

TEST REPORT

FCC SAR Part 1 Test for SM-X528U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-2502-FC009

DATE OF ISSUE
February 12, 2025

Tested by
Byeong Chul Yoon



Technical Manager
Yun Jeang Heo



HCT CO., LTD.
BongJai Huh
BongJai Huh / CEO

**HCT Co., Ltd.**

2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 645 6300 Fax. +82 31 645 6401

TEST REPORT

Part 1 SAR Test for
certification

REPORT NO.
HCT-SR-2502-FC009

DATE OF ISSUE
Feb. 12, 2025

FCC ID
A3LSMX528U

Applicant SAMSUNG Electronics Co., Ltd
129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Korea

Product Name Tablet
Model Name SM-X528U

Date of Test Jan. 02, 2025~ Feb. 07, 2025

Location of Test ☒ Permanent Testing Lab ☐ On Site Testing Lab
(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do, 17383 KOREA)

FCC Rule Part(s) CFR § 2.1093

Test Results PASS (SAR Limit : 1.6 W/kg)
Refer to the clause 3.2 Attestation of test result

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	Feb. 12, 2025	Initial Release

Notice

Content

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. Test Regulations	5
2. Test Location	6
3. Information of the EUT	6
4. Device Under Test Description	8
5. Introduction	29
6. Description of test equipment	30
7. SAR Measurement Procedure	31
8. Description of Test Position	33
9. RF Exposure Limits	35
10. FCC SAR General Measurement Procedures	36
11. Output Power Specifications	44
12. System Verification	152
13. SAR Test Data Summary	158
14. Simultaneous SAR Analysis	187
15. SAR Measurement Variability and Uncertainty	205
16. LTE Band 41 Power Class 2 and Power class 3 Linearity	206
17. Measurement Uncertainty	209
18. SAR Test Equipment	210
19. Conclusion	212
20. References	213
Appendix A. DUT Ant. Information & SETUP PHOTO	215
Appendix B. SAR Test Plots	
Appendix C. Dipole Verification Plots	
Appendix D. SAR Tissue Characterization	
Appendix E. SAR System Validation	
Appendix F. Probe Calibration Data	
Appendix G. Dipole Calibration Data	
Appendix H. Power reduction verification	
Appendix I. Pmax Conducted Power	
Appendix J. LTE bands Plimit Conducted Power	
Appendix K. NR Bands Plimit Conducted Power	

1. Test Regulations

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

- FCC KDB Publication 941225 D01 3G SAR Procedures v03r01
- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 941225 D05 SAR for LTE Devices v02r05
- FCC KDB Publication 941225 D05A LTE Rel.10 KDB Inquiry sheet v01r02
- FCC KDB Publication 248227 D01 802.11 Wi-Fi SAR v02r02
- FCC KDB Publication 447498 D01 General RF Exposure Guidance v06
- 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 2014 TCB Workshop Notes (Overlapping LTE Bands)
- April 2015 TCB Workshop Notes (Overlapping LTE Bands Test exclusion)
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- October 2016 TCB Workshop Notes (Bluetooth Duty Factor)
- May 2017 TCB Workshop Notes (LTE Band 41 Power Class 2)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE UL CA, DL CA SAR Test Exclusion)
- April 2019 TCBC Workshop Notes (IEEE 802.11ax)
- April 2022 TCBC Workshop Notes (Sum-Peak Location Separation Ratio)
- October 2024 TCB Workshop Notes (CA-DL Test Reductions)

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-X528U
Equipment Type	Tablet
FCC ID	A3LSMX528U
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 Body SAR
UMTS Band 5	826.4 MHz ~ 846.6 MHz	PCB	0.59
UMTS Band 4	1 712.4 MHz ~ 1 752.6 MHz	PCB	0.68
UMTS Band 2	1 852.4 MHz ~ 1 907.6 MHz	PCB	0.67
LTE FDD Band 2 (PCS)	1 850.7 MHz ~ 1 909.3 MHz	PCB	N/A
LTE FDD Band 4 (AWS)	1 710.7 MHz ~ 1 754.3 MHz	PCB	N/A
LTE FDD Band 5 (Cell)	824.7 MHz ~ 848.3 MHz	PCB	N/A
LTE FDD Band 7	2 502.5 MHz ~ 2 567.5 MHz	PCB	0.66
LTE FDD Band 12	699.7 MHz ~ 715.3 MHz	PCB	0.54
LTE FDD Band 13	779.5 MHz ~ 784.5 MHz	PCB	0.85
LTE FDD Band 14	790.5 MHz ~ 795.5 MHz	PCB	0.80
LTE FDD Band 25 (PCS)	1 850.7 MHz ~ 1 914.3 MHz	PCB	0.61
LTE FDD Band 26 (Cell)	814.7 MHz ~ 848.3 MHz	PCB	0.73
LTE FDD Band 30	2 307.5 MHz ~ 2 312.5 MHz	PCB	0.74
LTE TDD Band 38	2 572.5 MHz ~ 2 617.5 MHz	PCB	N/A
LTE TDD Band 41	2 498.5 MHz ~ 2 687.5 MHz	PCB	0.65
LTE TDD Band 48	3 552.5 MHz ~ 3 697.5 MHz	CBE	0.33
LTE FDD Band 66 (AWS)	1 710.7 MHz ~ 1 779.3 MHz	PCB	0.66
LTE FDD Band 71	665.5 MHz ~ 695.5 MHz	PCB	0.69
NR FDD Band n2 (PCS)	1 852.5 MHz ~ 1 907.5 MHz	PCB	N/A
NR FDD Band n5	826.5 MHz ~ 846.5 MHz	PCB	0.61
NR FDD Band n25 (PCS)	1 852.5 MHz ~ 1 912.5 MHz	PCB	0.58
NR FDD Band n30	2 307.5 MHz ~ 2 312.5 MHz	PCB	0.46
NR TDD Band n41	2 506.02 MHz ~ 2 679.99 MHz	PCB	0.76
NR TDD Band n48	3 555 MHz ~ 3 695.01 MHz	CBE	1.12
NR FDD Band n66	1 712.5 MHz ~ 1 777.5 MHz	PCB	0.61
NR FDD Band n70	1 697.5 MHz ~ 1 707.5 MHz	PCB	0.72
NR FDD Band n71	665.5 MHz ~ 695.5 MHz	PCB	0.64
NR TDD Band n77	3 445.01 MHz ~ 3 544.98 MHz 3 705 MHz ~ 3 975 MHz	PCB	1.19
NR TDD Band n78	3 445.01 MHz ~ 3 544.98 MHz 3 705 MHz ~ 3 975 MHz	PCB	N/A
2.4 GHz WLAN	2 412 MHz ~ 2 462 MHz	DTS	0.71
U-NII-1	5 180 MHz ~ 5 240 MHz	NII	N/A
U-NII-2A	5 260 MHz ~ 5 320 MHz	NII	0.41
U-NII-2C	5 500 MHz ~ 5 720 MHz	NII	0.85
U-NII-3	5 745 MHz ~ 5 825 MHz	NII	0.65
U-NII-4	5 845 MHz ~ 5 885 MHz	NII	0.82
Bluetooth	2 402 MHz ~ 2 480 MHz	DSS	0.37
Simultaneous SAR per KDB 690783 D01v01r03			1.54
Date(s) of Tests:	Jan. 02, 2025 ~ Feb. 07, 2025		

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	Operating Mode	Tx Frequency
UMTS Band 2	Data	1 852.4 MHz ~ 1 907.6 MHz
UMTS Band 4	Data	1 712.4 MHz ~ 1 752.6 MHz
UMTS Band 5	Data	826.4 MHz ~ 846.6 MHz
LTE FDD Band 2 (PCS)	Data	1 850.7 MHz ~ 1 909.3 MHz
LTE FDD Band 4 (AWS)	Data	1 710.7 MHz ~ 1 754.3 MHz
LTE FDD Band 5 (Cell)	Data	824.7 MHz ~ 848.3 MHz
LTE FDD Band 7	Data	2 502.5 MHz ~ 2 567.5 MHz
LTE FDD Band 12	Data	699.7 MHz ~ 715.3 MHz
LTE FDD Band 13	Data	779.5 MHz ~ 784.5 MHz
LTE FDD Band 14	Data	790.5 MHz ~ 795.5 MHz
LTE FDD Band 25	Data	1 850.7 MHz ~ 1 914.3 MHz
LTE FDD Band 26	Data	814.7 MHz ~ 848.3 MHz
LTE FDD Band 30	Data	2 307.5 MHz ~ 2 312.5 MHz
LTE TDD Band 38	Data	2 572.5 MHz ~ 2 617.5 MHz
LTE TDD Band 41	Data	2 498.5 MHz ~ 2 687.5 MHz
LTE TDD Band 48	Data	3 552.5 MHz ~ 3 697.5 MHz
LTE FDD Band 66 (AWS)	Data	1 710.7 MHz ~ 1 779.3 MHz
LTE FDD Band 71	Data	665.5 MHz ~ 695.5 MHz
NR FDD Band n2 (PCS)	Data	1 852.5 MHz ~ 1 907.5 MHz
NR FDD Band n5	Data	826.5 MHz ~ 846.5 MHz
NR FDD Band n25	Data	1 852.5 MHz ~ 1 912.5 MHz
NR FDD Band n30	Data	2 307.5 MHz ~ 2 312.5 MHz
NR TDD Band n41	Data	2 501.01 MHz ~ 2 685 MHz
NR TDD Band n48	Data	3 555 MHz ~ 3 695.01 MHz
NR FDD Band n66	Data	1 712.5 MHz ~ 1 777.5 MHz
NR FDD Band n70	Data	1 697.5 MHz ~ 1 707.5 MHz
NR FDD Band n71	Data	665.5 MHz ~ 695.5 MHz
NR TDD Band n77	Data	3 705 MHz ~ 3 975 MHz
NR TDD Band n77 DoD	Data	3 445.01 MHz ~ 3 544.98 MHz
NR TDD Band n78	Data	3 705 MHz ~ 3 795 MHz
NR TDD Band n78 DoD	Data	3 455.01 MHz ~ 3 544.98 MHz
U-NII-1	Data	5 180 MHz ~ 5 240 MHz
U-NII-2A	Data	5 260 MHz ~ 5 320 MHz
U-NII-2C	Data	5 500 MHz ~ 5 720 MHz
U-NII-3	Data	5 745 MHz ~ 5 825 MHz
U-NII-4	Data	5 845 MHz ~ 5 885 MHz
2.4 GHz WLAN	Data	2 412 MHz ~ 2 462 MHz
Bluetooth / LE 5.3	Data	2 402 MHz ~ 2 480 MHz
S-Pen	Data	531.25 kHz, 562.5 kHz, 593.75 kHz

Device Description		
Battery	EB-BX526ABY (ATL, SDI)	
Cover	EF-DX720(Variant 1), EF-DX725(Variant 2)	
S Pen	EJ-PX510	
Device Serial Numbers	Mode	Serial Number
	UMTS Band 2,4,5 LTE Band 25, 66, 48 NR n5, n25, n66, n71	XLB0842M, XLB0844M
	LTE Band 7, 12, 13, 14, 26, 30, 71 NR Band n30, n41, n48, n48 SRS1/2/3 NR Band n70, n77, n77 SRS1/2/3	XLB0839M, XLB0841M
	WLAN 2.4G, WLAN 5G, BT	XLB0694M, XLB0688M
	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 Time-Averaging Algorithm for RF Exposure Compliance

This device is enabled with the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 3G/4G/5G NR WWAN is in compliance with FCC requirements except WLAN/BT.

This SAR Char. Report shows SAR characterization of WWAN radios for 3G/4G and 5G Sub-6 NR respectively. Characterization is achieved by determining Plimit for 3G/4G and 5G Sub-6 NR except WLAN/BT correspond to the exposure design targets after accounting for all device design related uncertainties, i.e. SAR_design_target (< FCC SAR limit) for sub-6 radio. The SAR characterization is denoted as SAR Char in this report. Sec.2.3 includes a nomenclature of the specific terms used in this report.

The compliance test under the static transmission scenario and simultaneous transmission analysis are reported in Part 1 report. The validation of the time-averaging algorithm and compliance under the dynamic (time- varying) transmission scenario for WWAN technologies are reported in Part 2 report.

This WWAN Mode of DUT is equipped with an S.LSI chipset to which the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm is applied.

This DUT is enabled with the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm for WWAN Mode in real time and to ensure at all times the time-averaged RF exposure is in compliance with the FCC requirement

FCC RF exposure limit is based on time averaged RF exposure. The SAR regulatory specification is defined over certain measurement duration allowing for time-averaging. The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm has been designed to meet the compliance limits over the required duration, while still allowing dynamic control of transmit power to satisfy the performance of the system.

This feature performs time averaging SAR algorithm in real time to control and manage transmitting power and ensure the time-averaged RF exposure is in compliance with FCC requirements all the time.

The Samsung S.LSI TAS algorithm allow the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit NV settings and maximum tune up output power Pmax configured for this DUT for various transmit conditions (Radio SAR index RSI for Body SAR of WWAN Mode)

Note that the device uncertainty for sub-6GHz WWAN is 1.0dB for this DUT.

The purpose of this report is to demonstrate that the DUT meets FCC SAR limits when transmitting in static transmission configurations at Plimit specified by manufacturer.

Measurement Condition: All conducted power and SAR measurements in this report were performed by Plimit in static Power condition.

Table. SAR Characterization

Plim values in green indicate Plimit < Pmax			Plim values in green indicate Plimit > Pmax						Maximum Tune-up Output Power (Frame Averaged Power)
Plimit corresponding to 1 W/kg (1g) SAR Design target									
SAR Exposure Position			Free RSI = 0	Grip (#1) RSI = 1	Grip (#2) RSI = 2	Grip (#3) RSI = 3	Grip (#4) RSI = 4	Grip (#5) RSI = 5	
Averaging volume			1g	1g	1g	1g	1g	1g	
seperation Distance			0,10,18,19 mm	0 mm	0 mm	0 mm	0 mm	0 mm	
Mode	Band	Antenna	Free	Grip	Grip	Grip	Grip	Grip	
UMTS	2	Main1	27.1	16.5	12.5	16.5	N/A	N/A	24.0
UMTS	4	Main1	27.1	20.0	13.0	20.0	N/A	N/A	24.0
UMTS	5	Main1	27.3	21.5	15.0	21.5	N/A	N/A	24.0
LTE FDD	7	Main1	26.8	21.5	9.0	21.5	N/A	N/A	24.0
LTE FDD	7	Sub1	26.2	N/A	N/A	N/A	N/A	11.0	23.0
LTE FDD	25 (2)	Main1	27.1	17.5	11.5	17.5	N/A	N/A	24.0
LTE FDD	25 (2)	Sub1	29.1	N/A	N/A	N/A	N/A	10.5	23.0
LTE FDD	66 (4)	Main1	27.5	21.0	11.5	21.0	N/A	N/A	24.0
LTE FDD	66 (4)	Sub1	31.5	N/A	N/A	N/A	N/A	10.5	24.0
LTE FDD	30	Main1	28.4	20.5	11.5	20.5	N/A	N/A	23.0
LTE FDD	30	Sub1	27.5	N/A	N/A	N/A	N/A	13.5	23.0
LTE FDD	12	Main1	27.7	N/A	14.0	N/A	N/A	N/A	24.0
LTE FDD	13	Main1	25.7	N/A	12.5	N/A	N/A	N/A	24.0
LTE FDD	14	Main1	26.0	N/A	13.0	N/A	N/A	N/A	24.0
LTE FDD	26 (5)	Main1	26.3	23.0	14.0	23.0	N/A	N/A	24.0
LTE TDD	41 PC3 (38)	Main1	25.3	N/A	10.0	N/A	N/A	N/A	22.0
LTE TDD	41 PC2	Main1	25.6	N/A	10.0	N/A	N/A	N/A	22.4
LTE TDD	48	Sub2	7.5	7.5	7.5	7.5	7.5	7.5	21.0
LTE FDD	71	Main1	30.5	N/A	15.5	N/A	N/A	N/A	24.0
NR FDD	n5	Main1	27.2	23.0	14.0	23.0	N/A	N/A	24.0
NR FDD	n25 (2)	Main1	27.5	17.5	11.5	17.5	N/A	N/A	24.0
NR FDD	n30	Main1	28.2	20.5	11.5	20.5	N/A	N/A	23.0
NR FDD	n66	Main1	27.1	21.0	11.5	21.0	N/A	N/A	24.0
NR TDD	n41 PC3	Main1	18.0	N/A	11.0	N/A	N/A	N/A	24.0
NR TDD	n41 PC2	Main1	18.0	N/A	11.0	N/A	N/A	N/A	26.5
NR TDD	n48 SRS0	Sub2	9.0	9.0	9.0	9.0	9.0	9.0	23.0
NR TDD	n48 SRS1	Sub4	9.0	N/A	N/A	2.5	N/A	N/A	14.0
NR TDD	n48 SRS2	Main2	18.0	N/A	N/A	N/A	10.5	N/A	23.0
NR TDD	n48 SRS3	Sub3	4.0	4.0	4.0	4.0	4.0	4.0	16.0
NR FDD	n70	Main1	26.5	18.5	12.5	18.5	N/A	N/A	24.0
NR FDD	n71	Main1	30.6	N/A	15.5	N/A	N/A	N/A	24.0
NR TDD	n77 (78) PC3 SRS0	Main2	18.0	N/A	N/A	N/A	8.5	N/A	24.0
NR TDD	n77 (78) PC3 SRS1	Sub3	5.0	5.0	5.0	5.0	5.0	5.0	18.0
NR TDD	n77 (78) PC3 SRS2	Sub2	12.0	12.0	12.0	12.0	12.0	12.0	24.0
NR TDD	n77 (78) PC3 SRS3	Sub4	10.5	N/A	N/A	1.5	N/A	N/A	16.0
NR TDD	n77 (78) PC2 SRS0	Main2	18.0	N/A	N/A	N/A	8.5	N/A	27.0
NR TDD	n77 (78) PC2 SRS1	Sub3	5.0	5.0	5.0	5.0	5.0	5.0	19.0
NR TDD	n77 (78) PC2 SRS2	Sub2	12.0	12.0	12.0	12.0	12.0	12.0	27.0
NR TDD	n77 (78) PC2 SRS3	Sub4	10.5	N/A	N/A	1.5	N/A	N/A	17.0
NR TDD	n77(78) PC3 DoD SRS0	Main2	18.0	N/A	N/A	N/A	8.5	N/A	24.0
NR TDD	n77(78) PC3 DoD SRS1	Sub3	5.0	5.0	5.0	5.0	5.0	5.0	18.0
NR TDD	n77(78) PC3 DoD SRS2	Sub2	12.0	12.0	12.0	12.0	12.0	12.0	24.0
NR TDD	n77(78) PC3 DoD SRS3	Sub4	10.5	N/A	N/A	1.5	N/A	N/A	16.0
NR TDD	n77(78) PC2 DoD SRS0	Main2	18.0	N/A	N/A	N/A	8.5	N/A	27.0
NR TDD	n77(78) PC2 DoD SRS1	Sub3	5.0	5.0	5.0	5.0	5.0	5.0	19.0
NR TDD	n77(78) PC2 DoD SRS2	Sub2	12.0	12.0	12.0	12.0	12.0	12.0	27.0
NR TDD	n77(78) PC2 DoD SRS3	Sub4	10.5	N/A	N/A	1.5	N/A	N/A	17.0

*Note all Plimit and maximum tune up output power Pmax levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (for e.g., LTE TDD, 5G NR TDD).

*The maximum time-averaged output power (dBm) for any 3G/4G/5G WWAN technology, band, and SAR Exposure condition=minimum of “Plimit” and “Maximum tune up output power: “Pmax” + 1dB device uncertainty.

The maximum time averaged output power means Plimit for each modes SAR values in this report were scaled to the maximum allowed output power to determine compliance per KDB Publication 447498 D01v06.

4.3 Power Reduction for SAR

In this model, the output Power of the DUT in WWAN mode is controlled by the application of The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm, with the output Power depending on the RSI of the predefined DUT.

This device uses an independent fixed level power reduction mechanism for WLAN operations when during activating in close proximity to the user's Body.
The reduced powers for the power reduction mechanisms were conformed via conducted power measurements at the RF Port.

4.4 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.

4.4.1 3G/4G/5G Nominal Output Power

A. UMTS Modes

			Modulated Average (dBm)						Pmax
RSI			0	1	2	3	4	5	
Band	ANT	3GPP Rel.	Grip Sensor Off (Free)	Grip Sensor #1	Grip Sensor #2	Grip Sensor #3	Grip Sensor #4	Grip Sensor #5	
5	Main 1	3GPP Rel 99	24	21.5	15	21.5	N/A	N/A	24
		HSDPA Cat. 5	23	20.5	14	20.5	N/A	N/A	
		HSUPA Cat. 6	22	19.5	13	19.5	N/A	N/A	
		DC-HSDPA Cat. 24	23	20.5	14	20.5	N/A	N/A	
4	Main 1	3GPP Rel 99	24	20	13	20	N/A	N/A	24
		HSDPA Cat. 5	23	19	12	19	N/A	N/A	
		HSUPA Cat. 6	22	18	11	18	N/A	N/A	
		DC-HSDPA Cat. 24	23	19	12	19	N/A	N/A	
2	Main 1	3GPP Rel 99	24	16.5	12.5	16.5	N/A	N/A	24
		HSDPA Cat. 5	23	15.5	11.5	15.5	N/A	N/A	
		HSUPA Cat. 6	22	14.5	10.5	14.5	N/A	N/A	
		DC-HSDPA Cat. 24	23	15.5	11.5	15.5	N/A	N/A	

Tolerance: -1.5 dB ~ +1.0 dB

B. LTE Modes

RSI		Modulated Average (in dBm)						Pmax
Band	ANT	0	1	2	3	4	5	
2	Main 1	Grip Sensor Off (Free)	Grip Sensor #1	Grip Sensor #2	Grip Sensor #3	Grip Sensor #4	Grip Sensor #5	24
2	Sub 1	24	17.5	11.5	17.5	N/A	N/A	24
2 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	10.5	23
4	Main 1	24	21	11.5	21	N/A	N/A	24
4 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	10.5	23
5	Main 1	24	23	14	23	N/A	N/A	24
7	Main 1	24	21.5	9	21.5	N/A	N/A	24
7 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	11	23
12	Main 1	24	N/A	14	N/A	N/A	N/A	24
13	Main 1	24	N/A	12.5	N/A	N/A	N/A	24
14	Main 1	24	N/A	13	N/A	N/A	N/A	24
25	Main 1	24	17.5	11.5	17.5	N/A	N/A	24
25 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	10.5	23
26	Main 1	24	23	14	23	N/A	N/A	24
30	Main 1	23	20.5	11.5	20.5	N/A	N/A	23
30 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	13.5	23
38	Main 1	24	N/A	12	N/A	N/A	N/A	24
41 (PC2)	Main 1	26	N/A	13.6	N/A	N/A	N/A	26
41 (PC2) ULCA	Main 1	26	N/A	13.6	N/A	N/A	N/A	26
41 (PC3)	Main 1	24	N/A	12	N/A	N/A	N/A	24
41 (PC3) ULCA	Main 1	23	N/A	12	N/A	N/A	N/A	23
48	Sub 2	9.5	9.5	9.5	9.5	9.5	9.5	23
48 ULCA	Sub 2	9.5	9.5	9.5	9.5	9.5	9.5	23
66	Main 1	24	21	11.5	21	N/A	N/A	24
66 ULCA	Main 1	24	21	11.5	21	N/A	N/A	24
66 FR1 ENDC combination	Sub1	24	N/A	N/A	N/A	N/A	10.5	24
71	Main 1	24	N/A	15.5	N/A	N/A	N/A	24

Tolerance: -1.5 dB ~ +1.0 dB

C. 5G NR SUB 6

		Modulated Average (in dBm)						
RSI		0	1	2	3	4	5	
Band	ANT	Grip Sensor Off (Free)	Grip Sensor #1	Grip Sensor #2	Grip Sensor #3	Grip Sensor #4	Grip Sensor #5	Pmax
n25 (n2)	Main 1	24	17.5	11.5	17.5	N/A	N/A	24
n5	Main 1	24	23	14	23	N/A	N/A	24
n30	Main 1	23	20.5	11.5	20.5	N/A	N/A	23
n41 (PC2)	Main 1	18 100%Duty	N/A	11 100% duty	N/A	N/A	N/A	26.5
n41 (PC3)	Main 1	18 100%Duty	N/A	11	N/A	N/A	N/A	24
n48	Sub 2	9 100%Duty	9 100%Duty	9 100%Duty	9 100%Duty	9 100%Duty	9 100%Duty	23
n48 SRS#1	Sub 4	9 100%Duty	N/A	N/A	2.5 100%Duty	N/A	N/A	14
n48 SRS#2	Main 2	18 100%Duty	N/A	N/A	N/A	10.5 100%Duty	N/A	23
n48 SRS#3	Sub 3	4 100%Duty	4 100%Duty	4 100%Duty	4 100%Duty	4 100%Duty	4 100%Duty	16
n66	Main 1	24	21	11.5	21	N/A	N/A	24
n70	Main 1	24	18.5	12.5	18.5	N/A	N/A	24
n71	Main 1	24	N/A	15.5	N/A	N/A	N/A	24

Tolerance: -1.5 dB ~ +1.0 dB

		Modulated Average (in dBm)						
RSI		0	1	2	3	4	5	
Band	ANT	Grip Sensor Off (Free)	Grip Sensor #1	Grip Sensor #2	Grip Sensor #3	Grip Sensor #4	Grip Sensor #5	Pmax
n77 (PC2)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	27
n77 (PC2) SRS#1	Sub 3	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	19
n77 (PC2) SRS#2	Sub 2	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	27
n77 (PC2) SRS#3	Sub 4	10.5 100%Duty	N/A	N/A	1.5 100%Duty	N/A	N/A	17
n77 (PC3)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	24
n77 (PC3) SRS#1	Sub 3	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	18
n77 (PC3) SRS#2	Sub 2	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	24
n77 (PC3) SRS#3	Sub 4	10.5 100%Duty	N/A	N/A	1.5 100%Duty	N/A	N/A	16
n78 (PC2)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	27
n78 (PC2) SRS#1	Sub 3	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	19
n78 (PC2) SRS#2	Sub 2	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	27
n78 (PC2) SRS#3	Sub 4	10.5 100%Duty	N/A	N/A	1.5 100%Duty	N/A	N/A	17
n78 (PC3)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	24
n78 (PC3) SRS#1	Sub 3	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	5 100%Duty	18
n78 (PC3) SRS#2	Sub 2	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	12 100%Duty	24
n78 (PC3) SRS#3	Sub 4	10.5 100%Duty	N/A	N/A	1.5 100%Duty	N/A	N/A	16

Tolerance: -1.5 dB ~ +1.0 dB

4.4.2 Maximum 2.4 GHz, 5 GHz WIFI output power

a. Maximum Power

Mode	IEEE 802.11					
	SISO					
	a	b	g	n	ac	ax(SU)
2.4GHz		19.0	17.0	16.0		16.0
5GHz (20MHz BW)	16.0 36/40ch : 11.0 44/48ch : 11.5 52/56/60/64ch : 14.0 100/104/108ch : 11.0 112ch : 13.0 177ch : 14.0			15.0 36/40ch : 11.0 44/48ch : 11.5 52/56/60/64ch : 14.0 100/104/108ch : 11.0 112ch : 13.0 177ch : 14.0	15.0 36/40ch : 11.0 44/48ch : 11.5 52/56/60/64ch : 14.0 100/104/108ch : 11.0 112ch : 13.0 177ch : 14.0	15.0 36/40ch : 11.0 44/48ch : 11.5 52/56/60/64ch : 14.0 100/104/108ch : 11.0 112ch : 13.0 177ch : 14.0
5GHz (40MHz BW)				13.0 38ch : 10 46/62ch : 11 102ch : 9.5 110ch : 10.5	13.0 38ch : 10 46/62ch : 11 102ch : 9.5 110ch : 10.5	13.0 38ch : 10 46/62ch : 11 102ch : 9.5 110ch : 10.5
5GHz (80MHz BW)					12.0 42ch : 9 58ch : 11 106ch : 8	12.0 42ch : 9 58ch : 11 106ch : 8

Mode	IEEE 802.11					
	MIMO					
	a	b	g	n	ac	ax(SU)
2.4GHz		22.0	20.0	19.0		19.0
5GHz (20MHz BW)	19.0 36/40ch : 14.0 44/48ch : 14.5 52/56/60/64ch : 17.0 100/104/108ch : 14.0 112ch : 16.0 177ch : 17.0			18.0 36/40ch : 14.0 44/48ch : 14.5 52/56/60/64ch : 17.0 100/104/108ch : 14.0 112ch : 16.0 177ch : 17.0	18.0 36/40ch : 14.0 44/48ch : 14.5 52/56/60/64ch : 17.0 100/104/108ch : 14.0 112ch : 16.0 177ch : 17.0	18.0 36/40ch : 14.0 44/48ch : 14.5 52/56/60/64ch : 17.0 100/104/108ch : 14.0 112ch : 16.0 177ch : 17.0
5GHz (40MHz BW)				16.0 38ch : 13 46/62ch : 14 102ch : 12.5 110ch : 13.5	16.0 38ch : 13 46/62ch : 14 102ch : 12.5 110ch : 13.5	16.0 38ch : 13 46/62ch : 14 102ch : 12.5 110ch : 13.5
5GHz (80MHz BW)					15.0 42ch : 12 58ch : 14 106ch : 11	15.0 42ch : 12 58ch : 14 106ch : 11

b. Reduced Power

Mode	IEEE 802.11					
	SISO					
	a	b	g	n	ac	ax(SU)
2.4GHz		10.0	10.0	10.0		10.0
5GHz (20MHz BW)	7.0 177ch:5			7.0 177ch:5	7.0 177ch:5	7.0 177ch:5
5GHz (40MHz BW)				7.0	7.0	7.0
5GHz (80MHz BW)					7.0	7.0

Mode	IEEE 802.11					
	MIMO					
	a	b	g	n	ac	ax(SU)
2.4GHz		13.0	13.0	13.0		13.0
5GHz (20MHz BW)	10.0 177ch:8			10.0 177ch:8	10.0 177ch:8	10.0 177ch:8
5GHz (40MHz BW)				10.0	10.0	10.0
5GHz (80MHz BW)					10.0	10.0

c. 11ax RU Maximum Power

Tones	IEEE 802.11							
	SISO				MIMO			
	2.4G	5G/20Mhz	5G/40Mhz	5G/80Mhz	2.4G	5G/20Mhz	5G/40Mhz	5G/80Mhz
26T	10	10	10	10	13	13	13	13
52T	10	10	10	10	13	13	13	13
106T	10	10	10	10	13	13	13	13
242T	10	10	10	10	13	13	13	13
484T			10 102ch : 9.5	10 42ch : 9.5			13 102ch : 12.5	13 42ch : 12.5
996T				10 42ch : 9.5 106ch : 9.5				13 42ch : 12.5 106ch : 12.5

d. 11ax RU Reduced Power

Tones	IEEE 802.11							
	SISO				MIMO			
	2.4G	5G/20Mhz	5G/40Mhz	5G/80Mhz	2.4G	5G/20Mhz	5G/40Mhz	5G/80Mhz
26T	10.0	7.0 177ch : 5	7.0	7.0	13.0	10.0 177ch : 8	10.0	10.0
52T	10.0	7.0 177ch : 5	7.0	7.0	13.0	10.0 177ch : 8	10.0	10.0
106T	10.0	7.0 177ch : 5	7.0	7.0	13.0	10.0 177ch : 8	10.0	10.0
242T	10.0	7.0 177ch : 5	7.0	7.0	13.0	10.0 177ch : 8	10.0	10.0
484T			7.0	7.0			10.0	10.0
996T				7.0				10.0

4.4.3 Bluetooth output power

a. Maximum Power

Mode	Max
BDR	14.5
EDR	9.0
BLE	14.0

(Upper Tolerance: target +1.0 dB)

b. Reduced Power

Mode	Max
BDR	10.0
EDR	9.0
BLE	9.5

(Upper Tolerance: target +1.0 dB)

4.5 LTE Information

	Item.	Description
Frequency Range	LTE FDD Band 2 (PCS)	1 850.7 MHz ~ 1 909.3 MHz
	LTE FDD Band 4 (AWS)	1 710.7 MHz ~ 1 754.3 MHz
	LTE FDD Band 5 (Cell)	824.7 MHz ~ 848.3 MHz
	LTE FDD Band 7	2 502.5 MHz ~ 2 567.5 MHz
	LTE FDD Band 12	699.7 MHz ~ 715.3 MHz
	LTE FDD Band 13	779.5 MHz ~ 784.5 MHz
	LTE FDD Band 14	790.5 MHz ~ 795.5 MHz
	LTE FDD Band 25	1 850.7 MHz ~ 1 914.3 MHz
	LTE FDD Band 26	814.7 MHz ~ 848.3 MHz
	LTE FDD Band 30	2 307.5 MHz ~ 2 312.5 MHz
	LTE TDD Band 38	2 572.5 MHz ~ 2 617.5 MHz
	LTE TDD Band 41	2 498.5 MHz ~ 2 687.5 MHz
	LTE TDD Band 48	3 552.5 MHz ~ 3 697.5 MHz
	LTE FDD Band 66 (AWS)	1 710.7 MHz ~ 1 779.3 MHz
	LTE FDD Band 71	665.5 MHz ~ 695.5 MHz
Channel Bandwidths	LTE FDD Band 2 (PCS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 4 (AWS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 5 (Cell)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE FDD Band 7	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 12	1.4 MHz, 3 MHz, 5 MHz, 10 MHz
	LTE FDD Band 13	5 MHz, 10 MHz
	LTE FDD Band 14	5 MHz, 10 MHz
	LTE FDD Band 25	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 26	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz
	LTE FDD Band 30	5 MHz, 10 MHz
	LTE TDD Band 38	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE TDD Band 41	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE TDD Band 48	5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 66 (AWS)	1.4 MHz, 3 MHz, 5 MHz, 10 MHz, 15 MHz, 20 MHz
	LTE FDD Band 71	5 MHz, 10 MHz, 15 MHz, 20 MHz

Ch. No.& Freq.(MHz)		Low / Low-Mid	Mid	Mid-High / High
LTE FDD Band 2 (PCS)	1.4 MHz	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 MHz	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 MHz	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 MHz	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 MHz	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 MHz	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE FDD Band 4 (AWS)	1.4 MHz	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 MHz	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 MHz	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 MHz	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 MHz	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 MHz		1 732.5 (20175)	
LTE FDD Band 5 (Cell)	1.4 MHz	824.7 (20407)	836.5 (20525)	848.3 (20643)
	3 MHz	825.5 (20415)	836.5 (20525)	847.5 (20635)
	5 MHz	826.5 (20425)	836.5 (20525)	846.5 (20625)
	10 MHz		836.5 (20525)	
LTE FDD Band 7	5 MHz	2 502.5 (20775)	2 535 (21100)	2 567.5 (21425)
	10 MHz	2 505 (20800)	2 535 (21100)	2 565 (21400)
	15 MHz	2 507.5 (20825)	2 535 (21100)	2 562.5 (21375)
	20 MHz	2 510 (20850)	2 535 (21100)	2 560 (21350)
LTE FDD Band 12	1.4 MHz	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 MHz	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 MHz	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 MHz		707.5 (23095)	
LTE FDD Band 13	5 MHz		782 (23230)	
	10 MHz		782 (23230)	
LTE FDD Band 14	5 MHz		793 (23330)	
	10 MHz		793 (23330)	
LTE FDD Band 25(PCS)	1.4 MHz	1 850.7 (26047)	1 882.5 (26365)	1 914.3 (26683)
	3 MHz	1 851.5 (26055)	1 882.5 (26365)	1 913.5 (26675)
	5 MHz	1 852.5 (26065)	1 882.5 (26365)	1 912.5 (26665)
	10 MHz	1 855 (26090)	1 882.5 (26365)	1 910 (26640)
	15 MHz	1 857.5 (26115)	1 882.5 (26365)	1 907.5 (26615)
	20 MHz	1 860 (26140)	1 882.5 (26365)	1 905 (26590)
LTE FDD Band 26 (Cell)	1.4 MHz	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 MHz	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 MHz	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 MHz	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 MHz		831.5 (26865)	
LTE FDD Band 30	5 MHz	2 307.5 (27685)	2 310 (27710)	2 312.5 (27735)
	10 MHz		2 310 (27710)	
LTE TDD Band 38	5 MHz	2 572.5 (37775)	2 595 (38000)	2 617.5 (38225)
	10 MHz	2 575 (37800)	2 595 (38000)	2 615 (38200)
	15 MHz	2 577.5 (37825)	2 595 (38000)	2 612.5 (38175)
	20 MHz	2 580 (37850)	2 595 (38000)	2 610 (38150)

Ch. No.& Freq.(MHz)		Low / Low-Mid		Mid		Mid-High / High		
LTE FDD 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 FDD Band 71	5 MHz	665.5 (133147)		680.5 (133297)		695.5 (133447)		
	10 MHz	668 (133172)		680.5 (133297)		693 (133422)		
	15 MHz	670.5 (133197)		680.5 (133297)		690.5 (133397)		
	20 MHz			680.5 (133297)				
LTE TDD Band 41	5 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)		
	10 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)		
	15 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)		
	20 MHz	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)		
LTE TDD Band 48	5 MHz	3 552.5(55265)		3 600.8(55748)		3 649.2(56232)		3 697.5(56715)
	10 MHz	3 555(55290)		3 601.7(55757)		3 648.3(56223)		3 695(56690)
	15 MHz	3 557.5(55315)		3 602.5(55765)		3 647.5(56215)		3 692.5(56665)
	20 MHz	3 560(55340)		3 603.3(55773)		3 646.7(56207)		3 690(56640)
UE Category			LTE Rel. 16, DL: Category 18, 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, 256 QAM					
LTE MPR Permanently implemented per 3GPP TS 36.101 Sec.6.2.3			Yes					
A-MPR disabled for SAR Testing.			Yes					
LTE Carrier Aggregation			This device supports Inter-Band & Intra-Band DL-link, Intra Band UL Carrier aggregations. Detailed information of Down-Link CA are included in the Technical Description document.					
LTE Release information			It supports DL,UL carrier aggregation. All other uplink communications are identical to the release 8 specifications. The following LTE Rel.16 Features are not supported: Relay, Hetnet, Enhanced eICI, MDH, cross-carrier Scheduling, Enhanced SC-FDMA.					

4.6 5G NR SUB 6 Information

	Item.	Description
Frequency Range	NR FDD Band n2 (PCS)	1 852.5 MHz ~ 1 907.5 MHz
	NR FDD Band n5	826.5 MHz ~ 846.5 MHz
	NR FDD Band n25 (PCS)	1 852.5 MHz ~ 1 912.5 MHz
	NR FDD Band n30	2 307.5 MHz ~ 2 312.5 MHz
	NR TDD Band n41	2 501.01 MHz ~ 2 685 MHz
	NR TDD Band n48	3 555 MHz ~ 3 695.01 MHz
	NR FDD Band n66	1 712.5 MHz ~ 1 777.5 MHz
	NR FDD Band n70	1 697.5 MHz ~ 1 707.5 MHz
	NR FDD Band n71	665.5 MHz ~ 695.5 MHz
	NR TDD Band n77	3 705 MHz ~ 3 975 MHz
	NR TDD Band n77 DoD	3 445.01 MHz ~ 3 544.98 MHz
	NR TDD Band n78	3 705 MHz ~ 3 795 MHz
	NR TDD Band n78 DoD	3 455.01 MHz ~ 3 544.98 MHz
Channel Bandwidths	NR FDD Band n2 (PCS)	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 35 MHz, 40 MHz
	NR FDD Band n5	5 MHz, 10 MHz, 15 MHz, 20 MHz
	NR FDD Band n25 (PCS)	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 35 MHz, 40 MHz
	NR FDD Band n30	5 MHz, 10 MHz
	NR TDD Band n41	10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz
	NR TDD Band n48	10 MHz, 15 MHz, 20 MHz, 30 MHz, 40 MHz,
	NR FDD Band n66	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz
	NR FDD Band n70	5 MHz, 10 MHz, 15 MHz
	NR FDD Band n71	5 MHz, 10 MHz, 15 MHz, 20 MHz
	NR TDD Band n77	10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz
	NR TDD Band n77 DoD	10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz
	NR TDD Band n78	10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz
	NR TDD Band n78 DoD	10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz

Ch. No.& Freq.(MHz)		Low / Low-Mid		Mid		Mid-High / High	
NR FDD Band n2 (PCS)	5 MHz	1 852.5(370500)		1 880(376000)		1 907.5(381500)	
	10 MHz	1 855(371000)		1 880(376000)		1 905(381000)	
	15 MHz	1 857.5(371500)		1 880(376000)		1 902.5(380500)	
	20 MHz	1 860(372000)		1 880(376000)		1 900(380000)	
	25 MHz	1 862.5(372500)		1 880(376000)		1 897.5(379500)	
	30 MHz	1 865(373000)		1 880(376000)		1 895(379000)	
	35 MHz	1 867.5(373500)		1 880(376000)		1 892.5(378500)	
	40 MHz	1 870(374000)		1 880(376000)		1 890(378000)	
NR FDD Band n5 (Cell)	5 MHz	826.5 (165300)		836.5(167300)		846.5 (169300)	
	10 MHz			836.5(167300)			
	15 MHz			836.5(167300)			
	20 MHz			836.5(167300)			
NR FDD Band n25	5 MHz	1 852.5(370500)		1 882.5(376500)		1 912.5(382500)	
	10 MHz	1 855(371000)		1 882.5(376500)		1 910(382000)	
	15 MHz	1 857.5(371500)		1 882.5(376500)		1 907.5(381500)	
	20 MHz	1 860(372000)		1 882.5(376500)		1 905(381000)	
	25 MHz	1 862.5(372500)		1 882.5(376500)		1 902.5(380500)	
	30 MHz	1 865(373000)		1 882.5(376500)		1 900(380000)	
	35 MHz			1 882.5(376500)			
	40 MHz			1 882.5(376500)			
NR FDD Band n30	5 MHz			2 310 (462000)			
	10 MHz			2 310 (462000)			
NR TDD Band n48	10 MHz	3 555(637000)		3 601.68(640112)	3 648.33(643222)	3 694.98(646332)	
	15 MHz	3 557.52(637168)		3 602.49(640166)	3 647.49(643166)	3 692.49(646166)	
	20 MHz	3 560.01(637334)		3 603.33(640222)	3 646.68(643112)	3 690(646000)	
	30 MHz	3 565.02 (637668)		3 605.01(640334)	3 645(643000)	3 684.99(645666)	
	40 MHz	3 570(638000)		3 624.99(641666)		3 679.98(645332)	
NR TDD Band n41	10 MHz	2 501.01(500202)		2 547(509400)	2 592.99(518598)	2 639.01(527802)	2 685(537000)
	15 MHz	2 503.5(500700)		2 548.26(509652)	2 592.99(518598)	2 637.75(527550)	2 682.51(536502)
	20 MHz	2 506.02(501204)		2 549.49(509898)	2 592.99(518598)	2 636.49(527298)	2 679.99(535998)
	30 MHz	2 511(502200)		2 552.01(510402)	2 592.99(518598)	2 634(526800)	2 674.98(534996)
	40 MHz	2 516.01(503202)		2 567.34(513468)		2 618.67(523734)	2 670(534000)
	50 MHz	2 521.02(504204)			2 592.99(518598)		2 664.99(532998)
	60 MHz	2 526(505200)			2 592.99(518598)		2 659.98(531996)
	70 MHz	2 531.01(506202)					2 655(531000)
	80 MHz	2 536.02(507204)					2 649.99(529998)
	90 MHz	2 541(508200)					2 644.98(528996)
	100 MHz				2 592.99(518598)		
NR FDD Band n66	5 MHz	1 712.5(342500)		1 745(349000)		1 777.5(355500)	
	10 MHz	1 715(343000)		1 745(349000)		1 775(355000)	
	15 MHz	1 717.5(343500)		1 745(349000)		1 772.5(354500)	
	20 MHz	1 720(344000)		1 745(349000)		1 770(354000)	
	25 MHz	1 722.5(344500)		1 745(349000)		1 767.5(353500)	
	30 MHz			1 745(349000)			
	40 MHz			1 745(349000)			

Ch. No.& Freq.(MHz)		Low / Low-Mid		Mid		Mid-High / High	
NR FDD Band n70	5 MHz	1 697.5(339500)		1 702.5(340500)		1 707.5(341500)	
	10 MHz	1 700(340000)		1 702.5(340500)		1 705(341000)	
	15 MHz			1 702.5(340500)			
NR FDD Band n71	5 MHz	665.5(133100)		680.5(136100)		695.5(139100)	
	10 MHz	668(133600)		680.5(136100)		693(138600)	
	15 MHz			680.5(136100)			
	20 MHz			680.5(136100)			
NR TDD Band n77	10 MHz	3 705(647000)	3 759(650600)	3 813(654200)	3 867(657800)	3 921(661400)	3 975(665000)
	15 MHz	3 707.52(647168)	3 760.5(650700)	3 813.51(654234)	3 866.49(657766)	3 919.5(661300)	3 972.48(664832)
	20 MHz	3 710.01(647334)	3 762(650800)	3 813.99(654266)	3 866.01(657734)	3 918(661200)	3 969.99(664666)
	25 MHz	3 712.5(647500)	3 763.5(650900)	3 814.5(654300)	3 865.5(657700)	3 916.5(661100)	3 967.5(664500)
	30 MHz	3 715.02(647668)	3 765(651000)	3 815.01(654334)	3 864.99(657666)	3 915(661000)	3 964.98(664332)
	40 MHz	3 720(648000)	3 768(651200)	3 816(654400)	3 864(657600)	3 912(660800)	3 960(664000)
	50 MHz	3 725.01(648334)	3 782.49(652166)	3 840(656000)		3 897.51(659834)	3 954.99(663666)
	60 MHz	3 730.02(648668)	3 803.34(653556)			3 876.66(658444)	3 949.98(663332)
	70 MHz	3 735(649000)	3 804.99(653666)			3 875.01(658334)	3 945(663000)
	80 MHz	3 740.01(649334)		3 840(656000)			3 939.99(662666)
	90 MHz	3 745.02(649668)		3 840(656000)		3 934.98(662332)	
	100 MHz	3 750(650000)		3 840(656000)		3 930(662000)	
NR TDD Band n77 (DoD)	10 MHz	3 455.01(630334)		3 500.01(633334)		3 544.98(636332)	
	15 MHz	3 457.5(630500)		3 500.01(633334)		3 542.49(636166)	
	20 MHz	3 460.02(630668)		3 500.01(633334)		3 540(636000)	
	25 MHz	3 462.51(630834)		3 500.01(633334)		3 537.48(635832)	
	30 MHz	3 465(631000)		3 500.01(633334)		3 534.99(635666)	
	40 MHz	3 470.01(631334)				3 529.98(635332)	
	50 MHz	3 475.02(631668)				3 525(635000)	
	60 MHz			3 500.01(633334)			
	70 MHz			3 500.01(633334)			
	80 MHz			3 500.01(633334)			
	90 MHz			3 500.01(633334)			
	100 MHz			3 500.01(633334)			
NR TDD Band n78	10 MHz	3 705(647000)		3 750(650000)		3 795(653000)	
	15 MHz	3 707.5(647166)		3 750(650000)		3 792.48(652832)	
	20 MHz	3 710.01(647334)		3 750(650000)		3 789.99(652666)	
	25 MHz	3 712.5(647500)		3 750(650000)		3 787.5(652500)	
	30 MHz	3 715.02(647668)		3 750(650000)		3 784.98(652332)	
	40 MHz	3 720(647800)				3 780(652000)	
	50 MHz	3 725.01(648334)				3 774.99(651666)	
	60 MHz			3 750(650000)			
	70 MHz			3 750(650000)			
	80 MHz			3 750(650000)			
	90 MHz			3 750(650000)			
	100 MHz			3 750(650000)			
NR TDD Band n78 (DoD)	10 MHz	3 455.01(630334)		3 500.01(633334)		3 544.98(636332)	
	15 MHz	3 457.5(630500)		3 500.01(633334)		3 542.49(636166)	
	20 MHz	3 460.02(630668)		3 500.01(633334)		3 540(636000)	
	25 MHz	3 462.99(630866)		3 500.01(633334)		3 537(635800)	
	30 MHz	3 465(631000)		3 500.01(633334)		3 534.99(635666)	
	40 MHz	3 470.01(631334)				3 529.98(635332)	
	50 MHz	3 475.02(631668)				3 525(635000)	
	60 MHz			3 500.01(633334)			
	70 MHz			3 500.01(633334)			
	80 MHz			3 500.01(633334)			
	90 MHz			3 500.01(633334)			
	100 MHz			3 500.01(633334)			

Item.	Description
NR FDD Band n2/n5/n25/n30/n66/n70/n71 SCS	15 kHz
NR TDD Band n41/n48/n77/n78 SCS	30 kHz
3GPP Rel.	Rel.16
A-MPR disabled for SAR Testing.	Yes
5G NR UL/DL FR1	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM DFT-s-OFDM: $\pi/2$ -BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM
Non-Standalone & Standalone are supported. 5G NR FR1 Bands, n2, n5, n25, n41, n48, n66, n71, n77, n78 are supported to NSA and SA Connectivity. n30, n70 is only supported to SA connectivity 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 n2 (PCS)	LTE Band 5/7/12/13/14/30/48/66/71
LTE Anchor Bands for NR Band n5 (Cell)	LTE Band 2/7/30/48/66
LTE Anchor Bands for NR Band n25	LTE Band 7/12/13/66
LTE Anchor Bands for NR Band n30	N/A
LTE Anchor Bands for NR Band n41	LTE Band 2/4/12/25/66/71
LTE Anchor Bands for NR Band n48	LTE Band 2/66
LTE Anchor Bands for NR Band n66 (AWS)	LTE Band 2/5/7/12/13/14/30/48/71
LTE Anchor Bands for NR Band n70	N/A
LTE Anchor Bands for NR Band n71	LTE Band 2/7/48/66
LTE Anchor Bands for NR Band n77	LTE Band 2/5/7/12/13/14/25/30/66/71
LTE Anchor Bands for NR Band n78	LTE Band 2/4/5/7/12/13/25/38/41/66/71

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 Sec.onds. 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.

WWAN	BT	2.4G		5G		Scenario
	Ant. 1	Ant. 1	Ant. 2	Ant. 1	Ant. 2	
O	O	X	X	X	X	WWAN + Bluetooth Ant. 1
O	O	X	X	X	O	WWAN + Bluetooth Ant. 1+ 5GHz Wi-Fi Ant.2
O	O	X	X	O	O	WWAN + Bluetooth Ant. 1+ 5GHz Wi-Fi MIMO
O	X	O	X	X	X	WWAN + 2.4GHz Wi-Fi Ant. 1
O	X	O	O	X	X	WWAN + 2.4GHz Wi-Fi MIMO
O	X	X	X	X	O	WWAN + 5GHz Wi-Fi Ant. 2
O	X	X	X	O	O	WWAN + 5GHz Wi-Fi MIMO

Note:

1. 2.4 GHz Bluetooth and 2.4 GHz WLAN cannot transmit simultaneously.
2. 2.4 GHz WLAN and 5 GHz WLAN cannot transmit simultaneously.
3. The highest reported SAR for each exposure condition is used for SAR summation purpose.
4. Wi-Fi Hotspot is supported for 2.4 GHz/UNII-3 of 5 GHz WLAN.
5. Per the manufacturer, 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.
6. This device supports 2x2 MIMO Tx for WLAN 802.11a/b/g/n/ac/ax. 802.11a/g/n/ac/ax supports CDD and STBC and 802.11n/ac/ax additionally supports SDM. Each WLAN antenna can transmit independently or together when operating with MIMO.
7. This device supports Bluetooth tethering

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 and U-NII-4, WiFi Hotspot SAR test and combinations are considered only 2.4 GHz and U-NII-3 for SAR with respected to wireless router configurations according to FCC KDB 941225 D06v02r01.

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

This device supports IEEE 802.11ax with the following features:

- a) Up to 80 MHz Bandwidth only for 5 GHz
- b) Up to 20 MHz Bandwidth only for 2.4 GHz
- c) 2Tx antenna output
- d) Up to 1024 QAM is supported
- e) TDWR and Band gap channels are supported for 5 GHz

Per April 2019 TCB Workshop Notes, SAR testing was not required for 802.11ax when applying the initial test configuration procedures of KDB 248227, with 802.11ax considered a higher order 802.11 mode.

4.8.2 Licensed Transmitter(s)

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.

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.

This Device supports 64QAM and 256QAM on the uplink and 256QAM on the downlink for LTE Operations. Conducted powers for 64QAM and 256QAM uplink configurations were measured per Sec.5.1 of FCC KDB 941225 D05v02r05. SAR was not required for 64QAM or 256QAM since the highest maximum output power for 64QAM and 256QAM is ≤ 0.5 dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is ≤ 1.45 W/Kg, per Sec.5.2.4 for FCC KDB941225 D05v02r05.

This device supports LTE /NR capabilities with overlapping transmission frequency ranges. When the supported frequency range of LTE /NR Band falls completely within an LTE Band with a larger transmission frequency range, both LTE/NR Bands have the same target power or the Band with the larger transmission frequency range has a higher target power and both LTE/NR Bands share the same transmission path and signal characteristics, SAR was only tested for the Band with the larger transmission frequency range.

LTE capabilities with overlapping transmission frequency ranges were applied to LTE Band 5 (824.7 MHz ~ 848.3MHz) is covered by LTE Band 26(814.7 MHz ~ 848.3 MHz), LTE Band 4 (1 710.7 MHz ~ 1 754.3MHz) is covered by LTE Band 66(1 710.7 MHz ~ 1 779.3 MHz), LTE Band 2(1 850.7 MHz ~ 1 909.3MHz) is covered by LTE Band 25(1 850.7 MHz ~ 1 914.3MHz), LTE Band 38(2 572.5 MHz ~ 2 617.5MHz) is covered by LTE Band 41(2 498.5 MHz ~ 2 687.5MHz) of this model each both LTE bands have the same target powers.

NR capabilities with overlapping transmission frequency ranges were applied to n2(1 852.5 MHz ~ 1 907.5MHz) is covered by n25(1 852.5 MHz ~ 1 912.5MHz), n78(3 705 MHz ~ 3 795MHz) is covered by n77(3 705 MHz ~ 3 795MHz), n78 DoD(3 455.01 MHz ~ 3 544.98MHz) is covered by n77 DoD(3 455.01 MHz ~ 3 544.98MHz) of this model each both NR 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 product supported Intra-band LTE Carrier Aggregation for 66B, 66C, 41C, 48C with two component carriers in the uplink. SAR Measurement and conducted Powers were measured according to Nov 2019 TCBC Workshop guide.

This device supports NSA(Non-standalone) and SA (Standalone) connectivity for 5G NR FR1 Bands, more detailed specifications of the Bands are contained in the Technical description document.

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.

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

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

5. Introduction

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

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

SAR Definition

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

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

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/m^3)
- = 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) (Refer to 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 or Windows 10 or Windows 11 is working with SAR Measurement system DASY4 & DASY5 & DASY6 & DASY8 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.

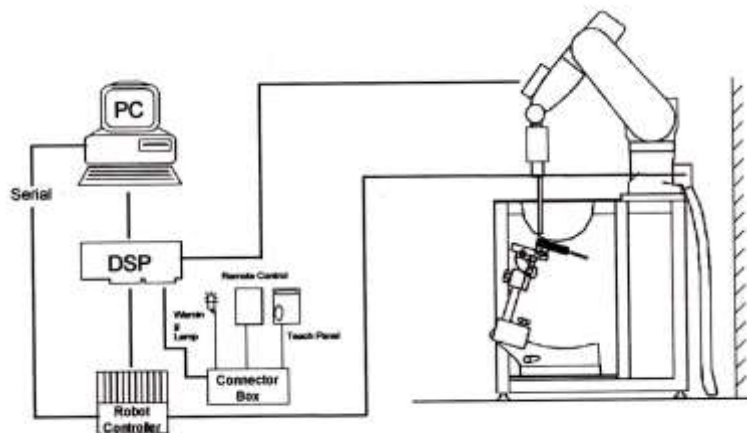


Figure 2. HCT SAR Lab. Test Measurement Set-up

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.

			$\leq 3 \text{ GHz}$	$> 3 \text{ GHz}$
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			$5 \pm 1 \text{ mm}$	$\cdot \delta \cdot \ln(2) \pm 0.5 \text{ mm}$
Maximum probe angle from probe axis to phantom surface normal at the measurement location			$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan Spatial resolution: $\Delta x_{\text{Area}}, \Delta y_{\text{Area}}$			$\leq 2 \text{ GHz: } \leq 15 \text{ mm}$ $2\text{-}3 \text{ GHz: } \leq 12 \text{ mm}$	$3\text{-}4 \text{ GHz: } \leq 12 \text{ mm}$ $4\text{-}6 \text{ GHz: } \leq 10 \text{ mm}$
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan Spatial resolution: $\Delta x_{\text{zoom}}, \Delta y_{\text{zoom}}$			$\leq 2 \text{ GHz: } \leq 8 \text{ mm}$ $2\text{-}3 \text{ GHz: } \leq 5 \text{ mm}^*$	$3\text{-}4 \text{ GHz: } \leq 5 \text{ mm}^*$ $4\text{-}6 \text{ GHz: } \leq 4 \text{ mm}^*$
Maximum zoom scan Spatial resolution normal to phantom surface	uniform grid: $\Delta z_{\text{zoom}}(n)$		$\leq 5 \text{ mm}$	$3\text{-}4 \text{ GHz: } \leq 4 \text{ mm}$ $4\text{-}5 \text{ GHz: } \leq 3 \text{ mm}$ $5\text{-}6 \text{ GHz: } \leq 2 \text{ mm}$
	graded grid	$\Delta z_{\text{zoom}}(1)$: between 1 st two Points closest to phantom surface	$\leq 4 \text{ mm}$	$3\text{-}4 \text{ GHz: } \leq 3 \text{ mm}$ $4\text{-}5 \text{ GHz: } \leq 2.5 \text{ mm}$ $5\text{-}6 \text{ GHz: } \leq 2 \text{ mm}$
		$\Delta z_{\text{zoom}}(n>1)$: between subsequent Points	$\leq 1.5 \cdot \Delta z_{\text{zoom}}(n-1)$	
Minimum zoom scan volume	x, y, z		$\geq 30 \text{ mm}$	$3\text{-}4 \text{ GHz: } \geq 28 \text{ mm}$ $4\text{-}5 \text{ GHz: } \geq 25 \text{ mm}$ $5\text{-}6 \text{ GHz: } \geq 22 \text{ mm}$
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; Refer to 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 $\leq 1.4 \text{ W/kg}$, $\leq 8 \text{ mm}$, $\leq 7 \text{ mm}$ and $\leq 5 \text{ mm}$ zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

8. Description of Test Position

8.1 Device Holder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ϵ and loss tangent $\delta=0.02$.

8.2 SAR Testing for Tablet Per KDB Publication 616217 D04v01r02

Per FCC KDB Publication 616217 D04v01r02, the back surface and edges of the tablet should be tested for SAR compliance with the tablet touching the phantom. The SAR Exclusion Threshold in KDB 447498 D01v06 can be applied to determine SAR test exclusion for adjacent edge configuration. The closest distance from the antenna to an adjacent tablet edge is used to determine if SAR testing is required for the adjacent edges, with the adjacent edge positioned against the phantom and the edge containing the antenna positioned perpendicular to the phantom.

8.3 Proximity Sensor Considerations.

This device uses a sensor to reduce output powers in certain use conditions when the device is used close the user's body.

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 Sec.8 and additional FCC guidance were 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 evaluation is provided in a separate document.

The required separation distance to evaluate SAR at full powers were:

Wireless technologies	Position	§ 6.2 Triggering Distance [mm]	§ 6.3 Coverage	§ 6.4 Tilt Angle	Worst case distance for Body SAR [mm]
Main 1 Ant	Rear	20	N/A	N/A	19
	Top	20	N/A	N/A	19
	Left / Right	11	N/A	N/A	10
Main 2 Ant	Rear	19	N/A	N/A	18
	Bottom	19	N/A	N/A	18
	Right	11	N/A	N/A	10
Sub 1 Ant	Rear	19	N/A	N/A	18
	Bottom	19	N/A	N/A	18
	Left	11	N/A	N/A	10
WIFI 1 Ant	Rear	19	N/A	N/A	18
	Top	19	N/A	N/A	18
	Right	11	N/A	N/A	10
WIFI 2 Ant	Rear	19	N/A	N/A	18
	Top	19	N/A	N/A	18
	Left	11	N/A	N/A	10

9. RF Exposure Limits

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg)	CONTROLLED ENVIRONMENT Occupational (W/kg)
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 made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

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 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.

10.2.2 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 Touch for power drifts. If conducted Power deviations of more than 5 % occurred, the tests were repeated.

10.3 SAR Measurement Conditions for UMTS

10.3.1 Output Power Verification

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

10.3.2 Body SAR measurements

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

10.3.3 SAR Measurements with Rel. 5 HSDPA

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

10.3.4 SAR Measurements with Rel. 6 HSUPA

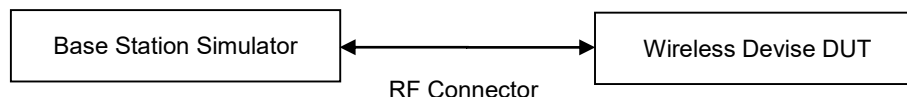
The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control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

10.3.5 DC-HSDPA

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

DC-HSDPA Configurations

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



10.4 SAR Measurement Conditions for LTE

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

10.4.1 Spectrum Plots for RB Configurations

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

10.4.2 MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS36. 101 Sec.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.

10.4.7 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 Sec.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	$26336 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$	$7680 \cdot T_s$	$4384 \cdot T_s$	$5120 \cdot T_s$
5	$6592 \cdot T_s$			$20480 \cdot T_s$		
6	$19760 \cdot T_s$			$23040 \cdot T_s$		
7	$21952 \cdot T_s$			$12800 \cdot T_s$		
8	$24144 \cdot T_s$			-	-	-
9	$13168 \cdot T_s$			-	-	-

Calculated Duty Cycle – Extended cyclic prefix in uplink $\times (T_s) \times$ 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 = $(5120 \times (1/(15000 \times 2048))) \times 2 + 0.006)/0.01 = 63.33 \%$

Where

$T_s = 1/(15000 \times 2048)$ Sec.onds

10.4.8 The Call Box Setup for LTE(TDD)

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

2018/01/08 11:00 Idle(Regist) Phone-2 W-CDMA Phone-1 LTE
 <Fundamental Measurement> Output Main Continuous

Parameter Fundamental UE Report

Reference Signal not found UE Power : -21.5 dBm

Power Measurement (Meas. Count : 11/ 20)

	Avg.	Max.	Min.	Limit
TX Power	*****	*****	*****	dBm 20.3 to 25.7 dBm
Channel Power	*****	*****	*****	dBm

Modulation Analysis View (Meas. Count : 1/ 1)

Common Parameter

Test Parameter TX1 - Max. Power(QPSK/1 RB)

Call Processing On Scenario Normal

Frequency

Frame Structure TDD

Channel Bandwidth FDD Hz

UL Channel & Frequency TDD 20 CH = 2593.000000 MHz

DL Channel & Frequency 40620 CH = 2593.000000 MHz

Operation Band 41

Frequency Separation (0)MHz

Level

Input Level 30.0 dBm

Parameter

Common

Physical Channel

Call Processing

TX Measurement Setup

RX Measurement Setup

Fundamental Measurement

1 2 3 4

2018/01/08 11:01 Idle(Regist) Phone-2 W-CDMA Phone-1 LTE
 <Fundamental Measurement> Output Main Continuous

Parameter Fundamental UE Report

Reference Signal not found UE Power : -21.5 dBm

Power Measurement (Meas. Count : 11/ 20)

	Avg.	Max.	Min.	Limit
TX Power	*****	*****	*****	dBm 20.3 to 25.7 dBm
Channel Power	*****	*****	*****	dBm

Modulation Analysis View (Meas. Count : 1/ 1)

MCS Index (-)	5	(QPSK)	(5)	(2216)	-	-
MCS Index (5)	5	(QPSK)	(5)	(1864)	4	-
MCS Index (0)	5	(QPSK)	(5)	(2216)	-	2
MCS Index (1,6)	N/A	(-----)	(--)	(-----)	-	2
CFI	3					

TDD subframe 0 1 2 3 4 5 6 7 8 9

Uplink Downlink Configuration 0 : (5ms) D S U U U D S U U U

Special Subframe Configuration 6

Physical Channel Parameter

PSS Power	0.0 dB
SSS Power	0.0 dB
PBCH Power	0.0 dB
PCFICH Power	0.0 dB
PHICH Power	0.0 dB

Parameter

Common

Physical Channel

Call Processing

TX Measurement Setup

RX Measurement Setup

Fundamental Measurement

1 2 3 4

10.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. Refer to 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-NII-2A 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 MHz (5.47 GHz – 5.85 GHz), 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 GHz – 5.65 GHz 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 next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all positions in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 10g SAR or all test positions are measured.

10.5.5 2.4 GHz SAR test Requirements

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

- 1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS is that exposure configuration.
- 2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

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

10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

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

10.5.7 Initial Test Configuration Procedure

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

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

10.5.8 Subsequent Test Configuration Procedures

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

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 – Sec.5.2.4 - ANSI C63.26-2015 – Sec.5.2.1 & 5.2.4.2

Test Overview

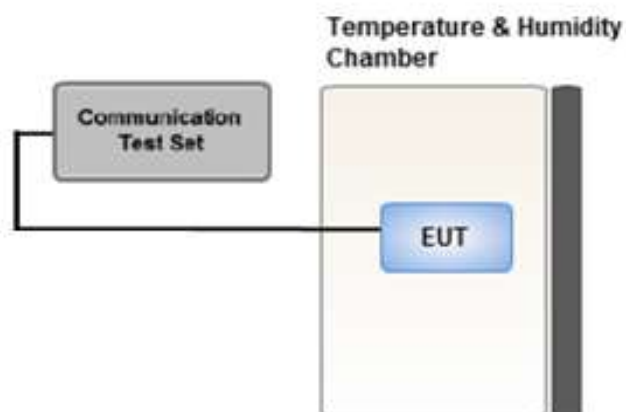
According to ANSI C63.26-2015 Sec.5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station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

HSPA+

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

11.1.1 UMTS Band 5 Maximum Conducted Output Power

UMTS Band 5 Maximum Conducted Output Power – MAIN1 Antenna

Measured P_{max} , RSI = 0

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	24.54	24.42	24.12	-
5	HSDPA	Subtest 1	23.72	23.44	22.97	0
5		Subtest 2	22.87	22.59	22.16	0
5		Subtest 3	22.39	22.08	21.78	0.5
5		Subtest 4	21.86	21.58	21.47	0.5
6	HSUPA	Subtest 1	22.34	22.10	21.78	0
6		Subtest 2	20.45	20.08	19.84	2
6		Subtest 3	21.32	21.05	21.77	1
6		Subtest 4	20.43	20.07	19.84	2
6		Subtest 5	22.24	21.90	21.35	0
8	DC-HSDPA	Subtest1	23.81	23.41	23.05	0
8		Subtest2	22.96	22.52	22.24	0
8		Subtest3	21.46	21.43	21.25	0.5
8		Subtest4	21.94	21.56	21.34	0.5

UMTS Average Conducted output powers

Measured RSI = 1, 3

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	21.57	21.28	21.00	-
5	HSDPA	Subtest 1	20.84	20.58	19.89	0
5		Subtest 2	20.36	20.01	20.15	0
5		Subtest 3	20.86	20.53	19.77	0
5		Subtest 4	19.28	19.02	20.29	0
6	HSUPA	Subtest 1	19.31	19.01	18.73	0
6		Subtest 2	19.32	19.04	18.79	0
6		Subtest 3	19.23	19.04	18.74	0
6		Subtest 4	19.12	18.87	18.74	0
6		Subtest 5	19.23	19.04	18.25	0
8	DC-HSDPA	Subtest1	20.76	20.32	19.91	0
8		Subtest2	20.93	20.56	20.22	0
8		Subtest3	20.77	19.91	20.15	0
8		Subtest4	20.85	20.43	20.29	0

UMTS Average Conducted output powers

Measured RSI=2

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	15.12	15.00	14.72	-
5	HSDPA	Subtest 1	14.01	13.76	13.29	0
5		Subtest 2	14.18	13.93	13.56	0
5		Subtest 3	13.76	13.46	13.17	0
5		Subtest 4	14.11	13.89	13.64	0
6	HSUPA	Subtest 1	12.79	12.17	12.31	0
6		Subtest 2	12.78	12.47	12.19	0
6		Subtest 3	12.78	12.47	12.24	0
6		Subtest 4	12.84	12.83	12.34	0
6		Subtest 5	12.55	12.31	11.70	0
8	DC-HSDPA	Subtest1	14.16	13.75	13.45	0
8		Subtest2	14.32	13.90	13.65	0
8		Subtest3	13.86	13.45	13.28	0
8		Subtest4	14.27	13.91	13.73	0

UMTS Average Conducted output powers

11.1.2 UMTS Band 4 Maximum Conducted Output Power

UMTS Band 4 Maximum Conducted Output Power – MAIN1 Antenna

Measured P_{max} , RSI=0

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	UMTS	12.2 kbps RMC	24.02	24.04	24.06	-
5	HSDPA	Subtest 1	23.17	23.22	23.24	0
5		Subtest 2	22.70	22.81	22.79	0
5		Subtest 3	22.76	22.83	22.81	0.5
5		Subtest 4	22.25	22.29	22.33	0.5
6	HSUPA	Subtest 1	22.24	22.33	22.35	0
6		Subtest 2	19.63	19.67	19.68	2
6		Subtest 3	20.27	20.23	20.30	1
6		Subtest 4	20.04	20.01	20.06	2
6		Subtest 5	22.27	22.28	22.34	0
8	DC-HSDPA	Subtest1	23.22	23.58	23.52	0
8		Subtest2	22.68	23.15	23.12	0
8		Subtest3	21.78	22.17	22.12	0.5
8		Subtest4	22.19	22.65	22.60	0.5

UMTS Average Conducted output powers

Measured RSI=1,3

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	UMTS	12.2 kbps RMC	19.81	19.79	19.78	-
5	HSDPA	Subtest 1	18.59	18.58	18.56	0
5		Subtest 2	19.17	19.15	19.13	0
5		Subtest 3	19.18	19.15	19.21	0
5		Subtest 4	19.61	19.66	19.73	0
6	HSUPA	Subtest 1	18.59	18.64	18.63	0
6		Subtest 2	17.17	17.25	17.24	0
6		Subtest 3	17.72	17.75	17.71	0
6		Subtest 4	18.40	17.54	17.67	0
6		Subtest 5	17.73	17.73	17.71	0
8	DC-HSDPA	Subtest1	18.59	19.08	18.95	0
8		Subtest2	19.22	19.57	19.05	0
8		Subtest3	19.23	19.57	19.54	0
8		Subtest4	19.64	19.88	19.93	0

UMTS Average Conducted output powers

Measured RSI=2

3GPP Release Version	Mode	3GPP 34.121	UMTS Band 4 [dBm]			3GPP MPR
		Subtest	UL 1312 DL 1537	UL 1412 DL 1637	UL 1513 DL 1738	
99	UMTS	12.2 kbps RMC	12.65	12.65	12.67	-
5	HSDPA	Subtest 1	11.29	11.38	11.45	0
5		Subtest 2	12.03	12.08	12.03	0
5		Subtest 3	12.07	12.05	12.09	0
5		Subtest 4	12.45	12.39	12.49	0
6	HSUPA	Subtest 1	11.55	11.52	11.49	0
6		Subtest 2	11.05	10.66	10.17	0
6		Subtest 3	10.58	10.53	10.68	0
6		Subtest 4	11.10	11.39	11.43	0
6		Subtest 5	10.42	10.43	10.53	0
8	DC-HSDPA	Subtest1	11.24	11.68	11.65	0
8		Subtest2	12.05	12.38	12.33	0
8		Subtest3	12.07	12.39	12.32	0
8		Subtest4	12.48	12.92	12.85	0

UMTS Average Conducted output powers

11.1.3 UMTS Band 2 Maximum Conducted Output Power

UMTS Band 2 Maximum Conducted Output Power – MAIN1 Antenna

Measured P_{max} , RSI = 0

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	23.72	23.86	23.60	-
5	HSDPA	Subtest 1	23.47	23.20	23.10	0
5		Subtest 2	22.74	22.47	22.37	0
5		Subtest 3	22.57	22.51	22.40	0.5
5		Subtest 4	21.43	21.46	21.40	0.5
6	HSUPA	Subtest 1	21.88	21.93	21.83	0
6		Subtest 2	19.90	19.40	19.24	2
6		Subtest 3	19.84	19.91	19.83	1
6		Subtest 4	19.86	19.93	19.78	2
6		Subtest 5	21.89	21.91	21.79	0
8	DC-HSDPA	Subtest 1	23.50	23.16	22.57	0
8		Subtest2	22.77	22.46	22.08	0
8		Subtest3	21.57	21.46	21.65	0.5
8		Subtest4	21.48	21.47	21.03	0.5

UMTS Average Conducted output powers

Measured RSI = 1, 3

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	15.88	15.96	15.82	-
5	HSDPA	Subtest 1	15.21	15.03	14.86	0
5		Subtest 2	15.52	15.32	15.16	0
5		Subtest 3	15.34	15.26	15.19	0
5		Subtest 4	15.24	15.34	15.18	0
6	HSUPA	Subtest 1	14.73	14.81	14.64	0
6		Subtest 2	14.17	14.32	14.24	0
6		Subtest 3	13.78	13.83	13.74	0
6		Subtest 4	14.78	14.84	14.76	0
6		Subtest 5	13.89	13.85	13.69	0
8	DC-HSDPA	Subtest 1	15.38	15.08	14.65	0
8		Subtest2	15.66	15.35	14.92	0
8		Subtest3	15.50	15.34	14.91	0
8		Subtest4	15.39	15.34	14.90	0

UMTS Average Conducted output powers

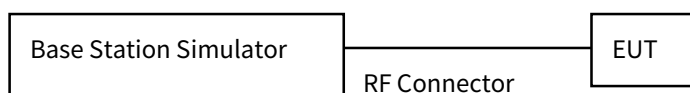
Measured RSI=2

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	12.03	12.13	11.95	-
5	HSDPA	Subtest 1	11.17	10.94	10.83	0
5		Subtest 2	11.48	11.22	11.10	0
5		Subtest 3	11.25	11.20	11.10	0
5		Subtest 4	11.14	11.19	10.95	0
6	HSUPA	Subtest 1	10.56	10.65	10.48	0
6		Subtest 2	10.29	10.22	10.50	0
6		Subtest 3	9.57	9.76	9.67	0
6		Subtest 4	10.80	10.75	10.67	0
6		Subtest 5	9.69	9.75	9.64	0
8	DC-HSDPA	Subtest 1	11.64	10.87	11.15	0
8		Subtest2	11.42	11.60	11.19	0
8		Subtest3	11.66	11.63	11.19	0
8		Subtest4	11.09	11.08	10.63	0

UMTS Average Conducted output powers

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 LTE Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of LTE Bands according to FCC KDB 941225 D05v02r05, are included, and the measurement results of other bandwidths are listed in Appendix J.

LTE B4/B5/B12/B13/B14/B26/B30/B71 at Max 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.

11.2.1 LTE FDD Band 2 Maximum Conducted Output Power

LTE FDD Band 2 Conducted Power _ Measured P_{max} , RSI = 0 (Free)_ MAIN1 Antenna

LTE FDD Band 2 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 MHz	18900 Ch. 1880 MHz	19100 Ch. 1900 MHz		
20 MHz	QPSK	1	0	23.97	23.86	23.98	0	0
		1	49	23.97	24.18	24.11	0	0
		1	99	23.84	24.08	23.82	0	0
		50	0	22.95	22.99	23.12	0-1	1
		50	25	22.88	23.08	23.02	0-1	1
		50	49	22.87	23.09	22.89	0-1	1
		100	0	22.89	23.10	23.03	0-1	1
	16QAM	1	0	23.33	23.18	23.32	0-1	1
		1	49	23.28	23.38	23.40	0-1	1
		1	99	23.22	23.23	23.08	0-1	1
		50	0	21.95	21.98	22.09	0-2	2
		50	25	21.89	22.08	22.03	0-2	2
		50	49	21.84	22.04	21.86	0-2	2
		100	0	21.88	22.08	22.01	0-2	2
	64QAM	1	0	22.22	21.96	22.19	0-2	2
		1	49	22.05	22.19	22.19	0-2	2
		1	99	22.03	22.28	21.99	0-2	2
		50	0	20.99	20.99	21.07	0-3	3
		50	25	20.85	21.04	21.01	0-3	3
		50	49	20.85	21.02	20.89	0-3	3
		100	0	20.90	21.06	21.01	0-3	3
	256QAM	1	0	19.04	18.86	19.05	0-5	5
		1	49	18.69	18.87	18.88	0-5	5
		1	99	18.84	19.08	18.85	0-5	5
		50	0	18.87	18.91	19.01	0-5	5
		50	25	18.78	18.96	18.93	0-5	5
		50	49	18.77	18.97	18.84	0-5	5
		100	0	18.81	18.96	18.94	0-5	5

LTE FDD Band 2 Conducted Power _ Measured RSI =1, 3(Grip Sensor #1, #3) MAIN1 Antenna

LTE FDD Band 2 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 MHz	18900 Ch. 1880 MHz	19100 Ch. 1900 MHz		
20 MHz	QPSK	1	0	17.31	17.20	17.37	0	0
		1	49	17.31	17.48	17.47	0	0
		1	99	17.19	17.41	17.19	0	0
		50	0	17.30	17.36	17.40	0-1	0
		50	25	17.21	17.43	17.37	0-1	0
		50	49	17.21	17.41	17.26	0-1	0
		100	0	17.37	17.22	17.35	0-1	0
	16QAM	1	0	17.67	17.48	17.58	0-1	0
		1	49	17.46	17.73	17.67	0-1	0
		1	99	17.40	17.71	17.42	0-1	0
		50	0	17.28	17.33	17.40	0-2	0
		50	25	17.19	17.40	17.36	0-2	0
		50	49	17.20	17.39	17.25	0-2	0
		100	0	17.64	17.41	17.61	0-2	0
	64QAM	1	0	17.53	17.36	17.54	0-2	0
		1	49	17.35	17.58	17.62	0-2	0
		1	99	17.40	17.54	17.24	0-2	0
		50	0	17.31	17.35	17.46	0-3	0
		50	25	17.24	17.41	17.34	0-3	0
		50	49	17.21	17.42	17.22	0-3	0
		100	0	17.56	17.34	17.54	0-3	0
	256QAM	1	0	17.48	17.27	17.49	0-5	0
		1	49	17.06	17.21	17.19	0-5	0
		1	99	17.27	17.53	17.19	0-5	0
		50	0	17.32	17.28	17.39	0-5	0
		50	25	17.22	17.44	17.39	0-5	0
		50	49	17.22	17.41	17.23	0-5	0
		100	0	17.48	17.31	17.43	0-5	0

LTE FDD Band 2 Conducted Power _ Measured RSI = 2 (Grip Sensor #2)_ MAIN 1

Antenna

LTE FDD Band 2 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 MHz	18900 Ch. 1880 MHz	19100 Ch. 1900 MHz		
20 MHz	QPSK	1	0	11.26	11.11	11.29	0	0
		1	49	11.19	11.39	11.34	0	0
		1	99	11.11	11.31	11.05	0	0
		50	0	11.18	11.21	11.33	0-1	0
		50	25	11.14	11.30	11.28	0-1	0
		50	49	11.10	11.29	11.13	0-1	0
		100	0	11.28	11.11	11.28	0-1	0
	16QAM	1	0	11.45	11.24	11.52	0-1	0
		1	49	11.37	11.48	11.52	0-1	0
		1	99	11.27	11.53	11.27	0-1	0
		50	0	11.17	11.21	11.30	0-2	0
		50	25	11.11	11.28	11.26	0-2	0
		50	49	11.07	11.27	11.11	0-2	0
		100	0	11.50	11.32	11.50	0-2	0
	64QAM	1	0	11.41	11.26	11.39	0-2	0
		1	49	11.35	11.51	11.51	0-2	0
		1	99	11.26	11.44	11.23	0-2	0
		50	0	11.19	11.22	11.28	0-3	0
		50	25	11.15	11.27	11.23	0-3	0
		50	49	11.13	11.29	11.13	0-3	0
		100	0	11.45	11.16	11.35	0-3	0
	256QAM	1	0	11.27	11.17	11.37	0-5	0
		1	49	10.91	11.10	11.06	0-5	0
		1	99	11.16	11.37	11.10	0-5	0
		50	0	11.18	11.22	11.31	0-5	0
		50	25	11.10	11.31	11.22	0-5	0
		50	49	11.12	11.27	11.13	0-5	0
		100	0	11.30	11.06	11.36	0-5	0

LTE FDD Band 2 Conducted Power _ Measured Pmax, RSI = 0 (Free)_ SUB1 Antenna

LTE FDD Band 2 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 MHz	18900 Ch. 1880 MHz	19100 Ch. 1900 MHz		
20 MHz	QPSK	1	0	23.02	22.81	22.96	0	0
		1	49	23.01	23.04	22.97	0	0
		1	99	22.85	23.02	22.81	0	0
		50	0	21.98	21.85	21.90	0-1	1
		50	25	21.91	21.97	21.83	0-1	1
		50	49	21.87	21.97	21.77	0-1	1
		100	0	21.93	21.96	21.87	0-1	1
	16QAM	1	0	22.28	22.12	22.23	0-1	1
		1	49	22.23	22.22	22.21	0-1	1
		1	99	22.22	22.34	22.12	0-1	1
		50	0	20.99	20.84	20.89	0-2	2
		50	25	20.91	20.95	20.83	0-2	2
		50	49	20.89	20.98	20.77	0-2	2
		100	0	20.94	20.97	20.84	0-2	2
	64QAM	1	0	21.23	20.96	21.14	0-2	2
		1	49	21.10	21.10	20.97	0-2	2
		1	99	20.95	21.23	20.97	0-2	2
		50	0	19.98	19.87	19.92	0-3	3
		50	25	19.91	19.94	19.84	0-3	3
		50	49	19.87	19.97	19.76	0-3	3
		100	0	19.92	19.92	19.87	0-3	3
	256QAM	1	0	18.14	17.93	18.10	0-5	5
		1	49	17.76	17.72	17.74	0-5	5
		1	99	17.88	18.09	17.88	0-5	5
		50	0	17.98	17.81	17.89	0-5	5
		50	25	17.90	17.90	17.83	0-5	5
		50	49	17.85	17.95	17.76	0-5	5
		100	0	17.91	17.91	17.79	0-5	5

LTE FDD Band 2 Conducted Power _ Measured RSI = 5 (Grip Sensor #5)_ SUB1

Antenna

LTE FDD Band 2 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 MHz	18900 Ch. 1880 MHz	19100 Ch. 1900 MHz		
20 MHz	QPSK	1	0	10.64	10.50	10.65	0	0
		1	49	10.63	10.63	10.54	0	0
		1	99	10.50	10.70	10.43	0	0
		50	0	10.63	10.54	10.56	0-1	0
		50	25	10.59	10.59	10.49	0-1	0
		50	49	10.55	10.66	10.43	0-1	0
		100	0	10.60	10.59	10.49	0-1	0
	16QAM	1	0	10.89	10.81	10.88	0-1	0
		1	49	10.74	10.87	10.80	0-1	0
		1	99	10.78	10.93	10.69	0-1	0
		50	0	10.61	10.52	10.54	0-2	0
		50	25	10.55	10.58	10.43	0-2	0
		50	49	10.52	10.60	10.42	0-2	0
		100	0	10.57	10.57	10.47	0-2	0
	64QAM	1	0	10.83	10.69	10.74	0-2	0
		1	49	10.81	10.84	10.72	0-2	0
		1	99	10.58	10.81	10.49	0-2	0
		50	0	10.64	10.52	10.55	0-3	0
		50	25	10.59	10.58	10.46	0-3	0
		50	49	10.55	10.63	10.43	0-3	0
		100	0	10.57	10.59	10.47	0-3	0
	256QAM	1	0	10.78	10.58	10.75	0-5	0
		1	49	10.38	10.37	10.30	0-5	0
		1	99	10.60	10.71	10.52	0-5	0
		50	0	10.61	10.51	10.56	0-5	0
		50	25	10.56	10.60	10.49	0-5	0
		50	49	10.53	10.59	10.41	0-5	0
		100	0	10.57	10.56	10.47	0-5	0

11.2.2 LTE FDD Band 4 Maximum Conducted Output Power

LTE FDD Band 4 Conducted Power _ Measured P_{max} , RSI = 0 (Free) _ MAIN1

Antenna

LTE FDD Band 4 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 MHz			
20 MHz	QPSK	1	0		23.87		0	0
		1	49		24.31		0	0
		1	99		24.57		0	0
		50	0		23.07		0-1	1
		50	25		23.29		0-1	1
		50	49		23.46		0-1	1
		100	0		23.26		0-1	1
	16QAM	1	0		23.18		0-1	1
		1	49		23.60		0-1	1
		1	99		23.89		0-1	1
		50	0		22.12		0-2	2
		50	25		22.28		0-2	2
		50	49		22.24		0-2	2
		100	0		22.26		0-2	2
	64QAM	1	0		22.06		0-2	2
		1	49		22.25		0-2	2
		1	99		22.70		0-2	2
		50	0		21.12		0-3	3
		50	25		21.24		0-3	3
		50	49		21.47		0-3	3
		100	0		21.23		0-3	3
	256QAM	1	0		19.03		0-5	5
		1	49		19.15		0-5	5
		1	99		19.59		0-5	5
		50	0		19.03		0-5	5
		50	25		19.14		0-5	5
		50	49		19.41		0-5	5
		100	0		19.16		0-5	5

LTE FDD Band 4 Conducted Power _ Measured RSI = 1, 3 (Grip Sensor #1, #3) _

MAIN1 Antenna

LTE FDD Band 4 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 MHz			
20 MHz	QPSK	1	0		20.35		0	0
		1	49		20.77		0	0
		1	99		20.96		0	0
		50	0		20.53		0-1	0
		50	25		20.70		0-1	0
		50	49		20.89		0-1	0
		100	0		20.40		0-1	0
	16QAM	1	0		20.60		0-1	0
		1	49		20.92		0-1	0
		1	99		21.33		0-1	0
		50	0		20.52		0-2	0
		50	25		20.69		0-2	0
		50	49		20.84		0-2	0
		100	0		20.66		0-2	0
	64QAM	1	0		20.52		0-2	0
		1	49		20.89		0-2	0
		1	99		21.09		0-2	0
		50	0		20.55		0-3	0
		50	25		20.74		0-3	0
		50	49		20.92		0-3	0
		100	0		20.57		0-3	0
	256QAM	1	0		18.69		0-5	2
		1	49		18.76		0-5	2
		1	99		19.17		0-5	2
		50	0		18.69		0-5	2
		50	25		18.86		0-5	2
		50	49		19.05		0-5	2
		100	0		18.64		0-5	2

LTE FDD Band 4 Conducted Power _ Measured RSI = 2 (Grip Sensor #2)_ MAIN 1

Antenna

LTE FDD Band 4 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 MHz			
20 MHz	QPSK	1	0		11.22		0	0
		1	49		11.63		0	0
		1	99		11.87		0	0
		50	0		11.43		0-1	0
		50	25		11.56		0-1	0
		50	49		11.79		0-1	0
		100	0		11.31		0-1	0
	16QAM	1	0		11.49		0-1	0
		1	49		11.84		0-1	0
		1	99		12.07		0-1	0
		50	0		11.41		0-2	0
		50	25		11.53		0-2	0
		50	49		11.74		0-2	0
		100	0		11.59		0-2	0
	64QAM	1	0		11.32		0-2	0
		1	49		11.72		0-2	0
		1	99		12.05		0-2	0
		50	0		11.41		0-3	0
		50	25		11.53		0-3	0
		50	49		11.76		0-3	0
		100	0		11.43		0-3	0
	256QAM	1	0		11.34		0-5	0
		1	49		11.34		0-5	0
		1	99		11.95		0-5	0
		50	0		11.37		0-5	0
		50	25		11.53		0-5	0
		50	49		11.73		0-5	0
		100	0		11.30		0-5	0

LTE FDD Band 4 Conducted Power _ Measured Pmax, RSI = 0 (Free)_ SUB1 Antenna

LTE FDD Band 4 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 MHz			
20 MHz	QPSK	1	0		22.93		0	0
		1	49		23.22		0	0
		1	99		23.31		0	0
		50	0		21.99		0-1	1
		50	25		22.13		0-1	1
		50	49		22.30		0-1	1
		100	0		22.12		0-1	1
	16QAM	1	0		22.23		0-1	1
		1	49		22.31		0-1	1
		1	99		22.57		0-1	1
		50	0		21.00		0-2	2
		50	25		21.09		0-2	2
		50	49		21.27		0-2	2
		100	0		21.14		0-2	2
	64QAM	1	0		21.09		0-2	2
		1	49		21.23		0-2	2
		1	99		21.52		0-2	2
		50	0		20.04		0-3	3
		50	25		20.14		0-3	3
		50	49		20.30		0-3	3
		100	0		20.14		0-3	3
	256QAM	1	0		17.98		0-5	5
		1	49		17.98		0-5	5
		1	99		18.41		0-5	5
		50	0		17.99		0-5	5
		50	25		18.09		0-5	5
		50	49		18.27		0-5	5
		100	0		18.13		0-5	5

LTE FDD Band 4 Conducted Power _ Measured RSI = 5 (Grip Sensor #5)_ SUB1

Antenna

LTE FDD Band 4 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20175 ch. 1732.5 MHz			
20 MHz	QPSK	1	0		10.07		0	0
		1	49		10.33		0	0
		1	99		10.49		0	0
		50	0		10.18		0-1	0
		50	25		10.29		0-1	0
		50	49		10.41		0-1	0
		100	0		10.25		0-1	0
	16QAM	1	0		10.27		0-1	0
		1	49		10.49		0-1	0
		1	99		10.80		0-1	0
		50	0		10.16		0-2	0
		50	25		10.25		0-2	0
		50	49		10.39		0-2	0
		100	0		10.25		0-2	0
	64QAM	1	0		10.22		0-2	0
		1	49		10.49		0-2	0
		1	99		10.60		0-2	0
		50	0		10.16		0-3	0
		50	25		10.26		0-3	0
		50	49		10.43		0-3	0
		100	0		10.26		0-3	0
	256QAM	1	0		10.15		0-5	0
		1	49		10.14		0-5	0
		1	99		10.51		0-5	0
		50	0		10.14		0-5	0
		50	25		10.24		0-5	0
		50	49		10.43		0-5	0
		100	0		10.28		0-5	0

11.2.3 LTE FDD Band 5 Maximum Conducted Output Power

LTE FDD Band 5 Conducted Power _ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

LTE FDD Band 5 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20525			
10 MHz	QPSK	1	0		24.49		0	0
		1	24		24.39		0	0
		1	49		24.12		0	0
		25	0		23.48		0-1	1
		25	12		23.36		0-1	1
		25	24		23.24		0-1	1
		50	0		23.37		0-1	1
	16QAM	1	0		23.72		0-1	1
		1	24		23.57		0-1	1
		1	49		23.31		0-1	1
		25	0		22.45		0-2	2
		25	12		22.31		0-2	2
		25	24		22.20		0-2	2
		50	0		22.32		0-2	2
	64QAM	1	0		22.68		0-2	2
		1	24		22.64		0-2	2
		1	49		22.26		0-2	2
		25	0		21.41		0-3	3
		25	12		21.30		0-3	3
		25	24		21.18		0-3	3
		50	0		21.33		0-3	3
	256QAM	1	0		19.63		0-5	5
		1	24		19.20		0-5	5
		1	49		19.15		0-5	5
		25	0		19.41		0-5	5
		25	12		19.31		0-5	5
		25	24		19.22		0-5	5
		50	0		19.33		0-5	5

LTE FDD Band 5 Conducted Power _ Measured RSI = 1, 3 (Grip Sensor #1, #3) _ MAIN1

Antenna

LTE FDD Band 5 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20525			
					836.5 MHz			
10 MHz	QPSK	1	0		22.78		0	0
		1	24		22.62		0	0
		1	49		22.37		0	0
		25	0		22.74		0-1	0
		25	12		22.57		0-1	0
		25	24		22.50		0-1	0
		50	0		22.79		0-1	0
	16QAM	1	0		23.02		0-1	0
		1	24		22.90		0-1	0
		1	49		22.64		0-1	0
		25	0		22.77		0-2	1
		25	12		22.68		0-2	1
		25	24		22.51		0-2	1
		50	0		22.92		0-2	1
	64QAM	1	0		22.43		0-2	1
		1	24		22.33		0-2	1
		1	49		21.86		0-2	1
		25	0		21.81		0-3	2
		25	12		21.61		0-3	2
		25	24		21.95		0-3	2
		50	0		21.95		0-3	2
	256QAM	1	0		19.36		0-5	4
		1	24		19.11		0-5	4
		1	49		18.89		0-5	4
		25	0		19.22		0-5	4
		25	12		19.10		0-5	4
		25	24		18.99		0-5	4
		50	0		19.30		0-5	4

LTE FDD Band 5 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 5 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
					20525			
					836.5 MHz			
10 MHz	QPSK	1	0		13.83		0	0
		1	24		13.70		0	0
		1	49		13.54		0	0
		25	0		13.76		0-1	0
		25	12		13.64		0-1	0
		25	24		13.57		0-1	0
		50	0		13.64		0-1	0
	16QAM	1	0		14.13		0-1	0
		1	24		13.93		0-1	0
		1	49		13.83		0-1	0
		25	0		13.79		0-2	0
		25	12		13.66		0-2	0
		25	24		13.61		0-2	0
		50	0		13.67		0-2	0
	64QAM	1	0		14.06		0-2	0
		1	24		13.97		0-2	0
		1	49		13.80		0-2	0
		25	0		13.79		0-3	0
		25	12		13.65		0-3	0
		25	24		13.56		0-3	0
		50	0		13.72		0-3	0
	256QAM	1	0		14.09		0-5	0
		1	24		13.64		0-5	0
		1	49		13.68		0-5	0
		25	0		13.84		0-5	0
		25	12		13.66		0-5	0
		25	24		13.61		0-5	0
		50	0		13.73		0-5	0

11.2.4 LTE FDD Band 7 Maximum Conducted Output Power

LTE FDD Band 7 Conducted Power Measured P_{max} , RSI = 0 (Free) _ MAIN1 Antenna

LTE FDD Band 7 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 MHz	21100 Ch. 2535 MHz	21350 Ch. 2560 MHz		
20 MHz	QPSK	1	0	23.52	23.43	23.60	0	0
		1	49	23.81	23.66	23.44	0	0
		1	99	23.46	23.53	23.34	0	0
		50	0	22.67	22.49	22.42	0-1	1
		50	25	22.71	22.56	22.35	0-1	1
		50	49	22.60	22.64	22.32	0-1	1
		100	0	22.70	22.55	22.36	0-1	1
	16QAM	1	0	22.78	22.75	22.83	0-1	1
		1	49	23.08	22.96	22.70	0-1	1
		1	99	22.73	22.78	22.56	0-1	1
		50	0	21.59	21.48	21.39	0-2	2
		50	25	21.64	21.48	21.31	0-2	2
		50	49	21.60	21.54	21.27	0-2	2
		100	0	21.61	21.52	21.28	0-2	2
	64QAM	1	0	21.67	21.56	21.77	0-2	2
		1	49	21.77	21.56	21.42	0-2	2
		1	99	21.61	21.71	21.42	0-2	2
		50	0	20.52	20.42	20.38	0-3	3
		50	25	20.58	20.48	20.24	0-3	3
		50	49	20.53	20.51	20.25	0-3	3
		100	0	20.57	20.45	20.25	0-3	3
	256QAM	1	0	18.65	18.61	18.70	0-5	5
		1	49	18.72	18.48	18.30	0-5	5
		1	99	18.59	18.72	18.47	0-5	5
		50	0	18.62	18.44	18.43	0-5	5
		50	25	18.65	18.51	18.31	0-5	5
		50	49	18.58	18.60	18.28	0-5	5
		100	0	18.71	18.53	18.33	0-5	5

LTE FDD Band 7 Conducted Power _ Measured RSI = 1, 3 (Grip Sensor #1, #3)

MAIN1 Antenna

LTE FDD Band 7 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 MHz	21100 Ch. 2535 MHz	21350 Ch. 2560 MHz		
20 MHz	QPSK	1	0	20.77	20.82	20.98	0	0
		1	49	20.93	20.99	20.87	0	0
		1	99	20.80	20.97	20.89	0	0
		50	0	20.88	20.89	20.92	0-1	0
		50	25	20.98	21.03	20.84	0-1	0
		50	49	20.93	21.02	20.85	0-1	0
		100	0	20.99	20.95	20.82	0-1	0
	16QAM	1	0	21.05	21.02	21.36	0-1	0
		1	49	21.18	21.26	21.10	0-1	0
		1	99	21.05	21.38	21.18	0-1	0
		50	0	20.88	20.87	20.91	0-2	0
		50	25	20.95	20.91	20.83	0-2	0
		50	49	20.90	21.03	20.82	0-2	0
		100	0	20.95	21.00	20.84	0-2	0
	64QAM	1	0	20.95	20.97	21.20	0-2	0
		1	49	21.22	21.23	21.08	0-2	0
		1	99	21.00	21.27	21.04	0-2	0
		50	0	19.99	19.96	20.00	0-3	0.5
		50	25	20.06	20.03	19.89	0-3	0.5
		50	49	19.96	20.11	19.91	0-3	0.5
		100	0	20.00	20.01	19.90	0-3	0.5
	256QAM	1	0	18.03	18.09	18.25	0-5	2.5
		1	49	17.96	17.96	17.80	0-5	2.5
		1	99	18.05	18.25	18.11	0-5	2.5
		50	0	18.04	18.00	18.02	0-5	2.5
		50	25	18.11	18.10	17.94	0-5	2.5
		50	49	18.08	18.19	18.00	0-5	2.5
		100	0	18.13	18.07	17.94	0-5	2.5

LTE FDD Band 7 Conducted Power Measured Measured RSI = 2 (Grip Sensor #2)

MAIN1 Antenna

LTE FDD Band 7 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 MHz	21100 Ch. 2535 MHz	21350 Ch. 2560 MHz		
20 MHz	QPSK	1	0	8.75	8.75	8.81	0	0
		1	49	9.01	8.88	8.67	0	0
		1	99	8.77	8.87	8.63	0	0
		50	0	8.85	8.76	8.73	0-1	0
		50	25	8.96	8.87	8.66	0-1	0
		50	49	8.88	8.94	8.57	0-1	0
		100	0	8.77	8.70	8.82	0-1	0
	16QAM	1	0	8.94	9.03	9.06	0-1	0
		1	49	9.21	9.18	8.89	0-1	0
		1	99	9.01	9.15	8.94	0-1	0
		50	0	8.83	8.73	8.70	0-2	0
		50	25	8.89	8.81	8.63	0-2	0
		50	49	8.87	8.90	8.60	0-2	0
		100	0	8.98	8.99	9.13	0-2	0
	64QAM	1	0	8.89	8.88	9.02	0-2	0
		1	49	9.16	9.06	8.91	0-2	0
		1	99	8.88	9.05	8.85	0-2	0
		50	0	8.87	8.77	8.73	0-3	0
		50	25	8.93	8.81	8.61	0-3	0
		50	49	8.89	8.93	8.57	0-3	0
		100	0	8.86	8.83	8.96	0-3	0
	256QAM	1	0	8.85	8.81	8.90	0-5	0
		1	49	8.80	8.65	8.43	0-5	0
		1	99	8.85	8.98	8.65	0-5	0
		50	0	8.82	8.76	8.71	0-5	0
		50	25	8.93	8.85	8.64	0-5	0
		50	49	8.86	8.90	8.61	0-5	0
		100	0	8.88	8.82	8.91	0-5	0

LTE FDD Band 7 Conducted Power Measured $P_{max,RSI=0}$ (Free) _ SUB1 Antenna

LTE FDD Band 7 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 MHz	21100 Ch. 2535 MHz	21350 Ch. 2560 MHz		
20 MHz	QPSK	1	0	22.26	22.46	22.60	0	0
		1	49	22.45	22.64	22.63	0	0
		1	99	22.35	22.53	22.36	0	0
		50	0	21.26	21.44	21.57	0-1	1
		50	25	21.31	21.47	21.49	0-1	1
		50	49	21.31	21.50	21.46	0-1	1
		100	0	21.32	21.51	21.52	0-1	1
	16QAM	1	0	21.57	21.73	21.93	0-1	1
		1	49	21.76	21.89	21.94	0-1	1
		1	99	21.61	21.74	21.57	0-1	1
		50	0	20.32	20.48	20.55	0-2	2
		50	25	20.32	20.51	20.49	0-2	2
		50	49	20.32	20.51	20.46	0-2	2
		100	0	20.34	20.53	20.53	0-2	2
	64QAM	1	0	20.46	20.62	20.82	0-2	2
		1	49	20.54	20.68	20.65	0-2	2
		1	99	20.56	20.83	20.67	0-2	2
		50	0	19.33	19.48	19.64	0-3	3
		50	25	19.39	19.50	19.52	0-3	3
		50	49	19.35	19.55	19.48	0-3	3
		100	0	19.34	19.52	19.54	0-3	3
	256QAM	1	0	17.38	17.55	17.70	0-5	5
		1	49	17.25	17.43	17.46	0-5	5
		1	99	17.47	17.58	17.54	0-5	5
		50	0	17.29	17.47	17.57	0-5	5
		50	25	17.32	17.50	17.50	0-5	5
		50	49	17.34	17.53	17.44	0-5	5
		100	0	17.36	17.50	17.52	0-5	5

LTE FDD Band 7 Conducted Power Measured RSI = 5 (Grip Sensor #5) _ SUB1 Antenna

LTE FDD Band 7 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20850 Ch. 2510 MHz	21100 Ch. 2535 MHz	21350 Ch. 2560 MHz		
20 MHz	QPSK	1	0	10.60	10.77	10.89	0	0
		1	49	10.72	10.86	10.90	0	0
		1	99	10.61	10.82	10.69	0	0
		50	0	10.60	10.76	10.86	0-1	0
		50	25	10.66	10.77	10.81	0-1	0
		50	49	10.64	10.80	10.77	0-1	0
		100	0	10.62	10.81	10.78	0-1	0
	16QAM	1	0	10.85	10.98	11.13	0-1	0
		1	49	10.89	10.97	11.13	0-1	0
		1	99	10.93	11.03	11.02	0-1	0
		50	0	10.57	10.73	10.85	0-2	0
		50	25	10.60	10.73	10.81	0-2	0
		50	49	10.64	10.80	10.78	0-2	0
		100	0	10.61	10.76	10.82	0-2	0
	64QAM	1	0	10.70	10.80	11.03	0-2	0
		1	49	10.92	10.98	11.13	0-2	0
		1	99	10.82	11.01	10.89	0-2	0
		50	0	10.59	10.80	10.88	0-3	0
		50	25	10.64	10.75	10.81	0-3	0
		50	49	10.61	10.79	10.76	0-3	0
		100	0	10.60	10.74	10.80	0-3	0
	256QAM	1	0	10.68	10.78	11.02	0-5	0
		1	49	10.42	10.63	10.63	0-5	0
		1	99	10.70	10.89	10.76	0-5	0
		50	0	10.58	10.73	10.87	0-5	0
		50	25	10.65	10.79	10.85	0-5	0
		50	49	10.61	10.83	10.77	0-5	0
		100	0	10.61	10.74	10.77	0-5	0

11.2.5 LTE FDD Band 12 Maximum Conducted Output Power

LTE FDD Band 12 Conducted Power _ Measured Pmax, RSI = 0 (Free)_ MAIN1 Antenna

LTE FDD Band 12 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23095 Ch. 707.5 MHz		
10 MHz	QPSK	1	0	23.65	0	0
		1	24	23.82	0	0
		1	49	23.83	0	0
		25	0	22.70	0-1	1
		25	12	22.72	0-1	1
		25	24	22.75	0-1	1
		50	0	22.77	0-1	1
	16QAM	1	0	22.84	0-1	1
		1	24	22.95	0-1	1
		1	49	22.99	0-1	1
		25	0	21.64	0-2	2
		25	12	21.66	0-2	2
		25	24	21.73	0-2	2
		50	0	21.69	0-2	2
	64QAM	1	0	21.75	0-2	2
		1	24	21.94	0-2	2
		1	49	21.93	0-2	2
		25	0	20.65	0-3	3
		25	12	20.63	0-3	3
		25	24	20.73	0-3	3
		50	0	20.69	0-3	3
	256QAM	1	0	18.74	0-5	5
		1	24	18.44	0-5	5
		1	49	18.87	0-5	5
		25	0	18.68	0-5	5
		25	12	18.68	0-5	5
		25	24	18.75	0-5	5
		50	0	18.67	0-5	5

LTE FDD Band 12 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1 Antenna

LTE FDD Band 12 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23095 Ch. 707.5 MHz		
10 MHz	QPSK	1	0	14.09	0	0
		1	24	14.23	0	0
		1	49	14.29	0	0
		25	0	14.09	0-1	0
		25	12	14.11	0-1	0
		25	24	14.17	0-1	0
		50	0	14.13	0-1	0
	16QAM	1	0	14.42	0-1	0
		1	24	14.50	0-1	0
		1	49	14.53	0-1	0
		25	0	14.07	0-2	0
		25	12	14.08	0-2	0
		25	24	14.14	0-2	0
		50	0	14.12	0-2	0
	64QAM	1	0	14.22	0-2	0
		1	24	14.38	0-2	0
		1	49	14.41	0-2	0
		25	0	14.04	0-3	0
		25	12	14.07	0-3	0
		25	24	14.13	0-3	0
		50	0	14.09	0-3	0
	256QAM	1	0	14.22	0-5	0
		1	24	14.02	0-5	0
		1	49	14.25	0-5	0
		25	0	14.05	0-5	0
		25	12	14.09	0-5	0
		25	24	14.14	0-5	0
		50	0	14.10	0-5	0

11.2.6 LTE FDD Band 13 Maximum Conducted Output Power

LTE FDD Band 13 Conducted Power _ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

LTE FDD Band 13 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23230 Ch. 782 MHz		
10 MHz	QPSK	1	0	23.79	0	0
		1	24	23.94	0	0
		1	49	24.01	0	0
		25	0	22.89	0-1	1
		25	12	22.97	0-1	1
		25	24	23.00	0-1	1
		50	0	22.93	0-1	1
	16QAM	1	0	22.96	0-1	1
		1	24	23.13	0-1	1
		1	49	23.25	0-1	1
		25	0	21.85	0-2	2
		25	12	21.88	0-2	2
		25	24	21.97	0-2	2
		50	0	21.90	0-2	2
	64QAM	1	0	21.96	0-2	2
		1	24	22.13	0-2	2
		1	49	22.17	0-2	2
		25	0	20.82	0-3	3
		25	12	20.90	0-3	3
		25	24	20.99	0-3	3
		50	0	20.95	0-3	3
	256QAM	1	0	18.97	0-5	5
		1	24	18.73	0-5	5
		1	49	19.08	0-5	5
		25	0	18.81	0-5	5
		25	12	18.90	0-5	5
		25	24	18.98	0-5	5
		50	0	18.92	0-5	5

LTE FDD Band 13 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 13 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23230 Ch. 782 MHz		
10 MHz	QPSK	1	0	12.99	0	0
		1	24	12.90	0	0
		1	49	12.92	0	0
		25	0	12.79	0-1	0
		25	12	12.91	0-1	0
		25	24	12.86	0-1	0
		50	0	12.85	0-1	0
	16QAM	1	0	13.27	0-1	0
		1	24	13.26	0-1	0
		1	49	13.30	0-1	0
		25	0	12.82	0-2	0
		25	12	12.89	0-2	0
		25	24	12.96	0-2	0
		50	0	13.08	0-2	0
	64QAM	1	0	13.01	0-2	0
		1	24	13.18	0-2	0
		1	49	13.19	0-2	0
		25	0	12.86	0-3	0
		25	12	12.83	0-3	0
		25	24	12.95	0-3	0
		50	0	13.01	0-3	0
	256QAM	1	0	13.00	0-5	0
		1	24	12.76	0-5	0
		1	49	13.15	0-5	0
		25	0	12.78	0-5	0
		25	12	12.81	0-5	0
		25	24	12.86	0-5	0
		50	0	12.98	0-5	0

11.2.7 LTE FDD Band 14 Maximum Conducted Output Power

LTE FDD Band 14 Conducted Power_Measured Pmax, RSI = 0 (free) _ MAIN1

Antenna

LTE FDD Band 14 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23330 Ch. 793 MHz		
10 MHz	QPSK	1	0	24.02	0	0
		1	24	24.16	0	0
		1	49	24.02	0	0
		25	0	23.17	0-1	1
		25	12	23.14	0-1	1
		25	24	23.13	0-1	1
		50	0	23.15	0-1	1
	16QAM	1	0	23.18	0-1	1
		1	24	23.35	0-1	1
		1	49	23.24	0-1	1
		25	0	22.13	0-2	2
		25	12	22.07	0-2	2
		25	24	22.05	0-2	2
		50	0	22.11	0-2	2
	64QAM	1	0	22.17	0-2	2
		1	24	22.26	0-2	2
		1	49	22.15	0-2	2
		25	0	21.08	0-3	3
		25	12	21.12	0-3	3
		25	24	21.03	0-3	3
		50	0	21.15	0-3	3
	256QAM	1	0	19.15	0-5	5
		1	24	18.91	0-5	5
		1	49	19.05	0-5	5
		25	0	19.09	0-5	5
		25	12	19.11	0-5	5
		25	24	19.07	0-5	5
		50	0	19.12	0-5	5

LTE FDD Band 14 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 14 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				23330 Ch. 793 MHz		
10 MHz	QPSK	1	0	13.32	0	0
		1	24	13.45	0	0
		1	49	13.34	0	0
		25	0	13.28	0-1	0
		25	12	13.36	0-1	0
		25	24	13.25	0-1	0
		50	0	13.26	0-1	0
	16QAM	1	0	13.62	0-1	0
		1	24	13.74	0-1	0
		1	49	13.63	0-1	0
		25	0	13.30	0-2	0
		25	12	13.41	0-2	0
		25	24	13.38	0-2	0
		50	0	13.58	0-2	0
	64QAM	1	0	13.46	0-2	0
		1	24	13.71	0-2	0
		1	49	13.49	0-2	0
		25	0	13.35	0-3	0
		25	12	13.34	0-3	0
		25	24	13.34	0-3	0
		50	0	13.53	0-3	0
	256QAM	1	0	13.43	0-5	0
		1	24	13.16	0-5	0
		1	49	13.52	0-5	0
		25	0	13.25	0-5	0
		25	12	13.30	0-5	0
		25	24	13.31	0-5	0
		50	0	13.43	0-5	0

11.2.8 LTE FDD Band 25 Maximum Conducted Output Power

LTE FDD Band 25 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ MAIN1

Antenna

LTE FDD Band 25 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	23.91	23.79	23.94	0	0
		1	49	23.88	24.06	23.87	0	0
		1	99	23.77	24.00	23.72	0	0
		50	0	22.86	22.97	22.92	0-1	1
		50	25	22.82	22.99	22.80	0-1	1
		50	49	22.75	22.95	22.71	0-1	1
		100	0	22.79	23.01	22.80	0-1	1
	16QAM	1	0	23.11	23.06	23.23	0-1	1
		1	49	23.17	23.33	23.12	0-1	1
		1	99	23.09	23.30	23.00	0-1	1
		50	0	21.83	21.91	21.92	0-2	2
		50	25	21.77	21.97	21.80	0-2	2
		50	49	21.75	21.93	21.74	0-2	2
		100	0	21.84	21.95	21.76	0-2	2
	64QAM	1	0	22.10	21.96	22.10	0-2	2
		1	49	21.97	22.09	21.90	0-2	2
		1	99	21.92	22.11	21.87	0-2	2
		50	0	20.87	20.92	20.91	0-3	3
		50	25	20.79	20.94	20.78	0-3	3
		50	49	20.76	20.93	20.73	0-3	3
		100	0	20.79	20.92	20.76	0-3	3
	256QAM	1	0	18.90	18.81	19.01	0-5	5
		1	49	18.60	18.82	18.59	0-5	5
		1	99	18.81	18.93	18.75	0-5	5
		50	0	18.78	18.84	18.83	0-5	5
		50	25	18.73	18.93	18.70	0-5	5
		50	49	18.68	18.88	18.66	0-5	5
		100	0	18.72	18.90	18.69	0-5	5

LTE FDD Band 25 Conducted Power_ Measured RSI = 1,3 (Grip Sensor #1, #3) _ MAIN1

Antenna

LTE FDD Band 25 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	17.28	17.17	17.33	0	0
		1	49	17.24	17.44	17.24	0	0
		1	99	17.07	17.33	17.09	0	0
		50	0	17.20	17.31	17.29	0-1	0
		50	25	17.18	17.32	17.17	0-1	0
		50	49	17.13	17.28	17.06	0-1	0
		100	0	17.27	17.14	17.32	0-1	0
	16QAM	1	0	17.53	17.41	17.59	0-1	0
		1	49	17.40	17.63	17.46	0-1	0
		1	99	17.41	17.56	17.25	0-1	0
		50	0	17.18	17.23	17.27	0-2	0
		50	25	17.17	17.32	17.09	0-2	0
		50	49	17.12	17.28	17.10	0-2	0
		100	0	17.46	17.38	17.48	0-2	0
	64QAM	1	0	17.45	17.29	17.50	0-2	0
		1	49	17.37	17.49	17.28	0-2	0
		1	99	17.30	17.46	17.29	0-2	0
		50	0	17.24	17.29	17.28	0-3	0
		50	25	17.13	17.31	17.10	0-3	0
		50	49	17.11	17.31	17.10	0-3	0
		100	0	17.42	17.37	17.44	0-3	0
	256QAM	1	0	17.39	17.26	17.42	0-5	0
		1	49	17.02	17.17	17.03	0-5	0
		1	99	17.22	17.37	17.16	0-5	0
		50	0	17.23	17.27	17.26	0-5	0
		50	25	17.18	17.31	17.13	0-5	0
		50	49	17.11	17.28	17.08	0-5	0
		100	0	17.38	17.28	17.39	0-5	0

LTE FDD Band 25 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 25 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	11.37	11.22	11.43	0	0
		1	49	11.29	11.52	11.31	0	0
		1	99	11.20	11.39	11.17	0	0
		50	0	11.29	11.35	11.36	0-1	0
		50	25	11.25	11.50	11.24	0-1	0
		50	49	11.22	11.34	11.17	0-1	0
		100	0	11.37	11.19	11.38	0-1	0
	16QAM	1	0	11.59	11.53	11.63	0-1	0
		1	49	11.47	11.69	11.52	0-1	0
		1	99	11.48	11.67	11.38	0-1	0
		50	0	11.29	11.32	11.32	0-2	0
		50	25	11.25	11.38	11.19	0-2	0
		50	49	11.18	11.30	11.15	0-2	0
		100	0	11.65	11.55	11.76	0-2	0
	64QAM	1	0	11.50	11.34	11.53	0-2	0
		1	49	11.48	11.59	11.42	0-2	0
		1	99	11.37	11.55	11.30	0-2	0
		50	0	11.30	11.35	11.33	0-3	0
		50	25	11.22	11.40	11.23	0-3	0
		50	49	11.20	11.37	11.15	0-3	0
		100	0	11.58	11.34	11.57	0-3	0
	256QAM	1	0	11.40	11.31	11.51	0-5	0
		1	49	11.01	11.20	10.96	0-5	0
		1	99	11.26	11.46	11.25	0-5	0
		50	0	11.29	11.33	11.33	0-5	0
		50	25	11.24	11.38	11.23	0-5	0
		50	49	11.23	11.31	11.14	0-5	0
		100	0	11.43	11.33	11.51	0-5	0

LTE FDD Band 25 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ SUB1

Antenna

LTE FDD Band 25 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	22.94	22.76	22.86	0	0
		1	49	22.93	22.97	22.81	0	0
		1	99	22.79	22.98	22.81	0	0
		50	0	21.95	21.85	21.79	0-1	1
		50	25	21.87	21.94	21.75	0-1	1
		50	49	21.82	21.96	21.78	0-1	1
		100	0	21.90	21.93	21.74	0-1	1
	16QAM	1	0	22.33	21.99	22.14	0-1	1
		1	49	22.24	22.27	22.10	0-1	1
		1	99	22.11	22.18	22.01	0-1	1
		50	0	20.93	20.85	20.78	0-2	2
		50	25	20.87	20.92	20.75	0-2	2
		50	49	20.80	20.96	20.74	0-2	2
		100	0	20.87	20.93	20.71	0-2	2
	64QAM	1	0	21.13	20.96	20.97	0-2	2
		1	49	21.05	21.09	20.93	0-2	2
		1	99	21.01	21.17	20.98	0-2	2
		50	0	19.92	19.83	19.78	0-3	3
		50	25	19.84	19.89	19.71	0-3	3
		50	49	19.85	19.96	19.76	0-3	3
		100	0	19.85	19.91	19.71	0-3	3
	256QAM	1	0	18.06	17.86	17.84	0-5	5
		1	49	17.66	17.73	17.55	0-5	5
		1	99	17.85	17.98	17.85	0-5	5
		50	0	17.89	17.81	17.71	0-5	5
		50	25	17.81	17.88	17.67	0-5	5
		50	49	17.78	17.91	17.71	0-5	5
		100	0	17.82	17.88	17.71	0-5	5

LTE FDD Band 25 Conducted Power_ Measured RSI = 5 (Grip Sensor #5)_ SUB1

Antenna

LTE FDD Band 25 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 MHz	26365 Ch. 1882.5 MHz	26590 Ch. 1905 MHz		
20 MHz	QPSK	1	0	10.77	10.54	10.58	0	0
		1	49	10.68	10.74	10.52	0	0
		1	99	10.58	10.72	10.58	0	0
		50	0	10.70	10.63	10.54	0-1	0
		50	25	10.65	10.69	10.64	0-1	0
		50	49	10.58	10.71	10.50	0-1	0
		100	0	10.66	10.72	10.47	0-1	0
	16QAM	1	0	10.92	10.73	10.86	0-1	0
		1	49	10.85	10.91	10.80	0-1	0
		1	99	10.84	10.98	10.77	0-1	0
		50	0	10.68	10.60	10.51	0-2	0
		50	25	10.59	10.72	10.46	0-2	0
		50	49	10.55	10.72	10.48	0-2	0
		100	0	10.65	10.69	10.46	0-2	0
	64QAM	1	0	10.89	10.69	10.72	0-2	0
		1	49	10.83	10.80	10.67	0-2	0
		1	99	10.80	10.92	10.64	0-2	0
		50	0	10.68	10.61	10.52	0-3	0
		50	25	10.63	10.71	10.46	0-3	0
		50	49	10.57	10.73	10.48	0-3	0
		100	0	10.65	10.69	10.45	0-3	0
	256QAM	1	0	10.82	10.67	10.71	0-5	0
		1	49	10.50	10.47	10.29	0-5	0
		1	99	10.66	10.78	10.58	0-5	0
		50	0	10.66	10.60	10.53	0-5	0
		50	25	10.63	10.66	10.46	0-5	0
		50	49	10.60	10.68	10.47	0-5	0
		100	0	10.65	10.64	10.45	0-5	0

11.2.9 LTE FDD Band 26 Maximum Conducted Output Power

LTE FDD Band 26 Conducted Power _ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

LTE FDD Band 26 _ 15 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				26865 Ch. 831.5 MHz		
15 MHz	QPSK	1	0	24.63	0	0
		1	36	24.49	0	0
		1	74	24.09	0	0
		36	0	23.65	0-1	1
		36	18	23.48	0-1	1
		36	39	23.36	0-1	1
		75	0	23.48	0-1	1
	16QAM	1	0	23.78	0-1	1
		1	36	23.67	0-1	1
		1	74	23.41	0-1	1
		36	0	22.58	0-2	2
		36	18	22.53	0-2	2
		36	39	22.28	0-2	2
		75	0	22.42	0-2	2
	64QAM	1	0	22.74	0-2	2
		1	36	22.57	0-2	2
		1	74	22.27	0-2	2
		36	0	21.61	0-3	3
		36	18	21.51	0-3	3
		36	39	21.36	0-3	3
		75	0	21.46	0-3	3
	256QAM	1	0	19.73	0-5	5
		1	36	19.04	0-5	5
		1	74	19.23	0-5	5
		36	0	19.59	0-5	5
		36	18	19.51	0-5	5
		36	39	19.31	0-5	5
		75	0	19.47	0-5	5

LTE FDD Band 26 Conducted Power _ Measured RSI = 1, 3 (Grip Sensor #1, #3) _ MAIN1

Antenna

LTE FDD Band 26 _ 15 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				26865 Ch. 831.5 MHz		
15 MHz	QPSK	1	0	22.79	0	0
		1	36	22.48	0	0
		1	74	22.38	0	0
		36	0	22.83	0-1	0
		36	18	22.69	0-1	0
		36	39	22.56	0-1	0
		75	0	22.84	0-1	0
	16QAM	1	0	23.07	0-1	0
		1	36	23.07	0-1	0
		1	74	22.47	0-1	0
		36	0	22.31	0-2	1
		36	18	22.16	0-2	1
		36	39	22.01	0-2	1
		75	0	22.87	0-2	1
	64QAM	1	0	22.53	0-2	1
		1	36	22.25	0-2	1
		1	74	21.98	0-2	1
		36	0	21.34	0-3	2
		36	18	21.26	0-3	2
		36	39	21.06	0-3	2
		75	0	21.93	0-3	2
	256QAM	1	0	19.41	0-5	4
		1	36	19.29	0-5	4
		1	74	19.03	0-5	4
		36	0	19.35	0-5	4
		36	18	19.22	0-5	4
		36	39	19.08	0-5	4
		75	0	19.50	0-5	4

LTE FDD Band 26 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 26 _ 15 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				26865 Ch. 831.5 MHz		
15 MHz	QPSK	1	0	14.16	0	0
		1	36	13.78	0	0
		1	74	13.69	0	0
		36	0	14.11	0-1	0
		36	18	14.01	0-1	0
		36	39	13.89	0-1	0
		75	0	14.13	0-1	0
	16QAM	1	0	14.46	0-1	0
		1	36	14.48	0-1	0
		1	74	14.02	0-1	0
		36	0	14.13	0-2	0
		36	18	14.02	0-2	0
		36	39	13.90	0-2	0
		75	0	14.47	0-2	0
	64QAM	1	0	14.38	0-2	0
		1	36	14.23	0-2	0
		1	74	13.99	0-2	0
		36	0	14.18	0-3	0
		36	18	14.05	0-3	0
		36	39	13.93	0-3	0
		75	0	14.44	0-3	0
	256QAM	1	0	14.35	0-5	0
		1	36	14.09	0-5	0
		1	74	13.91	0-5	0
		36	0	14.19	0-5	0
		36	18	14.04	0-5	0
		36	39	13.89	0-5	0
		75	0	14.31	0-5	0

11.2.10 LTE FDD Band 30 Maximum Conducted Output Power

LTE FDD Band 30 Conducted Power_ Measured Pmax , RSI = 0 (Free) _ MAIN1

Antenna

LTE FDD Band 30 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				27710 Ch. 2310 MHz		
10 MHz	QPSK	1	0	22.71	0	0
		1	24	22.70	0	0
		1	49	22.51	0	0
		25	0	21.96	0-1	1
		25	12	21.88	0-1	1
		25	24	21.83	0-1	1
		50	0	21.88	0-1	1
	16QAM	1	0	22.29	0-1	1
		1	24	22.26	0-1	1
		1	49	22.04	0-1	1
		25	0	20.98	0-2	2
		25	12	20.85	0-2	2
		25	24	20.85	0-2	2
		50	0	20.88	0-2	2
	64QAM	1	0	21.18	0-2	2
		1	24	21.01	0-2	2
		1	49	21.04	0-2	2
		25	0	19.95	0-3	3
		25	12	19.82	0-3	3
		25	24	19.78	0-3	3
		50	0	19.87	0-3	3
	256QAM	1	0	18.11	0-5	5
		1	24	17.61	0-5	5
		1	49	17.77	0-5	5
		25	0	17.90	0-5	5
		25	12	17.81	0-5	5
		25	24	17.75	0-5	5
		50	0	17.76	0-5	5

LTE FDD Band 30 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3) _ MAIN1

Antenna

LTE FDD Band 30 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				27710 Ch. 2310 MHz		
10 MHz	QPSK	1	0	20.28	0	0
		1	24	20.16	0	0
		1	49	20.05	0	0
		25	0	20.24	0-1	0
		25	12	20.05	0-1	0
		25	24	20.03	0-1	0
		50	0	20.09	0-1	0
	16QAM	1	0	20.51	0-1	0
		1	24	20.44	0-1	0
		1	49	20.26	0-1	0
		25	0	20.18	0-2	0
		25	12	20.12	0-2	0
		25	24	20.04	0-2	0
		50	0	20.10	0-2	0
	64QAM	1	0	20.38	0-2	0
		1	24	20.42	0-2	0
		1	49	20.24	0-2	0
		25	0	19.63	0-3	0.5
		25	12	19.55	0-3	0.5
		25	24	19.52	0-3	0.5
		50	0	19.62	0-3	0.5
	256QAM	1	0	17.83	0-5	2.5
		1	24	17.37	0-5	2.5
		1	49	17.60	0-5	2.5
		25	0	17.59	0-5	2.5
		25	12	17.51	0-5	2.5
		25	24	17.49	0-5	2.5
		50	0	17.56	0-5	2.5

LTE FDD Band 30 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 30 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				27710 Ch. 2310 MHz		
10 MHz	QPSK	1	0	11.49	0	0
		1	24	11.42	0	0
		1	49	11.28	0	0
		25	0	11.49	0-1	0
		25	12	11.37	0-1	0
		25	24	11.26	0-1	0
		50	0	11.50	0-1	0
	16QAM	1	0	11.71	0-1	0
		1	24	11.58	0-1	0
		1	49	11.48	0-1	0
		25	0	11.54	0-2	0
		25	12	11.38	0-2	0
		25	24	11.30	0-2	0
		50	0	11.75	0-2	0
	64QAM	1	0	11.65	0-2	0
		1	24	11.59	0-2	0
		1	49	11.46	0-2	0
		25	0	11.50	0-3	0
		25	12	11.37	0-3	0
		25	24	11.26	0-3	0
		50	0	11.64	0-3	0
	256QAM	1	0	11.64	0-5	0
		1	24	11.20	0-5	0
		1	49	11.31	0-5	0
		25	0	11.46	0-5	0
		25	12	11.36	0-5	0
		25	24	11.22	0-5	0
		50	0	11.56	0-5	0

LTE FDD Band 30 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ SUB1 Antenna

LTE FDD Band 30 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				27710 Ch. 2310 MHz		
10 MHz	QPSK	1	0	22.55	0	0
		1	24	22.53	0	0
		1	49	22.54	0	0
		25	0	21.51	0-1	1
		25	12	21.47	0-1	1
		25	24	21.50	0-1	1
		50	0	21.50	0-1	1
	16QAM	1	0	21.81	0-1	1
		1	24	21.74	0-1	1
		1	49	21.82	0-1	1
		25	0	20.57	0-2	2
		25	12	20.46	0-2	2
		25	24	20.48	0-2	2
		50	0	20.51	0-2	2
	64QAM	1	0	20.74	0-2	2
		1	24	20.65	0-2	2
		1	49	20.71	0-2	2
		25	0	19.54	0-3	3
		25	12	19.46	0-3	3
		25	24	19.47	0-3	3
		50	0	19.54	0-3	3
	256QAM	1	0	17.72	0-5	5
		1	24	17.32	0-5	5
		1	49	17.66	0-5	5
		25	0	17.55	0-5	5
		25	12	17.42	0-5	5
		25	24	17.48	0-5	5
		50	0	17.47	0-5	5

LTE FDD Band 30 Conducted Power_ Measured RSI = 5 (Grip Sensor #5)_ SUB1

Antenna

LTE FDD Band 30 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				27710 Ch. 2310 MHz		
10 MHz	QPSK	1	0	13.28	0	0
		1	24	13.24	0	0
		1	49	13.26	0	0
		25	0	13.27	0-1	0
		25	12	13.23	0-1	0
		25	24	13.19	0-1	0
		50	0	13.21	0-1	0
	16QAM	1	0	13.57	0-1	0
		1	24	13.47	0-1	0
		1	49	13.54	0-1	0
		25	0	13.23	0-2	0
		25	12	13.17	0-2	0
		25	24	13.19	0-2	0
		50	0	13.20	0-2	0
	64QAM	1	0	13.45	0-2	0
		1	24	13.48	0-2	0
		1	49	13.38	0-2	0
		25	0	13.24	0-3	0
		25	12	13.17	0-3	0
		25	24	13.22	0-3	0
		50	0	13.20	0-3	0
	256QAM	1	0	13.34	0-5	0
		1	24	12.92	0-5	0
		1	49	13.29	0-5	0
		25	0	13.24	0-5	0
		25	12	13.19	0-5	0
		25	24	13.23	0-5	0
		50	0	13.21	0-5	0

11.2.11 LTE TDD Band 38 Maximum Conducted Output Power

LTE TDD Band 38 Conducted Power_ Measured Pmax, RSI = 0 (Free)_ MAIN1

Antenna

LTE TDD Band 38 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37850 2580 MHz	38000 Ch. 2595 MHz	38150 2610 MHz		
20 MHz	QPSK	1	0	23.33	23.42	23.53	0	0
		1	49	23.36	23.51	23.56	0	0
		1	99	23.30	23.45	23.43	0	0
		50	0	22.35	22.44	22.55	0-1	1
		50	25	22.33	22.48	22.53	0-1	1
		50	49	22.33	22.50	22.50	0-1	1
		100	0	22.31	22.48	22.52	0-1	1
	16QAM	1	0	22.35	22.42	22.54	0-1	1
		1	49	22.42	22.58	22.63	0-1	1
		1	99	22.31	22.46	22.44	0-1	1
		50	0	21.38	21.49	21.58	0-2	2
		50	25	21.34	21.49	21.54	0-2	2
		50	49	21.35	21.47	21.51	0-2	2
		100	0	21.34	21.50	21.54	0-2	2
	64QAM	1	0	21.02	21.12	21.22	0-2	2
		1	49	21.03	21.19	21.23	0-2	2
		1	99	20.96	21.12	21.10	0-2	2
		50	0	20.40	20.50	20.60	0-3	3
		50	25	20.38	20.53	20.58	0-3	3
		50	49	20.37	20.52	20.54	0-3	3
		100	0	20.33	20.46	20.52	0-3	3
	256QAM	1	0	18.15	18.22	18.34	0-5	5
		1	49	18.18	18.35	18.39	0-5	5
		1	99	18.10	18.26	18.25	0-5	5
		50	0	18.38	18.48	18.58	0-5	5
		50	25	18.35	18.49	18.56	0-5	5
		50	49	18.36	18.51	18.53	0-5	5
		100	0	18.30	18.45	18.49	0-5	5

LTE TDD Band 38 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE TDD Band 38 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				37850 2580 MHz	38000 Ch. 2595 MHz	38150 2610 MHz		
20 MHz	QPSK	1	0	11.81	11.86	11.97	0	0
		1	49	11.80	11.90	11.93	0	0
		1	99	11.75	11.84	11.84	0	0
		50	0	11.88	11.94	12.02	0-1	0
		50	25	11.85	11.96	11.99	0-1	0
		50	49	11.86	11.97	11.95	0-1	0
		100	0	11.86	11.96	11.98	0-1	0
	16QAM	1	0	11.81	11.84	11.95	0-1	0
		1	49	11.71	11.83	11.84	0-1	0
		1	99	11.73	11.83	11.83	0-1	0
		50	0	11.87	11.94	12.02	0-2	0
		50	25	11.84	11.94	11.97	0-2	0
		50	49	11.84	11.96	11.93	0-2	0
		100	0	11.86	11.96	11.98	0-2	0
	64QAM	1	0	11.51	11.53	11.67	0-2	0
		1	49	11.45	11.54	11.56	0-2	0
		1	99	11.42	11.51	11.51	0-2	0
		50	0	11.90	11.96	12.04	0-3	0
		50	25	11.90	11.97	12.01	0-3	0
		50	49	11.87	11.98	11.95	0-3	0
		100	0	11.84	11.94	11.96	0-3	0
	256QAM	1	0	11.67	11.70	11.83	0-5	0
		1	49	11.66	11.75	11.77	0-5	0
		1	99	11.64	11.72	11.72	0-5	0
		50	0	11.92	11.98	12.06	0-5	0
		50	25	11.91	12.00	12.04	0-5	0
		50	49	11.91	12.02	11.99	0-5	0
		100	0	11.86	11.96	11.98	0-5	0

11.2.12 LTE TDD Band 41 Maximum Conducted Output Power

LTE TDD Band 41 Conducted Power (Power Class 3) _Measured Pmax, RSI = 0 (Free)

_ MAIN1 Antenna

LTE TDD Band 41 _ 20 MHz Bandwidth Conducted Power –Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
20 MHz	QPSK	1	0	23.62	23.58	23.49	23.65	23.58		
		1	49	23.68	23.47	23.60	23.54	23.56	0	0
		1	99	23.69	23.41	23.65	23.53	23.43	0	0
		50	0	22.68	22.61	22.52	22.63	22.54	0	0
		50	25	22.65	22.52	22.58	22.59	22.55	0-1	1
		50	49	22.57	22.50	22.58	22.59	22.50	0-1	1
		100	0	22.66	22.55	22.54	22.60	22.53	0-1	1
	16QAM	1	0	22.64	22.59	22.54	22.64	22.56	0-1	1
		1	49	22.74	22.66	22.67	22.55	22.64	0-1	1
		1	99	22.50	22.42	22.56	22.59	22.46	0-1	1
		50	0	21.71	21.63	21.57	21.67	21.51	0-1	1
		50	25	21.66	21.58	21.58	21.63	21.56	0-2	2
		50	49	21.61	21.52	21.59	21.64	21.52	0-2	2
		100	0	21.65	21.57	21.58	21.65	21.56	0-2	2
	64QAM	1	0	21.34	21.27	21.19	21.36	21.22	0-2	2
		1	49	21.18	21.10	21.28	21.39	21.26	0-2	2
		1	99	21.15	21.09	21.20	21.26	21.09	0-2	2
		50	0	20.72	20.65	20.57	20.75	20.59	0-2	2
		50	25	20.69	20.60	20.60	20.69	20.59	0-3	3
		50	49	20.61	20.53	20.60	20.68	20.53	0-3	3
		100	0	20.63	20.55	20.54	20.64	20.54	0-3	3
	256QAM	1	0	18.44	18.40	18.31	18.50	18.32	0-3	3
		1	49	18.50	18.43	18.34	18.41	18.39	0-5	5
		1	99	18.30	18.22	18.35	18.40	18.23	0-5	5
		50	0	18.68	18.62	18.56	18.70	18.56	0-5	5
		50	25	18.65	18.57	18.59	18.67	18.55	0-5	5
		50	49	18.60	18.52	18.59	18.67	18.52	0-5	5
		100	0	18.59	18.51	18.52	18.61	18.51	0-5	5

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

LTE TDD Band 41 Conducted Power (Power Class 3) _ Measured RSI = 2
(Grip Sensor #2) _ MAIN1 Antenna

LTE TDD Band 41 _ 20 MHz Bandwidth Conducted Power – Power Class 3

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
20 MHz	QPSK	1	0	11.77	11.92	11.86	11.89	11.90	0	0
		1	49	11.80	11.92	11.89	11.91	11.93	0	0
		1	99	11.67	11.82	11.87	11.87	11.84	0	0
		50	0	11.92	12.00	11.93	11.96	12.01	0-1	0
		50	25	11.89	11.98	11.95	11.96	12.00	0-1	0
		50	49	11.82	11.95	11.98	11.96	11.97	0-1	0
		100	0	11.88	11.97	11.95	11.95	11.98	0-1	0
	16QAM	1	0	11.73	11.90	11.85	11.88	11.88	0-1	0
		1	49	11.71	11.84	11.80	11.83	11.83	0-1	0
		1	99	11.66	11.80	11.85	11.85	11.81	0-1	0
		50	0	11.89	12.00	11.92	11.96	11.98	0-2	0
		50	25	11.85	11.96	11.93	11.95	11.96	0-2	0
		50	49	11.79	11.95	11.96	11.95	11.95	0-2	0
		100	0	11.85	11.96	11.95	11.96	11.97	0-2	0
	64QAM	1	0	11.45	11.60	11.54	11.59	11.59	0-2	0
		1	49	11.43	11.55	11.52	11.56	11.55	0-2	0
		1	99	11.33	11.52	11.53	11.53	11.50	0-2	0
		50	0	11.91	12.01	11.95	12.00	12.01	0-3	0
		50	25	11.89	11.99	11.97	12.00	12.01	0-3	0
		50	49	11.80	11.97	11.98	11.98	11.97	0-3	0
		100	0	11.84	11.94	11.94	11.94	11.95	0-3	0
	256QAM	1	0	11.64	11.77	11.71	11.77	11.75	0-5	0
		1	49	11.65	11.78	11.74	11.77	11.77	0-5	0
		1	99	11.55	11.69	11.73	11.74	11.72	0-5	0
		50	0	11.94	12.04	11.97	12.02	12.04	0-5	0
		50	25	11.91	12.02	11.99	12.03	12.04	0-5	0
		50	49	11.85	12.01	12.01	12.02	12.02	0-5	0
		100	0	11.85	11.96	11.95	11.97	11.99	0-5	0

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

LTE TDD Band 41 Conducted Power (Power Class 2) _ Pmax, Measured RSI = 0 (Free)

_ MAIN1 Antenna

LTE TDD Band 41 _ 20 MHz Bandwidth Conducted Power – Power Class 2

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
20 MHz	QPSK	1	0	25.45	25.44	25.38	25.45	25.34	0	0
		1	49	25.36	25.29	25.31	25.33	25.22	0	0
		1	99	25.49	25.23	25.37	25.36	25.18	0	0
		50	0	24.76	24.65	24.62	24.70	24.59	0-1	1
		50	25	24.72	24.60	24.63	24.66	24.57	0-1	1
		50	49	24.66	24.55	24.63	24.67	24.51	0-1	1
		100	0	24.72	24.61	24.64	24.67	24.57	0-1	1
	16QAM	1	0	24.97	24.92	24.88	24.98	24.84	0-1	1
		1	49	24.92	24.84	24.85	24.90	24.77	0-1	1
		1	99	24.83	24.75	24.88	24.91	24.70	0-1	1
		50	0	23.79	23.70	23.65	23.77	23.63	0-2	2
		50	25	23.76	23.66	23.67	23.74	23.62	0-2	2
		50	49	23.70	23.62	23.68	23.74	23.57	0-2	2
		100	0	23.78	23.67	23.70	23.75	23.64	0-2	2
	64QAM	1	0	23.73	23.66	23.61	23.72	23.59	0-2	2
		1	49	23.55	23.45	23.47	23.52	23.40	0-2	2
		1	99	23.56	23.48	23.59	23.63	23.45	0-2	2
		50	0	22.84	22.76	22.71	22.83	22.68	0-3	3
		50	25	22.82	22.72	22.74	22.80	22.67	0-3	3
		50	49	22.75	22.65	22.72	22.79	22.62	0-3	3
		100	0	22.76	22.67	22.69	22.76	22.62	0-3	3
	256QAM	1	0	20.78	20.72	20.66	20.80	20.65	0-5	5
		1	49	20.74	20.66	20.66	20.75	20.61	0-5	5
		1	99	20.59	20.52	20.64	20.70	20.51	0-5	5
		50	0	20.84	20.78	20.72	20.90	20.69	0-5	5
		50	25	20.81	20.73	20.73	20.87	20.69	0-5	5
		50	49	20.75	20.67	20.74	20.87	20.64	0-5	5
		100	0	20.75	20.67	20.68	20.76	20.64	0-5	5

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

LTE TDD Band 41 Conducted Power (Power Class 2) _ Measured RSI = 2
(Grip Sensor #2) _ MAIN1 Antenna

LTE TDD Band 41 _ 20 MHz Bandwidth Conducted Power – Power Class 2

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 MHz	40185 Ch. 2549.5 MHz	40620 Ch. 2593.0 MHz	41055 Ch. 2636.5 MHz	41490 Ch. 2680.0 MHz		
20 MHz	QPSK	1	0	13.79	13.93	13.84	13.89	13.86	0	0
		1	49	13.64	13.80	13.76	13.77	13.78	0	0
		1	99	13.64	13.85	13.84	13.87	13.81	0	0
		50	0	13.81	13.90	13.85	13.86	13.88	0-1	0
		50	25	13.77	13.89	13.85	13.85	13.86	0-1	0
		50	49	13.69	13.88	13.87	13.85	13.85	0-1	0
		100	0	13.77	13.88	13.86	13.86	13.87	0-1	0
	16QAM	1	0	13.94	14.07	14.05	14.06	14.05	0-1	0
		1	49	13.83	13.97	13.94	13.96	13.92	0-1	0
		1	99	13.81	14.01	14.02	14.05	13.97	0-1	0
		50	0	13.81	13.91	13.86	13.88	13.90	0-2	0
		50	25	13.77	13.90	13.87	13.87	13.88	0-2	0
		50	49	13.71	13.89	13.90	13.89	13.87	0-2	0
		100	0	13.79	13.91	13.89	13.90	13.90	0-2	0
	64QAM	1	0	13.67	13.83	13.78	13.80	13.79	0-2	0
		1	49	13.51	13.66	13.64	13.64	13.63	0-2	0
		1	99	13.53	13.72	13.75	13.76	13.70	0-2	0
		50	0	13.85	13.95	13.89	13.92	13.93	0-3	0
		50	25	13.82	13.94	13.92	13.94	13.93	0-3	0
		50	49	13.74	13.92	13.91	13.92	13.89	0-3	0
		100	0	13.77	13.89	13.87	13.87	13.88	0-3	0
	256QAM	1	0	13.74	13.86	13.83	13.85	13.84	0-5	0
		1	49	13.67	13.80	13.78	13.80	13.76	0-5	0
		1	99	13.58	13.77	13.79	13.81	13.74	0-5	0
		50	0	13.86	13.96	13.91	13.94	13.95	0-5	0
		50	25	13.82	13.96	13.92	13.94	13.93	0-5	0
		50	49	13.76	13.94	13.94	13.94	13.91	0-5	0
		100	0	13.77	13.91	13.89	13.89	13.90	0-5	0

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

11.2.13 LTE TDD Band 48 Maximum Conducted Output Power

LTE TDD Band 48 Conducted Power_ Measured RSI = 0, 1, 2, 3, 4, 5

(Free, Grip Sensor #1, #2, #3, #4, #5) _ SUB2 Antenna

LTE TDD Band 48 _ 20 MHz Bandwidth Conducted

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR Allowed Per 3GPP [dB]	MPR [dB]
				55340Ch. 3560.0 MHz	55773 Ch. 3603.3 MHz	56207 Ch. 3646.7 MHz	56640 Ch. 3690.0 MHz		
20 MHz	QPSK	1	0	9.67	9.26	9.83	9.77	0	0
		1	49	9.54	9.37	9.96	9.88	0	0
		1	99	9.32	9.51	10.12	9.94	0	0
		50	0	9.63	9.34	9.91	9.86	0-1	0
		50	25	9.54	9.39	9.97	9.89	0-1	0
		50	49	9.45	9.45	10.07	9.95	0-1	0
		100	0	9.53	9.39	9.98	9.89	0-1	0
	16QAM	1	0	9.67	9.25	9.82	9.77	0-1	0
		1	49	9.48	9.31	9.89	9.81	0-1	0
		1	99	9.33	9.51	10.13	9.95	0-1	0
		50	0	9.64	9.35	9.91	9.87	0-2	0
		50	25	9.54	9.39	9.98	9.89	0-2	0
		50	49	9.47	9.45	10.07	9.95	0-2	0
		100	0	9.55	9.40	9.99	9.90	0-2	0
	64QAM	1	0	9.36	8.96	9.52	9.47	0-2	0
		1	49	9.19	9.02	9.62	9.52	0-2	0
		1	99	9.00	9.19	9.79	9.62	0-2	0
		50	0	9.68	9.38	9.95	9.90	0-3	0
		50	25	9.59	9.43	10.01	9.94	0-3	0
		50	49	9.49	9.48	10.09	9.97	0-3	0
		100	0	9.54	9.39	9.98	9.90	0-3	0
	256QAM	1	0	9.51	9.12	9.68	9.62	0-5	0
		1	49	9.38	9.22	9.80	9.72	0-5	0
		1	99	9.19	9.38	9.99	9.81	0-5	0
		50	0	9.69	9.39	9.96	9.92	0-5	0
		50	25	9.61	9.45	10.03	9.96	0-5	0
		50	49	9.52	9.51	10.12	10.01	0-5	0
		100	0	9.55	9.39	9.98	9.90	0-5	0

11.2.14 LTE FDD Band 66 Maximum Conducted Output Power

LTE FDD Band 66 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

LTE FDD Band 66 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			Bandwidth	Modulation
				132022 Ch.	132322 Ch.	132572 Ch.		
				1715 MHz	1745 MHz	1770 MHz		
10 MHz	QPSK	1	0	24.20	24.48	23.99	0	0
		1	24	24.19	24.57	24.16	0	0
		1	49	24.01	24.32	24.06	0	0
		25	0	23.13	23.52	23.06	0-1	1
		25	12	23.10	23.48	23.04	0-1	1
		25	24	23.06	23.38	23.07	0-1	1
		50	0	23.08	23.48	23.07	0-1	1
	16QAM	1	0	23.42	23.68	23.16	0-1	1
		1	24	23.46	23.71	23.35	0-1	1
		1	49	23.30	23.66	23.16	0-1	1
		25	0	22.15	22.50	22.05	0-2	2
		25	12	22.09	22.48	22.05	0-2	2
		25	24	22.01	22.43	22.06	0-2	2
		50	0	22.07	22.45	22.08	0-2	2
	64QAM	1	0	22.35	22.62	22.08	0-2	2
		1	24	22.24	22.57	22.08	0-2	2
		1	49	22.14	22.51	22.16	0-2	2
		25	0	21.12	21.50	21.00	0-3	3
		25	12	21.04	21.41	20.98	0-3	3
		25	24	21.02	21.39	20.98	0-3	3
		50	0	21.11	21.48	21.05	0-3	3
	256QAM	1	0	19.25	19.57	19.02	0-5	5
		1	24	19.08	19.29	18.85	0-5	5
		1	49	19.03	19.30	19.05	0-5	5
		25	0	19.05	19.40	18.93	0-5	5
		25	12	18.98	19.36	18.95	0-5	5
		25	24	18.91	19.30	18.94	0-5	5
		50	0	19.02	19.35	18.99	0-5	5

LTE FDD Band 66_20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	24.10	24.56	23.80	0	0
		1	49	24.07	24.51	24.13	0	0
		1	99	24.18	24.08	24.07	0	0
		50	0	23.06	23.55	22.91	0-1	1
		50	25	23.01	23.49	23.04	0-1	1
		50	49	23.03	23.35	23.09	0-1	1
		100	0	23.02	23.49	23.04	0-1	1
	16QAM	1	0	23.50	23.58	23.12	0-1	1
		1	49	23.25	23.84	23.41	0-1	1
		1	99	23.39	23.45	23.39	0-1	1
		50	0	22.04	22.52	21.89	0-2	2
		50	25	21.99	22.49	22.03	0-2	2
		50	49	22.03	22.30	22.04	0-2	2
		100	0	21.99	22.52	22.04	0-2	2
	64QAM	1	0	22.31	22.48	21.97	0-2	2
		1	49	22.02	22.53	22.16	0-2	2
		1	99	22.30	22.20	22.20	0-2	2
		50	0	21.04	21.48	20.89	0-3	3
		50	25	20.98	21.46	21.01	0-3	3
		50	49	21.04	21.27	21.06	0-3	3
		100	0	20.96	21.43	21.03	0-3	3
	256QAM	1	0	19.16	19.38	18.81	0-5	5
		1	49	19.05	19.33	18.84	0-5	5
		1	99	19.21	19.07	19.08	0-5	5
		50	0	18.95	19.40	18.77	0-5	5
		50	25	18.89	19.38	18.90	0-5	5
		50	49	18.97	19.22	18.98	0-5	5
		100	0	18.90	19.37	18.91	0-5	5

LTE FDD Band 66 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor#1, #3) _ MAIN1

Antenna

LTE FDD Band 66 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	20.70	20.97	20.47	0	0
		1	49	20.69	21.17	20.80	0	0
		1	99	20.79	20.66	20.74	0	0
		50	0	20.66	21.13	20.56	0-1	0
		50	25	20.60	21.05	20.76	0-1	0
		50	49	20.68	20.90	20.72	0-1	0
		100	0	20.79	21.00	20.44	0-1	0
	16QAM	1	0	21.02	21.26	20.63	0-1	0
		1	49	20.94	21.39	21.05	0-1	0
		1	99	21.09	21.04	20.97	0-1	0
		50	0	20.64	21.10	20.50	0-2	0
		50	25	20.64	21.07	20.66	0-2	0
		50	49	20.69	20.90	20.70	0-2	0
		100	0	21.01	21.21	20.72	0-2	0
	64QAM	1	0	20.92	21.20	20.57	0-2	0
		1	49	20.85	21.23	20.93	0-2	0
		1	99	20.91	20.89	20.88	0-2	0
		50	0	20.70	21.14	20.54	0-3	0
		50	25	20.62	21.07	20.73	0-3	0
		50	49	20.68	20.91	20.74	0-3	0
		100	0	20.93	21.17	20.59	0-3	0
	256QAM	1	0	19.01	19.23	18.74	0-5	2
		1	49	18.59	19.05	18.69	0-5	2
		1	99	19.02	18.94	18.94	0-5	2
		50	0	18.79	19.27	18.67	0-5	2
		50	25	18.76	19.25	18.86	0-5	2
		50	49	18.86	19.06	18.89	0-5	2
		100	0	18.95	19.26	18.69	0-5	2

LTE FDD Band 66 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

LTE FDD Band 66 _ 10 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132022 Ch. 1715 MHz	132322 Ch. 1745 MHz	132622 Ch. 1775 MHz		
10 MHz	QPSK	1	0	11.48	11.81	11.30	0	0
		1	24	11.44	11.80	11.33	0	0
		1	49	11.30	11.61	11.31	0	0
		25	0	11.46	11.81	11.31	0-1	0
		25	12	11.42	11.76	11.30	0-1	0
		25	24	11.31	11.69	11.34	0-1	0
		50	0	11.47	11.81	11.28	0-1	0
	16QAM	1	0	11.74	12.02	11.48	0-1	0
		1	24	11.61	12.00	11.55	0-1	0
		1	49	11.52	11.74	11.46	0-1	0
		25	0	11.48	11.80	11.34	0-2	0
		25	12	11.38	11.78	11.37	0-2	0
		25	24	11.35	11.76	11.35	0-2	0
		50	0	11.69	12.06	11.50	0-2	0
	64QAM	1	0	11.60	11.88	11.33	0-2	0
		1	24	11.60	11.95	11.61	0-2	0
		1	49	11.40	11.73	11.47	0-2	0
		25	0	11.45	11.82	11.28	0-3	0
		25	12	11.41	11.76	11.35	0-3	0
		25	24	11.34	11.74	11.33	0-3	0
		50	0	11.63	11.87	11.39	0-3	0
	256QAM	1	0	11.59	11.86	11.32	0-5	0
		1	24	11.20	11.62	11.07	0-5	0
		1	49	11.31	11.66	11.44	0-5	0
		25	0	11.43	11.75	11.29	0-5	0
		25	12	11.34	11.73	11.24	0-5	0
		25	24	11.29	11.65	11.27	0-5	0
		50	0	11.55	11.85	11.38	0-5	0

LTE FDD Band 66_20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	11.43	11.62	11.05	0	0
		1	49	11.31	11.84	11.37	0	0
		1	99	11.42	11.35	11.35	0	0
		50	0	11.34	11.84	11.17	0-1	0
		50	25	11.27	11.77	11.30	0-1	0
		50	49	11.32	11.61	11.36	0-1	0
		100	0	11.43	11.63	11.07	0-1	0
	16QAM	1	0	11.66	11.85	11.31	0-1	0
		1	49	11.50	12.00	11.60	0-1	0
		1	99	11.70	11.68	11.66	0-1	0
		50	0	11.30	11.78	11.16	0-2	0
		50	25	11.22	11.73	11.27	0-2	0
		50	49	11.33	11.57	11.32	0-2	0
		100	0	11.63	11.86	11.32	0-2	0
	64QAM	1	0	11.58	11.83	11.22	0-2	0
		1	49	11.52	12.01	11.53	0-2	0
		1	99	11.64	11.51	11.52	0-2	0
		50	0	11.31	11.78	11.15	0-3	0
		50	25	11.23	11.75	11.27	0-3	0
		50	49	11.31	11.59	11.33	0-3	0
		100	0	11.53	11.78	11.18	0-3	0
	256QAM	1	0	11.47	11.69	11.12	0-5	0
		1	49	11.05	11.55	11.13	0-5	0
		1	99	11.50	11.42	11.45	0-5	0
		50	0	11.31	11.78	11.15	0-5	0
		50	25	11.24	11.75	11.29	0-5	0
		50	49	11.33	11.59	11.33	0-5	0
		100	0	11.56	11.70	11.13	0-5	0

LTE FDD Band 66 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ SUB1

Antenna

LTE FDD Band 66 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	23.78	23.90	23.47	0	0
		1	49	23.69	24.02	23.64	0	0
		1	99	23.78	23.73	23.69	0	0
		50	0	22.67	22.96	22.50	0-1	1
		50	25	22.60	22.97	22.57	0-1	1
		50	49	22.65	22.86	22.64	0-1	1
		100	0	22.64	22.93	22.60	0-1	1
	16QAM	1	0	22.96	23.21	22.72	0-1	1
		1	49	22.86	23.29	22.83	0-1	1
		1	99	23.06	22.89	22.96	0-1	1
		50	0	21.67	21.94	21.49	0-2	2
		50	25	21.59	21.92	21.54	0-2	2
		50	49	21.63	21.80	21.65	0-2	2
		100	0	21.62	21.91	21.61	0-2	2
	64QAM	1	0	21.90	22.03	21.65	0-2	2
		1	49	21.76	22.15	21.75	0-2	2
		1	99	21.96	21.89	21.75	0-2	2
		50	0	20.68	20.99	20.46	0-3	3
		50	25	20.60	20.91	20.53	0-3	3
		50	49	20.66	20.85	20.65	0-3	3
		100	0	20.62	20.91	20.55	0-3	3
	256QAM	1	0	18.85	18.63	18.55	0-5	5
		1	49	19.02	18.88	18.57	0-5	5
		1	99	19.03	18.89	18.54	0-5	5
		50	0	18.91	18.77	18.59	0-5	5
		50	25	18.91	18.68	18.62	0-5	5
		50	49	18.97	18.78	18.46	0-5	5
		100	0	18.94	18.83	18.70	0-5	5

LTE FDD Band 66 Conducted Power_ Measured RSI = 5 (Grip Sensor #5) _ SUB1

Antenna

LTE FDD Band 66 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 MHz	132322 Ch. 1745 MHz	132572 Ch. 1770 MHz		
20 MHz	QPSK	1	0	10.73	10.91	10.54	0	0
		1	49	10.64	10.92	10.56	0	0
		1	99	10.75	10.66	10.68	0	0
		50	0	10.63	10.94	10.54	0-1	0
		50	25	10.58	10.92	10.53	0-1	0
		50	49	10.61	10.80	10.60	0-1	0
		100	0	10.58	10.88	10.50	0-1	0
	16QAM	1	0	11.00	11.17	10.71	0-1	0
		1	49	10.87	11.17	10.74	0-1	0
		1	99	11.06	10.89	10.93	0-1	0
		50	0	10.60	10.91	10.42	0-2	0
		50	25	10.53	10.86	10.50	0-2	0
		50	49	10.61	10.79	10.53	0-2	0
		100	0	10.59	10.85	10.50	0-2	0
	64QAM	1	0	10.88	10.99	10.56	0-2	0
		1	49	10.81	11.03	10.69	0-2	0
		1	99	10.89	10.83	10.82	0-2	0
		50	0	10.62	10.92	10.42	0-3	0
		50	25	10.59	10.87	10.52	0-3	0
		50	49	10.63	10.81	10.58	0-3	0
		100	0	10.56	10.85	10.52	0-3	0
	256QAM	1	0	10.78	10.95	10.47	0-5	0
		1	49	10.31	10.64	10.27	0-5	0
		1	99	10.87	10.79	10.71	0-5	0
		50	0	10.61	10.92	10.41	0-5	0
		50	25	10.57	10.89	10.50	0-5	0
		50	49	10.62	10.80	10.56	0-5	0
		100	0	10.59	10.87	10.51	0-5	0

11.2.15 LTE FDD Band 71 Maximum Conducted Output Power

LTE FDD Band 71 Conducted Power _ Measured Pmax, RSI = 0 (free), _ MAIN1

Antenna

LTE FDD Band 71 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				133297 Ch. 680.5 MHz		
20 MHz	QPSK	1	0	24.03	0	0
		1	49	24.30	0	0
		1	99	23.97	0	0
		50	0	23.23	0-1	1
		50	25	23.27	0-1	1
		50	49	23.12	0-1	1
		100	0	23.29	0-1	1
	16QAM	1	0	23.43	0-1	1
		1	49	23.48	0-1	1
		1	99	23.30	0-1	1
		50	0	22.26	0-2	2
		50	25	22.26	0-2	2
		50	49	22.12	0-2	2
		100	0	22.26	0-2	2
	64QAM	1	0	22.24	0-2	2
		1	49	22.54	0-2	2
		1	99	22.16	0-2	2
		50	0	21.24	0-3	3
		50	25	21.26	0-3	3
		50	49	21.15	0-3	3
		100	0	21.25	0-3	3
	256QAM	1	0	19.27	0-5	5
		1	49	19.14	0-5	5
		1	99	19.01	0-5	5
		50	0	19.20	0-5	5
		50	25	19.26	0-5	5
		50	49	19.13	0-5	5
		100	0	19.21	0-5	5

LTE FDD Band 71 Conducted Power _ Measured RSI = 2 (Grip Sensor #2) _ MAIN1 Antenna

LTE FDD Band 71 _ 20 MHz Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR Allowed Per 3GPP [dB]	MPR [dB]
				133297 Ch. 680.5 MHz		
20 MHz	QPSK	1	0	15.33	0	0
		1	49	15.48	0	0
		1	99	15.07	0	0
		50	0	15.46	0-1	0
		50	25	15.40	0-1	0
		50	49	15.29	0-1	0
		100	0	15.42	0-1	0
	16QAM	1	0	15.68	0-1	0
		1	49	15.73	0-1	0
		1	99	15.45	0-1	0
		50	0	15.46	0-2	0
		50	25	15.41	0-2	0
		50	49	15.29	0-2	0
		100	0	15.57	0-2	0
	64QAM	1	0	15.55	0-2	0
		1	49	15.73	0-2	0
		1	99	15.31	0-2	0
		50	0	15.51	0-3	0
		50	25	15.40	0-3	0
		50	49	15.32	0-3	0
		100	0	15.61	0-3	0
	256QAM	1	0	15.51	0-5	0
		1	49	15.29	0-5	0
		1	99	15.22	0-5	0
		50	0	15.45	0-5	0
		50	25	15.39	0-5	0
		50	49	15.33	0-5	0
		100	0	15.50	0-5	0

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

11.2.16 LTE Uplink Carrier Aggregation Maximum Conducted Output Power

Up link CA	PCC						SCC						Tx. Power [dBm]	
	BW [MHz]	Ch	Frequency [MHz]	Modulation	RB	Offset	BW [MHz]	Ch	Frequency [MHz]	Modulation	RB	Offset	LTE Single Carrier Tx	LTE Tx Power with UL CA Enabled
66B Max	10	132322	1 745	QPSK	1	0	10	132223	1 735.1	QPSK	1	49	24.48	24.45
66B Grip#2	10	132322	1 745	QPSK	1	0	10	132223	1 735.1	QPSK	1	49	11.81	11.80
66C Max	20	132322	1 745	QPSK	1	0	20	132124	1 725.2	QPSK	1	99	24.56	24.54
66C Grip#2	20	132322	1 745	QPSK	50	0	20	132124	1 725.2	QPSK	50	49	11.84	11.82
41C (PC3) Max	20	39750	2 506	QPSK	1	99	20	39948	2 525.8	QPSK	1	0	23.69	22.75
41C (PC2) Max	20	39750	2 506	QPSK	1	99	20	39948	2 525.8	QPSK	1	0	25.49	26.21
48C Free	20	56207	3 646.7	QPSK	50	49	20	56405	3 666.5	QPSK	50	0	10.07	9.46

11.3 NR Maximum Output Power

Only the Conducted Power measurement results of the maximum bandwidth, which is the SAR test condition of NR Bands according to FCC KDB 941225 D05v02r05, are included, and the measurement results of other bandwidths are listed in Appendix K.

11.3.1 NR FDD Band n2 Maximum Conducted Power

NR FDD Band n2 Conducted Power_ Measured Pmax, RSI = 0(Free) _ MAIN1 Antenna

NR FDD Band n2 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376000	
						1880 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	23.80	0
				1	108	24.20	0
				1	214	23.81	0
				108	0	23.47	0.5
				108	54	24.20	0
				108	108	23.66	0.5
				216	0	23.65	0.5
			QPSK	1	1	23.62	0
				1	108	24.29	0
				1	214	23.69	0
				108	0	22.95	1
				108	54	24.23	0
				108	108	23.17	1
				216	0	23.20	1
			16QAM	1	1	22.80	1
			64QAM	1	1	21.34	2.5
			256QAM	1	1	19.27	4.5
		CP	QPSK	1	1	22.25	1.5

NR FDD Band n2 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3) _

MAIN1 Antenna

NR FDD Band n2 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376000	
						1880 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	17.36	0
				1	108	17.78	0
				1	214	17.57	0
				108	0	17.34	0
				108	54	17.63	0
				108	108	17.57	0
				216	0	17.58	0
			QPSK	1	1	17.37	0
				1	108	17.70	0
				1	214	17.55	0
				108	0	17.38	0
				108	54	17.59	0
				108	108	17.54	0
				216	0	17.58	0
			16QAM	1	1	17.56	0
			64QAM	1	1	17.36	0
			256QAM	1	1	17.37	0
		CP	QPSK	1	1	17.29	0

NR FDD Band n2 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

NR FDD Band n2 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376000	
						1880 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	11.30	0
				1	108	11.72	0
				1	214	11.48	0
				108	0	11.58	0
				108	54	11.53	0
				108	108	11.47	0
				216	0	11.48	0
			QPSK	1	1	11.40	0
				1	108	11.63	0
				1	214	11.54	0
				108	0	11.39	0
				108	54	11.59	0
				108	108	11.50	0
				216	0	11.52	0
			16QAM	1	1	11.22	0
			64QAM	1	1	11.45	0
			256QAM	1	1	11.18	0
		CP	QPSK	1	1	11.28	0

11.3.2. NR FDD Band n5 Maximum Conducted Power

NR FDD Band n5 Conducted Power_ Measured Pmax, RSI = 0 (Free) MAIN1 Antenna

NR FDD Band n5_ 20 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						167300	
						836.5 MHz	
20 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	24.51	0
				1	53	24.28	0
				1	104	23.93	0
				50	0	23.96	0.5
				50	28	24.28	0
				50	56	23.56	0.5
				100	0	23.77	0.5
			QPSK	1	1	24.56	0
				1	53	24.39	0
				1	104	24.01	0
				50	0	23.52	1
				50	28	24.26	0
				50	56	23.10	1
				100	0	23.36	1
			16QAM	1	1	23.58	1
			64QAM	1	1	22.08	2.5
			256QAM	1	1	20.15	4.5
		CP	QPSK	1	1	22.99	1.5

NR FDD Band n5 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3)_ MAIN1 Antenna

NR FDD Band n5_ 20 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						167300	
						836.5 MHz	
20 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	23.88	0
				1	53	23.74	0
				1	104	23.21	0
				50	0	23.31	0
				50	28	23.59	0
				50	56	22.84	0
				100	0	23.12	0
			QPSK	1	1	23.91	0
				1	53	23.69	0
				1	104	23.21	0
				50	0	22.83	0
				50	28	23.75	0
				50	56	22.44	0
				100	0	22.62	0
			16QAM	1	1	22.99	0
			64QAM	1	1	21.58	1.5
			256QAM	1	1	19.44	3.5
		CP	QPSK	1	1	22.38	0.5

NR FDD Band n5 Conducted Power_ Measured RSI = 2 (Grip Sensor #2)_ MAIN1 Antenna

NR FDD Band n5_ 20 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						167300	
						836.5 MHz	
20 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	14.19	0
				1	53	13.93	0
				1	104	13.58	0
				50	0	14.08	0
				50	28	13.88	0
				50	56	13.70	0
				100	0	13.93	0
			QPSK	1	1	14.15	0
				1	53	13.91	0
				1	104	13.56	0
				50	0	14.10	0
				50	28	13.86	0
				50	56	13.69	0
				100	0	13.91	0
			16QAM	1	1	14.24	0
			64QAM	1	1	14.15	0
			256QAM	1	1	14.07	0
		CP	QPSK	1	1	14.26	0

11.3.3. NR FDD Band n25 Maximum Conducted Power

NR FDD Band n25 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

NR FDD Band n25 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376500	
						1882.5 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	23.75	0
				1	108	24.15	0
				1	214	23.66	0
				108	0	23.43	0.5
				108	54	24.15	0
				108	108	23.60	0.5
				216	0	23.65	0.5
			QPSK	1	1	23.64	0
				1	108	24.27	0
				1	214	23.59	0
				108	0	22.88	1
				108	54	24.10	0
				108	108	23.10	1
				216	0	23.07	1
			16QAM	1	1	22.63	1
			64QAM	1	1	21.21	2.5
			256QAM	1	1	19.27	4.5
		CP	QPSK	1	1	22.25	1.5

NR FDD Band n25 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3)_ MAIN1 Antenna

NR FDD Band n25 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376500	
						1882.5 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	17.32	0
				1	108	17.64	0
				1	214	17.47	0
				108	0	17.41	0
				108	54	17.57	0
				108	108	17.63	0
				216	0	17.57	0
			QPSK	1	1	17.40	0
				1	108	17.67	0
				1	214	17.55	0
				108	0	17.43	0
				108	54	17.64	0
				108	108	17.63	0
				216	0	17.60	0
			16QAM	1	1	17.52	0
			64QAM	1	1	17.42	0
			256QAM	1	1	17.43	0
		CP	QPSK	1	1	17.40	0

NR FDD Band n25 Conducted Power_ Measured RSI = 2 (Grip Sensor #2)_ MAIN1 Antenna

NR FDD Band n25 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						376500	
						1882.5 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	11.27	0
				1	108	11.60	0
				1	214	11.41	0
				108	0	11.31	0
				108	54	11.55	0
				108	108	11.51	0
				216	0	11.50	0
			QPSK	1	1	11.34	0
				1	108	11.56	0
				1	214	11.35	0
				108	0	11.35	0
				108	54	11.50	0
				108	108	11.54	0
				216	0	11.52	0
			16QAM	1	1	11.32	0
			64QAM	1	1	11.28	0
			256QAM	1	1	11.18	0
		CP	QPSK	1	1	11.25	0

11.3.4. NR FDD Band n30 Maximum Conducted Power

NR FDD Band n30 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

NR FDD Band n30_ 10 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						462000	
						2310 MHz	
10 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	22.95	0
				1	26	23.18	0
				1	50	23.13	0
				25	0	22.73	0.5
				25	14	23.17	0
				25	27	22.66	0.5
				50	0	22.66	0.5
			QPSK	1	1	22.89	0
				1	26	23.16	0
				1	50	23.10	0
				25	0	22.22	1
				25	14	23.19	0
				25	27	22.17	1
				50	0	22.15	1
			16QAM	1	1	22.17	1
			64QAM	1	1	20.78	2.5
			256QAM	1	1	18.73	4.5
		CP	QPSK	1	1	21.74	1.5

NR FDD Band n30 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3)_ MAIN1 Antenna

NR FDD Band n30_ 10 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						462000	
						2310 MHz	
10 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	20.85	0
				1	26	20.86	0
				1	50	20.86	0
				25	0	20.83	0
				25	14	20.85	0
				25	27	20.81	0
				50	0	20.83	0
			QPSK	1	1	20.82	0
				1	26	20.88	0
				1	50	20.77	0
				25	0	20.84	0
				25	14	20.83	0
				25	27	20.82	0
				50	0	20.81	0
			16QAM	1	1	20.79	0
			64QAM	1	1	20.65	0
			256QAM	1	1	18.64	2
		CP	QPSK	1	1	20.27	0

NR FDD Band n30 Conducted Power_ Measured RSI = 2 (Grip Sensor #2)_ MAIN1 Antenna

NR FDD Band n30_ 10 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						462000	
						2310 MHz	
10 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	11.61	0
				1	26	11.60	0
				1	50	11.44	0
				25	0	11.53	0
				25	14	11.43	0
				25	27	11.45	0
				50	0	11.52	0
			QPSK	1	1	11.58	0
				1	26	11.49	0
				1	50	11.40	0
				25	0	11.44	0
				25	14	11.48	0
				25	27	11.47	0
				50	0	11.49	0
			16QAM	1	1	11.54	0
			64QAM	1	1	11.65	0
			256QAM	1	1	11.59	0
		CP	QPSK	1	1	11.62	0

11.3.5. NR TDD Band n41 Maximum Conducted Power

NR TDD Band n41 (PC2, PC3) Conducted Power_ Measured RSI = 0 (Free) _ MAIN1 Antenna

NR TDD Band n41 _100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)				MPR [dB]
								518598		
								2592.99 MHz		
100 MHz	30	DFT-s	pi/2 BPSK	1	1			18.34		0
				1	137			18.41		0
				1	271			18.37		0
				135	0			18.37		0
				135	69			18.39		0
				135	138			18.34		0
				270	0			18.34		0
			QPSK	1	1			18.48		0
				1	137			18.37		0
				1	271			18.38		0
				135	0			18.38		0
				135	69			18.18		0
				135	138			18.04		0
				270	0			18.04		0
			16QAM	1	1			18.06		0
			64QAM	1	1			18.08		0
			256QAM	1	1			18.25		0
		CP	QPSK	1	1			18.34		0

NR TDD Band n41 (PC2, PC3) Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _ MAIN1

Antenna

NR TDD Band n41 _100 Mhz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)				MPR [dB]
								518598		
								2592.99 MHz		
100 MHz	30	DFT-s	pi/2 BPSK	1	1			10.83		0
				1	137			10.88		0
				1	271			10.88		0
				135	0			10.56		0
				135	69			10.87		0
				135	138			10.87		0
				270	0			10.84		0
			QPSK	1	1			10.82		0
				1	137			10.92		0
				1	271			10.90		0
				135	0			10.74		0
				135	69			10.89		0
				135	138			10.88		0
				270	0			10.86		0
			16QAM	1	1			10.89		0
			64QAM	1	1			10.90		0
			256QAM	1	1			10.88		0
		CP	QPSK	1	1			10.78		0

11.3.6. NR TDD Band n48 Maximum Conducted Power

NR TDD Band n48 Conducted Power_ Measured RSI = 0, 1, 2, 3, 4, 5 (Free, Grip Sensor #1, #2, #3, #4, #5) _

SUB2 Antenna

NR TDD Band n48 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						638000	641666		645332	
						3570 MHz	3624.99 MHz		3679.98 MHz	
40 MHz	30	DFT-s OFDM	pi/2 BPSK	1	1	8.19	8.90		9.23	0
				1	53	8.25	9.40		9.04	0
				1	104	8.37	9.25		9.00	0
				50	0	8.51	9.19		9.17	0
				50	28	8.21	8.69		9.03	0
				50	56	8.26	8.69		9.05	0
				100	0	8.18	9.31		9.00	0
			QPSK	1	1	8.26	8.89		9.16	0
				1	53	8.23	9.34		8.97	0
				1	104	8.36	9.27		8.97	0
				50	0	8.27	8.91		9.02	0
				50	28	8.22	9.33		8.97	0
				50	56	8.21	9.35		8.99	0
				100	0	8.17	9.32		9.01	0
			16QAM	1	1	8.37	8.88		9.25	0
			64QAM	1	1	8.34	9.07		9.05	0
			256QAM	1	1	8.03	8.85		9.19	0
		CP	QPSK	1	1	8.19	8.84		9.21	0

11.3.7. NR FDD Band n66 Maximum Conducted Power

NR FDD Band n66 Conducted Power_ Measured Pmax, RSI= 0 (Free) _ MAIN1 Antenna

NR FDD Band n66 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						349000	
						1745 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	23.58	0
				1	108	24.31	0
				1	214	23.53	0
				108	0	23.61	0.5
				108	54	24.25	0
				108	108	23.29	0.5
				216	0	23.73	0.5
			QPSK	1	1	23.66	0
				1	108	24.34	0
				1	214	23.58	0
				108	0	23.17	1
				108	54	24.32	0
				108	108	22.77	1
				216	0	23.25	1
			16QAM	1	1	22.72	1
			64QAM	1	1	21.22	2.5
			256QAM	1	1	19.15	4.5
		CP	QPSK	1	1	22.10	1.5

NR FDD Band n66 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3)_ MAIN1 Antenna

NR FDD Band n66 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						349000	
						1745 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	20.60	0
				1	108	21.25	0
				1	214	20.54	0
				108	0	21.00	0
				108	54	21.13	0
				108	108	20.67	0
				216	0	21.12	0
			QPSK	1	1	20.75	0
				1	108	21.24	0
				1	214	20.58	0
				108	0	21.08	0
				108	54	21.13	0
				108	108	20.70	0
				216	0	21.16	0
			16QAM	1	1	20.80	0
			64QAM	1	1	20.80	0
			256QAM	1	1	19.43	1.5
		CP	QPSK	1	1	20.63	0

NR FDD Band n66 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _MAIN1 Antenna

NR FDD Band n66 _ 40 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						349000	
						1745 MHz	
40 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	11.50	0
				1	108	12.04	0
				1	214	11.31	0
				108	0	11.84	0
				108	54	11.93	0
				108	108	11.47	0
				216	0	11.91	0
			QPSK	1	1	11.54	0
				1	108	12.05	0
				1	214	11.36	0
				108	0	11.86	0
				108	54	12.01	0
				108	108	11.46	0
				216	0	11.90	0
			16QAM	1	1	11.37	0
			64QAM	1	1	11.37	0
			256QAM	1	1	11.55	0
		CP	QPSK	1	1	11.48	0

11.3.8. NR FDD Band n70 Maximum Conducted Power

NR FDD Band n70 Conducted Power_ Measured Pmax, RSI = 0 (Free) _ MAIN1 Antenna

NR FDD Band n70 _ 15 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						340500	
						1702.5 MHz	
15 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	23.44	0
				1	40	23.57	0
				1	77	23.74	0
				36	0	23.06	0.5
				36	22	23.67	0
				36	43	23.28	0.5
				75	0	23.18	0.5
			QPSK	1	1	23.37	0
				1	40	23.65	0
				1	77	23.79	0
				36	0	22.61	1
				36	22	23.77	0
				36	43	22.75	1
				75	0	22.69	1
			16QAM	1	1	22.26	1
			64QAM	1	1	20.86	2.5
			256QAM	1	1	18.78	4.5
		CP	QPSK	1	1	21.74	1.5

NR FDD Band n70 Conducted Power_ Measured RSI = 1, 3 (Grip Sensor #1, #3)_ MAIN1 Antenna

NR FDD Band n70 _ 15 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						340500	
						1702.5 MHz	
15 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	18.64	0
				1	40	18.70	0
				1	77	18.85	0
				36	0	18.67	0
				36	22	18.88	0
				36	43	18.91	0
				75	0	18.84	0
			QPSK	1	1	18.46	0
				1	40	18.79	0
				1	77	18.88	0
				36	0	18.76	0
				36	22	18.89	0
				36	43	18.92	0
				75	0	18.87	0
			16QAM	1	1	18.58	0
			64QAM	1	1	18.53	0
			256QAM	1	1	18.42	0
		CP	QPSK	1	1	18.48	0

NR FDD Band n70 Conducted Power_ Measured RSI = 2 (Grip Sensor #2)_ MAIN1 Antenna

NR FDD Band n70 _ 15 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]	MPR [dB]
						340500	
						1702.5 MHz	
15 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	12.11	0
				1	40	12.35	0
				1	77	12.38	0
				36	0	12.35	0
				36	22	12.47	0
				36	43	12.44	0
				75	0	12.42	0
			QPSK	1	1	12.19	0
				1	40	12.44	0
				1	77	12.40	0
				36	0	12.35	0
				36	22	12.46	0
				36	43	12.48	0
				75	0	12.41	0
			16QAM	1	1	12.13	0
			64QAM	1	1	12.20	0
			256QAM	1	1	12.00	0
		CP	QPSK	1	1	12.07	0

11.3.9. NR FDD Band n71 Maximum Conducted Power

NR FDD Band n71 Conducted Power_ Measured Pmax, RSI = 0 (free) _ MAIN1 Antenna

NR FDD Band n71 _ 20 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)	MPR [dB]
						136100	
						680.5 MHz	
20 MHz	15	DFT-s OFDM	pi/2 BPSK	1	1	24.08	0
				1	53	24.39	0
				1	104	24.00	0
				50	0	23.81	0.5
				50	28	24.34	0
				50	56	23.74	0.5
				100	0	23.86	0.5
			QPSK	1	1	24.07	0
				1	53	24.36	0
				1	104	23.93	0
				50	0	23.35	1
				50	28	24.34	0
				50	56	23.26	1
				100	0	23.35	1
			16QAM	1	1	23.16	1
			64QAM	1	1	21.71	2.5
			256QAM	1	1	19.60	4.5
		CP	QPSK	1	1	22.60	1.5

NR FDD Band n71 Conducted Power_ Measured RSI = 2 (Grip Sensor #2) _MAIN1 Antenna

NR FDD Band n71 _ 20 Mhz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)	MPR [dB]
						136100	
						680.5 Mhz	
20 Mhz	15	DFT-s OFDM	pi/2 BPSK	1	1	15.74	0
				1	53	15.96	0
				1	104	15.62	0
				50	0	15.89	0
				50	28	15.93	0
				50	56	15.79	0
				100	0	15.92	0
			QPSK	1	1	15.74	0
				1	53	15.99	0
				1	104	15.63	0
				50	0	15.91	0
				50	28	15.93	0
				50	56	15.85	0
				100	0	15.90	0
			16QAM	1	1	15.75	0
			64QAM	1	1	15.78	0
			256QAM	1	1	15.78	0
		CP	QPSK	1	1	15.73	0

11.3.10. NR TDD Band n77 Maximum Conducted Power

NR TDD Band n77 (PC2, PC3) Conducted Power_ Measured RSI = 0 (Free) _ MAIN2 Antenna

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						650000				662000	
						3 750 MHz				3 930 MHz	
100 MHz	30	DFT-s OFDM	pi/2 BPSK	1	1	17.99				17.71	0
				1	137	18.09				18.17	0
				1	271	17.99				18.08	0
				135	0	17.95				17.85	0
				135	69	18.07				18.15	0
				135	138	17.96				17.80	0
				270	0	18.04				18.09	0
			QPSK	1	1	18.14				17.71	0
				1	137	18.11				18.19	0
				1	271	18.00				18.07	0
				135	0	17.96				17.85	0
				135	69	18.07				18.15	0
				135	138	17.96				17.80	0
				270	0	18.04				18.08	0
			16QAM	1	1	18.16				17.63	0
			64QAM	1	1	18.14				17.68	0
			256QAM	1	1	18.13				17.69	0
		CP	QPSK	1	1	18.09				17.55	0

NR TDD Band n77 (PC2, PC3) Conducted Power_ Measured RSI = 4 (Grip Sensor #4)_ MAIN2

Antenna

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						650000				662000	
						3750 MHz				3930 MHz	
100 MHz	30	DFT-s OFDM	pi/2 BPSK	1	1	8.52				8.27	0
				1	137	8.56				8.75	0
				1	271	8.50				8.53	0
				135	0	8.39				8.40	0
				135	69	8.49				8.70	0
				135	138	8.40				8.31	0
				270	0	8.49				8.61	0
			QPSK	1	1	8.49				8.22	0
				1	137	8.56				8.68	0
				1	271	8.45				8.48	0
				135	0	8.39				8.42	0
				135	69	8.51				8.71	0
				135	138	8.44				8.30	0
				270	0	8.50				8.61	0
			16QAM	1	1	8.42				8.27	0
			64QAM	1	1	8.61				8.14	0
			256QAM	1	1	8.44				8.22	0
		CP	QPSK	1	1	8.46				8.54	0

11.3.11. NR TDD Band n77 DoD Maximum Conducted Power

NR TDD Band n77 DoD (PC2, PC3) Conducted Power_ Measured RSI = 0 (Free)_ MAIN2

Antenna

NR TDD Band n77 DoD_100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 MHz		
100MHz	30	DFT-s	pi/2 BPSK	1	1		17.90		0
				1	137		17.85		0
				1	271		17.92		0
				135	0		17.90		0
				135	69		17.82		0
				135	138		17.72		0
				270	0		17.82		0
			QPSK	1	1		18.20		0
				1	137		17.85		0
				1	271		17.92		0
				135	0		18.11		0
				135	69		17.81		0
				135	138		17.73		0
				270	0		17.84		0
			16QAM	1	1		18.22		0
			64QAM	1	1		18.15		0
			256QAM	1	1		17.89		0
		CP	QPSK	1	1		18.13		0

NR TDD Band n77 DoD (PC2, PC3) Conducted Power_ Measured RSI = 4 (Grip Sensor #4)_

MAIN2 Antenna

NR TDD Band n77 DoD_100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 MHz		
100 MHz	30	DFT-s	pi/2 BPSK	1	1		8.31		0
				1	137		8.11		0
				1	271		8.14		0
				135	0		8.13		0
				135	69		8.28		0
				135	138		8.20		0
				270	0		8.23		0
			QPSK	1	1		8.44		0
				1	137		8.21		0
				1	271		8.41		0
				135	0		8.52		0
				135	69		8.21		0
				135	138		8.13		0
				270	0		8.19		0
			16QAM	1	1		8.39		0
			64QAM	1	1		8.46		0
			256QAM	1	1		8.40		0
		CP	QPSK	1	1		8.42		0

11.3.12. NR TDD Band n78 Maximum Conducted Power

NR TDD Band n78 (PC2, PC3) Conducted Power_ Measured RSI = 0 (Free) _ MAIN2 Antenna

NR TDD Band n78 _100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
							3750 MHz		
100 MHz	30	DFT-s	pi/2 BPSK	1	1		18.08		0
				1	137		18.05		0
				1	271		17.93		0
				135	0		17.92		0
				135	69		18.02		0
				135	138		17.88		0
				270	0		18.00		0
			QPSK	1	1		18.10		0
				1	137		18.04		0
				1	271		17.92		0
				135	0		17.92		0
				135	69		18.00		0
				135	138		17.90		0
				270	0		18.00		0
			16QAM	1	1		18.15		0
			64QAM	1	1		18.10		0
			256QAM	1	1		18.07		0
		CP	QPSK	1	1		18.07		0

NR TDD Band n78 (PC2, PC3) Conducted Power_ Measured RSI = 4 (Grip Sensor #4) _ MAIN2

Antenna

NR TDD Band n78 _100 Mhz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
100 MHz	30	DFT-s	pi/2 BPSK	1	1		3750 Mhz		0
				1	137		8.51		0
				1	271		8.52		0
				135	0		8.47		0
				135	69		8.38		0
				135	138		8.49		0
				270	0		8.40		0
			QPSK	1	1		8.46		0
				1	137		8.45		0
				1	271		8.50		0
				135	0		8.45		0
				135	69		8.35		0
				135	138		8.49		0
				270	0		8.39		0
			16QAM	1	1		8.46		0
			64QAM	1	1		8.52		0
			256QAM	1	1		8.38		0
			CP	1	1		8.48		0

11.3.13. NR TDD Band n78 DoD Maximum Conducted Power

NR TDD Band n78 DoD (PC2, PC3) Conducted Power_ Measured RSI = 0 (Free)_ MAIN2

Antenna

NR TDD Band n78 DoD_100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 MHz		
100 MHz	30	DFT-s	pi/2 BPSK	1	1		18.12		0
				1	137		17.84		0
				1	271		17.90		0
				135	0		17.88		0
				135	69		17.81		0
				135	138		17.72		0
				270	0		17.82		0
			QPSK	1	1		18.17		0
				1	137		17.84		0
				1	271		17.91		0
				135	0		17.90		0
				135	69		17.81		0
				135	138		17.72		0
				270	0		17.82		0
			16QAM	1	1		18.21		0
			64QAM	1	1		18.25		0
			256QAM	1	1		18.08		0
		CP	QPSK	1	1		17.82		0

NR TDD Band n78 DoD (PC2, PC3) Conducted Power_ Measured RSI = 4 (Grip Sensor #4)_

MAIN2 Antenna

NR TDD Band n78 DoD_100 MHz Bandwidth Conducted Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 MHz		
100MHz	30	DFT-s	pi/2 BPSK	1	1		8.37		0
				1	137		8.12		0
				1	271		8.24		0
				135	0		8.11		0
				135	69		8.11		0
				135	138		8.02		0
				270	0		8.08		0
			QPSK	1	1		8.30		0
				1	137		8.08		0
				1	271		8.32		0
				135	0		8.35		0
				135	69		8.09		0
				135	138		8.01		0
				270	0		8.08		0
			16QAM	1	1		8.37		0
			64QAM	1	1		8.27		0
			256QAM	1	1		8.30		0
		CP	QPSK	1	1		8.37		0

11.3.14 NR Band SRS Conducted Power

[NR TDD Band n48 SRS Conducted Power]

Measured Pmax Conducted Power

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	14.41	13.69	12.93	0

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Main2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	23.33	23.06	23.35	0

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Sub3, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	16.50	16.28	16.33	0

Measured Free Conducted Power

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	9.00	9.67	9.02	0

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Main2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	18.98	18.87	18.83	0

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Sub3, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	4.98	4.24	4.15	0

Measured Grip Conducted Power

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	2.90	3.43	2.73	0

NR TDD Band n48_ 40 MHz Bandwidth Conducted Power_ Antenna: Main2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]			MPR [dB]
			638000	641666	645332	
			3570 MHz	3624.99 MHz	3679.98 MHz	
40 MHz	30	DFT-s QPSK 1RB 1offset	11.37	10.97	11.15	0

[NR TDD Band n77 SRS Conducted Power]

Measured Pmax Conducted Power_PC2

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	19.45	19.14	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	27.81	27.06	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	15.88	16.29	0

Measured Pmax Conducted Power_PC3

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	18.71	18.41	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	24.87	24.07	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	14.67	14.89	0

Measured Free Conducted Power PC2,PC3

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	5.83	5.17	0

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	12.98	11.89	0

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	9.96	9.55	0

Measured Grip Conducted Power PC2, PC3

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]		MPR [dB]
			650000	662000	
			3750 MHz	3930 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	1.06	0.56	0

[NR TDD Band n77 DoD SRS Conducted Power]

Measured Pmax Conducted Power_PC2

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	18.41	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	26.25	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	16.95	0

Measured Pmax Conducted Power_PC3

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	17.78	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	23.25	0

NR TDD Band n77_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	15.93	0

Measured Free Conducted Power PC2, PC3

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	5.93	0

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	11.84	0

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	11.48	0

Measured Grip Conducted Power PC2, PC3

NR TDD Band n77_ 100 MHz Bandwidth Conducted Power_ Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	2.47	0

[NR TDD Band n78 SRS Conducted Power]

Measured Pmax Conducted Power PC2

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	19.38	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	27.87	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	15.80	0

Measured Pmax Conducted Power PC3

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	18.75	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	24.89	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	14.56	0

Measured Free Conducted Power PC2, PC3

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	5.87	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	12.96	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	9.99	0

Measured Grip Conducted Power PC2, PC3

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			650000	
			3750 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	1.08	0

[NR TDD Band n78 DoD SRS Conducted Power]

Measured Pmax Conducted Power PC2

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	18.34	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	26.12	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	16.95	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	17.70	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	23.25	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	15.94	0

Measured Free Conducted Power

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub3, SRS1

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	5.96	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub2, SRS2

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	11.76	0

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	11.45	0

Measured Pmax Conducted Power PC2

NR TDD Band n78_100 MHz Bandwidth Conducted Power_Antenna: Sub4, SRS3

Bandwidth	SCS(kHz)	Modulation	Max. Average Power [dBm]	MPR [dB]
			633334	
			3500.01 MHz	
100 MHz	30	DFT-s QPSK 1RB 1offset	2.48	0

11.4 WIFI Conducted Power measurement method

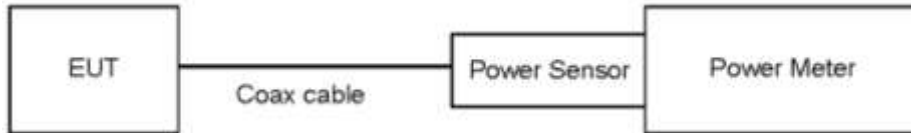
Un-Licensed Bands (DTS Band)

Test Description	Test Procedure Used
Conducted Output Power	- KDB 558074 v05 – Sec.8.3.2.3 - ANSI 63.10-2013 – Sec.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



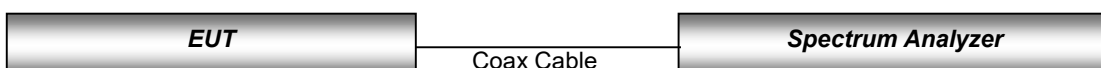
Un-Licensed Bands (NII Band)

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

Test Procedure

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

Test setup



11.4.1 IEEE 802.11 (2.4 GHz) Maximum and Reduced Conducted Power

Mode	Frequency [MHz]	Channel	Pmax		
			IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]		
			WIFI 1	WIFI 2	MIMO
802.11b	2 412	1	19.56	19.90	22.74
	2 437	6	19.19	19.28	22.25
	2 462	11	19.36	19.43	22.41

Mode	Frequency [MHz]	Channel	Plimit		
			IEEE 802.11 (2.4 GHz) Average RF Conducted Power [dBm]		
			WIFI 1	WIFI 2	MIMO
802.11b	2 412	1	10.93	9.96	13.48
	2 437	6	10.69	9.37	13.09
	2 462	11	10.91	9.78	13.39

11.4.2 IEEE 802.11 (5 GHz) Maximum and Reduced Conducted Power

Frequency [MHz]	Channel	Pmax		
		IEEE 802.11 a (20 MHz BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 180	36	11.46	11.53	14.51
5 200	40	10.81	11.52	14.19
5 220	44	11.32	12.35	14.87
5 240	48	11.85	12.20	15.04
5 260	52	14.58	14.49	17.54
5 280	56	14.03	14.09	17.07
5 300	60	14.60	14.85	17.74
5 320	64	14.54	14.71	17.64
5 500	100	11.45	11.81	14.65
5 520	104	11.28	11.71	14.51
5 540	108	11.43	11.86	14.66
5 560	112	13.17	13.44	16.32
5 580	116	16.12	16.28	19.21
5 720	144	16.12	16.33	19.23
5 745	149	15.77	15.95	18.87
5 785	157	16.44	16.47	19.46
5 825	165	16.46	16.48	19.48
5 845	169	15.97	16.65	19.33
5 865	173	16.26	16.40	19.34
5 885	177	14.25	14.20	17.24

Frequency [MHz]	Channel	Plimit		
		IEEE 802.11 ac (80 MHz BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 210	42	7.75	6.81	10.32
5 290	58	7.74	6.82	10.31
5 530	106	7.67	7.11	10.41
5 610	122	7.45	7.05	10.26
5 690	138	7.66	7.04	10.37
5 775	155	7.71	7.31	10.52
5 855	171	7.66	6.75	10.24

Note:

Justification for test configurations for WLAN per KDB Publication 248227 D01v02r02:

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

Test Configuration

11.5 Bluetooth Maximum Conducted Power

11.5.1 Bluetooth Maximum Conducted Power

P_{max}

Mode	Channel	Max. Average Conducted Power [dBm]
DH5	0	14.30
	39	14.79
	78	14.75
2-DH5	0	8.92
	39	9.25
	78	9.38
3-DH5	0	8.89
	39	9.24
	78	9.39

P_{limit}

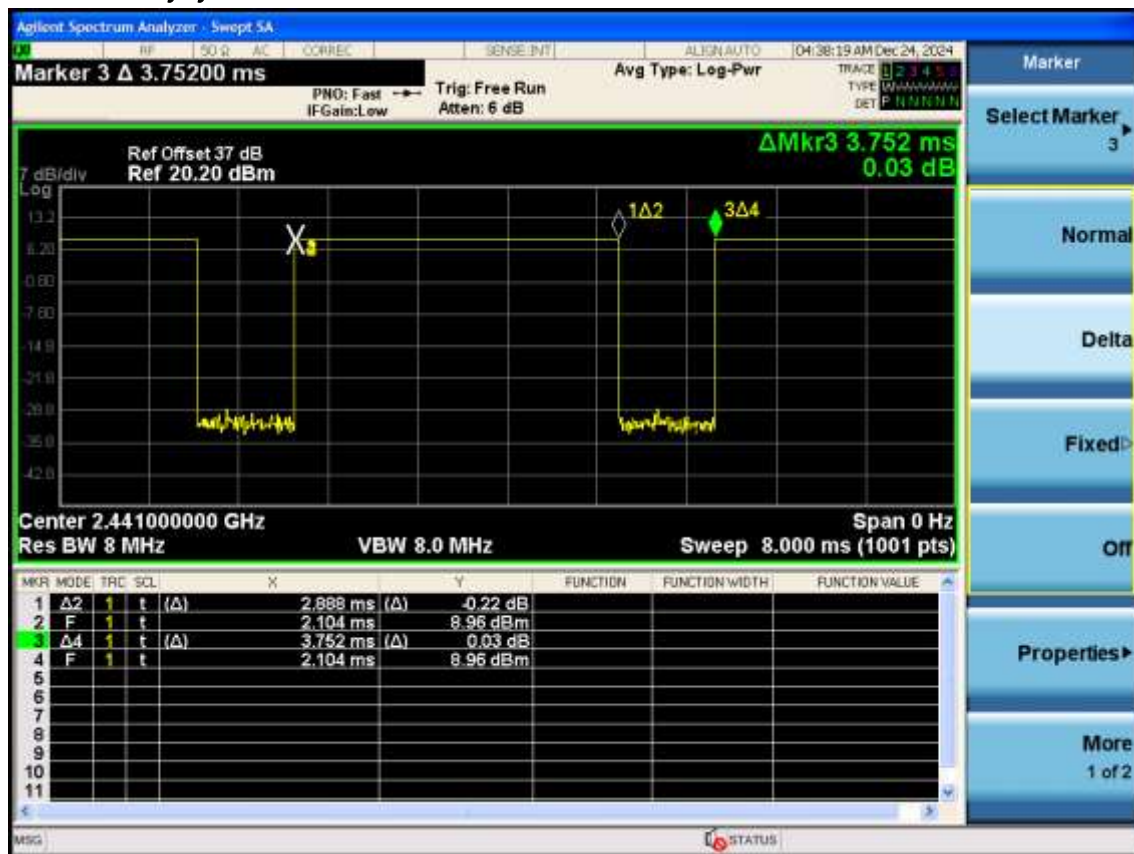
Mode	Channel	Max. Average Conducted Power [dBm]
DH5	0	9.81
	39	9.89
	78	10.25

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.

Bluetooth Duty cycle Measurement results



Bluetooth Duty Cycle

$$\text{Duty Cycle} = (\text{BT On Time} / \text{BT Full Time}) = (2.888/3.752) = 0.770$$

The maximum duty cycle defined by chipset manufacturer is 78.0 %. The duty cycle of DH5 measured by DUT was 77.0 %, and the measured SAR results was compensated by applying the maximum duty cycle

12. System Verification

12.1 Tissue Verification

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

◆ UMTS/ LTE/ WLAN Band

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
01/02/2025	21.5	750H	705	0.869	42.744	0.889	42.174	- 2.25	+ 1.35
			710	0.871	42.702	0.890	42.148	- 2.13	+ 1.31
			750	0.886	42.562	0.893	41.940	- 0.78	+ 1.48
01/03/2025	21.7	750H	705	0.870	42.709	0.889	42.174	- 2.14	+ 1.27
			710	0.875	42.666	0.890	42.148	- 1.69	+ 1.23
			750	0.909	42.230	0.893	41.940	+ 1.79	+ 0.69
01/10/2025	20.3	750H	750	0.891	42.171	0.893	41.940	- 0.22	+ 0.55
			785	0.905	42.034	0.896	41.758	+ 1.00	+ 0.66
01/13/2025	20.0	750H	750	0.889	42.746	0.893	41.940	- 0.45	+ 1.92
			785	0.905	42.630	0.896	41.758	+ 1.00	+ 2.09
01/06/2025	19.7	835H	820	0.907	42.572	0.899	41.577	+ 0.89	+ 2.39
			835	0.912	42.505	0.900	41.500	+ 1.33	+ 2.42
			850	0.917	42.455	0.916	41.500	+ 0.11	+ 2.30
01/14/2025	19.8	835H	820	0.924	42.053	0.899	41.577	+ 2.78	+ 1.14
			835	0.930	41.999	0.900	41.500	+ 3.33	+ 1.20
			850	0.936	41.951	0.916	41.500	+ 2.18	+ 1.09
01/03/2025	19.4	1 800H	1 710	1.371	41.622	1.348	40.144	+ 1.71	+ 3.68
			1 750	1.395	41.637	1.371	40.080	+ 1.75	+ 3.88
			1 800	1.435	41.583	1.400	40.000	+ 2.50	+ 3.96
01/10/2025	20.5	1 800H	1 710	1.324	40.526	1.348	40.144	- 1.78	+ 0.95
			1 750	1.347	40.548	1.371	40.080	- 1.75	+ 1.17
			1 800	1.385	40.498	1.400	40.000	- 1.07	+ 1.24
01/20/2025	20.2	1 800H	1 710	1.324	40.321	1.348	40.000	- 1.78	+ 0.80
			1 750	1.347	40.347	1.371	40.000	- 1.75	+ 0.87
			1 800	1.385	40.298	1.400	40.000	- 1.07	+ 0.74
01/02/2025	19.4	1 900H	1 850	1.384	40.271	1.400	40.000	- 1.14	+ 0.68
			1 900	1.411	40.129	1.400	40.000	+ 0.79	+ 0.32
			1 910	1.415	40.108	1.400	40.000	+ 1.07	+ 0.27
01/07/2025	19.5	1 900H	1 850	1.390	41.303	1.400	40.000	- 0.71	+ 3.26
			1 900	1.418	41.174	1.400	40.000	+ 1.29	+ 2.94
			1 910	1.422	41.154	1.400	40.000	+ 1.57	+ 2.89
01/17/2025	20.0	1 900H	1 850	1.390	40.603	1.400	40.000	- 0.71	+ 1.51
			1 900	1.418	40.475	1.400	40.000	+ 1.29	+ 1.19
			1 910	1.422	40.455	1.400	40.000	+ 1.57	+ 1.14

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
01/16/2025	19.5	2 300H	2 300	1.718	39.303	1.667	39.470	+ 3.06	- 0.42
			2 310	1.726	39.266	1.676	39.452	+ 2.98	- 0.47
01/22/2025	19.7	2 300H	2 300	1.718	39.306	1.667	39.470	+ 3.06	- 0.42
			2 310	1.727	39.269	1.676	39.452	+ 3.04	- 0.46
02/04/2025	20.1	2 450H	2 400	1.741	38.874	1.756	39.290	- 0.85	- 1.06
			2 450	1.797	38.694	1.800	39.200	- 0.17	- 1.29
			2 500	1.852	38.547	1.855	39.140	- 0.16	- 1.52
01/23/2025	19.7	2 450H	2 400	1.793	39.141	1.756	39.290	+ 2.11	- 0.38
			2 450	1.832	39.214	1.800	39.200	+ 1.78	+ 0.04
			2 500	1.879	39.308	1.855	39.140	+ 1.29	+ 0.43
01/15/2025	19.8	2 600H	2 500	1.851	39.019	1.855	39.140	- 0.22	- 0.31
			2 600	1.962	38.604	1.964	39.010	- 0.10	- 1.04
			2 690	2.063	38.156	2.062	38.894	+ 0.05	- 1.90
01/17/2025	19.7	2 600H	2 500	1.868	39.139	1.855	39.140	+ 0.70	+ 0.00
			2 600	1.980	38.724	1.964	39.010	+ 0.81	- 0.73
			2 690	2.081	38.276	2.062	38.894	+ 0.92	- 1.59
01/24/2025	20.0	2 600H	2 500	1.814	39.452	1.855	39.140	- 2.21	+ 0.80
			2 600	1.895	39.505	1.964	39.010	- 3.51	+ 1.27
			2 690	2.065	38.978	2.062	38.894	+ 0.15	+ 0.22
01/25/2025	20.1	3 500H- 3 700H	3 500	2.935	37.621	2.913	37.930	+ 0.76	- 0.81
			3 550	2.984	37.535	2.964	37.870	+ 0.67	- 0.88
			3 650	3.078	37.385	3.066	37.760	+ 0.39	- 0.99
			3 700	3.127	37.297	3.118	37.770	+ 0.29	- 1.25
01/26/2025	20.1	5 180H- 5 320H	5 180	4.756	35.203	4.635	36.010	+ 2.61	- 2.24
			5 250	4.846	34.975	4.706	35.930	+ 2.97	- 2.66
			5 280	4.889	34.910	4.737	35.894	+ 3.21	- 2.74
			5 320	4.950	34.864	4.778	35.846	+ 3.60	- 2.74
01/27/2025	19.8	5 500H- 5 600H	5 500	5.091	34.717	4.963	35.640	+ 2.58	- 2.59
			5 600	5.195	34.529	5.065	35.530	+ 2.57	- 2.82
			5 750	5.411	34.431	5.219	35.360	+ 3.68	- 2.63
01/28/2025	20.0	5 750H- 5 825H	5 750	5.238	34.429	5.219	35.360	+ 0.36	- 2.63
			5 800	5.172	34.437	5.270	35.300	- 1.86	- 2.44
			5 825	5.142	34.390	5.296	35.270	- 2.91	- 2.50
01/29/2025	20.1	5 800H- 5 885H	5 800	5.179	34.437	5.270	35.300	- 1.73	- 2.44
			5 835	5.139	34.357	5.306	35.258	- 3.15	- 2.56
			5 845	5.133	34.317	5.316	35.246	- 3.44	- 2.64
			5 855	5.130	34.269	5.326	35.235	- 3.68	- 2.74
			5 865	5.129	34.216	5.337	35.225	- 3.90	- 2.86
			5 875	5.133	34.161	5.347	35.215	- 4.00	- 2.99
			5 885	5.140	34.104	5.357	35.205	- 4.05	- 3.13

◆ 5G NR SUB 6 Band

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
01/16/2025	19.8	750H	705	0.914	42.778	0.889	42.174	+ 2.81	+ 1.43
			710	0.916	42.725	0.890	42.148	+ 2.92	+ 1.37
			750	0.883	42.078	0.893	41.940	- 1.12	+ 0.33
01/23/2025	19.7	835H	820	0.886	41.824	0.899	41.577	- 1.45	+ 0.59
			835	0.891	41.771	0.900	41.500	- 1.00	+ 0.65
			850	0.897	41.724	0.916	41.500	- 2.07	+ 0.54
02/05/2025	20.8	1640H	1 640	1.263	39.517	1.307	40.255	- 3.37	- 1.83
			1 690	1.309	39.518	1.336	40.176	- 2.02	- 1.64
			1700	1.332	39.531	1.342	40.160	- 0.75	- 1.57
01/09/2025	20.3	1800H	1 710	1.307	41.621	1.348	40.144	- 3.04	+ 3.68
			1 750	1.330	41.647	1.371	40.080	- 2.99	+ 3.91
			1 800	1.367	41.596	1.400	40.000	- 2.36	+ 3.99
01/08/2025	19.7	1900H	1 850	1.383	41.458	1.400	40.000	- 1.21	+ 3.64
			1 900	1.411	41.320	1.400	40.000	+ 0.79	+ 3.30
			1 910	1.415	41.298	1.400	40.000	+ 1.07	+ 3.25
01/20/2025	19.7	2300H	2 300	1.718	39.296	1.667	39.470	+ 3.06	- 0.44
			2 310	1.727	39.258	1.676	39.452	+ 3.04	- 0.49
01/21/2025	19.9	2 600H	2 500	1.879	39.305	1.855	39.140	+ 1.29	+ 0.42
			2 600	2.007	39.156	1.964	39.010	+ 2.19	+ 0.37
			2 690	2.115	38.330	2.062	38.894	+ 2.57	- 1.45
02/06/2025	20.4	3500H-3700H	3 500	2.838	38.919	2.913	37.930	- 2.57	+ 2.61
			3 550	2.885	38.833	2.964	37.870	- 2.67	+ 2.54
			3 650	2.976	38.683	3.066	37.760	- 2.94	+ 2.44
			3 700	3.024	38.596	3.118	37.770	- 3.01	+ 2.19
01/26/2025	20.0	3500H	3 400	2.746	39.075	2.810	38.040	- 2.28	+ 2.72
			3 500	2.839	38.916	2.913	37.930	- 2.54	+ 2.60
			3 550	2.886	38.813	2.964	37.870	- 2.63	+ 2.49
02/07/2025	20.3	3500H	3 400	2.773	38.940	2.810	38.040	- 1.32	+ 2.37
			3 500	2.869	38.756	2.913	37.930	- 1.51	+ 2.18
			3 550	2.918	38.688	2.964	37.870	- 1.55	+ 2.16
01/26/2025	20.0	3700H-3970	3 700	3.023	38.592	3.118	37.700	- 3.05	+ 2.37
			3 750	3.069	38.510	3.169	37.640	- 3.16	+ 2.31
			3 800	3.122	38.467	3.220	37.590	- 3.04	+ 2.33
			3 900	3.211	38.336	3.233	37.470	- 0.68	+ 2.31
			3 970	3.286	38.204	3.394	37.390	- 3.18	+ 2.18
02/07/2025	20.3	3700H-3970	3 700	3.053	38.422	3.118	37.700	- 2.08	+ 1.92
			3 750	3.099	38.350	3.169	37.640	- 2.21	+ 1.89
			3 800	3.153	38.312	3.220	37.590	- 2.08	+ 1.92
			3 900	3.246	38.161	3.233	37.470	+ 0.40	+ 1.84
			3 970	3.322	38.054	3.394	37.390	- 2.12	+ 1.78

12.2 System Verification

◆ UMTS/ LTE/ WLAN Band

Input Power: 50 mW

Freq.	Date	Probe	Dipole	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR _{1g} (SPEAG)	50 mW Measured SAR _{1g}	1 W Normalized SAR _{1g}	Deviation	Limit
[MHz]		(S/N)	(S/N)		[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	01/02/2025	7679	1014	Head	21.7	21.5	8.50	0.423	8.46	- 0.47	± 10
750	01/03/2025	7679		Head	21.8	21.7	8.50	0.440	8.80	+ 3.53	± 10
750	01/10/2025	7679		Head	20.5	20.3	8.50	0.433	8.66	+ 1.88	± 10
750	01/13/2025	7679		Head	20.1	20.0	8.50	0.435	8.70	+ 2.35	± 10
835	01/06/2025	3768		Head	19.8	19.7	9.73	0.505	10.1	+ 3.80	± 10
835	01/14/2025	7679		Head	19.9	19.8	9.73	0.485	9.70	- 0.31	± 10
1 800	01/03/2025	3768	2d007	Head	19.6	19.4	39.0	1.93	38.6	- 1.03	± 10
1 800	01/10/2025	3768		Head	20.7	20.5	39.0	1.94	38.8	- 0.51	± 10
1 800	01/20/2025	3768		Head	20.3	20.2	39.0	1.89	37.8	- 3.08	± 10
1 900	01/02/2025	3768	5d032	Head	19.5	19.4	40.2	1.90	38.0	- 5.47	± 10
1 900	01/07/2025	3768		Head	19.7	19.5	40.2	2.08	41.6	+ 3.48	± 10
1 900	01/17/2025	3768		Head	20.1	20.0	40.2	2.08	41.6	+ 3.48	± 10
2 300	01/16/2025	7679	1010	Head	19.7	19.5	48.3	2.36	47.2	- 2.28	± 10
2 300	01/22/2025	7679	1010	Head	19.8	19.7	48.3	2.34	46.8	- 3.11	± 10
2 450	02/04/2025	7679	743	Head	20.2	20.1	51.8	2.62	52.4	+ 1.16	± 10
2 450	01/23/2025	7679		Head	19.9	19.7	51.8	2.47	49.4	- 4.63	± 10
2 600	01/15/2025	7679	1015	Head	20.0	19.8	56.4	3.04	60.8	+ 7.80	± 10
2 600	01/17/2025	7679		Head	19.8	19.7	56.4	2.70	54.0	- 4.26	± 10
2 600	01/24/2025	7679		Head	20.1	20.0	56.4	2.84	56.8	+ 0.71	± 10
3 500	01/25/2025	7309	1040	Head	20.1	20.0	65.2	3.25	65.0	- 0.31	± 10
3 700	01/25/2025	7309	1105	Head	20.1	20.0	67.1	3.27	65.4	- 2.53	± 10
5 250	01/26/2025	7309	1107	Head	20.2	20.1	80.2	4.31	86.2	+ 7.48	± 10
5 600	01/27/2025	7309		Head	20.0	19.8	82.1	4.31	86.2	+ 4.99	± 10
5 750	01/28/2025	7309		Head	20.1	20.0	79.9	3.76	75.2	- 5.88	± 10
5 800	01/29/2025	7309		Head	20.3	20.1	79.3	3.87	77.4	- 2.40	± 10

◆ 5G NR SUB 6 Band

Input Power: 50 mW

Freq.	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR _{1g} (SPEAG)	50 mW Measured SAR _{1g}	1 W Normalized SAR _{1g}	Deviation	Limit
[MHz]					[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	01/16/2025	3768	1014	Head	20.0	19.8	8.50	0.408	8.16	- 4.00	± 10
835	01/23/2025	3768	441	Head	19.9	19.7	9.73	0.474	9.48	- 2.57	± 10
1640	02/05/2024	7679	345	Head	20.9	20.8	33.8	1.70	34.0	+ 0.59	± 10
1 800	01/09/2025	3768	2d007	Head	20.5	20.3	39.0	1.92	38.4	- 1.54	± 10
1 900	01/08/2025	3768	5d032	Head	19.8	19.7	40.2	2.08	41.6	+ 3.48	± 10
2 300	01/20/2025	7679	1010	Head	19.9	19.7	48.3	2.27	45.4	- 6.00	± 10
2 600	01/21/2025	7679	1015	Head	20.0	19.9	56.4	2.75	55.0	- 2.48	± 10
3 500	02/06/2025	7679	1040	Head	20.5	20.4	65.2	3.21	64.2	- 1.53	± 10
3 500	01/26/2025	7679		Head	20.1	20.0	65.2	3.23	64.6	- 0.92	± 10
3 500	02/07/2025	7679		Head	20.4	20.3	65.2	3.44	68.8	+ 5.52	± 10
3700	02/06/2025	7679	1105	Head	20.5	20.4	67.1	3.64	72.8	+ 8.49	± 10
3 700	01/26/2025	7679		Head	20.1	20.0	67.1	3.65	73.0	+ 8.79	± 10
3 700	02/07/2025	7679		Head	20.4	20.3	67.1	3.38	67.6	+ 0.75	± 10
3 900	01/26/2025	7679	1086	Head	20.1	20.0	67.6	3.30	66.0	- 2.37	± 10
3 900	02/07/2025	7679		Head	20.4	20.3	67.6	3.26	65.2	- 3.55	± 10

12.3 SAR Test System Verification Procedure

SAR measurement was prior to assessment; the system is verified to the $\pm 10\%$ of the specifications at each frequency Band by using the system verification kit. (Graphic Plots Attached)

- Cabling the system, using the verification kit equipment.
- 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.

Note;

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

13. SAR Test Data Summary

13.1 Body SAR Measurement Results

UMTS Band 5 Body SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)				(mm)	(W/kg)		(W/kg)	
836.6	4183	RMC	M1	16.0	15.00	0.00	Rear	1:1	Active	0	0.401	1.259	0.505	-
826.4	4132	RMC	M1	22.5	21.57	0.11	Left	1:1	Active	0	0.178	1.239	0.221	-
826.4	4132	RMC	M1	22.5	21.57	0.11	Right	1:1	Active	0	0.167	1.239	0.207	-
836.6	4183	RMC	M1	16.0	15.00	-0.15	Top	1:1	Active	0	0.357	1.259	0.449	-
836.6	4183	RMC	M1	25.0	24.42	0.11	Rear	1:1	Inactive	19	0.401	1.143	0.458	-
836.6	4183	RMC	M1	25.0	24.42	0.09	Left	1:1	Inactive	10	0.056	1.143	0.064	-
836.6	4183	RMC	M1	25.0	24.42	0.10	Right	1:1	Inactive	10	0.057	1.143	0.065	-
836.6	4183	RMC	M1	25.0	24.42	-0.03	Top	1:1	Inactive	19	0.513	1.143	0.586	-
826.4	4132	RMC	M1	25.0	24.54	-0.02	Top	1:1	Inactive	19	0.530	1.112	0.589	A1
846.6	4233	RMC	M1	25.0	24.12	-0.03	Top	1:1	Inactive	19	0.482	1.225	0.590	-
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram						

UMTS Band 4 Body SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)				(mm)	(W/kg)		(W/kg)	
1 732.4	1412	RMC	M1	14.0	12.65	0.00	Rear	1:1	Active	0	0.429	1.365	0.586	-
1 732.4	1412	RMC	M1	21.0	19.79	0.14	Left	1:1	Active	0	0.097	1.321	0.128	-
1 732.4	1412	RMC	M1	21.0	19.79	0.14	Right	1:1	Active	0	0.153	1.321	0.202	-
1 732.4	1412	RMC	M1	14.0	12.65	-0.06	Top	1:1	Active	0	0.360	1.365	0.491	-
1 732.4	1412	RMC	M1	25.0	24.04	0.18	Rear	1:1	Inactive	19	0.373	1.247	0.465	-
1 732.4	1412	RMC	M1	25.0	24.04	0.12	Left	1:1	Inactive	10	0.087	1.247	0.108	-
1 732.4	1412	RMC	M1	25.0	24.04	-0.04	Right	1:1	Inactive	10	0.115	1.247	0.143	-
1 732.4	1412	RMC	M1	25.0	24.04	-0.05	Top	1:1	Inactive	19	0.496	1.247	0.619	-
1 712.4	1312	RMC	M1	25.0	24.02	-0.07	Top	1:1	Inactive	19	0.475	1.253	0.595	-
1 752.6	1513	RMC	M1	25.0	24.06	-0.14	Top	1:1	Inactive	19	0.547	1.242	0.679	A2
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg Averaged over 1 gram						

UMTS Band 2 Body SAR

Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)				(mm)	(W/kg)		(W/kg)	
1 880.0	9400	RMC	M1	13.5	12.13	0.11	Rear	1:1	Active	0	0.342	1.371	0.469	-
1 880.0	9400	RMC	M1	17.5	15.96	0.00	Left	1:1	Active	0	0.046	1.426	0.066	-
1 880.0	9400	RMC	M1	17.5	15.96	0.00	Right	1:1	Active	0	0.061	1.426	0.087	-
1 880.0	9400	RMC	M1	13.5	12.13	-0.04	Top	1:1	Active	0	0.391	1.371	0.536	-
1 880.0	9400	RMC	M1	25.0	23.86	0.08	Rear	1:1	Inactive	19	0.289	1.300	0.376	-
1 880.0	9400	RMC	M1	25.0	23.86	0.11	Left	1:1	Inactive	10	0.054	1.300	0.070	-
1 880.0	9400	RMC	M1	25.0	23.86	0.04	Right	1:1	Inactive	10	0.122	1.300	0.159	-
1 880.0	9400	RMC	M1	25.0	23.86	-0.01	Top	1:1	Inactive	19	0.476	1.300	0.619	-
1 852.4	9262	RMC	M1	25.0	23.72	-0.16	Top	1:1	Inactive	19	0.496	1.343	0.666	A3
1 907.6	9538	RMC	M1	25.0	23.60	-0.11	Top	1:1	Inactive	19	0.414	1.380	0.571	-
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Ex posure/ General Population								Body 1.6 W/kg Averaged over 1 gram						

LTE FDD Band 7 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
2 510.0	20850	QPSK	M1	20	10.0	9.01	0.00	Rear	0	1	49	1:1	Active	0	0.384	1.256	0.482	-
2 510.0	20850	QPSK	M1	20	10.0	8.96	0.00	Rear	0	50	25	1:1	Active	0	0.397	1.271	0.505	-
2 535.0	21100	QPSK	M1	20	22.5	20.99	0.00	Left	0	1	49	1:1	Active	0	0.268	1.416	0.379	-
2 535.0	21100	QPSK	M1	20	22.5	21.03	0.00	Left	0	50	25	1:1	Active	0	0.204	1.403	0.286	-
2 535.0	21100	QPSK	M1	20	22.5	20.99	0.06	Right	0	1	49	1:1	Active	0	0.294	1.416	0.416	-
2 535.0	21100	QPSK	M1	20	22.5	21.03	0.12	Right	0	50	25	1:1	Active	0	0.300	1.403	0.421	-
2 510.0	20850	QPSK	M1	20	10.0	9.01	0.10	Top	0	1	49	1:1	Active	0	0.349	1.256	0.438	-
2 510.0	20850	QPSK	M1	20	10.0	8.96	-0.16	Top	0	50	25	1:1	Active	0	0.394	1.271	0.501	-
2 510.0	20850	QPSK	M1	20	25.0	23.81	0.14	Rear	0	1	49	1:1	Inactive	19	0.231	1.315	0.304	-
2 510.0	20850	QPSK	M1	20	24.0	22.71	0.19	Rear	1	50	25	1:1	Inactive	19	0.180	1.346	0.242	-
2 510.0	20850	QPSK	M1	20	25.0	23.81	0.14	Left	0	1	49	1:1	Inactive	10	0.106	1.315	0.139	-
2 510.0	20850	QPSK	M1	20	24.0	22.71	0.04	Left	1	50	25	1:1	Inactive	10	0.086	1.346	0.116	-
2 510.0	20850	QPSK	M1	20	25.0	23.81	0.12	Right	0	1	49	1:1	Inactive	10	0.177	1.315	0.233	-
2 510.0	20850	QPSK	M1	20	24.0	22.71	0.01	Right	1	50	25	1:1	Inactive	10	0.137	1.346	0.184	-
2 510.0	20850	QPSK	M1	20	25.0	23.81	0.07	Top	0	1	49	1:1	Inactive	19	0.502	1.315	0.660	A4
2 510.0	20850	QPSK	M1	20	24.0	22.71	-0.10	Top	1	50	25	1:1	Inactive	19	0.393	1.346	0.529	-
2 560.0	21350	QPSK	S1	20	12.0	10.90	0.00	Rear	0	1	49	1:1	Active	0	0.237	1.288	0.305	-
2 560.0	21350	QPSK	S1	20	12.0	10.86	0.00	Rear	0	50	0	1:1	Active	0	0.253	1.300	0.329	-
2 560.0	21350	QPSK	S1	20	12.0	10.90	0.11	Left	0	1	49	1:1	Active	0	0.269	1.288	0.346	-
2 560.0	21350	QPSK	S1	20	12.0	10.86	0.13	Left	0	50	0	1:1	Active	0	0.286	1.300	0.372	-
2 560.0	21350	QPSK	S1	20	12.0	10.90	-0.15	Bottom	0	1	49	1:1	Active	0	0.103	1.288	0.133	-
2 560.0	21350	QPSK	S1	20	12.0	10.86	0.12	Bottom	0	50	0	1:1	Active	0	0.104	1.300	0.135	-
2 535.0	21100	QPSK	S1	20	24.0	22.64	0.04	Rear	0	1	49	1:1	Inactive	18	0.160	1.368	0.219	-
2 560.0	21350	QPSK	S1	20	23.0	21.57	0.11	Rear	1	50	0	1:1	Inactive	18	0.134	1.390	0.186	-
2 535.0	21100	QPSK	S1	20	24.0	22.64	0.07	Left	0	1	49	1:1	Inactive	10	0.443	1.368	0.606	-
2 560.0	21350	QPSK	S1	20	23.0	21.57	-0.14	Left	1	50	0	1:1	Inactive	10	0.329	1.390	0.457	-
2 535.0	21100	QPSK	S1	20	24.0	22.64	0.01	Bottom	0	1	49	1:1	Inactive	18	0.024	1.368	0.033	-
2 560.0	21350	QPSK	S1	20	23.0	21.57	-0.01	Bottom	1	50	0	1:1	Inactive	18	0.024	1.390	0.033	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

LTE FDD Band 12 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR (dB)	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
707.5	23095	QPSK	M1	10	15.0	14.29	0.00	Rear	0	1	49	1:1	Active	0	0.350	1.178	0.412	-
707.5	23095	QPSK	M1	10	15.0	14.17	0.00	Rear	0	25	24	1:1	Active	0	0.347	1.211	0.420	-
707.5	23095	QPSK	M1	10	25.0	23.83	-0.11	Left	0	1	49	1:1	N/A	0	0.228	1.309	0.298	-
707.5	23095	QPSK	M1	10	24.0	22.75	0.04	Left	1	25	24	1:1	N/A	0	0.182	1.334	0.243	-
707.5	23095	QPSK	M1	10	25.0	23.83	0.13	Right	0	1	49	1:1	N/A	0	0.265	1.309	0.347	-
707.5	23095	QPSK	M1	10	24.0	22.75	0.13	Right	1	25	24	1:1	N/A	0	0.213	1.334	0.284	-
707.5	23095	QPSK	M1	10	15.0	14.29	0.07	Top	0	1	49	1:1	Active	0	0.279	1.178	0.329	-
707.5	23095	QPSK	M1	10	15.0	14.17	0.18	Top	0	25	24	1:1	Active	0	0.284	1.211	0.344	-
707.5	23095	QPSK	M1	10	25.0	23.83	-0.17	Rear	0	1	49	1:1	Inactive	19	0.339	1.309	0.444	-
707.5	23095	QPSK	M1	10	24.0	22.75	-0.06	Rear	1	25	24	1:1	Inactive	19	0.263	1.334	0.351	-
707.5	23095	QPSK	M1	10	25.0	23.83	0.01	Top	0	1	49	1:1	Inactive	19	0.411	1.309	0.538	A5
707.5	23095	QPSK	M1	10	24.0	22.75	0.01	Top	1	25	24	1:1	Inactive	19	0.315	1.334	0.420	-
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 13 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR (dB)	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
782.0	23230	QPSK	M1	10	13.5	12.99	0.00	Rear	0	1	0	1:1	Active	0	0.282	1.125	0.317	-
782.0	23230	QPSK	M1	10	13.5	12.91	0.00	Rear	0	25	12	1:1	Active	0	0.300	1.146	0.344	-
782.0	23230	QPSK	M1	10	25.0	24.01	0.07	Left	0	1	49	1:1	N/A	0	0.292	1.256	0.367	-
782.0	23230	QPSK	M1	10	24.0	23.00	0.15	Left	1	25	24	1:1	N/A	0	0.222	1.259	0.279	-
782.0	23230	QPSK	M1	10	25.0	24.01	0.18	Right	0	1	49	1:1	N/A	0	0.243	1.256	0.305	-
782.0	23230	QPSK	M1	10	24.0	23.00	0.13	Right	1	25	24	1:1	N/A	0	0.170	1.259	0.214	-
782.0	23230	QPSK	M1	10	13.5	12.99	0.16	Top	0	1	0	1:1	Active	0	0.352	1.125	0.396	-
782.0	23230	QPSK	M1	10	13.5	12.91	0.18	Top	0	25	12	1:1	Active	0	0.352	1.146	0.403	-
782.0	23230	QPSK	M1	10	25.0	24.01	0.02	Rear	0	1	49	1:1	Inactive	19	0.409	1.256	0.514	-
782.0	23230	QPSK	M1	10	24.0	23.00	0.06	Rear	1	25	24	1:1	Inactive	19	0.329	1.259	0.414	-
782.0	23230	QPSK	M1	10	25.0	24.01	0.02	Top	0	1	49	1:1	Inactive	19	0.677	1.256	0.850	A6
782.0	23230	QPSK	M1	10	24.0	23.00	0.07	Top	1	25	24	1:1	Inactive	19	0.540	1.259	0.680	-
782.0	23230	QPSK	M1	10	24.0	22.93	0.03	Top	1	50	0	1:1	Inactive	19	0.534	1.279	0.683	-
782.0	23230	QPSK	M1	10	25.0	24.01	0.02	Top	0	1	49	1:1	Inactive	19	0.580	1.256	0.728	#
782.0	23230	QPSK	M1	10	25.0	24.01	0.02	Top	0	1	49	1:1	Inactive	19	0.651	1.256	0.818	•
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

: Tablet Mode with Cover Variant 1

• : Tablet Mode with Cover Variant 2

LTE FDD Band 14 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
793.0	23330	QPSK	M1	10	14.0	13.45	0.00	Rear	0	1	24	1:1	Active	0	0.331	1.135	0.376	-
793.0	23330	QPSK	M1	10	14.0	13.36	0.00	Rear	0	25	12	1:1	Active	0	0.328	1.159	0.380	-
793.0	23330	QPSK	M1	10	25.0	24.16	0.11	Left	0	1	24	1:1	N/A	0	0.269	1.213	0.326	-
793.0	23330	QPSK	M1	10	24.0	23.17	0.13	Left	1	25	0	1:1	N/A	0	0.218	1.211	0.264	-
793.0	23330	QPSK	M1	10	25.0	24.16	0.19	Right	0	1	24	1:1	N/A	0	0.176	1.213	0.213	-
793.0	23330	QPSK	M1	10	24.0	23.17	0.01	Right	1	25	0	1:1	N/A	0	0.150	1.211	0.182	-
793.0	23330	QPSK	M1	10	14.0	13.45	0.13	Top	0	1	24	1:1	Active	0	0.392	1.135	0.445	-
793.0	23330	QPSK	M1	10	14.0	13.36	0.10	Top	0	25	12	1:1	Active	0	0.391	1.159	0.453	-
793.0	23330	QPSK	M1	10	25.0	24.16	-0.13	Rear	0	1	24	1:1	Inactive	19	0.390	1.213	0.473	-
793.0	23330	QPSK	M1	10	24.0	23.17	-0.01	Rear	1	25	0	1:1	Inactive	19	0.309	1.211	0.374	-
793.0	23330	QPSK	M1	10	25.0	24.16	-0.05	Top	0	1	24	1:1	Inactive	19	0.658	1.213	0.798	A7
793.0	23330	QPSK	M1	10	24.0	23.17	0.04	Top	1	25	0	1:1	Inactive	19	0.576	1.211	0.698	-
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE FDD Band 25 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.																	
1 882.5	26365	QPSK	M1	20	12.5	11.52	0.00	Rear	0	1	49	1:1	Active	0	0.316	1.253	0.396	-
1 882.5	26365	QPSK	M1	20	12.5	11.50	0.00	Rear	0	50	25	1:1	Active	0	0.317	1.259	0.399	-
1 882.5	26365	QPSK	M1	20	18.5	17.44	0.02	Left	0	1	49	1:1	Active	0	0.064	1.276	0.082	-
1 882.5	26365	QPSK	M1	20	18.5	17.32	0.00	Left	0	50	25	1:1	Active	0	0.059	1.312	0.077	-
1 882.5	26365	QPSK	M1	20	18.5	17.44	0.11	Right	0	1	49	1:1	Active	0	0.130	1.276	0.166	-
1 882.5	26365	QPSK	M1	20	18.5	17.32	0.00	Right	0	50	25	1:1	Active	0	0.132	1.312	0.173	-
1 882.5	26365	QPSK	M1	20	12.5	11.52	-0.14	Top	0	1	49	1:1	Active	0	0.322	1.253	0.403	-
1 882.5	26365	QPSK	M1	20	12.5	11.50	-0.09	Top	0	50	25	1:1	Active	0	0.334	1.259	0.421	-
1 882.5	26365	QPSK	M1	20	25.0	24.06	0.11	Rear	0	1	49	1:1	Inactive	19	0.310	1.242	0.385	-
1 882.5	26365	QPSK	M1	20	24.0	22.99	0.16	Rear	1	50	25	1:1	Inactive	19	0.240	1.262	0.303	-
1 882.5	26365	QPSK	M1	20	25.0	24.06	0.17	Left	0	1	49	1:1	Inactive	10	0.060	1.242	0.075	-
1 882.5	26365	QPSK	M1	20	24.0	22.99	0.16	Left	1	50	25	1:1	Inactive	10	0.045	1.262	0.057	-
1 882.5	26365	QPSK	M1	20	25.0	24.06	0.12	Right	0	1	49	1:1	Inactive	10	0.124	1.242	0.154	-
1 882.5	26365	QPSK	M1	20	24.0	22.99	0.09	Right	1	50	25	1:1	Inactive	10	0.096	1.262	0.121	-
1 882.5	26365	QPSK	M1	20	25.0	24.06	-0.11	Top	0	1	49	1:1	Inactive	19	0.494	1.242	0.614	A8
1 882.5	26365	QPSK	M1	20	24.0	22.99	-0.08	Top	1	50	25	1:1	Inactive	19	0.384	1.262	0.485	-
1 860.0	26140	QPSK	S1	20	11.5	10.77	0.00	Rear	0	1	0	1:1	Active	0	0.201	1.183	0.238	-
1 882.5	26365	QPSK	S1	20	11.5	10.71	0.00	Rear	0	50	49	1:1	Active	0	0.216	1.199	0.259	-
1 860.0	26140	QPSK	S1	20	11.5	10.77	-0.12	Left	0	1	0	1:1	Active	0	0.194	1.183	0.230	-
1 882.5	26365	QPSK	S1	20	11.5	10.71	-0.09	Left	0	50	49	1:1	Active	0	0.205	1.199	0.246	-
1 860.0	26140	QPSK	S1	20	11.5	10.77	0.04	Bottom	0	1	0	1:1	Active	0	0.085	1.183	0.101	-
1 882.5	26365	QPSK	S1	20	11.5	10.71	0.00	Bottom	0	50	49	1:1	Active	0	0.077	1.199	0.092	-
1 882.5	26365	QPSK	S1	20	24.0	22.98	-0.09	Rear	0	1	99	1:1	Inactive	18	0.071	1.265	0.090	-
1 882.5	26365	QPSK	S1	20	23.0	21.96	0.09	Rear	1	50	49	1:1	Inactive	18	0.054	1.271	0.069	-
1 882.5	26365	QPSK	S1	20	24.0	22.98	0.07	Left	0	1	99	1:1	Inactive	10	0.247	1.265	0.312	-
1 882.5	26365	QPSK	S1	20	23.0	21.96	0.07	Left	1	50	49	1:1	Inactive	10	0.186	1.271	0.236	-
1 882.5	26365	QPSK	S1	20	24.0	22.98	0.10	Bottom	0	1	99	1:1	Inactive	18	0.059	1.265	0.075	-
1 882.5	26365	QPSK	S1	20	23.0	21.96	0.14	Bottom	1	50	49	1:1	Inactive	18	0.043	1.271	0.055	-

ANSI/ IEEE C95.1 - 2005- Safety Limit
Spatial Peak
Uncontrolled Exposure/ General Population

Body
1.6 W/kg
Averaged over 1 gram

LTE FDD Band 26 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.																	
831.5	26865	QPSK	M1	15	15.0	14.16	0.00	Rear	0	1	0	1:1	Active	0	0.382	1.213	0.463	-
831.5	26865	QPSK	M1	15	15.0	14.11	0.00	Rear	0	36	0	1:1	Active	0	0.375	1.227	0.460	-
831.5	26865	QPSK	M1	15	24.0	22.79	0.13	Left	0	1	0	1:1	Active	0	0.331	1.321	0.437	-
831.5	26865	QPSK	M1	15	24.0	22.83	0.13	Left	0	36	0	1:1	Active	0	0.330	1.309	0.432	-
831.5	26865	QPSK	M1	15	24.0	22.79	0.19	Right	0	1	0	1:1	Active	0	0.186	1.321	0.246	-
831.5	26865	QPSK	M1	15	24.0	22.83	0.13	Right	0	36	0	1:1	Active	0	0.181	1.309	0.237	-
831.5	26865	QPSK	M1	15	15.0	14.16	0.15	Top	0	1	0	1:1	Active	0	0.364	1.213	0.442	-
831.5	26865	QPSK	M1	15	15.0	14.11	0.11	Top	0	36	0	1:1	Active	0	0.356	1.227	0.437	-
831.5	26865	QPSK	M1	15	25.0	24.63	-0.03	Rear	0	1	0	1:1	Inactive	19	0.426	1.089	0.464	-
831.5	26865	QPSK	M1	15	24.0	23.65	0.04	Rear	1	36	0	1:1	Inactive	19	0.343	1.084	0.372	-
831.5	26865	QPSK	M1	15	25.0	24.63	-0.08	Left	0	1	0	1:1	Inactive	10	0.066	1.089	0.072	-
831.5	26865	QPSK	M1	15	24.0	23.65	0.03	Left	1	36	0	1:1	Inactive	10	0.050	1.084	0.054	-
831.5	26865	QPSK	M1	15	25.0	24.63	0.08	Right	0	1	0	1:1	Inactive	10	0.065	1.089	0.071	-
831.5	26865	QPSK	M1	15	24.0	23.65	0.10	Right	1	36	0	1:1	Inactive	10	0.054	1.084	0.059	-
831.5	26865	QPSK	M1	15	25.0	24.63	0.05	Top	0	1	0	1:1	Inactive	19	0.673	1.089	0.733	A9
831.5	26865	QPSK	M1	15	24.0	23.65	0.00	Top	1	36	0	1:1	Inactive	19	0.535	1.084	0.580	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

LTE FDD Band 30 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.																	
2 310.0	27710	QPSK	M1	10	12.5	11.49	0.00	Rear	0	1	0	1:1	Active	0	0.378	1.262	0.477	-
2 310.0	27710	QPSK	M1	10	12.5	11.49	0.00	Rear	0	25	0	1:1	Active	0	0.377	1.262	0.476	-
2 310.0	27710	QPSK	M1	10	21.5	20.28	-0.01	Left	0	1	0	1:1	Active	0	0.106	1.324	0.140	-
2 310.0	27710	QPSK	M1	10	21.5	20.24	0.00	Left	0	25	0	1:1	Active	0	0.101	1.337	0.135	-
2 310.0	27710	QPSK	M1	10	21.5	20.28	0.01	Right	0	1	0	1:1	Active	0	0.519	1.324	0.687	-
2 310.0	27710	QPSK	M1	10	21.5	20.24	-0.07	Right	0	25	0	1:1	Active	0	0.491	1.337	0.656	-
2 310.0	27710	QPSK	M1	10	12.5	11.49	0.12	Top	0	1	0	1:1	Active	0	0.350	1.262	0.442	-
2 310.0	27710	QPSK	M1	10	12.5	11.49	0.11	Top	0	25	0	1:1	Active	0	0.352	1.262	0.444	-
2 310.0	27710	QPSK	M1	10	24.0	22.71	-0.03	Rear	0	1	0	1:1	Inactive	19	0.181	1.346	0.244	-
2 310.0	27710	QPSK	M1	10	23.0	21.96	-0.13	Rear	1	25	0	1:1	Inactive	19	0.174	1.271	0.221	-
2 310.0	27710	QPSK	M1	10	24.0	22.71	0.01	Left	0	1	0	1:1	Inactive	10	0.036	1.346	0.048	-
2 310.0	27710	QPSK	M1	10	23.0	21.96	0.05	Left	1	25	0	1:1	Inactive	10	0.037	1.271	0.047	-
2 310.0	27710	QPSK	M1	10	24.0	22.71	0.13	Right	0	1	0	1:1	Inactive	10	0.129	1.346	0.174	-
2 310.0	27710	QPSK	M1	10	23.0	21.96	0.09	Right	1	25	0	1:1	Inactive	10	0.116	1.271	0.147	-
2 310.0	27710	QPSK	M1	10	24.0	22.71	0.15	Top	0	1	0	1:1	Inactive	19	0.267	1.346	0.359	-
2 310.0	27710	QPSK	M1	10	23.0	21.96	0.15	Top	1	25	0	1:1	Inactive	19	0.263	1.271	0.334	-
2 310.0	27710	QPSK	S1	10	14.5	13.28	0.00	Rear	0	1	0	1:1	Active	0	0.560	1.324	0.741	A10
2 310.0	27710	QPSK	S1	10	14.5	13.27	0.00	Rear	0	25	0	1:1	Active	0	0.416	1.327	0.552	-
2 310.0	27710	QPSK	S1	10	14.5	13.28	0.05	Left	0	1	0	1:1	Active	0	0.349	1.324	0.462	-
2 310.0	27710	QPSK	S1	10	14.5	13.27	0.13	Left	0	25	0	1:1	Active	0	0.314	1.327	0.417	-
2 310.0	27710	QPSK	S1	10	14.5	13.28	0.16	Bottom	0	1	0	1:1	Active	0	0.227	1.324	0.301	-
2 310.0	27710	QPSK	S1	10	14.5	13.27	0.10	Bottom	0	25	0	1:1	Active	0	0.220	1.327	0.292	-
2 310.0	27710	QPSK	S1	10	24.0	22.55	-0.01	Rear	0	1	0	1:1	Inactive	18	0.166	1.396	0.232	-
2 310.0	27710	QPSK	S1	10	23.0	21.51	0.14	Rear	1	25	0	1:1	Inactive	18	0.123	1.409	0.173	-
2 310.0	27710	QPSK	S1	10	24.0	22.55	-0.19	Left	0	1	0	1:1	Inactive	10	0.164	1.396	0.229	-
2 310.0	27710	QPSK	S1	10	23.0	21.51	0.08	Left	1	25	0	1:1	Inactive	10	0.124	1.409	0.175	-
2 310.0	27710	QPSK	S1	10	24.0	22.55	0.11	Bottom	0	1	0	1:1	Inactive	18	0.320	1.396	0.447	-
2 310.0	27710	QPSK	S1	10	23.0	21.51	0.18	Bottom	1	25	0	1:1	Inactive	18	0.239	1.409	0.337	-
2 310.0	27710	QPSK	S1	10	14.5	13.28	0.00	Rear	0	1	0	1:1	Active	0	0.272	1.324	0.360	#
2 310.0	27710	QPSK	S1	10	14.5	13.28	0.00	Rear	0	1	0	1:1	Active	0	0.163	1.324	0.216	•

ANSI/ IEEE C95.1 - 2005- Safety Limit

Spatial Peak

Uncontrolled Exposure/ General Population

Body

1.6 W/kg

Averaged over 1 gram

: Tablet Mode with Cover Variant 1

• : Tablet Mode with Cover Variant 2

LTE TDD Band 41 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling	Scaled SAR	Plot No.	
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)	(dB)	Size			offset	(mm)	(W/kg)	Factor		(W/kg)
2 680.0	41490	QPSK	M1	20	13.0	11.93	0.00	Rear	0	1	49	1:1.58	Active	0	0.227	1.279	0.290	-	
2 680.0	41490	QPSK	M1	20	13.0	12.01	0.00	Rear	0	50	0	1:1.58	Active	0	0.239	1.256	0.300	-	
2 506.0	39750	QPSK	M1	20	25.0	23.69	0.00	Left	0	1	99	1:1.58	N/A	0	0.293	1.352	0.396	-	
2 506.0	39750	QPSK	M1	20	24.0	22.68	0.00	Left	1	50	0	1:1.58	N/A	0	0.299	1.355	0.405	-	
2 506.0	39750	QPSK	M1	20	25.0	23.69	0.03	Right	0	1	99	1:1.58	N/A	0	0.437	1.352	0.591	-	
2 506.0	39750	QPSK	M1	20	24.0	22.68	0.01	Right	1	50	0	1:1.58	N/A	0	0.391	1.355	0.530	-	
2 680.0	41490	QPSK	M1	20	13.0	11.93	-0.06	Top	0	1	49	1:1.58	Active	0	0.194	1.279	0.248	-	
2 680.0	41490	QPSK	M1	20	13.0	12.01	0.17	Top	0	50	0	1:1.58	Active	0	0.199	1.256	0.250	-	
2 506.0	39750	QPSK	M1	20	25.0	23.69	0.18	Rear	0	1	99	1:1.58	Inactive	19	0.162	1.352	0.219	-	
2 506.0	39750	QPSK	M1	20	24.0	22.68	0.06	Rear	1	50	0	1:1.58	Inactive	19	0.156	1.355	0.211	-	
2 506.0	39750	QPSK	M1	20	25.0	23.69	-0.15	Top	0	1	99	1:1.58	Inactive	19	0.292	1.352	0.395	-	
2 506.0	39750	QPSK	M1	20	24.0	22.68	-0.11	Top	1	50	0	1:1.58	Inactive	19	0.284	1.355	0.385	-	
Power Class 2 (HPUE)																			
2 680.0	41490	QPSK	M1	20	14.6	13.88	0.00	Rear	0	50	0	1:2.31	Active	0	0.273	1.180	0.322	-	
2 506.0	39750	QPSK	M1	20	27.0	25.49	0.00	Right	0	1	99	1:2.31	N/A	0	0.422	1.416	0.598	-	
Up-link Carrier Aggregation 41C (Power Class 3)																			
PCC	2 506.0	39750	QPSK	M1	20	24.0	22.75	0.00	Right	0	1	99	1:1.58	N/A	0	0.368	1.334	0.491	-
SCC	2 525.8	39948	QPSK	M1	20						1	0							
Up-link Carrier Aggregation 41C (Power Class 2)																			
PCC	2 506.0	39750	QPSK	M1	20	27.0	26.21	0.17	Right	0	1	99	1:2.31	N/A	0	0.544	1.199	0.652	A11
SCC	2 525.8	39948	QPSK	M1	20						1	0							
ANSI/ IEEE C95.1 - 2005– Safety Limit										Body									
Spatial Peak										1.6 W/kg									
Uncontrolled Exposure/ General Population										Averaged over 1 gram									

LTE TDD Band 48 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB	RB	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling	Scaled SAR	Plot No.	
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)	Size	offset	(mm)		(W/kg)	Factor	(W/kg)			
3 646.7	56207	QPSK	S2	20	10.5	10.12	0.16	Rear	0	1	99	1:1.58	N/A	0	0.250	1.091	0.273	-	
3 646.7	56207	QPSK	S2	20	10.5	10.07	0.00	Rear	0	50	49	1:1.58	N/A	0	0.262	1.104	0.289	-	
3 646.7	56207	QPSK	S2	20	10.5	10.12	0.00	Left	0	1	99	1:1.58	N/A	0	0.00048	1.091	0.001	-	
3 646.7	56207	QPSK	S2	20	10.5	10.07	0.00	Left	0	50	49	1:1.58	N/A	0	0.00104	1.104	0.001	-	
3 646.7	56207	QPSK	S2	20	10.5	10.12	0.00	Right	0	1	99	1:1.58	N/A	0	0.00234	1.091	0.003	-	
3 646.7	56207	QPSK	S2	20	10.5	10.07	0.00	Right	0	50	49	1:1.58	N/A	0	0.00223	1.104	0.002	-	
3 646.7	56207	QPSK	S2	20	10.5	10.12	0.15	Bottom	0	1	99	1:1.58	N/A	0	0.288	1.091	0.314	-	
3 646.7	56207	QPSK	S2	20	10.5	10.07	0.02	Bottom	0	50	49	1:1.58	N/A	0	0.300	1.104	0.331	A12	
Up-link Carrier Aggregation 48C																			
PCC	3 646.7	56207	QPSK	S2	20	10.5	9.36	0.12	Bottom	0	50	49	1:1.58	N/A	0	0.182	1.300	0.237	-
SCC	3 666.5	56405	QPSK	S2	20						50	0							
ANSI/ IEEE C95.1 - 2005– Safety Limit									Body										
Spatial Peak									1.6 W/kg										
Uncontrolled Exposure/ General Population									Averaged over 1 gram										

LTE FDD Band 66 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB	RB	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling	Scaled SAR	Plot No.	
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)	Size	offset			(mm)	(W/kg)	Factor	(W/kg)		
1 745.0	132322	QPSK	M1	20	12.5	11.84	0.00	Rear	0	1	49	1:1	Active	0	0.398	1.164	0.463	-	
1 745.0	132322	QPSK	M1	20	12.5	11.84	0.00	Rear	0	50	0	1:1	Active	0	0.401	1.164	0.467	-	
1 745.0	132322	QPSK	M1	10	12.5	11.81	0.00	Rear	0	1	0	1:1	Active	0	0.300	1.172	0.352		
1 745.0	132322	QPSK	M1	20	22.0	21.17	0.11	Left	0	1	49	1:1	Active	0	0.184	1.211	0.223	-	
1 745.0	132322	QPSK	M1	20	22.0	21.13	-0.14	Left	0	50	0	1:1	Active	0	0.166	1.222	0.203	-	
1 745.0	132322	QPSK	M1	20	22.0	21.17	0.16	Right	0	1	49	1:1	Active	0	0.261	1.211	0.316	-	
1 745.0	132322	QPSK	M1	20	22.0	21.13	0.12	Right	0	50	0	1:1	Active	0	0.263	1.222	0.321	-	
1 745.0	132322	QPSK	M1	20	12.5	11.84	-0.14	Top	0	1	49	1:1	Active	0	0.291	1.164	0.339	-	
1 745.0	132322	QPSK	M1	20	12.5	11.84	-0.15	Top	0	50	0	1:1	Active	0	0.290	1.164	0.338	-	
1 745.0	132322	QPSK	M1	20	25.0	24.56	0.15	Rear	0	1	0	1:1	Inactive	19	0.382	1.107	0.423	-	
1 745.0	132322	QPSK	M1	20	24.0	23.55	0.15	Rear	1	50	0	1:1	Inactive	19	0.317	1.109	0.352		
1 745.0	132322	QPSK	M1	20	25.0	24.56	0.19	Left	0	1	0	1:1	Inactive	10	0.088	1.107	0.097	-	
1 745.0	132322	QPSK	M1	20	24.0	23.55	0.18	Left	1	50	0	1:1	Inactive	10	0.072	1.109	0.080	-	
1 745.0	132322	QPSK	M1	20	25.0	24.56	0.16	Right	0	1	0	1:1	Inactive	10	0.128	1.107	0.142	-	
1 745.0	132322	QPSK	M1	20	24.0	23.55	0.03	Right	1	50	0	1:1	Inactive	10	0.098	1.109	0.109	-	
1 745.0	132322	QPSK	M1	20	25.0	24.56	-0.06	Top	0	1	0	1:1	Inactive	19	0.510	1.107	0.565	-	
1 745.0	132322	QPSK	M1	20	24.0	23.55	-0.07	Top	1	50	0	1:1	Inactive	19	0.421	1.109	0.467	-	
1 745.0	132322	QPSK	M1	10	25.0	24.48	-0.08	Top	0	1	0	1:1	Inactive	19	0.560	1.127	0.631	-	
Up-link Carrier Aggregation 66B																			
PCC	1 745.0	132322	QPSK	M1	10	25.0	24.45	0.04	Top	0	1	0	1:1	Inactive	19	0.557	1.135	0.632	-
SCC	1 735.1	132223	QPSK	M1	10						1	49							
PCC	1 745.0	132322	QPSK	M1	10	12.5	11.80	0.00	Rear	0	1	0	1:1	Active	0	0.304	1.175	0.357	-
SCC	1 735.1	132223	QPSK	M1	10						1	49							
Up-link Carrier Aggregation 66C																			
PCC	1 745.0	132322	QPSK	M1	20	25.0	24.54	0.14	Top	0	1	0	1:1	Inactive	19	0.594	1.112	0.661	A13
SCC	1 725.2	132124	QPSK	M1	20						1	99							
PCC	1 745.0	132322	QPSK	M1	20	12.5	11.82	0.00	Rear	0	1	0	1:1	Active	0	0.333	1.169	0.389	-
SCC	1 725.2	132124	QPSK	M1	20						1	99							
1 745.0	132322	QPSK	S1	20	11.5	10.92	0.11	Rear	0	1	49	1:1	Active	0	0.217	1.143	0.248	-	
1 745.0	132322	QPSK	S1	20	11.5	10.94	0.00	Rear	0	50	0	1:1	Active	0	0.164	1.138	0.187	-	
1 745.0	132322	QPSK	S1	20	11.5	10.92	-0.07	Left	0	1	49	1:1	Active	0	0.156	1.143	0.178	-	
1 745.0	132322	QPSK	S1	20	11.5	10.94	0.14	Left	0	50	0	1:1	Active	0	0.142	1.138	0.162	-	
1 745.0	132322	QPSK	S1	20	11.5	10.92	-0.05	Bottom	0	1	49	1:1	Active	0	0.101	1.143	0.115	-	
1 745.0	132322	QPSK	S1	20	11.5	10.94	-0.04	Bottom	0	50	0	1:1	Active	0	0.107	1.138	0.122	-	
1 745.0	132322	QPSK	S1	20	25.0	24.02	-0.09	Rear	0	1	49	1:1	Inactive	18	0.069	1.253	0.086	-	
1 745.0	132322	QPSK	S1	20	24.0	22.97	0.06	Rear	1	50	25	1:1	Inactive	18	0.054	1.268	0.068	-	
1 745.0	132322	QPSK	S1	20	25.0	24.02	0.10	Left	0	1	49	1:1	Inactive	10	0.180	1.253	0.226	-	
1 745.0	132322	QPSK	S1	20	24.0	22.97	-0.06	Left	1	50	25	1:1	Inactive	10	0.139	1.268	0.176	-	
1 745.0	132322	QPSK	S1	20	25.0	24.02	0.01	Bottom	0	1	49	1:1	Inactive	18	0.060	1.253	0.075	-	
1 745.0	132322	QPSK	S1	20	24.0	22.97	-0.18	Bottom	1	50	25	1:1	Inactive	18	0.046	1.268	0.058	-	
ANSI/ IEEE C95.1 - 2005– Safety Limit									Body										
Spatial Peak									1.6 W/kg										
Uncontrolled Exposure/ General Population									Averaged over 1 gram										

LTE FDD Band 71 Body SAR

Frequency		Mode	Ant.	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
680.5	133297	QPSK	M1	20	16.5	15.48	-0.02	Rear	0	1	49	1:1	Active	0	0.356	1.265	0.450	-
680.5	133297	QPSK	M1	20	16.5	15.46	-0.01	Rear	0	50	0	1:1	Active	0	0.344	1.271	0.437	-
680.5	133297	QPSK	M1	20	25.0	24.30	0.17	Left	0	1	49	1:1	N/A	0	0.176	1.175	0.207	-
680.5	133297	QPSK	M1	20	24.0	23.27	0.17	Left	1	50	25	1:1	N/A	0	0.136	1.183	0.161	-
680.5	133297	QPSK	M1	20	25.0	24.30	0.15	Right	0	1	49	1:1	N/A	0	0.11	1.175	0.129	-
680.5	133297	QPSK	M1	20	24.0	23.27	0.16	Right	1	50	25	1:1	N/A	0	0.085	1.183	0.101	-
680.5	133297	QPSK	M1	20	16.5	15.48	0.12	Top	0	1	49	1:1	Active	0	0.505	1.265	0.639	-
680.5	133297	QPSK	M1	20	16.5	15.46	0.03	Top	0	50	0	1:1	Active	0	0.544	1.271	0.691	A14
680.5	133297	QPSK	M1	20	25.0	24.30	0.14	Rear	0	1	49	1:1	Inactive	19	0.188	1.175	0.221	-
680.5	133297	QPSK	M1	20	24.0	23.27	-0.05	Rear	1	50	25	1:1	Inactive	19	0.137	1.183	0.162	-
680.5	133297	QPSK	M1	20	25.0	24.30	0.07	Top	0	1	49	1:1	Inactive	19	0.242	1.175	0.284	-
680.5	133297	QPSK	M1	20	24.0	23.27	-0.15	Top	1	50	25	1:1	Inactive	19	0.179	1.183	0.212	-
ANSI / IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR FDD Band n5 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
836.5	167300	DFT-s QPSK	M1	20	15.0	14.15	0.00	Rear	0	1	1	1:1	Active	0	0.420	1.216	0.511	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.10	0.00	Rear	0	50	0	1:1	Active	0	0.412	1.230	0.507	-
836.5	167300	DFT-s QPSK	M1	20	24.0	23.91	0.12	Left	0	1	1	1:1	Active	0	0.146	1.021	0.149	-
836.5	167300	DFT-s QPSK	M1	20	24.0	23.75	0.15	Left	0	50	28	1:1	Active	0	0.152	1.059	0.161	-
836.5	167300	DFT-s QPSK	M1	20	24.0	23.91	0.03	Right	0	1	1	1:1	Active	0	0.245	1.021	0.250	-
836.5	167300	DFT-s QPSK	M1	20	24.0	23.75	0.09	Right	0	50	28	1:1	Active	0	0.241	1.059	0.255	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.15	0.03	Top	0	1	1	1:1	Active	0	0.417	1.216	0.507	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.10	0.03	Top	0	50	0	1:1	Active	0	0.407	1.230	0.501	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.56	-0.15	Rear	0	1	1	1:1	Inactive	19	0.425	1.107	0.470	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.26	0.13	Rear	0	50	28	1:1	Inactive	19	0.425	1.186	0.504	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.56	0.12	Left	0	1	1	1:1	Inactive	10	0.050	1.107	0.055	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.26	-0.01	Left	0	50	28	1:1	Inactive	10	0.048	1.186	0.057	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.56	0.04	Right	0	1	1	1:1	Inactive	10	0.051	1.107	0.056	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.26	-0.03	Right	0	50	28	1:1	Inactive	10	0.047	1.186	0.056	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.56	-0.06	Top	0	1	1	1:1	Inactive	19	0.529	1.107	0.586	A15
836.5	167300	DFT-s QPSK	M1	20	25.0	24.26	-0.07	Top	0	50	28	1:1	Inactive	19	0.512	1.186	0.607	-
836.5	167300	CP QPSK	M1	20	23.5	22.99	0.06	Top	1.5	1	1	1:1	Inactive	19	0.344	1.125	0.387	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR FDD Band n25 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
1 882.5	376500	DFT-s QPSK	M1	40	12.5	11.56	0.00	Rear	0	1	108	1:1	Active	0	0.321	1.242	0.399	-
1 882.5	376500	DFT-s QPSK	M1	40	12.5	11.54	0.00	Rear	0	108	108	1:1	Active	0	0.304	1.247	0.379	-
1 882.5	376500	DFT-s QPSK	M1	40	18.5	17.67	0.00	Left	0	1	108	1:1	Active	0	0.070	1.211	0.085	-
1 882.5	376500	DFT-s QPSK	M1	40	18.5	17.64	0.00	Left	0	108	54	1:1	Active	0	0.070	1.219	0.085	-
1 882.5	376500	DFT-s QPSK	M1	40	18.5	17.67	0.00	Right	0	1	108	1:1	Active	0	0.186	1.211	0.225	-
1 882.5	376500	DFT-s QPSK	M1	40	18.5	17.64	0.00	Right	0	108	54	1:1	Active	0	0.187	1.219	0.228	-
1 882.5	376500	DFT-s QPSK	M1	40	12.5	11.56	-0.13	Top	0	1	108	1:1	Active	0	0.332	1.242	0.412	-
1 882.5	376500	DFT-s QPSK	M1	40	12.5	11.54	0.05	Top	0	108	108	1:1	Active	0	0.322	1.247	0.402	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.27	0.17	Rear	0	1	108	1:1	Inactive	19	0.308	1.183	0.364	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.10	0.15	Rear	0	108	54	1:1	Inactive	19	0.302	1.230	0.371	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.27	0.10	Left	0	1	108	1:1	Inactive	10	0.123	1.183	0.146	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.10	0.12	Left	0	108	54	1:1	Inactive	10	0.121	1.230	0.149	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.27	0.16	Right	0	1	108	1:1	Inactive	10	0.121	1.183	0.143	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.10	0.15	Right	0	108	54	1:1	Inactive	10	0.121	1.230	0.149	-
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.27	-0.04	Top	0	1	108	1:1	Inactive	19	0.471	1.183	0.557	A16
1 882.5	376500	DFT-s QPSK	M1	40	25.0	24.10	-0.06	Top	0	108	54	1:1	Inactive	19	0.468	1.230	0.576	-
1 882.5	376500	CP QPSK	M1	40	23.5	22.25	-0.06	Top	1.5	1	1	1:1	Inactive	19	0.323	1.334	0.431	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR FDD Band n30 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)							(mm)	(W/kg)		(W/kg)	
2 310.0	462000	DFT-s QPSK	M1	10	12.5	11.58	0.04	Rear	0	1	1	1:1	Active	0	0.371	1.236	0.459	-
2 310.0	462000	DFT-s QPSK	M1	10	12.5	11.48	0.04	Rear	0	25	14	1:1	Active	0	0.353	1.265	0.447	-
2 310.0	462000	DFT-s QPSK	M1	10	21.5	20.88	0.00	Left	0	1	26	1:1	Active	0	0.130	1.153	0.150	-
2 310.0	462000	DFT-s QPSK	M1	10	21.5	20.84	0.00	Left	0	25	0	1:1	Active	0	0.129	1.164	0.150	-
2 310.0	462000	DFT-s QPSK	M1	10	21.5	20.88	0.03	Right	0	1	26	1:1	Active	0	0.392	1.153	0.452	A17
2 310.0	462000	DFT-s QPSK	M1	10	21.5	20.84	0.02	Right	0	25	0	1:1	Active	0	0.370	1.164	0.431	-
2 310.0	462000	DFT-s QPSK	M1	10	12.5	11.58	0.03	Top	0	1	1	1:1	Active	0	0.343	1.236	0.424	-
2 310.0	462000	DFT-s QPSK	M1	10	12.5	11.48	0.19	Top	0	25	14	1:1	Active	0	0.336	1.265	0.425	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.16	-0.10	Rear	0	1	26	1:1	Inactive	19	0.214	1.213	0.260	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.19	-0.15	Rear	0	25	14	1:1	Inactive	19	0.216	1.205	0.260	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.16	0.07	Left	0	1	26	1:1	Inactive	10	0.039	1.213	0.047	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.19	0.04	Left	0	25	14	1:1	Inactive	10	0.026	1.205	0.031	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.16	0.04	Right	0	1	26	1:1	Inactive	10	0.056	1.213	0.068	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.19	0.19	Right	0	25	14	1:1	Inactive	10	0.072	1.205	0.087	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.16	0.07	Top	0	1	26	1:1	Inactive	19	0.311	1.213	0.377	-
2 310.0	462000	DFT-s QPSK	M1	10	24.0	23.19	0.09	Top	0	25	14	1:1	Inactive	19	0.321	1.205	0.387	-
2 310.0	462000	CP	M1	10	12.5	11.62	0.00	Rear	0	1	1	1:1	Active	0	0.356	1.225	0.436	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR TDD Band n41 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
2 592.99	518598	DFT-s QPSK	M1	100	12.0	10.92	0.00	Rear	0	1	137	1:1	Active	0	0.482	1.282	0.618	-
2 592.99	518598	DFT-s QPSK	M1	100	12.0	10.89	0.00	Rear	0	135	69	1:1	Active	0	0.455	1.291	0.587	-
2 592.99	518598	DFT-s QPSK	M1	100	12.0	10.86	0.03	Rear	0	270	0	1:1	Active	0	0.477	1.300	0.620	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.48	0.00	Left	0	1	1	1:1	N/A	0	0.085	1.127	0.096	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.38	0.00	Left	0	135	0	1:1	N/A	0	0.149	1.153	0.172	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.48	0.03	Right	0	1	1	1:1	N/A	0	0.203	1.127	0.229	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.38	0.05	Right	0	135	0	1:1	N/A	0	0.209	1.153	0.241	-
2 592.99	518598	DFT-s QPSK	M1	100	12.0	10.92	0.15	Top	0	1	137	1:1	Active	0	0.429	1.282	0.550	-
2 592.99	518598	DFT-s QPSK	M1	100	12.0	10.89	0.15	Top	0	135	69	1:1	Active	0	0.439	1.291	0.567	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.48	-0.11	Rear	0	1	1	1:1	Inactive	19	0.085	1.127	0.096	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.38	-0.18	Rear	0	135	0	1:1	Inactive	19	0.085	1.153	0.098	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.48	0.06	Top	0	1	1	1:1	Inactive	19	0.153	1.127	0.172	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.38	-0.07	Top	0	135	0	1:1	Inactive	19	0.144	1.153	0.166	-
2 592.99	518598	CP QPSK	M1	100	12.0	10.78	0.00	Rear	0	1	1	1:1	Active	0	0.574	1.324	0.760	A18
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR TDD Band n48 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.34	0.00	Rear	0	1	53	1:1	N/A	0	0.295	1.164	0.343	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.00	Rear	0	50	56	1:1	N/A	0	0.371	1.161	0.431	
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.34	0.05	Left	0	1	53	1:1	N/A	0	0.025	1.164	0.029	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.00	Left	0	50	56	1:1	N/A	0	0.005	1.161	0.005	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.34	0.02	Right	0	1	53	1:1	N/A	0	0.079	1.164	0.092	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.00	Right	0	50	56	1:1	N/A	0	0.0085	1.161	0.010	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.34	0.01	Bottom	0	1	53	1:1	N/A	0	0.223	1.164	0.260	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.06	Bottom	0	50	56	1:1	N/A	0	0.261	1.161	0.303	-
3 680.01	645334	CP QPSK	S2	40	10.0	8.86	0.00	Rear	0	1	1	1:1	N/A	0	0.256	1.300	0.333	-
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.00	Rear	0	50	56	1:1	N/A	0	0.025	1.161	0.029	#
3 624.99	641666	DFT-s QPSK	S2	40	10.0	9.35	0.00	Rear	0	50	56	1:1	N/A	0	0.050	1.161	0.058	•
3 624.99	641666	DFT-s QPSK	S4	40	3.5	3.43	0.00	Rear	0	1	1	1:1	Active	0	0.000	1.016	0.000	-
3 624.99	641666	DFT-s QPSK	S4	40	3.5	3.43	0.00	Right	0	1	1	1:1	Active	0	0.000	1.016	0.000	-
3 624.99	641666	DFT-s QPSK	S4	40	3.5	3.43	0.00	Top	0	1	1	1:1	Active	0	0.000	1.016	0.000	-
3 624.99	641666	DFT-s QPSK	S4	40	10.0	9.67	0.00	Rear	0	1	1	1:1	Inactive	18	0.000	1.079	0.000	-
3 624.99	641666	DFT-s QPSK	S4	40	10.0	9.67	0.00	Right	0	1	1	1:1	Inactive	10	0.000	1.079	0.000	-
3 624.99	641666	DFT-s QPSK	S4	40	10.0	9.67	0.00	Top	0	1	1	1:1	Inactive	18	0.000	1.079	0.000	-
3 570.00	638000	DFT-s QPSK	M2	40	11.5	11.37	0.00	Rear	0	1	1	1:1	Active	0	0.488	1.030	0.503	-
3 570.00	638000	DFT-s QPSK	M2	40	11.5	11.37	0.00	Right	0	1	1	1:1	Active	0	0.728	1.030	0.750	-
3 624.99	641666	DFT-s QPSK	M2	40	11.5	10.97	0.00	Right	0	1	1	1:1	Active	0	0.989	1.130	1.118	A19
3 680.01	645334	DFT-s QPSK	M2	40	11.5	11.15	0.00	Right	0	1	1	1:1	Active	0	0.698	1.084	0.757	-
3 570.00	638000	DFT-s QPSK	M2	40	11.5	11.37	0.00	Bottom	0	1	1	1:1	Active	0	0.169	1.030	0.174	-
3 570.00	638000	DFT-s QPSK	M2	40	19.0	18.98	-0.17	Rear	0	1	1	1:1	Inactive	18	0.056	1.005	0.056	-
3 570.00	638000	DFT-s QPSK	M2	40	19.0	18.98	0.19	Right	0	1	1	1:1	Inactive	10	0.304	1.005	0.306	-
3 570.00	638000	DFT-s QPSK	M2	40	19.0	18.98	0.10	Bottom	0	1	1	1:1	Inactive	18	0.034	1.005	0.034	-
3 624.99	641666	DFT-s QPSK	M2	40	11.5	10.97	0.00	Right	0	1	1	1:1	Active	0	0.976	1.130	1.103	##
3 570.00	638000	DFT-s QPSK	S3	40	5.0	4.98	0.00	Rear	0	1	1	1:1	N/A	0	0.720	1.005	0.724	-
3 624.99	641666	DFT-s QPSK	S3	40	5.0	4.24	0.00	Rear	0	1	1	1:1	N/A	0	0.519	1.191	0.618	-
3 680.01	645334	DFT-s QPSK	S3	40	5.0	4.15	0.00	Rear	0	1	1	1:1	N/A	0	0.645	1.216	0.784	-
3 570.00	638000	DFT-s QPSK	S3	40	5.0	4.98	0.00	Left	0	1	1	1:1	N/A	0	0.012	1.005	0.012	-
3 570.00	638000	DFT-s QPSK	S3	40	5.0	4.98	0.00	Right	0	1	1	1:1	N/A	0	0.0025	1.005	0.003	-
3 570.00	638000	DFT-s QPSK	S3	40	5.0	4.98	-0.16	Bottom	0	1	1	1:1	N/A	0	0.476	1.005	0.478	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

Note: Ant. S4, M2, S3 SRS was tested with DFT-s OFDM QPSK 1RB 1offset as CW was the limit of the setup.

Note: ## Data entry indicate Variability measurement.

: Tablet Mode with Cover Variant 1

• : Tablet Mode with Cover Variant 2

NR FDD Band n66 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)											
1 745.0	349000	DFT-s QPSK	M1	40	12.5	12.05	0.00	Rear	0	1	108	1:1	Active	0	0.379	1.109	0.420	-
1 745.0	349000	DFT-s QPSK	M1	40	12.5	12.01	0.00	Rear	0	108	54	1:1	Active	0	0.378	1.119	0.423	-
1 745.0	349000	DFT-s QPSK	M1	40	22.0	21.24	0.00	Left	0	1	108	1:1	Active	0	0.149	1.191	0.177	-
1 745.0	349000	DFT-s QPSK	M1	40	22.0	21.13	0.00	Left	0	108	54	1:1	Active	0	0.147	1.222	0.180	-
1 745.0	349000	DFT-s QPSK	M1	40	22.0	21.24	0.00	Right	0	1	108	1:1	Active	0	0.336	1.191	0.400	-
1 745.0	349000	DFT-s QPSK	M1	40	22.0	21.13	0.00	Right	0	108	54	1:1	Active	0	0.333	1.222	0.407	-
1 745.0	349000	DFT-s QPSK	M1	40	12.5	12.05	-0.08	Top	0	1	108	1:1	Active	0	0.291	1.109	0.323	-
1 745.0	349000	DFT-s QPSK	M1	40	12.5	12.01	-0.01	Top	0	108	54	1:1	Active	0	0.290	1.119	0.325	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.34	0.18	Rear	0	1	108	1:1	Active	19	0.401	1.164	0.467	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.10	Rear	0	108	54	1:1	Inactive	19	0.396	1.169	0.463	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.34	0.11	Left	0	1	108	1:1	Inactive	10	0.108	1.164	0.126	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.08	Left	0	108	54	1:1	Inactive	10	0.112	1.169	0.131	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.34	0.13	Right	0	1	108	1:1	Inactive	10	0.115	1.164	0.134	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.15	Right	0	108	54	1:1	Inactive	10	0.115	1.169	0.134	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.34	0.02	Top	0	1	108	1:1	Inactive	19	0.526	1.164	0.612	A20
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	-0.04	Top	0	108	54	1:1	Inactive	19	0.516	1.169	0.603	-
1 745.0	349000	CP QPSK	M1	40	23.5	22.10	-0.05	Top	1.5	1	1	1:1	Inactive	19	0.312	1.380	0.431	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR FDD Band n70 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)											
1 702.5	340500	DFT-s QPSK	M1	15	13.5	12.44	0.00	Rear	0	1	40	1:1	Active	0	0.504	1.276	0.643	-
1 702.5	340500	DFT-s QPSK	M1	15	13.5	12.48	0.00	Rear	0	36	43	1:1	Active	0	0.528	1.265	0.668	-
1 702.5	340500	DFT-s QPSK	M1	15	19.5	18.88	0.00	Left	0	1	77	1:1	Active	0	0.051	1.153	0.059	-
1 702.5	340500	DFT-s QPSK	M1	15	19.5	18.92	0.00	Left	0	36	43	1:1	Active	0	0.058	1.143	0.066	-
1 702.5	340500	DFT-s QPSK	M1	15	19.5	18.88	0.00	Right	0	1	77	1:1	Active	0	0.175	1.153	0.202	-
1 702.5	340500	DFT-s QPSK	M1	15	19.5	18.92	0.00	Right	0	36	43	1:1	Active	0	0.224	1.143	0.256	-
1 702.5	340500	DFT-s QPSK	M1	15	13.5	12.44	0.15	Top	0	1	40	1:1	Active	0	0.280	1.276	0.357	-
1 702.5	340500	DFT-s QPSK	M1	15	13.5	12.48	0.12	Top	0	36	43	1:1	Active	0	0.304	1.265	0.385	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.79	-0.14	Rear	0	1	77	1:1	Inactive	19	0.345	1.321	0.456	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.77	0.03	Rear	0	36	22	1:1	Inactive	19	0.353	1.327	0.468	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.79	0.12	Left	0	1	77	1:1	Inactive	10	0.068	1.321	0.090	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.77	0.10	Left	0	36	22	1:1	Inactive	10	0.074	1.327	0.098	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.79	0.12	Right	0	1	77	1:1	Inactive	10	0.167	1.321	0.221	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.77	0.16	Right	0	36	22	1:1	Inactive	10	0.141	1.327	0.187	-
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.79	-0.01	Top	0	1	77	1:1	Inactive	19	0.541	1.321	0.715	A21
1 702.5	340500	DFT-s QPSK	M1	15	25.0	23.77	0.01	Top	0	36	22	1:1	Inactive	19	0.522	1.327	0.693	-
1 702.5	340500	DFT-s QPSK	M1	15	24.0	22.69	0.07	Top	1	75	0	1:1	Inactive	19	0.461	1.352	0.623	-
1 702.5	340500	CP QPSK	M1	15	23.5	21.74	0.10	Top	1.5	1	1	1:1	Inactive	19	0.378	1.500	0.567	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

NR FDD Band n71 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
680.5	136100	DFT-s QPSK	M1	20	16.5	15.99	0.00	Rear	0	1	53	1:1	Active	0	0.425	1.125	0.478	-
680.5	136100	DFT-s QPSK	M1	20	16.5	15.93	0.00	Rear	0	50	28	1:1	Active	0	0.423	1.140	0.482	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.36	0.11	Left	0	1	53	1:1	N/A	0	0.083	1.159	0.096	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.34	0.16	Left	0	50	28	1:1	N/A	0	0.079	1.164	0.092	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.36	0.17	Right	0	1	53	1:1	N/A	0	0.092	1.159	0.107	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.34	0.10	Right	0	50	28	1:1	N/A	0	0.091	1.164	0.106	-
680.5	136100	DFT-s QPSK	M1	20	16.5	15.99	0.05	Top	0	1	53	1:1	Active	0	0.386	1.125	0.434	-
680.5	136100	DFT-s QPSK	M1	20	16.5	15.93	0.04	Top	0	50	28	1:1	Active	0	0.382	1.140	0.435	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.36	0.14	Rear	0	1	53	1:1	Inactive	19	0.230	1.159	0.267	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.34	0.16	Rear	0	50	28	1:1	Inactive	19	0.179	1.164	0.208	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.36	-0.10	Top	0	1	53	1:1	Inactive	19	0.235	1.159	0.272	-
680.5	136100	DFT-s QPSK	M1	20	25.0	24.34	-0.11	Top	0	50	28	1:1	Inactive	19	0.233	1.164	0.271	-
680.5	136100	CP QPSK	M1	20	16.5	15.73	0.00	Rear	0	1	1	1:1	Active	0	0.539	1.194	0.644	A22
ANSI/ IEEE C95.1 - 2005- Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

NR TDD Band n77 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.68	0.10	Rear	0	1	137	1:1	Active	0	0.351	1.208	0.424	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.56	0.07	Rear	0	1	137	1:1	Active	0	0.348	1.242	0.432	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.71	0.07	Rear	0	135	69	1:1	Active	0	0.329	1.199	0.394	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.61	0.00	Rear	0	270	0	1:1	Active	0	0.425	1.227	0.521	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.68	0.01	Right	0	1	137	1:1	Active	0	0.287	1.208	0.347	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.71	-0.10	Right	0	135	69	1:1	Active	0	0.370	1.199	0.444	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.51	0.00	Right	0	135	69	1:1	Active	0	0.399	1.256	0.501	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.61	0.04	Right	0	270	0	1:1	Active	0	0.421	1.227	0.517	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.68	-0.10	Bottom	0	1	137	1:1	Active	0	0.140	1.208	0.169	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.71	0.00	Bottom	0	135	69	1:1	Active	0	0.135	1.199	0.162	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.19	0.16	Rear	0	1	137	1:1	Inactive	18	0.057	1.205	0.069	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.15	0.17	Rear	0	135	69	1:1	Inactive	18	0.054	1.216	0.066	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.19	0.02	Right	0	1	137	1:1	Inactive	10	0.397	1.205	0.478	-
3 750.00	650000	DFT-s QPSK	M2	100	19.0	18.14	0.05	Right	0	1	1	1:1	Inactive	10	0.419	1.219	0.511	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.15	0.19	Right	0	135	69	1:1	Inactive	10	0.358	1.216	0.435	-
3 750.00	650000	DFT-s QPSK	M2	100	19.0	18.07	0.14	Right	0	135	69	1:1	Inactive	10	0.341	1.239	0.422	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.08	0.08	Right	0	270	0	1:1	Inactive	10	0.337	1.236	0.417	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.19	0.14	Bottom	0	1	137	1:1	Inactive	18	0.068	1.205	0.082	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.15	0.00	Bottom	0	135	69	1:1	Inactive	18	0.063	1.216	0.077	-
3 930.00	662000	CP QPSK	M2	100	9.5	8.54	0.00	Rear	0	1	1	1:1	Active	0	0.353	1.247	0.440	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.44	0.00	Rear	0	1	1	1:1	Active	0	0.365	1.276	0.466	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.52	0.00	Rear	0	135	0	1:1	Active	0	0.359	1.253	0.450	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.61	0.04	Rear	0	270	0	1:1	Active	0	0.023	1.227	0.028	#
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.61	0.04	Rear	0	270	0	1:1	Active	0	0.061	1.227	0.075	•
3 750.00	650000	DFT-s QPSK	S3	100	6.0	5.83	0.00	Rear	0	1	1	1:1	N/A	0	0.596	1.040	0.620	-
3 930.00	662000	DFT-s QPSK	S3	100	6.0	5.17	0.00	Rear	0	1	1	1:1	N/A	0	0.499	1.211	0.604	-
3 750.00	650000	DFT-s QPSK	S3	100	6.0	5.83	0.00	Left	0	1	1	1:1	N/A	0	0.039	1.040	0.041	-
3 750.00	650000	DFT-s QPSK	S3	100	6.0	5.83	0.00	Right	0	1	1	1:1	N/A	0	0.0036	1.040	0.004	-
3 750.00	650000	DFT-s QPSK	S3	100	6.0	5.83	0.12	Bottom	0	1	1	1:1	N/A	0	0.468	1.040	0.487	-
3 930.00	662000	DFT-s QPSK	S3	100	6.0	5.17	0.11	Bottom	0	1	1	1:1	N/A	0	0.212	1.211	0.257	-
3 500.01	633334	DFT-s QPSK	S3	100	6.0	5.93	0.00	Rear	0	1	1	1:1	N/A	0	0.850	1.016	0.864	-
3 500.01	633334	DFT-s QPSK	S3	100	6.0	5.93	0.00	Rear	0	1	1	1:1	N/A	0	0.878	1.016	0.892	##
3 750.00	650000	DFT-s QPSK	S2	100	13.0	12.98	0.00	Rear	0	1	1	1:1	N/A	0	0.373	1.005	0.375	-
3 750.00	650000	DFT-s QPSK	S2	100	13.0	12.98	0.00	Left	0	1	1	1:1	N/A	0	0.0027	1.005	0.003	-
3 750.00	650000	DFT-s QPSK	S2	100	13.0	12.98	0.00	Right	0	1	1	1:1	N/A	0	0.0046	1.005	0.005	-
3 750.00	650000	DFT-s QPSK	S2	100	13.0	12.98	0.13	Bottom	0	1	1	1:1	N/A	0	0.518	1.005	0.521	-
3 930.00	662000	DFT-s QPSK	S2	100	13.0	11.89	0.17	Bottom	0	1	1	1:1	N/A	0	0.175	1.291	0.226	-
3 500.01	633334	DFT-s QPSK	S2	100	13.0	11.84	-0.18	Bottom	0	1	1	1:1	N/A	0	0.912	1.306	1.191	A23
3 500.01	633334	DFT-s QPSK	S2	100	13.0	11.84	0.13	Bottom	0	1	1	1:1	N/A	0	0.907	1.306	1.185	##

Continue to Next page

NR TDD Band n77 Body SAR

Frequency		OFDM Mode	Ant.	Band width	Tune-Up Limit	Meas. Pwr	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Sensor	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
3 750.00	650000	DFT-s QPSK	S4	100	2.5	1.06	0.00	Rear	0	1	1	1:1	Active	0	0.000	1.393	0.000	-
3 750.00	650000	DFT-s QPSK	S4	100	2.5	1.06	0.00	Right	0	1	1	1:1	Active	0	0.000	1.393	0.000	-
3 750.00	650000	DFT-s QPSK	S4	100	2.5	1.06	0.00	Top	0	1	1	1:1	Active	0	0.000	1.393	0.000	-
3 750.00	650000	DFT-s QPSK	S4	100	11.5	9.96	0.00	Rear	0	1	1	1:1	Inactive	18	0.000	1.426	0.000	-
3 750.00	650000	DFT-s QPSK	S4	100	11.5	9.96	0.00	Right	0	1	1	1:1	Inactive	10	0.000	1.426	0.000	-
3 750.00	650000	DFT-s QPSK	S4	100	11.5	9.96	0.00	Top	0	1	1	1:1	Inactive	18	0.000	1.426	0.000	-
3 500.01	633334	DFT-s QPSK	S4	100	11.5	11.48	0.00	Right	0	1	1	1:1	Inactive	10	0.000	1.005	0.000	-
ANSI/ IEEE C95.1 - 2005- Safety Limit									Body									
Spatial Peak									1.6 W/kg									
Uncontrolled Exposure/ General Population									Averaged over 1 gram									

Note: Ant. S2, S3, S4 SRS was tested with DFT-s OFDM QPSK 1RB 1offset as CW was the limit of the setup.

Note: ## Data entry indicate Variability measurement.

: Tablet Mode with Cover Variant 1

• : Tablet Mode with Cover Variant 2

DTS Body SAR																		
Frequency		Mode	Ant.	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	SENSOR	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor (Duty)	Reported SAR	Plot No.
				(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)			(W/kg)	
2 412	1	802.11b	1	20	1	11.0	10.93	0.08	Rear	99.1	ACTIVE	0	1.120	0.430	1.016	1.009	0.441	-
2 412	1	802.11b	1	20	1	11.0	10.93	-0.12	Right	99.1	ACTIVE	0	1.040	0.520	1.016	1.009	0.533	-
2 412	1	802.11b	1	20	1	11.0	10.93	0.04	Top	99.1	ACTIVE	0	0.421	0.242	1.016	1.009	0.248	-
2 412	1	802.11b	1	20	1	20.0	19.56	0.12	Rear	99.1	INACTIVE	18	0.246	0.156	1.107	1.009	0.174	-
2 412	1	802.11b	1	20	1	20.0	19.56	0.03	Right	99.1	INACTIVE	10	0.612	0.386	1.107	1.009	0.431	-
2 412	1	802.11b	1	20	1	20.0	19.56	-0.14	Top	99.1	INACTIVE	18	0.146	0.091	1.107	1.009	0.102	-
2 412	1	802.11b	1+2	20	1	14.0	13.48	0.00	Rear	99.1	ACTIVE	0	1.320	0.462	1.271	1.009	0.593	-
2 412	1	802.11b	1+2	20	1	14.0	13.48	-0.05	Left	99.1	ACTIVE	0	1.200	0.469	1.271	1.009	0.602	-
2 412	1	802.11b	1+2	20	1	14.0	13.48	0.00	Right	99.1	ACTIVE	0	1.100	0.550	1.271	1.009	0.705	A24
2 412	1	802.11b	1+2	20	1	14.0	13.48	0.08	Top	99.1	ACTIVE	0	0.619	0.203	1.271	1.009	0.260	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	-0.17	Rear	99.1	INACTIVE	18	0.228	0.140	1.107	1.009	0.156	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	0.03	Left	99.1	INACTIVE	10	0.486	0.289	1.107	1.009	0.323	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	-0.01	Right	99.1	INACTIVE	10	0.592	0.362	1.107	1.009	0.404	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	-0.12	Top	99.1	INACTIVE	18	0.250	0.152	1.107	1.009	0.170	-
2 437	6	802.11b	1+2	20	1	14.0	13.09	0.15	Right	99.1	ACTIVE	0	0.745	0.391	1.455	1.009	0.574	-
2 462	11	802.11b	1+2	20	1	14.0	13.39	0.15	Right	99.1	ACTIVE	0	0.862	0.460	1.324	1.009	0.615	-
2 412	1	802.11b	1+2	20	1	14.0	13.48	0.00	Right	99.1	ACTIVE	0	0.201	0.092	1.271	1.009	0.118	#
2 412	1	802.11b	1+2	20	1	14.0	13.48	0.00	Right	99.1	ACTIVE	0	0.157	0.072	1.271	1.009	0.092	•
ANSI/ IEEE C95.1 - 2005– Safety Limit										Body								
Spatial Peak										1.6 W/kg								
Uncontrolled Exposure/ General Population										Averaged over 1 gram								

: Tablet Mode with Cover Variant 1

• : Tablet Mode with Cover Variant 2

5 GHz WLAN Body SAR																		
Frequency		Mode	Ant.	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	SENSOR	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor (Duty)	Reported SAR	Plot No.
MHz	Ch.			(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)			(W/kg)	
5 290	58	802.11ac	2	80	MCS0	8.0	6.82	0.00	Rear	86.1	ACTIVE	0	0.893	0.259	1.312	1.161	0.395	-
5 290	58	802.11ac	2	80	MCS0	8.0	6.82	0.00	Left	86.1	ACTIVE	0	0.687	0.268	1.312	1.161	0.408	-
5 290	58	802.11ac	2	80	MCS0	8.0	6.82	0.00	Top	86.1	ACTIVE	0	0.0752	0.028	1.312	1.161	0.043	-
5 300	60	802.11a	2	20	6	15.0	14.85	0.03	Rear	93.5	INACTIVE	18	0.0622	0.00834	1.035	1.070	0.009	-
5 300	60	802.11a	2	20	6	15.0	14.85	0.06	Left	93.5	INACTIVE	10	0.380	0.175	1.035	1.070	0.194	-
5 300	60	802.11a	2	20	6	15.0	14.85	0.00	Top	93.5	INACTIVE	18	0.127	0.047	1.035	1.070	0.052	-
5 530	106	802.11ac	2	80	MCS0	8.0	7.11	0.00	Rear	86.1	ACTIVE	0	2.120	0.451	1.227	1.161	0.643	-
5 530	106	802.11ac	2	80	MCS0	8.0	7.11	0.00	Left	86.1	ACTIVE	0	1.390	0.524	1.227	1.161	0.747	-
5 530	106	802.11ac	2	80	MCS0	8.0	7.11	0.00	Top	86.1	ACTIVE	0	0.253	0.069	1.227	1.161	0.098	-
5 720	144	802.11a	2	20	6	17.0	16.33	0.00	Rear	93.5	INACTIVE	18	0.193	0.088	1.167	1.070	0.110	-
5 720	144	802.11a	2	20	6	17.0	16.33	0.10	Left	93.5	INACTIVE	10	0.932	0.432	1.167	1.070	0.539	-
5 720	144	802.11a	2	20	6	17.0	16.33	0.00	Top	93.5	INACTIVE	18	0.213	0.099	1.167	1.070	0.124	-
5 610	122	802.11ac	2	80	MCS0	8.0	7.05	0.00	Left	86.1	ACTIVE	0	1.740	0.587	1.245	1.161	0.849	A25
5 690	138	802.11ac	2	80	MCS0	8.0	7.04	0.00	Left	86.1	ACTIVE	0	1.550	0.436	1.247	1.161	0.631	-
5 610	122	802.11ac	2	80	MCS0	8.0	7.05	0.00	Left	86.1	ACTIVE	0	0.845	0.273	1.245	1.161	0.395	#
5 610	122	802.11ac	2	80	MCS0	8.0	7.05	0.00	Left	86.1	ACTIVE	0	0.470	0.136	1.245	1.161	0.197	##
5 610	122	802.11ac	2	80	MCS0	8.0	7.05	0.00	Left	86.1	ACTIVE	0	0.132	0.045	1.245	1.161	0.065	•
5 610	122	802.11ac	2	80	MCS0	8.0	7.05	0.00	Left	86.1	ACTIVE	0	0.0913	0.015	1.245	1.161	0.022	••
5 775	155	802.11ac	2	80	MCS0	8.0	7.31	0.00	Rear	86.1	ACTIVE	0	0.849	0.251	1.172	1.161	0.342	-
5 775	155	802.11ac	2	80	MCS0	8.0	7.31	0.00	Left	86.1	ACTIVE	0	1.150	0.433	1.172	1.161	0.589	-
5 775	155	802.11ac	2	80	MCS0	8.0	7.31	0.00	Top	86.1	ACTIVE	0	0.309	0.061	1.172	1.161	0.083	-
5 825	165	802.11a	2	20	6	17.0	16.48	0.00	Rear	93.5	INACTIVE	18	0.000	0.000	1.127	1.070	0.000	-
5 825	165	802.11a	2	20	6	17.0	16.48	0.15	Left	93.5	INACTIVE	10	0.730	0.291	1.127	1.070	0.351	-
5 825	165	802.11a	2	20	6	17.0	16.48	0.00	Top	93.5	INACTIVE	18	0.134	0.053	1.127	1.070	0.064	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.75	0.00	Rear	86.1	ACTIVE	0	0.740	0.226	1.334	1.161	0.350	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.75	0.00	Left	86.1	ACTIVE	0	1.71	0.527	1.334	1.161	0.817	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.75	0.00	Top	86.1	ACTIVE	0	0.262	0.039	1.334	1.161	0.060	-
5 845	169	802.11a	2	20	6	17.0	16.65	0.00	Rear	93.5	INACTIVE	18	0	0.000	1.084	1.070	0.000	-
5 845	169	802.11a	2	20	6	17.0	16.65	0.18	Left	93.5	INACTIVE	10	0.738	0.301	1.084	1.070	0.349	-
5 845	169	802.11a	2	20	6	17.0	16.65	0.18	Top	93.5	INACTIVE	18	0.133	0.059	1.084	1.070	0.068	-

Continue to Next Page

- # : Tablet Mode with Cover Variant 1
- : Tablet Mode with Cover Variant 2
- ## : Laptop Mode with Cover Variant 1
- : Laptop Mode with Cover Variant 2

5 GHz WLAN Body SAR																		
Frequency		Mode	Ant.	Band width	Data Rate	Tune-Up Limit	Meas. Power	Power Drift	Test Position	Duty Cycle	SENSOR	Distance	Area Scan Peak SAR	Meas. SAR	Scaling Factor	Scaling Factor (Duty)	Reported SAR	Plot No.
MHz	Ch.			(MHz)	(Mbps)	(dBm)	(dBm)	(dB)				(mm)	(W/kg)	(W/kg)			(W/kg)	
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.31	0.00	Rear	86.1	ACTIVE	0	0.841	0.225	1.312	1.161	0.343	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.31	0.00	Left	86.1	ACTIVE	0	0.635	0.206	1.312	1.161	0.314	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.31	0.00	Right	86.1	ACTIVE	0	0.946	0.270	1.312	1.161	0.411	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.31	0.07	Top	86.1	ACTIVE	0	0.154	0.019	1.312	1.161	0.028	-
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.00	Rear	93.5	INACTIVE	18	0.144	0.025	1.096	1.070	0.029	-
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.19	Left	93.5	INACTIVE	10	0.358	0.162	1.096	1.070	0.190	-
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.13	Right	93.5	INACTIVE	10	0.417	0.177	1.096	1.070	0.207	-
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.16	Top	93.5	INACTIVE	18	0.100	0.035	1.096	1.070	0.041	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.41	0.00	Rear	86.1	ACTIVE	0	1.720	0.451	1.227	1.161	0.643	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.41	0.00	Left	86.1	ACTIVE	0	1.540	0.433	1.227	1.161	0.617	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.41	0.00	Right	86.1	ACTIVE	0	0.669	0.165	1.227	1.161	0.235	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.41	0.00	Top	86.1	ACTIVE	0	0.301	0.052	1.227	1.161	0.074	-
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.00	Rear	93.5	INACTIVE	18	0.189	0.073	1.225	1.070	0.096	-
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.19	Left	93.5	INACTIVE	10	0.858	0.373	1.225	1.070	0.489	-
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.17	Right	93.5	INACTIVE	10	0.287	0.118	1.225	1.070	0.155	-
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.00	Top	93.5	INACTIVE	18	0.149	0.062	1.225	1.070	0.081	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.52	0.00	Rear	86.1	ACTIVE	0	1.310	0.419	1.172	1.161	0.570	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.52	0.00	Left	86.1	ACTIVE	0	1.580	0.476	1.172	1.161	0.648	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.52	0.00	Right	86.1	ACTIVE	0	0.915	0.238	1.172	1.161	0.324	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.52	0.00	Top	86.1	ACTIVE	0	0.241	0.047	1.172	1.161	0.064	-
5 825	165	802.11a	1+2	20	6	20.0	19.48	0.00	Rear	93.5	INACTIVE	18	0.103	0.031	1.132	1.070	0.038	-
5 825	165	802.11a	1+2	20	6	20.0	19.48	0.02	Left	93.5	INACTIVE	10	0.577	0.234	1.132	1.070	0.283	-
5 825	165	802.11a	1+2	20	6	20.0	19.48	0.17	Right	93.5	INACTIVE	10	0.343	0.138	1.132	1.070	0.167	-
5 825	165	802.11a	1+2	20	6	20.0	19.48	0.13	Top	93.5	INACTIVE	18	0.173	0.066	1.132	1.070	0.080	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.24	0.00	Rear	86.1	ACTIVE	0	1.070	0.137	1.334	1.161	0.212	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.24	0.00	Left	86.1	ACTIVE	0	1.510	0.458	1.334	1.161	0.710	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.24	0.00	Right	86.1	ACTIVE	0	0.809	0.224	1.334	1.161	0.347	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.24	0.00	Top	86.1	ACTIVE	0	0.253	0.033	1.334	1.161	0.051	-
5 865	173	802.11a	1+2	20	6	20.0	19.34	0.00	Rear	93.5	INACTIVE	18	0.162	0.032	1.186	1.070	0.041	-
5 865	173	802.11a	1+2	20	6	20.0	19.34	0.13	Left	93.5	INACTIVE	10	0.535	0.223	1.186	1.070	0.283	-
5 865	173	802.11a	1+2	20	6	20.0	19.34	0.17	Right	93.5	INACTIVE	10	0.348	0.140	1.186	1.070	0.178	-
5 865	173	802.11a	1+2	20	6	20.0	19.34	0.16	Top	93.5	INACTIVE	18	0.165	0.070	1.186	1.070	0.089	-
ANSI/ IEEE C95.1 - 2005– Safety Limit										Body								
Spatial Peak										1.6 W/kg								
Uncontrolled Exposure/ General Population										Averaged over 1 gram								

DSS Body SAR														
Frequency		Mode	Ant.	Tune-Up Limit	Meas. Power	Power Drift	Test Position	SENSOR	Distance	Meas. SAR	Scaling Factor	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.			(dBm)	(dBm)	(dB)			(mm)	(W/kg)		(Duty)	(W/kg)	
2 480	78	DH-5	1	11.0	10.25	0.00	Rear	Active	0	0.295	1.189	1.013	0.355	A26
2 480	78	DH-5	1	11.0	10.25	0.06	Right	Active	0	0.293	1.189	1.013	0.353	-
2 480	78	DH-5	1	11.0	10.25	-0.03	Top	Active	0	0.179	1.189	1.013	0.216	-
2 441	39	DH-5	1	15.5	14.79	-0.08	Rear	Inactive	18	0.011	1.178	1.013	0.013	-
2 441	39	DH-5	1	15.5	14.79	0.07	Right	Inactive	10	0.042	1.178	1.013	0.050	-
2 441	39	DH-5	1	15.5	14.79	-0.07	Top	Inactive	18	0.031	1.178	1.013	0.037	-
2 402	0	DH-5	1	11.0	9.81	0.00	Rear	Active	0	0.263	1.315	1.013	0.350	-
2 441	39	DH-5	1	11.0	9.89	0.00	Rear	Active	0	0.282	1.291	1.013	0.369	-
ANSI/ IEEE C95.1 - 2005- Safety Limit								Body						
Spatial Peak								1.6 W/kg						
Uncontrolled Exposure/ General Population								Averaged over 1 gram						

13.2 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. 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 Refer to Sec.15 for variability analysis.
7. 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.
8. Tests of the use conditions of the cover accessories were performed under the maximum SAR measurement conditions of each antenna.

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 sub frames 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. This device supports LTE Carrier Aggregation (CA) in Uplink for LTE Band 41C, 48C, 66B, 66C with two component carriers in the uplink. SAR measurements and conducted powers were evaluated per Fall 2017 TCBC Workshop notes (LTE Carrier aggregation).
For LTE Band per 2018 TCBC Workshop notes, SAR was first measured with only a single carrier active in the uplink (carrier aggregation not active). For each exposure condition, the uplink CA scenario with two component carriers was additionally tested for the configuration with the highest SAR when carrier aggregation was not active.
Because the maximum output for UL CA of LTE Band 41C, 48C, 66B, 66C is $\leq$ standalone LTE mode (without CA), SAR for LTE Band 41C, 48C, 66B, 66C Up link CA was performed at the highest standalone SAR configuration without CA and also UL CA SAR is not required for all required test channels, Because the reported SAR for UL CA configuration is < 1.4 W/kg.
The SCC was configured with the closest available contiguous channel. The two component carriers were configured so the resource blocks are physically allocated side by side to achieve the maximum output power.
10. 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. This device supports SA and NSA mode for NR implementation. In EN-DC Mode, NR operate with the LTE Bands shown in the NR FR1 checklist acting as anchor Bands.
2. Due to Limitations of the SAR measurement equipment, SAR testing for NR Bands was performed separately using test mode (FTM) software.
3. More detailed specifications of the NR Bands are contained in the technical description document.
4. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
5. For NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power was evaluated for SAR tests.

WLAN Notes:

1. 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 10 g SAR or all test position are measured.
2. Per KDB 2482227 D01v02r02 justification for test configurations of 2.4 GHz WiFi Single transmission chain operations, the highest measured maximum output power channel for DSSS was selected for SAR measurement.
3. Per KDB 2482227 D01v02r02 justification for test configurations of 5 GHz WiFi Single transmission chain operations, the initial test configuration was selected according to the transmission mode with the highest maximum allowed powers. Other transmission mode 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 1 g 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. In the technical documentation, the maximum duty factor of the declared BT was applied to the SAR results. Please Refer to Sec.11 for the time-domain plot and calculation for duty factor of the device.

14. Simultaneous SAR Analysis

This device contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per KDB Publication 447498 D01v06 Sec.4.3.2 and IEEE 1528-2013 Sec.6.3.4.1.2, 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 $\leq 1.6\text{W/kg}$ for 1g SAR and $\leq 4\text{ W/kg}$ 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.

When operating in the same antenna group, Samsung S.LSI TAS algorithm in WWAN directly adds the time-averaged RF exposure from 4G and time-averaged RF exposure from 5G NR. S.LSI algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit. Therefore, simultaneous transmission compliance between 4G+5G operations within an antenna group is demonstrated in the Part 2 Report during algorithm validation.

This device is enabled with S.LSI Time average SAR algorithm with pre-defined sub6 antenna groups (AG0 and AG1). Simultaneous transmission analysis is performed per antenna groups. Sec.14.5 contains analysis to demonstrate the AG0 and AG1 are operate mutually exclusive.

14.1 Sub6 Antenna Groups

S.LSI Time average SAR(TAS) algorithm operates based on pre-defined sub6 antenna groups (AG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating either of below conditions for all exposure scenarios:

Sum of SAR of one antenna from each of the sub6 AGs and the RF exposure from radios outside TAS is less than regulatory limits. This condition must be demonstrated for all antenna combinations of sub6 AGs. This device supports two sub6 AG: AG0 and AG1, with AG0 having 2 antennas (Main1 Ant, Sub4 Ant) and AG1 having 4 antennas (Main 2 Ant, Sub1 Ant, Sub2 Ant, Sub3 Ant). The conditions are verified through the following criteria.

The highest reported SAR at Plimit (or Pmax when Plimit > Pmax) for each antenna should be obtained out of all supported WWAN technologies and frequency bands for each exposure condition. Demonstrate that the sum of reported SAR of antenna from each of the sub6 AGs and the sum of RF exposure of TAS should be less than the regulatory limit as given below for each RSI.

Obtain the worst-case reported SAR for each antenna group (i.e., maximum reported SAR at Plimit (or Pmax when Plimit > Pmax) out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure, and demonstrate that the sum of these RF exposures meets

$$[\text{Max.SAR.AG0} + \text{Max.SAR.AG1}] + [\text{Max.WLAN} + \text{Max.Bluetooth}] \leq 1.6 \text{ (for 1g SAR or 4.0 for 10g)}$$

AG0, AG1, WLAN/BT are described in the table below.

AG0	
Main1	UMTS 2/4/5, LTE 2/4/5/7/12/13/14/25/26/30/38/41/66/71 NR n2/5/25/30/41/66/70/71
Sub4	NR n48 SRS1, NR n77/78 SRS3

AG1	
Main 2	NR n48 SRS2, NR n77/78
Sub 1	LTE 2/4/7/25/30/66
Sub 2	LTE 48, NR n48, NR n77/78 SRS2
Sub 3	NR n48 SRS3, NR n77/78 SRS1

WLAN/BT	
WIFI 1	WLAN 2.4 GHz/5 GHz, Bluetooth
WIFI 2	WLAN 2.4 GHz/5 GHz

The WLAN/BT antenna does not have the TAS algorithm applied

14.2 Body SAR Simultaneous Transmission Analysis

14.2.1 0mm SAR Simultaneous Transmission Analysis

The Maximum measurement result for AG0			
Position	Main1	Sub4	Max.AG0
Rear	0.760	0.000	0.760
Left	0.437	0.000	0.437
Right	0.687	0.000	0.687
Top	0.691	0.000	0.691
Bottom			

The Maximum measurement result for AG1					
Position	Main2	Sub1	Sub2	Sub3	Max.AG1
Rear	0.521	0.741	0.431	0.892	0.892
Left		0.462	0.029	0.041	0.462
Right	1.118		0.092	0.004	1.118
Top					
Bottom	0.174	0.301	1.191	0.487	1.191

The measurement result for WLAN/ BT					
Position	WLAN2.4 GHz SISO(WIFI1)	WLAN2.4 GHz MIMO(WIFI1+2)	WLAN5 GHz SISO(WIFI2)	WLAN5 GHz MIMO(WIFI1+2)	Bluetooth (WIFI1)
Rear	0.441	0.593	0.643	0.643	0.369
Left		0.602	0.849	0.710	
Right	0.533	0.705		0.411	0.353
Top	0.248	0.260	0.098	0.074	0.216
Bottom					

AG0+AG1+WLAN/BT

Simultaneous Transmission Analysis for Body SAR							
Position	AG0+AG1+BT	AG0+AG1+ 2.4 GHz SISO	AG0+AG1+ 2.4 GHz MIMO	AG0+AG1+ 5 GHz SISO	AG0+AG1+ 5 GHz MIMO	AG0+AG1+ 5 GHz SISO+BT	AG0+AG1+ 5 GHz MIMO+BT
Rear	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1	Refer to Sec. 14.2.1.1
Left	0.899	0.899	1.501	Refer to Sec. 14.4.1	Refer to Sec. 14.4.1	Refer to Sec. 14.4.1	Refer to Sec. 14.4.1
Right	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2	Refer to Sec. 14.4.2
Top	0.907	0.939	0.951	0.789	0.765	1.005	0.981
Bottom	1.191	1.191	1.191	1.191	1.191	1.191	1.191

14.2.1.1 Ant Group Simultaneous Transmission Analysis

AG0+WLAN/BT

Simultaneous Transmission Analysis for Body SAR							
Position	AG0+BT	AG0+2.4 GHz SISO	AG0+2.4 GHz MIMO	AG0+5G SISO	AG0+5 GHz MIMO	AG0+5 GHz SISO+BT	AG0+5 GHz MIMO+BT
Rear	1.129	1.201	1.353	1.403	1.403	Refer to Sec. 14.3.1	Refer to Sec.14.3.1

AG1+WLAN/BT

Simultaneous Transmission Analysis for Body SAR							
Position	AG1+BT	AG1+2.4 GHz SISO	AG1+2.4 GHz MIMO	AG1+5 GHz SISO	AG1+5 GHz MIMO	AG1+5 GHz SISO+BT	AG1+5 GHz MIMO+BT
Rear	1.261	1.333	1.485	1.535	1.535	Refer to Sec. 14.3.1	Refer to Sec. 14.3.1

AG0+AG1

Simultaneous Transmission Analysis for Body SAR	
Position	AG0+AG1
Rear	Refer to Sec.14.3.1

14.2.2 Max Distance SAR Simultaneous Transmission Analysis

The Maximum measurement result for AG0			
Position	Main1	Sub4	Max.AG0
Rear	0.514	0.000	0.514
Left	0.149	0.000	0.149
Right	0.233	0.000	0.233
Top	0.850	0.000	0.850
Bottom			

The Maximum measurement result for AG1					
Position	Main2	Sub1	Sub2	Sub3	Max.AG1
Rear	0.069	0.232			0.232
Left		0.606			0.606
Right	0.511				0.511
Top					
Bottom	0.082	0.447			0.447

The measurement result for WLAN/ BT					
Position	WLAN2.4 GHz SISO(WIFI1)	WLAN2.4 GHz MIMO(WIFI1+2)	WLAN5 GHz SISO(WIFI2)	WLAN5 GHz MIMO(WIFI1+2)	Bluetooth (WIFI1)
Rear	0.174	0.156	0.110	0.096	0.013
Left		0.323	0.539	0.489	
Right	0.431	0.404		0.207	0.050
Top	0.102	0.170	0.124	0.089	0.037
Bottom					

AG0+AG1+WLAN/BT

Simultaneous Transmission Analysis for Body SAR							
Position	AG0+AG1+BT	AG0+AG1+2.4 GHz SISO	AG0+AG1+2.4 GHz MIMO	AG0+AG1+5 GHz SISO	AG0+AG1+5 GHz MIMO	AG0+AG1+5 GHz SISO+BT	AG0+AG1+5 GHz MIMO+BT
Rear	0.759	0.920	0.902	0.856	0.842	0.869	0.855
Left	0.755	0.755	1.078	1.294	1.244	1.294	1.244
Right	0.782	1.163	1.136	0.732	0.951	0.782	1.001
Top	0.887	0.952	1.020	0.974	0.939	1.011	0.976
Bottom	0.447	0.447	0.447	0.447	0.447	0.447	0.447

14.3 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:

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

Where:

SAR₁ 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

SAR₂ is the highest measured or estimated SAR for the second of a pair of simultaneous

transmitting antennas, in the same test operating mode and exposure condition as the first

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 $[(X_1 - X_2)^2 + (Y_1 - Y_2)^2 + (Z_1 - Z_2)^2]$

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 > 4 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:

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

14.3.1 SPLSR Evaluation(Rear side)

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
UMTS 5	Main 1	7.5	-123	-176	0.505
UMTS 4	Main 1	16.5	-120	-176	0.586
UMTS 2	Main 1	18	-118	-176	0.469
LTE 25 (2)	Main 1	25.5	-112	-175	0.399
LTE 66 (4)	Main 1	22.5	-112	-175	0.467
LTE 26 (5)	Main 1	-4.5	-133	-178	0.463
LTE 7	Main 1	13.2	-128	-177	0.505
LTE 12	Main 1	-21	-118	-177	0.42
LTE 13	Main 1	-4.5	-133	-178	0.344
LTE 14	Main 1	-6	-133	-178	0.38
LTE 30	Main 1	20.4	-126	-177	0.477
LTE 41 (38)	Main 1	18	-123	-177	0.322
LTE 71	Main 1	-6	-132	-177	0.45
NR n25(2)	Main 1	22.5	-124	-175	0.399
NR n5	Main 1	-19.5	-125	-175	0.511
NR n30	Main 1	20.4	-126	-178	0.459
NR n41	Main 1	18	-130	-177	0.76
NR n66	Main 1	21	-126	-175	0.423
NR n70	Main 1	18	-127	-177	0.672
NR n71	Main 1	-18	-123	-176	0.644
NR n77 (SRS#3)	Sub 4	N/A	N/A	N/A	0
NR n48 (SRS#1)	Sub 4	N/A	N/A	N/A	0

Ant Group 1

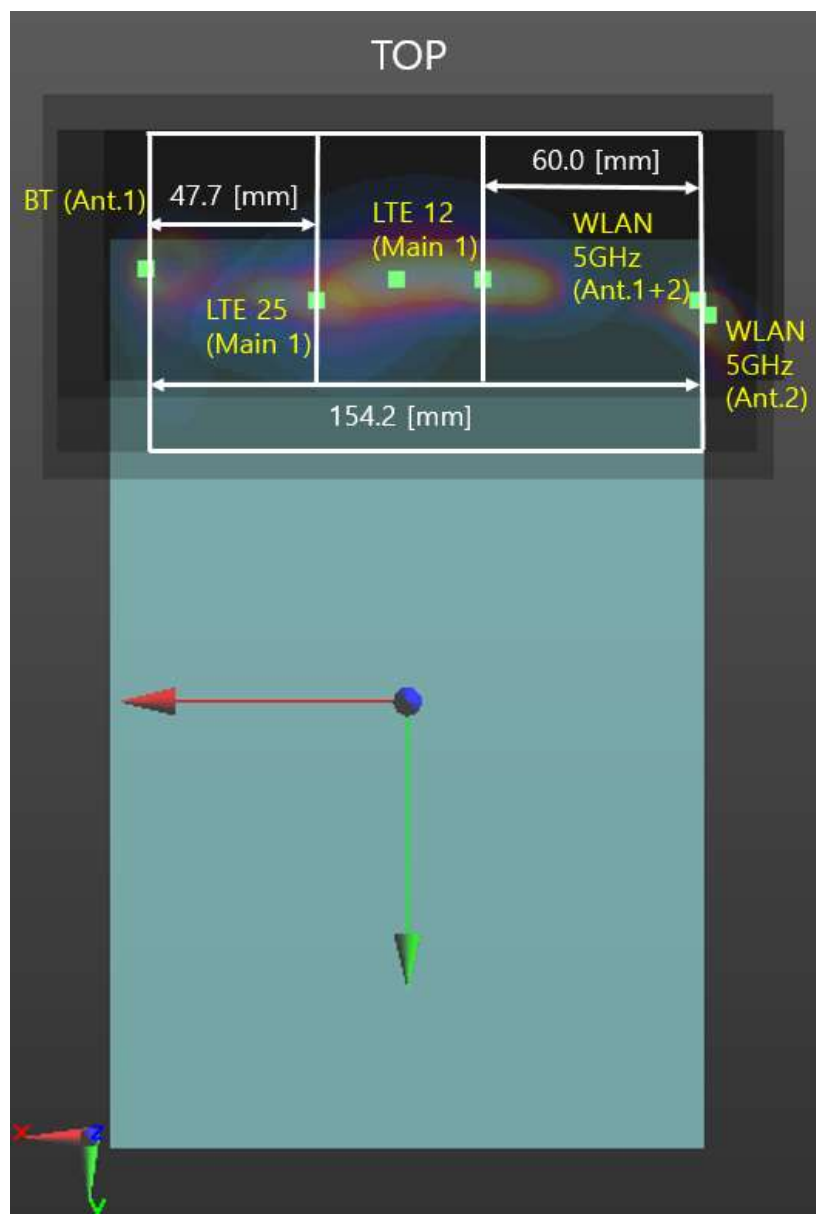
Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE 25 (2)	Sub 1	-70.5	131	-175	0.259
LTE 66 (4)	Sub 1	-79.5	123	-175	0.248
LTE 7	Sub 1	-86.4	130	-178	0.329
LTE 30	Sub 1	6.4	174	-178	0.741
LTE 48	Sub 2	24	127	-176	0.289
NR n48 (SRS #0)	Sub 2	9.6	138	-178	0.483
NR n77 (SRS #2)	Sub 2	16.8	124	-178	0.375
NR n48 (SRS #3)	Sub 3	-32.4	121	-178	0.784
NR n77 (SRS #1)	Sub 3	-34.8	125	-177	0.892
NR n48 (SRS #2)	Main 2	70.8	116	-178	0.503
NR n77 (SRS #0)	Main 2	70.8	114	-178	0.521

WLAN/BT

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
BT	Ant.1	73.2	-121	-177	0.369
WLAN 2.4 GHz	Ant.1	73.2	-120	-177	0.441
WLAN 5 GHz	Ant.2	-84	-108	-175	0.643
WLAN 2.4 GHz	Ant.1+2	-85.2	-128	-178	0.593
WLAN 5 GHz	Ant.1+2	-81	-112	-175	0.643

14.3.1.1 AG0+WLAN/BT SPLSR

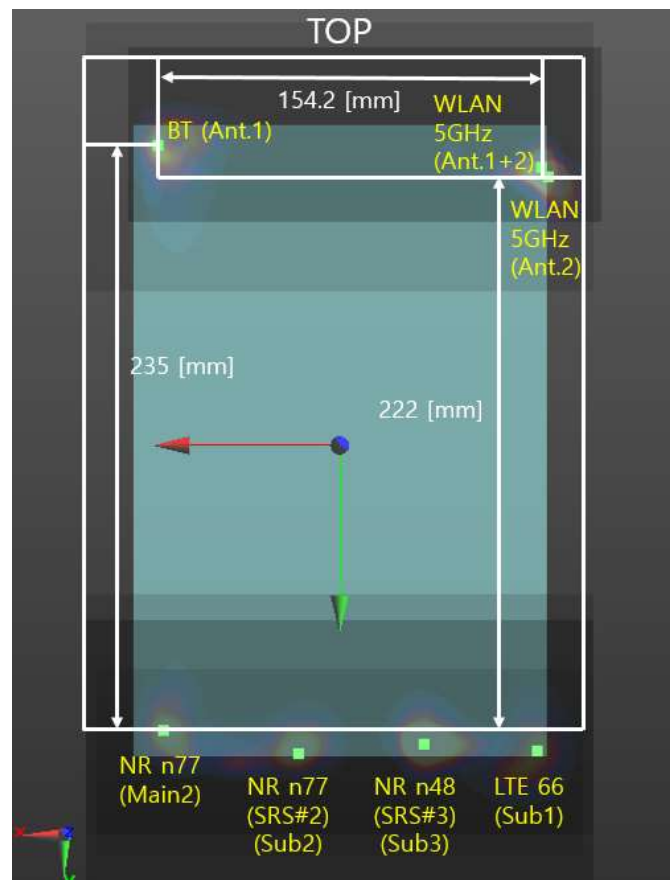
Mode/Band	X-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
AG0 + WLAN 5 GHz	60.0	1.403	0.028
AG0 + Bluetooth	47.7	1.129	0.025
WLAN 5 GHz + Bluetooth	154.2	1.012	0.007



14.3.1.2 AG1+WLAN/BT SPLSR

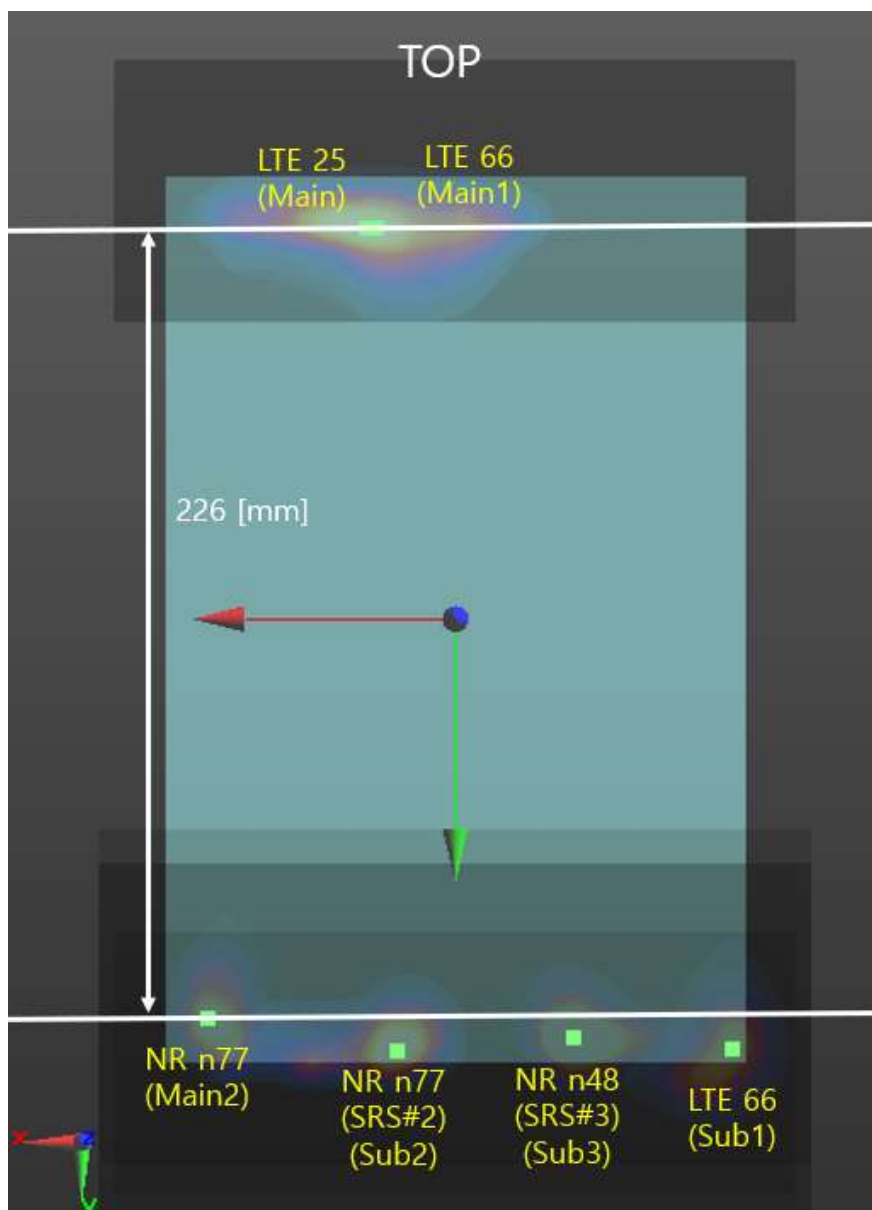
Mode/Band	Y-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
AG1 + WLAN 5 GHz	222.0	1.535	0.009
AG1 + Bluetooth	235.0	1.261	0.006

Mode/Band	X-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
WLAN 5 GHz + Bluetooth	154.2	1.012	0.007



14.3.1.3 AG0+AG1 Sum-Peak Location Separation Ratio (SPLSR)

Mode/Band	Y-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
AG0 + AG1	226.0	1.652	0.009



14.4 Sum-Peak Location Separation Ratio

Per May 2022 TCB Workshop, 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 Location Separation Ratio

14.4.1 SPLSR Evaluation (Left side)

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
UMTS 5	Main 1	-1.5	-116	-176	0.221
UMTS 4	Main 1	8.74E-08	-113	-176	0.128
UMTS 2	Main 1	8.74E-08	-117	-175	0.066
LTE 25 (2)	Main 1	8.74E-08	-119	-176	0.082
LTE 66 (4)	Main 1	-1.5	-119	-176	0.223
LTE 26 (5)	Main 1	-3	-117	-177	0.437
LTE 7	Main 1	-7.2	-122	-178	0.379
LTE 12	Main 1	-3	-117	-177	0.298
LTE 13	Main 1	-3	-117	-177	0.367
LTE 14	Main 1	-3	-117	-177	0.326
LTE 30	Main 1	-9	-123	-178	0.140
LTE 41 (38)	Main 1	-8.4	-114	-177	0.405
LTE 71	Main 1	-4.5	-113	-177	0.207
NR n25(2)	Main 1	1.5	-117	-175	0.085
NR n5	Main 1	8.74E-08	-116	-176	0.161
NR n30	Main 1	-13.8	-118	-178	0.15
NR n41	Main 1	-12.6	-121	-178	0.172
NR n66	Main 1	8.74E-08	-114	-176	0.180
NR n70	Main 1	-12	-123	-178	0.066
NR n71	Main 1	8.74E-08	-114	-176	0.096
NR n77 (SRS#3)	Sub 4	N/A	N/A	N/A	0
NR n48 (SRS#1)	Sub 4	N/A	N/A	N/A	0

Ant Group 1

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE 25 (2)	Sub 1	8.74E-08	111	-176	0.246
LTE 66 (4)	Sub 1	8.74E-08	111	-176	0.178
LTE 7	Sub 1	-9.6	113	-178	0.372
LTE 30	Sub 1	-10	113	-178	0.462
LTE 48	Sub 2	8.74E-08	130	-176	0.001
NR n48 (SRS #0)	Sub 2	-18	80	-178	0.033
NR n77 (SRS #2)	Sub 2	-15	124	-178	0.003
NR n48 (SRS #3)	Sub 3	-12	113	-178	0.012
NR n77 (SRS #1)	Sub 3	-6.6	116	-178	0.041
NR n48 (SRS #2)	Main 2				
NR n77 (SRS #0)	Main 2				

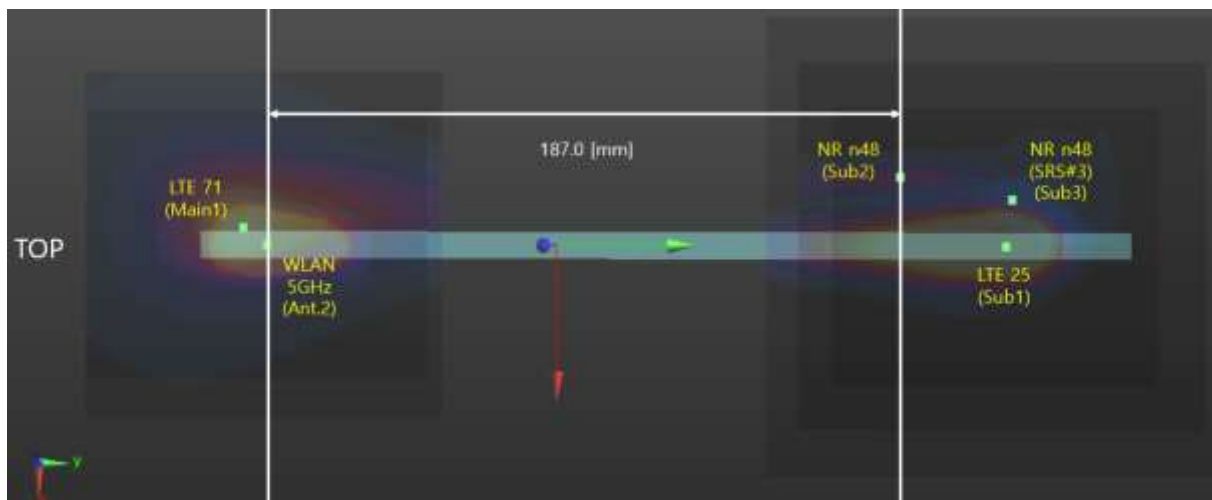
WLAN/BT

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
BT	Ant.1				
WLAN 2.4 GHz	Ant.1				
WLAN 5 GHz	Ant.2	-1	-107	-176	0.849
WLAN 2.4 GHz	Ant.1+2	-12	-108	-178	0.602
WLAN 5 GHz	Ant.1+2	-2	-107	-175	0.710

14.4.1.1 (AG0+WLAN/BT) Co-located Pair Antenna + AG1

Sum-Peak Location Separation Ratio (SPLSR)

Mode			Maximum SAR	Maximum SAR	Maximum SAR	Minimum Separation Distance	SPLSR
			[W/kg]	[W/kg]	[W/kg]	[W/kg]	
1	2	3	1+2	3	1+2+3	[mm]	
AG 0	WLAN/BT	AG 1	1.286	0.462	1.748	187	0.012



14.4.2 SPLSR Evaluation (Right side)

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
UMTS 5	Main 1	8.74E-08	-116	-175	0.207
UMTS 4	Main 1	8.74E-08	-117	-176	0.202
UMTS 2	Main 1	8.74E-08	-118	-176	0.087
LTE 25 (2)	Main 1	8.74E-08	-122	-176	0.173
LTE 66 (4)	Main 1	1.5	-119	-176	0.321
LTE 26 (5)	Main 1	-3	-116	-177	0.246
LTE 7	Main 1	-9.6	-123	-177	0.421
LTE 12	Main 1	8.74E-08	-116	-177	0.347
LTE 13	Main 1	8.74E-08	-116	-177	0.305
LTE 14	Main 1	-3	-114	-177	0.213
LTE 30	Main 1	-10.5	-119	-178	0.687
LTE 41 (38)	Main 1	-10.8	-124	-178	0.652
LTE 71	Main 1	-3	-111	-177	0.129
NR n25(2)	Main 1	8.74E-08	-120	-176	0.228
NR n5	Main 1	1.5	-116	-175	0.255
NR n30	Main 1	-7.8	-115	-178	0.452
NR n41	Main 1	-7.8	-121	-178	0.241
NR n66	Main 1	8.74E-08	-116	-176	0.407
NR n70	Main 1	-13.5	-123	-177	0.257
NR n71	Main 1	8.74E-08	-78	-176	0.107
NR n77 (SRS#3)	Sub 4	N/A	N/A	N/A	0
NR n48 (SRS#1)	Sub 4	N/A	N/A	N/A	0

Ant Group 1

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE 25 (2)	Sub 1				
LTE 66 (4)	Sub 1				
LTE 7	Sub 1				
LTE 30	Sub 1				
LTE 48	Sub 2	8.74E-08	130	-176	0.003
NR n48 (SRS #0)	Sub 2	-12	109	-178	0.103
NR n77 (SRS #2)	Sub 2	-3	124	-178	0.005
NR n48 (SRS #3)	Sub 3	-12	120	-178	0.003
NR n77 (SRS #1)	Sub 3	27	105	-178	0.004
NR n48 (SRS #2)	Main 2	-10.8	113	-177	1.118
NR n77 (SRS #0)	Main 2	-13.8	111	-178	0.517

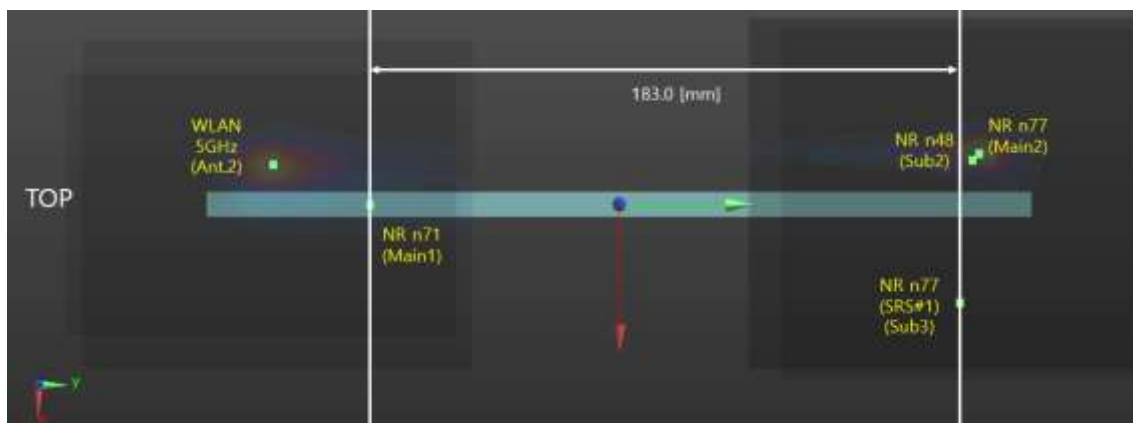
WLAN/BT

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
BT	Ant.1	-8.4	-106	-178	0.353
WLAN 2.4 GHz	Ant.1	-10.8	-106	-178	0.533
WLAN 5 GHz	Ant.2				
WLAN 2.4 GHz	Ant.1+2	-10.8	-106	-177	0.705
WLAN 5 GHz	Ant.1+2	2	-106	-175	0.411

14.4.2.1 (AG0+WLAN/BT) Co-located Pair Antenna + AG1

Sum-Peak Location Separation Ratio (SPLSR)

Mode			Maximum SAR	Maximum SAR	Maximum SAR	Minimum Separation Distance	SPLSR
			[W/kg]	[W/kg]	[W/kg]	[W/kg]	
1	2	3	1+2	3	1+2+3	[mm]	
AG 0	WLAN/BT	AG 1	1.451	1.118	2.569	183	0.023



15. SAR Measurement Variability and Uncertainty

In accordance with KDB procedure 865664 D01v01r04 SAR measurement 100 MHz to 6 GHz, 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 ≥ 2.0 W/kg, repeat that measurement once.
- 3) Perform a Sec.ond 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 Sec.ond 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 Sec.ond repeated measurements is > 1.20 . 1.08

Body SAR measurement variability Results

Frequency		Band/Configuration	Positon	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
MHz	Ch					
3 624.99	641666	NR Band n48 M2 Ant / DFT-s QPSK 1RB 1offset	Right	0.989	0.976	1.01
3 500.01	633334	NR Band n77 S3 Ant / DFT-s QPSK 1RB 1offset	Rear	0.850	0.878	1.03
3 500.01	633334	NR Band n77 S2 Ant / DFT-s QPSK 1RB 1offset	Bottom	0.912	0.907	1.01

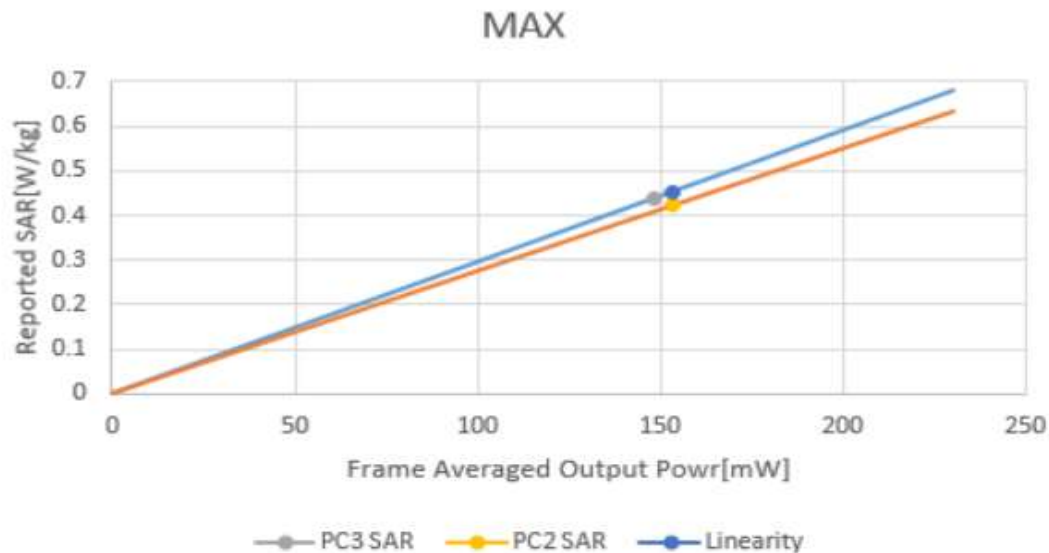
16. LTE Band 41 Power Class 2 and Power class 3 Linearity

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.

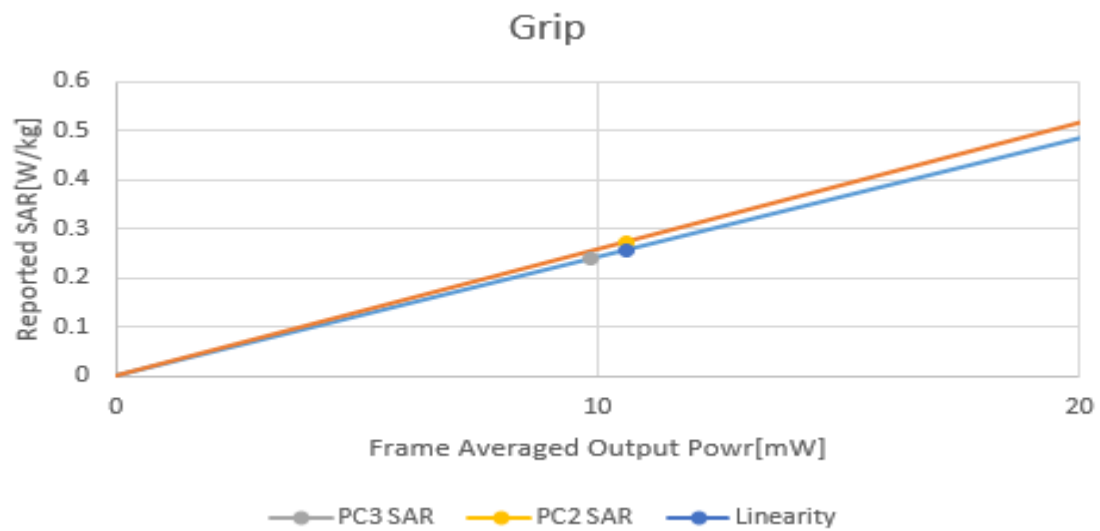
The linearity between the power class 3 and Power class 2 SAR Results and the respective frame averaged powers was calculated to determine the results were linear.

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 Max Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	25.0	27.0
Measured Output Power[dBm]	23.69	25.49
Measured SAR[W/kg]	0.437	0.422
Measured Power[mW]	233.88	354
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	148.05	153.28
% deviation from expected linearity		-6.73

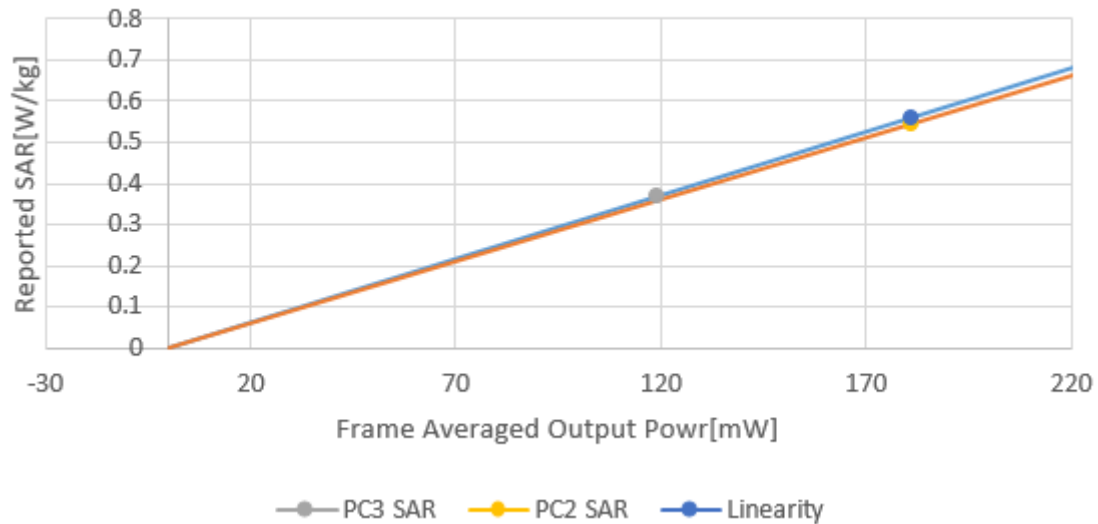


LTE Band 41 Grip Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	13.0	14.6
Measured Output Power[dBm]	11.93	13.88
Measured SAR[W/kg]	0.239	0.273
Measured Power[mW]	15.6	24.43
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	9.87	10.58
% deviation from expected linearity		6.56



LTE Band 41 Max ULCA Linearity Data Table		
Configurations	LTE Band41 PC3	LTE Band41 PC2
Maximum Allowed Output Power[dBm]	24.0	27.0
Measured Output Power[dBm]	22.75	26.21
Measured SAR[W/kg]	0.368	0.544
Measured Power[mW]	188.36	417.83
Duty Cycle	63.30%	43.30%
Frame Averaged Output Power[mW]	119.23	180.92
% deviation from expected linearity		-2.58

Max ULCA



17. Measurement Uncertainty

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

18. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
SPEAG	ELI Phantom	-	N/A	N/A	N/A
HP	SAR System Control PC	-	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F08/5AJ0A1/C/01	N/A	N/A	N/A
Staubli	TX90 Xlspeag	F08/5AJ0A1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21143300	N/A	N/A	N/A
TESTO	175-H1/Thermometer	40331949309	12/26/2024	Annual	12/26/2025
Staubli	CS8Cspeag-TX60L	F10/5D1CA1/C/01	N/A	N/A	N/A
Staubli	TX60 Xlspeag	F10/5D1CA1/A/01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21142106	N/A	N/A	N/A
TESTO	175-H1/Thermometer	44606559906	12/26/2024	Annual	12/26/2025
SPEAG	E-Field Probe EX3DV4	3768	10/07/2024	Annual	10/07/2025
SPEAG	E-Field Probe EX3DV4	7679	08/22/2024	Annual	08/22/2025
SPEAG	E-Field Probe EX3DV4	7309	06/19/2024	Annual	06/19/2025
SPEAG	DAE4	1750	09/13/2024	Annual	09/13/2025
SPEAG	DAE4	1720	04/19/2024	Annual	04/19/2025
SPEAG	Dipole D750V3	1014	05/20/2024	Annual	05/20/2025
SPEAG	Dipole D835V2	441	04/18/2024	Annual	04/18/2025
SPEAG	Dipole D1640V2	345	07/12/2023	Biennial	07/12/2025
SPEAG	Dipole D1800V2	2d007	04/15/2024	Annual	04/15/2026
SPEAG	Dipole D1900V2	5d032	01/18/2024	Annual	01/18/2025
SPEAG	Dipole D2300V2	1010	07/19/2023	Biennial	07/19/2025
SPEAG	Dipole D2450V2	743	03/14/2024	Annual	03/14/2025
SPEAG	Dipole D2600V2	1015	04/22/2024	Annual	04/22/2025
SPEAG	Dipole D3500V2	1040	01/16/2025	Annual	01/16/2026
SPEAG	Dipole D3700V2	1105	09/18/2024	Annual	09/18/2025
SPEAG	Dipole D3900V2	1086	05/21/2024	Annual	05/21/2025
SPEAG	Dipole D5 GHz V2	1107	04/19/2024	Annual	04/19/2025
Agilent	Power Meter E4419B	MY41291386	09/11/2024	Annual	09/11/2025
Agilent	Power Meter N1911A	MY45101406	05/21/2024	Annual	05/21/2025
Agilent	Power Sensor 8481A	SG1091286	09/12/2024	Annual	09/12/2025
H.P	Power Sensor 8481A	MY41090675	09/12/2024	Annual	09/12/2025
Agilent	Wideband Power Sensor N1921A	MY55220026	07/30/2024	Annual	07/30/2025
Agilent	11636B/Power Divider	58698	01/15/2024	Annual	01/15/2025
Agilent	11636B/Power Divider	58698	01/13/2025	Annual	01/13/2026
SPEAG	DAKS 3.5	1031	04/22/2024	Annual	04/22/2025
SPEAG	Vector Reflectometer	0050813	04/15/2024	Annual	04/15/2025
KEYSIGHT	MXA Signal Analyzer	MY49100108	01/09/2024	Annual	01/09/2025
KEYSIGHT	MXA Signal Analyzer	MY49100108	01/07/2025	Annual	01/07/2026
H.P	Network Analyzer /8753ES	JP39240221	12/23/2024	Annual	12/23/2025
Agilent	WIRELESS COMMUNICATION E5515C	MY48360252	07/29/2024	Annual	07/29/2025
Agilent	WIRELESS COMMUNICATION E5515C	MY50260992	05/22/2024	Annual	05/22/2025
R&S	Wireless Communication Test Set CMW500	115733	03/19/2024	Annual	03/19/2025
Agilent	SIGNAL GENERATOR N5182A	MY47070230	03/19/2024	Annual	03/19/2025

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
EMPOWER	RF Power Amplifier	1084	05/21/2024	Annual	05/21/2025
EMPOWER	RF Power Amplifier	1041D/C0508	05/21/2024	Annual	05/21/2025
EMPOWER	RF Power Amplifier	1011	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-15N	10453	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-30N	-	09/11/2024	Annual	09/11/2025
MICRO LAB	LP Filter / LA-60N	32011	09/11/2024	Annual	09/11/2025
Agilent	Attenuator (3dB) 8693B	MY39260298	08/20/2024	Annual	08/20/2025
HP	Attenuator (20dB) 8493C	09271	08/20/2024	Annual	08/20/2025
Agilent	Directional Bridge 86205A	3140A04581	04/22/2024	Annual	04/22/2025
Agilent	MXA Signal Analyzer N9020A	MY50510407	06/04/2024	Annual	06/04/2025
KEYSIGHT	EXG Vector Signal Generator	MY50350097	03/05/2024	Annual	03/05/2025
HP	Dual Directional Coupler	16072	09/11/2024	Annual	09/11/2025
Anritsu	Radio Communication Test Station MT8000A	6262036812	11/27/2024	Annual	11/27/2025
Anritsu	Radio Communication Tester MT8820C	6201074225	01/17/2024	Annual	01/17/2025
Anritsu	Radio Communication Tester MT8820C	6200695605	03/19/2024	Annual	03/19/2025
Anritsu	Radio Communication Tester MT8821C	6201502997	05/21/2024	Annual	05/21/2025
Anritsu	Radio Communication Tester MT8821C	6262044720	11/27/2024	Annual	11/27/2025
ROHDE&SCHWARZ	BLUETOOTH TESTER CBT	100272	01/13/2025	Annual	01/13/2026

Note: All measurements were performed within the valid calibration period of the specific equipment.

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

19. Conclusion

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

20. References

- [1] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation, Aug. 1996.
- [2] ANSI/IEEE C95.1 - 2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 kHz to 300 GHz, New York: IEEE, Sept. 1992
- [3] ANSI/IEEE C 95.1 - 2005, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz, New York: IEEE, 2006
- [4] ANSI/IEEE C95.3 - 2002, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: December 2002.
- [5] IEEE Standards Coordinating Committee 34 – IEEE Std. 1528-2013, IEEE Recommended Practice or Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices
- [6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.
- [7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.
- [8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 120-124.
- [9] K. Pokovic, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.
- [10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.
- [11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Head Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.
- [12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300 MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.
- [13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectromagnetics, Canada: 1987, pp. 29-36.
- [14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.
- [15] W. Gander, Computer mathematic, Birkhaeuser, Basel, 1992.
- [16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.
- [17] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.
- [18] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10 kHz-300 GHz, Jan. 1995.
- [19] Prof. Dr. Niels Kuster, ETH, Eidgenössische Technische Hochschule Zürich, Dosimetric Evaluation of the Cellular Phone.

- [20] IEC 62209-1, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation and procedures – Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz), July. 2016..
- [21] IEC 62209-2, Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz) Mar. 2010.
- [22] Industry Canada RSS-102 Radio Frequency Exposure Compliance of Radio Communication Apparatus (All Frequency Band) Issue 5, March 2015.
- [23] Health Canada Safety Code 6 Limits of Human Exposure to Radio Frequency Electromagnetic Fields in the Frequency range from 3 kHz – 300 GHz, 2009
- [24] FCC SAR Test procedures for 2G-3G Devices, Mobile Hotspot and UMPC Device KDB 941225 D01.
- [25] SAR Measurement Guidance for IEEE 802.11 transmitters, KDB 248227 D01v02r02
- [26] SAR Evaluation of Handsets with Multiple Transmitters and Antennas KDB 648474 D03, D04.
- [27] SAR Evaluation for Laptop, Notebook, Netbook and Tablet computers KDB 616217 D04.
- [28] SAR Measurement and Reporting Requirements for 100 MHz – 6 GHz, KDB 865664 D01, D02.
- [29] FCC 447498 D01 General RF Exposure Guidance v06

Appendix A. DUT Ant. Information & SETUP PHOTO

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

Report No.
HCT-SR-2502-FC009-P