



SAR TEST REPORT

No. I20Z60563-SEM03

For

TCL Communication Ltd.

5G NR/ LTE/WCDMA/GSM Mobile Phone

Model name: T790Y

With

Hardware Version: 03

Software Version: v2.0.1A.H.6

FCC ID: 2ACCJN043

Issued Date: 2020-6-12

Note:

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REPORT HISTORY

Report Number	Revision	Issue Date	Description
I20Z60563-SEM03	Rev.0	2020-6-5	Initial creation of test report
I20Z60563-SEM03	Rev.1	2020-6-11	Update the information on section 11.3 of test report. Update the information on section 11.4 of test report.
I20Z60563-SEM03	Rev.2	2020-6-12	Update the information on section 11.3 of test report.
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1 Test Laboratory

1.1 Testing Location

Company Name:	CTTL(Shouxiang)
Address:	No. 51 Shouxiang Science Building, Xueyuan Road, Haidian District, Beijing, P. R. China100191

1.2 Testing Environment

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

1.3 Project Data

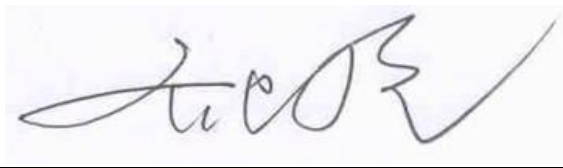
Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	May 16, 2020
Testing End Date:	May 23, 2020

1.4 Signature



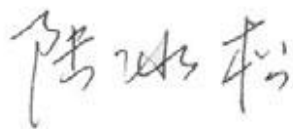
Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



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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. 5G NR/ LTE/WCDMA/GSM Mobile Phone T790Y are as follows:

Table 2.1: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Highest Reported SAR 1g(W/kg)	Equipment Class
Head (Separation Distance 0mm)	GSM 850	0.65	PCE
	PCS 1900	0.80	
	UMTS FDD 2	1.05	
	UMTS FDD 4	0.98	
	UMTS FDD 5	0.96	
	LTE Band 5	0.87	
	LTE Band 7	0.51	
	LTE Band 41	0.42	
	WLAN 2.4 GHz-SISO	0.21	DTS
	WLAN 2.4 GHz-MIMO	0.58	UNII
	WLAN 5 GHz-SISO	0.08	
	WLAN 5 GHz-MIMO	0.61	
	Hotspot (Separation Distance 10mm)	GSM 850	0.44
PCS 1900		0.56	
UMTS FDD 2		1.09	
UMTS FDD 4		1.09	
UMTS FDD 5		0.60	
LTE Band 5		0.53	
LTE Band 7		0.64	
LTE Band 41		0.93	
WLAN 2.4 GHz-SISO		0.08	DTS
WLAN 2.4 GHz-MIMO		0.61	UNII
WLAN 5 GHz-SISO		1.07	
WLAN 5 GHz-MIMO		1.09	

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

For body operation, this device has been tested and meets FCC RF exposure guidelines when used with any accessory that contains no metal and which provides a minimum separation distance of 10 mm for hotspot and 15mm for body worn 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: **1.09 W/kg(1g)**.

Table 2.2: The sum of reported SAR values for Main antenna and WiFi-5G MIMO

	Position	Band	Cellular antenna	WiFi	Sum
Highest reported SAR value for Head	Right hand, Cheek	WCDMA1900	1.05	0.32	1.37

Note1: we have evaluated and chose the highest value of WiFi 2.4G and 5G in the above table.

Table 2.3: The sum of reported SAR values for Main antenna + WiFi-2.4G SISO+ WiFi-5G SISO

	Position	Band	Cellular antenna	WiFi-2.4G SISO	WiFi-5G SISO	Sum
Maximum reported SAR value for Body	Rear 10mm	LTE B41	0.93	0.16	0.49	1.58

Note1: we have evaluated and chose the highest value of WiFi 2.4G and 5G in the above table.

According to the above tables, the highest sum of reported SAR values is **1.58 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
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3.2 Manufacturer Information

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Contact Person:	Gong Zhizhou
E-mail:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722
Fax:	0086-75536612000-81722

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

4.1 About EUT

Description:	5G NR/ LTE/WCDMA/GSM Mobile Phone
Model name:	T790H
Operating mode(s):	GSM850/900/1800/1900, WCDMA850/900/1700/1900/2100 LTE Band 1/3/5/7/8/20/28/38/40/41, BT, Wi-Fi(2.4G/5G),NR5G
Tested Tx Frequency:	825 – 848.8 MHz (GSM 850)
	1850.2 – 1910 MHz (GSM 1900)
	826.4–846.6 MHz (WCDMA 850 Band V)
	1712.4 – 1752.6 MHz (WCDMA 1700 Band IV)
	1852.4–1907.6 MHz (WCDMA1900 Band II)
	824– 849 MHz (LTE Band 5)
	2502.5 – 2567.5 MHz (LTE Band 7)
	2498.5 – 2687.5 MHz (LTE Band41)
	2412 – 2462 MHz (Wi-Fi 2.4G)
5150-5825 MHz (Wi-Fi 5G)	
GPRS/EGPRS Multislot Class:	12
GPRS capability Class:	B
Test device Production information:	Production unit
Device type:	Portable device
Antenna type:	Integrated antenna
Accessories/Body-worn configurations:	Headset
Hotspot mode:	Support
VoIP:	Support

4.2 Internal Identification of EUT used during the test

EUT ID*	IMEI	HW	SW Version
EUT1	354926110005384	03	v2.0.1A.H.6
EUT2	354926110005673	03	v2.0.1A.H.6
EUT3	354926110006655	03	v2.0.1A.H.6
EUT4	354926110009790	03	v2.0.1A.H.6
EUT5	354926110010046	03	v2.0.1A.H.6
EUT6	354926110010004	03	v2.0.1A.H.6
EUT7	354926110006143	03	v2.0.1A.H.6
EUT8	354926110000112	03	v2.0.1A.H.6

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

Note: It is performed to test SAR with the EUT1-4 and conducted power with the EUT5-8.

4.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	TLp043E7	/	VEKEN
AE2	Headset	SOCL110WTT-EU	/	TES

*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

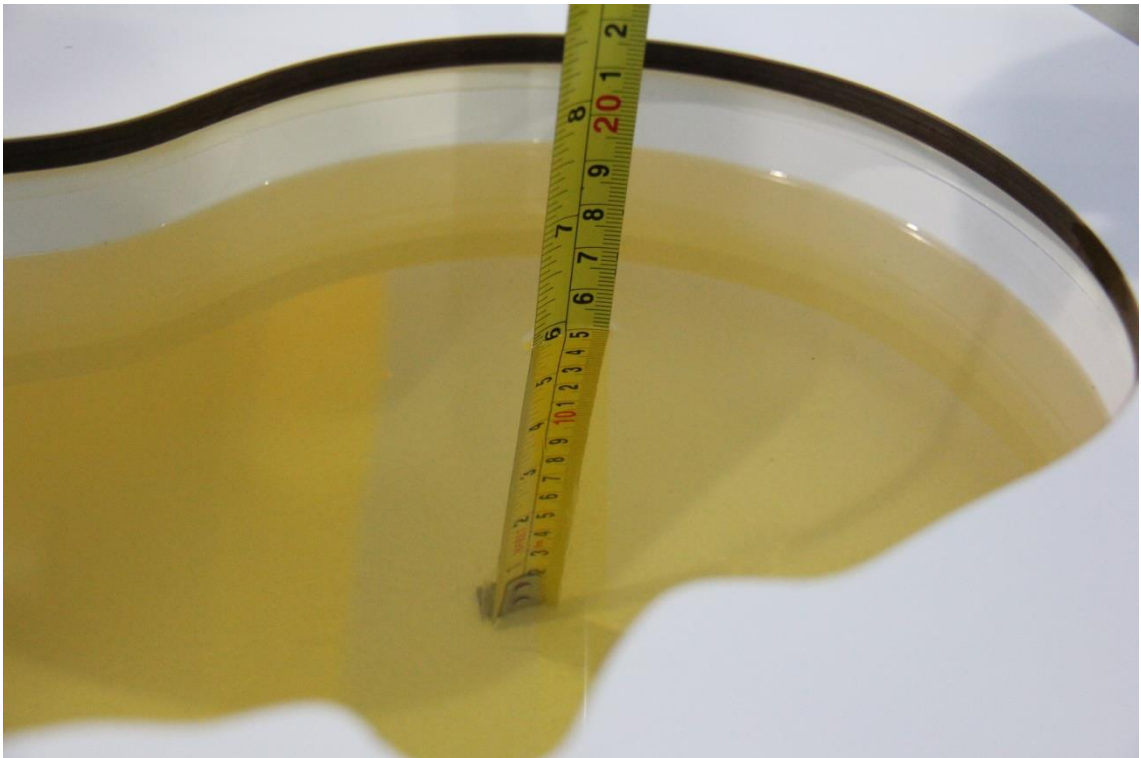
Frequency(MHz)	Liquid Type	Conductivity(σ)	$\pm 5\%$ Range	Permittivity(ϵ)	$\pm 5\%$ Range
835	Head	0.90	0.86~0.95	41.5	39.4~43.6
1750	Head	1.37	1.30~1.44	40.08	38.1~42.1
1900	Head	1.40	1.33~1.47	40.0	38.0~42.0
2450	Head	1.80	1.71~1.89	39.2	37.2~41.2
2600	Head	1.96	1.86~2.06	39.01	37.1~41.0
5250	Head	4.71	4.47~4.95	35.93	34.13~37.73
5600	Head	5.07	4.82~5.32	35.53	33.8~37.3
5750	Head	5.22	4.96~5.48	35.36	33.59~37.13

7.2 Dielectric Performance

Table 7.2: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ϵ	Drift (%)	Conductivity σ (S/m)	Drift (%)
2020-5-16	Head	835 MHz	41.34	-0.39	0.892	-0.89
2020-5-17	Head	1750 MHz	40.66	1.45	1.374	0.29
2020-5-18	Head	1900 MHz	40.54	1.35	1.4	0.00
2020-5-19	Head	2450 MHz	38.43	-1.96	1.777	-1.28
2020-5-20	Head	2600 MHz	39.12	0.28	1.937	-1.17
2020-5-21	Head	5250 MHz	35.37	-1.56	4.746	0.76
2020-5-22	Head	5600 MHz	36.1	1.60	5.12	0.99
2020-5-23	Head	5750 MHz	35.36	0.00	5.21	-0.19

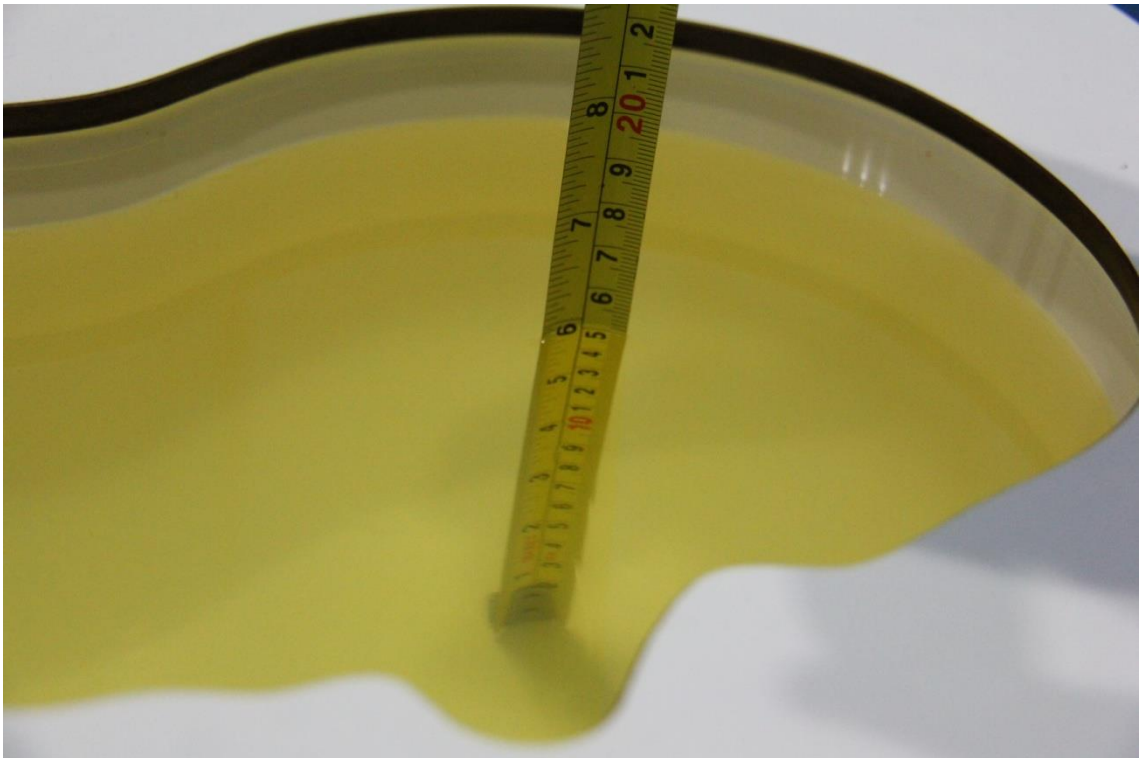
Note: The liquid temperature is 22.0°C



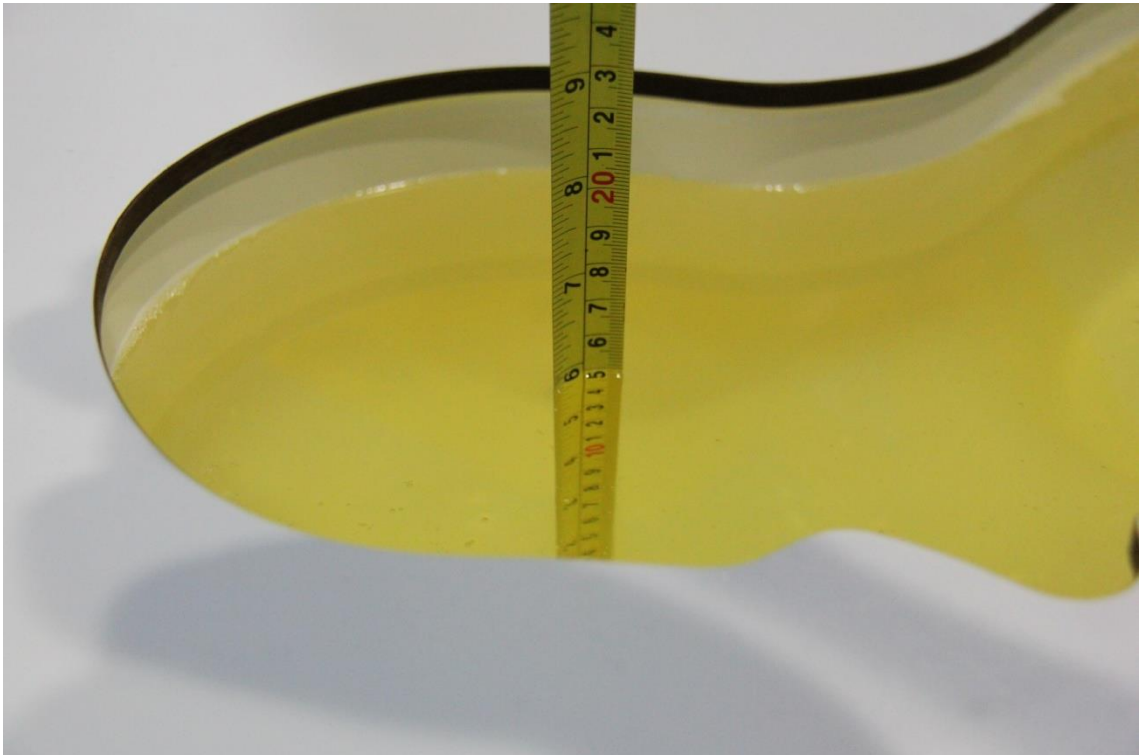
Picture 7-1 Liquid depth in the Head Phantom (835 MHz)



Picture 7-2 Liquid depth in the Head Phantom (1750 MHz)



Picture 7-3 Liquid depth in the Head Phantom (1900 MHz)



Picture 7-4 Liquid depth in the Head Phantom (2450MHz)



Picture 7-5 Liquid depth in the Head Phantom (2600 MHz)

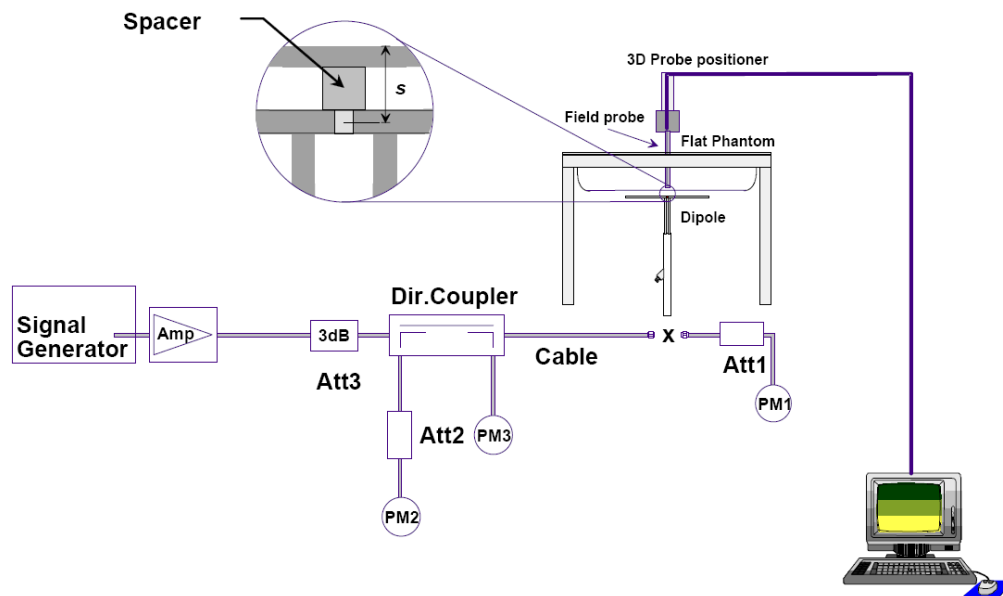


Picture 7-6 Liquid depth in the Head Phantom (5GHz)

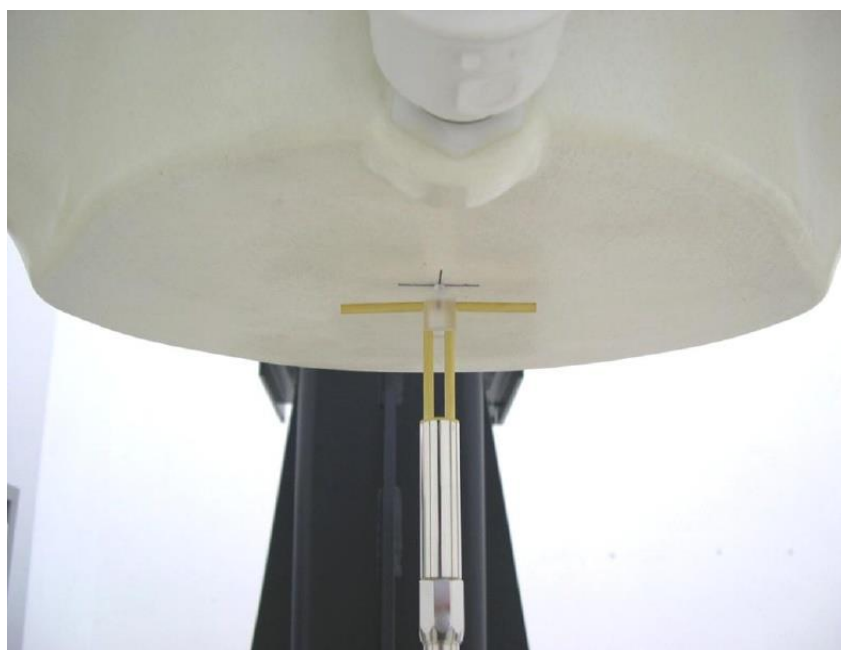
8 System verification

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
2020-5-16	835 MHz	6.29	9.70	6.4	9.88	1.75%	1.86%
2020-5-17	1750 MHz	19.3	36.6	19.4	37.16	0.52%	1.53%
2020-5-18	1900 MHz	20.8	39.7	20.4	40.48	-1.92%	1.96%
2020-5-19	2450 MHz	24.2	51.6	24.04	52.2	-0.66%	1.16%
2020-5-20	2600 MHz	25.1	55.8	25.6	55.6	1.99%	-0.36%
2020-5-21	5250 MHz	23.2	80.4	23.1	81.1	-0.34%	0.90%
2020-5-22	5600 MHz	24.1	84.5	24.4	83.7	1.24%	-0.92%
2020-5-23	5750 MHz	23.0	80.4	23.0	80.2	0.17%	-0.30%

9 Measurement Procedures

9.1 Tests to be performed

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

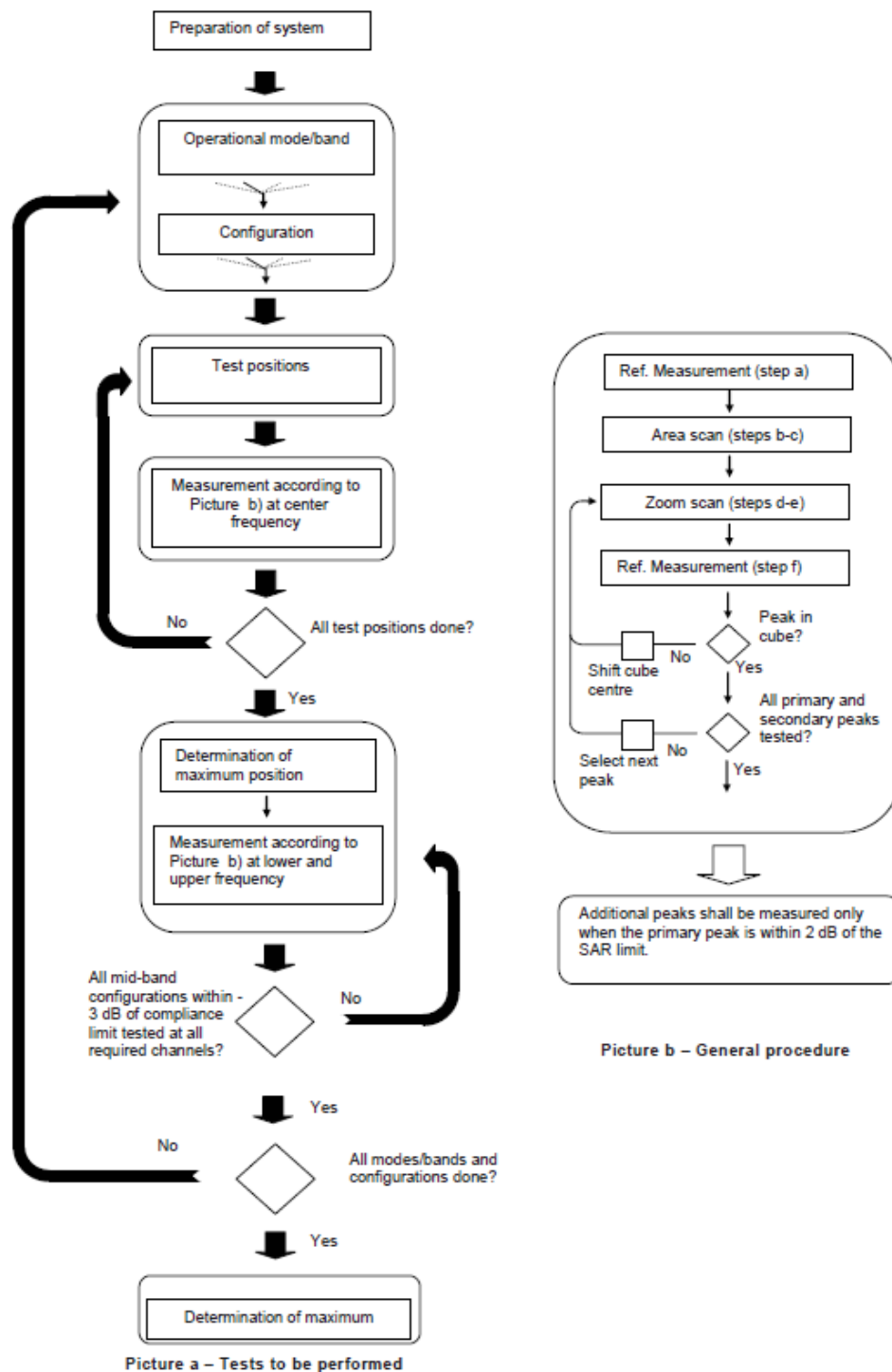
Step 1: The tests described in 9.2 shall be performed at the channel that is closest to the centre of the transmit frequency band (f_c) for:

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

If more than three frequencies need to be tested according to 11.1 (i.e., $N_c > 3$), then all frequencies, configurations and modes shall be tested for all of the above test conditions.

Step 2: For the condition providing highest peak spatial-average SAR determined in Step 1, perform all tests described in 9.2 at all other test frequencies, i.e., lowest and highest frequencies. In addition, for all other conditions (device position, configuration and operational mode) where the peak spatial-average SAR value determined in Step 1 is within 3 dB of the applicable SAR limit, it is recommended that all other test frequencies shall be tested as well.

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



Picture 9.1 Block diagram of the tests to be performed

9.2 General Measurement Procedure

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements and fully documented in SAR reports to qualify for TCB approval. Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the

higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std 1528-2003. The results should be documented as part of the system validation records and may be requested to support test results when all the measurement parameters in the following table are not satisfied.

		≤ 3 GHz	> 3 GHz	
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface		5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm	
Maximum probe angle from probe axis to phantom surface normal at the measurement location		$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$	
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}		≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm	
		When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.		
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}		≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*	
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$	≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm	
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	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 <i>reported</i> SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

9.3 WCDMA Measurement Procedures for SAR

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

For Release 5 HSDPA Data Devices:

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

For Release 6 HSPA Data Devices

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

Rel.8 DC-HSDPA (Cat 24)

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

9.4 SAR Measurement for LTE

SAR tests for LTE are performed with a base station simulator, Rohde & Schwarz CMW500. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. All powers were measured with the CMW 500.

It is performed for conducted power and SAR based on the KDB941225 D05.

SAR is evaluated separately according to the following procedures for the different test positions in each exposure condition – head, body, body-worn accessories and other use conditions. The procedures in the following subsections are applied separately to test each LTE frequency band.

1) QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

2) QPSK with 50% RB allocation

The procedures required for 1 RB allocation in 1) are applied to measure the SAR for QPSK with 50% RB allocation.

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

TDD test:

TDD testing is performed using guidance from FCC KDB 941225 D05 v02r05 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 v02r05. SAR testing is performed using the extended cyclic prefix listed in 3GPP TS 36.211.

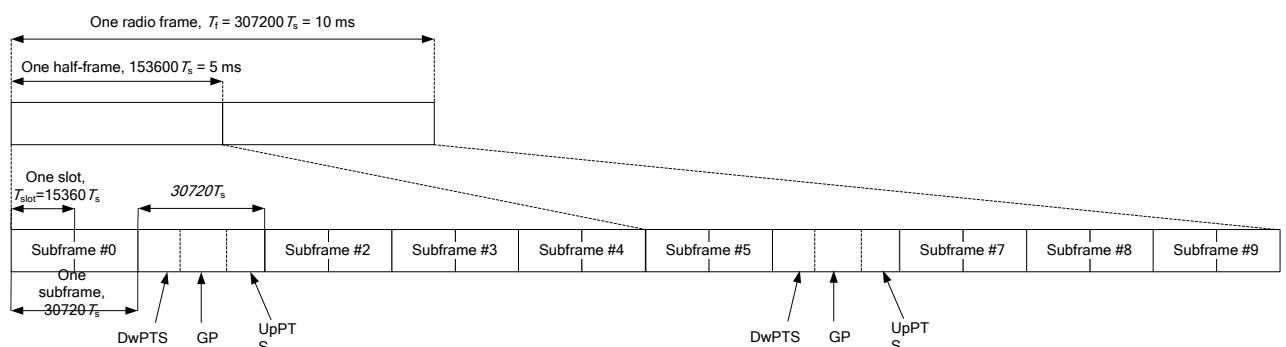


Figure 9.2: Frame structure type 2 (for 5 ms switch-point periodicity)

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:

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

According to the KDB 447498 D01, SAR should be evaluated at more than 3 frequencies for devices supporting transmit bands wider than 100MHz. Oct.2014 FCC-TCB conference notes (Dec. 2014 rev.) specifies the 5 test channels to use for 3GPP band 41 SAR evaluation.

9.5 Bluetooth & Wi-Fi Measurement Procedures for SAR

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

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

9.6 Power Drift

To control the output power stability during the SAR test, DASY4 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 v05, 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

Table1: Summary of Receiver detection mechanism

Antenna	Receiver on (head scenario)	Receiver off (Body scenario)
Main antenna	Power Level A1	Power Level B1

11.1 GSM Measurement result

During the process of testing, the EUT was controlled via Agilent Digital Radio Communication tester (E5515C) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured peak output power should be greater and within 5% than EMI measurement.

Table 11.1-1: The conducted power measurement results for GSM, GPRS and EGPRS- Level A1

GSM 850 Speech (GMSK)	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	29.33	29.20	29.26	30.50	/	/	/	/
GSM 850 GPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	29.30	29.00	29.00	30.50	-9.03	20.27	19.97	19.97
2 Txslots	28.15	27.93	27.90	29.50	-6.02	22.13	21.91	21.88
3Txslots	27.02	27.05	27.03	28.20	-4.26	22.76	22.79	22.77
4 Txslots	25.68	25.89	25.61	26.80	-3.01	22.67	22.88	22.60
GSM 850 EGPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	29.00	28.85	28.88	30.50	-9.03	19.97	19.82	19.85
2 Txslots	27.93	27.78	27.78	29.50	-6.02	21.91	21.76	21.76
3Txslots	26.83	26.93	26.90	28.20	-4.26	22.57	22.67	22.64
4 Txslots	25.51	25.76	25.50	26.80	-3.01	22.50	22.75	22.49
GSM 850 EGPRS (8PSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	26.07	26.17	26.07	27.00	-9.03	17.04	17.14	17.04
2 Txslots	23.95	24.05	23.94	25.00	-6.02	17.93	18.03	17.92
3Txslots	22.25	22.36	22.50	24.00	-4.26	17.99	18.10	18.24
4 Txslots	21.52	21.91	21.67	22.80	-3.01	18.51	18.90	18.66

NOTES:

1) Division Factors

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

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

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

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

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

According to the conducted power as above, the body measurements are performed with 3Txslots for GSM850

Table 11.1-2: The conducted power measurement results for GSM, GPRS and EGPRS- Level B1

GSM 850 Speech (GMSK)	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.62	32.55	32.57	33.50	/	/	/	/
GSM 850 GPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.63	32.53	32.51	33.50	-9.03	23.60	23.50	23.48
2 Txslots	29.81	30.08	29.93	30.50	-6.02	23.79	24.06	23.91
3Txslots	27.91	28.18	27.96	28.20	-4.26	23.65	23.92	23.70
4 Txslots	26.77	26.51	26.71	26.80	-3.01	23.76	23.50	23.70
GSM 850 EGPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.53	32.46	32.46	33.50	-9.03	23.50	23.43	23.43
2 Txslots	29.89	30.01	29.87	30.50	-6.02	23.87	23.99	23.85
3Txslots	27.80	28.10	27.91	28.20	-4.26	23.54	23.84	23.65
4 Txslots	26.68	26.45	26.66	26.80	-3.01	23.67	23.44	23.65
GSM 850 EGPRS (8PSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	251	190	128			251	190	128
1 Txslot	26.56	26.88	26.59	27.00	-9.03	17.53	17.85	17.56
2 Txslots	26.04	25.81	25.76	26.20	-6.02	20.02	19.79	19.74
3Txslots	24.23	24.79	23.93	25.00	-4.26	19.97	20.53	19.67
4 Txslots	22.49	22.68	22.75	22.80	-3.01	19.48	19.67	19.74

NOTES:

1) Division Factors

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

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

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

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

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

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

Table 11.1-3: The conducted power measurement results for GSM, GPRS and EGPRS Level A1/B1

PCS1900 Speech (GMSK)	Measured Power (dBm)			Tune up	calculation	Averaged Power (dBm)		
	810	661	512			810	661	512
1 Txslot	30.08	30.22	29.97	30.70	/	/	/	/
PCS1900 GPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	810	661	512			810	661	512
1 Txslot	30.10	30.19	29.91	30.70	-9.03	21.07	21.16	20.88
2 Txslots	27.31	27.30	27.09	27.70	-6.02	21.29	21.28	21.07
3Txslots	25.26	25.22	25.00	26.00	-4.26	21.00	20.96	20.74
4 Txslots	24.25	24.28	23.94	24.50	-3.01	21.24	21.27	20.93
PCS1900 EGPRS (GMSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	810	661	512			810	661	512
1 Txslot	30.12	30.22	29.92	30.70	-9.03	21.09	21.19	20.89
2 Txslots	27.35	27.32	27.10	27.70	-6.02	21.33	21.30	21.08
3Txslots	25.30	25.23	25.01	26.00	-4.26	21.04	20.97	20.75
4 Txslots	24.28	24.30	23.94	24.50	-3.01	21.27	21.29	20.93
PCS1900 EGPRS (8PSK)	Measured Power (dBm)				calculation	Averaged Power (dBm)		
	810	661	512			810	661	512
1 Txslot	26.41	26.40	26.65	27.00	-9.03	17.38	17.37	17.62
2 Txslots	24.79	24.90	24.67	26.00	-6.02	18.77	18.88	18.65
3Txslots	23.67	23.92	23.08	25.00	-4.26	19.41	19.66	18.82
4 Txslots	21.96	22.05	21.32	23.00	-3.01	18.95	19.04	18.31

NOTES:

1) Division Factors

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

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

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

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

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

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

11.2 WCDMA Measurement result

Table 11.2-1: The conducted Power for WCDMA Level A1

Item	band	FDDV result			
	ARFCN	4132 (826.4MHz)	4182 (836.4MHz)	4233 (846.6MHz)	Tune up
WCDMA	\	20.81	20.85	20.95	22.00
HSUPA	1	19.84	19.77	19.76	21.00
	2	17.76	17.82	17.87	19.00
	3	18.83	18.82	18.87	20.00
	4	17.79	17.81	17.85	19.00
	5	19.81	19.82	19.77	21.00
DC-HSDPA	1	19.71	19.72	19.75	21.00
	2	19.72	19.75	19.76	21.00
	3	19.25	19.24	19.26	20.50
	4	19.22	19.21	19.24	20.50
Item	band	FDDIV result			
	ARFCN	1312 (1712.4MHz)	1412 (1732.4MHz)	1513 (1752.6MHz)	
WCDMA	\	20.86	20.91	20.89	22.00
HSUPA	1	19.77	19.83	19.82	21.00
	2	17.7	17.83	17.85	19.00
	3	18.86	18.78	18.83	20.00
	4	17.74	17.84	17.81	19.00
	5	19.78	19.87	19.84	21.00
DC-HSDPA	1	19.73	19.81	19.82	21.00
	2	19.74	19.83	19.84	21.00
	3	19.25	19.32	19.33	20.50
	4	19.26	19.33	19.32	20.50
Item	band	FDDII result			
	ARFCN	9262 (1852.4MHz)	9400 (1880MHz)	9538 (1907.6MHz)	
WCDMA	\	19.88	19.86	19.82	21.00
HSUPA	1	18.78	18.71	18.68	20.00
	2	16.77	16.74	16.71	18.00
	3	17.8	17.75	17.79	19.00
	4	16.8	16.76	16.74	18.00
	5	18.8	18.77	18.78	20.00
DC-HSDPA	1	18.78	18.77	18.76	20.00
	2	18.8	18.78	18.74	20.00
	3	18.31	18.27	18.28	19.50
	4	18.3	18.25	18.29	19.50

Table 11.2-2: The conducted Power for WCDMA Level B1

Item	band	FDDV result			
	ARFCN	4132 (826.4MHz)	4182 (836.4MHz)	4233 (846.6MHz)	Tune up
WCDMA	\	23.22	23.20	23.21	24.00
HSUPA	1	22.27	22.24	22.31	24.00
	2	20.18	20.22	20.27	22.00
	3	21.19	21.24	21.28	23.00
	4	20.26	20.19	20.23	22.00
	5	22.22	22.23	22.26	24.00
DC-HSDPA	1	22.22	22.23	22.26	24.00
	2	22.24	22.22	22.25	24.00
	3	21.69	21.72	21.74	23.50
	4	21.71	21.71	21.73	23.50
Item	band	FDDIV result			
	ARFCN	1312 (1712.4MHz)	1412 (1732.4MHz)	1513 (1752.6MHz)	
WCDMA	\	23.26	23.32	23.30	24.00
HSUPA	1	22.24	22.29	22.25	24.00
	2	20.28	20.31	20.36	22.00
	3	21.26	21.34	21.31	23.00
	4	20.33	20.35	20.32	22.00
	5	22.28	22.29	22.31	24.00
DC-HSDPA	1	22.26	22.34	22.32	24.00
	2	22.31	22.32	22.33	24.00
	3	21.78	21.85	21.83	23.50
	4	21.77	21.84	21.82	23.50
Item	band	FDDII result			
	ARFCN	9262 (1852.4MHz)	9400 (1880MHz)	9538 (1907.6MHz)	
WCDMA	\	21.81	21.75	21.79	22.50
HSUPA	1	20.76	20.74	20.84	22.00
	2	18.77	18.84	18.76	20.00
	3	19.75	19.80	19.77	21.00
	4	18.83	18.74	18.79	20.00
	5	20.83	20.76	20.74	22.00
DC-HSDPA	1	20.7	20.72	20.71	22.00
	2	20.69	20.71	20.72	22.00
	3	20.17	20.24	20.23	21.50
	4	20.16	20.19	20.21	21.50

11.3 LTE Measurement result

Maximum Target Power for Production Unit – Power Level A1

LTE Band 5				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	2	21+/- 1
QPSK	20	> 18	2	21+/- 1
16QAM	20	≤ 18	2	21+/- 1
16QAM	20	> 18	2	21+/- 1
64QAM	20	≤ 18	2	21+/- 1
64QAM	20	> 18	3	20+/- 1
QPSK	15	≤ 16	2	21+/- 1
QPSK	15	> 16	2	21+/- 1
16QAM	15	≤ 16	2	21+/- 1
16QAM	15	> 16	2	21+/- 1
64QAM	15	≤ 16	2	21+/- 1
64QAM	15	> 16	3	20+/- 1
QPSK	10	≤ 12	2	21+/- 1
QPSK	10	> 12	2	21+/- 1
16QAM	10	≤ 12	2	21+/- 1
16QAM	10	> 12	2	21+/- 1
64QAM	10	≤ 12	2	21+/- 1
64QAM	10	> 12	3	20+/- 1
QPSK	5	≤ 8	2	21+/- 1
QPSK	5	> 8	2	21+/- 1
16QAM	5	≤ 8	2	21+/- 1
16QAM	5	> 8	2	21+/- 1
64QAM	5	≤ 8	2	21+/- 1
64QAM	5	> 8	3	20+/- 1

LTE Band 7				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	0	23.7+/- 1
QPSK	20	> 18	1	22.7+/- 1
16QAM	20	≤ 18	1	22.7+/- 1
16QAM	20	> 18	2	21.7+/- 1
64QAM	20	≤ 18	2	21.7+/- 1
64QAM	20	> 18	3	20.7+/- 1
QPSK	15	≤ 16	0	23.7+/- 1
QPSK	15	> 16	1	22.7+/- 1
16QAM	15	≤ 16	1	22.7+/- 1
16QAM	15	> 16	2	21.7+/- 1
64QAM	15	≤ 16	2	21.7+/- 1
64QAM	15	> 16	3	20.7+/- 1
QPSK	10	≤ 12	0	23.7+/- 1
QPSK	10	> 12	1	22.7+/- 1
16QAM	10	≤ 12	1	22.7+/- 1
16QAM	10	> 12	2	21.7+/- 1
64QAM	10	≤ 12	2	21.7+/- 1
64QAM	10	> 12	3	20.7+/- 1
QPSK	5	≤ 8	0	23.7+/- 1
QPSK	5	> 8	1	22.7+/- 1
16QAM	5	≤ 8	1	22.7+/- 1
16QAM	5	> 8	2	21.7+/- 1
64QAM	5	≤ 8	2	21.7+/- 1
64QAM	5	> 8	3	20.7+/- 1

LTE Band 41				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	0	23+/- 1
QPSK	20	> 18	1	22+/- 1
16QAM	20	≤ 18	1	22+/- 1
16QAM	20	> 18	2	21+/- 1
64QAM	20	≤ 18	2	21+/- 1
64QAM	20	> 18	3	20+/- 1
QPSK	15	≤ 16	0	23+/- 1
QPSK	15	> 16	1	22+/- 1
16QAM	15	≤ 16	1	22+/- 1
16QAM	15	> 16	2	21+/- 1
64QAM	15	≤ 16	2	21+/- 1
64QAM	15	> 16	3	20+/- 1
QPSK	10	≤ 12	0	23+/- 1
QPSK	10	> 12	1	22+/- 1
16QAM	10	≤ 12	1	22+/- 1
16QAM	10	> 12	2	21+/- 1
64QAM	10	≤ 12	2	21+/- 1
64QAM	10	> 12	3	20+/- 1
QPSK	5	≤ 8	0	23+/- 1
QPSK	5	> 8	1	22+/- 1
16QAM	5	≤ 8	1	22+/- 1
16QAM	5	> 8	2	21+/- 1
64QAM	5	≤ 8	2	21+/- 1
64QAM	5	> 8	3	20+/- 1

Maximum Target Power for Production Unit – Power Level B1

LTE Band 5				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	0	23+/- 1
QPSK	20	> 18	1	22+/- 1
16QAM	20	≤ 18	1	22+/- 1
16QAM	20	> 18	2	21+/- 1
64QAM	20	≤ 18	2	21+/- 1
64QAM	20	> 18	3	20+/- 1
QPSK	15	≤ 16	0	23+/- 1
QPSK	15	> 16	1	22+/- 1
16QAM	15	≤ 16	1	22+/- 1
16QAM	15	> 16	2	21+/- 1
64QAM	15	≤ 16	2	21+/- 1
64QAM	15	> 16	3	20+/- 1
QPSK	10	≤ 12	0	23+/- 1
QPSK	10	> 12	1	22+/- 1
16QAM	10	≤ 12	1	22+/- 1
16QAM	10	> 12	2	21+/- 1
64QAM	10	≤ 12	2	21+/- 1
64QAM	10	> 12	3	20+/- 1
QPSK	5	≤ 8	0	23+/- 1
QPSK	5	> 8	1	22+/- 1
16QAM	5	≤ 8	1	22+/- 1
16QAM	5	> 8	2	21+/- 1
64QAM	5	≤ 8	2	21+/- 1
64QAM	5	> 8	3	20+/- 1

LTE Band 7				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	6	17.7+/-1
QPSK	20	> 18	6	17.7+/-1
16QAM	20	≤ 18	6	17.7+/-1
16QAM	20	> 18	6	17.7+/-1
64QAM	20	≤ 18	6	17.7+/-1
64QAM	20	> 18	6	17.7+/-1
QPSK	15	≤ 16	6	17.7+/-1
QPSK	15	> 16	6	17.7+/-1
16QAM	15	≤ 16	6	17.7+/-1
16QAM	15	> 16	6	17.7+/-1
64QAM	15	≤ 16	6	17.7+/-1
64QAM	15	> 16	6	17.7+/-1
QPSK	10	≤ 12	6	17.7+/-1
QPSK	10	> 12	6	17.7+/-1
16QAM	10	≤ 12	6	17.7+/-1
16QAM	10	> 12	6	17.7+/-1
64QAM	10	≤ 12	6	17.7+/-1
64QAM	10	> 12	6	17.7+/-1
QPSK	5	≤ 8	6	17.7+/-1
QPSK	5	> 8	6	17.7+/-1
16QAM	5	≤ 8	6	17.7+/-1
16QAM	5	> 8	6	17.7+/-1
64QAM	5	≤ 8	6	17.7+/-1
64QAM	5	> 8	6	17.7+/-1

LTE Band 41				
Modulation	BW (MHz)	RB size	Target MPR	Target Power
QPSK	20	≤ 18	3	20+/- 1
QPSK	20	> 18	3	20+/- 1
16QAM	20	≤ 18	3	20+/- 1
16QAM	20	> 18	3	20+/- 1
64QAM	20	≤ 18	3	20+/- 1
64QAM	20	> 18	3	20+/- 1
QPSK	15	≤ 16	3	20+/- 1
QPSK	15	> 16	3	20+/- 1
16QAM	15	≤ 16	3	20+/- 1
16QAM	15	> 16	3	20+/- 1
64QAM	15	≤ 16	3	20+/- 1
64QAM	15	> 16	3	20+/- 1
QPSK	10	≤ 12	3	20+/- 1
QPSK	10	> 12	3	20+/- 1
16QAM	10	≤ 12	3	20+/- 1
16QAM	10	> 12	3	20+/- 1
64QAM	10	≤ 12	3	20+/- 1
64QAM	10	> 12	3	20+/- 1
QPSK	5	≤ 8	3	20+/- 1
QPSK	5	> 8	3	20+/- 1
16QAM	5	≤ 8	3	20+/- 1
16QAM	5	> 8	3	20+/- 1
64QAM	5	≤ 8	3	20+/- 1
64QAM	5	> 8	3	20+/- 1

Power Level A1

Table 11.3-1: The conducted Power for LTE

Band 5						
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM	
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)	
1.4 MHz	1RB High (5)	848.3	20.80	20.93	21.10	
		836.5	20.83	21.23	21.40	
		824.7	20.83	20.93	21.24	
	1RB Middle (3)	848.3	20.79	21.02	21.37	
		836.5	20.88	21.26	21.45	
		824.7	20.89	20.99	21.44	
	1RB Low (0)	848.3	20.85	20.97	21.20	
		836.5	20.84	21.22	21.38	
		824.7	20.79	20.88	21.33	
	3RB High (3)	848.3	20.79	20.89	21.10	
		836.5	20.77	21.00	21.27	
		824.7	20.82	21.04	21.32	
	3RB Middle (1)	848.3	20.80	20.92	21.37	
		836.5	20.83	21.09	21.33	
		824.7	20.84	21.12	21.36	
	3RB Low (0)	848.3	20.73	20.91	21.31	
		836.5	20.76	20.98	21.31	
		824.7	20.73	21.01	21.27	
	6RB (0)	848.3	20.88	20.97	20.13	
		836.5	20.88	20.82	20.27	
		824.7	20.93	21.10	20.26	
	3 MHz	1RB High (14)	847.5	20.81	20.86	21.11
			836.5	20.83	21.25	21.39
			825.5	20.88	20.96	21.44
		1RB Middle (7)	847.5	20.91	20.99	21.40
			836.5	20.84	21.28	21.36
			825.5	20.95	20.97	21.52
1RB Low (0)		847.5	20.90	20.94	21.35	
		836.5	20.89	21.33	21.46	
		825.5	20.90	21.03	21.37	
8RB High (7)		847.5	20.92	21.01	20.28	
		836.5	20.91	21.01	20.27	
		825.5	20.92	20.98	20.29	
8RB Middle (4)		847.5	20.93	21.09	20.33	
		836.5	20.95	21.07	20.40	
		825.5	21.00	21.03	20.41	
8RB Low (0)		847.5	20.90	21.00	20.26	
		836.5	20.91	21.02	20.34	
		825.5	20.92	20.98	20.28	
15RB (0)		847.5	20.92	20.97	20.29	
		836.5	20.96	20.97	20.33	
		825.5	20.97	20.99	20.30	

5 MHz	1RB High (24)	846.5	20.78	21.13	21.13	
		836.5	20.89	21.48	21.49	
		825.5	20.93	21.08	21.45	
	1RB Middle (12)	846.5	20.84	21.15	21.54	
		836.5	20.90	21.52	21.51	
		825.5	20.88	21.23	21.45	
	1RB Low (0)	846.5	20.85	21.18	21.41	
		836.5	20.94	21.58	21.67	
		825.5	20.91	21.16	21.44	
	12RB High (13)	846.5	20.91	20.98	20.18	
		836.5	20.93	21.09	20.25	
		825.5	20.97	20.98	20.31	
	12RB Middle (6)	846.5	20.88	20.97	20.33	
		836.5	20.91	21.06	20.28	
		825.5	21.00	21.12	20.40	
	12RB Low (0)	846.5	20.89	20.99	20.25	
		836.5	20.96	21.09	20.33	
		825.5	20.99	21.04	20.30	
	25RB (0)	846.5	20.87	20.96	20.25	
		836.5	20.90	21.00	20.31	
		825.5	20.95	20.95	20.31	
	10 MHz	1RB High (49)	844	20.89	21.26	21.31
			836.5	20.75	20.88	21.44
			829	20.91	21.20	21.33
		1RB Middle (24)	844	20.74	21.24	21.31
			836.5	20.96	20.78	21.39
			829	21.07	20.96	21.50
1RB Low (0)		844	20.83	21.33	21.39	
		836.5	21.02	20.90	21.44	
		829	20.85	20.87	21.36	
25RB High (25)		844	20.92	20.97	20.30	
		836.5	20.93	21.07	20.37	
		829	20.96	21.01	20.23	
25RB Middle (12)		844	20.85	20.93	20.29	
		836.5	20.89	21.00	20.31	
		829	20.98	21.00	20.40	
25RB Low (0)		844	20.86	20.89	20.33	
		836.5	20.91	21.02	20.28	
		829	20.95	20.97	20.29	
50RB (0)		844	20.87	20.92	20.27	
		836.5	20.88	20.97	20.28	
		829	20.00	20.97	20.37	

Band 7						
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM	
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)	
5 MHz	1RB High (24)	2567.5	24.28	23.43	22.64	
		2535	24.14	23.46	22.56	
		2502.5	24.18	23.40	22.66	
	1RB Middle (12)	2567.5	24.22	23.36	22.51	
		2535	24.12	23.40	22.63	
		2502.5	24.13	23.29	22.62	
	1RB Low (0)	2567.5	24.25	23.42	22.65	
		2535	24.07	23.67	22.62	
		2502.5	24.11	23.27	22.59	
	12RB High (13)	2567.5	23.26	22.34	21.50	
		2535	23.23	22.41	21.57	
		2502.5	23.26	22.26	21.54	
	12RB Middle (6)	2567.5	23.28	22.32	21.51	
		2535	23.17	22.37	21.60	
		2502.5	23.24	22.29	21.53	
	12RB Low (0)	2567.5	23.23	22.36	21.52	
		2535	23.18	22.34	21.63	
		2502.5	23.27	22.27	21.61	
	25RB (0)	2567.5	23.25	22.26	21.54	
		2535	23.22	22.25	21.51	
		2502.5	23.24	22.18	21.48	
	10 MHz	1RB High (49)	2565	23.98	23.24	22.55
			2535	24.16	23.14	22.70
			2505	24.14	23.60	22.67
1RB Middle (24)		2565	24.08	23.16	22.59	
		2535	24.10	23.07	22.63	
		2505	24.09	23.54	22.63	
1RB Low (0)		2565	23.96	23.16	22.65	
		2535	24.05	23.07	22.66	
		2505	24.05	23.48	22.59	
25RB High (25)		2565	23.25	22.36	21.48	
		2535	23.24	22.28	21.64	
		2505	23.27	22.32	21.55	
25RB Middle (12)		2565	23.19	22.30	21.45	
		2535	23.21	22.21	21.51	
		2505	23.28	22.33	21.50	
25RB Low (0)		2565	23.15	22.28	21.45	
		2535	23.18	22.21	21.56	
		2505	23.15	22.22	21.41	
50RB (0)		2565	23.21	22.21	21.44	
		2535	23.19	22.11	21.48	
		2505	23.25	22.28	21.52	
15 MHz		1RB High (74)	2562.5	24.20	23.60	22.49
			2535	24.18	23.41	22.46

	1RB Middle (37)	2507.5	24.09	23.15	22.56	
		2562.5	24.19	23.63	22.56	
		2535	24.21	23.66	22.44	
	1RB Low (0)	2507.5	24.15	23.15	22.48	
		2562.5	24.11	23.55	22.63	
		2535	24.19	23.54	22.56	
	36RB High (38)	2507.5	24.12	23.17	22.48	
		2562.5	23.25	22.32	21.55	
		2535	23.28	22.24	21.50	
	36RB Middle (19)	2507.5	23.24	22.21	21.50	
		2562.5	23.20	22.27	21.44	
		2535	23.20	22.19	21.46	
	36RB Low (0)	2507.5	23.26	22.28	21.49	
		2562.5	23.17	22.23	21.47	
		2535	23.16	22.17	21.54	
	75RB (0)	2507.5	23.16	22.13	21.46	
		2562.5	23.17	22.22	21.46	
		2535	23.15	22.18	21.41	
	20 MHz	1RB High (99)	2507.5	23.25	22.23	21.45
			2560	24.11	23.66	22.27
			2535	24.05	23.64	22.44
		1RB Middle (50)	2510	24.06	23.66	22.46
			2560	24.05	23.64	22.31
			2535	24.06	23.58	22.50
		1RB Low (0)	2510	23.98	23.41	22.52
			2560	23.98	23.59	22.37
			2535	24.07	23.65	22.54
50RB High (50)		2510	24.01	23.68	22.38	
		2560	23.28	22.31	21.34	
		2535	23.27	22.26	21.40	
50RB Middle (25)		2510	23.24	22.28	21.41	
		2560	23.26	22.32	21.33	
		2535	23.23	22.20	21.42	
50RB Low (0)		2510	23.28	22.32	21.42	
		2560	23.14	22.21	21.28	
		2535	23.21	22.21	21.34	
100RB (0)		2510	23.20	22.21	21.33	
		2560	23.19	22.23	21.26	
		2535	23.20	22.21	21.39	
			2510	23.28	22.29	21.36

Band 41					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5 MHz	1RB High (24)	2687.5	23.15	22.15	21.39
		2640.3	23.16	22.41	21.41
		2593	23.13	22.12	21.26
		2545.8	23.14	22.08	21.35
		2498.5	23.04	22.31	21.19
	1RB Middle (12)	2687.5	23.10	22.16	21.43
		2640.3	23.15	22.40	21.45
		2593	23.15	22.07	21.24
		2545.8	23.12	22.10	21.32
		2498.5	23.03	22.26	21.20
	1RB Low (0)	2687.5	23.10	22.18	21.46
		2640.3	23.12	22.34	21.39
		2593	23.10	22.06	21.21
		2545.8	23.04	22.02	21.30
		2498.5	23.05	22.24	21.20
	12RB High (13)	2687.5	22.21	21.23	20.74
		2640.3	22.30	21.39	20.81
		2593	22.22	21.18	20.71
		2545.8	22.13	21.11	20.72
		2498.5	22.12	21.23	20.58
	12RB Middle (6)	2687.5	22.28	21.25	20.77
		2640.3	22.30	21.40	20.87
		2593	22.19	21.20	20.69
		2545.8	22.15	21.11	20.78
		2498.5	22.16	21.25	20.60
	12RB Low (0)	2687.5	22.23	21.21	20.74
		2640.3	22.27	21.38	20.74
		2593	22.18	21.17	20.62
		2545.8	22.13	21.10	20.76
		2498.5	22.14	21.17	20.57
25RB (0)	2687.5	22.22	21.26	20.75	
	2640.3	22.27	21.30	20.83	
	2593	22.19	21.16	20.68	
	2545.8	22.15	21.12	20.78	
	2498.5	22.16	21.11	20.56	
10 MHz	1RB High (49)	2685	22.98	22.14	21.32
		2639	23.13	22.32	21.30
		2593	23.16	22.19	21.21

		2547	22.99	22.05	21.20
		2501	23.09	22.17	21.07
	1RB Middle (24)	2685	23.11	22.20	21.37
		2639	23.18	22.40	21.34
		2593	23.10	22.23	21.17
		2547	23.04	22.12	21.22
		2501	23.02	22.10	21.03
		1RB Low (0)	2685	23.04	22.15
	2639		23.18	22.39	21.29
	2593		23.05	22.21	21.16
	2547		22.93	22.10	21.21
	2501		23.04	22.08	21.10
	25RB High (25)	2685	22.23	21.20	20.71
		2639	22.29	21.33	20.77
		2593	22.24	21.24	20.69
		2547	22.16	21.16	20.76
		2501	22.16	21.17	20.59
	25RB Middle (12)	2685	22.29	21.22	20.80
		2639	22.33	21.36	20.89
		2593	22.17	21.18	20.71
		2547	22.22	21.19	20.84
		2501	22.19	21.22	20.63
	25RB Low (0)	2685	22.19	21.15	20.68
		2639	22.23	21.32	20.75
		2593	22.16	21.15	20.65
		2547	22.18	21.17	20.82
		2501	22.16	21.10	20.62
	50RB (0)	2685	22.26	21.28	20.72
		2639	22.31	21.32	20.78
		2593	22.17	21.16	20.69
2547		22.16	21.21	20.75	
2501		22.15	21.18	20.54	
15 MHz	1RB High (74)	2682.5	23.09	22.20	21.39
		2637.8	23.01	22.10	21.35
		2593	23.12	22.28	21.24
		2548.3	22.99	22.22	21.30
		2503.5	23.17	21.92	21.09
	1RB Middle (37)	2682.5	23.03	22.21	21.32
		2637.8	22.98	22.13	21.35
		2593	23.02	22.07	21.18
		2548.3	22.91	22.16	21.15

		2503.5	23.06	21.90	20.99
	1RB Low (0)	2682.5	23.07	22.16	21.30
		2637.8	23.11	22.15	21.39
		2593	23.02	22.06	21.22
		2548.3	22.93	22.11	21.27
		2503.5	22.88	21.79	21.01
	36RB High (38)	2682.5	22.14	21.20	20.65
		2637.8	22.18	21.24	20.71
		2593	22.19	21.14	20.59
		2548.3	22.12	21.12	20.66
		2503.5	22.16	21.05	20.49
	36RB Middle (19)	2682.5	22.08	21.13	20.69
		2637.8	22.25	21.25	20.77
		2593	22.12	21.09	20.67
		2548.3	22.11	21.13	20.66
		2503.5	22.12	21.05	20.46
	36RB Low (0)	2682.5	22.09	21.12	20.69
		2637.8	22.15	21.16	20.70
		2593	22.15	21.13	20.57
		2548.3	22.03	21.06	20.67
		2503.5	22.05	21.03	20.45
	75RB (0)	2682.5	22.09	21.11	20.72
		2637.8	22.23	21.26	20.77
		2593	22.11	21.12	20.68
		2548.3	22.11	21.10	20.72
2503.5		22.07	21.06	20.54	
20 MHz	1RB High (99)	2680	23.14	22.08	21.30
		2636.5	23.18	22.14	21.29
		2593	23.10	22.25	21.20
		2549.5	22.99	21.92	21.17
		2506	22.95	21.92	21.10
	1RB Middle (50)	2680	23.08	22.06	21.33
		2636.5	23.10	22.00	21.40
		2593	23.04	22.18	21.20
		2549.5	22.98	21.90	21.19
		2506	22.89	21.81	20.97
	1RB Low (0)	2680	23.21	22.12	21.39
		2636.5	23.22	22.16	21.47
		2593	23.09	22.31	21.26
		2549.5	22.98	21.89	21.23
		2506	22.92	21.77	21.05

	50RB High (50)	2680	22.16	21.16	20.74
		2636.5	22.22	21.26	20.74
		2593	22.20	21.26	20.62
		2549.5	22.09	21.04	20.65
		2506	22.09	21.11	20.56
	50RB Middle (25)	2680	22.12	21.11	20.70
		2636.5	22.25	21.29	20.81
		2593	22.12	21.18	20.67
		2549.5	22.09	21.09	20.71
		2506	22.11	21.11	20.52
	50RB Low (0)	2680	22.12	21.12	20.76
		2636.5	22.20	21.23	20.78
		2593	22.12	21.17	20.60
		2549.5	22.00	20.98	20.70
		2506	21.99	20.99	20.47
	100RB (0)	2680	22.12	21.12	20.66
		2636.5	22.27	21.28	20.83
		2593	22.13	21.11	20.63
		2549.5	22.08	21.09	20.75
		2506	22.09	21.11	20.57

Power Level B1

Table 11.3-1: The conducted Power for LTE

Band 5						
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM	
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)	
1.4 MHz	1RB High (5)	848.3	22.80	21.89	20.92	
		836.5	22.87	21.98	21.34	
		824.7	22.83	22.28	21.32	
	1RB Middle (3)	848.3	22.84	21.95	21.26	
		836.5	22.83	22.06	21.49	
		824.7	22.89	22.32	21.48	
	1RB Low (0)	848.3	22.82	21.91	21.41	
		836.5	22.80	21.94	21.37	
		824.7	22.82	22.24	21.35	
	3RB High (3)	848.3	22.77	22.03	20.72	
		836.5	22.85	21.93	21.10	
		824.7	22.78	22.07	21.30	
	3RB Middle (1)	848.3	22.84	22.11	20.65	
		836.5	22.88	22.00	20.56	
		824.7	22.85	22.13	21.42	
	3RB Low (0)	848.3	22.79	22.08	21.30	
		836.5	22.78	21.90	21.28	
		824.7	22.78	22.04	21.24	
	6RB (0)	848.3	21.82	21.03	20.10	
		836.5	21.86	21.04	20.65	
		824.7	21.91	20.83	20.24	
	3 MHz	1RB High (14)	847.5	22.84	21.87	21.07
			836.5	22.80	22.26	21.43
			825.5	22.90	21.99	21.42
1RB Middle (7)		847.5	22.93	21.91	21.46	
		836.5	22.81	22.29	21.36	
		825.5	22.90	21.95	21.39	
1RB Low (0)		847.5	22.90	21.99	21.25	
		836.5	22.88	22.32	21.44	
		825.5	22.92	22.03	21.57	
8RB High (7)		847.5	21.90	21.04	20.15	
		836.5	21.91	20.97	20.36	
		825.5	21.90	20.96	20.34	
8RB Middle (4)		847.5	21.93	21.04	20.29	
		836.5	22.00	21.06	20.34	
		825.5	22.01	21.04	20.31	
8RB Low (0)		847.5	21.87	21.00	20.30	
		836.5	21.88	21.04	20.31	
		825.5	21.95	21.02	20.28	
15RB (0)		847.5	21.94	20.97	20.22	
		836.5	21.93	21.00	20.29	
		825.5	21.97	20.96	20.00	

5 MHz	1RB High (24)	846.5	22.85	22.49	21.14	
		836.5	22.94	22.15	21.51	
		825.5	23.00	22.20	21.43	
	1RB Middle (12)	846.5	22.87	22.59	21.52	
		836.5	22.93	22.18	21.44	
		825.5	23.01	22.17	21.45	
	1RB Low (0)	846.5	22.86	22.58	21.64	
		836.5	23.01	22.25	21.57	
		825.5	23.07	22.24	21.50	
	12RB High (13)	846.5	21.91	21.07	20.18	
		836.5	21.94	21.00	20.31	
		825.5	21.98	21.06	20.30	
	12RB Middle (6)	846.5	21.90	21.02	20.25	
		836.5	21.93	20.97	20.29	
		825.5	21.99	21.12	20.35	
	12RB Low (0)	846.5	21.93	21.06	20.26	
		836.5	21.99	21.03	20.34	
		825.5	21.97	21.06	20.25	
	25RB (0)	846.5	21.88	20.98	20.26	
		836.5	21.89	20.86	20.31	
		825.5	22.01	21.04	20.33	
	10 MHz	1RB High (49)	844	22.88	21.72	21.38
			836.5	22.80	22.28	21.50
			829	22.94	21.84	21.32
1RB Middle (24)		844	22.89	21.90	21.57	
		836.5	22.95	22.31	21.62	
		829	22.85	21.91	21.36	
1RB Low (0)		844	22.86	21.82	21.47	
		836.5	22.85	21.95	21.47	
		829	22.97	22.27	21.59	
25RB High (25)		844	21.93	20.96	20.27	
		836.5	21.96	21.01	20.11	
		829	21.97	21.06	20.32	
25RB Middle (12)		844	21.91	20.89	20.28	
		836.5	21.92	20.89	20.10	
		829	22.00	21.12	20.37	
25RB Low (0)		844	21.90	20.92	20.34	
		836.5	21.93	20.98	20.28	
		829	21.88	21.03	20.26	
50RB (0)		844	21.82	20.86	20.31	
		836.5	21.89	20.96	20.28	
		829	21.96	21.06	20.12	

Band 7						
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM	
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)	
5 MHz	1RB High (24)	2567.5	19.04	19.34	18.94	
		2535	19.07	19.40	19.06	
		2502.5	19.13	19.51	18.73	
	1RB Middle (12)	2567.5	18.90	19.27	18.83	
		2535	19.13	19.34	18.86	
		2502.5	19.06	19.66	18.73	
	1RB Low (0)	2567.5	19.01	19.30	18.77	
		2535	19.03	19.32	18.88	
		2502.5	19.00	19.57	18.70	
	12RB High (13)	2567.5	19.23	19.28	18.76	
		2535	19.26	19.32	18.88	
		2502.5	19.21	19.34	18.73	
	12RB Middle (6)	2567.5	19.18	19.30	18.81	
		2535	19.16	19.27	18.85	
		2502.5	19.18	19.35	18.70	
	12RB Low (0)	2567.5	19.22	19.31	18.82	
		2535	19.15	19.25	18.89	
		2502.5	19.10	19.35	18.75	
	25RB (0)	2567.5	19.23	19.21	18.81	
		2535	19.12	19.19	18.83	
		2502.5	19.17	19.29	18.66	
	10 MHz	1RB High (49)	2565	19.13	19.56	18.92
			2535	19.15	19.16	19.05
			2505	19.10	19.17	18.74
1RB Middle (24)		2565	19.07	19.50	19.13	
		2535	19.07	19.18	19.08	
		2505	19.09	19.00	18.65	
1RB Low (0)		2565	18.96	19.48	19.12	
		2535	19.00	19.20	19.10	
		2505	19.03	19.06	18.68	
25RB High (25)		2565	19.22	19.26	18.83	
		2535	19.24	19.35	18.86	
		2505	19.20	19.24	18.72	
25RB Middle (12)		2565	19.19	19.20	18.77	
		2535	19.22	19.32	18.82	
		2505	19.21	19.23	18.69	
25RB Low (0)		2565	19.18	19.17	18.90	
		2535	19.18	19.26	18.83	
		2505	19.09	19.16	18.63	
50RB (0)		2565	19.14	19.15	18.71	
		2535	19.20	19.19	18.87	
		2505	19.19	19.20	18.74	
15 MHz		1RB High (74)	2562.5	19.03	19.13	18.82
			2535	19.19	19.56	18.93

	1RB Middle (37)	2507.5	19.08	19.53	18.92	
		2562.5	19.01	19.08	18.96	
		2535	19.18	19.57	18.89	
	1RB Low (0)	2507.5	19.13	19.61	18.80	
		2562.5	19.01	19.08	18.87	
		2535	19.21	19.56	18.80	
	36RB High (38)	2507.5	19.15	19.61	18.90	
		2562.5	19.19	19.22	18.88	
		2535	19.21	19.26	18.88	
	36RB Middle (19)	2507.5	19.19	19.17	18.72	
		2562.5	19.20	19.23	18.86	
		2535	19.15	19.24	18.80	
	36RB Low (0)	2507.5	19.19	19.18	18.68	
		2562.5	19.08	19.14	18.86	
		2535	19.12	19.20	18.81	
	75RB (0)	2507.5	19.09	19.10	18.64	
		2562.5	19.18	19.23	18.81	
		2535	19.11	19.17	18.81	
	20 MHz	1RB High (99)	2507.5	19.14	19.16	18.75
			2560	19.06	19.68	18.83
			2535	19.00	19.66	18.96
		1RB Middle (50)	2510	19.04	19.51	18.89
			2560	19.03	19.64	19.02
			2535	18.91	19.63	18.92
		1RB Low (0)	2510	18.98	19.49	18.65
			2560	19.05	19.55	19.05
			2535	18.99	19.62	18.97
50RB High (50)		2510	18.95	19.44	18.84	
		2560	19.19	19.26	18.88	
		2535	19.14	19.25	18.88	
50RB Middle (25)		2510	19.14	19.12	18.73	
		2560	19.14	19.17	18.80	
		2535	19.13	19.20	18.86	
50RB Low (0)		2510	19.16	19.15	18.74	
		2560	19.08	19.10	18.83	
		2535	19.12	19.16	18.79	
100RB (0)		2510	19.11	19.05	18.60	
		2560	19.08	19.16	18.79	
		2535	19.08	19.12	18.86	
			2510	19.17	19.17	18.77

Band 41					
Bandwidth (MHz)	RB allocation	Frequency (MHz)	QPSK	16QAM	64QAM
	RB offset (Start RB)		Actual output power (dBm)	Actual output power (dBm)	Actual output power (dBm)
5 MHz	1RB High (24)	2687.5	20.21	19.95	20.68
		2640.3	20.23	20.17	20.69
		2593	20.11	19.91	20.56
		2545.8	20.14	19.93	20.66
		2498.5	20.08	20.08	20.49
	1RB Middle (12)	2687.5	20.11	20.03	20.67
		2640.3	20.21	20.12	20.65
		2593	20.12	19.87	20.56
		2545.8	20.13	19.93	20.66
		2498.5	20.11	20.02	20.48
	1RB Low (0)	2687.5	20.14	19.94	20.69
		2640.3	20.17	20.12	20.65
		2593	20.12	19.85	20.52
		2545.8	20.09	19.89	20.61
		2498.5	20.16	20.06	20.53
	12RB High (13)	2687.5	20.26	20.03	20.79
		2640.3	20.30	20.17	20.74
		2593	20.20	20.03	20.69
		2545.8	20.20	19.96	20.74
		2498.5	20.12	19.99	20.60
	12RB Middle (6)	2687.5	20.27	20.03	20.81
		2640.3	20.30	20.16	20.80
		2593	20.23	20.06	20.67
		2545.8	20.17	19.98	20.78
		2498.5	20.14	20.05	20.65
	12RB Low (0)	2687.5	20.23	20.00	20.78
		2640.3	20.32	20.13	20.76
		2593	20.13	19.94	20.59
		2545.8	20.20	19.93	20.76
		2498.5	20.18	20.00	20.62
25RB (0)	2687.5	20.25	20.03	20.79	
	2640.3	20.26	20.17	20.75	
	2593	20.17	19.97	20.62	
	2545.8	20.17	20.03	20.73	
	2498.5	20.13	19.96	20.60	
10 MHz	1RB High (49)	2685	20.15	20.09	20.78
		2639	20.16	20.02	20.77
		2593	20.11	20.04	20.68

		2547	20.01	19.97	20.70	
		2501	20.04	19.88	20.57	
	1RB Middle (24)	2685	20.12	20.16	20.79	
		2639	20.22	19.97	20.76	
		2593	20.09	19.94	20.62	
		2547	19.98	19.85	20.73	
		2501	20.05	19.85	20.54	
		1RB Low (0)	2685	20.07	20.05	20.83
	2639		20.10	19.99	20.82	
	2593		20.09	19.97	20.68	
	2547		19.94	19.92	20.69	
	2501		19.90	19.87	20.66	
	25RB High (25)	2685	20.28	20.10	20.81	
		2639	20.28	20.15	20.86	
		2593	20.24	20.05	20.73	
		2547	20.16	20.00	20.81	
		2501	20.15	19.96	20.67	
	25RB Middle (12)	2685	20.32	20.10	20.90	
		2639	20.33	20.17	20.86	
		2593	20.20	20.03	20.78	
		2547	20.19	20.01	20.87	
		2501	20.15	19.98	20.67	
	25RB Low (0)	2685	20.17	20.06	20.80	
		2639	20.20	20.02	20.84	
		2593	20.12	19.90	20.67	
		2547	20.18	19.99	20.84	
		2501	20.08	19.96	20.67	
	50RB (0)	2685	20.20	19.94	20.74	
		2639	20.30	20.11	20.83	
		2593	20.17	20.04	20.71	
		2547	20.20	20.04	20.78	
		2501	20.09	19.96	20.66	
	15 MHz	1RB High (74)	2682.5	20.12	19.88	20.79
			2637.8	20.16	20.00	20.67
			2593	20.08	20.02	20.65
			2548.3	19.99	19.98	20.64
			2503.5	19.93	19.98	20.46
		1RB Middle (37)	2682.5	20.06	19.81	20.73
			2637.8	20.08	19.86	20.72
			2593	19.96	19.95	20.56
2548.3			19.93	19.88	20.49	

		2503.5	19.94	19.81	20.40
	1RB Low (0)	2682.5	20.07	19.82	20.75
		2637.8	20.15	19.96	20.72
		2593	20.03	19.89	20.55
		2548.3	19.93	19.91	20.55
		2503.5	19.91	19.81	20.43
	36RB High (38)	2682.5	20.17	19.99	20.72
		2637.8	20.25	20.00	20.76
		2593	20.18	19.98	20.67
		2548.3	20.17	19.91	20.75
		2503.5	20.08	19.84	20.56
	36RB Middle (19)	2682.5	20.22	20.01	20.79
		2637.8	20.24	20.04	20.79
		2593	20.16	20.02	20.68
		2548.3	20.13	19.92	20.78
		2503.5	20.07	19.87	20.54
	36RB Low (0)	2682.5	20.12	19.92	20.72
		2637.8	20.17	19.90	20.77
		2593	20.11	19.92	20.64
		2548.3	20.08	19.82	20.72
		2503.5	20.06	19.87	20.55
	75RB (0)	2682.5	20.18	20.00	20.82
		2637.8	20.24	20.02	20.81
		2593	20.19	19.96	20.67
		2548.3	20.15	19.94	20.77
2503.5		20.07	19.92	20.62	
20 MHz	1RB High (99)	2680	20.12	20.11	20.73
		2636.5	20.21	19.98	20.73
		2593	20.11	19.78	20.63
		2549.5	19.91	19.94	20.57
		2506	20.03	19.82	20.52
	1RB Middle (50)	2680	20.04	20.02	20.74
		2636.5	20.13	19.95	20.77
		2593	20.03	19.70	20.63
		2549.5	19.88	19.93	20.58
		2506	19.99	19.73	20.45
	1RB Low (0)	2680	20.11	20.13	20.85
		2636.5	20.27	20.01	20.88
		2593	20.14	19.82	20.69
		2549.5	19.96	19.91	20.65
		2506	19.96	19.80	20.50

	50RB High (50)	2680	20.18	20.05	20.86
		2636.5	20.25	20.08	20.86
		2593	20.18	19.96	20.71
		2549.5	20.10	19.95	20.77
		2506	20.11	19.88	20.68
	50RB Middle (25)	2680	20.12	19.96	20.82
		2636.5	20.33	20.08	20.91
		2593	20.17	20.00	20.79
		2549.5	20.10	19.99	20.87
		2506	20.11	19.88	20.68
	50RB Low (0)	2680	20.14	19.99	20.86
		2636.5	20.22	20.02	20.88
		2593	20.11	19.92	20.72
		2549.5	19.99	19.85	20.80
		2506	20.00	19.79	20.57
	100RB (0)	2680	20.14	19.96	20.81
		2636.5	20.28	20.09	20.91
		2593	20.20	19.96	20.78
		2549.5	20.12	19.98	20.84
		2506	20.11	19.88	20.69

Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive. 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 device supports Intra-band uplink LTE Carrier Aggregation (CA) CA_B7C. The conducted power measurement results of LTE CA are provided as follow.

All other uplink communications are identical to the release 8 specifications. Other LTE Rel.10 or higher features are not supported, including Enhanced SC-FDMA or Uplink MIMO etc.

UL LTE CA Class	Normal Power								conducted power (dBm)
	PCC				SCC				
PCC Bandwidth	channel	RB	RB OFFSET	SCC Bandwidth	channel	RB	RB OFFSET		
CA 7C	20M	21152	1	99	20M	3350	1	0	23.57
CA 7C	20M	20850	1	99	10M	2994	1	0	23.01
CA 7C	15M	20825	1	74	10M	2945	1	0	23.11
CA 7C	15M	20825	1	74	15M	2975	1	0	22.54
CA 7C	20M	20850	1	99	15M	3021	1	0	22.87
CA 7C	20M	20850	1	99	20M	3048	1	0	23.01
CA 7C	10M	21206	1	49	20M	3350	1	0	23.09
CA 7C	15M	21375	1	74	15M	3225	1	0	22.67
CA 7C	20M	21350	1	99	15M	3179	1	0	22.61

UL LTE CA Class	Low Power								conducted power (dBm)
	PCC				SCC				
PCC Bandwidth	channel	RB	RB OFFSET	SCC Bandwidth	channel	RB	RB OFFSET		
CA 7C	20M	21152	1	99	20M	3350	1	0	17.92
CA 7C	20M	20850	1	99	10M	2994	1	0	17.55
CA 7C	15M	20825	1	74	10M	2945	1	0	17.61
CA 7C	15M	20825	1	74	15M	2975	1	0	17.42
CA 7C	20M	20850	1	99	15M	3021	1	0	17.80
CA 7C	20M	20850	1	99	20M	3048	1	0	17.51
CA 7C	10M	21206	1	49	20M	3350	1	0	17.66
CA 7C	15M	21375	1	74	15M	3225	1	0	17.25
CA 7C	20M	21350	1	99	15M	3179	1	0	17.41

11.4 Wi-Fi and BT Measurement result

The maximum output power of BT is 14.05dBm.

The maximum tune up of BT is 14.5dBm.

Low power for WLAN by Simultaneous transmission.

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

The conducted output power for WiFi 2.4G Antenna4 normal power is as following:

FCC									
		4000.00	8000.00	9500.00	16000.00				
802.11b	Channel\data	1Mbps	2Mbps	5.5Mbps	11Mbps				
WLAN2450	11(2462MHz)	17.38	17.42	18.26	18.16				
	6(2437(MHz)	17.06	/	17.67	/				
	1(2412MHz)	16.10	/	17.21	/				
turn up		18.00	18.00	19.00	19.00				
		2200.00	3400.00	4500.00	6600.00	9000.00	13000.00	14000.00	16000.00
802.11g	Channel\data	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
WLAN2450	11(2462MHz)	17.27	17.21	17.20	17.31	17.11	16.16	15.11	14.75
	6(2437(MHz)	16.88	/	/	16.85	/	/	/	/
	1(2412MHz)	16.10	/	/	16.51	/	/	/	/
turn up		17.70	17.70	18.50	18.50	18.00	17.00	16.00	16.00
		4000.00	8000.00	13000.00	16000.00	16000.00	16000.00	16000.00	16000.00
802.11n-20MHz	Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	11(2462MHz)	16.57	16.35	17.37	17.33	17.00	16.17	15.72	15.09
	6(2437(MHz)	16.30	/	17.08	/	/	/	/	/
	1(2412MHz)	15.42	/	16.28	/	/	/	/	/
turn up		17.00	18.00	18.00	18.50	18.50	17.50	16.50	16.00
		9000.00	16000.00	16000.00	16000.00	16000.00	16000.00	16000.00	16000.00
802.11n-40MHz	Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	9(2452MHz)	16.67	16.73	/	/	/	/	/	/
	6(2437MHz)	16.92	16.93	16.88	16.81	15.96	14.90	14.85	13.90
	3(2422MHz)	16.37	16.41	/	/	/	/	/	/
turn up		17.70	17.70	18.00	18.50	17.00	16.00	16.00	15.00

The conducted output power for WiFi 2.4G MIMO normal power is as following:

FCC									
		4000.00	8000.00	9500.00	16000.00				
802.11b	Channel\data	1Mbps	2Mbps	5.5Mbps	11Mbps				
WLAN2450	11(2462MHz)	20.60	20.51	21.42	21.35				
	turn up	21.50	21.50	21.50	21.50				
	6(2437(MHz)	20.60	/	21.10	/				
turn up		19.57	/	20.50	/				
turn up		21.00	21.00	22.00	22.00				
		2200.00	3400.00	4500.00	6600.00	9000.00	13000.00	14000.00	16000.00
802.11g	Channel\data	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
WLAN2450	11(2462MHz)	20.46	20.40	20.40	20.41	20.20	19.28	18.20	17.75
	6(2437(MHz)	20.17	/	/	/	/	/	/	/
	1(2412MHz)	19.40	/	/	/	/	/	/	/
turn up		21.00	21.00	21.00	21.00	21.00	21.00	19.00	18.50
		4000.00	8000.00	13000.00	16000.00	16000.00	16000.00	16000.00	16000.00
802.11n-20MHz	Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	11(2462MHz)	19.73	19.54	20.58	20.54	20.25	19.26	18.73	18.14
	6(2437(MHz)	19.51	/	20.35	/	/	/	/	/
	1(2412MHz)	18.67	/	19.53	/	/	/	/	/
turn up		20.00	20.00	21.00	21.00	21.00	20.00	19.50	19.00
		9000.00	16000.00	16000.00	16000.00	16000.00	16000.00	16000.00	16000.00
802.11n-40MHz	Channel\data	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
WLAN2450	9(2452MHz)	19.92	19.96	/	/	/	/	/	/
	6(2437MHz)	20.17	20.20	20.15	20.05	19.07	18.07	18.04	16.93
	3(2422MHz)	19.45	19.47	/	/	/	/	/	/
tune up		21.00	21.00	21.00	21.00	20.00	19.00	19.00	18.00

The conducted output power for WiFi 2.4G Antenna4 low power is as following:

		4000.00	8000.00	9500.00	16000.00
802.11b	Channel\data	1Mbps	2Mbps	5.5Mbps	11Mbps
WLAN2450	11(2462MHz)	14.35	14.47	15.12	14.99
	6(2437(MHz)	13.71	/	15.01	/
	1(2412MHz)	14.08	/	14.76	/
turn up		15.00	15.00	15.50	15.50

The conducted output power for WiFi 5G Antenna5 normal power is as following:

802.11a(dBm)								
Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
36(5180 MHz)	16.95			17.82				
40(5200 MHz)	17.31			18.23				
44(5220 MHz)	17.55	17.56	17.49	18.40	17.73	17.30	15.99	15.99
48(5240 MHz)	16.70			17.49				
tune up	18.00	18.00	18.00	18.50	18.50	17.50	16.50	16.50
52(5260 MHz)	16.68	16.69	16.70	17.55	16.63	16.31	14.95	14.87
56(5280 MHz)	16.13			16.91				
60(5300 MHz)	16.15			16.92				
64(5320 MHz)	16.56			16.83				
tune up	17.00	17.50	18.50	18.00	17.50	17.00	16.00	16.00
100(5500 MHz)	16.28			17.12				
104(5520 MHz)	16.34			17.27				
108(5540 MHz)	16.24			17.07				
112(5560 MHz)	16.08			16.90				
116(5580 MHz)	15.95			16.77				
tune up	16.50			17.40				
120(5600 MHz)	16.43			17.21				
124(5620 MHz)	16.48			17.30				
128(5640 MHz)	16.82	16.87	16.86	17.55	17.02	16.70	15.50	15.53
132(5660 MHz)	16.80			17.47				
136(5680 MHz)	16.75			17.43				
140(5700 MHz)	16.40			17.11				
144(5720 MHz)	16.13			16.85				
tune up	17.50	17.50	17.50	18.00	18.00	17.50	16.50	16.50
149(5745 MHz)	16.19			16.86				
153(5765 MHz)	16.62			17.41				
157(5785 MHz)	17.07			17.84				
161(5805 MHz)	17.48	17.48	17.51	17.97	17.53	17.15	15.93	15.87
165(5825 MHz)	17.41			17.94				
tune up	17.50	17.50	17.50	18.00	18.00	17.50	16.50	16.50

The conducted output power for WiFi 5G MIMO normal power is as following:

802.11a(dBm)								
Channel\data rate	2200.00	3400.00	4500.00	6000.00	9000.00	13000.00	15000.00	16000.00
	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
36(5180 MHz)	19.57			20.37				
40(5200 MHz)	19.79			20.63				
44(5220 MHz)	19.97	19.97	19.92	20.78	20.34	19.70	18.57	18.55
48(5240 MHz)	19.48			20.24				
tune up	21.00	21.00	21.00	21.00	21.00	21.00	19.50	19.50
52(5260 MHz)	19.44	19.43	19.45	20.28	19.51	19.19	18.30	18.23
56(5280 MHz)	19.05			19.86				
60(5300 MHz)	18.96			19.78				
64(5320 MHz)	19.40			19.70				
tune up	20.00	20.00	20.00	20.50	20.00	20.00	19.50	19.50
100(5500 MHz)	19.01			19.75				
104(5520 MHz)	18.84			19.63				
108(5540 MHz)	18.65			19.35				
112(5560 MHz)	18.82			19.52				
116(5580 MHz)	18.88			19.58				
120(5600 MHz)	19.32			19.99				
124(5620 MHz)	19.56			20.20				
128(5640 MHz)	19.75	19.72	19.72	20.50	19.96	19.58	18.53	18.53
132(5660 MHz)	19.58			20.35				
136(5680 MHz)	19.49			20.04				
140(5700 MHz)	19.23			19.83				
144(5720 MHz)	19.13			19.76				
tune up	20.00	20.50	20.50	21.00	20.50	20.00	19.50	19.50
149(5745 MHz)	19.19			19.93				
153(5765 MHz)	19.29			20.14				
157(5785 MHz)	19.52			20.29				
161(5805 MHz)	19.90	19.88	19.88	20.50	19.98	19.65	18.54	18.50
165(5825 MHz)	19.64			20.42				
tune up	20.00	20.50	20.50	20.50	20.50	20.00	19.50	19.50

The conducted output power for WiFi 5G Antenna5 low power is as following:

802.11a(dBm)								
Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
36(5180 MHz)	13.29			13.89				
40(5200 MHz)	13.62			14.29				
44(5220 MHz)	13.82	13.74	13.73	14.56	14.36	14.13	14.16	14.11
48(5240 MHz)	13.67			14.42				
Tune up	14.70	14.70	14.70	14.70	14.70	14.70	14.70	14.70
52(5260 MHz)	13.18	13.07	13.03	13.97	13.69	13.35	13.39	13.38
56(5280 MHz)	12.69			13.44				
60(5300 MHz)	12.58			13.33				
64(5320 MHz)	12.54			13.28				
Tune up	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
100(5500 MHz)	12.74			13.52				
104(5520 MHz)	13.27			13.98				
108(5540 MHz)	13.09			13.87				
112(5560 MHz)	12.90			13.70				
116(5580 MHz)	12.84			13.56				
120(5600 MHz)	12.87			13.65				
Tune up	14.50	14.50	14.50	14.50	14.50	14.50	14.50	14.50
124(5620 MHz)	13.05			13.81				
128(5640 MHz)	13.33			14.11				
132(5660 MHz)	13.98	13.92	13.89	14.72	14.52	14.05	14.12	14.09
136(5680 MHz)	13.84			14.61				
140(5700 MHz)	13.40			14.17				
144(5720 MHz)	13.05			13.83				
Tune up	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.00
149(5745 MHz)	12.66			13.42				
153(5765 MHz)	13.11			13.95				
157(5785 MHz)	13.90			14.72				
161(5805 MHz)	14.21	14.28	14.24	14.89	14.87	14.46	14.50	14.45
165(5825 MHz)	13.99			14.81				
tune up	14.50	14.50	14.50	15.00	15.00	15.00	15.00	15.00

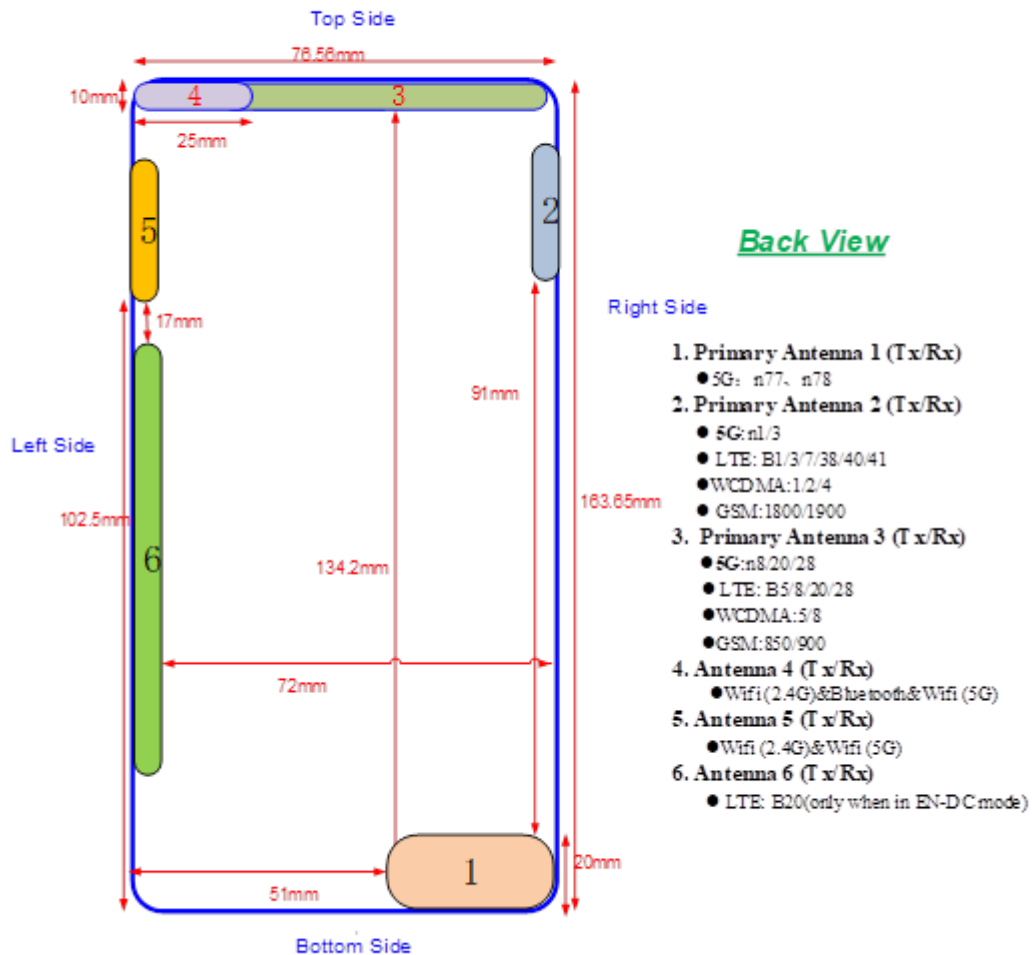
12 Simultaneous TX SAR Considerations

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 12.1 Antenna Locations

12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

SAR measurement positions						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
ANT2	Yes	Yes	Yes	No	Yes	No
ANT3	Yes	Yes	Yes	Yes	Yes	No
ANT4	Yes	Yes	No	Yes	Yes	No
ANT5	Yes	Yes	No	Yes	Yes	No

12.4 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

Table 12.1: Standalone SAR test exclusion considerations

Band/Mode	F(GHz)	Position	SAR test exclusion threshold(mW)	RF output power		SAR test exclusion
				dBm	mW	
Bluetooth	2.441	Head	9.60	14.5	28.18	No
		Body	19.20	14.5	28.18	No
2.4GHz WLAN	2.45	Head	9.58	21.5	141.25	No
		Body	19.17	21.5	141.25	No
5GHz WLAN	5.2	Head	6.58	21	125.89	No
		Body	13.16	21	125.89	No
	5.3	Head	6.52	21	125.89	No
		Body	13.03	21	125.89	No
	5.6	Head	6.34	21	125.89	No
		Body	12.68	21	125.89	No
	5.8	Head	6.23	21	125.89	No
		Body	12.46	21	125.89	No

13 Evaluation of Simultaneous

Table 13.1: The sum of SAR values for Main antenna + WiFi-2.4G SISO+ WiFi-5G SISO

	Position	Main antenna	WiFi-2.4G SISO+ WiFi-5G SISO	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	0.09	1.14
Highest SAR value for Body	Rear 5mm (LTE Band41)	0.93	0.65	1.58

Table 13.2: The sum of SAR values for Main antenna + WiFi-5G MIMO

	Position	Main antenna	WiFi-5G MIMO	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	0.32	1.37
Highest SAR value for Body	Rear 5mm (LTE Band41)	0.93	0.48	1.41

Table 13.3: The sum of SAR values for Main antenna + WiFi-2.4G MIMO

	Position	Main antenna	WiFi-2.4G MIMO	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	0.18	1.23
Highest SAR value for Body	Rear 5mm (LTE Band41)	0.93	0.35	1.28

Table 13.4: The sum of SAR values for Main antenna + WiFi-2.4G SISO

	Position	Main antenna	WiFi-2.4G SISO	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	0.09	1.14
Highest SAR value for Body	Rear 5mm (LTE Band41)	0.93	0.16	1.09

Table 13.4: The sum of SAR values for Main antenna + WiFi-5G SISO

	Position	Main antenna	WiFi-5G SISO	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	<0.01	1.05
Highest SAR value for Body	Rear 5mm (LTE Band41)	0.93	0.49	1.42

Table Table 13.5: The sum of SAR values for Main antenna + BT

	Position	Main antenna	BT	Sum
Highest SAR value for Head	Right head, Cheek (WCDMA1900)	1.05	<0.01	1.05
Highest SAR value for Body	Left 5mm (WCDMA1900)	1.09	<0.01	1.09

[1] – The head SAR of BT is too low to get it, so the “<0.01” is used to indicate the head SAR of BT.

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 or 15mm 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-gSAR 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
Speech for GSM850/1900	1:8.3
GPRS&EGPRS for GSM850/1900	1:4
WCDMA<E FDD	1:1
LTE TDD	1:1.58

Note;

H: the headset of TLp043E7 by VEKEN

14.1 SAR results for Fast SAR

Table 14.1-1: SAR Values (GSM 850 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C				
Ch.	MHz				Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
190	836.6	Left	Touch	/	29.20	30.50	0.169	0.23	0.265	0.36	0.09
190	836.6	Left	Tilt	/	29.20	30.50	0.156	0.21	0.264	0.36	0.04
190	836.6	Right	Touch	/	29.20	30.50	0.218	0.29	0.359	0.48	-0.12
251	848.8	Right	Tilt	/	29.33	30.50	0.253	0.33	0.468	0.61	-0.04
190	836.6	Right	Tilt	Fig.1	29.20	30.50	0.257	0.35	0.482	0.65	-0.10
128	824.2	Right	Tilt	/	29.26	30.50	0.255	0.34	0.474	0.63	0.06

Table 14.1-2: SAR Values (GSM 850 MHz Band - Body)

Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C				
Ch.	MHz				Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
190	836.6	GPRS (2)	Front	/	30.08	30.50	0.132	0.15	0.223	0.25	0.15
251	848.8	GPRS (2)	Rear	/	29.81	30.50	0.213	0.25	0.375	0.44	-0.09
190	836.6	GPRS (2)	Rear	/	30.08	30.50	0.212	0.23	0.373	0.41	0.00
128	824.2	GPRS (2)	Rear	Fig.2	29.93	30.50	0.177	0.20	0.325	0.37	0.03
190	836.6	GPRS (2)	Left	/	30.08	30.50	0.133	0.15	0.199	0.22	-0.04
190	836.6	GPRS (2)	Right	/	30.08	30.50	<0.01	<0.01	<0.01	<0.01	/
190	836.6	GPRS (2)	Top	/	30.08	30.50	0.152	0.17	0.302	0.33	-0.12
251	848.8	EGPRS (2)	Rear	/	29.89	30.50	0.209	0.24	0.37	0.43	-0.04

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

Table 14.1-3: SAR Values (GSM 1900 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C				
Ch.	MHz				Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
661	1880	Left	Touch	/	30.22	30.70	0.13	0.15	0.217	0.24	0.11
661	1880	Left	Tilt	/	30.22	30.70	0.062	0.07	0.106	0.12	-0.09
810	1909.8	Right	Touch	Fig.3	30.08	30.70	0.34	0.39	0.694	0.80	-0.19
661	1880	Right	Touch	/	30.22	30.70	0.251	0.28	0.521	0.58	-0.08
512	1850.2	Right	Touch	/	29.97	30.70	0.251	0.30	0.507	0.60	0.04
661	1880	Right	Tilt	/	30.22	30.70	0.083	0.09	0.157	0.18	-0.01

Table 14.1-4: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode (number of timeslots)	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
661	1880	GPRS (2)	Front	/	27.30	27.70	0.093	0.10	0.167	0.18	0.00
661	1880	GPRS (2)	Rear	/	27.30	27.70	0.188	0.21	0.357	0.39	-0.02
810	1909.8	GPRS (2)	Left	Fig.4	27.31	27.70	0.258	0.28	0.514	0.56	-0.19
661	1880	GPRS (2)	Left		27.30	27.70	0.201	0.22	0.406	0.45	-0.13
512	1850.2	GPRS (2)	Left	/	27.09	27.70	0.21	0.24	0.407	0.47	-0.12
661	1880	GPRS (2)	Top	/	27.30	27.70	0.038	0.04	0.064	0.07	-0.02
810	1909.8	EGPRS (2)	Left	/	27.35	27.70	0.255	0.28	0.512	0.55	-0.07

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

Table 14.1-5: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
4182	836.4	Left	Touch	/	20.85	22.00	0.286	0.37	0.479	0.62	0.01
4182	836.4	Left	Tilt	/	20.85	22.00	0.227	0.30	0.398	0.52	0.13
4233	846.6	Right	Touch	/	20.81	22.00	0.373	0.49	0.647	0.85	0.08
4182	836.4	Right	Touch	/	20.85	22.00	0.385	0.50	0.669	0.87	0.02
4132	826.4	Right	Touch	/	20.95	22.00	0.341	0.43	0.629	0.80	0.19
4233	846.6	Right	Tilt	/	20.81	22.00	0.376	0.49	0.723	0.95	0.11
4182	836.4	Right	Tilt	Fig.5	20.85	22.00	0.384	0.50	0.737	0.96	-0.07
4132	826.4	Right	Tilt	/	20.95	22.00	0.367	0.47	0.718	0.91	0.04

Table 14.1-6: SAR Values (WCDMA 850 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)	
Ch.	MHz										
4182	836.4	Front	/	23.20	24.00	0.199	0.24	0.342	0.41	-0.05	
4233	846.6	Rear	/	23.22	24.00	0.274	0.33	0.484	0.58	0.08	
4182	836.4	Rear	Fig.6	23.20	24.00	0.28	0.34	0.496	0.60	0.01	
4132	826.4	Rear	/	23.21	24.00	0.263	0.32	0.466	0.56	-0.11	
4182	836.4	Left	/	23.20	24.00	0.213	0.26	0.324	0.39	0.14	
4182	836.4	Right	/	23.20	24.00	0.067	0.08	0.101	0.12	0.00	
4182	836.4	Top	/	23.20	24.00	0.221	0.27	0.464	0.56	0.03	

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

Table 14.1-7: SAR Values (WCDMA 1700 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
1412	1732.4	Left	Touch	/	20.91	22.00	0.164	0.21	0.269	0.35	0.01
1412	1732.4	Left	Tilt	/	20.91	22.00	0.134	0.17	0.231	0.30	-0.14
1513	1752.6	Right	Touch	/	20.86	22.00	0.337	0.44	0.662	0.86	0.04
1412	1732.4	Right	Touch	Fig.7	20.91	22.00	0.379	0.49	0.76	0.98	0.01
1312	1712.4	Right	Touch	/	20.89	22.00	0.344	0.44	0.684	0.88	0.07
1412	1732.4	Right	Tilt	/	20.91	22.00	0.115	0.15	0.207	0.27	-0.08

Table 14.1-8: SAR Values (WCDMA 1700 MHz Band - Body)

Frequency		Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz									
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C										
1412	1732.4	Front	/	23.32	24.00	0.181	0.21	0.329	0.38	0.08
1513	1752.6	Rear	/	23.26	24.00	0.419	0.50	0.767	0.91	0.17
1412	1732.4	Rear	/	23.32	24.00	0.43	0.50	0.791	0.93	0.13
1312	1712.4	Rear	/	23.30	24.00	0.389	0.46	0.733	0.86	0.14
1513	1752.6	Left	Fig.8	23.26	24.00	0.463	0.55	0.922	1.09	0.02
1412	1732.4	Left		23.32	24.00	0.446	0.52	0.883	1.03	-0.07
1312	1712.4	Left	/	23.30	24.00	0.438	0.51	0.865	1.02	-0.09
1412	1732.4	Top	/	23.32	24.00	0.11	0.13	0.187	0.22	0.08

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.1-9: SAR Values (WCDMA 1900 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
Ambient Temperature: 22.9 °C Liquid Temperature: 22.5 °C											
9400	1880	Left	Touch	/	19.86	21.00	0.174	0.23	0.28	0.36	-0.12
9400	1880	Left	Tilt	/	19.86	21.00	0.083	0.11	0.14	0.18	0.04
9538	1907.6	Right	Touch	Fig.9	19.88	21.00	0.402	0.52	0.812	1.05	0.07
9400	1880	Right	Touch	/	19.86	21.00	0.343	0.45	0.676	0.88	-0.06
9262	1852.4	Right	Touch	/	19.82	21.00	0.349	0.46	0.704	0.92	0.13
9400	1880	Right	Tilt	/	19.86	21.00	0.112	0.15	0.208	0.27	-0.14

Table 14.1-10: SAR Values (WCDMA 1900 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C		Power Drift (dB)
Ch.	MHz					Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
9400	1880	Front	/	21.75	22.50	0.188	0.22	0.35	0.42	-0.02
9538	1907.6	Rear	/	21.81	22.50	0.376	0.44	0.751	0.88	0.14
9400	1880	Rear	/	21.75	22.50	0.404	0.48	0.785	0.93	-0.09
9262	1852.4	Rear	/	21.79	22.50	0.347	0.41	0.711	0.84	0.13
9538	1907.6	Left	Fig.10	21.81	22.50	0.461	0.54	0.93	1.09	0.03
9400	1880	Left	/	21.75	22.50	0.409	0.49	0.82	0.97	-0.12
9262	1852.4	Left	/	21.79	22.50	0.404	0.48	0.805	0.95	0.12
9400	1880	Top	/	21.75	22.50	0.078	0.09	0.134	0.16	0.04

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.1-11: SAR Values (LTE Band5 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conduct ed Power (dBm)	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C		Power Drift (dB)	
Ch.	MHz						Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)		Reported SAR(1g) (W/kg)
20450	829	1RB_Mid	Left	Touch	/	21.07	22.00	0.287	0.36	0.506	0.63	-0.12
20450	829	1RB_Mid	Left	Tilt	/	21.07	22.00	0.249	0.31	0.472	0.58	-0.06
20600	844	1RB_High	Right	Touch	/	20.89	22.00	0.334	0.43	0.631	0.81	0.19
20525	836.5	1RB_Low	Right	Touch	Fig.11	21.02	22.00	0.314	0.39	0.619	0.78	0.02
20450	829	1RB_Mid	Right	Touch	/	21.07	22.00	0.362	0.45	0.662	0.82	-0.04
20600	844	1RB_High	Right	Tilt		20.89	22.00	0.304	0.39	0.607	0.78	0.16
20525	836.5	1RB_Low	Right	Tilt		21.02	22.00	0.287	0.36	0.583	0.73	0.17
20450	829	1RB_Mid	Right	Tilt	/	21.07	22.00	0.332	0.41	0.657	0.81	-0.04
20450	829	25RB_Mid	Left	Touch	/	20.98	22.00	0.293	0.37	0.516	0.65	-0.13
20450	829	25RB_Mid	Left	Tilt	/	20.98	22.00	0.261	0.33	0.492	0.62	0.08
20600	844	25RB_High	Right	Touch		20.92	22.00	0.333	0.43	0.629	0.81	-0.09
20525	836.5	25RB_High	Right	Touch		20.93	22.00	0.341	0.44	0.643	0.82	0.00
20450	829	25RB_Mid	Right	Touch	/	20.98	22.00	0.37	0.47	0.675	0.85	0.18
20600	844	25RB_High	Right	Tilt		20.92	22.00	0.341	0.44	0.673	0.86	0.08
20525	836.5	25RB_High	Right	Tilt		20.93	22.00	0.339	0.43	0.661	0.84	0.17
20450	829	25RB_Mid	Right	Tilt	/	20.98	22.00	0.349	0.44	0.69	0.87	0.05
20525	836.5	100RB	Right	Touch	/	20.88	22.00	0.322	0.42	0.629	0.81	0.14
20525	836.5	100RB	Right	Tilt		20.88	22.00	0.311	0.40	0.618	0.80	0.17

Note1: The LTE mode is QPSK_10MHz.

Table 14.1-12: SAR Values (LTE Band5 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C		Power Drift (dB)
Ch.	MHz						Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
20450	829	1RB_Low	Front	/	22.97	24.00	0.174	0.22	0.294	0.37	0.09
20450	829	1RB_Low	Rear	Fig.12	22.97	24.00	0.236	0.30	0.415	0.53	-0.19
20450	829	1RB_Low	Left	/	22.97	24.00	0.189	0.24	0.28	0.35	-0.02
20450	829	1RB_Low	Right		22.97	24.00	0.042	0.05	0.058	0.07	0.13
20450	829	1RB_Low	Top		22.97	24.00	0.192	0.24	0.383	0.49	-0.07
20450	829	25RB_Mid	Front	/	22.00	23.00	0.147	0.19	0.25	0.31	-0.05
20450	829	25RB_Mid	Rear	/	22.00	23.00	0.201	0.25	0.353	0.44	-0.04
20450	829	25RB_Mid	Left	/	22.00	23.00	0.164	0.21	0.246	0.31	-0.03
20450	829	25RB_Mid	Right	/	22.00	23.00	0.035	0.04	0.049	0.06	0.02
20450	829	25RB_Mid	Top		22.00	23.00	0.166	0.21	0.331	0.42	-0.09

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.1-13: SAR Values (LTE Band7 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9°C		Liquid Temperature: 22.5°C		Power Drift (dB)
Ch.	MHz							Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
21350	2560	1RB_High	Left	Touch	/	24.11	24.70	0.086	0.10	0.171	0.20	-0.10
21350	2560	1RB_High	Left	Tilt	/	24.11	24.70	0.155	0.18	0.343	0.39	0.06
21350	2560	1RB_High	Right	Touch	Fig.13	24.11	24.70	0.197	0.23	0.448	0.51	0.01
21350	2560	1RB_High	Right	Tilt	/	24.11	24.70	0.095	0.11	0.192	0.22	-0.03
20850	2510	50RB_High	Left	Touch	/	23.28	23.70	0.097	0.11	0.189	0.21	-0.12
20850	2510	50RB_High	Left	Tilt	/	23.28	23.70	0.047	0.05	0.090	0.10	-0.10
20850	2510	50RB_High	Right	Touch	/	23.28	23.70	0.196	0.22	0.423	0.47	0.08
20850	2510	50RB_High	Right	Tilt	/	23.28	23.70	0.087	0.10	0.183	0.20	-0.06
21350	2560	1RB_High	Right	Touch	CA UL	23.57	24.70	0.131	0.17	0.293	0.38	0.07

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-14: SAR Values (LTE Band7 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz						Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
21350	2560	1RB_High	Front	/	17.99	18.70	0.022	0.03	0.041	0.05	-0.07
21350	2560	1RB_High	Rear	Fig.14	17.99	18.70	0.24	0.28	0.541	0.64	-0.07
21350	2560	1RB_High	Left	/	17.99	18.70	0.131	0.15	0.265	0.31	-0.10
21350	2560	1RB_High	Top	/	17.99	18.70	0.018	0.02	0.03	0.04	0.12
20850	2510	50RB_Mid	Front	/	18.15	18.70	0.023	0.03	0.043	0.05	-0.06
20850	2510	50RB_Mid	Rear	/	18.15	18.70	0.24	0.27	0.538	0.61	-0.04
20850	2510	50RB_Mid	Left	/	18.15	18.70	0.134	0.15	0.271	0.31	0.07
20850	2510	50RB_Mid	Top	/	18.15	18.70	0.019	0.02	0.032	0.04	0.10
21350	2560	1RB_High	Left	CA UL	17.92	18.70	0.219	0.26	0.503	0.60	0.06

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.1-15: SAR Values (LTE Band41 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz							Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
41055	2636.5	1RB_Low	Left	Touch	/	23.22	24.00	0.071	0.08	0.148	0.18	-0.06
41055	2636.5	1RB_Low	Left	Tilt	/	23.22	24.00	0.042	0.05	0.085	0.10	0.12
41055	2636.5	1RB_Low	Right	Touch	Fig.15	23.22	24.00	0.152	0.18	0.354	0.42	0.14
41055	2636.5	1RB_Low	Right	Tilt	/	23.22	24.00	0.076	0.09	0.169	0.20	0.09
41055	2636.5	50RB_Mid	Left	Touch	/	22.25	23.00	0.055	0.07	0.116	0.14	0.13
41055	2636.5	50RB_Mid	Left	Tilt	/	22.25	23.00	0.031	0.04	0.065	0.08	-0.07
41055	2636.5	50RB_Mid	Right	Touch	/	22.25	23.00	0.122	0.14	0.282	0.34	0.07
41055	2636.5	50RB_Mid	Right	Tilt	/	22.25	23.00	0.061	0.07	0.133	0.16	-0.13

Note1: The LTE mode is QPSK_20MHz.

Table 14.1-16: SAR Values (LTE Band41 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C				Power Drift (dB)
Ch.	MHz				Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
41055	2636.5	1RB_Low	Front	/	20.27	21.00	0.024	0.03	0.048	0.06	0.06
41490	2680	1RB_High	Rear	/	20.12	21.00	0.294	0.36	0.741	0.91	0.12
41055	2636.5	1RB_Low	Rear	/	20.27	21.00	0.321	0.38	0.787	0.93	0.09
40620	2593	1RB_Low	Rear	/	20.14	21.00	0.284	0.35	0.722	0.88	0.16
40185	2549.5	1RB_Low	Rear	/	19.96	21.00	0.274	0.35	0.711	0.90	0.17
39750	2506	1RB_High	Rear	/	20.03	21.00	0.261	0.33	0.689	0.86	0.09
41055	2636.5	1RB_Low	Left	/	20.27	21.00	0.161	0.19	0.342	0.40	-0.11
41055	2636.5	1RB_Low	Top	/	20.27	21.00	0.02	0.02	0.036	0.04	-0.05
41055	2636.5	50RB_Mid	Front	/	20.33	21.00	0.025	0.03	0.048	0.06	0.07
41490	2680	50RB_Hig	Rear	/	20.18	21.00	0.296	0.36	0.751	0.91	0.14
41055	2636.5	50RB_Mid	Rear	Fig.16	20.33	21.00	0.326	0.38	0.801	0.93	0.08
40620	2593	50RB_Hig	Rear	/	20.18	21.00	0.287	0.35	0.744	0.90	-0.06
40185	2549.5	50RB_Hig	Rear	/	20.10	21.00	0.271	0.33	0.722	0.89	0.13
39750	2506	50RB_High	Rear	/	20.11	21.00	0.262	0.32	0.703	0.86	0.17
41055	2636.5	50RB_High	Left	/	20.33	21.00	0.162	0.19	0.347	0.40	0.05
41055	2636.5	50RB_Mid	Top	/	20.33	21.00	0.019	0.02	0.035	0.04	0.15
41055	2636.5	1000RB	Rear	/	20.28	21.00	0.304	0.36	0.761	0.90	0.19

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

14.2 SAR results for Standard procedure

There is zoom scan measurement to be added for the highest measured SAR in each exposure configuration/band.

Table 14.2-1: SAR Values (GSM 850 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
190	836.6	Right	Tilt	Fig.1	29.20	30.50	0.257	0.35	0.482	0.65	-0.10

Table 14.2-2: SAR Values (GSM 850 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
251	848.8	GPRS (2)	Rear	/	29.81	30.50	0.213	0.25	0.375	0.44	-0.09

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

Table 14.2-3: SAR Values (GSM 1900 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
810	1909.8	Right	Touch	Fig.3	30.08	30.70	0.34	0.39	0.694	0.80	-0.19

Table 14.2-4: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Mode (number of timeslots)	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
810	1909.8	GPRS (2)	Left	Fig.4	27.31	27.70	0.258	0.28	0.514	0.56	-0.19

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

Table 14.2-5: SAR Values (WCDMA 850 MHz Band - Head)

Ambient Temperature: 22.9 °C						Liquid Temperature: 22.5 °C					
Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
4182	836.4	Right	Tilt	Fig.5	20.85	22.00	0.384	0.50	0.737	0.96	-0.07

Table 14.2-6: SAR Values (WCDMA 850 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz					Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
4182	836.4	Rear	Fig.6	23.20	24.00	0.28	0.34	0.496	0.60	0.01

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

Table 14.2-7: SAR Values (WCDMA 1700 MHz Band - Head)

Frequency		Side	Test Position	Figure No./Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz						Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
1412	1732.4	Right	Touch	Fig.7	20.91	22.00	0.379	0.49	0.76	0.98	0.01

Table 14.2-8: SAR Values (WCDMA 1700 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz					Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
1513	1752.6	Left	Fig.8	23.26	24.00	0.463	0.55	0.922	1.09	0.02

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-9: SAR Values (WCDMA 1900 MHz Band - Head)

Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz						Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
9538	1907.6	Right	Touch	Fig.9	19.88	21.00	0.402	0.52	0.812	1.05	0.07

Table 14.2-10: SAR Values (WCDMA 1900 MHz Band - Body)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Ambient Temperature: 22.9 °C		Liquid Temperature: 22.5 °C		Power Drift (dB)
Ch.	MHz					Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	
9538	1907.6	Left	Fig.10	21.81	22.50	0.461	0.54	0.93	1.09	0.03

Note1: The distance between the EUT and the phantom bottom is 10mm.

Table 14.2-11: SAR Values (LTE Band5 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
20450	829	25RB_Mid	Right	Tilt	/	20.98	22.00	0.349	0.44	0.69	0.87	0.05

Note1: The LTE mode is QPSK_10MHz.

Table 14.2-12: SAR Values (LTE Band5 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
20450	829	1RB_Low	Rear	Fig.12	22.97	24.00	0.236	0.30	0.415	0.53	-0.19

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_10MHz.

Table 14.2-13: SAR Values (LTE Band7 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
21350	2560	1RB_High	Right	Touch	Fig.13	24.11	24.70	0.197	0.23	0.448	0.51	0.01

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-14: SAR Values (LTE Band7 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
21350	2560	1RB_High	Rear	Fig.14	17.99	18.70	0.24	0.28	0.541	0.64	-0.07

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

Table 14.2-15: SAR Values (LTE Band41 - Head)

Frequency		Mode	Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz											
41055	2636.5	1RB_Low	Right	Touch	Fig.15	23.22	24.00	0.152	0.18	0.354	0.42	0.14

Note1: The LTE mode is QPSK_20MHz.

Table 14.2-16: SAR Values (LTE Band41 - Body)

Frequency		Mode	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
41055	2636.5	50RB_Mid	Rear	Fig.16	20.33	21.00	0.326	0.38	0.801	0.93	0.08

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK_20MHz.

14.3 WLAN Evaluation for 2.4G

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

Normal Power

Head Evaluation- SISO antenna4

Table 14.3-1: SAR Values (WLAN - Head)– 802.11b (Fast SAR)

Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2462	11	Left	Touch	/	18.26	19.00	0.059	0.07	0.135	0.16	0.15
2462	11	Left	Tilt	/	18.26	19.00	0.087	0.10	0.176	0.21	-0.01
2462	11	Right	Touch	/	18.26	19.00	0.039	0.05	0.079	0.09	0.06
2462	11	Right	Tilt	/	18.26	19.00	0.051	0.06	0.104	0.12	-0.03

As shown above table, the initial test position for head is “Left Tilt”. So the head SAR of WLAN is presented as below:

Table 14.3-2: SAR Values (WLAN - Head)– 802.11b (Full SAR)

Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2462	11	Left	Tilt	Fig.17	18.26	19.00	0.08	0.09	0.18	0.21	-0.01

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is \leq 0.8 W/kg.

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is \leq 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-3: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2462	12	Left	Tilt	99.15%	100%	0.21	0.21

SAR is not required for OFDM because the 802.11b adjusted SAR \leq 1.2 W/kg.

Body Evaluation- SISO antenna4

Table 14.3-4: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Front	/	18.26	19.00	0.008	0.01	0.014	0.02	-0.09
2462	11	Rear	/	18.26	19.00	0.105	0.12	0.26	0.31	-0.06
2462	11	Right	/	18.26	19.00	0.018	0.02	0.036	0.04	0.19
2462	11	Top	/	18.26	19.00	0.007	0.01	0.012	0.01	-0.01

As shown above table, the initial test position for body is “Rear”. So the body SAR of WLAN is presented as below:

Table 14.3-5: SAR Values (WLAN - Body)– 802.11b (Full SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Rear	Fig.18	18.26	19.00	0.118	0.14	0.289	0.34	-0.06

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is \leq 0.8 W/kg.

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is \leq 1.2 W/kg or all required channels

are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-6: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
2462	11	Rear	99.15%	100%	0.34	0.34

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Head Evaluation- MIMO

Table 14.3-7: SAR Values (WLAN - Head)– 802.11b (Fast SAR)

Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2462	11	Left	Touch	/	21.42	21.50	0.254	0.26	0.549	0.56	0.01
2462	11	Left	Tilt	/	21.42	21.50	0.156	0.16	0.308	0.31	0.01
2462	11	Right	Touch	/	21.42	21.50	0.102	0.10	0.177	0.18	0.09
2462	11	Right	Tilt	/	21.42	21.50	0.118	0.12	0.225	0.23	0.03

As shown above table, the initial test position for head is “Left Tilt”. So the head SAR of WLAN is presented as below:

Table 14.3-8: SAR Values (WLAN - Head)– 802.11b (Full SAR)

Frequency		Side	Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
2462	11	Left	Touch	Fig.19	21.42	21.50	0.253	0.26	0.572	0.58	0.01
2462	11	Left	Tilt	/	21.42	21.50	0.15	0.15	0.313	0.32	0.01

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-9: SAR Values (WLAN - Head) – 802.11b (Scaled Reported SAR)

Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.						
2462	11	Left	Touch	99.15%	100%	0.58	0.58

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.

Body Evaluation- MIMO

Table 14.3-10: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Front	/	21.42	21.50	0.075	0.08	0.158	0.16	-0.05
2462	11	Rear	/	21.42	21.50	0.158	0.16	0.289	0.29	-0.09
2462	11	Right	/	21.42	21.50	0.082	0.08	0.168	0.17	-0.16
2462	11	Top	/	21.42	21.50	0.085	0.09	0.162	0.17	-0.14

As shown above table, the initial test position for body is “Rear”. So the body SAR of WLAN is presented as below:

Table 14.3-11: SAR Values (WLAN - Body)– 802.11b (Full SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Rear	Fig.20	21.42	21.50	0.157	0.16	0.34	0.35	-0.09

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg.

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is ≤ 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is

presented as below.

Table 14.3-12: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
2462	11	Rear	99.15%	100%	0.35	0.35

SAR is not required for OFDM because the 802.11b adjusted SAR \leq 1.2 W/kg.

Low Power

Body Evaluation- SISO antenna4

Table 14.3-13: SAR Values (WLAN - Body)– 802.11b (Fast SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Front	/	15.12	15.50	<0.01	<0.01	<0.01	<0.01	/
2462	11	Rear	/	15.12	15.50	0.057	0.06	0.132	0.14	0.04
2462	11	Right	/	15.12	15.50	0.01	0.01	0.018	0.02	0.19
2462	11	Top	/	15.12	15.50	<0.01	<0.01	<0.01	<0.01	/

As shown above table, the initial test position for body is “Rear”. So the body SAR of WLAN is presented as below:

Table 14.3-14: SAR Values (WLAN - Body)– 802.11b (Full SAR)

Frequency		Test Position	Figure No./ Note	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
2462	11	Rear	/	15.12	15.50	0.062	0.07	0.151	0.16	0.04

Note1: When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is \leq 0.8 W/kg.

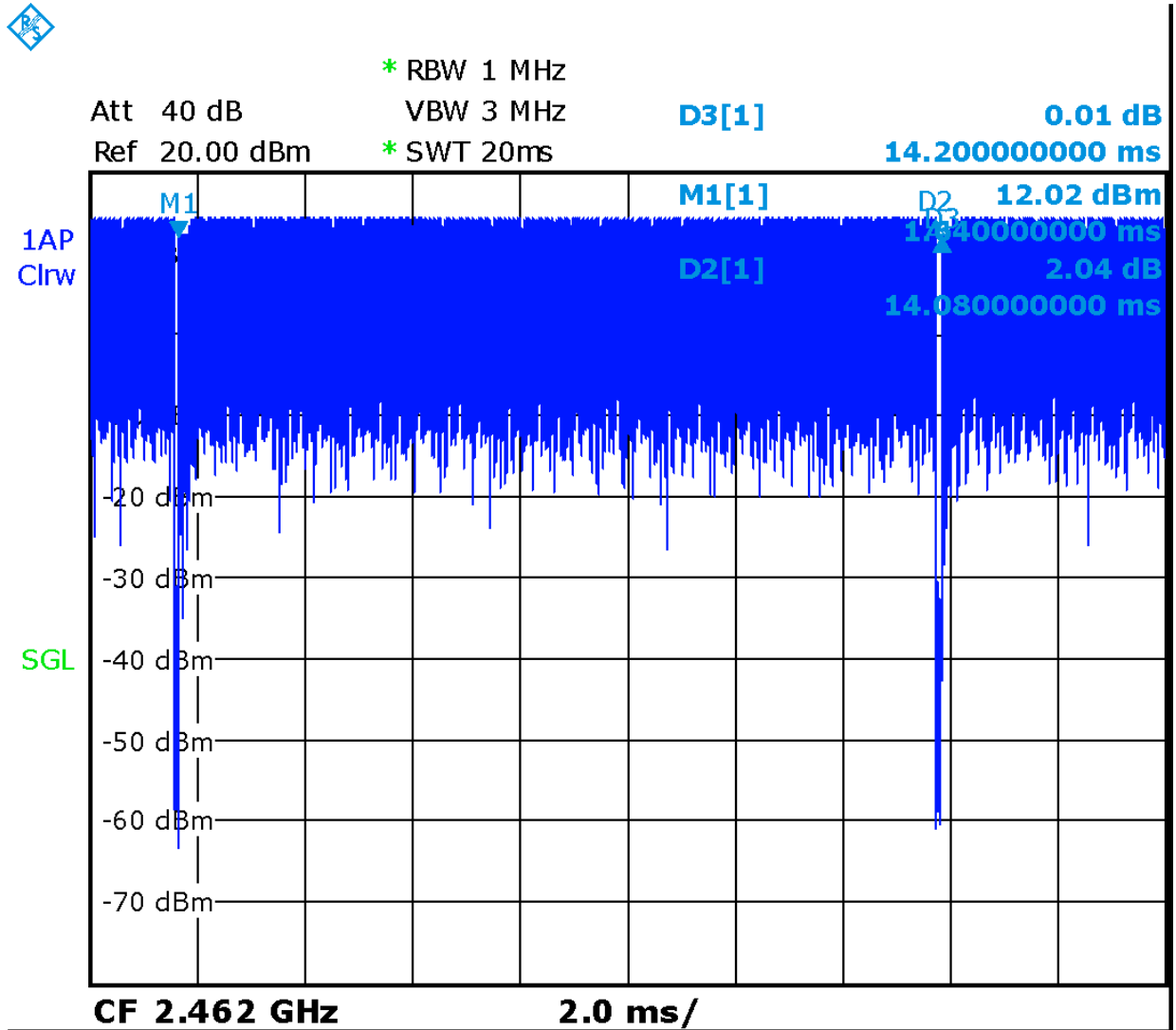
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is \leq 1.2 W/kg or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

Table 14.3-15: SAR Values (WLAN - Body) – 802.11b (Scaled Reported SAR)

Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g)(W/kg)	Scaled reported SAR (1g)(W/kg)
MHz	Ch.					
2462	11	Rear	99.15%	100%	0.16	0.16

SAR is not required for OFDM because the 802.11b adjusted SAR ≤ 1.2 W/kg.


Picture 14.1 Duty factor plot for head

14.4 WLAN Evaluation For 5G

Table 14.4-1: OFDM mode specified maximum output power of WLAN antenna

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	X		X	X	X	X	X	
U-NII-2A	X		X	X	X	X	X	
U-NII-2C	X		X	X	X	X	X	
U-NII-3	X		X	X	X	X	X	
§ 15.247 (5.8 GHz)								

X: maximum(conducted) output power(mW), including tolerance, specified for production units

Table 14.4-2: Maximum output power specified of WLAN antenna for Normal Power SISO antenna5

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	71		45	34	35	35	22	
U-NII-2A	71		40	32	32	35	22	
U-NII-2C	63		45	45	35	45	22	
U-NII-3	63		45	32	35	35	20	
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.

Table 14.4-3: Maximum output power specified of WLAN antenna for Normal Power MIMO

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	126		79	71	63	63	45	
U-NII-2A	112		79	71	63	63	45	
U-NII-2C	126		79	79	71	79	40	
U-NII-3	112		79	63	71	63	40	
§ 15.247 (5.8 GHz)								

- The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes.
- The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included.

Table 14.4-4: Maximum output power specified of WLAN antenna for Low Power SISO antenna5

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	30		28	28	25	27	27	
U-NII-2A	28		27	22	27	27	27	
U-NII-2C	32		27	25	27	27	27	
U-NII-3	32		27	25	27	27	27	
§ 15.247 (5.8 GHz)								
<ul style="list-style-type: none"> The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes. The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included. 								

Table 14.4-5: Maximum output power specified of WLAN antenna for Low Power MIMO

802.11 mode	a	g	n		ac			
Ch. BW(MHz)	20	20	20	40	20	40	80	160
U-NII-1	63		56	56	56	56	50	
U-NII-2A	56		50	50	50	50	50	
U-NII-2C	63		56	56	56	56	50	
U-NII-3	63		56	56	56	56	50	
§ 15.247 (5.8 GHz)								
<ul style="list-style-type: none"> The maximum output power specified for production units is the same for all channels, modulations and data rates in each channel bandwidth configuration of the 802.11a/g/n/ac modes. The blue highlighted cells represent highest output configurations in each standalone or aggregated frequency band, with tune-up tolerance included. 								

Table 14.4-6: Maximum output power measured of WLAN antenna, for the applicable OFDM configurations according to the default power measurement procedures for selection initial test configurations - Normal Power SISO antenna5

802.11 mode	a	n		ac		
BW(MHz)	20	20	40	20	40	80
U-NII-1	36/40/44/48 61/67/69/56	36/40/44/48 Lower power	38/46 Lower power	36/40/44/48 Lower power	38/46 Lower power	42 Lower power
U-NII-2A	52/56/60/64 57/49/49/48	52/56/60/64 Lower power	54/62 Lower power	52/56/60/64 Lower power	54/62 Lower power	58 Lower power
U-NII-2C	100/104/108/112 52/53/51/49 116/120/124/128 48/53/54/57 132/136/140/144 56/55/51/48	100/104/108/112 116/132/136/140 Lower power	102/110/134 Lower power	100/104/108 /112 116/132/136/ 140 Lower power	102/110/134 Lower power	106 Lower power