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SAR TEST REPORT

Applicant Name: **SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea	**Date of Issue:** 11. 08, 2019 **Test Report No.:** HCT-SR-1911-FC001-R1 **Test Site: HCT CO., LTD.**

FCC ID: **A3LSMG770F**

Equipment Type:	**Mobile Phone**
Application Type	**Certification**
FCC Rule Part(s):	**CFR §2.1093**
Model Name:	**SM-G770F/DS**
Additional Model Name:	**SM-G770F/DSM, SM-G770F**
Date of Test:	**09/10/2019 ~ 10/29/2019**

This device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment/general population exposure limits specified in FCC KDB procedures and had been tested in accordance with the measurement procedures specified in FCC KDB procedures.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Tested By

Bong-kyun Park
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-jeang, Heo
Technical Manager
SAR Team
Certification Division

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	11. 03, 2019	Initial Release
1	11. 08, 2019	Revised Typo page 43,105,117,122,131 Revised page 20, sec.3.2,11.4.1,11.4.2,11.3.4

CONTENTS

1. Test Regulations

The tests documented in this report were performed in accordance with FCC CFR § 2.1093, IEEE 1528-2013, ANSI C63.26-2015 the following FCC Published RF exposure KDB procedures:

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 616217 D04 v01r02 (Proximity Sensor)
- FCC KDB Publication 865664 D01 SAR measurement 100 ㎒ to 6 ㎓ v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02

In Addition to the above, the following information was used.

- October 2013 TCB Workshop Notes (GPRS testing criteria)
- October 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE DL CA SAR Test Exclusion)
- April 2019 TCBC Workshop Notes (Dynamic Antenna tuning)

2. Test Location

2.1 Test Laboratory

Company Name	HCT Co., Ltd.
Address	74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Telephone	031-645-6300
Fax.	031-645-6401

2.2 Test Facilities

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Korea	National Radio Research Agency (Designation No. KR0032)
	KOLAS (Tesing No. KT197)

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-G770F/DS
Additional Model Name	SM-G770F/DSM, SM-G770F
Equipment Type	Mobile Phone
FCC ID	A3LSMG770F
Application Type	Certification
Applicant	SAMSUNG Electronics Co., Ltd.

3.2 Attestation of test result of device under test

The Highest Reported SAR (W/Kg)						
Band	Tx. Frequency	Equipment Class	Reported SAR (W/kg)			
			1g Head	1g Body-Worn	1g Hotspot	10g Extremity
GSM/GPRS/EDGE 850	824.2 ㎒ ~ 848.8 ㎒	PCE	0.12	0.17	0.65	N/A
GSM/GPRS/EDGE 1900	1 850.2 ㎒ ~ 1 909.8 ㎒	PCE	<0.10	0.20	0.79	N/A
UMTS 850	826.4 ㎒ ~ 846.6 ㎒	PCE	<0.10	0.19	0.39	N/A
UMTS 1700	1 712.4 ㎒ ~ 1 752.6 ㎒	PCE	0.15	0.93	0.61	2.26
UMTS 1900	1 852.4 ㎒ ~ 1 907.6 ㎒	PCE	0.12	0.51	0.84	1.37
LTE Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒	PCE	0.15	0.86	1.07	2.61
LTE Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 12	699.7 ㎒ ~ 715.3 ㎒	PCE	0.10	<0.10	<0.10	N/A
LTE Band 13	779.5 ㎒ ~ 784.5 ㎒	PCE	0.13	0.20	0.34	N/A
LTE Band 17	706.5 ㎒ ~ 713.5 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 26	814.7 ㎒ ~ 848.3 ㎒	PCE	0.15	0.26	0.54	N/A
LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒	PCE	<0.10	0.55	0.61	1.34
LTE Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒	PCE	0.14	0.75	0.91	N/A
802.11b	2 412 ㎒ ~ 2 472 ㎒	DTS	0.69	0.13	0.39	N/A
U-NII-1	5 180 ㎒ ~ 5 240 ㎒	NII	N/A	N/A	N/A	N/A
U-NII-2A	5 260 ㎒ ~ 5 320 ㎒	NII	0.19	0.40	N/A	**1.90**
U-NII-2C	5 500 ㎒ ~ 5 720 ㎒	NII	0.23	0.30	N/A	1.54
U-NII-3	5 745 ㎒ ~ 5 825 ㎒	NII	0.31	0.43	0.56	N/A
Bluetooth	2 402 ㎒ ~ 2 480 ㎒	DSS	0.49	<0.10	0.13	N/A
Simultaneous SAR per KDB 690783 D01v01r03			1.064	1.358	1.577	3.861
Date(s) of Tests:	09/10/2019 ~ 10/29/2019					

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	**Operating Mode**	**Tx Frequency**
GSM850	Voice / Data	824.2 ㎒ ~ 848.8 ㎒
GSM1900	Voice / Data	1 850.2 ㎒ ~ 1 909.8 ㎒
UMTS 850	Voice / Data	826.4 ㎒ ~ 846.6 ㎒
UMTS 1700	Voice / Data	1 712.4 ㎒ ~ 1 752.6 ㎒
UMTS 1900	Voice / Data	1 852.4 ㎒ ~ 1 907.6 ㎒
LTE Band 2 (PCS)	Voice / Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE Band 4 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE Band 5 (Cell)	Voice / Data	824.7 ㎒ ~ 848.3 ㎒
LTE Band 12	Voice / Data	699.7 ㎒ ~ 715.3 ㎒
LTE Band 13	Voice / Data	779.5 ㎒ ~ 784.5 ㎒
LTE Band 17	Voice / Data	706.5 ㎒ ~ 713.5 ㎒
LTE Band 26 (Cell)	Voice / Data	814.7 ㎒ ~ 848.3 ㎒
LTE TDD Band 41	Voice / Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE Band 66 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 779.3 ㎒
U-NII-1	Voice / Data	5 180 ㎒ ~ 5 240 ㎒
U-NII-2A	Voice / Data	5 260 ㎒ ~ 5 320 ㎒
U-NII-2C	Voice / Data	5 500 ㎒ ~ 5 720 ㎒
U-NII-3	Voice / Data	5 745 ㎒ ~ 5 825 ㎒
2.4 ㎓ WLAN	Data	2 412 ㎒ ~ 2 472 ㎒
Bluetooth / LE 5.0	Data	2 402 ㎒ ~ 2 480 ㎒
ANT+	Data	2 402 ㎒ ~ 2 480 ㎒
NFC	Data	13.56 ㎒
Device Description		
Device Dimension	Overall (Length x Width): 160 ㎜ x 75 ㎜ Overall Diagonal: 172 ㎜ Display Diagonal: 170 ㎜	
Battery Information	Standard (Li-ion Polymer Battery)	
	Battery Model Name: EB-BA907ABY L (LGC)	
HW version	REV1.1	
SW version	G770F.001	
Device Serial Numbers	**Mode**	**Serial Number**
	2.4 GHz WLAN, Bluetooth	R38M70E67CJ
	5 GHz WLAN	R38M70E6KDD
	GSM850, UMTS 850, Band 5/ 12/ 13/ 26	R38M8021QRF
	GSM1900, UMTS 1700, UMTS 1900 LTE Band 2/ 66 LTE Band 41	R38M706B3NA

	The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics are within operational tolerances expected for production units.

4.2 Power Reduction for SAR

This device utilizes power reduction mechanisms for some wireless modes and bands for SAR compliance under hotspot conditions and under some conditions when the device is being used in close proximity to the user's hand. All hotspot SAR evaluations for this device were performed at the maximum allowed output power when Hotspot is enabled. FCC KDB Publication 616217 D04v01r02 Sec.6 was used as a guideline for selection SAR test distances for device when being used in phablet use conditions.

This device uses an independent fixed level power reduction mechanism for WLAN modes during held-to-ear scenarios. Per FCC Guidance, the held-to-ear exposure conditions were evaluated at reduced power according to the head SAR Positions described in IEEE1528-2013. Detailed descriptions of the power reduction mechanism are include in the operational description.

The reduced powers for the power reduction mechanisms were conformed via conducted power measurements at the RF Port .

4.3 Nominal and Maximum Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

4.3.1 Maximum PCE Output Power

Mode / Band		Voice	Burst Average GMSK (dBm)				Burst Average 8-PSK (dBm)			
		1 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot	1 Tx Slot	2 Tx Slot	3 Tx Slot	4 Tx Slot
GSM/GPRS/EDGE 850	Maximum	34.5	34.5	33.0	33.0	31.5	28.5	27.0	27.0	25.5
	Nominal	33.5	33.5	32.0	32.0	30.5	27.5	26.0	26.0	24.5
GSM/GPRS/EDGE1900	Maximum	32.0	32.0	30.5	28.5	27.0	27.5	27.0	25.5	23.5
	Nominal	31.0	31.0	29.5	27.5	26.0	26.5	26.0	24.5	22.5

Mode / Band		Modulated Average (dBm)				
		3GPP WCDMA	AMR	3GPP HSDPA	3GPP HSUPA	DC-HSDPA
UMTS Band 5 (850 ㎒)	Maximum	25.2	25.2	24.0	24.0	24.5
	Nominal	24.2	24.2	23.0	23.0	23.5
UMTS Band 4 (1700 ㎒)	Maximum	25.0	25.0	23.5	23.0	24.0
	Nominal	24.0	24.0	22.5	22.0	23.0
UMTS Band 2 (1900 ㎒)	Maximum	24.5	24.5	24.0	24.0	24.5
	Nominal	23.5	23.5	23.0	23.0	23.5

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	25.0
	Nominal	24.0
LTE Band 4 (AWS)	Maximum	25.0
	Nominal	24.0
LTE Band 5 (Cell)	Maximum	25.5
	Nominal	24.5
LTE Band 12	Maximum	25.3
	Nominal	24.3
LTE Band 13	Maximum	25.0
	Nominal	24.0
LTE Band 17	Maximum	25.3
	Nominal	24.3
LTE Band 26	Maximum	25.5
	Nominal	24.5
LTE TDD Band 41	Maximum	24.7
	Nominal	23.7
LTE Band 66 (AWS)	Maximum	25.0
	Nominal	24.0

4.3.2 Reduced PCE Power (Grip Sensor activated)

Mode / Band		Modulated Average (dBm)				
		3GPP WCDMA	AMR	3GPP HSDPA	3GPP HSUPA	DC-HSDPA
UMTS Band 4 (1700 ㎒)	Maximum	20.5	20.5	19.0	18.5	19.0
	Nominal	19.5	19.5	18.0	17.5	18.0
UMTS Band 2 (1900 ㎒)	Maximum	21.0	21.0	19.5	19.5	19.5
	Nominal	20.0	20.0	18.5	18.5	18.5

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	20.5
	Nominal	19.5
LTE Band 4 (AWS)	Maximum	20.0
	Nominal	19.0
LTE TDD Band 41	Maximum	23.0
	Nominal	22.0
LTE Band 66 (AWS)	Maximum	20.0
	Nominal	19.0

4.3.3 Reduced PCE Power (Hotspot mode activated)

Mode / Band		Modulated Average (dBm)				
		3GPP WCDMA	AMR	3GPP HSDPA	3GPP HSUPA	DC-HSDPA
UMTS Band 4 (1700 ㎒)	Maximum	20.5	20.5	19.0	18.5	19.0
	Nominal	19.5	19.5	18.0	17.5	18.0
UMTS Band 2 (1900 ㎒)	Maximum	21.0	21.0	20.0	19.5	19.5
	Nominal	20.0	20.0	19.0	18.5	18.5

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	20.5
	Nominal	19.5
LTE Band 4 (AWS)	Maximum	20.0
	Nominal	19.0
LTE TDD Band 41	Maximum	23.0
	Nominal	22.0
LTE Band 66 (AWS)	Maximum	20.0
	Nominal	19.0

4.3.4 Maximum 2.4 GHz, 5 GHz WIFI output power

Mode / Band		Modulated Average (dBm)					
		SISO			MIMO		
		11b	11g	11n	11b	11g	11n
2.4 GHz WIFI	Maximum	19.5 (12CH:9) (13CH:3)	18 (12CH:9) (13CH:3)	18 (12CH:9) (13CH:3)	N/A	21 (12CH:12) (13CH:6)	21 (12CH:12) (13CH:6)
	Nominal	18.5 (12CH:8) (13CH:2)	17 (12CH:8) (13CH:2)	17 (12CH:8) (13CH:2)	N/A	20 (12CH:11) (13CH:5)	20 (12CH:11) (13CH:5)

Mode / Band			Modulated Average (dBm)					
			SISO			MIMO		
			11a	11n	11ac	11a	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	17	17	17	20	20	20
		Nominal	16	16	16	19	19	19
	(U-NII-2A) 5300 MHz	Maximum	17	17	17	20	20	20
		Nominal	16	16	16	19	19	19
	(U-NII-2C) 5500 MHz	Maximum	17 (Ch100:9.5)	17 (Ch100:8.5)	17 (Ch100:6.5)	20 (100CH:12.5)	20 (100CH:11.5)	20 (100CH:9.5)
		Nominal	16 (Ch100:8.5)	16 (Ch100:7.5)	16 (Ch100:5.5)	19 (100CH:11.5)	19 (100CH:10.5)	19 (100CH:8.5)
	(U-NII-3) 5800 MHz	Maximum	17	17	17	20	20	20
		Nominal	16	16	16	19	19	19
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	16 (38CH:13.5)	16 (38CH:13)	N/A	19 (38CH:16.5)	19 (38CH:16)
		Nominal	N/A	15 (38CH:12.5)	15 (38CH:12)	N/A	18 (38CH:15.5)	18 (38CH:15)
	(U-NII-2A) 5300 MHz	Maximum	N/A	16	16	N/A	19	19
		Nominal	N/A	15	15	N/A	18	18
	(U-NII-2C) 5500 MHz	Maximum	N/A	16 (Ch102:10)	16 (Ch102:10)	N/A	19 (Ch102:13)	19 (Ch102:13)
		Nominal	N/A	15 (Ch102:9)	15 (Ch102:9)	N/A	18 (Ch102:12)	18 (Ch102:12)
	(U-NII-3) 5800 MHz	Maximum	N/A	16	16	N/A	19	19
		Nominal	N/A	15	15	N/A	18	18
5 GHz WIFI (80 MHz)	(U-NII-1) 5210 MHz	Maximum	N/A	N/A	13 (42CH:12)	N/A	N/A	16 (42CH:15)
		Nominal	N/A	N/A	12 (42CH:11)	N/A	N/A	15 (42CH:14)
	(U-NII-2A) 5290 MHz	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15

4.3.5 Reduced 2.4 ㎓, 5 ㎓ WIFI output power (With RCV-On condition (Voice/VoIP))

Mode / Band		Modulated Average (dBm)					
		SISO			MIMO		
		11b	11g	11n	11b	11g	11n
2.4 ㎓ WIFI	Maximum	17 (12CH:9) (13CH:3)	15 (12CH:9) (13CH:3)	15 (12CH:9) (13CH:3)	N/A	18 (12CH:12) (13CH:6)	18 (12CH:12) (13CH:6)
	Nominal	16 (12CH:8) (13CH:2)	14 (12CH:8) (13CH:2)	14 (12CH:8) (13CH:2)	N/A	17 (12CH:11) (13CH:5)	17 (12CH:11) (13CH:5)

Mode / Band			Modulated Average (dBm)					
			SISO			MIMO		
			11a	11n	11ac	11a	11n	11ac
5 ㎓ WIFI (20 ㎒)	(U-NII-1) 5200 ㎒	Maximum	15	15	15	18	18	18
		Nominal	14	14	14	17	17	17
	(U-NII-2A) 5300 ㎒	Maximum	15	15	15	18	18	18
		Nominal	14	14	14	17	17	17
	(U-NII-2C) 5500 ㎒	Maximum	15 (Ch100:9.5)	15 (Ch100:8.5)	15 (Ch100:6.5)	18 (100CH:12.5)	18 (100CH:11.5)	18 (100CH:9.5)
		Nominal	14 (Ch100:8.5)	14 (Ch100:7.5)	14 (Ch100:5.5)	17 (100CH:11.5)	17 (100CH:10.5)	17 (100CH:8.5)
	(U-NII-3) 5800 ㎒	Maximum	15	15	15	18	18	18
		Nominal	14	14	14	17	17	17
5 ㎓ WIFI (40 ㎒)	(U-NII-1) 5200 ㎒	Maximum	N/A	15 (38CH:13.5)	15 (38CH:13)	N/A	18 (38CH:16.5)	18 (38CH:16)
		Nominal	N/A	14 (38CH:12.5)	14 (38CH:12)	N/A	17 (38CH:15.5)	17 (38CH:15)
	(U-NII-2A) 5300 ㎒	Maximum	N/A	15	15	N/A	18	18
		Nominal	N/A	14	14	N/A	17	17
	(U-NII-2C) 5500 ㎒	Maximum	N/A	15 (Ch102:10)	15 (Ch102:10)	N/A	18 (Ch102:13)	18 (Ch102:13)
		Nominal	N/A	14 (Ch102:9)	14 (Ch102:9)	N/A	17 (Ch102:12)	17 (Ch102:12)
	(U-NII-3) 5800 ㎒	Maximum	N/A	15	15	N/A	18	18
		Nominal	N/A	14	14	N/A	17	17
5 ㎓ WIFI (80 ㎒)	(U-NII-1) 5200 ㎒	Maximum	N/A	N/A	13 (42CH:12)	N/A	N/A	16 (42CH:15)
		Nominal	N/A	N/A	12 (42CH:11)	N/A	N/A	15 (42CH:14)
	(U-NII-2A) 5300 ㎒	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15
	(U-NII-2C) 5500 ㎒	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15
	(U-NII-3) 5800 ㎒	Maximum	N/A	N/A	13	N/A	N/A	16
		Nominal	N/A	N/A	12	N/A	N/A	15

4.3.6 Maximum WIFI output power – RSDB Mode

Mode / Band		Modulated Average (dBm)		
		Ant.1		
		11b	11g	11n
2.4 GHz WIFI	Maximum	19.5 (12CH:9) (13CH:3)	18 (12CH:9) (13CH:3)	18 (12CH:9) (13CH:3)
	Nominal	18.5 (12CH:8) (13CH:2)	17 (12CH:8) (13CH:2)	17 (12CH:8) (13CH:2)

Mode / Band			Modulated Average (dBm)		
			Ant.2		
			11a	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	17	17	17
		Nominal	16	16	16
	(U-NII-2A) 5300 MHz	Maximum	17	17	17
		Nominal	16	16	16
	(U-NII-2C) 5500 MHz	Maximum	17 (Ch100:9.5)	17 (Ch100:8.5)	17 (Ch100:6.5)
		Nominal	16 (Ch100:8.5)	16 (Ch100:7.5)	16 (Ch100:5.5)
	(U-NII-3) 5800 MHz	Maximum	17	17	17
		Nominal	16	16	16
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	16 (38CH:13.5)	16 (38CH:13)
		Nominal	N/A	15 (38CH:12.5)	15 (38CH:12)
	(U-NII-2A) 5300 MHz	Maximum	N/A	16	16
		Nominal	N/A	15	15
	(U-NII-2C) 5500 MHz	Maximum	N/A	16 (Ch102:10)	16 (Ch102:10)
		Nominal	N/A	15 (Ch102:9)	15 (Ch102:9)
	(U-NII-3) 5800 MHz	Maximum	N/A	16	16
		Nominal	N/A	15	15
5 GHz WIFI (80 MHz)	(U-NII-1) 5210 MHz	Maximum	N/A	N/A	13 (42CH:12)
		Nominal	N/A	N/A	12 (42CH:11)
	(U-NII-2A) 5290 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12

4.3.7 Reduced WLAN power – RSDB with RCV-On condition (Voice/VoIP)

Mode / Band		Modulated Average (dBm)		
		Ant.1		
		11b	11g	11n
2.4 GHz WIFI	Maximum	17 (12CH:9) (13CH:3)	15 (12CH:9) (13CH:3)	15 (12CH:9) (13CH:3)
	Nominal	16 (12CH:8) (13CH:2)	14 (12CH:8) (13CH:2)	14 (12CH:8) (13CH:2)

Mode / Band			Modulated Average (dBm)		
			Ant.2		
			11a	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	15	15	15
		Nominal	14	14	14
	(U-NII-2A) 5300 MHz	Maximum	15	15	15
		Nominal	14	14	14
	(U-NII-2C) 5500 MHz	Maximum	15 (Ch100:9.5)	15 (Ch100:8.5)	15 (Ch100:6.5)
		Nominal	14 (Ch100:8.5)	14 (Ch100:7.5)	14 (Ch100:5.5)
	(U-NII-3) 5800 MHz	Maximum	15	15	15
		Nominal	14	14	14
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	15 (38CH:13.5)	15 (38CH:13)
		Nominal	N/A	14 (38CH:12.5)	14 (38CH:12)
	(U-NII-2A) 5300 MHz	Maximum	N/A	15	15
		Nominal	N/A	14	14
	(U-NII-2C) 5500 MHz	Maximum	N/A	15 (Ch102:10)	15 (Ch102:10)
		Nominal	N/A	14 (Ch102:9)	14 (Ch102:9)
	(U-NII-3) 5800 MHz	Maximum	N/A	15	15
		Nominal	N/A	14	14
5 GHz WIFI (80 MHz)	(U-NII-1) 5210 MHz	Maximum	N/A	N/A	13 (42CH:12)
		Nominal	N/A	N/A	12 (42CH:11)
	(U-NII-2A) 5290 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	13
		Nominal	N/A	N/A	12

Maximum Power During Real Simultaneous Dual Band (RSDB) Power

Mode	# Tx	Target Power	5 GHz WLAN [dBm]		2.4 GHz WIFI[dBm]		802.11 Modes
			Ant 1	Ant 2	Ant 1	Ant 2	
2.4 GHz + 5 GHz WIFI RSDB Only	2	Maximum	N/A	17	19.5	N/A	2.4 GHz:,b,g,n 5 GHz: a,n,ac
		Nominal	N/A	16	18.5	N/A	

Reduced Power During Real Simultaneous Dual Band (RSDB) Power

Mode	# Tx	Target Power	5 GHz WLAN [dBm]		2.4 GHz WIFI[dBm]		802.11 Modes
			Ant 1	Ant 2	Ant 1	Ant 2	
2.4 GHz + 5 GHz WIFI RSDB Only	2	Maximum	N/A	15	17	N/A	2.4 GHz:,b,g,n 5 GHz: a,n,ac
		Nominal	N/A	14	16	N/A	

4.3.6 Maximum Bluetooth Power

Mode / Band		Modulated Average (dBm)
Bluetooth (1Mbps)	Maximum	13.0
	Nominal	12.0
Bluetooth (EDR)	Maximum	12.5
	Nominal	11.5
Bluetooth LE 2Mbps	Maximum	10
	Nominal	9
Bluetooth LE 1Mbps, 125/500Kbps	Maximum	10
	Nominal	9

4.4 LTE Information

Item.		Description		
Frequency Range	LTE Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒		
	LTE Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒		
	LTE Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒		
	LTE Band 12	699.7 ㎒ ~ 715.3 ㎒		
	LTE Band 13	779.5 ㎒ ~ 784.5 ㎒		
	LTE Band 17	706.5 ㎒ ~ 713.5 ㎒		
	LTE Band 26 (Cell)	814.7 ㎒ ~ 848.3 ㎒		
	LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒		
	LTE Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒		
Channel Bandwidths	LTE Band 2 (PCS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒		
	LTE Band 4 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒		
	LTE Band 5 (Cell)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒		
	LTE Band 12	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒		
	LTE Band 13	5 ㎒, 10 ㎒		
	LTE Band 17	5 ㎒, 10 ㎒		
	LTE Band 26 (Cell)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒		
	LTE TDD Band 41	5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒		
	LTE Band 66 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒		
Ch. No.& Freq.(㎒)		**Low**	**Mid**	**High**
LTE Band 2	1.4 ㎒	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 ㎒	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 ㎒	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 ㎒	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 ㎒	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 ㎒	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE Band 4	1.4 ㎒	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 ㎒	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 ㎒	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 ㎒	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 ㎒	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 ㎒	1 720.0 (20050)	1 732.5 (20175)	1 745.0 (20300)
LTE Band 5	1.4 ㎒	824.7 (20407)	836.5 (20525)	848.3 (20643)
	3 ㎒	825.5 (20415)	836.5 (20525)	847.5 (20635)
	5 ㎒	826.5 (20425)	836.5 (20525)	846.5 (20625)
	10 ㎒	829.0 (20450)	836.5 (20525)	844.0 (20600)
LTE Band 12	1.4 ㎒	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 ㎒	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 ㎒	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 ㎒	704.0 (23060)	707.5 (23095)	711.0 (23130)
LTE Band 13	5 ㎒	779.5 (23205)	782 (23230)	784.5 (23255)
	10 ㎒		782 (23230)	
LTE Band 17	5 ㎒	706.5 (23755)	710 (23790)	713.5 (23825)
	10 ㎒	709.0 (23780)	710 (23790)	711.0 (23800)

Ch. No.& Freq.(㎒)		Low	Mid	High
LTE Band 26 (Cell)	1.4 ㎒	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 ㎒	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 ㎒	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 ㎒	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 ㎒	821.5 (26765)	831.5 (26865)	841.5 (26965)
LTE Band 66 (AWS)	1.4 ㎒	1 710.7 (131979)	1 745 (132322)	1 779.3 (132665)
	3 ㎒	1 711.5 (131987)	1 745 (132322)	1 778.5 (132657)
	5 ㎒	1 712.5 (131997)	1 745 (132322)	1 777.5 (132647)
	10 ㎒	1 715.0 (132022)	1 745 (132322)	1 775.0 (132622)
	15 ㎒	1 717.5 (132047)	1 745 (132322)	1 772.5 (132597)
	20 ㎒	1 720.0 (132072)	1 745 (132322)	1 770.0 (132572)
LTE TDD Band 41	5 ㎒	2498.5(39675)	2545.8(40148)	2593.0(40620)	2640.3(41093)	2687.5(41565)
	10 ㎒	2501.0(39700)	2547.0(40160)	2593.0(40620)	2639.0(41080)	2685.0(41540)
	15 ㎒	2503.5(39725)	2548.3(41073)	2593.0(40620)	2637.8(41068)	2682.5(41515)
	20 ㎒	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)

UE Category	LTE Rel. 14, DL: Category 11, UL: Category 5	
Modulations Supported in UL	QPSK, 16QAM, 64QAM	
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3	Yes	
A-MPR disabled for SAR Testing.	Yes	
LTE Carrier Aggregation	Up-Link CA	This device dose not supports Up-Link Carrier aggregation.in US.
	Down-Link CA	This device supports DL-link Carrier aggregations Inter-band & Intra-band DL 2CA, DL 3CA
LTE Release 10 information	This device does not support full CA features on 3GPP Release 14. The following LTE Release 14 features are not supported. Uplink Carrier aggregations, Relay, HetNet, Enhanced MIMO, eICI, WiFi offloading, MDH, eMBMA, Cross-Carrier Scheduling, Enhanced SC-FDMA.	

4.5 DUT Antenna Locations

The overall dimensions of this device are > 9 X 5 cm. A diagram showing device antenna can be found in SAR_setup_photos. Since the diagonal dimension of this device is > 160 mm and < 200 mm, it is considered a “phablet”.

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering. Therefore, SAR test was performed for additional simultaneous transmissions.
Head and Bluetooth Tethering SAR were evaluated for BT BR tethering applications.

Mode	Rear	Front	Left	Right	Bottom	Top
GSM/GPRS/EDGE 850	Yes	Yes	Yes	Yes	Yes	No
GSM/GPRS/EDGE 1900	Yes	Yes	Yes	Yes	Yes	No
UMTS 850	Yes	Yes	Yes	Yes	Yes	No
UMTS 1700	Yes	Yes	Yes	Yes	Yes	No
UMTS 1900	Yes	Yes	Yes	Yes	Yes	No
LTE Band 2 (PCS)	Yes	Yes	Yes	Yes	Yes	No
LTE Band 4 (AWS)	Yes	Yes	Yes	Yes	Yes	No
LTE Band 5 (Cell)	Yes	Yes	Yes	Yes	Yes	No
LTE Band 12	Yes	Yes	Yes	Yes	Yes	No
LTE Band 13	Yes	Yes	Yes	Yes	Yes	No
LTE Band 17	Yes	Yes	Yes	Yes	Yes	No
LTE Band 26	Yes	Yes	Yes	Yes	Yes	No
LTE TDD Band 41	Yes	Yes	Yes	No	Yes	No
LTE Band 66 (AWS)	Yes	Yes	Yes	Yes	Yes	No
2.4 ㎓ WLAN	Yes	Yes	Yes	No	No	Yes
5 ㎓ WLAN	Yes	Yes	Yes	No	No	Yes
Bluetooth	Yes	Yes	Yes	No	No	Yes

Particular EUT edges were not required to be evaluated for Bluetooth Tethering and Hotspot SAR if the edges were > 25 mm from the transmitting antenna according to FCC KDB 941225 D06v02r01 on page 2.
The distance between the transmit antennas and the edges of the device are included in the filing.
- Note: All test configurations are based on front view position.

4.6 Near Field Communications (NFC) Antenna

This EUT has NFC operations. The NFC antenna is integrated into the device for this model. Therefore, all SAR tests were performed with the device which already incorporates the NFC antenna. A diagram showing the location of the NFC antenna can be found in SAR _ Setup_ photos.

4.7 SAR Summation Scenario

According to FCC KDB 447498 D01v06, 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 below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.

Simultaneous transmission paths

This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB 447498 D01v06.

Simultaneous Transmission Scenarios				
Applicable Combination	Head	Body-Worn	Hotspot	Extremity
GSM Voice + 2.4 GHz WiFi SISO	Yes	Yes	N/A	Yes
GSM Voice + 5 GHz WiFi SISO	Yes	Yes	N/A	Yes
GSM Voice + 2.4 GHz WiFi MIMO	Yes	Yes	N/A	Yes
GSM Voice + 5 GHz WiFi MIMO	Yes	Yes	N/A	Yes
GSM Voice + 2.4 GHz WiFi Ant 1 + 5 GHz WiFi Ant 2	Yes	Yes	N/A	Yes
GSM Voice + Bluetooth + 5 GHz WiFi Ant 2	Yes#	Yes	N/A	Yes
GSM Voice + Bluetooth	Yes#	Yes	N/A	Yes
GPRS + 2.4 GHz WiFi SISO	N/A	N/A	Yes	Yes
GPRS + 5 GHz WiFi SISO	N/A	N/A	Yes	Yes
GPRS + 2.4 GHz WiFi MIMO	N/A	N/A	Yes	Yes
GPRS + 5 GHz WiFi MIMO	N/A	N/A	Yes	Yes
GPRS + Bluetooth	N/A	N/A	Yes#	Yes
GPRS + Bluetooth+ 5 GHz WiFi Ant 2	N/A	N/A	Yes#	Yes
GPRS + 2.4 GHz WiFi Ant 1 + 5 GHz WiFi Ant 2	N/A	N/A	Yes	Yes
UMTS + 2.4 GHz WiFi SISO	Yes	Yes	Yes	Yes
UMTS + 5 GHz WiFi SISO	Yes	Yes	Yes	Yes
UMTS + 2.4 GHz WiFi MIMO	Yes	Yes	Yes	Yes
UMTS + 5 GHz WiFi MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4 GHz Bluetooth	Yes#	Yes	Yes#	Yes
UMTS + 2.4 GHz Bluetooth+ 5 GHz WiFi Ant 2	Yes#	Yes	Yes#	Yes
UMTS + 2.4 GHz WiFi Ant 1 + 5 GHz WiFi Ant 2	Yes	Yes	Yes	Yes

Simultaneous Transmission Scenarios				
Applicable Combination	Head	Body-Worn	Hotspot	Extremity
LTE + 2.4 GHz WiFi SISO	Yes	Yes	Yes	Yes
LTE + 5 GHz WiFi SISO	Yes	Yes	Yes	Yes
LTE + 2.4 GHz WiFi MIMO	Yes	Yes	Yes	Yes
LTE + 5 GHz WiFi MIMO	Yes	Yes	Yes	Yes
LTE+ 2.4 GHz Bluetooth	Yes#	Yes	Yes#	Yes
LTE+ 2.4 GHz Bluetooth+ 5 GHz WiFi Ant 2	Yes#	Yes	Yes#	Yes
LTE + 2.4 GHz WiFi Ant 1 + 5 GHz WiFi Ant 2	Yes	Yes	Yes	Yes

1. Bluetooth cannot transmit simultaneously with 2.4GHz WLAN Ant 1 ,Ant2 .and 5GHz Ant 1
2. The device does not support licensed bands simultaneously transmitting.
3. UMTS +WLAN scenario also represents the UMTS Voice/DATA + WLAN hotspot scenario.
4. Per the manufacturer, GPRS does not support VOIP service.
5. The highest reported SAR for each exposure condition is used for SAR summation purpose.
6. Wi-Fi Hotspot is supported for 2.4 GHz/ UNII-3 of 5 GHz WLAN.
7. This device supports # Bluetooth tethering.
8. This device supports VoLTE.
9. This device supports VoWIFI.
10. 5 GHz Wireless Router is only supported for the UNII-3 by SW, therefore U-NII-1,U-NII2A and U-NII2C were not evaluated for wireless router conditions.
11. This device supports 2x2 MIMO Tx for WLAN. 802.11a/g/n/ac supports CDD and STBC and 802.11n/ac additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.

4.8 SAR Test Considerations

4.8.1 WiFi

Since wireless router operations are not allowed by the chipset firmware using U-NII-1, U-NII-2A & U-NII-2C WiFi, WiFi Hotspot SAR test and combinations are considered only 2.4 GHz and U-NII-3 for SAR with respected to wireless router configurations according to FCC KDB 941225 D06v02r01.

Since U-NII-1 and U-NII-2A bands have the same maximum output power and the highest reported SAR for U-NII-2A is less than 1.2 W/kg for 1g SAR and is less than 3.0 W/kg for 10g SAR, SAR is not required for U-NII-1 band according to FCC KDB 248227D01v02r02.

This device supports IEEE 802.11 ac with the following features:

a) Up to 80 MHz Bandwidth only
b) No aggregate channel configurations
c) 2Tx Antenna output
d) 256 QAM is supported
e) TDWR channels are supported.
f) Straddle channels are supported
g) Band gap channels are supported

Per FCC KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR >1.2 W/kg.

4.8.2 Licensed Transmitter(s)

GSM/GPRS/EDGE DTM is not supported for US bands. Therefore, the GSM Voice modes in this report do not transmit simultaneously with GPRS/EDGE Data.

LTE SAR for the higher modulations and lower bandwidths were not tested since the maximum average output power of all required channels and configurations was not more than 0.5 dB higher than the highest bandwidth; and the reported LTE SAR for the highest bandwidth was less than 1.45 W/kg for all configurations according to FCC KDB 941225 D05v02r05.

Per FCC KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR >1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

This Device supports 64QAM on the uplink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per section 5.1 of FCC KDB 941225 D05v02r05. SAR was not required for 64QAM sins the highest maximum output power for 64QAM is ≤ 0.5dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is ≤1.45 W/Kg, per section 5.2.4 for FCC KDB941225 D05v02r05.

This device supports LTE Carrier Aggregation (CA) in the downlink. All uplink communications are identical to Release 8 specifications. Per FCC KDB publication 941225 D05A v01r02, SAR for LTE DL CA operations was not needed since the maximum average output power in LTE CA mode was not >0.25 dB higher than the maximum output power when downlink carrier aggregation was inactive.

This DUT supports LTE capabilities with overlapping transmission frequency ranges. When the supported frequency range of an LTE band falls completely within an LTE band with a larger transmission frequency range, both LTE bands have the same maximum target power. and both LTE bands share the same transmission path and signal characteristics, SAR was only assessed for the band with the larger transmission frequency range
LTE Band 17(706.5 ㎒ ~ 713.5 ㎒) is covered by LTE Band 12 (699.7 ㎒ ~ 715.3 ㎒), LTE Band 4 (1 710.7 ㎒ ~ 1 754.3 ㎒) is covered by LTE Band 66 (1 710.7 ㎒ ~ 1 779.3 ㎒) and LTE Band 5 (824.7 ㎒ ~ 848.3 ㎒) is covered by LTE Band 26 (814.7 ㎒ ~ 848.3 ㎒) each both LTE bands have the same target powers.

This device is only capable of QPSK HSUPA in the uplink. Therefore, no additional SAR tests are required beyond that described for devices with HSUPA in KDB 941225 D01v03r01.

Per FCC KDB 941225 D01v03r01, 12.2 kbps RMC is the primary mode and HSPA (HSUPA/HSDPA with RMC) is the secondary mode.
Per FCC KDB 941225 D01v03r01, The SAR test exclusion is applied to the secondary mode by the following equation.

$$Adjusted\ \ SAR = Highest\ \ Reported\ \ SAR\ \ x\ \ \frac{Secondary\ \ Max\ \ tune-up\ \ (mW)}{Primary\ \ Max\ \ tune\ \ tune-up(mW)} \leq 1.2\ \ \mathrm{W/kg}.$$

Based on the highest Reported SAR, the secondary mode is not required.

Per FCC KDB 690783 1 D01 SAR Listings on Grants v01r03 and KDB 447498 D01 General RF Exposure Guidance v06 The SAR numbers listed must be consistent with the highest reported test results required by the published RF exposure KDB procedures. When the measured SAR is not at the maximum tune-up tolerance limit or maximum output power allowed for production units, the measured results are scaled to the maximum conditions to determine compliance; the scaled results are referred to as the reported SAR.

The Reported SAR = The Measured SAR x-$\frac{Maximum\ \ tune-up\ \ (mW)}{Measured\ \ Conducted\ \ Power(mW)}$

The Reported SAR for WLAN and Bluetooth
The Reported SAR = The Measured SAR x-$\frac{Maximum\ \ tune-up\ \ (mW)}{Measured\ \ Conducted\ \ Power(mW)}$ x Duty factor

5. Introduction

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r*). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

$$SAR = \frac{d}{d\ t}\left(\frac{d\ U}{d\ m}\right)$$

Figure 1. SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg)

$$SAR = \sigma\ E^2 / \rho$$

Where:

σ = conductivity of the tissue-simulant material (S/m)

ρ = mass density of the tissue-simulant material (kg/㎥)

E = Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

6. Description of test equipment

6.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.2).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 is working with SAR Measurement system DASY4 & DASY5, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

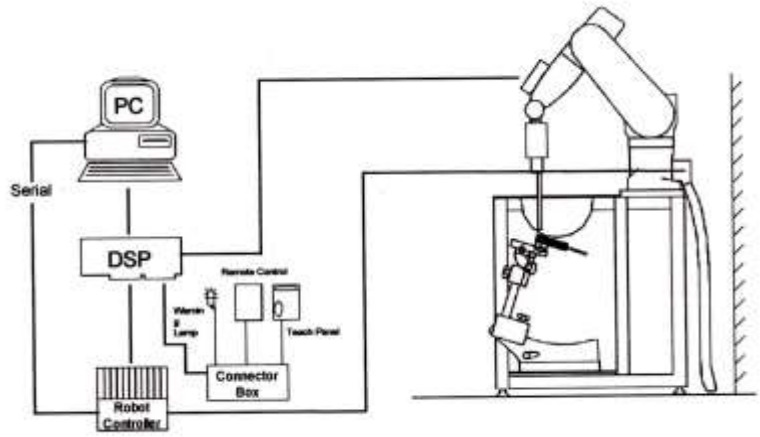


Figure 2. HCT SAR Lab. Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

7. SAR Measurement Procedure

The evaluation was performed using the following procedure compliant to FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013.

1. The SAR distribution at the exposed side of the head or body was measured at a distance no more than 5.0 mm from the inner surface of the shell. The area covered the entire dimension of the DUT's head and body area and the horizontal grid resolution was depending on the FCC KDB 865664 D01v01r04 table 4-1 & IEEE 1528-2013.

2. Based on step, the area of the maximum absorption was determined by sophisticated interpolations routines implemented in DASY software. When an Area Scan has measured all reachable point. DASY system computes the field maximal found in the scanned are, within a range of the maximum. SAR at this fixed point was measured and used as a reference value.

3. Around this point, a volume was assessed according to the measurement resolution and volume size requirements of FCC KDB 865664 D01v01r04 table 4-1 and IEEE 1528-2013. On the basis of this data set, the spatial peak SAR value was evaluated with the following procedure (reference from the DASY manual.)

   a. The data at the surface were extrapolated, since the center of the dipoles is no more than 2.7 mm away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

   b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR reference value, at the same location as step 2, was re-measured after the zoom scan. If the value changed by more than 5 %, the SAR evaluation and drift measurements were repeated.

Area scan and zoom scan resolution setting follow 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	$^1/_2 \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			30°±1°	20°±1°
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
Maximum zoom scan Spatial resolution: Δx_{zoom}, Δy_{zoom}			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
			≤ 2 GHz: ≤8mm 2-3 GHz: ≤5mm*	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	≤1.5·$\Delta z_{zoom}(n-1)$	
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 reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.

8. Description of Test Position

8.1 EAR REFERENCE POINT

Figure 8-2 shows the front, back and side views of the SAM phantom. The center-of-mouth reference point is labeled “M”, the left ear reference point (ERP) is marked “LE”, and the right ERP is marked “RE.” Each ERP is on the B-M (back-mouth) line located 15 mm behind the entrance-to-ear-canal (EEC) point, as shown in Figure 6-1. The Reference Plane is defined as passing through the two ear reference point and point M. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (See Figure 5-1), Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning.

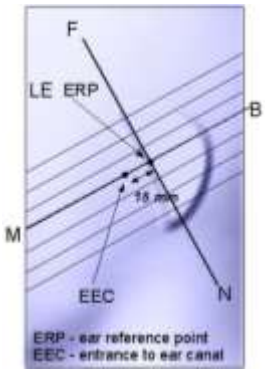


Figure 8-1
Close-up side view of ERP

8.2 HANDSET REFERENCE POINTS

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The device under test was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point”(see Figure 8-3). The acoustic output was than located at the same level as the center of the ear reference point. The device under test was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.

Figure 8-2
Front, back and side views of SAM Twin Phantom

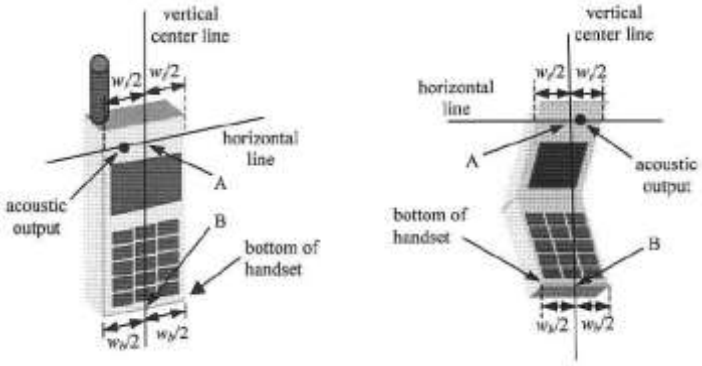


Figure 6-3. Handset vertical and horizontal reference lines

8.3 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameter; relative permittivity ε=3 and loss tangent σ =0.02.

8.4 Position for cheek

Figure 6.4. shows cheek or touch position. The reference points for the right ear (RE), left ear (LE), and mouth (M), which establish the Reference Plane for handset positioning, are indicated.

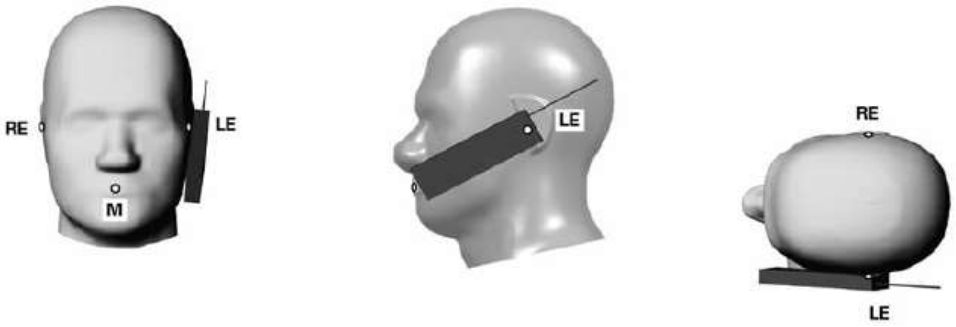


Figure 8.4 Cheek/ Touch position of the wireless device

8.5 Definition of the “tilted” position

Figure 6.5. shows tilted position. Place the device in the cheek position. Then while maintaining the orientation of the device, retract the device parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15°

Figure 8.5. Tilt 15°position of the wireless device

8.6 Body-Worn Accessory Configurations

Body-worn operating configurations are tested with the belt-dips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 6-6). Per FCC KDB Publication 648474 D04v01r03 Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in Body-worn accessories. The Body-worn accessory procedures in FCC KDB Publication 447498 D01v06 should be used to test for Body-worn accessory SAR compliance, without a headset connected to it.. When the reported SAR for a body- worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

Figure 8-6
Sample Body-Worn Diagram

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that do contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with the device with each accessory. If multiple accessories share an identical metallic component (i.e. the same metallic belt-dip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

8.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L x W≥9cmx5 cm) are based on *a* composite test separation distance of 10 mm from the front back and edges of the device containing transmitting antennas within 2.5 cm of their edges, 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 due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The Portable Hotspot feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

8.8 Extremity Exposure Configurations

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions: i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1-g body and 10-g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01v06 should be applied to determine SAR test requirements.

For smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear. the phablets procedures outlined in KDB Publication 648474 D04 v01r03 should be applied to evaluate SAR compliance. A device marketed as phablets, regardless of form factors and operating characteristics must be tested as a phablet to determine SAR compliance. In addition to the normally required head and body-worm accessory SAR test procedures required for handsets, the UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna ≤25 mm from that surface or edge, in direct contact with the phantom, for 10-g SAR. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, 10-g SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1-g SAR > 1.2 W/kg.

8.9 Additional Test Positions due to Proximity Conditions

This device uses a sensor to reduce output powers in extremity (hand-held) use conditions.

When the sensor detects a user is touching the device on or near to the antenna the device reduces the maximum allowed output power However, the proximity sensor is not active when the device is moved beyond the sensor triggering distance and the maximum output power is no longer limited. Therefore, an additional exposure condition is needed in the vicinity of the triggering distance to ensure SAR is compliant when the device is allowed to operate at a non-reduced output power level.

FCC KDB 616217 D04 v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device at these additional exposure conditions. The smallest separation distance determined by the sensor triggering and sensor coverage for each applicable edge, minus 1 mm. was used as the test separation distance for SAR testing. Sensor triggering distance summary data is included in below table.

Wireless technologies	Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR
WWAN (WCDMAB2/B4 /LTE/B2/B4/B41/B66)	Rear	10	N/A	N/A	9
	Front	8	N/A	N/A	7
	Bottom	12	N/A	N/A	11

8.10 Bluetooth tethering Configurations

Per May 2017 TCBC Workshop documents When Bluetooth tethering applies ,simultaneous transmission SAR needs consideration

This model allows users to exchange data or media files with other Bluetooth enabled devices using Bluetooth, which means they can connect to other Bluetooth enabled devices via Bluetooth tethering.
Therefore, SAR test was performed for additional simultaneous transmissions.
Head and Bluetooth tethering SAR were evaluated for BT BR tethering applications.

9. RF Exposure Limits

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT Occupational (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Partial Body)	1.6	8.0
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.4
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.0	20.0

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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 mad 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.

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.

10. FCC SAR General Measurement Procedures

Power Measurements for licensed transmitters are performed using a base simulator under digital average power.

10.1 Measured and Reported SAR

Per FCC KDB Publication 447498 D01v06, when SAR is not measured at the maximum power level allowed for production units, the results must be scaled to the maximum tune-up tolerance limit according to the power applied to the individual channels tested to determine compliance. For simultaneous transmission, the measured aggregate SAR must be scaled according to the sum of the differences between the maximum tune-up tolerance and actual power used to test each transmitter. When SAR is measured at or scaled to the maximum tune-up tolerance limit, the results are referred to as Reported SAR. The highest reported SAR results are identified on the grant of equipment authorization according to procedures in KDB 690783 D01v01r03.

10.2 3G SAR Test Reduction Procedure

10.2.1 GSM, GPRS AND EDGE

The following procedures may be considered for each frequency band to determine SAR test reduction for devices operating in GSM/GPRS/EDGE modes to demonstrate RF exposure compliance. GSM voice mode transmits with 1 time-slot. GPRS and EDGE may transmit up to 4 time slots in the 8 time-slot frame according to the multi-slot class implemented in a device.

10.2.2 SAR Test Reduction

In FCC KDB 941225 D01v03r01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode. SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested

10.2.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01v03r01-3G SAR Measurement Procedures

The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement Software calculates a reference point at the start and end of the test to Cheek for power drifts. If conducted Power deviations of more than 5 % occurred, the tests were repeated.

10.3 SAR Measurement Conditions for UMTS

10.3.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in sec. 5.2 of 3GPP TS 34.121, using the appropriate RMC with TPC (transmit power control) set to all “1s” or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HS-DPCCH etc) are tabulated in this test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations are identified.

10.3.2 Body SAR measurements

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”. the 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using and applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported SAR configuration in 12.2 kbps RMC.

10.3.3 SAR Measurements with Rel. 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSDPA is measured using and FRC with H-SET 1 in Sub-test and a 12.2 kbps RMC without HSDPA. Handsets with both HSDPA and HSUPA are tested according to release 6 HSPA test procedures. 8.4.5 SAR Measurement with Rel.6 HSUPA The 3G SAR test Reduction Procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, Using H-Set 1 and QPSK for FRC and a 12.2kbps RMC configured in Test Loop Mode 1 and Power Control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

10.3.4 SAR Measurements with Rel. 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control algorithm 2, according to the highest reported body SAR configuration in 12.2 kbps RMC without HSPA.

10.3.5 DC-HSDPA

SAR is required for Rel.8 DC-HSDPA when SAR is required for Rel.5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in table C.8.1.12 of 3GPP TS34.121-1 to determine SAR test reduction. Primary and secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

DC-HSDPA Configurations

- 3GPP specification TS 34.121-1 Release 8. was used for used for DC-HSDPA guidance.
- H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.

10.4 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05v02r05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

10.4.1 Spectrum Plots for RB Configurations

A properly configured base station simulator was used for SAR tests and power measurements. Therefore, spectrum plots for RB configurations were not required to be included in this report.

10.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Section 6.2.3 – 6.2.5 under Table 6.2.3-1.

10.4.3 A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by setting NS=01 on the base station simulator.

10.4.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

a. Per sec 4.2.1, SAR is required for QPSK 1 RB Allocation for the largest bandwidth
   i. The required channel and offset combination with the highest maximum output power is required for SAR.
   ii. When the reported SAR is ≤ 0.8 W/Kg, testing of the remaining RB offset configurations and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the RB offset configuration with highest output power for that channel.
   iii. When the reported SAR for a required test channel is > 1.45 W/kg, SAR is required for all RB offset configurations for that channel.
b. Per Sec 4.2.2, SAR is required for 50% RB allocation using the largest bandwidth following the same procedures outlined in Sec 4.2.1.
c. Per Sec. 4.2.3, QPSK SAR is not required for the 100% all0cation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

10.4.5 Downlink Carrier Aggregation

Conducted power measurements with LTE Carrier aggregation (CA) downlink only active are made in accordance to KDB publication 941225 D05Av01r02. The RRC connection is only handled by one cell, the primary component carrier (PCC) for downlink and uplink communications. After making a data connection to the PCC, the UE device adds secondary component carrier (SCC) on the downlink only. All uplink communications and acknowledgements remain identical to specifications when downlink carrier aggregation is inactive on the PCC. For every supported combination of downlink only carrier aggregation, additional conducted output Powers are measured with downlink carrier aggregation active for the configuration with highest measured maximum conducted power with the downlink carrier aggregation inactive measured among the channel bandwidth, modulation and RB combinations in each frequency band. Per FCC KDB Publication 941225 D05Av01r02, no SAR measurements are required for carrier aggregation configurations when the average output power with downlink only carrier aggregation active is not more than 0.25dB higher than the average output power with downlink only carrier aggregation inactive.

10.4.6 LTE(TDD) Considerations

According to KDB 941225 D05v02r05, for Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.
SAR was tested with the highest transmission duty factor (63.33 %) using Uplink-downlink configuration 0 and Special subframe configuration 6. LTE TDD Band 41 supports 3GPP TS 36.211 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special sub frame configurations.

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

Calculated Duty Cycle – Extended cyclic prefix in uplink x (T_s) x no of S + no of U

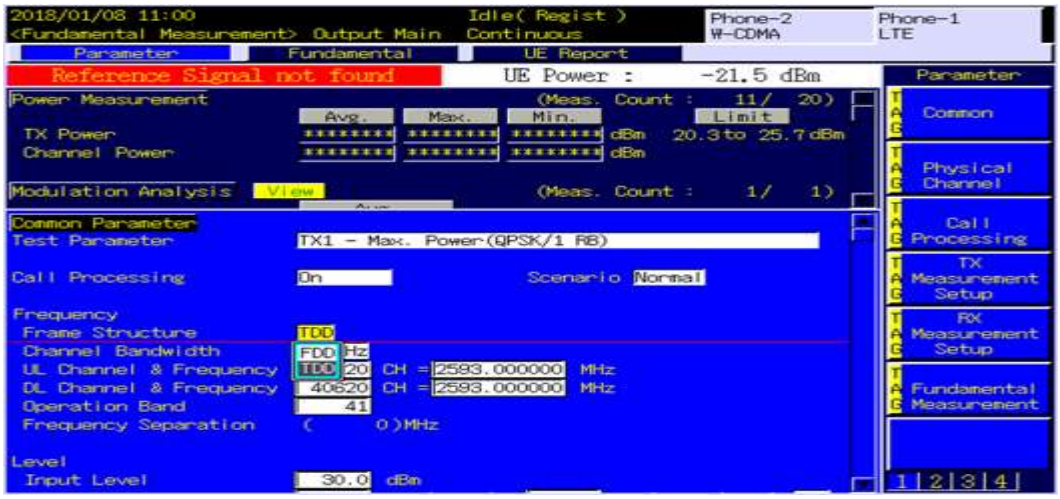
Table 4.2-2: Uplink-downlink configurations.

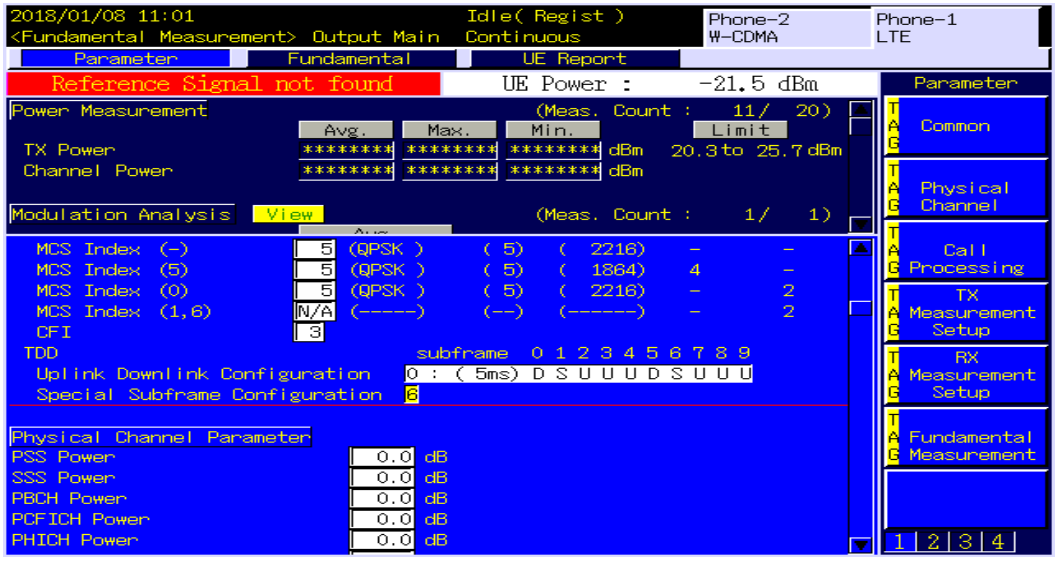
Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U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

Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = (5120 x (1/(15000 x 2048)) x 2 + 0.006)/0.01 = 63.33 %
Where
T_s = 1/(15000 x 2048) seconds

10.4.6 The Call Box Setup for LTE(TDD)

When you Want to Test for LTE TDD, Please Change Frame Structure TDD and TDD Uplink Downlink Configuration 0 and Special Subframe Configuration 6.





10.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01v02r02 for more details.

10.5.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters.
A periodic duty factor is required for current generation SAR system to measure SAR. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92-96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR is scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

10.5.2 U-NII-1 and U-NII-2A

For devices that operate in both U-NII-1 and U-NII2A bands, when the same maximum output power is specified for both bands, SAR measurement using OFDM SAR test procedures is not required for U-NII-1 unless the highest reported SAR for U-NII-2A is > 1.2 W/kg for 1g SAR or > 3.0 W/kg for 10g SAR. When different maximum output powers are specified for the bands, SAR measurement for the U-NII band with the lower maximum output power is not required unless the highest reported SAR for the U-NII band with the higher maximum output power, adjusted by the ratio of lower to higher specified maximum output power for the two bands, is > 1.2 W/kg for 1g SAR or > 3.0 W/kg for 10g SAR.

10.5.3 U-NII-2C and U-NII-3

The frequency range covered by U-NII-2C and U-NII-3 is 380 ㎒ (5.47 – 5.85 ㎓), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. When Terminal Doppler Weather Radar (TDWR) restriction applies, the channels at 5.60 -5.65 ㎓ in U-NII-2C band must be disabled with acceptable mechanisms and documented in the equipment certification.
Unless band gap channels are permanently disabled, SAR must be considered for these channels.

10.5.4 Initial Test Position Procedure

For exposure conditions with multiple test positions, such as handset operating nest to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 10g SAR or all test positions are measured.

10.5.5 2.4 GHz SAR test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:

1) 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 for 802.11b DSSS is that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

2.4 GHz 802.11 g/n OFDM are additionally evaluated for SAR if the highest reported SAR for 802.11b, adjusted by the ratio of the OFDM to DSSS specified maximum output power, is > 1.2 W/kg. When SAR is required for OFDM modes in 2.4 GHz band, the Initial Test Configuration Procedures should be followed.

10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 GHz and 5 GHz bands, when the same maximum output power was specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration with the largest channel bandwidth, lowest order modulation and lowest data rate and lowest order 802.11 a/g/n/ac mode. When the maximum output power of a channel is the same for equivalent OFDM configurations; for example, 802.11a, 802.11n and 802.11 ac or 802.11g and 802.11n with the same channel bandwidth, modulation and data rate etc., the lower order 802.11 mode i.2., 802.11a, then 802.11n and 802.11ac or 802.11g then 802.11n, is used for SAR measurement. When the maximum output power are the same for multiple test channels, either according to the default or additional power measurement requirements, SAR is measured using the channel closest to the middle of the frequency band or aggregated band. When there are multiple channels with the same maximum output power, SAR is measured using the higher number channel.

10.5.7 Initial Test Configuration Procedure

For OFDM, in both 2.4 GHz and 5 GHz bands, an initial test configuration is determined for each frequency band and aggregated band, according to the transmission mode with the highest maximum output power specified for SAR measurements. When the same maximum output power is specified for multiple OFDM transmission mode configurations in a frequency band or aggregated band, SAR is measured using the configuration(s) with the largest channel bandwidth, lowest order modulation, and lowest data rate. If the average RF output powers of the highest identical transmission modes are within 0.25 dB of each other, mid channel of the transmission mode with highest average RF output power is the initial test channel. Otherwise, the channel of the transmission mode with the highest average RF output conducted power will be the initial test configuration.

When the reported SAR is ≤ 0.8 W/kg, no additional measurements on other test channels are required. Otherwise, SAR is evaluated using the subsequent highest average RF output channel until the reported SAR result is 1.2 W/kg or all channels are measured. When there are multiple untested channels having the same subsequent highest average RF output power, the channel with higher frequency from the lowest 802.11 mode is considered for SAR measurements.

10.5.8 Subsequent Test Configuration Procedures

For OFDM configurations in each frequency band and aggregated band, SAR is evaluated for initial test configuration using the fixed test position or the initial test position on procedure. When the highest reported SAR (for the initial test configuration), adjusted by the ratio of the specified maximum output power of the subsequent test configuration to initial test configuration, is ≤ 1.2 W/kg for 1g SAR and ≤ 3.0 W/kg for 10g SAR, no additional SAR tests for the subsequent test configurations are required.

10.5.9 MIMO SAR Considerations

Per KDB Publication 248227 D01v02r02, the simultaneous SAR provisions in KDB publication 447498D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR Measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

11. Output Power Specifications

This device operates using the following maximum output power specifications. SAR values were scaled to the maximum allowed power to determine compliance per KDB publication 447498 D01v06.

Licensed bands

Test Description	Test Procedure Used
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2

Test Overview

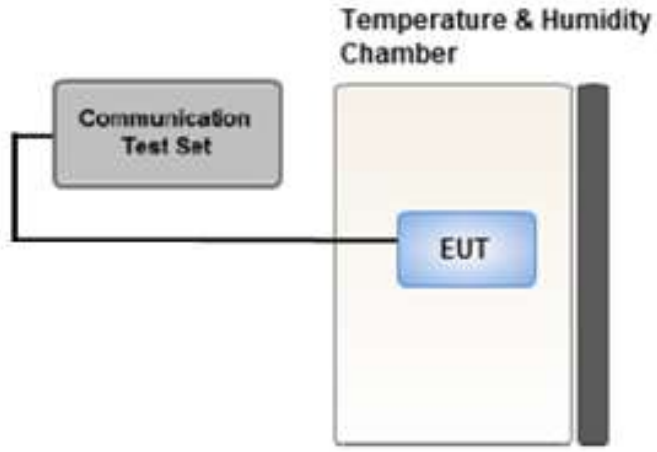
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station emulator, communications test set, call box, or similar instrumentation that is capable of establishing a communications link with the EUT to enable control over variable parameters (e.g., output power, OBW, etc.).

In some cases, these instruments also include basic digital spectrum analyzer and/or power meter capabilities that can be utilized to measure the RF output power if the specified detectors and requirements can be realized and the measurement functions have been calibrated.

Test Procedure

1. The RF port of the EUT was connected to the Communication Tester via an RF cable.
2. Conducted average power was measured using a calibrated Radio Communication Tester.

Test setup



11.1 GSM

11.1.1 GSM Maximum Conducted Output Power

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**34.50**	**34.50**	**33.00**	**33.00**	**31.50**	**28.50**	**27.00**	**27.00**	**25.50**
Nominal		**33.50**	**33.50**	**32.00**	**32.00**	**30.50**	**27.50**	**26.00**	**26.00**	**24.50**
GSM 850	128	32.56	32.74	32.32	31.19	30.54	27.35	26.43	26.13	23.91
	190	32.53	32.51	31.95	30.86	30.28	26.43	25.45	25.61	23.29
	251	32.45	32.46	32.54	31.38	30.24	26.92	25.94	25.83	23.5
Maximum		**32.00**	**32.00**	**30.50**	**28.50**	**27.00**	**27.50**	**27.00**	**25.50**	**23.50**
Nominal		**31.00**	**31.00**	**29.50**	**27.50**	**26.00**	**26.50**	**26.00**	**24.50**	**22.50**
GSM 1900	512	30.37	30.34	29.31	27.60	25.64	26.84	26.05	24.39	22.57
	661	31.62	31.24	29.78	27.06	26.76	27.45	26.43	24.43	22.43
	810	30.94	30.85	29.54	27.35	26.40	26.40	26.33	25.45	22.53

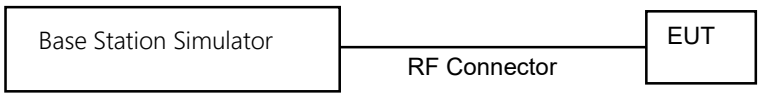
GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**25.47**	**25.47**	**26.98**	**28.74**	**28.49**	**19.47**	**20.98**	**22.74**	**22.49**
Nominal		**24.47**	**24.47**	**25.98**	**27.74**	**27.49**	**18.47**	**19.98**	**21.74**	**21.49**
GSM 850	128	23.53	23.71	26.30	26.93	27.53	18.32	20.41	21.87	20.90
	190	23.50	23.48	25.93	26.60	27.27	17.40	19.43	21.35	20.28
	251	23.42	23.43	26.52	27.12	27.23	17.89	19.92	21.57	20.49
Maximum		**22.97**	**22.97**	**24.48**	**24.24**	**23.99**	**18.47**	**20.98**	**21.24**	**20.49**
Nominal		**21.97**	**21.97**	**23.48**	**23.24**	**22.99**	**17.47**	**19.98**	**20.24**	**19.49**
GSM 1900	512	21.34	21.31	23.29	23.34	22.63	17.81	20.03	20.13	19.56
	661	22.59	22.21	23.76	22.80	23.75	18.42	20.41	20.17	19.42
	810	21.91	21.82	23.52	23.09	23.39	17.37	20.31	21.19	19.52

GSM Conducted output powers (Frame-Average)

Note:
Time slot average factor is as follows:
1 Tx slot = 9.03 dB, Frame-Average output power = Burst-Average output power – 9.03 dB
2 Tx slot = 6.02 dB, Frame-Average output power = Burst-Average output power – 6.02 dB
3 Tx slot = 4.26 dB, Frame-Average output power = Burst-Average output power – 4.26 dB
4 Tx slot = 3.01 dB, Frame-Average output power = Burst-Average output power – 3.01 dB

GSM Class : B
GSM voice: Head SAR , Body worn SAR
GPRS/EDGE Multi-slots 33 : Hotspot SAR with GPRS/EDGE
Multi-slot Class 33 with CS 1 (GMSK)



11.2 UMTS

HSPA+
This DUT is only capable of QPSK HSPA+ in uplink. Therefore, the RF conducted power is not measured according to 941225 D01v03r01 3G SAR.

11.2.1 UMTS Maximum Conducted Output Power

WCDMA Band 5

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 5 [dBm] UL 4132 DL 4357	UL 4183 DL 4408	UL 4233 DL 4458	3GPP MPR
99	WCDMA	12.2 kbps RMC	24.44	24.45	24.65	-
99		12.2 kbps AMR	24.45	24.45	24.64	
5	HSDPA	Subtest 1	23.23	23.25	23.45	0
5		Subtest 2	23.22	23.25	23.44	0
5		Subtest 3	22.71	22.73	22.93	0.5
5		Subtest 4	22.71	22.72	22.93	0.5
6	HSUPA	Subtest 1	23.23	23.23	23.46	0
6		Subtest 2	21.21	21.23	21.45	2
6		Subtest 3	22.19	22.22	22.43	1
6		Subtest 4	21.24	21.27	21.44	2
6		Subtest 5	23.24	23.06	23.47	0
8	DC-HSDPA	Subtest 1	23.03	23.12	23.38	0
8		Subtest 2	23.02	23.10	23.34	0
8		Subtest 3	22.52	22.60	22.85	0.5
8		Subtest 4	22.51	22.60	22.89	0.5

WCDMA Average Conducted output powers

WCDMA Band 4

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 4 [dBm] UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	3GPP MPR
99	WCDMA	12.2 kbps RMC	23.88	23.55	23.79	-
99		12.2 kbps AMR	23.89	23.53	23.78	
5	HSDPA	Subtest 1	22.64	22.34	22.56	0
5		Subtest 2	22.65	22.33	22.55	0
5		Subtest 3	22.17	21.86	22.06	0.5
5		Subtest 4	22.18	21.86	22.09	0.5
6	HSUPA	Subtest 1	22.68	22.37	22.59	0
6		Subtest 2	20.66	20.37	20.58	2
6		Subtest 3	19.83	19.81	20.05	1
6		Subtest 4	20.66	20.34	20.06	2
6		Subtest 5	22.66	22.35	22.58	0
8	DC-HSDPA	Subtest 1	22.68	22.47	22.51	0
8		Subtest 2	22.65	22.47	22.51	0
8		Subtest 3	22.19	21.98	22.02	0.5
8		Subtest 4	22.18	21.97	22.00	0.5

WCDMA Average Conducted output powers

WCDMA Band 2

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 2 [dBm] UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	3GPP MPR
99	WCDMA	12.2 kbps RMC	24.13	23.83	23.94	-
99		12.2 kbps AMR	24.09	23.82	23.90	
5	HSDPA	Subtest 1	22.94	22.67	22.84	0
5		Subtest 2	22.94	22.69	22.82	0
5		Subtest 3	22.46	22.20	22.34	0.5
5		Subtest 4	22.45	22.19	22.34	0.5
6	HSUPA	Subtest 1	22.98	22.73	22.86	0
6		Subtest 2	20.96	20.68	20.85	2
6		Subtest 3	20.94	20.69	20.83	1
6		Subtest 4	20.92	20.68	20.81	2
6		Subtest 5	22.95	22.70	22.85	0
8	DC-HSDPA	Subtest 1	22.86	22.63	22.65	0
8		Subtest 2	22.85	22.61	22.66	0
8		Subtest 3	22.36	22.12	22.13	0.5
8		Subtest 4	22.35	22.12	22.11	0.5

WCDMA Average Conducted output powers

11.2.2 UMTS Reduced Conducted Output Power (Hotspot mode activated)

WCDMA Band 4 Hotspot Back-off Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 4 [dBm] UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	3GPP MPR
99	WCDMA	12.2 kbps RMC	19.48	19.10	19.35	-
99		12.2 kbps AMR	19.44	19.11	19.35	-
5	HSDPA	Subtest 1	18.23	17.90	18.17	0
5		Subtest 2	18.18	17.90	18.15	0
5		Subtest 3	17.66	17.40	17.67	0.5
5		Subtest 4	17.66	17.39	17.66	0.5
6	HSUPA	Subtest 1	18.26	17.91	18.17	0
6		Subtest 2	16.28	15.94	16.20	2
6		Subtest 3	15.75	15.42	15.66	1
6		Subtest 4	16.26	15.91	16.18	2
6		Subtest 5	18.29	17.92	18.26	0
8	DC-HSDPA	Subtest 1	18.41	17.97	18.04	0
8		Subtest 2	18.44	17.97	18.04	0
8		Subtest 3	17.92	17.47	17.56	0.5
8		Subtest 4	17.90	17.46	17.56	0.5

WCDMA Average Conducted output powers

WCDMA Band 2 Hotspot Back-off Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 2 [dBm] UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	3GPP MPR
99	WCDMA	12.2 kbps RMC	19.65	19.30	19.42	-
99		12.2 kbps AMR	19.62	19.30	19.44	-
5	HSDPA	Subtest 1	18.48	18.17	18.34	0
5		Subtest 2	18.45	18.14	18.32	0
5		Subtest 3	17.95	17.64	17.83	0.5
5		Subtest 4	17.94	17.61	17.79	0.5
6	HSUPA	Subtest 1	18.47	18.16	18.33	0
6		Subtest 2	16.47	16.44	16.33	2
6		Subtest 3	16.40	16.16	16.30	1
6		Subtest 4	16.43	16.14	16.32	2
6		Subtest 5	18.45	18.14	18.32	0
8	DC-HSDPA	Subtest 1	18.34	17.90	18.14	0
8		Subtest 2	18.33	18.02	18.15	0
8		Subtest 3	17.82	17.50	17.65	0.5
8		Subtest 4	17.84	17.49	17.64	0.5

WCDMA Average Conducted output powers

11.2.3 UMTS Reduced Conducted Output Power – (Grip back Activated)

WCDMA Band 4 Grip back-off Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 4 [dBm] UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	3GPP MPR
99	WCDMA	12.2 kbps RMC	19.43	19.06	19.32	-
99		12.2 kbps AMR	19.38	19.04	19.28	
5	HSDPA	Subtest 1	18.18	17.82	18.09	0
5		Subtest 2	18.17	17.83	18.06	0
5		Subtest 3	17.66	17.29	17.56	0.5
5		Subtest 4	17.54	17.29	17.55	0.5
6	HSUPA	Subtest 1	18.16	17.81	18.07	0
6		Subtest 2	16.14	15.82	16.08	2
6		Subtest 3	15.65	15.29	15.55	1
6		Subtest 4	16.17	15.82	16.05	2
6		Subtest 5	18.15	17.82	18.08	0
8	DC-HSDPA	Subtest 1	18.20	17.95	18.03	0
8		Subtest 2	18.20	17.96	18.03	0
8		Subtest 3	17.72	17.45	17.53	0.5
8		Subtest 4	17.68	17.45	17.55	0.5

WCDMA Average Conducted output powers

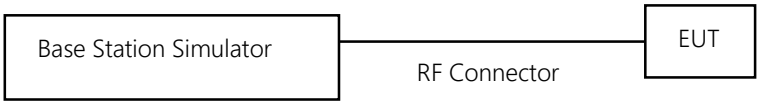
WCDMA Band 2 Grip back-off Power

3GPP Release Version	Mode	3GPP 34.121 Subtest	WCDMA Band 2 [dBm] UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	3GPP MPR
99	WCDMA	12.2 kbps RMC	19.64	19.31	19.45	-
99		12.2 kbps AMR	19.63	19.29	19.43	
5	HSDPA	Subtest 1	18.46	18.19	18.34	0
5		Subtest 2	18.44	18.15	18.31	0
5		Subtest 3	17.94	17.62	17.82	0.5
5		Subtest 4	17.92	17.55	17.81	0.5
6	HSUPA	Subtest 1	18.46	18.16	18.33	0
6		Subtest 2	16.47	16.16	16.32	2
6		Subtest 3	16.43	16.15	16.29	1
6		Subtest 4	16.43	16.17	16.31	2
6		Subtest 5	18.44	18.17	18.33	0
8	DC-HSDPA	Subtest 1	18.37	18.10	18.14	0
8		Subtest 2	18.39	18.10	18.14	0
8		Subtest 3	17.87	17.59	17.65	0.5
8		Subtest 4	17.88	17.58	17.67	0.5

WCDMA Average Conducted output powers

DC-HSDPA Configurations

- 3GPP specification TS 34.121-1 Release 8. was used for used for DC-HSDPA guidance.
- H-set 12(QPSK)was conformed to be used during DC-HSDPA measurements.



11.3 LTE Maximum Output Power

11.3.1 LTE Maximum Conducted Power

LTE Band 2 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18607 Ch. 1850.7 ㎒	18900 Ch. 1880 ㎒	19193 Ch. 1909.3 ㎒		
1.4 ㎒	QPSK	1	0	23.89	23.73	23.93	0	0
		1	3	23.98	23.87	24.00	0	0
		1	5	23.90	23.85	23.99	0	0
		3	0	23.94	23.81	23.92	0	0
		3	1	23.98	23.85	23.98	0	0
		3	3	23.93	23.83	23.94	0	0
		6	0	23.03	22.89	23.05	0-1	1
	16QAM	1	0	23.13	23.02	23.09	0-1	1
		1	3	23.35	23.19	23.19	0-1	1
		1	5	23.28	23.17	23.08	0-1	1
		3	0	23.01	22.93	22.97	0-1	1
		3	1	23.09	22.98	23.03	0-1	1
		3	3	23.06	22.97	22.91	0-1	1
		6	0	22.16	22.04	22.15	0-2	2
	64QAM	1	0	22.21	22.13	22.10	0-2	2
		1	3	22.30	22.20	22.22	0-2	2
		1	5	22.23	22.19	22.15	0-2	2
		3	0	22.17	22.03	22.13	0-2	2
		3	1	22.17	22.12	22.14	0-2	2
		3	3	22.22	22.11	22.09	0-2	2
		6	0	21.06	20.96	21.01	0-3	3

LTE Band 2 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18615 Ch. 1851.5 ㎒	18900 Ch. 1880 ㎒	19185 Ch. 1908.5 ㎒		
3 ㎒	QPSK	1	0	23.94	23.85	24.00	0	0
		1	7	24.00	23.86	23.95	0	0
		1	14	23.99	23.92	24.03	0	0
		8	0	23.06	22.94	23.11	0-1	1
		8	3	23.11	23.03	23.13	0-1	1
		8	7	23.10	23.02	23.11	0-1	1
		15	0	23.13	23.04	23.24	0-1	1
	16QAM	1	0	23.23	23.06	23.11	0-1	1
		1	7	23.36	23.22	23.22	0-1	1
		1	14	23.36	23.27	23.18	0-1	1
		8	0	22.16	22.07	22.15	0-2	2
		8	3	22.21	22.11	22.19	0-2	2
		8	7	22.20	22.13	22.16	0-2	2
		15	0	22.16	22.00	22.21	0-2	2
	64QAM	1	0	22.25	22.14	22.13	0-2	2
		1	7	22.23	22.11	22.14	0-2	2
		1	14	22.36	22.21	22.14	0-2	2
		8	0	21.17	21.04	21.14	0-3	3
		8	3	21.23	21.09	21.20	0-3	3
		8	7	21.20	21.11	21.17	0-3	3
		15	0	21.16	21.05	21.20	0-3	3

LTE Band 2 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18625 Ch. 1852.5 ㎒	18900 Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	23.99	23.85	23.91	0	0
		1	12	23.97	23.87	24.04	0	0
		1	24	24.00	23.93	24.03	0	0
		12	0	23.07	22.96	23.10	0-1	1
		12	6	23.15	22.98	23.12	0-1	1
		12	11	23.14	23.06	23.18	0-1	1
		25	0	23.09	23.00	23.13	0-1	1
	16QAM	1	0	23.31	23.22	23.11	0-1	1
		1	12	23.30	23.19	23.24	0-1	1
		1	24	23.24	23.15	23.22	0-1	1
		12	0	22.12	22.02	22.06	0-2	2
		12	6	22.20	22.07	22.14	0-2	2
		12	11	22.19	22.10	22.13	0-2	2
		25	0	22.14	22.05	22.11	0-2	2
	64QAM	1	0	22.28	22.12	22.21	0-2	2
		1	12	22.31	22.23	22.16	0-2	2
		1	24	22.35	22.17	22.15	0-2	2
		12	0	21.14	21.03	21.12	0-3	3
		12	6	21.23	21.10	21.21	0-3	3
		12	11	21.21	21.16	21.28	0-3	3
		25	0	21.16	21.08	21.14	0-3	3

LTE Band 2 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18650 Ch. 1855 ㎒	18900 Ch. 1880 ㎒	19150 Ch. 1905 ㎒		
10 ㎒	QPSK	1	0	23.86	23.79	24.08	0	0
		1	24	23.96	23.91	24.04	0	0
		1	49	23.95	23.87	23.91	0	0
		25	0	23.10	23.00	23.16	0-1	1
		25	12	23.12	23.03	23.20	0-1	1
		25	24	23.11	22.99	23.14	0-1	1
		50	0	23.09	22.99	23.21	0-1	1
	16QAM	1	0	23.20	23.15	23.45	0-1	1
		1	24	23.39	23.20	23.29	0-1	1
		1	49	23.37	23.16	23.12	0-1	1
		25	0	22.13	22.01	22.22	0-2	2
		25	12	22.15	22.06	22.20	0-2	2
		25	24	22.10	21.98	22.11	0-2	2
		50	0	22.14	21.97	22.13	0-2	2
	64QAM	1	0	22.11	22.15	22.44	0-2	2
		1	24	22.25	22.14	22.35	0-2	2
		1	49	22.30	22.18	22.13	0-2	2
		25	0	21.15	21.03	21.21	0-3	3
		25	12	21.20	21.06	21.19	0-3	3
		25	24	21.11	20.99	21.12	0-3	3
		50	0	21.13	21.04	21.20	0-3	3

LTE Band 2 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18675 Ch. 1857.5 ㎒	18900 Ch. 1880 ㎒	19125 Ch. 1902.5 ㎒		
15 ㎒	QPSK	1	0	23.88	23.81	23.92	0	0
		1	36	23.84	23.74	23.83	0	0
		1	74	23.94	23.96	23.89	0	0
		36	0	23.16	23.06	23.23	0-1	1
		36	18	23.19	23.14	23.30	0-1	1
		36	39	23.25	23.12	23.23	0-1	1
		75	0	23.23	23.14	23.23	0-1	1
	16QAM	1	0	23.31	23.36	23.55	0-1	1
		1	36	23.49	23.35	23.43	0-1	1
		1	74	23.49	23.55	23.28	0-1	1
		36	0	22.22	22.09	22.30	0-2	2
		36	18	22.25	22.16	22.31	0-2	2
		36	39	22.31	22.18	22.22	0-2	2
		75	0	22.25	22.15	22.27	0-2	2
	64QAM	1	0	22.38	22.28	22.40	0-2	2
		1	36	22.41	22.22	22.46	0-2	2
		1	74	22.39	22.47	22.23	0-2	2
		36	0	21.25	21.19	21.33	0-3	3
		36	18	21.32	21.14	21.35	0-3	3
		36	39	21.29	21.26	21.30	0-3	3
		75	0	21.28	21.17	21.31	0-3	3

LTE Band 2 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	23.85	23.79	**23.93**	0	0
		1	49	23.86	23.74	23.88	0	0
		1	99	23.92	23.88	23.90	0	0
		50	0	23.16	23.07	**23.31**	0-1	1
		50	25	23.20	23.10	23.26	0-1	1
		50	49	23.26	23.15	23.29	0-1	1
		100	0	23.20	23.11	23.26	0-1	1
	16QAM	1	0	23.38	23.30	23.48	0-1	1
		1	49	23.44	23.35	23.46	0-1	1
		1	99	23.53	23.43	23.33	0-1	1
		50	0	22.20	22.11	22.33	0-2	2
		50	25	22.27	22.17	22.27	0-2	2
		50	49	22.28	22.17	22.30	0-2	2
		100	0	22.19	22.12	22.27	0-2	2
	64QAM	1	0	22.35	22.18	22.43	0-2	2
		1	49	22.29	22.24	22.37	0-2	2
		1	99	22.30	22.42	22.23	0-2	2
		50	0	21.18	21.16	21.36	0-3	3
		50	25	21.23	21.17	21.29	0-3	3
		50	49	21.30	21.23	21.29	0-3	3
		100	0	21.25	21.17	21.30	0-3	3

[LTE Band 4 Conducted Power]

LTE Band 4 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19957 Ch. 1710.7 ㎒	20175 Ch. 1732.5 ㎒	20393 Ch. 1754.3 ㎒		
1.4 ㎒	QPSK	1	0	23.81	23.39	23.69	0	0
		1	3	23.99	23.66	23.83	0	0
		1	5	23.89	23.56	23.74	0	0
		3	0	23.89	23.47	23.77	0	0
		3	1	23.94	23.54	23.82	0	0
		3	3	23.92	23.59	23.78	0	0
		6	0	23.02	22.68	22.91	0-1	1
	16QAM	1	0	23.11	22.77	23.01	0-1	1
		1	3	23.26	23.01	23.16	0-1	1
		1	5	23.23	22.82	23.14	0-1	1
		3	0	22.99	22.60	22.84	0-1	1
		3	1	23.01	22.63	22.95	0-1	1
		3	3	23.02	22.59	22.94	0-1	1
		6	0	22.15	21.74	22.02	0-2	2
	64QAM	1	0	22.12	21.80	22.05	0-2	2
		1	3	22.25	21.92	22.14	0-2	2
		1	5	22.13	21.84	22.02	0-2	2
		3	0	22.09	21.74	21.98	0-2	2
		3	1	22.19	21.82	22.03	0-2	2
		3	3	22.08	21.82	21.99	0-2	2
		6	0	21.06	20.62	20.93	0-3	3

LTE Band 4 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19965 Ch. 1711.5 ㎒	20175 Ch. 1732.5 ㎒	20385 Ch. 1753.5 ㎒		
3 ㎒	QPSK	1	0	23.92	23.53	23.68	0	0
		1	7	23.95	23.60	23.82	0	0
		1	14	23.85	23.59	23.79	0	0
		8	0	23.06	22.64	22.87	0-1	1
		8	3	23.08	22.71	22.99	0-1	1
		8	7	23.00	22.76	22.95	0-1	1
		15	0	23.08	22.67	22.96	0-1	1
	16QAM	1	0	23.16	22.86	23.16	0-1	1
		1	7	23.28	22.94	23.20	0-1	1
		1	14	23.11	22.91	23.21	0-1	1
		8	0	22.15	21.78	21.95	0-2	2
		8	3	22.16	21.85	22.09	0-2	2
		8	7	22.12	21.81	22.07	0-2	2
		15	0	22.10	21.74	22.04	0-2	2
	64QAM	1	0	22.16	21.77	22.07	0-2	2
		1	7	22.19	21.89	22.13	0-2	2
		1	14	22.12	21.86	22.16	0-2	2
		8	0	21.15	20.75	20.96	0-3	3
		8	3	21.17	20.83	21.09	0-3	3
		8	7	21.14	20.83	21.06	0-3	3
		15	0	21.16	20.78	20.99	0-3	3

LTE Band 4 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19975 Ch. 1712.5 ㎒	20175 Ch. 1732.5 ㎒	20375 Ch. 1752.5 ㎒		
5 ㎒	QPSK	1	0	23.95	23.56	23.77	0	0
		1	12	23.94	23.64	23.89	0	0
		1	24	23.78	23.57	23.80	0	0
		12	0	23.11	22.67	22.88	0-1	1
		12	6	23.04	22.72	22.99	0-1	1
		12	11	22.99	22.74	22.95	0-1	1
		25	0	23.00	22.65	22.93	0-1	1
	16QAM	1	0	23.31	22.87	23.07	0-1	1
		1	12	23.20	22.99	23.14	0-1	1
		1	24	23.09	22.98	23.09	0-1	1
		12	0	22.10	21.72	21.96	0-2	2
		12	6	22.09	21.77	22.02	0-2	2
		12	11	22.01	21.78	22.01	0-2	2
		25	0	22.06	21.73	21.98	0-2	2
	64QAM	1	0	22.18	21.85	22.14	0-2	2
		1	12	22.30	21.94	22.18	0-2	2
		1	24	22.07	21.92	22.15	0-2	2
		12	0	21.19	20.74	20.98	0-3	3
		12	6	21.09	20.81	21.10	0-3	3
		12	11	21.05	20.85	21.09	0-3	3
		25	0	21.03	20.74	21.02	0-3	3

LTE Band 4 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20000 Ch. 1715 ㎒	20175 Ch. 1732.5 ㎒	20350 Ch. 1750 ㎒		
10 ㎒	QPSK	1	0	23.86	23.54	23.67	0	0
		1	24	23.94	23.54	23.72	0	0
		1	49	23.75	23.64	23.75	0	0
		25	0	23.01	22.72	22.90	0-1	1
		25	12	23.04	22.77	22.92	0-1	1
		25	24	22.94	22.72	22.85	0-1	1
		50	0	22.98	22.71	22.85	0-1	1
	16QAM	1	0	23.10	22.88	23.02	0-1	1
		1	24	23.17	22.91	23.13	0-1	1
		1	49	23.18	22.92	23.01	0-1	1
		25	0	22.04	21.76	21.96	0-2	2
		25	12	22.04	21.77	21.95	0-2	2
		25	24	21.97	21.74	21.89	0-2	2
		50	0	22.01	21.75	21.87	0-2	2
	64QAM	1	0	22.19	21.87	21.93	0-2	2
		1	24	22.07	21.93	22.10	0-2	2
		1	49	22.10	21.90	22.03	0-2	2
		25	0	21.05	20.76	20.96	0-3	3
		25	12	21.09	20.81	21.00	0-3	3
		25	24	20.99	20.73	20.87	0-3	3
		50	0	21.05	20.73	20.95	0-3	3

LTE Band 4 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20025 Ch. 1717.5 ㎒	20175 Ch. 1732.5 ㎒	20325 Ch. 1747.5 ㎒		
15 ㎒	QPSK	1	0	23.92	23.67	23.83	0	0
		1	36	23.96	23.65	23.86	0	0
		1	74	23.98	23.80	23.93	0	0
		36	0	23.06	22.86	23.00	0-1	1
		36	18	23.07	22.90	23.02	0-1	1
		36	39	23.07	22.89	23.04	0-1	1
		75	0	23.07	22.89	22.99	0-1	1
	16QAM	1	0	23.23	23.07	23.18	0-1	1
		1	36	23.24	23.07	23.19	0-1	1
		1	74	23.27	23.02	23.25	0-1	1
		36	0	22.12	21.86	22.03	0-2	2
		36	18	22.13	21.91	22.06	0-2	2
		36	39	22.10	21.91	22.05	0-2	2
		75	0	22.12	21.90	22.07	0-2	2
	64QAM	1	0	22.20	21.92	22.17	0-2	2
		1	36	22.19	21.97	22.14	0-2	2
		1	74	22.25	22.04	22.31	0-2	2
		36	0	21.15	20.96	21.07	0-3	3
		36	18	21.17	20.94	21.12	0-3	3
		36	39	21.13	20.98	21.12	0-3	3
		75	0	21.11	20.91	21.10	0-3	3

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				20175 Ch. 1732.5 ㎒		
20 ㎒	QPSK	1	0	23.76	0	0
		1	49	23.69	0	0
		1	99	**23.85**	0	0
		50	0	22.86	0-1	1
		50	25	**22.89**	0-1	1
		50	49	22.89	0-1	1
		100	0	22.87	0-1	1
	16QAM	1	0	23.05	0-1	1
		1	49	23.07	0-1	1
		1	99	23.30	0-1	1
		50	0	21.86	0-2	2
		50	25	21.93	0-2	2
		50	49	21.90	0-2	2
		100	0	21.88	0-2	2
	64QAM	1	0	21.98	0-2	2
		1	49	21.95	0-2	2
		1	99	22.24	0-2	2
		50	0	20.90	0-3	3
		50	25	20.94	0-3	3
		50	49	20.91	0-3	3
		100	0	20.90	0-3	3

Note: LTE Band 4 (AWS) at 20 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 5 Conducted Power]

LTE Band 5 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20407 Ch. 824.7 ㎒	20525 Ch. 836.5 ㎒	20643 Ch. 848.3 ㎒		
1.4 ㎒	QPSK	1	0	24.06	24.07	24.23	0	0
		1	3	24.12	24.18	24.37	0	0
		1	5	24.08	24.17	24.33	0	0
		3	0	24.06	24.06	24.25	0	0
		3	1	24.09	24.19	24.40	0	0
		3	3	24.06	24.16	24.36	0	0
		6	0	23.18	23.27	23.35	0-1	1
	16QAM	1	0	23.24	23.31	23.41	0-1	1
		1	3	23.42	23.42	23.54	0-1	1
		1	5	23.31	23.50	23.62	0-1	1
		3	0	23.05	23.16	23.34	0-1	1
		3	1	23.10	23.18	23.42	0-1	1
		3	3	23.13	23.23	23.41	0-1	1
		6	0	22.21	22.32	22.45	0-2	2
	64QAM	1	0	22.18	22.23	22.46	0-2	2
		1	3	22.37	22.40	22.58	0-2	2
		1	5	22.31	22.34	22.55	0-2	2
		3	0	22.20	22.20	22.41	0-2	2
		3	1	22.28	22.37	22.54	0-2	2
		3	3	22.21	22.30	22.48	0-2	2
		6	0	21.15	21.26	21.31	0-3	3

LTE Band 5 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20415 Ch. 825.5 ㎒	20525 Ch. 836.5 ㎒	20635 Ch. 847.5 ㎒		
3 ㎒	QPSK	1	0	24.01	24.09	24.23	0	0
		1	7	24.12	24.14	24.38	0	0
		1	14	24.17	24.26	24.40	0	0
		8	0	23.10	23.19	23.38	0-1	1
		8	3	23.26	23.32	23.48	0-1	1
		8	7	23.26	23.28	23.51	0-1	1
		15	0	23.31	23.34	23.46	0-1	1
	16QAM	1	0	23.20	23.34	23.46	0-1	1
		1	7	23.31	23.46	23.68	0-1	1
		1	14	23.38	23.52	23.63	0-1	1
		8	0	22.11	22.26	22.41	0-2	2
		8	3	22.28	22.38	22.52	0-2	2
		8	7	22.29	22.31	22.54	0-2	2
		15	0	22.27	22.31	22.43	0-2	2
	64QAM	1	0	22.19	22.23	22.39	0-2	2
		1	7	22.28	22.47	22.57	0-2	2
		1	14	22.31	22.41	22.63	0-2	2
		8	0	21.14	21.18	21.42	0-3	3
		8	3	21.30	21.35	21.56	0-3	3
		8	7	21.29	21.36	21.55	0-3	3
		15	0	21.27	21.33	21.43	0-3	3

LTE Band 5 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20425 Ch. 826.5 ㎒	20525 Ch. 836.5 ㎒	20625 Ch. 846.5 ㎒		
5 ㎒	QPSK	1	0	24.06	24.09	24.27	0	0
		1	12	24.12	24.19	24.36	0	0
		1	24	24.06	24.24	24.40	0	0
		12	0	23.13	23.19	23.32	0-1	1
		12	6	23.27	23.32	23.43	0-1	1
		12	11	23.26	23.35	23.52	0-1	1
		25	0	23.30	23.30	23.43	0-1	1
	16QAM	1	0	23.31	23.33	23.54	0-1	1
		1	12	23.44	23.46	23.64	0-1	1
		1	24	23.44	23.53	23.56	0-1	1
		12	0	22.12	22.20	22.36	0-2	2
		12	6	22.23	22.29	22.40	0-2	2
		12	11	22.24	22.35	22.48	0-2	2
		25	0	22.25	22.27	22.41	0-2	2
	64QAM	1	0	22.25	22.37	22.40	0-2	2
		1	12	22.35	22.36	22.61	0-2	2
		1	24	22.37	22.45	22.55	0-2	2
		12	0	21.14	21.23	21.38	0-3	3
		12	6	21.29	21.35	21.45	0-3	3
		12	11	21.30	21.40	21.52	0-3	3
		25	0	21.25	21.29	21.43	0-3	3

LTE Band 5 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				20525 Ch. 836.5 ㎒		
10 ㎒	QPSK	1	0	24.20	0	0
		1	24	24.16	0	0
		1	49	**24.27**	0	0
		25	0	23.31	0-1	1
		25	12	**23.35**	0-1	1
		25	24	23.30	0-1	1
		50	0	23.29	0-1	1
	16QAM	1	0	23.40	0-1	1
		1	24	23.41	0-1	1
		1	49	23.51	0-1	1
		25	0	22.29	0-2	2
		25	12	22.28	0-2	2
		25	24	22.26	0-2	2
		50	0	22.30	0-2	2
	64QAM	1	0	22.40	0-2	2
		1	24	22.20	0-2	2
		1	49	22.51	0-2	2
		25	0	21.35	0-3	3
		25	12	21.31	0-3	3
		25	24	21.23	0-3	3
		50	0	21.30	0-3	3

Note: LTE Band 5 at 10 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 12 Conducted Power]

LTE Band 12 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23017 Ch. 699.7 ㎒	23095 Ch. 707.5 ㎒	23173 Ch. 715.3 ㎒		
1.4 ㎒	QPSK	1	0	24.11	24.30	24.33	0	0
		1	3	24.20	24.40	24.41	0	0
		1	5	24.16	24.37	24.36	0	0
		3	0	24.16	24.30	24.32	0	0
		3	1	24.24	24.43	24.34	0	0
		3	3	24.19	24.38	24.33	0	0
		6	0	23.30	23.48	23.41	0-1	1
	16QAM	1	0	23.36	23.54	23.49	0-1	1
		1	3	23.50	23.74	23.70	0-1	1
		1	5	23.51	23.68	23.51	0-1	1
		3	0	23.21	23.38	23.37	0-1	1
		3	1	23.24	23.50	23.33	0-1	1
		3	3	23.21	23.40	23.34	0-1	1
		6	0	22.38	22.50	22.48	0-2	2
	64QAM	1	0	22.38	22.47	22.46	0-2	2
		1	3	22.46	22.66	22.58	0-2	2
		1	5	22.38	22.50	22.55	0-2	2
		3	0	22.35	22.57	22.51	0-2	2
		3	1	22.45	22.58	22.54	0-2	2
		3	3	22.38	22.57	22.55	0-2	2
		6	0	21.27	21.45	21.41	0-3	3

LTE Band 12 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23025 Ch. 700.5 ㎒	23095 Ch. 707.5 ㎒	23165 Ch. 714.5 ㎒		
3 ㎒	QPSK	1	0	24.14	24.31	24.30	0	0
		1	7	24.24	24.41	24.36	0	0
		1	14	24.25	24.37	24.36	0	0
		8	0	23.33	23.45	23.44	0-1	1
		8	3	23.38	23.56	23.48	0-1	1
		8	7	23.41	23.45	23.47	0-1	1
		15	0	23.41	23.60	23.50	0-1	1
	16QAM	1	0	23.38	23.65	23.43	0-1	1
		1	7	23.48	23.75	23.67	0-1	1
		1	14	23.46	23.60	23.66	0-1	1
		8	0	22.34	22.53	22.44	0-2	2
		8	3	22.46	22.59	22.51	0-2	2
		8	7	22.43	22.57	22.55	0-2	2
		15	0	22.42	22.58	22.48	0-2	2
	64QAM	1	0	22.44	22.51	22.53	0-2	2
		1	7	22.47	22.58	22.61	0-2	2
		1	14	22.46	22.56	22.56	0-2	2
		8	0	21.36	21.53	21.49	0-3	3
		8	3	21.45	21.62	21.50	0-3	3
		8	7	21.44	21.51	21.49	0-3	3
		15	0	21.38	21.59	21.46	0-3	3

LTE Band 12 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23035 Ch. 701.5 ㎒	23095 Ch. 707.5 ㎒	23155 Ch. 713.5 ㎒		
5 ㎒	QPSK	1	0	24.11	24.28	24.37	0	0
		1	12	24.30	24.39	24.44	0	0
		1	24	24.30	24.36	24.41	0	0
		12	0	23.31	23.46	23.50	0-1	1
		12	6	23.47	23.58	23.54	0-1	1
		12	11	23.41	23.50	23.55	0-1	1
		25	0	23.41	23.51	23.50	0-1	1
	16QAM	1	0	23.43	23.49	23.56	0-1	1
		1	12	23.56	23.73	23.69	0-1	1
		1	24	23.52	23.56	23.62	0-1	1
		12	0	22.35	22.45	22.44	0-2	2
		12	6	22.43	22.56	22.46	0-2	2
		12	11	22.40	22.48	22.53	0-2	2
		25	0	22.41	22.48	22.49	0-2	2
	64QAM	1	0	22.45	22.50	22.58	0-2	2
		1	12	22.47	22.65	22.61	0-2	2
		1	24	22.42	22.64	22.56	0-2	2
		12	0	21.41	21.48	21.51	0-3	3
		12	6	21.49	21.62	21.56	0-3	3
		12	11	21.47	21.57	21.55	0-3	3
		25	0	21.45	21.47	21.50	0-3	3

LTE Band 12 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23095 Ch. 707.5 ㎒		
10 ㎒	QPSK	1	0	**24.35**	0	0
		1	24	24.23	0	0
		1	49	24.29	0	0
		25	0	**23.58**	0-1	1
		25	12	23.54	0-1	1
		25	24	23.48	0-1	1
		50	0	23.55	0-1	1
	16QAM	1	0	23.57	0-1	1
		1	24	23.48	0-1	1
		1	49	23.59	0-1	1
		25	0	22.54	0-2	2
		25	12	22.55	0-2	2
		25	24	22.46	0-2	2
		50	0	22.51	0-2	2
	64QAM	1	0	22.52	0-2	2
		1	24	22.66	0-2	2
		1	49	22.57	0-2	2
		25	0	21.57	0-3	3
		25	12	21.54	0-3	3
		25	24	21.46	0-3	3
		50	0	21.51	0-3	3

Note: LTE Band 12 at 10 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 13 Conducted Power]

LTE Band 13 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23205 Ch. 779.5 ㎒	23230 Ch. 782 ㎒	23255 Ch. 784.5 ㎒		
5 ㎒	QPSK	1	0	23.81	23.87	23.84	0	0
		1	12	23.83	23.88	23.86	0	0
		1	24	23.87	23.85	23.85	0	0
		12	0	23.02	23.00	23.04	0-1	1
		12	6	23.08	23.03	23.05	0-1	1
		12	11	23.03	23.05	23.02	0-1	1
		25	0	23.10	23.07	23.09	0-1	1
	16QAM	1	0	22.96	23.10	23.16	0-1	1
		1	12	23.13	23.19	23.15	0-1	1
		1	24	23.06	23.05	22.93	0-1	1
		12	0	21.93	22.02	22.02	0-2	2
		12	6	22.06	22.01	21.99	0-2	2
		12	11	22.03	22.02	21.97	0-2	2
		25	0	22.07	21.98	22.04	0-2	2
	64QAM	1	0	21.95	21.98	22.05	0-2	2
		1	12	22.05	22.00	22.09	0-2	2
		1	24	22.10	22.08	22.01	0-2	2
		12	0	20.99	21.05	20.99	0-3	3
		12	6	21.09	21.07	21.08	0-3	3
		12	11	21.07	21.10	21.06	0-3	3
		25	0	21.08	21.01	21.05	0-3	3

LTE Band 13 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23230 Ch. 782 ㎒		
10 ㎒	QPSK	1	0	**23.93**	0	0
		1	24	23.93	0	0
		1	49	23.82	0	0
		25	0	**23.09**	0-1	1
		25	12	23.08	0-1	1
		25	24	23.07	0-1	1
		50	0	23.09	0-1	1
	16QAM	1	0	23.04	0-1	1
		1	24	23.04	0-1	1
		1	49	23.05	0-1	1
		25	0	22.03	0-2	2
		25	12	22.07	0-2	2
		25	24	22.02	0-2	2
		50	0	22.05	0-2	2
	64QAM	1	0	21.96	0-2	2
		1	24	22.05	0-2	2
		1	49	22.04	0-2	2
		25	0	21.05	0-3	3
		25	12	21.04	0-3	3
		25	24	21.03	0-3	3
		50	0	21.10	0-3	3

Note: LTE Band 13 at 10 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 17 Conducted Power]

LTE Band 17 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23755 Ch. 706.5 ㎒	23790 Ch. 710 ㎒	23825 Ch. 713.5 ㎒		
5 ㎒	QPSK	1	0	24.09	24.33	24.30	0	0
		1	12	24.45	24.57	24.53	0	0
		1	24	24.31	24.31	24.25	0	0
		12	0	23.48	23.58	23.57	0-1	1
		12	6	23.62	23.63	23.64	0-1	1
		12	11	23.59	23.64	23.58	0-1	1
		25	0	23.54	23.59	23.54	0-1	1
	16QAM	1	0	23.36	23.47	23.50	0-1	1
		1	12	23.68	23.73	23.75	0-1	1
		1	24	23.50	23.51	23.47	0-1	1
		12	0	22.44	22.57	22.53	0-2	2
		12	6	22.61	22.60	22.66	0-2	2
		12	11	22.56	22.62	22.57	0-2	2
		25	0	22.54	22.60	22.53	0-2	2
	64QAM	1	0	22.37	22.54	22.49	0-2	2
		1	12	22.66	22.75	22.69	0-2	2
		1	24	22.60	22.58	22.43	0-2	2
		12	0	21.48	21.65	21.55	0-3	3
		12	6	21.65	21.72	21.70	0-3	3
		12	11	21.63	21.63	21.62	0-3	3
		25	0	21.58	21.57	21.52	0-3	3

LTE Band 17 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23790 Ch. 710 ㎒		
10 ㎒	QPSK	1	0	24.38	0	0
		1	24	**24.53**	0	0
		1	49	24.39	0	0
		25	0	23.42	0-1	1
		25	12	**23.59**	0-1	1
		25	24	23.42	0-1	1
		50	0	23.41	0-1	1
	16QAM	1	0	23.61	0-1	1
		1	24	23.84	0-1	1
		1	49	23.65	0-1	1
		25	0	22.43	0-2	2
		25	12	22.59	0-2	2
		25	24	22.34	0-2	2
		50	0	22.40	0-2	2
	64QAM	1	0	22.58	0-2	2
		1	24	22.56	0-2	2
		1	49	22.67	0-2	2
		25	0	21.40	0-3	3
		25	12	21.58	0-3	3
		25	24	21.38	0-3	3
		50	0	21.41	0-3	3

Note: LTE Band 17 at 5 ㎒ &10 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 26 Conducted Power]

LTE Band 26 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26697 Ch. 814.7 ㎒	26865 Ch. 831.5 ㎒	27033 Ch. 848.3 ㎒		
1.4 ㎒	QPSK	1	0	23.90	23.94	24.17	0	0
		1	3	23.98	24.10	24.17	0	0
		1	5	23.90	23.97	24.05	0	0
		3	0	23.93	23.93	24.17	0	0
		3	1	24.00	24.04	24.19	0	0
		3	3	23.88	23.99	24.15	0	0
		6	0	23.07	23.09	23.26	0-1	1
	16QAM	1	0	23.14	23.24	23.39	0-1	1
		1	3	23.13	23.27	23.45	0-1	1
		1	5	23.00	23.18	23.33	0-1	1
		3	0	22.95	22.97	23.13	0-1	1
		3	1	22.97	23.06	23.27	0-1	1
		3	3	22.86	23.07	23.11	0-1	1
		6	0	22.11	22.14	22.27	0-2	2
	64QAM	1	0	22.08	22.22	22.35	0-2	2
		1	3	22.15	22.29	22.41	0-2	2
		1	5	22.03	22.22	22.32	0-2	2
		3	0	22.02	22.09	22.28	0-2	2
		3	1	22.14	22.18	22.34	0-2	2
		3	3	22.07	22.20	22.27	0-2	2
		6	0	21.02	21.09	21.22	0-3	3

LTE Band 26 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26705 Ch. 815.5 ㎒	26865 Ch. 831.5 ㎒	27025 Ch. 847.5 ㎒		
3 ㎒	QPSK	1	0	23.84	23.98	24.25	0	0
		1	7	23.89	24.06	24.15	0	0
		1	14	23.89	24.08	24.25	0	0
		8	0	22.99	23.05	23.26	0-1	1
		8	3	23.05	23.16	23.28	0-1	1
		8	7	23.03	23.14	23.28	0-1	1
		15	0	23.17	23.17	23.32	0-1	1
	16QAM	1	0	22.99	23.23	23.50	0-1	1
		1	7	23.16	23.27	23.35	0-1	1
		1	14	23.04	23.26	23.43	0-1	1
		8	0	22.00	22.16	22.27	0-2	2
		8	3	22.10	22.17	22.41	0-2	2
		8	7	22.04	22.18	22.29	0-2	2
		15	0	22.08	22.15	22.35	0-2	2
	64QAM	1	0	21.98	22.17	22.43	0-2	2
		1	7	22.11	22.31	22.38	0-2	2
		1	14	22.12	22.21	22.42	0-2	2
		8	0	21.04	21.16	21.28	0-3	3
		8	3	21.11	21.20	21.33	0-3	3
		8	7	21.07	21.20	21.29	0-3	3
		15	0	21.11	21.13	21.34	0-3	3

LTE Band 26 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26715 Ch. 816.5 ㎒	26865 Ch. 831.5 ㎒	27015 Ch. 846.5 ㎒		
5 ㎒	QPSK	1	0	23.85	24.01	24.18	0	0
		1	12	23.97	24.05	24.23	0	0
		1	24	24.00	24.13	24.11	0	0
		12	0	22.97	23.07	23.24	0-1	1
		12	6	23.09	23.17	23.34	0-1	1
		12	11	23.09	23.17	23.30	0-1	1
		25	0	23.11	23.17	23.25	0-1	1
	16QAM	1	0	23.01	23.27	23.35	0-1	1
		1	12	23.24	23.31	23.42	0-1	1
		1	24	23.20	23.32	23.40	0-1	1
		12	0	22.02	22.10	22.27	0-2	2
		12	6	22.10	22.17	22.32	0-2	2
		12	11	22.04	22.16	22.27	0-2	2
		25	0	22.03	22.14	22.23	0-2	2
	64QAM	1	0	22.04	22.18	22.42	0-2	2
		1	12	22.17	22.28	22.41	0-2	2
		1	24	22.13	22.20	22.28	0-2	2
		12	0	21.05	21.13	21.30	0-3	3
		12	6	21.13	21.19	21.38	0-3	3
		12	11	21.11	21.20	21.33	0-3	3
		25	0	21.06	21.18	21.29	0-3	3

LTE Band 26 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26740 Ch. 819 ㎒	26865 Ch. 831.5 ㎒	26990 Ch. 844 ㎒		
10 ㎒	QPSK	1	0	24.04	24.19	24.20	0	0
		1	24	23.96	23.97	24.20	0	0
		1	49	23.89	24.17	24.10	0	0
		25	0	23.09	23.20	23.35	0-1	1
		25	12	23.19	23.17	23.38	0-1	1
		25	24	23.11	23.20	23.34	0-1	1
		50	0	23.11	23.19	23.37	0-1	1
	16QAM	1	0	23.34	23.38	23.58	0-1	1
		1	24	23.17	23.15	23.43	0-1	1
		1	49	23.16	23.31	23.35	0-1	1
		25	0	22.04	22.13	22.33	0-2	2
		25	12	22.13	22.20	22.34	0-2	2
		25	24	22.10	22.13	22.34	0-2	2
		50	0	22.14	22.19	22.37	0-2	2
	64QAM	1	0	22.17	22.30	22.39	0-2	2
		1	24	22.09	22.22	22.46	0-2	2
		1	49	22.09	22.43	22.35	0-2	2
		25	0	21.11	21.15	21.35	0-3	3
		25	12	21.11	21.19	21.37	0-3	3
		25	24	21.09	21.14	21.35	0-3	3
		50	0	21.12	21.21	21.35	0-3	3

LTE Band 26 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26765 Ch. 821.5 ㎒	26865 Ch. 831.5 ㎒	26965 Ch. 841.5 ㎒		
15 ㎒	QPSK	1	0	24.06	24.08	24.22	0	0
		1	36	23.95	24.06	24.31	0	0
		1	74	24.06	24.14	24.23	0	0
		36	0	23.23	23.29	23.28	0-1	1
		36	18	23.21	23.27	23.40	0-1	1
		36	39	23.20	23.27	23.31	0-1	1
		75	0	23.27	23.27	23.42	0-1	1
	16QAM	1	0	23.24	23.29	23.38	0-1	1
		1	36	23.28	23.43	23.39	0-1	1
		1	74	23.25	23.50	23.48	0-1	1
		36	0	22.18	22.22	22.32	0-2	2
		36	18	22.22	22.25	22.43	0-2	2
		36	39	22.14	22.28	22.36	0-2	2
		75	0	22.18	22.23	22.35	0-2	2
	64QAM	1	0	22.29	22.30	22.45	0-2	2
		1	36	22.24	22.36	22.44	0-2	2
		1	74	22.23	22.37	22.51	0-2	2
		36	0	21.21	21.30	21.33	0-3	3
		36	18	21.23	21.29	21.43	0-3	3
		36	39	21.16	21.31	21.36	0-3	3
		75	0	21.21	21.25	21.38	0-3	3

[LTE Band 41 Conducted Power]

LTE Band 41 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39675 Ch. 2498.5 ㎒	40148 Ch. 2545.8 ㎒	40620 Ch. 2593.0 ㎒	41093 Ch. 2640.3 ㎒	41565 Ch. 2687.5 ㎒		
5 ㎒	QPSK	1	0	22.80	23.32	24.10	23.73	23.87	0	0
		1	12	22.85	23.41	24.07	23.72	23.84	0	0
		1	24	22.84	23.45	24.00	23.67	23.84	0	0
		12	0	21.99	22.49	23.22	22.85	22.92	0-1	1
		12	6	22.00	22.59	23.25	22.86	22.95	0-1	1
		12	11	21.98	22.60	23.26	22.84	22.95	0-1	1
		25	0	22.01	22.55	23.29	22.83	22.97	0-1	1
	16QAM	1	0	21.88	22.57	23.27	22.99	23.08	0-1	1
		1	12	21.88	22.66	23.28	23.03	23.09	0-1	1
		1	24	21.91	22.71	23.21	22.95	23.07	0-1	1
		12	0	20.90	21.55	22.25	21.90	22.01	0-2	2
		12	6	20.90	21.59	22.27	21.94	22.06	0-2	2
		12	11	20.88	21.59	22.24	21.96	22.03	0-2	2
		25	0	20.95	21.61	22.30	21.91	22.02	0-2	2
	64QAM	1	0	20.57	21.19	21.96	21.72	21.76	0-2	2
		1	12	20.53	21.25	21.93	21.65	21.73	0-2	2
		1	24	20.58	21.32	21.88	21.62	21.75	0-2	2
		12	0	19.98	20.63	21.37	21.03	21.15	0-3	3
		12	6	19.98	20.66	21.38	21.06	21.18	0-3	3
		12	11	19.98	20.65	21.37	21.03	21.15	0-3	3
		25	0	20.00	20.64	21.34	21.01	21.12	0-3	3

LTE Band 41 _ 10 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39700 Ch. 2501 ㎒	40160 Ch. 2547 ㎒	40620 Ch. 2593 ㎒	41080 Ch. 2639 ㎒	41540 Ch. 2685 ㎒		
10 ㎒	QPSK	1	0	22.67	23.30	23.98	23.56	23.59	0	0
		1	24	22.67	23.44	24.01	23.59	23.65	0	0
		1	49	22.68	23.44	23.95	23.51	23.59	0	0
		25	0	21.97	22.55	23.26	22.79	22.85	0-1	1
		25	12	21.98	22.57	23.25	22.79	22.87	0-1	1
		25	24	21.93	22.61	23.16	22.74	22.81	0-1	1
		50	0	21.96	22.63	23.28	22.83	22.91	0-1	1
	16QAM	1	0	21.81	22.53	23.16	22.89	22.90	0-1	1
		1	24	21.78	22.65	23.22	22.93	22.98	0-1	1
		1	49	21.70	22.57	23.12	22.81	22.86	0-1	1
		25	0	20.89	21.59	22.28	21.90	21.93	0-2	2
		25	12	20.87	21.59	22.28	21.85	21.92	0-2	2
		25	24	20.86	21.59	22.24	21.80	21.90	0-2	2
		50	0	20.94	21.64	22.31	21.91	21.97	0-2	2
	64QAM	1	0	20.49	21.16	21.85	21.52	21.57	0-2	2
		1	24	20.43	21.24	21.90	21.58	21.64	0-2	2
		1	49	20.37	21.23	21.83	21.51	21.56	0-2	2
		25	0	19.93	20.65	21.35	20.98	21.01	0-3	3
		25	12	19.95	20.68	21.33	20.94	21.01	0-3	3
		25	24	19.90	20.69	21.27	20.90	20.96	0-3	3
		50	0	19.93	20.62	21.29	20.89	20.94	0-3	3

LTE Band 41 _ 15 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39725 Ch. 2503.5 ㎒	40173 Ch. 2548.3 ㎒	40620 Ch. 2593.0 ㎒	41068 Ch. 2637.8 ㎒	41515 Ch. 2682.5 ㎒		
15 ㎒	QPSK	1	0	22.83	23.41	24.16	23.80	23.63	0	0
		1	36	22.83	23.53	24.18	23.73	23.76	0	0
		1	74	22.80	23.55	24.09	23.59	23.93	0	0
		36	0	22.00	22.62	23.34	22.96	22.90	0-1	1
		36	18	22.03	22.71	23.36	22.95	23.01	0-1	1
		36	39	22.01	22.72	23.32	22.87	23.03	0-1	1
		75	0	22.09	22.70	23.36	22.86	22.91	0-1	1
	16QAM	1	0	21.97	22.66	23.23	23.09	22.97	0-1	1
		1	36	21.87	22.76	23.35	23.03	23.07	0-1	1
		1	74	21.87	22.70	23.29	22.91	23.15	0-1	1
		36	0	20.90	21.64	22.36	22.01	22.00	0-2	2
		36	18	20.93	21.69	22.41	22.00	22.11	0-2	2
		36	39	20.93	21.69	22.37	21.96	22.15	0-2	2
		75	0	21.01	21.72	22.38	21.97	22.01	0-2	2
	64QAM	1	0	20.65	21.26	21.95	21.77	21.63	0-2	2
		1	36	20.54	21.38	22.02	21.69	21.74	0-2	2
		1	74	20.53	21.34	21.94	21.56	21.81	0-2	2
		36	0	19.96	20.69	21.39	21.08	21.09	0-3	3
		36	18	19.98	20.74	21.43	21.07	21.14	0-3	3
		36	39	19.93	20.72	21.41	20.99	21.25	0-3	3
		75	0	20.01	20.73	21.39	21.01	21.06	0-3	3

LTE Band 41 _ 20 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	22.85	23.34	24.08	23.78	23.59	0	0
		1	49	22.80	23.55	24.13	23.73	23.78	0	0
		1	99	22.84	23.71	24.01	23.48	23.95	0	0
		50	0	22.06	22.67	23.44	22.98	22.92	0-1	1
		50	25	22.13	22.78	23.43	22.94	23.04	0-1	1
		50	49	22.12	22.82	23.41	22.87	23.08	0-1	1
		100	0	22.13	22.73	23.38	22.88	22.98	0-1	1
	16QAM	1	0	21.96	22.60	23.23	23.09	22.94	0-1	1
		1	49	21.85	22.75	23.31	23.06	23.09	0-1	1
		1	99	21.89	22.84	23.24	22.82	23.20	0-1	1
		50	0	21.03	21.69	22.47	22.07	22.00	0-2	2
		50	25	21.07	21.82	22.46	22.04	22.09	0-2	2
		50	49	21.07	21.79	22.44	21.95	22.15	0-2	2
		100	0	21.06	21.74	22.39	21.98	22.07	0-2	2
	64QAM	1	0	20.62	21.22	21.93	21.73	21.58	0-2	2
		1	49	20.51	21.38	22.01	21.70	21.73	0-2	2
		1	99	20.50	21.47	21.89	21.44	21.85	0-2	2
		50	0	20.04	20.71	21.42	21.09	20.99	0-3	3
		50	25	20.07	20.80	21.44	21.01	21.07	0-3	3
		50	49	20.08	20.79	21.39	20.91	21.15	0-3	3
		100	0	20.02	20.74	21.42	21.02	21.05	0-3	3

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D01v06.

[LTE Band 66 Conducted Power]

LTE Band 66 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131979Ch. 1710.7 ㎒	132322 Ch. 1745 ㎒	132665 Ch. 1779.3 ㎒		
1.4 ㎒	QPSK	1	0	23.93	23.70	24.10	0	0
		1	3	24.05	23.81	24.19	0	0
		1	5	23.95	23.71	24.12	0	0
		3	0	23.97	23.73	24.12	0	0
		3	1	24.03	23.80	24.20	0	0
		3	3	23.98	23.74	24.15	0	0
		6	0	23.09	22.87	23.25	0-1	1
	16QAM	1	0	23.32	23.04	23.45	0-1	1
		1	3	23.25	23.14	23.56	0-1	1
		1	5	23.32	23.11	23.48	0-1	1
		3	0	23.02	22.80	23.20	0-1	1
		3	1	23.14	22.95	23.24	0-1	1
		3	3	22.97	22.84	23.21	0-1	1
		6	0	22.14	21.99	22.32	0-2	2
	64QAM	1	0	22.27	22.04	22.39	0-2	2
		1	3	22.28	22.18	22.53	0-2	2
		1	5	22.22	22.11	22.39	0-2	2
		3	0	22.21	21.98	22.36	0-2	2
		3	1	22.21	22.04	22.41	0-2	2
		3	3	22.17	22.03	22.32	0-2	2
		6	0	21.12	20.90	21.26	0-3	3

LTE Band 66 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131987 Ch. 1711.5 ㎒	132322 Ch. 1745 ㎒	132657 Ch. 1778.5 ㎒		
3 ㎒	QPSK	1	0	24.05	23.75	24.09	0	0
		1	7	24.05	23.80	24.17	0	0
		1	14	23.99	23.84	24.16	0	0
		8	0	23.13	22.94	23.17	0-1	1
		8	3	23.12	22.98	23.29	0-1	1
		8	7	23.06	22.93	23.29	0-1	1
		15	0	23.08	22.93	23.33	0-1	1
	16QAM	1	0	23.28	23.08	23.37	0-1	1
		1	7	23.33	23.18	23.38	0-1	1
		1	14	23.28	23.23	23.52	0-1	1
		8	0	22.18	22.05	22.29	0-2	2
		8	3	22.26	22.07	22.39	0-2	2
		8	7	22.14	22.08	22.37	0-2	2
		15	0	22.09	22.00	22.34	0-2	2
	64QAM	1	0	22.25	22.14	22.41	0-2	2
		1	7	22.29	22.10	22.44	0-2	2
		1	14	22.28	22.08	22.48	0-2	2
		8	0	21.20	21.04	21.31	0-3	3
		8	3	21.27	21.06	21.40	0-3	3
		8	7	21.14	21.08	21.36	0-3	3
		15	0	21.14	20.99	21.32	0-3	3

LTE Band 66 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131997 Ch. 1712.5 ㎒	132322Ch. 1745 ㎒	132647 Ch. 1777.5 ㎒		
5 ㎒	QPSK	1	0	24.01	23.80	24.07	0	0
		1	12	24.05	23.80	24.20	0	0
		1	24	24.04	23.90	24.22	0	0
		12	0	23.13	22.97	23.22	0-1	1
		12	6	23.14	23.00	23.34	0-1	1
		12	11	23.04	23.00	23.33	0-1	1
		25	0	23.11	22.97	23.31	0-1	1
	16QAM	1	0	23.35	23.21	23.26	0-1	1
		1	12	23.27	23.22	23.50	0-1	1
		1	24	23.29	23.31	23.59	0-1	1
		12	0	22.17	22.03	22.30	0-2	2
		12	6	22.15	22.03	22.35	0-2	2
		12	11	22.12	22.06	22.31	0-2	2
		25	0	22.14	22.03	22.33	0-2	2
	64QAM	1	0	22.29	22.11	22.37	0-2	2
		1	12	22.35	22.04	22.44	0-2	2
		1	24	22.24	22.18	22.47	0-2	2
		12	0	21.26	21.07	21.27	0-3	3
		12	6	21.21	21.09	21.41	0-3	3
		12	11	21.16	21.12	21.42	0-3	3
		25	0	21.15	21.03	21.33	0-3	3

LTE Band 66 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132022 Ch. 1715 ㎒	132322 Ch. 1745 ㎒	132622 Ch. 1775 ㎒		
10 ㎒	QPSK	1	0	23.99	23.73	24.11	0	0
		1	24	23.99	23.63	24.05	0	0
		1	49	23.91	23.80	24.18	0	0
		25	0	23.16	22.91	23.28	0-1	1
		25	12	23.09	22.93	23.28	0-1	1
		25	24	23.06	22.90	23.20	0-1	1
		50	0	23.11	22.96	23.27	0-1	1
	16QAM	1	0	23.30	23.15	23.44	0-1	1
		1	24	23.26	22.98	23.34	0-1	1
		1	49	23.38	23.09	23.40	0-1	1
		25	0	22.16	21.99	22.24	0-2	2
		25	12	22.15	22.02	22.29	0-2	2
		25	24	22.09	21.93	22.24	0-2	2
		50	0	22.16	22.00	22.30	0-2	2
	64QAM	1	0	22.27	22.15	22.42	0-2	2
		1	24	22.19	22.10	22.46	0-2	2
		1	49	22.32	22.12	22.48	0-2	2
		25	0	21.16	20.98	21.31	0-3	3
		25	12	21.16	21.00	21.27	0-3	3
		25	24	21.08	20.96	21.23	0-3	3
		50	0	21.18	20.94	21.31	0-3	3

LTE Band 66 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132047 Ch. 1717.5 ㎒	132322 Ch. 1745 ㎒	132597 Ch. 1772.5 ㎒		
15 ㎒	QPSK	1	0	24.17	23.97	24.25	0	0
		1	36	24.09	23.89	24.17	0	0
		1	74	24.06	23.98	24.17	0	0
		36	0	23.31	23.13	23.41	0-1	1
		36	18	23.26	23.08	23.38	0-1	1
		36	39	23.21	23.10	23.37	0-1	1
		75	0	23.27	23.10	23.44	0-1	1
	16QAM	1	0	23.45	23.39	23.54	0-1	1
		1	36	23.35	23.35	23.34	0-1	1
		1	74	23.36	23.28	23.58	0-1	1
		36	0	22.32	22.16	22.44	0-2	2
		36	18	22.25	22.10	22.43	0-2	2
		36	39	22.21	22.19	22.39	0-2	2
		75	0	22.29	22.13	22.44	0-2	2
	64QAM	1	0	22.36	22.26	22.62	0-2	2
		1	36	22.34	22.23	22.50	0-2	2
		1	74	22.34	22.23	22.39	0-2	2
		36	0	21.30	21.17	21.45	0-3	3
		36	18	21.31	21.20	21.45	0-3	3
		36	39	21.26	21.16	21.43	0-3	3
		75	0	21.29	21.18	21.45	0-3	3

LTE Band 66 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	24.07	24.00	24.12	0	0
		1	49	24.07	23.95	24.16	0	0
		1	99	24.01	24.06	**24.17**	0	0
		50	0	23.29	23.12	23.39	0-1	1
		50	25	23.26	23.15	**23.40**	0-1	1
		50	49	23.24	23.07	23.39	0-1	1
		100	0	23.25	23.11	23.37	0-1	1
	16QAM	1	0	23.30	23.33	23.38	0-1	1
		1	49	23.32	23.25	23.45	0-1	1
		1	99	23.37	23.35	23.60	0-1	1
		50	0	22.35	22.14	22.39	0-2	2
		50	25	22.31	22.17	22.41	0-2	2
		50	49	22.24	22.17	22.36	0-2	2
		100	0	22.27	22.15	22.39	0-2	2
	64QAM	1	0	22.37	22.20	22.42	0-2	2
		1	49	22.26	22.28	22.48	0-2	2
		1	99	22.36	22.40	22.56	0-2	2
		50	0	21.32	21.18	21.37	0-3	3
		50	25	21.30	21.22	21.42	0-3	3
		50	49	21.25	21.11	21.39	0-3	3
		100	0	21.27	21.19	21.36	0-3	3

Note : The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

11.3.2 LTE Reduced Conducted Power (Hotspot activated)

[LTE Band 2 Conducted Power]

LTE Band 2 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18607 Ch. 1850.7 ㎒	18900 Ch. 1880 ㎒	19193 Ch. 1909.3 ㎒		
1.4 ㎒	QPSK	1	0	19.33	19.24	19.47	0	0
		1	3	19.40	19.34	19.58	0	0
		1	5	19.37	19.24	19.51	0	0
		3	0	19.32	19.18	19.49	0	0
		3	1	19.35	19.28	19.51	0	0
		3	3	19.40	19.28	19.48	0	0
		6	0	19.39	19.33	19.57	0-1	0
	16QAM	1	0	19.68	19.64	19.66	0-1	0
		1	3	19.86	19.59	19.94	0-1	0
		1	5	19.63	19.65	19.85	0-1	0
		3	0	19.45	19.33	19.56	0-1	0
		3	1	19.51	19.44	19.54	0-1	0
		3	3	19.52	19.37	19.56	0-1	0
		6	0	19.55	19.39	19.64	0-2	0
	64QAM	1	0	19.64	19.50	19.63	0-2	0
		1	3	19.71	19.57	19.71	0-2	0
		1	5	19.68	19.51	19.73	0-2	0
		3	0	19.56	19.45	19.68	0-2	0
		3	1	19.68	19.46	19.71	0-2	0
		3	3	19.59	19.51	19.66	0-2	0
		6	0	19.43	19.36	19.58	0-3	0

LTE Band 2 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18615 Ch. 1851.5 ㎒	18900 Ch. 1880 ㎒	19185 Ch. 1908.5 ㎒		
3 ㎒	QPSK	1	0	19.39	19.27	19.56	0	0
		1	7	19.41	19.31	19.53	0	0
		1	14	19.46	19.35	19.53	0	0
		8	0	19.50	19.40	19.64	0-1	0
		8	3	19.55	19.44	19.68	0-1	0
		8	7	19.55	19.42	19.71	0-1	0
		15	0	19.52	19.42	19.65	0-1	0
	16QAM	1	0	19.76	19.66	19.89	0-1	0
		1	7	19.80	19.73	19.81	0-1	0
		1	14	19.76	19.63	19.93	0-1	0
		8	0	19.61	19.45	19.67	0-2	0
		8	3	19.66	19.53	19.70	0-2	0
		8	7	19.64	19.56	19.72	0-2	0
		15	0	19.56	19.43	19.68	0-2	0
	64QAM	1	0	19.67	19.55	19.81	0-2	0
		1	7	19.64	19.64	19.81	0-2	0
		1	14	19.69	19.62	19.84	0-2	0
		8	0	19.57	19.42	19.66	0-3	0
		8	3	19.64	19.46	19.70	0-3	0
		8	7	19.63	19.53	19.69	0-3	0
		15	0	19.56	19.43	19.68	0-3	0

LTE Band 2 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18625 Ch. 1852.5 ㎒	18900Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	19.33	19.26	19.49	0	0
		1	12	19.40	19.29	19.64	0	0
		1	24	19.45	19.33	19.56	0	0
		12	0	19.47	19.38	19.65	0-1	0
		12	6	19.57	19.45	19.68	0-1	0
		12	11	19.59	19.45	19.70	0-1	0
		25	0	19.52	19.37	19.62	0-1	0
	16QAM	1	0	19.66	19.68	19.77	0-1	0
		1	12	19.84	19.61	19.84	0-1	0
		1	24	19.74	19.65	19.79	0-1	0
		12	0	19.54	19.45	19.58	0-2	0
		12	6	19.60	19.44	19.64	0-2	0
		12	11	19.56	19.53	19.71	0-2	0
		25	0	19.59	19.44	19.59	0-2	0
	64QAM	1	0	19.67	19.51	19.72	0-2	0
		1	12	19.70	19.56	19.87	0-2	0
		1	24	19.70	19.55	19.72	0-2	0
		12	0	19.55	19.41	19.65	0-3	0
		12	6	19.67	19.48	19.69	0-3	0
		12	11	19.63	19.53	19.74	0-3	0
		25	0	19.57	19.46	19.63	0-3	0

LTE Band 2 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18650 Ch. 1855 ㎒	18900 Ch. 1880 ㎒	19150 Ch. 1905 ㎒		
10 ㎒	QPSK	1	0	19.30	19.24	19.71	0	0
		1	24	19.34	19.24	19.63	0	0
		1	49	19.40	19.27	19.44	0	0
		25	0	19.46	19.39	19.69	0-1	0
		25	12	19.48	19.42	19.69	0-1	0
		25	24	19.44	19.37	19.63	0-1	0
		50	0	19.49	19.35	19.68	0-1	0
	16QAM	1	0	19.70	19.59	19.95	0-1	0
		1	24	19.77	19.45	19.96	0-1	0
		1	49	19.82	19.74	19.80	0-1	0
		25	0	19.52	19.41	19.65	0-2	0
		25	12	19.54	19.43	19.65	0-2	0
		25	24	19.50	19.41	19.58	0-2	0
		50	0	19.48	19.47	19.65	0-2	0
	64QAM	1	0	19.57	19.46	19.88	0-2	0
		1	24	19.66	19.56	19.86	0-2	0
		1	49	19.70	19.65	19.61	0-2	0
		25	0	19.50	19.42	19.71	0-3	0
		25	12	19.53	19.46	19.69	0-3	0
		25	24	19.46	19.36	19.62	0-3	0
		50	0	19.49	19.41	19.68	0-3	0

LTE Band 2 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18675 Ch. 1857.5 ㎒	18900 Ch. 1880 ㎒	19125 Ch. 1902.5 ㎒		
15 ㎒	QPSK	1	0	19.46	19.37	19.54	0	0
		1	36	19.47	19.36	19.58	0	0
		1	74	19.59	19.53	19.62	0	0
		36	0	19.54	19.50	19.71	0-1	0
		36	18	19.64	19.51	19.76	0-1	0
		36	39	19.67	19.51	19.75	0-1	0
		75	0	19.62	19.50	19.74	0-1	0
	16QAM	1	0	19.86	19.70	20.01	0-1	0
		1	36	19.90	19.85	19.88	0-1	0
		1	74	19.96	20.04	20.00	0-1	0
		36	0	19.61	19.51	19.78	0-2	0
		36	18	19.64	19.58	19.76	0-2	0
		36	39	19.68	19.61	19.81	0-2	0
		75	0	19.66	19.59	19.77	0-2	0
	64QAM	1	0	19.75	19.67	19.96	0-2	0
		1	36	19.73	19.58	20.00	0-2	0
		1	74	19.89	19.87	19.79	0-2	0
		36	0	19.61	19.54	19.75	0-3	0
		36	18	19.66	19.58	19.84	0-3	0
		36	39	19.70	19.57	19.79	0-3	0
		75	0	19.65	19.52	19.80	0-3	0

LTE Band 2 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	19.41	19.41	19.65	0	0
		1	49	19.45	19.35	19.58	0	0
		1	99	19.53	19.51	19.64	0	0
		50	0	19.56	19.50	19.76	0-1	0
		50	25	19.55	19.52	19.74	0-1	0
		50	49	19.66	19.56	19.76	0-1	0
		100	0	19.59	19.55	19.73	0-1	0
	16QAM	1	0	19.83	19.64	20.14	0-1	0
		1	49	19.89	19.72	19.95	0-1	0
		1	99	19.86	19.85	20.06	0-1	0
		50	0	19.64	19.53	19.80	0-2	0
		50	25	19.64	19.59	19.79	0-2	0
		50	49	19.66	19.62	19.82	0-2	0
		100	0	19.61	19.58	19.78	0-2	0
	64QAM	1	0	19.66	19.57	20.06	0-2	0
		1	49	19.76	19.63	19.89	0-2	0
		1	99	19.81	19.80	19.93	0-2	0
		50	0	19.58	19.55	19.81	0-3	0
		50	25	19.64	19.55	19.81	0-3	0
		50	49	19.67	19.67	19.78	0-3	0
		100	0	19.67	19.50	19.81	0-3	0

[LTE Band 4 Conducted Power]

LTE Band 4 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19957 Ch. 1710.7 ㎒	20175 Ch. 1732.5 ㎒	20393 Ch. 1754.3 ㎒		
1.4 ㎒	QPSK	1	0	18.76	18.36	18.72	0	0
		1	3	18.86	18.59	18.81	0	0
		1	5	18.81	18.50	18.74	0	0
		3	0	18.81	18.45	18.73	0	0
		3	1	18.85	18.51	18.81	0	0
		3	3	18.82	18.55	18.74	0	0
		6	0	18.89	18.57	18.81	0-1	0
	16QAM	1	0	19.22	18.77	19.03	0-1	0
		1	3	19.25	18.97	19.11	0-1	0
		1	5	19.21	18.84	19.08	0-1	0
		3	0	18.99	18.56	18.87	0-1	0
		3	1	18.92	18.58	18.93	0-1	0
		3	3	18.90	18.60	18.89	0-1	0
		6	0	19.01	18.67	18.87	0-2	0
	64QAM	1	0	19.05	18.73	19.03	0-2	0
		1	3	19.04	18.97	19.09	0-2	0
		1	5	18.99	18.77	19.06	0-2	0
		3	0	19.12	18.66	18.96	0-2	0
		3	1	19.16	18.70	19.11	0-2	0
		3	3	19.07	18.72	19.00	0-2	0
		6	0	18.98	18.59	18.86	0-3	0

LTE Band 4 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19965 Ch. 1711.5 ㎒	20175 Ch. 1732.5 ㎒	20385 Ch. 1753.5 ㎒		
3 ㎒	QPSK	1	0	18.84	18.48	18.70	0	0
		1	7	18.88	18.59	18.81	0	0
		1	14	18.75	18.54	18.80	0	0
		8	0	18.94	18.59	18.85	0-1	0
		8	3	19.03	18.64	18.95	0-1	0
		8	7	18.91	18.71	18.95	0-1	0
		15	0	18.98	18.61	18.86	0-1	0
	16QAM	1	0	19.13	18.79	19.03	0-1	0
		1	7	19.24	18.98	19.21	0-1	0
		1	14	19.08	18.89	19.13	0-1	0
		8	0	19.05	18.67	18.97	0-2	0
		8	3	19.12	18.72	18.98	0-2	0
		8	7	19.00	18.75	19.00	0-2	0
		15	0	18.99	18.64	18.91	0-2	0
	64QAM	1	0	19.14	18.79	18.96	0-2	0
		1	7	19.14	18.91	19.13	0-2	0
		1	14	19.07	18.82	19.13	0-2	0
		8	0	19.01	18.64	18.90	0-3	0
		8	3	19.08	18.70	18.99	0-3	0
		8	7	19.02	18.77	19.03	0-3	0
		15	0	18.99	18.65	18.94	0-3	0

LTE Band 4 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19975 Ch. 1712.5 ㎒	20175 Ch. 1732.5 ㎒	20375 Ch. 1752.5 ㎒		
5 ㎒	QPSK	1	0	18.90	18.51	18.71	0	0
		1	12	18.86	18.61	18.84	0	0
		1	24	18.75	18.55	18.75	0	0
		12	0	19.00	18.58	18.85	0-1	0
		12	6	18.98	18.69	18.94	0-1	0
		12	11	18.88	18.70	18.92	0-1	0
		25	0	18.94	18.66	18.90	0-1	0
	16QAM	1	0	19.26	18.88	18.99	0-1	0
		1	12	19.22	18.84	19.25	0-1	0
		1	24	19.15	18.86	19.13	0-1	0
		12	0	19.00	18.67	18.85	0-2	0
		12	6	18.94	18.69	18.99	0-2	0
		12	11	18.94	18.72	18.94	0-2	0
		25	0	18.89	18.68	18.93	0-2	0
	64QAM	1	0	19.20	18.76	19.03	0-2	0
		1	12	19.20	18.89	19.08	0-2	0
		1	24	19.11	18.83	19.03	0-2	0
		12	0	19.06	18.71	18.94	0-3	0
		12	6	19.04	18.72	19.06	0-3	0
		12	11	18.94	18.76	19.04	0-3	0
		25	0	18.98	18.68	18.95	0-3	0

LTE Band 4 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20000 Ch. 1715 ㎒	20175 Ch. 1732.5 ㎒	20350 Ch. 1750 ㎒		
10 ㎒	QPSK	1	0	18.90	18.59	18.64	0	0
		1	24	18.86	18.63	18.75	0	0
		1	49	18.79	18.59	18.74	0	0
		25	0	18.94	18.69	18.88	0-1	0
		25	12	18.94	18.70	18.90	0-1	0
		25	24	18.89	18.67	18.84	0-1	0
		50	0	18.91	18.67	18.81	0-1	0
	16QAM	1	0	19.10	18.85	19.03	0-1	0
		1	24	19.06	18.96	19.07	0-1	0
		1	49	19.02	18.90	19.12	0-1	0
		25	0	18.97	18.69	18.88	0-2	0
		25	12	18.98	18.70	18.91	0-2	0
		25	24	18.90	18.67	18.83	0-2	0
		50	0	18.89	18.65	18.85	0-2	0
	64QAM	1	0	19.12	18.72	19.06	0-2	0
		1	24	19.03	18.88	18.90	0-2	0
		1	49	19.04	18.81	19.04	0-2	0
		25	0	19.00	18.72	18.87	0-3	0
		25	12	18.99	18.73	18.89	0-3	0
		25	24	18.91	18.69	18.87	0-3	0
		50	0	18.98	18.69	18.91	0-3	0

LTE Band 4 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20025 Ch. 1717.5 ㎒	20175 Ch. 1732.5 ㎒	20325 Ch. 1747.5 ㎒		
15 ㎒	QPSK	1	0	18.94	18.66	18.83	0	0
		1	36	18.95	18.66	18.84	0	0
		1	74	18.93	18.75	18.98	0	0
		36	0	19.00	18.83	18.96	0-1	0
		36	18	19.03	18.86	19.02	0-1	0
		36	39	19.01	18.84	19.00	0-1	0
		75	0	19.00	18.85	18.99	0-1	0
	16QAM	1	0	19.34	18.90	19.19	0-1	0
		1	36	19.23	19.03	19.20	0-1	0
		1	74	19.30	19.11	19.18	0-1	0
		36	0	18.99	18.79	18.95	0-2	0
		36	18	19.02	18.85	19.01	0-2	0
		36	39	19.05	18.85	19.01	0-2	0
		75	0	19.02	18.81	18.97	0-2	0
	64QAM	1	0	19.15	18.92	19.15	0-2	0
		1	36	19.08	18.87	19.13	0-2	0
		1	74	19.18	18.96	19.27	0-2	0
		36	0	19.07	18.85	18.99	0-3	0
		36	18	19.06	18.89	19.04	0-3	0
		36	39	19.05	18.89	19.03	0-3	0
		75	0	19.08	18.84	19.00	0-3	0

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				20175 Ch. 1732.5 ㎒		
20 ㎒	QPSK	1	0	18.71	0	0
		1	49	18.68	0	0
		1	99	**18.81**	0	0
		50	0	18.84	0-1	0
		50	25	18.84	0-1	0
		50	49	**18.87**	0-1	0
		100	0	18.82	0-1	0
	16QAM	1	0	19.06	0-1	0
		1	49	18.95	0-1	0
		1	99	19.07	0-1	0
		50	0	18.83	0-2	0
		50	25	18.83	0-2	0
		50	49	18.87	0-2	0
		100	0	18.83	0-2	0
	64QAM	1	0	18.93	0-2	0
		1	49	18.86	0-2	0
		1	99	19.16	0-2	0
		50	0	18.80	0-3	0
		50	25	18.85	0-3	0
		50	49	18.85	0-3	0
		100	0	18.88	0-3	0

Note: LTE Band 4 (AWS) at 20 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 41 Conducted Power]

LTE Band 41 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39675 Ch. 2498.5 ㎒	40148 Ch. 2545.8 ㎒	40620 Ch. 2593.0 ㎒	41093 Ch. 2640.3 ㎒	41565 Ch. 2687.5 ㎒		
5 ㎒	QPSK	1	0	21.56	22.25	22.46	22.30	22.04	0	0
		1	12	21.62	22.34	22.44	22.31	22.05	0	0
		1	24	21.63	22.31	22.37	22.26	21.98	0	0
		12	0	21.68	22.37	22.56	22.40	22.07	0-1	0
		12	6	21.72	22.40	22.55	22.42	22.09	0-1	0
		12	11	21.73	22.45	22.54	22.40	22.08	0-1	0
		25	0	21.71	22.37	22.53	22.36	22.06	0-1	0
	16QAM	1	0	21.67	22.41	22.59	22.54	22.24	0-1	0
		1	12	21.65	22.43	22.60	22.51	22.22	0-1	0
		1	24	21.71	22.50	22.53	22.49	22.19	0-1	0
		12	0	21.66	22.39	22.57	22.46	22.15	0-2	0
		12	6	21.71	22.43	22.60	22.49	22.20	0-2	0
		12	11	21.70	22.46	22.59	22.49	22.15	0-2	0
		25	0	21.66	22.36	22.55	22.39	22.09	0-2	0
	64QAM	1	0	21.42	22.09	22.34	22.26	22.00	0-2	0
		1	12	21.38	22.17	22.31	22.24	21.93	0-2	0
		1	24	21.45	22.16	22.24	22.20	21.93	0-2	0
		12	0	20.70	21.38	21.62	21.50	21.22	0-3	0
		12	6	20.72	21.42	21.63	21.54	21.24	0-3	0
		12	11	20.74	21.46	21.62	21.49	21.21	0-3	0
		25	0	20.78	21.50	21.66	21.54	21.24	0-3	0

LTE Band 41 _ 10 ㎒ Bandwidth - Power Class 3

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39700 Ch. 2501 ㎒	40160 Ch. 2547 ㎒	40620 Ch. 2593 ㎒	41080 Ch. 2639 ㎒	41540 Ch. 2685 ㎒		
10 ㎒	QPSK	1	0	21.37	22.22	22.36	22.16	21.98	0	0
		1	24	21.40	22.31	22.40	22.25	22.01	0	0
		1	49	21.43	22.21	22.28	22.17	21.87	0	0
		25	0	21.60	22.43	22.56	22.35	22.10	0-1	0
		25	12	21.65	22.42	22.52	22.35	22.08	0-1	0
		25	24	21.65	22.39	22.48	22.31	22.00	0-1	0
		50	0	21.65	22.42	22.55	22.38	22.09	0-1	0
	16QAM	1	0	21.47	22.35	22.53	22.49	22.27	0-1	0
		1	24	21.50	22.41	22.60	22.56	22.30	0-1	0
		1	49	21.49	22.35	22.48	22.47	22.14	0-1	0
		25	0	21.54	22.37	22.53	22.45	22.20	0-2	0
		25	12	21.53	22.35	22.54	22.47	22.19	0-2	0
		25	24	21.55	22.32	22.44	22.42	22.11	0-2	0
		50	0	21.66	22.47	22.67	22.50	22.25	0-2	0
	64QAM	1	0	21.21	22.10	22.24	22.08	21.82	0-2	0
		1	24	21.25	22.12	22.28	22.15	21.87	0-2	0
		1	49	21.24	22.04	22.21	22.08	21.73	0-2	0
		25	0	20.68	21.51	21.69	21.56	21.27	0-3	0
		25	12	20.70	21.52	21.65	21.54	21.24	0-3	0
		25	24	20.67	21.47	21.60	21.50	21.18	0-3	0
		50	0	20.67	21.49	21.66	21.47	21.20	0-3	0

LTE Band 41 _ 15 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39725 Ch. 2503.5 ㎒	40173 Ch. 2548.3 ㎒	40620 Ch. 2593.0 ㎒	41068 Ch. 2637.8 ㎒	41515 Ch. 2682.5 ㎒		
15 ㎒	QPSK	1	0	21.58	22.35	22.46	22.32	22.06	0	0
		1	36	21.64	22.39	22.49	22.34	22.11	0	0
		1	74	21.68	22.29	22.45	22.23	22.18	0	0
		36	0	21.71	22.52	22.65	22.51	22.26	0-1	0
		36	18	21.77	22.56	22.70	22.51	22.29	0-1	0
		36	39	21.82	22.47	22.65	22.44	22.30	0-1	0
		75	0	21.84	22.49	22.62	22.44	22.18	0-1	0
	16QAM	1	0	21.65	22.48	22.63	22.67	22.36	0-1	0
		1	36	21.65	22.53	22.66	22.68	22.41	0-1	0
		1	74	21.74	22.40	22.62	22.52	22.45	0-1	0
		36	0	21.65	22.53	22.72	22.57	22.37	0-2	0
		36	18	21.72	22.54	22.74	22.58	22.38	0-2	0
		36	39	21.77	22.50	22.76	22.51	22.35	0-2	0
		75	0	21.78	22.53	22.73	22.57	22.30	0-2	0
	64QAM	1	0	21.36	22.20	22.32	22.26	21.95	0-2	0
		1	36	21.41	22.24	22.39	22.25	22.00	0-2	0
		1	74	21.45	22.10	22.36	22.14	22.03	0-2	0
		36	0	20.69	21.55	21.76	21.62	21.42	0-3	0
		36	18	20.75	21.59	21.79	21.64	21.44	0-3	0
		36	39	20.79	21.49	21.76	21.57	21.44	0-3	0
		75	0	20.81	21.57	21.79	21.59	21.34	0-3	0

LTE Band 41 _ 20 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	21.56	22.30	22.49	22.35	22.10	0	0
		1	49	21.65	22.40	**22.53**	22.36	22.21	0	0
		1	99	21.69	22.41	22.41	22.13	22.23	0	0
		50	0	21.76	22.51	**22.72**	22.51	22.25	0-1	0
		50	25	21.89	22.56	22.71	22.51	22.30	0-1	0
		50	49	21.96	22.51	22.70	22.44	22.32	0-1	0
		100	0	21.87	22.49	22.70	22.46	22.26	0-1	0
	16QAM	1	0	21.65	22.47	22.67	22.67	22.39	0-1	0
		1	49	21.68	22.52	22.70	22.66	22.44	0-1	0
		1	99	21.79	22.49	22.61	22.50	22.47	0-1	0
		50	0	21.78	22.55	22.86	22.62	22.41	0-2	0
		50	25	21.87	22.56	22.85	22.62	22.44	0-2	0
		50	49	21.93	22.54	22.77	22.53	22.46	0-2	0
		100	0	21.87	22.56	22.80	22.55	22.38	0-2	0
	64QAM	1	0	21.38	22.14	22.36	22.23	21.97	0-2	0
		1	49	21.42	22.23	22.41	22.26	22.01	0-2	0
		1	99	21.48	22.20	22.32	22.03	22.06	0-2	0
		50	0	20.80	21.56	21.83	21.61	21.37	0-3	0
		50	25	20.86	21.61	21.85	21.59	21.42	0-3	0
		50	49	20.94	21.54	21.76	21.55	21.40	0-3	0
		100	0	20.85	21.54	21.75	21.57	21.38	0-3	0

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D01v06.

[LTE Band 66 Conducted Power]

LTE Band 66 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131979Ch. 1710.7 ㎒	132322 Ch. 1745 ㎒	132665 Ch. 1779.3 ㎒		
1.4 ㎒	QPSK	1	0	19.11	18.92	19.23	0	0
		1	3	19.18	19.03	19.33	0	0
		1	5	19.11	18.93	19.27	0	0
		3	0	19.12	18.92	19.23	0	0
		3	1	19.16	19.00	19.30	0	0
		3	3	19.09	18.89	19.30	0	0
		6	0	19.20	19.03	19.33	0-1	0
	16QAM	1	0	19.51	19.20	19.64	0-1	0
		1	3	19.62	19.34	19.72	0-1	0
		1	5	19.35	19.24	19.61	0-1	0
		3	0	19.21	19.09	19.39	0-1	0
		3	1	19.31	19.12	19.44	0-1	0
		3	3	19.21	19.08	19.36	0-1	0
		6	0	19.32	19.13	19.43	0-2	0
	64QAM	1	0	19.43	19.24	19.59	0-2	0
		1	3	19.48	19.33	19.70	0-2	0
		1	5	19.34	19.21	19.56	0-2	0
		3	0	19.32	19.22	19.55	0-2	0
		3	1	19.46	19.25	19.52	0-2	0
		3	3	19.31	19.14	19.58	0-2	0
		6	0	19.25	19.02	19.42	0-3	0

LTE Band 66 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131987 Ch. 1711.5 ㎒	132322 Ch. 1745 ㎒	132657 Ch. 1778.5 ㎒		
3 ㎒	QPSK	1	0	19.14	19.00	19.25	0	0
		1	7	19.17	18.99	19.31	0	0
		1	14	19.16	19.02	19.33	0	0
		8	0	19.27	19.06	19.33	0-1	0
		8	3	19.32	19.12	19.46	0-1	0
		8	7	19.24	19.05	19.44	0-1	0
		15	0	19.20	19.11	19.44	0-1	0
	16QAM	1	0	19.56	19.29	19.59	0-1	0
		1	7	19.52	19.40	19.71	0-1	0
		1	14	19.48	19.38	19.73	0-1	0
		8	0	19.35	19.17	19.43	0-2	0
		8	3	19.46	19.23	19.53	0-2	0
		8	7	19.34	19.20	19.56	0-2	0
		15	0	19.30	19.12	19.47	0-2	0
	64QAM	1	0	19.56	19.28	19.54	0-2	0
		1	7	19.47	19.23	19.70	0-2	0
		1	14	19.44	19.34	19.64	0-2	0
		8	0	19.41	19.16	19.46	0-3	0
		8	3	19.37	19.23	19.55	0-3	0
		8	7	19.27	19.16	19.55	0-3	0
		15	0	19.28	19.17	19.52	0-3	0

LTE Band 66 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131997 Ch. 1712.5 ㎒	132322Ch. 1745 ㎒	132647 Ch. 1777.5 ㎒		
5 ㎒	QPSK	1	0	19.18	19.00	19.23	0	0
		1	12	19.16	18.97	19.33	0	0
		1	24	19.17	19.06	19.41	0	0
		12	0	19.26	19.10	19.39	0-1	0
		12	6	19.28	19.10	19.43	0-1	0
		12	11	19.28	19.13	19.47	0-1	0
		25	0	19.27	19.06	19.43	0-1	0
	16QAM	1	0	19.57	19.38	19.52	0-1	0
		1	12	19.58	19.27	19.74	0-1	0
		1	24	19.51	19.40	19.85	0-1	0
		12	0	19.33	19.16	19.36	0-2	0
		12	6	19.32	19.18	19.49	0-2	0
		12	11	19.27	19.11	19.49	0-2	0
		25	0	19.28	19.11	19.43	0-2	0
	64QAM	1	0	19.51	19.25	19.53	0-2	0
		1	12	19.53	19.29	19.67	0-2	0
		1	24	19.48	19.34	19.65	0-2	0
		12	0	19.39	19.12	19.44	0-3	0
		12	6	19.35	19.19	19.57	0-3	0
		12	11	19.33	19.24	19.57	0-3	0
		25	0	19.30	19.13	19.47	0-3	0

LTE Band 66 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132022 Ch. 1715 ㎒	132322 Ch. 1745 ㎒	132622 Ch. 1775 ㎒		
10 ㎒	QPSK	1	0	19.11	18.91	19.28	0	0
		1	24	19.08	18.94	19.20	0	0
		1	49	19.08	18.94	19.28	0	0
		25	0	19.25	19.08	19.36	0-1	0
		25	12	19.28	19.08	19.39	0-1	0
		25	24	19.23	19.03	19.29	0-1	0
		50	0	19.26	19.09	19.35	0-1	0
	16QAM	1	0	19.51	19.35	19.59	0-1	0
		1	24	19.50	19.16	19.52	0-1	0
		1	49	19.43	19.27	19.63	0-1	0
		25	0	19.29	19.11	19.37	0-2	0
		25	12	19.25	19.10	19.37	0-2	0
		25	24	19.22	19.07	19.39	0-2	0
		50	0	19.27	19.08	19.37	0-2	0
	64QAM	1	0	19.40	19.24	19.45	0-2	0
		1	24	19.39	19.09	19.41	0-2	0
		1	49	19.44	19.23	19.56	0-2	0
		25	0	19.30	19.14	19.42	0-3	0
		25	12	19.28	19.13	19.42	0-3	0
		25	24	19.21	19.08	19.37	0-3	0
		50	0	19.32	19.08	19.44	0-3	0

LTE Band 66 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132047 Ch. 1717.5 ㎒	132322 Ch. 1745 ㎒	132597 Ch. 1772.5 ㎒		
15 ㎒	QPSK	1	0	19.30	19.11	19.43	0	0
		1	36	19.19	19.14	19.33	0	0
		1	74	19.21	19.10	19.26	0	0
		36	0	19.43	19.26	19.53	0-1	0
		36	18	19.38	19.24	19.54	0-1	0
		36	39	19.35	19.21	19.51	0-1	0
		75	0	19.40	19.22	19.53	0-1	0
	16QAM	1	0	19.66	19.51	19.69	0-1	0
		1	36	19.49	19.52	19.72	0-1	0
		1	74	19.64	19.49	19.64	0-1	0
		36	0	19.43	19.26	19.51	0-2	0
		36	18	19.36	19.26	19.54	0-2	0
		36	39	19.31	19.23	19.50	0-2	0
		75	0	19.38	19.27	19.51	0-2	0
	64QAM	1	0	19.61	19.40	19.74	0-2	0
		1	36	19.56	19.40	19.72	0-2	0
		1	74	19.45	19.42	19.64	0-2	0
		36	0	19.46	19.32	19.58	0-3	0
		36	18	19.47	19.32	19.59	0-3	0
		36	39	19.38	19.28	19.54	0-3	0
		75	0	19.41	19.29	19.54	0-3	0

LTE Band 66 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	19.24	19.07	19.32	0	0
		1	49	19.20	19.10	19.29	0	0
		1	99	19.21	19.18	19.31	0	0
		50	0	19.43	19.27	19.48	0-1	0
		50	25	19.38	19.25	19.51	0-1	0
		50	49	19.32	19.20	19.44	0-1	0
		100	0	19.39	19.24	19.50	0-1	0
	16QAM	1	0	19.63	19.45	19.71	0-1	0
		1	49	19.55	19.44	19.66	0-1	0
		1	99	19.57	19.51	19.71	0-1	0
		50	0	19.40	19.27	19.48	0-2	0
		50	25	19.35	19.25	19.51	0-2	0
		50	49	19.30	19.27	19.52	0-2	0
		100	0	19.38	19.22	19.49	0-2	0
	64QAM	1	0	19.58	19.33	19.61	0-2	0
		1	49	19.50	19.31	19.53	0-2	0
		1	99	19.56	19.47	19.65	0-2	0
		50	0	19.41	19.30	19.54	0-3	0
		50	25	19.39	19.31	19.52	0-3	0
		50	49	19.34	19.26	19.49	0-3	0
		100	0	19.39	19.27	19.53	0-3	0

The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

11.3.3 LTE Reduced Conducted Power (Grip Sensor activated)

[LTE Band 2 Conducted Power]

LTE Band 2 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18607 Ch. 1850.7 ㎒	18900 Ch. 1880 ㎒	19193 Ch. 1909.3 ㎒		
1.4 ㎒	QPSK	1	0	18.96	18.88	19.03	0	0
		1	3	19.09	18.99	19.16	0	0
		1	5	19.02	18.94	19.04	0	0
		3	0	19.01	18.88	19.06	0	0
		3	1	19.03	18.94	19.08	0	0
		3	3	18.99	18.93	19.05	0	0
		6	0	19.11	18.96	19.14	0-1	0
	16QAM	1	0	19.38	19.29	19.31	0-1	0
		1	3	19.40	19.35	19.55	0-1	0
		1	5	19.39	19.32	19.30	0-1	0
		3	0	19.10	19.05	19.17	0-1	0
		3	1	19.15	19.04	19.18	0-1	0
		3	3	19.08	19.09	19.15	0-1	0
		6	0	19.16	19.11	19.23	0-2	0
	64QAM	1	0	19.32	19.10	19.25	0-2	0
		1	3	19.31	19.19	19.37	0-2	0
		1	5	19.33	19.19	19.35	0-2	0
		3	0	19.24	19.04	19.24	0-2	0
		3	1	19.26	19.17	19.29	0-2	0
		3	3	19.22	19.09	19.25	0-2	0
		6	0	19.10	18.99	19.14	0-3	0

LTE Band 2 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18615 Ch. 1851.5 ㎒	18900 Ch. 1880 ㎒	19185 Ch. 1908.5 ㎒		
3 ㎒	QPSK	1	0	19.03	18.95	19.14	0	0
		1	7	19.05	18.93	19.14	0	0
		1	14	19.08	19.01	19.18	0	0
		8	0	19.13	19.07	19.20	0-1	0
		8	3	19.21	19.09	19.31	0-1	0
		8	7	19.21	19.12	19.25	0-1	0
		15	0	19.12	19.10	19.23	0-1	0
	16QAM	1	0	19.35	19.28	19.51	0-1	0
		1	7	19.41	19.30	19.38	0-1	0
		1	14	19.39	19.44	19.55	0-1	0
		8	0	19.24	19.15	19.27	0-2	0
		8	3	19.28	19.22	19.35	0-2	0
		8	7	19.25	19.21	19.35	0-2	0
		15	0	19.21	19.11	19.23	0-2	0
	64QAM	1	0	19.38	19.25	19.35	0-2	0
		1	7	19.36	19.18	19.35	0-2	0
		1	14	19.42	19.31	19.38	0-2	0
		8	0	19.19	19.13	19.28	0-3	0
		8	3	19.30	19.11	19.25	0-3	0
		8	7	19.25	19.18	19.29	0-3	0
		15	0	19.23	19.09	19.30	0-3	0

LTE Band 2 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18625 Ch. 1852.5 ㎒	18900Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	19.04	18.98	19.07	0	0
		1	12	19.07	18.99	19.16	0	0
		1	24	19.10	18.99	19.09	0	0
		12	0	19.16	19.01	19.21	0-1	0
		12	6	19.22	19.14	19.28	0-1	0
		12	11	19.20	19.10	19.33	0-1	0
		25	0	19.15	19.07	19.22	0-1	0
	16QAM	1	0	19.39	19.23	19.37	0-1	0
		1	12	19.39	19.39	19.49	0-1	0
		1	24	19.48	19.35	19.44	0-1	0
		12	0	19.22	19.08	19.21	0-2	0
		12	6	19.26	19.14	19.18	0-2	0
		12	11	19.27	19.17	19.25	0-2	0
		25	0	19.24	19.10	19.22	0-2	0
	64QAM	1	0	19.34	19.21	19.23	0-2	0
		1	12	19.33	19.17	19.38	0-2	0
		1	24	19.33	19.31	19.39	0-2	0
		12	0	19.19	19.14	19.21	0-3	0
		12	6	19.26	19.20	19.26	0-3	0
		12	11	19.28	19.19	19.31	0-3	0
		25	0	19.20	19.09	19.21	0-3	0

LTE Band 2 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18650 Ch. 1855 ㎒	18900 Ch. 1880 ㎒	19150 Ch. 1905 ㎒		
10 ㎒	QPSK	1	0	18.93	18.90	19.21	0	0
		1	24	18.92	18.85	19.24	0	0
		1	49	19.01	18.91	19.06	0	0
		25	0	19.13	19.06	19.26	0-1	0
		25	12	19.15	19.05	19.28	0-1	0
		25	24	19.09	19.04	19.24	0-1	0
		50	0	19.12	19.02	19.25	0-1	0
	16QAM	1	0	19.43	19.19	19.57	0-1	0
		1	24	19.22	19.27	19.40	0-1	0
		1	49	19.42	19.37	19.36	0-1	0
		25	0	19.13	19.05	19.26	0-2	0
		25	12	19.18	19.11	19.27	0-2	0
		25	24	19.14	19.07	19.19	0-2	0
		50	0	19.17	19.07	19.21	0-2	0
	64QAM	1	0	19.27	19.09	19.57	0-2	0
		1	24	19.20	19.28	19.50	0-2	0
		1	49	19.33	19.26	19.34	0-2	0
		25	0	19.15	19.05	19.25	0-3	0
		25	12	19.20	19.12	19.27	0-3	0
		25	24	19.16	19.01	19.22	0-3	0
		50	0	19.19	19.05	19.24	0-3	0

LTE Band 2 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18675 Ch. 1857.5 ㎒	18900 Ch. 1880 ㎒	19125 Ch. 1902.5 ㎒		
15 ㎒	QPSK	1	0	19.09	19.01	19.13	0	0
		1	36	19.15	19.04	19.17	0	0
		1	74	19.20	19.17	19.12	0	0
		36	0	19.23	19.13	19.29	0-1	0
		36	18	19.28	19.18	19.29	0-1	0
		36	39	19.29	19.21	19.31	0-1	0
		75	0	19.26	19.18	19.34	0-1	0
	16QAM	1	0	19.44	19.33	19.52	0-1	0
		1	36	19.45	19.34	19.50	0-1	0
		1	74	19.62	19.56	19.54	0-1	0
		36	0	19.25	19.18	19.31	0-2	0
		36	18	19.27	19.21	19.38	0-2	0
		36	39	19.35	19.26	19.36	0-2	0
		75	0	19.27	19.23	19.37	0-2	0
	64QAM	1	0	19.39	19.30	19.52	0-2	0
		1	36	19.32	19.16	19.49	0-2	0
		1	74	19.47	19.53	19.32	0-2	0
		36	0	19.24	19.17	19.40	0-3	0
		36	18	19.32	19.21	19.34	0-3	0
		36	39	19.34	19.24	19.37	0-3	0
		75	0	19.25	19.16	19.34	0-3	0

LTE Band 2 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	19.12	19.03	19.11	0	0
		1	49	19.12	18.97	19.13	0	0
		1	99	19.17	19.18	**19.19**	0	0
		50	0	19.18	19.11	19.30	0-1	0
		50	25	19.23	19.15	19.27	0-1	0
		50	49	19.29	19.16	**19.32**	0-1	0
		100	0	19.25	19.18	19.30	0-1	0
	16QAM	1	0	19.55	19.38	19.63	0-1	0
		1	49	19.54	19.36	19.55	0-1	0
		1	99	19.50	19.57	19.67	0-1	0
		50	0	19.24	19.16	19.33	0-2	0
		50	25	19.30	19.21	19.33	0-2	0
		50	49	19.30	19.24	19.33	0-2	0
		100	0	19.26	19.20	19.32	0-2	0
	64QAM	1	0	19.39	19.25	19.49	0-2	0
		1	49	19.40	19.32	19.38	0-2	0
		1	99	19.41	19.48	19.46	0-2	0
		50	0	19.26	19.16	19.32	0-3	0
		50	25	19.30	19.19	19.31	0-3	0
		50	49	19.29	19.27	19.37	0-3	0
		100	0	19.27	19.19	19.34	0-3	0

[LTE Band 4 Conducted Power]

LTE Band 4 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19957 Ch. 1710.7 ㎒	20175 Ch. 1732.5 ㎒	20393 Ch. 1754.3 ㎒		
1.4 ㎒	QPSK	1	0	18.93	18.47	18.74	0	0
		1	3	19.04	17.74	18.88	0	0
		1	5	18.95	18.61	18.78	0	0
		3	0	18.93	18.50	18.80	0	0
		3	1	19.01	18.57	18.82	0	0
		3	3	18.99	18.60	18.83	0	0
		6	0	19.02	18.60	18.91	0-1	0
	16QAM	1	0	19.34	18.01	19.15	0-1	0
		1	3	19.46	18.97	19.26	0-1	0
		1	5	19.30	19.04	19.15	0-1	0
		3	0	19.10	18.61	18.87	0-1	0
		3	1	19.13	18.72	18.93	0-1	0
		3	3	19.04	18.76	18.91	0-1	0
		6	0	19.13	18.68	18.96	0-2	0
	64QAM	1	0	19.23	18.79	18.98	0-2	0
		1	3	19.30	18.98	19.25	0-2	0
		1	5	19.19	18.93	19.11	0-2	0
		3	0	19.17	18.76	19.01	0-2	0
		3	1	19.18	18.80	19.07	0-2	0
		3	3	19.12	18.80	19.00	0-2	0
		6	0	19.03	18.63	18.86	0-3	0

LTE Band 4 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19965 Ch. 1711.5 ㎒	20175 Ch. 1732.5 ㎒	20385 Ch. 1753.5 ㎒		
3 ㎒	QPSK	1	0	18.98	18.55	18.71	0	0
		1	7	18.98	18.64	18.81	0	0
		1	14	18.88	18.59	18.83	0	0
		8	0	19.03	18.61	18.83	0-1	0
		8	3	19.12	18.76	18.93	0-1	0
		8	7	19.04	18.72	18.98	0-1	0
		15	0	19.10	18.67	18.91	0-1	0
	16QAM	1	0	19.27	18.91	19.08	0-1	0
		1	7	19.45	18.96	19.21	0-1	0
		1	14	19.26	18.88	19.22	0-1	0
		8	0	19.14	18.74	18.89	0-2	0
		8	3	19.17	18.76	19.03	0-2	0
		8	7	19.10	18.84	19.02	0-2	0
		15	0	19.09	18.69	18.96	0-2	0
	64QAM	1	0	19.22	18.86	19.01	0-2	0
		1	7	19.29	18.85	19.13	0-2	0
		1	14	19.22	18.92	19.14	0-2	0
		8	0	19.11	18.71	18.90	0-3	0
		8	3	19.18	18.80	19.03	0-3	0
		8	7	19.14	18.77	19.00	0-3	0
		15	0	19.13	18.73	18.97	0-3	0

LTE Band 4 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				19975 Ch. 1712.5 ㎒	20175 Ch. 1732.5 ㎒	20375 Ch. 1752.5 ㎒		
5 ㎒	QPSK	1	0	19.00	18.60	18.72	0	0
		1	12	18.97	18.66	18.84	0	0
		1	24	18.82	18.63	18.79	0	0
		12	0	19.06	18.68	18.83	0-1	0
		12	6	19.03	18.75	18.95	0-1	0
		12	11	18.99	18.73	18.95	0-1	0
		25	0	19.00	18.69	18.91	0-1	0
	16QAM	1	0	19.33	18.96	19.21	0-1	0
		1	12	19.35	19.00	19.16	0-1	0
		1	24	19.17	18.85	19.18	0-1	0
		12	0	19.10	18.63	18.89	0-2	0
		12	6	19.03	18.71	19.01	0-2	0
		12	11	19.04	18.79	18.97	0-2	0
		25	0	18.97	18.66	18.94	0-2	0
	64QAM	1	0	19.30	18.82	19.04	0-2	0
		1	12	19.28	18.97	19.17	0-2	0
		1	24	19.11	18.93	19.04	0-2	0
		12	0	19.13	18.73	18.93	0-3	0
		12	6	19.10	18.79	19.07	0-3	0
		12	11	19.09	18.84	18.99	0-3	0
		25	0	19.04	18.72	18.94	0-3	0

LTE Band 4 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20000 Ch. 1715 ㎒	20175 Ch. 1732.5 ㎒	20350 Ch. 1750 ㎒		
10 ㎒	QPSK	1	0	18.88	18.64	18.64	0	0
		1	24	18.90	18.69	18.76	0	0
		1	49	18.82	18.58	18.73	0	0
		25	0	19.02	18.73	18.88	0-1	0
		25	12	19.01	18.73	18.87	0-1	0
		25	24	18.93	18.68	18.84	0-1	0
		50	0	18.98	18.71	18.83	0-1	0
	16QAM	1	0	19.22	18.90	19.11	0-1	0
		1	24	19.20	18.85	19.10	0-1	0
		1	49	19.10	18.94	19.03	0-1	0
		25	0	19.02	18.75	18.88	0-2	0
		25	12	19.03	18.79	18.93	0-2	0
		25	24	18.96	18.70	18.84	0-2	0
		50	0	19.00	18.67	18.89	0-2	0
	64QAM	1	0	19.09	18.81	19.06	0-2	0
		1	24	19.13	18.99	19.01	0-2	0
		1	49	19.12	18.82	19.01	0-2	0
		25	0	19.07	18.74	18.89	0-3	0
		25	12	19.08	18.81	18.89	0-3	0
		25	24	18.97	18.72	18.91	0-3	0
		50	0	19.03	18.73	18.94	0-3	0

LTE Band 4 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20025 Ch. 1717.5 ㎒	20175 Ch. 1732.5 ㎒	20325 Ch. 1747.5 ㎒		
15 ㎒	QPSK	1	0	19.01	18.75	18.85	0	0
		1	36	19.01	18.69	18.77	0	0
		1	74	19.00	18.85	19.03	0	0
		36	0	19.11	18.86	18.97	0-1	0
		36	18	19.08	18.93	19.01	0-1	0
		36	39	19.11	18.91	19.05	0-1	0
		75	0	19.10	18.88	19.02	0-1	0
	16QAM	1	0	19.30	19.12	19.23	0-1	0
		1	36	19.32	19.08	19.31	0-1	0
		1	74	19.23	19.30	19.27	0-1	0
		36	0	19.09	18.82	18.97	0-2	0
		36	18	19.12	18.87	19.02	0-2	0
		36	39	19.08	18.89	19.03	0-2	0
		75	0	19.08	18.90	19.02	0-2	0
	64QAM	1	0	19.22	19.08	19.12	0-2	0
		1	36	19.24	18.99	19.23	0-2	0
		1	74	19.26	19.08	19.20	0-2	0
		36	0	19.13	18.89	19.04	0-3	0
		36	18	19.14	18.92	19.08	0-3	0
		36	39	19.13	18.95	19.05	0-3	0
		75	0	19.11	18.88	19.01	0-3	0

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				20175 Ch. 1732.5 ㎒		
20 ㎒	QPSK	1	0	18.77	0	0
		1	49	18.70	0	0
		1	99	**18.88**	0	0
		50	0	**18.90**	0-1	0
		50	25	18.90	0-1	0
		50	49	18.84	0-1	0
		100	0	18.91	0-1	0
	16QAM	1	0	19.20	0-1	0
		1	49	19.07	0-1	0
		1	99	19.19	0-1	0
		50	0	18.89	0-2	0
		50	25	18.90	0-2	0
		50	49	18.94	0-2	0
		100	0	18.85	0-2	0
	64QAM	1	0	18.98	0-2	0
		1	49	18.98	0-2	0
		1	99	19.16	0-2	0
		50	0	18.89	0-3	0
		50	25	18.90	0-3	0
		50	49	18.91	0-3	0
		100	0	18.91	0-3	0

Note: LTE Band 4 (AWS) at 20 ㎒ Bandwidth does not support three non-overlapping channels. Per KDB 941225 D05v02r05, when a device supports overlapping channel assignment in a channel bandwidth configuration, the mid channel of the group of overlapping channels should be selected for testing.

[LTE Band 41 Conducted Power]

LTE Band 41 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39675 Ch. 2498.5 ㎒	40148 Ch. 2545.8 ㎒	40620 Ch. 2593.0 ㎒	41093 Ch. 2640.3 ㎒	41565 Ch. 2687.5 ㎒		
5 ㎒	QPSK	1	0	21.53	22.39	22.56	22.32	22.04	0	0
		1	12	21.56	22.41	22.53	22.32	22.01	0	0
		1	24	21.59	22.44	22.47	22.27	22.03	0	0
		12	0	21.67	22.47	22.62	22.39	22.10	0-1	0
		12	6	21.70	22.52	22.64	22.42	22.15	0-1	0
		12	11	21.72	22.53	22.64	22.44	22.11	0-1	0
		25	0	21.71	22.47	22.61	22.38	22.10	0-1	0
	16QAM	1	0	21.66	22.53	22.74	22.60	22.32	0-1	0
		1	12	21.70	22.60	22.73	22.60	22.31	0-1	0
		1	24	21.74	22.62	22.66	22.54	22.28	0-1	0
		12	0	21.64	22.49	22.65	22.44	22.18	0-2	0
		12	6	21.67	22.54	22.67	22.46	22.20	0-2	0
		12	11	21.66	22.51	22.65	22.45	22.17	0-2	0
		25	0	21.70	22.53	22.69	22.44	22.19	0-2	0
	64QAM	1	0	21.31	22.17	22.37	22.19	21.94	0-2	0
		1	12	21.34	22.17	22.31	22.18	21.91	0-2	0
		1	24	21.37	22.22	22.28	22.16	21.89	0-2	0
		12	0	20.73	21.59	21.76	21.52	21.30	0-3	0
		12	6	20.75	21.63	21.81	21.57	21.36	0-3	0
		12	11	20.74	21.58	21.79	21.59	21.31	0-3	0
		25	0	20.73	21.56	21.75	21.53	21.27	0-3	0

LTE Band 41 _ 10 ㎒ Bandwidth - Power Class 3

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39700 Ch. 2501 ㎒	40160 Ch. 2547 ㎒	40620 Ch. 2593 ㎒	41080 Ch. 2639 ㎒	41540 Ch. 2685 ㎒		
10 ㎒	QPSK	1	0	21.44	22.29	22.47	22.15	22.00	0	0
		1	24	21.51	22.40	22.51	22.22	22.04	0	0
		1	49	21.50	22.30	22.38	22.16	21.91	0	0
		25	0	21.70	22.50	22.65	22.36	22.12	0-1	0
		25	12	21.76	22.51	22.61	22.36	22.10	0-1	0
		25	24	21.72	22.49	22.56	22.33	22.05	0-1	0
		50	0	21.73	22.51	22.68	22.35	22.13	0-1	0
	16QAM	1	0	21.62	22.50	22.67	22.50	22.30	0-1	0
		1	24	21.65	22.57	22.72	22.52	22.32	0-1	0
		1	49	21.63	22.46	22.60	22.48	22.15	0-1	0
		25	0	21.71	22.53	22.71	22.47	22.22	0-2	0
		25	12	21.72	22.53	22.70	22.41	22.22	0-2	0
		25	24	21.71	22.48	22.63	22.42	22.16	0-2	0
		50	0	21.74	22.54	22.77	22.51	22.28	0-2	0
	64QAM	1	0	21.23	22.11	22.28	22.09	21.85	0-2	0
		1	24	21.24	22.14	22.31	22.13	21.88	0-2	0
		1	49	21.27	22.09	22.23	22.09	21.77	0-2	0
		25	0	20.73	21.57	21.78	21.54	21.30	0-3	0
		25	12	20.75	21.59	21.75	21.53	21.28	0-3	0
		25	24	20.76	21.56	21.68	21.50	21.23	0-3	0
		50	0	20.73	21.55	21.74	21.49	21.25	0-3	0

LTE Band 41 _ 15 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39725 Ch. 2503.5 ㎒	40173 Ch. 2548.3 ㎒	40620 Ch. 2593.0 ㎒	41068 Ch. 2637.8 ㎒	41515 Ch. 2682.5 ㎒		
15 ㎒	QPSK	1	0	21.61	22.38	22.57	22.39	22.14	0	0
		1	36	21.71	22.47	22.61	22.40	22.18	0	0
		1	74	21.77	22.37	22.55	22.30	22.22	0	0
		36	0	21.77	22.57	22.76	22.55	22.30	0-1	0
		36	18	21.85	22.59	22.75	22.56	22.35	0-1	0
		36	39	21.91	22.54	22.75	22.48	22.32	0-1	0
		75	0	21.91	22.55	22.73	22.48	22.23	0-1	0
	16QAM	1	0	21.77	22.62	22.74	22.69	22.41	0-1	0
		1	36	21.76	22.64	22.80	22.67	22.42	0-1	0
		1	74	21.83	22.52	22.74	22.54	22.46	0-1	0
		36	0	21.70	22.53	22.74	22.61	22.35	0-2	0
		36	18	21.78	22.57	22.77	22.61	22.39	0-2	0
		36	39	21.82	22.52	22.79	22.52	22.38	0-2	0
		75	0	21.87	22.61	22.81	22.56	22.33	0-2	0
	64QAM	1	0	21.36	22.20	22.30	22.30	21.98	0-2	0
		1	36	21.43	22.26	22.42	22.25	22.02	0-2	0
		1	74	21.47	22.14	22.37	22.16	22.05	0-2	0
		36	0	20.75	21.59	21.84	21.65	21.44	0-3	0
		36	18	20.81	21.59	21.84	21.65	21.47	0-3	0
		36	39	20.85	21.57	21.81	21.59	21.46	0-3	0
		75	0	20.85	21.62	21.81	21.59	21.39	0-3	0

LTE Band 41 _ 20 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Reduced Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	21.63	22.37	22.51	22.39	22.11	0	0
		1	49	21.72	22.49	22.56	22.39	22.18	0	0
		1	99	21.78	22.46	22.47	22.15	22.24	0	0
		50	0	21.84	22.57	22.79	22.54	22.30	0-1	0
		50	25	21.95	22.58	22.78	22.53	22.35	0-1	0
		50	49	22.03	22.56	22.73	22.45	22.37	0-1	0
		100	0	21.92	22.59	22.74	22.48	22.27	0-1	0
	16QAM	1	0	21.76	22.55	22.72	22.68	22.42	0-1	0
		1	49	21.79	22.64	22.78	22.67	22.48	0-1	0
		1	99	21.89	22.61	22.71	22.47	22.50	0-1	0
		50	0	21.87	22.63	22.88	22.64	22.43	0-2	0
		50	25	21.92	22.67	22.88	22.64	22.49	0-2	0
		50	49	21.99	22.59	22.83	22.56	22.52	0-2	0
		100	0	21.89	22.59	22.84	22.59	22.45	0-2	0
	64QAM	1	0	21.35	22.15	22.34	22.26	22.00	0-2	0
		1	49	21.42	22.22	22.38	22.27	22.06	0-2	0
		1	99	21.48	22.20	22.28	22.08	22.09	0-2	0
		50	0	20.83	21.62	21.83	21.64	21.43	0-3	0
		50	25	20.93	21.63	21.83	21.62	21.48	0-3	0
		50	49	21.00	21.57	21.80	21.59	21.52	0-3	0
		100	0	20.88	21.59	21.81	21.60	21.43	0-3	0

Note; LTE Band 41 has 5 required test channels per FCC KDB 447498 D01v06.

[LTE Band 66 Conducted Power]

LTE Band 66 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131979Ch. 1710.7 ㎒	132322 Ch. 1745 ㎒	132665 Ch. 1779.3 ㎒		
1.4 ㎒	QPSK	1	0	18.99	18.76	19.10	0	0
		1	3	19.03	18.82	19.18	0	0
		1	5	18.99	18.77	19.13	0	0
		3	0	18.92	18.80	19.15	0	0
		3	1	19.01	18.78	19.18	0	0
		3	3	18.96	18.79	19.13	0	0
		6	0	19.10	18.87	19.23	0-1	0
	16QAM	1	0	19.37	19.10	19.41	0-1	0
		1	3	19.30	19.20	19.63	0-1	0
		1	5	19.30	19.12	19.41	0-1	0
		3	0	19.13	18.84	19.29	0-1	0
		3	1	19.19	18.99	19.34	0-1	0
		3	3	19.12	18.89	19.28	0-1	0
		6	0	19.18	18.95	19.29	0-2	0
	64QAM	1	0	19.26	19.08	19.47	0-2	0
		1	3	19.31	19.17	19.53	0-2	0
		1	5	19.31	19.07	19.40	0-2	0
		3	0	19.19	19.05	19.33	0-2	0
		3	1	19.29	19.01	19.42	0-2	0
		3	3	19.23	19.04	19.41	0-2	0
		6	0	19.15	18.83	19.25	0-3	0

LTE Band 66 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131987 Ch. 1711.5 ㎒	132322 Ch. 1745 ㎒	132657 Ch. 1778.5 ㎒		
3 ㎒	QPSK	1	0	18.98	18.84	19.07	0	0
		1	7	19.01	18.79	19.15	0	0
		1	14	18.97	18.84	19.22	0	0
		8	0	19.10	18.88	19.22	0-1	0
		8	3	19.18	18.99	19.32	0-1	0
		8	7	19.05	18.91	19.26	0-1	0
		15	0	19.09	18.96	19.29	0-1	0
	16QAM	1	0	19.32	19.17	19.53	0-1	0
		1	7	19.38	19.14	19.53	0-1	0
		1	14	19.43	19.12	19.61	0-1	0
		8	0	19.20	19.00	19.26	0-2	0
		8	3	19.26	19.06	19.42	0-2	0
		8	7	19.12	19.00	19.40	0-2	0
		15	0	19.12	18.97	19.32	0-2	0
	64QAM	1	0	19.34	19.15	19.43	0-2	0
		1	7	19.27	19.11	19.47	0-2	0
		1	14	19.22	19.19	19.53	0-2	0
		8	0	19.22	18.99	19.33	0-3	0
		8	3	19.22	19.07	19.44	0-3	0
		8	7	19.16	19.03	19.37	0-3	0
		15	0	19.09	18.94	19.36	0-3	0

LTE Band 66 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131997 Ch. 1712.5 ㎒	132322Ch. 1745 ㎒	132647 Ch. 1777.5 ㎒		
5 ㎒	QPSK	1	0	19.01	18.77	19.13	0	0
		1	12	19.03	18.85	19.22	0	0
		1	24	18.98	18.95	19.27	0	0
		12	0	19.13	18.90	19.18	0-1	0
		12	6	19.11	18.99	19.28	0-1	0
		12	11	19.14	18.95	19.29	0-1	0
		25	0	19.07	18.94	19.29	0-1	0
	16QAM	1	0	19.37	19.19	19.47	0-1	0
		1	12	19.40	19.22	19.65	0-1	0
		1	24	19.26	19.29	19.64	0-1	0
		12	0	19.11	18.99	19.26	0-2	0
		12	6	19.10	19.00	19.38	0-2	0
		12	11	19.16	19.01	19.38	0-2	0
		25	0	19.09	18.96	19.31	0-2	0
	64QAM	1	0	19.32	19.13	19.45	0-2	0
		1	12	19.43	19.18	19.51	0-2	0
		1	24	19.29	19.15	19.61	0-2	0
		12	0	19.21	19.02	19.35	0-3	0
		12	6	19.19	19.05	19.43	0-3	0
		12	11	19.15	19.08	19.37	0-3	0
		25	0	19.10	18.99	19.35	0-3	0

LTE Band 66 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132022 Ch. 1715 ㎒	132322 Ch. 1745 ㎒	132622 Ch. 1775 ㎒		
10 ㎒	QPSK	1	0	18.97	18.74	19.15	0	0
		1	24	19.00	18.76	19.04	0	0
		1	49	18.97	18.92	19.16	0	0
		25	0	19.11	18.91	19.25	0-1	0
		25	12	19.13	18.88	19.26	0-1	0
		25	24	19.02	18.87	19.21	0-1	0
		50	0	19.11	18.94	19.22	0-1	0
	16QAM	1	0	19.37	19.24	19.48	0-1	0
		1	24	19.23	19.01	19.33	0-1	0
		1	49	19.27	19.16	19.56	0-1	0
		25	0	19.16	18.94	19.25	0-2	0
		25	12	19.09	18.94	19.27	0-2	0
		25	24	19.11	18.91	19.22	0-2	0
		50	0	19.13	18.93	19.28	0-2	0
	64QAM	1	0	19.21	19.17	19.36	0-2	0
		1	24	19.28	18.98	19.30	0-2	0
		1	49	19.25	19.15	19.54	0-2	0
		25	0	19.17	18.96	19.26	0-3	0
		25	12	19.16	18.96	19.30	0-3	0
		25	24	19.09	18.95	19.23	0-3	0
		50	0	19.09	18.98	19.30	0-3	0

LTE Band 66 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132047 Ch. 1717.5 ㎒	132322 Ch. 1745 ㎒	132597 Ch. 1772.5 ㎒		
15 ㎒	QPSK	1	0	19.21	19.01	19.29	0	0
		1	36	19.09	18.93	19.16	0	0
		1	74	19.14	18.98	19.18	0	0
		36	0	19.29	19.12	19.39	0-1	0
		36	18	19.23	19.11	19.37	0-1	0
		36	39	19.21	19.08	19.35	0-1	0
		75	0	19.24	19.09	19.39	0-1	0
	16QAM	1	0	19.59	19.46	19.71	0-1	0
		1	36	19.41	19.27	19.48	0-1	0
		1	74	19.46	19.32	19.52	0-1	0
		36	0	19.27	19.11	19.42	0-2	0
		36	18	19.28	19.11	19.36	0-2	0
		36	39	19.22	19.07	19.38	0-2	0
		75	0	19.26	19.14	19.42	0-2	0
	64QAM	1	0	19.46	19.25	19.56	0-2	0
		1	36	19.36	19.28	19.38	0-2	0
		1	74	19.34	19.25	19.51	0-2	0
		36	0	19.36	19.19	19.44	0-3	0
		36	18	19.32	19.22	19.49	0-3	0
		36	39	19.26	19.11	19.40	0-3	0
		75	0	19.32	19.12	19.42	0-3	0

LTE Band 66 _ 20 ㎒ Bandwidth

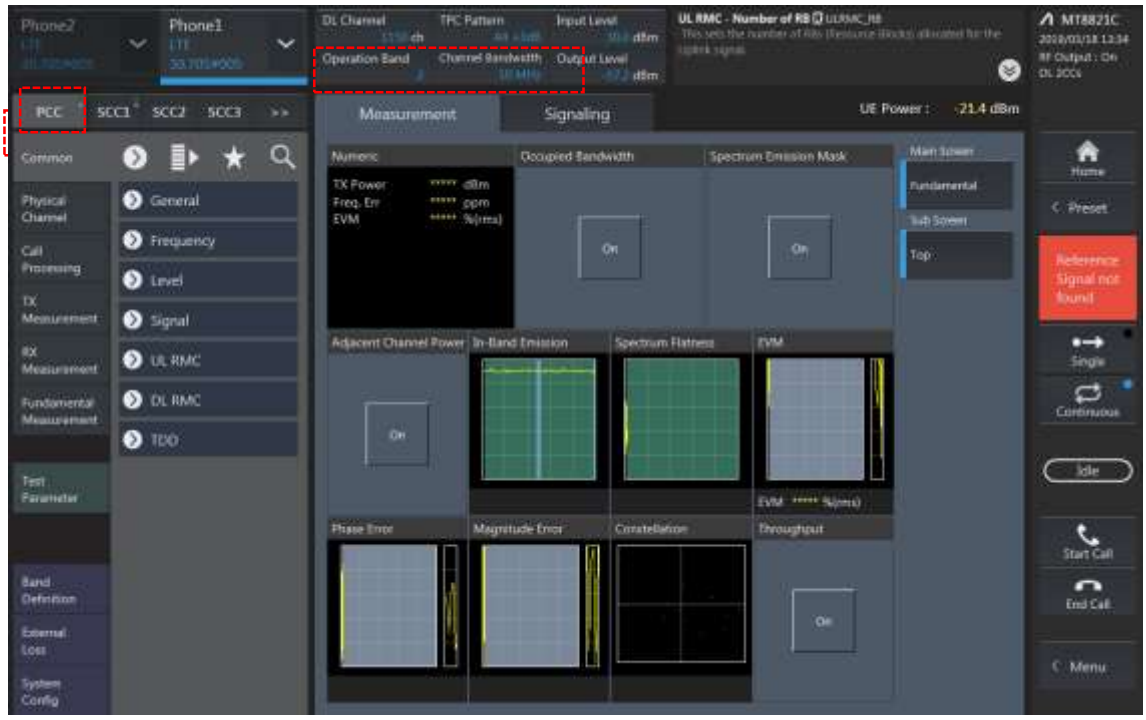
Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	19.14	18.94	19.16	0	0
		1	49	19.08	18.93	**19.19**	0	0
		1	99	19.06	19.06	19.15	0	0
		50	0	19.30	19.10	**19.37**	0-1	0
		50	25	19.25	19.12	19.33	0-1	0
		50	49	19.23	19.09	19.32	0-1	0
		100	0	19.21	19.09	19.37	0-1	0
	16QAM	1	0	19.52	19.32	19.48	0-1	0
		1	49	19.36	19.29	19.48	0-1	0
		1	99	19.48	19.51	19.66	0-1	0
		50	0	19.30	19.13	19.38	0-2	0
		50	25	19.26	19.10	19.41	0-2	0
		50	49	19.23	19.15	19.36	0-2	0
		100	0	19.23	19.10	19.40	0-2	0
	64QAM	1	0	19.45	19.28	19.37	0-2	0
		1	49	19.33	19.24	19.47	0-2	0
		1	99	19.38	19.37	19.59	0-2	0
		50	0	19.29	19.17	19.41	0-3	0
		50	25	19.33	19.14	19.39	0-3	0
		50	49	19.29	19.15	19.43	0-3	0
		100	0	19.30	19.15	19.38	0-3	0

The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

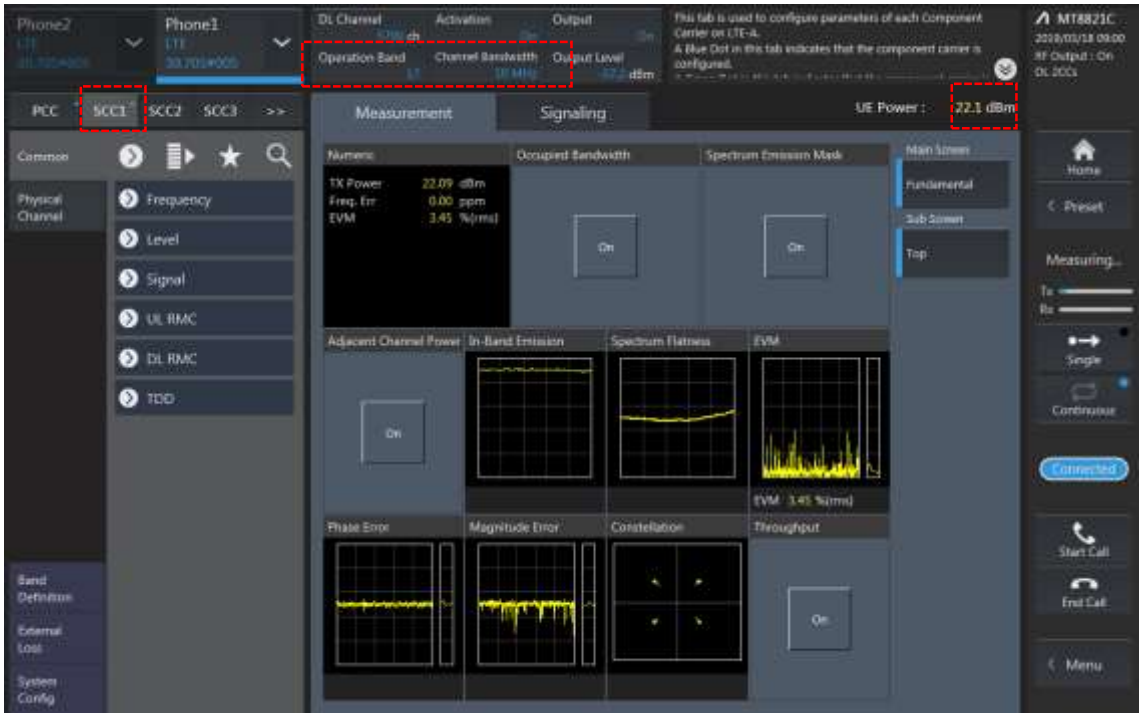
11.3.4 LTE Down-link Carrier Aggregation Conducted Powers

LTE Down Link 2CA Call Setup

PCC Setting : Channel/ RB/ BW/ Modulation



SCC Setting : Channel/ RB/ BW/ Modulation and call Connection



2CA Downlink Carrier aggregation conducted Powers

Max power DL 2CA																
Combination	PCC									SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
2A-2A(0)	2	10	19150	1905	1150	1985	QPSK	1	0	2	20	700	1940	24.08	24.24
2A-4A(0)(2)	2	10	19150	1905	1150	1985	QPSK	1	0	4	20	2175	2132.5	24.08	24.1
2A-4A(1)	2	10	19150	1905	1150	1985	QPSK	1	0	4	10	2175	2132.5	24.08	24.13
2A-5A(0)(1)	2	10	19150	1905	1150	1985	QPSK	1	0	5	10	2525	881.5	24.08	24.16
2A-12A(0)(1)(2)	2	10	19150	1905	1150	1985	QPSK	1	0	12	10	5095	737.5	24.08	24.13
2A-13A(0)(1)	2	10	19150	1905	1150	1985	QPSK	1	0	13	10	5230	751	24.08	24.19
2A-66A(0)(2)	2	10	19150	1905	1150	1985	QPSK	1	0	66	20	66786	2145	24.08	24.17
2A-66A(1)	2	10	19150	1905	1150	1985	QPSK	1	0	66	10	66786	2145	24.08	24.11
2C	2	10	19150	1905	1150	1985	QPSK	1	0	2	20	1006	1970.6	24.08	24.14
4A-2A(0)(2)	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	2	20	900	1960	23.98	24.05
4A-2A(1)	4	5	19975	1712.5	1975	2112.5	QPSK	1	0	2	10	900	1960	23.95	24.15
4A-4A	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	4	20	2300	2145	23.98	24.02
4A-5A(0)	4	5	19975	1712.5	1975	2112.5	QPSK	1	0	5	10	2525	881.5	23.95	24.06
4A-5A(1)	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	5	10	2525	881.5	23.98	24.04
4A-12A(0)	4	1.4	19957	1710.7	1957	2110.7	QPSK	1	3	12	10	5095	737.5	23.96	24.06
4A-12A(1)(2)(4)	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	12	10	5095	737.5	23.98	24.05
4A-12A(3)	4	5	19975	1712.5	1975	2112.5	QPSK	1	0	12	10	5095	737.5	23.95	24.07
4A-12A(5)	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	12	5	5095	737.5	23.98	24.01
4A-13A(0)	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	13	10	5230	751	23.98	24.01
4A-13A(1)	4	5	19975	1712.5	1975	2112.5	QPSK	1	0	13	10	5230	751	23.95	24.1
5A-2A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	24.4	24.49
5A-2A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	10	900	1960	24.4	24.47
5A-4A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	10	2175	2132.5	24.4	24.49
5A-4A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	20	2175	2132.5	24.4	24.46
5A-5A	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	10	2450	874	24.4	24.45
5A-41A	5	5	20625	846.5	2625	891.5	QPSK	1	24	41	20	40620	2593	24.4	24.44
5B(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	10	2553	884.3	24.4	24.43
5B(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	3	2586	887.6	24.4	24.46
12A-2A(0)(1)	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	20	900	1960	24.44	24.48
12A-2A(2)	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	10	900	1960	24.44	24.49
12A-4A(0)(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	10	2175	2132.5	24.44	24.48
12A-4A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	20	2175	2132.5	24.44	24.53
12A-4A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	15	2175	2132.5	24.44	24.46
12A-66A(0)(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	10	66786	2145	24.44	24.47

12A-66A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	20	66786	2145	24.44	24.46
12A-66A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	15	66786	2145	24.44	24.52
12B	12	5	23155	713.5	5155	743.5	QPSK	1	12	12	5	5107	738.7	24.44	24.44
13A-2A(0)	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	23.93	24.03
13A-2A(1)	13	10	23230	782	5230	751	QPSK	1	0	2	10	900	1960	23.93	23.97
13A-4A(0)	13	10	23230	782	5230	751	QPSK	1	0	4	20	2175	2132.5	23.93	23.98
13A-4A(1)	13	10	23230	782	5230	751	QPSK	1	0	4	10	2175	2132.5	23.93	23.97
26A-41A	26	15	26965	841.5	8965	886.5	QPSK	1	36	41	20	40620	2593	24.31	24.33
41A-41A	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	41490	2680	24.18	24.24
41C(0)(1)(2)	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	40791	2610.1	24.18	24.14
41C(3)	41	20	40620	2593	40620	2593	QPSK	1	49	41	20	40818	2612.8	24.13	24.29
66A-2A(0)(2)	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	2	20	900	1960	24.25	24.19
66A-2A(1)	66	5	132647	1777.5	67111	2177.5	QPSK	1	24	2	10	900	1960	24.22	24.18
66A-12A(0)(3)	66	5	132647	1777.5	67111	2177.5	QPSK	1	24	12	10	5095	737.5	24.22	24.17
66A-12A(1)(2)(4)	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	12	10	5095	737.5	24.25	24.29
66A-12A(5)	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	12	5	5095	737.5	24.25	24.23
66A-66A	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	20	66536	2120	24.25	24.24
66B	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	5	66968	2163.2	24.25	24.24
66C	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	20	66890	2155.4	24.25	24.21

Hotspot back off DL 2CA

Combination	PCC									SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
2A-2A(0)	2	20	19100	1900	1100	1980	16QAM	1	0	2	20	700	1940	20.14	20.01
2A-4A(0)(2)	2	20	19100	1900	1100	1980	16QAM	1	0	4	20	2175	2132.5	20.14	19.98
2A-4A(1)	2	10	19150	1905	1150	1985	16QAM	1	24	4	10	2175	2132.5	19.96	19.68
2A-5A(0)	2	20	19100	1900	1100	1980	16QAM	1	0	5	10	2525	881.5	20.14	19.82
2A-5A(1)	2	10	19150	1905	1150	1985	16QAM	1	24	5	10	2525	881.5	19.96	19.66
2A-12A(0)(1)	2	20	19100	1900	1100	1980	16QAM	1	0	12	10	5095	737.5	20.14	19.27
2A-12A(2)	2	10	19150	1905	1150	1985	16QAM	1	24	12	10	5095	737.5	19.96	19.92
2A-13A(0)	2	20	19100	1900	1100	1980	16QAM	1	0	13	10	5230	751	19.82	19.27
2A-13A(1)	2	10	19150	1905	1150	1985	16QAM	1	24	13	10	5230	751	19.66	19.85
2A-66A(0)(2)	2	20	19100	1900	1100	1980	16QAM	1	0	66	20	66786	2145	19.82	20.02
2A-66A(1)	2	10	19150	1905	1150	1985	16QAM	1	24	66	10	66786	2145	19.66	19.67
2C	2	20	19100	1900	1100	1980	16QAM	1	0	2	20	902	1960.2	20.14	19.81
4A-2A(0)(2)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	2	20	900	1960	19.34	19.59
4A-2A(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	0	2	10	900	1960	19.26	19.78
4A-4A(0)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	4	20	2350	2150	19.34	19.48
4A-4A(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	0	4	10	2300	2145	19.26	19.29
4A-5A(0)	4	5	19975	1712.5	1975	2112.5	16QAM	1	0	5	10	2525	881.5	19.26	19.1
4A-5A(1)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	5	10	2525	881.5	19.34	19.41
4A-12A(0)(3)	4	5	19975	1712.5	1975	2112.5	16QAM	1	0	12	10	5095	737.5	19.26	19.33
4A-12A(1)(2)(4)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	12	10	5095	737.5	19.34	19.41
4A-12A(5)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	12	5	5095	737.5	19.34	19.52
4A-13A(0)	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	13	10	5230	751	19.34	19.32
4A-13A(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	0	13	10	5230	751	19.26	19.35
5A-2A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	24.4	24.36
5A-2A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	10	900	1960	24.4	24.44
5A-4A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	10	2175	2132.5	24.4	24.39
5A-4A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	20	2175	2132.5	24.4	24.43
5A-41A	5	5	20625	846.5	2625	891.5	QPSK	1	24	41	20	40620	2593	24.4	24.57
12A-2A(2)	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	10	900	1960	24.44	24.62
12A-4A(0)(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	10	2175	2132.5	24.44	24.59
12A-4A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	20	2175	2132.5	24.44	24.57
12A-4A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	15	2175	2132.5	24.44	24.48
12A-66A(0)(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	10	66786	2145	24.44	24.42
12A-66A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	20	66786	2145	24.44	24.6
12A-66A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	15	66786	2145	24.44	24.61
13A-2A(0)	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	23.93	24.03

13A-2A(1)	13	10	23230	782	5230	751	QPSK	1	0	2	10	900	1960	23.93	24.09
13A-4A(0)	13	10	23230	782	5230	751	QPSK	1	0	4	20	2175	2132.5	23.93	24.09
13A-4A(1)	13	10	23230	782	5230	751	QPSK	1	0	4	10	2175	2132.5	23.93	24.03
26A-41A	26	15	26965	841.5	8965	886.5	QPSK	1	36	41	20	40620	2593	24.31	24.34
41A-41A(0)(1)	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41490	2680	22.86	22.85
41C(0)(1)(2)(3)	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	22.86	22.88
66A-2A(0)(2)	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	2	20	900	1960	19.85	19.9
66A-2A(1)	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	2	10	900	1960	19.85	19.69
66A-12A(0)(1)(2)(3)(4)	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	12	10	5095	737.5	19.85	19.67
66A-12A(5)	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	12	5	5095	737.5	19.85	19.76
66A-66A	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	66	20	66536	2120	19.85	19.67
66B	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	66	15	67018	2168.2	19.85	19.79
66C	66	5	132647	1777.5	67111	2177.5	16QAM	1	24	66	20	66994	2165.8	19.85	19.55

Grip back Back-off DL 2CA															
Combination	PCC									SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled (dBm)
2A-2A(0)	2	20	19100	1900	1100	1980	16QAM	1	99	2	20	700	1940	19.67	19.75
2A-4A(0)(2)	2	20	19100	1900	1100	1980	16QAM	1	99	4	20	2175	2132.5	19.67	19.72
2A-4A(1)	2	10	19150	1905	1100	1985	16QAM	1	0	4	10	2175	2132.5	19.57	19.2
2A-5A(0)(1)	2	20	19100	1900	1100	1980	16QAM	1	99	5	10	2525	881.5	19.67	19.73
2A-5A(1)	2	10	19150	1905	1100	1985	16QAM	1	0	5	10	2525	881.5	19.57	19.81
2A-12A(0)(1)	2	20	19100	1900	1100	1980	16QAM	1	99	12	10	5095	737.5	19.67	19.78
2A-12A(2)	2	10	19150	1905	1100	1985	16QAM	1	0	12	10	5095	737.5	19.57	19.65
2A-13A(0)	2	20	19100	1900	1100	1980	16QAM	1	99	13	10	5230	751	19.67	19.67
2A-13A(1)	2	10	19150	1905	1100	1985	16QAM	1	0	13	10	5230	751	19.57	19.68
2A-66A(0)(2)	2	20	19100	1900	1100	1980	16QAM	1	99	66	20	66786	2145	19.67	19.67
2A-66A(1)	2	10	19150	1905	1100	1985	16QAM	1	0	66	10	66786	2145	19.57	19.69
2C	2	20	19100	1900	1100	1980	16QAM	1	99	2	20	902	1960.2	19.67	19.77
4A-2A(0)(2)	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	2	20	700	1940	19.35	19.48
4A-2A(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	2	10	700	1940	19.35	19.27
4A-4A	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	4	20	2300	2145	19.35	19.42
4A-5A(0)(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	5	10	2525	881.5	19.35	19.37
4A-12A(0)(1)	4	1.4	19957	1710.7	1957	2110.7	16QAM	1	3	12	10	5095	737.5	19.46	19.59
4A-12A(2)(3)(4)	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	12	10	5095	737.5	19.35	19.31
4A-13A(0)(1)	4	5	19975	1712.5	1975	2112.5	16QAM	1	12	13	10	5230	751	19.35	19.36
5A-2A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	24.4	24.53
5A-2A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	10	900	1960	24.4	24.51
5A-4A(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	10	2175	2132.5	24.4	24.55
5A-4A(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	4	20	2175	2132.5	24.4	24.5
5A-5A	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	10	2450	874	24.4	24.57
5A-41A	5	5	20625	846.5	2625	891.5	QPSK	1	24	41	20	40620	2593	24.4	24.5
5B(0)	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	10	2553	884.3	24.4	24.52
5B(1)	5	5	20625	846.5	2625	891.5	QPSK	1	24	5	3	2586	887.6	24.4	24.54

12A-2A(0)(1)	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	20	900	1960	24.44	24.49
12A-2A(2)	12	5	23155	713.5	5155	743.5	QPSK	1	12	2	10	900	1960	24.44	24.49
12A-4A(0)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	10	2175	2132.5	24.44	24.52
12A-4A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	20	2175	2132.5	24.44	24.51
12A-4A(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	10	2175	2132.5	24.44	24.49
12A-4A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	4	15	2175	2132.5	24.44	24.55
12A-66A(0)(3)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	10	66786	2145	24.44	24.53
12A-66A(1)(2)(4)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	20	66786	2145	24.44	24.52
12A-66A(5)	12	5	23155	713.5	5155	743.5	QPSK	1	12	66	15	66786	2145	24.44	24.52
13A-2A(0)	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	23.93	24.03
13A-2A(1)	13	10	23230	782	5230	751	QPSK	1	0	2	10	900	1960	23.93	24.01
13A-4A(0)	13	10	23230	782	5230	751	QPSK	1	0	4	20	2175	2132.5	23.93	24.04
13A-4A(1)	13	10	23230	782	5230	751	QPSK	1	0	4	10	2175	2132.5	23.93	24.05
26A-41A	26	15	26965	841.5	8965	886.5	QPSK	1	36	41	15	40620	2593	24.31	24.34
41A-41A	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41490	2680	22.88	22.78
41C(0)(1)(2)(3)	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	22.88	22.48
66A-2A(0)(2)	66	15	132597	1772.5	67061	2172.5	16QAM	1	0	2	20	900	1960	19.71	19.86
66A-2A(1)	66	5	132647	1777.5	67111	2177.5	16QAM	1	12	2	10	900	1960	19.65	19.67
66A-12A(0)(3)	66	5	132647	1777.5	67111	2177.5	16QAM	1	12	12	10	5095	737.5	19.65	19.77
66A-12A(1)(2)(4)(5)	66	15	132597	1772.5	67061	2172.5	16QAM	1	0	12	10	5095	737.5	19.71	19.75
66A-66A	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	20	66536	2120	19.71	19.86
66B	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	5	66968	2163.2	19.71	19.78
66C	66	15	132597	1772.5	67061	2172.5	QPSK	1	0	66	20	66890	2155.4	19.71	19.81

3CA Downlink Carrier aggregation conducted Powers

Max Power DL 3CA

Combination	PCC									SCC				SCC					Tx Power
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	15	18900	1880	900	1960	QPSK	1	74	4	20	2175	2132.5	5	10	2525	881.5	23.96	24.14
2A-4A-13A	2	15	18900	1880	900	1960	QPSK	1	74	4	20	2175	2132.5	13	10	5230	782	23.96	24.09
4A-2A-5A	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	2	20	900	1960	5	10	2525	881.5	23.98	23.8
4A-2A-13A	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	2	20	900	1960	13	10	782	5230	23.98	23.8
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.52
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	24.13
41A-41C	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	41292	2660.2	41	20	41490	2680	24.18	24.21
41C-41A	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	40818	2612.8	41	20	39750	2506	24.18	24.22

Hotspot Back-off DL 3CA

Combination	PCC									SCC				SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	20	19100	1900	1100	1980	16QAM	1	0	4	20	2175	2132.5	5	10	2525	881.5	20.14	19.44
2A-4A-13A	2	20	19100	1900	1100	1980	16QAM	1	0	4	20	2175	2132.5	13	10	5230	782	20.14	19.48
4A-2A-5A	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	2	20	900	1960	5	10	2525	881.5	19.34	18.9
4A-2A-13A	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	2	20	900	1960	13	10	5230	782	19.34	18.98
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.22
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	23.26
41A-41C	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41292	2660.2	41	20	41490	2680	22.86	22.89
41C-41A	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	41	20	39750	2506	22.86	22.91

Grip Sensor Back-off DL 3CA

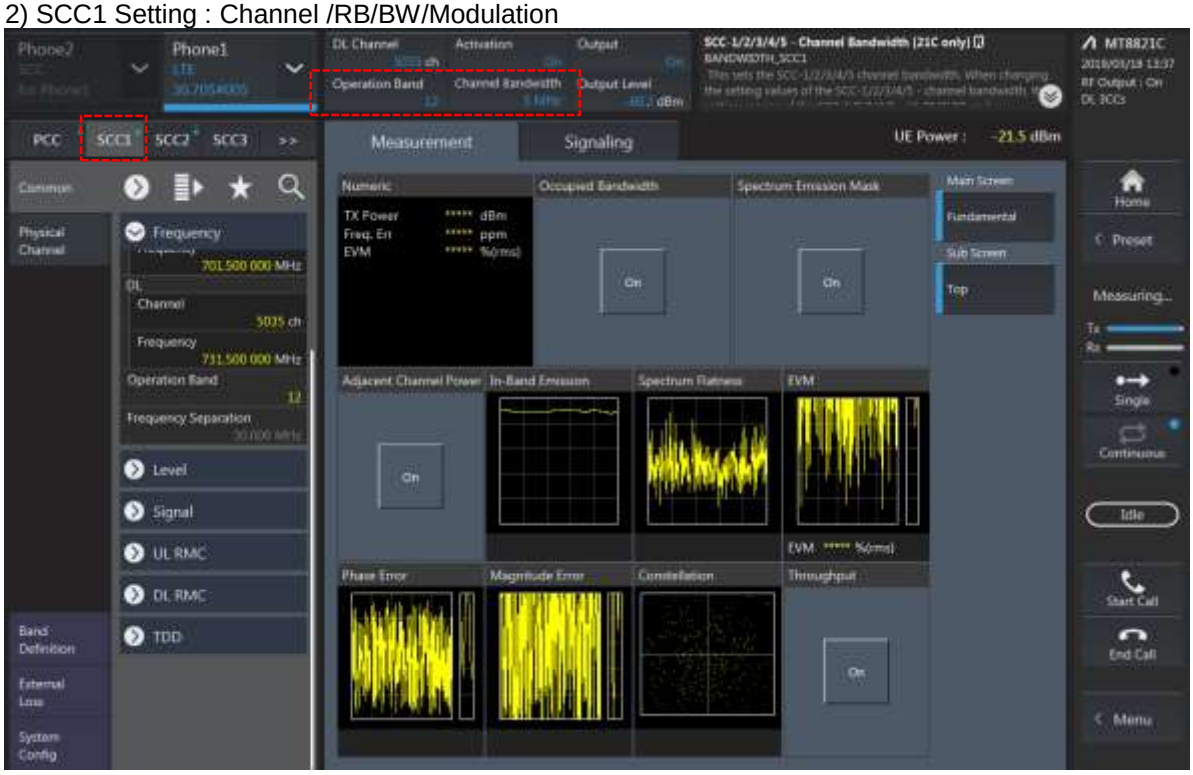
Combination	PCC									SCC1				SCC2				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	20	19100	1900	1100	1980	16QAM	1	99	4	20	2175	2132.5	5	10	2525	881.5	19.67	19.21
2A-4A-13A	2	20	19100	1900	1100	1980	16QAM	1	99	4	20	2175	2132.5	13	10	5230	782	19.67	19.36

4A-2A-5A	4	15	19975	1712.5	1975	2112.5	16QAM	1	12	2	20	900	1960	5	10	2525	881.5	19.35	19.1
4A-2A-13A	4	15	19975	1712.5	1975	2112.5	16QAM	1	12	2	20	900	1960	13	10	5230	782	19.35	19.07
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.54
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	24.03
41A-41C	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41292	2660.2	41	20	41490	2680	22.88	22.85
41C-41A	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	41	20	39750	2506	22.88	22.93

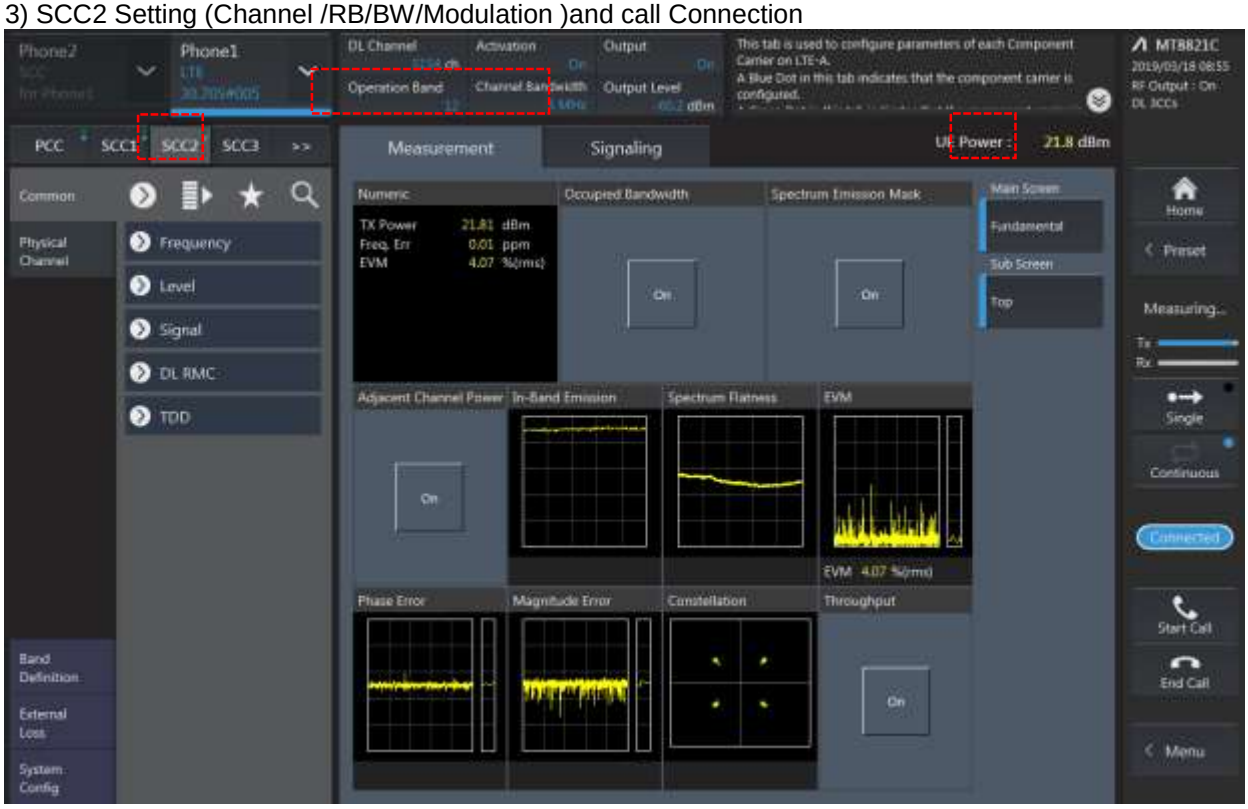
LTE Down Link 3CA Call Setup

1) PCC Setting: Channel /RB/BW/Modulation

2) SCC1 Setting : Channel /RB/BW/Modulation



3) SCC2 Setting (Channel /RB/BW/Modulation)and call Connection



3CA Downlink Carrier aggregation conducted Powers

Max Power DL 3CA

Combination	PCC									SCC				SCC					Tx Power
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	15	18900	1880	900	1960	QPSK	1	74	4	20	2175	2132.5	5	10	2525	881.5	23.96	24.14
2A-4A-13A	2	15	18900	1880	900	1960	QPSK	1	74	4	20	2175	2132.5	13	10	5230	782	23.96	24.09
4A-2A-5A	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	2	20	900	1960	5	10	2525	881.5	23.98	23.8
4A-2A-13A	4	15	20025	1717.5	2025	2117.5	QPSK	1	74	2	20	900	1960	13	10	782	5230	23.98	23.8
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.52
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	24.13
41A-41C	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	41292	2660.2	41	20	41490	2680	24.18	24.21
41C-41A	41	15	40620	2593	40620	2593	QPSK	1	36	41	20	40818	2612.8	41	20	39750	2506	24.18	24.22

Hotspot Back-off DL 3CA

Combination	PCC									SCC				SCC				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	20	19100	1900	1100	1980	16QAM	1	0	4	20	2175	2132.5	5	10	2525	881.5	20.14	19.44
2A-4A-13A	2	20	19100	1900	1100	1980	16QAM	1	0	4	20	2175	2132.5	13	10	5230	782	20.14	19.48
4A-2A-5A	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	2	20	900	1960	5	10	2525	881.5	19.34	18.9
4A-2A-13A	4	15	20025	1717.5	2025	2117.5	16QAM	1	0	2	20	900	1960	13	10	5230	782	19.34	18.98
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.22
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	23.26
41A-41C	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41292	2660.2	41	20	41490	2680	22.86	22.89
41C-41A	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	41	20	39750	2506	22.86	22.91

Grip Sensor Back-off DL 3CA

Combination	PCC									SCC1				SCC2				Tx Power	
	Band	BW	PCC UL Channel	PCC UL Frequency	PCC DL Channel	PCC DL Frequency	Modulation	RB	offset	Band	BW	SCC DL Channel	SCC DL Frequency	Band	BW	SCC DL Channel	SCC DL Frequency	LTE Single Carrier Tx Power (dBm)	LTE Tx Power with DL CA Enabled(dBm)
2A-4A-5A	2	20	19100	1900	1100	1980	16QAM	1	99	4	20	2175	2132.5	5	10	2525	881.5	19.67	19.21
2A-4A-13A	2	20	19100	1900	1100	1980	16QAM	1	99	4	20	2175	2132.5	13	10	5230	782	19.67	19.36

4A-2A-5A	4	15	19975	1712.5	1975	2112.5	16QAM	1	12	2	20	900	1960	5	10	2525	881.5	19.35	19.1
4A-2A-13A	4	15	19975	1712.5	1975	2112.5	16QAM	1	12	2	20	900	1960	13	10	5230	782	19.35	19.07
5A-2A-4A	5	5	20625	846.5	2625	891.5	QPSK	1	24	2	20	900	1960	4	20	2175	2132.5	24.4	24.54
13A-2A-4A	13	10	23230	782	5230	751	QPSK	1	0	2	20	900	1960	4	20	2175	2132.5	23.93	24.03
41A-41C	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	41292	2660.2	41	20	41490	2680	22.88	22.85
41C-41A	41	20	40620	2593	40620	2593	16QAM	50	0	41	20	40818	2612.8	41	20	39750	2506	22.88	22.93

Downlink Carrier aggregation:

1. This device only supports downlink carrier aggregation. For every supported combination of downlink carrier aggregation, power measurements were performed with the downlink carrier aggregation active for the configuration with highest measured maximum conducted power with downlink carrier aggregation inactive measured among the channel bandwidth, modulation, and RB combinations in each frequency band.
2. All control and acknowledge data is sent on uplink channels that operate identical to specifications when downlink carrier aggregation is inactive.
3. Per FCC KDB publication 941225 D05A v01r02, Section C)3)b)ii), PCC uplink channel was selected at downlink carrier aggregation combinations. The downlink PCC channel was paired with the selected PCC uplink channel according to normal configurations without carrier aggregation.
4. For continuous intra-band carrier aggregation, the downlink channel spacing between the component carriers was set to multiple of 300kHz less than the nominal channel spacing defined in section 5.4.1A of 3GPP TS 36.521.
5. For non-continuous intra-band carrier aggregation, the downlink channel spacing between the component carriers was set to be larger than the nominal channel spacing and provided maximum separation between the component carriers.
6. All selected downlink channels remained fully within the downlink transmission band of the respective component carrier.

Power Measurement setup

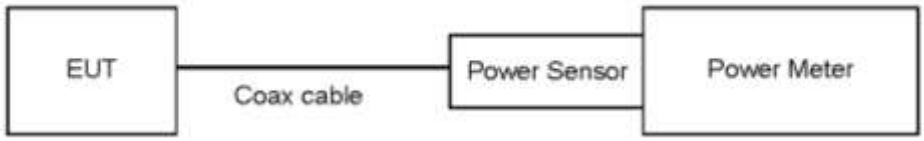
11.4 WIFI Conducted Power measurement method

Un-Licensed bands (DTS Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 558074 v05 - Section 8.3.2.3 - ANSI 63.10-2013 - Section 11.9.2.3

Test Procedure
1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test setup

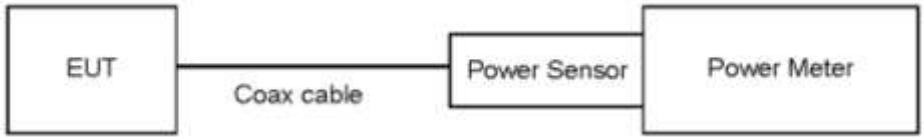


Un-Licensed bands (NII Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 789033 D02 v02r01 - Section E.3.a

Test Procedure
1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test setup



11.4.1 IEEE 802.11 (2.4 GHz) Maximum Conducted Power

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]		
			Ant. 1	Ant. 2	MIMO
802.11b	2 412	1	18.07	18.25	
	2 437	6	17.87	17.37	
	2 462	11	17.91	17.77	
	2 467	12	7.80	8.18	
	2 472	13	1.67	1.61	
802.11g	2 412	1	16.44	16.78	19.62
	2 437	6	16.90	16.69	19.81
	2 462	11	16.33	15.71	19.04
	2 467	12	7.51	7.63	10.58
	2 472	13	1.41	1.23	4.33
802.11n (HT20)	2 412	1	16.27	16.63	19.46
	2 437	6	16.78	16.54	19.67
	2 462	11	16.71	16.80	19.77
	2 467	12	7.34	7.40	10.38
	2 472	13	1.36	0.99	4.19

11.4.2 IEEE 802.11 (2.4 GHz) Reduced Conducted Power (Held to ear VOIP)

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 GHz) Reduced Conducted Power [dBm]		
			Ant. 1	Ant. 2	MIMO
802.11b	2 412	1	16.92	16.25	
	2 437	6	16.14	15.77	
	2 462	11	16.23	15.93	
	2 467	12	7.80	8.18	
	2 472	13	1.67	1.61	
802.11g	2 412	1	14.23	13.75	17.01
	2 437	6	13.65	13.18	16.43
	2 462	11	13.64	13.30	16.48
	2 467	12	7.51	7.63	10.58
	2 472	13	1.41	1.23	4.33
802.11n (HT20)	2 412	1	14.07	13.60	16.85
	2 437	6	13.48	13.03	16.27
	2 462	11	13.47	13.14	16.32
	2 467	12	7.34	7.40	10.38
	2 472	13	1.36	0.99	4.19

11.4.3 IEEE 802.11 (5 GHz) Maximum Conducted Power

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 GHz) Average RF Conducted Power [dBm] 802.11a (20 ㎒ BW)		IEEE 802.11 (5 GHz) Average RF Conducted Power [dBm] 802.11n (20 ㎒ BW)	
			Ant. 1	Ant. 2	Ant. 1	Ant. 2
802.11a/n (20 ㎒ BW)	5 180	36	14.99	15.07	14.85	15.03
	5 200	40	15.11	14.81	15.18	14.73
	5 220	44	14.51	14.50	14.51	14.86
	5 240	48	14.71	15.16	14.58	15.14
	5 260	52	14.80	15.27	14.82	15.35
	5 280	56	14.67	14.82	14.79	15.26
	5 300	60	15.08	14.56	14.89	14.54
	5 320	64	14.60	14.62	14.57	14.58
	5 500	100	7.79	7.74	6.85	6.58
	5 580	116	14.52	14.52	14.53	14.51
	5 600	120	15.09	15.06	15.05	15.01
	5 620	124	14.88	14.58	14.57	14.54
	5 720	144	14.98	14.98	14.92	14.92
	5 745	149	15.11	14.68	15.04	14.58
	5 785	157	15.21	15.36	15.10	15.17
	5 825	165	14.65	14.64	14.64	14.51

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 GHz) Average RF Conducted Power [dBm] 802.11n (20 ㎒ BW)
			MIMO
802.11n (20 ㎒ BW)	5 180	36	17.95
	5 200	40	17.97
	5 220	44	17.70
	5 240	48	17.88
	5 260	52	18.10
	5 280	56	18.04
	5 300	60	17.73
	5 320	64	17.59
	5 500	100	9.73
	5 580	116	17.53
	5 600	120	18.04
	5 620	124	17.57
	5 720	144	17.93
	5 745	149	17.83
	5 785	157	18.15
	5 825	165	17.59

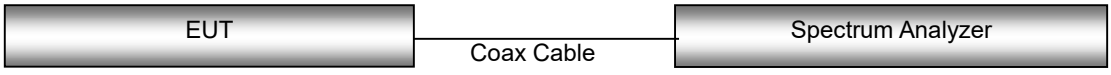
11.4.4 IEEE 802.11 (5 GHz) Reduced Conducted Power (Held to ear VOIP)

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 GHz) Reduced Average Conducted Power [dBm]	
			Ant. 1	Ant. 2
802.11n (40 ㎒ BW)	5190	38	14.95	14.73
	5230	46	14.90	14.11
	5270	54	14.52	14.04
	5310	62	14.90	14.87
	5510	102	8.86	9.39
	5550	110	13.54	14.00
	5590	118	14.27	14.13
	5630	126	14.39	14.23
	5670	134	13.77	14.02
	5710	142	14.46	14.91
	5755	151	14.45	14.93
	5795	159	14.13	14.53

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 GHz) Reduced Average Conducted Power [dBm]	
			Ant. 1	Ant. 2
802.11ac (40 ㎒ BW)	5190	38	14.93	14.74
	5230	46	14.77	14.03
	5270	54	14.51	14.06
	5310	62	14.87	14.85
	5510	102	8.81	9.42
	5550	110	13.55	13.99
	5590	118	14.24	14.15
	5630	126	14.24	14.11
	5670	134	13.80	14.09
	5710	142	14.51	14.91
	5755	151	14.00	14.93
	5795	159	14.14	14.20

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:
▪ Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.
▪ For transmission mode with the same maximum output power specification, powers were measured for the largest channel bandwidth, lowest order modulation and lowest data rate.
▪ For transmission modes with identical maximum specified output power, channel bandwidth, modulation and data rates, power measurements were required for all identical configurations.
▪ For each transmission mode configuration, powers were measured for the highest and lowest channels; and at the mid-band channel(s) when there were at least 3 channels supported. For configurations with multiple mid-band channels, due to an even number of channels, both channels were measured.

Test Configuration

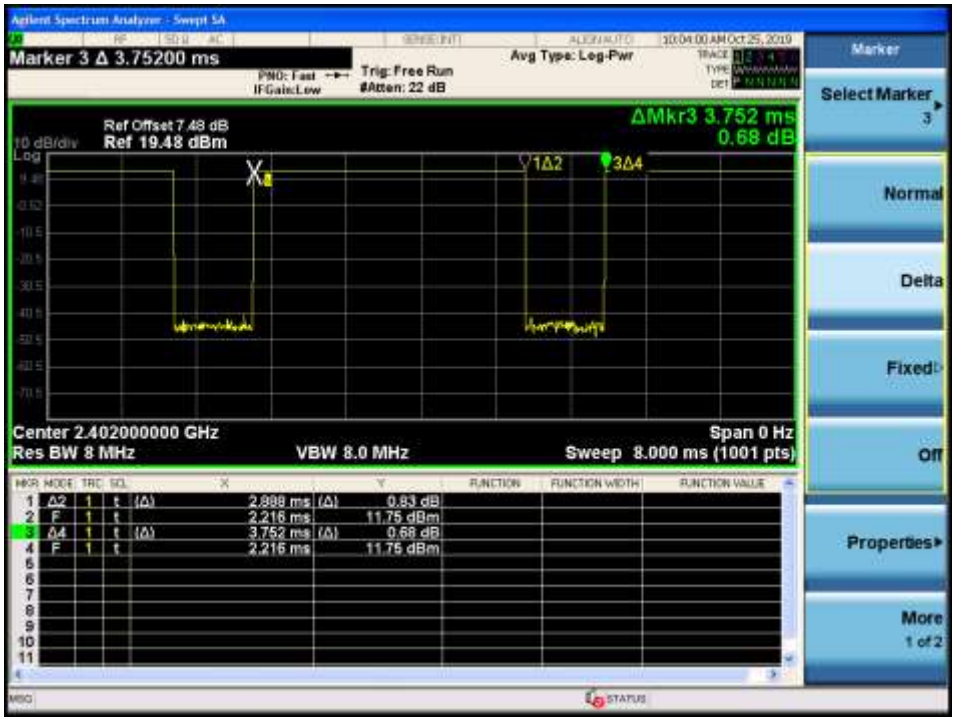


11.5 Bluetooth Conducted Power

The Burst averaged-conducted power

Mode	Channel	Bluetooth Power [dBm]
DH5	0	11.16
	39	10.78
	78	11.73
2-DH5	0	10.52
	39	10.17
	78	11.09
3-DH5	0	10.53
	39	10.17
	78	11.09

Per October 2016 TCB Workshop Notes:
When call box and Bluetooth protocol are used for Bluetooth SAR measurement, time-domain plot is required to identify duty factor for supporting the test setup and result.
Bluetooth duty cycle was measured using Bluetooth tester equipment (CBT / R&S) with Bluetooth DH5 mode.



Duty Cycle

= (BT-On time /BT-Full time) =(2.888/3.752) = 0.770 (DH5)

Duty factor= 1/Duty cycle : 1.299

12. System Verification

12.1 Tissue Verification

The body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity.

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
09/11/2019	21.6	750H	705	0.867	42.948	0.889	42.174	-2.47%	1.84%
			710	0.872	42.948	0.890	42.148	-2.02%	1.90%
			750	0.919	42.298	0.893	41.940	2.91%	0.85%
09/12/2019	20.2	750H	750	0.877	42.297	0.893	41.940	-1.79%	0.85%
			785	0.913	41.786	0.896	41.758	1.90%	0.07%
10/21/2019	21.6	835H	820	0.909	40.649	0.899	41.577	1.11%	-2.23%
			835	0.924	40.423	0.900	41.500	2.67%	-2.60%
			850	0.938	40.255	0.916	41.500	2.40%	-3.00%
09/10/2019	20.7	835H	820	0.909	42.534	0.899	41.577	1.11%	2.30%
			835	0.929	42.316	0.900	41.500	3.22%	1.97%
			850	0.937	42.164	0.916	41.500	2.29%	1.60%
09/16/2019	20.8	835H	820	0.906	41.260	0.899	41.577	0.78%	-0.76%
			835	0.921	41.014	0.900	41.500	2.33%	-1.17%
			850	0.933	40.768	0.916	41.500	1.86%	-1.76%
10/15/2019	19.8	1800H	1710	1.331	38.700	1.348	40.144	-1.26%	-3.60%
			1750	1.391	38.628	1.371	40.080	1.46%	-3.62%
			1800	1.452	38.724	1.400	40.000	3.71%	-3.19%
10/21/2019	21.6	1900H	1850	1.393	38.139	1.400	40.000	-0.50%	-4.65%
			1900	1.397	38.398	1.400	40.000	-0.21%	-4.00%
			1910	1.398	38.502	1.400	40.000	-0.14%	-3.74%
10/14/2019	21.0	1900H	1850	1.411	38.387	1.400	40.000	0.79%	-4.03%
			1900	1.417	38.662	1.400	40.000	1.21%	-3.35%
			1910	1.414	38.746	1.400	40.000	1.00%	-3.13%
10/29/2019	20.4	2450H	2400	1.736	38.612	1.756	39.290	-1.14%	-1.73%
			2450	1.793	38.416	1.800	39.200	-0.39%	-2.00%
			2500	1.849	38.223	1.855	39.140	-0.32%	-2.34%
10/22/2019	21.2	2450H	2400	1.745	38.619	1.756	39.290	-0.63%	-1.71%
			2450	1.797	38.405	1.800	39.200	-0.17%	-2.03%
			2500	1.848	38.239	1.855	39.140	-0.38%	-2.30%
10/11/2019	21.1	2600H	2500	1.852	38.232	1.855	39.140	-0.16%	-2.32%
			2600	1.951	37.843	1.964	39.010	-0.66%	-2.99%
			2690	2.050	37.572	2.062	38.894	-0.58%	-3.40%
10/24/2019	20.3	5180H-5825H	5180	4.496	36.873	4.635	36.010	-3.00%	2.40%
			5250	4.691	36.523	4.706	35.930	-0.32%	1.65%
			5280	4.752	36.959	4.737	35.894	0.32%	2.97%
			5320	4.850	36.472	4.778	35.846	1.51%	1.75%
			5500	4.926	36.387	4.963	35.640	-0.75%	2.10%
			5600	4.963	36.002	5.065	35.530	-2.01%	1.33%
			5750	5.224	36.051	5.219	35.360	0.10%	1.95%
			5800	5.151	35.706	5.270	35.300	-2.26%	1.15%
			5825	5.161	36.549	5.296	35.270	-2.55%	3.63%

Table for Body Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
09/11/2019	21.6	750B	705	0.938	56.711	0.959	55.710	-2.19%	1.80%
			710	0.943	56.690	0.960	55.690	-1.77%	1.80%
			750	0.986	56.230	0.963	55.530	2.39%	1.26%
09/12/2019	20.2	750B	750	0.948	56.261	0.963	55.530	-1.56%	1.32%
			785	0.983	55.885	0.966	55.397	1.76%	0.88%
10/21/2019	21.6	835B	820	0.945	56.425	0.969	55.260	-2.48%	2.11%
			835	0.960	56.275	0.970	55.200	-1.03%	1.95%
			850	0.973	56.141	0.988	55.150	-1.52%	1.80%
09/10/2019	20.7	835B	820	0.942	56.377	0.969	55.260	-2.79%	2.02%
			835	0.961	56.257	0.970	55.200	-0.93%	1.91%
			850	0.972	56.123	0.988	55.150	-1.62%	1.76%
10/11/2019	20.5	1800B	1710	1.397	54.972	1.463	53.534	-4.51%	2.69%
			1750	1.434	54.918	1.488	53.430	-3.63%	2.78%
			1800	1.488	54.692	1.520	53.300	-2.11%	2.61%
10/15/2019	20.3	1800B	1710	1.398	54.826	1.463	53.534	-4.44%	2.41%
			1750	1.437	54.780	1.488	53.430	-3.43%	2.53%
			1800	1.490	54.554	1.520	53.300	-1.97%	2.35%
10/22/2019	22.1	1900B	1850	1.477	53.622	1.520	53.300	-2.83%	0.60%
			1900	1.567	53.327	1.520	53.300	3.09%	0.05%
			1910	1.533	53.600	1.520	53.300	0.86%	0.56%
10/15/2019	22.1	1900B	1850	1.477	53.622	1.520	53.300	-2.83%	0.60%
			1900	1.525	53.560	1.520	53.300	0.33%	0.49%
			1910	1.533	53.600	1.520	53.300	0.86%	0.56%
10/17/2019	21.4	1900B	1850	1.479	53.637	1.520	53.300	-2.70%	0.63%
			1900	1.528	53.563	1.520	53.300	0.53%	0.49%
			1910	1.539	53.527	1.520	53.300	1.25%	0.43%
10/18/2019	21.3	2450B	2400	1.885	53.770	1.902	52.770	-0.89%	1.90%
			2450	1.951	53.685	1.950	52.700	0.05%	1.87%
			2500	2.003	53.535	2.021	52.640	-0.89%	1.70%
10/29/2019	20.6	2600B	2500	2.006	53.554	2.021	52.640	-0.74%	1.74%
			2600	2.105	53.146	2.163	52.510	-2.68%	1.21%
			2690	2.224	53.009	2.291	52.394	-2.92%	1.17%
10/16/2019	20.1	2600B	2500	2.006	53.546	2.021	52.640	-0.74%	1.72%
			2600	2.114	53.218	2.163	52.510	-2.27%	1.35%
			2690	2.229	52.997	2.291	52.394	-2.71%	1.15%
10/23/2019	21.2	5180B-5320B	5180	5.322	48.495	5.276	49.038	0.87%	-1.11%
			5250	5.512	48.112	5.358	48.950	2.87%	-1.71%
			5280	5.528	48.159	5.393	48.908	2.50%	-1.53%
			5320	5.504	47.626	5.439	48.852	1.20%	-2.51%
10/24/2019	20.8	5500B-5600B	5500	5.782	48.120	5.650	48.610	2.34%	-1.01%
			5600	5.961	47.838	5.766	48.470	3.38%	-1.30%
10/25/2019	20.8	5750B-5825B	5750	6.044	46.185	5.942	48.270	1.72%	-4.32%
			5800	6.138	46.894	6.000	48.200	2.30%	-2.71%
			5825	6.162	46.373	6.029	48.165	2.21%	-3.72%

12.2 System Verification

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) [W/kg]	50mW Measured SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Limit [%]
750	09/11/2019	3863	1014	Head	21.8	21.6	8.25	0.401	8.02	- 2.79	± 10
750	09/12/2019	3863		Head	20.3	20.2	8.25	0.390	7.80	- 5.45	± 10
750	09/11/2019	3863		Body	21.8	21.6	8.48	0.443	8.86	+ 4.48	± 10
750	09/12/2019	3863		Body	20.3	20.2	8.48	0.432	8.64	+ 1.89	± 10
835	10/21/2019	3797	441	Head	22.0	21.6	9.69	0.492	9.84	+ 1.55	± 10
835	09/10/2019	3863		Head	21.0	20.7	9.69	0.499	9.98	+ 2.99	± 10
835	09/16/2019	3863		Head	21.0	20.8	9.69	0.492	9.84	+ 1.55	± 10
835	10/21/2019	3797		Body	22.0	21.6	9.73	0.455	9.10	- 6.47	± 10
835	09/10/2019	3863		Body	21.0	20.7	9.73	0.501	10.02	+ 2.98	± 10
1 800	10/15/2019	7370	2d007	Head	20.2	19.8	39.1	1.92	38.4	- 1.79	± 10
1 800	10/11/2019	3863		Body	20.8	20.5	38.4	1.89	37.8	- 1.56	± 10
1 800	10/15/2019	3967		Body	22.3	20.3	38.4	1.85	37.0	- 3.65	± 10
1 900	10/21/2019	3797	5d032	Head	22.0	21.6	40.0	1.92	38.4	- 4.00	± 10
1 900	10/14/2019	3903		Head	21.3	21.0	40.0	2.05	41.0	+ 2.50	± 10
1 900	10/22/2019	3797		Body	22.3	22.1	39.7	1.9	38.0	- 4.28	± 10
1 900	10/15/2019	3863		Body	22.3	22.1	39.7	1.99	39.8	+ 0.25	± 10
1 900	10/17/2019	3967		Body	21.8	21.4	39.7	1.92	38.4	- 3.27	± 10
2 450	10/29/2019	3967	743	Head	20.6	20.4	51.8	2.47	49.4	- 4.63	± 10
2 450	10/22/2019	3968		Head	21.5	21.2	51.8	2.43	48.6	-6.18	± 10
2 450	10/18/2019	3967		Body	21.5	21.3	49.9	2.47	49.4	- 1.00	± 10
2 600	10/11/2019	7370	1015	Head	21.3	21.1	58.1	2.87	57.4	- 1.20	± 10
2 600	10/29/2019	3863		Body	20.7	20.6	54.8	2.68	53.6	- 2.19	± 10
2 600	10/16/2019	7370		Body	20.3	20.1	54.8	2.59	51.8	- 5.47	± 10
5 250	10/24/2019	3903	1253	Head	20.4	20.3	82.0	4.03	80.6	- 1.71	± 10
5 250	10/23/2019	3797		Body	21.5	21.2	78.0	3.80	76.0	- 2.56	± 10
5 600	10/24/2019	3903		Head	20.4	20.3	83.8	4.03	80.6	- 3.82	± 10
5 600	10/24/2019	3797		Body	20.9	20.8	81.6	4.18	83.6	+ 2.45	± 10
5 750	10/24/2019	3903		Head	20.4	20.3	82.3	4.04	80.8	- 1.82	± 10
5 750	10/25/2019	3797		Body	21.0	20.8	77.3	3.81	76.2	- 1.42	± 10

System Verification Results – Extremity SAR

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{10g} (SPEAG) [W/kg]	50mW Measured SAR_{10g} [W/kg]	1 W Normalized SAR_{10g} [W/kg]	Deviation [%]	Limit [%]
1 800	10/15/2019	3967	2d007	Body	22.3	20.3	20.0	0.967	19.34	- 3.30	± 10
1 900	10/22/2019	3797	5d032	Body	22.3	22.1	20.8	0.964	19.28	- 7.31	± 10
1 900	10/17/2019	3967	5d032	Body	21.8	21.4	20.8	0.980	19.6	- 5.77	± 10
2 600	10/16/2019	7370	1015	Body	20.3	20.1	24.3	1.13	22.6	- 7.00	± 10
5 250	10/23/2019	3797	1253	Body	21.5	21.2	21.6	1.07	21.4	- 0.93	± 10
5 600	10/24/2019	3797	1253	Body	20.9	20.8	22.6	1.15	23.0	+ 1.77	± 10

12.3 System Verification Procedure

SAR measurement was prior to assessment, the system is verified to the ± 10 % of the specifications at each frequency band by using the system verification kit. (Graphic Plots Attached)
- Cabling the system, using the verification kit equipment.
- Generate about 50 mW Input level from the signal generator to the Dipole Antenna.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

Note;
SAR Verification was performed according to the FCC KDB 865664 D01v01r04.

13. SAR Test Data Summary

13.1 SAR Measurement Results

GSM 850 Head SAR											
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.										
836.6	190	Voice	34.5	32.53	0.16	Left Cheek	1:8.3	0.053	1.574	0.083	-
836.6	190	Voice	34.5	32.53	0.01	Left Tilt	1:8.3	0.031	1.574	0.049	-
836.6	190	Voice	34.5	32.53	0.19	Right Cheek	1:8.3	0.074	1.574	**0.116**	1
836.6	190	Voice	34.5	32.53	-0.17	Right Tilt	1:8.3	0.035	1.574	0.055	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram				

GSM 1900 Head SAR											
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.										
1 880	661	Voice	32.0	31.62	0.12	Left Cheek	1:8.3	0.017	1.091	0.019	-
1 880	661	Voice	32.0	31.62	0.18	Left Tilt	1:8.3	0.023	1.091	**0.025**	2
1 880	661	Voice	32.0	31.62	0.10	Right Cheek	1:8.3	0.019	1.091	0.021	-
1 880	661	Voice	32.0	31.62	-0.07	Right Tilt	1:8.3	0.016	1.091	0.017	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram				

UMTS 850 Head SAR												
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
836.6	4183	RMC	25.2	24.45	0.19	Left Cheek	1:1	16	0.053	1.189	0.063	-
836.6	4183	RMC	25.2	24.45	0.06	Left Tilt	1:1	16	0.035	1.189	0.042	-
836.6	4183	RMC	25.2	24.45	-0.17	Right Cheek	1:1	16	0.078	1.189	**0.093**	3
836.6	4183	RMC	25.2	24.45	0.10	Right Tilt	1:1	16	0.036	1.189	0.043	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram					

UMTS 1700 Head SAR												
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
1 732.4	1412	RMC	25.0	23.55	-0.18	Left Cheek	1:1	16	0.105	1.396	**0.147**	4
1 732.4	1412	RMC	25.0	23.55	0.07	Left Tilt	1:1	16	0.056	1.396	0.078	-
1 732.4	1412	RMC	25.0	23.55	-0.17	Right Cheek	1:1	16	0.075	1.396	0.105	-
1 732.4	1412	RMC	25.0	23.55	0.12	Right Tilt	1:1	16	0.054	1.396	0.075	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram					

UMTS 1900 Head SAR												
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
1 880	9400	RMC	24.5	23.83	0.16	Left Cheek	1:1	16	0.103	1.167	**0.120**	5
1 880	9400	RMC	24.5	23.83	-0.08	Left Tilt	1:1	16	0.069	1.167	0.081	-
1 880	9400	RMC	24.5	23.83	0.14	Right Cheek	1:1	16	0.094	1.167	0.110	-
1 880	9400	RMC	24.5	23.83	-0.15	Right Tilt	1:1	16	0.068	1.167	0.079	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram					

LTE Band 2 (PCS) Head SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Ant Sate	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
1 900	19100	QPSK	20	25.0	23.93	-0.17	Left Cheek	0	1	0	1:1	16	0.097	1.279	0.124	-
1 900	19100	QPSK	20	24.0	23.31	0.11	Left Cheek	1	50	0	1:1	16	0.080	1.172	0.094	-
1 900	19100	QPSK	20	25.0	23.93	0.04	Left Tilt	0	1	0	1:1	16	0.062	1.279	0.079	-
1 900	19100	QPSK	20	24.0	23.31	0.01	Left Tilt	1	50	0	1:1	16	0.059	1.172	0.069	-
1 900	19100	QPSK	20	25.0	23.93	0.01	Right Cheek	0	1	0	1:1	16	0.115	1.279	**0.147**	6
1 900	19100	QPSK	20	24.0	23.31	0.18	Right Cheek	1	50	0	1:1	16	0.098	1.172	0.115	-
1 900	19100	QPSK	20	25.0	23.93	0.01	Right Tilt	0	1	0	1:1	16	0.086	1.279	0.110	-
1 900	19100	QPSK	20	24.0	23.31	0.09	Right Tilt	1	50	0	1:1	16	0.076	1.172	0.089	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram								

LTE Band 12 Head SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Ant State	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
707.5	23095	QPSK	10	25.3	24.35	-0.16	Left Cheek	0	1	0	1:1	33	0.051	1.245	0.063	-
707.5	23095	QPSK	10	24.3	23.58	-0.17	Left Cheek	1	25	0	1:1	333	0.041	1.180	0.048	-
707.5	23095	QPSK	10	25.3	24.35	-0.15	Left Tilt	0	1	0	1:1	3	0.025	1.245	0.031	-
707.5	23095	QPSK	10	24.3	23.58	-0.13	Left Tilt	1	25	0	1:1	33	0.020	1.180	0.024	-
707.5	23095	QPSK	10	25.3	24.35	-0.18	Right Cheek	0	1	0	1:1	33	0.081	1.245	**0.101**	7
707.5	23095	QPSK	10	24.3	23.58	-0.14	Right Cheek	1	25	0	1:1	33	0.063	1.180	0.074	-
707.5	23095	QPSK	10	25.3	24.35	-0.01	Right Tilt	0	1	0	1:1	33	0.050	1.245	0.062	-
707.5	23095	QPSK	10	24.3	23.58	-0.14	Right Tilt	1	25	0	1:1	33	0.020	1.180	0.024	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram								

LTE Band 13 Head SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Ant State	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
782	23230	QPSK	10	25.0	23.93	-0.17	Left Cheek	0	1	0	1:1	33	0.071	1.279	0.091	-
782	23230	QPSK	10	24.0	23.09	-0.14	Left Cheek	1	25	0	1:1	33	0.059	1.233	0.073	-
782	23230	QPSK	10	25.0	23.93	-0.16	Left Tilt	0	1	0	1:1	33	0.036	1.279	0.046	-
782	23230	QPSK	10	24.0	23.09	-0.16	Left Tilt	1	25	0	1:1	33	0.033	1.233	0.041	-
782	23230	QPSK	10	25.0	23.93	-0.15	Right Cheek	0	1	0	1:1	33	0.103	1.279	**0.132**	8
782	23230	QPSK	10	24.0	23.09	-0.06	Right Cheek	1	25	0	1:1	33	0.085	1.233	0.105	-
782	23230	QPSK	10	25.0	23.93	0.11	Right Tilt	0	1	0	1:1	33	0.064	1.279	0.082	-
782	23230	QPSK	10	24.0	23.09	-0.17	Right Tilt	1	25	0	1:1	33	0.054	1.233	0.067	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram								

LTE Band 26 Head SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Ant State	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
841.5	26965	QPSK	15	25.5	24.31	-0.11	Left Cheek	0	1	36	1:1	35	0.105	1.315	0.138	-
841.5	26965	QPSK	15	24.5	23.40	-0.17	Left Cheek	1	36	18	1:1	35	0.076	1.288	0.098	-
841.5	26965	QPSK	15	25.5	24.31	-0.16	Left Tilt	0	1	36	1:1	35	0.060	1.315	0.079	-
841.5	26965	QPSK	15	24.5	23.40	-0.18	Left Tilt	1	36	18	1:1	35	0.045	1.288	0.058	-
841.5	26965	QPSK	15	25.5	24.31	-0.11	Right Cheek	0	1	36	1:1	35	0.112	1.315	**0.147**	9
841.5	26965	QPSK	15	24.5	23.40	-0.16	Right Cheek	1	36	18	1:1	35	0.093	1.288	0.120	-
841.5	26965	QPSK	15	25.5	24.31	-0.05	Right Tilt	0	1	36	1:1	35	0.058	1.315	0.076	-
841.5	26965	QPSK	15	24.5	23.40	-0.12	Right Tilt	1	36	18	1:1	35	0.048	1.288	0.062	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram								

LTE TDD Band 41 Head SAR															
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
2 593	40620	QPSK	20	24.7	24.13	-0.14	Left Cheek	0	1	49	1:1.58	0.050	1.140	0.057	-
2 593	40620	QPSK	20	23.7	23.44	-0.15	Left Cheek	1	50	0	1:1.58	0.048	1.062	0.051	-
2 593	40620	QPSK	20	24.7	24.13	0.10	Left Tilt	0	1	49	1:1.58	0.046	1.140	0.052	-
2 593	40620	QPSK	20	23.7	23.44	-0.16	Left Tilt	1	50	0	1:1.58	0.037	1.062	0.039	-
2 593	40620	QPSK	20	24.7	24.13	0.13	Right Cheek	0	1	49	1:1.58	0.045	1.140	0.051	-
2 593	40620	QPSK	20	23.7	23.44	-0.14	Right Cheek	1	50	0	1:1.58	0.034	1.062	0.036	-
2 593	40620	QPSK	20	24.7	24.13	0.15	Right Tilt	0	1	49	1:1.58	0.077	1.140	**0.088**	10
2 593	40620	QPSK	20	23.7	23.44	0.18	Right Tilt	1	50	0	1:1.58	0.065	1.062	0.069	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram							

LTE Band 66 (AWS) Head SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Ant State	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
1 770	132572	QPSK	20	25.0	24.17	-0.16	Left Cheek	0	1	99	1:1	16	0.115	1.211	**0.139**	11
1 770	132572	QPSK	20	24.0	23.40	0.17	Left Cheek	1	50	25	1:1	16	0.108	1.148	0.124	-
1 770	132572	QPSK	20	25.0	24.17	-0.04	Left Tilt	0	1	99	1:1	16	0.079	1.211	0.096	-
1 770	132572	QPSK	20	24.0	23.40	0.10	Left Tilt	1	50	25	1:1	16	0.072	1.148	0.083	-
1 770	132572	QPSK	20	25.0	24.17	-0.15	Right Cheek	0	1	99	1:1	16	0.098	1.211	0.119	-
1 770	132572	QPSK	20	24.0	23.40	0.14	Right Cheek	1	50	25	1:1	16	0.097	1.148	0.111	-
1 770	132572	QPSK	20	25.0	24.17	0.04	Right Tilt	0	1	99	1:1	16	0.078	1.211	0.094	-
1 770	132572	QPSK	20	24.0	23.40	0.06	Right Tilt	1	50	25	1:1	16	0.062	1.148	0.071	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram								

DTS Head SAR																
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
2 412	1	802.11b	20	1	17	16.92		Left Cheek	Ant1	98.92	0.261		1.019	1.011		-
2 412	1	802.11b	20	1	17	16.92		Left Tilt	Ant1	98.92	0.321		1.019	1.011		-
2 412	1	802.11b	20	1	17	16.92	0.11	Right Cheek	Ant1	98.92	1.33	0.672	1.019	1.011	**0.692**	12
2 412	1	802.11b	20	1	17	16.92	0.15	Right Tilt	Ant1	98.92	1.11	0.614	1.019	1.011	0.633	-
2 412	1	802.11b	20	1	17	16.25		Left Cheek	Ant2	98.92	0.0481		1.189	1.011		-
2 412	1	802.11b	20	1	17	16.25		Left Tilt	Ant2	98.92	0.0312		1.189	1.011		-
2 412	1	802.11b	20	1	17	16.25	0.11	Right Cheek	Ant2	98.92	0.138	0.075	1.189	1.011	0.090	-
2 412	1	802.11b	20	1	17	16.25		Right Tilt	Ant2	98.92	0.0674		1.189	1.011		-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population											Head 1.6 W/kg Averaged over 1 gram					

NII Head SAR															
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
5 310	62	802.11n	40	MCS0	15	14.90		Left Cheek	Ant1	94.77	0.462		1.023	1.055		-
5 310	62	802.11n	40	MCS0	15	14.90		Left Tilt	Ant1	94.77	0.456		1.023	1.055		-
5 310	62	802.11n	40	MCS0	15	14.90		Right Cheek	Ant1	94.77	0.325		1.023	1.055		-
5 310	62	802.11n	40	MCS0	15	14.90	0.17	Right Tilt	Ant1	94.77	0.622	0.172	1.023	1.055	0.186	-
5 310	62	802.11n	40	MCS0	15	14.87		Left Cheek	Ant2	94.77	0.0863		1.030	1.055		-
5 310	62	802.11n	40	MCS0	15	14.87		Left Tilt	Ant2	94.77	0.0903		1.030	1.055		-
5 310	62	802.11n	40	MCS0	15	14.87	0.10	Right Cheek	Ant2	94.77	0.103	0.028	1.030	1.055	0.030	-
5 310	62	802.11n	40	MCS0	15	14.87		Right Tilt	Ant2	94.77	0.100		1.030	1.055		-
5 710	142	802.11n	40	MCS0	15	14.46		Left Cheek	Ant1	94.77	0.211		1.132	1.055		-
5 710	142	802.11n	40	MCS0	15	14.46		Left Tilt	Ant1	94.77	0.271		1.132	1.055		-
5 710	142	802.11n	40	MCS0	15	14.46	0.12	Right Cheek	Ant1	94.77	0.577	0.192	1.132	1.055	0.229	-
5 710	142	802.11n	40	MCS0	15	14.46		Right Tilt	Ant1	94.77	0.531		1.132	1.055		-
5 710	142	802.11n	40	MCS0	15	14.91		Left Cheek	Ant2	94.77	0.315		1.021	1.055		-
5 710	142	802.11n	40	MCS0	15	14.91		Left Tilt	Ant2	94.77	0.424		1.021	1.055		-
5 710	142	802.11n	40	MCS0	15	14.91		Right Cheek	Ant2	94.77	0.398		1.021	1.055		-
5 710	142	802.11n	40	MCS0	15	14.91	0.12	Right Tilt	Ant2	94.77	0.572	0.209	1.021	1.055	0.225	-
5 755	151	802.11n	40	MCS0	15	14.45		Left Cheek	Ant1	94.77	0.389		1.135	1.055		-
5 755	151	802.11n	40	MCS0	15	14.45		Left Tilt	Ant1	94.77	0.373		1.135	1.055		-
5 755	151	802.11n	40	MCS0	15	14.45		Right Cheek	Ant1	94.77	0.549		1.135	1.055		-
5 755	151	802.11n	40	MCS0	15	14.45	0.10	Right Tilt	Ant1	94.77	0.749	0.246	1.135	1.055	**0.295**	13
5 755	151	802.11n	40	MCS0	15	14.93		Left Cheek	Ant2	94.77	0.218		1.016	1.055		-
5 755	151	802.11n	40	MCS0	15	14.93		Left Tilt	Ant2	94.77	0.325		1.016	1.055		-
5 755	151	802.11n	40	MCS0	15	14.93		Right Cheek	Ant2	94.77	0.178		1.016	1.055		-
5 755	151	802.11n	40	MCS0	15	14.93	0.01	Right Tilt	Ant2	94.77	0.326	0.143	1.016	1.055	0.153	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram							

DSS Head SAR											
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.										
2 480	78	Bluetooth DH5	13.0	11.73	-0.19	Left Cheek	0.080	1.340	1.299	0.139	-
2 480	78	Bluetooth DH5	13.0	11.73	0.12	Left Tilt	0.103	1.340	1.299	0.179	-
2 480	78	Bluetooth DH5	13.0	11.73	0.02	Right Cheek	0.272	1.340	1.299	0.473	-
2 480	78	Bluetooth DH5	13.0	11.73	0.06	Right Tilt	0.282	1.340	1.299	**0.491**	14
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram				

13.2 Body-worn SAR Measurement Results

GSM/ UMTS Body-Worn SAR													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Ant State	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
836.6	190	GSM850 Voice	34.5	32.53	0.11	Rear	1:8.3	N/A	15	0.109	1.574	**0.172**	15
836.6	190	GSM850 Voice	34.5	32.53	0.12	Front	1:8.3	N/A	15	0.089	1.574	0.140	-
1 880	661	GSM1900 Voice	32.0	31.62	0.18	Rear	1:8.3	N/A	15	0.185	1.091	**0.202**	16
1 880	661	GSM1900 Voice	32.0	31.62	0.03	Front	1:8.3	N/A	15	0.094	1.091	0.103	-
836.6	4183	UMTS850 (RMC)	25.2	24.45	-0.09	Rear	1:1	16	15	0.162	1.189	**0.193**	17
836.6	4183	UMTS850 (RMC)	25.2	24.45	-0.05	Front	1:1	16	15	0.139	1.189	0.165	-
1 712.4	1312	UMTS1700 (RMC)	25.0	23.88	-0.06	Rear	1:1	0	15	0.687	1.294	0.889	18
1 732.4	1412	UMTS1700 (RMC)	25.0	23.55	0.04	Rear	1:1	0	15	0.668	1.396	**0.933**	19
1 752.6	1513	UMTS1700 (RMC)	25.0	23.79	0.01	Rear	1:1	0	15	0.617	1.321	0.815	-
1 732.4	1412	UMTS1700 (RMC)	25.0	23.55	-0.01	Front	1:1	0	15	0.558	1.396	0.779	-
1 880	9400	UMTS1900 (RMC)	24.5	23.83	-0.04	Rear	1:1	16	15	0.434	1.167	**0.506**	20
1 880	9400	UMTS1900 (RMC)	24.5	23.83	-0.04	Front	1:1	16	15	0.422	1.167	0.492	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram						

LTE Body-Worn SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
1 860	18700	LTE 2 QPSK	20	25.0	23.92	-0.09	Rear	0	1	99	1:1	16	15	0.654	1.282	0.838	-
1 880	18900		20	25.0	23.88	-0.04	Rear	0	1	99	1:1	16	15	0.445	1.294	0.576	-
1 900	19100		20	25.0	23.93	0.08	Rear	0	1	0	1:1	16	15	0.675	1.279	**0.863**	21
1 900	19100		20	24.0	23.31	0.04	Rear	1	50	0	1:1	16	15	0.564	1.172	0.661	-
1 900	19100		20	24.0	23.26	-0.03	Rear	1	100	0	1:1	16	15	0.556	1.186	0.659	-
1 900	19100		20	25.0	23.93	-0.01	Front	0	1	0	1:1	16	15	0.547	1.279	0.700	-
1 900	19100		20	24.0	23.31	-0.02	Front	1	50	0	1:1	16	15	0.455	1.172	0.533	-
707.5	23095	LTE 12 QPSK	10	25.3	24.35	-0.11	Rear	0	1	0	1:1	33	15	0.022	1.245	**0.027**	22
707.5	23095		10	24.3	23.58	0.16	Rear	1	25	0	1:1	33	15	0.019	1.180	0.022	-
707.5	23095		10	25.3	24.35	0.11	Front	0	1	0	1:1	33	15	0.016	1.245	0.020	-
707.5	23095		10	24.3	23.58	0.17	Front	1	25	0	1:1	33	15	0.013	1.180	0.015	-
782	23230	LTE 13 QPSK	10	25.0	23.93	0.01	Rear	0	1	0	1:1	33	15	0.155	1.279	**0.198**	23
782	23230		10	24.0	23.09	0.03	Rear	1	25	0	1:1	33	15	0.123	1.233	0.152	-
782	23230		10	25.0	23.93	0.05	Front	0	1	0	1:1	33	15	0.115	1.279	0.147	-
782	23230		10	24.0	23.09	-0.01	Front	1	25	0	1:1	33	15	0.095	1.233	0.117	-
841.5	26965	LTE 26 QPSK	15	25.5	24.31	0.01	Rear	0	1	36	1:1	35	15	0.199	1.315	**0.262**	24
841.5	26965		15	24.5	23.40	-0.04	Rear	1	36	18	1:1	35	15	0.158	1.288	0.204	-
841.5	26965		15	25.5	24.31	-0.02	Front	0	1	36	1:1	35	15	0.142	1.315	0.187	-
841.5	26965		15	24.5	23.40	0.01	Front	1	36	18	1:1	35	15	0.117	1.288	0.151	-
2 593	40620	LTE 41 QPSK	20	24.7	24.13	-0.10	Rear	0	1	49	1:1.58	N/A	15	0.478	1.140	**0.545**	25
2 593	40620		20	23.7	23.44	0.02	Rear	1	50	0	1:1.58	N/A	15	0.396	1.062	0.421	-
2 593	40620		20	24.7	24.13	0.11	Front	0	1	49	1:1.58	N/A	15	0.426	1.140	0.486	-
2 593	40620		20	23.7	23.44	-0.01	Front	1	50	0	1:1.58	N/A	15	0.356	1.062	0.378	-
1 770	132572	LTE 66 QPSK	20	25.0	24.17	-0.03	Rear	0	1	99	1:1	16	15	0.622	1.211	**0.753**	26
1 770	132572		20	24.0	23.40	-0.09	Rear	1	50	25	1:1	16	15	0.555	1.148	0.637	-
1 770	132572		20	25.0	24.17	-0.05	Front	0	1	99	1:1	16	15	0.522	1.211	0.632	-
1 770	132572		20	24.0	23.40	-0.19	Front	1	50	25	1:1	16	15	0.439	1.148	0.504	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

DTS Body-Worn SAR																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
2 412	1	802.11b	20	1	19.5	18.07	0.12	Rear	Ant1	98.92	15	0.112	0.072	1.390	1.011	0.101	-
2 412	1	802.11b	20	1	19.5	18.07		Front	Ant1	98.92	15	0.109		1.390	1.011		-
2 412	1	802.11b	20	1	19.5	18.25	0.01	Rear	Ant2	98.92	15	0.131	0.077	1.334	1.011	0.104	-
2 412	1	802.11b	20	1	19.5	18.25		Front	Ant2	98.92	15	0.0181		1.334	1.011		-
2 462	11	802.11n	20	MCS8	21.0	19.77	0.04	Rear	MIMO	97.42	15	0.149	0.097	1.327	1.026	**0.132**	27
2 462	11	802.11n	20	MCS8	21.0	19.77		Front	MIMO	97.42	15	0.103		1.327	1.026		-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Body 1.6 W/kg Averaged over 1 gram					

NII Body-Worn SAR																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
5 300	60	802.11a	20	6	17	15.08	-0.18	Rear	Ant1	97.46	15	0.176	0.087	1.556	1.026	0.139	-
5 300	60	802.11a	20	6	17	15.08		Front	Ant1	97.46	15	0.0604		1.556	1.026		-
5 600	120	802.11a	20	6	17	15.09	0.19	Rear	Ant1	97.46	15	0.312	0.155	1.552	1.026	0.247	-
5 600	120	802.11a	20	6	17	15.09		Front	Ant1	97.46	15	0.0942		1.552	1.026		-
5 785	157	802.11a	20	6	17	15.21	0.10	Rear	Ant1	97.46	15	0.373	0.149	1.510	1.026	0.231	-
5 785	157	802.11a	20	6	17	15.21		Front	Ant1	97.46	15	0.0758		1.510	1.026		-
5 260	52	802.11a	20	6	17	15.27	-0.13	Rear	Ant2	97.46	15	0.292	0.135	1.489	1.026	0.206	-
5 260	52	802.11a	20	6	17	15.27		Front	Ant2	97.46	15	0.0383		1.489	1.026		-
5 600	120	802.11a	20	6	17	15.06	0.18	Rear	Ant2	97.46	15	0.260	0.127	1.563	1.026	0.204	-
5 600	120	802.11a	20	6	17	15.06		Front	Ant2	97.46	15	0.0349		1.563	1.026		-
5 785	157	802.11a	20	6	17	15.36	0.12	Rear	Ant2	97.46	15	0.318	0.145	1.459	1.026	0.217	-
5 785	157	802.11a	20	6	17	15.36		Rear	Ant2	97.46	15	0.0382		1.459	1.026		-
5 260	52	802.11n	20	MCS8	20	18.10	-0.18	Rear	MIMO	97.22	15	0.533	0.249	1.549	1.029	0.397	-
5 260	52	802.11n	20	MCS8	20	18.10		Front	MIMO	97.22	15	0.050		1.549	1.029		-
5 600	120	802.11n	20	MCS8	20	18.04	-0.11	Rear	MIMO	97.22	15	0.407	0.185	1.570	1.029	0.299	-
5 600	120	802.11n	20	MCS8	20	18.04		Front	MIMO	97.22	15	0.0626		1.570	1.029		-
5 785	157	802.11n	20	MCS8	20	18.15	0.17	Rear	MIMO	97.22	15	0.620	0.270	1.531	1.029	**0.425**	28
5 785	157	802.11n	20	MCS8	20	18.15		Rear	MIMO	97.22	15	0.0873		1.531	1.029		-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Body 1.6 W/kg Averaged over 1 gram					

DSS Body-Worn SAR												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
2 480	78	Bluetooth DH5	13.0	11.73	-0.19	Rear	15	0.024	1.340	1.299	0.042	-
2 480	78	Bluetooth DH5	13.0	11.73	0.13	Front	15	0.025	1.340	1.299	**0.044**	29
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

13.3 Hotspot SAR Measurement Results

GSM 850 Hotspot SAR												
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
848.8	251	GPRS 3Tx	33.0	31.38	0.01	Rear	1:2.77	10	0.446	1.452	**0.648**	30
848.8	251	GPRS 3Tx	33.0	31.38	0.01	Front	1:2.77	10	0.324	1.452	0.470	-
848.8	251	GPRS 3Tx	33.0	31.38	-0.02	Left	1:2.77	10	0.059	1.452	0.086	-
848.8	251	GPRS 3Tx	33.0	31.38	0.01	Right	1:2.77	10	0.203	1.452	0.295	-
848.8	251	GPRS 3Tx	33.0	31.38	0.02	Bottom	1:2.77	10	0.363	1.452	0.527	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

GSM 1900 Hotspot SAR												
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
1 880	661	GPRS 2Tx	30.5	29.78	0.01	Rear	1:4.15	10	0.249	1.180	0.294	-
1 880	661	GPRS 2Tx	30.5	29.78	0.08	Front	1:4.15	10	0.227	1.180	0.268	-
1 880	661	GPRS 2Tx	30.5	29.78	0.14	Left	1:4.15	10	0.038	1.180	0.045	-
1 880	661	GPRS 2Tx	30.5	29.78	0.13	Right	1:4.15	10	0.025	1.180	0.030	-
1 880	661	GPRS 2Tx	30.5	29.78	-0.07	Bottom	1:4.15	10	0.673	1.180	**0.794**	31
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

UMTS 850 Hotspot SAR													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
836.6	4183	RMC	25.2	24.45	0.19	Rear	1:1	10	16	0.329	1.189	**0.391**	32
836.6	4183	RMC	25.2	24.45	0.04	Front	1:1	10	16	0.255	1.189	0.303	-
836.6	4183	RMC	25.2	24.45	0.01	Left	1:1	10	16	0.029	1.189	0.034	-
836.6	4183	RMC	25.2	24.45	-0.02	Right	1:1	10	16	0.119	1.189	0.141	-
836.6	4183	RMC	25.2	24.45	0.18	Bottom	1:1	10	16	0.215	1.189	0.256	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram						

UMTS 1700 Hotspot SAR													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Ant State	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
1 732.4	1412	RMC	20.5	19.10	-0.11	Rear	1:1	10	0	0.393	1.380	0.542	-
1 732.4	1412	RMC	20.5	19.10	-0.02	Front	1:1	10	0	0.342	1.380	0.472	-
1 732.4	1412	RMC	20.5	19.10	-0.07	Left	1:1	10	16	0.036	1.380	0.050	-
1 732.4	1412	RMC	20.5	19.10	-0.06	Right	1:1	10	16	0.074	1.380	0.102	-
1 732.4	1412	RMC	20.5	19.10	0.05	Bottom	1:1	10	16	0.445	1.380	**0.614**	33
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram						

UMTS 1900 Hotspot SAR													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
1 880.0	9400	RMC	21.0	19.30	-0.17	Rear	1:1	10	16	0.262	1.479	0.387	-
1 880.0	9400	RMC	21.0	19.30	-0.03	Front	1:1	10	16	0.250	1.479	0.370	-
1 880.0	9400	RMC	21.0	19.30	-0.09	Left	1:1	10	16	0.029	1.479	0.043	-
1 880.0	9400	RMC	21.0	19.30	0.01	Right	1:1	10	16	0.039	1.479	0.058	-
1 852.4	9262	RMC	21.0	19.65	0.16	Bottom	1:1	10	16	0.339	1.365	0.463	-
1 880.0	9400	RMC	21.0	19.30	0.10	Bottom	1:1	10	16	0.568	1.479	**0.840**	34
1 907.6	9538	RMC	21.0	19.42	0.18	Bottom	1:1	10	16	0.400	1.439	0.576	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram						

LTE Band 2 (PCS) Hotspot SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
1 900	19100	QPSK	20	20.5	19.65	0.02	Rear	0	1	0	1:1	10	16	0.478	1.216	0.581	-
1 900	19100	QPSK	20	20.5	19.76	-0.06	Rear	0	50	0	1:1	10	16	0.466	1.186	0.553	-
1 900	19100	QPSK	20	20.5	19.65	0.11	Front	0	1	0	1:1	10	16	0.397	1.216	0.483	-
1 900	19100	QPSK	20	20.5	19.76	-0.11	Front	0	50	0	1:1	10	16	0.346	1.186	0.410	-
1 900	19100	QPSK	20	20.5	19.65	-0.18	Left	0	1	0	1:1	10	16	0.038	1.216	0.046	-
1 900	19100	QPSK	20	20.5	19.76	0.12	Left	0	50	0	1:1	10	16	0.038	1.186	0.045	-
1 900	19100	QPSK	20	20.5	19.65	-0.04	Right	0	1	0	1:1	10	16	0.085	1.216	0.103	-
1 900	19100	QPSK	20	20.5	19.76	0.11	Right	0	50	0	1:1	10	16	0.086	1.186	0.102	-
1 860	18700	QPSK	20	20.5	19.53	0.19	Bottom	0	1	99	1:1	10	16	0.848	1.250	1.060	
1 880	18900	QPSK	20	20.5	19.51	0.18	Bottom	0	1	99	1:1	10	16	0.638	1.256	0.801	-
1 900	19100	QPSK	20	20.5	19.65	0.13	Bottom	0	1	0	1:1	10	16	0.861	1.216	1.047	-
1 860	18700	QPSK	20	20.5	19.66	0.16	Bottom	0	50	49	1:1	10	16	0.882	1.213	**1.070**	35
1 880	18900	QPSK	20	20.5	19.56	0.18	Bottom	0	50	49	1:1	10	16	0.644	1.242	0.800	-
1 900	19100	QPSK	20	20.5	19.76	0.16	Bottom	0	50	0	1:1	10	16	0.864	1.186	1.025	-
1 900	19100	QPSK	20	20.5	19.73	0.14	Bottom	0	100	0	1:1	10	16	0.868	1.194	1.036	-
1 860	18700	QPSK	20	20.5	19.66	0.12	Bottom	0	50	49	1:1	10	16	0.879	1.213	1.066	*
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

Note: * Data entry indicate Variability measurement.

LTE Band 12 Hotspot SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
707.5	23095	QPSK	10	25.3	24.35	0.19	Rear	0	1	0	1:1	10	16	0.046	1.245	**0.057**	36
707.5	23095	QPSK	10	24.3	23.58	0.15	Rear	1	25	0	1:1	10	16	0.038	1.180	0.045	-
707.5	23095	QPSK	10	25.3	24.35	0.10	Front	0	1	0	1:1	10	16	0.030	1.245	0.037	-
707.5	23095	QPSK	10	24.3	23.58	0.06	Front	1	25	0	1:1	10	16	0.025	1.180	0.030	-
707.5	23095	QPSK	10	25.3	24.35	-0.10	Left	0	1	0	1:1	10	16	0.012	1.245	0.015	-
707.5	23095	QPSK	10	24.3	23.58	0.12	Left	1	25	0	1:1	10	16	0.00989	1.180	0.012	-
707.5	23095	QPSK	10	25.3	24.35	0.12	Right	0	1	0	1:1	10	16	0.000675	1.245	0.001	-
707.5	23095	QPSK	10	24.3	23.58	0.16	Right	1	25	0	1:1	10	16	0.000823	1.180	0.001	-
707.5	23095	QPSK	10	25.3	24.35	0.18	Bottom	0	1	0	1:1	10	16	0.024	1.245	0.030	-
707.5	23095	QPSK	10	24.3	23.58	0.19	Bottom	1	25	0	1:1	10	16	0.020	1.180	0.024	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

LTE Band 13 Hotspot SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
782	23230	QPSK	10	25.0	23.93	0.01	Rear	0	1	0	1:1	10	33	0.268	1.279	**0.343**	37
782	23230	QPSK	10	24.0	23.09	0.01	Rear	1	25	0	1:1	10	33	0.216	1.233	0.266	-
782	23230	QPSK	10	25.0	23.93	-0.01	Front	0	1	0	1:1	10	33	0.210	1.279	0.269	-
782	23230	QPSK	10	24.0	23.09	-0.06	Front	1	25	0	1:1	10	33	0.169	1.233	0.208	-
782	23230	QPSK	10	25.0	23.93	0.03	Left	0	1	0	1:1	10	33	0.031	1.279	0.040	-
782	23230	QPSK	10	24.0	23.09	0.15	Left	1	25	0	1:1	10	33	0.024	1.233	0.030	-
782	23230	QPSK	10	25.0	23.93	-0.04	Right	0	1	0	1:1	10	33	0.172	1.279	0.220	-
782	23230	QPSK	10	24.0	23.09	-0.02	Right	1	25	0	1:1	10	33	0.133	1.233	0.164	-
782	23230	QPSK	10	25.0	23.93	0.10	Bottom	0	1	0	1:1	10	33	0.161	1.279	0.206	-
782	23230	QPSK	10	24.0	23.09	0.15	Bottom	1	25	0	1:1	10	33	0.131	1.233	0.162	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

LTE Band 26 Hotspot SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
841.5	26965	QPSK	15	25.5	24.31	-0.03	Rear	0	1	36	1:1	10	35	0.413	1.315	**0.543**	38
841.5	26965	QPSK	15	24.5	23.40	0.01	Rear	1	36	18	1:1	10	35	0.326	1.288	0.420	-
841.5	26965	QPSK	15	25.5	24.31	0.01	Front	0	1	36	1:1	10	35	0.315	1.315	0.414	-
841.5	26965	QPSK	15	24.5	23.40	-0.02	Front	1	36	18	1:1	10	35	0.244	1.288	0.314	-
841.5	26965	QPSK	15	25.5	24.31	0.05	Left	0	1	36	1:1	10	35	0.035	1.315	0.046	-
841.5	26965	QPSK	15	24.5	23.40	-0.03	Left	1	36	18	1:1	10	35	0.028	1.288	0.036	-
841.5	26965	QPSK	15	25.5	24.31	-0.07	Right	0	1	36	1:1	10	35	0.165	1.315	0.217	-
841.5	26965	QPSK	15	24.5	23.40	0.02	Right	1	36	18	1:1	10	35	0.118	1.288	0.152	-
841.5	26965	QPSK	15	25.5	24.31	0.19	Bottom	0	1	36	1:1	10	35	0.191	1.315	0.251	-
841.5	26965	QPSK	15	24.5	23.40	0.12	Bottom	1	36	18	1:1	10	35	0.155	1.288	0.200	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

LTE TDD Band 41 Hotspot SAR																
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
2 506	39750	QPSK	20	23.0	21.69	0.05	Rear	0	1	99	1:1.58	10	0.391	1.352	0.529	-
2 549.5	40185	QPSK	20	23.0	22.41	0.09	Rear	0	1	99	1:1.58	10	0.342	1.146	0.392	-
2 593	40620	QPSK	20	23.0	22.53	-0.11	Rear	0	1	49	1:1.58	10	0.548	1.114	**0.610**	39
2 636.5	41055	QPSK	20	23.0	22.36	0.19	Rear	0	1	49	1:1.58	10	0.510	1.159	0.591	-
2 680	41490	QPSK	20	23.0	22.23	0.01	Rear	0	1	99	1:1.58	10	0.441	1.194	0.527	-
2 593	40620	QPSK	20	23.0	22.72	0.12	Rear	1	50	0	1:1.58	10	0.560	1.067	0.598	-
2 593	40620	QPSK	20	23.0	22.70	0.01	Rear	1	100	0	1:1.58	10	0.522	1.072	0.560	-
2 593	40620	QPSK	20	23.0	22.53	0.06	Front	0	1	49	1:1.58	10	0.463	1.114	0.516	-
2 593	40620	QPSK	20	23.0	22.72	0.10	Front	1	50	0	1:1.58	10	0.484	1.067	0.516	-
2 593	40620	QPSK	20	23.0	22.53	0.19	Left	0	1	49	1:1.58	10	0.156	1.114	0.174	-
2 593	40620	QPSK	20	23.0	22.72	-0.05	Left	1	50	0	1:1.58	10	0.273	1.067	0.291	-
2 593	40620	QPSK	20	23.0	22.53	0.17	Bottom	0	1	49	1:1.58	10	0.443	1.114	0.494	-
2 593	40620	QPSK	20	23.0	22.72	0.08	Bottom	0	50	0	1:1.58	10	0.463	1.067	0.494	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram								

LTE Band 66 (AWS) Hotspot SAR																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Ant state	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
1 770	132572	QPSK	20	20.0	19.32	0.06	Rear	0	1	0	1:1	10	16	0.407	1.169	0.476	-
1 770	132572	QPSK	20	20.0	19.51	0.04	Rear	0	50	25	1:1	10	16	0.438	1.119	0.490	-
1 770	132572	QPSK	20	20.0	19.32	0.12	Front	0	1	0	1:1	10	16	0.176	1.169	0.206	-
1 770	132572	QPSK	20	20.0	19.51	-0.10	Front	0	50	25	1:1	10	16	0.185	1.119	0.207	-
1 770	132572	QPSK	20	20.0	19.32	-0.19	Left	0	1	0	1:1	10	16	0.027	1.169	0.032	-
1 770	132572	QPSK	20	20.0	19.51	-0.09	Left	0	50	25	1:1	10	16	0.029	1.119	0.032	-
1 770	132572	QPSK	20	20.0	19.32	0.19	Right	0	1	0	1:1	10	16	0.057	1.169	0.067	-
1 770	132572	QPSK	20	20.0	19.51	-0.13	Right	0	50	25	1:1	10	16	0.065	1.119	0.073	-
1 720	132072	QPSK	20	20.0	19.24	0.06	Bottom	0	1	0	1:1	10	16	0.601	1.191	0.716	-
1 745	132322	QPSK	20	20.0	19.18	0.10	Bottom	0	1	99	1:1	10	16	0.387	1.208	0.467	-
1 770	132572	QPSK	20	20.0	19.32	0.11	Bottom	0	1	0	1:1	10	16	0.767	1.169	0.897	-
1 720	132072	QPSK	20	20.0	19.43	0.12	Bottom	0	50	0	1:1	10	16	0.630	1.140	0.718	-
1 745	132322	QPSK	20	20.0	19.27	0.15	Bottom	0	50	0	1:1	10	16	0.413	1.183	0.489	-
1 770	132572	QPSK	20	20.0	19.51	0.06	Bottom	0	50	25	1:1	10	16	0.815	1.119	**0.912**	40
1 770	132572	QPSK	20	20.0	19.50	0.12	Bottom	0	100	0	1:1	10	16	0.793	1.122	0.890	-
1 770	132572	QPSK	20	20.0	19.51	-0.12	Bottom	0	50	25	1:1	10	16	0.785	1.119	0.878	*
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram									

Note: * Data entry indicate Variability measurement.

DTS Hotspot SAR																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
2 412	1	802.11b	20	1	19.5	18.07	-0.17	Rear	Ant1	98.92	10	0.311	0.193	1.390	1.011	0.271	-
2 412	1	802.11b	20	1	19.5	18.07	0.13	Front	Ant1	98.92	10	0.270	0.163	1.390	1.011	0.229	-
2 412	1	802.11b	20	1	19.5	18.07	0.09	Left	Ant1	98.92	10	0.401	0.242	1.390	1.011	0.340	-
2 412	1	802.11b	20	1	19.5	18.07		Top	Ant1	98.92	10	0.225		1.390	1.011		-
2 412	1	802.11b	20	1	19.5	18.25	0.10	Rear	Ant2	98.92	10	0.428	0.227	1.334	1.011	0.306	-
2 412	1	802.11b	20	1	19.5	18.25		Front	Ant2	98.92	10	0.0316		1.334	1.011		-
2 412	1	802.11b	20	1	19.5	18.25		Left	Ant2	98.92	10	0.136		1.334	1.011		-
2 412	1	802.11b	20	1	19.5	18.25		Top	Ant2	98.92	10	0.0298		1.334	1.011		-
2 462	11	802.11n	20	MCS0	21.0	19.77		Rea	MIMO	97.42	10	0.469		1.327	1.026		
2 462	11	802.11n	20	MCS0	21.0	19.77		Front	MIMO	97.42	10	0.235		1.327	1.026		-
2 462	11	802.11n	20	MCS0	21.0	19.77	0.01	Left	MIMO	97.42	10	0.481	0.288	1.327	1.026	**0.392**	41
2 462	11	802.11n	20	MCS0	21.0	19.77		Top	MIMO	97.42	10	0.253		1.327	1.026		-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population											Body 1.6 W/kg Averaged over 1 gram						

5 GHz WLAN Hotspot SAR																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
5 785	157	802.11a	20	6	17	15.21	-0.10	Rear	Ant1	97.46	10	0.642	0.250	1.510	1.026	0.387	-
5 785	157	802.11a	20	6	17	15.21		Front	Ant1	97.46	10	0.123		1.510	1.026		-
5 785	157	802.11a	20	6	17	15.21		Left	Ant1	97.46	10	0.207		1.510	1.026		-
5 785	157	802.11a	20	6	17	15.21		Top	Ant1	97.46	10	0.303		1.510	1.026		-
5 785	157	802.11a	20	6	17	15.36	0.18	Rear	Ant2	97.46	10	0.489	0.217	1.459	1.026	0.325	-
5 785	157	802.11a	20	6	17	15.36	-0.13	Front	Ant2	97.46	10	0.0534	0.022	1.459	1.026	0.033	-
5 785	157	802.11a	20	6	17	15.36	-0.10	Left	Ant2	97.46	10	0.147	0.060	1.459	1.026	0.090	-
5 785	157	802.11a	20	6	17	15.36	-0.10	Top	Ant2	97.46	10	0.210	0.096	1.459	1.026	0.144	-
5 785	157	802.11n	20	MCS8	20	18.15	0.17	Rear	MIMO	97.22	10	0.829	0.357	1.531	1.029	**0.562**	42
5 785	157	802.11n	20	MCS8	20	18.15		Front	MIMO	97.22	10	0.130		1.531	1.029		-
5 785	157	802.11n	20	MCS8	20	18.15		Left	MIMO	97.22	10	0.274		1.531	1.029		-
5 785	157	802.11n	20	MCS8	20	18.15	0.17	Top	MIMO	97.22	10	0.410	0.173	1.531	1.029	0.273	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Body 1.6 W/kg Averaged over 1 gram					

DSS Tethering SAR												
Frequency		Mode	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
2 480	78	Bluetooth DH5	13.0	11.73	-0.19	Rear	10	0.060	1.340	1.299	0.104	-
2 480	78	Bluetooth DH5	13.0	11.73	0.11	Front	10	0.044	1.340	1.299	0.077	-
2 480	78	Bluetooth DH5	13.0	11.73	0.03	Left	10	0.076	1.340	1.299	**0.132**	43
2 480	78	Bluetooth DH5	13.0	11.73	0.18	Top	10	0.054	1.340	1.299	0.094	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

13.4 Phablet SAR Measurement Considerations

Per FCC KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is greater than 160 mm and less than 200 mm. Therefore, extremity SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR >1.2 W/kg. When hotspot mode applies, 10g SAR required only for the surfaces and edges with hotspot mode scaled to the maximum output power (including tolerance) is 1g SAR > 1.2 W/kg.

13.5 Phablet SAR Measurement Results

UMTS 1700 Phablet SAR 10g													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Sensor	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
1 732.4	1412	RMC	25.0	23.55	-0.14	Rear	OFF	1:1	9	0.834	1.396	1.164	-
1 732.4	1412	RMC	25.0	23.55	-0.05	Front	OFF	1:1	7	0.998	1.396	1.393	-
1 732.4	1412	RMC	25.0	23.55	0.12	Bottom	OFF	1:1	11	1.13	1.396	1.577	-
1 732.4	1412	RMC	25.0	23.55	-0.16	Left	N/A	1:1	0	0.237	1.396	0.331	-
1 732.4	1412	RMC	25.0	23.55	-0.03	Right	N/A	1:1	0	0.418	1.396	0.584	-
1 732.4	1412	RMC	20.5	19.06	0.18	Rear	ON	1:1	0	1.41	1.393	1.964	-
1 732.4	1412	RMC	20.5	19.06	-0.10	Front	ON	1:1	0	1.38	1.393	1.922	-
1 712.4	1312	RMC	20.5	19.43	0.19	Bottom	ON	1:1	0	**1.72**	1.279	2.200	44
1 732.4	1412	RMC	20.5	19.06	0.19	Bottom	ON	1:1	0	1.62	1.393	**2.257**	45
1 752.6	1513	RMC	20.5	19.32	0.17	Bottom	ON	1:1	0	1.63	1.312	2.139	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Hand 4.0 W/kg Averaged over 10 gram						

UMTS 1900 Phablet SAR 10g													
Frequency		Mode	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Sensor	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.												
1 880.0	9400	RMC	24.5	23.83	-0.09	Rear	OFF	1:1	9	0.295	1.167	0.344	-
1 880.0	9400	RMC	24.5	23.83	-0.06	Front	OFF	1:1	7	0.648	1.167	0.756	-
1 880.0	9400	RMC	24.5	23.83	0.14	Bottom	OFF	1:1	11	0.429	1.167	0.501	-
1 880.0	9400	RMC	24.5	23.83	-0.17	Left	N/A	1:1	0	0.118	1.167	0.138	-
1 880.0	9400	RMC	24.5	23.83	0.13	Right	N/A	1:1	0	0.114	1.167	0.133	-
1 880.0	9400	RMC	21.0	19.31	0.13	Rear	ON	1:1	0	0.832	1.476	1.228	-
1 880.0	9400	RMC	21.0	19.31	0.01	Front	ON	1:1	0	0.925	1.476	**1.365**	46
1 880.0	9400	RMC	21.0	19.31	0.14	Bottom	ON	1:1	0	0.702	1.476	1.036	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Hand 4.0 W/kg Averaged over 10 gram						

LTE Band 2 Phablet SAR 10g																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Sensor	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
1 900	19100	QPSK	20	25.0	23.93	-0.02	Rear	OFF	0	1	0	1:1	9	0.725	1.279	0.927	-
1 900	19100	QPSK	20	24.0	23.31	-0.04	Rear	OFF	1	50	0	1:1	9	0.629	1.172	0.737	-
1 900	19100	QPSK	20	25.0	23.93	-0.05	Front	OFF	0	1	0	1:1	7	0.856	1.279	1.095	-
1 900	19100	QPSK	20	24.0	23.31	-0.09	Front	OFF	1	50	0	1:1	7	0.745	1.172	0.873	-
1 900	19100	QPSK	20	25.0	23.93	0.04	Bottom	OFF	0	1	0	1:1	11	1.21	1.279	1.548	-
1 900	19100	QPSK	20	24.0	23.31	0.06	Bottom	OFF	1	50	0	1:1	11	1.06	1.172	1.242	-
1 900	19100	QPSK	20	25.0	23.93	-0.06	Left	N/A	0	1	0	1:1	0	0.264	1.279	0.338	-
1 900	19100	QPSK	20	24.0	23.31	-0.09	Left	N/A	1	50	0	1:1	0	0.222	1.172	0.260	-
1 900	19100	QPSK	20	25.0	23.93	-0.18	Right	N/A	0	1	0	1:1	0	0.449	1.279	0.574	-
1 900	19100	QPSK	20	24.0	23.31	-0.13	Right	N/A	1	50	0	1:1	0	0.393	1.172	0.461	-
1 900	19100	QPSK	20	20.5	19.19	-0.18	Rear	ON	0	1	99	1:1	0	1.29	1.352	1.744	-
1 900	19100	QPSK	20	20.5	19.32	0.19	Rear	ON	0	50	49	1:1	0	1.30	1.312	1.706	-
1 860	18700	QPSK	20	20.5	19.17	0.01	Front	ON	0	1	99	1:1	0	1.32	1.358	1.793	-
1 880	18900	QPSK	20	20.5	19.18	0.01	Front	ON	0	1	99	1:1	0	1.07	1.355	1.450	-
1 900	19100	QPSK	20	20.5	19.19	0.01	Front	ON	0	1	99	1:1	0	1.38	1.352	1.866	-
1 860	18700	QPSK	20	20.5	19.29	0.01	Front	ON	0	50	49	1:1	0	1.40	1.321	1.849	-
1 880	18900	QPSK	20	20.5	19.16	0.01	Front	ON	0	50	49	1:1	0	1.12	1.361	1.524	-
1 900	19100	QPSK	20	20.5	19.32	0.01	Front	ON	0	50	49	1:1	0	1.41	1.312	1.850	-
1 900	19100	QPSK	20	20.5	19.30	0.10	Front	ON	0	100	0	1:1	0	1.29	1.318	1.700	-
1 860	18700	QPSK	20	20.5	19.17	0.13	Bottom	ON	0	1	99	1:1	0	1.78	1.358	2.417	-
1 880	18900	QPSK	20	20.5	19.18	0.13	Bottom	ON	0	1	99	1:1	0	1.84	1.355	2.493	-
1 900	19100	QPSK	20	20.5	19.19	0.12	Bottom	ON	0	1	99	1:1	0	1.90	1.352	2.569	-
1 860	18700	QPSK	20	20.5	19.29	0.16	Bottom	ON	0	50	49	1:1	0	1.90	1.321	2.510	-
1 880	18900	QPSK	20	20.5	19.16	0.15	Bottom	ON	0	50	49	1:1	0	1.91	1.361	2.600	-
1 900	19100	QPSK	20	20.5	19.32	0.14	Bottom	ON	0	50	49	1:1	0	1.98	1.312	2.598	-
1 900	19100	QPSK	20	20.5	19.30	0.15	Bottom	ON	0	100	0	1:1	0	1.98	1.318	**2.610**	47
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population													Hand 4.0 W/kg Averaged over 10 gram				

LTE TDD Band 41 Phablet SAR 10g																	
Frequency		Mode	Band Width	Tune-Up Limit (dB)	Meas. Power (dB)	Power Drift (dB)	Test Position	Sensor	MPR (dB)	RB Size	RB Offset	Duty Cycle	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
2 593	40620	QPSK	20	24.7	24.13	-0.14	Rear	OFF	0	1	49	1:1.58	9	0.348	1.140	0.397	-
2 593	40620	QPSK	20	23.7	23.44	-0.12	Rear	OFF	1	50	0	1:1.58	9	0.283	1.062	0.301	-
2 593	40620	QPSK	20	24.7	24.13	0.05	Front	OFF	0	1	49	1:1.58	7	0.418	1.140	0.477	-
2 593	40620	QPSK	20	23.7	23.44	-0.03	Front	OFF	1	50	0	1:1.58	7	0.343	1.062	0.364	-
2 593	40620	QPSK	20	24.7	24.13	-0.15	Bottom	OFF	0	1	49	1:1.58	11	0.312	1.140	0.356	-
2 593	40620	QPSK	20	23.7	23.44	-0.17	Bottom	OFF	1	50	0	1:1.58	11	0.260	1.062	0.276	-
2 593	40620	QPSK	20	24.7	24.13	-0.16	Left	N/A	0	1	49	1:1.58	0	0.768	1.140	0.876	-
2 593	40620	QPSK	20	23.7	23.44	-0.19	Left	N/A	1	50	0	1:1.58	0	0.635	1.062	0.674	-
2 593	40620	QPSK	20	23.0	22.56	-0.11	Rear	ON	0	1	49	1:1.58	0	0.921	1.107	1.020	-
2 593	40620	QPSK	20	23.0	22.79	0.13	Rear	ON	0	50	0	1:1.58	0	0.962	1.050	1.010	-
2 593	40620	QPSK	20	23.0	22.56	0.15	Front	ON	0	1	49	1:1.58	0	1.02	1.107	1.129	-
2 593	40620	QPSK	20	23.0	22.79	-0.07	Front	ON	0	50	0	1:1.58	0	1.08	1.050	1.134	-
2 593	40620	QPSK	20	23.0	22.56	0.18	Bottom	ON	0	1	49	1:1.58	0	1.21	1.107	1.339	-
2 593	40620	QPSK	20	23.0	22.79	0.11	Bottom	ON	0	50	0	1:1.58	0	1.28	1.050	**1.344**	48
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Hand 4.0 W/kg Averaged over 10 gram									

5 GHz WLAN Phablet SAR 10g																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Ant. Config.	Duty Cycle	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Scaled SAR (W/kg)	Plot No.
MHz	Ch.																
5 300	60	802.11a	20	6	17	15.08	0.02	Rear	Ant1	97.46	0	5.29	0.523	1.556	1.026	0.835	-
5 300	60	802.11a	20	6	17	15.08	0.01	Front	Ant1	97.46	0	2.79	0.165	1.556	1.026	0.263	-
5 300	60	802.11a	20	6	17	15.08		Left	Ant1	97.46	0	1.53		1.556	1.026		-
5 300	60	802.11a	20	6	17	15.08		Top	Ant1	97.46	0	1.79		1.556	1.026		-
5 260	52	802.11a	20	6	17	15.27	-0.14	Rear	Ant2	97.46	0	7.84	0.941	1.489	1.026	1.438	-
5 260	52	802.11a	20	6	17	15.27		Front	Ant2	97.46	0	0.289		1.489	1.026		-
5 260	52	802.11a	20	6	17	15.27		Left	Ant2	97.46	0	0.404		1.489	1.026		-
5 260	52	802.11a	20	6	17	15.27		Top	Ant2	97.46	0	2.24		1.489	1.026		-
5 260	52	802.11n	20	MCS8	20	18.10	-0.14	Rear	MIMO	97.22	0	9.94	1.19	1.549	1.029	**1.897**	49
5 260	52	802.11n	20	MCS8	20	18.10	0.01	Front	MIMO	97.22	0	4.07	0.386	1.549	1.029	0.615	-
5 260	52	802.11n	20	MCS8	20	18.10	0.13	Left	MIMO	97.22	0	1.89	0.206	1.549	1.029	0.328	-
5 260	52	802.11n	20	MCS8	20	18.10		Top	MIMO	97.22	0	3.68		1.549	1.029		-
5 600	120	802.11a	20	6	17	15.09	0.16	Rear	Ant1	97.46	0	2.35	0.296	1.552	1.026	0.471	-
5 600	120	802.11a	20	6	17	15.09		Front	Ant1	97.46	0	1.58		1.552	1.026		-
5 600	120	802.11a	20	6	17	15.09		Left	Ant1	97.46	0	2.14		1.552	1.026		-
5 600	120	802.11a	20	6	17	15.09		Top	Ant1	97.46	0	1.35		1.552	1.026		-
5 600	120	802.11a	20	6	17	15.06	0.10	Rear	Ant2	97.46	0	4.86	0.596	1.563	1.026	0.956	-
5 600	120	802.11a	20	6	17	15.06		Front	Ant2	97.46	0	0.452		1.563	1.026		-
5 600	120	802.11a	20	6	17	15.06		Left	Ant2	97.46	0	0.253		1.563	1.026		-
5 600	120	802.11a	20	6	17	15.06	-0.01	Top	Ant2	97.46	0	0.993	0.137	1.563	1.026	0.220	-
5 600	120	802.11n	20	MCS8	20	18.04	0.01	Rear	MIMO	97.22	0	8.55	0.950	1.570	1.029	1.535	-
5 600	120	802.11n	20	MCS8	20	18.04	0.01	Front	MIMO	97.22	0	2.62	0.174	1.570	1.029	0.281	-
5 600	120	802.11n	20	MCS8	20	18.04	0.11	Left	MIMO	97.22	0	2.86	0.250	1.570	1.029	0.404	-
5 600	120	802.11n	20	MCS8	20	18.04		Top	MIMO	97.22	0	1.76		1.570	1.029		-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Hand 4.0 W/kg Averaged over 10 gram					

13.6 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB 648474 D04v01r03, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was ≤ 1.2 W/kg, no additional SAR evaluation using a headset cable were required.
8. Per KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is > 160 mm and < 200 mm. When hotspot mode applies, extremity SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (with tolerance) is 1 g SAR > 1.2 W/kg.. For LTE Band 41, 1 g SAR > 0.9 W/kg (=1.2*(0.6/0.8)) is applied.
9. Per FCC KDB 865664 D01v01r04, variability SAR measurement were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1g SAR and >2 for 10g SAR Please see Section 15 for variability analysis.
10. This device utilizes power reduction for some wireless mode and technologies, as outlined in sec. 4.3 The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous scenarios.
11. During SAR testing for the Hotspot conditions per KDB 941225 D06v02r01, the actual portable hotspot operation (with actual simultaneous transmission of a transmitter with WiFi) was not activated.
12. This Device supports dynamic antenna tuning for some bands. Per April 2019 TCBC Workshop Notes, SAR was measured according to the normally required SAR measurement configurations with tuner active. The auto-tune state determined by the device was verified before and after each SAR measurement and is listed in tables above. Please see Sec 15 for more information

GSM/GPRS Test Notes:

1. This EUT’S GSM and GPRS device class is B.
2. Body-Worn accessory testing is typically associated with voice operations. Therefore, GSM voice was evaluated for body-worn SAR.
3. Justification for reduced test configurations per KDB 941225 D01v03r01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power including tolerance was evaluated for SAR.
4. Per FCC KDB 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the

maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.

5. Justification for reduced test configurations per KDB Publication 941225 D01v03r01 and October 2013 TCB Workshop Notes: The source-based frame-averaged output power was evaluated for all GPRS/EDGE slot configurations. The configuration with the highest target frame averaged output power was evaluated for hotspot SAR. When the maximum frame-averaged powers are equivalent across two or more slots (within 0.25 dB), the configuration with the most number of time slots was tested.

UMTS Notes:

1. The 12.2 kbps RMC mode is the primary mode per KDB 941225 D01v03r01.
2. UMTS SAR was tested under RMC 12.2 kbps with HSPA inactive per KDB publication 941225 D01v03r01. AMR and HSPA SAR was not required per the 3G Test Reduction Procedure in KDB Publication 941225 D01v03r01.
3. Per FCC KDB 447498 D01v06, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is ≤ 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the channel highest output power channel was used.

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r05.
2. According to FCC KDB 941225 D05v02r05:
   When the reported SAR is ≤ 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.
   Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to target MPR is indicated alongside the SAR results.
4. When Power reduction is applied , MPR is 0
5. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
6. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) LTE TDD Band 41 SAR measured at the highest output power channel for each test configuration is ≤ 0.6 W/kg then testing at the other channels is not required for such test configurations.
7. TDD LTE was tested using UL-DL configuration 0 with 6 UL sub frames and 2S subframes using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633(cf=1.58).
8. Per KDB 941225 D05Av01r02, SAR for LTE Carrier Aggregation operations was not needed because the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink CA was not activated.
9. SAR test reduction is applied using the following criteria:
   Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of

each required test channel. When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel bandwidths is not required because the reported SAR for the highest channel bandwidth is <1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel bandwidth.

WLAN Notes:

1. For held-to-ear and hotspot operations, the initial test position procedures were applied. For initial test position, the highest extrapolated peak SAR will be used. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR results is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 10g SAR or all test position are measured.
2. Per KDB 2482227 D01v02r02 justification for test configurations of 2.4 GHz WiFi Single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement. SAR for OFDM modes (2.4 GHz 802.11 g/n) was not required due to the maximum allowed powers and the highest reported DSSS SAR.
3. Per KDB 2482227 D01v02r02 justification for test configurations of 5 GHz WiFi Single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission mode were not investigated since the highest reported SAR for initial test configuration adjusted by the ration of maximum output powers is less than 1.2 W/kg for 1g SAR and less than 3.0 W/kg for 10 g SAR.
4. When the maximum reported 1g averaged SAR is ≤ 0.8 W/kg, SAR testing on additional channels was not required. Otherwise, SAR for the next highest output power channel was required until the reported SAR result was ≤ 1.20 W/kg or all test channels were measured.
5. The device was configured to transmit continuously at the required data rated, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools. The reported SAR was scaled to the 100% transmission duty factor to determine compliance. Procedures used to measure the duty factor are identical to that in the associated WLAN test reports.

Bluetooth Notes:

1. Bluetooth SAR was measured with the device connected to a call box with hopping disabled with DH5 operation and Tx Tests mode type. Per October 2016 TCBC Workshop Notes, the reported SAR was scaled to 100% transmission duty factor to determine compliance. Please see sec.11 for the time-domain plot and calculation for duty factor of the device.
2. Head and Bluetooth tethering SAR were evaluated for BT BR tethering applications.

14. Simultaneous SAR Analysis

This device is contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per KDB Publication 447498 D01v06 4.3.2, simultaneous transmission SAR test exclusion may be applied when the sum of 1g SAR and 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6W/kg for 1g SAR and ≤4 W/kg for 10g SAR. The different test positions in an exposure condition may be considered collectively to determine SAR exclusion according to the sum of 1g or 10g SAR.

14.1 Head SAR Simultaneous Transmission Analysis.

Simultaneous Transmission Scenario with 2.4 GHz WLAN (Held to ear)						
Band	WWAN SAR (W/kg)	2.4 GHz WLAN Ant.1 SAR (W/kg)	2.4 GHz WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2	1+3	1+2+3
GSM 850	0.116	0.692	0.090	0.808	0.206	0.898
GSM 1900	0.025	0.692	0.090	0.717	0.115	0.807
UMTS 850	0.093	0.692	0.090	0.785	0.183	0.875
UMTS 1700	0.147	0.692	0.090	0.839	0.237	0.929
UMTS 1900	0.120	0.692	0.090	0.812	0.210	0.902
LTE Band 2	0.147	0.692	0.090	0.839	0.237	0.929
LTE Band 12	0.101	0.692	0.090	0.793	0.191	0.883
LTE Band 13	0.132	0.692	0.090	0.824	0.222	0.914
LTE Band 26	0.147	0.692	0.090	0.839	0.237	0.929
LTE Band 41	0.088	0.692	0.090	0.78	0.178	0.870
LTE Band 66	0.139	0.692	0.090	0.831	0.229	0.921

Simultaneous Transmission Scenario with 5 ㎓ WLAN (Held to ear)						
Band	WWAN SAR (W/kg)	5 ㎓ WLAN Ant.1 SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2	1+3	1+2+3
GSM 850	0.116	0.295	0.225	0.411	0.341	0.527
GSM 1900	0.025	0.295	0.225	0.32	0.25	0.545
UMTS 850	0.093	0.295	0.225	0.388	0.318	0.613
UMTS 1700	0.147	0.295	0.225	0.442	0.372	0.667
UMTS 1900	0.120	0.295	0.225	0.415	0.345	0.640
LTE Band 2	0.147	0.295	0.225	0.442	0.372	0.667
LTE Band 12	0.101	0.295	0.225	0.396	0.326	0.621
LTE Band 13	0.132	0.295	0.225	0.427	0.357	0.652
LTE Band 26	0.147	0.295	0.225	0.442	0.372	0.667
LTE Band 41	0.088	0.295	0.225	0.383	0.313	0.608
LTE Band 66	0.139	0.295	0.225	0.434	0.364	0.659

Simultaneous Transmission Scenario with 2.4 ㎓ WLAN Ant.1 and 5 ㎓ WLAN Ant.2 (Held to ear)				
Band	WWAN SAR (W/kg)	2.4 ㎓ WLAN Ant.1 SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2+3
GSM 850	0.116	0.692	0.225	1.033
GSM 1900	0.025	0.692	0.225	0.942
UMTS 850	0.093	0.692	0.225	1.010
UMTS 1700	0.147	0.692	0.225	**1.064**
UMTS 1900	0.120	0.692	0.225	1.037
LTE Band 2	0.147	0.692	0.225	1.064
LTE Band 12	0.101	0.692	0.225	1.018
LTE Band 13	0.132	0.692	0.225	1.049
LTE Band 26	0.147	0.692	0.225	1.064
LTE Band 41	0.088	0.692	0.225	1.005
LTE Band 66	0.139	0.692	0.225	1.056

Simultaneous Transmission Scenario with Bluetooth			
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	1+2
GSM 850	0.116	0.491	0.607
GSM 1900	0.025	0.491	0.516
UMTS 850	0.093	0.491	0.584
UMTS 1700	0.147	0.491	0.638
UMTS 1900	0.120	0.491	0.611
LTE Band 2	0.147	0.491	0.638
LTE Band 12	0.101	0.491	0.592
LTE Band 13	0.132	0.491	0.623
LTE Band 26	0.147	0.491	0.638
LTE Band 41	0.088	0.491	0.579
LTE Band 66	0.139	0.491	0.630

Simultaneous Transmission Scenario with Bluetooth + 5 ㎓ WLAN (Held to ear)				
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2+3
GSM 850	0.116	0.491	0.225	0.832
GSM 1900	0.025	0.491	0.225	0.741
UMTS 850	0.093	0.491	0.225	0.809
UMTS 1700	0.147	0.491	0.225	0.863
UMTS 1900	0.120	0.491	0.225	0.836
LTE Band 2	0.147	0.491	0.225	0.863
LTE Band 12	0.101	0.491	0.225	0.817
LTE Band 13	0.132	0.491	0.225	0.848
LTE Band 26	0.147	0.491	0.225	0.863
LTE Band 41	0.088	0.491	0.225	0.804
LTE Band 66	0.139	0.491	0.225	0.855

14.2 Simultaneous Transmission Summation for Body-Worn

Simultaneous Transmission Scenario with 2.4 GHz WLAN (15 mm)							
Band	WWAN SAR (W/kg)	2.4 GHz WLAN Ant.1 SAR (W/kg)	2.4 GHz WLAN Ant.2 SAR (W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	4	1+2	1+3	1+4
GSM 850	0.172	0.101	0.104	0.132	0.273	0.276	0.304
GSM 1900	0.202	0.101	0.104	0.132	0.303	0.306	0.334
UMTS 850	0.193	0.101	0.104	0.132	0.294	0.297	0.325
UMTS 1700	0.933	0.101	0.104	0.132	1.034	1.037	1.065
UMTS 1900	0.506	0.101	0.104	0.132	0.607	0.610	0.638
LTE Band 2	0.863	0.101	0.104	0.132	0.964	0.967	0.995
LTE Band 12	0.027	0.101	0.104	0.132	0.128	0.131	0.159
LTE Band 13	0.198	0.101	0.104	0.132	0.299	0.302	0.330
LTE Band 26	0.262	0.101	0.104	0.132	0.363	0.366	0.394
LTE Band 41	0.545	0.101	0.104	0.132	0.646	0.649	0.677
LTE Band 66	0.753	0.101	0.104	0.132	0.854	0.857	0.885

Simultaneous Transmission Scenario with 5 GHz WLAN (15 mm)							
Band	WWAN SAR (W/kg)	5 GHz WLAN Ant.1 SAR (W/kg)	5 GHz WLAN Ant.2 SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	4	1+2	1+3	1+4
GSM 850	0.172	0.247	0.217	0.425	0.419	0.389	0.597
GSM 1900	0.202	0.247	0.217	0.425	0.449	0.419	0.627
UMTS 850	0.193	0.247	0.217	0.425	0.440	0.410	0.618
UMTS 1700	0.933	0.247	0.217	0.425	1.180	1.150	**1.358**
UMTS 1900	0.506	0.247	0.217	0.425	0.753	0.723	0.931
LTE Band 2	0.863	0.247	0.217	0.425	1.110	1.080	1.288
LTE Band 12	0.027	0.247	0.217	0.425	0.274	0.244	0.452
LTE Band 13	0.198	0.247	0.217	0.425	0.445	0.415	0.623
LTE Band 26	0.262	0.247	0.217	0.425	0.509	0.479	0.687
LTE Band 41	0.545	0.247	0.217	0.425	0.792	0.762	0.970
LTE Band 66	0.753	0.247	0.217	0.425	1.000	0.970	1.178

Simultaneous Transmission Scenario with 2.4 ㎓ WLAN Ant.1 and 5 ㎓ WLAN Ant.2 (15 mm)				
Band	WWAN SAR (W/kg)	2.4 ㎓ WLAN Ant.1 SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2+3
GSM 850	0.172	0.101	0.217	0.490
GSM 1900	0.202	0.101	0.217	0.520
UMTS 850	0.193	0.101	0.217	0.511
UMTS 1700	0.933	0.101	0.217	1.251
UMTS 1900	0.506	0.101	0.217	0.824
LTE Band 2	0.863	0.101	0.217	1.181
LTE Band 12	0.027	0.101	0.217	0.345
LTE Band 13	0.198	0.101	0.217	0.516
LTE Band 26	0.262	0.101	0.217	0.580
LTE Band 41	0.545	0.101	0.217	0.863
LTE Band 66	0.753	0.101	0.217	1.071

Simultaneous Transmission Scenario with Bluetooth (15 mm)			
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	1+2
GSM 850	0.172	0.044	0.216
GSM 1900	0.202	0.044	0.246
UMTS 850	0.193	0.044	0.237
UMTS 1700	0.933	0.044	0.977
UMTS 1900	0.506	0.044	0.550
LTE Band 2	0.863	0.044	0.907
LTE Band 12	0.027	0.044	0.071
LTE Band 13	0.198	0.044	0.242
LTE Band 26	0.262	0.044	0.306
LTE Band 41	0.545	0.044	0.589
LTE Band 66	0.753	0.044	0.797

Simultaneous Transmission Scenario with Bluetooth +5 GHz WLAN Ant2 (15 mm)				
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	5 GHz WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2+3
GSM 850	0.172	0.044	0.217	0.433
GSM 1900	0.202	0.044	0.217	0.463
UMTS 850	0.193	0.044	0.217	0.454
UMTS 1700	0.933	0.044	0.217	1.194
UMTS 1900	0.506	0.044	0.217	0.767
LTE Band 2	0.863	0.044	0.217	1.124
LTE Band 12	0.027	0.044	0.217	0.288
LTE Band 13	0.198	0.044	0.217	0.459
LTE Band 26	0.262	0.044	0.217	0.523
LTE Band 41	0.339	0.044	0.217	0.600
LTE Band 66	0.753	0.044	0.217	1.014

14.3 Simultaneous Transmission Summation for Hotspot

(#) for WLAN SAR for test Positions that were not required to be evaluated for WLAN SAR Per FCC 248227D01v02r02, the worst case WLAN SAR result was used for simultaneous transmission analysis.

Simultaneous Transmission Scenario with 2.4 GHz WLAN (10 mm)							
Band	WWAN SAR (W/kg)	2.4 GHz WLAN Ant.1 SAR(W/kg)	2.4 GHz WLAN Ant.2 SAR(W/kg)	2.4 GHz WLAN MIMO SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	4	1+2	1+3	1+4
GSM 850	0.648	0.340	0.306	0.392	0.988	0.954	1.040
GSM 1900	0.794	0.340	0.306	0.392	1.134	1.100	1.186
UMTS 850	0.391	0.340	0.306	0.392	0.731	0.697	0.783
UMTS 1700	0.614	0.340	0.306	0.392	0.954	0.920	1.006
UMTS 1900	0.840	0.340	0.306	0.392	1.180	1.146	1.232
LTE Band 2	1.070	0.340	0.306	0.392	1.410	1.376	1.462
LTE Band 12	0.057	0.340	0.306	0.392	0.397	0.363	0.449
LTE Band 13	0.343	0.340	0.306	0.392	0.683	0.649	0.735
LTE Band 26	0.543	0.340	0.306	0.392	0.883	0.849	0.935
LTE Band 41	0.610	0.340	0.306	0.392	0.950	0.916	1.002
LTE Band 66	0.912	0.340	0.306	0.392	1.252	1.218	1.304

Simultaneous Transmission Scenario with 5 GHz WLAN (10 mm)					
Band	WWAN SAR (W/kg)	5 GHz WLAN Ant.1 SAR (W/kg)	5 GHz WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2	1+3
GSM 850	0.648	0.387	0.325	1.035	0.973
GSM 1900	0.794	0.387	0.325	1.181	1.119
UMTS 850	0.391	0.387	0.325	0.778	0.716
UMTS 1700	0.614	0.387	0.325	1.001	0.939
UMTS 1900	0.840	0.387	0.325	1.227	1.165
LTE Band 2	1.070	0.387	0.325	1.457	1.395
LTE Band 12	0.057	0.387	0.325	0.444	0.382
LTE Band 13	0.343	0.387	0.325	0.730	0.668
LTE Band 26	0.543	0.387	0.325	0.930	0.868
LTE Band 41	0.610	0.387	0.325	0.997	0.935
LTE Band 66	0.912	0.387	0.325	1.299	1.237

Simultaneous Transmission Scenario with 5 GHz WLAN (10 mm)				
Band/ Configurations		WWAN SAR (W/kg)	5 GHz WLAN MIMO SAR (W/kg)	∑ 1-g SAR (W/kg)
		1	2	1+2
GSM 850		0.648	0.562	1.210
GSM 1900		0.794	0.562	1.356
UMTS 850		0.391	0.562	0.953
UMTS 1700		0.614	0.562	1.176
UMTS 1900		0.840	0.562	1.402
LTE Band 2	Rear	0.581	0.562	1.143
	Front	0.483	0.562 #	1.045
	Left	0.046	0.562 #	0.608
	Right	0.103		0.103
	Bottom	1.070		1.070
	Top		0.273	0.273
LTE Band 12		0.057	0.562	0.619
LTE Band 13		0.343	0.562	0.905
LTE Band 26		0.543	0.562	1.105
LTE Band 41		0.610	0.562	1.172
LTE Band 66		0.912	0.562	1.474

Simultaneous Transmission Scenario with 2.4 GHz WLAN Ant.1 and 5 GHz WLAN Ant.2 (10 mm)					
Band/ Configurations		WWAN SAR (W/kg)	2.4 GHz WLAN Ant.1 SAR (W/kg)	5 GHz WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
		1	2	3	1+2+3
GSM 850		0.648	0.340	0.325	1.313
GSM 1900		0.794	0.340	0.325	1.459
UMTS 850		0.391	0.340	0.325	1.056
UMTS 1700		0.614	0.340	0.325	1.279
UMTS 1900		0.840	0.340	0.325	1.505
LTE Band 2	Rear	0.581	0.271	0.325	1.177
	Front	0.483	0.229	0.033	0.745
	Left	0.046	0.340	0.090	0.476
	Right	0.103			0.103
	Bottom	1.070			1.070
	Top		0.340 #	0.144	0.484
LTE Band 12		0.057	0.340	0.325	0.722
LTE Band 13		0.343	0.340	0.325	1.008
LTE Band 26		0.543	0.340	0.325	1.208
LTE Band 41		0.610	0.340	0.325	1.275
LTE Band 66		0.912	0.340	0.325	**1.577**

Simultaneous Transmission Scenario with Bluetooth (10 mm)			
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	1+2
GSM 850	0.648	0.132	0.780
GSM 1900	0.794	0.132	0.926
UMTS 850	0.391	0.132	0.523
UMTS 1700	0.614	0.132	0.746
UMTS 1900	0.840	0.132	0.972
LTE Band 2	1.070	0.132	1.202
LTE Band 12	0.057	0.132	0.189
LTE Band 13	0.343	0.132	0.475
LTE Band 26	0.543	0.132	0.675
LTE Band 41	0.610	0.132	0.742
LTE Band 66	0.912	0.132	1.044

Simultaneous Transmission Scenario with Bluetooth + 5 ㎓ WLAN Ant 2 (10 mm)				
Band	WWAN SAR (W/kg)	Bluetooth SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 1-g SAR (W/kg)
	1	2	3	1+2+3
GSM 850	0.648	0.132	0.325	1.105
GSM 1900	0.794	0.132	0.325	1.251
UMTS 850	0.391	0.132	0.325	0.848
UMTS 1700	0.614	0.132	0.325	1.071
UMTS 1900	0.840	0.132	0.325	1.297
LTE Band 2	1.070	0.132	0.325	1.527
LTE Band 12	0.057	0.132	0.325	0.514
LTE Band 13	0.343	0.132	0.325	0.800
LTE Band 26	0.543	0.132	0.325	1.000
LTE Band 41	0.610	0.132	0.325	1.067
LTE Band 66	0.912	0.132	0.325	1.369

14.4 Phablet SAR Simultaneous Transmission Analysis

(-) for Phablet SAR for test Positions that were not required to be evaluated for WWAN and WLAN SAR Per FCC KDB 941225 D06v02r01, the devices edges with antennas more than 2.5cmfrom edge are not required to be evaluated

(#) for WLAN SAR for test Positions that were not required to be evaluated for WLAN SAR Per FCC 248227D01v02r02, the worst case WLAN SAR result was used for simultaneous transmission analysis.

Per KDB Publication 648474 D04 Hand SAR, Phablet SAR tests were not required if wireless router 1g SAR(scaled to the maximum output power, including tolerance)<1.2 W/kg.

Phablet 10g SAR Simultaneous Transmission Scenario with 5 ㎓ WLAN (0 mm)						
Band	Configurations	WWAN SAR (W/kg)	5 ㎓ WLAN Ant.1 SAR (W/kg)	5 ㎓ WLAN Ant.2 SAR (W/kg)	∑ 10-g SAR (W/kg)	∑ 10-g SAR (W/kg)
		1	2	3	1+2	1+3
UMTS 1700	Rear	1.964	0.835	1.438	2.799	3.402
	Front	1.922	0.263	1.438 #	2.185	3.360
	Left	0.331	0.835 #	1.438 #	1.166	1.769
	Right	0.584			0.584	0.584
	Bottom	2.257			2.257	2.257
	Top		0.835 #	0.220	0.835	0.220
UMTS 1900	Rear	1.228	0.835	1.438	2.063	2.666
	Front	1.365	0.263	1.438 #	1.628	2.803
	Left	0.138	0.835 #	1.438 #	0.973	1.576
	Right	0.133			0.133	0.133
	Bottom	1.036			1.036	1.036
	Top		0.835 #	0.220	0.835	0.220
LTE Band 2	Rear	1.744	0.835	1.438	2.579	3.182
	Front	1.866	0.263	1.438 #	2.129	3.304
	Left	0.338	0.835 #	1.438 #	1.173	1.776
	Right	0.574			0.574	0.574
	Bottom	2.610			2.610	2.610
	Top		0.835 #	0.220	0.835	0.220
LTE Band 41	Rear	1.010	0.835	1.438	1.845	2.448
	Front	1.134	0.263	1.438 #	1.397	2.572
	Left	0.876	0.835 #	1.438 #	1.711	2.314
	Right					
	Bottom	1.344			1.344	1.344
	Top		0.835 #	0.220	0.835	0.220

Phablet 10g SAR Simultaneous Transmission Scenario with 5 ㎓ WLAN (0 mm)				
Band	Configurations	WWAN SAR (W/kg) 1	5G WLAN MIMO SAR (W/kg) 2	∑ 10-g SAR (W/kg) 1+2
UMTS 1700	Rear	1.964	1.897	**3.861**
	Front	1.922	0.615	2.537
	Left	0.331	0.404	0.735
	Right	0.584		0.584
	Bottom	2.257		2.257
	Top		1.897	1.897
UMTS 1900	Rear	1.228	1.897	3.125
	Front	1.365	0.615	1.980
	Left	0.138	0.404	0.542
	Right	0.133		0.133
	Bottom	1.036		1.036
	Top		1.897	1.897
LTE Band 2	Rear	1.744	1.897	3.641
	Front	1.866	0.615	2.481
	Left	0.338	0.404	0.742
	Right	0.574		0.574
	Bottom	2.610		2.610
	Top		1.897	1.897
LTE Band 41	Rear	1.020	1.897	2.917
	Front	1.134	0.615	1.749
	Left	0.876	0.404	1.280
	Right			
	Bottom	1.344		1.344
	Top		1.897	1.897

14.5 Simultaneous Transmission Conclusion

The above numerical summed SAR Results are 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 D01v06 and IEEE1528-2013.

15. SAR Measurement Variability and Uncertainty

In accordance with KDB procedure 865664 D01v01r04 SAR measurement 100 ㎒ to 6 ㎓, SAR additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR Measurement variability was assessed using the following procedures for each frequency band:

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg for 1g SAR or < 2.0 W/kg for 10g SAR; steps 2) through 4) do not apply.

2) When the original highest measured 1g SAR is ≥ 0.80 W/kg or 10g SAR ≥ 2.0W/kg, repeat that measurement once.

3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg for 1g SAR or ≥ 3.625 W/kg for 10g SAR (~ 10% from the 1-g SAR limit).

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg for 1g SAR or ≥3.75 W/kg for 10g SAR and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20.

Hotspot SAR measurement variability Results

Frequency		Mode/Band	Configuration	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Channel					
1 860	18700	LTE Band 2	Bottom (50RB, 25Offset)	0.882	0.879	1.00
1 770	132572	LTE Band 66	Bottom (50RB, 25Offset)	0.815	0.785	1.04

16. Dynamic Antenna tuner testing

This Device applies Qualcomm chipset solution's Dynamic Antenna tuning technology to some 3G / 4G bands. (WCDMA B5/B4/B2/LTEB2/B4/B12/B17/B13/B66)
Dynamic Antenna tuning was tested in accordance with the April 2019 FCC TCBC Workshop nots.

Per 2019, April TCBC Workshop document

- SAR is measured according to required procedures with dynamic tuner active allowing device to automatically tune. Auto-tune state determined by device during normal SAR measurement verified and listed alongside the reported SAR results.
- Additional single point SAR (time-sweep) measurements were evaluated for other tuner states to determine that the other configurations would result in equivalent or lower SAR values.
- Single point measurements performed at the peak SAR location of the highest measured SAR configuration for each combination. SAR probe remains stationary throughout the entire series of single point measurements for each combination
- Total number tuner states divided evenly among each supported band /air interface and exposure condition combination
  if any single point SAR measurement result is > 1.2 W/kg for a band/exposure condition combination set, all supported tuner states are evaluated with single point SAR measurements for the combination.
  Tuner state is established remotely so that the device is not moved for the entire series of single point SAR measurements for the tuner states in each combination

The following test procedures were followed to demonstrate that the SAR results in Section 13 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuning active to allow the device to automatically to the antenna state for the respective RF exposure test configurations. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other impedance matching.

To evaluate all the tuner states, the 80 tuner states were divided among the aggregate band, mode and exposure combinations so that each combination was evaluated for at least 20 tuner states and also so that at least 3 single point SAR measurements were made for every available tuner state. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was>1.2 W/kg for a particular band/mode/exposure condition, point SAR measurements were made for all 80 states.
This Device supports LTE capabilities with overlapping transmission frequency ranges.
LTE Band 17(706.5 ㎒ ~ 713.5 ㎒) is covered by LTE Band 12 (699.7 ㎒ ~ 715.3 ㎒)
LTE Band 4 (1 710.7 ㎒ ~ 1 754.3 ㎒) is covered by LTE Band 66 (1 710.7 ㎒ ~ 1 779.3 ㎒)
LTE Band 5(824.7 ㎒ ~ 848.3 ㎒) is covered by LTE Band 26 (814.7 ㎒ ~ 848.3 ㎒)
Each both LTE bands share the same transmission path and signal characteristics
The Evaluation of Dynamic antenna tuner was only evaluated for the band with the larger transmission frequency range
We evaluated the dynamic antenna tuning of the body SAR conditions at the higher of the two cases, Hotspot SAR and Body worn SAR
The operational description contains more information about the design and implementation of the dynamic antenna tuning.

Head SAR Data

UMTS850		UMTS1900		UMTS1700		LTE B2	
RMC		RMC		RMC		QPSK, 20 MHz Bandwidth, 1RB, 0 RB Offsets	
Test Position	Right Touch	Test Position	Left Touch	Test Position	Left Touch	Test Position	Right Touch
Frequency (MHz)	836.6	Frequency (MHz)	1880	Frequency (MHz)	1732.4	Frequency (MHz)	1900
Channel	4183	Channel	9400	Channel	1412	Channel	19100
Measured 1g SAR (W/kg)	0.0778	Measured 1g SAR (W/kg)	0.103	Measured 1g SAR (W/kg)	0.105	Measured 1g SAR (W/kg)	0.115
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune (State 16)	0.13	Auto-tune (State 16)	0.171	Auto-tune (State 16)	0.164	Auto-tune (State 16)	0.129
State		State		State		State	
2	0.024	3	0.144	1	0.114	4	0.034
5	0.022	6	0.132	4	0.093	7	0.031
8	0.018	9	0.12	7	0.083	10	0.004
12	0.004	13	0.086	11	0.064	14	0.012
17	0.02	18	0.182	16	0.11	19	0.046
21	0.012	22	0.172	20	0.108	23	0.043
24	0.007	25	0.159	23	0.108	26	0.037
29	0.001	30	0.101	28	0.102	31	0.019
33	0.036	34	0.029	32	0.024	35	0.004
37	0.041	38	0.025	36	0.019	39	0.003
41	0.033	42	0.019	40	0.016	43	0.001
45	0.008	46	0.019	44	0.006	47	0.001
49	0.018	50	0.039	48	0.036	51	0.004
54	0.023	55	0.031	53	0.07	56	0.005
58	0.009	59	0.021	57	0.02	60	0.001
62	0.021	63	0.007	61	0.007	64	0.034
66	0.01	67	0.032	65	0.106	68	0.039
70	0.034	71	0.045	69	0.11	72	0.4
73	0.036	74	0.024	72	0.106	75	0.013
78	0.032	79	0.045	77	0.106	79	0.008

LTE Band 66		LTE 12		LTE 13		LTE 26	
QPSK, 20 MHz Bandwidth, 1RB, 99 RB Offsets		QPSK, 10 MHz Bandwidth, 1RB, 0 RB Offsets		QPSK, 10 MHz Bandwidth, 1RB, 0 RB Offsets		QPSK, 15 MHz Bandwidth, 1RB, 0 RB Offsets	
Test Position	Left Touch	Test Position	Right Touch	Test Position	Right Touch	Test Position	Right Touch
Frequency (MHz)	1770	Frequency (MHz)	707.5	Frequency (MHz)	782	Frequency (MHz)	841.5
Channel	132572	Channel	23095	Channel	23230	Channel	26965
Measured 1g SAR (W/kg)	0.115	Measured 1g SAR (W/kg)	0.081	Measured 1g SAR (W/kg)	0.103	Measured 1g SAR (W/kg)	0.112
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune (State 16)	0.177	Auto-tune (State 33)	0.105	Auto-tune (State 33)	0.101	Auto-tune (State 35)	0.152
State		State		State		State	
0	0.148	2	0.021	4	0.09	6	0.081
3	0.127	5	0.02	7	0.092	9	0.077
6	0.121	8	0.017	10	0.045	12	0.021
10	0.094	12	0.009	14	0.01	16	0.059
15	0.043	17	0.02	19	0.022	21	0.049
19	0.012	21	0.029	23	0.027	25	0.027
22	0.141	24	0.031	26	0.048	28	0.01
27	0.125	29	0.01	31	0.088	33	0.042
31	0.094	33	0.02	35	0.081	37	0.14
35	0.02	37	0.011	39	0.046	41	0.084
39	0.017	41	0.006	43	0.026	45	0.032
43	0.01	45	0.001	47	0.037	49	0.046
47	0.002	49	0.024	51	0.085	53	0.076
52	0.03	54	0.025	56	0.097	58	0.062
56	0.026	58	0.019	60	0.022	62	0.023
60	0.011	62	0.023	64	0.044	66	0.12
64	0.118	66	0.02	68	0.021	70	0.011
68	0.131	70	0.021	72	0.028	74	0.12
71	0.039	73	0.019	75	0.037	77	0.121
76	0.14	78	0.019	79	0.03	80	0.071

Body SAR

LTE B12		LTE 13		LTE B26		UMTS 1700	
QPSK, 10 MHz Bandwidth, 1RB, 0 RB Offsets		QPSK, 10 MHz Bandwidth, 1RB, 0 RB Offsets		QPSK, 15 MHz Bandwidth, 1RB, 36 RB Offsets		RMC	
Test Position	Rear	Test Position	Rear	Test Position	Rear	Test Position	Bottom
Spacing	10	Spacing	10	Spacing	10	Spacing	10
Frequency (MHz)	707.5	Frequency (MHz)	782	Frequency (MHz)	841.5	Frequency (MHz)	1732.4
Channel	23095	Channel	23230	Channel	26965	Channel	1412
Measured 1g SAR (W/kg)	0.046	Measured 1g SAR (W/kg)	0.268	Measured 1g SAR (W/kg)	0.413	Measured 1g SAR (W/kg)	0.445
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune (State 33)	0.2	Auto-tune (State 33)	0.414	Auto-tune (State 35)	0.801	Auto-tune (State 16)	1.054
State		State		State		State	
3	0.09	1	0.244	4	0.287	0	0.709
6	0.072	4	0.219	7	0.261	3	0.595
9	0.047	7	0.205	10	0.312	6	0.58
13	0.013	11	0.073	14	0.322	10	0.476
18	0.153	16	0.192	19	0.289	15	0.837
22	0.122	20	0.171	23	0.144	19	0.915
25	0.085	23	0.139	26	0.156	22	0.711
30	0.02	28	0.113	31	0.012	27	0.672
34	0.075	32	0.327	34	0.553	31	0.553
38	0.055	36	0.345	39	0.542	35	0.369
42	0.026	40	0.206	43	0.205	39	0.306
46	0.007	44	0.211	47	0.083	43	0.189
50	0.122	48	0.219	51	0.312	47	0.06
55	0.085	53	0.222	56	0.0271	52	0.539
59	0.036	57	0.12	60	0.083	56	0.488
63	0.009	61	0.178	64	0.304	60	0.225
67	0.166	65	0.188	68	0.312	64	0.644
71	0.167	69	0.187	72	0.304	68	0.67
74	0.103	72	0.199	75	0.258	71	0.235
79	0.168	77	0.166	80	0.223	76	0.684

UMTS850		UMTS1900		UMTS1900		UMTS1700	
RMC		RMC		RMC		RMC	
Test Position	Rear	Test Position	Bottom	Test Position	Rear	Test Position	Rear
Spacing	10mm	Spacing	10	Spacing	15	Spacing	15
Frequency (MHz)	836.6	Frequency (MHz)	1880	Frequency (MHz)	1880	Frequency (MHz)	1732.4
Channel	4183	Channel	9400	Channel	9400	Channel	1412
Measured 1g SAR (W/kg)	0.329	Measured 1g SAR (W/kg)	0.568	Measured 1g SAR (W/kg)	0.434	Measured 1g SAR (W/kg)	0.687
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune (State 16)	0.793	Auto-tune (State 16)	1.181	Auto-tune (State 16)	0.692	Auto-tune (State 0)	0.878
State		State		State		State	
2	0.38	3	0.857	1	0.685	4	0.793
5	0.367	6	0.794	4	0.599	7	0.576
8	0.323	9	0.701	7	0.554	10	0.476
12	0.097	13	0.737	11	0.441	14	0.276
17	0.19	18	1.096	16	0.614	19	0.775
21	0.193	22	1.051	20	0.617	23	0.733
24	0.166	25	0.996	23	0.613	26	0.674
29	0.035	30	0.632	28	0.689	31	0.416
33	0.632	34	0.165	32	0.151	35	0.113
37	0.717	38	0.14	36	0.122	39	0.094
41	0.571	42	0.111	40	0.108	43	0.069
45	0.176	46	0.01	44	0.051	47	0.03
49	0.364	50	0.02	48	0.229	51	0.158
54	0.36	55	0.166	53	0.178	56	0.142
58	0.21	59	0.132	57	0.138	60	0.077
62	0.052	63	0.102	61	0.065	64	0.675
66	0.6	67	0.112	65	0.685	68	0.779
70	0.618	71	0.202	69	0.682	72	0.772
73	0.256	74	0.21	72	0.671	75	0.171
78	0.627	79	0.281	80	0.621	79	0.205

LTE B2		LTE B66	
QPSK, 20 MHz Bandwidth, 1RB, 0 RB Offsets		QPSK, 20 MHz Bandwidth, 50RB, 25 RB Offsets	
Test Position	Rear	Test Position	Rear
Spacing	15	Spacing	15
Frequency (MHz)	1900	Frequency (MHz)	1770
Channel	19100	Channel	132572
Measured 1g SAR (W/kg)	0.675	Measured 1g SAR (W/kg)	0.622
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune (State 16)	0.969	Auto-tune (State 16)	0.785
State		State	
0	0.898	2	0.655
3	0.768	5	0.632
6	0.707	8	0.593
10	0.585	12	0.4
15	0.259	17	0.794
19	0.938	21	0.778
22	0.895	24	0.762
27	0.741	29	0.657
31	0.452	33	0.147
35	0.148	37	0.118
39	0.123	41	0.094
43	0.088	45	0.044
47	0.026	49	0.211
52	0.194	54	0.154
56	0.18	58	0.119
60	0.093	62	0.053
64	0.743	66	0.104
68	0.878	70	0.142
71	0.241	73	0.778
76	0.884	78	0.145

Body SAR : Single Point SAR > 1.2W/kg

LTE B66		LTE Band 2	
QPSK, 20 MHz Bandwidth, 50RB, 25 RB Offsets		QPSK, 20 MHz Bandwidth, 50RB, 49 RB Offsets	
Test Position	Bottom	Test Position	Bottom
Spacing	10	Spacing	10mm
Frequency (MHz)	1770	Frequency (MHz)	1860
Channel	132572	Channel	18700
Measured 1g SAR (W/kg)	0.815	Measured 1g SAR (W/kg)	0.882
Average Value of time Sweep (W/kg)		Average Value of time Sweep (W/kg)	
Auto-tune state16	1.22	Auto-tune (State 16)	1.32
State		State	
0	0.975	0	0.975
1	0.852	1	0.905
2	0.703	2	1.06
3	0.611	3	1.03
4	0.626	4	0.999
5	0.773	5	1.023
6	0.72	6	0.877
7	0.774	7	0.705
8	0.852	8	0.789
9	0.732	9	0.735
10	0.701	10	0.654
11	0.651	11	0.584
12	0.371	12	0.744
13	0.442	13	0.832
14	0.751	14	0.799
15	0.821	15	0.991
16	1.22	16	1.33
17	0.942	17	1.14
18	1.03	18	0.951
19	1.113	19	0.902
20	1.019	20	0.883
21	0.889	21	0.936
22	0.851	22	0.701
23	0.913	23	0.759
24	0.98	24	0.817
25	0.951	25	0.654
26	0.977	26	0.601

27	0.921	27	0.554
28	0.821	28	0.584
29	0.723	29	0.548
30	0.701	30	0.501
31	0.569	31	0.492
32	0.457	32	0.411
33	0.405	33	0.339
34	0.411	34	0.321
35	0.523	35	0.382
36	0.61	36	0.32
37	0.762	37	0.267
38	0.652	38	0.384
39	0.542	39	0.305
40	0.358	40	0.223
41	0.211	41	0.213
42	0.198	42	0.287
43	0.235	43	0.256
44	0.233	44	0.189
45	0.049	45	0.114
46	0.095	46	0.009
47	0.08	47	0.102
48	0.009	48	0.09
49	0.007	49	0.19
50	0.102	50	0.188
51	0.21	51	0.257
52	0.424	52	0.364
53	0.399	53	0.382
54	0.191	54	0.413
55	0.382	55	0.322
56	0.345	56	0.421
57	0.322	57	0.369
58	0.112	58	0.333
59	0.318	59	0.301
60	0.298	60	0.234
61	0.178	61	0.215
62	0.241	62	0.145
63	0.301	63	0.102
64	0.266	64	0.142
65	0.283	65	0.201
66	0.277	66	0.253
67	0.3	67	0.21
68	0.264	68	0.115

69	0.309	69	0.211
70	0.342	70	0.325
71	0.435	71	0.215
72	0.501	72	0.122
73	0.312	73	0.455
74	0.345	74	0.451
75	0.41	75	0.402
76	0.364	76	0.399
77	0.214	77	0.298
78	0.301	78	0.38
79	0.299	79	0.21

17. Measurement Uncertainty

The measured SAR was <1.5 W/Kg for 1g SAR and <3.75 W/Kg For 10g SAR for all frequency bands. Therefore, per KDB Publication 865664 D01v01r04, the extended measurement uncertainty analysis per IEEE1528-2013 was not required.

18. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	Triple Modular Phantom	-	N/A	N/A	N/A
SPEAG	SAM Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F12/5K9GA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/59CHA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/59RAA1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F13/5R4XF1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F11/5K3RA1/C/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F12/5K9GA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/59CHA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/59RAA1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F13/5R4XF1/A/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F11/5K3RA1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1206 0513	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	010963	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	011578	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1338 1332	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	1203 0309	N/A	N/A	N/A
SPEAG	DAE4	1417	01/25/2019	Annual	01/25/2020
SPEAG	DAE4	652	04/17/2019	Annual	04/17/2020
SPEAG	DAE4	648	05/23/2019	Annual	05/23/2020
SPEAG	DAE3	504	02/22/2019	Annual	02/22/2020
SPEAG	DAE3	446	07/18/2019	Annual	07/18/2020
SPEAG	E-Field Probe EX3DV4	3797	11/22/2018	Annual	11/22/2019
SPEAG	E-Field Probe EX3DV4	3967	02/01/2019	Annual	02/01/2020
SPEAG	E-Field Probe EX3DV4	3863	05/15/2019	Annual	05/15/2020
SPEAG	E-Field Probe EX3DV4	7370	08/29/2019	Annual	08/29/2020
SPEAG	E-Field Probe EX3DV4	3903	08/29/2019	Annual	08/29/2020
SPEAG	E-Field Probe EX3DV4	3968	09/27/2019	Annual	09/27/2020
SPEAG	Dipole D750V3	1014	05/27/2019	Annual	05/27/2020
SPEAG	Dipole D835V2	441	08/23/2019	Annual	08/23/2020
SPEAG	Dipole D1800V2	2d007	11/19/2018	Annual	11/19/2019
SPEAG	Dipole D1900V2	5d032	02/21/2019	Annual	02/21/2020
SPEAG	Dipole D2450V2	743	01/28/2019	Annual	01/28/2020
SPEAG	Dipole D2600V2	1015	11/20/2018	Annual	11/20/2019
SPEAG	Dipole D5GHzV2	1253	11/22/2018	Annual	11/22/2019
Agilent	Power Meter E4419B	MY41291386	10/11/2018	Annual	10/11/2019
Agilent	Power Meter E4419B	MY41291386	10/07/2019	Annual	10/07/2020
Agilent	Power Meter N1911A	MY45101406	09/10/2019	Annual	09/10/2020
Agilent	Power Sensor 8481A	SG1091286	10/11/2018	Annual	10/11/2019
Agilent	Power Sensor 8481A	MY41090873	10/11/2018	Annual	10/11/2019
Agilent	Power Sensor 8481A	SG1091286	10/07/2019	Annual	10/07/2020
Agilent	Power Sensor 8481A	MY41090873	10/07/2019	Annual	10/07/2020
Agilent	Power Sensor N1921A	MY55220026	09/06/2019	Annual	09/06/2020
SPEAG	DAKS 3.5	1031	04/16/2019	Annual	04/16/2020
SPEAG	VNA-R140	0050813	03/11/2019	Annual	03/11/2020
Agilent	WIRELESS COMMUNICATION E5515C	MY48361100	10/02/2018	Annual	10/02/2019
Agilent	WIRELESS COMMUNICATION E5515C	MY48361100	10/07/2019	Annual	10/07/2020
Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
Agilent	Signal Generator N5182A	MY47070230	05/08/2019	Annual	05/08/2020
Agilent	11636B/Power Divider	58698	02/28/2019	Annual	03/06/2020
HP	11636B/Power Divider	07048	05/16/2019	Annual	05/16/2020

HP	11636B/Power Divider	06999	05/16/2019	Annual	05/16/2020
TESTO	175-H1/Thermometer	40331915309	01/29/2019	Annual	01/29/2020
TESTO	175-H1/Thermometer	40331915309	01/29/2019	Annual	01/29/2020
TESTO	175-H1/Thermometer	40331922309	01/29/2019	Annual	01/29/2020
TESTO	175-H1/Thermometer	40332651310	01/29/2019	Annual	01/29/2020
TESTO	175-H1/Thermometer	40331949309	01/29/2019	Annual	01/29/2020
EMPOWER	RF Power Amplifier	1011	10/11/2018	Annual	10/11/2019
EMPOWER	RF Power Amplifier	1011	10/08/2019	Annual	10/08/2020
MICRO LAB	LP Filter / LA-15N	10453	10/11/2018	Annual	10/11/2019
MICRO LAB	LP Filter / LA-30N	-	10/11/2018	Annual	10/11/2019
MICRO LAB	LP Filter / LA-60N	32011	10/11/2018	Annual	10/11/2019
MICRO LAB	LP Filter / LA-15N	10453	10/07/2019	Annual	10/07/2020
MICRO LAB	LP Filter / LA-30N	-	10/07/2019	Annual	10/07/2020
MICRO LAB	LP Filter / LA-60N	32011	10/07/2019	Annual	10/07/2020
Apitech	Attenuator (3dB) 18B-03	1	06/04/2019	Annual	06/04/2020
Agilent	Attenuator (20dB) 33340C	1642	05/08/2019	Annual	05/08/2020
Agilent	Directional Bridge	3140A03878	06/12/2019	Annual	06/12/2020
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/31/2018	Annual	10/31/2019
HP	Dual Directional Coupler	16072	10/11/2018	Annual	10/11/2019
HP	Dual Directional Coupler	16072	10/07/2019	Annual	10/07/2020
Anritsu	Radio Communication Tester MT8820C	6201074225	03/05/2019	Annual	03/05/2020
Anritsu	Radio Communication Tester MT8821C	6201502997	08/09/2019	Annual	08/09/2020
R&S	Bluetooth CBT	100272	03/04/2019	Annual	03/04/2020

* The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Verification measurement is performed by HCT Lab. before each test. The brain/body simulating material is calibrated by HCT using the DAKS 3.5 to determine the conductivity and permittivity (dielectric constant) of the brain/body-equivalent material.

19. Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 2005.

These measurements were taken to simulate the RF effects 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 abortion and distribution of electromagnetic energy in the body are very complex phenomena the 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.

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Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/21/2019
Plot No.:	1

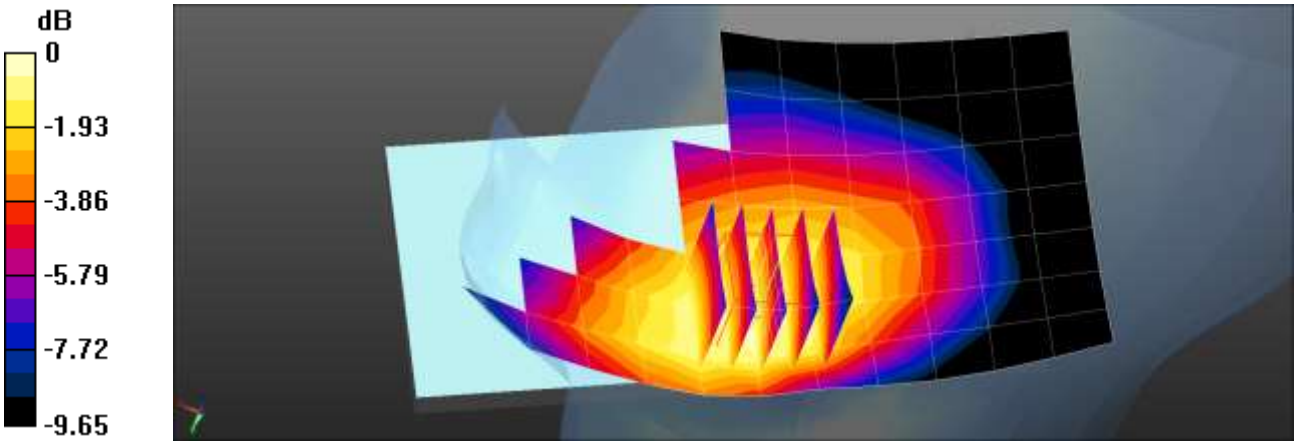
Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.925 S/m; ε_r = 40.401; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.09, 9.09, 9.09); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Head Right Touch 190ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0862 W/kg

GSM850 Head Right Touch 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.223 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0920 W/kg
SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.057 W/kg
Maximum value of SAR (measured) = 0.0869 W/kg



0 dB = 0.0869 W/kg = −10.61 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/21/2019
Plot No.:	2

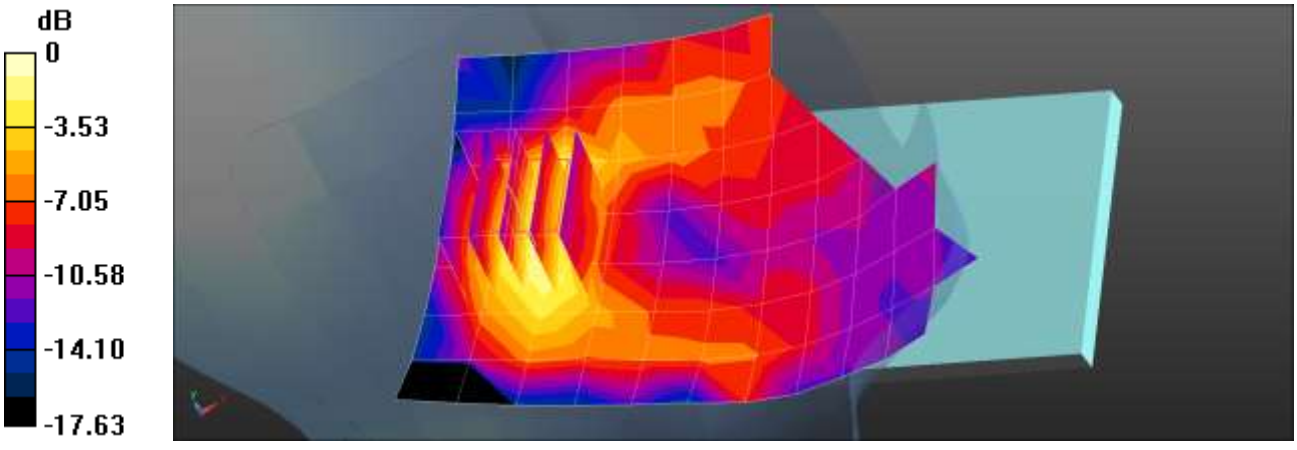
Communication System: UID 0, GSM 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.403 S/m; ε_r = 38.252; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.82, 7.82, 7.82); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.8 (8);

GSM1900 Head Left Tilt 661ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0264 W/kg

GSM1900 Head Left Tilt 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.663 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.0380 W/kg
SAR(1 g) = 0.023 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.0323 W/kg



0 dB = 0.0323 W/kg = −14.91 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/10/2019
Plot No.:	3

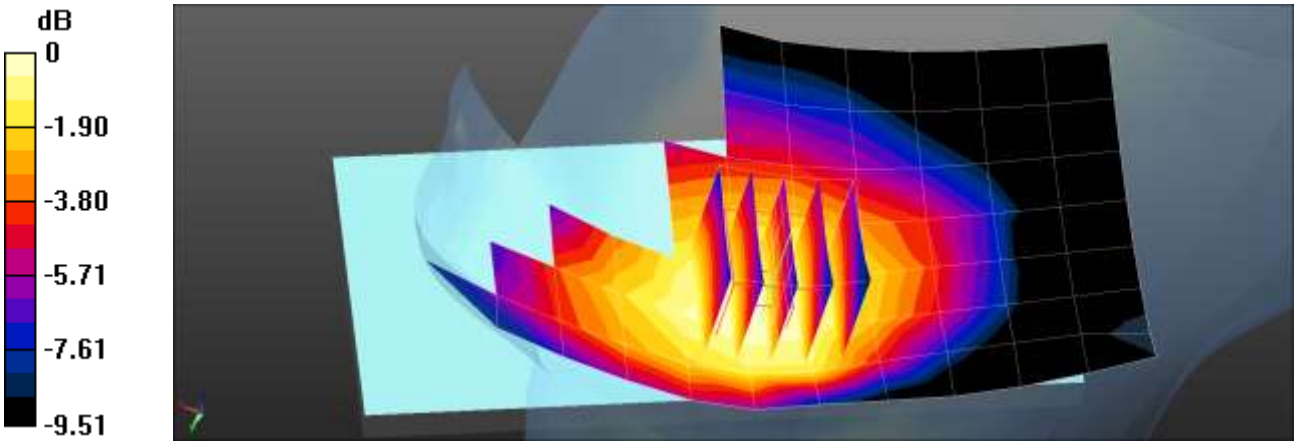
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.93 S/m; ε_r = 42.302; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.82, 9.82, 9.82); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 5 Head Right Touch 4183ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0929 W/kg

WCDMA Band 5 Head Right Touch 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.896 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.078 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.0928 W/kg



0 dB = 0.0928 W/kg = −10.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.8 ℃
Ambient Temperature:	20.2 ℃
Test Date:	10/15/2019
Plot No.:	4

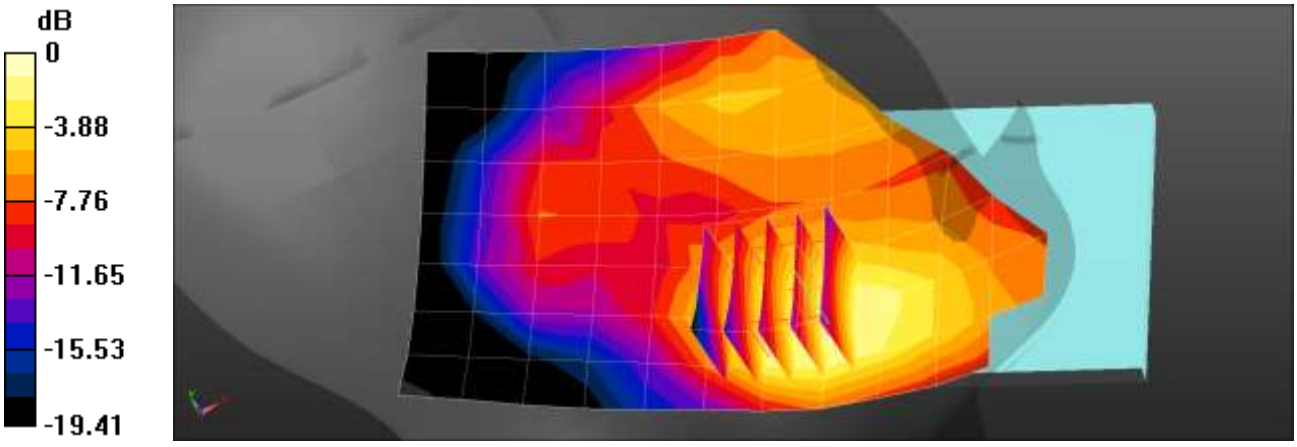
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.367 S/m; ε_r = 37.643; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.43, 8.43, 8.43); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA Band 4 Head Left Touch 1412ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.126 W/kg

WCDMA Band 4 Head Left Touch 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.301 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.105 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.142 W/kg



0 dB = 0.142 W/kg = −8.48 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.3 ℃
Test Date:	10/14/2019
Plot No.:	5

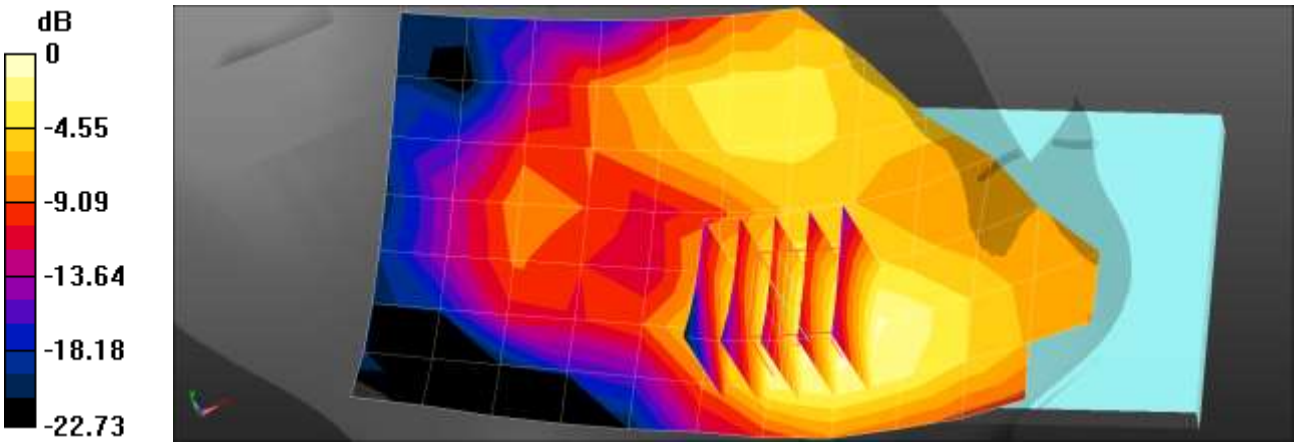
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.421 S/m; ε_r = 38.5; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.09, 8.09, 8.09); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA Band 2 Head Left Touch 9400ch/Area Scan (8x14x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.127 W/kg

WCDMA Band 2 Head Left Touch 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.830 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.062 W/kg
Maximum value of SAR (measured) = 0.140 W/kg



0 dB = 0.140 W/kg = −8.54 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.3 ℃
Test Date:	10/14/2019
Plot No.:	6

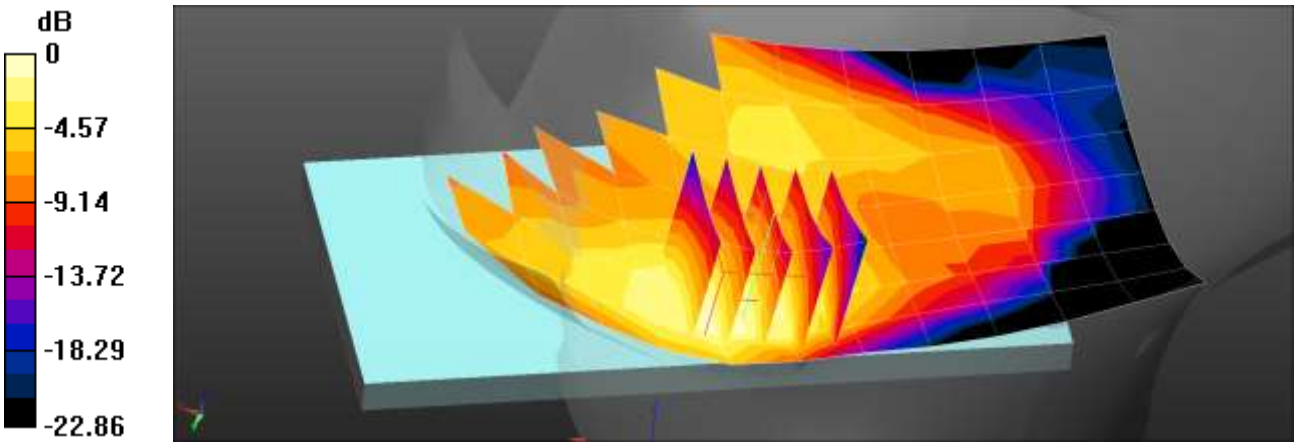
Communication System: UID 0, LTE Band2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.417 S/m; ε_r = 38.662; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.09, 8.09, 8.09); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 2 Head Right Touch QPSK 20MHz 1RB 0offset 19100ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.135 W/kg

LTE Band 2 Head Right Touch QPSK 20MHz 1RB 0offset 19100ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.508 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.070 W/kg
Maximum value of SAR (measured) = 0.161 W/kg



0 dB = 0.161 W/kg = −7.93 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	21.8 ℃
Test Date:	09/11/2019
Plot No.:	7

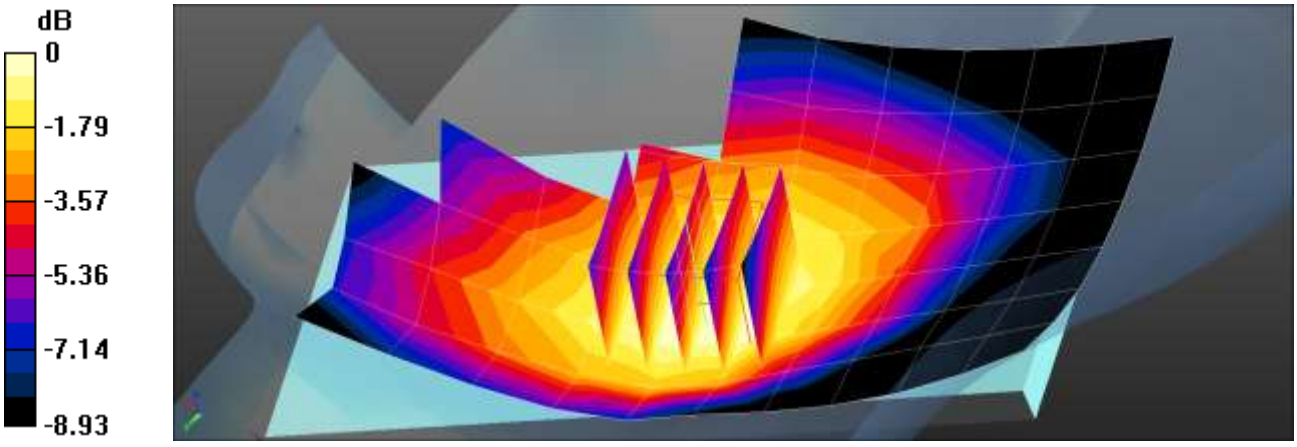
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.87 S/m; ε_r = 42.97; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.34, 9.34, 9.34); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

LTE 12 Head Right Touch QPSK 10MHz 1RB 0offset 23095ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0916 W/kg

LTE 12 Head Right Touch QPSK 10MHz 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.835 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.101 W/kg
SAR(1 g) = 0.081 W/kg; SAR(10 g) = 0.064 W/kg
Maximum value of SAR (measured) = 0.0944 W/kg



0 dB = 0.0944 W/kg = −10.25 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.3 ℃
Test Date:	09/12/2019
Plot No.:	8

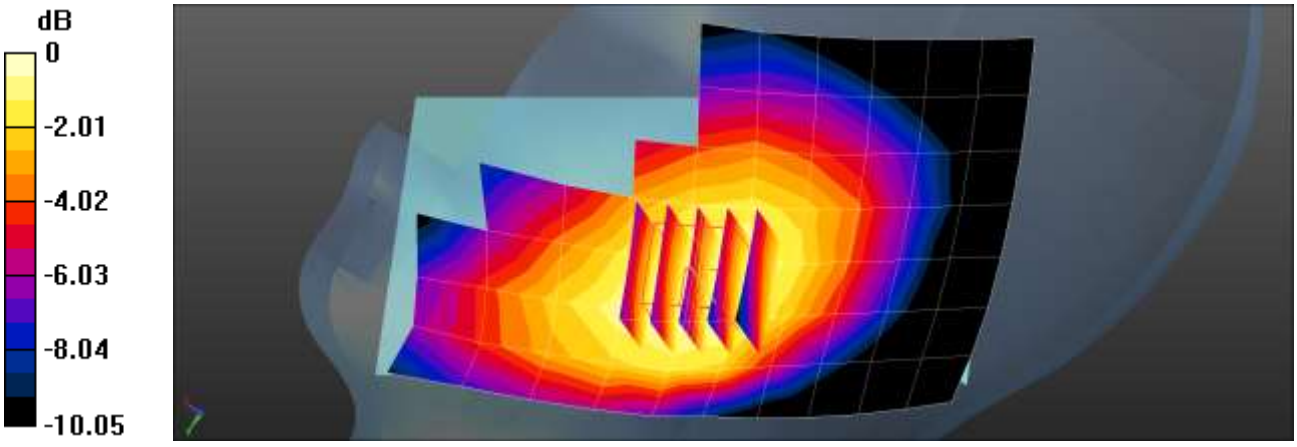
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.912 S/m; ε_r = 41.808; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.34, 9.34, 9.34); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

LTE 13 Head Right Touch QPSK 10MHz 1RB 0offset 23230ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.118 W/kg

LTE 13 Head Right Touch QPSK 10MHz 1RB 0offset 23230ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.011 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.079 W/kg
Maximum value of SAR (measured) = 0.122 W/kg



0 dB = 0.122 W/kg = −9.14 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/26/2019
Plot No.:	9

DUT: SM-G770F/DS; Type: Bar

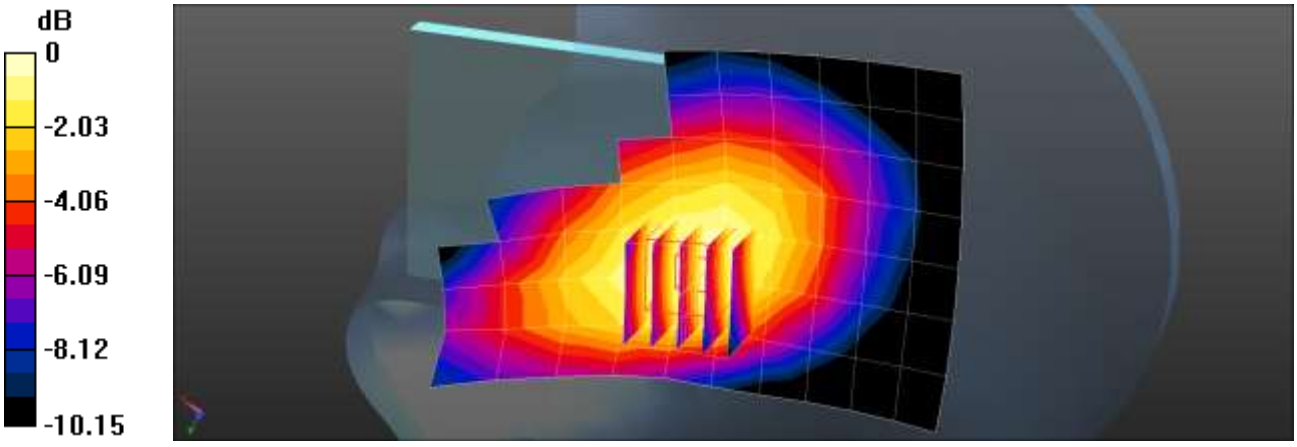
Communication System: UID 0, LTE Band 26 (0); Frequency: 841.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.926 S/m; ε_r = 40.902; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.09, 9.09, 9.09); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

LTE 26 Head Right Touch QPSK 15MHz 1RB 36offset 26965ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.131 W/kg

LTE 26 Head Right Touch QPSK 15MHz 1RB 36offset 26965ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.703 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.148 W/kg
SAR(1 g) = 0.112 W/kg; SAR(10 g) = 0.085 W/kg
Maximum value of SAR (measured) = 0.136 W/kg



0 dB = 0.136 W/kg = −8.66 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	10/11/2019
Plot No.:	10

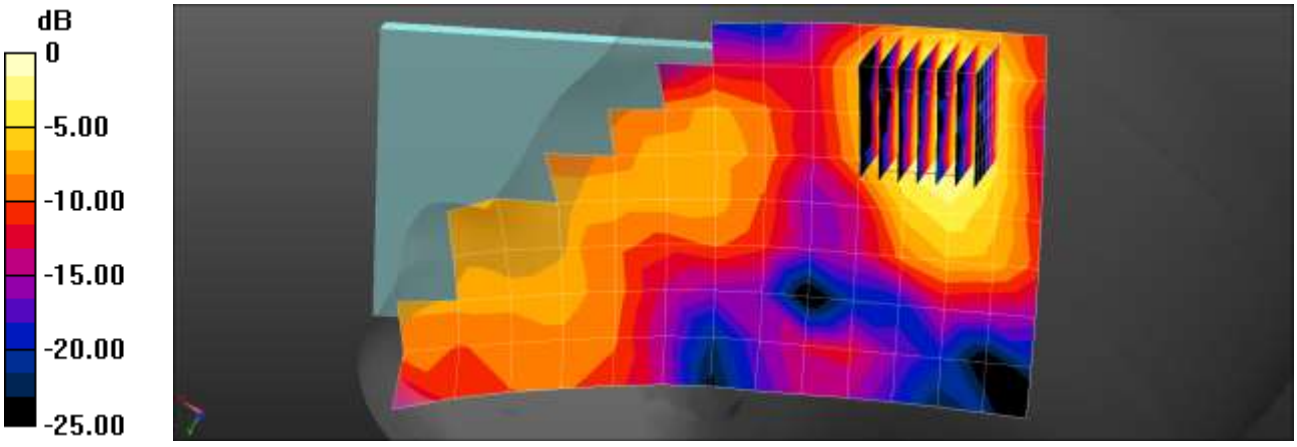
Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2593 MHz; σ = 1.946 S/m; ε_r = 37.883; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.36, 7.36, 7.36); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Head Right Tilt QPSK 20MHz 1RB 49offset 40620ch/Area Scan (9x16x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.121 W/kg

LTE Band 41 Head Right Tilt QPSK 20MHz 1RB 49offset 40620ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.254 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.158 W/kg
SAR(1 g) = 0.077 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.125 W/kg



0 dB = 0.125 W/kg = −9.03 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.8 ℃
Ambient Temperature:	20.2 ℃
Test Date:	10/15/2019
Plot No.:	11

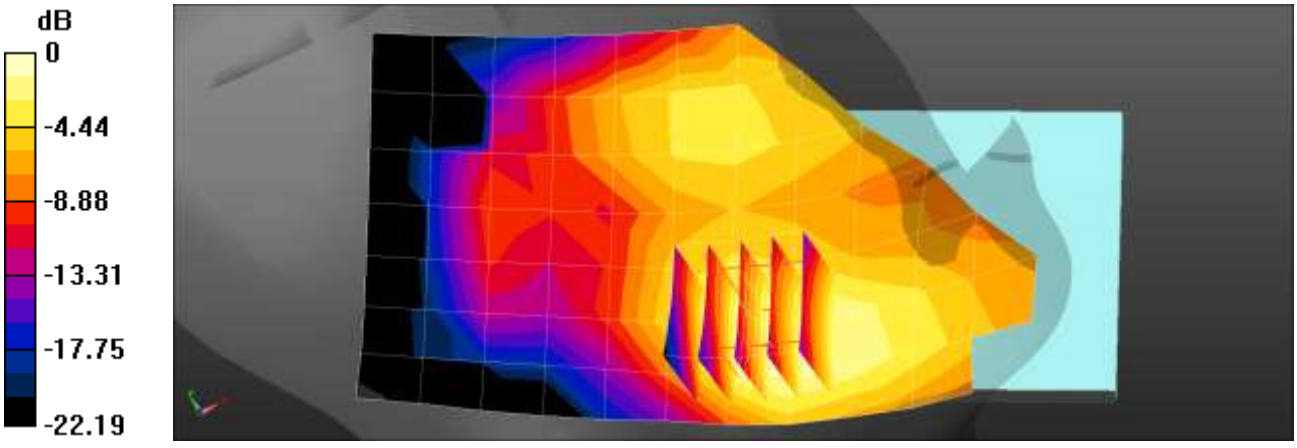
Communication System: UID 0, LTE Band66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.42 S/m; ε_r = 37.795; ρ = 1000 kg/m^3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.43, 8.43, 8.43); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 66 Head Left Touch QPSK 20MHz 1RB 99offset 132572ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.127 W/kg

LTE Band 66 Head Left Touch QPSK 20MHz 1RB 99offset 132572ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.097 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.179 W/kg
SAR(1 g) = 0.115 W/kg; SAR(10 g) = 0.071 W/kg
Maximum value of SAR (measured) = 0.156 W/kg



0 dB = 0.156 W/kg = −8.07 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.4 ℃
Ambient Temperature:	20.6 ℃
Test Date:	10/29/2019
Plot No.:	12

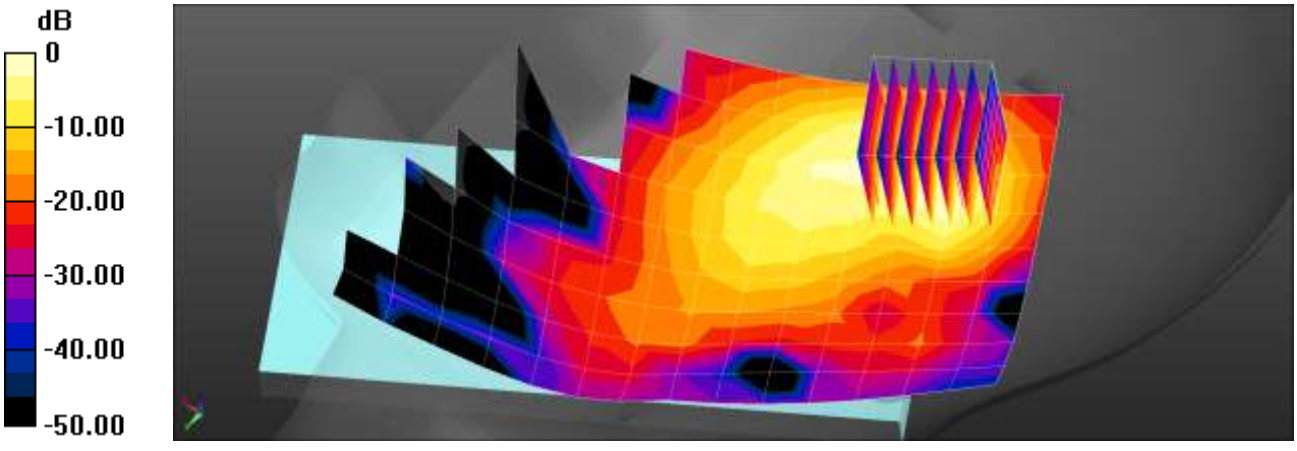
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.76 S/m; ε_r = 38.551; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.6, 7.6, 7.6); Calibrated: 2019-09-27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Twin-SAM V8.0_20171017(Left2)
- Measurement SW: DASY52, Version 52.10 (2);

802.11b Head Right Touch 1Mbps 1ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (measured) = 0.974 W/kg
802.11b Head Right Touch 1Mbps 1ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.955 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.672 W/kg; SAR(10 g) = 0.280 W/kg
Maximum value of SAR (measured) = 1.26 W/kg



0 dB = 0.974 W/kg = −0.12 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3 ℃
Ambient Temperature:	20.4 ℃
Test Date:	10/24/2019
Plot No.:	13

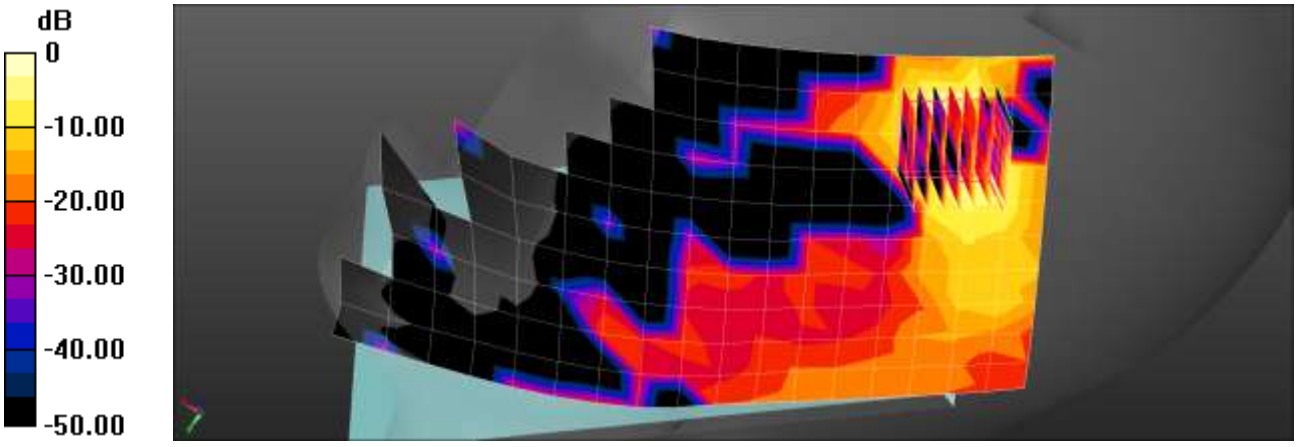
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5755 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5755 MHz; σ = 5.181 S/m; ε_r = 36.198; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.08, 5.08, 5.08); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Twin-SAM V4.0 (Left-Right)
- Measurement SW: DASY52, Version 52.8 (8);

802.11n40 Head Right Tilt MCS0 151ch/Area Scan (11x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.728 W/kg

802.11n40 Head Right Tilt MCS0 151ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 0 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.246 W/kg; SAR(10 g) = 0.056 W/kg
Maximum value of SAR (measured) = 0.827 W/kg



0 dB = 0.728 W/kg = −1.38 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/22/2019
Plot No.:	14

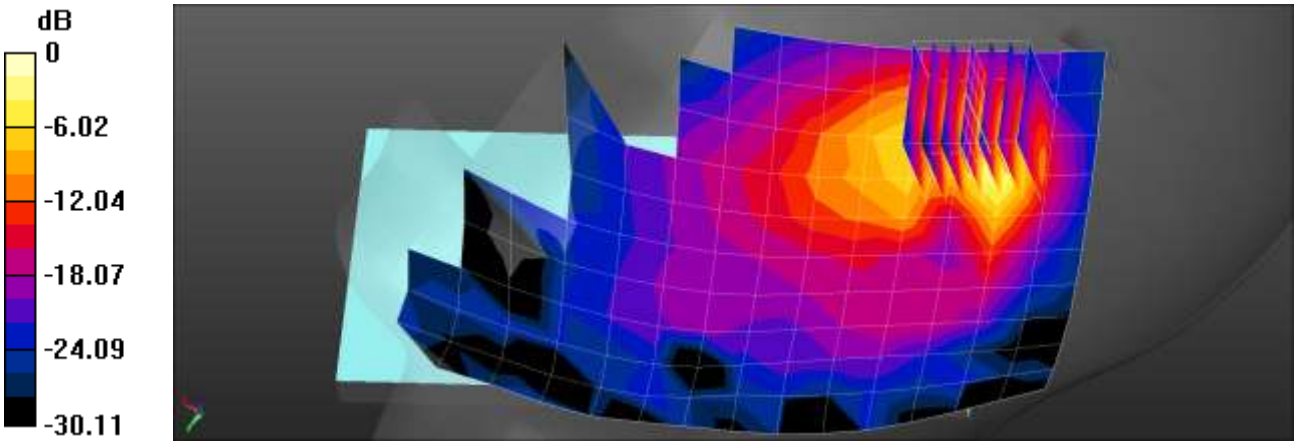
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.827 S/m; ε_r = 38.216; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.23, 7.23, 7.23); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Twin-SAM V8.0_20171017(Left2)
- Measurement SW: DASY52, Version 52.10 (2);

Bluetooth Head Right Tilt DH-5 78ch/Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.399 W/kg

Bluetooth Head Right Tilt DH-5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.970 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.765 W/kg
SAR(1 g) = 0.282 W/kg; SAR(10 g) = 0.110 W/kg
Maximum value of SAR (measured) = 0.558 W/kg



0 dB = 0.558 W/kg = −2.53 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/21/2019
Plot No.:	15

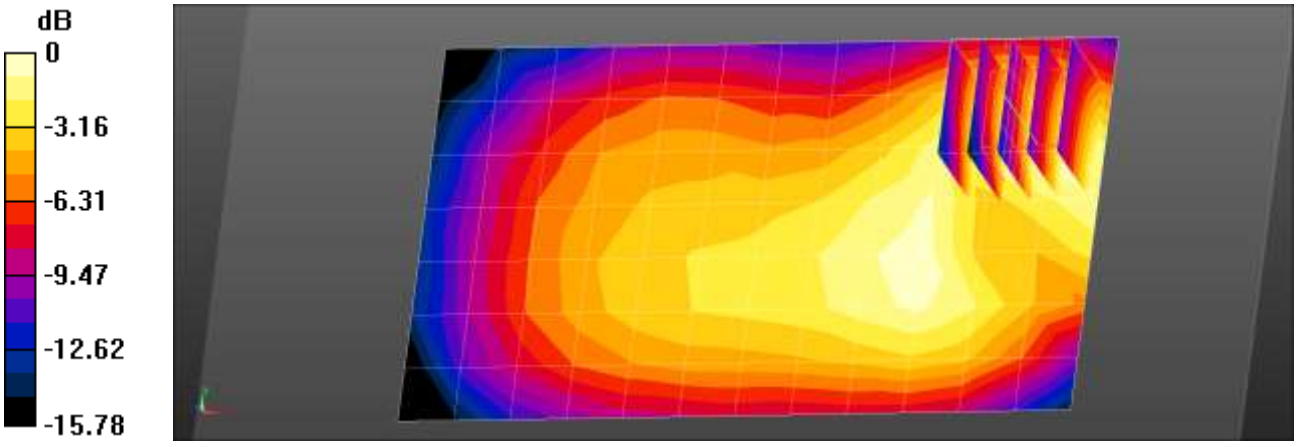
Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.961 S/m; ε_r = 56.256; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.16, 9.16, 9.16); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Body Rear body worn 190ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.151 W/kg

GSM850 Body Rear body worn 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.143 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.176 W/kg
SAR(1 g) = 0.109 W/kg; SAR(10 g) = 0.068 W/kg
Maximum value of SAR (measured) = 0.152 W/kg



0 dB = 0.152 W/kg = −8.18 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/22/2019
Plot No.:	16

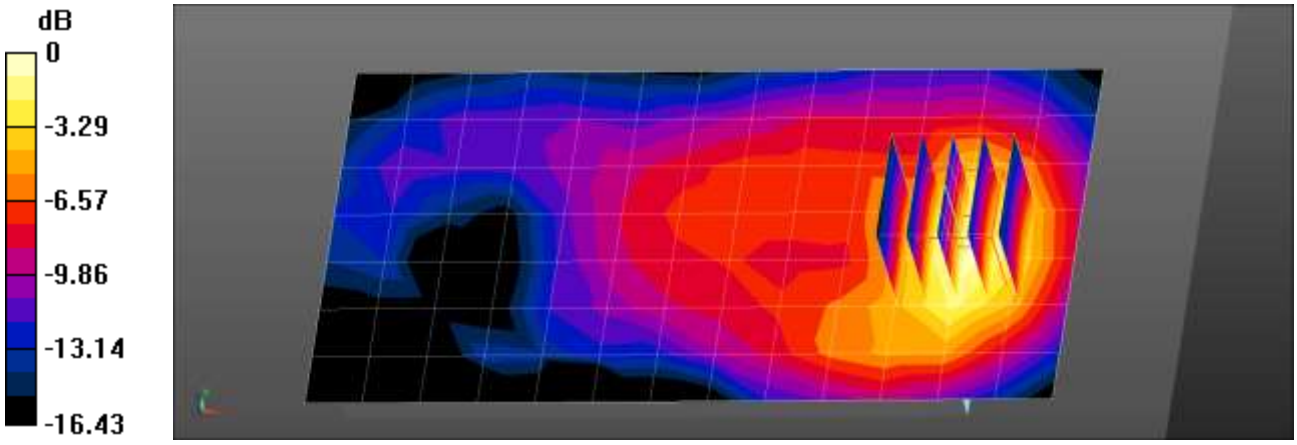
Communication System: UID 0, GSM 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.545 S/m; ε_r = 53.347; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

GSM1900 Body Rear body worn 661ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.259 W/kg

GSM1900 Body Rear body worn 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.547 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.310 W/kg
SAR(1 g) = 0.185 W/kg; SAR(10 g) = 0.105 W/kg
Maximum value of SAR (measured) = 0.267 W/kg



0 dB = 0.267 W/kg = −5.73 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/10/2019
Plot No.:	17

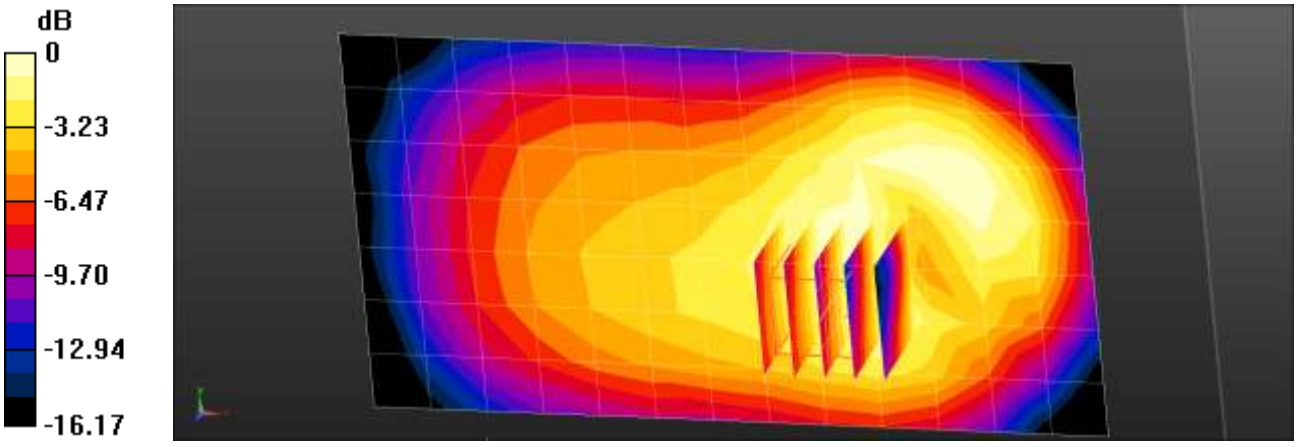
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.962 S/m; ε_r = 56.232; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 5 Body worn Rear 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.195 W/kg

WCDMA Band 5 Body worn Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.40 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.162 W/kg; SAR(10 g) = 0.114 W/kg
Maximum value of SAR (measured) = 0.203 W/kg



0 dB = 0.203 W/kg = −6.93 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.8 ℃
Test Date:	10/11/2019
Plot No.:	18

DUT: SM-G770F/DS; Type: Bar

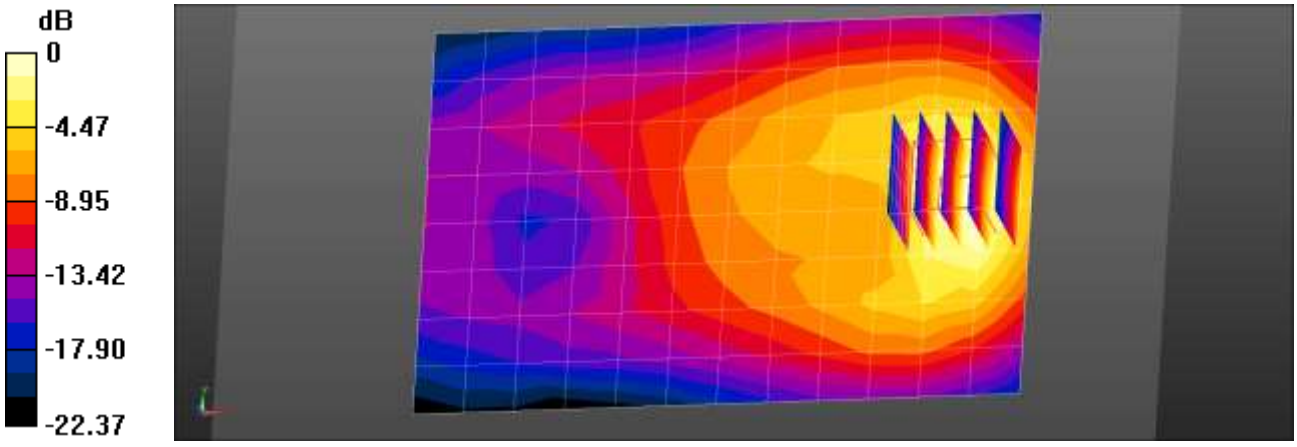
Communication System: UID 0, WCDMA IV (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.403 S/m; ε_r = 54.967; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 4 Body-worn Rear 1312ch/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.843 W/kg

WCDMA Band 4 Body-worn Rear 1312ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.291 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.687 W/kg; SAR(10 g) = 0.398 W/kg
Maximum value of SAR (measured) = 0.966 W/kg



0 dB = 0.843 W/kg = −0.74 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.8 ℃
Test Date:	10/11/2019
Plot No.:	19

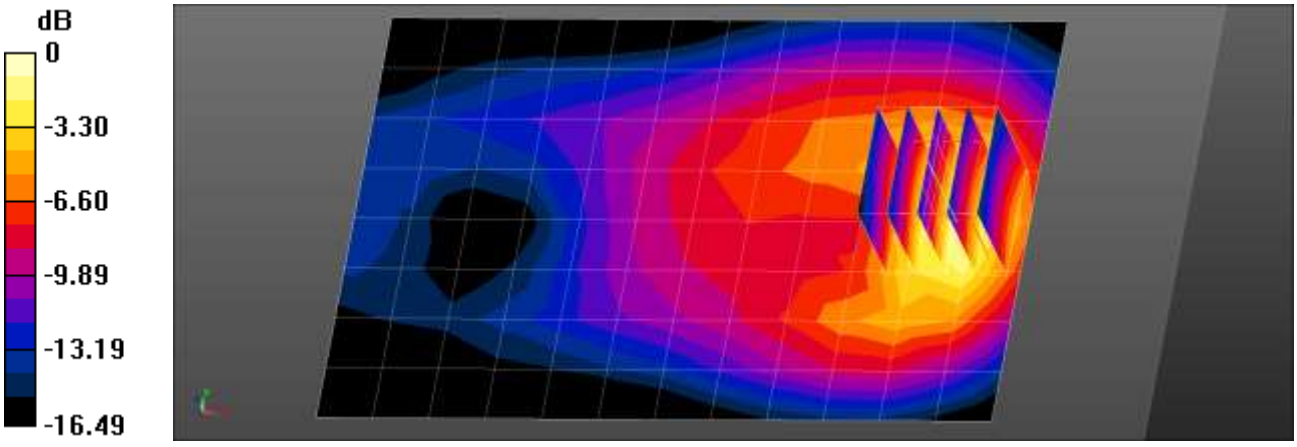
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.421 S/m; ε_r = 54.94; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 4 Body-worn Rear 1412ch/Area Scan (9x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.813 W/kg

WCDMA Band 4 Body-worn Rear 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.230 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.668 W/kg; SAR(10 g) = 0.384 W/kg
Maximum value of SAR (measured) = 0.948 W/kg



0 dB = 0.948 W/kg = −0.23 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/22/2019
Plot No.:	20

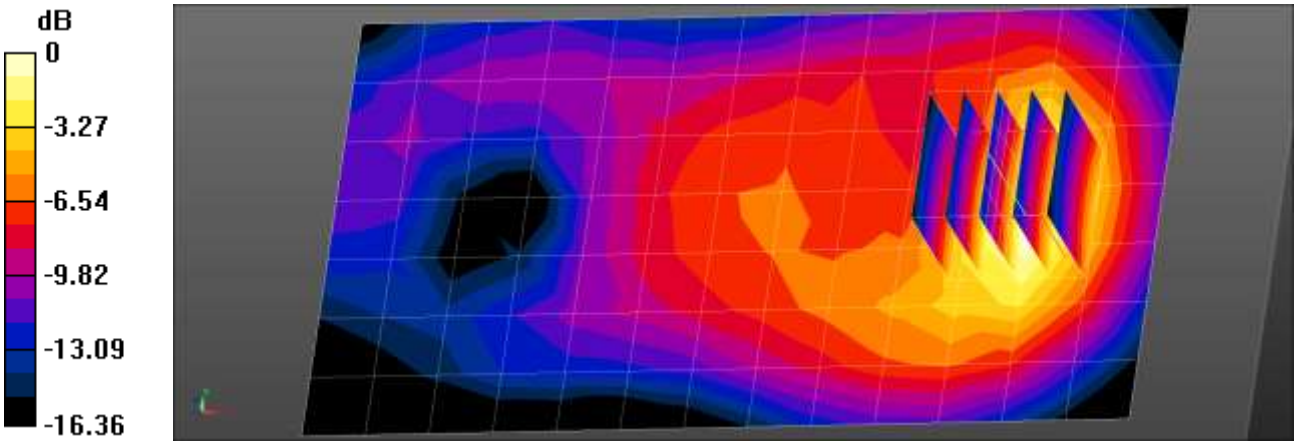
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.545 S/m; ε_r = 53.347; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 2 Body worn Rear 9400ch/Area Scan (8x14x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.577 W/kg

WCDMA Band 2 Body worn Rear 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.077 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.724 W/kg
SAR(1 g) = 0.434 W/kg; SAR(10 g) = 0.247 W/kg
Maximum value of SAR (measured) = 0.624 W/kg



0 dB = 0.624 W/kg = −2.05 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/15/2019
Plot No.:	21

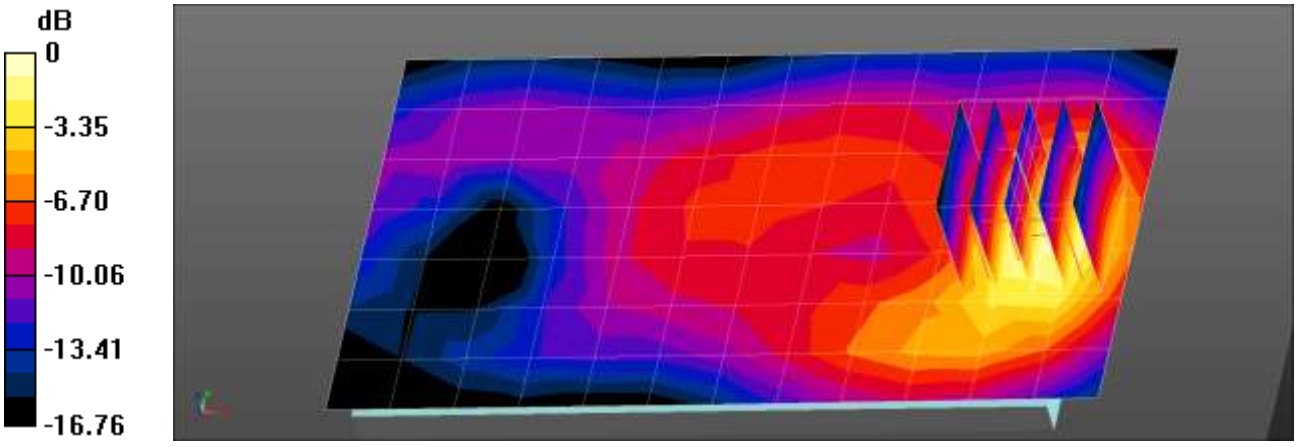
Communication System: UID 0, LTE Band 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.525 S/m; ε_r = 53.56; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.99, 7.99, 7.99); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE Band 2 Body Worn Rear QPSK 20MHz 1RB 0offset 19100ch/Area Scan (8x13x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.807 W/kg

LTE Band 2 Body Worn Rear QPSK 20MHz 1RB 0offset 19100ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.99 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.675 W/kg; SAR(10 g) = 0.379 W/kg
Maximum value of SAR (measured) = 0.978 W/kg



0 dB = 0.978 W/kg = −0.10 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	21.8 ℃
Test Date:	09/11/2019
Plot No.:	22

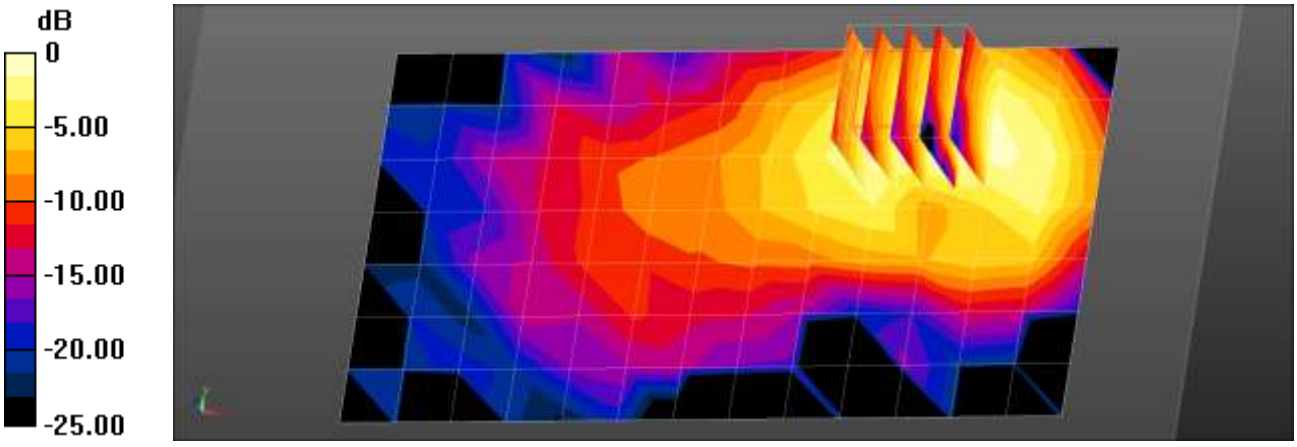
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.942 S/m; ε_r = 56.7; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 12 Body worn Rear QPSK 10MHz 1RB 0offset 23095ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0269 W/kg

LTE 12 Body worn Rear QPSK 10MHz 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.906 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.0370 W/kg
SAR(1 g) = 0.022 W/kg; SAR(10 g) = 0.013 W/kg
Maximum value of SAR (measured) = 0.0306 W/kg



0 dB = 0.0306 W/kg = −15.14 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.3 ℃
Test Date:	09/12/2019
Plot No.:	23

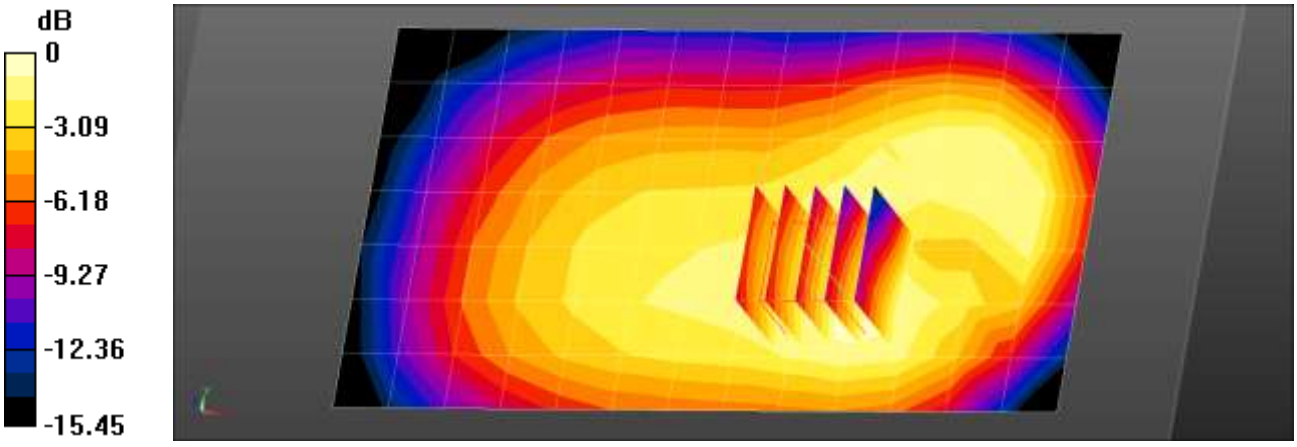
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.981 S/m; ε_r = 55.92; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 13 Body worn Rear QPSK 10MHz 1RB 0offset 23230ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.190 W/kg

LTE 13 Body worn Rear QPSK 10MHz 1RB 0offset 23230ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.06 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.155 W/kg; SAR(10 g) = 0.112 W/kg
Maximum value of SAR (measured) = 0.188 W/kg



0 dB = 0.188 W/kg = −7.26 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/10/2019
Plot No.:	24

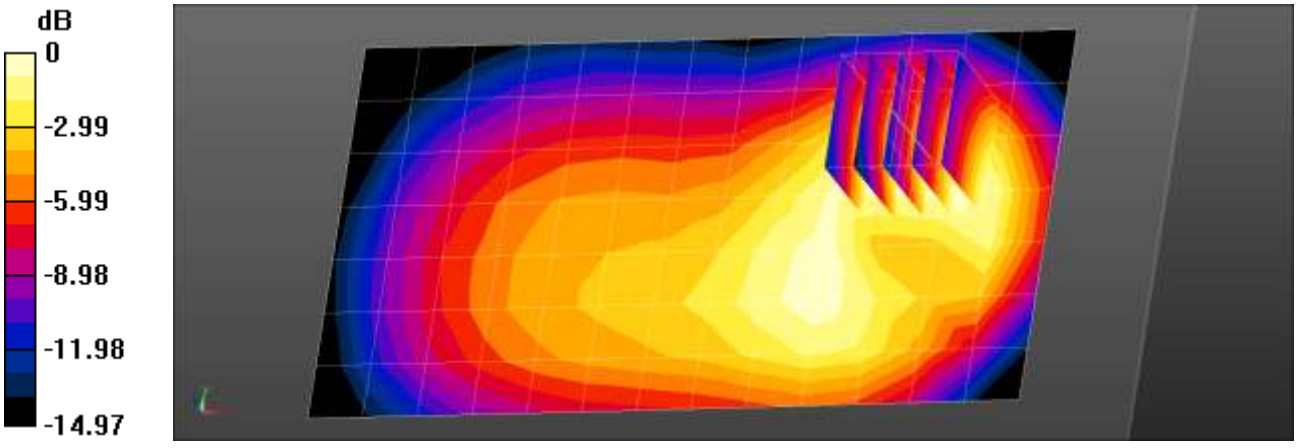
Communication System: UID 0, LTE Band 26 (0); Frequency: 841.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.966 S/m; ε_r = 56.169; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 26 Body worn Rear QPSK 15MHz 1RB 36offset 26965ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.264 W/kg

LTE 26 Body worn Rear QPSK 15MHz 1RB 36offset 26965ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.10 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.199 W/kg; SAR(10 g) = 0.124 W/kg
Maximum value of SAR (measured) = 0.280 W/kg



0 dB = 0.280 W/kg = −5.53 dBW/kg

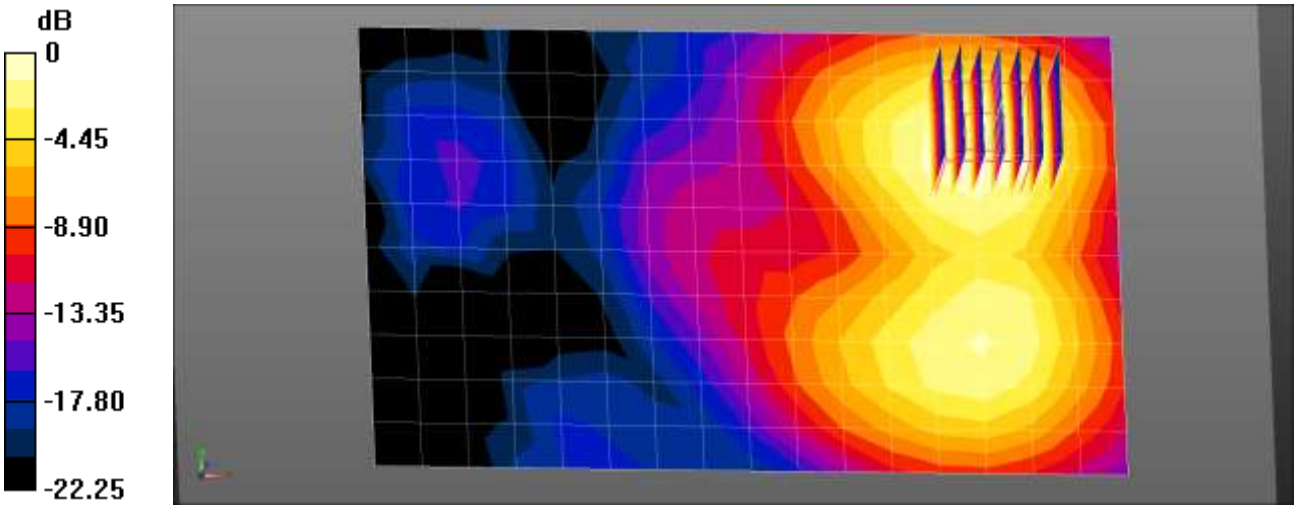
Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 ℃
Ambient Temperature:	20.7 ℃
Test Date:	10/29/2019
Plot No.:	25

Communication System: UID 0, LTE Band 41 (FCC) (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2593 MHz; σ = 2.109 S/m; ε_r = 53.251; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.34, 7.34, 7.34) ; Calibrated: 2019-05-15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 41 Body worn Rear QPSK 20MHz 1RB 49offset 40620ch/Area Scan (11x17x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.722 W/kg
LTE 41 Body worn Rear QPSK 20MHz 1RB 49offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.597 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.978 W/kg
SAR(1 g) = 0.478 W/kg; SAR(10 g) = 0.253 W/kg
Maximum value of SAR (measured) = 0.770 W/kg



0 dB = 0.770 W/kg = −1.14 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.8 ℃
Test Date:	10/11/2019
Plot No.:	26

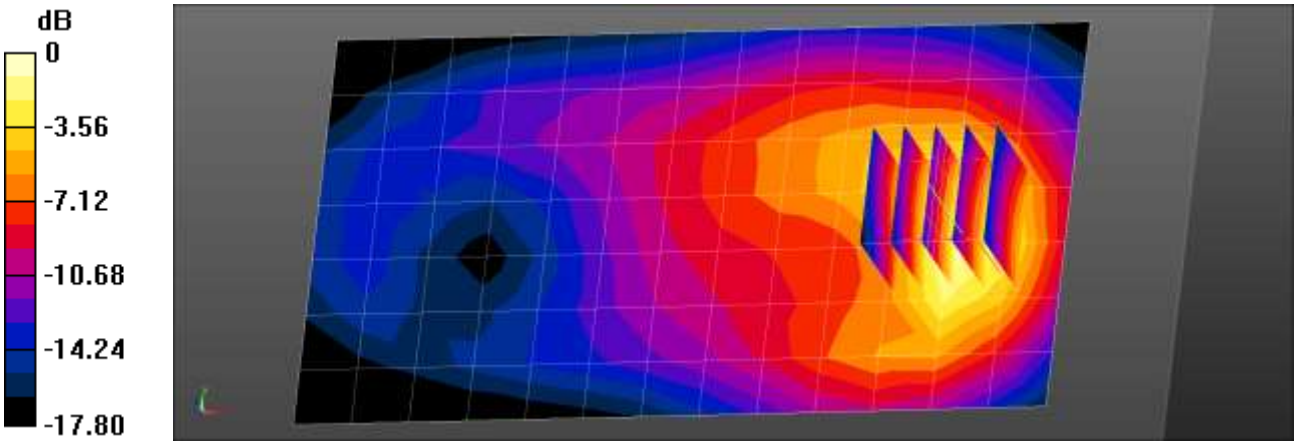
Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.458 S/m; ε_r = 54.794; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 66 Body-worn Rear QPSK 20MHz 1RB 99offset 132572ch/Area Scan (8x14x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.835 W/kg

LTE 66 Body-worn Rear QPSK 20MHz 1RB 99offset 132572ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.898 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.622 W/kg; SAR(10 g) = 0.354 W/kg
Maximum value of SAR (measured) = 0.893 W/kg



0 dB = 0.893 W/kg = −0.49 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/18/2019
Plot No.:	27

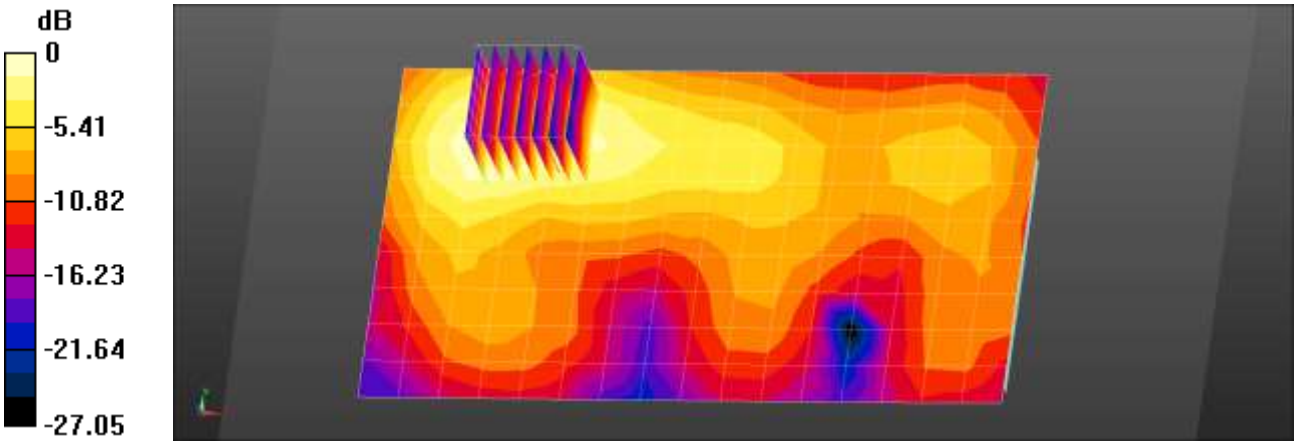
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.956 S/m; ε_r = 53.608; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.27, 7.27, 7.27); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

802.11n Body-worn Rear MCS8 11ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.145 W/kg

802.11n Body-worn Rear MCS8 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.343 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.097 W/kg; SAR(10 g) = 0.052 W/kg
Maximum value of SAR (measured) = 0.156 W/kg



0 dB = 0.145 W/kg = −8.38 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.0 ℃
Test Date:	10/25/2019
Plot No.:	28

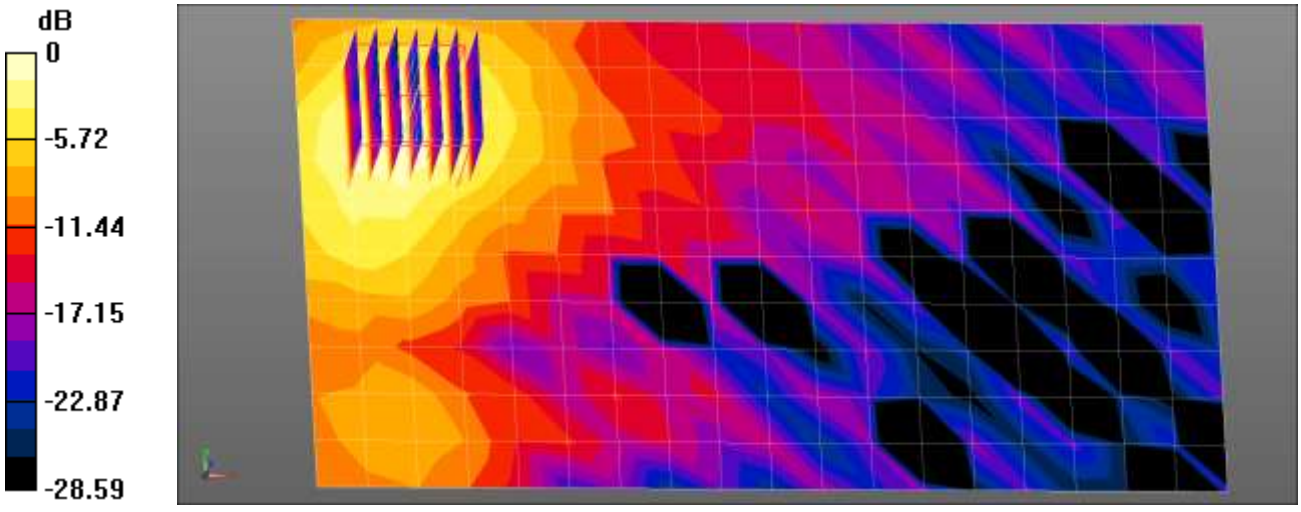
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 6.105 S/m; ε_r = 46.662; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(4.16, 4.16, 4.16) Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.10 (2);

802.11n Body Rear MCS8 157ch/Area Scan (11x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.562 W/kg

802.11n Body Rear MCS8 157ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 1.419 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.270 W/kg; SAR(10 g) = 0.107 W/kg
Maximum value of SAR (measured) = 0.610 W/kg



0 dB = 0.610 W/kg = −2.15 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/18/2019
Plot No.:	29

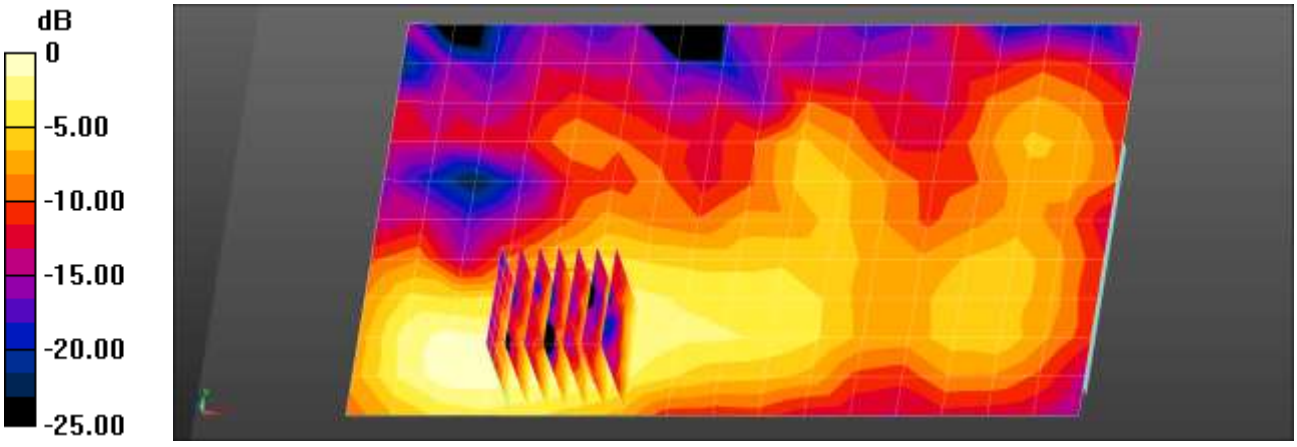
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.98 S/m; ε_r = 53.585; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.27, 7.27, 7.27); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

Bluetooth Body-worn Front DH-5 78ch/Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0347 W/kg

Bluetooth Body-worn Front DH-5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.024 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.0480 W/kg
SAR(1 g) = 0.025 W/kg; SAR(10 g) = 0.014 W/kg
Maximum value of SAR (measured) = 0.0388 W/kg



0 dB = 0.0388 W/kg = −14.11 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/21/2019
Plot No.:	30

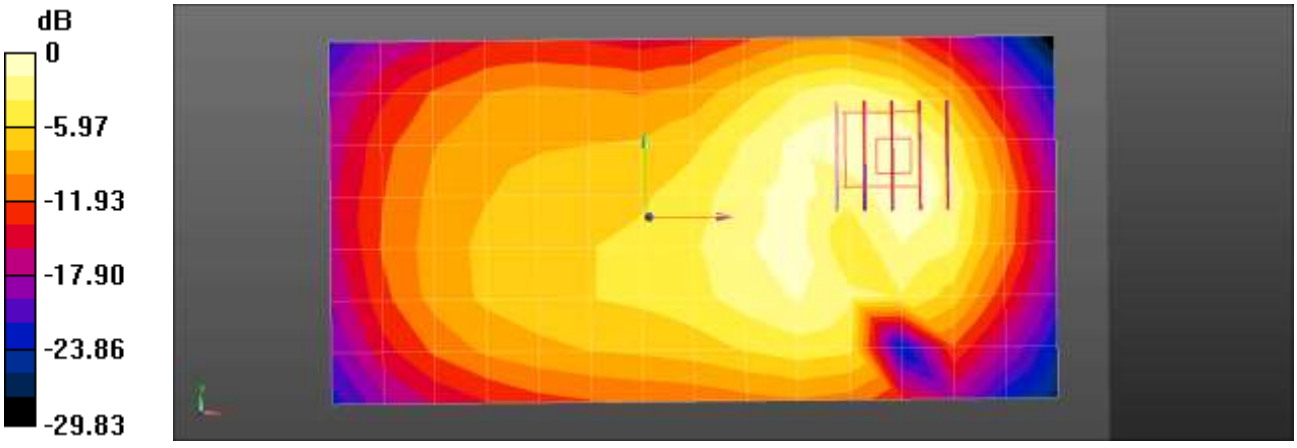
Communication System: UID 0, GSM850 GPRS 3TX (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.77013
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.973 S/m; ε_r = 56.15; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.16, 9.16, 9.16); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Body Rear 3Tx 251ch/Area Scan (8x15x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.599 W/kg

GSM850 Body Rear 3Tx 251ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.16 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.771 W/kg
SAR(1 g) = 0.446 W/kg; SAR(10 g) = 0.264 W/kg
Maximum value of SAR (measured) = 0.655 W/kg



0 dB = 0.599 W/kg = −2.22 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/22/2019
Plot No.:	31

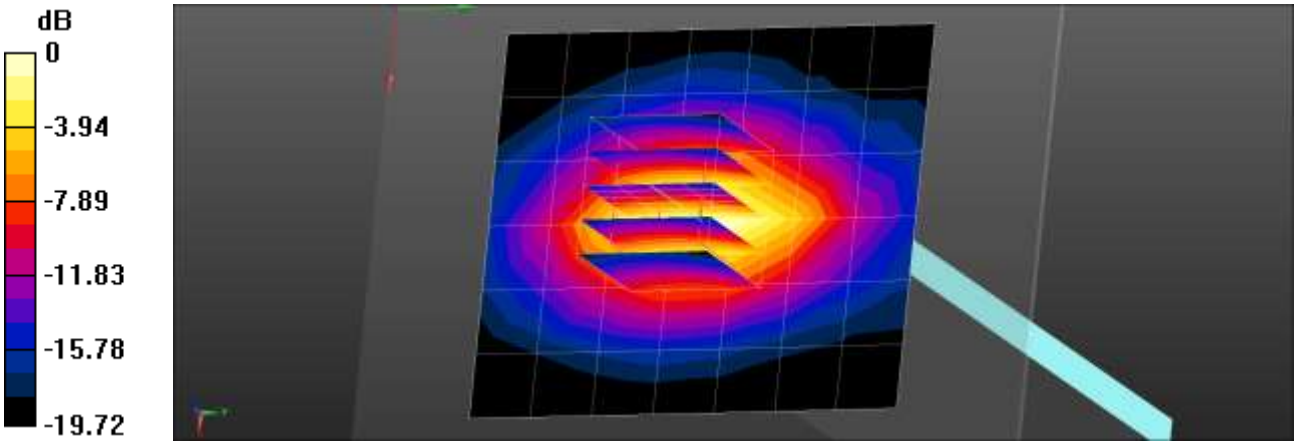
Communication System: UID 0, GSM 1900 2TX (0); Frequency: 1880 MHz;Duty Cycle: 1:4.14954
Medium parameters used: f = 1880 MHz; σ = 1.545 S/m; ε_r = 53.347; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

GSM1900 Body Bottom 2Tx 661ch/Area Scan (8x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.970 W/kg

GSM1900 Body Bottom 2Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.74 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.673 W/kg; SAR(10 g) = 0.341 W/kg
Maximum value of SAR (measured) = 1.02 W/kg



0 dB = 1.02 W/kg = 0.09 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/10/2019
Plot No.:	32

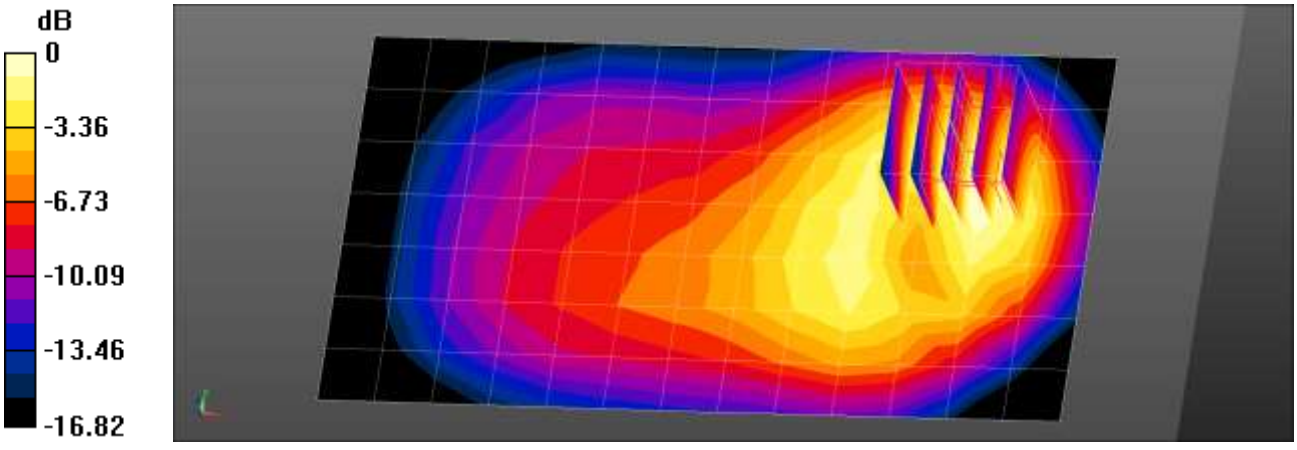
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.962 S/m; ε_r = 56.232; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 5 Body Rear 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.453 W/kg

WCDMA Band 5 Body Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.38 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.578 W/kg
SAR(1 g) = 0.329 W/kg; SAR(10 g) = 0.190 W/kg
Maximum value of SAR (measured) = 0.484 W/kg



0 dB = 0.484 W/kg = −3.15 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.8 ℃
Test Date:	10/11/2019
Plot No.:	33

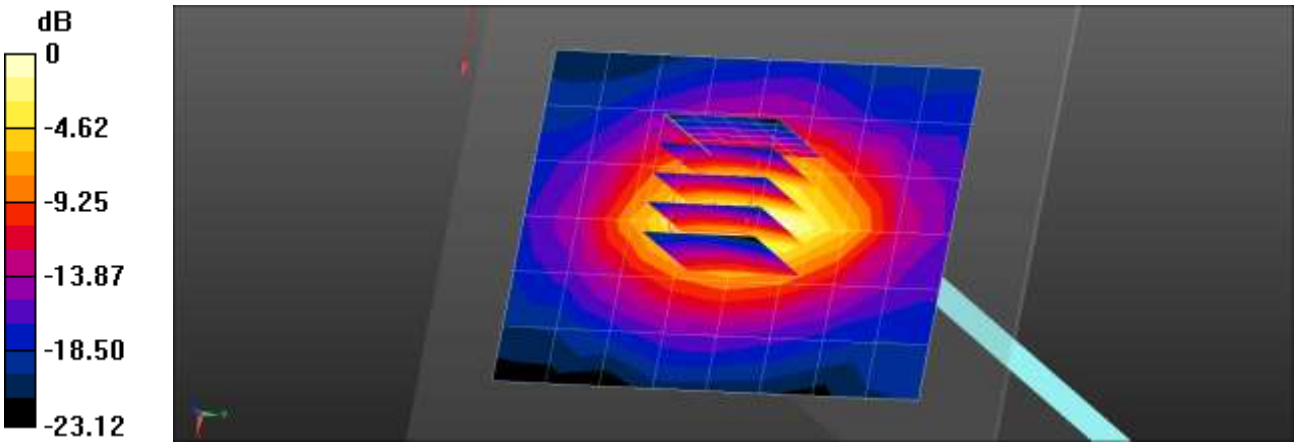
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.421 S/m; ε_r = 54.94; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 4 Body Bottom 1412ch/Area Scan (9x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.652 W/kg

WCDMA Band 4 Body Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.27 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.777 W/kg
SAR(1 g) = 0.445 W/kg; SAR(10 g) = 0.234 W/kg
Maximum value of SAR (measured) = 0.656 W/kg



0 dB = 0.652 W/kg = −1.85 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/22/2019
Plot No.:	34

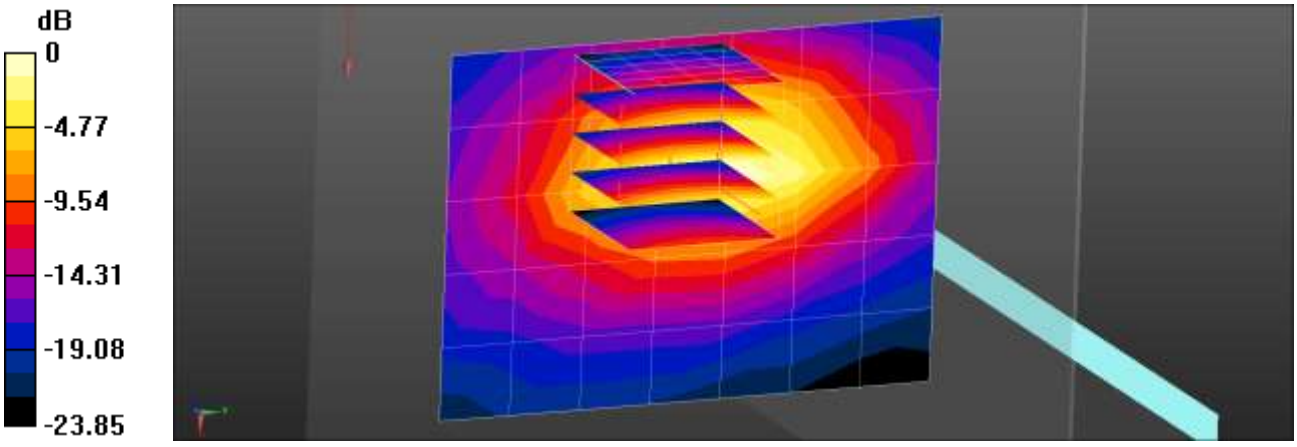
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.545 S/m; ε_r = 53.347; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 2 Body Bottom 9400ch/Area Scan (8x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.799 W/kg

WCDMA Band 2 Body Bottom 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.33 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.568 W/kg; SAR(10 g) = 0.291 W/kg
Maximum value of SAR (measured) = 0.867 W/kg



0 dB = 0.799 W/kg = −0.97 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/15/2019
Plot No.:	35

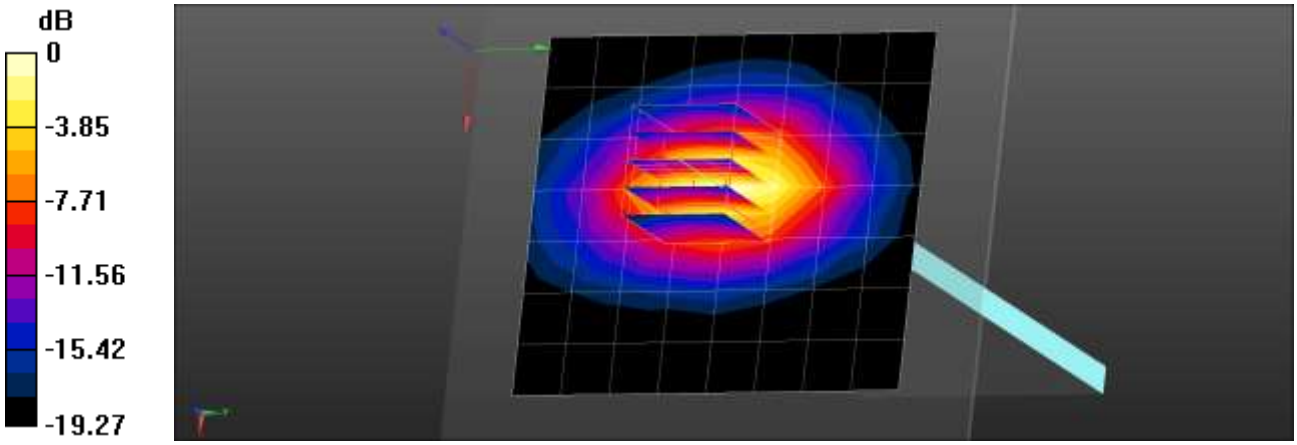
Communication System: UID 0, LTE Band 2 (0); Frequency: 1860 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1860 MHz; σ = 1.492 S/m; ε_r = 53.605; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.99, 7.99, 7.99); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE Band 2 Body Bottom QPSK 20MHz 50RB 49offset 18700ch/Area Scan (9x8x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.34 W/kg

LTE Band 2 Body Bottom QPSK 20MHz 50RB 49offset 18700ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.75 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.882 W/kg; SAR(10 g) = 0.455 W/kg



0 dB = 1.34 W/kg = 1.27 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.6 ℃
Ambient Temperature:	21.8 ℃
Test Date:	09/11/2019
Plot No.:	36

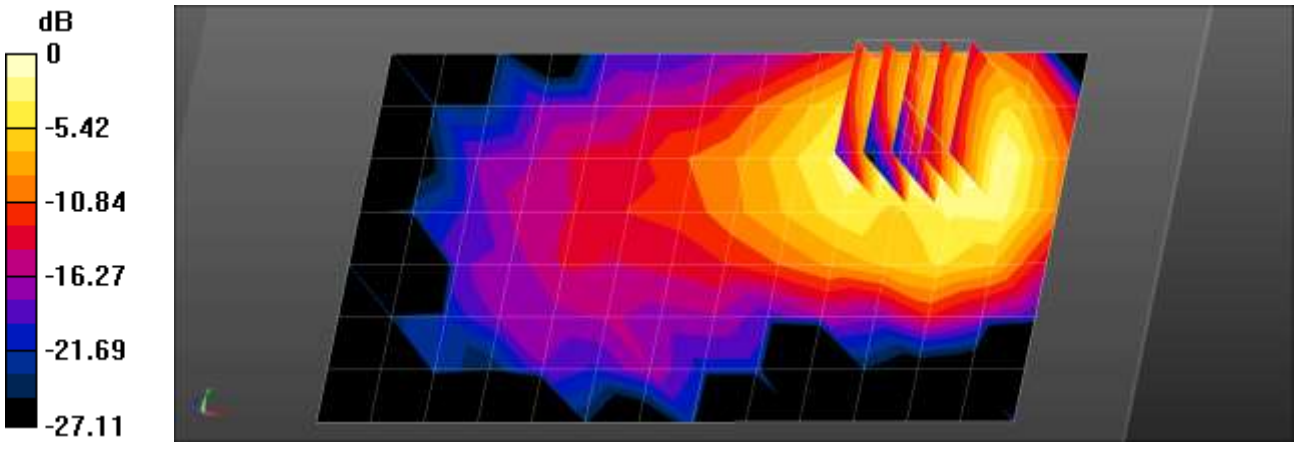
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.942 S/m; ε_r = 56.7; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 12 Body Rear QPSK 10MHz 1RB 0offset 23095ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0637 W/kg

LTE 12 Body Rear QPSK 10MHz 1RB 0offset 23095ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.914 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0860 W/kg
SAR(1 g) = 0.046 W/kg; SAR(10 g) = 0.026 W/kg
Maximum value of SAR (measured) = 0.0691 W/kg



0 dB = 0.0691 W/kg = −11.61 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 ℃
Ambient Temperature:	20.3 ℃
Test Date:	09/12/2019
Plot No.:	37

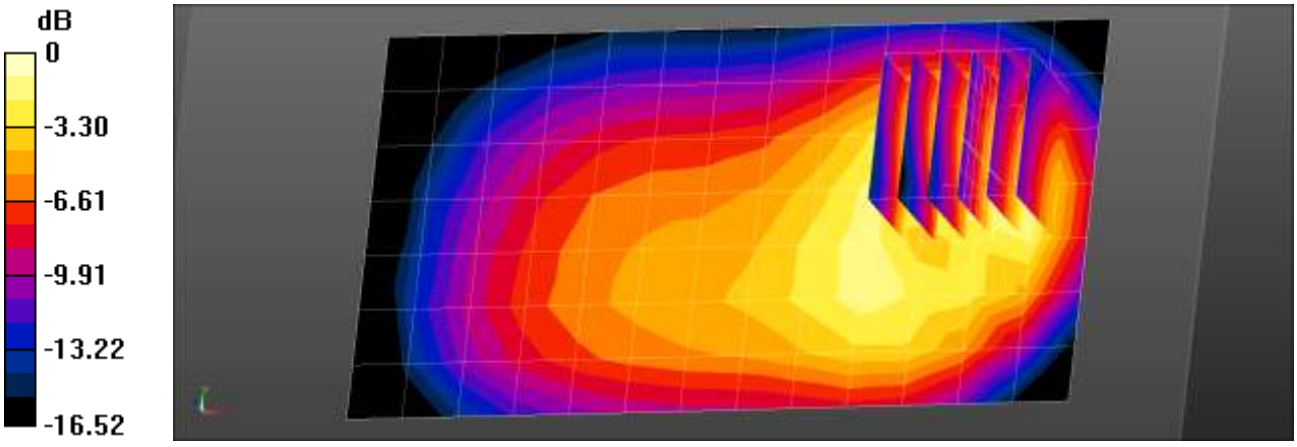
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.981 S/m; ε_r = 55.92; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 13 Body Rear QPSK 10MHz 1RB 0offset 23230ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.332 W/kg

LTE 13 Body Rear QPSK 10MHz 1RB 0offset 23230ch/Zoom Scan (6x6x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.48 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.471 W/kg
SAR(1 g) = 0.268 W/kg; SAR(10 g) = 0.155 W/kg
Maximum value of SAR (measured) = 0.398 W/kg



0 dB = 0.398 W/kg = −4.00 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 ℃
Ambient Temperature:	21.0 ℃
Test Date:	09/10/2019
Plot No.:	38

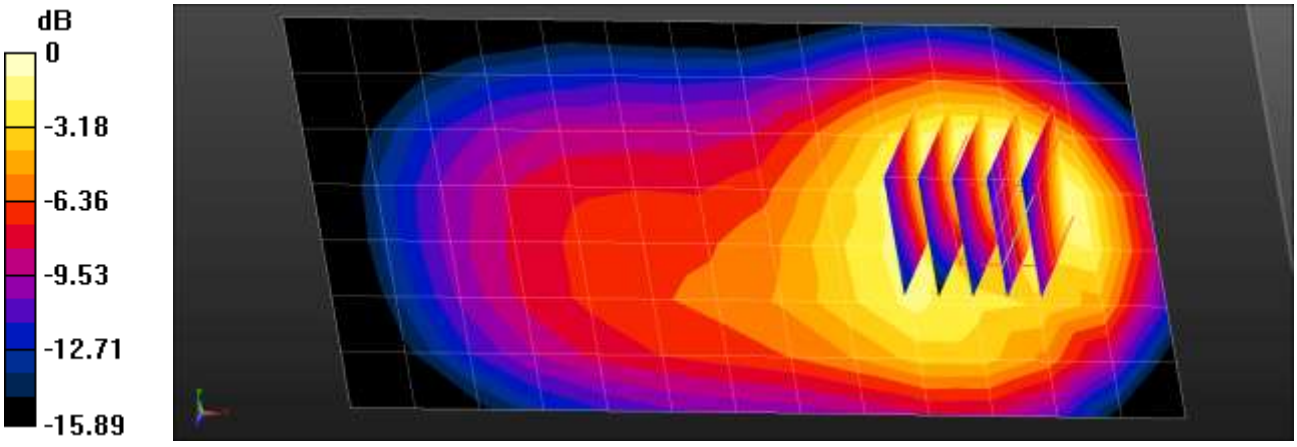
Communication System: UID 0, LTE Band 26 (0); Frequency: 841.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.966 S/m; ε_r = 56.169; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 26 Body Rear QPSK 15MHz 1RB 36offset 26965ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.552 W/kg

LTE 26 Body Rear QPSK 15MHz 1RB 36offset 26965ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.85 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.723 W/kg
SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.243 W/kg
Maximum value of SAR (measured) = 0.602 W/kg



0 dB = 0.602 W/kg = −2.20 dBW/kg

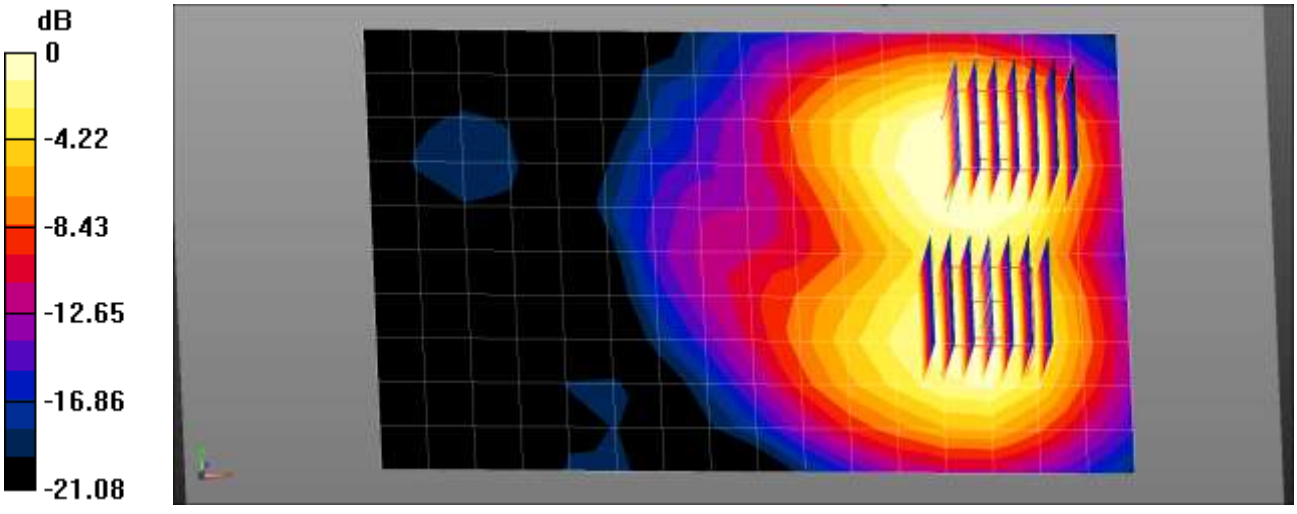
Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 ℃
Ambient Temperature:	20.7 ℃
Test Date:	10/29/2019
Plot No.:	39

Communication System: UID 0, LTE Band 41 (FCC) (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58052
Medium parameters used (interpolated): f = 2593 MHz; σ = 2.109 S/m; ε_r = 53.251; ρ = 1000 kg/m^3 Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.34, 7.34, 7.34) ; Calibrated: 2019-05-15
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 41 Body Rear QPSK 20MHz 1RB 49offset 40620ch/Area Scan (11x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.850 W/kg
LTE 41 Body Rear QPSK 20MHz 1RB 49offset 40620ch/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.650 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.548 W/kg; SAR(10 g) = 0.285 W/kg
Maximum value of SAR (measured) = 0.888 W/kg
LTE 41 Body Rear QPSK 20MHz 1RB 49offset 40620ch/Zoom Scan (7x7x7)/Cube 1:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.650 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.770 W/kg
SAR(1 g) = 0.381 W/kg; SAR(10 g) = 0.206 W/kg
Maximum value of SAR (measured) = 0.610 W/kg



0 dB = 0.610 W/kg = −2.15 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.5 ℃
Ambient Temperature:	20.8 ℃
Test Date:	10/11/2019
Plot No.:	40

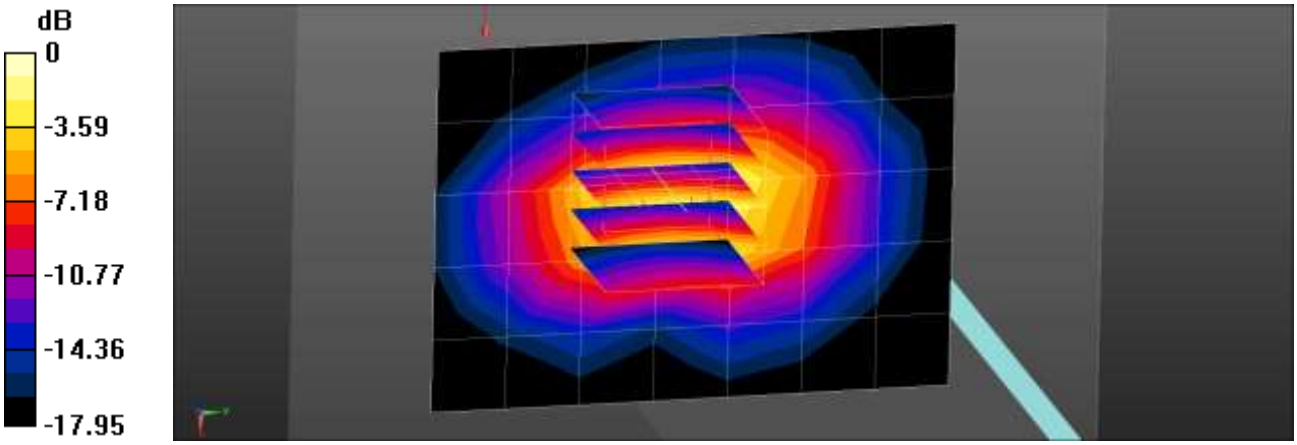
Communication System: UID 0, LTE Band 66 (0); Frequency: 1770 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1770 MHz; σ = 1.458 S/m; ε_r = 54.794; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

LTE 66 Body Bottom QPSK 20MHz 50RB 25offset 132572ch/Area Scan (8x6x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.910 W/kg

LTE 66 Body Bottom QPSK 20MHz 50RB 25offset 132572ch/Zoom Scan (5x5x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.65 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.815 W/kg; SAR(10 g) = 0.425 W/kg
Maximum value of SAR (measured) = 1.22 W/kg



0 dB = 1.22 W/kg = 0.86 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/18/2019
Plot No.:	41

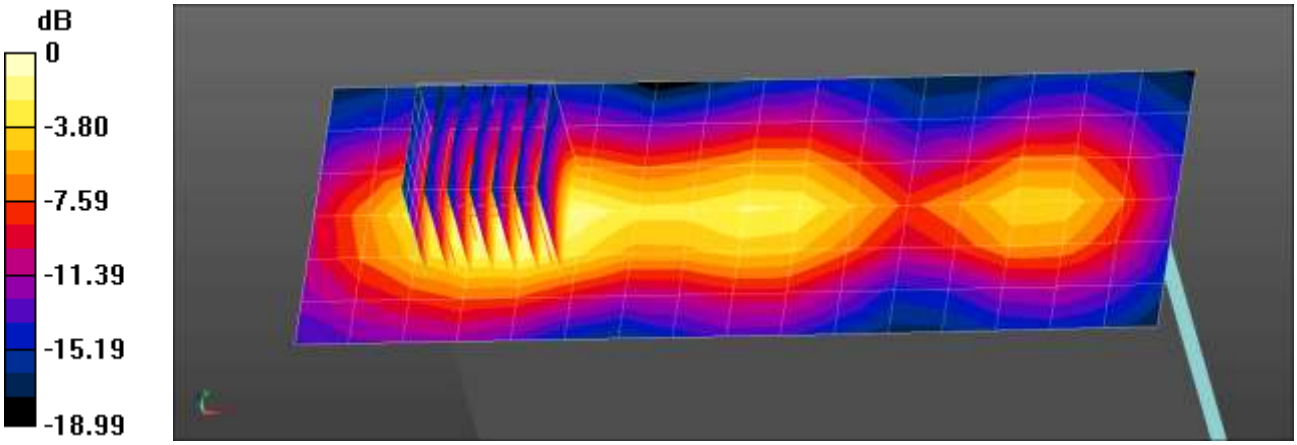
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.956 S/m; ε_r = 53.608; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.27, 7.27, 7.27); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

802.11n Body Left MCS0 11ch/Area Scan (7x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.426 W/kg

802.11n Body Left MCS0 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.75 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.288 W/kg; SAR(10 g) = 0.141 W/kg
Maximum value of SAR (measured) = 0.473 W/kg



0 dB = 0.426 W/kg = −3.71 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 ℃
Ambient Temperature:	21.0 ℃
Test Date:	10/25/2019
Plot No.:	42

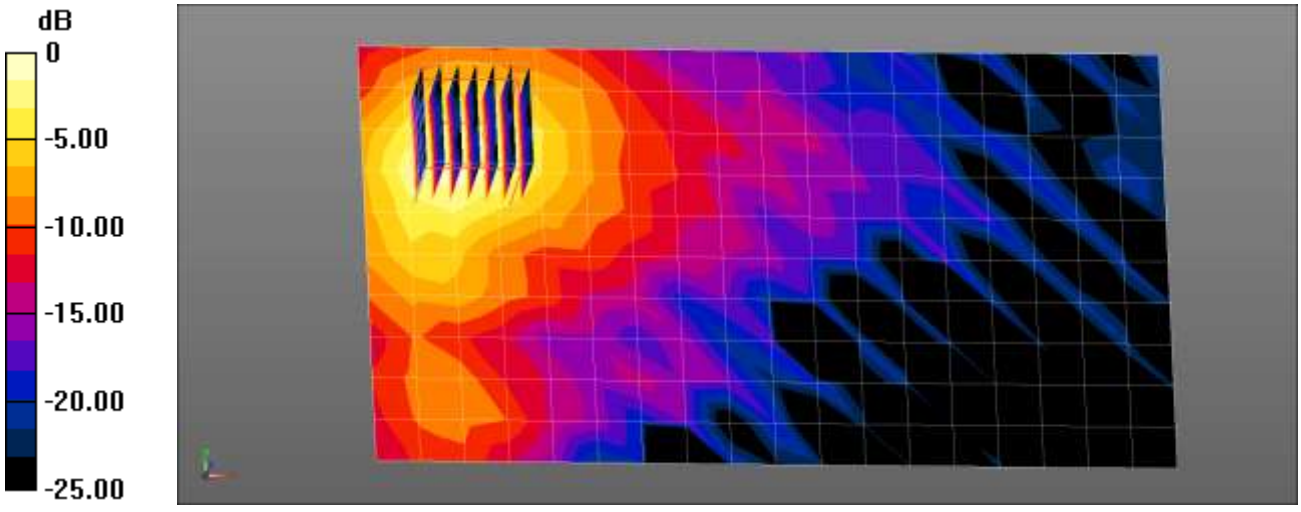
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 6.105 S/m; ε_r = 46.662; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(4.16, 4.16, 4.16); Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.10 (2);

802.11n Body Rear MCS8 157ch/Area Scan (11x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.771 W/kg

802.11n Body Rear MCS8 157ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 1.697 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.357 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.832 W/kg



0 dB = 0.832 W/kg = −0.80 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/18/2019
Plot No.:	43

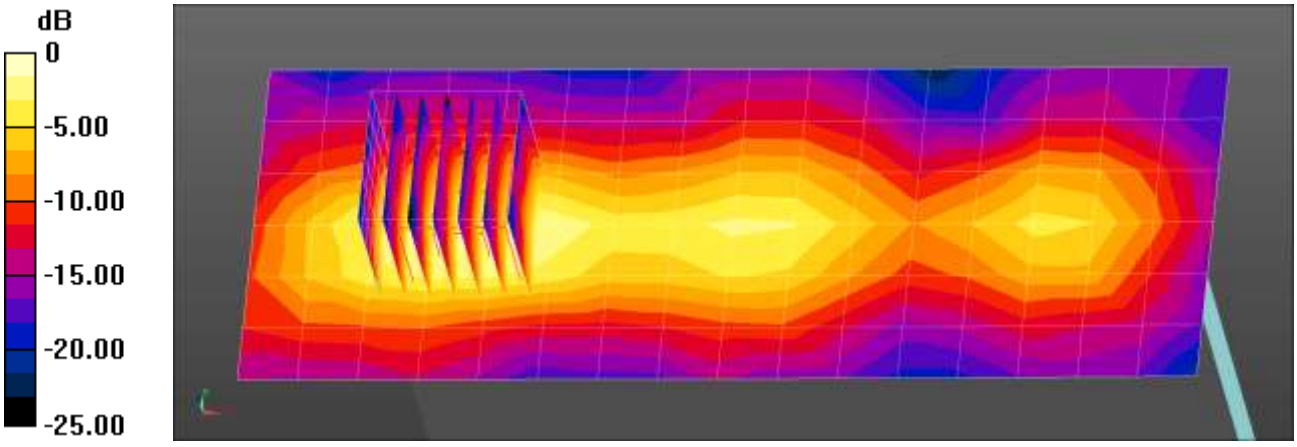
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.299
Medium parameters used: f = 2480 MHz; σ = 1.98 S/m; ε_r = 53.585; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.27, 7.27, 7.27); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

Bluetooth Body Left DH-5 78ch/Area Scan (7x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.113 W/kg

Bluetooth Body Left DH-5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.189 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.076 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.124 W/kg



0 dB = 0.124 W/kg = −9.07 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/15/2019
Plot No.:	44

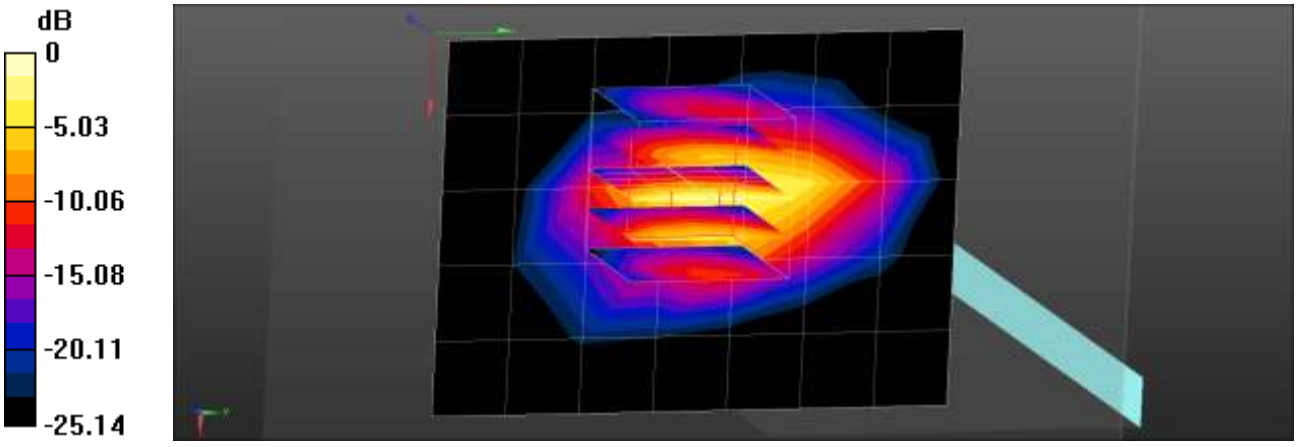
Communication System: UID 0, WCDMA1700 (0); Frequency: 1712.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.404 S/m; ε_r = 54.827; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.91, 7.91, 7.91); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA Band 4 Phablet_SAR Bottom 1312ch/Area Scan (8x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.80 W/kg

WCDMA Band 4 Phablet_SAR Bottom 1312ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 69.72 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 9.07 W/kg
SAR(1 g) = 4.06 W/kg; SAR(10 g) = 1.72 W/kg
Maximum value of SAR (measured) = 7.34 W/kg



0 dB = 7.34 W/kg = 8.66 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3 ℃
Ambient Temperature:	22.0 ℃
Test Date:	10/15/2019
Plot No.:	45

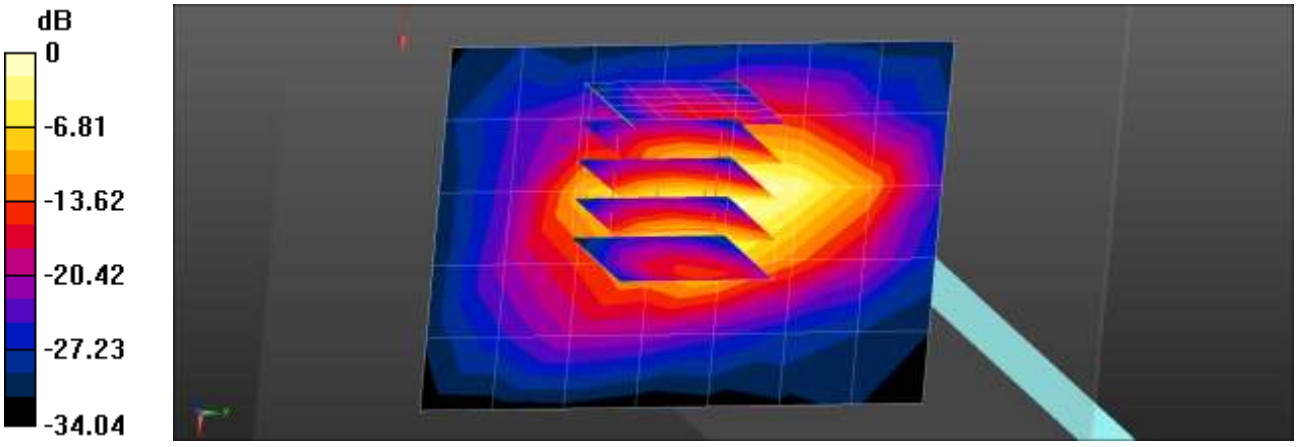
Communication System: UID 0, WCDMA1700 (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.419 S/m; ε_r = 54.833; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.91, 7.91, 7.91); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA Band 4 Phablet_SAR Bottom 1412ch/Area Scan (8x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.46 W/kg

WCDMA Band 4 Phablet_SAR Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 68.31 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 8.68 W/kg
SAR(1 g) = 3.87 W/kg; SAR(10 g) = 1.62 W/kg
Maximum value of SAR (measured) = 7.01 W/kg



0 dB = 4.46 W/kg = 6.49 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	22.1 ℃
Ambient Temperature:	22.3 ℃
Test Date:	10/22/2019
Plot No.:	46

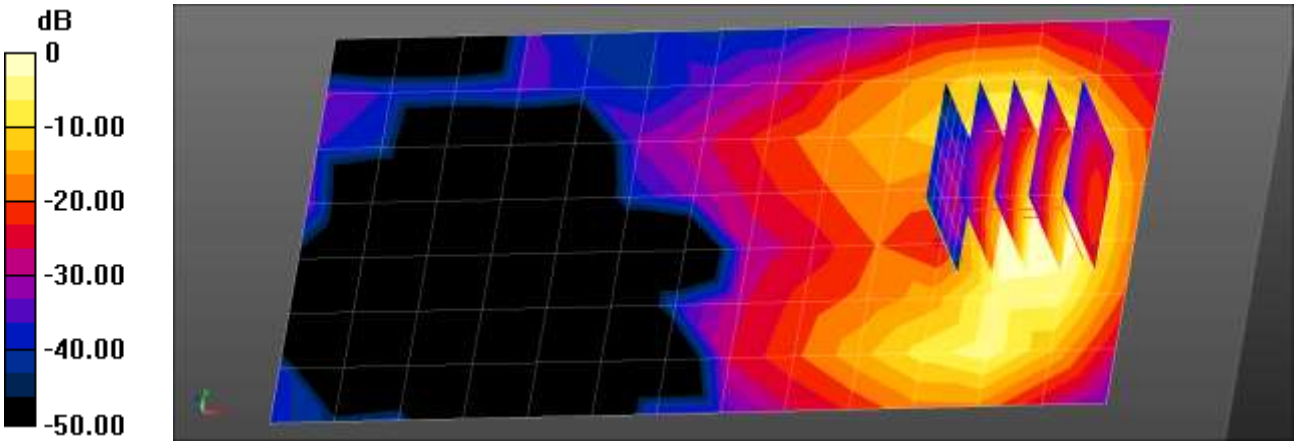
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.545 S/m; ε_r = 53.347; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA Band 2 Phablet-SAR Front 9400ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.70 W/kg

WCDMA Band 2 Phablet-SAR Front 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 5.22 W/kg
SAR(1 g) = 2.24 W/kg; SAR(10 g) = 0.925 W/kg
Maximum value of SAR (measured) = 4.35 W/kg



0 dB = 1.70 W/kg = 2.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.4 ℃
Ambient Temperature:	21.8 ℃
Test Date:	10/17/2019
Plot No.:	47

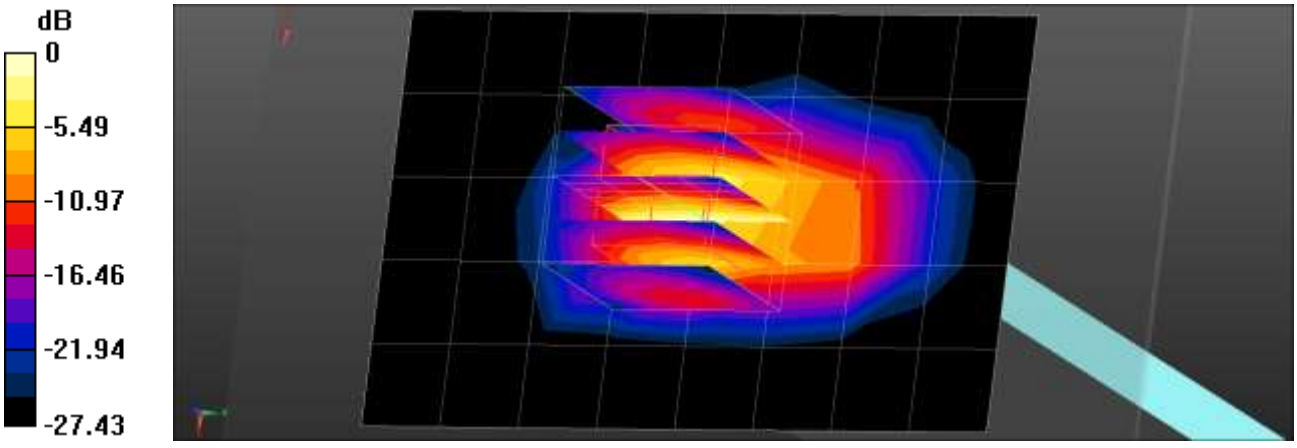
Communication System: UID 0, LTE 2 (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.528 S/m; ε_r = 53.563; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.64, 7.64, 7.64); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 2 Phablet_SAR Bottom QPSK 20MHz 100RB 0offset 19100ch/Area Scan (9x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.80 W/kg

LTE Band 2 Phablet_SAR Bottom QPSK 20MHz 100RB 0offset 19100ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 75.87 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 4.88 W/kg; SAR(10 g) = 1.98 W/kg
Maximum value of SAR (measured) = 9.39 W/kg



0 dB = 9.39 W/kg = 9.73 dBW/kg

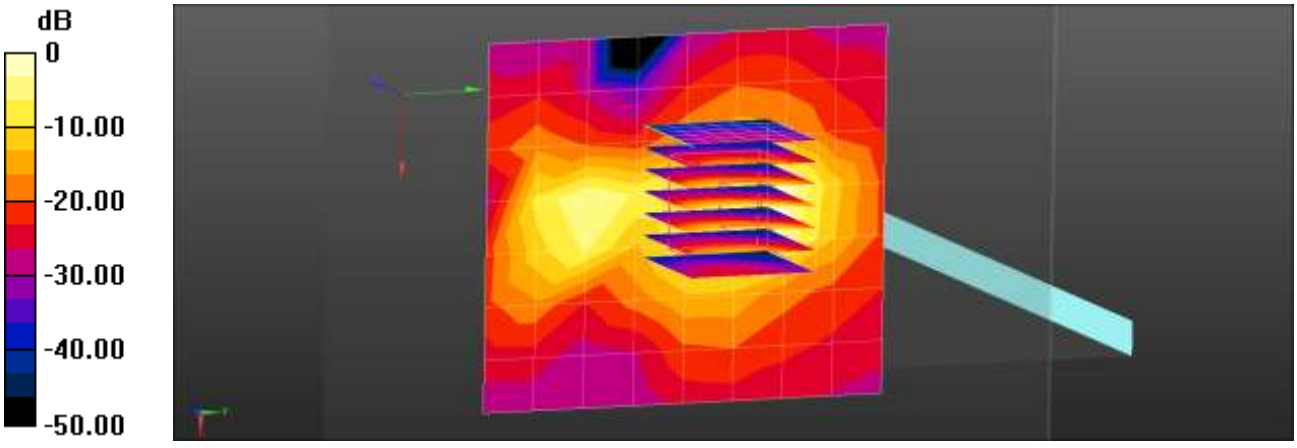
Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.1 ℃
Ambient Temperature:	20.3 ℃
Test Date:	10/16/2019
Plot No.:	48

Communication System: UID 0, LTE Band41 (0); Frequency: 2593 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2593 MHz; σ = 2.113 S/m; ε_r = 53.191; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.51, 7.51, 7.51); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Limb Bottom QPSK 20MHz 50RB 0offset 40620ch/Area Scan (9x8x1):
Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.00 W/kg
LTE Band 41 Limb Bottom QPSK 20MHz 50RB 0offset 40620ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.43 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 12.5 W/kg
SAR(1 g) = 3.79 W/kg; SAR(10 g) = 1.28 W/kg
Maximum value of SAR (measured) = 8.20 W/kg



0 dB = 4.00 W/kg = 6.02 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.5 ℃
Test Date:	10/23/2019
Plot No.:	49

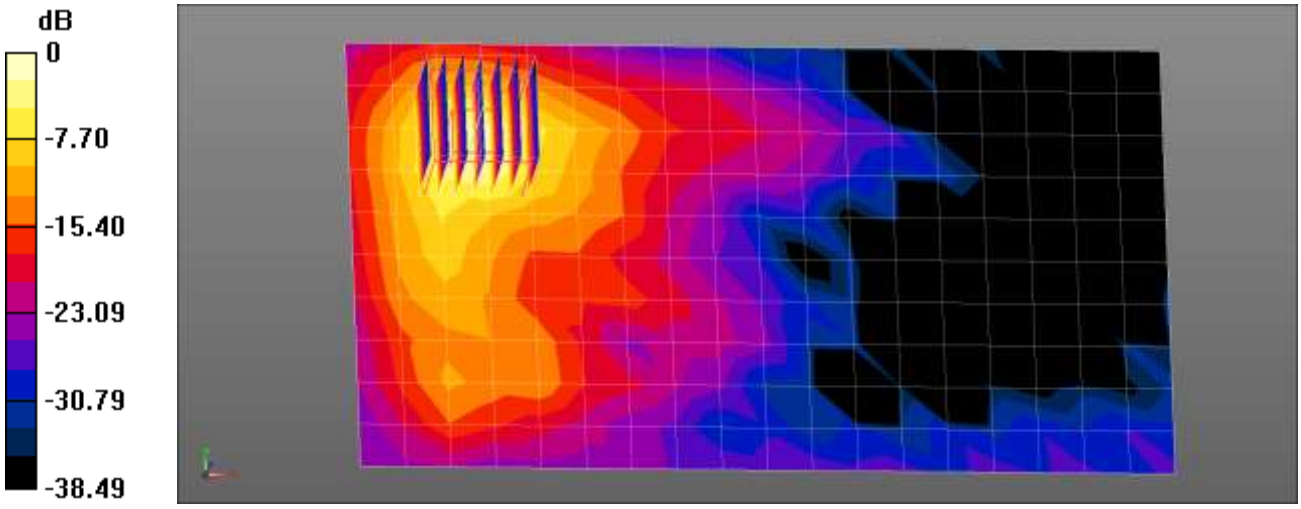
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.53 S/m; ε_r = 48.356; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(4.37, 4.37, 4.37) ; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11n20 Limb Rear MCS8 52ch/Area Scan (11x19x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.89 W/kg

802.11n20 Limb Rear MCS8 52ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 2.177 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 19.8 W/kg
SAR(1 g) = 4.02 W/kg; SAR(10 g) = 1.19 W/kg
Maximum value of SAR (measured) = 11.4 W/kg



0 dB = 11.4 W/kg = 10.57 dBW/kg

Attachment 2. – Dipole Verification Plots

■ Verification Data (750 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.6 ℃
Test Date:	09/11/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

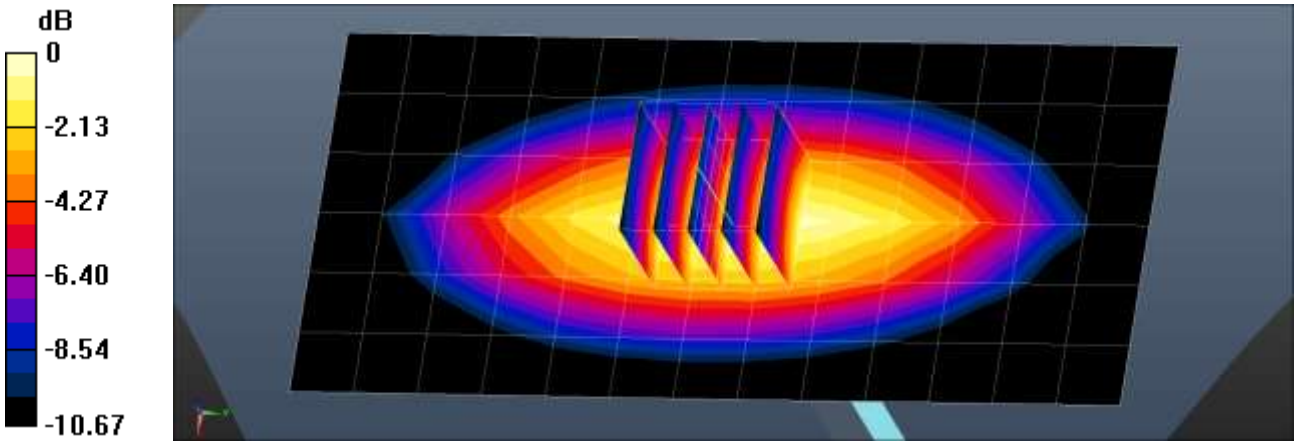
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.919 S/m; ε_r = 42.298; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(10.16, 10.16, 10.16); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750MHz Head Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.522 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.37 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.615 W/kg
SAR(1 g) = 0.401 W/kg; SAR(10 g) = 0.263 W/kg
Maximum value of SAR (measured) = 0.543 W/kg



0 dB = 0.543 W/kg = −2.65 dBW/kg

■ **Verification Data (750 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.2 ℃
Test Date:	09/12/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

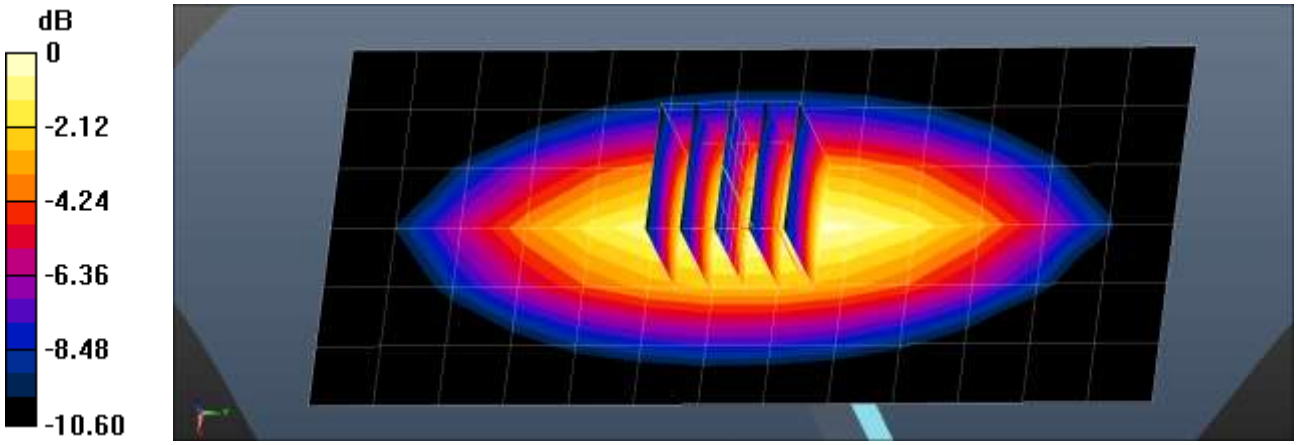
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.877 S/m; ε_r = 42.297; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(10.16, 10.16, 10.16); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750MHz Head Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.514 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.78 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.597 W/kg
SAR(1 g) = 0.390 W/kg; SAR(10 g) = 0.255 W/kg
Maximum value of SAR (measured) = 0.528 W/kg



0 dB = 0.528 W/kg = −2.77 dBW/kg

■ **Verification Data (750 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.6 ℃
Test Date:	09/11/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

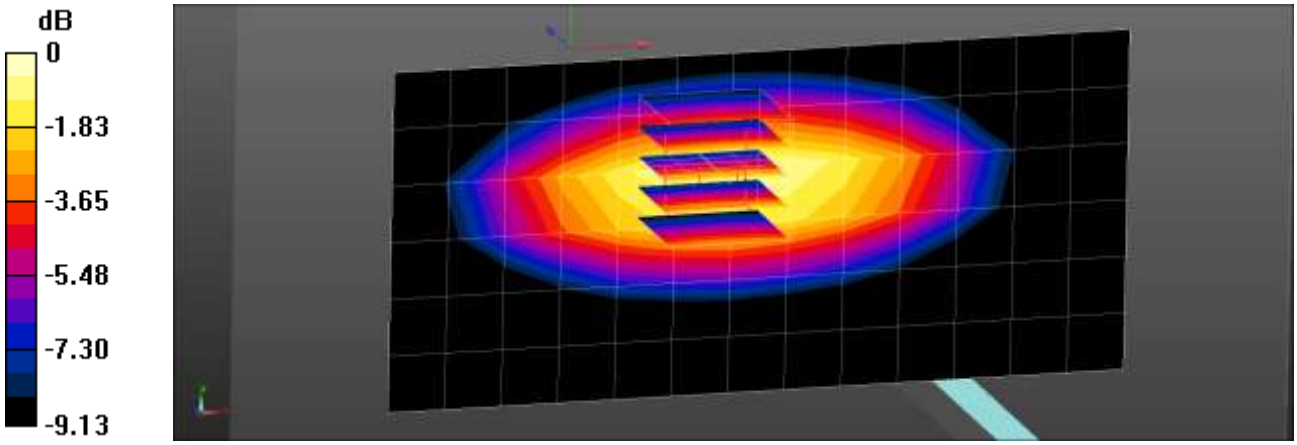
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.986 S/m; ε_r = 56.23; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750MHz Body Verification/Area Scan (14x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.531 W/kg

Dipole/750MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.69 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.644 W/kg
SAR(1 g) = 0.443 W/kg; SAR(10 g) = 0.306 W/kg
Maximum value of SAR (measured) = 0.576 W/kg



0 dB = 0.576 W/kg = −2.40 dBW/kg

■ **Verification Data (750 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.2 ℃
Test Date:	09/12/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

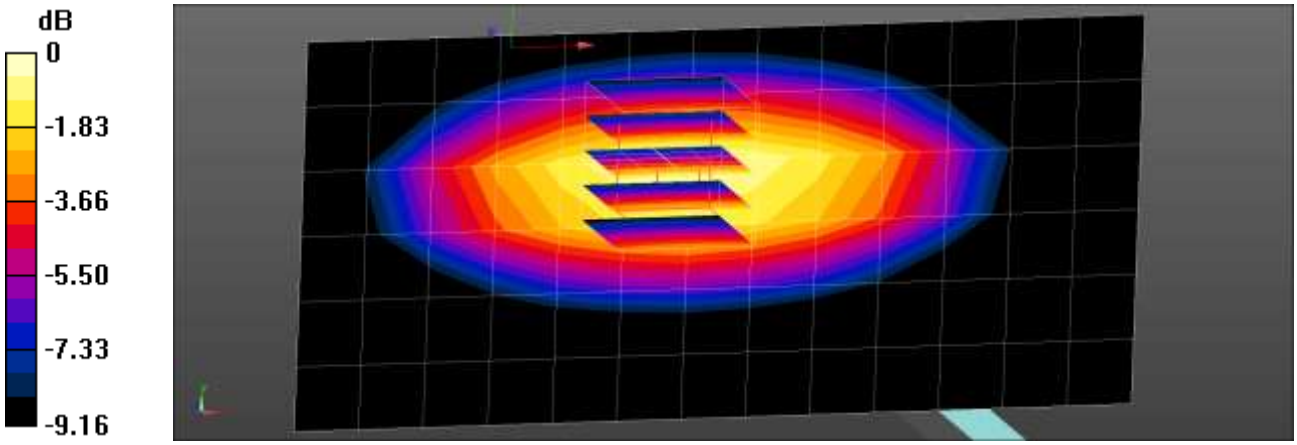
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.948 S/m; ε_r = 56.261; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.88, 9.88, 9.88); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/750MHz Body Verification/Area Scan (14x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.515 W/kg

Dipole/750MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.63 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.634 W/kg
SAR(1 g) = 0.432 W/kg; SAR(10 g) = 0.298 W/kg
Maximum value of SAR (measured) = 0.567 W/kg



0 dB = 0.567 W/kg = −2.46 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.6 ℃
Test Date:	10/21/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

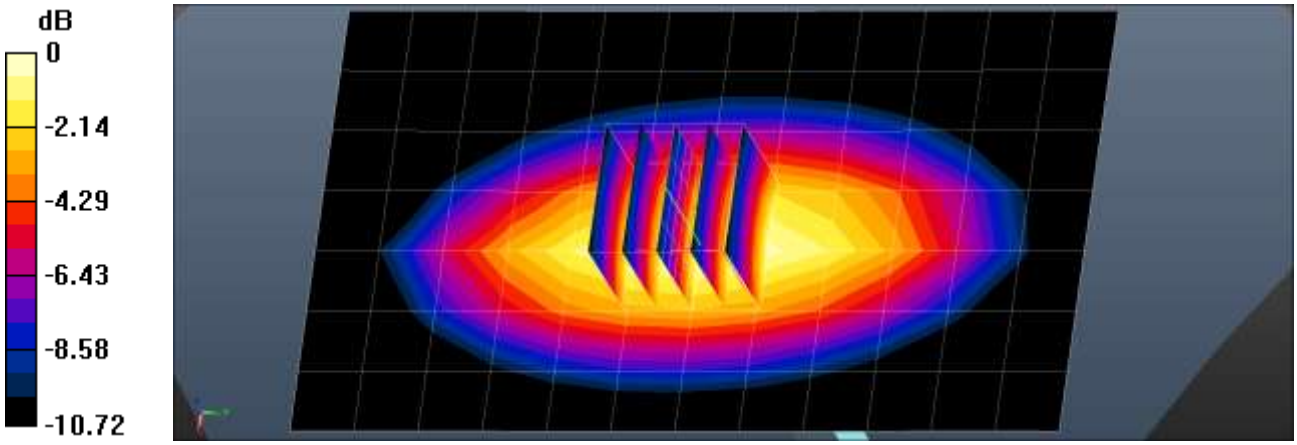
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.924 S/m; ε_r = 40.423; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.09, 9.09, 9.09); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Head Verification (GSM850)/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.650 W/kg

Dipole/835MHz Head Verification (GSM850)/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.73 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.734 W/kg
SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.323 W/kg
Maximum value of SAR (measured) = 0.655 W/kg



0 dB = 0.655 W/kg = −1.84 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.7 ℃
Test Date:	09/10/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

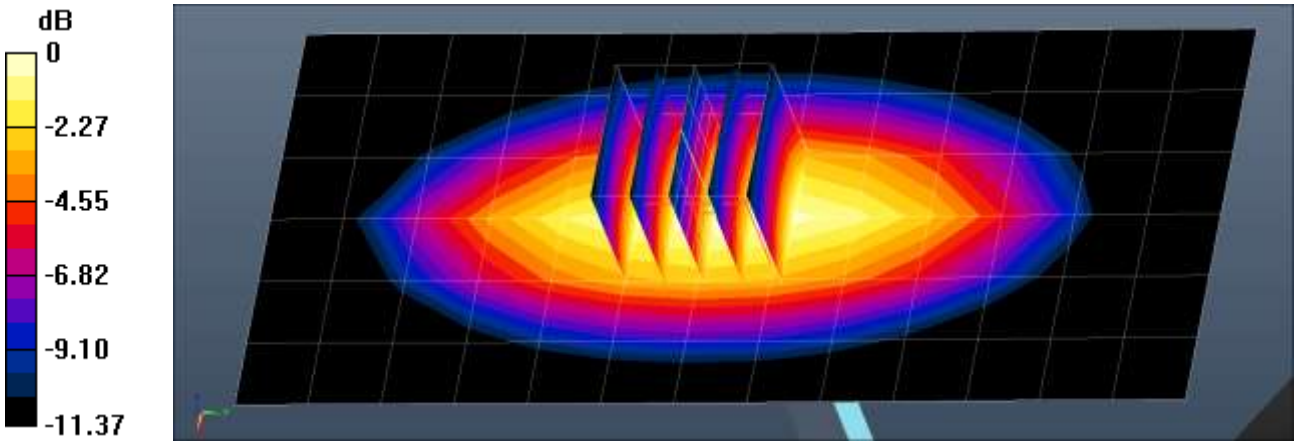
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.929 S/m; ε_r = 42.316; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.82, 9.82, 9.82); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Head Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.686 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.25 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.785 W/kg
SAR(1 g) = 0.499 W/kg; SAR(10 g) = 0.320 W/kg
Maximum value of SAR (measured) = 0.685 W/kg



0 dB = 0.685 W/kg = −1.64 dBW/kg

■ **Verification Data (835 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	09/16/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

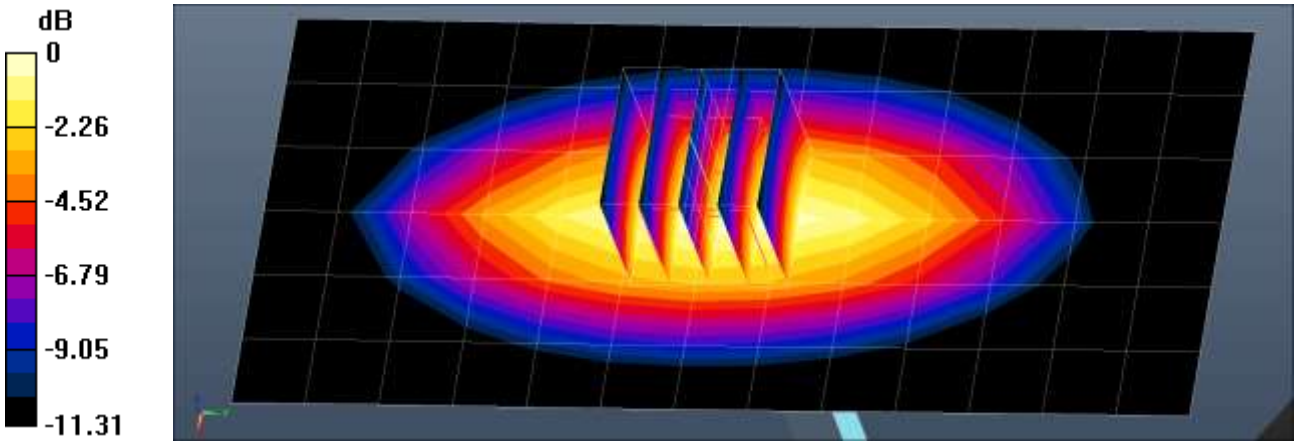
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.921 S/m; ε_r = 41.014; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.82, 9.82, 9.82); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: SAM with CRP v5.0_Right
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Head Verification/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.674 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 28.17 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.769 W/kg
SAR(1 g) = 0.492 W/kg; SAR(10 g) = 0.315 W/kg
Maximum value of SAR (measured) = 0.672 W/kg



0 dB = 0.672 W/kg = −1.73 dBW/kg

■ **Verification Data (835 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.6 ℃
Test Date:	10/21/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

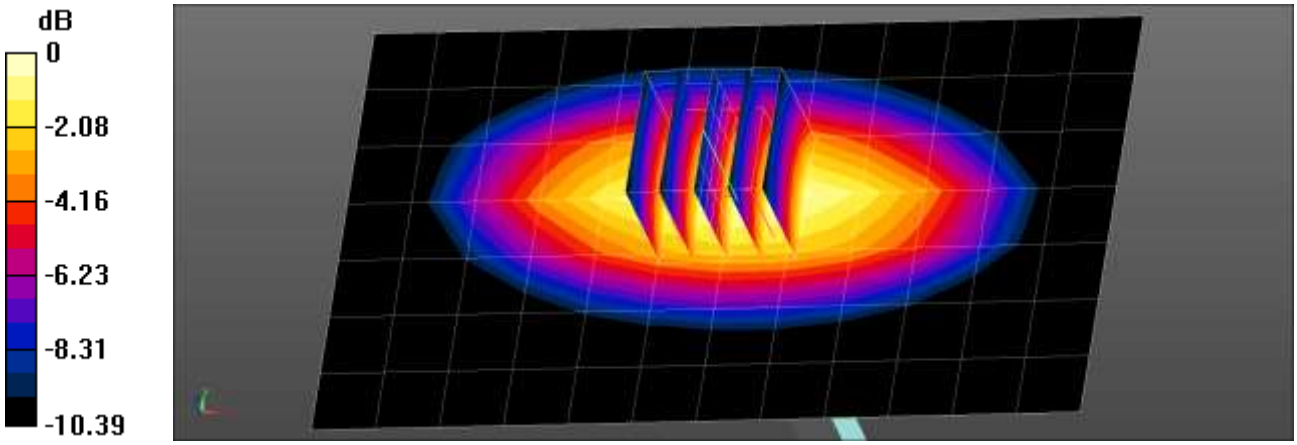
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.96 S/m; ε_r = 56.275; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(9.16, 9.16, 9.16); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Body Verification/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.599 W/kg

Dipole/835MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.71 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.455 W/kg; SAR(10 g) = 0.299 W/kg
Maximum value of SAR (measured) = 0.606 W/kg



0 dB = 0.606 W/kg = −2.18 dBW/kg

■ **Verification Data (835 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.7 ℃
Test Date:	09/10/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

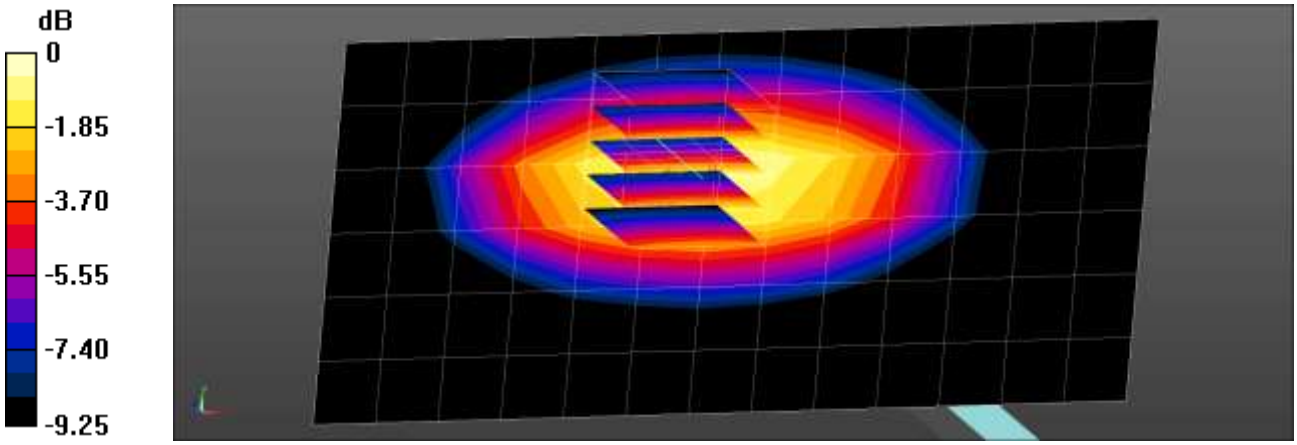
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.961 S/m; ε_r = 56.257; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Body Verification/Area Scan (14x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.601 W/kg

Dipole/835MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.17 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.725 W/kg
SAR(1 g) = 0.501 W/kg; SAR(10 g) = 0.337 W/kg
Maximum value of SAR (measured) = 0.654 W/kg



0 dB = 0.654 W/kg = −1.84 dBW/kg

■ **Verification Data (1 800 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.8 ℃
Test Date:	10/15/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

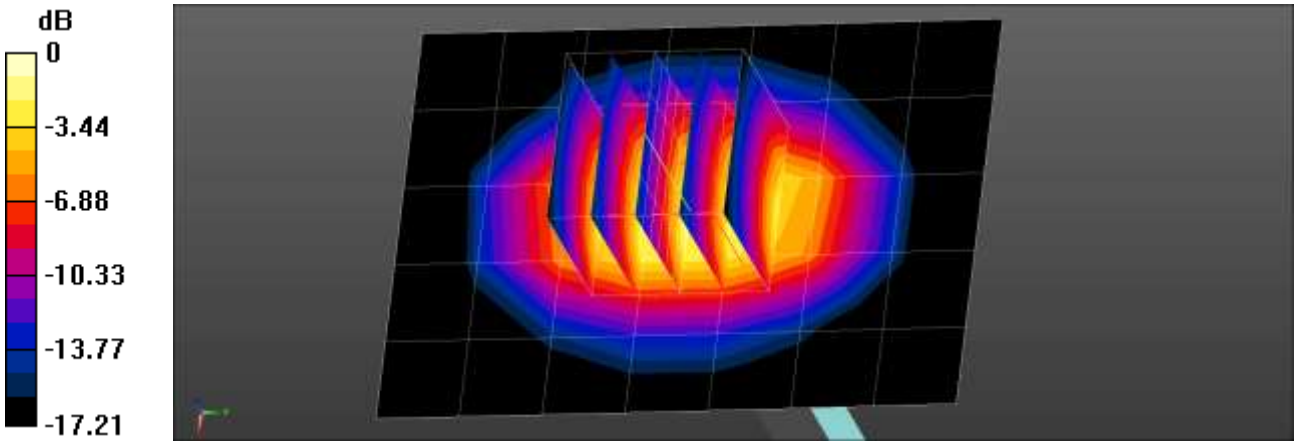
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.452 S/m; ε_r = 38.724; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(8.43, 8.43, 8.43); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

1800MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.11 W/kg

1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.92 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 3.63 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1.01 W/kg
Maximum value of SAR (measured) = 3.03 W/kg



0 dB = 3.03 W/kg = 4.81 dBW/kg

■ **Verification Data (1 800 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.5 ℃
Test Date:	10/11/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

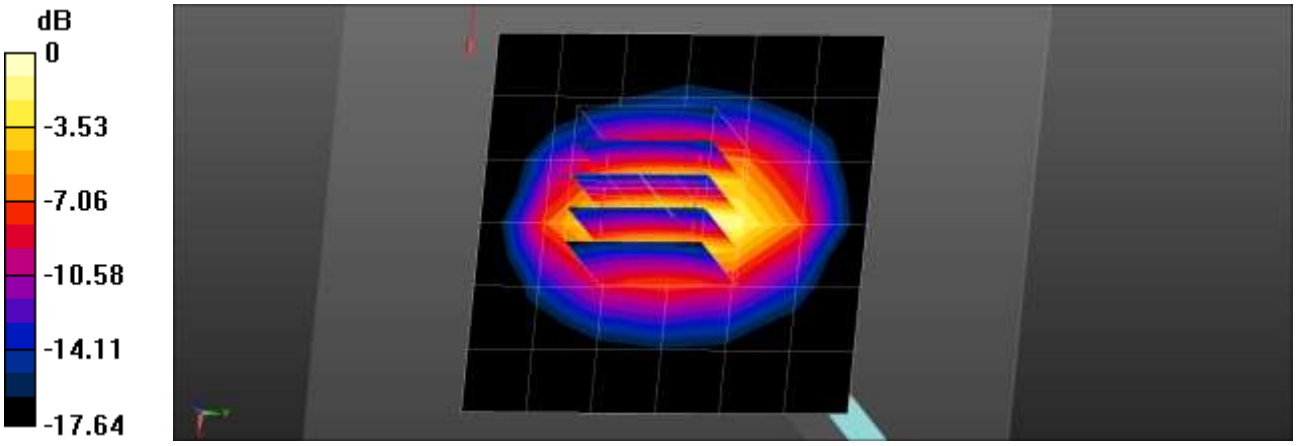
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.488 S/m; ε_r = 54.692; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(8.23, 8.23, 8.23); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

1800MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.88 W/kg

1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 44.25 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 1.89 W/kg; SAR(10 g) = 0.985 W/kg
Maximum value of SAR (measured) = 2.98 W/kg



0 dB = 2.98 W/kg = 4.74 dBW/kg

■ **Verification Data (1 800 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	10/15/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

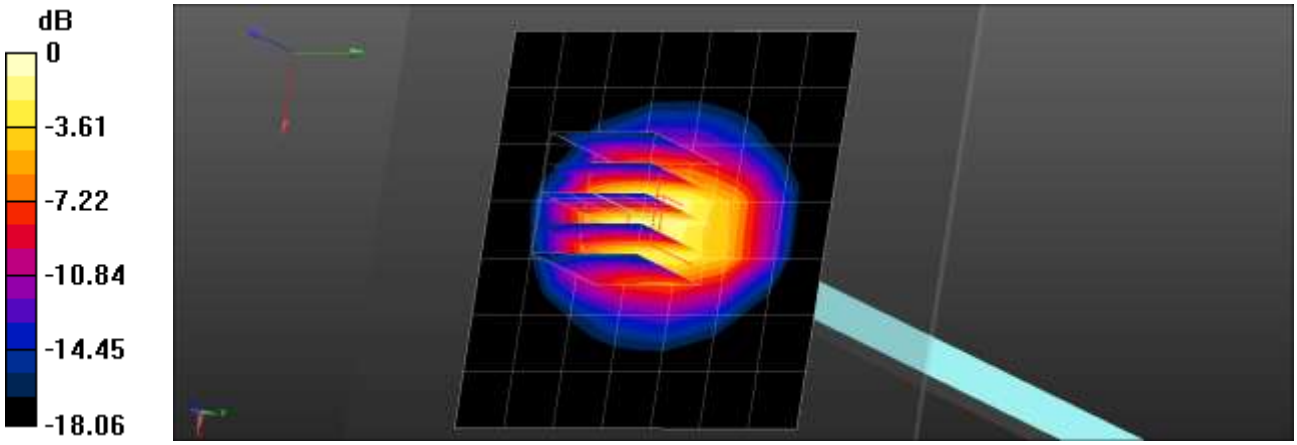
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.49 S/m; ε_r = 54.554; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.91, 7.91, 7.91); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

1800MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.96 W/kg

1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.17 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 1.85 W/kg; SAR(10 g) = 0.967 W/kg
Maximum value of SAR (measured) = 2.89 W/kg



0 dB = 2.89 W/kg = 4.61 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.6 ℃
Test Date:	10/21/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

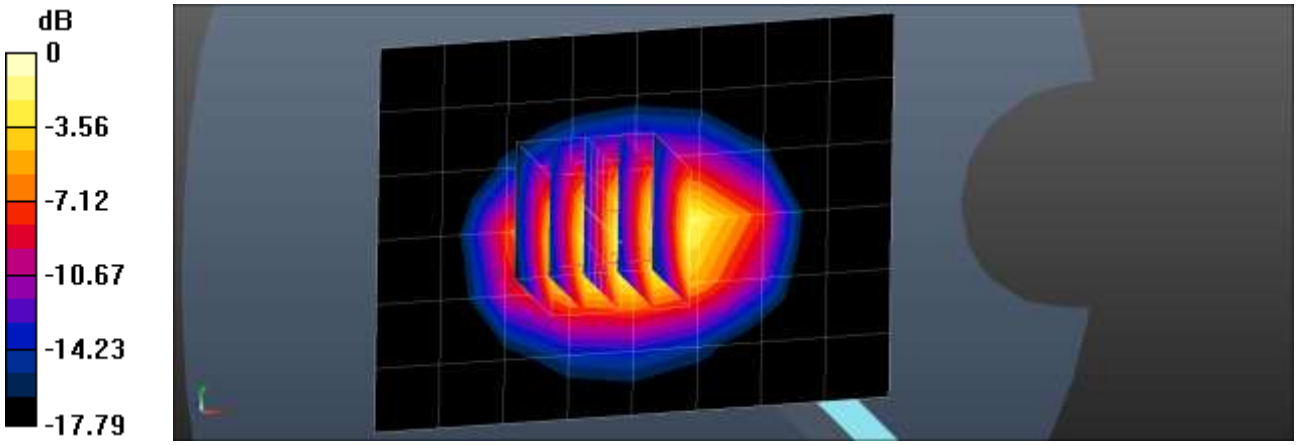
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.397 S/m; ε_r = 38.398; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.82, 7.82, 7.82); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: SAM with CRP v5.0_Front
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1900MHz Head Verification (GSM1900)/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.62 W/kg

Dipole/1900MHz Head Verification (GSM1900)/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 45.22 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.65 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1 W/kg
Maximum value of SAR (measured) = 3.01 W/kg



0 dB = 3.01 W/kg = 4.79 dBW/kg

■ **Verification Data (1 900 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.0 ℃
Test Date:	10/14/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

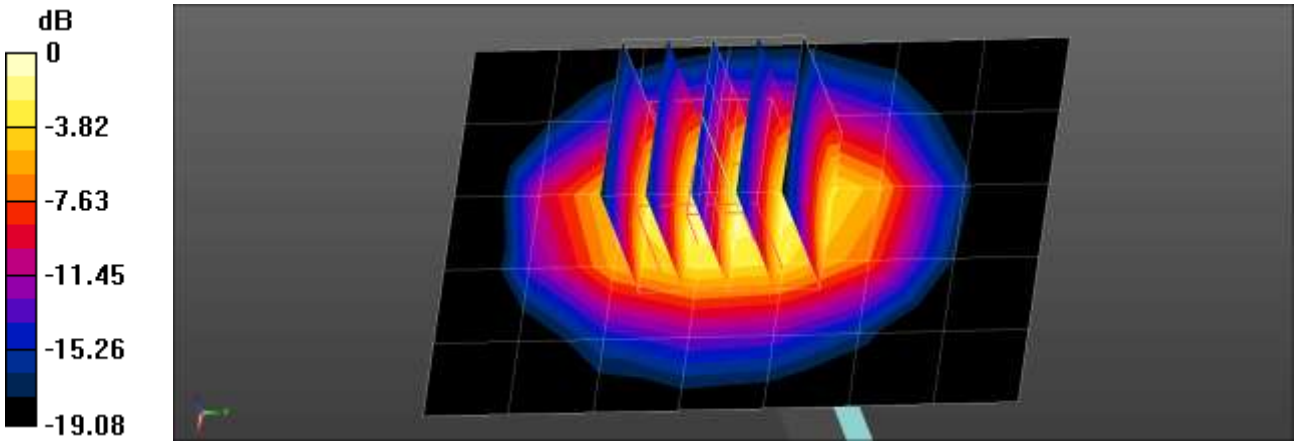
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.417 S/m; ε_r = 38.662; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3903; ConvF(8.49, 8.49, 8.49); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Twin-SAM V8.0_20171017 (Right1)
- Measurement SW: DASY52, Version 52.10 (2);

1900MHz Head Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.67 W/kg

1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.64 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 4.02 W/kg
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.29 W/kg



0 dB = 3.29 W/kg = 5.17 dBW/kg

■ **Verification Data (1 900 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	22.1 ℃
Test Date:	10/22/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

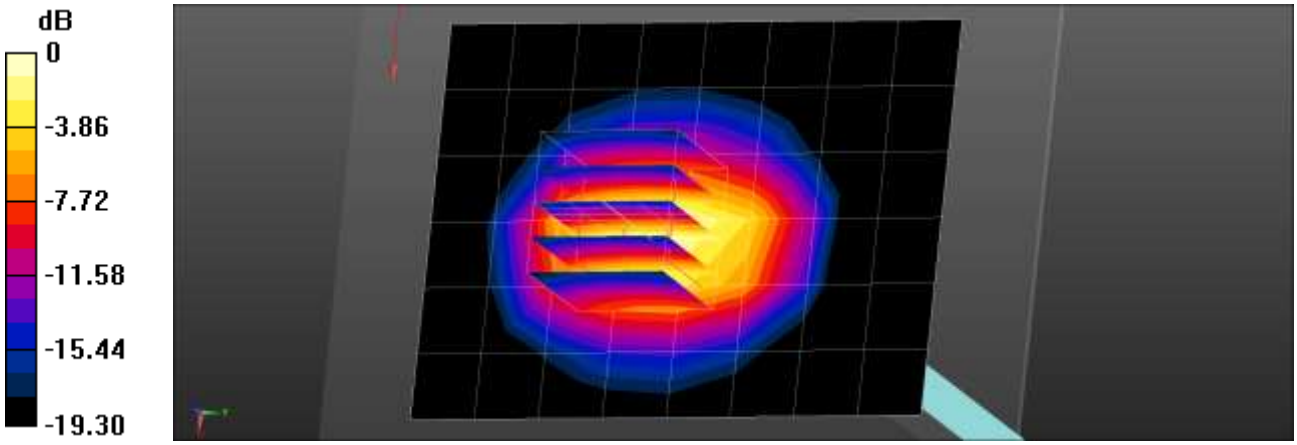
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.567 S/m; ε_r = 53.327; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1900MHz Body Verification/Area Scan (9x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.33 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 39.55 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 3.60 W/kg
SAR(1 g) = 1.9 W/kg; SAR(10 g) = 0.964 W/kg
Maximum value of SAR (measured) = 3.00 W/kg



0 dB = 3.00 W/kg = 4.77 dBW/kg

■ **Verification Data (1 900 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	22.1 ℃
Test Date:	10/15/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

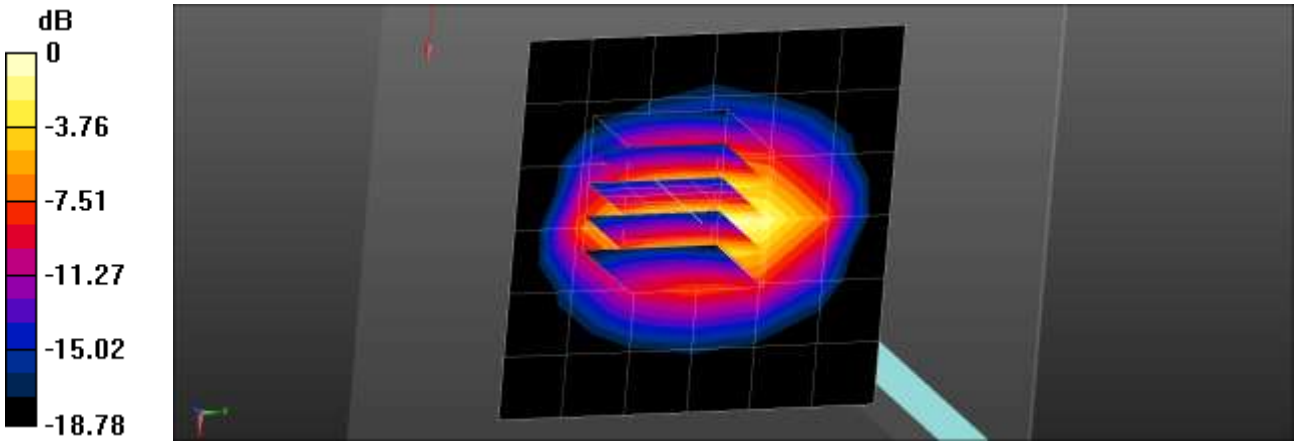
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.525 S/m; ε_r = 53.56; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.99, 7.99, 7.99); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1900MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.22 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.70 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.89 W/kg
SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1 W/kg



0 dB = 3.22 W/kg = 5.08 dBW/kg

■ **Verification Data (1 900 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.4 ℃
Test Date:	10/17/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

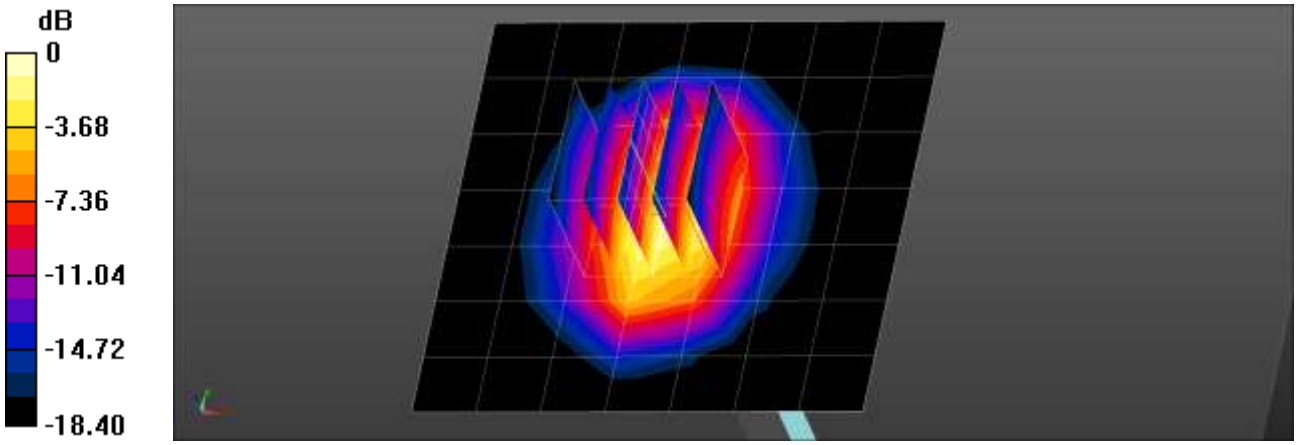
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.528 S/m; ε_r = 53.563; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.64, 7.64, 7.64); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1900MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.19 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.48 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.61 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 0.980 W/kg
Maximum value of SAR (measured) = 3.02 W/kg



0 dB = 3.02 W/kg = 4.80 dBW/kg

■ **Verification Data (2 450 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.4 ℃
Test Date:	10/29/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

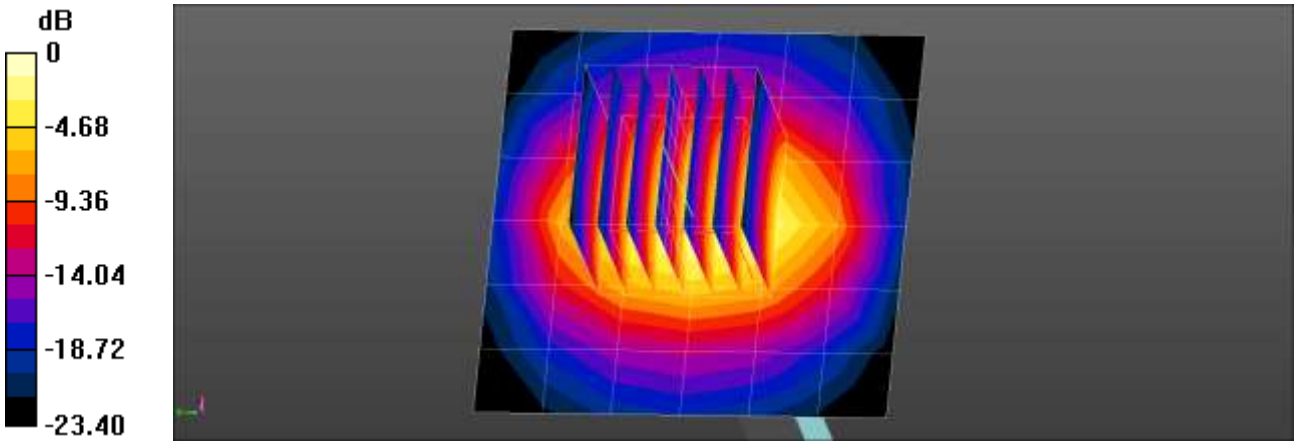
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.793 S/m; ε_r = 38.416; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.6, 7.6, 7.6); Calibrated: 2019-09-27;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Twin-SAM V8.0_20171017(Left2)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2450MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.29 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.21 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 5.53 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.12 W/kg
Maximum value of SAR (measured) = 4.33 W/kg



0 dB = 4.33 W/kg = 6.36 dBW/kg

■ **Verification Data (2 450 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	10/22/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

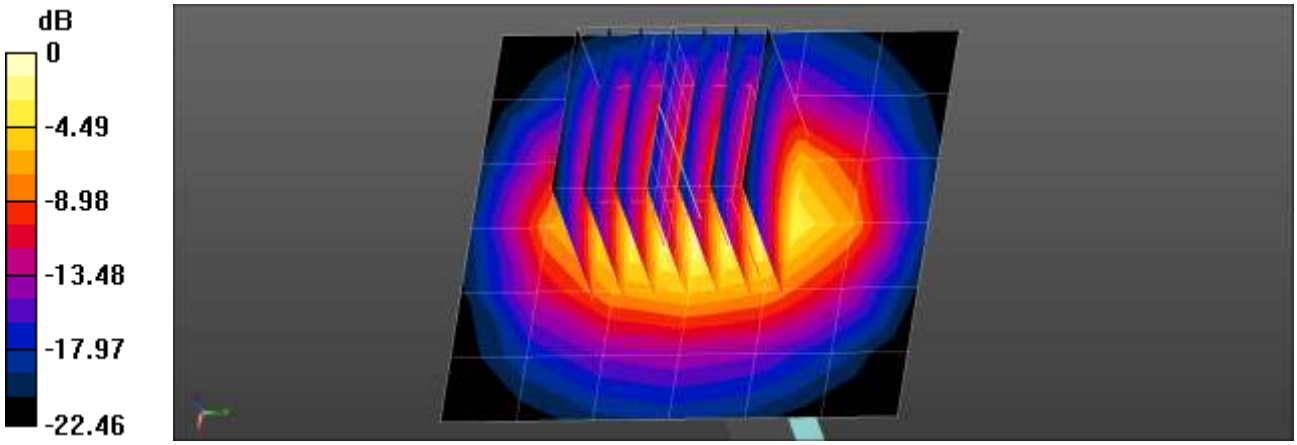
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.797 S/m; ε_r = 38.405; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.23, 7.23, 7.23); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Twin-SAM V8.0_20171017(Left2)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2450MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.10 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 49.81 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 5.23 W/kg
SAR(1 g) = 2.43 W/kg; SAR(10 g) = 1.11 W/kg
Maximum value of SAR (measured) = 4.17 W/kg



0 dB = 4.17 W/kg = 6.20 dBW/kg

■ **Verification Data (2 450 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.3 ℃
Test Date:	10/18/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

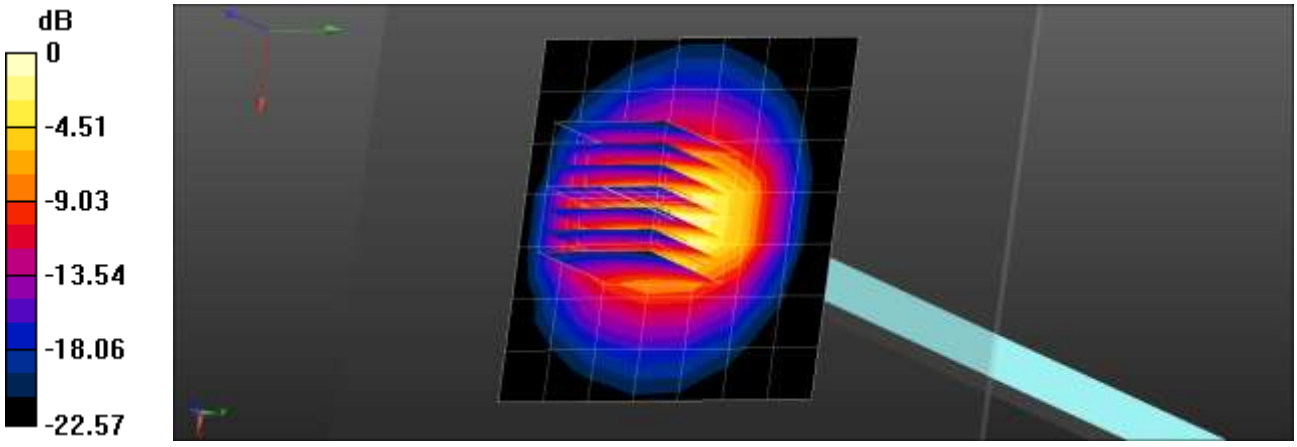
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.951 S/m; ε_r = 53.685; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.27, 7.27, 7.27); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

2450MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.04 W/kg

2450MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.28 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 5.21 W/kg
SAR(1 g) = 2.47 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 4.15 W/kg



0 dB = 4.15 W/kg = 6.18 dBW/kg

■ **Verification Data (2 600 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.1 ℃
Test Date:	10/11/2019

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2

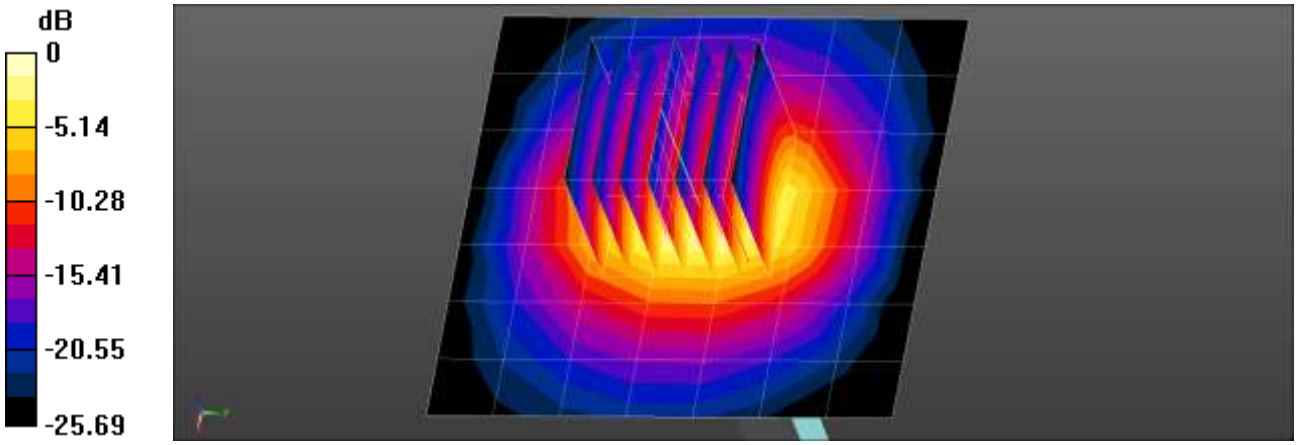
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.951 S/m; ε_r = 37.843; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.36, 7.36, 7.36); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2600MHz Head Verification (LTE 41)/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.03 W/kg

Dipole/2600MHz Head Verification (LTE 41)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.67 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 6.61 W/kg
SAR(1 g) = 2.87 W/kg; SAR(10 g) = 1.26 W/kg
Maximum value of SAR (measured) = 5.10 W/kg



0 dB = 5.10 W/kg = 7.08 dBW/kg

■ **Verification Data (2 600 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	10/29/2019

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2

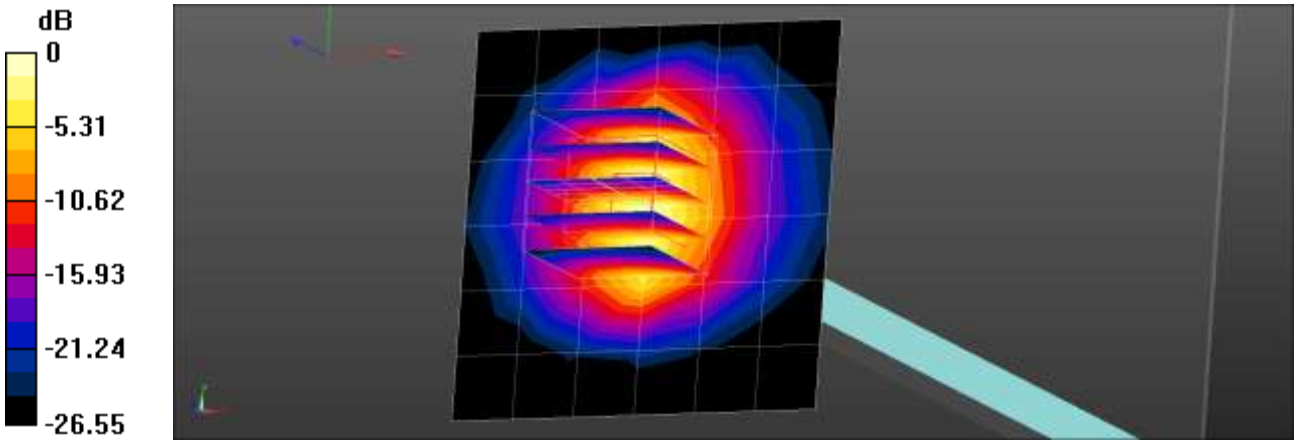
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.105 S/m; ε_r = 53.146; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3863; ConvF(7.34, 7.34, 7.34); Calibrated: 2019-05-15;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn504; Calibrated: 2019-02-22
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2600MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 4.57 W/kg

Dipole/2600MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.03 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 6.22 W/kg
SAR(1 g) = 2.68 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 4.80 W/kg



0 dB = 4.80 W/kg = 6.81 dBW/kg

■ **Verification Data (2 600 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.1 ℃
Test Date:	10/16/2019

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2

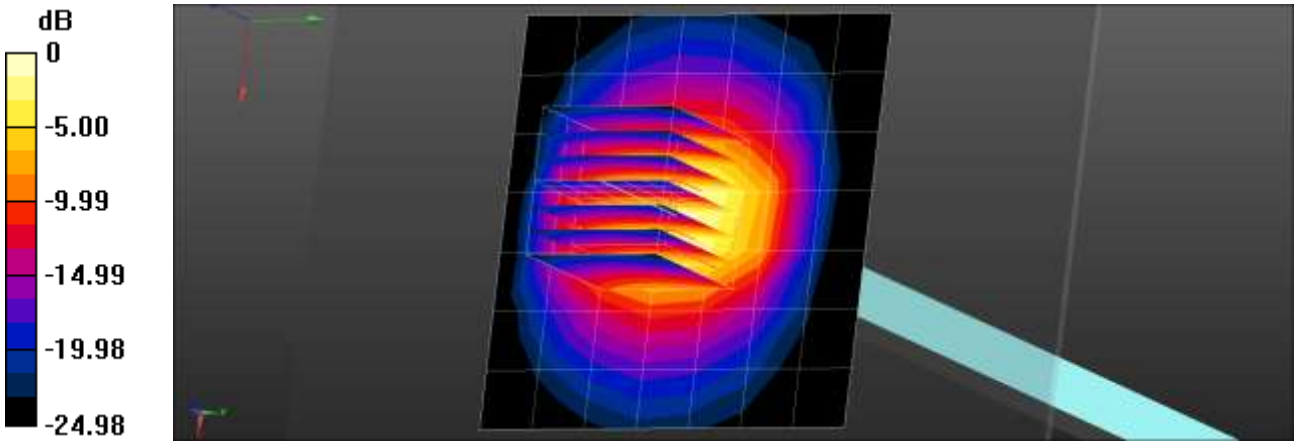
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.114 S/m; ε_r = 53.218; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN7370; ConvF(7.51, 7.51, 7.51); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2600MHz Body Verification (LTE 41)/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.57 W/kg

Dipole/2600MHz Body Verification (LTE 41)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.52 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 5.78 W/kg
SAR(1 g) = 2.59 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 4.56 W/kg



0 dB = 4.56 W/kg = 6.59 dBW/kg

■ **Verification Data (5 250 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	10/24/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

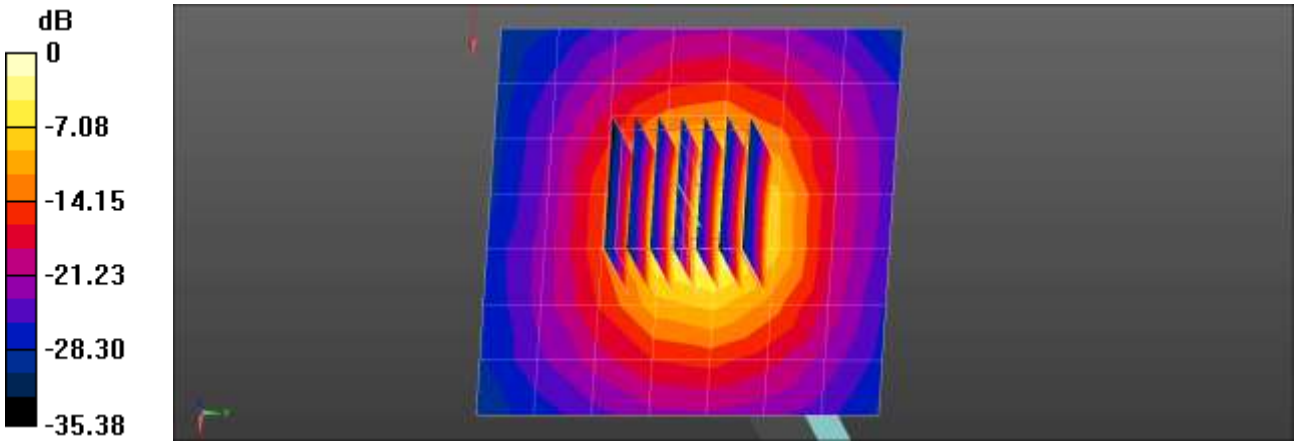
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.691 S/m; ε_r = 36.523; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.42, 5.42, 5.42); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Twin-SAM V4.0 (Left-Right)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/5 250 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.34 W/kg

Dipole/5 250 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 49.45 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 16.6 W/kg
SAR(1 g) = 4.03 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 10.3 W/kg = 10.13 dBW/kg

■ **Verification Data (5 600 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	10/24/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

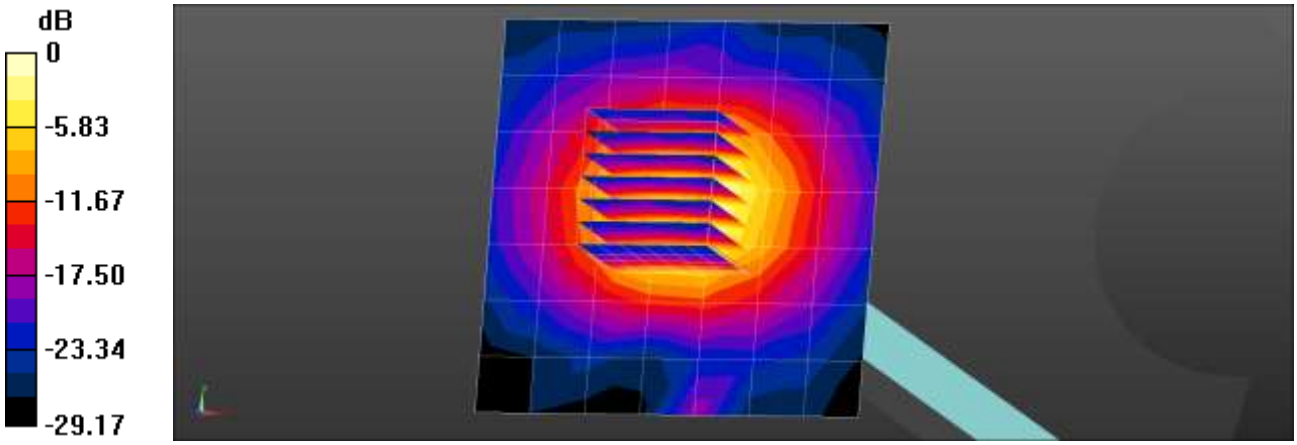
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 4.963 S/m; ε_r = 36.002; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3903; ConvF(4.95, 4.95, 4.95); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Twin-SAM V4.0 (Left-Right)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/5600 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.77 W/kg

Dipole/5600 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 49.46 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 4.15 W/kg; SAR(10 g) = 1.19 W/kg
Maximum value of SAR (measured) = 10.9 W/kg



0 dB = 7.77 W/kg = 8.90 dBW/kg

■ **Verification Data (5 750 ㎒ Head)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	10/24/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

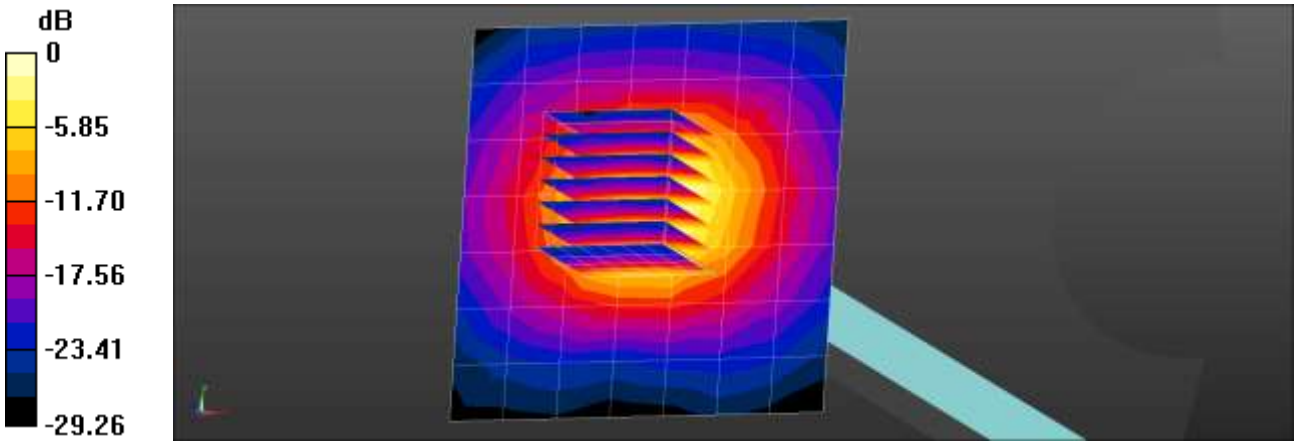
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.224 S/m; ε_r = 36.051; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3903; ConvF(5.08, 5.08, 5.08); Calibrated: 2019-08-29;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Twin-SAM V4.0 (Left-Right)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/5750 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.70 W/kg

Dipole/5750 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 47.75 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 4.04 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 7.70 W/kg = 8.86 dBW/kg

■ **Verification Data (5 250 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	10/23/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

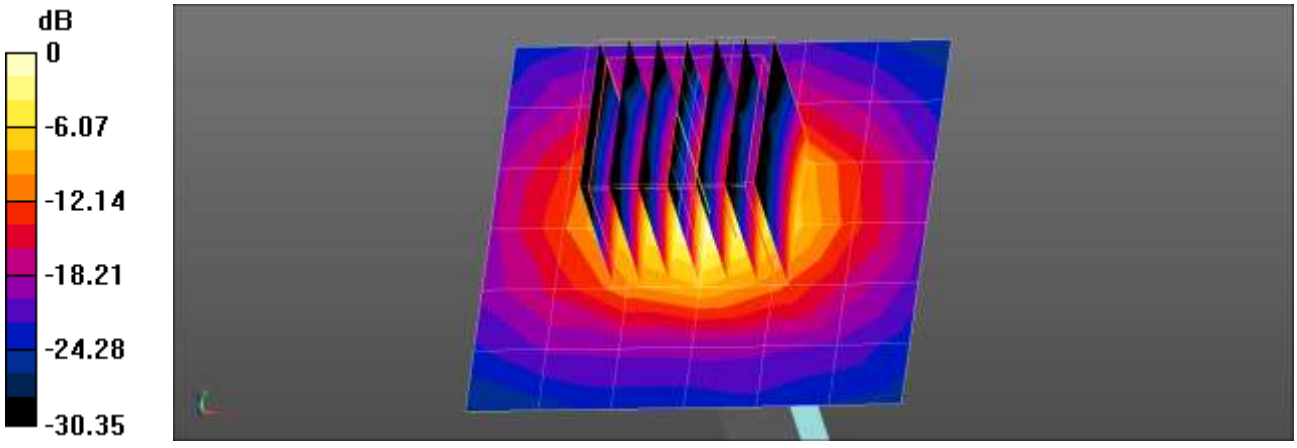
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 5.512 S/m; ε_r = 48.112; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(4.37, 4.37, 4.37); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5250MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.80 W/kg

Dipole/5250MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 45.88 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 15.1 W/kg
SAR(1 g) = 3.8 W/kg; SAR(10 g) = 1.07 W/kg
Maximum value of SAR (measured) = 9.62 W/kg



0 dB = 9.62 W/kg = 9.83 dBW/kg

■ **Verification Data (5 600 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	10/24/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

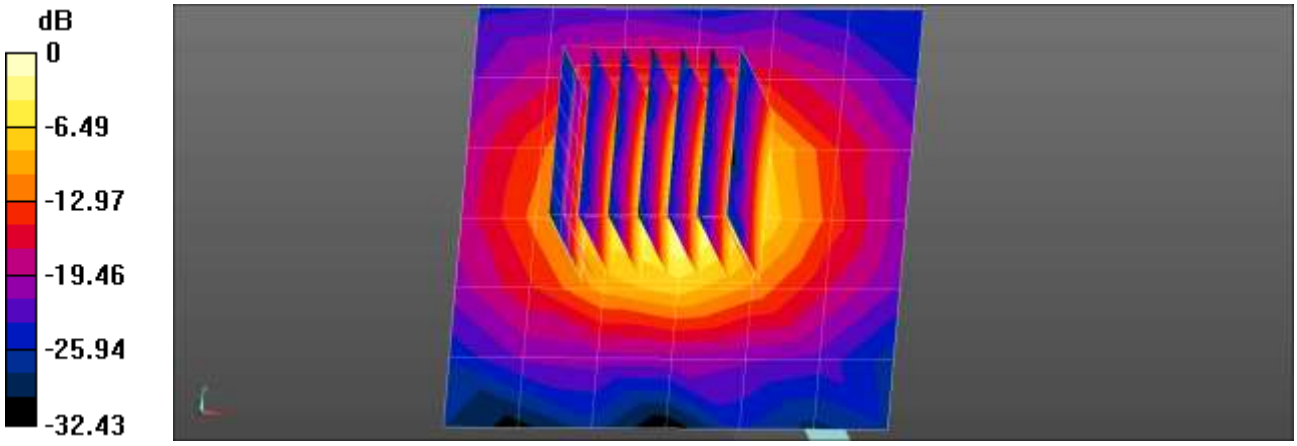
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.961 S/m; ε_r = 47.838; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(3.94, 3.94, 3.94); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5600MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.89 W/kg

Dipole/5600MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 46.95 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.3 W/kg
SAR(1 g) = 4.18 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.8 W/kg



0 dB = 9.89 W/kg = 9.95 dBW/kg

■ **Verification Data (5 750 ㎒ Body)**

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	10/25/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

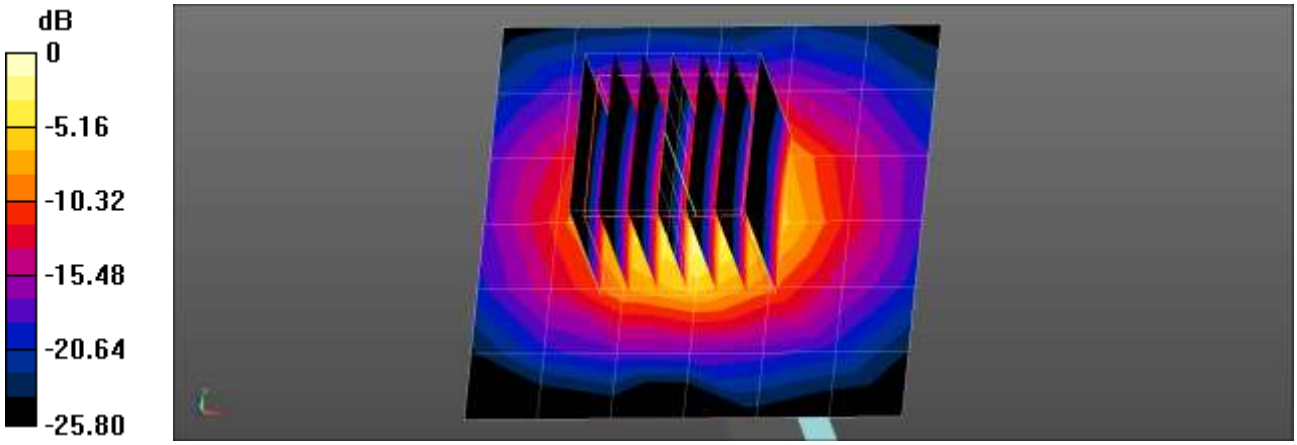
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 6.044 S/m; ε_r = 46.185; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(4.16, 4.16, 4.16); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5750MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.45 W/kg

Dipole/5750MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm ; Graded Ratio:1.4
Reference Value = 45.57 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 17.3 W/kg
SAR(1 g) = 3.81 W/kg; SAR(10 g) = 1.1 W/kg
Maximum value of SAR (measured) = 10.0 W/kg



0 dB = 10.0 W/kg = 10.00 dBW/kg

Attachment 3. – SAR Tissue Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and
saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for
the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Harts grove.

Ingredients (% by weight)	Frequency (MHz)											
	750		835		1 750		1 900		2 450 – 2 700		5 200 - 5 800	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.1	51.7	40.45	53.06	52.6	68.8	54.9	70.17	71.88	73.2	65.52	78.66
Salt (NaCl)	1.4	0.9	1.45	0.94	0.4	0.2	0.18	0.39	0.16	0.1	0.0	0.0
Sugar	57.0	47.2	57.0	44.9	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
HEC	0.2	0	1.0	1.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Bactericide	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.97	0.0	17.24	10.67
DGBE	0.0	0.0	0.0	0.0	47	31	44.92	29.44	7.99	26.7	0.0	0.0
Diethylene glycol hexyl ether	-	-	-	-	-	-	-	-	-	-	-	-

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra-pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Composition of the Tissue Equivalent Matter

Attachment 4. – SAR System Validation

Per FCC KCB 865664 D02v01r02, SAR system validation status should be document to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2013 and FCC KDB 865664 D01v01r04. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.
A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
1	3863	EX3DV4	Head	750	1014	2019-06-10	42.0	0.89	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	750	1014	2019-06-10	55.6	0.98	PASS	PASS	PASS	N/A	N/A	N/A
3	3797	EX3DV4	Head	835	441	2019-09-01	41.6	0.91	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Head	835	441	2019-09-01	41.7	0.91	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Head	835	441	2019-09-01	41.7	0.91	PASS	PASS	PASS	GMSK	PASS	N/A
3	3797	EX3DV4	Body	835	441	2019-09-01	55.3	0.98	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Body	835	441	2019-09-01	55.4	0.97	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	835	441	2019-09-01	55.4	0.97	PASS	PASS	PASS	GMSK	PASS	N/A
12	7370	EX3DV4	Head	1750	2d007	2019-09-11	40.1	1.39	PASS	PASS	PASS	GMSK	PASS	N/A
12	7370	EX3DV4	Head	1750	2d007	2019-09-11	40.1	1.39	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	1750	2d007	2019-05-27	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	1750	2d007	2019-05-27	53.5	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
8	3967	EX3DV4	Body	1750	2d007	2019-02-11	53.5	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
3	3797	EX3DV4	Head	1900	5d032	2019-03-04	40.1	1.42	PASS	PASS	PASS	GMSK	PASS	N/A
5	3903	EX3DV4	Head	1900	5d032	2019-03-04	40.1	1.42	PASS	PASS	PASS	N/A	N/A	N/A
5	3903	EX3DV4	Head	1900	5d032	2019-03-04	40.1	1.41	PASS	PASS	PASS	GMSK	PASS	N/A
3	3797	EX3DV4	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Body	1900	5d032	2019-05-27	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
8	3967	EX3DV4	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	N/A	N/A	N/A
8	3967	EX3DV4	Head	2450	743	2019-02-12	39.4	1.81	PASS	PASS	PASS	OFDM	N/A	PASS
9	3968	EX3DV4	Head	2450	743	2019-10-08	39.4	1.81	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	2450	743	2019-02-11	52.8	1.94	PASS	PASS	PASS	OFDM	N/A	PASS
12	7370	EX3DV4	Head	2600	1015	2019-09-11	39.2	1.96	PASS	PASS	PASS	TDD	PASS	NA
12	7370	EX3DV4	Body	2600	1015	2019-09-11	52.4	2.16	PASS	PASS	PASS	TDD	PASS	NA
9	3968	EX3DV4	Body	2600	1015	2019-10-08	52.4	2.16	PASS	PASS	PASS	TDD	PASS	NA
5	3903	EX3DV4	Head	5250	1253	2018-12-03	35.6	4.71	PASS	PASS	PASS	OFDM	N/A	PASS
3	3797	EX3DV4	Body	5250	1253	2018-12-04	48.8	5.35	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Head	5600	1253	2018-12-03	35.3	5.04	PASS	PASS	PASS	OFDM	N/A	PASS
3	3797	EX3DV4	Body	5600	1253	2018-12-04	48.3	5.79	PASS	PASS	PASS	OFDM	N/A	PASS
5	3903	EX3DV4	Head	5750	1253	2018-12-03	35.8	5.25	PASS	PASS	PASS	OFDM	N/A	PASS
3	3797	EX3DV4	Body	5750	1253	2018-12-04	48.4	5.96	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary 1g

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
8	3967	EX3DV4	Body	1750	2d007	2019-02-11	53.5	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
3	3797	EX3DV4	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	GMSK	PASS	N/A
8	3967	EX3DV4	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	N/A	N/A	N/A
12	7370	EX3DV4	Body	2600	1015	2019-09-11	52.4	2.16	PASS	PASS	PASS	TDD	PASS	NA
3	3797	EX3DV4	Body	5250	1253	2018-12-04	48.8	5.35	PASS	PASS	PASS	OFDM	N/A	PASS
3	3797	EX3DV4	Body	5600	1253	2018-12-04	48.3	5.79	PASS	PASS	PASS	OFDM	N/A	PASS

SAR System Validation Summary – Extremity SAR Considerations

Note;
All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04. SAR system were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664 D01v01r04.