

FCC SAR REPORT

Applicant: TECNO MOBILE LIMITED

Address of Applicant: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE
19-25 SHAN MEI STREET FOTAN NT HONGKONG

Equipment Under Test (EUT)

Product Name: Mobile Phone

Model No.: AD10

Trade Mark: TECNO

FCC ID: 2ADYY-AD10

Applicable standards: FCC 47 CFR Part 2.1093

Date of Test: 10 Nov., 2022 ~ 07 Dec., 2022

Test Result: Maximum Reported 1-g SAR (W/kg)

Head:	0.751	Body:	0.631	Hotspot:	0.799
Tablet Body:	1.196				

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the JYT product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

Version No.	Date	Description
00	16 Jan., 2023	Original

Tested by:

Eric Wang

Date:

16 Jan., 2023

Test Engineer

Reviewed by:

Janet. Wei

Date:

16 Jan., 2023

Project Engineer

3 Contents

1	COVER PAGE.....	1
2	VERSION	2
3	CONTENTS	3
4	SAR RESULTS SUMMARY.....	5
5	GENERAL INFORMATION.....	8
5.1	CLIENT INFORMATION.....	8
5.2	GENERAL DESCRIPTION OF EUT	8
5.3	MAXIMUM RF OUTPUT POWER.....	10
5.4	ENVIRONMENT OF TEST SITE	14
5.5	TEST SAMPLE PLAN	14
5.6	TEST LOCATION	14
6	INTRODUCTION.....	15
6.1	INTRODUCTION	15
6.2	SAR DEFINITION	15
7	RF EXPOSURE LIMITS	16
7.1	UNCONTROLLED ENVIRONMENT.....	16
7.2	CONTROLLED ENVIRONMENT	16
7.3	RF EXPOSURE LIMITS	16
8	SAR MEASUREMENT SYSTEM.....	17
8.1	E-FIELD PROBE.....	18
8.2	ROBOT	19
8.3	PHANTOM.....	20
8.4	DEVICE HOLDER.....	20
8.5	TEST EQUIPMENT LIST	21
9	TISSUE SIMULATING LIQUIDS	22
10	SAR SYSTEM VERIFICATION.....	24
11	EUT TESTING POSITION.....	26
11.1	HANDSET REFERENCE POINTS	26
11.2	POSITIONING FOR CHEEK / TOUCH	27
11.3	POSITIONING FOR EAR / 15° TILT	27
11.4	SAR EVALUATIONS NEAR THE MOUTH/JAW REGIONS OF THE SAM PHANTOM	28
11.5	BODY WORN ACCESSORY CONFIGURATIONS	28
11.6	WIRELESS ROUTER (HOTSPOT) CONFIGURATIONS	29
11.7	TABLET MODE ACCESSORY CONFIGURATIONS.....	29
12	MEASUREMENT PROCEDURES	30
12.1	SPATIAL PEAK SAR EVALUATION	30
12.2	POWER REFERENCE MEASUREMENT.....	31
12.3	AREA & ZOOM SCAN PROCEDURES.....	31
12.4	VOLUME SCAN PROCEDURES	32
12.5	SAR AVERAGED METHODS	32
12.6	POWER DRIFT MONITORING	32
13	CONDUCTED RF OUTPUT POWER.....	33
14	CONDUCTED RF OUTPUT POWER.....	33
14.1	GSM 850 CONDUCTED POWER	33
14.2	PCS 1900 CONDUCTED POWER.....	33
14.3	WCDMA CONDUCTED POWER	34
14.4	LTE CONDUCTED POWER	36
14.5	5G NR CONDUCTED POWER.....	38
14.6	WLAN 2.4 GHz BAND CONDUCTED POWER	38
14.7	WLAN 5.2GHz BAND CONDUCTED POWER	38
14.8	WLAN 5.8GHz BAND CONDUCTED POWER	38
14.9	BLUETOOTH CONDUCTED POWER	38
14.10	NFC CONDUCTED POWER	38
15	EXPOSURE POSITIONS CONSIDERATION	39

15.1	TEST POSITIONS CONSIDERATION	41
16	SAR TEST RESULTS SUMMARY	44
16.1	STANDALONE HEAD SAR DATA.....	44
16.2	STANDALONE BODY SAR	51
16.3	BODY SAR IN HOTSPOT MODE	56
16.4	BODY SAR IN TABLET MODE.....	63
16.5	REPEATED SAR MEASUREMENT	71
16.6	MULTI-BAND SIMULTANEOUS TRANSMISSION CONSIDERATIONS.....	72
16.7	SAR SIMULTANEOUS TRANSMISSION ANALYSIS.....	74
16.8	MEASUREMENT UNCERTAINTY.....	76
16.9	MEASUREMENT CONCLUSION	77
17	REFERENCE.....	78
APPENDIX A: PLOTS OF SAR SYSTEM CHECK		79
APPENDIX B: PLOTS OF SAR TEST DATA		91

4 SAR Results Summary

The maximum results of Specific Absorption Rate (SAR) found during test as bellows:
<Highest Reported standalone SAR Summary>

Exposure Position	Frequency Band	Reported 1-g SAR (W/kg)	Equipment Class	Highest Reported 1-g SAR (W/kg)
Head	GSM 850	0.100	PCE	0.751
	PCS 1900	0.434		
	WCDMA Band II	0.265		
	WCDMA Band IV	0.370		
	WCDMA Band V	0.125		
	LTE Band 2	0.403		
	LTE Band 5	0.142		
	LTE Band 7	0.558		
	LTE Band 41 & Band 38	0.525		
	LTE Band 66 & Band 4	0.529		
	NR n5	0.208		
	NR n7	0.751		
	NR n41 & n38	0.459		
	NR n66	0.617		
	NR n71	0.131		
	NR n77 (3450MHz~3550MHz) &n78 (3450MHz~3550MHz)	0.274		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.172		
WLAN 2.4 GHz	0.198	DTS		
WLAN 5.2 GHz	0.141	NII		
WLAN 5.8 GHz	0.128			
Bluetooth	0.056	DSS		
Body (10 mm Gap)	GSM 850	0.386	PCE	0.631
	PCS 1900	0.540		
	WCDMA Band II	0.259		
	WCDMA Band IV	0.352		
	WCDMA Band V	0.253		
	LTE Band 2	0.436		
	LTE Band 5	0.240		
	LTE Band 7	0.631		
	LTE Band 41 & Band 38	0.308		
	LTE Band 66 & Band 4	0.499		
	NR n5	0.283		
	NR n7	0.581		
	NR n41 & n38	0.197		
	NR n66	0.432		
	NR n71	0.218		
	NR n77 (3450MHz~3550MHz)	0.289		

	&n78 (3450MHz~3550MHz)		DTS	
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.177		
	WLAN 2.4 GHz	0.047		
	WLAN 5.2 GHz	0.086		
	WLAN 5.8 GHz	0.093		
	Bluetooth	0.019		
Hotspot (10 mm Gap)	GSM 850	0.386	PCE	0.799
	PCS 1900	0.540		
	WCDMA Band II	0.259		
	WCDMA Band IV	0.352		
	WCDMA Band V	0.253		
	LTE Band 2	0.590		
	LTE Band 5	0.240		
	LTE Band 7	0.631		
	LTE Band 41 & Band 38	0.308		
	LTE Band 66 & Band 4	0.606		
	NR n5	0.283		
	NR n7	0.734		
	NR n41 & n38	0.197		
	NR n66	0.799		
	NR n71	0.384		
	NR n77 (3450MHz~3550MHz) &n78 (3450MHz~3550MHz)	0.289		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.177		
	WLAN 2.4 GHz	0.052		
	WLAN 5.2 GHz	0.086		
	WLAN 5.8 GHz	0.093		
	Bluetooth	0.024		
Tablet Body (0 mm Gap)	GSM 850	1.196	PCE	1.196
	PCS 1900	1.065		
	WCDMA Band II	0.483		
	WCDMA Band IV	0.517		
	WCDMA Band V	0.877		
	LTE Band 2	0.879		
	LTE Band 5	0.816		
	LTE Band 7	0.914		
	LTE Band 41 & Band 38	1.138		
	LTE Band 66 & Band 4	0.929		
	NR n5	1.029		
	NR n7	1.096		
	NR n41 & n38	0.872		
	NR n66	1.125		

	NR n71	0.920		
	NR n77 (3450MHz~3550MHz) &n78 (3450MHz~3550MHz)	0.811		
	NRn77 (3700MHz~3980MHz) &n78 (3700MHz~3800MHz)	0.643		
	WLAN 2.4 GHz	0.358		
	WLAN 5.2 GHz	0.133		
	WLAN 5.8 GHz	0.126		
	Bluetooth	0.074		

<Highest Reported simultaneous SAR Summary>

Exposure Position	Frequency Band	Reported 1-g SAR (W/kg)	Equipment Class	Highest Reported Simultaneous Transmission 1-g SAR (W/kg)
Back	EN-DC 7A_n38A	1.245	PCE	1.583
	WLAN 2.4 GHz MIMO	0.338	DTS	
	NFC	0.000	DXX	

Note:

1. The highest simultaneous transmission is scalar summation of Reported standalone SAR per FCC KDB 690783 D01 v01r03, and scalar SAR summation of all possible simultaneous transmission scenarios are < 1.6W/kg.
2. This device is compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6 W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-2005, and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528-2013.
3. For FDD-LTE Band 4 is full covered by FDD-LTE Band 66, so only FDD-LTE Band 66 was tested.
4. For FDD-LTE Band 38 is full covered by TDD-LTE Band 41, so only FDD-LTE Band 41 was tested.
5. For NR n38 is full covered by NR n41, so only NR n41 was tested.
6. For NR n78 is full covered by NR n77, so only NR n77 was tested.

5 General Information

5.1 Client Information

Applicant:	TECNO MOBILE LIMITED
Address of Applicant:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Manufacturer:	TECNO MOBILE LIMITED
Address:	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG
Factory:	SHENZHEN TECNO TECHNOLOGY CO., LTD.
Address:	101, Building 24, Waijing Industrial Park, Fumin Community, Fucheng Street, Longhua District, Shenzhen City, P.R.China

5.2 General Description of EUT

Product Name:	Mobile Phone				
Model No.:	AD10				
Category of device	Portable device				
Operation Frequency:	GSM :	GSM850: 824.2~848.8 MHz		PCS 1900: 1850.2~1909.8 MHz	
	WCDMA :	Band II: 1852.4~1907.6 MHz		Band V: 826.4~846.6 MHz	
		Band IV: 1712.4~1752.6 MHz			
	LTE :	Band 2 :1850MHz~1910MHz		Band 4 :1710MHz~1755MHz	
		Band 5 :824MHz~849MHz		Band 7: 2500MHz~2570MHz	
		Band 38: 2570MHz~2620MHz		Band 41:2496MHz~2690MHz	
		Band 66 :1710MHz~1780MHz			
	5G NR	n5: 824MHz~849MHz		n7: 2500MHz~2570MHz	
		n38: 2570MHz~2620MHz		n41: 2496MHz~2690MHz	
		n66 :1710MHz~1780MHz		n71 :663MHz~698MHz	
		n77: 3450MHz~3550MHz		n77: 3700MHz~3980MHz	
		n78: 3450MHz~3550MHz		n78: 3700MHz~3800MHz	
	Wi-Fi:	2412MHz~2462MHz		5150MHz-5250MHz	
		5725MHz-5850MHz			
Bluetooth: 2402 MHz ~ 2480 MHz					
NFC : 13.56MHz					
Modulation technology:	GSM:	☒ Voice(GMSK)	☒ GPRS(GMSK)		☒ EGPRS(GMSK, 8PSK)
	WCDMA:	☒ RMC(QPSK)	☒ HSUPA(QPSK)		☒ HSDPA(QPSK, 16QAM)
	LTE:	☒ QPSK	☒ 16QAM	☒ 64QAM	☒ 256QAM (Only Downlink)
	5G NR:	☒ CP-OFDM(QPSK, 16QAM, 64QAM, 256QAM)			
		☒ DFT-s-OFDM(π /2 -BPSK, QPSK, 16QAM, 64QAM, 256QAM)			
	Wi-Fi:	☒ 802.11b(DSSS)		☒ 802.11a/g/n/ac/ax (OFDM)	
	Bluetooth:	☒ BDR(GFSK)	☒ EDR(π /4-DQPSK, 8DPSK)		☒ LE(GFSK)
	NFC :	ASK			
	SA:	NR n5, n7, n38, n41, n66, n71, n77, n78			

	NSA (EN-DC):	DC_2A - n78A, DC_5A - n78A, DC_7A - n78A, DC_38A - n78A, DC_41A - n78A, DC_66A - n78A, DC_2A - n77A, DC_5A - n77A, DC_7A - n77A DC_41A - n77A DC_2A - n41A, DC_41A - n41A, DC_41C - n41A DC_2A - n38A, DC_5A - n38A, DC_7A - n38A Only support Downlink: DC_7C - n78A, DC_41C - n78A, DC_7C - n77A
Antenna Type:	Internal Antenna	
Antenna Gain:	Fold : GSM 850: -7.20 dBi; PCS 1900: -1.73 dBi WCDMA Band II: -1.73 dBi;; WCDMA Band V: -7.20 dBi WCDMA Band IV: -1.32 dBi LTE Band 2:-1.73 dBi; LTE Band 4:-1.32 dBi LTE Band 5:-7.20 dBi; LTE Band 7:-4.15 dBi ANT 1: LTE Band 38:-3.30 dBi; LTE Band 41:-3.30 dBi; ANT 4: LTE Band 38:-4.15 dBi; LTE Band 41:-4.15 dBi; LTE Band 66:-1.32 dBi n5:-7.20 dBi; n7: -4.15 dBi n38: -3.30 dBi ; n41: -3.30 dBi n66: -1.32 dBi ; n71: -6.30 dBi n77:-1.49 dBi ; n78: -1.49 dBi ANT 5 :2.4G Wi-Fi: -3.2 dBi; Bluetooth: -3.2 dBi ANT 21 :2.4G Wi-Fi: -2.0 dBi; ANT 23 :5G Wi-Fi: -0.62 dBi; ANT 24 :5G Wi-Fi: 2.75 dBi; Unfold : GSM 850:-5.30 dBi; PCS 1900:-0.05 dBi WCDMA Band II:-0.05 dBi;; WCDMA Band V:-5.30 dBi WCDMA Band IV: 0.07 dBi LTE Band 2:-0.05 dBi; LTE Band 4:0.07 dBi LTE Band 5:-5.30 dBi; LTE Band 7:-1.80 dBi ANT 1: LTE Band 38:-2.68 dBi LTE Band 41:-2.68 dBi; ANT 4 : LTE Band 38:-1.8 dBi; LTE Band 41:-1.8 dBi; LTE Band 66:0.07 dBi n5: -5.30 dBi; n7: -1.80 dBi n38: -2.68 dBi ; n41: -2.68 dBi n66: 0.07 dBi ; n71: -4.90 dBi n77:-0.60 dBi ; n78: -0.60 dBi ANT 5 :2.4G Wi-Fi: -2.3 dBi; Bluetooth: -2.3 dBi ANT 21 :2.4G Wi-Fi: -1.5 dBi; ANT 23 :5G Wi-Fi: -0.62 dBi; ANT 24 :5G Wi-Fi: 2.75 dBi;	
(E)GPRS Class:	(E)GPRS Class: 12	
Dimensions (L*W*H):	Fold: 160 mm (L)× 72 mm (W)× 7 mm (H) Unfold: 160mm (L)× 140 mm (W)× 14 mm (H)	
Accessories information:	Adapter: Model: U450TSA Input:100-240V AC,50/60Hz 1.8A Output: DC 5.0V, 2.0A	Battery: Rechargeable Li-ion Polymer Battery DC3.89V, 2550mAh & Rechargeable Li-ion Polymer Battery DC3.89V, 2310mAh

	or DC 11.0V, 4.1A MAX	Headset: Support headset
--	-----------------------	-----------------------------

5.3 Maximum RF Output Power

ANT 1

Mode	Average Power (dBm)
	LTE Band 41
BW/1.4 MHz	/
BW/3.0 MHz	/
BW/5.0 MHz	26.87
BW/10 MHz	26.81
BW/15 MHz	26.83
BW/20 MHz	26.71

Mode	Average Power (dBm)
	NR Band n41
BW/10MHz	26.86
BW/15MHz	26.83
BW/20MHz	26.85
BW/30MHz	26.85
BW/40MHz	26.84
BW/50MHz	26.86
BW/60MHz	26.80
BW/80MHz	26.86
BW/90MHz	26.88
BW/100MHz	26.85

ANT 2

Mode	Average Power (dBm)
	GSM 850
GSM (Voice)	33.21
GPRS (1 TX Slot)	33.12
GPRS (2 TX Slots)	32.40
GPRS (3 TX Slots)	30.68
GPRS (4 TX Slots)	29.59
EGPRS (1 TX Slot)	28.12
EGPRS (2 TX Slots)	26.99
EGPRS (3 TX Slots)	24.99
EGPRS (4 TX Slots)	23.72

Mode	Average Power (dBm)
	WCDMA Band V
AMR 12.2 kbps	24.56
RMC 12.2 kbps	24.65
HSDPA Sub-test 1	23.64
HSDPA Sub-test 2	23.12
HSDPA Sub-test 3	23.58
HSDPA Sub-test 4	23.32
HSUPA Sub-test 1	21.58
HSUPA Sub-test 2	22.08
HSUPA Sub-test 3	22.57
HSUPA Sub-test 4	21.73
HSUPA Sub-test 5	23.63

Mode	Average Power (dBm)
	LTE Band 5
BW/1.4 MHz	24.40
BW/3.0 MHz	24.32
BW/5.0 MHz	24.64
BW/10 MHz	24.37
BW/15 MHz	/
BW/20 MHz	/

Mode	Average Power (dBm)	
	NR Band n5	NR Band n71
BW/10MHz	25.07	23.55
BW/15MHz	25.06	23.44
BW/20MHz	25.10	23.52

ANT 4

Mode	Average Power (dBm)
	GSM 1900
GSM (Voice)	29.88
GPRS (1 TX Slot)	29.87
GPRS (2 TX Slots)	29.14
GPRS (3 TX Slots)	27.40
GPRS (4 TX Slots)	26.33
EGPRS (1 TX Slot)	26.63
EGPRS (2 TX Slots)	25.56
EGPRS (3 TX Slots)	23.32
EGPRS (4 TX Slots)	22.05

Mode	Average Power (dBm)	
	WCDMA Band II	WCDMA Band IV
AMR 12.2 kbps	25.05	25.06
RMC 12.2 kbps	22.95	25.08
HSDPA Sub-test 1	23.98	24.13
HSDPA Sub-test 2	23.51	23.70
HSDPA Sub-test 3	23.48	23.70
HSDPA Sub-test 4	23.56	23.80
HSUPA Sub-test 1	21.95	22.10
HSUPA Sub-test 2	22.47	22.63
HSUPA Sub-test 3	22.98	23.11
HSUPA Sub-test 4	22.02	22.13
HSUPA Sub-test 5	24.03	24.17

Mode	Average Power (dBm)			
	LTE Band 2	LTE Band 7	LTE Band 41	LTE Band 66
BW/1.4 MHz	23.87	/	/	23.66
BW/3.0 MHz	23.70	/	/	23.67
BW/5.0 MHz	24.09	24.34	19.98	23.81
BW/10 MHz	23.80	24.09	19.82	23.77
BW/15 MHz	23.77	24.09	19.97	23.78
BW/20 MHz	23.92	24.18	19.91	23.92

Mode	Average Power (dBm)	
	NR Band n7	NR Band n66
BW/10MHz	24.18	23.75
BW/15MHz	24.02	23.86
BW/20MHz	23.96	23.69
BW/30MHz	/	/
BW/40MHz	/	23.67

ANT 5

WLAN 2.4 GHz Band Average Power (dBm)						
Mode/Band	b	g	n (HT-20)	n (HT-40)	ax 20	ax 40
WLAN 2.4GHz	16.99	16.54	13.02	11.58	12.42	11.13

ANT 7

Mode	Average Power (dBm)	
	NR Band n77 3450-3550MHz	NR Band n77 3700-3980 MHz
BW/10MHz	27.30	27.67
BW/15MHz	27.27	27.65
BW/20MHz	27.33	27.67
BW/30MHz	27.40	27.60
BW/40MHz	27.41	27.52
BW/50MHz	27.31	27.54
BW/60MHz	27.31	27.31
BW/80MHz	27.20	27.44
BW/90MHz	27.19	27.51
BW/100MHz	27.24	27.40

ANT 21

WLAN 2.4 GHz Band Average Power (dBm)						
Mode/Band	b	g	n (HT-20)	n (HT-40)	ax 20	ax 40
WLAN 2.4GHz	16.82	16.58	13.43	12.15	13.11	11.86

Bluetooth Average Power (dBm)							
Mode/Band	1 Mbps (GFSK)	2 Mbps ($\pi/4$ DQPSK)	3 Mbps (8DPSK)	BLE PHY 1M	BLE PHY 2M	BLE Coded PHY S=2	BLE Coded PHY S=2
Bluetooth	7.77	7.26	7.56	2.71	2.73	2.83	2.69

ANT 23

WLAN 5.2 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax 20	ax 40	ax 80	n 20	n 40
WLAN 5.2GHz	11.75	11.20	11.71	10.74	11.46	11.24	10.94	11.76	11.33

WLAN 5.8 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax 20	ax 40	ax 80	n 20	n 40
WLAN 5.8GHz	11.76	11.59	10.70	10.07	11.55	10.87	10.10	11.26	10.62

ANT 24

WLAN 5.2 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax 20	ax 40	ax 80	n 20	n 40
WLAN 5.2GHz	13.28	12.29	11.98	11.26	12.27	11.56	11.36	12.40	11.74

WLAN 5.8 GHz Band Average Power (dBm)									
Mode/Band	a	ac 20	ac 40	ac 80	ax 20	ax 40	ax 80	n 20	n 40
WLAN 5.8GHz	12.54	11.96	11.66	10.91	11.73	11.69	10.83	12.17	11.56

NFC ANT

NFC Band Average Power (dBm)	
Mode/Band	ASK
NFC	-38.5

5.4 Environment of Test Site

Temperature:	18°C ~25 °C
Humidity:	35%~75% RH
Atmospheric Pressure:	1010 mbar

5.5 Test Sample Plan

Sample Number	Used for Test Items
5#	SAR
<i>Remark: JianYan Testing Group Shenzhen Co., Ltd. is only responsible for the test project data of the above samples, and will keep the above samples for a month.</i>	

5.6 Test Location

JianYan Testing Group Shenzhen Co., Ltd.
No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community,Xinqiao Street,
Bao'an District, Shenzhen, Guangdong,People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: <http://jyt.lets.com>

6 Introduction

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:

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

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

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

Where: σ is the conductivity of the tissue, ρ is the mass density of the tissue and E is the RMS electrical field strength. However for evaluating SAR of low power transmitter, electrical field measurement is typically applied.

7 RF Exposure Limits

7.1 Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

7.2 Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

7.3 RF Exposure Limits

SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
SPATIAL PEAK SAR Brain	1.6	8.0
SPATIAL AVERAGE SAR Whole Body	0.08	0.4
SPATIAL PEAK SAR Hands, Feet, Ankles, Wrists	4.0	20

Note:

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

8 SAR Measurement System

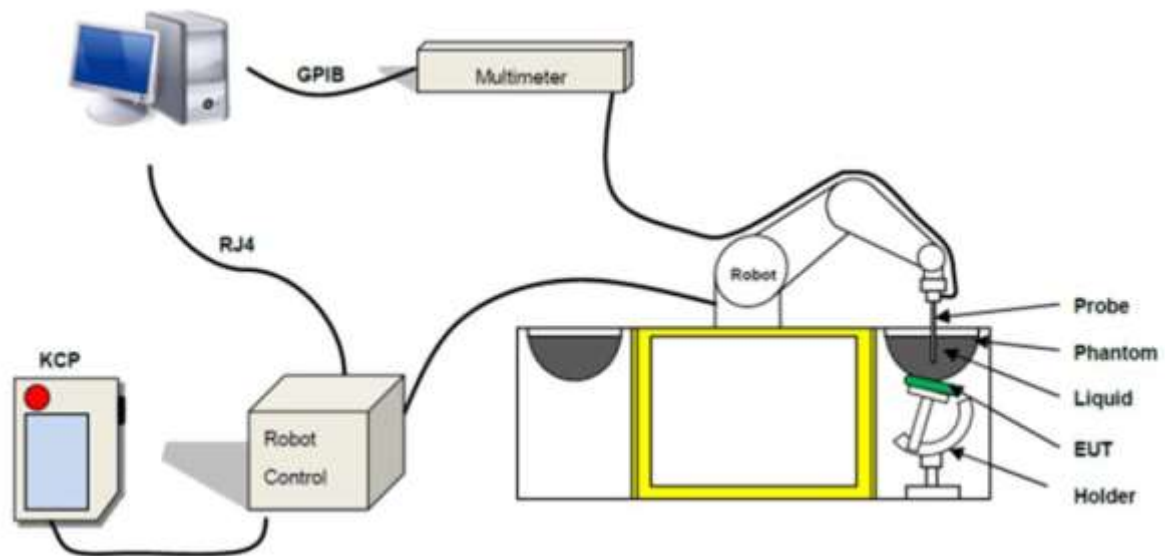


Fig. 8.1 MVG COMOSAR System Configurations

These measurements were performed with the automated near-field scanning system COMOSAR from MVG. The system is based on a high precision robot (working range: 850 mm), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit.

The SAR measurements were conducted with dosimetric probe (manufactured by MVG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in SAR standard with accuracy of better than $\pm 10\%$. The spherical isotropy was evaluated with the procedure described in SAR standard and found to be better than ± 0.25 dB. The phantom used was the SAM Phantom as described in FCC supplement C, IEEE P1528.

The MVG COMOSAR system for performance compliance tests is illustrated above graphically. This system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition system
- Miniature E-field probe
- Phone holder
- Head simulating tissue

8.1 E-Field Probe

The SAR measurement is conducted with the dosimetric probe (manufactured by MVG). The probe is specially designed and calibrated for use in liquid with high permittivity. The dosimetric probe has special calibration in liquid at different frequency. This probe has a built in optical surface detection system to prevent from collision with phantom.

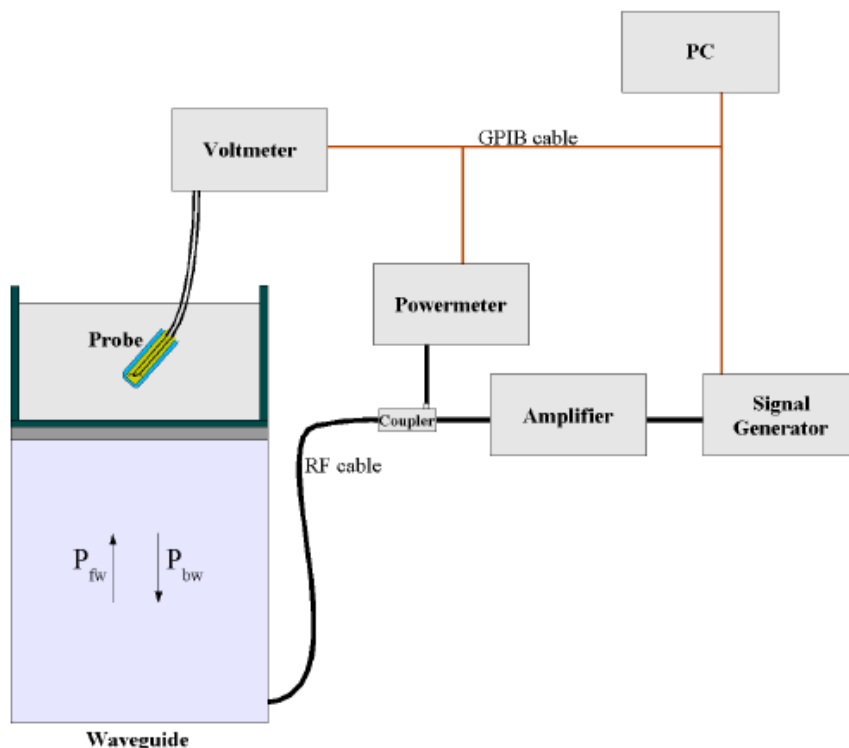
➤ E-Field Probe Specification

Device Type	COMOSAR DOSIMETRIC E FIELD PROBE
Model	SSE2
Frequency Range	150 MHz to 6 GHz
Dynamic Range	0.01W/kg to 100W/kg
Probe linearity	<0.25dB
Dimensions	Overall length: 330 mm Tip diameter: 2.5 mm Distance between dipoles / probe extremity: 1 mm

Fig. 8.2 Photo of E-Field Probe

➤ E-Field Probe Calibration

Probe calibration is realized, in compliance with EN/IEC 62209-1/-2 and IEEE 1528 std, with CALISAR, MVG proprietary calibration system. The calibration is performed with the technique using reference waveguide.



$$SAR = \frac{4(P_{fw} - P_{bw})}{ab\sigma} \cos^2 \left(\pi \frac{y}{a} \right) e^{-(2\pi/\sigma)z}$$

Where :

- P_{fw} = Forward Power
- P_{bw} = Backward Power
- a and b = Waveguide Dimensions
- σ = Skin Depth

Keithley configuration

Rate=Medium; Filter=ON; RDGS=10; FILTER TYPE=MOVING AVERAGE; RANGE AUTO

After each calibration, a SAR measurement performed on a validation dipole and compared with a NPL calibrated probe, to verify it.

The Calibration factors, CF(N), for the 3 sensors corresponding to dipole 1, dipole 2 and dipole 3 are:

$$CF(N) = SAR(N)/V_{lin}(N) \quad (N=1,2,3)$$

The linearized output voltage V_{lin}(N) is obtained from the displayed output voltage V(N) using

$$V_{lin}(N) = V(N) * (1 + V(N)/DCP(N)) \quad N=1,2,3$$

Where the DCP is the dipole compression point in mV

8.2 Robot

The COMOSAR system uses the high precision robots from KUKA. For the 6-axis controller system, the robot controller version (KUKA-KRC2sr) from KUKA is used. The KUKA robot series have many features that are important for our application:

- High precision (repeatability 0.02 mm)
- High reliability (industrial design)
- Low maintenance costs (virtually maintenance free due to direct drive gears; no belt drives)
- Jerk-free straight movements
- Low ELF interference (motor control fields shielded via the closed metallic construction shields)



Fig. 8.4 Photo of Robot

8.3 Phantom

<SAM Phantom>

Shell Thickness	2 ± 0.2 mm; Center ear point: 6 ± 0.2 mm	
Filling Volume Dimensions	Approx. 27 liters Length: 1000mm; Width: 500mm; Height: 200mm	
Material	Fiberglass based	
Relative permittivity	3-4	
Loss tangent	0.02	
Measurement Areas	Left Head, Right Head, Flat phantom	

Fig. 8.7 Photo of SAM Phantom

The phantom developed by MVG is produced in accordance with the specified in the standards. It has been designed to fit the COMOSAR phantom tables and is delivered with a plastic cover to prevent liquid evaporation.

8.4 Device Holder

The positioning system is made of an extremely stable material, which ensures easy handling and reproducible positioning. It also allows correct positioning of the dipoles referenced by the IEEE, ANSI and IEC.

<Device Holder for SAM Phantom>

Model	Handset Positioning System	
Material properties	The positioning system is made of PETP. This material offers a low permittivity of 3.2 and low loss, with a loss tangent of 0.005 to minimize the influence of the DUT on measurement results.	
Mechanical properties	The positioning system developed by MVG allows a positioning resolution better than 1 mm. The system is fixed on a bottom rail "x axis" so that the positioning system can be quickly moved from the right to the left part of the phantom. In addition, it can be moved on a perpendicular "y axis" and the height can be adapted. The system is also composed of three rotation points for accurate positioning of the device's acoustical output.	
Accuracy and precision	A curved rail on the top part allows the fast switch from the cheek to the tilt position. The required 15° angle for the tilt position can be easily checked thanks to a printed scale on the curved rail with a tolerance of ± 1°	

Fig. 8.9 Photo of Device Holder

8.5 Test Equipment List

Manufacturer	Equipment Description	Model	Management Number	Cal. Information	
				Last Cal.	Due Date
MVG	COMOSAR DOSIMETRIC E FIELD PROBE	SSE2	WXJ076	06.30.2022	06.29.2023
MVG	COMOSAR 750 MHz REFERENCE DIPOLE	SID750	WXJ076-4	01.14.2021	01.13.2024
MVG	COMOSAR 835 MHz REFERENCE DIPOLE	SID835	WXJ076-5	01.14.2021	01.13.2024
MVG	COMOSAR 1750 MHz REFERENCE DIPOLE	SID1750	WXJ076-8	01.14.2021	01.13.2024
MVG	COMOSAR 1900 MHz REFERENCE DIPOLE	SID1900	WXJ076-9	01.14.2021	01.13.2024
MVG	COMOSAR 2450 MHz REFERENCE DIPOLE	SID2450	WXJ076-12	01.14.2021	01.13.2024
MVG	COMOSAR 2600 MHz REFERENCE DIPOLE	SID2600	WXJ076-13	01.14.2021	01.13.2024
MVG	COMOSAR 3500 MHz REFERENCE DIPOLE	SID3500	WXJ076-15	01.14.2021	01.13.2024
MVG	COMOSAR 3700 MHz REFERENCE DIPOLE	SID3700	WXJ076-16	01.14.2021	01.13.2024
MVG	COMOSAR 3900 MHz REFERENCE DIPOLE	SID3900	WXJ076-17	01.14.2021	01.13.2024
MVG	COMOSAR 5200-5800 MHz REFERENCE DIPOLE	SID5000	WXJ076-21	01.14.2021	01.13.2024
KEITHLEY	DIGIT MULTIMETER	DMM6500	WXJ076-1	12.17.2022	12.16.2023
MVG	MVG Measurement Software	OpenSAR	Version: V5_01_09	N.C.R	N.C.R
MVG	COMOSAR IEEE SAM PHANTOM	N/A	WXG009-2	N.C.R	N.C.R
MVG	COMOSAR IEEE SAM PHANTOM	N/A	WXG009-3	N.C.R	N.C.R
MVG	MOBILE PHONE POSITIONNING SYSTEM	N/A	WXG009-4	N.C.R	N.C.R
KUKA	Robot	KR 6 R900 sixx	WXG009-1	N.C.R	N.C.R
KEYSIGHT	UXM 5G Wireless Test Platform	E7515B	WXJ008-6	10.17.2022	10.16.2023
Anritsu	Universal Radio Communication Analyzer	MT8820C	WXJ008-5	03.03.2021	03.02.2023
R&S	Universal Radio Communication Tester	CMU200	WXJ008-2	03.30.2022	03.29.2024
KEYSIGHT	Network Analyzer	E5071C	WXJ091	03.30.2022	03.29.2023
KEYSIGHT	EPM Series Power Meter	N1914A	WXJ075	06.29.2022	06.28.2023
KEYSIGHT	E-Series Power Sensor	E9300H	WXJ075-1	06.29.2022	06.28.2023
KEYSIGHT	E-Series Power Sensor	E9300H	WXJ075-2	06.29.2022	06.28.2023
KEYSIGHT	Signal Generator	N5173B	WXJ006-3	06.29.2022	06.28.2023
Huber Suhner	RF Cable	SUCOFLEX	WXG008-13	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	WXG008-14	See Note 3	
Huber Suhner	RF Cable	SUCOFLEX	WXG008-15	See Note 3	
Weinschel	Attenuator	23-3-34	WXG008-16	See Note 3	
Anritsu	Directional Coupler	MP654A	WXG008-17	See Note 3	
MVG	LIMESAR DIELECTRIC PROBE	SCLMP	WXG009-5	See Note 4	
TXC	Broadband Amplifier	BBA018000	WXG008-11	See Note 5	

Note:

- The calibration certificate of MVG can be referred to appendix C of this report.
- Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged, or repaired during the interval.
- The Insertion Loss calibration of Dual Directional Coupler and Attenuator were characterized via the network analyzer and compensated during system check.
- The dielectric probe kit was calibrated via the network analyzer, with the specified procedure (calibrated in pure water) and calibration kit (standard) short circuit, before the dielectric measurement. The specific procedure and calibration kit

are provided by MVG.

5. In system check we need to monitor the level on the spectrum analyzer, and adjust the power amplifier level to have precise power level to the dipole; the measured SAR will be normalized to 1 W input power according to the ratio of 1 W to the input power to the dipole. For system check, the calibration of the power amplifier is deemed not critically required for correct measurement; the spectrum analyzer is critical and we do have calibration for it
6. Attenuator insertion loss is calibrated by the network Analyzer, which the calibration is valid, before system check.
7. N.C.R means No Calibration Requirement.

9 Tissue Simulating Liquids

For the measurement of the field distribution inside the SAM phantom, the phantom must be filled with around 25 liters of homogeneous body tissue simulating liquid. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm, which is shown in Fig. 9.1, for body SAR testing, the liquid height from the center of the flat phantom to liquid top surface is larger than 15 cm, which is shown in Fig. 9.2.



Fig. 9.1 Photo of Liquid Height for Head SAR
(depth>15cm)



Fig. 9.2 Photo of Liquid Height for Body SAR
(depth>15cm)

The relative permittivity and conductivity of the tissue material should be within $\pm 5\%$ of the values given in the table below recommended by the FCC OET 65 supplement C and RSS 102 Issue 5.

Target Frequency (MHz)	ϵ_r	σ (S/m)
150	52.3	0.76
300	45.3	0.87
450	43.5	0.87
835	41.5	0.90
900	41.5	0.97
915	41.5	0.98
1450	40.5	1.20
1610	40.3	1.29
1800-2000	40.0	1.40
2450	39.2	1.80
3000	38.5	2.40
5800	35.3	5.27

(ϵ_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m)

The dielectric parameters of liquids were verified prior to the SAR evaluation using a Speag Dielectric Probe Kit and an Agilent Network Analyzer.

The following table shows the measuring results for simulating liquid.

Frequency (MHz)	Liquid Temp. (°C)	Conductivity (σ)	Permittivity (ϵ_r)	Conductivity Target(σ)	Permittivity Target(ϵ_r)	Delta (σ)%	Delta (ϵ_r)%	Limit (%)	Date (mm/dd/yy)
750	22.1	0.87	41.95	0.89	41.90	-2.25	0.12	±5	11.18.2022
835	22.3	0.89	41.59	0.90	41.50	-1.11	0.22	±5	11.10.2022
1750	22.7	1.36	40.02	1.37	40.10	-0.73	-0.20	±5	11.15.2022
1900	22.1	1.38	39.78	1.40	40.00	-1.43	-0.55	±5	11.21.2022
2450	21.5	1.81	39.25	1.80	39.20	0.56	0.13	±5	11.23.2022
2600	21.8	1.93	39.11	1.96	39.00	-1.53	0.28	±5	11.26.2022
3500	21.9	2.97	37.96	2.91	37.90	2.06	0.16	±5	11.12.2022
3700	22.3	3.04	37.87	3.12	37.70	-2.56	0.45	±5	11.13.2022
3900	22.3	3.39	37.81	3.32	37.50	2.11	0.83	±5	11.13.2022
5200	22.2	4.59	37.15	4.66	36.00	-1.50	3.19	±5	12.03.2022
5800	22.0	5.12	35.88	5.27	35.30	-2.85	1.64	±5	12.07.2022

10 SAR System Verification

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System validation kit includes a dipole, tripod holder to fix it underneath the flat phantom and a corresponding distance holder.

➤ Purpose of System Performance check

The system performance check verifies that the system operates within its specifications. System and operator errors can be detected and corrected. It is recommended that the system performance check be performed prior to any usage of the system in order to guarantee reproducible results. The system performance check uses normal SAR measurements in a simplified setup with a well characterized source. This setup was selected to give a high sensitivity to all parameters that might fail or vary over time. The system check does not intend to replace the calibration of the components, but indicates situations where the system uncertainty is exceeded due to drift or failure.

➤ System Setup

In the simplified setup for system evaluation, the EUT 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:

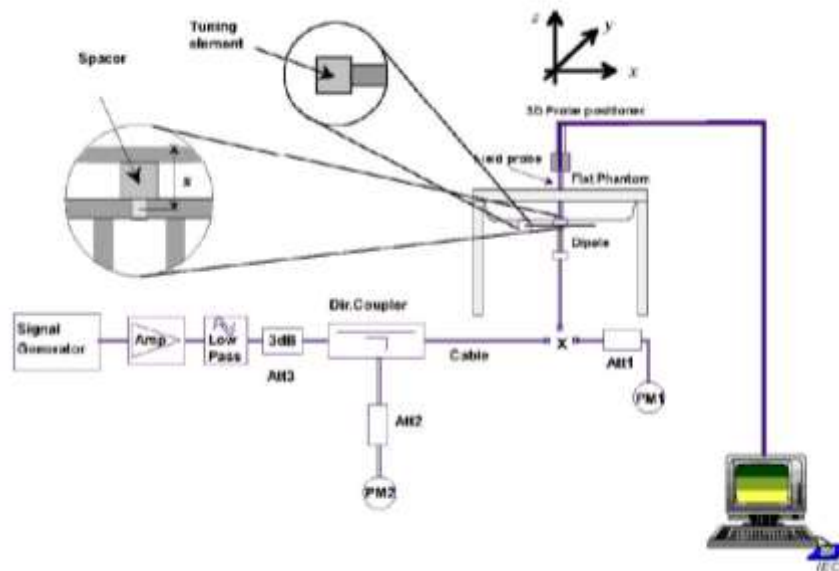


Fig.10.1 System Verification Setup Diagram

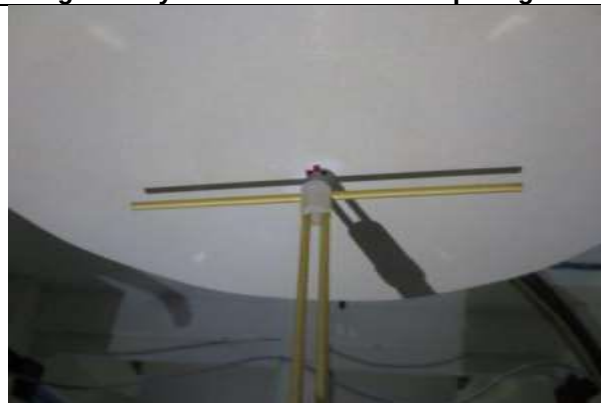


Fig.10.2 Photo of Dipole setup

➤

➤ System Verification Results

Comparing to the original SAR value provided by SPEAG, the verification data should be within its specification of 10%. The table as below indicates the system performance check can meet the variation criterion and the plots can be referred to Appendix C of this report.

Date (mm/dd/yy)	Frequency (MHz)	Power fed onto dipole (mW)	Measured 1g SAR (W/kg)	Normalized 1g SAR (W/kg)	Target 1g SAR (W/kg)	Deviation (%)
11.18.2022	750	100	0.839	8.39	8.57	-2.10
11.10.2022	835	100	0.984	9.84	9.57	2.82
11.15.2022	1750	100	3.622	36.22	36.5	-0.77
11.21.2022	1900	100	3.812	38.12	39.6	-3.74
11.23.2022	2450	40	2.030	50.75	52.92	-4.10
11.26.2022	2600	40	2.215	55.38	55.47	-0.17
11.12.2022	3500	40	2.622	65.55	67.11	-2.32
11.13.2022	3700	40	2.618	65.45	68.36	-4.26
11.13.2022	3900	40	2.631	65.78	66.92	-1.71
12.03.2022	5200	40	3.012	75.30	76.67	-1.79
12.07.2022	5800	40	3.125	78.13	78.36	-0.30

11 EUT Testing Position

This EUT was tested in fourteen different positions. They are right cheek/right tilted/left cheek/left tilted for head, Front/Back/Left/Right Side/Top Side/Bottom Side of the fold EUT with phantom 10 mm gap, Back/Right Side/Top Side/Bottom Side of the unfold EUT with phantom 0 mm gap as illustrated below, please refer to Appendix B for the test setup photos.

11.1 Handset Reference Points

- The vertical centreline passes through two points on the front side of the handset – the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.
- The horizontal line is perpendicular to the vertical centreline and passes the center of the acoustic output. The horizontal line is also tangential to the handset at point A.
- The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centreline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.



Fig.11.1 Illustration for Front, Back and Side of SAM Phantom

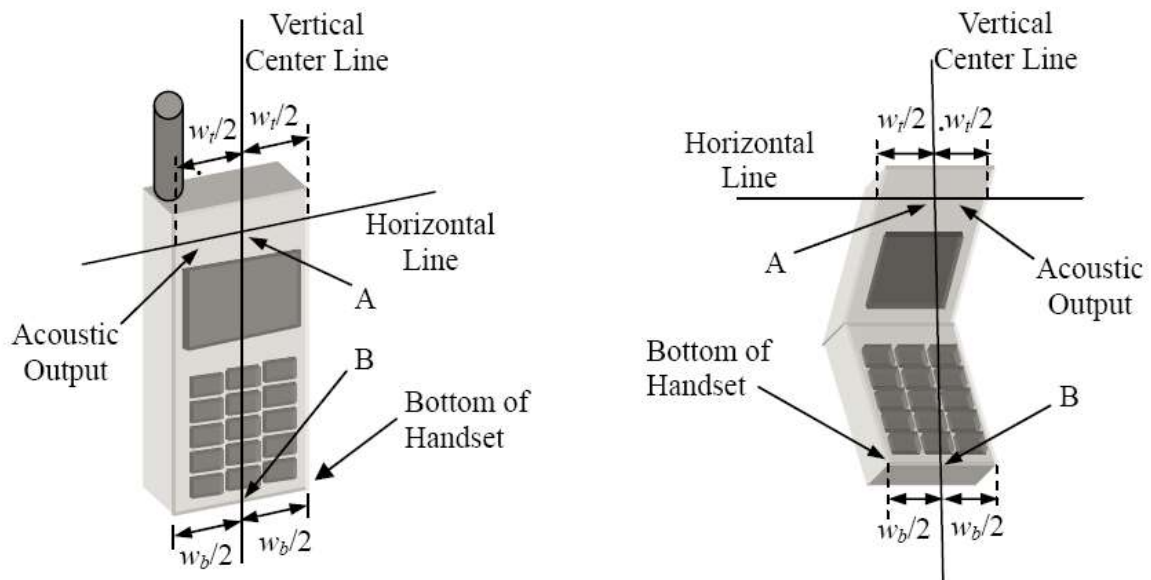


Fig. 11.2 Illustration for Handset Vertical and Horizontal Reference Lines

11.2 Positioning for Cheek / Touch

- To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear and LE: Left Ear) and align the center of the ear piece with the line RE-LE.
- To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost (see below figure)



Fig. 11.3 Illustration for Cheek Position

11.3 Positioning for Ear / 15° Tilt

- To position the device in the “cheek” position described above.
- While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see figure below).



Fig.11.4 Illustration for Tilted Position

11.4 SAR Evaluations near the Mouth/Jaw Regions of the SAM Phantom

Antennas located near the bottom of a phone may require SAR measurements around the mouth and jaw regions of the SAM head phantom. This typically applies to clam-shell style phones that are generally longer in the unfolded normal use positions or to certain older style long rectangular phones.

Under these circumstances, the following procedures apply, adopted from the FCC guidance on SAR handsets document FCC KDB Publication 648474 D04v01r03. The SAR required in these regions of SAM should be measured using a flat phantom. The phone should be positioned with a separation distance of 4 mm between the ear reference point (ERP) and the outer surface of the flat phantom shell. While maintaining this distance at the ERP location, the low (bottom) edge of the phone should be lowered from the phantom to establish the same separation distance between the peak SAR locations identified by the truncated partial SAR distribution measured with the SAM phantom. The distance from the peak SAR location to the phone is determined by the straight line passing perpendicularly through the phantom surface. When it is not feasible to maintain 4 mm separation at the ERP while also establishing the required separation at the peak SAR location, the top edge of the phone will be allowed to touch the phantom with a separation < 4 mm at the ERP. The phone should not be tilted to the left or right while placed in this inclined position to the flat phantom.

11.5 Body Worn Accessory Configurations

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 10 mm or holster surface and the flat phantom to 0 mm.

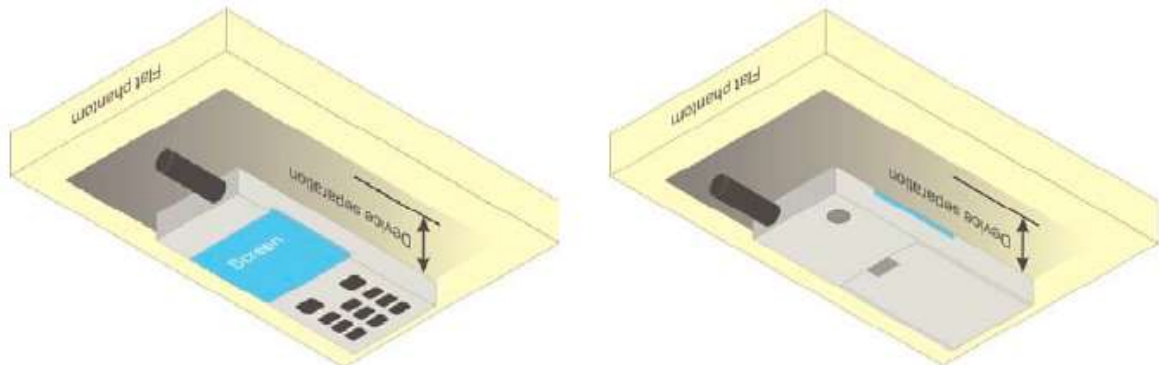


Fig.11.5 Illustration for Body Worn Position

11.6 Wireless Router (Hotspot) Configurations

Some battery-operated handsets have the capability to transmit and receive internet connectivity through simultaneous transmission of WIFI in conjunction with a separate licensed transmitter. The FCC has provided guidance in KDB Publication 941225 D06 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device with antennas 2.5 cm or closer to the edge of the device, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions. Therefore, SAR must be evaluated for each frequency transmission and mode separately and summed with the WIFI transmitter according to KDB 648474 publication procedures. The "Portable Hotspot" feature on the handset was NOT activated, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal.

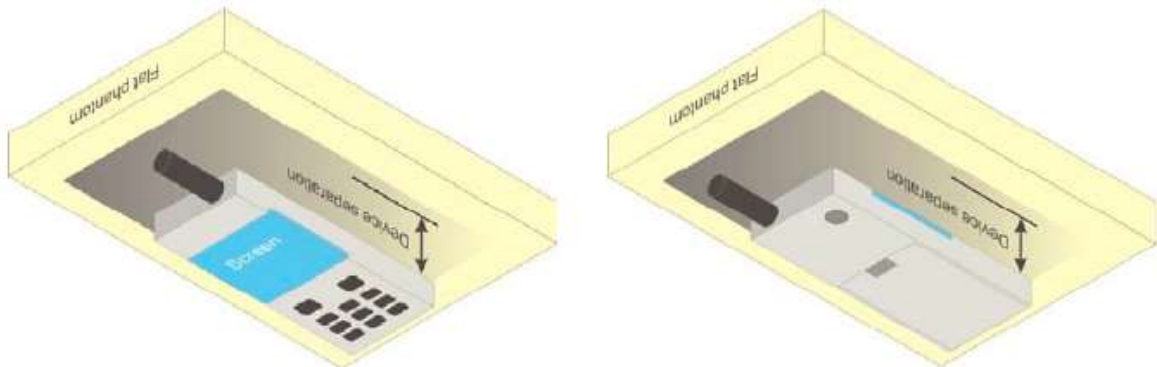


Fig.11.6 Illustration for Hotspot Position

11.7 Tablet Mode Accessory Configurations

- To position the device parallel to the phantom surface with either keypad up or down.
- To adjust the device parallel to the flat phantom.
- To adjust the distance between the device surface and the flat phantom to 0 mm or holster surface and the flat phantom to 0 mm.

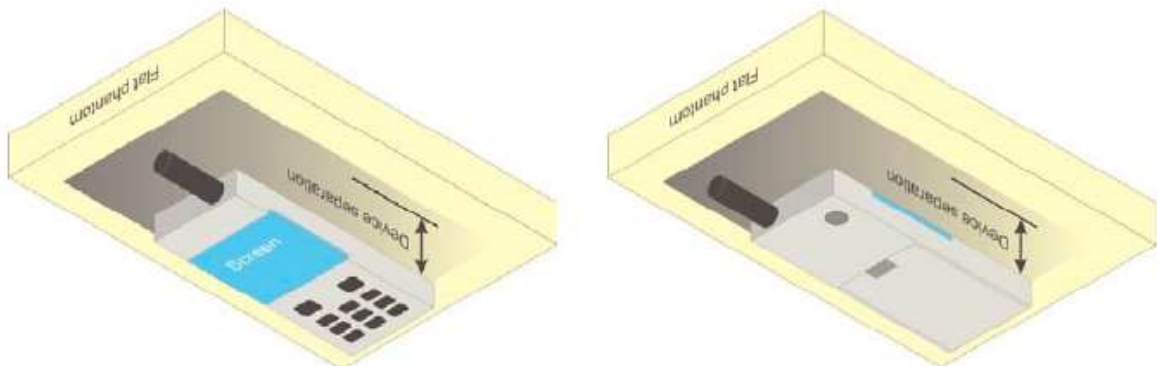


Fig.11.7 Illustration for Tablet Mode Position

12 Measurement Procedures

The measurement procedures are as below:

<Conducted power measurement>

- For WWAN power measurement, use base station simulator to configure EUT WWAN transition in conducted connection with RF cable, at maximum power in each supported wireless interface and frequency band.
- Read the WWAN RF power level from the base station simulator.
- For WLAN/BT power measurement, use engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power in each supported wireless interface and frequency band.
- Connect EUT RF port through RF cable to the power meter or spectrum analyzer, and measure WLAN/BT output power.

<Conducted power measurement>

- Use base station simulator to configure EUT WWAN transmission in radiated connection, and engineering software to configure EUT WLAN/BT continuously transmission, at maximum RF power, in the highest power channel.
- Place the EUT in positions as Appendix B demonstrates.
- Set scan area, grid size and other setting on the DASY software.
- Measure SAR results for the highest power channel on each testing position.
- Find out the largest SAR result on these testing positions of each band.
- Measure SAR results for other channels in worst SAR testing position if the Reported SAR or highest power channel is larger than 0.8 W/kg.

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Area scan
- Zoom scan
- Power drift measurement

12.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a “cube” measurement. The measured volume must include the 1g and 10 g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

- Extraction of the measured data (grid and values) from the Zoom Scan.
- Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters).
- Generation of a high-resolution mesh within the measured volume.
- Interpolation of all measured values from the measurement grid to the high-resolution grid
- Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
- Calculation of the averaged SAR within masses of 1g and 10g.

12.2 Power Reference Measurement

The Power Reference Measurement and Power Drift Measurement are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

12.3 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10g. Area scan and zoom scan resolution setting follows KDB 865664 D01v01r04 quoted below.

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

12.4 Volume Scan Procedures

The volume scan is used to assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the EUT remains in the same test position for all measurements and all volume scans use the same spatial resolution and grid spacing. When all volume scans are completed, the software, SEMCAD post-processor scans combine and subsequently superpose these measurement data to calculate the multiband SAR.

12.5 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation.

Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1g and 10g cubes, the extrapolation distance should not be larger than 5 mm.

12.6 Power Drift Monitoring

All SAR testing is under the EUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of EUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drifts more than 5%, the SAR will be retested.

13 Conducted RF Output Power

14 Conducted RF Output Power

The detailed conducted power table can refer to JYTSZ-R14-2200234 Appendix D Conducted RF Output Power.

14.1 GSM 850 Conducted Power

Remark:

- The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:
The duty cycle "x" of different time slots as below:
1 TX slot is 1/8, 2 TX slots is 2/8, 3 TX slots is 3/8 and 4 TX slots is 4/8
Based on the calculation formula:
Frame-averaged power = Burst averaged power + 10 log (x)
So,
Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot)– 9.03
Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots)– 6.02
Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots)– 4.26
Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01
- CS1 coding scheme was used in GPRS conducted power measurements and SAR testing, MCS5 coding scheme was used in EGPRS conducted power measurements and SAR testing (if necessary).

Note:

- For Head SAR testing, GSM Voice mode should be evaluated; therefore the EUT was set in Voice mode.
- For Body worn SAR testing, Hotspot mode SAR and Tablet mode SAR testing, GPRS and EGPRS mode should be evaluated, therefore the EUT was set in GPRS 4 TX slots mode due to the highest frame-averaged power.
- Per KDB447498 D04v01, the maximum output power channel is used for SAR testing and for further SAR test reduction.

14.2 PCS 1900 Conducted Power

Remark:

- The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:
The duty cycle "x" of different time slots as below:
1 TX slot is 1/8, 2 TX slots is 2/8, 3 TX slots is 3/8 and 4 TX slots is 4/8
Based on the calculation formula:
Frame-averaged power = Burst averaged power + 10 log (x)
So,
Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot)– 9.03
Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots)– 6.02
Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots)– 4.26
Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01
- CS1 coding scheme was used in GPRS conducted power measurements and SAR testing, MCS5 coding scheme was used in EGPRS conducted power measurements and SAR testing (if necessary).

Note:

- For Head SAR testing, GSM Voice mode should be evaluated; therefore the EUT was set in Voice mode.
- For Body worn SAR testing, Hotspot mode SAR and Tablet mode SAR testing, GPRS and EGPRS mode should be evaluated, therefore the EUT was set in GPRS 4 TX slots mode due to the highest frame-averaged power.
- Per KDB447498 D04v01, the maximum output power channel is used for SAR testing and for further SAR test reduction.

14.3 WCDMA Conducted Power

The following tests were conducted according to the test requirements outlines in 3GPP TS 34.121 specification. A summary of these settings are illustrated below:

HSDPA Setup Configuration:

- a. The EUT was connected to Base Station Rohde & Schwarz CMU200 referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting:
 - i. Set Gain Factors (β_c and β_d) and parameters were set according to each
 - ii. Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
 - iii. Set RMC 12.2kbps + HSDPA mode.
 - iv. Set Cell Power = -86 dBm
 - v. Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
 - vi. Select HSDPA Uplink Parameters
 - vii. Set Delta ACK, Delta NACK and Delta CQI = 8
 - viii. Set Ack-Nack Repetition Factor to 3
 - ix. Set CQI Feedback Cycle (k) to 4 ms
 - x. Set CQI Repetition Factor to 2
 - xi. Power Ctrl Mode = All Up bits
- d. The transmitted maximum output power was recorded.

Table 1

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

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
 Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$.
 Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

HSDPA Sub-test setup configuration

HSUPA Setup Configuration:

- a. The EUT was connected to Base Station Rohde & Schwarz CMU200 referred to the Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting * :
 - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
 - ii. Set the Gain Factors (β_c and β_d) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
 - iii. Set Cell Power = -86 dBm
 - iv. Set Channel Type = 12.2k + HSPA
 - v. Set UE Target Power
 - vi. Power Ctrl Mode= Alternating bits
 - vii. Set and observe the E-TFCI
 - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

Table 2

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
 Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
 Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.
 Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.
 Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
 Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

HSUPA Sub-test setup configuration

WCDMA Conducted Power

Note:

1. Applying the subtest setup in Table C.11.1.3 of 3GPP TS 34.121-1
2. Per KDB 941225 D01, RMC 12.2kbps mode is used to evaluate SAR due the highest output power. If AMR 12.2 kbps power is < 0.25dB higher than RMC 12.2kbps, SAR tests with AMR 12.2 kbps can be excluded.
3. AMR, HSDPA RF power will not be larger than RMC 12.2kbps, detailed information is included in Tune-up Procure exhibit.

14.4 LTE Conducted Power

14.4.1 Largest channel bandwidth standalone SAR test requirements

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.

QPSK with 50% RB allocation

The procedures required for 1 RB allocation in section 4.2.1 are applied to measure the SAR for QPSK with 50% RB allocation.

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 sections 4.2.1 and 4.2.2 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.

Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in sections 4.2.1, 5.2.2 and 4.2.3 to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

14.4.2 Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section 4.2 to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg. The equivalent channel configuration for the RB allocation, RB offset and modulation etc. is determined for the smaller channel bandwidth according to the same number of RB allocated in the largest channel bandwidth. For example, 50 RB in 10 MHz channel bandwidth does not apply to 5 MHz channel bandwidth; therefore, this cannot be tested in the smaller channel bandwidth. However, 50% RB allocation in 10 MHz channel bandwidth is equivalent to 100% RB allocation in 5 MHz channel bandwidth; therefore, these are the equivalent configurations to be compared to determine the specific channel and configuration in the smaller channel bandwidth that need SAR testing.

13.3.3 TDD LTE configuration setup for SAR measurement

According to KDB 941225 D05v02r03 and April 2013 TCB workshop slides, SAR must be tested with a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by 3GPP.

- see 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations
- “special subframe S” contains both uplink and downlink transmissions and must be taken into consideration to determine the transmission duty factor
 - according to the worst case uplink and downlink cyclic prefix requirements for UpPTS to determine the highest SAR test duty factor

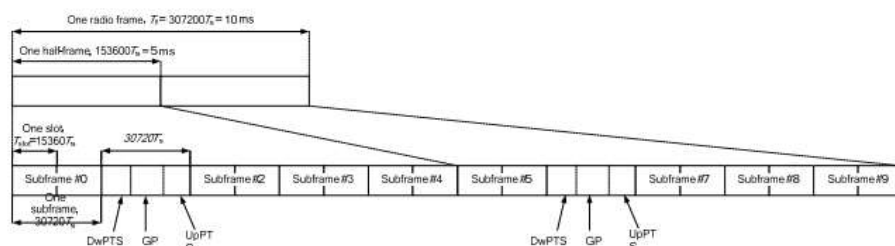


Figure 4.2-1: Frame structure type 2 (for 5 ms switch-point periodicity)

Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS)

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	UpPTS		Normal cyclic prefix in uplink	UpPTS		Extended cyclic prefix in uplink
	DwPTS	Extended cyclic prefix in uplink		DwPTS	Normal 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	$13168 \cdot T_s$			-	-	-

Per 3GPP 36.211 section 4.2, each radio frame of length $T_f=37200 \cdot T_s = 10$ ms consists of two half-frames of length $153600 \cdot T_s = 5$ ms each. Each half-frame consists of five subframes of length $30720 \cdot T_s = 1$ ms. So, the uplink duty factor in special subframe as below:

Special Subframe configuration	Normal cyclic prefix in downlink		Extended cyclic prefix in downlink	
	Duty factor of Uplink		Duty factor of Uplink	
	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink	Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	7.14%	8.33%	7.14%	8.33%
1	7.14%	8.33%	7.14%	8.33%
2	7.14%	8.33%	7.14%	8.33%
3	7.14%	8.33%	7.14%	8.33%
4	7.14%	8.33%	14.27%	16.67%
5	14.27%	16.67%	14.27%	16.67%
6	14.27%	16.67%	14.27%	16.67%
7	14.27%	16.67%	14.27%	16.67%
8	14.27%	16.67%	/	/
9	14.27%	16.67%	/	/

Table 4.2-2: 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

According to above table:

1. The highest duty factor is configuration 0;
2. The duty factor of uplink in one half-frame with normal cyclic prefix is: $(3\text{ms} + 0.143\text{ms})/5\text{ms}=62.86\%$;
3. The duty factor of uplink in one half-frame with extended cyclic prefix is: $(3\text{ms} + 0.167\text{ms})/5\text{ms}=63.34\%$;
4. For purpose to get the worst case SAR test duty factor, the duty factor of normal cyclic prefix in uplink scaled-up to the extended cyclic prefix in uplink, the scaling factor is $63.34\%/62.86\%=1.008$, and the scaling factor will be taken into the final measured SAR.

14.5 5G NR Conducted Power

Note:

1. 5G NR n41/n77/n78 supports NSA; n5/n41/n71/n66 supports SA.
2. 5G NR n41/n77/n78 supports HPUE.
3. SAR testing start with the largest channel bandwidth and measure SAR for PI/2 BPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
4. 50% RB allocation for PI/2 BPSK SAR testing follows 1RB PI/2 BPSK allocation procedure.
5. QPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not 1/2 dB higher than the same configuration in PI/2 BPSK, also reported SAR for the PI/2 BPSK configuration is less than 1.45 W/kg, QPSK/16QAM/64QAM/256QAM SAR testing are not required.
6. Smaller bandwidth output power for each RB allocation configuration for this device will not 1/2 dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is less than 1.45 W/kg, smaller bandwidth SAR testing is no required for this device.

14.6 WLAN 2.4 GHz Band Conducted Power

Note:

7. SAR test of WLAN 2.4GHz is performed.
8. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
9. Per KDB 248227 D01v02r02, In the 2.4 GHz band, separate SAR procedures are applied to DSSS and OFDM configurations to simplify DSSS test requirements. SAR is not required for the following 2.4 GHz OFDM conditions:
 - 1) When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
 - 2) When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.
10. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report.
11. Per KDB 248227 D01V02r02 section 2.2, when the EUT in continuously transmitting mode, the actual duty cycle is 100%, so the duty cycle factor is 1.

14.7 WLAN 5.2GHz Band Conducted Power

Note:

12. SAR test of WLAN 5.2GHz is performed.
13. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
14. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report.
15. Per KDB 248227 D01V02r02 section 2.2, when the EUT in continuously transmitting mode, the actual duty cycle is 100%, so the duty cycle factor is 1.

14.8 WLAN 5.8GHz Band Conducted Power

Note:

16. SAR test of WLAN 5.8GHz is performed.
17. Per KDB 248227 D01v02r02, choose the highest output power channel to test SAR and determine further SAR exclusion.
18. The output power of all data rate were pre-scan, just the worst case (the lowest data rate) of all mode were shown in report.
19. Per KDB 248227 D01V02r02 section 2.2, when the EUT in continuously transmitting mode, the actual duty cycle is 100%, so the duty cycle factor is 1.

14.9 Bluetooth Conducted Power

Note:

1. SAR test of Bluetooth is performed and the mode with highest average power is selected for SAR testing.
2. The output power of all data rate were pre-scan, just the worst case of all mode were shown in report.
3. Per KDB 248227 D01V02r02 section 2.2, when the EUT in continuously transmitting mode, the actual duty cycle is 100%, so the duty cycle factor is 1.

14.10 NFC Conducted Power

Note:

4. Per KDB 447498 D04v01 section 2.1.2: 1-mW Test Exemption, SAR test for NFC is not required.

15 Exposure Positions Consideration

EUT Antenna Locations

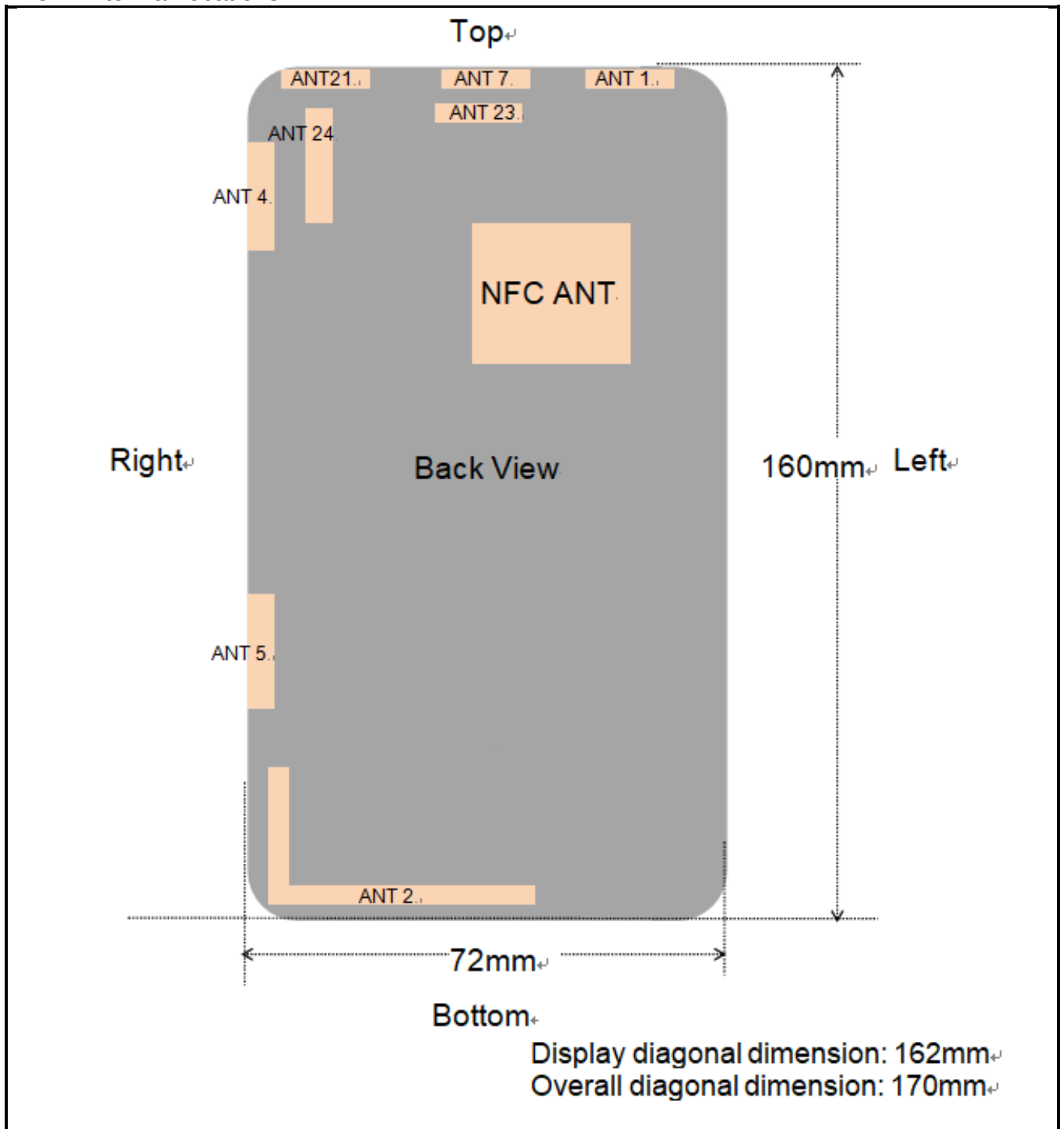


Fig.14.1 Fold Mode

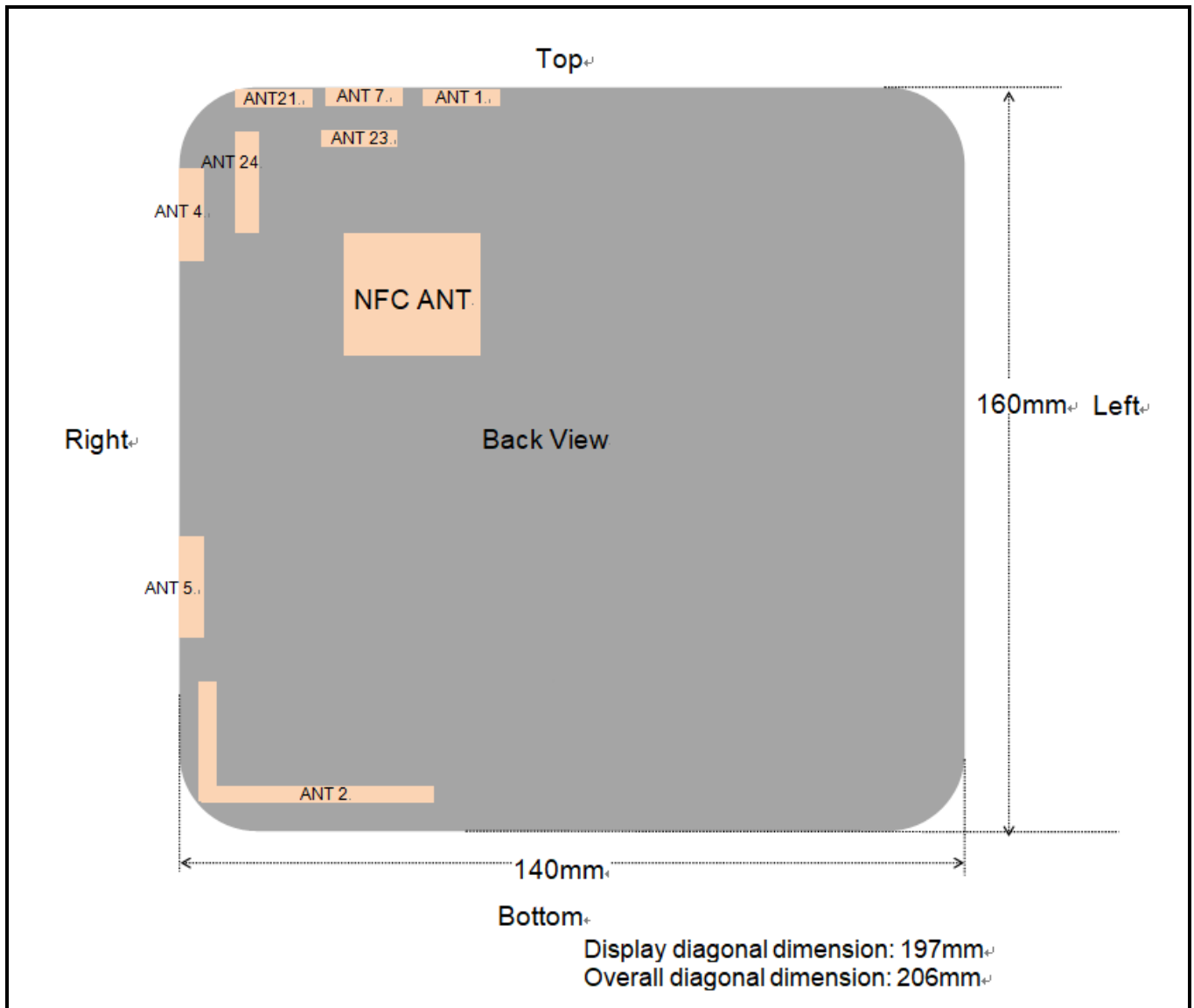


Fig.14.2 Unfold Mode

Note:

1. ANT 1: LTE B41 ANT(Tx), 5G NR n41(SA) ANT(Tx).
2. ANT 2: GSM&WCDMA<E ANT (Below 1GHz) (Tx), NR n5/n71 ANT (Tx).
3. ANT 4: GSM&WCDMA<E ANT (Above 1GHz) (Tx), LTE B41 MIMO ANT (only work in ENDC), NR n7/n66 ANT (Tx).
4. ANT 5: 2.4GHz WIFI MIMO ANT.
5. ANT 7: 5G NR n77/n78 ANT (Tx)
6. ANT 21: 2.4GHz WIFI & BT ANT.
7. ANT 23: 5 GHz WIFI MIMO ANT1.
8. ANT 24: 5 GHz WIFI MIMO ANT2.

This antenna diagram is only used as a reference for the distance from the antenna to each edge. For the specific shape of the antenna, please refer to the physical photo.

15.1 Test Positions Consideration

Fold Mode

Distance of Antennas to EUT edge/surface Test distance: 10mm						
Antennas	Front	Back	Left Side	Right Side	Top Side	Bottom Side
ANT 1	<25mm	<25mm	<25mm	50mm	<25mm	155mm
ANT 2	<25mm	<25mm	45mm	<25mm	108mm	<25mm
ANT 4	<25mm	<25mm	67mm	<25mm	<25mm	128mm
ANT 7	<25mm	<25mm	<25mm	35mm	<25mm	148mm
ANT 5	<25mm	<25mm	67 mm	<25mm	95mm	53mm
ANT 21	<25mm	<25mm	52 mm	<25mm	<25mm	155mm
ANT 23	<25mm	<25mm	42 mm	<25mm	<25mm	148mm
ANT 24	<25mm	<25mm	60 mm	<25mm	<25mm	136mm

Test Positions Test distance: 10mm						
Antennas	Front	Back	Left Side	Right Side	Top Side	Bottom Side
ANT 1	Yes	Yes	Yes	No	Yes	No
ANT 2	Yes	Yes	No	Yes	No	Yes
ANT 4	Yes	Yes	No	Yes	Yes	No
ANT 7	Yes	Yes	Yes	No	Yes	No
ANT 5	Yes	Yes	No	Yes	Yes	No
ANT 21	Yes	Yes	No	Yes	No	No
ANT 23	Yes	Yes	No	Yes	Yes	No
ANT 24	Yes	Yes	No	Yes	Yes	No

Note:

9. Head/Body-worn/Hotspot SAR assessments are required.
10. Referring to KDB 941225 D06 v02r01, when the overall device length and width are $\geq 9\text{cm} \times 5\text{cm}$, the test distance is 10mm. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25mm from that surface or edge.
11. Per KDB 447498 D04v01, for handsets the test separation distance is determined by the smallest distance between the outer surface of the device and the user, which is 0 mm for head SAR, 10 mm for hotspot SAR, and 10 mm for body-worn SAR.
12. Per KDB 648474 D04 v01r03, when hotspot mode applies, 10-g extremity SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR $> 1.2\text{ W/kg}$

Unfold Mode

SAR exclusion calculations for antenna													
Antennas	Freq. (MHz)	Max. tune-up Power		Distance of Antennas to EUT edge/surface (mm)					exclusion thresholds (mW)				
		dBm	mW	Back	Left	Right	Top	Bott.	Back	Left	Right	Top	Bott.
GPRS 850	848.8	27.0	501.19	5	115	5	108	5	9.0	787.1	9.0	719.7	9.0
GPRS 1900	1909.8	23.5	223.87	5	137	5	8	128	3.3	1520.8	3.3	8.0	1341.3
Band II/RMC	1907.6	25.0	316.23	5	137	5	8	128	3.4	1520.9	3.4	8.0	1341.5
Band IV/RMC	1752.6	25.5	354.81	5	137	5	8	128	3.6	1531.6	3.6	8.5	1352.5
Band V/RMC	846.6	25.0	316.23	5	115	5	108	5	9.1	785.8	9.1	718.6	9.1
Band 2	1860	24.0	251.19	5	137	5	8	128	3.4	1524.1	3.4	8.1	1344.8
Band 5	844	24.5	281.84	5	115	5	108	5	9.1	784.3	9.1	717.3	9.1
Band 7	2535	24.5	281.84	5	137	5	8	128	2.7	1485.8	2.7	6.6	1305.0
Band 41 ANT 1	2680	27.0	501.19	5	80	50	5	155	2.6	526.0	213.2	2.6	1875.0
Band 41 ANT 4	2593	20.0	100.00	5	137	5	8	128	2.6	1483.0	2.6	6.4	1302.1
Band 66	1720	24.0	251.19	5	137	5	8	128	3.6	1533.9	3.6	8.6	1355.0
NR n5	834	25.5	354.81	5	115	5	108	5	9.3	778.3	9.3	712.2	9.3
NR n7	2560	24.5	281.84	5	137	5	8	128	2.6	1484.6	2.6	6.5	1303.8
NR n41	2592.99	27.0	501.19	5	80	50	5	155	2.6	529.5	215.3	2.6	1878.4
NR n66	1760	24.0	251.19	5	137	5	8	128	3.6	1531.0	3.6	8.5	1352.0
NR n71	680.5	24.0	251.19	5	115	5	108	5	12.3	683.4	12.3	630.6	12.3
NR n77 3450-3550MHz	3500.01	27.5	562.34	5	92	35	5	148	2.1	657.8	97.1	2.1	1686.0
NR n77 3700-3980MHz	3840	28.0	630.96	5	92	35	5	148	1.9	647.6	93.8	1.9	1675.8
2.4GWIFI ANT 21	2437	17.0	50.12	5	122	5	5	155	2.8	1195.7	2.8	2.8	1884.9
2.4GWIFI ANT 5	2437	17.0	50.12	5	137	5	95	53	2.8	1490.6	2.8	743.2	245.1
5.2GWIFI ANT 23	5180	12.0	15.85	5	112	22	5	148	1.5	924.3	32.1	1.5	1643.3
5.2GWIFI ANT 24	5180	13.5	22.39	5	130	5	7	136	1.5	1257.3	1.5	3.0	1380.1
5.8GWIFI ANT 23	5825	12.0	15.85	5	112	22	5	148	1.4	910.7	30.3	1.4	1630.7
5.8GWIFI ANT 24	5785	13.0	19.95	5	130	5	7	136	1.4	1244.4	1.4	2.8	1367.3
BT	2441	8.0	6.31	5	122	5	5	155	2.8	1195.5	2.8	2.8	1884.7

Test Positions					
Antennas	Back	Left Side	Right Side	Top Side	Bottom Side
GPRS 850	Yes	No	Yes	No	Yes
GPRS 1900	Yes	No	Yes	Yes	No
Band II/RMC	Yes	No	Yes	Yes	No
Band IV/RMC	Yes	No	Yes	Yes	No
Band V/RMC	Yes	No	Yes	No	Yes
Band 2	Yes	No	Yes	Yes	No
Band 5	Yes	No	Yes	No	Yes
Band 7	Yes	No	Yes	Yes	No
Band 41 1	Yes	No	No	Yes	No
Band 41 4	Yes	No	Yes	Yes	No
Band 66	Yes	No	Yes	Yes	No
NR n5	Yes	No	Yes	No	Yes
NR n7	Yes	No	Yes	Yes	No
NR n41	Yes	No	No	Yes	No
NR n66	Yes	No	Yes	Yes	No
NR n71	Yes	No	Yes	No	Yes
NR n77 3450-3550MHz	Yes	No	Yes	Yes	No
NR n77 3700-3980MHz	Yes	No	Yes	Yes	No
2.4GWIFI ANT 21	Yes	No	Yes	Yes	No
2.4GWIFI ANT 5	Yes	No	Yes	NO	No
5.2GWIFI ANT 23	Yes	No	No	Yes	No
5.2GWIFI ANT 24	Yes	No	Yes	Yes	No
5.8GWIFI ANT 23	Yes	No	No	Yes	No
5.8GWIFI ANT 24	Yes	No	Yes	Yes	No
BT	Yes	No	Yes	Yes	No

Note:

13. Tablet Body SAR assessments are required.
14. Per KDB 616217 D04v01r02, SAR evaluation for the front surface of tablet display screens is generally not necessary.
15. Per KDB 616217 D04v01r02, additional testing for hotspot SAR in Unfold mode is not required.
16. Per KDB 616217 D04v01r02, when the reported SAR with the protrusions in place is $> 1.2 \text{ W/kg}$, a KDB inquiry is required to determine if additional SAR measurements in more conservative test configurations are necessary

16 SAR Test Results Summary

16.1 Standalone Head SAR Data

➤ GSM Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
1	GSM850/Voice	2	Right Cheek	251	848.8	33.21	2.10	33.5	0.094	1.069	0.100
	GSM850/Voice	2	Right Tilted	251	848.8	33.21	-0.61	33.5	0.072	1.069	0.077
	GSM850/Voice	2	Left Cheek	251	848.8	33.21	-3.92	33.5	0.086	1.069	0.092
	GSM850/Voice	2	Left Tilted	251	848.8	33.21	0.35	33.5	0.058	1.069	0.062
	PCS1900/Voice	4	Right Cheek	512	1850.2	29.88	0.55	30.0	0.205	1.028	0.211
	PCS1900/Voice	4	Right Tilted	512	1850.2	29.88	0.82	30.0	0.166	1.028	0.171
2	PCS1900/Voice	4	Left Cheek	512	1850.2	29.88	-1.92	30.0	0.422	1.028	0.434
	PCS1900/Voice	4	Left Tilted	512	1850.2	29.88	-0.76	30.0	0.360	1.028	0.370
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WCDMA Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band II/RMC	4	Right Cheek	9538	1907.6	22.95	-1.99	23.0	0.200	1.012	0.202
	Band II/RMC	4	Right Tilted	9538	1907.6	22.95	-0.09	23.0	0.182	1.012	0.184
3	Band II/RMC	4	Left Cheek	9538	1907.6	22.95	-1.00	23.0	0.262	1.012	0.265
	Band II/RMC	4	Left Tilted	9538	1907.6	22.95	-1.13	23.0	0.113	1.012	0.114
	Band IV/RMC	4	Right Cheek	1513	1752.6	25.08	1.62	25.5	0.258	1.102	0.284
	Band IV/RMC	4	Right Tilted	1513	1752.6	25.08	0.43	25.5	0.145	1.102	0.160
4	Band IV/RMC	4	Left Cheek	1513	1752.6	25.08	-1.17	25.5	0.336	1.102	0.370
	Band IV/RMC	4	Left Tilted	1513	1752.6	25.08	-0.63	25.5	0.186	1.102	0.205
5	Band V/RMC	2	Right Cheek	4233	846.6	24.65	-2.75	25.0	0.115	1.084	0.125
	Band V/RMC	2	Right Tilted	4233	846.6	24.65	1.64	25.0	0.072	1.084	0.078
	Band V/RMC	2	Left Cheek	4233	846.6	24.65	0.26	25.0	0.110	1.084	0.119
	Band V/RMC	2	Left Tilted	4233	846.6	24.65	1.12	25.0	0.066	1.084	0.072
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 2(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band2/1RB#99	4	Right Cheek	18700	1860	23.92	-0.67	24.0	0.221	1.019	0.225
	Band2/1RB#99	4	Right Tilted	18700	1860	23.92	1.92	24.0	0.249	1.019	0.254
	Band2/1RB#99	4	Left Cheek	18700	1860	23.92	-0.17	24.0	0.348	1.019	0.355
6	Band2/1RB#99	4	Left Tilted	18700	1860	23.92	-2.19	24.0	0.395	1.019	0.403
	Band2/50%RB#24	4	Right Cheek	19100	1900	22.88	1.13	23.0	0.164	1.028	0.169
	Band2/50%RB#24	4	Right Tilted	19100	1900	22.88	0.22	23.0	0.186	1.028	0.191
	Band2/50%RB#24	4	Left Cheek	19100	1900	22.88	1.06	23.0	0.272	1.028	0.280
	Band2/50%RB#24	4	Left Tilted	19100	1900	22.88	-2.12	23.0	0.320	1.028	0.329
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 5(10MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band5/1RB#49	2	Right Cheek	20450	829	24.37	1.54	24.5	0.092	1.03	0.095
	Band5/1RB#49	2	Right Tilted	20450	829	24.37	0.13	24.5	0.041	1.03	0.042
7	Band5/1RB#49	2	Left Cheek	20450	829	24.37	-1.32	24.5	0.138	1.03	0.142
	Band5/1RB#49	2	Left Tilted	20450	829	24.37	1.18	24.5	0.069	1.03	0.071
	Band5/50%RB#0	2	Right Cheek	20600	844	23.44	-0.47	23.5	0.078	1.014	0.079
	Band5/50%RB#0	2	Right Tilted	20600	844	23.44	0.45	23.5	0.034	1.014	0.034
	Band5/50%RB#0	2	Left Cheek	20600	844	23.44	-1.72	23.5	0.120	1.014	0.122
	Band5/50%RB#0	2	Left Tilted	20600	844	23.44	1.45	23.5	0.052	1.014	0.053
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 7(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band7/1RB#99	4	Right Cheek	21100	2535	24.18	-3.31	24.5	0.470	1.076	0.506
	Band7/1RB#99	4	Right Tilted	21100	2535	24.18	0.75	24.5	0.258	1.076	0.278
8	Band7/1RB#99	4	Left Cheek	21100	2535	24.18	4.29	24.5	0.519	1.076	0.558
	Band7/1RB#99	4	Left Tilted	21100	2535	24.18	0.39	24.5	0.345	1.076	0.371
	Band7/50%RB#24	4	Right Cheek	21350	2560	23.34	0.23	23.5	0.426	1.038	0.442
	Band7/50%RB#24	4	Right Tilted	21350	2560	23.34	0.43	23.5	0.228	1.038	0.237
	Band7/50%RB#24	4	Left Cheek	21350	2560	23.34	0.68	23.5	0.507	1.038	0.526
	Band7/50%RB#24	4	Left Tilted	21350	2560	23.34	-0.77	23.5	0.309	1.038	0.321
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ TDD-LTE Band41(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	Band41/1RB#49	1	Right Cheek	41490	2680	26.71	0.02	27.0	0.192	1.069	1.008	0.207
	Band41/1RB#49	1	Right Tilted	41490	2680	26.71	-2.95	27.0	0.343	1.069	1.008	0.370
	Band41/1RB#49	1	Left Cheek	41490	2680	26.71	-0.18	27.0	0.268	1.069	1.008	0.289
9	Band41/1RB#49	1	Left Tilted	41490	2680	26.71	-1.71	27.0	0.487	1.069	1.008	0.525
	Band41/50%RB#0	1	Right Cheek	40620	2593	25.75	1.26	26.0	0.172	1.059	1.008	0.184
	Band41/50%RB#0	1	Right Tilted	40620	2593	25.75	1.13	26.0	0.306	1.059	1.008	0.327
	Band41/50%RB#0	1	Left Cheek	40620	2593	25.75	-0.46	26.0	0.229	1.059	1.008	0.244
	Band41/50%RB#0	1	Left Tilted	40620	2593	25.75	0.13	26.0	0.452	1.059	1.008	0.482
	Band41/1RB#49	4	Right Cheek	40620	2593	19.74	-3.14	20.0	0.224	1.062	1.008	0.240
	Band41/1RB#49	4	Right Tilted	40620	2593	19.74	-1.88	20.0	0.182	1.062	1.008	0.195
	Band41/1RB#49	4	Left Cheek	40620	2593	19.74	-0.69	20.0	0.156	1.062	1.008	0.167

	Band41/1RB#49	4	Left Tilted	40620	2593	19.74	-1.91	20.0	0.108	1.062	1.008	0.116
	Band41/50%RB#24	4	Right Cheek	40620	2593	19.80	1.86	20.0	0.211	1.047	1.008	0.223
	Band41/50%RB#24	4	Right Tilted	40620	2593	19.80	1.38	20.0	0.156	1.047	1.008	0.165
	Band41/50%RB#24	4	Left Cheek	40620	2593	19.80	-0.85	20.0	0.132	1.047	1.008	0.139
	Band41/50%RB#24	4	Left Tilted	40620	2593	19.80	0.63	20.0	0.075	1.047	1.008	0.079
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ FDD-LTE Band 66(20MHz) QPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band66/1RB#99	4	Right Cheek	132072	1720	23.92	1.42	24.0	0.481	1.019	0.490
	Band66/1RB#99	4	Right Tilted	132072	1720	23.92	-2.55	24.0	0.259	1.019	0.264
10	Band66/1RB#99	4	Left Cheek	132072	1720	23.92	-3.73	24.0	0.519	1.019	0.529
	Band66/1RB#99	4	Left Tilted	132072	1720	23.92	-0.50	24.0	0.287	1.019	0.292
	Band66/50%RB#24	4	Right Cheek	132572	1770	22.76	1.76	23.0	0.422	1.057	0.446
	Band66/50%RB#24	4	Right Tilted	132572	1770	22.76	1.56	23.0	0.226	1.057	0.239
	Band66/50%RB#24	4	Left Cheek	132572	1770	22.76	-1.19	23.0	0.472	1.057	0.499
	Band66/50%RB#24	4	Left Tilted	132572	1770	22.76	0.23	23.0	0.248	1.057	0.262
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n5(20MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n5 /1@49	2	Right Cheek	167800	839	25.03	0.24	25.5	0.146	1.114	0.163
	NR n5 /1@49	2	Right Tilted	167800	839	25.03	-1.72	25.5	0.085	1.114	0.095
	NR n5 /1@49	2	Left Cheek	167800	839	25.03	-0.49	25.5	0.127	1.114	0.141
	NR n5 /1@49	2	Left Tilted	167800	839	25.03	0.04	25.5	0.073	1.114	0.081
11	NR n5 /25@12	2	Right Cheek	166800	834	25.07	-1.58	25.5	0.188	1.104	0.208
	NR n5 /25@12	2	Right Tilted	166800	834	25.07	-0.20	25.5	0.113	1.104	0.125
	NR n5 /25@12	2	Left Cheek	166800	834	25.07	1.18	25.5	0.158	1.104	0.174
	NR n5 /25@12	2	Left Tilted	166800	834	25.07	0.53	25.5	0.092	1.104	0.102
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n7(20MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n7 /1@49	4	Right Cheek	507000	2535	23.87	1.32	24.5	0.448	1.156	0.518
12	NR n7 /1@49	4	Right Tilted	507000	2535	23.87	2.97	24.5	0.650	1.156	0.751
	NR n7 /1@49	4	Left Cheek	507000	2535	23.87	0.68	24.5	0.352	1.156	0.407
	NR n7 /1@49	4	Left Tilted	507000	2535	23.87	2.34	24.5	0.534	1.156	0.617
	NR n7 /25@12	4	Right Cheek	512000	2560	23.96	2.40	24.5	0.422	1.132	0.478
	NR n7 /25@12	4	Right Tilted	512000	2560	23.96	-4.02	24.5	0.609	1.132	0.689
	NR n7 /25@12	4	Left Cheek	512000	2560	23.96	0.86	24.5	0.308	1.132	0.349
	NR n7 /25@12	4	Left Tilted	512000	2560	23.96	-0.65	24.5	0.516	1.132	0.584
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n41(100MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n41 /1@271	1	Right Cheek	518598	2592.99	26.83	-4.42	27.0	0.262	1.040	0.272
	NR n41 /1@271	1	Right Tilted	518598	2592.99	26.83	1.83	27.0	0.296	1.040	0.308
	NR n41 /1@271	1	Left Cheek	518598	2592.99	26.83	-1.19	27.0	0.352	1.040	0.366
	NR n41 /1@271	1	Left Tilted	518598	2592.99	26.83	-0.84	27.0	0.392	1.040	0.408
	NR n41 /137@67	1	Right Cheek	518598	2592.99	26.83	1.12	27.0	0.288	1.040	0.300
	NR n41 /137@67	1	Right Tilted	518598	2592.99	26.83	0.25	27.0	0.328	1.040	0.341
	NR n41 /137@67	1	Left Cheek	518598	2592.99	26.83	2.42	27.0	0.393	1.040	0.409
13	NR n41 /137@67	1	Left Tilted	518598	2592.99	26.83	-2.06	27.0	0.441	1.040	0.459
	NR n41 NSA /1@271	1	Right Cheek	518598	2592.99	20.03	0.18	20.5	0.047	1.114	0.052
	NR n41 NSA /1@271	1	Right Tilted	518598	2592.99	20.03	0.02	20.5	0.065	1.114	0.072
	NR n41 NSA /1@271	1	Left Cheek	518598	2592.99	20.03	1.09	20.5	0.081	1.114	0.090
	NR n41 NSA /1@271	1	Left Tilted	518598	2592.99	20.03	0.03	20.5	0.102	1.114	0.114
	NR n41 NSA /137@67	1	Right Cheek	518598	2592.99	20.12	0.26	20.5	0.052	1.091	0.057
	NR n41 NSA /137@67	1	Right Tilted	518598	2592.99	20.12	0.18	20.5	0.071	1.091	0.077
	NR n41 NSA /137@67	1	Left Cheek	518598	2592.99	20.12	1.28	20.5	0.089	1.091	0.097
	NR n41 NSA /137@67	1	Left Tilted	518598	2592.99	20.12	1.36	20.5	0.116	1.091	0.127
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n66(40MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n66 /1@1	4	Right Cheek	352000	1760	23.63	-1.53	24.0	0.377	1.089	0.411
	NR n66 /1@1	4	Right Tilted	352000	1760	23.63	1.65	24.0	0.196	1.089	0.213
14	NR n66 /1@1	4	Left Cheek	352000	1760	23.63	-1.21	24.0	0.567	1.089	0.617
	NR n66 /1@1	4	Left Tilted	352000	1760	23.63	-0.54	24.0	0.293	1.089	0.319
	NR n66 /50@25	4	Right Cheek	352000	1760	23.63	1.19	24.0	0.343	1.089	0.374
	NR n66 /50@25	4	Right Tilted	352000	1760	23.63	2.13	24.0	0.169	1.089	0.184
	NR n66 /50@25	4	Left Cheek	352000	1760	23.63	-1.80	24.0	0.503	1.089	0.548
	NR n66 /50@25	4	Left Tilted	352000	1760	23.63	0.34	24.0	0.268	1.089	0.292
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n71(20MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n71 /1@1	2	Right Cheek	136100	680.5	23.52	-2.05	24.0	0.104	1.117	0.116
	NR n71 /1@1	2	Right Tilted	136100	680.5	23.52	-0.56	24.0	0.059	1.117	0.066
	NR n71 /1@1	2	Left Cheek	136100	680.5	23.52	-0.41	24.0	0.085	1.117	0.095
	NR n71 /1@1	2	Left Tilted	136100	680.5	23.52	-0.12	24.0	0.053	1.117	0.059
15	NR n71 /25@12	2	Right Cheek	136100	680.5	23.45	-2.86	24.0	0.115	1.135	0.131
	NR n71 /25@12	2	Right Tilted	136100	680.5	23.45	1.25	24.0	0.066	1.135	0.075
	NR n71 /25@12	2	Left Cheek	136100	680.5	23.45	2.19	24.0	0.094	1.135	0.107
	NR n71 /25@12	2	Left Tilted	136100	680.5	23.45	0.18	24.0	0.060	1.135	0.068
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3450MHz~3550MHz) (100MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Right Cheek	633334	3500.01	27.24	1.09	27.5	0.144	1.062	0.153
16	NR n77 /1@1	7	Right Tilted	633334	3500.01	27.24	-0.46	27.5	0.258	1.062	0.274
	NR n77 /1@1	7	Left Cheek	633334	3500.01	27.24	-2.15	27.5	0.082	1.062	0.087
	NR n77 /1@1	7	Left Tilted	633334	3500.01	27.24	-1.18	27.5	0.156	1.062	0.166
	NR n77 /137@67	7	Right Cheek	633334	3500.01	27.13	0.89	27.5	0.136	1.089	0.148
	NR n77 /137@67	7	Right Tilted	633334	3500.01	27.13	-2.81	27.5	0.242	1.089	0.264
	NR n77 /137@67	7	Left Cheek	633334	3500.01	27.13	-1.09	27.5	0.072	1.089	0.078
	NR n77 /137@67	7	Left Tilted	633334	3500.01	27.13	-0.07	27.5	0.142	1.089	0.155
	NR n77 NSA /1@1	7	Right Cheek	633334	3500.01	21.22	0.02	21.5	0.063	1.067	0.067
	NR n77 NSA /1@1	7	Right Tilted	633334	3500.01	21.22	2.04	21.5	0.108	1.067	0.115
	NR n77 NSA /1@1	7	Left Cheek	633334	3500.01	21.22	0.17	21.5	0.042	1.067	0.045
	NR n77 NSA /1@1	7	Left Tilted	633334	3500.01	21.22	0.06	21.5	0.074	1.067	0.079
	NR n77 NSA /137@67	7	Right Cheek	633334	3500.01	21.13	0.18	21.5	0.068	1.089	0.074
	NR n77 NSA /137@67	7	Right Tilted	633334	3500.01	21.13	2.34	21.5	0.115	1.089	0.125
	NR n77 NSA /137@67	7	Left Cheek	633334	3500.01	21.13	0.11	21.5	0.044	1.089	0.048
	NR n77 NSA /137@67	7	Left Tilted	633334	3500.01	21.13	1.13	21.5	0.079	1.089	0.086
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3700MHz~3980MHz) (100MHz) DFT-BPSK Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Right Cheek	656000	3840	27.25	0.03	28.0	0.082	1.189	0.097
	NR n77 /1@1	7	Right Tilted	656000	3840	27.25	0.61	28.0	0.113	1.189	0.134
	NR n77 /1@1	7	Left Cheek	656000	3840	27.25	1.36	28.0	0.068	1.189	0.081
	NR n77 /1@1	7	Left Tilted	656000	3840	27.25	-0.19	28.0	0.062	1.189	0.074
	NR n77 /137@67	7	Right Cheek	656000	3840	27.40	1.06	28.0	0.103	1.148	0.118
17	NR n77 /137@67	7	Right Tilted	656000	3840	27.40	-0.56	28.0	0.150	1.148	0.172
	NR n77 /137@67	7	Left Cheek	656000	3840	27.40	2.36	28.0	0.075	1.148	0.086
	NR n77 /137@67	7	Left Tilted	656000	3840	27.40	-1.82	28.0	0.074	1.148	0.085
	NR n77 NSA /1@1	7	Right Cheek	656000	3840	21.31	0.15	21.5	0.071	1.045	0.074
	NR n77 NSA /1@1	7	Right Tilted	656000	3840	21.31	0.02	21.5	0.084	1.045	0.088
	NR n77 NSA /1@1	7	Left Cheek	656000	3840	21.31	1.09	21.5	0.037	1.045	0.039
	NR n77 NSA /1@1	7	Left Tilted	656000	3840	21.31	-0.14	21.5	0.036	1.045	0.038
	NR n77 NSA /137@67	7	Right Cheek	656000	3840	21.16	0.18	21.5	0.088	1.081	0.095
	NR n77 NSA /137@67	7	Right Tilted	656000	3840	21.16	0.02	21.5	0.065	1.081	0.070
	NR n77 NSA /137@67	7	Left Cheek	656000	3840	21.16	0.05	21.5	0.042	1.081	0.045
	NR n77 NSA /137@67	7	Left Tilted	656000	3840	21.16	-0.10	21.5	0.046	1.081	0.050
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WLAN 2.4 GHz Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	2.4GHz/802.11b	21	Right Cheek	6	2437	16.82	-0.33	17.0	0.128	1.042	1.00	0.133
18	2.4GHz/802.11b	21	Right Tilted	6	2437	16.82	0.83	17.0	0.190	1.042	1.00	0.198
	2.4GHz/802.11b	21	Left Cheek	6	2437	16.82	0.86	17.0	0.117	1.042	1.00	0.122
	2.4GHz/802.11b	21	Left Tilted	6	2437	16.82	0.55	17.0	0.174	1.042	1.00	0.181
	2.4GHz/802.11b	5	Right Cheek	6	2437	16.99	0.36	17.0	0.043	1.002	1.00	0.043
	2.4GHz/802.11b	5	Right Tilted	6	2437	16.99	-0.66	17.0	0.026	1.002	1.00	0.026
	2.4GHz/802.11b	5	Left Cheek	6	2437	16.99	-0.90	17.0	0.038	1.002	1.00	0.038
	2.4GHz/802.11b	5	Left Tilted	6	2437	16.99	-1.25	17.0	0.022	1.002	1.00	0.022
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.2 GHz Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.2GHz/802.11a	23	Right Cheek	36	5180	11.75	0.24	12.0	0.082	1.059	1.00	0.087
	5.2GHz/802.11a	23	Right Tilted	36	5180	11.75	0.70	12.0	0.104	1.059	1.00	0.110
	5.2GHz/802.11a	23	Left Cheek	36	5180	11.75	-0.78	12.0	0.109	1.059	1.00	0.115
19	5.2GHz/802.11a	23	Left Tilted	36	5180	11.75	-0.31	12.0	0.133	1.059	1.00	0.141
	5.2GHz/802.11a	24	Right Cheek	36	5180	13.28	0.81	13.5	0.073	1.052	1.00	0.077
	5.2GHz/802.11a	24	Right Tilted	36	5180	13.28	-0.75	13.5	0.098	1.052	1.00	0.103
	5.2GHz/802.11a	24	Left Cheek	36	5180	13.28	1.42	13.5	0.100	1.052	1.00	0.105
	5.2GHz/802.11a	24	Left Tilted	36	5180	13.28	2.55	13.5	0.127	1.052	1.00	0.134
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.8 GHz Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.8GHz/802.11a	23	Right Cheek	165	5825	11.76	0.41	12.0	0.074	1.057	1.00	0.078
	5.8GHz/802.11a	23	Right Tilted	165	5825	11.76	0.35	12.0	0.083	1.057	1.00	0.088
	5.8GHz/802.11a	23	Left Cheek	165	5825	11.76	0.27	12.0	0.088	1.057	1.00	0.093
	5.8GHz/802.11a	23	Left Tilted	165	5825	11.76	-0.01	12.0	0.094	1.057	1.00	0.099
	5.8GHz/802.11a	24	Right Cheek	157	5785	12.54	0.49	13.0	0.068	1.112	1.00	0.076
	5.8GHz/802.11a	24	Right Tilted	157	5785	12.54	-0.49	13.0	0.101	1.112	1.00	0.112
	5.8GHz/802.11a	24	Left Cheek	157	5785	12.54	-0.08	13.0	0.078	1.112	1.00	0.087
20	5.8GHz/802.11a	24	Left Tilted	157	5785	12.54	0.11	13.0	0.115	1.112	1.00	0.128
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ Bluetooth Head SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	BT/GFSK	21	Right Cheek	39	2441	7.77	-1.34	8.0	0.040	1.054	1.00	0.042
21	BT/GFSK	21	Right Tilted	39	2441	7.77	2.79	8.0	0.053	1.054	1.00	0.056
	BT/GFSK	21	Left Cheek	39	2441	7.77	-1.57	8.0	0.036	1.054	1.00	0.038
	BT/GFSK	21	Left Tilted	39	2441	7.77	-0.99	8.0	0.049	1.054	1.00	0.052
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

Note:

1. Per KDB 447498 D04v01, for each exposure position, if the highest output power channel Reported SAR ≤ 0.8 W/kg, other channels SAR testing is not necessary.
2. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg.
3. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
4. Per KDB 248227 D01v02r02, for 802.11b DSSS , when the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required in that exposure configuration.
5. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.

16.2 Standalone Body SAR

➤ GSM Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	GPRS850/4 slots	2	Front	251	848.8	29.59	1.61	30.0	0.074	1.099	0.081
22	GPRS850/4 slots	2	Back	251	848.8	29.59	-0.12	30.0	0.351	1.099	0.386
	GPRS1900/4 slots	4	Front	810	1909.8	26.33	0.73	26.5	0.125	1.040	0.130
23	GPRS1900/4 slots	4	Back	810	1909.8	26.33	-4.48	26.5	0.519	1.040	0.540
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WCDMA Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band II/RMC	4	Front	9538	1907.6	22.95	-0.90	23.0	0.191	1.012	0.193
24	Band II/RMC	4	Back	9538	1907.6	22.95	0.02	23.0	0.256	1.012	0.259
	Band IV/RMC	4	Front	1513	1752.6	25.08	0.69	25.5	0.225	1.102	0.248
25	Band IV/RMC	4	Back	1513	1752.6	25.08	-0.92	25.5	0.319	1.102	0.352
	Band V/RMC	2	Front	4233	846.6	24.65	-1.12	25.0	0.064	1.084	0.069
26	Band V/RMC	2	Back	4233	846.6	24.65	1.34	25.0	0.233	1.084	0.253
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 2(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band2/1RB#99	4	Front	18700	1860	23.92	1.36	24.0	0.126	1.019	0.128
27	Band2/1RB#99	4	Back	18700	1860	23.92	0.88	24.0	0.428	1.019	0.436
	Band2/50%RB#24	4	Front	19100	1900	22.88	-0.81	23.0	0.102	1.028	0.105
	Band2/50%RB#24	4	Back	19100	1900	22.88	0.94	23.0	0.403	1.028	0.414
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 5(10MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band5/1RB#49	2	Front	20450	829	24.37	0.38	24.5	0.068	1.030	0.070
28	Band5/1RB#49	2	Back	20450	829	24.37	-4.86	24.5	0.233	1.030	0.240
	Band5/50%RB#0	2	Front	20600	844	23.44	0.71	23.5	0.062	1.014	0.063
	Band5/50%RB#0	2	Back	20600	844	23.44	0.28	23.5	0.212	1.014	0.215
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 7(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band7/1RB#99	4	Front	21100	2535	24.18	1.64	24.5	0.263	1.076	0.283
29	Band7/1RB#99	4	Back	21100	2535	24.18	-0.39	24.5	0.586	1.076	0.631
	Band7/50%RB#24	4	Front	21350	2560	23.34	0.23	23.5	0.196	1.038	0.203
	Band7/50%RB#24	4	Back	21350	2560	23.34	1.19	23.5	0.541	1.038	0.562
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ TDD-LTE Band 41(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	Band41/1RB#49	1	Front	41490	2680	26.71	-1.71	27.0	0.066	1.069	1.008	0.071
30	Band41/1RB#49	1	Back	41490	2680	26.71	-0.79	27.0	0.286	1.069	1.008	0.308
	Band41/50%RB#0	1	Front	40620	2593	25.75	1.55	26.0	0.056	1.059	1.008	0.060
	Band41/50%RB#0	1	Back	40620	2593	25.75	0.68	26.0	0.220	1.059	1.008	0.235
	Band41/1RB#49	4	Front	40620	2593	19.74	1.57	20.0	0.032	1.062	1.008	0.034
	Band41/1RB#49	4	Back	40620	2593	19.74	-1.67	20.0	0.162	1.062	1.008	0.173
	Band41/50%RB#24	4	Front	40620	2593	19.80	-0.76	20.0	0.026	1.047	1.008	0.027
	Band41/50%RB#24	4	Back	40620	2593	19.80	-0.53	20.0	0.106	1.047	1.008	0.112
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ FDD-LTE Band 66(20MHz) QPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band66/1RB#99	4	Front	132072	1720	23.92	0.06	24.0	0.144	1.019	0.147
31	Band66/1RB#99	4	Back	132072	1720	23.92	-4.13	24.0	0.490	1.019	0.499
	Band66/50%RB#24	4	Front	132572	1770	22.76	1.64	23.0	0.126	1.057	0.133
	Band66/50%RB#24	4	Back	132572	1770	22.76	0.92	23.0	0.462	1.057	0.488
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n5(20MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n5 /1@49	2	Front	167800	839	25.03	1.33	25.5	0.072	1.114	0.080
	NR n5 /1@49	2	Back	167800	839	25.03	-0.05	25.5	0.227	1.114	0.253
	NR n5 /25@12	2	Front	166800	834	25.07	1.14	25.5	0.094	1.104	0.104
32	NR n5 /25@12	2	Back	166800	834	25.07	0.29	25.5	0.256	1.104	0.283
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n7(20MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n7 /1@49	4	Front	507000	2535	23.87	1.09	24.5	0.168	1.156	0.194
	NR n7 /1@49	4	Back	507000	2535	23.87	-1.68	24.5	0.503	1.156	0.581
	NR n7 /25@12	4	Front	512000	2560	23.96	0.12	24.5	0.186	1.132	0.211
33	NR n7 /25@12	4	Back	512000	2560	23.96	2.07	24.5	0.512	1.132	0.580
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n41(100MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n41 /1@271	1	Front	518598	2592.99	26.83	1.04	27.0	0.048	1.040	0.050
	NR n41 /1@271	1	Back	518598	2592.99	26.83	-2.00	27.0	0.172	1.040	0.179
	NR n41 /137@67	1	Front	518598	2592.99	26.83	2.02	27.0	0.056	1.040	0.058
34	NR n41 /137@67	1	Back	518598	2592.99	26.83	-0.51	27.0	0.189	1.040	0.197
	NR n41 NSA /1@271	1	Front	518598	2592.99	20.18	0.16	20.5	0.020	1.076	0.022
	NR n41 NSA /1@271	1	Back	518598	2592.99	20.18	2.38	20.5	0.054	1.076	0.058
	NR n41 NSA /137@67	1	Front	518598	2592.99	20.12	0.03	20.5	0.022	1.091	0.024
	NR n41 NSA /137@67	1	Back	518598	2592.99	20.12	1.16	20.5	0.060	1.091	0.065
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n66(40MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n66 /1@1	4	Front	352000	1760	23.63	0.12	24.0	0.186	1.089	0.203
35	NR n66 /1@1	4	Back	352000	1760	23.63	-3.06	24.0	0.397	1.089	0.432
	NR n66 /50@25	4	Front	352000	1760	23.63	0.02	24.0	0.152	1.089	0.166
	NR n66 /50@25	4	Back	352000	1760	23.63	0.14	24.0	0.322	1.089	0.351
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n71(20MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n71 /1@1	2	Front	136100	680.5	23.52	0.14	24.0	0.074	1.117	0.083
	NR n71 /1@1	2	Back	136100	680.5	23.52	-0.51	24.0	0.162	1.117	0.181
	NR n71 /25@12	2	Front	136100	680.5	23.45	0.03	24.0	0.088	1.135	0.100
36	NR n71 /25@12	2	Back	136100	680.5	23.45	2.19	24.0	0.192	1.135	0.218
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3450MHz~3550MHz) (100MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Front	633334	3500.01	27.24	0.04	27.5	0.068	1.062	0.072
	NR n77 /1@1	7	Back	633334	3500.01	27.24	-1.08	27.5	0.212	1.062	0.225
	NR n77 /137@67	7	Front	633334	3500.01	27.13	0.11	27.5	0.072	1.089	0.078
37	NR n77 /137@67	7	Back	633334	3500.01	27.13	-0.68	27.5	0.265	1.089	0.289
	NR n77 NSA /1@1	7	Front	633334	3500.01	20.23	0.05	20.5	0.043	1.064	0.046
	NR n77 NSA /1@1	7	Back	633334	3500.01	20.23	-0.09	20.5	0.101	1.064	0.107
	NR n77 NSA /137@67	7	Front	633334	3500.01	20.28	0.14	20.5	0.048	1.052	0.050
	NR n77 NSA /137@67	7	Back	633334	3500.01	20.28	0.08	20.5	0.105	1.052	0.110
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3700MHz~3980MHz)(100MHz) DFT-BPSK Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Front	656000	3840	27.25	0.08	28.0	0.048	1.189	0.057
	NR n77 /1@1	7	Back	656000	3840	27.25	2.83	28.0	0.108	1.189	0.128
	NR n77 /137@67	7	Front	656000	3840	27.40	-0.16	28.0	0.052	1.148	0.060
38	NR n77 /137@67	7	Back	656000	3840	27.40	-3.86	28.0	0.154	1.148	0.177
	NR n77 NSA /1@1	7	Front	656000	3840	20.24	0.16	20.5	0.034	1.062	0.036
	NR n77 NSA /1@1	7	Back	656000	3840	20.24	0.13	20.5	0.096	1.062	0.102
	NR n77 NSA /137@67	7	Front	656000	3840	20.33	-0.07	20.5	0.037	1.040	0.038
	NR n77 NSA /137@67	7	Back	656000	3840	20.33	-0.14	20.5	0.099	1.040	0.103
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WLAN 2.4GHz Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	2.4GHz/802.11b	21	Front	6	2437	16.82	-0.65	17.0	0.018	1.042	1.00	0.019
39	2.4GHz/802.11b	21	Back	6	2437	16.82	4.28	17.0	0.045	1.042	1.00	0.047
	2.4GHz/802.11b	5	Front	6	2437	16.99	1.07	17.0	0.016	1.002	1.00	0.016
	2.4GHz/802.11b	5	Back	6	2437	16.99	0.52	17.0	0.044	1.002	1.00	0.044
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.2GHz Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.2GHz/802.11a	23	Front	36	5180	11.75	0.74	12.0	0.022	1.059	1.00	0.023
	5.2GHz/802.11a	23	Back	36	5180	11.75	-1.35	12.0	0.068	1.059	1.00	0.072
	5.2GHz/802.11a	24	Front	36	5180	13.28	0.55	13.5	0.033	1.052	1.00	0.035
40	5.2GHz/802.11a	24	Back	36	5180	13.28	0.54	13.5	0.082	1.052	1.00	0.086
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.8GHz Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.8GHz/802.11a	23	Front	165	5825	11.76	1.62	12.0	0.027	1.057	1.00	0.029
	5.8GHz/802.11a	23	Back	165	5825	11.76	0.87	12.0	0.067	1.057	1.00	0.071
	5.8GHz/802.11a	24	Front	157	5785	12.54	0.75	13.0	0.036	1.112	1.00	0.040
41	5.8GHz/802.11a	24	Back	157	5785	12.54	-2.74	13.0	0.084	1.112	1.00	0.093
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ Bluetooth Body SAR

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	BT/GFSK	21	Front	39	2441	7.77	-1.31	8.0	0.008	1.054	1.00	0.008
42	BT/GFSK	21	Back	39	2441	7.77	-0.87	8.0	0.018	1.054	1.00	0.019
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

Note:

- Body-worn SAR testing was performed at 10mm separation, and this distance is determined by the handset manufacturer that there will be body-worn accessories that users may acquire at the time of equipment certification, to enable users to purchase aftermarket body-worn accessories with the required minimum separation.
- Per KDB 941225 D06v02r01, when the same wireless modes and device transmission configurations are required for testing body-worn accessories and hotspot mode, it is not necessary to test body-worn accessory SAR for the same device orientation if the test separation distance for hotspot mode is more conservative than that used for body-worn accessories.
- Per KDB 648474 D04v01r03, when the Reported SAR for a body-worn accessory measured without a headset connected to the handset is ≤ 1.2 W/kg, SAR testing with a headset connected to the handset is not required.
- The WLAN SAR perform the front and back position, due considered the simultaneous SAR for body-worn.
- Per KDB 447498 D04v01, for each exposure position, if the highest output channel Reported SAR ≤ 0.8 W/kg, other channels SAR testing is not necessary.
- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg.
- Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg.
- According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.

16.3 Body SAR in Hotspot Mode

➤ GSM Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	GPRS850/4 slots	2	Front	251	848.8	29.59	1.61	30.0	0.074	1.099	0.081
22	GPRS850/4 slots	2	Back	251	848.8	29.59	-0.12	30.0	0.351	1.099	0.386
	GPRS850/4 slots	2	Right	251	848.8	29.59	3.67	30.0	0.275	1.099	0.302
	GPRS850/4 slots	2	Bottom	251	848.8	29.59	1.87	30.0	0.322	1.099	0.354
	GPRS1900/4 slots	4	Front	810	1909.8	26.33	0.73	26.5	0.125	1.040	0.130
23	GPRS1900/4 slots	4	Back	810	1909.8	26.33	-4.48	26.5	0.519	1.040	0.540
	GPRS1900/4 slots	4	Right	810	1909.8	26.33	0.64	26.5	0.406	1.040	0.422
	GPRS1900/4 slots	4	Top	810	1909.8	26.33	1.61	26.5	0.144	1.040	0.150
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WCDMA Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band II/RMC	4	Front	9538	1907.6	22.95	-0.90	23.0	0.191	1.012	0.193
24	Band II/RMC	4	Back	9538	1907.6	22.95	0.02	23.0	0.256	1.012	0.259
	Band II/RMC	4	Right	9538	1907.6	22.95	-3.94	23.0	0.233	1.012	0.236
	Band II/RMC	4	Top	9538	1907.6	22.95	-0.89	23.0	0.099	1.012	0.100
	Band IV/RMC	4	Front	1513	1752.6	25.08	0.69	25.5	0.225	1.102	0.248
25	Band IV/RMC	4	Back	1513	1752.6	25.08	-0.92	25.5	0.319	1.102	0.352
	Band IV/RMC	4	Right	1513	1752.6	25.08	-0.36	25.5	0.153	1.102	0.169
	Band IV/RMC	4	Top	1513	1752.6	25.08	1.09	25.5	0.085	1.102	0.094
	Band V/RMC	2	Front	4233	846.6	24.65	-1.12	25.0	0.064	1.084	0.069
26	Band V/RMC	2	Back	4233	846.6	24.65	1.34	25.0	0.233	1.084	0.253
	Band V/RMC	2	Right	4233	846.6	24.65	-0.57	25.0	0.182	1.084	0.197
	Band V/RMC	2	Bottom	4233	846.6	24.65	-0.50	25.0	0.219	1.084	0.237
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 2(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band2/1RB#99	4	Front	18700	1860	23.92	1.36	24.0	0.126	1.019	0.128
	Band2/1RB#99	4	Back	18700	1860	23.92	0.88	24.0	0.428	1.019	0.436
43	Band2/1RB#99	4	Right	18700	1860	23.92	1.43	24.0	0.579	1.019	0.590
	Band2/1RB#99	4	Top	18700	1860	23.92	-0.48	24.0	0.127	1.019	0.129
	Band2/50%RB#24	4	Front	19100	1900	22.88	-0.81	23.0	0.102	1.028	0.105
	Band2/50%RB#24	4	Back	19100	1900	22.88	0.94	23.0	0.403	1.028	0.414
	Band2/50%RB#24	4	Right	19100	1900	22.88	-0.46	23.0	0.542	1.028	0.557
	Band2/50%RB#24	4	Top	19100	1900	22.88	-1.54	23.0	0.116	1.028	0.119
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 5(10MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band5/1RB#49	2	Front	20450	829	24.37	0.38	24.5	0.068	1.030	0.070
28	Band5/1RB#49	2	Back	20450	829	24.37	-4.86	24.5	0.233	1.030	0.240
	Band5/1RB#49	2	Right	20450	829	24.37	0.72	24.5	0.220	1.030	0.227
	Band5/1RB#49	2	Bottom	20450	829	24.37	1.37	24.5	0.197	1.030	0.203
	Band5/50%RB#0	2	Front	20600	844	23.44	0.71	23.5	0.062	1.014	0.063
	Band5/50%RB#0	2	Back	20600	844	23.44	0.28	23.5	0.212	1.014	0.215
	Band5/50%RB#0	2	Right	20600	844	23.44	0.03	23.5	0.203	1.014	0.206
	Band5/50%RB#0	2	Bottom	20600	844	23.44	0.78	23.5	0.182	1.014	0.185
ANSI / IEEE C95.1 – SAFETY LIMIT						1.6 W/kg (mW/g)					
Spatial Peak						Averaged over 1g					
Uncontrolled Exposure/General Population											

➤ FDD-LTE Band 7(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band7/1RB#99	4	Front	21100	2535	24.18	1.64	24.5	0.263	1.076	0.283
29	Band7/1RB#99	4	Back	21100	2535	24.18	-0.39	24.5	0.586	1.076	0.631
	Band7/1RB#99	4	Right	21100	2535	24.18	0.78	24.5	0.452	1.076	0.486
	Band7/1RB#99	4	Top	21100	2535	24.18	-1.15	24.5	0.088	1.076	0.095
	Band7/50%RB#24	4	Front	21350	2560	23.34	0.23	23.5	0.196	1.038	0.203
	Band7/50%RB#24	4	Back	21350	2560	23.34	1.19	23.5	0.541	1.038	0.562
	Band7/50%RB#24	4	Right	21350	2560	23.34	-0.21	23.5	0.422	1.038	0.438
	Band7/50%RB#24	4	Top	21350	2560	23.34	0.85	23.5	0.085	1.038	0.088
ANSI / IEEE C95.1 – SAFETY LIMIT						1.6 W/kg (mW/g)					
Spatial Peak						Averaged over 1g					
Uncontrolled Exposure/General Population											

➤ TDD-LTE Band 41(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	Band41/1RB#49	1	Front	41490	2680	26.71	-1.71	27.0	0.066	1.069	1.008	0.071
30	Band41/1RB#49	1	Back	41490	2680	26.71	-0.79	27.0	0.286	1.069	1.008	0.308
	Band41/1RB#49	1	Left	41490	2680	26.71	-0.76	27.0	0.072	1.069	1.008	0.078
	Band41/1RB#49	1	Top	41490	2680	26.71	0.14	27.0	0.096	1.069	1.008	0.103
	Band41/50%RB#0	1	Front	40620	2593	25.75	1.55	26.0	0.056	1.059	1.008	0.060
	Band41/50%RB#0	1	Back	40620	2593	25.75	0.68	26.0	0.220	1.059	1.008	0.235
	Band41/50%RB#0	1	Left	40620	2593	25.75	0.31	26.0	0.065	1.059	1.008	0.069
	Band41/50%RB#0	1	Top	40620	2593	25.75	-1.95	26.0	0.088	1.059	1.008	0.094
	Band41/1RB#49	4	Front	40620	2593	19.74	1.57	20.0	0.032	1.062	1.008	0.034
	Band41/1RB#49	4	Back	40620	2593	19.74	-1.67	20.0	0.162	1.062	1.008	0.173
	Band41/1RB#49	4	Right	40620	2593	19.74	-0.33	20.0	0.119	1.062	1.008	0.127
	Band41/1RB#49	4	Top	40620	2593	19.74	0.53	20.0	0.039	1.062	1.008	0.042
	Band41/50%RB#24	4	Front	40620	2593	19.80	-0.76	20.0	0.026	1.047	1.008	0.027
	Band41/50%RB#24	4	Back	40620	2593	19.80	-0.53	20.0	0.106	1.047	1.008	0.112
	Band41/50%RB#24	4	Right	40620	2593	19.80	1.51	20.0	0.095	1.047	1.008	0.100
	Band41/50%RB#24	4	Top	40620	2593	19.80	-0.25	20.0	0.020	1.047	1.008	0.021
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ FDD-LTE Band 66(20MHz) QPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band66/1RB#99	4	Front	132072	1720	23.92	0.06	24.0	0.144	1.019	0.147
	Band66/1RB#99	4	Back	132072	1720	23.92	-4.13	24.0	0.490	1.019	0.499
44	Band66/1RB#99	4	Right	132072	1720	23.92	2.00	24.0	0.595	1.019	0.606
	Band66/1RB#99	4	Top	132072	1720	23.92	0.01	24.0	0.156	1.019	0.159
	Band66/50%RB#24	4	Front	132572	1770	22.76	1.64	23.0	0.126	1.057	0.133
	Band66/50%RB#24	4	Back	132572	1770	22.76	0.92	23.0	0.462	1.057	0.488
	Band66/50%RB#24	4	Right	132572	1770	22.76	0.78	23.0	0.548	1.057	0.579
	Band66/50%RB#24	4	Top	132572	1770	22.76	1.81	23.0	0.139	1.057	0.147
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n5(20MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n5 /1@49	2	Front	167800	839	25.03	1.33	25.5	0.072	1.114	0.080
	NR n5 /1@49	2	Back	167800	839	25.03	-0.05	25.5	0.227	1.114	0.253
	NR n5 /1@49	2	Right	167800	839	25.03	4.46	25.5	0.205	1.114	0.228
	NR n5 /1@49	2	Bottom	167800	839	25.03	0.13	25.5	0.182	1.114	0.203
	NR n5 /25@12	2	Front	166800	834	25.07	1.14	25.5	0.094	1.104	0.104
32	NR n5 /25@12	2	Back	166800	834	25.07	0.29	25.5	0.256	1.104	0.283
	NR n5 /25@12	2	Right	166800	834	25.07	0.17	25.5	0.222	1.104	0.245
	NR n5 /25@12	2	Bottom	166800	834	25.07	2.06	25.5	0.198	1.104	0.219
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n7(20MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n7 /1@49	4	Front	507000	2535	23.87	1.09	24.5	0.168	1.156	0.194
	NR n7 /1@49	4	Back	507000	2535	23.87	-1.68	24.5	0.503	1.156	0.581
	NR n7 /1@49	4	Right	507000	2535	23.87	-1.18	24.5	0.633	1.156	0.732
	NR n7 /1@49	4	Top	507000	2535	23.87	0.13	24.5	0.219	1.156	0.253
	NR n7 /25@12	4	Front	512000	2560	23.96	0.12	24.5	0.186	1.132	0.211
	NR n7 /25@12	4	Back	512000	2560	23.96	2.07	24.5	0.512	1.132	0.580
45	NR n7 /25@12	4	Right	512000	2560	23.96	2.52	24.5	0.648	1.132	0.734
	NR n7 /25@12	4	Top	512000	2560	23.96	3.15	24.5	0.242	1.132	0.274
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n41(100MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n41 /1@271	1	Front	518598	2592.99	26.83	1.04	27.0	0.048	1.040	0.050
	NR n41 /1@271	1	Back	518598	2592.99	26.83	-2.00	27.0	0.172	1.040	0.179
	NR n41 /1@271	1	Left	518598	2592.99	26.83	0.27	27.0	0.068	1.040	0.071
	NR n41 /1@271	1	Top	518598	2592.99	26.83	2.15	27.0	0.072	1.040	0.075
	NR n41 /137@67	1	Front	518598	2592.99	26.83	2.02	27.0	0.056	1.040	0.058
34	NR n41 /137@67	1	Back	518598	2592.99	26.83	-0.51	27.0	0.189	1.040	0.197
	NR n41 /137@67	1	Left	518598	2592.99	26.83	0.08	27.0	0.078	1.040	0.081
	NR n41 /137@67	1	Top	518598	2592.99	26.83	1.13	27.0	0.086	1.040	0.089
	NR n41 NSA /1@271	1	Front	518598	2592.99	20.18	0.16	20.5	0.020	1.076	0.022
	NR n41 NSA /1@271	1	Back	518598	2592.99	20.18	2.38	20.5	0.054	1.076	0.058
	NR n41 NSA /1@271	1	Left	518598	2592.99	20.18	0.36	20.5	0.030	1.076	0.032
	NR n41 NSA /1@271	1	Top	518598	2592.99	20.18	0.09	20.5	0.078	1.076	0.084
	NR n41 NSA /137@67	1	Front	518598	2592.99	20.12	0.03	20.5	0.022	1.091	0.024
	NR n41 NSA /137@67	1	Back	518598	2592.99	20.12	1.16	20.5	0.060	1.091	0.065
	NR n41 NSA /137@67	1	Left	518598	2592.99	20.12	0.26	20.5	0.034	1.091	0.037
	NR n41 NSA /137@67	1	Top	518598	2592.99	20.12	3.25	20.5	0.082	1.091	0.089
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n66(40MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n66 /1@1	4	Front	352000	1760	23.63	0.12	24.0	0.186	1.089	0.203
	NR n66 /1@1	4	Back	352000	1760	23.63	-3.06	24.0	0.397	1.089	0.432
46	NR n66 /1@1	4	Right	352000	1760	23.63	-0.12	24.0	0.734	1.089	0.799
	NR n66 /1@1	4	Top	352000	1760	23.63	0.06	24.0	0.268	1.089	0.292
	NR n66 /50@25	4	Front	352000	1760	23.63	0.02	24.0	0.152	1.089	0.166
	NR n66 /50@25	4	Back	352000	1760	23.63	0.14	24.0	0.322	1.089	0.351
	NR n66 /50@25	4	Right	352000	1760	23.63	-0.06	24.0	0.657	1.089	0.715
	NR n66 /50@25	4	Top	352000	1760	23.63	1.01	24.0	0.198	1.089	0.216
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n71(20MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n71 /1@1	2	Front	136100	680.5	23.52	0.14	24.0	0.074	1.117	0.083
	NR n71 /1@1	2	Back	136100	680.5	23.52	-0.51	24.0	0.162	1.117	0.181
	NR n71 /1@1	2	Right	136100	680.5	23.52	-0.02	24.0	0.313	1.117	0.350
	NR n71 /1@1	2	Bottom	136100	680.5	23.52	2.03	24.0	0.226	1.117	0.252
	NR n71 /25@12	2	Front	136100	680.5	23.45	0.03	24.0	0.088	1.135	0.100
	NR n71 /25@12	2	Back	136100	680.5	23.45	2.19	24.0	0.192	1.135	0.218
47	NR n71 /25@12	2	Right	136100	680.5	23.45	-3.22	24.0	0.338	1.135	0.384
	NR n71 /25@12	2	Bottom	136100	680.5	23.45	2.02	24.0	0.292	1.135	0.331
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3450MHz~3550MHz) (100MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Front	633334	3500.01	27.24	0.04	27.5	0.068	1.062	0.072
	NR n77 /1@1	7	Back	633334	3500.01	27.24	-1.08	27.5	0.212	1.062	0.225
	NR n77 /1@1	7	Right	633334	3500.01	27.24	1.14	27.5	0.052	1.062	0.055
	NR n77 /1@1	7	Top	633334	3500.01	27.24	3.22	27.5	0.102	1.062	0.108
	NR n77 /137@67	7	Front	633334	3500.01	27.13	0.11	27.5	0.072	1.089	0.078
37	NR n77 /137@67	7	Back	633334	3500.01	27.13	-0.68	27.5	0.265	1.089	0.289
	NR n77 /137@67	7	Left	633334	3500.01	27.13	2.04	27.5	0.054	1.089	0.059
	NR n77 /137@67	7	Top	633334	3500.01	27.13	0.18	27.5	0.106	1.089	0.115
	NR n77 NSA /1@1	7	Front	633334	3500.01	20.23	0.05	20.5	0.043	1.064	0.046
	NR n77 NSA /1@1	7	Back	633334	3500.01	20.23	-0.09	20.5	0.101	1.064	0.107
	NR n77 NSA /1@1	7	Right	633334	3500.01	20.23	1.01	20.5	0.038	1.064	0.040
	NR n77 NSA /1@1	7	Top	633334	3500.01	20.23	1.03	20.5	0.124	1.064	0.132
	NR n77 NSA /137@67	7	Front	633334	3500.01	20.28	0.14	20.5	0.048	1.052	0.050
	NR n77 NSA /137@67	7	Back	633334	3500.01	20.28	0.08	20.5	0.105	1.052	0.110
	NR n77 NSA /137@67	7	Left	633334	3500.01	20.28	2.16	20.5	0.040	1.052	0.042
	NR n77 NSA /137@67	7	Top	633334	3500.01	20.28	-0.13	20.5	0.129	1.052	0.136
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3700MHz~3980MHz)(100MHz) DFT-BPSK Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n77 /1@1	7	Front	656000	3840	27.25	0.08	28.0	0.048	1.189	0.057
	NR n77 /1@1	7	Back	656000	3840	27.25	2.83	28.0	0.108	1.189	0.128
	NR n77 /1@1	7	Left	656000	3840	27.25	0.13	28.0	0.032	1.189	0.038
	NR n77 /1@1	7	Top	656000	3840	27.25	2.01	28.0	0.068	1.189	0.081
	NR n77 /137@67	7	Front	656000	3840	27.40	-0.16	28.0	0.052	1.148	0.060
38	NR n77 /137@67	7	Back	656000	3840	27.40	-3.86	28.0	0.154	1.148	0.177
	NR n77 /137@67	7	Left	656000	3840	27.40	4.22	28.0	0.042	1.148	0.048
	NR n77 /137@67	7	Top	656000	3840	27.40	1.25	28.0	0.081	1.148	0.093
	NR n77 NSA /1@1	7	Front	656000	3840	20.24	0.16	20.5	0.034	1.062	0.036
	NR n77 NSA /1@1	7	Back	656000	3840	20.24	0.13	20.5	0.096	1.062	0.102
	NR n77 NSA /1@1	7	Left	656000	3840	20.24	-1.13	20.5	0.032	1.062	0.034
	NR n77 NSA /1@1	7	Top	656000	3840	20.24	-0.07	20.5	0.116	1.062	0.123
	NR n77 NSA /137@67	7	Front	656000	3840	20.33	-0.07	20.5	0.037	1.040	0.038
	NR n77 NSA /137@67	7	Back	656000	3840	20.33	-0.14	20.5	0.099	1.040	0.103
	NR n77 NSA /137@67	7	Left	656000	3840	20.33	0.04	20.5	0.036	1.040	0.037
	NR n77 NSA /137@67	7	Top	656000	3840	20.33	2.15	20.5	0.118	1.040	0.123
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WLAN 2.4GHz Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	2.4GHz/802.11b	21	Front	6	2437	16.82	-0.65	17.0	0.018	1.042	1.00	0.019
	2.4GHz/802.11b	21	Back	6	2437	16.82	4.28	17.0	0.045	1.042	1.00	0.047
	2.4GHz/802.11b	21	Right	6	2437	16.82	1.77	17.0	0.026	1.042	1.00	0.027
48	2.4GHz/802.11b	21	Top	6	2437	16.82	0.87	17.0	0.050	1.042	1.00	0.052
	2.4GHz/802.11b	5	Front	6	2437	16.99	1.07	17.0	0.016	1.002	1.00	0.016
	2.4GHz/802.11b	5	Back	6	2437	16.99	0.52	17.0	0.044	1.002	1.00	0.044
	2.4GHz/802.11b	5	Right	6	2437	16.99	-0.30	17.0	0.049	1.002	1.00	0.049
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.2GHz Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.2GHz/802.11a	23	Front	36	5180	11.75	0.74	12.0	0.022	1.059	1.00	0.023
	5.2GHz/802.11a	23	Back	36	5180	11.75	-1.35	12.0	0.068	1.059	1.00	0.072
	5.2GHz/802.11a	23	Right	36	5180	11.75	0.38	12.0	0.029	1.059	1.00	0.031
	5.2GHz/802.11a	23	Top	36	5180	11.75	-4.09	12.0	0.042	1.059	1.00	0.044
	5.2GHz/802.11a	24	Front	36	5180	13.28	0.55	13.5	0.033	1.052	1.00	0.035
40	5.2GHz/802.11a	24	Back	36	5180	13.28	0.54	13.5	0.082	1.052	1.00	0.086
	5.2GHz/802.11a	24	Right	36	5180	13.28	0.59	13.5	0.048	1.052	1.00	0.050
	5.2GHz/802.11a	24	Top	36	5180	13.28	-1.66	13.5	0.062	1.052	1.00	0.065
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.8GHz Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.8GHz/802.11a	23	Front	165	5825	11.76	1.62	12.0	0.027	1.057	1.00	0.029
	5.8GHz/802.11a	23	Back	165	5825	11.76	0.87	12.0	0.067	1.057	1.00	0.071
	5.8GHz/802.11a	23	Right	165	5825	11.76	-1.86	12.0	0.032	1.057	1.00	0.034
	5.8GHz/802.11a	23	Top	165	5825	11.76	1.61	12.0	0.044	1.057	1.00	0.047
	5.8GHz/802.11a	24	Front	157	5785	12.54	0.75	13.0	0.036	1.112	1.00	0.040
41	5.8GHz/802.11a	24	Back	157	5785	12.54	-2.74	13.0	0.084	1.112	1.00	0.093
	5.8GHz/802.11a	24	Right	157	5785	12.54	-1.94	13.0	0.042	1.112	1.00	0.047
	5.8GHz/802.11a	24	Top	157	5785	12.54	-0.57	13.0	0.058	1.112	1.00	0.064
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ Bluetooth Body SAR in Hotspot mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	BT/GFSK	21	Front	39	2441	7.77	-1.31	8.0	0.008	1.054	1.00	0.008
	BT/GFSK	21	Back	39	2441	7.77	-0.87	8.0	0.018	1.054	1.00	0.019
	BT/GFSK	21	Right	39	2441	7.77	0.26	8.0	0.010	1.054	1.00	0.011
49	BT/GFSK	21	Top	39	2441	7.77	-0.35	8.0	0.023	1.054	1.00	0.024
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

Note:

1. Per KDB 447498 D04v01, for each exposure position, if the highest output channel Reported SAR ≤ 0.8 W/kg, other channels SAR testing is not necessary.
2. Additional WLAN SAR testing was performed for simultaneous transmission analysis.
3. For Hotspot SAR testing, per KDB 941225 D06v02r01, for EUT dimension ≥ 9 cm*5cm, the test distance is 10mm. SAR must be measured for all surfaces and sides with a transmitting antenna located within 2.5cm from that surface or edge.
4. Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA output power is < 0.25 dB higher than RMC 12.2kbps, or Reported SAR with RMC 12.2kbps setting is ≤ 1.2 W/kg, HSDPA SAR evaluation can be excluded.
5. Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥ 0.8 W/kg.
6. Per KDB 648474 D04v01r03, when the Reported SAR for a body-worn accessory measured without a headset connected to the handset is > 1.2 W/kg, SAR testing with a headset connected to the handset is required.
7. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel.
8. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
9. Highlight part of test data means repeated test.

16.4 Body SAR in Tablet Mode

➤ GSM Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	GPRS850/4 slots	2	Back	251	848.8	29.59	0.94	30.0	0.883	1.099	0.970
	GPRS850/4 slots	2	Right	251	848.8	29.59	-0.49	30.0	0.976	1.099	1.073
	GPRS850/4 slots	2	Bottom	251	848.8	29.59	0.36	30.0	1.023	1.099	1.124
	GPRS850/4 slots	2	Back	128	824.2	29.55	1.75	30.0	0.851	1.109	0.944
	GPRS850/4 slots	2	Back	190	836.6	29.56	-1.06	30.0	0.893	1.107	0.989
	GPRS850/4 slots	2	Right	128	824.2	29.55	1.04	30.0	0.974	1.109	1.080
	GPRS850/4 slots	2	Right	190	836.6	29.56	0.59	30.0	0.987	1.107	1.093
	GPRS850/4 slots	2	Bottom	128	824.2	29.55	-1.91	30.0	1.008	1.109	1.118
50	GPRS850/4 slots	2	Bottom	190	836.6	29.56	-0.26	30.0	1.080	1.107	1.196
	GPRS850/4 slots	2	Bottom	190	836.6	29.59	-2.55	30.0	1.022	1.099	1.123
51	GPRS1900/4 slots	4	Back	810	1909.8	26.33	4.84	26.5	1.024	1.040	1.065
	GPRS1900/4 slots	4	Right	810	1909.8	26.33	0.32	26.5	0.727	1.040	0.756
	GPRS1900/4 slots	4	Top	810	1909.8	26.33	0.62	26.5	0.322	1.040	0.335
	GPRS1900/4 slots	4	Back	512	1850.2	26.26	-0.44	26.5	0.822	1.057	0.869
	GPRS1900/4 slots	4	Back	661	1880	26.27	-2.58	26.5	0.916	1.054	0.965
	GPRS1900/4 slots	4	Back	810	1909.8	26.33	2.57	26.5	0.998	1.040	1.038
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WCDMA Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
52	Band II/RMC	4	Back	9538	1907.6	22.95	-0.10	23.0	0.477	1.012	0.483
	Band II/RMC	4	Right	9538	1907.6	22.95	-0.33	23.0	0.268	1.012	0.271
	Band II/RMC	4	Top	9538	1907.6	22.95	-0.65	23.0	0.127	1.012	0.129
53	Band IV/RMC	4	Back	1513	1752.6	25.08	-4.11	25.5	0.469	1.102	0.517
	Band IV/RMC	4	Right	1513	1752.6	25.08	-0.87	25.5	0.240	1.102	0.264
	Band IV/RMC	4	Top	1513	1752.6	25.08	0.66	25.5	0.107	1.102	0.118
	Band V/RMC	2	Back	4233	846.6	24.65	-0.14	25.0	0.605	1.084	0.656
	Band V/RMC	2	Right	4233	846.6	24.65	-1.02	25.0	0.476	1.084	0.516
54	Band V/RMC	2	Bottom	4233	846.6	24.65	-4.32	25.0	0.809	1.084	0.877
	Band V/RMC	2	Bottom	4132	826.4	24.45	1.68	25.0	0.752	1.135	0.854
	Band V/RMC	2	Bottom	4183	836.6	24.62	-0.21	25.0	0.776	1.091	0.847
	Band V/RMC	2	Bottom	4233	846.6	24.65	-4.32	25.0	0.801	1.084	0.868
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 2(20MHz) QPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band2/1RB#99	4	Back	18700	1860	23.92	2.23	24.0	0.599	1.019	0.610
55	Band2/1RB#99	4	Right	18700	1860	23.92	-0.10	24.0	0.863	1.019	0.879
	Band2/1RB#99	4	Top	18700	1860	23.92	-0.07	24.0	0.209	1.019	0.213
	Band2/50%RB#24	4	Back	19100	1900	22.88	0.93	23.0	0.482	1.028	0.495
	Band2/50%RB#24	4	Right	19100	1900	22.88	1.52	23.0	0.750	1.028	0.771
	Band2/50%RB#24	4	Top	19100	1900	22.88	-1.17	23.0	0.144	1.028	0.148
	Band2/100%RB#0	4	Right	19100	1900	22.85	-0.10	23.0	0.686	1.035	0.710
	Band2/1RB#0	4	Right	18900	1880	23.74	-0.10	24.0	0.805	1.062	0.855
	Band2/1RB#99	4	Right	19100	1900	23.77	-0.10	24.0	0.817	1.054	0.861
	Band2/1RB#99	4	Right	18700	1860	23.93	-0.10	24.0	0.850	1.016	0.864
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 5(10MHz) QPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band5/1RB#49	2	Back	20450	829	24.37	-0.74	24.5	0.610	1.030	0.628
56	Band5/1RB#49	2	Right	20450	829	24.37	-4.97	24.5	0.792	1.030	0.816
	Band5/1RB#49	2	Bottom	20450	829	24.37	-3.15	24.5	0.688	1.030	0.709
	Band5/50%RB#0	2	Back	20600	844	23.44	0.48	23.5	0.549	1.014	0.557
	Band5/50%RB#0	2	Right	20600	844	23.44	1.02	23.5	0.656	1.014	0.665
	Band5/50%RB#0	2	Bottom	20600	844	23.44	0.52	23.5	0.623	1.014	0.632
	Band5/100%RB#0	2	Right	20600	844	23.41	-4.97	23.5	0.605	1.021	0.618
	Band5/1RB#24	2	Right	20525	836.5	24.34	1.15	24.5	0.758	1.038	0.787
	Band5/1RB#24	2	Right	20600	844	24.37	2.22	24.5	0.776	1.030	0.799
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ FDD-LTE Band 7(20MHz) QPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
57	Band7/1RB#99	4	Back	21100	2535	24.18	0.97	24.5	0.849	1.076	0.914
	Band7/1RB#99	4	Right	21100	2535	24.18	-0.61	24.5	0.708	1.076	0.762
	Band7/1RB#99	4	Top	21100	2535	24.18	2.14	24.5	0.130	1.076	0.140
	Band7/50%RB#0	4	Back	21350	2560	23.34	1.02	23.5	0.589	1.038	0.611
	Band7/50%RB#0	4	Right	21350	2560	23.34	1.66	23.5	0.564	1.038	0.585
	Band7/50%RB#0	4	Top	21350	2560	23.34	0.94	23.5	0.103	1.038	0.107
	Band7/100%RB#0	4	Back	21350	2560	23.26	0.22	23.5	0.522	1.057	0.552
	Band7/1RB#99	4	Back	20850	2510	24.17	2.14	24.5	0.805	1.079	0.869
	Band7/1RB#99	4	Back	21350	2560	24.10	0.85	24.5	0.768	1.096	0.842
	Band7/1RB#99	4	Back	21100	2535	24.18	-1.44	24.5	0.831	1.076	0.894
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ TDD-LTE Band 41(20MHz) QPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	Band41/1RB#49	1	Back	41490	2680	26.71	-2.17	27.0	0.901	1.069	1.008	0.971
58	Band41/1RB#49	1	Top	41490	2680	26.71	0.38	27.0	1.056	1.069	1.008	1.138
	Band41/50%RB#0	1	Back	40620	2593	25.75	-2.17	26.0	0.665	1.059	1.008	0.710
	Band41/50%RB#0	1	Top	40620	2593	25.75	0.38	26.0	0.731	1.059	1.008	0.780
	Band41/100%RB#0	1	Back	41490	2680	25.75	-0.74	26.0	0.652	1.059	1.008	0.696
	Band41/100%RB#0	1	Top	41490	2680	25.75	1.46	26.0	0.701	1.059	1.008	0.748
	Band41/1RB#0	1	Back	39750	2506	26.64	-1.30	27.0	0.881	1.086	1.008	0.964
	Band41/1RB#0	1	Back	40185	2549.5	26.65	0.43	27.0	0.856	1.084	1.008	0.935
	Band41/1RB#49	1	Back	40620	2593	26.64	1.59	27.0	0.755	1.086	1.008	0.826
	Band41/1RB#0	1	Back	41055	2636.5	26.63	1.19	27.0	0.864	1.089	1.008	0.948
	Band41/1RB#0	1	Top	39750	2506	26.64	0.79	27.0	0.891	1.086	1.008	0.975
	Band41/1RB#0	1	Top	40185	2549.5	26.65	-0.92	27.0	0.861	1.084	1.008	0.941
	Band41/1RB#49	1	Top	40620	2593	26.64	-0.60	27.0	0.764	1.086	1.008	0.836
	Band41/1RB#0	1	Top	41055	2636.5	26.63	-1.68	27.0	0.786	1.089	1.008	0.863
	Band41/1RB#49	1	Top	41490	2680	26.71	1.15	27.0	1.020	1.069	1.008	1.099
	Band41/1RB#49	4	Back	40620	2593	19.74	-3.64	20.0	0.647	1.062	1.008	0.693
	Band41/1RB#49	4	Right	40620	2593	19.74	1.97	20.0	0.765	1.062	1.008	0.819
	Band41/1RB#49	4	Top	40620	2593	19.74	0.38	20.0	0.147	1.062	1.008	0.157
	Band41/50%RB#24	4	Back	40620	2593	19.80	-0.53	20.0	0.586	1.047	1.008	0.618
	Band41/50%RB#24	4	Right	40620	2593	19.80	1.33	20.0	0.611	1.047	1.008	0.645
	Band41/50%RB#24	4	Top	40620	2593	19.80	-0.61	20.0	0.125	1.047	1.008	0.132
	Band41/100%RB#0	4	Right	40620	2593	19.72	1.89	20.0	0.570	1.067	1.008	0.613
	Band41/1RB#99	4	Right	39750	2506	19.68	-1.77	20.0	0.741	1.076	1.008	0.804
	Band41/1RB#99	4	Right	40185	2549.5	19.70	1.22	20.0	0.733	1.072	1.008	0.792
	Band41/1RB#99	4	Right	41055	2636.5	19.70	1.48	20.0	0.728	1.072	1.008	0.787
	Band41/1RB#99	4	Right	41490	2680	19.70	1.03	20.0	0.716	1.072	1.008	0.774
ANSI / IEEE C95.1 – SAFETY LIMIT						1.6 W/kg (mW/g)						
Spatial Peak						Averaged over 1g						
Uncontrolled Exposure/General Population												

➤ FDD-LTE Band 66(20MHz) QPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	Band66/1RB#0	4	Back	132072	1720	23.92	0.95	24.0	0.753	1.019	0.767
59	Band66/1RB#0	4	Right	132072	1720	23.92	-4.22	24.0	0.912	1.019	0.929
	Band66/1RB#0	4	Top	132072	1720	23.92	-0.17	24.0	0.256	1.019	0.261
	Band66/50%RB#24	4	Back	132572	1770	22.76	0.03	23.0	0.445	1.057	0.470
	Band66/50%RB#24	4	Right	132572	1770	22.76	1.16	23.0	0.695	1.057	0.735
	Band66/50%RB#24	4	Top	132572	1770	22.76	1.72	23.0	0.132	1.057	0.140
	Band66/100%RB#0	4	Right	132072	1720	22.67	0.89	23.0	0.621	1.079	0.670
	Band66/1RB#0	4	Right	132322	1745	23.70	3.24	23.0	0.879	0.851	0.748
	Band66/1RB#0	4	Right	132572	1770	23.53	2.54	23.0	0.855	0.885	0.757
	Band66/1RB#0	4	Right	132072	1720	23.92	0.61	24.0	0.903	1.019	0.920
ANSI / IEEE C95.1 – SAFETY LIMIT						1.6 W/kg (mW/g) Averaged over 1g					
Spatial Peak											
Uncontrolled Exposure/General Population											

➤ NR n5(20MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n5 /1@49	2	Back	167800	839	25.03	0.02	25.5	0.523	1.114	0.583
	NR n5 /1@49	2	Right	167800	839	25.03	1.11	25.5	0.741	1.114	0.825
	NR n5 /1@49	2	Bottom	167800	839	25.03	0.12	25.5	0.682	1.114	0.760
	NR n5 /25@12	2	Back	166800	834	25.07	0.69	25.5	0.712	1.104	0.786
60	NR n5 /25@12	2	Right	166800	834	25.07	0.89	25.5	0.932	1.104	1.029
	NR n5 /25@12	2	Bottom	166800	834	25.07	0.17	25.5	0.834	1.104	0.921
	NR n5 /25@12	2	Right	167300	836.5	25.04	0.38	25.5	0.866	1.112	0.963
	NR n5 /25@12	2	Right	167800	839	25.04	2.42	25.5	0.842	1.112	0.936
	NR n5 /25@12	2	Bottom	167300	836.5	25.04	-0.41	25.5	0.782	1.112	0.870
	NR n5 /25@12	2	Bottom	167800	839	25.04	2.36	25.5	0.763	1.112	0.848
	NR n5 /25@12	2	Right	166800	834	25.07	0.89	25.5	0.911	1.104	1.006
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n7(20MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n7 /1@49	4	Back	507000	2535	23.87	2.36	24.5	0.711	1.156	0.822
	NR n7 /1@49	4	Right	507000	2535	23.87	1.28	24.5	0.812	1.156	0.939
	NR n7 /1@49	4	Top	507000	2535	23.87	-0.17	24.5	0.233	1.156	0.269
	NR n7 /25@12	4	Back	512000	2560	23.96	0.34	24.5	0.856	1.132	0.969
61	NR n7 /25@12	4	Right	512000	2560	23.96	1.56	24.5	0.968	1.132	1.096
	NR n7 /25@12	4	Top	512000	2560	23.96	3.83	24.5	0.379	1.132	0.429
	NR n7 /1@49	4	Right	502000	2510	23.85	-1.13	24.5	0.774	1.161	0.899
	NR n7 /1@49	4	Right	512000	2560	23.82	-0.11	24.5	0.703	1.169	0.822
	NR n7 /25@12	4	Back	502000	2510	23.83	0.85	24.5	0.844	1.167	0.985
	NR n7 /25@12	4	Back	507000	2535	23.83	-1.58	24.5	0.806	1.167	0.941
	NR n7 /25@12	4	Right	502000	2510	23.83	-0.79	24.5	0.930	1.167	1.085
	NR n7 /25@12	4	Right	507000	2535	23.83	-0.12	24.5	0.912	1.167	1.064
	NR n7 /25@12	4	Right	512000	2560	23.96	0.10	24.5	0.957	1.132	1.083
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n41(100MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n41 /1@1	1	Back	518598	2592.99	26.83	-0.58	27.0	0.553	1.040	0.575
62	NR n41 /1@1	1	Top	518598	2592.99	26.83	0.11	27.0	0.838	1.040	0.872
	NR n41 /137@67	1	Back	519000	2595	26.83	1.58	27.0	0.624	1.040	0.649
	NR n41 /137@67	1	Top	519000	2595	26.83	3.07	27.0	0.814	1.040	0.847
	NR n41 /137@67	1	Top	528000	2640	26.81	2.14	27.0	0.758	1.045	0.792
	NR n41 /137@67	1	Top	518598	2592.99	26.56	1.32	27.0	0.783	1.107	0.867
	NR n41 /1@271	1	Top	509202	2546.01	26.69	0.57	27.0	0.805	1.074	0.865
	NR n41 /1@1	1	Top	528000	2640	26.64	-1.11	27.0	0.787	1.086	0.855
	NR n41 /1@1	1	Top	518598	2592.99	26.83	0.23	27.0	0.829	1.040	0.862
	NR n41 NSA /1@1	1	Back	518598	2592.99	20.18	2.01	20.5	0.297	1.076	0.320
	NR n41 NSA /1@1	1	Top	518598	2592.99	20.18	3.25	20.5	0.312	1.076	0.336
	NR n41 NSA /137@67	1	Back	518598	2592.99	20.12	0.58	20.5	0.303	1.091	0.331
	NR n41 NSA /137@67	1	Top	518598	2592.99	20.12	-1.25	20.5	0.377	1.091	0.411
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n66(40MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
	NR n66 /1@1	4	Back	352000	1760	23.63	1.12	24.0	0.684	1.089	0.745
63	NR n66 /1@1	4	Right	352000	1760	23.63	3.13	24.0	1.033	1.089	1.125
	NR n66 /1@1	4	Top	352000	1760	23.63	0.07	24.0	0.473	1.089	0.515
	NR n66 /50@25	4	Back	352000	1760	23.63	1.69	24.0	0.549	1.089	0.598
	NR n66 /50@25	4	Right	352000	1760	23.63	0.28	24.0	0.811	1.089	0.883
	NR n66 /50@25	4	Top	352000	1760	23.63	-0.14	24.0	0.351	1.089	0.382
	NR n66/1@104	4	Right	346000	1730	23.57	1.09	24.0	0.923	1.104	1.019
	NR n66/1@104	4	Right	349000	1745	23.62	-0.56	24.0	0.881	1.091	0.961
	NR n66 /50@25	4	Right	346000	1730	23.45	-2.01	24.0	0.756	1.135	0.858
	NR n66 /50@25	4	Right	349000	1745	23.58	1.05	24.0	0.712	1.102	0.785
	NR n66 /1@1	4	Right	352000	1760	23.63	3.13	24.0	1.021	1.089	1.112
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n71(20MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
64	NR n71 /1@1	2	Back	136100	680.5	23.52	0.18	24.0	0.824	1.117	0.920
	NR n71 /1@1	2	Right	136100	680.5	23.52	2.19	24.0	0.708	1.117	0.791
	NR n71 /1@1	2	Bottom	136100	680.5	23.52	1.02	24.0	0.384	1.117	0.429
	NR n71 /25@12	2	Back	136100	680.5	23.45	-2.64	24.0	0.625	1.135	0.709
	NR n71 /25@12	2	Right	136100	680.5	23.45	3.25	24.0	0.506	1.135	0.574
	NR n71 /25@12	2	Bottom	136100	680.5	23.45	0.17	24.0	0.411	1.135	0.466
	NR n71 /1@1	2	Back	134600	673	23.44	2.14	24.0	0.758	1.138	0.863
	NR n71 /1@1	2	Back	137600	688	23.39	2.22	24.0	0.794	1.151	0.914
	NR n71 /1@1	2	Back	136100	680.5	23.52	1.11	24.0	0.805	1.117	0.899
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3450MHz~3550MHz) (100MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
65	NR n77 /1@1	7	Back	633334	3500.01	27.24	0.13	27.5	0.764	1.062	0.811
	NR n77 /1@1	7	Right	633334	3500.01	27.24	2.14	27.5	0.112	1.062	0.119
	NR n77 /1@1	7	Top	633334	3500.01	27.24	3.13	27.5	0.622	1.062	0.661
	NR n77 /137@67	7	Back	633334	3500.01	27.13	-0.26	27.5	0.711	1.089	0.774
	NR n77 /137@67	7	Right	633334	3500.01	27.13	0.15	27.5	0.097	1.089	0.106
	NR n77 /137@67	7	Top	633334	3500.01	27.13	2.28	27.5	0.603	1.089	0.657
	NR n77 NSA /1@1	7	Back	633334	3500.01	20.23	1.38	20.5	0.286	1.064	0.304
	NR n77 NSA /1@1	7	Right	633334	3500.01	20.23	1.25	20.5	0.043	1.064	0.046
	NR n77 NSA /1@1	7	Top	633334	3500.01	20.23	0.69	20.5	0.289	1.064	0.307
	NR n77 NSA /137@67	7	Back	633334	3500.01	20.28	2.32	20.5	0.311	1.052	0.328
	NR n77 NSA /1@1	7	Right	633334	3500.01	20.28	0.24	20.5	0.037	1.052	0.039
	NR n77 NSA /137@67	7	Top	633334	3500.01	20.28	-0.58	20.5	0.275	1.052	0.289
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ NR n77(3700MHz~3980MHz)(100MHz) DFT-BPSK Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	Reported SAR _{1g} (W/kg)
66	NR n77 /1@1	7	Back	656000	3840	27.25	0.17	28.0	0.541	1.189	0.643
	NR n77 /1@1	7	Right	656000	3840	27.25	0.25	28.0	0.089	1.189	0.106
	NR n77 /1@1	7	Top	656000	3840	27.25	0.18	28.0	0.503	1.189	0.598
	NR n77 /137@67	7	Back	656000	3840	27.40	-1.22	28.0	0.513	1.148	0.589
	NR n77 /137@67	7	Right	656000	3840	27.40	1.12	28.0	0.075	1.148	0.086
	NR n77 /137@67	7	Top	656000	3840	27.40	0.18	28.0	0.468	1.148	0.537
	NR n77 NSA /1@1	7	Back	656000	3840	20.24	1.65	20.5	0.259	1.062	0.275
	NR n77 NSA /1@1	7	Right	656000	3840	20.24	2.55	20.5	0.031	1.062	0.033
	NR n77 NSA /1@1	7	Top	656000	3840	20.24	2.15	20.5	0.222	1.062	0.236
	NR n77 NSA /137@67	7	Back	656000	3840	20.33	0.65	20.5	0.315	1.040	0.328
	NR n77 NSA /137@67	7	Right	656000	3840	20.33	-1.15	20.5	0.024	1.040	0.025
	NR n77 NSA /137@67	7	Top	656000	3840	20.33	1.36	20.5	0.245	1.040	0.255
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g					

➤ WLAN 2.4GHz Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	2.4GHz/802.11b	21	Back	6	2437	16.82	1.93	17.0	0.145	1.042	1.00	0.151
	2.4GHz/802.11b	21	Right	6	2437	16.82	-1.58	17.0	0.096	1.042	1.00	0.100
67	2.4GHz/802.11b	21	Top	6	2437	16.82	0.40	17.0	0.344	1.042	1.00	0.358
	2.4GHz/802.11b	5	Back	6	2437	16.99	-2.16	17.0	0.136	1.002	1.00	0.136
	2.4GHz/802.11b	5	Right	6	2437	16.99	1.01	17.0	0.166	1.002	1.00	0.166
	2.4GHz/802.11b	5	Bottom	6	2437	16.99	1.47	17.0	0.046	1.002	1.00	0.046
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.2GHz Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.2GHz/802.11a	23	Back	36	5180	11.75	0.29	12.0	0.095	1.059	1.00	0.101
	5.2GHz/802.11a	23	Right	36	5180	11.75	1.55	12.0	0.027	1.059	1.00	0.029
	5.2GHz/802.11a	23	Top	36	5180	11.75	1.64	12.0	0.046	1.059	1.00	0.049
68	5.2GHz/802.11a	24	Back	36	5180	13.28	0.55	13.5	0.126	1.052	1.00	0.133
	5.2GHz/802.11a	24	Right	36	5180	13.28	1.23	13.5	0.052	1.052	1.00	0.055
	5.2GHz/802.11a	24	Top	36	5180	13.28	0.47	13.5	0.034	1.052	1.00	0.036
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ WLAN 5.8GHz Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
	5.8GHz/802.11a	23	Back	165	5825	11.76	-4.55	12.0	0.088	1.057	1.00	0.093
	5.8GHz/802.11a	23	Right	165	5825	11.76	0.39	12.0	0.026	1.057	1.00	0.027
	5.8GHz/802.11a	23	Top	165	5825	11.76	1.24	12.0	0.042	1.057	1.00	0.044
69	5.8GHz/802.11a	24	Back	157	5785	12.54	-0.21	13.0	0.113	1.112	1.00	0.126
	5.8GHz/802.11a	24	Right	157	5785	12.54	1.15	13.0	0.039	1.112	1.00	0.043
	5.8GHz/802.11a	24	Top	157	5785	12.54	1.67	13.0	0.026	1.112	1.00	0.029
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

➤ Bluetooth Body SAR in Tablet mode

Plot No.	Band/Mode	ANT	Test Position	CH.	Freq. (MHz)	Ave. Power (dBm)	Power Drift (dB)	Tune-Up Limit (dBm)	Meas. SAR _{1g} (W/kg)	Scaling Factor	D.C Factor	Reported SAR _{1g} (W/kg)
70	BT/GFSK	21	Back	39	2441	7.77	-0.91	8.0	0.070	1.054	1.00	0.074
	BT/GFSK	21	Right	39	2441	7.77	0.43	8.0	0.024	1.054	1.00	0.025
	BT/GFSK	21	Top	39	2441	7.77	0.08	8.0	0.042	1.054	1.00	0.044
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1g						

Note:

- Per KDB 447498 D04v01, for each exposure position, if the highest output channel Reported SAR ≤0.8W/kg, other channels SAR testing is not necessary.
- Additional WLAN SAR testing was performed for simultaneous transmission analysis.
- Per KDB 941225 D01v03r01, RMC 12.2kbps setting is used to evaluate SAR. If HSDPA output power is < 0.25dB higher than RMC 12.2kbps, or Reported SAR with RMC 12.2kbps setting is ≤ 1.2W/kg, HSDPA SAR evaluation can be excluded.
- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required when the measured SAR is ≥0.8W/kg.
- Per KDB 648474 D04v01r03, when the Reported SAR for a body-worn accessory measured without a headset connected to the handset is > 1.2 W/kg, SAR testing with a headset connected to the handset is required.

15. Per KDB 941225 D05v02r05, 100% RB allocation SAR measurement is not required when the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel.
16. According to KDB 865664 D02v01r02, SAR plot is required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.
17. Per KDB 248227 D01v02r02, OFDM SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg. Cuz the maximum output power specified for OFDM and DSSS are 50.12mW(17.0dBm) and 50.12mW(17.0dBm), the scaled SAR would be $0.358 \times (50.12/50.12) = 0.358$ W/Kg < 1.2 W/kg, therefore, SAR is not required for OFDM.
18. Highlight part of test data means repeated test.

16.5 Repeated SAR measurement

Band/ Mode	Test Position	CH.	Freq. (MHz)	Measured SAR (W/kg)				
				Original	1 st Repeated		2 nd Repeated	
					Value	Ratio	Value	Ratio
GPRS850/4 slots	Tablet Bottom	190	836.6	1.08	1.022	1.06	/	/
GPRS1900/4 slots	Tablet Back	810	1909.8	1.024	0.998	1.03	/	/
Band V/RMC	Tablet Bottom	4233	846.6	0.809	0.801	1.01	/	/
Band2/1RB#99	Tablet Right	18700	1860	0.863	0.850	1.02	/	/
Band7/1RB#99	Tablet Back	21100	2535	0.849	0.831	1.02	/	/
Band41/1RB#49	Tablet Top	41490	2680	1.056	1.020	1.04	/	/
Band66/1RB#0	Tablet Right	132072	1720	0.912	0.903	1.01	/	/
NR n5 /25@12	Tablet Right	166800	834	0.932	0.911	1.02	/	/
NR n7 /25@12	Tablet Right	512000	2560	0.968	0.957	1.01	/	/
NR n41 /1@1	Tablet Top	518598	2592.99	0.838	0.829	1.01	/	/
NR n66 /1@1	Tablet Right	352000	1760	1.033	1.021	1.01	/	/
NR n71 /1@1	Tablet Back	136100	680.5	0.824	0.805	1.02	/	/
ANSI / IEEE C95.1 – SAFETY LIMIT Spatial Peak Uncontrolled Exposure/General Population				1.6 W/kg (mW/g) Averaged over 1g				

Note:

- Per KDB 865664 D01v01r04, for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥ 0.8 W/kg
- Per KDB 865664 D01v01r04, if the ratio of *original* and *repeated* is ≤ 1.2 and the measured SAR < 1.45 W/kg, only one repeated measurement is required.

16.6 Multi-Band Simultaneous Transmission Considerations

➤ Simultaneous Transmission Capabilities

According to FCC KDB Publication 447498 D04v01, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown in below Figure and are color-coded to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

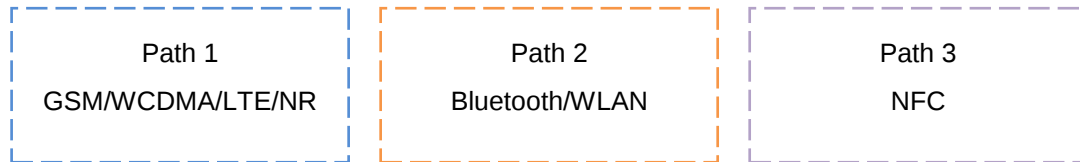


Fig.15.1 Simultaneous Transmission Paths

➤ Simultaneous Transmission Procedures

This device contains transmitters that may operate simultaneously. Therefore simultaneous transmission analysis is required. Per FCC KDB 447498 D04v01, simultaneous transmission SAR test exclusion may be applied when the sum of the 1-g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤ 1.6 W/kg. When standalone SAR is not required to be measured, per FCC KDB 447498 D04v01 Appendix E, E.1), the following equation must be used to estimate the standalone 1g SAR for simultaneous transmission assessment involving that transmitter.

$$SAR_{est} = 1.6 \cdot P_{ant} / P_{th} \text{ [W/kg]}.$$

Mode	Max. Power (dBm)	Max. Power (mW)	Exposure Position	Head	Body	Hotspot
NFC	-38.5	0.00014	Estimated SAR (W/kg)	0.000	0.000	0.000

Note:

1. Per KDB 447498 D04v01 section 2.1.2: 1-mW Test Exemption, $P_{th}=1\text{mW}$.

➤ Multi-Band simultaneous Transmission Consideration

Simultaneous Transmission Consideration	Position	Applicable Combination
	Head	WWAN (Data) + 2.4G WIFI MIMO/5G WIFI MIMO +NFC
		WWAN (Data) + WLAN 2.4 GHz+ Bluetooth + NFC
		WWAN (Data) + Bluetooth + 5G WIFI MIMO +NFC
	Body	WWAN (Data) + 2.4G WIFI MIMO/5G WIFI MIMO +NFC
		WWAN (Data) + WLAN 2.4 GHz+ Bluetooth + NFC
		WWAN (Data) + Bluetooth + 5G WIFI MIMO +NFC
	Hotspot	WWAN (Data) + 2.4G WIFI MIMO/5G WIFI MIMO +NFC
		WWAN (Data) + WLAN 2.4 GHz+ Bluetooth + NFC
		WWAN (Data) + Bluetooth + 5G WIFI MIMO +NFC
	Tablet	WWAN (Data) + 2.4G WIFI MIMO/5G WIFI MIMO +NFC
		WWAN (Data) + WLAN 2.4 GHz+ Bluetooth + NFC
		WWAN (Data) + Bluetooth + 5G WIFI MIMO +NFC

Note:

1. GSM/WCDMA/LTE cannot transmit simultaneously.
2. 2.4GHz WIFI MIMO and 5GHz WIFI MIMO cannot transmit simultaneously.
3. 2.4GHz WIFI and BT cannot transmit simultaneously.
4. Per KDB 447498 D04v01 section 2.1.2: 1-mW Test Exemption, SAR simultaneous transmission consideration for NFC is not required.
5. The Report SAR summation is calculated based on the same configuration and test position.
6. Per KDB 447498 D04v01, simultaneous transmission SAR is compliant if,
 - i. Scalar SAR summation < 1.6 W/kg.
 - ii. $SPLSR = (SAR_1 + SAR_2)^{1.5} / (min. \text{ separation distance, mm})$, and the peak separation distance is determined from the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the zoom scan. If $SPLSR \leq 0.04$, simultaneously transmission SAR measurement is not necessary.
 - iii. Simultaneously transmission SAR measurement, and the Reported multi-band SAR < 1.6 W/kg

16.7 SAR Simultaneous Transmission Analysis

➤ Simultaneous Transmission

Position		Standalone SAR _{1g} (W/kg)					Σ SAR _{1g} (W/kg)
		LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 41 (ANT 4)	NR n41(n38) NSA	Max EN-DC
Head	Right Cheek	0.225	0.095	0.506	0.240	0.057	0.562
	Right Tilted	0.254	0.042	0.278	0.195	0.077	0.355
	Left Cheek	0.355	0.142	0.558	0.167	0.097	0.656
	Left Tilted	0.403	0.071	0.371	0.116	0.127	0.529
Body- worn	Front	0.128	0.070	0.283	0.034	0.024	0.307
	Back	0.436	0.240	0.631	0.173	0.065	0.696
Hotspot	Front	0.128	0.070	0.283	0.034	0.024	0.307
	Back	0.436	0.240	0.631	0.173	0.065	0.696
	Left	/	/	/	/	0.037	0.037
	Right	0.590	0.227	0.486	0.127	/	0.590
	Top	0.129	/	0.095	0.042	0.089	0.218
	Bottom	/	0.203	/	/	/	0.203
Tablet	Back	0.610	0.628	0.914	0.693	0.331	1.245
	Left	/	/	/	/	/	/
	Right	0.879	0.816	0.762	0.819	/	0.879
	Top	0.213	/	0.140	0.157	0.411	0.624
	Bottom	/	0.709	/	/	/	0.709

Position		Standalone SAR _{1g} (W/kg)						Σ SAR _{1g} (W/kg)
		LTE Band 2	LTE Band 5	LTE Band 7	LTE Band 41 (ANT 4)	LTE Band 66	NR n77(n78) NSA	Max EN-DC
Head	Right Cheek	0.225	0.095	0.506	0.240	0.490	0.074	0.580
	Right Tilted	0.254	0.042	0.278	0.195	0.264	0.125	0.403
	Left Cheek	0.355	0.142	0.558	0.167	0.529	0.048	0.606
	Left Tilted	0.403	0.071	0.371	0.116	0.292	0.086	0.489
Body- worn	Front	0.128	0.070	0.283	0.034	0.147	0.050	0.333
	Back	0.436	0.240	0.631	0.173	0.499	0.110	0.741
Hotspot	Front	0.128	0.070	0.283	0.034	0.147	0.050	0.333
	Back	0.436	0.240	0.631	0.173	0.499	0.110	0.741
	Left	/	/	/	/	/	0.042	0.042
	Right	0.590	0.227	0.486	0.127	0.606	/	0.606
	Top	0.129	/	0.095	0.042	0.159	0.136	0.295
	Bottom	/	0.203	/	/	/	/	0.203
Tablet	Back	0.610	0.628	0.914	0.693	0.767	0.328	1.242
	Left	0.000						0.000
	Right	0.879	0.816	0.762	0.819	0.929		0.929
	Top	0.213		0.140	0.157	0.261	0.307	0.568
	Bottom	0.000	0.709					0.709

Position		Max Standalone SAR _{1g} (W/kg)						Σ SAR _{1g} (W/kg)		
		1	2	3	4	5	6	1+2+3+6	1+2+5+6	1+4+5+6
		MAX WWAN	2.4G ANT 5	2.4G ANT 21	5G MIMO	BT	NFC			
Head	Right Cheek	0.580	0.043	0.133	0.164	0.042	0.00	0.756	0.665	0.785
	Right Tilted	0.751	0.026	0.198	0.213	0.056	0.00	0.975	0.833	1.020
	Left Cheek	0.656	0.038	0.122	0.221	0.038	0.00	0.816	0.732	0.914
	Left Tilted	0.617	0.022	0.181	0.274	0.052	0.00	0.821	0.691	0.943
Body-worn	Front	0.333	0.016	0.019	0.069	0.008	0.00	0.368	0.358	0.411
	Back	0.741	0.044	0.047	0.164	0.019	0.00	0.832	0.804	0.924
Hotspot	Front	0.333	0.016	0.019	0.069	0.008	0.00	0.368	0.358	0.411
	Back	0.741	0.044	0.047	0.164	0.019	0.00	0.832	0.804	0.924
	Left	0.081	/	/	0.024	/	0.00	0.081	0.081	0.105
	Right	0.799	0.050	0.027	0.070	0.011	0.00	0.877	0.860	0.880
	Top	0.295	/	0.052	0.111	0.024	0.00	0.347	0.319	0.430
	Bottom	0.354	0.023	/	/	/	0.00	0.377	0.377	0.354
Tablet	Back	1.245	0.187	0.151	0.234	0.074	0.00	1.583	1.506	1.553
	Left	/	/	/	/	/	0.00	0.000	0.000	0.000
	Right	1.125	0.115	0.100	0.138	0.025	0.00	1.340	1.265	1.288
	Top	1.138	/	0.358	0.121	0.051	0.00	1.496	1.189	1.310
	Bottom	1.196	/	/	/	/	0.00	1.196	1.196	1.196

➤ Simultaneous Transmission Conclusion

The above numerical summed SAR results for all the case simultaneous transmission conditions were below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D04v01.

16.8 Measurement Uncertainty

Per KDB865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

16.9 Measurement Conclusion

The SAR evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested. Please note that the absorption and distribution of electromagnetic energy in the body are very complex phenomena that depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

17 Reference

- [1]. FCC 47 CFR Part 2 “Frequency Allocations and Radio Treaty Matters; General Rules and Regulations”
- [2]. ANSI/IEEE Std. C95.1-1992, “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”, September 1992
- [3]. IEEE Std. 1528-2013, “Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques”, September 2013
- [4]. SPEAG DASY52 System Handbook
- [5]. FCC KDB 248227 D01 v02r02, “SAR GUIDANCE FOR IEEE 802.11 (Wi-Fi) TRANSMITTERS”, October 2015
- [6]. FCC KDB 447498 D04 v01, “RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES”, November 2021
- [7]. FCC KDB 648474 D04 v01r03, “SAR EVALUATION CONSIDERATIONS FOR WIRELESS HANDSETS”, October 2015
- [8]. FCC KDB 616217 D04 v01r02, “SAR EVALUATION CONSIDERATIONS FOR LAPTOP, NOTEBOOK, NETBOOK AND TABLET COMPUTERS”, October 2015
- [9]. FCC KDB 941225 D01 v03r01, “3G SAR MEASUREMENT PROCEDURES”, October 2015
- [10]. FCC KDB 941225 D05 v02r05, “SAR EVALUATION CONSIDERATIONS FOR LTE DEVICES”, Dec 2015
- [11]. FCC KDB 941225 D06 v02r01, “SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES”, October 2015
- [12]. FCC KDB 865664 D01 v01r04, “SAR MEASUREMENT REQUIREMENTS FOR 100 MHz TO 6 GHz”, August 2015