HCT Co., Ltd.
74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 Fax. +82 31 645 6401

SAR TEST REPORT

Applicant Name: **SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-Si, Gyeonggi-do, 16677 Rep. of Korea	**Date of Issue:** Nov. 27, 2023 **Test Report No.:** HCT-SR-2311-FC004 **Test Site: HCT CO., LTD.**

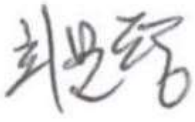
FCC ID: A3LSMA256U

Equipment Type:	**Mobile Phone**
Application Type	**Class II Permissive Change**
FCC Rule Part(s):	**CFR §2.1093**
Model Name:	**SM-A256U**
Additional Model Name:	**SM-A256U1/DS, SM-S256VL**
Date of Test:	**Nov. 14, 2023 ~ Nov. 24, 2023**

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

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

Tested By



Moon-pyung, Choi
Test Engineer
SAR Team
Certification Division

Reviewed By

Yun-Jeang, Heo
Technical Manager
SAR Team
Certification Division

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	Nov. 27, 2023	Initial Release

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

Table of Contents

1. Test Regulations

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

- FCC KDB Publication 941225 D06 Hot Spot SAR v02r01
- FCC KDB Publication 447498 D01 General SAR Guidance v06
- FCC KDB Publication 648474 D04 Handset SAR v01r03
- FCC KDB Publication 616217 D04 v01r02 (Proximity Sensor)
- FCC KDB Publication 865664 D01 SAR measurement 100 ㎒ to 6 GHz v01r04
- FCC KDB Publication 865664 D02 SAR Reporting v01r02
- FCC KDB Publication 690783 D01 SAR Listings on Grants v01r03
- April 2015 TCB Workshop Notes (Simultaneous transmission summation clarified)
- November 2019 TCBC Workshop Notes (SPLSR Hotspot Combination)
- April 2022 TCBC Workshop Notes (Sum-Peak Location Separation Ratio)

2. Test Location

2.1 Test Laboratory

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

2.2 Test Facilities

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

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

3. Information of the EUT

3.1 General Information of the EUT

Model Name	SM-A256U
Additional Model Name	SM-A256U1/DS, SM-S256VL
Equipment Type	Mobile Phone
FCC ID	A3LSMA256U
Application Type	**Class II Permissive Change**
Applicant	SAMSUNG Electronics Co., Ltd.
Note	This document only contains C2PC evaluated test results of 5G NR n41 and n48 band changes. For detailed changes, please refer to the manufacturer's technical documentation.

3.2 Attestation of test result of device under test

The Highest Reported SAR						
Band	Tx. Frequency	Equipment Class	Reported SAR (W/kg)			
			1g Head	1g Body-Worn	1g Hotspot	10g Extremity
NR Band n41	2 506.02 ㎒ ~ 2 679.99 ㎒	PCE	**0.72**	**0.87**	**0.45**	**2.37**
NR Band n48	3 555 ㎒ ~ 3 694.98 ㎒	CBE	N/A	0.14	0.34	N/A
Simultaneous SAR per KDB 690783 D01v01r03			**1.23**	**1.49**	**1.15**	**2.61**
Date(s) of Tests:	Nov. 14, 2023 ~ Nov. 24, 2023					

4. Device Under Test Description

4.1 DUT specification

Device Wireless specification overview		
Band & Mode	**Operating Mode**	**Tx Frequency**
GSM850	Voice / Data	824.2 ㎒ ~ 848.8 ㎒
GSM1900	Voice / Data	1 850.2 ㎒ ~ 1 909.8 ㎒
UMTS Band 5	Voice / Data	826.4 ㎒ ~ 846.6 ㎒
UMTS Band 4	Voice / Data	1 712.4 ㎒ ~ 1 752.6 ㎒
UMTS Band 2	Voice / Data	1 852.4 ㎒ ~ 1 907.6 ㎒
LTE Band 2 (PCS)	Voice / Data	1 850.7 ㎒ ~ 1 909.3 ㎒
LTE Band 4 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 754.3 ㎒
LTE Band 5 (Cell)	Voice / Data	824.7 ㎒ ~ 848.3 ㎒
LTE Band 7	Voice / Data	2 502.5 ㎒ ~ 2 567.5 ㎒
LTE Band 12	Voice / Data	699.7 ㎒ ~ 715.3 ㎒
LTE Band 13	Voice / Data	779.5 ㎒ ~ 784.5 ㎒
LTE Band 14	Voice / Data	790.5 ㎒ ~ 795.5 ㎒
LTE Band 25	Voice / Data	1 850.7 ㎒ ~ 1 914.3 ㎒
LTE Band 26	Voice / Data	814.7 ㎒ ~ 848.3 ㎒
LTE Band 30	Voice / Data	2 307.5 ㎒ ~ 2 312.5 ㎒
LTE TDD Band 38	Voice / Data	2 572.5 ㎒ ~ 2 617.5 ㎒
LTE TDD Band 41	Voice / Data	2 498.5 ㎒ ~ 2 687.5 ㎒
LTE TDD Band 48	Voice / Data	3 552.5 ㎒ ~ 3697.5 ㎒
LTE Band 66 (AWS)	Voice / Data	1 710.7 ㎒ ~ 1 779.3 ㎒
LTE Band 71	Voice / Data	665.5 ㎒ ~ 695.5 ㎒
NR Band n2	Voice / Data	1 852.5 ㎒ ~ 1 907.5 ㎒
NR Band n5	Voice / Data	826.5 ㎒ ~ 846.5 ㎒
NR Band n25	Voice / Data	1 852.5 ㎒ ~ 1 912.5 ㎒
NR Band n30	Voice / Data	2 307.5 ㎒ ~ 2 312.5 ㎒
NR Band n41	Voice / Data	2 506.02 ㎒ ~ 2 679.99 ㎒
NR Band n48	Voice / Data	3 555 ㎒ ~ 3 694.98 ㎒
NR Band n66	Voice / Data	1 712.5 ㎒ ~ 1 777.5 ㎒
NR Band n70	Voice / Data	1 695 ㎒ ~ 1 710 ㎒
NR Band n71	Voice / Data	665.5 ㎒ ~ 695.5 ㎒
NR Band n77	Voice / Data	3 705 ㎒ ~ 3 975 ㎒
NR Band n77 (DoD)	Voice / Data	3 455.04 ㎒ ~ 3 544.98 ㎒
U-NII-1	Voice / Data	5 180 ㎒ ~ 5 240 ㎒
U-NII-2A	Voice / Data	5 260 ㎒ ~ 5 320 ㎒
U-NII-2C	Voice / Data	5 500 ㎒ ~ 5 720 ㎒
U-NII-3	Voice / Data	5 745 ㎒ ~ 5 825 ㎒
2.4 ㎓ WLAN	Voice / Data	2 412 ㎒ ~ 2 472 ㎒
Bluetooth / LE 5.3	Data	2 402 ㎒ ~ 2 480 ㎒
NFC	Data	13.56 ㎒

Device Description		
H/W	REV1.0	
S/W	A256U.001	
Device Serial Numbers	**Mode**	**Serial Number**
	NR n41	WI41509M
	NR n48	WI42542M
	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 DUT is equipped with an LSI chipset to which the Samsung S.LSI proprietary TAS (Time Average SAR) algorithm is applied.
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.
WLAN/BT mode are not controlled by The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm.

The Samsung S.LSI TAS algorithm allows 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).
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.

Plim values in green indicate Plimit < Pmax			Plim values in grey indicate Plim > Pmax						
Plimit corresponding to 1 W/kg (1g) 2.5W/kg(10g) SAR_Design_target							Pmax	Pmax	
SAR Exposure Position			Body-worn/ Phablet(Free)	Head (RCV ON)	Hotspot (Hotspot on)	Phablet (Grip On) /Earjack	Maximum Tune-up Output Power (Burst Average Power) [dBm]	Maximum Tune-up Output Power (Frame Averaged Power) [dBm]	UL:DL Ratio
Averaging volume			1g/10g	1g	1g	10g			
seperation Distance			15 mm/ 16mm,4mm,12mm	0 mm	10 mm	0 mm			
Mode	Band	Antenna	RSI=0	RSI=4	RSI=3	RSI=1,2			
GSM/GPRS/EDGE	850	MAIN 1	27.4	29.4	20.7	20.7	29.0	24.7	37.5%
GSM/GPRS/EDGE	1900	MAIN 2	27.2	30.2	19.0	19.0	25.0	22.0	50.0%
UMTS	2	MAIN 2	26.8	28.0	20.5	20.5	24.0	24.0	100%
UMTS	4	MAIN 2	27.4	29.0	20.5	20.5	24.0	24.0	100%
UMTS	5	MAIN 1	29.6	29.9	24.9	27.2	24.5	24.5	100%
LTE FDD	2	MAIN 3	21.0	21.0	21.0	21.0	24.5	24.5	100%
LTE FDD	5	MAIN 1	28.5	29.5	26.7	28.6	24.5	24.5	100%
LTE FDD	7	MAIN 2	26.4	28.7	21.0	21.0	23.5	23.5	100%
LTE FDD	12	MAIN 1	30.7	32.8	31.3	28.4	24.5	24.5	100%
LTE FDD	13	MAIN 1	28.5	30.8	29.5	30.1	23.5	23.5	100%
LTE FDD	14	MAIN 1	29.7	31.0	28.1	30.6	23.5	23.5	100%
LTE FDD	25(2)	MAIN 2	28.0	30.2	21.5	21.5	24.0	24.0	100%
LTE FDD	26	MAIN 1	28.9	29.9	27.0	29.1	24.5	24.5	100%
LTE FDD	30	MAIN 2	28.5	30.0	21.0	21.0	23.0	23.0	100%
LTE TDD PC3	41(38)	MAIN 2	28.2	28.6	17.5	17.5	24.5	22.5	63.3%
LTE TDD PC3	41 ULCA	MAIN 2	27.8	28.5	17.5	17.5	23.5	21.5	63.3%
LTE TDD PC2	41	MAIN 2	27.7	28.9	17.9	17.9	26.0	22.4	43.3%
LTE TDD PC3	48	SUB 3	18.0	14.0	18.0	18.0	22.0	20.0	63.3%
LTE TDD PC3	48 ULCA	SUB 3	18.0	14.0	18.0	18.0	22.0	20.0	63.3%
LTE FDD	66(4)	MAIN 2	29.0	30.3	21.5	21.5	24.0	24.0	100%
LTE FDD	66(4)	MAIN 3	21.0	21.0	21.0	21.0	24.5	24.5	100%
LTE FDD	71	MAIN 1	30.9	32.3	28.4	28.9	23.5	23.5	100%
NR FDD	5	MAIN 1	28.7	29.8	26.3	28.1	24.5	24.5	100%
NR FDD	25(2)	MAIN 2	28.7	29.8	20.5	20.5	23.5	23.5	100%
NR FDD	30	MAIN 2	28.8	29.6	21.0	21.0	23.0	23.0	100%
NR TDD PC3	41	MAIN 2	25.6	26.8	17.0	17.0	23.0	23.0	100%
NR TDD PC2	41	MAIN 2	26.8	28.0	17.0	17.0	25.5	25.5	100%
NR TDD	48	SUB 3	17.0	13.5	17.0	17.0	17.0	17.0	100%
NR TDD SRS 1	48	MAIN 2	13.0	13.0	13.0	13.0	18.5	18.5	100%
NR TDD SRS 2	48	SUB 2	13.0	13.0	13.0	13.0	18.5	18.5	100%
NR TDD SRS 3	48	SUB 5	13.0	13.0	13.0	13.0	18.5	18.5	100%
NR FDD	66	MAIN 2	29.4	30.8	21.0	21.0	23.5	23.5	100%
NR FDD	70	MAIN 2	29.6	31.8	21.5	21.5	24.0	24.0	100%
NR FDD	71	MAIN 1	29.8	31.7	28.3	29.1	24.0	24.0	100%
NR TDD SRS 0 PC3	77	SUB 3	18.0	16.0	18.0	18.0	23.0	23.0	100%
NR TDD SRS 1	77	MAIN 2	13.5	13.5	13.5	13.5	21.5	21.5	100%
NR TDD SRS 2	77	SUB 2	12.5	12.5	12.5	12.5	20.5	20.5	100%
NR TDD SRS 3	77	SUB 5	12.5	12.5	12.5	12.5	20.0	20.0	100%
NR TDD SRS 0 PC2	77	SUB 3	18.0	16.0	18.0	18.0	25.5	25.5	100%
NR TDD SRS 1	77	MAIN 2	13.5	13.5	13.5	13.5	21.5	21.5	100%
NR TDD SRS 2	77	SUB 2	12.5	12.5	12.5	12.5	20.5	20.5	100%
NR TDD SRS 3	77	SUB 5	12.5	12.5	12.5	12.5	20.0	20.0	100%
NR TDD SRS 0 PC3	77 DoD	SUB 3	18.0	16.0	18.0	18.0	23.0	23.0	100%
NR TDD SRS 1	77 DoD	MAIN 2	13.5	13.5	13.5	13.5	21.5	21.5	100%
NR TDD SRS 2	77 DoD	SUB 2	12.5	12.5	12.5	12.5	20.5	20.5	100%
NR TDD SRS 3	77 DoD	SUB 5	12.5	12.5	12.5	12.5	20.0	20.0	100%
NR TDD SRS 0 PC2	77 DoD	SUB 3	18.0	16.0	18.0	18.0	25.5	25.5	100%
NR TDD SRS 1	77 DoD	MAIN 2	13.5	13.5	13.5	13.5	21.5	21.5	100%
NR TDD SRS 2	77 DoD	SUB 2	12.5	12.5	12.5	12.5	20.5	20.5	100%
NR TDD SRS 3	77 DoD	SUB 5	12.5	12.5	12.5	12.5	20.0	20.0	100%

Note
1. Radio SAR indicator (RSI) in the table above means the SAR test configuration of each mobile communication technology.
2. WLAN/BT mode are not controlled by The Samsung S.LSI proprietary TAS (Time Average SAR) algorithm.
3. Plimit and Tune up output power Pmax in above table correspond to average power level after accounting for duty cycle in the case of TDD Modulation schemes (LTE TDD)
4. Maximum tune up output Power Pmax is used to configure DUT during RF tune up procedure. The maximum allowed output power is equal to Tune up power +1 dB device design uncertainty.
5. SAR values in this report were scaled to this maximum time-averaged output power to determine compliance per KDB Publication447498 D01v06

4.3 Power Reduction for SAR

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

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

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 PCE Output Power

The maximum output power declared in this section is burst average and not time or frame average.
RSI (0) : FREE
RSI (1) : Reduced-Ear Phone
RSI (2) : Reduced-Capacitive Sensor ON
RSI (3) : Reduced-Hotspot Mode ON
RSI (4) : Reduced-RCV ON

5G NR SUB 6

Mode / Band	Antenna	Pmax (in dBm)	Plimit (in dBm) Average Power				
			RSI=0	RSI=1	RSI=2	RSI=3	RSI=4
		Max. Modulated Average	Free	Ear jack ON	Capactive Sensor	Hotspot ON	RCV ON
NR n41 (PC2).	Main 2	25.5	25.5	17.0	17.0	17.0	25.5
NR n41 (PC3)	Main 2	23.0	23.0	17.0	17.0	17.0	23.0
NR n48 SRS0	Sub3	22.5	17.0	17.0	17.0	17.0	13.5

In order to satisfy the limitations of the duty factor of the 5G NR TDD band, these were tested with duty factor 100% as n41/n48 band were applied to all SAR test configurations (Head/Bodyworn/Hotspot/Extremity) in FTM mode.

4.5 NR Band Information

Ch. No.& Freq.(MHz)		Low / Low-Mid		Mid	Mid-High / High	
NR Band n41	10 MHz	2501.01 (500202)	2547 (509400)	2592.99 (518598)	2639.01 (527802)	2685 (537000)
	15 MHz	2503.5 (500700)	2548.26 (509652)	2592.99 (518598)	2637.75 (527550)	2682.51 (536502)
	20 MHz	2506.02 (501204)	2549.49 (509898)	2592.99 (518598)	2636.49 (527298)	2679.99 (535998)
	30 MHz	2511 (502200)	2552.01 (510402)	2592.99 (518598)	2634 (526800)	2674.98 (534996)
	40 MHz	2516.01 (503202)	2567.34 (513468)		2618.67 (523734)	2670 (534000)
	50 MHz	2521.02 (504204)		2592.99 (518598)		2664.99 (532998)
	60 MHz	2526 (505200)		2592.99 (518598)		2659.98 (531996)
	70 MHz	2531.01 (506202)				2655 (531000)
	80 MHz	2536.02 (507204)				2649.99 (529998)
	90 MHz	2541 (508200)				2644.98 (528996)
	100 MHz			2592.99 (518598)		

Ch. No.& Freq.(MHz)		Low / Low-Mid	Mid		Mid-High / High
NR Band n48	10 MHz	3555(637000)	3601.68(640112)	3648.33(643222)	3694.98(646332)
	15 MHz	3557.52(637168)	3602.49(640166)	3647.49(643166)	3692.49(646166)
	20 MHz	3560.01(637334)	3603.33(640222)	3546.68(643112)	3690(646000)
	40 MHz	3570(638000)	3624.99(641666)		3679.98(645332)

Item.	Description
NR Band n41/n48 SCS	30 kHz
A-MPR disabled for SAR Testing.	Yes
5G NR UL/DL FR1	CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM DFT-s-OFDM: π/2-BPSK(UL Only), QPSK, 16QAM, 64QAM, 256QAM
Non-Standalone & Standalone are supported. More detailed specifications of the 5G NR bands are contained in the Technical description document.	

4.6 DUT Antenna Locations

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

Mode	Antenna	Rear	Front	Left	Right	Bottom	Top
NR Band n41	Main #2	Yes	Yes	Yes	No	Yes	No
NR Band n48 SRS0	Sub #3	Yes	Yes	Yes	No	No	Yes

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

4.7 Near Field Communications (NFC) Antenna

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

4.8 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

Capable Transmit Configuration	Head	Body-Worn Accessory	Wireless Router	Phablet
GSM voice + 2.4GHz Bluetooth	Yes^	Yes	N/A	Yes^
GSM voice + 2.4GHz WI-FI	Yes	Yes	N/A	Yes
GSM voice + 5GHz WI-FI	Yes	Yes	N/A	Yes
GSM voice + 2.4GHz Bluetooth + 5GHz WI-FI	Yes^	Yes	N/A	Yes^
GPRS/EDGE Data + 2.4GHz Bluetooth	Yes*^	Yes*	Yes^	Yes*^
GPRS/EDGE Data + 2.4GHz WI-FI	Yes*	Yes*	Yes	Yes*
GPRS/EDGE Data + 5GHz WI-FI	Yes*	Yes*	Yes	Yes*
GPRS/EDGE Data + 2.4GHz Bluetooth+ 5GHz WI-FI	Yes*^	Yes*	Yes^	Yes*^
UMTS + 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
UMTS + 2.4GHz WI-FI	Yes	Yes	Yes	Yes
UMTS + 5GHz WI-FI	Yes	Yes	Yes	Yes
UMTS + 2.4GHz Bluetooth + 5GHz WI-FI	Yes^	Yes	Yes^	Yes^
LTE + 5GNR	Yes	Yes	Yes	Yes
LTE + 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
LTE + 2.4GHz Bluetooth + 5GNR	Yes^	Yes	Yes^	Yes^
LTE + 2.4GHz WI-FI	Yes	Yes	Yes	Yes
LTE + 2.4GHz WI-FI + 5GNR	Yes*	Yes	Yes	Yes
LTE + 5GHz WI-FI	Yes	Yes	Yes	Yes
LTE + 5GHz WI-FI + 5GNR	Yes*	Yes	Yes	Yes
LTE + 2.4GHz Bluetooth + 5GHz WI-FI	Yes^*	Yes	Yes^	Yes^
LTE + 2.4GHz Bluetooth + 5GHz WI-FI + 5GNR	Yes^*	Yes	Yes^	Yes^
5GNR + 2.4GHz Bluetooth	Yes^	Yes	Yes^	Yes^
5GNR + 2.4GHz WI-FI	Yes	Yes	Yes	Yes
5GNR + 5GHz WI-FI	Yes	Yes	Yes	Yes
5GNR + 2.4GHz Bluetooth + 5GHz WI-FI	Yes^*	Yes	Yes^	Yes^

Note:

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

4.9 SAR Test Considerations

4.9.1 WiFi

There were no changes made to the WIFI/BT operations within this device. Please see the original SAR test report [No : HCT-SR-2309-FC006-R3] for complete evaluation of these operating modes.

4.9.2 Licensed Transmitter(s)

Only operations relevant to this permissive change were evaluated for compliance. Please see the original filing for compliance evaluation of all other operating modes.

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

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

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

5. Introduction

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

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

SAR Definition

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

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

Figure 1. SAR Mathematical Equation
SAR is expressed in units of Watts per Kilogram (W/kg)

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

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

6. Description of test equipment

6.1 SAR MEASUREMENT SETUP

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

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

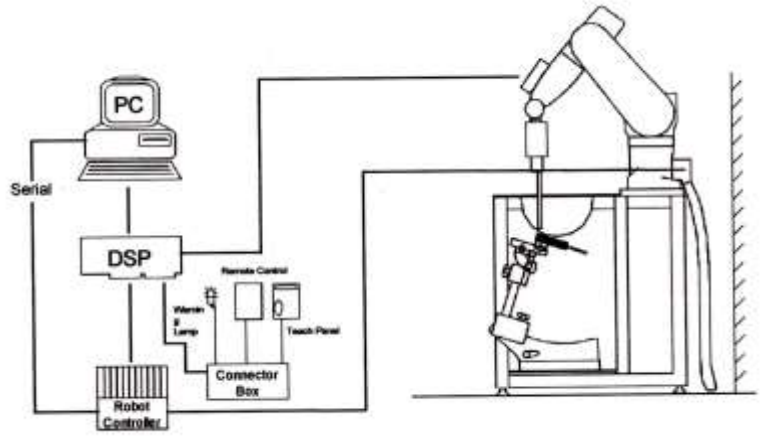


Figure 2. HCT SAR Lab. Test Measurement Set-up

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

7. SAR Measurement Procedure

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

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

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

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

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

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

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

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

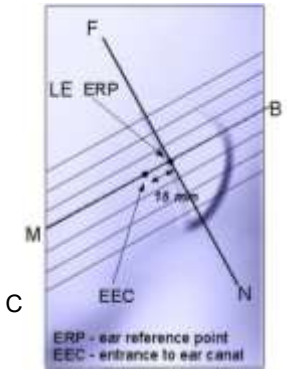
Area scan and zoom scan resolution setting follow KDB 865664 D01v01r04 quoted below.

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5±1 mm</td><td>·δ·ln(2)±0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface
normal at the measurement location</td><td>30°±1°</td><td>20°±1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximumarea scanSpatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤15 mm
2-3 GHz: ≤12 mm</td><td>3-4 GHz: ≤12 mm
4-6 GHz: ≤10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan Spatial resolution: Δx_{zoom}, Δy_{zoom}</td><td>≤ 2 GHz: ≤8mm
2-3 GHz: ≤5mm*</td><td>3-4 GHz: ≤5 mm*
4-6 GHz: ≤4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan Spatial resolution normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{zoom}(n)$</td><td>≤ 5 mm</td><td>3-4 GHz: ≤4 mm
4-5 GHz: ≤3 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{zoom}(1)$: between1 st two Points closest to phantom surface</td><td>≤ 4 mm</td><td>3-4 GHz: ≤3 mm
4-5 GHz: ≤2.5 mm
5-6 GHz: ≤2 mm</td></tr>
<tr><td>$\Delta z_{zoom}(n>1)$:between subsequent Points</td><td colspan="2">≤1.5·$\Delta z_{zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3-4 GHz: ≥28 mm
4-5 GHz: ≥25 mm
5-6 GHz: ≥22 mm</td></tr>
<tr><td colspan="5">Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details.
* When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.</td></tr>
</table>

8. Description of Test Position

8.1 Ear Repference Point

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



8.2 Handset Reference Points

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

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

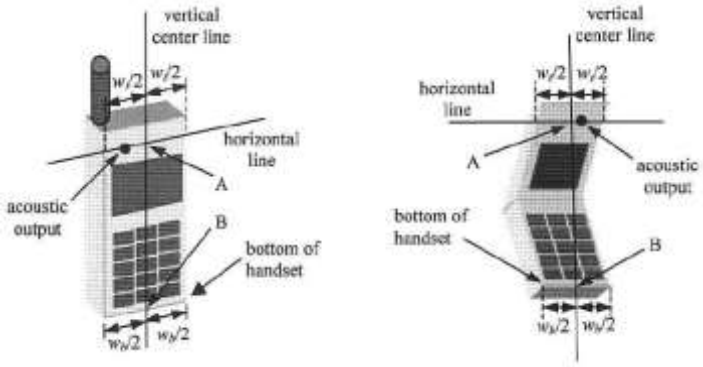


Figure 6-3. Handset vertical and horizontal reference lines

8.3 Device Holder

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

8.4 Position for cheek

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

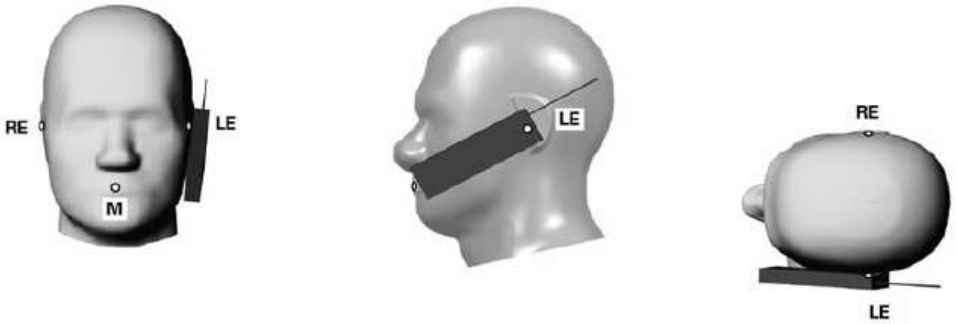


Figure 8.4 Cheek/ Touch position of the wireless device

8.5 Definition of the “tilted” position

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

Figure 8.5. Tilt 15°position of the wireless device

8.6 Body-Worn Accessory Configurations

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

Figure 8-6
Sample Body-Worn Diagram

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

8.7 Wireless Router Configurations

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06v02r01 where SAR test considerations for handsets (L x W≥9cmx5 cm) are based on *a* composite test separation distance of 10 mm from the front back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of devices. Since the hotspot SAR results may overlap with the Body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some Body-worn accessory SAR tests.

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

8.8 Extremity Exposure Configurations

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

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

8.9 Additional Test Positions due to Proximity Conditions

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

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

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

Wireless technologies	Position	§6.2 Triggering Distance	§6.3 Coverage	§6.4 Tilt Angle	Worst case distance for Phablet SAR
NR n41	Rear	17	N/A	N/A	16
	Front	5	N/A	N/A	4
	Bottom	13	N/A	N/A	12

9. RF Exposure Limits

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

NOTES:

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

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

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

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

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

10. FCC SAR General Measurement Procedures

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

10.1 Measured and Reported SAR

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

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.

11.1 NR Maximum Output Power

11.1.1 NR Band Maximum Conducted Power

NR Band n41_Main #2 Ant.Conducted Power(Pmax, RSI=0,4) Power Class 3

NR Band n41 _10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500202	509400	518598	527802	537000	
						2501.01 ㎒	2547 ㎒	2592.99 ㎒	2639.01 ㎒	2685 ㎒	
10 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.27	22.24	22.82	22.83	22.89	0
				1	12	22.26	22.35	22.96	22.95	22.86	0
				1	22	22.27	22.59	23.01	22.94	22.95	0
				12	0	21.73	21.82	22.38	22.49	22.41	0.5
				12	6	22.30	22.44	22.95	22.95	22.87	0
				12	12	21.81	21.98	22.53	22.43	22.46	0.5
				24	0	21.76	21.91	22.48	22.47	22.39	0.5
			QPSK	1	1	22.22	22.26	22.77	22.79	22.88	0
				1	12	22.31	22.28	22.84	22.87	22.77	0
				1	22	22.16	22.50	22.96	22.88	22.85	0
				12	0	21.30	21.34	21.99	21.94	21.89	1
				12	6	22.23	22.47	22.93	23.00	22.96	0
				12	12	21.22	21.45	21.99	21.94	21.96	1
				24	0	21.26	21.41	22.02	21.96	21.91	1
			16QAM	1	1	21.11	21.33	21.85	21.81	21.84	1
			64QAM	1	1	19.69	19.81	20.43	20.15	20.25	2.5
			256QAM	1	1	17.59	17.78	18.34	18.27	18.44	4.5
		CP	QPSK	1	1	20.71	20.78	21.35	21.35	21.44	1.5

NR Band n41 _15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500700	509652	518598	527550	536502	
						2503.5 ㎒	2548.26 ㎒	2592.99 ㎒	2637.75 ㎒	2682.51 ㎒	
15 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.23	22.23	22.85	22.83	22.91	0
				1	18	22.26	22.41	22.91	22.91	22.87	0
				1	36	22.27	22.51	22.99	22.92	22.87	0
				18	0	21.77	21.83	22.39	22.52	22.40	0.5
				18	9	22.27	22.46	22.98	22.98	22.93	0
				18	18	21.82	21.96	22.53	22.44	22.41	0.5
				36	0	21.81	21.98	22.46	22.47	22.45	0.5
			QPSK	1	1	22.18	22.26	22.77	22.83	22.89	0
				1	18	22.25	22.34	22.86	22.88	22.78	0
				1	36	22.13	22.49	22.97	22.87	22.87	0
				18	0	21.29	21.42	21.94	21.96	21.93	1
				18	9	22.26	22.43	23.00	22.95	22.92	0
				18	18	21.28	21.46	21.97	21.97	21.97	1
				36	0	21.23	21.40	21.97	21.98	21.90	1
			16QAM	1	1	21.06	21.38	21.80	21.80	21.84	1
			64QAM	1	1	19.68	19.75	20.36	20.18	20.29	2.5
			256QAM	1	1	17.65	17.75	18.40	18.31	18.47	4.5
		CP	QPSK	1	1	20.71	20.80	21.34	21.36	21.41	1.5

NR Band n41 _20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						501204	509898	518598	527298	535998	
						2506.02 ㎒	2549.49 ㎒	2592.99 ㎒	2636.49 ㎒	2679.99 ㎒	
20 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.28	22.33	22.91	22.88	22.94	0
				1	26	22.29	22.42	22.98	22.97	22.92	0
				1	49	22.31	22.59	23.08	23.01	22.95	0
				25	0	21.81	21.90	22.47	22.53	22.48	0.5
				25	13	22.33	22.49	23.04	23.00	22.97	0
				25	26	21.84	22.06	22.55	22.49	22.50	0.5
				50	0	21.83	22.00	22.53	22.48	22.45	0.5
			QPSK	1	1	22.23	22.34	22.86	22.86	22.89	0
				1	26	22.32	22.38	22.94	22.92	22.86	0
				1	49	22.22	22.55	23.00	22.95	22.88	0
				25	0	21.31	21.43	22.00	21.96	21.98	1
				25	13	22.29	22.50	23.03	23.00	22.97	0
				25	26	21.32	21.54	22.07	22.03	22.01	1
				50	0	21.30	21.48	22.03	22.01	21.97	1
			16QAM	1	1	21.14	21.42	21.86	21.87	21.88	1
			64QAM	1	1	19.71	19.84	20.43	20.23	20.31	2.5
			256QAM	1	1	17.67	17.80	18.41	18.35	18.48	4.5
		CP	QPSK	1	1	20.77	20.88	21.36	21.40	21.47	1.5

NR Band n41 _30 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						502200	510402	518598	526800	534996	
						2511 ㎒	2552.01 ㎒	2592.99 ㎒	2634 ㎒	2674.98 ㎒	
30 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.38	22.34	22.82	23.00	23.10	0
				1	39	22.51	22.60	23.08	23.13	23.06	0
				1	76	22.36	22.72	23.04	23.12	23.03	0
				36	0	21.88	21.98	22.46	22.57	22.61	0.5
				36	21	22.40	22.57	23.05	23.14	23.09	0
				36	42	21.87	22.14	22.58	22.66	22.59	0.5
				75	0	21.90	22.08	22.53	22.62	22.58	0.5
			QPSK	1	1	22.31	22.34	22.80	22.98	23.05	0
				1	39	22.36	22.55	23.03	23.11	23.04	0
				1	76	22.28	22.68	22.98	23.06	22.97	0
				36	0	21.41	21.47	21.97	22.11	22.13	1
				36	21	22.41	22.59	23.08	23.14	23.09	0
				36	42	21.41	21.71	22.09	22.16	22.10	1
				75	0	21.42	21.60	22.03	22.15	22.10	1
			16QAM	1	1	21.44	21.40	21.81	22.09	22.05	1
			64QAM	1	1	19.87	19.83	20.27	20.51	20.58	2.5
			256QAM	1	1	17.80	17.80	18.29	18.59	18.65	4.5
		CP	QPSK	1	1	20.80	20.86	21.28	21.47	21.52	1.5

NR Band n41 _40 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						503202	513468		523734	534000	
						2516.01 ㎒	2567.34 ㎒		2618.67 ㎒	2670 ㎒	
40 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.22	22.32		22.91	22.98	0
				1	53	22.30	22.69		23.08	23.09	0
				1	104	22.27	22.88		23.05	22.98	0
				50	0	21.78	21.99		22.42	22.55	0.5
				50	28	22.28	22.70		22.98	22.99	0
				50	56	21.79	22.31		22.50	22.47	0.5
				100	0	21.79	22.19		22.47	22.53	0.5
			QPSK	1	1	22.20	22.29		22.84	22.92	0
				1	53	22.27	22.66		22.94	22.97	0
				1	104	22.21	22.82		22.97	22.91	0
				50	0	21.32	21.52		21.97	22.09	1
				50	28	22.30	22.71		23.00	23.01	0
				50	56	21.30	21.83		22.01	22.00	1
				100	0	21.32	21.69		21.99	22.02	1
			16QAM	1	1	21.04	21.23		21.94	21.82	1
			64QAM	1	1	19.74	19.75		20.44	20.44	2.5
			256QAM	1	1	17.81	17.80		18.24	18.53	4.5
		CP	QPSK	1	1	20.65	20.75		21.30	21.48	1.5

NR Band n41 _50 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						504204		518598		532998		
						2521.02 ㎒		2592.99 ㎒		2664.99 ㎒		
50 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.33		22.72		23.10		0
				1	67	22.35		23.00		23.08		0
				1	131	22.44		23.05		22.98		0
				64	0	21.88		22.40		22.63		0.5
				64	35	22.40		23.03		23.12		0
				64	69	21.86		22.59		22.58		0.5
				128	0	21.87		22.50		22.62		0.5
			QPSK	1	1	22.30		22.70		23.09		0
				1	67	22.30		22.95		23.02		0
				1	131	22.40		22.96		22.93		0
				64	0	21.41		21.94		22.19		1
				64	35	22.40		23.05		23.16		0
				64	69	21.37		22.08		22.09		1
				128	0	21.38		22.03		22.14		1
			16QAM	1	1	21.33		21.71		22.12		1
			64QAM	1	1	19.75		20.31		20.63		2.5
			256QAM	1	1	17.84		18.21		18.51		4.5
		CP	QPSK	1	1	20.77		21.13		21.59		1.5

NR Band n41 _60 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						505200		518598		531996		
						2526 ㎒		2592.99 ㎒		2659.98 ㎒		
60 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.24		22.65		22.93		0
				1	81	22.31		23.17		23.14		0
				1	160	22.55		23.01		22.95		0
				81	0	21.79		22.40		22.54		0.5
				81	41	22.30		23.05		23.08		0
				81	81	21.88		22.57		22.53		0.5
				162	0	21.78		22.51		22.56		0.5
			QPSK	1	1	22.18		22.62		22.88		0
				1	81	22.30		23.09		23.10		0
				1	160	22.49		22.97		22.90		0
				81	0	21.30		21.91		22.05		1
				81	41	22.31		23.07		23.05		0
				81	81	21.41		22.09		22.02		1
				162	0	21.30		22.03		22.06		1
			16QAM	1	1	21.28		21.68		21.86		1
			64QAM	1	1	19.77		20.26		20.34		2.5
			256QAM	1	1	17.64		18.12		18.26		4.5
		CP	QPSK	1	1	20.71		21.10		21.38		1.5

NR Band n41 _70 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						506208				530994	
						2531.04 ㎒				2654.97 ㎒	
70 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.32				22.81	0
				1	81	22.39				22.99	0
				1	160	22.58				22.92	0
				81	0	21.93				22.42	0.5
				81	41	22.39				22.98	0
				81	81	21.99				22.50	0.5
				162	0	21.88				22.46	0.5
			QPSK	1	1	22.27				22.78	0
				1	81	22.34				22.94	0
				1	160	22.53				22.88	0
				81	0	21.40				21.95	1
				81	41	22.46				22.98	0
				81	81	21.50				22.00	1
				162	0	21.41				21.97	1
			16QAM	1	1	21.30				21.86	1
			64QAM	1	1	19.80				20.26	2.5
			256QAM	1	1	17.70				18.23	4.5
		CP	QPSK	1	1	20.77				21.29	1.5

NR Band n41 _80 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						507204				529998	
						2536.02 ㎒				2649.99 ㎒	
80 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.25				22.94	0
				1	109	22.27				23.07	0
				1	215	22.86				22.99	0
				108	0	21.76				22.51	0.5
				108	55	22.32				23.10	0
				108	109	22.08				22.55	0.5
				216	0	21.82				22.55	0.5
			QPSK	1	1	22.25				22.91	0
				1	109	22.29				23.00	0
				1	215	22.82				22.93	0
				108	0	21.30				22.02	1
				108	55	22.32				23.09	0
				108	109	21.59				22.04	1
				216	0	21.34				22.05	1
			16QAM	1	1	21.29				21.98	1
			64QAM	1	1	19.69				20.28	2.5
			256QAM	1	1	17.74				18.41	4.5
		CP	QPSK	1	1	20.67				21.41	1.5

NR Band n41 _90 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						508200				528996	
						2541 ㎒				2644.98 ㎒	
90 ㎒	30	DFT-s	pi/2 BPSK	1	1	22.35				22.99	0
				1	123	22.43				23.15	0
				1	243	22.98				22.95	0
				120	0	21.85				22.58	0.5
				120	63	22.47				23.18	0
				120	125	22.24				22.58	0.5
				243	0	21.95				22.60	0.5
			QPSK	1	1	22.28				22.98	0
				1	123	22.38				23.11	0
				1	243	22.93				22.89	0
				120	0	21.36				22.09	1
				120	63	22.47				23.15	0
				120	125	21.74				22.10	1
				243	0	21.45				22.09	1
			16QAM	1	1	21.35				22.02	1
			64QAM	1	1	19.70				20.38	2.5
			256QAM	1	1	17.91				18.44	4.5
		CP	QPSK	1	1	20.82				21.46	1.5

NR Band n41 _100 ㎒ Bandwidth

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			22.44			0
				1	137			23.01			0
				1	271			23.01			0
				135	0			22.27			0.5
				135	69			23.02			0
				135	138			22.56			0.5
				270	0			22.47			0.5
			QPSK	1	1			22.43			0
				1	137			23.05			0
				1	271			23.03			0
				135	0			21.78			1
				135	69			23.05			0
				135	138			22.09			1
				270	0			21.98			1
			16QAM	1	1			21.44			1
			64QAM	1	1			19.90			2.5
			256QAM	1	1			17.92			4.5
		CP	QPSK	1	1			20.82			1.5

NR Band n41_Main #2 Ant.Conducted Power(Pmax, RSI=0,4) Power Class 2

NR Band n41 _10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500202	509400	518598	527802	537000	
						2501.01 ㎒	2547 ㎒	2592.99 ㎒	2639.01 ㎒	2685 ㎒	
10 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.08	24.72	25.25	25.26	25.27	0
				1	12	24.62	24.81	25.39	25.32	25.31	0
				1	22	24.57	25.00	25.46	25.36	25.34	0
				12	0	24.14	24.25	24.85	24.80	24.84	0.5
				12	6	24.63	24.84	25.38	25.40	25.33	0
				12	12	24.15	24.37	24.91	24.85	24.82	0.5
				24	0	24.19	24.39	24.89	24.87	24.78	0.5
			QPSK	1	1	24.06	24.69	25.21	25.23	25.25	0
				1	12	24.49	24.77	25.33	25.22	25.26	0
				1	22	24.58	24.90	25.23	25.27	25.23	0
				12	0	23.63	23.82	24.34	24.39	24.37	1
				12	6	24.68	24.87	25.41	25.40	25.36	0
				12	12	23.67	23.99	24.46	24.22	24.44	1
				24	0	23.63	23.88	24.36	24.41	24.37	1
			16QAM	1	1	23.34	23.68	24.19	24.25	24.25	1
			64QAM	1	1	22.02	22.24	22.86	22.78	22.81	2.5
			256QAM	1	1	20.01	20.28	20.80	20.74	20.86	4.5
		CP	QPSK	1	1	23.03	23.09	23.73	23.61	23.75	1.5

NR Band n41 _15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500700	509652	518598	527550	536502	
						2503.5 ㎒	2548.26 ㎒	2592.99 ㎒	2637.75 ㎒	2682.51 ㎒	
15 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.10	24.66	25.27	25.21	25.26	0
				1	26	24.62	24.82	25.33	25.30	25.28	0
				1	49	24.58	24.93	25.39	25.41	25.31	0
				25	0	24.14	24.29	24.83	24.87	24.77	0.5
				25	13	24.66	24.86	25.41	25.37	25.33	0
				25	26	24.18	24.33	24.89	24.92	24.91	0.5
				50	0	24.12	24.39	24.92	24.88	24.86	0.5
			QPSK	1	1	24.12	24.67	25.24	25.24	25.28	0
				1	26	24.56	24.77	25.31	25.24	25.20	0
				1	49	24.62	24.88	25.23	25.25	25.19	0
				25	0	23.63	23.82	24.31	24.39	24.34	1
				25	13	24.61	24.83	25.44	25.41	25.37	0
				25	26	23.71	23.97	24.45	24.25	24.42	1
				50	0	23.64	23.84	24.39	24.45	24.36	1
			16QAM	1	1	23.33	23.63	24.13	24.19	24.24	1
			64QAM	1	1	21.99	22.21	22.95	22.70	22.77	2.5
			256QAM	1	1	20.01	20.34	20.85	20.73	20.82	4.5
		CP	QPSK	1	1	23.05	23.13	23.75	23.61	23.75	1.5

NR Band n41 _20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						501204	509898	518598	527298	535998	
						2506.02 ㎒	2549.49 ㎒	2592.99 ㎒	2636.49 ㎒	2679.99 ㎒	
20 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.17	24.72	25.31	25.29	25.33	0
				1	26	24.65	24.84	25.40	25.39	25.32	0
				1	49	24.67	25.00	25.47	25.43	25.36	0
				25	0	24.17	24.34	24.90	24.90	24.87	0.5
				25	13	24.69	24.89	25.44	25.41	25.37	0
				25	26	24.19	24.39	24.98	24.94	24.91	0.5
				50	0	24.19	24.40	24.95	24.92	24.87	0.5
			QPSK	1	1	24.06	24.73	25.30	25.25	25.29	0
				1	26	24.57	24.82	25.34	25.32	25.29	0
				1	49	24.62	24.93	25.32	25.33	25.28	0
				25	0	23.71	23.85	24.40	24.40	24.42	1
				25	13	24.70	24.91	25.46	25.45	25.40	0
				25	26	23.71	24.00	24.53	24.25	24.45	1
				50	0	23.71	23.91	24.46	24.46	24.41	1
			16QAM	1	1	23.37	23.70	24.21	24.27	24.33	1
			64QAM	1	1	22.02	22.29	22.95	22.79	22.82	2.5
			256QAM	1	1	20.06	20.37	20.87	20.80	20.89	4.5
		CP	QPSK	1	1	23.09	23.18	23.77	23.70	23.78	1.5

NR Band n41 _30 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						502200	510402	518598	526800	534996	
						2511 ㎒	2552.01 ㎒	2592.99 ㎒	2634 ㎒	2674.98 ㎒	
30 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.74	24.74	25.26	25.45	25.51	0
				1	39	24.82	25.08	25.54	25.61	25.56	0
				1	76	24.74	25.16	25.51	25.55	25.46	0
				36	0	24.32	24.37	24.90	25.01	25.04	0.5
				36	21	24.83	24.98	25.46	25.58	25.53	0
				36	42	24.31	24.57	25.02	25.08	25.04	0.5
				75	0	24.32	24.48	24.82	25.05	25.03	0.5
			QPSK	1	1	24.69	24.71	25.22	25.41	25.49	0
				1	39	24.75	24.90	25.36	25.48	25.41	0
				1	76	24.70	25.10	25.41	25.49	25.37	0
				36	0	23.86	23.90	24.41	24.54	24.58	1
				36	21	24.85	25.01	25.48	25.60	25.55	0
				36	42	23.85	24.10	24.52	24.61	24.57	1
				75	0	23.85	24.01	24.47	24.59	24.56	1
			16QAM	1	1	23.64	23.76	24.16	24.44	24.65	1
			64QAM	1	1	22.32	22.30	22.74	23.05	23.01	2.5
			256QAM	1	1	20.28	20.32	20.78	20.97	21.06	4.5
		CP	QPSK	1	1	23.21	23.19	23.70	23.93	23.97	1.5

NR Band n41 _40 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						503202	513468		523734	534000	
						2516.01 ㎒	2567.34 ㎒		2618.67 ㎒	2670 ㎒	
40 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.73	24.77		25.31	25.43	0
				1	53	24.88	25.11		25.41	25.44	0
				1	104	24.78	25.35		25.51	25.43	0
				50	0	24.23	24.47		24.90	25.07	0.5
				50	28	24.74	25.16		25.47	25.46	0
				50	56	24.24	24.80		24.98	24.96	0.5
				100	0	24.25	24.63		24.97	24.99	0.5
			QPSK	1	1	24.62	24.75		25.31	25.39	0
				1	53	24.65	25.10		25.38	25.36	0
				1	104	24.67	25.30		25.43	25.35	0
				50	0	23.75	24.01		24.46	24.57	1
				50	28	24.77	25.19		25.50	25.50	0
				50	56	23.76	24.31		24.49	24.49	1
				100	0	23.76	24.15		24.48	24.50	1
			16QAM	1	1	23.68	23.75		24.44	24.41	1
			64QAM	1	1	22.29	22.31		22.95	23.14	2.5
			256QAM	1	1	20.17	20.24		20.85	20.98	4.5
		CP	QPSK	1	1	23.18	23.26		23.81	23.93	1.5

NR Band n41 _50 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						504204		518598		532998	
						2521.02 ㎒		2592.99 ㎒		2664.99 ㎒	
50 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.76		25.21		25.56	0
				1	67	24.80		25.47		25.58	0
				1	131	24.91		25.49		25.42	0
				64	0	24.36		24.89		25.09	0.5
				64	35	24.85		25.52		25.57	0
				64	69	24.36		25.04		25.02	0.5
				128	0	24.34		24.98		25.07	0.5
			QPSK	1	1	24.73		25.22		25.48	0
				1	67	24.75		25.52		25.49	0
				1	131	24.85		25.52		25.37	0
				64	0	23.89		24.42		24.63	1
				64	35	24.87		25.55		25.38	0
				64	69	23.87		24.57		24.55	1
				128	0	23.85		24.52		24.61	1
			16QAM	1	1	23.85		24.17		24.47	1
			64QAM	1	1	22.35		22.71		23.04	2.5
			256QAM	1	1	20.30		20.63		20.94	4.5
		CP	QPSK	1	1	23.23		23.54		24.04	1.5

NR Band n41 _60 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						505200		518598		531996		
						2526 ㎒		2592.99 ㎒		2659.98 ㎒		
60 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.65		25.09		25.35		0
				1	81	24.86		25.62		25.59		0
				1	160	25.02		25.48		25.44		0
				81	0	24.24		24.87		25.01		0.5
				81	41	24.77		25.53		25.57		0
				81	81	24.35		25.04		24.99		0.5
				162	0	24.25		25.00		25.04		0.5
			QPSK	1	1	24.63		25.05		25.38		0
				1	81	24.69		25.45		25.52		0
				1	160	24.94		25.42		25.38		0
				81	0	23.79		24.42		24.53		1
				81	41	24.79		25.57		25.59		0
				81	81	23.88		24.56		24.51		1
				162	0	23.76		24.51		24.56		1
			16QAM	1	1	23.67		24.19		24.51		1
			64QAM	1	1	22.24		22.62		22.93		2.5
			256QAM	1	1	20.24		20.66		20.87		4.5
		CP	QPSK	1	1	23.05		23.61		23.75		1.5

NR Band n41 _70 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)						MPR [dB]
						506208				530994		
						2531.04 ㎒				2654.97 ㎒		
70 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.78				25.25		0
				1	81	24.91				25.43		0
				1	160	25.08				25.38		0
				81	0	24.36				24.92		0.5
				81	41	24.88				25.43		0
				81	81	24.47				24.94		0.5
				162	0	24.36				24.94		0.5
			QPSK	1	1	24.71				25.24		0
				1	81	24.82				25.37		0
				1	160	24.99				25.30		0
				81	0	23.88				24.43		1
				81	41	24.90				25.45		0
				81	81	23.98				24.47		1
				162	0	23.87				24.45		1
			16QAM	1	1	23.75				24.39		1
			64QAM	1	1	22.27				22.84		2.5
			256QAM	1	1	20.31				20.92		4.5
		CP	QPSK	1	1	23.22				23.71		1.5

NR Band n41 _80 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						507204				529998	
						2536.02 ㎒				2649.99 ㎒	
80 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.73				25.36	0
				1	109	24.78				25.48	0
				1	215	25.35				25.45	0
				108	0	24.24				25.02	0.5
				108	55	24.82				25.54	0
				108	109	24.56				25.00	0.5
				216	0	24.32				25.00	0.5
			QPSK	1	1	24.66				25.24	0
				1	109	24.71				25.46	0
				1	215	25.28				25.36	0
				108	0	23.80				24.51	1
				108	55	24.84				25.57	0
				108	109	24.09				24.54	1
				216	0	23.85				24.53	1
			16QAM	1	1	23.79				24.46	1
			64QAM	1	1	22.26				22.84	2.5
			256QAM	1	1	20.20				20.95	4.5
		CP	QPSK	1	1	23.18				23.88	1.5

NR Band n41 _90 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						508200				**528996**	
						2541 ㎒				**2644.98 ㎒**	
90 ㎒	30	DFT-s	pi/2 BPSK	1	1	24.80				25.45	0
				1	123	24.93				25.61	0
				1	243	25.47				25.41	0
				120	0	24.33				25.05	0.5
				120	63	24.97				25.65	0
				120	125	24.71				25.06	0.5
				243	0	24.45				25.08	0.5
			QPSK	1	1	24.76				25.48	0
				1	123	24.89				25.62	0
				1	243	25.38				25.38	0
				120	0	23.87				24.59	1
				120	63	24.97				25.67	0
				120	125	24.23				24.59	1
				243	0	23.96				24.61	1
			16QAM	1	1	23.88				24.49	1
			64QAM	1	1	22.34				22.97	2.5
			256QAM	1	1	20.28				20.98	4.5
		CP	QPSK	1	1	23.29				23.88	1.5

NR Band n41 _100 ㎒ Bandwidth

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			24.90			0
				1	137			25.52			0
				1	271			25.58			0
				135	0			24.76			0.5
				135	69			25.51			0
				135	138			25.03			0.5
				270	0			24.94			0.5
			QPSK	1	1			24.85			0
				1	137			25.47			0
				1	271			25.85			0
				135	0			24.29			1
				135	69			25.84			0
				135	138			24.55			1
				270	0			24.76			1
			16QAM	1	1			23.81			1
			64QAM	1	1			22.45			2.5
			256QAM	1	1			20.43			4.5
		CP	QPSK	1	1			23.37			1.5

11.1.2 NR Band Reduced Conducted Power

NR Band n41_Main #2 Ant.Conducted Power(RSI=1,2,3) Power Class 2,3

NR Band n41 _10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500202	509400	518598	527802	537000	
						2501.01 ㎒	2547 ㎒	2592.99 ㎒	2639.01 ㎒	2685 ㎒	
10 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.02	16.74	17.12	16.97	16.76	0
				1	12	17.02	16.77	17.14	16.99	16.90	0
				1	22	16.61	16.83	17.13	17.00	16.76	0
				12	0	17.04	16.74	17.11	16.98	16.76	0
				12	6	17.02	16.76	17.11	16.98	16.79	0
				12	12	17.02	16.77	17.16	16.97	16.76	0
				24	0	17.02	16.75	17.12	16.98	16.77	0
			QPSK	1	1	17.00	16.71	17.11	16.93	16.71	0
				1	12	17.06	16.75	17.15	17.03	16.82	0
				1	22	17.01	16.78	17.14	16.80	16.75	0
				12	0	17.04	16.72	17.11	16.95	16.76	0
				12	6	17.03	16.76	17.12	16.99	16.77	0
				12	12	17.04	16.75	17.11	16.98	16.75	0
				24	0	17.03	16.74	16.97	16.98	16.78	0
			16QAM	1	1	17.05	16.78	17.08	16.94	16.71	0
			64QAM	1	1	17.03	16.75	17.02	16.94	16.61	0.5
			256QAM	1	1	16.54	16.57	16.80	16.31	16.33	2.5
		CP	QPSK	1	1	16.99	16.69	17.08	17.01	16.74	0

NR Band n41 _15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						500700	509652	518598	527550	536502	
						2503.5 ㎒	2548.26 ㎒	2592.99 ㎒	2637.75 ㎒	2682.51 ㎒	
15 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.15	16.77	17.13	16.98	16.98	0
				1	18	17.02	16.75	17.12	16.95	16.95	0
				1	36	17.02	16.87	17.15	17.00	16.97	0
				18	0	17.06	16.75	17.09	16.94	16.93	0
				18	9	17.06	16.78	17.13	16.94	16.97	0
				18	18	17.04	16.80	17.12	16.96	16.97	0
				36	0	17.04	16.78	17.11	16.95	16.96	0
			QPSK	1	1	17.10	16.73	17.09	16.93	16.95	0
				1	18	17.00	16.71	17.05	16.91	16.89	0
				1	36	17.01	16.83	17.12	16.96	16.90	0
				18	0	17.07	16.75	17.10	16.93	16.92	0
				18	9	16.77	16.78	17.11	16.95	16.95	0
				18	18	17.03	16.81	17.12	16.94	16.97	0
				36	0	17.07	16.71	17.12	16.95	16.96	0
			16QAM	1	1	17.17	16.76	16.89	16.92	16.94	0
			64QAM	1	1	17.10	16.74	17.11	16.93	16.88	0.5
			256QAM	1	1	16.79	16.57	17.04	16.79	16.66	2.5
		CP	QPSK	1	1	17.11	16.71	17.07	16.93	16.86	0

NR Band n41 _20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						501204	509898	518598	527298	535998	
						2506.02 ㎒	2549.49 ㎒	2592.99 ㎒	2636.49 ㎒	2679.99 ㎒	
20 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.90	16.77	17.11	16.90	16.90	0
				1	26	16.84	16.82	17.12	16.93	16.90	0
				1	49	16.80	16.88	17.14	16.96	16.91	0
				25	0	16.86	16.78	17.10	16.91	16.90	0
				25	13	16.85	16.81	17.12	16.92	16.84	0
				25	26	16.82	16.85	17.12	16.92	16.96	0
				50	0	16.54	16.81	17.11	16.90	16.91	0
			QPSK	1	1	16.90	16.76	17.07	16.87	16.91	0
				1	26	16.84	16.78	17.10	16.91	16.90	0
				1	49	16.83	16.86	17.13	16.95	16.93	0
				25	0	16.87	16.77	17.11	16.89	16.90	0
				25	13	16.85	16.82	17.12	16.63	16.91	0
				25	26	16.83	16.85	17.13	16.93	16.95	0
				50	0	16.85	16.80	17.12	16.92	16.92	0
			16QAM	1	1	16.77	16.73	17.06	16.91	16.89	0
			64QAM	1	1	16.85	16.75	17.07	16.86	16.89	0.5
			256QAM	1	1	16.41	16.75	17.07	16.79	16.78	2.5
		CP	QPSK	1	1	16.81	16.78	17.09	16.89	16.86	0

NR Band n41 _30 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						502200	510402	518598	526800	534996	
						2511 ㎒	2552.01 ㎒	2592.99 ㎒	2634 ㎒	2674.98 ㎒	
30 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.97	16.78	17.03	17.04	17.05	0
				1	39	16.84	16.87	17.13	17.09	17.16	0
				1	76	16.84	16.99	17.08	17.06	17.02	0
				36	0	16.97	16.83	17.09	17.05	17.04	0
				36	21	16.88	16.90	17.13	17.10	17.03	0
				36	42	16.86	16.94	17.13	17.08	17.03	0
				75	0	16.90	16.87	17.12	17.07	17.03	0
			QPSK	1	1	16.98	16.77	17.02	17.06	17.06	0
				1	39	16.97	16.93	17.14	17.09	17.09	0
				1	76	16.82	16.99	17.06	17.04	16.98	0
				36	0	16.96	16.83	17.10	17.05	17.03	0
				36	21	16.57	16.88	17.12	17.09	17.03	0
				36	42	16.86	16.93	17.12	17.09	17.04	0
				75	0	16.91	16.87	17.12	17.08	17.01	0
			16QAM	1	1	17.08	16.79	16.98	16.95	17.01	0
			64QAM	1	1	16.92	16.84	17.01	17.14	17.05	0.5
			256QAM	1	1	16.82	16.78	17.03	17.08	16.98	2.5
		CP	QPSK	1	1	16.95	16.77	17.06	17.05	17.05	0

NR Band n41 _40 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						503202	513468		523734	534000	
						2516.01 ㎒	2567.34 ㎒		2618.67 ㎒	2670 ㎒	
40 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.87	16.73		17.02	16.96	0
				1	53	16.83	16.95		17.06	16.91	0
				1	104	16.71	16.99		17.03	16.97	0
				50	0	16.70	16.79		16.98	16.98	0
				50	28	16.81	16.92		17.00	16.93	0
				50	56	16.73	16.98		16.97	16.93	0
				100	0	16.79	16.89		16.97	16.92	0
			QPSK	1	1	16.85	16.70		17.00	16.93	0
				1	53	16.81	16.91		17.01	16.99	0
				1	104	16.76	17.01		16.98	16.94	0
				50	0	16.79	16.80		16.95	16.98	0
				50	28	16.79	16.92		17.00	16.95	0
				50	56	16.74	16.98		16.96	16.92	0
				100	0	16.80	16.90		16.98	16.94	0
			16QAM	1	1	16.94	16.37		16.98	16.89	0
			64QAM	1	1	16.84	16.69		16.99	16.90	0.5
			256QAM	1	1	16.85	16.57		16.55	16.77	2.5
		CP	QPSK	1	1	16.85	16.64		16.98	16.97	0

NR Band n41 _50 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						504204		518598		532998	
						2521.02 ㎒		2592.99 ㎒		2664.99 ㎒	
50 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.01		17.00		17.06	0
				1	67	16.76		17.12		17.03	0
				1	131	16.84		17.08		16.94	0
				64	0	16.96		17.07		17.04	0
				64	35	16.91		17.13		17.06	0
				64	69	16.80		17.11		17.02	0
				128	0	16.86		17.12		17.04	0
			QPSK	1	1	16.91		17.05		17.07	0
				1	67	16.93		17.16		17.06	0
				1	131	16.77		16.95		16.96	0
				64	0	16.98		17.08		17.05	0
				64	35	16.88		17.14		17.04	0
				64	69	16.81		17.12		17.00	0
				128	0	16.86		17.12		17.03	0
			16QAM	1	1	16.92		17.15		17.00	0
			64QAM	1	1	16.93		16.89		16.98	0.5
			256QAM	1	1	16.30		16.84		16.50	2.5
		CP	QPSK	1	1	17.01		16.93		17.02	0

NR Band n41 _60 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						505200		518598		531996	
						2526 ㎒		2592.99 ㎒		2659.98 ㎒	
60 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.89		16.91		16.89	0
				1	81	16.78		17.20		17.03	0
				1	160	16.86		17.01		16.89	0
				81	0	16.65		17.02		16.92	0
				81	41	16.73		17.11		16.98	0
				81	81	16.76		17.11		16.93	0
				162	0	16.73		17.10		16.96	0
			QPSK	1	1	16.85		17.02		16.94	0
				1	81	16.66		17.19		17.01	0
				1	160	16.81		17.02		16.92	0
				81	0	16.80		17.06		16.91	0
				81	41	16.73		17.15		16.97	0
				81	81	16.75		17.08		16.93	0
				162	0	16.72		17.10		16.96	0
			16QAM	1	1	16.63		16.81		16.85	0
			64QAM	1	1	16.78		16.93		16.86	0.5
			256QAM	1	1	16.57		16.52		16.77	2.5
		CP	QPSK	1	1	16.80		16.83		16.85	0

NR Band n41 _70 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						506208				530994	
						2531.04 ㎒				2654.97 ㎒	
70 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.89				16.81	0
				1	81	16.83				16.87	0
				1	160	16.83				16.88	0
				81	0	16.88				16.81	0
				81	41	16.74				16.85	0
				81	81	16.81				16.86	0
				162	0	16.75				16.84	0
			QPSK	1	1	16.88				16.81	0
				1	81	16.81				16.86	0
				1	160	16.87				16.86	0
				81	0	16.88				16.81	0
				81	41	16.66				16.84	0
				81	81	16.81				16.86	0
				162	0	16.78				16.85	0
			16QAM	1	1	17.01				16.82	0
			64QAM	1	1	16.90				16.76	0.5
			256QAM	1	1	16.87				16.71	2.5
		CP	QPSK	1	1	16.86				16.83	0

NR Band n41 _80 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						507204				529998	
						2536.02 ㎒				2649.99 ㎒	
80 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.85				16.94	0
				1	109	16.65				16.93	0
				1	215	17.05				16.95	0
				108	0	16.75				16.94	0
				108	55	16.70				16.98	0
				108	109	16.83				16.96	0
				216	0	16.71				16.94	0
			QPSK	1	1	16.88				16.97	0
				1	109	16.71				16.98	0
				1	215	17.08				16.98	0
				108	0	16.76				16.93	0
				108	55	16.70				16.97	0
				108	109	16.84				16.96	0
				216	0	16.70				16.95	0
			16QAM	1	1	16.83				16.99	0
			64QAM	1	1	16.86				16.90	0.5
			256QAM	1	1	16.84				16.96	2.5
		CP	QPSK	1	1	16.81				16.97	0

NR Band n41 _90 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power (dBm)					MPR [dB]
						508200				528996	
						2541 ㎒				2644.98 ㎒	
90 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.02				17.15	0
				1	123	16.84				17.12	0
				1	243	17.15				17.01	0
				120	0	16.84				17.05	0
				120	63	16.83				17.09	0
				120	125	16.98				16.87	0
				243	0	16.66				17.03	0
			QPSK	1	1	16.95				17.10	0
				1	123	16.65				17.08	0
				1	243	17.11				16.96	0
				120	0	16.84				17.04	0
				120	63	16.84				17.08	0
				120	125	16.97				17.01	0
				243	0	16.81				16.89	0
			16QAM	1	1	16.97				17.09	0
			64QAM	1	1	16.98				17.05	0.5
			256QAM	1	1	16.78				16.77	2.5
		CP	QPSK	1	1	16.98				17.14	0

NR Band n41 _100 ㎒ Bandwidth

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			16.84			0
				1	137			16.97			0
				1	271			17.12			0
				135	0			16.77			0
				135	69			17.13			0
				135	138			17.06			0
				270	0			17.08			0
			QPSK	1	1			16.82			0
				1	137			17.16			0
				1	271			17.02			0
				135	0			16.98			0
				135	69			17.14			0
				135	138			17.06			0
				270	0			17.10			0
			16QAM	1	1			16.82			0
			64QAM	1	1			16.78			0.5
			256QAM	1	1			16.76			2.5
		CP	QPSK	1	1			16.81			0

NR Band n48_Sub #3 Ant.Conducted Power(RSI=0,1,2,3)

NR Band n48 _10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637000	640112	643222	646332	
						3555 ㎒	3601.68 ㎒	3648.33 ㎒	3694.98 ㎒	
10 ㎒	30	DFT-s	pi/2 BPSK	1	1	16.88	17.23	16.94	17.46	0
				1	12	17.43	17.33	17.05	17.75	0
				1	22	17.52	17.46	17.14	17.66	0
				12	0	17.16	17.26	16.94	17.57	0
				12	6	17.26	17.33	17.01	17.68	0
				12	12	17.40	17.41	17.05	17.65	0
				24	0	17.29	17.30	17.00	17.66	0
			QPSK	1	1	17.22	17.19	16.94	17.51	0
				1	12	17.34	17.04	17.07	17.42	0
				1	22	17.46	17.46	17.09	17.70	0
				12	0	17.17	17.25	16.93	17.56	0.5
				12	6	17.28	17.34	17.01	17.68	0
				12	12	17.38	17.40	17.07	17.65	0.5
				24	0	17.29	17.32	17.01	17.66	0.5
			16QAM	1	1	17.27	17.19	16.82	17.30	0.5
			64QAM	1	1	17.19	17.24	16.91	17.44	2
			256QAM	1	1	17.11	17.09	16.33	17.47	4
		CP	QPSK	1	1	17.27	17.12	16.95	17.46	1

NR Band n48 _15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637168	640166	643166	646166	
						3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz	
15MHz	30	DFT-s	pi/2 BPSK	1	1	17.32	17.51	17.06	17.25	0
				1	18	17.38	17.36	16.94	17.45	0
				1	36	17.71	17.62	17.12	17.66	0
				18	0	16.95	17.28	16.89	17.30	0
				18	9	17.40	17.37	16.95	17.47	0
				18	18	17.57	17.46	17.02	17.64	0
				36	0	17.42	17.36	16.95	17.48	0
			QPSK	1	1	17.28	17.48	17.04	16.96	0
				1	18	17.35	17.34	16.87	17.45	0
				1	36	17.67	17.57	17.09	17.59	0
				18	0	17.27	17.26	16.88	17.30	0.5
				18	9	17.42	17.38	16.95	17.47	0
				18	18	17.57	17.45	17.02	17.48	0.5
				36	0	17.42	17.36	16.96	17.46	0.5
			16QAM	1	1	17.26	17.47	17.06	17.24	0.5
			64QAM	1	1	17.25	17.44	17.05	17.21	2
			256QAM	1	1	16.96	17.36	16.59	16.72	4
		CP	QPSK	1	1	17.27	17.42	17.05	17.17	1

NR Band n48 _20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637334	640222	643112	646000	
						3560.01 ㎒	3603.33 ㎒	3646.68 ㎒	3690 ㎒	
20 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.32	17.49	17.08	16.97	0
				1	26	17.62	17.44	16.95	17.30	0
				1	49	17.89	17.62	17.11	17.56	0
				25	0	17.33	17.24	16.80	17.10	0
				25	13	17.29	17.40	16.91	17.29	0
				25	26	17.76	17.56	17.03	17.51	0
				50	0	17.58	17.39	16.90	17.27	0
			QPSK	1	1	17.32	17.42	17.03	16.95	0
				1	26	17.61	17.39	16.89	17.27	0
				1	49	17.91	17.56	17.03	17.35	0
				25	0	17.34	17.25	16.79	17.11	0.5
				25	13	17.59	17.40	16.93	17.29	0
				25	26	17.76	17.55	16.99	17.52	0.5
				50	0	17.55	17.38	16.90	17.24	0.5
			16QAM	1	1	17.11	17.57	17.12	17.05	0.5
			64QAM	1	1	17.31	17.43	17.02	16.94	2
			256QAM	1	1	17.08	16.94	17.00	16.40	4
		CP	QPSK	1	1	17.28	17.39	17.02	16.86	1

NR Band n48 _40 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						638000	641666		645332	
						3570 ㎒	3624.99 ㎒		3679.98 ㎒	
40 ㎒	30	DFT-s	pi/2 BPSK	1	1	17.24	17.50		17.46	0
				1	53	17.87	17.64		17.10	0
				1	104	17.42	16.72		17.51	0
				50	0	17.49	17.68		17.20	0
				50	28	17.93	17.58		17.00	0
				50	56	17.72	17.08		17.27	0
				100	0	17.84	17.50		16.91	0
			QPSK	1	1	17.20	17.44		17.41	0
				1	53	17.94	17.60		17.02	0
				1	104	17.40	16.66		17.39	0
				50	0	17.48	17.68		17.19	0.5
				50	28	17.94	17.60		17.00	0
				50	56	17.59	17.10		17.27	0.5
				100	0	17.84	17.51		16.92	0.5
			16QAM	1	1	16.98	17.20		17.67	0.5
			64QAM	1	1	17.17	17.51		17.39	2
			256QAM	1	1	16.85	17.47		17.17	4
		CP	QPSK	1	1	17.81	17.36		17.35	1

NR Band n48_Sub #3 Ant.Conducted Power(RSI=4)

NR Band n48 _10 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637000	640112	643222	646332	
						3555 ㎒	3601.68 ㎒	3648.33 ㎒	3694.98 ㎒	
10 ㎒	30	DFT-s	pi/2 BPSK	1	1	12.88	13.31	13.83	14.17	0
				1	12	13.59	13.50	13.62	14.19	0
				1	22	13.57	13.57	13.77	14.42	0
				12	0	13.10	13.07	13.77	14.06	0
				12	6	13.48	13.40	13.58	14.14	0
				12	12	13.70	13.55	13.73	14.39	0
				24	0	13.43	13.30	13.53	14.07	0
			QPSK	1	1	12.91	13.31	13.84	14.16	0
				1	12	13.61	13.44	13.59	14.12	0
				1	22	13.57	13.58	13.76	14.38	0
				12	0	13.09	13.07	13.77	14.05	0
				12	6	13.53	13.41	13.52	14.12	0
				12	12	13.71	13.52	13.78	14.33	0
				24	0	13.47	13.29	13.53	14.11	0
			16QAM	1	1	12.90	12.97	13.57	14.15	0
			64QAM	1	1	12.85	13.27	13.78	14.19	0
			256QAM	1	1	12.75	12.83	13.20	13.32	0
		CP	QPSK	1	1	12.84	13.26	13.77	14.09	0

NR Band n48 _15 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637168	640166	643166	646166	
						3557.52 MHz	3602.49 MHz	3647.49 MHz	3692.49 MHz	
15MHz	30	DFT-s	pi/2 BPSK	1	1	12.94	13.30	13.74	14.11	0
				1	18	13.55	13.52	13.65	14.18	0
				1	36	13.57	13.59	13.80	14.44	0
				18	0	13.10	13.04	13.77	14.03	0
				18	9	13.54	13.37	13.59	14.14	0
				18	18	13.65	13.54	13.78	14.38	0
				36	0	13.49	13.33	13.51	14.08	0
			QPSK	1	1	12.94	13.24	13.80	14.19	0
				1	18	13.60	13.51	13.62	14.17	0
				1	36	13.60	13.52	13.76	14.36	0
				18	0	13.16	13.02	13.68	13.98	0
				18	9	13.54	13.41	13.54	14.08	0
				18	18	13.71	13.55	13.70	14.31	0
				36	0	13.43	13.30	13.56	14.05	0
			16QAM	1	1	12.86	13.01	13.59	14.13	0
			64QAM	1	1	12.85	13.32	13.76	14.14	0
			256QAM	1	1	12.80	12.91	13.26	13.34	0
		CP	QPSK	1	1	12.89	13.25	13.81	14.10	0

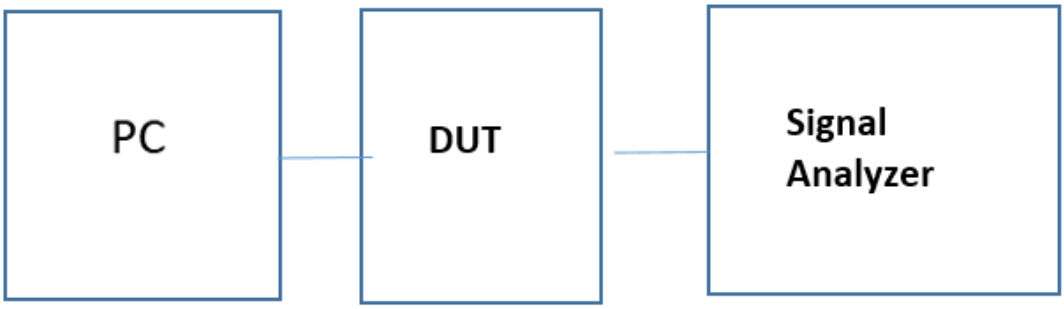
NR Band n48 _20 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						637334	640222	643112	646000	
						3560.01 ㎒	3603.33 ㎒	3646.68 ㎒	3690 ㎒	
20 ㎒	30	DFT-s	pi/2 BPSK	1	1	12.95	13.32	13.76	14.16	0
				1	26	13.51	13.43	13.62	14.16	0
				1	49	13.58	13.60	13.77	14.42	0
				25	0	13.11	13.09	13.77	14.06	0
				25	13	13.49	13.34	13.52	14.11	0
				25	26	13.68	13.55	13.76	14.36	0
				50	0	13.41	13.36	13.53	14.04	0
			QPSK	1	1	12.92	13.28	13.82	14.15	0
				1	26	13.61	13.46	13.60	14.20	0
				1	49	13.62	13.51	13.77	14.41	0
				25	0	13.14	13.09	13.74	14.06	0
				25	13	13.52	13.36	13.60	14.14	0
				25	26	13.70	13.57	13.73	14.38	0
				50	0	13.49	13.34	13.57	14.09	0
			16QAM	1	1	12.94	13.02	13.58	14.16	0
			64QAM	1	1	12.82	13.24	13.74	14.11	0
			256QAM	1	1	12.78	12.81	13.25	13.39	0
		CP	QPSK	1	1	12.88	13.23	13.77	14.13	0

NR Band n48 _40 ㎒ Bandwidth

Bandwidth	SCS(㎑)	OFDM	Modulation	RB Size	RB Offset	Max. Average Power [dBm]				MPR [dB]
						638000	641666		645332	
						3570 ㎒	3624.99 ㎒		3679.98 ㎒	
40 ㎒	30	DFT-s	pi/2 BPSK	1	1	12.95	13.58		14.38	0
				1	53	13.86	13.77		14.33	0
				1	104	13.42	12.90		14.41	0
				50	0	13.37	13.87		14.39	0
				50	28	13.91	13.80		14.29	0
				50	56	13.75	13.33		14.46	0
				100	0	13.77	13.71		14.21	0
			QPSK	1	1	13.02	13.63		14.44	0
				1	53	13.94	13.93		14.39	0
				1	104	13.47	12.98		14.46	0
				50	0	13.40	13.89		14.40	0
				50	28	13.90	13.80		14.30	0
				50	56	13.75	13.33		14.42	0
				100	0	13.78	13.72		14.22	0
			16QAM	1	1	12.98	13.77		14.38	0
			64QAM	1	1	12.95	13.74		14.48	0
			256QAM	1	1	12.95	13.31		14.12	0
		CP	QPSK	1	1	12.96	13.60		14.43	0

Power Measurement Set Up NR TDD



12. System Verification

12.1 Tissue Verification

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

Table for Head Tissue Verification									
Date of Tests	Tissue Temp. (°C)	Tissue Type	Freq. (MHz)	Measured Conductivity σ (S/m)	Measured Dielectric Constant, ε	Target Conductivity σ (S/m)	Target Dielectric Constant, ε	% dev σ	% dev ε
11/14/2023	23.7	2600H	2 500	1.920	38.300	1.855	39.140	+ 3.50	- 2.15
			2 600	2.030	37.800	1.964	39.010	+ 3.36	- 3.10
			2 690	2.130	37.500	2.062	38.894	+ 3.30	- 3.58
11/24/2023	20.9	2600H	2 500	1.783	38.428	1.855	39.140	-3.88	-1.82
			2 600	1.888	38.030	1.964	39.010	-3.87	-2.51
			2 690	1.984	37.642	2.062	38.894	-3.78	-3.22
11/15/2023	23.6	3500H~ 3700H	3 500	2.920	38.200	2.913	37.930	+ 0.24	+ 0.71
			3 550	2.960	38.100	2.964	37.870	- 0.13	+ 0.61
			3 650	3.050	38.000	3.066	37.760	- 0.52	+ 0.64
			3 700	3.090	37.900	3.118	37.770	- 0.90	+ 0.34
11/24/2023	20.9	3700H~ 3900H	3700	3.085	37.715	3.118	37.700	-1.06	+0.04
			3750	3.124	37.691	3.169	37.640	-1.42	+0.14
			3800	3.161	37.660	3.220	37.590	-1.83	+0.19
			3900	3.229	37.503	3.323	37.470	-2.83	+0.09
			3970	3.288	37.369	3.394	37.390	-3.12	-0.06

12.2 System Verification

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) [W/kg]	50mW Measured SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Limit [%]
2 600	11/14/2023	3968	1106	Head	23.8	23.7	55.6	2.75	55.00	- 1.08	± 10
3 500	11/15/2023	3797	1040	Head	23.9	23.6	66.5	3.52	70.40	+ 5.86	± 10

System Verification Results – Extremity SAR

Input Power: 50 mW

Freq. [MHz]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{10g} (SPEAG) [W/kg]	50mW Measured SAR_{10g} [W/kg]	1 W Normalized SAR_{10g} [W/kg]	Deviation [%]	Limit [%]
2 600	11/14/2023	3968	1106	Head	23.8	23.7	25.1	1.20	24.00	- 4.38	± 10

System Verification Results – Volumetric SAR Input Power: 50 mW

Freq. [㎒]	Date	Probe (S/N)	Dipole (S/N)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) [W/kg]	50mW Measured SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Limit [%]
2 600	11/24/2023	7655	1106	Head	20.9	20.9	55.6	2.74	54.8	-1.44	± 10
3 900	11/24/2023	7655	1019	Head	20.9	20.9	69.7	3.45	69.0	-1.00	± 10

12.3 System Verification Procedure

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

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

13. SAR Test Data Summary

13.1 Head SAR Measurement Results (RSI=4)

NR Band n41 Head SAR																
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Duty Cycle	Ant	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)					(W/kg)		(W/kg)	
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.03	Left Cheek	0	1	271	1:1	Main2	0.612	1.161	0.711	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.12	Left Cheek	0	135	69	1:1	Main2	0.618	1.164	**0.719**	A1
2 592.99	518598	DFT-s OFDM QPSK	100	25.5	24.76	-0.18	Left Cheek	1	270	0	1:1	Main2	0.459	1.186	0.544	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.07	Left Tilt	0	1	271	1:1	Main2	0.288	1.161	0.334	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	0.07	Left Tilt	0	135	69	1:1	Main2	0.251	1.164	0.292	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.17	Right Cheek	0	1	271	1:1	Main2	0.38	1.161	0.441	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.11	Right Cheek	0	135	69	1:1	Main2	0.318	1.164	0.370	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.09	Right Tilt	0	1	271	1:1	Main2	0.486	1.161	0.564	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	0.04	Right Tilt	0	135	69	1:1	Main2	0.436	1.164	0.508	-
2 592.99	518598	CP OFDM QPSK	100	25.0	23.37	-0.01	Left Cheek	1.5	1	1	1:1	Main2	0.348	1.455	0.506	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Head 1.6 W/kg Averaged over 1 gram									

13.2 Body-worn SAR Measurement Results (RSI=0)

NR Band Bodyworn SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB offset	Duty Cycle	Ant	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	NR n41 DFT-s OFDM QPSK	100	26.5	25.85	-0.19	Rear	0	1	271	1:1	Main2	15	0.635	1.161	0.738	-
2 592.99	518598		100	26.5	25.84	-0.12	Rear	0	135	69	1:1	Main2	15	0.645	1.164	0.751	-
2 592.99	518598		100	25.5	24.76	-0.06	Rear	1	270	0	1:1	Main2	15	0.526	1.186	0.624	-
2 592.99	518598		100	26.5	25.85	-0.08	Front	0	1	271	1:1	Main2	15	0.545	1.161	0.633	-
2 592.99	518598		100	26.5	25.84	-0.07	Front	0	135	69	1:1	Main2	15	0.496	1.164	0.577	-
2 592.99	518598		100	25.5	24.76	0.00	Front	1	270	0	1:1	Main2	15	0.38	1.186	0.451	-
2 592.99	518598	CP OFDM QPSK	100	25.0	23.37	-0.13	Rear	1.5	1	1	1:1	Main2	15	0.596	1.455	**0.867**	B1
3 570	638000	NR n48 DFT-s OFDM QPSK	40	18.0	17.94	-0.13	Rear	0	1	53	1:1	Sub3	15	0.137	1.014	**0.139**	B2
3 570	638000		40	18.0	17.94	0.12	Rear	0	50	28	1:1	Sub3	15	0.129	1.014	0.131	-
3 570	638000		40	18.0	17.94	-0.09	Front	0	1	53	1:1	Sub3	15	0.101	1.014	0.102	-
3 570	638000		40	18.0	17.94	-0.18	Front	0	50	28	1:1	Sub3	15	0.091	1.014	0.092	-
3 570	638000	CP OFDM QPSK	40	18.0	17.81	0.13	Rear	0	1	1	1:1	Sub3	15	0.132	1.045	0.138	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

13.3 Hotspot SAR Measurement Results(RSI=3)

NR Band n41 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Duty Cycle	Ant	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 OFDM QPSK	100	18.0	17.16	-0.05	Rear	0	1	137	1:1	Main2	10	0.294	1.213	0.357	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	-0.17	Rear	0	135	69	1:1	Main2	10	0.283	1.219	0.345	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.16	-0.13	Front	0	1	137	1:1	Main2	10	0.215	1.213	0.261	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	-0.02	Front	0	135	69	1:1	Main2	10	0.233	1.219	0.284	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.16	0.01	Left	0	1	137	1:1	Main2	10	0.123	1.213	0.149	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	-0.05	Left	0	135	69	1:1	Main2	10	0.130	1.219	0.158	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.16	-0.02	Bottom	0	1	137	1:1	Main2	10	0.265	1.213	0.322	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	-0.01	Bottom	0	135	69	1:1	Main2	10	0.256	1.219	0.312	-
2 592.99	518598	CP OFDM QPSK	100	18.0	16.81	-0.09	Rear	0	1	1	1:1	Main2	10	0.338	1.315	**0.445**	C1
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

NR Band n48 Hotspot SAR																	
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Duty Cycle	Ant	Distance	Meas. SAR	Scaling Factor	Scaled SAR	Plot No.
MHz	Ch.		(MHz)	(dBm)	(dBm)	(dB)		(dB)					(mm)	(W/kg)		(W/kg)	
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.19	Rear	0	1	53	1:1	Sub3	10	0.279	1.014	0.283	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.18	Rear	0	50	28	1:1	Sub3	10	0.231	1.014	0.234	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.13	Front	0	1	53	1:1	Sub3	10	0.222	1.014	0.225	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.04	Front	0	50	28	1:1	Sub3	10	0.216	1.014	0.219	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.10	Left	0	1	53	1:1	Sub3	10	0.303	1.014	0.307	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.09	Left	0	50	28	1:1	Sub3	10	0.318	1.014	0.322	-
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	-0.05	Top	0	1	53	1:1	Sub3	10	0.337	1.014	**0.342**	C2
3 570	638000	DFT-s OFDM QPSK	40	18.0	17.94	0.00	Top	0	50	28	1:1	Sub3	10	0.288	1.014	0.292	-
3 570	638000	CP OFDM QPSK	40	18.0	17.81	-0.07	Top	1	1	1	1:1	Sub3	10	0.270	1.045	0.282	-
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg Averaged over 1 gram										

13.4 Phablet SAR Measurement Considerations

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

13.5 Phablet SAR Measurement Results (RSI=2)

NR Band n41 Phablet SAR																		
Frequency		Mode	Band width	Tune-Up Limit	Meas. Power	Power Drift	Test Position	MPR	RB Size	RB Offset	Duty Cycle	Sensor	Ant	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 OFDM QPSK	100	18.0	17.16	-0.13	Rear	0	1	137	1:1	ON	Main2	0	0.917	1.213	1.113	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	-0.14	Rear	0	135	69	1:1	ON	Main2	0	0.911	1.219	1.110	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.16	-0.19	Front	0	1	137	1:1	ON	Main2	0	0.838	1.213	1.017	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	0.19	Front	0	135	69	1:1	ON	Main2	0	0.824	1.219	1.004	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	-0.01	Left	0	1	271	1:1	N/A	Main2	0	2.030	1.161	2.358	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.05	Left	0	135	69	1:1	N/A	Main2	0	1.730	1.164	2.014	-
2 592.99	518598	DFT-s OFDM QPSK	100	25.5	24.76	-0.02	Left	1	270	0	1:1	N/A	Main2	0	1.190	1.186	1.411	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.16	-0.01	Bottom	0	1	271	1:1	ON	Main2	0	0.673	1.213	0.817	-
2 592.99	518598	DFT-s OFDM QPSK	100	18.0	17.14	0.00	Bottom	0	135	69	1:1	ON	Main2	0	0.657	1.219	0.801	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.05	Rear	0	1	271	1:1	OFF	Main2	16	0.251	1.161	0.292	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.17	Rear	0	135	69	1:1	OFF	Main2	16	0.259	1.164	0.302	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	-0.05	Front	0	1	271	1:1	OFF	Main2	4	1.230	1.161	1.429	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.02	Front	0	135	69	1:1	OFF	Main2	4	1.020	1.186	1.209	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	0.00	Bottom	0	1	271	1:1	OFF	Main2	12	0.537	1.161	0.624	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.84	-0.02	Bottom	0	135	69	1:1	OFF	Main2	12	0.533	1.164	0.620	-
2 592.99	518598	CP OFDM QPSK	100	25.0	23.37	-0.02	Left	0	1	1	1:1	N/A	Main2	0	1.470	1.455	2.140	-
2 592.99	518598	DFT-s OFDM QPSK	100	26.5	25.85	-0.04	Left	0	1	271	1:1	N/A	Main2	0	2.040	1.161	**2.369**	*D1
ANSI/ IEEE C95.1 - 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population												Hand 4.0 W/kg Averaged over 10 gram						

Note : * Data entry indicate Variablity measurement.

13.6 SAR Test Notes

General Notes:

1. The test data reported are the worst-case SAR values according to test procedures specified in IEEE 1528-2013, FCC KDB Procedure.
2. Batteries are fully charged at the beginning of the SAR measurements. A standard battery was used for all SAR measurements.
3. Liquid tissue depth was at least 15.0 cm for all frequencies.
4. The manufacturer has confirmed that the device(s) tested have the same physical, mechanical and thermal characteristics and are within operational tolerances expected for production units.
5. SAR results were scaled to the maximum allowed power to demonstrate compliance per FCC KDB 447498 D01v06.
6. Device was tested using a fixed spacing for body-worn accessory testing. A separation distance of 15 mm was considered because the manufacturer has determined that there will be body-worn accessories available in the marketplace for users to support this separation distance.
7. Per FCC KDB 648474 D04v01r03, SAR was evaluated without a headset connected to the device. Since the standalone reported SAR was 1.2 W/kg, no additional SAR evaluation using a headset cable were required.
8. Per KDB 648474 D04v01r03, this device is considered a “Phablet” since the diagonal dimension is > 160 mm and < 200 mm. When hotspot mode applies, extremity SAR is required only for the surfaces and edges with hotspot mode scaled to the maximum output power (with tolerance) is 1 g SAR > 1.2 W/kg.
9. Per FCC KDB 865664 D01v01r04, variability SAR measurement were performed when the measured SAR results for a frequency band were greater than or equal to 0.8 W/kg for 1g SAR and >2 for 10g SAR Please see Section 15 for variability analysis.
10. This device utilizes power reduction for some wireless mode and technologies, as outlined in sec. 4 The maximum output power allowed for each transmitter and exposure condition was evaluated for SAR compliance based on expected use conditions and simultaneous scenarios.
11. During SAR testing for the Hotspot conditions per KDB 941225 D06v02r01, the actual portable hotspot operation (with actual simultaneous transmission of a transmitter with WiFi) was not activated.
12. This device uses The Samsung S.LSI proprietary TAS(Time Average SAR) algorithm for 5G operations to control and manage transmitting power in real time to ensure RF Exposure compliance. Per FCC Guidance, SAR Test at the Plimit and Pmax output power for eachband/mode/exposure conditions(RSI).

NR Notes:

1. Due to Limitations of the SAR measurement equipment, SAR testing for NR was performed using test mode (FTM) software.
2. More detailed specifications of the NR bands are contained in the Technical description document.
3. This device additionally supports some EN-DC conditions where additional LTE carriers are added on the downlink only.
4. For NR modulations and RB Sizes/Offsets were selected for testing such that configurations with the highest output power were evaluated for SAR tests.
5. In order to satisfy the limitations of the duty factor of the 5G NR TDD band, these were tested with duty factor 100% as n41 and n48 band were applied to all SAR test Configurations (Head/Bodyworn/Hotspot/Extremity) in FTM mode.

14. Simultaneous SAR Analysis

The simultaneous transmission assessment in this section was evaluated by considering the C2PC test results and the test results in the original SAR report [HCT-SR-2309-FC006-R3].
This device is contains transmitters that may operate simultaneously. Therefore, simultaneous transmission analysis is required. Per KDB Publication 447498 D01v06 4.3.2, simultaneous transmission SAR test exclusion may be applied when the sum of 1g SAR and 10g SAR for all the simultaneous transmitting antennas in a specific a physical test configuration is ≤1.6W/kg for 1g SAR and ≤4 W/kg for 10g SAR. The different test positions in an exposure condition may be considered collectively to determine SAR exclusion according to the sum of 1g or 10g SAR.
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 14.2 contains analysis to demonstrate the AG0 and AG1 are operate mutually exclusive. Additional analysis is provided below to show compliance between AG0 and AG1.

The simultaneous transmission alaysis of each antenna group and WLAN/BT 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 and WLAN/BT
If the sum result with each antenna 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.

14.1 Spatial TAS Analysis

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

Sum of SAR of one antenna from each of the sub6 AGs and the RF exposure from radios outside
TAS is less than regulatory limits. This condition must be demonstrated for all antenna combinations of sub6 AGs.
This device supports two sub6 AG: AG0 and AG1, with AG0 having 2 antennas (Main1 Ant, Main2 Ant.) and AG1 having 4 antenna(Main3 Ant, Sub2 Ant, Sub3 Ant, Sub5 Ant). The conditions are verified through the following criterias

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.

After verifying that the AGs are fully uncoupled, the WLAN/BT mode and simultaneous transmission analysis with each AG is performed.
1. Ensure that each AG group is fully uncoupled from each other.
Verification of full uncoupling by SPLSR or volume scan between antenna groups under maximum exposure conditions.

$$\begin{bmatrix} AG0 & 0 \\ 0 & AG1 \end{bmatrix}$$

2. verify that the maximum SAR sum of each AG group and WLAN/BT complies with the limit.
[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)
or
[Max.SAR.AG0]+ [Max.SAR.AG1] + [Max.WLAN + Max.Bluetooth] ≤ 1.6 (for 1g SAR or 4.0 for 10g)

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

AG0	
Main1	GSM850, UMTS 5, LTE 5,12,13,14,26,71, NR n5,n71
Main2	GSM1900, UMTS 2,4, LTE 7,25(2),30,41,66, NR n2,n25,n30,n41,n66,n70, NR SRS1 n48,n77

AG1	
Main3	LTE(ENDC) 2,66(4)
Sub2	NR SRS2 n48,n77
Sub3	LTE 48, NR n48,n77
Sub5	NR SRS3 n48,n77

WLAN/BT	
Wifi	WLAN 2.4G,5G, Bluetooth

Spatial TAS Verification.

In TAS algorithm (V2.3), it was assumed that all antennas are coupled regardless of their direction oftransmission in space. Thus, the main concept was to split the SAR/TER on the transmitting RATs even if they are transmitting on different antennas. Such approach is considered as a worst case scenario in terms of transmitting power. Thus, to enhance the performance of the transmission power of RATs, we should consider the spatial properties of each antenna and the coupling between the antennas transmissions.

In this section, SPLSR evaluation or volume scan is performed at maximum exposure condition between each AG to evaluate the fully uncoupled.

FCC KDB 447498 D01v06 General RF Exposure Guidance introduces a new formula for calculating the SAR a Peak Location Separation Ratio(SPLSR) between pairs of simultaneously transmitting antennas:
$\boldsymbol{SPLSR_i}=(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}$
Where:
$\boldsymbol{SAR}_{\ 1}$ is the highest measured or estimated SAR for the first of a pair of simultaneous transmitting antennas, in a specific test operating mode and exposure condition

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

In order for a pair of simultaneous transmitting antennas with the sum 1-g of SAR> 1.6 W/kg and with the sum 10-g of SAR >4 W/kg to qualify for exemption from Simultaneous Transmission SAR measurements, it has to satisfy the condition of:
$(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}\leq \mathbf{0.04}$ for 1g SAR and $(\boldsymbol{SAR_1}+\boldsymbol{SAR_2})^{1.5}/\boldsymbol{R_i}\leq \mathbf{0.1}$ for 10g SAR

Check if the value of $\boldsymbol{SPLSR_i}\leq$ 0.04 for 1gSAR and 0.1 for 10gSAR for all scenarios. If so,then these two antenna groups are considered fully uncoupled and we can set rij = 0. Otherwise, a volumetric SAR evaluation can be done for the scenarios not meeting the threshold to check the uncoupling of both antenna groups.

14.2 Spatial TAS Verification for Head SAR

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
GSM850	Main 1	41.7	-288.0	-176.0	0.193
GSM1900	Main 2	21.4	-300.0	-172.0	0.136
UMTS Band 5	Main 1	44.7	-284.0	-176.0	0.180
UMTS Band 4	Main 2	20.6	-299.0	-172.0	0.175
UMTS Band 2	Main 2	23.4	-309.0	-173.0	0.218
LTE Band 5	Main 1	40.9	-295.0	-176.0	0.177
LTE Band 7	Main 2	29.7	-323.0	-174.0	0.300
LTE Band 12	Main 1	49.2	-288.0	-177.0	0.105
LTE Band 13	Main 1	44.5	-289.0	-176.0	0.134
LTE Band 14	Main 1	47.9	-289.0	-177.0	0.120
LTE Band 25	Main 2	13.7	-310.0	-172.0	0.192
LTE Band 26	Main 1	41.5	-293.0	-176.0	0.197
LTE Band 30	Main 2	42.6	-317.0	-175.0	0.147
LTE Band 41	Main 2	41.8	-318.0	-174.0	0.250
LTE Band 66	Main 2	12.7	-306.0	-171.0	0.251
LTE Band 71	Main 1	51.7	-278.0	-176.0	0.084
NR Band n5	Main 1	42.0	-289.0	-176.0	0.209
NR Band n25	Main 2	20.6	-305.0	-172.0	0.180
NR Band n30	Main 2	37.0	-324.0	-174.0	0.153
NR Band n41	Main 2	30.0	-325.3	-172.1	0.564
NR Band n66	Main 2	22.4	-302.0	-172.0	0.180
NR Band n70	Main 2	22.4	-302.0	-172.0	0.109
NR Band n71	Main 1	49.8	-284.0	-176.0	0.137

Ant Group 1

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE Band 2	Main 3	55.7	-333.0	-172.0	0.048
LTE Band 48	Sub 3	18.1	-334.0	-175.0	0.379
LTE Band 66	Main 3	48.2	-333.0	-173.0	0.135
NR Band n48	Sub 3	21.0	-336.0	-177.0	0.355
NR Band n48 SRS#2	Sub 2	22.1	-329.0	-174.0	0.115
NR Band n48 SRS#3	Sub 5	-2.3	-307.0	-172.0	0.002
NR Band n77	Sub 3	27.2	-333.0	-175.0	0.382
NR Band n77 SRS#2	Sub 2	16.3	-338.0	-174.0	0.614
NR Band n77 SRS#3	Sub 5	8.1	-301.0	-173.0	0.004

Bluetooth/WLAN

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
WLAN 2.4GHz	WIFI	23.7	-330.0	-173.0	0.233
Blueooth	WIFI	20.2	-327.0	-172.0	0.130
WLAN 5GHz	WIFI	14.1	-329.0	-177.0	0.490

	AG0		AG1			
	Main1	Main2	Main3	Sub2	Sub3	Sub5
Max SAR(W/kg)	0.209	0.564				
Max SAR(W/kg)			0.135	0.614	0.382	0.004

Verify that each AG group for Head SAR configuration is completely uncoupled from each other

Configuration	Antenna	Max. Measured SAR [W/kg]	Combined Factor	Combined SAR [W/kg]	Plot No
Head Right Tilt	AG0	0.564	1.161	0.588	E1
	AG1	0.614	1.109		

Each antenna group is confirmed to be fully uncoupled by evaluating the volume scan at the maximum Head SAR condition of each group.

14.3 Head SAR Simultaneous Transmission Analysis.

AG0			
Position	Main1	Main2	AG0.Max
Left Touch	0.328	0.719	0.719
Left Tilt	0.203	0.334	0.334
Right Touch	0.436	0.441	0.441
Right Tilt	0.209	0.564	0.564

AG1					
Position	Main3	Sub2	Sub3	Sub5	AG1.Max
Left Touch	0.127	0.155	0.211	0.000	0.211
Left Tilt	0.067	0.171	0.219	0.008	0.219
Right Touch	0.429	0.649	0.667	0.000	0.667
Right Tilt	0.135	0.614	0.382	0.004	0.614

WLAN/BT					
Position	WLAN 2.4G	BT	WLAN 5G	BT+WLAN5G	WLAN/BT.Max
Left Touch	0.132	0.080	0.423	0.503	0.503
Left Tilt	0.124	0.080	0.538	0.618	0.618
Right Touch	0.206	0.107	0.382	0.489	0.489
Right Tilt	0.233	0.130	0.490	0.620	0.620

Position	AG0.Max	AG1.Max	WLAN/BT Max	AG0+WLAN/BT	AG1+WLAN/BT
Left Touch	0.719	0.211	0.503	1.222	0.714
Left Tilt	0.334	0.219	0.618	0.952	0.837
Right Touch	0.441	0.667	0.489	0.93	1.156
Right Tilt	0.564	0.614	0.620	1.184	**1.234**

*In Sec.14.2. the volume scan was performed at the maximum Head SAR exposure condition of each AG0 and AG1 to evaluate that each antenna group is fully uncoupled.

14.4 Spatial TAS for Hotspot SPLSR Evaluation

Ant Group 0

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
GSM850	Main 1	-38.0	-85.5	-207.0	0.300
GSM1900	Main 2	4.0	-69.0	-204.0	0.310
UMTS Band 5	Main 1	-29.0	-82.5	-207.0	1.010
UMTS Band 4	Main 2	14.5	-69.0	-204.0	0.347
UMTS Band 2	Main 2	2.5	-69.0	-204.0	0.385
LTE Band 5	Main 1	-27.5	-77.5	-207.0	0.890
LTE Band 7	Main 2	8.2	-71.2	-204.0	0.471
LTE Band 12	Main 1	-26.0	-73.0	-207.0	0.387
LTE Band 13	Main 1	-26.0	-74.5	-207.0	0.545
LTE Band 14	Main 1	-27.5	-76.0	-207.0	0.533
LTE Band 25	Main 2	3.0	-67.0	-204.0	0.350
LTE Band 26	Main 1	-30.5	-77.5	-207.0	0.813
LTE Band 30	Main 2	7.0	-64.0	-204.0	0.356
LTE Band 41	Main 2	8.2	-64.8	-204.0	0.296
LTE Band 66	Main 2	1.5	-68.5	-204.0	0.367
LTE Band 71	Main 1	-26.0	-73.0	-207.0	0.370
NR Band n5	Main 1	-36.5	-83.5	-207.0	1.094
NR Band n25	Main 2	4.0	-69.0	-204.0	0.586
NR Band n30	Main 2	9.4	-65.4	-204.0	0.408
NR Band n41	Main 2	-2.2	-62.4	-204.0	0.445
NR Band n66	Main 2	3.0	-70.5	-204.0	0.486
NR Band n70	Main 2	10.5	-64.5	-204.0	0.393
NR Band n71	Main 1	-26.0	-85.0	-207.0	0.709
NR Band n48 SRS#1	Main 2	0.2	-71.4	-206.0	0.301
NR Band n77 SRS#1	Main 2	0.2	-72.6	-206.0	0.154

Ant Group 1

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
LTE Band 2	Main 3	16.0	42.0	-206.0	0.188
LTE Band 48	Sub 3	6.2	50.4	-207.0	0.353
LTE Band 66	Main 3	11.5	62.5	-204.0	0.458
NR Band n48	Sub 3	15.0	59.0	-204.0	0.283
NR Band n48 SRS#2	Sub 2	-16.0	79.4	-207.0	0.073
NR Band n48 SRS#3	Sub 5	-55.6	86.6	-207.0	0.012
NR Band n77	Sub 3	13.4	57.8	-204.0	0.370
NR Band n77 SRS#2	Sub 2	11.2	79.4	-206.0	0.075

Bluetooth/WLAN

Mode/Band	Antenna	X(mm)	Y(mm)	Z(mm)	Reported SAR [W/kg]
WLAN 2.4GHz	WIFI	2.2	63.6	-206.0	0.593
Blueooth	WIFI	-0.2	78.0	-206.0	0.110
WLAN 5GHz	WIFI	-20.0	78.0	-207.0	0.580

In the table below, it is confirmed that each antenna group is completely uncoupled by evaluating SPLSR under the maximum condition of Hotspot SAR of each group.

		AG0		AG1			
		Main1	Main2	Main3	Sub2	Sub3	Sub5
AG0	Max Y-axis(mm)	-73.0	-62.4				
	Max SAR(W/kg)	1.094	0.586				
AG1	Min Y-axis(mm)			42.0	79.4	50.4	86.6
	Max SAR(W/kg)			0.458	0.075	0.37	0.012
AG0-AG1	Main 1 Distance			115.0	152.4	123.4	159.6
	Main 1 SPLSR			0.009	0.007	0.009	0.006
AG0-AG1	Main 2 Distance			104.4	141.8	112.8	149
	Main 2 SPLSR			0.010	0.004	0.008	0.003

14.5 BodyWorn SAR Simultaneous Transmission Analysis.

AG0			
Position	Main1	Main2	AG0.Max
Rear	0.697	0.867	0.867
Front	0.351	0.633	0.633

AG1					
Position	Main3	Sub2	Sub3	Sub5	AG1.Max
Rear	0.222	0.038	0.188	0.000	0.222
Front	0.075	0.013	0.126	0.000	0.126

WLAN/BT					
Position	WLAN 2.4G	BT	WLAN 5G	BT+WLAN5G	WLAN/BT.Max
Rear	0.369	0.049	0.349	0.398	0.398
Front	0.134	0.015	0.242	0.257	0.257

Position	AG0 Max	AG1 Max	WLAN/BT Max	AG0+AG1 +WLAN/BT Max
Rear	0.867	0.222	0.398	**1.487**
Front	0.633	0.126	0.257	1.016

14.6 Hotspot SAR Simultaneous Transmission Analysis

AG0			
Position	Main1	Main2	AG0.Max
Rear	1.094	0.586	1.094
Front	0.341	0.424	0.424
Left	0.282	0.307	0.307
Right	0.473		0.473
Top			
Bottom	0.607	0.597	0.607

AG1					
Position	Main3	Sub2	Sub3	Sub5	AG1.Max
Rear	0.458	0.075	0.370	0.012	0.458
Front	0.133	0.079	0.280	0.007	0.280
Left	0.223	0.075	0.515		0.515
Right					
Top		0.202	0.392	0.012	0.392
Bottom					

WLAN/BT					
Position	WLAN 2.4G	BT	WLAN 5G	BT+WLAN5G	WLAN/BT.Max
Rear	0.593	0.110	0.580	0.690	0.690
Front	0.236	0.024	0.360	0.384	0.384
Left	0.216	0.003	0.053	0.056	0.216
Right					
Top	0.484	0.070	0.137	0.207	0.484
Bottom					

Position	AG0 Max	AG1 Max	WLAN/BT Max	AG0+WLAN/BT	AG1+WLAN/BT Max
Rear	1.094	0.458	0.690	*See below table	**1.148**
Front	0.424	0.280	0.384	0.808	0.664
Left	0.307	0.515	0.216	0.523	0.731
Right	0.473			0.473	0
Top		0.392	0.484	0.484	0.876
Bottom	0.607			0.607	0

*In sec.14.4, SPLSR evaluation was performed at the maximum exposure condition of each AG0 and AG1 to evaluate that each antenna group is fully uncoupled.

The maximum SAR sum with AG0 and WLAN/BT is verified to comply with the SAR limit by evaluating the SPLSR in the table below.

	AG0		WLAN/BT			
	Main1	Main2	WLAN 2.4G	BT	WLAN 5G	BT+WLAN 5G
Max Y-axis(mm)	-73.0	-62.4				
AG0.Max SAR(W/kg)	1.094	0.586				
Min Y-axis(mm)			63.6	78.0	78.0	78.0
WLAN/BT.Max SAR(W/kg)			0.593	0.110	0.580	0.690
AG0-WLAN/BT Distance[mm]			136.6	151.0	151.0	151.0
AG0-WLAN/BT SPLSR			0.016	0.009	0.014	0.016

14.7 Phablet SAR Simultaneous Transmission Analysis

Position	Main	NFC	WLAN5G	Summation
Rear	1.113	0.058	0.690	1.861
Front	1.429	0.000	0.710	2.139
Left	2.369	0.000	0.245	**2.614**
Right		0.000		0
Top		0.000	1.216	1.216
Bottom	0.817			0.817

14.8 Simultaneous Transmission Conclusion

The above numerical summed SAR Results are sufficient to determine that simultaneous transmission cases will not exceed the SAR Limit and therefore no measured volumetric simultaneous SAR summation is required per FCC KDB Publication 447498 D01v06 and IEEE1528-2013.

15. SAR Measurement Variability and Uncertainty

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

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

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

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

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

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

Extremity SAR measurement variability Results

Frequency		Mode/Band	Configuration	Measured 10g SAR (W/kg)	Repeated 10g SAR (W/kg)	SAR Ratio
㎒	Channel					
2 592.99	518598	NR Band n41	Left	2.030	2.040	1.00

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	CS9spe-TX2-60	F/21/0029002/C/001	N/A	N/A	N/A
Staubli	CS9spe-TX2-60	F/21/0029145/C/001	N/A	N/A	N/A
Staubli	CS8Cspeag-TX90	F17/ 59RAA1/ C/ 01	N/A	N/A	N/A
Staubli	TX2-60 Lspeag	F/21/0029002/A/001	N/A	N/A	N/A
Staubli	TX2-60 Lspeag	F/21/0029145/A/001	N/A	N/A	N/A
Staubli	TX90 XLspeag	F17/ 59RAA1/ A/ 01	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21144507C	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D21144507C	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	011578	N/A	N/A	N/A
TESTO	608-H1/Thermometer	83239085	10/24/2023	Annual	10/24/2024
TESTO	608-H1/Thermometer	83348028	03/27/2023	Annual	03/27/2024
TESTO	175-H1/Thermometer	40331922309	12/29/2022	Annual	12/29/2023
SPEAG	DAE4	648	04/25/2023	Annual	04/25/2024
SPEAG	DAE4	1417	03/01/2023	Annual	03/01/2024
SPEAG	DAE4	780	07/04/2023	Annual	07/04/2024
SPEAG	E-Field Probe EX3DV4	3797	01/24/2023	Annual	01/24/2024
SPEAG	E-Field Probe EX3DV4	3968	09/27/2023	Annual	09/27/2024
SPEAG	E-Field Probe EX3DV4	7655	05/25/2023	Annual	05/25/2024
SPEAG	Dipole D2600V2	1106	05/24/2023	Annual	05/24/2024
SPEAG	Dipole D3500V2	1040	01/22/2023	Annual	01/22/2024
SPEAG	Dipole D3900V2	1019	05/19/2023	Annual	05/19/2024
Agilent	Power Meter E4419B	MY41291386	09/21/2023	Annual	09/21/2024
Agilent	Power Meter N1911A	MY45101406	05/26/2023	Annual	05/26/2024
Agilent	Power Sensor 8481A	SG1091286	09/21/2023	Annual	09/21/2024
Agilent	Power Sensor 8481A	MY41090675	09/21/2023	Annual	09/21/2024
Agilent	Power Sensor N1921A	MY55220026	07/28/2023	Annual	07/28/2024
SPEAG	DAKS 3.5	1038	01/25/2023	Annual	01/25/2024
SPEAG	DAKS_VNA R140	0141013	02/13/2023	Annual	02/13/2024
Agilent	11636B/Power Divider	58698	01/26/2023	Annual	01/26/2024
OSI	Power Divider	#1	05/26/2023	Annual	05/26/2024
OSI	Power Divider	#2	05/26/2023	Annual	05/26/2024
OSI	Power Divider	#3	05/26/2023	Annual	05/26/2024
OSI	Power Divider	#4	05/26/2023	Annual	05/26/2024
OSI	Power Divider	#5	05/26/2023	Annual	05/26/2024
Agilent	SIGNAL GENERATOR N5182A	MY47070230	03/23/2023	Annual	03/23/2024
EMPOWER	RF Power Amplifier	1084	05/26/2023	Annual	05/26/2024
EMPOWER	RF Power Amplifier	1011	09/21/2023	Annual	09/21/2024
MICRO LAB	LP Filter / LA-30N	-	09/21/2023	Annual	09/21/2024
MICRO LAB	LP Filter / LA-60N	32011	09/21/2023	Annual	09/21/2024
HP	Attenuator (3dB) 333340A	02427	08/22/2023	Annual	08/22/2024
HP	Attenuator (20dB) 8493C	09271	08/22/2023	Annual	08/22/2024
Aeroflex/Weinschel	Fixed Coaxial Attenuator (30dB)	CE6106	11/15/2022	Annual	11/15/2023
Aeroflex/Weinschel	Fixed Coaxial Attenuator (30dB)	CE6106	11/15/2023	Annual	11/15/2024
Agilent	Directional Bridge 86205A	3140A04581	04/25/2023	Annual	04/25/2024
Agilent	MXA Signal Analyzer N9020A	MY50510407	06/07/2023	Annual	06/07/2024
Anritsu	Radio Communication Test Station MT8000A	6261987928	01/25/2023	Annual	01/25/2024
Anritsu	Radio Communication Test Station MT8000A	6261967108	04/25/2023	Annual	04/25/2024

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

18. Conclusion

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

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

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

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

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

Report No.
HCT-SR-2311-FC004-P

Appendix B. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.7 ℃
Ambient Temperature:	23.8 ℃
Test Date:	11/14/2023
Plot No.:	A1

Measurement Report for Device, CHEEK, Band n41, 5G NR (DFT-s-OFDM, 50% RB, 100 MHz, QPSK, 30 kHz) RBPosition:Mid AntennaCfg:SISO, Channel 518598 (2593.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
LeftHead, HSL	CHEEK, 0.00	Band n41	5G NR FR1 TDD, 10917-AAB	2593.0, 518598	7.93	2.02	37.9

Hardware Setup

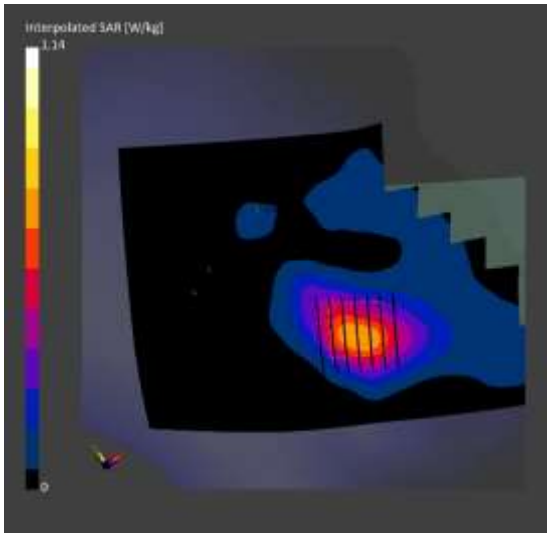
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2047	EX3DV4 - SN3968, 2023-09-27	DAE4 Sn1417, 2023-03-01

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 192.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	0.602	0.618
psSAR10g [W/Kg]	0.303	0.310
Power Drift [dB]	0.09	-0.12



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.7 ℃
Ambient Temperature:	23.8 ℃
Test Date:	11/14/2023
Plot No.:	B1

Measurement Report for Device, BACK, Band n41, 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz)
RBPosition:Mid AntennaCfg:SISO, Channel 518598 (2593.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band n41	5G NR FR1 TDD, 10803-AAD	2593.0, 518598	7.93	2.02	37.9

Hardware Setup

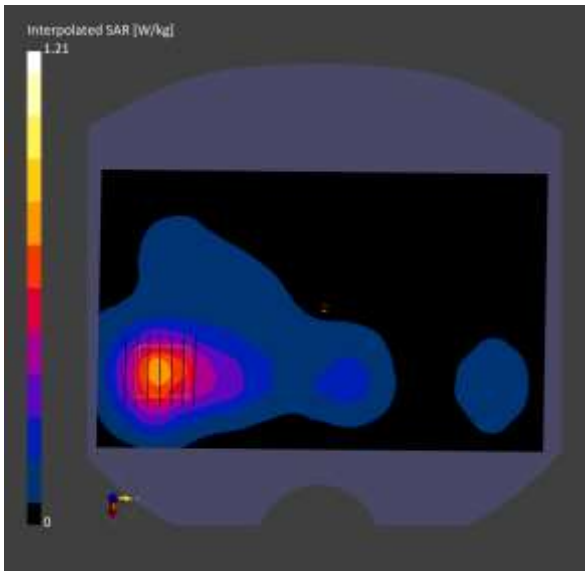
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2047	EX3DV4 - SN3968, 2023-09-27	DAE4 Sn1417, 2023-03-01

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 192.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
Date	2023-11-25, 18:28	2023-11-25, 18:35
psSAR1g [W/Kg]	0.618	0.596
psSAR10g [W/Kg]	0.320	0.295
Power Drift [dB]	-0.11	-0.13



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.6 ℃
Ambient Temperature:	23.9 ℃
Test Date:	11/15/2023
Plot No.:	B2

Measurement Report for Device, BACK, Band n48, 5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) RBPosition:Mid AntennaCfg:SISO, Channel 638000 (3570.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 15.00	Band n48	5G NR FR1 TDD, 10903-AAD	3570.0, 638000	6.37	2.98	38.1

Hardware Setup

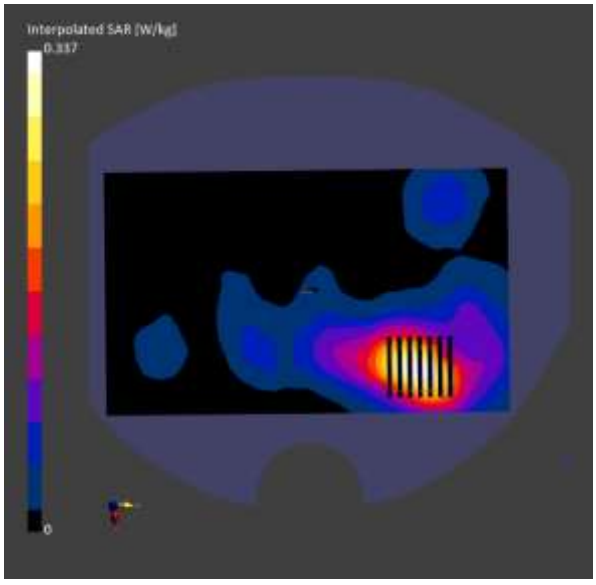
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2050	EX3DV4 - SN3797, 2023-01-24	DAE4 Sn648, 2023-04-25

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 200.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	0.138	0.137
psSAR10g [W/Kg]	0.065	0.062
Power Drift [dB]	-0.16	-0.13



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.7 ℃
Ambient Temperature:	23.8 ℃
Test Date:	11/14/2023
Plot No.:	C1

Measurement Report for Device, BACK, Band n41, 5G NR (CP-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) RBPosition:Mid AntennaCfg:SISO, Channel 518598 (2593.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	BACK, 10.00	Band n41	5G NR FR1 TDD, 10803-AAD	2593.0, 518598	7.93	2.02	37.9

Hardware Setup

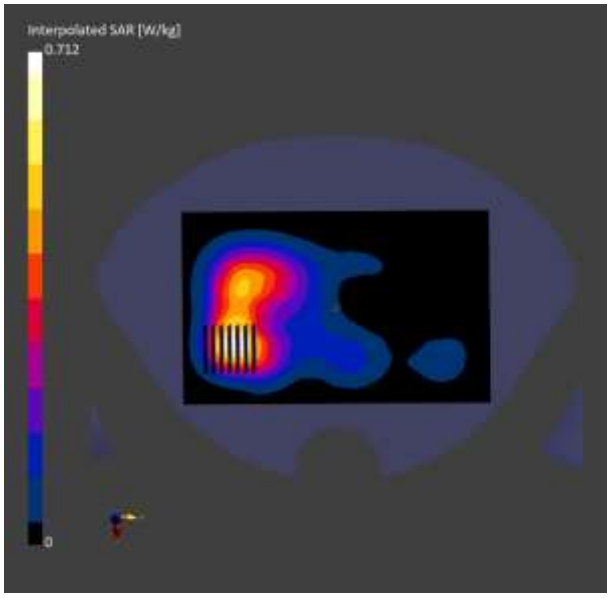
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2047	EX3DV4 - SN3968, 2023-09-27	DAE4 Sn1417, 2023-03-01

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	120.0 x 192.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	12.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	0.336	0.338
psSAR10g [W/Kg]	0.174	0.165
Power Drift [dB]	-0.05	-0.09



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.6 ℃
Ambient Temperature:	23.9 ℃
Test Date:	11/15/2023
Plot No.:	C2

Measurement Report for Device, EDGE TOP, Band n48, 5G NR (DFT-s-OFDM, 1 RB, 40 MHz, QPSK, 30 kHz) RBPosition:Mid AntennaCfg:SISO, Channel 638000 (3570.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE TOP, 10.00	Band n48	5G NR FR1 TDD, 10903-AAD	3570.0, 638000	6.37	2.98	38.1

Hardware Setup

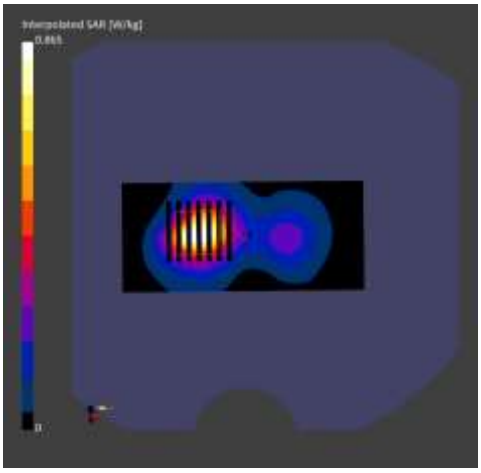
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2050	EX3DV4 - SN3797, 2023-01-24	DAE4 Sn648, 2023-04-25

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	54.0 x 120.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	9.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	0.335	0.337
psSAR10g [W/Kg]	0.142	0.137
Power Drift [dB]	-0.02	-0.05



Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	23.7 ℃
Ambient Temperature:	23.8 ℃
Test Date:	11/14/2023
Plot No.:	D1

Measurement Report for Device, BACK, Band n41, 5G NR (DFT-s-OFDM, 1 RB, 100 MHz, QPSK, 30 kHz) RBPosition:Mid AntennaCfg:SISO, Channel 518598 (2593.0 MHz)Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	EDGE LEFT, 0.00	Band n41	5G NR FR1 TDD, 10866-AAD	2593.0, 518598	7.93	2.02	37.9

Hardware Setup

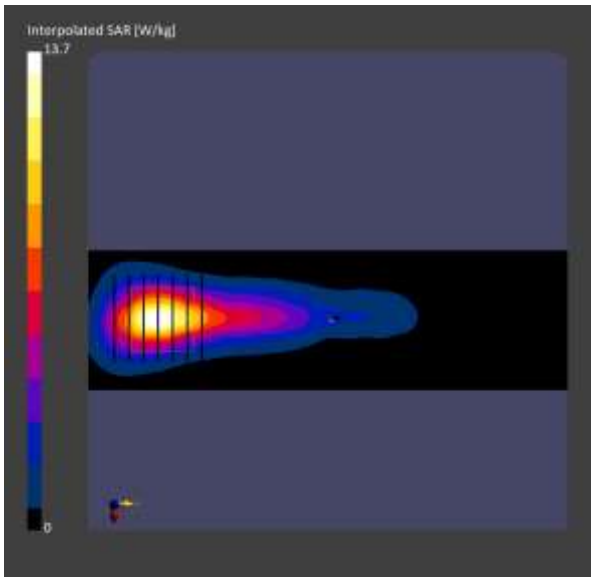
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2047	EX3DV4 - SN3968, 2023-09-27	DAE4 Sn1417, 2023-03-01

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	48.0 x 192.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	8.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
Date	2023-11-25, 16:05	2023-11-25, 16:12
psSAR1g [W/Kg]	5.10	5.10
psSAR10g [W/Kg]	2.19	2.04
Power Drift [dB]	-0.02	-0.04

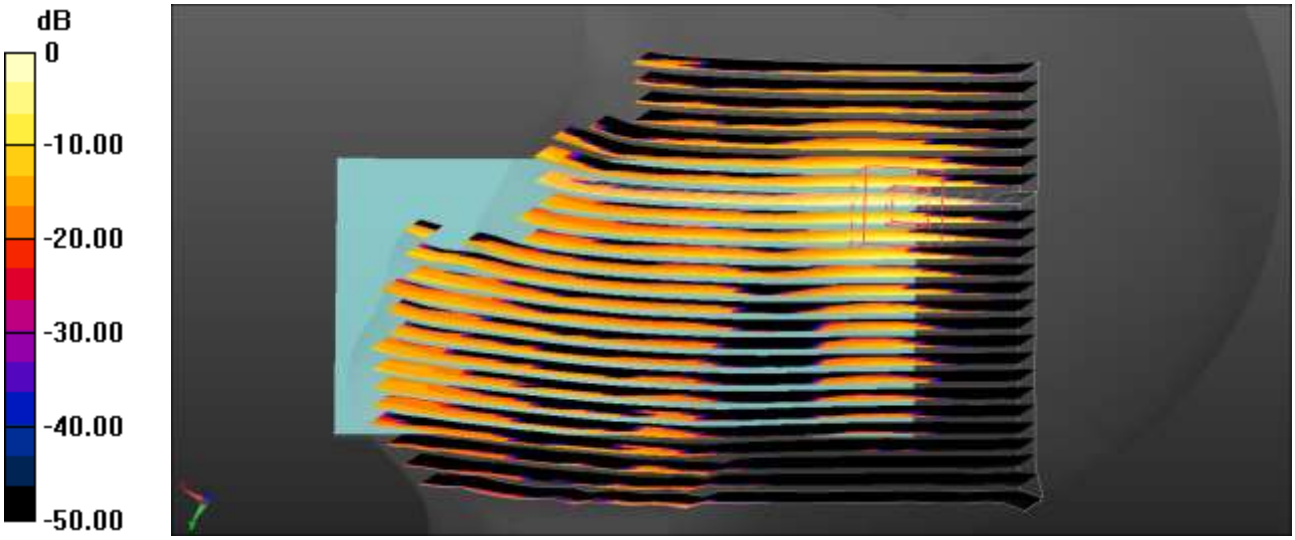


Test Laboratory:	HCT CO., LTD
EUT Type:	Mobile Phone
Liquid Temperature:	20.9 ℃
Ambient Temperature:	20.9 ℃
Test Date:	11/24/2023
Plot No.:	E1

DASY5 Configuration:

- Probe: EX3DV4 - SN7655; ConvF(6.73, 7.22, 7.03) Calibrated: 2023-05-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn780; Calibrated: 2023-07-04
- Phantom: Twin-SAM V4.0 Right; Type: QD 000 P40 CC; Serial: xxxx
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.13 (7474)

Multi Band Result
SAR(1 g) = 0.588 W/kg; SAR(10 g) = 0.282 W/kg
Maximum value of SAR (interpolated) = 1.26 W/kg



0 dB = 1.26 W/kg = 1.00 dBW/kg

Appendix C. – Dipole Verification Plots

Verification Data (2 600 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	23.7 ℃
Test Date:	11/14/2023

Measurement Report for CW, Channel 0 (2600.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	,		CW, 0--	2600.0, 0	7.93	2.03	37.8

Hardware Setup

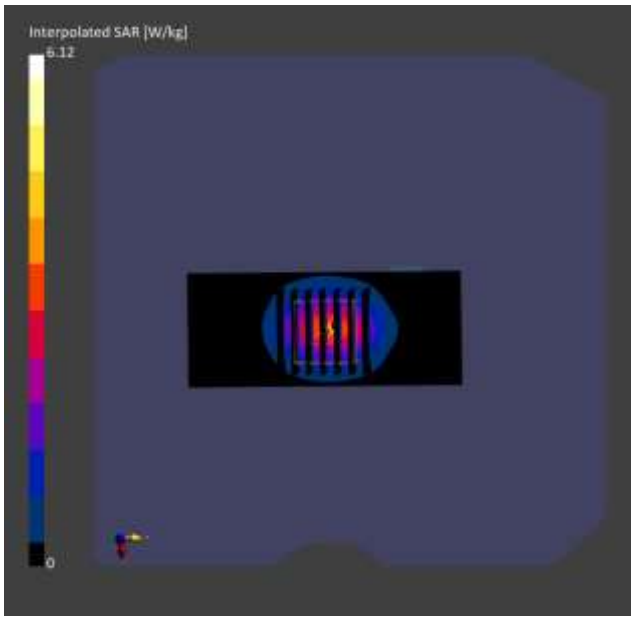
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2047	EX3DV4 - SN3968, 2023-09-27	DAE4 Sn1417, 2023-03-01

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 96.0	30.0 x 30.0 x 30.0
Grid Steps [mm]	10.0 x 12.0	5.0 x 5.0 x 1.5
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	2.80	2.75
psSAR10g [W/Kg]	1.25	1.20
Power Drift [dB]	0.01	-0.01



Verification Data (2 600 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 ℃
Test Date:	11/24/2023

Communication System: UID 0, CW (0); Frequency: 2600 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2600 MHz; σ = 1.888 S/m; ε_r = 38.03; ρ = 1000 kg/m^3
Phantom section: Flat Section

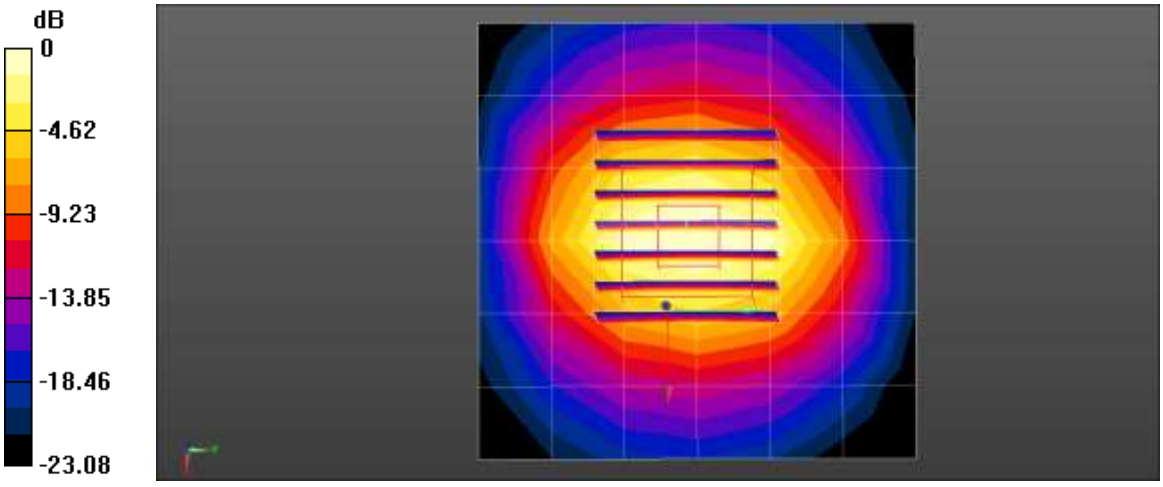
DASY5 Configuration:

- Probe: EX3DV4 - SN7655; ConvF(7.42, 7.88, 7.75) @ 2600 MHz; Calibrated: 2023-05-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn780; Calibrated: 2023-07-04
- Phantom: Twin-SAM V4.0 Right; Type: QD 000 P40 CC; Serial: xxxx
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.13 (7474)

2600MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 4.09 W/kg

2600MHz Head Verification/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 48.90 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 5.93 W/kg
SAR(1 g) = 2.74 W/kg; SAR(10 g) = 1.21 W/kg

Maximum value of SAR (measured) = 3.15 W/kg



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

Verification Data (3 500 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	23.6 ℃
Test Date:	11/15/2023

Measurement Report for Device CW, Channel 0 (3500.0 MHz)

Exposure Conditions

Phantom Section, TSL	Position, Test Distance [mm]	Band	Group, UID	Frequency [MHz], Channel Number	Conversion Factor	TSL Conductivity [S/m]	TSL Permittivity
Flat, HSL	,		CW, 0--	3500.0, 0	6.37	2.92	38.2

Hardware Setup

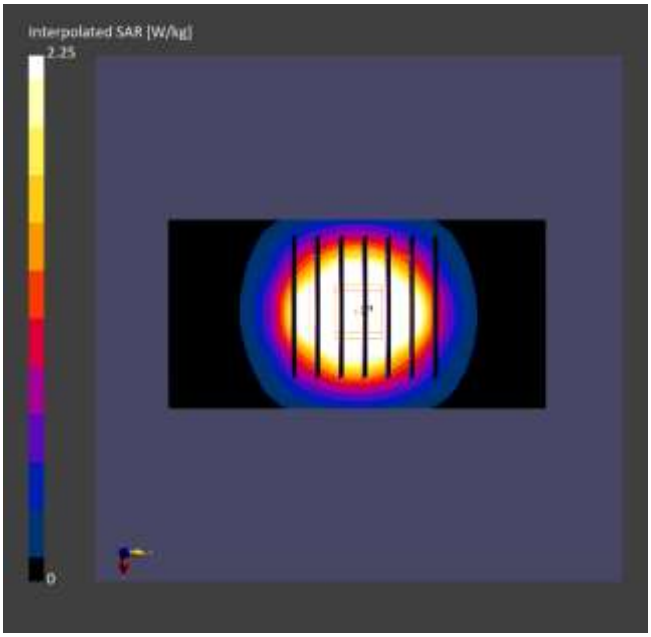
Phantom	Probe, Calibration Date	DAE, Calibration Date
Twin-SAM V8.0 (30deg probe tilt) - 2050	EX3DV4 - SN3797, 2023-01-24	DAE4 Sn648, 2023-04-25

Scans Setup

	Area Scan	Zoom Scan
Grid Extents [mm]	40.0 x 80.0	28.0 x 28.0 x 28.0
Grid Steps [mm]	10.0 x 10.0	5.0 x 5.0 x 1.4
Sensor Surface [mm]	3.0	1.4
Graded Grid	n/a	Yes
Grading Ratio	n/a	1.5

Measurement Results

	Area Scan	Zoom Scan
psSAR1g [W/Kg]	3.56	3.52
psSAR10g [W/Kg]	1.35	1.31
Power Drift [dB]	-0.01	-0.03



Verification Data (3 900 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	0.05 W
Liquid Temp:	20.9 ℃
Test Date:	11/24/2023

Communication System: UID 0, CW (0); Frequency: 3900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 3900 MHz; σ = 3.229 S/m; ε_r = 37.503; ρ = 1000 kg/m^3
Phantom section: Flat Section

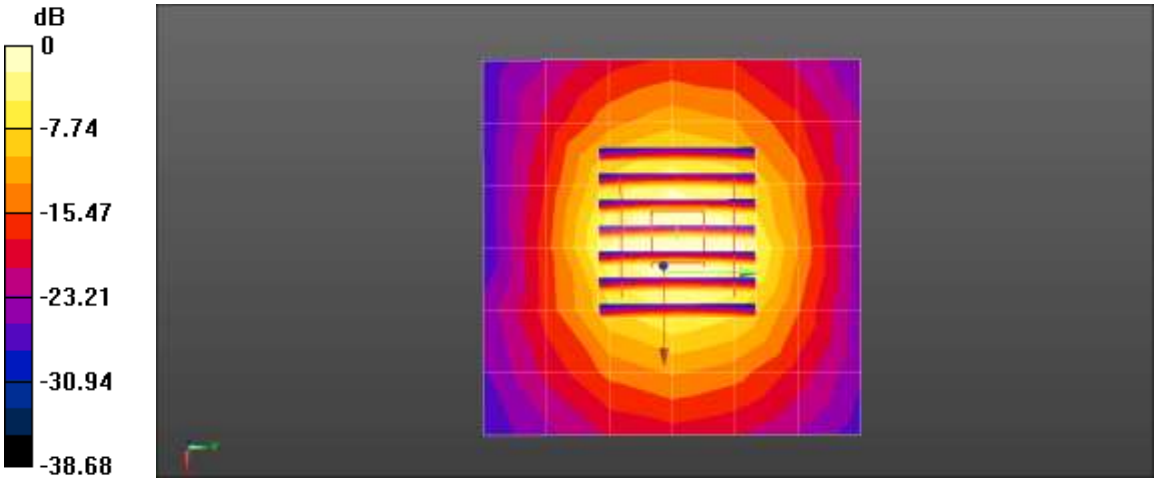
DASY5 Configuration:

- Probe: EX3DV4 - SN7655; ConvF(6.73, 7.22, 7.03) @ 3900 MHz; Calibrated: 2023-05-25
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn780; Calibrated: 2023-07-04
- Phantom: Twin-SAM V4.0 Right; Type: QD 000 P40 CC; Serial: xxxx
- Measurement SW: DASY52, Version 52.10 (4); SEMCAD X Version 14.6.13 (7474)

3900MHz Head Verification/Area Scan (7x7x1): Measurement grid: dx=12mm, dy=12mm
Maximum value of SAR (measured) = 7.03 W/kg

3900MHz Head Verification/Zoom Scan (7x7x8)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=4mm
Reference Value = 49.76 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 10.0 W/kg
SAR(1 g) = 3.45 W/kg; SAR(10 g) = 1.2 W/kg

Maximum value of SAR (measured) = 4.01 W/kg



0 dB = 4.01 W/kg = 6.03 dBW/kg

Appendix D. – SAR Tissue Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Harts grove.

Ingredients (% by weight)	Frequency (㎒)											
	750		835		1 750		1 900		2 450 – 2 700		3500 - 5 800	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.1	51.7	40.45	53.06	52.6	68.8	54.9	70.17	71.88	73.2	65.52	78.66
Salt (NaCl)	1.4	0.9	1.45	0.94	0.4	0.2	0.18	0.39	0.16	0.1	0.0	0.0
Sugar	57.0	47.2	57.0	44.9	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
HEC	0.2	0	1.0	1.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Bactericide	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.97	0.0	17.24	10.67
DGBE	0.0	0.0	0.0	0.0	47	31	44.92	29.44	7.99	26.7	0.0	0.0
Diethylene glycol hexyl ether	-	-	-	-	-	-	-	-	-	-	-	-

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra-pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Composition of the Tissue Equivalent Matter

Appendix E. – SAR system validation

Per FCC KCB 865664 D02v01r02, SAR system validation status should be document to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in IEEE 1528-2013 and FCC KDB 865664 D01v01r04. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.
A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
4	3968	EX3DV4	Head	2600	1106	2023-09-28	39.2	1.95	PASS	PASS	PASS	NA	N/A	NA
2	3797	EX3DV4	Head	3500	1040	2023-01-25	38.0	2.93	PASS	PASS	PASS	NA	N/A	NA

SAR System Validation Summary 1g

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
4	3968	EX3DV4	Head	2600	1106	2023-09-28	39.2	1.95	PASS	PASS	PASS	NA	N/A	NA

SAR System Validation Summary – Extremity SAR Considerations

SAR System No.	Probe	Probe Type	Probe Calibration Point		Dipole	Date	Dielectric Parameters		CW Validation			Modulation Validation		
							Measured Permittivity	Measured Conductivity	Sensitivity	Probe Linearity	Probe Isotropy	MOD. Type	Duty Factor	PAR
14	7655	EX3DV4	Head	2600	1106	2023-05-29	39.1	1.94	PASS	PASS	PASS	NA	N/A	NA
14	7655	EX3DV4	Head	3900	1019	2023-05-29	37.2	3.31	PASS	PASS	PASS	NA	N/A	NA

SAR System Validation Summary – Volumetric SAR Considerations

Note;
All measurement were performed using probes calibrated for CW signal only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04. SAR system were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to KDB 865664 D01v01r04.