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TEST REPORT

FCC SAR Test for certification of A3LSMA908B

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-1908-FC006-R3

DATE OF ISSUE
Sep. 10, 2019

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FCC ID
A3LSMA908B

Applicant	SAMSUNG Electronics Co., Ltd 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea
Product Name Model Name	Mobile Phone SM-A908B
Date of Test	Aug. 07, 2019 ~ Aug. 22, 2019, Sep. 05, 2019
FCC Rule Part(s)	CFR §2.1093
Test Results	Refer to the present document

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.

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

Tested by
Da-sol, Lee

Technical Manager
Yun Jeang Heo

HCT CO., LTD.
Soo Chan Lee
SooChan Lee / CEO

Accredited by KOLAS, Republic of KOREA

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	Aug. 27, 2019	Initial Release
1	Sep. 05, 2019	Revised Sec 13.5, Sec14.5 and page 297
2	Sep. 07, 2019	Revised page 7,149,Sec 4.7,13.5,14 and 5GWLAN plots Added GSM1900 Phablet SAR data
3	Sep. 10, 2019	Revised,Sec 13.5,14

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by KOLAS(Korea Laboratory Accreditation Scheme)

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1. Test Regulations

The tests were performed according to the following regulations:

Test Standard	IEEE Standard 1528-2013 & KDB procedures
Test Method	- 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 - October 2013 TCB Workshop Notes (GPRS testing criteria) - April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)

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-A908B
Equipment Type	Mobile Phone
FCC ID	A3LSMA908B
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	0.15	0.15	0.93	N/A
GSM/GPRS/EDGE 1900	1 850.2 ㎒ ~ 1 909.8 ㎒	PCE	<0.10	0.35	0.67	1.68
UMTS 850	826.4 ㎒ ~ 846.6 ㎒	PCE	0.21	0.43	0.86	N/A
UMTS 1700	1 712.4 ㎒ ~ 1 752.6 ㎒	PCE	0.15	0.57	0.78	2.48
UMTS 1900	1 852.4 ㎒ ~ 1 907.6 ㎒	PCE	0.16	0.59	0.69	1.86
LTE Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒	PCE	0.14	0.62	0.73	1.60
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	0.30	0.50	1.05	N/A
LTE Band 12	699.7 ㎒ ~ 715.3 ㎒	PCE	0.10	0.18	0.34	N/A
LTE Band 13	779.5 ㎒ ~ 784.5 ㎒	PCE	<0.10	0.12	0.28	N/A
LTE Band 26	814.7 ㎒ ~ 848.3 ㎒	PCE	0.16	0.31	0.63	N/A
LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒	PCE	<0.10	0.15	0.59	1.29
LTE Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒	PCE	0.10	0.19	0.61	2.30
802.11b	2 412 ㎒ ~ 2 462 ㎒	DTS	0.22	<0.10	0.22	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	<0.10	0.41	N/A	1.98
U-NII-2C	5 500 ㎒ ~ 5 720 ㎒	NII	<0.10	0.42	N/A	1.23
U-NII-3	5 745 ㎒ ~ 5 825 ㎒	NII	<0.10	0.23	0.25	N/A
Bluetooth	2 402 ㎒ ~ 2 480 ㎒	DSS	0.27	<0.10	<0.10	N/A
Simultaneous SAR per KDB 690783 D01v01r03			0.65	1.46	1.51	3.31
Date(s) of Tests:	Aug. 07, 2019 ~ Aug. 22, 2019, Sep. 05, 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 ㎒ ~ 2 462 ㎒
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): 164.8 ㎜ x 76.4 ㎜ Overall Diagonal: 170.62 ㎜ Display Diagonal: 166.07 ㎜	
Battery Information	Standard (Li-ion Polymer Battery)	
	Battery Model Name: EB-BA908ABY (ALMUS)	
HW version	REV1.1	
SW version	A908B.001	
Device Serial Numbers	Mode	Serial Number
	2.4 GHz WLAN, Bluetooth	SG60136H
	5 GHz WLAN	SG60137H
	GSM850, UMTS 850, Band 5/ 12/ 13/ 26	SH10563H
	GSM1900, UMTS 1700, UMTS 1900	SH10556H
	LTE Band 2/ 66	SH10534H
	LTE Band 41	SH10551H
	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 selecton 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	33.0	33.0	32.5	30.5	28.5	27.5	26.0	24.0	23.0
	Nominal	32.0	32.0	31.5	29.5	27.5	26.5	25.0	23.0	22.0
GSM/GPRS/EDGE1900	Maximum	30.0	30.0	29.0	27.5	25.0	26.5	25.0	22.5	21.5
	Nominal	29.0	29.0	28.0	26.5	24.0	25.5	24.0	21.5	20.5

Mode / Band		Modulated Average (dBm)				
		3GPP WCDMA	AMR	3GPP HSDPA	3GPP HSUPA	DC-HSDPA
UMTS Band 5 (850 ㎒)	Maximum	25.0	25.0	23.0	23.0	23.0
	Nominal	24.0	24.0	22.0	22.0	22.0
UMTS Band 4 (1700 ㎒)	Maximum	23.0	23.0	22.0	22.0	22.0
	Nominal	22.0	22.0	21.0	21.0	21.0
UMTS Band 2 (1900 ㎒)	Maximum	23.5	23.5	23.0	23.0	22.0
	Nominal	22.5	22.5	22.0	22.0	21.0

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	24.0
	Nominal	23.0
LTE Band 4 (AWS)	Maximum	23.5
	Nominal	22.5
LTE Band 5 (Cell)	Maximum	25.5
	Nominal	24.5
LTE Band 12	Maximum	23.5
	Nominal	22.5
LTE Band 13	Maximum	23.5
	Nominal	22.5
LTE Band 17	Maximum	23.5
	Nominal	22.5
LTE Band 26	Maximum	24.0
	Nominal	23.0
LTE TDD Band 41	Maximum	24.5
	Nominal	23.5
LTE Band 66 (AWS)	Maximum	23.5
	Nominal	22.5

4.3.2 Reduced PCE Power (Grip Sensor activated)

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/EDGE1900	Maximum	25.0	25.0	25.0	23.5	22.5	24.5	24.5	22.5	21.5
	Nominal	24.0	24.0	24.0	22.5	21.5	23.5	23.5	21.5	20.5

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

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	19.0
	Nominal	18.0
LTE Band 4 (AWS)	Maximum	20.0
	Nominal	19.0
LTE TDD Band 41	Maximum	21.5
	Nominal	20.5
LTE Band 66 (AWS)	Maximum	20.0
	Nominal	19.0

4.3.3 Reduced PCE Power (HotSpot activated)

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/EDGE1900	Maximum	25.0	25.0	25.0	23.5	22.5	24.5	24.5	22.5	21.5
	Nominal	24.0	24.0	24.0	22.5	21.5	23.5	23.5	21.5	20.5

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

Mode / Band		Modulated Average (dBm)
LTE Band 2 (PCS)	Maximum	19.0
	Nominal	18.0
LTE Band 4 (AWS)	Maximum	20.0
	Nominal	19.0
LTE TDD Band 41	Maximum	21.5
	Nominal	20.5
LTE Band 66 (AWS)	Maximum	20.0
	Nominal	19.0

4.3.4 Maximum WLAN/ Bluetooth Power

Maximum 2.4 GHz WIFI output power

Mode / Band		Modulated Average (dBm)					
		SISO			MIMO		
Model		802.11b	802.11g	802.11n	802.11b	802.11g	802.11n
2.4 GHz WIFI	Maximum	19	16	15	N/A	19	18
	Nominal	18	15	14	N/A	18	17

Reduced 2.4 GHz WIFI output power

Mode / Band		Modulated Average (dBm)					
		SISO			MIMO		
Mode		802.11b	802.11g	802.11n	802.11b	802.11g	802.11n
2.4 GHz WIFI	Maximum	15	15	15	N/A	18	18
	Nominal	14	14	14	N/A	17	17

Maximum Bluetooth Power

Mode / Band			Modulated Average (dBm)
Bluetooth (1Mbps)		Maximum	12
		Nominal	11
Bluetooth (EDR)		Maximum	9
		Nominal	8
Bluetooth LE	2Mbps	Maximum	8.5
		Nominal	7.5
	1Mbps, 125/500Kbps	Maximum	8.5
		Nominal	7.5

Maximum 5 ㎓ WIFI output power

Mode / Band			Modulated Average (dBm)							
			SISO				MIMO			
Mode			11a	11g	11n	11ac	11a	11g	11n	11ac
5 ㎓ WIFI (20 ㎒)	(U-NII-1) 5200 ㎒	Maximum	16	N/A	16	16	19	N/A	19	19
		Nominal	15	N/A	15	15	18	N/A	18	18
	(U-NII-2A) 5300 ㎒	Maximum	16	N/A	16	16	19	N/A	19	19
		Nominal	15	N/A	15	15	18	N/A	18	18
	(U-NII-2C) 5500 ㎒	Maximum	16 ch100:9 ch104:11	N/A	16 ch100:9 ch104:12	16 ch100:9 ch104:12	19 ch100:12 ch104:14	N/A	19 ch100:12 ch104:15	19 ch100:12 ch104:15
		Nominal	15 ch100:8 ch104:10	N/A	15 ch100:8 ch104:11	15 ch100:8 ch104:11	18 ch100:11 ch104:13	N/A	18 ch100:11 ch104:14	18 ch100:11 ch104:14
	(U-NII-3) 5800 ㎒	Maximum	16	N/A	16	16	19	N/A	19	19
		Nominal	15	N/A	15	15	18	N/A	18	18
5 ㎓ WIFI (40 ㎒)	(U-NII-1) 5200 ㎒	Maximum	N/A	N/A	15	15	N/A	N/A	18	18
		Nominal	N/A	N/A	14	14	N/A	N/A	17	17
	(U-NII-2A) 5300 ㎒	Maximum	N/A	N/A	15	15	N/A	N/A	18	18
		Nominal	N/A	N/A	14	14	N/A	N/A	17	17
	(U-NII-2C) 5500 ㎒	Maximum	N/A	N/A	15 ch102:9	15 ch102:8 ch110:8	N/A	N/A	18 ch102:12	18 ch102:11 ch110:11
		Nominal	N/A	N/A	14 ch102:8	14 ch102:7 ch110:7	N/A	N/A	17 ch102:11	17 ch102:10 ch110:10
	(U-NII-3) 5800 ㎒	Maximum	N/A	N/A	15	15	N/A	N/A	18	18
		Nominal	N/A	N/A	14	14	N/A	N/A	17	17
5 ㎓ WIFI (80 ㎒)	(U-NII-1) 5210 ㎒	Maximum	N/A	N/A	N/A	12	N/A	N/A	N/A	15
		Nominal	N/A	N/A	N/A	11	N/A	N/A	N/A	14
	(U-NII-2A) 5290 ㎒	Maximum	N/A	N/A	N/A	10	N/A	N/A	N/A	13
		Nominal	N/A	N/A	N/A	9	N/A	N/A	N/A	12
	(U-NII-2C) 5500 ㎒	Maximum	N/A	N/A	N/A	14 ch106:11	N/A	N/A	N/A	17 ch106:14
		Nominal	N/A	N/A	N/A	13 ch106:10	N/A	N/A	N/A	16 ch106:13
	(U-NII-3) 5800 ㎒	Maximum	N/A	N/A	N/A	14	N/A	N/A	N/A	17
		Nominal	N/A	N/A	N/A	13	N/A	N/A	N/A	16

Reduced 5 GHz WIFI output power -

Mode / Band			Modulated Average (dBm)							
			SISO				MIMO			
Mode			11a	11g	11n	11ac	11a	11g	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	15	N/A	15	15	18	N/A	18	18
		Nominal	14	N/A	14	14	17	N/A	17	17
	(U-NII-2A) 5300 MHz	Maximum	15	N/A	15	15	18	N/A	18	18
		Nominal	14	N/A	14	14	17	N/A	17	17
	(U-NII-2C) 5500 MHz	Maximum	15 ch100:9 ch104:11	N/A	15 ch100:9 ch104:12	15 ch100:9 ch104:12	18 ch100:12 ch104:14)	N/A	18 ch100:12 ch104:15	18 ch100:12 ch104:15
		Nominal	14 ch100:8 ch104:10	N/A	14 ch100:8 ch104:11	14 ch100:8 ch104:11	17 ch100:11 ch104:13	N/A	17 ch100:11 ch104:14	17 ch100:11 ch104:14
	(U-NII-3) 5800 MHz	Maximum	15	N/A	15	15	15	N/A	15	15
		Nominal	14	N/A	14	14	14	N/A	14	14
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	N/A	15	15	N/A	N/A	18	18
		Nominal	N/A	N/A	14	14	N/A	N/A	17	17
	(U-NII-2A) 5300 MHz	Maximum	N/A	N/A	15	15	N/A	N/A	18	18
		Nominal	N/A	N/A	14	14	N/A	N/A	17	17
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	15 ch102:9	15 ch102:9	N/A	N/A	18 ch102:12	18 ch102:12
		Nominal	N/A	N/A	14 ch102:8	14 ch102:8	N/A	N/A	17 ch102:11	17 ch102:11
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	15	15	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14	N/A	N/A	14	14
5 GHz WIFI (80 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	N/A	N/A	12	N/A	N/A	N/A	15
		Nominal	N/A	N/A	N/A	11	N/A	N/A	N/A	14
	(U-NII-2A) 5300 MHz	Maximum	N/A	N/A	N/A	10	N/A	N/A	N/A	13
		Nominal	N/A	N/A	N/A	9	N/A	N/A	N/A	12
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	N/A	14 ch106:11	N/A	N/A	N/A	17 ch106:14
		Nominal	N/A	N/A	N/A	13 ch106:10	N/A	N/A	N/A	16 ch106:13
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	N/A	14	N/A	N/A	N/A	17
		Nominal	N/A	N/A	N/A	13	N/A	N/A	N/A	16

Maximum WIFI output power – RSDB Mode

Mode / Band		Modulated Average (dBm)		
		SISO		
Model		802.11b	802.11g	802.11n
2.4 GHz WIFI	Maximum	19	16	15
	Nominal	18	15	14

Mode / Band			Modulated Average (dBm)			
			SISO			
Mode			11a	11g	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	16	N/A	16	16
		Nominal	15	N/A	15	15
	(U-NII-2A) 5300 MHz	Maximum	16	N/A	16	16
		Nominal	15	N/A	15	15
	(U-NII-2C) 5500 MHz	Maximum	16 ch100:9 ch104:11	N/A	16 ch100:9 ch104:12	16 ch100:9 ch104:12
		Nominal	15 ch100:8 ch104:10	N/A	15 ch100:8 ch104:11	15 ch100:8 ch104:11
	(U-NII-3) 5800 MHz	Maximum	16	N/A	16	16
		Nominal	15	N/A	15	15
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
	(U-NII-2A) 5300 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	15 ch102:9	15 (ch102:8/ch110:8)
		Nominal	N/A	N/A	14 ch102:8	14 (ch102:7/ch110:7)
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
5 GHz WIFI (80 MHz)	(U-NII-1) 5210 MHz	Maximum	N/A	N/A	N/A	12
		Nominal	N/A	N/A	N/A	11
	(U-NII-2A) 5290 MHz	Maximum	N/A	N/A	N/A	10
		Nominal	N/A	N/A	N/A	9
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	N/A	14 (ch106:11)
		Nominal	N/A	N/A	N/A	13(ch106:10)
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	N/A	14
		Nominal	N/A	N/A	N/A	13

Reduced WLAN power – RSDB

Mode / Band		Modulated Average (dBm)		
		SISO		
Mode		802.11b	802.11g	802.11n
2.4 GHz WIFI	Maximum	15	15	15
	Nominal	14	14	14

Mode / Band			Modulated Average (dBm)			
			SISO			
Mode			11a	11g	11n	11ac
5 GHz WIFI (20 MHz)	(U-NII-1) 5200 MHz	Maximum	15	N/A	15	15
		Nominal	14	N/A	14	14
	(U-NII-2A) 5300 MHz	Maximum	15	N/A	15	15
		Nominal	14	N/A	14	14
	(U-NII-2C) 5500 MHz	Maximum	15 ch100:9 ch104:11	N/A	15 ch100:9 ch104:12	15 ch100:9 ch104:12
		Nominal	14 ch100:8 ch104:10	N/A	14 ch100:8 ch104:11	14 ch100:8 ch104:11
	(U-NII-3) 5800 MHz	Maximum	15	N/A	15	15
		Nominal	14	N/A	14	14
5 GHz WIFI (40 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
	(U-NII-2A) 5300 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	15 ch102:9	15 ch102:9
		Nominal	N/A	N/A	14 ch102:8	14 ch102:8
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	15	15
		Nominal	N/A	N/A	14	14
5 GHz WIFI (80 MHz)	(U-NII-1) 5200 MHz	Maximum	N/A	N/A	N/A	12
		Nominal	N/A	N/A	N/A	11
	(U-NII-2A) 5300 MHz	Maximum	N/A	N/A	N/A	10
		Nominal	N/A	N/A	N/A	9
	(U-NII-2C) 5500 MHz	Maximum	N/A	N/A	N/A	14 ch106:11
		Nominal	N/A	N/A	N/A	13 ch106:10
	(U-NII-3) 5800 MHz	Maximum	N/A	N/A	N/A	14
		Nominal	N/A	N/A	N/A	13

Maximum Power During Conditions with simultaneous 2.4 GHz WIFI and 5 GHz WLAN

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	16	19	N/A	2.4 GHz:,b,g,n 5 GHz: a,n,ac
		Nominal	N/A	15	18	N/A	

Reduced Power During Conditions with simultaneous 2.4 GHz WIFI and 5 GHz WLAN

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	15	N/A	2.4 GHz:,b,g,n 5 GHz: a,n,ac
		Nominal	N/A	14	14	N/A	

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)

Ch. No.& Freq.(MHz)		Low	Mid	High
LTE Band 12	1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 MHz	704.0 (23060)	707.5 (23095)	711.0 (23130)
LTE Band 13	5 MHz	779.5 (23205)	782 (23230)	784.5 (23255)
	10 MHz		782 (23230)	
LTE Band 17	5 MHz	706.5 (23755)	710 (23790)	713.5 (23825)
	10 MHz	709.0 (23780)	710 (23790)	711.0 (23800)
LTE Band 26 (Cell)	1.4 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 MHz	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 MHz	821.5 (26765)	831.5 (26865)	841.5 (26965)
LTE Band 66 (AWS)	1.4 MHz	1 710.7 (131979)	1 745 (132322)	1 779.3 (132665)
	3 MHz	1 711.5 (131987)	1 745 (132322)	1 778.5 (132657)
	5 MHz	1 712.5 (131997)	1 745 (132322)	1 777.5 (132647)
	10 MHz	1 715.0 (132022)	1 745 (132322)	1 775.0 (132622)
	15 MHz	1 717.5 (132047)	1 745 (132322)	1 772.5 (132597)
	20 MHz	1 720.0 (132072)	1 745 (132322)	1 770.0 (132572)
LTE TDD Band 41	5 MHz	2498.5(39675)	2545.8(40148)	2593.0(40620)	2640.3(41093)	2687.5(41565)
	10 MHz	2501.0(39700)	2547.0(40160)	2593.0(40620)	2639.0(41080)	2685.0(41540)
	15 MHz	2503.5(39725)	2548.3(41073)	2593.0(40620)	2637.8(41068)	2682.5(41515)
	20 MHz	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)

Item.	Description	
UE Category	LTE Rel. 12, 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	Down-Link CA	This device dose not supports Down-Link Carrier aggregation.in US.
LTE Release 10 information	This device does not support full CA features on 3GPP Release 10. All up-link communications are identical to the release 8 specifications. The following LTE Release 10 features are not supported. Uplink Carrier aggregations, Relay, HetNet, Enhanced MIMO, elCl, 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 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. All licensed modes share the same antenna path and cannot transmit simultaneously.
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 ㎓ 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 ㎒ 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

4.8.2 Bluetooth LE

Per FCC KDB 447498 D01v06, The SAR exclusion threshold for distance < 50mm is defined by the following equation:

$$\frac{MaxPowerofChannel(mW)}{TestSeparationDistance(mm)} x\sqrt{Frequency(GHz)} \leq 3.0(1g\ \ SAR), 7.5(10g\ \ SAR)$$

Mode		Frequency	Maximum Allowed Power	Separation Distance	≤ 3.0	≤ 7.5
		[㎒]	[mW]	[mm]	1-g SAR	10-g SAR
Bluetooth LE	Head SAR	2 480	7	5	2.2	
	Body Worn SAR			15	0.7	
	Tethering SAR			10	1.1	
	Extremity SAR			5		2.2

Based on the maximum conducted power of Bluetooth LE and antenna to use separation distance, Bluetooth LE SAR was not required [(7/5)x√2.480] = 2.2≤3.0, [(7/15)x√2.480] = 0.7≤3.0 for 1-g SAR, [(7/10)x√2.480] = 1.1≤3.0 for 1-g SAR, [(7/5)x√2.480] = 2.2≤7.5 for 10-g SAR.

4.8.3 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 suuprts 64QAM on the uplink for LTE Operations. Conducted powers for 64QAM uplink configurations were measured per section 5.1 of FCC KDB 941225D05v02r05. SAR was not required for 64QAM sinse 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 fo FCC KDB941225 D05v02r05.

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 ㎒) 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.

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

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.

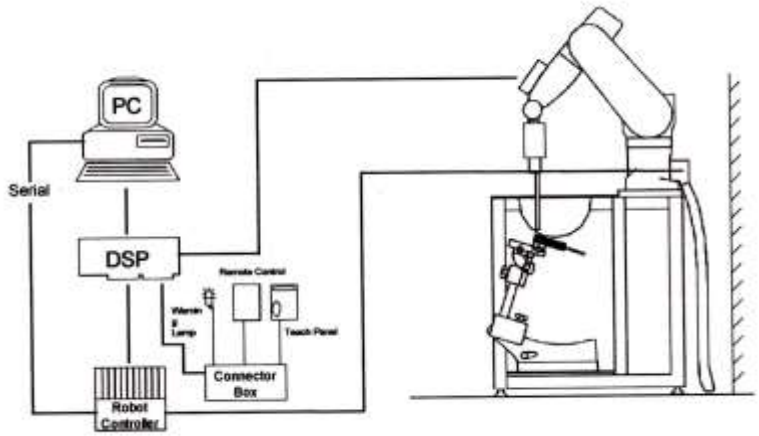


Figure 2. HCT SAR Lab. Test Measurement Set-up

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}		≤ 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 1st two Points closest to phantom surface	≤ 4 mm	3-4 GHz: ≤3 mm 4-5 GHz: ≤2.5 mm 5-6 GHz: ≤2 mm
	graded grid: $\Delta z_{zoom}(n>1)$: 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

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.

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.

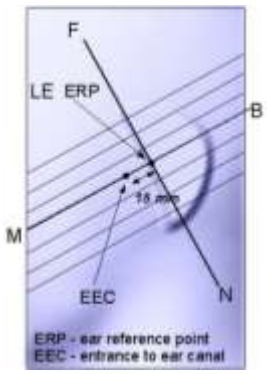


Figure 8-1
Close-up side view of ERP

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

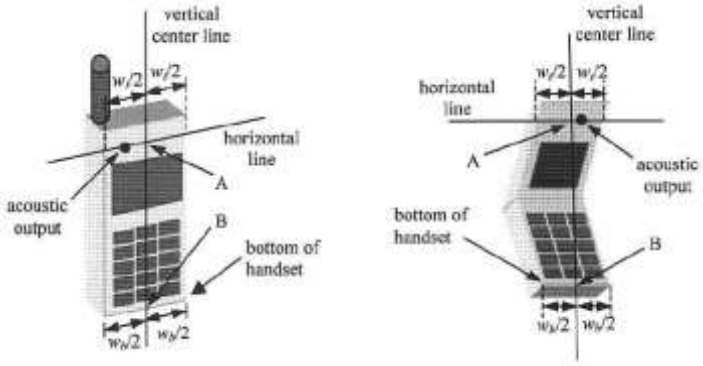


Figure 6-3. Handset vertical and horizontal reference lines

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.

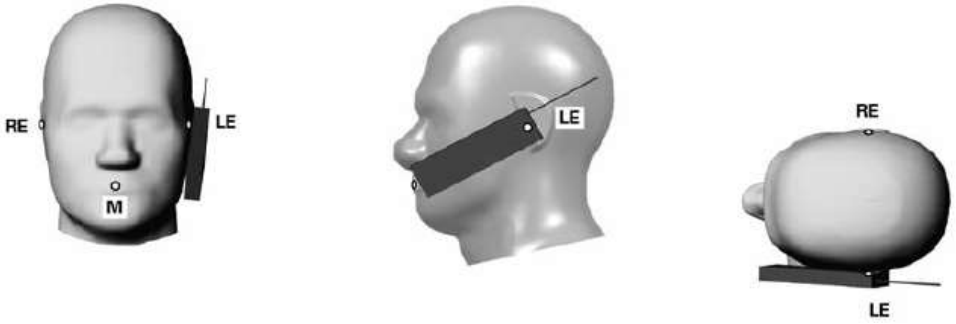


Figure 8.4 Cheek/ Touch position of the wireless device

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.

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 # (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ## (Whole Body)	0.08	0.40
SPATIAL PEAK SAR ### (Hands / Feet / Ankle / Wrist)	4.00	20.00

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 12.2kbps 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 12.2kbps 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.

10.4.6 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

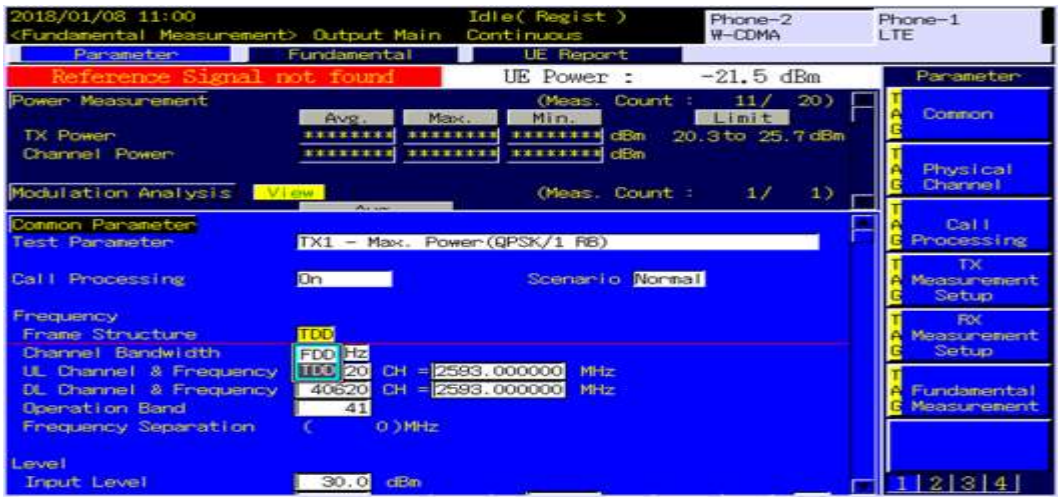
Table 4.2-2: Uplink-downlink configurations.

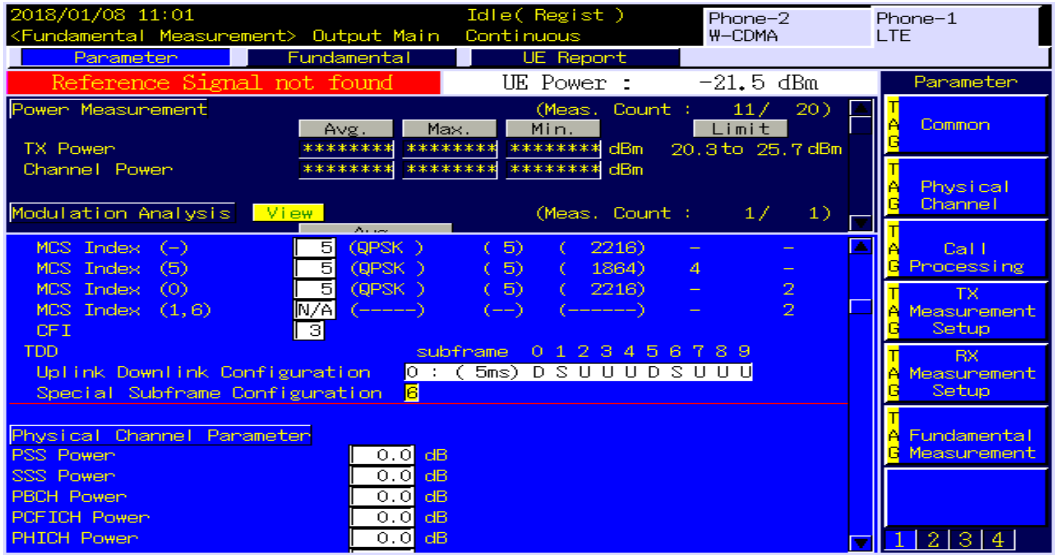
Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U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

10.4.7 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.


2018/01/08 11:00
Idle(Regist)
<Fundamental Measurement> Output Main
Continuous
Phone-2
W-CDMA
Phone-1
LTE
Parameter
Fundamental
UE Report
Reference Signal not found
UE Power : -21.5 dBm
Parameter
Power Measurement
(Meas. Count : 11/ 20)
Avg.
Max.
Min.
Limit
TX Power
Channel Power
dBm
20.3to 25.7dBm
Modulation Analysis
View
(Meas. Count : 1/ 1)
Common Parameter
Test Parameter
TX1 - Max. Power(QPSK/1 RB)
Call Processing
On
Scenario Normal
Frequency
Frame Structure
TDD
Channel Bandwidth
FDD Hz
UL Channel & Frequency
TDD 20 CH = 2593.000000 MHz
DL Channel & Frequency
40620 CH = 2593.000000 MHz
Operation Band
41
Frequency Separation
(0)MHz
Level
Input Level
30.0 dBm
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4


2018/01/08 11:01
Idle(Regist)
<Fundamental Measurement> Output Main
Continuous
Phone-2
W-CDMA
Phone-1
LTE
Parameter
Fundamental
UE Report
Reference Signal not found
UE Power : -21.5 dBm
Parameter
Power Measurement
(Meas. Count : 11/ 20)
Avg.
Max.
Min.
Limit
TX Power
Channel Power
dBm
20.3to 25.7dBm
Modulation Analysis
View
(Meas. Count : 1/ 1)
MCS Index (-) 5 (QPSK) (5) (2216) - -
MCS Index (5) 5 (QPSK) (5) (1864) 4 -
MCS Index (0) 5 (QPSK) (5) (2216) - 2
MCS Index (1,6) N/A (-----) (--) (------) - 2
CFI 3
TDD
subframe 0 1 2 3 4 5 6 7 8 9
Uplink Downlink Configuration 0 : (5ms) D S U U U D S U U U
Special Subframe Configuration 6
Physical Channel Parameter
PSS Power 0.0 dB
SSS Power 0.0 dB
PBCH Power 0.0 dB
PCFICH Power 0.0 dB
PHICH Power 0.0 dB
Common
Physical Channel
Call Processing
TX Measurement Setup
RX Measurement Setup
Fundamental Measurement
1 2 3 4

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 ㎓ SAR test Requirements

SAR is measured for 2.4 ㎓ 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 ㎓ 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 ㎓ band, the Initial Test Configuration Procedures should be followed.

10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

For the 2.4 ㎓ and 5 ㎓ 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 ㎓ and 5 ㎓ 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

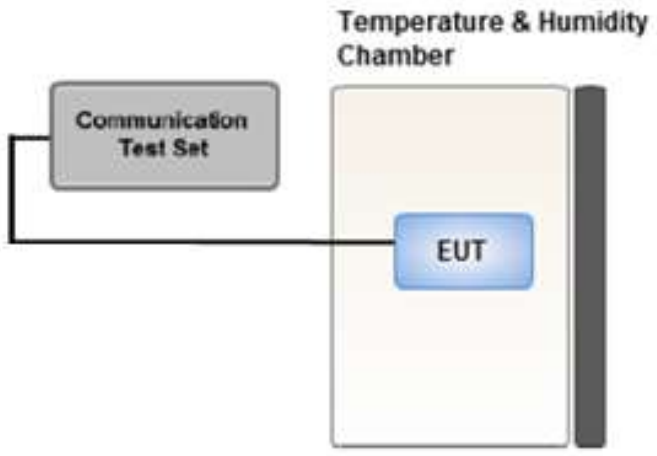
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base 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		33.00	33.00	32.50	30.50	28.50	27.50	26.00	24.00	23.00
Nominal		32.00	32.00	31.50	29.50	27.50	26.50	25.00	23.00	22.00
GSM 850	128	31.98	31.98	31.26	29.17	27.08	26.23	24.62	23.55	21.59
	190	31.54	31.54	31.16	29.07	27.14	26.21	24.79	22.74	21.59
	251	31.99	31.96	31.28	29.33	27.33	26.57	24.84	22.88	21.40
Maximum		30.00	30.00	29.00	27.50	25.00	26.50	25.00	22.50	21.50
Nominal		29.00	29.00	28.00	26.50	24.00	25.50	24.00	21.50	20.50
GSM 1900	512	28.67	28.68	27.43	26.05	24.20	25.26	23.60	21.61	20.55
	661	28.24	28.28	27.87	26.29	23.68	25.24	23.80	21.94	20.69
	810	28.57	28.55	27.56	25.87	23.40	25.12	23.47	21.49	20.58

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		23.97	23.97	26.48	26.24	25.49	18.47	19.98	19.74	19.99
Nominal		22.97	22.97	25.48	25.24	24.49	17.47	18.98	18.74	18.99
GSM 850	128	22.95	22.95	25.24	24.91	24.07	17.20	18.60	19.29	18.58
	190	22.51	22.51	25.14	24.81	24.13	17.18	18.77	18.48	18.58
	251	22.96	22.93	25.26	25.07	24.32	17.54	18.82	18.62	18.39
Maximum		20.97	20.97	22.98	23.24	21.99	17.47	18.98	18.24	18.49
Nominal		19.97	19.97	21.98	22.24	20.99	16.47	17.98	17.24	17.49
GSM 1900	512	19.64	19.65	21.41	21.79	21.19	16.23	17.58	17.35	17.54
	661	19.21	19.25	21.85	22.03	20.67	16.21	17.78	17.68	17.68
	810	19.54	19.52	21.54	21.61	20.39	16.09	17.45	17.23	17.57

GSM Conducted output powers (Frame-Average)

11.1.2 GSM Reduced Conducted Output Power (Hotspot Back-off 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		25.00	25.00	25.00	23.50	22.50	24.50	24.50	22.50	21.50
Nominal		24.00	24.00	24.00	22.50	21.50	23.50	23.50	21.50	20.50
GSM 1900	512	23.74	23.75	23.71	22.05	21.02	23.82	23.21	21.6	20.53
	661	23.91	23.91	23.85	22.29	21.39	23.71	23.33	21.84	20.57
	810	23.72	23.73	23.64	22.2	21.02	23.63	23.4	21.49	20.59

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		15.97	15.97	18.98	19.24	19.49	15.47	18.48	18.24	18.49
Nominal		14.97	14.97	17.98	18.24	18.49	14.47	17.48	17.24	17.49
GSM 1900	512	14.71	14.72	17.69	17.79	18.01	14.79	17.19	17.34	17.52
	661	14.88	14.88	17.83	18.03	18.38	14.68	17.31	17.58	17.56
	810	14.69	14.70	17.62	17.94	18.01	14.60	17.38	17.23	17.58

GSM Conducted output powers (Frame-Average)

11.1.3 GSM Reduced Conducted Output Power (Grip back-off 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		25.00	25.00	25.00	23.50	22.50	24.50	24.50	22.50	21.50
Nominal		24.00	24.00	24.00	22.50	21.50	23.50	23.50	21.50	20.50
GSM 1900	512	23.63	23.63	23.53	21.95	21.02	23.8	23.31	21.59	20.58
	661	23.82	23.81	23.51	22.06	21.04	23.73	23.3	21.78	20.56
	810	23.82	23.82	23.67	22.22	21.05	23.65	23.42	21.53	20.57

GSM Conducted output powers (Burst-Average)

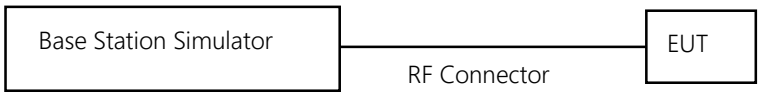
Mode / Band		Voice	GPRS(GMSK) Data – CS1 (dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		15.97	15.97	18.98	19.24	19.49	15.47	18.48	18.24	18.49
Nominal		14.97	14.97	17.98	18.24	18.49	14.47	17.48	17.24	17.49
GSM 1900	512	14.60	14.60	17.51	17.69	18.01	14.77	17.29	17.33	17.57
	661	14.79	14.78	17.49	17.80	18.03	14.70	17.28	17.52	17.55
	810	14.79	14.79	17.65	17.96	18.04	14.62	17.40	17.27	17.56

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 D01 3G SAR.

11.2.1 UMTS Maximum Conducted Output Power

WCDMA Band 5 Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 5 [dBm]			3GPP MPR
		Subtest	UL 4132 DL 4357	UL 4183 DL 4408	UL 4233 DL 4458	
99	WCDMA	12.2 kbps RMC	23.48	23.59	23.68	-
99	WCDMA	12.2 kbps AMR	23.47	23.59	23.67	-
5	HSDPA	Subtest 1	22.24	22.37	22.44	0
5		Subtest 2	22.23	22.33	22.43	0
5		Subtest 3	21.71	21.82	21.92	0.5
5		Subtest 4	21.71	21.83	21.91	0.5
6	HSUPA	Subtest 1	22.23	22.33	22.42	0
6		Subtest 2	20.23	20.36	20.44	2
6		Subtest 3	21.21	21.35	21.44	1
6		Subtest 4	20.22	20.37	20.43	2
6		Subtest 5	22.22	22.36	22.43	0
8	DC-HSDPA	Subtest 1	22.19	22.35	22.39	0
8		Subtest 2	22.20	22.32	22.62	0
8		Subtest 3	22.48	21.85	21.89	0.5
8		Subtest 4	22.45	21.84	21.91	0.5

WCDMA Average Conducted output powers

WCDMA Band 4 Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	WCDMA	12.2 kbps RMC	22.20	21.98	21.88	-
99	WCDMA	12.2 kbps AMR	22.20	21.97	21.87	-
5	HSDPA	Subtest 1	20.98	20.76	20.66	0
5		Subtest 2	20.97	20.74	20.60	0
5		Subtest 3	20.44	20.29	20.14	0.5
5		Subtest 4	20.45	20.24	20.14	0.5
6	HSUPA	Subtest 1	20.98	20.78	20.68	0
6		Subtest 2	18.98	18.77	18.66	2
6		Subtest 3	20.00	19.79	19.70	1
6		Subtest 4	19.00	18.80	18.70	2
6		Subtest 5	21.01	20.81	20.72	0
8	DC-HSDPA	Subtest 1	20.99	20.73	20.59	0
8		Subtest 2	20.98	20.71	20.60	0
8		Subtest 3	20.43	20.31	20.17	0.5
8		Subtest 4	20.44	20.28	20.16	0.5

WCDMA Average Conducted output powers

WCDMA Band 2 Maximum Conducted Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 2 [dBm]			3GPP MPR
		Subtest	UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	
99	WCDMA	12.2 kbps RMC	22.42	22.66	22.28	-
99	WCDMA	12.2 kbps AMR	22.40	22.66	22.28	-
5	HSDPA	Subtest 1	21.23	21.52	21.19	0
5		Subtest 2	21.23	21.51	21.19	0
5		Subtest 3	20.81	21.00	20.66	0.5
5		Subtest 4	20.72	21.00	20.66	0.5
6	HSUPA	Subtest 1	21.23	21.54	21.18	0
6		Subtest 2	19.25	19.56	19.17	2
6		Subtest 3	20.27	20.57	20.21	1
6		Subtest 4	19.27	19.57	19.21	2
6		Subtest 5	21.30	21.59	21.24	0
8	DC-HSDPA	Subtest 1	21.22	21.58	21.18	0
8		Subtest 2	21.21	21.59	21.19	0
8		Subtest 3	20.79	21.05	20.59	0.5
8		Subtest 4	20.77	21.00	21.64	0.5

WCDMA Average Conducted output powers

11.2.2 UMTS Reduced Conducted Output Power (Hotspot back-off Power)

WCDMA Band 4 Hotspot Back-off Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	WCDMA	12.2 kbps RMC	18.27	18.03	17.93	-
99	WCDMA	12.2 kbps AMR	18.26	18.02	17.93	-
5	HSDPA	Subtest 1	17.00	16.77	16.68	0
5		Subtest 2	16.99	16.77	16.66	0
5		Subtest 3	16.49	16.26	16.19	0.5
5		Subtest 4	16.50	16.28	16.19	0.5
6	HSUPA	Subtest 1	17.01	16.79	16.69	0
6		Subtest 2	15.00	14.78	14.69	2
6		Subtest 3	15.99	15.79	15.68	1
6		Subtest 4	15.01	14.78	14.69	2
6		Subtest 5	17.01	16.80	16.71	0
8	DC-HSDPA	Subtest 1	16.89	16.69	16.66	0
8		Subtest 2	16.91	16.72	16.65	0
8		Subtest 3	16.54	16.27	16.20	0.5
8		Subtest 4	16.49	16.26	16.18	0.5

WCDMA Average Conducted output powers

WCDMA Band 2 Hotspot Back-off Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 2 [dBm]			3GPP MPR
		Subtest	UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	
99	WCDMA	12.2 kbps RMC	17.99	18.24	17.85	-
99	WCDMA	12.2 kbps AMR	17.99	18.24	17.85	-
5	HSDPA	Subtest 1	16.77	17.06	16.72	0
5		Subtest 2	16.79	17.06	16.73	0
5		Subtest 3	16.27	16.57	16.24	0.5
5		Subtest 4	16.27	16.55	16.22	0.5
6	HSUPA	Subtest 1	16.77	17.06	16.73	0
6		Subtest 2	14.77	15.06	14.71	2
6		Subtest 3	15.77	16.06	15.73	1
6		Subtest 4	14.77	15.05	14.72	2
6		Subtest 5	16.78	17.08	16.74	0
8	DC-HSDPA	Subtest 1	16.72	17.08	16.75	0
8		Subtest 2	16.73	17.07	16.75	0
8		Subtest 3	16.22	16.55	16.23	0.5
8		Subtest 4	16.24	16.53	16.28	0.5

WCDMA Average Conducted output powers

11.2.3 UMTS Reduced Conducted Output Power (Grip back-off Power)

WCDMA Band 4 Grip back-off Power

3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	WCDMA	12.2 kbps RMC	18.29	18.06	17.96	-
99	WCDMA	12.2 kbps AMR	18.28	18.05	17.95	-
5	HSDPA	Subtest 1	17.01	16.80	16.71	0
5		Subtest 2	17.01	16.79	16.69	0
5		Subtest 3	16.50	16.28	16.18	0.5
5		Subtest 4	16.49	16.28	16.19	0.5
6	HSUPA	Subtest 1	17.04	16.81	16.72	0
6		Subtest 2	15.03	14.82	14.72	2
6		Subtest 3	16.03	15.81	15.69	1
6		Subtest 4	15.04	14.82	14.72	2
6		Subtest 5	17.03	16.81	16.72	0
8	DC-HSDPA	Subtest 1	16.99	16.72	16.70	0
8		Subtest 2	16.98	16.73	16.72	0
8		Subtest 3	16.49	16.27	16.20	0.5
8		Subtest 4	16.52	16.27	16.19	0.5

WCDMA Average Conducted output powers

WCDMA Band 2 Grip back-off Power

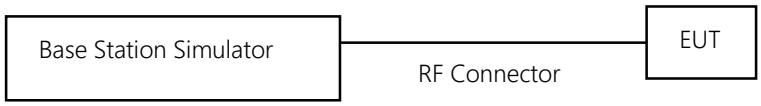
3GPP Release Version	Mode	3GPP 34.121	WCDMA Band 2 [dBm]			3GPP MPR
		Subtest	UL 9262 DL 9662	UL 9400 DL 9800	UL 9538 DL 9938	
99	WCDMA	12.2 kbps RMC	18.01	18.25	17.86	-
99	WCDMA	12.2 kbps AMR	18.00	18.25	17.86	-
5	HSDPA	Subtest 1	16.79	17.07	16.75	0
5		Subtest 2	16.78	17.07	16.75	0
5		Subtest 3	16.28	16.56	16.25	0.5
5		Subtest 4	16.29	16.60	16.27	0.5
6	HSUPA	Subtest 1	16.81	17.08	16.75	0
6		Subtest 2	14.80	15.06	14.75	2
6		Subtest 3	15.80	16.08	15.76	1
6		Subtest 4	14.79	15.05	14.75	2
6		Subtest 5	16.80	17.08	16.75	0
8	DC-HSDPA	Subtest 1	16.75	16.99	16.69	0
8		Subtest 2	16.74	17.03	16.72	0
8		Subtest 3	16.25	16.49	16.30	0.5
8		Subtest 4	16.26	16.52	16.29	0.5

WCDMA Average Conducted output powers

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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 Output Power

[LTE Band 2 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	22.84	22.78	22.30	0	0
		1	3	22.94	22.94	22.44	0	0
		1	5	22.83	22.88	22.37	0	0
		3	0	22.85	22.85	22.32	0	0
		3	1	22.94	22.94	22.37	0	0
		3	3	22.85	22.85	22.38	0	0
		6	0	21.92	21.88	21.45	0-1	1
	16QAM	1	0	22.14	22.10	21.65	0-1	1
		1	3	22.20	22.29	21.73	0-1	1
		1	5	22.15	22.02	21.69	0-1	1
		3	0	21.93	21.83	21.37	0-1	1
		3	1	21.97	21.93	21.39	0-1	1
		3	3	21.95	21.90	21.44	0-1	1
		6	0	21.02	21.00	20.62	0-2	2
	64QAM	1	0	21.05	20.94	20.50	0-2	2
		1	3	21.07	21.10	20.67	0-2	2
		1	5	21.04	21.07	20.55	0-2	2
		3	0	20.97	20.90	20.47	0-2	2
		3	1	20.96	21.05	20.46	0-2	2
		3	3	20.98	20.91	20.44	0-2	2
		6	0	19.97	19.88	19.48	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	22.86	22.83	22.39	0	0
		1	7	22.91	22.91	22.41	0	0
		1	14	22.92	22.93	22.47	0	0
		8	0	21.97	21.92	21.50	0-1	1
		8	3	22.04	22.02	21.56	0-1	1
		8	7	22.06	22.00	21.60	0-1	1
		15	0	22.01	21.99	21.53	0-1	1
	16QAM	1	0	22.17	22.14	21.66	0-1	1
		1	7	22.18	22.17	21.71	0-1	1
		1	14	22.22	22.21	21.62	0-1	1
		8	0	21.08	21.03	20.63	0-2	2
		8	3	21.10	21.10	20.69	0-2	2
		8	7	21.11	21.07	20.66	0-2	2
		15	0	21.04	21.02	20.59	0-2	2
	64QAM	1	0	21.05	21.01	20.50	0-2	2
		1	7	21.10	21.10	20.52	0-2	2
		1	14	21.14	21.06	20.63	0-2	2
		8	0	20.06	19.98	19.63	0-3	3
		8	3	20.10	20.04	19.63	0-3	3
		8	7	20.08	20.04	19.63	0-3	3
		15	0	20.00	20.00	19.58	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 ㎒	18900Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	22.95	22.86	22.43	0	0
		1	12	22.89	22.97	22.44	0	0
		1	24	22.88	22.88	22.50	0	0
		12	0	21.99	22.00	21.59	0-1	1
		12	6	22.08	22.04	21.60	0-1	1
		12	11	22.04	22.04	21.60	0-1	1
		25	0	21.97	21.97	21.60	0-1	1
	16QAM	1	0	22.25	22.17	21.68	0-1	1
		1	12	22.15	22.19	21.64	0-1	1
		1	24	22.18	22.08	21.69	0-1	1
		12	0	21.03	21.00	20.61	0-2	2
		12	6	21.04	21.10	20.61	0-2	2
		12	11	21.08	21.09	20.65	0-2	2
		25	0	21.05	21.00	20.61	0-2	2
	64QAM	1	0	21.14	21.07	20.62	0-2	2
		1	12	21.07	21.16	20.66	0-2	2
		1	24	21.01	21.08	20.65	0-2	2
		12	0	20.04	20.00	19.57	0-3	3
		12	6	20.09	20.03	19.60	0-3	3
		12	11	20.02	19.97	19.62	0-3	3
		25	0	20.01	19.97	19.60	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	22.85	22.88	22.67	0	0
		1	24	22.89	22.96	22.38	0	0
		1	49	22.90	22.98	22.53	0	0
		25	0	22.02	22.05	21.65	0-1	1
		25	12	21.99	22.06	21.61	0-1	1
		25	24	21.98	22.01	21.55	0-1	1
		50	0	22.00	22.02	21.60	0-1	1
	16QAM	1	0	22.10	22.24	21.94	0-1	1
		1	24	22.11	22.19	21.85	0-1	1
		1	49	22.04	22.23	21.72	0-1	1
		25	0	21.04	21.06	20.62	0-2	2
		25	12	20.98	21.08	20.65	0-2	2
		25	24	20.94	21.00	20.54	0-2	2
		50	0	20.99	21.04	20.61	0-2	2
	64QAM	1	0	21.00	21.10	20.70	0-2	2
		1	24	21.05	20.98	20.67	0-2	2
		1	49	21.01	21.02	20.71	0-2	2
		25	0	20.01	20.05	19.61	0-3	3
		25	12	20.02	20.08	19.64	0-3	3
		25	24	19.93	20.06	19.54	0-3	3
		50	0	19.98	20.03	19.57	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	23.00	23.08	22.62	0	0
		1	36	22.97	23.07	22.61	0	0
		1	74	22.97	23.02	22.66	0	0
		36	0	22.08	22.16	21.78	0-1	1
		36	18	22.09	22.21	21.81	0-1	1
		36	39	22.09	22.20	21.81	0-1	1
		75	0	22.13	22.16	21.79	0-1	1
	16QAM	1	0	22.19	22.33	21.99	0-1	1
		1	36	22.26	22.36	21.96	0-1	1
		1	74	22.25	22.24	21.94	0-1	1
		36	0	21.10	21.14	20.78	0-2	2
		36	18	21.12	21.19	20.80	0-2	2
		36	39	21.14	21.20	20.80	0-2	2
		75	0	21.11	21.20	20.82	0-2	2
	64QAM	1	0	21.18	21.23	20.75	0-2	2
		1	36	21.09	21.11	20.87	0-2	2
		1	74	21.06	21.24	20.71	0-2	2
		36	0	20.09	20.16	19.76	0-3	3
		36	18	20.11	20.21	19.81	0-3	3
		36	39	20.09	20.19	19.80	0-3	3
		75	0	20.09	20.17	19.79	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	22.91	22.99	22.79	0	0
		1	49	22.85	**23.01**	22.64	0	0
		1	99	22.97	22.90	22.69	0	0
		50	0	22.07	22.21	21.84	0-1	1
		50	25	22.09	22.20	21.85	0-1	1
		50	49	22.06	**22.23**	21.85	0-1	1
		100	0	22.05	22.21	21.84	0-1	1
	16QAM	1	0	22.19	22.19	22.15	0-1	1
		1	49	22.14	22.27	21.89	0-1	1
		1	99	22.21	22.25	21.91	0-1	1
		50	0	21.10	21.19	20.83	0-2	2
		50	25	21.09	21.21	20.84	0-2	2
		50	49	21.08	21.24	20.92	0-2	2
		100	0	21.08	21.20	20.89	0-2	2
	64QAM	1	0	21.15	21.19	20.97	0-2	2
		1	49	21.13	21.21	20.88	0-2	2
		1	99	21.10	21.13	20.86	0-2	2
		50	0	20.08	20.18	19.83	0-3	3
		50	25	20.10	20.19	19.85	0-3	3
		50	49	20.06	20.22	19.88	0-3	3
		100	0	20.09	20.23	19.89	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	23.06	22.72	22.69	0	0
		1	3	23.17	22.85	22.84	0	0
		1	5	23.11	22.83	22.76	0	0
		3	0	23.15	22.74	22.71	0	0
		3	1	23.17	22.84	22.74	0	0
		3	3	23.11	22.82	22.75	0	0
		6	0	22.22	21.89	21.82	0-1	1
	16QAM	1	0	22.34	22.00	21.89	0-1	1
		1	3	22.48	22.16	22.06	0-1	1
		1	5	22.45	22.15	21.91	0-1	1
		3	0	22.15	21.81	21.78	0-1	1
		3	1	22.16	21.88	21.83	0-1	1
		3	3	22.16	21.84	21.71	0-1	1
		6	0	21.31	20.98	20.90	0-2	2
	64QAM	1	0	21.27	20.92	20.88	0-2	2
		1	3	21.40	21.02	20.92	0-2	2
		1	5	21.29	21.00	20.79	0-2	2
		3	0	21.20	20.89	20.77	0-2	2
		3	1	21.27	20.92	20.89	0-2	2
		3	3	21.18	20.89	20.83	0-2	2
		6	0	20.20	19.92	19.83	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	23.12	22.71	22.67	0	0
		1	7	23.13	22.83	22.79	0	0
		1	14	23.07	22.80	22.71	0	0
		8	0	22.28	21.88	21.83	0-1	1
		8	3	22.25	21.99	21.85	0-1	1
		8	7	22.22	21.92	21.86	0-1	1
		15	0	22.22	21.94	21.83	0-1	1
	16QAM	1	0	22.49	22.01	21.93	0-1	1
		1	7	22.44	22.10	22.05	0-1	1
		1	14	22.32	22.04	22.01	0-1	1
		8	0	21.28	20.95	20.91	0-2	2
		8	3	21.31	21.04	20.94	0-2	2
		8	7	21.26	21.01	21.00	0-2	2
		15	0	21.23	20.96	20.82	0-2	2
	64QAM	1	0	21.33	20.87	20.89	0-2	2
		1	7	21.35	21.00	20.99	0-2	2
		1	14	21.21	20.98	20.92	0-2	2
		8	0	20.25	19.93	19.84	0-3	3
		8	3	20.28	20.05	19.93	0-3	3
		8	7	20.21	19.95	19.94	0-3	3
		15	0	20.18	19.95	19.85	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	23.20	22.86	22.70	0	0
		1	12	23.15	22.88	22.81	0	0
		1	24	22.97	22.79	22.74	0	0
		12	0	22.30	21.86	21.84	0-1	1
		12	6	22.30	21.97	21.88	0-1	1
		12	11	22.22	21.96	21.91	0-1	1
		25	0	22.25	21.93	21.85	0-1	1
	16QAM	1	0	22.39	22.08	22.09	0-1	1
		1	12	22.45	22.07	22.01	0-1	1
		1	24	22.23	21.99	22.03	0-1	1
		12	0	21.25	20.90	20.85	0-2	2
		12	6	21.28	21.01	20.88	0-2	2
		12	11	21.21	20.96	20.94	0-2	2
		25	0	21.23	20.97	20.80	0-2	2
	64QAM	1	0	21.37	21.03	20.97	0-2	2
		1	12	21.35	21.05	20.87	0-2	2
		1	24	21.18	20.99	20.88	0-2	2
		12	0	20.24	19.90	19.84	0-3	3
		12	6	20.31	20.01	19.86	0-3	3
		12	11	20.19	19.95	19.91	0-3	3
		25	0	20.28	19.98	19.84	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	23.03	22.83	22.66	0	0
		1	24	23.12	22.78	22.81	0	0
		1	49	22.98	22.71	22.68	0	0
		25	0	22.21	21.95	21.88	0-1	1
		25	12	22.26	21.96	21.88	0-1	1
		25	24	22.13	21.86	21.82	0-1	1
		50	0	22.19	21.93	21.81	0-1	1
	16QAM	1	0	22.25	22.10	22.19	0-1	1
		1	24	22.42	22.18	22.10	0-1	1
		1	49	22.26	22.06	21.94	0-1	1
		25	0	21.26	20.97	20.93	0-2	2
		25	12	21.23	20.99	20.89	0-2	2
		25	24	21.17	20.91	20.84	0-2	2
		50	0	21.19	20.90	20.87	0-2	2
	64QAM	1	0	21.36	20.94	20.95	0-2	2
		1	24	21.26	20.92	20.98	0-2	2
		1	49	21.17	20.90	20.85	0-2	2
		25	0	20.26	19.95	19.91	0-3	3
		25	12	20.23	19.97	19.91	0-3	3
		25	24	20.14	19.90	19.82	0-3	3
		50	0	20.19	19.91	19.88	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	23.19	22.97	22.98	0	0
		1	36	23.22	22.87	22.87	0	0
		1	74	23.14	23.04	22.84	0	0
		36	0	22.36	22.11	22.07	0-1	1
		36	18	22.36	22.11	22.04	0-1	1
		36	39	22.34	22.09	22.07	0-1	1
		75	0	22.34	22.12	22.03	0-1	1
	16QAM	1	0	22.45	22.17	22.44	0-1	1
		1	36	22.44	22.25	22.10	0-1	1
		1	74	22.49	22.40	22.13	0-1	1
		36	0	21.36	21.13	21.04	0-2	2
		36	18	21.36	21.12	21.12	0-2	2
		36	39	21.34	21.12	21.06	0-2	2
		75	0	21.31	21.13	21.07	0-2	2
	64QAM	1	0	21.39	21.12	21.08	0-2	2
		1	36	21.36	21.12	21.18	0-2	2
		1	74	21.34	21.15	21.01	0-2	2
		36	0	20.34	20.14	20.08	0-3	3
		36	18	20.39	20.13	20.08	0-3	3
		36	39	20.31	20.10	20.01	0-3	3
		75	0	20.30	20.13	20.04	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	**22.98**	0	0
		1	49	22.92	0	0
		1	99	22.95	0	0
		50	0	22.08	0-1	1
		50	25	22.10	0-1	1
		50	49	**22.11**	0-1	1
		100	0	22.11	0-1	1
	16QAM	1	0	22.20	0-1	1
		1	49	22.13	0-1	1
		1	99	22.26	0-1	1
		50	0	21.10	0-2	2
		50	25	21.10	0-2	2
		50	49	21.14	0-2	2
		100	0	21.10	0-2	2
	64QAM	1	0	21.13	0-2	2
		1	49	21.08	0-2	2
		1	99	21.17	0-2	2
		50	0	20.12	0-3	3
		50	25	20.11	0-3	3
		50	49	20.13	0-3	3
		100	0	20.07	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	24.03	24.20	24.34	0	0
		1	3	24.24	24.40	24.45	0	0
		1	5	24.19	24.34	24.37	0	0
		3	0	24.21	24.22	24.30	0	0
		3	1	24.25	24.38	24.43	0	0
		3	3	24.23	24.33	24.40	0	0
		6	0	23.28	23.43	23.43	0-1	1
	16QAM	1	0	23.34	23.43	23.57	0-1	1
		1	3	23.55	23.63	23.78	0-1	1
		1	5	23.39	23.59	23.66	0-1	1
		3	0	23.22	23.31	23.33	0-1	1
		3	1	23.30	23.40	23.48	0-1	1
		3	3	23.28	23.29	23.41	0-1	1
		6	0	22.38	22.47	22.50	0-2	2
	64QAM	1	0	22.27	22.43	22.50	0-2	2
		1	3	22.38	22.54	22.64	0-2	2
		1	5	22.38	22.45	22.56	0-2	2
		3	0	22.25	22.34	22.43	0-2	2
		3	1	22.36	22.46	22.49	0-2	2
		3	3	22.32	22.38	22.50	0-2	2
		6	0	21.30	21.37	21.45	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	24.19	24.26	24.30	0	0
		1	7	24.24	24.34	24.45	0	0
		1	14	24.32	24.41	24.54	0	0
		8	0	23.24	23.39	23.48	0-1	1
		8	3	23.35	23.48	23.66	0-1	1
		8	7	23.42	23.47	23.60	0-1	1
		15	0	23.40	23.45	23.56	0-1	1
	16QAM	1	0	23.39	23.49	23.61	0-1	1
		1	7	23.50	23.51	23.72	0-1	1
		1	14	23.51	23.68	23.70	0-1	1
		8	0	22.36	22.46	22.51	0-2	2
		8	3	22.47	22.53	22.69	0-2	2
		8	7	22.42	22.51	22.66	0-2	2
		15	0	22.38	22.51	22.57	0-2	2
	64QAM	1	0	22.22	22.45	22.51	0-2	2
		1	7	22.32	22.49	22.68	0-2	2
		1	14	22.35	22.61	22.57	0-2	2
		8	0	21.31	21.41	21.48	0-3	3
		8	3	21.40	21.50	21.66	0-3	3
		8	7	21.44	21.54	21.66	0-3	3
		15	0	21.34	21.43	21.57	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	24.19	24.32	24.38	0	0
		1	12	24.25	24.38	24.47	0	0
		1	24	24.29	24.42	24.46	0	0
		12	0	23.32	23.36	23.55	0-1	1
		12	6	23.39	23.52	23.61	0-1	1
		12	11	23.40	23.52	23.62	0-1	1
		25	0	23.37	23.51	23.57	0-1	1
	16QAM	1	0	23.45	23.50	23.67	0-1	1
		1	12	23.48	23.68	23.76	0-1	1
		1	24	23.58	23.68	23.68	0-1	1
		12	0	22.29	22.35	22.53	0-2	2
		12	6	22.42	22.49	22.60	0-2	2
		12	11	22.39	22.49	22.69	0-2	2
		25	0	22.38	22.47	22.56	0-2	2
	64QAM	1	0	22.35	22.35	22.59	0-2	2
		1	12	22.47	22.54	22.64	0-2	2
		1	24	22.41	22.60	22.66	0-2	2
		12	0	21.28	21.34	21.52	0-3	3
		12	6	21.39	21.46	21.59	0-3	3
		12	11	21.39	21.51	21.60	0-3	3
		25	0	21.37	21.46	21.58	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	**24.36**	0	0
		1	24	24.33	0	0
		1	49	24.35	0	0
		25	0	**23.48**	0-1	1
		25	12	23.47	0-1	1
		25	24	23.41	0-1	1
		50	0	23.49	0-1	1
	16QAM	1	0	23.58	0-1	1
		1	24	23.67	0-1	1
		1	49	23.72	0-1	1
		25	0	22.51	0-2	2
		25	12	22.46	0-2	2
		25	24	22.41	0-2	2
		50	0	22.49	0-2	2
	64QAM	1	0	22.49	0-2	2
		1	24	22.45	0-2	2
		1	49	22.61	0-2	2
		25	0	21.52	0-3	3
		25	12	21.49	0-3	3
		25	24	21.40	0-3	3
		50	0	21.44	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	22.50	22.47	22.46	0	0
		1	3	22.63	22.61	22.55	0	0
		1	5	22.51	22.57	22.49	0	0
		3	0	22.51	22.58	22.47	0	0
		3	1	22.61	22.61	22.51	0	0
		3	3	22.58	22.56	22.48	0	0
		6	0	21.62	21.66	21.64	0-1	1
	16QAM	1	0	21.77	21.69	21.67	0-1	1
		1	3	21.93	21.96	21.78	0-1	1
		1	5	21.75	21.85	21.75	0-1	1
		3	0	21.54	21.61	21.54	0-1	1
		3	1	21.56	21.63	21.64	0-1	1
		3	3	21.53	21.60	21.53	0-1	1
		6	0	20.74	20.74	20.67	0-2	2
	64QAM	1	0	20.66	20.70	20.70	0-2	2
		1	3	20.81	20.81	20.65	0-2	2
		1	5	20.70	20.69	20.61	0-2	2
		3	0	20.59	20.67	20.58	0-2	2
		3	1	20.64	20.68	20.61	0-2	2
		3	3	20.60	20.65	20.53	0-2	2
		6	0	19.64	19.67	19.59	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	22.54	22.53	22.48	0	0
		1	7	22.66	22.56	22.53	0	0
		1	14	22.61	22.59	22.49	0	0
		8	0	21.73	21.68	21.60	0-1	1
		8	3	21.75	21.73	21.72	0-1	1
		8	7	21.72	21.68	21.61	0-1	1
		15	0	21.71	21.70	21.68	0-1	1
	16QAM	1	0	21.73	21.77	21.72	0-1	1
		1	7	21.80	21.82	21.72	0-1	1
		1	14	21.84	21.87	21.73	0-1	1
		8	0	20.75	20.76	20.65	0-2	2
		8	3	20.80	20.83	20.75	0-2	2
		8	7	20.79	20.76	20.67	0-2	2
		15	0	20.76	20.75	20.66	0-2	2
	64QAM	1	0	20.68	20.69	20.65	0-2	2
		1	7	20.80	20.76	20.64	0-2	2
		1	14	20.75	20.77	20.69	0-2	2
		8	0	19.68	19.77	19.60	0-3	3
		8	3	19.82	19.81	19.70	0-3	3
		8	7	19.71	19.73	19.61	0-3	3
		15	0	19.71	19.70	19.64	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	22.50	22.48	22.53	0	0
		1	12	22.65	22.65	22.60	0	0
		1	24	22.53	22.60	22.53	0	0
		12	0	21.72	21.67	21.61	0-1	1
		12	6	21.76	21.78	21.66	0-1	1
		12	11	21.76	21.71	21.66	0-1	1
		25	0	21.71	21.74	21.64	0-1	1
	16QAM	1	0	21.83	21.70	21.73	0-1	1
		1	12	21.88	21.85	21.74	0-1	1
		1	24	21.77	21.75	21.74	0-1	1
		12	0	20.69	20.68	20.65	0-2	2
		12	6	20.80	20.80	20.66	0-2	2
		12	11	20.71	20.75	20.67	0-2	2
		25	0	20.73	20.73	20.61	0-2	2
	64QAM	1	0	20.71	20.73	20.61	0-2	2
		1	12	20.80	20.86	20.67	0-2	2
		1	24	20.73	20.75	20.70	0-2	2
		12	0	19.67	19.67	19.57	0-3	3
		12	6	19.73	19.77	19.64	0-3	3
		12	11	19.68	19.75	19.67	0-3	3
		25	0	19.72	19.73	19.61	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	22.63	0	0
		1	24	22.56	0	0
		1	49	22.45	0	0
		25	0	21.75	0-1	1
		25	12	21.70	0-1	1
		25	24	21.71	0-1	1
		50	0	21.72	0-1	1
	16QAM	1	0	21.80	0-1	1
		1	24	21.87	0-1	1
		1	49	21.75	0-1	1
		25	0	20.73	0-2	2
		25	12	20.74	0-2	2
		25	24	20.70	0-2	2
		50	0	20.73	0-2	2
	64QAM	1	0	20.71	0-2	2
		1	24	20.76	0-2	2
		1	49	20.67	0-2	2
		25	0	19.73	0-3	3
		25	12	19.76	0-3	3
		25	24	19.69	0-3	3
		50	0	19.68	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]
				23230 Ch. 782 ㎒		
5 ㎒	QPSK	1	0	22.47	0	0
		1	12	22.51	0	0
		1	24	22.44	0	0
		12	0	21.59	0-1	1
		12	6	21.60	0-1	1
		12	11	21.64	0-1	1
		25	0	21.60	0-1	1
	16QAM	1	0	21.69	0-1	1
		1	12	21.72	0-1	1
		1	24	21.69	0-1	1
		12	0	20.61	0-2	2
		12	6	20.58	0-2	2
		12	11	20.59	0-2	2
		25	0	20.54	0-2	2
	64QAM	1	0	20.65	0-2	2
		1	12	20.57	0-2	2
		1	24	20.63	0-2	2
		12	0	19.60	0-3	3
		12	6	19.59	0-3	3
		12	11	19.60	0-3	3
		25	0	19.58	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	22.57	0	0
		1	24	22.69	0	0
		1	49	22.41	0	0
		25	0	21.67	0-1	1
		25	12	21.64	0-1	1
		25	24	21.60	0-1	1
		50	0	21.64	0-1	1
	16QAM	1	0	21.83	0-1	1
		1	24	21.75	0-1	1
		1	49	21.59	0-1	1
		25	0	20.63	0-2	2
		25	12	20.64	0-2	2
		25	24	20.61	0-2	2
		50	0	20.62	0-2	2
	64QAM	1	0	20.78	0-2	2
		1	24	20.56	0-2	2
		1	49	20.57	0-2	2
		25	0	19.64	0-3	3
		25	12	19.65	0-3	3
		25	24	19.57	0-3	3
		50	0	19.63	0-3	3

Note: LTE Band 13 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 17 Conducted Power]

LTE Band 17 _ 5 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23790 Ch. 710 MHz		
5 MHz	QPSK	1	0	22.79	0	0
		1	12	23.02	0	0
		1	24	22.78	0	0
		12	0	22.05	0-1	1
		12	6	22.18	0-1	1
		12	11	22.12	0-1	1
		25	0	22.07	0-1	1
	16QAM	1	0	21.97	0-1	1
		1	12	22.20	0-1	1
		1	24	22.12	0-1	1
		12	0	21.05	0-2	2
		12	6	21.19	0-2	2
		12	11	21.11	0-2	2
		25	0	21.07	0-2	2
	64QAM	1	0	21.06	0-2	2
		1	12	21.24	0-2	2
		1	24	21.05	0-2	2
		12	0	20.07	0-3	3
		12	6	20.24	0-3	3
		12	11	20.12	0-3	3
		25	0	20.07	0-3	3

Note: LTE Band 17 at 5 MHz &10 MHz 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 _ 10 MHz Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23790 Ch. 710 MHz		
10 MHz	QPSK	1	0	23.08	0	0
		1	24	23.03	0	0
		1	49	22.98	0	0
		25	0	21.91	0-1	1
		25	12	22.05	0-1	1
		25	24	21.80	0-1	1
		50	0	21.84	0-1	1
	16QAM	1	0	22.35	0-1	1
		1	24	22.06	0-1	1
		1	49	22.16	0-1	1
		25	0	20.87	0-2	2
		25	12	21.05	0-2	2
		25	24	20.80	0-2	2
		50	0	20.82	0-2	2
	64QAM	1	0	21.35	0-2	2
		1	24	21.24	0-2	2
		1	49	21.21	0-2	2
		25	0	19.87	0-3	3
		25	12	20.07	0-3	3
		25	24	19.83	0-3	3
		50	0	19.84	0-3	3

Note: LTE Band 17 at 5 MHz &10 MHz 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	22.73	22.66	22.84	0	0
		1	3	22.83	22.74	22.90	0	0
		1	5	22.75	22.63	22.80	0	0
		3	0	22.77	22.68	22.83	0	0
		3	1	22.89	22.73	22.89	0	0
		3	3	22.76	22.66	22.84	0	0
		6	0	21.88	21.78	21.96	0-1	1
	16QAM	1	0	21.91	21.80	22.00	0-1	1
		1	3	22.07	21.77	22.07	0-1	1
		1	5	21.92	21.78	21.95	0-1	1
		3	0	21.74	21.68	21.90	0-1	1
		3	1	21.83	21.70	21.88	0-1	1
		3	3	21.79	21.62	21.80	0-1	1
		6	0	20.93	20.76	21.02	0-2	2
	64QAM	1	0	20.87	20.84	20.97	0-2	2
		1	3	20.95	20.84	21.03	0-2	2
		1	5	20.92	20.71	20.92	0-2	2
		3	0	20.92	20.80	20.94	0-2	2
		3	1	20.94	20.81	21.08	0-2	2
		3	3	20.90	20.74	20.95	0-2	2
		6	0	19.86	19.71	19.88	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	22.73	22.73	22.90	0	0
		1	7	22.85	22.68	22.88	0	0
		1	14	22.73	22.73	22.88	0	0
		8	0	21.89	21.72	22.07	0-1	1
		8	3	21.92	21.86	22.10	0-1	1
		8	7	21.92	21.76	22.01	0-1	1
		15	0	21.95	21.80	22.05	0-1	1
	16QAM	1	0	21.92	21.81	22.14	0-1	1
		1	7	21.97	21.88	22.11	0-1	1
		1	14	21.92	21.89	22.08	0-1	1
		8	0	20.86	20.74	21.03	0-2	2
		8	3	20.99	20.88	21.10	0-2	2
		8	7	20.89	20.79	21.01	0-2	2
		15	0	20.91	20.78	21.07	0-2	2
	64QAM	1	0	20.80	20.80	21.10	0-2	2
		1	7	21.02	20.84	21.07	0-2	2
		1	14	20.91	20.77	21.03	0-2	2
		8	0	19.84	19.74	20.01	0-3	3
		8	3	19.96	19.80	20.06	0-3	3
		8	7	19.86	19.81	19.98	0-3	3
		15	0	19.91	19.83	20.04	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	22.75	22.66	22.91	0	0
		1	12	22.81	22.71	22.92	0	0
		1	24	22.85	22.73	22.89	0	0
		12	0	21.90	21.81	22.00	0-1	1
		12	6	21.96	21.83	22.13	0-1	1
		12	11	21.92	21.83	22.02	0-1	1
		25	0	21.98	21.83	22.02	0-1	1
	16QAM	1	0	22.00	21.89	22.11	0-1	1
		1	12	22.07	21.88	22.06	0-1	1
		1	24	21.97	21.89	22.12	0-1	1
		12	0	20.81	20.74	21.00	0-2	2
		12	6	20.92	20.78	21.09	0-2	2
		12	11	20.88	20.73	20.98	0-2	2
		25	0	20.88	20.78	20.98	0-2	2
	64QAM	1	0	20.91	20.76	21.14	0-2	2
		1	12	20.99	20.82	21.14	0-2	2
		1	24	20.96	20.83	20.99	0-2	2
		12	0	19.89	19.75	20.06	0-3	3
		12	6	19.97	19.79	20.12	0-3	3
		12	11	19.91	19.81	20.00	0-3	3
		25	0	19.90	19.81	20.01	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	22.89	22.75	22.99	0	0
		1	24	22.72	22.74	22.89	0	0
		1	49	22.74	22.78	22.89	0	0
		25	0	21.94	21.88	22.15	0-1	1
		25	12	21.95	21.86	22.11	0-1	1
		25	24	21.94	21.81	22.06	0-1	1
		50	0	21.92	21.86	22.11	0-1	1
	16QAM	1	0	22.22	21.92	22.09	0-1	1
		1	24	21.94	21.80	22.13	0-1	1
		1	49	21.93	21.98	22.09	0-1	1
		25	0	20.92	20.80	21.10	0-2	2
		25	12	20.92	20.82	21.08	0-2	2
		25	24	20.90	20.81	21.04	0-2	2
		50	0	20.86	20.83	21.05	0-2	2
	64QAM	1	0	21.08	20.96	21.13	0-2	2
		1	24	21.04	20.79	20.96	0-2	2
		1	49	20.83	20.83	20.95	0-2	2
		25	0	19.96	19.79	20.01	0-3	3
		25	12	19.96	19.80	20.07	0-3	3
		25	24	19.88	19.78	20.04	0-3	3
		50	0	19.94	19.84	20.08	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	23.04	22.98	22.99	0	0
		1	36	22.93	22.72	22.93	0	0
		1	74	22.76	22.80	22.92	0	0
		36	0	22.01	21.90	22.09	0-1	1
		36	18	22.02	21.92	22.17	0-1	1
		36	39	21.93	21.94	22.17	0-1	1
		75	0	22.03	21.89	22.14	0-1	1
	16QAM	1	0	22.17	22.09	22.19	0-1	1
		1	36	22.08	22.02	22.15	0-1	1
		1	74	21.88	22.05	22.08	0-1	1
		36	0	20.98	20.87	20.98	0-2	2
		36	18	20.94	20.85	21.15	0-2	2
		36	39	20.88	20.86	21.10	0-2	2
		75	0	20.95	20.81	21.04	0-2	2
	64QAM	1	0	21.26	21.16	21.18	0-2	2
		1	36	20.94	20.89	21.17	0-2	2
		1	74	20.77	21.03	21.10	0-2	2
		36	0	19.97	19.92	20.10	0-3	3
		36	18	19.99	19.89	20.18	0-3	3
		36	39	19.92	19.94	20.15	0-3	3
		75	0	19.93	19.87	20.11	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 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	23.73	23.78	23.77	23.78	23.60	0	0
		1	12	23.74	23.75	23.83	23.85	23.62	0	0
		1	24	23.70	23.75	23.78	23.77	23.60	0	0
		12	0	22.86	22.88	22.87	22.87	22.67	0-1	1
		12	6	22.90	22.88	22.86	22.93	22.74	0-1	1
		12	11	22.87	22.89	22.90	22.90	22.72	0-1	1
		25	0	22.87	22.88	22.88	22.88	22.68	0-1	1
	16QAM	1	0	22.86	22.85	22.86	22.92	22.67	0-1	1
		1	12	22.87	22.86	22.95	22.96	22.69	0-1	1
		1	24	22.83	22.86	22.93	22.96	22.67	0-1	1
		12	0	21.78	21.87	21.81	21.83	21.63	0-2	2
		12	6	21.85	21.86	21.87	21.87	21.69	0-2	2
		12	11	21.79	21.85	21.90	21.93	21.68	0-2	2
		25	0	21.84	21.90	21.89	21.87	21.63	0-2	2
	64QAM	1	0	20.97	21.56	21.50	21.04	21.36	0-2	2
		1	12	21.08	21.50	21.59	21.09	21.35	0-2	2
		1	24	21.14	21.50	21.59	21.00	21.33	0-2	2
		12	0	20.49	20.88	20.86	20.59	20.66	0-3	3
		12	6	20.57	20.95	20.89	20.59	20.73	0-3	3
		12	11	20.50	20.91	20.93	20.55	20.71	0-3	3
		25	0	20.43	20.93	20.89	20.50	20.67	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	23.56	23.65	23.73	23.85	23.70	0	0
		1	24	23.67	23.72	23.72	23.83	23.65	0	0
		1	49	23.56	23.57	23.64	23.72	23.50	0	0
		25	0	22.80	22.88	22.93	23.05	22.86	0-1	1
		25	12	22.80	22.86	22.93	23.02	22.84	0-1	1
		25	24	22.75	22.82	22.87	22.93	22.75	0-1	1
		50	0	22.79	22.86	22.88	23.01	22.84	0-1	1
	16QAM	1	0	22.86	22.89	22.89	23.09	22.79	0-1	1
		1	24	22.64	22.70	22.89	22.87	22.82	0-1	1
		1	49	22.78	22.79	22.78	22.89	22.66	0-1	1
		25	0	21.81	21.88	21.92	22.05	21.85	0-2	2
		25	12	21.82	21.87	21.92	22.03	21.82	0-2	2
		25	24	21.74	21.82	21.84	21.95	21.75	0-2	2
		50	0	21.85	21.90	21.94	22.03	21.88	0-2	2
	64QAM	1	0	20.97	21.48	21.49	21.28	21.45	0-2	2
		1	24	21.03	21.30	21.51	21.36	21.45	0-2	2
		1	49	21.11	21.43	21.41	21.18	21.32	0-2	2
		25	0	20.45	20.92	20.95	20.84	20.92	0-3	3
		25	12	20.55	20.90	20.95	20.86	20.86	0-3	3
		25	24	20.47	20.85	20.89	20.76	20.80	0-3	3
		50	0	20.36	20.88	20.92	20.71	20.86	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	23.79	23.77	23.85	24.13	23.83	0	0
		1	36	23.76	23.78	23.89	23.98	23.86	0	0
		1	74	23.75	23.66	23.83	23.81	23.84	0	0
		36	0	22.90	22.96	23.02	23.23	22.97	0-1	1
		36	18	22.95	22.96	23.05	23.16	22.99	0-1	1
		36	39	22.93	22.88	23.03	23.04	22.99	0-1	1
		75	0	22.95	22.96	23.04	23.16	22.99	0-1	1
	16QAM	1	0	22.90	22.94	23.02	23.32	22.97	0-1	1
		1	36	22.92	22.98	23.04	23.09	22.86	0-1	1
		1	74	22.92	22.81	22.97	22.96	23.00	0-1	1
		36	0	21.90	21.90	21.98	22.18	21.96	0-2	2
		36	18	21.93	21.94	22.02	22.12	21.94	0-2	2
		36	39	21.93	21.88	22.02	22.03	21.91	0-2	2
		75	0	21.97	21.96	22.06	22.18	21.99	0-2	2
	64QAM	1	0	21.07	21.57	21.65	21.36	21.57	0-2	2
		1	36	21.06	21.56	21.60	21.29	21.49	0-2	2
		1	74	21.21	21.46	21.62	21.12	21.65	0-2	2
		36	0	20.42	20.91	21.04	20.86	20.96	0-3	3
		36	18	20.47	20.94	21.04	20.80	20.96	0-3	3
		36	39	20.53	20.87	21.01	20.69	20.94	0-3	3
		75	0	20.46	20.96	21.07	20.76	21.01	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	23.81	23.75	23.83	24.12	23.81	0	0
		1	49	23.77	23.77	23.88	23.97	23.83	0	0
		1	99	23.77	23.69	23.74	23.67	23.88	0	0
		50	0	22.95	23.00	23.06	23.30	23.00	0-1	1
		50	25	22.97	22.99	23.09	23.19	23.03	0-1	1
		50	49	22.94	22.90	23.05	23.03	23.03	0-1	1
		100	0	22.96	22.94	23.03	23.17	23.03	0-1	1
	16QAM	1	0	22.90	22.92	23.00	23.29	22.99	0-1	1
		1	49	22.88	22.92	23.01	23.13	22.96	0-1	1
		1	99	22.84	22.82	22.88	22.80	22.95	0-1	1
		50	0	21.98	22.02	22.11	22.32	22.04	0-2	2
		50	25	22.00	22.00	22.09	22.20	22.06	0-2	2
		50	49	22.00	21.94	22.07	22.06	22.05	0-2	2
		100	0	21.98	21.97	22.08	22.17	22.03	0-2	2
	64QAM	1	0	21.17	21.59	21.61	21.54	21.57	0-2	2
		1	49	21.11	21.57	21.61	21.34	21.60	0-2	2
		1	99	21.35	21.48	21.51	21.13	21.58	0-2	2
		50	0	20.45	21.00	21.09	20.89	21.02	0-3	3
		50	25	20.57	20.99	21.10	20.82	21.06	0-3	3
		50	49	20.65	20.93	21.07	20.70	21.03	0-3	3
		100	0	20.53	20.95	21.08	20.72	21.01	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	22.59	22.23	22.05	0	0
		1	3	22.70	22.31	22.22	0	0
		1	5	22.66	22.24	22.07	0	0
		3	0	22.63	22.24	22.06	0	0
		3	1	22.71	22.30	22.08	0	0
		3	3	22.63	22.24	22.11	0	0
		6	0	21.71	21.36	21.14	0-1	1
	16QAM	1	0	21.81	21.42	21.35	0-1	1
		1	3	21.95	21.64	21.38	0-1	1
		1	5	21.94	21.54	21.36	0-1	1
		3	0	21.68	21.31	21.18	0-1	1
		3	1	21.68	21.26	21.21	0-1	1
		3	3	21.68	21.32	21.14	0-1	1
		6	0	20.79	20.43	20.27	0-2	2
	64QAM	1	0	20.82	20.43	20.28	0-2	2
		1	3	20.87	20.50	20.39	0-2	2
		1	5	20.81	20.43	20.32	0-2	2
		3	0	20.67	20.32	20.15	0-2	2
		3	1	20.77	20.38	20.23	0-2	2
		3	3	20.69	20.36	20.28	0-2	2
		6	0	19.71	19.31	19.17	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	22.71	22.32	22.16	0	0
		1	7	22.68	22.34	22.18	0	0
		1	14	22.67	22.36	22.20	0	0
		8	0	21.81	21.41	21.26	0-1	1
		8	3	21.87	21.48	21.26	0-1	1
		8	7	21.78	21.40	21.32	0-1	1
		15	0	21.79	21.44	21.24	0-1	1
	16QAM	1	0	21.97	21.63	21.45	0-1	1
		1	7	21.97	21.56	21.43	0-1	1
		1	14	21.95	21.61	21.48	0-1	1
		8	0	20.91	20.43	20.29	0-2	2
		8	3	20.88	20.50	20.38	0-2	2
		8	7	20.81	20.42	20.41	0-2	2
		15	0	20.78	20.41	20.27	0-2	2
	64QAM	1	0	20.75	20.51	20.34	0-2	2
		1	7	20.85	20.47	20.38	0-2	2
		1	14	20.85	20.51	20.36	0-2	2
		8	0	19.77	19.38	19.26	0-3	3
		8	3	19.84	19.46	19.34	0-3	3
		8	7	19.77	19.45	19.29	0-3	3
		15	0	19.77	19.44	19.24	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	22.65	22.33	22.12	0	0
		1	12	22.70	22.31	22.24	0	0
		1	24	22.68	22.38	22.23	0	0
		12	0	21.77	21.47	21.27	0-1	1
		12	6	21.84	21.46	21.31	0-1	1
		12	11	21.76	21.44	21.30	0-1	1
		25	0	21.71	21.43	21.29	0-1	1
	16QAM	1	0	21.95	21.62	21.45	0-1	1
		1	12	21.95	21.56	21.49	0-1	1
		1	24	21.83	21.56	21.43	0-1	1
		12	0	20.78	20.45	20.27	0-2	2
		12	6	20.80	20.47	20.40	0-2	2
		12	11	20.78	20.39	20.31	0-2	2
		25	0	20.74	20.46	20.31	0-2	2
	64QAM	1	0	20.81	20.52	20.41	0-2	2
		1	12	20.91	20.49	20.40	0-2	2
		1	24	20.79	20.48	20.44	0-2	2
		12	0	19.77	19.42	19.23	0-3	3
		12	6	19.80	19.46	19.31	0-3	3
		12	11	19.76	19.44	19.31	0-3	3
		25	0	19.76	19.45	19.31	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	22.60	22.30	22.23	0	0
		1	24	22.67	22.21	22.04	0	0
		1	49	22.64	22.33	22.17	0	0
		25	0	21.75	21.46	21.33	0-1	1
		25	12	21.76	21.43	21.29	0-1	1
		25	24	21.72	21.34	21.21	0-1	1
		50	0	21.76	21.38	21.28	0-1	1
	16QAM	1	0	22.04	21.72	21.38	0-1	1
		1	24	21.77	21.65	21.24	0-1	1
		1	49	21.90	21.46	21.45	0-1	1
		25	0	20.77	20.43	20.33	0-2	2
		25	12	20.77	20.39	20.31	0-2	2
		25	24	20.70	20.37	20.27	0-2	2
		50	0	20.76	20.41	20.26	0-2	2
	64QAM	1	0	20.89	20.55	20.51	0-2	2
		1	24	20.77	20.39	20.42	0-2	2
		1	49	20.79	20.39	20.17	0-2	2
		25	0	19.76	19.45	19.33	0-3	3
		25	12	19.77	19.39	19.32	0-3	3
		25	24	19.68	19.34	19.21	0-3	3
		50	0	19.72	19.41	19.29	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	22.85	22.59	22.45	0	0
		1	36	22.77	22.41	22.26	0	0
		1	74	22.69	22.39	22.20	0	0
		36	0	21.96	21.65	21.52	0-1	1
		36	18	21.91	21.59	21.48	0-1	1
		36	39	21.83	21.57	21.43	0-1	1
		75	0	21.93	21.61	21.49	0-1	1
	16QAM	1	0	22.30	21.89	21.72	0-1	1
		1	36	22.00	21.66	21.70	0-1	1
		1	74	21.98	21.56	21.44	0-1	1
		36	0	20.94	20.62	20.55	0-2	2
		36	18	20.94	20.58	20.50	0-2	2
		36	39	20.86	20.55	20.40	0-2	2
		75	0	20.88	20.60	20.50	0-2	2
	64QAM	1	0	21.16	20.77	20.66	0-2	2
		1	36	21.02	20.58	20.49	0-2	2
		1	74	20.99	20.55	20.31	0-2	2
		36	0	19.97	19.63	19.58	0-3	3
		36	18	19.88	19.61	19.49	0-3	3
		36	39	19.87	19.53	19.41	0-3	3
		75	0	19.87	19.58	19.50	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	22.88	22.55	22.48	0	0
		1	49	22.64	22.40	22.32	0	0
		1	99	22.69	22.33	22.13	0	0
		50	0	21.96	21.68	21.55	0-1	1
		50	25	21.91	21.62	21.46	0-1	1
		50	49	21.83	21.56	21.43	0-1	1
		100	0	21.95	21.63	21.46	0-1	1
	16QAM	1	0	22.26	21.90	21.63	0-1	1
		1	49	22.01	21.76	21.74	0-1	1
		1	99	21.99	21.52	21.34	0-1	1
		50	0	20.94	20.65	20.58	0-2	2
		50	25	20.91	20.61	20.51	0-2	2
		50	49	20.86	20.54	20.45	0-2	2
		100	0	20.90	20.57	20.47	0-2	2
	64QAM	1	0	20.07	20.77	20.42	0-2	2
		1	49	20.72	20.53	20.40	0-2	2
		1	99	20.87	20.37	20.20	0-2	2
		50	0	19.82	19.52	19.42	0-3	3
		50	25	19.72	19.45	19.39	0-3	3
		50	49	19.67	19.47	19.41	0-3	3
		100	0	19.75	19.43	19.34	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 Back-off Power]

[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	17.85	17.74	17.34	0	0
		1	3	17.93	17.94	17.45	0	0
		1	5	17.88	17.76	17.35	0	0
		3	0	17.79	17.78	17.32	0	0
		3	1	17.87	17.86	17.40	0	0
		3	3	17.83	17.82	17.35	0	0
		6	0	17.93	17.88	17.45	0-1	0
	16QAM	1	0	18.00	17.98	17.55	0-1	0
		1	3	18.16	18.17	17.69	0-1	0
		1	5	18.15	18.09	17.60	0-1	0
		3	0	17.87	17.82	17.41	0-1	0
		3	1	17.93	17.91	17.49	0-1	0
		3	3	17.90	17.76	17.45	0-1	0
		6	0	17.99	17.93	17.53	0-2	0
	64QAM	1	0	17.98	17.99	17.53	0-2	0
		1	3	18.12	18.16	17.73	0-2	0
		1	5	18.10	18.04	17.55	0-2	0
		3	0	18.02	17.97	17.50	0-2	0
		3	1	18.03	18.10	17.58	0-2	0
		3	3	18.03	17.97	17.56	0-2	0
		6	0	17.94	17.93	17.46	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	17.83	17.78	17.43	0	0
		1	7	17.86	17.87	17.44	0	0
		1	14	17.93	17.85	17.48	0	0
		8	0	18.00	17.92	17.47	0-1	0
		8	3	17.97	17.96	17.58	0-1	0
		8	7	17.97	17.99	17.58	0-1	0
		15	0	17.99	18.00	17.54	0-1	0
	16QAM	1	0	18.06	18.02	17.68	0-1	0
		1	7	18.17	18.10	17.63	0-1	0
		1	14	18.17	18.11	17.68	0-1	0
		8	0	18.02	18.02	17.53	0-2	0
		8	3	18.11	18.05	17.63	0-2	0
		8	7	18.08	18.00	17.64	0-2	0
		15	0	18.06	17.98	17.56	0-2	0
	64QAM	1	0	18.07	18.13	17.55	0-2	0
		1	7	18.10	18.16	17.64	0-2	0
		1	14	18.15	18.14	17.60	0-2	0
		8	0	18.09	17.97	17.58	0-3	0
		8	3	18.09	18.08	17.59	0-3	0
		8	7	18.05	18.10	17.61	0-3	0
		15	0	18.06	18.00	17.54	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	17.81	17.84	17.45	0	0
		1	12	17.86	17.94	17.43	0	0
		1	24	17.90	17.88	17.42	0	0
		12	0	17.98	17.94	17.54	0-1	0
		12	6	18.02	17.99	17.60	0-1	0
		12	11	18.00	18.02	17.55	0-1	0
		25	0	18.01	17.98	17.51	0-1	0
	16QAM	1	0	18.16	17.99	17.73	0-1	0
		1	12	18.13	18.22	17.62	0-1	0
		1	24	18.08	18.11	17.67	0-1	0
		12	0	18.02	17.94	17.54	0-2	0
		12	6	18.06	18.03	17.58	0-2	0
		12	11	18.00	18.01	17.59	0-2	0
		25	0	17.99	17.96	17.57	0-2	0
	64QAM	1	0	18.08	18.05	17.65	0-2	0
		1	12	18.14	18.15	17.73	0-2	0
		1	24	18.11	18.06	17.72	0-2	0
		12	0	18.11	18.01	17.56	0-3	0
		12	6	18.10	18.09	17.68	0-3	0
		12	11	18.07	18.02	17.64	0-3	0
		25	0	18.01	18.01	17.59	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	17.78	17.80	17.51	0	0
		1	24	17.84	17.88	17.42	0	0
		1	49	17.80	17.83	17.37	0	0
		25	0	17.99	18.05	17.59	0-1	0
		25	12	17.96	18.00	17.61	0-1	0
		25	24	17.91	17.97	17.51	0-1	0
		50	0	17.98	18.00	17.59	0-1	0
	16QAM	1	0	18.06	18.07	17.82	0-1	0
		1	24	18.17	18.12	17.65	0-1	0
		1	49	18.10	18.10	17.63	0-1	0
		25	0	17.98	18.04	17.57	0-2	0
		25	12	17.98	18.04	17.59	0-2	0
		25	24	17.93	17.99	17.56	0-2	0
		50	0	17.94	18.03	17.57	0-2	0
	64QAM	1	0	18.01	18.16	17.79	0-2	0
		1	24	17.92	18.14	17.69	0-2	0
		1	49	18.11	18.07	17.74	0-2	0
		25	0	17.99	18.06	17.61	0-3	0
		25	12	17.97	18.07	17.65	0-3	0
		25	24	17.94	18.03	17.54	0-3	0
		50	0	17.95	18.05	17.58	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	17.96	17.95	17.66	0	0
		1	36	17.98	17.99	17.63	0	0
		1	74	17.97	18.02	17.64	0	0
		36	0	18.04	18.12	17.74	0-1	0
		36	18	18.07	18.11	17.74	0-1	0
		36	39	18.08	18.15	17.78	0-1	0
		75	0	18.08	18.13	17.77	0-1	0
	16QAM	1	0	18.20	18.28	17.91	0-1	0
		1	36	18.16	18.20	17.89	0-1	0
		1	74	18.22	18.27	17.96	0-1	0
		36	0	18.07	18.09	17.71	0-2	0
		36	18	18.05	18.14	17.75	0-2	0
		36	39	18.06	18.15	17.77	0-2	0
		75	0	18.02	18.11	17.77	0-2	0
	64QAM	1	0	18.19	18.19	17.82	0-2	0
		1	36	18.16	18.22	17.89	0-2	0
		1	74	18.12	18.32	17.83	0-2	0
		36	0	18.08	18.14	17.74	0-3	0
		36	18	18.11	18.21	17.78	0-3	0
		36	39	18.07	18.22	17.79	0-3	0
		75	0	18.06	18.15	17.81	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	17.95	17.95	17.79	0	0
		1	49	17.85	18.00	17.64	0	0
		1	99	17.94	17.92	17.69	0	0
		50	0	18.05	18.13	17.81	0-1	0
		50	25	18.05	18.13	17.81	0-1	0
		50	49	18.12	18.18	17.81	0-1	0
		100	0	18.07	18.17	17.78	0-1	0
	16QAM	1	0	18.21	18.15	18.07	0-1	0
		1	49	18.09	18.19	17.90	0-1	0
		1	99	18.14	18.15	18.01	0-1	0
		50	0	18.06	18.13	17.82	0-2	0
		50	25	18.06	18.12	17.86	0-2	0
		50	49	18.03	18.19	17.84	0-2	0
		100	0	18.04	18.12	17.76	0-2	0
	64QAM	1	0	18.05	18.11	17.94	0-2	0
		1	49	18.11	18.21	17.84	0-2	0
		1	99	18.07	18.18	17.88	0-2	0
		50	0	18.08	18.18	17.81	0-3	0
		50	25	18.08	18.16	17.85	0-3	0
		50	49	18.08	18.19	17.86	0-3	0
		100	0	18.05	18.15	17.84	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	19.07	18.82	18.69	0	0
		1	3	19.19	18.91	18.84	0	0
		1	5	19.12	18.83	18.74	0	0
		3	0	19.14	18.79	18.71	0	0
		3	1	19.18	18.87	18.77	0	0
		3	3	19.11	18.80	18.73	0	0
		6	0	19.22	18.86	18.84	0-1	0
	16QAM	1	0	19.41	18.94	19.04	0-1	0
		1	3	19.37	19.10	19.09	0-1	0
		1	5	19.43	19.04	18.98	0-1	0
		3	0	19.21	18.86	18.74	0-1	0
		3	1	19.22	18.94	18.88	0-1	0
		3	3	19.18	18.91	18.84	0-1	0
		6	0	19.30	19.00	18.84	0-2	0
	64QAM	1	0	19.32	18.98	18.93	0-2	0
		1	3	19.39	19.10	19.01	0-2	0
		1	5	19.34	19.04	19.03	0-2	0
		3	0	19.34	18.90	18.90	0-2	0
		3	1	19.33	19.03	19.02	0-2	0
		3	3	19.33	18.99	18.90	0-2	0
		6	0	19.23	18.85	18.79	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	19.20	18.76	18.70	0	0
		1	7	19.17	18.87	18.78	0	0
		1	14	19.07	18.80	18.72	0	0
		8	0	19.27	18.87	18.86	0-1	0
		8	3	19.25	19.01	18.92	0-1	0
		8	7	19.23	19.00	18.92	0-1	0
		15	0	19.21	18.96	18.85	0-1	0
	16QAM	1	0	19.35	19.06	19.05	0-1	0
		1	7	19.41	19.08	19.14	0-1	0
		1	14	19.33	19.04	19.04	0-1	0
		8	0	19.36	18.97	18.88	0-2	0
		8	3	19.33	19.08	18.90	0-2	0
		8	7	19.29	19.06	19.01	0-2	0
		15	0	19.25	18.96	18.86	0-2	0
	64QAM	1	0	19.34	18.98	18.93	0-2	0
		1	7	19.33	19.14	19.01	0-2	0
		1	14	19.22	19.05	18.90	0-2	0
		8	0	19.31	18.93	18.89	0-3	0
		8	3	19.33	19.03	18.93	0-3	0
		8	7	19.23	19.01	18.91	0-3	0
		15	0	19.19	18.98	18.83	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	19.20	18.89	18.76	0	0
		1	12	19.17	18.94	18.81	0	0
		1	24	19.05	18.79	18.80	0	0
		12	0	19.25	18.88	18.84	0-1	0
		12	6	19.29	19.01	18.89	0-1	0
		12	11	19.19	18.97	18.89	0-1	0
		25	0	19.27	19.00	18.83	0-1	0
	16QAM	1	0	19.46	19.17	19.09	0-1	0
		1	12	19.40	19.20	19.13	0-1	0
		1	24	19.28	19.06	18.97	0-1	0
		12	0	19.29	18.92	18.89	0-2	0
		12	6	19.32	19.05	18.91	0-2	0
		12	11	19.21	18.99	18.98	0-2	0
		25	0	19.25	18.95	18.87	0-2	0
	64QAM	1	0	19.37	19.04	18.96	0-2	0
		1	12	19.41	19.11	19.04	0-2	0
		1	24	19.23	19.06	18.97	0-2	0
		12	0	19.28	18.91	18.91	0-3	0
		12	6	19.34	19.01	18.93	0-3	0
		12	11	19.29	19.03	18.95	0-3	0
		25	0	19.26	18.94	18.85	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	19.20	18.88	18.98	0	0
		1	24	19.10	18.78	18.82	0	0
		1	49	19.06	18.77	18.76	0	0
		25	0	19.25	18.95	18.92	0-1	0
		25	12	19.27	19.00	18.89	0-1	0
		25	24	19.16	18.87	18.86	0-1	0
		50	0	19.20	18.93	18.87	0-1	0
	16QAM	1	0	19.45	19.13	19.22	0-1	0
		1	24	19.35	19.24	19.07	0-1	0
		1	49	19.31	19.02	18.97	0-1	0
		25	0	19.24	18.97	18.92	0-2	0
		25	12	19.25	19.00	18.92	0-2	0
		25	24	19.17	18.94	18.85	0-2	0
		50	0	19.22	18.93	18.87	0-2	0
	64QAM	1	0	19.26	19.05	19.23	0-2	0
		1	24	19.38	19.05	18.88	0-2	0
		1	49	19.23	19.06	18.83	0-2	0
		25	0	19.25	19.00	18.92	0-3	0
		25	12	19.24	18.96	18.91	0-3	0
		25	24	19.17	18.89	18.87	0-3	0
		50	0	19.21	18.95	18.88	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	19.29	19.02	19.00	0	0
		1	36	19.11	18.96	18.88	0	0
		1	74	19.17	19.04	18.93	0	0
		36	0	19.34	19.10	19.08	0-1	0
		36	18	19.36	19.10	19.06	0-1	0
		36	39	19.32	19.11	19.02	0-1	0
		75	0	19.34	19.10	19.09	0-1	0
	16QAM	1	0	19.60	19.24	19.20	0-1	0
		1	36	19.39	19.30	19.18	0-1	0
		1	74	19.44	19.31	19.11	0-1	0
		36	0	19.32	19.10	19.07	0-2	0
		36	18	19.38	19.13	19.10	0-2	0
		36	39	19.32	19.05	19.04	0-2	0
		75	0	19.32	19.10	19.06	0-2	0
	64QAM	1	0	19.59	19.12	19.41	0-2	0
		1	36	19.40	19.17	19.10	0-2	0
		1	74	19.32	19.23	19.05	0-2	0
		36	0	19.36	19.13	19.11	0-3	0
		36	18	19.37	19.17	19.07	0-3	0
		36	39	19.33	19.10	19.06	0-3	0
		75	0	19.36	19.08	19.05	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	18.98	0	0
		1	49	18.92	0	0
		1	99	19.05	0	0
		50	0	19.12	0-1	0
		50	25	19.13	0-1	0
		50	49	19.08	0-1	0
		100	0	19.10	0-1	0
	16QAM	1	0	19.23	0-1	0
		1	49	19.21	0-1	0
		1	99	19.45	0-1	0
		50	0	19.12	0-2	0
		50	25	19.09	0-2	0
		50	49	19.07	0-2	0
		100	0	19.10	0-2	0
	64QAM	1	0	19.24	0-2	0
		1	49	19.18	0-2	0
		1	99	19.29	0-2	0
		50	0	19.14	0-3	0
		50	25	19.10	0-3	0
		50	49	19.11	0-3	0
		100	0	19.07	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	20.68	20.84	20.83	20.89	20.64	0	0
		1	12	20.69	20.82	20.83	20.93	20.67	0	0
		1	24	20.70	20.81	20.85	20.88	20.65	0	0
		12	0	20.82	20.92	20.89	20.94	20.78	0-1	0
		12	6	20.90	20.91	20.90	20.95	20.83	0-1	0
		12	11	20.89	20.95	20.95	20.99	20.85	0-1	0
		25	0	20.85	20.92	20.94	20.98	20.79	0-1	0
	16QAM	1	0	20.79	20.96	20.90	20.97	20.77	0-1	0
		1	12	20.80	20.93	20.98	21.01	20.76	0-1	0
		1	24	20.82	20.96	20.96	20.99	20.75	0-1	0
		12	0	20.80	20.89	20.84	20.92	20.70	0-2	0
		12	6	20.85	20.95	20.88	20.94	20.78	0-2	0
		12	11	20.84	20.94	20.95	21.00	20.76	0-2	0
		25	0	20.86	20.97	20.92	20.97	20.71	0-2	0
	64QAM	1	0	20.45	20.55	20.54	20.62	20.40	0-2	0
		1	12	20.48	20.53	20.56	20.65	20.39	0-2	0
		1	24	20.54	20.56	20.59	20.64	20.39	0-2	0
		12	0	20.62	20.92	20.90	20.72	20.79	0-3	0
		12	6	20.65	20.98	20.93	20.73	20.86	0-3	0
		12	11	20.62	20.94	20.96	20.69	20.79	0-3	0
		25	0	20.55	20.95	20.94	20.67	20.76	0-3	0

LTE Band 41 _ 10 ㎒ Bandwidth

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	20.65	20.72	20.75	20.76	20.63	0	0
		1	24	20.69	20.78	20.80	20.76	20.65	0	0
		1	49	20.57	20.69	20.68	20.58	20.46	0	0
		25	0	20.85	20.88	20.96	20.96	20.79	0-1	0
		25	12	20.84	20.91	20.98	20.93	20.77	0-1	0
		25	24	20.77	20.85	20.91	20.86	20.70	0-1	0
		50	0	20.83	20.91	20.99	20.95	20.77	0-1	0
	16QAM	1	0	20.76	20.94	20.94	20.96	20.70	0-1	0
		1	24	20.78	20.78	20.95	20.91	20.70	0-1	0
		1	49	20.67	20.86	20.86	20.73	20.52	0-1	0
		25	0	20.82	20.94	20.99	20.98	20.77	0-2	0
		25	12	20.81	20.94	21.00	20.95	20.73	0-2	0
		25	24	20.75	20.88	20.93	20.87	20.66	0-2	0
		50	0	20.82	20.97	21.02	20.97	20.75	0-2	0
	64QAM	1	0	20.40	20.45	20.52	20.60	20.34	0-2	0
		1	24	20.39	20.47	20.54	20.36	20.32	0-2	0
		1	49	20.34	20.41	20.47	20.47	20.19	0-2	0
		25	0	20.57	20.93	21.00	20.68	20.80	0-3	0
		25	12	20.61	20.95	21.02	20.73	20.77	0-3	0
		25	24	20.56	20.90	20.94	20.59	20.71	0-3	0
		50	0	20.47	20.93	20.98	20.54	20.75	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	20.82	20.91	20.95	21.05	20.75	0	0
		1	36	20.82	20.88	20.89	20.91	20.78	0	0
		1	74	20.83	20.80	20.93	20.72	20.72	0	0
		36	0	20.96	21.00	21.11	21.13	20.87	0-1	0
		36	18	20.99	21.02	21.12	21.06	20.91	0-1	0
		36	39	20.99	20.93	21.09	20.96	20.85	0-1	0
		75	0	20.96	21.01	21.13	21.08	20.90	0-1	0
	16QAM	1	0	20.97	20.95	21.03	21.22	20.87	0-1	0
		1	36	20.87	20.95	21.04	20.97	20.90	0-1	0
		1	74	20.93	20.86	21.00	20.85	20.90	0-1	0
		36	0	20.88	20.93	21.05	21.14	20.82	0-2	0
		36	18	20.92	20.98	21.07	21.08	20.86	0-2	0
		36	39	20.94	20.92	21.06	20.97	20.83	0-2	0
		75	0	21.01	21.00	21.13	21.11	20.90	0-2	0
	64QAM	1	0	20.62	20.64	20.69	20.86	20.44	0-2	0
		1	36	20.49	20.54	20.71	20.66	20.50	0-2	0
		1	74	20.57	20.51	20.61	20.47	20.49	0-2	0
		36	0	20.54	20.99	21.09	20.69	20.85	0-3	0
		36	18	20.54	21.00	21.09	20.66	20.85	0-3	0
		36	39	20.60	20.95	21.10	20.56	20.85	0-3	0
		75	0	20.52	21.02	21.14	20.62	20.90	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	20.88	20.93	20.93	21.07	20.67	0	0
		1	49	20.85	20.93	20.96	20.89	20.74	0	0
		1	99	20.80	20.80	20.88	20.61	20.73	0	0
		50	0	21.00	21.03	21.14	21.19	20.92	0-1	0
		50	25	21.01	21.05	21.15	21.12	20.92	0-1	0
		50	49	21.02	21.00	21.13	20.98	20.93	0-1	0
		100	0	21.00	21.02	21.14	21.06	20.91	0-1	0
	16QAM	1	0	20.99	21.00	21.05	21.22	20.81	0-1	0
		1	49	20.89	20.99	21.08	21.04	20.88	0-1	0
		1	99	20.95	20.92	20.97	20.71	20.92	0-1	0
		50	0	21.02	21.08	21.16	21.25	20.95	0-2	0
		50	25	21.02	21.07	21.18	21.13	20.97	0-2	0
		50	49	21.04	21.00	21.14	21.01	20.96	0-2	0
		100	0	21.00	21.02	21.14	21.11	20.94	0-2	0
	64QAM	1	0	20.61	20.62	20.67	20.82	20.42	0-2	0
		1	49	20.59	20.58	20.69	20.69	20.47	0-2	0
		1	99	20.52	20.52	20.59	20.34	20.46	0-2	0
		50	0	20.53	21.05	21.17	20.77	20.92	0-3	0
		50	25	20.64	21.07	21.18	20.70	20.95	0-3	0
		50	49	20.74	21.00	21.14	20.53	20.94	0-3	0
		100	0	20.60	21.03	21.15	20.60	20.91	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	19.12	18.75	18.56	0	0
		1	3	19.21	18.82	18.69	0	0
		1	5	19.16	18.77	18.67	0	0
		3	0	19.13	18.78	18.54	0	0
		3	1	19.19	18.84	18.62	0	0
		3	3	19.13	18.78	18.63	0	0
		6	0	19.25	18.82	18.66	0-1	0
	16QAM	1	0	19.43	19.00	18.76	0-1	0
		1	3	19.35	19.03	19.04	0-1	0
		1	5	19.33	18.90	18.94	0-1	0
		3	0	19.15	18.76	18.66	0-1	0
		3	1	19.19	18.80	18.69	0-1	0
		3	3	19.08	18.73	18.67	0-1	0
		6	0	19.31	18.87	18.75	0-2	0
	64QAM	1	0	19.31	19.02	18.82	0-2	0
		1	3	19.36	19.03	19.00	0-2	0
		1	5	19.33	18.95	18.80	0-2	0
		3	0	19.31	18.95	18.76	0-2	0
		3	1	19.34	18.96	18.80	0-2	0
		3	3	19.28	18.95	18.75	0-2	0
		6	0	19.25	18.79	18.62	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	19.16	18.84	18.65	0	0
		1	7	19.16	18.84	18.73	0	0
		1	14	19.22	18.88	18.72	0	0
		8	0	19.29	18.91	18.75	0-1	0
		8	3	19.34	18.97	18.76	0-1	0
		8	7	19.29	18.94	18.82	0-1	0
		15	0	19.31	18.98	18.76	0-1	0
	16QAM	1	0	19.38	18.98	18.91	0-1	0
		1	7	19.47	19.07	18.98	0-1	0
		1	14	19.43	18.99	18.94	0-1	0
		8	0	19.37	18.98	18.75	0-2	0
		8	3	19.38	19.02	18.79	0-2	0
		8	7	19.35	18.92	18.88	0-2	0
		15	0	19.30	18.95	18.78	0-2	0
	64QAM	1	0	19.37	19.12	18.90	0-2	0
		1	7	19.43	18.98	18.97	0-2	0
		1	14	19.39	18.97	18.89	0-2	0
		8	0	19.34	18.95	18.82	0-3	0
		8	3	19.39	18.98	18.86	0-3	0
		8	7	19.36	18.93	18.88	0-3	0
		15	0	19.31	18.95	18.74	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	19.21	18.86	18.61	0	0
		1	12	19.19	18.83	18.74	0	0
		1	24	19.20	18.89	18.78	0	0
		12	0	19.32	18.95	18.77	0-1	0
		12	6	19.35	18.99	18.86	0-1	0
		12	11	19.25	18.99	18.85	0-1	0
		25	0	19.29	18.97	18.82	0-1	0
	16QAM	1	0	19.42	19.09	18.91	0-1	0
		1	12	19.43	19.06	18.99	0-1	0
		1	24	19.41	19.11	18.94	0-1	0
		12	0	19.30	18.95	18.76	0-2	0
		12	6	19.33	18.95	18.85	0-2	0
		12	11	19.21	18.92	18.83	0-2	0
		25	0	19.24	18.92	18.82	0-2	0
	64QAM	1	0	19.53	19.09	18.98	0-2	0
		1	12	19.41	19.01	18.94	0-2	0
		1	24	19.31	19.07	19.07	0-2	0
		12	0	19.35	18.98	18.86	0-3	0
		12	6	19.39	18.99	18.90	0-3	0
		12	11	19.31	19.00	18.93	0-3	0
		25	0	19.25	18.99	18.90	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	19.18	18.86	18.81	0	0
		1	24	18.95	18.83	18.65	0	0
		1	49	19.18	18.79	18.80	0	0
		25	0	19.29	18.94	18.86	0-1	0
		25	12	19.29	18.95	18.81	0-1	0
		25	24	19.24	18.91	18.73	0-1	0
		50	0	19.30	18.96	18.83	0-1	0
	16QAM	1	0	19.51	19.24	18.91	0-1	0
		1	24	19.44	19.04	18.90	0-1	0
		1	49	19.30	18.98	18.87	0-1	0
		25	0	19.29	18.93	18.85	0-2	0
		25	12	19.24	18.91	18.78	0-2	0
		25	24	19.24	18.89	18.76	0-2	0
		50	0	19.26	18.92	18.80	0-2	0
	64QAM	1	0	19.50	19.10	18.96	0-2	0
		1	24	19.26	19.00	18.89	0-2	0
		1	49	19.35	18.90	18.91	0-2	0
		25	0	19.33	18.97	18.81	0-3	0
		25	12	19.27	18.98	18.84	0-3	0
		25	24	19.26	18.92	18.81	0-3	0
		50	0	19.29	18.94	18.84	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	19.42	19.08	18.98	0	0
		1	36	19.24	18.91	18.75	0	0
		1	74	19.21	18.85	18.73	0	0
		36	0	19.46	19.18	19.07	0-1	0
		36	18	19.42	19.15	19.00	0-1	0
		36	39	19.40	19.05	18.95	0-1	0
		75	0	19.39	19.16	19.01	0-1	0
	16QAM	1	0	19.43	19.45	19.15	0-1	0
		1	36	19.42	19.22	19.18	0-1	0
		1	74	19.40	18.99	18.96	0-1	0
		36	0	19.51	19.18	19.02	0-2	0
		36	18	19.46	19.10	19.00	0-2	0
		36	39	19.39	19.00	18.93	0-2	0
		75	0	19.41	19.09	19.01	0-2	0
	64QAM	1	0	19.86	19.43	19.19	0-2	0
		1	36	19.56	19.12	19.11	0-2	0
		1	74	19.51	19.00	18.89	0-2	0
		36	0	19.52	19.22	19.10	0-3	0
		36	18	19.47	19.15	19.01	0-3	0
		36	39	19.45	19.11	18.99	0-3	0
		75	0	19.46	19.13	19.03	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	19.36	19.06	18.97	0	0
		1	49	19.18	18.97	18.93	0	0
		1	99	19.18	18.90	18.73	0	0
		50	0	19.47	19.21	19.05	0-1	0
		50	25	19.44	19.16	19.03	0-1	0
		50	49	19.38	19.05	18.99	0-1	0
		100	0	19.41	19.15	18.99	0-1	0
	16QAM	1	0	19.78	19.40	19.13	0-1	0
		1	49	19.42	19.27	19.23	0-1	0
		1	99	19.46	19.02	18.96	0-1	0
		50	0	19.46	19.17	19.07	0-2	0
		50	25	19.44	19.14	19.01	0-2	0
		50	49	19.37	19.08	18.96	0-2	0
		100	0	19.43	19.10	18.99	0-2	0
	64QAM	1	0	19.78	19.47	19.19	0-2	0
		1	49	19.39	19.26	19.15	0-2	0
		1	99	19.45	19.03	18.85	0-2	0
		50	0	19.48	19.22	19.07	0-3	0
		50	25	19.46	19.17	19.06	0-3	0
		50	49	19.43	19.07	19.01	0-3	0
		100	0	19.41	19.12	18.99	0-3	0

11.3.3 LTE Reduced Conducted Power [Grip Sensor Back-off Power]

[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	17.82	17.72	17.31	0	0
		1	3	17.88	17.90	17.42	0	0
		1	5	17.84	17.80	17.33	0	0
		3	0	17.75	17.72	17.34	0	0
		3	1	17.85	17.83	17.39	0	0
		3	3	17.80	17.79	17.38	0	0
		6	0	17.88	17.88	17.40	0-1	0
	16QAM	1	0	18.00	17.93	17.60	0-1	0
		1	3	18.15	18.21	17.69	0-1	0
		1	5	18.10	18.02	17.64	0-1	0
		3	0	17.86	17.80	17.37	0-1	0
		3	1	17.87	17.94	17.46	0-1	0
		3	3	17.91	17.79	17.41	0-1	0
		6	0	18.01	17.93	17.46	0-2	0
	64QAM	1	0	18.02	18.01	17.57	0-2	0
		1	3	18.05	18.16	17.57	0-2	0
		1	5	18.02	18.04	17.52	0-2	0
		3	0	18.05	17.94	17.51	0-2	0
		3	1	18.04	18.14	17.54	0-2	0
		3	3	18.04	17.95	17.53	0-2	0
		6	0	17.91	17.88	17.49	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	17.80	17.78	17.39	0	0
		1	7	17.82	17.86	17.40	0	0
		1	14	17.91	17.89	17.41	0	0
		8	0	17.97	17.89	17.45	0-1	0
		8	3	17.98	17.93	17.55	0-1	0
		8	7	17.94	17.97	17.54	0-1	0
		15	0	17.99	17.96	17.51	0-1	0
	16QAM	1	0	18.04	18.07	17.69	0-1	0
		1	7	18.05	18.11	17.65	0-1	0
		1	14	18.20	18.17	17.72	0-1	0
		8	0	17.99	17.95	17.51	0-2	0
		8	3	18.08	18.05	17.59	0-2	0
		8	7	18.01	17.99	17.59	0-2	0
		15	0	17.97	17.98	17.56	0-2	0
	64QAM	1	0	17.99	18.06	17.55	0-2	0
		1	7	18.08	18.14	17.61	0-2	0
		1	14	18.15	18.07	17.72	0-2	0
		8	0	18.01	18.01	17.57	0-3	0
		8	3	18.06	18.06	17.60	0-3	0
		8	7	18.05	18.08	17.57	0-3	0
		15	0	18.04	17.95	17.55	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	17.84	17.75	17.41	0	0
		1	12	17.87	17.87	17.39	0	0
		1	24	17.83	17.81	17.41	0	0
		12	0	17.97	17.92	17.51	0-1	0
		12	6	17.99	18.00	17.61	0-1	0
		12	11	18.00	17.94	17.55	0-1	0
		25	0	18.03	17.95	17.57	0-1	0
	16QAM	1	0	18.13	18.06	17.60	0-1	0
		1	12	18.11	18.16	17.72	0-1	0
		1	24	18.14	18.13	17.74	0-1	0
		12	0	18.00	17.95	17.52	0-2	0
		12	6	18.01	17.97	17.56	0-2	0
		12	11	18.02	18.01	17.57	0-2	0
		25	0	17.95	17.96	17.57	0-2	0
	64QAM	1	0	18.10	18.03	17.66	0-2	0
		1	12	18.05	18.18	17.65	0-2	0
		1	24	18.06	18.03	17.63	0-2	0
		12	0	18.03	18.03	17.57	0-3	0
		12	6	18.07	18.07	17.65	0-3	0
		12	11	18.06	18.08	17.64	0-3	0
		25	0	18.02	18.00	17.60	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	17.78	17.77	17.57	0	0
		1	24	17.85	17.86	17.54	0	0
		1	49	17.78	17.84	17.35	0	0
		25	0	17.96	18.03	17.57	0-1	0
		25	12	17.96	18.03	17.58	0-1	0
		25	24	17.86	17.96	17.50	0-1	0
		50	0	17.94	17.97	17.53	0-1	0
	16QAM	1	0	18.04	18.18	17.74	0-1	0
		1	24	18.10	18.12	17.61	0-1	0
		1	49	18.14	18.07	17.67	0-1	0
		25	0	17.93	18.02	17.56	0-2	0
		25	12	17.91	18.02	17.57	0-2	0
		25	24	17.89	17.96	17.55	0-2	0
		50	0	17.92	18.00	17.59	0-2	0
	64QAM	1	0	18.04	18.06	17.74	0-2	0
		1	24	17.99	18.12	17.73	0-2	0
		1	49	18.03	18.12	17.70	0-2	0
		25	0	17.93	18.02	17.63	0-3	0
		25	12	17.98	18.07	17.61	0-3	0
		25	24	17.88	18.02	17.54	0-3	0
		50	0	17.94	18.00	17.61	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	17.95	18.00	17.56	0	0
		1	36	17.85	18.08	17.64	0	0
		1	74	17.90	17.96	17.65	0	0
		36	0	18.03	18.08	17.70	0-1	0
		36	18	18.07	18.13	17.75	0-1	0
		36	39	18.06	18.17	17.73	0-1	0
		75	0	18.03	18.10	17.74	0-1	0
	16QAM	1	0	18.21	18.20	17.77	0-1	0
		1	36	18.12	18.11	17.87	0-1	0
		1	74	18.10	18.29	17.84	0-1	0
		36	0	18.02	18.04	17.74	0-2	0
		36	18	18.05	18.11	17.72	0-2	0
		36	39	18.06	18.11	17.70	0-2	0
		75	0	18.02	18.10	17.74	0-2	0
	64QAM	1	0	18.11	18.20	17.90	0-2	0
		1	36	18.17	18.27	17.80	0-2	0
		1	74	18.14	18.37	17.81	0-2	0
		36	0	18.06	18.12	17.74	0-3	0
		36	18	18.03	18.17	17.78	0-3	0
		36	39	18.08	18.16	17.80	0-3	0
		75	0	18.01	18.13	17.72	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	17.91	17.91	17.75	0	0
		1	49	17.89	17.99	17.59	0	0
		1	99	17.90	17.89	17.68	0	0
		50	0	17.99	18.13	17.78	0-1	0
		50	25	18.04	18.12	17.79	0-1	0
		50	49	18.06	18.16	17.80	0-1	0
		100	0	18.05	18.16	17.78	0-1	0
	16QAM	1	0	18.21	18.19	17.99	0-1	0
		1	49	18.10	18.15	17.83	0-1	0
		1	99	18.06	18.16	17.94	0-1	0
		50	0	18.02	18.10	17.79	0-2	0
		50	25	18.04	18.14	17.80	0-2	0
		50	49	18.09	18.19	17.84	0-2	0
		100	0	18.03	18.10	17.82	0-2	0
	64QAM	1	0	18.20	18.06	17.99	0-2	0
		1	49	18.13	18.22	17.77	0-2	0
		1	99	18.16	18.12	17.92	0-2	0
		50	0	18.05	18.14	17.80	0-3	0
		50	25	18.06	18.15	17.81	0-3	0
		50	49	18.08	18.17	17.81	0-3	0
		100	0	18.09	18.19	17.81	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	19.06	18.77	18.64	0	0
		1	3	19.21	18.86	18.82	0	0
		1	5	19.16	18.79	18.75	0	0
		3	0	19.10	18.74	18.70	0	0
		3	1	19.19	18.83	18.75	0	0
		3	3	19.13	18.82	18.72	0	0
		6	0	19.22	18.84	18.78	0-1	0
	16QAM	1	0	19.36	18.98	18.89	0-1	0
		1	3	19.41	19.13	19.01	0-1	0
		1	5	19.35	18.95	18.94	0-1	0
		3	0	19.21	18.89	18.79	0-1	0
		3	1	19.22	18.92	18.84	0-1	0
		3	3	19.17	18.91	18.80	0-1	0
		6	0	19.30	18.98	18.92	0-2	0
	64QAM	1	0	19.38	18.96	18.87	0-2	0
		1	3	19.40	19.10	18.96	0-2	0
		1	5	19.33	19.06	18.95	0-2	0
		3	0	19.28	18.91	18.86	0-2	0
		3	1	19.36	19.03	18.91	0-2	0
		3	3	19.30	19.01	18.89	0-2	0
		6	0	19.24	18.86	18.77	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	19.14	18.77	18.69	0	0
		1	7	19.18	18.84	18.79	0	0
		1	14	19.07	18.81	18.71	0	0
		8	0	19.23	18.90	18.85	0-1	0
		8	3	19.24	19.03	18.90	0-1	0
		8	7	19.22	18.98	18.94	0-1	0
		15	0	19.18	18.90	18.83	0-1	0
	16QAM	1	0	19.43	19.05	18.93	0-1	0
		1	7	19.45	19.18	19.12	0-1	0
		1	14	19.30	19.04	19.08	0-1	0
		8	0	19.33	18.93	18.95	0-2	0
		8	3	19.32	19.09	18.96	0-2	0
		8	7	19.24	18.97	18.99	0-2	0
		15	0	19.24	18.95	18.87	0-2	0
	64QAM	1	0	19.37	18.91	18.96	0-2	0
		1	7	19.37	19.00	18.93	0-2	0
		1	14	19.26	19.00	18.99	0-2	0
		8	0	19.28	18.94	18.88	0-3	0
		8	3	19.24	18.98	18.90	0-3	0
		8	7	19.27	19.01	18.90	0-3	0
		15	0	19.20	18.93	18.80	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	19.19	18.87	18.76	0	0
		1	12	19.19	18.87	18.83	0	0
		1	24	19.04	18.79	18.77	0	0
		12	0	19.24	18.88	18.83	0-1	0
		12	6	19.29	19.00	18.87	0-1	0
		12	11	19.23	18.97	18.89	0-1	0
		25	0	19.29	18.97	18.82	0-1	0
	16QAM	1	0	19.55	19.04	19.06	0-1	0
		1	12	19.53	19.22	19.05	0-1	0
		1	24	19.25	19.09	18.92	0-1	0
		12	0	19.26	18.88	18.87	0-2	0
		12	6	19.29	19.05	18.93	0-2	0
		12	11	19.22	18.97	18.92	0-2	0
		25	0	19.25	18.92	18.85	0-2	0
	64QAM	1	0	19.37	19.04	19.08	0-2	0
		1	12	19.36	19.14	19.06	0-2	0
		1	24	19.18	19.03	18.91	0-2	0
		12	0	19.32	18.90	18.92	0-3	0
		12	6	19.30	19.00	18.95	0-3	0
		12	11	19.26	19.05	18.95	0-3	0
		25	0	19.26	18.93	18.86	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	19.15	18.81	18.75	0	0
		1	24	19.04	18.68	18.78	0	0
		1	49	19.02	18.78	18.65	0	0
		25	0	19.23	18.94	18.88	0-1	0
		25	12	19.22	18.99	18.88	0-1	0
		25	24	19.13	18.89	18.84	0-1	0
		50	0	19.16	18.91	18.81	0-1	0
	16QAM	1	0	19.40	19.02	19.01	0-1	0
		1	24	19.53	19.01	18.96	0-1	0
		1	49	19.26	19.11	18.96	0-1	0
		25	0	19.22	18.94	18.91	0-2	0
		25	12	19.24	18.98	18.90	0-2	0
		25	24	19.14	18.93	18.81	0-2	0
		50	0	19.22	18.95	18.89	0-2	0
	64QAM	1	0	19.30	18.97	19.14	0-2	0
		1	24	19.32	19.04	18.97	0-2	0
		1	49	19.26	18.98	18.85	0-2	0
		25	0	19.25	18.94	18.92	0-3	0
		25	12	19.24	19.02	18.87	0-3	0
		25	24	19.19	18.90	18.83	0-3	0
		50	0	19.20	18.94	18.84	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	19.22	18.93	18.94	0	0
		1	36	19.27	19.01	18.84	0	0
		1	74	19.16	18.95	18.93	0	0
		36	0	19.30	19.07	19.04	0-1	0
		36	18	19.33	19.08	19.05	0-1	0
		36	39	19.29	19.07	19.07	0-1	0
		75	0	19.28	19.08	19.07	0-1	0
	16QAM	1	0	19.59	19.18	19.42	0-1	0
		1	36	19.44	19.17	19.07	0-1	0
		1	74	19.36	19.36	19.11	0-1	0
		36	0	19.33	19.09	19.06	0-2	0
		36	18	19.33	19.11	19.09	0-2	0
		36	39	19.30	19.07	19.01	0-2	0
		75	0	19.33	19.09	19.05	0-2	0
	64QAM	1	0	19.56	19.09	19.03	0-2	0
		1	36	19.33	19.20	19.14	0-2	0
		1	74	19.28	19.25	19.04	0-2	0
		36	0	19.33	19.11	19.06	0-3	0
		36	18	19.36	19.10	19.09	0-3	0
		36	39	19.33	19.09	19.05	0-3	0
		75	0	19.35	19.09	19.03	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	18.94	0	0
		1	49	18.95	0	0
		1	99	19.03	0	0
		50	0	19.10	0-1	0
		50	25	19.11	0-1	0
		50	49	19.06	0-1	0
		100	0	19.08	0-1	0
	16QAM	1	0	19.29	0-1	0
		1	49	19.17	0-1	0
		1	99	19.46	0-1	0
		50	0	19.14	0-2	0
		50	25	19.17	0-2	0
		50	49	19.07	0-2	0
		100	0	19.12	0-2	0
	64QAM	1	0	19.10	0-2	0
		1	49	19.15	0-2	0
		1	99	19.38	0-2	0
		50	0	19.15	0-3	0
		50	25	19.13	0-3	0
		50	49	19.09	0-3	0
		100	0	19.06	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	20.73	20.81	20.72	20.78	20.62	0	0
		1	12	20.73	20.79	20.80	20.83	20.62	0	0
		1	24	20.74	20.77	20.81	20.80	20.58	0	0
		12	0	20.87	20.89	20.86	20.92	20.70	0-1	0
		12	6	20.84	20.92	20.91	20.95	20.76	0-1	0
		12	11	20.83	20.87	20.97	20.95	20.74	0-1	0
		25	0	20.87	20.88	20.90	20.90	20.72	0-1	0
	16QAM	1	0	20.83	20.95	20.88	20.94	20.68	0-1	0
		1	12	20.80	20.91	20.96	20.94	20.72	0-1	0
		1	24	20.79	20.92	20.94	20.95	20.69	0-1	0
		12	0	20.82	20.89	20.87	20.85	20.66	0-2	0
		12	6	20.84	20.88	20.88	20.86	20.68	0-2	0
		12	11	20.77	20.87	20.90	20.92	20.65	0-2	0
		25	0	20.84	20.91	20.89	20.90	20.67	0-2	0
	64QAM	1	0	20.48	20.53	20.55	20.59	20.31	0-2	0
		1	12	20.47	20.45	20.59	20.57	20.32	0-2	0
		1	24	20.48	20.48	20.59	20.56	20.30	0-2	0
		12	0	20.60	20.90	20.88	20.64	20.70	0-3	0
		12	6	20.58	20.91	20.94	20.65	20.77	0-3	0
		12	11	20.55	20.91	20.98	20.61	20.74	0-3	0
		25	0	20.49	20.95	20.93	20.55	20.71	0-3	0

LTE Band 41 _ 10 ㎒ Bandwidth

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	20.63	20.64	20.73	20.86	20.68	0	0
		1	24	20.66	20.70	20.77	20.84	20.69	0	0
		1	49	20.53	20.60	20.71	20.68	20.51	0	0
		25	0	20.81	20.87	20.93	21.03	20.87	0-1	0
		25	12	20.81	20.87	20.93	21.02	20.85	0-1	0
		25	24	20.75	20.81	20.86	20.94	20.76	0-1	0
		50	0	20.80	20.89	20.93	21.02	20.84	0-1	0
	16QAM	1	0	20.82	20.90	20.87	21.00	20.82	0-1	0
		1	24	20.60	20.72	20.89	21.01	20.77	0-1	0
		1	49	20.71	20.85	20.79	20.83	20.61	0-1	0
		25	0	20.79	20.91	20.95	21.04	20.84	0-2	0
		25	12	20.80	20.91	20.96	21.01	20.82	0-2	0
		25	24	20.72	20.84	20.87	20.93	20.72	0-2	0
		50	0	20.81	20.95	20.97	21.06	20.83	0-2	0
	64QAM	1	0	20.36	20.42	20.47	20.64	20.45	0-2	0
		1	24	20.41	20.46	20.47	20.59	20.42	0-2	0
		1	49	20.33	20.37	20.42	20.51	20.30	0-2	0
		25	0	20.51	20.91	20.97	20.78	20.90	0-3	0
		25	12	20.59	20.91	20.98	20.80	20.85	0-3	0
		25	24	20.55	20.86	20.90	20.70	20.78	0-3	0
		50	0	20.41	20.89	20.92	20.65	20.85	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	20.83	20.78	20.95	21.18	20.82	0	0
		1	36	20.81	20.86	20.92	21.01	20.75	0	0
		1	74	20.76	20.75	20.85	21.00	20.88	0	0
		36	0	20.93	20.97	21.08	21.02	20.93	0-1	0
		36	18	20.95	20.98	21.08	21.18	20.99	0-1	0
		36	39	20.92	20.90	21.08	21.05	20.94	0-1	0
		75	0	20.94	20.98	21.09	21.16	20.96	0-1	0
	16QAM	1	0	20.91	20.92	21.04	21.31	20.93	0-1	0
		1	36	20.87	20.95	20.93	21.11	20.87	0-1	0
		1	74	20.91	20.81	20.98	20.95	20.96	0-1	0
		36	0	20.85	20.92	20.99	21.22	20.93	0-2	0
		36	18	20.91	20.94	21.02	21.14	20.93	0-2	0
		36	39	20.90	20.86	21.03	21.03	20.93	0-2	0
		75	0	20.94	20.99	21.07	21.20	20.99	0-2	0
	64QAM	1	0	20.55	20.62	20.66	20.90	20.55	0-2	0
		1	36	20.54	20.49	20.54	20.70	20.46	0-2	0
		1	74	20.51	20.48	20.59	20.57	20.55	0-2	0
		36	0	20.47	20.95	21.02	20.79	20.93	0-3	0
		36	18	20.52	20.96	21.04	20.77	20.96	0-3	0
		36	39	20.58	20.89	21.04	20.67	20.96	0-3	0
		75	0	20.51	20.96	21.08	20.73	20.97	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	20.82	20.88	20.90	21.09	20.80	0	0
		1	49	20.79	20.88	20.92	20.99	20.82	0	0
		1	99	20.74	20.76	20.82	20.65	20.83	0	0
		50	0	20.97	20.98	21.10	21.23	20.99	0-1	0
		50	25	20.96	21.00	21.10	21.15	21.02	0-1	0
		50	49	20.96	20.94	21.08	21.02	20.99	0-1	0
		100	0	20.96	20.99	21.08	21.14	20.98	0-1	0
	16QAM	1	0	20.94	20.96	20.97	21.34	20.91	0-1	0
		1	49	20.90	20.94	20.98	21.15	20.94	0-1	0
		1	99	20.87	20.84	20.92	20.80	20.95	0-1	0
		50	0	20.96	21.01	21.11	21.32	21.01	0-2	0
		50	25	20.97	21.02	21.11	21.22	21.03	0-2	0
		50	49	20.99	20.95	21.09	21.07	21.03	0-2	0
		100	0	20.97	20.98	21.09	21.18	21.03	0-2	0
	64QAM	1	0	20.53	20.60	20.64	20.90	20.52	0-2	0
		1	49	20.53	20.57	20.67	20.71	20.53	0-2	0
		1	99	20.50	20.48	20.50	20.39	20.56	0-2	0
		50	0	20.51	21.03	21.11	20.89	21.02	0-3	0
		50	25	20.62	21.02	21.13	20.77	21.03	0-3	0
		50	49	20.69	20.94	21.10	20.65	21.03	0-3	0
		100	0	20.52	20.98	21.07	20.71	21.02	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	19.14	18.76	18.57	0	0
		1	3	19.20	18.85	18.70	0	0
		1	5	19.11	18.75	18.62	0	0
		3	0	19.10	18.73	18.59	0	0
		3	1	19.19	18.82	18.61	0	0
		3	3	19.09	18.80	18.62	0	0
		6	0	19.24	18.87	18.65	0-1	0
	16QAM	1	0	19.31	18.97	18.87	0-1	0
		1	3	19.46	18.97	18.93	0-1	0
		1	5	19.38	19.01	18.87	0-1	0
		3	0	19.18	18.78	18.63	0-1	0
		3	1	19.17	18.79	18.66	0-1	0
		3	3	19.09	18.73	18.63	0-1	0
		6	0	19.28	18.88	18.75	0-2	0
	64QAM	1	0	19.28	19.03	18.80	0-2	0
		1	3	19.35	19.01	18.86	0-2	0
		1	5	19.37	18.95	18.85	0-2	0
		3	0	19.32	18.97	18.74	0-2	0
		3	1	19.40	18.96	18.80	0-2	0
		3	3	19.34	18.87	18.83	0-2	0
		6	0	19.23	18.86	18.67	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	19.20	18.84	18.61	0	0
		1	7	19.17	18.83	18.66	0	0
		1	14	19.22	18.88	18.69	0	0
		8	0	19.30	18.89	18.76	0-1	0
		8	3	19.33	18.95	18.75	0-1	0
		8	7	19.28	18.92	18.81	0-1	0
		15	0	19.29	18.96	18.74	0-1	0
	16QAM	1	0	19.32	19.05	18.94	0-1	0
		1	7	19.47	19.00	18.96	0-1	0
		1	14	19.43	18.97	18.86	0-1	0
		8	0	19.35	18.97	18.82	0-2	0
		8	3	19.31	19.00	18.84	0-2	0
		8	7	19.33	18.93	18.84	0-2	0
		15	0	19.31	18.92	18.76	0-2	0
	64QAM	1	0	19.42	19.02	18.91	0-2	0
		1	7	19.41	18.92	18.94	0-2	0
		1	14	19.40	18.98	18.88	0-2	0
		8	0	19.31	18.98	18.82	0-3	0
		8	3	19.39	19.02	18.81	0-3	0
		8	7	19.34	18.97	18.85	0-3	0
		15	0	19.30	18.92	18.76	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	19.21	18.85	18.66	0	0
		1	12	19.21	18.88	18.72	0	0
		1	24	19.16	18.86	18.75	0	0
		12	0	19.27	18.98	18.79	0-1	0
		12	6	19.34	18.98	18.87	0-1	0
		12	11	19.27	18.98	18.83	0-1	0
		25	0	19.27	18.95	18.81	0-1	0
	16QAM	1	0	19.50	19.10	18.94	0-1	0
		1	12	19.40	19.03	19.04	0-1	0
		1	24	19.30	19.05	19.05	0-1	0
		12	0	19.29	18.93	18.78	0-2	0
		12	6	19.31	18.99	18.87	0-2	0
		12	11	19.23	18.93	18.85	0-2	0
		25	0	19.22	18.96	18.87	0-2	0
	64QAM	1	0	19.41	19.16	18.92	0-2	0
		1	12	19.41	19.10	19.00	0-2	0
		1	24	19.34	19.15	18.98	0-2	0
		12	0	19.30	18.96	18.85	0-3	0
		12	6	19.37	19.01	18.93	0-3	0
		12	11	19.30	19.00	18.89	0-3	0
		25	0	19.24	18.97	18.86	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	19.28	18.95	18.72	0	0
		1	24	18.99	18.72	18.63	0	0
		1	49	19.22	18.78	18.66	0	0
		25	0	19.33	18.97	18.87	0-1	0
		25	12	19.28	18.95	18.81	0-1	0
		25	24	19.23	18.87	18.73	0-1	0
		50	0	19.29	18.93	18.79	0-1	0
	16QAM	1	0	19.45	19.17	19.17	0-1	0
		1	24	19.36	18.92	18.85	0-1	0
		1	49	19.31	18.93	18.93	0-1	0
		25	0	19.29	18.94	18.83	0-2	0
		25	12	19.29	18.89	18.81	0-2	0
		25	24	19.22	18.85	18.72	0-2	0
		50	0	19.26	18.91	18.81	0-2	0
	64QAM	1	0	19.50	19.13	18.98	0-2	0
		1	24	19.47	19.04	18.92	0-2	0
		1	49	19.33	18.89	18.91	0-2	0
		25	0	19.29	18.97	18.85	0-3	0
		25	12	19.28	18.92	18.84	0-3	0
		25	24	19.25	18.88	18.73	0-3	0
		50	0	19.31	18.93	18.82	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	19.38	19.06	18.92	0	0
		1	36	19.22	18.94	18.90	0	0
		1	74	19.18	18.91	18.66	0	0
		36	0	19.49	19.17	19.01	0-1	0
		36	18	19.41	19.10	18.98	0-1	0
		36	39	19.41	19.03	18.91	0-1	0
		75	0	19.40	19.11	18.99	0-1	0
	16QAM	1	0	19.41	19.45	19.17	0-1	0
		1	36	19.38	19.31	19.22	0-1	0
		1	74	19.37	18.98	18.93	0-1	0
		36	0	19.47	19.17	19.01	0-2	0
		36	18	19.43	19.10	18.96	0-2	0
		36	39	19.38	19.08	18.92	0-2	0
		75	0	19.38	19.09	18.98	0-2	0
	64QAM	1	0	19.84	19.46	19.19	0-2	0
		1	36	19.46	19.16	19.03	0-2	0
		1	74	19.43	19.01	18.87	0-2	0
		36	0	19.52	19.20	19.09	0-3	0
		36	18	19.47	19.16	19.02	0-3	0
		36	39	19.42	19.07	18.96	0-3	0
		75	0	19.44	19.13	18.99	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	19.31	19.06	18.96	0	0
		1	49	19.21	18.95	18.87	0	0
		1	99	19.24	18.91	18.67	0	0
		50	0	19.45	19.18	19.11	0-1	0
		50	25	19.40	19.12	19.04	0-1	0
		50	49	19.34	19.10	18.96	0-1	0
		100	0	19.43	19.15	19.00	0-1	0
	16QAM	1	0	19.80	19.25	19.15	0-1	0
		1	49	19.39	19.28	19.18	0-1	0
		1	99	19.52	19.06	18.90	0-1	0
		50	0	19.49	19.19	19.08	0-2	0
		50	25	19.42	19.15	19.01	0-2	0
		50	49	19.39	19.04	18.98	0-2	0
		100	0	19.42	19.07	18.98	0-2	0
	64QAM	1	0	19.44	19.27	19.13	0-2	0
		1	49	19.43	19.16	19.24	0-2	0
		1	99	19.50	18.89	18.95	0-2	0
		50	0	19.47	19.19	19.09	0-3	0
		50	25	19.47	19.13	19.03	0-3	0
		50	49	19.39	19.08	18.98	0-3	0
		100	0	19.44	19.11	19.04	0-3	0

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

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.

11.4 WIFI Conducted Power measurement method

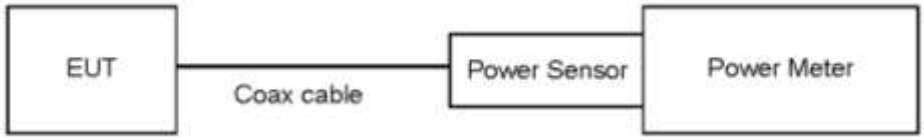
Un-Licensed bands (DTS Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 558074 v05r02 - 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



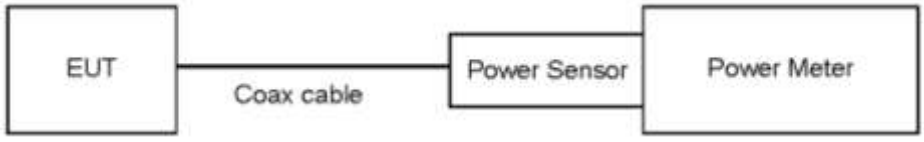
Un-Licensed bands (NII Band)

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 [MHz]	Channel	IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]		
			Ant.1	Ant.2	MIMO
802.11b	2 412	1	17.50	17.36	
	2 437	6	17.98	17.63	
	2 462	11	18.25	17.44	
802.11g	2 412	1	14.45	14.23	
	2 437	6	14.36	14.26	
	2 462	11	15.16	14.18	
802.11n (HT20)	2 412	1	13.40	13.13	16.27
	2 437	6	13.29	13.12	16.22
	2 462	11	13.99	12.85	16.47

11.4.2 IEEE 802.11 (5 GHz) Maximum Conducted Power

Frequency [MHz]	Channel	IEEE 802.11 a(20 MHz BW) Conducted Power [dBm]			IEEE 802.11n(20 MHz BW) Conducted Power [dBm]			IEEE 802.11ac(20 MHz BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO	Ant.1	Ant.2	MIMO	Ant.1	Ant.2	MIMO
5 180	36	14.30	14.84	17.59	14.31	14.75	17.55	14.83	15.19	18.03
5 200	40	14.39	14.38	17.40	14.20	14.25	17.23	14.76	14.62	17.70
5 220	44	14.21	14.17	17.20	14.09	14.17	17.17	14.51	14.57	17.55
5 240	48	14.59	14.74	17.29	13.73	14.42	17.10	13.77	15.03	17.45
5 260	52	13.64	14.78	17.25	13.52	14.70	17.16	13.61	15.17	17.47
5 280	56	14.11	14.15	17.14	13.58	14.14	16.88	13.71	14.65	17.22
5 300	60	14.35	14.24	17.30	14.16	14.07	17.13	14.08	14.17	17.13
5 320	64	14.35	14.36	17.36	14.24	14.15	17.21	13.92	14.15	17.05
5 500	100	7.30	8.08	10.72	7.14	7.92	10.56	7.44	7.38	10.42
5 580	116	14.21	14.37	17.30	14.11	14.08	17.11	14.15	14.27	17.22
5 600	120	14.35	14.62	17.50	**14.20**	**14.45**	**17.34**	14.14	14.38	17.28
5 620	124	14.26	14.32	17.30	14.19	14.42	17.32	14.11	14.35	17.24
5 720	144	14.43	13.95	17.21	14.32	13.79	17.08	14.49	13.73	17.14
5 745	149	14.21	13.92	17.08	14.53	14.30	17.42	14.55	14.14	17.36
5 785	157	13.76	14.30	17.05	13.94	14.18	17.07	13.73	14.09	16.92
5 825	165	14.84	13.76	17.35	15.05	13.66	17.42	14.98	13.61	17.36

11.4.3 IEEE 802.11 (2.4 GHz) Reduced Average RF Conducted Power (Held to ear VOIP)

Mode	Frequency [MHz]	Channel	IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]		
			Ant.1	Ant.2	MIMO
802.11b	2 412	1	14.17	13.59	
	2 437	6	14.56	14.92	
	2 462	11	14.62	14.23	
802.11g	2 412	1	14.06	13.71	
	2 437	6	13.94	14.31	
	2 462	11	14.46	14.22	
802.11n (HT20)	2 412	1	13.90	13.56	16.74
	2 437	6	13.79	14.16	16.99
	2 462	11	14.32	14.04	17.19

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

Frequency [MHz]	Channel	IEEE 802.11n (40 MHz BW) Conducted Power [dBm]			IEEE 802.11ac (40 MHz BW) Conducted Power [dBm]		
		Ant. 1	Ant. 2	MIMO	Ant. 1	Ant. 2	MIMO
5190	38	14.93	14.92	17.94	14.86	14.96	17.92
5230	46	14.57	14.96	17.78	14.88	14.99	17.95
5270	54	14.73	14.77	17.76	14.63	14.76	17.71
5310	62	14.46	14.68	17.58	14.41	14.73	17.58
5510	102	7.30	7.87	10.60	6.19	7.32	9.80
5550	110	14.43	14.33	17.39	6.88	6.96	9.93
5590	118	14.80	14.73	17.78	14.78	14.75	17.78
5630	126	14.03	14.76	17.42	14.23	14.69	17.48
5670	134	14.11	14.43	17.28	14.23	14.37	17.31
5710	142	14.42	14.77	17.61	14.33	14.73	17.55
5755	151	14.46	14.20	17.34	14.93	14.34	17.66
5795	159	13.82	14.61	17.25	13.94	14.70	17.35

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



11.4.5 Bluetooth Conducted Power

The Burst averaged-conducted power

Mode	Channel	Bluetooth Power [dBm]
DH5	0	10.73
	39	10.59
	78	11.31
2-DH5	0	7.61
	39	7.33
	78	8.62
3-DH5	0	7.62
	39	7.33
	78	8.62

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 protocol. DH5 mode is the highest duty cycle and conducted power. SAR test were performed at DH5 mode.



Duty Cycle

= (BT-On time /BT-Full time) =(2.883/3.750) = 0.769 (DH5)

Duty factor= 1/Duty cycle : 1.300

12. System Verification

12.1 Tissue Verification

The Head /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. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
08/20/2019	20.9	750H	705	0.865	42.528	0.889	42.174	-2.70%	0.84%
			710	0.871	42.471	0.890	42.148	-2.13%	0.77%
			750	0.916	41.835	0.893	41.940	2.58%	-0.25%
08/20/2019	20.9	750H	705	0.867	41.471	0.889	42.174	-2.47%	-1.67%
			710	0.874	41.403	0.890	42.148	-1.80%	-1.77%
			750	0.906	40.764	0.893	41.940	1.46%	-2.80%
			785	0.924	40.213	0.896	41.758	3.13%	-3.70%
08/22/2019	20.6	835H	820	0.902	40.836	0.899	41.577	0.33%	-1.78%
			835	0.917	40.631	0.900	41.500	1.89%	-2.09%
			850	0.933	40.406	0.916	41.500	1.86%	-2.64%
08/19/2019	21.2	835H	820	0.905	40.707	0.899	41.577	0.67%	-2.09%
			835	0.918	40.508	0.900	41.500	2.00%	-2.39%
			850	0.933	40.280	0.916	41.500	1.86%	-2.94%
08/20/2019	21.0	1800H	1710	1.344	38.239	1.348	40.144	-0.30%	-4.75%
			1750	1.399	38.186	1.371	40.080	2.04%	-4.73%
			1800	1.464	38.235	1.400	40.000	4.57%	-4.41%
08/19/2019	20.9	1900H	1850	1.414	38.392	1.400	40.000	1.00%	-4.02%
			1900	1.418	38.665	1.400	40.000	1.29%	-3.34%
			1910	1.417	38.736	1.400	40.000	1.21%	-3.16%
08/07/2019	20.8	2450H	2400	1.720	39.576	1.756	39.290	-2.05%	0.73%
			2450	1.789	39.414	1.800	39.200	-0.61%	0.55%
			2500	1.848	39.243	1.855	39.140	-0.38%	0.26%

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
08/22/2019	20.6	2450H	2400	1.730	38.590	1.756	39.290	-1.48%	-1.78%
			2450	1.789	38.442	1.800	39.200	-0.61%	-1.93%
			2500	1.844	38.272	1.855	39.140	-0.59%	-2.22%
08/21/2019	20.1	2600H	2500	1.894	39.288	1.855	39.140	2.10%	0.38%
			2600	1.996	38.944	1.964	39.010	1.63%	-0.17%
			2690	2.087	38.684	2.062	38.894	1.21%	-0.54%
08/09/2019	21.2	5180H-5825H	5180	4.564	36.028	4.635	36.010	-1.53%	0.05%
			5250	4.739	36.038	4.706	35.930	0.70%	0.30%
			5280	4.676	35.889	4.737	35.894	-1.29%	-0.01%
			5320	4.652	36.139	4.778	35.846	-2.64%	0.82%
			5500	4.863	36.029	4.963	35.640	-2.01%	1.09%
			5600	5.007	35.778	5.065	35.530	-1.15%	0.70%
			5750	5.248	35.664	5.219	35.360	0.56%	0.86%
			5800	5.141	35.821	5.270	35.300	-2.45%	1.48%
			5825	5.136	35.692	5.296	35.270	-3.02%	1.20%

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
08/21/2019	21.4	750B (LB12)	705	0.934	55.764	0.959	55.710	-2.61%	0.10%
			710	0.938	55.717	0.960	55.690	-2.29%	0.05%
			750	0.980	55.308	0.963	55.530	1.77%	-0.40%
08/19/2019	21.3	750B (LB13)	705	0.934	55.773	0.959	55.710	-2.61%	0.11%
			710	0.937	55.722	0.960	55.690	-2.40%	0.06%
			750	0.959	55.307	0.963	55.530	-0.42%	-0.40%
			785	0.986	54.928	0.966	55.397	2.07%	-0.85%
08/22/2019	20.8	835B (LB5, B26)	820	0.944	56.547	0.969	55.260	-2.58%	2.33%
			835	0.961	56.300	0.970	55.200	-0.93%	1.99%
			850	0.971	56.184	0.988	55.150	-1.72%	1.87%
08/22/2019	20.7	835B	820	0.943	56.480	0.969	55.260	-2.68%	2.21%
			835	0.962	56.243	0.970	55.200	-0.82%	1.89%
			850	0.970	56.070	0.988	55.150	-1.82%	1.67%
08/22/2019	20.8	1800B	1710	1.395	54.990	1.463	53.534	-4.65%	2.72%
			1750	1.433	54.870	1.488	53.430	-3.70%	2.70%
			1800	1.486	54.700	1.520	53.300	-2.24%	2.63%
08/22/2019	20.6	1800B	1710	1.393	52.675	1.463	53.534	-4.78%	-1.60%
			1750	1.428	52.587	1.488	53.430	-4.03%	-1.58%
			1800	1.480	52.341	1.520	53.300	-2.63%	-1.80%
08/22/2019	20.7	1800B	1710	1.413	52.574	1.463	53.534	-3.42%	-1.79%
			1750	1.446	52.580	1.488	53.430	-2.82%	-1.59%
			1800	1.498	52.334	1.520	53.300	-1.45%	-1.81%
09/05/2019	20.2	1800B	1710	1.455	53.398	1.463	53.534	-0.55%	-0.25%
			1750	1.494	53.383	1.488	53.430	0.40%	-0.09%
			1800	1.533	53.283	1.520	53.300	0.86%	-0.03%
08/21/2019	20.1	1900B	1850	1.481	53.589	1.520	53.300	-2.57%	0.54%
			1900	1.528	53.473	1.520	53.300	0.53%	0.32%
			1910	1.544	53.535	1.520	53.300	1.58%	0.44%
08/22/2019	20.6	1900B	1850	1.469	53.649	1.520	53.300	-3.36%	0.65%
			1900	1.515	53.552	1.520	53.300	-0.33%	0.47%
			1910	1.526	53.598	1.520	53.300	0.39%	0.56%

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
08/21/2019	19.4	1900B	1850	1.493	52.677	1.520	53.300	-1.78%	-1.17%
			1900	1.537	52.540	1.520	53.300	1.12%	-1.43%
			1910	1.544	52.527	1.520	53.300	1.58%	-1.45%
08/22/2019	20.6	1900B	1850	1.476	53.626	1.520	53.300	-2.89%	0.61%
			1900	1.526	53.545	1.520	53.300	0.39%	0.46%
			1910	1.536	53.600	1.520	53.300	1.05%	0.56%
08/08/2019	21.2	2450B	2400	1.868	52.742	1.902	52.770	-1.79%	-0.05%
			2450	1.945	52.657	1.950	52.700	-0.26%	-0.08%
			2500	2.004	52.524	2.021	52.640	-0.84%	-0.22%
08/21/2019	19.7	2450B	2400	1.893	53.823	1.902	52.770	-0.47%	2.00%
			2450	1.941	53.686	1.950	52.700	-0.46%	1.87%
			2500	2.003	53.555	2.021	52.640	-0.89%	1.74%
08/22/2019	19.7	2600B	2500	1.999	51.631	2.021	52.640	-1.09%	-1.92%
			2600	2.130	51.194	2.163	52.510	-1.53%	-2.51%
			2690	2.245	50.768	2.291	52.394	-2.01%	-3.10%
08/19/2019	20.3	5180B-5825B	5180	5.213	49.087	5.276	49.038	-1.19%	0.10%
			5250	5.369	48.619	5.358	48.950	0.21%	-0.68%
			5280	5.543	48.508	5.393	48.908	2.78%	-0.82%
			5320	5.431	48.369	5.439	48.852	-0.15%	-0.99%
			5500	5.681	48.077	5.650	48.610	0.55%	-1.10%
			5600	5.874	48.021	5.766	48.470	1.87%	-0.93%
			5750	6.094	48.109	5.942	48.270	2.56%	-0.33%
			5800	6.109	47.690	6.000	48.200	1.82%	-1.06%
			5825	5.925	47.550	6.029	48.165	-1.72%	-1.28%
08/20/2019	20.2	5180B-5825B	5180	5.213	49.087	5.276	49.038	-1.19%	0.10%
			5250	5.394	48.660	5.358	48.950	0.67%	-0.59%
			5280	5.543	48.508	5.393	48.908	2.78%	-0.82%
			5320	5.431	48.369	5.439	48.852	-0.15%	-0.99%
			5500	5.681	48.077	5.650	48.610	0.55%	-1.10%
			5600	5.977	48.028	5.766	48.470	3.66%	-0.91%
			5750	6.078	47.620	5.942	48.270	2.29%	-1.35%
			5800	6.109	47.690	6.000	48.200	1.82%	-1.06%
			5825	5.925	47.550	6.029	48.165	-1.72%	-1.28%

Table for Body Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
09/05/2019	21.5	5180B-5600B	5180	5.314	47.997	5.276	49.038	0.72%	-2.12%
			5250	5.49	47.309	5.358	48.950	2.46%	-3.35%
			5280	5.575	47.372	5.393	48.908	3.37%	-3.14%
			5320	5.498	47.318	5.439	48.852	1.08%	-3.14%
			5500	5.742	47.170	5.650	48.610	1.63%	-2.96%
			5600	5.912	46.985	5.766	48.470	2.53%	-3.06%

12.2 System Verification

System Verification Results

Input Power: 50 mW

Freq. [㎒]	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	08/20/2019	3863	1014	Head	21.0	20.9	8.25	0.418	8.36	+ 1.33	± 10
750	08/20/2019	3863		Head	21.0	20.9	8.25	0.413	8.26	+0.12	± 10
750	08/21/2019	3863		Body	21.5	21.4	8.48	0.424	8.48	+ 0.00	± 10
750	08/19/2019	3863		Body	21.3	21.3	8.48	0.414	8.28	-2.36	± 10
835	08/22/2019	3076	4d165	Head	20.7	20.6	9.41	0.495	9.90	+ 5.21	± 10
835	08/19/2019	3863		Head	21.3	21.2	9.41	0.455	9.10	- 3.29	± 10
835	08/22/2019	3863		Body	20.9	20.8	9.50	0.450	9.00	- 5.26	± 10
835	08/22/2019	3076		Body	20.7	20.7	9.50	0.453	9.06	- 4.63	± 10
1 800	08/20/2019	3968	2d007	Head	21.1	21.0	39.1	1.86	37.2	- 4.86	± 10
1 800	08/22/2019	3968		Body	20.9	20.8	38.4	1.99	39.8	+ 3.65	± 10
1 800	08/22/2019	3967		Body	20.7	20.6	38.4	1.87	37.4	- 2.60	± 10
1 800	08/22/2019	3076		Body	20.7	20.7	38.4	2.03	40.6	+ 5.73	± 10
1 900	08/19/2019	3968	5d032	Head	21.0	20.9	40.0	2.04	8.36	+ 1.33	± 10
1 900	08/21/2019	3797		Body	20.2	20.1	39.7	1.92	38.4	- 3.27	± 10
1 900	08/22/2019	3967		Body	20.7	20.6	39.7	2.01	40.2	+ 1.26	± 10
1 900	08/21/2019	3968		Body	19.4	19.4	39.7	1.98	39.6	- 0.25	± 10
1 900	08/22/2019	3076		Body	20.7	20.6	39.7	1.92	38.4	- 3.27	± 10
2 450	08/07/2019	3797	743	Head	20.9	20.8	51.8	2.58	51.6	- 0.39	± 10
2 450	08/22/2019	3967		Head	20.7	20.6	51.8	2.54	50.8	- 1.93	± 10
2 450	08/08/2019	3967		Body	21.3	21.2	49.9	2.49	49.8	- 0.20	± 10
2 450	08/21/2019	3967		Body	19.8	19.7	49.9	2.53	50.6	+ 1.40	± 10
2 600	08/21/2019	3797	1015	Head	20.2	20.1	58.1	2.89	57.8	- 0.52	± 10
2 600	08/22/2019	3797		Body	19.7	19.7	54.8	2.83	56.6	+ 3.28	± 10

Freq. [㎒]	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 [%]
5 250	08/09/2019	3967	1253	Head	21.3	21.2	82.0	4.17	83.4	+ 1.71	± 10
5 250	08/19/2019	3967		Body	20.5	20.3	78.0	4.14	82.8	+ 6.15	± 10
5 250	08/20/2019	3967		Body	20.2	20.2	78.0	4.15	83.0	+ 6.41	± 10
5 600	08/09/2019	3967		Head	21.3	21.2	83.8	4.07	81.4	- 2.86	± 10
5 600	08/19/2019	3967		Body	20.5	20.3	81.6	4.00	80.0	- 1.96	± 10
5 600	08/20/2019	3967		Body	20.2	20.2	81.6	4.07	81.4	- 0.25	± 10
5 750	08/09/2019	3967		Head	21.3	21.2	82.3	4.09	81.8	- 0.61	± 10
5 750	08/19/2019	3967		Body	20.5	20.3	77.3	3.93	78.6	+ 1.68	± 10
5 750	08/20/2019	3967		Body	20.2	20.2	77.3	3.94	78.8	+ 1.94	± 10

System Verification Results – Extremity SAR

Input Power: 50 mW

Freq. [㎒]	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	08/22/2019	3967	2d007	Body	20.7	20.6	20.0	1.01	20.2	+ 1.00	± 10
1 800	08/22/2019	3968	2d007	Body	20.9	20.8	20.0	1.01	20.2	+ 1.00	± 10
1 800	09/05/2019	3863	2d007	Body	20.4	20.2	20.0	1.02	20.4	+ 2.00	± 10
1 900	08/21/2019	3797	5d032	Body	20.2	20.1	20.8	1.03	20.6	- 0.96	± 10
1 900	08/22/2019	3967	5d032	Body	20.7	20.6	20.8	1.04	20.8	+ 0.00	± 10
1 900	08/21/2019	3968	5d032	Body	19.4	19.4	20.8	1.00	20.0	- 3.85	± 10
2 600	08/22/2019	3797	1015	Body	19.7	19.7	24.3	1.21	24.2	- 0.41	± 10
5 250	08/19/2019	3967	1253	Body	20.5	20.3	21.6	1.15	23.0	+ 6.48	± 10
5 600	08/19/2019	3967	1253	Body	20.5	20.3	22.6	1.12	22.4	- 0.88	± 10
5 250	08/20/2019	3967	1253	Body	20.2	20.2	21.6	1.15	23.0	+ 6.48	± 10
5 600	08/20/2019	3967	1253	Body	20.2	20.2	22.6	1.14	22.8	+ 0.88	± 10
5 250	09/05/2019	3968	1253	Body	21.7	21.5	21.6	1.14	22.8	+ 5.56	± 10
5 600	09/05/2019	3968	1253	Body	21.7	21.5	22.6	1.18	23.6	+ 4.42	± 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 Head 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	33.0	31.54	-0.10	Left Cheek	1:8.3	0.069	1.400	0.097	-
836.6	190	Voice	33.0	31.54	0.12	Left Tilt	1:8.3	0.041	1.400	0.057	-
836.6	190	Voice	33.0	31.54	0.19	Right Cheek	1:8.3	0.106	1.400	**0.148**	1
836.6	190	Voice	33.0	31.54	0.12	Right Tilt	1:8.3	0.046	1.400	0.064	-
ANSI/ IEEE C95.1 - 1992 – 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	30.0	28.24	-0.19	Left Cheek	1:8.3	0.058	1.500	**0.087**	2
1 880	661	Voice	30.0	28.24	0.15	Left Tilt	1:8.3	0.033	1.500	0.050	-
1 880	661	Voice	30.0	28.24	0.12	Right Cheek	1:8.3	0.041	1.500	0.062	-
1 880	661	Voice	30.0	28.24	0.15	Right Tilt	1:8.3	0.044	1.500	0.066	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.										
836.6	4183	RMC	25.0	23.59	0.17	Left Cheek	1:1	0.107	1.384	0.148	-
836.6	4183	RMC	25.0	23.59	0.14	Left Tilt	1:1	0.056	1.384	0.078	-
836.6	4183	RMC	25.0	23.59	-0.18	Right Cheek	1:1	0.149	1.384	**0.206**	3
836.6	4183	RMC	25.0	23.59	0.19	Right Tilt	1:1	0.065	1.384	0.090	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.										
1 732.4	1412	RMC	23.0	21.98	0.19	Left Cheek	1:1	0.121	1.265	**0.153**	4
1 732.4	1412	RMC	23.0	21.98	0.13	Left Tilt	1:1	0.073	1.265	0.092	-
1 732.4	1412	RMC	23.0	21.98	-0.14	Right Cheek	1:1	0.094	1.265	0.119	-
1 732.4	1412	RMC	23.0	21.98	0.09	Right Tilt	1:1	0.069	1.265	0.087	-
ANSI/ IEEE C95.1 - 1992 – 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	Duty Cycle	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.										
1 880	9400	RMC	23.5	22.66	-0.10	Left Cheek	1:1	0.128	1.213	**0.155**	5
1 880	9400	RMC	23.5	22.66	0.18	Left Tilt	1:1	0.061	1.213	0.074	-
1 880	9400	RMC	23.5	22.66	0.17	Right Cheek	1:1	0.090	1.213	0.109	-
1 880	9400	RMC	23.5	22.66	0.13	Right Tilt	1:1	0.090	1.213	0.109	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
1 880	18900	QPSK	20	24.0	23.01	-0.19	Left Cheek	0	1	49	1:1	0.108	1.256	**0.136**	6
1 880	18900	QPSK	20	23.0	22.23	0.10	Left Cheek	1	50	49	1:1	0.092	1.194	0.110	-
1 880	18900	QPSK	20	24.0	23.01	0.06	Left Tilt	0	1	49	1:1	0.051	1.256	0.064	-
1 880	18900	QPSK	20	23.0	22.23	0.11	Left Tilt	1	50	49	1:1	0.042	1.194	0.050	-
1 880	18900	QPSK	20	24.0	23.01	-0.05	Right Cheek	0	1	49	1:1	0.070	1.256	0.088	-
1 880	18900	QPSK	20	23.0	22.23	-0.16	Right Cheek	1	50	49	1:1	0.070	1.194	0.084	-
1 880	18900	QPSK	20	24.0	23.01	0.07	Right Tilt	0	1	49	1:1	0.080	1.256	0.100	-
1 880	18900	QPSK	20	23.0	22.23	-0.02	Right Tilt	1	50	49	1:1	0.068	1.194	0.081	-
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Head 1.6 W/kg Averaged over 1 gram							

LTE Band 5 (Cell) 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.														
836.5	20525	QPSK	10	25.5	24.36	0.19	Left Cheek	0	1	0	1:1	0.173	1.300	0.225	-
836.5	20525	QPSK	10	24.5	23.48	0.14	Left Cheek	1	25	0	1:1	0.138	1.265	0.175	-
836.5	20525	QPSK	10	25.5	24.36	0.08	Left Tilt	0	1	0	1:1	0.104	1.300	0.135	-
836.5	20525	QPSK	10	24.5	23.48	0.06	Left Tilt	1	25	0	1:1	0.079	1.265	0.100	-
836.5	20525	QPSK	10	25.5	24.36	-0.11	Right Cheek	0	1	0	1:1	0.227	1.300	**0.295**	7
836.5	20525	QPSK	10	24.5	23.48	0.12	Right Cheek	1	25	0	1:1	0.177	1.265	0.224	-
836.5	20525	QPSK	10	25.5	24.36	-0.01	Right Tilt	0	1	0	1:1	0.108	1.300	0.140	-
836.5	20525	QPSK	10	24.5	23.48	0.06	Right Tilt	1	25	0	1:1	0.088	1.265	0.111	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
707.5	23095	QPSK	10	23.5	22.63	-0.03	Left Cheek	0	1	0	1:1	0.056	1.222	0.068	-
707.5	23095	QPSK	10	22.5	21.75	0.05	Left Cheek	1	25	0	1:1	0.046	1.189	0.055	-
707.5	23095	QPSK	10	23.5	22.63	-0.02	Left Tilt	0	1	0	1:1	0.031	1.222	0.038	-
707.5	23095	QPSK	10	22.5	21.75	-0.13	Left Tilt	1	25	0	1:1	0.024	1.189	0.029	-
707.5	23095	QPSK	10	23.5	22.63	0.19	Right Cheek	0	1	0	1:1	0.074	1.222	**0.090**	8
707.5	23095	QPSK	10	22.5	21.75	0.15	Right Cheek	1	25	0	1:1	0.059	1.189	0.070	-
707.5	23095	QPSK	10	23.5	22.63	0.04	Right Tilt	0	1	0	1:1	0.019	1.222	0.023	-
707.5	23095	QPSK	10	22.5	21.75	0.16	Right Tilt	1	25	0	1:1	0.015	1.189	0.018	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
782	23230	QPSK	10	23.5	22.69	0.17	Left Cheek	0	1	24	1:1	0.035	1.205	0.042	-
782	23230	QPSK	10	22.5	21.67	-0.10	Left Cheek	1	25	0	1:1	0.029	1.211	0.035	-
782	23230	QPSK	10	23.5	22.69	0.18	Left Tilt	0	1	24	1:1	0.022	1.205	0.027	-
782	23230	QPSK	10	22.5	21.67	-0.17	Left Tilt	1	25	0	1:1	0.018	1.211	0.022	-
782	23230	QPSK	10	23.5	22.69	0.19	Right Cheek	0	1	24	1:1	0.047	1.205	**0.057**	9
782	23230	QPSK	10	22.5	21.67	-0.17	Right Cheek	1	25	0	1:1	0.042	1.211	0.051	-
782	23230	QPSK	10	23.5	22.69	0.15	Right Tilt	0	1	24	1:1	0.021	1.205	0.025	-
782	23230	QPSK	10	22.5	21.67	-0.04	Right Tilt	1	25	0	1:1	0.017	1.211	0.021	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
821.5	26765	QPSK	15	24.0	23.04	0.03	Left Cheek	0	1	0	1:1	0.082	1.247	0.102	-
841.5	26965	QPSK	15	23.0	22.17	0.12	Left Cheek	1	36	39	1:1	0.102	1.211	0.124	-
821.5	26765	QPSK	15	24.0	23.04	-0.16	Left Tilt	0	1	0	1:1	0.050	1.247	0.062	-
841.5	26965	QPSK	15	23.0	22.17	-0.01	Left Tilt	1	36	39	1:1	0.062	1.211	0.075	-
821.5	26765	QPSK	15	24.0	23.04	-0.13	Right Cheek	0	1	0	1:1	0.098	1.247	0.122	-
841.5	26965	QPSK	15	23.0	22.17	0.14	Right Cheek	1	36	39	1:1	0.131	1.211	**0.159**	10
821.5	26765	QPSK	15	24.0	23.04	0.17	Right Tilt	0	1	0	1:1	0.049	1.247	0.061	-
841.5	26965	QPSK	15	23.0	22.17	0.14	Right Tilt	1	36	39	1:1	0.060	1.211	0.073	-
ANSI/ IEEE C95.1 - 1992 – 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.														
2 636.5	41055	QPSK	20	24.5	24.12	-0.19	Left Cheek	0	1	0	1:1.58	0.068	1.091	**0.074**	11
2 636.5	41055	QPSK	20	23.5	23.30	-0.06	Left Cheek	1	50	0	1:1.58	0.054	1.047	0.057	-
2 636.5	41055	QPSK	20	24.5	24.12	-0.04	Left Tilt	0	1	0	1:1.58	0.040	1.091	0.044	-
2 636.5	41055	QPSK	20	23.5	23.30	0.18	Left Tilt	1	50	0	1:1.58	0.035	1.047	0.037	-
2 636.5	41055	QPSK	20	24.5	24.12	0.19	Right Cheek	0	1	0	1:1.58	0.039	1.091	0.043	-
2 636.5	41055	QPSK	20	23.5	23.30	0.17	Right Cheek	1	50	0	1:1.58	0.031	1.047	0.032	-
2 636.5	41055	QPSK	20	24.5	24.12	-0.03	Right Tilt	0	1	0	1:1.58	0.059	1.091	0.064	-
2 636.5	41055	QPSK	20	23.5	23.30	-0.13	Right Tilt	1	50	0	1:1.58	0.049	1.047	0.051	-
ANSI/ IEEE C95.1 - 1992 – 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	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.														
1 720	32072	QPSK	20	23.5	22.88	0.18	Left Cheek	0	1	0	1:1	0.090	1.153	**0.104**	12
1 720	32072	QPSK	20	22.5	21.96	0.13	Left Cheek	1	50	0	1:1	0.074	1.132	0.084	-
1 720	32072	QPSK	20	23.5	22.88	-0.01	Left Tilt	0	1	0	1:1	0.053	1.153	0.061	-
1 720	32072	QPSK	20	22.5	21.96	0.03	Left Tilt	1	50	0	1:1	0.045	1.132	0.051	-
1 720	32072	QPSK	20	23.5	22.88	0.08	Right Cheek	0	1	0	1:1	0.055	1.153	0.063	-
1 720	32072	QPSK	20	22.5	21.96	0.13	Right Cheek	1	50	0	1:1	0.046	1.132	0.052	-
1 720	32072	QPSK	20	23.5	22.88	0.12	Right Tilt	0	1	0	1:1	0.047	1.153	0.054	-
1 720	32072	QPSK	20	22.5	21.96	0.01	Right Tilt	1	50	0	1:1	0.039	1.132	0.044	-
ANSI/ IEEE C95.1 - 1992 – 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.															
2 462	11	802.11b	22	1	15	14.62		Left Cheek	Ant1	99.31	0.0866		1.091	1.007		-
2 462	11	802.11b	22	1	15	14.62		Left Tilt	Ant1	99.31	0.0986		1.091	1.007		-
2 462	11	802.11b	22	1	15	14.62	0.16	Right Cheek	Ant1	99.31	0.371	0.197	1.091	1.007	**0.216**	13
2 462	11	802.11b	22	1	15	14.62		Right Tilt	Ant1	99.31	0.340		1.091	1.007		-
2 437	6	802.11b	22	1	15	14.92		Left Cheek	Ant2	99.31	0.148		1.019	1.007		-
2 437	6	802.11b	22	1	15	14.92	0.11	Left Tilt	Ant2	99.31	0.167	0.085	1.019	1.007	0.087	-
2 437	6	802.11b	22	1	15	14.92		Right Cheek	Ant2	99.31	0.143		1.019	1.007		-
2 437	6	802.11b	22	1	15	14.92		Right Tilt	Ant2	99.31	0.147		1.019	1.007		-
ANSI/ IEEE C95.1 - 1992 – 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.															
5 270	54	802.11n	40	MCS0	15	14.73		Left Cheek	Ant1	94.8	0.0427		1.064	1.055		-
5 270	54	802.11n	40	MCS0	15	14.73		Left Tilt	Ant1	94.8	0.0819		1.064	1.055		-
5 270	54	802.11n	40	MCS0	15	14.73	-0.19	Right Cheek	Ant1	94.8	0.321	0.046	1.064	1.055	0.052	-
5 270	54	802.11n	40	MCS0	15	14.73		Right Tilt	Ant1	94.8	0.0954		1.064	1.055		-
5 270	54	802.11n	40	MCS0	15	14.77		Left Cheek	Ant2	94.8	0.0213		1.054	1.055		-
5 270	54	802.11n	40	MCS0	15	14.77		Left Tilt	Ant2	94.8	0.0363		1.054	1.055		-
5 270	54	802.11n	40	MCS0	15	14.77	0.14	Right Cheek	Ant2	94.8	0.0561	0.012	1.054	1.055	0.013	-
5 270	54	802.11n	40	MCS0	15	14.77		Right Tilt	Ant2	94.8	0.0226		1.054	1.055		-
5 590	118	802.11n	40	MCS0	15	14.80		Left Cheek	Ant1	94.8	0.181		1.047	1.055		-
5 590	118	802.11n	40	MCS0	15	14.80		Left Tilt	Ant1	94.8	0.137		1.047	1.055		-
5 590	118	802.11n	40	MCS0	15	14.80	-0.15	Right Cheek	Ant1	94.8	0.267	0.060	1.047	1.055	0.066	-
5 590	118	802.11n	40	MCS0	15	14.80		Right Tilt	Ant1	94.8	0.262		1.047	1.055		-
5 710	142	802.11n	40	MCS0	15	14.77		Left Cheek	Ant2	94.8	0.191		1.054	1.055		-
5 710	142	802.11n	40	MCS0	15	14.77		Left Tilt	Ant2	94.8	0.139		1.054	1.055		-
5 710	142	802.11n	40	MCS0	15	14.77		Right Cheek	Ant2	94.8	0.202		1.054	1.055		-
5 710	142	802.11n	40	MCS0	15	14.77	0.18	Right Tilt	Ant2	94.8	0.324	0.075	1.054	1.055	**0.083**	14
5 755	151	802.11n	40	MCS0	15	14.46		Left Cheek	Ant1	94.8	0.176		1.132	1.055		-
5 755	151	802.11n	40	MCS0	15	14.46		Left Tilt	Ant1	94.8	0.140		1.132	1.055		-
5 755	151	802.11n	40	MCS0	15	14.46	-0.16	Right Cheek	Ant1	94.8	0.256	0.062	1.132	1.055	0.074	-
5 755	151	802.11n	40	MCS0	15	14.46		Right Tilt	Ant1	94.8	0.226		1.132	1.055		-
5 795	159	802.11n	40	MCS0	15	14.61	-0.18	Left Cheek	Ant2	94.8	0.137	0.031	1.094	1.055	0.036	-
5 795	159	802.11n	40	MCS0	15	14.61		Left Tilt	Ant2	94.8	0.127		1.094	1.055		-
5 795	159	802.11n	40	MCS0	15	14.61		Right Cheek	Ant2	94.8	0.118		1.094	1.055		-
5 795	159	802.11n	40	MCS0	15	14.61		Right Tilt	Ant2	94.8	0.104		1.094	1.055		-
ANSI/ IEEE C95.1 - 1992 – 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	12	11.31	-0.18	Left Cheek	0.053	1.172	1.300	0.081	-
2 480	78	Bluetooth DH5	12	11.31	-0.10	Left Tilt	0.055	1.172	1.300	0.084	-
2 480	78	Bluetooth DH5	12	11.31	0.12	Right Cheek	0.177	1.172	1.300	**0.270**	15
2 480	78	Bluetooth DH5	12	11.31	-0.12	Right Tilt	0.162	1.172	1.300	0.247	-
ANSI/ IEEE C95.1 - 1992 – 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	Distance (mm)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
836.6	190	GSM850 Voice	33.0	31.54	0.10	Rear	1:8.3	15	0.107	1.400	**0.150**	16
1 880	661	GSM1900 Voice	30.0	28.24	-0.18	Rear	1:8.3	15	0.230	1.500	**0.345**	17
836.6	4183	UMTS850 (RMC)	25.0	23.59	0.01	Rear	1:1	15	0.309	1.384	**0.428**	18
1 732.4	1412	UMTS1700 (RMC)	23.0	21.98	-0.08	Rear	1:1	15	0.451	1.265	**0.571**	19
1 880	9400	UMTS1900 (RMC)	23.5	22.66	-0.01	Rear	1:1	15	0.482	1.213	**0.585**	20
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
1 880	18900	LTE 2 QPSK	20	24.0	23.01	-0.02	Rear	0	1	49	1:1	15	0.496	1.256	**0.623**	21
1 880	18900		20	23.0	22.23	-0.03	Rear	1	50	49	1:1	15	0.418	1.194	0.499	-
836.5	20525	LTE 5 QPSK	10	25.5	24.36	-0.01	Rear	0	1	0	1:1	15	0.384	1.300	**0.499**	22
836.5	20525		10	24.5	23.48	-0.01	Rear	1	25	0	1:1	15	0.321	1.265	0.406	-
707.5	23095	LTE 12 QPSK	10	23.5	22.63	-0.04	Rear	0	1	0	1:1	15	0.145	1.222	**0.177**	23
707.5	23095		10	22.5	21.75	-0.02	Rear	1	25	0	1:1	15	0.116	1.189	0.138	-
782	23230	LTE 13 QPSK	10	23.5	22.69	0.03	Rear	0	1	24	1:1	15	0.103	1.205	**0.124**	24
782	23230		10	22.5	21.67	-0.04	Rear	1	25	0	1:1	15	0.088	1.211	0.107	-
821.5	26765	LTE 26 QPSK	15	24.0	23.04	-0.12	Rear	0	1	0	1:1	15	0.177	1.247	0.221	-
841.5	26965		15	23.0	22.17	0.01	Rear	1	36	39	1:1	15	0.255	1.211	**0.309**	25
2 636.5	41055	LTE 41 QPSK	20	24.5	24.12	-0.13	Rear	0	1	0	1:1.58	15	0.136	1.091	0.148	-
2 636.5	41055		20	23.5	23.30	-0.14	Rear	1	50	0	1:1.58	15	0.141	1.047	**0.148**	26
1 720	32072	LTE 66 QPSK	20	23.5	22.88	0.13	Rear	0	1	0	1:1	15	0.155	1.153	0.179	-
1 720	32072		20	22.5	21.96	0.14	Rear	1	50	0	1:1	15	0.165	1.132	**0.187**	27
ANSI/ IEEE C95.1 - 1992 – 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.																
2 462	11	802.11b	22	1	19	18.25	-0.02	Rear	Ant1	99.31	15	0.115	**0.071**	1.189	1.007	0.085	28
2 437	6	802.11b	22	1	19	17.63	0.18	Rear	Ant2	99.31	15	0.0895	0.063	1.371	1.007	**0.087**	29
ANSI/ IEEE C95.1 - 1992 – 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.																
5 320	64	802.11a	20	6	16	14.35	0.11	Rear	Ant1	97.46	15	0.621	0.274	1.462	1.026	0.411	-
5 720	144	802.11a	20	6	16	14.43	-0.15	Rear	Ant1	97.46	15	0.292	0.101	1.435	1.026	0.149	-
5 825	165	802.11a	20	6	16	14.84	-0.13	Rear	Ant1	97.46	15	0.413	0.172	1.306	1.026	0.230	-
5 260	52	802.11a	20	6	16	14.78	0.08	Rear	Ant2	97.46	15	0.466	0.215	1.324	1.026	0.292	-
5 600	120	802.11a	20	6	16	14.62	0.14	Rear	Ant2	97.46	15	0.678	0.301	1.374	1.026	**0.424**	30
5 785	157	802.11a	20	6	16	14.30	0.10	Rear	Ant2	97.46	15	0.365	0.122	1.479	1.026	0.185	-
ANSI/ IEEE C95.1 - 1992 – 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	12	11.31	0.01	Rear	15	0.021	1.172	1.300	**0.032**	31
ANSI/ IEEE C95.1 - 1992 – 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.											
824.2	128	GPRS 3Tx	30.5	29.17	-0.04	Rear	1:2.77	10	0.595	1.358	0.808	-
836.6	190	GPRS 3Tx	30.5	29.07	-0.08	Rear	1:2.77	10	0.644	1.390	0.895	-
848.8	251	GPRS 3Tx	30.5	29.33	-0.08	Rear	1:2.77	10	0.711	1.309	**0.931**	32
836.6	190	GPRS 3Tx	30.5	29.07	0.03	Front	1:2.77	10	0.502	1.390	0.698	-
836.6	190	GPRS 3Tx	30.5	29.07	0.19	Left	1:2.77	10	0.086	1.390	0.120	-
836.6	190	GPRS 3Tx	30.5	29.07	0.01	Right	1:2.77	10	0.324	1.390	0.450	-
836.6	190	GPRS 3Tx	30.5	29.07	0.12	Bottom	1:2.77	10	0.429	1.390	0.596	-
ANSI/ IEEE C95.1 - 1992 – 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 4Tx	22.5	21.39	0.12	Rear	1:2.07	10	0.289	1.291	0.373	-
1 880	661	GPRS 4Tx	22.5	21.39	0.13	Front	1:2.07	10	0.235	1.291	0.303	-
1 880	661	GPRS 4Tx	22.5	21.39	-0.05	Left	1:2.07	10	0.044	1.291	0.057	-
1 880	661	GPRS 4Tx	22.5	21.39	0.08	Right	1:2.07	10	0.041	1.291	0.053	-
1 880	661	GPRS 4Tx	22.5	21.39	-0.13	Bottom	1:2.07	10	0.521	1.291	**0.673**	33
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
826.4	4132	RMC	25.0	23.48	-0.02	Rear	1:1	10	0.580	1.419	0.823	-
836.6	4183	RMC	25.0	23.59	0.18	Rear	1:1	10	0.623	1.384	**0.862**	34
846.6	4233	RMC	25.0	23.68	-0.01	Rear	1:1	10	0.593	1.355	0.804	-
836.6	4183	RMC	25.0	23.59	-0.01	Front	1:1	10	0.469	1.384	0.649	-
836.6	4183	RMC	25.0	23.59	-0.01	Left	1:1	10	0.065	1.384	0.090	-
836.6	4183	RMC	25.0	23.59	-0.03	Right	1:1	10	0.152	1.384	0.210	-
836.6	4183	RMC	25.0	23.59	0.14	Bottom	1:1	10	0.353	1.384	0.489	
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
1 732.4	1412	RMC	19.0	18.03	-0.09	Rear	1:1	10	0.354	1.250	0.443	-
1 732.4	1412	RMC	19.0	18.03	0.07	Front	1:1	10	0.288	1.250	0.360	-
1 732.4	1412	RMC	19.0	18.03	0.08	Left	1:1	10	0.066	1.250	0.083	-
1 732.4	1412	RMC	19.0	18.03	0.06	Right	1:1	10	0.069	1.250	0.086	-
1 732.4	1412	RMC	19.0	18.03	-0.01	Bottom	1:1	10	0.622	1.250	**0.778**	35
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.											
1 880.0	9400	RMC	19.0	18.24	-0.03	Rear	1:1	10	0.318	1.191	0.379	-
1 880.0	9400	RMC	19.0	18.24	0.06	Front	1:1	10	0.294	1.191	0.350	-
1 880.0	9400	RMC	19.0	18.24	0.14	Left	1:1	10	0.054	1.191	0.064	-
1 880.0	9400	RMC	19.0	18.24	0.03	Right	1:1	10	0.048	1.191	0.057	-
1 880.0	9400	RMC	19.0	18.24	-0.01	Bottom	1:1	10	0.581	1.191	**0.692**	36
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
1 880	18900	QPSK	20	19.0	18.00	0.16	Rear	0	1	49	1:1	10	0.286	1.259	0.360	-
1 880	18900	QPSK	20	19.0	18.18	-0.02	Rear	0	50	49	1:1	10	0.287	1.208	0.347	-
1 880	18900	QPSK	20	19.0	18.00	0.16	Front	0	1	49	1:1	10	0.264	1.259	0.332	-
1 880	18900	QPSK	20	19.0	18.18	0.18	Front	0	50	49	1:1	10	0.281	1.208	0.339	-
1 880	18900	QPSK	20	19.0	18.00	0.12	Left	0	1	49	1:1	10	0.049	1.259	0.062	-
1 880	18900	QPSK	20	19.0	18.18	0.18	Left	0	50	49	1:1	10	0.052	1.208	0.063	-
1 880	18900	QPSK	20	19.0	18.00	0.13	Right	0	1	49	1:1	10	0.035	1.259	0.044	-
1 880	18900	QPSK	20	19.0	18.18	0.19	Right	0	50	49	1:1	10	0.037	1.208	0.045	-
1 880	18900	QPSK	20	19.0	18.00	-0.04	Bottom	0	1	49	1:1	10	0.568	1.259	0.715	-
1 880	18900	QPSK	20	19.0	18.18	-0.06	Bottom	0	50	49	1:1	10	0.600	1.208	**0.725**	37
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram								

LTE Band 5 (Cell) 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.															
836.5	20525	QPSK	10	25.5	24.36	0.04	Rear	0	1	0	1:1	10	0.806	1.300	**1.048**	38
836.5	20525	QPSK	10	24.5	23.48	0.14	Rear	1	25	0	1:1	10	0.650	1.265	0.822	-
836.5	20525	QPSK	10	24.5	23.49	-0.02	Rear	1	50	0	1:1	10	0.655	1.262	0.827	-
836.5	20525	QPSK	10	25.5	24.36	0.04	Front	0	1	0	1:1	10	0.596	1.300	0.775	-
836.5	20525	QPSK	10	24.5	23.48	-0.01	Front	1	25	0	1:1	10	0.489	1.265	0.619	-
836.5	20525	QPSK	10	25.5	24.36	0.01	Left	0	1	0	1:1	10	0.092	1.300	0.120	-
836.5	20525	QPSK	10	24.5	23.48	0.10	Left	1	25	0	1:1	10	0.075	1.265	0.095	-
836.5	20525	QPSK	10	25.5	24.36	-0.07	Right	0	1	0	1:1	10	0.236	1.300	0.307	-
836.5	20525	QPSK	10	24.5	23.48	0.19	Right	1	25	0	1:1	10	0.192	1.265	0.243	-
836.5	20525	QPSK	10	25.5	24.36	0.01	Bottom	0	1	0	1:1	10	0.411	1.300	0.534	-
836.5	20525	QPSK	10	24.5	23.48	0.15	Bottom	1	25	0	1:1	10	0.350	1.265	0.443	-
836.5	20525	QPSK	10	25.5	24.36	0.07	Rear	0	1	0	1:1	10	0.801	1.300	1.041	#
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
707.5	23095	QPSK	10	23.5	22.63	-0.04	Rear	0	1	0	1:1	10	0.279	1.222	**0.341**	39
707.5	23095	QPSK	10	22.5	21.75	-0.03	Rear	1	25	0	1:1	10	0.228	1.189	0.271	-
707.5	23095	QPSK	10	23.5	22.63	-0.05	Front	0	1	0	1:1	10	0.188	1.222	0.230	-
707.5	23095	QPSK	10	22.5	21.75	-0.05	Front	1	25	0	1:1	10	0.155	1.189	0.184	-
707.5	23095	QPSK	10	23.5	22.63	-0.03	Left	0	1	0	1:1	10	0.100	1.222	0.122	-
707.5	23095	QPSK	10	22.5	21.75	-0.07	Left	1	25	0	1:1	10	0.082	1.189	0.097	-
707.5	23095	QPSK	10	23.5	22.63	0.03	Right	0	1	0	1:1	10	0.124	1.222	0.152	-
707.5	23095	QPSK	10	22.5	21.75	-0.03	Right	1	25	0	1:1	10	0.102	1.189	0.121	-
707.5	23095	QPSK	10	23.5	22.63	0.17	Bottom	0	1	0	1:1	10	0.131	1.222	0.160	-
707.5	23095	QPSK	10	22.5	21.75	0.04	Bottom	1	25	0	1:1	10	0.108	1.189	0.128	-
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
782	23230	QPSK	10	23.5	22.69	-0.07	Rear	0	1	24	1:1	10	0.234	1.205	**0.282**	40
782	23230	QPSK	10	22.5	21.67	-0.11	Rear	1	25	0	1:1	10	0.206	1.211	0.249	-
782	23230	QPSK	10	23.5	22.69	-0.07	Front	0	1	24	1:1	10	0.192	1.205	0.231	-
782	23230	QPSK	10	22.5	21.67	-0.04	Front	1	25	0	1:1	10	0.162	1.211	0.196	-
782	23230	QPSK	10	23.5	22.69	0.11	Left	0	1	24	1:1	10	0.030	1.205	0.036	-
782	23230	QPSK	10	22.5	21.67	-0.08	Left	1	25	0	1:1	10	0.026	1.211	0.031	-
782	23230	QPSK	10	23.5	22.69	0.01	Right	0	1	24	1:1	10	0.113	1.205	0.136	-
782	23230	QPSK	10	22.5	21.67	-0.05	Right	1	25	0	1:1	10	0.096	1.211	0.116	-
782	23230	QPSK	10	23.5	22.69	0.01	Bottom	0	1	24	1:1	10	0.121	1.205	0.146	-
782	23230	QPSK	10	22.5	21.67	0.02	Bottom	1	25	0	1:1	10	0.103	1.211	0.125	-
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
821.5	26765	QPSK	15	24.0	23.04	-0.01	Rear	0	1	0	1:1	10	0.508	1.247	**0.633**	41
841.5	26965	QPSK	15	23.0	22.17	-0.05	Rear	1	36	39	1:1	10	**0.521**	1.211	0.631	42
821.5	26765	QPSK	15	24.0	23.04	-0.01	Front	0	1	0	1:1	10	0.377	1.247	0.470	-
841.5	26965	QPSK	15	23.0	22.17	-0.13	Front	1	36	39	1:1	10	0.387	1.211	0.469	-
821.5	26765	QPSK	15	24.0	23.04	0.06	Left	0	1	0	1:1	10	0.053	1.247	0.066	-
841.5	26965	QPSK	15	23.0	22.17	0.01	Left	1	36	39	1:1	10	0.044	1.211	0.053	-
821.5	26765	QPSK	15	24.0	23.04	-0.06	Right	0	1	0	1:1	10	0.136	1.247	0.170	-
841.5	26965	QPSK	15	23.0	22.17	-0.06	Right	1	36	39	1:1	10	0.135	1.211	0.163	-
821.5	26765	QPSK	15	24.0	23.04	0.03	Bottom	0	1	0	1:1	10	0.199	1.247	0.248	-
841.5	26965	QPSK	15	23.0	22.17	0.02	Bottom	1	36	39	1:1	10	0.266	1.211	0.322	-
ANSI/ IEEE C95.1 - 1992 – 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.															
2 636.5	41055	QPSK	20	21.5	21.07	0.01	Rear	0	1	0	1:1.58	10	0.249	1.104	0.275	-
2 636.5	41055	QPSK	20	21.5	21.19	0.11	Rear	0	50	0	1:1.58	10	0.269	1.074	0.289	-
2 636.5	41055	QPSK	20	21.5	21.07	-0.19	Front	0	1	0	1:1.58	10	0.227	1.104	0.251	-
2 636.5	41055	QPSK	20	21.5	21.19	-0.15	Front	0	50	0	1:1.58	10	0.238	1.074	0.256	-
2 636.5	41055	QPSK	20	21.5	21.07	-0.19	Left	0	1	0	1:1.58	10	0.074	1.104	0.082	-
2 636.5	41055	QPSK	20	21.5	21.19	-0.16	Left	0	50	0	1:1.58	10	0.079	1.074	0.085	-
2 636.5	41055	QPSK	20	21.5	21.07	-0.11	Bottom	0	1	0	1:1.58	10	0.530	1.104	0.585	-
2 636.5	41055	QPSK	20	21.5	21.19	-0.11	Bottom	0	50	0	1:1.58	10	0.552	1.074	**0.593**	43
ANSI/ IEEE C95.1 - 1992 – 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)	Meas. SAR (W/kg)	Scaling Factor	Scaled SAR (W/kg)	Plot No.
MHz	Ch.															
1 720	132072	QPSK	20	20.0	19.36	0.17	Rear	0	1	0	1:1	10	0.314	1.159	0.364	-
1 720	132072	QPSK	20	20.0	19.47	0.12	Rear	0	50	0	1:1	10	0.330	1.130	0.373	-
1 720	132072	QPSK	20	20.0	19.36	0.11	Front	0	1	0	1:1	10	0.305	1.159	0.353	-
1 720	132072	QPSK	20	20.0	19.47	0.18	Front	0	50	0	1:1	10	0.322	1.130	0.364	-
1 720	132072	QPSK	20	20.0	19.36	0.01	Left	0	1	0	1:1	10	0.065	1.159	0.075	-
1 720	132072	QPSK	20	20.0	19.47	0.13	Left	0	50	0	1:1	10	0.068	1.130	0.077	-
1 720	132072	QPSK	20	20.0	19.36	0.08	Right	0	1	0	1:1	10	0.038	1.159	0.044	-
1 720	132072	QPSK	20	20.0	19.47	0.16	Right	0	50	0	1:1	10	0.042	1.130	0.047	-
1 720	132072	QPSK	20	20.0	19.36	-0.08	Bottom	0	1	0	1:1	10	0.501	1.159	0.581	-
1 720	132072	QPSK	20	20.0	19.47	-0.08	Bottom	0	50	0	1:1	10	0.540	1.130	**0.610**	44
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram								

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.																
2 462	11	802.11b	22	1	19	18.25		Rear	Ant1	99.31	10	0.202		1.189	1.007		-
2 462	11	802.11b	22	1	19	18.25		Front	Ant1	99.31	10	0.185		1.189	1.007		-
2 462	11	802.11b	22	1	19	18.25	-0.18	Left	Ant1	99.31	10	0.251	**0.177**	1.189	1.007	0.212	45
2 462	11	802.11b	22	1	19	18.25		Top	Ant1	99.31	10	0.0565		1.189	1.007		-
2 437	6	802.11b	22	1	19	17.63	0.13	Rear	Ant2	99.31	10	0.254	0.160	1.371	1.007	**0.221**	46
2 437	6	802.11b	22	1	19	17.63		Front	Ant2	99.31	10	0.0500		1.371	1.007		-
2 437	6	802.11b	22	1	19	17.63		Left	Ant2	99.31	10	0.0194		1.371	1.007		-
2 437	6	802.11b	22	1	19	17.63		Top	Ant2	99.31	10	0.106		1.371	1.007		-
ANSI/ IEEE C95.1 - 1992 – 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.																
5 825	165	802.11a	20	6	16	14.84		Rear	Ant1	97.46	10	0.459		1.306	1.026		-
5 825	165	802.11a	20	6	16	14.84		Front	Ant1	97.46	10	0.0386		1.306	1.026		-
5 825	165	802.11a	20	6	16	14.84	0.13	Left	Ant1	97.46	10	0.542	0.152	1.306	1.026	0.204	-
5 825	165	802.11a	20	6	16	14.84		Top	Ant1	97.46	10	0.0793		1.306	1.026		-
5 785	157	802.11a	20	6	16	14.30	0.15	Rear	Ant2	97.46	10	0.478	0.167	1.479	1.026	**0.253**	47
5 785	157	802.11a	20	6	16	14.30		Front	Ant2	97.46	10	0		1.479	1.026		-
5 785	157	802.11a	20	6	16	14.30		Left	Ant2	97.46	10	0		1.479	1.026		-
5 785	157	802.11a	20	6	16	14.30		Top	Ant2	97.46	10	0.131		1.479	1.026		-
ANSI/ IEEE C95.1 - 1992 – 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	12	11.31	0.16	Rear	10	0.045	1.172	1.300	0.069	-
2 480	78	Bluetooth DH5	12	11.31	-0.16	Front	10	0.038	1.172	1.300	0.058	-
2 480	78	Bluetooth DH5	12	11.31	0.13	Left	10	0.049	1.172	1.300	**0.075**	48
2 480	78	Bluetooth DH5	12	11.31	0.01	Top	10	0.029	1.172	1.300	0.044	-
ANSI/ IEEE C95.1 - 1992 – 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.

The Reported Hotspot SAR results of GSM850/ UMTS850/ LTE B5/B12/B13/B26/WLAN 2.4GHz /WLAN 5GHz UNII-3 /Bluetooth were less than 1.2 W/kg, so Phablet SAR measurement is not required.

Phablet SAR measurement were required for WLAN 5GHz UNII-2A and UNII-2C becasue the hotspot do not support .

The GSM 1900, UMTS 1700/1900, LTE Band 2/66 with hotspot reduction were required to Phablet SAR because the measurement result scaled to the Maximum Tune-up imit were Higher than 1.2W/kg
Beacause we was appled (0.6/0.8)x1.2 W/kg for Phablet SAR for LTE B41 , LTE B41 also performed Phablet SAR.

13.5 Phablet SAR Measurement Results

GSM 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	661	GPRS 3Tx	27.5	26.29	0.05	Rear	OFF	1:2.77	6	0.618	1.321	0.816	-
1 880	661	GPRS 3Tx	27.5	26.29	-0.13	Front	OFF	1:2.77	4	0.787	1.321	1.040	-
1 880	661	GPRS 3Tx	27.5	26.29	-0.14	Bottom	OFF	1:2.77	9	0.377	1.321	0.498	-
1 880	661	GPRS 3Tx	27.5	26.29	0.19	Left	N/A	1:2.77	0	0.324	1.321	0.428	-
1 880	661	GPRS 3Tx	27.5	26.29	0.15	Right	N/A	1:2.77	0	0.196	1.321	0.259	-
1 880	661	GPRS 4Tx	22.5	21.04	0.03	Rear	ON	1:2.07	0	0.719	1.400	1.007	-
1 880	661	GPRS 4Tx	22.5	21.04	0.01	Front	ON	1:2.07	0	0.965	1.400	1.351	-
1 880	661	GPRS 4Tx	22.5	21.04	0.11	Bottom	ON	1:2.07	0	1.2	1.400	**1.680**	59
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Hand 4.0 W/kg Averaged over 10 gram						

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	23.0	21.98	-0.05	Rear	OFF	1:1	6	0.922	1.265	1.166	-
1 732.4	1412	RMC	23.0	21.98	-0.05	Front	OFF	1:1	4	1.32	1.265	1.670	-
1 732.4	1412	RMC	23.0	21.98	0.19	Bottom	OFF	1:1	9	1.15	1.265	1.455	-
1 732.4	1412	RMC	23.0	21.98	-0.06	Left	N/A	1:1	0	0.346	1.265	0.438	-
1 732.4	1412	RMC	23.0	21.98	-0.07	Right	N/A	1:1	0	0.263	1.265	0.333	-
1 732.4	1412	RMC	19.0	18.06	-0.01	Rear	ON	1:1	0	1.07	1.242	1.329	-
1 732.4	1412	RMC	19.0	18.06	-0.14	Front	ON	1:1	0	1.24	1.242	1.540	-
1 712.4	1312	RMC	19.0	18.29	-0.09	Bottom	ON	1:1	0	1.77	1.178	2.085	-
1 732.4	1412	RMC	19.0	18.06	0.16	Bottom	ON	1:1	0	1.86	1.242	2.310	-
1 752.6	1513	RMC	19.0	17.96	0.17	Bottom	ON	1:1	0	1.95	1.271	**2.478**	49
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak measurement.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	23.5	22.66	-0.19	Rear	OFF	1:1	6	0.877	1.213	1.064	-
1 880.0	9400	RMC	23.5	22.66	-0.11	Front	OFF	1:1	4	1.25	1.213	1.516	-
1 880.0	9400	RMC	23.5	22.66	0.04	Bottom	OFF	1:1	9	1.15	1.213	1.395	-
1 880.0	9400	RMC	23.5	22.66	0.02	Left	N/A	1:1	0	0.440	1.213	0.534	-
1 880.0	9400	RMC	23.5	22.66	-0.01	Right	N/A	1:1	0	0.244	1.213	0.296	-
1 880.0	9400	RMC	19.0	18.25	0.07	Rear	ON	1:1	0	0.962	1.189	1.144	-
1 880.0	9400	RMC	19.0	18.25	0.13	Front	ON	1:1	0	1.12	1.189	1.332	-
1 880.0	9400	RMC	19.0	18.25	0.16	Bottom	ON	1:1	0	1.56	1.189	**1.855**	50
ANSI/ IEEE C95.1 - 1992 – 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.																
1 880	18900	QPSK	20	24.0	23.01	0.04	Rear	OFF	0	1	49	1:1	6	0.930	1.256	1.168	-
1 880	18900	QPSK	20	23.0	22.23	0.06	Rear	OFF	1	50	49	1:1	6	0.781	1.194	0.933	-
1 880	18900	QPSK	20	24.0	23.01	0.07	Front	OFF	0	1	49	1:1	4	1.18	1.256	1.482	-
1 880	18900	QPSK	20	23.0	22.23	-0.04	Front	OFF	1	50	49	1:1	4	1.00	1.194	1.194	-
1 880	18900	QPSK	20	24.0	23.01	-0.15	Bottom	OFF	0	1	49	1:1	9	1.18	1.256	1.482	-
1 880	18900	QPSK	20	23.0	22.23	-0.08	Bottom	OFF	1	50	49	1:1	9	0.964	1.194	1.151	-
1 880	18900	QPSK	20	24.0	23.01	0.11	Left	N/A	0	1	49	1:1	0	0.468	1.256	0.588	-
1 880	18900	QPSK	20	23.0	22.23	0.13	Left	N/A	1	50	49	1:1	0	0.397	1.194	0.474	-
1 880	18900	QPSK	20	24.0	23.01	0.15	Right	N/A	0	1	49	1:1	0	0.253	1.256	0.318	-
1 880	18900	QPSK	20	23.0	22.23	0.18	Right	N/A	1	50	49	1:1	0	0.209	1.194	0.250	-
1 880	18900	QPSK	20	19.0	17.99	0.13	Rear	ON	0	1	49	1:1	0	0.648	1.262	0.818	-
1 880	18900	QPSK	20	19.0	18.16	0.15	Rear	ON	0	50	49	1:1	0	0.680	1.213	0.825	-
1 880	18900	QPSK	20	19.0	17.99	0.01	Front	ON	0	1	49	1:1	0	0.942	1.262	1.189	-
1 880	18900	QPSK	20	19.0	18.16	0.01	Front	ON	0	50	49	1:1	0	0.999	1.213	1.212	-
1 880	18900	QPSK	20	19.0	17.99	-0.19	Bottom	ON	0	1	49	1:1	0	1.25	1.262	1.578	-
1 880	18900	QPSK	20	19.0	18.16	-0.11	Bottom	ON	0	50	49	1:1	0	1.32	1.213	**1.601**	51
ANSI/ IEEE C95.1 - 1992 – 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.																
2 636.5	41055	QPSK	20	24.5	24.12	-0.16	Rear	OFF	0	1	0	1:1.58	6	0.374	1.091	0.408	-
2 636.5	41055	QPSK	20	23.5	23.30	-0.19	Rear	OFF	1	50	0	1:1.58	6	0.307	1.047	0.321	-
2 636.5	41055	QPSK	20	24.5	24.12	-0.18	Front	OFF	0	1	0	1:1.58	4	0.493	1.091	0.538	-
2 636.5	41055	QPSK	20	23.5	23.30	-0.10	Front	OFF	1	50	0	1:1.58	4	0.399	1.047	0.418	-
2 636.5	41055	QPSK	20	24.5	24.12	-0.18	Bottom	OFF	0	1	0	1:1.58	9	0.568	1.091	0.620	-
2 636.5	41055	QPSK	20	23.5	23.30	-0.19	Bottom	OFF	1	50	0	1:1.58	9	0.472	1.047	0.494	-
2 636.5	41055	QPSK	20	24.5	24.12	-0.17	Left	N/A	0	1	0	1:1.58	0	0.651	1.091	0.710	-
2 636.5	41055	QPSK	20	23.5	23.30	-0.12	Left	N/A	1	50	0	1:1.58	0	0.549	1.047	0.575	-
2 636.5	41055	QPSK	20	21.5	21.09	0.16	Rear	ON	0	1	0	1:1.58	0	1.01	1.099	1.110	-
2 636.5	41055	QPSK	20	21.5	21.23	0.07	Rear	ON	0	50	0	1:1.58	0	1.05	1.064	1.117	-
2 636.5	41055	QPSK	20	21.5	21.09	0.19	Front	ON	0	1	0	1:1.58	0	1.17	1.099	**1.286**	52
2 636.5	41055	QPSK	20	21.5	21.23	-0.03	Front	ON	0	50	0	1:1.58	0	**1.2**	1.064	1.277	53
2 636.5	41055	QPSK	20	21.5	21.09	-0.19	Bottom	ON	0	1	0	1:1.58	0	1.04	1.099	1.143	-
2 636.5	41055	QPSK	20	21.5	21.23	-0.11	Bottom	ON	0	50	0	1:1.58	0	1.09	1.064	1.160	-
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Hand 4.0 W/kg Averaged over 10 gram									

LTE Band 66 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.																
1 720	132072	QPSK	20	23.5	22.88	0.14	Rear	OFF	0	1	0	1:1	6	0.622	1.153	0.717	-
1 720	132072	QPSK	20	22.5	21.96	0.05	Rear	OFF	1	50	0	1:1	6	0.515	1.132	0.583	-
1 720	132072	QPSK	20	23.5	22.88	-0.02	Front	OFF	0	1	0	1:1	4	0.786	1.153	0.906	-
1 720	132072	QPSK	20	22.5	21.96	-0.05	Front	OFF	1	50	0	1:1	4	0.668	1.132	0.756	-
1 720	132072	QPSK	20	23.5	22.88	-0.13	Bottom	OFF	0	1	0	1:1	9	0.728	1.153	0.839	-
1 720	132072	QPSK	20	22.5	21.96	-0.16	Bottom	OFF	1	50	0	1:1	9	0.634	1.132	0.718	-
1 720	132072	QPSK	20	23.5	22.88	0.19	Left	N/A	0	1	0	1:1	0	0.294	1.153	0.339	-
1 720	132072	QPSK	20	22.5	21.96	0.13	Left	N/A	1	50	0	1:1	0	0.244	1.132	0.276	-
1 720	132072	QPSK	20	23.5	22.88	0.14	Right	N/A	0	1	0	1:1	0	0.169	1.153	0.195	-
1 720	132072	QPSK	20	22.5	21.96	0.13	Right	N/A	1	50	0	1:1	0	0.143	1.132	0.162	-
1 720	132072	QPSK	20	20.0	19.31	0.18	Rear	ON	0	1	0	1:1	0	0.678	1.172	0.795	-
1 720	132072	QPSK	20	20.0	19.45	0.11	Rear	ON	0	50	0	1:1	0	0.693	1.135	0.787	-
1 720	132072	QPSK	20	20.0	19.31	0.01	Front	ON	0	1	0	1:1	0	0.954	1.172	1.118	-
1 720	132072	QPSK	20	20.0	19.45	-0.18	Front	ON	0	50	0	1:1	0	1.01	1.135	1.146	-
1 720	132072	QPSK	20	20.0	19.31	-0.11	Bottom	ON	0	1	0	1:1	0	1.92	1.172	2.250	-
1 745	132322	QPSK	20	20.0	19.06	0.19	Bottom	ON	0	1	0	1:1	0	1.59	1.242	1.975	-
1 770	132572	QPSK	20	20.0	18.96	-0.13	Bottom	ON	0	1	0	1:1	0	1.76	1.271	2.237	-
1 720	132072	QPSK	20	20.0	19.45	-0.12	Bottom	ON	0	50	0	1:1	0	2.03	1.135	**2.304**	54
1 745	132322	QPSK	20	20.0	19.18	-0.11	Bottom	ON	0	50	0	1:1	0	1.73	1.208	2.090	-
1 770	132572	QPSK	20	20.0	19.11	-0.11	Bottom	ON	0	50	0	1:1	0	1.76	1.227	2.160	-
1 720	132072	QPSK	20	20.0	19.43	-0.16	Bottom	ON	0	100	0	1:1	0	1.69	1.140	1.927	-
1 720	132072	QPSK	20	20.0	19.45	0.10	Bottom	ON	0	50	0	1:1	0	1.73	1.135	1.964	#
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Hand 4.0 W/kg Averaged over 10 gram									

Note: # Data entry indicate Variability measurement.

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.																
5 320	64	802.11a	20	6	16	14.35	0.16	Rear	Ant1	97.46	0	16.9	0.934	1.462	1.026	**1.401**	55
5 320	64	802.11a	20	6	16	14.35		Front	Ant1	97.46	0	0.271		1.462	1.026		-
5 320	64	802.11a	20	6	16	14.35	-0.12	Left	Ant1	97.46	0	4.23	0.266	1.462	1.026	0.399	-
5 320	64	802.11a	20	6	16	14.35		Top	Ant1	97.46	0	1.20		1.462	1.026		-
5 260	52	802.11a	20	6	16	14.78	0.01	Rear	Ant2	97.46	0	14.5	**0.990**	1.324	1.026	1.345	56
5 260	52	802.11a	20	6	16	14.78		Front	Ant2	97.46	0	0.103		1.324	1.026		-
5 260	52	802.11a	20	6	16	14.78		Left	Ant2	97.46	0	0.112		1.324	1.026		-
5 260	52	802.11a	20	6	16	14.78	0.12	Top	Ant2	97.46	0	1.10	0.127	1.324	1.026	0.173	-
5 720	144	802.11a	20	6	16	14.43	0.01	Rear	Ant1	97.46	0	6.68	0.595	1.435	1.026	0.876	-
5 720	144	802.11a	20	6	16	14.43		Front	Ant1	97.46	0	0.566		1.435	1.026		-
5 720	144	802.11a	20	6	16	14.43		Left	Ant1	97.46	0	1.54		1.435	1.026		-
5 720	144	802.11a	20	6	16	14.43		Top	Ant1	97.46	0	0.377		1.435	1.026		-
5 600	120	802.11a	20	6	16	14.62	-0.04	Rear	Ant2	97.46	0	7.61	0.779	1.374	1.026	**1.098**	57
5 600	120	802.11a	20	6	16	14.62		Front	Ant2	97.46	0	0.538		1.374	1.026		-
5 600	120	802.11a	20	6	16	14.62		Left	Ant2	97.46	0	0.284		1.374	1.026		-
5 600	120	802.11a	20	6	16	14.62	0.17	Top	Ant2	97.46	0	2.57	0.190	1.374	1.026	0.268	-
ANSI/ IEEE C95.1 - 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Hand 4.0 W/kg Averaged over 10 gram					

5 GHz WLAN MIMO Phablet SAR 10g																	
Frequency		Mode	Band width (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Ant1 Meas. Power (dBm)	Ant2 Meas. Power (dBm)	Power Drift (dB)	Test Position	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.																
5 320	64	802.11n	20	MCS8	16	14.24	14.15	0.10	Rear	97.30	0	10.0	1.26	1.531	1.028	1.983	58
5 320	64	802.11n	20	MCS8	16	14.24	14.15	0.01	Front	97.30	0	0.401	0.049	1.531	1.028	0.077	-
5 320	64	802.11n	20	MCS8	16	14.24	14.15	0.15	Left	97.30	0	3.44	0.306	1.531	1.028	0.482	-
5 320	64	802.11n	20	MCS8	16	14.24	14.15	0.16	Top	97.30	0	0.82	0.108	1.531	1.028	0.170	-
5 600	120	802.11n	20	MCS8	16	14.2	14.45	0.01	Rear	97.30	0	6.83	0.815	1.514	1.028	1.268	-
5 600	120	802.11n	20	MCS8	16	14.2	14.45	0.1	Front	97.30	0	0.396	0.035	1.514	1.028	0.054	-
5 600	120	802.11n	20	MCS8	16	14.2	14.45	0.14	Left	97.30	0	2.14	0.116	1.514	1.028	0.181	-
5 600	120	802.11n	20	MCS8	16	14.2	14.45	-0.03	Top	97.30	0	1.43	0.101	1.514	1.028	0.157	-
ANSI/ IEEE C95.1 - 1992 – 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.
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.

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. 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 ㎓ WLAN (Held to ear)						
Band	WWAN SAR (W/kg)	2.4 ㎓ WLAN Ant.1 SAR (W/kg)	2.4 ㎓ 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	0.148	0.216	0.087	0.364	0.235	0.451
GSM 1900	0.087	0.216	0.087	0.303	0.174	0.390
UMTS 850	0.206	0.216	0.087	0.422	0.293	0.509
UMTS 1700	0.153	0.216	0.087	0.369	0.24	0.456
UMTS 1900	0.155	0.216	0.087	0.371	0.242	0.458
LTE Band 2	0.136	0.216	0.087	0.352	0.223	0.439
LTE Band 5	0.295	0.216	0.087	0.511	0.382	0.598
LTE Band 12	0.090	0.216	0.087	0.306	0.177	0.393
LTE Band 13	0.057	0.216	0.087	0.273	0.144	0.360
LTE Band 26	0.159	0.216	0.087	0.375	0.246	0.462
LTE Band 41	0.074	0.216	0.087	0.290	0.161	0.377
LTE Band 66	0.104	0.216	0.087	0.320	0.191	0.407

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	0.148	0.074	0.083	0.222	0.231	0.305
GSM 1900	0.087	0.074	0.083	0.161	0.17	0.244
UMTS 850	0.206	0.074	0.083	0.28	0.289	0.363
UMTS 1700	0.153	0.074	0.083	0.227	0.236	0.310
UMTS 1900	0.155	0.074	0.083	0.229	0.238	0.312
LTE Band 2	0.136	0.074	0.083	0.21	0.219	0.293
LTE Band 5	0.295	0.074	0.083	0.369	0.378	0.452
LTE Band 12	0.090	0.074	0.083	0.164	0.173	0.247
LTE Band 13	0.057	0.074	0.083	0.131	0.140	0.214
LTE Band 26	0.159	0.074	0.083	0.233	0.242	0.316
LTE Band 41	0.074	0.074	0.083	0.148	0.157	0.231
LTE Band 66	0.104	0.074	0.083	0.178	0.187	0.261

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	0.148	0.216	0.083	0.447
GSM 1900	0.087	0.216	0.083	0.386
UMTS 850	0.206	0.216	0.083	0.505
UMTS 1700	0.153	0.216	0.083	0.452
UMTS 1900	0.155	0.216	0.083	0.454
LTE Band 2	0.136	0.216	0.083	0.435
LTE Band 5	0.295	0.216	0.083	0.594
LTE Band 12	0.090	0.216	0.083	0.389
LTE Band 13	0.057	0.216	0.083	0.356
LTE Band 26	0.159	0.216	0.083	0.458
LTE Band 41	0.074	0.216	0.083	0.373
LTE Band 66	0.104	0.216	0.083	0.403

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	0.148	0.270	0.418
GSM 1900	0.087	0.270	0.357
UMTS 850	0.206	0.270	0.476
UMTS 1700	0.153	0.270	0.423
UMTS 1900	0.155	0.270	0.425
LTE Band 2	0.136	0.270	0.406
LTE Band 5	0.295	0.270	0.565
LTE Band 12	0.090	0.270	0.360
LTE Band 13	0.057	0.270	0.327
LTE Band 26	0.159	0.270	0.429
LTE Band 41	0.074	0.270	0.344
LTE Band 66	0.104	0.270	0.374

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	0.148	0.270	0.083	0.501
GSM 1900	0.087	0.270	0.083	0.44
UMTS 850	0.206	0.270	0.083	0.559
UMTS 1700	0.153	0.270	0.083	0.506
UMTS 1900	0.155	0.270	0.083	0.508
LTE Band 2	0.136	0.270	0.083	0.489
LTE Band 5	0.295	0.270	0.083	**0.648**
LTE Band 12	0.090	0.270	0.083	0.443
LTE Band 13	0.057	0.270	0.083	0.41
LTE Band 26	0.159	0.270	0.083	0.512
LTE Band 41	0.074	0.270	0.083	0.427
LTE Band 66	0.104	0.270	0.083	0.457

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)	∑ 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	0.150	0.085	0.087	0.235	0.237	0.322
GSM 1900	0.345	0.085	0.087	0.43	0.432	0.517
UMTS 850	0.428	0.085	0.087	0.513	0.515	0.600
UMTS 1700	0.571	0.085	0.087	0.656	0.658	0.743
UMTS 1900	0.585	0.085	0.087	0.67	0.672	0.757
LTE Band 2	0.623	0.085	0.087	0.708	0.71	0.795
LTE Band 5	0.499	0.085	0.087	0.584	0.586	0.671
LTE Band 12	0.177	0.085	0.087	0.262	0.264	0.349
LTE Band 13	0.124	0.085	0.087	0.209	0.211	0.296
LTE Band 26	0.309	0.085	0.087	0.394	0.396	0.481
LTE Band 41	0.148	0.085	0.087	0.233	0.235	0.320
LTE Band 66	0.187	0.085	0.087	0.272	0.274	0.359

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)	∑ 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	0.150	0.411	0.424	0.561	0.574	0.985
GSM 1900	0.345	0.411	0.424	0.756	0.769	1.180
UMTS 850	0.428	0.411	0.424	0.839	0.852	1.263
UMTS 1700	0.571	0.411	0.424	0.982	0.995	1.406
UMTS 1900	0.585	0.411	0.424	0.996	1.009	1.420
LTE Band 2	0.623	0.411	0.424	1.034	1.047	**1.458**
LTE Band 5	0.499	0.411	0.424	0.91	0.923	1.334
LTE Band 12	0.177	0.411	0.424	0.588	0.601	1.012
LTE Band 13	0.124	0.411	0.424	0.535	0.548	0.959
LTE Band 26	0.309	0.411	0.424	0.72	0.733	1.144
LTE Band 41	0.148	0.411	0.424	0.559	0.572	0.983
LTE Band 66	0.187	0.411	0.424	0.598	0.611	1.022

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	0.150	0.085	0.424	0.659
GSM 1900	0.345	0.085	0.424	0.854
UMTS 850	0.428	0.085	0.424	0.937
UMTS 1700	0.571	0.085	0.424	1.080
UMTS 1900	0.585	0.085	0.424	1.094
LTE Band 2	0.623	0.085	0.424	1.132
LTE Band 5	0.499	0.085	0.424	1.008
LTE Band 12	0.177	0.085	0.424	0.686
LTE Band 13	0.124	0.085	0.424	0.633
LTE Band 26	0.309	0.085	0.424	0.818
LTE Band 41	0.148	0.085	0.424	0.657
LTE Band 66	0.187	0.085	0.424	0.696

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	0.150	0.032	0.182
GSM 1900	0.345	0.032	0.377
UMTS 850	0.428	0.032	0.460
UMTS 1700	0.571	0.032	0.603
UMTS 1900	0.585	0.032	0.617
LTE Band 2	0.623	0.032	0.655
LTE Band 5	0.499	0.032	0.531
LTE Band 12	0.177	0.032	0.209
LTE Band 13	0.124	0.032	0.156
LTE Band 26	0.309	0.032	0.341
LTE Band 41	0.148	0.032	0.180
LTE Band 66	0.187	0.032	0.219

Simultaneous Transmission Scenario with Bluetooth +5 ㎓ WLAN Ant2 (15 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	0.150	0.032	0.424	0.606
GSM 1900	0.345	0.032	0.424	0.801
UMTS 850	0.428	0.032	0.424	0.884
UMTS 1700	0.571	0.032	0.424	1.027
UMTS 1900	0.585	0.032	0.424	1.041
LTE Band 2	0.623	0.032	0.424	1.079
LTE Band 5	0.499	0.032	0.424	0.955
LTE Band 12	0.177	0.032	0.424	0.633
LTE Band 13	0.124	0.032	0.424	0.58
LTE Band 26	0.309	0.032	0.424	0.765
LTE Band 41	0.148	0.032	0.424	0.604
LTE Band 66	0.187	0.032	0.424	0.643

14.3 Simultaneous Transmission Summation for Hotspot

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)	∑ 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	0.931	0.212	0.221	1.143	1.152	1.364
GSM 1900	0.673	0.212	0.221	0.885	0.894	1.106
UMTS 850	0.862	0.212	0.221	1.074	1.083	1.295
UMTS 1700	0.778	0.212	0.221	0.99	0.999	1.211
UMTS 1900	0.692	0.212	0.221	0.904	0.913	1.125
LTE Band 2	0.725	0.212	0.221	0.937	0.946	1.158
LTE Band 5	1.048	0.212	0.221	1.26	1.269	1.481
LTE Band 12	0.341	0.212	0.221	0.553	0.562	0.774
LTE Band 13	0.282	0.212	0.221	0.494	0.503	0.715
LTE Band 26	0.633	0.212	0.221	0.845	0.854	1.066
LTE Band 41	0.593	0.212	0.221	0.805	0.814	1.026
LTE Band 66	0.610	0.212	0.221	0.822	0.831	1.043

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-g SAR (W/kg)
	1	2	3	1+2	1+3	1+2+3
GSM 850	0.931	0.204	0.253	1.135	1.184	1.388
GSM 1900	0.673	0.204	0.253	0.877	0.926	1.130
UMTS 850	0.862	0.204	0.253	1.066	1.115	1.319
UMTS 1700	0.778	0.204	0.253	0.982	1.031	1.235
UMTS 1900	0.692	0.204	0.253	0.896	0.945	1.149
LTE Band 2	0.725	0.204	0.253	0.929	0.978	1.182
LTE Band 5	1.048	0.204	0.253	1.252	1.301	1.505
LTE Band 12	0.341	0.204	0.253	0.545	0.594	0.798
LTE Band 13	0.282	0.204	0.253	0.486	0.535	0.739
LTE Band 26	0.633	0.204	0.253	0.837	0.886	1.090
LTE Band 41	0.593	0.204	0.253	0.797	0.846	1.050
LTE Band 66	0.610	0.204	0.253	0.814	0.863	1.067

Simultaneous Transmission Scenario with 2.4 ㎓ WLAN Ant.1 and 5 ㎓ WLAN Ant.2 (10 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	0.931	0.212	0.253	1.396
GSM 1900	0.673	0.212	0.253	1.138
UMTS 850	0.862	0.212	0.253	1.327
UMTS 1700	0.778	0.212	0.253	1.243
UMTS 1900	0.692	0.212	0.253	1.157
LTE Band 2	0.725	0.212	0.253	1.190
LTE Band 5	1.048	0.212	0.253	**1.513**
LTE Band 12	0.341	0.212	0.253	0.806
LTE Band 13	0.282	0.212	0.253	0.747
LTE Band 26	0.633	0.212	0.253	1.098
LTE Band 41	0.593	0.212	0.253	1.058
LTE Band 66	0.610	0.212	0.253	1.075

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	0.931	0.075	1.006
GSM 1900	0.673	0.075	0.748
UMTS 850	0.862	0.075	0.937
UMTS 1700	0.778	0.075	0.853
UMTS 1900	0.692	0.075	0.767
LTE Band 2	0.725	0.075	0.800
LTE Band 5	1.048	0.075	1.123
LTE Band 12	0.341	0.075	0.416
LTE Band 13	0.282	0.075	0.357
LTE Band 26	0.633	0.075	0.708
LTE Band 41	0.593	0.075	0.668
LTE Band 66	0.610	0.075	0.685

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	0.931	0.075	0.253	1.259
GSM 1900	0.673	0.075	0.253	1.001
UMTS 850	0.862	0.075	0.253	1.19
UMTS 1700	0.778	0.075	0.253	1.106
UMTS 1900	0.692	0.075	0.253	1.02
LTE Band 2	0.725	0.075	0.253	1.053
LTE Band 5	1.048	0.075	0.253	1.376
LTE Band 12	0.341	0.075	0.253	0.669
LTE Band 13	0.282	0.075	0.253	0.61
LTE Band 26	0.633	0.075	0.253	0.961
LTE Band 41	0.593	0.075	0.253	0.921
LTE Band 66	0.610	0.075	0.253	0.938

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 SARfor 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 GHz WLAN						
Band	Configurations	WWAN SAR (W/kg)	5 GHz WLAN Ant.1 SAR (W/kg)	5 GHz 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	1.329	1.401	1.345	2.73	2.674
	Front	1.67	1.401#	1.345#	3.071	3.015
	Left	0.438	0.399	1.345#	0.837	1.783
	Right	0.333	-	-	0.333	0.333
	Bottom	2.478	-	-	2.478	2.478
	Top	-	1.401#	0.268	1.401	0.268
UMTS 1900	Rear	1.144	1.401	1.345	2.545	2.489
	Front	1.516	1.401#	1.345#	2.917	2.861
	Left	0.534	0.399	1.345#	0.933	1.879
	Right	0.296	-	-	0.296	0.296
	Bottom	1.855	-	-	1.855	1.855
	Top	-	1.401#	0.268	1.401	0.268
LTE Band 2	Rear	1.168	1.401	1.345	2.569	2.513
	Front	1.482	1.401#	1.345#	2.883	2.827
	Left	0.588	0.399	1.345#	0.987	1.933
	Right	0.318	-	-	0.318	0.318
	Bottom	1.601	-	-	1.601	1.601
	Top	-	1.401#	0.268	1.401	0.268
LTE Band 41	Rear	1.117	1.401	1.345	2.518	2.462
	Front	1.286	1.401#	1.345#	2.687	2.631
	Left	0.71	0.399	1.345#	1.109	2.055
	Right	-	-	-		

	Bottom	1.16	-	-	1.16	1.16
	Top	-	1.401#	0.268	1.401	0.268
LTE Band 66	Rear	0.795	1.401	1.345	2.196	2.14
	Front	1.146	1.401#	1.345#	2.547	2.491
	Left	0.339	0.399	1.345#	0.738	1.684
	Right	0.195	-	-	0.195	0.195
	Bottom	2.304	-	-	2.304	2.304
	Top	-	1.401#	0.268	1.401	0.268
GSM 1900 GPRS	Rear	1.007	1.401	1.345	2.408	2.352
	Front	1.351	1.401#	1.345#	2.752	2.696
	Left	0.428	0.399	1.345#	0.827	1.773
	Right	0.259	-	-	0.259	0.259
	Bottom	1.68	-	-	1.68	1.68
	Top	-	1.401#	0.268	1.401	0.268

Exposure condition	Distance (mm)	Band	Configurations	WWAN SAR (W/kg)	5G WLAN MIMO SAR (W/kg)	∑ 10-g SAR (W/kg)
Phablet SAR	0	UMTS 1700	Rear	1.329	1.983	**3.312**
			Front	1.670	0.076	1.746
			Left	0.438	0.475	0.913
			Right	0.333	-	0.333
			Bottom	2.478	-	2.478
			Top	-	0.168	0.168
		UMTS 1900	Rear	1.144	1.983	3.127
			Front	1.516	0.076	1.592
			Left	0.534	0.475	1.009
			Right	0.296	-	0.296
			Bottom	1.855	-	1.855
			Top	-	0.168	0.168
		LTE Band 2	Rear	1.168	1.983	3.151
			Front	1.482	0.076	1.558
			Left	0.588	0.475	1.063
			Right	0.318	-	0.318

			Bottom	1.601	-	1.601
			Top	-	0.168	0.168
		LTE Band 41	Rear	1.117	1.983	3.1
			Front	1.286	0.076	1.362
			Left	0.710	0.475	1.185
			Right	-	-	-
			Bottom	1.160	-	1.16
			Top	-	0.168	0.168
		LTE Band 66	Rear	0.795	1.983	2.778
			Front	1.146	0.076	1.222
			Left	0.339	0.475	0.814
			Right	0.195	-	0.195
			Bottom	2.304	-	2.304
			Top	-	0.168	0.168

Exposure condition	Distance (mm)	Band	Configurations	WWAN SAR (W/kg)	5G WLAN MIMO SAR (W/kg)	∑ 10-g SAR (W/kg)
Phablet SAR	0	GSM 1900 GPRS	Rear	1.007	1.983	2.99
			Front	1.351	0.076	1.427
			Left	0.428	0.475	0.903
			Right	0.259	-	0.259
			Bottom	1.680	-	1.680
			Top	-	0.168	0.168

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					
836.5	20525	LTE Band 5	Rear	0.806	0.801	1.01

Phablet SAR measurement variability Results

Frequency		Mode/Band	Configuration	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Channel					
1 720	132072	LTE Band 66	Bottom	2.03	1.73	1.17

16. 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.

17. 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)	SE UKS 030 AA	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	011578	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	S-1203 0309	N/A	N/A	N/A
SPEAG	DAE3	446	07/18/2019	Annual	07/18/2020
SPEAG	DAE3	504	02/22/2019	Annual	02/22/2020
SPEAG	DAE4	652	04/17/2019	Annual	04/17/2020
SPEAG	DAE4	1417	01/25/2019	Annual	01/25/2020
SPEAG	DAE4	648	05/23/2019	Annual	05/23/2020
SPEAG	DAE4	1225	11/16/2018	Annual	11/16/2019
SPEAG	E-Field Probe EX3DV4	3797	11/22/2018	Annual	11/22/2019
SPEAG	E-Field Probe EX3DV4	3863	05/15/2019	Annual	05/15/2020
SPEAG	E-Field Probe EX3DV4	3968	09/25/2018	Annual	09/25/2019
SPEAG	E-Field Probe EX3DV4	3967	02/01/2019	Annual	02/01/2020
SPEAG	E-Field Probe ES3DV3	3076	07/23/2019	Annual	07/23/2020
SPEAG	Dipole D750V3	1014	05/27/2019	Annual	05/27/2020
SPEAG	Dipole D835V2	4d165	09/18/2018	Annual	09/18/2019
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

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
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 N1911A	MY45101406	09/06/2018	Annual	09/06/2019
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 N1921A	MY55220026	09/06/2018	Annual	09/06/2019
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	Signal Generator N5182A	MY47070230	05/08/2019	Annual	05/08/2020
Agilent	11636B/Power Divider	58698	02/28/2019	Annual	03/06/2020
TESTO	175-H1/Thermometer	40331939309	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	1084	07/31/2019	Annual	07/31/2020
EMPOWER	RF Power Amplifier	1011	10/11/2018	Annual	10/11/2019
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
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
Anritsu	Radio Communication Tester MT8820C	6201074225	03/05/2019	Annual	03/05/2020
Anritsu	Radio Communication Tester MT8821C	6261849028	03/07/2019	Annual	03/07/2020
R&S	Bluetooth CBT	100272	03/04/2019	Annual	03/04/2020

1. 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.

18. Conclusion

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/ IEEE C95.1 - 1992.

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:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	1

DUT: SM-A908B; Type: Bar

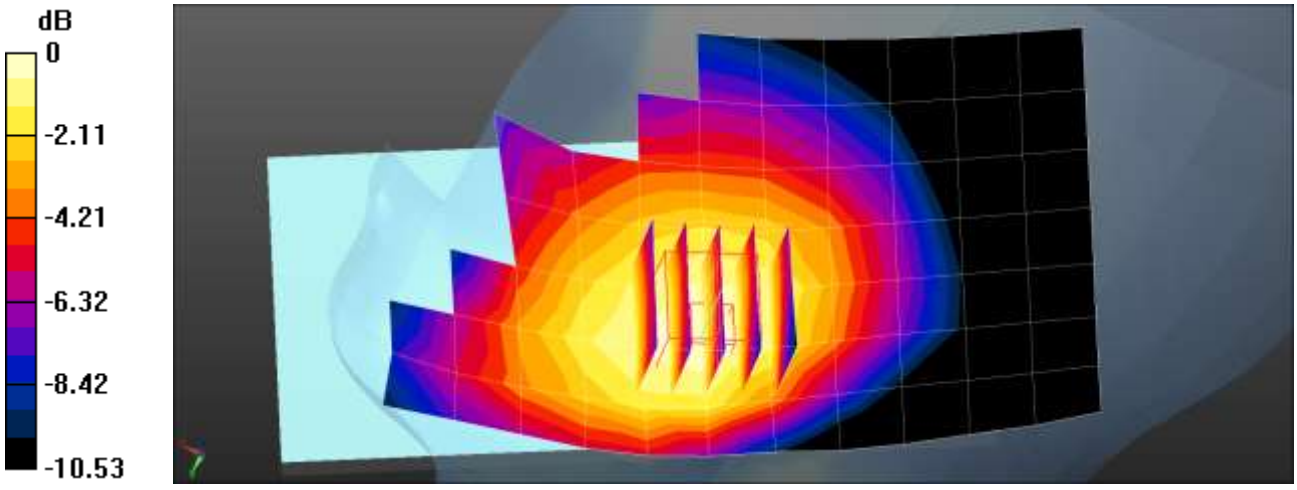
Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.918 S/m; εr = 40.615; ρ = 1000 kg/m3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.22, 6.22, 6.22) @ 836.6 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: SAM_Right_20170913
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Head Right Touch 190ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.115 W/kg

GSM850 Head Right Touch 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.435 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.137 W/kg
SAR(1 g) = 0.106 W/kg; SAR(10 g) = 0.080 W/kg
Maximum value of SAR (measured) = 0.116 W/kg



0 dB = 0.116 W/kg = -9.36 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 ℃
Ambient Temperature:	21.0 ℃
Test Date:	08/19/2019
Plot No.:	2

DUT: SM-A908B; Type: Bar

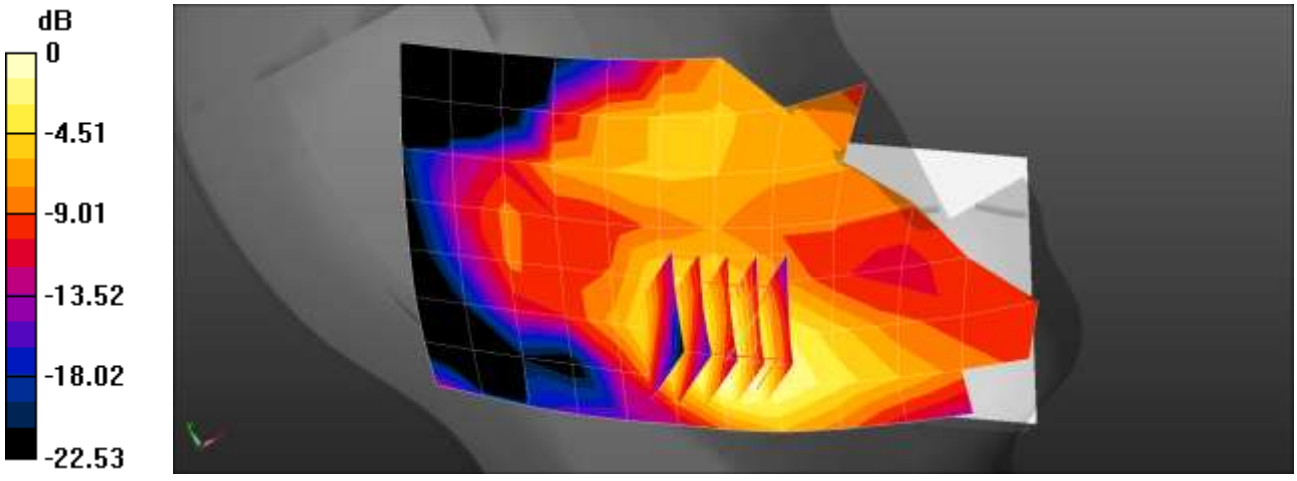
Communication System: UID 0, GSM1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.422 S/m; εr = 38.505; ρ = 1000 kg/m3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

GSM1900 Head Left Touch 661ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0679 W/kg

GSM1900 Head Left Touch 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.911 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.0880 W/kg
SAR(1 g) = 0.058 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.0780 W/kg



0 dB = 0.0780 W/kg = -11.08 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	3

DUT: SM-A908B; Type: Bar

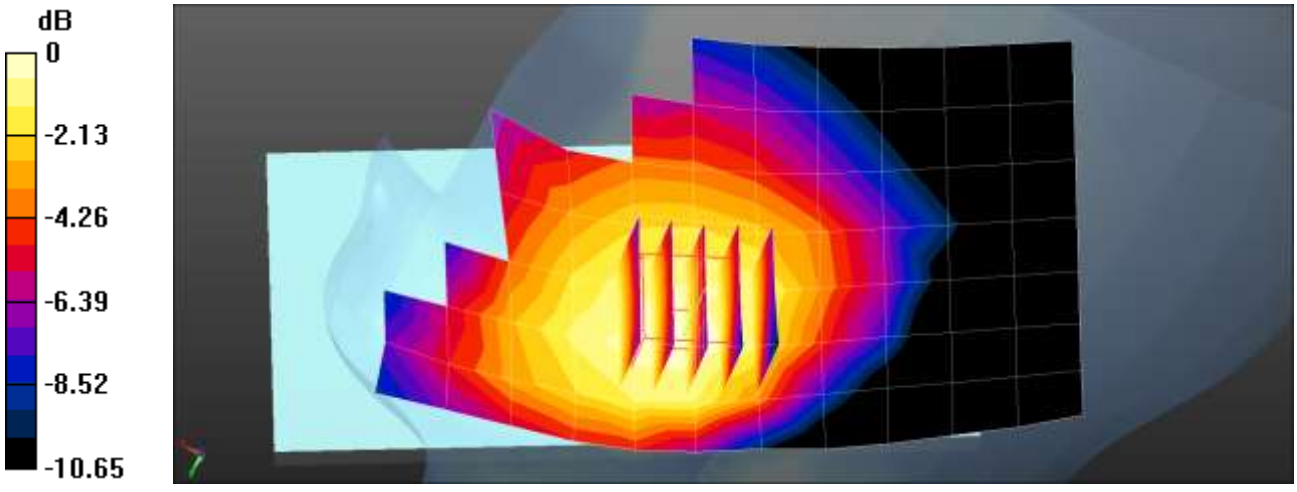
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.918 S/m; εr = 40.615; ρ = 1000 kg/m3
Phantom section: Right Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.22, 6.22, 6.22) @ 836.6 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: SAM_Right_20170913
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B5 Head Right Touch 4183ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.162 W/kg

WCDMA B5 Head Right Touch 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.349 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.191 W/kg
SAR(1 g) = 0.149 W/kg; SAR(10 g) = 0.113 W/kg
Maximum value of SAR (measured) = 0.164 W/kg



0 dB = 0.164 W/kg = -7.85 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.1 ℃
Test Date:	08/20/2019
Plot No.:	4

DUT: SM-A908B; Type: Bar

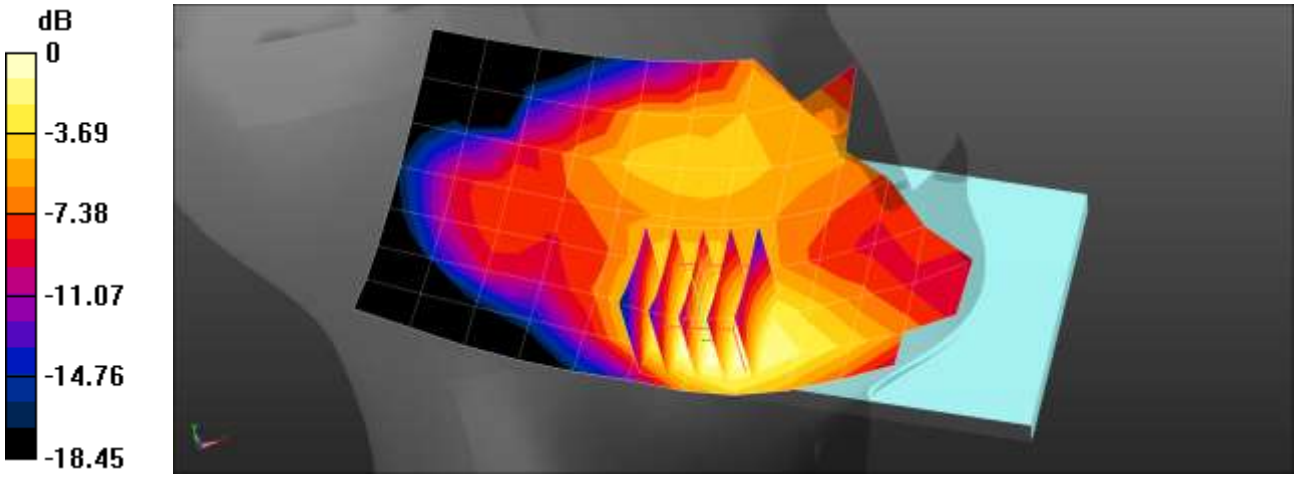
Communication System: UID 0, WCDMA1700 (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.378 S/m; εr = 38.164; ρ = 1000 kg/m3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.57, 8.57, 8.57); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA4 Head Left Touch 1412ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.141 W/kg

WCDMA4 Head Left Touch 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.590 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.173 W/kg
SAR(1 g) = 0.121 W/kg; SAR(10 g) = 0.079 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:	20.9 ℃
Ambient Temperature:	21.0 ℃
Test Date:	08/19/2019
Plot No.:	5

DUT: SM-A908B; Type: Bar

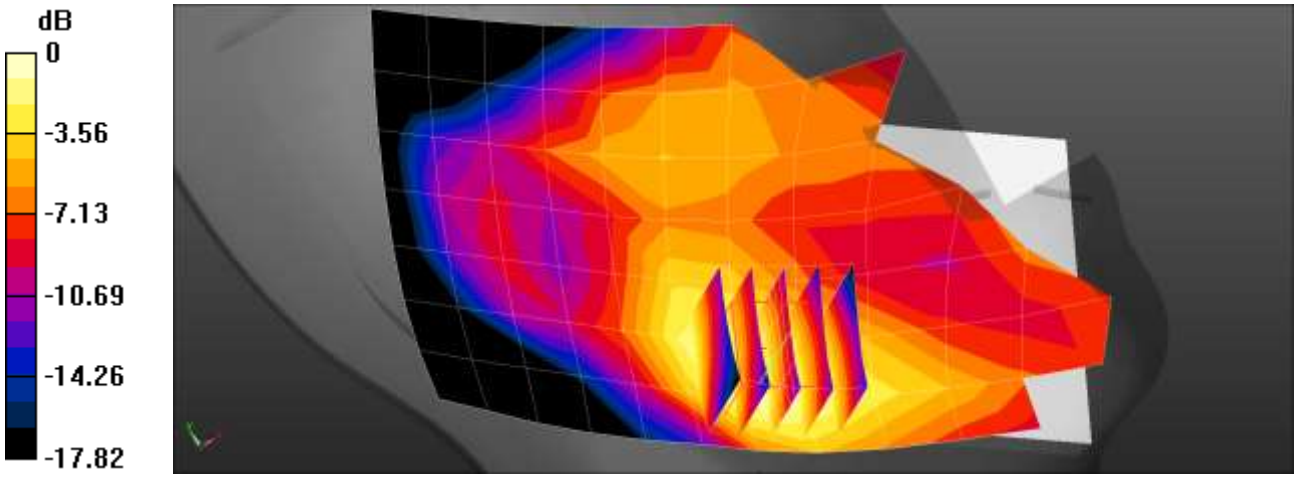
Communication System: UID 0, WCDMA Band 2 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.422 S/m; εr = 38.505; ρ = 1000 kg/m3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

WCDMA2 Head Left Touch 9400ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.153 W/kg

WCDMA2 Head Left Touch 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.181 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.128 W/kg; SAR(10 g) = 0.080 W/kg
Maximum value of SAR (measured) = 0.171 W/kg



0 dB = 0.171 W/kg = -7.67 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 ℃
Ambient Temperature:	21.0 ℃
Test Date:	08/19/2019
Plot No.:	6

DUT: SM-A908B; Type: Bar

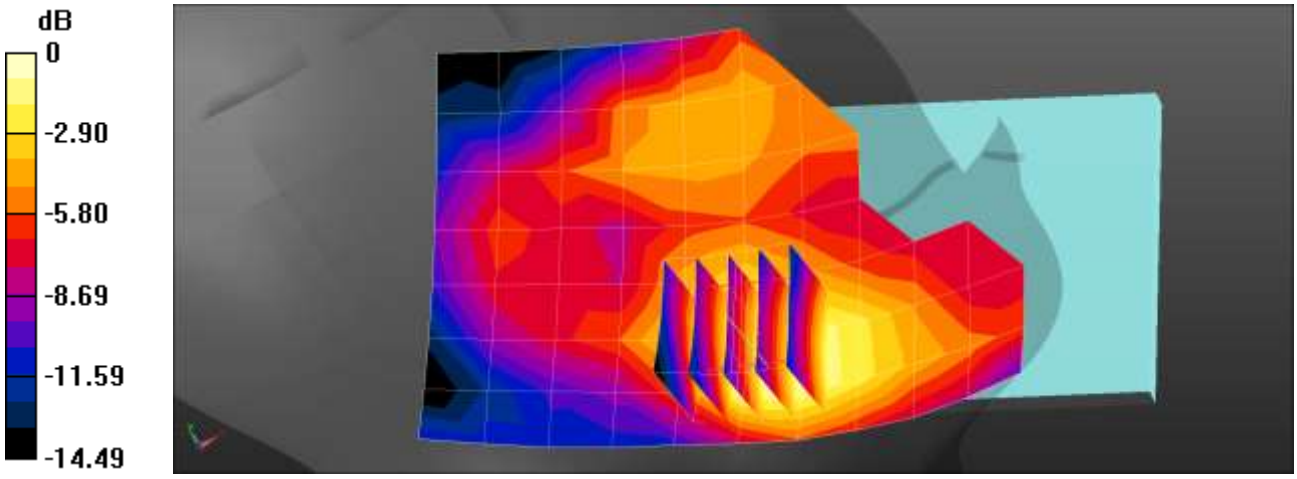
Communication System: UID 0, LTE 2 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.422 S/m; εr = 38.505; ρ = 1000 kg/m3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

LTE 2 Body Head Left Touch QPSK 20MHz 1RB 49offset 18900ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.125 W/kg

LTE 2 Body Head Left Touch QPSK 20MHz 1RB 49offset 18900ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.488 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.165 W/kg
SAR(1 g) = 0.108 W/kg; SAR(10 g) = 0.069 W/kg
Maximum value of SAR (measured) = 0.145 W/kg



0 dB = 0.145 W/kg = -8.39 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/19/2019
Plot No.:	7

DUT: SM-A908B; Type: Bar

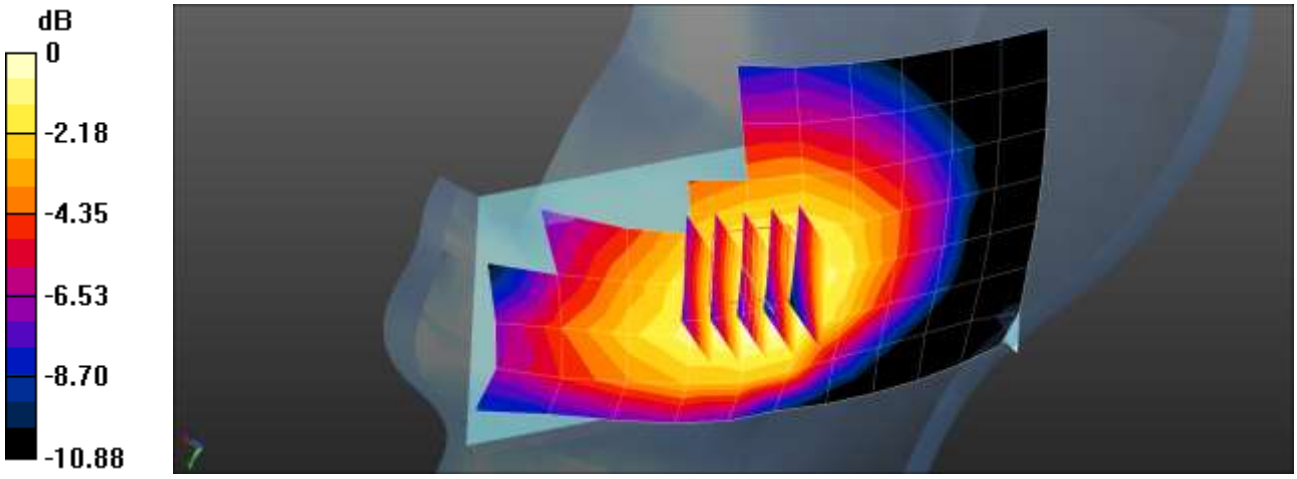
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.92 S/m; εr = 40.487; ρ = 1000 kg/m3
Phantom section: Right Section

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);

LTE 5 Head Right Touch QPSK 10MHz 1RB 0offset 20525ch/Area Scan (8x13x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.256 W/kg

LTE 5 Head Right Touch QPSK 10MHz 1RB 0offset 20525ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.724 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.227 W/kg; SAR(10 g) = 0.171 W/kg
Maximum value of SAR (measured) = 0.272 W/kg



0 dB = 0.272 W/kg = -5.65 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 ℃
Ambient Temperature:	21.0 ℃
Test Date:	08/20/2019
Plot No.:	8

DUT: SM-A908B; Type: Bar

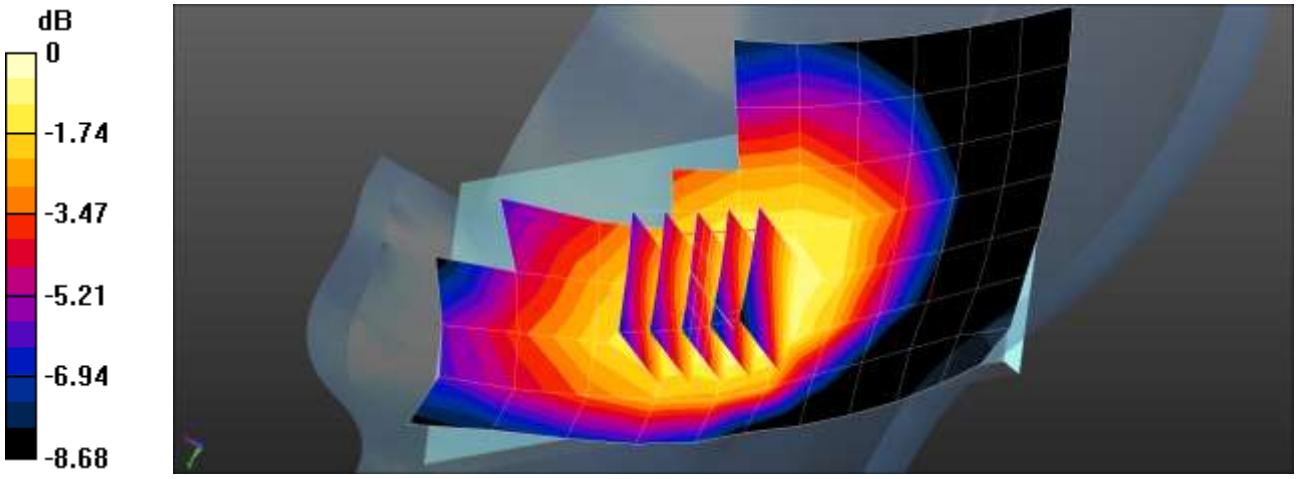
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.869 S/m; εr = 42.499; ρ = 1000 kg/m3
Phantom section: Right Section

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);

LTE 12 Head Right Touch QPSK 10MHz 1RB 0offset 23095ch/Area Scan (8x13x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0823 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 = 1.777 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0910 W/kg
SAR(1 g) = 0.074 W/kg; SAR(10 g) = 0.058 W/kg
Maximum value of SAR (measured) = 0.0850 W/kg



0 dB = 0.0850 W/kg = -10.71 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 ℃
Ambient Temperature:	21.0 ℃
Test Date:	08/20/2019
Plot No.:	9

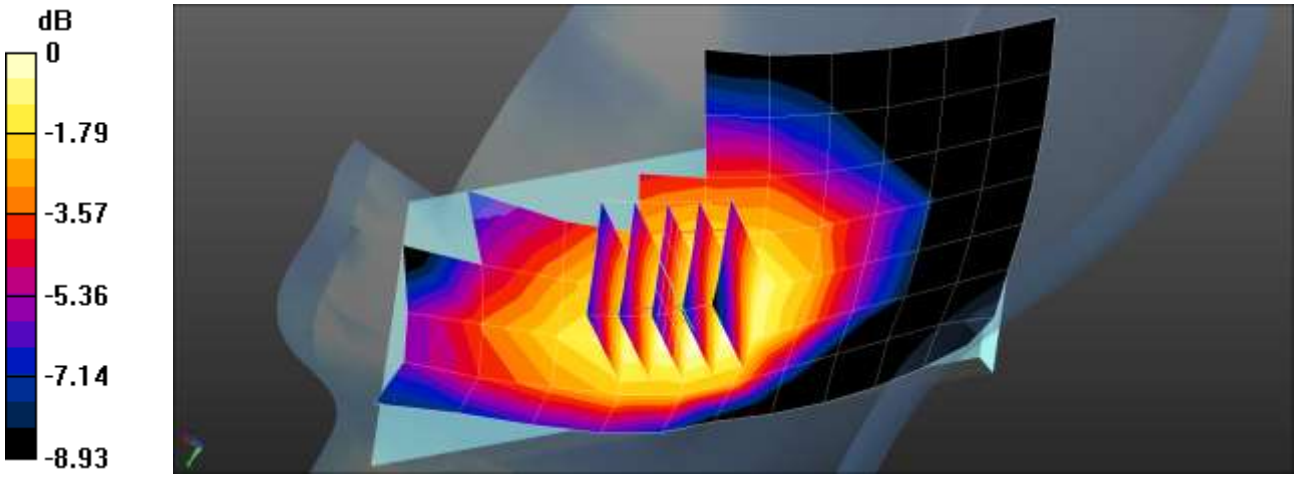
DUT: SM-A908B; Type: Bar

Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.923 S/m; ε_r = 40.247; ρ = 1000 kg/m^3
Phantom section: Right 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);

LTE 13 Head Right Touch QPSK 10MHz 1RB 24offset 23230ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.0545 W/kg
LTE 13 Head Right Touch QPSK 10MHz 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.6000 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.0590 W/kg
SAR(1 g) = 0.047 W/kg; SAR(10 g) = 0.036 W/kg
Maximum value of SAR (measured) = 0.0547 W/kg



0 dB = 0.0547 W/kg = -12.62 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/19/2019
Plot No.:	10

DUT: SM-A908B; Type: Bar

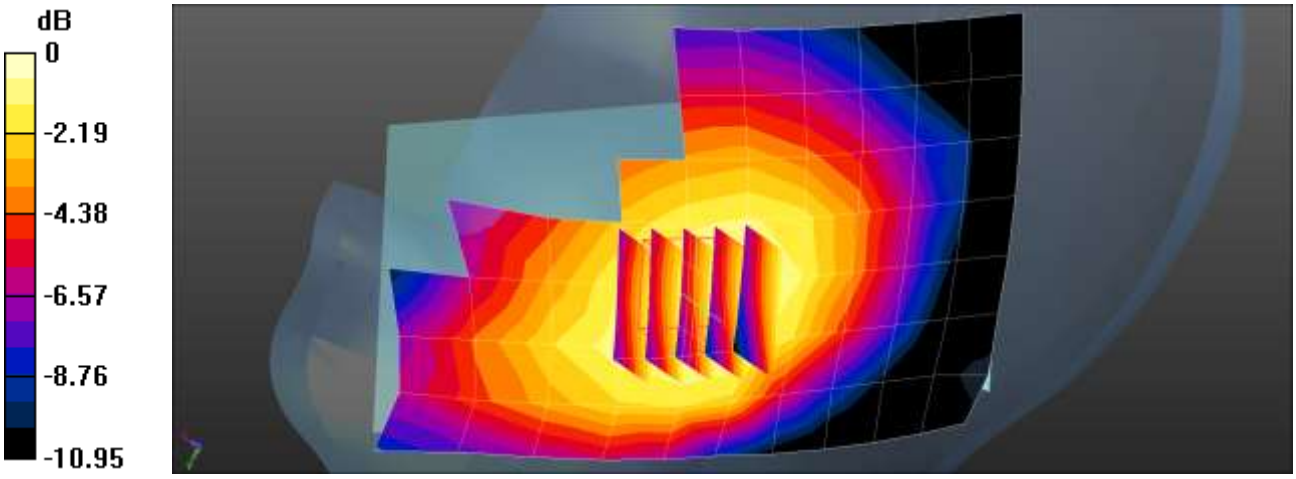
Communication System: UID 0, LTE Band 26 (0); Frequency: 841.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.924 S/m; εr = 40.412; ρ = 1000 kg/m3
Phantom section: Right Section

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);

LTE 26 Head Right Touch QPSK 15MHz 36RB 39offset 26965ch/Area Scan (8x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.150 W/kg

LTE 26 Head Right Touch QPSK 15MHz 36RB 39offset 26965ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.420 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.131 W/kg; SAR(10 g) = 0.099 W/kg
Maximum value of SAR (measured) = 0.155 W/kg



0 dB = 0.155 W/kg = -8.10 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.1 ℃
Ambient Temperature:	20.2 ℃
Test Date:	08/21/2019
Plot No.:	11

DUT: SM-A908B; Type: Bar

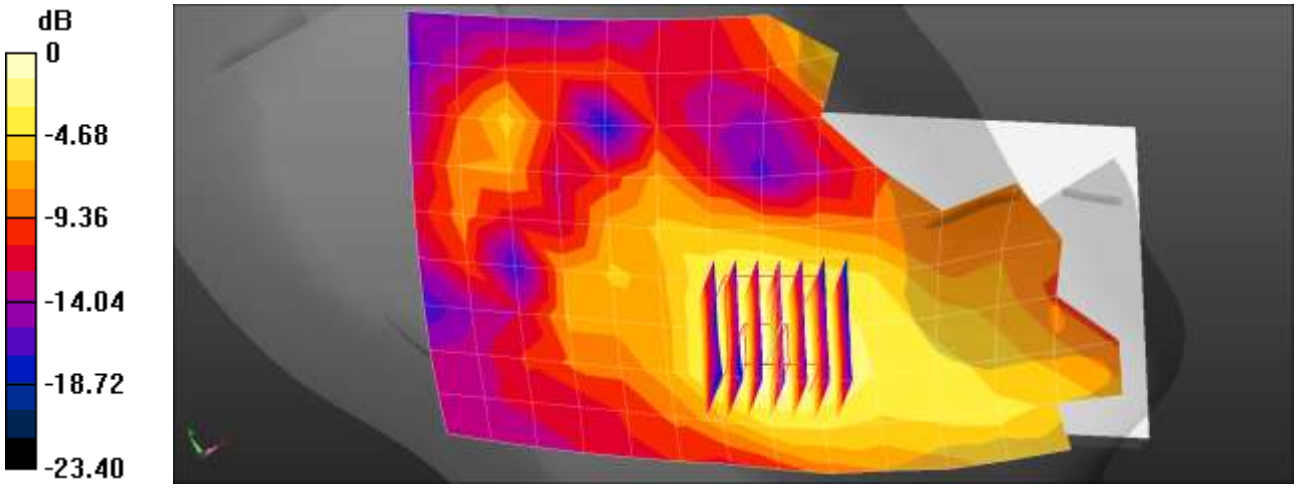
Communication System: UID 0, LTE Band41 (0); Frequency: 2636 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2636 MHz; σ = 2.034 S/m; εr = 38.889; ρ = 1000 kg/m3
Phantom section: Left Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94) @ 2636 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Head Left Touch QPSK 20MHz 1RB 0offset 41055ch/Area Scan (10x16x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0985 W/kg

LTE Band 41 Head Left Touch QPSK 20MHz 1RB 0offset 41055ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.335 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.122 W/kg
SAR(1 g) = 0.068 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.102 W/kg



0 dB = 0.102 W/kg = -9.91 dBW/kg

Test Laboratory: HCT CO., LTD

EUT Type:	Mobile Phone
Liquid Temperature:	21.0 ℃
Ambient Temperature:	21.1 ℃
Test Date:	08/20/2019
Plot No.:	12

DUT: SM-A908B; Type: Bar

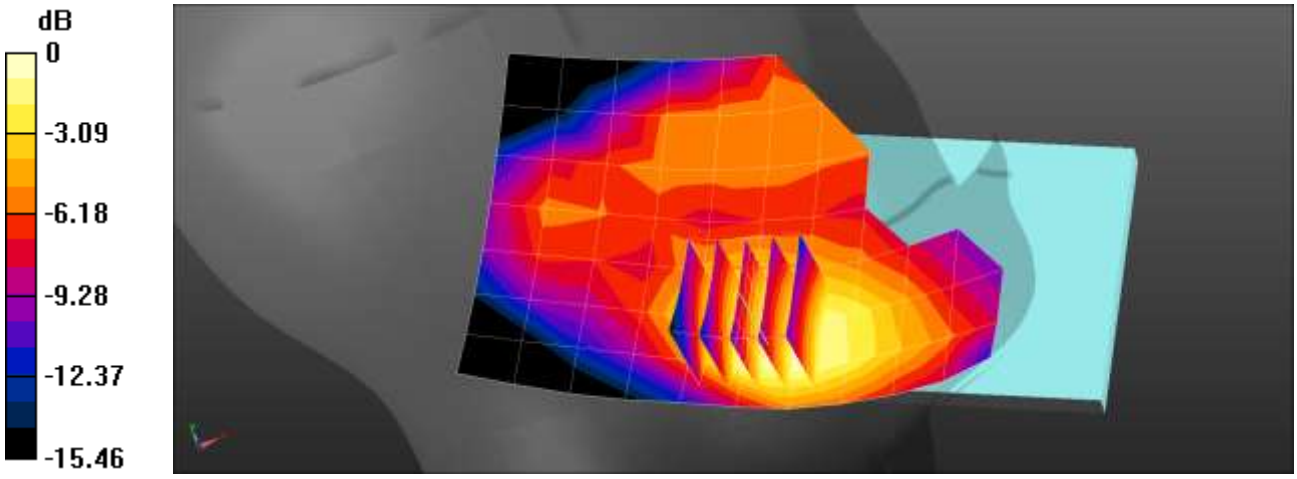
Communication System: UID 0, LTE Band 66 (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.361 S/m; εr = 38.228; ρ = 1000 kg/m3
Phantom section: Left Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.57, 8.57, 8.57); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

LTE 66 Head Left Touch QPSK 20MHz 1RB 0offset 132072ch/Area Scan (8x14x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.103 W/kg

LTE 66 Head Left Touch QPSK 20MHz 1RB 0offset 132072ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.729 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.059 W/kg
Maximum value of SAR (measured) = 0.117 W/kg



0 dB = 0.117 W/kg = -9.32 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/07/2019
Plot No.:	13

DUT: SM-A908B; Type: Bar

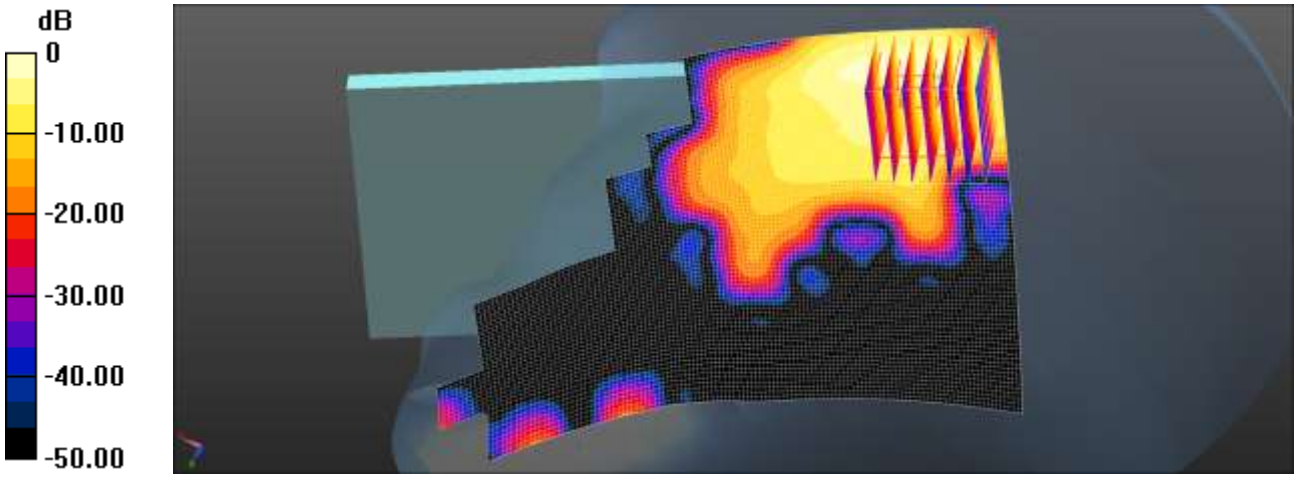
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.807 S/m; εr = 39.349; ρ = 1000 kg/m3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.06, 7.06, 7.06); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Head Right Touch 1Mbps 11ch/Area Scan (91x151x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.371 W/kg

802.11b Head Right Touch 1Mbps 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.598 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.450 W/kg
SAR(1 g) = 0.197 W/kg; SAR(10 g) = 0.096 W/kg
Maximum value of SAR (measured) = 0.325 W/kg



0 dB = 0.371 W/kg = -4.31 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/09/2019
Plot No.:	14

DUT: SM-A908B; Type: Bar

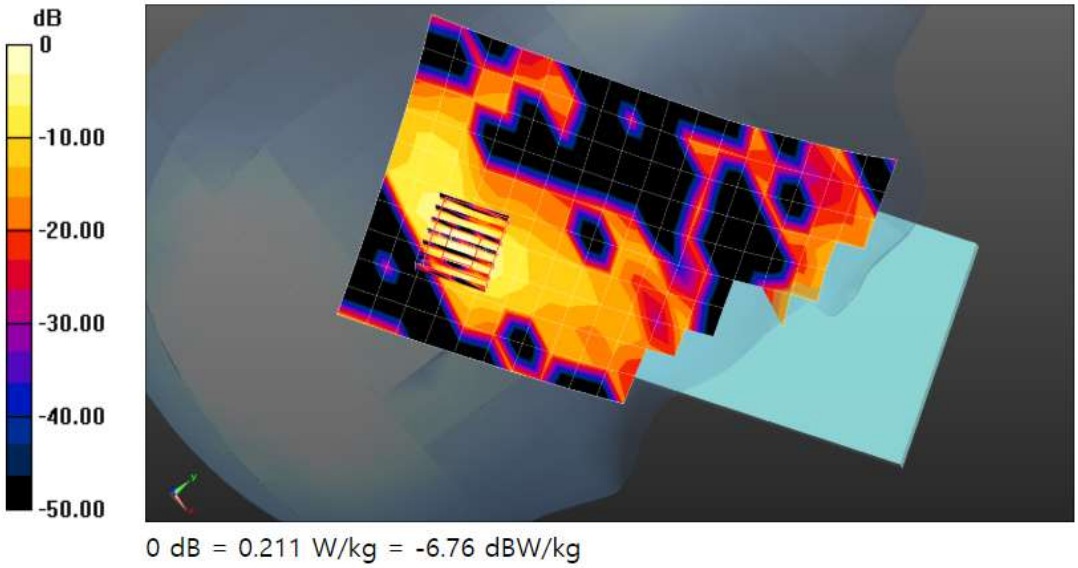
Communication System: UID 0, WIFI 5GHz n40 (0); Frequency: 5710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5710 MHz; σ = 5.2 S/m; ε_r = 35.697; ρ = 1000 kg/m^3
Phantom section: Right Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.97, 4.97, 4.97); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: SAM with CRP v5.0_F
- Measurement SW: DASY52, Version 52.8 (8);

802.11n40 Head Right Tilt MCS0 142ch/Area Scan (11x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.164 W/kg

802.11n40 Head Right Tilt MCS0 142ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 2.631 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.075 W/kg; SAR(10 g) = 0.020 W/kg
Maximum value of SAR (measured) = 0.211 W/kg



0 dB = 0.211 W/kg = -6.76 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	15

DUT: SM-A908B; Type: Bar

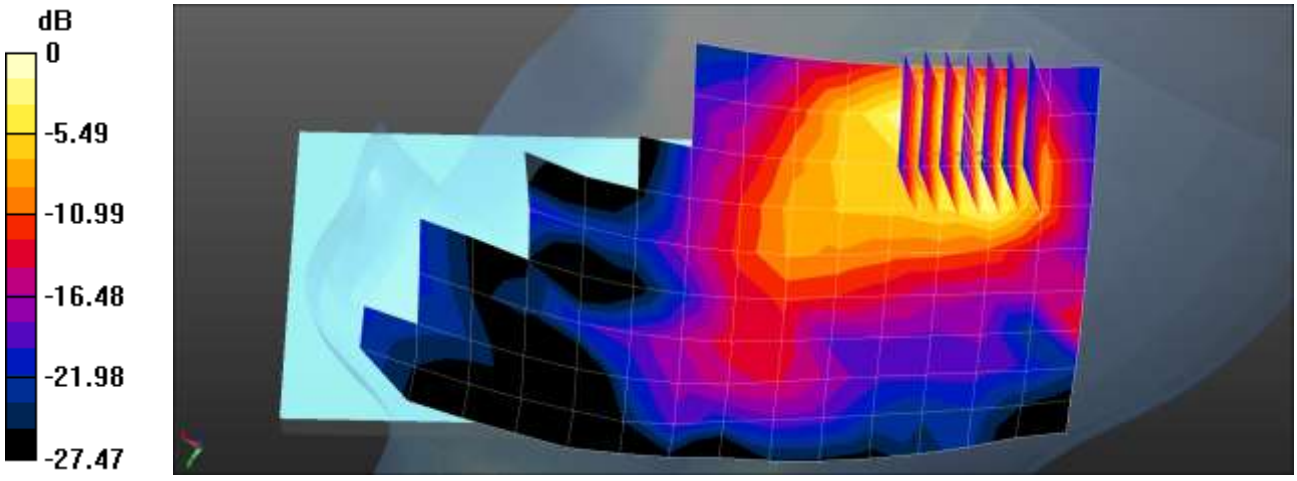
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.3
Medium parameters used: f = 2480 MHz; σ = 1.826 S/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Right Section

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: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Head Right Touch DH5 78ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.294 W/kg

Bluetooth Head Right Touch DH5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.460 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.080 W/kg
Maximum value of SAR (measured) = 0.318 W/kg



0 dB = 0.318 W/kg = -4.98 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	16

DUT: SM-A908B; Type: Bar

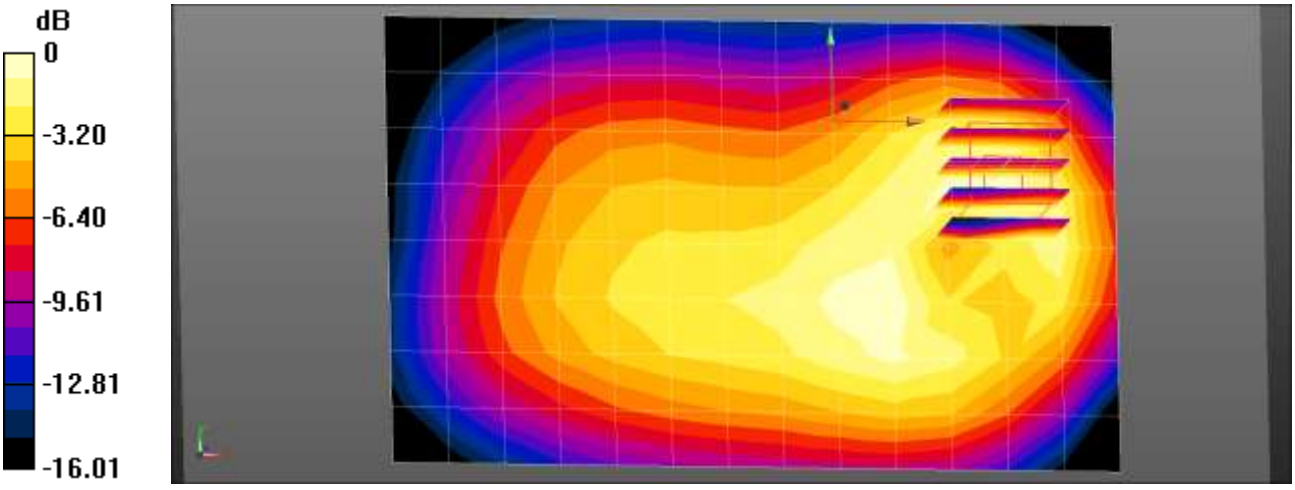
Communication System: UID 0, GSM 850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:8.30042
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.963 S/m; ε_r = 56.231; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(5.97, 5.97, 5.97) @ 836.6 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Bodyworn Rear 190ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.126 W/kg

GSM850 Bodyworn Rear 190ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.472 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.166 W/kg
SAR(1 g) = 0.107 W/kg; SAR(10 g) = 0.066 W/kg
Maximum value of SAR (measured) = 0.126 W/kg



0 dB = 0.126 W/kg = -9.00 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	17

DUT: SM-A908B; Type: Bar

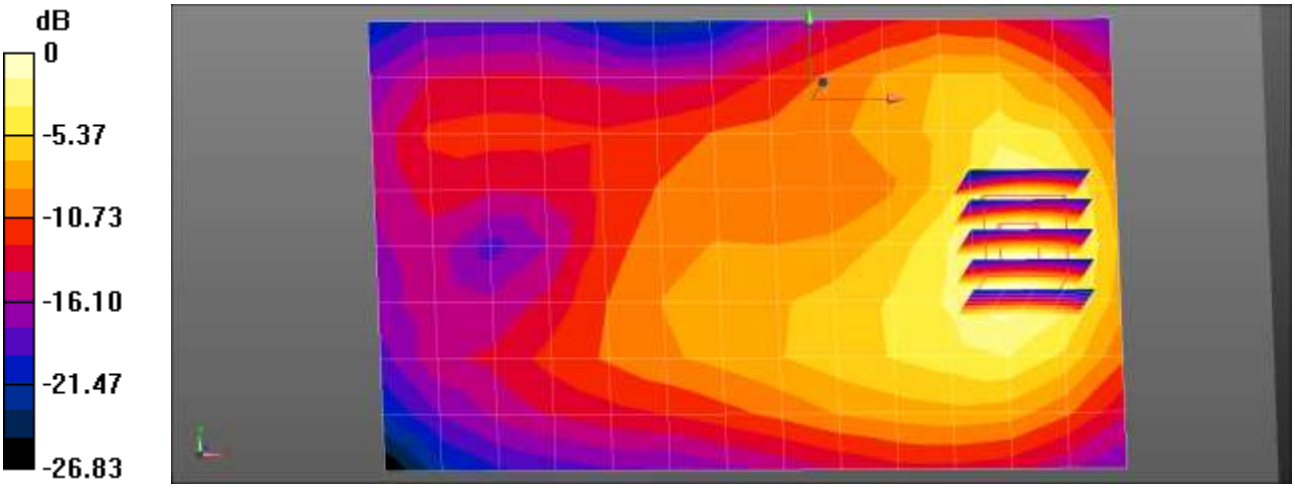
Communication System: UID 0, GSM 1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:8.30042
Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 53.611; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.72, 4.72, 4.72) @ 1880 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

GSM1900 Bodyworn Rear 661ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.266 W/kg

GSM1900 Bodyworn Rear 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.308 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.365 W/kg
SAR(1 g) = 0.230 W/kg; SAR(10 g) = 0.135 W/kg
Maximum value of SAR (measured) = 0.277 W/kg



0 dB = 0.266 W/kg = -5.76 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	18

DUT: SM-A908B; Type: Bar

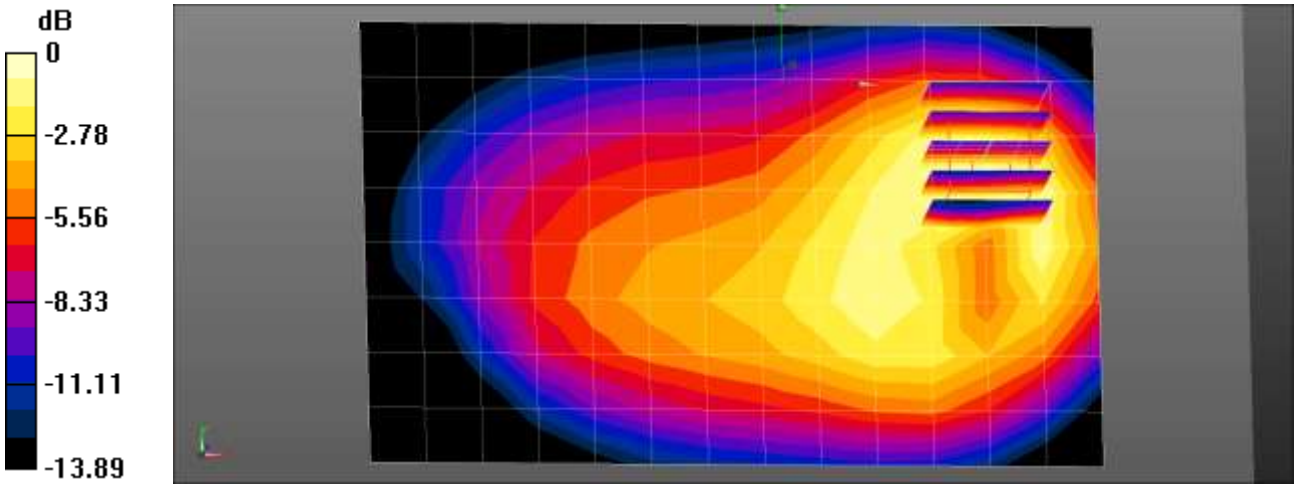
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.963 S/m; ε_r = 56.231; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(5.97, 5.97, 5.97) @ 836.6 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B5 Body Rear 4183ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.343 W/kg

WCDMA B5 Body Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.25 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.480 W/kg
SAR(1 g) = 0.309 W/kg; SAR(10 g) = 0.194 W/kg
Maximum value of SAR (measured) = 0.364 W/kg



0 dB = 0.364 W/kg = -4.39 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	19

DUT: SM-A908B; Type: Bar

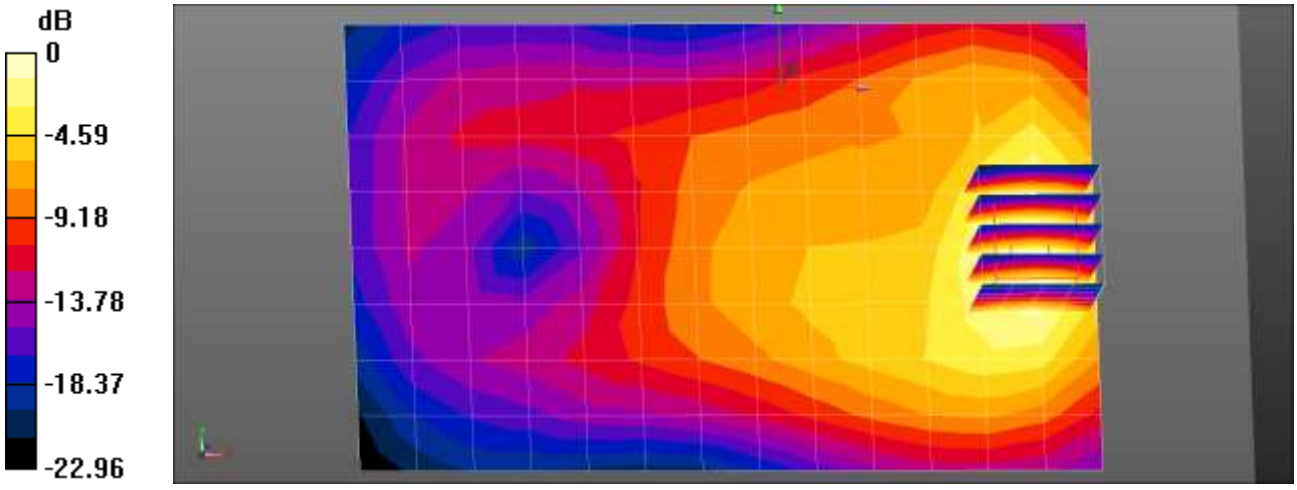
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.433 S/m; ε_r = 52.591; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.89, 4.89, 4.89) @ 1732.4 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B4 Bodyworn₩ Rear 1412ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.522 W/kg

WCDMA B4 Bodyworn₩ Rear 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.881 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.705 W/kg
SAR(1 g) = 0.451 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.543 W/kg



0 dB = 0.522 W/kg = -2.82 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	20

DUT: SM-A908B; Type: Bar

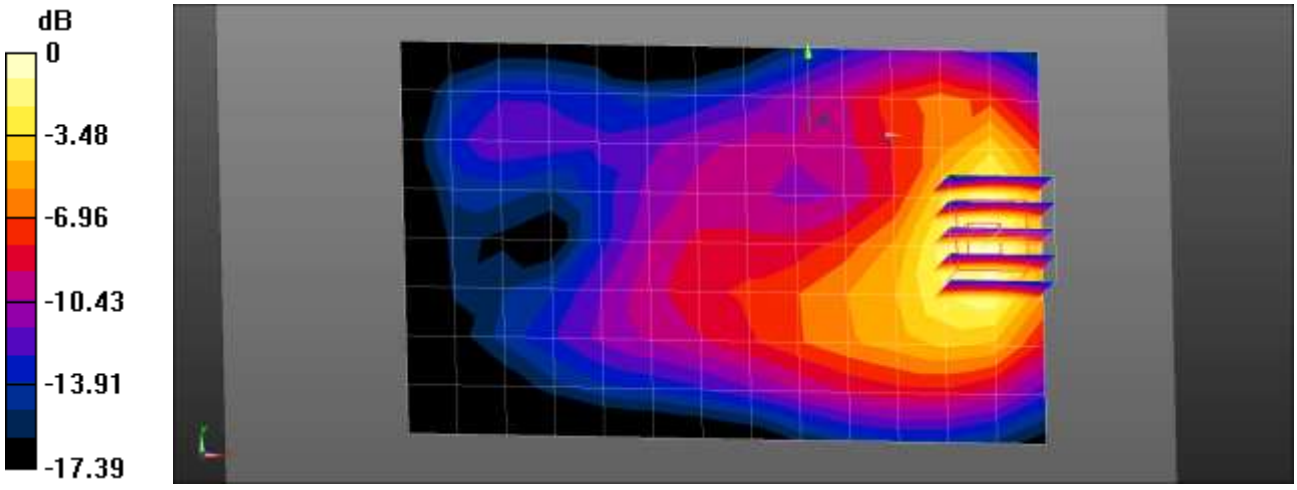
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 53.611; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.72, 4.72, 4.72) @ 1880 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B2 Bodyworn Rear 9400ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.549 W/kg

WCDMA B2 Bodyworn Rear 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.312 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.765 W/kg
SAR(1 g) = 0.482 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.580 W/kg



0 dB = 0.580 W/kg = -2.37 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.4 ℃
Ambient Temperature:	19.4 ℃
Test Date:	08/21/2019
Plot No.:	21

DUT: SM-A908B; Type: Bar

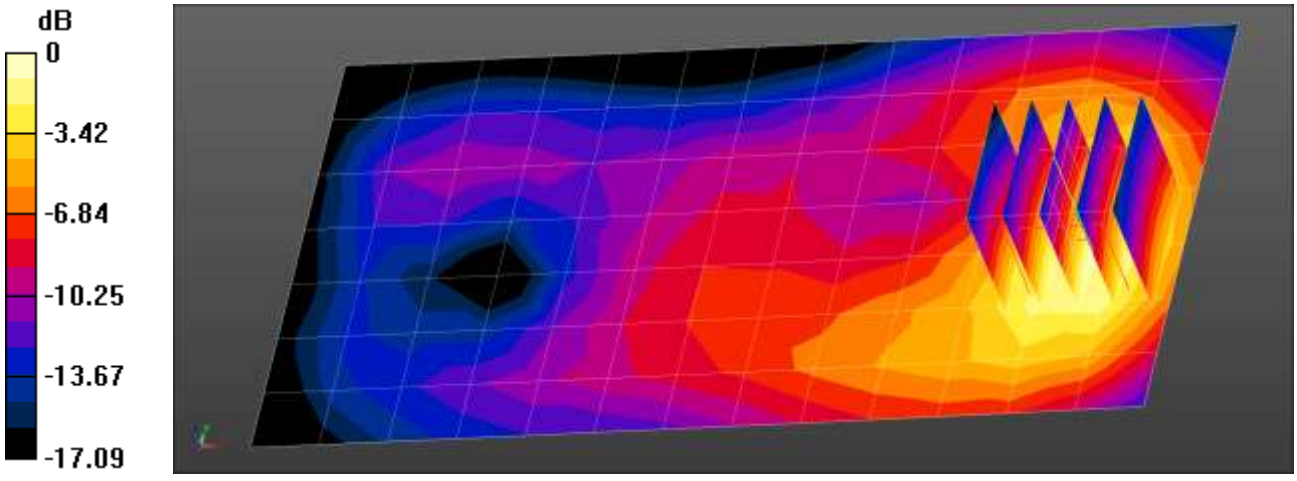
Communication System: UID 0, LTE 2 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.518 S/m; ε_r = 52.554; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.76, 7.76, 7.76); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 2 Body Rear QPSK 20MHz 1RB 49offset 18900ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.622 W/kg

LTE 2 Body Rear QPSK 20MHz 1RB 49offset 18900ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.393 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.814 W/kg
SAR(1 g) = 0.496 W/kg; SAR(10 g) = 0.291 W/kg
Maximum value of SAR (measured) = 0.705 W/kg



0 dB = 0.705 W/kg = -1.52 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	22

DUT: SM-A908B; Type: Bar

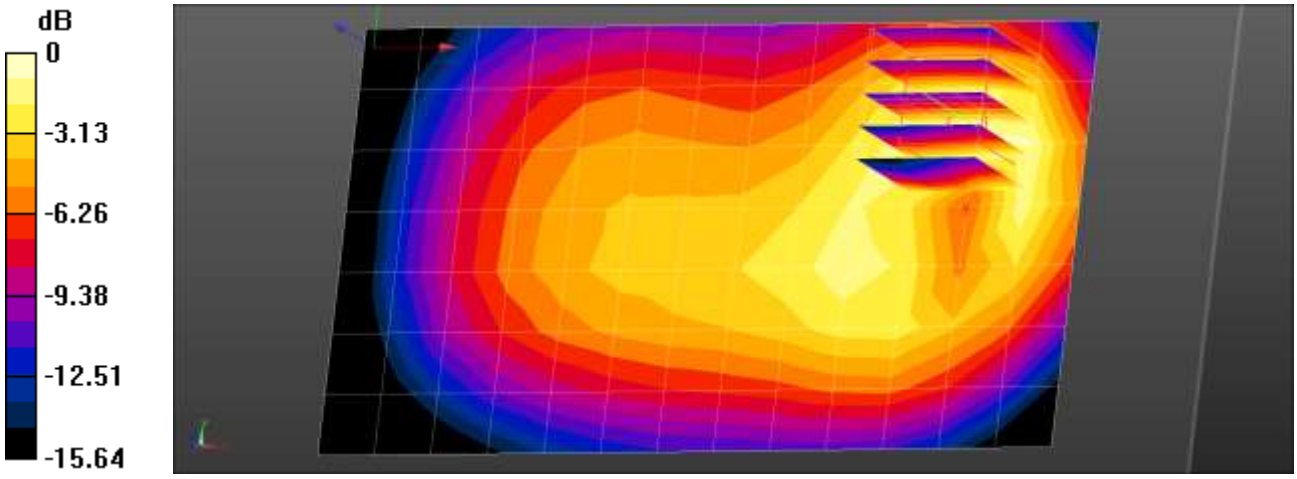
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.962 S/m; ε_r = 56.295; ρ = 1000 kg/m^3
Phantom section: Center Section

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 5 Body worn Rear QPSK 10MHz 1RB 0offset 20525ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.504 W/kg

LTE 5 Body worn Rear QPSK 10MHz 1RB 0offset 20525ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.44 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.384 W/kg; SAR(10 g) = 0.236 W/kg
Maximum value of SAR (measured) = 0.541 W/kg



0 dB = 0.541 W/kg = -2.67 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.4 ℃
Ambient Temperature:	21.5 ℃
Test Date:	08/21/2019
Plot No.:	23

DUT: SM-A908B; Type: Bar

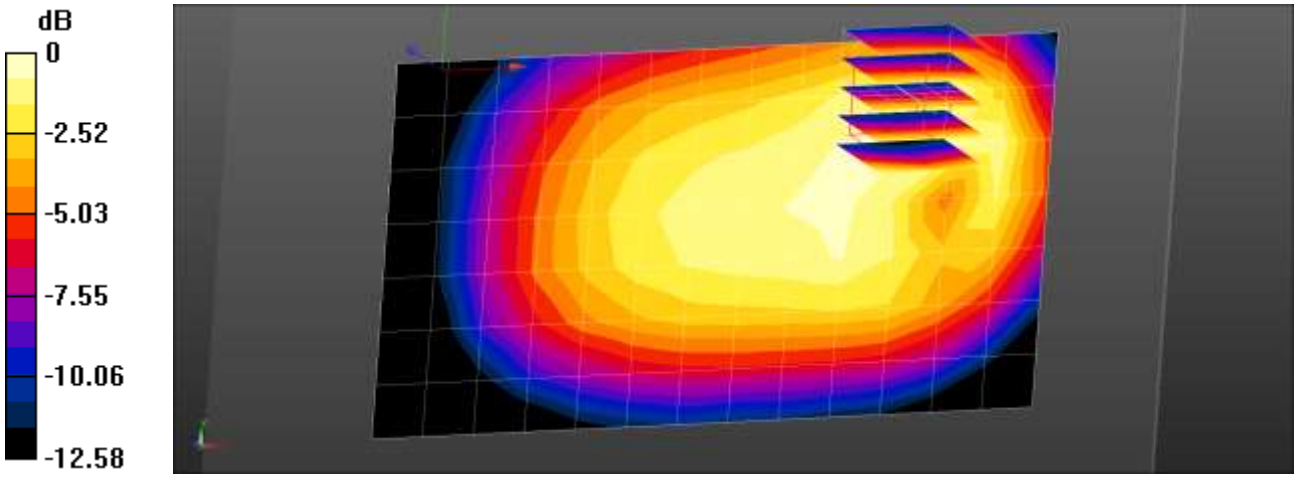
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.937 S/m; ε_r = 55.741; ρ = 1000 kg/m^3
Phantom section: Center Section

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 (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.175 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 = 12.98 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.145 W/kg; SAR(10 g) = 0.093 W/kg
Maximum value of SAR (measured) = 0.201 W/kg



0 dB = 0.201 W/kg = -6.97 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/19/2019
Plot No.:	24

DUT: SM-A908B; Type: Bar

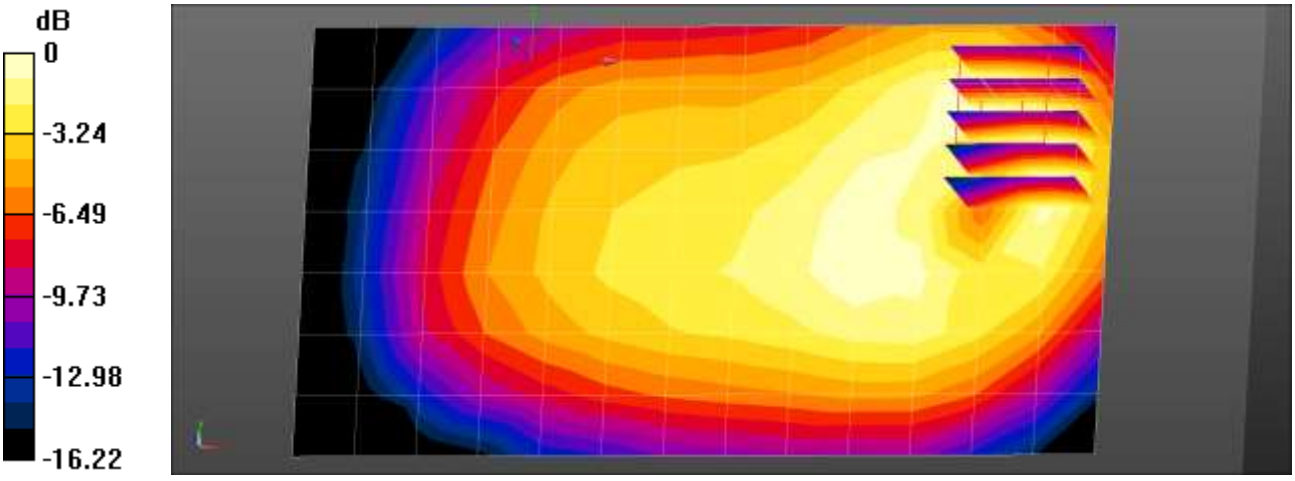
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.985 S/m; ε_r = 54.978; ρ = 1000 kg/m^3
Phantom section: Center Section

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 24offset 23230ch/Area Scan (14x8x1): Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.139 W/kg

LTE 13 Body worn Rear QPSK 10MHz 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid:
dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.469 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.103 W/kg; SAR(10 g) = 0.063 W/kg
Maximum value of SAR (measured) = 0.145 W/kg



0 dB = 0.145 W/kg = -8.39 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	25

DUT: SM-A908B; Type: Bar

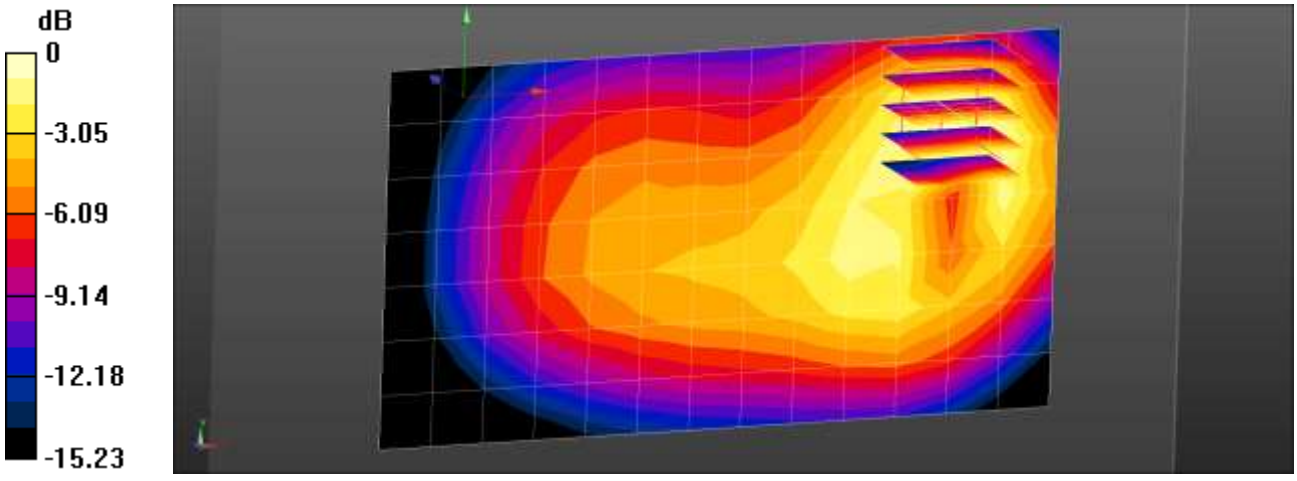
Communication System: UID 0, LTE Band 26 (0); Frequency: 841.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.967 S/m; ε_r = 56.267; ρ = 1000 kg/m^3
Phantom section: Center Section

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 36RB 39offset 26965ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.321 W/kg

LTE 26 Body worn Rear QPSK 15MHz 36RB 39offset 26965ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.57 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.408 W/kg
SAR(1 g) = 0.255 W/kg; SAR(10 g) = 0.158 W/kg
Maximum value of SAR (measured) = 0.353 W/kg



0 dB = 0.353 W/kg = -4.52 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.7 ℃
Test Date:	08/22/2019
Plot No.:	26

DUT: SM-A908B; Type: Bar

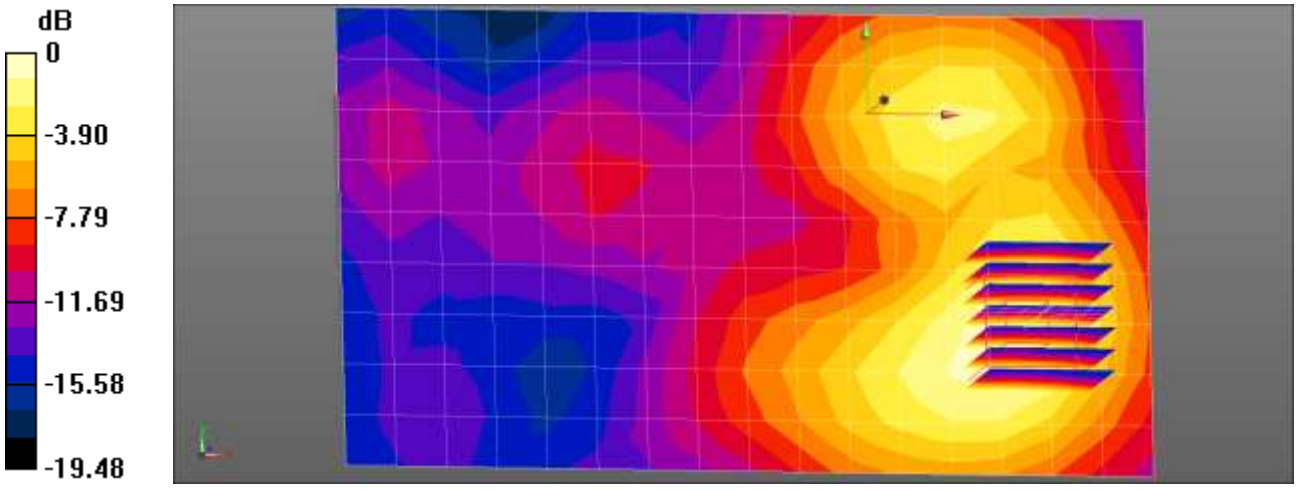
Communication System: UID 0, LTE Band41 (0); Frequency: 2636.5 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.168 S/m; ε_r = 51.024; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.05, 7.05, 7.05) @ 2636.5 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Body Worn Rear QPSK 20MHz 50RB 0offset 41055ch/Area Scan (17x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.209 W/kg

LTE Band 41 Body Worn Rear QPSK 20MHz 50RB 0offset 41055ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.869 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.277 W/kg
SAR(1 g) = 0.141 W/kg; SAR(10 g) = 0.077 W/kg
Maximum value of SAR (measured) = 0.221 W/kg



0 dB = 0.221 W/kg = -6.56 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	27

DUT: SM-A908B; Type: Bar

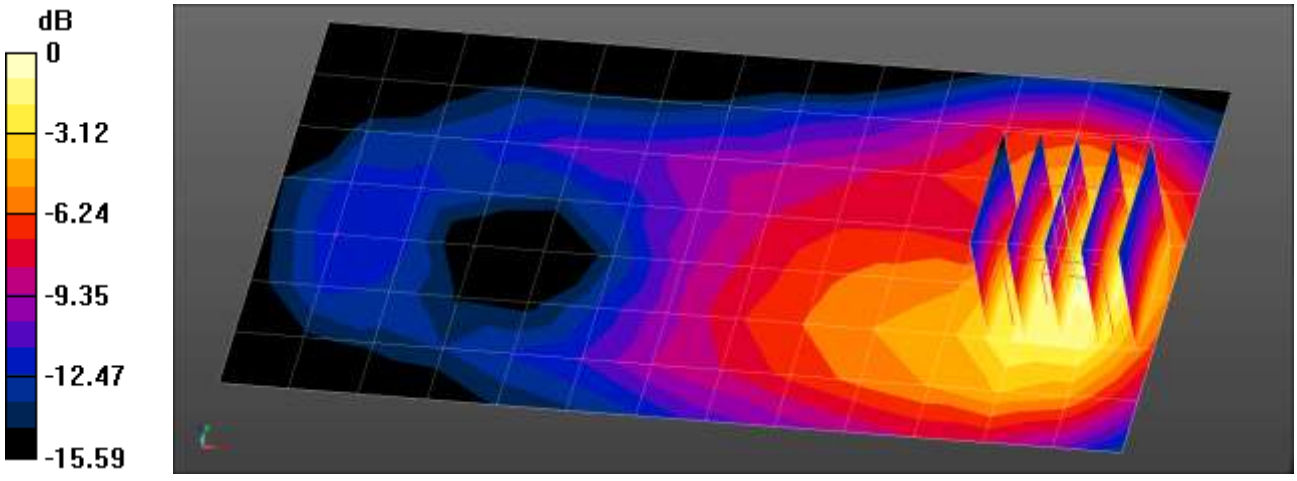
Communication System: UID 0, LTE Band 66 (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.412 S/m; ε_r = 54.961; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 66 Body-worn Rear QPSK 20MHz 50RB 0offset 132072ch/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.204 W/kg

LTE 66 Body-worn Rear QPSK 20MHz 50RB 0offset 132072ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.809 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.263 W/kg
SAR(1 g) = 0.165 W/kg; SAR(10 g) = 0.099 W/kg
Maximum value of SAR (measured) = 0.230 W/kg



0 dB = 0.230 W/kg = -6.38 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/08/2019
Plot No.:	28

DUT: SM-A908B; Type: Bar

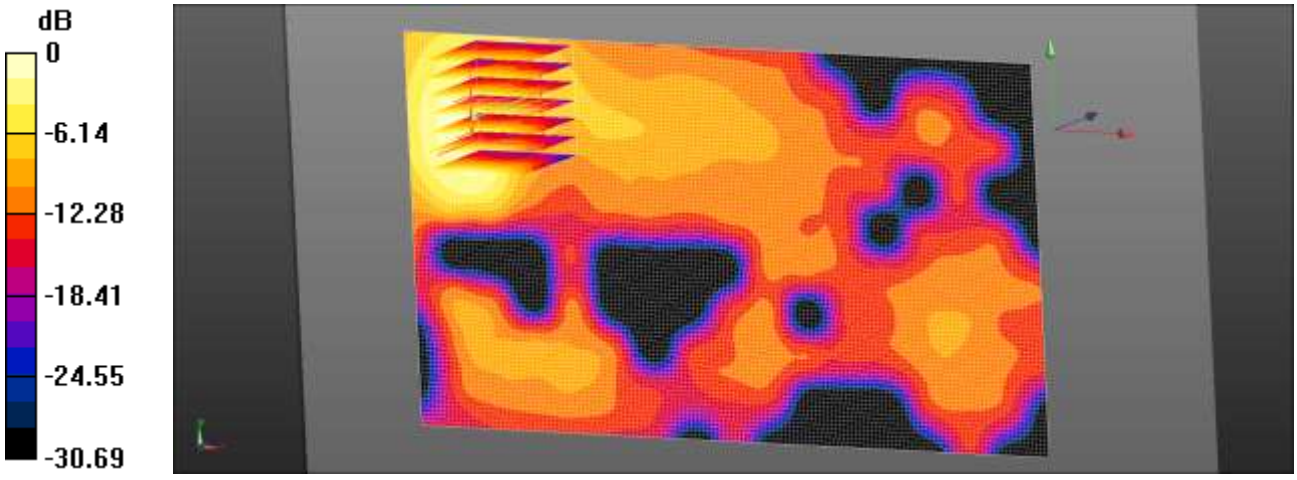
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.96 S/m; ε_r = 52.616; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Body Rear 1Mbps 11ch/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.115 W/kg

802.11b Body Rear 1Mbps 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.934 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.136 W/kg
SAR(1 g) = 0.071 W/kg; SAR(10 g) = 0.037 W/kg
Maximum value of SAR (measured) = 0.112 W/kg



0 dB = 0.112 W/kg = -9.51 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/08/2019
Plot No.:	29

DUT: SM-A908B; Type: Bar

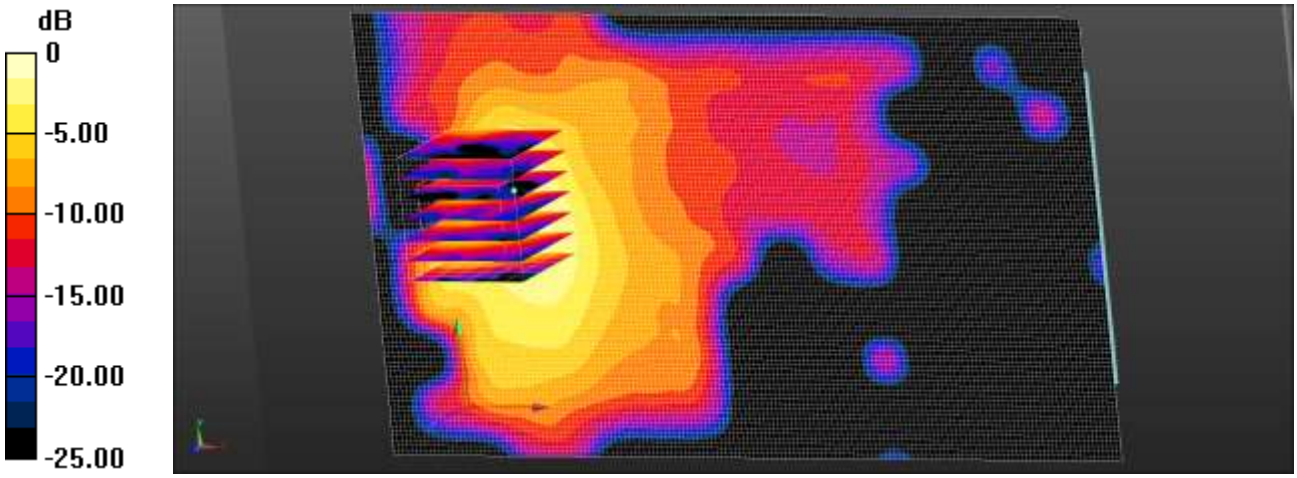
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.931 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Body Rear 1Mbps 6ch/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.0895 W/kg

802.11b Body Rear 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.7010 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.125 W/kg
SAR(1 g) = 0.063 W/kg; SAR(10 g) = 0.026 W/kg
Maximum value of SAR (measured) = 0.101 W/kg



0 dB = 0.101 W/kg = -9.96 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 °C
Ambient Temperature:	20.2 °C
Test Date:	08/20/2019
Plot No.:	30

DUT: SM-A908B; Type: Bar

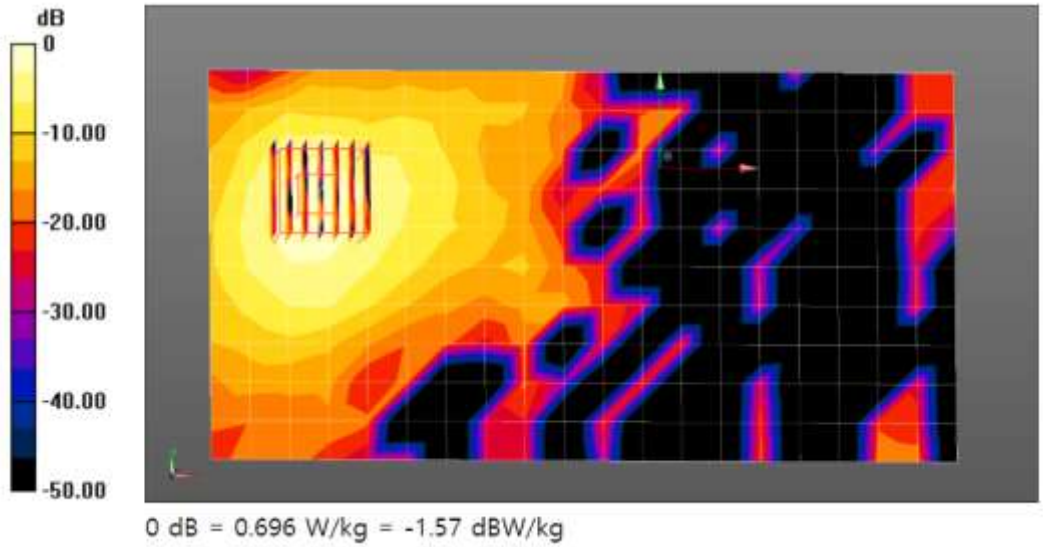
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.977 S/m; ε_r = 48.028; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(3.99, 3.99, 3.99); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11a Body Rear 6Mbps 120ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.613 W/kg

802.11a Body Rear 6Mbps 120ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 1.901 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.301 W/kg; SAR(10 g) = 0.109 W/kg
Maximum value of SAR (measured) = 0.696 W/kg



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.8 ℃
Test Date:	08/21/2019
Plot No.:	31

DUT: SM-A908B; Type: Bar

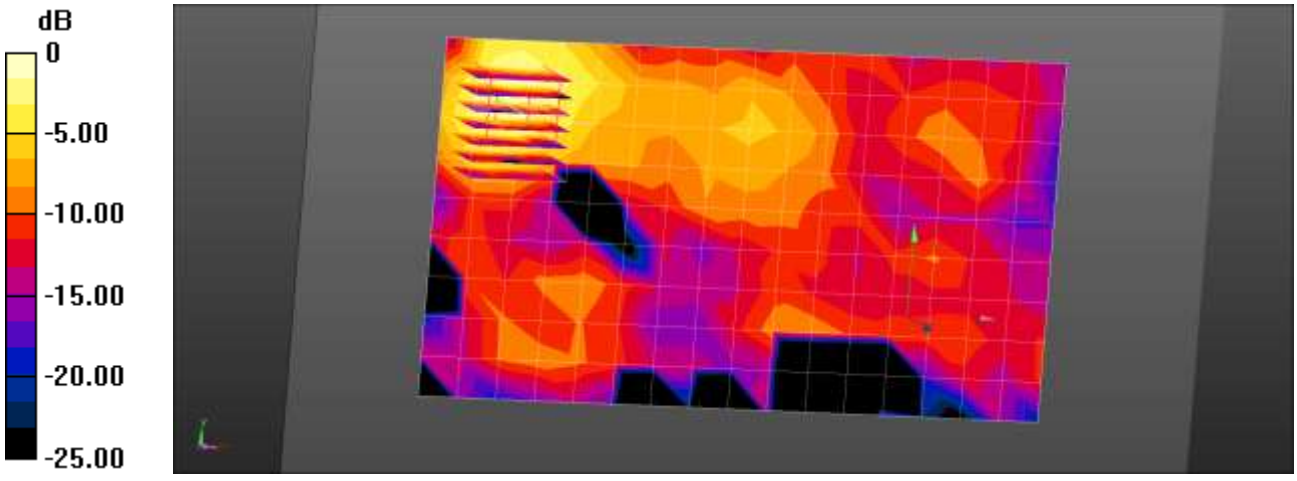
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.3
Medium parameters used: f = 2480 MHz; σ = 1.988 S/m; ε_r = 53.566; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Body Rear DH5 78ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0281 W/kg

Bluetooth Body Rear DH5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.0380 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.011 W/kg
Maximum value of SAR (measured) = 0.0315 W/kg



0 dB = 0.0315 W/kg = -15.02 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	32

DUT: SM-A908B; Type: Bar

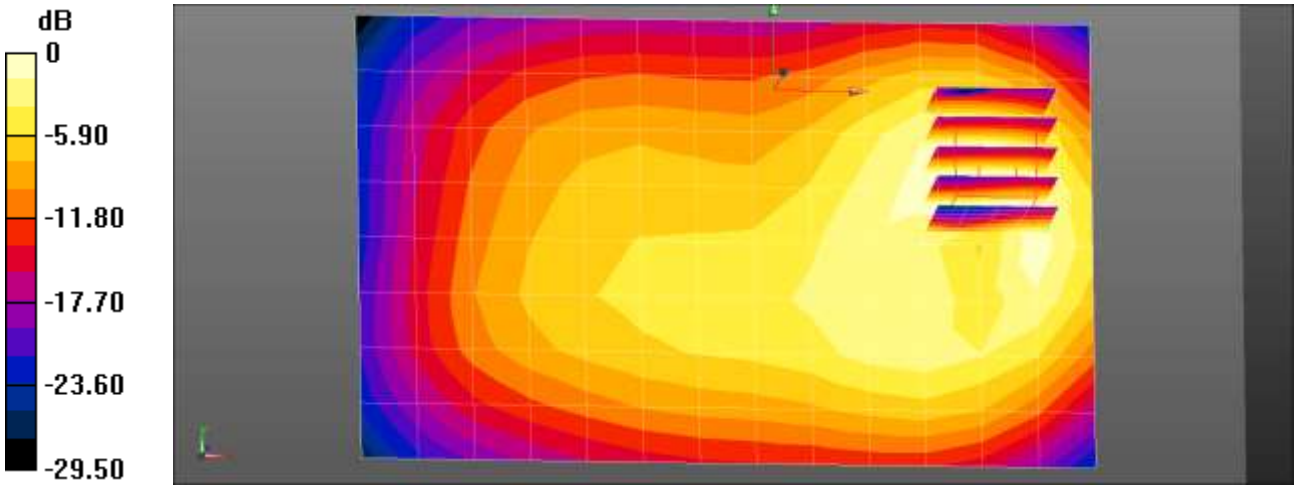
Communication System: UID 0, GSM850 GPRS 3TX (0); Frequency: 848.8 MHz;Duty Cycle: 1:2.77013
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.971 S/m; ε_r = 56.086; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(5.97, 5.97, 5.97) @ 848.8 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

GSM850 Body Rear 3Tx 251ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.791 W/kg

GSM850 Body Rear 3Tx 251ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.51 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.711 W/kg; SAR(10 g) = 0.421 W/kg
Maximum value of SAR (measured) = 0.857 W/kg



0 dB = 0.791 W/kg = -1.02 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	33

DUT: SM-A908B; Type: Bar

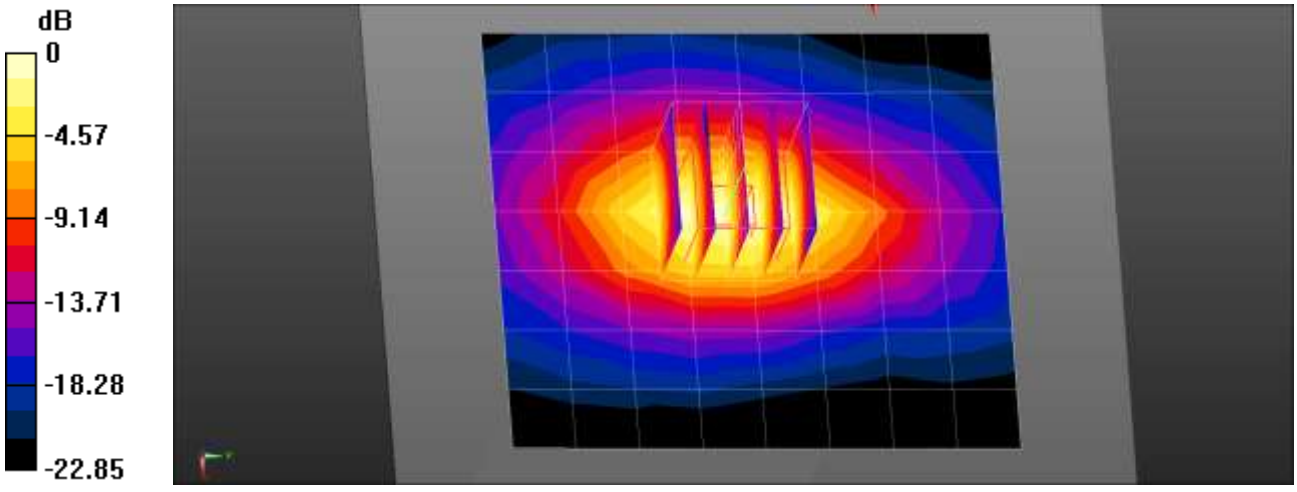
Communication System: UID 0, GSM 1900 4TX (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 53.611; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.72, 4.72, 4.72) @ 1880 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

GSM1900 Body Bottom 4Tx 661ch/Area Scan (8x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.612 W/kg

GSM1900 Body Bottom 4Tx 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.41 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.883 W/kg
SAR(1 g) = 0.521 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.651 W/kg



0 dB = 0.651 W/kg = -1.86 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	34

DUT: SM-A908B; Type: Bar

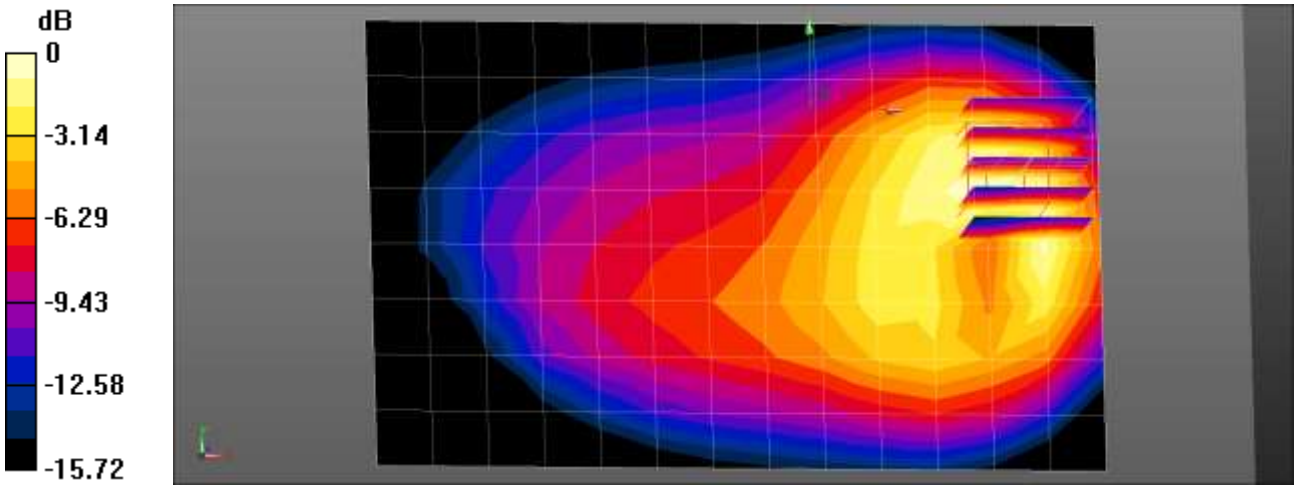
Communication System: UID 0, WCDMA850 (0); Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.963 S/m; ε_r = 56.231; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(5.97, 5.97, 5.97) @ 836.6 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B5 Body Rear 4183ch/Area Scan (14x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.694 W/kg

WCDMA B5 Body Rear 4183ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.32 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.623 W/kg; SAR(10 g) = 0.371 W/kg
Maximum value of SAR (measured) = 0.746 W/kg



0 dB = 0.746 W/kg = -1.27 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.7 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	35

DUT: SM-A908B; Type: Bar

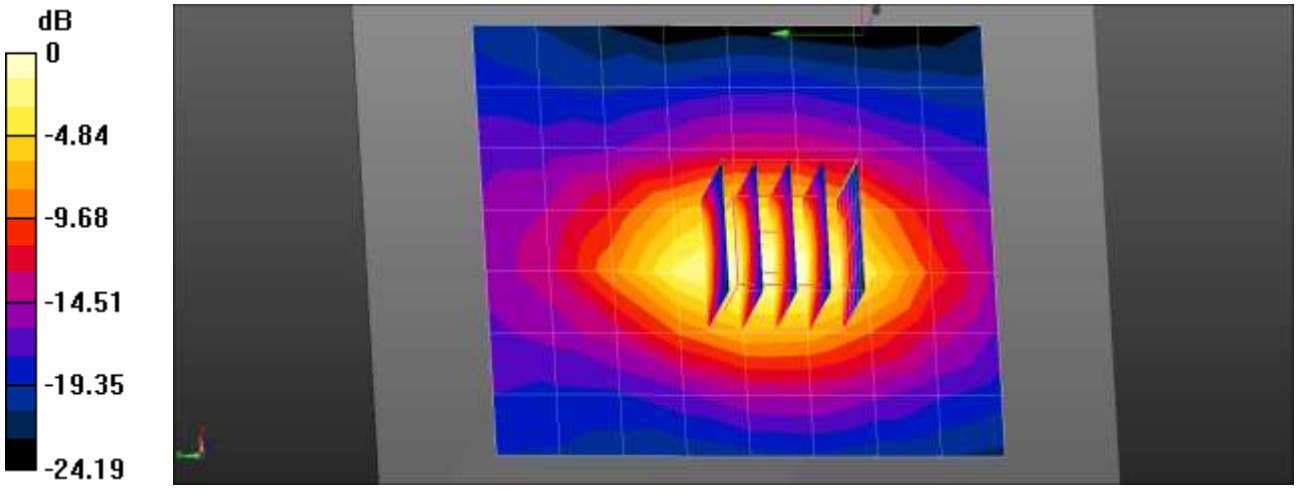
Communication System: UID 0, WCDMA IV (0); Frequency: 1732.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.4 MHz; σ = 1.433 S/m; ε_r = 52.591; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.89, 4.89, 4.89) @ 1732.4 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B4 Body Bottom 1412ch/Area Scan (8x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.698 W/kg

WCDMA B4 Body Bottom 1412ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.26 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.622 W/kg; SAR(10 g) = 0.339 W/kg
Maximum value of SAR (measured) = 0.769 W/kg



0 dB = 0.698 W/kg = -1.56 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	36

DUT: SM-A908B; Type: Bar

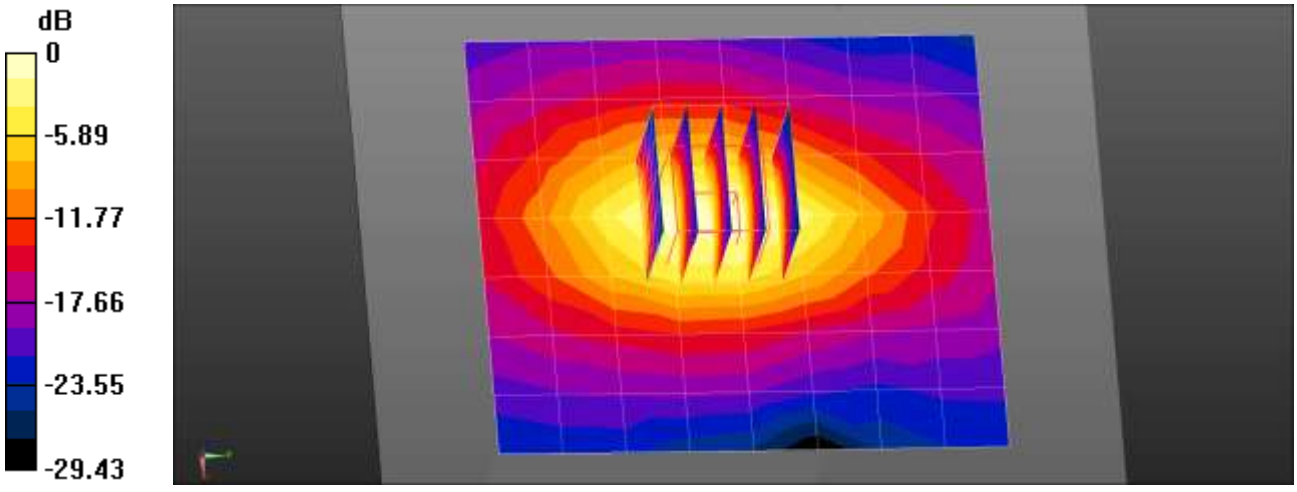
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.513 S/m; ε_r = 53.611; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.72, 4.72, 4.72) @ 1880 MHz; Calibrated: 2019-07-23
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA B2 Body Bottom 9400ch/Area Scan (8x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.676 W/kg

WCDMA B2 Body Bottom 9400ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.32 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.980 W/kg
SAR(1 g) = 0.581 W/kg; SAR(10 g) = 0.309 W/kg
Maximum value of SAR (measured) = 0.724 W/kg



0 dB = 0.676 W/kg = -1.70 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.4 ℃
Ambient Temperature:	19.4 ℃
Test Date:	08/21/2019
Plot No.:	37

DUT: SM-A908B; Type: Bar

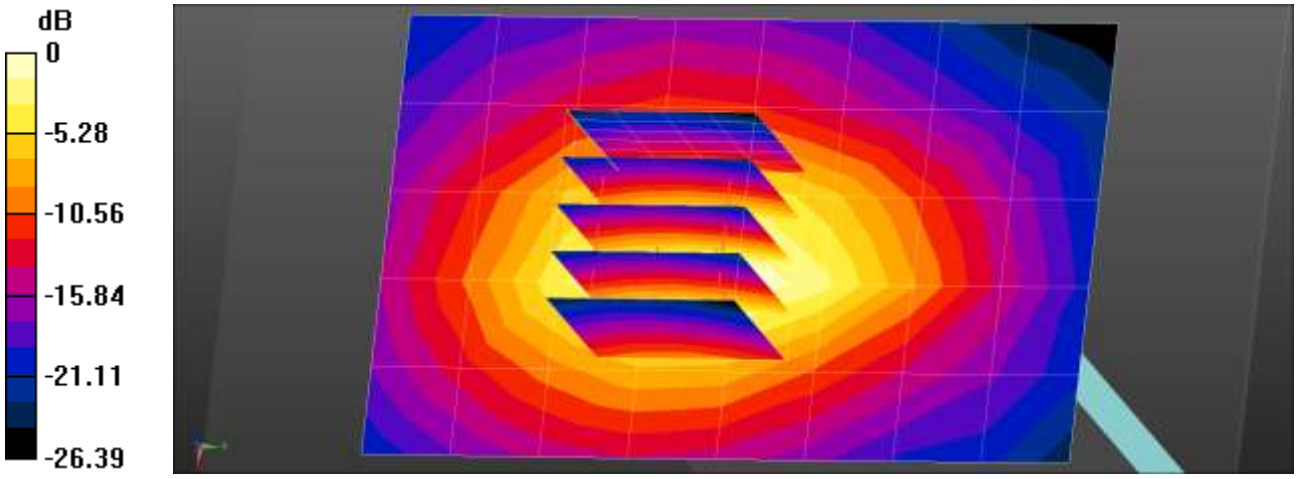
Communication System: UID 0, LTE 2 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.518 S/m; ε_r = 52.554; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.76, 7.76, 7.76); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 2 Body Bottom QPSK 20MHz 1RB 49offset 18900ch/Area Scan (9x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.798 W/kg

LTE 2 Body Bottom QPSK 20MHz 1RB 49offset 18900ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 23.12 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.600 W/kg; SAR(10 g) = 0.317 W/kg
Maximum value of SAR (measured) = 0.901 W/kg



0 dB = 0.798 W/kg = -0.98 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	38

DUT: SM-A908B; Type: Bar

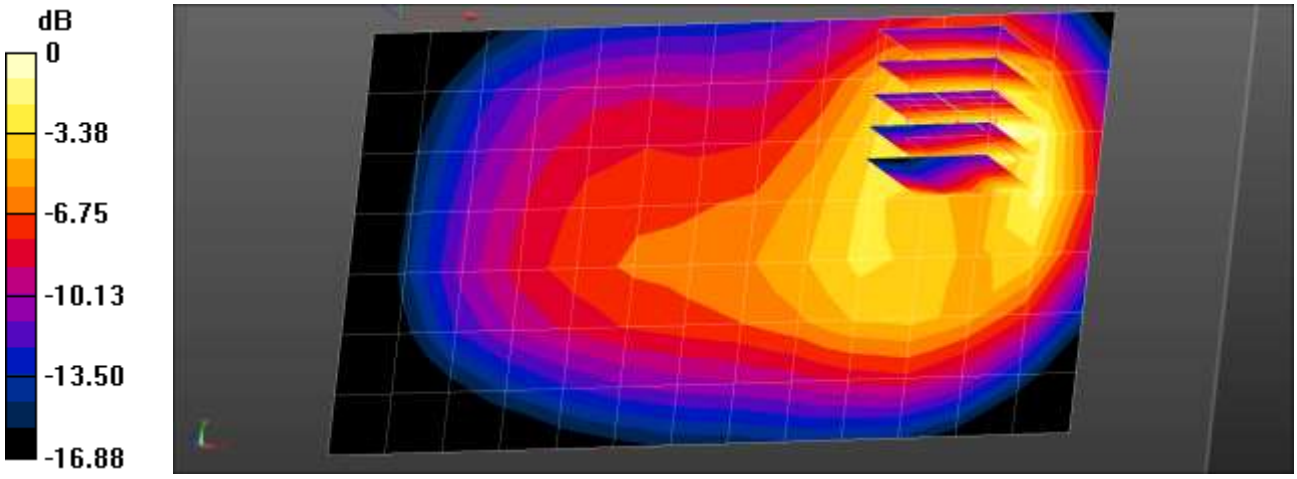
Communication System: UID 0, LTE Band 5 (0); Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.962 S/m; ε_r = 56.295; ρ = 1000 kg/m^3
Phantom section: Center Section

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 5 Body Rear QPSK 10MHz 1RB 0offset 20525ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.15 W/kg

LTE 5 Body Rear QPSK 10MHz 1RB 0offset 20525ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.27 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.806 W/kg; SAR(10 g) = 0.474 W/kg
Maximum value of SAR (measured) = 1.16 W/kg



0 dB = 1.16 W/kg = 0.64 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.4 ℃
Ambient Temperature:	21.5 ℃
Test Date:	08/21/2019
Plot No.:	39

DUT: SM-A908B; Type: Bar

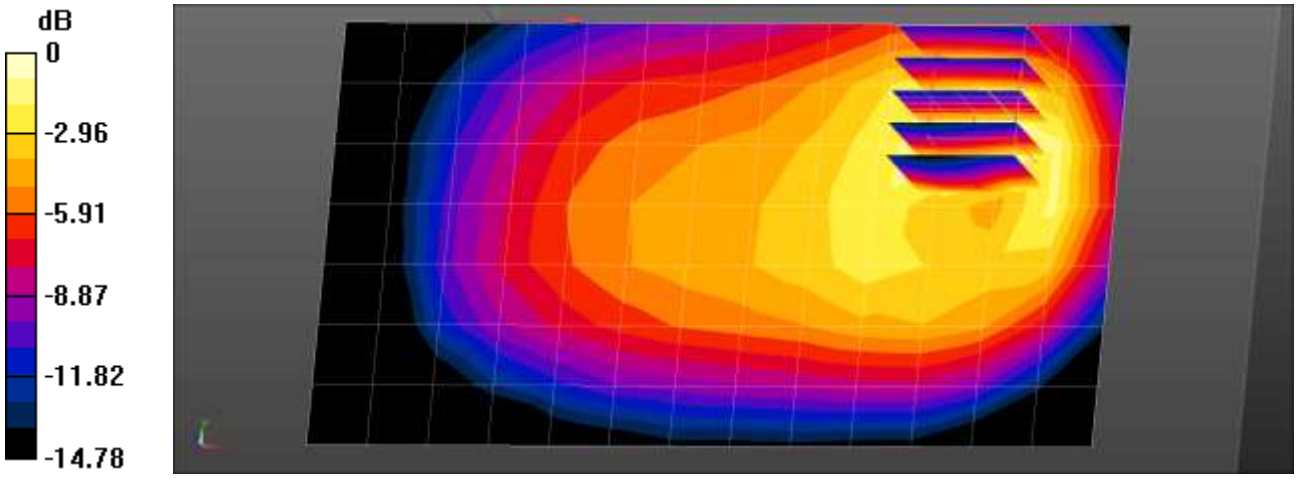
Communication System: UID 0, LTE Band 12 (0); Frequency: 707.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 707.5 MHz; σ = 0.937 S/m; ε_r = 55.741; ρ = 1000 kg/m^3
Phantom section: Center Section

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 (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.380 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 = 13.11 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.502 W/kg
SAR(1 g) = 0.279 W/kg; SAR(10 g) = 0.163 W/kg
Maximum value of SAR (measured) = 0.407 W/kg



0 dB = 0.407 W/kg = -3.90 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/19/2019
Plot No.:	40

DUT: SM-A908B; Type: Bar

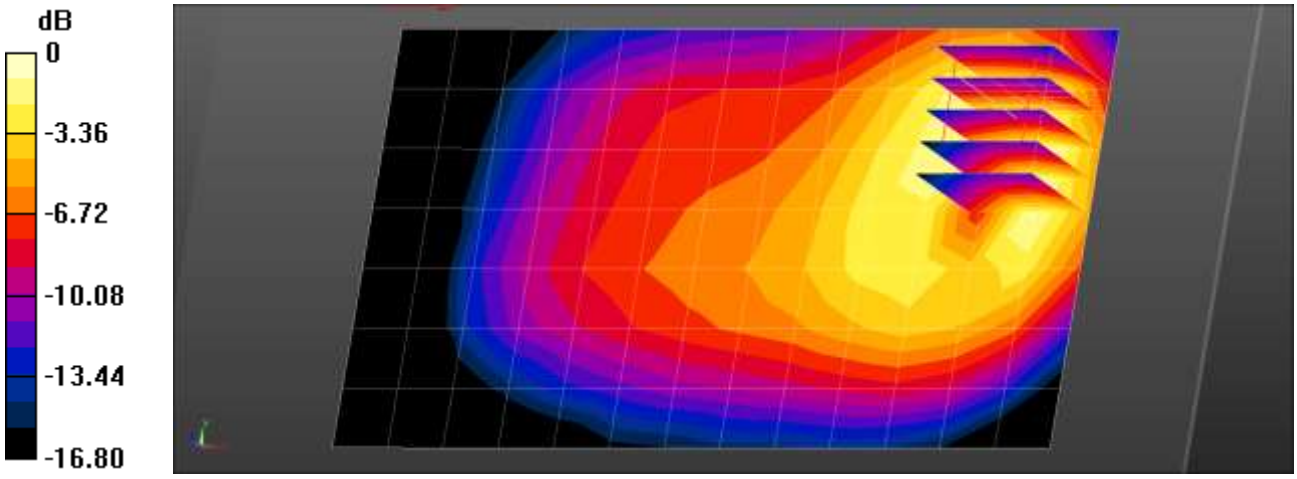
Communication System: UID 0, LTE Band 13 (0); Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 0.985 S/m; ε_r = 54.978; ρ = 1000 kg/m^3
Phantom section: Center Section

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 24offset 23230ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.334 W/kg

LTE 13 Body Rear QPSK 10MHz 1RB 24offset 23230ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.714 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.413 W/kg
SAR(1 g) = 0.234 W/kg; SAR(10 g) = 0.137 W/kg
Maximum value of SAR (measured) = 0.348 W/kg



0 dB = 0.348 W/kg = -4.58 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	41

DUT: SM-A908B; Type: Bar

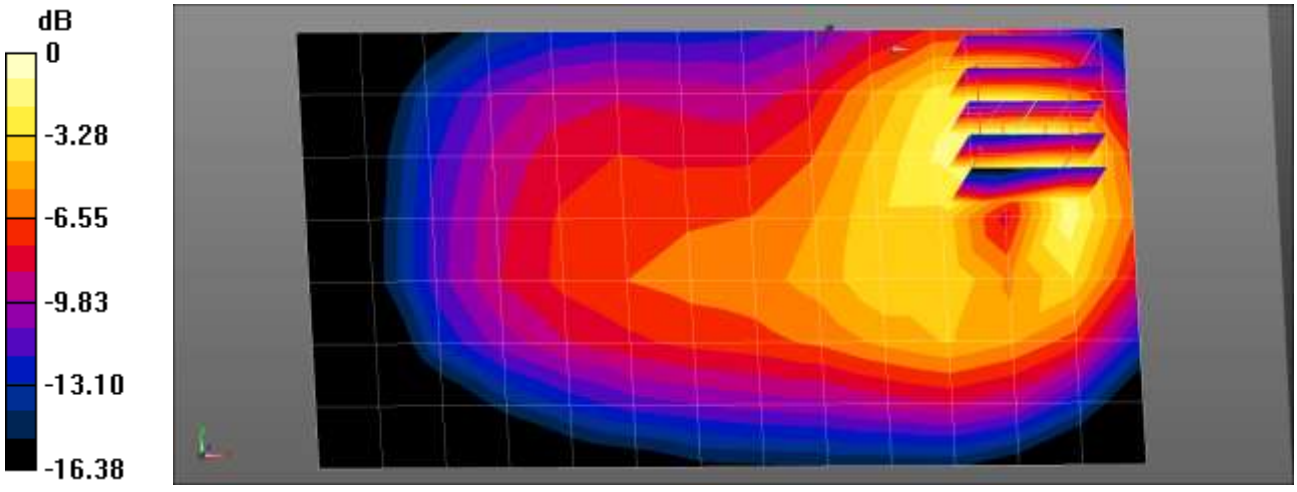
Communication System: UID 0, LTE Band 26 (0); Frequency: 821.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 821.5 MHz; σ = 0.946 S/m; ε_r = 56.513; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3863; ConvF(9.72, 9.72, 9.72) @ 821.5 MHz; 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 0offset 26765ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.643 W/kg

LTE 26 Body Rear QPSK 15MHz 1RB 0offset 26765ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.24 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.883 W/kg
SAR(1 g) = 0.508 W/kg; SAR(10 g) = 0.299 W/kg
Maximum value of SAR (measured) = 0.750 W/kg



0 dB = 0.750 W/kg = -1.25 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	42

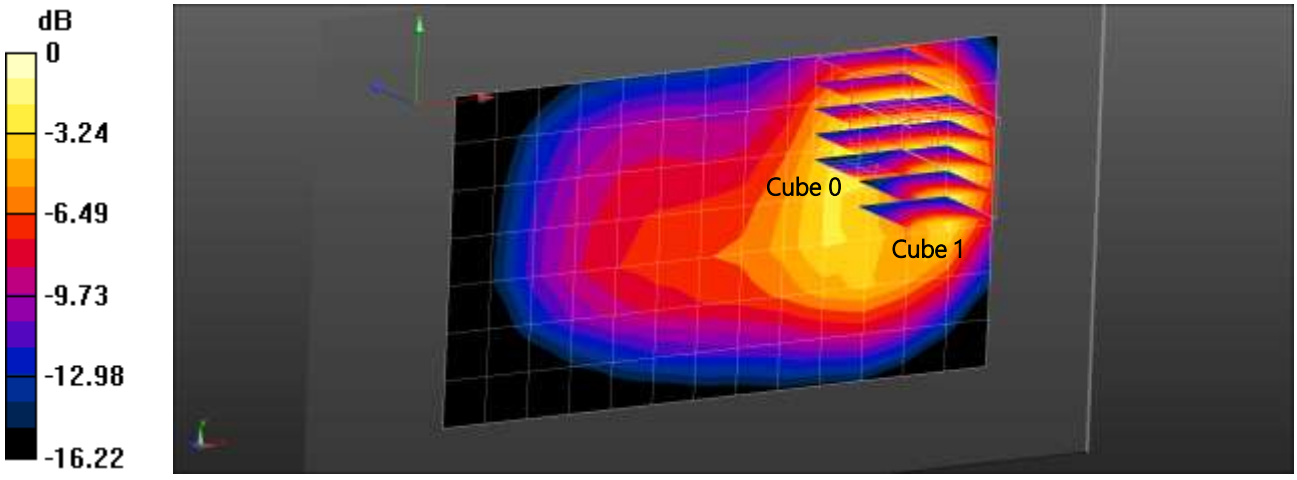
DUT: SM-A908B; Type: Bar

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 = 0.967 S/m; ε_r = 56.267; 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 36RB 39offset 26965ch/Area Scan (14x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.683 W/kg
LTE 26 Body Rear QPSK 15MHz 36RB 39offset 26965ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.31 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.898 W/kg
SAR(1 g) = 0.521 W/kg; SAR(10 g) = 0.308 W/kg
Maximum value of SAR (measured) = 0.740 W/kg
LTE 26 Body Rear QPSK 15MHz 36RB 39offset 26965ch/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.31 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.924 W/kg
SAR(1 g) = 0.502 W/kg; SAR(10 g) = 0.273 W/kg
Maximum value of SAR (measured) = 0.743 W/kg



0 dB = 0.743 W/kg = -1.29 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.7 ℃
Test Date:	08/22/2019
Plot No.:	43

DUT: SM-A908B; Type: Bar

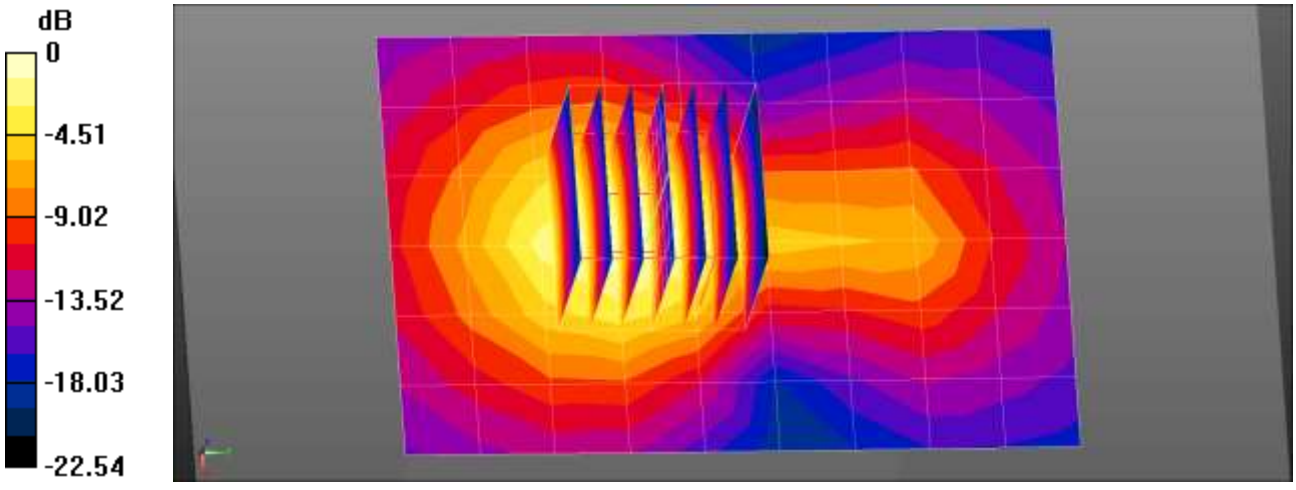
Communication System: UID 0, LTE Band41 (0); Frequency: 2636.5 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.168 S/m; ε_r = 51.024; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.05, 7.05, 7.05) @ 2636.5 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Body Bottom QPSK 20MHz 50RB 0offset 41055ch/Area Scan (7x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.908 W/kg

LTE Band 41 Body Bottom QPSK 20MHz 50RB 0offset 41055ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.34 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.552 W/kg; SAR(10 g) = 0.260 W/kg
Maximum value of SAR (measured) = 0.910 W/kg



0 dB = 0.910 W/kg = -0.41 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	44

SM-A908B; Type: Bar

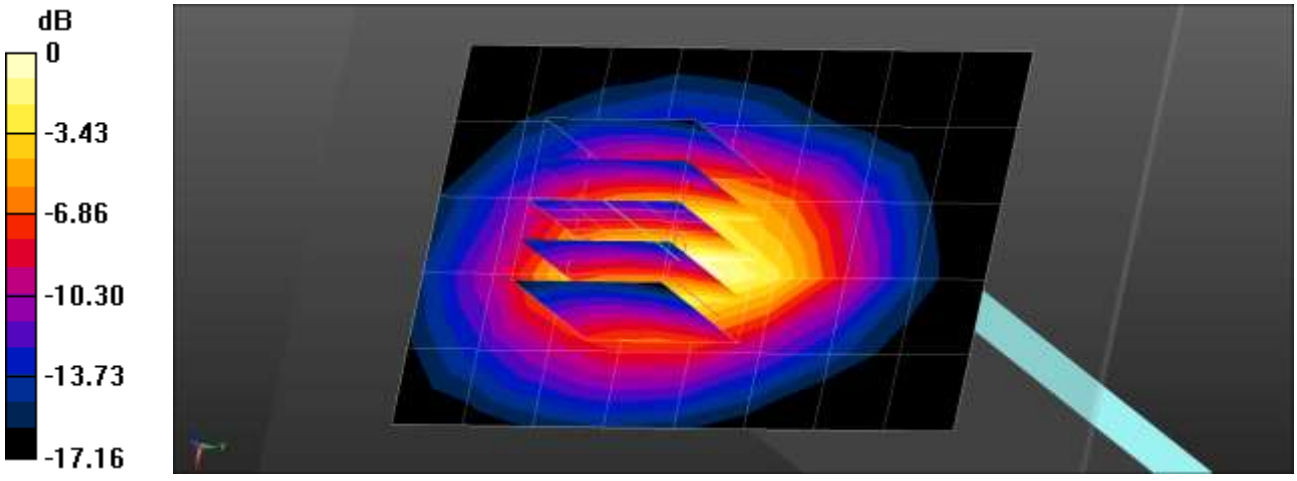
Communication System: UID 0, LTE Band 66 (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.412 S/m; ε_r = 54.961; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 66 Body Bottom QPSK 20MHz 50RB 0offset 132072ch/Area Scan (9x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.716 W/kg

LTE 66 Body Bottom QPSK 20MHz 50RB 0offset 132072ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.61 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.917 W/kg
SAR(1 g) = 0.540 W/kg; SAR(10 g) = 0.294 W/kg
Maximum value of SAR (measured) = 0.788 W/kg



0 dB = 0.788 W/kg = -1.03 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/08/2019
Plot No.:	45

DUT: SM-A908B; Type: Bar

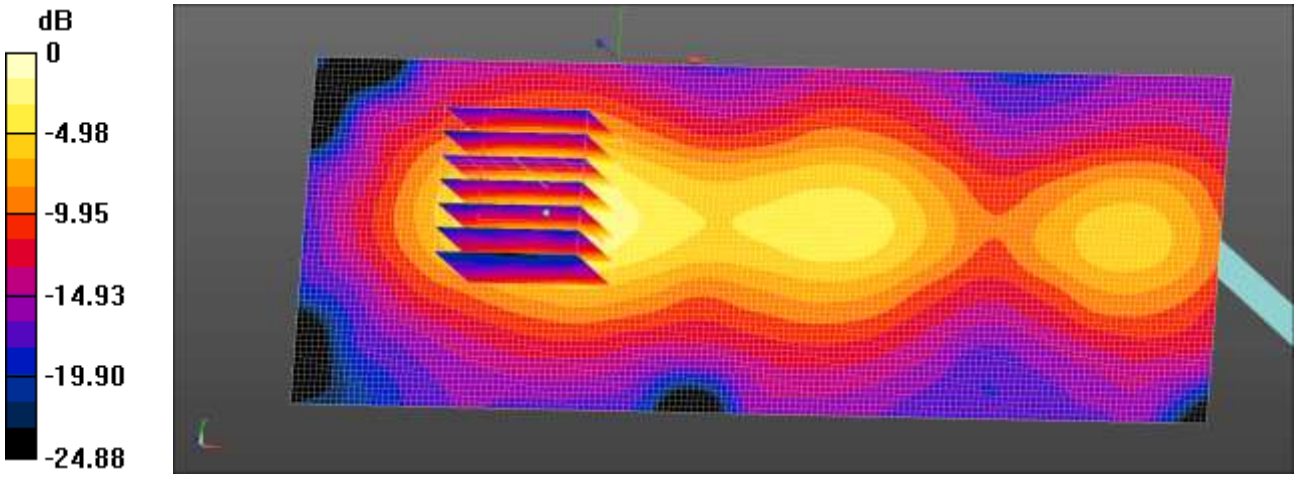
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.96 S/m; ε_r = 52.616; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Body Left 1Mbps 11ch/Area Scan (61x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.251 W/kg

802.11b Body Left 1Mbps 11ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.837 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.380 W/kg
SAR(1 g) = 0.177 W/kg; SAR(10 g) = 0.083 W/kg
Maximum value of SAR (measured) = 0.303 W/kg



0 dB = 0.303 W/kg = -5.19 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.3 ℃
Test Date:	08/08/2019
Plot No.:	46

DUT: SM-A908B; Type: Bar

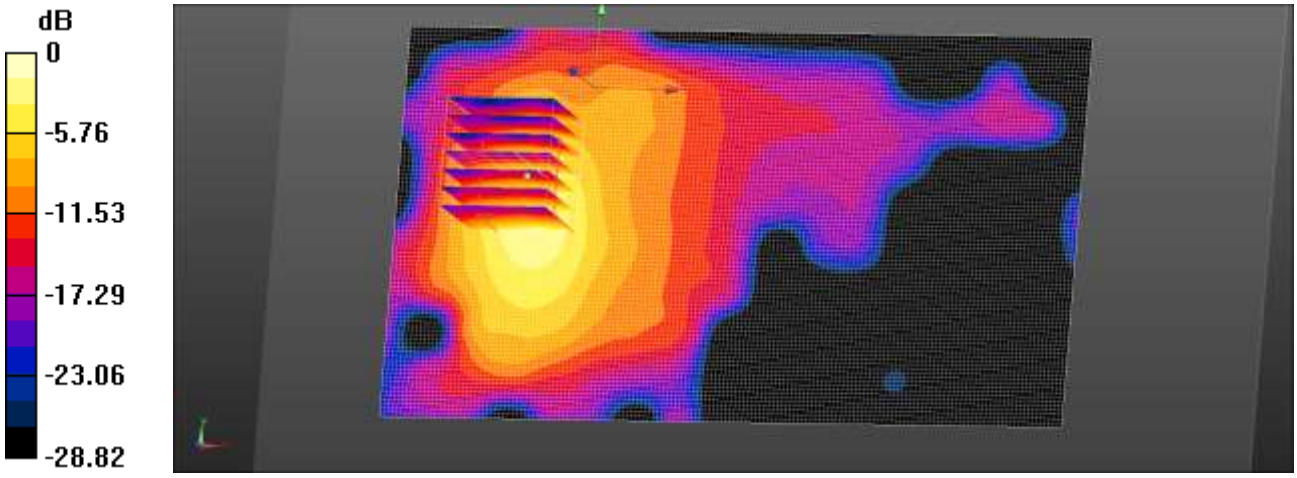
Communication System: UID 0, 2450MHz FCC (0); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.931 S/m; ε_r = 52.672; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11b Body Rear 1Mbps 6ch/Area Scan (91x161x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 0.254 W/kg

802.11b Body Rear 1Mbps 6ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.409 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.368 W/kg
SAR(1 g) = 0.160 W/kg; SAR(10 g) = 0.072 W/kg
Maximum value of SAR (measured) = 0.281 W/kg



0 dB = 0.281 W/kg = -5.51 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 °C
Ambient Temperature:	20.2 °C
Test Date:	08/20/2019
Plot No.:	47

DUT: SM-A908B; Type: Bar

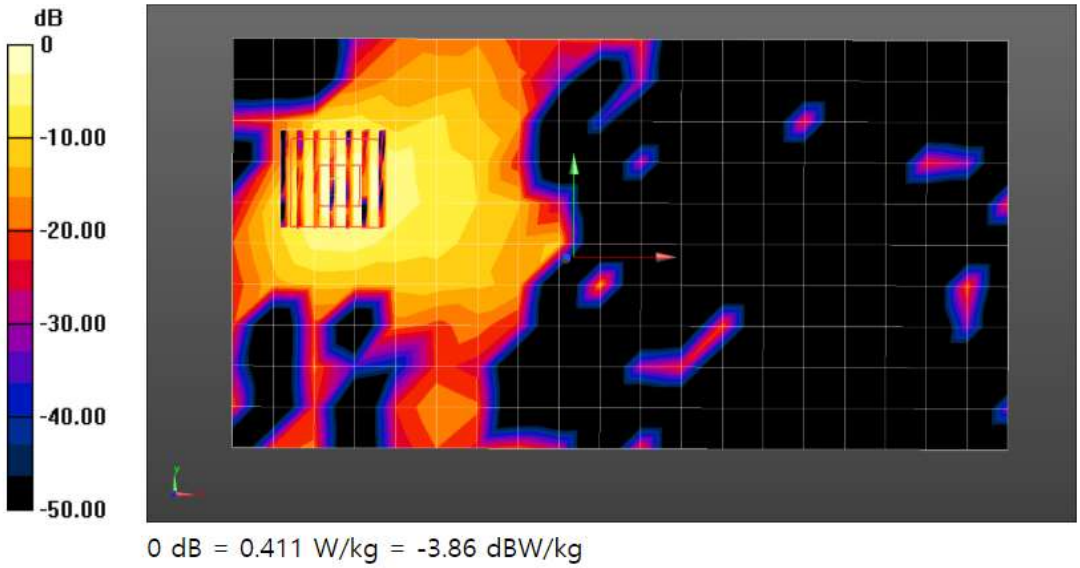
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 6.183 S/m; ε_r = 47.538; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.15, 4.15, 4.15); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11a Body Rear 6Mbps 157ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.333 W/kg

802.11a Body Rear 6Mbps 157ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 0.9050 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.742 W/kg
SAR(1 g) = 0.167 W/kg; SAR(10 g) = 0.052 W/kg
Maximum value of SAR (measured) = 0.411 W/kg



0 dB = 0.411 W/kg = -3.86 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.8 ℃
Test Date:	08/21/2019
Plot No.:	48

DUT: SM-A908B; Type: Bar

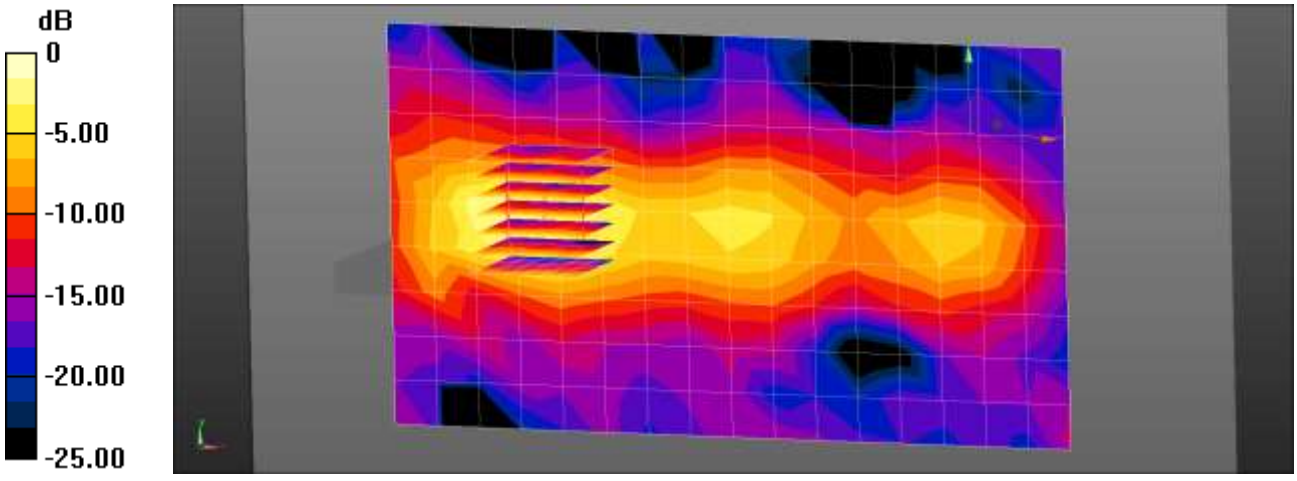
Communication System: UID 0, Bluetooth (0); Frequency: 2480 MHz;Duty Cycle: 1:1.3
Medium parameters used: f = 2480 MHz; σ = 1.988 S/m; ε_r = 53.566; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Bluetooth Body Left DH5 78ch/Area Scan (10x17x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 0.0652 W/kg

Bluetooth Body Left DH5 78ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.386 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.049 W/kg; SAR(10 g) = 0.023 W/kg
Maximum value of SAR (measured) = 0.0806 W/kg



0 dB = 0.0806 W/kg = -10.94 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	49

DUT: SM-A908B; Type: Bar

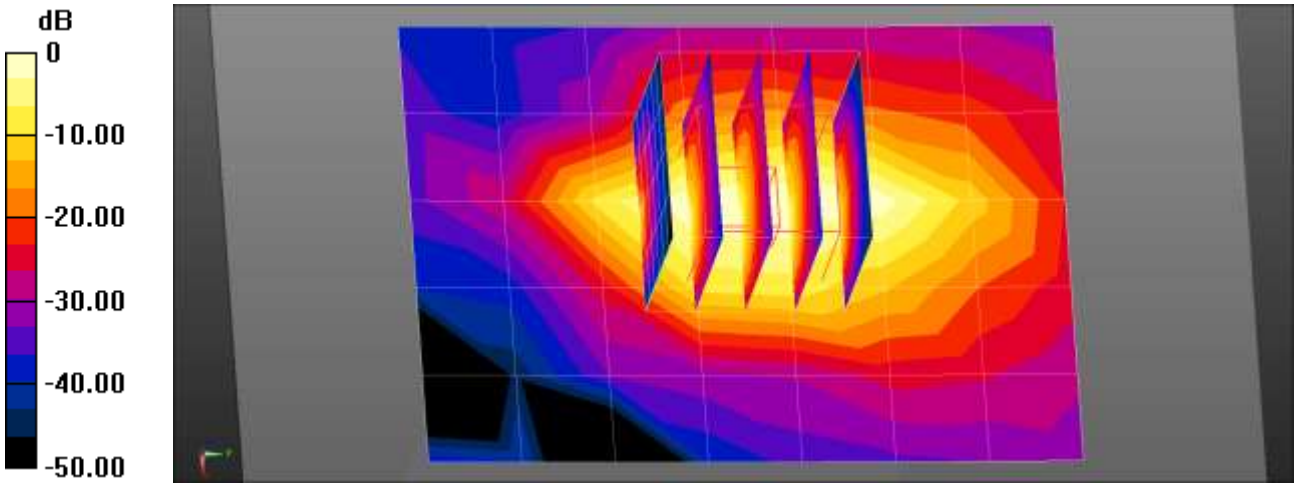
Communication System: UID 0, WCDMA IV (0); Frequency: 1752.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1752.6 MHz; σ = 1.432 S/m; ε_r = 52.566; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.91, 7.91, 7.91) @ 1752.6 MHz; Calibrated: 2019-02-01
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA 4 Body Bottom 1513ch Grip 0mm/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.48 W/kg

WCDMA 4 Body Bottom 1513ch Grip 0mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 64.61 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 9.18 W/kg
SAR(1 g) = 4.32 W/kg; SAR(10 g) = 1.95 W/kg
Maximum value of SAR (measured) = 7.76 W/kg



0 dB = 5.48 W/kg = 7.39 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.6 °C
Ambient Temperature:	20.7 °C
Test Date:	08/22/2019
Plot No.:	50

DUT: SM-A908B; Type: Bar

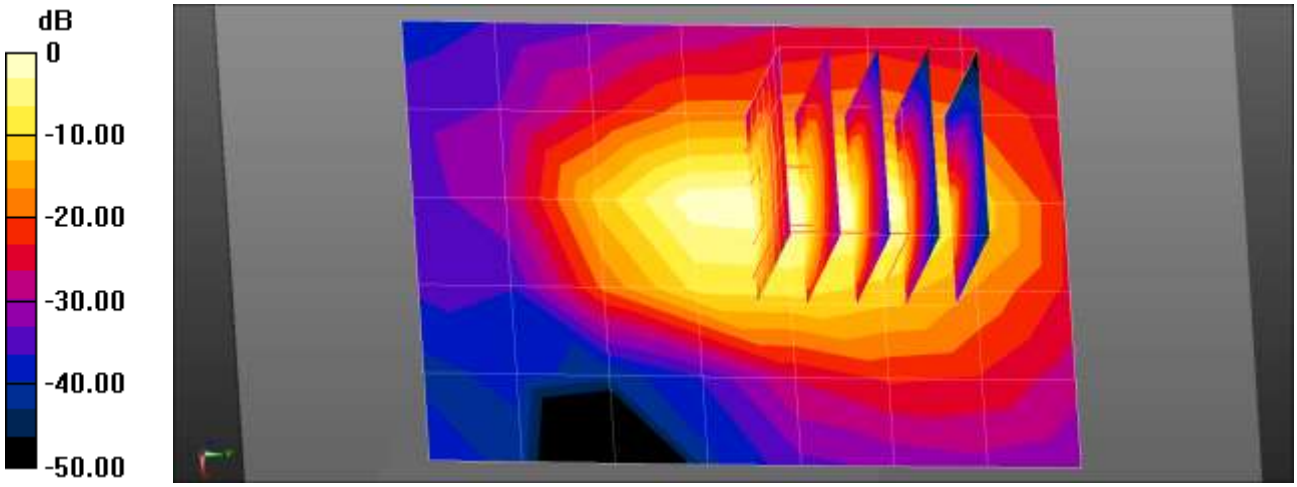
Communication System: UID 0, WCDMA1900 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.504 S/m; ε_r = 53.61; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3967; ConvF(7.64, 7.64, 7.64) @ 1880 MHz; Calibrated: 2019-02-01
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

WCDMA 2 Body Bottom 9400ch Grip 0mm/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.35 W/kg

WCDMA 2 Body Bottom 9400ch Grip 0mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.91 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 7.94 W/kg
SAR(1 g) = 3.6 W/kg; SAR(10 g) = 1.56 W/kg
Maximum value of SAR (measured) = 6.23 W/kg



0 dB = 5.35 W/kg = 7.28 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.4 ℃
Ambient Temperature:	19.4 ℃
Test Date:	08/21/2019
Plot No.:	51

DUT: SM-A908B; Type: Bar

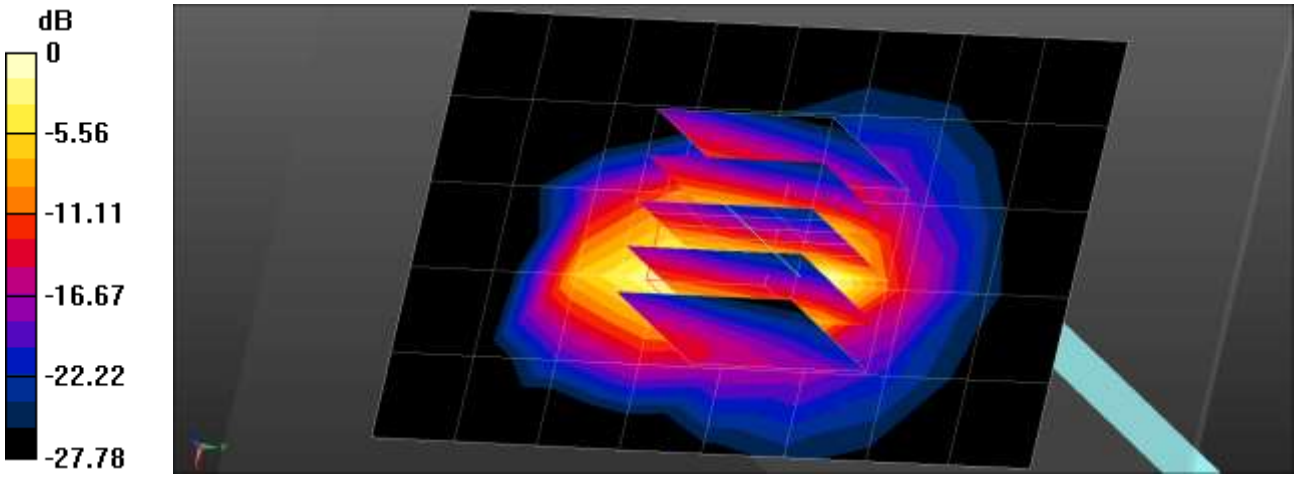
Communication System: UID 0, LTE 2 (0); Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.518 S/m; ε_r = 52.554; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.76, 7.76, 7.76); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 2 Body Bottom QPSK 20MHz 50RB 49offset 18900ch/Area Scan (9x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 5.47 W/kg

LTE 2 Body Bottom QPSK 20MHz 50RB 49offset 18900ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 48.26 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 8.52 W/kg
SAR(1 g) = 3.18 W/kg; SAR(10 g) = 1.32 W/kg
Maximum value of SAR (measured) = 6.61 W/kg



0 dB = 6.61 W/kg = 8.20 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.7 ℃
Test Date:	08/22/2019
Plot No.:	52

DUT: SM-A908B; Type: Bar

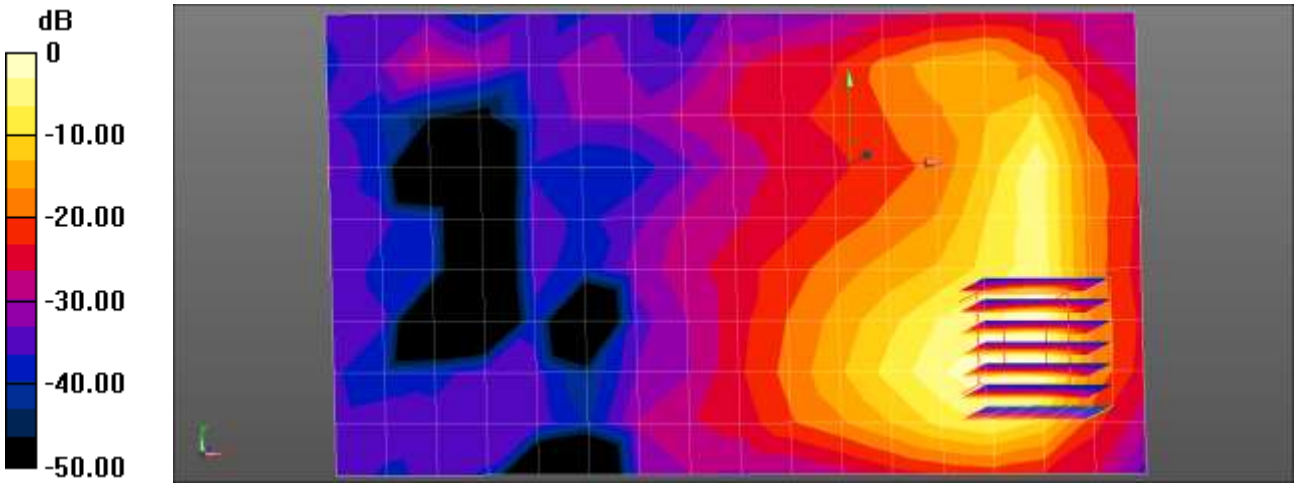
Communication System: UID 0, LTE Band41 (0); Frequency: 2636.5 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.168 S/m; ε_r = 51.024; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.05, 7.05, 7.05) @ 2636.5 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Body Front QPSK 20MHz 1RB 0offset 41055ch Grip 0mm/Area Scan (17x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.92 W/kg

LTE Band 41 Body Front QPSK 20MHz 1RB 0offset 41055ch Grip 0mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.837 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 11.5 W/kg
SAR(1 g) = 3.3 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 7.91 W/kg



0 dB = 3.92 W/kg = 5.94 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	19.7 ℃
Ambient Temperature:	19.7 ℃
Test Date:	08/22/2019
Plot No.:	53

DUT: SM-A908B; Type: Bar

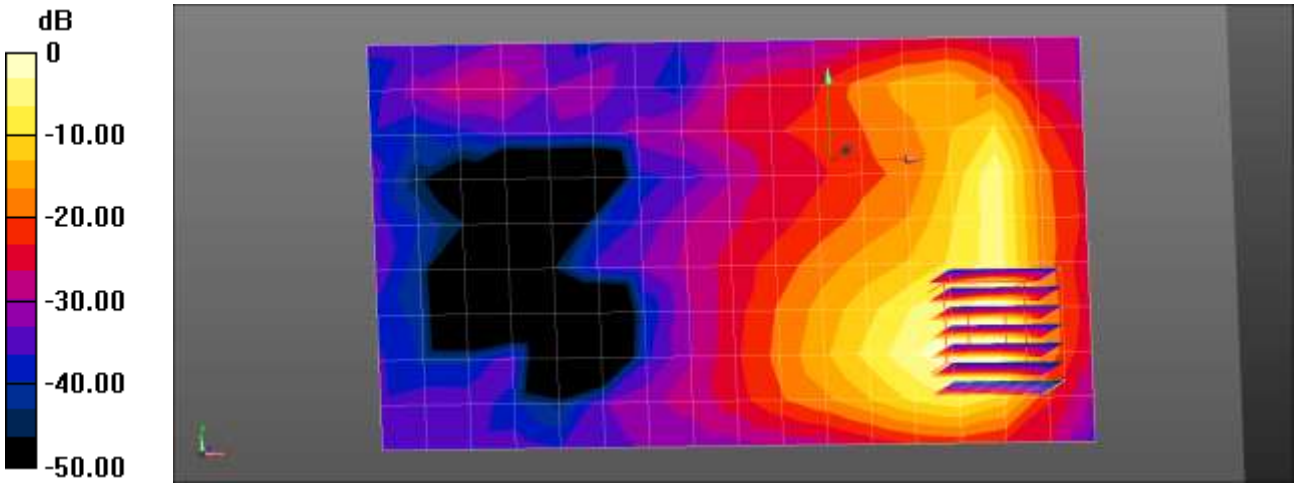
Communication System: UID 0, LTE Band41 (0); Frequency: 2636.5 MHz;Duty Cycle: 1:1.58016
Medium parameters used (interpolated): f = 2636.5 MHz; σ = 2.168 S/m; ε_r = 51.024; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.05, 7.05, 7.05) @ 2636.5 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

LTE Band 41 Body Front QPSK 20MHz 50RB 0offset 41055ch Grip 0mm/Area Scan (17x10x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.13 W/kg

LTE Band 41 Body Front QPSK 20MHz 50RB 0offset 41055ch Grip 0mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.912 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 12.1 W/kg
SAR(1 g) = 3.41 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 8.23 W/kg



0 dB = 4.13 W/kg = 6.16 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.8 °C
Ambient Temperature:	20.9 °C
Test Date:	08/22/2019
Plot No.:	54

DUT: SM-A908B; Type: Bar

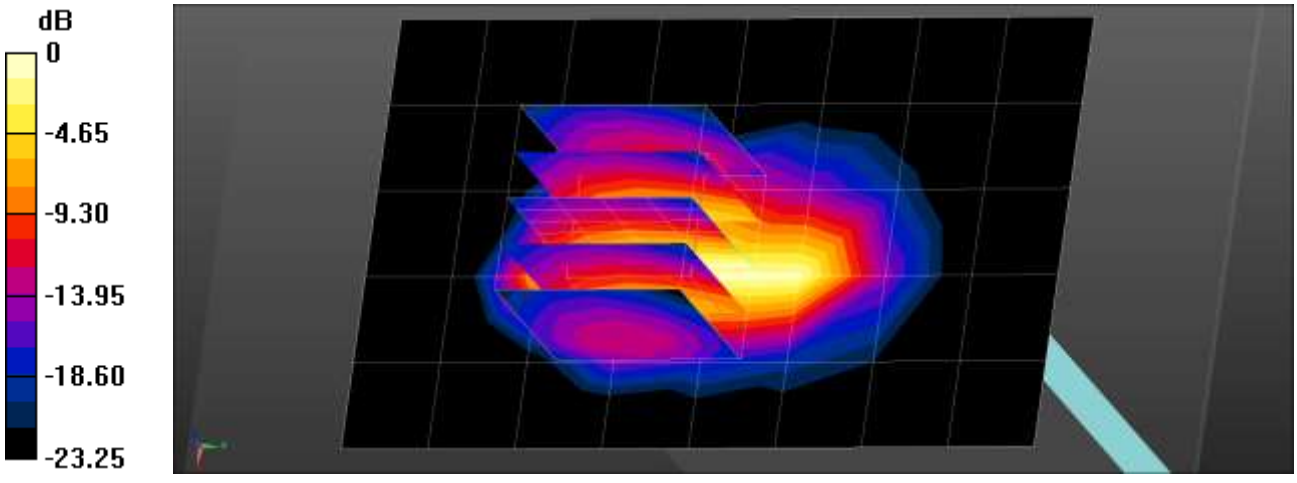
Communication System: UID 0, LTE Band 66 (0); Frequency: 1720 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1720 MHz; σ = 1.412 S/m; ε_r = 54.961; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

LTE 66 Body Bottom QPSK 20MHz 50RB 0offset 132072ch/Area Scan (9x6x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 7.05 W/kg

LTE 66 Body Bottom QPSK 20MHz 50RB 0offset 132072ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.36 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 10.4 W/kg
SAR(1 g) = 4.51 W/kg; SAR(10 g) = 2.03 W/kg
Maximum value of SAR (measured) = 8.42 W/kg



0 dB = 8.42 W/kg = 9.25 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.3 °C
Ambient Temperature:	20.5 °C
Test Date:	08/19/2019
Plot No.:	55

DUT: SM-A908B; Type: Bar

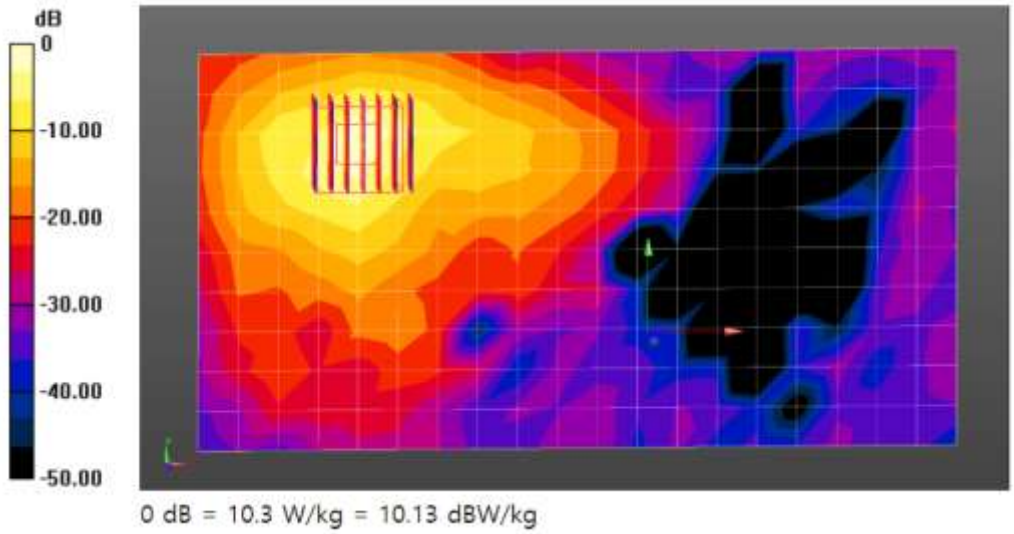
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.438 S/m; ε_r = 48.369; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.44, 4.44, 4.44); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11a Body Rear 6Mbps 64ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 16.0 W/kg

802.11a Body Rear 6Mbps 64ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 1.911 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 19.8 W/kg
SAR(1 g) = 3.72 W/kg; SAR(10 g) = 0.934 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 °C
Ambient Temperature:	20.2 °C
Test Date:	08/20/2019
Plot No.:	56

DUT: SM-A908B; Type: Bar

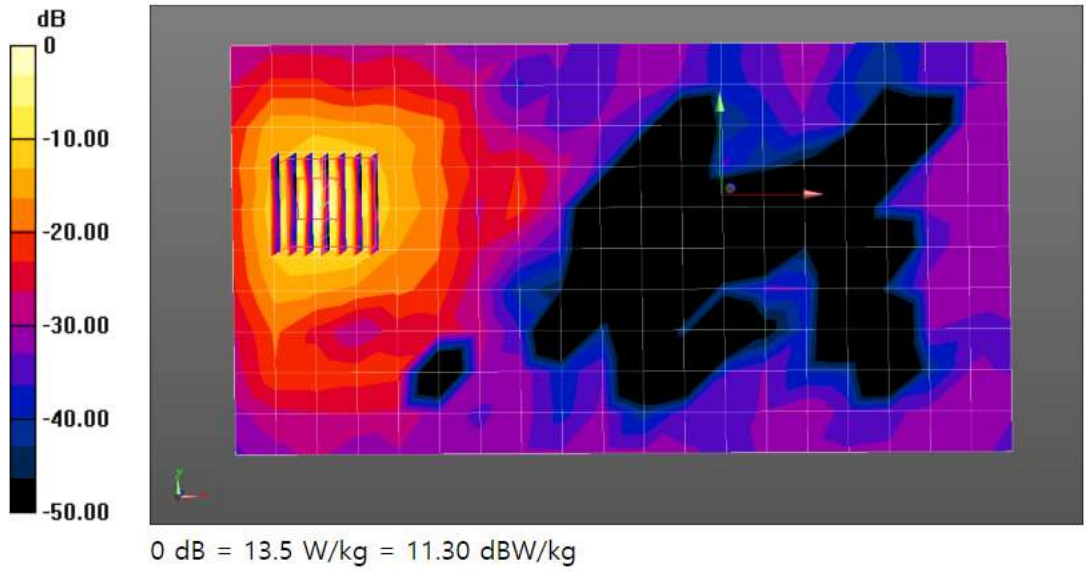
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5260 MHz; σ = 5.37 S/m; ε_r = 48.535; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.44, 4.44, 4.44); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11a Body Rear 6Mbps 52ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 14.4 W/kg

802.11a Body Rear 6Mbps 52ch/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 = 0.01 dB
Peak SAR (extrapolated) = 29.3 W/kg
SAR(1 g) = 4.71 W/kg; SAR(10 g) = 0.990 W/kg
Maximum value of SAR (measured) = 13.5 W/kg



0 dB = 13.5 W/kg = 11.30 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.2 °C
Ambient Temperature:	20.2 °C
Test Date:	08/20/2019
Plot No.:	57

DUT: SM-A908B; Type: Bar

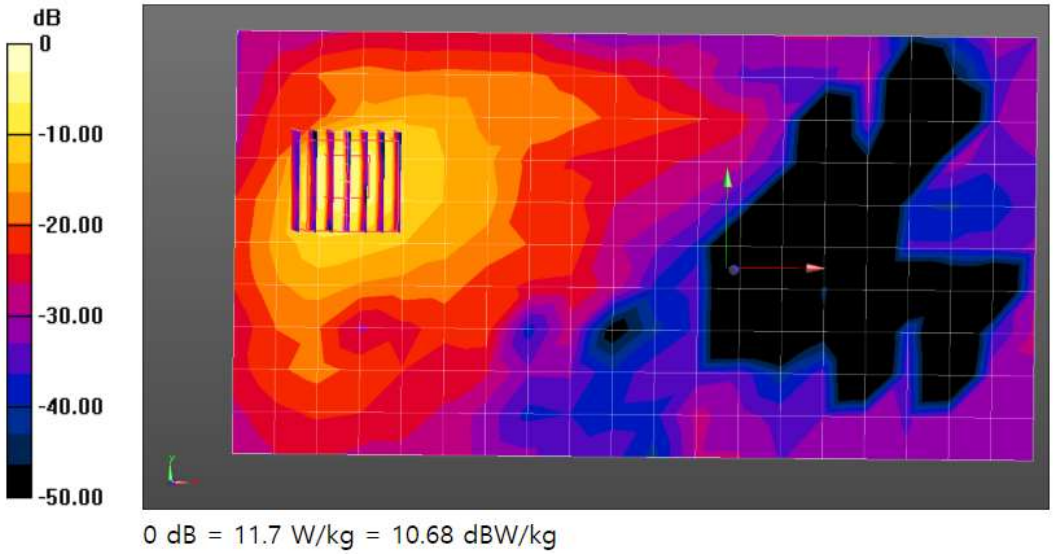
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.977 S/m; ε_r = 48.028; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(3.99, 3.99, 3.99); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11a Body Rear 6Mbps 120ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 3.90 W/kg

802.11a Body Rear 6Mbps 120ch/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 2.332 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 21.8 W/kg
SAR(1 g) = 3.61 W/kg; SAR(10 g) = 0.779 W/kg
Maximum value of SAR (measured) = 11.7 W/kg



0 dB = 11.7 W/kg = 10.68 dBW/kg

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	21.5 ℃
Ambient Temperature:	21.7 ℃
Test Date:	09/05/2019
Plot No.:	58

DUT: SM-A908B; Type: Bar

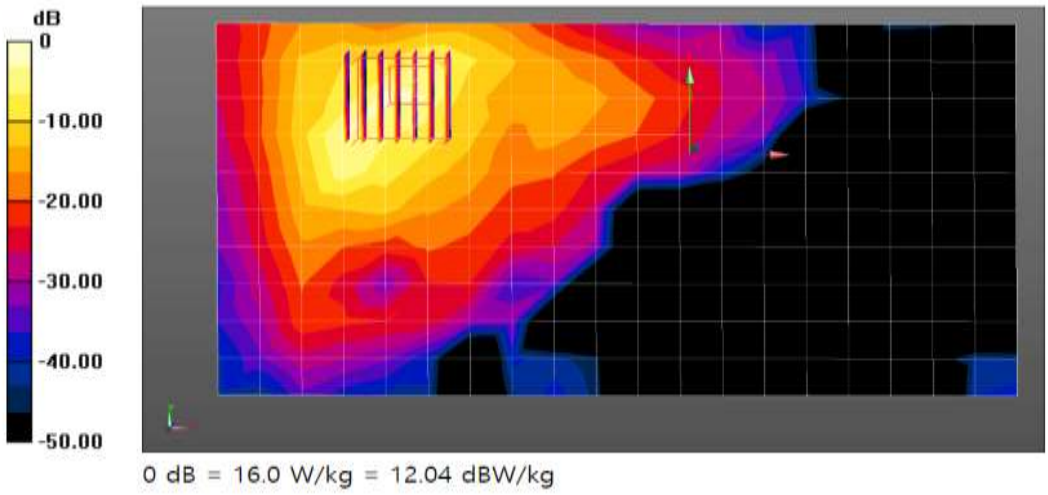
Communication System: UID 0, WIFI 5GHz (0); Frequency: 5320 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5320 MHz; σ = 5.498 S/m; ε_r = 47.318; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(4.98, 4.98, 4.98); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

802.11n20 Body Rear MCS8 64ch/Area Scan (20x11x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.41 W/kg

802.11n20 Body Rear MCS8 64ch/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) = 29.8 W/kg
SAR(1 g) = 4.91 W/kg; SAR(10 g) = 1.26 W/kg
Maximum value of SAR (measured) = 16.0 W/kg



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.1 ℃
Ambient Temperature:	20.2 ℃
Test Date:	08/021/2019
Plot No.:	59

DUT: SM-A908B; Type: Bar

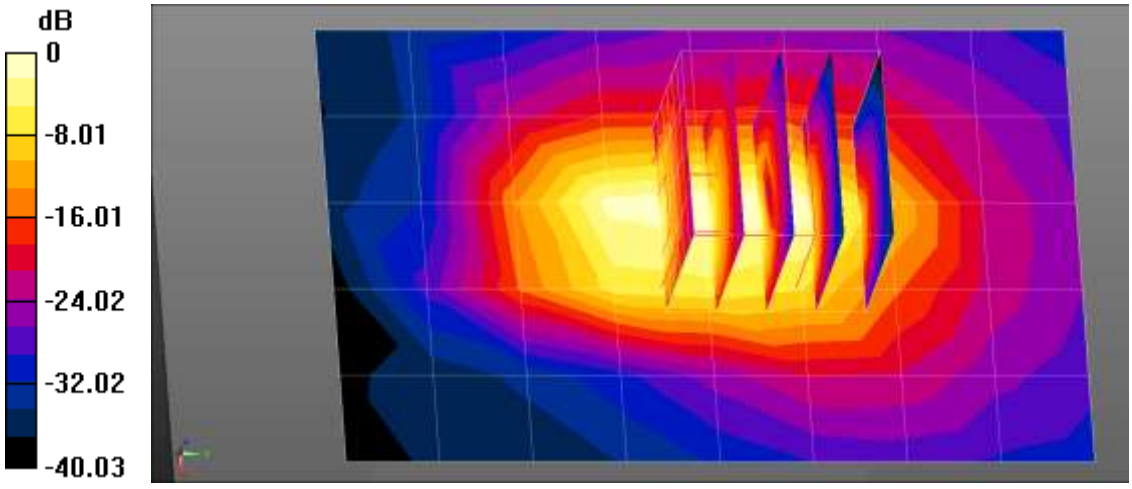
Communication System: UID 0, GSM 1900 4Tx (0); Frequency: 1880 MHz;Duty Cycle: 1:2.07491
Medium parameters used: f = 1880 MHz; σ = 1.517 S/m; ε_r = 53.554; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.52, 7.52, 7.52) @ 1880 MHz; Calibrated: 2018-11-22
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

GSM1900 Body Bottom 4Tx 661ch Grip 0mm/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.42 W/kg

GSM1900 Body Bottom 4Tx 661ch Grip 0mm/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.27 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 7.20 W/kg
SAR(1 g) = 2.67 W/kg; SAR(10 g) = 1.2 W/kg
Maximum value of SAR (measured) = 5.54 W/kg



0 dB = 3.42 W/kg = 5.34 dBW/kg

Attachment 2. – Dipole Verification Plots

■ Verification Data (750 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 ℃
Test Date:	08/20/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

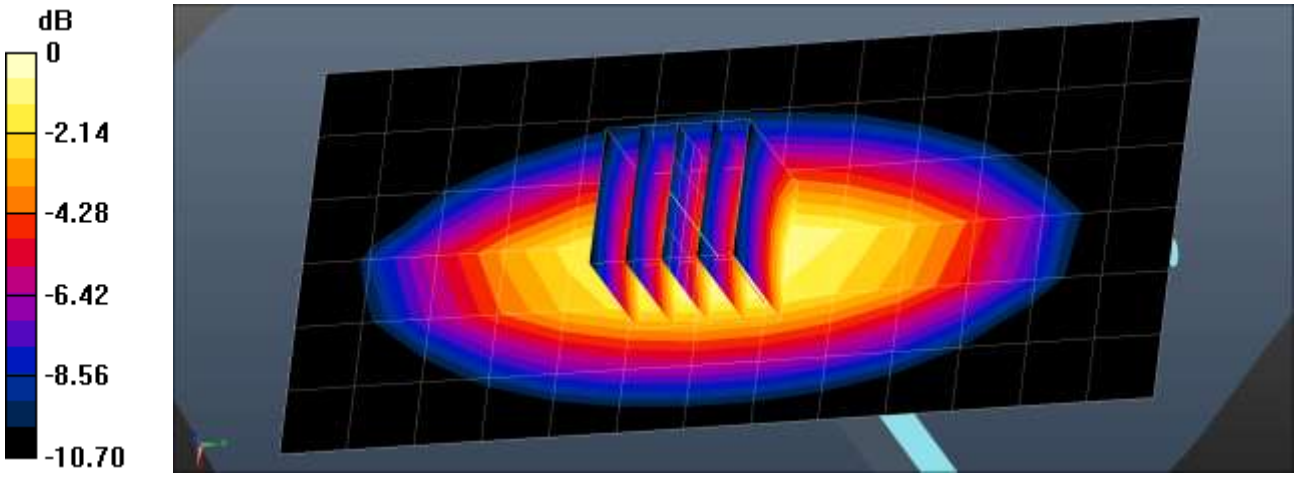
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.916 S/m; ε_r = 41.835; ρ = 1000 kg/m^3
Phantom section: Flat Section

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) = 0.515 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.91 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.418 W/kg; SAR(10 g) = 0.272 W/kg
Maximum value of SAR (measured) = 0.569 W/kg



0 dB = 0.569 W/kg = -2.45 dBW/kg

■ Verification Data (750 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 ℃
Test Date:	08/20/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

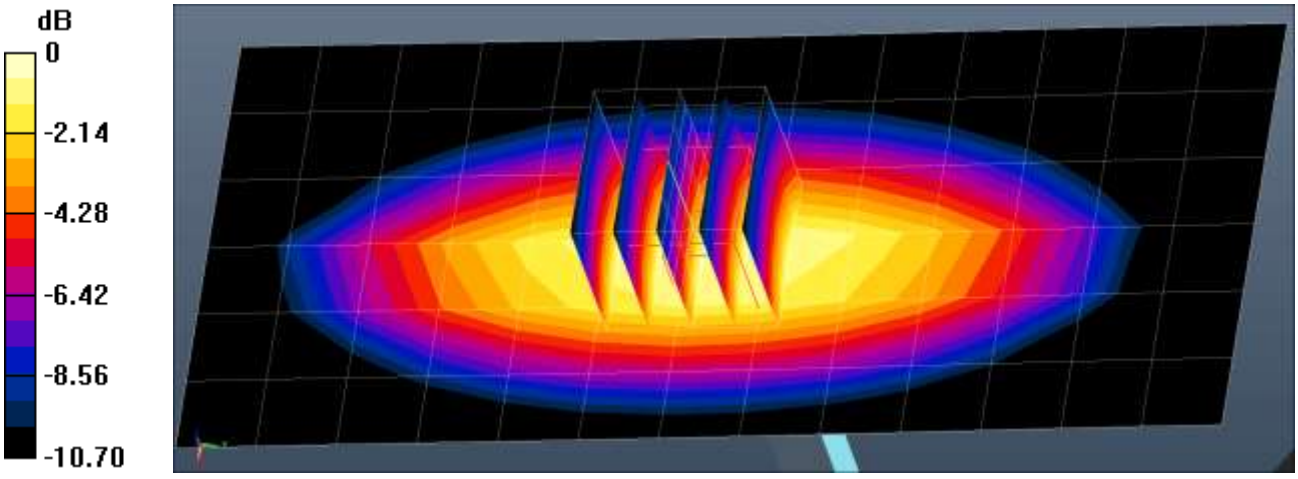
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.906 S/m; ε_r = 40.764; ρ = 1000 kg/m^3
Phantom section: Flat Section

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) = 0.508 W/kg

Dipole/750MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.89 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.643 W/kg
SAR(1 g) = 0.413 W/kg; SAR(10 g) = 0.269 W/kg
Maximum value of SAR (measured) = 0.563 W/kg



0 dB = 0.563 W/kg = -2.49 dBW/kg

■ Verification Data (835 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	08/22/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

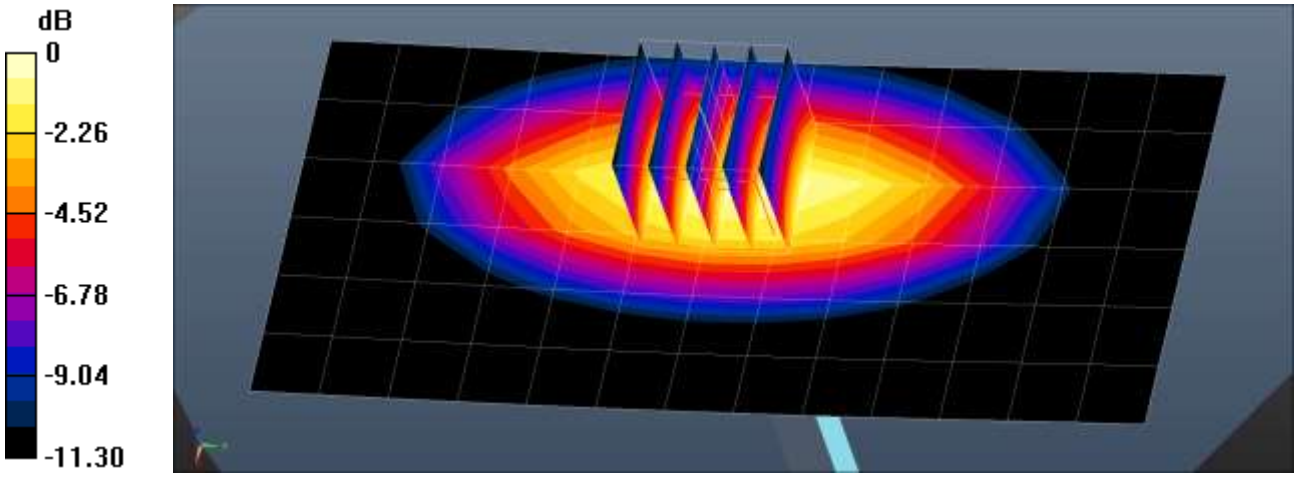
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.917 S/m; ε_r = 40.631; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(6.22, 6.22, 6.22); Calibrated: 2019-07-23;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: SAM_Right_20170913
- 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) = 0.568 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.55 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.771 W/kg
SAR(1 g) = 0.495 W/kg; SAR(10 g) = 0.313 W/kg
Maximum value of SAR (measured) = 0.590 W/kg



0 dB = 0.590 W/kg = -2.29 dBW/kg

■ Verification Data (835 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	08/19/2019

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 = 0.918 S/m; ε_r = 40.508; ρ = 1000 kg/m^3
Phantom section: Flat Section

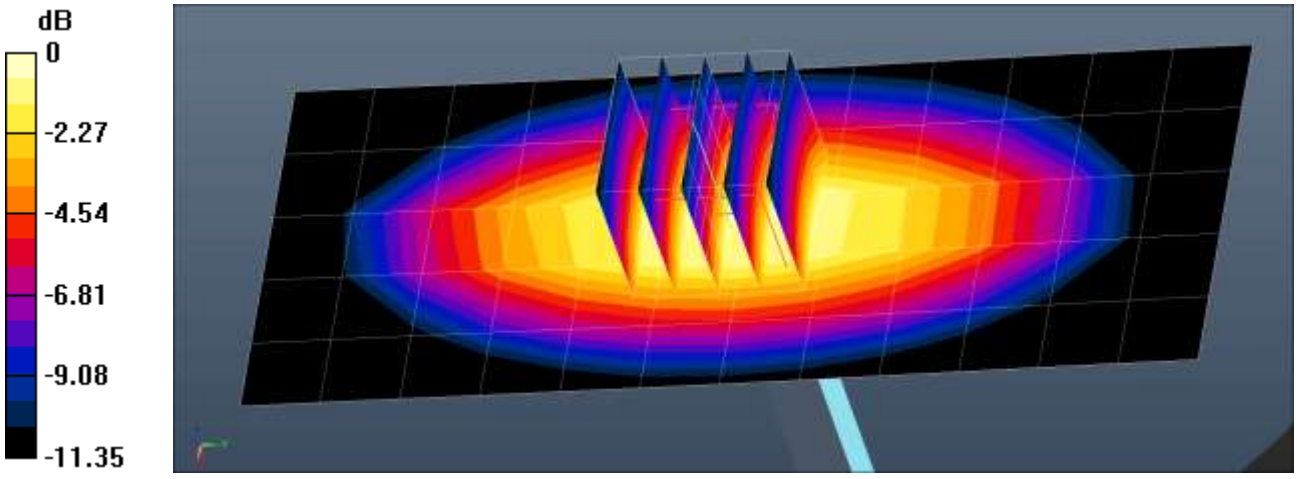
DASY Configuration:

- 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 (6x13x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.532 W/kg

Dipole/835MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 27.25 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.712 W/kg
SAR(1 g) = 0.455 W/kg; SAR(10 g) = 0.293 W/kg
Maximum value of SAR (measured) = 0.622 W/kg



0 dB = 0.622 W/kg = -2.06 dBW/kg

■ Verification Data (1 800 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.0 ℃
Test Date:	08/20/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

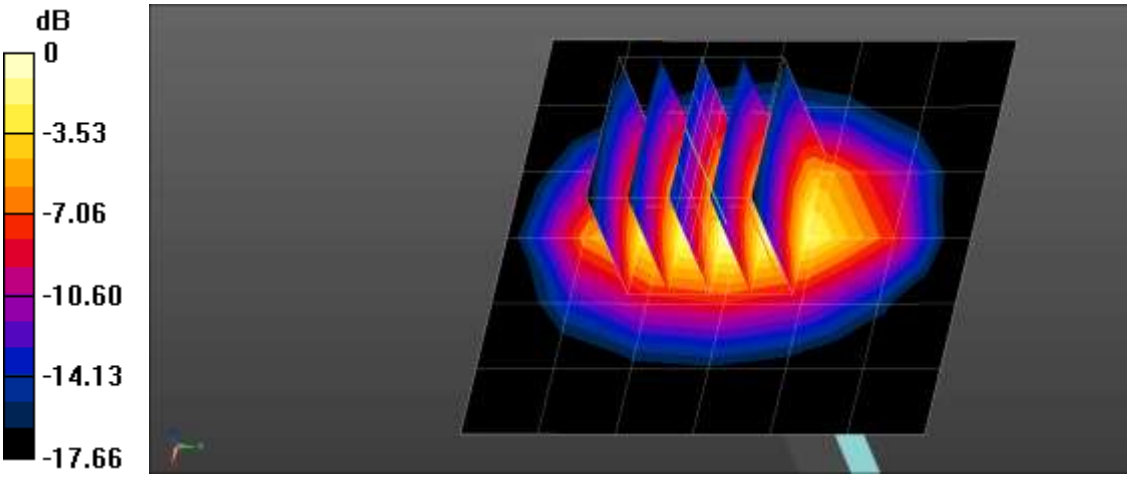
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.464 S/m; ε_r = 38.235; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.57, 8.57, 8.57); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1800MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.68 W/kg

Dipole/1800MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 44.41 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.54 W/kg
SAR(1 g) = 1.86 W/kg; SAR(10 g) = 0.973 W/kg
Maximum value of SAR (measured) = 2.93 W/kg



0 dB = 2.93 W/kg = 4.67 dBW/kg

■ Verification Data (1 900 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 ℃
Test Date:	08/19/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

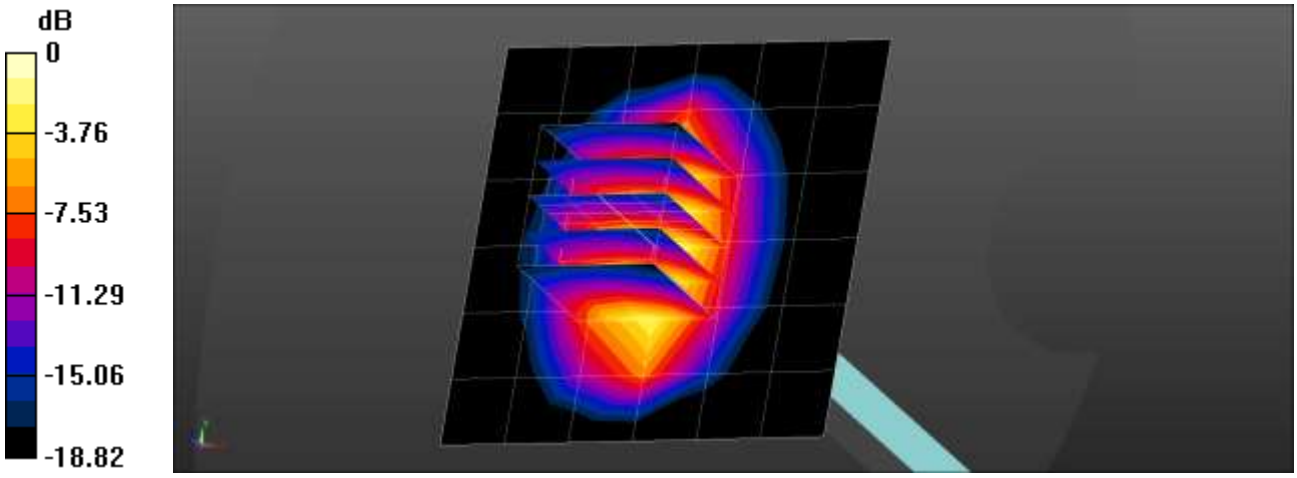
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.418 S/m; ε_r = 38.665; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: Twin-SAM V4.0 Right
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1900MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.11 W/kg

Dipole/1900MHz Head Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 49.26 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 3.98 W/kg
SAR(1 g) = 2.04 W/kg; SAR(10 g) = 1.03 W/kg
Maximum value of SAR (measured) = 3.29 W/kg



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

■ Verification Data (2 450 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	08/07/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

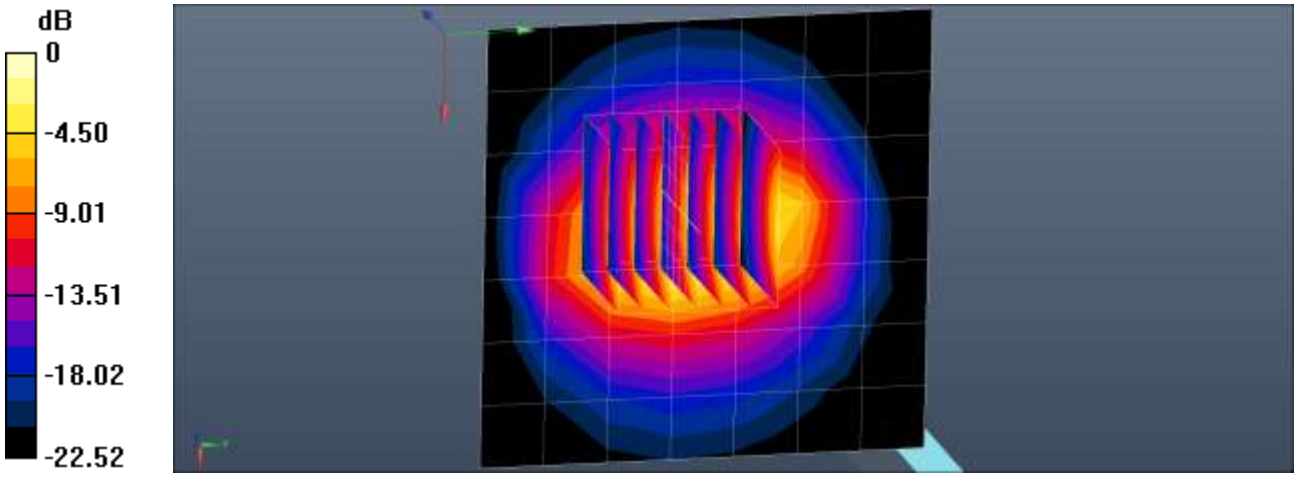
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.789 S/m; ε_r = 39.414; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.06, 7.06, 7.06); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2 450 MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.18 W/kg

Dipole/2 450 MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.80 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 5.66 W/kg
SAR(1 g) = 2.58 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 4.41 W/kg



0 dB = 4.41 W/kg = 6.44 dBW/kg

■ Verification Data (2 450 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	08/22/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

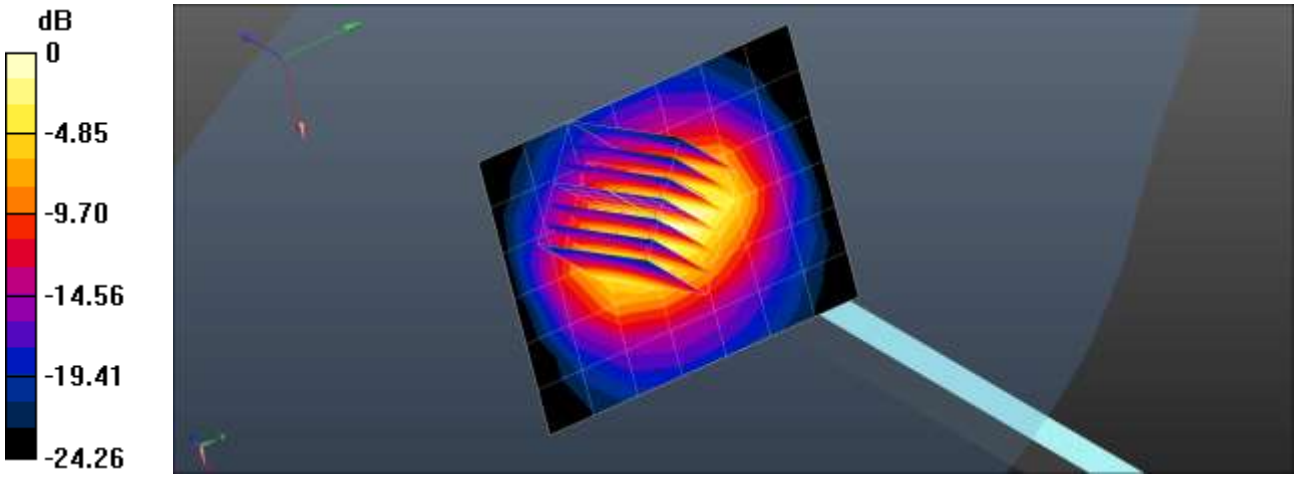
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.789 S/m; ε_r = 38.442; ρ = 1000 kg/m^3
Phantom section: Flat Section

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: SAM with CRP v5.0
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2450MHz Head Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.26 W/kg

Dipole/2450MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.07 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 5.70 W/kg
SAR(1 g) = 2.54 W/kg; SAR(10 g) = 1.16 W/kg
Maximum value of SAR (measured) = 4.33 W/kg



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

■ Verification Data (2 600 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.1 ℃
Test Date:	08/21/2019

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2

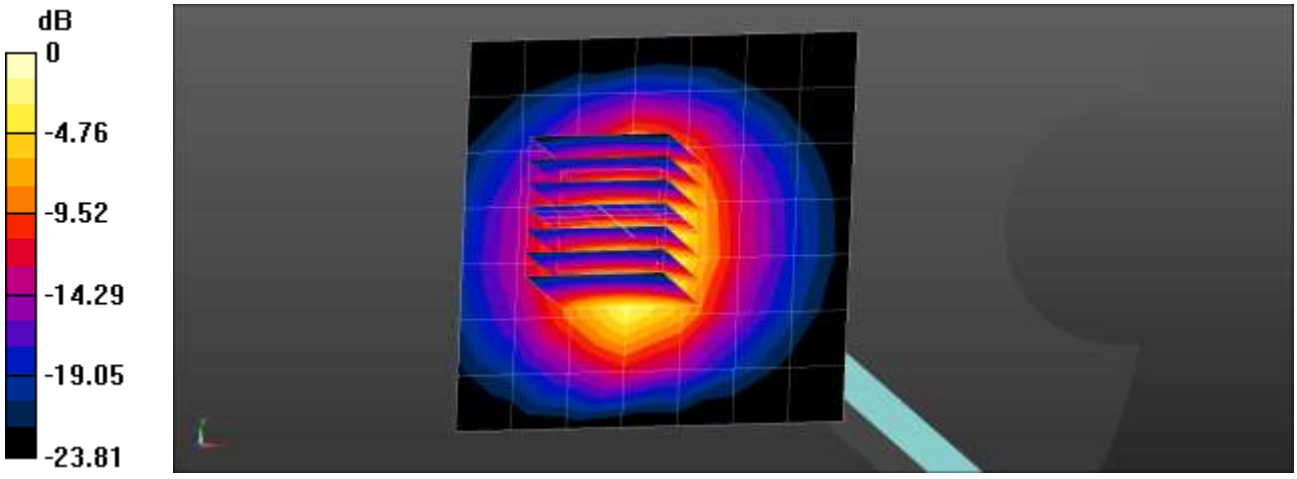
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.996 S/m; ε_r = 38.944; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: Twin-SAM V4.0(Left-Left)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2600MHz Head Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.75 W/kg

Dipole/2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.60 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 6.44 W/kg
SAR(1 g) = 2.89 W/kg; SAR(10 g) = 1.28 W/kg
Maximum value of SAR (measured) = 5.06 W/kg



0 dB = 5.06 W/kg = 7.04 dBW/kg

■ Verification Data (5 250 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	08/09/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

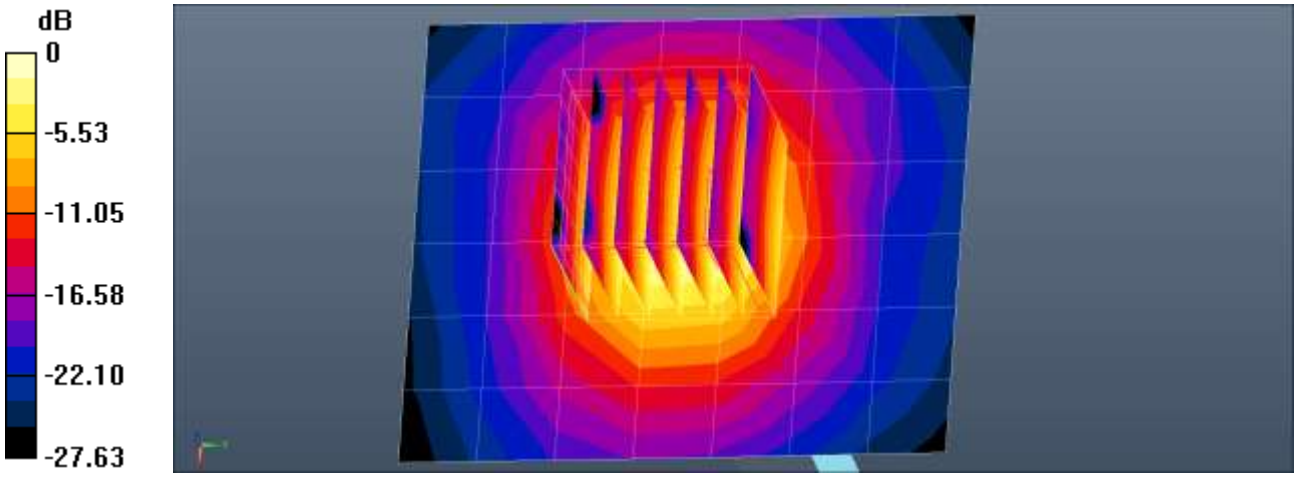
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 4.739 S/m; ε_r = 36.038; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(5.04, 5.04, 5.04); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: SAM with CRP v5.0_F
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5250MHz Head Verication/Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.38 W/kg

Dipole/5250MHz Head Verication/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 52.07 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 4.17 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 10.6 W/kg



0 dB = 8.38 W/kg = 9.23 dBW/kg

■ Verification Data (5 600 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	08/09/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

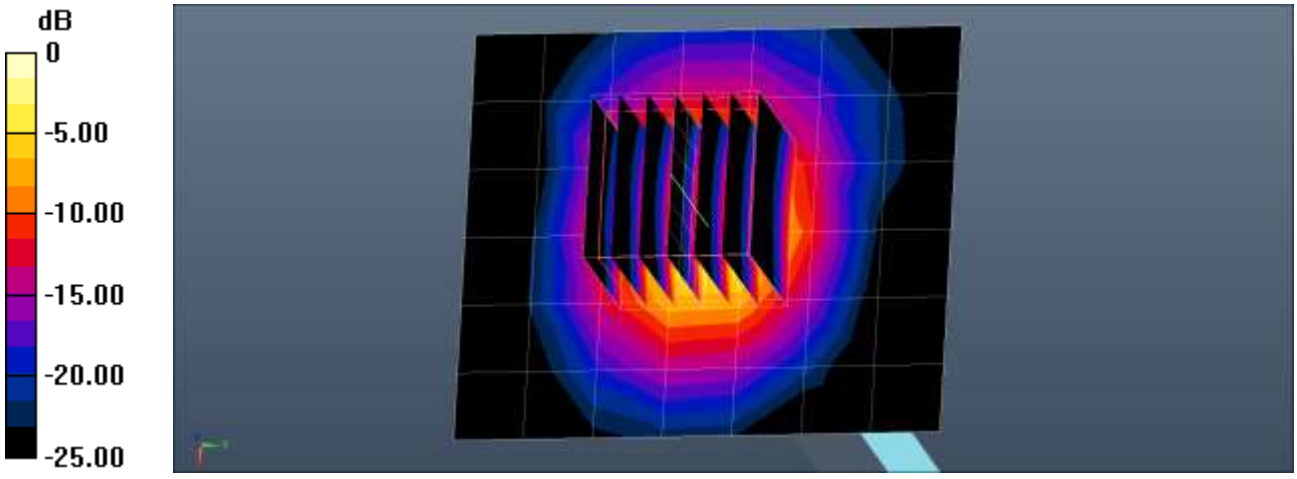
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.007 S/m; ε_r = 35.778; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.79, 4.79, 4.79); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: SAM with CRP v5.0_F
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5600MHz Head Verication/Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.20 W/kg

Dipole/5600MHz Head Verication/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 50.55 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 4.07 W/kg; SAR(10 g) = 1.13 W/kg
Maximum value of SAR (measured) = 10.6 W/kg



0 dB = 10.6 W/kg = 10.25 dBW/kg

■ Verification Data (5 750 ㎒ Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	08/09/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

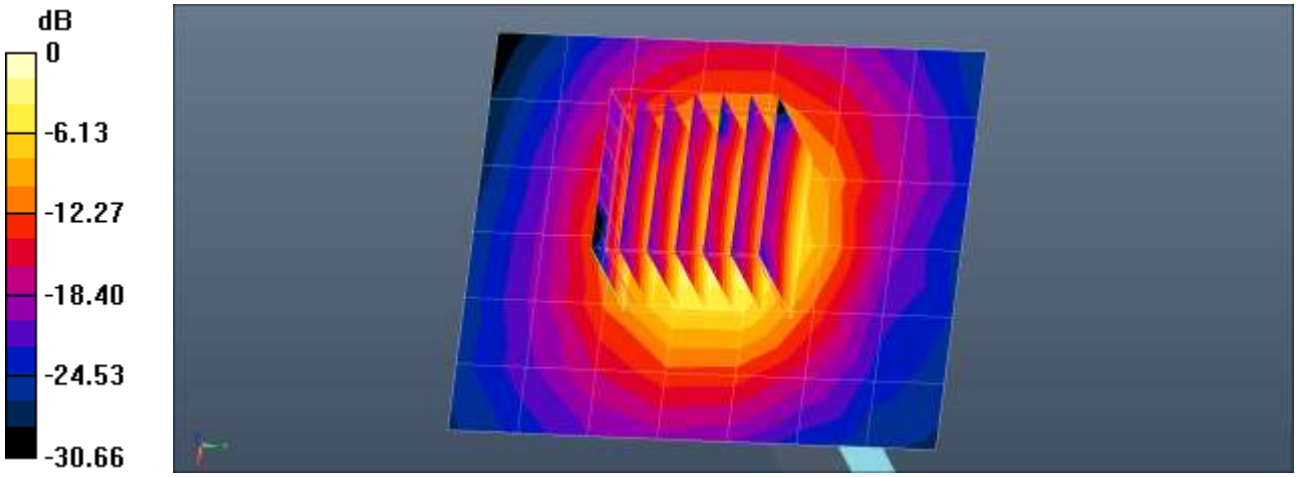
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 5.248 S/m; ε_r = 35.664; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.97, 4.97, 4.97); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- Phantom: SAM with CRP v5.0_F
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5750MHz Head Verication/Area Scan (7x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.33 W/kg

Dipole/5750MHz Head Verication/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm; Graded Ratio:1.4
Reference Value = 49.87 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 19.7 W/kg
SAR(1 g) = 4.09 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.9 W/kg



0 dB = 8.33 W/kg = 9.21 dBW/kg

■ Verification Data (750 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.4 ℃
Test Date:	08/21/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

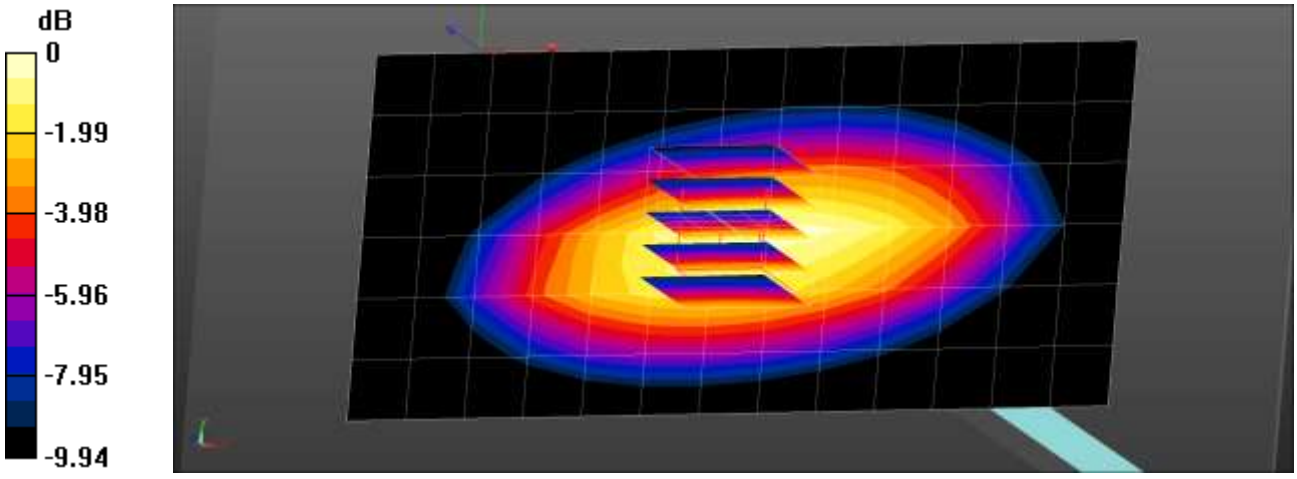
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.98 S/m; ε_r = 55.308; ρ = 1000 kg/m^3
Phantom section: Center Section

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) = 0.533 W/kg

Dipole/750MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.24 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.424 W/kg; SAR(10 g) = 0.284 W/kg
Maximum value of SAR (measured) = 0.557 W/kg



0 dB = 0.557 W/kg = -2.54 dBW/kg

■ Verification Data (750 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.3 ℃
Test Date:	08/19/2019

DUT: Dipole 750 MHz D750V3; Type: D750V3

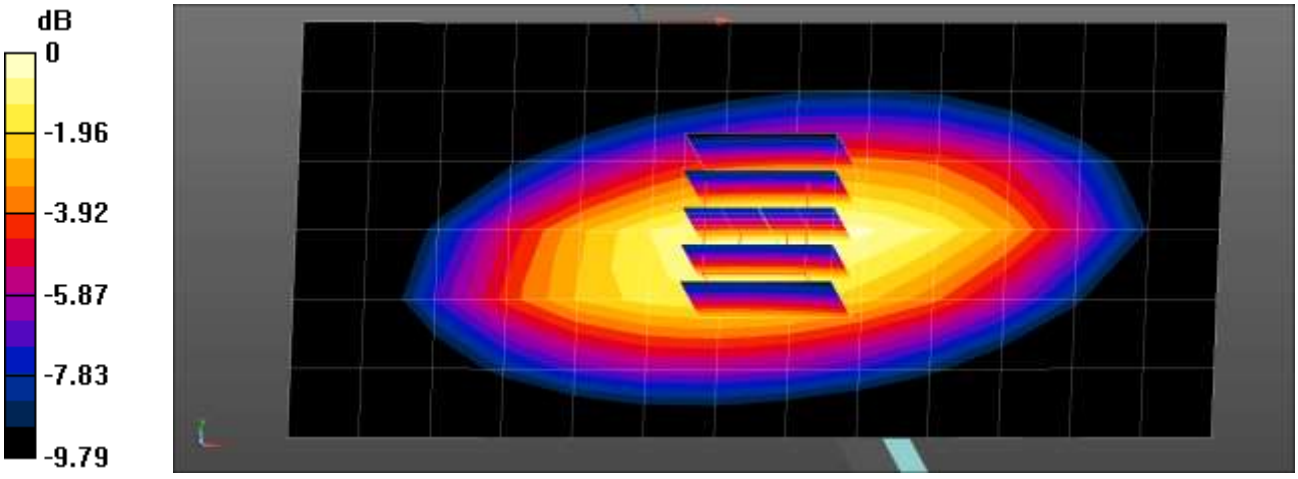
Communication System: UID 0, CW (0); Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.959 S/m; ε_r = 55.307; ρ = 1000 kg/m^3
Phantom section: Center Section

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) = 0.525 W/kg

Dipole/750MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.18 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.605 W/kg
SAR(1 g) = 0.414 W/kg; SAR(10 g) = 0.278 W/kg
Maximum value of SAR (measured) = 0.540 W/kg



0 dB = 0.540 W/kg = -2.68 dBW/kg

■ Verification Data (835 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	08/22/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

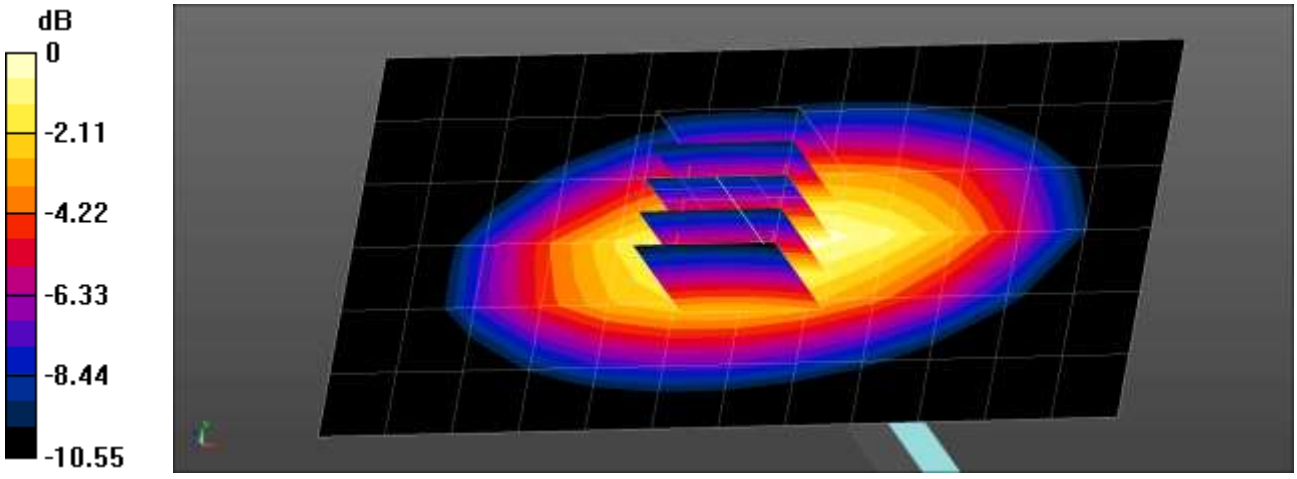
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.961 S/m; ε_r = 56.3; ρ = 1000 kg/m^3
Phantom section: Center Section

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 (13x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.588 W/kg

Dipole/835MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 26.07 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.672 W/kg
SAR(1 g) = 0.450 W/kg; SAR(10 g) = 0.296 W/kg
Maximum value of SAR (measured) = 0.599 W/kg



0 dB = 0.599 W/kg = -2.23 dBW/kg

■ Verification Data (835 MHz Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.7 ℃
Test Date:	08/22/2019

DUT: Dipole 835 MHz D835V2; Type: D835V2

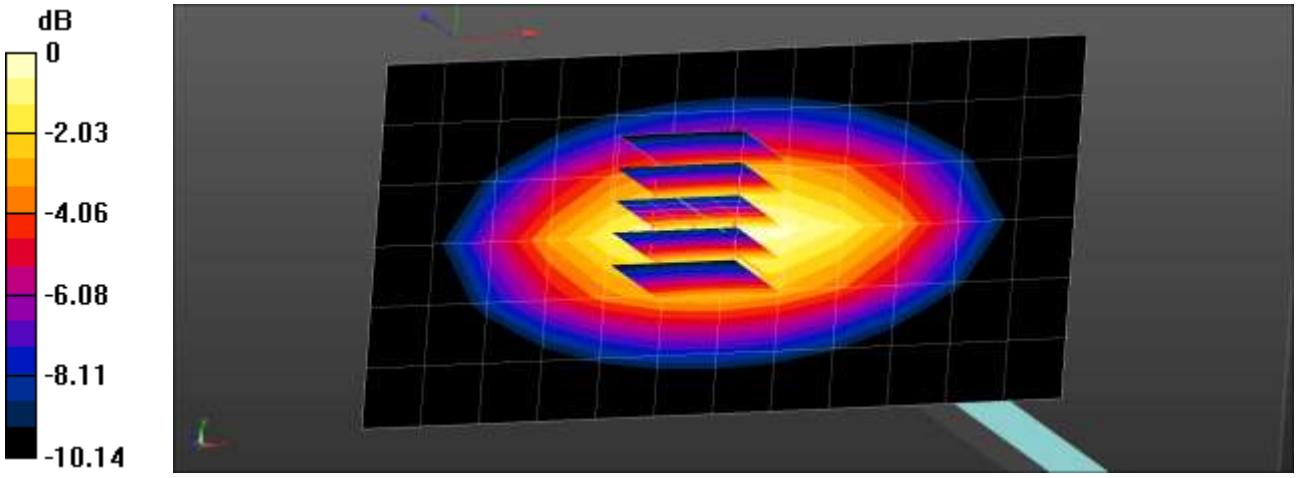
Communication System: UID 0, CW (0); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.962 S/m; ε_r = 56.243; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(5.97, 5.97, 5.97); Calibrated: 2019-07-23;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/835MHz Body Verification/Area Scan (13x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.528 W/kg

Dipole/835MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.23 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.453 W/kg; SAR(10 g) = 0.299 W/kg



0 dB = 0.528 W/kg = -2.77 dBW/kg

■ Verification Data (1 800 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.8 ℃
Test Date:	08/22/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

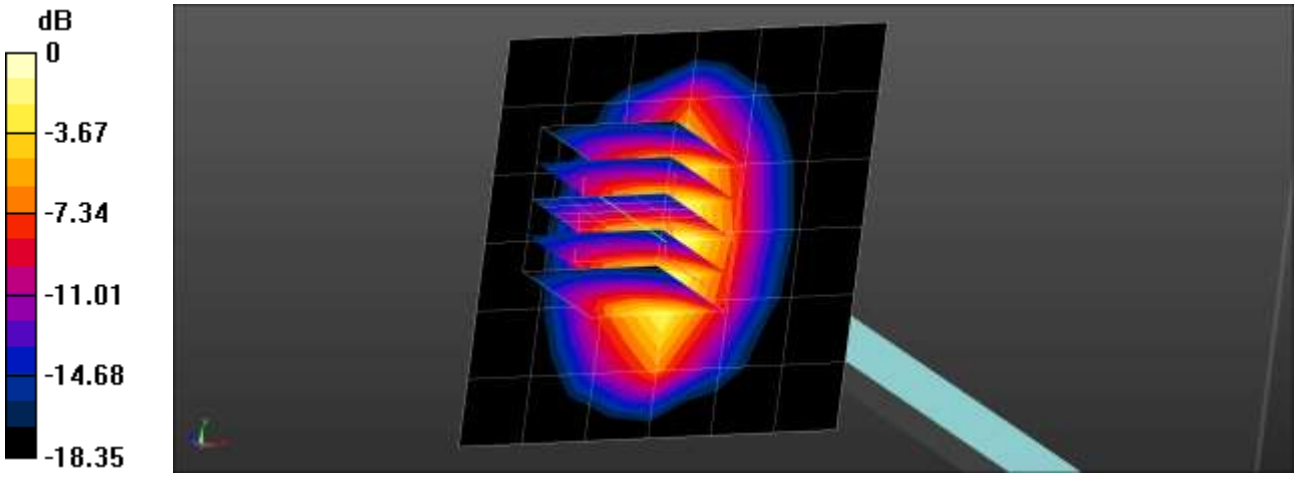
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.486 S/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(8.19, 8.19, 8.19); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1800MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.14 W/kg

Dipole/1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.98 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 3.83 W/kg
SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1.01 W/kg
Maximum value of SAR (measured) = 3.20 W/kg



0 dB = 3.20 W/kg = 5.05 dBW/kg

■ Verification Data (1 800 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	08/22/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

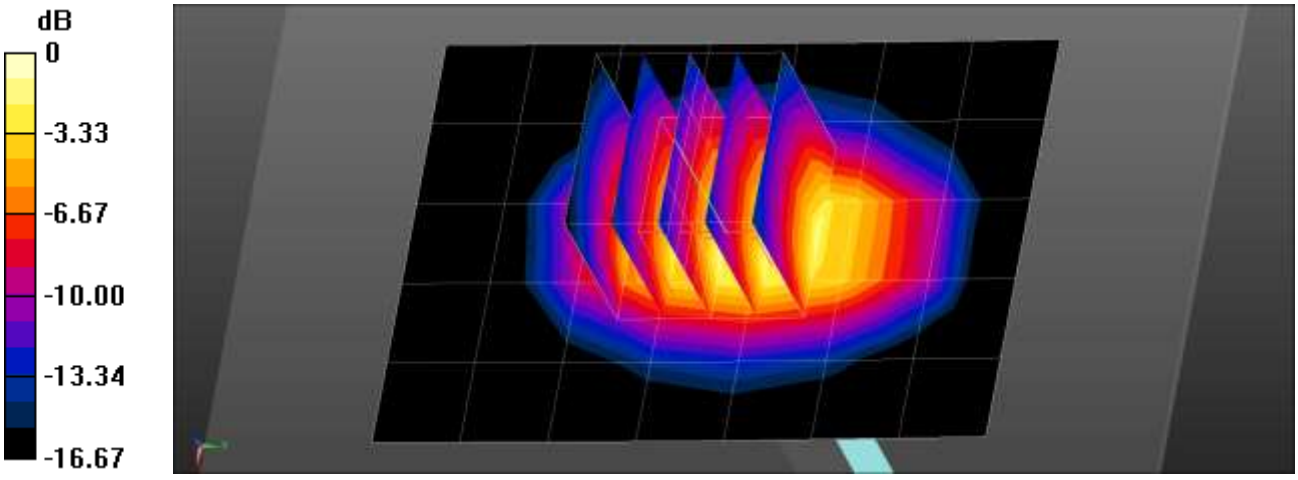
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.48 S/m; ε_r = 52.341; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1800MHz Body Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.89 W/kg

Dipole/1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 43.85 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 3.29 W/kg
SAR(1 g) = 1.87 W/kg; SAR(10 g) = 1.01 W/kg
Maximum value of SAR (measured) = 2.74 W/kg



0 dB = 2.74 W/kg = 4.38 dBW/kg

■ Verification Data (1 800 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.7 ℃
Test Date:	08/22/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

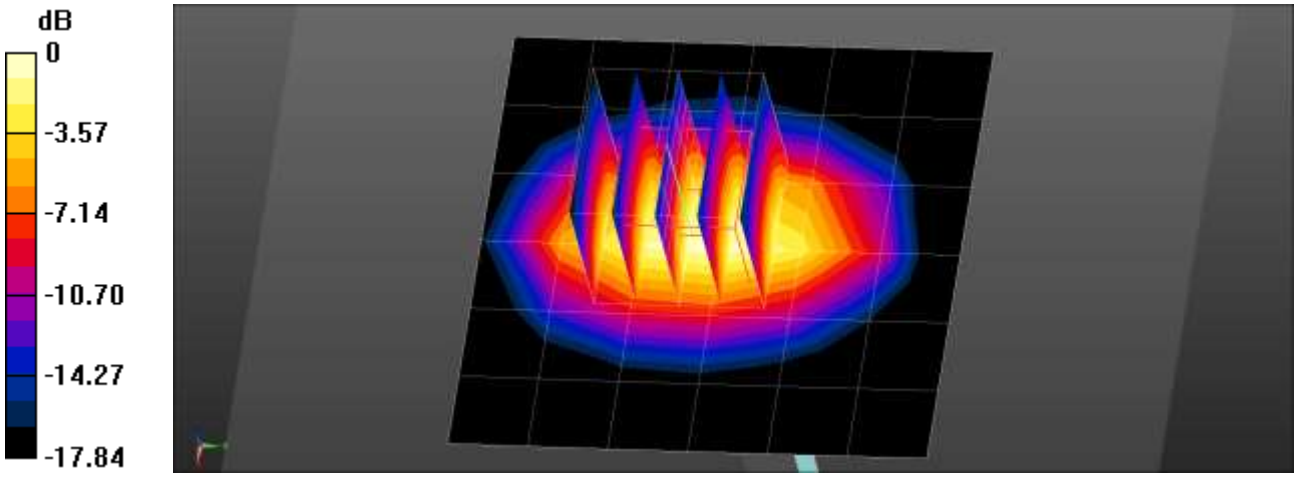
Communication System: UID 0, CW (0); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.498 S/m; ε_r = 52.334; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.89, 4.89, 4.89); Calibrated: 2019-07-23;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1800MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.37 W/kg

Dipole/1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.29 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 3.66 W/kg
SAR(1 g) = 2.03 W/kg; SAR(10 g) = 1.06 W/kg
Maximum value of SAR (measured) = 2.57 W/kg



0 dB = 2.57 W/kg = 4.10 dBW/kg

■ Verification Data (1 800 ㎒ Body)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 20.2 ℃
Test Date: 09/05/2019

DUT: Dipole 1800 MHz D1800V2; Type: D1800V2

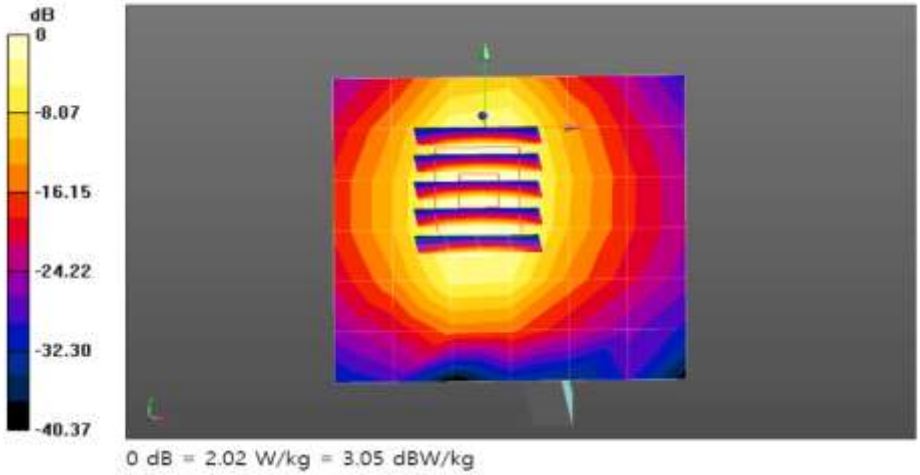
Communication System: UID 0, CW
Frequency: 1800 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.533 S/m; εr = 53.283; ρ = 1000 kg/m3
Phantom section: Center Section

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: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2)

Dipole/1800MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.02 W/kg

Dipole/1800MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.51 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 3.87 W/kg
SAR(1 g) = 2 W/kg; SAR(10 g) = 1.02 W/kg
Maximum value of SAR (measured) = 3.21 W/kg



■ Verification Data (1 900 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.1 ℃
Test Date:	08/21/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

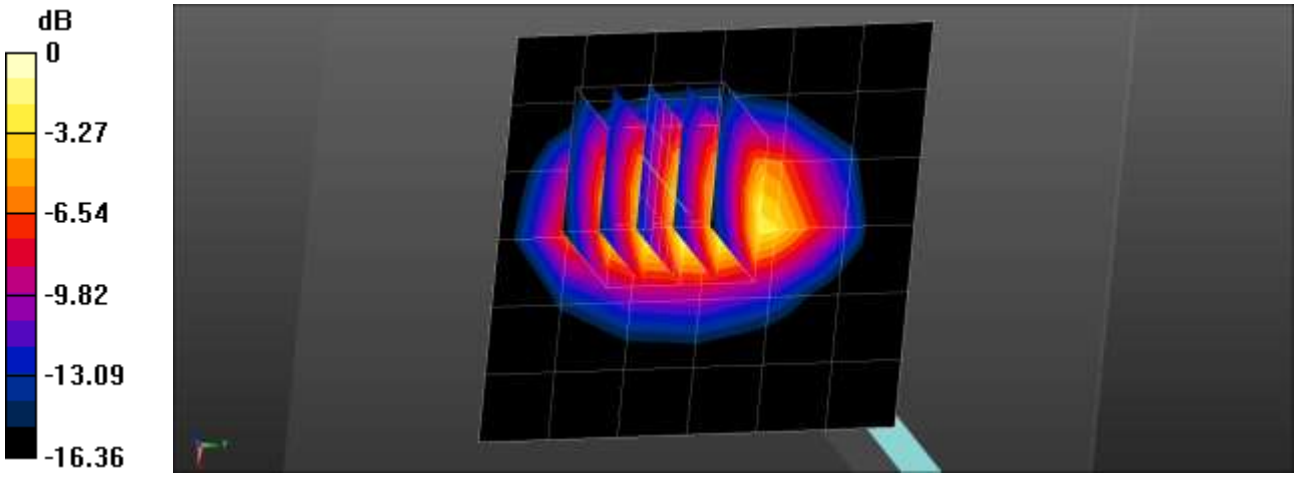
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.528 S/m; ε_r = 53.473; ρ = 1000 kg/m^3
Phantom section: Center Section

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 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1900MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.39 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.48 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 1.03 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 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	08/22/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

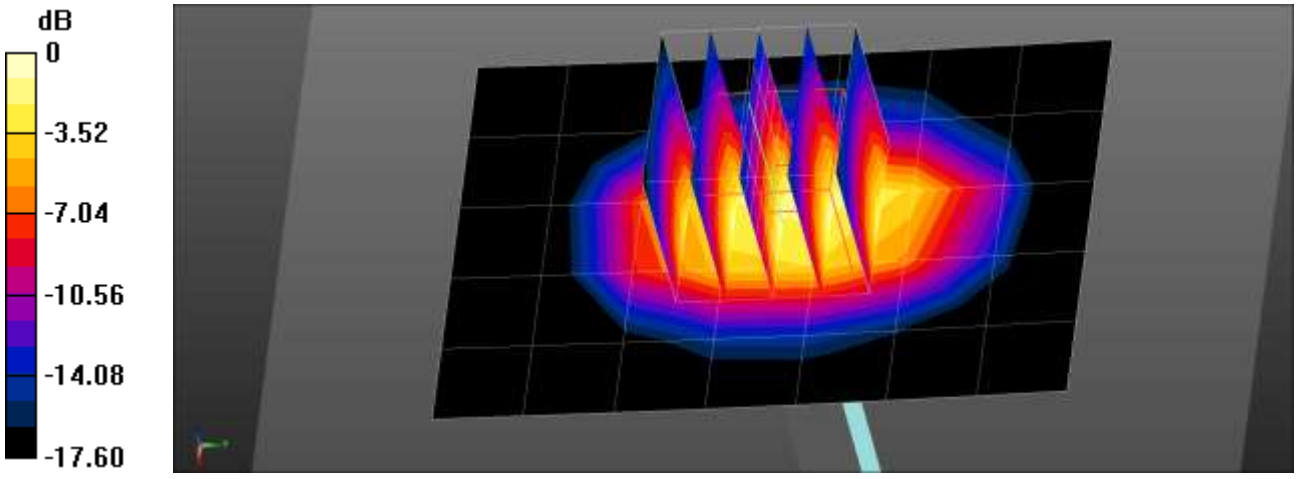
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.515 S/m; ε_r = 53.552; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/1900MHz Body Verification/Area Scan (6x8x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.31 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 46.94 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.76 W/kg
SAR(1 g) = 2.01 W/kg; SAR(10 g) = 1.04 W/kg
Maximum value of SAR (measured) = 3.14 W/kg



0 dB = 3.14 W/kg = 4.97 dBW/kg

■ Verification Data (1 900 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.4 ℃
Test Date:	08/21/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

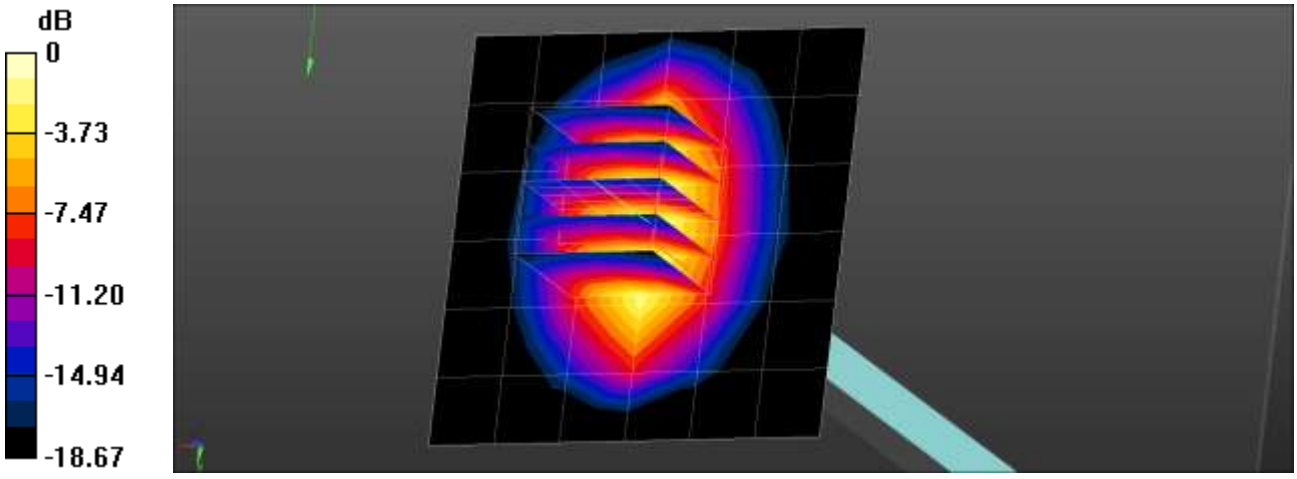
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.537 S/m; ε_r = 52.54; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3968; ConvF(7.76, 7.76, 7.76); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1417; Calibrated: 2019-01-25
- Phantom: MFP_V5.1C (20deg probe tilt)
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/1900MHz Body Verification/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 3.14 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 47.25 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 3.75 W/kg
SAR(1 g) = 1.98 W/kg; SAR(10 g) = 1 W/kg
Maximum value of SAR (measured) = 3.15 W/kg



0 dB = 3.15 W/kg = 4.98 dBW/kg

■ Verification Data (1 900 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.6 ℃
Test Date:	08/22/2019

DUT: Dipole 1900 MHz D1900V2; Type: D1900V2

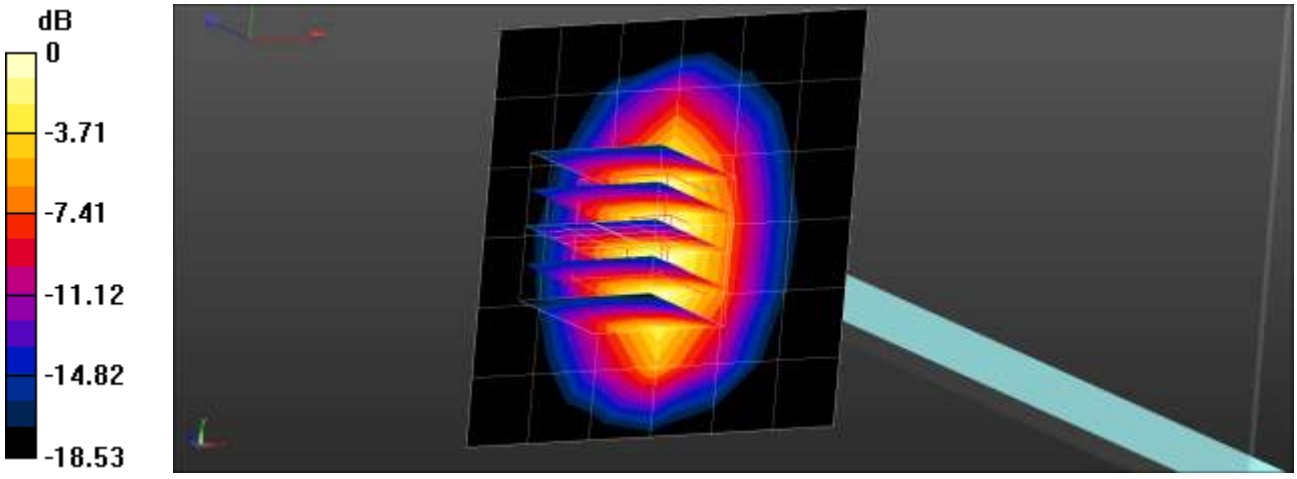
Communication System: UID 0, CW (0); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.526 S/m; ε_r = 53.545; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: ES3DV3 - SN3076; ConvF(4.72, 4.72, 4.72); Calibrated: 2019-07-23;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn652; Calibrated: 2019-04-17
- Phantom: MFP_V5.1C (20deg probe tilt)
- 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) = 2.42 W/kg

Dipole/1900MHz Body Verification/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 41.60 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.56 W/kg
SAR(1 g) = 1.92 W/kg; SAR(10 g) = 0.977 W/kg
Maximum value of SAR (measured) = 2.46 W/kg



0 dB = 2.46 W/kg = 3.91 dBW/kg

■ Verification Data (2 450 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	21.2 ℃
Test Date:	08/08/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

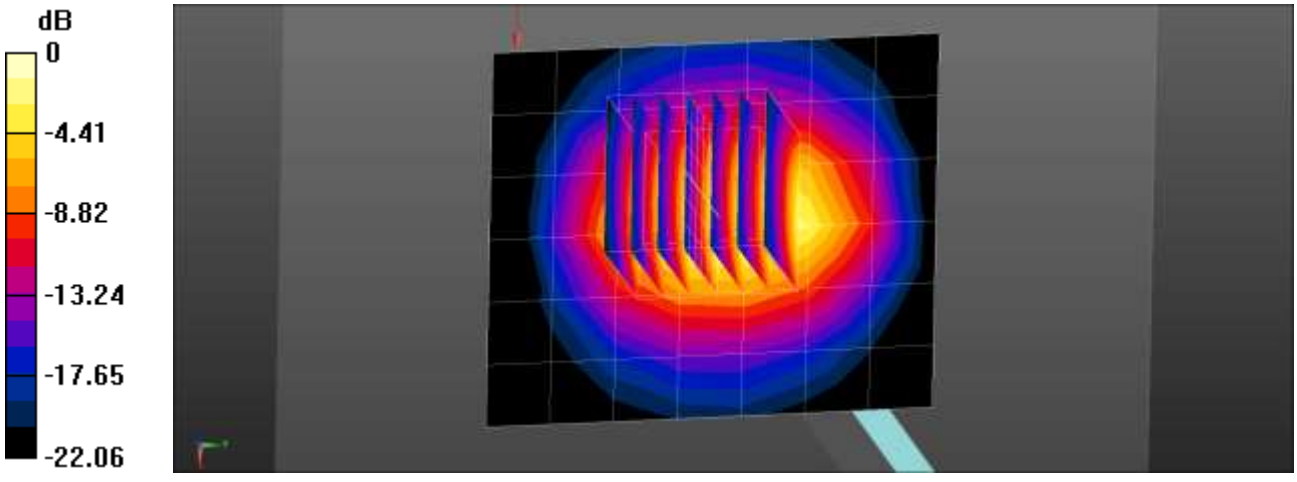
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.945 S/m; ε_r = 52.657; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2450MHz Body Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.91 W/kg

Dipole/2450MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 46.72 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 5.25 W/kg
SAR(1 g) = 2.49 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 4.18 W/kg



0 dB = 4.18 W/kg = 6.21 dBW/kg

■ Verification Data (2 450 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.7 ℃
Test Date:	08/212/2019

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2

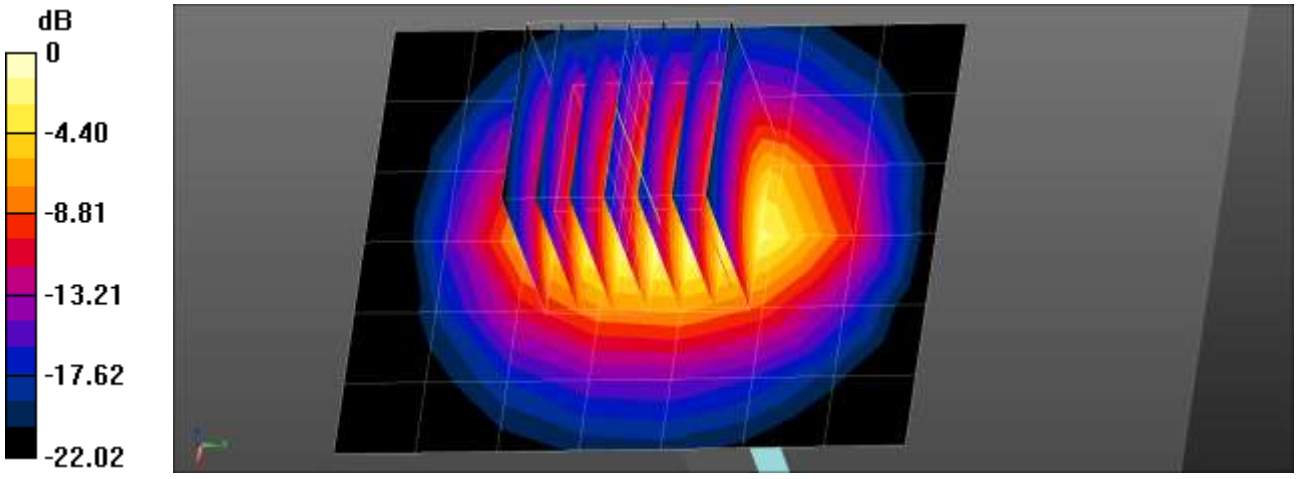
Communication System: UID 0, CW (0); Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.941 S/m; ε_r = 53.686; ρ = 1000 kg/m^3
Phantom section: Center Section

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: Triple Flat Phantom 5.1C
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/2450MHz Body Verification/Area Scan (7x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 3.97 W/kg

Dipole/2450MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 47.16 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 5.40 W/kg
SAR(1 g) = 2.53 W/kg; SAR(10 g) = 1.17 W/kg
Maximum value of SAR (measured) = 4.28 W/kg



0 dB = 4.28 W/kg = 6.31 dBW/kg

■ Verification Data (2 600 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	19.7 ℃
Test Date:	08/22/2019

DUT: Dipole 2600 MHz D2600V2; Type: D2600V2

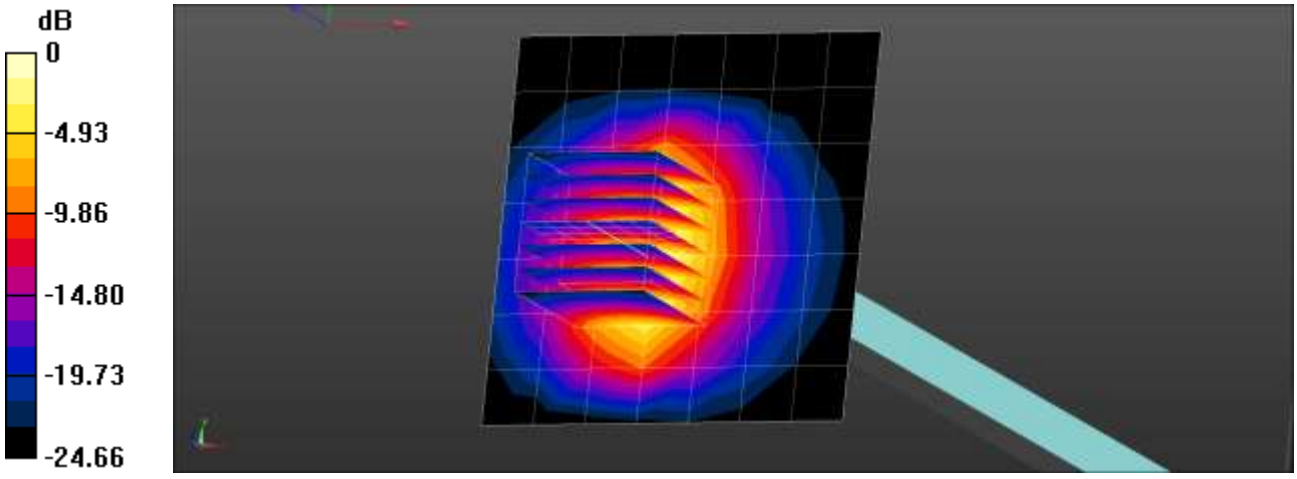
Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 2.13 S/m; ε_r = 51.194; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3797; ConvF(7.05, 7.05, 7.05); Calibrated: 2018-11-22;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1225; Calibrated: 2018-11-16
- Phantom: MFP_V5.1C_20171020
- Measurement SW: DASY52, Version 52.10 (2);

Dipole/2600MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 5.08 W/kg

Dipole/2600MHz Body Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 39.06 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 6.58 W/kg
SAR(1 g) = 2.83 W/kg; SAR(10 g) = 1.21 W/kg
Maximum value of SAR (measured) = 5.09 W/kg



0 dB = 5.09 W/kg = 7.07 dBW/kg

■ Verification Data (5 250 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	08/19/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

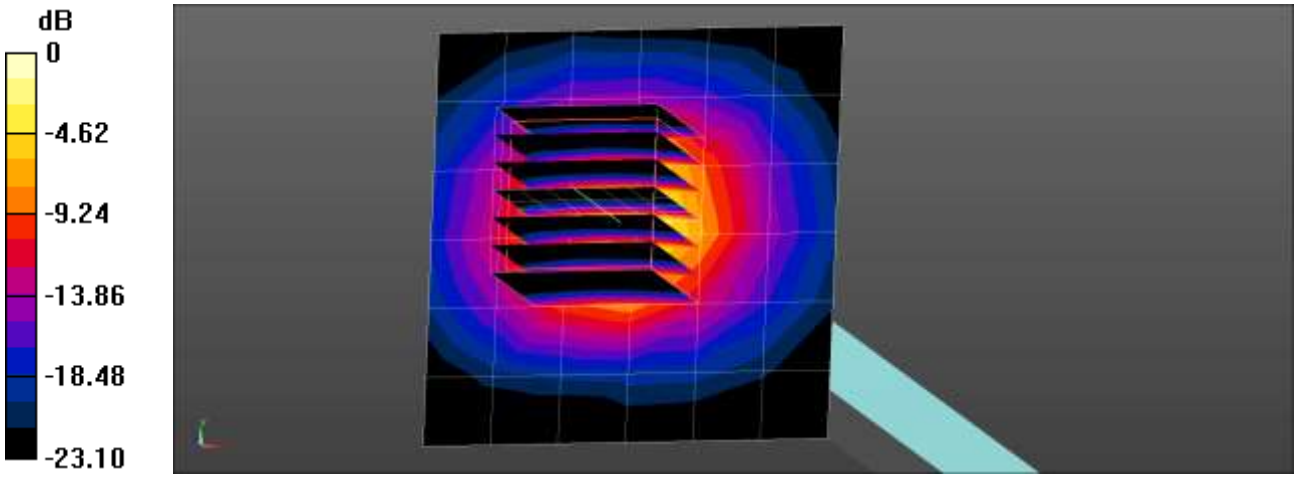
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 5.369 S/m; ε_r = 48.619; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.44, 4.44, 4.44); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 9.39 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 = 47.65 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 4.14 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 10.7 W/kg = 10.29 dBW/kg

■ Verification Data (5 250 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.2 ℃
Test Date:	08/20/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

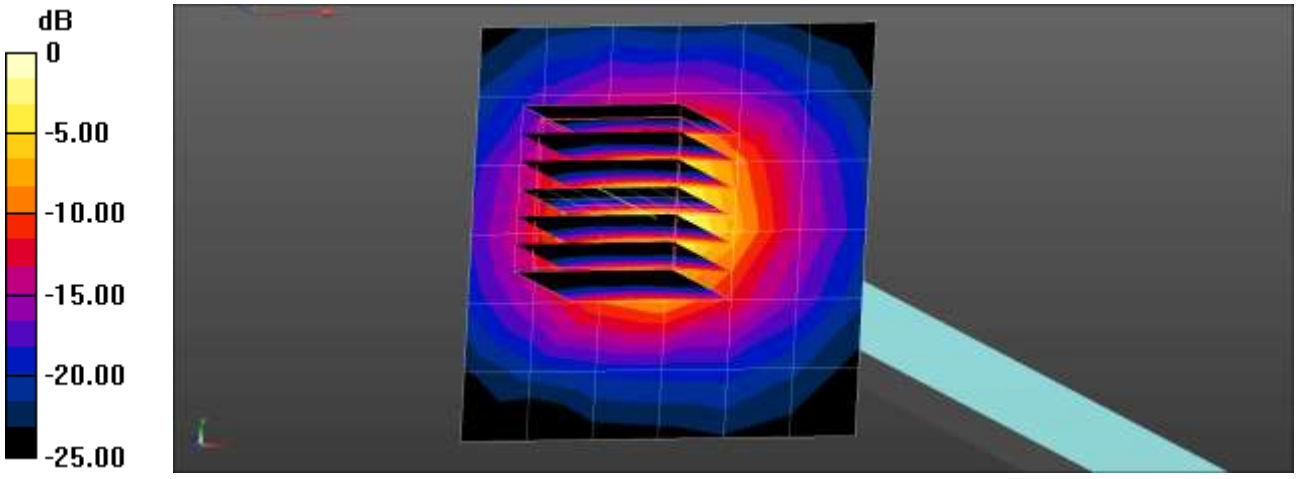
Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 5.394 S/m; ε_r = 48.66; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.44, 4.44, 4.44); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 9.37 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 = 48.11 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 17.9 W/kg
SAR(1 g) = 4.15 W/kg; SAR(10 g) = 1.15 W/kg
Maximum value of SAR (measured) = 10.8 W/kg



0 dB = 10.8 W/kg = 10.33 dBW/kg

■ Verification Data (5 600 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	08/19/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

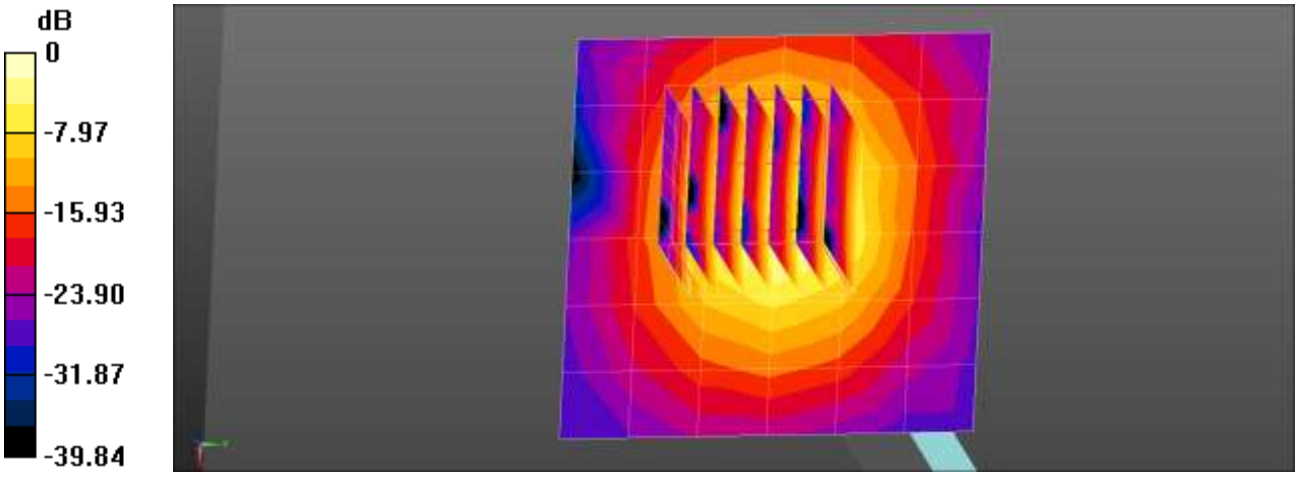
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.874 S/m; ε_r = 48.021; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(3.99, 3.99, 3.99); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 8.78 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 V; Graded Ratio:1.4alue = 44.58 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 18.5 W/kg
SAR(1 g) = 4 W/kg; SAR(10 g) = 1.12 W/kg
Maximum value of SAR (measured) = 10.5 W/kg



0 dB = 8.78 W/kg = 9.44 dBW/kg

■ Verification Data (5 600 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.2 ℃
Test Date:	08/20/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

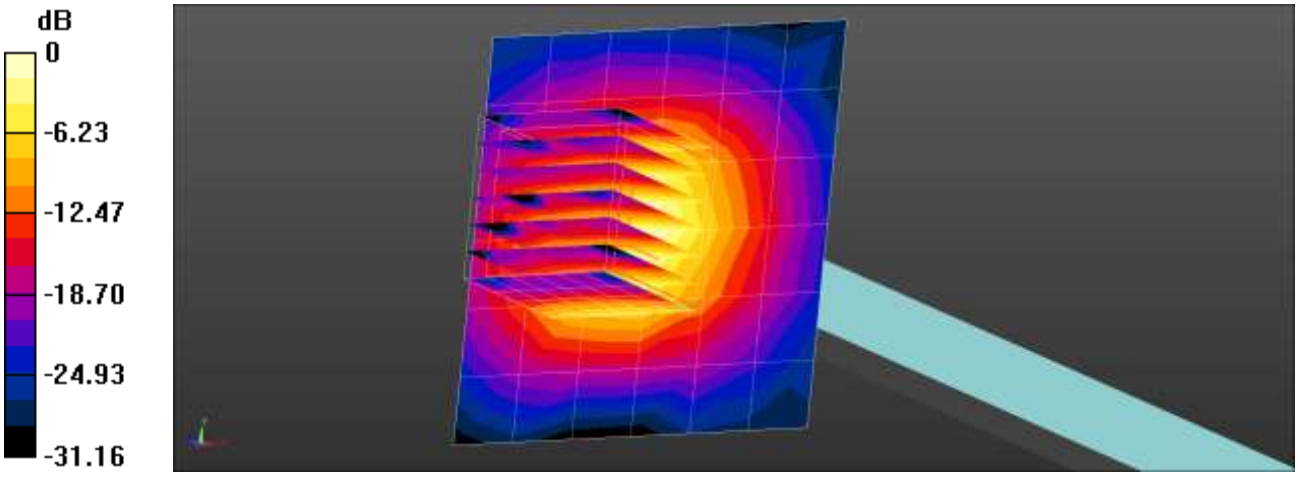
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.977 S/m; ε_r = 48.028; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(3.99, 3.99, 3.99); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 8.97 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 = 44.58 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 19.0 W/kg
SAR(1 g) = 4.07 W/kg; SAR(10 g) = 1.14 W/kg
Maximum value of SAR (measured) = 10.7 W/kg



0 dB = 8.97 W/kg = 9.53 dBW/kg

■ Verification Data (5 750 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.3 ℃
Test Date:	08/19/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

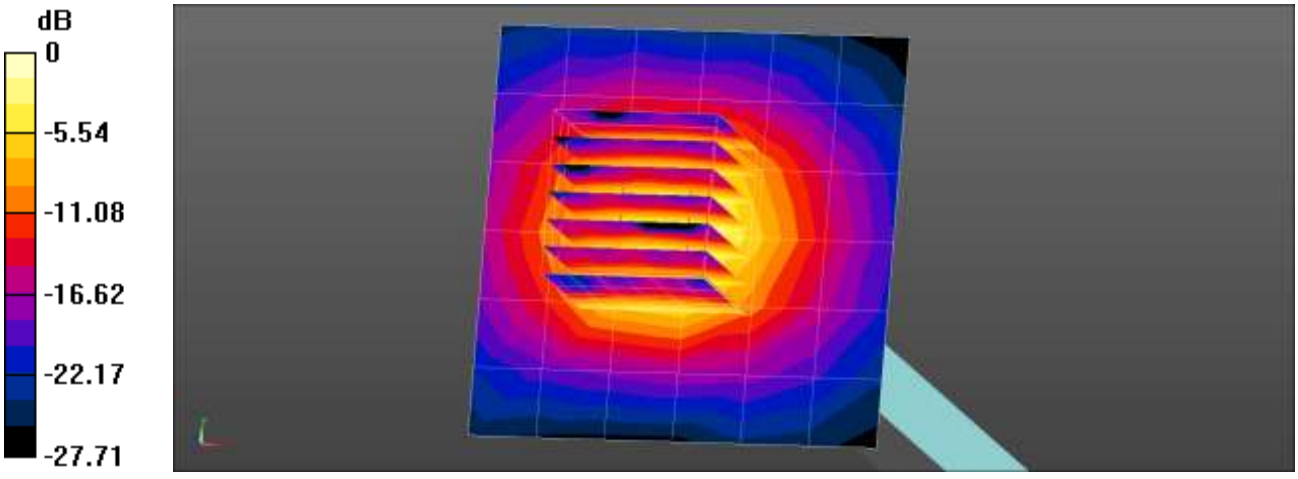
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 6.094 S/m; ε_r = 48.109; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.15, 4.15, 4.15); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 9.04 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 = 43.88 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 3.93 W/kg; SAR(10 g) = 1.12 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 9.04 W/kg = 9.56 dBW/kg

■ Verification Data (5 750 ㎒ Body)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.2 ℃
Test Date:	08/20/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

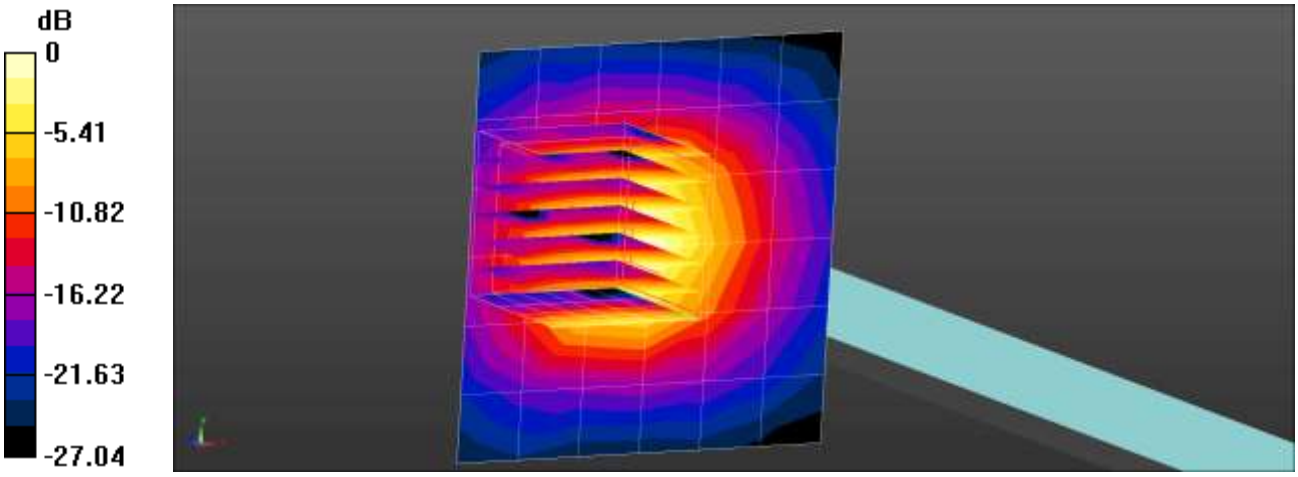
Communication System: UID 0, CW (0); Frequency: 5750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5750 MHz; σ = 6.078 S/m; ε_r = 47.62; ρ = 1000 kg/m^3
Phantom section: Center Section

DASY Configuration:

- Probe: EX3DV4 - SN3967; ConvF(4.15, 4.15, 4.15); Calibrated: 2019-02-01;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2019-05-23
- 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) = 8.92 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 = 44.10 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 18.7 W/kg
SAR(1 g) = 3.94 W/kg; SAR(10 g) = 1.12 W/kg
Maximum value of SAR (measured) = 10.3 W/kg



0 dB = 8.92 W/kg = 9.50 dBW/kg

■ Verification Data (5 250 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.5 °C
Test Date: 09/05/2019

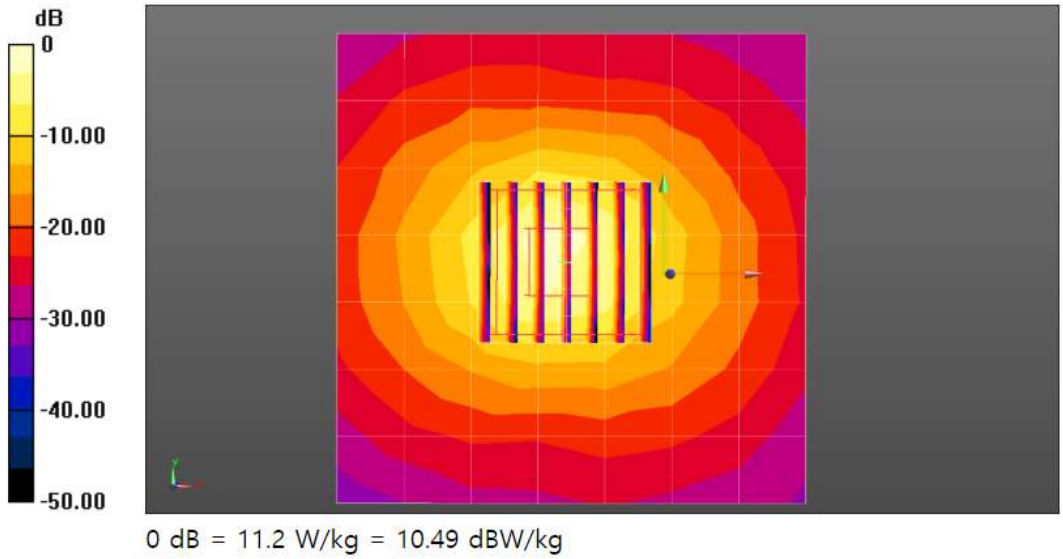
DUT: Dipole D5GHzV2; Type: D5GHzV2

Communication System: UID 0, CW (0); Frequency: 5250 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5250 MHz; σ = 5.49 S/m; εr = 47.309; ρ = 1000 kg/m3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(4.98, 4.98, 4.98); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Triple Flat Phantom 5.1C;
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5250MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 7.83 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 = 49.19 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.1 W/kg
SAR(1 g) = 4.24 W/kg; SAR(10 g) = 1.14 W/kg
Maximum value of SAR (measured) = 11.2 W/kg



0 dB = 11.2 W/kg = 10.49 dBW/kg

■ Verification Data (5 600 ㎒ Body)

Test Laboratory: HCT CO., LTD
Input Power 0.05 W
Liquid Temp: 21.5 ℃
Test Date: 09/05/2019

DUT: Dipole D5GHzV2; Type: D5GHzV2

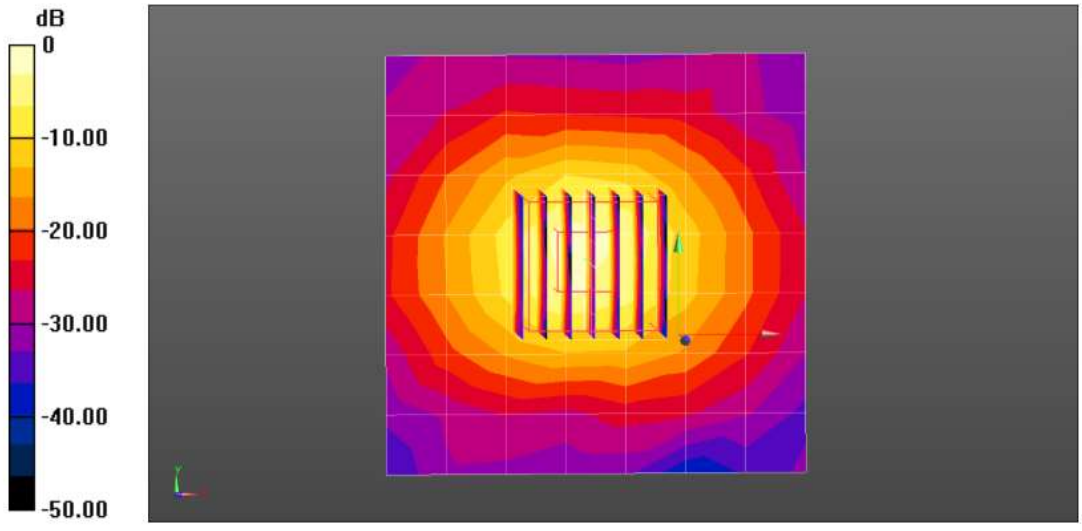
Communication System: UID 0, CW (0); Frequency: 5600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5600 MHz; σ = 5.912 S/m; εr = 46.985; ρ = 1000 kg/m3
Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN3968; ConvF(4.28, 4.28, 4.28); Calibrated: 2018-09-25;
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2019-07-18
- Phantom: Triple Flat Phantom 5.1C;
- Measurement SW: DASY52, Version 52.8 (8);

Dipole/5600MHz Body Verification/Area Scan (8x8x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 8.46 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 = 49.57 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 20.2 W/kg
SAR(1 g) = 4.37 W/kg; SAR(10 g) = 1.18 W/kg
Maximum value of SAR (measured) = 11.7 W/kg



0 dB = 11.7 W/kg = 10.68 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 (㎒)											
	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	41.7	0.87	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
11	3076	ES3DV3	Head	835	4d165	2018-09-28	41.6	0.91	PASS	PASS	PASS	GMSK	PASS	N/A
1	3863	EX3DV4	Head	835	4d165	2019-05-27	41.7	0.91	PASS	PASS	PASS	N/A	N/A	N/A
1	3863	EX3DV4	Body	835	4d165	2019-05-27	55.4	0.97	PASS	PASS	PASS	N/A	N/A	N/A
11	3076	ES3DV3	Body	835	4d165	2018-09-28	55.5	0.97	PASS	PASS	PASS	GMSK	PASS	N/A
9	3968	EX3DV4	Head	1750	2d007	2018-12-03	40.1	1.39	PASS	PASS	PASS	N/A	N/A	N/A
9	3968	EX3DV4	Body	1750	2d007	2018-12-03	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
8	3967	EX3DV4	Body	1750	2d007	2019-02-11	53.5	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
11	3076	ES3DV3	Body	1750	2d007	2018-12-03	53.5	1.52	PASS	PASS	PASS	GMSK	PASS	N/A
9	3968	EX3DV4	Head	1900	5d032	2019-03-04	39.8	1.41	PASS	PASS	PASS	N/A	N/A	N/A
9	3968	EX3DV4	Head	1900	5d032	2019-03-04	39.8	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
8	3967	EX3DV4	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	GMSK	PASS	N/A
9	3968	EX3DV4	Body	1900	5d032	2019-03-04	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
11	3076	ES3DV3	Body	1900	5d032	2019-03-04	53.3	1.53	PASS	PASS	PASS	GMSK	PASS	N/A
3	3797	EX3DV4	Head	2450	743	2019-02-12	39.4	1.81	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	2450	743	2019-02-12	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
3	3797	EX3DV4	Head	2600	1015	2018-12-03	39.1	1.94	PASS	PASS	PASS	TDD	PASS	N/A
3	3797	EX3DV4	Body	2600	1015	2018-12-04	52.3	2.17	PASS	PASS	PASS	TDD	PASS	N/A
8	3967	EX3DV4	Head	5250	1253	2019-02-12	35.6	4.71	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5600	1253	2019-02-12	35.3	5.04	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Head	5750	1253	2019-02-12	35.8	5.25	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5250	1253	2019-02-11	48.8	5.36	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5600	1253	2019-02-11	48.3	5.78	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5750	1253	2019-02-11	48.4	5.95	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
9	3968	EX3DV4	Body	1750	2d007	2018-12-03	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	N/A	N/A	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	GMSK	PASS	N/A
9	3968	EX3DV4	Body	1900	5d032	2019-03-04	53.5	1.52	PASS	PASS	PASS	N/A	N/A	N/A
3	3797	EX3DV4	Body	2600	1015	2018-12-04	52.3	2.17	PASS	PASS	PASS	TDD	PASS	N/A
8	3967	EX3DV4	Body	5250	1253	2019-02-11	48.8	5.36	PASS	PASS	PASS	OFDM	N/A	PASS
8	3967	EX3DV4	Body	5600	1253	2019-02-11	48.3	5.78	PASS	PASS	PASS	OFDM	N/A	PASS
9	3968	EX3DV4	Body	5250	1253	2018-12-03	48.8	5.36	PASS	PASS	PASS	OFDM	N/A	PASS
9	3968	EX3DV4	Body	5600	1253	2018-12-03	48.3	5.78	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.

Attachment 5. – Power Reduction Verification

Per the May 2017 TCBC Workshop notes, demonstration of proper functioning of the power reduction mechanism is required to support the corresponding SAR Configurations. The verification process was divided into two parts:
1). Evaluation of output power levels for individual triggering mechanism
2) Evaluation of the triggering distances for proximity-based sensors.

1. Power Reduction Verification for Main Antenna

This device utilizes a power reduction mechanism of Main Ant for GSM1900/WCDMA B2/4/LTE B2/4/66/41 for SAR compliance under hotspot conditions and under some conditions when the device is being used in close proximity to the user's hand. These Power reduction mechanisms cannot merge multiple conditions at the same time. In all cases powers were reduced to the same Power level.

The SAR evaluations of all Power reduction mechanisms for this device were performed at the maximum allowed output Power when the mechanism is triggered.
FCC KDB Publication 616217D04v01r02 section 6 was used as a guideline for selection SAR test distances for this device when being used in phablet use conditions.

For detailed measurement conducted power results, please refer to the Section .11

1.1 Power Verification Procedure for Main 1 Antenna

The Power verification was performed according to the following procedure:

1. A base station simulator was used to establish a conducted RF connection and output power was monitored. The Power measurements were conformed to be within expected tolerances for all states before and after a power reduction mechanism was triggered.
2. Step 1 was repeated for all relevant modes and frequency bands for the mechanism being investigated.
3. Step 1 and 2 were repeated for all individual power reduction mechanism and combinations thereof. For the combination cases, one mechanism was switched to a "triggered" state at a time; powers were conformed to be within tolerance after each additional mechanism was activated.

Power Reduction Verification for Main Ant

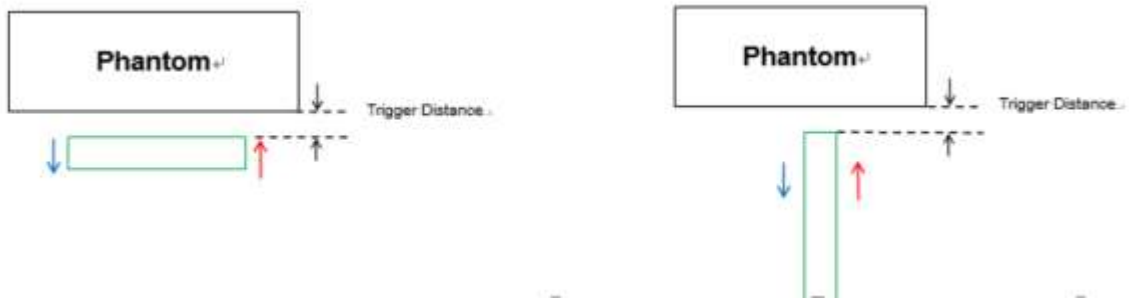
Mechanism(s)	Mode/Band	Conducted Power (dBm)		
		Un-triggered (Max Power)	Triggered (Reduced Power)	Triggered (Reduced Power)
Grip	GSM1900 GPRS 1Tx	28.28	24.10	
Grip	GSM1900 GPRS 2Tx	27.87	24.05	
Grip	GSM1900 GPRS 3Tx	26.29	22.25	
Grip	GSM1900 GPRS 4Tx	23.68	21.20	
Grip	WCDMA 2	22.66	18.25	
Grip	WCDMA 4	21.98	18.06	
Grip	LTE Band 2 (PCS)	23.01	17.99	
Grip	LTE Band 4 (PCS)	22.98	19.03	
Grip	LTE Band 66(PCS)	22.88	19.31	
Grip	LTE Band 41(PCS)	24.12	21.09	
Hotspot On	GSM1900 GPRS 1Tx	28.28	24.18	
Hotspot On	GSM1900 GPRS 2Tx	27.87	24.04	
Hotspot On	GSM1900 GPRS 3Tx	26.29	22.34	
Hotspot On	GSM1900 GPRS 4Tx	23.68	21.23	
Hotspot On	WCDMA 2	22.66	18.24	
Hotspot On	WCDMA 4	21.98	18.03	
Hotspot On	LTE Band 2 (PCS)	23.01	18.00	
Hotspot On	LTE Band 4 (PCS)	22.98	19.05	
Hotspot On	LTE Band 66(PCS)	22.88	19.36	
Hotspot On	LTE Band 41(PCS)	24.12	21.07	
Grip, then Hotspot On	GSM1900 GPRS 1Tx	28.28	24.10	24.18
Grip, then Hotspot On	GSM1900 GPRS 2Tx	27.87	24.05	24.04
Grip, then Hotspot On	GSM1900 GPRS 3Tx	26.29	22.25	22.34
Grip, then Hotspot On	GSM1900 GPRS 4Tx	23.68	21.20	21.23
Grip, then Hotspot On	WCDMA 2	22.66	18.25	18.24
Grip, then Hotspot On	WCDMA 4	21.98	18.06	18.03
Grip, then Hotspot On	LTE Band 2 (PCS)	23.01	17.99	18.00
Grip, then Hotspot On	LTE Band 4 (PCS)	22.98	19.03	19.05
Grip, then Hotspot On	LTE Band 66(PCS)	22.88	19.31	19.36
Grip, then Hotspot On	LTE Band 41(PCS)	24.12	21.09	21.07
Hotspot On, Then Grip	GSM1900 GPRS 1Tx	28.28	24.18	24.10
Hotspot On, Then Grip	GSM1900 GPRS 2Tx	27.87	24.04	24.05
Hotspot On, Then Grip	GSM1900 GPRS 3Tx	26.29	22.34	22.25
Hotspot On, Then Grip	GSM1900 GPRS 4Tx	23.68	21.23	21.20
Hotspot On, Then Grip	WCDMA 2	22.66	18.24	18.25
Hotspot On, Then Grip	WCDMA 4	21.98	18.03	18.06
Hotspot On, Then Grip	LTE Band 2 (PCS)	23.01	18.00	17.99
Hotspot On, Then Grip	LTE Band 4 (PCS)	22.98	19.05	19.03
Hotspot On, Then Grip	LTE Band 66(PCS)	22.88	19.36	19.31
Hotspot On, Then Grip	LTE Band 41(PCS	24.12	21.07	21.09

1.2 Procedures for determining proximity sensor triggering distances

(KDB 616217 D04v01r02 §6.2)

The distance verification procedure was performed according to the following procedure:

1. A base station simulator was used to establish an RF connection and to monitor the power levels. The device being tested was placed below the relevant section of the phantom with the relevant side or edge of the device facing toward the phantom.
2. The device was moved toward and away from the phantom to determine the distance at which the mechanism triggers and the output power is reduced, per KDB Publication 616217 D04v01r02 .Each applicable test position was evaluated. The distance were conformed to be the same or larger (more conservative) than the minimum distances provided by the manufacturer.
3. Step 1 and 2 were repeated for the relevant modes, as appropriate
4. Steps1 through 3 were repeated for all distance-based power reduction mechanisms.



Proximity Sensor Trigger Distance Assessment KDB 616217 D04 §6.2 (Rear /Front/Bottom)

LEGEND

Direction of DUT travel for determination of power reduction triggering point

Direction of DUT travel for determination of full power resumption triggering point

Tissue simulating liquid	Trigger distance - Rear		Trigger distance - Front		Trigger distance - Bottom	
	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom	Moving toward phantom	Moving from phantom
1700 ㎒ Muscle	7	8	5	7	10	11
1800 ㎒~1900 MHz Muscle	7	8	5	7	10	11
2600 ㎒ Muscle	7	8	5	7	10	11

Rear side – EUT Moving toward (trigger) to the Phantom

(KDB 616217 D04v01r02 §6.2)

b) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction

d) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

Mode/Distance	Distance to DUT Output power (dBm)							
	28	25	22	19	16	13	10	7
GSM1900 GPRS 1Tx	28.3	28.27	28.31	28.34	28.25	28.21	28.35	24.1
GSM1900 GPRS 2Tx	27.93	27.8	27.92	27.96	27.91	27.84	27.81	24.05
GSM1900 GPRS 3Tx	26.22	26.31	26.22	26.26	26.37	26.38	26.3	22.3
GSM1900 GPRS 4Tx	23.58	23.59	23.58	23.72	23.73	23.63	23.66	21.18
WCDMA 2	22.68	22.58	22.71	22.6	22.61	22.66	22.59	18.3
WCDMA 4	21.88	22.06	22.04	22.03	22.03	21.88	21.97	18.04
LTE Band 2 (PCS)	23.01	22.93	22.99	22.99	23.1	23.05	23.11	18.08
LTE Band 4 (PCS)	22.88	22.99	22.99	22.91	23.04	22.89	23.07	19.08
LTE Band 66(PCS)	22.88	22.94	22.79	22.8	22.8	22.85	22.89	19.36
LTE Band 41(PCS)	24.18	24.2	24.21	24.02	24.14	24.11	24.04	21

e) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

f) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom.

Mode/Distance	Distance to DUT Output power (dBm)									
	12	11	10	9	8	7	6	5	4	3
GSM1900 GPRS 1Tx	28.33	28.22	28.3	28.29	28.24	24.2	24.07	24.01	24.19	24.11
GSM1900 GPRS 2Tx	27.85	27.93	27.93	27.86	27.8	24.06	24.15	24.07	24.15	24.1
GSM1900 GPRS 3Tx	26.36	26.31	26.28	26.32	26.19	22.19	22.3	22.24	22.23	22.16
GSM1900 GPRS 4Tx	23.66	23.62	23.76	23.75	23.73	21.23	21.26	21.21	21.1	21.22
WCDMA 2	22.72	22.76	22.57	22.69	22.74	18.34	18.2	18.15	18.28	18.25
WCDMA 4	22.08	21.98	22.01	22.06	22.08	18.16	18.01	17.97	18.14	17.96
LTE Band 2 (PCS)	23.01	23.03	22.98	22.91	23.07	18	18.04	18.05	18.01	17.99
LTE Band 4 (PCS)	22.89	22.89	23.03	22.9	22.88	18.93	18.95	19.11	18.93	19.06
LTE Band 66(PCS)	22.78	22.83	22.78	22.83	22.94	19.31	19.27	19.33	19.33	19.21
LTE Band 41(PCS)	24.1	24.02	24.13	24.08	24.13	21.15	21.04	21.02	21.09	21.14

g) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

Mode/Distance	Distance to DUT Output power (dBm)
	0
GSM1900 GPRS 1Tx	24.14
GSM1900 GPRS 2Tx	24.08
GSM1900 GPRS 3Tx	22.33
GSM1900 GPRS 4Tx	21.27
WCDMA 2	18.29
WCDMA 4	18.01
LTE Band 2 (PCS)	17.91
LTE Band 4 (PCS)	19.01
LTE Band 66(PCS)	19.24
LTE Band 41(PCS)	21.13

Rear side – EUT Moving away (Release) from the Phantom

h) The process is then reversed by moving the tablet away from the phantom according to steps d) to g), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

Mode	Distance to DUT Output power (dBm)									
	0	1	2	3	4	5	6	7	8	9
GSM1900 GPRS 1Tx	24.13	24.2	24.09	24.07	24.2	24.02	24.2	24.05	24.06	28.36
GSM1900 GPRS 2Tx	23.95	23.95	24.03	23.95	24.1	23.95	24.01	24.01	23.97	27.9
GSM1900 GPRS 3Tx	22.27	22.29	22.28	22.25	22.26	22.29	22.28	22.15	22.19	26.29
GSM1900 GPRS 4Tx	21.12	21.2	21.15	21.11	21.23	21.17	21.24	21.1	21.18	23.77
WCDMA 2	18.33	18.35	18.18	18.33	18.19	18.17	18.35	18.22	18.33	22.76
WCDMA 4	18.13	18.13	18.12	18.12	18.12	18.12	17.96	17.99	18.06	21.89
LTE Band 2 (PCS)	18.06	18.03	18.04	18.04	17.91	17.95	18.08	18.06	18.01	22.99
LTE Band 4 (PCS)	19.1	19.02	19.05	18.93	19.09	19	19.11	19.09	19.12	22.89
LTE Band 66(PCS)	19.34	19.32	19.25	19.4	19.39	19.29	19.32	19.28	19.3	22.87
LTE Band 41(PCS)	21.13	21.1	21.14	21.08	21.03	21.05	21.13	21.1	20.99	24.06

Mode/Distance	Distance to DUT Output power (dBm)			
	10	13	16	19
GSM1900 GPRS 1Tx	28.25	28.34	28.22	28.36
GSM1900 GPRS 2Tx	27.91	27.96	27.94	27.85
GSM1900 GPRS 3Tx	26.25	26.35	26.21	26.19
GSM1900 GPRS 4Tx	23.73	23.64	23.64	23.78
WCDMA 2	22.56	22.75	22.66	22.6
WCDMA 4	22.03	21.91	21.98	22.04
LTE Band 2 (PCS)	23.02	23.05	22.94	23.03
LTE Band 4 (PCS)	22.93	22.94	22.99	22.93
LTE Band 66(PCS)	22.79	22.85	22.94	22.97
LTE Band 41(PCS)	24.14	24.1	24.04	24.02

i) The measured output power within ± 5 mm of the triggering points, for movements to and from the phantom should be tabulated in the SAR report.

-Toward the phantom

Mode/Distance	Distance to DUT Output power (dBm)									
	12	11	10	9	8	7	6	5	4	3
GSM1900 GPRS 1Tx	28.33	28.22	28.3	28.29	28.24	24.2	24.07	24.01	24.19	24.11
GSM1900 GPRS 2Tx	27.85	27.93	27.93	27.86	27.8	24.06	24.15	24.07	24.15	24.1
GSM1900 GPRS 3Tx	26.36	26.31	26.28	26.32	26.19	22.19	22.3	22.24	22.23	22.16
GSM1900 GPRS 4Tx	23.66	23.62	23.76	23.75	23.73	21.23	21.26	21.21	21.1	21.22
WCDMA 2	22.72	22.76	22.57	22.69	22.74	18.34	18.2	18.15	18.28	18.25
WCDMA 4	22.08	21.98	22.01	22.06	22.08	18.16	18.01	17.97	18.14	17.96
LTE Band 2 (PCS)	23.01	23.03	22.98	22.91	23.07	18	18.04	18.05	18.01	17.99
LTE Band 4 (PCS)	22.89	22.89	23.03	22.9	22.88	18.93	18.95	19.11	18.93	19.06
LTE Band 66(PCS)	22.78	22.83	22.78	22.83	22.94	19.31	19.27	19.33	19.33	19.21
LTE Band 41(PCS)	24.1	24.02	24.13	24.08	24.13	21.15	21.04	21.02	21.09	21.14

-Away from phantom

Mode	Distance to DUT Output power (dBm)									
	4	5	6	7	8	9	10	11	12	13
GSM1900 GPRS 1Tx	24	24.1	24.01	24.19	24.12	28.2	28.24	28.29	28.22	28.31
GSM1900 GPRS 2Tx	24.14	24.1	24.11	24.01	24.08	27.79	27.87	27.93	27.81	27.96
GSM1900 GPRS 3Tx	22.26	22.15	22.35	22.24	22.23	26.21	26.39	26.32	26.33	26.24
GSM1900 GPRS 4Tx	21.14	21.18	21.16	21.27	21.26	23.71	23.69	23.64	23.69	23.77
WCDMA 2	18.3	18.31	18.35	18.27	18.21	22.71	22.62	22.59	22.73	22.61
WCDMA 4	18.01	18.06	17.98	18.06	17.96	21.95	21.9	21.99	22.01	21.94
LTE Band 2 (PCS)	17.92	18	18.07	18.05	17.94	23.04	23.03	22.96	23.02	23.07
LTE Band 4 (PCS)	19.01	18.95	19	18.95	19.06	22.92	22.95	22.97	22.94	22.97
LTE Band 66(PCS)	19.38	19.29	19.25	19.31	19.21	22.91	22.78	22.97	22.8	22.87
LTE Band 41(PCS)	21.13	20.99	21	21.08	21.19	24.17	24.07	24.06	24.1	24.04

Based on the most conservative measured triggering distance of 7mm, additional Phablet SAR measurements were required at 6mm from rear side for the above modes

Front side – EUT Moving toward (trigger) to the Phantom

(KDB 616217 D04v01r02 §6.2)

b) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction

d) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

Distance	Distance to DUT Output power (dBm)							
	26	23	20	17	14	11	8	5
GSM1900 GPRS 1Tx	28.38	28.33	28.26	28.27	28.25	28.26	28.18	24.12
GSM1900 GPRS 2Tx	27.92	27.87	27.95	27.94	27.78	27.84	27.91	23.99
GSM1900 GPRS 3Tx	26.36	26.28	26.3	26.24	26.38	26.39	26.29	22.25
GSM1900 GPRS 4Tx	23.68	23.78	23.68	23.6	23.69	23.62	23.61	21.22
WCDMA 2	22.75	22.56	22.75	22.71	22.62	22.68	22.58	18.26
WCDMA 4	21.96	22	22.01	21.89	22.05	22	22.01	18.14
LTE Band 2 (PCS)	22.92	23.04	22.94	23.08	23.07	22.96	23	17.99
LTE Band 4 (PCS)	22.97	22.89	23.04	23.05	22.96	23.02	23.06	19.05
LTE Band 66(PCS)	22.83	22.87	22.96	22.83	22.85	22.82	22.84	19.38
LTE Band 41(PCS)	24.16	24.07	24.2	24.09	24.16	24.03	24.06	21.09

e) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

f) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom.

Distance	Distance to DUT Output power (dBm)									
	10	9	8	7	6	5	4	3	2	1
GSM1900 GPRS 1Tx	28.21	28.21	28.32	28.25	28.3	24.12	24	24.11	24.17	24.11
GSM1900 GPRS 2Tx	27.91	27.94	27.85	27.89	27.79	23.99	23.96	23.98	24.05	24
GSM1900 GPRS 3Tx	26.22	26.27	26.32	26.25	26.25	22.16	22.17	22.15	22.27	22.22
GSM1900 GPRS 4Tx	23.65	23.65	23.78	23.69	23.75	21.17	21.19	21.14	21.29	21.26
WCDMA 2	22.74	22.62	22.74	22.62	22.65	18.16	18.22	18.27	18.29	18.28
WCDMA 4	22.03	21.96	21.94	22.03	21.96	17.96	18.08	18.09	18.03	17.98
LTE Band 2 (PCS)	23	23.02	22.97	23.11	23.06	17.91	18.02	17.97	17.95	17.94
LTE Band 4 (PCS)	22.96	23.04	23	22.97	22.96	19.08	18.97	19	18.93	18.93
LTE Band 66(PCS)	22.97	22.85	22.97	22.96	22.91	19.32	19.23	19.35	19.33	19.35
LTE Band 41(PCS)	24.03	24.17	24.21	24.16	24.04	21.05	21.08	21	21.18	21.13

g) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

Distance	Distance to DUT Output power (dBm)				
	4	3	2	1	0
GSM1900 GPRS 1Tx	24.1	24.15	24.06	24.01	24.14
GSM1900 GPRS 2Tx	24.11	24.06	24	24.06	24.07
GSM1900 GPRS 3Tx	22.25	22.16	22.18	22.29	22.31
GSM1900 GPRS 4Tx	21.22	21.16	21.28	21.1	21.29
WCDMA 2	18.18	18.23	18.23	18.22	18.15
WCDMA 4	18.08	18.08	18.1	18.01	18.16
LTE Band 2 (PCS)	18.08	17.98	17.94	18.09	17.89
LTE Band 4 (PCS)	19	19.02	18.93	19.08	18.95
LTE Band 66(PCS)	19.3	19.31	19.39	19.21	19.35
LTE Band 41(PCS)	21.02	21.08	21.06	21.12	21.19

Front side – EUT Moving away (Release) from the Phantom

h) The process is then reversed by moving the tablet away from the phantom according to steps d) to g), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

Mode/Distance	Distance to DUT Output power (dBm)									
	0	1	2	3	4	5	6	7	8	9
GSM1900 GPRS 1Tx	24	24.06	24.07	24.1	24.01	24.12	24	24.18	28.37	28.19
GSM1900 GPRS 2Tx	24.09	23.96	23.99	24.06	24.11	23.97	23.97	23.99	27.88	27.97
GSM1900 GPRS 3Tx	22.25	22.29	22.16	22.24	22.16	22.29	22.21	22.21	26.36	26.29
GSM1900 GPRS 4Tx	21.22	21.28	21.28	21.21	21.27	21.24	21.12	21.21	23.58	23.78
WCDMA 2	18.32	18.18	18.22	18.35	18.33	18.33	18.15	18.29	22.72	22.63
WCDMA 4	17.96	18.11	18.1	17.97	18.15	18.01	18.13	18.08	22.05	22.03
LTE Band 2 (PCS)	18	18.01	18.01	18.03	17.89	18.03	18.03	18.06	22.92	23.11
LTE Band 4 (PCS)	19.04	19	18.95	18.97	19.11	19.02	18.99	18.96	22.93	23.05
LTE Band 66(PCS)	19.28	19.33	19.26	19.4	19.32	19.34	19.4	19.22	22.98	22.8
LTE Band 41(PCS)	21.05	21.04	21.12	21.12	21.09	21.08	21.01	21.11	24.13	24.06

Distance	Distance to DUT Output power (dBm)			
	10	13	16	19
GSM1900 GPRS 1Tx	28.18	28.3	28.23	28.33
GSM1900 GPRS 2Tx	27.95	27.8	27.81	27.88
GSM1900 GPRS 3Tx	26.19	26.35	26.35	26.33
GSM1900 GPRS 4Tx	23.74	23.66	23.58	23.59
WCDMA 2	22.68	22.6	22.68	22.65
WCDMA 4	21.92	22.02	21.89	22.02
LTE Band 2 (PCS)	23.01	23.03	23.11	22.94
LTE Band 4 (PCS)	23.06	23	22.9	22.98
LTE Band 66(PCS)	22.92	22.83	22.9	22.96
LTE Band 41(PCS)	24.09	24.07	24.18	24.16

i) The measured output power within ± 5 mm of the triggering points, for movements to and from the phantom should be tabulated in the SAR report.

Toward the phantom

Distance	Distance to DUT Output power (dBm)									
	10	9	8	7	6	5	4	3	2	1
GSM1900 GPRS 1Tx	28.21	28.21	28.32	28.25	28.3	24.12	24	24.11	24.17	24.11
GSM1900 GPRS 2Tx	27.91	27.94	27.85	27.89	27.79	23.99	23.96	23.98	24.05	24
GSM1900 GPRS 3Tx	26.22	26.27	26.32	26.25	26.25	22.16	22.17	22.15	22.27	22.22
GSM1900 GPRS 4Tx	23.65	23.65	23.78	23.69	23.75	21.17	21.19	21.14	21.29	21.26
WCDMA 2	22.74	22.62	22.74	22.62	22.65	18.16	18.22	18.27	18.29	18.28
WCDMA 4	22.03	21.96	21.94	22.03	21.96	17.96	18.08	18.09	18.03	17.98
LTE Band 2 (PCS)	23	23.02	22.97	23.11	23.06	17.91	18.02	17.97	17.95	17.94
LTE Band 4 (PCS)	22.96	23.04	23	22.97	22.96	19.08	18.97	19	18.93	18.93
LTE Band 66(PCS)	22.97	22.85	22.97	22.96	22.91	19.32	19.23	19.35	19.33	19.35
LTE Band 41(PCS)	24.03	24.17	24.21	24.16	24.04	21.05	21.08	21	21.18	21.13

Away From the phantom

Distance	Distance to DUT Output power (dBm)									
	3	4	5	6	7	8	9	10	11	12
GSM1900 GPRS 1Tx	24.12	24.2	24.05	24.19	24.13	28.3	28.32	28.37	28.35	28.38
GSM1900 GPRS 2Tx	24.08	24.01	23.96	24.12	23.96	27.89	27.89	27.85	27.82	27.85
GSM1900 GPRS 3Tx	22.21	22.16	22.28	22.16	22.3	26.29	26.34	26.34	26.2	26.31
GSM1900 GPRS 4Tx	21.1	21.29	21.23	21.21	21.16	23.72	23.68	23.64	23.66	23.65
WCDMA 2	18.3	18.31	18.33	18.23	18.3	22.69	22.75	22.69	22.68	22.71
WCDMA 4	18.06	18.01	18.08	18.07	18.09	21.97	21.9	22.08	21.89	21.92
LTE Band 2 (PCS)	17.97	18.03	18.06	17.91	18.07	22.91	23.01	23.11	22.99	23.03
LTE Band 4 (PCS)	19.11	19.01	19.08	19.09	18.96	22.93	22.99	23	22.96	23.07
LTE Band 66(PCS)	19.39	19.32	19.28	19.34	19.35	22.84	22.86	22.84	22.86	22.94
LTE Band 41(PCS)	21.08	21	21.01	21.17	21.19	24.1	24.06	24.21	24.06	24.15

Based on the most conservative measured triggering distance of 5mm, additional Phablet SAR measurements were required at 4mm from Front side for the above modes

Bottom side – EUT Moving toward (trigger) to the Phantom

(KDB 616217 D04v01r02 §6.2)

b) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction

Distance	Distance to DUT Output power (dBm)							
	31	28	25	22	19	16	13	10
GSM1900 GPRS 1Tx	28.3	28.28	28.32	28.34	28.31	28.2	28.3	24.08
GSM1900 GPRS 2Tx	27.9	27.86	27.85	27.9	27.95	27.82	27.86	24.13
GSM1900 GPRS 3Tx	26.2	26.33	26.26	26.23	26.32	26.38	26.21	22.3
GSM1900 GPRS 4Tx	23.69	23.63	23.75	23.65	23.7	23.74	23.7	21.14
WCDMA 2	22.63	22.6	22.66	22.6	22.75	22.72	22.63	18.27
WCDMA 4	21.99	22	22.08	21.92	21.93	22.06	21.89	18.05
LTE Band 2 (PCS)	22.92	22.94	23.11	23	22.93	23.01	22.94	18.08
LTE Band 4 (PCS)	23.07	22.96	23.02	22.92	23.04	23.04	22.91	19
LTE Band 66(PCS)	22.8	22.89	22.78	22.93	22.82	22.8	22.95	19.23
LTE Band 41(PCS)	24.18	24.04	24.03	24.02	24.12	24.09	24.21	21.01

e) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

f) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom.

Mode/Distance	Distance to DUT Output power (dBm)									
	15	14	13	12	11	10	9	8	7	6
GSM1900 GPRS 1Tx	28.26	28.26	28.3	28.3	28.18	24.07	24.03	24.03	24.12	24.19
GSM1900 GPRS 2Tx	27.81	27.81	27.94	27.84	27.88	23.96	24.15	24.03	23.97	23.96
GSM1900 GPRS 3Tx	26.23	26.38	26.35	26.35	26.2	22.26	22.18	22.29	22.32	22.28
GSM1900 GPRS 4Tx	23.71	23.64	23.71	23.63	23.65	21.11	21.29	21.22	21.26	21.2
WCDMA 2	22.71	22.64	22.58	22.6	22.67	18.21	18.32	18.34	18.29	18.17
WCDMA 4	21.88	21.92	21.92	22.01	21.97	18.16	18.02	18.01	18	18.08
LTE Band 2 (PCS)	23	23.03	23.02	23.03	22.93	18.04	17.93	17.97	18.02	18.06
LTE Band 4 (PCS)	22.94	23.01	22.89	22.95	22.94	19.05	18.94	18.94	19.05	19
LTE Band 66(PCS)	22.95	22.98	22.83	22.86	22.8	19.21	19.21	19.31	19.38	19.27
LTE Band 41(PCS)	24.09	24.12	24.17	24.15	24.19	21	21.19	21.1	21.18	20.99

g) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

Distance	Distance to DUT Output power (dBm)		
	5	2	0
GSM1900 GPRS 1Tx	24.14	24.2	24
GSM1900 GPRS 2Tx	24.01	24.03	24.02
GSM1900 GPRS 3Tx	22.28	22.26	22.17
GSM1900 GPRS 4Tx	21.14	21.27	21.26
WCDMA 2	18.2	18.19	18.33
WCDMA 4	18.06	18.09	18.15
LTE Band 2 (PCS)	18.06	17.92	18.06
LTE Band 4 (PCS)	18.98	18.99	19.05
LTE Band 66(PCS)	19.22	19.41	19.27
LTE Band 41(PCS)	21.16	21.13	21.03

Bottom side – EUT Moving away (Release) from the Phantom

h) The process is then reversed by moving the tablet away from the phantom according to steps d) to g), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

Distance	Distance to DUT Output power (dBm)												
	0	1	2	3	4	5	6	7	8	9	10	11	12
GSM1900 GPRS 1Tx	24.06	24.07	24.12	24.15	24	24.18	24.15	24.03	24.05	24.08	24.03	24.16	28.3
GSM1900 GPRS 2Tx	23.99	24.03	24.02	24.1	24.1	24.04	24.12	24.11	24.01	24.09	24.01	23.95	27.96
GSM1900 GPRS 3Tx	22.2	22.29	22.17	22.15	22.16	22.31	22.23	22.21	22.26	22.31	22.31	22.17	26.33
GSM1900 GPRS 4Tx	21.29	21.29	21.1	21.21	21.11	21.11	21.27	21.24	21.3	21.16	21.29	21.26	23.61
WCDMA 2	18.27	18.21	18.29	18.2	18.27	18.35	18.27	18.31	18.17	18.32	18.19	18.2	22.61
WCDMA 4	18.16	17.96	17.99	17.99	18.04	17.98	18.07	18.12	17.96	18.1	18	18.1	21.92
LTE Band 2 (PCS)	18.06	18.07	18.04	18.09	18.05	17.91	17.94	17.96	18.03	17.9	17.98	18	23.09
LTE Band 4 (PCS)	19.01	19.1	19.03	19.12	19.01	19.1	19.01	18.97	19	19.06	19.04	18.94	23.05
LTE Band 66(PCS)	19.29	19.35	19.37	19.27	19.29	19.24	19.37	19.21	19.26	19.37	19.4	19.36	22.85
LTE Band 41(PCS)	21.12	20.99	21.15	21.16	21.07	21.01	21.08	21.19	21.03	21.03	21.03	21	24.14

Distance	Distance to DUT Output power (dBm)			
	13	16	19	22
GSM1900 GPRS 1Tx	28.23	28.37	28.18	28.26
GSM1900 GPRS 2Tx	27.78	27.82	27.92	27.9
GSM1900 GPRS 3Tx	26.32	26.25	26.33	26.38
GSM1900 GPRS 4Tx	23.77	23.77	23.73	23.76
WCDMA 2	22.6	22.61	22.61	22.72
WCDMA 4	21.96	22.08	21.94	22.05
LTE Band 2 (PCS)	22.97	23.11	23.1	23.08
LTE Band 4 (PCS)	22.95	23.06	23.07	22.89
LTE Band 66(PCS)	22.8	22.85	22.89	22.94
LTE Band 41(PCS)	24.2	24.2	24.13	24.07

i) The measured output power within ± 5 mm of the triggering points, for movements to and from the phantom should be tabulated in the SAR report.

Toward phantom

Mode/Distance	Distance to DUT Output power (dBm)									
	15	14	13	12	11	10	9	8	7	6
GSM1900 GPRS 1Tx	28.26	28.26	28.3	28.3	28.18	24.07	24.03	24.03	24.12	24.19
GSM1900 GPRS 2Tx	27.81	27.81	27.94	27.84	27.88	23.96	24.15	24.03	23.97	23.96
GSM1900 GPRS 3Tx	26.23	26.38	26.35	26.35	26.2	22.26	22.18	22.29	22.32	22.28
GSM1900 GPRS 4Tx	23.71	23.64	23.71	23.63	23.65	21.11	21.29	21.22	21.26	21.2
WCDMA 2	22.71	22.64	22.58	22.6	22.67	18.21	18.32	18.34	18.29	18.17
WCDMA 4	21.88	21.92	21.92	22.01	21.97	18.16	18.02	18.01	18	18.08
LTE Band 2 (PCS)	23	23.03	23.02	23.03	22.93	18.04	17.93	17.97	18.02	18.06
LTE Band 4 (PCS)	22.94	23.01	22.89	22.95	22.94	19.05	18.94	18.94	19.05	19
LTE Band 66(PCS)	22.95	22.98	22.83	22.86	22.8	19.21	19.21	19.31	19.38	19.27
LTE Band 41(PCS)	24.09	24.12	24.17	24.15	24.19	21	21.19	21.1	21.18	20.99

Away From phantom

Distance	Distance to DUT Output power (dBm)									
	7	8	9	10	11	12	13	14	15	16
GSM1900 GPRS 1Tx	24.12	24.18	24.01	24.17	24.11	28.26	28.25	28.38	28.24	28.22
GSM1900 GPRS 2Tx	24.11	24.09	24.04	23.99	24.11	27.9	27.84	27.85	27.84	27.9
GSM1900 GPRS 3Tx	22.34	22.3	22.24	22.17	22.33	26.33	26.39	26.39	26.22	26.33
GSM1900 GPRS 4Tx	21.22	21.16	21.26	21.11	21.13	23.61	23.62	23.6	23.65	23.68
WCDMA 2	18.33	18.18	18.17	18.19	18.21	22.6	22.59	22.7	22.76	22.66
WCDMA 4	17.96	18.14	17.98	18	17.98	21.92	21.91	22	21.88	21.91
LTE Band 2 (PCS)	17.9	17.92	17.96	17.98	18.02	22.95	23	23.1	23.1	22.93
LTE Band 4 (PCS)	19.04	18.98	19.06	19.12	18.96	22.92	22.93	22.92	22.97	23.02
LTE Band 66(PCS)	19.25	19.27	19.35	19.37	19.28	22.96	22.93	22.84	22.9	22.98
LTE Band 41(PCS)	21.07	21.13	21.19	21.18	21.08	24.14	24.1	24.02	24.05	24.09

Based on the most conservative measured triggering distance of 10mm, additional Phablet SAR measurements were required at 9mm from Bottom side for the above modes

1.3 Proximity Sensor Coverage for SAR measurements

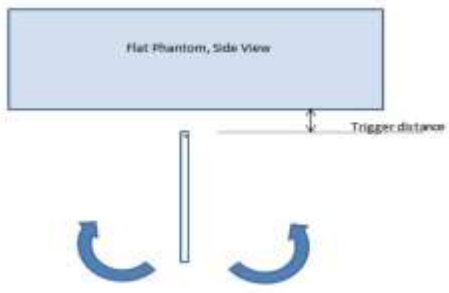
(KDB 616217 D04v01r02 §6.3)

As there is no spatial offset between the antenna and the proximity sensor element, proximity sensor coverage did not need to be assessed.

1.4 Proximity Sensor Tilt Angle Assessment

(KDB 616217 D04v01r02 §6.4)

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Bottom side parallel to the base of the flat phantom for each band.
The EUT was rotated about Bottom side for angles up to ±45°. If the output power increased during the rotation the DUT was moved 1mm toward the phantom and the rotation repeated. This procedure was repeated until the power remained reduced for all angles up ±45°.



Proximity sensor tilt angle assessment (Bottom side) KDB 616217 §6.4

Summary of Tablet Tilt Angle influence to Proximity Sensor Triggering (Bottom side)

Band (㎒)	Minimum distance at which power reduction was maintained over-45°	Power reduction status										
		-45°	-40°	-30°	-20°	-10°	0°	10°	20°	30°	40°	45°
GSM1900 GPRS 1Tx	10 mm	On	On	On	On	On	On	On	On	On	On	On
GSM1900 GPRS 2Tx	10 mm	On	On	On	On	On	On	On	On	On	On	On
GSM1900 GPRS 3Tx	10 mm	On	On	On	On	On	On	On	On	On	On	On
GSM1900 GPRS 4Tx	10 mm	On	On	On	On	On	On	On	On	On	On	On
WCDMA 2	10 mm	On	On	On	On	On	On	On	On	On	On	On
WCDMA 4	10 mm	On	On	On	On	On	On	On	On	On	On	On
LTE Band 2 (PCS)	10 mm	On	On	On	On	On	On	On	On	On	On	On
LTE Band 4 (PCS)	10 mm	On	On	On	On	On	On	On	On	On	On	On
LTE Band 66(PCS)	10 mm	On	On	On	On	On	On	On	On	On	On	On
LTE Band 41(PCS)	10 mm	On	On	On	On	On	On	On	On	On	On	On

1.5 Resulting test positions for Phablet SAR measurements

Main 1 Ant Wireless technologies	Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR
GSM1900/WCDMA B4/B2/LTE B2/B4/B66/B41	Rear	7	N/A	N/A	6
	Front	5	N/A	N/A	4
	Bottom	10	N/A	N/A	9

Note: FCC KDB Publication 616217 D04v01r02 Section 6 was used as a guideline for selecting SAR test distances for this device when being used in phablet use conditions

2. Power reduction Verification for WLAN Antenna

This device uses a power reduction mechanism for SAR compliance for WLAN operations during voice or VoIP held to ear scenarios.
When a user makes or receives a WLAN voice or WLAN VOIP call, the audio of the call is sent through the earpiece at the top of the device so that the device can be used next to the ear. The IR Sensor located at the top of the device is used to detect when the device is in proximity of the user's head in order to optimize the user's device experience, for example, to dim or turn off the screen to save battery life. For this model, an auxiliary function of the IR sensor is for the purpose of RF Safety
(i.e. reducing output power for Head SAR compliance)

Configurations	Modes	DUT Output power (dBm)	
		Un-Triggered (max)	Triggered (Reduced)
Held to Ear	2.4GHz 802.11b	17.98	14.56
	2.4GHz 802.11g	14.36	13.94
	2.4GHz 802.11n	13.29	13.79
	5 GHz 802.11a [BW 20](Except 100ch)	14.39	13.82
	5 GHz 802.11n [BW 20](Except 100ch)	14.20	13.59
	5 GHz 802.11n [BW 40](Except 102ch)	13.52	14.32
	5 GHz 802.11ac [BW 20](Except 100ch)	14.08	13.61
	5 GHz 802.11ac [BW 40](Except 102,110ch)	13.32	14.14

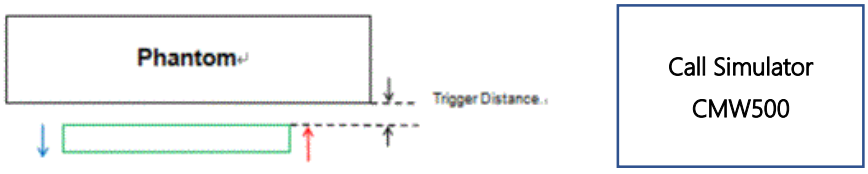
Note : 802.11 MIMO WiFi modes were not evaluated due to equipment limitations

2.1 Procedures for determining proximity sensor triggering distances

(KDB 616217 D04v01r02 §6.2)

We verified the power reduction function with the following procedures.
The DUT was moved toward the phantom in accordance with the steps outlined in KDB 616217 D04 §6.2 to determine the trigger distance for enabling power reduction. The DUT was moved away from the phantom to determine the trigger distance for resuming full power

1) Make a Voice call (VoIP) through a pre-installed VoIP application to call simulator
2) Per KDB616217 D04 §6.2, Measure the power while maintaining the voice call..
For detailed measurement conducted power results, please refer to the Section .11



Proximity Sensor Trigger Distance Assessment KDB 616217 D04 §6.2, front side

LEGEND
→ Direction of DUT travel for determination of power reduction triggering point
→ Direction of DUT travel for determination of full power resumption triggering point

Tissue simulating liquid	Trigger distance – Front (mm)	
	Moving toward phantom	Moving away phantom
2450 Head	60	69
5000 Head	60	69

Front side – EUT Moving toward (trigger) to the Phantom

(KDB 616217 D04v01r02 §6.2)

b) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction

d) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

Distance	Distance to DUT Output power (dBm)							
	81	78	75	72	69	66	63	60
2.4GHz 802.11b	18.02	17.88	17.99	18.07	17.9	18.02	17.96	14.57
2.4GHz 802.11g	14.32	14.26	14.38	14.34	14.32	14.26	14.45	13.91
2.4GHz 802.11n	13.31	13.26	13.35	13.3	13.19	13.34	13.31	13.86
5 GHz 802.11a [BW 20] (Except 100ch)	14.38	14.33	14.36	14.43	14.3	14.31	14.33	13.91
5 GHz 802.11n [BW 20] (Except 100ch)	14.18	14.29	14.28	14.17	14.2	14.1	14.28	13.59
5 GHz 802.11n [BW 40] (Except 102ch)	13.45	13.61	13.58	13.49	13.42	13.55	13.42	14.29
5 GHz 802.11ac [BW 20] (Except 100ch)	14.11	14.06	14.17	14.16	14.16	14.06	14.09	13.65
5 GHz 802.11ac [BW 40] (Except 102,110ch)	13.28	13.25	13.26	13.32	13.33	13.25	13.22	14.23

e) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

f) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom.

g) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

Distance	Distance to DUT Output power (dBm)									
	65	64	63	62	61	60	59	58	57	56
2.4GHz 802.11b	18	17.9	17.94	17.89	17.89	14.54	14.54	14.62	14.57	14.66
2.4GHz 802.11g	14.41	14.28	14.43	14.44	14.28	13.93	14.02	13.91	14.03	14.04
2.4GHz 802.11n	13.35	13.2	13.25	13.33	13.22	13.89	13.78	13.76	13.89	13.83
5 GHz 802.11a [BW 20] (Except 100ch)	14.35	14.34	14.29	14.34	14.3	13.91	13.73	13.88	13.8	13.76
5 GHz 802.11n [BW 20] (Except 100ch)	14.14	14.28	14.18	14.22	14.3	13.49	13.67	13.51	13.52	13.66
5 GHz 802.11n [BW 40] (Except 102ch)	13.52	13.53	13.61	13.58	13.52	14.32	14.32	14.32	14.33	14.37
5 GHz 802.11ac [BW 20] (Except 100ch)	14.15	14.01	14.06	14.06	14	13.62	13.62	13.69	13.6	13.57
5 GHz 802.11ac [BW 40] (Except 102ch,110ch)	13.25	13.32	13.32	13.24	13.42	14.23	14.07	14.24	14.24	14.07

Distance	Distance to DUT Output power (dBm)			
	57	54	51	48
2.4GHz 802.11b	14.55	14.51	14.47	14.61
2.4GHz 802.11g	13.87	14	13.85	14.04
2.4GHz 802.11n	13.77	13.82	13.87	13.85
5 GHz 802.11a [BW 20] (Except 100ch)	13.85	13.89	13.8	13.79
5 GHz 802.11n [BW 20] (Except 100ch)	13.57	13.64	13.53	13.57
5 GHz 802.11n [BW 40] (Except 102ch)	14.24	14.42	14.41	14.28
5 GHz 802.11ac [BW 20] (Except 100ch)	13.54	13.54	13.51	13.57
5 GHz 802.11ac [BW 40] (Except 102,110ch)	14.24	14.09	14.04	14.2

Front side – EUT Moving away (Release) from the Phantom

h) The process is then reversed by moving the tablet away from the phantom according to steps d) to g), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power

Distance	Distance to DUT Output power (dBm)										
	50	51	52	53	54	55	56	57	58	59	60
2.4GHz 802.11b	14.61	14.49	14.65	14.53	14.52	14.56	14.55	14.49	14.63	14.51	14.59
2.4GHz 802.11g	13.87	14.02	13.87	13.85	13.84	13.92	13.85	14.01	13.85	13.84	13.85
2.4GHz 802.11n	13.82	13.69	13.7	13.75	13.88	13.84	13.81	13.79	13.85	13.82	13.75
5 GHz 802.11a [BW 20] (Except 100ch)	13.92	13.85	13.86	13.82	13.84	13.78	13.74	13.74	13.83	13.75	13.8
5 GHz 802.11n [BW 20] (Except 100ch)	13.55	13.65	13.62	13.51	13.57	13.57	13.66	13.52	13.66	13.62	13.53
5 GHz 802.11n [BW 40] (Except 102ch)	14.32	14.35	14.38	14.33	14.22	14.29	14.26	14.36	14.31	14.29	14.25
5 GHz 802.11ac [BW 20] (Except 100ch)	13.71	13.59	13.62	13.51	13.62	13.54	13.6	13.64	13.61	13.53	13.62
5 GHz 802.11ac [BW 40] (Except 102,110ch)	14.21	14.2	14.09	14.09	14.06	14.09	14.17	14.15	14.17	14.11	14.14

Distance	Distance to DUT Output power (dBm)										
	61	62	63	64	65	66	67	68	69	70	71
2.4GHz 802.11b	14.46	14.64	14.56	14.56	14.66	14.66	14.51	14.66	14.5	17.91	17.99
2.4GHz 802.11g	13.89	13.84	13.99	13.93	14.04	13.91	14.01	13.84	13.98	14.46	14.27
2.4GHz 802.11n	13.77	13.8	13.76	13.7	13.87	13.72	13.74	13.8	13.85	13.33	13.29
5 GHz 802.11a [BW 20] (Except 100ch)	13.88	13.75	13.87	13.76	13.89	13.81	13.91	13.87	13.74	14.49	14.3
5 GHz 802.11n [BW 20] (Except 100ch)	13.62	13.61	13.56	13.59	13.69	13.5	13.58	13.63	13.57	14.19	14.11
5 GHz 802.11n [BW 40] (Except 102ch)	14.23	14.35	14.32	14.22	14.25	14.35	14.22	14.28	14.28	13.55	13.46
5 GHz 802.11ac [BW 20] (Except 100ch)	13.55	13.61	13.69	13.56	13.6	13.63	13.51	13.65	13.66	14.1	14.07
5 GHz 802.11ac [BW 40] (Except 102,110ch)	14.17	14.17	14.07	14.17	14.13	14.22	14.08	14.16	14.22	13.36	13.22

Distance	Distance to DUT Output power (dBm)			
	72	75	78	81
2.4GHz 802.11b	17.95	18.04	17.97	17.96
2.4GHz 802.11g	14.38	14.3	14.31	14.29
2.4GHz 802.11n	13.38	13.28	13.31	13.19
5 GHz 802.11a [BW 20] (Except 100ch)	14.4	14.38	14.44	14.37
5 GHz 802.11n [BW 20] (Except 100ch)	14.27	14.19	14.21	14.19
5 GHz 802.11n [BW 40] (Except 102ch)	13.43	13.51	13.59	13.47
5 GHz 802.11ac [BW 20] (Except 100ch)	14	14.14	14.04	14.05
5 GHz 802.11ac [BW 40] (Except 102,110ch)	13.23	13.3	13.42	13.25

i) The measured output power within ± 5 mm of the triggering points, for movements to and from the phantom should be tabulated in the SAR report.

Toward the phantom

Distance	Distance to DUT Output power (dBm)									
	65	64	63	62	61	60	59	58	57	56
2.4GHz 802.11b	18	17.9	17.94	17.89	17.89	14.54	14.54	14.62	14.57	14.66
2.4GHz 802.11g	14.41	14.28	14.43	14.44	14.28	13.93	14.02	13.91	14.03	14.04
2.4GHz 802.11n	13.35	13.2	13.25	13.33	13.22	13.89	13.78	13.76	13.89	13.83
5 GHz 802.11a [BW 20] (Except 100ch)	14.35	14.34	14.29	14.34	14.3	13.91	13.73	13.88	13.8	13.76
5 GHz 802.11n [BW 20] (Except 100ch)	14.14	14.28	14.18	14.22	14.3	13.49	13.67	13.51	13.52	13.66
5 GHz 802.11n [BW 40] (Except 102ch)	13.52	13.53	13.61	13.58	13.52	14.32	14.32	14.32	14.33	14.37
5 GHz 802.11ac [BW 20] (Except 100ch)	14.15	14.01	14.06	14.06	14	13.62	13.62	13.69	13.6	13.57
5 GHz 802.11ac [BW 40] (Except 102ch,110ch)	13.25	13.32	13.32	13.24	13.42	14.23	14.07	14.24	14.24	14.07

Away from the phantom

Distance	Distance to DUT Output power (dBm)									
	65	66	67	68	69	70	71	72	73	74
2.4GHz 802.11b	14.66	14.57	14.66	14.54	14.5	17.91	17.89	17.9	17.98	17.99
2.4GHz 802.11g	13.85	13.95	13.87	13.93	14	14.29	14.37	14.36	14.29	14.26
2.4GHz 802.11n	13.71	13.77	13.84	13.76	13.71	13.36	13.31	13.28	13.21	13.22
5 GHz 802.11a [BW 20] (Except 100ch)	13.81	13.78	13.77	13.82	13.86	14.39	14.31	14.48	14.42	14.48
5 GHz 802.11n [BW 20] (Except 100ch)	13.55	13.54	13.61	13.67	13.6	14.21	14.13	14.21	14.11	14.14
5 GHz 802.11n [BW 40] (Except 102ch)	14.42	14.36	14.37	14.22	14.39	13.42	13.61	13.49	13.46	13.54
5 GHz 802.11ac [BW 20] (Except 100ch)	13.58	13.63	13.64	13.54	13.64	14.09	14.08	14	14.03	14
5 GHz 802.11ac [BW 40] (Except 102ch,110ch)	14.21	14.1	14.06	14.18	14.06	13.34	13.42	13.37	13.24	13.26

Note : 802.11 MIMO WiFi modes were not evaluated due to equipment limitations

2.2 Procedures for determining antenna and proximity sensor coverage

KDB 616217 D04 §6.3

As there is no spatial offset between the antenna and the IR sensor element, IR sensor coverage did not need to be assessed

2.3 Procedures for determining tablet tilt angle influences to proximity sensor triggering

KDB 616217 D04 §6.4

The DUT was positioned directly below the flat phantom at the minimum measured trigger distance with Top side parallel to the base of the flat phantom for each wireless technologies.
The IR sensor is activated while in a held-to-ear voice or VOIP call with the active audio receiver.
Therefore, tilt angle 15 degree position of Head exposure was additional verified.
Summary of Tablet Tilt Angle influence to Proximity Sensor Triggering (front side)

Band (MHz)	Minimum distance at which power reduction	Power reduction status
		15°
2450HMz Head	60mm	On
5000HMz Head	60 mm	On

Therefore, the IR proximity sensor has no influence of the tilt angle

2.4 Resulting test positions for SAR measurements

Wireless Technologies	DUT Position	§ 6.2 Triggering distance	§ 6.3 Coverage	§ 6.4 Tilt Angle	Worst case Distance fore SAR
WLAN	Front	60mm	N/A	60mm	59mm

Conclusion:
According to FCC KDB 616217 sec.6, we verified the operating distance and Tilt angle of the Proximity sensor for WLAN transmitter with VoIP of this product and confirmed that the Proximity sensor operates correctly in the VoIP (Held to ear) conditions. This IR sensor impacts only WI-FI output Power and has no impact on any other transmitter