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SAR TEST REPORT

Applicant Name: **SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea	**Date of Issue: Jun. 17, 2022** **Test Report No.: HCT-SR-2206-FC001** **Test Site: HCT CO., LTD.**

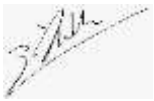
FCC ID: **A3LSMG990B2**

Equipment Type:	**Mobile Phone**
Application Type	**Certification**
FCC Rule Part(s):	**CFR §2.1093**
Model Name:	**SM-G990B2/DS**
Additional Model Name:	**SM-G990B2**
Date of Test:	**May. 26, 2022 ~ Jun. 15, 2022**

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

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

Tested By



Chanmin, Ko
Test Engineer
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Reviewed By

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	Jun. 17, 2022	Initial Release

This test results were applied only to the test methods required by the standard.

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

Table of Contents

1. Test Regulations

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

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 248227 D01 802.11 WLANSAR 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 MHz to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- FCC KDB Publication 971168 D01 Power Meas License Digital Systems v03r01

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

- October 2013 TCB Workshop Notes (GPRS testing criteria)
- October 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE DL CA SAR Test Exclusion)
- November 2019 TCBC Workshop Notes (SPLSR Hotspot Combination)
- April 2022 TCBC Workshop Notes (Sum-Peak Location Separation Ratio)

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 (Testing No. KT197)

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-G990B2/DS
Equipment Type	Mobile Phone
FCC ID	A3LSMG990B2
Additional Model Name	SM-G990B2
Application Type	Certification
Applicant	SAMSUNG Electronics Co., Ltd.

3.2 Attestation of test result of device under test

The Highest Reported SAR						
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	0.33	0.58	1.11	N/A
GSM/GPRS/EDGE 1900	1 850.2 ㎒~ 1 909.8 ㎒	PCE	0.10	0.38	0.69	1.44
UMTS Band 5	826.4 ㎒~ 846.6 ㎒	PCE	0.24	0.39	0.98	N/A
UMTS Band 4	1 712.4 ㎒~ 1 752.6 ㎒	PCE	0.19	0.63	1.07	**2.19**
UMTS Band 2	1 852.4 ㎒~ 1 907.6 ㎒	PCE	0.19	**0.72**	**1.17**	1.98
LTE Band 2 (PCS)	1 850.7 ㎒~ 1 909.3 ㎒	PCE	0.17	0.57	1.13	1.49
LTE Band 4 (AWS)	1 710.7 ㎒~ 1 754.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 5 (Cell)	824.7 ㎒~ 848.3 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 12	699.7 ㎒~ 715.3 ㎒	PCE	0.18	0.24	0.36	N/A
LTE Band 17	706.5 ㎒~ 713.5 ㎒	PCE	N/A	N/A	N/A	N/A
LTE Band 26(Cell)	814.7 ㎒~ 848.3 ㎒	PCE	0.25	0.36	0.68	N/A
LTE Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒	PCE	<0.10	0.42	0.51	N/A
LTE Band 41 (HPUE)	2 498.5 ㎒ ~ 2 687.5 ㎒	PCE	<0.10	0.26	0.43	N/A
LTE Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒	PCE	0.19	0.66	1.00	1.93
NR Band n5	826.5 ㎒ ~ 846.5 ㎒	PCE	0.23	0.39	0.80	N/A
NR Band n66	1 712.5 ㎒ ~ 1 777.5 ㎒	PCE	0.20	0.66	0.72	1.84
802.11b	2 412 ㎒~ 2 472 ㎒	DTS	0.58	<0.10	0.30	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	0.49	0.25	N/A	**2.19**
U-NII-2C	5 500 ㎒~ 5 720 ㎒	NII	0.48	0.21	N/A	1.89
U-NII-3	5 745 ㎒~ 5 825 ㎒	NII	0.63	<0.10	0.12	N/A
Bluetooth	2 402 ㎒~ 2 480 ㎒	DSS	**0.94**	<0.10	0.24	N/A
Simultaneous SAR per KDB 690783 D01v01r03			**1.58**	1.32	1.57	**3.44**
Date(s) of Tests:	May 26, 2022 ~ Jun. 15, 2022					

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band& Mode	**Operating Mode**	**Tx Frequency**
GSM/GPRS/EDGE 850	Voice / Data	824.2 ㎒~ 848.8 ㎒
GSM/GPRS/EDGE 1900	Voice / Data	1 850.2 ㎒~ 1 909.8 ㎒
UMTS Band 5	Voice / Data	826.4 ㎒~ 846.6 ㎒
UMTS Band 4	Voice / Data	1 712.4 ㎒~ 1 752.6 ㎒
UMTS Band 2	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 17	Voice / Data	706.5 ㎒~ 713.5 ㎒
LTE Band 26	Voice / Data	814.7 ㎒~ 848.3 ㎒
LTE Band 41	Voice / Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE Band 66 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 779.3 ㎒
NR Band n5	Voice / Data	826.5 ㎒ ~ 846.5 ㎒
NR Band n66	Voice / Data	1 712.5 ㎒ ~ 1 777.5 ㎒
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	Voice / Data	2 412 ㎒~ 2 472 ㎒
Bluetooth	Data	2 402 ㎒ ~ 2 480 ㎒
NFC	Data	13.56 ㎒

Device Description		
HW version	REV1.1	
SW version	G990B.001	
Device Serial Numbers	**Mode**	**Serial Number**
	GSM850 / GSM1900 / UMTS B5	VE21186M, VE21180M, VE21458M
	UMTS B2 / UMTS B4	VE21177M
	LTE B2 / LTE B12 / LTE B26 / LTE B66	VE21180M, VE21458M, VE21177M
	LTE B41 / NR n5 / NR n66 / Bluetooth	VE21461M, VE21180M
	2.4GHz WLAN / 5GHz WLAN	VE21186M, VE21177M, VE21461M
	The manufacturer has confirmed that the devices tested have the same physical, mechanical and thermal characteristics are within operational tolerances expected for production units.	

4.2 Power Reduction for SAR

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

This device uses an independent fixed level power reduction mechanism for WLAN operations when during all voice or VoIP held to ear scenarios. Per FCC Guidance, the held-to-ear exposureconditions were evaluated at reduced power according to the head SAR positions described in IEEE 1528-2013.
Detailed descriptions of the power reduction mechanism are included 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 2G/3G/4G/5GNominal and Maximum Output Power

A. GSM Modes

Maximum 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	33.5	33.5	32.5	30.5	28.5	28.0	26.0	24.5	23.5
	Nominal	32.5	32.5	31.5	29.5	27.5	27.0	25.0	23.5	22.5
GSM/GPRS/EDGE1900	Maximum	30.0	30.0	29.0	26.5	24.5	26.5	25.0	23.0	22.0
	Nominal	29.0	29.0	28.0	25.5	23.5	25.5	24.0	22.0	21.0

(Tolerance: Nominal +1dB ~-1.5dB)

Hotspot Mode / Earjack Insert Mode / Grip Sensor Mode

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	27.0	27.0	25.5	24.0	22.0	24.0	22.0	20.0	19.0
	Nominal	26.0	26.0	24.5	23.0	21.0	23.0	21.0	19.0	18.0

(Tolerance: Nominal +1dB ~-1.5dB)

B. UMTS Modes

Maximum Output Power

Mode/Band		ModulatedAverage(dBm)			
		3GPPUMTS	3GPPHSDPA	3GPPHSUPA	DC-HSDPA
UMTS Band 5 (850 ㎒)	Maximum	25.5	24.0	24.0	24.0
	Nominal	24.5	23.0	23.0	23.0
UMTS Band 4 (1700 ㎒)	Maximum	23.0	22.0	22.0	22.0
	Nominal	22.0	21.0	21.0	21.0
UMTS Band 2 (1900 ㎒)	Maximum	23.0	22.0	22.0	22.0
	Nominal	22.0	21.0	21.0	21.0

(Tolerance: Nominal +1dB ~-1.5dB)

Hotspot Mode / Earjack Insert Mode / Grip Sensor Mode

Mode/Band		ModulatedAverage(dBm)			
		3GPPUMTS	3GPPHSDPA	3GPPHSUPA	DC-HSDPA
UMTS Band 4 (1700 ㎒)	Maximum	20.0	19.0	19.0	19.0
	Nominal	19.0	18.0	18.0	18.0
UMTS Band 2 (1900 ㎒)	Maximum	19.5	18.5	18.5	18.5
	Nominal	18.5	17.5	17.5	17.5

(Tolerance: Nominal +1dB ~-1.5dB)

C. LTE Modes

Mode / Band		Modulated Average (dBm)		
		Max.	Hotspot Mode	Grip Sensor Mode / Earjack Insert Mode
LTE Band 2 (PCS)	Maximum	23.0	19.0	19.0
	Nominal	22.0	18.0	18.0
LTE Band 4 (AWS)	Maximum	23.5	19.5	19.5
	Nominal	22.5	18.5	18.5
LTE Band 5 (Cell)	Maximum	25.0		
	Nominal	24.0		
LTE Band 12	Maximum	25.0		
	Nominal	24.0		
LTE Band 17	Maximum	25.0		
	Nominal	24.0		
LTE Band 26(Cell)	Maximum	25.0		
	Nominal	24.0		
LTE TDD Band 41	Maximum	24.5	21.5	21.5
	Nominal	23.5	20.5	20.5
LTE TDD Band 41 (HPUE)	Maximum	26.0	23.0	23.0
	Nominal	25.0	22.0	22.0
LTEBand 66 (AWS)	Maximum	23.5	19.5	19.5
	Nominal	22.5	18.5	18.5

(Tolerance: Nominal +1dB ~-1.5dB)

D. 5G NR Sub6

Mode / Band		Modulated Average (dBm)		
		Max.	Hotspot Mode	Grip Sensor Mode / Earjack Mode
NR Band n5	Maximum	25.0		
	Nominal	24.0		
NR Band n66	Maximum	24.0	19.5	19.5
	Nominal	23.0	18.5	18.5

4.3.2 Maximum output power

2.4 GHz, 5 GHz WIFI

Mode	Band	SISO (AN2)						MIMO					
		a	b	g	n	ac	ax(SU)	a (CDD)	B (CDD)	g (CDD)	n (CDD+STBD, SDM)	ac (CDD+STBC, SDM)	ax(SU) (CDD+STBC, SDM)
2.4GHz	2.45GHz		14 (1,2ch : 11, 3ch : 12)	14 (1,2ch : 11, 3ch : 12)	15 (1ch: 13 2~4ch: 14)		15		17 (1,2ch : 14, 3ch : 15)	17 (1,2ch : 14, 3ch : 15)	18 (1ch: 16 2~4ch: 17)		18
5GHz (20MHz)	5200MHz							18			18	18	19
	5300MHz							18			18	18	19
	5500MHz							18			18	18	19
	5800MHz							13			13	13	13
5GHz (40MHz)	5200MHz										19	18	18
	5300MHz										19	18	18
	5500MHz										19	18	18 (102ch : 17)
	5800MHz										13	13	13
5GHz (80MHz)	5200MHz											17	17
	5300MHz											17	16
	5500MHz											17	17
	5800MHz											13	13

(Tolerance: Target -1.5dB, +1dB)

802.11ax RU Tx Power

Mode	Band	SISO(ANT2)						MIMO					
		26T	52T	106T	242T	484T	996T	26T	52T	106T	242T	484T	996T
2.4GHz	2.45GHz	8	11 (1,2ch : 10)	14 (1~6ch : 13)	15 (1ch: 13 11ch: 11)			11	14 (1,2ch : 13)	17 (1~6ch : 16)	18 (1ch: 16 11ch: 14)		
5GHZ (20MHz)	5200MHz							10.5	14	17	19		
	5300MHz							10.5	14	17	19		
	5500MHz							10.5	14	17	19		
	5800MHz							12.5	13	13	13		
5GHZ (40MHz)	5200MHz							10	13	17	18 (38ch : 17)	18 (38ch : 15)	
	5300MHz							10	13	17 (62ch : 15)	18 (62ch : 15)	18 (62ch : 14)	
	5500MHz							10	13	17 (102ch : 15)	18 (102ch : 14)	18 (102ch : 14)	
	5800MHz							13	13	13	13	13	
5GHZ (80MHz)	5200MHz							10	13.5	17	17	16	16
	5300MHz							10	13.5	15	15	15	15
	5500MHz							10	13.5	17 (106ch : 15)	18 (106ch : 15)	18 (106ch : 14)	17 (106ch : 15)
	5800MHz							13	13	13	13	13	13

(Tolerance: Target -1.5dB, +1dB)

4.3.3 Reduced output power

2.4 ㎓, 5 ㎓ WIFI (RCV On)

Mode	Band	SISO (ANT2)						MIMO					
		a	b	g	n	ac	ax(SU)	a (CDD)	B (CDD)	g (CDD)	n (CDD+STBD, SDM)	ac (CDD+STBC, SDM)	ax(SU) (CDD+STBC, SDM)
2.4GHz	2.45GHz		11	11	11		11		14	14	14		14
5GHz (20MHz)	5200MHz							14			14	14	14
	5300MHz							14			14	14	14
	5500MHz							14			14	14	14
	5800MHz							13			13	13	13
5GHz (40MHz)	5200MHz										14	14	14
	5300MHz										14	14	14
	5500MHz										14	14	14
	5800MHz										13	13	11.5
5GHz (80MHz)	5200MHz											14	14
	5300MHz											14	14
	5500MHz											14	14
	5800MHz											13	10.5

(Tolerance: Target -1.5dB, +1dB)

802.11ax RU Tx Power (RCV On)

Mode	Band	SISO(ANT2)						MIMO					
		26T	52T	106T	242T	484T	996T	26T	52T	106T	242T	484T	996T
2.4GHz	2.45GHz	8	11 (1,2ch : 10)	11	11			11	14 (1,2ch : 13)	14	14		
5GHZ (20MHz)	5200MHz							10.5	14	14	14		
	5300MHz							10.5	14	14	14		
	5500MHz							10.5	14	14	14		
	5800MHz							12.5	13	13	13		
5GHZ (40MHz)	5200MHz							10	13	14	14	14	
	5300MHz							10	13	14	14	14	
	5500MHz							10	13	14	14	14	
	5800MHz							11.5	11.5	11.5	11.5	11.5	
5GHZ (80MHz)	5200MHz							10	13.5	14	14	14	14
	5300MHz							10	13.5	14	14	14	14
	5500MHz							10	13.5	14	14	14	14
	5800MHz							10.5	10.5	10.5	10.5	10.5	10.5

(Tolerance: Target -1.5dB, +1dB)

2.4 ㎓, 5 ㎓ WIFI (RSDB)

Mode	Band	SISO (ANT2)						MIMO					
		a	b	g	n	ac	ax(SU)	a (CDD)	B (CDD)	g (CDD)	n (CDD+STBD, SDM)	ac (CDD+STBC, SDM)	ax(SU) (CDD+STBC, SDM)
2.4GHz	2.45GHz		11	11	11		11		14	14	14		14
5GHz (20MHz)	5200MHz							14			14	14	14
	5300MHz							14			14	14	14
	5500MHz							14			14	14	14
	5800MHz							13			13	13	13
5GHz (40MHz)	5200MHz										14	14	14
	5300MHz										14	14	14
	5500MHz										14	14	14
	5800MHz										13	13	11.5
5GHz (80MHz)	5200MHz											14	14
	5300MHz											14	14
	5500MHz											14	14
	5800MHz											13	10.5

(Tolerance: Target -1.5dB, +1dB)

802.11ax RU Tx Power (RSDB)

Mode	Band	SISO (ANT2)						MIMO					
		26T	52T	106T	242T	484T	996T	26T	52T	106T	242T	484T	996T
2.4GHz	2.45GHz	8	11 (1,2ch : 10)	11	11			11	14 (1,2ch : 10)	14	14		
5GHZ (20MHz)	5200MHz							10.5	14	14	14		
	5300MHz							10.5	14	14	14		
	5500MHz							10.5	14	14	14		
	5800MHz							12.5	13	13	13		
5GHZ (40MHz)	5200MHz							10	13	14	14	14	
	5300MHz							10	13	14	14	14	
	5500MHz							10	13	14	14	14	
	5800MHz							11.5	11.5	11.5	11.5	11.5	
5GHZ (80MHz)	5200MHz							10	13.5	14	14	14	14
	5300MHz							10	13.5	14	14	14	14
	5500MHz							10	13.5	14	14	14	14
	5800MHz							10.5	10.5	10.5	10.5	10.5	10.5

(Tolerance: Target -1.5dB, +1dB)

2.4 ㎓, 5 ㎓ WIFI (RSDB with RCV On)

Mode	Band	SISO (ANT2)						MIMO					
		a	b	g	n	ac	ax(SU)	a (CDD)	B (CDD)	g (CDD)	n (CDD+STBD, SDM)	ac (CDD+STBC, SDM)	ax(SU) (CDD+STBC, SDM)
2.4GHz	2.45GHz		11	11	11		11		14	14	14		14
5GHz (20MHz)	5200MHz							14			14	14	14
	5300MHz							14			14	14	14
	5500MHz							14			14	14	14
	5800MHz							13			13	13	13
5GHz (40MHz)	5200MHz										14	14	14
	5300MHz										14	14	14
	5500MHz										14	14	14
	5800MHz										13	13	11.5
5GHz (80MHz)	5200MHz											14	14
	5300MHz											14	14
	5500MHz											14	14
	5800MHz											13	10.5

(Tolerance: Target -1.5dB, +1dB)

802.11ax RU Tx Power (RSDB with RCV On)

Mode	Band	SISO						MIMO					
		26T	52T	106T	242T	484T	996T	26T	52T	106T	242T	484T	996T
2.4GHz	2.45GHz	8	11 (1,2ch : 10)	11	11			11	14 (1,2ch : 10)	14	14		
5GHZ (20MHz)	5200MHz							10.5	14	14	14		
	5300MHz							10.5	14	14	14		
	5500MHz							10.5	14	14	14		
	5800MHz							12.5	13	13	13		
5GHZ (40MHz)	5200MHz							10	13	14	14	14	
	5300MHz							10	13	14	14	14	
	5500MHz							10	13	14	14	14	
	5800MHz							11.5	11.5	11.5	11.5	11.5	
5GHZ (80MHz)	5200MHz							10	13.5	14	14	14	14
	5300MHz							10	13.5	14	14	14	14
	5500MHz							10	13.5	14	14	14	14
	5800MHz							10.5	10.5	10.5	10.5	10.5	10.5

(Tolerance: Target -1.5dB, +1dB)

4.3.4 Maximum Bluetooth Power

Mode / Band		Modulated Average (dBm)		
		2 402 MHz	2 441 MHz	2 480 MHz
Bluetooth (1Mbps)	Maximum	15.0	16.0	15.0
	Nominal	14.0	15.0	14.0
Bluetooth (EDR)	Maximum	11.0	12.5	11.0
	Nominal	10.0	11.5	10.0

Mode / Band		Modulated Average (dBm)
Bluetooth (LE 2Mbps)	Maximum	9.5
	Nominal	8.5
Bluetooth (LE 1Mbps, 125/500kbps)	Maximum	9.5
	Nominal	8.5

(Upper Tolerance: Target +1dB)

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 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 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 (PCS)	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 (AWS)	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 ㎒		1 732.5 (20175)	
LTE Band 5 (Cell)	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 ㎒		836.5 (20525)	
LTE Band 12	1.4 ㎒	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 ㎒	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 ㎒	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 ㎒		707.5 (23095)	
LTE Band 17	5 ㎒		710.0(23790)	
	10 ㎒		710.0(23790)	
LTE Band 26 (Cell)	1.4 ㎒	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 ㎒	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 ㎒	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 ㎒	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 ㎒		831.5 (26865)	

Ch. No.&Freq.(MHz)		Low	Mid	High
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	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)
	10 MHz	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)
	15 MHz	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)
	20 MHz	2506.0(39750)	2549.5(40185)	2593.0(40620)	2636.5(41055)	2680.0(41490)

UE Category	LTE Rel. 15 DL: Category 20, UL: Category 18	
HPUE Power Class	LTE TDD 41 Power Class 3: (Duty: 63.3%) Power Class 2: (Duty:43.3%)	
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256QAM	
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 supports DL-link Carrier aggregations Inter-band & Intra-band DL 2CA, DL 3CA, DL 4CA, DL 5CA Detaled information of Down-Link CA are included in the Appendix.I and Technical Description document
LTE Release information	This device does not support full CA features on 3GPP Release 15. It supports carrier aggregation, downlink MIMO. All other uplink communications are identical to te release 8 specifications. The following LTE Release 15 Features are not supported: Relay, Hetnet, Enhanced elCl, MDH, cross-carrier Scheduling, Enhanced SC-FDMA.	

4.5 5G NR Sub6 Information

Ch. No.& Freq.(㎒)		Low / Low-Mid	Mid	Mid-High / High
NR Band n5 (Cell)	5 ㎒	826.5 (165300)	836.5 (167300)	846.5 (169300)
	10 ㎒		836.5 (167300)	
	15 ㎒		836.5 (167300)	
	20 ㎒		836.5 (167300)	
NR Band n66(AWS)	5 ㎒	1 712.5 (342500)	1 745 (349000)	1 777.5 (355500)
	10 ㎒	1 715 (343000)	1 745 (349000)	1 775 (355000)
	15 ㎒	1 717.5 (343500)	1 745 (349000)	1 772.5 (354500)
	20 ㎒	1 720 (344000)	1 745 (349000)	1 770 (354000)

Item.	Description
NR Band n5/n66 SCS	15 ㎑
A-MPR disabled for SAR Testing.	Yes
5G NR UL/DL FR1	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM DFT-s-OFDM: π/2-BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM
Non-Standalone & StandAlone are supported. More detailed specifications of the 5G NR bands are contained in the Technical description document.	
EN-DC Carrier Aggregation Possible Combinations	The technical description includes all the possible carrier aggregation combinations
LTE Anchor Bands for NR Band n5	LTE B2/B66
LTE Anchor Bands for NR Band n 66	LTE B5/B12

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.

Antenna	Mode	Rear	Front	Left	Right	Bottom	Top
Main #1	GSM/GPRS/EDGE 850	Yes	Yes	Yes	Yes	Yes	No
Main #1	GSM/GPRS/EDGE 1900	Yes	Yes	Yes	Yes	Yes	No
Main #1	UMTS Band 5	Yes	Yes	Yes	Yes	Yes	No
Main #1	UMTS Band 4	Yes	Yes	Yes	Yes	Yes	No
Main #1	UMTS Band 2	Yes	Yes	Yes	Yes	Yes	No
Main #1	LTE Band 2 (PCS)	Yes	Yes	Yes	Yes	Yes	No
Main #1	LTE Band 4 (AWS)	Yes	Yes	Yes	Yes	Yes	No
Main #1	LTE Band 12	Yes	Yes	Yes	Yes	Yes	No
Main #1	LTE Band 17	Yes	Yes	Yes	Yes	Yes	No
Main #1	LTE Band 26 (Cell)	Yes	Yes	Yes	Yes	Yes	No
Main #2	LTE TDD Band 41	Yes	Yes	Yes	No	Yes	No
Main #1	LTE Band 66 (AWS)	Yes	Yes	Yes	Yes	Yes	No
Sub #2	2.4 GHz WLAN 1	Yes	Yes	Yes	No	No	Yes
Sub #3	5 GHz WLAN 1	Yes	Yes	Yes	No	No	Yes
Sub #4	2.4 GHz/5 GHz WLAN 2	Yes	Yes	Yes	No	No	Yes
Sub #2	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.
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	BodyWorn	Hotspot	Extremity
GSM voice + 2.4GHz Bluetooth	Yes^	Yes	N/A	Yes^
GSM voice + 2.4GHz WI-FI MIMO	Yes	Yes	N/A	Yes
GSM voice + 5GHz WI-FI MIMO	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz WI-FI Ant 2+ 2.4GHz Bluetooth	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz Bluetooth + 5GHz WI-FI MIMO	Yes^	Yes	N/A	Yes^
UMTS + 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
UMTS + 2.4GHz WI-FI MIMO	Yes	Yes	Yes	Yes
UMTS + 5GHz WI-FI MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4GHz WI-FI MIMO + 5GHz WI-FI MIMO	Yes	Yes	Yes	Yes
UMTS + 2.4GHz Bluetooth + 5GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes^
UMTS + 2.4GHz WI-FI Ant 2+ 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
LTE + 5GNR	Yes	Yes	N/A	Yes
LTE + 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
LTE + 2.4GHz Bluetooth + 5GNR	Yes^	Yes	Yes^	Yes^
LTE + 2.4GHz Bluetooth + 5GHz WI-FI MIMO	Yes^	Yes	Yes^	Yes^
LTE + 2.4GHz WI-FI MIMO	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI MIMO + 5GNR	Yes*	Yes	Yes	Yes
LTE + 5GHz WI-FI MIMO	Yes	Yes	Yes	Yes
LTE + 5GHz WI-FI MIMO + 5GNR	Yes*	Yes	Yes	Yes
LTE + 2.4GHz WI-FI MIMO + 5GHz WI-FI MIMO	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI MIMO + 5GHz WI-FI MIMO + 5GNR	Yes*	Yes	Yes	Yes
LTE + 2.4GHz Bluetooth + 5GHz WI-FI MIMO	Yes^*	Yes	Yes^	Yes^
LTE + 2.4GHz Bluetooth + 5GHz WI-FI MIMO + 5GNR	Yes^*	Yes	Yes^	Yes^
LTE + 2.4GHz WI-FI Ant 2+ 2.4GHz Bluetooth	Yes^*	Yes	Yes^	Yes^
LTE + 2.4GHz WI-FI Ant 2+ 2.4GHz Bluetooth + 5GNR	Yes^*	Yes	Yes^	Yes^
GPRS/EDGE Data + 2.4GHz Bluetooth	Yes*^	Yes*	Yes^	Yes*^
GPRS/EDGE Data + 2.4GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes*
GPRS/EDGE Data + 5GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes*
GPRS/EDGE Data + 2.4GHz WI-FI MIMO + 5GHz WI-FI MIMO	Yes*	Yes*	Yes	Yes*
GPRS/EDGE Data + 2.4GHz Bluetooth+ 5GHz WI-FI MIMO	Yes*^	Yes*	Yes^	Yes*^
GPRS/EDGE Data + 2.4GHz WI-FI Ant 2+ 2.4GHz Bluetooth	Yes*^	Yes*	Yes^	Yes*^

Note:
1. Bluetooth cannot transmit simultaneously with 2.4GHz WLAN.
2. 5GHz WLAN can transmit simultaneously with Bluetooth
3. UMTS +WLAN scenario also represents the UMTS Voice/DATA + WLAN hotspot scenario.
4. VoIP is supported in GPRS/EDGE.
5. The highest reported SAR for each exposure condition is used for SAR summation purpose.
6. WLANHotspot is supported for 2.4 GHz/UNII-3 of 5 GHz WLAN.
7. Per the manufacture, WIFI Direct is not expected to be used in conjunction with a held to ear or body-worn accessory voice call. Therefore, there are no simultaneous transmission scenarios involving WIFI direct beyond that listed in the above table
8. This device supports Bluetooth tethering. ^ BluetoothTetheringis considered.
9. * Pre-installed VOIP applications areconsidered.
10. This device supports VoLTE/ VoWiFi.

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 for 5 GHz
b) Up to 20㎒ Bandwidth only for 2.4 GHz
c) 2Tx Antenna output
d) Up to 1024 QAM is supported
e) TDWR and Band gap channels are supportedfor 5 GHz
f) Straddle channels are supported.

Per FCC KDB Publication 648474 D04v01r03, this device is considered a "phablet" since the diagonal dimension is greater than 160mm and less than 200mm. Phablet SAR tests are required when wireless router mode does not apply or if wireless router 1g SAR > 1.2 W/kg. Because wireless router operations are not supported for U-NII-1, U-NII-2A & U-NII-2C WLAN, phablet SAR tests were performed. Phablet SAR was not evaluated for 2.4 GHz WIFI, 2.4 GHz Bluetooth, and U-NII-3 WLAN operations since wireless router 1g SAR was < 1.2 W/kg.
This device supports 6GHz WLAN operations. RF Exposure assessment for these bands can be found in the WIFI 6E RF exposure Report.

4.8.2 Licensed Transmitter(s)

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

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

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

This Device supports 256QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAMuplink configurations were measured per section 5.1 of FCC KDB 941225 D05v02r05. SAR was not required for 256QAM since the highest maximum output power for 256QAM is ≤ 0.5dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is ≤1.45 W/Kg, per section 5.2.4 for FCC KDB941225 D05v02r05.
This device supports downlink 4x4 MIMO operations for some LTE Bands. Per May 2017 TCB Workshop Notes, SAR for 4x4 DL MIMO was not needed since the maximum average output power in 4x4 DL MIMO mode was not more than 0.25 dB higher than the maximum output power with 4x4 DL MIMO inactive.

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

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

This 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-$\frac{Maximumtune-up(mW)}{Measured\ Conducted\ Power(mW)}$

The Reported SAR for WLAN and Bluetooth

The Reported SAR = The Measured SAR x-$\frac{Maximumtune-up(mW)}{Measured\ Conducted\ Power(mW)}$ x Duty factor

FCC KDB 447498 D01v06 General RF Exposure Guidance introduces a new formula for calculating the SAR a Peak Location Separation Ratio (SPLSR) between pairs of simultaneously transmitting antennas:

$SPLSR_i$=$(SAR_1 + SAR_2)^{1.5}/R_i$

Where:

SAR_1 is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

SAR_2 is the highest measured of estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

Ri_i is the separation distance between the pair of simultaneous transmitting antennas, When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of $[(X_1 - X_2)^2 + (Y_1 - Y_2)^2 + (Z_1 - Z_2)^2]$

In order for a pair of simultaneous transmitting antennas with the sum 1-g of SAR> 1.6 W/kg and with the sum 10-g of SAR >4W/Kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$(SAR_1 + SAR_2)^{1.5}/R_i \leq 0.04$ for 1g SAR and $(SAR_1 + SAR_2)^{1.5}/R_i \leq 0.1$ for 10g SAR.

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 ㎓. 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)

Where:
= conductivity of the tissue-simulant material (S/m)
= mass density of the tissue-simulant material (kg/㎥)
= 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.

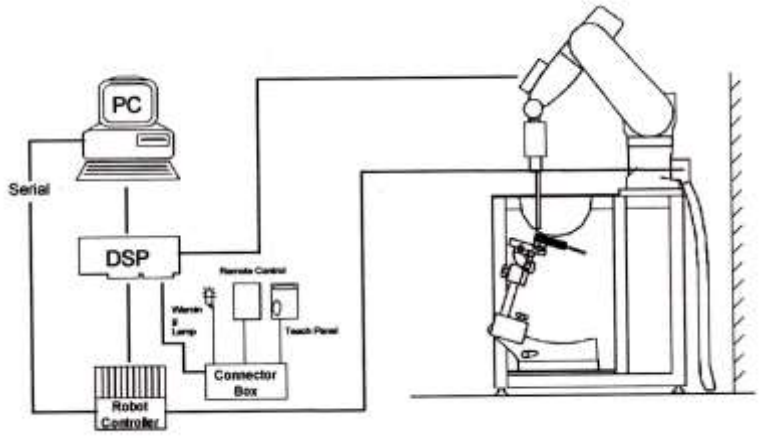


Figure 2. HCT SAR Lab. Test Measurement Set-up

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.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface
normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum areascan Spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤15 mm
2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm
4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">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.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: Δx_{zoom}, Δy_{zoom}</td><td>≤ 2 GHz: ≤8mm
2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*
4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm
4-5 GHz: ≤3 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between1st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm
4-5 GHz: ≤2.5 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$: between subsequent Points</td><td colspan="2">≤1.5·$\Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm
4-5 GHz: ≥25 mm
5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">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.</td></tr>
</table>

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 ears 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.

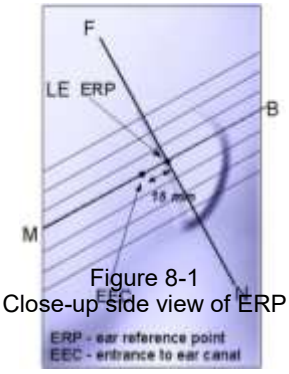


Figure 8-1
Close-up side view of ERP

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

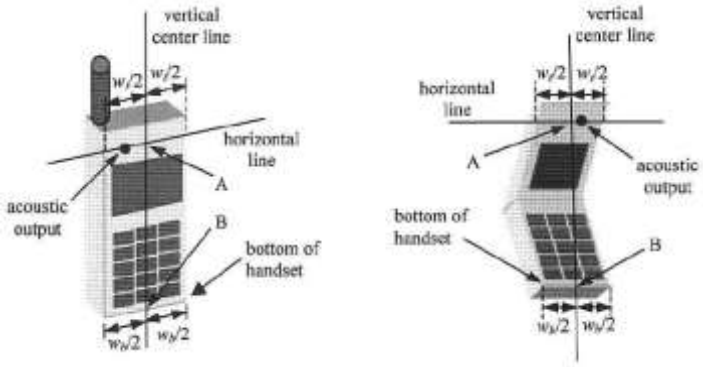


Figure 6-3. Handset vertical and horizontal reference lines

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.

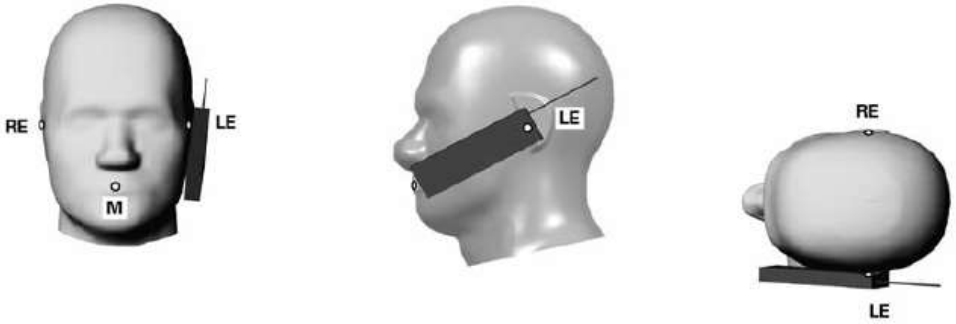


Figure 8.4 Cheek/ Touch position of the wireless device

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 mix used conditions for this type of devices. Since the hotspot SAR results may overlap with the Body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some Body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01v06 publication procedures. The Portable Hotspot feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

8.8 Extremity Exposure Configurations

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

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

8.9 Additional Test Positions due to Proximity Conditions

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

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

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

Wireless technologies	Position	§6.2 Triggering Distance (mm)	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR (mm)
WWAN(GSM 1900,UMTS B2/B4, LTE B2/B4/B66/NR n66)	Rear	9	N/A	N/A	8
	Front	7	N/A	N/A	6
	Bottom	14	N/A	N/A	13

8.10 Bluetooth tethering Configurations

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

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

9. RF Exposure Limits

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

NOTES:

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

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

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

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

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

10. FCC SAR General Measurement Procedures

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

10.1 Measured and Reported SAR

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

10.2 3G SAR Test Reduction Procedure

10.2.1 GSM, GPRS AND EDGE

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

10.2.2 SAR Test Reduction

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

10.2.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01v03r01-3G SAR Measurement Procedures.
The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement Software calculates a reference point at the start and end of the test to Cheek for power drifts. If conducted Power deviations of more than 5 % occurred, the tests were repeated.

10.3 SAR Measurement Conditions for UMTS

10.3.1 Output Power Verification

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

10.3.2 Body SAR measurements

SAR for body exposure configurations is measured using the 12.2kbps 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

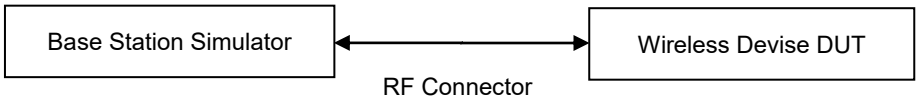
The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control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

10.3.5DC-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 D05v02r05publication. 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% allocation when the highest maximum output power for the 100% allocation is less than the highest maximum output power of the 1 RB and 50% RB allocations and the reported SAR for the 1 RB and 50% RB allocations is < 0.8 W/kg.
d. Per Sec. 4.2.4 and 4.3, SAR test for higher order modulations and lower Bandwidths configurations are not required when the conducted power of the required test configurations determined by Sec. 4.2.1 through 4.2.3 is less than or equal to 1/2 dB higher than the equivalent configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

10.4.5 Downlink Carrier Aggregation

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

10.4.6 LTE(TDD) Considerations

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

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

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

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

Table 4.2-2: Uplink-downlink configurations.

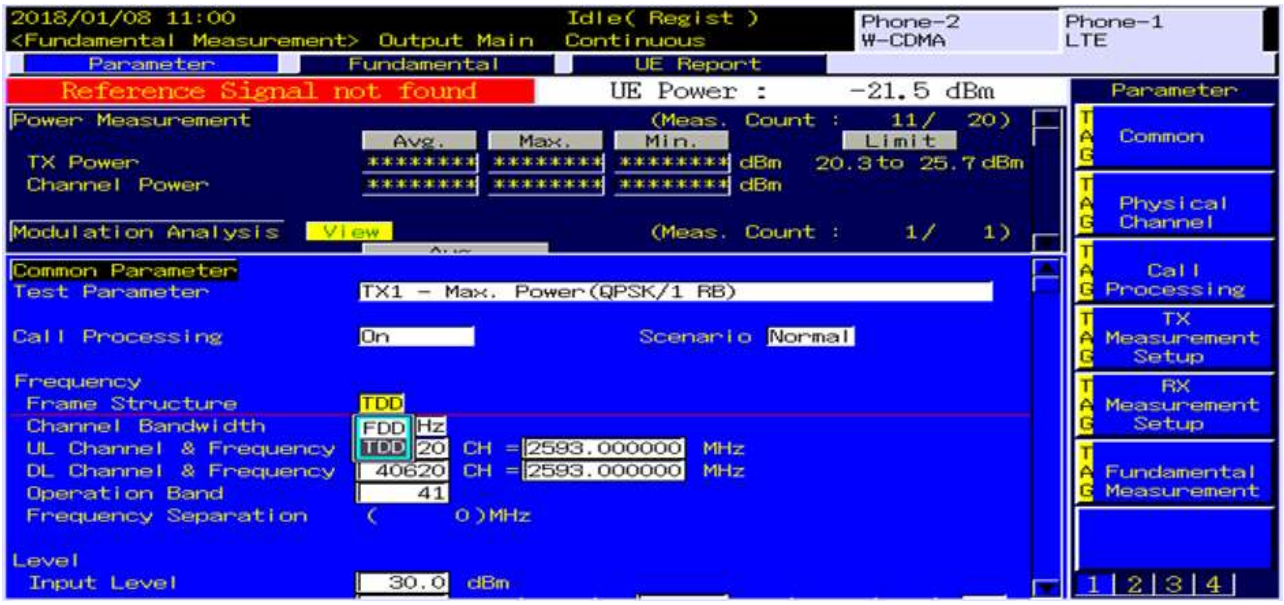
Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U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

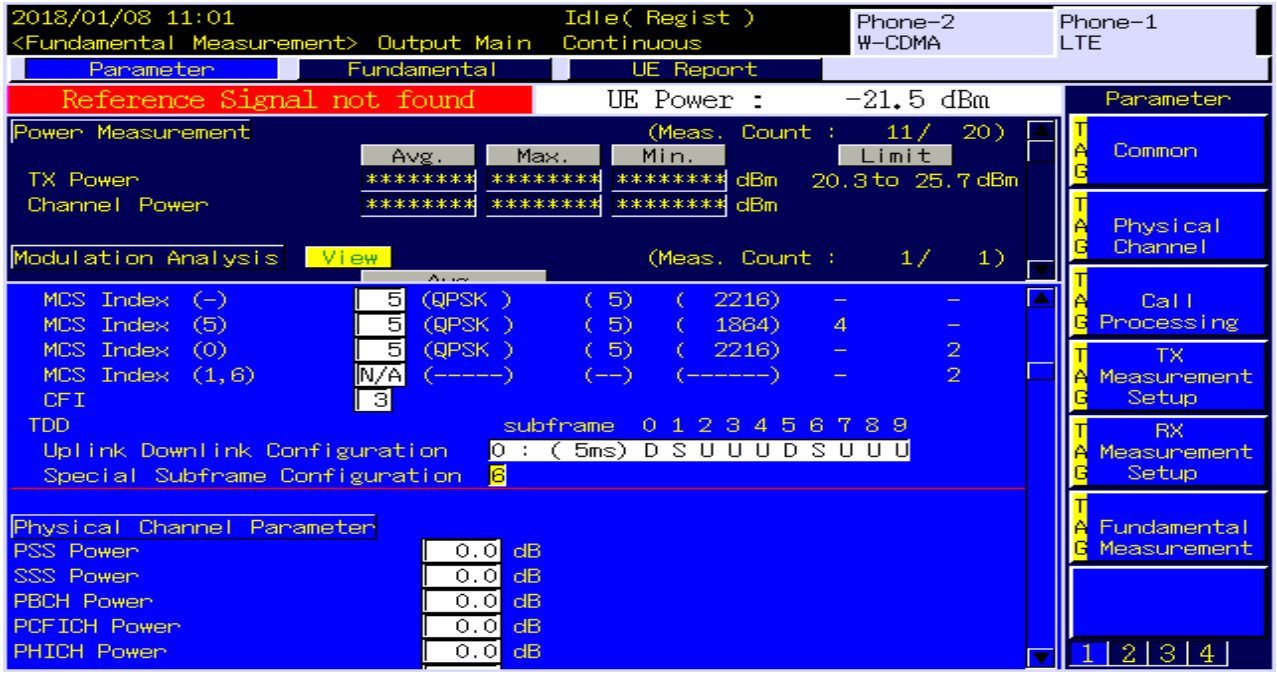
Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = (5120 x (1/(15000 x 2048)) x 2 + 0.006)/0.01 = 63.33 %
Where
T_s = 1/(15000 x 2048) seconds

HPUE: Calculated Duty Cycle for Uplink-Downlink Configuration 1
Calculated Duty Cycle =5120*(1/(15000*2048))*2+0.004)/0.01 = 43.33 %

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.





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 chipsetbased 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 is 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.

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

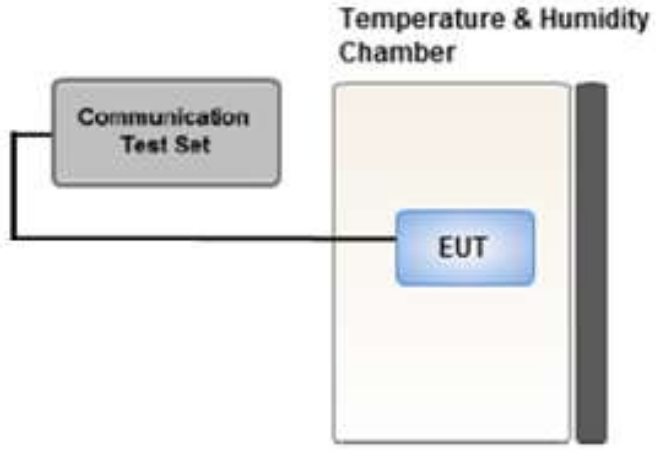
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base 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

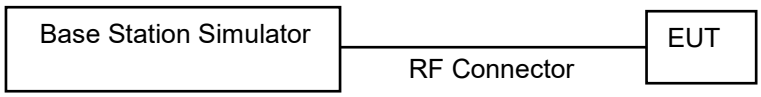
Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**33.50**	**33.50**	**32.50**	**30.50**	**28.50**	**28.00**	**26.00**	**24.50**	**23.50**
Nominal		**32.50**	**32.50**	**31.50**	**29.50**	**27.50**	**27.00**	**25.00**	**23.50**	**22.50**
GSM 850	128	32.90	32.85	30.94	28.95	27.16	26.11	24.48	22.60	21.59
	190	33.41	33.38	31.65	29.97	27.50	26.89	25.40	23.36	22.24
	251	33.38	33.34	31.47	29.31	27.65	26.78	25.12	23.17	22.17
Maximum		**31.50**	**31.50**	**29.50**	**27.50**	**25.00**	**26.50**	**25.00**	**23.00**	**22.00**
Nominal		**29.00**	**29.00**	**28.00**	**25.50**	**23.50**	**25.50**	**24.00**	**22.00**	**21.00**
GSM 1900	512	29.09	29.02	27.96	26.07	23.51	25.55	24.17	22.11	21.09
	661	29.71	29.68	28.82	26.40	24.14	26.01	24.63	22.64	21.22
	810	29.00	28.96	27.61	25.78	23.46	25.09	25.73	21.81	20.91

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		**24.47**	**24.47**	**26.48**	**26.24**	**25.49**	**18.97**	**19.98**	**20.24**	**20.49**
Nominal		**23.47**	**23.47**	**25.48**	**25.24**	**24.49**	**17.97**	**18.98**	**19.24**	**19.49**
GSM 850	128	23.87	23.82	24.92	24.69	24.15	17.08	18.46	18.34	18.58
	190	24.38	24.35	25.63	25.71	24.49	17.86	19.38	19.10	19.23
	251	24.35	24.31	25.45	25.05	24.64	17.75	19.10	18.91	19.16
Maximum		**22.47**	**22.47**	**23.48**	**23.24**	**21.99**	**17.47**	**18.98**	**18.74**	**18.99**
Nominal		**19.97**	**19.97**	**21.98**	**21.24**	**20.49**	**16.47**	**17.98**	**17.74**	**17.99**
GSM 1900	512	20.06	19.99	21.94	21.81	20.50	16.52	18.15	17.85	18.08
	661	20.68	20.65	22.80	22.14	21.13	16.98	18.61	18.38	18.21
	810	19.97	19.93	21.59	21.52	20.45	16.06	19.71	17.55	17.90

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



11.1.2 GSM Reduced Conducted Output Power (Hotspot, Earjack Insert, Grip Sensor mode activated)

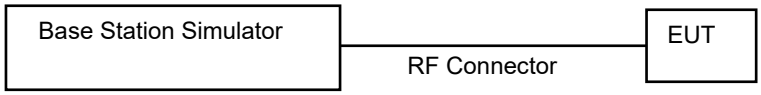
Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**27.00**	**27.00**	**25.50**	**24.00**	**22.00**	**24.00**	**22.00**	**20.00**	**19.00**
Nominal		**26.00**	**26.00**	**24.50**	**23.00**	**21.00**	**23.00**	**21.00**	**19.00**	**18.00**
GSM 1900	512	26.05	26.03	24.86	23.30	20.94	23.07	21.14	19.15	18.12
	661	26.43	26.40	25.44	23.82	21.75	23.82	21.34	19.34	18.38
	810	25.90	25.94	24.55	22.93	21.01	22.91	21.19	19.07	18.01

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		**17.97**	**17.97**	**19.48**	**19.74**	**18.99**	**14.97**	**15.98**	**15.74**	**15.99**
Nominal		**16.97**	**16.97**	**18.48**	**18.74**	**17.99**	**13.97**	**14.98**	**14.74**	**14.99**
GSM 1900	512	17.02	17.00	18.84	19.04	17.93	14.04	15.12	14.89	15.11
	661	17.40	17.37	19.42	19.56	18.74	14.79	15.32	15.08	15.37
	810	16.87	16.91	18.53	18.67	18.00	13.88	15.17	14.81	15.00

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



11.2 UMTS

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

11.2.1 UMTS Maximum Conducted Output Power

UMTS Band 5 Maximum Conducted Output Power

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 5 [dBm]			3GPP MPR
		Subtest	UL4132 DL4357	UL4183 DL4408	UL4233 DL4458	
99	UMTS	12.2 kbps RMC	24.58	24.87	24.94	-
99		12.2 kbps AMR	24.57	24.85	24.93	-
5	HSDPA	Subtest 1	22.51	22.80	22.88	0
5		Subtest 2	22.51	22.80	22.90	0
5		Subtest 3	23.02	23.32	23.40	0
5		Subtest 4	23.01	23.30	23.38	0
6	HSUPA	Subtest 1	21.53	21.55	21.54	0
6		Subtest 2	21.52	21.80	21.89	0
6		Subtest 3	21.52	21.79	21.89	0
6		Subtest 4	21.50	21.80	21.90	0
6		Subtest 5	22.50	22.78	22.89	0
8	DC-HSDPA	Subtest1	21.87	22.15	22.33	0
8		Subtest2	21.84	22.22	22.30	0
8		Subtest3	22.36	22.65	22.88	0
8		Subtest4	22.24	22.63	22.87	0

UMTS Average Conducted output powers

UMTS Band 4 Maximum Conducted Output Power

3GPP Release Version	Mode	3GPP 34.121	UMTS Band4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	UMTS	12.2 kbps RMC	22.40	22.45	22.44	-
99		12.2 kbps AMR	22.39	22.48	22.43	-
5	HSDPA	Subtest 1	21.51	21.56	21.56	0
5		Subtest 2	21.50	21.56	21.55	0
5		Subtest 3	21.00	21.05	21.05	0.5
5		Subtest 4	21.01	21.06	21.04	0.5
6	HSUPA	Subtest 1	21.47	21.53	21.54	0
6		Subtest 2	19.46	19.51	19.51	2
6		Subtest 3	20.45	20.52	20.51	1
6		Subtest 4	19.48	19.54	19.54	2
6		Subtest 5	21.49	21.52	21.53	0
8	DC-HSDPA	Subtest1	20.56	20.63	20.72	0
8		Subtest2	20.55	20.67	20.73	0
8		Subtest3	20.00	20.10	20.23	0.5
8		Subtest4	20.05	20.11	20.17	0.5

UMTS Average Conducted output powers

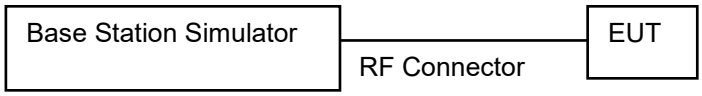
UMTS Band 2 Maximum Conducted Output Power

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 2 [dBm]			3GPP MPR
		Subtest	UL9262 DL9662	UL9400 DL9800	UL9538 DL9938	
99	UMTS	12.2 kbps RMC	22.44	22.39	22.11	-
99		12.2 kbps AMR	22.43	22.35	22.10	-
5	HSDPA	Subtest 1	21.55	21.46	21.22	0
5		Subtest 2	21.55	21.47	21.23	0
5		Subtest 3	21.05	20.98	20.74	0.5
5		Subtest 4	21.06	20.99	20.75	0.5
6	HSUPA	Subtest 1	21.53	21.46	21.22	0
6		Subtest 2	19.52	19.46	19.22	2
6		Subtest 3	20.51	20.46	20.23	1
6		Subtest 4	19.54	19.49	19.25	2
6		Subtest 5	21.54	21.48	21.22	0
8	DC-HSDPA	Subtest 1	21.14	20.97	20.56	0
8		Subtest2	21.13	20.97	20.55	0
8		Subtest3	20.57	20.54	19.98	0.5
8		Subtest4	20.61	20.52	19.99	0.5

UMTS Average Conducted output powers

DC-HSDPA Configurations

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



11.2.2 UMTS Reduced Conducted Output Power (Hotspot, Earjack Insert, Grip Sensor mode activated)

UMTS Band 4

3GPP Release Version	Mode	3GPP 34.121	UMTS Band4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	UMTS	12.2 kbps RMC	19.43	19.49	19.48	-
99		12.2 kbps AMR	19.41	19.48	19.47	-
5	HSDPA	Subtest 1	18.51	18.57	18.57	0
5		Subtest 2	18.51	18.56	18.56	0
5		Subtest 3	18.01	18.06	18.08	0.5
5		Subtest 4	18.01	18.07	18.06	0.5
6	HSUPA	Subtest 1	18.47	18.54	18.55	0
6		Subtest 2	16.46	16.53	16.49	2
6		Subtest 3	17.47	17.55	17.54	1
6		Subtest 4	16.48	16.57	16.57	2
6		Subtest 5	18.49	18.52	18.56	0
8	DC-HSDPA	Subtest 1	17.35	17.45	17.56	0
8		Subtest2	17.40	17.43	17.57	0
8		Subtest3	16.86	16.99	17.09	0.5
8		Subtest4	16.88	16.96	17.00	0.5

UMTS Average Conducted output powers

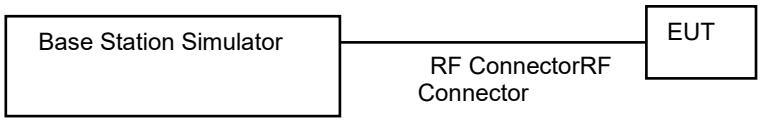
UMTS Band 2

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 2 [dBm]			3GPP MPR
		Subtest	UL9262 DL9662	UL9400 DL9800	UL9538 DL9938	
99	UMTS	12.2 kbps RMC	18.96	18.89	18.63	-
99		12.2 kbps AMR	18.96	18.88	18.63	-
5	HSDPA	Subtest 1	18.05	17.96	17.72	0
5		Subtest 2	18.05	17.97	17.73	0
5		Subtest 3	17.55	17.49	17.24	0.5
5		Subtest 4	17.53	17.46	17.25	0.5
6	HSUPA	Subtest 1	18.04	17.98	17.73	0
6		Subtest 2	16.01	15.95	15.71	2
6		Subtest 3	17.01	16.96	16.73	1
6		Subtest 4	16.03	15.98	15.74	2
6		Subtest 5	18.02	17.96	17.73	0
8	DC-HSDPA	Subtest 1	17.70	17.47	17.07	0
8		Subtest2	17.64	17.53	17.04	0
8		Subtest3	17.13	16.99	16.49	0.5
8		Subtest4	17.08	16.94	16.55	0.5

UMTS Average Conducted output powers

DC-HSDPA Configurations

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



11.3 LTE Maximum Output Power

LTE B4/5/12/17/26 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.

11.3.1 LTE Maximum Conducted 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	22.00	22.11	22.13	0	0
		1	3	22.05	22.39	21.74	0	0
		1	5	21.99	22.16	21.60	0	0
		3	0	22.03	22.24	21.70	0	0
		3	1	22.09	22.33	21.72	0	0
		3	3	21.97	22.21	21.66	0	0
		6	0	20.98	21.31	20.80	0-1	1
	16QAM	1	0	21.36	21.44	21.15	0-1	1
		1	3	21.41	21.45	20.99	0-1	1
		1	5	21.35	21.49	21.11	0-1	1
		3	0	21.17	21.07	20.89	0-1	1
		3	1	21.19	21.18	21.01	0-1	1
		3	3	21.15	21.08	20.85	0-1	1
		6	0	20.12	20.39	19.90	0-2	2
	64QAM	1	0	20.27	20.48	19.98	0-2	2
		1	3	20.22	20.17	19.89	0-2	2
		1	5	20.18	20.46	19.87	0-2	2
		3	0	20.25	20.43	19.98	0-2	2
		3	1	20.24	20.23	19.94	0-2	2
		3	3	20.12	20.39	19.98	0-2	2
		6	0	19.06	19.36	18.81	0-3	3
	256QAM	1	0	17.09	17.44	17.11	0-5	5
		1	3	17.25	17.28	16.93	0-5	5
		1	5	17.20	17.19	16.85	0-5	5
		3	0	17.15	17.40	16.89	0-5	5
		3	1	17.24	17.13	16.95	0-5	5
		3	3	17.22	17.46	16.88	0-5	5
		6	0	17.10	17.36	16.81	0-5	5

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	22.16	22.28	21.89	0	0
		1	7	21.97	22.30	21.84	0	0
		1	14	22.00	22.25	21.74	0	0
		8	0	21.15	21.41	20.89	0-1	1
		8	3	21.16	21.40	20.92	0-1	1
		8	7	21.09	21.27	20.84	0-1	1
		15	0	21.11	21.41	20.86	0-1	1
	16QAM	1	0	21.48	21.49	21.11	0-1	1
		1	7	21.35	21.44	21.07	0-1	1
		1	14	21.30	21.31	21.09	0-1	1
		8	0	20.32	20.28	19.94	0-2	2
		8	3	20.29	20.40	20.00	0-2	2
		8	7	20.24	20.44	19.96	0-2	2
		15	0	20.21	20.38	19.89	0-2	2
	64QAM	1	0	20.35	20.45	20.04	0-2	2
		1	7	20.34	20.42	19.88	0-2	2
		1	14	20.23	20.36	19.91	0-2	2
		8	0	19.12	19.42	18.89	0-3	3
		8	3	19.24	19.40	18.93	0-3	3
		8	7	19.14	19.38	18.84	0-3	3
		15	0	19.13	19.42	18.97	0-3	3
	256QAM	1	0	17.33	17.40	17.09	0-5	5
		1	7	17.35	17.39	17.24	0-5	5
		1	14	17.24	17.43	16.93	0-5	5
		8	0	17.22	17.43	16.92	0-5	5
		8	3	17.33	17.48	16.94	0-5	5
		8	7	17.24	17.37	16.93	0-5	5
		15	0	17.19	17.44	16.87	0-5	5

LTE Band 2 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18625 Ch. 1852.5 ㎒	18900 Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	22.13	22.30	21.95	0	0
		1	12	22.03	22.37	21.85	0	0
		1	24	22.05	22.18	21.74	0	0
		12	0	21.13	21.32	20.91	0-1	1
		12	6	21.17	21.37	20.84	0-1	1
		12	11	21.09	21.35	20.82	0-1	1
		25	0	21.17	21.33	20.84	0-1	1
	16QAM	1	0	21.32	21.48	21.13	0-1	1
		1	12	21.35	21.44	21.18	0-1	1
		1	24	21.34	21.40	20.91	0-1	1
		12	0	20.27	20.48	19.89	0-2	2
		12	6	20.18	20.43	19.91	0-2	2
		12	11	20.13	20.40	19.91	0-2	2
		25	0	20.14	20.31	19.81	0-2	2
	64QAM	1	0	20.33	20.42	19.95	0-2	2
		1	12	20.34	20.39	19.93	0-2	2
		1	24	20.14	20.46	19.86	0-2	2
		12	0	19.18	19.44	18.85	0-3	3
		12	6	19.23	19.48	18.98	0-3	3
		12	11	19.15	19.37	18.85	0-3	3
		25	0	19.21	19.32	18.82	0-3	3
	256QAM	1	0	17.21	17.38	17.08	0-5	5
		1	12	17.27	17.38	17.15	0-5	5
		1	24	17.26	17.44	16.79	0-5	5
		12	0	17.13	17.40	16.89	0-5	5
		12	6	17.19	17.43	16.88	0-5	5
		12	11	17.15	17.33	16.87	0-5	5
		25	0	17.12	17.36	16.80	0-5	5

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	21.72	22.13	21.74	0	0
		1	24	22.12	22.23	21.84	0	0
		1	49	21.80	22.16	21.83	0	0
		25	0	21.09	21.30	20.90	0-1	1
		25	12	21.16	21.34	20.90	0-1	1
		25	24	21.15	21.19	20.79	0-1	1
		50	0	21.04	21.20	20.81	0-1	1
	16QAM	1	0	21.05	21.24	21.40	0-1	1
		1	24	21.38	21.46	21.11	0-1	1
		1	49	21.20	21.46	21.09	0-1	1
		25	0	20.12	20.24	19.76	0-2	2
		25	12	20.15	20.43	19.91	0-2	2
		25	24	20.03	20.19	19.84	0-2	2
		50	0	20.08	20.17	19.80	0-2	2
	64QAM	1	0	19.87	20.13	20.10	0-2	2
		1	24	20.25	20.33	20.01	0-2	2
		1	49	20.02	20.11	20.06	0-2	2
		25	0	19.05	19.29	18.90	0-3	3
		25	12	19.20	19.41	18.95	0-3	3
		25	24	19.16	19.23	18.78	0-3	3
		50	0	19.18	19.27	18.75	0-3	3
	256QAM	1	0	16.96	17.04	16.76	0-5	5
		1	24	17.38	17.40	16.93	0-5	5
		1	49	17.12	16.92	16.81	0-5	5
		25	0	17.12	17.27	16.92	0-5	5
		25	12	17.19	17.39	16.96	0-5	5
		25	24	17.11	17.29	16.85	0-5	5
		50	0	17.09	17.28	16.82	0-5	5

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	21.82	22.19	21.79	0	0
		1	36	22.03	22.21	21.80	0	0
		1	74	21.90	22.18	21.69	0	0
		36	0	21.01	21.20	20.89	0-1	1
		36	18	21.08	21.32	20.94	0-1	1
		36	39	21.15	21.23	20.78	0-1	1
		75	0	21.12	21.24	20.87	0-1	1
	16QAM	1	0	21.13	21.40	21.20	0-1	1
		1	36	21.15	21.54	21.00	0-1	1
		1	74	21.37	21.64	21.00	0-1	1
		36	0	20.04	20.17	19.77	0-2	2
		36	18	20.12	20.28	19.84	0-2	2
		36	39	20.16	20.30	19.78	0-2	2
		75	0	20.06	20.31	19.82	0-2	2
	64QAM	1	0	20.00	20.45	20.23	0-2	2
		1	36	20.27	20.54	19.91	0-2	2
		1	74	20.35	20.31	19.96	0-2	2
		36	0	18.99	19.22	18.92	0-3	3
		36	18	19.13	19.20	18.92	0-3	3
		36	39	19.23	19.19	18.88	0-3	3
		75	0	19.03	19.22	18.83	0-3	3
	256QAM	1	0	16.95	17.22	17.00	0-5	5
		1	36	17.20	17.49	16.95	0-5	5
		1	74	17.20	17.25	16.93	0-5	5
		36	0	17.00	17.14	16.94	0-5	5
		36	18	17.10	17.30	16.94	0-5	5
		36	39	17.13	17.27	16.78	0-5	5
		75	0	17.13	17.24	16.86	0-5	5

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	22.05	22.10	22.08	0	0
		1	49	21.96	22.02	21.74	0	0
		1	99	22.11	22.10	21.87	0	0
		50	0	20.96	21.18	20.91	0-1	1
		50	25	21.15	21.28	20.97	0-1	1
		50	49	21.06	21.18	20.79	0-1	1
		100	0	21.12	21.23	20.88	0-1	1
	16QAM	1	0	21.23	21.59	21.29	0-1	1
		1	49	21.26	21.43	21.05	0-1	1
		1	99	21.43	21.66	20.94	0-1	1
		50	0	19.97	20.18	19.82	0-2	2
		50	25	20.08	20.28	19.93	0-2	2
		50	49	20.12	20.17	19.70	0-2	2
		100	0	20.07	20.18	19.87	0-2	2
	64QAM	1	0	20.24	20.49	20.25	0-2	2
		1	49	20.24	20.57	20.01	0-2	2
		1	99	20.34	20.33	19.79	0-2	2
		50	0	18.97	19.17	18.83	0-3	3
		50	25	19.13	19.33	18.99	0-3	3
		50	49	19.20	19.25	18.89	0-3	3
		100	0	19.12	19.12	18.93	0-3	3
	256QAM	1	0	16.75	16.95	16.93	0-5	5
		1	49	17.10	17.47	16.94	0-5	5
		1	99	17.22	17.17	16.97	0-5	5
		50	0	16.95	17.11	16.85	0-5	5
		50	25	17.16	17.25	16.99	0-5	5
		50	49	17.19	17.21	16.77	0-5	5
		100	0	17.09	17.24	16.90	0-5	5

[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	22.17	22.09	22.08	0	0
		1	3	22.13	22.27	22.12	0	0
		1	5	22.12	22.19	22.05	0	0
		3	0	22.15	22.10	22.05	0	0
		3	1	22.19	22.25	22.16	0	0
		3	3	22.16	22.15	22.06	0	0
		6	0	21.24	21.17	21.15	0-1	1
	16QAM	1	0	21.55	21.50	21.38	0-1	1
		1	3	21.50	21.52	21.35	0-1	1
		1	5	21.44	21.70	21.32	0-1	1
		3	0	21.36	21.30	21.33	0-1	1
		3	1	21.31	21.40	21.30	0-1	1
		3	3	21.21	21.30	21.34	0-1	1
		6	0	20.33	20.20	20.24	0-2	2
	64QAM	1	0	20.44	20.34	20.42	0-2	2
		1	3	20.45	20.53	20.43	0-2	2
		1	5	20.31	20.33	20.35	0-2	2
		3	0	20.37	20.37	20.38	0-2	2
		3	1	20.34	20.38	20.32	0-2	2
		3	3	20.29	20.25	20.25	0-2	2
		6	0	19.20	19.17	19.16	0-3	3
	256QAM	1	0	17.27	17.22	17.28	0-5	5
		1	3	17.43	17.43	17.32	0-5	5
		1	5	17.37	17.25	17.16	0-5	5
		3	0	17.40	17.27	17.35	0-5	5
		3	1	17.44	17.49	17.39	0-5	5
		3	3	17.45	17.37	17.29	0-5	5
		6	0	17.25	17.16	17.24	0-5	5

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	22.22	22.17	22.25	0	0
		1	7	22.21	22.23	22.16	0	0
		1	14	22.22	22.19	22.15	0	0
		8	0	21.39	21.29	21.30	0-1	1
		8	3	21.34	21.27	21.34	0-1	1
		8	7	21.24	21.23	21.21	0-1	1
		15	0	21.31	21.24	21.30	0-1	1
	16QAM	1	0	21.65	21.50	21.60	0-1	1
		1	7	21.60	21.60	21.51	0-1	1
		1	14	21.64	21.52	21.44	0-1	1
		8	0	20.48	20.40	20.38	0-2	2
		8	3	20.45	20.34	20.34	0-2	2
		8	7	20.43	20.43	20.31	0-2	2
		15	0	20.33	20.25	20.25	0-2	2
	64QAM	1	0	20.52	20.53	20.47	0-2	2
		1	7	20.59	20.49	20.40	0-2	2
		1	14	20.37	20.53	20.36	0-2	2
		8	0	19.43	19.37	19.33	0-3	3
		8	3	19.38	19.31	19.36	0-3	3
		8	7	19.34	19.35	19.28	0-3	3
		15	0	19.38	19.36	19.28	0-3	3
	256QAM	1	0	17.48	17.47	17.43	0-5	5
		1	7	17.45	17.40	17.35	0-5	5
		1	14	17.43	17.32	17.28	0-5	5
		8	0	17.36	17.35	17.39	0-5	5
		8	3	17.40	17.40	17.41	0-5	5
		8	7	17.31	17.37	17.31	0-5	5
		15	0	17.45	17.26	17.29	0-5	5

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	22.23	22.14	22.17	0	0
		1	12	22.24	22.37	22.16	0	0
		1	24	22.11	22.16	22.06	0	0
		12	0	21.37	21.28	21.26	0-1	1
		12	6	21.36	21.30	21.31	0-1	1
		12	11	21.30	21.28	21.28	0-1	1
		25	0	21.31	21.22	21.23	0-1	1
	16QAM	1	0	21.48	21.46	21.47	0-1	1
		1	12	21.48	21.48	21.55	0-1	1
		1	24	21.60	21.56	21.32	0-1	1
		12	0	20.41	20.26	20.39	0-2	2
		12	6	20.40	20.35	20.34	0-2	2
		12	11	20.32	20.33	20.33	0-2	2
		25	0	20.30	20.22	20.26	0-2	2
	64QAM	1	0	20.47	20.38	20.46	0-2	2
		1	12	20.55	20.57	20.48	0-2	2
		1	24	20.47	20.27	20.33	0-2	2
		12	0	19.38	19.37	19.37	0-3	3
		12	6	19.42	19.35	19.34	0-3	3
		12	11	19.34	19.31	19.32	0-3	3
		25	0	19.32	19.31	19.31	0-3	3
	256QAM	1	0	17.38	17.29	17.39	0-5	5
		1	12	17.45	17.52	17.47	0-5	5
		1	24	17.38	17.25	17.32	0-5	5
		12	0	17.34	17.31	17.37	0-5	5
		12	6	17.39	17.32	17.37	0-5	5
		12	11	17.31	17.30	17.25	0-5	5
		25	0	17.32	17.32	17.29	0-5	5

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	22.29	22.30	22.17	0	0
		1	24	22.16	22.20	22.14	0	0
		1	49	22.29	22.16	22.09	0	0
		25	0	21.22	21.10	21.16	0-1	1
		25	12	21.31	21.27	21.22	0-1	1
		25	24	21.27	21.14	21.17	0-1	1
		50	0	21.25	21.15	21.14	0-1	1
	16QAM	1	0	21.32	21.29	21.27	0-1	1
		1	24	21.73	21.66	21.69	0-1	1
		1	49	21.34	21.34	21.19	0-1	1
		25	0	20.25	20.06	20.11	0-2	2
		25	12	20.36	20.28	20.20	0-2	2
		25	24	20.22	20.18	20.18	0-2	2
		50	0	20.23	20.07	20.08	0-2	2
	64QAM	1	0	20.24	20.18	20.03	0-2	2
		1	24	20.45	20.46	20.50	0-2	2
		1	49	20.18	20.14	20.09	0-2	2
		25	0	19.29	19.25	19.16	0-3	3
		25	12	19.41	19.22	19.19	0-3	3
		25	24	19.23	19.22	19.17	0-3	3
		50	0	19.27	19.20	19.18	0-3	3
	256QAM	1	0	17.16	17.24	17.48	0-5	5
		1	24	17.46	17.31	17.45	0-5	5
		1	49	17.14	17.28	17.04	0-5	5
		25	0	17.29	17.21	17.22	0-5	5
		25	12	17.44	17.29	17.31	0-5	5
		25	24	17.28	17.32	17.28	0-5	5
		50	0	17.26	17.19	17.17	0-5	5

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	22.02	22.01	22.05	0	0
		1	36	22.23	22.08	22.15	0	0
		1	74	22.06	22.03	22.04	0	0
		36	0	21.24	21.17	21.19	0-1	1
		36	18	21.31	21.22	21.19	0-1	1
		36	39	21.23	21.32	21.21	0-1	1
		75	0	21.28	21.18	21.21	0-1	1
	16QAM	1	0	21.30	21.24	21.35	0-1	1
		1	36	21.60	21.52	21.54	0-1	1
		1	74	21.28	21.26	21.56	0-1	1
		36	0	20.32	20.14	20.20	0-2	2
		36	18	20.30	20.25	20.19	0-2	2
		36	39	20.27	20.28	20.29	0-2	2
		75	0	20.27	20.21	20.17	0-2	2
	64QAM	1	0	20.32	20.23	20.18	0-2	2
		1	36	20.47	20.39	20.42	0-2	2
		1	74	20.29	20.26	20.29	0-2	2
		36	0	19.23	19.20	19.16	0-3	3
		36	18	19.33	19.30	19.23	0-3	3
		36	39	19.26	19.32	19.30	0-3	3
		75	0	19.27	19.19	19.17	0-3	3
	256QAM	1	0	17.19	17.11	17.13	0-5	5
		1	36	17.27	17.38	17.33	0-5	5
		1	74	17.28	17.20	17.24	0-5	5
		36	0	17.25	17.19	17.21	0-5	5
		36	18	17.34	17.34	17.26	0-5	5
		36	39	17.28	17.23	17.29	0-5	5
		75	0	17.34	17.19	17.18	0-5	5

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20050 Ch. 1720 ㎒	20175 Ch. 1732.5 ㎒	20300 Ch. 1745 ㎒		
20㎒	QPSK	1	0	22.13	22.18	22.01	0	0
		1	49	22.25	22.10	22.24	0	0
		1	99	22.29	22.23	22.17	0	0
		50	0	21.14	21.13	21.16	0-1	1
		50	25	21.26	21.23	21.24	0-1	1
		50	49	21.19	21.20	21.22	0-1	1
		100	0	21.16	21.24	21.14	0-1	1
	16QAM	1	0	21.17	21.08	21.22	0-1	1
		1	49	21.55	21.48	21.36	0-1	1
		1	99	21.06	21.32	21.50	0-1	1
		50	0	20.22	20.13	20.07	0-2	2
		50	25	20.29	20.19	20.24	0-2	2
		50	49	20.17	20.33	20.26	0-2	2
		100	0	20.24	20.18	20.06	0-2	2
	64QAM	1	0	20.20	20.10	20.21	0-2	2
		1	49	20.38	20.41	20.44	0-2	2
		1	99	20.32	20.07	20.20	0-2	2
		50	0	19.24	19.21	19.14	0-3	3
		50	25	19.28	19.28	19.23	0-3	3
		50	49	19.30	19.29	19.25	0-3	3
		100	0	19.23	19.17	19.13	0-3	3
	256QAM	1	0	17.16	17.14	17.18	0-5	5
		1	49	17.34	17.33	17.39	0-5	5
		1	99	17.23	17.26	17.09	0-5	5
		50	0	17.17	17.17	17.15	0-5	5
		50	25	17.31	17.28	17.23	0-5	5
		50	49	17.29	17.27	17.20	0-5	5
		100	0	17.22	17.15	17.16	0-5	5

[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	23.94	23.99	24.18	0	0
		1	3	24.12	24.42	24.67	0	0
		1	5	24.05	24.33	24.53	0	0
		3	0	23.95	24.31	24.50	0	0
		3	1	23.98	24.34	24.58	0	0
		3	3	23.98	24.37	24.48	0	0
		6	0	23.11	23.51	23.55	0-1	1
	16QAM	1	0	23.19	23.63	23.82	0-1	1
		1	3	23.48	23.75	23.96	0-1	1
		1	5	23.22	23.71	23.98	0-1	1
		3	0	23.16	23.47	23.83	0-1	1
		3	1	23.34	23.71	23.99	0-1	1
		3	3	23.23	23.58	23.86	0-1	1
		6	0	22.30	22.67	22.80	0-2	2
	64QAM	1	0	22.14	22.60	22.49	0-2	2
		1	3	22.43	22.67	22.97	0-2	2
		1	5	22.34	22.62	22.81	0-2	2
		3	0	22.22	22.54	22.65	0-2	2
		3	1	22.18	22.54	22.76	0-2	2
		3	3	22.19	22.59	22.71	0-2	2
		6	0	21.14	21.51	21.72	0-3	3
	256QAM	1	0	19.13	19.56	19.70	0-5	5
		1	3	19.30	19.69	19.83	0-5	5
		1	5	19.15	19.61	19.70	0-5	5
		3	0	19.17	19.61	19.78	0-5	5
		3	1	19.23	19.63	19.82	0-5	5
		3	3	19.24	19.62	19.75	0-5	5
		6	0	19.12	19.50	19.69	0-5	5

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	23.93	24.01	24.00	0	0
		1	7	24.10	24.37	24.54	0	0
		1	14	24.08	24.46	24.63	0	0
		8	0	23.14	23.53	23.65	0-1	1
		8	3	23.21	23.54	23.83	0-1	1
		8	7	23.25	23.55	23.76	0-1	1
		15	0	23.23	23.54	23.75	0-1	1
	16QAM	1	0	23.52	23.75	23.91	0-1	1
		1	7	23.41	23.75	23.88	0-1	1
		1	14	23.64	23.94	23.91	0-1	1
		8	0	22.16	22.63	22.76	0-2	2
		8	3	22.30	22.59	22.83	0-2	2
		8	7	22.32	22.66	22.73	0-2	2
		15	0	22.24	22.58	22.71	0-2	2
	64QAM	1	0	22.25	22.60	22.49	0-2	2
		1	7	22.34	22.72	22.87	0-2	2
		1	14	22.49	22.63	22.82	0-2	2
		8	0	21.16	21.48	21.71	0-3	3
		8	3	21.26	21.58	21.70	0-3	3
		8	7	21.22	21.64	21.75	0-3	3
		15	0	21.29	21.63	21.81	0-3	3
	256QAM	1	0	19.22	19.54	19.66	0-5	5
		1	7	19.26	19.72	19.86	0-5	5
		1	14	19.32	19.67	19.78	0-5	5
		8	0	19.17	19.53	19.71	0-5	5
		8	3	19.26	19.58	19.78	0-5	5
		8	7	19.24	19.67	19.81	0-5	5
		15	0	19.18	19.64	19.72	0-5	5

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	23.97	24.01	24.52	0	0
		1	12	24.12	24.47	24.65	0	0
		1	24	24.13	24.47	24.51	0	0
		12	0	23.19	23.49	23.65	0-1	1
		12	6	23.32	23.54	23.69	0-1	1
		12	11	23.32	23.63	23.73	0-1	1
		25	0	23.23	23.48	23.72	0-1	1
	16QAM	1	0	23.19	23.65	23.92	0-1	1
		1	12	23.44	23.83	23.94	0-1	1
		1	24	23.55	23.96	23.85	0-1	1
		12	0	22.23	22.55	22.69	0-2	2
		12	6	22.37	22.67	22.72	0-2	2
		12	11	22.38	22.62	22.79	0-2	2
		25	0	22.30	22.53	22.68	0-2	2
	64QAM	1	0	22.26	22.54	22.82	0-2	2
		1	12	22.46	22.74	22.91	0-2	2
		1	24	22.45	22.70	22.91	0-2	2
		12	0	21.23	21.54	21.66	0-3	3
		12	6	21.33	21.56	21.75	0-3	3
		12	11	21.30	21.62	21.76	0-3	3
		25	0	21.33	21.54	21.76	0-3	3
	256QAM	1	0	19.09	19.55	19.77	0-5	5
		1	12	19.36	19.76	19.78	0-5	5
		1	24	19.42	19.70	19.70	0-5	5
		12	0	19.14	19.56	19.58	0-5	5
		12	6	19.28	19.54	19.69	0-5	5
		12	11	19.32	19.62	19.79	0-5	5
		25	0	19.30	19.57	19.71	0-5	5

LTE Band 5 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 20525 Ch. 836.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	24.28	0	0
		1	24	24.39	0	0
		1	49	24.39	0	0
		25	0	23.49	0-1	1
		25	12	23.57	0-1	1
		25	24	23.57	0-1	1
		50	0	23.43	0-1	1
	16QAM	1	0	23.65	0-1	1
		1	24	23.86	0-1	1
		1	49	23.91	0-1	1
		25	0	22.53	0-2	2
		25	12	22.59	0-2	2
		25	24	22.52	0-2	2
		50	0	22.41	0-2	2
	64QAM	1	0	22.63	0-2	2
		1	24	22.70	0-2	2
		1	49	22.79	0-2	2
		25	0	21.45	0-3	3
		25	12	21.54	0-3	3
		25	24	21.52	0-3	3
		50	0	21.47	0-3	3
	256QAM	1	0	19.22	0-5	5
		1	24	19.69	0-5	5
		1	49	19.41	0-5	5
		25	0	19.45	0-5	5
		25	12	19.54	0-5	5
		25	24	19.54	0-5	5
		50	0	19.40	0-5	5

[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	23.73	23.90	23.89	0	0
		1	3	23.78	23.92	24.06	0	0
		1	5	23.67	23.93	24.08	0	0
		3	0	23.72	23.84	23.92	0	0
		3	1	23.82	23.85	23.95	0	0
		3	3	23.77	23.88	23.96	0	0
		6	0	22.85	22.95	23.07	0-1	1
	16QAM	1	0	23.16	23.16	23.20	0-1	1
		1	3	23.03	23.26	23.27	0-1	1
		1	5	23.08	23.18	23.19	0-1	1
		3	0	23.10	23.18	23.34	0-1	1
		3	1	22.93	23.30	23.28	0-1	1
		3	3	23.02	23.03	23.26	0-1	1
		6	0	21.92	22.10	22.09	0-2	2
	64QAM	1	0	22.00	22.11	22.17	0-2	2
		1	3	22.11	22.36	22.33	0-2	2
		1	5	22.01	22.25	22.22	0-2	2
		3	0	21.88	22.07	22.34	0-2	2
		3	1	21.93	22.06	22.09	0-2	2
		3	3	21.91	22.19	22.10	0-2	2
		6	0	20.90	21.07	21.17	0-3	3
	256QAM	1	0	18.94	19.13	19.21	0-5	5
		1	3	19.01	19.16	19.29	0-5	5
		1	5	18.82	19.18	19.12	0-5	5
		3	0	18.94	19.03	19.23	0-5	5
		3	1	19.06	19.16	19.25	0-5	5
		3	3	19.03	19.14	19.20	0-5	5
		6	0	18.90	19.05	19.09	0-5	5

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	23.88	23.77	23.90	0	0
		1	7	23.62	23.87	24.00	0	0
		1	14	23.81	24.00	23.84	0	0
		8	0	22.97	23.01	23.19	0-1	1
		8	3	22.98	23.07	23.11	0-1	1
		8	7	22.92	23.17	23.14	0-1	1
		15	0	22.91	23.13	23.11	0-1	1
	16QAM	1	0	23.20	23.34	23.47	0-1	1
		1	7	23.14	23.33	23.39	0-1	1
		1	14	23.16	23.34	23.46	0-1	1
		8	0	22.02	22.13	22.29	0-2	2
		8	3	22.09	22.16	22.30	0-2	2
		8	7	22.00	22.18	22.31	0-2	2
		15	0	21.96	22.18	22.13	0-2	2
	64QAM	1	0	22.09	22.21	22.24	0-2	2
		1	7	22.05	22.18	22.30	0-2	2
		1	14	22.16	22.23	22.26	0-2	2
		8	0	20.93	21.04	21.12	0-3	3
		8	3	20.94	21.18	21.19	0-3	3
		8	7	20.92	21.12	21.17	0-3	3
		15	0	20.93	21.17	21.11	0-3	3
	256QAM	1	0	19.08	19.15	19.33	0-5	5
		1	7	19.03	19.15	19.29	0-5	5
		1	14	18.89	19.24	19.25	0-5	5
		8	0	18.98	19.11	19.17	0-5	5
		8	3	18.99	19.17	19.19	0-5	5
		8	7	18.98	19.13	19.27	0-5	5
		15	0	18.96	19.08	19.16	0-5	5

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	23.85	23.98	24.05	0	0
		1	12	23.75	24.01	24.10	0	0
		1	24	23.86	24.00	24.08	0	0
		12	0	22.91	23.06	23.14	0-1	1
		12	6	22.99	23.08	23.23	0-1	1
		12	11	22.93	23.19	23.18	0-1	1
		25	0	22.94	23.03	23.11	0-1	1
	16QAM	1	0	23.12	23.37	23.43	0-1	1
		1	12	23.19	23.32	23.44	0-1	1
		1	24	23.16	23.34	23.52	0-1	1
		12	0	21.98	22.17	22.17	0-2	2
		12	6	22.03	22.19	22.24	0-2	2
		12	11	21.97	22.21	22.25	0-2	2
		25	0	21.97	22.08	22.16	0-2	2
	64QAM	1	0	22.06	22.03	22.29	0-2	2
		1	12	22.07	22.25	22.29	0-2	2
		1	24	22.17	22.21	22.43	0-2	2
		12	0	20.90	21.10	21.18	0-3	3
		12	6	21.03	21.15	21.31	0-3	3
		12	11	20.99	21.23	21.18	0-3	3
		25	0	20.91	21.07	21.16	0-3	3
	256QAM	1	0	19.03	19.03	19.17	0-5	5
		1	12	19.00	19.26	19.25	0-5	5
		1	24	18.98	19.10	19.21	0-5	5
		12	0	19.00	18.99	19.16	0-5	5
		12	6	18.95	19.13	19.19	0-5	5
		12	11	18.91	19.16	19.16	0-5	5
		25	0	18.90	19.08	19.19	0-5	5

LTE Band 12 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.86	0	0
		1	24	23.91	0	0
		1	49	23.93	0	0
		25	0	22.93	0-1	1
		25	12	23.07	0-1	1
		25	24	23.14	0-1	1
		50	0	22.97	0-1	1
	16QAM	1	0	23.59	0-1	1
		1	24	23.62	0-1	1
		1	49	23.59	0-1	1
		25	0	21.87	0-2	2
		25	12	22.03	0-2	2
		25	24	21.95	0-2	2
		50	0	21.95	0-2	2
	64QAM	1	0	22.11	0-2	2
		1	24	22.19	0-2	2
		1	49	22.24	0-2	2
		25	0	20.91	0-3	3
		25	12	21.16	0-3	3
		25	24	21.11	0-3	3
		50	0	21.03	0-3	3
	256QAM	1	0	18.72	0-5	5
		1	24	18.82	0-5	5
		1	49	19.04	0-5	5
		25	0	18.95	0-5	5
		25	12	19.08	0-5	5
		25	24	19.12	0-5	5
		50	0	18.99	0-5	5

[LTE Band 17 Conducted Power]
LTE Band 17 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				23755ch. 706.5 MHz	23790ch. 710 MHz	23825ch. 713.5 MHz		
5 ㎒	QPSK	1	0	23.79	24.09	24.07	0	0
		1	12	23.97	24.19	24.17	0	0
		1	24	23.92	24.05	24.03	0	0
		12	0	23.07	23.15	23.18	0-1	1
		12	6	23.10	23.20	23.25	0-1	1
		12	11	23.08	23.26	23.28	0-1	1
		25	0	23.06	23.13	23.13	0-1	1
	16QAM	1	0	23.24	23.33	23.43	0-1	1
		1	12	23.36	23.51	23.48	0-1	1
		1	24	23.31	23.50	23.53	0-1	1
		12	0	22.10	22.20	22.27	0-2	2
		12	6	22.20	22.28	22.40	0-2	2
		12	11	22.22	22.30	22.34	0-2	2
		25	0	22.08	22.15	22.19	0-2	2
	64QAM	1	0	22.38	22.23	22.30	0-2	2
		1	12	22.23	22.34	22.40	0-2	2
		1	24	22.31	22.31	22.59	0-2	2
		12	0	21.09	21.17	21.24	0-3	3
		12	6	21.19	21.24	21.32	0-3	3
		12	11	21.12	21.23	21.26	0-3	3
		25	0	21.16	21.16	21.18	0-3	3
	256QAM	1	0	19.07	19.17	19.21	0-5	5
		1	12	19.19	19.25	19.27	0-5	5
		1	24	19.20	19.28	19.14	0-5	5
		12	0	18.99	19.16	19.15	0-5	5
		12	6	19.16	19.19	19.23	0-5	5
		12	11	19.19	19.31	19.13	0-5	5
		25	0	19.08	19.16	19.19	0-5	5

LTE Band17 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23790ch. 710 MHz	MPR Allowed Per 3GPP [dB]	MPR [dB]
10㎒	QPSK	1	0	24.08	0	0
		1	24	24.03	0	0
		1	49	23.87	0	0
		25	0	23.00	0-1	1
		25	12	23.20	0-1	1
		25	24	23.22	0-1	1
		50	0	23.11	0-1	1
	16QAM	1	0	23.31	0-1	1
		1	24	23.76	0-1	1
		1	49	23.88	0-1	1
		25	0	22.12	0-2	2
		25	12	22.07	0-2	2
		25	24	22.26	0-2	2
		50	0	22.11	0-2	2
	64QAM	1	0	22.35	0-2	2
		1	24	22.33	0-2	2
		1	49	22.34	0-2	2
		25	0	21.14	0-3	3
		25	12	21.22	0-3	3
		25	24	21.19	0-3	3
		50	0	21.10	0-3	3
	256QAM	1	0	19.07	0-5	5
		1	24	19.05	0-5	5
		1	49	19.18	0-5	5
		25	0	19.07	0-5	5
		25	12	19.21	0-5	5
		25	24	19.18	0-5	5
		50	0	19.13	0-5	5

[LTE Band 26 Conducted Power]

LTE Band 26 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26697 Ch. 814.7 ㎒	26865 Ch. 831.5 ㎒	27033 Ch. 848.3 ㎒		
1.4 ㎒	QPSK	1	0	23.40	23.64	24.00	0	0
		1	3	23.53	23.74	24.01	0	0
		1	5	23.39	23.77	24.03	0	0
		3	0	23.46	23.65	23.94	0	0
		3	1	23.49	23.68	24.03	0	0
		3	3	23.48	23.70	24.01	0	0
		6	0	22.60	22.81	23.11	0-1	1
	16QAM	1	0	22.60	22.88	23.36	0-1	1
		1	3	22.86	23.24	23.50	0-1	1
		1	5	22.81	23.25	23.40	0-1	1
		3	0	22.81	22.98	23.42	0-1	1
		3	1	22.65	23.13	23.19	0-1	1
		3	3	22.62	23.13	23.46	0-1	1
		6	0	21.66	21.85	22.30	0-2	2
	64QAM	1	0	21.64	21.95	22.18	0-2	2
		1	3	21.70	22.06	22.31	0-2	2
		1	5	21.71	22.00	22.23	0-2	2
		3	0	21.64	21.88	22.24	0-2	2
		3	1	21.70	21.97	22.21	0-2	2
		3	3	21.70	22.03	22.13	0-2	2
		6	0	20.62	20.91	21.04	0-3	3
	256QAM	1	0	18.65	18.93	19.17	0-5	5
		1	3	18.62	18.97	19.31	0-5	5
		1	5	18.65	18.96	19.16	0-5	5
		3	0	18.65	18.90	19.24	0-5	5
		3	1	18.70	18.95	19.30	0-5	5
		3	3	18.72	18.94	19.21	0-5	5
		6	0	18.57	18.80	19.10	0-5	5

LTE Band 26 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26705 Ch. 815.5 ㎒	26865 Ch. 831.5 ㎒	27025 Ch. 847.5 ㎒		
3 ㎒	QPSK	1	0	23.51	23.83	23.81	0	0
		1	7	23.40	23.93	23.91	0	0
		1	14	23.50	23.79	24.01	0	0
		8	0	22.71	22.87	23.13	0-1	1
		8	3	22.62	22.90	23.22	0-1	1
		8	7	22.60	22.92	23.20	0-1	1
		15	0	22.65	22.84	23.08	0-1	1
	16QAM	1	0	22.96	23.30	23.57	0-1	1
		1	7	22.84	23.21	23.46	0-1	1
		1	14	22.88	23.18	23.68	0-1	1
		8	0	21.71	21.92	22.17	0-2	2
		8	3	21.80	21.98	22.29	0-2	2
		8	7	21.74	22.00	22.21	0-2	2
		15	0	21.67	21.89	22.13	0-2	2
	64QAM	1	0	22.06	21.88	22.28	0-2	2
		1	7	21.74	22.03	22.35	0-2	2
		1	14	21.73	22.08	22.25	0-2	2
		8	0	20.66	20.48	21.10	0-3	3
		8	3	20.73	20.76	21.24	0-3	3
		8	7	20.67	20.29	21.16	0-3	3
		15	0	20.69	20.11	21.17	0-3	3
	256QAM	1	0	18.74	18.67	19.25	0-5	5
		1	7	18.80	18.76	19.21	0-5	5
		1	14	18.71	18.81	19.18	0-5	5
		8	0	18.66	18.66	19.19	0-5	5
		8	3	18.74	18.69	19.26	0-5	5
		8	7	18.71	18.70	19.23	0-5	5
		15	0	18.69	18.64	19.16	0-5	5

LTE Band 26 _ 5 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26715 Ch. 816.5 ㎒	26865 Ch. 831.5 ㎒	27015 Ch. 846.5 ㎒		
5 ㎒	QPSK	1	0	23.41	23.68	24.03	0	0
		1	12	23.42	23.78	24.02	0	0
		1	24	23.48	23.85	24.10	0	0
		12	0	22.60	22.90	23.16	0-1	1
		12	6	22.70	22.91	23.17	0-1	1
		12	11	22.68	22.93	23.14	0-1	1
		25	0	22.61	22.82	23.07	0-1	1
	16QAM	1	0	22.69	23.29	23.26	0-1	1
		1	12	22.90	23.21	23.50	0-1	1
		1	24	22.80	23.39	23.49	0-1	1
		12	0	21.67	21.96	22.16	0-2	2
		12	6	21.75	21.99	22.29	0-2	2
		12	11	21.71	22.02	22.24	0-2	2
		25	0	21.65	21.86	22.12	0-2	2
	64QAM	1	0	21.89	22.02	22.27	0-2	2
		1	12	21.78	22.10	22.40	0-2	2
		1	24	21.76	22.09	22.41	0-2	2
		12	0	20.64	20.88	21.12	0-3	3
		12	6	20.73	20.96	21.18	0-3	3
		12	11	20.71	21.02	21.27	0-3	3
		25	0	20.64	20.84	21.07	0-3	3
	256QAM	1	0	18.63	18.81	19.13	0-5	5
		1	12	18.61	19.01	19.37	0-5	5
		1	24	18.72	18.98	19.25	0-5	5
		12	0	18.53	18.81	19.13	0-5	5
		12	6	18.66	18.93	19.16	0-5	5
		12	11	18.67	18.93	19.23	0-5	5
		25	0	18.59	18.85	19.08	0-5	5

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	23.59	23.80	24.02	0	0
		1	24	23.43	23.72	24.03	0	0
		1	49	23.42	23.72	23.84	0	0
		25	0	22.52	22.73	22.97	0-1	1
		25	12	22.68	22.95	23.21	0-1	1
		25	24	22.67	22.94	23.12	0-1	1
		50	0	22.64	22.71	22.93	0-1	1
	16QAM	1	0	23.01	23.52	23.55	0-1	1
		1	24	23.25	23.33	23.37	0-1	1
		1	49	23.34	23.41	23.96	0-1	1
		25	0	21.52	21.75	21.95	0-2	2
		25	12	21.69	21.86	22.16	0-2	2
		25	24	21.70	21.97	22.17	0-2	2
		50	0	21.67	21.83	22.04	0-2	2
	64QAM	1	0	21.93	21.98	22.20	0-2	2
		1	24	21.77	21.99	22.24	0-2	2
		1	49	21.89	22.23	22.41	0-2	2
		25	0	20.56	20.76	21.01	0-3	3
		25	12	20.85	20.88	21.18	0-3	3
		25	24	20.60	20.93	21.14	0-3	3
		50	0	20.67	20.79	21.10	0-3	3
	256QAM	1	0	18.36	18.55	18.78	0-5	5
		1	24	18.77	18.80	19.18	0-5	5
		1	49	18.55	18.81	19.17	0-5	5
		25	0	18.48	18.77	18.98	0-5	5
		25	12	18.73	18.88	18.92	0-5	5
		25	24	18.59	18.86	19.12	0-5	5
		50	0	18.60	18.75	19.25	0-5	5

LTE Band 26 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	23.73	0	0
		1	36	23.65	0	0
		1	74	23.76	0	0
		36	0	22.69	0-1	1
		36	18	22.77	0-1	1
		36	39	22.83	0-1	1
		75	0	22.73	0-1	1
	16QAM	1	0	23.48	0-1	1
		1	36	23.52	0-1	1
		1	74	23.51	0-1	1
		36	0	21.66	0-2	2
		36	18	21.77	0-2	2
		36	39	21.93	0-2	2
		75	0	21.73	0-2	2
	64QAM	1	0	22.00	0-2	2
		1	36	22.08	0-2	2
		1	74	22.11	0-2	2
		36	0	20.75	0-3	3
		36	18	20.87	0-3	3
		36	39	20.89	0-3	3
		75	0	20.70	0-3	3
	256QAM	1	0	18.40	0-5	5
		1	36	19.01	0-5	5
		1	74	18.96	0-5	5
		36	0	18.60	0-5	5
		36	18	18.80	0-5	5
		36	39	18.89	0-5	5
		75	0	18.77	0-5	5

[LTE Band 41 Conducted Power]
LTE Band 41 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
5 ㎒	QPSK	1	0	23.52	23.25	23.39	23.34	23.28	0	0
		1	12	23.51	23.31	23.41	23.35	23.31	0	0
		1	24	23.48	23.25	23.33	23.27	23.31	0	0
		12	0	22.66	22.41	22.43	22.36	22.36	0-1	1
		12	6	22.69	22.47	22.50	22.26	22.39	0-1	1
		12	11	22.65	22.41	22.51	22.44	22.33	0-1	1
		25	0	22.62	22.43	22.43	22.46	22.36	0-1	1
	16QAM	1	0	22.67	22.43	22.54	22.49	22.45	0-1	1
		1	12	22.62	22.45	22.51	22.52	22.43	0-1	1
		1	24	22.63	22.41	22.48	22.40	22.43	0-1	1
		12	0	21.56	21.35	21.33	21.28	21.29	0-2	2
		12	6	21.61	21.39	21.40	21.45	21.35	0-2	2
		12	11	21.57	21.34	21.45	21.39	21.25	0-2	2
		25	0	21.69	21.45	21.49	21.50	21.39	0-2	2
	64QAM	1	0	21.32	20.88	21.05	21.07	20.98	0-2	2
		1	12	21.32	20.97	21.13	21.12	21.05	0-2	2
		1	24	21.31	20.94	21.09	21.09	21.04	0-2	2
		12	0	20.62	20.40	20.45	20.38	20.34	0-3	3
		12	6	20.68	20.41	20.43	20.49	20.35	0-3	3
		12	11	20.65	20.38	20.51	20.43	20.33	0-3	3
		25	0	20.65	20.43	20.45	20.45	20.35	0-3	3
	256QAM	1	0	18.51	18.18	18.29	18.23	18.18	0-5	5
		1	12	18.46	18.41	18.42	18.31	18.24	0-5	5
		1	24	18.43	18.24	18.33	18.23	18.19	0-5	5
		12	0	18.80	18.57	18.59	18.53	18.49	0-5	5
		12	6	18.84	18.61	18.62	18.66	18.54	0-5	5
		12	11	18.79	18.57	18.65	18.61	18.45	0-5	5
		25	0	18.75	18.51	18.54	18.53	18.44	0-5	5

LTE Band 41 _ 10 ㎒ 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 ㎒		
10 ㎒	QPSK	1	0	23.56	23.12	23.18	23.16	23.07	0	0
		1	24	23.49	23.30	23.40	23.36	23.35	0	0
		1	49	23.52	23.11	23.21	23.08	23.12	0	0
		25	0	22.65	22.34	22.46	22.38	22.33	0-1	1
		25	12	22.71	22.49	22.50	22.54	22.41	0-1	1
		25	24	22.65	22.36	22.45	22.39	22.37	0-1	1
		50	0	22.56	22.38	22.41	22.41	22.33	0-1	1
	16QAM	1	0	22.74	22.14	22.26	22.29	22.21	0-1	1
		1	24	22.70	22.38	22.52	22.47	22.46	0-1	1
		1	49	22.65	22.19	22.29	22.24	22.21	0-1	1
		25	0	21.71	21.34	21.41	21.37	21.35	0-2	2
		25	12	21.72	21.48	21.50	21.53	21.45	0-2	2
		25	24	21.68	21.37	21.45	21.40	21.37	0-2	2
		50	0	21.63	21.42	21.46	21.45	21.38	0-2	2
	64QAM	1	0	21.35	20.73	20.88	20.93	20.83	0-2	2
		1	24	21.27	21.00	21.16	21.17	21.09	0-2	2
		1	49	21.19	20.74	20.91	20.87	20.82	0-2	2
		25	0	20.69	20.34	20.42	20.39	20.36	0-3	3
		25	12	20.70	20.47	20.56	20.52	20.42	0-3	3
		25	24	20.63	20.39	20.49	20.40	20.40	0-3	3
		50	0	20.69	20.48	20.50	20.54	20.41	0-3	3
	256QAM	1	0	18.28	18.16	18.20	18.09	18.05	0-5	5
		1	24	18.52	18.43	18.43	18.32	18.34	0-5	5
		1	49	18.25	18.19	18.22	18.06	18.13	0-5	5
		25	0	18.74	18.49	18.55	18.48	18.41	0-5	5
		25	12	18.82	18.62	18.60	18.58	18.50	0-5	5
		25	24	18.70	18.51	18.58	18.49	18.50	0-5	5
		50	0	18.75	18.51	18.54	18.57	18.44	0-5	5

LTE Band 41 _ 15 ㎒ 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 ㎒		
15 ㎒	QPSK	1	0	23.54	23.15	23.26	23.28	23.06	0	0
		1	36	23.49	23.22	23.41	23.30	23.32	0	0
		1	74	23.47	23.08	23.27	23.04	23.34	0	0
		36	0	22.60	22.31	22.41	22.40	22.30	0-1	1
		36	18	22.69	22.44	22.47	22.49	22.38	0-1	1
		36	39	22.64	22.31	22.49	22.34	22.46	0-1	1
		75	0	22.63	22.33	22.40	22.43	22.32	0-1	1
	16QAM	1	0	22.62	22.15	22.27	22.43	22.18	0-1	1
		1	36	22.53	22.20	22.42	22.44	22.37	0-1	1
		1	74	22.53	22.04	22.32	22.16	22.31	0-1	1
		36	0	21.55	21.27	21.39	21.37	21.26	0-2	2
		36	18	21.62	21.35	21.41	21.46	21.30	0-2	2
		36	39	21.60	21.28	21.49	21.29	21.39	0-2	2
		75	0	21.65	21.38	21.44	21.46	21.32	0-2	2
	64QAM	1	0	21.35	20.82	20.96	21.05	20.81	0-2	2
		1	36	21.29	21.05	21.19	21.15	21.08	0-2	2
		1	74	21.18	20.75	21.02	20.85	21.02	0-2	2
		36	0	20.66	20.33	20.45	20.44	20.35	0-3	3
		36	18	20.68	20.43	20.52	20.53	20.40	0-3	3
		36	39	20.70	20.34	20.54	20.41	20.51	0-3	3
		75	0	20.67	20.36	20.47	20.47	20.39	0-3	3
	256QAM	1	0	18.39	18.21	18.20	18.26	18.05	0-5	5
		1	36	18.51	18.35	18.49	18.37	18.37	0-5	5
		1	74	18.34	18.12	18.29	18.05	18.32	0-5	5
		36	0	18.65	18.31	18.51	18.48	18.35	0-5	5
		36	18	18.72	18.49	18.56	18.59	18.44	0-5	5
		36	39	18.70	18.34	18.62	18.44	18.52	0-5	5
		75	0	18.66	18.40	18.49	18.54	18.38	0-5	5

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	23.50	23.33	23.09	23.20	22.95	0	0
		1	49	23.49	23.28	23.504	23.33	23.36	0	0
		1	99	23.42	23.23	23.07	22.84	23.22	0	0
		50	0	22.54	22.25	22.36	22.40	22.23	0-1	1
		50	25	22.60	22.39	22.62	22.49	22.39	0-1	1
		50	49	22.58	22.28	22.46	22.29	22.45	0-1	1
		100	0	22.57	22.32	22.38	22.39	22.29	0-1	1
	16QAM	1	0	22.62	22.36	22.12	22.23	22.01	0-1	1
		1	49	22.52	22.24	22.45	22.41	22.33	0-1	1
		1	99	22.51	22.27	22.15	21.97	22.24	0-1	1
		50	0	21.57	21.29	21.40	21.44	21.28	0-2	2
		50	25	21.67	21.44	21.50	21.54	21.42	0-2	2
		50	49	21.61	21.30	21.48	21.35	21.47	0-2	2
		100	0	21.62	21.35	21.43	21.45	21.34	0-2	2
	64QAM	1	0	21.36	20.99	20.81	20.91	20.69	0-2	2
		1	49	21.25	21.00	21.20	21.14	21.09	0-2	2
		1	99	21.18	20.96	20.85	20.63	21.00	0-2	2
		50	0	20.66	20.34	20.45	20.48	20.33	0-3	3
		50	25	20.75	20.47	20.54	20.54	20.45	0-3	3
		50	49	20.67	20.34	20.55	20.38	20.52	0-3	3
		100	0	20.65	20.38	20.44	20.48	20.36	0-3	3
	256QAM	1	0	18.23	18.06	18.18	18.19	17.91	0-5	5
		1	49	18.49	18.35	18.47	18.38	18.31	0-5	5
		1	99	18.21	17.95	18.18	17.87	18.28	0-5	5
		50	0	18.66	18.33	18.51	18.55	18.39	0-5	5
		50	25	18.76	18.52	18.63	18.60	18.50	0-5	5
		50	49	18.70	18.36	18.60	18.47	18.56	0-5	5
		100	0	18.63	18.34	18.50	18.52	18.39	0-5	5

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

[LTE Band 41 (HPUE) Conducted Power]
LTE Band 41 (HPUE)_ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
5 ㎒	QPSK	1	0	24.93	24.77	24.83	24.85	24.81	0	0
		1	12	24.94	24.81	24.90	24.86	24.90	0	0
		1	24	24.93	24.77	24.82	24.89	24.81	0	0
		12	0	24.03	23.88	23.88	23.91	23.89	0-1	1
		12	6	24.09	23.90	23.91	23.92	23.99	0-1	1
		12	11	23.99	23.86	23.91	23.95	23.90	0-1	1
		25	0	24.03	23.85	23.87	23.91	23.95	0-1	1
	16QAM	1	0	24.33	24.11	24.19	24.25	24.16	0-1	1
		1	12	24.33	24.03	24.27	24.28	24.24	0-1	1
		1	24	24.30	24.05	24.17	24.18	24.14	0-1	1
		12	0	22.99	22.84	22.85	22.93	22.88	0-2	2
		12	6	23.08	22.86	22.89	22.93	23.06	0-2	2
		12	11	23.06	22.84	22.97	22.96	22.92	0-2	2
		25	0	23.09	22.91	22.91	22.97	23.01	0-2	2
	64QAM	1	0	22.23	21.84	22.32	22.89	22.27	0-2	2
		1	12	22.19	21.82	22.40	22.84	22.32	0-2	2
		1	24	22.23	21.82	22.43	22.74	22.45	0-2	2
		12	0	21.21	20.81	21.33	21.93	21.34	0-3	3
		12	6	21.25	20.84	21.44	21.93	21.40	0-3	3
		12	11	21.24	20.81	21.43	21.84	21.40	0-3	3
		25	0	21.23	20.82	21.42	21.85	21.38	0-3	3
	256QAM	1	0	20.07	19.87	19.91	19.95	19.91	0-5	5
		1	12	20.05	19.95	19.97	19.99	19.96	0-5	5
		1	24	20.05	19.88	19.91	19.98	19.93	0-5	5
		12	0	20.20	20.10	20.02	20.08	20.00	0-5	5
		12	6	20.24	20.16	20.04	20.09	20.13	0-5	5
		12	11	20.18	20.06	20.10	20.10	20.09	0-5	5
		25	0	20.13	20.01	19.98	19.95	20.05	0-5	5

LTE Band 41 (HPUE)_ 10 ㎒ 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 ㎒		
10 ㎒	QPSK	1	0	24.97	24.76	24.73	24.66	24.60	0	0
		1	24	24.95	24.89	24.91	24.83	24.88	0	0
		1	49	24.96	24.59	24.70	24.65	24.65	0	0
		25	0	24.12	23.98	23.95	23.91	23.84	0-1	1
		25	12	24.15	23.99	23.97	23.97	23.99	0-1	1
		25	24	24.13	23.92	23.96	23.91	23.88	0-1	1
		50	0	24.04	23.92	23.90	23.87	23.92	0-1	1
	16QAM	1	0	24.35	24.10	24.05	24.06	24.07	0-1	1
		1	24	24.37	24.12	24.27	24.27	24.30	0-1	1
		1	49	24.40	23.98	24.02	24.10	24.06	0-1	1
		25	0	23.14	22.98	22.92	22.92	22.88	0-2	2
		25	12	23.15	23.03	23.02	22.95	23.01	0-2	2
		25	24	23.14	22.92	22.95	22.96	22.93	0-2	2
		50	0	23.10	22.95	22.94	22.91	22.97	0-2	2
	64QAM	1	0	22.27	21.90	22.28	22.75	22.11	0-2	2
		1	24	22.25	21.90	22.47	22.84	22.27	0-2	2
		1	49	22.30	21.78	22.52	22.58	22.48	0-2	2
		25	0	21.28	20.91	21.41	21.89	21.24	0-3	3
		25	12	21.33	20.93	21.52	21.89	21.36	0-3	3
		25	24	21.32	20.88	21.56	21.78	21.44	0-3	3
		50	0	21.34	20.95	21.54	21.89	21.38	0-3	3
	256QAM	1	0	19.77	19.70	19.74	19.70	19.63	0-5	5
		1	24	20.10	19.99	20.04	20.04	19.94	0-5	5
		1	49	19.84	19.78	19.78	19.69	19.67	0-5	5
		25	0	20.16	20.11	20.02	19.97	19.95	0-5	5
		25	12	20.17	20.09	20.04	19.99	20.03	0-5	5
		25	24	20.10	19.99	20.04	19.96	19.94	0-5	5
		50	0	20.12	20.06	20.02	19.94	19.98	0-5	5

LTE Band 41 (HPUE)_ 15 ㎒ 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 ㎒		
15 ㎒	QPSK	1	0	24.99	24.79	24.75	24.77	24.56	0	0
		1	36	25.01	24.88	24.94	24.86	24.84	0	0
		1	74	25.07	24.63	24.81	24.57	24.79	0	0
		36	0	24.05	23.87	23.91	23.88	23.79	0-1	1
		36	18	24.14	24.00	23.96	23.90	23.99	0-1	1
		36	39	24.09	23.85	24.04	23.83	23.95	0-1	1
		75	0	24.09	23.89	23.91	23.83	23.89	0-1	1
	16QAM	1	0	24.44	24.13	24.10	24.13	24.01	0-1	1
		1	36	24.42	24.17	24.27	24.21	24.18	0-1	1
		1	74	24.39	24.00	24.07	23.90	24.12	0-1	1
		36	0	23.01	22.83	22.88	22.86	22.78	0-2	2
		36	18	23.07	22.95	22.93	22.85	22.95	0-2	2
		36	39	23.07	22.89	22.97	22.83	22.91	0-2	2
		75	0	23.10	22.91	22.93	22.82	22.93	0-2	2
	64QAM	1	0	22.34	22.09	22.39	22.80	22.10	0-2	2
		1	36	22.30	21.93	22.52	22.77	22.27	0-2	2
		1	74	22.41	21.83	22.80	22.58	22.70	0-2	2
		36	0	21.41	21.01	21.52	21.97	21.25	0-3	3
		36	18	21.41	20.96	21.61	21.87	21.39	0-3	3
		36	39	21.47	20.91	21.77	21.73	21.54	0-3	3
		75	0	21.41	20.97	21.67	21.87	21.42	0-3	3
	256QAM	1	0	19.87	19.83	19.83	19.83	19.61	0-5	5
		1	36	20.16	19.97	20.03	19.92	19.96	0-5	5
		1	74	20.04	19.76	19.90	19.63	19.91	0-5	5
		36	0	20.10	19.94	19.92	19.95	19.78	0-5	5
		36	18	20.24	20.05	20.06	19.95	20.03	0-5	5
		36	39	20.16	19.94	20.09	19.93	19.97	0-5	5
		75	0	20.17	20.01	20.01	19.83	19.94	0-5	5

LTE Band 41 (HPUE)_ 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	25.03	24.97	24.70	24.72	24.47	0	0
		1	49	24.99	24.86	24.99	24.89	24.76	0	0
		1	99	25.03	24.80	24.68	24.32	24.75	0	0
		50	0	24.03	23.86	23.88	23.85	23.73	0-1	1
		50	25	24.14	23.93	23.99	23.88	23.92	0-1	1
		50	49	24.07	23.74	23.99	23.76	23.90	0-1	1
		100	0	24.06	23.85	23.89	23.79	23.81	0-1	1
	16QAM	1	0	24.42	24.31	23.99	23.99	23.87	0-1	1
		1	49	24.36	24.17	24.21	24.17	24.17	0-1	1
		1	99	24.36	24.04	23.93	23.68	24.00	0-1	1
		50	0	23.04	22.86	22.89	22.89	22.75	0-2	2
		50	25	23.17	22.95	23.01	22.91	22.96	0-2	2
		50	49	23.11	22.76	22.98	22.80	22.92	0-2	2
		100	0	23.10	22.88	22.95	22.85	22.81	0-2	2
	64QAM	1	0	22.36	22.15	22.01	22.70	21.75	0-2	2
		1	49	22.34	21.95	22.53	22.78	22.24	0-2	2
		1	99	22.45	21.85	22.50	22.18	22.35	0-2	2
		50	0	21.32	20.92	21.37	21.91	21.12	0-3	3
		50	25	21.44	20.95	21.61	21.84	21.36	0-3	3
		50	49	21.37	20.76	21.65	21.60	21.46	0-3	3
		100	0	21.32	20.83	21.49	21.73	21.21	0-3	3
	256QAM	1	0	19.75	19.70	19.68	19.73	19.51	0-5	5
		1	49	20.12	20.03	20.05	19.90	19.91	0-5	5
		1	99	19.93	19.57	19.75	19.42	19.79	0-5	5
		50	0	20.14	19.95	19.96	19.94	19.82	0-5	5
		50	25	20.26	20.05	20.07	19.97	20.01	0-5	5
		50	49	20.18	19.91	20.07	19.89	20.03	0-5	5
		100	0	20.11	19.90	19.95	19.85	19.83	0-5	5

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	22.22	22.10	21.94	0	0
		1	3	22.27	22.16	22.06	0	0
		1	5	22.19	22.11	21.96	0	0
		3	0	22.18	22.08	22.01	0	0
		3	1	22.23	22.12	22.04	0	0
		3	3	22.20	22.08	21.97	0	0
		6	0	21.36	21.19	21.09	0-1	1
	16QAM	1	0	21.44	21.51	21.32	0-1	1
		1	3	21.73	21.60	21.42	0-1	1
		1	5	21.44	21.57	21.36	0-1	1
		3	0	21.47	21.34	21.23	0-1	1
		3	1	21.44	21.39	21.17	0-1	1
		3	3	21.41	21.24	21.15	0-1	1
		6	0	20.34	20.27	20.06	0-2	2
	64QAM	1	0	20.46	20.38	20.24	0-2	2
		1	3	20.42	20.42	20.27	0-2	2
		1	5	20.43	20.23	20.19	0-2	2
		3	0	20.40	20.34	20.18	0-2	2
		3	1	20.46	20.33	20.19	0-2	2
		3	3	20.44	20.30	20.09	0-2	2
		6	0	19.36	19.28	19.09	0-3	3
	256QAM	1	0	17.43	17.36	17.21	0-5	5
		1	3	17.55	17.37	17.26	0-5	5
		1	5	17.32	17.26	17.14	0-5	5
		3	0	17.47	17.35	17.19	0-5	5
		3	1	17.43	17.41	17.23	0-5	5
		3	3	17.38	17.32	17.17	0-5	5
		6	0	17.32	17.28	17.11	0-5	5

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	22.32	22.28	22.13	0	0
		1	7	22.22	22.18	22.01	0	0
		1	14	22.21	22.17	22.05	0	0
		8	0	21.44	21.39	21.16	0-1	1
		8	3	21.49	21.32	21.17	0-1	1
		8	7	21.39	21.31	21.19	0-1	1
		15	0	21.47	21.29	21.13	0-1	1
	16QAM	1	0	21.66	21.57	21.39	0-1	1
		1	7	21.58	21.62	21.25	0-1	1
		1	14	21.72	21.50	21.35	0-1	1
		8	0	20.57	20.43	20.29	0-2	2
		8	3	20.52	20.46	20.31	0-2	2
		8	7	20.45	20.37	20.20	0-2	2
		15	0	20.48	20.31	20.18	0-2	2
	64QAM	1	0	20.62	20.52	20.43	0-2	2
		1	7	20.57	20.40	20.24	0-2	2
		1	14	20.49	20.38	20.29	0-2	2
		8	0	19.56	19.38	19.25	0-3	3
		8	3	19.54	19.43	19.28	0-3	3
		8	7	19.39	19.33	19.20	0-3	3
		15	0	19.48	19.39	19.24	0-3	3
	256QAM	1	0	17.57	17.47	17.30	0-5	5
		1	7	17.48	17.41	17.27	0-5	5
		1	14	17.38	17.38	17.27	0-5	5
		8	0	17.43	17.37	17.26	0-5	5
		8	3	17.40	17.42	17.26	0-5	5
		8	7	17.37	17.30	17.20	0-5	5
		15	0	17.50	17.39	17.22	0-5	5

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	22.27	22.13	22.11	0	0
		1	12	22.22	22.21	22.20	0	0
		1	24	22.21	22.15	22.19	0	0
		12	0	21.50	21.32	21.29	0-1	1
		12	6	21.49	21.36	21.22	0-1	1
		12	11	21.42	21.35	21.16	0-1	1
		25	0	21.44	21.28	21.24	0-1	1
	16QAM	1	0	21.69	21.52	21.46	0-1	1
		1	12	21.67	21.55	21.29	0-1	1
		1	24	21.55	21.43	21.40	0-1	1
		12	0	20.55	20.38	20.24	0-2	2
		12	6	20.56	20.43	20.30	0-2	2
		12	11	20.48	20.32	20.24	0-2	2
		25	0	20.44	20.30	20.23	0-2	2
	64QAM	1	0	20.65	20.42	20.33	0-2	2
		1	12	20.54	20.49	20.22	0-2	2
		1	24	20.50	20.35	20.17	0-2	2
		12	0	19.48	19.32	19.26	0-3	3
		12	6	19.49	19.42	19.28	0-3	3
		12	11	19.40	19.33	19.24	0-3	3
		25	0	19.46	19.25	19.18	0-3	3
	256QAM	1	0	17.48	17.35	17.35	0-5	5
		1	12	17.54	17.46	17.40	0-5	5
		1	24	17.48	17.32	17.21	0-5	5
		12	0	17.47	17.29	17.18	0-5	5
		12	6	17.43	17.30	17.27	0-5	5
		12	11	17.43	17.29	17.13	0-5	5
		25	0	17.41	17.25	17.20	0-5	5

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	21.98	21.82	21.80	0	0
		1	24	22.36	22.25	22.02	0	0
		1	49	22.13	21.90	21.80	0	0
		25	0	21.32	21.13	21.07	0-1	1
		25	12	21.40	21.24	21.12	0-1	1
		25	24	21.31	21.22	21.16	0-1	1
		50	0	21.25	21.14	21.03	0-1	1
	16QAM	1	0	21.55	21.33	21.13	0-1	1
		1	24	21.73	21.55	21.59	0-1	1
		1	49	21.46	21.30	21.20	0-1	1
		25	0	20.31	20.18	19.98	0-2	2
		25	12	20.38	20.20	20.09	0-2	2
		25	24	20.21	20.23	20.15	0-2	2
		50	0	20.23	20.15	20.10	0-2	2
	64QAM	1	0	20.28	20.06	19.83	0-2	2
		1	24	20.39	20.46	20.28	0-2	2
		1	49	20.19	20.23	19.90	0-2	2
		25	0	19.32	19.17	19.10	0-3	3
		25	12	19.40	19.29	19.14	0-3	3
		25	24	19.32	19.17	19.20	0-3	3
		50	0	19.32	19.22	19.06	0-3	3
	256QAM	1	0	17.16	17.07	16.96	0-5	5
		1	24	17.43	17.48	17.28	0-5	5
		1	49	17.23	17.22	16.99	0-5	5
		25	0	17.32	17.21	17.13	0-5	5
		25	12	17.30	17.20	17.11	0-5	5
		25	24	17.25	17.24	17.06	0-5	5
		50	0	17.33	17.09	17.02	0-5	5

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	21.97	21.98	21.93	0	0
		1	36	22.02	22.02	21.90	0	0
		1	74	21.92	21.92	21.91	0	0
		36	0	21.22	21.15	21.02	0-1	1
		36	18	21.21	21.15	20.99	0-1	1
		36	39	21.15	21.13	20.98	0-1	1
		75	0	21.24	21.05	20.93	0-1	1
	16QAM	1	0	21.43	21.23	21.38	0-1	1
		1	36	21.58	21.24	21.19	0-1	1
		1	74	21.31	21.32	21.12	0-1	1
		36	0	20.27	20.18	19.97	0-2	2
		36	18	20.20	20.18	19.98	0-2	2
		36	39	20.15	20.10	20.05	0-2	2
		75	0	20.16	20.13	19.94	0-2	2
	64QAM	1	0	20.33	20.19	20.33	0-2	2
		1	36	20.39	20.36	20.33	0-2	2
		1	74	20.31	20.21	20.20	0-2	2
		36	0	19.32	19.23	19.13	0-3	3
		36	18	19.26	19.13	19.03	0-3	3
		36	39	19.19	19.13	19.02	0-3	3
		75	0	19.21	19.09	18.98	0-3	3
	256QAM	1	0	17.25	17.08	16.98	0-5	5
		1	36	17.41	17.27	17.09	0-5	5
		1	74	17.23	17.10	16.96	0-5	5
		36	0	17.32	17.11	17.07	0-5	5
		36	18	17.26	17.22	17.10	0-5	5
		36	39	17.24	17.10	17.09	0-5	5
		75	0	17.25	17.10	17.11	0-5	5

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	21.89	21.82	21.99	0	0
		1	49	21.95	22.05	21.91	0	0
		1	99	21.76	21.83	21.85	0	0
		50	0	21.19	21.04	21.06	0-1	1
		50	25	21.25	21.08	21.12	0-1	1
		50	49	21.12	21.07	20.97	0-1	1
		100	0	21.15	21.04	21.03	0-1	1
	16QAM	1	0	21.18	21.24	21.34	0-1	1
		1	49	21.47	21.35	21.29	0-1	1
		1	99	21.09	21.07	21.17	0-1	1
		50	0	20.17	20.08	20.04	0-2	2
		50	25	20.23	20.09	20.10	0-2	2
		50	49	20.09	20.05	19.88	0-2	2
		100	0	20.24	19.96	20.04	0-2	2
	64QAM	1	0	20.11	20.05	20.28	0-2	2
		1	49	20.35	20.30	20.30	0-2	2
		1	99	20.12	20.10	20.18	0-2	2
		50	0	19.30	19.19	18.96	0-3	3
		50	25	19.25	19.10	19.08	0-3	3
		50	49	19.14	19.13	19.01	0-3	3
		100	0	19.17	19.01	19.08	0-3	3
	256QAM	1	0	17.08	17.03	16.94	0-5	5
		1	49	17.39	17.25	17.14	0-5	5
		1	99	17.19	16.95	16.94	0-5	5
		50	0	17.27	16.99	17.05	0-5	5
		50	25	17.24	17.16	17.13	0-5	5
		50	49	17.17	17.08	16.99	0-5	5
		100	0	17.20	17.04	16.99	0-5	5

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, Earjack Insert, Grip Sensor Mode)

[LTE Band 2 Conducted Power]

LTE Band 2 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18607 Ch. 1850.7 ㎒	18900 Ch. 1880 ㎒	19193 Ch. 1909.3 ㎒		
1.4 ㎒	QPSK	1	0	18.22	18.37	17.83	0	0
		1	3	18.21	18.51	17.82	0	0
		1	5	18.19	18.44	17.85	0	0
		3	0	18.22	18.40	17.89	0	0
		3	1	18.18	18.54	17.93	0	0
		3	3	18.16	18.41	17.87	0	0
		6	0	18.23	18.45	17.95	0	0
	16QAM	1	0	18.46	18.76	18.15	0	0
		1	3	18.59	18.83	18.26	0	0
		1	5	18.52	18.92	18.14	0	0
		3	0	18.17	18.57	18.05	0	0
		3	1	18.23	18.80	18.16	0	0
		3	3	18.10	18.65	18.10	0	0
		6	0	18.35	18.62	18.04	0	0
	64QAM	1	0	18.43	18.69	18.18	0	0
		1	3	18.36	18.73	18.32	0	0
		1	5	18.59	18.63	18.09	0	0
		3	0	18.28	18.65	18.05	0	0
		3	1	18.35	18.78	18.13	0	0
		3	3	18.30	18.53	18.08	0	0
		6	0	18.27	18.63	17.98	0	0
	256QAM	1	0	17.32	17.57	17.04	0-1	1
		1	3	17.40	17.79	17.13	0-1	1
		1	5	17.42	17.56	17.08	0-1	1
		3	0	17.39	17.63	17.10	0-1	1
		3	1	17.36	17.63	17.18	0-1	1
		3	3	17.33	17.54	17.07	0-1	1
		6	0	17.26	17.50	17.00	0-1	1

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	18.20	18.49	17.95	0	0
		1	7	18.21	18.61	17.84	0	0
		1	14	18.13	18.40	17.83	0	0
		8	0	18.30	18.61	18.04	0	0
		8	3	18.31	18.59	18.01	0	0
		8	7	18.23	18.56	17.94	0	0
		15	0	18.26	18.54	18.04	0	0
	16QAM	1	0	18.60	18.83	18.42	0	0
		1	7	18.43	18.87	18.28	0	0
		1	14	18.40	18.89	18.25	0	0
		8	0	18.41	18.75	18.15	0	0
		8	3	18.48	18.73	18.16	0	0
		8	7	18.44	18.67	18.04	0	0
		15	0	18.31	18.66	18.06	0	0
	64QAM	1	0	18.56	18.78	18.24	0	0
		1	7	18.36	18.75	18.14	0	0
		1	14	18.31	18.66	18.17	0	0
		8	0	18.38	18.57	18.07	0	0
		8	3	18.45	18.62	18.11	0	0
		8	7	18.29	18.59	17.93	0	0
		15	0	18.37	18.56	18.15	0	0
	256QAM	1	0	17.48	17.58	17.00	0-1	1
		1	7	17.46	17.60	17.26	0-1	1
		1	14	17.35	17.62	17.15	0-1	1
		8	0	17.37	17.64	17.17	0-1	1
		8	3	17.37	17.68	17.13	0-1	1
		8	7	17.39	17.57	17.05	0-1	1
		15	0	17.34	17.63	17.07	0-1	1

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 ㎒	18900 Ch. 1880 ㎒	19175 Ch. 1907.5 ㎒		
5 ㎒	QPSK	1	0	18.19	18.41	17.94	0	0
		1	12	18.23	18.56	17.93	0	0
		1	24	18.08	18.39	17.85	0	0
		12	0	18.36	18.57	18.09	0	0
		12	6	18.31	18.60	18.12	0	0
		12	11	18.25	18.56	18.00	0	0
		25	0	18.31	18.50	18.01	0	0
	16QAM	1	0	18.44	18.68	18.23	0	0
		1	12	18.62	18.89	18.19	0	0
		1	24	18.60	18.83	18.14	0	0
		12	0	18.43	18.66	18.13	0	0
		12	6	18.39	18.68	18.17	0	0
		12	11	18.27	18.57	18.07	0	0
		25	0	18.30	18.54	18.01	0	0
	64QAM	1	0	18.50	18.68	18.19	0	0
		1	12	18.41	18.75	17.97	0	0
		1	24	18.43	18.56	18.12	0	0
		12	0	18.31	18.59	18.05	0	0
		12	6	18.43	18.66	18.12	0	0
		12	11	18.35	18.65	18.12	0	0
		25	0	18.43	18.59	18.06	0	0
	256QAM	1	0	17.34	17.63	17.08	0-1	1
		1	12	17.48	17.77	17.08	0-1	1
		1	24	17.24	17.48	17.17	0-1	1
		12	0	17.40	17.66	17.10	0-1	1
		12	6	17.35	17.55	17.10	0-1	1
		12	11	17.25	17.55	17.01	0-1	1
		25	0	17.30	17.57	17.03	0-1	1

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	17.92	18.16	17.97	0	0
		1	24	18.06	18.62	18.04	0	0
		1	49	17.96	18.34	17.98	0	0
		25	0	18.26	18.40	18.01	0	0
		25	12	18.37	18.56	18.06	0	0
		25	24	18.24	18.52	17.97	0	0
		50	0	18.23	18.50	17.96	0	0
	16QAM	1	0	18.24	18.45	18.51	0	0
		1	24	18.63	18.94	18.19	0	0
		1	49	18.60	18.66	18.28	0	0
		25	0	18.25	18.44	18.03	0	0
		25	12	18.37	18.59	18.12	0	0
		25	24	18.26	18.49	17.95	0	0
		50	0	18.19	18.43	17.99	0	0
	64QAM	1	0	18.12	18.30	18.34	0	0
		1	24	18.46	18.85	18.22	0	0
		1	49	18.25	18.50	18.23	0	0
		25	0	18.18	18.48	18.01	0	0
		25	12	18.35	18.56	18.13	0	0
		25	24	18.26	18.50	18.00	0	0
		50	0	18.30	18.55	18.02	0	0
	256QAM	1	0	17.04	17.24	16.69	0-1	1
		1	24	17.49	17.67	17.22	0-1	1
		1	49	17.21	17.53	17.24	0-1	1
		25	0	17.28	17.47	17.06	0-1	1
		25	12	17.36	17.59	17.19	0-1	1
		25	24	17.32	17.44	17.09	0-1	1
		50	0	17.25	17.50	17.04	0-1	1

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	18.02	18.31	18.05	0	0
		1	36	18.07	18.49	17.87	0	0
		1	74	18.15	18.31	17.98	0	0
		36	0	18.09	18.43	18.07	0	0
		36	18	18.27	18.46	18.08	0	0
		36	39	18.34	18.44	17.99	0	0
		75	0	18.27	18.39	18.01	0	0
	16QAM	1	0	18.27	18.69	18.53	0	0
		1	36	18.39	18.89	18.17	0	0
		1	74	18.56	18.55	18.21	0	0
		36	0	18.14	18.36	18.06	0	0
		36	18	18.31	18.49	18.10	0	0
		36	39	18.39	18.44	18.03	0	0
		75	0	18.22	18.39	18.12	0	0
	64QAM	1	0	18.24	18.55	18.36	0	0
		1	36	18.43	18.74	18.28	0	0
		1	74	18.49	18.41	18.10	0	0
		36	0	18.05	18.47	18.07	0	0
		36	18	18.33	18.48	18.10	0	0
		36	39	18.30	18.47	18.02	0	0
		75	0	18.29	18.47	18.06	0	0
	256QAM	1	0	17.18	17.40	17.12	0-1	1
		1	36	17.36	17.76	17.15	0-1	1
		1	74	17.49	17.47	17.14	0-1	1
		36	0	17.15	17.45	17.05	0-1	1
		36	18	17.37	17.51	17.14	0-1	1
		36	39	17.37	17.50	16.93	0-1	1
		75	0	17.16	17.45	17.08	0-1	1

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	18.17	18.27	18.08	0	0
		1	49	17.97	18.46	18.07	0	0
		1	99	18.24	18.33	17.95	0	0
		50	0	18.13	18.33	18.06	0	0
		50	25	18.28	18.48	18.11	0	0
		50	49	18.32	18.38	18.00	0	0
		100	0	18.27	18.34	18.00	0	0
	16QAM	1	0	18.42	18.70	18.56	0	0
		1	49	18.43	18.69	18.25	0	0
		1	99	18.75	18.62	18.32	0	0
		50	0	18.20	18.36	18.02	0	0
		50	25	18.38	18.50	18.09	0	0
		50	49	18.36	18.42	17.94	0	0
		100	0	18.32	18.37	18.09	0	0
	64QAM	1	0	18.36	18.48	18.41	0	0
		1	49	18.33	18.70	18.21	0	0
		1	99	18.62	18.52	18.14	0	0
		50	0	18.14	18.33	18.17	0	0
		50	25	18.34	18.50	18.15	0	0
		50	49	18.33	18.48	18.02	0	0
		100	0	18.22	18.48	17.98	0	0
	256QAM	1	0	16.86	17.10	17.05	0-1	1
		1	49	17.46	17.73	17.22	0-1	1
		1	99	17.34	17.35	16.89	0-1	1
		50	0	17.08	17.34	17.12	0-1	1
		50	25	17.41	17.56	17.19	0-1	1
		50	49	17.42	17.41	16.97	0-1	1
		100	0	17.27	17.44	17.08	0-1	1

[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	19.04	18.98	18.98	0	0
		1	3	19.12	19.06	19.05	0	0
		1	5	19.03	18.99	19.00	0	0
		3	0	19.11	18.30	18.98	0	0
		3	1	19.15	19.16	19.03	0	0
		3	3	19.03	18.31	18.97	0	0
		6	0	19.20	19.43	19.11	0	0
	16QAM	1	0	19.38	18.46	19.34	0	0
		1	3	19.44	19.44	19.43	0	0
		1	5	19.41	19.31	19.36	0	0
		3	0	19.29	19.24	19.22	0	0
		3	1	19.35	19.29	19.24	0	0
		3	3	19.32	19.20	19.16	0	0
		6	0	19.20	19.17	19.15	0	0
	64QAM	1	0	19.29	19.27	19.30	0	0
		1	3	19.24	19.40	19.30	0	0
		1	5	19.23	19.31	19.24	0	0
		3	0	19.32	19.18	19.14	0	0
		3	1	19.32	19.27	19.22	0	0
		3	3	19.24	19.25	19.16	0	0
		6	0	19.17	19.07	19.05	0	0
	256QAM	1	0	17.24	17.17	17.20	0-1	1
		1	3	17.34	17.29	17.23	0-1	1
		1	5	17.21	17.25	17.18	0-1	1
		3	0	17.29	17.19	17.19	0-1	1
		3	1	17.35	17.31	17.33	0-1	1
		3	3	17.23	17.26	17.24	0-1	1
		6	0	17.23	17.05	17.10	0-1	1

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	19.03	19.09	0	0
		1	7	19.06	19.11	19.00	0	0
		1	14	19.05	19.08	19.05	0	0
		8	0	19.22	19.15	19.22	0	0
		8	3	19.28	19.21	19.27	0	0
		8	7	19.20	19.16	19.14	0	0
		15	0	19.24	19.13	19.14	0	0
	16QAM	1	0	19.42	19.36	19.40	0	0
		1	7	19.42	19.45	19.49	0	0
		1	14	19.49	19.48	19.46	0	0
		8	0	19.38	19.31	19.31	0	0
		8	3	19.34	19.28	19.38	0	0
		8	7	19.32	19.33	19.22	0	0
		15	0	19.30	19.15	19.16	0	0
	64QAM	1	0	19.48	19.38	19.30	0	0
		1	7	19.38	19.32	19.29	0	0
		1	14	19.36	19.32	19.26	0	0
		8	0	19.35	19.24	19.23	0	0
		8	3	19.32	19.20	19.28	0	0
		8	7	19.20	19.14	19.19	0	0
		15	0	19.26	19.22	19.23	0	0
	256QAM	1	0	17.34	17.27	17.29	0-1	1
		1	7	17.34	17.32	17.32	0-1	1
		1	14	17.25	17.21	17.20	0-1	1
		8	0	17.25	17.21	17.25	0-1	1
		8	3	17.35	17.27	17.18	0-1	1
		8	7	17.26	17.22	17.17	0-1	1
		15	0	17.30	17.20	17.26	0-1	1

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	19.17	19.08	19.02	0	0
		1	12	19.14	19.11	19.06	0	0
		1	24	18.99	19.01	18.94	0	0
		12	0	19.25	19.21	19.20	0	0
		12	6	19.24	19.21	19.20	0	0
		12	11	19.20	19.18	19.18	0	0
		25	0	19.21	19.17	19.12	0	0
	16QAM	1	0	19.40	19.42	19.32	0	0
		1	12	19.47	19.41	19.40	0	0
		1	24	19.47	19.48	19.39	0	0
		12	0	19.30	19.27	19.27	0	0
		12	6	19.35	19.27	19.33	0	0
		12	11	19.23	19.24	19.24	0	0
		25	0	19.18	19.12	19.13	0	0
	64QAM	1	0	19.34	19.32	19.27	0	0
		1	12	19.28	19.49	19.35	0	0
		1	24	19.27	19.24	19.23	0	0
		12	0	19.25	19.23	19.23	0	0
		12	6	19.27	19.22	19.22	0	0
		12	11	19.22	19.22	19.17	0	0
		25	0	19.26	19.17	19.19	0	0
	256QAM	1	0	17.36	17.22	17.23	0-1	1
		1	12	17.47	17.35	17.34	0-1	1
		1	24	17.21	17.32	17.19	0-1	1
		12	0	17.27	17.21	17.24	0-1	1
		12	6	17.29	17.24	17.18	0-1	1
		12	11	17.24	17.24	17.19	0-1	1
		25	0	17.23	17.17	17.24	0-1	1

LTE Band 4 _ 10 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20000 Ch. 1715 ㎒	20175 Ch. 1732.5 ㎒	20350 Ch. 1750 ㎒		
10 ㎒	QPSK	1	0	18.84	18.86	18.92	0	0
		1	24	18.99	19.10	19.05	0	0
		1	49	18.75	18.78	18.91	0	0
		25	0	19.19	19.09	19.17	0	0
		25	12	19.30	19.18	19.17	0	0
		25	24	19.06	19.15	19.07	0	0
		50	0	19.13	19.03	18.99	0	0
	16QAM	1	0	19.26	19.23	19.25	0	0
		1	24	19.47	19.44	19.46	0	0
		1	49	19.27	19.30	19.20	0	0
		25	0	19.16	19.10	19.16	0	0
		25	12	19.26	19.17	19.17	0	0
		25	24	19.15	19.05	19.13	0	0
		50	0	19.11	19.02	18.99	0	0
	64QAM	1	0	19.04	18.95	18.99	0	0
		1	24	19.42	19.48	19.34	0	0
		1	49	19.22	19.15	18.95	0	0
		25	0	19.17	19.10	19.02	0	0
		25	12	19.19	19.18	19.24	0	0
		25	24	19.13	19.21	19.12	0	0
		50	0	19.14	19.10	19.13	0	0
	256QAM	1	0	17.03	17.01	17.01	0-1	1
		1	24	17.44	17.28	17.29	0-1	1
		1	49	17.01	17.16	17.14	0-1	1
		25	0	17.16	17.11	17.11	0-1	1
		25	12	17.27	17.24	17.22	0-1	1
		25	24	17.09	17.08	17.00	0-1	1
		50	0	17.11	17.08	17.16	0-1	1

LTE Band 4 _ 15 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20025 Ch. 1717.5 ㎒	20175 Ch. 1732.5 ㎒	20325 Ch. 1747.5 ㎒		
15 ㎒	QPSK	1	0	18.77	18.84	18.89	0	0
		1	36	18.95	19.04	19.02	0	0
		1	74	19.00	18.91	18.90	0	0
		36	0	19.13	19.01	19.09	0	0
		36	18	19.15	19.15	19.09	0	0
		36	39	19.15	19.17	19.13	0	0
		75	0	19.12	19.01	19.04	0	0
	16QAM	1	0	19.22	19.15	19.16	0	0
		1	36	19.30	19.26	19.30	0	0
		1	74	19.31	19.42	19.32	0	0
		36	0	19.14	19.10	19.01	0	0
		36	18	19.14	19.15	19.13	0	0
		36	39	19.15	19.18	19.18	0	0
		75	0	19.19	19.11	19.08	0	0
	64QAM	1	0	19.24	19.17	19.07	0	0
		1	36	19.25	19.25	19.35	0	0
		1	74	19.22	19.28	19.19	0	0
		36	0	19.14	19.05	19.08	0	0
		36	18	19.24	19.12	19.19	0	0
		36	39	19.14	19.16	19.20	0	0
		75	0	19.16	19.10	19.08	0	0
	256QAM	1	0	17.15	17.05	17.03	0-1	1
		1	36	17.31	17.35	17.33	0-1	1
		1	74	17.17	17.16	17.11	0-1	1
		36	0	17.13	17.15	17.08	0-1	1
		36	18	17.24	17.21	17.19	0-1	1
		36	39	17.21	17.18	17.15	0-1	1
		75	0	17.14	17.11	17.13	0-1	1

LTE Band 4 _ 20 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20050 Ch. 1720 ㎒	20175 Ch. 1732.5 ㎒	20300 Ch. 1745 ㎒		
20㎒	QPSK	1	0	18.73	18.70	18.82	0	0
		1	49	18.90	19.16	19.00	0	0
		1	99	18.90	18.79	18.80	0	0
		50	0	19.09	19.01	19.01	0	0
		50	25	19.17	19.14	19.13	0	0
		50	49	19.10	19.09	19.15	0	0
		100	0	19.08	19.06	19.03	0	0
	16QAM	1	0	19.04	19.25	19.03	0	0
		1	49	19.46	19.46	19.33	0	0
		1	99	19.11	19.14	19.11	0	0
		50	0	19.14	19.02	19.03	0	0
		50	25	19.18	19.06	19.07	0	0
		50	49	19.17	19.16	19.04	0	0
		100	0	19.13	19.03	19.02	0	0
	64QAM	1	0	19.10	19.03	19.05	0	0
		1	49	19.27	19.36	19.38	0	0
		1	99	19.10	19.11	19.13	0	0
		50	0	19.13	19.04	19.08	0	0
		50	25	19.24	19.15	19.16	0	0
		50	49	19.10	19.16	19.12	0	0
		100	0	19.14	19.07	19.03	0	0
	256QAM	1	0	17.03	17.04	17.01	0-1	1
		1	49	17.24	17.27	17.30	0-1	1
		1	99	17.04	17.13	17.07	0-1	1
		50	0	17.15	17.06	17.05	0-1	1
		50	25	17.17	17.20	17.15	0-1	1
		50	49	17.12	17.21	17.13	0-1	1
		100	0	17.14	17.05	17.02	0-1	1

[LTE Band 41 Conducted Power]
LTE Band 41 _ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
5 ㎒	QPSK	1	0	20.57	20.31	20.44	20.36	20.30	0	0
		1	12	20.53	20.33	20.40	20.36	20.26	0	0
		1	24	20.54	20.27	20.39	20.32	20.26	0	0
		12	0	20.65	20.45	20.50	20.40	20.32	0	0
		12	6	20.48	20.48	20.05	20.53	20.41	0	0
		12	11	20.65	20.45	20.50	20.49	20.37	0	0
		25	0	20.64	20.48	20.46	20.46	20.33	0	0
	16QAM	1	0	20.73	20.47	20.55	20.51	20.43	0	0
		1	12	20.67	20.45	20.53	20.48	20.43	0	0
		1	24	20.68	20.46	20.53	20.45	20.42	0	0
		12	0	20.59	20.41	20.36	20.32	20.27	0	0
		12	6	20.66	20.46	20.47	20.49	20.34	0	0
		12	11	20.62	20.38	20.48	20.42	20.31	0	0
		25	0	20.68	20.47	20.49	20.49	20.38	0	0
	64QAM	1	0	20.33	19.86	20.09	20.04	20.02	0	0
		1	12	20.26	19.95	20.14	20.17	20.05	0	0
		1	24	20.29	19.92	20.10	20.08	20.02	0	0
		12	0	20.64	20.41	20.35	20.38	20.37	0	0
		12	6	20.67	20.45	20.43	20.44	20.35	0	0
		12	11	20.63	20.41	20.46	20.45	20.35	0	0
		25	0	20.65	20.44	20.42	20.46	20.36	0	0
	256QAM	1	0	18.52	18.25	18.34	18.27	18.19	0-2	2
		1	12	18.48	18.41	18.46	18.35	18.26	0-2	2
		1	24	18.43	18.21	18.32	18.25	18.26	0-2	2
		12	0	18.78	18.59	18.58	18.52	18.50	0-2	2
		12	6	18.85	18.63	18.63	18.63	18.52	0-2	2
		12	11	18.80	18.59	18.70	18.62	18.48	0-2	2
		25	0	18.73	18.52	18.55	18.53	18.45	0-2	2

LTE Band 41 _ 10 ㎒ 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 ㎒		
10 ㎒	QPSK	1	0	20.66	20.15	20.24	20.18	20.11	0	0
		1	24	20.55	20.39	20.47	20.34	20.35	0	0
		1	49	20.57	20.16	20.21	20.08	20.11	0	0
		25	0	20.71	20.35	20.49	20.41	20.33	0	0
		25	12	20.72	20.49	20.52	20.51	20.42	0	0
		25	24	20.67	20.40	20.51	20.39	20.38	0	0
		50	0	20.63	20.43	20.46	20.45	20.32	0	0
	16QAM	1	0	20.80	20.20	20.36	20.33	20.24	0	0
		1	24	20.78	20.46	20.56	20.54	20.44	0	0
		1	49	20.68	20.15	20.29	20.25	20.22	0	0
		25	0	20.73	20.40	20.46	20.43	20.36	0	0
		25	12	20.74	20.52	20.57	20.56	20.44	0	0
		25	24	20.70	20.41	20.53	20.42	20.38	0	0
		50	0	20.69	20.48	20.51	20.51	20.38	0	0
	64QAM	1	0	20.37	19.73	19.89	19.91	19.85	0	0
		1	24	20.28	20.01	20.16	20.18	20.08	0	0
		1	49	20.23	19.78	19.91	19.88	19.82	0	0
		25	0	20.70	20.35	20.47	20.35	20.32	0	0
		25	12	20.73	20.51	20.57	20.57	20.46	0	0
		25	24	20.68	20.37	20.48	20.42	20.42	0	0
		50	0	20.69	20.49	20.54	20.54	20.38	0	0
	256QAM	1	0	18.31	18.16	18.18	18.09	18.03	0-2	2
		1	24	18.56	18.45	18.45	18.30	18.35	0-2	2
		1	49	18.27	18.24	18.26	18.05	18.10	0-2	2
		25	0	18.73	18.51	18.62	18.46	18.41	0-2	2
		25	12	18.82	18.62	18.62	18.58	18.51	0-2	2
		25	24	18.74	18.55	18.63	18.50	18.50	0-2	2
		50	0	18.73	18.54	18.53	18.57	18.44	0-2	2

LTE Band 41 _ 15 ㎒ 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 ㎒		
15 ㎒	QPSK	1	0	20.58	20.20	20.27	20.33	20.11	0	0
		1	36	20.58	20.40	20.47	20.38	20.32	0	0
		1	74	20.52	20.12	20.32	20.07	20.29	0	0
		36	0	20.64	20.36	20.45	20.41	20.32	0	0
		36	18	20.74	20.46	20.51	20.50	20.40	0	0
		36	39	20.67	20.37	20.52	20.36	20.47	0	0
		75	0	20.66	20.38	20.46	20.46	20.35	0	0
	16QAM	1	0	20.67	20.16	20.30	20.48	20.20	0	0
		1	36	20.56	20.20	20.46	20.51	20.39	0	0
		1	74	20.58	20.07	20.35	20.21	20.30	0	0
		36	0	20.61	20.26	20.40	20.43	20.28	0	0
		36	18	20.63	20.36	20.43	20.49	20.37	0	0
		36	39	20.63	20.29	20.50	20.36	20.45	0	0
		75	0	20.62	20.36	20.43	20.50	20.37	0	0
	64QAM	1	0	20.38	19.81	19.99	20.07	19.80	0	0
		1	36	20.34	20.01	20.26	20.13	20.11	0	0
		1	74	20.24	19.74	20.05	19.86	20.06	0	0
		36	0	20.67	20.36	20.49	20.46	20.31	0	0
		36	18	20.68	20.46	20.54	20.56	20.41	0	0
		36	39	20.71	20.37	20.56	20.39	20.49	0	0
		75	0	20.68	20.46	20.51	20.48	20.38	0	0
	256QAM	1	0	18.41	18.23	18.23	18.27	18.06	0-2	2
		1	36	18.53	18.42	18.46	18.35	18.37	0-2	2
		1	74	18.36	18.16	18.28	18.05	18.31	0-2	2
		36	0	18.67	18.33	18.45	18.49	18.35	0-2	2
		36	18	18.77	18.51	18.53	18.59	18.48	0-2	2
		36	39	18.69	18.36	18.54	18.45	18.52	0-2	2
		75	0	18.71	18.41	18.52	18.54	18.38	0-2	2

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	20.28	20.36	20.25	20.08	19.75	0	0
		1	49	20.25	20.27	20.59	20.12	20.24	0	0
		1	99	20.31	20.27	20.25	19.58	20.20	0	0
		50	0	20.18	20.23	20.48	20.29	20.09	0	0
		50	25	20.37	20.37	20.56	20.30	20.36	0	0
		50	49	20.31	20.23	20.50	20.11	20.36	0	0
		100	0	20.28	20.27	20.46	20.19	20.19	0	0
	16QAM	1	0	20.70	20.35	20.17	20.28	20.09	0	0
		1	49	20.58	20.25	20.43	20.46	20.38	0	0
		1	99	20.59	20.28	20.16	19.98	20.26	0	0
		50	0	20.63	20.30	20.41	20.44	20.31	0	0
		50	25	20.72	20.46	20.57	20.53	20.42	0	0
		50	49	20.65	20.32	20.47	20.35	20.50	0	0
		100	0	20.65	20.36	20.45	20.50	20.38	0	0
	64QAM	1	0	20.37	19.99	19.84	19.92	19.68	0	0
		1	49	20.34	20.00	20.18	20.09	20.11	0	0
		1	99	20.22	19.98	19.86	19.65	19.96	0	0
		50	0	20.67	20.36	20.49	20.48	20.32	0	0
		50	25	20.77	20.46	20.55	20.55	20.47	0	0
		50	49	20.70	20.37	20.54	20.37	20.52	0	0
		100	0	20.67	20.40	20.46	20.41	20.34	0	0
	256QAM	1	0	18.23	18.08	18.12	18.18	17.91	0-2	2
		1	49	18.52	18.37	18.43	18.36	18.31	0-2	2
		1	99	18.19	18.00	18.17	17.86	18.29	0-2	2
		50	0	18.67	18.35	18.54	18.56	18.37	0-2	2
		50	25	18.77	18.54	18.64	18.60	18.51	0-2	2
		50	49	18.72	18.40	18.60	18.45	18.55	0-2	2
		100	0	18.66	18.36	18.52	18.47	18.40	0-2	2

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

[LTE Band 41 (HPUE) Conducted Power]
LTE Band 41 (HPUE)_ 5 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
5 ㎒	QPSK	1	0	21.99	21.84	21.79	21.81	21.77	0	0
		1	12	22.00	21.86	21.85	21.84	21.83	0	0
		1	24	22.03	21.86	21.83	21.77	21.78	0	0
		12	0	22.06	21.95	21.90	21.85	21.83	0	0
		12	6	22.11	22.00	21.93	21.95	21.98	0	0
		12	11	22.05	21.93	21.92	21.94	21.93	0	0
		25	0	22.02	21.93	21.86	21.83	21.95	0	0
	16QAM	1	0	22.26	22.18	22.21	22.18	22.15	0	0
		1	12	22.19	22.39	22.35	22.24	22.26	0	0
		1	24	22.27	22.18	22.23	22.16	22.14	0	0
		12	0	22.12	21.91	21.90	21.85	21.83	0	0
		12	6	22.18	21.99	21.98	21.97	21.95	0	0
		12	11	22.13	21.92	21.95	21.90	21.90	0	0
		25	0	22.10	22.00	21.92	21.91	21.99	0	0
	64QAM	1	0	22.05	21.75	21.79	21.83	21.84	0	0
		1	12	22.18	21.83	21.97	22.01	21.91	0	0
		1	24	22.03	21.79	21.85	21.88	21.83	0	0
		12	0	22.12	20.87	21.38	21.85	21.28	0	0
		12	6	22.20	20.89	21.48	21.85	21.33	0	0
		12	11	22.11	20.86	21.46	21.75	21.33	0	0
		25	0	22.02	20.87	21.46	21.76	21.31	0	0
	256QAM	1	0	20.08	19.88	19.81	19.91	19.80	0-2	2
		1	12	20.06	19.96	19.98	19.99	19.94	0-2	2
		1	24	20.03	19.89	19.92	19.84	19.90	0-2	2
		12	0	20.16	20.07	20.02	20.03	19.99	0-2	2
		12	6	20.23	20.17	20.11	20.03	20.13	0-2	2
		12	11	20.17	20.06	20.11	20.08	20.06	0-2	2
		25	0	20.11	20.05	19.99	19.93	20.01	0-2	2

LTE Band 41 (HPUE)_ 10 ㎒ 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 ㎒		
10 ㎒	QPSK	1	0	22.03	21.75	21.69	21.66	21.64	0	0
		1	24	21.94	21.90	21.87	21.88	21.88	0	0
		1	49	21.99	21.60	21.68	21.60	21.57	0	0
		25	0	22.10	21.96	21.92	21.86	21.81	0	0
		25	12	22.15	22.02	21.95	21.92	21.98	0	0
		25	24	22.09	21.89	21.91	21.86	21.85	0	0
		50	0	22.09	21.96	21.86	21.85	21.92	0	0
	16QAM	1	0	22.34	21.99	22.02	22.03	22.03	0	0
		1	24	22.39	22.28	22.21	22.25	22.20	0	0
		1	49	22.32	21.95	22.01	21.97	21.96	0	0
		25	0	22.09	21.99	21.94	21.87	21.86	0	0
		25	12	22.14	22.04	21.96	21.94	21.99	0	0
		25	24	22.11	21.93	21.95	21.95	21.89	0	0
		50	0	22.09	22.00	21.92	21.90	21.97	0	0
	64QAM	1	0	21.98	21.60	21.70	21.65	21.61	0	0
		1	24	21.99	21.86	21.94	21.90	21.94	0	0
		1	49	22.08	21.60	21.67	21.62	21.66	0	0
		25	0	21.29	20.87	21.39	21.92	21.19	0	0
		25	12	21.33	20.89	21.51	21.83	21.31	0	0
		25	24	21.32	20.83	21.54	21.73	21.38	0	0
		50	0	21.34	20.91	21.51	21.83	21.33	0	0
	256QAM	1	0	19.78	19.73	19.70	19.72	19.64	0-2	2
		1	24	20.11	19.99	19.99	20.00	19.95	0-2	2
		1	49	19.84	19.67	19.76	19.62	19.66	0-2	2
		25	0	20.15	20.08	19.94	19.90	19.91	0-2	2
		25	12	20.17	20.11	20.04	20.00	20.07	0-2	2
		25	24	20.09	19.98	19.99	19.94	19.95	0-2	2
		50	0	20.12	20.03	19.93	19.97	19.99	0-2	2

LTE Band 41 (HPUE)_ 15 ㎒ 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 ㎒		
15 ㎒	QPSK	1	0	22.01	21.75	21.73	21.79	21.58	0	0
		1	36	21.96	21.94	21.93	21.84	21.83	0	0
		1	74	22.05	21.65	21.76	21.55	21.84	0	0
		36	0	22.06	21.86	21.87	21.91	21.81	0	0
		36	18	22.16	21.98	21.93	21.90	21.98	0	0
		36	39	22.11	21.87	22.00	21.86	21.96	0	0
		75	0	22.11	21.89	21.86	21.84	21.88	0	0
	16QAM	1	0	22.29	21.94	21.99	22.10	21.95	0	0
		1	36	22.24	22.05	22.12	22.16	22.16	0	0
		1	74	22.34	21.86	22.05	21.90	22.07	0	0
		36	0	22.00	21.82	21.85	21.88	21.75	0	0
		36	18	22.09	21.90	21.93	21.85	21.89	0	0
		36	39	22.04	21.80	21.94	21.81	21.92	0	0
		75	0	22.08	21.88	21.90	21.82	21.93	0	0
	64QAM	1	0	21.92	21.64	21.66	21.79	21.62	0	0
		1	36	21.99	21.82	21.92	21.95	21.88	0	0
		1	74	21.99	21.61	21.75	21.62	21.82	0	0
		36	0	21.35	20.92	21.45	21.91	21.22	0	0
		36	18	21.35	20.88	21.53	21.83	21.35	0	0
		36	39	21.39	20.82	21.68	21.70	21.50	0	0
		75	0	21.34	20.87	21.59	21.86	21.37	0	0
	256QAM	1	0	19.81	19.74	19.78	19.87	19.63	0-2	2
		1	36	20.09	19.94	20.02	19.93	19.93	0-2	2
		1	74	20.01	19.75	19.88	19.67	19.88	0-2	2
		36	0	20.05	19.86	19.91	19.93	19.83	0-2	2
		36	18	20.16	20.00	19.97	19.97	19.99	0-2	2
		36	39	20.07	19.90	20.03	19.89	20.00	0-2	2
		75	0	20.14	19.91	19.92	19.90	19.99	0-2	2

LTE Band 41 (HPUE)_ 20 ㎒ Bandwidth

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	22.02	21.98	21.67	21.74	21.47	0	0
		1	49	22.06	21.92	21.97	21.86	21.88	0	0
		1	99	22.02	21.84	21.64	21.39	21.73	0	0
		50	0	22.01	21.83	21.84	21.91	21.75	0	0
		50	25	22.12	21.92	21.96	21.89	21.94	0	0
		50	49	22.05	21.82	21.98	21.82	21.95	0	0
		100	0	22.05	21.85	21.89	21.87	21.81	0	0
	16QAM	1	0	22.30	22.16	21.81	21.99	21.81	0	0
		1	49	22.26	22.04	22.17	22.17	22.10	0	0
		1	99	22.27	22.05	21.82	21.69	21.99	0	0
		50	0	22.01	21.78	21.88	21.92	21.77	0	0
		50	25	22.12	21.93	21.96	21.95	21.97	0	0
		50	49	22.04	21.81	21.94	21.81	21.97	0	0
		100	0	22.04	21.87	21.91	21.85	21.83	0	0
	64QAM	1	0	21.98	21.83	21.56	21.71	21.51	0	0
		1	49	21.96	21.79	21.87	21.87	21.88	0	0
		1	99	22.00	21.76	21.60	21.45	21.74	0	0
		50	0	21.23	20.82	21.28	21.89	21.12	0	0
		50	25	21.36	20.84	21.51	21.82	21.34	0	0
		50	49	21.28	20.66	21.55	21.58	21.44	0	0
		100	0	21.23	20.71	21.39	21.70	21.18	0	0
	256QAM	1	0	19.68	19.63	19.65	19.76	19.53	0-2	2
		1	49	20.06	19.95	19.98	19.94	19.90	0-2	2
		1	99	19.85	19.52	19.68	19.43	19.83	0-2	2
		50	0	20.08	19.89	19.91	19.99	19.81	0-2	2
		50	25	20.19	20.03	20.03	20.00	20.06	0-2	2
		50	49	20.13	19.88	20.02	19.90	20.01	0-2	2
		100	0	20.07	19.88	19.91	19.86	19.83	0-2	2

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

[LTE Band 66 Conducted Power]

LTE Band 66 _ 1.4 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131979Ch. 1710.7 ㎒	132322 Ch. 1745 ㎒	132665 Ch. 1779.3 ㎒		
1.4 ㎒	QPSK	1	0	18.18	18.06	17.91	0	0
		1	3	18.19	18.03	17.92	0	0
		1	5	18.13	17.98	17.82	0	0
		3	0	18.15	18.08	17.88	0	0
		3	1	18.21	18.11	17.93	0	0
		3	3	18.11	17.99	17.84	0	0
		6	0	18.21	18.16	17.94	0	0
	16QAM	1	0	18.40	18.29	18.32	0	0
		1	3	18.54	18.36	18.26	0	0
		1	5	18.33	18.28	18.17	0	0
		3	0	18.29	18.23	18.11	0	0
		3	1	18.37	18.30	18.24	0	0
		3	3	18.30	18.27	18.13	0	0
		6	0	18.27	18.18	18.06	0	0
	64QAM	1	0	18.53	18.30	18.11	0	0
		1	3	18.55	18.40	18.27	0	0
		1	5	18.38	18.18	18.12	0	0
		3	0	18.24	18.19	18.13	0	0
		3	1	18.35	18.23	18.05	0	0
		3	3	18.27	18.10	17.99	0	0
		6	0	18.28	18.16	17.97	0	0
	256QAM	1	0	17.36	17.26	17.05	0-1	1
		1	3	17.41	17.30	17.13	0-1	1
		1	5	17.23	17.11	17.00	0-1	1
		3	0	17.39	17.21	17.07	0-1	1
		3	1	17.38	17.30	17.11	0-1	1
		3	3	17.31	17.24	17.03	0-1	1
		6	0	17.26	17.13	17.03	0-1	1

LTE Band 66 _ 3 ㎒ Bandwidth

Bandwidth	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				131987 Ch. 1711.5 ㎒	132322 Ch. 1745 ㎒	132657 Ch. 1778.5 ㎒		
3 ㎒	QPSK	1	0	18.28	18.16	18.06	0	0
		1	7	18.13	18.04	18.00	0	0
		1	14	18.11	18.06	17.93	0	0
		8	0	18.35	18.25	18.10	0	0
		8	3	18.32	18.18	18.12	0	0
		8	7	18.20	18.16	18.04	0	0
		15	0	18.26	18.14	18.07	0	0
	16QAM	1	0	18.67	18.43	18.30	0	0
		1	7	18.43	18.42	18.33	0	0
		1	14	18.42	18.45	18.20	0	0
		8	0	18.43	18.29	18.20	0	0
		8	3	18.44	18.31	18.22	0	0
		8	7	18.32	18.27	18.12	0	0
		15	0	18.32	18.24	18.09	0	0
	64QAM	1	0	18.56	18.40	18.25	0	0
		1	7	18.46	18.36	18.26	0	0
		1	14	18.38	18.30	18.14	0	0
		8	0	18.37	18.32	18.14	0	0
		8	3	18.35	18.28	18.16	0	0
		8	7	18.38	18.24	18.09	0	0
		15	0	18.32	18.22	18.11	0	0
	256QAM	1	0	17.40	17.33	17.20	0-1	1
		1	7	17.34	17.24	17.15	0-1	1
		1	14	17.31	17.19	17.10	0-1	1
		8	0	17.35	17.24	17.15	0-1	1
		8	3	17.35	17.28	17.16	0-1	1
		8	7	17.28	17.20	17.09	0-1	1
		15	0	17.30	17.25	17.10	0-1	1

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	18.25	18.08	17.96	0	0
		1	12	18.18	18.23	18.02	0	0
		1	24	18.06	18.01	17.91	0	0
		12	0	18.36	18.21	18.07	0	0
		12	6	18.29	18.27	18.12	0	0
		12	11	18.30	18.15	18.06	0	0
		25	0	18.31	18.20	18.12	0	0
	16QAM	1	0	18.57	18.40	18.36	0	0
		1	12	18.54	18.42	18.34	0	0
		1	24	18.54	18.47	18.28	0	0
		12	0	18.38	18.27	18.13	0	0
		12	6	18.40	18.29	18.18	0	0
		12	11	18.32	18.22	18.14	0	0
		25	0	18.30	18.17	18.08	0	0
	64QAM	1	0	18.53	18.37	18.23	0	0
		1	12	18.50	18.39	18.23	0	0
		1	24	18.34	18.25	18.16	0	0
		12	0	18.40	18.24	18.15	0	0
		12	6	18.40	18.27	18.20	0	0
		12	11	18.32	18.25	18.11	0	0
		25	0	18.29	18.26	18.09	0	0
	256QAM	1	0	17.42	17.31	17.20	0-1	1
		1	12	17.40	17.43	17.18	0-1	1
		1	24	17.29	17.24	17.13	0-1	1
		12	0	17.34	17.23	17.13	0-1	1
		12	6	17.38	17.24	17.14	0-1	1
		12	11	17.29	17.20	17.09	0-1	1
		25	0	17.29	17.18	17.07	0-1	1

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	17.87	17.88	17.75	0	0
		1	24	18.18	18.08	17.98	0	0
		1	49	17.99	17.88	17.73	0	0
		25	0	18.24	18.02	17.92	0	0
		25	12	18.28	18.17	18.05	0	0
		25	24	18.23	18.09	18.01	0	0
		50	0	18.22	18.07	17.96	0	0
	16QAM	1	0	18.33	18.25	18.15	0	0
		1	24	18.63	18.61	18.58	0	0
		1	49	18.43	18.23	18.29	0	0
		25	0	18.19	18.13	18.04	0	0
		25	12	18.30	18.18	18.05	0	0
		25	24	18.17	18.17	17.96	0	0
		50	0	18.20	18.10	17.99	0	0
	64QAM	1	0	18.19	17.98	17.87	0	0
		1	24	18.47	18.24	18.35	0	0
		1	49	18.00	18.12	18.08	0	0
		25	0	18.28	18.02	18.06	0	0
		25	12	18.38	18.16	18.08	0	0
		25	24	18.17	18.15	18.06	0	0
		50	0	18.32	18.03	18.02	0	0
	256QAM	1	0	17.06	17.02	17.04	0-1	1
		1	24	17.40	17.25	17.23	0-1	1
		1	49	17.29	17.07	17.03	0-1	1
		25	0	17.19	17.05	17.02	0-1	1
		25	12	17.36	17.20	17.10	0-1	1
		25	24	17.20	17.17	17.04	0-1	1
		50	0	17.25	17.05	17.01	0-1	1

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	18.07	17.85	17.97	0	0
		1	36	17.94	18.04	17.95	0	0
		1	74	17.91	17.89	17.94	0	0
		36	0	18.25	18.15	18.06	0	0
		36	18	18.19	18.08	18.09	0	0
		36	39	18.19	18.14	18.06	0	0
		75	0	18.28	18.12	18.08	0	0
	16QAM	1	0	18.30	18.43	18.51	0	0
		1	36	18.57	18.63	18.38	0	0
		1	74	18.59	18.35	18.45	0	0
		36	0	18.29	18.16	18.04	0	0
		36	18	18.21	18.13	18.11	0	0
		36	39	18.21	18.20	18.08	0	0
		75	0	18.27	18.11	18.08	0	0
	64QAM	1	0	18.33	18.28	18.22	0	0
		1	36	18.45	18.32	18.29	0	0
		1	74	18.29	18.27	18.29	0	0
		36	0	18.32	18.21	18.14	0	0
		36	18	18.33	18.24	18.07	0	0
		36	39	18.27	18.23	18.00	0	0
		75	0	18.26	18.11	17.99	0	0
	256QAM	1	0	17.21	17.12	17.07	0-1	1
		1	36	17.31	17.24	17.19	0-1	1
		1	74	17.19	17.16	17.03	0-1	1
		36	0	17.32	17.07	17.09	0-1	1
		36	18	17.35	17.18	17.06	0-1	1
		36	39	17.24	17.22	17.10	0-1	1
		75	0	17.25	17.13	17.03	0-1	1

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	17.91	17.77	18.04	0	0
		1	49	17.89	17.90	17.92	0	0
		1	99	17.94	17.88	17.82	0	0
		50	0	18.22	18.07	18.01	0	0
		50	25	18.27	18.12	18.11	0	0
		50	49	18.16	18.09	18.00	0	0
		100	0	18.21	18.06	18.10	0	0
	16QAM	1	0	18.32	18.14	18.49	0	0
		1	49	18.47	18.57	18.63	0	0
		1	99	18.30	18.15	18.41	0	0
		50	0	18.21	18.08	17.97	0	0
		50	25	18.29	18.07	18.14	0	0
		50	49	18.14	18.14	18.04	0	0
		100	0	18.15	18.10	18.06	0	0
	64QAM	1	0	18.16	18.00	18.29	0	0
		1	49	18.37	18.39	18.26	0	0
		1	99	18.01	17.97	18.18	0	0
		50	0	18.30	18.12	18.05	0	0
		50	25	18.32	18.17	18.22	0	0
		50	49	18.22	18.15	18.07	0	0
		100	0	18.25	18.03	18.13	0	0
	256QAM	1	0	17.10	17.09	17.03	0-1	1
		1	49	17.26	17.32	17.18	0-1	1
		1	99	17.20	17.06	17.05	0-1	1
		50	0	17.24	17.15	17.10	0-1	1
		50	25	17.27	17.13	17.15	0-1	1
		50	49	17.19	17.12	17.03	0-1	1
		100	0	17.22	17.11	17.09	0-1	1

11.4 NR Maximum Output Power

11.4.1 NR Band Maximum Conducted Power

[NR Band n5 Conducted Power]

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
						165300	167300	169300	
						826.5 ㎒	836.5 ㎒	846.5 ㎒	
5 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.80	24.04	24.10	0
				1	13	23.72	23.98	23.99	0
				1	23	23.67	23.92	23.94	0
				12	0	23.36	23.52	23.61	0.5
				12	7	23.80	24.03	24.07	0
				12	13	23.28	23.50	23.53	0.5
				25	0	23.35	23.60	23.59	0.5
			QPSK	1	1	23.71	23.83	23.99	0
				1	13	23.61	23.83	23.87	0
				1	23	23.56	23.76	23.85	0
				12	0	22.91	23.02	23.09	1
				12	7	23.78	23.99	24.05	0
				12	13	22.78	23.00	23.04	1
				25	0	22.83	23.07	23.08	1
			16QAM	1	1	23.38	23.45	23.55	0
			64QAM	1	1	21.32	21.44	21.59	2.5
			256QAM	1	1	19.24	19.28	19.40	4.5
		CP	QPSK	1	1	22.34	22.48	22.53	1.5

NR Band n5_ 10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
							167300		
							836.5 MHz		
10 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1		23.81		0
				1	26		23.91		0
				1	50		23.93		0
				25	0		23.48		0.5
				25	14		24.06		0
				25	27		23.56		0.5
				50	0		23.54		0.5
			QPSK	1	1		23.70		0
				1	26		23.84		0
				1	50		23.86		0
				25	0		23.04		1
				25	14		24.09		0
				25	27		23.04		1
				50	0		23.11		1
			16QAM	1	1		23.29		0
			64QAM	1	1		21.21		2.5
			256QAM	1	1		19.10		4.5
		CP	QPSK	1	1		22.30		1.5

NR Band n5_ 15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
							167300		
							836.5 ㎒		
15 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1		23.96		0
				1	40		24.00		0
				1	77		24.08		0
				36	0		23.55		0.5
				36	22		24.10		0
				36	43		23.56		0.5
				75	0		23.61		0.5
			QPSK	1	1		23.81		0
				1	40		23.85		0
				1	77		23.86		0
				36	0		23.06		1
				36	22		24.13		0
				36	43		23.08		1
				75	0		23.16		1
			16QAM	1	1		23.31		0
			64QAM	1	1		21.32		2.5
			256QAM	1	1		19.28		4.5
		CP	QPSK	1	1		22.41		1.5

NR Band n5_ 20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
							167300		
							836.5 ㎒		
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1		23.76		0
				1	53		23.97		0
				1	104		24.07		0
				50	0		23.41		0.5
				50	28		24.11		0
				50	56		23.69		0.5
				100	0		23.59		0.5
			QPSK	1	1		23.68		0
				1	53		23.85		0
				1	104		24.03		0
				50	0		22.94		1
				50	28		24.13		0
				50	56		23.16		1
				100	0		23.14		1
			16QAM	1	1		23.30		0
			64QAM	1	1		21.22		2.5
			256QAM	1	1		19.18		4.5
		CP	QPSK	1	1		22.30		1.5

[NR Band n66 Conducted Power]

NR Band n66 _5 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
						342500	349000	355500	
						1712.5 ㎒	1745 ㎒	1777.5 ㎒	
5 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.47	23.11	23.14	0
				1	13	23.51	23.15	23.18	0
				1	23	23.54	23.15	23.17	0
				12	0	23.03	22.67	22.68	0.5
				12	7	23.54	23.20	23.23	0
				12	13	23.06	22.71	22.69	0.5
				25	0	22.97	22.63	22.67	0.5
			QPSK	1	1	23.35	22.96	22.99	0
				1	13	23.40	23.01	23.04	0
				1	23	23.41	23.03	23.09	0
				12	0	22.46	22.26	22.22	1
				12	7	23.55	23.21	23.20	0
				12	13	22.48	22.26	22.29	1
				25	0	22.49	22.25	22.24	1
			16QAM	1	1	22.74	22.46	22.48	1
			64QAM	1	1	20.79	20.58	20.58	2.5
			256QAM	1	1	18.70	18.45	18.41	4.5
		CP	QPSK	1	1	21.81	21.53	21.81	1.5

NR Band n66 _ 10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
						343000	349000	355000	
						1715 ㎒	1745 ㎒	1775 ㎒	
10 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.57	23.16	23.18	0
				1	26	23.56	23.12	23.17	0
				1	50	23.58	23.14	23.17	0
				25	0	23.06	22.70	22.71	0.5
				25	14	23.62	23.26	23.28	0
				25	27	23.12	22.74	22.79	0.5
				50	0	23.11	22.70	22.75	0.5
			QPSK	1	1	23.47	23.10	23.16	0
				1	26	23.47	23.09	23.12	0
				1	50	23.43	23.01	23.13	0
				25	0	22.56	22.28	22.28	1
				25	14	23.63	23.19	23.32	0
				25	27	22.60	22.30	22.30	1
				50	0	22.58	22.28	22.36	1
			16QAM	1	1	22.85	22.54	22.62	1
			64QAM	1	1	20.93	20.63	20.71	2.5
			256QAM	1	1	18.74	18.47	18.52	4.5
		CP	QPSK	1	1	21.97	21.65	21.75	1.5

NR Band n66 _ 15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
						343500	349000	354500	
						1717.5 ㎒	1745 ㎒	1772.5 ㎒	
15 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.61	23.29	23.22	0
				1	40	23.51	23.19	23.06	0
				1	77	23.50	23.15	23.12	0
				36	0	23.15	22.84	22.74	0.5
				36	22	23.63	23.25	23.20	0
				36	43	23.11	22.72	22.71	0.5
				75	0	23.17	22.75	22.74	0.5
			QPSK	1	1	23.68	23.22	23.14	0
				1	40	23.57	23.12	23.07	0
				1	77	23.44	23.02	23.07	0
				36	0	22.68	22.40	22.30	1
				36	22	23.64	23.26	23.23	0
				36	43	22.52	22.25	22.33	1
				75	0	22.61	22.38	22.37	1
			16QAM	1	1	22.58	22.68	22.60	1
			64QAM	1	1	21.01	20.75	20.70	2.5
			256QAM	1	1	18.93	18.62	18.56	4.5
		CP	QPSK	1	1	22.07	21.90	21.76	1.5

NR Band n66 _ 20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
						344000	349000	354000	
						1720 ㎒	1745 ㎒	1770 ㎒	
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.57	23.36	23.23	0
				1	53	23.53	23.19	23.22	0
				1	104	23.36	23.08	23.25	0
				50	0	23.14	22.82	22.83	0.5
				50	28	23.60	23.26	23.25	0
				50	56	22.97	22.70	22.78	0.5
				100	0	23.00	22.81	22.78	0.5
			QPSK	1	1	23.57	23.31	23.21	0
				1	53	23.49	23.16	23.14	0
				1	104	23.30	23.06	23.16	0
				50	0	22.68	22.44	22.35	1
				50	28	23.64	23.30	23.29	0
				50	56	22.50	22.29	22.40	1
				100	0	22.54	22.37	22.38	1
			16QAM	1	1	22.90	22.67	22.62	1
			64QAM	1	1	20.94	20.75	20.73	2.5
			256QAM	1	1	18.88	18.62	18.59	4.5
		CP	QPSK	1	1	22.07	21.82	21.77	1.5

11.4.2 NR Band Reduced Conducted Power(Hotspot, Earjack Insert, Grip Sensor Mode)

[NR Band n66 Conducted Power]

NR Band n66 _5 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR [dB]
						342500	349000	355500	
						1712.5 ㎒	1745 ㎒	1777.5 ㎒	
5 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	19.41	19.07	19.07	0
				1	13	19.40	19.08	19.14	0
				1	23	19.41	19.12	19.16	0
				12	0	19.48	19.20	19.15	0
				12	7	19.44	19.25	19.19	0
				12	13	19.38	19.20	19.24	0
				25	0	19.45	19.21	19.17	0
			QPSK	1	1	19.40	19.12	19.03	0
				1	13	19.40	19.16	19.02	0
				1	23	19.43	19.16	19.07	0
				12	0	19.46	19.18	19.16	0
				12	7	19.46	19.20	19.23	0
				12	13	19.48	19.19	19.24	0
				25	0	19.44	19.18	19.18	0
			16QAM	1	1	19.33	19.10	19.37	0
			64QAM	1	1	19.36	19.05	19.04	0
			256QAM	1	1	18.71	18.40	18.37	0
		CP	QPSK	1	1	19.32	19.07	19.05	0

NR Band n66 _ 10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR [dB]
						343000	349000	355000	
						1715 ㎒	1745 ㎒	1775 ㎒	
10 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	19.49	19.15	19.25	0
				1	26	19.44	19.14	19.20	0
				1	50	19.44	19.12	19.18	0
				25	0	19.45	19.25	19.22	0
				25	14	19.40	19.20	19.30	0
				25	27	19.42	19.24	19.28	0
				50	0	19.43	19.27	19.32	0
			QPSK	1	1	19.39	19.13	19.18	0
				1	26	19.38	19.12	19.14	0
				1	50	19.32	19.08	19.09	0
				25	0	19.40	19.21	19.28	0
				25	14	19.41	19.20	19.32	0
				25	27	19.46	19.21	19.27	0
				50	0	19.43	19.25	19.30	0
			16QAM	1	1	19.41	19.27	19.20	0
			64QAM	1	1	19.37	19.14	19.17	0
			256QAM	1	1	18.47	18.50	18.51	0
		CP	QPSK	1	1	19.40	19.12	19.17	0

NR Band n66 _ 15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR [dB]
						343500	349000	354500	
						1717.5 ㎒	1745 ㎒	1772.5 ㎒	
15 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	19.47	19.32	19.25	0
				1	40	19.44	19.16	19.22	0
				1	77	19.32	19.15	19.14	0
				36	0	19.48	19.38	19.27	0
				36	22	19.47	19.30	19.35	0
				36	43	19.41	19.27	19.26	0
				75	0	19.45	19.34	19.30	0
			QPSK	1	1	19.45	19.31	19.20	0
				1	40	19.40	19.16	19.19	0
				1	77	19.28	19.07	19.07	0
				36	0	19.48	19.39	19.29	0
				36	22	19.39	19.32	19.35	0
				36	43	19.46	19.23	19.27	0
				75	0	19.40	19.34	19.33	0
			16QAM	1	1	19.16	19.10	18.94	0
			64QAM	1	1	19.41	19.28	19.19	0
			256QAM	1	1	18.93	18.67	18.51	0
		CP	QPSK	1	1	19.31	19.29	19.22	0

NR Band n66 _ 20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Reduced Power [dBm]			MPR [dB]
						344000	349000	354000	
						1720 ㎒	1745 ㎒	1770 ㎒	
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	19.45	19.30	19.26	0
				1	53	19.42	19.16	19.25	0
				1	104	19.38	19.11	19.12	0
				50	0	19.39	19.38	19.29	0
				50	28	19.43	19.28	19.31	0
				50	56	19.44	19.21	19.26	0
				100	0	19.44	19.27	19.29	0
			QPSK	1	1	19.49	19.46	19.48	0
				1	53	19.32	19.24	19.18	0
				1	104	19.27	19.13	19.12	0
				50	0	19.48	19.44	19.45	0
				50	28	19.46	19.29	19.35	0
				50	56	19.46	19.27	19.32	0
				100	0	19.44	19.36	19.27	0
			16QAM	1	1	19.33	19.16	19.09	0
			64QAM	1	1	19.41	19.24	19.21	0
			256QAM	1	1	18.84	18.64	18.55	0
		CP	QPSK	1	1	19.44	19.41	19.37	0

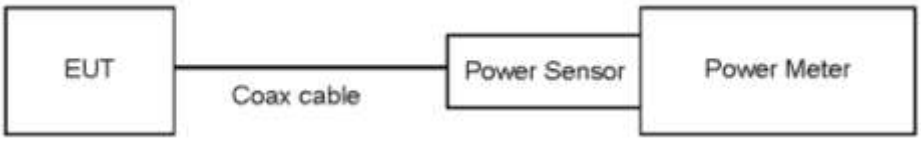
11.5 WIFI Conducted Power measurement method

Un-Licensed Bands (DTS Band)

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

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

Test setup

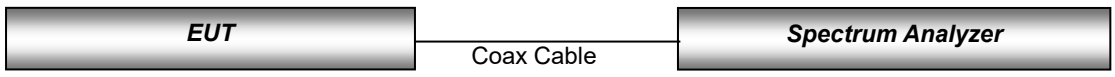


Un-Licensed Bands(NII Band)

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

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

Test setup



11.5.1 IEEE 802.11 (2.4 GHz) Maximum Conducted Power

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Average Conducted Power [dBm]
802.11b	2 412	1	11.64
	2 417	2	11.29
	2 422	3	12.21
	2 427	4	14.77
	2 437	6	14.94
	2 462	11	14.75
802.11g	2 412	1	10.96
	2 417	2	10.13
	2 422	3	11.41
	2 427	4	14.04
	2 437	6	14.23
	2 462	11	13.98
802.11n (HT20)	2 412	1	12.70
	2 417	2	13.47
	2 422	3	13.30
	2 427	4	13.77
	2 432	5	14.55
	2 437	6	15.08
	2 462	11	14.88

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Average Conducted Power [dBm]
802.11b	2 412	1	11.99
	2 417	2	11.99
	2 422	3	12.98
	2 427	4	14.98
	2 437	6	14.72
	2 462	11	13.90
802.11g	2 412	1	11.51
	2 417	2	11.23
	2 422	3	12.43
	2 427	4	14.61
	2 437	6	13.93
	2 462	11	13.30
802.11n (HT20)	2 412	1	13.31
	2 417	2	14.07
	2 422	3	14.06
	2 427	4	14.13
	2 432	5	15.01
	2 437	6	14.70
	2 462	11	13.98

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Average Conducted Power [dBm]
802.11b	2 412	1	14.83
	2 417	2	14.67
	2 422	3	15.63
	2 427	4	17.89
	2 437	6	17.84
	2 462	11	17.36
802.11g	2 412	1	14.25
	2 417	2	13.73
	2 422	3	14.96
	2 427	4	17.35
	2 437	6	17.09
	2 462	11	16.66
802.11n (HT20)	2 412	1	16.03
	2 417	2	16.79
	2 422	3	16.70
	2 427	4	16.96
	2 432	5	17.79
	2 437	6	17.91
	2 462	11	17.47

11.5.2 IEEE 802.11 (2.4 GHz) Reduced Conducted Power (RCV On)

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Reduced Average Conducted Power [dBm]
802.11b	2 412	1	11.64
	2 437	6	10.45
	2 462	11	10.58
802.11g	2 412	1	10.34
	2 437	6	10.20
	2 462	11	9.81
802.11n (HT20)	2 412	1	10.00
	2 437	6	9.91
	2 462	11	9.77
802.11ax	2 412	1	10.29
	2 437	6	10.14
	2 462	11	10.56

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Reduced Average Conducted Power [dBm]
802.11b	2 412	1	11.99
	2 437	6	10.50
	2 462	11	9.97
802.11g	2 412	1	10.82
	2 437	6	10.00
	2 462	11	9.65
802.11n (HT20)	2 412	1	10.68
	2 437	6	9.88
	2 462	11	9.61
802.11ax	2 412	1	9.53
	2 437	6	9.89
	2 462	11	10.00

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (2.4 ㎓) Reduced Average Conducted Power [dBm]
802.11b	2 412	1	14.83
	2 437	6	13.49
	2 462	11	13.30
802.11g	2 412	1	13.60
	2 437	6	13.11
	2 462	11	12.74
802.11n (HT20)	2 412	1	13.36
	2 437	6	12.91
	2 462	11	12.70
802.11ax	2 412	1	12.93
	2 437	6	13.02
	2 462	11	13.30

11.5.4 IEEE 802.11 (5 GHz) Maximum Conducted Power

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11a (20 ㎒ BW)	5 180	36	14.65
	5 200	40	14.69
	5 220	44	14.72
	5 240	48	14.62
	5 260	52	14.99
	5 280	56	14.89
	5 300	60	15.05
	5 320	64	14.98
	5 500	100	14.48
	5 600	120	15.65
	5 620	124	14.62
	5 720	144	14.40
	5 745	149	10.83
	5 785	157	9.83
	5 825	165	9.96

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11a (20 ㎒ BW)	5 180	36	14.03
	5 200	40	14.05
	5 220	44	15.02
	5 240	48	14.50
	5 260	52	14.91
	5 280	56	14.88
	5 300	60	14.95
	5 320	64	15.69
	5 500	100	14.57
	5 600	120	15.89
	5 620	124	15.17
	5 720	144	15.85
	5 745	149	9.85
	5 785	157	10.44
	5 825	165	10.58

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11a (20 ㎒ BW)	5 180	36	17.36
	5 200	40	17.39
	5 220	44	17.88
	5 240	48	17.57
	5 260	52	17.96
	5 280	56	17.90
	5 300	60	18.01
	5 320	64	18.36
	5 500	100	17.54
	5 600	120	18.78
	5 620	124	17.91
	5 720	144	18.20
	5 745	149	13.38
	5 785	157	13.16
	5 825	165	13.29

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11n (20 ㎒ BW)	5 180	36	14.47
	5 200	40	14.37
	5 220	44	14.60
	5 240	48	14.41
	5 260	52	14.88
	5 280	56	14.71
	5 300	60	14.80
	5 320	64	14.83
	5 500	100	14.34
	5 600	120	15.47
	5 620	124	14.45
	5 720	144	14.21
	5 745	149	10.62
	5 785	157	9.65
	5 825	165	9.88

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11a (20 ㎒ BW)	5 180	36	14.04
	5 200	40	14.09
	5 220	44	14.82
	5 240	48	14.46
	5 260	52	14.74
	5 280	56	14.71
	5 300	60	14.76
	5 320	64	15.54
	5 500	100	14.36
	5 600	120	15.70
	5 620	124	15.00
	5 720	144	15.66
	5 745	149	10.68
	5 785	157	10.55
	5 825	165	10.63

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11a (20 ㎒ BW)	5 180	36	17.27
	5 200	40	17.24
	5 220	44	17.72
	5 240	48	17.45
	5 260	52	17.82
	5 280	56	17.72
	5 300	60	17.79
	5 320	64	18.21
	5 500	100	17.36
	5 600	120	18.60
	5 620	124	17.74
	5 720	144	18.01
	5 745	149	13.66
	5 785	157	13.13
	5 825	165	13.28

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11n (40 ㎒ BW)	5 190	38	15.00
	5 230	46	15.01
	5 270	54	15.20
	5 310	62	15.04
	5 510	102	15.04
	5 590	118	16.05
	5 630	126	14.76
	5 710	142	15.12
	5 755	151	10.43
	5 795	159	9.48

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11n (40 ㎒ BW)	5 190	38	14.81
	5 230	46	15.15
	5 270	54	15.53
	5 310	62	16.23
	5 510	102	15.17
	5 590	118	16.39
	5 630	126	15.78
	5 710	142	16.31
	5 755	151	10.51
	5 795	159	10.71

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11n (40 ㎒ BW)	5 190	38	17.92
	5 230	46	18.09
	5 270	54	18.38
	5 310	62	18.69
	5 510	102	18.12
	5 590	118	19.23
	5 630	126	18.31
	5 710	142	18.77
	5 755	151	13.48
	5 795	159	13.15

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (20 ㎒ BW)	5 180	36	15.17
	5 200	40	15.12
	5 220	44	14.54
	5 240	48	15.17
	5 260	52	14.85
	5 280	56	14.72
	5 300	60	14.82
	5 320	64	14.88
	5 500	100	14.36
	5 600	120	15.42
	5 620	124	14.43
	5 720	144	14.24
	5 745	149	10.61
	5 785	157	9.58
	5 825	165	9.87

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (20 ㎒ BW)	5 180	36	14.80
	5 200	40	14.83
	5 220	44	15.60
	5 240	48	15.33
	5 260	52	14.69
	5 280	56	15.65
	5 300	60	14.73
	5 320	64	15.51
	5 500	100	14.38
	5 600	120	15.68
	5 620	124	15.49
	5 720	144	15.57
	5 745	149	10.65
	5 785	157	10.87
	5 825	165	10.96

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (20 ㎒ BW)	5 180	36	18.00
	5 200	40	17.99
	5 220	44	18.11
	5 240	48	18.26
	5 260	52	17.78
	5 280	56	18.22
	5 300	60	17.79
	5 320	64	18.22
	5 500	100	17.38
	5 600	120	18.56
	5 620	124	18.00
	5 720	144	17.97
	5 745	149	13.64
	5 785	157	13.28
	5 825	165	13.46

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (40 ㎒ BW)	5 190	38	14.30
	5 230	46	14.31
	5 270	54	14.59
	5 310	62	14.71
	5 510	102	14.18
	5 590	118	15.41
	5 630	126	13.97
	5 710	142	14.11
	5 755	151	10.41
	5 795	159	9.49

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (40 ㎒ BW)	5 190	38	13.75
	5 230	46	14.18
	5 270	54	14.52
	5 310	62	15.32
	5 510	102	14.20
	5 590	118	15.62
	5 630	126	14.70
	5 710	142	15.51
	5 755	151	10.59
	5 795	159	10.72

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (40 ㎒ BW)	5 190	38	17.04
	5 230	46	17.26
	5 270	54	17.57
	5 310	62	18.04
	5 510	102	17.20
	5 590	118	18.53
	5 630	126	17.36
	5 710	142	17.88
	5 755	151	13.51
	5 795	159	13.16

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (80 ㎒ BW)	5 210	42	13.20
	5 290	58	13.35
	5 530	106	13.04
	5 610	122	13.76
	5 690	138	13.82
	5 775	155	9.10

Ant.2

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (80 ㎒ BW)	5 210	42	13.02
	5 290	58	13.33
	5 530	106	13.21
	5 610	122	13.96
	5 690	138	14.21
	5 775	155	9.95

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac (80 ㎒ BW)	5 210	42	16.12
	5 290	58	16.35
	5 530	106	16.14
	5 610	122	16.87
	5 690	138	17.03
	5 775	155	12.56

11.5.5 IEEE 802.11 (5 GHz) Reduced Conducted Power

Ant.1

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac_80 MHz	5 210	42	11.50
	5 290	58	11.79
	5 530	106	10.97
	5 610	122	11.55
	5 690	138	11.94
	5 775	155	9.63

Ant.2

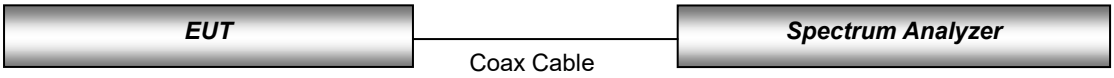
Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac_80 MHz	5 210	42	11.83
	5 290	58	11.49
	5 530	106	10.67
	5 610	122	11.67
	5 690	138	11.75
	5 775	155	10.70

MIMO

Mode	Frequency [㎒]	Channel	IEEE 802.11 (5 ㎓) Average Conducted Power [dBm]
802.11ac_80 MHz	5 210	42	14.68
	5 290	58	14.65
	5 530	106	13.83
	5 610	122	14.62
	5 690	138	14.86
	5 775	155	13.21

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



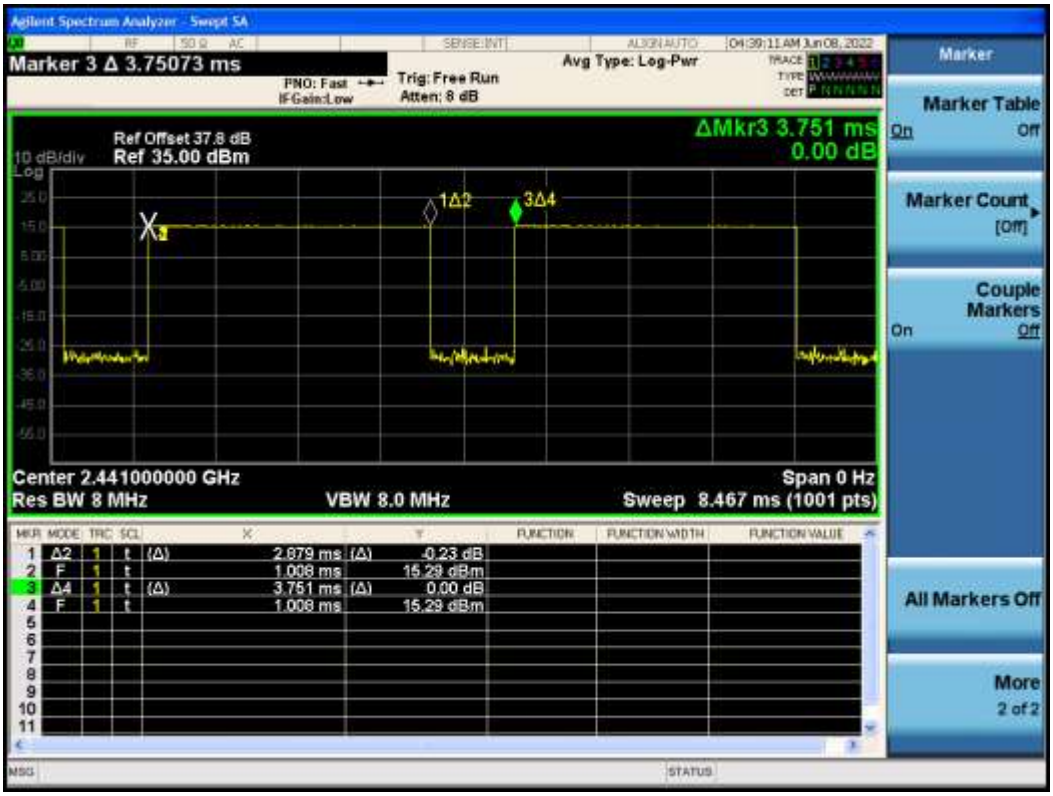
11.6 Bluetooth

Maximum Conducted Power

The Burst averaged-conducted power

Mode	Channel	Bluetooth Power [dBm]
DH5	0	13.93
	39	15.79
	78	13.88
2-DH5	0	9.65
	39	11.53
	78	9.56
3-DH5	0	9.66
	39	11.54
	78	9.55

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



BluetoothDuty Cycle [BDR]

Duty Cycle = (BT-On time /BT-Full time) =(2.879/3.751) = 0.768 (DH5) / Duty factor= 1/Duty cycle : 1.303

12. System Verification

12.1 Tissue Verification

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

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
05/27/2022	19.7	750H	705	0.865	41.384	0.889	42.174	-2.70	-1.87
			710	0.869	41.301	0.890	42.148	-2.36	-2.01
			750	0.894	40.657	0.893	41.940	0.11	-3.06
06/09/2022	19.2	835H	820	0.906	41.651	0.899	41.577	0.78	0.18
			835	0.923	41.415	0.900	41.500	2.56	-0.20
			850	0.939	41.186	0.916	41.500	2.51	-0.76
05/26/2022	20.0	835H	820	0.905	40.594	0.899	41.577	0.67	-2.36
			835	0.923	40.361	0.900	41.500	2.56	-2.74
			850	0.939	40.134	0.916	41.500	2.51	-3.29
06/08/2022	22.3	835H	820	0.906	40.472	0.899	41.577	0.78	-2.66
			835	0.924	40.468	0.900	41.500	2.67	-2.49
			850	0.939	40.467	0.916	41.500	2.51	-2.49
06/10/2022	19.0	835H	820	0.906	40.893	0.899	41.577	0.78	-1.65
			835	0.924	40.658	0.900	41.500	2.67	-2.03
			850	0.939	40.428	0.916	41.500	2.51	-2.58
06/10/2022	20.9	1800H	1710	1.326	41.789	1.348	40.144	-1.63	4.10
			1750	1.367	41.628	1.371	40.080	-0.29	3.86
			1800	1.422	41.403	1.400	40.000	1.57	3.51
06/14/2022	19.1	1800H	1710	1.298	41.668	1.348	40.144	-3.71	3.80
			1750	1.344	41.499	1.371	40.080	-1.97	3.54
			1800	1.402	41.249	1.400	40.000	0.14	3.12
06/07/2022	20.5	1800H	1710	1.326	41.735	1.348	40.144	-1.63	3.96
			1750	1.368	41.592	1.371	40.080	-0.22	3.77
			1800	1.422	41.360	1.400	40.000	1.57	3.40
06/02/2022	19.8	1900H	1850	1.344	41.497	1.400	40.000	-4.00	3.74
			1900	1.395	41.310	1.400	40.000	-0.36	3.28
			1910	1.403	41.277	1.400	40.000	0.21	3.19
06/08/2022	22.7	1900H	1850	1.423	40.664	1.400	40.000	1.64	1.66
			1900	1.363	41.306	1.400	40.000	-2.64	3.26
			1910	1.371	40.453	1.400	40.000	-2.07	1.13
06/03/2022	19.0	1900H	1850	1.435	40.713	1.400	40.000	2.50	1.78
			1900	1.364	41.304	1.400	40.000	-2.57	3.26
			1910	1.371	40.505	1.400	40.000	-2.07	1.26

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
06/04/2022	19.2	2450H	2400	1.793	39.174	1.756	39.290	2.11	-0.30
			2450	1.835	39.225	1.800	39.200	1.94	0.06
			2500	1.877	39.309	1.855	39.140	1.19	0.43
06/08/2022	23.2	2450H	2400	1.793	39.178	1.756	39.290	2.11	-0.29
			2450	1.834	39.228	1.800	39.200	1.89	0.07
			2500	1.877	39.312	1.855	39.140	1.19	0.44
05/30/2022	21.6	2450H	2400	1.797	39.145	1.756	39.290	2.33	-0.37
			2450	1.838	39.196	1.800	39.200	2.11	-0.01
			2500	1.880	39.284	1.855	39.140	1.35	0.37
05/27/2022	19.2	2600H	2500	1.905	38.543	1.855	39.140	2.70	-1.53
			2550	1.957	38.338	1.909	39.070	2.51	-1.87
			2600	2.039	38.112	1.964	39.010	3.82	-2.30
05/31/2022	20.1	5250H	5180	4.560	36.871	4.635	36.010	-1.62	2.39
			5250	4.673	36.689	4.706	35.930	-0.70	2.11
			5280	4.722	36.677	4.737	35.894	-0.32	2.18
			5320	4.798	36.739	4.778	35.846	0.42	2.49
06/02/2022	18.7	5600H	5500	4.905	36.687	4.963	35.640	-1.17	2.94
			5600	4.974	36.379	5.065	35.530	-1.80	2.39
06/03/2022	19.0	5750H	5750	5.257	36.153	5.219	35.360	0.73	2.24
			5800	5.202	36.252	5.270	35.300	-1.29	2.70
			5825	5.176	36.242	5.296	35.270	-2.27	2.76

*** Phablet SAR**

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
06/13/2022	19.6	1800H	1710	1.325	41.753	1.348	40.144	-1.71	4.01
			1750	1.367	41.606	1.371	40.080	-0.29	3.81
			1800	1.422	41.382	1.400	40.000	1.57	3.45
06/15/2022	20.8	1800H	1710	1.325	41.752	1.348	40.144	-1.71	4.01
			1750	1.367	41.603	1.371	40.080	-0.29	3.80
			1800	1.422	41.377	1.400	40.000	1.57	3.44
06/07/2022	20.5	1800H	1710	1.326	41.735	1.348	40.144	-1.63	3.96
			1750	1.368	41.592	1.371	40.080	-0.22	3.77
			1800	1.422	41.360	1.400	40.000	1.57	3.40
06/02/2022	19.8	1900H	1850	1.344	41.497	1.400	40.000	-4.00	3.74
			1900	1.395	41.310	1.400	40.000	-0.36	3.28
			1910	1.403	41.277	1.400	40.000	0.21	3.19
06/09/2022	23.8	1900H	1850	1.365	41.498	1.400	40.000	-2.50	3.75
			1900	1.416	41.317	1.400	40.000	1.14	3.29
			1910	1.424	41.288	1.400	40.000	1.71	3.22
05/31/2022	20.1	5250H	5180	4.560	36.871	4.635	36.010	-1.62	2.39
			5250	4.673	36.689	4.706	35.930	-0.70	2.11
			5280	4.722	36.677	4.737	35.894	-0.32	2.18
			5320	4.798	36.739	4.778	35.846	0.42	2.49
06/02/2022	18.7	5600H	5500	4.905	36.687	4.963	35.640	-1.17	2.94
			5600	4.974	36.379	5.065	35.530	-1.80	2.39

12.2 System Verification

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) [W/kg]	50mW Measured SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Limit [%]
750	05/27/2022	7370	1014	Head	19.8	19.7	8.55	0.423	8.46	- 1.05	± 10
835	06/09/2022	7679	4d165	Head	19.2	19.2	9.68	0.487	9.74	+ 0.62	± 10
835	05/26/2022	7370		Head	20.1	20.0	9.68	0.502	10.04	+ 3.72	± 10
835	06/08/2022	7370		Head	22.5	22.3	9.68	0.505	10.10	+ 4.34	± 10
835	06/10/2022	7679		Head	19.0	19.0	9.68	0.491	9.82	+ 1.45	± 10
1 800	06/10/2022	3076	2d015	Head	21.0	20.9	38.8	2.000	40.0	+ 3.09	± 10
1 800	06/14/2022	3076		Head	19.2	19.1	38.8	2.010	40.2	+ 3.61	± 10
1 800	06/07/2022	3076		Head	20.6	20.5	38.8	2.020	40.4	+ 4.12	± 10
1 900	06/02/2022	3076	5d032	Head	19.9	19.8	40.0	2.060	41.2	+ 3.00	± 10
1 900	06/08/2022	3076		Head	22.8	22.7	40.0	2.020	40.4	+ 1.00	± 10
1 900	06/03/2022	3076		Head	19.1	19.0	40.0	2.020	40.4	+ 1.00	± 10
2 450	06/04/2022	7702	965	Head	19.3	19.2	53.3	2.450	49.0	- 8.07	± 10
2 450	06/08/2022	7702		Head	23.3	23.2	53.3	2.460	49.2	- 7.69	± 10
2 450	05/30/2022	7680		Head	21.8	21.6	53.3	2.470	49.4	- 7.32	± 10
2 600	05/27/2022	7702	1106	Head	19.3	19.2	56.3	2.740	54.8	- 2.66	± 10
5 250	05/31/2022	7702	1107	Head	20.2	20.1	80.6	3.780	75.6	- 6.20	± 10
5 600	06/02/2022	7702		Head	18.8	18.7	84.2	4.310	86.2	+ 2.38	± 10
5 750	06/03/2022	7702		Head	19.2	19.0	80.9	3.940	78.8	- 2.60	± 10

System Verification Results – Phablet SAR

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{10g} (SPEAG) [W/kg]	50mW Measured SAR_{10g} [W/kg]	1 W Normalized SAR_{10g} [W/kg]	Deviation [%]	Limit [%]
1 800	06/13/2022	3076	2d015	Head	19.7	19.6	20.0	1.010	20.2	+ 1.00	± 10
1 800	06/15/2022	3076		Head	20.9	20.8	20.0	1.010	20.2	+ 1.00	± 10
1 800	06/07/2022	3076		Head	20.6	20.5	20.0	1.090	21.8	+ 9.00	± 10
1 900	06/02/2022	3076	5d032	Head	19.9	19.8	20.9	1.080	21.6	+ 3.35	± 10
1 900	06/09/2022	3076		Head	23.9	23.8	20.9	1.100	22.0	+ 5.26	± 10
5 250	05/31/2022	7702	1107	Head	20.2	20.1	23.2	1.100	22.0	- 5.17	± 10
5 600	06/02/2022	7702		Head	18.8	18.7	24.2	1.230	24.6	+ 1.65	± 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 ㎽ Input level from the signal generator to the Dipole Antenna.
- Dipole antenna was placed below the flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

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

13. SAR Test Data Summary

13.1 SAR Measurement Results

GSM 850 Head SAR											
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)			(W/kg)		(W/kg)	
836.6	190	GSM	33.5	33.41	0.14	Left Cheek	1:8.30	0.129	1.021	0.132	-
836.6	190	GSM	33.5	33.41	0.19	Left Tilt	1:8.30	0.070	1.021	0.071	-
836.6	190	GSM	33.5	33.41	-0.17	Right Cheek	1:8.30	0.196	1.021	0.200	-
836.6	190	GSM	33.5	33.41	-0.16	Right Tilt	1:8.30	0.089	1.021	0.091	-
836.6	190	GPRS 2TX	32.5	31.65	0.11	Left Cheek	1:4.15	0.204	1.216	0.248	-
836.6	190	GPRS 2TX	32.5	31.65	0.06	Left Tilt	1:4.15	0.133	1.216	0.162	-
836.6	190	GPRS 2TX	32.5	31.65	0.10	Right Cheek	1:4.15	**0.271**	1.216	**0.330**	1
836.6	190	GPRS 2TX	32.5	31.65	0.03	Right Tilt	1:4.15	0.134	1.216	0.163	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg Averaged over 1 gram					

GSM 1900 Head SAR											
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)			(W/kg)		(W/kg)	
1880	661	GSM	30.0	29.71	0.17	Left Cheek	1:8.30	0.069	1.069	0.074	-
1880	661	GSM	30.0	29.71	0.15	Left Tilt	1:8.30	0.054	1.069	0.058	-
1880	661	GSM	30.0	29.71	0.02	Right Cheek	1:8.30	0.067	1.069	0.072	-
1880	661	GSM	30.0	29.71	0.10	Right Tilt	1:8.30	0.049	1.069	0.052	-
1880	661	GPRS 2TX	29.0	28.82	0.16	Left Cheek	1:4.15	**0.099**	1.042	**0.103**	2
1880	661	GPRS 2TX	29.0	28.82	0.13	Left Tilt	1:4.15	0.071	1.042	0.074	-
1880	661	GPRS 2TX	29.0	28.82	0.17	Right Cheek	1:4.15	0.096	1.042	0.100	-
1880	661	GPRS 2TX	29.0	28.82	0.01	Right Tilt	1:4.15	0.069	1.042	0.072	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg Averaged over 1 gram					

UMTS Band 5 Head SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(W/kg)		**(W/kg)**	
836.6	4183	RMC	25.5	24.87	-0.15	Left Cheek	111	1:1	0.146	1.156	0.169	-
836.6	4183	RMC	25.5	24.87	0.10	Left Tilt	111	1:1	0.094	1.156	0.109	-
836.6	4183	RMC	25.5	24.87	0.19	Right Cheek	111	1:1	**0.206**	1.156	**0.238**	3
836.6	4183	RMC	25.5	24.87	0.03	Right Tilt	111	1:1	0.104	1.156	0.120	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram						

UMTS Band 4 Head SAR.												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(W/kg)		**(W/kg)**	
1732.4	1412	RMC	23.0	22.45	0.13	Left Cheek	21	1:1	**0.168**	1.135	**0.191**	4
1732.4	1412	RMC	23.0	22.45	0.16	Left Tilt	21	1:1	0.060	1.135	0.068	-
1732.4	1412	RMC	23.0	22.45	0.11	Right Cheek	21	1:1	0.131	1.135	0.149	-
1732.4	1412	RMC	23.0	22.45	-0.03	Right Tilt	21	1:1	0.062	1.135	0.070	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram						

UMTS Band 2 Head SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(W/kg)		**(W/kg)**	
1880	9400	RMC	23.0	22.39	0.02	Left Cheek	4	1:1	**0.169**	1.151	**0.194**	5
1880	9400	RMC	23.0	22.39	0.10	Left Tilt	4	1:1	0.106	1.151	0.122	-
1880	9400	RMC	23.0	22.39	0.06	Right Cheek	4	1:1	0.129	1.151	0.148	-
1880	9400	RMC	23.0	22.39	0.07	Right Tilt	4	1:1	0.078	1.151	0.090	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram						

LTE Band 2 Head SAR

Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
1860	18700	QPSK	20	23.0	22.11	0.12	Left Cheek	4	0	1	99	1:1	0.113	1.227	0.139	-
1880	18900	QPSK	20	22.0	21.28	0.14	Left Cheek	4	1	50	25	1:1	0.096	1.180	0.113	-
1860	18700	QPSK	20	23.0	22.11	0.09	Left Tilt	4	0	1	99	1:1	0.080	1.227	0.098	-
1880	18900	QPSK	20	22.0	21.28	0.15	Left Tilt	4	1	50	25	1:1	0.074	1.180	0.087	-
1860	18700	QPSK	20	23.0	22.11	0.05	Right Cheek	4	0	1	99	1:1	**0.139**	1.227	**0.171**	6
1880	18900	QPSK	20	22.0	21.28	0.13	Right Cheek	4	1	50	25	1:1	0.126	1.180	0.149	-
1860	18700	QPSK	20	23.0	22.11	-0.09	Right Tilt	4	0	1	99	1:1	0.071	1.227	0.087	-
1880	18900	QPSK	20	22.0	21.28	0.10	Right Tilt	4	1	50	25	1:1	0.066	1.180	0.078	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

LTE Band 12 Head SAR

Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
707.5	23095	QPSK	10	25.0	23.93	-0.13	Left Cheek	16	0	1	49	1:1	0.113	1.279	0.145	-
707.5	23095	QPSK	10	24.0	23.14	-0.16	Left Cheek	16	1	25	24	1:1	0.087	1.219	0.106	-
707.5	23095	QPSK	10	25.0	23.93	-0.04	Left Tilt	16	0	1	49	1:1	0.069	1.279	0.088	-
707.5	23095	QPSK	10	24.0	23.14	-0.18	Left Tilt	16	1	25	24	1:1	0.053	1.219	0.065	-
707.5	23095	QPSK	10	25.0	23.93	-0.06	Right Cheek	16	0	1	49	1:1	**0.140**	1.279	**0.179**	7
707.5	23095	QPSK	10	24.0	23.14	0.14	Right Cheek	16	1	25	24	1:1	0.108	1.219	0.132	-
707.5	23095	QPSK	10	25.0	23.93	-0.14	Right Tilt	16	0	1	49	1:1	0.070	1.279	0.090	-
707.5	23095	QPSK	10	24.0	23.14	-0.16	Right Tilt	16	1	25	24	1:1	0.053	1.219	0.065	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

LTE Band 26 Head SAR

Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
831.5	26865	QPSK	15	25.0	23.76	-0.10	Left Cheek	111	0	1	74	1:1	0.124	1.330	0.165	-
831.5	26865	QPSK	15	24.0	22.83	-0.16	Left Cheek	111	1	36	39	1:1	0.099	1.309	0.130	-
831.5	26865	QPSK	15	25.0	23.76	-0.01	Left Tilt	111	0	1	74	1:1	0.081	1.330	0.108	-
831.5	26865	QPSK	15	24.0	22.83	-0.05	Left Tilt	111	1	36	39	1:1	0.065	1.309	0.085	-
831.5	26865	QPSK	15	25.0	23.76	0.19	Right Cheek	111	0	1	74	1:1	**0.185**	1.330	**0.246**	8
831.5	26865	QPSK	15	24.0	22.83	-0.01	Right Cheek	111	1	36	39	1:1	0.154	1.309	0.202	-
831.5	26865	QPSK	15	25.0	23.76	0.07	Right Tilt	111	0	1	74	1:1	0.093	1.330	0.124	-
831.5	26865	QPSK	15	24.0	22.83	-0.13	Right Tilt	111	1	36	39	1:1	0.075	1.309	0.098	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

LTE Band 41 Head SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
2593	40620	QPSK	20	24.5	23.54	-0.16	Left Cheek		0	1	49	1:1.58	**0.066**	1.247	**0.082**	9
2593	40620	QPSK	20	23.5	22.62	0.15	Left Cheek		1	50	25	1:1.58	0.052	1.225	0.064	-
2593	40620	QPSK	20	24.5	23.54	0.14	Left Tilt		0	1	49	1:1.58	0.028	1.247	0.035	-
2593	40620	QPSK	20	23.5	22.62	0.17	Left Tilt		1	50	25	1:1.58	0.022	1.225	0.027	-
2593	40620	QPSK	20	24.5	23.54	0.00	Right Cheek		0	1	49	1:1.58	0.038	1.247	0.047	-
2593	40620	QPSK	20	23.5	22.62	0.00	Right Cheek		1	50	25	1:1.58	0.031	1.225	0.038	-
2593	40620	QPSK	20	24.5	23.54	-0.18	Right Tilt		0	1	49	1:1.58	0.045	1.247	0.056	-
2593	40620	QPSK	20	23.5	22.62	0.16	Right Tilt		1	50	25	1:1.58	0.033	1.225	0.040	-
Power class 2 (HPUE)																
2593	40620	QPSK	20	26.0	25.05	-0.01	Left Cheek		0	1	49	1:2.31	0.060	1.247	0.075	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

LTE Band 66 Head SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
1745	132322	QPSK	20	23.5	22.05	0.12	Left Cheek	13	0	1	49	1:1	**0.139**	1.396	**0.194**	10
1720	132072	QPSK	20	22.5	21.25	0.10	Left Cheek	13	1	50	25	1:1	0.100	1.334	0.133	-
1745	132322	QPSK	20	23.5	22.05	0.17	Left Tilt	13	0	1	49	1:1	0.061	1.396	0.085	-
1720	132072	QPSK	20	22.5	21.25	0.11	Left Tilt	13	1	50	25	1:1	0.058	1.334	0.077	-
1745	132322	QPSK	20	23.5	22.05	0.15	Right Cheek	13	0	1	49	1:1	0.118	1.396	0.165	-
1720	132072	QPSK	20	22.5	21.25	0.13	Right Cheek	13	1	50	25	1:1	0.108	1.334	0.144	-
1745	132322	QPSK	20	23.5	22.05	0.14	Right Tilt	13	0	1	49	1:1	0.048	1.396	0.067	-
1720	132072	QPSK	20	22.5	21.25	0.10	Right Tilt	13	1	50	25	1:1	0.046	1.334	0.061	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

NR Band n5 (Cell) Head SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	-0.17	Left Cheek	111	0	1	104	1:1	0.152	1.250	0.190	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.17	Left Cheek	111	0	50	28	1:1	0.160	1.222	0.195	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	0.01	Left Tilt	111	0	1	104	1:1	0.075	1.250	0.094	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	0.04	Left Tilt	111	0	50	28	1:1	0.103	1.222	0.126	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	0.05	Right Cheek	111	0	1	104	1:1	0.183	1.250	0.229	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.01	Right Cheek	111	0	50	28	1:1	**0.190**	1.222	**0.232**	11
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	0.08	Right Tilt	111	0	1	104	1:1	0.094	1.250	0.118	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	0.05	Right Tilt	111	0	50	28	1:1	0.097	1.222	0.119	-
836.5	167300	CP OFDM QPSK	20	23.5	22.30	0.04	Right Cheek	111	1.5	1	1	1:1	0.133	1.318	0.175	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

NR Band n66 Head SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	MPR	RB Size	RB Offset	Duty Cycle	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(W/kg)		(W/kg)	
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.10	Left Cheek	13	0	1	1	1:1	**0.182**	1.104	**0.201**	12
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.11	Left Cheek	13	0	50	28	1:1	0.158	1.086	0.172	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	-0.06	Left Tilt	13	0	1	1	1:1	0.117	1.104	0.129	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.16	Left Tilt	13	0	50	28	1:1	0.082	1.086	0.089	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.13	Right Cheek	13	0	1	1	1:1	0.166	1.104	0.183	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.17	Right Cheek	13	0	50	28	1:1	0.141	1.086	0.153	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.16	Right Tilt	13	0	1	1	1:1	0.114	1.104	0.126	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.09	Right Tilt	13	0	50	28	1:1	0.096	1.086	0.104	-
1720	344000	CP OFDM QPSK	20	22.5	22.07	0.13	Left Cheek	13	1.5	1	1	1:1	0.105	1.104	0.116	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

DTS Head SAR																
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(W/kg)	(W/kg)		(Duty)	(W/kg)	
2412	1	802.11b	20	1	12.0	11.99	0.15	Left Cheek	Ant.2	97.7	0.148	0.087	1.002	1.012	0.088	-
2412	1	802.11b	20	1	12.0	11.99	0.14	Left Tilt	Ant.2	97.7	0.0913	0.040	1.002	1.012	0.041	-
2412	1	802.11b	20	1	12.0	11.99	0.11	Right Cheek	Ant.2	97.7	0.888	0.447	1.002	1.012	0.453	-
2412	1	802.11b	20	1	12.0	11.99	0.16	Right Tilt	Ant.2	97.7	0.275	0.124	1.002	1.012	0.126	-
2412	1	802.11b	20	1	15.0	14.83	0.03	Left Cheek	MIMO	97.7	0.428	0.201	1.086	1.012	0.221	-
2412	1	802.11b	20	1	15.0	14.83	0.13	Left Tilt	MIMO	97.7	0.452	0.257	1.086	1.012	0.283	-
2412	1	802.11b	20	1	15.0	14.83	-0.07	Right Cheek	MIMO	97.7	0.983	**0.531**	1.086	1.012	**0.584**	13
2412	1	802.11b	20	1	15.0	14.83	0.12	Right Tilt	MIMO	97.7	0.797	0.453	1.086	1.012	0.498	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram							

NII Head SAR																
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(W/kg)	(W/kg)		(Duty)	(W/kg)	
5290	58	802.11ac	80	MCS0	15.0	14.65	-0.18	Left Cheek	MIMO	85.9	0.432	0.100	1.125	1.164	0.131	-
5290	58	802.11ac	80	MCS0	15.0	14.65	-0.11	Left Tilt	MIMO	85.9	0.226	0.058	1.125	1.164	0.076	-
5290	58	802.11ac	80	MCS0	15.0	14.65	0.03	Right Cheek	MIMO	85.9	1.130	0.375	1.125	1.164	0.491	-
5290	58	802.11ac	80	MCS0	15.0	14.65	0.16	Right Tilt	MIMO	85.9	0.591	0.216	1.125	1.164	0.283	-
5690	138	802.11ac	80	MCS0	15.0	14.86	0.10	Left Cheek	MIMO	85.9	0.629	0.104	1.059	1.164	0.128	-
5690	138	802.11ac	80	MCS0	15.0	14.86	0.16	Left Tilt	MIMO	85.9	0.306	0.049	1.059	1.164	0.060	-
5690	138	802.11ac	80	MCS0	15.0	14.86	0.17	Right Cheek	MIMO	85.9	1.560	0.391	1.059	1.164	0.482	-
5690	138	802.11ac	80	MCS0	15.0	14.86	0.17	Right Tilt	MIMO	85.9	0.460	0.188	1.059	1.164	0.232	-
5775	155	802.11ac	80	MCS0	14.0	13.21	-0.17	Left Cheek	MIMO	85.9	0.276	0.045	1.371	1.164	0.072	-
5775	155	802.11ac	80	MCS0	14.0	13.21	0.00	Left Tilt	MIMO	85.9	0.132	0.029	1.371	1.164	0.046	-
5775	155	802.11ac	80	MCS0	14.0	13.21	0.18	Right Cheek	MIMO	85.9	1.200	**0.392**	1.371	1.164	**0.626**	14
5775	155	802.11ac	80	MCS0	14.0	13.21	0.17	Right Tilt	MIMO	85.9	0.305	0.067	1.371	1.164	0.107	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Head 1.6 W/kg Averaged over 1 gram							

DSS Head SAR											
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dBm)	(dBm)	(dB)		(W/kg)		(Duty)	(W/kg)	
2 441	39	Bluetooth DH5	16.00	15.79	-0.18	Left Cheek	0.239	1.050	1.303	0.327	-
2 441	39	Bluetooth DH5	16.00	15.79	0.05	Left Tilt	0.338	1.050	1.303	0.462	-
2 441	39	Bluetooth DH5	16.00	15.79	0.04	Right Cheek	0.555	1.050	1.303	0.758	-
2 441	39	Bluetooth DH5	16.00	15.79	0.18	Right Tilt	**0.690**	1.050	1.303	**0.943**	15
2 402	0	Bluetooth DH5	15.00	13.93	0.04	Right Tilt	0.304	1.279	1.303	0.506	-
2 480	78	Bluetooth DH5	15.00	13.88	-0.13	Right Tilt	0.541	1.294	1.303	0.912	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram					

13.2 Body-worn SAR Measurement Results

CDMA/GSM/UMTS Bodyworn SAR													
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	ANT State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(mm)	(W/kg)		(W/kg)	
836.6	190	GSM850 | VOICE	33.5	33.41	0.01	Rear		1:8.30	15	0.353	1.021	0.360	-
836.6	190		33.5	33.41	0.13	Front		1:8.30	15	0.284	1.021	0.290	-
836.6	190	GSM850 | GPRS 2TX	32.5	31.65	-0.03	Rear		1:4.15	15	**0.473**	1.216	**0.575**	16
836.6	190		32.5	31.65	-0.09	Front		1:4.15	15	0.400	1.216	0.486	-
1880	661	GSM1900 | VOICE	30.0	29.71	0.15	Rear		1:8.30	15	0.257	1.069	0.275	-
1880	661		30.0	29.71	0.12	Front		1:8.30	15	0.254	1.069	0.272	-
1880	661	GSM1900 | GPRS 2TX	29.0	28.82	0.10	Rear		1:4.15	15	**0.367**	1.042	**0.383**	17
1880	661		29.0	28.82	0.10	Front		1:4.15	15	0.364	1.042	0.379	-
1880	9400	UMTS Band 2 | RMC	23.0	22.39	0.05	Rear	4	1:1	15	**0.629**	1.151	**0.724**	18
1880	9400		23.0	22.39	0.11	Front	4	1:1	15	0.618	1.151	0.711	-
1732.4	1412	UMTS Band 4 | RMC	23.0	22.45	0.12	Rear	21	1:1	15	**0.556**	1.135	**0.631**	19
1732.4	1412		23.0	22.45	0.03	Front	21	1:1	15	0.470	1.135	0.533	-
836.6	4183	UMTS Band 5 | RMC	25.5	24.87	0.13	Rear	111	1:1	15	**0.340**	1.156	**0.393**	20
836.6	4183		25.5	24.87	0.00	Front	111	1:1	15	0.318	1.156	0.368	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram							

LTE Band Bodyworn SAR

Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
1860	18700	LTE 2 QPSK	20	23.0	22.11	0.13	Rear	4	0	1	99	1:1	15	0.427	1.227	0.524	-
1880	18900		20	22.0	21.28	0.18	Rear	4	1	50	25	1:1	15	0.365	1.180	0.431	-
1860	18700		20	23.0	22.11	0.04	Front	4	0	1	99	1:1	15	**0.460**	1.227	**0.565**	21
1880	18900		20	22.0	21.28	0.10	Front	4	1	50	25	1:1	15	0.390	1.180	0.460	-
707.5	23095	LTE 12 QPSK	10	25.0	23.93	-0.12	Rear	16	0	1	49	1:1	15	0.178	1.279	0.228	-
707.5	23095		10	24.0	23.14	0.14	Rear	16	1	25	24	1:1	15	0.137	1.219	0.167	-
707.5	23095		10	25.0	23.93	-0.07	Front	16	0	1	49	1:1	15	**0.190**	1.279	**0.243**	22
707.5	23095		10	24.0	23.14	-0.13	Front	16	1	25	24	1:1	15	0.148	1.219	0.180	-
831.5	26865	LTE 26 QPSK	15	25.0	23.76	-0.03	Rear	111	0	1	74	1:1	15	0.256	1.330	0.341	-
831.5	26865		15	24.0	22.83	-0.01	Rear	111	1	36	39	1:1	15	0.229	1.309	0.300	-
831.5	26865		15	25.0	23.76	-0.09	Front	111	0	1	74	1:1	15	**0.271**	1.330	**0.361**	23
831.5	26865		15	24.0	22.83	-0.05	Front	111	1	36	39	1:1	15	0.218	1.309	0.285	-
2593	40620	LTE 41 QPSK	20	24.5	23.54	0.12	Rear		0	1	49	1:1.58	15	**0.338**	1.247	**0.423**	24
2593	40620		20	23.5	22.62	0.16	Rear		1	50	25	1:1.58	15	0.279	1.225	0.342	-
2593	40620		20	24.5	23.54	-0.10	Front		0	1	49	1:1.58	15	0.179	1.247	0.223	-
2593	40620		20	23.5	22.62	0.10	Front		1	50	25	1:1.58	15	0.149	1.225	0.182	-
2593	40620	LTE 41 HPUE QPSK	20	26.0	25.05	-0.15	Rear		0	1	49	1:2.31	15	0.205	1.247	0.255	-
1745	132322	LTE 66 QPSK	20	23.5	22.05	0.14	Rear	13	0	1	49	1:1	15	0.454	1.396	0.634	-
1720	132072		20	22.5	21.25	0.13	Rear	13	1	50	25	1:1	15	0.415	1.334	0.553	-
1745	132322		20	23.5	22.05	0.15	Front	13	0	1	49	1:1	15	**0.469**	1.396	**0.655**	25
1720	132072		20	22.5	21.25	0.10	Front	13	1	50	25	1:1	15	0.412	1.334	0.549	-

ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Body 1.6 W/kg Averaged over 1 gram

NR Band Bodyworn SAR

Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
836.5	167300	NR n5 DFT-s OFDM QPSK	20	25.0	24.03	0.14	Rear	111	0	1	104	1:1	15	**0.313**	1.250	**0.391**	26
836.5	167300		20	25.0	24.13	-0.01	Rear	111	0	50	28	1:1	15	0.278	1.222	0.340	-
836.5	167300		20	25.0	24.03	-0.01	Front	111	0	1	104	1:1	15	0.296	1.250	0.370	-
836.5	167300		20	25.0	24.13	0.01	Front	111	0	50	28	1:1	15	0.268	1.222	0.327	-
836.5	167300	CP OFDM QPSK	20	23.5	22.3	0.08	Rear	111	1.5	1	1	1:1	15	0.180	1.318	0.237	-
1720	344000	NR n66 DFT-s OFDM QPSK	20	24.0	23.57	0.10	Rear	13	0	1	1	1:1	15	0.582	1.104	0.643	-
1720	344000		20	24.0	23.64	0.16	Rear	13	0	50	28	1:1	15	**0.607**	1.086	**0.659**	27
1720	344000		20	24.0	23.57	0.09	Front	13	0	1	1	1:1	15	0.591	1.104	0.653	-
1720	344000		20	24.0	23.64	0.12	Front	13	0	50	28	1:1	15	0.585	1.086	0.636	-
1720	344000	CP OFDM QPSK	20	22.5	22.07	0.10	Rear	13	1.5	1	1	1:1	15	0.414	1.104	0.457	-

ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Body 1.6 W/kg Averaged over 1 gram

DTS Bodyworn SAR																	
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)		(Duty)	(W/kg)	
2432	5	802.11n	20	MCS0	16.0	15.01	0.10	Rear	Ant.2	92.0	15	0.0678	0.043	1.256	1.086	0.059	-
2432	5	802.11n	20	MCS0	16.0	15.01	-0.10	Front	Ant.2	92.0	15	0.0836	0.051	1.256	1.086	0.070	-
2437	6	802.11n	20	MCS0	19.0	17.91	0.12	Rear	MIMO	92.0	15	0.113	**0.070**	1.256	1.086	**0.095**	28
2437	6	802.11n	20	MCS0	19.0	17.91	-0.17	Front	MIMO	92.0	15	0.0956	0.056	1.256	1.086	0.076	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram								

NII Bodyworn SAR																	
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)		(Duty)	(W/kg)	
5310	62	802.11n	40	MCS0	20.0	18.69	0.00	Rear	MIMO	86.5	15	0.246	0.105	1.570	1.156	0.191	-
5310	62	802.11n	40	MCS0	20.0	18.69	0.18	Front	MIMO	86.5	15	0.311	**0.136**	1.570	1.156	**0.247**	29
5590	118	802.11n	40	MCS0	20.0	19.23	-0.01	Rear	MIMO	86.5	15	0.352	**0.146**	1.245	1.156	**0.210**	30
5590	118	802.11n	40	MCS0	20.0	19.23	-0.11	Front	MIMO	86.5	15	0.346	0.132	1.245	1.156	0.190	-
5775	155	802.11ac	80	MCS0	14.0	12.56	0.00	Rear	MIMO	85.9	15	0.000	0.000	1.371	1.164	0.000	-
5775	155	802.11ac	80	MCS0	14.0	12.56	0.00	Front	MIMO	85.9	15	0.0831	0.014	1.371	1.164	0.022	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram								

DSS Body-Worn SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dBm)	(dBm)	(dB)		(mm)	(W/kg)		(Duty)	(W/kg)	
2 441	39	Bluetooth DH5	16.0	15.79	0.15	Rear	15	**0.058**	1.050	1.303	**0.079**	31
2 441	39	Bluetooth DH5	16.0	15.79	0.16	Front	15	0.038	1.050	1.303	0.052	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram					

13.3 Hotspot SAR Measurement Results

GSM 850 Hotspot SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance (mm)	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(W/kg)		(W/kg)	
836.6	190	GPRS 2TX	32.5	31.65	-0.10	Rear	1:4.15	10	0.876	1.216	1.065	-
824.2	128	GPRS 2TX	32.5	30.94	-0.12	Rear	1:4.15	10	0.701	1.432	1.004	-
848.8	251	GPRS 2TX	32.5	31.47	-0.15	Rear	1:4.15	10	**0.877**	1.268	**1.112**	32
836.6	190	GPRS 2TX	32.5	31.65	0.10	Front	1:4.15	10	0.570	1.216	0.693	-
836.6	190	GPRS 2TX	32.5	31.65	0.12	Left	1:4.15	10	0.088	1.216	0.107	-
836.6	190	GPRS 2TX	32.5	31.65	0.05	Right	1:4.15	10	0.402	1.216	0.489	-
836.6	190	GPRS 2TX	32.5	31.65	0.06	Bottom	1:4.15	10	0.483	1.216	0.587	-
848.8	251	GPRS 2TX	32.5	31.47	-0.13	Rear	1:4.15	10	0.818	1.268	1.037	*
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram						

Note: * Data entry indicate Variability measurement.

GSM 1900 Hotspot SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Distance (mm)	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(W/kg)		(W/kg)	
1880	661	GPRS 3TX	24.0	23.82	-0.01	Rear	1:2.77	10	0.218	1.042	0.227	-
1880	661	GPRS 3TX	24.0	23.82	-0.11	Front	1:2.77	10	0.291	1.042	0.303	-
1880	661	GPRS 3TX	24.0	23.82	-0.19	Left	1:2.77	10	0.088	1.042	0.092	-
1880	661	GPRS 3TX	24.0	23.82	0.05	Right	1:2.77	10	0.062	1.042	0.065	-
1880	661	GPRS 3TX	24.0	23.82	0.16	Bottom	1:2.77	10	**0.663**	1.042	**0.691**	33
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram						

UMTS Band 5 Hotspot SAR

Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(mm)	(W/kg)		(W/kg)	
826.4	4132	RMC	25.5	24.58	0.01	Rear	111	1:1	10	0.746	1.236	0.922	-
836.6	4183	RMC	25.5	24.87	0.04	Rear	111	1:1	10	**0.846**	1.156	**0.978**	34
846.6	4233	RMC	25.5	24.94	0.05	Rear	111	1:1	10	0.839	1.138	0.954	-
836.6	4183	RMC	25.5	24.87	-0.02	Front	111	1:1	10	0.582	1.156	0.673	-
836.6	4183	RMC	25.5	24.87	0.14	Left	111	1:1	10	0.111	1.156	0.128	-
836.6	4183	RMC	25.5	24.87	0.10	Right	111	1:1	10	0.418	1.156	0.483	-
836.6	4183	RMC	25.5	24.87	0.01	Bottom	111	1:1	10	0.449	1.156	0.519	-
836.6	4183	RMC	25.5	24.87	-0.01	Rear	111	1:1	10	0.837	1.156	0.968	*
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram							

Note: * Data entry indicate Variability measurement.

UMTS Band 4 Hotspot SAR

Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(mm)	(W/kg)		(W/kg)	
1732.4	1412	RMC	20.0	19.49	0.17	Rear	21	1:1	10	0.586	1.125	0.659	-
1732.4	1412	RMC	20.0	19.49	-0.14	Front	21	1:1	10	0.254	1.125	0.286	-
1732.4	1412	RMC	20.0	19.49	0.09	Left	21	1:1	10	0.118	1.125	0.133	-
1732.4	1412	RMC	20.0	19.49	0.18	Right	21	1:1	10	0.071	1.125	0.080	-
1712.4	1312	RMC	20.0	19.43	0.17	Bottom	21	1:1	10	**0.934**	1.140	**1.065**	35
1732.4	1412	RMC	20.0	19.49	0.13	Bottom	21	1:1	10	0.850	1.125	0.956	-
1752.6	1513	RMC	20.0	19.48	0.16	Bottom	21	1:1	10	0.820	1.127	0.924	-
1712.4	1312	RMC	20.0	19.43	0.17	Bottom	21	1:1	10	0.929	1.140	1.059	*
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram							

Note: * Data entry indicate Variability measurement.

UMTS Band 2 Hotspot SAR

Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(mm)	(W/kg)		(W/kg)	
1880	9400	RMC	19.5	18.89	0.03	Rear	4	1:1	10	0.499	1.151	0.574	-
1880	9400	RMC	19.5	18.89	0.04	Front	4	1:1	10	0.278	1.151	0.320	-
1880	9400	RMC	19.5	18.89	0.08	Left	4	1:1	10	0.101	1.151	0.116	-
1880	9400	RMC	19.5	18.89	0.11	Right	4	1:1	10	0.063	1.151	0.073	-
1852.4	9262	RMC	19.5	18.96	0.17	Bottom	4	1:1	10	**0.985**	1.132	1.115	36
1880	9400	RMC	19.5	18.89	0.02	Bottom	4	1:1	10	0.933	1.151	1.074	-
1907.6	9538	RMC	19.5	18.63	0.13	Bottom	4	1:1	10	0.954	1.222	**1.166**	37
1852.4	9262	RMC	19.5	18.96	0.14	Bottom	4	1:1	10	0.983	1.222	1.113	*
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram							

Note: * Data entry indicate Variability measurement.

LTE Band 2 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
1880	18900	QPSK	20	19.0	18.46	0.12	Rear	4	0	1	49	1:1	10	0.309	1.132	0.350	-
1880	18900	QPSK	20	19.0	18.48	0.11	Rear	4	0	50	25	1:1	10	0.315	1.127	0.355	-
1880	18900	QPSK	20	19.0	18.46	0.11	Front	4	0	1	49	1:1	10	0.309	1.132	0.350	-
1880	18900	QPSK	20	19.0	18.48	0.16	Front	4	0	50	25	1:1	10	0.329	1.127	0.371	-
1880	18900	QPSK	20	19.0	18.46	0.17	Left	4	0	1	49	1:1	10	0.079	1.132	0.089	-
1880	18900	QPSK	20	19.0	18.48	0.17	Left	4	0	50	25	1:1	10	0.083	1.127	0.094	-
1880	18900	QPSK	20	19.0	18.46	0.03	Right	4	0	1	49	1:1	10	0.065	1.132	0.074	-
1880	18900	QPSK	20	19.0	18.48	0.18	Right	4	0	50	25	1:1	10	0.066	1.127	0.074	-
1860	18700	QPSK	20	19.0	18.24	0.06	Bottom	4	0	1	99	1:1	10	0.839	1.191	0.999	-
1880	18900	QPSK	20	19.0	18.46	0.05	Bottom	4	0	1	49	1:1	10	0.870	1.132	0.985	
1900	19100	QPSK	20	19.0	18.08	0.04	Bottom	4	0	1	0	1:1	10	0.884	1.236	1.093	-
1860	18700	QPSK	20	19.0	18.32	0.06	Bottom	4	0	50	49	1:1	10	0.852	1.169	0.996	-
1880	18900	QPSK	20	19.0	18.48	0.09	Bottom	4	0	50	25	1:1	10	0.905	1.127	1.020	-
1900	19100	QPSK	20	19.0	18.11	0.12	Bottom	4	0	50	25	1:1	10	0.921	1.227	**1.130**	38
1880	18900	QPSK	20	19.0	18.34	0.07	Bottom	4	0	100	0	1:1	10	0.820	1.164	0.955	-
1900	19100	QPSK	20	19.0	18.11	0.12	Bottom	4	0	50	25	1:1	10	0.916	1.227	1.124	*
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

Note: * Data entry indicate Variability measurement.

LTE Band 12 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
707.5	23095	QPSK	10	25.0	23.93	-0.03	Rear	16	0	1	49	1:1	10	**0.282**	1.279	**0.361**	39
707.5	23095	QPSK	10	24.0	23.14	-0.09	Rear	16	1	25	24	1:1	10	0.218	1.219	0.266	-
707.5	23095	QPSK	10	25.0	23.93	-0.06	Front	16	0	1	49	1:1	10	0.220	1.279	0.281	-
707.5	23095	QPSK	10	24.0	23.14	-0.05	Front	16	1	25	24	1:1	10	0.170	1.219	0.207	-
707.5	23095	QPSK	10	25.0	23.93	-0.04	Left	16	0	1	49	1:1	10	0.113	1.279	0.145	-
707.5	23095	QPSK	10	24.0	23.14	-0.04	Left	16	1	25	24	1:1	10	0.091	1.219	0.111	-
707.5	23095	QPSK	10	25.0	23.93	-0.07	Right	16	0	1	49	1:1	10	0.213	1.279	0.273	-
707.5	23095	QPSK	10	24.0	23.14	-0.06	Right	16	1	25	24	1:1	10	0.168	1.219	0.205	-
707.5	23095	QPSK	10	25.0	23.93	-0.11	Bottom	16	0	1	49	1:1	10	0.247	1.279	0.316	-
707.5	23095	QPSK	10	24.0	23.14	-0.19	Bottom	16	1	25	24	1:1	10	0.191	1.219	0.233	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

LTE Band 26 Hotspot SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
831.5	26865	QPSK	15	25.0	23.76	-0.02	Rear	111	0	1	74	1:1	10	**0.509**	1.330	**0.677**	40
831.5	26865	QPSK	15	24.0	22.83	-0.07	Rear	111	1	36	39	1:1	10	0.412	1.309	0.539	-
831.5	26865	QPSK	15	25.0	23.76	-0.09	Front	111	0	1	74	1:1	10	0.318	1.330	0.423	-
831.5	26865	QPSK	15	24.0	22.83	-0.07	Front	111	1	36	39	1:1	10	0.282	1.309	0.369	-
831.5	26865	QPSK	15	25.0	23.76	-0.13	Left	111	0	1	74	1:1	10	0.064	1.330	0.085	-
831.5	26865	QPSK	15	24.0	22.83	-0.16	Left	111	1	36	39	1:1	10	0.049	1.309	0.064	-
831.5	26865	QPSK	15	25.0	23.76	-0.09	Right	111	0	1	74	1:1	10	0.233	1.330	0.310	-
831.5	26865	QPSK	15	24.0	22.83	-0.01	Right	111	1	36	39	1:1	10	0.200	1.309	0.262	-
831.5	26865	QPSK	15	25.0	23.76	-0.15	Bottom	111	0	1	74	1:1	10	0.410	1.330	0.545	-
831.5	26865	QPSK	15	24.0	22.83	-0.14	Bottom	111	1	36	39	1:1	10	0.340	1.309	0.445	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

LTE Band 41 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
2593	40620	QPSK	20	21.5	20.59	0.12	Rear		0	1	49	1:1.58	10	0.338	1.233	0.417	-
2593	40620	QPSK	20	21.5	20.56	-0.19	Rear		0	50	25	1:1.58	10	**0.407**	1.242	**0.505**	41
2593	40620	QPSK	20	21.5	20.59	0.18	Front		0	1	49	1:1.58	10	0.252	1.233	0.311	-
2593	40620	QPSK	20	21.5	20.56	0.18	Front		0	50	25	1:1.58	10	0.260	1.242	0.323	-
2593	40620	QPSK	20	21.5	20.59	0.05	Left		0	1	49	1:1.58	10	0.157	1.233	0.194	-
2593	40620	QPSK	20	21.5	20.56	0.09	Left		0	50	25	1:1.58	10	0.161	1.242	0.200	-
2593	40620	QPSK	20	21.5	20.59	0.06	Bottom		0	1	49	1:1.58	10	0.392	1.233	0.483	-
2593	40620	QPSK	20	21.5	20.56	0.08	Bottom		0	50	25	1:1.58	10	0.407	1.242	0.505	-
Power class 2 (HPUE)																	
2593	40620	QPSK	20	23.0	22.14	0.11	Bottom		0	50	25	1:2.31	10	0.356	1.219	0.434	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

LTE Band 66 Hotspot SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)			(dB)				(mm)	(W/kg)		(W/kg)	
1770	132572	QPSK	20	19.5	18.04	0.16	Rear	13	0	1	0	1:1	10	0.349	1.400	0.488	-
1720	132072	QPSK	20	19.5	18.27	0.12	Rear	13	0	50	25	1:1	10	0.354	1.327	0.470	-
1770	132572	QPSK	20	19.5	18.04	0.19	Front	13	0	1	0	1:1	10	0.311	1.400	0.435	-
1720	132072	QPSK	20	19.5	18.27	0.14	Front	13	0	50	25	1:1	10	0.343	1.327	0.455	-
1770	132572	QPSK	20	19.5	18.04	0.15	Left	13	0	1	0	1:1	10	0.086	1.400	0.120	-
1720	132072	QPSK	20	19.5	18.27	0.17	Left	13	0	50	25	1:1	10	0.099	1.327	0.131	-
1770	132572	QPSK	20	19.5	18.04	0.13	Right	13	0	1	0	1:1	10	0.056	1.400	0.078	-
1720	132072	QPSK	20	19.5	18.27	0.13	Right	13	0	50	25	1:1	10	0.061	1.327	0.081	-
1720	132072	QPSK	20	19.5	17.94	0.13	Bottom	13	0	1	99	1:1	10	0.619	1.432	0.887	-
1745	132322	QPSK	20	19.5	17.90	0.12	Bottom	13	0	1	49	1:1	10	0.593	1.445	0.857	-
1770	132572	QPSK	20	19.5	18.04	0.11	Bottom	13	0	1	0	1:1	10	0.679	1.400	0.950	-
1720	132072	QPSK	20	19.5	18.27	0.14	Bottom	13	0	50	25	1:1	10	0.688	1.327	0.913	-
1745	132322	QPSK	20	19.5	18.12	0.14	Bottom	13	0	50	25	1:1	10	0.626	1.374	0.860	-
1770	132572	QPSK	20	19.5	18.11	0.11	Bottom	13	0	50	25	1:1	10	**0.726**	1.377	**1.000**	42
1720	132072	QPSK	20	19.5	18.21	0.14	Bottom	13	0	100	0	1:1	10	0.675	1.346	0.908	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

NR Band n5 (Cell) Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	0.17	Rear	0	1	104	111	1:1	10	**0.638**	1.250	**0.798**	43
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	0.01	Rear	0	50	28	111	1:1	10	0.590	1.222	0.721	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	-0.06	Front	0	1	104	111	1:1	10	0.285	1.250	0.356	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.08	Front	0	50	28	111	1:1	10	0.363	1.222	0.444	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	0.13	Left	0	1	104	111	1:1	10	0.050	1.250	0.063	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.11	Left	0	50	28	111	1:1	10	0.088	1.222	0.108	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	-0.06	Right	0	1	104	111	1:1	10	0.179	1.250	0.224	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.11	Right	0	50	28	111	1:1	10	0.300	1.222	0.367	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.03	-0.05	Bottom	0	1	104	111	1:1	10	0.302	1.250	0.378	-
836.5	167300	DFT-s OFDM QPSK	20	25.0	24.13	-0.09	Bottom	0	50	28	111	1:1	10	0.343	1.222	0.419	-
836.5	167300	CP OFDM QPSK	20	23.5	22.3	-0.14	Rear	0	1	1	111	1:1	10	0.256	1.318	0.337	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

NR Band n66 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Duty Cycle	Ant State	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	0.16	Rear	0	1	1	1:1	13	10	0.386	1.002	0.387	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	-0.06	Rear	0	50	0	1:1	13	10	0.380	1.005	0.382	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	-0.05	Front	0	1	1	1:1	13	10	0.441	1.002	0.442	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	0.19	Front	0	50	0	1:1	13	10	0.450	1.005	0.452	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	-0.17	Left	0	1	1	1:1	13	10	0.202	1.002	0.202	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	-0.06	Left	0	50	0	1:1	13	10	0.195	1.005	0.196	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	0.17	Right	0	1	1	1:1	13	10	0.083	1.002	0.083	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	-0.01	Right	0	50	0	1:1	13	10	0.071	1.005	0.071	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	-0.16	Bottom	0	1	1	1:1	13	10	**0.714**	1.002	**0.716**	44
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	0.02	Bottom	0	50	0	1:1	13	10	0.676	1.005	0.679	-
1720	344000	CP OFDM QPSK	20	19.5	19.44	0.19	Bottom	0	1	1	1:1	13	10	0.630	1.014	0.639	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

DTS Hotspot SAR																	
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)		(Duty)	(W/kg)	
2432	5	802.11n	20	MCS0	16.0	15.01	-0.18	Rear	Ant.2	92.0	10	0.147	0.091	1.256	1.086	0.124	-
2432	5	802.11n	20	MCS0	16.0	15.01	-0.12	Front	Ant.2	92.0	10	0.166	0.095	1.256	1.086	0.130	-
2432	5	802.11n	20	MCS0	16.0	15.01	0.13	Left	Ant.2	92.0	10	0.297	0.172	1.256	1.086	0.235	-
2432	5	802.11n	20	MCS0	16.0	15.01	0.10	Top	Ant.2	92.0	10	0.068	0.039	1.256	1.086	0.053	-
2437	6	802.11n	20	MCS0	19.0	17.91	-0.15	Rear	MIMO	92.0	10	0.219	0.128	1.256	1.086	0.175	-
2437	6	802.11n	20	MCS0	19.0	17.91	-0.18	Front	MIMO	92.0	10	0.161	0.099	1.256	1.086	0.135	-
2437	6	802.11n	20	MCS0	19.0	17.91	0.09	Left	MIMO	92.0	10	0.313	0.184	1.256	1.086	0.251	-
2437	6	802.11n	20	MCS0	19.0	17.91	0.16	Top	MIMO	92.0	10	0.359	**0.216**	1.256	1.086	**0.295**	45
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram								

NII Hotspot SAR																	
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Ant. Config.	Duty Cycle	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)		(Duty)	(W/kg)	
5775	155	802.11ac	80	MCS0	14.0	12.56	0.10	Rear	MIMO	85.9	10	0.132	0.047	1.371	1.164	0.075	-
5775	155	802.11ac	80	MCS0	14.0	12.56	0.00	Front	MIMO	85.9	10	0.139	0.064	1.371	1.164	0.102	-
5775	155	802.11ac	80	MCS0	14.0	12.56	-0.18	Left	MIMO	85.9	10	0.195	**0.076**	1.371	1.164	**0.121**	46
5775	155	802.11ac	80	MCS0	14.0	12.56	-0.17	Top	MIMO	85.9	10	0.0556	0.013	1.371	1.164	0.021	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram								

DSS Hotspot SAR												
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dBm)	(dBm)	(dB)		(mm)	(W/kg)		(Duty)	(W/kg)	
2 441	39	Bluetooth DH5	16.0	15.79	0.14	Rear	10	0.103	1.050	1.303	0.141	-
2 441	39	Bluetooth DH5	16.0	15.79	-0.06	Front	10	0.064	1.050	1.303	0.087	-
2 441	39	Bluetooth DH5	16.0	15.79	0.05	Left	10	0.00856	1.050	1.303	0.012	-
2 441	39	Bluetooth DH5	16.0	15.79	0.00	Top	10	**0.173**	1.050	1.303	**0.236**	47
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Body 1.6 W/kg Averaged over 1 gram						

13.4 Phablet SAR Measurement Considerations

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

13.5 Phablet SAR Measurement Results

GSM 1900 Phablet SAR 10g													
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)				(mm)	(W/kg)		(W/kg)	
1880	661	GPRS 3TX	24.0	23.82	-0.20	Rear	ON	1:2.77	0	0.648	1.042	0.675	-
1880	661	GPRS 3TX	24.0	23.82	-0.12	Front	ON	1:2.77	0	0.697	1.042	0.726	-
1880	661	GPRS 2TX	29.0	28.82	0.15	Left	N/A	1:4.15	0	0.313	1.042	0.326	-
1880	661	GPRS 2TX	29.0	28.82	0.19	Right	N/A	1:4.15	0	0.202	1.042	0.211	-
1880	661	GPRS 3TX	24.0	23.82	0.15	Bottom	ON	1:2.77	0	**1.380**	1.042	**1.438**	48
1880	661	GPRS 2TX	29.0	28.82	0.16	Rear	OFF	1:4.15	8	0.414	1.042	0.432	-
1880	661	GPRS 2TX	29.0	28.82	0.18	Front	OFF	1:4.15	6	0.656	1.042	0.684	-
1880	661	GPRS 2TX	29.0	28.82	0.19	Bottom	OFF	1:4.15	13	0.490	1.042	0.511	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Hand 4.0 W/kg Averaged over 10 gram							

UMTS Band 2 Phablet SAR 10g														
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)					(mm)	(W/kg)		(W/kg)	
1880	9400	RMC	19.5	18.89	0.05	Rear	ON	4	1:1	0	1.210	1.151	1.392	-
1880	9400	RMC	19.5	18.89	0.05	Front	ON	4	1:1	0	1.380	1.151	1.588	-
1880	9400	RMC	23.0	22.39	0.11	Left	N/A	4	1:1	0	0.661	1.151	0.761	-
1880	9400	RMC	23.0	22.39	0.04	Right	N/A	4	1:1	0	0.362	1.151	0.417	-
1880	9400	RMC	19.5	18.89	0.19	Bottom	ON	4	1:1	0	**1.720**	1.151	**1.979**	49
1880	9400	RMC	23.0	22.39	0.01	Rear	OFF	4	1:1	8	0.879	1.151	1.012	-
1880	9400	RMC	23.0	22.39	0.16	Front	OFF	4	1:1	6	0.802	1.151	0.923	-
1880	9400	RMC	23.0	22.39	-0.13	Bottom	OFF	4	1:1	13	0.810	1.151	0.932	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Hand 4.0 W/kg Averaged over 10 gram								

UMTS Band 4 Phablet SAR 10g														
Frequency		Mode	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Ant State	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(dB)	(dB)	(dB)					(mm)	(W/kg)		(W/kg)	
1732.4	1412	RMC	20.0	19.49	0.17	Rear	ON	21	1:1	0	1.130	1.125	1.271	-
1732.4	1412	RMC	20.0	19.49	0.10	Front	ON	21	1:1	0	1.320	1.125	1.484	-
1732.4	1412	RMC	23.0	22.45	0.11	Left	N/A	21	1:1	0	0.546	1.135	0.620	-
1732.4	1412	RMC	23.0	22.45	0.10	Right	N/A	21	1:1	0	0.333	1.135	0.378	-
1712.4	1312	RMC	20.0	19.43	-0.02	Bottom	ON	21	1:1	0	1.910	1.140	2.178	-
1732.4	1412	RMC	20.0	19.49	0.15	Bottom	ON	21	1:1	0	**1.950**	1.125	**2.193**	50
1752.6	1513	RMC	20.0	19.48	-0.00	Bottom	ON	21	1:1	0	1.860	1.127	2.097	-
1732.4	1412	RMC	23.0	22.45	-0.07	Rear	OFF	21	1:1	8	0.883	1.135	1.002	-
1732.4	1412	RMC	23.0	22.45	0.06	Front	OFF	21	1:1	6	0.713	1.135	0.809	-
1732.4	1412	RMC	23.0	22.45	-0.08	Bottom	OFF	21	1:1	13	0.639	1.135	0.725	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Hand 4.0 W/kg Averaged over 10 gram								

LTE Band 2 Phablet SAR 10g																	
Frequency		Mode	Band Width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(dB)				(mm)	(W/kg)		(W/kg)	
1880	18900	QPSK	20	19.0	18.46	0.14	Rear	ON	4	0	1	49	1:1	0	0.751	1.271	0.954	-
1880	18900	QPSK	20	19.0	18.48	0.11	Rear	ON	4	0	50	25	1:1	0	0.785	1.265	0.993	-
1880	18900	QPSK	20	19.0	18.46	0.10	Front	ON	4	0	1	49	1:1	0	0.875	1.271	1.112	-
1880	18900	QPSK	20	19.0	18.48	0.04	Front	ON	4	0	50	25	1:1	0	0.912	1.265	1.153	-
1860	18700	QPSK	20	22.5	22.11	-0.18	Left	N/A	4	0	1	99	1:1	0	0.398	1.227	0.489	-
1880	18900	QPSK	20	21.5	21.28	-0.15	Left	N/A	4	1	50	25	1:1	0	0.321	1.180	0.379	-
1860	18700	QPSK	20	22.5	22.11	0.11	Right	N/A	4	0	1	99	1:1	0	0.298	1.227	0.366	-
1880	18900	QPSK	20	21.5	21.28	0.13	Right	N/A	4	1	50	25	1:1	0	0.257	1.180	0.303	-
1880	18900	QPSK	20	19.0	18.46	-0.17	Bottom	ON	4	0	1	49	1:1	0	1.120	1.271	1.423	-
1880	18900	QPSK	20	19.0	18.48	-0.19	Bottom	ON	4	0	50	25	1:1	0	**1.180**	1.265	**1.492**	51
1860	18700	QPSK	20	22.5	22.11	0.12	Rear	OFF	4	0	1	99	1:1	8	0.556	1.227	0.682	-
1880	18900	QPSK	20	21.5	21.28	0.12	Rear	OFF	4	1	50	25	1:1	8	0.469	1.180	0.554	-
1860	18700	QPSK	20	22.5	22.11	0.13	Front	OFF	4	0	1	99	1:1	6	0.777	1.227	0.954	-
1880	18900	QPSK	20	21.5	21.28	0.18	Front	OFF	4	1	50	25	1:1	6	0.646	1.180	0.762	-
1860	18700	QPSK	20	22.5	22.11	0.03	Bottom	OFF	4	0	1	99	1:1	13	0.624	1.227	0.766	-
1880	18900	QPSK	20	21.5	21.28	0.08	Bottom	OFF	4	1	50	25	1:1	13	0.527	1.180	0.622	-
ANSI/ IEEE C95.1 - 2005 – 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	Meas. Power	Power Drift	Test Position	Sensor	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(dB)				(mm)	(W/kg)		(W/kg)	
1770	132572	QPSK	20	19.5	18.04	0.17	Rear	ON	13	0	1	0	1:1	0	0.825	1.400	1.155	-
1720	132072	QPSK	20	19.5	18.27	0.11	Rear	ON	13	0	50	25	1:1	0	0.908	1.327	1.205	-
1770	132572	QPSK	20	19.5	18.04	0.10	Front	ON	13	0	1	0	1:1	0	0.943	1.400	1.320	-
1720	132072	QPSK	20	19.5	18.27	0.10	Front	ON	13	0	50	25	1:1	0	1.050	1.327	1.394	-
1745	132322	QPSK	20	23.5	22.05	-0.12	Left	N/A	13	0	1	49	1:1	0	0.375	1.396	0.524	-
1720	132072	QPSK	20	22.5	21.25	-0.13	Left	N/A	13	1	50	25	1:1	0	0.342	1.334	0.456	-
1745	132322	QPSK	20	23.5	22.05	0.10	Right	N/A	13	0	1	49	1:1	0	0.222	1.396	0.310	-
1720	132072	QPSK	20	22.5	21.25	0.13	Right	N/A	13	1	50	25	1:1	0	0.205	1.334	0.273	-
1770	132572	QPSK	20	19.5	18.04	-0.10	Bottom	ON	13	0	1	0	1:1	0	**1.380**	1.400	**1.931**	52
1720	132072	QPSK	20	19.5	18.27	-0.17	Bottom	ON	13	0	50	25	1:1	0	1.320	1.327	1.752	-
1745	132322	QPSK	20	23.5	22.05	0.13	Rear	OFF	13	0	1	49	1:1	8	0.674	1.396	0.941	-
1720	132072	QPSK	20	22.5	21.25	0.07	Rear	OFF	13	1	50	25	1:1	8	0.600	1.334	0.800	-
1745	132322	QPSK	20	23.5	22.05	0.17	Front	OFF	13	0	1	49	1:1	6	0.834	1.396	1.165	-
1720	132072	QPSK	20	22.5	21.25	0.12	Front	OFF	13	1	50	25	1:1	6	0.754	1.334	1.005	-
1745	132322	QPSK	20	23.5	22.05	0.10	Bottom	OFF	13	0	1	49	1:1	13	0.472	1.396	0.659	-
1720	132072	QPSK	20	22.5	21.25	0.11	Bottom	OFF	13	1	50	25	1:1	13	0.426	1.334	0.568	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Hand 4.0 W/kg Averaged over 10 gram									

NR Band n66 Phablet SAR 10g																		
Frequency		Mode	Band Width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Ant State	MPR	RB Size	RB Offset	Duty Cycle	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dB)	(dB)	(dB)				(dB)				(mm)	(W/kg)		(W/kg)	
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	0.01	Rear	ON	13	0	1	1	1:1	0	1.060	1.002	1.062	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	0.04	Rear	ON	13	0	50	0	1:1	0	1.060	1.005	1.065	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	0.00	Front	ON	13	0	1	1	1:1	0	1.190	1.002	1.193	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	0.01	Front	ON	13	0	50	0	1:1	0	1.210	1.005	1.216	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	-0.17	Left	N/A	13	0	1	1	1:1	0	0.575	1.104	0.635	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	-0.01	Left	N/A	13	0	50	28	1:1	0	0.607	1.086	0.659	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.03	Right	N/A	13	0	1	1	1:1	0	0.266	1.104	0.294	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.18	Right	N/A	13	0	50	28	1:1	0	0.258	1.086	0.280	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.49	0.11	Bottom	ON	13	0	1	1	1:1	0	1.770	1.002	1.774	-
1720	344000	DFT-s OFDM QPSK	20	19.5	19.48	0.15	Bottom	ON	13	0	50	0	1:1	0	**1.830**	1.005	**1.838**	53
1720	344000	CP OFDM QPSK	20	19.5	19.44	0.12	Bottom	ON	13	0	1	1	1:1	0	1.800	1.014	1.825	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.16	Rear	OFF	13	0	1	1	1:1	8	0.764	1.104	0.844	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.09	Rear	OFF	13	0	50	28	1:1	8	0.675	1.086	0.733	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	0.12	Front	OFF	13	0	1	1	1:1	6	0.682	1.104	0.753	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.13	Front	OFF	13	0	50	28	1:1	6	0.752	1.086	0.817	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.57	-0.03	Bottom	OFF	13	0	1	1	1:1	13	0.698	1.104	0.771	-
1720	344000	DFT-s OFDM QPSK	20	24.0	23.64	0.11	Bottom	OFF	13	0	50	28	1:1	13	0.687	1.086	0.746	-
1720	344000	CP OFDM QPSK	20	22.5	22.07	-0.05	Rear	OFF	13	1.5	1	1	1:1	8	0.610	1.104	0.673	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Hand 4.0 W/kg Averaged over 10 gram								

NII Phablet SAR 10g																		
Frequency		Mode	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Sensor	Ant. Config.	Duty Cycle	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(Mbps)	(dBm)	(dBm)	(dB)					(mm)	(W/kg)	(W/kg)		(Duty)	(W/kg)	
5310	62	802.11n	40	MCS0	20.0	18.70	-0.11	Rear	N/A	MIMO	86.5	0	3.01	0.382	1.570	1.156	0.694	-
5310	62	802.11n	40	MCS0	20.0	18.70	0.00	Front	N/A	MIMO	86.5	0	9.80	1.020	1.570	1.156	1.852	-
5310	62	802.11n	40	MCS0	20.0	18.70	0.04	Left	N/A	MIMO	86.5	0	10.90	1.180	1.570	1.156	2.143	-
5270	54	802.11n	40	MCS0	20.0	18.39	0.11	Left	N/A	MIMO	86.5	0	11.50	1.250	1.514	1.156	**2.188**	54
5310	62	802.11n	40	MCS0	20.0	18.70	0.03	Top	N/A	MIMO	86.5	0	2.12	0.188	1.570	1.156	0.341	-
5590	118	802.11ac	80	MCS0	14.0	12.56	-0.02	Rear	N/A	MIMO	86.5	0	4.47	0.530	1.245	1.156	0.763	-
5590	118	802.11ac	80	MCS0	14.0	12.56	0.00	Front	N/A	MIMO	86.5	0	8.32	0.905	1.245	1.156	1.302	-
5590	118	802.11ac	80	MCS0	14.0	12.56	-0.09	Left	N/A	MIMO	86.5	0	17.90	**1.310**	1.245	1.156	1.885	55
5590	118	802.11ac	80	MCS0	14.0	12.56	0.01	Top	N/A	MIMO	86.5	0	3.42	0.307	1.245	1.156	0.442	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Hand 4.0 W/kg Averaged over 10 gram								

13.6 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB 648474 D04v01r03, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was 1.2 W/kg, no additional SAR evaluation using a headset cable were required.
8. Per KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is > 160 mm and < 200 mm. When hotspot mode applies, extremity SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (with tolerance) is 1 g SAR > 1.2 W/kg.
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 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 hotspotoperation (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. This device supports GPRS VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
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.

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 for some modes.
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 (Power Class 3) was tested using UL-DL configuration 0 with 6 UL sub frames and 2S subframes using extended cyclic prefix only and special sub frame configuration 6. SAR tests were performed at maximum output power and worst-case transmission duty factor in extended cyclic prefix. Per 3GPP 36.211 Sec. 4, the duty factor using extended cyclic prefix is 0.633(cf=1.58).
8. Per KDB 941225 D05Av01r02, SAR for LTE Carrier Aggregation operations was not needed because the maximum average output power in LTE CA mode was not > 0.25 dB higher than the maximum output power when downlink CA was not activated.
9. SAR test reduction is applied using the following criteria:
   Start with the largest channel Bandwidth and measure SAR for QPSK with 1 RB, and 50% RB allocation, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is >0.8 W/kg, testing for other Channels is performed at the highest output power level for 1RB, and 50% RB configuration for that channel. Testing for 100% RB configuration is performed at the highest output power level for 100% RB configuration across the Low, Mid and High Channel when the highest reported SAR for 1 RB and 50% RB are >0.8 W/kg, testing for the remaining required channels is not needed because the reported SAR for 100% RB Allocation <1.45 W/kg. Testing for 16-QAM modulation is not required because the reported SAR for QPSK is <1.45 W/kg and its output power is not more than 0.5 dB higher than that a QPSK. Testing for the other channel Bandwidths is not required because the reported SAR for the highest channel Bandwidth is <1.45 W/kg and its output power is not more than 0.5 dB higher than that of the highest channel Bandwidth.

NR Notes:

1. Due to Limitations of the SAR measurement equipment, SAR testing for NR was performed using test mode (FTM) software.
2. More detailed specifications of the NR bands are contained in the Technical description document.
3. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
4. For NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.

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 GHzWiFi 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

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3. Per KDB 2482227 D01v02r02 justification for test configurations of 5 GHzWiFi Single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission mode was 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 containing 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 Summation Scenario (Head SAR)												
Band		WWAN SAR	2.4 GHz WLAN Ant.2 RCV	2.4 GHz WLAN MIMO RCV	5 GHz WLAN MIMO RCV,	BT HEAD	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	SPLSR
		(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(Yes/ No)
		1	2	3	4	5	1+3	1+4	1+5	1+2+5	1+4+5	
GSM 850 Voice	Left Touch	0.132	0.088	0.221	0.131	0.327	0.353	0.263	0.459	0.547	0.590	No
	Left Tilt	0.071	0.041	0.283	0.076	0.462	0.354	0.147	0.533	0.574	0.609	No
	Right Touch	0.200	0.453	0.584	0.626	0.758	0.784	0.826	0.958	1.411	1.584	No
	Right Tilt	0.091	0.126	0.498	0.283	0.943	0.589	0.374	1.034	1.160	1.317	No
GPRS 850 GPRS	Left Touch	0.248	0.088	0.221	0.131	0.327	0.469	0.379	0.575	0.663	0.706	No
	Left Tilt	0.162	0.041	0.283	0.076	0.462	0.445	0.238	0.624	0.665	0.700	No
	Right Touch	0.330	0.453	0.584	0.626	0.758	0.914	0.956	1.088	1.541	1.714	Yes(#1)
	Right Tilt	0.163	0.126	0.498	0.283	0.943	0.661	0.446	1.106	1.232	1.389	No
GSM 1900 Voice	Left Touch	0.074	0.088	0.221	0.131	0.327	0.295	0.205	0.401	0.489	0.532	No
	Left Tilt	0.058	0.041	0.283	0.076	0.462	0.341	0.134	0.520	0.561	0.596	No
	Right Touch	0.072	0.453	0.584	0.626	0.758	0.656	0.698	0.830	1.283	1.456	No
	Right Tilt	0.052	0.126	0.498	0.283	0.943	0.550	0.335	0.995	1.121	1.278	No
GPRS 1900 GPRS	Left Touch	0.103	0.088	0.221	0.131	0.327	0.324	0.234	0.430	0.518	0.561	No
	Left Tilt	0.074	0.041	0.283	0.076	0.462	0.357	0.150	0.536	0.577	0.612	No
	Right Touch	0.100	0.453	0.584	0.626	0.758	0.684	0.726	0.858	1.311	1.484	No
	Right Tilt	0.072	0.126	0.498	0.283	0.943	0.570	0.355	1.015	1.141	1.298	No
UMTS Band 5	Left Touch	0.169	0.088	0.221	0.131	0.327	0.390	0.300	0.496	0.584	0.627	No
	Left Tilt	0.109	0.041	0.283	0.076	0.462	0.392	0.185	0.571	0.612	0.647	No
	Right Touch	0.238	0.453	0.584	0.626	0.758	0.822	0.864	0.996	1.449	1.622	Yes(#2)
	Right Tilt	0.120	0.126	0.498	0.283	0.943	0.618	0.403	1.063	1.189	1.346	No
UMTS Band 4	Left Touch	0.191	0.088	0.221	0.131	0.327	0.412	0.322	0.518	0.606	0.649	No
	Left Tilt	0.068	0.041	0.283	0.076	0.462	0.351	0.144	0.530	0.571	0.606	No
	Right Touch	0.149	0.453	0.584	0.626	0.758	0.733	0.775	0.907	1.360	1.533	No
	Right Tilt	0.070	0.126	0.498	0.283	0.943	0.568	0.353	1.013	1.139	1.296	No
UMTS Band 2	Left Touch	0.194	0.088	0.221	0.131	0.327	0.415	0.325	0.521	0.609	0.652	No
	Left Tilt	0.122	0.041	0.283	0.076	0.462	0.405	0.198	0.584	0.625	0.660	No
	Right Touch	0.148	0.453	0.584	0.626	0.758	0.732	0.774	0.906	1.359	1.532	No
	Right Tilt	0.090	0.126	0.498	0.283	0.943	0.588	0.373	1.033	1.159	1.316	No
LTE Band 2	Left Touch	0.139	0.088	0.221	0.131	0.327	0.360	0.270	0.466	0.554	0.597	No
	Left Tilt	0.098	0.041	0.283	0.076	0.462	0.381	0.174	0.560	0.601	0.636	No
	Right Touch	0.171	0.453	0.584	0.626	0.758	0.755	0.797	0.929	1.382	1.555	No
	Right Tilt	0.087	0.126	0.498	0.283	0.943	0.585	0.370	1.030	1.156	1.313	No
LTE Band 12	Left Touch	0.145	0.088	0.221	0.131	0.327	0.366	0.276	0.472	0.560	0.603	No
	Left Tilt	0.088	0.041	0.283	0.076	0.462	0.371	0.164	0.550	0.591	0.626	No
	Right Touch	0.179	0.453	0.584	0.626	0.758	0.763	0.805	0.937	1.390	1.563	No
	Right Tilt	0.090	0.126	0.498	0.283	0.943	0.588	0.373	1.033	1.159	1.316	No
LTE Band 26	Left Touch	0.165	0.088	0.221	0.131	0.327	0.386	0.296	0.492	0.580	0.623	No
	Left Tilt	0.108	0.041	0.283	0.076	0.462	0.391	0.184	0.570	0.611	0.646	No
	Right Touch	0.246	0.453	0.584	0.626	0.758	0.830	0.872	1.004	1.457	1.630	Yes(#3)
	Right Tilt	0.124	0.126	0.498	0.283	0.943	0.622	0.407	1.067	1.193	1.350	No
LTE Band 41	Left Touch	0.082	0.088	0.221	0.131	0.327	0.303	0.213	0.409	0.497	0.540	No
	Left Tilt	0.035	0.041	0.283	0.076	0.462	0.318	0.111	0.497	0.538	0.573	No
	Right Touch	0.047	0.453	0.584	0.626	0.758	0.631	0.673	0.805	1.258	1.431	No
	Right Tilt	0.056	0.126	0.498	0.283	0.943	0.554	0.339	0.999	1.125	1.282	No
LTE Band 66	Left Touch	0.194	0.088	0.221	0.131	0.327	0.415	0.325	0.521	0.609	0.652	No
	Left Tilt	0.085	0.041	0.283	0.076	0.462	0.368	0.161	0.547	0.588	0.623	No
	Right Touch	0.165	0.453	0.584	0.626	0.758	0.749	0.791	0.923	1.376	1.549	No
	Right Tilt	0.067	0.126	0.498	0.283	0.943	0.565	0.350	1.010	1.136	1.293	No

Simultaneous Transmission Summation Scenario (Head SAR)													
Band		WWAN SAR	Anchor LTE	2.4 GHz WLAN Ant.2 RCV	2.4 GHz WLAN MIMO RCV	5 GHz WLAN MIMO RCV	BT HEAD	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	∑ 1-g SAR	SPLSR
		(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(Yes/ No)
		1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+2+3+6	1+2+5+6	
NR n5 + LTE 2	Left Touch	0.195	0.139	0.088	0.221	0.131	0.327	0.334	0.555	0.465	0.749	0.792	No
	Left Tilt	0.126	0.098	0.041	0.283	0.076	0.462	0.224	0.507	0.300	0.727	0.762	No
	Right Touch	0.232	0.171	0.453	0.584	0.626	0.758	0.403	0.987	1.029	1.614	1.787	Yes(#4,#7)
	Right Tilt	0.119	0.087	0.126	0.498	0.283	0.943	0.206	0.704	0.489	1.275	1.432	No
NR n5 + LTE 66	Left Touch	0.195	0.194	0.088	0.221	0.131	0.327	0.389	0.610	0.520	0.804	0.847	No
	Left Tilt	0.126	0.085	0.041	0.283	0.076	0.462	0.211	0.494	0.287	0.714	0.749	No
	Right Touch	0.232	0.165	0.453	0.584	0.626	0.758	0.397	0.981	1.023	1.608	1.781	Yes(#5,#8)
	Right Tilt	0.119	0.067	0.126	0.498	0.283	0.943	0.186	0.684	0.469	1.255	1.412	No
NR Band n66 + LTE 26	Left Touch	0.201	0.165	0.088	0.221	0.131	0.327	0.366	0.587	0.497	0.781	0.824	No
	Left Tilt	0.129	0.108	0.041	0.283	0.076	0.462	0.237	0.520	0.313	0.740	0.775	No
	Right Touch	0.183	0.246	0.453	0.584	0.626	0.758	0.429	1.013	1.055	1.640	1.813	Yes(#6,#9)
	Right Tilt	0.126	0.124	0.126	0.498	0.283	0.943	0.250	0.748	0.533	1.319	1.476	No
NR n66 + LTE 12	Left Touch	0.201	0.145	0.088	0.221	0.131	0.327	0.346	0.567	0.477	0.761	0.804	No
	Left Tilt	0.129	0.088	0.041	0.283	0.076	0.462	0.217	0.500	0.293	0.720	0.755	No
	Right Touch	0.183	0.179	0.453	0.584	0.626	0.758	0.362	0.946	0.988	1.573	1.746	Yes(#10)
	Right Tilt	0.126	0.090	0.126	0.498	0.283	0.943	0.216	0.714	0.499	1.285	1.442	No

14.2 Body-Worn SAR Simultaneous Transmission Analysis.

Simultaneous Transmission Scenario (Body Worn SAR) (15mm)												
Band		WWAN SAR (W/kg) 1	2.4 GHz WLAN Ant.2 (W/kg) 2	2.4 GHz WLAN MIMO (W/kg) 3	5 GHz WLAN MIMO (W/kg) 4	BT (W/kg) 5	∑ 1-g SAR (W/kg) 1+3	∑ 1-g SAR (W/kg) 1+4	∑ 1-g SAR (W/kg) 1+5	∑ 1-g SAR (W/kg) 1+2+5	∑ 1-g SAR (W/kg) 1+4+5	SPLSR (Yes/No)
GPRS 850 Voice	Rear	0.360	0.059	0.095	0.210	0.079	0.455	0.570	0.439	0.498	0.649	No
	Front	0.290	0.070	0.076	0.247	0.052	0.366	0.537	0.342	0.412	0.589	No
GPRS 850 GPRS	Rear	0.575	0.059	0.095	0.210	0.079	0.670	0.785	0.654	0.713	0.864	No
	Front	0.486	0.070	0.076	0.247	0.052	0.562	0.733	0.538	0.608	0.785	No
GPRS 1900 Voice	Rear	0.275	0.059	0.095	0.210	0.079	0.370	0.485	0.354	0.413	0.564	No
	Front	0.272	0.070	0.076	0.247	0.052	0.348	0.519	0.324	0.394	0.571	No
GPRS 1900 GPRS	Rear	0.383	0.059	0.095	0.210	0.079	0.478	0.593	0.462	0.521	0.672	No
	Front	0.379	0.070	0.076	0.247	0.052	0.455	0.626	0.431	0.501	0.678	No
UMTS Band 5	Rear	0.463	0.059	0.095	0.210	0.079	0.558	0.673	0.542	0.601	0.752	No
	Front	0.368	0.070	0.076	0.247	0.052	0.444	0.615	0.420	0.490	0.667	No
UMTS Band 4	Rear	0.631	0.059	0.095	0.210	0.079	0.726	0.841	0.710	0.769	0.920	No
	Front	0.533	0.070	0.076	0.247	0.052	0.609	0.780	0.585	0.655	0.832	No
UMTS Band 2	Rear	0.724	0.059	0.095	0.210	0.079	0.819	0.934	0.803	0.862	1.013	No
	Front	0.711	0.070	0.076	0.247	0.052	0.787	0.958	0.763	0.833	1.010	No
LTE 2	Rear	0.524	0.059	0.095	0.210	0.079	0.619	0.734	0.603	0.662	0.813	No
	Front	0.565	0.070	0.076	0.247	0.052	0.641	0.812	0.617	0.687	0.864	No
LTE 12	Rear	0.228	0.059	0.095	0.210	0.079	0.323	0.438	0.307	0.366	0.517	No
	Front	0.243	0.070	0.076	0.247	0.052	0.319	0.490	0.295	0.365	0.542	No
LTE 26	Rear	0.341	0.059	0.095	0.210	0.079	0.436	0.551	0.420	0.479	0.630	No
	Front	0.361	0.070	0.076	0.247	0.052	0.437	0.608	0.413	0.483	0.660	No
LTE 41	Rear	0.423	0.059	0.095	0.210	0.079	0.518	0.633	0.502	0.561	0.712	No
	Front	0.223	0.070	0.076	0.247	0.052	0.299	0.470	0.275	0.345	0.522	No
LTE 66	Rear	0.634	0.059	0.095	0.210	0.079	0.729	0.844	0.713	0.772	0.923	No
	Front	0.655	0.070	0.076	0.247	0.052	0.731	0.902	0.707	0.777	0.954	No

Simultaneous Transmission Scenario (BodyWorn SAR) (15mm)													
Band		WWAN SAR (W/kg) 1	EN-DC Anchor (W/kg) 2	2.4 GHz WLAN Ant.2 (W/kg) 3	2.4 GHz WLAN MIMO (W/kg) 4	5 GHz WLAN MIMO (W/kg) 5	BT (W/kg) 6	∑ 1-g SAR (W/kg) 1+2	∑ 1-g SAR (W/kg) 1+2+4	∑ 1-g SAR (W/kg) 1+2+5	∑ 1-g SAR (W/kg) 1+2+3+6	∑ 1-g SAR (W/kg) 1+2+5+6	SPLSR (Yes/No)
NR n5 +LTE 2	Rear	0.391	0.524	0.059	0.095	0.210	0.079	0.915	1.010	1.125	1.053	1.204	No
	Front	0.370	0.565	0.070	0.076	0.247	0.052	0.935	1.011	1.182	1.057	1.234	No
NR n5 +LTE 66	Rear	0.391	0.634	0.059	0.095	0.210	0.079	1.025	1.120	1.235	1.163	1.314	No
	Front	0.370	0.655	0.070	0.076	0.247	0.052	1.025	1.101	1.272	1.147	1.324	No
NR n66 +LTE 26	Rear	0.659	0.341	0.059	0.095	0.210	0.079	1.000	1.095	1.210	1.138	1.289	No
	Front	0.653	0.361	0.070	0.076	0.247	0.052	1.014	1.090	1.261	1.136	1.313	No
NR n66 +LTE 12	Rear	0.659	0.228	0.059	0.095	0.210	0.079	0.887	0.982	1.097	1.025	1.176	No
	Front	0.653	0.243	0.070	0.076	0.247	0.052	0.896	0.972	1.143	1.018	1.195	No

14.3 Hotspot SAR Simultaneous Transmission Analysis.

Simultaneous Transmission Summation Scenario (Hotspot SAR) (10mm)												
Band		WWAN SAR (W/kg)	2.4 GHz WLAN Ant.2 (W/kg)	2.4 GHz WLAN MIMO (W/kg)	5 GHz WLAN MIMO (W/kg)	BT (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	SPLSR (Yes/No)
		1	2	3	4	5	1+3	1+4	1+5	1+2+5	1+4+5	
GPRS 850	Rear	1.112	0.124	0.175	0.075	0.141	1.287	1.187	1.253	1.377	1.328	No
	Front	0.693	0.130	0.135	0.102	0.087	0.828	0.795	0.780	0.910	0.882	No
	Left	0.107	0.235	0.251	0.121	0.012	0.358	0.228	0.119	0.354	0.240	No
	Right	0.489					0.489	0.489	0.489	0.489	0.489	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.587					0.587	0.587	0.587	0.587	0.587	No
GPRS 1900	Rear	0.227	0.124	0.175	0.075	0.141	0.402	0.302	0.368	0.492	0.443	No
	Front	0.303	0.130	0.135	0.102	0.087	0.438	0.405	0.390	0.520	0.492	No
	Left	0.092	0.235	0.251	0.121	0.012	0.343	0.213	0.104	0.339	0.225	No
	Right	0.065					0.065	0.065	0.065	0.065	0.065	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.524					0.524	0.524	0.524	0.524	0.524	No
UMTS Band 5	Rear	0.978	0.124	0.175	0.075	0.141	1.153	1.053	1.119	1.243	1.194	No
	Front	0.673	0.130	0.135	0.102	0.087	0.808	0.775	0.760	0.890	0.862	No
	Left	0.128	0.235	0.251	0.121	0.012	0.379	0.249	0.140	0.375	0.261	No
	Right	0.483					0.483	0.483	0.483	0.483	0.483	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.519					0.519	0.519	0.519	0.519	0.519	No
UMTS Band 4	Rear	0.659	0.124	0.175	0.075	0.141	0.834	0.734	0.800	0.924	0.875	No
	Front	0.286	0.130	0.135	0.102	0.087	0.421	0.388	0.373	0.503	0.475	No
	Left	0.133	0.235	0.251	0.121	0.012	0.384	0.254	0.145	0.380	0.266	No
	Right	0.080					0.080	0.080	0.080	0.080	0.080	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	1.065					1.065	1.065	1.065	1.065	1.065	No
UMTS Band 2	Rear	0.574	0.124	0.175	0.075	0.141	0.749	0.649	0.715	0.839	0.790	No
	Front	0.320	0.130	0.135	0.102	0.087	0.455	0.422	0.407	0.537	0.509	No
	Left	0.112	0.235	0.251	0.121	0.012	0.363	0.233	0.124	0.359	0.245	No
	Right	0.073					0.073	0.073	0.073	0.073	0.073	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	1.166					1.166	1.166	1.166	1.166	1.166	No
LTE 2	Rear	0.355	0.124	0.175	0.075	0.141	0.530	0.430	0.496	0.620	0.571	No
	Front	0.371	0.130	0.135	0.102	0.087	0.506	0.473	0.458	0.588	0.560	No
	Left	0.094	0.235	0.251	0.121	0.012	0.345	0.215	0.106	0.341	0.227	No
	Right	0.074					0.074	0.074	0.074	0.074	0.074	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	1.130					1.130	1.130	1.130	1.130	1.130	No
LTE 12	Rear	0.361	0.124	0.175	0.075	0.141	0.536	0.436	0.502	0.626	0.577	No
	Front	0.281	0.130	0.135	0.102	0.087	0.416	0.383	0.368	0.498	0.470	No
	Left	0.145	0.235	0.251	0.121	0.012	0.396	0.266	0.157	0.392	0.278	No
	Right	0.273					0.273	0.273	0.273	0.273	0.273	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.316					0.316	0.316	0.316	0.316	0.316	No
LTE 26	Rear	0.677	0.124	0.175	0.075	0.141	0.852	0.752	0.818	0.942	0.893	No
	Front	0.423	0.130	0.135	0.102	0.087	0.558	0.525	0.510	0.640	0.612	No
	Left	0.085	0.235	0.251	0.121	0.012	0.336	0.206	0.097	0.332	0.218	No
	Right	0.310					0.310	0.310	0.310	0.310	0.310	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.545					0.545	0.545	0.545	0.545	0.545	No

Simultaneous Transmission Summation Scenario with Hotspot SAR(10mm)												
Band		WWAN SAR (W/kg)	2.4 GHz WLAN Ant.2 (W/kg)	2.4 GHz WLAN MIMO (W/kg)	5 GHz WLAN MIMO (W/kg)	BT (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	SPLSR (Yes/No)
		1	2	3	4	5	1+3	1+4	1+5	1+2+5	1+4+5	
LTE 41	Rear	0.505	0.124	0.175	0.075	0.141	0.680	0.580	0.646	0.770	0.721	No
	Front	0.323	0.130	0.135	0.102	0.087	0.458	0.425	0.410	0.540	0.512	No
	Left	0.200	0.235	0.251	0.121	0.012	0.451	0.321	0.212	0.447	0.333	No
	Right						0.000	0.000	0.000	0.000	0.000	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	0.505					0.505	0.505	0.505	0.505	0.505	No
LTE 66	Rear	0.488	0.124	0.175	0.075	0.141	0.663	0.563	0.629	0.753	0.704	No
	Front	0.455	0.130	0.135	0.102	0.087	0.590	0.557	0.542	0.672	0.644	No
	Left	0.131	0.235	0.251	0.121	0.012	0.382	0.252	0.143	0.378	0.264	No
	Right	0.081					0.081	0.081	0.081	0.081	0.081	No
	Top		0.053	0.295	0.021	0.116	0.295	0.021	0.116	0.169	0.137	No
	Bottom	1.000					1.000	1.000	1.000	1.000	1.000	No

Simultaneous Transmission Scenario													
Band		WWAN SAR (W/kg)	EN-DC Anchor (W/kg)	2.4 GHz WLAN Ant.2 (W/kg)	2.4 GHz WLAN MIMO (W/kg)	5 GHz WLAN MIMO (W/kg)	Bluetooth (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	∑ 1-g SAR (W/kg)	SPLSR (Yes/No)
		1	2	3	4	5	6	1+2	1+2+4	1+2+5	1+2+3+6	1+2+5+6	
NR n5 + LTE 2	Rear	0.798	0.355	0.124	0.175	0.075	0.141	1.153	1.328	1.228	1.418	1.369	No
	Front	0.444	0.371	0.130	0.135	0.102	0.087	0.815	0.950	0.917	1.032	1.004	No
	Left	0.108	0.094	0.235	0.251	0.121	0.012	0.202	0.453	0.323	0.449	0.335	No
	Right	0.367	0.074					0.441	0.441	0.441	0.441	0.441	No
	Top			0.053	0.295	0.021	0.116	0.000	0.295	0.021	0.169	0.137	No
	Bottom	0.419	1.130					1.549	1.549	1.549	1.549	1.549	No
NR n5 + LTE 66	Rear	0.798	0.488	0.124	0.175	0.075	0.141	1.286	1.461	1.361	1.551	1.502	No
	Front	0.444	0.455	0.130	0.135	0.102	0.087	0.899	1.034	1.001	1.116	1.088	No
	Left	0.108	0.131	0.235	0.251	0.121	0.012	0.239	0.490	0.360	0.486	0.372	No
	Right	0.367	0.081					0.448	0.448	0.448	0.448	0.448	No
	Top			0.053	0.295	0.021	0.116	0.000	0.295	0.021	0.169	0.137	No
	Bottom	0.419	1.000					1.419	1.419	1.419	1.419	1.419	No
NR n66 + LTE 26	Rear	0.632	0.677	0.124	0.175	0.075	0.141	1.309	1.484	1.384	1.574	1.525	No
	Front	0.452	0.423	0.130	0.135	0.102	0.087	0.875	1.010	0.977	1.092	1.064	No
	Left	0.202	0.085	0.235	0.251	0.121	0.012	0.287	0.538	0.408	0.534	0.420	No
	Right	0.083	0.310					0.393	0.393	0.393	0.393	0.393	No
	Top			0.053	0.295	0.021	0.116	0.000	0.295	0.021	0.169	0.137	No
	Bottom	0.937	0.545					1.482	1.482	1.482	1.482	1.482	No
NR n66 + LTE 12	Rear	0.632	0.361	0.124	0.175	0.075	0.141	0.993	1.168	1.068	1.258	1.209	No
	Front	0.452	0.281	0.130	0.135	0.102	0.087	0.733	0.868	0.835	0.950	0.922	No
	Left	0.202	0.145	0.235	0.251	0.121	0.012	0.347	0.598	0.468	0.594	0.480	No
	Right	0.083	0.273					0.356	0.356	0.356	0.356	0.356	No
	Top			0.053	0.295	0.021	0.116	0.000	0.295	0.021	0.169	0.137	No
	Bottom	0.937	0.316					1.253	1.253	1.253	1.253	1.253	No

14.4Phablet SAR Simultaneous Transmission Analysis.

Simultaneous Transmission Scenario					
Band		WWAN SAR (W/kg) 1	5 GHz WLAN MIMO (W/kg) 2	∑ 1-g SAR (W/kg) 1+2	SPLSR (Yes/No)
GSM 1900	Rear	0.675	0.763	1.438	NO
	Front	0.726	1.852	2.578	NO
	Left	0.326	2.188	2.514	NO
	Right	0.211		0.211	NO
	Top		0.442	0.442	NO
	Bottom	1.438		1.438	NO
UMTS 2	Rear	1.392	0.763	2.155	NO
	Front	1.588	1.852	3.440	NO
	Left	0.761	2.188	2.949	NO
	Right	0.417		0.417	NO
	Top		0.442	0.442	NO
	Bottom	1.979		1.979	NO
UMTS 4	Rear	1.282	0.763	2.045	NO
	Front	1.484	1.852	3.336	NO
	Left	0.620	2.188	2.808	NO
	Right	0.378		0.378	NO
	Top		0.442	0.442	NO
	Bottom	2.198		2.198	NO
LTE 2	Rear	0.993	0.763	1.756	NO
	Front	1.153	1.852	3.005	NO
	Left	0.489	2.188	2.677	NO
	Right	0.366		0.366	NO
	Top		0.442	0.442	NO
	Bottom	1.492		1.492	NO
LTE 66	Rear	1.205	0.763	1.968	NO
	Front	1.394	1.852	3.246	NO
	Left	0.524	2.188	2.712	NO
	Right	0.310		0.310	NO
	Top		0.442	0.442	NO
	Bottom	1.931		1.931	NO
NR n66	Rear	1.065	0.763	1.828	NO
	Front	1.216	1.852	3.068	NO
	Left	0.659	2.188	2.847	NO
	Right	0.294		0.294	NO
	Top		0.442	0.442	NO
	Bottom	1.838		1.838	NO

14.5 SAR to Peak Location Separation Ratio (SPLSR)

FCC KDB 447498 D01v06 General RF Exposure Guidance introduces a new formula for calculating the SAR a Peak Location Separation Ratio(SPLSR) between pairs of simultaneously transmitting antennas:

$\boldsymbol{SPLSR_i}=(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}$

Where:

$\boldsymbol{SAR_1}$ is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

$\boldsymbol{SAR_2}$ is the highest measured of estimated SAR for the second of a pair of simultaneous transmitting antennas, in the same test operating mode and exposure condition as the first

$\boldsymbol{R_i}$ is the separation distance between the pair of simultaneous transmitting antennas, When the SAR is measured, for both antennas in the pair, it is determined by the actual x, y and z coordinates in the 1-g SAR for each SAR peak location, based on the extrapolated and interpolated result in the zoom scan measurement, using the formula of $[(\mathbf{X_1}-\mathbf{X_2})^2+(\mathbf{Y_1}-\mathbf{Y_2})^2+(\mathbf{Z_1}-\mathbf{Z_2})^2]$

In order for a pair of simultaneous transmitting antennas with the sum 1-g of SAR> 1.6 W/kg and with the sum 10-g of SAR >4 W/Kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

$(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}\leq \mathbf{0.04}$ for 1g SAR and $(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}\leq \mathbf{0.1}$ for 10g SAR

SPLSR Evaluation

Mode/Band	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
GSM 850	57.1	-255	-174	0.330
UMTS Band 5	56.9	-252	-173	0.238
LTE Band 2	61.4	-246	-171	0.171
LTE Band 12	66	-257	-169	0.179
LTE Band 26(5)	62.8	-257	-170	0.246
LTE Band 66	60.2	-247	-171	0.165
NR Band n5	59.6	-257	-171	0.232
NR Band n66	63.4	-255	-172	0.183
2.4G Ant.2 WLAN	47.5	-333	-174	0.453
5G MIMO WLAN	43.1	-325	-175	0.626
Bluetooth	19.9	-331	-174	0.758

Co-located Pair Antenna

Mode/Band	Co-located Pair Antenna Distance [mm]	Reported SAR [W/kg]
NR n5 + LTE 2	11.146	0.403
NR n5 + LTE 66	10.018	0.397
NR n66 + LTE 26(5)	2.891	0.429
NR n66 + LTE 12	4.445	0.362
2.4G Ant.2 WLAN + BT	27.672	1.211
5G MIMO WLAN + BT	23.984	1.384

SPLSR Combination (Sum-Peak Locaiton Separation Ratio)
This Procedure can only be applied when simultaneous transmission SAR is > 1.6 W/kg, it does not meet SPLSR criteria, and antenna pair is co-located

Test Procedure:
1. Instead of doing a small volume scan over a co-located antenna pair, sum the SAR value of the co-located pair and use that value in SPLSR calculation.

2. This calculation use the minimum distance between the spatially antenna and the closest antenna of the co-located antenna pair to be conservative

3. Sum-Peak Locaiton Separation Ratio

2&3 Co-located Pair Antenna

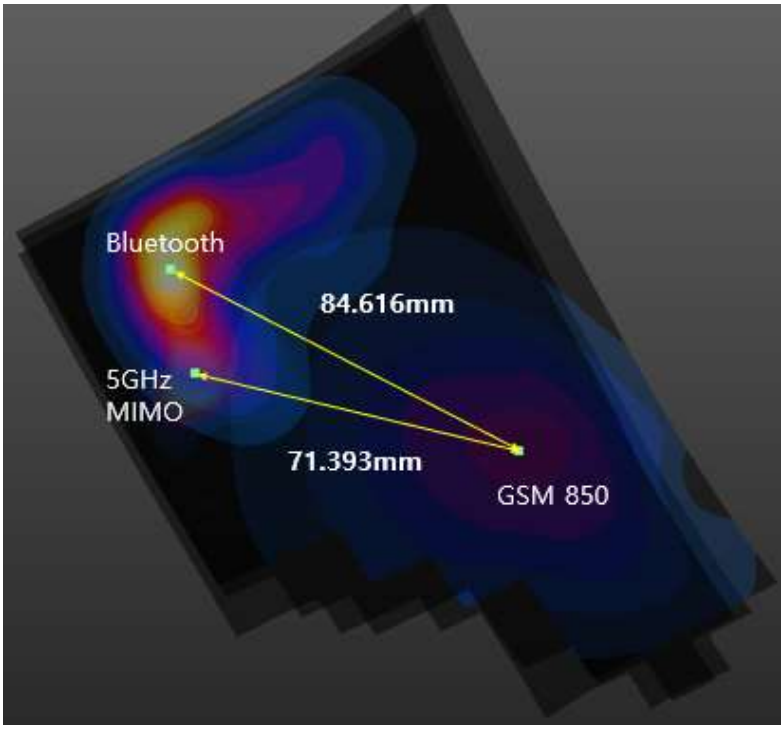
Head Postion	Mode			Sum 1g SAR [W/kg]	1+2 Peak SAR Separation Distance	1+3 Peak SAR Separation Distance	SPLSR (Min Distance)	Plot
	1	2	3	1+2+3	[mm]	[mm]	1+2+3	
Right Touch	GSM 850	5GHz MIMO WLAN	BT	1.714	71.393	84.616	0.031	#1
	UMTS 5			1.622	74.320	87.241	0.028	#2
	LTE 26			1.630	70.215	85.123	0.030	#3

1&2 Co-located Pair Antenna / /3&4 Co-located Pair Antenna

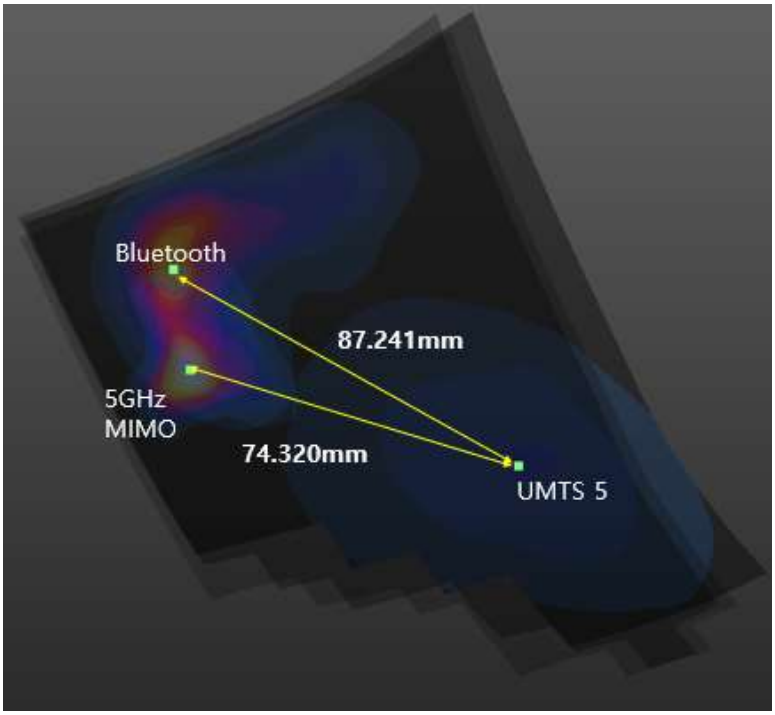
Head Postion	Mode				Sum 1g SAR [W/kg]	1+3 Peak SAR Separation Distance	1+4 Peak SAR Separation Distance	2+3 Peak SAR Separation Distance	2+4 Peak SAR Separation Distance	SPLSR (Min Distance)	Plot
	1	2	3	4	1+2+3+4	[mm]	[mm]	[mm]	[mm]	1+2+3+4	
Right Touch	NR n5	LTE 2	2.4GHz Ant.2 WLAN	BT	1.614	77.016	84.030	88.154	94.637	0.027	#4
	NR n5	LTE 66			1.608	77.016	84.030	86.984	93.215	0.026	#5
	NR n66	LTE 26(5)			1.640	79.629	87.591	77.628	85.629	0.027	#6
	NR n5	LTE 2	5GHz MIMO WLAN		1.787	70.087	84.030	81.190	94.637	0.034	#7
	NR n5	LTE 66			1.781	70.087	84.030	79.953	93.215	0.034	#8
	NR n66	LTE 26(5)			1.817	72.946	87.591	70.972	85.629	0.035	#9
	NR n66	LTE 12			1.746	72.946	87.591	72.003	87.328	0.032	#10

Sum SPLSR Plot

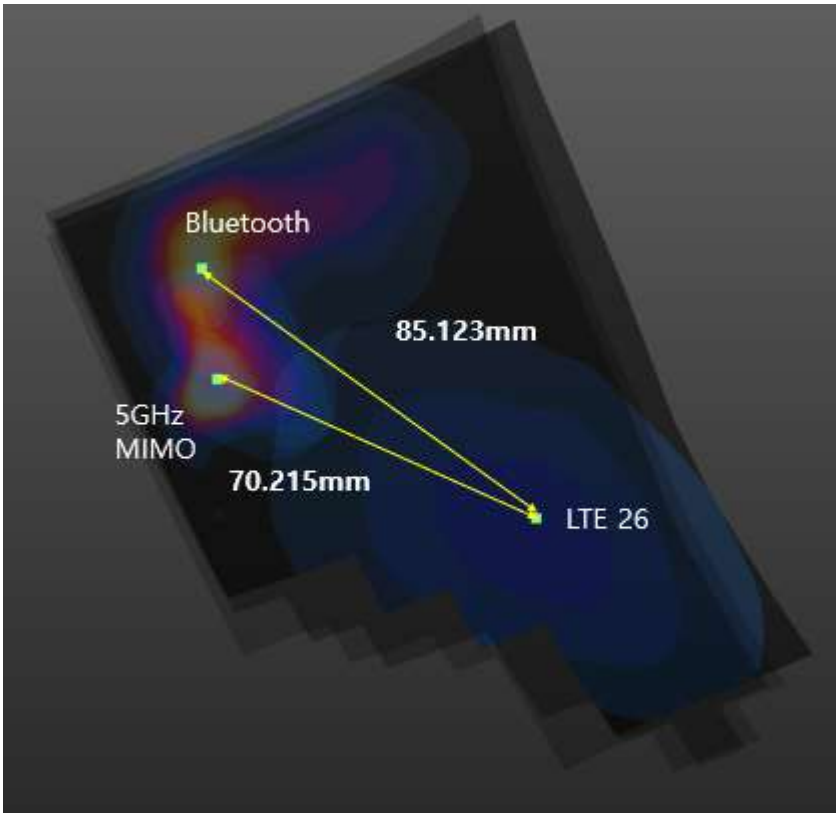
#1 GSM850 + 5GHz MIMO WLAN + BT



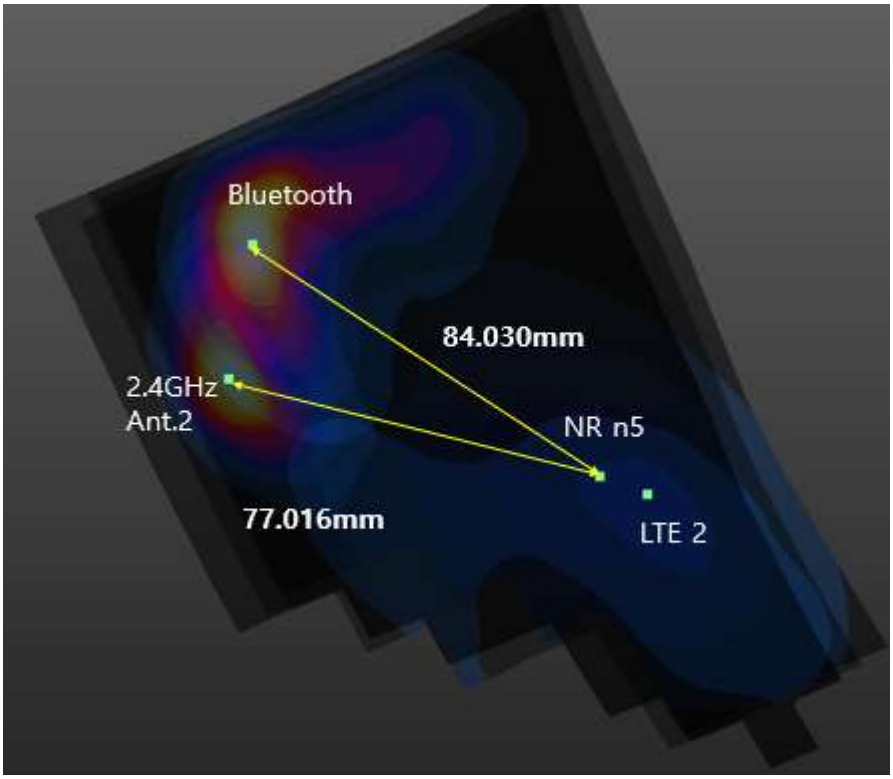
#2 UMTS 5+ 5GHz MIMO WLAN + BT



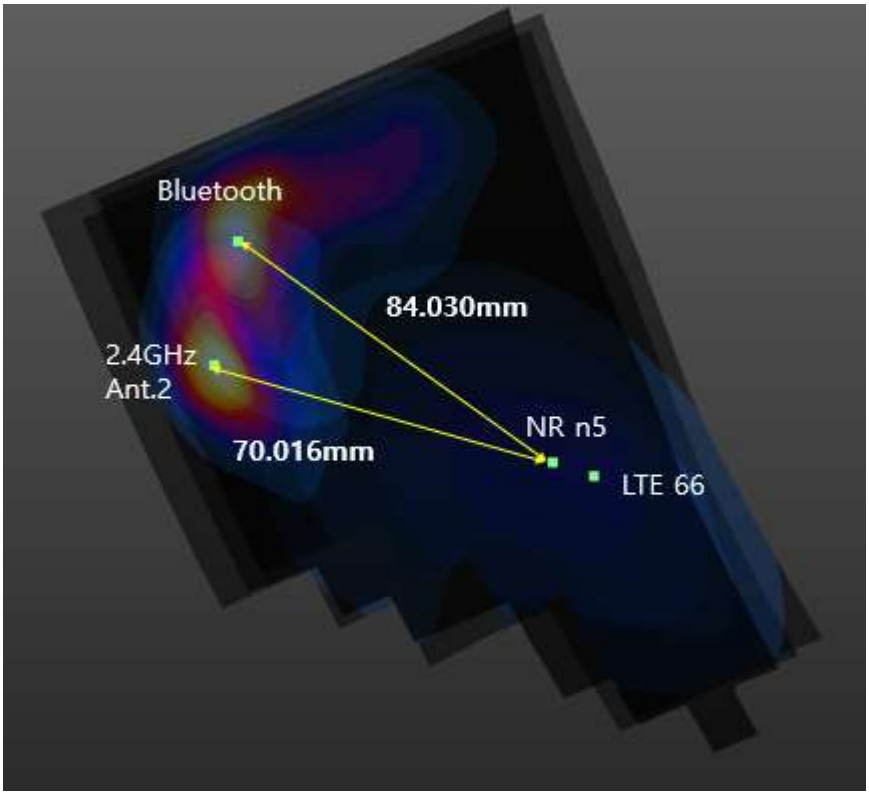
#3 LTE 26 + 5GHz MIMO WLAN + BT



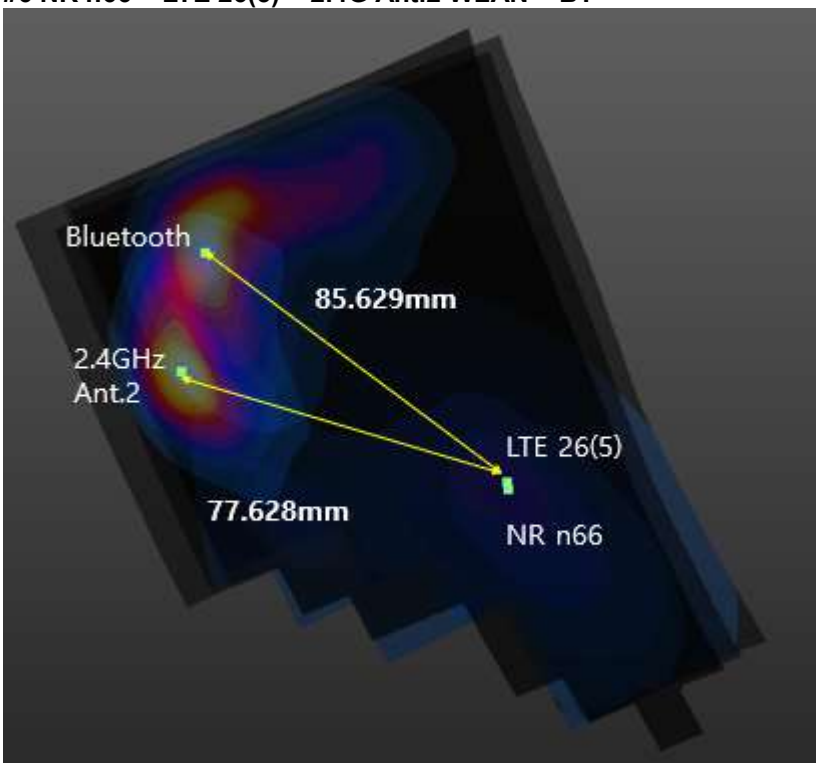
#4 NR n5 + LTE 2 + 2.4G Ant.2 WLAN+ BT



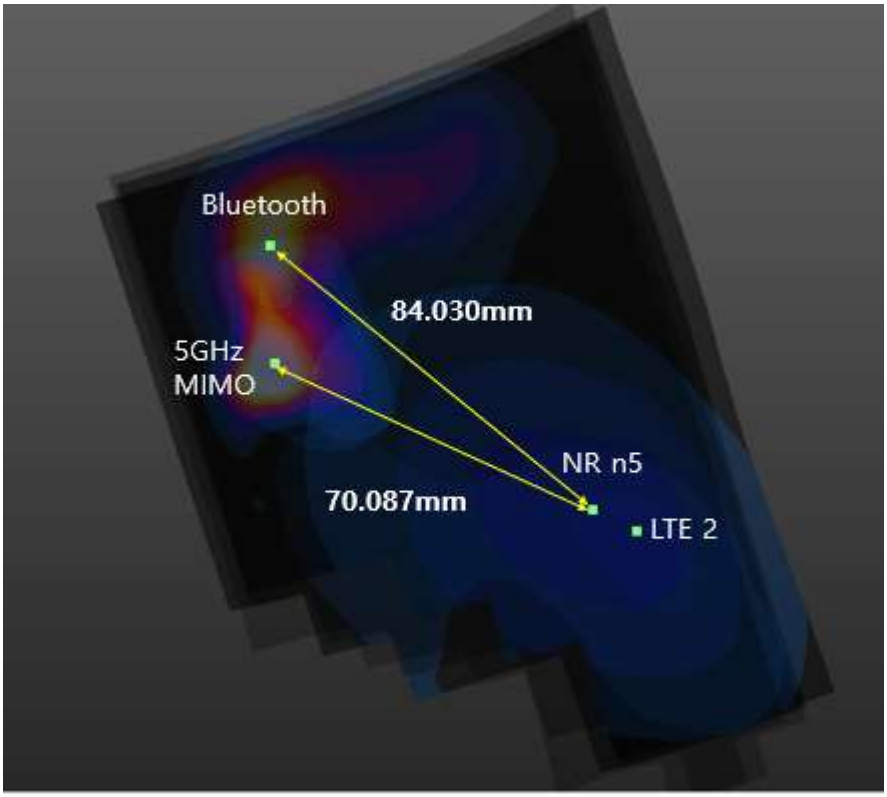
#5 NR n5 + LTE 66 + 2.4G Ant.2 WLAN + BT



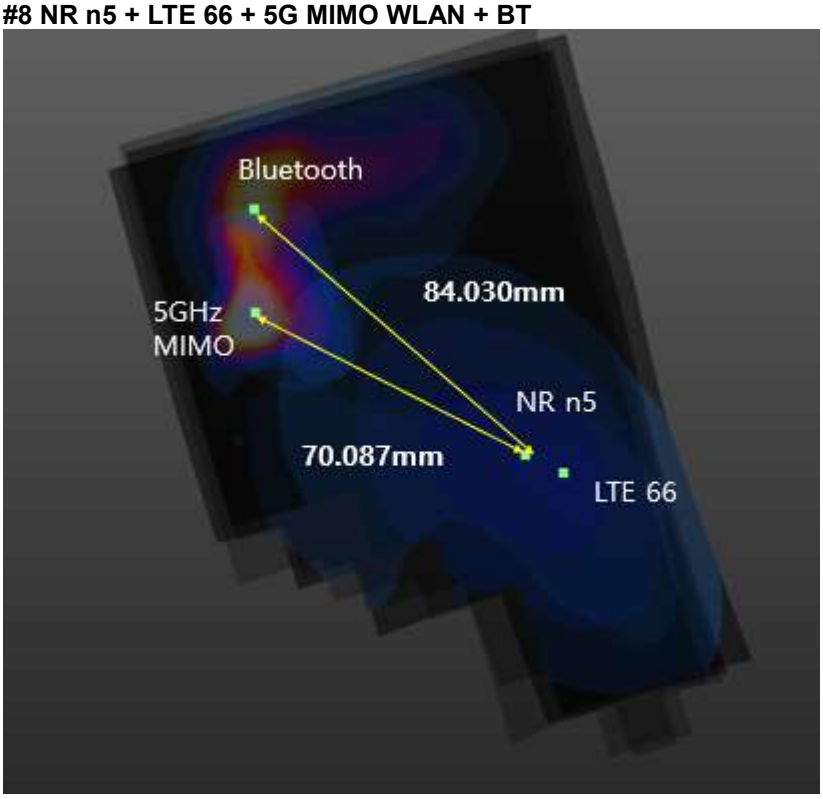
#6 NR n66 + LTE 26(5) + 2.4G Ant.2 WLAN + BT



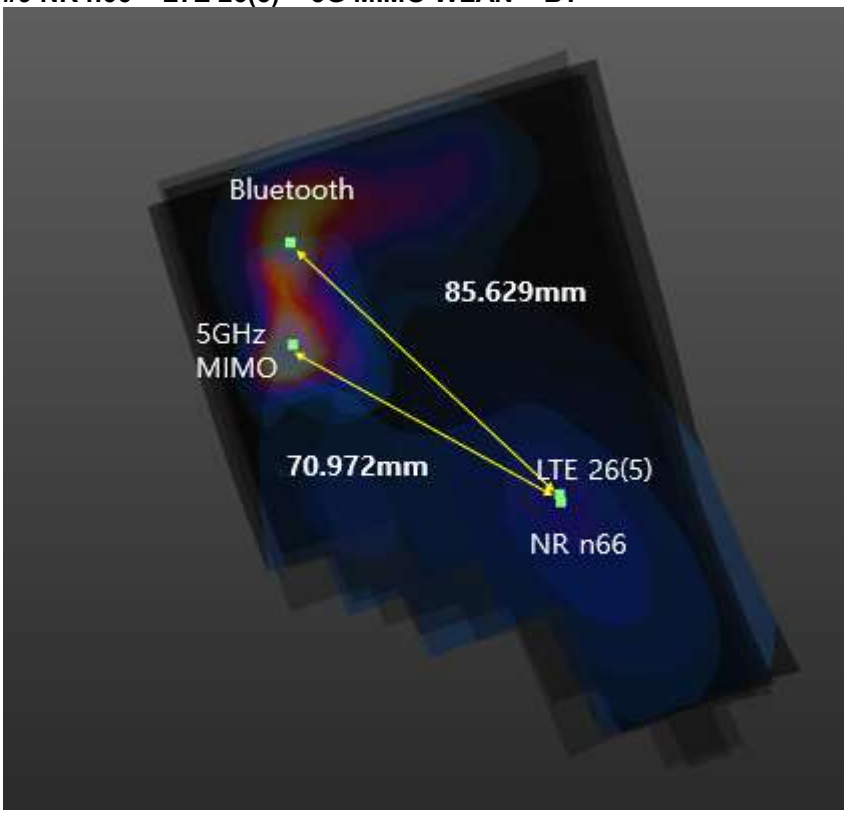
#7 NR n5 + LTE 2 + 5G MIMO WLAN + BT



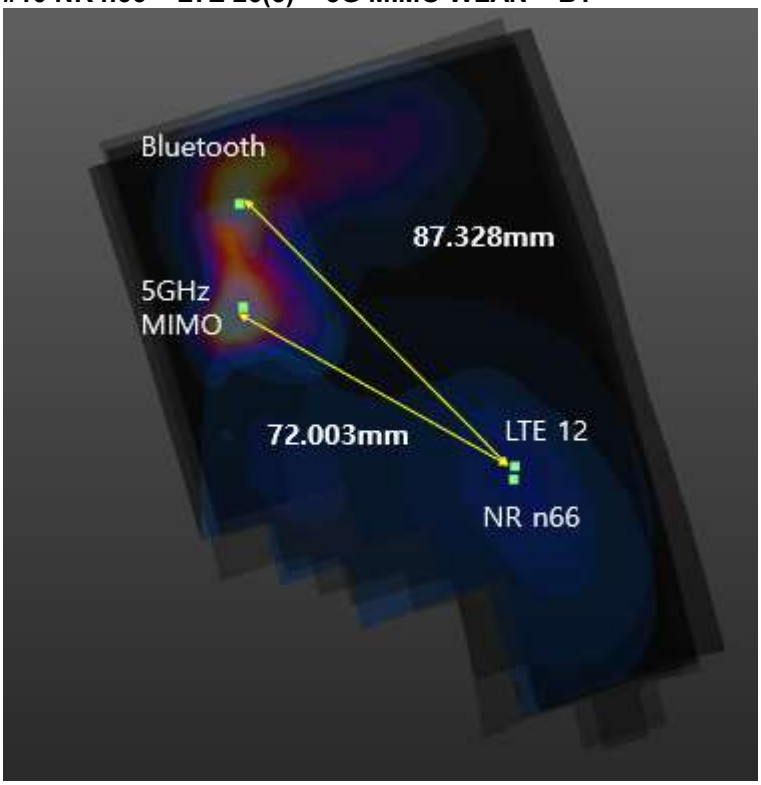
#8 NR n5 + LTE 66 + 5G MIMO WLAN + BT



#9 NR n66 + LTE 26(5) + 5G MIMO WLAN + BT



#10 NR n66 + LTE 26(5) + 5G MIMO WLAN + BT



14.6 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 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.

SAR measurement variability Results

Frequency		Mode/Band	Configuration	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Channel					
848.8	251	GSM850 GPRS 2Tx Hotspot	Rear	0.877	0.818	1.07
836.6	4183	UMTS Band 5 Hotspot	Rear	0.846	0.837	1.01
1 712.4	1312	UMTS Band 4 Hotspot	Bottom	0.934	0.979	0.95
1 907.6	9538	UMTS Band 2 Hotspot	Bottom	0.954	0.953	1.00
1 900	19100	LTE Band 2 Hotspot	Bottom	0.921	0.916	1.01

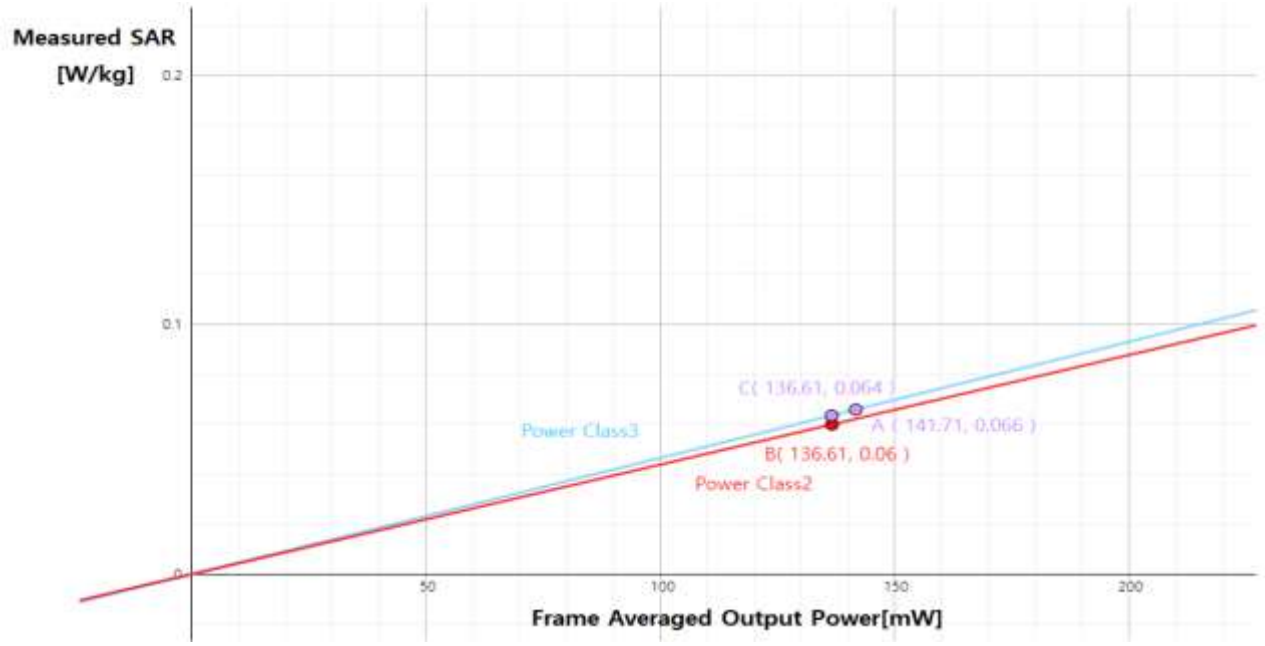
16. LTE Band 41 Power Class 2 and Power class 3 Linearity

This Device Supports Power Class 2 and Power Class 3 operations for LTE band 41. The Highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL Configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power class 3. SAR with power class 2 at the highest power and available duty factor was additionally performed for the power class 2 configuration with the Highest SAR for each exposure condition.

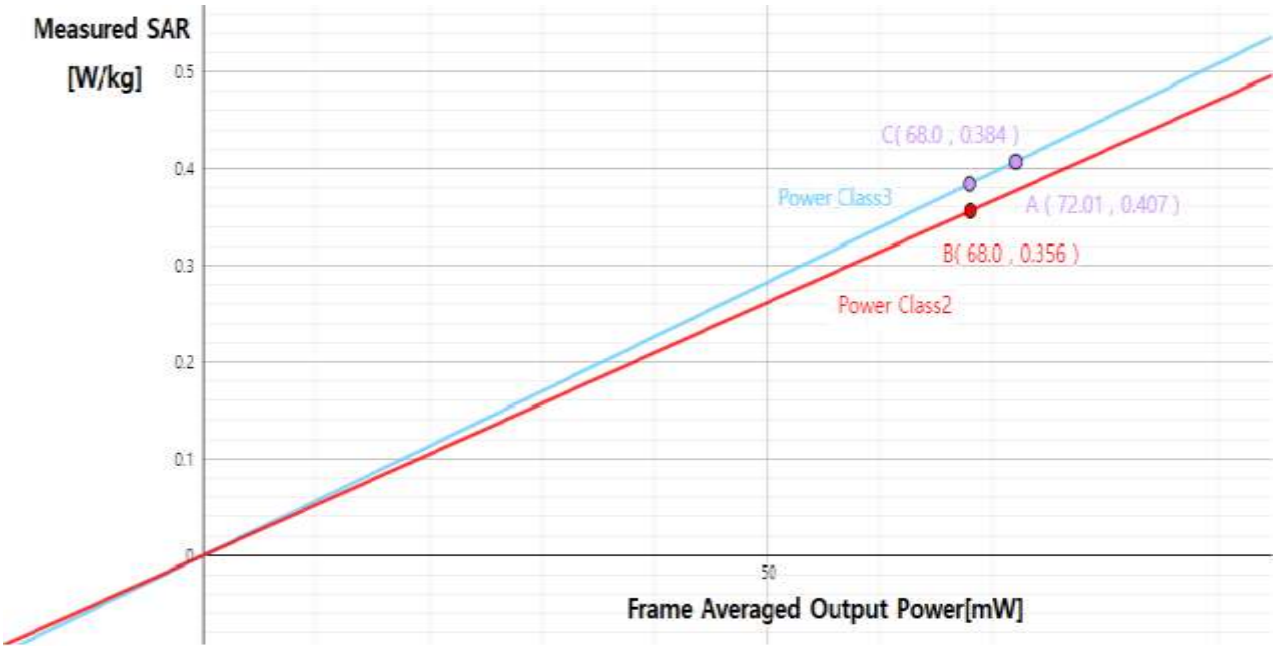
The linearity between the power class 3and Power class 2 SAR Results and the respective frame averaged powers was calculated to determine the results were linear.

Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes as less than 10 % and all reported SAR values were < 1.4 W/kg

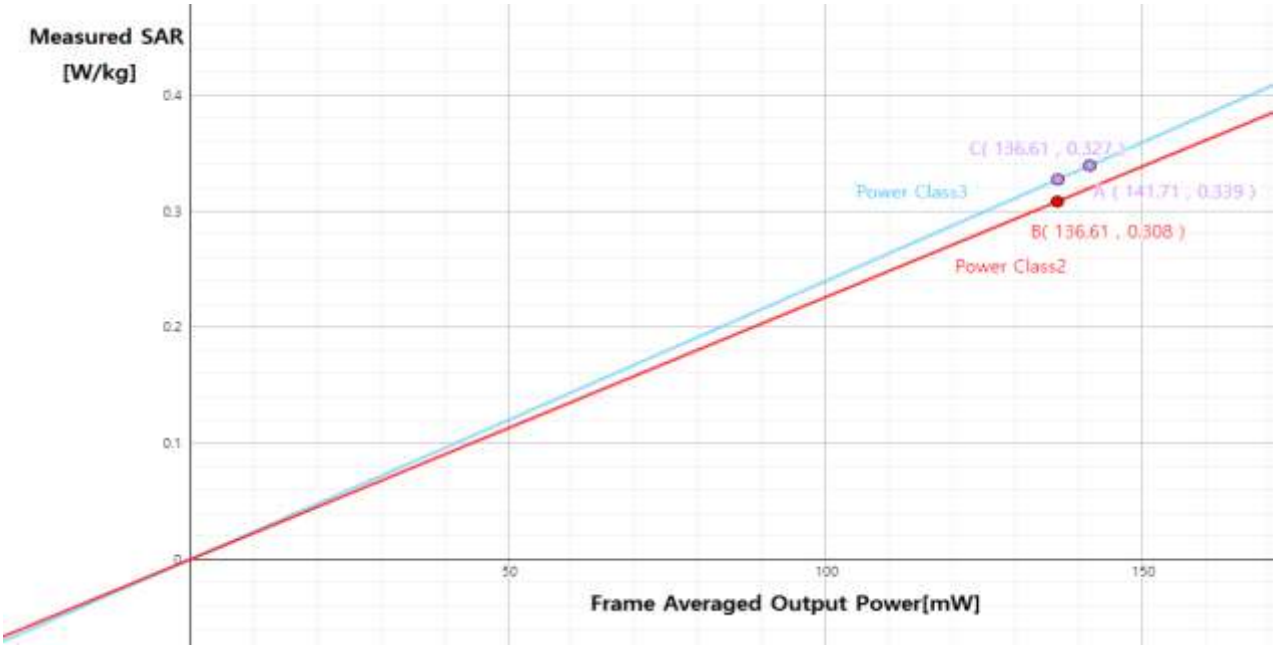
LTE Band 41 Head Left Cheek Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	24.5	26
Measured Output Power[dBm]	23.5	24.99
Measured SAR[W/kg]	0.066	0.06
Measured Power[mW]	223.87	315.5
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	141.71	136.61
% deviation from expected linearity		-5.70



LTE Band 41 Hotspot Bottom Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	21	23
Measured Output Power[dBm]	20.56	21.96
Measured SAR[W/kg]	0.407	0.356
Measured Power[mW]	113.76	157.04
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	72.01	68
% deviation from expected linearity		-7.37



LTE Band 41 Body-Worn Rear Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	24.5	26
Measured Output Power[dBm]	23.5	24.99
Measured SAR[W/kg]	0.339	0.308
Measured Power[mW]	223.87	315.5
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	141.71	136.61
% deviation from expected linearity		-5.75



17. Antenna Impedance Tuner Testing

Per April 2019 TCB Workshop Notes, the following test procedures were followed to demonstrate that the SAR results in Section 11 represented the appropriate SAR test conditions. For bands with dynamic tuning implemented, SAR was measured according to the required FCC SAR test procedures with the dynamic tuner active to allow the device to automatically tune to the antenna state for the respective RF exposure test configurations. Per FCC Guidance, during NR testing the device was configured with the tuner state selected by the device in LTE mode with auto-tune active at the same frequency. Additional single point SAR time-sweep measurements were evaluated for other tuner states to determine that the other tuner configurations would result in equivalent or lower SAR values. The additional tuner hardware has no influence on the antenna characteristics, other than impedance matching.
To evaluate all the tuner states, the 60 tuner states were divided among the aggregate band, mode and exposure combinations. Single point time-sweep measurements were performed at the peak SAR location determined by the zoom scan of the configuration with the highest reported SAR for each combination. The tuner state was able to be established remotely so that the device was not moved for the entire series of single point SAR for the tuner states in each combination. The SAR probe remained stationary at the same position throughout the entire series of single point measurements for each combination. When the single point SAR or 1g SAR was > 1.2 W/kg for a particular band/mode/exposure condition, point SAR measurements were made for all 60 states.
The operational description contains more information about the design and implementation of the dynamic antenna tuning.

17.1 Head SAR Configuration

UMTS B5		UMTS B4	
RMC		RMC	
Test Position	Right Cheek	Test Position	Left Cheek
Frequency (MHz)	836.6	Frequency (MHz)	1 732.4
Channel	4183	Channel	1412
Measured 1g SAR (W/kg)	0.206	Measured 1g SAR (W/kg)	0.168
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 13)	0.241	Auto-tune (State 24)	0.197
Default (State 0)	0.232	Default (State 0)	0.109
State 2	0.179	State 1	0.080
State 9	0.11	State 18	0.084
State 17	0.198	State 21	0.095
State 19	0.145	State 25	0.101
State 44	0.084	State 32	0.071
State 53	0.204	State 40	0.050
State 67	0.179	State 47	0.045
State 73	0.048	State 63	0.091
State 97	0.097	State 74	0.074
State 83	0.102	State 82	0.075
State 103	0.231	State 98	0.091
State 118	0.201	State 111	0.078

UMTS B2		LTE B12/17		LTE B5/26		LTE B66/4	
RMC		QPSK, 10 MHz, 1 RB, 49 Offset		QPSK, 15 MHz Bandwidth, 1 RB, 74 Offset		QPSK, 20 MHz, 1 RB, 49 Offset	
Test Position	Left Cheek	Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Left Cheek
Frequency (MHz)	1880	Frequency (MHz)	707.5	Frequency (MHz)	831.5	Frequency (MHz)	1745
Channel	9400	Channel	23095	Channel	26865	Channel	132322
Measured 1g SAR(W/kg)	0.169	Measured 1g SAR(W/kg)	0.140	Measured 1g SAR(W/kg)	0.185	Measured 1g SAR(W/kg)	0.139
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 53)	0.200	Auto-tune (State 16)	0.157	Auto-tune (State 92)	0.219	Auto-tune (State 24)	0.161
Default (State 0)	0.121	Default (State 0)	0.102	Default (State 0)	0.215	Default (State 0)	0.101
State 22	0.069	State 5	0.122	State 19	0.132	State 3	0.087
State 25	0.112	State 26	0.043	State 28	0.167	State 7	0.081
State 41	0.049	State 35	0.011	State 30	0.130	State 16	0.090
State 48	0.021	State 37	0.041	State 38	0.195	State 22	0.100
State 69	0.054	State 41	0.107	State 45	0.062	State 29	0.054
State 76	0.08	State 54	0.044	State 57	0.091	State 34	0.073
State 87	0.047	Sate 56	0.079	State 62	0.031	State 37	0.056
State 95	0.091	State 77	0	State 79	0.188	State 49	0.041
State 110	0.095	State 84	0.059	State 82	0.148	State 58	0.054
State 114	0.056	State 101	0	State 94	0.197	State 85	0.053
State 115	0.111	State 118	0.032	State 112	0.208	State 109	0.080

LTE B2		NR Band n5		NR Band n66	
QPSK, 20 MHz, 1 RB, 99 Offset		DFT-s-OFDM QPSK, 20 MHz, 50 RB, 28 offset		DFT-s-OFDM QPSK, 20 MHz, 1RB, 1 offset	
Test Position	Right Cheek	Test Position	Right Cheek	Test Position	Left Cheek
Frequency (MHz)	1860	Frequency (MHz)	836.5	Frequency (MHz)	1720
Channel	18700	Channel	167300	Channel	344000
Measured 1g SAR(W/kg)	0.139	Measured 1g SAR(W/kg)	0.190	Measured 1g SAR(W/kg)	0.182
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 113)	0.167	Auto-tune (State 92)	0.221	Auto-tune (State 24)	0.210
Default (State 0)	0.156	Default (State 0)	0.186	Default (State 0)	0.169
State 4	0.150	State 6	0.092	State 8	0.112
State 11	0.117	State 10	0.041	State 12	0.045
State 31	0.070	State 36	0.118	State 27	0.168
State 50	0.098	State 59	0.046	State 39	0.112
State 51	0.063	State 61	0.021	State 46	0.064
State 60	0.062	State 65	0.167	State 55	0.157
State 71	0.102	State 81	0.146	State 64	0.119
State 89	0.101	State 90	0.167	State 68	0.116
State 100	0.055	State 95	0.181	State 74	0.071
State 102	0.008	State 104	0.203	State 78	0.155
State 107	0.063	State 105	0.182	State 88	0.057
State 117	0.059	State 106	0.171	State 91	0.142

17.2 Hotspot SAR Configuration

LTE B2		LTE B66/4		UMTS B5	
QPSK, 20MHzBandwidth, 50RB, 25 offset		QPSK, 20 MHz Bandwidth, 50 RB, 25 offset		RMC	
TestPosition	Bottom	Test Position	Bottom	Test Position	Rear Side
Spacing	10mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	1900	Frequency (MHz)	1770	Frequency (MHz)	836.6
Channel	19100	Channel	132572	Channel	4183
Measured1g SAR (W/kg)	0.921	Measured1g SAR (W/kg)	0.726	Measured1g SAR (W/kg)	0.846
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State4)	1.15	Auto-tune (State 13)	0.900	Auto-tune (State 111)	1.18
Default (State0)	0.892	Default (State 0)	0.831	Default (State 0)	0.886
State0	0.693	State 7	0.502	State 3	0.945
State1	0.664	State 19	0.866	State 14	0.868
State10	0.377	State 37	0.358	State 23	0.516
State 32	0.731	State 69	0.393	State 39	0.405
State 38	0.380	State 70	0.407	State 48	0.070
State 49	0.133	State 75	0.410	State 61	0.053
State 54	0.793	State 86	0.454	State 71	0.232
State 75	0.179	State 90	0.102	State 80	0.741
State 91	0.634	State 92	0.468	State 81	0.462
State 104	0.321	State 106	0.297	State 93	0.546
State 105	0.781	State 108	0.340	State 107	0.443

LTE B12/B17		LTE B5/B26		NR Band n5	
QPSK, 10 MHz Bandwidth, 1 RB, 49 RB		QPSK, 15 MHz Bandwidth, 1 RB, 74 Offset		DFT-s-OFDM QPSK, 20 MHz Bandwidth, 1RB 104 offset	
Test Position	Rear Side	Test Position	Rear Side	Test Position	Rear Side
Spacing	10 mm	Spacing	10 mm	Spacing	10 mm
Frequency (MHz)	707.5	Frequency (MHz)	831.5	Frequency (MHz)	836.5
Channel	23095	Channel	26865	Channel	167300
Measured 1g SAR (W/kg)	0.282	Measured 1g SAR (W/kg)	0.509	Measured 1g SAR (W/kg)	0.638
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 16)	0.427	Auto-tune (State111)	0.739	Auto-tune (State 111)	0.938
Default (State 0)	0.378	Default (State 0)	0.671	Default (State 0)	0.759
State 5	0.313	State 18	0.369	State 4	0.344
State 13	0.304	State 26	0.443	State 15	0.454
State 30	0.122	State 36	0.054	State 25	0.113
State 47	0.174	State 44	0.173	State 40	0.329
State 53	0.111	State 57	0.087	State 46	0.212
State 59	0.072	State 60	0.059	State 50	0.088
State 68	0.098	State 69	0.293	State 62	0.096
State 94	0.156	State 89	0.120	State 72	0.139
State 95	0.200	State 97	0.791	State 82	0.369
State 109	0.094	State 112	0.603	State 98	0.561
State 110	0.050	State 118	0.587	State 113	0.821

NR Band n66		UMTSB4	
DFT-s-OFDM QPSK, 20 MHz Bandwidth, 1RB 1 offset		RMC	
Test Position	Bottom	Test Position	Bottom
Spacing	10mm	Spacing	10mm
Frequency (MHz)	1720	Frequency (MHz)	1712.4
Channel	344000	Channel	1312
Measured 1g SAR (W/kg)	0.714	Measured 1g SAR (W/kg)	0.934
Average Value of Time Sweep (W/kg)		Average Value of Time Sweep (W/kg)	
Auto-tune (State 13)	0.854	Auto-tune (State21)	1.17
Default (State0)	0.823	Default (State0)	0.981
State6	0.829	State8	0.750
State16	0.893	State17	0.722
State27	0.048	State22	0.952
State35	0.421	State29	0.572
State41	0.585	State42	0.479
State51	0.717	State52	0.477
State64	0.321	State65	0.089
State74	0.570	State76	0.541
State83	0.818	State84	0.694
State99	0.521	State101	0.964
State114	0.615	State115	0.441

UMTS B2	
RMC	
TestPosition	Bottom
Spacing	10 mm
Frequency (MHz)	1852.4
Channel	9262
Measured 1g SAR (W/kg)	0.985
Average Value of Time Sweep (W/kg)	
Auto-tune(State 4)	1.24
Default(State0)	1.01
State1	0.997
State2	0.941
State3	0.977
State4	1.24
State5	0.960
State6	1.215
State7	1.174

State8	0.902
State9	0.957
State10	0.733
State11	0.614
State12	0.547
State13	0.767
State14	1.095
State15	1.163
State16	1.054
State17	1.225
State18	1.129
State19	1.211
State20	0.951
State21	0.837
State22	1.004
State23	0.800
State24	0.568
State25	0.685
State26	0.320
State27	1.065
State28	1.195
State29	1.185
State30	1.145
State31	1.155
State32	1.124
State33	1.142
State34	1.114
State35	0.892
State36	0.988
State37	0.560
State38	0.836
State39	0.936
State40	0.486

State41	0.399
State42	0.319
State43	0.216
State44	0.496
State45	0.538
State46	0.489
State47	0.421
State48	0.219
State49	0.520
State50	0.519
State51	0.577
State52	1.205
State53	1.215
State54	1.185
State55	1.125
State56	1.055
State57	1.165
State58	1.135
State59	1.030
State60	1.155
State61	1.070
State62	0.918
State63	0.751
State64	0.836
State65	0.749
State66	0.731
State67	0.582
State68	0.748
State69	0.708
State70	0.684
State71	0.399
State72	0.517
State73	0.481
State74	0.406

State75	0.486
State76	0.676
State77	0.380
State78	0.975
State79	1.008
State80	0.852
State81	1.205
State82	1.120
State83	0.819
State84	0.946
State85	0.860
State86	0.470
State87	0.676
State88	0.554
State89	0.440
State90	0.373
State91	1.009
State92	0.949
State93	1.003
State94	1.057
State95	1.074
State96	1.060
State97	0.984
State98	1.071
State99	1.031
State100	0.942
State101	0.465
State102	0.537
State103	0.471
State104	1.122
State105	1.015
State106	1.155
State107	0.649
State108	1.235

State109	0.991
State110	0.990
State111	1.124
State112	1.030
State113	1.094
State114	1.225
State115	0.965
State116	1.05
State117	0.905
State118	0.817
State119	0.634

18. 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.

19. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F08/5AJ0A1/C/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX60	F/20/0018446/C/001	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F07/55B8A1/A/01	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F13/5SD0A1/C/01	N/A	N/A	N/A
Staubli	TX90 XLspeag	F08/5AJ0A1/A/01	N/A	N/A	N/A
Staubli	TX60 Lspeag	F/20/0018446/A/001	N/A	N/A	N/A
Staubli	TX90 XLspeag	F07/55B8A1/C/01	N/A	N/A	N/A
Staubli	TX90 Xlspeag	F13/5SD0A1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick) D21143300	S-0008	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick) D21142608A	020885	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)D21139902	S-0306	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)D21142605	001729	N/A	N/A	N/A
TESTO	175-H1/Thermometer	40331949309	01/04/2022	Annual	01/04/2023
TESTO	175-H1/Thermometer	44606559906	04/15/2022	Annual	04/15/2023
TESTO	608-H1/Thermometer	83348021	04/29/2022	Annual	04/29/2023
TESTO	608-H1/Thermometer	83348029	04/29/2022	Annual	04/29/2023
SPEAG	DAE4	1687	06/21/2021	Annual	06/21/2022
SPEAG	DAE4	868	09/27/2021	Annual	09/27/2022
SPEAG	DAE4	648	04/29/2022	Annual	04/29/2023
SPEAG	DAE4	466	05/02/2022	Annual	05/02/2023
SPEAG	DAE4	504	03/01/2022	Annual	03/01/2023
SPEAG	E-Field Probe ES3DV3	3076	07/28/2021	Annual	07/28/2022
SPEAG	E-Field Probe EX3DV4	7370	08/26/2021	Annual	08/26/2022
SPEAG	E-Field Probe EX3DV4	7680	09/10/2021	Annual	09/10/2022
SPEAG	E-Field Probe EX3DV4	7702	01/20/2022	Annual	01/20/2023
SPEAG	E-Field Probe EX3DV4	7679	09/10/2021	Annual	09/10/2022
SPEAG	Dipole D750V3	1014	06/01/2021	Annual	06/01/2022
SPEAG	Dipole D835V2	4d165	08/03/2021	Annual	08/03/2022
SPEAG	Dipole D1800V2	2d015	07/30/2021	Annual	07/30/2022
SPEAG	Dipole D1900V2	5d032	01/28/2022	Annual	01/28/2023
SPEAG	Dipole D2450V2	965	06/15/2021	Annual	06/15/2022
SPEAG	Dipole D2600V2	1106	07/30/2021	Annual	07/30/2022
SPEAG	Dipole D5GHzV2	1107	07/22/2021	Annual	07/22/2022
Agilent	Power Meter E4419B	MY40330223	10/06/2021	Annual	10/06/2022
Agilent	Power Sensor 8481A	SG1091286	10/06/2021	Annual	10/06/2022
Agilent	Power Sensor 8481A	MY41090675	10/06/2021	Annual	10/06/2022
SPEAG	DAKS 3.5	1038	03/28/2022	Annual	03/28/2023
H.P	Network Analyzer /8753ES	JP39240221	01/05/2022	Annual	01/05/2023
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	07/23/2021	Annual	07/23/2022
R&S	Wireless Communication Test Set CMW500	115733	04/14/2022	Annual	04/14/2023
Agilent	Signal Generator N5182A	MY47070230	04/28/2022	Annual	04/28/2023
Agilent	11636B/Power Divider	58698	02/24/2022	Annual	02/24/2023
OSI	Power Divider	#1	06/24/2021	Annual	06/24/2022
OSI	Power Divider	#2	06/24/2021	Annual	06/24/2022
OSI	Power Divider	#3	06/24/2021	Annual	06/24/2022
OSI	Power Divider	#4	06/24/2021	Annual	06/24/2022
EMPOWER	RF Power Amplifier	1084	06/25/2021	Annual	06/25/2022
EMPOWER	RF Power Amplifier	1011	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-15N	10453	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-30N	-	10/06/2021	Annual	10/06/2022
MICRO LAB	LP Filter / LA-60N	32011	10/06/2021	Annual	10/06/2022
HP	Attenuator (3dB) 333340A	02427	09/06/2021	Annual	09/06/2022
HP	Attenuator (20dB) 8493C	09271	09/06/2021	Annual	09/17/2022
Agilent	MXA Signal Analyzer N9020A	MY50510407	10/22/2021	Annual	10/22/2022

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
ROHDE&SCHWARZ	BLUETOOTH TESTER CBT	100272	02/08/2022	Annual	02/08/2023
Anritsu	Radio Communication Tester MT8000A	6261967108	05/04/2022	Annual	05/04/2023
Anritsu	Radio Communication Tester MT8820C	6201074225	02/24/2022	Annual	02/24/2023
Anritsu	Radio Communication Tester MT8821C	6201502997	07/08/2021	Annual	07/08/2022
Anritsu	Radio Communication Tester MT8821C	6262044720	12/20/2021	Annual	12/20/2022
Anritsu	Radio Communication Tester MT8821C	6201664725	02/11/2022	Annual	02/11/2023

* 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.

20. Conclusion

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

These measurements were taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.

Please note that the abortion and distribution of electromagnetic energy in the body are very complex phenomena the depend on the mass, shape, and size of the body, the orientation of the body with respect to the field vectors, and the electrical properties of both the body and the environment. Other variables that may play a substantial role in possible biological effects are those that characterize the environment (e.g. ambient temperature, air velocity, relative humidity, and body insulation) and those that characterize the individual (e.g. age, gender, activity level, debilitation, or disease). Because various factors may interact with one another to vary the specific biological outcome of an exposure to electromagnetic fields, any protection guide should consider maximal amplification of biological effects as a result of field-body interactions, environmental conditions, and physiological variables.

21. References

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Appendix *A.* DUT Ant. Information & SETUP PHOTO

Please refer to test DUT Ant. Information &setup photo file no. as follows:

Report No.
HCT-SR-2206-FC001-P