FCC SAR Test Report

Applicant:	JACS Solutions, Inc.
EUT Description:	5G DONGLE
Model:	TD0211
Brand:	JACS
FCC ID:	2AGCDJACSTD0211
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2023/11/07
Date of Test:	2023/11/09 to 2023/11/29
Date of Issue:	2023/12/01

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.

Approved By:

Reviewed By:

Revision History

Rev.	Issue Date	Description	Revised by
01	2023/12/01	Original	

Table of Contents

1 Summary of Test Results

Band	Highest SAR(W/kg)
	Body 5mm
LTE Band 2	0.72
LTE Band 5	0.72
LTE Band 12	0.72
LTE Band 13	0.71
LTE Band 14	0.69
LTE Band 30	0.72
LTE Band 41	**1.19**
LTE Band 48	0.28
LTE Band 66/4	0.72
LTE Band 71	1.19
5G NR n2	0.71
5G NR n5	0.72
5G NR n14	0.95
5G NR n41	0.72
5G NR n66	0.72
5G NR n71	0.72
5G NR n77	1.13
SAR Limited(W/kg)	1.6

Remark:
LTE band 4 SAR test was covered by Band 66; according to April 2015 TCB workshop, SAR test for overlapping LTE bands can be reduced if:
a. the maximum output power, including tolerance, for the smaller band is ≤ the larger band to qualify for the SAR test exclusion.
b. the channel bandwidth and other operating parameters for the smaller band are fully supported by the larger band.

2 Guidance Applied

FCC 47CFR §2.1093
ANSI/IEEE C95.1-1992
IEEE 1528-2013
FCC KDB 941225 D01 3G SAR Measurement Procedures v03r01
FCC KDB 941225 D05 SAR for LTE Devices v02r05
FCC KDB 941225 D05A LTE Rel.10 KDB Inquiry Sheet v01r02
FCC KDB 447498 D01 General RF Exposure Guidance v06
FCC KDB 447498 D02 SAR Procedures for Dongle Xmtr v02r01
FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
FCC KDB 865664 D02 RF Exposure Reporting v01r02

3 Lab Information

3.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

3.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC-Designation No.: CN1353
Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory.
Designation Number: CN1353.

ISED-CAB identifier: CN0152
Sushi TOWE Wireless Testing (Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

3.3 Ambient Condition

Temperature: 18°C~25°C
Relative Humidity: 30%~75%

4 Client Information

4.1 Applicant

Applicant:	JACS Solutions, Inc.
Address:	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

4.2 Manufacturer

Applicant:	JACS Solutions, Inc.
Address:	809 Pinnacle Drive, Suite R, Linthicum Heights, MD 21090

5 Product Information

EUT Description	5G DONGLE	
Model	TD0211	
Brand	JACS	
Hardware Version	V2.0	
Software Version	89610.1000.00.02.02.12	
IMEI	862513050026599 862513050026748	
Device Capabilities:		
Band	Frequency Range (MHz)	Modulation Type
LTE Band 2	1850 ~1910	☒ QPSK ☒ 16QAM ☒ 64QAM ☒ 256QAM
LTE Band 4	1710~1755	
LTE Band 5	824~849	
LTE Band 12	699~716	
LTE Band 13	777~787	
LTE Band 14	788~798	
LTE Band 29	717~ 728 (only RX)	
LTE Band 30	2305~2315	
LTE Band 41 (Class 2/3)	2496~2690	
LTE Band 46	5150~5925 (only RX)	
LTE Band 48	3550~3700	
LTE Band 66	1710~1780	
LTE Band 71	663~698	
5G NR n2	1850~1910	☒ DFT-s-OFDM: (PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM). ☒ CP-OFDM: (QPSK, 16QAM, 64QAM, 256QAM)
5G NR n5	824~849	
5G NR n14	788~798	
5G NR n41 (Class 2/3)	2496~2690	
5G NR n66	1710~1780	
5G NR n71	663~698	
5G NR n77 (Class 2/3)	3450~3550 3700~3980	
5G NR n77 MIMO (Class 1.5/2/3)	3450~3550 3700~3980	☒ CP-OFDM: (QPSK, 16QAM, 64QAM, 256QAM)
Antenna Type	☐ External, ☒ Integrated	
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user manual for more detailed description.		

5.1 Antenna Locations

The detailed antenna location information can refer to Appendix D.

6 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[1] (Brain/Trunk)	1.6	8.0
Spatial Average SAR[2] (Whole Body)	0.08	0.4
Spatial Peak SAR[3] (Hands/Feet/Ankle/Wrist)	4.0	20.0

Note:

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

2, The Spatial Average value of the SAR averaged over the whole body.

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

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

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. The 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.

7 Introduction

SAR is related to the rate at which energy is absorbed per unit mass in an object exposed to a radio field. The SAR distribution in a biological body is complicated and is usually carried out by experimental techniques or numerical modeling. The standard recommends limits for two tiers of groups, occupational/controlled and general population/uncontrolled, based on a person's awareness and ability to exercise control over his or her exposure. In general, occupational/controlled exposure limits are higher than the limits for general population/uncontrolled.

7.1 SAR Definition

The SAR definition is the time derivative (rate) of the incremental energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dv) of a given density (ρ). The equation description is as below:

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

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

$$\mathbf{SAR = \frac{\sigma E^2}{\rho}}$$

Where:

σ is the conductivity of the tissue material (S/m)

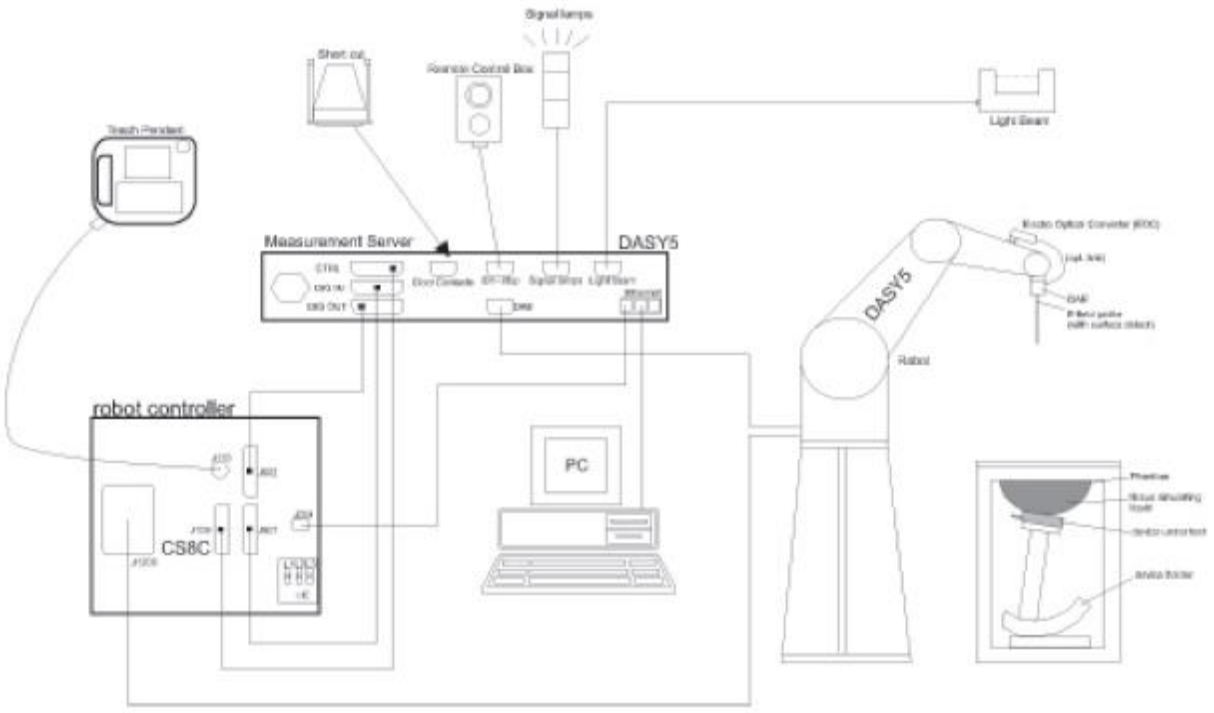
ρ is the mass density of the tissue material (kg/m^3)

E is the RMS electrical field strength (V/m)

8 SAR Measurements System

8.1 The SAR Measurement Set-up

The DASY5 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running WinXP or Windows and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

8.2 Measurement procedure

8.2.1 Power reference measurement

The Power Reference Measurement and Power Drift Measurement jobs are useful jobs for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

8.2.2 Area scan

Measurement procedures for evaluating SAR from wireless handsets typically start with a coarse measurement grid to determine the approximate location of the local peak SAR values. This is known as the area-scan procedure. In addition, identify the positions of any local maxima with SAR values within 2 dB of the maximum value, and that will not be within the zoom scan of other peaks. Additional zoom scans shall be measured for such peaks only when the primary peak is within 2 dB of the SAR compliance limit.

Area scan parameters extracted from FCC KDB 865664 D01 SAR measurement 100 MHz to 6 GHz.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	½·δ·ln(2) ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	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.	

8.2.3 Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures points (refer to table below) within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

Zoom Scan Parameters extracted from KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz.

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ $1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

8.2.4 Power Drift Measurement

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test that must remain within a maximum variation of ±5%. Detail power drift measurement refer to appendix B.

9 Test Equipment list

Manufacturer	Equipment Name	Model	Serial Number	Calibration Date	Due Date of calibration
SPEAG	Twin Phantom	SAM1	1473	NCR	NCR
SPEAG	Twin Phantom	SAM2	1359	NCR	NCR
SPEAG	E-Field Probe	EX3DV4	3624	2023/05/17	2024/05/16
SPEAG	E-Field Probe	EX3DV4	7812	2023/05/16	2024/05/15
SPEAG	Data Acquisition Electronics	DAE3	395	2023/04/25	2024/04/24
SPEAG	Data Acquisition Electronics	DAE4	799	2023/03/27	2024/03/26
SPEAG	System Validation Kits	D750V3	1231	2023/05/04	2026/05/03
SPEAG	System Validation Kits	D835V2	4d302	2023/02/06	2026/02/05
SPEAG	System Validation Kits	D1750V2	1115	2023/03/23	2026/03/22
SPEAG	System Validation Kits	D1900V2	512	2023/03/24	2026/03/23
SPEAG	System Validation Kits	D2300V2	1137	2023/05/05	2026/05/04
SPEAG	System Validation Kits	D2600V2	1094	2023/03/23	2026/06/22
SPEAG	System Validation Kits	D3500V2	1150	2023/05/15	2026/05/14
SPEAG	System Validation Kits	D3700V2	1127	2023/05/10	2026/05/09
SPEAG	System Validation Kits	D3900V2	1099	2023/05/15	2026/05/14
SPEAG	Dielectric parameter probes	DAK3.5	1341	2023/05/08	2024/05/07
Anritsu	Radio Communication Analyzer	MT8821C	6262170463	2023/04/08	2024/04/07
R&S	Signal Generator	SMR20	101691	2023/04/08	2024/04/07
R&S	AVG Power Sensor	NRP-Z21	101651	2023/04/08	2024/04/07
R&S	AVG Power Sensor	NRP-Z21	104189	2023/04/08	2024/04/07
HAISIDIKE	Thermometer	TP300	TOWE-EQ-SR-023	2023/03/22	2024/03/21
BingYu	Temperature and Humidity Indicator	HTC-1	TOWE-EQ-SR-025	2023/06/01	2024/05/31
Talent Microwave	Directional Coupler	TC-05180-10S	220420003	NCR	NCR
QiJi	Amplifier	YX28982301	TOWE-EQ-SR-020	NCR	NCR
QiJi	Amplifier	YX28982302	TOWE-EQ-SR-021	NCR	NCR

Note:

1. Referring to KDB 865664 D01v01r04, the dipole calibration interval can be extended to 3 years with justification. The dipoles are also not physically damaged or repaired during the interval.

2. The justification data of dipole can be found in Appendix C. The return loss is < -20dB, within 20% of prior calibration, the impedance is within 5 ohm of prior calibration.

10 SAR measurement variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

1) Repeated measurement is not required when the original highest measured SAR is < 0.80 or 2 W/kg (1-g or 10-g respectively); steps2) through 4) do not apply.

2) When the original highest measured SAR is ≥ 0.80 or 2 W/kg (1-g or 10-g respectively), 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 or 3.6W/kg (~ 10% from the 1-g or 10-g respective SAR limit).

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

11 Description of Test Position

11.1 Body exposure conditions

Per FCC KDB 447498 D02, for USB dongle transmitters with internal antennas, test all USB orientations (see figure below) with a device-to-phantom separation distance of 5 mm or less. These test orientations are intended for the exposure conditions found in typical laptop/notebook/netbook or tablet computers with either horizontal or vertical USB connector configurations at various locations in the keyboard section of the computer.

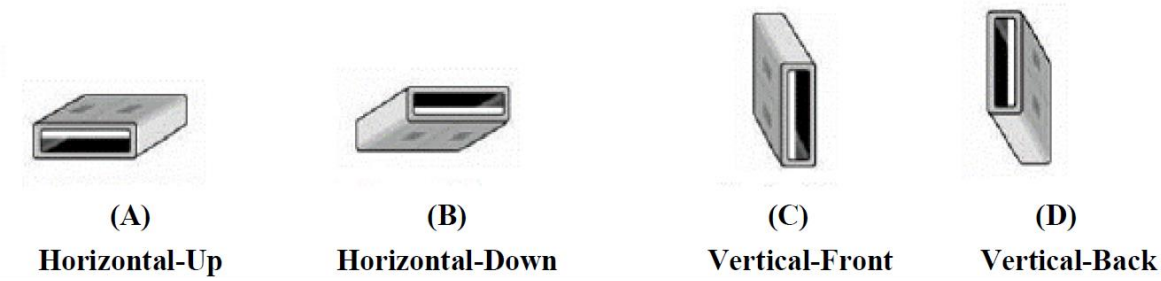


Figure: USB Connector Orientations Implemented on Laptop Computers

12 System Verification

12.1 Tissue Verification

The Conductivity (σ) and Permittivity (ρ) are listed in bellow table. The temperature variation of the Tissue Simulate Liquids was 22±2°C, the liquid depth of the ear reference point or the flat phantom was at least 15 cm (which is shown in Figure 12-1/12-2).

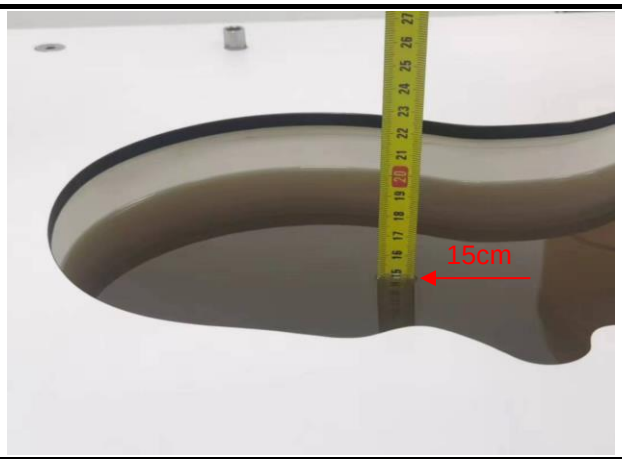


Figure 12-1 Liquid depth in the Head Phantom

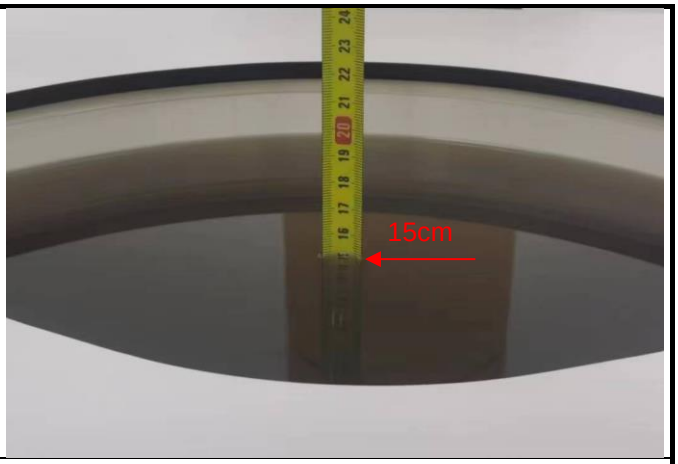


Figure 12-2 Liquid depth in the Flat Phantom

Frequency (MHz)	Tissue Type	Liquid Temp. (℃)	Target Tissue		Measured Tissue		Deviation (Limit ±5%)		Date
			Permittivity ε_r	Conductivity σ(S/m)	Permittivity ε_r	Conductivity σ(S/m)	$\Delta\varepsilon_r$	Δσ	
750	Head	21.8	41.90	0.89	42.457	0.904	1.33%	1.52%	2023/11/09
750	Head	22.2	41.90	0.89	42.206	0.898	0.73%	0.90%	2023/11/11
750	Head	21.7	41.90	0.89	42.332	0.900	1.03%	1.12%	2023/11/13
835	Head	21.8	41.50	0.90	41.573	0.901	0.18%	0.11%	2023/11/16
835	Head	22.2	41.50	0.90	42.501	0.896	2.41%	-0.40%	2023/11/22
1750	Head	21.6	40.10	1.37	41.532	1.383	3.57%	0.95%	2023/11/20
1900	Head	21.5	40.00	1.40	40.295	1.373	0.74%	-1.93%	2023/11/21
2300	Head	21.3	39.50	1.67	40.093	1.668	1.50%	-0.12%	2023/11/22
2600	Head	21.6	39.00	1.96	39.419	1.929	1.07%	-1.58%	2023/11/23
3500	Head	21.4	37.90	2.91	38.269	2.898	0.97%	-0.41%	2023/11/26
3700	Head	21.6	37.70	3.12	38.009	3.129	0.82%	0.29%	2023/11/27
3700	Head	21.3	37.70	3.12	38.134	3.140	1.15%	0.64%	2023/11/29
3900	Head	21.5	37.50	3.32	38.011	3.325	1.36%	0.15%	2023/11/27
3900	Head	21.2	37.50	3.32	38.098	3.333	1.59%	0.39%	2023/11/29

Table 1： Measurement Tissue Parameters

12.2 SAR System Check

Prior to SAR assessment, a SAR system Check measurement was performed to see if the measured SAR was within ±10% from the target SAR values. The System Performance Check Setup in Figure 12-3.

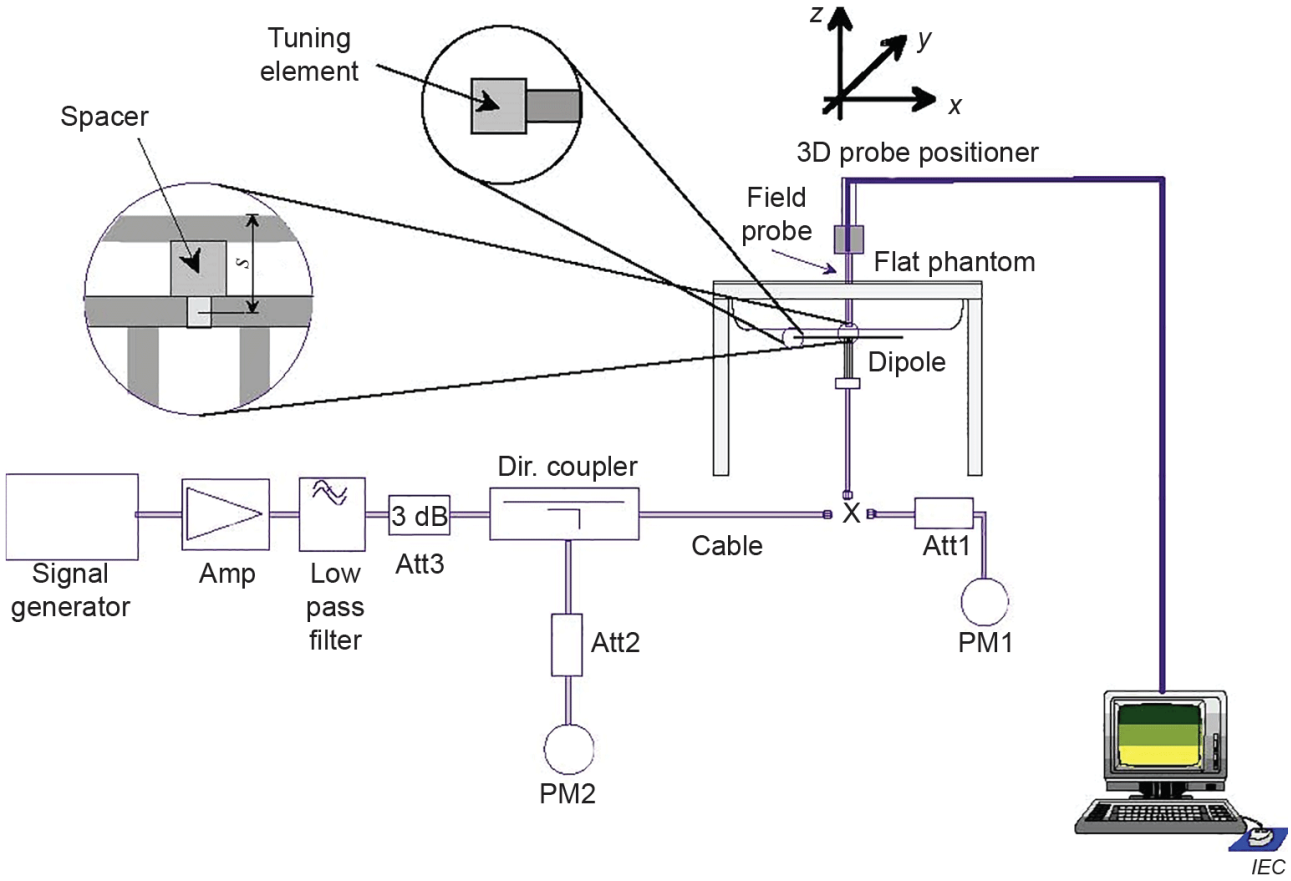


Figure 12-3 System Performance Check Setup

12.2.1 System Check Result

Frequency (MHz)	Tissue Type	Dipole	S/N	Target SAR (1W)		Measured SAR (250mW)		Measured SAR (normalized to 1W)		Deviation (Limit ±10%)		Date
				1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	Δ1g	Δ10g	
750	Head	D750V3	1231	8.67	5.67	2.30	1.52	9.20	6.08	6.11%	7.23%	2023/11/09
750	Head	D750V3	1231	8.67	5.67	2.25	1.50	9.00	6.00	3.81%	5.82%	2023/11/11
750	Head	D750V3	1231	8.67	5.67	2.29	1.52	9.16	6.08	5.65%	7.23%	2023/11/13
835	Head	D835V2	4d302	9.78	6.37	2.57	1.64	10.28	6.56	5.11%	2.98%	2023/11/16
835	Head	D835V2	4d302	9.78	6.37	2.45	1.63	9.80	6.52	0.20%	2.35%	2023/11/22
1750	Head	D1750V2	1115	36.90	19.50	9.74	5.21	38.96	20.84	5.58%	6.87%	2023/11/20
1900	Head	D1900V2	512	39.40	20.50	10.50	5.43	42.00	21.72	6.60%	5.95%	2023/11/21
2300	Head	D2300V2	1137	49.3	24.00	12.40	5.93	49.60	23.72	0.61%	-1.17%	2023/11/22
2600	Head	D2600V2	1094	56.30	25.00	14.60	6.52	58.40	26.08	3.73%	4.32%	2023/11/23
Frequency (MHz)	Tissue Type	Dipole	S/N	Target SAR (1W)		Measured SAR (100mW)		Measured SAR (normalized to 1W)		Deviation (Limit ±10%)		Date
				1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	Δ1g	Δ10g	
3500	Head	D3500V2	1150	66.30	25.10	6.79	2.57	67.90	25.70	2.41%	2.39%	2023/11/26
3700	Head	D3700V2	1127	66.60	24.10	6.97	2.55	69.70	25.50	4.65%	5.81%	2023/11/27
3700	Head	D3700V2	1127	66.60	24.10	7.05	2.57	70.50	25.70	5.86%	6.64%	2023/11/29
3900	Head	D3900V2	1099	68.40	23.60	7.40	2.55	74.00	25.50	8.19%	8.05%	2023/11/27
3900	Head	D3900V2	1099	68.40	23.60	7.36	2.54	73.60	25.40	7.60%	7.63%	2023/11/29

Table 2： SAR System Check Result

12.2.2 Detailed System Check Result

Please see the Appendix A

13 SAR General Measurement Procedures

13.1 3G SAR Test Reduction Procedure

In FCC KDB Publication 941225 D01, certain transmission modes within a frequency band and wireless mode evaluated for SAR are defined as primary modes. The equivalent modes considered for SAR test reduction are denoted as secondary modes. When the maximum output power including tune-up tolerance specified for production units in a secondary mode is ≤ 0.25 dB higher than the primary mode or when the highest reported SAR of the primary mode, scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode, is ≤ 1.2 W/kg, SAR measurements are not required for the secondary mode. These criteria are referred to as the 3G SAR test reduction procedure. When the 3G SAR test reduction procedure is not satisfied, SAR measurements are additionally required for the secondary mode.

13.2 SAR Measurement Conditions for LTE

LTE modes are tested according to FCC KDB 941225 D05 publication. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The R&S CMW500 or Anritsu MT8820C/MT8821C simulators are used for LTE output power measurements and SAR testing. Closed loop power control was used so the UE transmits with maximum output power during SAR testing. SAR tests were performed with the same number of RB and RB offsets transmitting on all TTI frames (maximum TTI).

13.2.1 Spectrum Plots for RB Configurations

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

13.2.2 MPR

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

Modulation	Channel bandwidth/Transmission bandwidth						MPR (dB)
	1.4 MHz	3 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	0
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	2
64QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	2
64QAM	> 5	> 4	> 8	> 12	> 16	> 18	3
256QAM	≥1						5

13.2.3 A-MPR

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

13.2.4 Largest channel bandwidth standalone SAR test requirements

A. QPSK with 1 RB allocation

Start with the largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required for 1 RB allocation; otherwise, SAR is required for the remaining required test channels and only for the RB offset configuration with the highest output power for that channel. When the reported SAR of a required test channel is > 1.45 W/kg, SAR is required for all three RB offset configurations for that required test channel.

B. QPSK with 50% RB allocation

The procedures required for 1 RB allocation in A are applied to measure the SAR for QPSK with 50% RB allocation.

C. QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in A and B are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

D. Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in A, B, and C to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > ½ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

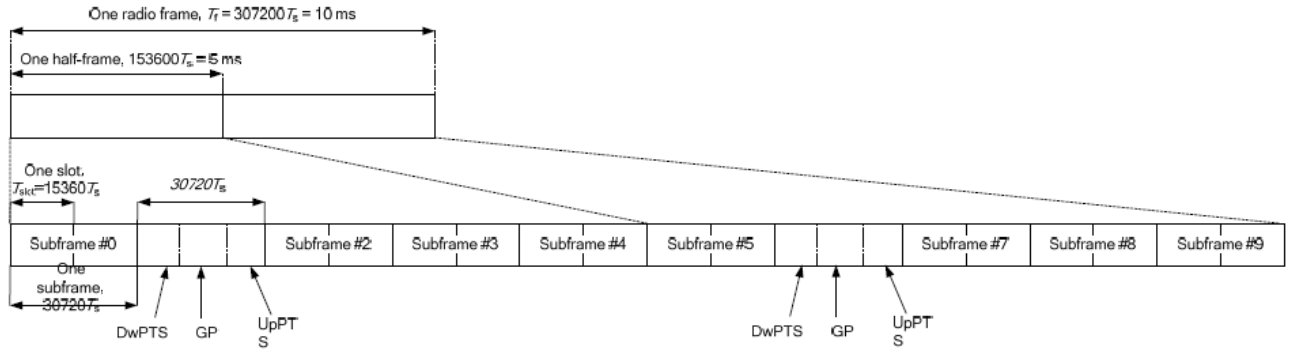
13.2.5 Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in 13.4.4 to determine the channels and RB configurations that need SAR testing, then only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration, or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

13.2.6 LTE TDD Considerations

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.
SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.
LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:



Uplink-downlink configurations

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

Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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

Calculated Duty Cycle=[Extended cyclic prefix in uplink x (Ts) x # of S + # of U]/10ms

Uplink-Downlink Configuration	Downlink-to- Uplink Switch-point Periodicity	Subframe Number										Calculated Duty Cycle (%)
		0	1	2	3	4	5	6	7	8	9	
0	5 ms	D	S	U	U	U	D	S	U	U	U	63.33
1	5 ms	D	S	U	U	D	D	S	U	U	D	43.33
2	5 ms	D	S	U	D	D	D	S	U	D	D	23.33
3	10 ms	D	S	U	U	U	D	D	D	D	D	31.67
4	10 ms	D	S	U	U	D	D	D	D	D	D	21.67
5	10 ms	D	S	U	D	D	D	D	D	D	D	11.67
6	5 ms	D	S	U	U	U	D	S	U	U	D	53.33

Example for calculated Duty Cycle for Uplink-Downlink Configuration 0:
Calculated Duty Cycle = (5120 x (1/(15000 x 2048)) x 2 + 0.006)/0.01 = 63.33 %
Where
Ts = 1/(15000 x 2048) seconds
HPUE:
Calculated Duty Cycle for Uplink-Downlink Configuration 1:
Calculated Duty Cycle =5120*(1/(15000*2048))*2+0.004)/0.01 = 43.33 %

13.3 SAR Measurement Conditions for NR

<5G NR Information>

Band	SCS (KHz)	Bandwidth (MHz)	Duty Cycle (%)
n2	15	20,15,10,5	100
n5	15	20,15,10,5	100
n14	15	10,5	100
n41	30	100,90,80,60,50,40,30,20	100
n66	15	40,30,20,15,10,5	100
n71	15	20,15,10,5	100
n77	30	100,90,80,60,50,40,20	100

<EN-DC Configuration>

n2	LTE B5/12/13/14/30/66
n5	LTE B2/12/13/30/48/66
n41	LTE B2/66
n66	LTE B2/5/12/13/14/30/48
n71	LTE B2/66
n77	LTE B2/5/12/13/14/66

13.3.1 5G NR test procedure

For 5G NR test procedure was following step similar FCC KDB 941225 D05:

A. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.

B. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.

C. SAR testing start with the largest SCS and largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.

D. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.

E. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

F. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.

G. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device.

H. MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS 38.101-1 Section 6.2.2 under Table 6.2.2 -1.

Modulation		MPR (dB)		
		Edge RB allocations	Outer RB allocations	Inner RB allocations
DFT-s-OFDM	PI/2 BPSK	≤ 3.5[1]	≤ 1.2[1]	≤ 0.2[1]
		≤ 0.5[2]	≤ 0.5[2]	0[2]
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	256 QAM	≤ 4.5		
CP-OFDM	QPSK	≤ 3		≤ 1.5
	16 QAM	≤ 3		≤ 2
	64 QAM	≤ 3.5		
	256 QAM	≤ 6.5		

NOTE 1: Applicable for UE operating in TDD mode with Pi/2 BPSK modulation and UE indicates support for UE capability powerBoosting-pi2BPSK and if the IE powerBoostPi2BPSK is set to 1 and 40 % or less slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79. The reference power of 0 dB MPR is 26dBm.

NOTE 2: Applicable for UE operating in FDD mode, or in TDD mode in bands other than n40, n41, n77, n78 and n79 with Pi/2 BPSK modulation and if the IE powerBoostPi2BPSK is set to 0 and if more than 40 % of slots in radio frame are used for UL transmission for bands n40, n41, n77, n78 and n79.

I. For 5G NR test, using FTM (Factory Test Mode) to perform SAR with default 100% transmission.

J. For 5G NR SAR Test as below:

For 5G NR NSA mode with the same UL EN_DC combination but different DL EN_DC combinations, e.g.: EN_DC configuration: UL DC_5A_n4 (UL two bands) with DL DC_5C_n4 (DL two bands):

a) The UL EN_DC configuration, including the Tx antenna configuration, RF path, the channel bandwidth and other operating parameters are the same.

b) The maximum output power, including tolerance, for the UL EN_DC configuration with DL two or more bands must be ≤ the same UL EN_DC configuration with DL two bands only to qualify for the SAR test exclusion.

K. For EN_DC SAR, as the existing SAR test system cannot test the multiple different frequency bands simultaneous Transmission SAR at the same time, we suggest that the conservative “max + max” multi-Tx and SAR scaling method can be used to evaluate the inter-band Uplink EN_DC SAR from standalone SAR test results of each LTE and NR EN_DC component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each EN_DC component band as the inter-band Uplink EN_DC SAR. All Simultaneous Transmission Scenarios will be evaluated independently in the final SAR report.

14 Conducted Power

14.1 Conducted Power of LTE

Detail output power measurement refer to appendix E.

14.1.1 Conducted Power of LTE CA

The device supports downlink and intra-band contiguous uplink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.
a) Intra-band carrier aggregation requirements for uplink.
b) Intra-band and inter-band carrier aggregation requirements for downlink
c) The device supports Inter-band uplink LTE CA for CA_12A-66A, CA_13A-66A, CA_2A-12A, CA_2A-13A, CA_4A-13A, CA_14A-30A with two component carriers in the uplink.

The possible downlink and uplink LTE CA combinations supported by this device are as below tables per 3GPP TS 36.101. The conducted power measurement results of downlink and uplink LTE CA are provided in Section 8 of this report per 3GPP TS 36.521-1. The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

SAR test procedure for intra-band contiguous UL LTE CA is as below:
1) Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05
- UL PCC configuration is determined by the required test channel
- SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.
2) SAR for UL CA is required in each exposure condition and frequency band combination.
3) For this device, as the maximum output for Intra-band uplink LTE CA is ≤ standalone LTE mode (without CA),
- PCC is configured according to the highest standalone SAR configuration tested.
- SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) like that used for the PCC
4) When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)
5) UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

Intra-band contiguous CA operating bands：

E-UTRA CA Band	E-UTRA Band	Uplink (UL) operating band BS receive / UE transmit F_{UL_low} – F_{UL_high}			Downlink (DL) operating band BS transmit / UE receive F_{DL_low} – F_{DL_high}			Duplex Mode
CA_41C	41	2496 MHz	–	2690 MHz	2496 MHz	–	2690 MHz	TDD

The power of the Intra-band CA is as follows:

Combination	Modulation	PCC						SCC						
		Band	BW (MHz)	UL Channel	UL# RB	UL RB Offset	DL Channel	Band	BW (MHz)	UL Channel	UL# RB	UL RB Offset	Power	tune-up(dBm)
CA_41C	QPSK	41	20	39750	1	99	39750	41	20	39948	1	0	19.32	20.00
CA_41C	QPSK	41	20	40185	1	99	40185	41	20	40383	1	0	19.51	20.00
CA_41C	QPSK	41	20	40620	1	99	40620	41	20	40818	1	0	19.44	20.00
CA_41C	QPSK	41	20	41055	1	99	41055	41	20	41253	1	0	19.52	20.00
CA_41C	QPSK	41	20	41490	1	0	41490	41	20	41292	1	99	19.50	20.00

The possible downlink LTE CA combinations supported by this device are as below tables. The following conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A.Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive, therefore SAR evaluation with downlink carrier aggregation can be excluded.

In applying the existing power measurement procedures for DL CA SAR test exclusion, the configurations that require power measurements are highlighted in the table as below:

Number	2CC Combination	Covered by Measurement Superset	Number	3CC Combination	Covered by Measurement Superset	Number	4CC Combination	Covered by Measurement Superset	Number	5CC Combination	Covered by Measurement Superset
1	CA_2A-2A	54	46	CA_41D		113	CA_48E	167	164	CA_48C-48D	
2	CA_2C	65	47	CA_48D	116	114	CA_5A-5A-66A-66A		165	CA_13A-48A-48D	
3	CA_41C		48	CA_12A-66A-66A		115	CA_13A-48A-48C	177	166	CA_13A-48C-48C	
4	CA_48A-48A	50	49	CA_12A-66C		116	CA_13A-48D	165	167	CA_13A-48E	
5	CA_48C	51	50	CA_13A-48A-48A	137	117	CA_2A-2A-4A-4A		168	CA_2A-48A-48D	
6	CA_4A-4A	62	51	CA_13A-48C	141	118	CA_2A-46D	181	169	CA_2A-48C-48C	
7	CA_5A-5A	80	52	CA_13A-66A-66A	142	119	CA_2A-48A-48C	182	170	CA_2A-48E	
8	CA_66A-66A	48	53	CA_13A-66C	143	120	CA_2A-48D	183	171	CA_48A-48C-66C	
9	CA_66B		54	CA_2A-2A-12A		121	CA_2C-66A-66A		172	CA_48A-48E	
10	CA_66C	53	55	CA_2A-2A-13A	144	122	CA_46A-46C-66A		173	CA_48E-66A	
11	CA_12A-30A	88	56	CA_2A-2A-30A	161	123	CA_46D-66A	181	174	CA_48C-48C-66A	
12	CA_12A-66A	48	57	CA_2A-2A-4A	117	124	CA_48A-48A-66A-66A		175	CA_4A-48E	
13	CA_13A-48A	50	58	CA_2A-2A-5A	145	125	CA_48A-48A-66C		176	CA_2A-2A-5A-66C	
14	CA_13A-66A	52	59	CA_2A-2A-66A	147	126	CA_48A-48C-66A	182	177	CA_13A-48A-48C-66A	
15	CA_29A-30A	94	60	CA_2A-2A-71A	146	127	CA_48C-48C	166	178	CA_13A-48D-66A	
16	CA_29A-66A		61	CA_2A-46C	150	128	CA_48C-66A-66A		179	CA_2A-13A-48D	
17	CA_2A-12A	54	62	CA_2A-4A-4A	136	129	CA_48C-66C	171	180	A_2A-2A-13A-66A-66A	
18	CA_2A-13A	55	63	CA_2A-66A-66A	154	130	CA_48D-66A	178	181	CA_2A-46D-66A	
19	CA_2A-29A	94	64	CA_2A-66C	155	131	CA_4A-46A-46C		182	CA_2A-48A-48C-66A	
20	CA_2A-30A	56	65	CA_2C-66A	121	132	CA_4A-46D		183	CA_2A-48D-66A	
21	CA_2A-46A	96	66	CA_30A-66A-66A	158	133	CA_4A-48D		184	CA_46A-48D-66A	
22	CA_2A-4A	57	67	CA_46A-46A-66A	148	134	CA_48A-48D	165	185	CA_46C-48C-66A	
23	CA_2A-5A	102	68	CA_46C-66A	150	135	CA_5A-5A-66C		186	CA_46D-48A-66A	
24	CA_2A-66A	63	69	CA_48A-48A-66A	151	136	CA_2A-4A-4A-5A		187	CA_48A-48D-66A	
25	CA_2A-71A	60	70	CA_48A-48C	115	137	CA_13A-48A-48A-66A	190	188	CA_2A-14A-66A-66A-66A	
26	CA_30A-66A	66	71	CA_48A-66A-66A	124	138	CA_13A-48A-66C	191	189	CA_2A-2A-14A-66A-66A	
27	CA_41A-41A		72	CA_48A-66C	125	139	CA_13A-48C-66A	192	190	CA_2A-13A-48A-48A-66A	
28	CA_46A-66A	67	73	CA_48C-66A	126	140	CA_2A-13A-48A-48A	190	191	CA_2A-13A-48A-48C	
29	CA_48A-66A	71	74	CA_4A-46A-46A		141	CA_2A-13A-48C	192	192	CA_2A-13A-48C-66A	
30	CA_4A-12A	77	75	CA_4A-46C	131	142	CA_2A-13A-66A-66A	180	193	CA_2A-14A-30A-66A-66A	
31	CA_4A-13A	78	76	CA_4A-48C		143	CA_2A-13A-66C		194	CA_2A-2A-14A-30A-66A	
32	CA_4A-29A	107	77	CA_4A-4A-12A		144	CA_2A-2A-13A-66A	180			
33	CA_4A-30A	108	78	CA_4A-4A-13A		145	CA_2A-2A-4A-5A				
34	CA_4A-46A	74	79	CA_4A-4A-71A		146	CA_2A-2A-4A-71A				
35	CA_4A-5A	108	80	CA_5A-5A-66A	114	147	CA_2A-2A-66A-71A				
36	CA_4A-71A	79	81	CA_5A-66A-66A	114	148	CA_2A-46A-46A-66A				
37	CA_5A-13A		82	CA_5A-66C	135	149	CA_2A-46A-46C				
38	CA_5A-30A	102	83	CA_66A-66A-71A	154	150	CA_2A-46C-66A				
39	CA_5A-66A	81	84	CA_66A-66C		151	CA_2A-48A-48A-66A	190			

40	CA_66A-71A	83	85	CA_66C-71A	155	152	CA_2A-48C-66A	182			
41	CA_2A-48A	92	86	CA_14A-66A-66A	158	153	CA_2A-5A-66C	176			
42	CA_14A-30A	110	87	CA_2A-2A-14A	160	154	CA_2A-66A-66A-71A				
43	CA_14A-66A	112	88	CA_12A-30A-66A		155	CA_2A-66C-71A				
44	CA_2A-14A	112	89	CA_2A-12A-66A		156	CA_46A-48C-66A				
45	CA_4A-48A		90	CA_13A-48A-66A	162	157	CA_46C-48A-66A				
			91	CA_2A-12A-30A		158	CA_14A-30A-66A-66A	193			
			92	CA_2A-13A-48A	162	159	CA_2A-14A-66A-66A	193			
			93	CA_2A-13A-66A	162	160	CA_2A-2A-14A-66A	194			
			94	CA_2A-29A-30A		161	CA_2A-2A-14A-30A	194			
			95	CA_2A-30A-66A	163	162	CA_2A-13A-48A-66A	190			
			96	CA_2A-46A-46A	148	163	CA_2A-14A-30A-66A	193			
			97	CA_2A-46A-66A	148						
			98	CA_2A-4A-12A							
			99	CA_2A-4A-13A							
			100	CA_2A-4A-5A	145						
			101	CA_2A-4A-71A	146						
			102	CA_2A-5A-30A							
			103	CA_2A-5A-66A							
			104	CA_2A-66A-71A	147						
			105	CA_46A-48A-66A							
			106	CA_4A-12A-30A							
			107	CA_4A-29A-30A							
			108	CA_4A-5A-30A							
			109	CA_5A-30A-66A							
			110	CA_14A-30A-66A	163						
			111	CA_2A-14A-30A	161						
			112	CA_2A-14A-66A	159						

DL CA Combination	PCC							SCC1				SCC2				SCC3				SCC4				Power(dBm)		
	LTE Band	BW (MHz)	Modulation	UL Freq. (MHz)	UL Channel	UL# RB	UL RB Offset	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	LTE Band	BW (MHz)	DL Freq. (MHz)	DL Channel	With CA Tx.Power (dBm)	Without CA Tx.Power (dBm)	Tune-up
CA_41C	B41	20M	QPSK	2506	39750	1	50	B41	20M	2525.8	39948	/	/	/	/	/	/	/	/	/	/	/	/	19.24	19.36	20.00
CA_66B	B66	20M	QPSK	1775	132622	1	50	B66	20M	2175	67086	/	/	/	/	/	/	/	/	/	/	/	/	19.87	19.99	20.50
CA_29A-66A	B66	20M	QPSK	1745	132322	1	50	B29	10M	722.5	9715	/	/	/	/	/	/	/	/	/	/	/	/	19.91	19.99	20.50
CA_41A-41A	B41	20M	QPSK	2506	39750	1	50	B41	20M	41490	2680	/	/	/	/	/	/	/	/	/	/	/	/	19.30	19.36	20.00
CA_5A-13A	B5	10M	QPSK	836.5	20525	1	25	B13	10M	751	5230	/	/	/	/	/	/	/	/	/	/	/	/	22.46	22.57	23.50
	B13	10M	QPSK	782	23230	1	25	B5	10M	881.5	2525	/	/	/	/	/	/	/	/	/	/	/	/	23.84	23.90	24.50
CA_4A-48A	B4	20M	QPSK	1732.5	20175	1	50	B48	20M	3625	55990	/	/	/	/	/	/	/	/	/	/	/	/	19.93	20.01	20.50
	B48	20M	QPSK	3690	56640	1	50	B5	10M	881.5	2525	/	/	/	/	/	/	/	/	/	/	/	/	16.62	16.76	17.50
CA_12A-66A-66A	B12	10M	QPSK	707.5	23095	1	25	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	/	/	/	/	22.01	22.06	23.00
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2120	66536	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.89	19.96	20.50
CA_12A-66C	B12	10M	QPSK	707.5	23095	1	25	B66	20M	2170	67036	B66	20M	2189.8	67234	/	/	/	/	/	/	/	/	22.03	22.06	23.00
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2150.2	66838	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.94	19.96	20.50
CA_2A-2A-12A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.87	19.95	20.50
	B12	10M	QPSK	707.5	23095	1	25	B2	20M	1940	700	B2	20M	1980	1100	/	/	/	/	/	/	/	/	21.98	22.06	23.00
CA_4A-46A-46A	B4	20M	QPSK	1732.5	20175	1	50	B46	20M	5160	46890	B46	20M	5905	54340	/	/	/	/	/	/	/	/	19.93	20.01	20.50
CA_4A-48C	B4	20M	QPSK	1732.5	20175	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	/	/	/	/	/	/	/	/	19.90	20.01	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	16.71	16.76	17.50
CA_4A-4A-12A	B4	20M	QPSK	1745	20300	1	50	B4	20M	2120	2050	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.94	20.00	20.50
	B12	10M	QPSK	707.5	23095	1	25	B4	20M	2145	2300	B4	20M	2120	2050	/	/	/	/	/	/	/	/	22.00	22.06	23.00
CA_4A-4A-13A	B4	20M	QPSK	1745	20300	1	50	B4	20M	2120	2050	B13	10M	751	5230	/	/	/	/	/	/	/	/	19.99	20.00	20.50
	B13	10M	QPSK	782	23230	1	25	B4	20M	2145	2300	B4	20M	2120	2050	/	/	/	/	/	/	/	/	23.82	23.90	24.50
CA_4A-4A-71A	B4	20M	QPSK	1745	20300	1	50	B4	20M	2120	2050	B71	20M	637	68786	/	/	/	/	/	/	/	/	19.88	20.00	20.50
	B71	20M	QPSK	683	133322	1	50	B4	20M	2145	2300	B4	20M	2120	2050	/	/	/	/	/	/	/	/	23.81	23.89	25.00
CA_66A-66C	B66	20M	QPSK	1745	132322	1	50	B66	20M	2170	67036	B66	20M	2150.2	66838	/	/	/	/	/	/	/	/	19.92	19.99	20.50
CA_12A-30A-66A	B12	10M	QPSK	707.5	23095	1	25	B30	10M	2355	9820	B66	20M	2145	66786	/	/	/	/	/	/	/	/	21.97	22.06	23.00
	B30	10M	QPSK	2310	27710	25	13	B66	20M	2145	66786	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	15.40	15.43	16.00
	B66	20M	QPSK	1745	132322	1	50	B12	10M	737.5	5095	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.91	19.99	20.50
CA_2A-12A-66A	B2	20M	QPSK	1860	18700	1	50	B12	10M	737.5	5095	B66	20M	2145	66786	/	/	/	/	/	/	/	/	19.83	19.95	20.50
	B12	10M	QPSK	707.5	23095	1	25	B66	20M	2145	66786	B2	20M	1960	900	/	/	/	/	/	/	/	/	21.93	22.06	23.00
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.94	19.99	20.50

CA_2A-12A-30A	B2	20M	QPSK	1860	18700	1	50	B12	10M	737.5	5095	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.82	19.95	20.50
	B12	10M	QPSK	707.5	23095	1	25	B30	10M	2355	9820	B2	20M	1960	900	/	/	/	/	/	/	/	/	21.99	22.06	23.00
	B30	10M	QPSK	2310	27710	25	13	B2	20M	1960	900	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	15.38	15.43	16.00
CA_2A-29A-30A	B2	20M	QPSK	1860	18700	1	50	B29	10M	722.5	9715	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.90	19.95	20.50
	B30	10M	QPSK	2310	27710	25	13	B2	20M	1960	900	B29	10M	722.5	9715	/	/	/	/	/	/	/	/	15.41	15.43	16.00
CA_2A-4A-12A	B2	20M	QPSK	1860	18700	1	50	B4	20M	2132.5	2175	B12	10M	737.5	5095	/	/	/	/	/	/	/	/	19.87	19.95	20.50
	B4	20M	QPSK	1732.5	20175	1	50	B12	10M	737.5	5095	B2	20M	1960	900	/	/	/	/	/	/	/	/	19.99	20.01	20.50
	B12	10M	QPSK	707.5	23095	1	25	B4	20M	2132.5	2175	B2	20M	1960	900	/	/	/	/	/	/	/	/	22.04	22.06	23.00
CA_2A-4A-13A	B2	20M	QPSK	1860	18700	1	50	B4	20M	2132.5	2175	B13	10M	751	5230	/	/	/	/	/	/	/	/	19.92	19.95	20.50
	B4	20M	QPSK	1732.5	20175	1	50	B2	20M	1960	900	B13	10M	751	5230	/	/	/	/	/	/	/	/	19.95	20.01	20.50
	B13	10M	QPSK	782	23230	1	25	B2	20M	1960	900	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	23.80	23.90	24.50
CA_2A-5A-30A	B2	20M	QPSK	1860	18700	1	50	B5	10M	881.5	2525	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.87	19.95	20.50
	B5	10M	QPSK	836.5	20525	1	25	B2	20M	1960	900	B30	10M	2355	9820	/	/	/	/	/	/	/	/	22.51	22.57	23.50
	B30	10M	QPSK	2310	27710	25	13	B2	20M	1960	900	B5	10M	881.5	2525	/	/	/	/	/	/	/	/	15.35	15.43	16.00
CA_2A-5A-66A	B2	20M	QPSK	1860	18700	1	50	B5	10M	881.5	2525	B66	20M	2145	66786	/	/	/	/	/	/	/	/	19.88	19.95	20.50
	B5	10M	QPSK	836.5	20525	1	25	B2	20M	1960	900	B66	20M	2145	66786	/	/	/	/	/	/	/	/	22.49	22.57	23.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B5	10M	881.5	2525	/	/	/	/	/	/	/	/	19.81	19.99	20.50
CA_46A-48A-66A	B48	20M	QPSK	3690	56640	1	50	B46	20M	5540	50690	B66	20M	2145	66786	/	/	/	/	/	/	/	/	16.68	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3625	55990	B46	20M	5540	50690	/	/	/	/	/	/	/	/	19.96	19.99	20.50
CA_4A-12A-30A	B4	20M	QPSK	1732.5	20175	1	50	B12	10M	737.5	5095	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.94	20.01	20.50
	B12	10M	QPSK	707.5	23095	1	25	B30	10M	2355	9820	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	22.00	22.06	23.00
	B30	10M	QPSK	2310	27710	25	13	B12	10M	737.5	5095	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	15.33	15.43	16.00
CA_4A-29A-30A	B4	20M	QPSK	1732.5	20175	1	50	B29	10M	722.5	9715	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.88	20.01	20.50
	B30	10M	QPSK	2310	27710	25	13	B4	20M	2132.5	2175	B29	10M	722.5	9715	/	/	/	/	/	/	/	/	15.37	15.43	16.00
CA_4A-5A-30A	B4	20M	QPSK	1732.5	20175	1	50	B5	10M	881.5	2525	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.86	20.01	20.50
	B5	10M	QPSK	836.5	20525	1	25	B30	10M	2355	9820	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	22.50	22.57	23.50
	B30	10M	QPSK	2310	27710	25	13	B5	10M	881.5	2525	B4	20M	2132.5	2175	/	/	/	/	/	/	/	/	15.36	15.43	16.00
CA_5A-30A-66A	B5	10M	QPSK	836.5	20525	1	25	B30	10M	2355	9820	B66	20M	2145	66786	/	/	/	/	/	/	/	/	22.46	22.57	23.50
	B30	10M	QPSK	2310	27710	25	13	B66	20M	2145	66786	B5	10M	881.5	2525	/	/	/	/	/	/	/	/	15.39	15.43	16.00
	B66	20M	QPSK	1745	132322	1	50	B5	10M	881.5	2525	B30	10M	2355	9820	/	/	/	/	/	/	/	/	19.91	19.99	20.50
CA_5A-5A-66A-66A	B5	10M	QPSK	829	20450	1	25	B5	10M	889	2600	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	22.53	22.54	23.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B5	10M	874	2450	B5	10M	889	2600	/	/	/	/	19.90	19.94	20.50
CA_2A-2A-4A-4A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B4	20M	2145	2300	B4	20M	2120	2050	/	/	/	/	19.91	19.95	20.50
	B4	20M	QPSK	1745	20300	1	50	B4	20M	2120	2050	B2	20M	1940	700	B2	20M	1980	1100	/	/	/	/	19.92	20.00	20.50
CA_2C-66A-66A	B2	20M	QPSK	1900	19100	1	50	B2	20M	1960.2	902	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	19.90	19.95	20.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B2	20M	1980	1100	B2	20M	1960.2	902	/	/	/	/	19.90	19.94	20.50
CA_46A-46C-66A	B66	20M	QPSK	1745	132322	1	50	B46	20M	5160	46890	B46	20M	5585.2	54142	B46	20M	5905	54340	/	/	/	/	19.83	19.99	20.50
CA_48A-48A-66A-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3560	55340	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	16.67	16.76	17.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B48	20M	3690	56640	B48	20M	3560	55340	/	/	/	/	19.82	19.94	20.50
CA_48A-48A-66C	B48	20M	QPSK	3690	56640	1	50	B48	20M	3560	55340	B66	20M	2170	67036	B66	20M	2189.8	67234	/	/	/	/	16.65	16.76	17.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B48	20M	3690	56640	B48	20M	3560	55340	/	/	/	/	19.84	19.96	20.50
CA_48C-66A-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	16.69	16.76	17.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B48	20M	3690	56640	B48	20M	3670.2	56442	/	/	/	/	19.90	19.94	20.50
CA_4A-46A-46C	B4	20M	QPSK	1732.5	20175	1	50	B46	20M	5160	46890	B46	20M	5585.2	54142	B46	20M	5905	54340	/	/	/	/	19.98	20.01	20.50
CA_4A-46D	B4	20M	QPSK	1732.5	20175	1	50	B46	20M	5865.2	53942	B46	20M	5885	54140	B46	20M	5904.8	54338	/	/	/	/	19.96	20.01	20.50
CA_4A-48D	B4	20M	QPSK	1732.5	20175	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	/	/	/	/	19.93	20.01	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B4	20M	2132.5	2175	/	/	/	/	16.73	16.76	17.50
CA_5A-5A-66C	B5	10M	QPSK	829	20450	1	25	B5	10M	889	2600	B66	20M	2170	67036	B66	20M	2189.8	67234	/	/	/	/	22.55	22.54	23.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B5	10M	874	2450	B5	10M	889	2600	/	/	/	/	19.88	19.96	20.50
CA_2A-4A-4A-5A	B2	20M	QPSK	1860	18700	1	50	B4	20M	2145	2300	B4	20M	2120	2050	B5	10M	881.5	2525	/	/	/	/	19.83	19.95	20.50
	B4	20M	QPSK	1745	20300	1	50	B4	20M	2120	2050	B5	10M	881.5	2525	B2	20M	1960	900	/	/	/	/	19.90	20.00	20.50
	B5	10M	QPSK	836.5	20525	1	25	B2	20M	1960	900	B4	20M	2145	2300	B4	20M	2120	2050	/	/	/	/	22.43	22.57	23.50
CA_2A-13A-66C	B2	20M	QPSK	1860	18700	1	50	B13	10M	5230	751	B66	20M	2170	67036	B66	20M	2189.8	67234	/	/	/	/	19.88	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B2	20M	1960	900	B66	20M	2170	67036	B66	20M	2189.8	67234	/	/	/	/	23.85	23.90	24.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B2	20M	1960	900	B13	10M	5230	751	/	/	/	/	19.90	19.96	20.50
CA_2A-2A-4A-5A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B4	20M	2132.5	2175	B5	10M	881.5	2525	/	/	/	/	19.93	19.95	20.50
	B4	20M	QPSK	1732.5	20175	1	50	B2	20M	1940	700	B2	20M	1980	1100	B5	10M	881.5	2525	/	/	/	/	19.96	20.01	20.50
	B5	10M	QPSK	836.5	20525	1	25	B2	20M	1940	700	B2	20M	1980	1100	B4	20M	2132.5	2175	/	/	/	/	22.49	22.57	23.50
CA_2A-2A-4A-71A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B4	20M	2132.5	2175	B71	20M	637	68786	/	/	/	/	19.86	19.95	20.50
	B4	20M	QPSK	1732.5	20175	1	50	B71	20M	637	68786	B2	20M	1940	700	B2	20M	1980	1100	/	/	/	/	19.89	20.01	20.50
	B71	20M	QPSK	683	133322	1	50	B2	20M	1940	700	B2	20M	1980	1100	B4	20M	2132.5	2175	/	/	/	/	23.79	23.89	25.00
CA_2A-2A-66A-71A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B66	20M	2145	66786	B71	20M	637	68786	/	/	/	/	19.88	19.95	20.50
	B66	20M	QPSK	1745	132322	1	50	B71	20M	637	68786	B2	20M	1940	700	B2	20M	1980	1100	/	/	/	/	19.91	19.99	20.50
	B71	20M	QPSK	683	133322	1	50	B2	20M	1940	700	B2	20M	1980	1100	B66	20M	2145	66786	/	/	/	/	23.86	23.89	25.00
CA_2A-46A-46A-66A	B2	20M	QPSK	1860	18700	1	50	B46	20M	5160	46890	B46	20M	5905	54340	B66	20M	2145	66786	/	/	/	/	19.90	19.95	20.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B46	20M	5160	46890	B46	20M	5905	54340	/	/	/	/	19.86	19.99	20.50
CA_2A-46A-46C	B2	20M	QPSK	1860	18700	1	50	B46	20M	5160	46890	B46	20M	5585.2	54142	B46	20M	5905	54340	/	/	/	/	19.80	19.95	20.50
CA_2A-46C-66A	B2	20M	QPSK	1860	18700	1	50	B46	20M	5885.2	54142	B46	20M	5905	54340	B66	20M	2145	66786	/	/	/	/	19.85	19.95	20.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B46	20M	5885.2	54142	B46	20M	5905	54340	/	/	/	/	19.91	19.99	20.50
CA_2A-66A-66A-71A	B2	20M	QPSK	1860	18700	1	50	B66	20M	2120	66536	B66	20M	2190	67236	B71	20M	637	68786	/	/	/	/	19.87	19.95	20.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B71	20M	637	68786	B2	20M	1960	900	/	/	/	/	19.86	19.94	20.50
	B71	20M	QPSK	683	133322	1	50	B2	20M	1960	900	B66	20M	2120	66536	B66	20M	2190	67236	/	/	/	/	23.84	23.89	25.00
CA_2A-66C-71A	B2	20M	QPSK	1860	18700	1	50	B66	20M	2170	67036	B66	20M	2189.8	67234	B71	20M	637	68786	/	/	/	/	19.90	19.95	20.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B71	20M	637	68786	B2	20M	1960	900	/	/	/	/	19.87	19.96	20.50
	B71	20M	QPSK	683	133322	1	50	B66	20M	2170	67036	B66	20M	2189.8	67234	B2	20M	1960	900	/	/	/	/	23.80	23.89	25.00
CA_46A-48C-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B66	20M	2145	66786	B46	20M	5540	50690	/	/	/	/	16.75	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B46	20M	5540	50690	/	/	/	/	19.97	19.99	20.50
CA_46C-48A-66A	B48	20M	QPSK	3690	56640	1	50	B66	20M	2145	66786	B46	20M	5885.2	54142	B46	20M	5905	54340	/	/	/	/	16.71	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3625	55990	B46	20M	5885.2	54142	B46	20M	5905	54340	/	/	/	/	19.98	19.99	20.50
CA_48C-48D	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	16.68	16.76	17.50
CA_13A-48A-48D	B13	10M	QPSK	782	23230	1	25	B48	20M	3625	55990	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	23.77	23.90	24.50

	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B13	10M	5230	751	16.65	16.76	17.50
CA_13A-48C-48C	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	23.79	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	B13	10M	5230	751	16.66	16.76	17.50
CA_13A-48E	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	23.86	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	B13	10M	751	5230	16.70	16.76	17.50
CA_2A-48A-48D	B2	20M	QPSK	1860	18700	1	50	B48	20M	3625	55990	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	19.88	19.95	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B2	20M	1960	900	16.75	16.76	17.50
CA_2A-48C-48C	B2	20M	QPSK	1860	18700	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	19.85	19.95	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	B2	20M	1960	900	16.75	16.76	17.50
CA_2A-48E	B2	20M	QPSK	1860	18700	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	19.84	19.95	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	B2	20M	1960	900	16.65	16.76	17.50
CA_48A-48C-66C	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3646.7	56207	B66	20M	2170	67036	B66	20M	2189.8	67234	16.70	16.76	17.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	19.90	19.96	20.50
CA_48A-48E	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	16.71	16.76	17.50
CA_48E-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	B66	20M	2145	66786	16.63	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	19.83	19.99	20.50
CA_48C-48C-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	16.72	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3690	56640	B48	20M	3670.2	56442	19.80	19.99	20.50
CA_4A-48E	B4	20M	QPSK	1732.5	20175	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	19.87	20.01	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B48	20M	3630.6	56046	B4	20M	2132.5	2175	16.71	16.76	17.50
CA_2A-2A-5A-66C	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B5	10M	881.5	2525	B66	20M	2170	67036	B66	20M	2189.8	67234	19.90	19.95	20.50
	B5	10M	QPSK	836.5	20525	1	25	B66	20M	2170	67036	B66	20M	2189.8	67234	B2	20M	1940	700	B2	20M	1980	1100	22.44	22.57	23.50
	B66	20M	QPSK	1770	132572	1	50	B66	20M	2189.8	67234	B2	20M	1940	700	B2	20M	1980	1100	B5	10M	881.5	2525	19.91	19.96	20.50
CA_13A-48A-48C-66A	B13	10M	QPSK	782	23230	1	25	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	23.84	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	B13	10M	5230	751	16.65	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	B13	10M	5230	751	19.87	19.99	20.50
CA_13A-48D-66A	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B66	20M	2145	66786	23.78	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B66	20M	2145	66786	B13	10M	5230	751	16.63	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B13	10M	5230	751	19.92	19.99	20.50
CA_2A-13A-48D	B2	20M	QPSK	1860	18700	1	50	B13	10M	5230	751	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	19.90	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B2	20M	1960	900	23.75	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B2	20M	1960	900	B13	10M	5230	751	16.64	16.76	17.50
A_2A-2A-13A-66A-66A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B13	10M	751	5230	B66	20M	2120	66536	B66	20M	2190	67236	19.89	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B66	20M	2120	66536	B66	20M	2190	67236	B2	20M	1940	700	B2	20M	1980	1100	23.83	23.90	24.50
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B2	20M	1940	700	B2	20M	1980	1100	B13	10M	751	5230	19.91	19.94	20.50
CA_2A-46D-66A	B2	20M	QPSK	1860	18700	1	50	B46	20M	5865.2	53942	B46	20M	5885	54140	B46	20M	5904.8	54338	B66	20M	2145	66786	19.86	19.95	20.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B46	20M	5865.2	53942	B46	20M	5885	54140	B46	20M	5904.8	54338	19.93	19.99	20.50
CA_2A-48A-48C-66A	B2	20M	QPSK	1860	18700	1	50	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	19.84	19.95	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	B2	20M	1960	900	16.74	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	19.92	19.99	20.50
CA_2A-48D-66A	B2	20M	QPSK	1860	18700	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B66	20M	2145	66786	19.86	19.95	20.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B2	20M	1960	900	16.68	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	19.89	19.99	20.50
CA_46A-48D-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B66	20M	2145	66786	B46	20M	5540	50690	16.71	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B46	20M	5540	50690	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	19.93	19.99	20.50
CA_46C-48C-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B66	20M	2145	66786	B46	20M	5905.1	54341	B46	20M	5919.5	54485	16.68	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B46	20M	5905.1	54341	B46	20M	5919.5	54485	B48	20M	3690	56640	B48	20M	3670.2	56442	19.87	19.99	20.50
CA_46D-48A-66A	B48	20M	QPSK	3690	56640	1	50	B66	20M	2145	66786	B46	20M	5865.2	53942	B46	20M	5885	54140	B46	20M	5904.8	54338	16.69	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B46	20M	5865.2	53942	B46	20M	5885	54140	B46	20M	5904.8	54338	B48	20M	3625	55990	19.90	19.99	20.50
CA_48A-48D-66A	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	B66	20M	2145	66786	16.69	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B48	20M	3625	55990	B48	20M	3690	56640	B48	20M	3670.2	56442	B48	20M	3650.4	56244	19.94	19.99	20.50
CA_2A-14A-66A-66A-66A	B2	20M	QPSK	1860	18700	1	50	B14	10M	763	5330	B66	20M	2120	66536	B66	20M	2155	66886	B66	20M	2190	67236	19.87	19.95	20.50
	B14	10M	QPSK	763	23330	1	25	B66	20M	2120	66536	B66	20M	2155	66886	B66	20M	2190	67236	B2	20M	1960	900	23.46	23.53	24.00
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2155	66886	B66	20M	2190	67236	B2	20M	1960	900	B14	10M	763	5330	19.88	19.94	20.50
CA_2A-2A-14A-66A-66A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B14	10M	763	5330	B66	20M	2120	66536	B66	20M	2190	67236	19.84	19.95	20.50
	B14	10M	QPSK	763	23330	1	25	B66	20M	2120	66536	B66	20M	2190	67236	B2	20M	1940	700	B2	20M	1980	1100	23.49	23.53	24.00
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B2	20M	1940	700	B2	20M	1980	1100	B14	10M	763	5330	19.85	19.94	20.50
CA_2A-13A-48A-48A-66A	B2	20M	QPSK	1860	18700	1	50	B13	10M	751	5230	B48	20M	3690	56640	B48	20M	3560	55340	B66	20M	2145	66786	19.93	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3560	55340	B66	20M	2145	66786	B2	20M	1960	900	23.81	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3560	55340	B66	20M	2145	66786	B2	20M	1960	900	B13	10M	751	5230	16.74	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B13	10M	751	5230	B48	20M	3690	56640	B48	20M	3560	55340	19.82	19.99	20.50
CA_2A-13A-48A-48C	B2	20M	QPSK	1860	18700	1	50	B13	10M	5230	751	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	19.81	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B2	20M	1960	900	B48	20M	3560	55340	B48	20M	3690	56640	B48	20M	3670.2	56442	23.88	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3690	56640	B48	20M	3670.2	56442	B2	20M	1960	900	B13	10M	751	5230	16.64	16.76	17.50
CA_2A-13A-48C-66A	B2	20M	QPSK	1860	18700	1	50	B13	10M	5230	751	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	19.94	19.95	20.50
	B13	10M	QPSK	782	23230	1	25	B48	20M	3690	56640	B48	20M	3670.2	56442	B66	20M	2145	66786	B2	20M	1960	900	23.84	23.90	24.50
	B48	20M	QPSK	3690	56640	1	50	B48	20M	3670.2	56442	B66	20M	2145	66786	B2	20M	1960	900	B13	10M	5230	751	16.60	16.76	17.50
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1960	900	B13	10M	751	5230	B48	20M	3690	56640	B48	20M	3670.2	56442	19.98	19.99	20.50
CA_2A-14A-30A-66A-66A	B2	20M	QPSK	1860	18700	1	50	B14	10M	763	5330	B30	10M	2355	9820	B66	20M	2120	66536	B66	20M	2190	67236	19.81	19.95	20.50
	B14	10M	QPSK	763	23330	1	25	B30	10M	2355	9820	B66	20M	2120	66536	B66	20M	2190	67236	B2	20M	1960	900	23.50	23.53	24.00
	B30	10M	QPSK	2310	27710	25	13	B66	20M	2120	66536	B66	20M	2190	67236	B2	20M	1960	900	B14	10M	763	5330	15.42	15.43	16.00
	B66	20M	QPSK	1720	132072	1	50	B66	20M	2190	67236	B2	20M	1960	900	B14	10M	763	5330	B30	10M	2355	9820	19.92	19.94	20.50
CA_2A-2A-14A-30A-66A	B2	20M	QPSK	1860	18700	1	50	B2	20M	1980	1100	B14	10M	763	5330	B30	10M	2355	9820	B66	20M	2145	66786	19.92	19.95	20.50
	B14	10M	QPSK	763	23330	1	25	B30	10M	2355	9820	B66	20M	2145	66786	B2	20M	1940	700	B2	20M	1980	1100	23.43	23.53	24.00
	B30	10M	QPSK	2310	27710	25	13	B66	20M	2145	66786	B2	20M	1940	700	B2	20M	1980	1100	B14	10M	763	5330	15.36	15.43	16.00
	B66	20M	QPSK	1745	132322	1	50	B2	20M	1940	700	B2	20M	1980	1100	B14	10M	763	5330	B30	10M	2355	9820	19.85	19.99	20.50

Note:
The downlink LTE CA SAR test is not required since the maximum output power for downlink LTE CA was not more than 0.25dB higher than the maximum output power for without downlink LTE CA.

14.2 Conducted Power of 5G NR

Detail output power measurement refer to appendix E.

15 SAR Data Summary

General Notes:

1) The Highest Reported SAR Plot refer to Appendix B.

2) Per KDB 447498 D01, testing of other required channels within the operating mode of a frequency band is not required when the reported 1g or 10g SAR for the mid-band or highest output power channel is:

- ≤ 0.8W/kg for 1g or 2.0W/kg for 10g respectively, when the transmission band is ≤ 100MHz.
- ≤ 0.6 W/kg or 1.5 W/kg, for 1g or 10g respectively, when the transmission band is between 100 MHz and 200MHz.
- ≤ 0.4 W/kg or 1.0 W/kg, for 1g or 10g respectively, when the transmission band is ≥ 200MHz.

15.1 SAR Measurement Result of LTE Band 2

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_50	18900/1880	0.575	0.329	19.98	20.50	1.127	0.648
Back side	20	QPSK 1_50	18900/1880	0.561	0.307	19.98	20.50	1.127	0.632
Left side	20	QPSK 1_50	18900/1880	0.639	0.350	19.98	20.50	1.127	**0.720**
Right side	20	QPSK 1_50	18900/1880	0.075	0.044	19.98	20.50	1.127	0.085
Bottom side	20	QPSK 1_50	18900/1880	0.083	0.050	19.98	20.50	1.127	0.094
Body 5mm (50%RB)									
Front side	20	QPSK 50_25	18900/1880	0.576	0.329	19.96	20.50	1.132	0.652
Back side	20	QPSK 50_25	18900/1880	0.533	0.297	19.96	20.50	1.132	0.604
Left side	20	QPSK 50_25	18900/1880	0.638	0.350	19.96	20.50	1.132	0.722
Right side	20	QPSK 50_25	18900/1880	0.076	0.045	19.96	20.50	1.132	0.086
Bottom side	20	QPSK 50_25	18900/1880	0.085	0.049	19.96	20.50	1.132	0.096

Table 3： SAR of LTE Band 2.

15.2 SAR Measurement Result of LTE Band 5

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_25	20525/836.5	0.577	0.376	22.57	23.50	1.239	**0.715**
Back side	10	QPSK 1_25	20525/836.5	0.473	0.315	22.57	23.50	1.239	0.586
Left side	10	QPSK 1_25	20525/836.5	0.305	0.192	22.57	23.50	1.239	0.378
Right side	10	QPSK 1_25	20525/836.5	0.341	0.209	22.57	23.50	1.239	0.422
Bottom side	10	QPSK 1_25	20525/836.5	0.228	0.134	22.57	23.50	1.239	0.282
Body 5mm (50%RB)									
Front side	10	QPSK 25_13	20525/836.5	0.578	0.376	22.60	23.50	1.230	0.711
Back side	10	QPSK 25_13	20525/836.5	0.474	0.315	22.60	23.50	1.230	0.583
Left side	10	QPSK 25_13	20525/836.5	0.309	0.195	22.60	23.50	1.230	0.380
Right side	10	QPSK 25_13	20525/836.5	0.340	0.208	22.60	23.50	1.230	0.418
Bottom side	10	QPSK 25_13	20525/836.5	0.228	0.134	22.60	23.50	1.230	0.281

Table 4： SAR of LTE Band 5.

15.3 SAR Measurement Result of LTE Band 12

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_25	23095/707.5	0.576	0.410	22.06	23.00	1.242	**0.715**
Back side	10	QPSK 1_25	23095/707.5	0.456	0.312	22.06	23.00	1.242	0.566
Left side	10	QPSK 1_25	23095/707.5	0.312	0.211	22.06	23.00	1.242	0.387
Right side	10	QPSK 1_25	23095/707.5	0.474	0.258	22.06	23.00	1.242	0.589
Bottom side	10	QPSK 1_25	23095/707.5	0.126	0.077	22.06	23.00	1.242	0.156
Body 5mm (50%RB)									
Front side	10	QPSK 25_13	23095/707.5	0.516	0.368	22.00	23.00	1.259	0.650
Back side	10	QPSK 25_13	23095/707.5	0.463	0.315	22.00	23.00	1.259	0.583
Left side	10	QPSK 25_13	23095/707.5	0.317	0.215	22.00	23.00	1.259	0.399
Right side	10	QPSK 25_13	23095/707.5	0.472	0.258	22.00	23.00	1.259	0.594
Bottom side	10	QPSK 25_13	23095/707.5	0.150	0.081	22.00	23.00	1.259	0.189

Table 5： SAR of LTE Band 12.

15.4 SAR Measurement Result of LTE Band 13

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_25	23230/782	0.615	0.386	23.90	24.50	1.148	**0.706**
Back side	10	QPSK 1_25	23230/782	0.464	0.311	23.90	24.50	1.148	0.533
Left side	10	QPSK 1_25	23230/782	0.331	0.207	23.90	24.50	1.148	0.380
Right side	10	QPSK 1_25	23230/782	0.368	0.208	23.90	24.50	1.148	0.423
Bottom side	10	QPSK 1_25	23230/782	0.141	0.071	23.90	24.50	1.148	0.162
Body 5mm (50%RB)									
Front side	10	QPSK 25_13	23230/782	0.492	0.308	22.77	23.50	1.183	0.582
Back side	10	QPSK 25_13	23230/782	0.372	0.249	22.77	23.50	1.183	0.440
Left side	10	QPSK 25_13	23230/782	0.264	0.166	22.77	23.50	1.183	0.312
Right side	10	QPSK 25_13	23230/782	0.292	0.164	22.77	23.50	1.183	0.345
Bottom side	10	QPSK 25_13	23230/782	0.110	0.056	22.77	23.50	1.183	0.130

Table 6： SAR of LTE Band 13.

15.5 SAR Measurement Result of LTE Band 14

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_25	23330/793	0.623	0.391	23.53	24.00	1.114	**0.694**
Back side	10	QPSK 1_25	23330/793	0.494	0.324	23.53	24.00	1.114	0.550
Left side	10	QPSK 1_25	23330/793	0.322	0.203	23.53	24.00	1.114	0.359
Right side	10	QPSK 1_25	23330/793	0.405	0.237	23.53	24.00	1.114	0.451
Bottom side	10	QPSK 1_25	23330/793	0.178	0.090	23.53	24.00	1.114	0.198
Body 5mm (50%RB)									
Front side	10	QPSK 25_13	23330/793	0.545	0.340	22.45	23.00	1.135	0.619
Back side	10	QPSK 25_13	23330/793	0.328	0.213	22.45	23.00	1.135	0.372
Left side	10	QPSK 25_13	23330/793	0.245	0.155	22.45	23.00	1.135	0.278
Right side	10	QPSK 25_13	23330/793	0.317	0.185	22.45	23.00	1.135	0.360
Bottom side	10	QPSK 25_13	23330/793	0.140	0.070	22.45	23.00	1.135	0.159

Table 7： SAR of LTE Band 14.

15.6 SAR Measurement Result of LTE Band 30

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_25	27710/2310	0.184	0.099	15.41	16.00	1.146	0.211
Back side	10	QPSK 1_25	27710/2310	0.139	0.071	15.41	16.00	1.146	0.159
Left side	10	QPSK 1_25	27710/2310	0.626	0.274	15.41	16.00	1.146	**0.717**
Right side	10	QPSK 1_25	27710/2310	0.000	0.000	15.41	16.00	1.146	0.000
Bottom side	10	QPSK 1_25	27710/2310	0.030	0.015	15.41	16.00	1.146	0.034
Body 5mm (50%RB)									
Front side	10	QPSK 25_13	27710/2310	0.176	0.097	15.43	16.00	1.140	0.201
Back side	10	QPSK 25_13	27710/2310	0.137	0.070	15.43	16.00	1.140	0.156
Left side	10	QPSK 25_13	27710/2310	0.625	0.273	15.43	16.00	1.140	0.713
Right side	10	QPSK 25_13	27710/2310	0.000	0.000	15.43	16.00	1.140	0.000
Bottom side	10	QPSK 25_13	27710/2310	0.029	0.016	15.43	16.00	1.140	0.033

Table 8： SAR of LTE Band 30.

15.7 SAR Measurement Result of LTE Band 41

Ant 0 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	20	QPSK 1_50	1:1.58	40620/2593	0.232	0.112	19.57	20.00	1.104	0.256
Back side	20	QPSK 1_50	1:1.58	40620/2593	0.222	0.103	19.57	20.00	1.104	0.245
Left side	20	QPSK 1_50	1:1.58	40620/2593	0.962	0.390	19.57	20.00	1.104	1.062
Right side	20	QPSK 1_50	1:1.58	40620/2593	0.042	0.016	19.57	20.00	1.104	0.046
Bottom side	20	QPSK 1_50	1:1.58	40620/2593	0.011	0.006	19.57	20.00	1.104	0.012
Left side	20	QPSK 1_50	1:1.58	39750/2506	0.892	0.368	19.36	20.00	1.159	1.034
Left side	20	QPSK 1_50	1:1.58	40185/2549.5	0.969	0.398	19.33	20.00	1.167	1.131
Left side	20	QPSK 1_50	1:1.58	41055/2636.5	1.070	0.449	19.53	20.00	1.114	**1.192**
Left side Repeated	20	QPSK 1_50	1:1.58	41055/2636.5	1.040	0.438	19.53	20.00	1.114	1.159
Left side	20	PCC 1_99	1:1.58	41055/2636.5	0.949	0.410	19.52	20.00	1.117	1.060
		SCC 1_0	1:1.58	41253/2656.3						
Left side	20	QPSK 1_50	1:1.58	41490/2680	0.912	0.372	19.35	20.00	1.161	1.059
Left side class2	20	QPSK 1_50	1:2.31	41055/2636.5	1.000	0.415	20.77	21.50	1.183	1.183
Body 5mm(50%RB)										
Front side	20	QPSK 50_25	1:1.58	40620/2593	0.240	0.116	19.54	20.00	1.112	0.267
Back side	20	QPSK 50_25	1:1.58	40620/2593	0.229	0.105	19.54	20.00	1.112	0.255
Left side	20	QPSK 50_25	1:1.58	40620/2593	1.010	0.410	19.54	20.00	1.112	1.123
Right side	20	QPSK 50_25	1:1.58	40620/2593	0.042	0.017	19.54	20.00	1.112	0.047
Bottom side	20	QPSK 50_25	1:1.58	40620/2593	0.013	0.006	19.54	20.00	1.112	0.014
Left side	20	QPSK 50_25	1:1.58	39750/2506	0.897	0.372	19.35	20.00	1.161	1.042
Left side	20	QPSK 50_25	1:1.58	40185/2549.5	0.999	0.408	19.42	20.00	1.143	1.142
Left side	20	QPSK 50_25	1:1.58	41055/2636.5	1.050	0.424	19.48	20.00	1.127	1.184
Left side	20	QPSK 50_25	1:1.58	41490/2680	0.895	0.364	19.38	20.00	1.153	1.032
Body 5mm(100%RB)										
Left side	20	QPSK 100_0	1:1.58	41055/2636.5	0.897	0.387	19.42	20.00	1.143	1.025

Table 9： SAR of LTE Band 41.

Test Position	**Channel/ Frequency (MHz)**	**Measured SAR (1g)**	**1st Repeated SAR (1g)**	**Ratio**	**2nd Repeated SAR (1g)**	**3rd Repeated SAR (1g)**
Left side	41055/2636.5	1.070	1.040	1.03	N/A	N/A

LTE Band 41 Power Class 2 and Power Class 3 Linearity:
This device supports Power Class 2 and Power Class 3 operations for LTE Band 41. The highest available duty cycle for Power Class 2 operations is 43.3 % using UL-DL configuration 1. Per May 2017 TCB Workshop Notes based on the device behavior, all SAR tests were performed using Power Class 3. SAR with Power Class 2 at the highest power and available duty factor was additionally performed for the Power Class 3 configuration with the highest SAR for each exposure condition. The linearity between the Power Class 2 and Power Class 3 SAR results and the respective frame averaged powers was calculated to determine that the results were linear.

Per May 2017 TCB Workshop, no additional SAR measurements were required since the linearity between power classes was < 10% and all reported SAR values were < 1.4 W/kg for 1g and < 3.5 W/kg for 10g.

LTE Band 41 SAR testing with power class 2 at the highest power and available duty factor was additionally performed for the power class 3 configuration with the highest SAR for each exposure condition.
LTE Band 41 Linearity Data:

	Power Class 3	**Power Class 2**
Tune-up(dBm)	20.00	21.50
Measured power(dBm)	19.53	20.77
Measured SAR(W/kg)	1.070	1.000
Measured power(mw)	89.74	119.40
Duty Cycle	63.3%	43.3%
Frame Average power(mw)	56.81	51.70
% deviation from expected linearity		2.69%

15.8 SAR Measurement Result of LTE Band 48

Ant 0 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 1-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	20	QPSK 1_50	1:1.58	56207/3646.7	0.240	0.092	16.78	17.50	1.180	**0.283**
Back side	20	QPSK 1_50	1:1.58	56207/3646.7	0.092	0.038	16.78	17.50	1.180	0.108
Left side	20	QPSK 1_50	1:1.58	56207/3646.7	0.174	0.075	16.78	17.50	1.180	0.205
Right side	20	QPSK 1_50	1:1.58	56207/3646.7	0.034	0.014	16.78	17.50	1.180	0.040
Bottom side	20	QPSK 1_50	1:1.58	56207/3646.7	0.017	0.009	16.78	17.50	1.180	0.020
Body 5mm(50%RB)										
Front side	20	QPSK 50_25	1:1.58	56207/3646.7	0.208	0.081	16.75	17.50	1.189	0.247
Back side	20	QPSK 50_25	1:1.58	56207/3646.7	0.089	0.037	16.75	17.50	1.189	0.106
Left side	20	QPSK 50_25	1:1.58	56207/3646.7	0.150	0.067	16.75	17.50	1.189	0.178
Right side	20	QPSK 50_25	1:1.58	56207/3646.7	0.037	0.015	16.75	17.50	1.189	0.044
Bottom side	20	QPSK 50_25	1:1.58	56207/3646.7	0.018	0.009	16.75	17.50	1.189	0.021

Table 10：SAR of LTE Band 48.

15.9 SAR Measurement Result of LTE Band 66

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 1-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)									
Front side	20	QPSK 1_50	132322/1745	0.529	0.299	19.99	20.50	1.125	0.595
Back side	20	QPSK 1_50	132322/1745	0.537	0.306	19.99	20.50	1.125	0.604
Left side	20	QPSK 1_50	132322/1745	0.628	0.355	19.99	20.50	1.125	0.706
Right side	20	QPSK 1_50	132322/1745	0.052	0.030	19.99	20.50	1.125	0.058
Bottom side	20	QPSK 1_50	132322/1745	0.065	0.038	19.99	20.50	1.125	0.074
Body 5mm(50%RB)									
Front side	20	QPSK 50_25	132322/1745	0.539	0.307	19.96	20.50	1.132	0.610
Back side	20	QPSK 50_25	132322/1745	0.547	0.312	19.96	20.50	1.132	0.619
Left side	20	QPSK 50_25	132322/1745	0.634	0.358	19.96	20.50	1.132	**0.718**
Right side	20	QPSK 50_25	132322/1745	0.054	0.032	19.96	20.50	1.132	0.061
Bottom side	20	QPSK 50_25	132322/1745	0.065	0.037	19.96	20.50	1.132	0.073

Table 11：SAR of LTE Band 66.

15.10 SAR Measurement Result of LTE Band 71

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_50	133322/683	0.834	0.578	23.89	25.00	1.291	1.077
Back side	20	QPSK 1_50	133322/683	0.536	0.355	23.89	25.00	1.291	0.692
Left side	20	QPSK 1_50	133322/683	0.466	0.315	23.89	25.00	1.291	0.602
Right side	20	QPSK 1_50	133322/683	0.540	0.374	23.89	25.00	1.291	0.697
Bottom side	20	QPSK 1_50	133322/683	0.172	0.084	23.89	25.00	1.291	0.222
Front side	20	QPSK 1_50	133222/673	0.920	0.651	23.88	25.00	1.294	**1.191**
Front side Repeated	20	QPSK 1_50	133222/673	0.890	0.616	23.88	25.00	1.294	1.152
Front side	20	QPSK 1_50	133372/688	0.809	0.570	23.68	25.00	1.355	1.096
Body 5mm (50%RB)									
Front side	20	QPSK 50_25	133322/683	0.688	0.485	22.70	24.00	1.349	0.928
Back side	20	QPSK 50_25	133322/683	0.521	0.362	22.70	24.00	1.349	0.703
Left side	20	QPSK 50_25	133322/683	0.378	0.257	22.70	24.00	1.349	0.510
Right side	20	QPSK 50_25	133322/683	0.442	0.305	22.70	24.00	1.349	0.596
Bottom side	20	QPSK 50_25	133322/683	0.159	0.074	22.70	24.00	1.349	0.214
Front side	20	QPSK 50_25	133222/673	0.745	0.525	22.61	24.00	1.377	1.026
Front side	20	QPSK 50_25	133372/688	0.654	0.457	22.69	24.00	1.352	0.884
Body 5mm (100%RB)									
Front side	20	QPSK 100_0	133322/683	0.697	0.488	22.76	24.00	1.330	0.927

Table 12：SAR of LTE Band 71.

Test Position	**Channel/ Frequency**	**Measured SAR (1g)**	**1st Repeated**	**Ratio**	**2nd Repeated**	**3rd Repeated**
	(MHz)		**SAR (1g)**		**SAR (1g)**	**SAR (1g)**
Front side	133222/673	0.920	0.890	1.03	N/A	N/A

15.11 SAR Measurement Result of 5G NR n2

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_1	376000/1880	0.469	0.275	19.29	20.00	1.178	0.552
Back side	20	QPSK 1_1	376000/1880	0.527	0.299	19.29	20.00	1.178	0.621
Left side	20	QPSK 1_1	376000/1880	0.604	0.328	19.29	20.00	1.178	**0.711**
Right side	20	QPSK 1_1	376000/1880	0.065	0.037	19.29	20.00	1.178	0.076
Bottom side	20	QPSK 1_1	376000/1880	0.089	0.051	19.29	20.00	1.178	0.105
Body 5mm (50%RB)									
Front side	20	QPSK 50_0	376000/1880	0.518	0.299	19.25	20.00	1.189	0.616
Back side	20	QPSK 50_0	376000/1880	0.582	0.317	19.25	20.00	1.189	0.692
Left side	20	QPSK 50_0	376000/1880	0.539	0.295	19.25	20.00	1.189	0.641
Right side	20	QPSK 50_0	376000/1880	0.073	0.043	19.25	20.00	1.189	0.087
Bottom side	20	QPSK 50_0	376000/1880	0.095	0.055	19.25	20.00	1.189	0.113

Table 13：SAR of 5G NR n2.

15.12 SAR Measurement Result of 5G NR n5

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_1	167300/836.5	0.254	0.143	23.66	25.00	1.361	0.346
Back side	20	QPSK 1_1	167300/836.5	0.273	0.154	23.66	25.00	1.361	0.372
Left side	20	QPSK 1_1	167300/836.5	0.266	0.129	23.66	25.00	1.361	0.362
Right side	20	QPSK 1_1	167300/836.5	0.138	0.056	23.66	25.00	1.361	0.188
Bottom side	20	QPSK 1_1	167300/836.5	0.006	0.003	23.66	25.00	1.361	0.008
Body 5mm (50%RB)									
Front side	20	QPSK 50_28	167300/836.5	0.257	0.145	23.75	25.00	1.334	0.343
Back side	20	QPSK 50_28	167300/836.5	0.280	0.158	23.75	25.00	1.334	**0.373**
Left side	20	QPSK 50_28	167300/836.5	0.271	0.131	23.75	25.00	1.334	0.361
Right side	20	QPSK 50_28	167300/836.5	0.140	0.057	23.75	25.00	1.334	0.187
Bottom side	20	QPSK 50_28	167300/836.5	0.004	0.001	23.75	25.00	1.334	0.005
Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq.(MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_1	167300/836.5	0.587	0.382	23.15	24.00	1.216	0.714
Back side	20	QPSK 1_1	167300/836.5	0.483	0.322	23.15	24.00	1.216	0.587
Left side	20	QPSK 1_1	167300/836.5	0.293	0.194	23.15	24.00	1.216	0.356
Right side	20	QPSK 1_1	167300/836.5	0.325	0.200	23.15	24.00	1.216	0.395
Bottom side	20	QPSK 1_1	167300/836.5	0.158	0.095	23.15	24.00	1.216	0.192
Body 5mm (50%RB)									
Front side	20	QPSK 50_28	167300/836.5	0.588	0.383	23.12	24.00	1.225	**0.720**
Back side	20	QPSK 50_28	167300/836.5	0.486	0.324	23.12	24.00	1.225	0.595
Left side	20	QPSK 50_28	167300/836.5	0.316	0.204	23.12	24.00	1.225	0.387
Right side	20	QPSK 50_28	167300/836.5	0.324	0.199	23.12	24.00	1.225	0.397
Bottom side	20	QPSK 50_28	167300/836.5	0.159	0.096	23.12	24.00	1.225	0.195

Table 14：SAR of 5G NR n5.

15.13 SAR Measurement Result of 5G NR n14

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	10	QPSK 1_1	158600/793	0.681	0.426	23.86	25.00	1.300	0.885
Back side	10	QPSK 1_1	158600/793	0.513	0.337	23.86	25.00	1.300	0.667
Left side	10	QPSK 1_1	158600/793	0.344	0.221	23.86	25.00	1.300	0.447
Right side	10	QPSK 1_1	158600/793	0.416	0.238	23.86	25.00	1.300	0.541
Bottom side	10	QPSK 1_1	158600/793	0.164	0.076	23.86	25.00	1.300	0.213
Body 5mm (50%RB)									
Front side	10	QPSK 25_14	158600/793	0.729	0.457	23.85	25.00	1.303	**0.950**
Back side	10	QPSK 25_14	158600/793	0.533	0.352	23.85	25.00	1.303	0.695
Left side	10	QPSK 25_14	158600/793	0.357	0.230	23.85	25.00	1.303	0.465
Right side	10	QPSK 25_14	158600/793	0.425	0.246	23.85	25.00	1.303	0.554
Bottom side	10	QPSK 25_14	158600/793	0.185	0.087	23.85	25.00	1.303	0.241
Body 5mm (100%RB)									
Front side	10	QPSK 50_0	158600/793	0.573	0.363	22.73	24.00	1.340	0.768

Table 15：SAR of 5G NR n14.

15.14 SAR Measurement Result of 5G NR n41

Ant 0 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	100	QPSK 1_1	100%	518598/2592.99	0.241	0.118	14.24	15.00	1.191	0.287
Back side	100	QPSK 1_1	100%	518598/2592.99	0.218	0.103	14.24	15.00	1.191	0.260
Left side	100	QPSK 1_1	100%	518598/2592.99	0.600	0.251	14.24	15.00	1.191	**0.715**
Right side	100	QPSK 1_1	100%	518598/2592.99	0.035	0.016	14.24	15.00	1.191	0.042
Bottom side	100	QPSK 1_1	100%	518598/2592.99	0.018	0.008	14.24	15.00	1.191	0.021
Left side	100	QPSK 1_1	100%	509202/2546.01	0.518	0.211	14.20	15.00	1.202	0.623
Left side	100	QPSK 1_1	100%	513900/2569.5	0.549	0.216	14.19	15.00	1.205	0.662
Left side	100	QPSK 1_1	100%	523302/2616.51	0.572	0.225	14.22	15.00	1.197	0.685
Left side	100	QPSK 1_1	100%	528000/2640	0.591	0.232	14.18	15.00	1.208	0.714
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	518598/2592.99	0.222	0.105	14.28	15.00	1.180	0.262
Back side	100	QPSK 135_69	100%	518598/2592.99	0.176	0.082	14.28	15.00	1.180	0.208
Left side	100	QPSK 135_69	100%	518598/2592.99	0.574	0.225	14.28	15.00	1.180	0.678
Right side	100	QPSK 135_69	100%	518598/2592.99	0.024	0.009	14.28	15.00	1.180	0.029
Bottom side	100	QPSK 135_69	100%	518598/2592.99	0.011	0.005	14.28	15.00	1.180	0.013
Left side	100	QPSK 135_69	100%	509202/2546.01	0.549	0.216	14.25	15.00	1.189	0.652
Left side	100	QPSK 135_69	100%	513900/2569.5	0.553	0.219	14.24	15.00	1.191	0.659
Left side	100	QPSK 135_69	100%	523302/2616.51	0.572	0.188	14.19	15.00	1.205	0.689
Left side	100	QPSK 135_69	100%	528000/2640	0.576	0.226	14.18	15.00	1.208	0.696

Table 16：SAR of 5G NR n41.

15.15 SAR Measurement Result of 5G NR n66

Ant 0 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	40	QPSK 1_1	349000/1745	0.328	0.194	18.66	19.50	1.213	0.398
Back side	40	QPSK 1_1	349000/1745	0.346	0.197	18.66	19.50	1.213	0.420
Left side	40	QPSK 1_1	349000/1745	0.593	0.339	18.66	19.50	1.213	**0.720**
Right side	40	QPSK 1_1	349000/1745	0.048	0.028	18.66	19.50	1.213	0.058
Bottom side	40	QPSK 1_1	349000/1745	0.066	0.037	18.66	19.50	1.213	0.080
Body 5mm (50%RB)									
Front side	40	QPSK 108_54	349000/1745	0.330	0.192	18.55	19.50	1.245	0.411
Back side	40	QPSK 108_54	349000/1745	0.342	0.191	18.55	19.50	1.245	0.426
Left side	40	QPSK 108_54	349000/1745	0.560	0.318	18.55	19.50	1.245	0.697
Right side	40	QPSK 108_54	349000/1745	0.049	0.028	18.55	19.50	1.245	0.060
Bottom side	40	QPSK 108_54	349000/1745	0.058	0.034	18.55	19.50	1.245	0.072

Table 17：SAR of 5G NR n66.

15.16 SAR Measurement Result of 5G NR n71

Ant 3 Test Results									
Test position	**BW. (MHz)**	**Mode**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm (1RB)									
Front side	20	QPSK 1_1	136100/680.5	0.575	0.404	21.77	22.50	1.183	0.680
Back side	20	QPSK 1_1	136100/680.5	0.447	0.310	21.77	22.50	1.183	0.529
Left side	20	QPSK 1_1	136100/680.5	0.345	0.222	21.77	22.50	1.183	0.408
Right side	20	QPSK 1_1	136100/680.5	0.407	0.264	21.77	22.50	1.183	0.481
Bottom side	20	QPSK 1_1	136100/680.5	0.195	0.121	21.77	22.50	1.183	0.231
Body 5mm (50%RB)									
Front side	20	QPSK 50_28	136100/680.5	0.600	0.422	21.70	22.50	1.202	**0.721**
Back side	20	QPSK 50_28	136100/680.5	0.487	0.338	21.70	22.50	1.202	0.586
Left side	20	QPSK 50_28	136100/680.5	0.362	0.232	21.70	22.50	1.202	0.435
Right side	20	QPSK 50_28	136100/680.5	0.427	0.278	21.70	22.50	1.202	0.513
Bottom side	20	QPSK 50_28	136100/680.5	0.178	0.110	21.70	22.50	1.202	0.214

Table 18：SAR of 5G NR n71.

15.17 SAR Measurement Result of 5G NR n77

Ant 0 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	633334/3500	0.555	0.218	17.60	18.00	1.096	**0.609**
Back side	100	QPSK 1_271	100%	633334/3500	0.230	0.104	17.60	18.00	1.096	0.252
Left side	100	QPSK 1_271	100%	633334/3500	0.510	0.213	17.60	18.00	1.096	0.559
Right side	100	QPSK 1_271	100%	633334/3500	0.107	0.044	17.60	18.00	1.096	0.117
Bottom side	100	QPSK 1_271	100%	633334/3500	0.038	0.020	17.60	18.00	1.096	0.041
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	633334/3500	0.488	0.197	17.18	18.00	1.208	0.589
Back side	100	QPSK 135_69	100%	633334/3500	0.201	0.094	17.18	18.00	1.208	0.243
Left side	100	QPSK 135_69	100%	633334/3500	0.414	0.176	17.18	18.00	1.208	0.500
Right side	100	QPSK 135_69	100%	633334/3500	0.091	0.036	17.18	18.00	1.208	0.110
Bottom side	100	QPSK 135_69	100%	633334/3500	0.034	0.017	17.18	18.00	1.208	0.041
Ant 3 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	633334/3500	0.595	0.220	14.13	15.00	1.222	**0.727**
Back side	100	QPSK 1_271	100%	633334/3500	0.179	0.069	14.13	15.00	1.222	0.219
Left side	100	QPSK 1_271	100%	633334/3500	0.063	0.029	14.13	15.00	1.222	0.077
Right side	100	QPSK 1_271	100%	633334/3500	0.291	0.118	14.13	15.00	1.222	0.356
Bottom side	100	QPSK 1_271	100%	633334/3500	0.374	0.159	14.13	15.00	1.222	0.457
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	633334/3500	0.511	0.195	13.78	15.00	1.324	0.677
Back side	100	QPSK 135_69	100%	633334/3500	0.129	0.053	13.78	15.00	1.324	0.171
Left side	100	QPSK 135_69	100%	633334/3500	0.052	0.024	13.78	15.00	1.324	0.069
Right side	100	QPSK 135_69	100%	633334/3500	0.273	0.102	13.78	15.00	1.324	0.362
Bottom side	100	QPSK 135_69	100%	633334/3500	0.294	0.125	13.78	15.00	1.324	0.389
MIMO Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	633334/3500	0.358	0.140	16.45	18.00	1.429	**0.512**
Back side	100	QPSK 1_271	100%	633334/3500	0.239	0.097	16.45	18.00	1.429	0.342
Left side	100	QPSK 1_271	100%	633334/3500	0.322	0.129	16.45	18.00	1.429	0.460
Right side	100	QPSK 1_271	100%	633334/3500	0.293	0.108	16.45	18.00	1.429	0.419
Bottom side	100	QPSK 1_271	100%	633334/3500	0.235	0.110	16.45	18.00	1.429	0.336
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	633334/3500	0.295	0.123	16.74	18.00	1.337	0.394
Back side	100	QPSK 135_69	100%	633334/3500	0.195	0.077	16.74	18.00	1.337	0.261
Left side	100	QPSK 135_69	100%	633334/3500	0.266	0.112	16.74	18.00	1.337	0.356
Right side	100	QPSK 135_69	100%	633334/3500	0.160	0.062	16.74	18.00	1.337	0.214
Bottom side	100	QPSK 135_69	100%	633334/3500	0.157	0.073	16.74	18.00	1.337	0.210

Table 19：SAR of 5G NR n77(3450~3550MHz).

Ant 0 Test Results										
Test position	**BW. (MHz)**	**Mode**	**Duty Cycle**	**Ch./Freq. (MHz)**	**SAR (W/kg) 1-g**	**SAR (W/kg) 10-g**	**Conducted Power(dBm)**	**Tune up Limit(dBm)**	**Scaling Factor**	**Reported 1g SAR (W/kg)**
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	654800/3822	0.515	0.208	17.56	18.00	1.107	0.570
Back side	100	QPSK 1_271	100%	654800/3822	0.159	0.071	17.56	18.00	1.107	0.176
Left side	100	QPSK 1_271	100%	654800/3822	0.528	0.216	17.56	18.00	1.107	0.584
Right side	100	QPSK 1_271	100%	654800/3822	0.132	0.044	17.56	18.00	1.107	0.146
Bottom side	100	QPSK 1_271	100%	654800/3822	0.040	0.020	17.56	18.00	1.107	0.044
Front side	100	QPSK 1_271	100%	650000/3750	0.564	0.225	17.46	18.00	1.132	0.639
Front side	100	QPSK 1_271	100%	652400/3786	0.533	0.225	17.52	18.00	1.117	0.595
Front side	100	QPSK 1_271	100%	657200/3858	0.494	0.212	17.48	18.00	1.127	0.557
Front side	100	QPSK 1_271	100%	659600/3894	0.482	0.211	17.52	18.00	1.117	0.538
Front side	100	QPSK 1_271	100%	662000/3930	0.577	0.233	17.39	18.00	1.151	0.664
Left side	100	QPSK 1_271	100%	650000/3750	0.461	0.197	17.46	18.00	1.132	0.522
Left side	100	QPSK 1_271	100%	652400/3786	0.475	0.198	17.52	18.00	1.117	0.531
Left side	100	QPSK 1_271	100%	657200/3858	0.577	0.236	17.48	18.00	1.127	0.650
Left side	100	QPSK 1_271	100%	659600/3894	0.547	0.223	17.52	18.00	1.117	0.611
Left side	100	QPSK 1_271	100%	662000/3930	0.593	0.224	17.39	18.00	1.151	**0.682**
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	654800/3822	0.477	0.200	17.23	18.00	1.194	0.570
Back side	100	QPSK 135_69	100%	654800/3822	0.165	0.074	17.23	18.00	1.194	0.197
Left side	100	QPSK 135_69	100%	654800/3822	0.472	0.186	17.23	18.00	1.194	0.564
Right side	100	QPSK 135_69	100%	654800/3822	0.097	0.035	17.23	18.00	1.194	0.116
Bottom side	100	QPSK 135_69	100%	654800/3822	0.030	0.014	17.23	18.00	1.194	0.035
Front side	100	QPSK 135_69	100%	650000/3750	0.565	0.227	17.18	18.00	1.208	0.682
Front side	100	QPSK 135_69	100%	652400/3786	0.512	0.211	17.17	18.00	1.211	0.620
Front side	100	QPSK 135_69	100%	657200/3858	0.464	0.195	17.16	18.00	1.213	0.563
Front side	100	QPSK 135_69	100%	659600/3894	0.459	0.196	17.19	18.00	1.205	0.553
Front side	100	QPSK 135_69	100%	662000/3930	0.470	0.203	17.20	18.00	1.202	0.565
Left side	100	QPSK 135_69	100%	650000/3750	0.426	0.180	17.18	18.00	1.208	0.515
Left side	100	QPSK 135_69	100%	652400/3786	0.418	0.175	17.17	18.00	1.211	0.506
Left side	100	QPSK 135_69	100%	657200/3858	0.497	0.193	17.16	18.00	1.213	0.603
Left side	100	QPSK 135_69	100%	659600/3894	0.509	0.197	17.19	18.00	1.205	0.613
Left side	100	QPSK 135_69	100%	662000/3930	0.558	0.227	17.20	18.00	1.202	0.671

Ant 3 Test Results										
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	654800/3822	0.387	0.156	14.21	15.00	1.199	0.464
Back side	100	QPSK 1_271	100%	654800/3822	0.225	0.087	14.21	15.00	1.199	0.270
Left side	100	QPSK 1_271	100%	654800/3822	0.062	0.023	14.21	15.00	1.199	0.074
Right side	100	QPSK 1_271	100%	654800/3822	0.576	0.190	14.21	15.00	1.199	0.691
Bottom side	100	QPSK 1_271	100%	654800/3822	0.546	0.214	14.21	15.00	1.199	0.655
Front side	100	QPSK 1_271	100%	650000/3750	0.540	0.215	14.20	15.00	1.202	0.649
Front side	100	QPSK 1_271	100%	652400/3786	0.457	0.183	14.08	15.00	1.236	0.565
Front side	100	QPSK 1_271	100%	657200/3858	0.365	0.148	14.11	15.00	1.227	0.448
Front side	100	QPSK 1_271	100%	659600/3894	0.345	0.141	14.15	15.00	1.216	0.420
Front side	100	QPSK 1_271	100%	662000/3930	0.332	0.138	14.19	15.00	1.205	0.400
Right side	100	QPSK 1_271	100%	650000/3750	0.636	0.217	14.20	15.00	1.202	**0.765**
Right side	100	QPSK 1_271	100%	652400/3786	0.546	0.181	14.08	15.00	1.236	0.675
Right side	100	QPSK 1_271	100%	657200/3858	0.574	0.187	14.11	15.00	1.227	0.705
Right side	100	QPSK 1_271	100%	659600/3894	0.574	0.186	14.15	15.00	1.216	0.698
Right side	100	QPSK 1_271	100%	662000/3930	0.583	0.186	14.19	15.00	1.205	0.703
Bottom side	100	QPSK 1_271	100%	650000/3750	0.581	0.242	14.20	15.00	1.202	0.699
Bottom side	100	QPSK 1_271	100%	652400/3786	0.551	0.224	14.08	15.00	1.236	0.681
Bottom side	100	QPSK 1_271	100%	657200/3858	0.587	0.242	14.11	15.00	1.227	0.721
Bottom side	100	QPSK 1_271	100%	659600/3894	0.521	0.199	14.15	15.00	1.216	0.634
Bottom side	100	QPSK 1_271	100%	662000/3930	0.536	0.206	14.19	15.00	1.205	0.646
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	654800/3822	0.423	0.172	13.89	15.00	1.291	0.546
Back side	100	QPSK 135_69	100%	654800/3822	0.244	0.092	13.89	15.00	1.291	0.315
Left side	100	QPSK 135_69	100%	654800/3822	0.052	0.020	13.89	15.00	1.291	0.067
Right side	100	QPSK 135_69	100%	654800/3822	0.523	0.178	13.89	15.00	1.291	0.675
Bottom side	100	QPSK 135_69	100%	654800/3822	0.527	0.216	13.89	15.00	1.291	0.680
Front side	100	QPSK 135_69	100%	650000/3750	0.539	0.205	13.84	15.00	1.306	0.704
Front side	100	QPSK 135_69	100%	652400/3786	0.506	0.203	13.66	15.00	1.361	0.689
Front side	100	QPSK 135_69	100%	657200/3858	0.394	0.159	13.68	15.00	1.355	0.534
Front side	100	QPSK 135_69	100%	659600/3894	0.372	0.153	13.81	15.00	1.315	0.489
Front side	100	QPSK 135_69	100%	662000/3930	0.389	0.157	13.87	15.00	1.297	0.505
Right side	100	QPSK 135_69	100%	650000/3750	0.510	0.179	13.84	15.00	1.306	0.666
Right side	100	QPSK 135_69	100%	652400/3786	0.502	0.170	13.66	15.00	1.361	0.683
Right side	100	QPSK 135_69	100%	657200/3858	0.503	0.166	13.68	15.00	1.355	0.682
Right side	100	QPSK 135_69	100%	659600/3894	0.532	0.173	13.81	15.00	1.315	0.700
Right side	100	QPSK 135_69	100%	662000/3930	0.542	0.176	13.87	15.00	1.297	0.703
Bottom side	100	QPSK 135_69	100%	650000/3750	0.521	0.217	13.84	15.00	1.306	0.681
Bottom side	100	QPSK 135_69	100%	652400/3786	0.487	0.201	13.66	15.00	1.361	0.663
Bottom side	100	QPSK 135_69	100%	657200/3858	0.483	0.194	13.68	15.00	1.355	0.655
Bottom side	100	QPSK 135_69	100%	659600/3894	0.450	0.176	13.81	15.00	1.315	0.592
Bottom side	100	QPSK 135_69	100%	662000/3930	0.521	0.204	13.87	15.00	1.297	0.676

MIMO Test Results										
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)
Body 5mm(1RB)										
Front side	100	QPSK 1_271	100%	654800/3822	0.750	0.296	17.16	18.00	1.213	0.910
Back side	100	QPSK 1_271	100%	654800/3822	0.554	0.210	17.16	18.00	1.213	0.672
Left side	100	QPSK 1_271	100%	654800/3822	0.215	0.077	17.16	18.00	1.213	0.261
Right side	100	QPSK 1_271	100%	654800/3822	0.838	0.275	17.16	18.00	1.213	1.017
Bottom side	100	QPSK 1_271	100%	654800/3822	0.820	0.330	17.16	18.00	1.213	0.995
Front side	100	QPSK 1_271	100%	650000/3750	0.714	0.282	16.74	18.00	1.337	0.954
Front side	100	QPSK 1_271	100%	652400/3786	0.712	0.280	16.71	18.00	1.346	0.958
Front side	100	QPSK 1_271	100%	657200/3858	0.710	0.277	16.74	18.00	1.337	0.949
Front side	100	QPSK 1_271	100%	659600/3894	0.707	0.270	17.08	18.00	1.236	0.874
Front side	100	QPSK 1_271	100%	662000/3930	0.700	0.266	17.10	18.00	1.230	0.861
Back side	100	QPSK 1_271	100%	650000/3750	0.546	0.211	16.74	18.00	1.337	0.730
Back side	100	QPSK 1_271	100%	652400/3786	0.542	0.210	16.71	18.00	1.346	0.729
Back side	100	QPSK 1_271	100%	657200/3858	0.538	0.205	16.74	18.00	1.337	0.719
Back side	100	QPSK 1_271	100%	659600/3894	0.535	0.200	17.08	18.00	1.236	0.661
Back side	100	QPSK 1_271	100%	662000/3930	0.528	0.188	17.10	18.00	1.230	0.650
Right side	100	QPSK 1_271	100%	650000/3750	0.844	0.277	16.74	18.00	1.337	**1.128**
Right side Repeated	100	QPSK 1_271	100%	650000/3750	0.798	0.278	16.74	18.00	1.337	1.067
Right side	100	QPSK 1_271	100%	652400/3786	0.820	0.277	16.71	18.00	1.346	1.104
Right side	100	QPSK 1_271	100%	657200/3858	0.810	0.269	16.74	18.00	1.337	1.083
Right side	100	QPSK 1_271	100%	659600/3894	0.805	0.266	17.08	18.00	1.236	0.995
Right side	100	QPSK 1_271	100%	662000/3930	0.800	0.262	17.10	18.00	1.230	0.984
Bottom side	100	QPSK 1_271	100%	650000/3750	0.818	0.287	16.74	18.00	1.337	1.093
Bottom side	100	QPSK 1_271	100%	652400/3786	0.811	0.285	16.71	18.00	1.346	1.091
Bottom side	100	QPSK 1_271	100%	657200/3858	0.800	0.277	16.74	18.00	1.337	1.069
Bottom side	100	QPSK 1_271	100%	659600/3894	0.801	0.070	17.08	18.00	1.236	0.990
Bottom side	100	QPSK 1_271	100%	662000/3930	0.788	0.275	17.10	18.00	1.230	0.969
Body 5mm(50%RB)										
Front side	100	QPSK 135_69	100%	654800/3822	0.740	0.288	17.19	18.00	1.205	0.892
Back side	100	QPSK 135_69	100%	654800/3822	0.530	0.200	17.19	18.00	1.205	0.639
Left side	100	QPSK 135_69	100%	654800/3822	0.211	0.070	17.19	18.00	1.205	0.254
Right side	100	QPSK 135_69	100%	654800/3822	0.820	0.272	17.19	18.00	1.205	0.988
Bottom side	100	QPSK 135_69	100%	654800/3822	0.800	0.320	17.19	18.00	1.205	0.964
Front side	100	QPSK 135_69	100%	650000/3750	0.700	0.280	16.85	18.00	1.303	0.912
Front side	100	QPSK 135_69	100%	652400/3786	0.688	0.274	17.01	18.00	1.256	0.864
Front side	100	QPSK 135_69	100%	657200/3858	0.683	0.271	16.65	18.00	1.365	0.932
Front side	100	QPSK 135_69	100%	659600/3894	0.680	0.269	17.03	18.00	1.250	0.850
Front side	100	QPSK 135_69	100%	662000/3930	0.677	0.258	16.64	18.00	1.368	0.926
Back side	100	QPSK 135_69	100%	650000/3750	0.521	0.188	16.85	18.00	1.303	0.679
Back side	100	QPSK 135_69	100%	652400/3786	0.520	0.186	17.01	18.00	1.256	0.653
Back side	100	QPSK 135_69	100%	657200/3858	0.511	0.180	16.65	18.00	1.365	0.697
Back side	100	QPSK 135_69	100%	659600/3894	0.502	0.190	17.03	18.00	1.250	0.628
Back side	100	QPSK 135_69	100%	662000/3930	0.500	0.184	16.64	18.00	1.368	0.684
Right side	100	QPSK 135_69	100%	650000/3750	0.818	0.276	16.85	18.00	1.303	1.066
Right side	100	QPSK 135_69	100%	652400/3786	0.815	0.271	17.01	18.00	1.256	1.024
Right side	100	QPSK 135_69	100%	657200/3858	0.811	0.266	16.65	18.00	1.365	1.107
Right side	100	QPSK 135_69	100%	659600/3894	0.810	0.263	17.03	18.00	1.250	1.013
Right side	100	QPSK 135_69	100%	662000/3930	0.802	0.267	16.64	18.00	1.368	1.097
Bottom side	100	QPSK 135_69	100%	650000/3750	0.791	0.275	16.85	18.00	1.303	1.031
Bottom side	100	QPSK 135_69	100%	652400/3786	0.780	0.268	17.01	18.00	1.256	0.980
Bottom side	100	QPSK 135_69	100%	657200/3858	0.770	0.265	16.65	18.00	1.365	1.051
Bottom side	100	QPSK 135_69	100%	659600/3894	0.766	0.271	17.03	18.00	1.250	0.958
Bottom side	100	QPSK 135_69	100%	662000/3930	0.759	0.268	16.64	18.00	1.368	1.038
Body 5mm(100%RB)										
Front side	100	QPSK 270_0	100%	654800/3822	0.745	0.284	17.16	18.00	1.213	0.904
Right side	100	QPSK 270_0	100%	654800/3822	0.800	0.309	17.16	18.00	1.213	0.971
Bottom side	100	QPSK 270_0	100%	654800/3822	0.797	0.283	17.16	18.00	1.213	0.967

Table 20：SAR of 5G NR n77(3700~3980MHz).

Test Position	Channel/ Frequency	Measured SAR (1g)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
	(MHz)		SAR (1g)		SAR (1g)	SAR (1g)
Right side	650000/3750	0.844	0.798	1.06	N/A	N/A

15.18 EN_DC and Inter-band UL CA SAR Summary

EN_DC SAR:

LTE Band	Exposure position	Ant0	Ant3	n2		EN-DC SAR
				Ant0	Ant3	
Band 5	Front	/	0.715	0.616	/	1.331
	Back	/	0.586	0.692	/	1.278
	Left	/	0.380	0.711	/	1.091
	Right	/	0.422	0.087	/	0.509
	Top	/	/	/	/	/
	Bottom	/	0.282	0.113	/	0.395
Band 12	Front	/	0.715	0.616	/	1.331
	Back	/	0.583	0.692	/	1.275
	Left	/	0.399	0.711	/	1.110
	Right	/	0.594	0.087	/	0.681
	Top	/	/	/	/	/
	Bottom	/	0.189	0.113	/	0.302
Band 13	Front	/	0.706	0.616	/	1.322
	Back	/	0.533	0.692	/	1.225
	Left	/	0.380	0.711	/	1.091
	Right	/	0.423	0.087	/	0.510
	Top	/	/	/	/	/
	Bottom	/	0.162	0.113	/	0.275
Band 14	Front	/	0.694	0.616	/	1.310
	Back	/	0.550	0.692	/	1.242
	Left	/	0.359	0.711	/	1.070
	Right	/	0.451	0.087	/	0.538
	Top	/	/	/	/	/
	Bottom	/	0.198	0.113	/	0.311
Band 30	Front	0.211	/	0.616	/	0.827
	Back	0.159	/	0.692	/	0.851
	Left	0.717	/	0.711	/	1.428
	Right	0.000	/	0.087	/	0.087
	Top	/	/	/	/	/
	Bottom	0.034	/	0.113	/	0.147
Band 66	Front	0.610	/	0.616	/	1.226
	Back	0.619	/	0.692	/	1.311
	Left	0.718	/	0.711	/	1.429
	Right	0.061	/	0.087	/	0.148
	Top	/	/	/	/	/
	Bottom	0.074	/	0.113	/	0.187

LTE Band	Exposure position	Ant0	Ant3	n5		EN-DC SAR
				Ant0	Ant3	
Band 2	Front	0.652	/	0.346	0.720	1.372
	Back	0.632	/	0.373	0.595	1.227
	Left	0.722	/	0.362	0.387	1.109
	Right	0.086	/	0.188	0.397	0.483
	Top	/	/	/	/	/
	Bottom	0.096	/	0.008	0.195	0.291
Band 12	Front	/	0.715	0.346	0.720	1.435
	Back	/	0.583	0.373	0.595	1.178
	Left	/	0.399	0.362	0.387	0.786
	Right	/	0.594	0.188	0.397	0.991
	Top	/	/	/	/	0.000
	Bottom	/	0.189	0.008	0.195	0.384
Band 13	Front	/	0.706	0.346	0.720	1.426
	Back	/	0.533	0.373	0.595	1.128
	Left	/	0.380	0.362	0.387	0.767
	Right	/	0.423	0.188	0.397	0.820
	Top	/	/	/	/	/
	Bottom	/	0.162	0.008	0.195	0.357
Band 30	Front	0.211	/	0.346	0.720	0.931
	Back	0.159	/	0.373	0.595	0.754
	Left	0.717	/	0.362	0.387	1.104
	Right	0.000	/	0.188	0.397	0.397
	Top	/	/	/	/	/
	Bottom	0.034	/	0.008	0.195	0.229
Band 48	Front	0.283	/	0.346	0.720	1.003
	Back	0.108	/	0.373	0.595	0.703
	Left	0.205	/	0.362	0.387	0.592
	Right	0.044	/	0.188	0.397	0.441
	Top	/	/	/	/	/
	Bottom	0.021	/	0.008	0.195	0.216
Band 66	Front	0.610	/	0.346	0.720	1.330
	Back	0.619	/	0.373	0.595	1.214
	Left	0.718	/	0.362	0.387	1.105
	Right	0.061	/	0.188	0.397	0.458
	Top	/	/	/	/	/
	Bottom	0.074	/	0.008	0.195	0.269

LTE Band	Exposure position	Ant0	Ant3	n41		EN-DC SAR
				Ant0	Ant3	
Band 2	Front	0.652	/	0.287	/	0.939
	Back	0.632	/	0.260	/	0.892
	Left	0.722	/	0.715	/	1.437
	Right	0.086	/	0.042	/	0.128
	Top	/	/	/	/	/
	Bottom	0.096	/	0.021	/	0.117
Band 66	Front	0.610	/	0.287	/	0.897
	Back	0.619	/	0.260	/	0.879

LTE Band	Exposure position	Ant0	Ant3	n71		EN-DC SAR
				Ant0	Ant3	
Band 2	Front	0.652	/	/	0.721	1.373
	Back	0.632	/	/	0.586	1.218
	Left	0.722	/	/	0.435	1.157
	Right	0.086	/	/	0.513	0.599
	Top	/	/	/	/	/
	Bottom	0.096	/	/	0.231	0.327
Band 66	Front	0.610	/	/	0.721	1.331
	Back	0.619	/	/	0.586	1.205

	Left	0.718	/	0.715	/	1.433
	Right	0.061	/	0.042	/	0.103
	Top	/	/	/	/	/
	Bottom	0.074	/	0.021	/	0.095

	Left	0.718	/	/	0.435	1.153
	Right	0.061	/	/	0.513	0.574
	Top	/	/	/	/	/
	Bottom	0.074	/	/	0.231	0.305

LTE Band	Exposure position	Ant0	Ant3	n66		EN-DC SAR
				Ant0	Ant3	
Band 2	Front	0.652	/	0.411	/	1.063
	Back	0.632	/	0.426	/	1.058
	Left	0.722	/	0.720	/	1.442
	Right	0.086	/	0.060	/	0.146
	Top	/	/	/	/	/
	Bottom	0.096	/	0.080	/	0.176
Band 5	Front	/	0.715	0.411	/	1.126
	Back	/	0.586	0.426	/	1.012
	Left	/	0.380	0.720	/	1.100
	Right	/	0.422	0.060	/	0.482
	Top	/	/	/	/	/
	Bottom	/	0.282	0.080	/	0.362
Band 12	Front	/	0.715	0.411	/	1.126
	Back	/	0.583	0.426	/	1.009
	Left	/	0.399	0.720	/	1.119
	Right	/	0.594	0.060	/	0.654
	Top	/	/	/	/	/
	Bottom	/	0.189	0.080	/	0.269
Band 13	Front	/	0.706	0.411	/	1.117
	Back	/	0.533	0.426	/	0.959
	Left	/	0.380	0.720	/	1.100
	Right	/	0.423	0.060	/	0.483
	Top	/	/	/	/	/
	Bottom	/	0.162	0.080	/	0.242
Band 14	Front	/	0.694	0.411	/	1.105
	Back	/	0.550	0.426	/	0.976
	Left	/	0.359	0.720	/	1.079
	Right	/	0.451	0.060	/	0.511
	Top	/	/	/	/	/
	Bottom	/	0.198	0.080	/	0.278
Band 30	Front	0.211	/	0.411	/	0.622
	Back	0.159	/	0.426	/	0.585
	Left	0.717	/	0.720	/	1.437
	Right	0.000	/	0.060	/	0.060
	Top	/	/	/	/	/
	Bottom	0.034	/	0.080	/	0.114
Band 48	Front	0.283	/	0.411	/	0.694
	Back	0.108	/	0.426	/	0.534
	Left	0.205	/	0.720	/	0.925
	Right	0.044	/	0.060	/	0.104
	Top	/	/	/	/	/
	Bottom	0.021	/	0.080	/	0.101

LTE Band	Exposure position	Ant0	Ant3	n77		EN-DC SAR
				Ant0	Ant3	
Band 2	Front	0.652	/	0.682	0.727	1.379
	Back	0.632	/	0.252	0.315	0.947
	Left	0.722	/	0.682	0.077	1.404
	Right	0.086	/	0.146	0.765	0.851
	Top	/	/	/	/	/
	Bottom	0.096	/	0.044	0.721	0.817
Band 5	Front	/	0.715	0.682	0.727	1.442
	Back	/	0.586	0.252	0.315	0.901
	Left	/	0.380	0.682	0.077	1.062
	Right	/	0.422	0.146	0.765	1.187
	Top	/	/	/	/	/
	Bottom	/	0.282	0.044	0.721	1.003
Band 12	Front	/	0.715	0.682	0.727	1.442
	Back	/	0.583	0.252	0.315	0.898
	Left	/	0.399	0.682	0.077	1.081
	Right	/	0.594	0.146	0.765	1.359
	Top	/	/	/	/	/
	Bottom	/	0.189	0.044	0.721	0.910
Band 13	Front	/	0.706	0.682	0.727	1.433
	Back	/	0.533	0.252	0.315	0.848
	Left	/	0.380	0.682	0.077	1.062
	Right	/	0.423	0.146	0.765	1.188
	Top	/	/	/	/	/
	Bottom	/	0.162	0.044	0.721	0.883
Band 14	Front	/	0.694	0.682	0.727	1.421
	Back	/	0.550	0.252	0.315	0.865
	Left	/	0.359	0.682	0.077	1.041
	Right	/	0.451	0.146	0.765	1.216
	Top	/	/	/	/	/
	Bottom	/	0.198	0.044	0.721	0.919
Band 66	Front	0.610	/	0.682	0.727	1.337
	Back	0.619	/	0.252	0.315	0.934
	Left	0.718	/	0.682	0.077	1.400
	Right	0.061	/	0.146	0.765	0.826
	Top	/	/	/	/	/
	Bottom	0.074	/	0.044	0.721	0.795

Inter-band UL CA SAR:

Exposure position	LTE B12	LTE B66	Inter-band SAR
Front	0.715	0.610	1.325
Back	0.583	0.619	1.202
Left	0.399	0.718	1.117
Right	0.594	0.061	0.655
Top	/	/	/
Bottom	0.189	0.074	0.263

Exposure position	LTE B13	LTE B66	Inter-band SAR
Front	0.706	0.610	1.316
Back	0.533	0.619	1.152
Left	0.380	0.718	1.098
Right	0.423	0.061	0.484
Top	/	/	/
Bottom	0.162	0.074	0.236

Exposure position	LTE B2	LTE B12	Inter-band SAR
Front	0.652	0.715	1.367
Back	0.632	0.583	1.215
Left	0.722	0.399	1.121
Right	0.086	0.594	0.680
Top	/	/	/
Bottom	0.096	0.189	0.285

Exposure position	LTE B2	LTE B13	Inter-band SAR
Front	0.652	0.706	1.358
Back	0.632	0.533	1.165
Left	0.722	0.380	1.102
Right	0.086	0.423	0.509
Top	/	/	/
Bottom	0.096	0.162	0.258

Exposure position	LTE B4	LTE B13	Inter-band SAR
Front	0.610	0.706	1.316
Back	0.619	0.533	1.152
Left	0.718	0.380	1.098
Right	0.061	0.423	0.484
Top	/	/	/
Bottom	0.074	0.162	0.236

Exposure position	LTE B14	LTE B30	Inter-band SAR
Front	0.694	0.211	0.905
Back	0.550	0.159	0.709
Left	0.359	0.717	1.076
Right	0.451	0.000	0.451
Top	/	/	/
Bottom	0.198	0.034	0.232

16 Measurement Uncertainty

Per KDB 865664 D01 SAR measurement 100MHz to 6GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k = 2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval.

17 Calibration Certificate

Please see the Appendix C

18 Test Setup Photos

Please see the Appendix D

Appendix A: System Check Plots

Appendix B: SAR Test Plots

Appendix C: Calibration certificate

Appendix D: Test Setup Photos

Appendix E: Output Power Measurement

--- The End ---