



No.I23Z61525-SEM03



SAR TEST REPORT

No. I23Z61525-SEM03

For

TCL Communication Ltd.

LTE Mobile phone

Model Name: T434W

with

Hardware Version: 03

Software Version: 6VS7

FCC ID: 2ACCJH177

Issued Date: 2023-9-11

Note:

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Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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

Tel: +86(0)10-62304633-2512, Fax: +86(0)10-62304633-2504

Email: ctl_terminals@caict.ac.cn, website: www.caict.ac.cn

REPORT HISTORY

Report Number	Revision	Issue Date	Description
I23Z61525-SEM03	Rev.0	2023-9-7	Initial creation of test report
I23Z61525-SEM03	Rev.1	2023-9-11	1. Add conductive power of UL CA_41C on page61. 2. Add verified power of downlink CA on page 62. 3. Add SAR evaluation results for UL CA_41C on page75.

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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 Location

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

1.4 Testing Environment

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

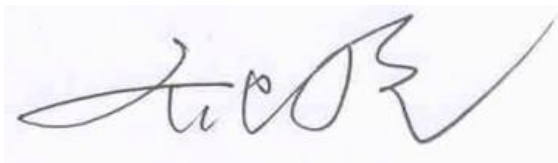
1.5 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Yao Juming
Testing Start Date:	August 8, 2023
Testing End Date:	September 4, 2023

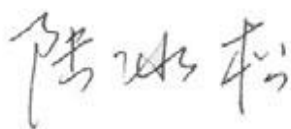
1.6 Signature



Yao Juming
(Prepared this test report)



Qi Dianyuan
(Reviewed this test report)



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 TCL Communication Ltd. LTE Mobile phone T434W is as follows:

Table 2.1: Highest Reported SAR (1g)

Technology Band	Head	Hotspot	Body-Worn	Phablet-10g	Equipment Class
LTE B12	0.65	0.60	0.51	/	PCE
LTE B2/B25	0.47	0.62	0.62	/	
LTE B5/B26	0.66	0.41	0.33	/	
LTE B41-PC3	0.36	0.51	0.28	/	
LTE B41-PC2	0.50	0.71	0.35	/	
LTE B4/B66	0.39	0.74	0.69	/	
LTE B71	0.43	0.39	0.36	/	
WLAN 2.4GHz	1.07	0.56	0.25	/	DTS
WLAN 5GHz	0.86	1.28	0.94	2.24	NII
BT	0.07	0.01	0.01	/	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 15/10 mm between this device and the body of the user. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

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

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

Head: 1.07 W/kg(1g)

Body: 1.28 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	Left head, Cheek (LTE B26)	0.49	0.69	1.18
Highest SAR value for Body	Rear 10mm (LTE B66)	0.74	0.56	1.30

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 (LTE B12)	0.64	0.40	<0.01	1.04
Highest SAR value for Body	Rear 10mm (LTE B66)	0.74	0.69	0.01	1.44

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.

According to the above tables, the highest sum of reported SAR values is **1.44 W/kg (1g)**. The detail for simultaneous transmission consideration is described in chapter 13.

3 Client Information

3.1 Applicant Information

Company Name:	TCL Communication Ltd.
Address/Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Annie Jiang
Contact Email:	nianxiang.jiang@tcl.com
Telephone:	+86 755 3661 1621

3.2 Manufacturer Information

Company Name:	TCL Communication Ltd.
Address/Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact Person:	Annie Jiang
Contact Email:	nianxiang.jiang@tcl.com
Telephone:	+86 755 3661 1621

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

4.1 About EUT

Description:	LTE Mobile phone
Model name:	T434W
Operating mode(s):	LTE Band2/4/5/12/25/26/41/66/71 BT, Wi-Fi(2.4G/5G)
Tested Tx Frequency:	699.7 – 715.3 MHz (LTE Band 12)
	1850.7 – 1914.3 MHz (LTE Band 25)
	814.7–848.3 MHz (LTE Band 26)
	2498.5 – 2687.5 MHz (LTE Band41)
	1710.7 –1779.3 MHz (LTE Band 66)
	665.5 –695.5 MHz (LTE Band 71)
	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:	N/A
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	016459000201061	03	6SV7
EUT2	016459000201319	03	6SV7
EUT3	016459000201400	03	6SV7
EUT4	016459000201145	03	6SV7
EUT5	016459000205211	03	6SV7
EUT6	016459000201111	03	6SV7

*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 EUT4~6.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	TLp038F7	/	VEKEN

*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

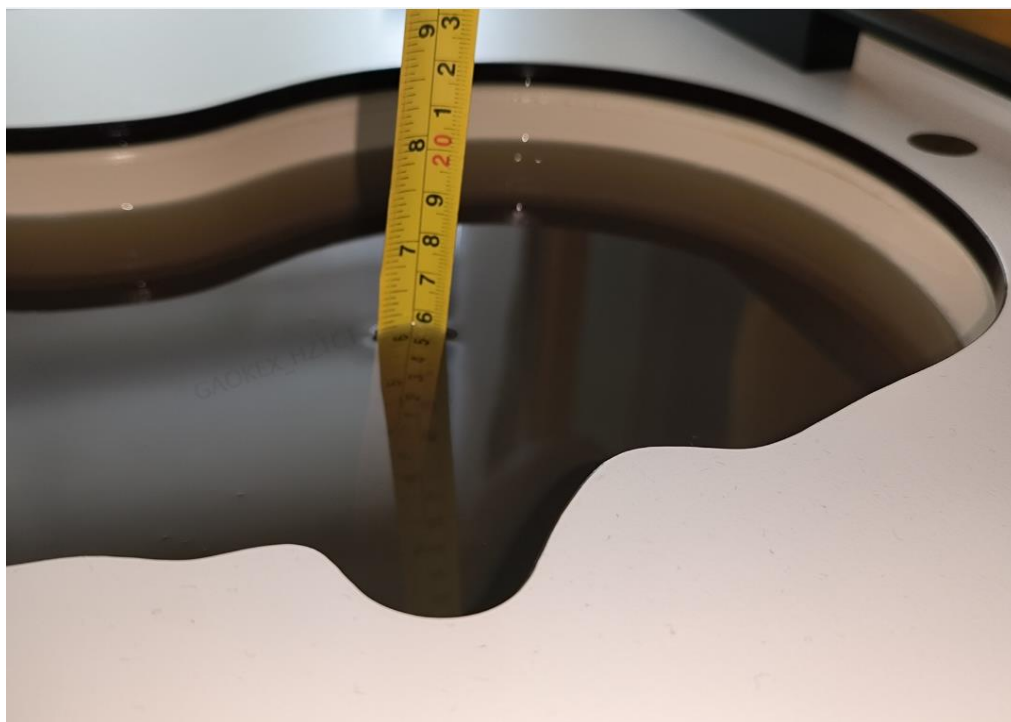
Frequency(MHz)	Liquid Type	Conductivity(σ)	$\pm 5\%$ Range	Permittivity(ϵ)	$\pm 5\%$ Range
750	Head	0.89	0.85~0.93	41.94	39.8~44.0
835	Head	0.90	0.86~0.95	41.5	39.4~43.6
1750	Head	1.37	1.30~1.44	40.08	38.1~42.1
1900	Head	1.40	1.33~1.47	40.0	38.0~42.0
2450	Head	1.67	1.59~1.75	39.47	37.5~41.4
2600	Head	1.96	1.76~2.16	39.01	35.11~42.91
5250	Head	4.71	4.47~4.95	35.93	34.13~37.73
5600	Head	5.07	4.82~5.32	35.53	33.8~37.3
5750	Head	5.22	4.96~5.48	35.36	33.59~37.13

7.2 Dielectric Performance

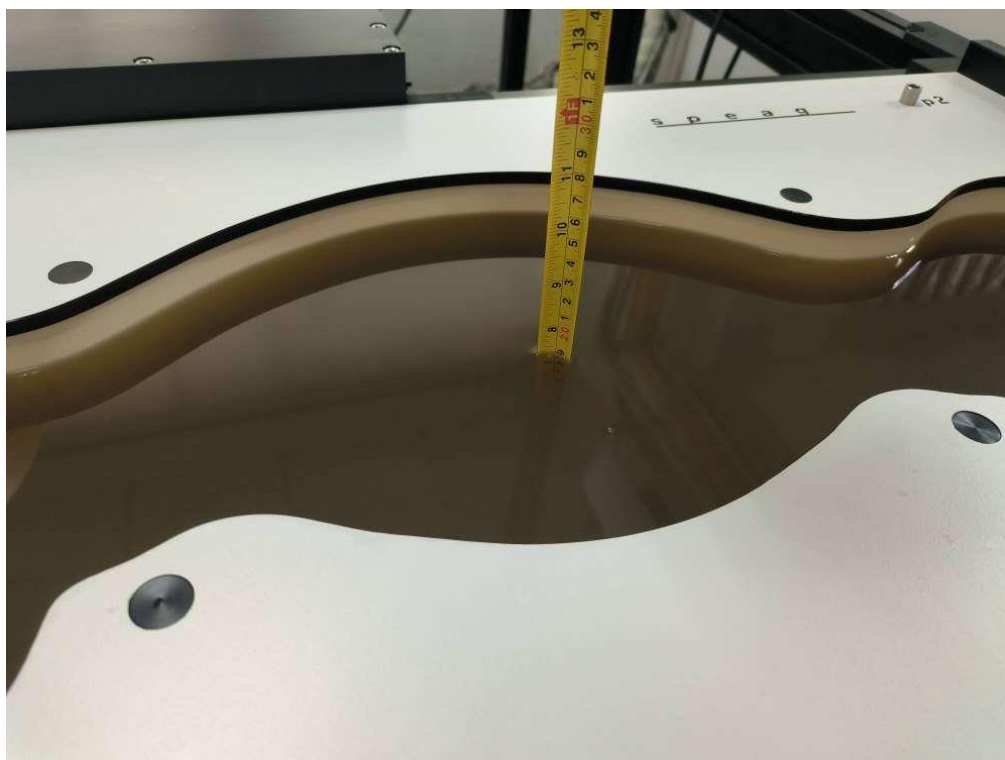
Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ϵ	Drift (%)	Conductivity σ (S/m)	Drift (%)
2023-8-20	Head	750 MHz	42.352	0.98	0.907	1.91
2023-8-8	Head	835 MHz	41.142	-0.86	0.918	2.00
2023-8-11	Head	1800 MHz	40.924	2.31	1.41	0.71
2023-8-17	Head	1900 MHz	39.872	-0.32	1.432	2.29
2023-8-23	Head	2450 MHz	39.946	1.90	1.826	1.44
2023-8-26	Head	2600 MHz	38.95	-0.15	1.974	0.71
2023-9-1	Head	5250 MHz	35.324	-1.85	4.809	3.20
2023-9-2	Head	5600 MHz	36.792	2.57	4.727	-0.69
2023-9-4	Head	5750 MHz	35.197	-0.94	5.182	2.21

Note: The liquid temperature is 22.0°C



Picture 7-1 Liquid depth in the Head Phantom

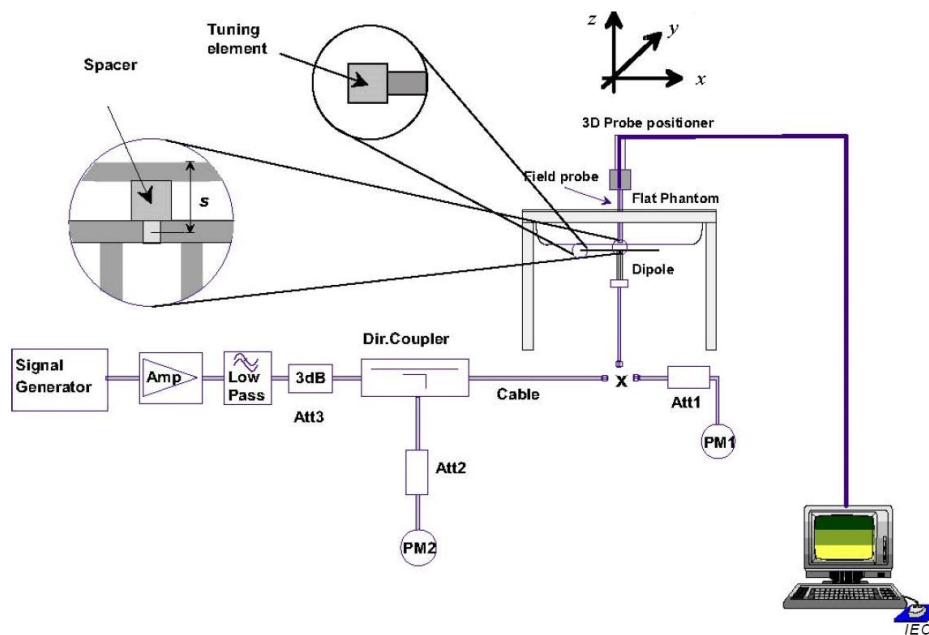


Picture 7-2 Liquid depth in the Flat Phantom

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
2023-8-20	750 MHz	5.49	8.42	5.36	8.28	-2.37%	-1.66%
2023-8-8	835 MHz	6.25	9.62	6.2	9.52	-0.80%	-1.04%
2023-8-11	1800 MHz	19.8	37.9	19.92	37.64	0.61%	-0.69%
2023-8-17	1900 MHz	20.7	39.8	20.6	39.68	-0.48%	-0.30%
2023-8-23	2450 MHz	24.7	52.1	25.32	53.68	2.51%	3.03%
2023-8-26	2600 MHz	25.1	55.2	25.6	56.48	1.99%	2.32%
2023-9-1	5250 MHz	22.8	79.6	22.5	79.1	-1.32%	-0.63%
2023-9-2	5600 MHz	23.8	83.6	24.4	85.3	2.52%	2.03%
2023-9-4	5750 MHz	22.7	80.5	23.1	81.2	1.76%	0.87%

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.

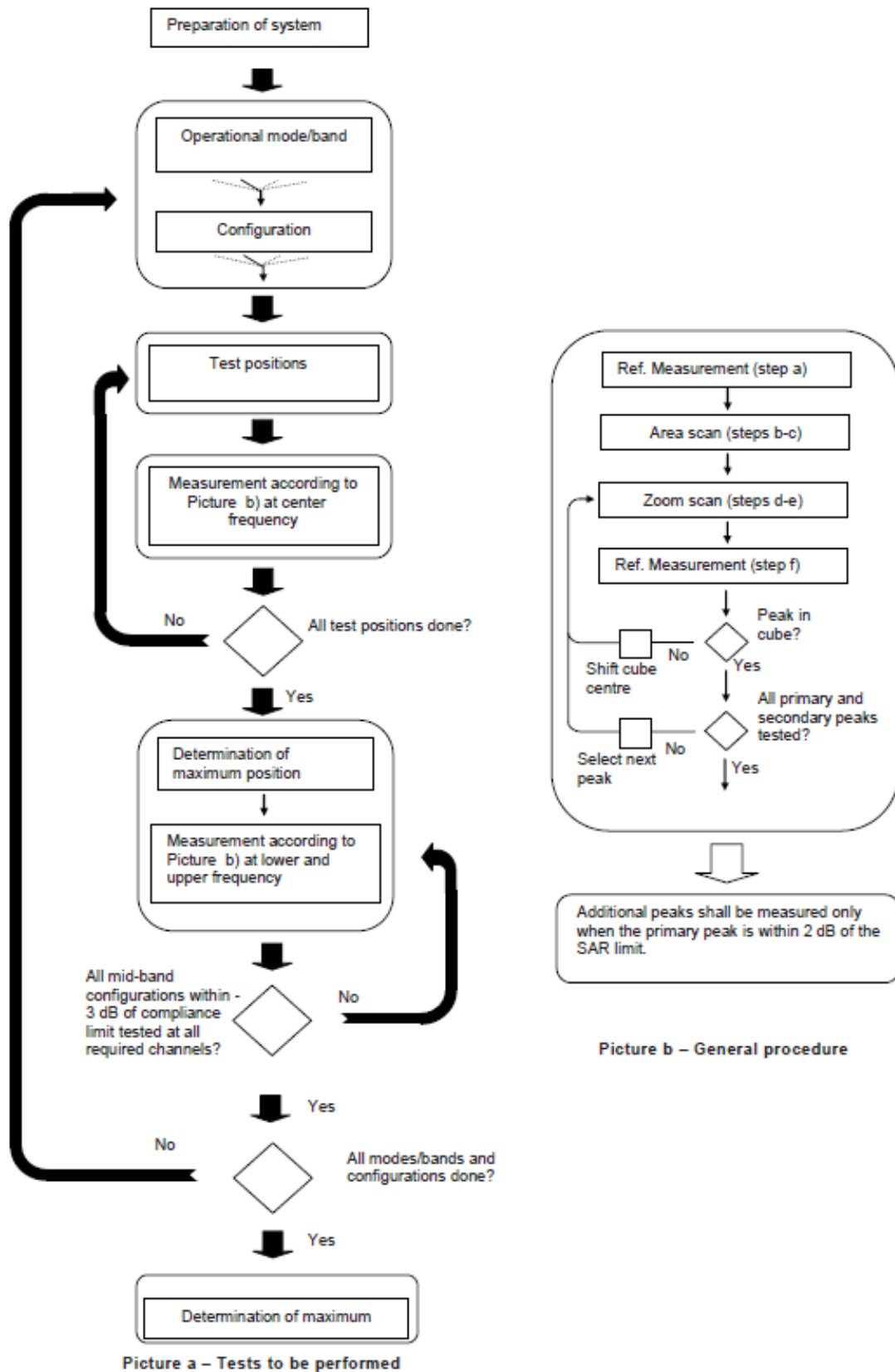
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

- 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 9.1Block 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	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.				
* When zoom scan is required and the <u>reported</u> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

9.3 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.

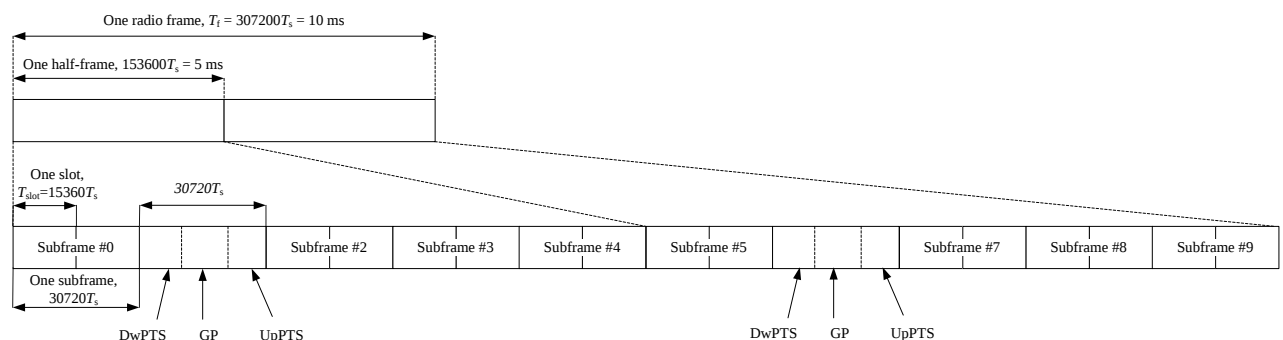


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Table 9.2: Uplink-downlink configurations

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

Duty factor is calculated by:

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

9.4 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.

9.5 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

11.1 LTE Measurement result

Table11.1: Summary of Receiver detection mechanism-WWAN

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

Maximum Target Power for Production Unit

Band	Receiver off+ Hotspot off	Receiver on+ Hotspot off	Receiver off+ Hotspot on
	DSI0	DSI1	DSI2
LTE B12	25	25	25
LTE B25	24	25	22
LTE B26	25	24	25
LTE B41-PC3	25	25	25
LTE B41-PC2	28	28	28
LTE B66	24	25	22
LTE B71	24.5	24.5	24.5

LTE B12 –DSI 0/1/2

LTE B12					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	715.3	24.12	22.77	21.76
		707.5	23.61	22.81	21.86
		699.7	23.66	22.86	21.87
	1RB-Middle (3)	715.3	24.26	22.97	21.93
		707.5	23.75	22.98	21.90
		699.7	23.81	23.03	21.95
	1RB-Low (0)	715.3	24.14	22.73	21.78
		707.5	23.64	22.74	21.83
		699.7	23.62	22.93	21.86
	3RB-High (3)	715.3	23.76	22.70	21.73
		707.5	23.75	22.69	21.84
		699.7	23.78	22.69	21.89
	3RB-Middle (1)	715.3	23.81	22.78	21.84
		707.5	23.81	22.75	21.86
		699.7	23.79	22.72	21.87
	3RB-Low (0)	715.3	23.75	22.69	21.79
		707.5	23.73	22.61	21.85

	6RB (0)	699.7	23.74	22.66	21.81
		715.3	22.74	21.84	20.77
		707.5	22.76	21.87	20.76
		699.7	22.76	21.87	20.75
3MHz	1RB-High (14)	714.5	24.16	22.85	21.82
		707.5	23.66	22.80	21.89
		700.5	23.70	22.98	22.34
	1RB-Middle (7)	714.5	24.31	22.99	21.99
		707.5	23.79	23.03	22.16
		700.5	23.83	22.97	22.48
	1RB-Low (0)	714.5	24.16	22.89	21.84
		707.5	23.67	22.93	21.92
		700.5	23.69	22.88	22.17
	8RB-High (7)	714.5	23.19	21.75	20.76
		707.5	22.79	21.78	21.22
		700.5	22.71	21.80	21.26
	8RB-Middle (4)	714.5	23.24	21.80	20.84
		707.5	23.04	21.80	21.30
		700.5	22.78	21.88	21.28
	8RB-Low (0)	714.5	23.13	21.79	20.85
		707.5	23.13	21.87	21.24
		700.5	22.69	21.80	21.29
	15RB (0)	714.5	22.86	21.69	20.75
		707.5	23.22	21.95	21.23
		700.5	22.73	21.81	21.26
5MHz	1RB-High (24)	713.5	24.06	23.03	22.08
		707.5	24.08	22.79	22.13
		701.5	24.07	23.21	22.20
	1RB-Middle (12)	713.5	24.36	23.06	22.30
		707.5	24.40	23.13	22.45
		701.5	24.38	23.52	22.51
	1RB-Low (0)	713.5	24.07	22.79	21.89
		707.5	24.08	22.82	22.24
		701.5	24.11	23.20	22.27
	12RB-High (13)	713.5	23.13	21.63	21.13
		707.5	23.16	22.11	21.10
		701.5	23.18	22.20	21.27
	12RB-Middle (6)	713.5	23.23	21.78	21.27
		707.5	23.21	22.20	21.17
		701.5	23.20	22.17	21.32
	12RB-Low (0)	713.5	23.20	21.73	21.25
		707.5	23.22	22.17	21.15

	25RB (0)	701.5	23.12	22.10	21.20
		713.5	23.21	21.76	21.17
		707.5	23.20	22.17	21.22
		701.5	23.07	22.15	21.24
10MHz	1RB-High (49)	711	24.15	23.37	22.34
		707.5	24.10	23.25	22.26
		704	24.11	23.29	22.27
	1RB-Middle (24)	711	24.27	23.51	22.45
		707.5	24.28	23.49	22.38
		704	24.25	23.53	22.34
	1RB-Low (0)	711	24.18	23.32	22.27
		707.5	24.16	23.29	22.35
		704	24.20	23.41	22.36
	25RB-High (25)	711	23.19	22.16	21.17
		707.5	23.15	22.12	21.17
		704	23.24	22.19	21.24
	25RB-Middle (12)	711	23.25	22.24	21.26
		707.5	23.28	22.24	21.29
		704	23.29	22.22	21.28
	25RB-Low (0)	711	23.33	22.29	21.35
		707.5	23.34	22.21	21.24
		704	23.15	22.14	21.17
	50RB (0)	711	23.28	22.25	21.29
		707.5	23.24	22.20	21.22
		704	23.21	22.16	21.22

LTE B25 –DSI 0

LTE B25					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	22.94	23.13	22.13
		1882.5 (26365)	23.05	22.92	22.18
		1850.7 (26047)	23.16	23.36	22.33
	1RB-Middle (3)	1914.3 (26683)	23.06	23.26	22.21
		1882.5 (26365)	23.14	23.06	22.26
		1850.7 (26047)	23.32	23.47	22.44
	1RB-Low (0)	1914.3 (26683)	22.96	22.77	21.99
		1882.5 (26365)	23.06	23.21	22.23
		1850.7 (26047)	23.14	23.43	22.34
	3RB-High (3)	1914.3 (26683)	23.07	22.62	22.02
		1882.5 (26365)	23.15	23.03	22.15

			1850.7 (26047)	23.29	23.17	22.32
		3RB-Middle (1)	1914.3 (26683)	23.13	22.62	21.93
			1882.5 (26365)	23.21	23.00	22.27
			1850.7 (26047)	23.30	23.27	22.37
		3RB-Low (0)	1914.3 (26683)	23.07	22.53	21.92
			1882.5 (26365)	23.15	23.05	22.19
			1850.7 (26047)	23.25	23.23	22.35
		6RB (0)	1914.3 (26683)	23.11	21.65	20.97
			1882.5 (26365)	23.19	22.26	21.09
			1850.7 (26047)	23.27	22.37	21.20
3MHz	1RB-High (14)		1913.5 (26675)	22.99	23.21	22.21
			1882.5 (26365)	23.08	23.32	22.27
			1851.5 (26055)	23.14	23.36	22.25
	1RB-Middle (7)		1913.5 (26675)	23.12	23.41	22.32
			1882.5 (26365)	23.22	23.39	22.53
			1851.5 (26055)	23.33	23.55	22.55
	1RB-Low (0)		1913.5 (26675)	23.04	23.26	22.15
			1882.5 (26365)	23.08	23.35	22.25
			1851.5 (26055)	23.19	23.47	22.35
	8RB-High (7)		1913.5 (26675)	23.01	22.04	21.02
			1882.5 (26365)	23.11	22.16	21.13
			1851.5 (26055)	23.21	22.23	21.21
	8RB-Middle (4)		1913.5 (26675)	23.10	22.02	21.08
			1882.5 (26365)	23.16	22.19	21.14
			1851.5 (26055)	23.25	22.30	21.27
	8RB-Low (0)		1913.5 (26675)	23.09	22.14	21.07
			1882.5 (26365)	23.11	22.18	21.14
			1851.5 (26055)	23.21	22.24	21.23
	15RB (0)		1913.5 (26675)	23.06	22.04	21.01
			1882.5 (26365)	23.11	22.12	21.08
			1851.5 (26055)	23.23	22.20	21.18
5MHz	1RB-High (24)		1912.5 (26665)	22.90	23.08	21.97
			1882.5 (26365)	22.99	23.27	22.17
			1852.5 (26065)	23.04	23.29	22.13
	1RB-Middle (12)		1912.5 (26665)	23.19	23.38	22.31
			1882.5 (26365)	23.23	23.41	22.46
			1852.5 (26065)	23.38	23.58	22.47
	1RB-Low (0)		1912.5 (26665)	22.90	23.16	22.14
			1882.5 (26365)	22.99	23.20	22.10
			1852.5 (26065)	23.08	23.32	22.20
	12RB-High (13)		1912.5 (26665)	22.95	21.92	20.97
			1882.5 (26365)	23.16	22.11	21.12

		1852.5 (26065)	23.17	22.15	21.19
		1912.5 (26665)	23.11	22.05	21.10
	12RB-Middle (6)	1882.5 (26365)	23.16	22.14	21.14
		1852.5 (26065)	23.27	22.26	21.24
		1912.5 (26665)	23.09	22.07	21.06
	12RB-Low (0)	1882.5 (26365)	23.11	22.06	21.09
		1852.5 (26065)	23.19	22.17	21.17
		1912.5 (26665)	23.06	22.04	21.03
	25RB (0)	1882.5 (26365)	23.14	22.13	21.08
		1852.5 (26065)	23.25	22.21	21.19
10MHz	1RB-High (49)	1910 (26640)	22.99	23.16	22.05
		1882.5 (26365)	23.03	23.31	22.21
		1855 (26090)	23.12	23.31	22.24
	1RB-Middle (24)	1910 (26640)	23.12	23.24	22.26
		1882.5 (26365)	23.20	23.33	22.35
		1855 (26090)	23.25	23.40	22.38
	1RB-Low (0)	1910 (26640)	23.00	23.30	22.15
		1882.5 (26365)	23.05	23.30	22.26
		1855 (26090)	23.15	23.40	22.28
	25RB-High (25)	1910 (26640)	23.03	21.98	20.98
		1882.5 (26365)	23.21	22.20	21.15
		1855 (26090)	23.25	22.21	21.21
	25RB-Middle (12)	1910 (26640)	23.12	22.12	21.12
		1882.5 (26365)	23.19	22.17	21.15
		1855 (26090)	23.24	22.23	21.21
	25RB-Low (0)	1910 (26640)	23.15	22.13	21.11
		1882.5 (26365)	23.22	22.18	21.15
		1855 (26090)	23.26	22.24	21.20
	50RB (0)	1910 (26640)	23.09	22.08	21.06
		1882.5 (26365)	23.19	22.18	21.16
		1855 (26090)	23.26	22.21	21.18
15MHz	1RB-High (74)	1907.5 (26615)	22.97	23.21	22.17
		1882.5 (26365)	22.97	23.28	22.11
		1857.5 (26115)	23.02	23.16	22.11
	1RB-Middle (37)	1907.5 (26615)	23.06	23.32	22.22
		1882.5 (26365)	23.09	23.31	22.28
		1857.5 (26115)	23.15	23.30	22.23
	1RB-Low (0)	1907.5 (26615)	22.99	23.25	22.13
		1882.5 (26365)	23.06	23.22	22.13
		1857.5 (26115)	23.14	23.42	22.26
	36RB-High (38)	1907.5 (26615)	23.07	22.03	21.04
		1882.5 (26365)	23.17	22.12	21.15

	36RB-Middle (19)	1857.5 (26115)	23.20	22.13	21.15
		1907.5 (26615)	23.12	22.11	21.10
		1882.5 (26365)	23.16	22.13	21.16
		1857.5 (26115)	23.23	22.18	21.19
	36RB-Low (0)	1907.5 (26615)	23.19	22.14	21.16
		1882.5 (26365)	23.17	22.14	21.15
		1857.5 (26115)	23.24	22.20	21.21
	75RB (0)	1907.5 (26615)	23.13	22.10	21.07
		1882.5 (26365)	23.17	22.13	21.12
		1857.5 (26115)	23.20	22.17	21.16
20MHz	1RB-High (99)	1905 (26590)	22.84	23.12	22.10
		1882.5 (26365)	22.87	23.09	22.10
		1860 (26140)	22.95	23.16	22.09
	1RB-Middle (50)	1905 (26590)	23.08	23.33	22.31
		1882.5 (26365)	23.13	23.28	22.35
		1860 (26140)	23.17	23.34	22.38
	1RB-Low (0)	1905 (26590)	22.91	23.14	22.08
		1882.5 (26365)	22.94	23.24	22.10
		1860 (26140)	23.07	23.29	22.19
	50RB-High (50)	1905 (26590)	23.00	21.99	20.97
		1882.5 (26365)	23.14	22.13	21.12
		1860 (26140)	23.11	22.13	21.08
	50RB-Middle (25)	1905 (26590)	23.17	22.14	21.10
		1882.5 (26365)	23.17	22.14	21.13
		1860 (26140)	23.19	22.19	21.18
	50RB-Low (0)	1905 (26590)	23.16	22.25	21.24
		1882.5 (26365)	23.17	22.17	21.15
		1860 (26140)	23.17	22.18	21.13
	100RB (0)	1905 (26590)	23.12	22.10	21.10
		1882.5 (26365)	23.14	22.12	21.13
		1860 (26140)	23.14	22.12	21.11

LTE B25 –DSI 1

LTE B25					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	23.81	22.62	21.84
		1882.5 (26365)	23.46	22.67	21.59
		1850.7 (26047)	23.56	22.89	22.25
	1RB-Middle (3)	1914.3 (26683)	23.94	22.69	21.65
		1882.5 (26365)	23.58	22.73	21.76

	1RB-Low (0)	1850.7 (26047)	23.71	22.93	22.32
		1914.3 (26683)	23.85	22.63	21.55
		1882.5 (26365)	23.44	22.67	21.71
	3RB-High (3)	1850.7 (26047)	23.56	22.80	22.21
		1914.3 (26683)	23.93	22.40	21.53
		1882.5 (26365)	23.57	22.49	21.66
	3RB-Middle (1)	1850.7 (26047)	23.67	22.64	22.18
		1914.3 (26683)	23.66	22.49	21.61
		1882.5 (26365)	23.60	22.54	21.86
	3RB-Low (0)	1850.7 (26047)	23.72	22.68	22.27
		1914.3 (26683)	23.46	22.47	21.56
		1882.5 (26365)	23.57	22.51	22.01
3MHz	6RB (0)	1850.7 (26047)	23.68	22.71	22.25
		1914.3 (26683)	22.53	21.51	20.47
		1882.5 (26365)	22.58	21.69	20.99
	1RB-High (14)	1850.7 (26047)	22.70	21.79	21.15
		1913.5 (26675)	23.83	22.74	21.94
		1882.5 (26365)	23.66	22.68	21.87
	1RB-Middle (7)	1851.5 (26055)	23.86	23.01	22.19
		1913.5 (26675)	24.03	22.80	21.94
		1882.5 (26365)	23.68	22.78	22.12
	1RB-Low (0)	1851.5 (26055)	23.95	22.95	22.32
		1913.5 (26675)	23.88	22.62	21.58
		1882.5 (26365)	23.64	22.69	22.09
	8RB-High (7)	1851.5 (26055)	23.71	23.10	22.27
		1913.5 (26675)	22.94	21.49	20.61
		1882.5 (26365)	22.64	21.60	21.05
	8RB-Middle (4)	1851.5 (26055)	22.83	22.04	21.15
		1913.5 (26675)	23.01	21.54	20.61
		1882.5 (26365)	22.58	21.60	21.05
	8RB-Low (0)	1851.5 (26055)	22.94	22.14	21.17
		1913.5 (26675)	22.90	21.51	20.58
		1882.5 (26365)	22.60	21.71	21.07
	15RB (0)	1851.5 (26055)	22.81	22.17	21.13
		1913.5 (26675)	22.74	21.48	20.57
		1882.5 (26365)	22.61	21.63	21.03
5MHz	1RB-High (24)	1851.5 (26055)	23.05	22.12	21.13
		1912.5 (26665)	23.72	22.60	21.91
		1882.5 (26365)	23.58	22.67	22.00
	1RB-Middle (12)	1852.5 (26065)	23.49	22.98	22.11
		1912.5 (26665)	24.02	22.91	22.05
		1882.5 (26365)	23.72	22.87	22.35

	1RB-Low (0)	1852.5 (26065)	23.78	23.43	22.36
		1912.5 (26665)	23.79	22.65	21.66
		1882.5 (26365)	23.43	22.63	21.97
	12RB-High (13)	1852.5 (26065)	23.55	23.05	22.16
		1912.5 (26665)	22.88	21.36	20.51
		1882.5 (26365)	22.73	21.54	21.05
	12RB-Middle (6)	1852.5 (26065)	22.72	21.91	21.08
		1912.5 (26665)	23.04	21.49	20.59
		1882.5 (26365)	22.69	21.64	21.09
	12RB-Low (0)	1852.5 (26065)	22.85	22.12	21.14
		1912.5 (26665)	22.97	21.50	20.79
		1882.5 (26365)	22.57	21.60	21.01
10MHz	25RB (0)	1852.5 (26065)	22.65	21.97	21.09
		1912.5 (26665)	22.79	21.45	20.70
		1882.5 (26365)	22.56	21.89	21.02
	1RB-High (49)	1852.5 (26065)	22.85	22.13	21.09
		1910 (26640)	23.82	22.72	21.98
		1882.5 (26365)	23.83	22.63	22.09
	1RB-Middle (24)	1855 (26090)	23.87	23.04	22.13
		1910 (26640)	23.99	22.77	22.14
		1882.5 (26365)	23.85	22.92	22.21
	1RB-Low (0)	1855 (26090)	23.86	23.23	22.34
		1910 (26640)	23.87	22.67	21.92
		1882.5 (26365)	23.67	22.66	22.02
	25RB-High (25)	1855 (26090)	23.85	23.10	22.15
		1910 (26640)	22.94	21.41	20.82
		1882.5 (26365)	22.84	21.63	21.09
	25RB-Middle (12)	1855 (26090)	22.97	22.04	21.09
		1910 (26640)	23.06	21.56	20.92
		1882.5 (26365)	22.88	21.59	21.07
	25RB-Low (0)	1855 (26090)	23.10	22.13	21.11
		1910 (26640)	23.08	21.54	20.84
		1882.5 (26365)	22.83	21.97	21.08
15MHz	1RB-High (74)	1855 (26090)	22.92	22.14	21.12
		1910 (26640)	23.03	21.51	20.86
		1882.5 (26365)	22.77	21.95	21.09
	1RB-Middle (37)	1855 (26090)	22.97	22.12	21.09
		1907.5 (26615)	23.78	22.83	21.91
		1882.5 (26365)	23.78	22.85	22.06

	1RB-Low (0)	1857.5 (26115)	23.85	23.28	22.30
		1907.5 (26615)	23.86	22.81	21.89
		1882.5 (26365)	23.72	22.80	22.05
	36RB-High (38)	1857.5 (26115)	23.77	23.33	22.27
		1907.5 (26615)	22.99	21.46	20.95
		1882.5 (26365)	22.99	21.96	21.05
	36RB-Middle (19)	1857.5 (26115)	22.93	22.06	21.04
		1907.5 (26615)	23.08	21.74	20.96
		1882.5 (26365)	23.01	21.95	21.06
	36RB-Low (0)	1857.5 (26115)	23.03	22.09	21.11
		1907.5 (26615)	23.12	21.64	21.05
		1882.5 (26365)	22.97	21.91	21.06
	75RB (0)	1857.5 (26115)	23.14	22.09	21.12
		1907.5 (26615)	23.05	21.78	20.93
		1882.5 (26365)	22.99	22.08	21.04
	1RB-High (99)	1857.5 (26115)	23.04	22.07	21.08
		1905 (26590)	23.63	22.66	21.91
		1882.5 (26365)	23.53	22.58	21.97
20MHz	1RB-Middle (50)	1860 (26140)	23.41	22.94	21.97
		1905 (26590)	23.89	22.85	22.19
		1882.5 (26365)	23.67	23.02	22.23
	1RB-Low (0)	1860 (26140)	23.67	23.24	22.21
		1905 (26590)	23.37	22.75	21.87
		1882.5 (26365)	23.41	22.78	22.06
	50RB-High (50)	1860 (26140)	23.60	23.04	22.06
		1905 (26590)	22.48	21.41	20.87
		1882.5 (26365)	22.70	21.76	21.05
	50RB-Middle (25)	1860 (26140)	22.63	21.96	20.99
		1905 (26590)	22.65	21.60	21.07
		1882.5 (26365)	22.75	21.93	21.07
	50RB-Low (0)	1860 (26140)	22.85	22.10	21.11
		1905 (26590)	22.79	21.74	21.20
		1882.5 (26365)	22.81	21.87	21.11
	100RB (0)	1860 (26140)	22.86	22.07	21.06
		1905 (26590)	22.59	21.66	20.99
		1882.5 (26365)	22.69	21.92	21.05
		1860 (26140)	22.78	22.03	21.03

LTE B25 –DSI 2

LTE B25

BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1914.3 (26683)	20.85	21.19	21.06
		1882.5 (26365)	20.94	21.21	21.16
		1850.7 (26047)	21.05	21.29	21.23
	1RB-Middle (3)	1914.3 (26683)	20.97	21.19	21.23
		1882.5 (26365)	21.08	21.43	21.32
		1850.7 (26047)	21.16	21.44	21.36
	1RB-Low (0)	1914.3 (26683)	20.84	21.21	21.13
		1882.5 (26365)	20.94	21.29	21.16
		1850.7 (26047)	21.02	21.33	21.29
	3RB-High (3)	1914.3 (26683)	20.97	20.93	21.08
		1882.5 (26365)	21.04	21.09	21.15
		1850.7 (26047)	21.14	21.20	21.27
	3RB-Middle (1)	1914.3 (26683)	21.05	21.01	21.11
		1882.5 (26365)	21.08	21.14	21.20
		1850.7 (26047)	21.20	21.24	21.33
	3RB-Low (0)	1914.3 (26683)	20.97	21.00	21.05
		1882.5 (26365)	21.02	21.06	21.12
		1850.7 (26047)	21.15	21.21	21.24
	6RB (0)	1914.3 (26683)	20.98	21.04	20.97
		1882.5 (26365)	21.06	21.13	21.01
		1850.7 (26047)	21.13	21.23	21.15
3MHz	1RB-High (14)	1913.5 (26675)	20.90	21.24	21.13
		1882.5 (26365)	20.98	21.31	21.13
		1851.5 (26055)	21.03	21.42	21.30
	1RB-Middle (7)	1913.5 (26675)	21.09	21.43	21.24
		1882.5 (26365)	21.10	21.53	21.35
		1851.5 (26055)	21.19	21.66	21.53
	1RB-Low (0)	1913.5 (26675)	20.92	21.12	21.17
		1882.5 (26365)	20.97	21.30	21.20
		1851.5 (26055)	21.07	21.45	21.30
	8RB-High (7)	1913.5 (26675)	20.91	21.01	21.01
		1882.5 (26365)	21.03	21.10	21.09
		1851.5 (26055)	21.10	21.18	21.15
	8RB-Middle (4)	1913.5 (26675)	21.00	21.08	21.03
		1882.5 (26365)	21.04	21.12	21.08
		1851.5 (26055)	21.14	21.25	21.21
	8RB-Low (0)	1913.5 (26675)	20.97	21.05	21.03
		1882.5 (26365)	21.01	21.12	21.07
		1851.5 (26055)	21.11	21.15	21.15

	15RB (0)	1913.5 (26675)	20.96	20.99	20.93
		1882.5 (26365)	20.99	21.04	21.04
		1851.5 (26055)	21.12	21.14	21.11
5MHz	1RB-High (24)	1912.5 (26665)	20.79	21.00	21.02
		1882.5 (26365)	20.89	21.12	21.03
		1852.5 (26065)	20.89	21.24	21.13
	1RB-Middle (12)	1912.5 (26665)	21.09	21.38	21.29
		1882.5 (26365)	21.18	21.42	21.32
		1852.5 (26065)	21.22	21.57	21.50
	1RB-Low (0)	1912.5 (26665)	20.87	21.16	21.07
		1882.5 (26365)	20.89	21.15	21.06
		1852.5 (26065)	20.98	21.37	21.20
	12RB-High (13)	1912.5 (26665)	20.87	20.85	20.86
		1882.5 (26365)	21.07	21.06	21.07
		1852.5 (26065)	21.07	21.10	21.10
	12RB-Middle (6)	1912.5 (26665)	21.02	21.02	21.06
		1882.5 (26365)	21.09	21.10	21.14
		1852.5 (26065)	21.16	21.21	21.20
	12RB-Low (0)	1912.5 (26665)	20.99	20.99	21.01
		1882.5 (26365)	21.02	21.05	21.05
		1852.5 (26065)	21.09	21.09	21.14
	25RB (0)	1912.5 (26665)	20.97	20.97	20.95
		1882.5 (26365)	21.03	21.07	21.07
		1852.5 (26065)	21.09	21.13	21.13
10MHz	1RB-High (49)	1910 (26640)	20.87	21.11	21.13
		1882.5 (26365)	20.96	21.26	21.11
		1855 (26090)	21.00	21.29	21.16
	1RB-Middle (24)	1910 (26640)	21.07	21.42	21.27
		1882.5 (26365)	21.13	21.38	21.35
		1855 (26090)	21.16	21.42	21.36
	1RB-Low (0)	1910 (26640)	20.95	21.33	21.17
		1882.5 (26365)	20.99	21.31	21.13
		1855 (26090)	21.05	21.33	21.30
	25RB-High (25)	1910 (26640)	20.96	20.97	20.97
		1882.5 (26365)	21.13	21.15	21.12
		1855 (26090)	21.14	21.17	21.16
	25RB-Middle (12)	1910 (26640)	21.08	21.06	21.07
		1882.5 (26365)	21.11	21.12	21.11
		1855 (26090)	21.16	21.16	21.17
	25RB-Low (0)	1910 (26640)	21.06	21.09	21.06
		1882.5 (26365)	21.12	21.14	21.12
		1855 (26090)	21.15	21.22	21.19

	50RB (0)	1910 (26640)	21.06	21.01	21.03
		1882.5 (26365)	21.16	21.13	21.11
		1855 (26090)	21.16	21.14	21.16
15MHz	1RB-High (74)	1907.5 (26615)	20.94	21.11	21.04
		1882.5 (26365)	20.92	21.35	21.15
		1857.5 (26115)	20.99	21.37	21.15
	1RB-Middle (37)	1907.5 (26615)	21.06	21.37	21.26
		1882.5 (26365)	21.07	21.35	21.32
		1857.5 (26115)	21.12	21.42	21.31
	1RB-Low (0)	1907.5 (26615)	20.98	21.25	21.23
		1882.5 (26365)	20.98	21.35	21.23
		1857.5 (26115)	21.11	21.47	21.34
	36RB-High (38)	1907.5 (26615)	21.03	21.02	21.02
		1882.5 (26365)	21.13	21.13	21.12
		1857.5 (26115)	21.14	21.13	21.15
	36RB-Middle (19)	1907.5 (26615)	21.13	21.09	21.09
		1882.5 (26365)	21.12	21.13	21.14
		1857.5 (26115)	21.18	21.14	21.16
	36RB-Low (0)	1907.5 (26615)	21.15	21.17	21.13
		1882.5 (26365)	21.14	21.13	21.14
		1857.5 (26115)	21.21	21.19	21.18
	75RB (0)	1907.5 (26615)	21.11	21.09	21.08
		1882.5 (26365)	21.12	21.15	21.13
		1857.5 (26115)	21.15	21.17	21.13
20MHz	1RB-High (99)	1905 (26590)	20.90	21.14	21.10
		1882.5 (26365)	20.94	21.23	21.08
		1860 (26140)	20.97	21.29	21.23
	1RB-Middle (50)	1905 (26590)	21.16	21.51	21.35
		1882.5 (26365)	21.16	21.60	21.38
		1860 (26140)	21.22	21.60	21.49
	1RB-Low (0)	1905 (26590)	20.95	21.22	21.21
		1882.5 (26365)	20.98	21.26	21.22
		1860 (26140)	21.13	21.46	21.29
	50RB-High (50)	1905 (26590)	21.07	21.05	21.06
		1882.5 (26365)	21.20	21.22	21.19
		1860 (26140)	21.14	21.17	21.11
	50RB-Middle (25)	1905 (26590)	21.19	21.20	21.17
		1882.5 (26365)	21.21	21.20	21.18
		1860 (26140)	21.24	21.24	21.23
	50RB-Low (0)	1905 (26590)	21.33	21.32	21.31
		1882.5 (26365)	21.22	21.22	21.19
		1860 (26140)	21.19	21.20	21.17

	100RB (0)	1905 (26590)	21.21	21.19	21.16
		1882.5 (26365)	21.19	21.19	21.16
		1860 (26140)	21.13	21.18	21.15

LTE B26 –DSI 0/2

LTE B26					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	848.3 (27033)	24.12	22.81	21.83
		831.5 (26865)	23.56	22.77	21.78
		814.7 (26697)	23.62	22.75	21.79
	1RB-Middle (3)	848.3 (27033)	24.24	23.03	21.89
		831.5 (26865)	23.70	22.90	21.92
		814.7 (26697)	23.76	22.94	21.83
	1RB-Low (0)	848.3 (27033)	24.10	22.89	21.82
		831.5 (26865)	23.57	22.87	21.80
		814.7 (26697)	23.62	22.74	21.73
	3RB-High (3)	848.3 (27033)	23.88	22.63	21.77
		831.5 (26865)	23.68	22.59	21.79
		814.7 (26697)	23.76	22.61	21.80
	3RB-Middle (1)	848.3 (27033)	23.77	22.72	21.91
		831.5 (26865)	23.71	22.68	21.80
		814.7 (26697)	23.80	22.70	21.86
	3RB-Low (0)	848.3 (27033)	23.72	22.68	21.83
		831.5 (26865)	23.68	22.66	21.75
		814.7 (26697)	23.72	22.67	21.77
	6RB (0)	848.3 (27033)	22.81	21.85	20.76
		831.5 (26865)	22.75	21.78	20.69
		814.7 (26697)	22.81	21.80	20.83
3MHz	1RB-High (14)	847.5 (27025)	24.16	22.90	21.79
		831.5 (26865)	23.64	22.87	21.84
		815.5 (26705)	23.69	22.95	21.94
	1RB-Middle (7)	847.5 (27025)	24.26	23.01	22.07
		831.5 (26865)	23.73	23.13	22.00
		815.5 (26705)	23.83	23.04	21.99
	1RB-Low (0)	847.5 (27025)	24.15	22.85	21.82
		831.5 (26865)	23.61	22.85	21.79
		815.5 (26705)	23.70	22.84	21.85
	8RB-High (7)	847.5 (27025)	22.75	21.77	20.77
		831.5 (26865)	22.72	21.76	20.77
		815.5 (26705)	22.77	21.78	20.81
	8RB-Middle (4)	847.5 (27025)	22.80	21.83	20.79
		831.5 (26865)	22.77	21.76	20.83

			815.5 (26705)	22.81	21.79	20.89
		8RB-Low (0)	847.5 (27025)	22.80	21.84	20.82
			831.5 (26865)	22.71	21.75	20.96
			815.5 (26705)	22.77	21.78	20.95
		15RB (0)	847.5 (27025)	22.79	21.76	20.73
			831.5 (26865)	22.76	21.75	20.81
			815.5 (26705)	22.77	21.71	21.19
5MHz	1RB-High (24)		846.5 (27015)	24.06	22.85	21.82
			831.5 (26865)	23.52	22.74	21.66
			816.5 (26715)	23.56	22.75	21.80
	1RB-Middle (12)		846.5 (27015)	24.30	23.12	22.02
			831.5 (26865)	23.79	23.10	22.00
			816.5 (26715)	23.77	23.08	21.91
	1RB-Low (0)		846.5 (27015)	24.04	22.84	21.70
			831.5 (26865)	23.54	22.86	21.72
			816.5 (26715)	23.61	22.76	21.71
	12RB-High (13)		846.5 (27015)	23.15	21.63	20.67
			831.5 (26865)	22.73	21.67	20.72
			816.5 (26715)	22.72	21.66	20.71
	12RB-Middle (6)		846.5 (27015)	23.16	21.74	20.79
			831.5 (26865)	22.78	21.74	20.77
			816.5 (26715)	22.86	21.79	20.82
	12RB-Low (0)		846.5 (27015)	22.93	21.77	20.81
			831.5 (26865)	22.71	21.65	20.68
			816.5 (26715)	22.79	21.73	20.78
	25RB (0)		846.5 (27015)	22.78	21.75	20.76
			831.5 (26865)	22.76	21.71	20.87
			816.5 (26715)	22.83	21.75	20.74
10MHz	1RB-High (49)		844 (26990)	24.17	22.86	21.85
			831.5 (26865)	23.61	22.87	21.79
			820 (26750)	23.67	22.98	21.91
	1RB-Middle (24)		844 (26990)	24.25	22.99	21.87
			831.5 (26865)	23.71	23.02	21.94
			820 (26750)	23.83	23.01	21.99
	1RB-Low (0)		844 (26990)	24.15	22.88	21.79
			831.5 (26865)	23.66	23.01	21.86
			820 (26750)	23.72	22.97	21.84
	25RB-High (25)		844 (26990)	23.14	21.68	20.68
			831.5 (26865)	22.80	21.78	20.77
			820 (26750)	22.91	21.87	20.86
	25RB-Middle (12)		844 (26990)	23.08	21.78	20.81
			831.5 (26865)	22.79	21.75	20.76

	25RB-Low (0)	820 (26750)	22.86	21.83	20.81
		844 (26990)	23.02	21.84	20.87
		831.5 (26865)	22.80	21.74	20.77
	50RB (0)	820 (26750)	22.93	21.91	20.90
		844 (26990)	22.89	21.78	20.74
		831.5 (26865)	22.78	21.78	20.77
	1RB-High (74)	820 (26750)	22.94	21.91	20.90
		841.5 (26965)	24.13	22.91	21.80
		831.5 (26865)	24.07	23.08	21.99
15MHz	1RB-Middle (37)	822.5 (26775)	24.06	23.06	21.93
		841.5 (26965)	24.20	22.94	21.82
		831.5 (26865)	24.21	23.13	22.28
	1RB-Low (0)	822.5 (26775)	24.19	22.99	22.12
		841.5 (26965)	24.10	22.90	21.82
		831.5 (26865)	24.14	22.96	22.07
	36RB-High (38)	822.5 (26775)	23.99	22.84	21.84
		841.5 (26965)	23.19	21.71	20.77
		831.5 (26865)	23.29	21.75	20.89
	36RB-Middle (19)	822.5 (26775)	22.82	21.76	20.88
		841.5 (26965)	23.28	21.81	20.93
		831.5 (26865)	23.34	21.80	21.18
	36RB-Low (0)	822.5 (26775)	22.94	21.85	20.97
		841.5 (26965)	23.31	21.87	21.17
		831.5 (26865)	23.30	21.82	21.23
	75RB (0)	822.5 (26775)	22.97	21.87	20.91
		841.5 (26965)	23.29	21.94	21.02
		831.5 (26865)	23.29	21.88	20.95
		822.5 (26775)	22.86	21.84	20.98

LTE B26 –DSI 1

LTE B26					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	848.3 (27033)	23.02	23.23	22.28
		831.5 (26865)	23.06	23.25	22.16
		814.7 (26697)	23.13	23.17	22.12
	1RB-Middle (3)	848.3 (27033)	23.16	23.30	22.39
		831.5 (26865)	23.19	23.31	22.33
		814.7 (26697)	23.18	23.36	22.28
	1RB-Low (0)	848.3 (27033)	23.05	23.20	22.25
		831.5 (26865)	23.07	23.22	22.21

			814.7 (26697)	23.10	23.16	22.23
		3RB-High (3)	848.3 (27033)	23.15	23.08	22.23
			831.5 (26865)	23.18	23.02	22.19
			814.7 (26697)	23.21	23.07	22.16
		3RB-Middle (1)	848.3 (27033)	23.19	23.11	22.24
			831.5 (26865)	23.21	23.17	22.21
			814.7 (26697)	23.31	23.13	22.21
		3RB-Low (0)	848.3 (27033)	23.17	23.01	22.24
			831.5 (26865)	23.18	23.09	22.17
			814.7 (26697)	23.23	23.08	22.18
		6RB (0)	848.3 (27033)	23.18	22.27	21.14
			831.5 (26865)	23.18	22.27	21.10
			814.7 (26697)	23.27	22.27	21.10
3MHz	1RB-High (14)		847.5 (27025)	23.09	23.18	22.28
			831.5 (26865)	22.97	23.28	22.26
			815.5 (26705)	22.95	23.21	22.21
	1RB-Middle (7)		847.5 (27025)	23.26	23.48	22.47
			831.5 (26865)	23.12	23.42	22.38
			815.5 (26705)	23.10	23.49	22.32
	1RB-Low (0)		847.5 (27025)	23.11	23.29	22.21
			831.5 (26865)	22.90	23.33	22.24
			815.5 (26705)	23.05	23.35	22.17
	8RB-High (7)		847.5 (27025)	23.13	22.20	21.18
			831.5 (26865)	22.82	22.22	21.17
			815.5 (26705)	23.11	22.21	21.16
	8RB-Middle (4)		847.5 (27025)	23.17	22.26	21.23
			831.5 (26865)	22.94	22.23	21.21
			815.5 (26705)	22.97	22.21	21.17
	8RB-Low (0)		847.5 (27025)	23.15	22.23	21.25
			831.5 (26865)	22.85	22.18	21.19
			815.5 (26705)	22.95	22.17	21.18
	15RB (0)		847.5 (27025)	23.16	22.18	21.16
			831.5 (26865)	22.80	22.19	21.20
			815.5 (26705)	23.15	22.18	21.16
5MHz	1RB-High (24)		846.5 (27015)	22.98	22.69	22.07
			831.5 (26865)	22.97	22.86	22.09
			816.5 (26715)	22.83	23.09	22.12
	1RB-Middle (12)		846.5 (27015)	23.24	22.91	22.26
			831.5 (26865)	23.19	23.00	22.36
			816.5 (26715)	23.16	23.20	22.47
	1RB-Low (0)		846.5 (27015)	22.95	22.71	21.99
			831.5 (26865)	22.95	22.85	22.09

			816.5 (26715)	22.62	22.70	22.06
		12RB-High (13)	846.5 (27015)	23.04	21.57	21.00
			831.5 (26865)	22.97	21.79	21.16
			816.5 (26715)	22.80	21.81	21.13
		12RB-Middle (6)	846.5 (27015)	23.16	21.68	21.02
			831.5 (26865)	23.01	21.73	21.18
			816.5 (26715)	22.88	21.91	21.27
		12RB-Low (0)	846.5 (27015)	23.17	21.80	21.17
			831.5 (26865)	22.73	21.90	21.09
			816.5 (26715)	22.89	21.84	21.19
		25RB (0)	846.5 (27015)	23.17	21.81	21.16
			831.5 (26865)	22.85	22.06	21.16
			816.5 (26715)	22.92	21.96	21.19
10MHz	1RB-High (49)		844 (26990)	23.07	22.89	21.80
			831.5 (26865)	23.08	22.90	22.20
			820 (26750)	22.99	22.95	22.26
	1RB-Middle (24)		844 (26990)	23.15	22.89	22.03
			831.5 (26865)	23.23	22.95	22.34
			820 (26750)	22.91	23.12	22.43
	1RB-Low (0)		844 (26990)	23.10	22.81	21.75
			831.5 (26865)	23.16	22.89	22.29
			820 (26750)	22.98	22.85	22.22
	25RB-High (25)		844 (26990)	23.07	21.60	20.91
			831.5 (26865)	23.24	21.80	21.19
			820 (26750)	22.87	21.80	21.24
	25RB-Middle (12)		844 (26990)	23.17	21.69	20.94
			831.5 (26865)	23.21	21.92	21.16
			820 (26750)	22.79	21.85	21.20
	25RB-Low (0)		844 (26990)	23.25	21.93	21.24
			831.5 (26865)	23.22	21.97	21.20
			820 (26750)	22.85	21.82	21.26
	50RB (0)		844 (26990)	23.16	21.76	21.17
			831.5 (26865)	23.11	21.84	21.19
			820 (26750)	22.90	21.80	21.34
15MHz	1RB-High (74)		841.5 (26965)	23.03	23.11	22.16
			831.5 (26865)	23.00	23.23	22.15
			821.5 (26765)	23.07	23.22	22.11
	1RB-Middle (37)		841.5 (26965)	23.11	23.25	22.29
			831.5 (26865)	23.16	23.38	22.25
			821.5 (26765)	23.25	23.48	22.32
	1RB-Low (0)		841.5 (26965)	23.07	23.30	22.18
			831.5 (26865)	23.13	23.27	22.26

		821.5 (26765)	23.14	23.25	22.17
	36RB-High (38)	841.5 (26965)	23.13	22.10	21.14
		831.5 (26865)	23.20	22.13	21.15
		821.5 (26765)	23.23	22.21	21.22
	36RB-Middle (19)	841.5 (26965)	23.21	22.18	21.21
		831.5 (26865)	23.26	22.23	21.22
		821.5 (26765)	23.30	22.25	21.30
	36RB-Low (0)	841.5 (26965)	23.27	22.21	21.23
		831.5 (26865)	23.24	22.18	21.19
		821.5 (26765)	23.32	22.27	21.27
	75RB (0)	841.5 (26965)	23.19	22.20	21.21
		831.5 (26865)	23.22	22.16	21.15
		821.5 (26765)	23.28	22.25	21.24

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LTE B41-PC3					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2687.5 (41565)	23.98	22.61	21.24
		2640.3(41093)	23.50	22.58	21.22
		2593 (40620)	23.14	22.16	20.83
		2545.8(40148)	23.12	22.18	20.76
		2498.5 (39675)	22.87	21.88	20.49
	1RB-Middle (12)	2687.5 (41565)	23.73	22.80	21.48
		2640.3(41093)	23.69	22.75	21.49
		2593 (40620)	23.44	22.49	21.04
		2545.8(40148)	23.28	22.41	20.96
		2498.5 (39675)	23.05	22.10	20.73
	1RB-Low (0)	2687.5 (41565)	23.56	22.63	21.26
		2640.3(41093)	23.54	22.58	21.21
		2593 (40620)	23.20	22.20	20.85
		2545.8(40148)	23.08	22.14	20.76
		2498.5 (39675)	22.83	21.93	20.57
	12RB-High (13)	2687.5 (41565)	22.65	21.57	20.66
		2640.3(41093)	22.61	21.55	20.57
		2593 (40620)	22.20	21.18	20.22
		2545.8(40148)	22.18	21.14	20.16
		2498.5 (39675)	21.89	20.89	19.94
	12RB-Middle (6)	2687.5 (41565)	22.76	21.70	20.73
		2640.3(41093)	22.71	21.65	20.72
		2593 (40620)	22.29	21.26	20.24

		2545.8(40148)	22.21	21.13	20.19
		2498.5 (39675)	21.97	20.95	19.95
	12RB-Low (0)	2687.5 (41565)	22.70	21.62	20.65
		2640.3(41093)	22.66	21.60	20.60
		2593 (40620)	22.23	21.19	20.22
		2545.8(40148)	22.16	21.05	20.18
		2498.5 (39675)	21.90	20.84	19.91
	25RB (0)	2687.5 (41565)	22.65	21.72	20.69
		2640.3(41093)	22.61	21.63	20.63
		2593 (40620)	22.25	21.25	20.30
		2545.8(40148)	22.19	21.20	20.24
		2498.5 (39675)	21.94	20.95	19.94
10MHz	1RB-High (49)	2685 (41540)	23.95	22.65	21.28
		2639(41080)	23.59	22.62	21.27
		2593 (40620)	23.20	22.23	20.91
		2547(40160)	23.19	22.24	20.86
		2501 (39700)	22.86	21.95	20.57
	1RB-Middle (24)	2685 (41540)	23.92	22.84	21.45
		2639(41080)	23.76	22.79	21.30
		2593 (40620)	23.26	22.34	21.03
		2547(40160)	23.17	22.29	20.99
		2501 (39700)	23.04	22.05	20.68
	1RB-Low (0)	2685 (41540)	23.86	22.76	21.40
		2639(41080)	23.58	22.65	21.28
		2593 (40620)	23.30	22.32	20.98
		2547(40160)	23.17	22.25	20.83
		2501 (39700)	22.85	21.99	20.61
	25RB-High (25)	2685 (41540)	22.66	21.71	20.69
		2639(41080)	22.58	21.59	20.59
		2593 (40620)	22.22	21.18	20.27
		2547(40160)	22.19	21.18	20.16
		2501 (39700)	21.88	20.91	19.97
	25RB-Middle (12)	2685 (41540)	22.75	21.76	20.80
		2639(41080)	22.66	21.68	20.68
		2593 (40620)	22.28	21.32	20.29
		2547(40160)	22.19	21.22	20.28
		2501 (39700)	21.90	20.95	20.02
	25RB-Low (0)	2685 (41540)	22.74	21.77	20.82
		2639(41080)	22.62	21.70	20.70
		2593 (40620)	22.18	21.28	20.32
		2547(40160)	22.19	21.19	20.26
		2501 (39700)	21.95	20.96	20.00

	50RB (0)	2685 (41540)	22.63	21.75	20.77
		2639(41080)	22.57	21.64	20.60
		2593 (40620)	22.23	21.28	20.25
		2547(40160)	22.14	21.19	20.16
		2501 (39700)	21.88	20.98	19.91
15MHz	1RB-High (74)	2682.5 (41515)	23.79	22.87	21.64
		2637.8(41068)	23.87	22.87	21.12
		2593 (40620)	23.49	22.55	20.72
		2548.3(40173)	23.56	22.62	21.19
		2503.5 (39725)	23.22	22.25	20.86
	1RB-Middle (37)	2682.5 (41515)	24.00	22.95	21.65
		2637.8(41068)	23.98	22.94	21.22
		2593 (40620)	23.65	22.69	20.85
		2548.3(40173)	23.62	22.73	21.19
		2503.5 (39725)	23.41	22.43	21.02
	1RB-Low (0)	2682.5 (41515)	23.97	22.99	21.27
		2637.8(41068)	23.88	22.94	21.18
		2593 (40620)	23.67	22.67	20.90
		2548.3(40173)	23.58	22.61	20.87
		2503.5 (39725)	23.30	22.31	20.94
	36RB-High (38)	2682.5 (41515)	22.98	21.99	20.96
		2637.8(41068)	23.00	21.96	20.71
		2593 (40620)	22.67	21.54	20.60
		2548.3(40173)	22.69	21.55	20.60
		2503.5 (39725)	22.36	21.30	20.29
	36RB-Middle (19)	2682.5 (41515)	22.97	21.97	20.97
		2637.8(41068)	22.98	22.00	20.96
		2593 (40620)	22.70	21.64	20.63
		2548.3(40173)	22.64	21.53	20.56
		2503.5 (39725)	22.36	21.30	20.30
	36RB-Low (0)	2682.5 (41515)	22.97	21.95	20.97
		2637.8(41068)	22.96	21.96	20.99
		2593 (40620)	22.72	21.61	20.68
		2548.3(40173)	22.64	21.51	20.58
		2503.5 (39725)	22.35	21.32	20.31
	75RB (0)	2682.5 (41515)	22.96	21.98	20.98
		2637.8(41068)	22.95	21.99	20.95
		2593 (40620)	22.58	21.63	20.67
		2548.3(40173)	22.55	21.63	20.62
		2503.5 (39725)	22.22	21.30	20.32
20MHz	1RB-High (99)	2680 (41490)	23.80	22.82	21.50
		2636.5(41055)	23.84	22.80	21.46

		2593 (40620)	23.45	22.46	21.13
		2549.5(40185)	23.53	22.52	21.16
		2506 (39750)	23.18	22.19	20.80
	1RB-Middle (50)	2680 (41490)	23.95	22.98	21.78
		2636.5(41055)	23.97	23.00	21.76
		2593 (40620)	23.68	22.80	21.34
		2549.5(40185)	23.67	22.71	21.37
		2506 (39750)	23.45	22.40	21.05
	1RB-Low (0)	2680 (41490)	23.62	22.98	21.64
		2636.5(41055)	23.84	22.79	21.50
		2593 (40620)	23.59	22.65	21.20
		2549.5(40185)	23.42	22.44	21.08
		2506 (39750)	23.25	22.27	20.87
	50RB-High (50)	2680 (41490)	22.96	21.97	20.92
		2636.5(41055)	22.77	21.83	20.81
		2593 (40620)	22.51	21.51	20.49
		2549.5(40185)	22.53	21.56	20.47
		2506 (39750)	22.17	21.20	20.16
	50RB-Middle (25)	2680 (41490)	22.94	21.97	20.99
		2636.5(41055)	22.95	21.91	20.88
		2593 (40620)	22.59	21.62	20.60
		2549.5(40185)	22.47	21.53	20.53
		2506 (39750)	22.21	21.26	20.19
	50RB-Low (0)	2680 (41490)	22.97	21.98	20.93
		2636.5(41055)	22.96	21.94	20.92
		2593 (40620)	22.56	21.60	20.59
		2549.5(40185)	22.52	21.53	20.48
		2506 (39750)	22.24	21.28	20.27
	100RB (0)	2680 (41490)	22.98	21.93	20.99
		2636.5(41055)	22.97	21.98	20.90
		2593 (40620)	22.61	21.58	20.55
		2549.5(40185)	22.52	21.63	20.55
		2506 (39750)	22.26	21.25	20.25

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LTE B41-PC2					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	2687.5 (41565)	26.43	25.47	24.82
		2640.3(41093)	26.39	25.33	24.34
		2593 (40620)	25.97	25.02	24.33

		2545.8(40148)	25.97	25.25	24.41
		2498.5 (39675)	25.70	25.29	24.16
	1RB-Middle (12)	2687.5 (41565)	26.66	25.65	24.99
		2640.3(41093)	26.63	25.52	24.48
		2593 (40620)	26.19	25.19	24.56
		2545.8(40148)	26.12	25.28	24.44
		2498.5 (39675)	25.89	25.40	24.28
	1RB-Low (0)	2687.5 (41565)	26.46	25.48	24.77
		2640.3(41093)	26.40	25.33	24.41
		2593 (40620)	26.02	25.06	24.39
		2545.8(40148)	25.94	25.02	24.38
		2498.5 (39675)	25.74	25.32	24.18
	12RB-High (13)	2687.5 (41565)	25.62	24.53	23.70
		2640.3(41093)	25.54	24.42	23.60
		2593 (40620)	25.13	24.09	23.62
		2545.8(40148)	25.08	24.25	23.57
		2498.5 (39675)	24.83	24.35	23.34
	12RB-Middle (6)	2687.5 (41565)	25.66	24.59	23.72
		2640.3(41093)	25.63	24.50	23.67
		2593 (40620)	25.22	24.17	23.68
		2545.8(40148)	25.13	24.57	23.64
		2498.5 (39675)	24.91	24.39	23.42
	12RB-Low (0)	2687.5 (41565)	25.63	24.54	23.80
		2640.3(41093)	25.59	24.45	23.73
		2593 (40620)	25.17	24.17	23.65
		2545.8(40148)	25.04	24.56	23.57
		2498.5 (39675)	24.87	24.35	23.37
	25RB (0)	2687.5 (41565)	25.58	24.58	23.68
		2640.3(41093)	25.50	24.45	23.80
		2593 (40620)	25.11	24.27	23.63
		2545.8(40148)	25.02	24.48	23.58
		2498.5 (39675)	24.87	24.34	23.38
10MHz	1RB-High (49)	2685 (41540)	26.90	25.56	24.44
		2639(41080)	26.43	25.43	24.34
		2593 (40620)	26.07	25.15	24.01
		2547(40160)	26.07	25.17	24.05
		2501 (39700)	25.78	24.93	23.77
	1RB-Middle (24)	2685 (41540)	26.95	25.69	24.61
		2639(41080)	26.58	25.55	24.48
		2593 (40620)	26.22	25.27	24.15
		2547(40160)	26.18	25.26	24.14
		2501 (39700)	25.92	25.05	23.93

	1RB-Low (0)	2685 (41540)	26.88	25.65	24.52
		2639(41080)	26.47	25.45	24.36
		2593 (40620)	26.13	25.22	24.10
		2547(40160)	26.05	25.16	24.01
		2501 (39700)	25.82	25.01	23.96
	25RB-High (25)	2685 (41540)	25.59	24.63	23.69
		2639(41080)	25.52	24.49	23.55
		2593 (40620)	25.16	24.17	23.24
		2547(40160)	25.08	24.14	23.18
		2501 (39700)	24.84	23.86	22.98
	25RB-Middle (12)	2685 (41540)	25.64	24.66	23.69
		2639(41080)	25.57	24.53	23.58
		2593 (40620)	25.19	24.20	23.25
		2547(40160)	25.13	24.18	23.22
		2501 (39700)	24.87	23.91	23.11
	25RB-Low (0)	2685 (41540)	25.61	24.67	23.70
		2639(41080)	25.58	24.54	23.60
		2593 (40620)	25.19	24.19	23.27
		2547(40160)	25.15	24.16	23.20
		2501 (39700)	24.87	23.91	23.21
	50RB (0)	2685 (41540)	25.68	24.70	23.68
		2639(41080)	25.61	24.58	23.56
		2593 (40620)	25.24	24.26	23.35
		2547(40160)	25.16	24.26	23.44
		2501 (39700)	24.91	24.38	23.42
15MHz	1RB-High (74)	2682.5 (41515)	26.75	25.42	24.32
		2637.8(41068)	26.32	25.32	24.24
		2593 (40620)	25.94	25.01	23.90
		2548.3(40173)	25.96	25.07	23.97
		2503.5 (39725)	25.65	24.75	24.05
	1RB-Middle (37)	2682.5 (41515)	26.94	25.58	24.48
		2637.8(41068)	26.43	25.43	24.33
		2593 (40620)	26.09	25.15	24.04
		2548.3(40173)	26.07	25.19	24.05
		2503.5 (39725)	25.79	24.96	24.11
	1RB-Low (0)	2682.5 (41515)	26.92	25.53	24.43
		2637.8(41068)	26.35	25.36	24.26
		2593 (40620)	26.05	25.15	24.09
		2548.3(40173)	25.94	25.04	23.88
		2503.5 (39725)	25.73	24.83	23.94
	36RB-High (38)	2682.5 (41515)	25.94	24.51	23.53
		2637.8(41068)	25.49	24.38	23.40

		2593 (40620)	25.12	24.08	23.38
		2548.3(40173)	25.13	24.10	23.59
		2503.5 (39725)	24.94	24.13	23.28
		2682.5 (41515)	25.59	24.55	23.56
		2637.8(41068)	25.52	24.43	23.45
		2593 (40620)	25.12	24.09	23.61
		2548.3(40173)	25.16	24.31	23.55
		2503.5 (39725)	25.18	24.27	23.29
		2682.5 (41515)	25.61	24.56	23.56
		2637.8(41068)	25.52	24.44	23.45
		2593 (40620)	25.16	24.24	23.63
		2548.3(40173)	25.20	24.30	23.55
		2503.5 (39725)	25.21	24.27	23.31
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	36RB-Middle (19)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
20MHz	36RB-Low (0)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	75RB (0)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	1RB-High (99)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	1RB-Middle (50)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	1RB-Low (0)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	50RB-High (50)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45
	50RB-Middle (25)	2593 (40620)	25.17	24.25	23.64
		2548.3(40173)	25.25	24.54	23.57
		2503.5 (39725)	25.25	24.28	23.28
		2682.5 (41515)	25.55	24.60	23.57
		2637.8(41068)	25.48	24.44	23.45

	50RB-Low (0)	2506 (39750)	25.30	24.35	23.31
		2680 (41490)	25.99	24.95	23.80
		2636.5(41055)	25.96	24.99	23.98
		2593 (40620)	25.68	24.68	23.66
		2549.5(40185)	25.56	24.60	23.60
		2506 (39750)	25.30	24.34	23.32
	100RB (0)	2680 (41490)	25.97	24.97	23.93
		2636.5(41055)	25.96	24.98	23.95
		2593 (40620)	25.68	24.68	23.65
		2549.5(40185)	25.59	24.60	23.63
		2506 (39750)	25.32	24.31	23.30

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LTE B66					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1779.3 (132665)	22.74	22.85	21.90
		1745 (132322)	22.35	22.56	21.44
		1710.7 (131979)	22.51	22.67	21.73
	1RB-Middle (3)	1779.3 (132665)	22.84	22.78	21.96
		1745 (132322)	22.46	22.69	21.61
		1710.7 (131979)	22.57	22.83	21.72
	1RB-Low (0)	1779.3 (132665)	22.73	22.98	21.90
		1745 (132322)	22.36	22.58	21.54
		1710.7 (131979)	22.50	22.79	21.67
	3RB-High (3)	1779.3 (132665)	22.83	22.77	21.88
		1745 (132322)	22.47	22.48	21.55
		1710.7 (131979)	22.62	22.49	21.67
	3RB-Middle (1)	1779.3 (132665)	22.87	22.81	21.97
		1745 (132322)	22.49	22.46	21.54
		1710.7 (131979)	22.64	22.58	21.69
	3RB-Low (0)	1779.3 (132665)	22.84	22.79	21.94
		1745 (132322)	22.44	22.43	21.55
		1710.7 (131979)	22.58	22.50	21.65
	6RB (0)	1779.3 (132665)	22.84	21.93	20.78
		1745 (132322)	22.47	21.54	20.46
		1710.7 (131979)	22.59	21.71	20.56
3MHz	1RB-High (14)	1778.5 (132657)	22.75	22.78	21.91
		1745 (132322)	22.43	22.68	21.60
		1711.5 (131987)	22.49	22.68	21.65
	1RB-Middle (7)	1778.5 (132657)	22.93	22.85	21.84

		1745 (132322)	22.56	22.82	21.71
		1711.5 (131987)	22.67	22.89	21.82
	1RB-Low (0)	1778.5 (132657)	22.73	22.91	21.89
		1745 (132322)	22.42	22.71	21.55
		1711.5 (131987)	22.55	22.76	21.64
	8RB-High (7)	1778.5 (132657)	22.82	21.87	20.80
		1745 (132322)	22.49	21.51	20.53
		1711.5 (131987)	22.51	21.59	20.61
	8RB-Middle (4)	1778.5 (132657)	22.86	21.89	20.86
		1745 (132322)	22.46	21.51	20.51
		1711.5 (131987)	22.62	21.64	20.67
	8RB-Low (0)	1778.5 (132657)	22.82	21.89	20.86
		1745 (132322)	22.44	21.51	20.54
		1711.5 (131987)	22.59	21.61	20.66
	15RB (0)	1778.5 (132657)	22.85	21.84	20.81
		1745 (132322)	22.45	21.45	20.50
		1711.5 (131987)	22.56	21.55	20.60
5MHz	1RB-High (24)	1777.5 (132647)	22.68	22.83	21.86
		1745 (132322)	22.33	22.50	21.50
		1712.5 (131997)	22.37	22.55	21.51
	1RB-Middle (12)	1777.5 (132647)	22.92	22.88	21.89
		1745 (132322)	22.58	22.84	21.68
		1712.5 (131997)	22.66	22.91	21.86
	1RB-Low (0)	1777.5 (132647)	22.60	22.61	21.69
		1745 (132322)	22.33	22.45	21.48
		1712.5 (131997)	22.47	22.57	21.58
	12RB-High (13)	1777.5 (132647)	22.82	21.69	20.78
		1745 (132322)	22.47	21.39	20.50
		1712.5 (131997)	22.53	21.49	20.60
	12RB-Middle (6)	1777.5 (132647)	22.85	21.79	20.86
		1745 (132322)	22.51	21.49	20.54
		1712.5 (131997)	22.60	21.55	20.66
	12RB-Low (0)	1777.5 (132647)	22.77	21.75	20.81
		1745 (132322)	22.46	21.41	20.52
		1712.5 (131997)	22.51	21.49	20.56
	25RB (0)	1777.5 (132647)	22.78	21.69	20.79
		1745 (132322)	22.48	21.47	20.52
		1712.5 (131997)	22.56	21.56	20.59
10MHz	1RB-High (49)	1775 (132622)	22.70	22.85	21.87
		1745 (132322)	22.42	22.68	21.50
		1715 (132022)	22.44	22.67	21.57
	1RB-Middle (24)	1775 (132622)	22.79	22.84	21.95

		1745 (132322)	22.51	22.78	21.69
		1715 (132022)	22.57	22.86	21.77
	1RB-Low (0)	1775 (132622)	22.65	22.75	21.81
		1745 (132322)	22.37	22.50	21.55
		1715 (132022)	22.55	22.71	21.67
	25RB-High (25)	1775 (132622)	22.79	21.62	20.82
		1745 (132322)	22.50	21.48	20.53
		1715 (132022)	22.57	21.54	20.59
	25RB-Middle (12)	1775 (132622)	22.77	21.75	20.80
		1745 (132322)	22.50	21.50	20.54
		1715 (132022)	22.60	21.56	20.61
	25RB-Low (0)	1775 (132622)	22.81	21.75	20.85
		1745 (132322)	22.51	21.50	20.55
		1715 (132022)	22.60	21.55	20.60
	50RB (0)	1775 (132622)	22.76	21.74	20.82
		1745 (132322)	22.52	21.49	20.54
		1715 (132022)	22.59	21.54	20.63
15MHz	1RB-High (74)	1772.5 (132597)	22.68	22.84	21.82
		1745 (132322)	22.40	22.60	21.50
		1717.5 (132047)	22.31	22.56	21.46
	1RB-Middle (37)	1772.5 (132597)	22.68	22.95	21.85
		1745 (132322)	22.45	22.74	21.58
		1717.5 (132047)	22.45	22.67	21.62
	1RB-Low (0)	1772.5 (132597)	22.55	22.77	21.71
		1745 (132322)	22.35	22.56	21.50
		1717.5 (132047)	22.48	22.70	21.66
	36RB-High (38)	1772.5 (132597)	22.75	21.72	20.80
		1745 (132322)	22.45	21.40	20.50
		1717.5 (132047)	22.48	21.45	20.51
	36RB-Middle (19)	1772.5 (132597)	22.74	21.70	20.77
		1745 (132322)	22.49	21.40	20.47
		1717.5 (132047)	22.56	21.47	20.53
	36RB-Low (0)	1772.5 (132597)	22.72	21.67	20.75
		1745 (132322)	22.46	21.40	20.49
		1717.5 (132047)	22.54	21.49	20.55
	75RB (0)	1772.5 (132597)	22.75	21.72	20.74
		1745 (132322)	22.45	21.42	20.47
		1717.5 (132047)	22.49	21.47	20.51
20MHz	1RB-High (99)	1770 (132572)	22.61	22.88	21.83
		1745 (132322)	22.36	22.60	21.49
		1720 (132072)	22.24	22.47	21.42
	1RB-Middle (50)	1770 (132572)	22.71	22.85	21.93

		1745 (132322)	22.48	22.71	21.59
		1720 (132072)	22.57	22.79	21.71
		1770 (132572)	22.41	22.61	21.59
	1RB-Low (0)	1745 (132322)	22.32	22.53	21.40
		1720 (132072)	22.46	22.62	21.55
		1770 (132572)	22.68	21.69	20.70
	50RB-High (50)	1745 (132322)	22.48	21.45	20.49
		1720 (132072)	22.46	21.42	20.44
		1770 (132572)	22.71	21.70	20.76
	50RB-Middle (25)	1745 (132322)	22.47	21.45	20.51
		1720 (132072)	22.51	21.49	20.52
		1770 (132572)	22.73	21.72	20.75
	50RB-Low (0)	1745 (132322)	22.46	21.45	20.51
		1720 (132072)	22.48	21.47	20.49
		1770 (132572)	22.72	21.66	20.74
	100RB (0)	1745 (132322)	22.43	21.39	20.47
		1720 (132072)	22.45	21.40	20.46

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LTE B66					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1779.3 (132665)	23.57	22.54	21.85
		1745 (132322)	23.02	22.32	21.39
		1710.7 (131979)	23.36	22.66	21.52
	1RB-Middle (3)	1779.3 (132665)	23.67	22.52	21.86
		1745 (132322)	23.18	22.49	21.55
		1710.7 (131979)	23.26	22.74	21.72
	1RB-Low (0)	1779.3 (132665)	23.59	22.37	21.74
		1745 (132322)	23.07	22.35	21.48
		1710.7 (131979)	23.03	22.69	21.56
	3RB-High (3)	1779.3 (132665)	23.68	22.22	21.75
		1745 (132322)	23.04	22.23	21.38
		1710.7 (131979)	23.21	22.42	21.54
	3RB-Middle (1)	1779.3 (132665)	23.63	22.22	21.76
		1745 (132322)	23.20	22.16	21.51
		1710.7 (131979)	23.09	22.45	21.65
	3RB-Low (0)	1779.3 (132665)	23.38	22.19	21.85
		1745 (132322)	23.01	22.15	21.41
		1710.7 (131979)	23.08	22.30	21.55
	6RB (0)	1779.3 (132665)	22.67	21.61	20.69

		1745 (132322)	22.37	21.44	20.40
		1710.7 (131979)	22.49	21.60	20.54
3MHz	1RB-High (14)	1778.5 (132657)	23.62	22.69	21.81
		1745 (132322)	23.34	22.57	21.51
		1711.5 (131987)	23.43	22.67	21.57
	1RB-Middle (7)	1778.5 (132657)	23.80	22.81	22.00
		1745 (132322)	23.42	22.78	21.70
		1711.5 (131987)	23.56	22.85	21.78
	1RB-Low (0)	1778.5 (132657)	23.64	22.55	21.77
		1745 (132322)	23.24	22.47	21.44
		1711.5 (131987)	23.39	22.64	21.58
	8RB-High (7)	1778.5 (132657)	22.73	21.42	20.72
		1745 (132322)	22.37	21.35	20.44
		1711.5 (131987)	22.44	21.50	20.52
	8RB-Middle (4)	1778.5 (132657)	22.77	21.61	20.80
		1745 (132322)	22.37	21.45	20.45
		1711.5 (131987)	22.55	21.56	20.59
	8RB-Low (0)	1778.5 (132657)	22.73	21.80	20.76
		1745 (132322)	22.35	21.40	20.44
		1711.5 (131987)	22.50	21.54	20.54
	15RB (0)	1778.5 (132657)	22.65	21.69	20.68
		1745 (132322)	22.39	21.37	20.41
		1711.5 (131987)	22.47	21.45	20.49
5MHz	1RB-High (24)	1777.5 (132647)	23.51	22.70	21.74
		1745 (132322)	23.23	22.46	21.42
		1712.5 (131997)	23.31	22.56	21.38
	1RB-Middle (12)	1777.5 (132647)	23.76	22.64	21.94
		1745 (132322)	23.44	22.67	21.64
		1712.5 (131997)	23.58	22.84	21.76
	1RB-Low (0)	1777.5 (132647)	23.51	22.60	21.67
		1745 (132322)	23.19	22.46	21.36
		1712.5 (131997)	23.31	22.62	21.51
	12RB-High (13)	1777.5 (132647)	22.72	21.31	20.70
		1745 (132322)	22.35	21.35	20.42
		1712.5 (131997)	22.41	21.40	20.48
	12RB-Middle (6)	1777.5 (132647)	22.77	21.47	20.80
		1745 (132322)	22.42	21.38	20.47
		1712.5 (131997)	22.52	21.48	20.54
	12RB-Low (0)	1777.5 (132647)	22.68	21.40	20.73
		1745 (132322)	22.36	21.32	20.42
		1712.5 (131997)	22.47	21.41	20.50
	25RB (0)	1777.5 (132647)	22.71	21.68	20.73

		1745 (132322)	22.42	21.37	20.41
		1712.5 (131997)	22.35	21.45	20.49
10MHz	1RB-High (49)	1775 (132622)	23.57	22.78	21.76
		1745 (132322)	23.35	22.47	21.46
		1715 (132022)	23.36	22.55	21.41
	1RB-Middle (24)	1775 (132622)	23.71	22.75	21.90
		1745 (132322)	23.44	22.60	21.58
		1715 (132022)	23.51	22.79	21.59
	1RB-Low (0)	1775 (132622)	23.55	22.55	21.67
		1745 (132322)	23.08	22.59	21.38
		1715 (132022)	23.40	22.74	21.56
	25RB-High (25)	1775 (132622)	22.70	21.42	20.73
		1745 (132322)	22.44	21.40	20.45
		1715 (132022)	22.45	21.47	20.50
	25RB-Middle (12)	1775 (132622)	22.70	21.63	20.70
		1745 (132322)	22.41	21.39	20.44
		1715 (132022)	22.52	21.48	20.52
	25RB-Low (0)	1775 (132622)	22.71	21.62	20.73
		1745 (132322)	22.41	21.40	20.45
		1715 (132022)	22.53	21.48	20.52
	50RB (0)	1775 (132622)	22.71	21.68	20.72
		1745 (132322)	22.44	21.42	20.44
		1715 (132022)	22.50	21.46	20.52
15MHz	1RB-High (74)	1772.5 (132597)	23.53	22.80	21.75
		1745 (132322)	23.25	22.48	21.48
		1717.5 (132047)	23.23	22.35	21.34
	1RB-Middle (37)	1772.5 (132597)	23.56	22.87	21.72
		1745 (132322)	23.34	22.65	21.42
		1717.5 (132047)	23.37	22.58	21.44
	1RB-Low (0)	1772.5 (132597)	23.42	22.64	21.59
		1745 (132322)	23.28	22.55	21.42
		1717.5 (132047)	23.42	22.62	21.55
	36RB-High (38)	1772.5 (132597)	22.69	21.63	20.69
		1745 (132322)	22.38	21.33	20.37
		1717.5 (132047)	22.39	21.32	20.40
	36RB-Middle (19)	1772.5 (132597)	22.65	21.61	20.68
		1745 (132322)	22.38	21.30	20.42
		1717.5 (132047)	22.43	21.39	20.46
	36RB-Low (0)	1772.5 (132597)	22.60	21.57	20.64
		1745 (132322)	22.37	21.31	20.38
		1717.5 (132047)	22.45	21.39	20.47
	75RB (0)	1772.5 (132597)	22.64	21.61	20.69

20MHz		1745 (132322)	22.36	21.32	20.36
		1717.5 (132047)	22.41	21.37	20.42
	1RB-High (99)	1770 (132572)	23.38	22.74	21.69
		1745 (132322)	23.23	22.55	21.42
		1720 (132072)	23.15	22.26	21.25
	1RB-Middle (50)	1770 (132572)	23.53	22.86	21.72
		1745 (132322)	23.33	22.58	21.52
		1720 (132072)	23.41	22.67	21.56
	1RB-Low (0)	1770 (132572)	23.28	22.50	21.43
		1745 (132322)	23.18	22.36	21.28
		1720 (132072)	23.35	22.49	21.42
	50RB-High (50)	1770 (132572)	22.54	21.56	20.62
		1745 (132322)	22.36	21.34	20.38
		1720 (132072)	22.33	21.30	20.36
	50RB-Middle (25)	1770 (132572)	22.61	21.60	20.64
		1745 (132322)	22.34	21.34	20.42
		1720 (132072)	22.41	21.39	20.42
	50RB-Low (0)	1770 (132572)	22.58	21.61	20.67
		1745 (132322)	22.37	21.36	20.39
		1720 (132072)	22.38	21.35	20.40
	100RB (0)	1770 (132572)	22.58	21.60	20.63
		1745 (132322)	22.31	21.31	20.36
		1720 (132072)	22.34	21.29	20.36

LTE B66 –DSI 2

LTE B66					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
1.4MHz	1RB-High (5)	1779.3 (132665)	20.63	20.87	20.87
		1745 (132322)	20.31	20.55	20.59
		1710.7 (131979)	20.47	20.64	20.59
	1RB-Middle (3)	1779.3 (132665)	20.77	21.00	20.98
		1745 (132322)	20.43	20.70	20.59
		1710.7 (131979)	20.59	20.92	20.79
	1RB-Low (0)	1779.3 (132665)	20.63	20.86	20.88
		1745 (132322)	20.32	20.59	20.57
		1710.7 (131979)	20.47	20.75	20.68
	3RB-High (3)	1779.3 (132665)	20.73	20.72	20.85
		1745 (132322)	20.42	20.44	20.50
		1710.7 (131979)	20.57	20.62	20.67
	3RB-Middle (1)	1779.3 (132665)	20.81	20.74	20.90

		1745 (132322)	20.47	20.42	20.53
		1710.7 (131979)	20.60	20.61	20.74
		1779.3 (132665)	20.75	20.73	20.84
	3RB-Low (0)	1745 (132322)	20.41	20.42	20.51
		1710.7 (131979)	20.56	20.58	20.68
		1779.3 (132665)	20.76	20.83	20.77
	6RB (0)	1745 (132322)	20.42	20.48	20.37
		1710.7 (131979)	20.54	20.66	20.54
3MHz	1RB-High (14)	1778.5 (132657)	20.70	20.97	20.91
		1745 (132322)	20.40	20.76	20.63
		1711.5 (131987)	20.45	20.72	20.64
	1RB-Middle (7)	1778.5 (132657)	20.84	21.18	21.05
		1745 (132322)	20.44	20.87	20.71
		1711.5 (131987)	20.70	20.92	20.84
	1RB-Low (0)	1778.5 (132657)	20.70	20.95	20.87
		1745 (132322)	20.36	20.59	20.54
		1711.5 (131987)	20.54	20.85	20.71
	8RB-High (7)	1778.5 (132657)	20.70	20.79	20.78
		1745 (132322)	20.42	20.52	20.46
		1711.5 (131987)	20.50	20.60	20.57
	8RB-Middle (4)	1778.5 (132657)	20.75	20.82	20.76
		1745 (132322)	20.42	20.48	20.49
		1711.5 (131987)	20.57	20.63	20.64
	8RB-Low (0)	1778.5 (132657)	20.70	20.83	20.75
		1745 (132322)	20.39	20.46	20.44
		1711.5 (131987)	20.55	20.61	20.60
	15RB (0)	1778.5 (132657)	20.71	20.75	20.72
		1745 (132322)	20.43	20.46	20.41
		1711.5 (131987)	20.51	20.56	20.51
5MHz	1RB-High (24)	1777.5 (132647)	20.56	20.89	20.77
		1745 (132322)	20.28	20.48	20.42
		1712.5 (131997)	20.34	20.61	20.56
	1RB-Middle (12)	1777.5 (132647)	20.83	21.20	21.04
		1745 (132322)	20.46	20.85	20.76
		1712.5 (131997)	20.60	20.91	20.87
	1RB-Low (0)	1777.5 (132647)	20.56	20.78	20.74
		1745 (132322)	20.27	20.61	20.46
		1712.5 (131997)	20.41	20.70	20.61
	12RB-High (13)	1777.5 (132647)	20.71	20.68	20.71
		1745 (132322)	20.41	20.42	20.46
		1712.5 (131997)	20.50	20.48	20.52
12RB-Middle (6)	1777.5 (132647)	20.79	20.80	20.84	

		1745 (132322)	20.48	20.45	20.46
		1712.5 (131997)	20.54	20.55	20.58
	12RB-Low (0)	1777.5 (132647)	20.73	20.72	20.73
		1745 (132322)	20.41	20.38	20.40
		1712.5 (131997)	20.49	20.52	20.49
	25RB (0)	1777.5 (132647)	20.74	20.76	20.74
		1745 (132322)	20.43	20.45	20.46
		1712.5 (131997)	20.51	20.53	20.50
10MHz	1RB-High (49)	1775 (132622)	20.63	20.90	20.82
		1745 (132322)	20.38	20.62	20.58
		1715 (132022)	20.42	20.65	20.64
	1RB-Middle (24)	1775 (132622)	20.78	21.15	20.95
		1745 (132322)	20.46	20.84	20.73
		1715 (132022)	20.57	20.84	20.80
	1RB-Low (0)	1775 (132622)	20.61	20.86	20.75
		1745 (132322)	20.35	20.66	20.58
		1715 (132022)	20.49	20.87	20.69
	25RB-High (25)	1775 (132622)	20.78	20.77	20.76
		1745 (132322)	20.46	20.50	20.47
		1715 (132022)	20.53	20.55	20.52
	25RB-Middle (12)	1775 (132622)	20.73	20.76	20.76
		1745 (132322)	20.46	20.47	20.46
		1715 (132022)	20.54	20.56	20.56
	25RB-Low (0)	1775 (132622)	20.77	20.79	20.76
		1745 (132322)	20.47	20.47	20.42
		1715 (132022)	20.55	20.53	20.52
	50RB (0)	1775 (132622)	20.75	20.75	20.76
		1745 (132322)	20.47	20.47	20.47
		1715 (132022)	20.53	20.56	20.53
15MHz	1RB-High (74)	1772.5 (132597)	20.59	20.98	20.81
		1745 (132322)	20.32	20.66	20.53
		1717.5 (132047)	20.29	20.58	20.47
	1RB-Middle (37)	1772.5 (132597)	20.63	20.92	20.85
		1745 (132322)	20.37	20.72	20.57
		1717.5 (132047)	20.42	20.75	20.56
	1RB-Low (0)	1772.5 (132597)	20.52	20.75	20.70
		1745 (132322)	20.34	20.58	20.44
		1717.5 (132047)	20.48	20.82	20.65
	36RB-High (38)	1772.5 (132597)	20.71	20.69	20.69
		1745 (132322)	20.43	20.42	20.43
		1717.5 (132047)	20.43	20.43	20.44
	36RB-Middle (19)	1772.5 (132597)	20.68	20.67	20.68

	36RB-Low (0)	1745 (132322)	20.43	20.39	20.42
		1717.5 (132047)	20.49	20.46	20.46
		1772.5 (132597)	20.66	20.68	20.66
		1745 (132322)	20.43	20.40	20.40
		1717.5 (132047)	20.51	20.47	20.49
	75RB (0)	1772.5 (132597)	20.69	20.70	20.67
		1745 (132322)	20.41	20.42	20.39
		1717.5 (132047)	20.45	20.47	20.45
	20MHz	1RB-High (99)	1770 (132572)	20.53	20.79
1745 (132322)			20.28	20.52	20.52
1720 (132072)			20.22	20.48	20.45
1RB-Middle (50)		1770 (132572)	20.74	20.89	20.89
		1745 (132322)	20.42	20.72	20.62
		1720 (132072)	20.52	20.72	20.71
1RB-Low (0)		1770 (132572)	20.37	20.62	20.61
		1745 (132322)	20.29	20.52	20.46
		1720 (132072)	20.39	20.68	20.67
50RB-High (50)		1770 (132572)	20.61	20.64	20.64
		1745 (132322)	20.44	20.41	20.41
		1720 (132072)	20.37	20.41	20.37
50RB-Middle (25)		1770 (132572)	20.65	20.67	20.67
		1745 (132322)	20.40	20.43	20.41
		1720 (132072)	20.46	20.44	20.46
50RB-Low (0)		1770 (132572)	20.88	20.70	20.70
		1745 (132322)	20.40	20.44	20.44
		1720 (132072)	20.57	20.44	20.46
100RB (0)		1770 (132572)	20.66	20.65	20.68
		1745 (132322)	20.38	20.41	20.41
		1720 (132072)	20.40	20.37	20.39

LTE B71 –DSI 0/1/2

LTE B71					
BANDWIDTH	Number of RBs	Frequency	QPSK	16QAM	64QAM
5MHz	1RB-High (24)	695.5 (133447)	23.42	22.72	21.65
		680.5 (133297)	23.56	22.59	21.76
		665.5 (133147)	23.61	22.56	21.59
	1RB-Middle (12)	695.5 (133447)	23.45	22.77	22.05
		680.5 (133297)	23.71	22.77	22.06
		665.5 (133147)	23.50	22.64	21.80
	1RB-Low (0)	695.5 (133447)	23.08	22.40	21.75

		680.5 (133297)	23.06	22.51	21.76
		665.5 (133147)	23.07	22.07	21.48
	12RB-High (13)	695.5 (133447)	22.20	21.18	20.65
		680.5 (133297)	22.31	21.35	20.74
		665.5 (133147)	22.22	21.17	20.29
	12RB-Middle (6)	695.5 (133447)	22.24	21.27	20.52
		680.5 (133297)	22.31	21.29	20.78
		665.5 (133147)	22.29	21.26	20.42
	12RB-Low (0)	695.5 (133447)	22.27	21.25	20.51
		680.5 (133297)	22.34	21.27	20.82
		665.5 (133147)	22.24	21.18	20.33
	25RB (0)	695.5 (133447)	22.25	21.26	20.61
		680.5 (133297)	22.30	21.28	20.79
		665.5 (133147)	22.22	21.23	20.21
10MHz	1RB-High (49)	693 (133422)	23.10	22.29	21.09
		680.5 (133297)	23.49	23.15	21.86
		668 (133172)	23.21	23.49	21.68
	1RB-Middle (24)	693 (133422)	23.30	22.56	21.27
		680.5 (133297)	23.32	23.33	21.08
		668 (133172)	23.34	23.39	21.56
	1RB-Low (0)	693 (133422)	23.22	22.45	21.22
		680.5 (133297)	23.20	23.20	21.55
		668 (133172)	23.19	23.21	21.20
	25RB-High (25)	693 (133422)	22.17	21.16	20.17
		680.5 (133297)	22.27	21.27	20.24
		668 (133172)	22.51	21.46	20.43
	25RB-Middle (12)	693 (133422)	22.28	21.29	20.26
		680.5 (133297)	22.37	21.34	20.32
		668 (133172)	22.36	21.33	20.33
	25RB-Low (0)	693 (133422)	22.25	21.25	20.23
		680.5 (133297)	22.42	21.37	20.38
		668 (133172)	22.50	21.43	20.45
	50RB (0)	693 (133422)	22.20	21.23	20.21
		680.5 (133297)	22.38	21.34	20.33
		668 (133172)	22.52	21.48	20.45
15MHz	1RB-High (74)	690.5 (133397)	23.07	22.16	21.26
		680.5 (133297)	23.12	23.22	21.40
		670.5 (133197)	23.10	23.17	21.61
	1RB-Middle (37)	690.5 (133397)	23.24	22.52	21.51
		680.5 (133297)	23.24	23.24	21.47
		670.5 (133197)	23.26	23.28	21.30
	1RB-Low (0)	690.5 (133397)	23.17	22.47	21.32

		680.5 (133297)	23.21	23.22	21.37
		670.5 (133197)	23.17	23.17	21.18
	36RB-High (38)	690.5 (133397)	22.23	21.23	20.27
		680.5 (133297)	22.29	21.28	20.28
		670.5 (133197)	22.46	21.42	20.43
	36RB-Middle (19)	690.5 (133397)	22.31	21.30	20.33
		680.5 (133297)	22.33	21.31	20.32
		670.5 (133197)	22.39	21.33	20.37
	36RB-Low (0)	690.5 (133397)	22.24	21.19	20.19
		680.5 (133297)	22.35	21.26	20.29
		670.5 (133197)	22.39	21.34	20.36
	75RB (0)	690.5 (133397)	22.23	21.25	20.23
		680.5 (133297)	22.33	21.30	20.28
		670.5 (133197)	22.41	21.40	20.38
20MHz	1RB-High (99)	688 (133372)	22.99	22.27	21.17
		683 (133322)	23.02	23.13	21.03
		673 (133222)	23.00	23.12	21.13
	1RB-Middle (50)	688 (133372)	23.24	22.49	21.45
		683 (133322)	23.38	23.27	21.31
		673 (133222)	23.33	23.31	21.30
	1RB-Low (0)	688 (133372)	23.11	22.35	21.28
		683 (133322)	23.13	23.12	21.13
		673 (133222)	23.12	23.10	21.10
	50RB-High (50)	688 (133372)	22.28	21.29	20.29
		683 (133322)	22.44	21.42	20.43
		673 (133222)	22.21	21.19	20.19
	50RB-Middle (25)	688 (133372)	22.31	21.31	20.29
		683 (133322)	22.36	21.33	20.33
		673 (133222)	22.32	21.29	20.29
	50RB-Low (0)	688 (133372)	22.39	21.37	20.39
		683 (133322)	22.45	21.41	20.40
		673 (133222)	22.29	21.29	20.27
	100RB (0)	688 (133372)	22.31	21.28	20.27
		683 (133322)	22.41	21.40	20.38
		673 (133222)	22.22	21.18	20.20

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_41C- DSI 0/1/2

UL LTE CA Class	PCC				SCC				conducted power (dBm)
	PCC Bandwidth	channel	RB	RB OFFSET	SCC Bandwidth	channel	RB	RB OFFSET	
CA_41C	20M	41490	1	99	20M	41292	1	0	14.87
CA_41C	20M	41490	1	99	15M	41319	1	0	14.76
CA_41C	20M	41490	1	99	10M	41346	1	0	14.93
CA_41C	20M	41490	1	99	5M	41373	1	0	14.83
CA_41C	20M	39750	1	99	5M	39867	1	0	22.98
CA_41C	20M	39750	1	99	20M	39948	1	0	23.02
CA_41C	20M	39750	1	99	15M	39921	1	0	22.83
CA_41C	20M	39750	1	99	10M	39894	1	0	23.06
CA_41C	15M	41515	1	74	15M	41365	1	0	19.83
CA_41C	15M	41515	1	74	10M	41395	1	0	19.76
CA_41C	15M	39725	1	74	10M	39845	1	0	23.01
CA_41C	20M	41490	1	0	20M	41292	1	99	23.42
CA_41C	20M	41490	1	0	15M	41319	1	74	23.39
CA_41C	20M	41490	1	0	10M	41346	1	49	23.45
CA_41C	20M	39750	1	0	5M	39867	1	24	14.73
CA_41C	20M	41490	1	0	5M	41373	1	24	23.01
CA_41C	20M	39750	1	0	20M	39948	1	99	14.87
CA_41C	20M	39750	1	0	15M	39921	1	74	14.79
CA_41C	20M	39750	1	0	10M	39894	1	49	14.83
CA_41C	15M	41515	1	0	15M	41365	1	74	23.42
CA_41C	15M	41515	1	0	10M	41395	1	49	23.38
CA_41C	15M	39725	1	0	10M	39845	1	49	14.84

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

DL LTE CA Class	PCC								SCC			Power		
	PC C Band	PCC Band width (MHz)	PCC UL RB size	PCC UL RB offset	PCC DL RB size	PCC DL RB offset	PCC UL Channel	PCC DL Channel	SCC Band	SCC Band width (MHz)	SCC DL Chann el	Rel 8 LTETx Power (dBm)	Rel 10 DL LTE CA Tx Power(dB m)	Tune -up
2A-2A	2	20	1	50	100	0	18900	900	2	5	1175	23.85	23.43	25
2C	2	20	1	50	100	0	18801	801	2	20	999	23.52	23.46	25
2A-4A	2	20	1	50	100	0	18900	900	4	10	2175	23.85	23.5	25
2A-4A	4	20	1	50	100	0	20175	2175	2	20	900	23.77	23.76	25
2A-5A	2	20	1	50	100	0	18900	900	5	10	2525	23.85	23.49	25
2A-5A	5	10	1	24	50	0	20525	2525	2	20	900	24.1	23.72	25
2A-12A	2	20	1	50	100	0	18900	900	12	10	5095	23.85	23.76	25
2A-12A	12	10	1	0	50	0	23060	5060	2	20	900	24.28	24.14	25
2A-66A	2	20	1	50	100	0	18900	900	66	20	66786	23.85	23.46	25
2A-66A	66	20	1	50	100	0	132572	67036	2	20	900	23.53	23.44	25
2A-71A	2	20	1	50	100	0	18900	900	71	20	68786	23.85	23.45	25
2A-71A	71	20	1	50	100	0	133322	68786	2	20	900	23.38	22.93	24.5
4A-4A	4	20	1	50	100	0	20050	2050	4	20	2300	23.54	23.21	25
4A-5A	4	20	1	50	100	0	20175	2175	5	10	2525	23.77	23.42	25
4A-5A	5	10	1	24	50	0	20525	2525	4	10	2175	24.1	24.01	25
4A-12A	4	20	1	50	100	0	20175	2175	12	10	5095	23.77	23.31	25
4A-12A	12	12	10	1	0	50	0	23060	5060	10	2175	24.28	23.87	25
4A-71A	4	20	1	50	100	0	20175	2175	71	20	68786	23.77	23.72	25
4A-71A	71	20	1	50	100	0	133322	68786	4	10	2175	23.38	23.04	24.5
5A-66A	5	10	1	24	50	0	20525	2525	66	20	66786	24.1	24.03	25
5A-66A	66	20	1	50	100	0	132572	67036	5	10	2525	23.53	23.09	25
12A-66A	12	10	1	24	50	0	23060	5095	66	20	66786	24.28	24.02	25
12A-66A	66	20	1	50	100	0	132572	67036	12	10	5095	23.53	23.17	25
66A-66A	66	20	1	50	100	0	132572	67036	66	20	66786	23.61	23.61	25
66B	66	10	1	24	50	0	1775	2175	66	10	67185	23.74	23.58	25
66C	66	20	1	50	100	0	132323	66787	66	20	66985	23.62	23.4	25
66A-71A	66	20	1	50	100	0	132572	67036	71	20	68786	23.53	23.05	25
66A-71A	71	20	1	50	100	0	133322	68786	66	20	66786	23.38	23.33	24.5

11.2 Wi-Fi and BT Measurement result

The maximum output power of BT antenna is 9.27dBm.

The maximum tune up of BT antenna is 10dBm.

Table11.2-1: Summary of Receiver detection mechanism-WIFI2.4G

Antenna	Receiver off and Cellular off	Receiver on and Cellular off	Receiver on and Cellular on	Receiver off and Cellular on
WIFI2.4G Antenna	DSI0	DSI1	DSI2	DSI3

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

DSI0/3:

802.11b	
Channel\data rate	1Mbps
11(2462MHz)	20.25
6(2437(MHz)	20.66
1(2412MHz)	20.06
Tune up	21.00
802.11g	
Channel\data rate	6Mbps
11(2462MHz)	19.38
6(2437(MHz)	19.81
1(2412MHz)	19.01
Tune up	20.00
802.11n-20MHz	
Channel\data rate	MCS0
11(2462MHz)	19.31
6(2437(MHz)	19.72
1(2412MHz)	18.91
Tune up	20.00
802.11n-40MHz	
Channel\data rate	MCS0
9(2452MHz)	18.89
6(2437MHz)	18.44
3(2422MHz)	18.11
Tune up	19.00

DSI1:

802.11b	
Channel\data rate	1Mbps
11(2462MHz)	16.56
6(2437(MHz)	16.36
1(2412MHz)	15.94
Tune up	17.00
802.11g	
Channel\data rate	6Mbps
11(2462MHz)	16.83
6(2437(MHz)	16.65
1(2412MHz)	16.35
Tune up	17.00
802.11n-20MHz	
Channel\data rate	MCS0
11(2462MHz)	16.77
6(2437(MHz)	16.89
1(2412MHz)	16.32
Tune up	17.00
802.11n-40MHz	
Channel\data rate	MCS0
9(2452MHz)	16.38
6(2437MHz)	16.39
3(2422MHz)	16.62
Tune up	17.00

DSI2:

802.11b	
Channel\data rate	1Mbps
11(2462MHz)	14.19
6(2437(MHz)	14.41
1(2412MHz)	14.04
Tune up	15.00
802.11g	
Channel\data rate	6Mbps
11(2462MHz)	14.87
6(2437(MHz)	14.73
1(2412MHz)	14.54
Tune up	15.00
802.11n-20MHz	
Channel\data rate	MCS0
11(2462MHz)	14.79
6(2437(MHz)	14.92
1(2412MHz)	14.49
Tune up	15.00
802.11n-40MHz	
Channel\data rate	MCS0
9(2452MHz)	14.53
6(2437MHz)	14.38
3(2422MHz)	14.65
Tune up	15.00

Table11.2-2: Summary of Receiver detection mechanism-WIFI5G

Antenna	Cellular TX off, For Wifi only	Cellular TX on , For Cellular +Wifi
WIFI5G Antenna	DSI0	DSI1

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

DSI0:

5G-

802.11a

Channel\rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
36-64	20+/-1	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
100-144	20+/-1	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
149-157	20.5+/-1	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
161-165	19.5+/-1	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
CLPC	19	19	18	18	18	17	17	16

5G-802.11n 20MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
36-144	19.5+/-1	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
149-157	19.5+/-1.5	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
161-165	19.5+/-1.5	19+/-1	18+/-1	18+/-1	18+/-1	17+/-1	17+/-1	16+/-1
CLPC	19	19	19	19	19	17	17	16

5G-802.11n 40MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
38-165	18+/-1.5	18+/-1	18+/-1	18+/-1	18+/-1	15+/-1	15+/-1	15+/-1

CLPC	18	18	18	18	18	15	15	15
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5G-802.11ac 20MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
36-144	19+/-1	19+/-1	19+/-1	19+/-1	19+/-1	17+/-1	17+/-1	16+/-1	16+/-1	12+/-1
149-165	19+/-1.5	19+/-1	19+/-1	19+/-1	19+/-1	17+/-1	17+/-1	16+/-1	16+/-1	12+/-1
CLPC	19	19	19	19	19	17	17	16	16	12

5G-802.11ac 40MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
38-163	18+/-1.5	18+/-1	18+/-1	18+/-1	18+/-1	18+/-1	18+/-1	15+/-1	11+/-1	11+/-1
CLPC	18	18	18	18	18	18	18	15	11	11

5G-802.11ac 80MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
42-159	17+/-1.5	17+/-1	17+/-1	17+/-1	17+/-1	17+/-1	17+/-1	14+/-1	10+/-1	10+/-1
CLPC	17	17	17	17	17	17	17	14	10	10

DSI1:
5G-
802.11a

Channel\rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
36-165	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1
CLPC	15	15	15	15	15	15	15	15

5G-802.11n 20MHZ

Channel\rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm

36-165	14+/- 1	14+/- 1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1
CLPC	15	15	15	15	15	15	15	15

5G-802.11n 40MHZ

Channel\ rate	MCS 0	MCS 1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
38-165	14+/- 1	14+/- 1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1
CLPC	15	15	15	15	15	15	15	15

5G-802.11ac 20MHZ

Channel\ rate	MCS 0	MCS 1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS 8	MCS 9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
36-165	14+/- 1	14+/- 1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/- 1	12+/- 1
CLPC	15	15	15	15	15	15	15	15	15	12

5G-802.11ac 40MHZ

Channel\ rate	MCS 0	MCS 1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS 8	MCS 9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
38-163	14+/- 1	14+/- 1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	11+/- 1	11+/- 1
CLPC	15	15	15	15	15	15	15	15	11	11

5G-802.11ac 80MHZ

Channel\ rate	MCS 0	MCS 1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS 8	MCS 9
	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm	dBm
42-159	14+/- 1	14+/- 1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	14+/-1	10+/- 1	10+/- 1
CLPC	15	15	15	15	15	15	15	14	10	10

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

DSI0:

802.11a(dBm)	
Channel\data rate	6Mbps
36(5180 MHz)	19.22
40(5200 MHz)	19.77
44(5220 MHz)	19.85
48(5240 MHz)	19.74
52(5260 MHz)	19.73
56(5280 MHz)	19.99
60(5300 MHz)	19.78
64(5320 MHz)	19.64
100(5500 MHz)	20.27
104(5520 MHz)	19.90
108(5540 MHz)	20.01
112(5560 MHz)	19.87
116(5580 MHz)	20.03
120(5600 MHz)	20.03
124(5620 MHz)	19.43
128(5640 MHz)	19.38
132(5660 MHz)	20.12
136(5680 MHz)	20.33
140(5700 MHz)	20.22
144(5720 MHz)	20.00
Tune up	21.00
149(5745 MHz)	20.83
153(5765 MHz)	20.98
157(5785 MHz)	20.45
Tune up	21.50
161(5805 MHz)	19.64
165(5825 MHz)	19.82
Tune up	20.50



No.I23Z61525-SEM03

DSI1:

802.11ac(dBm)-80MHz	
Channel\data rate	MCS0
42(5210 MHz)	14.60
58(5290 MHz)	14.30
106(5530 MHz)	14.10
122(5610 MHz)	13.60
138(5690 MHz)	14.00
155(5775 MHz)	14.40
Tune up	15.00

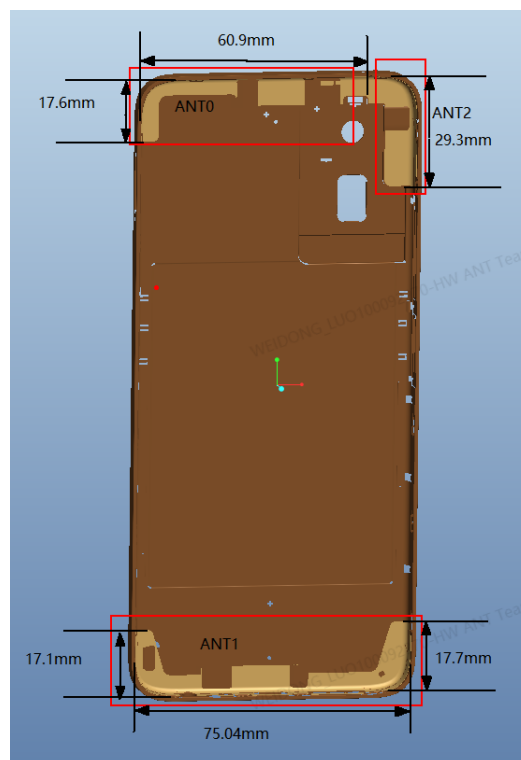
12 Simultaneous TX SAR Considerations

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



Picture 12.2 Antenna Locations

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
ANT0	Yes	Yes	Yes	Yes	Yes	No
ANT1	Yes	Yes	Yes	Yes	No	Yes
ANT2	Yes	Yes	No	Yes	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	Left head, Cheek (LTE B26)	0.49	0.69	1.18
Highest SAR value for Body	Rear 10mm (LTE B66)	0.74	0.56	1.30

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 (LTE B12)	0.64	0.40	<0.01	1.04
Highest SAR value for Body	Rear 10mm (LTE B66)	0.74	0.69	0.01	1.44

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
LTE FDD	1:1
LTE TDD PC3	1:1.58
LTE TDD PC2	1:2.37

14.1 SAR results for 4G

Table 14.1-1: SAR Values-LTE B12/B25/B26

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	23095	707.5	1RB-Mid	/	24.28	25	0.416	0.49	0.331	0.39	0.03
Tilt	L	LTE Band12	23095	707.5	1RB-Mid	/	24.28	25	0.311	0.37	0.236	0.28	0.03
Cheek	R	LTE Band12	23095	707.5	1RB-Mid	1	24.28	25	0.553	0.65	0.398	0.47	0.02
Tilt	R	LTE Band12	23095	707.5	1RB-Mid	/	24.28	25	0.544	0.64	0.321	0.38	-0.09
Cheek	L	LTE Band12	23095	707.5	25RB-Low	/	23.34	24	0.286	0.33	0.232	0.27	0.03
Tilt	L	LTE Band12	23095	707.5	25RB-Low	/	23.34	24	0.232	0.27	0.175	0.20	0.03
Cheek	R	LTE Band12	23095	707.5	25RB-Low	/	23.34	24	0.359	0.42	0.269	0.31	-0.07
Tilt	R	LTE Band12	23095	707.5	25RB-Low	/	23.34	24	0.413	0.48	0.242	0.28	0.18
Body	F	LTE Band12	23095	707.5	1RB-Mid Front 15mm	/	24.28	25	0.308	0.36	0.231	0.27	0.11
Body	F	LTE Band12	23095	707.5	1RB-Mid Rear 15mm	2	24.28	25	0.435	0.51	0.324	0.38	-0.02
Body	F	LTE Band12	23095	707.5	25RB-Low Front 15mm	/	23.34	24	0.21	0.24	0.159	0.19	-0.16
Body	F	LTE Band12	23095	707.5	25RB-Low Rear 15mm	/	23.34	24	0.318	0.37	0.238	0.28	-0.04
Body	F	LTE Band12	23095	707.5	1RB-Mid Front 10mm	/	24.28	25	0.3	0.35	0.226	0.27	-0.15
Body	F	LTE Band12	23095	707.5	1RB-Mid Rear 10mm	3	24.28	25	0.511	0.60	0.377	0.44	-0.01
Body	F	LTE Band12	23095	707.5	1RB-Mid Left Edge 10mm	/	24.28	25	0.33	0.39	0.227	0.27	0.01
Body	F	LTE Band12	23095	707.5	1RB-Mid Right Edge 10mm	/	24.28	25	0.226	0.27	0.157	0.19	0.07
Body	F	LTE Band12	23095	707.5	1RB-Mid Top Edge 10mm	/	24.28	25	0.151	0.18	0.085	0.10	-0.03
Body	F	LTE Band12	23095	707.5	25RB-Low Front 10mm	/	23.34	24	0.217	0.25	0.163	0.19	0.06
Body	F	LTE Band12	23095	707.5	25RB-Low Rear 10mm	/	23.34	24	0.36	0.42	0.266	0.31	-0.08
Body	F	LTE Band12	23095	707.5	25RB-Low Left Edge 10mm	/	23.34	24	0.238	0.28	0.167	0.19	0.1
Body	F	LTE Band12	23095	707.5	25RB-Low Right Edge 10mm	/	23.34	24	0.152	0.18	0.105	0.12	0.15
Body	F	LTE Band12	23095	707.5	25RB-Low Top Edge 10mm	/	23.34	24	0.122	0.14	0.065	0.08	0.01
Cheek	L	LTE Band25	26590	1905	1RB-Mid	4	23.89	25	0.363	0.47	0.221	0.29	0.01
Tilt	L	LTE Band25	26590	1905	1RB-Mid	/	23.89	25	0.208	0.27	0.127	0.16	-0.1
Cheek	R	LTE Band25	26590	1905	1RB-Mid	/	23.89	25	0.262	0.34	0.161	0.21	-0.14
Tilt	R	LTE Band25	26590	1905	1RB-Mid	/	23.89	25	0.253	0.33	0.152	0.20	-0.01
Cheek	L	LTE Band25	26140	1860	50RB-Low	/	22.86	24	0.232	0.30	0.142	0.18	-0.1
Tilt	L	LTE Band25	26140	1860	50RB-Low	/	22.86	24	0.143	0.19	0.085	0.11	0.14
Cheek	R	LTE Band25	26140	1860	50RB-Low	/	22.86	24	0.18	0.23	0.111	0.14	0.18
Tilt	R	LTE Band25	26140	1860	50RB-Low	/	22.86	24	0.169	0.22	0.102	0.13	0.02
Body	F	LTE Band25	26140	1860	1RB-Mid Front 15mm	/	23.17	24	0.348	0.42	0.212	0.26	-0.17
Body	F	LTE Band25	26140	1860	1RB-Mid Rear 15mm	5	23.17	24	0.516	0.62	0.309	0.37	-0.05
Body	F	LTE Band25	26140	1860	50RB-Mid Front 15mm	/	23.19	24	0.346	0.42	0.208	0.25	0.08
Body	F	LTE Band25	26140	1860	50RB-Mid Rear 15mm	/	23.19	24	0.492	0.59	0.297	0.36	-0.15
Body	F	LTE Band25	26140	1860	1RB-Mid Front 10mm	/	21.22	22	0.336	0.40	0.195	0.23	-0.06
Body	F	LTE Band25	26140	1860	1RB-Mid Rear 10mm	/	21.22	22	0.512	0.61	0.287	0.34	-0.04
Body	F	LTE Band25	26140	1860	1RB-Mid Left Edge 10mm	/	21.22	22	0.073	0.09	0.043	0.05	0.15
Body	F	LTE Band25	26140	1860	1RB-Mid Right Edge 10mm	/	21.22	22	0.122	0.15	0.067	0.08	-0.08
Body	F	LTE Band25	26140	1860	1RB-Mid Bottom Edge 10mm	6	21.22	22	0.521	0.62	0.294	0.35	0.02
Body	F	LTE Band25	26590	1905	50RB-Low Front 10mm	/	21.33	22	0.333	0.39	0.196	0.23	-0.15
Body	F	LTE Band25	26590	1905	50RB-Low Rear 10mm	/	21.33	22	0.474	0.55	0.272	0.32	-0.16
Body	F	LTE Band25	26590	1905	50RB-Low Left Edge 10mm	/	21.33	22	0.077	0.09	0.044	0.05	0.04
Body	F	LTE Band25	26590	1905	50RB-Low Right Edge 10mm	/	21.33	22	0.152	0.18	0.085	0.10	0.13
Body	F	LTE Band25	26590	1905	50RB-Low Bottom Edge 10mm	/	21.33	22	0.503	0.59	0.281	0.33	-0.14
Cheek	L	LTE Band26	26765	821.5	1RB-Mid	/	23.25	24	0.416	0.49	0.312	0.37	-0.11
Tilt	L	LTE Band26	26765	821.5	1RB-Mid	/	23.25	24	0.36	0.43	0.24	0.29	0.16
Cheek	R	LTE Band26	26765	821.5	1RB-Mid	7	23.25	24	0.553	0.66	0.391	0.46	0.02
Tilt	R	LTE Band26	26765	821.5	1RB-Mid	/	23.25	24	0.398	0.47	0.256	0.30	0.09
Cheek	L	LTE Band26	26765	821.5	36RB-Mid	/	23.32	24	0.456	0.53	0.319	0.37	-0.12
Tilt	L	LTE Band26	26765	821.5	36RB-Mid	/	23.32	24	0.336	0.39	0.213	0.25	-0.04
Cheek	R	LTE Band26	26765	821.5	36RB-Mid	/	23.32	24	0.545	0.64	0.374	0.44	0.11
Tilt	R	LTE Band26	26765	821.5	36RB-Mid	/	23.32	24	0.396	0.46	0.244	0.29	0.17
Body	F	LTE Band26	26865	831.5	1RB-Mid Front 15mm	/	24.21	25	0.199	0.24	0.149	0.18	0.11
Body	F	LTE Band26	26865	831.5	1RB-Mid Rear 15mm	8	24.21	25	0.278	0.33	0.205	0.25	-0.05
Body	F	LTE Band26	26865	831.5	36RB-Mid Front 15mm	/	23.34	24	0.178	0.21	0.133	0.15	0.08
Body	F	LTE Band26	26865	831.5	36RB-Mid Rear 15mm	/	23.34	24	0.227	0.26	0.168	0.20	-0.18
Body	F	LTE Band26	26865	831.5	1RB-Mid Front 10mm	/	24.21	25	0.208	0.25	0.157	0.19	-0.17
Body	F	LTE Band26	26865	831.5	1RB-Mid Rear 10mm	9	24.21	25	0.345	0.41	0.254	0.30	-0.04
Body	F	LTE Band26	26865	831.5	1RB-Mid Left Edge 10mm	/	24.21	25	0.243	0.29	0.164	0.20	0.01
Body	F	LTE Band26	26865	831.5	1RB-Mid Right Edge 10mm	/	24.21	25	0.123	0.15	0.084	0.10	0.05
Body	F	LTE Band26	26865	831.5	1RB-Mid Top Edge 10mm	/	24.21	25	0.194	0.23	0.107	0.13	-0.11
Body	F	LTE Band26	26865	831.5	36RB-Mid Front 10mm	/	23.34	24	0.17	0.20	0.128	0.15	0.02
Body	F	LTE Band26	26865	831.5	36RB-Mid Rear 10mm	/	23.34	24	0.291	0.34	0.215	0.25	-0.17
Body	F	LTE Band26	26865	831.5	36RB-Mid Left Edge 10mm	/	23.34	24	0.192	0.22	0.133	0.15	-0.17
Body	F	LTE Band26	26865	831.5	36RB-Mid Right Edge 10mm	/	23.34	24	0.102	0.12	0.069	0.08	0.08
Body	F	LTE Band26	26865	831.5	36RB-Mid Top Edge 10mm	/	23.34	24	0.161	0.19	0.09	0.10	0.15

Table 14.1-2: SAR Values-LTE B41/B66

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 B41-PC3	41055	2636.5	1RB-Middle	/	23.97	25	0.152	0.19	0.079	0.10	0.13
Tilt	L	LTE B41-PC3	41055	2636.5	1RB-Middle	/	23.97	25	0.092	0.12	0.045	0.06	0.05
Cheek	R	LTE B41-PC3	41055	2636.5	1RB-Middle	10	23.97	25	0.282	0.36	0.141	0.18	0.08
Tilt	R	LTE B41-PC3	41055	2636.5	1RB-Middle	/	23.97	25	0.122	0.15	0.06	0.08	0.15
Cheek	L	LTE B41-PC3	41490	2680	50RB-Low	/	22.97	24	0.148	0.19	0.076	0.10	-0.11
Tilt	L	LTE B41-PC3	41490	2680	50RB-Low	/	22.97	24	0.101	0.13	0.049	0.06	0.07
Cheek	R	LTE B41-PC3	41490	2680	50RB-Low	/	22.97	24	0.245	0.31	0.122	0.15	-0.15
Tilt	R	LTE B41-PC3	41490	2680	50RB-Low	/	22.97	24	0.116	0.15	0.057	0.07	-0.09
Cheek	R	LTE B41-PC3	41490	2680	UL CA 41C	/	23.45	25	0.234	0.33	0.117	0.17	0.12
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Front 15mm	/	23.97	25	0.21	0.27	0.113	0.14	-0.03
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Rear 15mm	11	23.97	25	0.218	0.28	0.116	0.15	-0.01
Body	F	LTE B41-PC3	41490	2680	50RB-Low Front 15mm	/	22.97	24	0.197	0.25	0.105	0.13	-0.03
Body	F	LTE B41-PC3	41490	2680	50RB-Low Rear 15mm	/	22.97	24	0.192	0.24	0.101	0.13	0.15
Body	F	LTE B41-PC3	41490	2680	UL CA 41C Rear 15mm	/	23.45	25	0.175	0.25	0.09	0.13	0.09
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Front 10mm	/	23.97	25	0.366	0.46	0.194	0.25	0.18
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Rear 10mm	12	23.97	25	0.402	0.51	0.21	0.27	-0.04
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Left 10mm	/	23.97	25	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Right 10mm	/	23.97	25	0.222	0.28	0.106	0.13	-0.05
Body	F	LTE B41-PC3	41055	2636.5	1RB-Middle Bottom 10mm	/	23.97	25	0.205	0.26	0.109	0.14	0.1
Body	F	LTE B41-PC3	41490	2680	50RB-Low Front 10mm	/	22.97	24	0.328	0.42	0.17	0.22	-0.11
Body	F	LTE B41-PC3	41490	2680	50RB-Low Rear 10mm	/	22.97	24	0.31	0.39	0.161	0.20	-0.04
Body	F	LTE B41-PC3	41490	2680	50RB-Low Left 10mm	/	22.97	24	<0.01	<0.01	<0.01	<0.01	/
Body	F	LTE B41-PC3	41490	2680	50RB-Low Right 10mm	/	22.97	24	0.232	0.29	0.122	0.15	0.18
Body	F	LTE B41-PC3	41490	2680	50RB-Low Bottom 10mm	/	22.97	24	0.154	0.20	0.082	0.10	0.15
Body	F	LTE B41-PC3	41490	2680	UL CA 41C Rear 10mm	/	23.45	25	0.334	0.48	0.175	0.25	-0.14
Cheek	L	LTE B41-PC2	41055	2636.5	1RB-Middle	/	26.97	28	0.233	0.30	0.121	0.15	-0.1
Tilt	L	LTE B41-PC2	41055	2636.5	1RB-Middle	/	26.97	28	0.153	0.19	0.077	0.10	0.18
Cheek	R	LTE B41-PC2	41055	2636.5	1RB-Middle	13	26.97	28	0.397	0.50	0.2	0.25	0.02
Tilt	R	LTE B41-PC2	41055	2636.5	1RB-Middle	/	26.97	28	0.182	0.23	0.091	0.12	-0.13
Cheek	L	LTE B41-PC2	41490	2680	50RB-Low	/	25.99	27	0.2	0.25	0.103	0.13	0.04
Tilt	L	LTE B41-PC2	41490	2680	50RB-Low	/	25.99	27	0.142	0.18	0.07	0.09	0.11
Cheek	R	LTE B41-PC2	41490	2680	50RB-Low	/	25.99	27	0.345	0.44	0.172	0.22	0.09
Tilt	R	LTE B41-PC2	41490	2680	50RB-Low	/	25.99	27	0.163	0.21	0.081	0.10	0.14
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Front 15mm	/	26.97	28	0.25	0.32	0.138	0.17	-0.17
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Rear 15mm	14	26.97	28	0.28	0.35	0.152	0.19	-0.05
Body	F	LTE B41-PC2	41490	2680	50RB-Low Front 15mm	/	25.99	27	0.179	0.23	0.093	0.12	-0.15
Body	F	LTE B41-PC2	41490	2680	50RB-Low Rear 15mm	/	25.99	27	0.228	0.29	0.121	0.15	-0.04
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Front 10mm	/	26.97	28	0.447	0.57	0.234	0.30	0.17
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Rear 10mm	15	26.97	28	0.56	0.71	0.293	0.37	-0.02
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Left 10mm	/	26.97	28	0.051	0.06	0.026	0.03	0.11
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Right 10mm	/	26.97	28	0.38	0.48	0.197	0.25	0.02
Body	F	LTE B41-PC2	41055	2636.5	1RB-Middle Bottom 10mm	/	26.97	28	0.293	0.37	0.145	0.18	0.01
Body	F	LTE B41-PC2	41490	2680	50RB-Low Front 10mm	/	25.99	27	0.343	0.43	0.176	0.22	0.11
Body	F	LTE B41-PC2	41490	2680	50RB-Low Rear 10mm	/	25.99	27	0.399	0.50	0.215	0.27	-0.1
Body	F	LTE B41-PC2	41490	2680	50RB-Low Left 10mm	/	25.99	27	0.048	0.06	0.025	0.03	-0.12
Body	F	LTE B41-PC2	41490	2680	50RB-Low Right 10mm	/	25.99	27	0.321	0.41	0.165	0.21	-0.01
Body	F	LTE B41-PC2	41490	2680	50RB-Low Bottom 10mm	/	25.99	27	0.203	0.26	0.105	0.13	0.05
Cheek	L	LTE Band66	132572	1770	1RB-Mid	16	23.53	25	0.278	0.39	0.174	0.24	-0.08
Tilt	L	LTE Band66	132572	1770	1RB-Mid	/	23.53	25	0.146	0.20	0.091	0.13	-0.18
Cheek	R	LTE Band66	132572	1770	1RB-Mid	/	23.53	25	0.167	0.23	0.108	0.15	0.02
Tilt	R	LTE Band66	132572	1770	1RB-Mid	/	23.53	25	0.123	0.17	0.078	0.11	0.05
Cheek	L	LTE Band66	132572	1770	50RB-Mid	/	22.61	24	0.205	0.28	0.129	0.18	-0.13
Tilt	L	LTE Band66	132572	1770	50RB-Mid	/	22.61	24	0.105	0.14	0.065	0.09	0.09
Cheek	R	LTE Band66	132572	1770	50RB-Mid	/	22.61	24	0.132	0.18	0.085	0.12	-0.07
Tilt	R	LTE Band66	132572	1770	50RB-Mid	/	22.61	24	0.094	0.13	0.06	0.08	-0.03
Body	F	LTE Band66	132572	1770	1RB-Mid Front 15mm	/	22.71	24	0.316	0.43	0.195	0.26	0.12
Body	F	LTE Band66	132572	1770	1RB-Mid Rear 15mm	17	22.71	24	0.516	0.69	0.314	0.42	-0.07
Body	F	LTE Band66	132572	1770	50RB-Low Front 15mm	/	22.73	24	0.293	0.39	0.181	0.24	0.12
Body	F	LTE Band66	132572	1770	50RB-Low Rear 15mm	/	22.73	24	0.475	0.64	0.29	0.39	-0.01
Body	F	LTE Band66	132572	1770	1RB-Mid Front 10mm	/	20.74	22	0.32	0.43	0.193	0.26	-0.09
Body	F	LTE Band66	132572	1770	1RB-Mid Rear 10mm	/	20.74	22	0.539	0.72	0.316	0.42	0.12
Body	F	LTE Band66	132572	1770	1RB-Mid Left Edge 10mm	/	20.74	22	0.045	0.06	0.026	0.03	-0.11
Body	F	LTE Band66	132572	1770	1RB-Mid Right Edge 10mm	/	20.74	22	0.115	0.15	0.064	0.09	0.03
Body	F	LTE Band66	132572	1770	1RB-Mid Bottom Edge 10mm	/	20.74	22	0.503	0.67	0.286	0.38	0.04
Body	F	LTE Band66	132572	1770	50RB-Low Front 10mm	/	20.88	22	0.275	0.36	0.162	0.21	-0.07
Body	F	LTE Band66	132572	1770	50RB-Low Rear 10mm	18	20.88	22	0.574	0.74	0.344	0.45	-0.03
Body	F	LTE Band66	132572	1770	50RB-Low Left Edge 10mm	/	20.88	22	0.118	0.15	0.07	0.09	0.12
Body	F	LTE Band66	132572	1770	50RB-Low Right Edge 10mm	/	20.88	22	0.124	0.16	0.073	0.09	0.07
Body	F	LTE Band66	132572	1770	50RB-Low Bottom Edge 10mm	/	20.88	22	0.522	0.68	0.298	0.39	-0.01

Table 14.1-1: SAR Values-LTE 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 Band71	133322	683	1RB-Mid	/	23.38	24.5	0.227	0.29	0.191	0.25	-0.17
Tilt	L	LTE Band71	133322	683	1RB-Mid	/	23.38	24.5	0.173	0.22	0.138	0.18	0.1
Cheek	R	LTE Band71	133322	683	1RB-Mid	19	23.38	24.5	0.333	0.43	0.242	0.31	0.03
Tilt	R	LTE Band71	133322	683	1RB-Mid	/	23.38	24.5	0.3	0.39	0.185	0.24	0.1
Cheek	L	LTE Band71	133322	683	50RB-Low	/	22.45	23.5	0.181	0.23	0.152	0.19	0.12
Tilt	L	LTE Band71	133322	683	50RB-Low	/	22.45	23.5	0.136	0.17	0.108	0.14	-0.16
Cheek	R	LTE Band71	133322	683	50RB-Low	/	22.45	23.5	0.255	0.32	0.185	0.24	-0.06
Tilt	R	LTE Band71	133322	683	50RB-Low	/	22.45	23.5	0.229	0.29	0.142	0.18	0.12
Body	F	LTE Band71	133322	683	1RB-Mid Front 15mm	/	23.38	24.5	0.233	0.30	0.172	0.22	0.06
Body	F	LTE Band71	133322	683	1RB-Mid Rear 15mm	20	23.38	24.5	0.28	0.36	0.207	0.27	-0.02
Body	F	LTE Band71	133322	683	50RB-Low Front 15mm	/	22.45	23.5	0.149	0.19	0.113	0.14	-0.09
Body	F	LTE Band71	133322	683	50RB-Low Rear 15mm	/	22.45	23.5	0.203	0.26	0.15	0.19	-0.12
Body	F	LTE Band71	133322	683	1RB-Mid Front 10mm	/	23.38	24.5	0.19	0.25	0.14	0.18	-0.14
Body	F	LTE Band71	133322	683	1RB-Mid Rear 10mm	21	23.38	24.5	0.3	0.39	0.226	0.29	-0.01
Body	F	LTE Band71	133322	683	1RB-Mid Left Edge 10mm	/	23.38	24.5	0.186	0.24	0.129	0.17	-0.17
Body	F	LTE Band71	133322	683	1RB-Mid Right Edge 10mm	/	23.38	24.5	0.131	0.17	0.091	0.12	-0.02
Body	F	LTE Band71	133322	683	1RB-Mid Top Edge 10mm	/	23.38	24.5	0.106	0.14	0.055	0.07	0.16
Body	F	LTE Band71	133322	683	50RB-Low Front 10mm	/	22.45	23.5	0.144	0.18	0.108	0.14	0.14
Body	F	LTE Band71	133322	683	50RB-Low Rear 10mm	/	22.45	23.5	0.201	0.26	0.152	0.19	0.08
Body	F	LTE Band71	133322	683	50RB-Low Left Edge 10mm	/	22.45	23.5	0.129	0.16	0.087	0.11	-0.17
Body	F	LTE Band71	133322	683	50RB-Low Right Edge 10mm	/	22.45	23.5	0.076	0.10	0.054	0.07	-0.12
Body	F	LTE Band71	133322	683	50RB-Low Top Edge 10mm	/	22.45	23.5	0.062	0.08	0.034	0.04	0.16

14.2 SAR Evaluation for WIFI

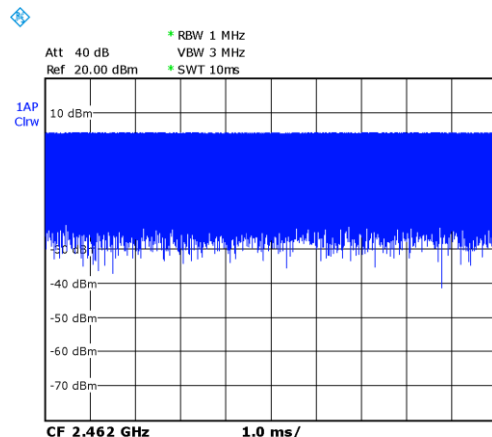
The maximum output power specified for production units are determined for all applicable 802.11 transmission modes in each standalone and aggregated frequency band. Maximum output power is measured for the highest maximum output power configuration(s) in each frequency band according to the default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

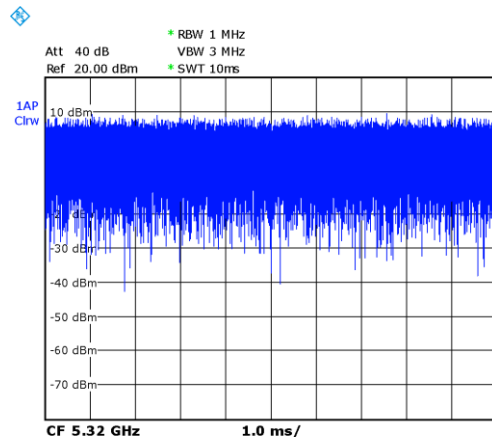
SAR Test reduction was applied from KDB 248227 guidance, when the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest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

Duty factor plot

CH11

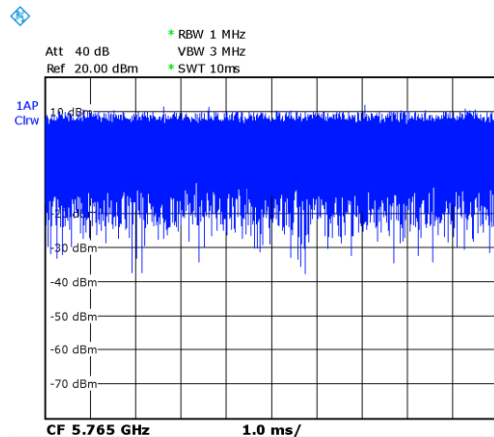


CH64

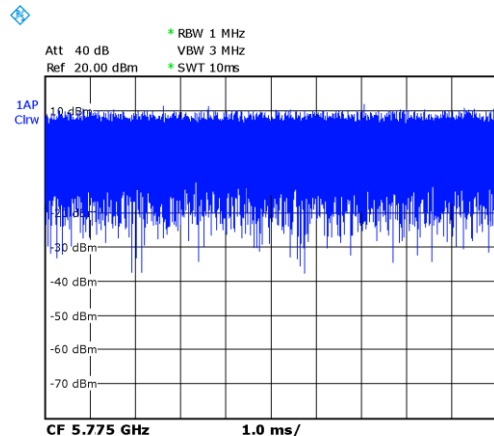




CH153



CH155



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)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
802.11b 1Mbps													
Cheek	L	WIFI2.4G	11	2462	/	Note1	16.56	17	0.73	0.81	0.349	0.39	-0.05
Cheek	L	WIFI2.4G	6	2437	/	Note1	16.36	17	0.78	0.90	0.37	0.43	-0.11
Cheek	L	WIFI2.4G	1	2412	/	Note1/22	15.94	17	0.836	1.07	0.395	0.50	0.06
Tilt	L	WIFI2.4G	11	2462	/	Note1	16.56	17	0.59	0.65	0.269	0.30	0.06
Cheek	R	WIFI2.4G	11	2462	/	Note1	16.56	17	0.315	0.35	0.186	0.21	0.11
Tilt	R	WIFI2.4G	11	2462	/	Note1	16.56	17	0.406	0.45	0.204	0.23	-0.07
802.11b 1Mbps													
Cheek	L	WIFI2.4G	11	2462	/	Note2	14.19	15	0.447	0.54	0.209	0.25	0.12
Cheek	L	WIFI2.4G	6	2437	/	Note2	14.41	15	0.462	0.53	0.215	0.25	-0.09
Cheek	L	WIFI2.4G	1	2412	/	Note2	14.04	15	0.553	0.69	0.257	0.32	0.08
Tilt	L	WIFI2.4G	6	2437	/	Note2	14.41	15	0.32	0.37	0.146	0.17	-0.12
Cheek	R	WIFI2.4G	6	2437	/	Note2	14.41	15	0.175	0.20	0.102	0.12	-0.05
Tilt	R	WIFI2.4G	6	2437	/	Note2	14.41	15	0.247	0.28	0.125	0.14	0.07
802.11b 1Mbps													
Body	F	WIFI2.4G	6	2437	Front 15mm	23	20.66	21	0.228	0.25	0.123	0.13	0.16
Body	F	WIFI2.4G	6	2437	Rear 15mm	/	20.66	21	0.211	0.23	0.104	0.11	0.09
802.11b 1Mbps													
Body	F	WIFI2.4G	6	2437	Front 10mm	/	20.66	21	0.408	0.44	0.213	0.23	0.15
Body	F	WIFI2.4G	6	2437	Rear 10mm	24	20.66	21	0.52	0.56	0.234	0.25	0.05
Body	F	WIFI2.4G	6	2437	Right 10mm	/	20.66	21	0.337	0.36	0.178	0.19	0.07
Body	F	WIFI2.4G	6	2437	Top 10mm	/	20.66	21	0.474	0.51	0.245	0.26	-0.04

Note1: The results are for WIFI transmit alone.

Note2: The results are for WIFI transmit with WWAN.

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)	Measured SAR 10g (W/kg)	Calculated SAR 10g (W/kg)	Power Drift
802.11a 6Mbps													
Cheek	L	WIFI5G	56	5280		Note1	19.99	21	0.255	0.32	0.067	0.08	-0.05
Tilt	L	WIFI5G	56	5280		Note1	19.99	21	0.298	0.38	0.081	0.10	-0.12
Cheek	R	WIFI5G	56	5280		Note1	19.99	21	0.218	0.28	0.067	0.08	0.04
Tilt	R	WIFI5G	56	5280		Note1	19.99	21	0.311	0.39	0.099	0.12	0.14
Cheek	L	WIFI5G	136	5680		Note1	20.33	21.5	0.334	0.44	0.096	0.13	-0.06
Tilt	L	WIFI5G	136	5680		Note1	20.33	21.5	0.473	0.62	0.139	0.18	-0.07
Cheek	R	WIFI5G	136	5680		Note1	20.33	21.5	0.319	0.42	0.102	0.13	0.09
Tilt	R	WIFI5G	136	5680		Note1	20.33	21.5	0.377	0.49	0.127	0.17	0.11
Cheek	L	WIFI5G	153	5765		Note1	20.98	21.5	0.509	0.57	0.153	0.17	-0.02
Tilt	L	WIFI5G	153	5765		Note1	20.98	21.5	0.705	0.79	0.211	0.24	-0.1
Cheek	R	WIFI5G	153	5765		Note1	20.98	21.5	0.64	0.72	0.217	0.24	0.15
Tilt	R	WIFI5G	153	5765		Note1/25	20.98	21.5	0.764	0.86	0.263	0.30	-0.09
Tilt	R	WIFI5G	149	5745		Note1	20.83	21.5	0.72	0.84	0.253	0.30	-0.07
802.11a 6Mbps													
Body	F	WIFI5G	56	5280	Front 15mm	Note1	19.99	21	0.076	0.10	0.018	0.02	-0.05
Body	F	WIFI5G	56	5280	Rear 15mm	Note1	19.99	21	0.561	0.71	0.231	0.29	0.11
Body	F	WIFI5G	136	5680	Front 15mm	Note1	20.33	21	0.088	0.10	0.031	0.04	-0.12
Body	F	WIFI5G	136	5680	Rear 15mm	Note1/26	20.33	21	0.803	0.94	0.326	0.38	-0.08
Body	F	WIFI5G	100	550	Rear 15mm	Note1	20.27	21	0.786	0.93	0.313	0.37	0.09
Body	F	WIFI5G	153	5765	Front 15mm	Note1	20.98	21.5	0.14	0.16	0.048	0.05	-0.08
Body	F	WIFI5G	153	5765	Rear 15mm	Note1	20.98	21.5	0.807	0.91	0.331	0.37	0.01
Body	F	WIFI5G	149	5745	Rear 15mm	Note1	20.83	21.5	0.767	0.89	0.309	0.36	-0.07
802.11a 6Mbps													
Body	F	WIFI5G	56	5280	Front 10mm	Note1	19.99	21	0.096	0.12	0.035	0.04	0.05
Body	F	WIFI5G	56	5280	Rear 10mm	Note1	19.99	21	0.829	1.05	0.34	0.43	-0.07
Body	F	WIFI5G	60	5300	Rear 10mm	Note1	19.78	21	0.886	1.17	0.359	0.48	-0.08
Body	F	WIFI5G	56	5280	Right 10mm	Note1	19.99	21	0.248	0.31	0.109	0.14	-0.01
Body	F	WIFI5G	56	5280	Top 10mm	Note1	19.99	21	0.39	0.49	0.158	0.20	0.06
Body	F	WIFI5G	136	5680	Front 10mm	Note1	20.33	21	0.141	0.16	0.054	0.06	-0.14
Body	F	WIFI5G	136	5680	Rear 10mm	Note1/27	20.33	21	1.1	1.28	0.427	0.50	-0.08
Body	F	WIFI5G	100	5500	Rear 10mm	Note1	20.27	21	1.07	1.27	0.401	0.47	0.09
Body	F	WIFI5G	136	5680	Right 10mm	Note1	20.33	21	0.414	0.48	0.156	0.18	0.13
Body	F	WIFI5G	136	5680	Top 10mm	Note1	20.33	21	0.706	0.82	0.246	0.29	0.11
Body	F	WIFI5G	153	5765	Front 10mm	Note1	20.98	21.5	0.158	0.18	0.063	0.07	-0.06
Body	F	WIFI5G	153	5765	Rear 10mm	Note1	20.98	21.5	1.06	1.19	0.421	0.47	0.15
Body	F	WIFI5G	149	5745	Rear 10mm	Note1	20.83	21.5	0.986	1.15	0.386	0.45	0.09
Body	F	WIFI5G	153	5765	Right 10mm	Note1	20.98	21.5	0.359	0.40	0.143	0.16	0.11
Body	F	WIFI5G	153	5765	Top 10mm	Note1	20.98	21.5	0.764	0.86	0.281	0.32	-0.14
Body	F	WIFI5G	149	5745	Top 10mm	Note1	20.83	21.5	0.766	0.89	0.278	0.32	0.12
802.11ac 80M MCS0													
Cheek	L	WIFI5G	58	5290		Note2	14.3	15	0.101	0.12	0.029	0.03	0.09
Tilt	L	WIFI5G	58	5290		Note2	14.3	15	0.133	0.16	0.041	0.05	0.06
Cheek	R	WIFI5G	58	5290		Note2	14.3	15	0.114	0.13	0.04	0.05	0.08
Tilt	R	WIFI5G	58	5290		Note2	14.3	15	0.153	0.18	0.047	0.06	-0.16
Cheek	L	WIFI5G	138	5690		Note2	14	15	0.152	0.19	0.047	0.06	-0.12
Tilt	L	WIFI5G	138	5690		Note2	14	15	0.221	0.28	0.065	0.08	-0.01
Cheek	R	WIFI5G	138	5690		Note2	14	15	0.227	0.29	0.074	0.09	-0.11
Tilt	R	WIFI5G	138	5690		Note2	14	15	0.255	0.32	0.091	0.11	-0.09
Cheek	L	WIFI5G	155	5775		Note2	14.4	15	0.232	0.27	0.076	0.09	0.17
Tilt	L	WIFI5G	155	5775		Note2	14.4	15	0.324	0.37	0.097	0.11	0.03
Cheek	R	WIFI5G	155	5775		Note2	14.4	15	0.221	0.25	0.068	0.08	-0.13
Tilt	R	WIFI5G	155	5775		Note2	14.4	15	0.351	0.40	0.116	0.13	-0.05
802.11ac 80M MCS0													
Body	F	WIFI5G	58	5290	Front 15mm	Note2	14.3	15	0.08	0.09	0.022	0.03	-0.1
Body	F	WIFI5G	58	5290	Rear 15mm	Note2	14.3	15	0.3	0.35	0.11	0.13	-0.16
Body	F	WIFI5G	138	5690	Front 15mm	Note2	14	15	0.099	0.12	0.023	0.03	0.12
Body	F	WIFI5G	138	5690	Rear 15mm	Note2	14	15	0.397	0.50	0.142	0.18	-0.18
Body	F	WIFI5G	155	5775	Front 15mm	Note2	14.4	15	0.102	0.12	0.021	0.02	-0.07
Body	F	WIFI5G	155	5775	Rear 15mm	Note2	14.4	15	0.466	0.54	0.178	0.20	0.01
802.11ac 80M MCS0													
Body	F	WIFI5G	58	5290	Front 10mm	Note2	14.3	15	0.061	0.07	0.015	0.02	-0.05
Body	F	WIFI5G	58	5290	Rear 10mm	Note2	14.3	15	0.363	0.43	0.131	0.15	-0.01
Body	F	WIFI5G	58	5290	Right 10mm	Note2	14.3	15	0.116	0.14	0.045	0.05	0.17
Body	F	WIFI5G	58	5290	Top 10mm	Note2	14.3	15	0.183	0.22	0.063	0.07	0.11
Body	F	WIFI5G	138	5690	Front 10mm	Note2	14	15	0.064	0.08	0.022	0.03	-0.12
Body	F	WIFI5G	138	5690	Rear 10mm	Note2	14	15	0.377	0.47	0.145	0.18	0.11
Body	F	WIFI5G	138	5690	Right 10mm	Note2	14	15	0.147	0.19	0.055	0.07	0.13
Body	F	WIFI5G	138	5690	Top 10mm	Note2	14	15	0.299	0.38	0.101	0.13	-0.08
Body	F	WIFI5G	155	5775	Front 10mm	Note2	14	15	0.097	0.12	0.036	0.05	0.03
Body	F	WIFI5G	155	5775	Rear 10mm	Note2	14	15	0.552	0.69	0.206	0.26	0.02
Body	F	WIFI5G	155	5775	Right 10mm	Note2	14	15	0.205	0.26	0.075	0.09	0.1
Body	F	WIFI5G	155	5775	Top 10mm	Note2	14	15	0.392	0.49	0.135	0.17	-0.05

Note1: The results are for WIFI transmit alone.

Note2: The results are for WIFI transmit with WWAN.



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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
Basic Rate-DH5													
Cheek	L	BT	78	2480		28	9.27	10	0.056	0.07	0.023	0.03	0.09
Tilt	L	BT	78	2480		/	9.27	10	0.032	0.04	0.017	0.02	-0.11
Cheek	R	BT	78	2480		/	9.27	10	<0.01	<0.01	<0.01	<0.01	/
Tilt	R	BT	78	2480		/	9.27	10	<0.01	<0.01	<0.01	<0.01	/
Basic Rate-DH5													
Body	F	BT	78	2480	Front 10mm	/	9.27	10	<0.01	<0.01	<0.01	<0.01	/
Body	F	BT	78	2480	Rear 10mm	29	9.27	10	0.011	0.01	0.003	0.00	-0.08
Body	F	BT	78	2480	Right 10mm	/	9.27	10	<0.01	<0.01	<0.01	<0.01	/
Body	F	BT	78	2480	Top 10mm	/	9.27	10	<0.01	<0.01	<0.01	<0.01	/

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.

Test Position	Phantom position L/R/F	Frequency Band	Channel Number	Frequency (MHz)	Test setup	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
Body	F	WIFI5G	136	5680	Rear 0mm	20.33	21	5.33	6.22	1.92	2.24	0.12

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

Mode	CH	Freq	Test Position	Original SAR(W/kg)	First Repeated SAR(W/kg)	The Ratio
WIFI2.4G	1	2412	Left Cheek	0.836	0.812	1.03
WIFI5G	136	5680	Rear 10mm	1.1	1.07	1.03

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	RF ambient 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	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	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	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	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



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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**