

FCC SAR Test Report

Applicant: Sony Corporation
EUT Description: GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT
Brand: Sony
FCC ID: PY7-50337X
Standards: FCC 47CFR §2.1093
Date of Receipt: 2024/12/01
Date of Test: 2025/01/02 to 2025/04/15
Date of Issue: 2025/04/28

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 to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to 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.



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Reviewed By:

Revision History

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1 Summary of Test Results

Band	Highest SAR(W/kg)			
	Head (1g)	Body-worn (1g)	Hotspot (1g)	Product specific (10g)
GSM850	0.26	0.51	0.51	/
GSM1900	0.17	0.49	0.52	/
WCDMA Band II	0.06	0.23	0.26	/
WCDMA Band IV	0.08	0.31	0.34	/
WCDMA Band V	0.05	0.15	0.15	/
LTE Band 25/2	0.49	0.47	0.51	/
LTE Band 66/4	0.24	0.14	0.17	/
LTE Band 26/5	0.20	0.50	0.50	/
LTE Band 12/17	0.20	0.45	0.45	/
LTE Band 13	0.24	0.47	0.47	/
LTE Band 41	0.01	0.16	0.23	/
NR Band 5	0.04	0.10	0.10	/
NR Band 41	0.72	0.21	0.27	/
NR Band 66	0.03	0.12	0.15	/
NR Band 77	0.48	0.40	0.40	/
WI-FI (2.4GHz)	0.56	0.22	0.30	/
WI-FI (5GHz)	0.50	0.40	0.40	1.47
BT	0.40	0.15	0.19	/
NFC	/	/	/	0.04
Highest Simultaneous Transmission SAR (W/kg)				
Scenario	Head (1g)	Body-worn (1g)	Hotspot (1g)	Product specific (10g)
Summed SAR	0.97	1.06	1.06	2.09

Remark:

This device supports LTE B2/B4/B5/B12/B13/B17/B25/B26/B41/B66. Since the supported frequency span for LTE B2/B4/B5/B17 falls completely within the supports frequency span for LTE B25/B66/B26/B12, both LTE bands have the same target power, and both LTE bands share the same transmission path, therefore SAR was only assessed for LTE B25/B66/B26/B12.

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 941225 D06 Hotspot Mode SAR v02r01
FCC KDB 248227 D01 SAR Guidance for IEEE 802.11 Wi-Fi SAR v02r02
FCC KDB 648474 D04 Handset SAR v01r03
FCC KDB 447498 D01 General RF Exposure Guidance v06
FCC KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04
FCC KDB 865664 D02 RF Exposure Reporting v01r02
FCC KDB 616217 D04 SAR for laptop and tablets 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:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

4.2 Manufacturer

Manufacturer:	Sony Corporation
Address:	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

5 Product Information

EUT Description	GSM/WCDMA/LTE/NR Phone with BT, DTS/UNII a/b/g/n/ac/ax/be, NFC, GNSS and WPT	
Brand	Sony	
Hardware Version	A	
Software Version	0.582	
SN.:	HQ64CD02FD, HQ64CD02D7, DODBBDAE9RP00072, DODBBDAE9RP0017D HQ64CD06E3, HQ64CD06DC	
Device Capabilities:		
Band	Frequency Range (MHz)	Modulation Type
GSM850	824~849	GSM, GPRS, EGPRS
GSM1900	1850~1910	
WCDMA Band II	1850~1910	RMC/AMR, HSDPA, HSUPA, DC-HSDPA
WCDMA Band IV	1710~1755	
WCDMA Band V	824~849	
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 17	704~716	
LTE Band 25	1850 ~ 1915	
LTE Band 26	814~849	
LTE Band 41	2496~2690	
LTE Band 66	1710 ~ 1780	
NR Band n5	824~849	DFT-s-OFDM: (PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM). CP-OFDM: (QPSK, 16QAM, 64QAM, 256QAM)
NR Band n41	2496~2690	
NR Band n66	1710~1780	
NR Band n77	3450~3550 3700~3980	
NFC	13.56	ASK
Bluetooth	2400~2483.5	GFSK, $\pi/4$ DQPSK, 8DPSK
Wi-Fi 2.4G	2412~2462	802.11b/g/n/11ax/be
Wi-Fi 5G	5150~5250	802.11a/n/ac/ax/be
	5250~5350	
	5470~5725	
	5725~5850	
Antenna Type	<input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated	
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user's manual for more detailed description.		

5.1 Antenna Locations

The detailed antenna location information can refer to Appendix D.

Note:

- 1) The test device is a smart phone. The overall diagonal dimension of this device is 173.75 mm. Per KDB 648474 D04, because the diagonal distance of this device is ≥ 160 mm, so it is a phablet.
- 2) SAR is not required because the distance from the antenna to the edge is > 25 mm as per KDB 941225 D06 Hotspot Mode.

According to the distance between antennas and the sides of the EUT we can draw the conclusion that:

EUT Sides for SAR Testing							
Antenna	Exposure Conditions	Front	Back	Left	Right	Top	Bottom
Ant0	Hotspot Product specific	Yes	Yes	Yes	No	No	Yes
Ant1	Hotspot Product specific	Yes	Yes	No	Yes	No	Yes
Ant2	Hotspot Product specific	Yes	Yes	No	Yes	Yes	No
Ant3	Hotspot Product specific	Yes	Yes	No	Yes	Yes	No
Ant4	Hotspot Product specific	Yes	Yes	Yes	No	Yes	No
Ant6	Hotspot Product specific	Yes	Yes	No	Yes	No	Yes
Ant7	Hotspot Product specific	Yes	Yes	Yes	No	Yes	No
Ant5	Hotspot Product specific	Yes	Yes	Yes	No	Yes	No
Ant8	Hotspot Product specific	Yes	Yes	Yes	No	No	Yes

Table 1: EUT Sides for SAR Test

5.2 Smart Transmit feature for RF Exposure compliance

The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmit power for WWAN and WLAN/BT transmitter to ensure the product in compliance with RF exposure limit over a defined time window, for SAR (transmit frequency ≤ 6 GHz). For WWAN and WLAN are enabled with Qualcomm Smart Transmit Force Peak mode and BT is enabled with Qualcomm Smart Transmit Time-Averaged Exposure mode. To control and manage transmitting power in real time and to ensure at all times the Force Peak RF exposure and Time-Averaged exposure are compliant to the regulation requirement.

Please refer to part 2 report for more details.

Measurement Condition: All conducted power and SAR measurements in this report (Part 1 test) were performed by setting Reserve_power_margin (Smart Transmit EFS entry) to 0dB.

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 SAR¹ (Brain/Trunk)	1.6	8.0
Spatial Average SAR² (Whole Body)	0.08	0.4
Spatial Peak SAR³ (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:

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

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

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

Where:

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

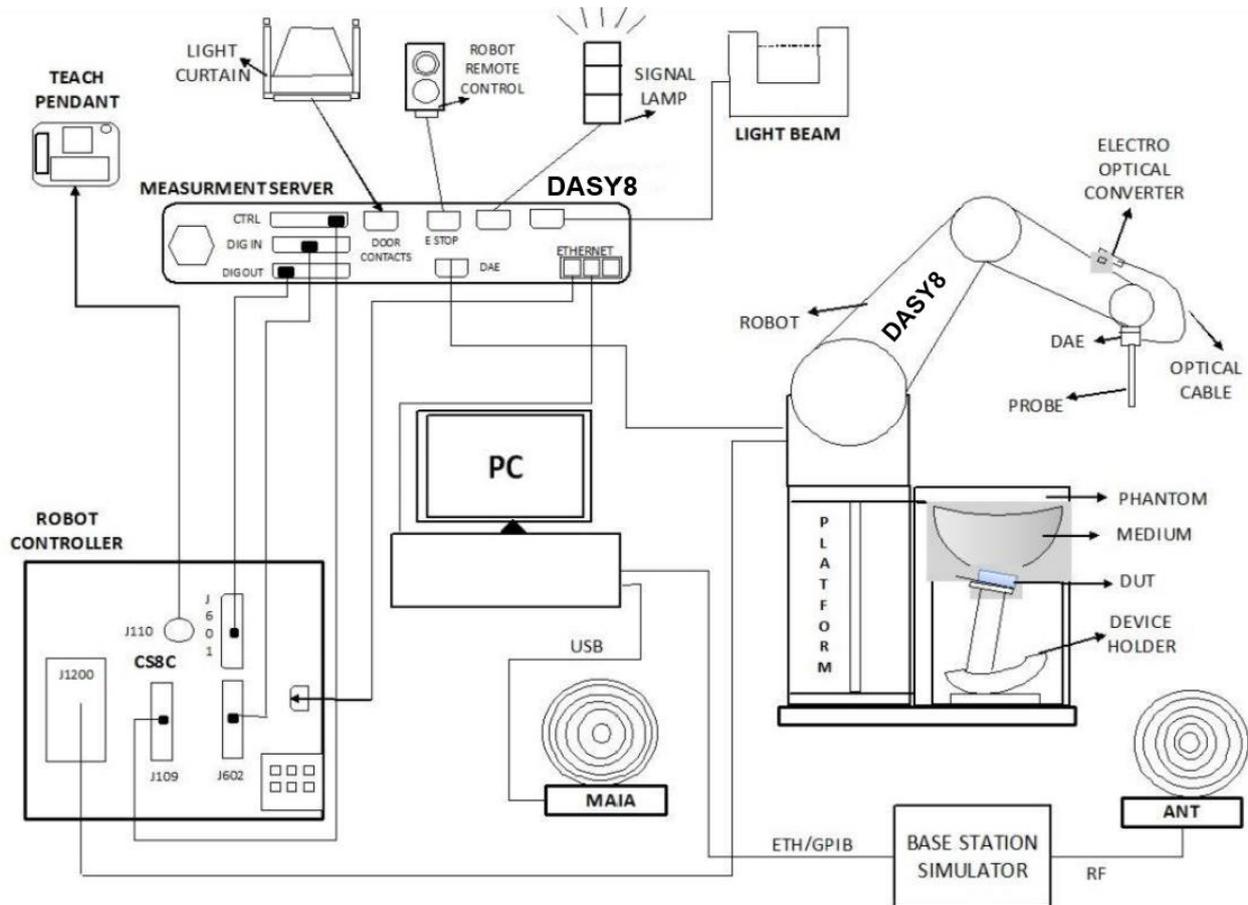
ρ is the mass density of the tissue material (kg/m³)

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

8 SAR Measurements System

8.1 The SAR Measurement Set-up

The DASY 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 Windows 11 and the DASY8 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 E-Field Probe

	<p>Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)</p>
<p>Calibration</p>	<p>ISO/IEC 17025 calibration service available.</p>
<p>Frequency</p>	<p>10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)</p>
<p>Directivity</p>	<p>± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)</p>
<p>Dynamic Range</p>	<p>10 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)</p>
<p>Dimensions</p>	<p>Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm</p>

8.3 Data Acquisition Electronics (DAE)

	<p>The data acquisition electronics (DAE) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.</p> <p>The input impedance of the DAE is 200 MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.</p>
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8.4 Phantom

SAM Twin Phantom:

Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	Approx. 25 liters	
Wooden Support	SPEAG standard phantom table	

The bottom plate contains three pair of bolts for locking the device holder. The device holder positions are adjusted to the standard measurement positions in the three sections. A white cover is provided to tap the phantom during off-periods to prevent water evaporation and changes in the liquid parameters. On the phantom top, three reference markers are provided to identify the phantom position with respect to the robot.

ELI Phantom:

Material	Vinylester, glass fiber reinforced (VE-GF)	
Shell Thickness	2.0 ± 0.2 mm (bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	
Wooden Support	SPEAG standard phantom table	

The ELI phantom is intended for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with standard and all known tissue simulating liquids.

8.5 Device Holder

The SAR measured in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5mm distance, a positioning uncertainty of $\pm 0.5\text{mm}$ would produce uncertainty in the SAR of $\pm 20\%$. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions at which the devices must be measured are defined by the standards. The DASY8 device holder along with the associated adaptors / options is designed to accommodate different types & sizes (laptops, tablets, phones) of test devices and yet provide accurate and repeatable positioning as described in the test standards.

The device holder is available in two configurations (see Figure 3.13.1): for hand held transmitters (mobile phones) - MD4HHTV5 - Mounting Device for Hand-Held Transmitters and for Body-Worn transmitters - MD4LAP5 - Mounting Device for laptops and other body worn transmitters.

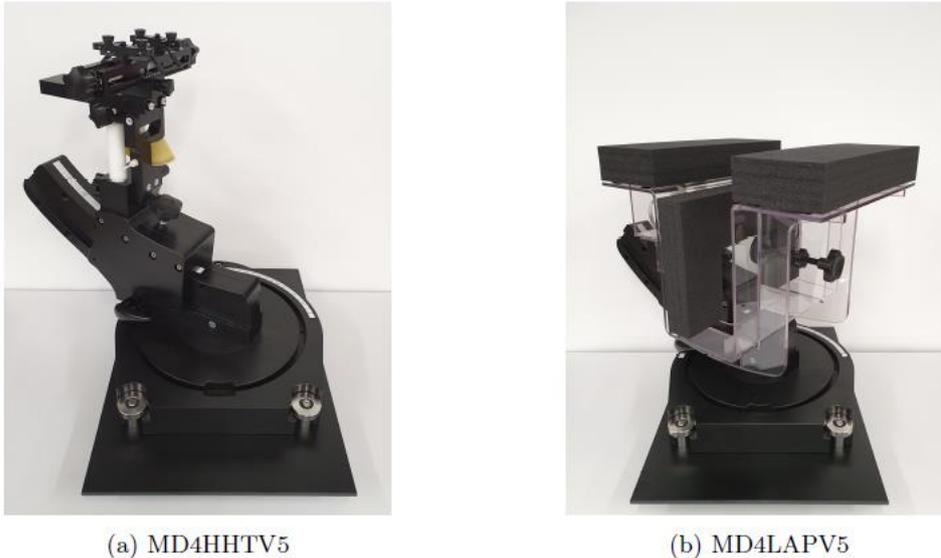


Figure 3.13.1: Mounting Device for Hand-Held Devices and Laptop / Body-Worn Devices

8.6 Measurement procedure

8.6.1 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.

8.6.2 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.

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: 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 \leq the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

8.6.3 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.

		≤ 3 GHz	> 3 GHz	
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$		≤ 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 1 st 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	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	

8.6.4 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 $\pm 5\%$.

9 Test Equipment list

Manufacturer	Equipment Name	Model	Serial Number	Calibration Date	Due Date of calibration
SPEAG	ELI	ELI V8.0	2227	NCR	NCR
SPEAG	Twin Phantom	SAM	2168	NCR	NCR
SPEAG	Twin Phantom	SAM	2173	NCR	NCR
SPEAG	E-Field Probe	EX3DV4	7858	2024/01/09	2025/01/08
SPEAG	E-Field Probe	EX3DV4	7812	2024/06/25	2025/06/24
SPEAG	E-Field Probe	EX3DV4	3624	2025/01/15	2026/01/14
SPEAG	E-Field Probe	EX3DV4	7758	2024/09/12	2025/09/11
SPEAG	Data Acquisition Electronics	DAE4	1846	2024/12/10	2025/12/09
SPEAG	Data Acquisition Electronics	DAE4	1847	2024/12/31	2025/12/30
SPEAG	System Validation Kits	CLA13	1043	2024/01/03	2027/01/02
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	D2450V2	1099	2023/02/02	2026/02/01
SPEAG	System Validation Kits	D2600V2	1094	2023/03/23	2026/03/22
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	System Validation Kits	D5GHzV2	1371	2023/02/03	2026/02/02
SPEAG	System Validation Kits	D6.5GHzV2	1096	2023/05/11	2026/05/10
SPEAG	Dielectric parameter probes	DAK3.5	1341	2024/07/15	2025/07/14
Anritsu	Radio Communication Analyzer	MT8821C	6262170463	2024/03/25	2025/03/24
Anritsu	Radio Communication Analyzer	MT8821C	6261991091	2024/03/25	2025/03/24
R&S	Wideband Radio Communication Tester	CMW500	171955	2024/05/31	2025/05/30
Talent Microwave	Directional Coupler	TC-05180-10S	220420003	NCR	NCR
R&S	Signal Generator	SMR20	100621	2024/03/25	2025/03/24
QiJi	Preamplifier	YX28982302	TOWE-EQ-SR-020	NCR	NCR
QiJi	Preamplifier	YX28982301	TOWE-EQ-SR-021	NCR	NCR
R&S	Power Sensor	NRP-Z21	101651	2024/03/25	2025/03/24
R&S	Power Sensor	NRP-Z21	104189	2024/03/25	2025/03/24
HiSiDiKe	Thermometer	TP300	TOWE-EQ-SR-023	2024/03/27	2025/03/26
BingYu	Temperature and Humidity Indicator	HTC-1	TOWE-EQ-SR-024	2024/03/26	2025/03/25
BingYu	Temperature and Humidity Indicator	HTC-1	TOWE-EQ-SR-025	2024/06/03	2025/06/02

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 $< -20\text{dB}$, 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); steps 2) 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 3.6 W/kg ($\sim 10\%$ 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 Ear Reference Point

Figure 11-2 shows the front, back and side views of the SAM Twin Phantom. The point “M” is the reference point for the center of the mouth, “LE” is the left ear reference point (ERP), and “RE” is the right ERP. The ERP is 15mm posterior to the entrance to the ear canal (EEC) along the B-M line (Back-Mouth), as shown in Figure 11-1. The plane passing through the two ear canals and M is defined as the Reference Plane. The line N-F (Neck-Front), also called the Reference Pivoting Line, is not perpendicular to the reference plane (see Figure 11-1). Line B-M is perpendicular to the N-F line. Both N-F and B-M lines are marked on the external phantom shell to facilitate handset positioning.

11.2 Handset Reference Point

Two imaginary lines on the handset were established: the vertical centerline and the horizontal line. The device under test was placed in a normal operating position with the acoustic output located along the “vertical centerline” on the front of the device aligned to the “ear reference point” (see Figure 11-3). The acoustic output was then located at the same level as the center of the ear reference point. The device under test was positioned so that the “vertical centerline” was bisecting the front surface of the handset at its top and bottom edges, positioning the “ear reference point” on the outer surface of the both the left and right head phantoms on the ear reference point.

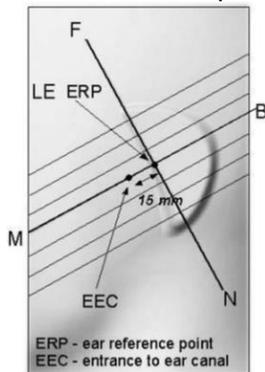


Figure 11-1: Close-up side view of phantom showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations.



Figure 11-2: Front, back and side view of SAM Twin Phantom.

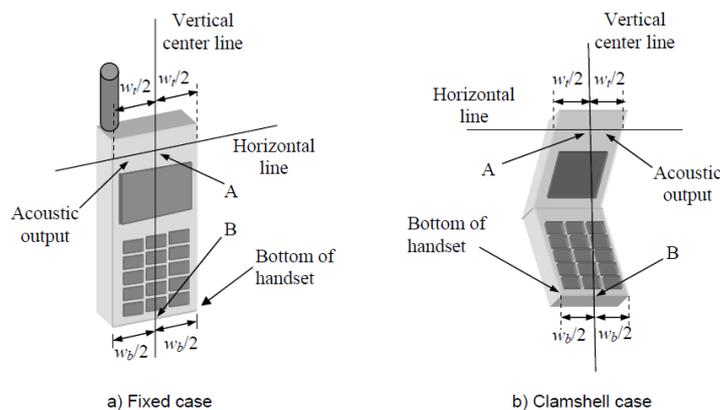


Figure 11-3: Handset vertical and horizontal reference lines

11.3 Definition of the cheek position

The test device was positioned with the device close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 11-4), such that the plane defined by the vertical center line and the horizontal line of the phone is approximately parallel to the sagittal plane of the phantom.

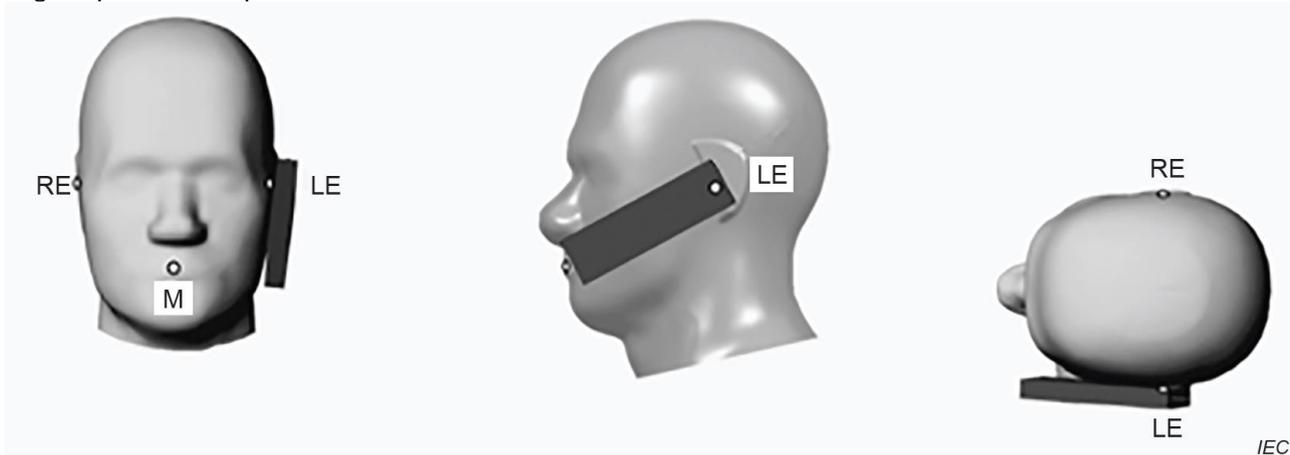


Figure 11-4: Front, Side and Top View of Cheek or Touch Position

- 1) Position the handset close to the surface of the phantom such that point A is on the (virtual) extension of the line passing through points RE and LE on the phantom (see Figure 11-4), such that the plane defined by the vertical centerline and the horizontal line of the handset is approximately parallel to the sagittal plane of the phantom.
- 2) Translate the handset towards the phantom along the line passing through RE and LE until handset point A touches the pinna at the ERP.
- 3) While maintaining the handset in this plane, rotate it around the LE-RE line until the vertical centerline is in the plane normal to the plane containing B-M and N-F lines, i.e., the Reference Plane.
- 4) Rotate the handset around the vertical centerline until the handset (horizontal line) is parallel to the N-F line.
- 5) While maintaining the vertical centerline in the Reference Plane, keeping point A on the line passing through RE and LE, and maintaining the handset contact with the pinna, rotate the handset about the N-F line until any point on the handset is in contact with a phantom point below the pinna on the cheek. See Figure 11-4. The actual rotation angles should be documented in the test report.

11.4 Definition of the tilt position

Figure 11-5. shows tilted position. Place the device in the cheek position. Then while maintaining the orientation of the device, retract the device parallel to the reference plane far enough away from the phantom to enable a rotation of the device by 15°.

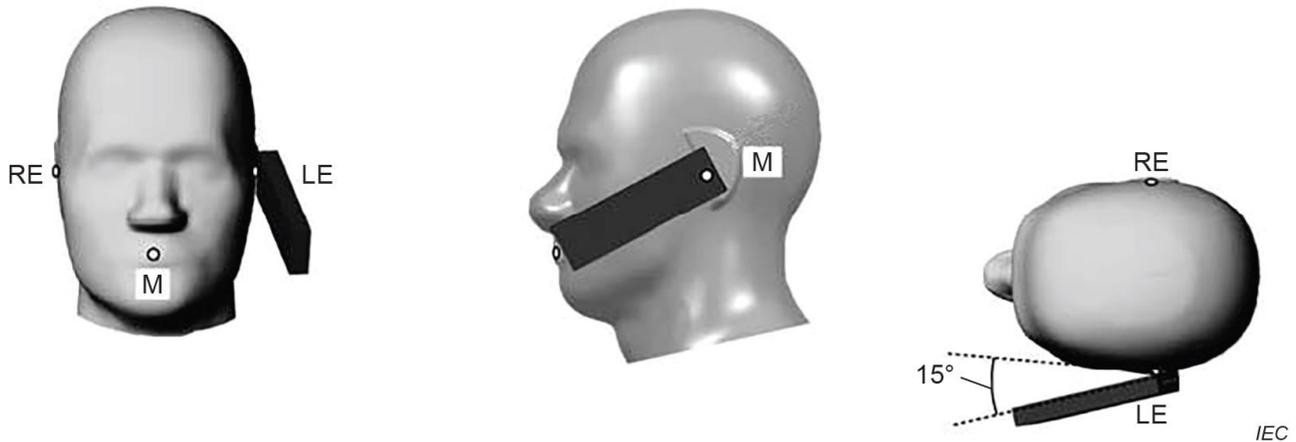


Figure 11-5: Front, Side and Top View of Tilt 15° Position

11.5 Body-worn accessory exposure conditions

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration (see Figure 11-6). Per FCC KDB Publication 648474 D04, Body-worn accessory exposure is typically related to voice mode operations when handsets are carried in body-worn accessories. The body-worn accessory procedures in FCC KDB Publication 447498 D01 should be used to test for body-worn accessory SAR compliance, without a headset connected to it. This enables the test results for such configuration to be compatible with that required for hotspot mode when the body-worn accessory test separation distance is greater than or equal to that required for hotspot mode, when applicable. When the reported SAR for a body-worn accessory, measured without a headset connected to the handset, is > 1.2 W/kg, the highest reported SAR configuration for that wireless mode and frequency band should be repeated for that body-worn accessory with a headset attached to the handset.

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

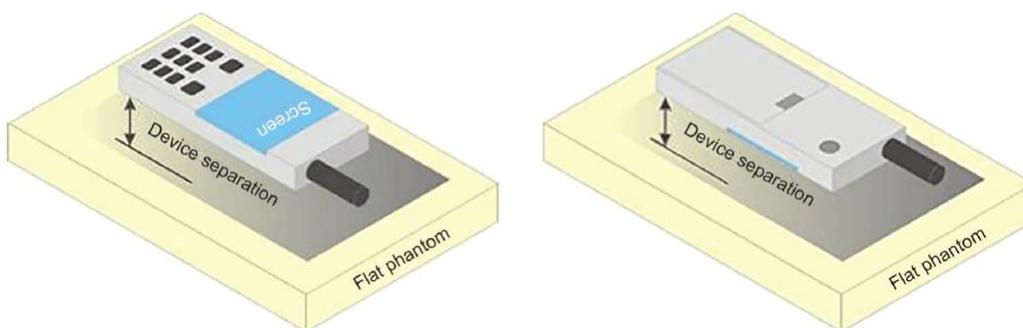


Figure 11-6: Test positions for body-worn devices

11.6 Wireless Router exposure conditions

Some battery-operated handsets have the capability to transmit and receive user data through simultaneous transmission of WIFI simultaneously with a separate licensed transmitter. The FCC has provided guidance in FCC KDB Publication 941225 D06 where SAR test considerations for handsets ($L \times W \geq 9 \text{ cm} \times 5 \text{ cm}$) are based on a composite test separation distance of 10 mm from the front, back and edges of the device containing transmitting antennas within 2.5 cm of their edges, determined from general mixed use conditions for this type of

devices. Since the hotspot SAR results may overlap with the body-worn accessory SAR requirements, the more conservative configurations can be considered, thus excluding some body-worn accessory SAR tests.

When the user enables the personal wireless router functions for the handset, actual operations include simultaneous transmission of both the WIFI transmitter and another licensed transmitter. Both transmitters often

do not transmit at the same transmitting frequency and thus cannot be evaluated for SAR under actual use conditions due to the limitations of the SAR assessment probes. Therefore, SAR must be evaluated for each frequency transmission and mode separately and spatially summed with the WIFI transmitter according to FCC KDB Publication 447498 D01 procedures. The "Portable Hotspot" feature on the handset was NOT activated during SAR assessments, to ensure the SAR measurements were evaluated for a single transmission frequency RF signal at a time.

11.7 Product Specific 10g SAR exposure conditions

Devices that are designed or intended for use on extremities or mainly operated in extremity only exposure conditions, i.e., hands, wrists, feet and ankles, may require extremity SAR evaluation. When the device also operates in close proximity to the user's body, SAR compliance for the body is also required. The 1g body and 10g extremity SAR Exclusion Thresholds found in KDB Publication 447498 D01 should be applied to determine SAR test requirements.

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

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 $22\pm 2^{\circ}\text{C}$, 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

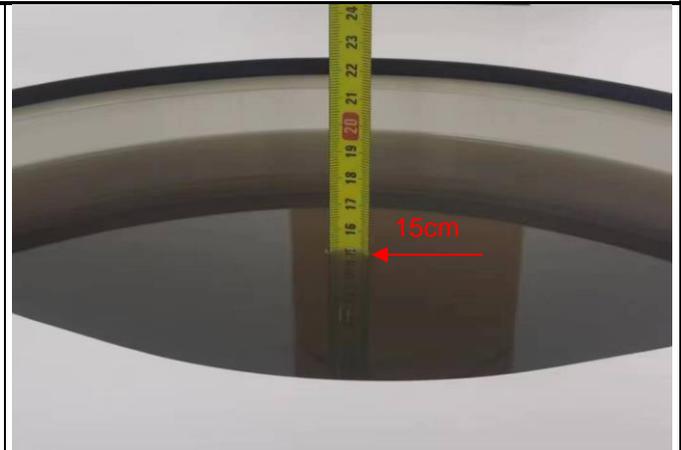


Figure 12-2 Liquid depth in the Flat Phantom

Frequency (MHz)	Tissue Type	Liquid Temp. (°C)	Target Tissue		Measured Tissue		Deviation (Limit $\pm 5\%$)		Date
			Permittivity ϵ_r	Conductivity $\sigma(\text{S/m})$	Permittivity ϵ_r	Conductivity $\sigma(\text{S/m})$	$\Delta\epsilon_r$	$\Delta\sigma$	
13	Head	22.1	55.00	0.75	55.900	0.764	1.64%	1.87%	2025/01/02
750	Head	22.0	41.90	0.89	42.000	0.898	0.24%	0.90%	2025/01/22
835	Head	22.1	41.50	0.90	41.200	0.898	-0.72%	-0.22%	2025/01/22
835	Head	22.0	41.50	0.90	42.000	0.895	1.20%	-0.56%	2025/01/25
835	Head	22.2	41.50	0.90	40.800	0.894	-1.69%	-0.67%	2025/02/05
1750	Head	22.0	40.10	1.37	39.500	1.360	-1.50%	-0.73%	2025/01/22
1750	Head	21.9	40.10	1.37	39.000	1.350	-2.74%	-1.46%	2025/02/10
1750	Head	22.0	40.10	1.37	40.900	1.360	2.00%	-0.73%	2025/02/13
1750	Head	22.1	40.10	1.37	39.700	1.360	-1.00%	-0.73%	2025/04/14
1900	Head	22.0	40.00	1.40	40.300	1.420	0.75%	1.43%	2025/01/21
1900	Head	21.8	40.00	1.40	40.200	1.410	0.50%	0.71%	2025/02/06
1900	Head	21.8	40.00	1.40	39.300	1.390	-1.75%	-0.71%	2025/02/13
2450	Head	22.1	39.20	1.80	39.500	1.760	0.77%	-2.22%	2025/01/15
2600	Head	22.2	39.00	1.96	38.900	1.940	-0.26%	-1.02%	2025/01/22
2600	Head	22.1	39.00	1.96	39.300	1.960	0.77%	0.00%	2025/02/09
2600	Head	22.1	39.00	1.96	39.800	2.020	2.05%	3.06%	2025/03/04
3500	Head	21.9	37.90	2.91	38.100	2.880	0.53%	-1.03%	2025/01/23
3500	Head	22.0	37.90	2.91	38.600	2.900	1.85%	-0.34%	2025/02/08
3500	Head	21.8	37.90	2.91	38.600	2.920	1.85%	0.34%	2025/03/04
3700	Head	22.2	37.70	3.12	37.800	3.090	0.27%	-0.96%	2025/02/08
3700	Head	21.9	37.70	3.12	38.700	3.000	2.65%	-3.85%	2025/03/04
3900	Head	22.0	37.50	3.32	37.500	3.290	0.00%	-0.90%	2025/01/24
3900	Head	21.8	37.50	3.32	36.900	3.310	-1.60%	-0.30%	2025/02/08
3900	Head	21.9	37.50	3.32	38.000	3.240	1.33%	-2.41%	2025/03/06
5200	Head	22.0	36.00	4.66	36.200	4.710	0.56%	1.07%	2025/01/18
5200	Head	22.0	36.00	4.66	37.000	4.680	2.78%	0.43%	2025/02/11
5600	Head	21.8	35.50	5.07	35.200	5.180	-0.85%	2.17%	2025/01/19
5600	Head	21.9	35.50	5.07	36.000	5.140	1.41%	1.38%	2025/02/13
5800	Head	21.8	35.30	5.27	35.100	5.450	-0.57%	3.42%	2025/01/19
5800	Head	21.8	35.30	5.27	35.900	5.410	1.70%	2.66%	2025/02/11

Table 2: 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 $\pm 10\%$ from the target SAR values. The System Performance Check Setup in Figure 12-3.

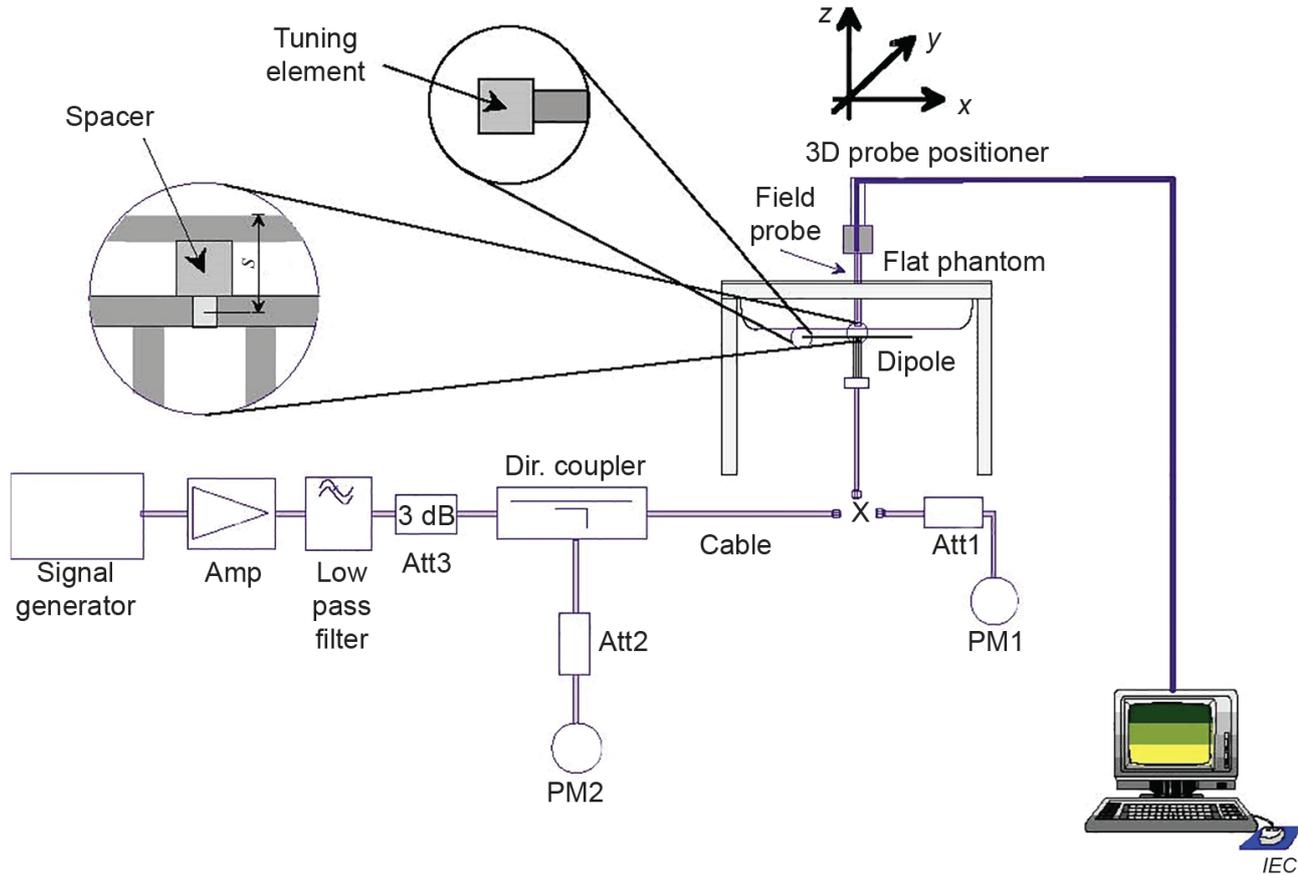


Figure 12-3 System Performance Check Setup

12.2.1 System Check Result

Frequency (MHz)	Tissue Type	Dipole	S/N	Target SAR (1W)		Measured SAR (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	
13	Head	CLA-13	1043	0.484	0.297	0.049	0.031	0.49	0.31	1.24%	4.38%	2025/01/02
750	Head	D750V3	1231	8.67	5.67	0.867	0.568	8.67	5.68	0.00%	0.18%	2025/01/22
835	Head	D835V2	4d302	9.78	6.37	1.020	0.660	10.20	6.60	4.29%	3.61%	2025/01/22
835	Head	D835V2	4d302	9.78	6.37	0.989	0.644	9.89	6.44	1.12%	1.10%	2025/01/25
835	Head	D835V2	4d302	9.78	6.37	0.961	0.629	9.61	6.29	-1.74%	-1.26%	2025/02/05
1750	Head	D1750V2	1115	36.90	19.50	3.65	1.95	36.50	19.50	-1.08%	0.00%	2025/01/22
1750	Head	D1750V2	1115	36.90	19.50	3.59	1.92	35.90	19.20	-2.71%	-1.54%	2025/02/10
1750	Head	D1750V2	1115	36.90	19.50	3.49	1.86	34.90	18.60	-5.42%	-4.62%	2025/02/13
1750	Head	D1750V2	1115	36.90	19.50	3.66	1.95	36.60	19.50	-0.81%	0.00%	2025/04/14
1900	Head	D1900V2	512	39.40	20.50	4.21	2.17	42.10	21.70	6.85%	5.85%	2025/01/21
1900	Head	D1900V2	512	39.40	20.50	3.96	2.06	39.60	20.60	0.51%	0.49%	2025/02/06
1900	Head	D1900V2	512	39.40	20.50	4.05	2.09	40.50	20.90	2.79%	1.95%	2025/02/13
2450	Head	D2450V2	1099	51.40	23.90	5.36	2.50	53.60	25.00	4.28%	4.60%	2025/01/15
2600	Head	D2600V2	1094	56.30	25.00	5.57	2.52	55.70	25.20	-1.07%	0.80%	2025/01/22
2600	Head	D2600V2	1094	56.30	25.00	5.63	2.54	56.30	25.40	0.00%	1.60%	2025/02/09
2600	Head	D2600V2	1094	56.30	25.00	5.73	2.62	57.30	26.20	1.78%	4.80%	2025/03/04
3500	Head	D3500V2	1150	66.30	25.10	6.85	2.64	68.50	26.40	3.32%	5.18%	2025/01/23
3500	Head	D3500V2	1150	66.30	25.10	6.77	2.60	67.70	26.00	2.11%	3.59%	2025/02/08
3500	Head	D3500V2	1150	66.30	25.10	6.93	2.66	69.30	26.60	4.52%	5.98%	2025/03/04
3700	Head	D3700V2	1127	66.60	24.10	6.78	2.53	67.80	25.30	1.80%	4.98%	2025/02/08
3700	Head	D3700V2	1127	66.60	24.10	6.83	2.56	68.30	25.60	2.55%	6.22%	2025/03/04
3900	Head	D3900V2	1099	68.40	23.60	7.24	2.57	72.40	25.70	5.85%	8.90%	2025/01/24
3900	Head	D3900V2	1099	68.40	23.60	6.91	2.46	69.10	24.60	1.02%	4.24%	2025/02/08
3900	Head	D3900V2	1099	68.40	23.60	7.03	2.50	70.30	25.00	2.78%	5.93%	2025/03/06
5200	Head	D5GHzV2	1371	78.90	22.40	7.65	2.26	76.50	22.60	-3.04%	0.89%	2025/01/18
5200	Head	D5GHzV2	1371	78.90	22.40	7.91	2.29	79.10	22.90	0.25%	2.23%	2025/02/11
5600	Head	D5GHzV2	1371	82.30	23.30	8.79	2.51	87.90	25.10	6.80%	7.73%	2025/01/19
5600	Head	D5GHzV2	1371	82.30	23.30	8.56	2.44	85.60	24.40	4.01%	4.72%	2025/02/13
5800	Head	D5GHzV2	1371	79.80	22.40	8.23	2.35	82.30	23.50	3.13%	4.91%	2025/01/19
5800	Head	D5GHzV2	1371	79.80	22.40	7.57	2.15	75.70	21.50	-5.14%	-4.02%	2025/02/11

Table 3: SAR System Check Result

12.2.2 Detailed System Check Result

Please see 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 GSM

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units, including tune-up tolerance. The data mode with highest specified time-averaged output power should be tested for SAR compliance in the applicable exposure conditions. For modes with the same specified maximum output power and tolerance, the higher number time-slot configuration should be tested.

The 3G SAR test reduction procedure is applied to 8-PSK EDGE with GMSK GPRS/EDGE as the primary mode.

13.3 SAR Measurement Conditions for UMTS

13.3.1 Output Power Verification

Maximum output power is verified on the high, middle and low channels according to procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or by applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCH_n and spreading codes, HSDPA, HSPA) are required in the SAR report. All configurations that are not supported by the handset or cannot be measured due to technical or equipment limitations must be clearly identified.

13.3.2 Head SAR Measurements

SAR for next to the ear head exposure is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". The 3G SAR test reduction procedure is applied to AMR configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

13.3.3 Body SAR Measurements

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

13.3.4 SAR Measurements with Rel. 5 HSDPA

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

13.3.5 SAR Measurements with Rel. 6 HSUPA

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

When VOIP applies to head exposure, the 3G SAR test reduction procedure is applied with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body SAR measurements are applied to head exposure testing.

13.3.6 SAR Measurement Conditions for DC-HSDPA

SAR is required for Rel. 8 DC-HSDPA when SAR is required for Rel. 5 HSDPA; otherwise, the 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Power is measured for DC-HSDPA according to the H-Set 12, FRC configuration in Table C.8.1.12 of 3GPP TS 34.121-1 to determine SAR test reduction. A primary and a secondary serving HS-DSCH Cell are required to perform the power measurement and for the results to be acceptable.

13.3.7 SAR Measurement Conditions for HSPA+(16QAM)

Per KDB 941225D01, SAR is required for Rel. 7 HSPA+ when SAR is required for Rel. 6 HSPA; otherwise, the 3G SAR test reduction procedure is applied to (uplink) HSPA+ with 12.2 kbps RMC as the primary mode. Power is measured for HSPA+ that supports uplink 16 QAM according to configurations in Table C.11.1.4 of 3GPP TS 34.121-1 to determine SAR test reduction.

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	$\beta_{c\downarrow}$ (Note3)	$\beta_{d\downarrow}$	$\beta_{HS\downarrow}$ (Note1)	$\beta_{ec\downarrow}$	$\beta_{ed\downarrow}$ (2xSF2) (Note 4)	$\beta_{ed\downarrow}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: CM = 3.5 and the MPR is based on the relative CM difference, $MPR = MAX(CM-1,0)$.

Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.

Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

13.4 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).

13.4.1 Spectrum Plots for RB Configurations

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

13.4.2 MPR

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

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

13.4.3 A-MPR

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

13.4.4 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.

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				
5	6592.T _s	4384.T _s	5120.T _s	20480.T _s	4384.T _s	5120.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

T_s = 1/(15000 x 2048) seconds

HPUE:

Calculated Duty Cycle for Uplink-Downlink Configuration 1:

Calculated Duty Cycle =5120*(1/(15000*2048))*2+0.004)/0.01 = 43.33 %

13.5 SAR Testing with 802.11 Transmitters

The normal network operating configurations of 802.11 transmitters are not suitable for SAR measurements. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable. See KDB Publication 248227 D01 for more details.

A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

For WiFi SAR testing, a communication link is set up with some command for WiFi mode test. During the test, at the each test frequency channel, the EUT is operated at the RF continuous emission mode. Per KDB248227 D01, a minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

13.5.1 Initial Test Position Procedure

DSSS and OFDM configurations are considered separately according to the required SAR procedures. SAR is measured in the initial test position using the 802.11 transmission mode configuration required by the DSSS procedure or initial test configuration and subsequent test configuration(s) according to the OFDM procedures. The initial test position procedure is described in the following:

1. When the reported SAR of the initial test position is ≤ 0.4 W/kg, further SAR measurement is not required for the other (remaining) test positions in that exposure configuration and 802.11 transmission mode combinations within the frequency band or aggregated band. SAR is also not required for that exposure configuration in the subsequent test configuration(s).
2. When the reported SAR of the initial test position is > 0.4 W/kg, SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest extrapolated or estimated 1-g SAR conditions determined by area scans or next closest/smallest test separation distance and maximum RF coupling test positions based on manufacturer justification, on the highest maximum output power channel, until the reported SAR is ≤ 0.8 W/kg or all required test positions (left, right, touch, tilt or subsequent surfaces and edges) are tested.
3. For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is > 0.8 W/kg, SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel(s) until the reported SAR is ≤ 1.2 W/kg or all required channels are tested. a) Additional power measurements may be required for this step, which should be limited to those necessary for identifying the subsequent highest output power channels.

13.5.2 Initial Test Configuration Procedure

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required. SAR test reduction for subsequent highest output test channels is determined according to reported SAR of the initial test configuration.

For next to the ear, hotspot mode and UMC mini-tablet exposure configurations where multiple test positions are required, the initial test position procedure is applied to minimize the number of test positions required for SAR measurement using the initial test configuration transmission mode. For fixed exposure conditions that do not have multiple SAR test positions, SAR is measured in the transmission mode determined by the initial test configuration.

When the reported SAR of the initial test configuration is > 0.8 W/kg, SAR measurement is required for subsequent next highest measured output power channel(s) in the initial test configuration until reported SAR is ≤ 1.2 W/kg or all required channels are tested.

13.5.3 Subsequent Test Configuration Procedures

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

13.5.4 2.4 GHz SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions.

A) 802.11b DSSS SAR Test Requirements

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

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

B) 2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of of KDB248227 D01). SAR is not required for the following 2.4 GHz OFDM conditions.

1. When KDB Publication 447498 SAR test exclusion applies to the OFDM configuration.
2. When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg.

C) SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 g/n OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

13.5.5 5 GHz SAR Procedures

13.5.5.1 U-NII-1 and U-NII-2A Bands

For devices that operate in only one of the U-NII-1 and U-NII-2A bands, the normally required SAR procedures for OFDM configurations are applied. For devices that operate in both U-NII bands using the same transmitter and antenna(s), SAR test reduction is determined according to the following:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. If the highest reported SAR for a test configuration is ≤ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration (802.11 mode and exposure condition); otherwise, both bands are tested independently for SAR.
- 2) When different maximum output power is specified for the bands, begin SAR measurement in the band with higher specified maximum output power. The highest reported SAR for the tested configuration is adjusted by the ratio of lower to higher specified maximum output power for the two bands. When the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for the band with lower maximum output power in that test configuration; otherwise, both bands are tested independently for SAR.
- 3) The two U-NII bands may be aggregated to support a 160 MHz channel on channel number 50. Without additional testing, the maximum output power for this is limited to the lower of the maximum output power certified for the two bands. When SAR measurement is required for at least one of the bands and the highest reported SAR adjusted by the ratio of specified maximum output power of aggregated to standalone band is > 1.2 W/kg, SAR is required for the 160 MHz channel. This procedure does not apply to an aggregated band with maximum output higher than the standalone band(s); the aggregated band must be tested independently for SAR. SAR is not required when the 160 MHz channel is operating at a reduced maximum power and also qualifies for SAR test exclusion.

13.5.5.2 U-NII-2C and U-NII-3 Bands

The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. when Terminal Doppler Weather Radar (TDWR) restriction applies, all channels that operate at 5.60 – 5.65 GHz must be included to apply the SAR test reduction and measurement procedures.

When the same transmitter and antenna(s) are used for U-NII-2C band and U-NII-3 band or 5.8 GHz band of §15.247, the bands may be aggregated to enable additional channels with 20, 40 or 80 MHz bandwidth to span across the band gap, as illustrated in Appendix B. The maximum output power for the additional band gap channels is limited to the lower of those certified for the bands. Unless band gap channels are permanently disabled, they must be considered for SAR testing. The frequency range covered by these bands is 380 MHz (5.47 – 5.85 GHz), which requires a minimum of at least two SAR probe calibration frequency points to support SAR measurements. To maintain SAR measurement accuracy and to facilitate test reduction, the channels in U-NII-2C band above 5.65 GHz may be grouped with the 5.8 GHz channels in U-NII-3 or §15.247 band to enable two SAR probe calibration frequency points to cover the bands, including the band gap channels. When band gap channels are supported and the bands are not aggregated for SAR testing, band gap channels must be considered independently in each band according to the normally required OFDM SAR measurement and probe calibration frequency points requirements.

13.5.6 OFDM Transmission Mode and SAR Test Channel Selection

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

13.5.7 MIMO SAR Considerations

Per KDB 248227 D01, the simultaneous SAR provisions in KDB 447498 D01v06 should be applied to determine simultaneous transmission SAR test exclusion for WIFI MIMO. If the sum of 1g single transmission chain SAR measurements is <1.6 W/kg, no additional SAR measurements for MIMO are required. Alternatively, SAR for MIMO can be measured with all antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

13.6 SAR Measurement Conditions for NR

Operation Bandwidth:	NR Band	SCS (kHz)	Bandwidth (MHz)												
			5	10	15	20	25	30	40	50	60	70	80	90	100
Operation Bandwidth:	n5	15	√	√	√	√	/	/	/	/	/	/	/	/	/
	n41	30	/	√	/	√	/	√	√	√	√	√	√	√	√
	n66	15	√	√	√	√	√	√	√	/	/	/	/	/	/
	n77	30	/	√	/	√	/	√	√	√	√	√	√	√	√
ENDC:	DC_66A_n5A; DC_66A_n41A; DC_2A_n66A; DC_13A_n66A; DC_41A_n77A														

13.6.1 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	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0^2
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
CP-OFDM	256 QAM	≤ 4.5		
	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, eg: EN_DC configuration: UL DC_2A_n7 (UL two bands) with DL DC_2C_n7 (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 \leq 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. Per FCC guidance, SAR tests for NR Bands and LTE Anchors Bands were performed separately due to limitations in SAR probe calibration factors.

L. For EN-DC mode, Qualcomm Smart Transmit algorithm in WWAN directly adds the time-averaged RF exposure from 4G(LTE) and time-averaged RF exposure from 5G NR. Smart Transmit algorithm controls the total RF exposure from both 4G and 5G NR to not exceed FCC limit.

14 Conducted Power

14.1 Conducted Power of GSM

Note:

The frame-averaged power is linearly reported the maximum burst averaged power over 8 time slots. The calculated method are shown as below:

The duty cycle "X" of different time slots as below:

1 TX slot is 1/8

2 TX slots is 2/8

3 TX slots is 3/8

4 TX slots is 4/8

Based on the calculation formula: Frame-averaged power = Burst averaged power + $10 \cdot \log(X)$

So Time slot average factor is as follows:

Frame-averaged power (1 TX slot) = Burst averaged power (1 TX slot) – 9.03

Frame-averaged power (2 TX slots) = Burst averaged power (2 TX slots) – 6.02

Frame-averaged power (3 TX slots) = Burst averaged power (3 TX slots) – 4.26

Frame-averaged power (4 TX slots) = Burst averaged power (4 TX slots) – 3.01

3, The detailed conducted power table can 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:
 - $\leq 0.8\text{W/kg}$ for 1g or 2.0W/kg for 10g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1g or 10g respectively, when the transmission band is between 100 MHz and 200MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1g or 10g respectively, when the transmission band is $\geq 200\text{MHz}$.

WiFi 5G Notes:

- 1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is $\leq 1.2\text{ W/kg}$, SAR is not required for U-NII-1 band for that configuration.
- 2) For Wi-Fi 5G, U-NII-2A (5250-5350 MHz) and U-NII-2C (5470-5725 MHz) bands does not support hotspot function.

When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is $\leq 1.2\text{ W/kg}$, SAR test for the other 802.11 modes are not required.

5G NR Notes:

- 1) The n41 and n77 SAR tests use frame-average power instead of burst-average power.

15.1 SAR Measurement Result of GSM850

Ant 0 Test Results													
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (Frame averaged) (dBm)	EFS Plimit (Burst) (dBm)
Head													
Left cheek	GPRS 4TS	190/836.6	0.187	0.02	27.95	29.30	1.365	0.255	0.300	0.187	28.0	24.8	28.0
Left tilted	GPRS 4TS	190/836.6	0.094	0.00	27.95	29.30	1.365	0.128	0.151	0.094	28.0	24.8	28.0
Right cheek	GPRS 4TS	190/836.6	0.153	-0.03	27.95	29.30	1.365	0.209	0.245	0.153	28.0	24.8	28.0
Right tilted	GPRS 4TS	190/836.6	0.068	0.01	27.95	29.30	1.365	0.093	0.109	0.068	28.0	24.8	28.0
Body worn 10mm													
Front side	GPRS 4TS	190/836.6	0.297	0.03	27.95	29.30	1.365	0.405	0.476	0.298	28.0	24.8	28.0
Back side	GPRS 4TS	190/836.6	0.371	-0.19	27.95	29.30	1.365	0.506	0.595	0.372	28.0	24.8	28.0
Hotspot 10mm													
Front side	GPRS 4TS	190/836.6	0.297	0.03	27.95	29.30	1.365	0.405	0.476	0.298	28.0	24.8	28.0
Back side	GPRS 4TS	190/836.6	0.371	-0.19	27.95	29.30	1.365	0.506	0.595	0.372	28.0	24.8	28.0
Left side	GPRS 4TS	190/836.6	0.180	0.00	27.95	29.30	1.365	0.246	0.289	0.180	28.0	24.8	28.0
Bottom side	GPRS 4TS	190/836.6	0.244	-0.02	27.95	29.30	1.365	0.333	0.391	0.244	28.0	24.8	28.0

Table 4: SAR of GSM850.

15.2 SAR Measurement Result of GSM1900

Ant 1 Test Results													
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (Frame averaged) (dBm)	EFS Plimit (Burst) (dBm)
Head													
Left cheek	GPRS 4TS	661/1880	0.071	0.00	24.21	25.50	1.346	0.096	0.112	0.070	24.2	21.0	24.2
Left tilted	GPRS 4TS	661/1880	0.057	-0.03	24.21	25.50	1.346	0.077	0.090	0.056	24.2	21.0	24.2
Right cheek	GPRS 4TS	661/1880	0.129	0.02	24.21	25.50	1.346	0.174	0.204	0.127	24.2	21.0	24.2
Right tilted	GPRS 4TS	661/1880	0.064	0.01	24.21	25.50	1.346	0.086	0.101	0.063	24.2	21.0	24.2
Body worn 10mm													
Front side	GPRS 4TS	661/1880	0.261	0.02	24.21	25.50	1.346	0.351	0.413	0.258	24.2	21.0	24.2
Back side	GPRS 4TS	661/1880	0.361	-0.01	24.21	25.50	1.346	0.486	0.571	0.357	24.2	21.0	24.2
Hotspot 10mm													
Front side	GPRS 4TS	661/1880	0.261	0.02	24.21	25.50	1.346	0.351	0.413	0.258	24.2	21.0	24.2
Back side	GPRS 4TS	661/1880	0.361	-0.01	24.21	25.50	1.346	0.486	0.571	0.357	24.2	21.0	24.2
Right side	GPRS 4TS	661/1880	0.225	-0.03	24.21	25.50	1.346	0.303	0.356	0.222	24.2	21.0	24.2
Bottom side	GPRS 4TS	661/1880	0.386	0.00	24.21	25.50	1.346	0.520	0.610	0.381	24.2	21.0	24.2

Table 5: SAR of GSM1900.

15.3 SAR Measurement Result of WCDMA Band II

Ant 1 Test Results													
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)	EFS Plimit (dBm)
Head													
Left cheek	RMC	9400/1880	0.024	-0.06	18.32	19.50	1.312	0.031	0.031	0.020	18.5	18.5	18.5
Left tilted	RMC	9400/1880	0.026	0.01	18.32	19.50	1.312	0.034	0.034	0.021	18.5	18.5	18.5
Right cheek	RMC	9400/1880	0.047	0.02	18.32	19.50	1.312	0.062	0.062	0.039	18.5	18.5	18.5
Right tilted	RMC	9400/1880	0.022	0.00	18.32	19.50	1.312	0.029	0.029	0.018	18.5	18.5	18.5
Body worn 10mm													
Front side	RMC	4182/836.4	0.163	-0.02	18.32	19.50	1.312	0.214	0.214	0.134	18.5	18.5	18.5
Back side	RMC	4182/836.4	0.175	0.00	18.32	19.50	1.312	0.230	0.230	0.144	18.5	18.5	18.5
Hotspot 10mm													
Front side	RMC	9400/1880	0.163	-0.02	18.32	19.50	1.312	0.214	0.214	0.134	18.5	18.5	18.5
Back side	RMC	9400/1880	0.175	0.00	18.32	19.50	1.312	0.230	0.230	0.144	18.5	18.5	18.5
Right side	RMC	9400/1880	0.147	-0.03	18.32	19.50	1.312	0.193	0.193	0.121	18.5	18.5	18.5
Bottom side	RMC	9400/1880	0.199	0.01	18.32	19.50	1.312	0.261	0.261	0.163	18.5	18.5	18.5

Table 6: SAR of WCDMA Band II.

15.4 SAR Measurement Result of WCDMA Band IV

Ant 1 Test Results												
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head												
Left cheek	RMC	1412/1732.4	0.029	-0.01	19.25	20.00	1.189	0.034	0.034	0.022	19.0	19.0
Left tilted	RMC	1412/1732.4	0.029	0.06	19.25	20.00	1.189	0.034	0.034	0.022	19.0	19.0
Right cheek	RMC	1412/1732.4	0.064	0.03	19.25	20.00	1.189	0.076	0.076	0.048	19.0	19.0
Right tilted	RMC	1412/1732.4	0.028	0.02	19.25	20.00	1.189	0.033	0.033	0.021	19.0	19.0
Body worn 10mm												
Front side	RMC	1412/1732.4	0.257	-0.02	19.25	20.00	1.189	0.305	0.305	0.191	19.0	19.0
Back side	RMC	1412/1732.4	0.217	0.03	19.25	20.00	1.189	0.258	0.258	0.161	19.0	19.0
Hotspot 10mm												
Front side	RMC	1412/1732.4	0.257	0.00	19.25	20.00	1.189	0.305	0.305	0.191	19.0	19.0
Back side	RMC	1412/1732.4	0.217	0.03	19.25	20.00	1.189	0.258	0.258	0.161	19.0	19.0
Right side	RMC	1412/1732.4	0.143	0.05	19.25	20.00	1.189	0.170	0.170	0.106	19.0	19.0
Bottom side	RMC	1412/1732.4	0.286	-0.02	19.25	20.00	1.189	0.340	0.340	0.212	19.0	19.0

Table 7: SAR of WCDMA Band IV.

15.5 SAR Measurement Result of WCDMA Band V

Ant 0 Test Results												
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head												
Left cheek	RMC	4182/836.4	0.034	0.01	17.93	19.50	1.435	0.049	0.049	0.031	18.5	18.5
Left tilted	RMC	4182/836.4	0.021	-0.02	17.93	19.50	1.435	0.030	0.030	0.019	18.5	18.5
Right cheek	RMC	4182/836.4	0.036	0.00	17.93	19.50	1.435	0.052	0.052	0.032	18.5	18.5
Right tilted	RMC	4182/836.4	0.018	-0.05	17.93	19.50	1.435	0.026	0.026	0.016	18.5	18.5
Body worn 10mm												
Front side	RMC	4182/836.4	0.063	0.00	17.93	19.50	1.435	0.090	0.090	0.057	18.5	18.5
Back side	RMC	4182/836.4	0.106	0.02	17.93	19.50	1.435	0.152	0.152	0.095	18.5	18.5
Hotspot 10mm												
Front side	RMC	4182/836.4	0.063	0.00	17.93	19.50	1.435	0.090	0.090	0.057	18.5	18.5
Back side	RMC	4182/836.4	0.106	0.02	17.93	19.50	1.435	0.152	0.152	0.095	18.5	18.5
Left side	RMC	4182/836.4	0.046	-0.01	17.93	19.50	1.435	0.066	0.066	0.041	18.5	18.5
Bottom side	RMC	4182/836.4	0.063	0.01	17.93	19.50	1.435	0.090	0.090	0.057	18.5	18.5

Table 8: SAR of WCDMA Band V.

15.6 SAR Measurement Result of LTE Band 2(ENDC)

Sub Ant 2 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFSP Limit (dBm)
Head 1RB													
Left cheek	20	QPSK 1_50	18900/1880	0.361	0.05	13.21	14.50	1.346	0.486	0.612	0.382	13.5	13.5
Left tilted	20	QPSK 1_50	18900/1880	0.289	-0.01	13.21	14.50	1.346	0.389	0.490	0.306	13.5	13.5
Right cheek	20	QPSK 1_50	18900/1880	0.202	0.05	13.21	14.50	1.346	0.272	0.342	0.214	13.5	13.5
Right tilted	20	QPSK 1_50	18900/1880	0.238	0.02	13.21	14.50	1.346	0.320	0.403	0.252	13.5	13.5
Head 50%RB													
Left cheek	20	QPSK 50_0	18900/1880	0.267	0.00	13.18	14.50	1.355	0.362	0.456	0.285	13.5	13.5
Left tilted	20	QPSK 50_0	18900/1880	0.279	-0.06	13.18	14.50	1.355	0.378	0.476	0.297	13.5	13.5
Right cheek	20	QPSK 50_0	18900/1880	0.214	0.03	13.18	14.50	1.355	0.290	0.365	0.228	13.5	13.5
Right tilted	20	QPSK 50_0	18900/1880	0.250	-0.01	13.18	14.50	1.355	0.339	0.427	0.267	13.5	13.5
Body worn 10mm 1RB													
Front side	20	QPSK 1_50	18900/1880	0.070	-0.05	13.21	14.50	1.346	0.094	0.119	0.074	13.5	13.5
Back side	20	QPSK 1_50	18900/1880	0.138	-0.01	13.21	14.50	1.346	0.186	0.234	0.146	13.5	13.5
Body worn 10mm 50%RB													
Front side	20	QPSK 50_0	18900/1880	0.063	-0.130	13.18	14.50	1.355	0.085	0.107	0.067	13.5	13.5
Back side	20	QPSK 50_0	18900/1880	0.126	0.020	13.18	14.50	1.355	0.171	0.215	0.134	13.5	13.5
Hotspot 10mm 1RB													
Front side	20	QPSK 1_50	18900/1880	0.070	-0.05	13.21	14.50	1.346	0.094	0.119	0.074	13.5	13.5
Back side	20	QPSK 1_50	18900/1880	0.138	-0.01	13.21	14.50	1.346	0.186	0.234	0.146	13.5	13.5
Right side	20	QPSK 1_50	18900/1880	0.006	0.00	13.21	14.50	1.346	0.008	0.010	0.006	13.5	13.5
Top side	20	QPSK 1_50	18900/1880	0.170	-0.07	13.21	14.50	1.346	0.229	0.288	0.180	13.5	13.5
Hotspot 10mm 50%RB													
Front side	20	QPSK 50_0	18900/1880	0.063	-0.13	13.18	14.50	1.355	0.085	0.107	0.067	13.5	13.5
Back side	20	QPSK 50_0	18900/1880	0.126	0.02	13.18	14.50	1.355	0.171	0.215	0.134	13.5	13.5
Right side	20	QPSK 50_0	18900/1880	0.005	-0.09	13.18	14.50	1.355	0.007	0.009	0.005	13.5	13.5
Top side	20	QPSK 50_0	18900/1880	0.151	-0.01	13.18	14.50	1.355	0.205	0.258	0.161	13.5	13.5

Table 9: SAR of LTE Band 2(ENDC).

15.7 SAR Measurement Result of LTE Band 12

Ant 0 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFSP Limit (dBm)
Head 1RB													
Left cheek	10	QPSK 1RB25	23095/707.5	0.129	0.01	23.67	25.00	1.358	0.175	0.221	0.138	24.0	26.0
Left tilted	10	QPSK 1RB25	23095/707.5	0.072	-0.13	23.67	25.00	1.358	0.098	0.123	0.077	24.0	26.0
Right cheek	10	QPSK 1RB25	23095/707.5	0.149	0.00	23.67	25.00	1.358	0.202	0.255	0.159	24.0	26.0
Right tilted	10	QPSK 1RB25	23095/707.5	0.064	-0.05	23.67	25.00	1.358	0.087	0.109	0.068	24.0	26.0
Head 50%RB													
Left cheek	10	QPSK 25RB25	23095/707.5	0.106	0.05	22.58	24.00	1.387	0.147	0.233	0.146	24.0	26.0
Left tilted	10	QPSK 25RB25	23095/707.5	0.060	-0.02	22.58	24.00	1.387	0.083	0.132	0.082	24.0	26.0
Right cheek	10	QPSK 25RB25	23095/707.5	0.114	0.01	22.58	24.00	1.387	0.158	0.251	0.157	24.0	26.0
Right tilted	10	QPSK 25RB25	23095/707.5	0.053	-0.12	22.58	24.00	1.387	0.073	0.116	0.073	24.0	26.0
Body worn 10mm 1RB													
Front side	10	QPSK 1RB25	23095/707.5	0.213	0.01	23.67	25.00	1.358	0.289	0.364	0.228	24.0	26.0
Back side	10	QPSK 1RB25	23095/707.5	0.330	-0.01	23.67	25.00	1.358	0.448	0.564	0.353	24.0	26.0
Body worn 10mm 50%RB													
Front side	10	QPSK 25RB25	23095/707.5	0.174	0.04	22.58	24.00	1.387	0.241	0.382	0.239	24.0	26.0
Back side	10	QPSK 25RB25	23095/707.5	0.236	-0.01	22.58	24.00	1.387	0.327	0.519	0.324	24.0	26.0
Hotspot 10mm 1RB													
Front side	10	QPSK 1RB25	23095/707.5	0.213	0.01	23.67	25.00	1.358	0.289	0.364	0.228	24.0	26.0
Back side	10	QPSK 1RB25	23095/707.5	0.330	-0.01	23.67	25.00	1.358	0.448	0.564	0.353	24.0	26.0
Left side	10	QPSK 1RB25	23095/707.5	0.256	0.08	23.67	25.00	1.358	0.348	0.438	0.274	24.0	26.0
Bottom side	10	QPSK 1RB25	23095/707.5	0.129	0.09	23.67	25.00	1.358	0.175	0.221	0.138	24.0	26.0
Hotspot 10mm 50%RB													
Front side	10	QPSK 25RB25	23095/707.5	0.174	0.04	22.58	24.00	1.387	0.241	0.382	0.239	24.0	26.0
Back side	10	QPSK 25RB25	23095/707.5	0.236	-0.01	22.58	24.00	1.387	0.327	0.519	0.324	24.0	26.0
Left side	10	QPSK 25RB25	23095/707.5	0.206	0.02	22.58	24.00	1.387	0.286	0.453	0.283	24.0	26.0
Bottom side	10	QPSK 25RB25	23095/707.5	0.106	0.12	22.58	24.00	1.387	0.147	0.233	0.146	24.0	26.0

Table 10: SAR of LTE Band 12.

15.8 SAR Measurement Result of LTE Band 13

Ant 0 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB													
Left cheek	10	QPSK 1RB0	23230/782	0.155	0.00	23.79	25.00	1.321	0.205	0.276	0.173	24.3	25.8
Left tilted	10	QPSK 1RB0	23230/782	0.096	-0.05	23.79	25.00	1.321	0.127	0.171	0.107	24.3	25.8
Right cheek	10	QPSK 1RB0	23230/782	0.185	0.11	23.79	25.00	1.321	0.244	0.330	0.206	24.3	25.8
Right tilted	10	QPSK 1RB0	23230/782	0.090	0.02	23.79	25.00	1.321	0.119	0.160	0.100	24.3	25.8
Head 50%RB													
Left cheek	10	QPSK 25RB13	23230/782	0.123	0.03	22.69	24.00	1.352	0.166	0.282	0.177	24.3	25.8
Left tilted	10	QPSK 25RB13	23230/782	0.074	-0.01	22.69	24.00	1.352	0.100	0.170	0.106	24.3	25.8
Right cheek	10	QPSK 25RB13	23230/782	0.137	-0.13	22.69	24.00	1.352	0.185	0.315	0.197	24.3	25.8
Right tilted	10	QPSK 25RB13	23230/782	0.071	0.00	22.69	24.00	1.352	0.096	0.163	0.102	24.3	25.8
Body worn 10mm 1RB													
Front side	10	QPSK 1RB0	23230/782	0.236	-0.05	23.79	25.00	1.321	0.312	0.421	0.263	24.3	25.8
Back side	10	QPSK 1RB0	23230/782	0.357	0.03	23.79	25.00	1.321	0.472	0.636	0.398	24.3	25.8
Body worn 10mm 50%RB													
Front side	10	QPSK 25RB13	23230/782	0.184	0.000	22.69	24.00	1.352	0.249	0.422	0.264	24.3	25.8
Back side	10	QPSK 25RB13	23230/782	0.261	-0.030	22.69	24.00	1.352	0.353	0.599	0.375	24.3	25.8
Hotspot 10mm 1RB													
Front side	10	QPSK 1RB0	23230/782	0.236	-0.05	23.79	25.00	1.321	0.312	0.421	0.263	24.3	25.8
Back side	10	QPSK 1RB0	23230/782	0.357	0.03	23.79	25.00	1.321	0.472	0.636	0.398	24.3	25.8
Left side	10	QPSK 1RB0	23230/782	0.223	-0.11	23.79	25.00	1.321	0.295	0.397	0.248	24.3	25.8
Bottom side	10	QPSK 1RB0	23230/782	0.198	0.01	23.79	25.00	1.321	0.262	0.353	0.221	24.3	25.8
Hotspot 10mm 50%RB													
Front side	10	QPSK 25RB13	23230/782	0.184	0.00	22.69	24.00	1.352	0.249	0.422	0.264	24.3	25.8
Back side	10	QPSK 25RB13	23230/782	0.261	-0.03	22.69	24.00	1.352	0.353	0.599	0.375	24.3	25.8
Left side	10	QPSK 25RB13	23230/782	0.166	0.02	22.69	24.00	1.352	0.224	0.381	0.238	24.3	25.8
Bottom side	10	QPSK 25RB13	23230/782	0.155	-0.07	22.69	24.00	1.352	0.210	0.356	0.222	24.3	25.8

Table 11: SAR of LTE Band 13.

15.9 SAR Measurement Result of LTE Band 25

Ant 1 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB													
Left cheek	20	QPSK 1_50	26365/1882.5	0.068	0.12	20.83	22.00	1.309	0.089	0.112	0.070	21.0	21.0
Left tilted	20	QPSK 1_50	26365/1882.5	0.060	-0.01	20.83	22.00	1.309	0.079	0.099	0.062	21.0	21.0
Right cheek	20	QPSK 1_50	26365/1882.5	0.113	0.05	20.83	22.00	1.309	0.148	0.186	0.116	21.0	21.0
Right tilted	20	QPSK 1_50	26365/1882.5	0.051	-0.02	20.83	22.00	1.309	0.067	0.084	0.053	21.0	21.0
Head 50%RB													
Left cheek	20	QPSK 50_0	26365/1882.5	0.068	0.07	20.68	22.00	1.355	0.092	0.116	0.073	21.0	21.0
Left tilted	20	QPSK 50_0	26365/1882.5	0.063	0.02	20.68	22.00	1.355	0.085	0.107	0.067	21.0	21.0
Right cheek	20	QPSK 50_0	26365/1882.5	0.124	0.01	20.68	22.00	1.355	0.168	0.212	0.132	21.0	21.0
Right tilted	20	QPSK 50_0	26365/1882.5	0.050	0.00	20.68	22.00	1.355	0.068	0.085	0.053	21.0	21.0
Body worn 10mm 1RB													
Front side	20	QPSK 1_50	26365/1882.5	0.300	-0.05	20.83	22.00	1.309	0.393	0.494	0.309	21.0	21.0
Back side	20	QPSK 1_50	26365/1882.5	0.291	0.02	20.83	22.00	1.309	0.381	0.480	0.300	21.0	21.0
Body worn 10mm 50%RB													
Front side	20	QPSK 50_0	26365/1882.5	0.296	0.030	20.68	22.00	1.355	0.401	0.505	0.316	21.0	21.0
Back side	20	QPSK 50_0	26365/1882.5	0.346	0.00	20.68	22.00	1.355	0.469	0.590	0.369	21.0	21.0
Hotspot 10mm 1RB													
Front side	20	QPSK 1_50	26365/1882.5	0.300	-0.05	20.83	22.00	1.309	0.393	0.494	0.309	21.0	21.0
Back side	20	QPSK 1_50	26365/1882.5	0.291	0.02	20.83	22.00	1.309	0.381	0.480	0.300	21.0	21.0
Right side	20	QPSK 1_50	26365/1882.5	0.217	0.01	20.83	22.00	1.309	0.284	0.358	0.224	21.0	21.0
Bottom side	20	QPSK 1_50	26365/1882.5	0.342	0.00	20.83	22.00	1.309	0.448	0.564	0.352	21.0	21.0
Hotspot 10mm 50%RB													
Front side	20	QPSK 50_0	26365/1882.5	0.296	0.03	20.68	22.00	1.355	0.401	0.505	0.316	21.0	21.0
Back side	20	QPSK 50_0	26365/1882.5	0.346	0.00	20.68	22.00	1.355	0.469	0.590	0.369	21.0	21.0
Right side	20	QPSK 50_0	26365/1882.5	0.219	-0.04	20.68	22.00	1.355	0.297	0.374	0.234	21.0	21.0
Bottom side	20	QPSK 50_0	26365/1882.5	0.378	0.05	20.68	22.00	1.355	0.512	0.645	0.403	21.0	21.0

Table 12: SAR of LTE Band 25.

15.10 SAR Measurement Result of LTE Band 26

Ant 0 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFSP limit (dBm)
Head 1RB													
Left cheek	15	QPSK 1_74	26865/831.5	0.135	-0.02	23.77	25.00	1.327	0.179	0.242	0.151	24.3	25.8
Left tilted	15	QPSK 1_74	26865/831.5	0.084	-0.06	23.77	25.00	1.327	0.112	0.150	0.094	24.3	25.8
Right cheek	15	QPSK 1_74	26865/831.5	0.154	0.05	23.77	25.00	1.327	0.204	0.276	0.172	24.3	25.8
Right tilted	15	QPSK 1_74	26865/831.5	0.071	0.01	23.77	25.00	1.327	0.094	0.127	0.079	24.3	25.8
Head 50%RB													
Left cheek	15	QPSK 36_18	26865/831.5	0.106	0.00	22.72	24.00	1.343	0.142	0.242	0.151	24.3	25.8
Left tilted	15	QPSK 36_18	26865/831.5	0.067	0.05	22.72	24.00	1.343	0.090	0.153	0.095	24.3	25.8
Right cheek	15	QPSK 36_18	26865/831.5	0.113	-0.02	22.72	24.00	1.343	0.152	0.258	0.161	24.3	25.8
Right tilted	15	QPSK 36_18	26865/831.5	0.055	0.04	22.72	24.00	1.343	0.074	0.125	0.078	24.3	25.8
Body worn 10mm 1RB													
Front side	15	QPSK 1_74	26865/831.5	0.262	-0.01	23.77	25.00	1.327	0.348	0.469	0.293	24.3	25.8
Back side	15	QPSK 1_74	26865/831.5	0.377	0.04	23.77	25.00	1.327	0.500	0.675	0.422	24.3	25.8
Body worn 10mm 50%RB													
Front side	15	QPSK 36_18	26865/831.5	0.201	-0.03	22.72	24.00	1.343	0.270	0.458	0.286	24.3	25.8
Back side	15	QPSK 36_18	26865/831.5	0.267	0.03	22.72	24.00	1.343	0.359	0.609	0.381	24.3	25.8
Hotspot 10mm 1RB													
Front side	15	QPSK 1_74	26865/831.5	0.262	-0.01	23.77	25.00	1.327	0.348	0.469	0.293	24.3	25.8
Back side	15	QPSK 1_74	26865/831.5	0.377	0.04	23.77	25.00	1.327	0.500	0.675	0.422	24.3	25.8
Left side	15	QPSK 1_74	26865/831.5	0.136	0.02	23.77	25.00	1.327	0.181	0.244	0.152	24.3	25.8
Bottom side	15	QPSK 1_74	26865/831.5	0.243	0.04	23.77	25.00	1.327	0.323	0.435	0.272	24.3	25.8
Hotspot 10mm 50%RB													
Front side	15	QPSK 36_18	26865/831.5	0.201	-0.03	22.72	24.00	1.343	0.270	0.458	0.286	24.3	25.8
Back side	15	QPSK 36_18	26865/831.5	0.267	0.03	22.72	24.00	1.343	0.359	0.609	0.381	24.3	25.8
Left side	15	QPSK 36_18	26865/831.5	0.118	0.01	22.72	24.00	1.343	0.158	0.269	0.168	24.3	25.8
Bottom side	15	QPSK 36_18	26865/831.5	0.177	0.00	22.72	24.00	1.343	0.238	0.404	0.252	24.3	25.8

Table 13: SAR of LTE Band 26.

15.11 SAR Measurement Result of LTE Band 66

Ant 1 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFSP limit (dBm)
Head 1RB													
Left cheek	20	QPSK 1_99	132322/1745	0.009	0.01	14.91	16.30	1.377	0.012	0.016	0.010	15.3	15.3
Left tilted	20	QPSK 1_99	132322/1745	0.014	0.02	14.91	16.30	1.377	0.019	0.024	0.015	15.3	15.3
Right cheek	20	QPSK 1_99	132322/1745	0.022	-0.06	14.91	16.30	1.377	0.030	0.038	0.024	15.3	15.3
Right tilted	20	QPSK 1_99	132322/1745	0.015	0.00	14.91	16.30	1.377	0.021	0.026	0.016	15.3	15.3
Head 50%RB													
Left cheek	20	QPSK 50_25	132322/1745	0.010	0.00	14.78	16.30	1.419	0.014	0.018	0.011	15.3	15.3
Left tilted	20	QPSK 50_25	132322/1745	0.013	-0.01	14.78	16.30	1.419	0.018	0.023	0.015	15.3	15.3
Right cheek	20	QPSK 50_25	132322/1745	0.023	-0.13	14.78	16.30	1.419	0.033	0.041	0.026	15.3	15.3
Right tilted	20	QPSK 50_25	132322/1745	0.015	0.02	14.78	16.30	1.419	0.021	0.027	0.017	15.3	15.3
Body worn 10mm 1RB													
Front side	20	QPSK 1_99	132322/1745	0.086	0.01	14.91	16.30	1.377	0.118	0.149	0.093	15.3	15.3
Back side	20	QPSK 1_99	132322/1745	0.080	-0.06	14.91	16.30	1.377	0.110	0.139	0.087	15.3	15.3
Body worn 10mm 50%RB													
Front side	20	QPSK 50_25	132322/1745	0.086	0.020	14.78	16.30	1.419	0.122	0.154	0.096	15.3	15.3
Back side	20	QPSK 50_25	132322/1745	0.097	0.000	14.78	16.30	1.419	0.138	0.173	0.108	15.3	15.3
Hotspot 10mm 1RB													
Front side	20	QPSK 1_99	132322/1745	0.086	0.01	14.91	16.30	1.377	0.118	0.149	0.093	15.3	15.3
Back side	20	QPSK 1_99	132322/1745	0.080	-0.06	14.91	16.30	1.377	0.110	0.139	0.087	15.3	15.3
Right side	20	QPSK 1_99	132322/1745	0.057	0.01	14.91	16.30	1.377	0.079	0.099	0.062	15.3	15.3
Bottom side	20	QPSK 1_99	132322/1745	0.099	-0.03	14.91	16.30	1.377	0.136	0.172	0.107	15.3	15.3
Hotspot 10mm 50%RB													
Front side	20	QPSK 50_25	132322/1745	0.086	0.02	14.78	16.30	1.419	0.122	0.154	0.096	15.3	15.3
Back side	20	QPSK 50_25	132322/1745	0.097	0.00	14.78	16.30	1.419	0.138	0.173	0.108	15.3	15.3
Right side	20	QPSK 50_25	132322/1745	0.058	-0.05	14.78	16.30	1.419	0.082	0.104	0.065	15.3	15.3
Bottom side	20	QPSK 50_25	132322/1745	0.120	0.00	14.78	16.30	1.419	0.170	0.214	0.134	15.3	15.3

Table 14: SAR of LTE Band 66.

Sub Ant 2 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB													
Left cheek	20	QPSK 1_99	132322/1745	0.146	0.00	15.69	16.50	1.205	0.176	0.221	0.138	15.5	15.5
Left tilted	20	QPSK 1_99	132322/1745	0.123	-0.05	15.69	16.50	1.205	0.148	0.187	0.117	15.5	15.5
Right cheek	20	QPSK 1_99	132322/1745	0.059	0.03	15.69	16.50	1.205	0.071	0.090	0.056	15.5	15.5
Right tilted	20	QPSK 1_99	132322/1745	0.057	-0.11	15.69	16.50	1.205	0.069	0.086	0.054	15.5	15.5
Head 50%RB													
Left cheek	20	QPSK 50_25	132322/1745	0.191	0.02	15.56	16.50	1.242	0.237	0.299	0.187	15.5	15.5
Left tilted	20	QPSK 50_25	132322/1745	0.131	0.03	15.56	16.50	1.242	0.163	0.205	0.128	15.5	15.5
Right cheek	20	QPSK 50_25	132322/1745	0.058	-0.06	15.56	16.50	1.242	0.072	0.091	0.057	15.5	15.5
Right tilted	20	QPSK 50_25	132322/1745	0.060	0.01	15.56	16.50	1.242	0.074	0.094	0.059	15.5	15.5
Body worn 10mm 1RB													
Front side	20	QPSK 1_99	132322/1745	0.032	0.08	15.69	16.50	1.205	0.039	0.049	0.030	15.5	15.5
Back side	20	QPSK 1_99	132322/1745	0.046	-0.02	15.69	16.50	1.205	0.055	0.070	0.044	15.5	15.5
Body worn 10mm 50%RB													
Front side	20	QPSK 50_25	132322/1745	0.039	0.02	15.56	16.50	1.242	0.048	0.061	0.038	15.5	15.5
Back side	20	QPSK 50_25	132322/1745	0.067	0.01	15.56	16.50	1.242	0.083	0.105	0.065	15.5	15.5
Hotspot 10mm 1RB													
Front side	20	QPSK 1_99	132322/1745	0.032	0.08	15.69	16.50	1.205	0.039	0.049	0.030	15.5	15.5
Back side	20	QPSK 1_99	132322/1745	0.046	-0.02	15.69	16.50	1.205	0.055	0.070	0.044	15.5	15.5
Right side	20	QPSK 1_99	132322/1745	0.023	0.04	15.69	16.50	1.205	0.028	0.035	0.022	15.5	15.5
Top side	20	QPSK 1_99	132322/1745	0.046	0.02	15.69	16.50	1.205	0.055	0.070	0.044	15.5	15.5
Hotspot 10mm 50%RB													
Front side	20	QPSK 50_25	132322/1745	0.039	0.02	15.56	16.50	1.242	0.048	0.061	0.038	15.5	15.5
Back side	20	QPSK 50_25	132322/1745	0.067	0.01	15.56	16.50	1.242	0.083	0.105	0.065	15.5	15.5
Right side	20	QPSK 50_25	132322/1745	0.025	-0.02	15.56	16.50	1.242	0.031	0.039	0.024	15.5	15.5
Top side	20	QPSK 50_25	132322/1745	0.050	0.04	15.56	16.50	1.242	0.062	0.078	0.049	15.5	15.5

Table 15: SAR of LTE Band 66(ENDC).

15.12 SAR Measurement Result of LTE Band 41

Ant 1 Test Results															
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power (dBm)	Tune up Limit (dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (Frame averaged) (dBm)	EFS Plimit (Burst) (dBm)
Head 1RB															
Left cheek	20	QPSK 1_50	1:1.58	39750/2506	0.001	0.00	19.51	21.00	1.409	0.001	0.002	0.001	20.0	18.0	20.0
Left tilted	20	QPSK 1_50	1:1.58	39750/2506	0.003	-0.01	19.51	21.00	1.409	0.004	0.005	0.003	20.0	18.0	20.0
Right cheek	20	QPSK 1_50	1:1.58	39750/2506	0.003	0.04	19.51	21.00	1.409	0.004	0.005	0.003	20.0	18.0	20.0
Right tilted	20	QPSK 1_50	1:1.58	39750/2506	0.004	0.00	19.51	21.00	1.409	0.006	0.007	0.004	20.0	18.0	20.0
Head 50%RB															
Left cheek	20	QPSK 50_25	1:1.58	39750/2506	0.002	0.01	19.45	21.00	1.429	0.003	0.004	0.002	20.0	18.0	20.0
Left tilted	20	QPSK 50_25	1:1.58	39750/2506	0.004	0.00	19.45	21.00	1.429	0.006	0.007	0.004	20.0	18.0	20.0
Right cheek	20	QPSK 50_25	1:1.58	39750/2506	0.005	0.07	19.45	21.00	1.429	0.007	0.009	0.006	20.0	18.0	20.0
Right cheek	20	QPSK PCC 1_99 QPSK SCC 1_0	1:1.58	39750/2506 39948/2525.8	0.004	0.00	19.32	21.00	1.472	0.006	0.007	0.005	20.0	18.0	20.0
Right tilted	20	QPSK 50_25	1:1.58	39750/2506	0.004	-0.01	19.45	21.00	1.429	0.006	0.007	0.004	20.0	18.0	20.0
Body worn 10mm 1RB															
Front side	20	QPSK 1_50	1:1.58	39750/2506	0.087	-0.05	19.51	21.00	1.409	0.123	0.154	0.096	20.0	18.0	20.0
Back side	20	QPSK 1_50	1:1.58	39750/2506	0.110	0.03	19.51	21.00	1.409	0.155	0.195	0.122	20.0	18.0	20.0
Back side	20	QPSK PCC 1_99 QPSK SCC 1_0	1:1.58	39750/2506 39948/2525.8	0.090	0.00	19.32	21.00	1.472	0.133	0.167	0.104	20.0	18.0	20.0
Body worn 10mm 50%RB															
Front side	20	QPSK 50_25	1:1.58	39750/2506	0.089	0.06	19.45	21.00	1.429	0.127	0.160	0.100	20.0	18.0	20.0
Back side	20	QPSK 50_25	1:1.58	39750/2506	0.101	-0.02	19.45	21.00	1.429	0.144	0.182	0.114	20.0	18.0	20.0
Hotspot 10mm 1RB															
Front side	20	QPSK 1_50	1:1.58	39750/2506	0.087	-0.05	19.51	21.00	1.409	0.123	0.154	0.096	20.0	18.0	20.0
Back side	20	QPSK 1_50	1:1.58	39750/2506	0.110	0.03	19.51	21.00	1.409	0.155	0.195	0.122	20.0	18.0	20.0
Right side	20	QPSK 1_50	1:1.58	39750/2506	0.046	0.00	19.51	21.00	1.409	0.065	0.082	0.051	20.0	18.0	20.0
Bottom side	20	QPSK 1_50	1:1.58	39750/2506	0.134	0.02	19.51	21.00	1.409	0.189	0.238	0.149	20.0	18.0	20.0
Hotspot 10mm 50%RB															
Front side	20	QPSK 50_25	1:1.58	39750/2506	0.089	0.06	19.45	21.00	1.429	0.127	0.160	0.100	20.0	18.0	20.0
Back side	20	QPSK 50_25	1:1.58	39750/2506	0.101	-0.02	19.45	21.00	1.429	0.144	0.182	0.114	20.0	18.0	20.0
Right side	20	QPSK 50_25	1:1.58	39750/2506	0.047	0.01	19.45	21.00	1.429	0.067	0.085	0.053	20.0	18.0	20.0
Bottom side	20	QPSK 50_25	1:1.58	39750/2506	0.164	0.06	19.45	21.00	1.429	0.234	0.295	0.184	20.0	18.0	20.0
Bottom side	20	QPSK PCC 1_99 QPSK SCC 1_0	1:1.58	39750/2506 39948/2525.8	0.112	0.00	19.32	21.00	1.472	0.165	0.208	0.130	20.0	18.0	20.0

Table 16: SAR of LTE Band 41.

15.13 SAR Measurement Result of 5G NR n5

Ant 0 Test Results													
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB													
Left cheek	20	QPSK 1RB1	167300/836.5	0.028	-0.01	17.87	18.80	1.239	0.035	0.044	0.027	17.8	17.8
Left tilted	20	QPSK 1RB1	167300/836.5	0.015	0.02	17.87	18.80	1.239	0.019	0.023	0.015	17.8	17.8
Right cheek	20	QPSK 1RB1	167300/836.5	0.030	0.00	17.87	18.80	1.239	0.037	0.047	0.029	17.8	17.8
Right tilted	20	QPSK 1RB1	167300/836.5	0.014	0.01	17.87	18.80	1.239	0.017	0.022	0.014	17.8	17.8
Head 50%RB													
Left cheek	20	QPSK 50RB25	167300/836.5	0.028	-0.01	17.89	18.80	1.233	0.035	0.043	0.027	17.8	17.8
Left tilted	20	QPSK 50RB25	167300/836.5	0.018	0.06	17.89	18.80	1.233	0.022	0.028	0.017	17.8	17.8
Right cheek	20	QPSK 50RB25	167300/836.5	0.031	-0.03	17.89	18.80	1.233	0.038	0.048	0.030	17.8	17.8
Right tilted	20	QPSK 50RB25	167300/836.5	0.015	0.00	17.89	18.80	1.233	0.018	0.023	0.015	17.8	17.8
Body worn 10mm 1RB													
Front side	20	QPSK 1RB1	167300/836.5	0.076	0.03	17.87	18.80	1.239	0.094	0.119	0.074	17.8	17.8
Back side	20	QPSK 1RB1	167300/836.5	0.053	0.00	17.87	18.80	1.239	0.066	0.083	0.052	17.8	17.8
Body worn 10mm 50%RB													
Front side	20	QPSK 50RB25	167300/836.5	0.054	0.02	17.89	18.80	1.233	0.067	0.084	0.052	17.8	17.8
Back side	20	QPSK 50RB25	167300/836.5	0.082	-0.02	17.89	18.80	1.233	0.101	0.127	0.080	17.8	17.8
Hotspot 10mm 1RB													
Front side	20	QPSK 1RB1	167300/836.5	0.076	0.03	17.87	18.80	1.239	0.094	0.119	0.074	17.8	17.8
Back side	20	QPSK 1RB1	167300/836.5	0.053	0.00	17.87	18.80	1.239	0.066	0.083	0.052	17.8	17.8
Left side	20	QPSK 1RB1	167300/836.5	0.030	-0.04	17.87	18.80	1.239	0.037	0.047	0.029	17.8	17.8
Bottom side	20	QPSK 1RB1	167300/836.5	0.052	0.01	17.87	18.80	1.239	0.064	0.081	0.051	17.8	17.8
Hotspot 10mm 50%RB													
Front side	20	QPSK 50RB25	167300/836.5	0.054	0.02	17.89	18.80	1.233	0.067	0.084	0.052	17.8	17.8
Back side	20	QPSK 50RB25	167300/836.5	0.082	-0.02	17.89	18.80	1.233	0.101	0.127	0.080	17.8	17.8
Left side	20	QPSK 50RB25	167300/836.5	0.030	0.00	17.89	18.80	1.233	0.037	0.047	0.029	17.8	17.8
Bottom side	20	QPSK 50RB25	167300/836.5	0.056	-0.04	17.89	18.80	1.233	0.069	0.087	0.054	17.8	17.8

Table 17: SAR of 5G NR n5.

15.14 SAR Measurement Result of 5G NR n41

Ant 1 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	518598/2592.99	0.025	0.02	17.40	18.30	1.230	0.031	0.039	0.024	17.3	17.3
Left tilted	100	QPSK 1RB1	100%	518598/2592.99	0.020	0.00	17.40	18.30	1.230	0.025	0.031	0.019	17.3	17.3
Right cheek	100	QPSK 1RB1	100%	518598/2592.99	0.024	-0.16	17.40	18.30	1.230	0.030	0.037	0.023	17.3	17.3
Right tilted	100	QPSK 1RB1	100%	518598/2592.99	0.014	0.01	17.40	18.30	1.230	0.017	0.022	0.014	17.3	17.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	518598/2592.99	0.022	-0.05	17.01	18.30	1.346	0.030	0.037	0.023	17.3	17.3
Left tilted	100	QPSK 135RB0	100%	518598/2592.99	0.019	-0.11	17.01	18.30	1.346	0.026	0.032	0.020	17.3	17.3
Right cheek	100	QPSK 135RB0	100%	518598/2592.99	0.025	-0.01	17.01	18.30	1.346	0.034	0.042	0.026	17.3	17.3
Right tilted	100	QPSK 135RB0	100%	518598/2592.99	0.013	0.01	17.01	18.30	1.346	0.017	0.022	0.014	17.3	17.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	518598/2592.99	0.173	0.05	17.40	18.30	1.230	0.213	0.268	0.167	17.3	17.3
Back side	100	QPSK 1RB1	100%	518598/2592.99	0.130	-0.01	17.40	18.30	1.230	0.160	0.201	0.126	17.3	17.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	518598/2592.99	0.148	0.00	17.01	18.30	1.346	0.199	0.251	0.157	17.3	17.3
Back side	100	QPSK 135RB0	100%	518598/2592.99	0.131	-0.04	17.01	18.30	1.346	0.176	0.222	0.139	17.3	17.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	518598/2592.99	0.173	0.05	17.40	18.30	1.230	0.213	0.268	0.167	17.3	17.3
Back side	100	QPSK 1RB1	100%	518598/2592.99	0.130	-0.01	17.40	18.30	1.230	0.160	0.201	0.126	17.3	17.3
Right side	100	QPSK 1RB1	100%	518598/2592.99	0.083	0.06	17.40	18.30	1.230	0.102	0.129	0.080	17.3	17.3
Bottom side	100	QPSK 1RB1	100%	518598/2592.99	0.215	0.02	17.40	18.30	1.230	0.265	0.333	0.208	17.3	17.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	518598/2592.99	0.148	0.00	17.01	18.30	1.346	0.199	0.251	0.157	17.3	17.3
Back side	100	QPSK 135RB0	100%	518598/2592.99	0.131	-0.04	17.01	18.30	1.346	0.176	0.222	0.139	17.3	17.3
Right side	100	QPSK 135RB0	100%	518598/2592.99	0.078	-0.12	17.01	18.30	1.346	0.105	0.132	0.083	17.3	17.3
Bottom side	100	QPSK 135RB0	100%	518598/2592.99	0.198	0.01	17.01	18.30	1.346	0.266	0.335	0.210	17.3	17.3

Table 18: SAR of 5G NR n41.

Ant 2 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	513900/2569.5	0.432	-0.01	15.94	16.70	1.191	0.515	0.648	0.405	15.7	17.3
Left tilted	100	QPSK 1RB1	100%	513900/2569.5	0.240	0.05	15.94	16.70	1.191	0.286	0.360	0.225	15.7	17.3
Right cheek	100	QPSK 1RB1	100%	513900/2569.5	0.182	0.00	15.94	16.70	1.191	0.217	0.273	0.171	15.7	17.3
Right tilted	100	QPSK 1RB1	100%	513900/2569.5	0.205	0.02	15.94	16.70	1.191	0.244	0.307	0.192	15.7	17.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	513900/2569.5	0.338	-0.03	15.68	16.70	1.265	0.427	0.538	0.336	15.7	17.3
Left tilted	100	QPSK 135RB0	100%	513900/2569.5	0.221	0.01	15.68	16.70	1.265	0.280	0.352	0.220	15.7	17.3
Right cheek	100	QPSK 135RB0	100%	513900/2569.5	0.179	0.08	15.68	16.70	1.265	0.226	0.285	0.178	15.7	17.3
Right tilted	100	QPSK 135RB0	100%	513900/2569.5	0.184	-0.10	15.68	16.70	1.265	0.233	0.293	0.183	15.7	17.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.037	0.090	15.94	16.70	1.191	0.044	0.055	0.035	15.7	17.3
Back side	100	QPSK 1RB1	100%	513900/2569.5	0.086	-0.04	15.94	16.70	1.191	0.102	0.129	0.081	15.7	17.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.032	0.000	15.68	16.70	1.265	0.040	0.051	0.032	15.7	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.059	0.080	15.68	16.70	1.265	0.075	0.094	0.059	15.7	17.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.037	0.09	15.94	16.70	1.191	0.044	0.055	0.035	15.7	17.3
Back side	100	QPSK 1RB1	100%	513900/2569.5	0.086	-0.04	15.94	16.70	1.191	0.102	0.129	0.081	15.7	17.3
Right side	100	QPSK 1RB1	100%	513900/2569.5	0.038	0.03	15.94	16.70	1.191	0.045	0.057	0.036	15.7	17.3
Top side	100	QPSK 1RB1	100%	513900/2569.5	0.083	-0.02	15.94	16.70	1.191	0.099	0.124	0.078	15.7	17.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.032	0.00	15.68	16.70	1.265	0.040	0.051	0.032	15.7	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.059	0.08	15.68	16.70	1.265	0.075	0.094	0.059	15.7	17.3
Right side	100	QPSK 135RB0	100%	513900/2569.5	0.036	-0.12	15.68	16.70	1.265	0.046	0.057	0.036	15.7	17.3
Top side	100	QPSK 135RB0	100%	513900/2569.5	0.065	0.03	15.68	16.70	1.265	0.082	0.103	0.065	15.7	17.3
Ant 3 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	513900/2569.5	0.046	0.02	16.18	16.40	1.052	0.048	0.061	0.038	15.4	17.3
Left tilted	100	QPSK 1RB1	100%	513900/2569.5	0.051	-0.08	16.18	16.40	1.052	0.054	0.068	0.042	15.4	17.3
Right cheek	100	QPSK 1RB1	100%	513900/2569.5	0.053	0.11	16.18	16.40	1.052	0.056	0.070	0.044	15.4	17.3
Right tilted	100	QPSK 1RB1	100%	513900/2569.5	0.049	0.00	16.18	16.40	1.052	0.052	0.065	0.041	15.4	17.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	513900/2569.5	0.040	-0.01	15.78	16.40	1.153	0.046	0.058	0.036	15.4	17.3
Left tilted	100	QPSK 135RB0	100%	513900/2569.5	0.044	0.05	15.78	16.40	1.153	0.051	0.064	0.040	15.4	17.3
Right cheek	100	QPSK 135RB0	100%	513900/2569.5	0.047	0.02	15.78	16.40	1.153	0.054	0.068	0.043	15.4	17.3
Right tilted	100	QPSK 135RB0	100%	513900/2569.5	0.050	0.01	15.78	16.40	1.153	0.058	0.073	0.045	15.4	17.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.008	0.05	16.18	16.40	1.052	0.008	0.011	0.007	15.4	17.3
Back side	100	QPSK 1RB1	100%	513900/2569.5	0.058	-0.02	16.18	16.40	1.052	0.061	0.077	0.048	15.4	17.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.009	-0.03	15.78	16.40	1.153	0.010	0.013	0.008	15.4	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.051	0.00	15.78	16.40	1.153	0.059	0.074	0.046	15.4	17.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.008	0.05	16.18	16.40	1.052	0.008	0.011	0.007	15.4	17.3
Back side	100	QPSK 1RB1	100%	513900/2569.5	0.058	-0.02	16.18	16.40	1.052	0.061	0.077	0.048	15.4	17.3
Right side	100	QPSK 1RB1	100%	513900/2569.5	0.005	-0.06	16.18	16.40	1.052	0.005	0.007	0.004	15.4	17.3
Top side	100	QPSK 1RB1	100%	513900/2569.5	0.021	0.04	16.18	16.40	1.052	0.022	0.028	0.017	15.4	17.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.009	-0.03	15.78	16.40	1.153	0.010	0.013	0.008	15.4	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.051	0.00	15.78	16.40	1.153	0.059	0.074	0.046	15.4	17.3
Right side	100	QPSK 135RB0	100%	513900/2569.5	0.005	0.11	15.78	16.40	1.153	0.006	0.007	0.005	15.4	17.3
Top side	100	QPSK 135RB0	100%	513900/2569.5	0.021	0.02	15.78	16.40	1.153	0.024	0.030	0.019	15.4	17.3
Ant 4 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	513900/2569.5	0.106	0.01	14.89	15.70	1.205	0.128	0.185	0.115	14.7	17.3
Left tilted	100	QPSK 1RB1	100%	513900/2569.5	0.112	-0.06	14.89	15.70	1.205	0.135	0.195	0.122	14.7	17.3
Right cheek	100	QPSK 1RB1	100%	513900/2569.5	0.329	0.13	14.89	15.70	1.205	0.396	0.573	0.358	14.7	17.3
Right tilted	100	QPSK 1RB1	100%	513900/2569.5	0.288	0.02	14.89	15.70	1.205	0.347	0.502	0.314	14.7	17.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	513900/2569.5	0.098	-0.02	14.72	15.70	1.253	0.123	0.178	0.111	14.7	17.3
Left tilted	100	QPSK 135RB0	100%	513900/2569.5	0.103	0.00	14.72	15.70	1.253	0.129	0.187	0.117	14.7	17.3
Right cheek	100	QPSK 135RB0	100%	513900/2569.5	0.328	0.04	14.72	15.70	1.253	0.411	0.594	0.371	14.7	17.3
Right tilted	100	QPSK 135RB0	100%	513900/2569.5	0.309	-0.01	14.72	15.70	1.253	0.387	0.560	0.350	14.7	17.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.048	-0.05	14.89	15.70	1.205	0.058	0.084	0.052	14.7	17.3
Back side	100	QPSK 1RB1	100%	513900/2569.5	0.051	0.02	14.89	15.70	1.205	0.061	0.089	0.056	14.7	17.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.044	-0.01	14.72	15.70	1.253	0.055	0.080	0.050	14.7	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.049	0.02	14.72	15.70	1.253	0.061	0.089	0.055	14.7	17.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	513900/2569.5	0.048	-0.05	14.89	15.70	1.205	0.058	0.084	0.052	14.7	17.3

Back side	100	QPSK 1RB1	100%	513900/2569.5	0.051	0.02	14.89	15.70	1.205	0.061	0.089	0.056	14.7	17.3
Left side	100	QPSK 1RB1	100%	513900/2569.5	0.010	0.00	14.89	15.70	1.205	0.012	0.017	0.011	14.7	17.3
Top side	100	QPSK 1RB1	100%	513900/2569.5	0.049	0.03	14.89	15.70	1.205	0.059	0.085	0.053	14.7	17.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	513900/2569.5	0.044	-0.01	14.72	15.70	1.253	0.055	0.080	0.050	14.7	17.3
Back side	100	QPSK 135RB0	100%	513900/2569.5	0.049	0.02	14.72	15.70	1.253	0.061	0.089	0.055	14.7	17.3
Left side	100	QPSK 135RB0	100%	513900/2569.5	0.013	0.08	14.72	15.70	1.253	0.016	0.024	0.015	14.7	17.3
Top side	100	QPSK 135RB0	100%	513900/2569.5	0.041	-0.06	14.72	15.70	1.253	0.051	0.074	0.046	14.7	17.3

Table 19: SAR of 5G NR n41(1T4R).

Ant 1+2 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	509202/2546.01	0.551	-0.02	20.70	21.30	1.148	0.633	0.796	0.498	20.3	20.3
Left tilted	100	QPSK 1RB1	100%	509202/2546.01	0.341	-0.05	20.70	21.30	1.148	0.392	0.493	0.308	20.3	20.3
Right cheek	100	QPSK 1RB1	100%	509202/2546.01	0.345	0.00	20.70	21.30	1.148	0.396	0.499	0.312	20.3	20.3
Right tilted	100	QPSK 1RB1	100%	509202/2546.01	0.301	0.01	20.70	21.30	1.148	0.346	0.435	0.272	20.3	20.3
Left cheek	100	QPSK 1RB1	100%	513900/2569.5	0.593	0.01	20.49	21.30	1.205	0.715	0.900	0.562	20.3	20.3
Left cheek	100	QPSK 1RB1	100%	518598/2592.99	0.564	0.03	20.27	21.30	1.268	0.715	0.900	0.563	20.3	20.3
Left cheek	100	QPSK 1RB1	100%	523302/2616.51	0.523	0.07	20.31	21.30	1.256	0.657	0.827	0.517	20.3	20.3
Left cheek	100	QPSK 1RB1	100%	528000/2640	0.542	-0.05	20.31	21.30	1.256	0.681	0.857	0.536	20.3	20.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	509202/2546.01	0.514	-0.02	20.35	21.30	1.245	0.640	0.805	0.503	20.3	20.3
Left tilted	100	QPSK 135RB0	100%	509202/2546.01	0.320	0.10	20.35	21.30	1.245	0.398	0.501	0.313	20.3	20.3
Right cheek	100	QPSK 135RB0	100%	509202/2546.01	0.269	-0.08	20.35	21.30	1.245	0.335	0.421	0.263	20.3	20.3
Right tilted	100	QPSK 135RB0	100%	509202/2546.01	0.271	0.13	20.35	21.30	1.245	0.337	0.425	0.265	20.3	20.3
Left cheek	100	QPSK 135RB0	100%	513900/2569.5	0.520	0.02	20.16	21.30	1.300	0.676	0.851	0.532	20.3	20.3
Left cheek	100	QPSK 135RB0	100%	518598/2592.99	0.496	-0.03	20.06	21.30	1.330	0.660	0.831	0.519	20.3	20.3
Left cheek	100	QPSK 135RB0	100%	523302/2616.51	0.510	0.00	20.03	21.30	1.340	0.683	0.860	0.538	20.3	20.3
Left cheek	100	QPSK 135RB0	100%	528000/2640	0.562	-0.05	20.28	21.30	1.265	0.711	0.895	0.559	20.3	20.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	509202/2546.01	0.172	0.03	20.70	21.30	1.148	0.197	0.249	0.155	20.3	20.3
Back side	100	QPSK 1RB1	100%	509202/2546.01	0.151	-0.11	20.70	21.30	1.148	0.173	0.218	0.136	20.3	20.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	509202/2546.01	0.172	0.02	20.35	21.30	1.245	0.214	0.269	0.168	20.3	20.3
Back side	100	QPSK 135RB0	100%	509202/2546.01	0.138	0.06	20.35	21.30	1.245	0.172	0.216	0.135	20.3	20.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	509202/2546.01	0.172	0.03	20.70	21.30	1.148	0.197	0.249	0.155	20.3	20.3
Back side	100	QPSK 1RB1	100%	509202/2546.01	0.151	-0.11	20.70	21.30	1.148	0.173	0.218	0.136	20.3	20.3
Right side	100	QPSK 1RB1	100%	509202/2546.01	0.105	0.03	20.70	21.30	1.148	0.121	0.152	0.095	20.3	20.3
Top side	100	QPSK 1RB1	100%	509202/2546.01	0.130	-0.05	20.70	21.30	1.148	0.149	0.188	0.117	20.3	20.3
Bottom side	100	QPSK 1RB1	100%	509202/2546.01	0.196	-0.08	20.70	21.30	1.148	0.225	0.283	0.177	20.3	20.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	509202/2546.01	0.171	0.02	20.35	21.30	1.245	0.213	0.268	0.167	20.3	20.3
Back side	100	QPSK 135RB0	100%	509202/2546.01	0.138	0.06	20.35	21.30	1.245	0.172	0.216	0.135	20.3	20.3
Right side	100	QPSK 135RB0	100%	509202/2546.01	0.100	-0.01	20.35	21.30	1.245	0.124	0.157	0.098	20.3	20.3
Top side	100	QPSK 135RB0	100%	509202/2546.01	0.112	0.10	20.35	21.30	1.245	0.139	0.175	0.110	20.3	20.3
Bottom side	100	QPSK 135RB0	100%	509202/2546.01	0.180	0.00	20.35	21.30	1.245	0.224	0.282	0.176	20.3	20.3
Ant 3+4 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	509202/2546.01	0.291	-0.11	19.43	19.70	1.064	0.310	0.390	0.244	18.7	20.3
Left tilted	100	QPSK 1RB1	100%	509202/2546.01	0.206	0.08	19.43	19.70	1.064	0.219	0.276	0.172	18.7	20.3
Right cheek	100	QPSK 1RB1	100%	509202/2546.01	0.499	0.02	19.43	19.70	1.064	0.531	0.668	0.418	18.7	20.3
Right tilted	100	QPSK 1RB1	100%	509202/2546.01	0.281	-0.03	19.43	19.70	1.064	0.299	0.376	0.235	18.7	20.3
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	509202/2546.01	0.285	0.05	19.40	19.70	1.072	0.305	0.384	0.240	18.7	20.3
Left tilted	100	QPSK 135RB0	100%	509202/2546.01	0.220	0.03	19.40	19.70	1.072	0.236	0.297	0.185	18.7	20.3
Right cheek	100	QPSK 135RB0	100%	509202/2546.01	0.495	-0.02	19.40	19.70	1.072	0.530	0.668	0.417	18.7	20.3
Right tilted	100	QPSK 135RB0	100%	509202/2546.01	0.363	0.00	19.40	19.70	1.072	0.389	0.490	0.306	18.7	20.3
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	509202/2546.01	0.077	0.02	19.43	19.70	1.064	0.082	0.103	0.064	18.7	20.3
Back side	100	QPSK 1RB1	100%	509202/2546.01	0.065	0.06	19.43	19.70	1.064	0.069	0.087	0.054	18.7	20.3
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	509202/2546.01	0.071	-0.08	19.40	19.70	1.072	0.076	0.096	0.060	18.7	20.3
Back side	100	QPSK 135RB0	100%	509202/2546.01	0.091	0.02	19.40	19.70	1.072	0.098	0.123	0.077	18.7	20.3
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	509202/2546.01	0.077	0.02	19.43	19.70	1.064	0.082	0.103	0.064	18.7	20.3
Back side	100	QPSK 1RB1	100%	509202/2546.01	0.065	0.06	19.43	19.70	1.064	0.069	0.087	0.054	18.7	20.3
Left side	100	QPSK 1RB1	100%	509202/2546.01	0.036	-0.03	19.43	19.70	1.064	0.038	0.048	0.030	18.7	20.3
Right side	100	QPSK 1RB1	100%	509202/2546.01	0.012	0.14	19.43	19.70	1.064	0.013	0.016	0.010	18.7	20.3
Top side	100	QPSK 1RB1	100%	509202/2546.01	0.065	0.06	19.43	19.70	1.064	0.069	0.087	0.054	18.7	20.3
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	509202/2546.01	0.071	-0.08	19.40	19.70	1.072	0.076	0.096	0.060	18.7	20.3
Back side	100	QPSK 135RB0	100%	509202/2546.01	0.091	0.02	19.40	19.70	1.072	0.098	0.123	0.077	18.7	20.3
Left side	100	QPSK 135RB0	100%	509202/2546.01	0.019	0.05	19.40	19.70	1.072	0.020	0.026	0.016	18.7	20.3
Right side	100	QPSK 135RB0	100%	509202/2546.01	0.012	0.16	19.40	19.70	1.072	0.013	0.016	0.010	18.7	20.3

Top side	100	QPSK 135RB0	100%	509202/2546.01	0.082	-0.11	19.40	19.70	1.072	0.088	0.111	0.069	18.7	20.3
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Table 20: SAR of 5G NR n41(2T4R).

15.15 SAR Measurement Result of 5G NR n66

Ant 1 Test Results														
Test position	BW. (MHz)	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)	
Head 1RB														
Left cheek	40	QPSK 1RB1	349000/1745	0.012	0.01	15.27	16.30	1.268	0.015	0.019	0.012	15.3	15.3	
Left tilted	40	QPSK 1RB1	349000/1745	0.012	0.03	15.27	16.30	1.268	0.015	0.019	0.012	15.3	15.3	
Right cheek	40	QPSK 1RB1	349000/1745	0.024	-0.04	15.27	16.30	1.268	0.030	0.038	0.024	15.3	15.3	
Right tilted	40	QPSK 1RB1	349000/1745	0.013	0.05	15.27	16.30	1.268	0.016	0.021	0.013	15.3	15.3	
Head 50%RB														
Left cheek	40	QPSK 108RB54	349000/1745	0.012	0.01	15.25	16.30	1.274	0.015	0.019	0.012	15.3	15.3	
Left tilted	40	QPSK 108RB54	349000/1745	0.011	0.04	15.25	16.30	1.274	0.014	0.018	0.011	15.3	15.3	
Right cheek	40	QPSK 108RB54	349000/1745	0.023	-0.04	15.25	16.30	1.274	0.029	0.037	0.023	15.3	15.3	
Right tilted	40	QPSK 108RB54	349000/1745	0.013	0.06	15.25	16.30	1.274	0.017	0.021	0.013	15.3	15.3	
Body worn 10mm 1RB														
Front side	40	QPSK 1RB1	349000/1745	0.090	-0.02	15.27	16.30	1.268	0.114	0.144	0.090	15.3	15.3	
Back side	40	QPSK 1RB1	349000/1745	0.087	0.05	15.27	16.30	1.268	0.110	0.139	0.087	15.3	15.3	
Body worn 10mm 50%RB														
Front side	40	QPSK 108RB54	349000/1745	0.096	0.07	15.25	16.30	1.274	0.122	0.154	0.096	15.3	15.3	
Back side	40	QPSK 108RB54	349000/1745	0.084	0.06	15.25	16.30	1.274	0.107	0.135	0.084	15.3	15.3	
Hotspot 10mm 1RB														
Front side	40	QPSK 1RB1	349000/1745	0.090	-0.02	15.27	16.30	1.268	0.114	0.144	0.090	15.3	15.3	
Back side	40	QPSK 1RB1	349000/1745	0.087	0.05	15.27	16.30	1.268	0.110	0.139	0.087	15.3	15.3	
Right side	40	QPSK 1RB1	349000/1745	0.068	0.01	15.27	16.30	1.268	0.086	0.109	0.068	15.3	15.3	
Bottom side	40	QPSK 1RB1	349000/1745	0.117	0.05	15.27	16.30	1.268	0.148	0.187	0.117	15.3	15.3	
Hotspot 10mm 50%RB														
Front side	40	QPSK 108RB54	349000/1745	0.096	0.07	15.25	16.30	1.274	0.122	0.154	0.096	15.3	15.3	
Back side	40	QPSK 108RB54	349000/1745	0.084	0.06	15.25	16.30	1.274	0.107	0.135	0.084	15.3	15.3	
Right side	40	QPSK 108RB54	349000/1745	0.068	-0.03	15.25	16.30	1.274	0.087	0.109	0.068	15.3	15.3	
Bottom side	40	QPSK 108RB54	349000/1745	0.104	0.05	15.25	16.30	1.274	0.132	0.167	0.104	15.3	15.3	

Table 21: SAR of 5G NR n66.

15.16 SAR Measurement Result of 5G NR n77

Ant 6 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.007	0.00	16.07	17.00	1.239	0.009	0.011	0.007	16.0	16.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.004	-0.03	16.07	17.00	1.239	0.005	0.006	0.004	16.0	16.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.009	-0.01	16.07	17.00	1.239	0.011	0.014	0.009	16.0	16.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.006	0.00	16.07	17.00	1.239	0.007	0.009	0.006	16.0	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.00	15.96	17.00	1.271	0.006	0.008	0.005	16.0	16.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.05	15.96	17.00	1.271	0.006	0.008	0.005	16.0	16.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.005	-0.07	15.96	17.00	1.271	0.006	0.008	0.005	16.0	16.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.007	-0.02	15.96	17.00	1.271	0.009	0.011	0.007	16.0	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.113	-0.09	16.07	17.00	1.239	0.140	0.176	0.110	16.0	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.105	-0.02	16.07	17.00	1.239	0.130	0.164	0.102	16.0	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.088	-0.060	15.96	17.00	1.271	0.112	0.141	0.088	16.0	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.090	0.010	15.96	17.00	1.271	0.114	0.144	0.090	16.0	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.113	-0.09	16.07	17.00	1.239	0.140	0.176	0.110	16.0	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.105	-0.02	16.07	17.00	1.239	0.130	0.164	0.102	16.0	16.0
Right side	100	QPSK 1RB1	100%	633334/3500.01	0.038	0.05	16.07	17.00	1.239	0.047	0.059	0.037	16.0	16.0
Bottom side	100	QPSK 1RB1	100%	633334/3500.01	0.218	0.00	16.07	17.00	1.239	0.270	0.340	0.212	16.0	16.0
Hotspot 10mm 50%EB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.088	-0.06	15.96	17.00	1.271	0.112	0.141	0.088	16.0	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.090	0.01	15.96	17.00	1.271	0.114	0.144	0.090	16.0	16.0
Right side	100	QPSK 135RB0	100%	633334/3500.01	0.012	-0.03	15.96	17.00	1.271	0.015	0.019	0.012	16.0	16.0
Bottom side	100	QPSK 135RB0	100%	633334/3500.01	0.168	0.00	15.96	17.00	1.271	0.213	0.269	0.168	16.0	16.0

Table 22: SAR of 5G NR n77(3450~3550).

Ant 3 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.094	0.02	12.64	12.80	1.038	0.098	0.204	0.127	11.8	16.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.101	-0.01	12.64	12.80	1.038	0.105	0.219	0.137	11.8	16.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.126	0.00	12.64	12.80	1.038	0.131	0.273	0.171	11.8	16.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.100	-0.06	12.64	12.80	1.038	0.104	0.217	0.135	11.8	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.037	0.05	12.41	12.80	1.094	0.040	0.085	0.053	11.8	16.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.026	-0.01	12.41	12.80	1.094	0.028	0.059	0.037	11.8	16.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.046	0.00	12.41	12.80	1.094	0.050	0.105	0.066	11.8	16.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.033	0.02	12.41	12.80	1.094	0.036	0.075	0.047	11.8	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.028	-0.01	12.64	12.80	1.038	0.029	0.061	0.038	11.8	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.034	0.04	12.64	12.80	1.038	0.035	0.074	0.046	11.8	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.02	12.41	12.80	1.094	0.005	0.011	0.007	11.8	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.027	0.00	12.41	12.80	1.094	0.030	0.062	0.039	11.8	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.028	-0.01	12.64	12.80	1.038	0.029	0.061	0.038	11.8	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.034	0.04	12.64	12.80	1.038	0.035	0.074	0.046	11.8	16.0
Right side	100	QPSK 1RB1	100%	633334/3500.01	0.007	0.07	12.64	12.80	1.038	0.007	0.015	0.009	11.8	16.0
Top side	100	QPSK 1RB1	100%	633334/3500.01	0.023	0.01	12.64	12.80	1.038	0.024	0.050	0.031	11.8	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.02	12.41	12.80	1.094	0.005	0.011	0.007	11.8	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.027	0.00	12.41	12.80	1.094	0.030	0.062	0.039	11.8	16.0
Right side	100	QPSK 135RB0	100%	633334/3500.01	0.006	-0.03	12.41	12.80	1.094	0.007	0.014	0.009	11.8	16.0
Top side	100	QPSK 135RB0	100%	633334/3500.01	0.009	0.06	12.41	12.80	1.094	0.010	0.021	0.013	11.8	16.0
Ant 4 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.008	0.01	14.63	14.80	1.040	0.008	0.011	0.007	13.8	16.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.008	0.00	14.63	14.80	1.040	0.008	0.011	0.007	13.8	16.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.032	-0.16	14.63	14.80	1.040	0.033	0.044	0.027	13.8	16.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.027	-0.02	14.63	14.80	1.040	0.028	0.037	0.023	13.8	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.036	-0.01	14.55	14.80	1.059	0.038	0.050	0.031	13.8	16.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.05	14.55	14.80	1.059	0.005	0.007	0.004	13.8	16.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.060	0.17	14.55	14.80	1.059	0.064	0.084	0.052	13.8	16.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.033	-0.04	14.55	14.80	1.059	0.035	0.046	0.029	13.8	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.004	0.01	14.63	14.80	1.040	0.004	0.005	0.003	13.8	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.008	-0.05	14.63	14.80	1.040	0.008	0.011	0.007	13.8	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.00	14.55	14.80	1.059	0.005	0.007	0.004	13.8	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.008	-0.01	14.55	14.80	1.059	0.008	0.011	0.007	13.8	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.004	0.01	14.63	14.80	1.040	0.004	0.005	0.003	13.8	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.008	-0.05	14.63	14.80	1.040	0.008	0.011	0.007	13.8	16.0
Left side	100	QPSK 1RB1	100%	633334/3500.01	0.007	-0.03	14.63	14.80	1.040	0.007	0.010	0.006	13.8	16.0
Top side	100	QPSK 1RB1	100%	633334/3500.01	0.003	-0.02	14.63	14.80	1.040	0.003	0.004	0.003	13.8	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.005	0.00	14.55	14.80	1.059	0.005	0.007	0.004	13.8	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.008	-0.01	14.55	14.80	1.059	0.008	0.011	0.007	13.8	16.0
Left side	100	QPSK 135RB0	100%	633334/3500.01	0.007	0.05	14.55	14.80	1.059	0.007	0.010	0.006	13.8	16.0
Top side	100	QPSK 135RB0	100%	633334/3500.01	0.002	0.01	14.55	14.80	1.059	0.002	0.003	0.002	13.8	16.0
Ant 7 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.011	0.01	11.52	12.50	1.253	0.014	0.031	0.019	11.5	16.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.011	0.00	11.52	12.50	1.253	0.014	0.031	0.019	11.5	16.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.046	-0.05	11.52	12.50	1.253	0.058	0.129	0.081	11.5	16.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.032	-0.02	11.52	12.50	1.253	0.040	0.090	0.056	11.5	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.011	-0.06	11.45	12.50	1.274	0.014	0.031	0.020	11.5	16.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.011	0.02	11.45	12.50	1.274	0.014	0.031	0.020	11.5	16.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.039	0.07	11.45	12.50	1.274	0.050	0.111	0.069	11.5	16.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.028	0.00	11.45	12.50	1.274	0.036	0.080	0.050	11.5	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.003	0.05	11.52	12.50	1.253	0.004	0.008	0.005	11.5	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.092	-0.02	11.52	12.50	1.253	0.115	0.258	0.161	11.5	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.004	0.01	11.45	12.50	1.274	0.005	0.011	0.007	11.5	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.074	-0.02	11.45	12.50	1.274	0.094	0.211	0.132	11.5	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.003	0.05	11.52	12.50	1.253	0.004	0.008	0.005	11.5	16.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.092	-0.02	11.52	12.50	1.253	0.115	0.258	0.161	11.5	16.0

Left side	100	QPSK 1RB1	100%	633334/3500.01	0.008	0.01	11.52	12.50	1.253	0.010	0.022	0.014	11.5	16.0
Top side	100	QPSK 1RB1	100%	633334/3500.01	0.015	0.02	11.52	12.50	1.253	0.019	0.042	0.026	11.5	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.004	0.01	11.45	12.50	1.274	0.005	0.011	0.007	11.5	16.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.074	-0.02	11.45	12.50	1.274	0.094	0.211	0.132	11.5	16.0
Left side	100	QPSK 135RB0	100%	633334/3500.01	0.008	0.05	11.45	12.50	1.274	0.010	0.023	0.014	11.5	16.0
Top side	100	QPSK 135RB0	100%	633334/3500.01	0.015	-0.03	11.45	12.50	1.274	0.019	0.043	0.027	11.5	16.0

Table 23: SAR of 5G NR n77(3450~3550, 1T4R).

Ant 3+4 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.230	-0.01	17.82	18.30	1.117	0.257	0.323	0.202	17.3	19.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.189	0.03	17.82	18.30	1.117	0.211	0.266	0.166	17.3	19.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.262	-0.01	17.82	18.30	1.117	0.293	0.368	0.230	17.3	19.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.207	0.05	17.82	18.30	1.117	0.231	0.291	0.182	17.3	19.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.235	0.00	17.72	18.30	1.143	0.269	0.338	0.211	17.3	19.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.177	-0.05	17.72	18.30	1.143	0.202	0.255	0.159	17.3	19.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.255	0.00	17.72	18.30	1.143	0.291	0.367	0.229	17.3	19.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.195	0.01	17.72	18.30	1.143	0.223	0.281	0.175	17.3	19.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.061	0.05	17.82	18.30	1.117	0.068	0.086	0.054	17.3	19.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.112	-0.03	17.82	18.30	1.117	0.125	0.157	0.098	17.3	19.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.062	-0.08	17.72	18.30	1.143	0.071	0.089	0.056	17.3	19.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.095	0.05	17.72	18.30	1.143	0.109	0.137	0.085	17.3	19.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.061	0.05	17.82	18.30	1.117	0.068	0.086	0.054	17.3	19.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.112	-0.03	17.82	18.30	1.117	0.125	0.157	0.098	17.3	19.0
Left side	100	QPSK 1RB1	100%	633334/3500.01	0.010	-0.10	17.82	18.30	1.117	0.011	0.014	0.009	17.3	19.0
Right side	100	QPSK 1RB1	100%	633334/3500.01	0.011	0.14	17.82	18.30	1.117	0.012	0.015	0.010	17.3	19.0
Top side	100	QPSK 1RB1	100%	633334/3500.01	0.043	-0.07	17.82	18.30	1.117	0.048	0.060	0.038	17.3	19.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.062	-0.08	17.72	18.30	1.143	0.071	0.089	0.056	17.3	19.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.095	0.05	17.72	18.30	1.143	0.109	0.137	0.085	17.3	19.0
Left side	100	QPSK 135RB0	100%	633334/3500.01	0.013	-0.06	17.72	18.30	1.143	0.015	0.019	0.012	17.3	19.0
Right side	100	QPSK 135RB0	100%	633334/3500.01	0.013	0.07	17.72	18.30	1.143	0.015	0.019	0.012	17.3	19.0
Top side	100	QPSK 135RB0	100%	633334/3500.01	0.045	-0.10	17.72	18.30	1.143	0.051	0.065	0.040	17.3	19.0
Ant 6+7 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	633334/3500.01	0.050	-0.10	19.30	20.00	1.175	0.059	0.074	0.046	19.0	19.0
Left tilted	100	QPSK 1RB1	100%	633334/3500.01	0.045	0.14	19.30	20.00	1.175	0.053	0.067	0.042	19.0	19.0
Right cheek	100	QPSK 1RB1	100%	633334/3500.01	0.154	0.04	19.30	20.00	1.175	0.181	0.228	0.142	19.0	19.0
Right tilted	100	QPSK 1RB1	100%	633334/3500.01	0.111	0.07	19.30	20.00	1.175	0.130	0.164	0.103	19.0	19.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	633334/3500.01	0.045	0.01	19.13	20.00	1.222	0.055	0.069	0.043	19.0	19.0
Left tilted	100	QPSK 135RB0	100%	633334/3500.01	0.040	-0.12	19.13	20.00	1.222	0.049	0.062	0.038	19.0	19.0
Right cheek	100	QPSK 135RB0	100%	633334/3500.01	0.148	-0.03	19.13	20.00	1.222	0.181	0.228	0.142	19.0	19.0
Right tilted	100	QPSK 135RB0	100%	633334/3500.01	0.101	0.05	19.13	20.00	1.222	0.123	0.155	0.097	19.0	19.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.120	0.00	19.30	20.00	1.175	0.141	0.177	0.111	19.0	19.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.339	0.07	19.30	20.00	1.175	0.398	0.501	0.313	19.0	19.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.097	-0.090	19.13	20.00	1.222	0.119	0.149	0.093	19.0	19.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.310	0.000	19.13	20.00	1.222	0.379	0.477	0.298	19.0	19.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	633334/3500.01	0.120	0.00	19.30	20.00	1.175	0.141	0.177	0.111	19.0	19.0
Back side	100	QPSK 1RB1	100%	633334/3500.01	0.339	0.07	19.30	20.00	1.175	0.398	0.501	0.313	19.0	19.0
Left side	100	QPSK 1RB1	100%	633334/3500.01	0.039	-0.15	19.30	20.00	1.175	0.046	0.058	0.036	19.0	19.0
Right side	100	QPSK 1RB1	100%	633334/3500.01	0.019	0.09	19.30	20.00	1.175	0.022	0.028	0.018	19.0	19.0
Top side	100	QPSK 1RB1	100%	633334/3500.01	0.049	0.03	19.30	20.00	1.175	0.058	0.072	0.045	19.0	19.0
Bottom side	100	QPSK 1RB1	100%	633334/3500.01	0.238	-0.01	19.30	20.00	1.175	0.280	0.352	0.220	19.0	19.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	633334/3500.01	0.097	-0.09	19.13	20.00	1.222	0.119	0.149	0.093	19.0	19.0
Back side	100	QPSK 135RB0	100%	633334/3500.01	0.310	0.00	19.13	20.00	1.222	0.379	0.477	0.298	19.0	19.0
Left side	100	QPSK 135RB0	100%	633334/3500.01	0.036	0.13	19.13	20.00	1.222	0.044	0.055	0.035	19.0	19.0
Right side	100	QPSK 135RB0	100%	633334/3500.01	0.014	0.07	19.13	20.00	1.222	0.017	0.022	0.013	19.0	19.0
Top side	100	QPSK 135RB0	100%	633334/3500.01	0.057	-0.10	19.13	20.00	1.222	0.070	0.088	0.055	19.0	19.0
Bottom side	100	QPSK 135RB0	100%	633334/3500.01	0.193	0.00	19.13	20.00	1.222	0.236	0.297	0.186	19.0	19.0

Table 24: SAR of 5G NR n77(3450~3550, 2T4R).

Ant 6 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	654800/3822	0.006	0.00	16.22	17.00	1.197	0.007	0.009	0.006	16.0	16.0
Left tilted	100	QPSK 1RB1	100%	654800/3822	0.005	0.01	16.22	17.00	1.197	0.006	0.008	0.005	16.0	16.0
Right cheek	100	QPSK 1RB1	100%	654800/3822	0.013	0.01	16.22	17.00	1.197	0.016	0.020	0.012	16.0	16.0
Right tilted	100	QPSK 1RB1	100%	654800/3822	0.008	0.00	16.22	17.00	1.197	0.010	0.012	0.008	16.0	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	654800/3822	0.111	-0.01	16.00	17.00	1.259	0.014	0.017	0.011	16.0	16.0
Left tilted	100	QPSK 135RB0	100%	654800/3822	0.007	0.00	16.00	17.00	1.259	0.009	0.011	0.007	16.0	16.0
Right cheek	100	QPSK 135RB0	100%	654800/3822	0.015	0.03	16.00	17.00	1.259	0.019	0.024	0.015	16.0	16.0
Right tilted	100	QPSK 135RB0	100%	654800/3822	0.008	-0.01	16.00	17.00	1.259	0.010	0.013	0.008	16.0	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.116	-0.01	16.22	17.00	1.197	0.139	0.175	0.109	16.0	16.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.121	0.01	16.22	17.00	1.197	0.145	0.182	0.114	16.0	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.111	0.02	16.00	17.00	1.259	0.140	0.176	0.110	16.0	16.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.128	-0.09	16.00	17.00	1.259	0.161	0.203	0.127	16.0	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.116	-0.01	16.22	17.00	1.197	0.139	0.175	0.109	16.0	16.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.121	0.01	16.22	17.00	1.197	0.145	0.182	0.114	16.0	16.0
Right side	100	QPSK 1RB1	100%	654800/3822	0.013	0.00	16.22	17.00	1.197	0.016	0.020	0.012	16.0	16.0
Bottom side	100	QPSK 1RB1	100%	654800/3822	0.243	0.00	16.22	17.00	1.197	0.291	0.366	0.229	16.0	16.0
Hotspot 10mm 50%EB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.111	0.02	16.20	17.00	1.202	0.133	0.168	0.105	16.0	16.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.128	-0.09	16.20	17.00	1.202	0.154	0.194	0.121	16.0	16.0
Right side	100	QPSK 135RB0	100%	654800/3822	0.016	-0.03	16.20	17.00	1.202	0.019	0.024	0.015	16.0	16.0
Bottom side	100	QPSK 135RB0	100%	654800/3822	0.241	0.00	16.20	17.00	1.202	0.290	0.365	0.228	16.0	16.0

Table 25: SAR of 5G NR n77(3700~3980).

Ant 3 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	650000/3750	0.136	0.01	11.49	12.80	1.352	0.184	0.384	0.240	11.8	16.0
Left tilted	100	QPSK 1RB1	100%	650000/3750	0.132	0.06	11.49	12.80	1.352	0.178	0.373	0.233	11.8	16.0
Right cheek	100	QPSK 1RB1	100%	650000/3750	0.122	-0.04	11.49	12.80	1.352	0.165	0.345	0.215	11.8	16.0
Right tilted	100	QPSK 1RB1	100%	650000/3750	0.104	0.02	11.49	12.80	1.352	0.141	0.294	0.184	11.8	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	650000/3750	0.182	-0.08	11.30	12.80	1.413	0.257	0.537	0.336	11.8	16.0
Left tilted	100	QPSK 135RB0	100%	650000/3750	0.126	0.00	11.30	12.80	1.413	0.178	0.372	0.232	11.8	16.0
Right cheek	100	QPSK 135RB0	100%	650000/3750	0.119	-0.01	11.30	12.80	1.413	0.168	0.351	0.219	11.8	16.0
Right tilted	100	QPSK 135RB0	100%	650000/3750	0.077	0.05	11.30	12.80	1.413	0.109	0.227	0.142	11.8	16.0
S														
Front side	100	QPSK 1RB1	100%	650000/3750	0.024	-0.03	11.49	12.80	1.352	0.032	0.068	0.042	11.8	16.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.055	0.05	11.49	12.80	1.352	0.074	0.155	0.097	11.8	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	650000/3750	0.033	0.02	11.30	12.80	1.413	0.047	0.097	0.061	11.8	16.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.065	0.09	11.30	12.80	1.413	0.092	0.192	0.120	11.8	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	650000/3750	0.024	-0.03	11.49	12.80	1.352	0.032	0.068	0.042	11.8	16.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.055	0.05	11.49	12.80	1.352	0.074	0.155	0.097	11.8	16.0
Right side	100	QPSK 1RB1	100%	650000/3750	0.011	-0.07	11.49	12.80	1.352	0.015	0.031	0.019	11.8	16.0
Top side	100	QPSK 1RB1	100%	650000/3750	0.023	0.01	11.49	12.80	1.352	0.031	0.065	0.041	11.8	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	650000/3750	0.033	0.02	11.30	12.80	1.413	0.047	0.097	0.061	11.8	16.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.065	0.09	11.30	12.80	1.413	0.092	0.192	0.120	11.8	16.0
Right side	100	QPSK 135RB0	100%	650000/3750	0.009	-0.06	11.30	12.80	1.413	0.013	0.027	0.017	11.8	16.0
Top side	100	QPSK 135RB0	100%	650000/3750	0.019	-0.01	11.30	12.80	1.413	0.027	0.056	0.035	11.8	16.0
Ant 4 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	650000/3750	0.020	0.08	14.47	14.80	1.079	0.022	0.028	0.018	13.8	16.0
Left tilted	100	QPSK 1RB1	100%	650000/3750	0.019	0.01	14.47	14.80	1.079	0.020	0.027	0.017	13.8	16.0
Right cheek	100	QPSK 1RB1	100%	650000/3750	0.131	0.10	14.47	14.80	1.079	0.141	0.186	0.116	13.8	16.0
Right tilted	100	QPSK 1RB1	100%	650000/3750	0.048	-0.06	14.47	14.80	1.079	0.052	0.068	0.043	13.8	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	650000/3750	0.014	0.02	14.28	14.80	1.127	0.016	0.021	0.013	13.8	16.0
Left tilted	100	QPSK 135RB0	100%	650000/3750	0.016	0.07	14.28	14.80	1.127	0.018	0.024	0.015	13.8	16.0
Right cheek	100	QPSK 135RB0	100%	650000/3750	0.108	-0.12	14.28	14.80	1.127	0.122	0.160	0.100	13.8	16.0
Right tilted	100	QPSK 135RB0	100%	650000/3750	0.047	0.00	14.28	14.80	1.127	0.053	0.070	0.044	13.8	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	650000/3750	0.009	-0.02	14.47	14.80	1.079	0.010	0.013	0.008	13.8	16.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.016	-0.03	14.47	14.80	1.079	0.017	0.023	0.014	13.8	16.0
Body worn 10mm 50%RB														

Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Front side	100	QPSK 135RB0	100%	650000/3750	0.008	-0.070	14.28	14.80	1.127	0.009	0.012	0.007	13.8	16.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.015	0.010	14.28	14.80	1.127	0.017	0.022	0.014	13.8	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	650000/3750	0.009	-0.02	14.47	14.80	1.079	0.010	0.013	0.008	13.8	16.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.016	-0.03	14.47	14.80	1.079	0.017	0.023	0.014	13.8	16.0
Left side	100	QPSK 1RB1	100%	650000/3750	0.013	0.05	14.47	14.80	1.079	0.014	0.018	0.012	13.8	16.0
Top side	100	QPSK 1RB1	100%	650000/3750	0.008	0.00	14.47	14.80	1.079	0.009	0.011	0.007	13.8	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	650000/3750	0.008	-0.07	14.28	14.80	1.127	0.009	0.012	0.007	13.8	16.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.015	0.01	14.28	14.80	1.127	0.017	0.022	0.014	13.8	16.0
Left side	100	QPSK 135RB0	100%	650000/3750	0.014	-0.11	14.28	14.80	1.127	0.016	0.021	0.013	13.8	16.0
Top side	100	QPSK 135RB0	100%	650000/3750	0.006	0.03	14.28	14.80	1.127	0.007	0.009	0.006	13.8	16.0
Ant 7 Test Results														
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	654800/3822	0.017	-0.02	11.74	12.50	1.191	0.020	0.045	0.028	11.5	16.0
Left tilted	100	QPSK 1RB1	100%	654800/3822	0.013	0.00	11.74	12.50	1.191	0.015	0.035	0.022	11.5	16.0
Right cheek	100	QPSK 1RB1	100%	654800/3822	0.068	0.06	11.74	12.50	1.191	0.081	0.181	0.113	11.5	16.0
Right tilted	100	QPSK 1RB1	100%	654800/3822	0.030	0.01	11.74	12.50	1.191	0.036	0.080	0.050	11.5	16.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	654800/3822	0.014	-0.03	11.58	12.50	1.236	0.017	0.039	0.024	11.5	16.0
Left tilted	100	QPSK 135RB0	100%	654800/3822	0.017	0.01	11.58	12.50	1.236	0.021	0.047	0.029	11.5	16.0
Right cheek	100	QPSK 135RB0	100%	654800/3822	0.062	-0.08	11.58	12.50	1.236	0.077	0.172	0.107	11.5	16.0
Right tilted	100	QPSK 135RB0	100%	654800/3822	0.032	0.02	11.58	12.50	1.236	0.040	0.089	0.055	11.5	16.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.006	0.05	11.74	12.50	1.191	0.007	0.016	0.010	11.5	16.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.065	-0.14	11.74	12.50	1.191	0.077	0.173	0.108	11.5	16.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.011	0.000	11.58	12.50	1.236	0.014	0.030	0.019	11.5	16.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.058	-0.050	11.58	12.50	1.236	0.072	0.160	0.100	11.5	16.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.006	0.05	11.74	12.50	1.191	0.007	0.016	0.010	11.5	16.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.065	-0.14	11.74	12.50	1.191	0.077	0.173	0.108	11.5	16.0
Left side	100	QPSK 1RB1	100%	654800/3822	0.013	-0.02	11.74	12.50	1.191	0.015	0.035	0.022	11.5	16.0
Top side	100	QPSK 1RB1	100%	654800/3822	0.014	0.01	11.74	12.50	1.191	0.017	0.037	0.023	11.5	16.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.011	0.00	11.58	12.50	1.236	0.014	0.030	0.019	11.5	16.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.058	-0.05	11.58	12.50	1.236	0.072	0.160	0.100	11.5	16.0
Left side	100	QPSK 135RB0	100%	654800/3822	0.013	0.01	11.58	12.50	1.236	0.016	0.036	0.022	11.5	16.0
Top side	100	QPSK 135RB0	100%	654800/3822	0.018	0.02	11.58	12.50	1.236	0.022	0.050	0.031	11.5	16.0

Table 26: SAR of 5G NR n77(3700~3980, 1T4R).

Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Ant 3+4 Test Results														
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	650000/3750	0.416	0.03	17.67	18.30	1.156	0.481	0.605	0.378	17.3	19.0
Left tilted	100	QPSK 1RB1	100%	650000/3750	0.263	-0.05	17.67	18.30	1.156	0.304	0.383	0.239	17.3	19.0
Right cheek	100	QPSK 1RB1	100%	650000/3750	0.303	0.00	17.67	18.30	1.156	0.350	0.441	0.276	17.3	19.0
Right tilted	100	QPSK 1RB1	100%	650000/3750	0.271	0.01	17.67	18.30	1.156	0.313	0.394	0.247	17.3	19.0
Left cheek	100	QPSK 1RB1	100%	659600/3894	0.118	0.14	17.32	18.30	1.253	0.148	0.186	0.116	17.3	19.0
Left cheek	100	QPSK 1RB1	100%	657200/3858	0.157	0.04	17.32	18.30	1.253	0.197	0.248	0.155	17.3	19.0
Left cheek	100	QPSK 1RB1	100%	662000/3930	0.081	-0.13	17.22	18.30	1.282	0.104	0.131	0.082	17.3	19.0
Left cheek	100	QPSK 1RB1	100%	654800/3822	0.188	0.06	17.29	18.30	1.262	0.237	0.299	0.187	17.3	19.0
Left cheek	100	QPSK 1RB1	100%	652400/3786	0.268	-0.02	17.27	18.30	1.268	0.340	0.428	0.267	17.3	19.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	650000/3750	0.297	-0.05	17.40	18.30	1.230	0.365	0.460	0.287	17.3	19.0
Left tilted	100	QPSK 135RB0	100%	650000/3750	0.243	0.02	17.40	18.30	1.230	0.299	0.376	0.235	17.3	19.0
Right cheek	100	QPSK 135RB0	100%	650000/3750	0.250	-0.01	17.40	18.30	1.230	0.308	0.387	0.242	17.3	19.0
Right tilted	100	QPSK 135RB0	100%	650000/3750	0.214	-0.03	17.40	18.30	1.230	0.263	0.331	0.207	17.3	19.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	650000/3750	0.085	0.10	17.67	18.30	1.156	0.098	0.124	0.077	17.3	19.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.173	0.04	17.67	18.30	1.156	0.200	0.252	0.157	17.3	19.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	650000/3750	0.092	-0.11	17.40	18.30	1.230	0.113	0.142	0.089	17.3	19.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.160	0.09	17.40	18.30	1.230	0.197	0.248	0.155	17.3	19.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	650000/3750	0.085	0.10	17.67	18.30	1.156	0.098	0.124	0.077	17.3	19.0
Back side	100	QPSK 1RB1	100%	650000/3750	0.173	0.04	17.67	18.30	1.156	0.200	0.252	0.157	17.3	19.0
Left side	100	QPSK 1RB1	100%	650000/3750	0.024	-0.14	17.67	18.30	1.156	0.028	0.035	0.022	17.3	19.0
Right side	100	QPSK 1RB1	100%	650000/3750	0.028	0.08	17.67	18.30	1.156	0.032	0.041	0.025	17.3	19.0
Top side	100	QPSK 1RB1	100%	650000/3750	0.076	-0.02	17.67	18.30	1.156	0.088	0.111	0.069	17.3	19.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	650000/3750	0.092	-0.11	17.40	18.30	1.230	0.113	0.142	0.089	17.3	19.0
Back side	100	QPSK 135RB0	100%	650000/3750	0.160	0.09	17.40	18.30	1.230	0.197	0.248	0.155	17.3	19.0
Left side	100	QPSK 135RB0	100%	650000/3750	0.022	0.02	17.40	18.30	1.230	0.027	0.034	0.021	17.3	19.0
Right side	100	QPSK 135RB0	100%	650000/3750	0.030	0.07	17.40	18.30	1.230	0.037	0.046	0.029	17.3	19.0
Top side	100	QPSK 135RB0	100%	650000/3750	0.086	-0.01	17.40	18.30	1.230	0.106	0.133	0.083	17.3	19.0

Ant 6+7 Test Results														
Test position	BW. (MHz)	Mode	Duty Cycle	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head 1RB														
Left cheek	100	QPSK 1RB1	100%	654800/3822	0.050	-0.05	19.44	20.00	1.138	0.057	0.072	0.045	19.0	19.0
Left tilted	100	QPSK 1RB1	100%	654800/3822	0.040	-0.12	19.44	20.00	1.138	0.046	0.057	0.036	19.0	19.0
Right cheek	100	QPSK 1RB1	100%	654800/3822	0.235	0.05	19.44	20.00	1.138	0.267	0.337	0.210	19.0	19.0
Right tilted	100	QPSK 1RB1	100%	654800/3822	0.105	0.02	19.44	20.00	1.138	0.119	0.150	0.094	19.0	19.0
Head 50%RB														
Left cheek	100	QPSK 135RB0	100%	654800/3822	0.046	-0.07	19.16	20.00	1.213	0.056	0.070	0.044	19.0	19.0
Left tilted	100	QPSK 135RB0	100%	654800/3822	0.043	0.11	19.16	20.00	1.213	0.052	0.066	0.041	19.0	19.0
Right cheek	100	QPSK 135RB0	100%	654800/3822	0.162	0.00	19.16	20.00	1.213	0.197	0.247	0.155	19.0	19.0
Right tilted	100	QPSK 135RB0	100%	654800/3822	0.094	0.05	19.16	20.00	1.213	0.114	0.144	0.090	19.0	19.0
Body worn 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.127	-0.03	19.44	20.00	1.138	0.144	0.182	0.114	19.0	19.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.244	0.01	19.44	20.00	1.138	0.278	0.349	0.218	19.0	19.0
Body worn 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.129	0.07	19.16	20.00	1.213	0.157	0.197	0.123	19.0	19.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.213	-0.02	19.16	20.00	1.213	0.258	0.325	0.203	19.0	19.0
Hotspot 10mm 1RB														
Front side	100	QPSK 1RB1	100%	654800/3822	0.127	-0.03	19.44	20.00	1.138	0.144	0.182	0.114	19.0	19.0
Back side	100	QPSK 1RB1	100%	654800/3822	0.244	0.01	19.44	20.00	1.138	0.278	0.349	0.218	19.0	19.0
Left side	100	QPSK 1RB1	100%	654800/3822	0.069	0.10	19.44	20.00	1.138	0.078	0.099	0.062	19.0	19.0
Right side	100	QPSK 1RB1	100%	654800/3822	0.018	0.02	19.44	20.00	1.138	0.020	0.026	0.016	19.0	19.0
Top side	100	QPSK 1RB1	100%	654800/3822	0.047	-0.08	19.44	20.00	1.138	0.053	0.067	0.042	19.0	19.0
Bottom side	100	QPSK 1RB1	100%	654800/3822	0.266	0.01	19.44	20.00	1.138	0.303	0.381	0.238	19.0	19.0
Hotspot 10mm 50%RB														
Front side	100	QPSK 135RB0	100%	654800/3822	0.129	0.07	19.16	20.00	1.213	0.157	0.197	0.123	19.0	19.0
Back side	100	QPSK 135RB0	100%	654800/3822	0.213	-0.02	19.16	20.00	1.213	0.258	0.325	0.203	19.0	19.0
Left side	100	QPSK 135RB0	100%	654800/3822	0.063	0.00	19.16	20.00	1.213	0.076	0.096	0.060	19.0	19.0
Right side	100	QPSK 135RB0	100%	654800/3822	0.017	0.05	19.16	20.00	1.213	0.021	0.026	0.016	19.0	19.0
Top side	100	QPSK 135RB0	100%	654800/3822	0.051	0.07	19.16	20.00	1.213	0.062	0.078	0.049	19.0	19.0
Bottom side	100	QPSK 135RB0	100%	654800/3822	0.231	-0.01	19.16	20.00	1.213	0.280	0.353	0.221	19.0	19.0

Table 27: SAR of 5G NR n77(3700~3980, 2T4R).

15.17 SAR Measurement Result of WIFI 2.4G

Ant5 Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head															
Left cheek	802.11b	11/2462	0.109	0.01	98.08%	100.00%	1.020	14.50	15.00	1.122	0.125	0.125	0.078	13.0	13.0
Left tilted	802.11b	11/2462	0.043	-0.02	98.08%	100.00%	1.020	14.50	15.00	1.122	0.049	0.049	0.031	13.0	13.0
Right cheek	802.11b	11/2462	0.407	-0.03	98.08%	100.00%	1.020	14.50	15.00	1.122	0.466	0.466	0.291	13.0	13.0
Right tilted	802.11b	11/2462	0.102	0.02	98.08%	100.00%	1.020	14.50	15.00	1.122	0.117	0.117	0.073	13.0	13.0
Body worn 10mm															
Front side	802.11b	11/2462	0.064	0.01	98.08%	100.00%	1.020	14.50	15.00	1.122	0.073	0.073	0.046	13.0	13.0
Back side	802.11b	11/2462	0.142	1.01	98.08%	100.00%	1.020	14.50	15.00	1.122	0.163	0.163	0.102	13.0	13.0
Hotspot 10mm															
Front side	802.11b	11/2462	0.064	0.01	98.08%	100.00%	1.020	14.50	15.00	1.122	0.073	0.073	0.046	13.0	13.0
Back side	802.11b	11/2462	0.142	0.04	98.08%	100.00%	1.020	14.50	15.00	1.122	0.163	0.163	0.102	13.0	13.0
Left side	802.11b	11/2462	0.225	0.00	98.08%	100.00%	1.020	14.50	15.00	1.122	0.258	0.258	0.161	13.0	13.0
Top side	802.11b	11/2462	0.022	0.01	98.08%	100.00%	1.020	14.50	15.00	1.122	0.025	0.025	0.016	13.0	13.0
Ant8 Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head															
Left cheek	802.11b	6/2437	0.003	0.00	98.08%	100.00%	1.020	13.46	14.50	1.271	0.004	0.004	0.002	12.5	12.5
Left tilted	802.11b	6/2437	0.001	0.01	98.08%	100.00%	1.020	13.46	14.50	1.271	0.001	0.001	0.001	12.5	12.5
Right cheek	802.11b	6/2437	0.004	0.03	98.08%	100.00%	1.020	13.46	14.50	1.271	0.005	0.005	0.003	12.5	12.5
Right tilted	802.11b	6/2437	0.001	0.03	98.08%	100.00%	1.020	13.46	14.50	1.271	0.001	0.001	0.001	12.5	12.5
Body worn 10mm															
Front side	802.11b	6/2437	0.009	0.03	98.08%	100.00%	1.020	13.46	14.50	1.271	0.012	0.012	0.007	12.5	12.5
Back side	802.11b	6/2437	0.161	0.07	98.08%	100.00%	1.020	13.46	14.50	1.271	0.209	0.209	0.130	12.5	12.5
Hotspot 10mm															
Front side	802.11b	6/2437	0.009	0.03	98.08%	100.00%	1.020	13.46	14.50	1.271	0.012	0.012	0.007	12.5	12.5
Back side	802.11b	6/2437	0.161	0.07	98.08%	100.00%	1.020	13.46	14.50	1.271	0.209	0.209	0.130	12.5	12.5
Left side	802.11b	6/2437	0.012	-0.02	98.08%	100.00%	1.020	13.46	14.50	1.271	0.016	0.016	0.010	12.5	12.5
Bottom side	802.11b	6/2437	0.025	0.00	98.08%	100.00%	1.020	13.46	14.50	1.271	0.032	0.032	0.020	12.5	12.5
MIMO Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1-g	Power drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (dBm)
Head															
Left cheek	802.11b	6/2437	0.097	0.01	98.08%	100.00%	1.020	17.01	17.80	1.199	0.119	0.119	0.074	15.8	15.8
Left tilted	802.11b	6/2437	0.047	0.03	98.08%	100.00%	1.020	17.01	17.80	1.199	0.058	0.058	0.036	15.8	15.8
Right cheek	802.11b	6/2437	0.455	-0.01	98.08%	100.00%	1.020	17.01	17.80	1.199	0.557	0.557	0.348	15.8	15.8

Right tilted	802.11b	6/2437	0.097	0.02	98.08%	100.00%	1.020	17.01	17.80	1.199	0.119	0.119	0.074	15.8	15.8
Body worn 10mm															
Front side	802.11b	6/2437	0.047	0.01	98.08%	100.00%	1.020	17.01	17.80	1.199	0.058	0.058	0.036	15.8	15.8
Back side	802.11b	6/2437	0.179	-0.03	98.08%	100.00%	1.020	17.01	17.80	1.199	0.219	0.219	0.137	15.8	15.8
Hotspot 10mm															
Front side	802.11b	6/2437	0.047	0.01	98.08%	100.00%	1.020	17.01	17.80	1.199	0.058	0.058	0.036	15.8	15.8
Back side	802.11b	6/2437	0.179	-0.03	98.08%	100.00%	1.020	17.01	17.80	1.199	0.219	0.219	0.137	15.8	15.8
Left side	802.11b	6/2437	0.248	0.00	98.08%	100.00%	1.020	17.01	17.80	1.199	0.303	0.303	0.190	15.8	15.8
Top side	802.11b	6/2437	0.026	-0.01	98.08%	100.00%	1.020	17.01	17.80	1.199	0.032	0.032	0.020	15.8	15.8
Bottom side	802.11b	6/2437	0.021	0.02	98.08%	100.00%	1.020	17.01	17.80	1.199	0.026	0.026	0.016	15.8	15.8

Table 28: SAR of WIFI 2.4G.

15.18 SAR Measurement Result of WIFI 5G

Ant5 Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Head															
Left cheek	802.11ac 80M	58/5290	0.194	0.00	99.63%	100.00%	1.004	14.47	15.50	1.268	0.247	0.247	0.154	13.5	13.5
Left tilted	802.11ac 80M	58/5290	0.166	-0.02	99.63%	100.00%	1.004	14.47	15.50	1.268	0.211	0.211	0.132	13.5	13.5
Right cheek	802.11ac 80M	58/5290	0.354	0.03	99.63%	100.00%	1.004	14.47	15.50	1.268	0.451	0.451	0.282	13.5	13.5
Right tilted	802.11ac 80M	58/5290	0.324	0.05	99.63%	100.00%	1.004	14.47	15.50	1.268	0.412	0.412	0.258	13.5	13.5
U-NII-2C Head															
Left cheek	802.11ac 80M	138/5690	0.185	-0.01	99.63%	100.00%	1.004	15.15	15.50	1.084	0.201	0.201	0.126	13.5	13.5
Left tilted	802.11ac 80M	138/5690	0.156	0.00	99.63%	100.00%	1.004	15.15	15.50	1.084	0.170	0.170	0.106	13.5	13.5
Right cheek	802.11ac 80M	138/5690	0.445	0.06	99.63%	100.00%	1.004	15.15	15.50	1.084	0.484	0.484	0.303	13.5	13.5
Right tilted	802.11ac 80M	138/5690	0.379	-0.04	99.63%	100.00%	1.004	15.15	15.50	1.084	0.412	0.412	0.258	13.5	13.5
U-NII-3 Head															
Left cheek	802.11ac 80M	155/5775	0.142	0.02	99.63%	100.00%	1.004	14.41	15.50	1.285	0.183	0.183	0.115	13.5	13.5
Left tilted	802.11ac 80M	155/5775	0.115	0.00	99.63%	100.00%	1.004	14.41	15.50	1.285	0.148	0.148	0.093	13.5	13.5
Right cheek	802.11ac 80M	155/5775	0.263	-0.03	99.63%	100.00%	1.004	14.41	15.50	1.285	0.339	0.339	0.212	13.5	13.5
Right tilted	802.11ac 80M	155/5775	0.240	-0.01	99.63%	100.00%	1.004	14.41	15.50	1.285	0.310	0.310	0.194	13.5	13.5
U-NII-2A Body worn 10mm															
Front side	802.11ac 80M	58/5290	0.076	0.01	99.63%	100.00%	1.004	14.47	15.50	1.268	0.097	0.097	0.060	13.5	13.5
Back side	802.11ac 80M	58/5290	0.151	-0.03	99.63%	100.00%	1.004	14.47	15.50	1.268	0.192	0.192	0.120	13.5	13.5
U-NII-2C Body worn 10mm															
Front side	802.11ac 80M	138/5690	0.096	0.02	99.63%	100.00%	1.004	15.15	15.50	1.084	0.104	0.104	0.065	13.5	13.5
Back side	802.11ac 80M	138/5690	0.295	-0.01	99.63%	100.00%	1.004	15.15	15.50	1.084	0.321	0.321	0.201	13.5	13.5
U-NII-3 Body worn 10mm															
Front side	802.11ac 80M	155/5775	0.082	0.01	99.63%	100.00%	1.004	14.41	15.50	1.285	0.106	0.106	0.066	13.5	13.5
Back side	802.11ac 80M	155/5775	0.301	-0.08	99.63%	100.00%	1.004	14.41	15.50	1.285	0.388	0.388	0.243	13.5	13.5
U-NII-1 Hotspot 10mm															
Front side	802.11ac 80M	42/5210	0.068	0.00	99.63%	100.00%	1.004	14.72	15.50	1.197	0.082	0.082	0.051	13.5	13.5
Back side	802.11ac 80M	42/5210	0.128	-0.01	99.63%	100.00%	1.004	14.72	15.50	1.197	0.154	0.154	0.096	13.5	13.5
Left side	802.11ac 80M	42/5210	0.109	0.04	99.63%	100.00%	1.004	14.72	15.50	1.197	0.131	0.131	0.082	13.5	13.5
Top side	802.11ac 80M	42/5210	0.036	-0.02	99.63%	100.00%	1.004	14.72	15.50	1.197	0.043	0.043	0.027	13.5	13.5
U-NII-3 Hotspot 10mm															
Front side	802.11ac 80M	155/5775	0.082	0.01	99.63%	100.00%	1.004	14.41	15.50	1.285	0.106	0.106	0.066	13.5	13.5
Back side	802.11ac 80M	155/5775	0.301	-0.08	99.63%	100.00%	1.004	14.41	15.50	1.285	0.388	0.388	0.243	13.5	13.5
Left side	802.11ac 80M	155/5775	0.272	0.05	99.63%	100.00%	1.004	14.41	15.50	1.285	0.351	0.351	0.219	13.5	13.5
Top side	802.11ac 80M	155/5775	0.065	-0.02	99.63%	100.00%	1.004	14.41	15.50	1.285	0.084	0.084	0.052	13.5	13.5
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 10g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 10g SAR (W/kg)	Adjusted 10g SAR (W/kg)	Exposure Ratio (10g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Product specific 10g SAR 0mm															
Front side	802.11ac 80M	58/5290	0.217	-0.06	99.63%	100.00%	1.004	14.47	15.50	1.268	0.276	0.276	0.069	13.5	13.5
Back side	802.11ac 80M	58/5290	0.983	0.00	99.63%	100.00%	1.004	14.47	15.50	1.268	1.251	1.251	0.313	13.5	13.5
Left side	802.11ac 80M	58/5290	0.179	0.02	99.63%	100.00%	1.004	14.47	15.50	1.268	0.228	0.228	0.057	13.5	13.5
Top side	802.11ac 80M	58/5290	0.038	-0.01	99.63%	100.00%	1.004	14.47	15.50	1.268	0.048	0.048	0.012	13.5	13.5
U-NII-2C Product specific 10g SAR 0mm															
Front side	802.11ac 80M	138/5690	0.394	0.13	99.63%	100.00%	1.004	15.15	15.50	1.084	0.429	0.429	0.107	13.5	13.5
Back side	802.11ac 80M	138/5690	1.350	-0.01	99.63%	100.00%	1.004	15.15	15.50	1.084	1.469	1.469	0.367	13.5	13.5
Left side	802.11ac 80M	138/5690	0.544	-0.05	99.63%	100.00%	1.004	15.15	15.50	1.084	0.592	0.592	0.148	13.5	13.5
Top side	802.11ac 80M	138/5690	0.085	0.02	99.63%	100.00%	1.004	15.15	15.50	1.084	0.093	0.093	0.023	13.5	13.5
Ant8 Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Head															
Left cheek	802.11ac 80M	58/5290	0.005	-0.01	99.63%	100.00%	1.004	13.82	15.00	1.312	0.007	0.007	0.004	13.0	13.0
Left tilted	802.11ac 80M	58/5290	0.004	0.02	99.63%	100.00%	1.004	13.82	15.00	1.312	0.005	0.005	0.003	13.0	13.0
Right cheek	802.11ac 80M	58/5290	0.011	-0.09	99.63%	100.00%	1.004	13.82	15.00	1.312	0.014	0.014	0.009	13.0	13.0
Right tilted	802.11ac 80M	58/5290	0.006	0.05	99.63%	100.00%	1.004	13.82	15.00	1.312	0.008	0.008	0.005	13.0	13.0
U-NII-2C Head															
Left cheek	802.11ac 80M	138/5690	0.008	-0.06	99.63%	100.00%	1.004	14.96	15.00	1.009	0.008	0.008	0.005	13.0	13.0
Left tilted	802.11ac 80M	138/5690	0.007	-0.01	99.63%	100.00%	1.004	14.96	15.00	1.009	0.007	0.007	0.004	13.0	13.0
Right cheek	802.11ac 80M	138/5690	0.007	0.00	99.63%	100.00%	1.004	14.96	15.00	1.009	0.007	0.007	0.004	13.0	13.0
Right tilted	802.11ac 80M	138/5690	0.009	0.08	99.63%	100.00%	1.004	14.96	15.00	1.009	0.009	0.009	0.006	13.0	13.0
U-NII-3 Head															

Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 10g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Body worn 10mm															
Left cheek	802.11ac 80M	155/5775	0.007	-0.06	99.63%	100.00%	1.004	14.30	15.00	1.175	0.008	0.008	0.005	13.0	13.0
Left tilted	802.11ac 80M	155/5775	0.005	0.11	99.63%	100.00%	1.004	14.30	15.00	1.175	0.006	0.006	0.004	13.0	13.0
Right cheek	802.11ac 80M	155/5775	0.011	0.02	99.63%	100.00%	1.004	14.30	15.00	1.175	0.013	0.013	0.008	13.0	13.0
Right tilted	802.11ac 80M	155/5775	0.007	-0.15	99.63%	100.00%	1.004	14.30	15.00	1.175	0.008	0.008	0.005	13.0	13.0
U-NII-2C Body worn 10mm															
Front side	802.11ac 80M	58/5290	0.006	-0.01	99.63%	100.00%	1.004	13.82	15.00	1.312	0.008	0.008	0.005	13.0	13.0
Back side	802.11ac 80M	58/5290	0.077	0.01	99.63%	100.00%	1.004	13.82	15.00	1.312	0.101	0.101	0.063	13.0	13.0
U-NII-3 Body worn 10mm															
Front side	802.11ac 80M	138/5690	0.007	0.05	99.63%	100.00%	1.004	14.96	15.00	1.009	0.007	0.007	0.004	13.0	13.0
Back side	802.11ac 80M	138/5690	0.169	-0.02	99.63%	100.00%	1.004	14.96	15.00	1.009	0.171	0.171	0.107	13.0	13.0
U-NII-1 Hotspot 10mm															
Front side	802.11ac 80M	42/5210	0.007	0.08	99.63%	100.00%	1.004	14.15	15.00	1.216	0.009	0.009	0.005	13.0	13.0
Back side	802.11ac 80M	42/5210	0.096	-0.02	99.63%	100.00%	1.004	14.15	15.00	1.216	0.117	0.117	0.073	13.0	13.0
Left side	802.11ac 80M	42/5210	0.005	0.03	99.63%	100.00%	1.004	14.15	15.00	1.216	0.006	0.006	0.004	13.0	13.0
Bottom side	802.11ac 80M	42/5210	0.014	-0.01	99.63%	100.00%	1.004	14.15	15.00	1.216	0.017	0.017	0.011	13.0	13.0
U-NII-3 Hotspot 10mm															
Front side	802.11ac 80M	155/5775	0.009	-0.01	99.63%	100.00%	1.004	14.30	15.00	1.175	0.011	0.011	0.007	13.0	13.0
Back side	802.11ac 80M	155/5775	0.206	0.03	99.63%	100.00%	1.004	14.30	15.00	1.175	0.243	0.243	0.152	13.0	13.0
Left side	802.11ac 80M	155/5775	0.020	0.06	99.63%	100.00%	1.004	14.30	15.00	1.175	0.024	0.024	0.015	13.0	13.0
Bottom side	802.11ac 80M	155/5775	0.023	-0.02	99.63%	100.00%	1.004	14.30	15.00	1.175	0.027	0.027	0.017	13.0	13.0
U-NII-2A Product specific 10g SAR 0mm															
Front side	802.11ac 80M	58/5290	0.011	-0.09	99.63%	100.00%	1.004	13.82	15.00	1.312	0.014	0.014	0.004	13.0	13.0
Back side	802.11ac 80M	58/5290	0.357	-0.02	99.63%	100.00%	1.004	13.82	15.00	1.312	0.470	0.470	0.118	13.0	13.0
Left side	802.11ac 80M	58/5290	0.004	0.05	99.63%	100.00%	1.004	13.82	15.00	1.312	0.005	0.005	0.001	13.0	13.0
Bottom side	802.11ac 80M	58/5290	0.019	0.02	99.63%	100.00%	1.004	13.82	15.00	1.312	0.025	0.025	0.006	13.0	13.0
U-NII-2C Product specific 10g SAR 0mm															
Front side	802.11ac 80M	138/5690	0.010	0.02	99.63%	100.00%	1.004	14.96	15.00	1.009	0.010	0.010	0.003	13.0	13.0
Back side	802.11ac 80M	138/5690	0.545	0.04	99.63%	100.00%	1.004	14.96	15.00	1.009	0.552	0.552	0.138	13.0	13.0
Left side	802.11ac 80M	138/5690	0.014	-0.11	99.63%	100.00%	1.004	14.96	15.00	1.009	0.014	0.014	0.004	13.0	13.0
Bottom side	802.11ac 80M	138/5690	0.018	-0.05	99.63%	100.00%	1.004	14.96	15.00	1.009	0.018	0.018	0.005	13.0	13.0
MIMO Test Results															
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 1g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Head															
Left cheek	802.11ac 80M	58/5290	0.232	0.02	99.63%	100.00%	1.004	17.17	18.30	1.297	0.302	0.302	0.189	16.3	16.3
Left tilted	802.11ac 80M	58/5290	0.129	-0.03	99.63%	100.00%	1.004	17.17	18.30	1.297	0.168	0.168	0.105	16.3	16.3
Right cheek	802.11ac 80M	58/5290	0.379	0.00	99.63%	100.00%	1.004	17.17	18.30	1.297	0.494	0.494	0.308	16.3	16.3
Right tilted	802.11ac 80M	58/5290	0.275	0.01	99.63%	100.00%	1.004	17.17	18.30	1.297	0.358	0.358	0.224	16.3	16.3
U-NII-2C Head															
Left cheek	802.11ac 80M	138/5690	0.190	-0.02	99.63%	100.00%	1.004	18.07	18.30	1.054	0.201	0.201	0.126	16.3	16.3
Left tilted	802.11ac 80M	138/5690	0.185	0.03	99.63%	100.00%	1.004	18.07	18.30	1.054	0.196	0.196	0.122	16.3	16.3
Right cheek	802.11ac 80M	138/5690	0.473	-0.01	99.63%	100.00%	1.004	18.07	18.30	1.054	0.501	0.501	0.313	16.3	16.3
Right tilted	802.11ac 80M	138/5690	0.453	0.00	99.63%	100.00%	1.004	18.07	18.30	1.054	0.480	0.480	0.300	16.3	16.3
U-NII-3 Head															
Left cheek	802.11ac 80M	155/5775	0.098	0.01	99.63%	100.00%	1.004	17.37	18.30	1.239	0.122	0.122	0.076	16.3	16.3
Left tilted	802.11ac 80M	155/5775	0.094	0.03	99.63%	100.00%	1.004	17.37	18.30	1.239	0.117	0.117	0.073	16.3	16.3
Right cheek	802.11ac 80M	155/5775	0.357	0.00	99.63%	100.00%	1.004	17.37	18.30	1.239	0.444	0.444	0.278	16.3	16.3
Right tilted	802.11ac 80M	155/5775	0.253	0.07	99.63%	100.00%	1.004	17.37	18.30	1.239	0.315	0.315	0.197	16.3	16.3
U-NII-2A Body worn 10mm															
Front side	802.11ac 80M	58/5290	0.080	0.00	99.63%	100.00%	1.004	17.17	18.30	1.297	0.104	0.104	0.065	16.3	16.3
Back side	802.11ac 80M	58/5290	0.150	0.03	99.63%	100.00%	1.004	17.17	18.30	1.297	0.195	0.195	0.122	16.3	16.3
U-NII-2C Body worn 10mm															
Front side	802.11ac 80M	138/5690	0.101	0.02	99.63%	100.00%	1.004	18.07	18.30	1.054	0.107	0.107	0.067	16.3	16.3
Back side	802.11ac 80M	138/5690	0.272	-0.01	99.63%	100.00%	1.004	18.07	18.30	1.054	0.288	0.288	0.180	16.3	16.3
U-NII-3 Body worn 10mm															
Front side	802.11ac 80M	155/5775	0.096	-0.06	99.63%	100.00%	1.004	17.37	18.30	1.239	0.119	0.119	0.075	16.3	16.3
Back side	802.11ac 80M	155/5775	0.323	-0.02	99.63%	100.00%	1.004	17.37	18.30	1.239	0.402	0.402	0.251	16.3	16.3
U-NII-1 Hotspot 10mm															
Front side	802.11ac 80M	42/5210	0.078	0.00	99.63%	100.00%	1.004	17.45	18.30	1.216	0.095	0.095	0.060	16.3	16.3
Back side	802.11ac 80M	42/5210	0.164	0.12	99.63%	100.00%	1.004	17.45	18.30	1.216	0.200	0.200	0.125	16.3	16.3
Left side	802.11ac 80M	42/5210	0.103	0.17	99.63%	100.00%	1.004	17.45	18.30	1.216	0.126	0.126	0.079	16.3	16.3
Top side	802.11ac 80M	42/5210	0.034	-0.02	99.63%	100.00%	1.004	17.45	18.30	1.216	0.042	0.042	0.026	16.3	16.3
Bottom side	802.11ac 80M	42/5210	0.007	0.00	99.63%	100.00%	1.004	17.45	18.30	1.216	0.009	0.009	0.005	16.3	16.3
U-NII-3 Hotspot 10mm															
Front side	802.11ac 80M	155/5775	0.096	-0.06	99.63%	100.00%	1.004	17.37	18.30	1.239	0.119	0.119	0.075	16.3	16.3
Back side	802.11ac 80M	155/5775	0.323	-0.02	99.63%	100.00%	1.004	17.37	18.30	1.239	0.402	0.402	0.251	16.3	16.3
Left side	802.11ac 80M	155/5775	0.304	0.07	99.63%	100.00%	1.004	17.37	18.30	1.239	0.378	0.378	0.236	16.3	16.3
Top side	802.11ac 80M	155/5775	0.069	0.04	99.63%	100.00%	1.004	17.37	18.30	1.239	0.086	0.086	0.054	16.3	16.3
Bottom side	802.11ac 80M	155/5775	0.038	-0.03	99.63%	100.00%	1.004	17.37	18.30	1.239	0.047	0.047	0.030	16.3	16.3
Test position	Mode	Ch./Freq.(MHz)	SAR (W/kg) 10g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 10g SAR (W/kg)	Adjusted 10g SAR (W/kg)	Exposure Ratio (10g SAR)	Typical power (dBm)	DFS Plimit (dBm)
U-NII-2A Product specific 10g SAR 0mm															

Front side	802.11ac 80M	58/5290	0.207	0.01	99.63%	100.00%	1.004	17.17	18.30	1.297	0.270	0.270	0.067	16.3	16.3
Back side	802.11ac 80M	58/5290	0.907	-0.02	99.63%	100.00%	1.004	17.17	18.30	1.297	1.181	1.181	0.295	16.3	16.3
Left side	802.11ac 80M	58/5290	0.190	0.04	99.63%	100.00%	1.004	17.17	18.30	1.297	0.247	0.247	0.062	16.3	16.3
Top side	802.11ac 80M	58/5290	0.055	-0.09	99.63%	100.00%	1.004	17.17	18.30	1.297	0.072	0.072	0.018	16.3	16.3
Bottom side	802.11ac 80M	58/5290	0.009	0.05	99.63%	100.00%	1.004	17.17	18.30	1.297	0.012	0.012	0.003	16.3	16.3
U-NII-2C Product specific 10g SAR 0mm															
Front side	802.11ac 80M	138/5690	0.407	0.01	99.63%	100.00%	1.004	18.07	18.30	1.054	0.431	0.431	0.108	16.3	16.3
Back side	802.11ac 80M	138/5690	1.370	-0.06	99.63%	100.00%	1.004	18.07	18.30	1.054	1.450	1.450	0.363	16.3	16.3
Left side	802.11ac 80M	138/5690	0.560	-0.02	99.63%	100.00%	1.004	18.07	18.30	1.054	0.593	0.593	0.148	16.3	16.3
Top side	802.11ac 80M	138/5690	0.056	-0.08	99.63%	100.00%	1.004	18.07	18.30	1.054	0.059	0.059	0.015	16.3	16.3
Bottom side	802.11ac 80M	138/5690	0.012	-0.03	99.63%	100.00%	1.004	18.07	18.30	1.054	0.013	0.013	0.003	16.3	16.3

Table 29: SAR of WIFI 5G.

15.19 SAR Measurement Result of BT

Ant5 Test Results																
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (Frame averaged) (dBm)	EFS Plimit (Burst) (dBm)
Head																
Left cheek	π/4DQPSK	39/2441	0.084	0.01	77.07%	78.30%	1.016	14.59	15.00	1.099	0.094	0.152	0.095	14.0	16.0	17.1
Left tilted	π/4DQPSK	39/2441	0.030	-0.02	77.07%	78.30%	1.016	14.59	15.00	1.099	0.033	0.054	0.034	14.0	16.0	17.1
Right cheek	π/4DQPSK	39/2441	0.356	0.04	77.07%	78.30%	1.016	14.59	15.00	1.099	0.398	0.645	0.403	14.0	16.0	17.1
Right tilted	π/4DQPSK	39/2441	0.069	0.00	77.07%	78.30%	1.016	14.59	15.00	1.099	0.077	0.125	0.078	14.0	16.0	17.1
Body worn 10mm																
Front side	π/4DQPSK	39/2441	0.058	0.01	77.07%	78.30%	1.016	14.59	15.00	1.099	0.065	0.105	0.066	14.0	16.0	17.1
Back side	π/4DQPSK	39/2441	0.096	0.02	77.07%	78.30%	1.016	14.59	15.00	1.099	0.107	0.174	0.109	14.0	16.0	17.1
Hotspot 10mm																
Front side	π/4DQPSK	39/2441	0.058	0.01	77.07%	78.30%	1.016	14.59	15.00	1.099	0.065	0.105	0.066	14.0	16.0	17.1
Back side	π/4DQPSK	39/2441	0.096	0.02	77.07%	78.30%	1.016	14.59	15.00	1.099	0.107	0.174	0.109	14.0	16.0	17.1
Left side	π/4DQPSK	39/2441	0.168	-0.02	77.07%	78.30%	1.016	14.59	15.00	1.099	0.188	0.304	0.190	14.0	16.0	17.1
Top side	π/4DQPSK	39/2441	0.014	0.00	77.07%	78.30%	1.016	14.59	15.00	1.099	0.016	0.025	0.016	14.0	16.0	17.1
Ant8 Test Results																
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	Power Drift (dB)	Duty Cycle	Max Duty Cycle	Duty Cycle Scaling Factor	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor	Reported 1g SAR (W/kg)	Adjusted 1g SAR (W/kg)	Exposure Ratio (1g SAR)	Typical power (dBm)	EFS Plimit (Frame averaged) (dBm)	EFS Plimit (Burst) (dBm)
Head																
Left cheek	8DPSK	39/2441	0.010	0.00	77.07%	78.30%	1.016	13.73	15.00	1.340	0.014	0.035	0.022	14.0	18.0	19.1
Left tilted	8DPSK	39/2441	0.004	0.00	77.07%	78.30%	1.016	13.73	15.00	1.340	0.005	0.014	0.009	14.0	18.0	19.1
Right cheek	8DPSK	39/2441	0.018	0.02	77.07%	78.30%	1.016	13.73	15.00	1.340	0.025	0.063	0.039	14.0	18.0	19.1
Right tilted	8DPSK	39/2441	0.010	0.01	77.07%	78.30%	1.016	13.73	15.00	1.340	0.014	0.035	0.022	14.0	18.0	19.1
Body worn 10mm																
Front side	8DPSK	39/2441	0.006	0.00	77.07%	78.30%	1.016	13.73	15.00	1.340	0.008	0.021	0.013	14.0	18.0	19.1
Back side	8DPSK	39/2441	0.113	-0.05	77.07%	78.30%	1.016	13.73	15.00	1.340	0.154	0.395	0.247	14.0	18.0	19.1
Hotspot 10mm																
Front side	8DPSK	39/2441	0.006	0.00	77.07%	78.30%	1.016	13.73	15.00	1.340	0.008	0.021	0.013	14.0	18.0	19.1
Back side	8DPSK	39/2441	0.113	-0.05	77.07%	78.30%	1.016	13.73	15.00	1.340	0.154	0.395	0.247	14.0	18.0	19.1
Left side	8DPSK	39/2441	0.008	0.00	77.07%	78.30%	1.016	13.73	15.00	1.340	0.011	0.028	0.017	14.0	18.0	19.1
Bottom side	8DPSK	39/2441	0.016	0.01	77.07%	78.30%	1.016	13.73	15.00	1.340	0.022	0.056	0.035	14.0	18.0	19.1

Table 30: SAR of BT.

BT Duty Cycle=2.89/3.75 =77.07%



15.20 SAR Measurement Result of NFC

Test Results					
Test position	Mode	Ch./Freq. (MHz)	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)
Body 0mm					
Front side	NFC	13.56MHz	0.001	0.000	0.00
Back side	NFC	13.56MHz	0.111	0.036	-0.03
Left side	NFC	13.56MHz	0.002	0.001	0.00
Right side	NFC	13.56MHz	0.001	0.000	0.00
Top side	NFC	13.56MHz	0.001	0.000	0.00
Bottom side	NFC	13.56MHz	0.000	0.000	0.00

Table 31: SAR of NFC.

16 Simultaneous Transmission Analysis

The Simultaneous Transmission Possibilities of this device are as below:

NO.	Simultaneous TX Combination	Head	Body-worn	Hotspot	Product Specific (0mm)
1	WWAN + WIFI 2.4G MIMO	Y	Y	Y	Y
2	WWAN + WIFI 5G MIMO	Y	Y	Y	Y
3	WWAN + BT	Y	Y	Y	Y
4	WWAN + WIFI 2.4G MIMO + WIFI 5G MIMO	Y	Y	Y	Y
5	WWAN + WIFI 5G MIMO + BT	Y	Y	Y	Y
6	WIFI 5G MIMO + BT	Y	Y	Y	Y
7	WWAN + NFC	Y	Y	Y	Y
8	WWAN + WIFI 2.4G MIMO + NFC	Y	Y	Y	Y
9	WWAN + WIFI 5G MIMO + NFC	Y	Y	Y	Y
10	WWAN + BT + NFC	Y	Y	Y	Y
11	WWAN + WIFI 2.4G MIMO + WIFI 5G MIMO + NFC	Y	Y	Y	Y
12	WWAN + WIFI 5G MIMO + BT + NFC	Y	Y	Y	Y
13	WIFI 5G MIMO + BT + NFC	Y	Y	Y	Y

Note:

This device is enabled with Qualcomm® Smart Transmit Gen2 with pre-defined antenna groups (AG0 and AG1). Simultaneous transmission analysis is performed per antenna groups. Below analysis demonstrates the mutually exclusive operation of AG0 and AG1, and the compliance between each antenna group with non-Smart Transmit Radios. For this model, WWAN/LAN/BT are managed under Smart Transmit. Non-Smart Transmit Radios is NFC.

When operating in the same antenna group, the compliance under dynamic transmission condition, including all supported simultaneous transmission scenarios, should be assessed and demonstrated in the Part 2 Report during algorithm validation. Therefore, no further simultaneous analysis is needed within an antenna group.

Antenna Groups:

The 2nd generation of Smart Transmit (GEN2) operates based on pre-defined antenna groups (AG). WWAN/WLAN/BT Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG.

This device supports two AGs: AG0 and AG1, with AG0 having 4 antennas (Ant0, Ant1, Ant6, Ant8) and AG1 having 5 antennas (Ant2, Ant3, Ant4, Ant5, Ant7). The conditions are verified through the following criteria:

Sum of SAR: Demonstrate that the sum of max.norm.exp.AG0 and max.norm.exp.AG1 should be less than the regulatory limit for each supported DSI following the below procedure:

1, Obtain the worst-case adjusted SAR for each antenna group, i.e., maximum reported SAR at EFS $P_{limit} + unc$ (or max of $\{P_{max} + unc, EFS P_{limit}\}$ when $EFS P_{limit} > P_{max}$) out of all supported technologies, frequency bands and antennas in AG0 and AG1, then normalized to the regulatory limit to get the maximum normalized SAR for each antenna group, denoted as max.norm.exp.AG0 and max.norm.exp.AG1

2, Demonstrate that the sum of these RF exposures meets:

$$\{\max.\text{norm.exp.AG0} + \max.\text{norm.exp.AG1} + \text{normalized NFC SAR}\} \leq 1.$$

SAR Antenna Group Analysis:

Held-to-ear AGO Highest Adjusted SAR						
AGO Ratio to limit						
Head	Configuration	Ant0	Ant1	Ant6	Ant8	Max
	Left cheek	0.187	0.073	0.011	0.022	0.187
	Left tilted	0.107	0.067	0.007	0.009	0.107
	Right cheek	0.206	0.132	0.015	0.039	0.206
	Right tilted	0.102	0.063	0.008	0.022	0.102
Body worn AGO Highest Adjusted SAR						
AGO Ratio to limit						
Body worn	Configuration	Ant0	Ant1	Ant6	Ant8	Max
	Front side	0.298	0.316	0.110	0.013	0.316
	Back side	0.422	0.369	0.121	0.247	0.422
Hotspot AGO Highest Adjusted SAR						
AGO Ratio to limit						
Hotspot	Configuration	Ant0	Ant1	Ant6	Ant8	Max
	Front side	0.298	0.316	0.110	0.013	0.316
	Back side	0.422	0.369	0.121	0.247	0.422
	Left side	0.283	-	-	0.017	0.283
	Right side	-	0.234	0.037	-	0.234
	Top side	-	-	-	-	-
	Bottom side	0.272	0.403	0.229	0.020	0.403

Phablet AGO Highest Adjusted SAR						
AGO Ratio to limit						
Phablet	Configuration	Ant0	Ant1	Ant6	Ant8	Max
	Front side	-	-	-	0.004	0.004
	Back side	-	-	-	0.138	0.138
	Left side	-	-	-	0.004	0.004
	Right side	-	-	-	-	-
	Top side	-	-	-	-	-
	Bottom side	-	-	-	0.006	0.006

Held-to-ear AG1 Highest Adjusted SAR								
AG1 Ratio to limit								
Head	Configuration	Ant2	Ant3	Ant4	Ant5	Ant7	Ant3+4 (2T4R)	Max
	Left cheek	0.405	0.336	0.115	0.154	0.028	0.378	0.405
	Left tilted	0.306	0.233	0.122	0.132	0.022	0.239	0.306
	Right cheek	0.228	0.219	0.358	0.403	0.113	0.418	0.403
	Right tilted	0.267	0.184	0.314	0.258	0.056	0.306	0.314
Body worn AG1 Highest Adjusted SAR								
AG1 Ratio to limit								
Body worn	Configuration	Ant2	Ant3	Ant4	Ant5	Ant7	Ant3+4 (2T4R)	Max
	Front side	0.074	0.061	0.052	0.066	0.019	0.089	0.074
	Back side	0.146	0.120	0.056	0.243	0.161	0.157	0.243
Hotspot AG1 Highest Adjusted SAR								
AG1 Ratio to limit								
Hotspot	Configuration	Ant2	Ant3	Ant4	Ant5	Ant7	Ant3+4 (2T4R)	Max
	Front side	0.074	0.061	0.052	0.066	0.010	0.089	0.074
	Back side	0.146	0.120	0.056	0.243	0.161	0.157	0.243
	Left side	-	-	0.013	0.219	0.022	0.030	0.219
	Right side	0.036	0.019	-	-	-	0.029	0.036
	Top side	0.180	0.041	0.053	0.052	0.026	0.083	0.180
	Bottom side	-	-	-	-	-	-	-

Phablet AG1 Highest Adjusted SAR								
AG1 Ratio to limit								
Phablet	Configuration	Ant2	Ant3	Ant4	Ant5	Ant7	Ant3+4 (2T4R)	Max
	Front side	-	-	-	0.107	-	-	0.107
	Back side	-	-	-	0.367	-	-	0.367
	Left side	-	-	-	0.148	-	-	0.148
	Right side	-	-	-	-	-	-	-
	Top side	-	-	-	0.023	-	-	0.023
	Bottom side	-	-	-	-	-	-	-

Held-to-ear AG Verification						
	Configuration	AG0 Ratio to Limit	AG1 Ratio to Limit	AG0+AG1 Ratio to Limit	AG0+AG1 Ratio to Limit (WIFI MIMO)	AG0+AG1 Ratio to Limit (2T4R)
Head	Left cheek	0.187	0.405	0.592	0.189	0.563
	Left tilted	0.107	0.306	0.413	0.122	0.313
	Right cheek	0.206	0.403	0.609	0.348	0.312
	Right tilted	0.102	0.314	0.415	0.300	0.272
Body worn AG Verification						
	Configuration	AG0 Ratio to Limit	AG1 Ratio to Limit	AG0+AG1 Ratio to Limit	AG0+AG1 Ratio to Limit (MIMO)	AG0+AG1 Ratio to Limit (2T4R)
Body worn	Front side	0.316	0.074	0.390	0.075	0.168
	Back side	0.422	0.243	0.665	0.251	0.313
Hotspot AG Verification						
	Configuration	AG0 Ratio to Limit	AG1 Ratio to Limit	AG0+AG1 Ratio to Limit	AG0+AG1 Ratio to Limit (MIMO)	AG0+AG1 Ratio to Limit (2T4R)
Hotspot	Front side	0.316	0.074	0.390	0.075	0.167
	Back side	0.422	0.243	0.665	0.251	0.313
	Left side	0.283	0.219	0.502	0.236	0.062
	Right side	0.234	-	0.234	-	0.098
	Top side	-	0.180	0.180	0.054	0.117
	Bottom side	0.403	-	0.403	0.030	0.238

Phablet AG Verification								
	Configuration	AG0 Ratio to Limit	AG1 Ratio to Limit	NFC Ratio to Limit	AG0+AG1(MIMO) Ratio to Limit	AG0+AG1 +NFC Ratio to Limit	AG0+AG1(2T4R) +NFC Ratio to Limit	AG0+AG1(MIMO) +NFC Ratio to Limit
Phablet	Front side	0.004	0.107	0.000	0.108	0.111	0.111	0.108
	Back side	0.138	0.367	0.009	0.363	0.514	0.523	0.372
	Left side	0.004	0.148	0.000	0.148	0.152	0.152	0.148
	Right side	-	-	0.000	-	0.000	0.000	0.000
	Top side	-	0.023	0.000	0.018	0.023	0.023	0.018
	Bottom side	0.006	-	0.000	0.003	0.006	0.006	0.003

Notes:

1, For all combinations where the sum of AG0+AG1 is not greater than 1, there's no further analysis required for compliance demonstration.

2, For all combinations where the sum of AG0+AG1+NFC is not greater than 1, there's no further analysis required for compliance demonstration.

3, Calculation of sum SAR (Head/Body/Hotspot simultaneous SAR Limit is 1.6 W/kg, Phablet simultaneous SAR Limit is 4.0 W/kg):

Test	AG0+AG1 ratio worst	Simultaneous SAR=(AG0+AG1)*SAR Limit (W/kg)
Head	0.609	0.9744
Body worn	0.665	1.064
Hotspot	0.665	1.064
Phablet	0.523	2.092

17 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 $\leq 30\%$, 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.

18 Calibration Certificate

Please see the Appendix C

19 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: Conducted RF Output Power

--- The End ---
