



SAR TEST REPORT

No. 23T04Z80263-19

For

BLU Products, Inc.

Smart Phone

Model Name: B170D

with

Hardware Version: V1.0

Software Version: BLU_B170D_V14.0.01.05.01.01_FSec

FCC ID: YHLBLUB170D

Issued Date: 2023-11-28

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.

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**REPORT HISTORY**

Report Number	Revision	Issue Date	Description
23T04Z80263-19	Rev.0	2023-11-22	Initial creation of test report
23T04Z80263-19	Rev.1	2023-11-28	<ol style="list-style-type: none">1. Revise Graph Results for LTE B26 body on page19 of ANNEX.2. Revise the maximum SAR results of LTE B41 PC2 body on page70.3. Revise SAR results for BT on page75.4. Revise tune up power for WIFI5G on page60.

TABLE OF CONTENT

1 TEST LABORATORY	5
1.1 INTRODUCTION & ACCREDITATION	5
1.2 TESTING LOCATION	5
1.3 TESTING ENVIRONMENT.....	6
1.4 PROJECT DATA	6
1.5 SIGNATURE.....	6
2 STATEMENT OF COMPLIANCE	7
3 CLIENT INFORMATION.....	9
3.1 APPLICANT INFORMATION	9
3.2 MANUFACTURER INFORMATION	9
4 EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	10
4.1 ABOUT EUT	10
4.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	11
4.3 INTERNAL IDENTIFICATION OF AE USED DURING THE TEST	11
5 TEST METHODOLOGY	12
5.1 APPLICABLE LIMIT REGULATIONS.....	12
5.2 APPLICABLE MEASUREMENT STANDARDS	12
6 SPECIFIC ABSORPTION RATE (SAR).....	13
6.1 INTRODUCTION.....	13
6.2 SAR DEFINITION.....	13
7 TISSUE SIMULATING LIQUIDS	14
7.1 TARGETS FOR TISSUE SIMULATING LIQUID.....	14
7.2 DIELECTRIC PERFORMANCE	14
8 SYSTEM VERIFICATION.....	16
8.1 SYSTEM SETUP.....	16
8.2 SYSTEM VERIFICATION.....	17
9 MEASUREMENT PROCEDURES	18
9.1 TESTS TO BE PERFORMED	18
9.2 GENERAL MEASUREMENT PROCEDURE.....	20
9.3 WCDMA MEASUREMENT PROCEDURES FOR SAR	21
9.4 SAR MEASUREMENT FOR LTE.....	22
9.5 BLUETOOTH & WI-FI MEASUREMENT PROCEDURES FOR SAR	24
9.6 POWER DRIFT.....	24
10 AREA SCAN BASED 1-G SAR	25
10.1 REQUIREMENT OF KDB.....	25



10.2 FAST SAR ALGORITHMS	25
11 CONDUCTED OUTPUT POWER.....	26
11.1 GSM MEASUREMENT RESULT	27
11.2 WCDMA MEASUREMENT RESULT	30
11.3 LTE MEASUREMENT RESULT	33
11.5 WI-FI AND BT MEASUREMENT RESULT	58
12 SIMULTANEOUS TX SAR CONSIDERATIONS	64
12.1 INTRODUCTION.....	64
12.2 TRANSMIT ANTENNA SEPARATION DISTANCES.....	64
12.3 SAR MEASUREMENT POSITIONS	64
13 EVALUATION OF SIMULTANEOUS.....	65
14 SAR TEST RESULT	66
14.1 SAR RESULTS FOR 2G/3G/4G	67
14.2 SAR EVALUATION FOR WIFI.....	72
14.3 SAR EVALUATION FOR BT.....	75
14.4 SAR RESULTS FOR 10-G EXTREMITY SAR.....	76
15 SAR MEASUREMENT VARIABILITY.....	77
16 MEASUREMENT UNCERTAINTY	78
16.1 MEASUREMENT UNCERTAINTY FOR NORMAL SAR TESTS (300MHZ~3GHZ).....	78
16.2 MEASUREMENT UNCERTAINTY FOR NORMAL SAR TESTS (3~6GHZ)	79
16.3 MEASUREMENT UNCERTAINTY FOR FAST SAR TESTS (300MHZ~3GHZ).....	80
16.4 MEASUREMENT UNCERTAINTY FOR FAST SAR TESTS (3~6GHZ)	81
17 MAIN TEST INSTRUMENTS	83
APPENDIXES	84



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

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

1.3 Testing Environment

Temperature:	18°C~25°C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω
Ambient noise & Reflection:	< 0.012 W/kg

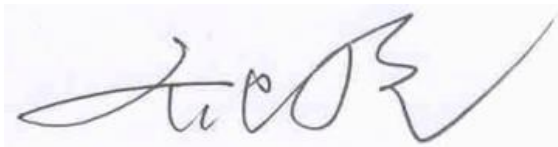
1.4 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Yao Juming
Testing Start Date:	October 19, 2023
Testing End Date:	November 9, 2023

1.5 Signature

姚聚明

Yao Juming
(Prepared this test report)



Qi Dianyuan
(Reviewed this test report)

陆冰松

Lu Bingsong
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 BLU Products, Inc. Smart Phone B170D is as follows:

Table 2.1: Highest Reported SAR (1g)

Technology Band	Head	Hotspot	Body-Worn	Phablet-10g	Equipment Class
GSM850	0.01	0.11	0.11	/	PCE
GSM1900	0.30	0.78	0.78	/	
WCDMA1900	0.49	0.83	0.83	/	
WCDMA1700	0.32	0.54	0.54	/	
WCDMA 850	0.03	0.05	0.05	/	
LTE B12	0.12	0.22	0.22	/	
LTE B13	0.09	0.15	0.15	/	
LTE B25(B2)	0.32	0.79	0.79	/	
LTE B26(B5)	0.16	0.22	0.22	/	
LTE B41 PC3	0.06	0.30	0.30	/	
LTE B41 PC2	0.11	0.35	0.35	/	
LTE B66(B4)	0.18	0.55	0.55	/	
LTE B71	0.04	0.09	0.09	/	
WLAN 2.4GHz	0.46	0.26	0.26	/	DTS
WLAN 5GHz	0.38	0.25	0.25	/	NII
BT	0.06	0.02	0.02	/	DSS

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 mm15mm 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: 0.49 W/kg(1g)

Body: 0.83 W/kg(1g) .

Remark:

This device supports both LTE B2/B4/B5 and LTE B25/B66/B26. Since the supported frequency span for LTE B2/B4/B5 falls completely within the supports frequency span for LTE B25/B66/B26, both LTE bands have the same target power, and both LTE bands share the same transmission path; therefore, SAR was only assessed for LTE B25/B66/B26.

Table 2.2: The sum of SAR values for Main antenna + Wifi2.4G

	Position	Main antenna	WiFi-2.4G	Sum
Highest SAR value for Head	Right head, Cheek (WB2)	0.49	0.46	0.95
Highest SAR value for Body	Rear 10mm (WB2)	0.83	0.26	1.09

Table 2.3: The sum of SAR values for Main antenna + Wifi5G +BT

	Position	Main antenna	WiFi-5G	BT	Sum
Highest SAR value for Head	Right head, Cheek (WB2)	0.49	0.31	0.04	0.84
Highest SAR value for Body	Rear 10mm (WB2)	0.83	0.17	0.01	1.01

Conclusion:

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

According to the above tables, the highest sum of reported SAR values is **1.09 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.



3 Client Information

3.1 Applicant Information

Company Name:	BLU Products, Inc.
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Contact Person:	Zeng wei
Contact Email:	zwei@ctasiasz.com
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Fax	305.436.8819

3.2 Manufacturer Information

Company Name:	BLU Products, Inc.
Address/Post:	8600 NW 36th Street, Suite #200, Doral, FL 33166
Contact Person:	Zeng wei
Contact Email:	zwei@ctasiasz.com
Telephone:	305.715.7171
Fax	305.436.8819

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

4.1 About EUT

Description:	Smart Phone
Model name:	B170D
Operating mode(s):	GSM 850/1900, WCDMA B2/B4/B5 LTE B2/B4/B5/B12/B13/B25/B26/B41/B41 HPUE/B66/B71 BT, Wi-Fi(2.4G/5G)
Tested Tx Frequency:	824 – 849 MHz (GSM 850)
	1850 – 1910 MHz (GSM 1900)
	824 – 849 MHz (WCDMA 850 Band V)
	1850 – 1910 MHz (WCDMA1900 Band IV)
	1710-1755 MHz (WCDMA1700 Band II)
	699.7 – 715.3 MHz (LTE Band 12)
	779.5 – 784.5 MHz (LTE Band 13)
	814.7–848.3 MHz (LTE Band 26)
	2498.5 – 2687.5 MHz (LTE Band41)
	1710.7 –1779.3 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)	
GPRS/EGPRS Multislot Class:	33
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	359979710001159	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec
EUT2	359979710001951	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec
EUT3	359979710001753	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec
EUT4	359979710001373	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec
EUT5	359979710001381	V1.0	BLU_B170D_V14.0.01.05.01.01_FSec

*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 EUT4-5.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	C926547500P	/	Hunan Gaoyuan Battery 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.

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 heat 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

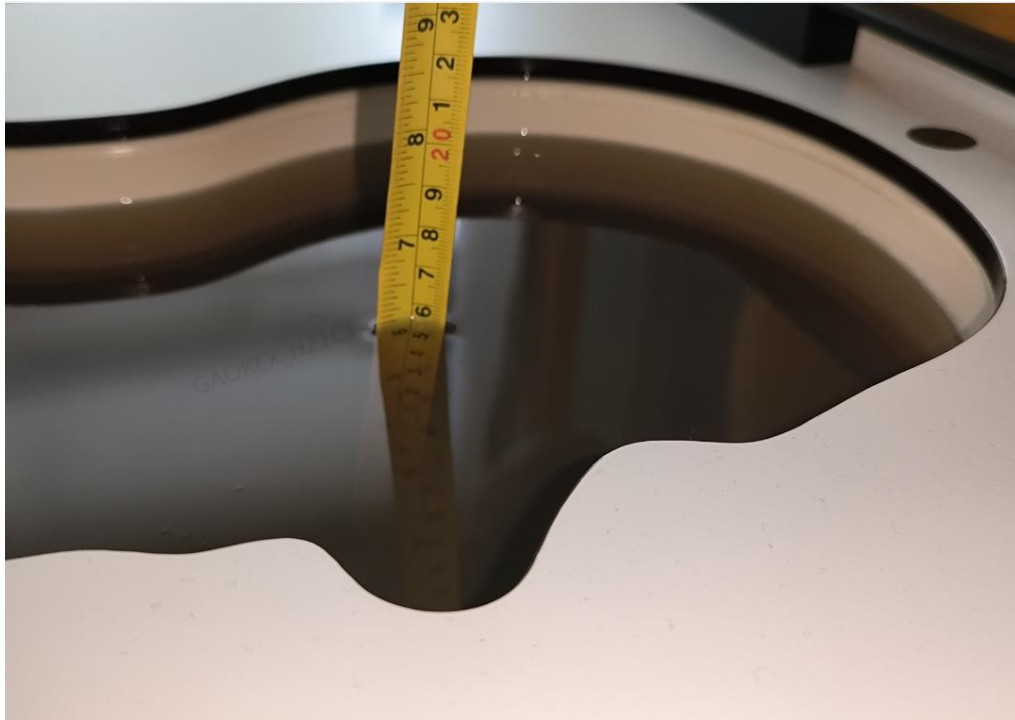
Frequency(MHz)	Liquid Type	Conductivity(σ)	$\pm 5\%$ Range	Permittivity(ϵ)	$\pm 5\%$ Range
750	Head	0.89	0.85~0.93	41.94	39.8~44.0
835	Head	0.90	0.86~0.95	41.5	39.4~43.6
1750	Head	1.37	1.30~1.44	40.08	38.1~42.1
1900	Head	1.40	1.33~1.47	40.0	38.0~42.0
2450	Head	1.67	1.59~1.75	39.47	37.5~41.4
2600	Head	1.96	1.86~2.06	39.01	37.1~41.0
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

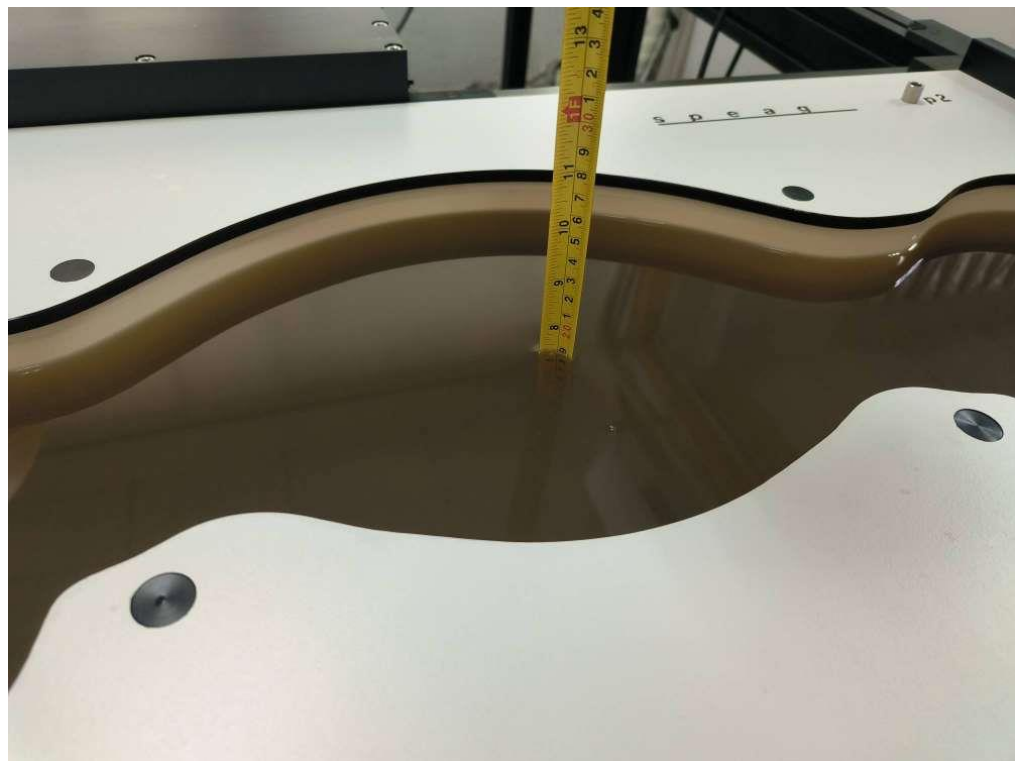
Table 7.3: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ϵ	Drift (%)	Conductivity σ (S/m)	Drift (%)
2023-10-27	Head	750 MHz	42.62	1.62%	0.914	2.70%
2023-10-19	Head	835 MHz	41.352	-0.36%	0.959	-1.13%
2023-10-22	Head	1800 MHz	40.231	0.58%	1.403	0.21%
2023-10-24	Head	1900 MHz	39.53	-1.18%	1.411	0.79%
2023-10-30	Head	2450 MHz	40.323	2.86%	1.788	-0.67%
2023-11-5	Head	2600 MHz	39.457	1.15%	1.952	-0.41%
2023-11-7	Head	5250 MHz	34.952	-2.72%	4.684	-0.55%
2023-11-8	Head	5600 MHz	34.774	-2.13%	5.12	0.99%
2023-11-9	Head	5750 MHz	34.563	-2.25%	5.325	2.01%

Note: The liquid temperature is 22.0°C



Picture 7-1 Liquid depth in the Head Phantom

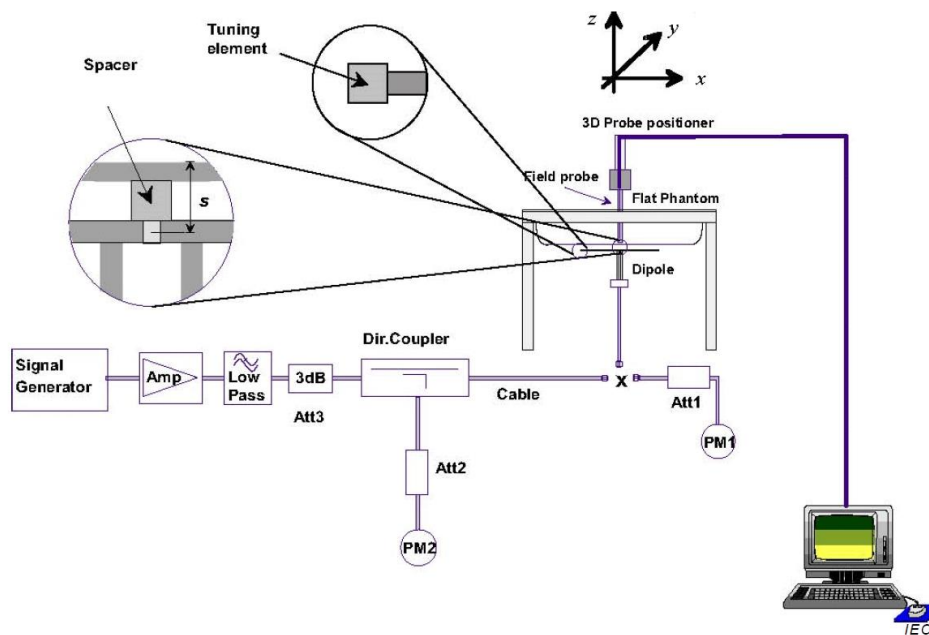


Picture 7-2 Liquid depth in the Flat Phantom

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. The details are presented in annex B.

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
2023-10-27	750 MHz	5.49	8.42	5.36	8.16	-2.37%	-3.09%
2023-10-19	835 MHz	6.25	9.62	6.12	9.4	-2.08%	-2.29%
2023-10-22	1800 MHz	19.8	37.9	19.92	38.28	0.61%	1.00%
2023-10-24	1900 MHz	20.7	39.8	20.44	39.28	-1.26%	-1.31%
2023-10-30	2450 MHz	24.7	52.1	24.52	51.8	-0.73%	-0.58%
2023-11-5	2600 MHz	25.1	55.2	25.32	55.56	0.88%	0.65%
2023-11-7	5250 MHz	22.8	79.6	22.7	79.1	-0.44%	-0.63%
2023-11-8	5600 MHz	23.8	83.6	23.7	83.3	-0.42%	-0.36%
2023-11-9	5750 MHz	22.7	80.5	23.1	82.1	1.76%	1.99%

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.

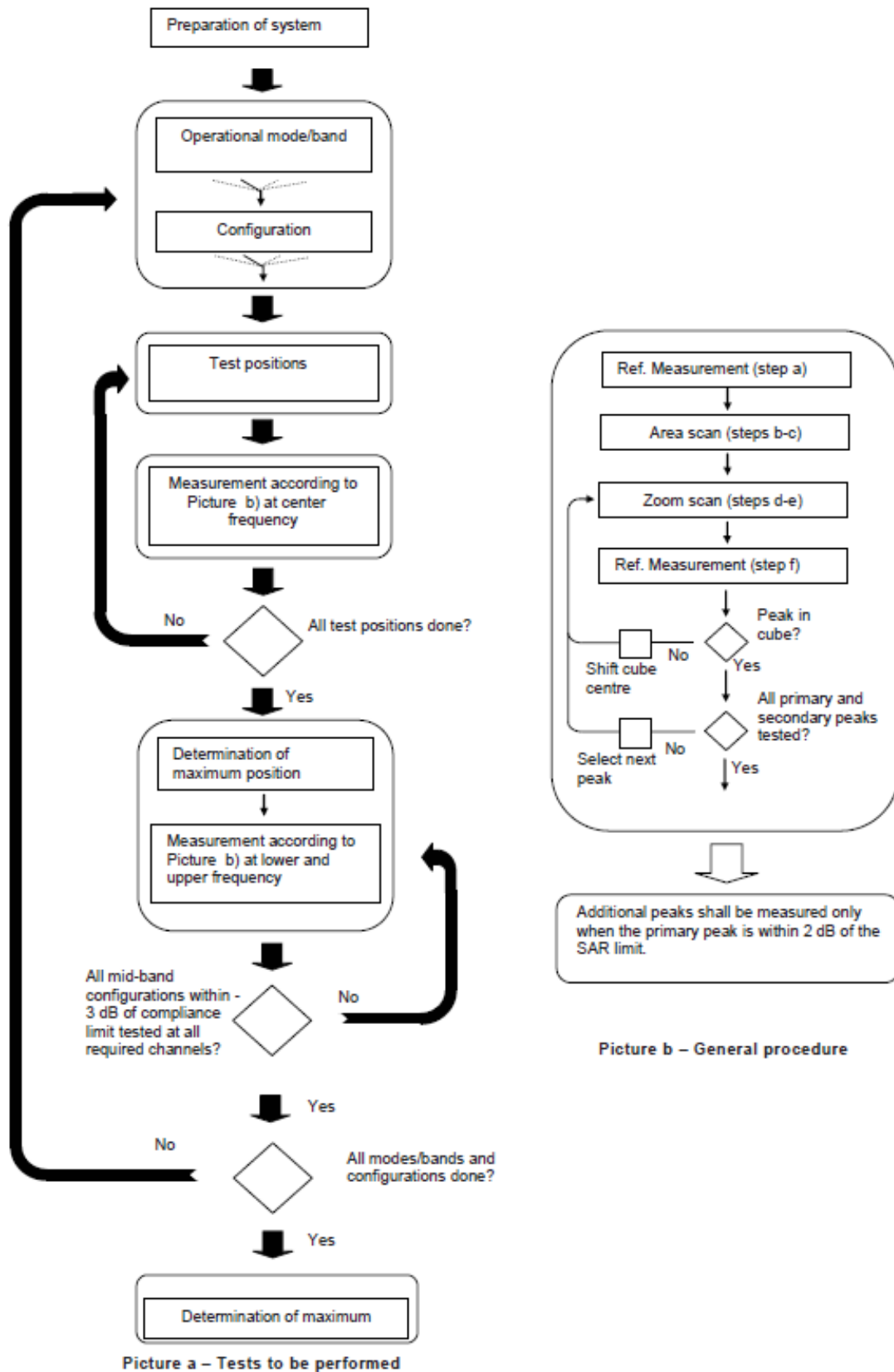
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

- 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 within 3 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.

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

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	$\beta_{ed1}:47/15$ $\beta_{ed2}:47/15$	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 & Schwarz 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.

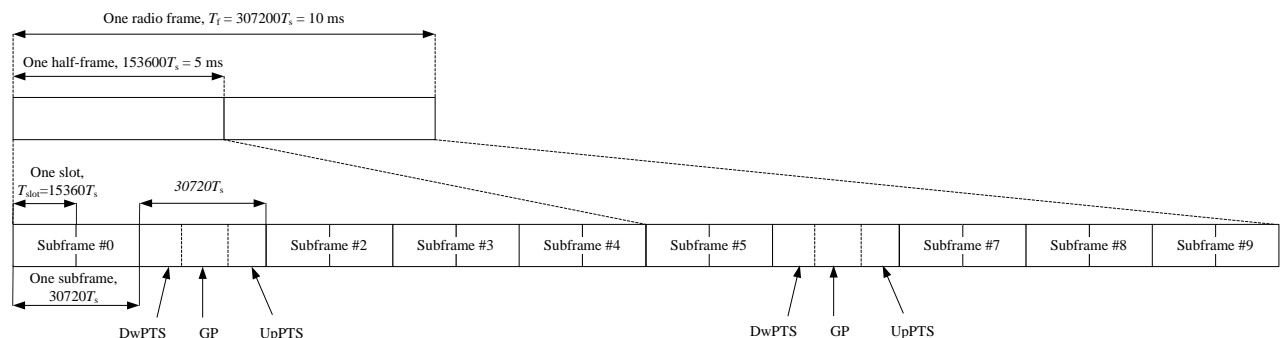


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

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	$26336 \cdot T_s$			$7680 \cdot T_s$		
5	$6592 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$20480 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
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:

$$\begin{aligned}
 \text{Duty factor} &= \text{uplink frame} \cdot 6 + \text{UpPTS} \cdot 2 / \text{one frame length} \\
 &= (30720 \cdot T_s \cdot 6 + 5120 \cdot T_s \cdot 2) / 307200 \cdot T_s \\
 &= 0.633
 \end{aligned}$$

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 section 14 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 (See Annex B). 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 55 wireless handsets. For the sample size studied, the root-mean-squared errors of the algorithm are 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

Table11.1: Summary of Receiver detection mechanism-

Antenna	Receiver on	Receiver off+ Hotspot off	Receiver off+ Hotspot on
Main Antenna	DSI0	DSI1	DSI2
WIFI Antenna	DSI0	DSI1	DSI2

11.1 GSM Measurement result

Table 11.1-1: The conducted power measurement results –GSM850 DSI 0/1/2

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	32.18	32.34	32.26	33.50	/	/	/	/
GSM 850 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.22	32.36	32.24	33.50	-9.03	23.19	23.33	23.21
2 Txslots	31.39	31.48	31.34	32.00	-6.02	25.37	25.46	25.32
3 Txslots	29.47	29.54	29.45	30.20	-4.26	25.21	25.28	25.19
4 Txslots	28.28	28.36	28.22	29.00	-3.01	25.27	25.35	25.21
GSM 850 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.24	32.32	32.21	33.50	-9.03	23.21	23.29	23.18
2 Txslots	31.36	31.45	31.32	32.00	-6.02	25.34	25.43	25.30
3 Txslots	29.43	29.52	29.42	30.20	-4.26	25.17	25.26	25.16
4 Txslots	28.24	28.33	28.20	29.00	-3.01	25.23	25.32	25.19
GSM 850 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	27.15	27.08	26.99	28.00	-9.03	18.12	18.05	17.96
2 Txslots	25.74	25.72	26.02	26.50	-6.02	19.72	19.70	20.00
3Txslots	23.31	23.57	23.36	23.80	-4.26	19.05	19.31	19.10
4 Txslots	21.70	21.82	21.85	22.00	-3.01	18.69	18.81	18.84

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 2Txslots for GSM850.

Table 11.1-2: The conducted power measurement results-GSM1900 DS10

PCS1900 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	29.04	29.57	29.92	30.50	/	/	/	/
PCS1900 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	29.08	29.52	29.89	30.50	-9.03	20.05	20.49	20.86
2 Txslots	28.17	28.63	29.03	29.50	-6.02	22.15	22.61	23.01
3 Txslots	26.28	26.78	27.26	28.00	-4.26	22.02	22.52	23.00
4 Txslots	25.02	25.57	26.02	26.50	-3.01	22.01	22.56	23.01
PCS1900 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	28.88	29.54	29.88	30.50	-9.03	19.85	20.51	20.85
2 Txslots	28.03	28.56	28.99	29.50	-6.02	22.01	22.54	22.97
3 Txslots	26.24	26.64	27.01	28.00	-4.26	21.98	22.38	22.75
4 Txslots	24.94	25.31	25.99	26.50	-3.01	21.93	22.30	22.98
PCS1900 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	25.13	25.43	25.84	27.00	-9.03	16.10	16.40	16.81
2 Txslots	23.86	24.16	24.59	25.50	-6.02	17.84	18.14	18.57
3Txslots	21.49	21.98	22.20	23.20	-4.26	17.23	17.72	17.94
4 Txslots	20.24	20.63	21.23	21.50	-3.01	17.23	17.62	18.22

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 2Txslots for GSM1900.

Table 11.1-3: The conducted power measurement results-GSM1900 DS1/2

PCS1900 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	23.92	24.52	24.95	25.50	/	/	/	/
PCS1900 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	23.93	24.55	25.01	25.50	-9.03	14.90	15.52	15.98
2 Txslots	22.44	23.11	23.53	24.50	-6.02	16.42	17.09	17.51
3 Txslots	20.33	20.97	21.48	22.00	-4.26	16.07	16.71	17.22
4 Txslots	19.82	20.44	20.95	21.00	-3.01	16.81	17.43	17.94
PCS1900 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	23.89	24.53	24.97	25.50	-9.03	14.86	15.50	15.94
2 Txslots	22.41	23.09	23.49	24.50	-6.02	16.39	17.07	17.47
3 Txslots	20.31	20.95	21.43	22.00	-4.26	16.05	16.69	17.17
4 Txslots	19.79	20.42	20.91	21.00	-3.01	16.78	17.41	17.90
PCS1900 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	20.49	20.23	20.77	21.50	-9.03	11.46	11.20	11.74
2 Txslots	18.86	19.26	19.35	20.00	-6.02	12.84	13.24	13.33
3Txslots	16.47	16.79	17.05	18.00	-4.26	12.21	12.53	12.79
4 Txslots	14.93	15.22	16.16	16.50	-3.01	11.92	12.21	13.15

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 4Txslots for GSM1900.

11.2 WCDMA Measurement result

Table 11.2-1: The conducted Power for WCDMA B2/B4 – DS10

WCDMA1900	FDDII result (dBm)			Tune up
	9538/9938	9400/9800	9262/9662	
	(1907.6MHz)	(1880MHz)	(1852.4MHz)	
	23.24	23.58	23.64	24.5
HSUPA	22.85	23.11	23.47	24
	22.94	23.17	23.41	24
	22.47	22.67	22.75	24
	22.88	23.19	23.45	24
	22.05	22.14	22.26	24
HSPA+	22.43	22.60	22.88	24
DC-HSDPA	22.92	23.16	23.38	24
	22.98	23.22	23.37	24
	22.58	22.73	22.96	24
	22.55	22.73	22.82	24

WCDMA1700	FDDIV result (dBm)			Tune up
	1513/1738	1412/1637	1312/1537	
	(1752.6MHz)	(1732.4MHz)	(1712.4MHz)	
	24.22	24.15	24.11	24.5
HSUPA	23.45	23.42	23.37	24
	23.53	23.35	23.34	24
	23.09	22.79	22.82	24
	23.46	23.36	23.27	24
	22.45	22.42	22.12	24
HSPA+	22.96	22.83	22.71	24
DC-HSDPA	23.44	22.36	23.25	24
	23.51	23.31	23.35	24
	23.01	22.94	22.83	24
	22.85	22.95	22.76	24

Table 11.2-2: The conducted Power for WCDMA B2/B4 – DSI1/2

WCDMA1900	FDDII result (dBm)			Tune up
	9538/9938	9400/9800	9262/9662	
	(1907.6MHz)	(1880MHz)	(1852.4MHz)	
	14.99	15.26	15.54	16.5
HSUPA	14.13	14.34	14.53	15.5
	14.13	14.39	14.65	15.5
	13.61	13.85	14.16	15.5
	14.12	14.35	14.63	15.5
	13.05	13.29	13.65	15.5
HSPA+	13.64	13.89	13.25	14.5
DC-HSDPA	14.16	14.34	14.59	15.5
	14.49	14.32	14.58	15.5
	13.55	13.89	13.79	15.5
	13.72	13.81	14.12	15.5

WCDMA1700	FDDIV result (dBm)			Tune up
	1513/1738	1412/1637	1312/1537	
	(1752.6MHz)	(1732.4MHz)	(1712.4MHz)	
	18.28	18.23	18.03	19.5
HSUPA	17.31	17.24	17.13	18.5
	17.38	17.23	17.18	18.5
	16.85	16.65	16.58	18.5
	17.35	17.23	17.13	18.5
	16.52	16.57	16.62	18.5
HSPA+	16.86	16.76	16.69	18.5
DC-HSDPA	17.37	7.32	17.18	18.5
	17.23	17.13	16.97	18.5
	16.52	16.59	16.61	18.5
	16.52	16.59	16.55	18.5

Table 11.2-3: The conducted Power for WCDMA B5 – DSI0/1/2

WCDMA850	FDDV result (dBm)			Tune up
	4233/4458	4183/4408	4132/4357	
	(846.6MHz)	(836.6MHz)	(826.4MHz)	
	24.08	23.97	24.26	24.5
HSUPA	23.19	23.42	23.55	24
	23.36	23.52	23.64	24
	22.93	22.97	23.13	24
	23.43	23.37	23.48	24
	22.35	22.54	22.61	24
HSPA+	22.91	22.97	23.16	24
DC-HSDPA	23.52	23.58	23.65	24
	23.52	23.42	23.50	24
	22.93	22.96	23.08	24
	22.94	22.93	22.86	24

11.3 LTE Measurement result

Maximum Target Power for Production Unit

Band	Receiver on	Receiver off+ Hotspot off	Receiver off+ Hotspot on
	DSI0	DSI1	DSI2
LTE B12	24	24	24
LTE B13	24	24	24
LTE B25(B2)	24.3	20	20
LTE B26(B5)	24.5	24.5	24.5
LTE B41 PC3	24.5	24.5	24.5
LTE B41 PC2	24.5	24.5	24.5
LTE B66(B4)	24.8	24.8	24.8
LTE B71	24	24	24

LTE B12-DSI0/1/2

LTE B12						
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	
1.4MHz	1RB-High (5)	715.3 (23173)	23.17	22.52	21.40	
		707.5 (23095)	23.19	22.41	21.42	
		699.7 (23017)	23.22	22.47	21.38	
	1RB-Middle (3)	715.3 (23173)	23.27	22.63	21.42	
		707.5 (23095)	23.35	22.66	21.47	
		699.7 (23017)	23.38	22.62	21.55	
	1RB-Low (0)	715.3 (23173)	23.18	22.58	21.48	
		707.5 (23095)	23.20	22.56	21.44	
		699.7 (23017)	23.20	22.59	21.50	
	3RB-High (3)	715.3 (23173)	23.25	22.23	21.42	
		707.5 (23095)	23.31	22.31	21.38	
		699.7 (23017)	23.36	22.37	21.41	
	3RB-Middle (1)	715.3 (23173)	23.33	22.36	21.45	
		707.5 (23095)	23.35	22.27	21.44	
		699.7 (23017)	23.35	22.40	21.44	
	3RB-Low (0)	715.3 (23173)	23.27	22.28	21.42	
		707.5 (23095)	23.32	22.28	21.38	
		699.7 (23017)	23.31	22.30	21.43	
	6RB (0)	715.3 (23173)	22.31	21.38	20.29	
		707.5 (23095)	22.32	21.40	20.34	
		699.7 (23017)	22.29	21.36	20.35	
	3MHz	1RB-High (14)	714.5 (23165)	23.27	22.61	21.44
			707.5 (23095)	23.31	22.65	21.50

		700.5 (23025)	23.33	22.58	21.58	
	1RB-Middle (7)	714.5 (23165)	23.49	22.78	21.67	
		707.5 (23095)	23.47	22.84	21.76	
		700.5 (23025)	23.46	22.84	21.79	
	1RB-Low (0)	714.5 (23165)	23.25	22.66	21.53	
		707.5 (23095)	23.34	22.56	21.55	
		700.5 (23025)	23.36	22.75	21.57	
	8RB-High (7)	714.5 (23165)	22.34	21.43	20.39	
		707.5 (23095)	22.37	21.42	20.47	
		700.5 (23025)	22.35	21.46	20.47	
	8RB-Middle (4)	714.5 (23165)	22.42	21.43	20.42	
		707.5 (23095)	22.38	21.49	20.51	
		700.5 (23025)	22.40	21.43	20.51	
	8RB-Low (0)	714.5 (23165)	22.34	21.41	20.40	
		707.5 (23095)	22.34	21.44	20.44	
		700.5 (23025)	22.39	21.48	20.52	
	15RB (0)	714.5 (23165)	22.32	21.33	20.33	
		707.5 (23095)	22.36	21.38	20.40	
		700.5 (23025)	22.36	21.38	20.42	
5MHz	1RB-High (24)	713.5 (23155)	23.10	22.38	21.31	
		707.5 (23095)	23.11	22.45	21.34	
		701.5 (23035)	23.17	22.51	21.28	
	1RB-Middle (12)	713.5 (23155)	23.34	22.66	21.62	
		707.5 (23095)	23.42	22.70	21.61	
		701.5 (23035)	23.44	22.74	21.61	
	1RB-Low (0)	713.5 (23155)	23.10	22.48	21.35	
		707.5 (23095)	23.18	22.36	21.38	
		701.5 (23035)	23.20	22.51	21.41	
	12RB-High (13)	713.5 (23155)	22.19	21.19	20.23	
		707.5 (23095)	22.28	21.28	20.34	
		701.5 (23035)	22.32	21.33	20.38	
	12RB-Middle (6)	713.5 (23155)	22.32	21.34	20.34	
		707.5 (23095)	22.31	21.33	20.39	
		701.5 (23035)	22.36	21.38	20.44	
	12RB-Low (0)	713.5 (23155)	22.30	21.31	20.35	
		707.5 (23095)	22.23	21.23	20.32	
		701.5 (23035)	22.34	21.32	20.43	
	25RB (0)	713.5 (23155)	22.26	21.28	20.27	
		707.5 (23095)	22.27	21.29	20.33	
		701.5 (23035)	22.33	21.34	20.39	
	10MHz	1RB-High (49)	711 (23130)	23.15	22.38	21.33
			707.5 (23095)	23.16	22.54	21.37

		704 (23060)	23.22	22.36	21.30
1RB-Middle (24)		711 (23130)	23.36	22.73	21.57
		707.5 (23095)	23.42	22.78	21.64
		704 (23060)	23.43	22.61	21.69
1RB-Low (0)		711 (23130)	23.22	22.49	21.52
		707.5 (23095)	23.27	22.61	21.49
		704 (23060)	23.28	22.51	21.41
25RB-High (25)		711 (23130)	22.23	21.25	20.22
		707.5 (23095)	22.36	21.37	20.36
		704 (23060)	22.42	21.39	20.45
25RB-Middle (12)		711 (23130)	22.37	21.39	20.33
		707.5 (23095)	22.34	21.36	20.41
		704 (23060)	22.37	21.39	20.44
25RB-Low (0)		711 (23130)	22.28	21.29	20.31
		707.5 (23095)	22.31	21.29	20.36
		704 (23060)	22.40	21.41	20.46
50RB (0)		711 (23130)	22.25	21.29	20.27
		707.5 (23095)	22.32	21.36	20.40
		704 (23060)	22.43	21.43	20.46

LTE B13-DSI0/1/2

LTE B13					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	784.5 (23255)	23.46	22.84	21.77
		782 (23230)	23.44	22.66	21.72
		779.5 (23205)	23.40	22.70	21.65
	1RB-Middle (12)	784.5 (23255)	23.71	22.89	21.97
		782 (23230)	23.73	22.92	21.97
		779.5 (23205)	23.68	22.85	21.94
	1RB-Low (0)	784.5 (23255)	23.48	22.68	21.73
		782 (23230)	23.46	22.78	21.68
		779.5 (23205)	23.36	22.63	21.64
	12RB-High (13)	784.5 (23255)	22.59	21.61	20.67
		782 (23230)	22.52	21.56	20.58
		779.5 (23205)	22.50	21.54	20.56
	12RB-Middle (6)	784.5 (23255)	22.67	21.75	20.74
		782 (23230)	22.60	21.64	20.68
		779.5 (23205)	22.57	21.63	20.65
	12RB-Low (0)	784.5 (23255)	22.62	21.65	20.69
		782 (23230)	22.61	21.65	20.66

	25RB (0)	779.5 (23205)	22.52	21.51	20.54
		784.5 (23255)	22.60	21.69	20.67
		782 (23230)	22.57	21.63	20.61
		779.5 (23205)	22.52	21.55	20.55
10MHz	1RB-High (49)	782 (23230)	23.51	22.85	21.78
	1RB-Middle (24)	782 (23230)	23.73	22.98	22.00
	1RB-Low (0)	782 (23230)	23.49	22.84	21.71
	25RB-High (25)	782 (23230)	22.62	21.68	20.65
	25RB-Middle (12)	782 (23230)	22.65	21.71	20.71
	25RB-Low (0)	782 (23230)	22.64	21.69	20.67
	50RB (0)	782 (23230)	22.61	21.65	20.67

LTE B25-DS10

LTE B25					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	23.34	22.55	21.55
		1882.5 (26365)	23.49	22.77	21.63
		1850.7 (26047)	23.58	22.96	21.80
	1RB-Middle (3)	1914.3 (26683)	23.44	22.67	21.60
		1882.5 (26365)	23.60	22.98	21.78
		1850.7 (26047)	23.70	22.99	21.91
	1RB-Low (0)	1914.3 (26683)	23.33	22.68	21.55
		1882.5 (26365)	23.48	22.78	21.67
		1850.7 (26047)	23.57	22.90	21.83
	3RB-High (3)	1914.3 (26683)	23.44	22.34	21.46
		1882.5 (26365)	23.57	22.59	21.67
		1850.7 (26047)	23.68	22.71	21.82
	3RB-Middle (1)	1914.3 (26683)	23.51	22.50	21.52
		1882.5 (26365)	23.60	22.64	21.72
		1850.7 (26047)	23.73	22.67	21.84
	3RB-Low (0)	1914.3 (26683)	23.41	22.46	21.48
		1882.5 (26365)	23.56	22.59	21.66
		1850.7 (26047)	23.69	22.62	21.81
	6RB (0)	1914.3 (26683)	22.43	21.53	20.45
		1882.5 (26365)	22.56	21.67	20.57
		1850.7 (26047)	22.66	21.78	20.72
3MHz	1RB-High (14)	1913.5 (26675)	23.58	22.88	21.73
		1882.5 (26365)	23.72	23.03	21.87
		1851.5 (26055)	23.78	23.06	21.96
	1RB-Middle (7)	1913.5 (26675)	23.78	23.08	21.90

		1882.5 (26365)	23.90	23.20	22.11	
		1851.5 (26055)	23.97	23.22	22.16	
		1913.5 (26675)	23.60	22.83	21.75	
	1RB-Low (0)	1882.5 (26365)	23.72	22.94	21.87	
		1851.5 (26055)	23.78	23.05	21.96	
		1913.5 (26675)	22.59	21.63	20.64	
	8RB-High (7)	1882.5 (26365)	22.71	21.76	20.75	
		1851.5 (26055)	22.82	21.87	20.90	
		1913.5 (26675)	22.63	21.70	20.67	
	8RB-Middle (4)	1882.5 (26365)	22.73	21.80	20.80	
		1851.5 (26055)	22.84	21.92	20.89	
		1913.5 (26675)	22.63	21.67	20.69	
	8RB-Low (0)	1882.5 (26365)	22.73	21.80	20.80	
		1851.5 (26055)	22.82	21.92	20.89	
		1913.5 (26675)	22.59	21.57	20.62	
15RB (0)	1882.5 (26365)	22.70	21.70	20.73		
	1851.5 (26055)	22.78	21.82	20.84		
	1912.5 (26665)	23.25	22.49	21.35		
5MHz	1RB-High (24)	1882.5 (26365)	23.36	22.65	21.54	
		1852.5 (26065)	23.44	22.69	21.67	
		1912.5 (26665)	23.46	22.85	21.82	
	1RB-Middle (12)	1882.5 (26365)	23.65	22.93	21.82	
		1852.5 (26065)	23.71	23.02	21.92	
		1912.5 (26665)	23.27	22.61	21.52	
	1RB-Low (0)	1882.5 (26365)	23.35	22.77	21.60	
		1852.5 (26065)	23.46	22.80	21.70	
		1912.5 (26665)	22.30	21.27	20.35	
	12RB-High (13)	1882.5 (26365)	22.45	21.44	20.53	
		1852.5 (26065)	22.56	21.63	20.71	
		1912.5 (26665)	22.42	21.43	20.51	
	12RB-Middle (6)	1882.5 (26365)	22.51	21.54	20.61	
		1852.5 (26065)	22.63	21.64	20.74	
		1912.5 (26665)	22.40	21.39	20.48	
	12RB-Low (0)	1882.5 (26365)	22.49	21.48	20.57	
		1852.5 (26065)	22.51	21.55	20.63	
		1912.5 (26665)	22.33	21.38	20.43	
	25RB (0)	1882.5 (26365)	22.49	21.51	20.56	
		1852.5 (26065)	22.59	21.63	20.67	
		1910 (26640)	23.28	22.50	21.51	
	10MHz	1RB-High (49)	1882.5 (26365)	23.39	22.75	21.64
			1855 (26090)	23.46	22.75	21.63
			1910 (26640)	23.53	22.83	21.69
	1RB-Middle (24)					

	1RB-Low (0)	1882.5 (26365)	23.56	23.03	21.90
		1855 (26090)	23.69	22.98	22.00
		1910 (26640)	23.31	22.68	21.64
	25RB-High (25)	1882.5 (26365)	23.44	22.75	21.59
		1855 (26090)	23.53	22.81	21.81
		1910 (26640)	22.32	21.37	20.40
	25RB-Middle (12)	1882.5 (26365)	22.49	21.53	20.61
		1855 (26090)	22.69	21.67	20.72
		1910 (26640)	22.44	21.47	20.52
	25RB-Low (0)	1882.5 (26365)	22.57	21.57	20.62
		1855 (26090)	22.64	21.67	20.73
		1910 (26640)	22.46	21.51	20.56
	50RB (0)	1882.5 (26365)	22.57	21.59	20.64
		1855 (26090)	22.56	21.58	20.63
		1910 (26640)	22.40	21.44	20.47
15MHz	1RB-High (74)	1882.5 (26365)	22.55	21.56	20.64
		1855 (26090)	22.60	21.64	20.68
		1907.5 (26615)	23.13	22.51	21.38
	1RB-Middle (37)	1882.5 (26365)	23.26	22.60	21.47
		1857.5 (26115)	23.28	22.54	21.45
		1907.5 (26615)	23.38	22.82	21.61
	1RB-Low (0)	1882.5 (26365)	23.47	22.78	21.73
		1857.5 (26115)	23.53	22.81	21.80
		1907.5 (26615)	23.26	22.63	21.49
	36RB-High (38)	1882.5 (26365)	23.30	22.65	21.53
		1857.5 (26115)	23.41	22.78	21.69
		1907.5 (26615)	22.30	21.31	20.36
	36RB-Middle (19)	1882.5 (26365)	22.44	21.41	20.49
		1857.5 (26115)	22.54	21.52	20.57
		1907.5 (26615)	22.42	21.40	20.48
	36RB-Low (0)	1882.5 (26365)	22.48	21.50	20.56
		1857.5 (26115)	22.58	21.54	20.66
		1907.5 (26615)	22.45	21.43	20.49
	75RB (0)	1882.5 (26365)	22.49	21.48	20.54
		1857.5 (26115)	22.49	21.47	20.56
		1907.5 (26615)	22.35	21.36	20.39
	1RB-High (99)	1882.5 (26365)	22.45	21.48	20.54
		1860 (26140)	23.18	22.46	21.38
		1905 (26590)	23.03	22.37	21.26
	1RB-Middle (50)	1905 (26590)	23.45	22.73	21.79
	20MHz	1RB-High (99)	1905 (26590)	23.03	22.37
1882.5 (26365)			23.14	22.52	21.37
1860 (26140)			23.18	22.46	21.38
1RB-Middle (50)	1905 (26590)	23.45	22.73	21.79	

		1882.5 (26365)	23.56	22.89	21.76
		1860 (26140)	23.62	22.91	21.69
	1RB-Low (0)	1905 (26590)	23.21	22.44	21.42
		1882.5 (26365)	23.20	22.60	21.42
		1860 (26140)	23.29	22.65	21.48
	50RB-High (50)	1905 (26590)	22.21	21.23	20.28
		1882.5 (26365)	22.42	21.44	20.45
		1860 (26140)	22.45	21.47	20.51
	50RB-Middle (25)	1905 (26590)	22.41	21.43	20.46
		1882.5 (26365)	22.49	21.49	20.56
		1860 (26140)	22.55	21.54	20.58
	50RB-Low (0)	1905 (26590)	22.44	21.47	20.51
		1882.5 (26365)	22.52	21.55	20.60
		1860 (26140)	22.35	21.36	20.41
	100RB (0)	1905 (26590)	22.32	21.31	20.40
		1882.5 (26365)	22.49	21.46	20.52
		1860 (26140)	22.42	21.40	20.45

LTE B25-DSI1/2

LTE B25					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	19.13	18.52	17.48
		1882.5 (26365)	19.39	18.78	17.52
		1850.7 (26047)	19.46	18.86	17.70
	1RB-Middle (3)	1914.3 (26683)	19.28	18.62	17.55
		1882.5 (26365)	19.50	18.92	17.65
		1850.7 (26047)	19.61	18.96	17.85
	1RB-Low (0)	1914.3 (26683)	19.13	18.41	17.38
		1882.5 (26365)	19.34	18.79	17.60
		1850.7 (26047)	19.46	18.83	17.73
	3RB-High (3)	1914.3 (26683)	19.22	18.24	17.34
		1882.5 (26365)	19.48	18.41	17.55
		1850.7 (26047)	19.56	18.64	17.67
	3RB-Middle (1)	1914.3 (26683)	19.29	18.28	17.40
		1882.5 (26365)	19.53	18.54	17.62
		1850.7 (26047)	19.63	18.67	17.75
	3RB-Low (0)	1914.3 (26683)	19.24	18.28	17.35
		1882.5 (26365)	19.46	18.48	17.59
		1850.7 (26047)	19.58	18.60	17.69
6RB (0)	1914.3 (26683)	18.21	17.34	16.23	

		1882.5 (26365)	18.41	17.57	16.47
		1850.7 (26047)	18.52	17.69	16.60
3MHz	1RB-High (14)	1913.5 (26675)	19.28	18.56	17.57
		1882.5 (26365)	19.50	18.78	17.76
		1851.5 (26055)	19.62	18.97	17.74
	1RB-Middle (7)	1913.5 (26675)	19.46	18.68	17.65
		1882.5 (26365)	19.69	18.91	18.00
		1851.5 (26055)	19.78	18.94	17.97
	1RB-Low (0)	1913.5 (26675)	19.31	18.71	17.59
		1882.5 (26365)	19.49	18.85	17.79
		1851.5 (26055)	19.58	18.97	17.81
	8RB-High (7)	1913.5 (26675)	18.28	17.41	16.33
		1882.5 (26365)	18.49	17.60	16.54
		1851.5 (26055)	18.61	17.72	16.69
	8RB-Middle (4)	1913.5 (26675)	18.33	17.44	16.38
		1882.5 (26365)	18.53	17.63	16.61
		1851.5 (26055)	18.63	17.78	16.72
	8RB-Low (0)	1913.5 (26675)	18.33	17.44	16.38
		1882.5 (26365)	18.50	17.60	16.58
		1851.5 (26055)	18.60	17.75	16.67
15RB (0)	1913.5 (26675)	18.28	17.36	16.29	
	1882.5 (26365)	18.47	17.52	16.49	
	1851.5 (26055)	18.59	17.65	16.64	
5MHz	1RB-High (24)	1912.5 (26665)	19.05	18.47	17.25
		1882.5 (26365)	19.31	18.70	17.52
		1852.5 (26065)	19.38	18.65	17.57
	1RB-Middle (12)	1912.5 (26665)	19.45	18.80	17.65
		1882.5 (26365)	19.54	18.94	17.76
		1852.5 (26065)	19.70	18.98	17.91
	1RB-Low (0)	1912.5 (26665)	19.16	18.40	17.39
		1882.5 (26365)	19.32	18.55	17.59
		1852.5 (26065)	19.42	18.84	17.69
	12RB-High (13)	1912.5 (26665)	18.13	17.15	16.18
		1882.5 (26365)	18.40	17.43	16.42
		1852.5 (26065)	18.54	17.60	16.58
	12RB-Middle (6)	1912.5 (26665)	18.30	17.31	16.32
		1882.5 (26365)	18.46	17.50	16.48
		1852.5 (26065)	18.57	17.63	16.61
	12RB-Low (0)	1912.5 (26665)	18.27	17.26	16.29
		1882.5 (26365)	18.43	17.44	16.45
		1852.5 (26065)	18.48	17.49	16.54
25RB (0)	1912.5 (26665)	18.20	17.26	16.24	

		1882.5 (26365)	18.42	17.45	16.42
		1852.5 (26065)	18.51	17.56	16.54
10MHz	1RB-High (49)	1910 (26640)	19.13	18.45	17.35
		1882.5 (26365)	19.33	18.63	17.57
		1855 (26090)	19.41	18.75	17.63
	1RB-Middle (24)	1910 (26640)	19.43	18.66	17.65
		1882.5 (26365)	19.61	18.99	17.82
		1855 (26090)	19.67	18.95	17.92
	1RB-Low (0)	1910 (26640)	19.25	18.51	17.37
		1882.5 (26365)	19.37	18.72	17.59
		1855 (26090)	19.50	18.88	17.69
	25RB-High (25)	1910 (26640)	18.21	17.25	16.22
		1882.5 (26365)	18.44	17.49	16.53
		1855 (26090)	18.63	17.67	16.64
	25RB-Middle (12)	1910 (26640)	18.31	17.37	16.29
		1882.5 (26365)	18.51	17.55	16.51
		1855 (26090)	18.56	17.63	16.63
	25RB-Low (0)	1910 (26640)	18.32	17.40	16.37
		1882.5 (26365)	18.51	17.57	16.55
		1855 (26090)	18.48	17.55	16.52
	50RB (0)	1910 (26640)	18.27	17.33	16.29
		1882.5 (26365)	18.48	17.51	16.49
1855 (26090)		18.57	17.59	16.60	
15MHz	1RB-High (74)	1907.5 (26615)	19.04	18.26	17.31
		1882.5 (26365)	19.21	18.43	17.41
		1857.5 (26115)	19.25	18.54	17.42
	1RB-Middle (37)	1907.5 (26615)	19.29	18.70	17.52
		1882.5 (26365)	19.42	18.83	17.66
		1857.5 (26115)	19.49	18.77	17.69
	1RB-Low (0)	1907.5 (26615)	19.16	18.49	17.41
		1882.5 (26365)	19.27	18.62	17.48
		1857.5 (26115)	19.36	18.77	17.65
	36RB-High (38)	1907.5 (26615)	18.21	17.20	16.20
		1882.5 (26365)	18.38	17.38	16.39
		1857.5 (26115)	18.48	17.50	16.50
	36RB-Middle (19)	1907.5 (26615)	18.29	17.29	16.30
		1882.5 (26365)	18.45	17.45	16.44
		1857.5 (26115)	18.51	17.51	16.52
	36RB-Low (0)	1907.5 (26615)	18.33	17.34	16.35
		1882.5 (26365)	18.46	17.45	16.43
		1857.5 (26115)	18.42	17.44	16.43
75RB (0)	1907.5 (26615)	18.26	17.27	16.25	

		1882.5 (26365)	18.41	17.44	16.44
		1857.5 (26115)	18.46	17.47	16.46
20MHz	1RB-High (99)	1905 (26590)	18.95	18.23	17.12
		1882.5 (26365)	19.10	18.45	17.24
		1860 (26140)	19.15	18.41	17.41
	1RB-Middle (50)	1905 (26590)	19.44	18.76	17.71
		1882.5 (26365)	19.50	18.91	17.68
		1860 (26140)	19.58	18.88	17.74
	1RB-Low (0)	1905 (26590)	19.10	18.45	17.36
		1882.5 (26365)	19.17	18.47	17.36
		1860 (26140)	19.26	18.52	17.49
	50RB-High (50)	1905 (26590)	18.10	17.15	16.11
		1882.5 (26365)	18.35	17.38	16.37
		1860 (26140)	18.42	17.46	16.43
	50RB-Middle (25)	1905 (26590)	18.29	17.35	16.31
		1882.5 (26365)	18.44	17.45	16.43
		1860 (26140)	18.47	17.52	16.49
	50RB-Low (0)	1905 (26590)	18.37	17.44	16.37
		1882.5 (26365)	18.41	17.54	16.48
		1860 (26140)	18.31	17.32	16.31
100RB (0)	1905 (26590)	18.22	17.24	16.25	
	1882.5 (26365)	18.41	17.42	16.43	
	1860 (26140)	18.35	17.35	16.35	

LTE B26-DSI0/1/2

LTE B26					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	848.3 (27033)	23.61	22.79	21.83
		831.5 (26865)	23.72	22.93	21.94
		814.7 (26697)	23.75	23.05	21.94
	1RB-Middle (3)	848.3 (27033)	23.74	23.01	21.91
		831.5 (26865)	23.83	23.11	22.09
		814.7 (26697)	23.88	23.24	22.14
	1RB-Low (0)	848.3 (27033)	23.65	22.93	21.94
		831.5 (26865)	23.71	23.06	21.91
		814.7 (26697)	23.78	23.01	21.98
	3RB-High (3)	848.3 (27033)	23.67	22.65	21.84
		831.5 (26865)	23.83	22.85	21.92
		814.7 (26697)	23.81	22.84	21.98
	3RB-Middle (1)	848.3 (27033)	23.77	22.73	21.91

		831.5 (26865)	23.90	22.88	21.94	
		814.7 (26697)	23.95	22.94	22.06	
		848.3 (27033)	23.72	22.68	21.83	
	3RB-Low (0)	831.5 (26865)	23.80	22.82	21.92	
		814.7 (26697)	23.86	22.88	21.98	
		848.3 (27033)	22.75	21.85	20.73	
	6RB (0)	831.5 (26865)	22.79	21.95	20.81	
		814.7 (26697)	22.83	21.96	20.85	
		847.5 (27025)	23.74	23.01	21.94	
3MHz	1RB-High (14)	831.5 (26865)	23.86	23.20	22.10	
		815.5 (26705)	23.28	22.62	21.59	
		847.5 (27025)	23.90	23.16	22.14	
	1RB-Middle (7)	831.5 (26865)	24.01	23.38	22.21	
		815.5 (26705)	23.40	22.74	21.77	
		847.5 (27025)	23.83	23.12	22.05	
	1RB-Low (0)	831.5 (26865)	23.83	23.13	22.04	
		815.5 (26705)	23.31	22.69	21.54	
		847.5 (27025)	22.78	21.88	20.83	
	8RB-High (7)	831.5 (26865)	22.90	22.01	20.97	
		815.5 (26705)	22.35	21.44	20.44	
		847.5 (27025)	22.84	21.94	20.93	
	8RB-Middle (4)	831.5 (26865)	22.89	22.01	20.99	
		815.5 (26705)	22.37	21.47	20.49	
		847.5 (27025)	22.81	21.94	20.88	
	8RB-Low (0)	831.5 (26865)	22.87	21.98	20.98	
		815.5 (26705)	22.33	21.42	20.46	
		847.5 (27025)	22.78	21.85	20.81	
	15RB (0)	831.5 (26865)	22.88	21.96	20.91	
		815.5 (26705)	22.30	21.37	20.42	
		846.5 (27015)	23.53	22.73	21.77	
	5MHz	1RB-High (24)	831.5 (26865)	23.67	22.98	21.88
			816.5 (26715)	23.67	22.91	21.87
			846.5 (27015)	23.87	23.11	22.00
		1RB-Middle (12)	831.5 (26865)	23.89	23.22	22.20
			816.5 (26715)	23.94	23.26	22.12
			846.5 (27015)	23.60	22.80	21.76
1RB-Low (0)		831.5 (26865)	23.68	22.98	21.92	
		816.5 (26715)	23.71	22.94	21.86	
		846.5 (27015)	22.67	21.73	20.74	
12RB-High (13)		831.5 (26865)	22.77	21.79	20.84	
		816.5 (26715)	22.80	21.84	20.88	
		846.5 (27015)	22.79	21.81	20.86	
12RB-Middle (6)		846.5 (27015)	22.79	21.81	20.86	

		831.5 (26865)	22.82	21.85	20.88	
		816.5 (26715)	22.84	21.85	20.92	
		846.5 (27015)	22.71	21.74	20.78	
	12RB-Low (0)	831.5 (26865)	22.77	21.84	20.84	
		816.5 (26715)	22.77	21.79	20.83	
		846.5 (27015)	22.73	21.78	20.78	
	25RB (0)	831.5 (26865)	22.78	21.84	20.83	
		816.5 (26715)	22.79	21.87	20.85	
		844 (26990)	23.62	22.84	21.79	
10MHz	1RB-High (49)	831.5 (26865)	23.69	23.08	21.92	
		820 (26750)	23.71	22.97	21.94	
		844 (26990)	23.84	23.08	21.81	
	1RB-Middle (24)	831.5 (26865)	23.88	23.21	22.07	
		820 (26750)	23.93	23.27	22.17	
	1RB-Low (0)	844 (26990)	23.69	22.94	21.71	
		831.5 (26865)	23.72	23.01	21.87	
		820 (26750)	23.76	23.07	22.05	
	25RB-High (25)	844 (26990)	22.77	21.84	20.83	
		831.5 (26865)	22.81	21.88	20.86	
		820 (26750)	22.82	21.85	20.84	
	25RB-Middle (12)	844 (26990)	22.81	21.86	20.86	
		831.5 (26865)	22.85	21.90	20.91	
		820 (26750)	22.88	21.93	20.91	
	25RB-Low (0)	844 (26990)	22.89	21.96	20.94	
		831.5 (26865)	22.86	21.93	20.93	
		820 (26750)	22.80	21.85	20.86	
	50RB (0)	844 (26990)	22.81	21.89	20.86	
		831.5 (26865)	22.86	21.91	20.90	
		820 (26750)	22.81	21.83	20.87	
	15MHz	1RB-High (74)	841.5 (26965)	23.50	22.75	21.75
			831.5 (26865)	23.54	22.75	21.75
			822.5 (26775)	23.58	22.95	21.82
		1RB-Middle (37)	841.5 (26965)	23.79	22.96	21.94
831.5 (26865)			23.77	23.07	21.92	
1RB-Low (0)		822.5 (26775)	23.78	22.98	21.94	
		841.5 (26965)	23.61	22.92	21.89	
		831.5 (26865)	23.61	22.87	21.83	
36RB-High (38)		822.5 (26775)	23.64	22.98	21.90	
		841.5 (26965)	22.69	21.72	20.73	
		831.5 (26865)	22.75	21.77	20.78	
36RB-Middle (19)		822.5 (26775)	22.71	21.72	20.73	
	841.5 (26965)	22.76	21.79	20.78		



	36RB-Low (0)	831.5 (26865)	22.79	21.81	20.82	
		822.5 (26775)	22.83	21.85	20.84	
		841.5 (26965)	22.85	21.77	20.77	
	75RB (0)	831.5 (26865)	22.80	21.78	20.80	
		822.5 (26775)	22.83	21.78	20.78	
		841.5 (26965)	22.73	21.77	20.77	
			831.5 (26865)	22.76	21.79	20.80
			822.5 (26775)	22.74	21.77	20.73

LTE B41 PC3-DSI0/1/2

LTE B41 PC3					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2687.5 (41565)	24.08	23.13	21.74
		2640.3(41093)	23.77	22.86	21.41
		2593 (40620)	23.61	22.74	21.31
		2545.8(40148)	23.39	22.46	21.08
		2498.5 (39675)	23.10	22.24	21.06
	1RB-Middle (12)	2687.5 (41565)	24.27	23.31	21.92
		2640.3(41093)	23.96	23.02	21.62
		2593 (40620)	23.79	22.88	21.50
		2545.8(40148)	23.55	22.63	21.20
		2498.5 (39675)	23.27	22.40	20.99
	1RB-Low (0)	2687.5 (41565)	24.14	23.21	21.75
		2640.3(41093)	23.76	22.81	21.39
		2593 (40620)	23.67	22.76	21.36
		2545.8(40148)	23.30	22.42	21.02
		2498.5 (39675)	23.15	22.26	20.84
	12RB-High (13)	2687.5 (41565)	23.11	22.04	21.17
		2640.3(41093)	22.83	21.75	20.86
		2593 (40620)	22.67	21.64	20.77
		2545.8(40148)	22.43	21.36	20.49
		2498.5 (39675)	22.16	21.10	20.22
	12RB-Middle (6)	2687.5 (41565)	23.22	22.16	21.26
		2640.3(41093)	22.91	21.84	20.96
		2593 (40620)	22.82	21.76	20.90
		2545.8(40148)	22.57	21.47	20.56
		2498.5 (39675)	22.25	21.19	20.35
	12RB-Low (0)	2687.5 (41565)	23.21	22.11	21.24
		2640.3(41093)	22.82	21.77	20.88
		2593 (40620)	22.71	21.68	20.80

	25RB (0)	2545.8(40148)	22.46	21.37	20.49
		2498.5 (39675)	22.19	21.14	20.27
		2687.5 (41565)	23.11	22.19	21.29
		2640.3(41093)	22.87	21.87	21.00
		2593 (40620)	22.74	21.75	20.88
		2545.8(40148)	22.46	21.52	20.59
		2498.5 (39675)	22.19	21.28	20.29
10MHz	1RB-High (49)	2685 (41540)	24.16	23.20	21.73
		2639(41080)	23.81	22.87	21.42
		2593 (40620)	23.63	22.74	21.30
		2547(40160)	23.48	22.54	21.15
		2501 (39700)	23.08	22.17	20.77
	1RB-Middle (24)	2685 (41540)	24.35	23.38	21.99
		2639(41080)	24.00	23.02	21.64
		2593 (40620)	23.88	22.96	21.57
		2547(40160)	23.60	22.70	21.28
		2501 (39700)	23.30	22.41	20.97
	1RB-Low (0)	2685 (41540)	24.15	23.23	21.79
		2639(41080)	23.80	22.84	21.47
		2593 (40620)	23.76	22.84	21.42
		2547(40160)	23.36	22.43	21.04
		2501 (39700)	23.14	22.32	20.85
	25RB-High (25)	2685 (41540)	23.15	22.13	21.25
		2639(41080)	22.84	21.80	20.99
		2593 (40620)	22.72	21.73	20.78
		2547(40160)	22.45	21.49	20.64
		2501 (39700)	22.12	21.23	20.26
	25RB-Middle (12)	2685 (41540)	23.23	22.27	21.34
		2639(41080)	22.92	21.90	20.98
		2593 (40620)	22.85	21.82	20.90
		2547(40160)	22.56	21.52	20.63
		2501 (39700)	22.22	21.23	20.41
	25RB-Low (0)	2685 (41540)	23.24	22.25	21.37
		2639(41080)	22.90	21.99	21.03
		2593 (40620)	22.85	21.88	20.91
		2547(40160)	22.57	21.57	20.69
		2501 (39700)	22.30	21.24	20.40
	50RB (0)	2685 (41540)	23.18	22.23	21.35
		2639(41080)	22.88	21.99	21.02
2593 (40620)		22.84	21.89	20.92	
2547(40160)		22.52	21.61	20.66	
2501 (39700)		22.28	21.37	20.32	

15MHz	1RB-High (74)	2682.5 (41515)	23.95	23.01	21.58
		2637.8(41068)	23.65	22.72	21.28
		2593 (40620)	23.49	22.60	21.16
		2548.3(40173)	23.33	22.45	21.04
		2503.5 (39725)	22.92	21.99	20.64
	1RB-Middle (37)	2682.5 (41515)	24.18	23.23	21.83
		2637.8(41068)	23.79	22.89	21.48
		2593 (40620)	23.74	22.82	21.39
		2548.3(40173)	23.50	22.58	21.16
		2503.5 (39725)	23.07	22.19	20.77
	1RB-Low (0)	2682.5 (41515)	24.01	23.07	21.63
		2637.8(41068)	23.62	22.72	21.28
		2593 (40620)	23.57	22.74	21.29
		2548.3(40173)	23.19	22.30	20.88
		2503.5 (39725)	22.98	22.12	20.71
	36RB-High (38)	2682.5 (41515)	23.08	22.01	21.11
		2637.8(41068)	22.75	21.67	20.82
		2593 (40620)	22.60	21.56	20.68
		2548.3(40173)	22.41	21.39	20.45
		2503.5 (39725)	22.01	21.00	20.04
	36RB-Middle (19)	2682.5 (41515)	23.21	22.13	21.17
		2637.8(41068)	22.85	21.76	20.83
		2593 (40620)	22.73	21.69	20.84
		2548.3(40173)	22.53	21.49	20.54
		2503.5 (39725)	22.14	21.15	20.15
	36RB-Low (0)	2682.5 (41515)	23.12	22.06	21.23
		2637.8(41068)	22.81	21.78	20.80
		2593 (40620)	22.79	21.73	20.78
		2548.3(40173)	22.48	21.36	20.45
		2503.5 (39725)	22.11	21.08	20.14
75RB (0)	2682.5 (41515)	23.16	22.14	21.22	
	2637.8(41068)	22.84	21.80	20.86	
	2593 (40620)	22.65	21.68	20.79	
	2548.3(40173)	22.49	21.48	20.60	
	2503.5 (39725)	22.09	21.19	20.24	
20MHz	1RB-High (99)	2680 (41490)	23.81	22.86	21.50
		2636.5(41055)	23.55	22.64	21.19
		2593 (40620)	23.36	22.45	21.00
		2549.5(40185)	23.23	22.34	20.92
		2506 (39750)	22.79	21.92	20.50
	1RB-Middle (50)	2680 (41490)	24.21	23.29	21.91
		2636.5(41055)	23.90	22.94	21.53

		2593 (40620)	23.81	22.93	21.48
		2549.5(40185)	23.59	22.69	21.23
		2506 (39750)	23.17	22.36	20.83
	1RB-Low (0)	2680 (41490)	23.92	22.99	21.53
		2636.5(41055)	23.52	22.62	21.19
		2593 (40620)	23.53	22.67	21.19
		2549.5(40185)	23.08	22.19	20.75
		2506 (39750)	22.92	22.05	20.59
	50RB-High (50)	2680 (41490)	23.01	22.11	21.14
		2636.5(41055)	22.67	21.75	20.79
		2593 (40620)	22.56	21.66	20.71
		2549.5(40185)	22.41	21.50	20.52
		2506 (39750)	22.04	21.13	20.09
	50RB-Middle (25)	2680 (41490)	23.14	22.21	21.29
		2636.5(41055)	22.78	21.89	20.93
		2593 (40620)	22.73	21.81	20.85
		2549.5(40185)	22.50	21.60	20.65
		2506 (39750)	22.20	21.24	20.29
	50RB-Low (0)	2680 (41490)	23.19	22.29	21.31
		2636.5(41055)	22.85	21.95	21.01
		2593 (40620)	22.85	21.96	20.97
		2549.5(40185)	22.52	21.61	20.62
		2506 (39750)	22.21	21.28	20.29
	100RB (0)	2680 (41490)	23.15	22.13	21.19
		2636.5(41055)	22.78	21.80	20.85
2593 (40620)		22.69	21.73	20.78	
2549.5(40185)		22.44	21.49	20.51	
2506 (39750)		22.07	21.13	20.16	

LTE B41 PC2-DSI0/1/2

LTE B41 PC2					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2687.5 (41565)	26.94	25.94	24.95
		2640.3(41093)	26.82	25.91	24.77
		2593 (40620)	26.48	25.65	24.49
		2545.8(40148)	26.56	25.70	24.53
		2498.5 (39675)	26.08	25.31	24.09
	1RB-Middle (12)	2687.5 (41565)	26.94	25.94	24.94
		2640.3(41093)	26.96	25.91	24.87
		2593 (40620)	26.66	25.81	24.63

		2545.8(40148)	26.72	25.83	24.67
		2498.5 (39675)	26.22	25.44	24.20
	1RB-Low (0)	2687.5 (41565)	26.95	25.94	24.89
		2640.3(41093)	26.77	25.88	24.75
		2593 (40620)	26.51	25.67	24.51
		2545.8(40148)	26.52	25.66	24.50
		2498.5 (39675)	26.06	25.28	24.05
	12RB-High (13)	2687.5 (41565)	25.94	24.92	23.95
		2640.3(41093)	25.94	24.91	23.98
		2593 (40620)	25.59	24.59	23.67
		2545.8(40148)	25.65	24.64	23.71
		2498.5 (39675)	25.14	24.16	23.22
	12RB-Middle (6)	2687.5 (41565)	25.97	24.92	23.95
		2640.3(41093)	25.94	24.95	23.92
		2593 (40620)	25.69	24.68	23.77
		2545.8(40148)	25.76	24.73	23.81
		2498.5 (39675)	25.19	24.22	23.30
	12RB-Low (0)	2687.5 (41565)	25.97	24.92	23.94
		2640.3(41093)	25.94	24.92	23.92
		2593 (40620)	25.64	24.66	23.72
2545.8(40148)		25.70	24.66	23.76	
2498.5 (39675)		25.14	24.17	23.23	
25RB (0)	2687.5 (41565)	25.92	24.95	23.95	
	2640.3(41093)	25.91	24.96	23.94	
	2593 (40620)	25.59	24.66	23.74	
	2545.8(40148)	25.66	24.68	23.75	
	2498.5 (39675)	25.14	24.21	23.25	
10MHz	1RB-High (49)	2685 (41540)	26.94	25.98	24.91
		2639(41080)	26.82	25.95	24.81
		2593 (40620)	26.52	25.70	24.52
		2547(40160)	26.61	25.77	24.58
		2501 (39700)	26.11	25.33	24.11
	1RB-Middle (24)	2685 (41540)	26.95	25.96	24.93
		2639(41080)	26.97	25.94	24.93
		2593 (40620)	26.70	25.87	24.69
		2547(40160)	26.78	25.93	24.77
		2501 (39700)	26.29	25.50	24.28
	1RB-Low (0)	2685 (41540)	26.85	25.91	24.93
		2639(41080)	26.79	25.93	24.78
		2593 (40620)	26.59	25.76	24.59
		2547(40160)	26.56	25.73	24.55
		2501 (39700)	26.09	25.33	24.08

	25RB-High (25)	2685 (41540)	25.93	24.95	23.94
		2639(41080)	25.91	24.92	23.95
		2593 (40620)	25.59	24.65	23.75
		2547(40160)	25.70	24.72	23.82
		2501 (39700)	25.20	24.27	23.34
	25RB-Middle (12)	2685 (41540)	25.94	24.95	23.97
		2639(41080)	25.96	24.96	23.95
		2593 (40620)	25.69	24.73	23.83
		2547(40160)	25.75	24.79	23.89
		2501 (39700)	25.23	24.28	23.39
	25RB-Low (0)	2685 (41540)	25.94	24.97	23.95
		2639(41080)	25.96	24.97	23.94
		2593 (40620)	25.71	24.78	23.86
		2547(40160)	25.76	24.79	23.89
		2501 (39700)	25.19	24.25	23.37
	50RB (0)	2685 (41540)	25.95	24.92	23.97
		2639(41080)	25.97	24.96	23.96
		2593 (40620)	25.71	24.73	23.72
		2547(40160)	25.75	24.79	23.82
		2501 (39700)	25.19	24.28	23.29
15MHz	1RB-High (74)	2682.5 (41515)	26.94	25.96	24.82
		2637.8(41068)	26.64	25.75	24.59
		2593 (40620)	26.31	25.47	24.29
		2548.3(40173)	26.41	25.56	24.39
		2503.5 (39725)	25.94	25.13	23.94
	1RB-Middle (37)	2682.5 (41515)	26.95	25.91	24.96
		2637.8(41068)	26.79	25.90	24.74
		2593 (40620)	26.53	25.69	24.53
		2548.3(40173)	26.61	25.74	24.58
		2503.5 (39725)	26.08	25.29	24.07
	1RB-Low (0)	2682.5 (41515)	26.84	25.86	24.90
		2637.8(41068)	26.59	25.72	24.56
		2593 (40620)	26.40	25.56	24.39
		2548.3(40173)	26.37	25.51	24.35
		2503.5 (39725)	25.88	25.11	23.89
	36RB-High (38)	2682.5 (41515)	25.94	24.98	23.94
		2637.8(41068)	25.81	24.75	23.78
		2593 (40620)	25.48	24.44	23.47
		2548.3(40173)	25.60	24.55	23.60
		2503.5 (39725)	25.05	24.01	23.07
36RB-Middle (19)	2682.5 (41515)	25.94	24.95	23.94	
	2637.8(41068)	25.83	24.79	23.82	



		2593 (40620)	25.60	24.54	23.57
		2548.3(40173)	25.65	24.61	23.65
		2503.5 (39725)	25.11	24.10	23.14
	36RB-Low (0)	2682.5 (41515)	25.94	24.95	23.94
		2637.8(41068)	25.83	24.81	23.82
		2593 (40620)	25.59	24.54	23.58
		2548.3(40173)	25.63	24.58	23.66
		2503.5 (39725)	25.05	24.03	23.08
	75RB (0)	2682.5 (41515)	25.94	24.89	23.95
		2637.8(41068)	25.85	24.83	23.87
		2593 (40620)	25.52	24.52	23.57
		2548.3(40173)	25.59	24.60	23.64
		2503.5 (39725)	25.07	24.10	23.14
	20MHz	1RB-High (99)	2680 (41490)	26.76	25.93
2636.5(41055)			26.54	25.68	24.50
2593 (40620)			26.20	25.38	24.16
2549.5(40185)			26.30	25.44	24.25
2506 (39750)			25.91	25.09	23.88
1RB-Middle (50)		2680 (41490)	26.94	25.94	24.93
		2636.5(41055)	26.88	25.99	24.81
		2593 (40620)	26.61	25.78	24.59
		2549.5(40185)	26.71	25.84	24.64
		2506 (39750)	26.19	25.39	24.16
1RB-Low (0)		2680 (41490)	26.87	25.84	24.81
		2636.5(41055)	26.49	25.64	24.45
		2593 (40620)	26.36	25.53	24.33
		2549.5(40185)	26.27	25.42	24.24
		2506 (39750)	25.79	25.04	23.77
50RB-High (50)		2680 (41490)	25.94	24.97	23.96
		2636.5(41055)	25.76	24.76	23.74
		2593 (40620)	25.44	24.46	23.43
		2549.5(40185)	25.54	24.56	23.57
		2506 (39750)	25.06	24.11	23.10
50RB-Middle (25)		2680 (41490)	25.96	24.97	23.96
		2636.5(41055)	25.87	24.88	23.88
		2593 (40620)	25.59	24.63	23.60
		2549.5(40185)	25.65	24.68	23.69
		2506 (39750)	25.12	24.18	23.16
50RB-Low (0)		2680 (41490)	25.94	24.96	23.94
		2636.5(41055)	25.92	24.92	23.92
		2593 (40620)	25.68	24.71	23.70
	2549.5(40185)	25.69	24.71	23.72	



		2506 (39750)	25.07	24.13	23.11
	100RB (0)	2680 (41490)	25.95	24.94	23.95
		2636.5(41055)	25.92	24.89	23.88
		2593 (40620)	25.62	24.61	23.60
		2549.5(40185)	25.67	24.65	23.64
		2506 (39750)	25.13	24.14	23.14

LTE B66-DSI0/1/2

LTE B66						
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	
1.4MHz	1RB-High (5)	1779.3 (132665)	23.74	23.04	21.99	
		1745 (132322)	23.62	22.84	21.91	
		1710.7 (131979)	23.57	22.90	21.80	
	1RB-Middle (3)	1779.3 (132665)	23.84	23.19	22.11	
		1745 (132322)	23.77	22.96	21.96	
		1710.7 (131979)	23.70	23.11	21.89	
	1RB-Low (0)	1779.3 (132665)	23.74	23.03	21.92	
		1745 (132322)	23.61	22.90	21.83	
		1710.7 (131979)	23.57	22.98	21.88	
	3RB-High (3)	1779.3 (132665)	23.82	22.85	21.97	
		1745 (132322)	23.74	22.75	21.86	
		1710.7 (131979)	23.70	22.73	21.84	
	3RB-Middle (1)	1779.3 (132665)	23.89	22.91	22.01	
		1745 (132322)	23.76	22.81	21.91	
		1710.7 (131979)	23.71	22.80	21.83	
	3RB-Low (0)	1779.3 (132665)	23.82	22.86	22.00	
		1745 (132322)	23.74	22.71	21.92	
		1710.7 (131979)	23.68	22.68	21.88	
	6RB (0)	1779.3 (132665)	22.86	21.99	20.87	
		1745 (132322)	22.75	21.85	20.81	
		1710.7 (131979)	22.67	21.84	20.75	
	3MHz	1RB-High (14)	1778.5 (132657)	23.85	23.11	22.03
			1745 (132322)	23.80	23.18	21.97
			1711.5 (131987)	23.67	22.97	21.93
		1RB-Middle (7)	1778.5 (132657)	24.09	23.31	22.27
			1745 (132322)	23.90	23.22	22.26
			1711.5 (131987)	23.86	23.09	22.10
1RB-Low (0)		1778.5 (132657)	23.88	23.17	22.08	
		1745 (132322)	23.78	23.17	22.02	
		1711.5 (131987)	23.72	23.09	21.88	

	8RB-High (7)	1778.5 (132657)	22.91	21.98	21.01	
		1745 (132322)	22.79	21.94	20.93	
		1711.5 (131987)	22.71	21.83	20.85	
	8RB-Middle (4)	1778.5 (132657)	22.93	22.04	21.05	
		1745 (132322)	22.81	21.94	20.96	
		1711.5 (131987)	22.78	21.86	20.95	
	8RB-Low (0)	1778.5 (132657)	22.90	22.02	21.02	
		1745 (132322)	22.80	21.89	20.90	
		1711.5 (131987)	22.73	21.86	20.86	
	15RB (0)	1778.5 (132657)	22.91	21.94	20.97	
		1745 (132322)	22.76	21.81	20.86	
		1711.5 (131987)	22.75	21.79	20.85	
5MHz	1RB-High (24)	1777.5 (132647)	23.67	22.91	21.83	
		1745 (132322)	23.60	22.89	21.81	
		1712.5 (131997)	23.46	22.79	21.68	
	1RB-Middle (12)	1777.5 (132647)	23.94	23.25	22.26	
		1745 (132322)	23.87	23.11	22.11	
		1712.5 (131997)	23.81	23.19	22.07	
	1RB-Low (0)	1777.5 (132647)	23.68	22.86	21.95	
		1745 (132322)	23.58	22.98	21.79	
		1712.5 (131997)	23.51	22.91	21.74	
	12RB-High (13)	1777.5 (132647)	22.77	21.76	20.88	
		1745 (132322)	22.70	21.71	20.81	
		1712.5 (131997)	22.61	21.62	20.71	
	12RB-Middle (6)	1777.5 (132647)	22.89	21.87	20.99	
		1745 (132322)	22.79	21.79	20.88	
		1712.5 (131997)	22.69	21.72	20.80	
	12RB-Low (0)	1777.5 (132647)	22.87	21.86	20.94	
		1745 (132322)	22.71	21.74	20.81	
		1712.5 (131997)	22.64	21.66	20.78	
	25RB (0)	1777.5 (132647)	22.86	21.85	20.92	
		1745 (132322)	22.71	21.73	20.81	
		1712.5 (131997)	22.65	21.67	20.72	
	10MHz	1RB-High (49)	1775 (132622)	23.72	23.01	21.89
			1745 (132322)	23.68	22.98	21.95
			1715 (132022)	23.55	22.85	21.77
1RB-Middle (24)		1775 (132622)	23.96	23.09	22.10	
		1745 (132322)	23.86	23.12	22.09	
		1715 (132022)	23.69	23.01	21.93	
1RB-Low (0)		1775 (132622)	23.79	23.09	22.05	
		1745 (132322)	23.65	22.95	21.86	
		1715 (132022)	23.61	22.94	21.87	

	25RB-High (25)	1775 (132622)	22.81	21.79	20.87	
		1745 (132322)	22.75	21.79	20.82	
		1715 (132022)	22.68	21.69	20.75	
	25RB-Middle (12)	1775 (132622)	22.91	21.93	20.98	
		1745 (132322)	22.81	21.83	20.90	
		1715 (132022)	22.69	21.74	20.79	
	25RB-Low (0)	1775 (132622)	22.96	21.96	21.02	
		1745 (132322)	22.80	21.83	20.89	
		1715 (132022)	22.69	21.69	20.76	
	50RB (0)	1775 (132622)	22.91	21.92	21.00	
		1745 (132322)	22.78	21.82	20.84	
		1715 (132022)	22.66	21.68	20.77	
15MHz	1RB-High (74)	1772.5 (132597)	23.63	22.96	21.83	
		1745 (132322)	23.57	22.92	21.83	
		1717.5 (132047)	23.39	22.69	21.63	
	1RB-Middle (37)	1772.5 (132597)	23.81	23.04	22.03	
		1745 (132322)	23.73	23.02	21.99	
		1717.5 (132047)	23.60	22.93	21.76	
	1RB-Low (0)	1772.5 (132597)	23.63	22.99	21.85	
		1745 (132322)	23.53	22.88	21.76	
		1717.5 (132047)	23.51	22.90	21.77	
	36RB-High (38)	1772.5 (132597)	22.74	21.74	20.81	
		1745 (132322)	22.71	21.69	20.80	
		1717.5 (132047)	22.60	21.58	20.66	
	36RB-Middle (19)	1772.5 (132597)	22.88	21.88	20.97	
		1745 (132322)	22.77	21.76	20.85	
		1717.5 (132047)	22.66	21.62	20.73	
	36RB-Low (0)	1772.5 (132597)	22.85	21.83	20.91	
		1745 (132322)	22.74	21.73	20.81	
		1717.5 (132047)	22.62	21.60	20.68	
	75RB (0)	1772.5 (132597)	22.83	21.80	20.86	
		1745 (132322)	22.72	21.71	20.80	
		1717.5 (132047)	22.58	21.58	20.65	
	20MHz	1RB-High (99)	1770 (132572)	23.55	22.82	21.74
			1745 (132322)	23.49	22.79	21.68
			1720 (132072)	23.36	22.72	21.58
1RB-Middle (50)		1770 (132572)	23.87	23.25	22.05	
		1745 (132322)	23.88	23.25	22.14	
		1720 (132072)	23.69	23.00	21.97	
1RB-Low (0)		1770 (132572)	23.55	22.81	21.71	
		1745 (132322)	23.43	22.83	21.70	
		1720 (132072)	23.41	22.80	21.67	

	50RB-High (50)	1770 (132572)	22.72	21.74	20.76
		1745 (132322)	22.67	21.70	20.72
		1720 (132072)	22.59	21.57	20.62
	50RB-Middle (25)	1770 (132572)	22.82	21.91	20.96
		1745 (132322)	22.85	21.80	20.83
		1720 (132072)	22.64	21.65	20.70
	50RB-Low (0)	1770 (132572)	22.75	21.84	20.88
		1745 (132322)	22.76	21.77	20.83
		1720 (132072)	22.54	21.54	20.56
	100RB (0)	1770 (132572)	22.77	21.76	20.84
		1745 (132322)	22.71	21.71	20.75
		1720 (132072)	22.54	21.54	20.59

LTE B71-DSI0/1/2

LTE B71						
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM	
5MHz	1RB-High (24)	695.5 (133447)	22.82	22.49	21.68	
		680.5 (133297)	23.25	22.46	21.20	
		665.5 (133147)	23.25	22.58	21.57	
	1RB-Middle (12)	695.5 (133447)	23.55	22.83	21.92	
		680.5 (133297)	23.55	22.90	21.52	
		665.5 (133147)	23.52	22.90	21.77	
	1RB-Low (0)	695.5 (133447)	23.28	22.63	21.73	
		680.5 (133297)	23.35	22.56	21.34	
		665.5 (133147)	23.34	22.63	21.54	
	12RB-High (13)	695.5 (133447)	22.47	21.34	20.65	
		680.5 (133297)	22.38	21.32	20.58	
		665.5 (133147)	22.32	21.35	20.56	
	12RB-Middle (6)	695.5 (133447)	22.44	21.37	20.68	
		680.5 (133297)	22.47	21.38	20.65	
		665.5 (133147)	22.42	21.31	20.61	
	12RB-Low (0)	695.5 (133447)	22.44	21.32	20.63	
		680.5 (133297)	22.41	21.34	20.63	
		665.5 (133147)	22.31	21.22	20.50	
	25RB (0)	695.5 (133447)	22.42	21.32	20.66	
		680.5 (133297)	22.21	21.40	20.61	
		665.5 (133147)	22.15	21.22	20.56	
	10MHz	1RB-High (49)	693 (132422)	22.85	21.99	21.76
			680.5 (133297)	23.18	22.32	21.58
			668 (133172)	22.92	22.47	21.61

	1RB-Middle (24)	693 (132422)	23.07	22.59	21.93	
		680.5 (133297)	23.29	22.71	21.24	
		668 (133172)	23.13	22.45	21.88	
	1RB-Low (0)	693 (132422)	22.94	22.45	21.73	
		680.5 (133297)	23.05	22.53	21.04	
		668 (133172)	23.00	22.18	21.70	
	25RB-High (25)	693 (132422)	21.84	20.86	20.62	
		680.5 (133297)	21.90	20.87	20.61	
		668 (133172)	21.98	21.39	20.71	
	25RB-Middle (12)	693 (132422)	21.88	20.82	20.70	
		680.5 (133297)	22.27	21.27	20.63	
		668 (133172)	21.81	21.33	20.66	
	25RB-Low (0)	693 (132422)	21.64	21.06	20.65	
		680.5 (133297)	22.26	21.34	20.76	
		668 (133172)	21.53	21.21	20.61	
	50RB (0)	693 (132422)	21.92	21.06	20.64	
		680.5 (133297)	22.14	21.35	20.74	
		668 (133172)	21.52	21.16	20.69	
	15MHz	1RB-High (74)	690.5 (133397)	22.98	22.34	21.61
			680.5 (133297)	23.03	22.41	21.57
			670.5 (133197)	22.96	22.40	21.54
		1RB-Middle (37)	690.5 (133397)	23.17	22.20	21.76
			680.5 (133297)	23.12	22.44	21.81
			670.5 (133197)	23.09	22.41	21.69
1RB-Low (0)		690.5 (133397)	23.01	22.31	21.59	
		680.5 (133297)	23.00	22.55	21.62	
		670.5 (133197)	22.89	22.56	21.52	
36RB-High (38)		690.5 (133397)	21.92	21.04	20.57	
		680.5 (133297)	21.93	21.27	20.61	
		670.5 (133197)	21.81	20.95	20.60	
36RB-Middle (19)		690.5 (133397)	22.03	21.08	20.59	
		680.5 (133297)	22.16	21.11	20.65	
		670.5 (133197)	21.77	20.97	20.65	
36RB-Low (0)		690.5 (133397)	21.55	20.90	20.54	
		680.5 (133297)	22.22	21.09	20.71	
		670.5 (133197)	21.72	20.82	20.57	
75RB (0)		690.5 (133397)	22.09	20.80	20.51	
		680.5 (133297)	21.93	20.90	20.61	
		670.5 (133197)	21.66	20.60	20.54	
20MHz		1RB-High (99)	688 (133372)	22.97	22.11	21.47
			683 (133322)	23.04	22.09	21.51
			673 (133222)	22.98	22.06	21.46

	1RB-Middle (50)	688 (133372)	23.20	22.34	21.89
		683 (133322)	23.48	22.55	21.83
		673 (133222)	23.26	22.58	21.88
	1RB-Low (0)	688 (133372)	23.09	22.18	21.57
		683 (133322)	23.18	22.35	21.52
		673 (133222)	22.91	22.24	21.50
	50RB-High (50)	688 (133372)	22.06	20.99	20.49
		683 (133322)	22.41	21.12	20.61
		673 (133222)	22.05	20.77	20.42
	50RB-Middle (25)	688 (133372)	22.00	20.89	20.59
		683 (133322)	22.48	21.18	20.65
		673 (133222)	22.07	20.93	20.60
	50RB-Low (0)	688 (133372)	21.92	21.22	20.54
		683 (133322)	22.55	21.22	20.70
		673 (133222)	22.04	20.73	20.50
	100RB (0)	688 (133372)	22.13	21.08	20.48
		683 (133322)	22.48	21.17	20.67
		673 (133222)	21.91	20.73	20.42

SAR test is not required since maximum output power when downlink carrier aggregation active is not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive.

The conducted power measurement results of LTE uplink CA are as below:

CA_5B- DSI0/1/2

CA_5B (DSI0/1/2)									
PCC				SCC				Power	
PCC Bandwidth	UL channel	UL RB	UL RB OFFSET	SCC Bandwidth	DL channel	UL RB	UL RB OFFSET	tune up	conducted power (dBm)
5M	20425	1	24	3M	2464	1	0	24.5	23.74
10M	20450	1	49	5M	2522	1	0	24.5	23.84
10M	20450	1	49	10M	2549	1	0	24.5	23.78
5M	20625	1	24	3M	2586	1	0	24.5	23.68
10M	20600	1	49	5M	2528	1	0	24.5	23.73
10M	20600	1	49	10M	2501	1	0	24.5	23.72

CA_66B- DSI0/1/2

CA_66B (DSI0/1/2)									
PCC				SCC				Power	
PCC Bandwidth	UL channel	UL RB	UL RB OFFSET	SCC Bandwidth	DL channel	UL RB	UL RB OFFSET	tune up	conducted power (dBm)
5M	131997	1	24	5M	66509	1	0	24.8	23.25
10M	132022	1	49	5M	66558	1	0	24.8	23.38
15M	132047	1	74	5M	66604	1	0	24.8	23.12
10M	132022	1	49	10M	66585	1	0	24.8	23.29

CA_66C- DSI0/1/2

CA_66C (Power level A1)									
PCC				SCC				Power	
PCC Bandwidth	UL channel	UL RB	UL RB OFFSET	SCC Bandwidth	DL channel	UL RB	UL RB OFFSET	tune up	conducted power (dBm)
20M	132072	1	99	5M	66653	1	0	24.8	23.03
20M	132072	1	99	10M	66680	1	0	24.8	23.14
20M	132072	1	99	15M	66707	1	0	24.8	23.06
20M	132072	1	99	20M	66734	1	0	24.8	23.16
15M	132047	1	74	10M	66631	1	0	24.8	23.11
15M	132047	1	74	15M	66661	1	0	24.8	23.16
20M	132572	1	99	5M	66919	1	0	24.8	23.32
20M	132072	1	99	10M	66892	1	0	24.8	23.06
20M	132072	1	99	15M	66885	1	0	24.8	23.08
20M	132072	1	99	20M	66838	1	0	24.8	23.03



11.5 Wi-Fi and BT Measurement result

The maximum output power of BT antenna is 12.69dBm.

The maximum tune up of BT antenna is 13dBm.

The average conducted power for Wi-Fi 2.4G is as following:

DS10

802.11b	
Channel\data rate	1Mbps
11(2462MHz)	17.56
6(2437(MHz)	17.95
1(2412MHz)	17.73
Tune up	19.00
802.11g	
Channel\data rate	6Mbps
11(2462MHz)	14.49
6(2437(MHz)	14.35
1(2412MHz)	14.21
Tune up	16.00
802.11n-20MHz	
Channel\data rate	MCS0
11(2462MHz)	14.31
6(2437(MHz)	14.25
1(2412MHz)	14.02
Tune up	16.00
802.11n-40MHz	
Channel\data rate	MCS0
9(2452MHz)	13.87
6(2437MHz)	13.92
3(2422MHz)	14.08
Tune up	15.50



DSI1/2

802.11b	
Channel\data rate	1Mbps
11(2462MHz)	19.49
6(2437(MHz)	19.21
1(2412MHz)	18.96
Tune up	20.50
802.11g	
Channel\data rate	6Mbps
11(2462MHz)	16.18
6(2437(MHz)	16.01
1(2412MHz)	15.91
Tune up	17.50
802.11n-20MHz	
Channel\data rate	MCS0
11(2462MHz)	15.95
6(2437(MHz)	15.83
1(2412MHz)	15.66
Tune up	17.50
802.11n-40MHz	
Channel\data rate	MCS0
9(2452MHz)	14.95
6(2437MHz)	14.88
3(2422MHz)	15.13
Tune up	16.00

The tune up power for Wi-Fi 5G is as following:

<u>Technology/ Band</u>	<u>Mode</u>	<u>Target Power and Tolerance (dBm)</u>	<u>ANT Gain (dBm)</u>	<u>SAR 10mm Body</u>	<u>SAR 0mm Head</u>
WLAN 5GHz	802.11a 6M	16.5±1.5 dBm	-4	12.0±1.5 dBm	9.0±1.5 dBm
	802.11a 54M	15±1.5 dBm	-4	10.5±1.5 dBm	7.5±1.5 dBm
	802.11n HT20 MCS0	16.0±1.5 dBm	-4	11.5±1.5 dBm	8.5±1.5 dBm
	802.11n HT20 MCS7	14.0±1.5 dBm	-4	9.5±1.5 dBm	6.5±1.5 dBm
	802.11n HT40 MCS0	15.0±1.5 dBm	-4	10.5±1.5 dBm	7.5±1.5 dBm
	802.11n HT40 MCS7	14.0±1.5 dBm	-4	9.5±1.5 dBm	6.5±1.5 dBm
	802.11ac HT20 MCS0	16.5±1.5 dBm	-4	12.0±1.5 dBm	9.0±1.5 dBm
	802.11ac HT20 MCS7	14.5±1.5 dBm	-4	10.0±1.5 dBm	7.0±1.5 dBm
	802.11ac HT40 MCS0	16.0±1.5 dBm	-4	11.5±1.5 dBm	8.5±1.5 dBm
	802.11ac HT40 MCS7	14.0±1.5 dBm	-4	9.5±1.5 dBm	6.5±1.5 dBm
	802.11ac HT80 MCS0	15.5±1.5 dBm	-4	11.0±1.5 dBm	8.0±1.5 dBm



The average conducted power for Wi-Fi 5G is as following:

DS10

802.11a(dBm)	
Channel\data rate	6Mbps
36(5180 MHz)	9.23
40(5200 MHz)	9.02
44(5220 MHz)	8.73
48(5240 MHz)	8.61
52(5260 MHz)	8.94
56(5280 MHz)	8.91
60(5300 MHz)	8.79
64(5320 MHz)	8.93
100(5500 MHz)	9.73
104(5520 MHz)	9.94
108(5540 MHz)	10.03
112(5560 MHz)	10.19
116(5580 MHz)	9.93
120(5600 MHz)	9.86
124(5620 MHz)	9.56
128(5640 MHz)	9.42
132(5660 MHz)	9.05
136(5680 MHz)	8.92
140(5700 MHz)	8.48
144(5720 MHz)	8.39
149(5745 MHz)	9.25
153(5765 MHz)	9.16
157(5785 MHz)	8.91
161(5805 MHz)	8.83
165(5825 MHz)	8.94
Tune up	10.50



DSI1

802.11a(dBm)	
Channel\data rate	6Mbps
36(5180 MHz)	17.49
40(5200 MHz)	17.19
44(5220 MHz)	16.91
48(5240 MHz)	16.67
52(5260 MHz)	17.34
56(5280 MHz)	16.96
60(5300 MHz)	16.93
64(5320 MHz)	16.79
100(5500 MHz)	17.16
104(5520 MHz)	17.34
108(5540 MHz)	17.47
112(5560 MHz)	17.46
116(5580 MHz)	17.42
120(5600 MHz)	17.29
124(5620 MHz)	17.06
128(5640 MHz)	16.87
132(5660 MHz)	16.63
136(5680 MHz)	16.22
140(5700 MHz)	16.04
144(5720 MHz)	16.12
149(5745 MHz)	17.55
153(5765 MHz)	17.43
157(5785 MHz)	17.21
161(5805 MHz)	17.13
165(5825 MHz)	17.16
Tune up	18.00



DSI2

802.11a(dBm)	
Channel\data rate	6Mbps
36(5180 MHz)	12.45
40(5200 MHz)	12.18
44(5220 MHz)	11.93
48(5240 MHz)	11.68
52(5260 MHz)	12.06
56(5280 MHz)	12.05
60(5300 MHz)	12.03
64(5320 MHz)	11.99
100(5500 MHz)	12.88
104(5520 MHz)	13.22
108(5540 MHz)	13.16
112(5560 MHz)	13.27
116(5580 MHz)	13.17
120(5600 MHz)	12.94
124(5620 MHz)	12.76
128(5640 MHz)	12.58
132(5660 MHz)	11.95
136(5680 MHz)	11.76
140(5700 MHz)	11.69
144(5720 MHz)	11.52
149(5745 MHz)	12.29
153(5765 MHz)	12.17
157(5785 MHz)	12.04
161(5805 MHz)	11.94
165(5825 MHz)	11.92
Tune up	13.50



12 Simultaneous TX SAR Considerations

12.1 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 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

12.2 Transmit Antenna Separation Distances

Please refer to the file < The Photos of SAR test – 23T04Z80263-19>.

12.3 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.

SAR measurement positions						
Antenna	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Main ANT	Yes	Yes	Yes	Yes	No	Yes
WIFI ANT	Yes	Yes	Yes	No	Yes	No

13 Evaluation of Simultaneous

Table 13.1: The sum of SAR values for Main antenna + Wifi2.4G

	Position	Main antenna	WiFi-2.4G	Sum
Highest SAR value for Head	Right head, Cheek (WB2)	0.49	0.46	0.95
Highest SAR value for Body	Rear 10mm (WB2)	0.83	0.26	1.09

Table 13.2: The sum of SAR values for Main antenna + Wifi5G +BT

	Position	Main antenna	WiFi-5G	BT	Sum
Highest SAR value for Head	Right head, Cheek (WB2)	0.49	0.31	0.04	0.84
Highest SAR value for Body	Rear 10mm (WB2)	0.83	0.17	0.01	1.01

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

It is determined by user manual for the distance between the EUT and the phantom bottom. The distance is 10 mm and just applied to the condition of body worn accessory.

It is performed for all SAR measurements with area scan based 1-g SAR estimation (Fast SAR). A zoom scan measurement is added when the estimated 1-g SAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where P_{Target} is the power of manufacturing upper limit;

P_{Measured} is the measured power in chapter 11.

Table 14.1: Duty Cycle

Mode	Duty Cycle
GSM850/1900	1:4
WCDMA<E FDD	1:1
LTE TDD	1:1.58

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

Table 14.1-1: SAR Values-GSM850/GSM1900

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	GSM850	251	848.8	GPRS(2)	/	31.39	32	<0.01	<0.01	<0.01	<0.01	/
Cheek	L	GSM850	190	836.6	GPRS(2)	1	31.48	32	0.008	0.01	0.002	0.00	0.01
Cheek	L	GSM850	128	824.2	GPRS(2)	/	31.34	32	<0.01	<0.01	<0.01	<0.01	/
Tilt	L	GSM850	190	836.6	GPRS(2)	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	GSM850	190	836.6	GPRS(2)	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Tilt	R	GSM850	190	836.6	GPRS(2)	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Body	F	GSM850	190	836.6	GPRS(2) Front 10mm	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Body	F	GSM850	251	848.8	GPRS(2) Rear 10mm	2	31.39	32	0.094	0.11	0.047	0.05	0.01
Body	F	GSM850	190	836.6	GPRS(2) Rear 10mm	/	31.48	32	0.078	0.09	0.039	0.04	-0.16
Body	F	GSM850	128	824.2	GPRS(2) Rear 10mm	/	31.34	32	0.082	0.10	0.041	0.05	-0.11
Body	F	GSM850	190	836.6	GPRS(2) Left Edge 10mm	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Body	F	GSM850	190	836.6	GPRS(2) Right Edge 10mm	/	31.48	32	<0.01	<0.01	<0.01	<0.01	/
Body	F	GSM850	190	836.6	GPRS(2) Bottom Edge 10mm	/	31.48	32	0.045	0.05	0.023	0.03	0.17
Cheek	L	GSM1900	661	1880	GPRS(2)	/	28.63	29.5	0.14	0.17	0.091	0.11	-0.12
Tilt	L	GSM1900	661	1880	GPRS(2)	/	28.63	29.5	0.12	0.15	0.075	0.09	-0.16
Cheek	R	GSM1900	810	1909.8	GPRS(2)	/	28.17	29.5	0.173	0.23	0.108	0.15	-0.06
Cheek	R	GSM1900	661	1880	GPRS(2)	/	28.63	29.5	0.207	0.25	0.129	0.16	-0.1
Cheek	R	GSM1900	512	1850.2	GPRS(2)	3	29.03	29.5	0.267	0.30	0.168	0.19	0.19
Tilt	R	GSM1900	661	1880	GPRS(2)	/	28.63	29.5	0.109	0.13	0.071	0.09	0.18
Body	F	GSM1900	661	1880	GPRS(2) Front 10mm	/	20.44	21	0.284	0.32	0.139	0.16	0.07
Body	F	GSM1900	810	1909.8	GPRS(2) Rear 10mm	4	19.82	21	0.591	0.78	0.305	0.40	0.07
Body	F	GSM1900	661	1880	GPRS(2) Rear 10mm	/	20.44	21	0.562	0.64	0.288	0.33	-0.18
Body	F	GSM1900	512	1850.2	GPRS(2) Rear 10mm	/	20.95	21	0.628	0.64	0.325	0.33	-0.04
Body	F	GSM1900	661	1880	GPRS(2) Left Edge 10mm	/	20.44	21	<0.01	<0.01	<0.01	<0.01	/
Body	F	GSM1900	661	1880	GPRS(2) Right Edge 10mm	/	20.44	21	0.072	0.08	0.044	0.05	0.14
Body	F	GSM1900	661	1880	GPRS(2) Bottom Edge 10mm	/	20.44	21	0.509	0.58	0.256	0.29	-0.1

Table 14.1-2: SAR Values-WCDMA B2/B4/B5

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	WCDMA1900	9400	1880	RMC	/	23.58	24.5	0.25	0.31	0.162	0.20	0.15
Tilt	L	WCDMA1900	9400	1880	RMC	/	23.58	24.5	0.217	0.27	0.136	0.17	-0.1
Cheek	R	WCDMA1900	9538	1907.6	RMC	/	23.24	24.5	0.309	0.41	0.196	0.26	0.04
Cheek	R	WCDMA1900	9400	1880	RMC	/	23.58	24.5	0.34	0.42	0.214	0.26	0.11
Cheek	R	WCDMA1900	9262	1852.4	RMC	5	23.64	24.5	0.399	0.49	0.254	0.31	0.02
Tilt	R	WCDMA1900	9400	1880	RMC	/	23.58	24.5	0.179	0.22	0.119	0.15	-0.05
Body	F	WCDMA1900	9400	1880	Front 10mm	/	15.26	16.5	0.257	0.34	0.141	0.19	0.17
Body	F	WCDMA1900	9538	1907.6	Rear 10mm	6	14.99	16.5	0.586	0.83	0.306	0.43	0.02
Body	F	WCDMA1900	9400	1880	Rear 10mm	/	15.26	16.5	0.546	0.73	0.295	0.39	0.16
Body	F	WCDMA1900	9262	1852.4	Rear 10mm	/	15.54	16.5	0.54	0.67	0.285	0.36	0.1
Body	F	WCDMA1900	9400	1880	Left Edge 10mm	/	15.26	16.5	0.019	0.03	0.01	0.01	0.06
Body	F	WCDMA1900	9400	1880	Right Edge 10mm	/	15.26	16.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA1900	9400	1880	Bottom Edge 10mm	/	15.26	16.5	0.471	0.63	0.251	0.33	0.04
Cheek	L	WCDMA1700	1412	1732.5	RMC	/	24.15	24.5	0.177	0.19	0.117	0.13	0.11
Tilt	L	WCDMA1700	1412	1732.5	RMC	/	24.15	24.5	0.125	0.14	0.081	0.09	-0.06
Cheek	R	WCDMA1700	1513	1752.6	RMC	7	24.22	24.5	0.303	0.32	0.192	0.20	0.09
Cheek	R	WCDMA1700	1412	1732.5	RMC	/	24.15	24.5	0.25	0.27	0.158	0.17	-0.04
Cheek	R	WCDMA1700	1312	1712.4	RMC	/	24.11	24.5	0.284	0.31	0.178	0.19	-0.1
Tilt	R	WCDMA1700	1412	1732.5	RMC	/	24.15	24.5	0.151	0.16	0.098	0.11	0.01
Body	F	WCDMA1700	1412	1732.5	Front 10mm	/	18.23	19.5	0.176	0.24	0.092	0.12	0.18
Body	F	WCDMA1700	1513	1752.6	Rear 10mm	8	18.28	19.5	0.408	0.54	0.217	0.29	0.06
Body	F	WCDMA1700	1412	1732.5	Rear 10mm	/	18.23	19.5	0.307	0.41	0.162	0.22	-0.13
Body	F	WCDMA1700	1312	1712.4	Rear 10mm	/	18.03	19.5	0.381	0.53	0.203	0.28	-0.12
Body	F	WCDMA1700	1412	1732.5	Left Edge 10mm	/	18.23	19.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA1700	1412	1732.5	Right Edge 10mm	/	18.23	19.5	0.071	0.10	0.041	0.05	0.02
Body	F	WCDMA1700	1412	1732.5	Bottom Edge 10mm	/	18.23	19.5	0.244	0.33	0.121	0.16	-0.18
Cheek	L	WCDMA 850	4233	846.6	RMC	/	24.08	24.5	0.012	0.01	0.007	0.01	-0.12
Cheek	L	WCDMA 850	4183	836.6	RMC	9	23.97	24.5	0.03	0.03	0.01	0.01	0.09
Cheek	L	WCDMA 850	4132	826.4	RMC	/	24.26	24.5	0.15	0.16	0.007	0.01	0.04
Tilt	L	WCDMA 850	4183	836.6	RMC	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	WCDMA 850	4183	836.6	RMC	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Tilt	R	WCDMA 850	4183	836.6	RMC	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA 850	4183	836.6	Front 10mm	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA 850	4233	846.6	Rear 10mm	/	24.08	24.5	0.023	0.03	0.012	0.01	0.15
Body	F	WCDMA 850	4183	836.6	Rear 10mm	10	23.97	24.5	0.045	0.05	0.023	0.03	0.07
Body	F	WCDMA 850	4132	826.4	Rear 10mm	/	24.26	24.5	0.031	0.03	0.018	0.02	-0.14
Body	F	WCDMA 850	4183	836.6	Left Edge 10mm	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA 850	4183	836.6	Right Edge 10mm	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	WCDMA 850	4183	836.6	Bottom Edge 10mm	/	23.97	24.5	<0.01	<0.01	<0.01	<0.01	/

Table 14.1-3: SAR Values-LTE B12/B13/B25

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	LTE Band12	23060	704	1RB-Mid	/	23.43	24	0.101	0.12	0.08	0.09	0.03
Tilt	L	LTE Band12	23060	704	1RB-Mid	/	23.43	24	0.059	0.07	0.047	0.05	0.15
Cheek	R	LTE Band12	23060	704	1RB-Mid	11	23.43	24	0.107	0.12	0.084	0.10	0.01
Tilt	R	LTE Band12	23060	704	1RB-Mid	/	23.43	24	0.062	0.07	0.047	0.05	0.05
Cheek	L	LTE Band12	23060	704	25RB-Low	/	22.42	23	0.079	0.09	0.062	0.07	0.14
Tilt	L	LTE Band12	23060	704	25RB-Low	/	22.42	23	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE Band12	23060	704	25RB-Low	/	22.42	23	0.081	0.09	0.062	0.07	0.11
Tilt	R	LTE Band12	23060	704	25RB-Low	/	22.42	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band12	23060	704	1RB-Mid Front 10mm	/	23.43	24	0.12	0.14	0.092	0.10	0.12
Body	F	LTE Band12	23060	704	1RB-Mid Rear 10mm	12	23.43	24	0.197	0.22	0.149	0.17	0.01
Body	F	LTE Band12	23060	704	1RB-Mid Left Edge 10mm	/	23.43	24	0.093	0.11	0.065	0.07	-0.05
Body	F	LTE Band12	23060	704	1RB-Mid Right Edge 10mm	/	23.43	24	0.113	0.13	0.079	0.09	0.09
Body	F	LTE Band12	23060	704	1RB-Mid Bottom Edge 10mm	/	23.43	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band12	23060	704	25RB-Low Front 10mm	/	22.42	23	0.084	0.10	0.065	0.07	-0.17
Body	F	LTE Band12	23060	704	25RB-Low Rear 10mm	/	22.42	23	0.149	0.17	0.112	0.13	-0.02
Body	F	LTE Band12	23060	704	25RB-Low Left Edge 10mm	/	22.42	23	0.06	0.07	0.042	0.05	0.18
Body	F	LTE Band12	23060	704	25RB-Low Right Edge 10mm	/	22.42	23	0.079	0.09	0.055	0.06	0.15
Body	F	LTE Band12	23060	704	25RB-Low Bottom Edge 10mm	/	22.42	23	<0.01	<0.01	<0.01	<0.01	/
Cheek	L	LTE Band13	23230	782	1RB-Mid	13	23.73	24	0.088	0.09	0.066	0.07	0.17
Tilt	L	LTE Band13	23230	782	1RB-Mid	/	23.73	24	0.051	0.05	0.038	0.04	0.13
Cheek	R	LTE Band13	23230	782	1RB-Mid	/	23.73	24	0.073	0.08	0.054	0.06	-0.02
Tilt	R	LTE Band13	23230	782	1RB-Mid	/	23.73	24	0.051	0.05	0.038	0.04	0.11
Cheek	L	LTE Band13	23230	782	25RB-Mid	/	22.65	23	0.067	0.07	0.048	0.05	0.05
Tilt	L	LTE Band13	23230	782	25RB-Mid	/	22.65	23	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE Band13	23230	782	25RB-Mid	/	22.65	23	0.055	0.06	0.041	0.04	-0.12
Tilt	R	LTE Band13	23230	782	25RB-Mid	/	22.65	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	1RB-Mid Front 10mm	/	23.73	24	0.1	0.11	0.078	0.08	-0.03
Body	F	LTE Band13	23230	782	1RB-Mid Rear 10mm	14	23.73	24	0.145	0.15	0.109	0.12	0.02
Body	F	LTE Band13	23230	782	1RB-Mid Left Edge 10mm	/	23.73	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	1RB-Mid Right Edge 10mm	/	23.73	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	1RB-Mid Bottom Edge 10mm	/	23.73	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	25RB-Mid Front 10mm	/	22.65	23	0.082	0.09	0.063	0.07	0.16
Body	F	LTE Band13	23230	782	25RB-Mid Rear 10mm	/	22.65	23	0.131	0.14	0.101	0.11	0.06
Body	F	LTE Band13	23230	782	25RB-Mid Left Edge 10mm	/	22.65	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	25RB-Mid Right Edge 10mm	/	22.65	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band13	23230	782	25RB-Mid Bottom Edge 10mm	/	22.65	23	<0.01	<0.01	<0.01	<0.01	/
Cheek	L	LTE Band25	26140	1860	1RB-Mid	/	23.62	24.3	0.215	0.25	0.014	0.02	0.02
Tilt	L	LTE Band25	26140	1860	1RB-Mid	/	23.62	24.3	0.177	0.21	0.113	0.13	0.04
Cheek	R	LTE Band25	26140	1860	1RB-Mid	15	23.62	24.3	0.276	0.32	0.176	0.21	0.08
Tilt	R	LTE Band25	26140	1860	1RB-Mid	/	23.62	24.3	0.175	0.20	0.116	0.14	0.06
Cheek	L	LTE Band25	26140	1860	50RB-Mid	/	22.55	23.3	0.153	0.18	0.101	0.12	-0.14
Tilt	L	LTE Band25	26140	1860	50RB-Mid	/	22.55	23.3	0.139	0.17	0.088	0.10	-0.08
Cheek	R	LTE Band25	26140	1860	50RB-Mid	/	22.55	23.3	0.239	0.28	0.15	0.18	0.11
Tilt	R	LTE Band25	26140	1860	50RB-Mid	/	22.55	23.3	0.142	0.17	0.093	0.11	0.02
Body	F	LTE Band25	26140	1860	1RB-Mid Front 10mm	/	19.58	20	0.336	0.37	0.18	0.20	-0.18
Body	F	LTE Band25	26140	1860	1RB-Mid Rear 10mm	/	19.58	20	0.589	0.65	0.322	0.35	-0.13
Body	F	LTE Band25	26365	1882.5	1RB-Mid Rear 10mm	/	19.5	20	0.645	0.72	0.349	0.39	0.14
Body	F	LTE Band25	26590	1905	1RB-Mid Rear 10mm	16	19.44	20	0.694	0.79	0.373	0.42	-0.1
Body	F	LTE Band25	26140	1860	1RB-Mid Left Edge 10mm	/	19.58	20	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band25	26140	1860	1RB-Mid Right Edge 10mm	/	19.58	20	0.112	0.12	0.068	0.07	0.03
Body	F	LTE Band25	26140	1860	1RB-Mid Bottom Edge 10mm	/	19.58	20	0.493	0.54	0.252	0.28	-0.14
Body	F	LTE Band25	26140	1860	50RB-Mid Front 10mm	/	18.47	19	0.263	0.30	0.14	0.16	0.11
Body	F	LTE Band25	26140	1860	50RB-Mid Rear 10mm	/	18.47	19	0.474	0.54	0.248	0.28	-0.06
Body	F	LTE Band25	26140	1860	50RB-Mid Left Edge 10mm	/	18.47	19	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band25	26140	1860	50RB-Mid Right Edge 10mm	/	18.47	19	0.104	0.12	0.064	0.07	-0.09
Body	F	LTE Band25	26140	1860	50RB-Mid Bottom Edge 10mm	/	18.47	19	0.384	0.43	0.197	0.22	-0.16



No. 23T04Z80263-19

Table 14.1-4: SAR Values- LTE B26/B41 PC3/B41 PC2

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	LTE Band26	26965	841.5	1RB-Mid	17	23.79	24.5	0.134	0.16	0.1	0.12	0.08
Tilt	L	LTE Band26	26965	841.5	1RB-Mid	/	23.79	24.5	0.067	0.08	0.053	0.06	-0.13
Cheek	R	LTE Band26	26965	841.5	1RB-Mid	/	23.79	24.5	0.096	0.11	0.074	0.09	-0.03
Tilt	R	LTE Band26	26965	841.5	1RB-Mid	/	23.79	24.5	0.059	0.07	0.048	0.06	-0.09
Cheek	L	LTE Band26	26965	841.5	36RB-Low	/	22.85	23.5	0.115	0.13	0.088	0.10	0.06
Tilt	L	LTE Band26	26965	841.5	36RB-Low	/	22.85	23.5	0.064	0.07	0.048	0.06	-0.11
Cheek	R	LTE Band26	26965	841.5	36RB-Low	/	22.85	23.5	0.114	0.13	0.089	0.10	-0.13
Tilt	R	LTE Band26	26965	841.5	36RB-Low	/	22.85	23.5	0.072	0.08	0.057	0.07	-0.05
Cheek	L	LTE Band5	20450	829	UL CA_5B	Note1	23.84	24.5	0.112	0.13	0.085	0.10	0.07
Body	F	LTE Band26	26965	841.5	1RB-Mid Front 10mm	/	23.79	24.5	0.096	0.11	0.069	0.08	0.13
Body	F	LTE Band26	26965	841.5	1RB-Mid Rear 10mm	18	23.79	24.5	0.19	0.22	0.116	0.14	-0.08
Body	F	LTE Band26	26965	841.5	1RB-Mid Left Edge 10mm	/	23.79	24.5	0.054	0.06	0.035	0.04	-0.04
Body	F	LTE Band26	26965	841.5	1RB-Mid Right Edge 10mm	/	23.79	24.5	0.089	0.10	0.059	0.07	0.09
Body	F	LTE Band26	26965	841.5	1RB-Mid Bottom Edge 10mm	/	23.79	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band26	26965	841.5	36RB-Low Front 10mm	/	22.85	23.5	0.087	0.10	0.055	0.06	0.02
Body	F	LTE Band26	26965	841.5	36RB-Low Rear 10mm	/	22.85	23.5	0.148	0.17	0.089	0.10	-0.02
Body	F	LTE Band26	26965	841.5	36RB-Low Left Edge 10mm	/	22.85	23.5	0.047	0.05	0.031	0.04	-0.17
Body	F	LTE Band26	26965	841.5	36RB-Low Right Edge 10mm	/	22.85	23.5	0.076	0.09	0.05	0.06	0.03
Body	F	LTE Band26	26965	841.5	36RB-Low Bottom Edge 10mm	/	22.85	23.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band5	20450	829	UL CA_5B Rear 10mm	Note1	23.84	24.5	0.154	0.18	0.103	0.12	-0.05
Cheek	L	LTE B41 PC3	41490	2680	1RB-Middle	19	24.21	24.5	0.058	0.06	0.029	0.03	-0.03
Tilt	L	LTE B41 PC3	41490	2680	1RB-Middle	/	24.21	24.5	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE B41 PC3	41490	2680	1RB-Middle	/	24.21	24.5	0.038	0.04	0.019	0.02	0.18
Tilt	R	LTE B41 PC3	41490	2680	1RB-Middle	/	24.21	24.5	0.038	0.04	0.016	0.02	0.15
Cheek	L	LTE B41 PC3	41490	2680	50RB-Low	/	23.19	23.5	0.046	0.05	0.023	0.02	-0.05
Tilt	L	LTE B41 PC3	41490	2680	50RB-Low	/	23.19	23.5	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE B41 PC3	41490	2680	50RB-Low	/	23.19	23.5	0.033	0.04	0.016	0.02	-0.18
Tilt	R	LTE B41 PC3	41490	2680	50RB-Low	/	23.19	23.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41 PC3	41490	2680	1RB-Middle Front 10mm	/	24.21	24.5	0.148	0.16	0.078	0.08	0.04
Body	F	LTE B41 PC3	41490	2680	1RB-Middle Rear 10mm	20	24.21	24.5	0.281	0.30	0.142	0.15	-0.06
Body	F	LTE B41 PC3	41490	2680	1RB-Middle Left 10mm	/	24.21	24.5	0.107	0.11	0.057	0.06	0.17
Body	F	LTE B41 PC3	41490	2680	1RB-Middle Right 10mm	/	24.21	24.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41 PC3	41490	2680	1RB-Middle Bottom 10mm	/	24.21	24.5	0.205	0.22	0.094	0.10	-0.14
Body	F	LTE B41 PC3	41490	2680	50RB-Low Front 10mm	/	23.19	23.5	0.105	0.11	0.053	0.06	-0.07
Body	F	LTE B41 PC3	41490	2680	50RB-Low Rear 10mm	/	23.19	23.5	0.199	0.21	0.098	0.11	-0.14
Body	F	LTE B41 PC3	41490	2680	50RB-Low Left 10mm	/	23.19	23.5	0.084	0.09	0.044	0.05	-0.12
Body	F	LTE B41 PC3	41490	2680	50RB-Low Right 10mm	/	23.19	23.5	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41 PC3	41490	2680	50RB-Low Bottom 10mm	/	23.19	23.5	0.141	0.15	0.062	0.07	-0.09
Cheek	L	LTE B41 PC2	41490	2680	1RB-Middle	21	26.94	27	0.105	0.11	0.053	0.05	-0.06
Tilt	L	LTE B41 PC2	41490	2680	1RB-Middle	/	26.94	27	0.039	0.04	0.021	0.02	0.14
Cheek	R	LTE B41 PC2	41490	2680	1RB-Middle	/	26.94	27	0.074	0.08	0.039	0.04	0.03
Tilt	R	LTE B41 PC2	41490	2680	1RB-Middle	/	26.94	27	0.052	0.05	0.026	0.03	0.05
Cheek	L	LTE B41 PC2	41490	2680	50RB-Low	/	25.96	26	0.079	0.08	0.042	0.04	-0.08
Tilt	L	LTE B41 PC2	41490	2680	50RB-Low	/	25.96	26	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE B41 PC2	41490	2680	50RB-Low	/	25.96	26	0.054	0.05	0.03	0.03	0.1
Tilt	R	LTE B41 PC2	41490	2680	50RB-Low	/	25.96	26	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41 PC2	41490	2680	1RB-Middle Front 10mm	/	26.94	27	0.228	0.23	0.119	0.12	-0.17
Body	F	LTE B41 PC2	41490	2680	1RB-Middle Rear 10mm	22	26.94	27	0.346	0.35	0.179	0.18	-0.16
Body	F	LTE B41 PC2	41490	2680	1RB-Middle Left 10mm	/	26.94	27	0.173	0.18	0.092	0.09	0.1
Body	F	LTE B41 PC2	41490	2680	1RB-Middle Right 10mm	/	26.94	27	0.062	0.06	0.03	0.03	0.02
Body	F	LTE B41 PC2	41490	2680	1RB-Middle Bottom 10mm	/	26.94	27	0.276	0.28	0.128	0.13	-0.15
Body	F	LTE B41 PC2	41490	2680	50RB-Low Front 10mm	/	25.96	26	0.171	0.17	0.091	0.09	-0.11
Body	F	LTE B41 PC2	41490	2680	50RB-Low Rear 10mm	/	25.96	26	0.274	0.28	0.141	0.14	-0.08
Body	F	LTE B41 PC2	41490	2680	50RB-Low Left 10mm	/	25.96	26	0.127	0.13	0.069	0.07	-0.06
Body	F	LTE B41 PC2	41490	2680	50RB-Low Right 10mm	/	25.96	26	0.031	0.03	0.012	0.01	0.1
Body	F	LTE B41 PC2	41490	2680	50RB-Low Bottom 10mm	/	25.96	26	0.164	0.17	0.082	0.08	0.05

Note1: They are spot check results for UL CA_5B.

Table 14.1-5: SAR Values- LTE B66/B71

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	LTE Band66	132322	1745	1RB-Mid	/	23.88	24.8	0.107	0.13	0.069	0.09	0.18
Tilt	L	LTE Band66	132322	1745	1RB-Mid	/	23.88	24.8	0.08	0.10	0.051	0.06	-0.12
Cheek	R	LTE Band66	132322	1745	1RB-Mid	23	23.88	24.8	0.149	0.18	0.097	0.12	0.05
Tilt	R	LTE Band66	132322	1745	1RB-Mid	/	23.88	24.8	0.087	0.11	0.056	0.07	0.04
Cheek	L	LTE Band66	132322	1745	50RB-Mid	/	22.85	23.8	0.084	0.10	0.054	0.07	-0.05
Tilt	L	LTE Band66	132322	1745	50RB-Mid	/	22.85	23.8	0.061	0.08	0.039	0.05	0.18
Cheek	R	LTE Band66	132322	1745	50RB-Mid	/	22.85	23.8	0.117	0.15	0.073	0.09	-0.15
Tilt	R	LTE Band66	132322	1745	50RB-Mid	/	22.85	23.8	0.062	0.08	0.041	0.05	-0.16
Cheek	R	LTE Band66	132022	1715	UL CA_66B	Note1	23.38	24.8	0.104	0.14	0.074	0.10	-0.07
Cheek	R	LTE Band66	132572	1770	UL CA_66C	Note2	23.32	24.8	0.118	0.17	0.081	0.11	0.15
Body	F	LTE Band66	132322	1745	1RB-Mid Front 10mm	/	23.88	24.8	0.315	0.39	0.158	0.20	0.08
Body	F	LTE Band66	132322	1745	1RB-Mid Rear 10mm	24	23.88	24.8	0.441	0.55	0.248	0.31	-0.03
Body	F	LTE Band66	132322	1745	1RB-Mid Left Edge 10mm	/	23.88	24.8	0.041	0.05	0.024	0.03	0.15
Body	F	LTE Band66	132322	1745	1RB-Mid Right Edge 10mm	/	23.88	24.8	0.186	0.23	0.111	0.14	0.06
Body	F	LTE Band66	132322	1745	1RB-Mid Bottom Edge 10mm	/	23.88	24.8	0.426	0.53	0.206	0.25	0.13
Body	F	LTE Band66	132322	1745	50RB-Mid Front 10mm	/	22.85	23.8	0.227	0.28	0.118	0.15	-0.08
Body	F	LTE Band66	132322	1745	50RB-Mid Rear 10mm	/	22.85	23.8	0.352	0.44	0.195	0.24	-0.16
Body	F	LTE Band66	132322	1745	50RB-Mid Left Edge 10mm	/	22.85	23.8	0.078	0.10	0.046	0.06	-0.06
Body	F	LTE Band66	132322	1745	50RB-Mid Right Edge 10mm	/	22.85	23.8	0.163	0.20	0.097	0.12	-0.1
Body	F	LTE Band66	132322	1745	50RB-Mid Bottom Edge 10mm	/	22.85	23.8	0.328	0.41	0.16	0.20	0.15
Body	F	LTE Band66	132022	1715	UL CA_66B Rear 10mm	Note1	23.38	24.8	0.354	0.49	0.185	0.26	0.07
Body	F	LTE Band66	132572	1770	UL CA_66C Rear 10mm	Note2	23.32	24.8	0.378	0.53	0.207	0.29	-0.13
Cheek	L	LTE Band71	133322	683	1RB-Mid	25	23.48	24	0.035	0.04	0.027	0.03	0.07
Tilt	L	LTE Band71	133322	683	1RB-Mid	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE Band71	133322	683	1RB-Mid	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Tilt	R	LTE Band71	133322	683	1RB-Mid	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Cheek	L	LTE Band71	133322	683	50RB-Low	/	22.55	23	0.023	0.03	0.018	0.02	0.01
Tilt	L	LTE Band71	133322	683	50RB-Low	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	LTE Band71	133322	683	50RB-Low	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Tilt	R	LTE Band71	133322	683	50RB-Low	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	1RB-Mid Front 10mm	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	1RB-Mid Rear 10mm	26	23.48	24	0.08	0.09	0.061	0.07	0.03
Body	F	LTE Band71	133322	683	1RB-Mid Left Edge 10mm	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	1RB-Mid Right Edge 10mm	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	1RB-Mid Bottom Edge 10mm	/	23.48	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	50RB-Low Front 10mm	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	50RB-Low Rear 10mm	/	22.55	23	0.057	0.06	0.043	0.05	-0.12
Body	F	LTE Band71	133322	683	50RB-Low Left Edge 10mm	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	50RB-Low Right Edge 10mm	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE Band71	133322	683	50RB-Low Bottom Edge 10mm	/	22.55	23	<0.01	<0.01	<0.01	<0.01	/

Note1: They are spot check results for UL CA_66B.

Note2: They are spot check results for UL CA_66C.

14.2 SAR Evaluation for WIFI

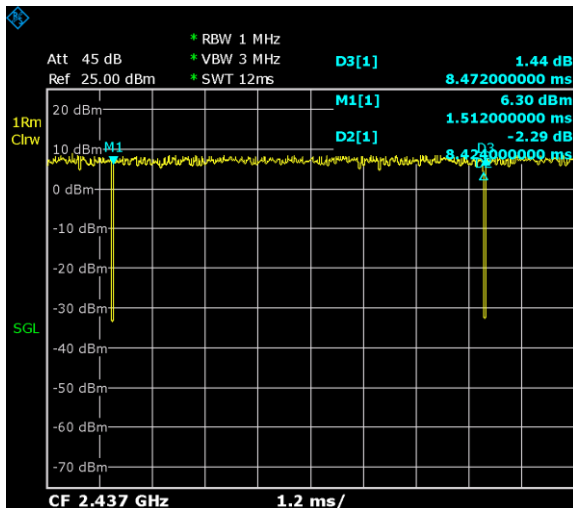
The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default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

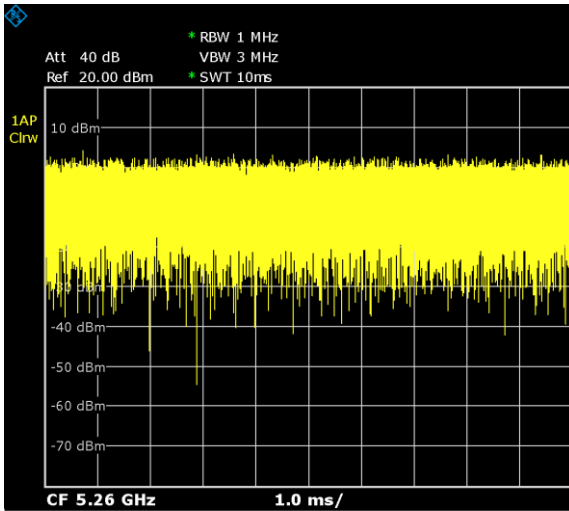
Duty factor plot

CH6

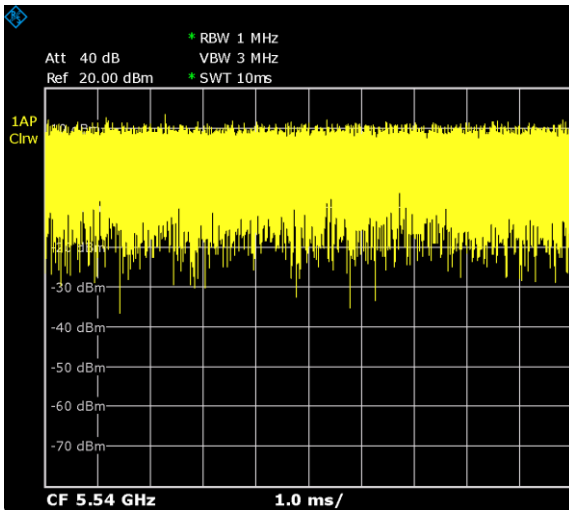




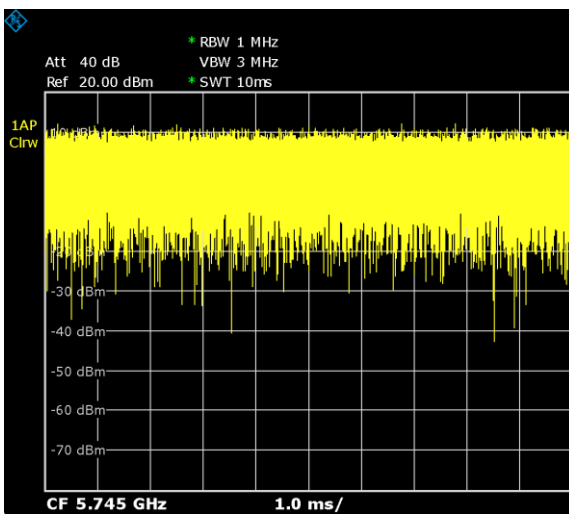
CH52



CH108



CH149





No. 23T04Z80263-19

SAR results for WLAN 2.4G

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Duty Cycle	Scaled SAR 1g (W/kg)	Power Drift
802.11b 1M 17.5dB													
Cheek	L	WIFI2.4G	6	2437		/	17.95	19	0.161	0.21	99.43%	0.21	-0.16
Tilt	L	WIFI2.4G	6	2437		/	17.95	19	0.15	0.19	99.43%	0.19	-0.01
Cheek	R	WIFI2.4G	6	2437		27	17.95	19	0.362	0.46	99.43%	0.46	0.05
Tilt	R	WIFI2.4G	6	2437		/	17.95	19	0.34	0.43	99.43%	0.44	-0.07
802.11b 1M 19dB													
Body	F	WIFI2.4G	11	2462	Front 10mm	/	19.49	20.5	0.155	0.20	99.43%	0.20	0.14
Body	F	WIFI2.4G	11	2462	Rear 10mm	28	19.49	20.5	0.207	0.26	99.43%	0.26	-0.07
Body	F	WIFI2.4G	11	2462	Left 10mm	/	19.49	20.5	0.145	0.18	99.43%	0.18	0.07
Body	F	WIFI2.4G	11	2462	Top 10mm	/	19.49	20.5	0.115	0.15	99.43%	0.15	-0.04

SAR results for WLAN 5G

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig No.	EUT Measured Power (dBm)	Tune up (dBm)	Measured SAR 1g (W/kg)	Calculated SAR 1g (W/kg)	Duty Cycle	Scaled SAR 1g (W/kg)	Power Drift
802.11a 6M 11dB													
Cheek	L	WIFI5G	52	5260		/	8.94	10.5	0.16	0.23	100.00%	0.23	-0.03
Tilt	L	WIFI5G	52	5260		/	8.94	10.5	0.162	0.23	100.00%	0.23	-0.15
Cheek	R	WIFI5G	52	5260		/	8.94	10.5	0.218	0.31	100.00%	0.31	-0.07
Tilt	R	WIFI5G	52	5260		29	8.94	10.5	0.263	0.38	100.00%	0.38	0.01
802.11a 6M 10dB													
Cheek	L	WIFI5G	112	5560		/	10.19	10.5	0.096	0.10	100.00%	0.10	-0.07
Tilt	L	WIFI5G	112	5560		/	10.19	10.5	0.132	0.14	100.00%	0.14	-0.14
Cheek	R	WIFI5G	112	5560		/	10.19	10.5	0.179	0.19	100.00%	0.19	0.09
Tilt	R	WIFI5G	112	5560		/	10.19	10.5	0.168	0.18	100.00%	0.18	-0.08
802.11a 6M 11dB													
Cheek	L	WIFI5G	149	5745		/	9.25	10.5	0.122	0.16	100.00%	0.16	0.11
Tilt	L	WIFI5G	149	5745		/	9.25	10.5	0.135	0.18	100.00%	0.18	0.06
Cheek	R	WIFI5G	149	5745		/	9.25	10.5	0.17	0.23	100.00%	0.23	0.11
Tilt	R	WIFI5G	149	5745		/	9.25	10.5	0.166	0.22	100.00%	0.22	-0.13
802.11a 6M 18.5dB													
Body	F	WIFI5G	52	5260	Front 15mm	/	17.34	18	0.145	0.17	100.00%	0.17	-0.04
Body	F	WIFI5G	52	5260	Rear 15mm	/	17.34	18	0.156	0.18	100.00%	0.18	-0.08
802.11a 6M 16.5dB													
Body	F	WIFI5G	108	5540	Front 15mm	/	17.47	18	0.134	0.15	100.00%	0.15	0.17
Body	F	WIFI5G	108	5540	Rear 15mm	/	17.47	18	0.166	0.19	100.00%	0.19	-0.01
802.11a 6M 18.5dB													
Body	F	WIFI5G	149	5745	Front 15mm	/	17.55	18	0.159	0.18	100.00%	0.18	0.18
Body	F	WIFI5G	149	5745	Rear 15mm	30	17.55	18	0.225	0.25	100.00%	0.25	0.06
802.11a 6M 14dB													
Body	F	WIFI5G	52	5260	Front 10mm	/	12.06	13.5	0.102	0.14	100.00%	0.14	0.02
Body	F	WIFI5G	52	5260	Rear 10mm	/	12.06	13.5	0.124	0.17	100.00%	0.17	-0.02
Body	F	WIFI5G	52	5260	Left 10mm	/	12.06	13.5	0.05	0.07	100.00%	0.07	0.1
Body	F	WIFI5G	52	5260	Top 10mm	31	12.06	13.5	0.177	0.25	100.00%	0.25	0.06
802.11a 6M 13dB													
Body	F	WIFI5G	112	5560	Front 10mm	/	13.27	13.5	0.081	0.09	100.00%	0.09	-0.02
Body	F	WIFI5G	112	5560	Rear 10mm	/	13.27	13.5	0.087	0.09	100.00%	0.09	0.12
Body	F	WIFI5G	112	5560	Left 10mm	/	13.27	13.5	0.042	0.04	100.00%	0.04	-0.04
Body	F	WIFI5G	112	5560	Top 10mm	/	13.27	13.5	0.177	0.19	100.00%	0.19	-0.02
802.11a 6M 14dB													
Body	F	WIFI5G	149	5745	Front 10mm	/	12.29	13.5	0.067	0.09	100.00%	0.09	0.11
Body	F	WIFI5G	149	5745	Rear 10mm	/	12.29	13.5	0.071	0.09	100.00%	0.09	-0.06
Body	F	WIFI5G	149	5745	Left 10mm	/	12.29	13.5	0.038	0.05	100.00%	0.05	0.04
Body	F	WIFI5G	149	5745	Top 10mm	/	12.29	13.5	0.14	0.18	100.00%	0.18	-0.06



No. 23T04Z80263-19

14.3 SAR Evaluation For BT

SAR results for BT

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup/Position	Note/ Fig 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
Cheek	L	BT	78	2480	DH5	/	12.69	13	<0.01	<0.01	<0.01	<0.01	/
Tilt	L	BT	78	2480	DH5	/	12.69	13	<0.01	<0.01	<0.01	<0.01	/
Cheek	R	BT	78	2480	DH5	/	12.69	13	0.033	0.04	0.015	0.02	0.12
Tilt	R	BT	78	2480	DH5	32	12.69	13	0.054	0.06	0.021	0.02	0.04
Body	F	BT	78	2480	DH5 Front 10mm	33	12.69	13	0.015	0.02	0.007	0.01	-0.06
Body	F	BT	78	2480	DH5 Rear 10mm	/	12.69	13	0.013	0.01	0.006	0.01	-0.11
Body	F	BT	78	2480	DH5 Left Edge 10mm	/	12.69	13	<0.01	<0.01	<0.01	<0.01	/
Body	F	BT	78	2480	DH5 Top Edge 10mm	/	12.69	13	0.008	0.01	0.004	0.00	0.04



14.4 SAR results for 10-g extremity SAR

According to the KDB648474 D04, 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.

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

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	$\sqrt{3}$	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	RF ambient 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	4.0	R	$\sqrt{3}$	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	$\sqrt{3}$	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	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞

	(target)									
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	$\sqrt{3}$	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	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	0.4	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	∞
14	Fast SAR z-Approximation	B	7.0	R	$\sqrt{3}$	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	$\sqrt{3}$	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		$u_c = \sqrt{\sum_{i=1}^{22} c_i^2 u_i^2}$						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	A	3.3	N	1	1	1	3.3	3.3	71

	positioning									
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	E5071C	MY46110673	January 5, 2023	One year
02	Power sensor	NRP110T	101139	January 13, 2023	One year
03	Power sensor	NRP110T	101159	January 13, 2023	One year
04	Signal Generator	E4438C	MY49071430	January 19, 2023	One year
05	Amplifier	60S1G4	0331848	No Calibration Requested	
06	BTS	CMW500	159889	January 6, 2023	One year
07	E-field Probe	SPEAG EX3DV4	7727	June 5, 2023	One year
08	DAE	SPEAG DAE4	1807	May 15, 2023	One year
09	Dipole Validation Kit	SPEAG D750V3	1017	July 14,2023	One year
10	Dipole Validation Kit	SPEAG D835V2	4d069	July 14,2023	One year
11	Dipole Validation Kit	SPEAG D1800V2	2d145	July 12,2023	One year
12	Dipole Validation Kit	SPEAG D1900V2	5d101	July 17,2023	One year
13	Dipole Validation Kit	SPEAG D2450V2	853	July 11,2023	One year
14	Dipole Validation Kit	SPEAG D2600V2	1012	July 11,2023	One year
15	Dipole Validation Kit	SPEAG D5GHzV2	1060	June 19,2023	One year

END OF REPORT BODY



No. 23T04Z80263-19

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**