23.52	22.42	21.69
		707.5 (23095)	23.15	22.57	21.83
		704 (23060)	23.09	22.45	21.87
	1RB-Middle (24)	711 (23130)	23.69	22.71	21.74
		707.5 (23095)	23.28	22.58	21.98
		704 (23060)	23.31	22.59	22.05
	1RB-Low (0)	711 (23130)	23.68	22.52	21.52
		707.5 (23095)	23.21	22.54	21.85
		704 (23060)	23.19	22.34	21.97
	25RB-High (25)	711 (23130)	22.68	21.54	20.74
		707.5 (23095)	22.22	21.28	20.80
		704 (23060)	22.23	21.32	20.82
	25RB-Middle (12)	711 (23130)	22.77	21.79	20.83
		707.5 (23095)	22.24	21.37	20.85
		704 (23060)	22.27	21.43	20.87
	25RB-Low (0)	711 (23130)	22.74	21.85	20.81
		707.5 (23095)	22.21	21.53	20.80
		704 (23060)	22.30	21.79	20.88
	50RB (0)	711 (23130)	22.70	21.70	20.80
		707.5 (23095)	22.22	21.53	20.79
		704 (23060)	22.32	21.88	20.89

LTE Band13_A/B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	784.5 (23255)	23.83	22.61	21.45
		782 (23230)	23.29	22.61	21.58
		779.5 (23205)	23.31	22.56	21.61
	1RB-Middle (12)	784.5 (23255)	24.12	22.84	21.86
		782 (23230)	23.62	22.80	21.77
		779.5 (23205)	23.68	22.86	21.92
	1RB-Low (0)	784.5 (23255)	23.85	22.56	21.51
		782 (23230)	23.36	22.51	21.52
		779.5 (23205)	23.32	22.62	21.58
	12RB-High (13)	784.5 (23255)	22.89	21.48	20.60
		782 (23230)	22.43	21.45	20.60
		779.5 (23205)	22.43	21.45	20.83
	12RB-Middle (6)	784.5 (23255)	22.79	21.57	20.63
		782 (23230)	22.54	21.52	20.68
		779.5 (23205)	22.53	21.56	20.79
	12RB-Low (0)	784.5 (23255)	22.50	21.47	20.58
		782 (23230)	22.52	21.54	20.63
		779.5 (23205)	22.46	21.43	20.83
	25RB (0)	784.5 (23255)	22.57	21.54	20.69
		782 (23230)	22.50	21.50	20.87
		779.5 (23205)	22.50	21.49	21.04
10MHz	1RB-High (49)	782 (23230)	23.43	22.58	21.59
	1RB-Middle (24)	782 (23230)	23.56	22.80	21.68
	1RB-Low (0)	782 (23230)	23.46	22.69	21.63
	25RB-High (25)	782 (23230)	22.52	21.53	20.56
	25RB-Middle (12)	782 (23230)	22.59	21.55	20.66
	25RB-Low (0)	782 (23230)	22.58	21.58	20.64
	50RB (0)	782 (23230)	22.55	21.55	20.62

LTE Band26_A/B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	848.3 (27033)	24.07	23.21	22.05
		831.5 (26865)	24.08	23.00	22.16
		814.7 (26697)	24.15	23.02	22.35
	1RB-Middle (3)	848.3 (27033)	24.16	23.25	22.31
		831.5 (26865)	24.16	22.93	22.40
		814.7 (26697)	24.26	23.49	22.46
	1RB-Low (0)	848.3 (27033)	24.06	23.01	22.10
		831.5 (26865)	24.08	23.08	22.12
		814.7 (26697)	24.18	23.37	22.42
	3RB-High (3)	848.3 (27033)	24.16	22.70	21.92
		831.5 (26865)	24.15	22.76	22.16
		814.7 (26697)	24.27	23.24	22.39
	3RB-Middle (1)	848.3 (27033)	24.17	22.69	21.81
		831.5 (26865)	24.25	22.71	22.21
		814.7 (26697)	24.33	23.24	22.40
	3RB-Low (0)	848.3 (27033)	24.14	22.66	21.76
		831.5 (26865)	24.19	22.79	22.07
		814.7 (26697)	24.29	23.21	22.39
	6RB (0)	848.3 (27033)	23.20	21.83	20.96
		831.5 (26865)	23.26	22.06	21.17
		814.7 (26697)	23.37	22.36	21.32
3MHz	1RB-High (14)	847.5 (27025)	23.99	23.23	22.30
		831.5 (26865)	23.59	23.28	22.31
		815.5 (26705)	24.17	23.40	22.38
	1RB-Middle (7)	847.5 (27025)	23.80	23.50	22.40
		831.5 (26865)	23.72	23.51	22.46
		815.5 (26705)	24.31	23.55	22.48
	1RB-Low (0)	847.5 (27025)	23.57	23.34	22.26
		831.5 (26865)	23.62	23.36	22.31
		815.5 (26705)	24.15	23.41	22.37
	8RB-High (7)	847.5 (27025)	22.61	22.22	21.21
		831.5 (26865)	22.66	22.26	21.25
		815.5 (26705)	23.20	22.30	21.28
	8RB-Middle (4)	847.5 (27025)	22.68	22.27	21.24
		831.5 (26865)	22.74	22.29	21.29
		815.5 (26705)	23.26	22.32	21.32
	8RB-Low (0)	847.5 (27025)	22.67	22.26	21.24
		831.5 (26865)	22.70	22.27	21.27
		815.5 (26705)	23.22	22.27	21.32
	15RB (0)	847.5 (27025)	22.64	22.18	21.18
		831.5 (26865)	22.71	22.20	21.22
		815.5 (26705)	23.24	22.26	21.25

5MHz	1RB-High (24)	846.5 (27015)	23.50	22.70	21.66
		831.5 (26865)	23.42	22.67	21.75
		816.5 (26715)	23.56	22.85	21.75
	1RB-Middle (12)	846.5 (27015)	23.76	23.13	22.07
		831.5 (26865)	23.77	22.97	22.12
		816.5 (26715)	23.93	23.03	22.12
	1RB-Low (0)	846.5 (27015)	23.50	22.89	21.78
		831.5 (26865)	23.52	22.84	21.83
		816.5 (26715)	23.57	22.88	21.82
	12RB-High (13)	846.5 (27015)	22.62	21.60	20.66
		831.5 (26865)	22.64	21.63	20.67
		816.5 (26715)	22.78	21.78	20.81
	12RB-Middle (6)	846.5 (27015)	22.70	21.69	20.74
		831.5 (26865)	22.74	21.72	20.77
		816.5 (26715)	22.83	21.82	20.86
	12RB-Low (0)	846.5 (27015)	22.65	21.66	20.66
		831.5 (26865)	22.70	21.69	20.74
		816.5 (26715)	22.80	21.74	20.78
	25RB (0)	846.5 (27015)	22.66	21.68	20.69
		831.5 (26865)	22.71	21.70	20.72
		816.5 (26715)	22.81	21.81	20.79
10MHz	1RB-High (49)	844 (26990)	23.79	22.86	21.70
		831.5 (26865)	23.56	22.79	21.72
		820 (26750)	23.64	22.93	21.91
	1RB-Middle (24)	844 (26990)	23.73	23.01	22.00
		831.5 (26865)	23.68	22.91	21.84
		820 (26750)	23.74	23.06	22.05
	1RB-Low (0)	844 (26990)	23.59	22.97	21.84
		831.5 (26865)	23.63	22.90	21.83
		820 (26750)	23.70	23.01	21.95
	25RB-High (25)	844 (26990)	22.69	21.69	20.70
		831.5 (26865)	22.69	21.67	20.70
		820 (26750)	22.78	21.79	20.82
	25RB-Middle (12)	844 (26990)	22.72	21.76	20.75
		831.5 (26865)	22.77	21.74	20.76
		820 (26750)	22.83	21.83	20.83
	25RB-Low (0)	844 (26990)	22.73	21.74	20.74
		831.5 (26865)	22.76	21.76	20.78
		820 (26750)	22.88	21.86	20.84
	50RB (0)	844 (26990)	22.72	21.73	20.76
		831.5 (26865)	22.73	21.73	20.72
		820 (26750)	22.85	21.84	20.86

15MHz	1RB-High (74)	841.5 (26965)	23.51	22.79	21.73
		831.5 (26865)	23.46	22.82	21.64
		822.5 (26775)	23.55	22.85	21.77
	1RB-Middle (37)	841.5 (26965)	23.65	23.00	21.91
		831.5 (26865)	23.63	22.93	21.85
		822.5 (26775)	23.67	23.00	21.92
	1RB-Low (0)	841.5 (26965)	23.54	22.81	21.73
		831.5 (26865)	23.61	22.88	21.82
		822.5 (26775)	23.66	22.90	21.89
	36RB-High (38)	841.5 (26965)	22.72	21.69	20.72
		831.5 (26865)	22.71	21.68	20.69
		822.5 (26775)	22.77	21.75	20.77
	36RB-Middle (19)	841.5 (26965)	22.75	21.72	20.76
		831.5 (26865)	22.75	21.73	20.75
		822.5 (26775)	22.79	21.77	20.79
	36RB-Low (0)	841.5 (26965)	22.75	21.72	20.74
		831.5 (26865)	22.75	21.72	20.75
		822.5 (26775)	22.83	21.81	20.86
	75RB (0)	841.5 (26965)	22.74	21.72	20.73
		831.5 (26865)	22.73	21.71	20.69
		822.5 (26775)	22.83	21.82	20.83

LTE Band41_A/B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2687.5 (41565)	23.70	22.66	21.38
		2640.3(41093)	23.82	22.82	21.48
		2593 (40620)	23.72	22.75	21.38
		2545.8(40148)	23.64	22.68	21.34
		2498.5 (39675)	23.36	22.35	21.04
	1RB-Middle (12)	2687.5 (41565)	23.96	22.95	21.57
		2640.3(41093)	24.00	23.01	21.69
		2593 (40620)	23.87	22.94	21.58
		2545.8(40148)	23.80	22.86	21.50
		2498.5 (39675)	23.49	22.53	21.22
	1RB-Low (0)	2687.5 (41565)	23.75	22.71	21.43
		2640.3(41093)	23.85	22.88	21.55
		2593 (40620)	23.74	22.79	21.41
		2545.8(40148)	23.64	22.66	21.30
		2498.5 (39675)	23.37	22.37	21.08
	12RB-High (13)	2687.5 (41565)	22.81	21.78	20.81
		2640.3(41093)	22.96	21.88	20.95
		2593 (40620)	22.79	21.66	20.80
		2545.8(40148)	22.73	21.69	20.77
		2498.5 (39675)	22.50	21.47	20.49
	12RB-Middle (6)	2687.5 (41565)	22.92	21.83	20.88
		2640.3(41093)	23.04	21.94	20.87
		2593 (40620)	22.85	21.78	20.87
		2545.8(40148)	22.83	21.75	20.80
		2498.5 (39675)	22.57	21.51	20.53
	12RB-Low (0)	2687.5 (41565)	22.86	21.81	20.88
		2640.3(41093)	22.87	21.83	20.86
		2593 (40620)	22.77	21.68	20.80
		2545.8(40148)	22.71	21.62	20.71
		2498.5 (39675)	22.51	21.37	20.45
	25RB (0)	2687.5 (41565)	22.81	21.81	20.84
		2640.3(41093)	22.88	21.93	20.94
		2593 (40620)	22.83	21.80	20.82
		2545.8(40148)	22.74	21.72	20.75
		2498.5 (39675)	22.42	21.51	20.48

10MHz	1RB-High (49)	2685 (41540)	23.80	22.75	21.43
		2639(41080)	23.86	22.90	21.55
		2593 (40620)	23.78	22.79	21.42
		2547(40160)	23.71	22.76	21.41
		2501 (39700)	23.42	22.44	21.10
	1RB-Middle (24)	2685 (41540)	23.93	22.92	21.56
		2639(41080)	24.05	23.05	21.70
		2593 (40620)	23.94	22.96	21.57
		2547(40160)	23.86	22.80	21.50
		2501 (39700)	23.57	22.55	21.19
	1RB-Low (0)	2685 (41540)	23.89	22.86	21.57
		2639(41080)	23.92	22.95	21.61
		2593 (40620)	23.88	22.89	21.53
		2547(40160)	23.69	22.73	21.37
		2501 (39700)	23.45	22.48	21.11
	25RB-High (25)	2685 (41540)	22.72	21.78	20.81
		2639(41080)	22.93	21.93	20.97
		2593 (40620)	22.77	21.79	20.82
		2547(40160)	22.72	21.77	20.76
		2501 (39700)	22.41	21.46	20.49
	25RB-Middle (12)	2685 (41540)	22.82	21.85	20.94
		2639(41080)	22.88	21.97	21.01
		2593 (40620)	22.80	21.84	20.84
		2547(40160)	22.76	21.77	20.81
		2501 (39700)	22.46	21.54	20.53
	25RB-Low (0)	2685 (41540)	22.83	21.87	20.93
		2639(41080)	22.94	21.95	20.99
		2593 (40620)	22.80	21.84	20.86
		2547(40160)	22.75	21.73	20.74
		2501 (39700)	22.43	21.48	20.54
	50RB (0)	2685 (41540)	22.74	21.78	20.79
		2639(41080)	22.83	21.91	20.90
		2593 (40620)	22.76	21.84	20.80
		2547(40160)	22.62	21.72	20.71
		2501 (39700)	22.34	21.43	20.45

15MHz	1RB-High (74)	2682.5 (41515)	23.64	22.66	21.29
		2637.8(41068)	23.81	22.84	21.46
		2593 (40620)	23.64	22.72	21.32
		2548.3(40173)	23.65	22.70	21.31
		2503.5 (39725)	23.33	22.35	21.01
	1RB-Middle (37)	2682.5 (41515)	23.84	22.86	21.52
		2637.8(41068)	23.90	22.93	21.60
		2593 (40620)	23.82	22.86	21.48
		2548.3(40173)	23.75	22.77	21.42
		2503.5 (39725)	23.44	22.46	21.09
	1RB-Low (0)	2682.5 (41515)	23.77	22.80	21.50
		2637.8(41068)	23.84	22.89	21.53
		2593 (40620)	23.79	22.85	21.42
		2548.3(40173)	23.60	22.65	21.26
		2503.5 (39725)	23.37	22.36	21.03
	36RB-High (38)	2682.5 (41515)	22.86	21.76	20.79
		2637.8(41068)	22.99	21.84	20.92
		2593 (40620)	22.80	21.68	20.77
		2548.3(40173)	22.78	21.68	20.68
		2503.5 (39725)	22.45	21.38	20.40
	36RB-Middle (19)	2682.5 (41515)	22.89	21.81	20.84
		2637.8(41068)	22.97	21.92	20.89
		2593 (40620)	22.84	21.83	20.75
		2548.3(40173)	22.80	21.75	20.73
		2503.5 (39725)	22.52	21.42	20.39
	36RB-Low (0)	2682.5 (41515)	22.96	21.83	20.86
		2637.8(41068)	22.89	21.82	20.90
		2593 (40620)	22.80	21.78	20.79
		2548.3(40173)	22.76	21.67	20.68
		2503.5 (39725)	22.52	21.42	20.38
	75RB (0)	2682.5 (41515)	22.77	21.75	20.74
		2637.8(41068)	22.81	21.85	20.83
		2593 (40620)	22.70	21.72	20.71
		2548.3(40173)	22.64	21.62	20.67
		2503.5 (39725)	22.36	21.44	20.41

20MHz	1RB-High (99)	2680 (41490)	23.50	22.47	21.18
		2636.5(41055)	23.62	22.65	21.30
		2593 (40620)	23.46	22.49	21.14
		2549.5(40185)	23.48	22.55	21.18
		2506 (39750)	23.18	22.22	20.84
	1RB-Middle (50)	2680 (41490)	23.86	22.86	21.56
		2636.5(41055)	23.98	23.01	21.63
		2593 (40620)	23.85	22.88	21.54
		2549.5(40185)	23.81	22.85	21.47
		2506 (39750)	23.46	22.48	21.16
	1RB-Low (0)	2680 (41490)	23.70	22.71	21.38
		2636.5(41055)	23.69	22.75	21.34
		2593 (40620)	23.63	22.67	21.25
		2549.5(40185)	23.43	22.46	21.09
		2506 (39750)	23.21	22.24	20.83
	50RB-High (50)	2680 (41490)	22.57	21.68	20.63
		2636.5(41055)	22.78	21.86	20.82
		2593 (40620)	22.66	21.70	20.68
		2549.5(40185)	22.56	21.65	20.63
		2506 (39750)	22.28	21.39	20.33
	50RB-Middle (25)	2680 (41490)	22.75	21.81	20.73
		2636.5(41055)	22.83	21.90	20.85
		2593 (40620)	22.69	21.80	20.74
		2549.5(40185)	22.64	21.70	20.65
		2506 (39750)	22.34	21.37	20.35
	50RB-Low (0)	2680 (41490)	22.77	21.84	20.80
		2636.5(41055)	22.77	21.80	20.76
		2593 (40620)	22.70	21.69	20.67
		2549.5(40185)	22.55	21.61	20.62
		2506 (39750)	22.28	21.34	20.32
	100RB (0)	2680 (41490)	22.75	21.75	20.75
		2636.5(41055)	22.85	21.81	20.93
		2593 (40620)	22.74	21.75	20.71
		2549.5(40185)	22.61	21.66	20.63
		2506 (39750)	22.37	21.37	20.36

LTE Band66_A

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1779.3 (132665)	23.10	22.29	21.28
		1745 (132322)	23.04	22.24	21.15
		1710.7 (131979)	23.06	22.43	21.43
	1RB-Middle (3)	1779.3 (132665)	23.21	22.52	21.36
		1745 (132322)	23.12	22.31	21.74
		1710.7 (131979)	23.18	22.42	21.85
	1RB-Low (0)	1779.3 (132665)	23.03	22.38	21.27
		1745 (132322)	23.00	22.15	21.63
		1710.7 (131979)	23.03	22.28	21.74
	3RB-High (3)	1779.3 (132665)	23.14	22.13	21.26
		1745 (132322)	23.14	22.03	21.58
		1710.7 (131979)	23.15	22.09	21.29
	3RB-Middle (1)	1779.3 (132665)	23.18	22.19	21.28
		1745 (132322)	23.31	22.22	21.70
		1710.7 (131979)	23.21	22.23	21.54
	3RB-Low (0)	1779.3 (132665)	23.14	22.17	21.25
		1745 (132322)	23.26	22.21	21.66
		1710.7 (131979)	23.13	22.14	21.47
	6RB (0)	1779.3 (132665)	22.16	21.27	20.21
		1745 (132322)	22.57	21.69	20.66
		1710.7 (131979)	22.14	21.29	20.26
3MHz	1RB-High (14)	1778.5 (132657)	23.30	22.39	21.23
		1745 (132322)	23.01	22.50	21.47
		1711.5 (131987)	23.15	22.35	21.85
	1RB-Middle (7)	1778.5 (132657)	23.28	22.59	21.39
		1745 (132322)	23.41	22.72	21.83
		1711.5 (131987)	23.22	22.55	21.91
	1RB-Low (0)	1778.5 (132657)	23.02	22.23	21.20
		1745 (132322)	23.35	22.61	21.74
		1711.5 (131987)	23.08	22.52	21.81
	8RB-High (7)	1778.5 (132657)	22.10	21.20	20.22
		1745 (132322)	22.55	21.60	20.67
		1711.5 (131987)	22.19	21.23	20.68
	8RB-Middle (4)	1778.5 (132657)	22.13	21.24	20.30
		1745 (132322)	22.58	21.65	20.64
		1711.5 (131987)	22.24	21.43	20.75
	8RB-Low (0)	1778.5 (132657)	22.12	21.21	20.30
		1745 (132322)	22.56	21.62	20.67
		1711.5 (131987)	22.29	21.36	20.71
	15RB (0)	1778.5 (132657)	22.10	21.15	20.18
		1745 (132322)	22.57	21.58	20.62
		1711.5 (131987)	22.31	21.41	20.66

5MHz	1RB-High (24)	1777.5 (132647)	23.13	22.31	21.23
		1745 (132322)	22.91	22.18	21.43
		1712.5 (131997)	22.96	22.50	21.63
	1RB-Middle (12)	1777.5 (132647)	23.24	22.40	21.38
		1745 (132322)	23.20	22.48	21.94
		1712.5 (131997)	23.25	22.70	21.56
	1RB-Low (0)	1777.5 (132647)	22.91	22.11	21.11
		1745 (132322)	22.96	22.24	21.63
		1712.5 (131997)	22.98	22.29	21.24
	12RB-High (13)	1777.5 (132647)	22.08	21.11	20.18
		1745 (132322)	22.38	21.60	20.63
		1712.5 (131997)	22.15	21.24	20.62
	12RB-Middle (6)	1777.5 (132647)	22.13	21.16	20.23
		1745 (132322)	22.60	21.59	20.68
		1712.5 (131997)	22.13	21.17	20.76
	12RB-Low (0)	1777.5 (132647)	22.11	21.09	20.19
		1745 (132322)	22.58	21.57	20.65
		1712.5 (131997)	22.09	21.16	20.69
	25RB (0)	1777.5 (132647)	22.07	21.12	20.18
		1745 (132322)	22.59	21.59	20.65
		1712.5 (131997)	22.10	21.20	20.70

10MHz	1RB-High (49)	1775 (132622)	23.16	22.40	21.32
		1745 (132322)	23.00	22.26	21.53
		1715 (132022)	23.13	22.44	21.38
	1RB-Middle (24)	1775 (132622)	23.13	22.43	21.31
		1745 (132322)	23.10	22.46	21.76
		1715 (132022)	23.17	22.66	21.87
	1RB-Low (0)	1775 (132622)	23.04	22.26	21.17
		1745 (132322)	23.05	22.38	21.71
		1715 (132022)	23.07	22.43	21.80
	25RB-High (25)	1775 (132622)	22.08	21.11	20.17
		1745 (132322)	22.46	21.62	20.68
		1715 (132022)	22.17	21.20	20.67
	25RB-Middle (12)	1775 (132622)	22.12	21.13	20.46
		1745 (132322)	22.62	21.62	20.69
		1715 (132022)	22.17	21.19	20.73
	25RB-Low (0)	1775 (132622)	22.17	21.19	20.56
		1745 (132322)	22.63	21.65	20.71
		1715 (132022)	22.14	21.16	20.70
	50RB (0)	1775 (132622)	22.14	21.14	20.17
		1745 (132322)	22.66	21.66	20.70
		1715 (132022)	22.13	21.16	20.72

15MHz	1RB-High (74)	1772.5 (132597)	23.19	22.22	21.20
		1745 (132322)	22.93	22.26	21.35
		1717.5 (132047)	23.14	22.74	21.27
	1RB-Middle (37)	1772.5 (132597)	23.35	22.30	21.30
		1745 (132322)	23.12	22.57	21.77
		1717.5 (132047)	23.12	22.53	21.89
	1RB-Low (0)	1772.5 (132597)	23.01	22.17	21.18
		1745 (132322)	23.03	22.37	21.69
		1717.5 (132047)	23.05	22.32	21.81
	36RB-High (38)	1772.5 (132597)	22.09	21.11	20.16
		1745 (132322)	22.61	21.57	20.66
		1717.5 (132047)	22.20	21.36	20.48
	36RB-Middle (19)	1772.5 (132597)	22.21	21.16	20.33
		1745 (132322)	22.65	21.63	20.70
		1717.5 (132047)	22.18	21.38	20.74
	36RB-Low (0)	1772.5 (132597)	22.16	21.16	20.51
		1745 (132322)	22.67	21.64	20.72
		1717.5 (132047)	22.11	21.29	20.69
	75RB (0)	1772.5 (132597)	22.11	21.12	20.33
		1745 (132322)	22.63	21.65	20.67
		1717.5 (132047)	22.14	21.25	20.66

20MHz	1RB-High (99)	1770 (132572)	23.04	22.19	21.02
		1745 (132322)	22.77	22.09	20.94
		1720 (132072)	22.81	22.30	21.30
	1RB-Middle (50)	1770 (132572)	23.24	22.41	21.33
		1745 (132322)	23.23	22.50	21.81
		1720 (132072)	23.17	22.56	21.95
	1RB-Low (0)	1770 (132572)	22.80	22.11	21.01
		1745 (132322)	22.82	22.07	21.42
		1720 (132072)	22.86	22.17	21.55
	50RB-High (50)	1770 (132572)	22.02	20.99	20.06
		1745 (132322)	22.51	21.58	20.52
		1720 (132072)	22.17	21.24	20.74
	50RB-Middle (25)	1770 (132572)	22.16	21.18	20.28
		1745 (132322)	22.66	21.66	20.68
		1720 (132072)	22.14	21.45	20.70
	50RB-Low (0)	1770 (132572)	22.73	21.28	20.49
		1745 (132322)	22.65	21.66	20.71
		1720 (132072)	22.08	21.13	20.67
	100RB (0)	1770 (132572)	22.14	21.14	20.28
		1745 (132322)	22.59	21.60	20.63
		1720 (132072)	22.11	21.17	20.68

LTE Band66_B

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1779.3 (132665)	20.63	21.05	20.91
		1745 (132322)	20.55	20.91	20.71
		1710.7 (131979)	20.59	20.85	20.81
	1RB-Middle (3)	1779.3 (132665)	20.78	21.25	20.98
		1745 (132322)	20.69	21.02	20.90
		1710.7 (131979)	20.72	21.14	20.85
	1RB-Low (0)	1779.3 (132665)	20.65	21.04	20.89
		1745 (132322)	20.58	20.83	20.83
		1710.7 (131979)	20.58	20.92	20.89
	3RB-High (3)	1779.3 (132665)	20.75	20.80	20.87
		1745 (132322)	20.68	20.70	20.76
		1710.7 (131979)	20.69	20.73	20.82
	3RB-Middle (1)	1779.3 (132665)	20.80	20.85	20.98
		1745 (132322)	20.70	20.68	20.82
		1710.7 (131979)	20.72	20.79	20.84
	3RB-Low (0)	1779.3 (132665)	20.75	20.82	20.88
		1745 (132322)	20.67	20.66	20.75
		1710.7 (131979)	20.69	20.73	20.80
	6RB (0)	1779.3 (132665)	20.73	20.89	20.79
		1745 (132322)	20.69	20.80	20.68
		1710.7 (131979)	20.67	20.82	20.72
3MHz	1RB-High (14)	1778.5 (132657)	20.72	21.12	20.88
		1745 (132322)	20.58	20.90	20.87
		1711.5 (131987)	20.62	20.92	20.88
	1RB-Middle (7)	1778.5 (132657)	20.85	21.18	21.09
		1745 (132322)	20.68	21.12	20.95
		1711.5 (131987)	20.72	21.19	21.01
	1RB-Low (0)	1778.5 (132657)	20.66	21.08	20.89
		1745 (132322)	20.60	20.88	20.81
		1711.5 (131987)	20.59	21.04	20.91
	8RB-High (7)	1778.5 (132657)	20.68	20.79	20.81
		1745 (132322)	20.61	20.69	20.67
		1711.5 (131987)	20.61	20.73	20.69
	8RB-Middle (4)	1778.5 (132657)	20.74	20.82	20.84
		1745 (132322)	20.64	20.72	20.69
		1711.5 (131987)	20.67	20.77	20.75
	8RB-Low (0)	1778.5 (132657)	20.69	20.82	20.78
		1745 (132322)	20.62	20.71	20.70
		1711.5 (131987)	20.65	20.73	20.70
	15RB (0)	1778.5 (132657)	20.71	20.75	20.71
		1745 (132322)	20.64	20.67	20.62
		1711.5 (131987)	20.61	20.67	20.64

5MHz	1RB-High (24)	1777.5 (132647)	20.56	21.00	20.82
		1745 (132322)	20.58	20.83	20.69
		1712.5 (131997)	20.51	20.95	20.76
	1RB-Middle (12)	1777.5 (132647)	20.83	21.17	21.06
		1745 (132322)	20.81	21.04	20.89
		1712.5 (131997)	20.74	21.24	20.96
	1RB-Low (0)	1777.5 (132647)	20.54	20.90	20.79
		1745 (132322)	20.52	20.73	20.67
		1712.5 (131997)	20.50	20.80	20.80
	12RB-High (13)	1777.5 (132647)	20.70	20.71	20.73
		1745 (132322)	20.57	20.63	20.65
		1712.5 (131997)	20.66	20.70	20.71
	12RB-Middle (6)	1777.5 (132647)	20.72	20.77	20.80
		1745 (132322)	20.68	20.65	20.70
		1712.5 (131997)	20.69	20.71	20.74
	12RB-Low (0)	1777.5 (132647)	20.72	20.76	20.78
		1745 (132322)	20.63	20.62	20.65
		1712.5 (131997)	20.63	20.65	20.69
	25RB (0)	1777.5 (132647)	20.69	20.72	20.74
		1745 (132322)	20.61	20.66	20.65
		1712.5 (131997)	20.63	20.67	20.67
10MHz	1RB-High (49)	1775 (132622)	20.66	20.97	20.89
		1745 (132322)	20.60	20.85	20.81
		1715 (132022)	20.63	21.05	20.89
	1RB-Middle (24)	1775 (132622)	20.71	21.11	20.97
		1745 (132322)	20.67	21.00	20.89
		1715 (132022)	20.73	20.98	21.01
	1RB-Low (0)	1775 (132622)	20.65	20.96	20.89
		1745 (132322)	20.62	21.01	20.90
		1715 (132022)	20.61	20.93	20.89
	25RB-High (25)	1775 (132622)	20.70	20.72	20.73
		1745 (132322)	20.60	20.71	20.70
		1715 (132022)	20.70	20.74	20.75
	25RB-Middle (12)	1775 (132622)	20.72	20.76	20.75
		1745 (132322)	20.68	20.72	20.69
		1715 (132022)	20.68	20.71	20.73
	25RB-Low (0)	1775 (132622)	20.77	20.81	20.79
		1745 (132322)	20.68	20.71	20.75
		1715 (132022)	20.68	20.72	20.73
	50RB (0)	1775 (132622)	20.72	20.76	20.73
		1745 (132322)	20.66	20.71	20.72
		1715 (132022)	20.66	20.71	20.74

15MHz	1RB-High (74)	1772.5 (132597)	20.62	20.92	20.87
		1745 (132322)	20.51	20.81	20.69
		1717.5 (132047)	20.54	20.98	20.77
	1RB-Middle (37)	1772.5 (132597)	20.68	21.06	20.84
		1745 (132322)	20.63	21.00	20.80
		1717.5 (132047)	20.66	21.07	20.93
	1RB-Low (0)	1772.5 (132597)	20.59	20.97	20.82
		1745 (132322)	20.59	20.97	20.83
		1717.5 (132047)	20.56	20.87	20.84
	36RB-High (38)	1772.5 (132597)	20.71	20.68	20.71
		1745 (132322)	20.60	20.67	20.68
		1717.5 (132047)	20.71	20.73	20.79
	36RB-Middle (19)	1772.5 (132597)	20.74	20.74	20.77
		1745 (132322)	20.69	20.71	20.71
		1717.5 (132047)	20.70	20.67	20.73
	36RB-Low (0)	1772.5 (132597)	20.76	20.74	20.78
		1745 (132322)	20.71	20.66	20.70
		1717.5 (132047)	20.67	20.70	20.71
	75RB (0)	1772.5 (132597)	20.70	20.74	20.67
		1745 (132322)	20.64	20.68	20.66
		1717.5 (132047)	20.68	20.73	20.72
20MHz	1RB-High (99)	1770 (132572)	20.64	20.73	20.61
		1745 (132322)	20.58	20.74	20.67
		1720 (132072)	20.56	20.82	20.60
	1RB-Middle (50)	1770 (132572)	20.76	21.07	20.97
		1745 (132322)	20.74	21.07	20.85
		1720 (132072)	20.75	21.14	20.99
	1RB-Low (0)	1770 (132572)	20.63	20.84	20.69
		1745 (132322)	20.62	20.76	20.63
		1720 (132072)	20.58	20.85	20.67
	50RB-High (50)	1770 (132572)	20.63	20.64	20.58
		1745 (132322)	20.58	20.64	20.63
		1720 (132072)	20.73	20.77	20.76
	50RB-Middle (25)	1770 (132572)	20.75	20.77	20.75
		1745 (132322)	20.69	20.71	20.73
		1720 (132072)	20.65	20.70	20.69
	50RB-Low (0)	1770 (132572)	20.83	20.84	20.85
		1745 (132322)	20.72	20.72	20.72
		1720 (132072)	20.63	20.71	20.70
	100RB (0)	1770 (132572)	20.75	20.74	20.69
		1745 (132322)	20.67	20.67	20.67
		1720 (132072)	20.66	20.71	20.70

11.4 Wi-Fi and BT Measurement result

The maximum output power for BT

GFSK			Tune up	EDR2M-4_DQPSK			EDR3M-8DPSK			Tune up
Channel 0	Channel 39	Channel 78		Channel 0	Channel 39	Channel 78	Channel 0	Channel 39	Channel 78	
9.92	9.70	9.97	11.50	9.11	9.48	9.76	9.11	9.47	9.73	11.50

Tune up

WiFi 802.11b			
Channel	Channel 1	Channel 7	Channel 13
Maximum Target Value (dBm)	18+/-1	18+/-1	18+/-1
WiFi 802.11g			
Channel	Channel 1	Channel 7	Channel 13
Maximum Target Value (dBm)	15+/-1	15+/-1	14.5+/-1
WiFi 802.11n 20M			
Channel	Channel 1	Channel 7	Channel 13
Maximum Target Value (dBm)	14+/-1	14+/-1	12.5+/-1
WiFi 802.11n 40M			
Channel	Channel 3	Channel 6	Channel 9
Maximum Target Value (dBm)	13+/-1	13+/-1	12+/-1

WiFi 802.11a (5GHz)				
Channel	Channel 36~64	Channel 100~140	Channel 140	Channel 149~165
Target (dBm)	17.0+/-1	17.0+/-1	16+/-1	17.0+/-1
WiFi 802.11n - BW20 (5GHz)				
Channel	Channel 36~64	Channel 100~140		Channel 149~165
Target (dBm)	16.5 +/-1	16.5 +/-1		16.5 +/-1
WiFi 802.11n - BW40 (5GHz)				
Channel	Channel 38~62	Channel 102~134		Channel 149~159
Target (dBm)	16.5 +/-1	16.5 +/-1		16.5 +/-1
WiFi 802.11ac - BW20 (5GHz)				
Channel	Channel 36~64	Channel 100~140		Channel 149~165
Target (dBm)	15.0+/-1	15.0 +/-1		15.0+/-1
WiFi 802.11ac - BW40 (5GHz) MCS0				
Channel	Channel 38~62	Channel 102~134		Channel 149~165
Target (dBm)	15.0+/-1	15.0 +/-1		15.0+/-1
WiFi 802.11ac - BW80 (5GHz) MCS0				
Channel	Channel 42~58	Channel 106~138		Channel 149~155
Target (dBm)	14.5+/-1	14.5+/-1		14.5+/-1

The maximum output power for WiFi 2.4G

802.11b	Channel\data	1Mbps
WLAN2450	11(2462MHz)	17.76
	6(2437(MHz)	18.17
	1(2412MHz)	17.96
802.11g	Channel\data	6Mbps
WLAN2450	11(2462MHz)	13.57
	6(2437(MHz)	15.07
	1(2412MHz)	14.77
802.11n-20MHz	Channel\data	MCS0
WLAN2450	11(2462MHz)	12.31
	6(2437(MHz)	14.18
	1(2412MHz)	13.87
802.11n-40MHz	Channel\data	MCS0
WLAN2450	9(2452MHz)	11.76
	6(2437MHz)	12.91
	3(2422MHz)	13.02

The maximum output power for WiFi 5G

802.11a(dBm)	
Channel\data rate	6Mbps
36(5180 MHz)	17.15
40(5200 MHz)	17.36
44(5220 MHz)	17.42
48(5240 MHz)	17.46
52(5260 MHz)	17.37
56(5280 MHz)	16.89
60(5300 MHz)	16.95
64(5320 MHz)	16.99
100(5500 MHz)	16.68
104(5520 MHz)	16.71
108(5540 MHz)	16.59
112(5560 MHz)	16.65
116(5580 MHz)	16.77
120(5600 MHz)	16.56
124(5620 MHz)	16.77
128(5640 MHz)	16.75
132(5660 MHz)	16.51
136(5680 MHz)	16.54
140(5700 MHz)	15.45
144(5720 MHz)	16.67
149(5745 MHz)	16.68
153(5765 MHz)	16.66
157(5785 MHz)	16.73
161(5805 MHz)	16.75
165(5825 MHz)	16.91

12 Simultaneous TX SAR Considerations

12.1 Transmit Antenna Separation Distances

The detail for transmit antenna separation distances is described in the additional document:
Appendix to test report No.25T04Z100220-010
The photos of SAR test

12.2 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

Antenna/Sensor-to- DUT sides separation distances						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Ant.0	Yes	Yes	Yes	Yes	Yes	No
Ant.1	Yes	Yes	Yes	Yes	No	Yes
Ant.2	Yes	Yes	No	Yes	Yes	No

13 Evaluation of Simultaneous

13.1 Introduction

The following procedures adopted from “FCC SAR Considerations for Cell Phones with Multiple Transmitters” are applicable to handsets with built-in unlicensed transmitters such as WLAN and Bluetooth devices which may simultaneously transmit with the licensed transmitter. KDB 447498 D01 provides two procedures for determining simultaneous transmission SAR test exclusion: Sum of SAR and SAR to Peak Location Ratio (SPLSR)

13.1.1 Sum of SAR

To qualify for simultaneous transmission SAR test exclusion based upon Sum of SAR the sum of the reported standalone SARs for all simultaneously transmitting antennas shall be below the applicable standalone SAR limit. If the sum of the SARs is above the applicable limit then simultaneous transmission SAR test exclusion may still apply if the requirements of the SAR to Peak Location Ratio (SPLSR) evaluation are met.

13.1.2 SAR to Peak Location Ratio (SPLSR)

KDB 447498 D01 General RF Exposure Guidance explains how to calculate the SAR to Peak Location Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$SPLSR = (SAR1 + SAR2)^{1.5} / Ri$

Where:

SAR1 is the highest reported or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition.

SAR2 is the highest reported or estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first .

Ri is the separation distance between the pair of simultaneous transmitting antennas. When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of

$[(x1-x2)^2 + (y1-y2)^2 + (z1-z2)^2]$

In order for a pair of simultaneous transmitting antennas with the sum of 1-g SAR > 1.6 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$(SAR1 + SAR2)^{1.5} / Ri \leqslant 0.04$

When an individual antenna transmits at on two bands simultaneously, the sum of the highest reported SAR for the frequency bands should be used to determine SAR1 or SAR2. When SPLSR is necessary, the smallest distance between the peak SAR locations for the antenna pair with respect to the peaks from each antenna should be used.

13.2 Simultaneous Transmission Capabilities

The simultaneous transmission possibilities for this device are listed as below:

NO	If support: WWAN*1TX and WLAN*1TX	Y or N
1	WWAN + WLAN 2.4GHz	Y
2	WWAN + WLAN 2.4GHz +BT	N
3	WWAN + WLAN 5GHz	Y
4	WWAN + WLAN 5GHz +BT	Y

13.3 Evaluation of Simultaneous

Test Postition / SAR 1g(W/kg)		GSM850	GSM1900	WCDMA850	WCDMA1700	WCDMA1900	LTE B2	LTE B7	LTE B12	LTE B13	LTE B26	LTE B41	LTE B66	MAX. SAR 1g
Head	Left Cheek	0.78	0.12	0.73	0.11	0.15	0.05	0.14	0.07	0.23	0.47	0.12	0.14	0.78
	Left Tilt	0.83	0.07	0.78	0.04	0.12	0.05	0.09	0.05	0.27	0.50	0.11	0.06	0.83
	Right Cheek	0.98	0.07	0.82	0.06	0.08	0.04	0.24	0.10	0.36	0.71	0.20	0.09	0.98
	Right Tilt	1.30	0.09	1.09	0.06	0.08	0.06	0.08	0.11	0.39	0.77	0.17	0.07	1.30
Hotspot	Front 10mm	0.42	0.21	0.28	0.13	0.15	0.17	0.23	0.17	0.10	0.19	0.28	0.24	0.42
	Rear 10mm	0.71	0.58	0.46	0.46	0.36	0.40	0.65	0.28	0.17	0.31	0.65	0.37	0.71
	Left 10mm	0.32	0.04	0.19	0.03	0.04	0.05	0.07	0.19	0.12	0.17	0.10	0.05	0.32
	Right 10mm	0.13	0.09	0.13	0.07	0.07	0.08	0.14	0.12	0.08	0.14	0.15	0.04	0.15
	Bottom 10mm		0.67		0.44	0.45	0.60	0.62				0.79	0.40	0.79
	Top 10mm	0.56		0.36					0.17	0.10	0.23			0.56
Body-worn	Front 10mm	0.42	0.21	0.28	0.13	0.15	0.17	0.23	0.17	0.10	0.19	0.28	0.24	0.42
	Rear 10mm	0.71	0.58	0.46	0.46	0.36	0.40	0.65	0.28	0.17	0.31	0.65	0.37	0.71

Test Postition / SAR 1g(W/kg)		1	2	3	4
		WWAN	WLAN2.4G	WLAN5G	BT
Head	Left Cheek	0.78	0.54	0.36	0.00
	Left Tilt	0.83	0.60	0.30	0.00
	Right Cheek	0.98	0.21	0.17	0.00
	Right Tilt	1.30	0.21	0.19	0.00
Hotspot	Front 10mm	0.42	0.15	0.14	0.00
	Rear 10mm	0.71	0.28	0.33	0.00
	Left 10mm	0.32			
	Right 10mm	0.15	0.22	0.40	0.00
	Bottom 10mm	0.79			
	Top 10mm	0.56	0.13	0.18	0.00
Body-worn	Front 10mm	0.42	0.15	0.14	0.00
	Rear 10mm	0.71	0.28	0.33	0.00

Test Postition / SAR 1g(W/kg)		simultaneous transmission	
		1+2	1+3+4
Head	Left Cheek	1.32	1.14
	Left Tilt	1.43	1.13
	Right Cheek	1.19	1.14
	Right Tilt	1.51	1.49
Hotspot	Front 10mm	0.57	0.56
	Rear 10mm	0.99	1.04
	Left 10mm	0.32	0.32
	Right 10mm	0.37	0.55
	Bottom 10mm	0.79	0.79
	Top 10mm	0.69	0.74
Body-worn	Front 10mm	0.57	0.56
	Rear 10mm	0.99	1.04

Conclusion:

According to the above tables, the sum of reported SAR values is<1.6W/kg. So the simultaneous transmission SAR with volume scans is not required.

14 SAR Test Result

Note:

KDB 447498 D01 General RF Exposure Guidance:

For WWAN: Reported SAR(W/kg)= Measured SAR(W/kg)*Tune-up Scaling Factor

For BT/WLAN: Reported SAR(W/kg)= Measured SAR(W/kg)* Duty Cycle scaling factor * Tune-up scaling factor

Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:

≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz

≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

KDB 648474 D04 Handset SAR:

With headset attached, when the reported SAR for body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

KDB 941225 D01 SAR test for 3G devices:

When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

KDB 941225 D05 SAR for LTE Devices:

SAR test reduction is applied using the following criteria:

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel.

When the reported SAR is > 0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel.

Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low,Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are > 0.8 W/kg. Testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation < 1.45 W/kg.

Testing for 16-QAM modulation is not required because the reported SAR for QPSK is < 1.45 W/Kg and its output power is not more than 0.5 dB higher than that of QPSK.

Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is <1.45 W/Kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the

group of overlapping channels should be selected for testing; therefore, the requirement for H, M and L channels may not fully apply.

KDB 248227 D01 SAR meas for 802.11:

SAR test reduction for 802.11 Wi-Fi transmission mode configurations are considered separately for DSSS and OFDM. An initial test position is determined to reduce the number of tests required for certain exposure configurations with multiple test positions.An initial test configuration is determined for each frequency band and aggregated band according to maximum output power, channel bandwidth, wireless mode configurations and other operating parameters to streamline the measurement requirements. For 2.4 GHz DSSS, either the initial test position or DSSS procedure is applied to reduce the number of SAR tests; these are mutually exclusive. For OFDM, an initial test position is only applicable to next to the ear, UMPC mini-tablet and hotspot mode configurations, which is tested using the initial test configuration to facilitate test reduction. For other exposure conditions with a fixed test position, SAR test reduction is determined using only the initial test configuration.

To determine the initial test position, Area Scans were performed to determine the position with the Maximum Value of SAR (measured). The position that produced the highest Maximum Value of SAR is considered the worst case position; thus used as the initial test position.

The multiple test positions require SAR measurements in head, hotspot mode or UMPC mini-tablet configurations may be reduced according to the highest reported SAR determined using the initial test position(s) by applying the DSSS or OFDM SAR measurement procedures in the required wireless mode test configuration(s). The initial test position(s) is measured using the highest measured maximum output power channel in the required wireless mode test configuration(s).

When the reported SAR for the initial test position is:

≤ 0.4 W/kg, further SAR measurement is not required for the other test positions in that exposure configuration and wireless mode combination within the frequency band or aggregated band. DSSS and OFDM configurations are considered separately according to the required SAR procedures.

> 0.4 W/kg, SAR is repeated using the same wireless mode test configuration tested in the initial test position to measure the subsequent next closet/smallest test separation distance and maximum coupling test position, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions are tested.

- For subsequent test positions with equivalent test separation distance or when exposure is dominated by coupling conditions, the position for maximum coupling condition should be tested.
- When it is unclear, all equivalent conditions must be tested.

For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, measure the SAR for these positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required test channels are considered.

- The additional power measurements required for this step should be limited to those necessary for identifying subsequent highest output power channels to apply the test reduction.

When the specified maximum output power is the same for both UNII 1 and UNII 2A, begin SAR measurements in UNII 2A with the channel with the highest measured output power. If the reported SAR for UNII 2A is ≤ 1.2 W/kg, SAR is not required for UNII 1; otherwise treat the remaining bands separately and test them independently for SAR.

When the specified maximum output power is different between UNII 1 and UNII 2A, begin SAR with the band that has the higher specified maximum output. If the highest reported SAR for the band with the highest specified power is ≤ 1.2 W/kg, testing for the band with the lower specified output power is not required; otherwise test the remaining bands independently for SAR.

Table 14.1: Duty Cycle

Mode	Duty Cycle
Speech for GSM	1:8.3
GPRS&EGPRS 1 Slot	1:8.3
GPRS&EGPRS 2 Slot	1:4
GPRS&EGPRS 3 Slot	1:2.67
GPRS&EGPRS 4 Slot	1:2
WCDMA&LTE FDD	1:1

14.1 SAR results for 2G/3G/4G

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	GSM850	190	836.6	GPRS(4TX)	Cheek Left	0mm	\	28.82	29.50	0.665	**0.78**	0.428	**0.50**	0.19
Head	GSM850	190	836.6	GPRS(4TX)	Tilt Left	0mm	\	28.82	29.50	0.707	**0.83**	0.403	**0.47**	-0.15
Head	GSM850	190	836.6	GPRS(4TX)	Cheek Right	0mm	\	28.82	29.50	0.836	**0.98**	0.510	**0.60**	-0.03
Head	GSM850	251	848.8	GPRS(4TX)	Tilt Right	0mm	\	28.91	29.50	1.020	**1.17**	0.549	**0.63**	-0.03
Head	GSM850	190	836.6	GPRS(4TX)	Tilt Right	0mm	\	28.82	29.50	1.010	**1.18**	0.548	**0.64**	0.17
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	FIG A.1	28.71	29.50	1.080	**1.30**	0.574	**0.69**	-0.05
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	B2	28.71	29.50	1.010	**1.21**	0.547	**0.66**	-0.16
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	S2	28.71	29.50	0.992	**1.19**	0.536	**0.64**	0.01
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	single slot	28.71	29.50	1.030	**1.24**	0.553	**0.66**	-0.09
Body	GSM850	190	836.6	GPRS(4TX)	Front	10mm	\	28.82	29.50	0.359	**0.42**	0.212	**0.25**	-0.15
Body	GSM850	251	848.8	GPRS(4TX)	Rear	10mm	\	28.91	29.50	0.462	**0.53**	0.255	**0.29**	0.09
Body	GSM850	190	836.6	GPRS(4TX)	Rear	10mm	FIG A.2	28.82	29.50	0.606	**0.71**	0.349	**0.41**	-0.13
Body	GSM850	128	824.2	GPRS(4TX)	Rear	10mm	\	28.71	29.50	0.427	**0.51**	0.252	**0.30**	0.01
Body	GSM850	190	836.6	GPRS(4TX)	Left	10mm	\	28.82	29.50	0.273	**0.32**	0.177	**0.21**	-0.13
Body	GSM850	190	836.6	GPRS(4TX)	Right	10mm	\	28.82	29.50	0.112	**0.13**	0.073	**0.09**	0.04
Body	GSM850	190	836.6	GPRS(4TX)	Top	10mm	\	28.82	29.50	0.482	**0.56**	0.240	**0.28**	0.13
Head	GSM1900	810	1909.8	GPRS(2TX)	Cheek Left	0mm	\	28.36	29.00	0.104	**0.12**	0.065	**0.08**	-0.05
Head	GSM1900	661	1880	GPRS(2TX)	Cheek Left	0mm	\	28.55	29.00	0.108	**0.12**	0.066	**0.07**	0.08
Head	GSM1900	512	1850.2	GPRS(2TX)	Cheek Left	0mm	FIG A.3	28.64	29.00	0.112	**0.12**	0.070	**0.08**	0.15
Head	GSM1900	661	1880	GPRS(2TX)	Tilt Left	0mm	\	28.55	29.00	0.064	**0.07**	0.040	**0.04**	0.17
Head	GSM1900	661	1880	GPRS(2TX)	Cheek Right	0mm	\	28.55	29.00	0.065	**0.07**	0.042	**0.05**	-0.04
Head	GSM1900	661	1880	GPRS(2TX)	Tilt Right	0mm	\	28.55	29.00	0.077	**0.09**	0.046	**0.05**	-0.16
Body	GSM1900	661	1880	GPRS(2TX)	Front	10mm	\	28.55	29.00	0.191	**0.21**	0.114	**0.13**	0.05
Body	GSM1900	661	1880	GPRS(2TX)	Rear	10mm	\	28.55	29.00	0.520	**0.58**	0.297	**0.33**	-0.15
Body	GSM1900	661	1880	GPRS(2TX)	Left	10mm	\	28.55	29.00	0.036	**0.04**	0.015	**0.02**	0.17
Body	GSM1900	661	1880	GPRS(2TX)	Right	10mm	\	28.55	29.00	0.079	**0.09**	0.040	**0.04**	0.16
Body	GSM1900	810	1909.8	GPRS(2TX)	Bottom	10mm	\	28.36	29.00	0.504	**0.58**	0.273	**0.32**	-0.02
Body	GSM1900	661	1880	GPRS(2TX)	Bottom	10mm	FIG A.4	28.55	29.00	0.600	**0.67**	0.343	**0.38**	0.05
Body	GSM1900	512	1850.2	GPRS(2TX)	Bottom	10mm	\	28.64	29.00	0.571	**0.62**	0.311	**0.34**	-0.14
Head	WCDMA 850	4183	836.6	RMC	Cheek Left	0mm	\	22.98	24.50	0.511	**0.73**	0.343	**0.49**	0.10
Head	WCDMA 850	4183	836.6	RMC	Tilt Left	0mm	\	22.98	24.50	0.548	**0.78**	0.331	**0.47**	0.01
Head	WCDMA 850	4183	836.6	RMC	Cheek Right	0mm	\	22.98	24.50	0.580	**0.82**	0.351	**0.50**	0.16
Head	WCDMA 850	4233	846.6	RMC	Tilt Right	0mm	\	23.13	24.50	0.770	**1.06**	0.401	**0.55**	0.08
Head	WCDMA 850	4183	836.6	RMC	Tilt Right	0mm	\	22.98	24.50	0.759	**1.08**	0.398	**0.56**	-0.07
Head	WCDMA 850	4132	826.4	RMC	Tilt Right	0mm	FIG A.5	22.97	24.50	0.767	**1.09**	0.403	**0.57**	-0.02
Body	WCDMA 850	4183	836.6	RMC	Front	10mm	\	22.98	24.50	0.195	**0.28**	0.122	**0.17**	0.19
Body	WCDMA 850	4233	846.6	RMC	Rear	10mm	FIG A.6	23.13	24.50	0.335	**0.46**	0.200	**0.27**	-0.01
Body	WCDMA 850	4183	836.6	RMC	Rear	10mm	\	22.98	24.50	0.297	**0.42**	0.183	**0.26**	-0.01
Body	WCDMA 850	4132	826.4	RMC	Rear	10mm	\	22.97	24.50	0.294	**0.42**	0.179	**0.25**	-0.16
Body	WCDMA 850	4183	836.6	RMC	Left	10mm	\	22.98	24.50	0.135	**0.19**	0.077	**0.11**	-0.08
Body	WCDMA 850	4183	836.6	RMC	Right	10mm	\	22.98	24.50	0.093	**0.13**	0.062	**0.09**	-0.19
Body	WCDMA 850	4183	836.6	RMC	Top	10mm	\	22.98	24.50	0.255	**0.36**	0.131	**0.19**	0.14
Head	WCDMA 1700	1513	1752.6	RMC	Cheek Left	0mm	\	22.73	24.00	0.076	**0.10**	0.049	**0.07**	-0.14
Head	WCDMA 1700	1412	1732.4	RMC	Cheek Left	0mm	FIG A.7	22.66	24.00	0.078	**0.11**	0.051	**0.07**	0.08
Head	WCDMA 1700	1312	1712.4	RMC	Cheek Left	0mm	\	22.85	24.00	0.077	**0.10**	0.050	**0.07**	0.06
Head	WCDMA 1700	1412	1732.4	RMC	Tilt Left	0mm	\	22.66	24.00	0.030	**0.04**	0.021	**0.03**	-0.14
Head	WCDMA 1700	1412	1732.4	RMC	Cheek Right	0mm	\	22.66	24.00	0.043	**0.06**	0.028	**0.04**	-0.08
Head	WCDMA 1700	1412	1732.4	RMC	Tilt Right	0mm	\	22.66	24.00	0.042	**0.06**	0.029	**0.04**	0.17
Body	WCDMA 1700	1412	1732.4	RMC	Front	10mm	\	21.58	22.00	0.121	**0.13**	0.077	**0.08**	0.01
Body	WCDMA 1700	1513	1752.6	RMC	Rear	10mm	\	21.60	22.00	0.370	**0.41**	0.216	**0.24**	0.11
Body	WCDMA 1700	1412	1732.4	RMC	Rear	10mm	FIG A.8	21.58	22.00	0.421	**0.46**	0.241	**0.27**	-0.12
Body	WCDMA 1700	1312	1712.4	RMC	Rear	10mm	\	21.66	22.00	0.408	**0.44**	0.237	**0.26**	-0.19
Body	WCDMA 1700	1412	1732.4	RMC	Left	10mm	\	21.58	22.00	0.031	**0.03**	0.012	**0.01**	-0.01
Body	WCDMA 1700	1412	1732.4	RMC	Right	10mm	\	21.58	22.00	0.064	**0.07**	0.039	**0.04**	0.13
Body	WCDMA 1700	1412	1732.4	RMC	Bottom	10mm	\	21.58	22.00	0.401	**0.44**	0.228	**0.25**	-0.12
Head	WCDMA 1900	9538	1907.6	RMC	Cheek Left	0mm	\	22.53	23.50	0.099	**0.12**	0.063	**0.08**	-0.06
Head	WCDMA 1900	9400	1880	RMC	Cheek Left	0mm	\	22.72	23.50	0.107	**0.13**	0.069	**0.08**	0.09
Head	WCDMA 1900	9262	1852.4	RMC	Cheek Left	0mm	FIG A.9	22.81	23.50	0.125	**0.15**	0.081	**0.09**	-0.19
Head	WCDMA 1900	9400	1880	RMC	Tilt Left	0mm	\	22.72	23.50	0.101	**0.12**	0.067	**0.08**	0.14
Head	WCDMA 1900	9400	1880	RMC	Cheek Right	0mm	\	22.72	23.50	0.064	**0.08**	0.044	**0.05**	-0.05
Head	WCDMA 1900	9400	1880	RMC	Tilt Right	0mm	\	22.72	23.50	0.067	**0.08**	0.042	**0.05**	-0.07
Body	WCDMA 1900	9400	1880	RMC	Front	10mm	\	21.44	22.00	0.131	**0.15**	0.082	**0.09**	0.11
Body	WCDMA 1900	9400	1880	RMC	Rear	10mm	\	21.44	22.00	0.313	**0.36**	0.187	**0.21**	-0.11
Body	WCDMA 1900	9400	1880	RMC	Left	10mm	\	21.44	22.00	0.038	**0.04**	0.017	**0.02**	-0.08
Body	WCDMA 1900	9400	1880	RMC	Right	10mm	\	21.44	22.00	0.063	**0.07**	0.039	**0.04**	0.08
Body	WCDMA 1900	9538	1907.6	RMC	Bottom	10mm	\	21.52	22.00	0.281	**0.31**	0.161	**0.18**	-0.16
Body	WCDMA 1900	9400	1880	RMC	Bottom	10mm	\	21.44	22.00	0.344	**0.39**	0.199	**0.23**	-0.06
Body	WCDMA 1900	9262	1852.4	RMC	Bottom	10mm	FIG A.10	21.46	22.00	0.397	**0.45**	0.228	**0.26**	-0.16

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	LTE Band2	18900	1880	1RB-Middle	Cheek Left	0mm	\	23.74	24.50	0.042	**0.05**	0.027	**0.03**	-0.17
Head	LTE Band2	18900	1880	1RB-Middle	Tilt Left	0mm	\	23.74	24.50	0.046	**0.05**	0.031	**0.04**	-0.10
Head	LTE Band2	18900	1880	1RB-Middle	Cheek Right	0mm	\	23.74	24.50	0.034	**0.04**	0.023	**0.03**	-0.05
Head	LTE Band2	18900	1880	1RB-Middle	Tilt Right	0mm	FIG A.11	23.74	24.50	0.052	**0.06**	0.033	**0.04**	0.13
Head	LTE Band2	18900	1880	50RB-Low	Cheek Left	0mm	\	22.79	23.50	0.034	**0.04**	0.023	**0.03**	-0.14
Head	LTE Band2	18900	1880	50RB-Low	Tilt Left	0mm	\	22.79	23.50	0.039	**0.05**	0.026	**0.03**	-0.09
Head	LTE Band2	18900	1880	50RB-Low	Cheek Right	0mm	\	22.79	23.50	0.029	**0.03**	0.019	**0.02**	0.10
Head	LTE Band2	18900	1880	50RB-Low	Tilt Right	0mm	\	22.79	23.50	0.045	**0.05**	0.028	**0.03**	-0.16
Body	LTE Band2	18900	1880	1RB-Middle	Front	10mm	\	20.79	22.00	0.122	**0.16**	0.075	**0.10**	-0.11
Body	LTE Band2	18900	1880	1RB-Middle	Rear	10mm	\	20.79	22.00	0.284	**0.38**	0.168	**0.22**	-0.07
Body	LTE Band2	18900	1880	1RB-Middle	Left	10mm	\	20.79	22.00	0.035	**0.05**	0.013	**0.02**	-0.10
Body	LTE Band2	18900	1880	1RB-Middle	Right	10mm	\	20.79	22.00	0.054	**0.07**	0.030	**0.04**	0.09
Body	LTE Band2	18900	1880	1RB-Middle	Bottom	10mm	\	20.79	22.00	0.396	**0.52**	0.226	**0.30**	-0.07
Body	LTE Band2	18900	1880	50RB-Low	Front	10mm	\	20.83	22.00	0.130	**0.17**	0.081	**0.11**	0.12
Body	LTE Band2	18900	1880	50RB-Low	Rear	10mm	\	20.83	22.00	0.303	**0.40**	0.177	**0.23**	-0.14
Body	LTE Band2	18900	1880	50RB-Low	Left	10mm	\	20.83	22.00	0.032	**0.04**	0.011	**0.01**	0.14
Body	LTE Band2	18900	1880	50RB-Low	Right	10mm	\	20.83	22.00	0.061	**0.08**	0.037	**0.05**	-0.08
Body	LTE Band2	18900	1880	50RB-Low	Bottom	10mm	FIG A.12	20.83	22.00	0.458	**0.60**	0.260	**0.34**	-0.06
Head	LTE Band7	21350	2560	1RB-Middle	Cheek Left	0mm	\	23.60	24.50	0.111	**0.14**	0.066	**0.08**	0.02
Head	LTE Band7	21350	2560	1RB-Middle	Tilt Left	0mm	\	23.60	24.50	0.070	**0.09**	0.039	**0.05**	0.07
Head	LTE Band7	21350	2560	1RB-Middle	Cheek Right	0mm	FIG A.13	23.60	24.50	0.192	**0.24**	0.105	**0.13**	0.19
Head	LTE Band7	21350	2560	1RB-Middle	Tilt Right	0mm	\	23.60	24.50	0.065	**0.08**	0.035	**0.04**	-0.08
Head	LTE Band7	21350	2560	50RB-Low	Cheek Left	0mm	\	22.55	23.50	0.090	**0.11**	0.055	**0.07**	-0.17
Head	LTE Band7	21350	2560	50RB-Low	Tilt Left	0mm	\	22.55	23.50	0.067	**0.08**	0.036	**0.04**	0.03
Head	LTE Band7	21350	2560	50RB-Low	Cheek Right	0mm	\	22.55	23.50	0.155	**0.19**	0.085	**0.11**	0.06
Head	LTE Band7	21350	2560	50RB-Low	Tilt Right	0mm	\	22.55	23.50	0.048	**0.06**	0.026	**0.03**	-0.17
Body	LTE Band7	21350	2560	1RB-Middle	Front	10mm	\	20.25	21.50	0.159	**0.21**	0.089	**0.12**	-0.07
Body	LTE Band7	21350	2560	1RB-Middle	Rear	10mm	\	20.25	21.50	0.440	**0.59**	0.227	**0.30**	-0.04
Body	LTE Band7	21350	2560	1RB-Middle	Left	10mm	\	20.25	21.50	0.056	**0.07**	0.022	**0.03**	-0.03
Body	LTE Band7	21350	2560	1RB-Middle	Right	10mm	\	20.25	21.50	0.103	**0.14**	0.059	**0.08**	0.05
Body	LTE Band7	21350	2560	1RB-Middle	Bottom	10mm	\	20.25	21.50	0.415	**0.55**	0.204	**0.27**	0.12
Body	LTE Band7	21350	2560	50RB-Middle	Front	10mm	\	20.21	21.50	0.171	**0.23**	0.093	**0.13**	0.09
Body	LTE Band7	21350	2560	50RB-Middle	Rear	10mm	FIG A.14	20.21	21.50	0.483	**0.65**	0.244	**0.33**	-0.16
Body	LTE Band7	21350	2560	50RB-Middle	Left	10mm	\	20.21	21.50	0.048	**0.06**	0.022	**0.03**	-0.02
Body	LTE Band7	21350	2560	50RB-Middle	Right	10mm	\	20.21	21.50	0.085	**0.11**	0.049	**0.07**	0.17
Body	LTE Band7	21350	2560	50RB-Middle	Bottom	10mm	\	20.21	21.50	0.463	**0.62**	0.231	**0.31**	-0.07
Head	LTE Band12	23130	711	1RB-Middle	Cheek Left	0mm	\	23.69	25.00	0.052	**0.07**	0.035	**0.05**	0.07
Head	LTE Band12	23130	711	1RB-Middle	Tilt Left	0mm	\	23.69	25.00	0.039	**0.05**	0.025	**0.03**	-0.09
Head	LTE Band12	23130	711	1RB-Middle	Cheek Right	0mm	\	23.69	25.00	0.072	**0.10**	0.040	**0.05**	0.15
Head	LTE Band12	23130	711	1RB-Middle	Tilt Right	0mm	FIG A.15	23.69	25.00	0.078	**0.11**	0.042	**0.06**	0.10
Head	LTE Band12	23130	711	25RB-Middle	Cheek Left	0mm	\	22.77	24.00	0.036	**0.05**	0.025	**0.03**	0.01
Head	LTE Band12	23130	711	25RB-Middle	Tilt Left	0mm	\	22.77	24.00	0.038	**0.05**	0.024	**0.03**	-0.12
Head	LTE Band12	23130	711	25RB-Middle	Cheek Right	0mm	\	22.77	24.00	0.055	**0.07**	0.034	**0.05**	-0.01
Head	LTE Band12	23130	711	25RB-Middle	Tilt Right	0mm	\	22.77	24.00	0.060	**0.08**	0.032	**0.04**	-0.08
Body	LTE Band12	23130	711	1RB-Middle	Front	10mm	\	23.69	25.00	0.123	**0.17**	0.077	**0.10**	0.19
Body	LTE Band12	23130	711	1RB-Middle	Rear	10mm	FIG A.16	23.69	25.00	0.210	**0.28**	0.130	**0.18**	-0.17
Body	LTE Band12	23130	711	1RB-Middle	Left	10mm	\	23.69	25.00	0.141	**0.19**	0.082	**0.11**	-0.06
Body	LTE Band12	23130	711	1RB-Middle	Right	10mm	\	23.69	25.00	0.091	**0.12**	0.052	**0.07**	-0.07
Body	LTE Band12	23130	711	1RB-Middle	Top	10mm	\	23.69	25.00	0.123	**0.17**	0.053	**0.07**	-0.05
Body	LTE Band12	23130	711	25RB-Middle	Front	10mm	\	22.77	24.00	0.103	**0.14**	0.064	**0.08**	-0.07
Body	LTE Band12	23130	711	25RB-Middle	Rear	10mm	\	22.77	24.00	0.158	**0.21**	0.097	**0.13**	-0.05
Body	LTE Band12	23130	711	25RB-Middle	Left	10mm	\	22.77	24.00	0.089	**0.12**	0.052	**0.07**	0.13
Body	LTE Band12	23130	711	25RB-Middle	Right	10mm	\	22.77	24.00	0.068	**0.09**	0.038	**0.05**	0.17
Body	LTE Band12	23130	711	25RB-Middle	Top	10mm	\	22.77	24.00	0.095	**0.13**	0.041	**0.05**	0.09
Head	LTE Band13	23230	782	1RB-Middle	Cheek Left	0mm	\	23.56	25.00	0.167	**0.23**	0.092	**0.13**	-0.14
Head	LTE Band13	23230	782	1RB-Middle	Tilt Left	0mm	\	23.56	25.00	0.195	**0.27**	0.098	**0.14**	-0.10
Head	LTE Band13	23230	782	1RB-Middle	Cheek Right	0mm	\	23.56	25.00	0.259	**0.36**	0.128	**0.18**	0.02
Head	LTE Band13	23230	782	1RB-Middle	Tilt Right	0mm	FIG A.17	23.56	25.00	0.277	**0.39**	0.132	**0.18**	0.13
Head	LTE Band13	23230	782	25RB-Middle	Cheek Left	0mm	\	22.59	24.00	0.134	**0.19**	0.076	**0.11**	0.03
Head	LTE Band13	23230	782	25RB-Middle	Tilt Left	0mm	\	22.59	24.00	0.140	**0.19**	0.071	**0.10**	0.06
Head	LTE Band13	23230	782	25RB-Middle	Cheek Right	0mm	\	22.59	24.00	0.176	**0.24**	0.097	**0.13**	0.07
Head	LTE Band13	23230	782	25RB-Middle	Tilt Right	0mm	\	22.59	24.00	0.220	**0.30**	0.104	**0.14**	-0.17
Body	LTE Band13	23230	782	1RB-Middle	Front	10mm	\	23.56	25.00	0.073	**0.10**	0.044	**0.06**	-0.16
Body	LTE Band13	23230	782	1RB-Middle	Rear	10mm	FIG A.18	23.56	25.00	0.125	**0.17**	0.074	**0.10**	-0.12
Body	LTE Band13	23230	782	1RB-Middle	Left	10mm	\	23.56	25.00	0.084	**0.12**	0.046	**0.06**	0.05
Body	LTE Band13	23230	782	1RB-Middle	Right	10mm	\	23.56	25.00	0.054	**0.08**	0.029	**0.04**	-0.12
Body	LTE Band13	23230	782	1RB-Middle	Top	10mm	\	23.56	25.00	0.073	**0.10**	0.030	**0.04**	0.16
Body	LTE Band13	23230	782	25RB-Middle	Front	10mm	\	22.59	24.00	0.061	**0.08**	0.036	**0.05**	0.09
Body	LTE Band13	23230	782	25RB-Middle	Rear	10mm	\	22.59	24.00	0.094	**0.13**	0.055	**0.08**	0.07
Body	LTE Band13	23230	782	25RB-Middle	Left	10mm	\	22.59	24.00	0.053	**0.07**	0.029	**0.04**	-0.10
Body	LTE Band13	23230	782	25RB-Middle	Right	10mm	\	22.59	24.00	0.040	**0.06**	0.022	**0.03**	-0.16
Body	LTE Band13	23230	782	25RB-Middle	Top	10mm	\	22.59	24.00	0.057	**0.08**	0.023	**0.03**	0.04

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	LTE Band26	26775	822.5	1RB-Middle	Cheek Left	0mm	\	23.67	25.00	0.348	**0.47**	0.202	**0.27**	-0.05
Head	LTE Band26	26775	822.5	1RB-Middle	Tilt Left	0mm	\	23.67	25.00	0.366	**0.50**	0.189	**0.26**	0.03
Head	LTE Band26	26775	822.5	1RB-Middle	Cheek Right	0mm	\	23.67	25.00	0.526	**0.71**	0.262	**0.36**	0.16
Head	LTE Band26	26775	822.5	1RB-Middle	Tilt Right	0mm	FIG A.19	23.67	25.00	0.569	**0.77**	0.276	**0.37**	0.04
Head	LTE Band26	26775	822.5	36RB-Low	Cheek Left	0mm	\	22.83	24.00	0.271	**0.35**	0.154	**0.20**	0.09
Head	LTE Band26	26775	822.5	36RB-Low	Tilt Left	0mm	\	22.83	24.00	0.331	**0.43**	0.166	**0.22**	0.04
Head	LTE Band26	26775	822.5	36RB-Low	Cheek Right	0mm	\	22.83	24.00	0.275	**0.36**	0.145	**0.19**	0.09
Head	LTE Band26	26775	822.5	36RB-Low	Tilt Right	0mm	\	22.83	24.00	0.479	**0.63**	0.230	**0.30**	0.11
Body	LTE Band26	26775	822.5	1RB-Middle	Front	10mm	\	23.67	25.00	0.143	**0.19**	0.083	**0.11**	-0.05
Body	LTE Band26	26775	822.5	1RB-Middle	Rear	10mm	FIG A.20	23.67	25.00	0.231	**0.31**	0.137	**0.19**	-0.02
Body	LTE Band26	26775	822.5	1RB-Middle	Left	10mm	\	23.67	25.00	0.122	**0.17**	0.077	**0.10**	-0.02
Body	LTE Band26	26775	822.5	1RB-Middle	Right	10mm	\	23.67	25.00	0.104	**0.14**	0.067	**0.09**	0.14
Body	LTE Band26	26775	822.5	1RB-Middle	Top	10mm	\	23.67	25.00	0.168	**0.23**	0.081	**0.11**	0.13
Body	LTE Band26	26775	822.5	36RB-Low	Front	10mm	\	22.83	24.00	0.108	**0.14**	0.064	**0.08**	-0.13
Body	LTE Band26	26775	822.5	36RB-Low	Rear	10mm	\	22.83	24.00	0.191	**0.25**	0.111	**0.15**	0.04
Body	LTE Band26	26775	822.5	36RB-Low	Left	10mm	\	22.83	24.00	0.087	**0.11**	0.056	**0.07**	-0.17
Body	LTE Band26	26775	822.5	36RB-Low	Right	10mm	\	22.83	24.00	0.080	**0.10**	0.052	**0.07**	-0.05
Body	LTE Band26	26775	822.5	36RB-Low	Top	10mm	\	22.83	24.00	0.161	**0.21**	0.082	**0.11**	-0.13
Head	LTE Band41 PC3	41055	2636.5	1RB-Middle	Cheek Left	0mm	\	23.94	24.50	0.086	**0.10**	0.045	**0.05**	0.11
Head	LTE Band41 PC3	41055	2636.5	1RB-Middle	Tilt Left	0mm	\	23.94	24.50	0.094	**0.11**	0.050	**0.06**	0.01
Head	LTE Band41 PC3	41055	2636.5	1RB-Middle	Cheek Right	0mm	FIG A.21	23.94	24.50	0.178	**0.20**	0.094	**0.11**	-0.11
Head	LTE Band41 PC3	41055	2636.5	1RB-Middle	Tilt Right	0mm	\	23.94	24.50	0.146	**0.17**	0.075	**0.09**	0.06
Head	LTE Band41 PC3	41055	2636.5	50RB-Middle	Cheek Left	0mm	\	22.83	23.50	0.106	**0.12**	0.061	**0.07**	-0.02
Head	LTE Band41 PC3	41055	2636.5	50RB-Middle	Tilt Left	0mm	\	22.83	23.50	0.094	**0.11**	0.050	**0.06**	0.11
Head	LTE Band41 PC3	41055	2636.5	50RB-Middle	Cheek Right	0mm	\	22.83	23.50	0.165	**0.19**	0.089	**0.10**	-0.05
Head	LTE Band41 PC3	41055	2636.5	50RB-Middle	Tilt Right	0mm	\	22.83	23.50	0.134	**0.16**	0.068	**0.08**	-0.17
Body	LTE Band41 PC3	41055	2636.5	1RB-Middle	Front	10mm	\	23.98	24.50	0.248	**0.28**	0.134	**0.15**	-0.08
Body	LTE Band41 PC3	41055	2636.5	1RB-Middle	Rear	10mm	\	23.98	24.50	0.573	**0.65**	0.301	**0.34**	-0.15
Body	LTE Band41 PC3	41055	2636.5	1RB-Middle	Left	10mm	\	23.98	24.50	0.086	**0.10**	0.049	**0.06**	0.19
Body	LTE Band41 PC3	41055	2636.5	1RB-Middle	Right	10mm	\	23.98	24.50	0.131	**0.15**	0.071	**0.08**	0.11
Body	LTE Band41 PC3	41055	2636.5	1RB-Middle	Bottom	10mm	FIG A.22	23.98	24.50	0.703	**0.79**	0.345	**0.39**	0.02
Body	LTE Band41 PC3	41055	2636.5	50RB-Middle	Front	10mm	\	22.83	23.50	0.177	**0.21**	0.092	**0.11**	0.03
Body	LTE Band41 PC3	41055	2636.5	50RB-Middle	Rear	10mm	\	22.83	23.50	0.426	**0.50**	0.255	**0.30**	0.17
Body	LTE Band41 PC3	41055	2636.5	50RB-Middle	Left	10mm	\	22.83	23.50	0.056	**0.07**	0.031	**0.04**	-0.06
Body	LTE Band41 PC3	41055	2636.5	50RB-Middle	Right	10mm	\	22.83	23.50	0.085	**0.10**	0.046	**0.05**	0.08
Body	LTE Band41 PC3	41055	2636.5	50RB-Middle	Bottom	10mm	\	22.83	23.50	0.555	**0.65**	0.256	**0.30**	0.15
Head	LTE Band66	132572	1770	1RB-Middle	Cheek Left	0mm	\	23.24	24.50	0.106	**0.14**	0.064	**0.09**	-0.06
Head	LTE Band66	132572	1770	1RB-Middle	Tilt Left	0mm	\	23.24	24.50	0.042	**0.06**	0.025	**0.03**	-0.05
Head	LTE Band66	132572	1770	1RB-Middle	Cheek Right	0mm	\	23.24	24.50	0.068	**0.09**	0.042	**0.06**	-0.01
Head	LTE Band66	132572	1770	1RB-Middle	Tilt Right	0mm	\	23.24	24.50	0.054	**0.07**	0.033	**0.04**	0.06
Head	LTE Band66	132572	1770	50RB-Low	Cheek Left	0mm	FIG A.23	22.73	23.50	0.121	**0.14**	0.076	**0.09**	-0.18
Head	LTE Band66	132572	1770	50RB-Low	Tilt Left	0mm	\	22.73	23.50	0.051	**0.06**	0.031	**0.04**	-0.04
Head	LTE Band66	132572	1770	50RB-Low	Cheek Right	0mm	\	22.73	23.50	0.071	**0.08**	0.044	**0.05**	0.17
Head	LTE Band66	132572	1770	50RB-Low	Tilt Right	0mm	\	22.73	23.50	0.042	**0.05**	0.025	**0.03**	-0.17
Body	LTE Band66	132572	1770	1RB-Middle	Front	10mm	\	20.76	22.00	0.181	**0.24**	0.107	**0.14**	-0.13
Body	LTE Band66	132572	1770	1RB-Middle	Rear	10mm	\	20.76	22.00	0.275	**0.37**	0.151	**0.20**	0.13
Body	LTE Band66	132572	1770	1RB-Middle	Left	10mm	\	20.76	22.00	0.037	**0.05**	0.021	**0.03**	-0.04
Body	LTE Band66	132572	1770	1RB-Middle	Right	10mm	\	20.76	22.00	0.028	**0.04**	0.016	**0.02**	0.04
Body	LTE Band66	132572	1770	1RB-Middle	Bottom	10mm	\	20.76	22.00	0.248	**0.33**	0.135	**0.18**	-0.16
Body	LTE Band66	132572	1770	50RB-Low	Front	10mm	\	20.83	22.00	0.087	**0.11**	0.053	**0.07**	-0.12
Body	LTE Band66	132572	1770	50RB-Low	Rear	10mm	\	20.83	22.00	0.266	**0.35**	0.144	**0.19**	0.01
Body	LTE Band66	132572	1770	50RB-Low	Left	10mm	\	20.83	22.00	0.041	**0.05**	0.024	**0.03**	-0.18
Body	LTE Band66	132572	1770	50RB-Low	Right	10mm	\	20.83	22.00	0.030	**0.04**	0.016	**0.02**	0.05
Body	LTE Band66	132572	1770	50RB-Low	Bottom	10mm	FIG A.24	20.83	22.00	0.305	**0.40**	0.169	**0.22**	0.02

14.2 SAR results for WLAN

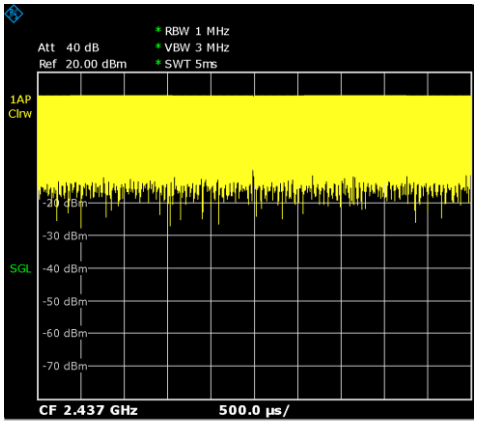
The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default power measurement procedures.

When the same transmission mode configurations have the same maximum output power on the same channel for the 802.11 a/g/n/ac/ax modes, the channel in the lower order/sequence 802.11 mode (i.e. a, g, n ac then ax) is selected.

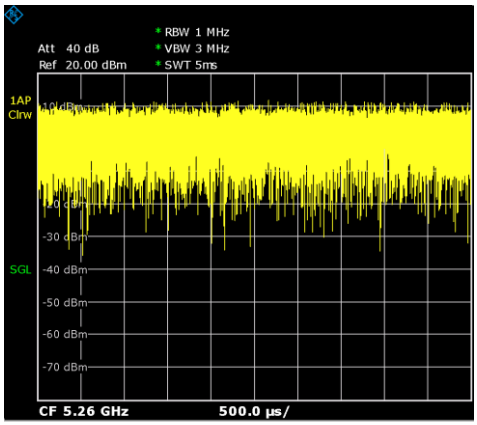
SAR Test reduction was applied from KDB 248227 guidance, when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band. Additional output power measurements were not deemed necessary.

Duty factor plot

CH6



CH48



WLAN 2.4G

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	Duty Cycle	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	WLAN2.4G	6	2437	11b	Cheek Left	0mm	\	100.00%	18.17	19.00	0.446	**0.54**	0.218	**0.26**	0.09
Head	WLAN2.4G	6	2437	11b	Tilt Left	0mm	FIG A.25	100.00%	18.17	19.00	0.498	**0.60**	0.229	**0.28**	-0.08
Head	WLAN2.4G	6	2437	11b	Cheek Right	0mm	\	100.00%	18.17	19.00	0.170	**0.21**	0.094	**0.11**	0.02
Head	WLAN2.4G	6	2437	11b	Tilt Right	0mm		100.00%	18.17	19.00	0.173	**0.21**	0.090	**0.11**	0.08
Body	WLAN2.4G	6	2437	11b	Front	10mm	\	100.00%	18.17	19.00	0.123	**0.15**	0.064	**0.08**	-0.05
Body	WLAN2.4G	6	2437	11b	Rear	10mm	FIG A.26	100.00%	18.17	19.00	0.232	**0.28**	0.117	**0.14**	-0.17
Body	WLAN2.4G	6	2437	11b	Right	10mm	\	100.00%	18.17	19.00	0.181	**0.22**	0.092	**0.11**	0.15
Body	WLAN2.4G	6	2437	11b	Top	10mm	\	100.00%	18.17	19.00	0.106	**0.13**	0.052	**0.06**	0.17

WLAN 5G

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	Duty Cycle	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	WLAN5G	48	5240	11a	Cheek Left	0mm	FIG A.27	100.00%	17.46	18.00	0.322	**0.36**	0.112	**0.13**	0.15
Head	WLAN5G	48	5240	11a	Tilt Left	0mm	\	100.00%	17.46	18.00	0.244	**0.28**	0.090	**0.10**	0.15
Head	WLAN5G	48	5240	11a	Cheek Right	0mm	\	100.00%	17.46	18.00	0.088	**0.10**	0.035	**0.04**	-0.03
Head	WLAN5G	48	5240	11a	Tilt Right	0mm	\	100.00%	17.46	18.00	0.091	**0.10**	0.036	**0.04**	-0.17
Head	WLAN5G	52	5260	11a	Cheek Left	0mm	\	100.00%	17.37	18.00	0.307	**0.35**	0.106	**0.12**	-0.16
Head	WLAN5G	52	5260	11a	Tilt Left	0mm	\	100.00%	17.37	18.00	0.238	**0.28**	0.086	**0.10**	-0.01
Head	WLAN5G	52	5260	11a	Cheek Right	0mm	\	100.00%	17.37	18.00	0.099	**0.11**	0.039	**0.05**	0.15
Head	WLAN5G	52	5260	11a	Tilt Right	0mm	\	100.00%	17.37	18.00	0.099	**0.11**	0.039	**0.05**	0.1
Head	WLAN5G	124	5620	11a	Cheek Left	0mm	\	100.00%	16.77	18.00	0.265	**0.35**	0.101	**0.13**	0.12
Head	WLAN5G	124	5620	11a	Tilt Left	0mm	\	100.00%	16.77	18.00	0.210	**0.28**	0.071	**0.09**	0.05
Head	WLAN5G	124	5620	11a	Cheek Right	0mm	\	100.00%	16.77	18.00	0.125	**0.17**	0.044	**0.06**	0.19
Head	WLAN5G	124	5620	11a	Tilt Right	0mm	\	100.00%	16.77	18.00	0.142	**0.19**	0.048	**0.06**	-0.08
Head	WLAN5G	165	5825	11a	Cheek Left	0mm	\	100.00%	16.91	18.00	0.227	**0.29**	0.081	**0.10**	-0.06
Head	WLAN5G	165	5825	11a	Tilt Left	0mm	\	100.00%	16.91	18.00	0.235	**0.30**	0.076	**0.10**	0.14
Head	WLAN5G	165	5825	11a	Cheek Right	0mm	\	100.00%	16.91	18.00	0.098	**0.13**	0.035	**0.04**	-0.19
Head	WLAN5G	165	5825	11a	Tilt Right	0mm	\	100.00%	16.91	18.00	0.137	**0.18**	0.047	**0.06**	0.15
Body	WLAN5G	48	5240	11a	Front	10mm	\	100.00%	17.46	18.00	0.125	**0.14**	0.051	**0.06**	-0.05
Body	WLAN5G	48	5240	11a	Rear	10mm	\	100.00%	17.46	18.00	0.293	**0.33**	0.120	**0.14**	-0.13
Body	WLAN5G	48	5240	11a	Right	10mm	FIG A.28	100.00%	17.46	18.00	0.355	**0.40**	0.125	**0.14**	0.18
Body	WLAN5G	48	5240	11a	Top	10mm	\	100.00%	17.46	18.00	0.162	**0.18**	0.063	**0.07**	0.18
Body	WLAN5G	52	5260	11a	Front	10mm	\	100.00%	17.37	18.00	0.114	**0.13**	0.049	**0.06**	-0.15
Body	WLAN5G	52	5260	11a	Rear	10mm	\	100.00%	17.37	18.00	0.245	**0.28**	0.105	**0.12**	-0.15
Body	WLAN5G	52	5260	11a	Right	10mm	\	100.00%	17.37	18.00	0.311	**0.36**	0.110	**0.13**	-0.1
Body	WLAN5G	52	5260	11a	Top	10mm	\	100.00%	17.37	18.00	0.067	**0.08**	0.049	**0.06**	-0.17
Body	WLAN5G	124	5620	11a	Front	10mm	\	100.00%	16.77	18.00	0.080	**0.11**	0.035	**0.05**	0.09
Body	WLAN5G	124	5620	11a	Rear	10mm	\	100.00%	16.77	18.00	0.192	**0.25**	0.083	**0.11**	-0.16
Body	WLAN5G	124	5620	11a	Right	10mm	\	100.00%	16.77	18.00	0.173	**0.23**	0.067	**0.09**	0.13
Body	WLAN5G	124	5620	11a	Top	10mm	\	100.00%	16.77	18.00	0.125	**0.17**	0.049	**0.07**	-0.1
Body	WLAN5G	165	5825	11a	Front	10mm	\	100.00%	16.91	18.00	0.079	**0.10**	0.032	**0.04**	-0.09
Body	WLAN5G	165	5825	11a	Rear	10mm	\	100.00%	16.91	18.00	0.186	**0.24**	0.074	**0.10**	0.17
Body	WLAN5G	165	5825	11a	Right	10mm	\	100.00%	16.91	18.00	0.154	**0.20**	0.061	**0.08**	0.11
Body	WLAN5G	165	5825	11a	Top	10mm	\	100.00%	16.91	18.00	0.140	**0.18**	0.051	**0.07**	-0.06

14.3 AR results for BT

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Figure No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
Head	BT	78	2480	GFSK	Cheek Left	0mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Head	BT	78	2480	GFSK	Tilt Left	0mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Head	BT	78	2480	GFSK	Cheek Right	0mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Head	BT	78	2480	GFSK	Tilt Right	0mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Body	BT	78	2480	GFSK	Front	10mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Body	BT	78	2480	GFSK	Rear	10mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Body	BT	78	2480	GFSK	Right	10mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	
Body	BT	78	2480	GFSK	Top	10mm	\	9.97	11.50	<0.01	**<0.01**	<0.01	**<0.01**	

14.4SAR results for Phablet

According to the KDB648474 D04, for smart phones, with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm, that can provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets and support voice calls next to the ear, unless it is confirmed otherwise through KDB inquiries, the following phablet procedures should be applied to evaluate SAR compliance for each applicable wireless modes and frequency band. Devices marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance.

1. The normally required head and body-worn accessory SAR test procedures for handsets, including hotspot mode, must be applied.
2. The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for 10-g extremity SAR according to the body-equivalent tissue dielectric parameters in KDB Publication 865664 D01 to address interactive hand use exposure conditions. When hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold. The normal tablet procedures in KDB Publication 616217 are required when the overall diagonal dimension of the device is > 20.0 cm. Hotspot mode SAR is not required when normal tablet procedures are applied. Extremity 10-g SAR is also not required for the front (top) surface of larger form factor full size tablets. The more conservative normal tablet SAR results can be used to support phablet mode 10-g extremity SAR.
3. The simultaneous transmission operating configurations applicable to voice and data transmissions for both phone and mini-tablet modes must be taken into consideration separately for 1-g and 10-g SAR to determine the simultaneous transmission SAR test exclusion and measurement requirements for the relevant wireless modes and exposure conditions

The 10g extremity SAR is not required for this DUT, because all the hotspot mode 1g reported SAR is less than 1.2 W/kg.

15 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; steps2) 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 ≥ 1.45W/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

RF Exposure Conditions	Frequency Band	Channel Number	Frequency (MHz)	Mode/RB	Test setup	Distance	Original SAR 1g (W/kg)	First Repeated SAR 1g (W/kg)	The Ratio	Second Repeated SAR 1g (W/kg)
Head	GSM850	190	836.6	GPRS(4TX)	Cheek Right	0mm	0.836	0.808	1.03	/
Head	GSM850	251	848.8	GPRS(4TX)	Tilt Right	0mm	1.020	0.995	1.03	/
Head	GSM850	190	836.6	GPRS(4TX)	Tilt Right	0mm	1.010	0.978	1.03	/
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	1.080	1.060	1.02	/
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	1.010	0.981	1.03	/
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	0.992	0.953	1.04	/
Head	GSM850	128	824.2	GPRS(4TX)	Tilt Right	0mm	1.030	0.990	1.04	/

16 Measurement Uncertainty

16.1 Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

Combined standard uncertainty	$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.55	9.43	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					19.1	18.9	

16.2 Measurement Uncertainty for Normal SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	√3	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.8	R	√3	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	√3	1	1	3.9	3.9	∞
13	Post-processing	B	4.0	R	√3	1	1	2.3	2.3	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	√3	0.6	0.49	1.7	1.4	∞

21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						10.7	10.6	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						21.4	21.1	

16.3 Measurement Uncertainty for Fast SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	∞
2	Isotropy	B	4.7	R	√3	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	√3	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	√3	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	√3	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	√3	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	√3	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	√3	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	√3	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	√3	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.4	R	√3	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	√3	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	√3	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	7.0	R	√3	1	1	4.0	4.0	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
17	Drift of output power	B	5.0	R	√3	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	√3	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	√3	0.64	0.43	1.8	1.2	∞

20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c^{'} = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						10.4	10.3	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						20.8	20.6	

16.4 Measurement Uncertainty for Fast SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RFambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. Restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
14	Fast SAR z-Approximation	B	14.0	R	$\sqrt{3}$	1	1	8.1	8.1	∞
Test sample related										
15	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
16	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5

17	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
18	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
19	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
20	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
21	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
22	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						13.5	13.4	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						27.0	26.8	

17 MAIN TEST INSTRUMENTS

Table 17.1: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	N5239A	MY55491241	May 21, 2024	One year
02	Power sensor	NRP50S	101488	June 5, 2024	One year
03	Power sensor	NRP50S	101489		
04	Signal Generator	MG3700A	6201052605	June 12 2024	One Year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	CMW500	170618	April 8, 2024	One year
07	DAE	SPEAG DAE4	1807	May 14,2024	One year
08	E-field Probe	SPEAG EX3DV4	3846	June 19，2024	One year
09	Dipole Validation Kit	SPEAG D750V3	1017	July 9,2024	One year
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 9,2024	One year
11	Dipole Validation Kit	SPEAG D1750V2	1003	July 11,2024	One year
12	Dipole Validation Kit	SPEAG D1900V2	5d101	July 8,2024	One year
13	Dipole Validation Kit	SPEAG D2450V2	853	July 10,2024	One year
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 10,2024	One year
15	Dipole Validation Kit	SPEAG D5GHzV2	1060	June 12,2024	One year

END OF REPORT BODY

Appendixes

Refer to separated files for the following appendixes

ANNEX A Graph Results

ANNEX B System Verification Results

ANNEX C SAR Measurement Setup

ANNEX D Position of the wireless device in relation to the phantom

ANNEX E Equivalent Media Recipes

ANNEX F System Validation

ANNEX G Probe Calibration Certificate

ANNEX H Dipole Calibration Certificate

ANNEX I Accreditation Certificate