TEST REPORT

FCC SAR Part 1 Test for SM-X526B
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-SR-2502-FC011-R1

DATE OF ISSUE
February 25, 2025

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FCC Part 1 SAR Test for certification

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FCC ID
A3LSMX526B

Applicant	SAMSUNG Electronics Co., Ltd 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677, Korea
Product Name Model Name	Tablet SM-X526B
Date of Test	Jan. 13, 2025~ Jan. 25, 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. 17, 2025	Initial Release
1	Feb. 25, 2025	Typo Revised Page 126

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

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 2013 TCB Workshop Notes (GPRS testing criteria)
- 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)
- November 2017 TCBC Workshop Notes (LTE Carrier Aggregation)
- April 2018 TCBC Workshop Notes (LTE UL CA, DL CA SAR Test Exclusion)
- April 2022 TCBC Workshop Notes (Sum-Peak Location Separation Ratio)

2. Test Location

2.1 Test Laboratory

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

2.2 Test Facilities

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

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

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-X526B
Equipment Type	Tablet
FCC ID	A3LSMX526B
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 Body SAR 1g (W/kg)
GSM/GPRS/EDGE 850	824.2 ㎒ ~ 848.8 ㎒	PCB	0.70
GSM/GPRS/EDGE 1900	1 850.2 ㎒ ~ 1 909.8 ㎒	PCB	0.55
UMTS Band 5	826.4 ㎒ ~ 846.6 ㎒	PCB	0.69
UMTS Band 4	1 712.4 ㎒ ~ 1 752.6 ㎒	PCB	0.69
UMTS Band 2	1 852.4 ㎒ ~ 1 907.6 ㎒	PCB	0.82
LTE FDD Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒	PCB	0.30
LTE FDD Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒	PCB	N/A
LTE FDD Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒	PCB	N/A
LTE FDD Band 12	699.7 ㎒ ~ 715.3 ㎒	PCB	0.50
LTE FDD Band 17	706.5 ㎒ ~ 713.5 ㎒	PCB	N/A
LTE FDD Band 13	779.5 ㎒ ~ 784.5 ㎒	PCB	0.76
LTE FDD Band 25 (PCS)	1 850.7 ㎒ ~ 1 914.3 ㎒	PCB	0.59
LTE FDD Band 26 (Cell)	814.7 ㎒ ~ 848.3 ㎒	PCB	0.64
LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒	PCB	0.53
LTE FDD Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒	PCB	0.65
NR FDD Band n5	826.5 ㎒ ~ 846.5 ㎒	PCB	0.65
NR TDD Band n41	2 506.02 ㎒ ~ 2679.99 ㎒	PCB	0.75
NR FDD Band n66	1 712.5 ㎒ ~ 1 777.5 ㎒	PCB	**0.99**
NR TDD Band n77	3 445.01 ㎒ ~ 3 544.98 ㎒ 3 705 ㎒ ~ 3 975 ㎒	PCB	0.69
NR TDD Band n78	3 445.01 ㎒ ~ 3 544.98 ㎒ 3 705 ㎒ ~ 3 975 ㎒	PCB	N/A
2.4 ㎓ WLAN	2 412 ㎒ ~ 2 462 ㎒	DTS	0.62
U-NII-1	5 180 ㎒ ~ 5 240 ㎒	NII	N/A
U-NII-2A	5 260 ㎒ ~ 5 320 ㎒	NII	0.55
U-NII-2C	5 500 ㎒ ~ 5 720 ㎒	NII	**0.66**
U-NII-3	5 745 ㎒ ~ 5 825 ㎒	NII	0.82
U-NII-4	5 845 ㎒ ~ 5 885 ㎒	NII	0.60
Bluetooth	2 402 ㎒ ~ 2 480 ㎒	DSS	0.46
Simultaneous SAR per KDB 690783 D01v01r03			**1.59**
Date(s) of Tests:	Jan. 13, 2025~ Jan. 25, 2025		

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	**Operating Mode**	**Tx Frequency**
GSM850	Data	824.2 ㎒ ~ 848.8 ㎒
GSM1900	Data	1 850.2 ㎒ ~ 1 909.8 ㎒
UMTS Band 2	Data	1 852.4 ㎒ ~ 1 907.6 ㎒
UMTS Band 4	Data	1 712.4 ㎒ ~ 1 752.6 ㎒
UMTS Band 5	Data	826.4 ㎒ ~ 846.6 ㎒
LTE FDD Band 2 (PCS)	Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE FDD Band 4 (AWS)	Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE FDD Band 5 (Cell)	Data	824.7 ㎒ ~ 848.3 ㎒
LTE FDD Band 12	Data	699.7 ㎒ ~ 715.3 ㎒
LTE FDD Band 17	Data	706.5 ㎒ ~ 713.5 ㎒
LTE FDD Band 13	Data	779.5 ㎒ ~ 784.5 ㎒
LTE FDD Band 25	Data	1 850.7 ㎒ ~ 1 914.3 ㎒
LTE FDD Band 26	Data	814.7 ㎒ ~ 848.3 ㎒
LTE TDD Band 41	Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE FDD Band 66 (AWS)	Data	1 710.7 ㎒ ~ 1 779.3 ㎒
NR FDD Band n5	Data	826.5 ㎒ ~ 846.5 ㎒
NR TDD Band n41	Data	2 501.01 ㎒ ~ 2 685 ㎒
NR FDD Band n66	Data	1 712.5 ㎒ ~ 1 777.5 ㎒
NR TDD Band n77	Data	3 705 ㎒ ~ 3 975 ㎒
NR TDD Band n77 DoD	Data	3 445.01 ㎒ ~ 3 544.98 ㎒
NR TDD Band n78	Data	3 705 ㎒ ~ 3 795 ㎒
NR TDD Band n78 DoD	Data	3 455.01 ㎒ ~ 3 544.98 ㎒
U-NII-1	Data	5 180 ㎒ ~ 5 240 ㎒
U-NII-2A	Data	5 260 ㎒ ~ 5 320 ㎒
U-NII-2C	Data	5 500 ㎒ ~ 5 720 ㎒
U-NII-3	Data	5 745 ㎒ ~ 5 825 ㎒
U-NII-4	Data	5 845 ㎒ ~ 5 885 ㎒
2.4 ㎓ WLAN	Data	2 412 ㎒ ~ 2 462 ㎒
Bluetooth / LE 5.3	Data	2 402 ㎒ ~ 2 480 ㎒
S-Pen	Data	531.25 ㎑, 562.5 ㎑, 593.75 ㎑

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**
	GSM850, GSM1900, UMTS Band 2,4,5	XLA0961M, XLA0962M
	LTE Band 2, 5, 12, 13, 25, 26, 41, 66 NR Band n5, n41, n41 SRS1/2/3, n66 NR Band n77	XLA0961M, XLA0962M
	WLAN 2.4G, 5G, BT	XL91186M, XLA0906M
	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 2G/3G/4G/5G NR WWAN except WLAN/BT is in compliance with FCC requirements.

This SAR Char. Report shows SAR characterization of WWAN radios for 2G/3G/4G and 5G Sub-6 NR respectively. Characterization is achieved by determining Plimit for 2G/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. Section 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 incompliance 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 WLAN mode are not controlled by The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm.
This feature performs time averaging 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 indicator RSI for Body SAR of WWAN Mode, Device State Index RSI for WLAN 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 4-4 SAR Characterization

Plim values in green indicate Plimit < Pmax			Plim values in green indicate Plimit > Pmax						
Plimit corresponding to 1 W/kg (1g) SAR_Design_target									Pmax
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	Maximum Tune-up Output Power (Frame Averaged Power) [dBm]
Averaging volume			1g	1g	1g	1g	1g	1g	
seperation Distance			0,10,18,19mm	0	0	0	0	0	
Mode	Band	Antenna	Free	Grip	Grip	Grip	Grip	Grip	
GSM/GPRS/EDGE	850	Main1	27.4	23.3	15.1	23.3	N/A	N/A	23.7
GSM/GPRS/EDGE	1900	Main1	25.9	18.6	12.8	18.6	N/A	N/A	21.1
UMTS	2	Main1	26.0	18.5	12.0	18.5	N/A	N/A	24.0
UMTS	4	Main1	26.6	20.0	12.5	20.0	N/A	N/A	24.0
UMTS	5	Main1	30.6	21.5	14.5	21.5	N/A	N/A	24.0
LTE FDD	2,25	Main1	27.3	18.0	12.0	18.0	N/A	N/A	24.0
LTE FDD	2	Sub1	29.9	N/A	N/A	N/A	N/A	10.5	23.0
LTE FDD	4,66	Main1	26.8	20.0	12.0	20.0	N/A	N/A	24.0
LTE FDD	4,66	Sub1	31.1	N/A	N/A	N/A	N/A	11.0	23.0
LTE FDD	12,17	Main1	28.1	N/A	15.0	N/A	N/A	N/A	24.0
LTE FDD	13	Main1	26.2	N/A	13.5	N/A	N/A	N/A	24.0
LTE FDD	5,26	Main1	27.0	22.0	14.0	22.0	N/A	N/A	24.0
LTE TDD	41	Main1	28.0	N/A	10.5	N/A	N/A	N/A	22.0
NR FDD	n5	Main1	27.5	22.0	14.0	22.0	N/A	N/A	24.0
NR FDD	n66	Main1	25.1	20.0	12.0	20.0	N/A	N/A	24.0
NR TDD	n41 SRS0	Main1	18.0	N/A	10.5	N/A	N/A	N/A	24.0
NR TDD	n41 SRS1	Sub1	20.0	N/A	14.0	N/A	N/A	14.0	24.0
NR TDD	n41 SRS2	Sub3	14.0	14.0	14.0	14.0	14.0	14.0	15.0
NR TDD	n41 SRS3	Sub2	17.0	17.0	17.0	17.0	17.0	17.0	17.0
NR TDD	n77 (78) PC3	Main2	18.0	N/A	N/A	N/A	8.5	N/A	24.0
NR TDD	n77 DoD (78) PC3	Main2	18.0	N/A	N/A	N/A	8.5	N/A	24.0
NR TDD	n77 (78) PC2	Main2	18.0	N/A	N/A	N/A	8.5	N/A	27.0
NR TDD	n77 DoD (78) PC2	Main2	18.0	N/A	N/A	N/A	8.5	N/A	27.0

*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., GSM, LTE TDD).
*The maximum time-averaged output power (dBm) for any 2G/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 the user's proximity to the human body scenarios. 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 2G/3G/4G/5G Nominal Output Power

A. GSM Modes

				Modulated Average (dBm)						
RSI				0	1	2	3	4	5	Pmax (Maximum Target Power)
Mode	Band	ANT	Data – Burst Average GMSK (in dBm)	Grip Sensor Off (Free)	(Grip Sensor #1)	(Grip Sensor #2)	(Grip Sensor #3)	(Grip Sensor #4)	(Grip Sensor #5)	
GSM	850	Main 1	1 Tx Slot	32.5	31.0	24.0	31.0	N/A	N/A	32.5
			2 Tx Slot	30.5	29.0	21.0	29.0	N/A	N/A	
			3 Tx Slot	29.0	27.5	19.5	27.5	N/A	N/A	
			4 Tx Slot	28.0	26.5	18.0	26.5	N/A	N/A	
GSM	1900	Main 1	1 Tx Slot	29.5	27.5	21.5	27.5	N/A	N/A	29.5
			2 Tx Slot	27.0	24.0	18.5	24.0	N/A	N/A	
			3 Tx Slot	25.5	23.0	17.0	23.0	N/A	N/A	
			4 Tx Slot	24.0	20.5	16.0	20.5	N/A	N/A	

				Modulated Average (dBm)						
RSI				0	1	2	3	4	5	Pmax (Maximum Target Power)
Mode	Band	ANT	Data – Burst Average 8-PSK (in dBm)	Grip Sensor Off (Free)	(Grip Sensor #1)	(Grip Sensor #2)	(Grip Sensor #3)	(Grip Sensor #4)	(Grip Sensor #5)	
GSM	850	Main 1	1 Tx Slot	26.5	N/A	23.5	N/A	N/A	N/A	26.5
			2 Tx Slot	24.5	N/A	20.5	N/A	N/A	N/A	
			3 Tx Slot	23.0	N/A	19.0	N/A	N/A	N/A	
			4 Tx Slot	21.5	N/A	17.0	N/A	N/A	N/A	
GSM	1900	Main 1	1 Tx Slot	25.0	N/A	21.0	N/A	N/A	N/A	25.0
			2 Tx Slot	23.5	N/A	18.5	N/A	N/A	N/A	
			3 Tx Slot	22.0	N/A	17.0	N/A	N/A	N/A	
			4 Tx Slot	21.0	N/A	15.0	N/A	N/A	N/A	

Tolerance: -1.5 dB ~ +1.0 dB

B. UMTS Modes

				Modulated Average (dBm)						
RSI				0	1	2	3	4	5	Pmax (Maximum Target Power)
Mode	Band	ANT	3GPP Rel.	Grip Sensor Off (Free)	(Grip Sensor #1)	(Grip Sensor #2)	(Grip Sensor #3)	(Grip Sensor #4)	(Grip Sensor #5)	
UMTS	5	Main 1	3GPP Rel 99	24.0	21.5	14.5	21.5	N/A	N/A	24
			HSDPA Cat. 5	23.0	21.0	14.0	21.0	N/A	N/A	
			HSUPA Cat. 6	22.0	19.5	13.0	19.5	N/A	N/A	
			DC-HSDPA Cat. 24	23.0	21.0	14.0	21.0	N/A	N/A	
UMTS	4	Main 1	3GPP Rel 99	24.0	20.0	12.5	20.0	N/A	N/A	24
			HSDPA Cat. 5	23.0	19.5	11.5	19.5	N/A	N/A	
			HSUPA Cat. 6	22.0	18.5	10.5	18.5	N/A	N/A	
			DC-HSDPA Cat. 24	23.0	19.5	11.5	19.5	N/A	N/A	
UMTS	2	Main 1	3GPP Rel 99	24.0	18.5	12.0	18.5	N/A	N/A	24
			HSDPA Cat. 5	23.0	18.0	10.0	18.0	N/A	N/A	
			HSUPA Cat. 6	22.0	17.5	9.0	17.5	N/A	N/A	
			DC-HSDPA Cat. 24	23.0	18.0	10.0	18.0	N/A	N/A	

Tolerance: -1.5 dB ~ +1.0 dB

C. LTE Modes

			Modulated Average (in dBm)						
RSI			0	1	2	3	4	5	Pmax (Maximum Target Power)
Mode	Band	ANT	Grip Sensor Off(Free)	(Grip Sensor#1)	(Grip Sensor#2)	(Grip Sensor#3)	(Grip Sensor#4)	(Grip Sensor#5)	
LTE	2	Main 1	24	18.0	12.0	18.0	N/A	N/A	24
LTE	2 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	10.5	23
LTE	4	Main 1	24	20.0	12.0	20.0	N/A	N/A	24
LTE	4 FR1 ENDC combination	Sub 1	23	N/A	N/A	N/A	N/A	11.0	23
LTE	5	Main 1	24	22.0	14.0	22.0	N/A	N/A	24
LTE	12	Main 1	24	N/A	15.0	N/A	N/A	N/A	24
LTE	13	Main 1	24	N/A	13.5	N/A	N/A	N/A	24
LTE	17	Main 1	24	N/A	15.0	N/A	N/A	N/A	24
LTE	25	Main 1	24	18.0	12.0	18.0	N/A	N/A	24
LTE	26	Main 1	24	22.0	14.0	22.0	N/A	N/A	24
LTE	41	Main 1	24	N/A	12.5	N/A	N/A	N/A	24
LTE	66	Main 1	24	20.0	12.0	20.0	N/A	N/A	24
LTE	66 FR1 ENDC combination	Sub1	23	N/A	N/A	N/A	N/A	11.0	23

Tolerance: -1.5 dB ~ +1.0 dB

D. 5G NR SUB 6

			Modulated Average (in dBm)						
RSI			0	1	2	3	4	5	Pmax (Maximum Target Power)
Mode	Band	ANT	Grip Sensor Off(Free)	(Grip Sensor#1)	(Grip Sensor#2)	(Grip Sensor#3)	(Grip Sensor#4)	(Grip Sensor#5)	
NR	n5	Main 1	24	22.0	14.0	22.0	N/A	N/A	24
NR	n41	Main 1	18.0 100%Duty	N/A	10.5	N/A	N/A	N/A	24
NR	n41 SRS#1	Sub 1	18.0 100%Duty	N/A	10.5 100%Duty	N/A	N/A	N/A	24
NR	n41 SRS#2	Sub 3	14.0 100%Duty	14.0 100%Duty	14.0 100%Duty	14.0 100%Duty	14.0 100%Duty	14.0 100%Duty	15
NR	n41 SRS#3	Sub 2	17.0 100%Duty	17.0 100%Duty	17.0 100%Duty	17.0 100%Duty	17.0 100%Duty	17.0 100%Duty	17
NR	n66	Main 1	24	20.0	12.0	20.0	N/A	N/A	24
NR	n77 (PC2)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	27
NR	n77 (PC3)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	24
NR	n78 (PC2)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	27
NR	n78 (PC3)	Main 2	18 100%Duty	N/A	N/A	N/A	8.5 100%Duty	N/A	24

Tolerance: -1.5 dB ~ +1.0 dB

4.4.2 Maximum 2.4 ㎓, 5 ㎓ WIFI output power

a. Maximum Power

Mode	SISO						MIMO					
	a	b	g	n	ac	ax(SU)	a	b	g	n	ac	ax(SU)
2.4GHz		19 12ch : 5 13ch : 1	17 12ch : 5 13ch : 1	16 12ch : 5 13ch : 1		16 12ch : 5 13ch : 1		22 12ch : 8 13ch : 4	20 12ch : 8 13ch : 4	19 12ch : 8 13ch : 4		19 12ch : 8 13ch : 4
5GHz (20MHz BW)	16 36ch : 11 40ch : 11 44ch : 11.5 48ch : 11.5 52ch : 14 56ch : 14 60ch : 14 64ch : 14 100ch : 11 104ch : 11 108ch : 11 112ch : 13 177ch : 14			15 36ch : 11 40ch : 11 44ch : 11.5 48ch : 11.5 52ch : 14 56ch : 14 60ch : 14 64ch : 14 100ch : 11 104ch : 11 108ch : 11 112ch : 13 177ch : 14	15 36ch : 11 40ch : 11 44ch : 11.5 48ch : 11.5 52ch : 14 56ch : 14 60ch : 14 64ch : 14 100ch : 11 104ch : 11 108ch : 11 112ch : 13 177ch : 14	15 36ch : 11 40ch : 11 44ch : 11.5 48ch : 11.5 52ch : 14 56ch : 14 60ch : 14 64ch : 14 100ch : 11 104ch : 11 108ch : 11 112ch : 13 177ch : 14	19 36ch : 14 40ch : 14 44ch : 14.5 48ch : 14.5 52ch : 17 56ch : 17 60ch : 17 64ch : 17 100ch : 14 104ch : 14 108ch : 14 112ch : 16 177ch : 17			18 36ch : 14 40ch : 14 44ch : 14.5 48ch : 14.5 52ch : 17 56ch : 17 60ch : 17 64ch : 17 100ch : 14 104ch : 14 108ch : 14 112ch : 16 177ch : 17	18 36ch : 14 40ch : 14 44ch : 14.5 48ch : 14.5 52ch : 17 56ch : 17 60ch : 17 64ch : 17 100ch : 14 104ch : 14 108ch : 14 112ch : 16 177ch : 17	18 36ch : 14 40ch : 14 44ch : 14.5 48ch : 14.5 52ch : 17 56ch : 17 60ch : 17 64ch : 17 100ch : 14 104ch : 14 108ch : 14 112ch : 16 177ch : 17
5GHz (40MHz BW)				13 38ch : 10 46ch : 11 62ch : 11 102ch : 9.5 110ch : 10.5	13 38ch : 10 46ch : 11 62ch : 11 102ch : 9.5 110ch : 10.5	13 38ch : 10 46ch : 11 62ch : 11 102ch : 9.5 110ch : 10.5				16 38ch : 13 46ch : 14 62ch : 14 102ch : 12.5 110ch : 13.5	16 38ch : 13 46ch : 14 62ch : 14 102ch : 12.5 110ch : 13.5	16 38ch : 13 46ch : 14 62ch : 14 102ch : 12.5 110ch : 13.5
5GHz (80MHz BW)					12 42ch : 9 58ch : 11 106ch : 8	12 42ch : 9 58ch : 11 106ch : 8					15 42ch : 12 58ch : 14 106ch : 11	15 42ch : 12 58ch : 14 106ch : 11

(Upper Tolerance: target +1.0 dB)

b. 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 12ch : 5 13ch : 1	10	10	10	13 12ch : 8 13ch : 4	13	13	13
52T	10 12ch : 5 13ch : 1	10	10	10	13 12ch : 8 13ch : 4	13	13	13
106T	10 12ch : 5 13ch : 1	10	10	10	13 12ch : 8 13ch : 4	13	13	13
242T	10 12ch : 5 13ch : 1	10	10	10	13 12ch : 8 13ch : 4	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

c. Reduced Power – Body SAR

Mode	SISO						MIMO					
	a	b	g	n	ac	ax(SU)	a	b	g	n	ac	ax(SU)
2.4GHz		10.0	10.0	10.0		10.0		13.0	13.0	13.0		13.0
2.4GHz (12,13ch)		12ch : 5 13ch : 1				12ch : 5 13ch : 1		12ch : 8 13ch : 4				12ch : 8 13ch : 4
5GHz (20MHz BW)	7.0 177ch : 5			7.0 177ch : 5	7.0 177ch : 5	7.0 177ch : 5	10 177ch : 8			10.0 177ch : 8	10.0 177ch : 8	10.0 177ch : 8
5GHz (40MHz BW)				7.0	7.0	7.0				10.0	10.0	10.0
5GHz (80MHz BW)					7.0	7.0					10.0	10.0

(Upper Tolerance: target +1.0 dB)

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 12ch : 5 13ch : 1	7.0 177ch:5	7.0	7.0	13 12ch : 8 13ch : 4	10.0 177ch:8	10.0	10.0
52T	10 12ch : 5 13ch : 1	7.0 177ch:5	7.0	7.0	13 12ch : 8 13ch : 4	10.0 177ch:8	10.0	10.0
106T	10 12ch : 5 13ch : 1	7.0 177ch:5	7.0	7.0	13 12ch : 8 13ch : 4	10.0 177ch:8	10.0	10.0
242T	10 12ch : 5 13ch : 1	7.0 177ch:5	7.0	7.0	13 12ch : 8 13ch : 4	10.0 177ch:8	10.0	10.0
484T			7.0	7.0			10.0	10.0
996T				7.0				10.0

e. Bluetooth Maximum and Reduced Conducted Output Power in Conducted Mode

-Maximum Power

Mode	Frequency	Target power(dBm)
Bluetooth BDR (in dBm)	2 402	14.5
	2 440	
	2 480	
Bluetooth EDR (in dBm)	2 402	9
	2 440	
	2 480	
Bluetooth LE (in dBm)	2 402	14
	2 440	
	2 480	

(Upper Tolerance: target +1.0 dB)

Reduced Power

Mode	Frequency	Target power(dBm)
Bluetooth BDR (in dBm)	2 402	10
	2 440	
	2 480	
Bluetooth EDR (in dBm)	2 402	9
	2 440	
	2 480	
Bluetooth LE (in dBm)	2 402	9.5
	2 440	
	2 480	

(Upper Tolerance: target +1.0 dB)

4.5 LTE Information

Item.		Description
Frequency Range	LTE FDD Band 2 (PCS)	1 850.7 ㎒ ~ 1 909.3 ㎒
	LTE FDD Band 4 (AWS)	1 710.7 ㎒ ~ 1 754.3 ㎒
	LTE FDD Band 5 (Cell)	824.7 ㎒ ~ 848.3 ㎒
	LTE FDD Band 12	699.7 ㎒ ~ 715.3 ㎒
	LTE FDD Band 13	779.5 ㎒ ~ 784.5 ㎒
	LTE FDD Band 25	1 850.7 ㎒ ~ 1 914.3 ㎒
	LTE FDD Band 26	814.7 ㎒ ~ 848.3 ㎒
	LTE TDD Band 41	2 498.5 ㎒ ~ 2 687.5 ㎒
	LTE FDD Band 66 (AWS)	1 710.7 ㎒ ~ 1 779.3 ㎒
Channel Bandwidths	LTE FDD Band 2 (PCS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 4 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 5 (Cell)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒
	LTE FDD Band 12	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒
	LTE FDD Band 13	5 ㎒, 10 ㎒
	LTE FDD Band 25	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 26	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒
	LTE TDD Band 41	5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒
	LTE FDD Band 66 (AWS)	1.4 ㎒, 3 ㎒, 5 ㎒, 10 ㎒, 15 ㎒, 20 ㎒

Ch. No.& Freq.(㎒)		Low / Low-Mid	Mid	Mid-High / High
LTE FDD Band 2 (PCS)	1.4 ㎒	1 850.7 (18607)	1 880.0 (18900)	1 909.3 (19193)
	3 ㎒	1 851.5 (18615)	1 880.0 (18900)	1 908.5 (19185)
	5 ㎒	1 852.5 (18625)	1 880.0 (18900)	1 907.5 (19175)
	10 ㎒	1 855.0 (18650)	1 880.0 (18900)	1 905.0 (19150)
	15 ㎒	1 857.5 (18675)	1 880.0 (18900)	1 902.5 (19125)
	20 ㎒	1 860.0 (18700)	1 880.0 (18900)	1 900.0 (19100)
LTE FDD Band 4 (AWS)	1.4 ㎒	1 710.7 (19957)	1 732.5 (20175)	1 754.3 (20393)
	3 ㎒	1 711.5 (19965)	1 732.5 (20175)	1 753.5 (20385)
	5 ㎒	1 712.5 (19975)	1 732.5 (20175)	1 752.5 (20375)
	10 ㎒	1 715.0 (20000)	1 732.5 (20175)	1 750.0 (20350)
	15 ㎒	1 717.5 (20025)	1 732.5 (20175)	1 747.5 (20325)
	20 ㎒		1 732.5 (20175)	
LTE FDD Band 5 (Cell)	1.4 ㎒	824.7 (20407)	836.5 (20525)	848.3 (20643)
	3 ㎒	825.5 (20415)	836.5 (20525)	847.5 (20635)
	5 ㎒	826.5 (20425)	836.5 (20525)	846.5 (20625)
	10 ㎒		836.5 (20525)	
LTE FDD Band 12	1.4 ㎒	699.7 (23017)	707.5 (23095)	715.3 (23173)
	3 ㎒	700.5 (23025)	707.5 (23095)	714.5 (23165)
	5 ㎒	701.5 (23035)	707.5 (23095)	713.5 (23155)
	10 ㎒		707.5 (23095)	
LTE FDD Band 13	5 ㎒		782 (23230)	
	10 ㎒		782 (23230)	
LTE FDD Band 25(PCS)	1.4 ㎒	1 850.7 (26047)	1 882.5 (26365)	1 914.3 (26683)
	3 ㎒	1 851.5 (26055)	1 882.5 (26365)	1 913.5 (26675)
	5 ㎒	1 852.5 (26065)	1 882.5 (26365)	1 912.5 (26665)
	10 ㎒	1 855 (26090)	1 882.5 (26365)	1 910 (26640)
	15 ㎒	1 857.5 (26115)	1 882.5 (26365)	1 907.5 (26615)
	20 ㎒	1 860 (26140)	1 882.5 (26365)	1 905 (26590)
LTE FDD Band 26 (Cell)	1.4 ㎒	814.7 (26697)	831.5 (26865)	848.3 (27033)
	3 ㎒	815.5 (26705)	831.5 (26865)	847.5 (27025)
	5 ㎒	816.5 (26715)	831.5 (26865)	846.5 (27015)
	10 ㎒	819.0 (26740)	831.5 (26865)	844.0 (26990)
	15 ㎒		831.5 (26865)	

Ch. No.& Freq.(㎒)		Low / Low-Mid		Mid		Mid-High / High
LTE FDD Band 66 (AWS)	1.4 ㎒	1 710.7 (131979)		1 745 (132322)		1 779.3 (132665)
	3 ㎒	1 711.5 (131987)		1 745 (132322)		1 778.5 (132657)
	5 ㎒	1 712.5 (131997)		1 745 (132322)		1 777.5 (132647)
	10 ㎒	1 715.0 (132022)		1 745 (132322)		1 775.0 (132622)
	15 ㎒	1 717.5 (132047)		1 745 (132322)		1 772.5 (132597)
	20 ㎒	1 720.0 (132072)		1 745 (132322)		1 770.0 (132572)
LTE TDD Band 41	5 ㎒	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	10 ㎒	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	15 ㎒	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)
	20 ㎒	2 506.0(39750)	2 549.5(40185)	2 593.0(40620)	2 636.5(41055)	2 680.0(41490)

UE Category	LTE Rel. 16, DL: Category 18, UL: Category 18
HPUE Power Class	LTE TDD 41 Power Class 3 : (Duty : 63.3%)
Modulations Supported in UL	QPSK, 16QAM, 64QAM, 256 QAM
LTE MPR Permanently implemented per 3GPP TS 36.101 section 6.2.3	Yes
A-MPR disabled for SAR Testing.	Yes
LTE Carrier Aggregation	This device supports Inter-Band DL-link Carrier aggregations. Detailed information of Down-Link CA are included in the Technical Description document.
LTE Release information	It supports DL 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 elCl, MDH, cross-carrier Scheduling, Enhanced SC-FDMA.

4.6 5G NR SUB 6 Information

Item.		Description
Frequency Range	NR FDD Band n5	826.5 MHz ~ 846.5 MHz
	NR TDD Band n41	2 501.01 MHz ~ 2 685 MHz
	NR FDD Band n66	1 712.5 MHz ~ 1 777.5 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 n5	5 MHz, 10 MHz, 15 MHz, 20 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 FDD Band n66	5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 40 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 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 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)		
	35 MHz			1 745(349000)		
	40 MHz			1 745(349000)		

Ch. No.& Freq.(㎒)		Low / Low-Mid		Mid		Mid-High / High	
NR TDD Band n77	10 ㎒	3 705(647000)	3 759(650600)	3 813(654200)	3 867(657800)	3 921(661400)	3 975(665000)
	15 ㎒	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 ㎒	3 710.01(647334)	3 762(650800)	3 813.99(654266)	3 866.01(657734)	3 918(661200)	3 969.99(664666)
	25 ㎒	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 ㎒	3 715.02(647668)	3 765(651000)	3 815.01(654334)	3 864.99(657666)	3 915(661000)	3 964.98(664332)
	40 ㎒	3 720(648000)	3 768(651200)	3 816(654400)	3 864(657600)	3 912(660800)	3 960(664000)
	50 ㎒	3 725.01(648334)	3 782.49(652166)	3 840(656000)		3 897.51(659834)	3 954.99(663666)
	60 ㎒	3 730.02(648668)	3 803.34(653556)			3 876.66(658444)	3 949.98(663332)
	70 ㎒	3 735(649000)	3 804.99(654336)			3 875.01(658334)	3 945(663000)
	80 ㎒	3 740.01(649334)		3 840(656000)			3 939.99(662666)
	90 ㎒	3 745.02(649668)		3 840(656000)		3 934.98(662332)	
	100 ㎒	3 750(650000)		3 840(656000)		3 930(662000)	
NR TDD Band n77 (DoD)	10 ㎒	3 455.01(630334)		3 500.01(633334)		3 544.98(636332)	
	15 ㎒	3 457.5(630500)		3 500.01(633334)		3 542.49(636166)	
	20 ㎒	3 460.02(630668)		3 500.01(633334)		3 540(636000)	
	25 ㎒	3 462.99(630866)		3 500.01(633334)		3 537(635800)	
	30 ㎒	3 465(631000)		3 500.01(633334)		3 534.99(635666)	
	40 ㎒	3 470.01(631334)				3 529.98(635332)	
	50 ㎒	3 475.02(631668)				3 525(635000)	
	60 ㎒			3 500.01(633334)			
	70 ㎒			3 500.01(633334)			
	80 ㎒			3 500.01(633334)			
	90 ㎒			3 500.01(633334)			
	100 ㎒			3 500.01(633334)			
NR TDD Band n78	10 ㎒	3 705(647000)		3 750(650000)		3 795(653000)	
	15 ㎒	3 707.5(647166)		3 750(650000)		3 792.48(652832)	
	20 ㎒	3 710.01(647334)		3 750(650000)		3 789.99(652666)	
	25 ㎒	3 712.5(647500)		3 750(650000)		3 787.5(652500)	
	30 ㎒	3 715(647666)		3 750(650000)		3 784.98(652332)	
	40 ㎒	3 720(647800)				3 780(652000)	
	50 ㎒	3 725.01(648334)				3 774.99(651666)	
	60 ㎒			3 750(650000)			
	70 ㎒			3 750(650000)			
	80 ㎒			3 750(650000)			
	90 ㎒			3 750(650000)			
	100 ㎒			3 750(650000)			
NR TDD Band n78 (DoD)	10 ㎒	3 455.01(630334)		3 500.01(633334)		3 544.98(636332)	
	15 ㎒	3 457.5(630500)		3 500.01(633334)		3 542.49(636166)	
	20 ㎒	3 460.02(630668)		3 500.01(633334)		3 540(636000)	
	25 ㎒	3 462.99(630866)		3 500.01(633334)		3 537(635800)	
	30 ㎒	3 465(631000)		3 500.01(633334)		3 534.99(635666)	
	40 ㎒	3 470.01(631334)				3 529.98(635332)	
	50 ㎒	3 475.02(631668)				3 525(635000)	
	60 ㎒			3 500.01(633334)			
	70 ㎒			3 500.01(633334)			
	80 ㎒			3 500.01(633334)			
	90 ㎒			3 500.01(633334)			
	100 ㎒			3 500.01(633334)			

Item.	Description
NR FDD Band n5/n66 SCS	15 ㎑
NR TDD Band n41/n77/n78 SCS	30 ㎑
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: π/2-BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM
Non-Standalone & Standalone are supported. 5G NR FR1 Bands, n5, n41, n66, n77, n78 are supported to NSA and 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 n5	LTE Band 2/66
LTE Anchor Bands for NR Band n66	LTE Band 2/5/12/13
LTE Anchor Bands for NR Band n41	LTE Band 4/5/12/26/66
LTE Anchor Bands for NR Band n77	LTE Band 2/5/12/13/25/66
LTE Anchor Bands for NR Band n78	LTE Band 2/4/5/12/26/41/66

4.7 SAR Summation Scenario

According to FCC KDB 447498 D01v06, transmitters are considered to be transmitting simultaneously when there is overlapping transmission, with the exception of transmissions during network hand-offs with maximum hand-off duration less than 30 seconds. Possible transmission paths for the EUT are shown below paths and are mode in same rectangle to indicate communication modes which share the same path. Modes which share the same transmission path cannot transmit simultaneously with one another.
This device contains multiple transmitters that may operate simultaneously, and therefore requires a simultaneous transmission analysis according to FCC KDB 447498 D01v06.

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. 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.
6. 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 and U-NII-2C WiFi, WiFi Hotspot SAR test and combinations are considered only 2.4 GHz and U-NII-3 for SAR with respected to wireless router configurations according to FCC KDB 941225 D06v02r01.

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

This device supports IEEE 802.11ax 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)

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

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 section 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 ≤ 0.5dB higher than the same configuration in QPSK and the reported SAR for QPSK configuration is ≤1.45 W/Kg, per section 5.2.4 for FCC KDB941225 D05v02r05.

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

LTE capabilities with overlapping transmission frequency ranges were applied to LTE Band 17 (706.5 MHz ~ 713.5MHz) is covered by LTE Band 12(699.7 MHz ~ 715.3 MHz),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), 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 ㎒ ~ 1 907.5㎒) is covered by n25(1 852.5 ㎒ ~ 1 912.5㎒), n78(3 705 ㎒ ~ 3 795㎒) is covered by n77(3 705 ㎒ ~ 3 795㎒), n78 DoD(3 455.01 ㎒ ~ 3 544.98㎒) is covered by n77 DoD(3 455.01 ㎒ ~ 3 544.98㎒)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 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.

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

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

5. Introduction

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

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

SAR Definition

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

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

Figure 1. SAR Mathematical Equation

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

Where:
= conductivity of the tissue-simulant material (S/m)
= mass density of the tissue-simulant material (kg/m³)
= Total RMS electric field strength (V/m)

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

6. Description of test equipment

6.1 SAR MEASUREMENT SETUP

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

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC with Windows XP or Windows 7 or Window 10 or Window 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.

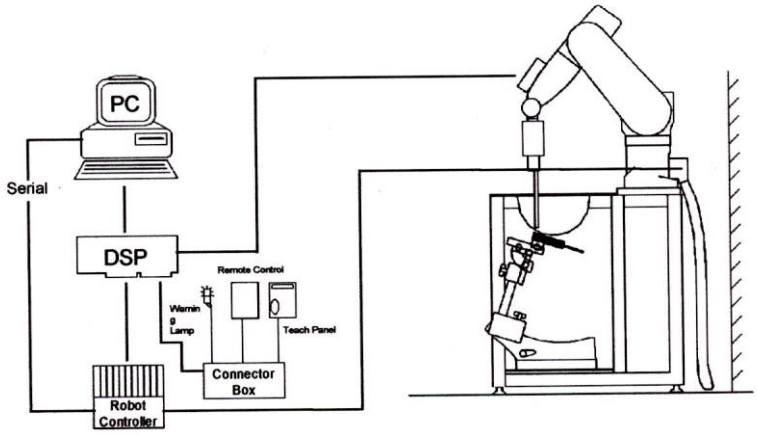


Figure 2. HCT SAR Lab. Test Measurement Set-up

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 ㎜ away from the tip of the probe (it is different from the probe type) and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

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

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

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

Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan Spatial resolution: $\Delta x_{Area}, \Delta y_{Area}$</td><td>≤ 2 GHz: ≤15 mm
2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm
4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: $\Delta x_{zoom}, \Delta y_{zoom}$</td><td>≤ 2 GHz: ≤8mm
2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*
4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm
4-5 GHz: ≤3 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between 1st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm
4-5 GHz: ≤2.5 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$: between subsequent Points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm
4-5 GHz: ≥25 mm
5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

8. Description of Test Position

8.1 Device Horder

The device holder is made out of low-loss POM material having the following dielectric parameters: relative permittivity ε and loss tangent δ=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 Section 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 ㎜. 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 mad fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

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

10. FCC SAR General Measurement Procedures

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

10.1 Measured and Reported SAR

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

10.2 3G SAR Test Reduction Procedure

10.2.1 GSM, GPRS and EDGE

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

10.2.2 SAR Test Reduction

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

10.2.3 Procedures Used to Establish RF Signal for SAR

The following procedures are according to FCC KDB 941225 D01v03r01-3G SAR Measurement Procedures.
The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR

measurement Software calculates a reference point at the start and end of the test to Touch for power drifts. Lf 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

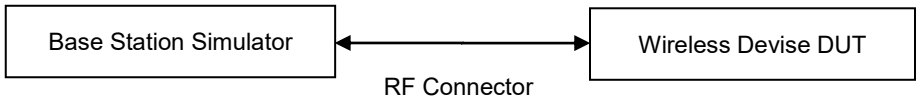
The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 and power control 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 D05v02r05publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluation SAR [4]. The R&S CMW500 or Anritsu MT8820C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

10.4.1 Spectrum Plots for RB Configurations

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

10.4.2 MPR

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

10.4.3 A-MPR

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

10.4.4 Required RB Size and RB offsets for SAR testing

According to FCC KDB 941225 D05v02r05

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

configuration using QPSK modulation and when the QPSK SAR for those configurations is < 1.45 W/Kg.

10.4.5 Downlink Carrier Aggregation

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

10.4.7 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 section 4.2 for Type 2 Frame and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special sub frame configurations.

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

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

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

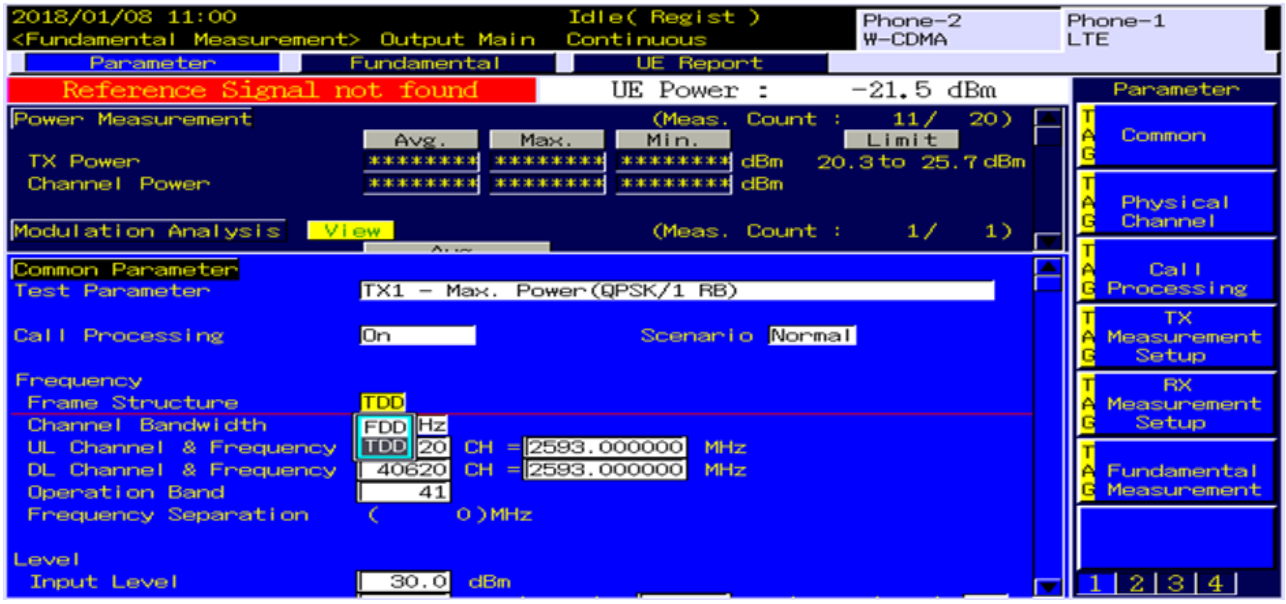
Table 4.2-2: Uplink-downlink configurations.

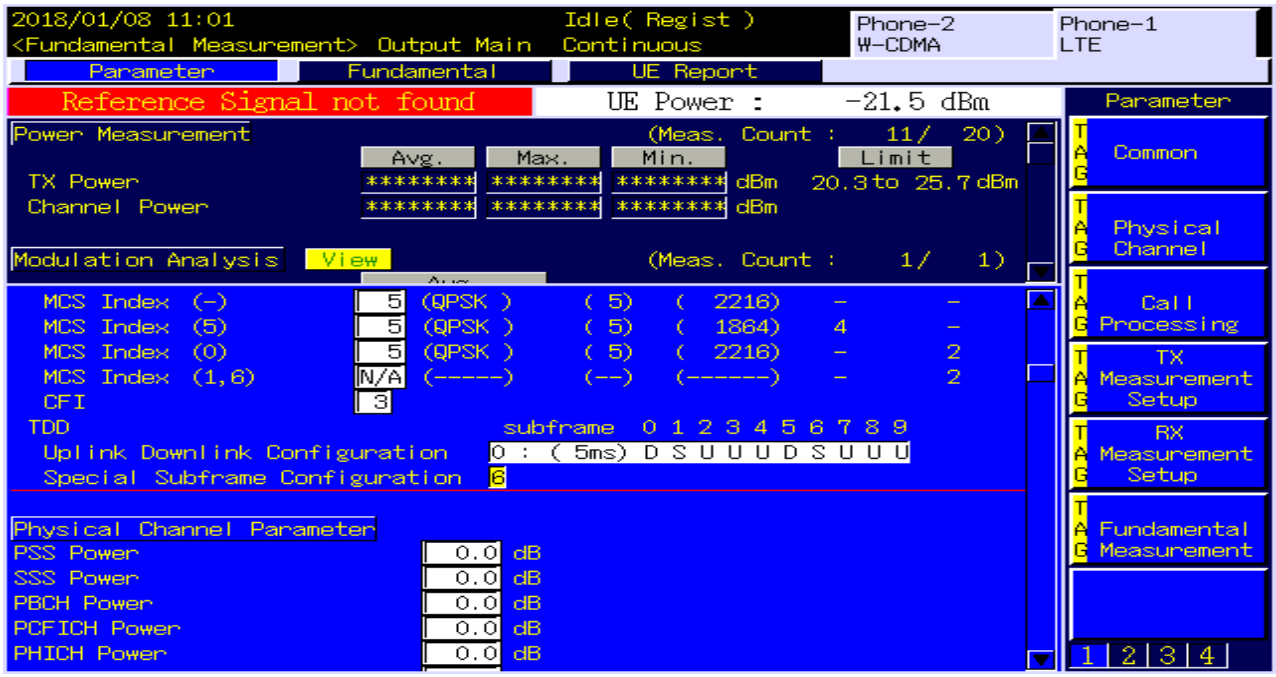
Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U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

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

10.4.8 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.





10.5 SAR Testing with 802.11 Transmitters

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

10.5.1 General Device Setup

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

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

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

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

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

10.5.4 Initial Test Position Procedure

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

10.5.5 2.4 GHz SAR test Requirements

SAR is measured for 2.4 GHz 802.11b DSSS using either the fixed test position or, when applicable, the initial test position procedure. SAR test reduction is determined according to the following:
1) When the reported SAR of the highest measured maximum output power channel for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS is that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that position using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel; i.e., all channels require testing.

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

10.5.6 OFDM Transmission Mode and SAR Test Channel Selection

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

10.5.7 Initial Test Configuration Procedure

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

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

10.5.8 Subsequent Test Configuration Procedures

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

11. Output Power Specifications

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

Licensed Bands

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

Test Overview

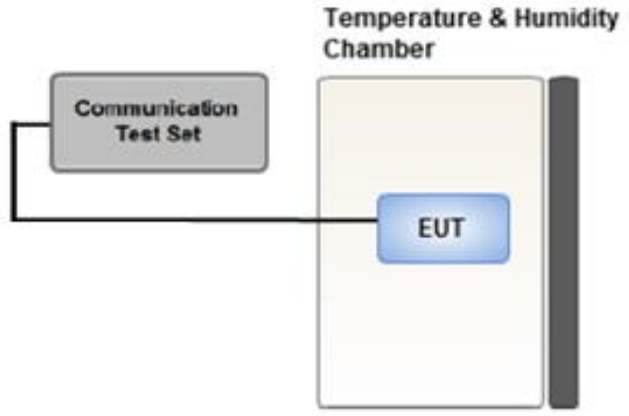
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base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

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

Test Procedure

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

Test setup



11.1 GSM Maximum Output Power

11.1.1 GSM 850 Maximum Conducted Output Power

Measured *Pmax*, RSI = 0

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**33.50**	**33.50**	**31.50**	**30.00**	**29.00**	**27.50**	**25.50**	**24.00**	**22.50**
Nominal		**32.50**	**32.50**	**30.50**	**29.00**	**28.00**	**26.50**	**24.50**	**23.00**	**21.50**
GSM 850	**128**	33.09	33.13	30.81	29.27	27.99	26.81	24.73	23.63	22.05
	190	33.26	33.28	30.87	29.51	28.18	26.83	24.89	23.50	22.04
	251	33.41	33.43	31.28	29.55	28.48	26.81	24.97	23.72	22.38

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**24.31**	**24.31**	**25.32**	**25.58**	**25.83**	**18.31**	**19.32**	**19.58**	**19.33**
Nominal		**23.31**	**23.31**	**24.32**	**24.58**	**24.83**	**17.31**	**18.32**	**18.58**	**18.33**
GSM 850	**128**	23.90	23.94	24.63	24.85	24.82	17.62	18.55	19.21	18.88
	190	24.07	24.09	24.69	25.09	25.01	17.64	18.71	19.08	18.87
	251	24.22	24.24	25.10	25.13	25.31	17.62	18.79	19.30	19.21

GSM Conducted output powers (Frame-Average)

Measured RSI = 1, 3

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**32.00**	**32.00**	**30.00**	**28.50**	**27.50**	**27.50**	**25.50**	**24.00**	**22.50**
Nominal		**31.00**	**31.00**	**29.00**	**27.50**	**26.50**	**26.50**	**24.50**	**23.00**	**21.50**
GSM 850	**128**	30.84	30.86	28.64	27.36	25.96				
	190	31.20	31.23	29.10	27.42	26.11				
	251	31.37	31.48	29.34	27.66	26.41				

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**22.81**	**22.81**	**23.82**	**24.08**	**24.33**	**18.31**	**19.32**	**19.58**	**19.33**
Nominal		**21.81**	**21.81**	**22.82**	**23.08**	**23.33**	**17.31**	**18.32**	**18.58**	**18.33**
GSM 850	**128**	21.65	21.67	22.46	22.94	22.79				
	190	22.01	22.04	22.92	23.00	22.94				
	251	22.18	22.29	23.16	23.24	23.24				

GSM Conducted output powers (Frame-Average)

Measured RSI = 2

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**25.00**	**25.00**	**22.00**	**20.50**	**19.00**	**24.50**	**21.50**	**20.00**	**18.00**
Nominal		**24.00**	**24.00**	**21.00**	**19.50**	**18.00**	**23.50**	**20.50**	**19.00**	**17.00**
GSM 850	**128**	23.92	24.06	20.91	19.56	17.91	23.44	20.24	19.32	17.27
	190	23.97	23.93	20.93	19.69	18.14	23.66	20.58	19.35	17.49
	251	24.23	24.06	21.05	19.91	18.27	23.66	20.52	19.35	17.66

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**15.81**	**15.81**	**15.82**	**16.08**	**15.83**	**15.31**	**15.32**	**15.58**	**14.83**
Nominal		**14.81**	**14.81**	**14.82**	**15.08**	**14.83**	**14.31**	**14.32**	**14.58**	**13.83**
GSM 850	**128**	14.73	14.87	14.73	15.14	14.74	14.25	14.06	14.90	14.10
	190	14.78	14.74	14.75	15.27	14.97	14.47	14.40	14.93	14.32
	251	15.04	14.87	14.87	15.49	15.10	14.47	14.34	14.93	14.49

11.1.2 GSM 1900 Maximum Conducted Output Power

Measured *Pmax*, RSI = 0

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**30.50**	**30.50**	**28.00**	**26.50**	**25.00**	**26.00**	**24.50**	**23.00**	**22.00**
Nominal		**29.50**	**29.50**	**27.00**	**25.50**	**24.00**	**25.00**	**23.50**	**22.00**	**21.00**
GSM 1900	**512**	29.82	29.72	27.39	25.65	24.73	25.55	24.11	22.58	21.24
	661	29.89	29.91	27.34	25.64	24.79	25.62	24.17	22.70	21.56
	810	30.09	29.80	27.57	25.48	24.89	25.75	24.26	22.84	21.64

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**21.31**	**21.31**	**21.82**	**22.08**	**21.83**	**16.81**	**18.32**	**18.58**	**18.83**
Nominal		**20.31**	**20.31**	**20.82**	**21.08**	**20.83**	**15.81**	**17.32**	**17.58**	**17.83**
GSM 1900	**512**	20.63	20.53	21.21	21.23	21.56	16.36	17.93	18.16	18.07
	661	20.70	20.72	21.16	21.22	21.62	16.43	17.99	18.28	18.39
	810	20.90	20.61	21.39	21.06	21.72	16.56	18.08	18.42	18.47

GSM Conducted output powers (Frame-Average)

Measured RSI = 1, 3

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**28.50**	**28.50**	**25.00**	**24.00**	**21.50**	**26.00**	**24.50**	**23.00**	**22.00**
Nominal		**27.50**	**27.50**	**24.00**	**23.00**	**20.50**	**25.00**	**23.50**	**22.00**	**21.00**
GSM 1900	**512**	27.74	27.30	24.43	23.29	20.70				
	661	27.45	27.44	24.46	23.30	20.90				
	810	27.71	27.75	24.56	23.68	21.28				

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**19.31**	**19.31**	**18.82**	**19.58**	**18.33**	**16.81**	**18.32**	**18.58**	**18.83**
Nominal		**18.31**	**18.31**	**17.82**	**18.58**	**17.33**	**15.81**	**17.32**	**17.58**	**17.83**
GSM 1900	**512**	18.55	18.11	18.25	18.87	17.53				
	661	18.26	18.25	18.28	18.88	17.73				
	810	18.52	18.56	18.38	19.26	18.11				

GSM Conducted output powers (Frame-Average)

Measured RSI = 2

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**22.50**	**22.50**	**19.50**	**18.00**	**17.00**	**22.00**	**19.50**	**18.00**	**16.00**
Nominal		**21.50**	**21.50**	**18.50**	**17.00**	**16.00**	**21.00**	**18.50**	**17.00**	**15.00**
GSM 1900	**512**	21.31	21.37	18.74	17.32	16.10	20.91	18.62	17.13	15.46
	661	21.55	21.59	18.80	17.33	16.17	21.28	18.74	17.50	15.88
	810	21.90	21.95	19.10	17.39	16.18	21.43	18.90	17.60	15.95

GSM Conducted output powers (Burst-Average)

Mode / Band		Voice	GPRS(GMSK) Data – CS1(dBm)				EDGE Data (dBm)			
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Maximum		**13.31**	**13.31**	**13.32**	**13.58**	**13.83**	**12.81**	**13.32**	**13.58**	**12.83**
Nominal		**12.31**	**12.31**	**12.32**	**12.58**	**12.83**	**11.81**	**12.32**	**12.58**	**11.83**
GSM 1900	**512**	12.12	12.18	12.56	12.90	12.93	11.72	12.44	12.71	12.29
	661	12.36	12.40	12.62	12.91	13.00	12.09	12.56	13.08	12.71
	810	12.71	12.76	12.92	12.97	13.01	12.24	12.72	13.18	12.78

Note:

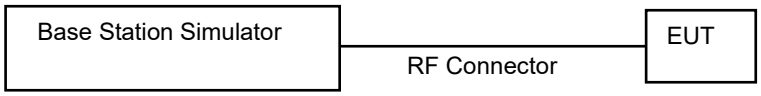
Time slot average factor is as follows:

1 Tx slot = 9.19 dB, Frame-Average output power = Burst-Average output power – 9.19 dB

2 Tx slot = 6.18 dB, Frame-Average output power = Burst-Average output power – 6.18 dB

3 Tx slot = 4.42 dB, Frame-Average output power = Burst-Average output power – 4.42 dB

4 Tx slot = 3.17 dB, Frame-Average output power = Burst-Average output power – 3.17 dB



11.2 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.

11.2.1 UMTS Band 5 Maximum Conducted Output Power

UMTS Band 5 Maximum Conducted Output Power

Measured *Pmax*, 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	24.39	24.41	23.90	-
99		12.2 kbps AMR	24.42	24.42	23.78	-
5	HSDPA	Subtest 1	23.83	23.89	23.23	0
5		Subtest 2	23.76	23.62	23.41	0
5		Subtest 3	22.43	22.31	22.09	0.5
5		Subtest 4	22.14	22.08	21.84	0.5
6	HSUPA	Subtest 1	22.38	22.34	21.92	0
6		Subtest 2	20.48	20.70	19.98	2
6		Subtest 3	21.47	21.57	21.66	1
6		Subtest 4	20.50	20.17	20.06	2
6		Subtest 5	22.89	22.91	21.50	0
8	DC-HSDPA	Subtest1	23.81	23.76	23.16	0
8		Subtest2	22.33	23.81	23.54	0
8		Subtest3	21.98	22.15	21.84	0.5
8		Subtest4	21.97	22.02	21.33	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	21.54	21.57	21.14	-
99		12.2 kbps AMR	21.52	21.56	21.11	-
5	HSDPA	Subtest 1	21.45	21.55	20.06	0
5		Subtest 2	21.44	21.48	20.33	0
5		Subtest 3	21.51	21.44	20.00	0
5		Subtest 4	21.53	21.52	20.02	0
6	HSUPA	Subtest 1	19.21	19.19	18.91	0
6		Subtest 2	19.18	20.25	19.86	0
6		Subtest 3	20.27	19.17	19.87	0
6		Subtest 4	19.19	20.27	19.87	0
6		Subtest 5	19.01	20.06	18.51	0
8	DC-HSDPA	Subtest1	21.44	21.23	20.12	0
8		Subtest2	21.42	21.22	20.30	0
8		Subtest3	21.51	21.21	20.05	0
8		Subtest4	21.50	21.20	20.00	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	14.84	14.85	14.46	-
99		12.2 kbps AMR	14.77	14.77	14.38	-
5	HSDPA	Subtest 1	13.89	13.94	13.39	0
5		Subtest 2	14.05	14.05	13.66	0
5		Subtest 3	13.59	13.62	13.21	0
5		Subtest 4	14.47	14.48	14.06	0
6	HSUPA	Subtest 1	13.79	13.73	13.46	0
6		Subtest 2	12.79	12.77	12.39	0
6		Subtest 3	12.75	12.68	12.38	0
6		Subtest 4	12.85	12.79	12.52	0
6		Subtest 5	13.69	13.62	13.30	0
8	DC-HSDPA	Subtest1	14.09	13.91	13.41	0
8		Subtest2	14.14	14.14	13.71	0
8		Subtest3	13.71	13.84	13.25	0
8		Subtest4	14.60	14.21	14.10	0

UMTS Average Conducted output powers

11.2.2 UMTS Band 4 Maximum Conducted Output Power

UMTS Band 4 Maximum Conducted Output Power

Measured *Pmax*, 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	23.82	23.86	23.78	-
99		12.2 kbps AMR	23.74	23.78	23.74	-
5	HSDPA	Subtest 1	23.15	23.13	23.06	0
5		Subtest 2	23.66	23.53	23.62	0
5		Subtest 3	22.65	22.68	22.60	0.5
5		Subtest 4	22.20	22.05	22.12	0.5
6	HSUPA	Subtest 1	23.07	22.18	22.23	0
6		Subtest 2	19.48	19.63	19.61	2
6		Subtest 3	19.47	19.59	18.66	1
6		Subtest 4	19.82	19.98	19.92	2
6		Subtest 5	23.05	23.14	22.05	0
8	DC-HSDPA	Subtest1	23.19	23.02	23.16	0
8		Subtest2	23.70	23.50	23.59	0
8		Subtest3	22.70	22.44	22.57	0.5
8		Subtest4	22.15	22.03	22.10	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	20.03	20.03	19.93	-
99		12.2 kbps AMR	20.01	20.02	19.91	-
5	HSDPA	Subtest 1	20.00	19.95	19.96	0
5		Subtest 2	20.05	19.42	19.95	0
5		Subtest 3	20.03	19.96	20.00	0
5		Subtest 4	19.99	19.98	20.02	0
6	HSUPA	Subtest 1	18.81	18.89	18.91	0
6		Subtest 2	18.32	19.01	18.37	0
6		Subtest 3	17.82	17.92	17.87	0
6		Subtest 4	19.87	19.95	19.91	0
6		Subtest 5	17.83	17.92	17.88	0
8	DC-HSDPA	Subtest1	19.73	19.91	19.69	0
8		Subtest2	19.80	19.94	19.71	0
8		Subtest3	19.77	19.97	19.78	0
8		Subtest4	19.78	19.93	19.70	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	12.41	12.60	12.49	-
99		12.2 kbps AMR	12.34	12.51	12.39	-
5	HSDPA	Subtest 1	11.09	11.24	11.15	0
5		Subtest 2	11.77	11.85	11.79	0
5		Subtest 3	11.72	11.90	11.80	0
5		Subtest 4	12.20	12.23	12.18	0
6	HSUPA	Subtest 1	11.19	11.28	11.27	0
6		Subtest 2	9.28	9.38	9.39	0
6		Subtest 3	10.27	10.41	10.40	0
6		Subtest 4	10.13	10.29	10.36	0
6		Subtest 5	10.11	10.32	10.33	0
8	DC-HSDPA	Subtest1	11.20	11.36	11.11	0
8		Subtest2	11.80	11.87	11.74	0
8		Subtest3	11.78	11.84	11.70	0
8		Subtest4	12.27	12.19	12.10	0

UMTS Average Conducted output powers

11.2.3 UMTS Band 2 Maximum Conducted Output Power

UMTS Band 2 Maximum Conducted Output Power

Measured *Pmax*, 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	23.67	23.84	23.74	-
99		12.2 kbps AMR	23.49	23.72	23.61	-
5	HSDPA	Subtest 1	22.78	22.68	22.53	0
5		Subtest 2	22.98	23.13	22.86	0
5		Subtest 3	22.13	22.09	22.05	0.5
5		Subtest 4	21.20	21.38	21.32	0.5
6	HSUPA	Subtest 1	21.71	21.57	21.75	0
6		Subtest 2	19.28	19.10	19.54	2
6		Subtest 3	19.83	19.71	20.02	1
6		Subtest 4	19.86	19.50	19.92	2
6		Subtest 5	21.60	22.62	21.80	0
8	DC-HSDPA	Subtest 1	22.68	22.55	22.35	0
8		Subtest2	22.87	23.03	22.77	0
8		Subtest3	22.00	22.32	22.25	0.5
8		Subtest4	21.30	21.54	21.47	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	18.28	18.40	18.42	-
99		12.2 kbps AMR	18.13	18.38	18.31	-
5	HSDPA	Subtest 1	18.11	18.31	18.27	0
5		Subtest 2	18.12	18.29	18.26	0
5		Subtest 3	18.12	18.24	18.25	0
5		Subtest 4	18.14	18.18	18.32	0
6	HSUPA	Subtest 1	17.15	17.29	16.29	0
6		Subtest 2	16.58	16.77	16.66	0
6		Subtest 3	16.06	16.65	16.25	0
6		Subtest 4	18.11	18.28	18.24	0
6		Subtest 5	17.16	17.31	16.24	0
8	DC-HSDPA	Subtest 1	18.01	17.89	17.71	0
8		Subtest2	18.03	17.93	17.66	0
8		Subtest3	18.02	17.87	17.68	0
8		Subtest4	18.04	17.93	17.90	0

UMTS Average Conducted output powers

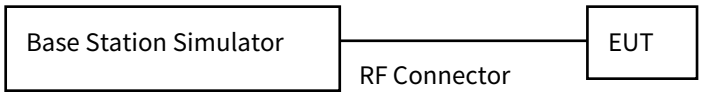
Measured RSI = 2

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	11.83	12.01	11.96	-
99		12.2 kbps AMR	11.78	11.95	11.90	-
5	HSDPA	Subtest 1	10.00	9.85	9.84	0
5		Subtest 2	10.35	10.20	10.23	0
5		Subtest 3	10.20	10.24	10.26	0
5		Subtest 4	10.22	10.19	10.22	0
6	HSUPA	Subtest 1	9.25	9.54	9.40	0
6		Subtest 2	8.56	8.87	8.72	0
6		Subtest 3	7.68	7.96	7.83	0
6		Subtest 4	9.21	9.51	9.38	0
6		Subtest 5	9.19	9.48	9.35	0
8	DC-HSDPA	Subtest 1	9.77	9.62	9.41	0
8		Subtest2	10.05	9.94	10.00	0
8		Subtest3	9.96	9.98	10.01	0
8		Subtest4	10.05	10.02	10.06	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 *Pmax*, RSI=0(Free)_ Antenna Main 1

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	23.58	23.77	23.55	0	0
		1	49	23.61	23.87	23.94	0	0
		1	99	23.75	23.67	23.84	0	0
		50	0	22.58	22.86	22.68	0-1	1
		50	25	22.49	22.81	22.89	0-1	1
		50	49	22.58	22.71	22.93	0-1	1
		100	0	22.50	22.79	22.86	0-1	1
	16QAM	1	0	22.92	22.99	22.83	0-1	1
		1	49	22.88	23.05	23.05	0-1	1
		1	99	23.01	22.99	23.21	0-1	1
		50	0	21.55	21.85	21.68	0-2	2
		50	25	21.47	21.72	21.82	0-2	2
		50	49	21.51	21.68	21.85	0-2	2
		100	0	21.48	21.76	21.80	0-2	2
	64QAM	1	0	21.73	21.87	21.81	0-2	2
		1	49	21.70	22.01	21.93	0-2	2
		1	99	21.91	21.79	21.96	0-2	2
		50	0	20.54	20.82	20.65	0-3	3
		50	25	20.46	20.72	20.82	0-3	3
		50	49	20.52	20.66	20.84	0-3	3
		100	0	20.45	20.70	20.78	0-3	3
	256QAM	1	0	18.64	18.77	18.57	0-5	5
		1	49	18.20	18.54	18.54	0-5	5
		1	99	18.76	18.67	18.72	0-5	5
		50	0	18.42	18.68	18.55	0-5	5
		50	25	18.36	18.65	18.71	0-5	5
		50	49	18.47	18.60	18.78	0-5	5
		100	0	18.35	18.64	18.67	0-5	5

LTE FDD Band 2 Conducted Power _ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	17.86	18.05	17.82	0	0
		1	49	17.87	18.10	18.14	0	0
		1	99	17.99	17.91	18.01	0	0
		50	0	17.79	18.10	17.96	0-1	0
		50	25	17.79	18.02	18.08	0-1	0
		50	49	17.85	17.93	18.08	0-1	0
		100	0	17.77	18.03	18.08	0-1	0
	16QAM	1	0	18.08	18.29	18.09	0-1	0
		1	49	18.06	18.28	18.36	0-1	0
		1	99	18.21	18.19	18.29	0-1	0
		50	0	17.79	18.06	17.89	0-2	0
		50	25	17.75	17.98	18.06	0-2	0
		50	49	17.82	17.95	18.07	0-2	0
		100	0	17.74	17.99	18.05	0-2	0
	64QAM	1	0	17.98	18.19	17.96	0-2	0
		1	49	17.98	18.21	18.29	0-2	0
		1	99	18.22	18.01	18.25	0-2	0
		50	0	17.79	18.03	17.89	0-3	0
		50	25	17.77	17.99	18.09	0-3	0
		50	49	17.85	17.90	18.10	0-3	0
		100	0	17.74	17.97	18.02	0-3	0
	256QAM	1	0	17.92	18.19	17.96	0-5	0
		1	49	17.62	17.87	17.91	0-5	0
		1	99	18.01	17.99	18.07	0-5	0
		50	0	17.79	18.04	17.89	0-5	0
		50	25	17.76	17.98	18.05	0-5	0
		50	49	17.84	17.93	18.10	0-5	0
		100	0	17.77	17.99	18.04	0-5	0

LTE FDD Band 2 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	11.78	11.98	11.78	0	0
		1	49	11.75	12.01	12.07	0	0
		1	99	11.96	11.86	12.03	0	0
		50	0	11.78	11.99	11.89	0-1	0
		50	25	11.69	11.95	12.07	0-1	0
		50	49	11.80	11.90	12.06	0-1	0
		100	0	11.70	11.96	12.03	0-1	0
	16QAM	1	0	12.03	12.19	11.99	0-1	0
		1	49	11.87	12.16	12.25	0-1	0
		1	99	12.19	12.14	12.28	0-1	0
		50	0	11.73	11.96	11.82	0-2	0
		50	25	11.70	11.91	11.98	0-2	0
		50	49	11.73	11.87	12.04	0-2	0
		100	0	11.66	11.89	12.03	0-2	0
	64QAM	1	0	11.92	12.06	11.94	0-2	0
		1	49	11.94	12.17	12.23	0-2	0
		1	99	12.10	11.89	12.16	0-2	0
		50	0	11.76	11.99	11.88	0-3	0
		50	25	11.67	11.93	12.02	0-3	0
		50	49	11.78	11.91	12.05	0-3	0
		100	0	11.67	11.93	11.99	0-3	0
	256QAM	1	0	11.92	11.99	11.84	0-5	0
		1	49	11.48	11.83	11.87	0-5	0
		1	99	12.03	11.94	12.06	0-5	0
		50	0	11.75	12.01	11.87	0-5	0
		50	25	11.71	11.97	12.03	0-5	0
		50	49	11.79	11.89	12.10	0-5	0
		100	0	11.69	11.96	12.03	0-5	0

LTE FDD Band 2 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Sub1

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	22.88	23.11	22.83	0	0
		1	49	22.90	23.00	22.95	0	0
		1	99	22.92	22.93	23.01	0	0
		50	0	21.87	22.02	21.89	0-1	1
		50	25	21.89	21.96	21.95	0-1	1
		50	49	21.89	21.96	21.98	0-1	1
		100	0	21.90	21.98	21.92	0-1	1
	16QAM	1	0	22.09	22.16	22.11	0-1	1
		1	49	22.09	22.20	22.23	0-1	1
		1	99	22.19	22.12	22.18	0-1	1
		50	0	20.92	20.96	20.89	0-2	2
		50	25	20.86	20.95	20.89	0-2	2
		50	49	20.89	20.95	20.99	0-2	2
		100	0	20.86	20.96	20.89	0-2	2
	64QAM	1	0	21.04	21.10	20.92	0-2	2
		1	49	21.12	21.19	21.14	0-2	2
		1	99	21.09	21.06	21.19	0-2	2
		50	0	19.92	19.94	19.86	0-3	3
		50	25	19.84	19.93	19.91	0-3	3
		50	49	19.87	19.91	19.93	0-3	3
		100	0	19.86	19.88	19.89	0-3	3
	256QAM	1	0	17.85	18.00	17.84	0-5	5
		1	49	17.60	17.71	17.61	0-5	5
		1	99	17.97	17.97	18.01	0-5	5
		50	0	17.86	17.88	17.77	0-5	5
		50	25	17.80	17.90	17.88	0-5	5
		50	49	17.86	17.88	17.89	0-5	5
		100	0	17.82	17.88	17.84	0-5	5

LTE FDD Band 2 Conducted Power _ Measured RSI =5(Grip Sensor #5)_ Antenna Sub1

LTE FDD Band 2 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				18700 Ch. 1860 ㎒	18900 Ch. 1880 ㎒	19100 Ch. 1900 ㎒		
20 ㎒	QPSK	1	0	10.19	10.30	10.16	0	0
		1	49	10.19	10.28	10.26	0	0
		1	99	10.22	10.18	10.26	0	0
		50	0	10.20	10.31	10.15	0-1	0
		50	25	10.15	10.28	10.24	0-1	0
		50	49	10.17	10.20	10.24	0-1	0
		100	0	10.16	10.21	10.18	0-1	0
	16QAM	1	0	10.42	10.45	10.36	0-1	0
		1	49	10.31	10.40	10.43	0-1	0
		1	99	10.55	10.36	10.49	0-1	0
		50	0	10.15	10.22	10.12	0-2	0
		50	25	10.12	10.21	10.12	0-2	0
		50	49	10.17	10.20	10.21	0-2	0
		100	0	10.11	10.20	10.15	0-2	0
	64QAM	1	0	10.34	10.33	10.23	0-2	0
		1	49	10.35	10.37	10.41	0-2	0
		1	99	10.29	10.32	10.43	0-2	0
		50	0	10.15	10.18	10.13	0-3	0
		50	25	10.12	10.21	10.17	0-3	0
		50	49	10.18	10.20	10.20	0-3	0
		100	0	10.16	10.17	10.13	0-3	0
	256QAM	1	0	10.29	10.31	10.20	0-5	0
		1	49	9.97	9.97	9.92	0-5	0
		1	99	10.26	10.27	10.32	0-5	0
		50	0	10.14	10.17	10.11	0-5	0
		50	25	10.11	10.20	10.17	0-5	0
		50	49	10.15	10.19	10.20	0-5	0
		100	0	10.12	10.20	10.15	0-5	0

11.2.2 LTE FDD Band 4 Maximum Conducted Output Power

LTE FDD Band 4 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE FDD Band 4 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20050 ch. 1720 ㎒	20175 ch. 1732.5 ㎒	20300 ch. 1 745 ㎒		
20 ㎒	QPSK	1	0	24.11	23.95	24.08	0	0
		1	49	24.15	24.25	24.28	0	0
		1	99	24.11	24.24	24.24	0	0
		50	0	23.12	23.05	23.19	0-1	1
		50	25	23.02	23.20	23.21	0-1	1
		50	49	23.05	23.22	23.20	0-1	1
		100	0	23.04	23.19	23.20	0-1	1
	16QAM	1	0	23.32	23.28	23.31	0-1	1
		1	49	23.41	23.53	23.50	0-1	1
		1	99	23.44	23.55	23.45	0-1	1
		50	0	22.15	22.06	22.18	0-2	2
		50	25	22.08	22.15	22.16	0-2	2
		50	49	22.02	22.22	22.15	0-2	2
		100	0	22.06	22.16	22.17	0-2	2
	64QAM	1	0	22.37	22.15	22.26	0-2	2
		1	49	22.28	22.31	22.31	0-2	2
		1	99	22.29	22.43	22.37	0-2	2
		50	0	21.14	21.03	21.22	0-3	3
		50	25	21.02	21.16	21.20	0-3	3
		50	49	21.02	21.23	21.18	0-3	3
		100	0	21.08	21.16	21.13	0-3	3
	256QAM	1	0	19.19	18.99	19.14	0-5	5
		1	49	18.83	18.95	18.96	0-5	5
		1	99	19.12	19.24	19.16	0-5	5
		50	0	19.00	18.92	19.07	0-5	5
		50	25	18.96	19.08	19.08	0-5	5
		50	49	18.92	19.11	19.10	0-5	5
		100	0	18.94	19.03	19.05	0-5	5

LTE FDD Band 4 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 4 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20050 ch. 1720 ㎒	20175 ch. 1732.5 ㎒	20300 ch. 1 745 ㎒		
20 ㎒	QPSK	1	0	12.06	11.93	12.05	0	0
		1	49	12.06	12.15	12.17	0	0
		1	99	12.02	12.16	12.10	0	0
		50	0	12.03	11.93	12.13	0-1	0
		50	25	11.96	12.11	12.09	0-1	0
		50	49	11.97	12.17	12.11	0-1	0
		100	0	11.96	12.08	12.11	0-1	0
	16QAM	1	0	12.40	12.07	12.28	0-1	0
		1	49	12.30	12.35	12.41	0-1	0
		1	99	12.38	12.51	12.42	0-1	0
		50	0	12.01	11.95	12.08	0-2	0
		50	25	11.96	12.05	12.08	0-2	0
		50	49	11.93	12.14	12.08	0-2	0
		100	0	11.98	12.07	12.10	0-2	0
	64QAM	1	0	12.20	12.05	12.21	0-2	0
		1	49	12.10	12.34	12.33	0-2	0
		1	99	12.12	12.29	12.28	0-2	0
		50	0	12.01	11.91	12.10	0-3	0
		50	25	11.97	12.10	12.07	0-3	0
		50	49	11.99	12.19	12.08	0-3	0
		100	0	11.98	12.06	12.03	0-3	0
	256QAM	1	0	12.20	11.94	12.15	0-5	0
		1	49	11.78	11.94	11.89	0-5	0
		1	99	12.10	12.26	12.17	0-5	0
		50	0	11.99	11.92	12.09	0-5	0
		50	25	11.96	12.09	12.07	0-5	0
		50	49	11.94	12.15	12.12	0-5	0
		100	0	11.98	12.07	12.05	0-5	0

LTE FDD Band 4 Conducted Power _ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

LTE FDD Band 4 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20050 ch. 1720 ㎒	20175 ch. 1732.5 ㎒	20300 ch. 1 745 ㎒		
20 ㎒	QPSK	1	0	20.20	20.12	20.35	0	0
		1	49	20.24	20.13	20.47	0	0
		1	99	20.30	20.43	20.34	0	0
		50	0	20.23	20.28	20.37	0-1	0
		50	25	20.21	20.38	20.34	0-1	0
		50	49	20.23	20.48	20.34	0-1	0
		100	0	20.24	20.39	20.33	0-1	0
	16QAM	1	0	20.59	20.42	20.64	0-1	0
		1	49	20.58	20.69	20.59	0-1	0
		1	99	20.60	20.67	20.62	0-1	0
		50	0	20.30	20.24	20.37	0-2	0
		50	25	20.23	20.34	20.35	0-2	0
		50	49	20.21	20.39	20.29	0-2	0
		100	0	20.27	20.40	20.34	0-2	0
	64QAM	1	0	20.54	20.34	20.50	0-2	0
		1	49	20.43	20.54	20.56	0-2	0
		1	99	20.54	20.61	20.52	0-2	0
		50	0	20.29	20.25	20.39	0-3	0
		50	25	20.25	20.38	20.35	0-3	0
		50	49	20.26	20.44	20.33	0-3	0
		100	0	20.26	20.38	20.35	0-3	0
	256QAM	1	0	19.12	18.86	19.00	0-5	0
		1	49	18.70	18.89	19.12	0-5	0
		1	99	19.05	19.15	19.06	0-5	0
		50	0	18.91	18.85	19.01	0-5	0
		50	25	18.90	18.98	18.97	0-5	0
		50	49	18.88	19.05	18.98	0-5	0
		100	0	18.84	19.00	18.97	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),_ Antenna Main1

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]
				20450	20525	20600		
				829 MHz	836.5 MHz	844 MHz		
10 MHz	QPSK	1	0	24.49	24.55	24.39	0	0
		1	24	24.59	24.55	24.33	0	0
		1	49	24.49	24.35	24.04	0	0
		25	0	23.54	23.62	23.37	0-1	1
		25	12	23.56	23.53	23.27	0-1	1
		25	24	23.58	23.44	23.16	0-1	1
		50	0	23.53	23.51	23.28	0-1	1
	16QAM	1	0	23.73	23.69	23.62	0-1	1
		1	24	23.84	23.67	23.58	0-1	1
		1	49	23.71	23.51	23.31	0-1	1
		25	0	22.58	22.54	22.35	0-2	2
		25	12	22.54	22.46	22.23	0-2	2
		25	24	22.54	22.45	22.15	0-2	2
		50	0	22.56	22.52	22.23	0-2	2
	64QAM	1	0	22.61	22.69	22.62	0-2	2
		1	24	22.82	22.67	22.59	0-2	2
		1	49	22.72	22.55	22.28	0-2	2
		25	0	21.52	21.55	21.34	0-3	3
		25	12	21.54	21.46	21.22	0-3	3
		25	24	21.52	21.38	21.11	0-3	3
		50	0	21.54	21.54	21.24	0-3	3
	256QAM	1	0	19.66	19.66	19.53	0-5	5
		1	24	19.39	19.33	19.07	0-5	5
		1	49	19.55	19.43	19.23	0-5	5
		25	0	19.51	19.51	19.31	0-5	5
		25	12	19.49	19.48	19.22	0-5	5
		25	24	19.49	19.38	19.13	0-5	5
		50	0	19.53	19.47	19.21	0-5	5

LTE FDD Band 5 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 5 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20450	20525	20600		
				829 ㎒	836.5 ㎒	844 ㎒		
10 ㎒	QPSK	1	0	14.62	14.80	14.57	0	0
		1	24	14.82	14.74	14.50	0	0
		1	49	14.69	14.53	14.33	0	0
		25	0	14.61	14.68	14.46	0-1	0
		25	12	14.65	14.55	14.29	0-1	0
		25	24	14.62	14.55	14.16	0-1	0
		50	0	14.65	14.58	14.31	0-1	0
	16QAM	1	0	14.91	14.86	14.90	0-1	0
		1	24	14.80	14.94	14.92	0-1	0
		1	49	14.92	14.90	14.62	0-1	0
		25	0	14.71	14.67	14.52	0-2	0
		25	12	14.63	14.62	14.37	0-2	0
		25	24	14.68	14.55	14.30	0-2	0
		50	0	14.69	14.67	14.40	0-2	0
	64QAM	1	0	14.81	14.83	14.88	0-2	0
		1	24	14.94	14.87	14.77	0-2	0
		1	49	14.82	14.59	14.49	0-2	0
		25	0	14.72	14.69	14.43	0-3	0
		25	12	14.73	14.63	14.40	0-3	0
		25	24	14.70	14.60	14.34	0-3	0
		50	0	14.77	14.71	14.49	0-3	0
	256QAM	1	0	14.82	14.87	14.74	0-5	0
		1	24	14.60	14.59	14.40	0-5	0
		1	49	14.92	14.61	14.50	0-5	0
		25	0	14.74	14.66	14.56	0-5	0
		25	12	14.65	14.57	14.35	0-5	0
		25	24	14.69	14.52	14.36	0-5	0
		50	0	14.72	14.58	14.51	0-5	0

LTE FDD Band 5 Conducted Power _ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

LTE FDD Band 5 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				20450	20525	20600		
				829 ㎒	836.5 ㎒	844 ㎒		
10 ㎒	QPSK	1	0	22.56	22.58	22.47	0	0
		1	24	22.74	22.42	22.41	0	0
		1	49	22.56	22.43	22.20	0	0
		25	0	22.61	22.62	22.39	0-1	0
		25	12	22.60	22.54	22.33	0-1	0
		25	24	22.58	22.50	22.25	0-1	0
		50	0	22.62	22.54	22.32	0-1	0
	16QAM	1	0	22.81	22.91	22.67	0-1	0
		1	24	22.84	22.83	22.60	0-1	0
		1	49	22.81	22.63	22.48	0-1	0
		25	0	22.42	22.39	22.18	0-2	0
		25	12	22.39	22.34	22.04	0-2	0
		25	24	22.40	22.26	22.02	0-2	0
		50	0	22.37	22.36	22.08	0-2	0
	64QAM	1	0	22.57	22.61	22.41	0-2	0
		1	24	22.67	22.50	22.37	0-2	0
		1	49	22.48	22.32	22.17	0-2	0
		25	0	21.39	21.39	21.14	0-3	1
		25	12	21.37	21.29	21.08	0-3	1
		25	24	21.43	21.20	21.03	0-3	1
		50	0	21.43	21.32	21.13	0-3	1
	256QAM	1	0	19.44	19.49	19.35	0-5	3
		1	24	19.23	19.33	18.88	0-5	3
		1	49	19.47	19.26	18.99	0-5	3
		25	0	19.41	19.33	19.09	0-5	3
		25	12	19.37	19.30	19.04	0-5	3
		25	24	19.35	19.22	19.01	0-5	3
		50	0	19.37	19.28	19.09	0-5	3

11.2.4 LTE FDD Band 12 Maximum Conducted Output Power

LTE FDD Band 12 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE FDD Band 12 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.84	0	0
		1	24	23.86	0	0
		1	49	23.73	0	0
		25	0	22.83	0-1	1
		25	12	22.76	0-1	1
		25	24	22.78	0-1	1
		50	0	22.84	0-1	1
	16QAM	1	0	23.04	0-1	1
		1	24	23.03	0-1	1
		1	49	23.04	0-1	1
		25	0	21.79	0-2	2
		25	12	21.73	0-2	2
		25	24	21.78	0-2	2
		50	0	21.80	0-2	2
	64QAM	1	0	21.98	0-2	2
		1	24	22.06	0-2	2
		1	49	21.86	0-2	2
		25	0	20.79	0-3	3
		25	12	20.78	0-3	3
		25	24	20.77	0-3	3
		50	0	20.75	0-3	3
	256QAM	1	0	18.93	0-5	5
		1	24	18.61	0-5	5
		1	49	18.86	0-5	5
		25	0	18.78	0-5	5
		25	12	18.76	0-5	5
		25	24	18.76	0-5	5
		50	0	18.77	0-5	5

LTE FDD Band 12 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 12 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23095 Ch. 707.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	15.25	0	0
		1	24	15.32	0	0
		1	49	15.21	0	0
		25	0	15.21	0-1	0
		25	12	15.17	0-1	0
		25	24	15.18	0-1	0
		50	0	15.19	0-1	0
	16QAM	1	0	15.54	0-1	0
		1	24	15.61	0-1	0
		1	49	15.54	0-1	0
		25	0	15.20	0-2	0
		25	12	15.16	0-2	0
		25	24	15.14	0-2	0
		50	0	15.19	0-2	0
	64QAM	1	0	15.46	0-2	0
		1	24	15.54	0-2	0
		1	49	15.38	0-2	0
		25	0	15.20	0-3	0
		25	12	15.15	0-3	0
		25	24	15.17	0-3	0
		50	0	15.21	0-3	0
	256QAM	1	0	15.38	0-5	0
		1	24	15.08	0-5	0
		1	49	15.29	0-5	0
		25	0	15.19	0-5	0
		25	12	15.21	0-5	0
		25	24	15.18	0-5	0
		50	0	15.19	0-5	0

11.2.5 LTE FDD Band 13 Maximum Conducted Output Power

LTE FDD Band 13 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE FDD Band 13 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	23.49	0	0
		1	24	23.55	0	0
		1	49	23.54	0	0
		25	0	22.55	0-1	1
		25	12	22.54	0-1	1
		25	24	22.57	0-1	1
		50	0	22.61	0-1	1
	16QAM	1	0	22.72	0-1	1
		1	24	22.66	0-1	1
		1	49	22.69	0-1	1
		25	0	21.51	0-2	2
		25	12	21.53	0-2	2
		25	24	21.54	0-2	2
		50	0	21.53	0-2	2
	64QAM	1	0	21.69	0-2	2
		1	24	21.80	0-2	2
		1	49	21.68	0-2	2
		25	0	20.56	0-3	3
		25	12	20.50	0-3	3
		25	24	20.53	0-3	3
		50	0	20.56	0-3	3
	256QAM	1	0	18.67	0-5	5
		1	24	18.38	0-5	5
		1	49	18.67	0-5	5
		25	0	18.50	0-5	5
		25	12	18.54	0-5	5
		25	24	18.55	0-5	5
		50	0	18.57	0-5	5

LTE FDD Band 13 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 13 _ 10 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 23230 Ch. 782 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
10 ㎒	QPSK	1	0	13.63	0	0
		1	24	13.65	0	0
		1	49	13.60	0	0
		25	0	13.54	0-1	0
		25	12	13.53	0-1	0
		25	24	13.51	0-1	0
		50	0	13.55	0-1	0
	16QAM	1	0	13.99	0-1	0
		1	24	13.99	0-1	0
		1	49	14.10	0-1	0
		25	0	13.61	0-2	0
		25	12	13.58	0-2	0
		25	24	13.60	0-2	0
		50	0	13.62	0-2	0
	64QAM	1	0	13.86	0-2	0
		1	24	14.02	0-2	0
		1	49	13.89	0-2	0
		25	0	13.49	0-3	0
		25	12	13.54	0-3	0
		25	24	13.63	0-3	0
		50	0	13.63	0-3	0
	256QAM	1	0	13.86	0-5	0
		1	24	13.53	0-5	0
		1	49	13.84	0-5	0
		25	0	13.58	0-5	0
		25	12	13.57	0-5	0
		25	24	13.58	0-5	0
		50	0	13.63	0-5	0

11.2.6 LTE FDD Band 25 Maximum Conducted Output Power

LTE FDD Band 25 Conducted Power_ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

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	23.66	23.82	23.67	0	0
		1	49	23.63	23.86	23.95	0	0
		1	99	23.72	23.65	23.83	0	0
		50	0	22.58	22.85	22.87	0-1	1
		50	25	22.52	22.76	22.86	0-1	1
		50	49	22.61	22.68	22.85	0-1	1
		100	0	22.51	22.76	22.89	0-1	1
	16QAM	1	0	22.89	23.04	23.01	0-1	1
		1	49	22.80	22.97	23.13	0-1	1
		1	99	23.07	22.94	23.16	0-1	1
		50	0	21.57	21.83	21.84	0-2	2
		50	25	21.50	21.75	21.85	0-2	2
		50	49	21.60	21.64	21.78	0-2	2
		100	0	21.51	21.74	21.87	0-2	2
	64QAM	1	0	21.77	21.98	21.82	0-2	2
		1	49	21.63	21.92	22.05	0-2	2
		1	99	21.92	21.79	22.04	0-2	2
		50	0	20.56	20.83	20.85	0-3	3
		50	25	20.50	20.71	20.85	0-3	3
		50	49	20.56	20.64	20.79	0-3	3
		100	0	20.46	20.67	20.84	0-3	3
	256QAM	1	0	18.64	18.83	18.64	0-5	5
		1	49	18.26	18.46	18.59	0-5	5
		1	99	18.75	18.62	18.71	0-5	5
		50	0	18.44	18.69	18.68	0-5	5
		50	25	18.40	18.61	18.75	0-5	5
		50	49	18.49	18.56	18.68	0-5	5
		100	0	18.36	18.60	18.70	0-5	5

LTE FDD Band 25 Conducted Power_ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 25 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 ㎒	26365 Ch. 1882.5 ㎒	26590 Ch. 1905 ㎒		
20 ㎒	QPSK	1	0	11.83	11.98	11.88	0	0
		1	49	11.75	11.98	12.12	0	0
		1	99	11.92	11.85	12.02	0	0
		50	0	11.78	12.01	12.04	0-1	0
		50	25	11.70	11.94	12.07	0-1	0
		50	49	11.79	11.86	12.02	0-1	0
		100	0	11.70	11.92	12.06	0-1	0
	16QAM	1	0	12.11	12.23	12.00	0-1	0
		1	49	11.86	12.21	12.23	0-1	0
		1	99	12.14	12.10	12.34	0-1	0
		50	0	11.73	11.97	12.00	0-2	0
		50	25	11.65	11.90	12.02	0-2	0
		50	49	11.75	11.84	11.95	0-2	0
		100	0	11.70	11.89	12.02	0-2	0
	64QAM	1	0	11.93	12.15	11.97	0-2	0
		1	49	11.92	12.12	12.23	0-2	0
		1	99	12.05	12.00	12.16	0-2	0
		50	0	11.73	11.95	12.01	0-3	0
		50	25	11.67	11.91	12.00	0-3	0
		50	49	11.77	11.83	11.98	0-3	0
		100	0	11.65	11.87	11.98	0-3	0
	256QAM	1	0	11.89	12.07	11.93	0-5	0
		1	49	11.51	11.73	11.83	0-5	0
		1	99	12.03	11.91	12.08	0-5	0
		50	0	11.74	11.99	12.00	0-5	0
		50	25	11.70	11.90	12.06	0-5	0
		50	49	11.80	11.89	11.99	0-5	0
		100	0	11.70	11.88	12.03	0-5	0

LTE FDD Band 25 Conducted Power_ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

LTE FDD Band 25 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				26140 Ch. 1860 ㎒	26365 Ch. 1882.5 ㎒	26590 Ch. 1905 ㎒		
20 ㎒	QPSK	1	0	17.85	18.12	17.92	0	0
		1	49	17.83	18.10	18.21	0	0
		1	99	18.03	17.94	18.12	0	0
		50	0	17.82	18.08	18.13	0-1	0
		50	25	17.76	18.01	18.16	0-1	0
		50	49	17.85	17.97	18.10	0-1	0
		100	0	17.78	18.02	18.10	0-1	0
	16QAM	1	0	18.19	18.39	18.13	0-1	0
		1	49	18.14	18.23	18.32	0-1	0
		1	99	18.27	18.11	18.42	0-1	0
		50	0	17.82	18.05	18.07	0-2	0
		50	25	17.73	17.97	18.09	0-2	0
		50	49	17.81	17.89	18.08	0-2	0
		100	0	17.77	18.00	18.14	0-2	0
	64QAM	1	0	18.09	18.21	18.08	0-2	0
		1	49	18.01	18.29	18.32	0-2	0
		1	99	18.18	18.10	18.24	0-2	0
		50	0	17.82	18.07	18.10	0-3	0
		50	25	17.73	18.02	18.16	0-3	0
		50	49	17.86	17.92	18.09	0-3	0
		100	0	17.78	17.99	18.07	0-3	0
	256QAM	1	0	18.03	18.21	18.04	0-5	0
		1	49	17.55	17.81	17.96	0-5	0
		1	99	18.12	18.01	18.19	0-5	0
		50	0	17.82	18.05	18.09	0-5	0
		50	25	17.77	17.98	18.13	0-5	0
		50	49	17.86	17.94	18.08	0-5	0
		100	0	17.80	17.99	18.08	0-5	0

11.2.7 LTE FDD Band 26 Maximum Conducted Output Power

LTE FDD Band 26 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	24.53	0	0
		1	36	24.35	0	0
		1	74	24.43	0	0
		36	0	23.60	0-1	1
		36	18	23.59	0-1	1
		36	39	23.58	0-1	1
		75	0	23.63	0-1	1
	16QAM	1	0	23.78	0-1	1
		1	36	23.90	0-1	1
		1	74	23.65	0-1	1
		36	0	22.63	0-2	2
		36	18	22.59	0-2	2
		36	39	22.55	0-2	2
		75	0	22.61	0-2	2
	64QAM	1	0	22.73	0-2	2
		1	36	22.73	0-2	2
		1	74	22.55	0-2	2
		36	0	21.62	0-3	3
		36	18	21.60	0-3	3
		36	39	21.56	0-3	3
		75	0	21.58	0-3	3
	256QAM	1	0	19.69	0-5	5
		1	36	19.64	0-5	5
		1	74	19.53	0-5	5
		36	0	19.59	0-5	5
		36	18	19.57	0-5	5
		36	39	19.51	0-5	5
		75	0	19.59	0-5	5

LTE FDD Band 26 Conducted Power _ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	14.64	0	0
		1	36	14.53	0	0
		1	74	14.61	0	0
		36	0	14.70	0-1	0
		36	18	14.65	0-1	0
		36	39	14.69	0-1	0
		75	0	14.65	0-1	0
	16QAM	1	0	14.85	0-1	0
		1	36	14.97	0-1	0
		1	74	14.81	0-1	0
		36	0	14.76	0-2	0
		36	18	14.75	0-2	0
		36	39	14.71	0-2	0
		75	0	14.69	0-2	0
	64QAM	1	0	14.82	0-2	0
		1	36	14.95	0-2	0
		1	74	14.87	0-2	0
		36	0	14.79	0-3	0
		36	18	14.82	0-3	0
		36	39	14.77	0-3	0
		75	0	14.84	0-3	0
	256QAM	1	0	14.91	0-5	0
		1	36	14.89	0-5	0
		1	74	14.80	0-5	0
		36	0	14.78	0-5	0
		36	18	14.77	0-5	0
		36	39	14.70	0-5	0
		75	0	14.81	0-5	0

LTE FDD Band 26 Conducted Power _ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

LTE FDD Band 26 _ 15 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 26865 Ch. 831.5 ㎒	MPR Allowed Per 3GPP [dB]	MPR [dB]
15 ㎒	QPSK	1	0	22.55	0	0
		1	36	22.72	0	0
		1	74	22.45	0	0
		36	0	22.64	0-1	0
		36	18	22.66	0-1	0
		36	39	22.59	0-1	0
		75	0	22.63	0-1	0
	16QAM	1	0	22.92	0-1	0
		1	36	22.83	0-1	0
		1	74	22.73	0-1	0
		36	0	22.43	0-2	0
		36	18	22.40	0-2	0
		36	39	22.32	0-2	0
		75	0	22.43	0-2	0
	64QAM	1	0	22.51	0-2	0
		1	36	22.60	0-2	0
		1	74	22.46	0-2	0
		36	0	21.43	0-3	1
		36	18	21.43	0-3	1
		36	39	21.39	0-3	1
		75	0	21.40	0-3	1
	256QAM	1	0	19.46	0-5	3
		1	36	19.60	0-5	3
		1	74	19.32	0-5	3
		36	0	19.37	0-5	3
		36	18	19.34	0-5	3
		36	39	19.37	0-5	3
		75	0	19.41	0-5	3

11.2.8 LTE TDD Band 41 Maximum Conducted Output Power

LTE TDD Band 41 Conducted Power _ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	23.43	23.13	23.45	23.37	23.45	0	0
		1	49	23.23	23.16	23.49	23.19	23.47	0	0
		1	99	23.15	23.28	23.62	23.14	23.58	0	0
		50	0	22.36	22.16	22.48	22.31	22.48	0-1	1
		50	25	22.30	22.20	22.52	22.22	22.45	0-1	1
		50	49	22.21	22.21	22.53	22.16	22.45	0-1	1
		100	0	22.31	22.20	22.52	22.27	22.47	0-1	1
	16QAM	1	0	22.63	22.37	22.67	22.60	22.64	0-1	1
		1	49	22.48	22.37	22.69	22.47	22.63	0-1	1
		1	99	22.36	22.48	22.76	22.29	22.75	0-1	1
		50	0	21.40	21.21	21.52	21.34	21.46	0-2	2
		50	25	21.33	21.24	21.56	21.30	21.53	0-2	2
		50	49	21.25	21.26	21.58	21.19	21.57	0-2	2
		100	0	21.36	21.25	21.58	21.36	21.55	0-2	2
	64QAM	1	0	21.39	21.12	21.42	21.33	21.35	0-2	2
		1	49	21.13	21.05	21.36	21.13	21.32	0-2	2
		1	99	21.08	21.21	21.49	21.06	21.45	0-2	2
		50	0	20.44	20.24	20.58	20.38	20.53	0-3	3
		50	25	20.39	20.28	20.63	20.32	20.58	0-3	3
		50	49	20.29	20.29	20.62	20.27	20.60	0-3	3
		100	0	20.35	20.24	20.57	20.31	20.55	0-3	3
	256QAM	1	0	18.42	18.13	18.45	18.37	18.39	0-5	5
		1	49	18.28	18.17	18.51	18.24	18.49	0-5	5
		1	99	18.10	18.22	18.51	18.08	18.44	0-5	5
		50	0	18.44	18.25	18.58	18.40	18.57	0-5	5
		50	25	18.38	18.29	18.62	18.37	18.57	0-5	5
		50	49	18.30	18.30	18.63	18.29	18.61	0-5	5
		100	0	18.33	18.24	18.57	18.25	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)_ Antenna Main1

LTE TDD Band 41 _ 20 ㎒ Bandwidth Conducted Power

Band width	Modulation	RB Size	RB Offset	Max. Average Power [dBm]					MPR Allowed Per 3GPP [dB]	MPR [dB]
				39750 Ch. 2506.0 ㎒	40185 Ch. 2549.5 ㎒	40620 Ch. 2593.0 ㎒	41055 Ch. 2636.5 ㎒	41490 Ch. 2680.0 ㎒		
20 ㎒	QPSK	1	0	12.24	11.96	12.28	12.23	12.05	0	0
		1	49	12.02	11.94	12.27	12.07	12.01	0	0
		1	99	11.94	12.07	12.36	12.07	12.08	0	0
		50	0	12.19	11.99	12.32	12.19	12.06	0-1	0
		50	25	12.11	12.03	12.35	12.16	12.08	0-1	0
		50	49	12.02	12.03	12.37	12.11	12.09	0-1	0
		100	0	12.12	12.02	12.37	12.17	12.08	0-1	0
	16QAM	1	0	12.40	12.14	12.46	12.40	12.22	0-1	0
		1	49	12.20	12.11	12.44	12.26	12.15	0-1	0
		1	99	12.12	12.25	12.55	12.25	12.25	0-1	0
		50	0	12.19	11.99	12.33	12.20	12.07	0-2	0
		50	25	12.13	12.04	12.37	12.18	12.10	0-2	0
		50	49	12.05	12.05	12.39	12.14	12.11	0-2	0
		100	0	12.15	12.05	12.40	12.21	12.12	0-2	0
	64QAM	1	0	12.13	11.87	12.18	12.13	11.96	0-2	0
		1	49	11.89	11.80	12.13	11.95	11.88	0-2	0
		1	99	11.83	11.96	12.26	11.97	11.97	0-2	0
		50	0	12.23	12.03	12.38	12.26	12.11	0-3	0
		50	25	12.18	12.10	12.43	12.24	12.15	0-3	0
		50	49	12.08	12.09	12.42	12.17	12.15	0-3	0
		100	0	12.13	12.04	12.39	12.18	12.10	0-3	0
	256QAM	1	0	12.20	11.93	12.25	12.19	12.01	0-5	0
		1	49	12.04	11.95	12.28	12.10	11.99	0-5	0
		1	99	11.88	12.01	12.31	12.02	12.02	0-5	0
		50	0	12.25	12.05	12.40	12.27	12.14	0-5	0
		50	25	12.18	12.10	12.43	12.23	12.16	0-5	0
		50	49	12.09	12.12	12.45	12.19	12.17	0-5	0
		100	0	12.12	12.05	12.40	12.19	12.12	0-5	0

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

11.2.9 LTE FDD Band 66 Maximum Conducted Output Power

LTE FDD Band 66 Conducted Power_ Measured *Pmax*, RSI=0(Free)_ Antenna Main1

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	24.00	24.01	23.88	0	0
		1	49	24.03	24.18	24.20	0	0
		1	99	24.02	24.11	24.18	0	0
		50	0	23.04	23.09	23.00	0-1	1
		50	25	22.95	23.12	23.17	0-1	1
		50	49	22.94	23.10	23.27	0-1	1
		100	0	23.00	23.09	23.16	0-1	1
	16QAM	1	0	23.26	23.26	23.12	0-1	1
		1	49	23.30	23.30	23.38	0-1	1
		1	99	23.30	23.39	23.45	0-1	1
		50	0	22.03	22.11	21.98	0-2	2
		50	25	21.98	22.06	22.10	0-2	2
		50	49	21.93	22.10	22.23	0-2	2
		100	0	21.97	22.10	22.13	0-2	2
	64QAM	1	0	22.22	22.07	22.04	0-2	2
		1	49	22.18	22.25	22.22	0-2	2
		1	99	22.09	22.28	22.37	0-2	2
		50	0	21.03	21.10	20.97	0-3	3
		50	25	20.93	21.09	21.13	0-3	3
		50	49	20.92	21.08	21.22	0-3	3
		100	0	20.94	21.06	21.11	0-3	3
	256QAM	1	0	19.06	19.07	18.89	0-5	5
		1	49	18.74	18.88	18.90	0-5	5
		1	99	18.97	19.12	19.15	0-5	5
		50	0	18.90	18.98	18.87	0-5	5
		50	25	18.83	18.98	19.00	0-5	5
		50	49	18.85	19.00	19.16	0-5	5
		100	0	18.85	18.97	19.01	0-5	5

LTE FDD Band 66 Conducted Power_ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	12.11	12.13	12.01	0	0
		1	49	12.07	12.26	12.29	0	0
		1	99	12.09	12.21	12.28	0	0
		50	0	12.12	12.16	12.08	0-1	0
		50	25	12.07	12.18	12.23	0-1	0
		50	49	12.03	12.19	12.29	0-1	0
		100	0	12.01	12.17	12.27	0-1	0
	16QAM	1	0	12.38	12.33	12.13	0-1	0
		1	49	12.33	12.43	12.44	0-1	0
		1	99	12.36	12.41	12.55	0-1	0
		50	0	12.04	12.19	12.02	0-2	0
		50	25	12.00	12.15	12.18	0-2	0
		50	49	12.00	12.16	12.28	0-2	0
		100	0	12.04	12.15	12.22	0-2	0
	64QAM	1	0	12.32	12.28	12.16	0-2	0
		1	49	12.25	12.42	12.45	0-2	0
		1	99	12.25	12.26	12.44	0-2	0
		50	0	12.12	12.15	12.04	0-3	0
		50	25	12.03	12.17	12.21	0-3	0
		50	49	12.00	12.18	12.32	0-3	0
		100	0	11.99	12.15	12.19	0-3	0
	256QAM	1	0	12.18	12.22	12.09	0-5	0
		1	49	11.82	11.93	12.05	0-5	0
		1	99	12.18	12.23	12.35	0-5	0
		50	0	12.08	12.14	12.05	0-5	0
		50	25	12.02	12.16	12.20	0-5	0
		50	49	12.03	12.19	12.31	0-5	0
		100	0	12.04	12.14	12.21	0-5	0

LTE FDD Band 66 Conducted Power_ Measured RSI =1, 3(Grip Sensor #1, #3) _ Antenna Main1

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	20.32	20.37	20.19	0	0
		1	49	20.30	20.52	20.55	0	0
		1	99	20.28	20.40	20.50	0	0
		50	0	20.28	20.43	20.31	0-1	0
		50	25	20.26	20.40	20.50	0-1	0
		50	49	20.21	20.43	20.59	0-1	0
		100	0	20.26	20.42	20.49	0-1	0
	16QAM	1	0	20.63	20.68	20.45	0-1	0
		1	49	20.55	20.68	20.78	0-1	0
		1	99	20.58	20.72	20.82	0-1	0
		50	0	20.29	20.37	20.30	0-2	0
		50	25	20.27	20.40	20.44	0-2	0
		50	49	20.24	20.40	20.55	0-2	0
		100	0	20.27	20.39	20.49	0-2	0
	64QAM	1	0	20.57	20.54	20.35	0-2	0
		1	49	20.40	20.53	20.53	0-2	0
		1	99	20.49	20.57	20.65	0-2	0
		50	0	20.35	20.44	20.32	0-3	0
		50	25	20.27	20.42	20.46	0-3	0
		50	49	20.27	20.40	20.55	0-3	0
		100	0	20.27	20.42	20.47	0-3	0
	256QAM	1	0	19.06	19.04	18.87	0-5	1
		1	49	18.70	18.86	18.86	0-5	1
		1	99	18.97	19.07	19.11	0-5	1
		50	0	18.85	18.97	18.82	0-5	1
		50	25	18.83	18.95	19.01	0-5	1
		50	49	18.80	18.95	19.09	0-5	1
		100	0	18.83	18.91	19.00	0-5	1

LTE FDD Band 66 Conducted Power_ Measured *Pmax*, RSI=0(Free)_ Antenna Sub1

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	22.91	23.09	23.08	0	0
		1	49	22.77	22.59	22.98	0	0
		1	99	22.86	22.89	23.05	0	0
		50	0	21.95	22.14	22.10	0-1	1
		50	25	21.91	21.80	22.06	0-1	1
		50	49	21.96	21.92	22.13	0-1	1
		100	0	21.93	21.98	22.11	0-1	1
	16QAM	1	0	22.17	22.15	22.40	0-1	1
		1	49	22.15	22.16	22.43	0-1	1
		1	99	22.18	22.17	22.37	0-1	1
		50	0	21.05	20.94	21.13	0-2	2
		50	25	21.09	21.01	21.25	0-2	2
		50	49	21.09	20.95	21.17	0-2	2
		100	0	21.06	20.99	21.20	0-2	2
	64QAM	1	0	21.12	21.05	21.21	0-2	2
		1	49	21.01	21.01	21.14	0-2	2
		1	99	21.06	21.16	21.23	0-2	2
		50	0	19.98	19.92	20.08	0-3	3
		50	25	20.05	19.86	20.09	0-3	3
		50	49	19.90	19.87	20.11	0-3	3
		100	0	19.96	19.88	20.10	0-3	3
	256QAM	1	0	18.02	17.92	18.02	0-5	5
		1	49	17.90	17.84	17.99	0-5	5
		1	99	18.01	17.95	18.15	0-5	5
		50	0	17.94	17.96	18.10	0-5	5
		50	25	17.90	17.87	18.08	0-5	5
		50	49	17.96	17.93	18.05	0-5	5
		100	0	17.93	17.90	18.10	0-5	5

LTE FDD Band 66 Conducted Power_ Measured RSI =5(Grip Sensor #5)_ Antenna Sub1

LTE FDD Band 66 _ 20 ㎒ Bandwidth Conducted Power

Bandwidth	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR Allowed Per 3GPP [dB]	MPR [dB]
				132072 Ch. 1720 ㎒	132322 Ch. 1745 ㎒	132572 Ch. 1770 ㎒		
20 ㎒	QPSK	1	0	10.87	11.09	10.82	0	0
		1	49	10.92	10.96	11.00	0	0
		1	99	10.79	10.98	11.08	0	0
		50	0	10.84	11.02	10.85	0-1	0
		50	25	10.86	10.87	10.94	0-1	0
		50	49	10.79	10.94	11.00	0-1	0
		100	0	10.86	10.86	10.96	0-1	0
	16QAM	1	0	11.11	10.93	11.13	0-1	0
		1	49	11.16	11.13	11.25	0-1	0
		1	99	11.01	11.29	11.35	0-1	0
		50	0	10.81	10.77	10.80	0-2	0
		50	25	10.77	10.83	10.88	0-2	0
		50	49	10.75	10.92	10.98	0-2	0
		100	0	10.83	10.84	10.94	0-2	0
	64QAM	1	0	11.03	10.85	10.94	0-2	0
		1	49	11.09	11.06	11.17	0-2	0
		1	99	10.99	11.15	11.28	0-2	0
		50	0	10.82	10.79	10.86	0-3	0
		50	25	10.83	10.84	10.92	0-3	0
		50	49	10.78	10.91	11.02	0-3	0
		100	0	10.84	10.84	10.90	0-3	0
	256QAM	1	0	10.91	10.83	10.94	0-5	0
		1	49	10.63	10.71	10.73	0-5	0
		1	99	10.91	11.05	11.13	0-5	0
		50	0	10.81	10.77	10.84	0-5	0
		50	25	10.86	10.87	10.92	0-5	0
		50	49	10.82	10.93	10.97	0-5	0
		100	0	10.82	10.84	10.95	0-5	0

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 n5 Maximum Conducted Power

NR FDD Band n5 Conducted Power_ Measured *Pmax*, RSI=0(Free) _ Antenna Main1

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 167300 836.5 ㎒	MPR [dB]
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	24.22	0
				1	53	24.16	0
				1	104	23.80	0
				50	0	23.74	0.5
				50	28	24.15	0
				50	56	23.45	0.5
				100	0	23.68	0.5
			QPSK	1	1	24.28	0
				1	53	24.23	0
				1	104	23.85	0
				50	0	23.24	1
				50	28	24.17	0
				50	56	22.96	1
				100	0	23.20	1
			16QAM	1	1	23.22	1
			64QAM	1	1	21.64	2.5
			256QAM	1	1	19.72	4.5
		CP	QPSK	1	1	22.74	1.5

NR FDD Band n5 Conducted Power_ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 167300 836.5 ㎒	MPR [dB]
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	14.28	0
				1	53	14.18	0
				1	104	13.80	0
				50	0	14.21	0
				50	28	14.12	0
				50	56	13.95	0
				100	0	14.21	0
			QPSK	1	1	14.31	0
				1	53	14.32	0
				1	104	13.87	0
				50	0	14.27	0
				50	28	14.18	0
				50	56	13.98	0
				100	0	14.19	0
			16QAM	1	1	14.32	0
			64QAM	1	1	14.28	0
			256QAM	1	1	14.17	0
		CP	QPSK	1	1	14.23	0

NR FDD Band n5 Conducted Power_ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

NR FDD Band n5_ 20 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 167300 836.5 ㎒	MPR [dB]
20 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	22.14	0
				1	53	22.08	0
				1	104	21.70	0
				50	0	22.16	0
				50	28	22.03	0
				50	56	21.85	0
				100	0	22.06	0
			QPSK	1	1	22.18	0
				1	53	22.13	0
				1	104	21.72	0
				50	0	22.15	0
				50	28	22.05	0
				50	56	21.86	0
				100	0	22.06	0
			16QAM	1	1	22.13	0
			64QAM	1	1	21.72	0.5
			256QAM	1	1	19.71	2.5
		CP	QPSK	1	1	22.09	0

11.3.2. NR TDD Band n41 Maximum Conducted Power

NR TDD Band n41 Conducted Power_ Measured *Pmax* _ Antenna Main1

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			23.21			0
				1	137			24.07			0
				1	271			23.52			0
				135	0			23.27			0.5
				135	69			24.12			0
				135	138			23.23			0.5
				270	0			23.48			0.5
			QPSK	1	1			23.59			0
				1	137			24.11			0
				1	271			23.71			0
				135	0			22.81			1
				135	69			24.15			0
				135	138			23.04			1
				270	0			23.13			1
			16QAM	1	1			22.44			1
			64QAM	1	1			21.20			2.5
			256QAM	1	1			18.68			4.5
		CP	QPSK	1	1			21.80			1.5

NR TDD Band n41 Conducted Power_ Measured RSI = 0 (Free)_ Antenna Main1

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			18.49			0
				1	137			18.93			0
				1	271			18.65			0
				135	0			18.59			0
				135	69			18.91			0
				135	138			18.77			0
				270	0			18.88			0
			QPSK	1	1			18.50			0
				1	137			18.94			0
				1	271			18.66			0
				135	0			18.60			0
				135	69			18.90			0
				135	138			18.76			0
				270	0			18.89			0
			16QAM	1	1			18.47			0
			64QAM	1	1			18.45			0
			256QAM	1	1			18.35			0
		CP	QPSK	1	1			18.21			0

NR TDD Band n41 Conducted Power_ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

NR TDD Band n41 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
								518598			
								2592.99 ㎒			
100 ㎒	30	DFT-s	pi/2 BPSK	1	1			10.17			0
				1	137			10.49			0
				1	271			10.11			0
				135	0			9.84			0
				135	69			10.37			0
				135	138			10.11			0
				270	0			10.47			0
			QPSK	1	1			9.98			0
				1	137			10.21			0
				1	271			10.33			0
				135	0			9.86			0
				135	69			10.21			0
				135	138			10.13			0
				270	0			10.20			0
			16QAM	1	1			9.98			0
			64QAM	1	1			10.06			0
			256QAM	1	1			9.73			0
		CP	QPSK	1	1			10.17			0

11.3.3. NR FDD Band n66 Maximum Conducted Power

NR FDD Band n66 Conducted Power_ Measured *Pmax* _ Antenna Main1

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 349000 1745 ㎒	MPR [dB]
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	23.92	0
				1	108	24.30	0
				1	214	24.14	0
				108	0	23.68	0.5
				108	54	24.22	0
				108	108	23.66	0.5
				216	0	23.71	0.5
			QPSK	1	1	24.00	0
				1	108	24.32	0
				1	214	24.19	0
				108	0	23.25	1
				108	54	24.23	0
				108	108	23.21	1
				216	0	23.22	1
			16QAM	1	1	22.99	1
			64QAM	1	1	21.54	2.5
			256QAM	1	1	19.41	4.5
		CP	QPSK	1	1	22.44	1.5

NR FDD Band n66 Conducted Power_ Measured RSI =2(Grip Sensor #2)_ Antenna Main1

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm] 349000 1745 ㎒	MPR [dB]
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1	11.50	0
				1	108	11.86	0
				1	214	11.71	0
				108	0	11.77	0
				108	54	11.76	0
				108	108	11.70	0
				216	0	11.75	0
			QPSK	1	1	11.45	0
				1	108	11.83	0
				1	214	11.69	0
				108	0	11.77	0
				108	54	11.78	0
				108	108	11.74	0
				216	0	11.75	0
			16QAM	1	1	11.51	0
			64QAM	1	1	11.55	0
			256QAM	1	1	11.51	0
		CP	QPSK	1	1	11.50	0

NR FDD Band n66 Conducted Power_ Measured RSI =1, 3(Grip Sensor #1, #3)_ Antenna Main1

NR FDD Band n66 _ 40 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]			MPR [dB]
							349000		
							1745 ㎒		
40 ㎒	15	DFT-s OFDM	pi/2 BPSK	1	1		19.65		0
				1	108		20.08		0
				1	214		19.92		0
				108	0		19.97		0
				108	54		19.98		0
				108	108		19.94		0
				216	0		19.99		0
			QPSK	1	1		19.79		0
				1	108		20.09		0
				1	214		19.98		0
				108	0		20.01		0
				108	54		20.02		0
				108	108		19.97		0
				216	0		19.99		0
			16QAM	1	1		19.78		0
			64QAM	1	1		19.80		0
			256QAM	1	1		19.23		0.5
		CP	QPSK	1	1		19.74		0

11.3.4. NR TDD Band n77 Maximum Conducted Power

NR TDD Band n77(PC2) Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n77(PC2)_ 100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						650000				662000		
						3 750 ㎒				3 930 ㎒		
100 ㎒	30	DFT-s OFDM	pi/2 BPSK	1	1	26.58				25.78		0
				1	137	26.50				26.61		0
				1	271	26.40				26.36		0
				135	0	26.14				25.88		0.5
				135	69	26.59				26.84		0
				135	138	26.06				25.62		0.5
				270	0	26.13				26.33		0.5
			QPSK	1	1	26.80				26.38		0
				1	137	26.56				26.49		0
				1	271	26.28				26.67		0
				135	0	25.51				25.55		1
				135	69	26.60				26.85		0
				135	138	25.61				25.31		1
				270	0	25.65				25.56		1
			16QAM	1	1	25.89				25.82		1
			64QAM	1	1	24.11				23.89		2.5
			256QAM	1	1	22.35				21.94		4.5
		CP	QPSK	1	1	25.21				24.89		1.5

NR TDD Band n77(PC3) Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n77(PC3)_ 100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						650000				662000		
						3 750 ㎒				3 930 ㎒		
100 ㎒	30	DFT-s OFDM	pi/2 BPSK	1	1	23.54				23.44		0
				1	137	23.33				23.37		0
				1	271	22.82				23.22		0
				135	0	22.77				22.51		0.5
				135	69	23.38				23.47		0
				135	138	22.78				22.38		0.5
				270	0	22.88				22.65		0.5
			QPSK	1	1	23.59				23.21		0
				1	137	23.04				23.25		0
				1	271	22.89				22.92		0
				135	0	22.14				22.32		1
				135	69	23.24				23.46		0
				135	138	22.00				22.05		1
				270	0	22.10				22.16		1
			16QAM	1	1	22.28				22.50		1
			64QAM	1	1	20.77				20.87		2.5
			256QAM	1	1	19.13				18.66		4.5
		CP	QPSK	1	1	21.64				21.46		1.5

NR TDD Band n77 Conducted Power_ Measured RSI = 0 (Free)_ Antenna Main2

NR TDD Band n77_ 100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						650000				662000		
						3750 ㎒				3930 ㎒		
100 ㎒	30	DFT-s OFDM	pi/2 BPSK	1	1	18.90				18.78		0
				1	137	18.58				18.88		0
				1	271	18.42				18.72		0
				135	0	17.79				18.68		0
				135	69	18.58				18.86		0
				135	138	18.51				18.42		0
				270	0	18.60				18.83		0
			QPSK	1	1	18.85				18.78		0
				1	137	18.59				18.91		0
				1	271	18.45				18.72		0
				135	0	18.64				18.67		0
				135	69	18.59				18.86		0
				135	138	18.51				18.40		0
				270	0	18.59				18.83		0
			16QAM	1	1	18.87				18.77		0
			64QAM	1	1	18.83				18.76		0
			256QAM	1	1	18.33				18.71		0
		CP	QPSK	1	1	18.80				18.75		0

NR TDD Band n77 Conducted Power_ Measured RSI =4(Grip Sensor #4)_ Antenna Main2

NR TDD Band n77_ 100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						650000				662000		
						3750 ㎒				3930 ㎒		
100 ㎒	30	DFT-s OFDM	pi/2 BPSK	1	1	8.17				8.33		0
				1	137	8.24				8.40		0
				1	271	7.75				7.94		0
				135	0	8.33				8.09		0
				135	69	7.97				8.13		0
				135	138	8.18				7.86		0
				270	0	7.98				8.27		0
			QPSK	1	1	8.20				8.11		0
				1	137	8.07				8.40		0
				1	271	7.89				8.09		0
				135	0	8.35				8.25		0
				135	69	8.29				8.31		0
				135	138	8.17				7.86		0
				270	0	8.00				8.12		0
			16QAM	1	1	8.52				8.08		0
			64QAM	1	1	8.23				8.06		0
			256QAM	1	1	8.32				7.98		0
		CP	QPSK	1	1	8.13				8.13		0

11.3.5. NR TDD Band n77(PC2) DoD Maximum Conducted Power

NR TDD Band n77(PC2) DoD Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n77(PC2) DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100㎒	30	DFT-s	pi/2 BPSK	1	1		26.52		0
				1	137		26.04		0
				1	271		26.35		0
				135	0		25.59		0.5
				135	69		25.92		0
				135	138		25.50		0.5
				270	0		25.57		0.5
			QPSK	1	1		26.22		0
				1	137		25.86		0
				1	271		26.55		0
				135	0		24.94		1
				135	69		25.93		0
				135	138		25.18		1
				270	0		25.11		1
			16QAM	1	1		25.21		1
			64QAM	1	1		24.11		2.5
			256QAM	1	1		21.77		4.5
		CP	QPSK	1	1		25.11		1.5

NR TDD Band n77(PC3) DoD Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n77(PC3) DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		22.79		0
				1	137		22.77		0
				1	271		23.33		0
				135	0		22.07		0.5
				135	69		22.91		0
				135	138		22.44		0.5
				270	0		22.44		0.5
			QPSK	1	1		23.19		0
				1	137		22.69		0
				1	271		23.41		0
				135	0		21.89		1
				135	69		22.61		0
				135	138		21.79		1
				270	0		21.65		1
			16QAM	1	1		22.00		1
			64QAM	1	1		20.67		2.5
			256QAM	1	1		18.66		4.5
		CP	QPSK	1	1		21.22		1.5

NR TDD Band n77 DoD Conducted Power_ Measured RSI = 0 (Free)_ Antenna Main2

NR TDD Band n77 DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		18.71		0
				1	137		18.35		0
				1	271		18.77		0
				135	0		18.35		0
				135	69		18.31		0
				135	138		18.43		0
				270	0		18.33		0
			QPSK	1	1		18.72		0
				1	137		18.37		0
				1	271		18.76		0
				135	0		18.35		0
				135	69		18.32		0
				135	138		18.42		0
				270	0		18.34		0
			16QAM	1	1		18.72		0
			64QAM	1	1		18.70		0
			256QAM	1	1		18.67		0
		CP	QPSK	1	1		18.65		0

NR TDD Band n77 DoD Conducted Power_ Measured RSI =4(Grip Sensor #4)_ Antenna Main2

NR TDD Band n77 DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		8.10		0
				1	137		7.55		0
				1	271		8.32		0
				135	0		7.55		0
				135	69		7.59		0
				135	138		7.90		0
				270	0		7.90		0
			QPSK	1	1		8.16		0
				1	137		7.71		0
				1	271		8.17		0
				135	0		7.56		0
				135	69		7.59		0
				135	138		8.06		0
				270	0		8.02		0
			16QAM	1	1		7.99		0
			64QAM	1	1		8.18		0
			256QAM	1	1		7.96		0
		CP	QPSK	1	1		8.04		0

11.3.6. NR TDD Band n78 Maximum Conducted Power

NR TDD Band n78(PC2) Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n78(PC2) _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
							3750 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		26.65		0
				1	137		26.42		0
				1	271		26.15		0
				135	0		26.02		0.5
				135	69		26.33		0
				135	138		25.63		0.5
				270	0		25.87		0.5
			QPSK	1	1		26.71		0
				1	137		26.47		0
				1	271		26.37		0
				135	0		25.40		1
				135	69		26.35		0
				135	138		25.13		1
				270	0		25.55		1
			16QAM	1	1		25.76		1
			64QAM	1	1		24.23		2.5
			256QAM	1	1		21.93		4.5
		CP	QPSK	1	1		24.84		1.5

NR TDD Band n78(PC3) Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n78(PC3) _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
							3750 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		23.51		0
				1	137		22.97		0
				1	271		22.88		0
				135	0		22.60		0.5
				135	69		23.21		0
				135	138		22.48		0.5
				270	0		22.58		0.5
			QPSK	1	1		23.42		0
				1	137		23.11		0
				1	271		22.93		0
				135	0		22.28		1
				135	69		23.38		0
				135	138		22.14		1
				270	0		22.24		1
			16QAM	1	1		22.33		1
			64QAM	1	1		21.16		2.5
			256QAM	1	1		18.80		4.5
		CP	QPSK	1	1		21.61		1.5

NR TDD Band n78 Conducted Power_ Measured RSI = 0 (Free)_ Antenna Main2

NR TDD Band n78 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
							3750 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		18.90		0
				1	137		18.63		0
				1	271		18.42		0
				135	0		16.96		0
				135	69		18.27		0
				135	138		18.11		0
				270	0		18.59		0
			QPSK	1	1		18.80		0
				1	137		18.54		0
				1	271		18.31		0
				135	0		18.63		0
				135	69		18.59		0
				135	138		18.50		0
				270	0		18.60		0
			16QAM	1	1		18.88		0
			64QAM	1	1		18.31		0
			256QAM	1	1		18.91		0
		CP	QPSK	1	1		18.78		0

NR TDD Band n78 Conducted Power_ Measured RSI =4(Grip Sensor #4)_ Antenna Main2

NR TDD Band n78 _100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							650000		
							3750 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		8.32		0
				1	137		8.20		0
				1	271		8.03		0
				135	0		8.01		0
				135	69		7.95		0
				135	138		8.15		0
				270	0		7.97		0
			QPSK	1	1		8.21		0
				1	137		8.23		0
				1	271		7.78		0
				135	0		8.03		0
				135	69		7.97		0
				135	138		7.87		0
				270	0		8.14		0
			16QAM	1	1		8.38		0
			64QAM	1	1		8.17		0
			256QAM	1	1		8.27		0
		CP	QPSK	1	1		8.12		0

11.3.7. NR TDD Band n78(PC2) DoD Maximum Conducted Power

NR TDD Band n78(PC2) DoD Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n78(PC2) DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100 ㎒	30	DFT-s	pi/2 BPSK	1	1		26.25		0
				1	137		25.85		0
				1	271		26.50		0
				135	0		25.57		0.5
				135	69		26.06		0
				135	138		25.81		0.5
				270	0		25.72		0.5
			QPSK	1	1		26.06		0
				1	137		26.04		0
				1	271		26.22		0
				135	0		25.09		1
				135	69		26.21		0
				135	138		25.32		1
				270	0		25.07		1
			16QAM	1	1		25.57		1
			64QAM	1	1		23.89		2.5
			256QAM	1	1		21.94		4.5
		CP	QPSK	1	1		25.04		1.5

NR TDD Band n78(PC3) DoD Conducted Power_ Measured Pmax _ Antenna Main2

NR TDD Band n78(PC3) DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100㎒	30	DFT-s	pi/2 BPSK	1	1		23.10		0
				1	137		22.58		0
				1	271		23.00		0
				135	0		22.22		0.5
				135	69		22.92		0
				135	138		22.26		0.5
				270	0		22.12		0.5
			QPSK	1	1		22.88		0
				1	137		22.67		0
				1	271		23.12		0
				135	0		21.75		1
				135	69		22.78		0
				135	138		22.08		1
				270	0		21.95		1
			16QAM	1	1		22.22		1
			64QAM	1	1		20.34		2.5
			256QAM	1	1		18.68		4.5
		CP	QPSK	1	1		21.25		1.5

NR TDD Band n78 DoD Conducted Power_ Measured RSI = 0 (Free)_ Antenna Main2

NR TDD Band n78 DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100㎒	30	DFT-s	pi/2 BPSK	1	1		18.71		0
				1	137		18.36		0
				1	271		18.76		0
				135	0		18.41		0
				135	69		18.01		0
				135	138		18.11		0
				270	0		18.04		0
			QPSK	1	1		18.38		0
				1	137		18.04		0
				1	271		18.44		0
				135	0		18.05		0
				135	69		18.02		0
				135	138		18.12		0
				270	0		18.04		0
			16QAM	1	1		18.41		0
			64QAM	1	1		18.28		0
			256QAM	1	1		18.65		0
		CP	QPSK	1	1		17.98		0

NR TDD Band n78 DoD Conducted Power_ Measured RSI =4(Grip Sensor #4)_ Antenna Main2

NR TDD Band n78 DoD_100 ㎒ Bandwidth Conducted Power

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)			MPR [dB]
							633334		
							3500.01 ㎒		
100㎒	30	DFT-s	pi/2 BPSK	1	1		7.76		0
				1	137		7.82		0
				1	271		7.98		0
				135	0		7.52		0
				135	69		7.86		0
				135	138		7.86		0
				270	0		7.87		0
			QPSK	1	1		7.80		0
				1	137		7.67		0
				1	271		7.98		0
				135	0		7.54		0
				135	69		7.87		0
				135	138		8.01		0
				270	0		7.59		0
			16QAM	1	1		7.95		0
			64QAM	1	1		8.02		0
			256QAM	1	1		7.76		0
		CP	QPSK	1	1		7.71		0

11.3.8 NR Band SRS Conducted Power

[NR TDD Band n41 SRS Conducted Power]

Measured Pmax Conducted Power

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub1, SRS1

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	24.24	0

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub3, SRS2

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	14.90	0

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub2, SRS3

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	17.31	0

Measured Free Conducted Power

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub1, SRS1

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	19.84	0

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub3, SRS2

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	14.41	0

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_ Antenna: Sub2, SRS3

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm] 518598 2592.99 MHz	MPR [dB]
100 ㎒	30	DFT-s QPSK 1RB 1offset	16.84	0

Measured Grip Conducted Power

NR TDD Band n41_ 100 ㎒ Bandwidth Conducted Power_Antenna: Sub1, SRS1

Bandwidth	SCS(㎑)	Modulation	Max. Average Power [dBm]	MPR [dB]
			518598	
			2592.99 MHz	
100 ㎒	30	DFT-s QPSK 1RB 1offset	14.10	0

11.4 WIFI Conducted Power measurement method

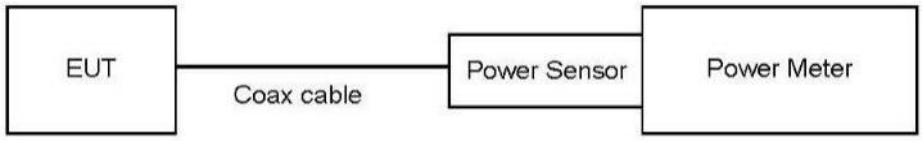
Un-Licensed Bands (DTS Band)

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

Test Procedure

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

Test setup



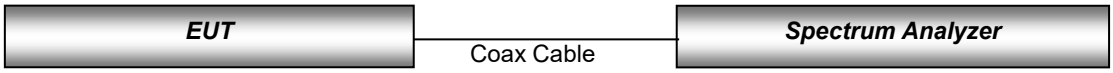
Un-Licensed Bands (NII Band)

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

Test Procedure

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

Test setup



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

Mode	Frequency [㎒]	Channel	Pmax		
			IEEE 802.11 (2.4 ㎓) 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
802.11g	2 412	1	16.70	16.85	19.78
	2 437	6	16.76	16.78	19.78
	2 462	11	17.28	17.06	20.18
802.11n (HT20)	2 412	1	15.44	15.83	18.65
	2 437	6	15.23	15.30	18.28
	2 462	11	15.67	15.81	18.75

Mode	Frequency [㎒]	Channel	Plimit		
			IEEE 802.11 (2.4 ㎓) Average RF Conducted Power [dBm]		
			WIFI 1	WIFI 2	MIMO
802.11b	2 412	1	10.62	9.67	13.18
	2 437	6	10.82	9.68	13.23
	2 462	11	10.69	9.97	13.47

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

Frequency [㎒]	Channel	P Max		
		IEEE 802.11 a (20 ㎒ 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
5 240	48	11.85	12.20	15.04
5 260	52	14.58	14.49	17.54
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
5 580	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 [㎒]	Channel	P limit		
		IEEE 802.11 ac (80 ㎒ BW) Conducted Power [dBm]		
		Ant.1	Ant.2	MIMO
5 210	42	7.68	6.81	10.28
5 290	58	7.62	6.76	10.22
5 530	106	7.54	6.87	10.23
5 610	122	7.48	6.99	10.25
5 690	138	7.61	6.92	10.29
5 775	155	7.57	7.13	10.37
5 855	171	7.33	6.86	10.11

Note:

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

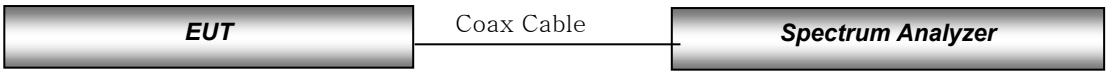
▪ Power measurements were performed for the transmission mode configuration with the highest maximum output power specified for production units.

▪ 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 (Pmax)

The Burst Averaged-conducted power

Mode	Channel	Max. Average Conducted Power [dBm]
		Ant.1 (PL11)
DH5	0	14.55
	39	14.78
	78	14.76
2-DH5	0	9.02
	39	9.10
	78	9.32
3-DH5	0	9.01
	39	9.10
	78	9.33

11.5.1 Bluetooth Maximum Conducted Power (Grip)

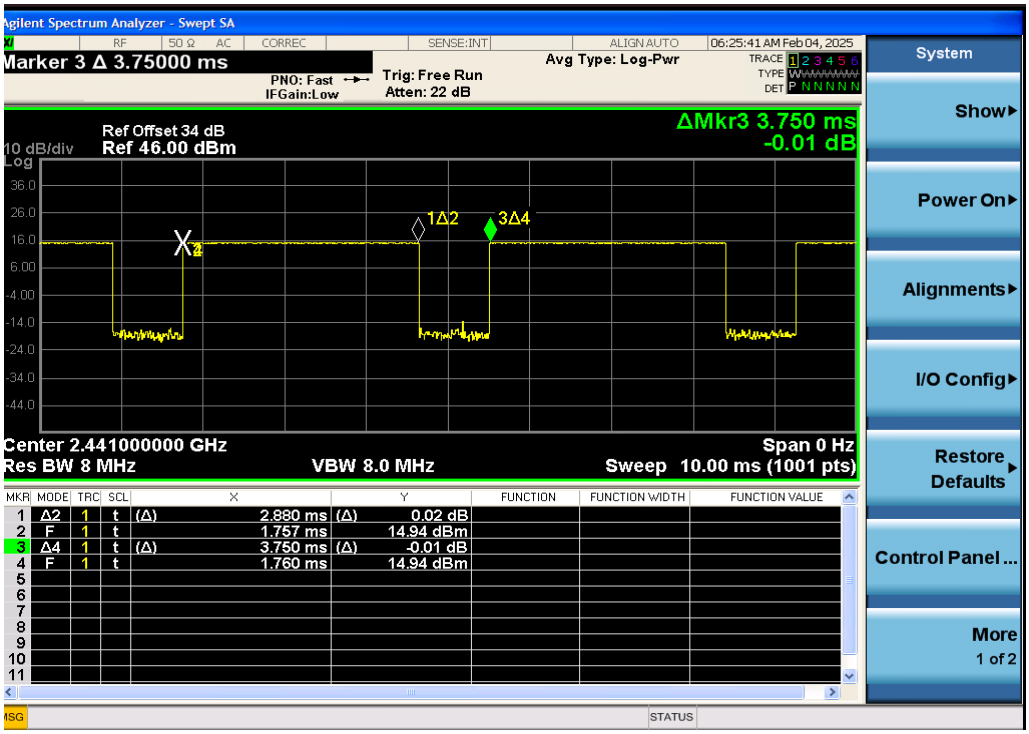
The Burst Averaged-conducted power

Mode	Channel	Max. Average Conducted Power [dBm]
		Ant.1 (PL11)
DH5	0	9.94
	39	9.96
	78	10.32

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



BT DH5 Maximum Duty Factor:

Mode	On time	Full time	Duty Cycle
DH5	2.880	3.750	0.768

The maximum duty cycle defined by chipset manufacturer is 78.0 % The duty cycle of DH5 measured by DUT was 76.8 %, 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.

◆ GSM/ UMTS/ LTE/ WLAN Band

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
01/16/2025	20.9	750H	705	0.861	42.12	0.889	42.174	-3.15	-0.13
			710	0.862	42.11	0.890	42.148	-3.15	-0.09
			750	0.877	41.94	0.893	41.940	-1.79	0.00
01/17/2025	20.6	750H	750	0.876	42.92	0.893	41.940	-1.90	2.34
			785	0.891	42.81	0.896	41.758	-0.56	2.52
01/15/2025	20.7	835H	820	0.919	42.74	0.899	41.577	2.22	2.80
			835	0.923	42.68	0.900	41.500	2.56	2.84
			850	0.930	42.61	0.916	41.500	1.53	2.67
01/14/2025	20.8	835H	820	0.905	43.03	0.899	41.577	0.67	3.49
			835	0.911	42.98	0.900	41.500	1.22	3.57
			850	0.916	42.93	0.916	41.500	0.00	3.45
01/20/2025	20.5	835H	820	0.928	42.53	0.899	41.577	3.23	2.29
			835	0.934	42.47	0.900	41.500	3.78	2.34
			850	0.940	42.43	0.916	41.500	2.62	2.24
01/14/2025	20.8	1 800H	1 710	1.315	41.62	1.348	40.144	-2.45	3.68
			1 750	1.337	41.64	1.371	40.080	-2.48	3.89
			1 800	1.375	41.59	1.400	40.000	-1.79	3.98
01/21/2025	20.4	1 800H	1 710	1.324	40.62	1.348	40.144	-1.78	1.19
			1 750	1.347	40.64	1.371	40.08	-1.75	1.40
			1 800	1.385	40.59	1.400	40.000	-1.07	1.48
01/22/2025	20.3	1 800H	1 710	1.305	40.61	1.348	40.144	-3.19	1.16
			1 750	1.327	40.64	1.371	40.08	-3.21	1.40
			1 800	1.365	40.59	1.400	40.000	-2.50	1.48
01/25/2025	20.6	1 800H	1 710	1.324	41.61	1.348	40.144	-1.78	3.65
			1 750	1.347	41.64	1.371	40.08	-1.75	3.88
			1 800	1.385	41.59	1.400	40.000	-1.07	3.97
01/15/2025	20.7	1 900H	1 850	1.384	39.17	1.400	40.000	-1.14	-2.07
			1 900	1.411	39.03	1.400	40.000	0.79	-2.43
			1 910	1.418	39.02	1.400	40.000	1.29	-2.45
01/16/2025	20.9	1 900H	1 850	1.370	39.30	1.400	40.000	-2.14	-1.75
			1 900	1.400	39.17	1.400	40.000	0.00	-2.07
			1 910	1.401	39.15	1.400	40.000	0.07	-2.13
01/13/2025	20.2	1 900H	1 850	1.390	41.30	1.400	40.000	-0.71	3.25
			1 900	1.418	41.17	1.400	40.000	1.29	2.93
			1 910	1.422	41.15	1.400	40.000	1.57	2.88
01/17/2025	20.6	1 900H	1 850	1.359	40.30	1.400	40.000	-2.93	0.75
			1 900	1.386	40.17	1.400	40.000	-1.00	0.43
			1 910	1.390	40.15	1.400	40.000	-0.71	0.37

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
01/13/2025	22.6	2 450H	2 400	1.739	38.94	1.756	39.290	-0.97	-0.89
			2 450	1.794	38.75	1.800	39.200	-0.33	-1.15
			2 500	1.850	38.60	1.855	39.140	-0.27	-1.38
01/25/2025	20.6	2 450H	2 400	1.732	38.93	1.756	39.290	-1.37	-0.92
			2 450	1.784	38.72	1.800	39.200	-0.89	-1.22
			2 500	1.847	38.59	1.855	39.140	-0.43	-1.41
01/20/2025	22.7	2 450H	2 400	1.772	40.14	1.756	39.290	0.91	2.16
			2 450	1.827	39.96	1.800	39.200	1.50	1.94
			2 500	1.884	39.80	1.855	39.140	1.56	1.69
01/20/2025	20.5	2 600H	2 500	1.851	39.03	1.855	39.140	-0.22	-0.28
			2 600	1.964	38.61	1.964	39.010	0.00	-1.03
			2 690	2.064	38.15	2.062	38.894	0.10	-1.91
01/15/2025	22.7	5 180H-5 320H	5 180	4.608	35.24	4.635	36.010	-0.58	-2.14
			5 250	4.694	35.01	4.706	35.930	-0.25	-2.56
			5 280	4.736	34.94	4.737	35.894	-0.02	-2.66
			5 320	4.795	34.89	4.778	35.846	0.36	-2.67
01/16/2025	22.8	5 180H-5 320H	5 180	4.724	35.25	4.635	36.010	1.92	-2.11
			5 250	4.810	35.01	4.706	35.930	2.21	-2.56
			5 280	4.853	34.94	4.737	35.894	2.45	-2.66
			5 320	4.914	34.89	4.778	35.846	2.85	-2.67
01/15/2025	22.7	5 500H-5 600H	5 500	4.956	34.74	4.963	35.640	-0.14	-2.53
			5 600	5.059	34.55	5.065	35.530	-0.12	-2.76
			5 750	5.267	34.43	5.219	35.360	0.92	-2.63
01/16/2025	22.8	5 500H-5 600H	5 500	5.076	34.74	4.963	35.640	2.28	-2.53
			5 600	5.183	34.55	5.065	35.530	2.33	-2.76
			5 750	5.397	34.44	5.219	35.360	3.41	-2.60
01/15/2025	22.7	5 750H-5 825H	5 750	5.267	34.43	5.219	35.360	0.92	-2.63
			5 800	5.198	34.43	5.270	35.300	-1.37	-2.46
			5 825	5.168	34.38	5.296	35.270	-2.42	-2.52
01/16/2025	22.8	5 750H-5 825H	5 750	5.397	34.44	5.219	35.360	3.41	-2.60
			5 800	5.330	34.44	5.270	35.300	1.14	-2.44
			5 825	5.299	34.39	5.296	35.270	0.06	-2.50

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
01/15/2025	22.7	5 800H-5 885H	5 800	5.198	34.43	5.270	35.300	-1.37	-2.46
			5 835	5.159	34.35	5.306	35.258	-2.77	-2.58
			5 845	5.153	34.32	5.316	35.246	-3.07	-2.63
			5 855	5.150	34.28	5.326	35.235	-3.30	-2.71
			5 865	5.151	34.23	5.337	35.225	-3.49	-2.82
			5 875	5.155	34.17	5.347	35.215	-3.59	-2.97
			5 885	5.162	34.12	5.357	35.205	-3.64	-3.08
01/16/2025	22.8	5 800H-5 885H	5 800	5.330	34.44	5.270	35.300	1.14	-2.44
			5 835	5.290	34.36	5.306	35.258	-0.30	-2.55
			5 845	5.283	34.32	5.316	35.246	-0.62	-2.63
			5 855	5.28	34.28	5.326	35.235	-0.86	-2.71
			5 865	5.281	34.23	5.337	35.225	-1.05	-2.82
			5 875	5.285	34.18	5.347	35.215	-1.16	-2.94
			5 885	5.293	34.12	5.357	35.205	-1.19	-3.08

◆ 5G NR SUB 6 Band

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (㎒)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
01/22/2025	22.9	835H	820	0.927	43.03	0.899	41.577	3.11	3.49
			835	0.933	42.97	0.900	41.500	3.67	3.54
			850	0.939	42.92	0.916	41.500	2.51	3.42
01/23/2025	23.0	1 800H	1 710	1.305	41.12	1.348	40.144	-3.19	2.43
			1 750	1.327	41.14	1.371	40.080	-3.21	2.64
			1 800	1.365	41.09	1.400	40.000	-2.50	2.72
01/23/2025	20.6	2 600H	2 500	1.888	39.07	1.855	39.140	1.78	-0.18
			2 600	1.986	38.65	1.964	39.010	1.12	-0.92
			2 690	2.070	38.21	2.062	38.894	0.39	-1.76
01/24/2025	20.7	2 600H	2 500	1.920	39.30	1.855	39.140	3.50	0.41
			2 600	2.019	38.87	1.964	39.010	2.80	-0.36
			2 690	2.104	38.44	2.062	38.894	2.04	-1.17
01/24/2025	20.7	3 500H-3 970	3 500	2.918	38.16	2.913	37.930	0.17	0.61
			3 700	3.090	37.92	3.118	37.700	-0.90	0.58
			3 750	3.128	37.90	3.169	37.640	-1.29	0.69
			3 800	3.167	37.87	3.220	37.590	-1.65	0.74
			3 900	3.235	37.70	3.233	37.470	0.06	0.61
			3 970	3.294	37.57	3.394	37.390	-2.95	0.48

12.2 System Verification

◆ GSM/ UMTS/ LTE/ WLAN Band

Input Power: 50 ㎽

Freq.	Date	Probe	Dipole	Liquid	Amb. Temp.	Liquid Temp.	1 W Target SAR_{1g} (SPEAG)	50 ㎽ Measured SAR_{1g}	1 W Normalized SAR_{1g}	Deviation	Limit
[㎒]		(S/N)	(S/N)		[°C]	[°C]	[W/kg]	[W/kg]	[W/kg]	[%]	[%]
750	01/16/2025	7751	1014	Head	21.0	20.9	8.59	0.438	8.76	1.98	± 10
750	01/17/2025	7751	1014	Head	20.7	20.6	8.59	0.437	8.74	1.75	± 10
835	01/15/2025	7751	441	Head	20.8	20.7	9.73	0.524	10.48	7.71	± 10
835	01/20/2025	7751	441	Head	20.6	20.5	9.73	0.528	10.56	8.53	± 10
835	01/14/2025	7751	441	Head	20.9	20.8	9.73	0.524	10.48	7.71	± 10
835	01.22.2025	3076	441	Head	23.0	22.9	9.73	0.482	9.64	-0.92	± 10
1800	01/21/2025	7751	2d007	Head	20.5	20.4	39.00	1.970	39.40	1.03	± 10
1800	01/22/2025	7751	2d007	Head	20.4	20.3	39.00	1.950	39.00	0.00	± 10
1800	01/25/2025	7751	2d007	Head	20.7	20.6	39.00	1.930	38.60	-1.03	± 10
1800	01/14/2025	7751	2d007	Head	20.9	20.8	39.00	1.920	38.40	-1.54	± 10
1800	01/23/2025	3076	2d007	Head	23.1	23.0	39.00	1.990	39.80	2.05	± 10
1900	01/17/2025	7751	5d032	Head	20.7	20.6	40.20	1.950	39.00	-2.99	± 10
1900	01/16/2025	7751	5d032	Head	21.0	20.9	40.20	1.950	39.00	-2.99	± 10
1900	01/15/2025	7751	5d032	Head	20.8	20.7	40.20	1.980	39.60	-1.49	± 10
1900	01/13/2025	7751	5d032	Head	20.3	20.2	40.20	1.850	37.00	-7.96	± 10
2 450	01/25/2025	7751	743	Head	20.7	20.6	51.80	2.550	51.00	-1.54	± 10
2 450	01/20/2025	3076	743	Head	22.8	22.7	51.80	2.790	55.80	7.72	± 10
2 450	01/13/2025	3076	743	Head	22.7	22.6	51.80	2.410	48.20	-6.95	± 10
2 600	01/20/2025	7751	1015	Head	20.6	20.5	56.40	2.960	59.20	4.96	± 10
2 600	01/24/2025	7751	1015	Head	20.8	20.7	56.40	2.880	57.60	2.13	± 10
2 600	01/23/2025	7751	1015	Head	20.7	20.6	56.40	2.820	56.40	0.00	± 10

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]	[%]	[%]
3 500	01/24/2025	7751	1040	Head	20.8	20.7	65.10	3.28	65.60	0.77	± 10
3 700	01/24/2025	7751	1105	Head	20.8	20.7	69.30	3.27	65.40	-5.63	± 10
3 900	01/24/2025	7751	1019	Head	20.8	20.7	67.60	3.13	62.60	-7.40	± 10
5 250	01/15/2025	7309	1317	Head	22.8	22.7	78.80	4.04	80.80	2.54	± 10
5 600	01/15/2025	7309	1317	Head	22.8	22.7	81.20	4.32	86.40	6.40	± 10
5 750	01/15/2025	7309	1317	Head	22.8	22.7	77.40	4.09	81.80	5.68	± 10
5 800	01/15/2025	7309	1317	Head	22.8	22.7	76.90	3.92	78.40	1.95	± 10
5 250	01/16/2025	7309	1317	Head	22.9	22.8	78.80	4.15	83.00	5.33	± 10
5 600	01/16/2025	7309	1317	Head	22.9	22.8	81.20	4.43	88.60	9.11	± 10
5 750	01/16/2025	7309	1317	Head	22.9	22.8	77.40	4.21	84.20	8.79	± 10
5 750	01/25/2025	7751	1317	Head	20.7	20.6	77.40	3.87	77.40	0.00	± 10
5 800	01/16/2025	7309	1317	Head	22.9	22.8	76.90	4.04	80.80	5.07	± 10

12.3 SAR Test System Verification Procedure

SAR measurement was prior to assessment; the system is verified to the ± 10 % of the specifications at each frequency Band by using the system verification kit. (Graphic Plots Attached)
- Cabling the system, using the verification kit equipment.
- 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

13.1.1 Body SAR Measurement Results

GSM 850 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	190	GPRS 3Tx	M1	20.5	19.69	-0.16	Rear	1:2.77	ACTIVE	0	0.441	1.205	0.531	-
836.6	190	GPRS 4Tx	M1	27.5	26.11	0.01	Left	1:2.07	ACTIVE	0	0.100	1.377	0.138	-
836.6	190	GPRS 4Tx	M1	27.5	26.11	0.16	Right	1:2.07	ACTIVE	0	0.099	1.377	0.136	-
836.6	190	GPRS 3Tx	M1	20.5	19.69	0.01	Top	1:2.77	ACTIVE	0	0.577	1.205	0.695	-
836.6	190	GPRS 4Tx	M1	29.0	28.18	0.18	Rear	1:2.07	INACTIVE	19	0.425	1.208	0.513	-
836.6	190	GPRS 4Tx	M1	29.0	28.18	0.10	Left	1:2.07	INACTIVE	10	0.038	1.208	0.046	-
836.6	190	GPRS 4Tx	M1	29.0	28.18	0.12	Right	1:2.07	INACTIVE	10	0.039	1.208	0.047	-
836.6	190	GPRS 4Tx	M1	29.0	28.18	-0.02	Top	1:2.07	INACTIVE	19	**0.577**	1.208	**0.697**	**A1**
ANSI/ IEEE C95.1 – 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram							

GSM 1900 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	661	GPRS 4Tx	M1	17.0	16.17	-0.15	Rear	1:2.07	ACTIVE	0	0.421	1.211	0.510	-
1 880.0	661	GPRS 3Tx	M1	24.0	23.30	0.17	Left	1:2.77	ACTIVE	0	0.071	1.175	0.083	-
1 880.0	661	GPRS 3Tx	M1	24.0	23.30	0.12	Right	1:2.77	ACTIVE	0	0.172	1.175	0.202	-
1 880.0	661	GPRS 4Tx	M1	17.0	16.17	0.16	Top	1:2.07	ACTIVE	0	**0.455**	1.211	**0.551**	**A2**
1 880.0	661	GPRS 3Tx	M1	26.5	25.64	0.09	Rear	1:2.77	INACTIVE	19	0.211	1.219	0.257	-
1 880.0	661	GPRS 3Tx	M1	26.5	25.64	0.14	Left	1:2.77	INACTIVE	10	0.036	1.219	0.044	-
1 880.0	661	GPRS 3Tx	M1	26.5	25.64	0.11	Right	1:2.77	INACTIVE	10	0.071	1.219	0.087	
1 880.0	661	GPRS 3Tx	M1	26.5	25.64	0.11	Top	1:2.77	INACTIVE	19	0.343	1.219	0.418	-
ANSI/ IEEE C95.1 – 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram							

UMTS Band 5 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	15.5	14.85	-0.05	Rear	1:1	ACTIVE	0	0.419	1.161	0.486	
836.6	4183	RMC	M1	22.5	21.57	-0.08	Left	1:1	ACTIVE	0	0.157	1.239	0.195	-
836.6	4183	RMC	M1	22.5	21.57	0.00	Right	1:1	ACTIVE	0	0.095	1.239	0.118	-
836.6	4183	RMC	M1	15.5	14.85	-0.13	Top	1:1	ACTIVE	0	**0.596**	1.161	**0.692**	**A3**
836.6	4183	RMC	M1	25.0	24.41	-0.18	Rear	1:1	INACTIVE	19	0.400	1.146	0.458	-
836.6	4183	RMC	M1	25.0	24.41	-0.04	Left	1:1	INACTIVE	10	0.080	1.146	0.092	-
836.6	4183	RMC	M1	25.0	24.41	0.12	Right	1:1	INACTIVE	10	0.085	1.146	0.097	-
836.6	4183	RMC	M1	25.0	24.41	-0.18	Top	1:1	INACTIVE	19	0.582	1.146	0.667	-
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	13.5	12.60	0.04	Rear	1:1	ACTIVE	0	0.493	1.230	0.606	
1 732.4	1412	RMC	M1	21.0	20.03	-0.11	Left	1:1	ACTIVE	0	0.123	1.250	0.154	-
1 732.4	1412	RMC	M1	21.0	20.03	0.02	Right	1:1	ACTIVE	0	0.237	1.250	0.296	-
1 732.4	1412	RMC	M1	13.5	12.60	-0.13	Top	1:1	ACTIVE	0	0.406	1.230	0.499	-
1 732.4	1412	RMC	M1	25.0	23.86	0.00	Rear	1:1	INACTIVE	19	0.415	1.300	0.540	-
1 732.4	1412	RMC	M1	25.0	23.86	-0.04	Left	1:1	INACTIVE	10	0.087	1.300	0.113	-
1 732.4	1412	RMC	M1	25.0	23.86	-0.08	Right	1:1	INACTIVE	10	0.122	1.300	0.159	-
1 732.4	1412	RMC	M1	25.0	23.86	-0.15	Top	1:1	INACTIVE	19	**0.532**	1.300	**0.692**	**A4**
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	13.0	12.01	-0.16	Rear	1:1	ACTIVE	0	0.366	1.256	0.460	-
1 880.0	9400	RMC	M1	19.5	18.40	0.00	Left	1:1	ACTIVE	0	0.094	1.288	0.121	-
1 880.0	9400	RMC	M1	19.5	18.40	-0.06	Right	1:1	ACTIVE	0	0.224	1.288	0.289	-
1 880.0	9400	RMC	M1	13.0	12.01	0.12	Top	1:1	ACTIVE	0	0.451	1.256	0.566	-
1 880.0	9400	RMC	M1	25.0	23.84	-0.01	Rear	1:1	INACTIVE	19	0.402	1.306	0.525	-
1 880.0	9400	RMC	M1	25.0	23.84	-0.11	Left	1:1	INACTIVE	10	0.075	1.306	0.098	-
1 880.0	9400	RMC	M1	25.0	23.84	-0.19	Right	1:1	INACTIVE	10	0.153	1.306	0.200	-
1 880.0	9400	RMC	M1	25.0	23.84	-0.12	Top	1:1	INACTIVE	19	**0.614**	1.306	0.802	A5
1 852.4	9262	RMC	M1	25.0	23.67	-0.06	Top	1:1	INACTIVE	19	0.600	1.358	**0.815**	
1 907.6	9538	RMC	M1	25.0	23.74	0.02	Top	1:1	INACTIVE	19	0.508	1.337	0.679	
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 2 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)	
1 880.0	18900	QPSK	S1	20	11.5	10.30	-0.03	Rear	0	1	0	1:1	ACTIVE	0	0.115	1.318	0.152	-
1 880.0	18900	QPSK	S1	20	11.5	10.31	-0.14	Rear	0	50	0	1:1	ACTIVE	0	0.184	1.315	0.242	-
1 880.0	18900	QPSK	S1	20	11.5	10.30	0.15	Left	0	1	0	1:1	ACTIVE	0	**0.225**	1.318	**0.297**	**A6**
1 880.0	18900	QPSK	S1	20	11.5	10.31	0.01	Left	1	50	0	1:1	ACTIVE	0	0.224	1.315	0.295	-
1 880.0	18900	QPSK	S1	20	11.5	10.30	-0.13	Bottom	0	1	0	1:1	ACTIVE	0	0.084	1.318	0.111	-
1 880.0	18900	QPSK	S1	20	11.5	10.31	-0.14	Bottom	0	50	0	1:1	ACTIVE	0	0.080	1.315	0.105	-
1 880.0	18900	QPSK	S1	20	24.0	23.11	0.01	Rear	0	1	0	1:1	INACTIVE	18	0.053	1.227	0.065	-
1 880.0	18900	QPSK	S1	20	23.0	22.02	0.01	Rear	1	50	0	1:1	INACTIVE	18	0.042	1.253	0.053	
1 880.0	18900	QPSK	S1	20	24.0	23.11	-0.05	Left	0	1	0	1:1	INACTIVE	10	0.208	1.227	0.255	
1 880.0	18900	QPSK	S1	20	23.0	22.02	0.01	Left	1	50	0	1:1	INACTIVE	10	0.154	1.253	0.193	
1 880.0	18900	QPSK	S1	20	24.0	23.11	0.02	Bottom	0	1	0	1:1	INACTIVE	18	0.038	1.227	0.047	
1 880.0	18900	QPSK	S1	20	23.0	22.02	-0.07	Bottom	1	50	0	1:1	INACTIVE	18	0.031	1.253	0.039	

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 12 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)	
707.5	23095	QPSK	M1	10	16.0	15.32	-0.08	Rear	0	1	24	1:1	ACTIVE	0	0.387	1.169	0.452	-
707.5	23095	QPSK	M1	10	16.0	15.21	0.18	Rear	0	25	0	1:1	ACTIVE	0	**0.387**	1.199	0.464	**A7**
707.5	23095	QPSK	M1	10	25.0	23.86	-0.01	Left	0	1	24	1:1	N/A	0	0.150	1.300	0.195	-
707.5	23095	QPSK	M1	10	24.0	22.83	0.11	Left	1	25	0	1:1	N/A	0	0.113	1.309	0.148	-
707.5	23095	QPSK	M1	10	25.0	23.86	0.00	Right	0	1	24	1:1	N/A	0	0.169	1.300	0.220	-
707.5	23095	QPSK	M1	10	24.0	22.83	0.05	Right	1	25	0	1:1	N/A	0	0.125	1.309	0.164	-
707.5	23095	QPSK	M1	10	16.0	15.32	-0.14	Top	0	1	24	1:1	ACTIVE	0	0.318	1.169	0.372	-
707.5	23095	QPSK	M1	10	16.0	15.21	-0.19	Top	0	25	0	1:1	ACTIVE	0	0.321	1.199	0.385	-
707.5	23095	QPSK	M1	10	25.0	23.86	-0.02	Rear	0	1	24	1:1	INACTIVE	19	0.369	1.300	0.480	-
707.5	23095	QPSK	M1	10	24.0	22.83	-0.09	Rear	1	25	0	1:1	INACTIVE	19	0.260	1.309	0.340	-
707.5	23095	QPSK	M1	10	25.0	23.86	-0.16	Top	0	1	24	1:1	INACTIVE	19	0.381	1.300	**0.495**	-
707.5	23095	QPSK	M1	10	24.0	22.83	-0.19	Top	1	25	0	1:1	INACTIVE	19	0.286	1.309	0.374	-

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	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)	
782.0	23230	QPSK	M1	10	14.5	13.65	-0.16	Rear	0	1	24	1:1	ACTIVE	0	0.353	1.216	0.429	-
782.0	23230	QPSK	M1	10	14.5	13.54	-0.06	Rear	0	25	0	1:1	ACTIVE	0	0.337	1.247	0.420	-
782.0	23230	QPSK	M1	10	25.0	23.55	-0.09	Left	0	1	24	1:1	N/A	0	0.164	1.396	0.229	-
782.0	23230	QPSK	M1	10	24.0	22.57	-0.04	Left	1	25	24	1:1	N/A	0	0.124	1.390	0.172	-
782.0	23230	QPSK	M1	10	25.0	23.55	0.00	Right	0	1	24	1:1	N/A	0	0.142	1.396	0.198	-
782.0	23230	QPSK	M1	10	24.0	22.57	0.01	Right	1	25	24	1:1	N/A	0	0.111	1.390	0.154	-
782.0	23230	QPSK	M1	10	14.5	13.65	-0.17	Top	0	1	24	1:1	ACTIVE	0	0.412	1.216	0.501	-
782.0	23230	QPSK	M1	10	14.5	13.54	-0.14	Top	0	25	0	1:1	ACTIVE	0	0.417	1.247	0.520	-
782.0	23230	QPSK	M1	10	25.0	23.55	-0.05	Rear	0	1	24	1:1	INACTIVE	19	0.453	1.396	0.632	-
782.0	23230	QPSK	M1	10	24.0	22.57	0.05	Rear	1	25	24	1:1	INACTIVE	19	0.366	1.390	0.509	-
782.0	23230	QPSK	M1	10	25.0	23.55	-0.13	Top	0	1	24	1:1	INACTIVE	19	**0.547**	1.396	**0.764**	**A8**
782.0	23230	QPSK	M1	10	24.0	22.57	-0.10	Top	1	25	24	1:1	INACTIVE	19	0.452	1.390	0.628	-

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.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
1 905.0	26590	QPSK	M1	20	13.0	12.12	-0.05	Rear	0	1	49	1:1	ACTIVE	0	0.347	1.225	0.425	-
1 905.0	26590	QPSK	M1	20	13.0	12.07	-0.04	Rear	0	50	25	1:1	ACTIVE	0	0.351	1.239	0.435	-
1 905.0	26590	QPSK	M1	20	19.0	18.21	-0.05	Left	0	1	49	1:1	ACTIVE	0	0.055	1.199	0.066	-
1 905.0	26590	QPSK	M1	20	19.0	18.16	-0.08	Left	0	50	25	1:1	ACTIVE	0	0.054	1.213	0.066	-
1 905.0	26590	QPSK	M1	20	19.0	18.21	0.17	Right	0	1	49	1:1	ACTIVE	0	0.123	1.199	0.147	-
1 905.0	26590	QPSK	M1	20	19.0	18.16	0.16	Right	0	50	25	1:1	ACTIVE	0	0.123	1.213	0.149	-
1 905.0	26590	QPSK	M1	20	13.0	12.12	0.09	Top	0	1	49	1:1	ACTIVE	0	0.410	1.225	0.502	-
1 905.0	26590	QPSK	M1	20	13.0	12.07	-0.17	Top	0	50	25	1:1	ACTIVE	0	0.411	1.239	0.509	-
1 905.0	26590	QPSK	M1	20	25.0	23.95	0.05	Rear	0	1	49	1:1	INACTIVE	19	0.288	1.274	0.367	-
1 905.0	26590	QPSK	M1	20	24.0	22.87	0.13	Rear	1	50	0	1:1	INACTIVE	19	0.242	1.297	0.314	-
1 905.0	26590	QPSK	M1	20	25.0	23.95	0.04	Left	0	1	49	1:1	INACTIVE	10	0.011	1.274	0.014	-
1 905.0	26590	QPSK	M1	20	24.0	22.87	0.08	Left	1	50	0	1:1	INACTIVE	10	0.013	1.297	0.017	-
1 905.0	26590	QPSK	M1	20	25.0	23.95	-0.14	Right	0	1	49	1:1	INACTIVE	10	0.127	1.274	0.162	-
1 905.0	26590	QPSK	M1	20	24.0	22.87	0.15	Right	1	50	0	1:1	INACTIVE	10	0.100	1.297	0.130	-
1 905.0	26590	QPSK	M1	20	25.0	23.95	-0.12	Top	0	1	49	1:1	INACTIVE	19	**0.460**	1.274	**0.586**	**A9**
1 905.0	26590	QPSK	M1	20	24.0	22.87	-0.14	Top	1	50	0	1:1	INACTIVE	19	0.362	1.297	0.470	-

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.			(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
831.5	26865	QPSK	M1	15	15.0	14.64	0.17	Rear	0	1	0	1:1	ACTIVE	0	0.383	1.086	0.416	-
831.5	26865	QPSK	M1	15	15.0	14.70	-0.16	Rear	0	36	0	1:1	ACTIVE	0	0.315	1.072	0.338	-
831.5	26865	QPSK	M1	15	23.0	22.72	-0.05	Left	0	1	36	1:1	ACTIVE	0	0.115	1.067	0.123	-
831.5	26865	QPSK	M1	15	23.0	22.66	-0.11	Left	0	36	18	1:1	ACTIVE	0	0.116	1.081	0.125	-
831.5	26865	QPSK	M1	15	23.0	22.72	0.17	Right	0	1	36	1:1	ACTIVE	0	0.111	1.067	0.118	-
831.5	26865	QPSK	M1	15	23.0	22.66	0.07	Right	0	36	18	1:1	ACTIVE	0	0.115	1.081	0.124	-
831.5	26865	QPSK	M1	15	15.0	14.64	-0.15	Top	0	1	0	1:1	ACTIVE	0	0.352	1.086	0.382	-
831.5	26865	QPSK	M1	15	15.0	14.70	-0.14	Top	0	36	0	1:1	ACTIVE	0	0.358	1.072	0.384	-
831.5	26865	QPSK	M1	15	25.0	24.53	0.18	Rear	0	1	0	1:1	INACTIVE	19	0.539	1.114	0.600	-
831.5	26865	QPSK	M1	15	24.0	23.60	0.05	Rear	1	36	0	1:1	INACTIVE	19	0.436	1.096	0.478	-
831.5	26865	QPSK	M1	15	25.0	24.53	0.08	Left	0	1	0	1:1	INACTIVE	10	0.024	1.114	0.027	-
831.5	26865	QPSK	M1	15	24.0	23.60	0.12	Left	1	36	0	1:1	INACTIVE	10	0.027	1.096	0.030	-
831.5	26865	QPSK	M1	15	25.0	24.53	0.09	Right	0	1	0	1:1	INACTIVE	10	0.032	1.114	0.036	-
831.5	26865	QPSK	M1	15	24.0	23.60	0.04	Right	1	36	0	1:1	INACTIVE	10	0.030	1.096	0.033	-
831.5	26865	QPSK	M1	15	25.0	24.53	-0.04	Top	0	1	0	1:1	INACTIVE	19	**0.571**	1.114	**0.636**	**A10**
831.5	26865	QPSK	M1	15	24.0	23.60	0.01	Top	1	36	0	1:1	INACTIVE	19	0.445	1.096	0.488	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

LTE TDD Band 41 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)	
2 593.0	40620	QPSK	M1	20	13.5	12.36	-0.03	Rear	0	1	99	1:1.58	ACTIVE	0	0.399	1.300	0.519	-
2 593.0	40620	QPSK	M1	20	13.5	12.37	-0.08	Rear	0	50	49	1:1.58	ACTIVE	0	**0.408**	1.297	**0.529**	**A11**
2 593.0	40620	QPSK	M1	20	25.0	23.62	-0.02	Left	0	1	99	1:1.58	N/A	0	0.171	1.374	0.235	-
2 593.0	40620	QPSK	M1	20	24.0	22.53	-0.13	Left	1	50	49	1:1.58	N/A	0	0.136	1.403	0.191	-
2 593.0	40620	QPSK	M1	20	25.0	23.62	0.16	Right	0	1	99	1:1.58	N/A	0	0.232	1.374	0.319	-
2 593.0	40620	QPSK	M1	20	24.0	22.53	0.11	Right	1	50	49	1:1.58	N/A	0	0.182	1.403	0.255	-
2 593.0	40620	QPSK	M1	20	13.5	12.36	-0.10	Top	0	1	99	1:1.58	ACTIVE	0	0.338	1.300	0.439	-
2 593.0	40620	QPSK	M1	20	13.5	12.37	-0.06	Top	0	50	49	1:1.58	ACTIVE	0	0.342	1.297	0.444	-
2 593.0	40620	QPSK	M1	20	25.0	23.62	N/A	Rear	0	1	99	1:1.58	INACTIVE	19	0.143	1.374	0.196	-
2 593.0	40620	QPSK	M1	20	24.0	22.53	N/A	Rear	1	50	49	1:1.58	INACTIVE	19	0.114	1.403	0.160	-
2 593.0	40620	QPSK	M1	20	25.0	23.62	-0.13	Top	0	1	99	1:1.58	INACTIVE	19	0.232	1.374	0.319	-
2 593.0	40620	QPSK	M1	20	24.0	22.53	-0.16	Top	1	50	49	1:1.58	INACTIVE	19	0.183	1.403	0.257	-
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 66 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)	
1 770.0	132572	QPSK	M1	20	13.0	12.29	-0.01	Rear	0	1	49	1:1	ACTIVE	0	0.407	1.178	0.479	-
1 770.0	132572	QPSK	M1	20	13.0	12.29	-0.12	Rear	0	50	49	1:1	ACTIVE	0	0.404	1.178	0.476	-
1 770.0	132572	QPSK	M1	20	21.0	20.55	0.03	Left	0	1	49	1:1	ACTIVE	0	0.014	1.109	0.016	-
1 770.0	132572	QPSK	M1	20	21.0	20.59	0.04	Left	0	50	49	1:1	ACTIVE	0	0.015	1.099	0.016	-
1 770.0	132572	QPSK	M1	20	21.0	20.55	-0.11	Right	0	1	49	1:1	ACTIVE	0	0.205	1.109	0.227	-
1 770.0	132572	QPSK	M1	20	21.0	20.59	0.19	Right	0	50	49	1:1	ACTIVE	0	0.197	1.099	0.217	-
1 770.0	132572	QPSK	M1	20	13.0	12.29	-0.11	Top	0	1	49	1:1	ACTIVE	0	0.310	1.178	0.365	-
1 770.0	132572	QPSK	M1	20	13.0	12.29	-0.14	Top	0	50	49	1:1	ACTIVE	0	0.304	1.178	0.358	-
1 770.0	132572	QPSK	M1	20	25.0	24.20	0.11	Rear	0	1	49	1:1	INACTIVE	19	0.476	1.202	0.572	-
1 770.0	132572	QPSK	M1	20	24.0	23.27	0.11	Rear	1	50	49	1:1	INACTIVE	19	0.372	1.183	0.440	-
1 770.0	132572	QPSK	M1	20	25.0	24.20	-0.02	Left	0	1	49	1:1	INACTIVE	10	0.078	1.202	0.094	-
1 770.0	132572	QPSK	M1	20	24.0	23.27	-0.13	Left	1	50	49	1:1	INACTIVE	10	0.053	1.183	0.063	-
1 770.0	132572	QPSK	M1	20	25.0	24.20	-0.17	Right	0	1	49	1:1	INACTIVE	10	0.125	1.202	0.150	-
1 770.0	132572	QPSK	M1	20	24.0	23.27	-0.10	Right	1	50	49	1:1	INACTIVE	10	0.103	1.183	0.122	-
1 770.0	132572	QPSK	M1	20	25.0	24.20	-0.13	Top	0	1	49	1:1	INACTIVE	19	**0.544**	1.202	**0.654**	A12
1 770.0	132572	QPSK	M1	20	24.0	23.27	-0.11	Top	1	50	49	1:1	INACTIVE	19	0.443	1.183	0.524	-
1 745.0	132322	QPSK	S1	20	12.0	11.09	-0.15	Rear	0	1	0	1:1	ACTIVE	0	0.166	1.233	0.205	-
1 745.0	132322	QPSK	S1	20	12.0	11.02	-0.05	Rear	0	50	0	1:1	ACTIVE	0	0.168	1.253	0.211	-
1 745.0	132322	QPSK	S1	20	12.0	11.09	0.11	Left	0	1	0	1:1	ACTIVE	0	0.213	1.233	0.263	-
1 745.0	132322	QPSK	S1	20	12.0	11.02	0.18	Left	1	50	0	1:1	ACTIVE	0	0.226	1.253	0.283	-
1 745.0	132322	QPSK	S1	20	12.0	11.09	-0.17	Bottom	0	1	0	1:1	ACTIVE	0	0.132	1.233	0.163	-
1 745.0	132322	QPSK	S1	20	12.0	11.02	-0.19	Bottom	0	50	0	1:1	ACTIVE	0	0.136	1.253	0.170	-
1 745.0	132322	QPSK	S1	20	24.0	23.09	0.02	Rear	0	1	0	1:1	INACTIVE	18	0.057	1.233	0.070	-
1 745.0	132322	QPSK	S1	20	23.0	22.14	0.01	Rear	1	50	0	1:1	INACTIVE	18	0.048	1.219	0.059	-
1 745.0	132322	QPSK	S1	20	24.0	23.09	-0.11	Left	0	1	0	1:1	INACTIVE	10	0.157	1.233	0.194	-
1 745.0	132322	QPSK	S1	20	23.0	22.14	-0.12	Left	1	50	0	1:1	INACTIVE	10	0.130	1.219	0.158	-
1 745.0	132322	QPSK	S1	20	24.0	23.09	0.05	Bottom	0	1	0	1:1	INACTIVE	18	0.066	1.233	0.081	-
1 745.0	132322	QPSK	S1	20	23.0	22.14	-0.19	Bottom	1	50	0	1:1	INACTIVE	18	0.052	1.219	0.063	-

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. 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)	
836.5	167300	DFT-s QPSK	M1	20	15.0	14.32	-0.06	Rear	0	1	53	1:1	ACTIVE	0	0.432	1.169	0.505	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.27	0.01	Rear	0	50	0	1:1	ACTIVE	0	0.458	1.183	0.542	
836.5	167300	DFT-s QPSK	M1	20	23.0	22.18	0.17	Left	0	1	1	1:1	ACTIVE	0	0.217	1.208	0.262	-
836.5	167300	DFT-s QPSK	M1	20	23.0	22.15	0.17	Left	0	50	0	1:1	ACTIVE	0	0.222	1.216	0.270	-
836.5	167300	DFT-s QPSK	M1	20	23.0	22.18	-0.10	Right	0	1	1	1:1	ACTIVE	0	0.102	1.208	0.123	-
836.5	167300	DFT-s QPSK	M1	20	23.0	22.15	0.11	Right	0	50	0	1:1	ACTIVE	0	0.166	1.216	0.202	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.32	0.18	Top	0	1	53	1:1	ACTIVE	0	0.378	1.169	0.442	-
836.5	167300	DFT-s QPSK	M1	20	15.0	14.27	0.02	Top	0	50	0	1:1	ACTIVE	0	0.400	1.183	0.473	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.28	0.19	Rear	0	1	1	1:1	INACTIVE	19	0.417	1.180	0.492	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.17	-0.03	Rear	0	50	28	1:1	INACTIVE	19	0.411	1.211	0.498	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.28	0.11	Left	0	1	1	1:1	INACTIVE	10	0.053	1.180	0.063	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.17	0.15	Left	0	50	28	1:1	INACTIVE	10	0.049	1.211	0.059	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.28	0.05	Right	0	1	1	1:1	INACTIVE	10	0.075	1.180	0.089	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.17	-0.19	Right	0	50	28	1:1	INACTIVE	10	0.078	1.211	0.094	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.28	-0.16	Top	0	1	1	1:1	INACTIVE	19	0.476	1.180	0.562	-
836.5	167300	DFT-s QPSK	M1	20	25.0	24.17	0.01	Top	0	50	28	1:1	INACTIVE	19	0.534	1.211	**0.647**	**A13**
836.5	167300	CP QPSK	M1	20	23.5	22.74	0.05	Top	1.5	1	1	1:1	INACTIVE	19	0.366	1.191	0.436	-
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population									Body 1.6 W/kg Averaged over 1 gram									

NR FDD Band n66 Body SAR																		
Frequency		OFDM 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)	
1 745.0	349000	DFT-s QPSK	M1	40	13.0	11.83	0.09	Rear	0	1	108	1:1	ACTIVE	0	0.356	1.309	0.466	-
1 745.0	349000	DFT-s QPSK	M1	40	13.0	11.78	0.16	Rear	0	108	54	1:1	ACTIVE	0	0.348	1.324	0.461	
1 745.0	349000	DFT-s QPSK	M1	40	21.0	20.09	0.13	Left	0	1	108	1:1	ACTIVE	0	0.188	1.233	0.232	-
1 745.0	349000	DFT-s QPSK	M1	40	21.0	20.02	0.16	Left	0	108	54	1:1	ACTIVE	0	0.174	1.253	0.218	-
1 745.0	349000	DFT-s QPSK	M1	40	21.0	20.09	0.17	Right	0	1	108	1:1	ACTIVE	0	0.329	1.233	0.406	-
1 745.0	349000	DFT-s QPSK	M1	40	21.0	20.02	0.18	Right	0	108	54	1:1	ACTIVE	0	0.315	1.253	0.395	-
1 745.0	349000	DFT-s QPSK	M1	40	13.0	11.83	0.14	Top	0	1	108	1:1	ACTIVE	0	0.275	1.309	0.360	-
1 745.0	349000	DFT-s QPSK	M1	40	13.0	11.78	0.15	Top	0	108	54	1:1	ACTIVE	0	0.270	1.324	0.357	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.00	Rear	0	1	108	1:1	INACTIVE	19	0.324	1.169	0.379	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.16	Rear	0	108	54	1:1	INACTIVE	19	0.356	1.194	0.425	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.04	Left	0	1	108	1:1	INACTIVE	10	0.127	1.169	0.148	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.03	Left	0	108	54	1:1	INACTIVE	10	0.128	1.194	0.153	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.10	Right	0	1	108	1:1	INACTIVE	10	0.090	1.169	0.105	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.01	Right	0	108	54	1:1	INACTIVE	10	0.120	1.194	0.143	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.16	Top	0	1	108	1:1	INACTIVE	19	**0.839**	1.169	0.981	**A14**
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.13	Top	0	108	54	1:1	INACTIVE	19	0.825	1.194	**0.985**	-
1 745.0	349000	DFT-s QPSK	M1	40	24.0	23.22	0.07	Top	1	216	0	1:1	INACTIVE	19	0.647	1.197	0.774	-
1 745.0	349000	CP QPSK	M1	40	23.5	22.44	0.15	Top	1.5	1	1	1:1	INACTIVE	19	0.552	1.276	0.704	-
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.32	0.16	Top	0	1	108	1:1	INACTIVE	19	0.830	1.169	0.970	#
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.02	Top	0	108	54	1:1	INACTIVE	19	0.373	1.194	0.445	##
1 745.0	349000	DFT-s QPSK	M1	40	25.0	24.23	0.00	Top	0	108	54	1:1	INACTIVE	19	0.443	1.194	0.529	••

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

Measurement validity
##: Tablet Mode with Cover Variant 1
•• : Tablet Mode with Cover Variant 2

NR TDD Band n41 Body SAR																		
Frequency		OFDM 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)	
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.33	-0.02	Rear	0	1	271	1:1	ACTIVE	0	0.471	1.309	0.617	-
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.21	0.04	Rear	0	135	69	1:1	ACTIVE	0	0.504	1.346	0.678	
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.20	0.06	Rear	0	270	0	1:1	ACTIVE	0	0.506	1.349	0.683	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.94	0.04	Left	0	1	137	1:1	N/A	0	0.060	1.014	0.061	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.90	-0.04	Left	0	135	69	1:1	N/A	0	0.077	1.023	0.079	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.94	0.07	Right	0	1	137	1:1	N/A	0	0.120	1.014	0.122	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.90	-0.02	Right	0	135	69	1:1	N/A	0	0.135	1.023	0.138	-
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.33	0.15	Top	0	1	271	1:1	ACTIVE	0	0.480	1.309	0.628	-
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.21	0.14	Top	0	135	69	1:1	ACTIVE	0	0.491	1.346	0.661	-
2 592.99	518598	DFT-s QPSK	M1	100	11.5	10.20	-0.19	Top	0	270	0	1:1	ACTIVE	0	0.530	1.349	0.715	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.94	0.01	Rear	0	1	137	1:1	INACTIVE	19	0.091	1.014	0.092	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.90	0.02	Rear	0	135	69	1:1	INACTIVE	19	0.090	1.023	0.092	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.94	0.18	Top	0	1	137	1:1	INACTIVE	19	0.137	1.014	0.139	-
2 592.99	518598	DFT-s QPSK	M1	100	19.0	18.90	0.19	Top	0	135	69	1:1	INACTIVE	19	0.139	1.023	0.142	-
2 592.99	518598	CP QPSK	M1	100	11.5	10.17	0.15	Top	0	1	1	1:1	ACTIVE	0	**0.550**	**1.358**	**0.747**	**A15**
2 592.99	518598	DFT-s QPSK	S1	100	15.0	14.10	-0.06	Rear	0	1	1	1:1	ACTIVE	0	0.382	1.230	0.470	-
2 592.99	518598	DFT-s QPSK	S1	100	15.0	14.10	-0.05	Left	0	1	1	1:1	ACTIVE	0	0.427	1.230	0.525	-
2 592.99	518598	DFT-s QPSK	S1	100	15.0	14.10	0.00	Right	0	1	1	1:1	ACTIVE	0	0.000	1.230	0.000	-
2 592.99	518598	DFT-s QPSK	S1	100	15.0	14.10	0.06	Bottom	0	1	1	1:1	ACTIVE	0	0.186	1.230	0.229	-
2 592.99	518598	DFT-s QPSK	S1	100	21.0	19.84	-0.07	Rear	0	1	1	1:1	INACTIVE	18	0.028	1.306	0.037	-
2 592.99	518598	DFT-s QPSK	S1	100	21.0	19.84	0.05	Left	0	1	1	1:1	INACTIVE	10	0.069	1.306	0.090	-
2 592.99	518598	DFT-s QPSK	S1	100	21.0	19.84	0.00	Bottom	0	1	1	1:1	INACTIVE	18	0.000	1.306	0.000	-
2 592.99	518598	DFT-s QPSK	S3	100	15.0	14.41	-0.03	Rear	0	1	1	1:1	N/A	0	0.286	1.146	0.328	-
2 592.99	518598	DFT-s QPSK	S3	100	15.0	14.41	-0.09	Left	0	1	1	1:1	N/A	0	0.052	1.146	0.060	-
2 592.99	518598	DFT-s QPSK	S3	100	15.0	14.41	-0.10	Right	0	1	1	1:1	N/A	0	0.004	1.146	0.005	-
2 592.99	518598	DFT-s QPSK	S3	100	15.0	14.41	0.05	Bottom	0	1	1	1:1	N/A	0	0.314	1.146	0.360	-
2 592.99	518598	DFT-s QPSK	S2	100	18.0	16.84	-0.07	Rear	0	1	1	1:1	N/A	0	0.388	1.306	0.507	-
2 592.99	518598	DFT-s QPSK	S2	100	18.0	16.84	0.15	Left	0	1	1	1:1	N/A	0	0.000	1.306	0.000	-
2 592.99	518598	DFT-s QPSK	S2	100	18.0	16.84	0.11	Right	0	1	1	1:1	N/A	0	0.060	1.306	0.078	-
2 592.99	518598	DFT-s QPSK	S2	100	18.0	16.84	-0.18	Bottom	0	1	1	1:1	N/A	0	0.436	1.306	0.569	-
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. 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)	
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.40	-0.11	Rear	0	1	137	1:1	ACTIVE	0	0.282	1.288	0.363	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.20	-0.12	Rear	0	1	1	1:1	ACTIVE	0	0.270	1.349	0.364	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.35	-0.13	Rear	0	135	0	1:1	ACTIVE	0	0.286	1.303	0.373	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.31	-0.11	Rear	0	135	69	1:1	ACTIVE	0	0.236	1.315	0.310	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.40	-0.15	Right	0	1	137	1:1	ACTIVE	0	0.368	1.288	0.474	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.20	-0.18	Right	0	1	1	1:1	ACTIVE	0	0.294	1.349	0.397	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.35	-0.16	Right	0	135	0	1:1	ACTIVE	0	0.368	1.303	0.480	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.31	-0.18	Right	0	135	69	1:1	ACTIVE	0	0.365	1.315	0.480	-
3 930.00	662000	DFT-s QPSK	M2	100	9.5	8.40	-0.14	Bottom	0	1	137	1:1	ACTIVE	0	0.097	1.288	0.125	-
3 750.00	650000	DFT-s QPSK	M2	100	9.5	8.35	-0.17	Bottom	0	135	0	1:1	ACTIVE	0	0.124	1.303	0.162	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.91	0.01	Rear	0	1	137	1:1	INACTIVE	18	0.049	1.021	0.050	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.86	-0.14	Rear	0	135	69	1:1	INACTIVE	18	0.059	1.033	0.061	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.91	0.17	Right	0	1	137	1:1	INACTIVE	10	0.315	1.021	0.322	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.86	0.15	Right	0	135	69	1:1	INACTIVE	10	0.368	1.033	0.380	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.91	-0.11	Bottom	0	1	137	1:1	INACTIVE	18	0.039	1.021	0.040	-
3 930.00	662000	DFT-s QPSK	M2	100	19.0	18.86	-0.15	Bottom	0	135	69	1:1	INACTIVE	18	0.040	1.033	0.041	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.17	-0.11	Right	0	1	271	1:1	ACTIVE	0	0.434	1.358	0.589	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.06	-0.10	Right	0	135	138	1:1	ACTIVE	0	0.451	1.393	0.628	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.02	-0.14	Right	0	270	0	1:1	ACTIVE	0	**0.489**	1.406	**0.688**	A16
3 500.01	633334	CP QPSK	M2	100	9.5	8.04	-0.09	Right	0	1	1	1:1	ACTIVE	0	0.457	1.400	0.640	-
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.02	0.05	Right	0	270	0	1:1	ACTIVE	0	0.232	1.406	0.326	##
3 500.01	633334	DFT-s QPSK	M2	100	9.5	8.02	-0.10	Right	0	270	0	1:1	ACTIVE	0	0.197	1.406	0.277	••

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

DTS Body SAR

Frequency		Mode	Ant.	Band width (㎒)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	SENSOR	Distance (㎜)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
㎒	Ch.																	
2 437	6	802.11b	1	20	1	11.0	10.82	0.06	Rear	98.8	ACTIVE	0	0.609	0.424	1.042	1.012	0.447	-
2 437	6	802.11b	1	20	1	11.0	10.82	0.14	Right	98.8	ACTIVE	0	0.703	0.467	1.042	1.012	0.493	-
2 437	6	802.11b	1	20	1	11.0	10.82	0.14	Top	98.8	ACTIVE	0	0.182	0.218	1.042	1.012	0.230	-
2 412	1	802.11b	1	20	1	20.0	19.56	0.16	Rear	98.8	INACTIVE	18	0.103	0.086	1.107	1.012	0.096	-
2 412	1	802.11b	1	20	1	20.0	19.56	0.02	Right	98.8	INACTIVE	10	0.479	0.371	1.107	1.012	0.416	-
2 412	1	802.11b	1	20	1	20.0	19.56	-0.13	Top	98.8	INACTIVE	18	0.0949	0.076	1.107	1.012	0.085	-
2 462	11	802.11b	1+2	20	1	14.0	13.36	0.04	Rear	99.1	ACTIVE	0	0.742	0.411	1.268	1.009	0.526	-
2 462	11	802.11b	1+2	20	1	14.0	13.36	0.05	Left	99.1	ACTIVE	0	0.647	0.443	1.268	1.009	0.567	-
2 462	11	802.11b	1+2	20	1	14.0	13.36	0.03	Right	99.1	ACTIVE	0	0.756	**0.487**	1.268	1.009	**0.623**	**A17**
2 462	11	802.11b	1+2	20	1	14.0	13.36	0.02	Top	99.1	ACTIVE	0	0.343	0.244	1.268	1.009	0.312	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	-0.11	Rear	99.1	INACTIVE	18	0.134	0.110	1.107	1.009	0.123	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	0.03	Left	99.1	INACTIVE	10	0.355	0.271	1.107	1.009	0.303	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	0.13	Right	99.1	INACTIVE	10	0.547	0.430	1.107	1.009	0.480	-
2 412	1	802.11b	1+2	20	1	23.0	22.74	0.03	Top	99.1	INACTIVE	18	0.147	0.113	1.107	1.009	0.126	-
2 462	11	802.11b	1+2	20	1	14.0	13.36	-0.19	Right	99.1	ACTIVE	0	1.19	0.429	1.268	1.009	0.549	##
2 462	11	802.11b	1+2	20	1	14.0	13.36	0.18	Right	99.1	ACTIVE	0	0.815	0.306	1.268	1.009	0.392	••

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 (MHz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	SENSOR	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
MHz	Ch.																	
5 290	58	802.11ac	2	80	MCS0	8.0	6.76	0.17	Rear	0.859	ACTIVE	0	0.532	0.063	1.330	1.164	0.098	
5 290	58	802.11ac	2	80	MCS0	8.0	6.76	-0.05	Left	0.859	ACTIVE	0	0.207	0.109	1.330	1.164	0.169	-
5 290	58	802.11ac	2	80	MCS0	8.0	6.76	0.01	Top	0.859	ACTIVE	0	0.192	0.056	1.330	1.164	0.087	-
5 300	60	802.11a	2	20	6	15.0	14.85	0.00	Rear	0.935	INACTIVE	18	0.0123	0.00595	1.035	1.070	0.007	
5 300	60	802.11a	2	20	6	15.0	14.85	0.16	Left	0.935	INACTIVE	10	0.113	0.051	1.035	1.070	0.056	
5 300	60	802.11a	2	20	6	15.0	14.85	0.07	Top	0.935	INACTIVE	18	0.133	0.028	1.035	1.070	0.031	-
5 530	106	802.11ac	2	80	MCS0	8.0	6.99	0.01	Rear	0.859	ACTIVE	0	1.23	0.323	1.262	1.164	0.475	-
5 530	106	802.11ac	2	80	MCS0	8.0	6.99	0.16	Left	0.859	ACTIVE	0	1.23	0.400	1.262	1.164	0.588	-
5 610	106	802.11ac	2	80	MCS0	8.0	6.99	0.17	Top	0.859	ACTIVE	0	0.252	0.107	1.262	1.164	0.157	-
5 720	144	802.11a	2	20	6	17.0	16.33	0.00	Rear	0.935	INACTIVE	18	0.226	0.049	1.167	1.070	0.061	
5 720	144	802.11a	2	20	6	17.0	16.33	0.04	Left	0.935	INACTIVE	10	0.563	0.253	1.167	1.070	0.316	
5 720	144	802.11a	2	20	6	17.0	16.33	0.15	Top	0.935	INACTIVE	18	0.249	0.110	1.167	1.070	0.137	-
5 775	155	802.11ac	2	80	MCS0	8.0	7.13	0.09	Rear	0.859	ACTIVE	0	1.64	0.474	1.222	1.164	0.674	-
5 775	155	802.11ac	2	80	MCS0	8.0	7.13	0.07	Left	0.859	ACTIVE	0	1.35	0.435	1.222	1.164	0.619	-
5 775	155	802.11ac	2	80	MCS0	8.0	7.13	0.00	Top	0.859	ACTIVE	0	0.194	0.053	1.222	1.164	0.075	-
5 825	165	802.11a	2	20	6	17.0	16.52	0.01	Rear	0.935	INACTIVE	18	0.133	0.047	1.117	1.070	0.056	
5 825	165	802.11a	2	20	6	17.0	16.52	0.05	Left	0.935	INACTIVE	10	0.663	0.290	1.117	1.070	0.346	
5 825	165	802.11a	2	20	6	17.0	16.52	-0.05	Top	0.935	INACTIVE	18	0.136	0.056	1.117	1.070	0.067	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.86	0.01	Rear	0.859	ACTIVE	0	1.51	0.201	1.300	1.164	0.304	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.86	0.05	Left	0.859	ACTIVE	0	0.868	0.288	1.300	1.164	0.436	-
5 855	171	802.11ac	2	80	MCS0	8.0	6.86	0.10	Top	0.859	ACTIVE	0	0.199	0.059	1.300	1.164	0.089	-
5 845	169	802.11a	2	20	6	17.0	16.85	-0.19	Rear	0.935	INACTIVE	18	0.128	0.048	1.035	1.070	0.053	
5 845	169	802.11a	2	20	6	17.0	16.85	-0.03	Left	0.935	INACTIVE	10	0.671	0.296	1.035	1.070	0.328	
5 845	169	802.11a	2	20	6	17.0	16.85	0.14	Top	0.935	INACTIVE	18	0.15	0.064	1.035	1.070	0.071	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.22	0.01	Rear	0.859	ACTIVE	0	0.917	0.135	1.330	1.164	0.209	
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.22	0.15	Left	0.859	ACTIVE	0	0.241	0.091	1.330	1.164	0.141	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.22	0.10	Right	0.859	ACTIVE	0	1.53	0.352	1.330	1.164	**0.545**	-
5 290	58	802.11ac	1+2	80	MCS0	11.0	10.22	0.01	Top	0.859	ACTIVE	0	0.223	0.039	1.330	1.164	0.060	
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.08	Rear	0.935	INACTIVE	18	0.125	0.031	1.096	1.070	0.036	
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.08	Left	0.935	INACTIVE	10	0.271	0.119	1.096	1.070	0.139	-
5 300	60	802.11a	1+2	20	6	18.0	17.74	0.13	Right	0.935	INACTIVE	10	0.357	0.162	1.096	1.070	0.190	
5 300	60	802.11a	1+2	20	6	18.0	17.74	-0.10	Top	0.935	INACTIVE	18	0.132	0.015	1.096	1.070	0.018	
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	0.08	Rear	0.859	ACTIVE	0	2.25	0.358	1.262	1.164	0.526	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	-0.16	Left	0.859	ACTIVE	0	1.7	0.447	1.262	1.164	**0.657**	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	0.07	Right	0.859	ACTIVE	0	0.894	0.163	1.262	1.164	0.239	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	0.01	Top	0.859	ACTIVE	0	0.517	0.094	1.262	1.164	0.138	
5 720	144	802.11a	1+2	20	6	20.0	19.23	-0.10	Rear	0.935	INACTIVE	18	0.335	0.091	1.225	1.070	0.119	
5 720	144	802.11a	1+2	20	6	20.0	19.23	-0.11	Left	0.935	INACTIVE	10	0.654	0.265	1.225	1.070	0.347	
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.12	Right	0.935	INACTIVE	10	0.209	0.084	1.225	1.070	0.110	
5 720	144	802.11a	1+2	20	6	20.0	19.23	0.00	Top	0.935	INACTIVE	18	0.154	0.062	1.225	1.070	0.081	-
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	-0.03	Left	0.859	ACTIVE	0	0.290	0.052	1.262	1.164	0.076	###
5 530	106	802.11ac	1+2	80	MCS0	11.0	10.23	-0.09	Left	0.859	ACTIVE	0	0.278	0.051	1.262	1.164	0.075	•••

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5 GHz WLAN Body SAR																		
Frequency		Mode	Ant.	Band width (Mhz)	Data Rate (Mbps)	Tune-Up Limit (dBm)	Meas. Power (dBm)	Power Drift (dB)	Test Position	Duty Cycle	SENSOR	Distance (mm)	Area Scan Peak SAR (W/kg)	Meas. SAR (W/kg)	Scaling Factor	Scaling Factor (Duty)	Reported SAR (W/kg)	Plot No.
Mhz	Ch.																	
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	0.16	Rear	0.859	ACTIVE	0	3.46	**0.575**	1.222	1.164	**0.818**	A18
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	0.12	Left	0.859	ACTIVE	0	1.7	0.441	1.222	1.164	0.627	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	0.17	Right	0.859	ACTIVE	0	1.09	0.305	1.222	1.164	0.434	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	0.01	Top	0.859	ACTIVE	0	0.452	0.060	1.222	1.164	0.085	
5 825	165	802.11a	1+2	20	6	20.0	19.32	0.07	Rear	0.935	INACTIVE	18	0.413	0.072	1.219	1.070	0.094	
5 825	165	802.11a	1+2	20	6	20.0	19.32	-0.05	Left	0.935	INACTIVE	10	0.592	0.238	1.219	1.070	0.310	
5 825	165	802.11a	1+2	20	6	20.0	19.32	0.19	Right	0.935	INACTIVE	10	0.205	0.080	1.219	1.070	0.104	
5 825	165	802.11a	1+2	20	6	20.0	19.32	-0.01	Top	0.935	INACTIVE	18	0.148	0.044	1.219	1.070	0.057	-
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	-0.05	Rear	0.859	ACTIVE	0	2.30	0.332	1.222	1.164	0.472	##
5 775	155	802.11ac	1+2	80	MCS0	11.0	10.37	-0.12	Rear	0.859	ACTIVE	0	0.897	0.124	1.222	1.164	0.176	••
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.11	0.03	Rear	0.859	ACTIVE	0	0.604	0.399	1.300	1.164	**0.604**	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.11	0.17	Left	0.859	ACTIVE	0	0.621	0.246	1.300	1.164	0.372	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.11	0.04	Right	0.859	ACTIVE	0	1.2	0.350	1.300	1.164	0.530	-
5 855	171	802.11ac	1+2	80	MCS0	11.0	10.11	0.00	Top	0.859	ACTIVE	0	0.432	0.061	1.300	1.164	0.092	
5 865	173	802.11a	1+2	20	6	20.0	19.59	-0.11	Rear	0.935	INACTIVE	18	0.352	0.068	1.130	1.070	0.082	
5 865	173	802.11a	1+2	20	6	20.0	19.59	0.07	Left	0.935	INACTIVE	10	0.594	0.235	1.130	1.070	0.284	
5 865	173	802.11a	1+2	20	6	20.0	19.59	0.17	Right	0.935	INACTIVE	10	0.292	0.118	1.130	1.070	0.143	
5 865	173	802.11a	1+2	20	6	20.0	19.59	-0.09	Top	0.935	INACTIVE	18	0.135	0.041	1.130	1.070	0.050	-

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
: Laptop Mode with Cover Variant 1
••• : Laptop Mode with Cover Variant 2

DSS Tethering 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	10.32	0.10	Rear	ACTIVE	0	0.342	1.169	1.016	0.406	-
2 480	78	DH-5	1	11.0	10.32	0.11	Right	ACTIVE	0	**0.389**	1.169	1.016	0.462	**A19**
2 480	78	DH-5	1	11.0	10.32	0.10	Top	ACTIVE	0	0.199	1.169	1.016	0.236	-
2 441	39	DH-5	1	15.5	14.78	-0.09	Rear	INACTIVE	18	0.00313	1.180	1.016	0.004	-
2 441	39	DH-5	1	15.5	14.78	-0.15	Right	INACTIVE	10	0.017	1.180	1.016	0.020	-
2 441	39	DH-5	1	15.5	14.78	0.11	Top	INACTIVE	18	0.0815	1.180	1.016	0.098	
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								Body 1.6 W/kg 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 see Section 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. Additional Cover was tested on the worst configuration of each antenna.

GSM/GPRS Test Notes:

1. This EUT'S GSM and GPRS device class is B.
2. This device supports GPRS VOIP in the head and the body-worn configurations therefore GPRS was additionally evaluated for head and body-worn compliance.
3. Justification for reduced test configurations per KDB 941225 D01v03r01: The source-based time-averaged output power was evaluated for all multi-slot operations. The multi-slot configuration with the highest frame averaged output power including tolerance was evaluated for SAR.
4. Per FCC KDB 447498 D04v01, if the reported (scaled) SAR measured at the middle channel or highest output power channel for each test configuration is 0.8 W/kg then testing at the other channels is not required for such test configuration(s). When the maximum output power variation across the required test channels is 1/2 dB, instead of the middle channel, the highest output power channel must be used.

UMTS Notes:

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

LTE Notes:

1. LTE Considerations: LTE test configurations are determined according to SAR Evaluation Consideration for LTE Devices in FCC KDB 941225 D05v02r05.
2. According to FCC KDB 941225 D05v02r05:
   When the reported SAR is 0.8 W/kg, testing of the 100% RB allocation and required test channels is not required. Otherwise, SAR is required for the remaining required test channels using the 1RB, 50%RB and 100%RB allocation with highest output power for that channel.
   Only one channel, and as reported SAR values for 1RB allocation and 50%RB allocation were less than 1.45W/Kg only the highest power RB offset for each allocation was required.
3. MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to target MPR is indicated alongside the SAR results.
4. When Power reduction is applied, MPR is 0 for some modes.
5. A-MPR was disabled for all SAR tests by setting NS=01 on the base station simulator.
6. Per FCC KDB Publication 447498 D01v06, if the reported (scaled) LTE TDD Band 41 SAR measured at the highest output power channel for each test configuration is 0.6 W/kg then testing at the other channels is not required for such test configurations.
7. TDD LTE (Power Class 3) was tested using UL-DL configuration 0 with 6 UL sub frames and 2S 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. 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. For held-to-ear and hotspot operations, the initial test position procedures were applied. For initial test position, the highest extrapolated peak SAR will be used. When reported SAR for the initial test position is ≤ 0.4 W/kg for 1g SAR and ≤ 1.0 W/kg for 10g SAR, no additional testing for the remaining test positions was required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR results is ≤ 0.8 W/kg for 1g SAR and ≤ 2.0 W/kg for 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 see 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 section 4.3.2 and IEEE 1528-2013 section 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 ≤1.6W/kg for 1g SAR and ≤4 W/kg for 10g SAR. The different test positions in an exposure condition may be considered collectively to determine SAR exclusion according to the sum of 1g or 10g SAR.

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. Section 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 1 antenna (Main1 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

[Max.SAR.AG0 + Max.SAR.AG1] + [Max.WLAN + Max.Bluetooth] ≤ 1.6 (for 1g SAR or 4.0 for 10g)

If sum result with both antenna group and BT/WAN exceeds the FCC SAR limit of 1.6 W/kg 1g,

4.0W/kg 10g, can use below contents.

Section 14.5 contains analysis to demonstrate the AG0 and AG1 are operate mutually exclusive.
The simultaneous transmission analysis of each antenna group was evaluated based on the maximum Reported SAR of the antenna in each Antenna group and the nearest y-axis coordinate of each antenna Group. Additional analysis is provided below to show compliance between AG0 and AG1.

[Max.SAR.AG0 + Max.WLAN + Max.Bluetooth] ≤ 1.6 (for 1g SAR or 4.0 for 10g)

[Max.SAR.AG1 + Max.WLAN + Max.Bluetooth] ≤ 1.6 (for 1g SAR or 4.0 for 10g)

If the sum result with each antenna group and BT/WLAN exceeds the FCC SAR limit of 1.6 W/kg 1g ,4.0 W/kg 10g, the SPLSR was re-evaluated according to FCC KDB 447498 D01v06 4.3.2.

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

AG0	
Main1	GSM850, GSM1900, UMTS 2/4/5, LTE12/13/25/26/41/66, NR n5/41/66

AG1	
Main 2	NR n77
Sub 1	LTE 2/4/66, NR n41 SRS1
Sub 2	NR n41 SRS3
Sub 3	NR n41 SRS2

WLAN/BT	
WIFI1	WLAN 2.4 GHz,5 GHz, Bluetooth
WIFI2	WLAN 2.4 GHz,5 GHz

14.2 Body SAR Simultaneous Transmission Analysis

14.2.1 SAR Simultaneous Transmission Analysis at 0mm

The Maximum measurement result for AG0		
Position	Main1	Max.AG0
Rear	0.766	0.766
Left	0.270	0.270
Right	0.406	0.406
Top	0.802	0.802
Bottom		

The Maximum measurement result for AG1					
Position	Main2	Sub1	Sub2	Sub3	Max.AG1
Rear	0.373	0.47	0.507	0.328	0.507
Left		0.525	0	0.06	0.525
Right	0.688		0.078	0.005	0.688
Top					
Bottom	0.162	0.229	0.436	0.36	0.436

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	0.447	0.526	0.674	0.818	0.405
Left		0.567	0.588	0.657	
Right	0.493	0.623		0.545	0.462
Top	0.23	0.312	0.157	0.138	0.236
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	See Sec. 14.2.1.1	See Sec. 14.2.1.1	See Sec. 14.2.1.1	See Sec. 14.2.1.1	See Sec. 14.2.1.1	See Sec. 14.2.1.1	See Sec. 14.2.1.1
Left	0.795	0.795	1.362	1.383	1.452	1.383	1.452
Right	1.555	**1.587**	See Sec. 14.4.1	1.094	See Sec. 14.4.1	1.555	See Sec 14.4.1
Top	1.038	1.032	1.114	0.959	0.94	1.195	1.176
Bottom	0.436	0.436	0.436	0.436	0.436	0.436	0.436

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+5 GHz SISO	AG0+5 GHz MIMO	AG0+5 GHz SISO+BT	AG0+5 GHz MIMO+BT
Rear	1.171	1.213	1.292	1.44	1.584	See Sec. 14.3.1	See 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	0.912	0.954	1.033	1.181	1.325	1.586	See Sec. 14.3.1

AG0+AG1

Simultaneous Transmission Analysis for Body SAR	
Position	AG0+AG1
Rear	1.273

14.2.2 SAR Simultaneous Transmission Analysis for Maximum Power configurations

The Maximum measurement result for AG0		
Position	Main1	Max.AG0
Rear	0.632	0.632
Left	0.235	0.235
Right	0.319	0.319
Top	0.815	0.815
Bottom		

The Maximum measurement result for AG1					
Position	Main2	Sub1	Sub2	Sub3	Max.AG1
Rear	0.061	0.168	0.507	0.328	0.507
Left		0.255	0.000	0.06	0.255
Right	0.38		0.078	0.005	0.38
Top					
Bottom	0.041	0.154	0.436	0.36	0.436

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	0.107	0.137	0.07	0.116	0.004
Left		0.336	0.346	0.337	
Right	0.46	0.533		0.204	0.02
Top	0.094	0.141	0.121	0.079	0.097
Bottom					

AG0+AG1+WLAN/BT

Simultaneous Transmission Analysis for Body SAR	
Position	AG0+AG1+ WLAN/BT
Rear	1.362
Left	0.836
Right	1.363
Top	1.033
Bottom	0.436

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:

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

Where:

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

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

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

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

14.3.1 Body SAR (Rear) SPLSR Evaluation

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
GSM 850	Main 1	10.5	135.9	-177	0.531
GSM 1900	Main 1	27	-133.2	-177	0.510
UMTS 5	Main 1	-1.1	-129.5	-177	0.486
UMTS 4	Main 1	11.7	-125.4	-177	0.606
UMTS 2	Main 1	22.8	-127.2	-177	0.46
LTE 25 (2)	Main 1	24	-123	-177	0.435
LTE 66 (4)	Main 1	24	-124.5	-177	0.479
LTE 26 (5)	Main 1	4.5	-130	-177	0.416
LTE 12	Main 1	-3	-125.7	-177	0.464
LTE 13	Main 1	-1.5	-125.7	-177	0.429
L 41(38)	Main 1	21	-125	-177	0.529
NR n41	Main 1	21	-125	-177	0.766
NR n5	Main 1	-2	-129	-177	0.542
NR n66	Main 1	21.3	-127.5	-177	0.466

Ant Group 1

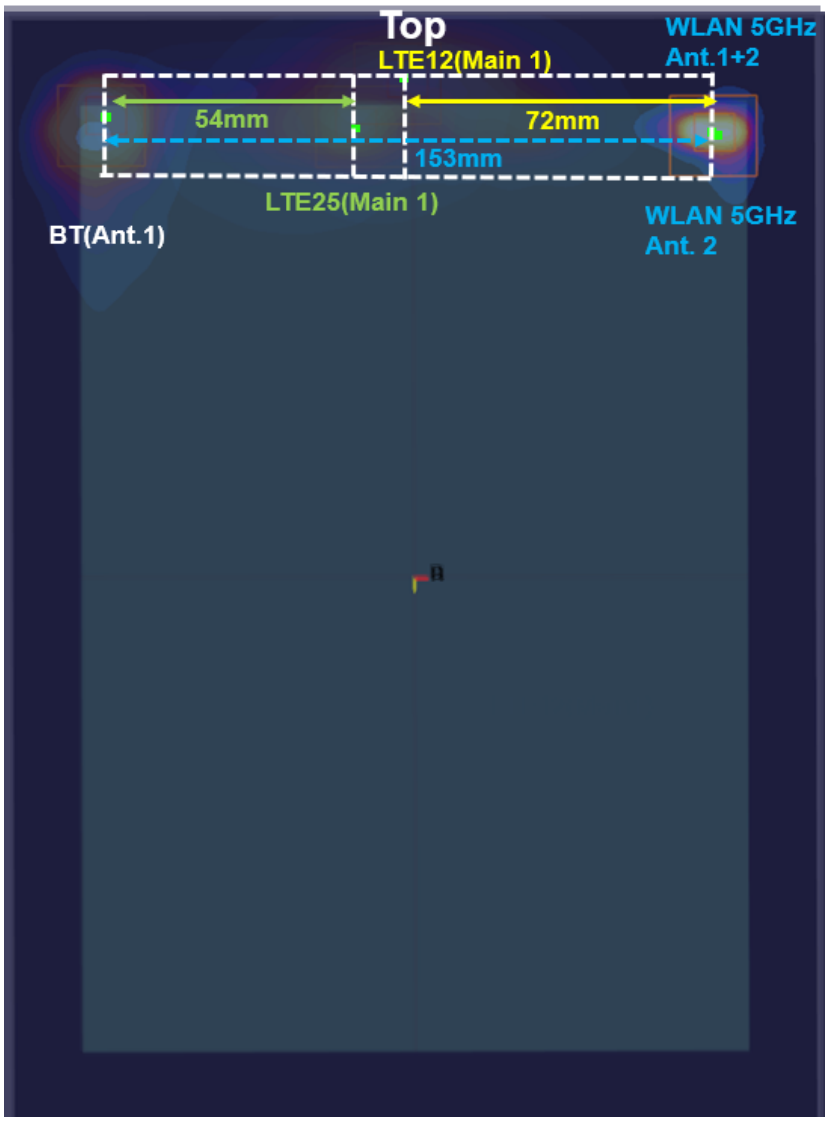
Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE 2	Sub 1	-75.3	127.8	-177	0.242
LTE 66(4)	Sub 1	-79.5	124.5	-177	0.479
NR n41 (SRS #1)	Sub 1	-83	119	-177	0.470
NR n41 (SRS #2)	Sub 3	-59	124	-177	0.328
NR n41 (SRS #3)	Sub 2	22	125	-177	0.507
NR n77	Main 2	79	119	-177	0.373

WLAN/BT

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
BT	Ant.1	78	-126	-177	0.405
WLAN 5 GHz	Ant.2	-75	-123.2	-177	0.674
WLAN 5 GHz	Ant.1+2	-75	-122.4	-177	0.818
WLAN 2.4 GHz	Ant.1	88	-120	-177	0.447
WLAN 2.4 GHz	Ant.1+2	-84	-130	-177	0.526

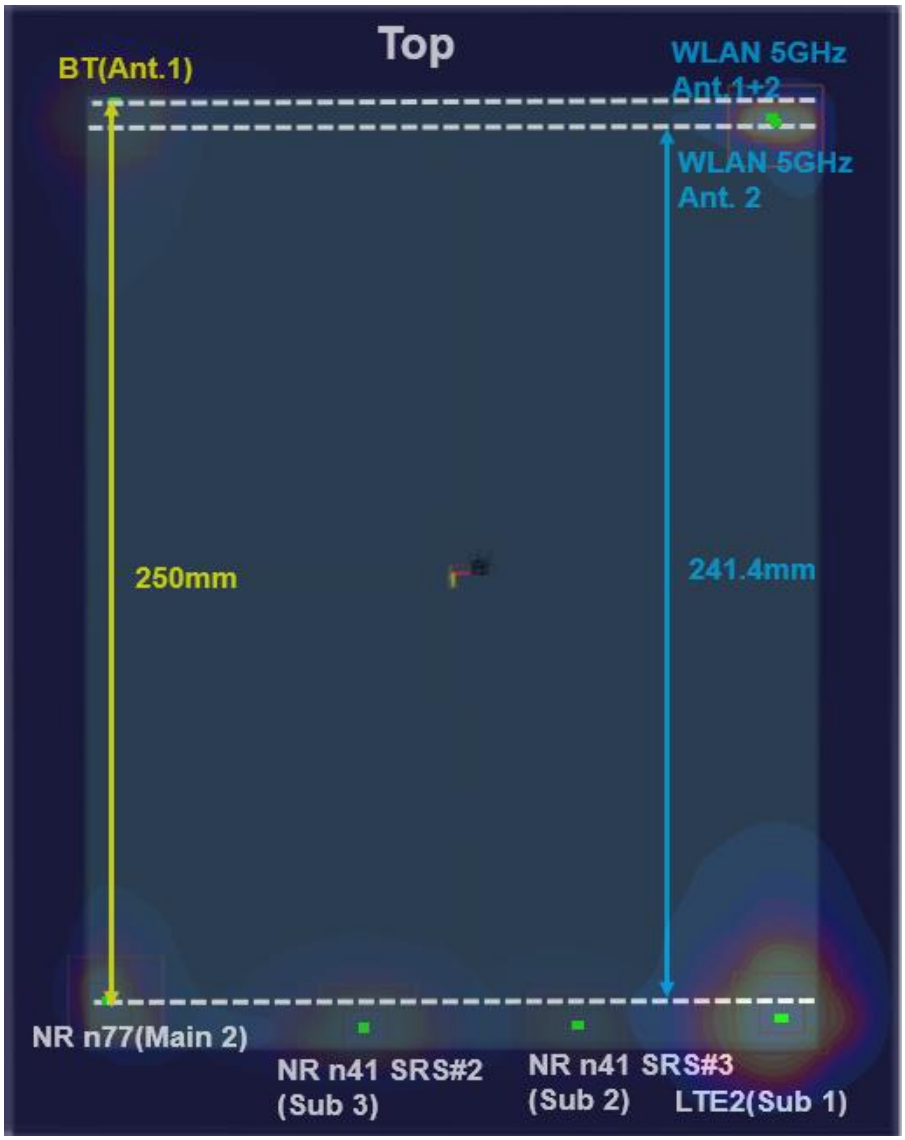
14.3.1.1 AG0+WLAN/BT SPLSR

Mode/Band	X-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
AG0 + WLAN 5 GHz	72	1.584	0.028
AG0 + Bluetooth	54	1.171	0.023
WLAN 5 GHz + Bluetooth	153	1.223	0.009



14.3.1.2 AG1+WLAN/BT SPLSR

Mode/Band	Y-axis Distance(mm)	Sum of SAR [W/kg]	SPLSR
AG0 + WLAN 5 GHz	241.4	1.325	0.006
AG0 + Bluetooth	245	0.912	0.004



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(Right side)

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
GSM 850	Main 1	0.1	-97.8	-177	0.136
GSM 1900	Main 1	0.6	-115.8	-177	0.202
UMTS 5	Main 1	-2.7	-120.3	-177	0.118
UMTS 4	Main 1	2.5	-119.7	-177	0.296
UMTS 2	Main 1	2.5	-120.9	-177	0.289
LTE 25 (2)	Main 1	-0.6	-120.9	-177	0.149
LTE 66 (4)	Main 1	-0.1	-121.8	-177	0.227
LTE 26 (5)	Main 1	-0.8	-99.0	-177	0.124
LTE 12	Main 1	-1.3	-59.7	-177	0.220
LTE 13	Main 1	-1.3	-59.7	-177	0.198
L 41(38)	Main 1	-0.7	-120.0	-177	0.319
NR n41	Main 1	0.0	-120.0	-177	0.138
NR n5	Main 1	0.6	-84.0	-177	0.202
NR n66	Main 1	-3.2	-117.1	-177	0.406

Ant Group 1

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE 2	Sub 1				
LTE 66(4)	Sub 1				
NR n41 (SRS #1)	Sub 1				
NR n41 (SRS #2)	Sub 2	-5.8	113	-177	0.005
NR n41 (SRS #3)	Sub 2	-2.1	109	-177	0.078
NR n77	Sub 2	-6.3	110	-177	0.688

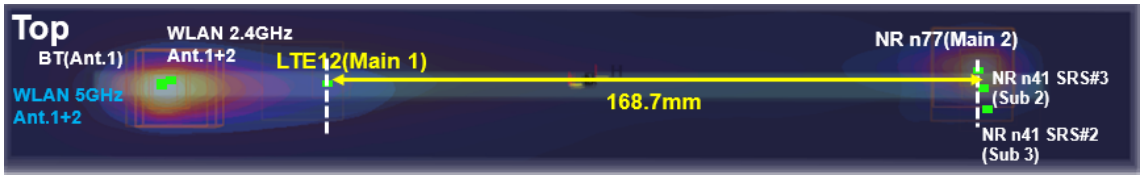
WLAN/BT

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
BT	Ant.1	0.7	-114	-177	0.461
WLAN 5 GHz	Ant.2				
WLAN 5 GHz	Ant.1+2	0	-114	-177	0.545
WLAN 2.4 GHz	Ant.1	2.8	-108	-174	0.493
WLAN 2.4 GHz	Ant.1+2	2.1	-108	-174	0.623

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

Sum-Peak Location Separation Ratio

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	1.412	0.688	2.100	168.7	0.018



15. SAR Measurement Variability and Uncertainty

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

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

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

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

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

4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥1.5 W/kg for 1g SAR or ≥3.75 W/kg for 10g SAR and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20. 1.08

Body SAR measurement variability Results

Frequency		Band/Configuration	Positon	Measured SAR (W/kg)	Repeated SAR (W/kg)	SAR Ratio
㎒	Ch					
1745.0	349000	NR n66 M1 Ant/DFT-s QPSK 1RB 108offset	Top	0.839	0.830	1.08

16. Measurement Uncertainty

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

17. SAR Test Equipment

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	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 #1-R	CS8Cspeag-TX90	F12/ 5K9GA1/ C/ 01	N/A	N/A	N/A
Staubli #3	CS9spe-TX2-90	F/24/0058554/C/001	N/A	N/A	N/A
TESTO 1-R	175-H1/Thermometer	40331936309	12/26/2024	Annual	12/26/2025
TESTO 3	175-H1/Thermometer	40331939309	12/26/2024	Annual	12/26/2025
N/A 1-R	Teach Pendant (Joystick)	D2114210603	N/A	N/A	N/A
N/A 3	Teach Pendant (Joystick)	D21144508	N/A	N/A	N/A
SPEAG	E-Field Probe EX3DV4	7751	09/19/2024	Annual	09/19/2025
SPEAG	E-Field Probe EX3DV4	7309	06/19/2024	Annual	06/19/2025
SPEAG	E-Field Probe ES3DV3	3076	07/17/2024	Annual	07/17/2025
SPEAG	DAE4	1866	05/02/2024	Annual	05/02/2025
SPEAG	DAE4	868	09/19/2024	Annual	09/19/2025
SPEAG	Dipole D750V3	1014	05/20/2024	Annual	05/20/2025
SPEAG	Dipole D835V2	441	04/18/2024	Annual	04/18/2025
SPEAG	Dipole D1800V2	2d007	04/15/2024	Annual	04/15/2025
SPEAG	Dipole D1900V2	5d032	01/18/2024	Annual	01/18/2025
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	1132	01/23/2024	Annual	01/23/2025
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	01/13/2025	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
SPEAG	DAKS 12	1048	03/20/2024	Annual	03/20/2025
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	01/13/2025	Annual	01/13/2026
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.

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

19. 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, Bioelectro magnetics, 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 mathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recepies 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, EidgenØssischeTechnischeHoschschuleZòrich, 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 ㎒ to 3 ㎓), 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 ㎒ to 6 ㎓) 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 rage from 3 kHz – 300 ㎓, 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 ㎒ – 6 ㎓, 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-FC011 -P