No.: FCCSZ2025-0005-SAR

TEST REPORT

NAME OF SAMPLE	:	Smart Phone
CLIENT	:	Shenzhen Gotron Electronic CO.,LTD.
CLASSIFICATION OF TEST	:	N/A
FCC ID	:	2AOWK-5021
Max. SAR (1g):	:	Head: **1.05** W/kg
	:	Body Worn: **0.54** W/kg
	:	Body: **0.54** W/kg

CVC Testing Technology (Shenzhen) Co., Ltd.

Applicant	**Name :** Shenzhen Gotron Electronic CO.,LTD. **Address :** 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Manufacturer	**Name :** Shenzhen Gotron Electronic CO.,LTD. **Address :** 7B01, Building A, Block 1, Anhongji Tianyao Plaza, Longhua District, Shenzhen City, Guangdong Province China
Equipment Under Test	**Name :** Smart Phone **Model/Type:** GQ5021 **Additional Model:** Armor X32 Pro，Armor X32 Ultra，Armor X32E，Armor X32S，Armor X32 Lite，Armor X32s，Armor X32s Pro **Trade mark :** ulefone **SerialNO.:** N/A **Sampe NO.:** 2412263776

Date of Receipt.	2024.12.26	Date of Testing	2025.02.28

Test Specification	**Test Result**
IEC/IEEE 62209-1528: 2020 ANSI/IEEE Std. C95.1 FCC 47 CFR Part 2 (2.1093) Published RF exposure KDB procedures	Pass

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. **Seal of CVC** **Issue Date: 2025.04.15**

Compiled by:	Reviewed by:	Approved by:
Liang Jiatong	Mo Xianbiao	Dong Sanbi
Name Signature	Name Signature	Name Signature

Abbreviations: Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCCSZ2025-0005-SAR	Original release	2025.04.15

1 GENERAL INFORMATION

1.1 GENERAL PRODUCT INFORMATION

PRODUCT	Smart Phone
BRAND	ulefone
MODEL	GQ5021
ADDITIONAL MODEL	Armor X32 Pro，Armor X32 Ultra，Armor X32E，Armor X32S，Armor X32 Lite，Armor X32s，Armor X32s Pro
Battery Information	Battery Model: 5021 Rechargeable Li-ion Battery Limited Charge Voltage: 4.45V Nominal Voltage: 3.87V Rated Capacity: 5500mAh/21.285Wh 1CP7/57/74
HW Version	NA
SW Version	NA
MODULATION MODE	GSM & GPRS & EDGE: GMSK, 8PSK WCDMA: BPSK, QPSK LTE: QPSK, 16QAM, 64QAM 5G NR: CP-OFDM / DFT-S-OFDM, PI2 BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11b: DSSS WLAN 2.4G 802.11g/n (HT20)/HT40: OFDM WLAN 5G 802.11a/n (HT20)/HT40 /ac(VHT80): OFDM Bluetooth® GFSK, π/4-DQPSK, 8-DPSK, LE NFC: ASK
OPERATING FREQUENCY	GSM 850: 824 MHz ~ 849 MHz PCS1900: 1850 MHz ~ 1910 MHz WCDMA Band II: 1850 MHz ~ 1910 MHz WCDMA Band IV: 1710 MHz ~ 1755 MHz WCDMA Band V: 824 MHz ~ 849 MHz LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 17: 704 MHz ~ 716 MHz LTE Band 41: 2500 MHz ~ 2690 MHz LTE Band 66: 1710MHz ~ 1780MHz LTE Band 71: 663MHz ~ 698MHz 5G NR n71: 663 MHz~698 MHz WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz Bluetooth: 2402 MHz to 2480 MHz NFC: 13.56MHz
ANTENNA TYPE	GSM/WCDMA/LTE/5G NR: PIFA Antenna Wifi / Bluetooth: PIFA Antenna
Remark: 1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.	

2. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power
3. This is provided by the manufacturer. The laboratory is not responsible for technical data provided by the customer
4. 5G NR supports CP-OFDM and DFT-S-OFDM modulation, for DFT-S-OFDM power is higher than CP-OFDM, so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-S-OFDM mode, therefore, CP-OFDM measurement is unnecessary.

<5G NR>

Mode	Band	Duplex	SCS (KHz)	Bandwidths (BW)
SA	N71	FDD	30	5,10,15,20

1.2 DESCRIPTION OF ACCESSORIES

AC Adapter	
Model No.:	QZ-0180AA2H
Input:	100-240V~50/60Hz 0.5A
Output:	5.0V⎓3.0A15.0W or 9.0V⎓2.22A 20.0W Max or 12.0V⎓1.67A 20.0W Max.

1.3 TEST Environment

Ambient conditions in the SAR laboratory:

Items	Required
Temperature (℃)	20.5 ~ 22.0
Humidity (%RH)	53 ~ 68

1.4 TEST Location

The tests and measurements refer to this report were performed by CVC Testing Technology (Shenzhen) Co., Ltd.

Lab Address:No. 1301-14&16, Guanguang Road, Xinlan Community, Guanlan Subdistrict, Longhua District, Shenzhen, Guangdong, China

Post Code：518110 Tel：0755-23763060-8805

Fax：0755-23763060 E-mail：sz-kf@cvc.org.cn

FCC(Test firm designation number：CN1363)

IC(Test firm CAB identifier number：CN0137)

CNAS(Test firm designation number：L16091)

1.5 TEST Standards and Limits

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	ANSI/IEEE Std. C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz
3	IEC/IEEE 62209-1528:2020	Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1528: Human models, instrumentation, and procedures (Frequency range of 4 MHz to 10 GHz)
4	FCC KDB 865664 D01 v01r04	SAR Measurement 100 MHz to 6 GHz
5	FCC KDB 865664 D02 v01r02	RF Exposure Reporting
6	FCC KDB 941225 D01 v03r01	3G SAR MEAUREMENT PROCEDURES
7	FCC KDB 941225 D05 v02r05	SAR for LTE Devices
8	FCC KDB 941225 D06 v02r01	SAR EVALUATION PROCEDURES FOR PORTABLE DEVICES WITH WIRELESS ROUTER CAPABILITIES
9	FCC KDB 248227 D01 v02r02	802 11 Wi-Fi SAR
10	FCC KDB 447498 D04 v01	Interim General RF Exposure Guidance
11	FCC KDB 648474 D04 v01r03	SAR Evaluation Considerations for Wireless Handsets

(A). Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B). Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

NOTE: Whole-Body SAR is averaged over the entire body, partial-body SAR is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. SAR for hands, wrists, feet and ankles is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

Population/Uncontrolled Environments:

Are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Occupational/Controlled Environments:

Are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

NOTE
GENERAL POPULATION/UNCONTROLLED EXPOSURE
PARTIAL BODY LIMIT
1.6 W/kg

1.6 Statement of Compliance

The maximum results of Specific Absorption Rate (SAR) found during testing for the EUT are as follows:

Mode	Highest Reported Head SAR_{1g} (W/kg)	Highest Reported Body-Worn SAR_{1g} (1.0 cm Gap) (W/kg)	Highest Reported Hotspot SAR_{1g} (1.0 cm Gap) (W/kg)
GSM850	0.46	0.54	0.54
GSM1900	1.05	0.49	0.49
WCDMA II	0.56	0.29	0.29
WCDMA IV	0.71	0.32	0.32
WCDMA V	0.25	0.24	0.24
LTE 2	0.80	0.40	0.40
LTE 66&4	0.89	0.39	0.39
LTE 5	0.17	0.35	0.35
LTE 12&17	0.07	0.35	0.35
LTE 41	0.04	0.08	0.08
LTE 71	0.07	0.34	0.34
n 71	0.20	0.38	0.38
2.4G WLAN	0.19	0.12	0.12
5.2G WLAN	0.43	0.16	0.16
5.8G WLAN	0.65	0.16	0.16
Bluetooth	0.04	0.02	0.02
Highest Simultaneous Transmission SAR	**Head (W/kg)**	**Body Worn (W/kg)**	**Hotspot (W/kg)**
	1.50	**0.70**	**0.70**

Note:

1. This device supports LTE B4,B17 and B66,B12. Since the supported frequency span for LTE B4,B17 falls completely within the supports frequency span for LTE B66,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 B66, B12.
2. This device is in compliance with Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits (1.6W/kg as averaged over any 1 gram of tissue; 10-gram SAR for Product Specific 10g SAR, limit: 4.0W/kg) specified in FCC 47 CFR part 2 (2.1093) and ANSI/IEEE C95.1-1992 and had been tested in accordance with the measurement methods and procedures specified in IEEE 62209-1528-2020 and FCC KDB publications.

2 SAR Measurement System

2.1 Definition of Specific Absorption Rate (SAR)

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.

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:

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

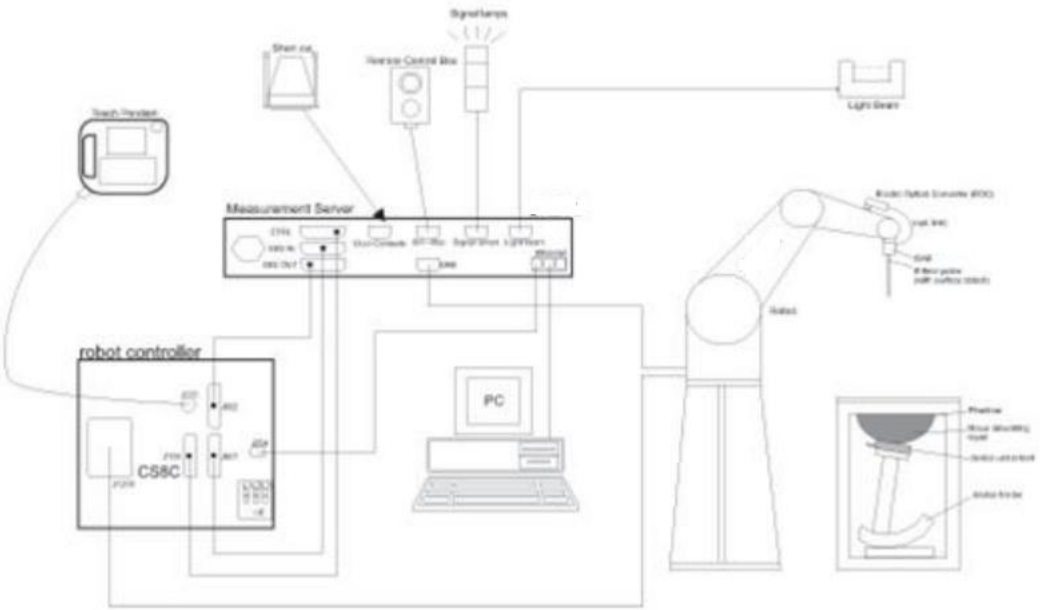
SAR is expressed in units of Watts per kilogram (W/kg) SAR measurement can be related to the electrical field in the tissue by

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

Where: σ is the conductivity of the tissue;
ρ is the mass density of the tissue and E is the RMS electrical field strength.

2.2 SAR System

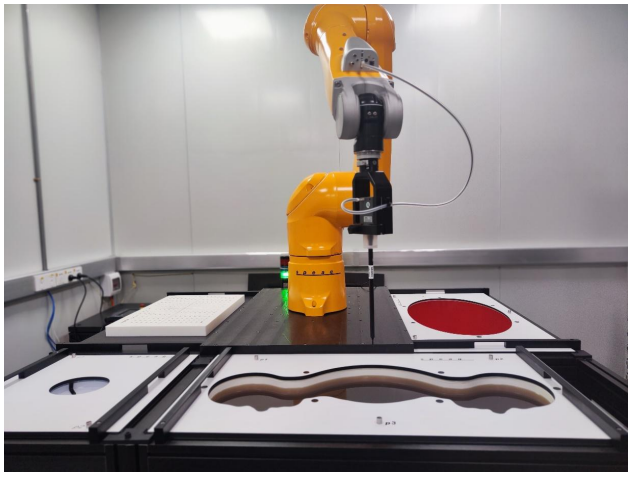
DASY System Diagram:



DASY is a system that is able to determine the SAR distribution inside a phantom of human being according to different standards. The DASY system consists of the following items:

- Main computer to control all the system
- 6 axis robot
- Data acquisition Electronics
- Miniature E-field probe
- Phone holder
- Head simulating tissue

The following figure shows the system.



The EUT under test operating at the maximum power level is placed in the phone holder, under the phantom, which is filled with head simulating liquid. The E-Field probe measures the electric field inside the phantom. The Open SAR software computes the results to give a SAR value in a 1g or 10g mass.

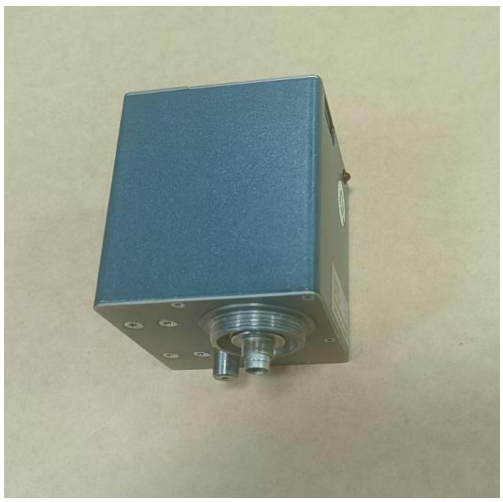
2.3 Probe

EX3DV4 – Smallest isotropic dosimetric probe for high precision SAR measurements in any exposure scenario (e.g., very strong gradient fields); the only probe that enables compliance testing for frequencies up to 10 GHz with a precision of better than 30%
- Frequency range: 4 MHz – 10 GHz
-Dynamic range: 0.01 W/kg – >100 W/kg
-Tip diameter: 2.5 mm
-Scanning distance: ≥1.4 mm

Figure 1-Speag COMOSAR Dosimetric E field Dipole

2.4 Date Acquisition Electronics 4 (DAE4)

High precision 3-channel differential voltmeter for use with SPEAG's field, SAR, and temperature probes. Serial optical link for communication with the DASY8 measurement server. Two-step probe touch detector for mechanical surface detection and emergency robot stop.
- Measurement range: -100 – +300 mV (16-bit resolution and two range settings: 4 mV, 400 mV)
- Input offset voltage: <5 µV (with auto zero)
- Input resistance: 200 MOhm
- Input bias current: <50 fA
- Battery power: >10 hours of operation (with two 9.6 V NiMH batteries)
- Dimensions (L × W × H): 60 × 60 × 68 mm
- Calibration: ISO/IEC 17025 calibration service available.



2.4.1 SAM-Twin Phantom

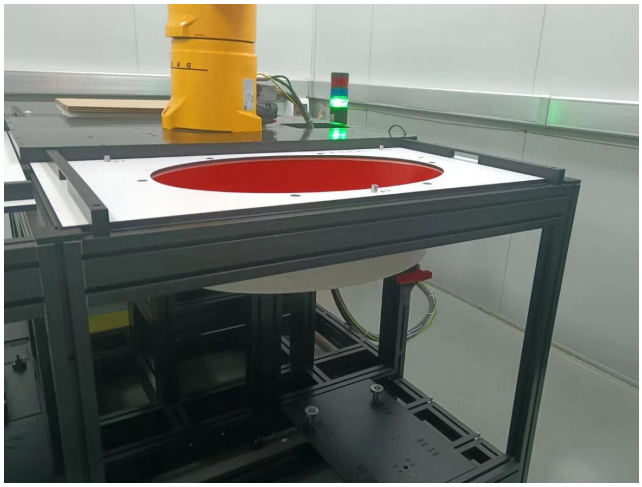
The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEC/IEEE 62209-1528. It enables the dosimetric evaluation of left and right hand phone usage as well as body-mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by teaching three points with the robot.SAM-Twin V5.0 and higher has the same shell geometry and is manufactured from the same material as SAM-Twin V4.0 but with reinforced top structure.

- Material: Vinyl ester, fiberglass reinforced (VE-GF)
- Shell Thickness: 2 ± 0.2 mm (6 ± 0.2 mm at ear point)
- Dimensions:Length: 1000 mm
  Width: 500 mm
  Height: adjustable feet

2.4.2 ELI Phantom

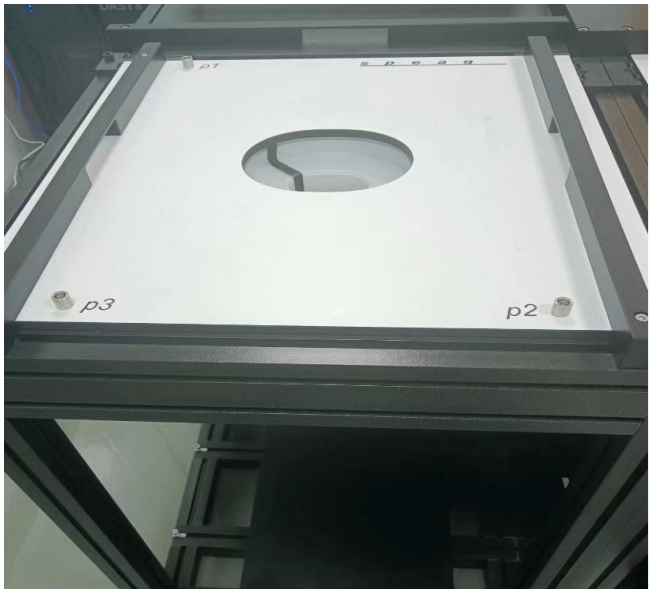
The ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. ELI is fully compatible with the IEC/IEEE 62209-1528 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all of SPEAG's dosimetric probes and dipoles.The latest ELI V8.0 phantom shell has optimized pretension in the bottom surface during production, such that the phantom is more robust and with reduced sagging.

- Material:Vinyl ester, fiberglass 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.



2.5 WRIST Phantom

The Wrist Phantom V10 is shape-compatible with the CTIA approved OTA GFPC-V1 and optimized for specific absorption rate evaluation of watches and other wireless hand accessories.
- Material:Photosensitive epoxy acrylates
- Shell Thickness:2 ± 0.2 mm
- Wrist Shape:Design compatible with CTIA forearm.



2.6 DEVICE Holder

The SAR in the phantom is approximately inversely proportional to the square of the distance between the source and the liquid surface. For a source at 5 mm distance, a positioning uncertainty of ± 0.5 mm would produce a SAR uncertainty of ± 20 %. Accurate device positioning is therefore crucial for accurate and repeatable measurements. The positions in which the devices must be measured are defined by the standards.

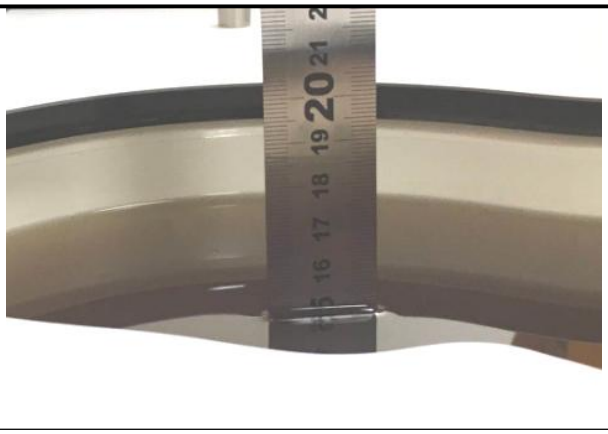
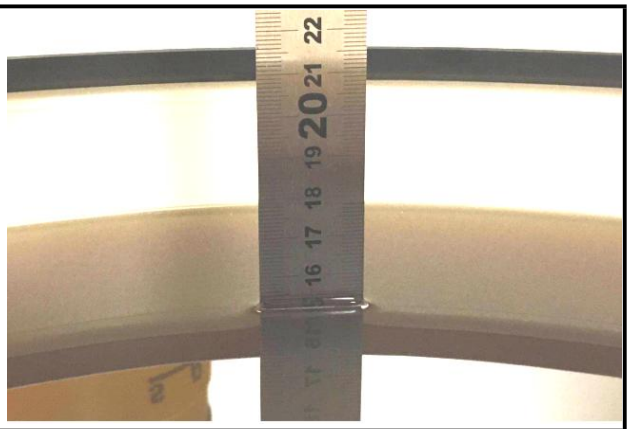
2.7 SYSTEM Validation Dipoles

Symmetrical dipole with l/4 balun. Enables measurement of feed point impedance with NWA. Matched for use near flat phantoms filled with tissue simulating solutions.
- Frequency: 300 MHz to 10 GHz
- Return loss: >20 dB
- Power capability: >40 W

3 TISSUE Simulating Liquids

3.1 SIMULATING Liquids Parameter Check

For SAR measurement of the field distribution inside the phantom, the phantom must be filled with homogeneous tissue simulating liquid to a depth of at least 15 cm. For head SAR testing, the liquid height from the ear reference point (ERP) of the phantom to the liquid top surface is larger than 15 cm. For body SAR testing, the liquid height from the center of the flat phantom to the liquid top surface is larger than 15 cm. The nominal dielectric values of the tissue simulating liquids in the phantom and the tolerance of 5% are listed.

	
Liquid Height for Head Position	**Liquid Height for Body Position**

The dielectric properties of the tissue simulating liquids are defined in IEC 62209-1528. The dielectric properties of the tissue simulating liquids were verified prior to the SAR evaluation using a dielectric assessment kit and a network analyzer.

Dielectric properties of Tissue Simulating Liquid

Frequency (MHz)	Target Permittivity	Target Conductivity
750	41.9	0.89
835	41.5	0.90
900	41.5	0.97
1450	40.5	1.20
1640	40.3	1.29
1750	40.1	1.37
1800	40.0	1.40
1900	40.0	1.40
2000	40.0	1.40
2100	39.8	1.49
2300	39.5	1.67
2450	39.2	1.80
2600	39.0	1.96
3000	38.5	2.40
3500	37.9	2.91
4000	37.4	3.43
4500	36.8	3.94
5000	36.2	4.45
5200	36.0	4.66
5300	35.9	4.76
5500	35.6	4.96
5600	35.5	5.07
5800	35.3	5.27
6000	35.1	5.48

3.2 LIQUIDS Measurement Results

The measuring results for tissue simulating liquid are shown as below.

Tissue Type	Frequency (MHz)	Measured Conductivity (σ)	Measured Permittivity (ε_r)	Target Conductivity (σ)	Target Permittivity (ε_r)	Conductivity Deviation (%)	Permittivity Deviation (%)	Test Date
H750	750	0.891	43.400	0.89	41.90	0.11	3.58	Mar. 01, 2025
H850	850	0.928	43.100	0.92	41.50	0.87	3.86	Feb. 28, 2025
H1750	1750	1.330	40.100	1.37	40.10	-2.92	0.00	Mar. 03, 2025
H1900	1900	1.400	39.800	1.40	40.00	0.00	-0.50	Mar. 02, 2025
H2450	2450	1.790	40.000	1.80	39.20	-0.56	2.04	Mar. 04, 2025
H2600	2600	1.900	39.700	1.96	39.00	-3.06	1.79	Mar. 04, 2025
H5G	5200	4.570	37.200	4.66	36.00	-1.93	3.33	Mar. 05, 2025
	5800	5.240	36.100	5.27	35.30	-0.57	2.27	Mar. 05, 2025

Note:

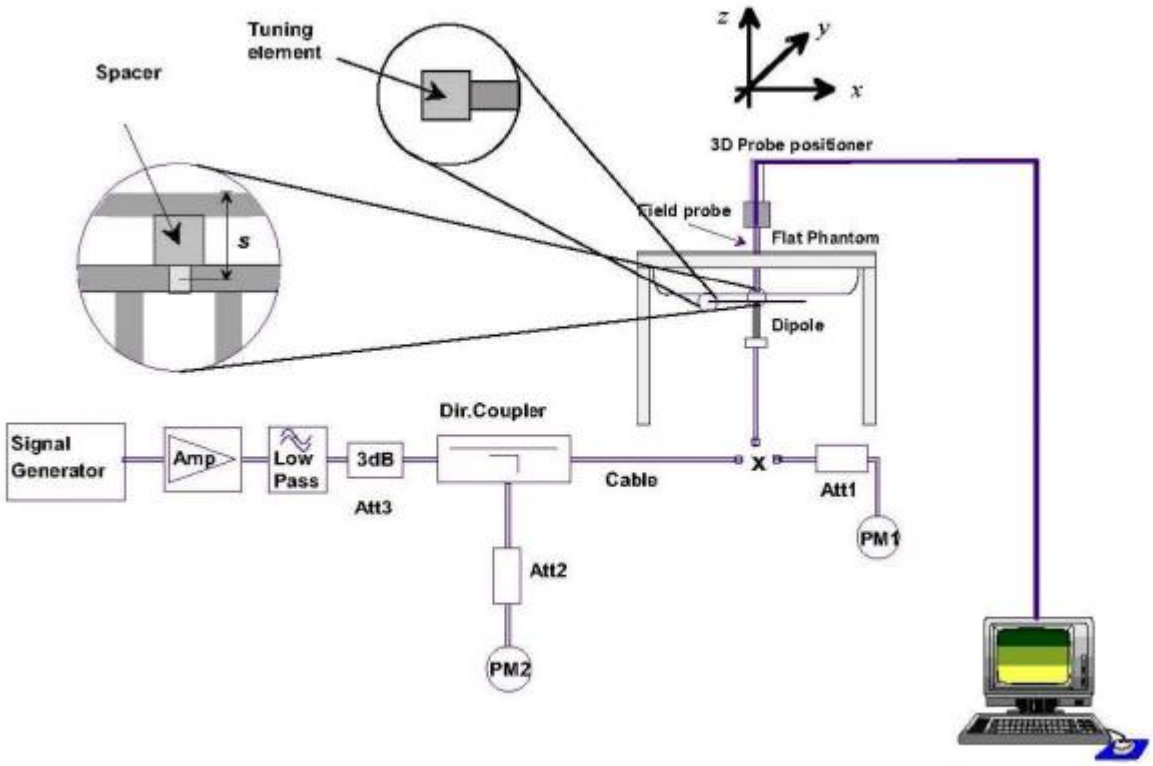
1. The dielectric properties of the tissue simulating liquid must be measured within 24 hours before the SAR testing and within ±5% of the target values. Liquid temperature during the SAR testing must be within ±2 ℃.
2. Since the maximum deviation of dielectric properties of the tissue simulating liquid is within 5%.

4 SAR System Validation

4.1 VALIDATION System

Each DASY system is equipped with one or more system validation kits. These units, together with the predefined measurement procedures within the DASY software, enable the user to conduct the system performance check and system validation. System kit includes a dipole, and dipole device holder.

The system check verifies that the system operates within its specifications. It's performed daily or before every SAR measurement. The system check uses normal SAR measurement in the flat section of the phantom with a matched dipole at a specified distance. The system validation setup is shown as below.



4.2 SYSTEM Validation Result

The measuring result for system verification is tabulated as below.

Test Date	Frequency (MHz)	1W Target SAR-1g (W/kg)	Measured SAR-1g (W/kg)	Normalized to 1W SAR-1g (W/kg)	Deviation (%)	Dipole S/N	Probe S/N	DAE S/N
Mar. 01, 2025	750	8.59	2.11	8.40	-2.24	1219	7628	1557
Feb. 28, 2025	850	10.10	2.50	9.95	-1.49	1026	7628	1557
Mar. 03, 2025	1750	36.60	8.61	34.27	-6.37	1192	7628	1557
Mar. 02, 2025	1900	39.80	9.61	38.25	-3.90	5d247	7628	1557
Mar. 04, 2025	2450	51.40	12.50	49.75	-3.21	1081	7628	1557
Mar. 04, 2025	2600	56.10	13.20	52.54	-6.35	1195	7628	1557
Mar. 05, 2025	5200	77.80	7.87	78.70	1.16	1353	7628	1557
Mar. 05, 2025	5800	80.40	7.91	79.10	-1.62	1353	7628	1557

Note:

Comparing to the reference SAR value provided by SPEAG, the validation data should be within its specification of 10 %. The result indicates the system check can meet the variation criterion and the plots can be referred to Appendix A of this report.

5 SAR Evaluation Procedures

To evaluate the peak spatial-average SAR values with respect to 1 g or 10 g cubes, fine resolution volume scans, called zoom scans, are performed at the peak SAR locations identified during the area scan. If the cube volume within the zoom scan chosen to calculate the peak spatial-average SAR touches any boundary of the zoom-scan volume, the zoom scan shall be repeated with the center of the zoom-scan volume shifted to the new maximum SAR location. For any secondary peaks found in the area scan that are within 2 dB of the maximum peak and are not within this zoom scan, the zoom scan shall be performed for such peaks, unless the peak spatial-average SAR at the location of the maximum peak is more than 2 dB below the applicable SAR limit (i.e., 1 W/kg for a 1.6 W/kg 1 g limit, or 1.26 W/kg for a 2 W/kg 10 g limit). The zoom scan resolutions specified in the table below must be applied to the SAR measurements.

Table 3 - Area scan parameters

Parameter	DUT transmit frequency being tested	
	f≤ 3 GHz	3 GHz <f≤ 10 GHz
Maximum distance between the measured points (geometric centre of the sensors) and the inner phantom surface (z_{M1} in Figure 20 in mm)	5 ± 1	δ ln(2)/2 ± 0,5[a]
Maximum spacing between adjacent measured points in mm (see O.8.3.1) [b]	20, or half of the corresponding zoom scan length, whichever is smaller	60/f, or half of the corresponding zoom scan length,whichever is smaller
Maximum angle between the probe axis and the phantom surface normal (a in Figure 20)[c]	5° (flat phantom only) 30° (other phantoms)	5° (flat phantom only) 20° (other phantoms)
Tolerance in the probe angle	1°	1°

a δ is the penetration depth for a plane-wave incident normally on a planar half-space.

b See Clause O.8 on how Δx and Δy may be selected for individual area scan requirements.

c The probe angle relative to the phantom surface normal is restricted due to the degradation in the measurement accuracy in fields with steep spatial gradients. The measurement accuracy decreases with increasing probe angle and increasing frequency. This is the reason for the tighter probe angle restriction at frequencies above 3 GHz.

Table 4 - Zoom scan parameters

Parameter	DUT transmit frequency being tested	
	f≤ 3 GHz	3 GHz <f≤ 10 GHz
Maximum distance between the closest measured points and the phantom surface (z_{M1} in Figure 20 and Table 3, in mm)	5	δ ln(2)/2 ± 0,5[a]
Maximum angle between the probe axis and the phantom surface normal (α in Figure 20)	5° (flat phantom only) 30° (other phantoms)	5° (flat phantom only) 20° (other phantoms)
Maximum spacing between measured points in the x- and y-directions (Δx and Δy, in mm)	8	24/f b
For uniform grids: Maximum spacing between measured points in the direction normal to the phantom shell (Δz_1 in Figure 20, in mm)	5	10/(f - 1)
For graded grids: Maximum spacing between the two closest measured points in the direction normal to the phantom shell (Δz_1 in Figure 20, in mm)	4	12/f
For graded grids: Maximum incremental increase in the spacing between measured points in the direction normal to the phantom shell ($R_z = \Delta z_2/\Delta z_1$ in Figure 20)	1,5	1,5
Minimum edge length of the zoom scan volume in the x- and y-directions (L_z, in O.8.3.2, in mm)	30	22
Minimum edge length of the zoom scan volume in the direction normal to the phantom shell (L_h in O.8.3.2 in mm)	30	22
Tolerance in the probe angle	1°	1°

a δ is the penetration depth for a plane-wave incident normally on a planar half-space.

b This is the maximum spacing allowed, which might not work for all circumstances.

6 SAR Measurement Evaluation

6.1 EUT Configuration and Setting

<Connections between EUT and System Simulator>

For WWAN SAR testing, the EUT was linked and controlled by base station emulator (R&S_CMW500). Communication between the EUT and the emulator was established by air link. The distance between the EUT and the communicating antenna of the emulator is larger than 50 cm and the output power radiated from the emulator antenna is at least 30 dB smaller than the output power of EUT. The EUT was set from the emulator to radiate maximum output power during SAR testing.

<Considerations Related to GSM / GPRS / EDGE for Setup and Testing>

The maximum multi-slot capability supported by this device is as below.

1. This EUT is class B device
2. This EUT supports GPRS multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)
3. This EUT supports EDGE multi-slot class 12 (max. uplink: 4, max. downlink: 4, total timeslots: 5)

For GSM850 frequency band, the power control level is set to 5 for GSM mode and GPRS (GMSK: CS1), and set to 8 for EDGE (GMSK: MCS1, 8PSK: MCS9). For GSM1900 frequency band, the power control level is set to 0 for GSM mode and GPRS (GMSK: CS1), and set to 2 for EDGE (GMSK: MCS1, 8PSK: MCS9).

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.

<Considerations Related to WCDMA for Setup and Testing>

WCDMA Handsets Head SAR

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.

WCDMA Handsets Body-worn SAR

SAR for body-worn 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.

Handsets with Release 5 HSDPA

The 3G SAR test reduction procedure is applied to HSDPA body-worn configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures in the “Release 5 HSDPA Data Devices”, for the highest reported SAR body-worn exposure configuration in 12.2 kbps RMC. Handsets with both HSDPA and HSUPA are tested according to Release 6 HSPA test procedures.

Handsets with Release 6 HSUPA

The 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body-worn

configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures in the “Release 6 HSPA Data Devices”, for the highest reported body-worn exposure SAR configuration in 12.2 kbps RMC. When VOIP is applicable for next to the ear head exposure in HSPA, the 3G SAR test reduction procedure is applied to HSPA with 12.2 kbps RMC as the primary mode; otherwise, the same HSPA configuration used for body-worn measurements is tested for next to the ear head exposure.

Release 5 HSDPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR with 12.2 kbps RMC as the primary mode. Otherwise, body SAR for HSDPA is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, for the highest reported SAR configuration in 12.2 kbps RMC without HSDPA. HSDPA is configured according to the applicable UE category of a test device. The number of HS-DSCH / HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms and a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors (β_c, β_d), and HS-DPCCH power offset parameters (Δ_{ACK}, Δ_{NACK}, Δ_{CQI}) are set according to values indicated in below. The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs} (1)	CM (dB)(2)	MPR
1	2 / 15	15 / 15	64	2 / 15	4 / 15	0.0	0
2	12 / 15 (3)	15 / 15 (3)	64	12 / 15 (3)	24 / 15	1.0	0
3	15 / 15	8 / 15	64	15 / 8	30 / 15	1.5	0.5
4	15 / 15	4 / 15	64	15 / 4	30 / 15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ A_{hs} = β_{hs} / β_c = 30 / 15 ⇔ β_{hs} = 30 / 15 * β_c.
Note 2: CM = 1 for β_c / β_d = 12 / 15, β_{hs} / β_c = 24 / 15.
Note 3: For subtest 2 the β_c / β_d ratio of 12 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11 / 15 and β_d = 15 / 15.

Release 6 HSUPA Data Devices

The 3G SAR test reduction procedure is applied to body SAR 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 12.2 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. Due to inner loop power control requirements in HSPA, a communication test set is required for output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA are configured according to the β values indicated in below.

Sub-test	β_c	β_d	β_d (SF)	β_c / β_d	β_{hs} (1)	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM (2) (dB)	MPR (dB)	AG (4) Index	E-TFCI
1	11 / 15 (3)	15 / 15 (3)	64	11 / 15 (3)	22 / 15	209 / 225	1039 / 225	4	1	1.0	0.0	20	75
2	6 / 15	15 / 15	64	6 / 15	12 / 15	12 / 15	94 / 75	4	1	3.0	2.0	12	67

3	15 / 15	9 / 15	64	15 / 9	30 / 15	30 / 15	β_{ed1}: 47/15 β_{ed2}: 47/15	4	2	2.0	1.0	15	92
4	2 / 15	15 / 15	64	2 / 15	4 / 15	2 / 15	56 / 75	4	1	3.0	2.0	17	71
5	15 / 15 (4)	15 / 15 (4)	64	15 / 15 (4)	30 / 15	24 / 15	134 / 15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 $\Leftrightarrow$ A_{hs} = β_{hs} / β_c = 30 / 15 $\Leftrightarrow$ β_{hs} = 30 / 15 * β_c.

Note 2: CM = 1 for β_c / β_d = 12 / 15, β_{hs} / β_c = 24 / 15. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c / β_d ratio of 11 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10 / 15 and β_d = 15 / 15.

Note 4: For subtest 5 the β_c / β_d ratio of 15 / 15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14 / 15 and β_d = 15 / 15.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: β_{ed} cannot be set directly; it is set by Absolute Grant Value.

HSPA+ SAR Guidance

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

DC-HSDPA SAR Guidance

The 3G SAR test reduction procedure is applied to DC-HSDPA with 12.2 kbps RMC as the primary mode. Otherwise, when SAR is required for Rel. 5 HSDPA, SAR is required for Rel. 8 DC-HSDPA. 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.

<Considerations Related to LTE for Setup and Testing>

This device contains LTE transmitter which follows 3GPP standards, is category 3, supports both QPSK and 16QAM modulations, and supported LTE band and channel bandwidth is listed in below. The output power was tested per 3GPP TS 36.521-1 maximum transmit procedures for both QPSK and 16QAM modulation. The results please refer to section 4.6 of this report.

EUT Supported LTE Band and Channel Bandwidth						
LTE Band	**BW 1.4 MHz**	**BW 3 MHz**	**BW 5 MHz**	**BW 10 MHz**	**BW 15 MHz**	**BW 20 MHz**
2	**V**	**V**	**V**	**V**	**V**	**V**
4	**V**	**V**	**V**	**V**	**V**	**V**
5	**V**	**V**	**V**	**V**		
12	**V**	**V**	**V**	**V**		
17			**V**	**V**		
41			**V**	**V**	**V**	**V**
66	**V**	**V**	**V**	**V**	**V**	**V**
71			**V**	**V**	**V**	**V**

The LTE maximum power reduction (MPR) in accordance with 3GPP TS 36.101 is active all times during LTE operation. The allowed MPR for the maximum output power is specified in below.

Modulation	**Channel Bandwidth / RB Configurations**						**LTE MPR Setting (dB)**
	BW 1.4 MHz	**BW 3 MHz**	**BW 5 MHz**	**BW 10 MHz**	**BW 15 MHz**	**BW 20 MHz**	
QPSK	**> 5**	**> 4**	**> 8**	**> 12**	**> 16**	**> 18**	**1**
16QAM	**<= 5**	**<= 4**	**<= 8**	**<= 12**	**<= 16**	**<= 18**	**1**
64QAM	**> 5**	**> 4**	**> 8**	**> 12**	**> 16**	**> 18**	**2**

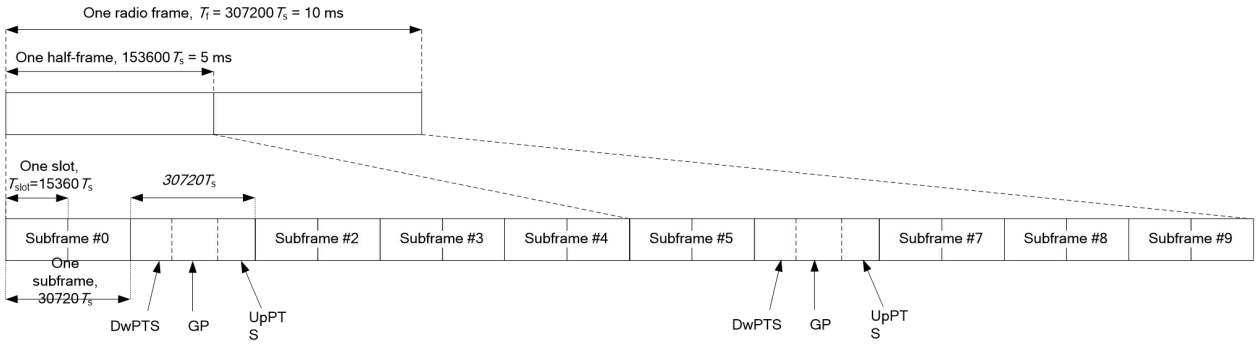
Note: MPR is according to the standard and implemented in the circuit (mandatory).

In addition, the device is compliant with additional maximum power reduction (A-MPR) requirements defined in 3GPP TS 36.101 section 6.2.4 that was disabled for all FCC compliance testing.

During LTE SAR testing, the related parameters of operating band, channel bandwidth, uplink channel number, modulation type, and RB was set in base station simulator. When the EUT has registered and communicated to base station simulator, the simulator set to make EUT transmitting the maximum radiated power.

TDD-LTE Setup Configurations

According to KDB 941225 D05, SAR testing for TDD-LTE device must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP TDD-LTE configurations. The TDD-LTE of this device supports frame structure type 2 defined in 3GPP TS 36.211 section 4.2, and the frame structure configuration can be referred to below.



3GPP TS 36.211 Frame Structure Type 2

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 • Ts	2192 • Ts	2560 • Ts	7680 • Ts	2192 • Ts	2560 • Ts
1	19760 • Ts			20480 • Ts		
2	21952 • Ts			23040 • Ts		
3	24144 • Ts			25600 • Ts		
4	26336 • Ts			7680 • Ts	4384 • Ts	5120 • Ts
5	6592 • Ts	4384 • Ts	5120 • Ts	20480 • Ts		
6	19760 • Ts			23040 • Ts		
7	21952 • Ts			12800 • Ts		
8	24144 • Ts			-	-	-
9	13168 • Ts			-	-	-

3GPP TS 36.211 Configuration of Special Subframe

Uplink-Downlink Configuration	Downlink-to-Uplink Switch-Point Periodicity	Subframe Number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

3GPP TS 36.211 Uplink-Downlink Configurations

The variety of different TD-LTE uplink-downlink configurations allows a network operator to allocate the network's capacity between uplink and downlink traffic to meet the needs of the network. The uplink duty cycle of these seven configurations can readily be computed and shown in below.

UL-DL Configuration	0	1	2	3	4	5	6
Highest Duty-Cycle	63.33%	43.33%	23.33%	31.67%	21.67%	11.67%	53.33%

Considering the highest transmission duty cycle, TDD-LTE was tested using Uplink-Downlink Configuration 0 with 6 uplink subframe and 2 special subframe. The special subframe was set to special subframe configuration 7 using extended cyclic prefix uplink. Therefore, SAR testing for TDD-LTE was performed at the maximum output power with highest transmission duty cycle of 63.33%.

<5G NR>

1. 5G NR n 71 is SA.
2. 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 38.101 maximum power reduction for power class 2 and 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-s QPSK and the reported SAR for the DFT-s 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 2 and 3. for 16QAM64QAM/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the 16QAM64QAM/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 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, P/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
   g. Smaller 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.

3. 5G NR supports CP-OFDM and DFT-S-OFDM modulation, for DFT-s-OFDM power is higher than CP-OFDM. so only show DFT-s-OFDM power table and chose DFT-s-OFDM to perform SAR testing.

4. For DFT-s-OFDM and CP-OFDM output power measurement reduction, according to 38.101 maximum power reduction for the CP-OFDM mode will not higher than DFT-s-OFDM mode. therefore. CP-OFDM measurement is unnecessary

Table 6.2.2-1 Maximum power reduction (MPR) for power class 3

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

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

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.

<Considerations Related to WLAN for Setup and Testing>

In general, various vendor specific external test software and chipset based internal test modes are typically used for SAR measurement. These chipset based test mode utilities are generally hardware and manufacturer dependent, and often include substantial flexibility to reconfigure or reprogram a device. 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. The test frequencies established using test mode must correspond to the actual channel frequencies. When 802.11 frame gaps are accounted for in the transmission, a maximum transmission duty factor of 92 - 96% is typically achievable in most test mode configurations. A minimum transmission duty factor of 85% is required to avoid certain hardware and device implementation issues related to wide range SAR scaling. In addition, a periodic transmission duty factor is required for current generation SAR systems to measure SAR correctly. The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit.

According to KDB 248227 D01, this device has installed WLAN engineering testing software which can provide continuous transmitting RF signal. During WLAN SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

Initial Test Configuration

An initial test configuration is determined for OFDM transmission modes in 2.4 GHz and 5 GHz bands 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. When the same maximum power is specified for multiple transmission modes in a frequency band, the largest channel bandwidth, lowest order modulation, lowest data rate and lowest order 802.11a/g/n/ac mode is used for SAR measurement, on the highest measured output power channel in the initial test configuration, for each frequency band.

Subsequent Test Configuration

SAR measurement requirements for the remaining 802.11 transmission mode configurations that have not been tested in the initial test configuration are determined separately for each standalone and aggregated frequency band, in each exposure condition, according to the maximum output power specified for production units. Additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. When the highest reported SAR for the initial test configuration according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

SAR Test Configuration and Channel Selection

When multiple channel bandwidth configurations in a frequency band have the same specified maximum output power, the initial test configuration is using largest channel bandwidth, lowest order modulation, lowest data rate, and lowest order 802.11 mode (i.e., 802.11a is chosen over 802.11n then 802.11ac or 802.11g is chosen over 802.11n). After an initial test configuration is determined, if multiple test channels have the same

measured maximum output power, the channel chosen for SAR measurement is determined according to the following.

1) The channel closest to mid-band frequency is selected for SAR measurement.

2) For channels with equal separation from mid-band frequency; for example, high and low channels or two mid-band channels, the higher frequency (number) channel is selected for SAR measurement.

<Considerations Related to Bluetooth for Setup and Testing>

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. During Bluetooth SAR testing, this device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

6.2 EUT Testing Position

According to KDB 648474 D04, handsets are tested for SAR compliance in head, body-worn accessory and other use configurations described in the following subsections.

6.2.1 Head Exposure Conditions

Head exposure is limited to next to the ear voice mode operations. Head SAR compliance is tested according to the test positions defined in IEEE 62209-1528 2020 using the SAM phantom illustrated as below.

1. Define two imaginary lines on the handset

(a) The vertical centerline passes through two points on the front side of the handset - the midpoint of the width w_t of the handset at the level of the acoustic output, and the midpoint of the width w_b of the bottom of the handset.

(b) The horizontal line is perpendicular to the vertical centerline and passes through the center of the acoustic output. The horizontal line is also tangential to the face of the handset at point A.

(c) The two lines intersect at point A. Note that for many handsets, point A coincides with the center of the acoustic output; however, the acoustic output may be located elsewhere on the horizontal line. Also note that the vertical centerline is not necessarily parallel to the front face of the handset, especially for clamshell handsets, handsets with flip covers, and other irregularly shaped handsets.

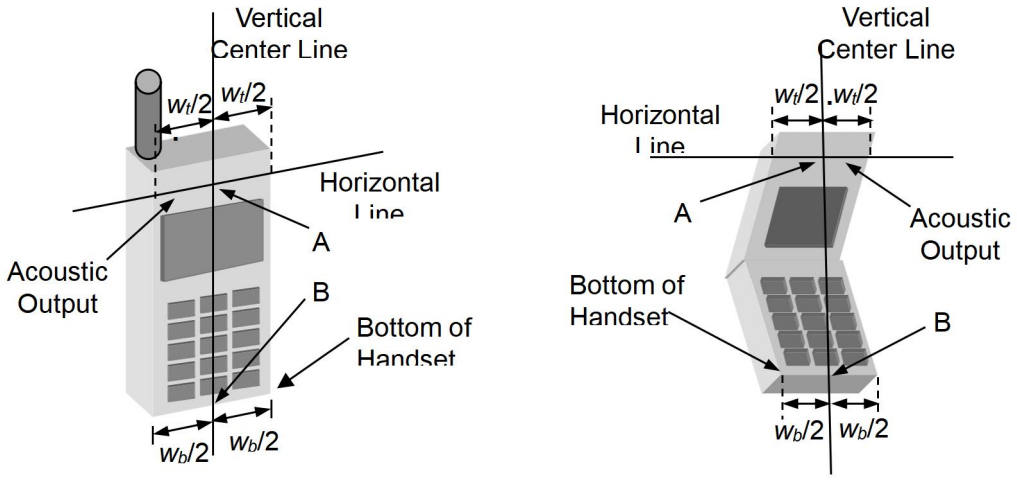


Illustration for Handset Vertical and Horizontal Reference Lines

2. Cheek Position

(a) To position the device with the vertical center line of the body of the device and the horizontal line crossing the center piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, align the vertical center line with the reference plane containing the three ear and mouth reference point (M: Mouth, RE: Right Ear, and LE: Left Ear) and align the center of the ear piece with the line RE-LE.

(b) To move the device towards the phantom with the ear piece aligned with the line LE-RE until the phone touched the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the phone until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost .

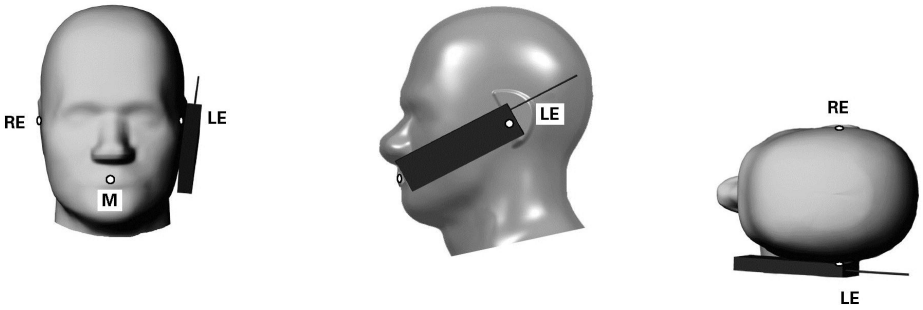


Illustration for Cheek Position

3. Tilted Position

(a) To position the device in the “cheek” position described above.

(b) While maintaining the device the reference plane described above and pivoting against the ear, moves it outward away from the mouth by an angle of 15 degrees or until contact with the ear is lost (see Fig-4.3).

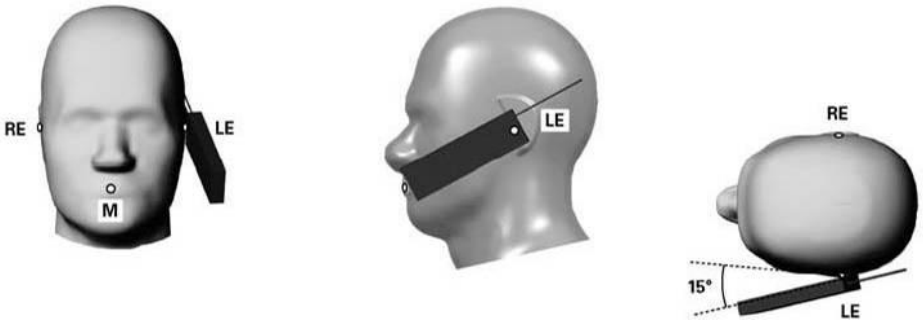


Illustration for Tilted Position

6.2.2 Body-worn Accessory Exposure Conditions

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 KDB 447498 D01 are 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 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.

Body-worn accessories that do not contain metallic or conductive components may be tested according to worst-case exposure configurations, typically according to the smallest test separation distance required for the group of body-worn accessories with similar operating and exposure characteristics. All body-worn accessories containing metallic components are tested in conjunction with the host device.

Body-worn accessory SAR compliance is based on a single minimum test separation distance for all wireless and operating modes applicable to each body-worn accessory used by the host, and according to the relevant voice and/or data mode transmissions and operations. If a body-worn accessory supports voice only operations in its normal and expected use conditions, testing of data mode for body-worn compliance is not required.

A conservative minimum test separation distance for supporting off-the-shelf body-worn accessories that may be acquired by users of consumer handsets is used to test for body-worn accessory SAR compliance. This distance is determined by the handset manufacturer, according to the requirements of Supplement C 01-01. Devices that are designed to operate on the body of users using lanyards and straps, or without requiring additional body-worn accessories, will be tested using a conservative minimum test separation distance <= 5 mm to support compliance.

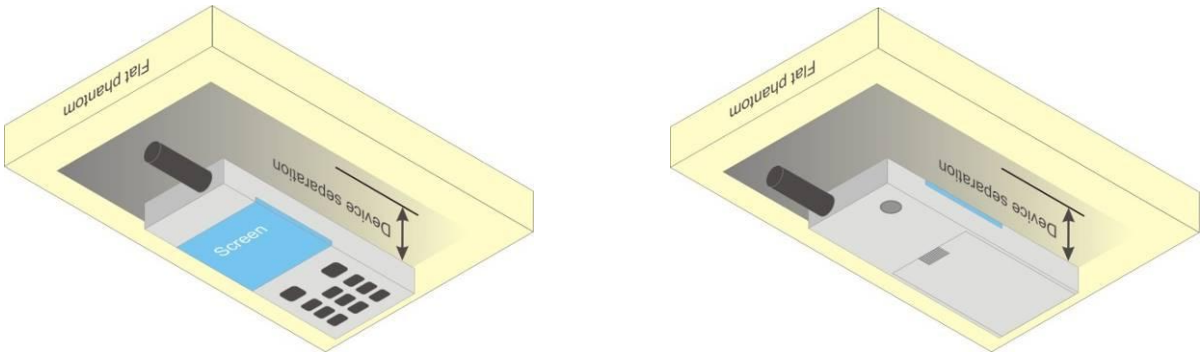
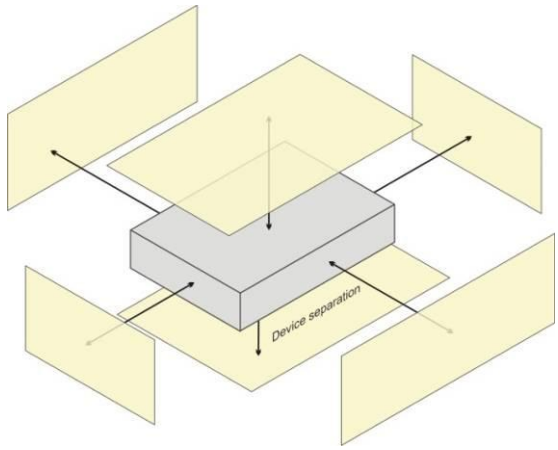


Illustration for Body Worn Position

6.2.3 Hotspot Mode Exposure Conditions

For handsets that support hotspot mode operations, with wireless router capabilities and various web browsing functions, the relevant hand and body exposure conditions are tested according to the hotspot SAR procedures in KDB 941225 D06. A test separation distance of 10 mm is required between the phantom and all surfaces and edges with a transmitting antenna located within 25 mm from that surface or edge. When the form factor of a handset is smaller than 9 cm x 5 cm, a test separation distance of 5 mm (instead of 10 mm) is required for testing hotspot mode. When the separation distance required for body-worn accessory testing is larger than or equal to that tested for hotspot mode, in the same wireless mode and for the same surface of the phone, the hotspot mode SAR data may be used to support body-worn accessory SAR compliance for that particular configuration (surface).



Based on the antenna location shown on Appendix D of this report, the SAR testing required for hotspot mode is listed as below.

Antenna	Front Face	Rear Face	Left Side	Right Side	Top Side	Bottom Side
WWAN Ant2	V	V	V	V	V	
WWAN Ant5	V	V	V	V		V
WWAN Ant6	V	V		V		V
WLAN / BT Ant0	V	V		V	V	

6.3 Simultaneous Transmission Possibilities

The simultaneous transmission possibilities for this device are listed as below.

Simultaneous TX Combination	Capable Transmit Configurations	Head (Voice / VoIP)	Body-worn (Voice / VoIP)	Hotspot (Data)
1	WWAN+2.4G WIFI	Yes	Yes	Yes
2	WWAN+5G WIFI	Yes	Yes	Yes
3	WWAN+BT	Yes	Yes	Yes

Note :

1. The 2.4G WLAN and 5G WLAN cannot transmit simultaneously.
2. The WLAN and Bluetooth cannot transmit simultaneously, so there is no co-location test requirement for WLAN and Bluetooth.

7 Maximum Output Power

7.1 Maximum Conducted Power

The maximum conducted average power (Unit: dBm) including tune-up tolerance is shown as below.

Mode	GSM850	GSM1900
GSM (GMSK, 1Tx-slot)	34.5	31.0
GPRS (GMSK, 1Tx-slot)	34.0	31.0
GPRS (GMSK, 2Tx-slot)	33.5	30.5
GPRS (GMSK, 3Tx-slot)	31.5	28.5
GPRS (GMSK, 4Tx-slot)	30.5	27.5
EDGE (8PSK, 1Tx-slot)	28.0	28.0
EDGE (8PSK, 2Tx-slot)	27.0	26.5
EDGE (8PSK, 3Tx-slot)	25.0	24.5
EDGE (8PSK, 4Tx-slot)	24.0	23.0

Mode	WCDMA Band II	WCDMA Band IV	WCDMA Band V
RMC 12.2K	24.0	23.0	24.0
HSDPA	23.5	22.5	23.5
HSUPA	23.5	22.5	23.5

Mode	LTE 2	LTE 4	LTE5
QPSK / 16QAM	21.0	20.0	25.0

Mode	LTE 12	LTE 17	LTE 41
QPSK / 16QAM	24.5	24.5	21.0

Mode	LTE 66	LTE 71
QPSK / 16QAM	20.0	24.5

Mode	N 71
QPSK / BPSK	24.5

<WLAN 2.4G>

Mode	802.11b (1Mbps)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Tune up	13.0	13.0	13.0
Mode	802.11g (6Mbps)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Tune up	13.5	13.5	13.5
Mode	802.11n (HT20) (MCS0)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Tune up	14.0	14.0	14.0
Mode	802.11n (HT40) (MCS0)		
Channel / Frequency (MHz)	3 (2422)	6 (2437)	9 (2452)
Tune up	13.0	13.0	13.0

<WLAN 5.2G>

Mode	802.11a (6Mbps)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Tune up	15.0	15.0	15.0	15.0
Mode	802.11n (HT20) (MCS0)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Tune up	11.5	11.5	11.5	11.5
Mode	802.11n (HT40) (MCS0)			
Channel / Frequency (MHz)	38 (5190)		46 (5230)	
Tune up	11.0		11.0	
Mode	802.11ac (VHT20) (MCS0)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Tune up	10.5	10.5	10.5	10.5
Mode	802.11ac (VHT40) (MCS0)			
Channel / Frequency (MHz)	38 (5190)		46 (5230)	
Tune up	10.5		10.5	
Mode	802.11ac (VHT80) (MCS0)			
Channel / Frequency (MHz)	42 (5210)			
Tune up	10.0			

<WLAN 5.8G>

Mode	802.11a (6Mbps)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Tune up	11.0	11.0	11.0	11.0	11.0
Mode	802.11n (HT20) (MCS0)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Tune up	12.0	11.5	11.0	10.5	10.5
Mode	802.11n (HT40) (MCS0)				
Channel / Frequency (MHz)	151 (5755)			159 (5795)	
Tune up	10.5			10.5	
Mode	802.11ac (VHT20) (MCS0)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Tune up	10.0	10.0	9.0	9.0	8.0
Mode	802.11ac (VHT40) (MCS0)				
Channel / Frequency (MHz)	151 (5755)			159 (5795)	
Tune up	9.0			9.0	
Mode	802.11ac (VHT80) (MCS0)				
Channel / Frequency (MHz)	155 (5775)				
Tune up	7.5				

Mode	2.4G Bluetooth
GFSK	4.0
π/4-DQPSK	3.5
8DPSK	3.5
LE 1M	3.0

7.2 Measured Conducted Power Result

Band	GSM850		
Channel	128	189	251
Frequency (MHz)	824.2	836.4	848.8
GSM (GMSK, 1Tx-slot)	33.67	33.80	**34.01**
GPRS (GMSK, 1Tx-slot)	33.68	33.76	33.95
GPRS (GMSK, 2Tx-slot)	32.92	33.02	33.22
GPRS (GMSK, 3Tx-slot)	31.15	31.23	31.47
GPRS (GMSK, 4Tx-slot)	30.00	30.10	30.34
EDGE (8PSK, 1Tx-slot)	27.92	27.50	27.66
EDGE (8PSK, 2Tx-slot)	26.77	26.48	26.58
EDGE (8PSK, 3Tx-slot)	24.71	24.44	24.60
EDGE (8PSK, 4Tx-slot)	23.56	23.23	23.43
Maximum Frame-Averaged Output Power			
GSM (GMSK, 1Tx-slot)	24.67	24.80	25.01
GPRS (GMSK, 1Tx-slot)	24.68	24.76	24.95
GPRS (GMSK, 2Tx-slot)	26.92	27.02	27.22
GPRS (GMSK, 3Tx-slot)	26.89	26.97	27.21
GPRS (GMSK, 4Tx-slot)	27.00	27.10	**27.34**
EDGE (8PSK, 1Tx-slot)	18.92	18.50	18.66
EDGE (8PSK, 2Tx-slot)	20.77	20.48	20.58
EDGE (8PSK, 3Tx-slot)	20.45	20.18	20.34
EDGE (8PSK, 4Tx-slot)	20.56	20.23	20.43

Band	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880	1909.8
GSM (GMSK, 1Tx-slot)	30.82	**30.95**	30.63
GPRS (GMSK, 1Tx-slot)	30.82	30.89	30.57
GPRS (GMSK, 2Tx-slot)	30.06	30.16	29.88
GPRS (GMSK, 3Tx-slot)	28.27	28.41	28.22
GPRS (GMSK, 4Tx-slot)	27.13	27.26	27.11
EDGE (8PSK, 1Tx-slot)	27.63	26.92	26.06
EDGE (8PSK, 2Tx-slot)	26.35	25.78	24.88
EDGE (8PSK, 3Tx-slot)	24.04	23.52	22.64
EDGE (8PSK, 4Tx-slot)	22.68	22.21	21.28
Maximum Frame-Averaged Output Power			
GSM (GMSK, 1Tx-slot)	21.82	21.95	21.63
GPRS (GMSK, 1Tx-slot)	21.82	21.89	21.57
GPRS (GMSK, 2Tx-slot)	24.06	24.16	23.88
GPRS (GMSK, 3Tx-slot)	24.01	24.15	23.96
GPRS (GMSK, 4Tx-slot)	24.13	**24.26**	24.11
EDGE (8PSK, 1Tx-slot)	18.63	17.92	17.06
EDGE (8PSK, 2Tx-slot)	20.35	19.78	18.88
EDGE (8PSK, 3Tx-slot)	19.78	19.26	18.38
EDGE (8PSK, 4Tx-slot)	19.68	19.21	18.28

Note:

1. SAR testing was performed on the maximum frame-averaged power mode.
2. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:
   Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8)

Band	WCDMA Band II			WCDMA Band IV			3GPP MPR (dB)
Channel	9262	9400	9538	1312	1413	1513	
Frequency (MHz)	1852.4	1880.0	1907.6	1712.4	1732.6	1752.6	
RMC 12.2K	**23.92**	23.85	23.77	21.79	22.58	**22.72**	-
HSDPA Subtest-1	23.35	23.28	23.20	21.22	22.01	22.15	0
HSDPA Subtest-2	23.40	23.33	23.25	21.27	22.06	22.20	0
HSDPA Subtest-3	23.46	23.39	23.31	21.33	22.12	22.26	0.5
HSDPA Subtest-4	23.40	23.33	23.25	21.27	22.06	22.20	0.5
HSUPA Subtest-1	23.33	23.26	23.18	21.20	21.99	22.13	0
HSUPA Subtest-2	21.57	21.50	21.42	19.44	20.23	20.37	2
HSUPA Subtest-3	22.45	22.38	22.30	20.32	21.11	21.25	1
HSUPA Subtest-4	21.39	21.32	21.24	19.26	20.05	20.19	2
HSUPA Subtest-5	23.49	23.42	23.34	21.36	22.15	22.29	0

Band	WCDMA Band V			3GPP MPR (dB)
Channel	4132	4182	4233	
Frequency (MHz)	826.4	836.4	846.6	
RMC 12.2K	**23.83**	23.65	23.64	-
HSDPA Subtest-1	23.26	23.08	23.07	0
HSDPA Subtest-2	23.31	23.13	23.12	0
HSDPA Subtest-3	23.37	23.19	23.18	0.5
HSDPA Subtest-4	23.31	23.13	23.12	0.5
HSUPA Subtest-1	23.24	23.06	23.05	0
HSUPA Subtest-2	21.48	21.30	21.29	2
HSUPA Subtest-3	22.36	22.18	22.17	1
HSUPA Subtest-4	21.30	21.12	21.11	2
HSUPA Subtest-5	23.40	23.22	23.21	0

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18607	Mid CH 18900	High CH 19193		Low CH 18607	Mid CH 18900	High CH 19193	
			1850.7 MHz	1880.0 MHz	1909.3 MHz		1850.7 MHz	1880.0 MHz	1909.3 MHz	
2 / 1.4M	1	0	20.57	20.22	19.84	0	19.41	19.34	18.97	1
	1	2	20.46	20.28	19.90	0	19.33	19.35	18.87	1
	1	5	20.47	19.95	20.00	0	19.19	19.36	18.82	1
	3	0	20.47	20.18	19.92	0	19.46	19.08	19.02	1
	3	1	20.43	20.11	20.06	0	19.47	19.16	19.02	1
	3	3	20.39	20.04	19.95	0	19.34	19.07	19.11	1
	6	0	19.35	19.20	19.10	1	18.32	18.21	17.94	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18615	Mid CH 18900	High CH 19185		Low CH 18615	Mid CH 18900	High CH 19185	
			1851.5 MHz	1880.0 MHz	1908.5 MHz		1851.5 MHz	1880.0 MHz	1908.5 MHz	
2 / 3M	1	0	20.43	20.12	19.76	0	19.42	19.34	18.81	1
	1	7	20.40	20.21	19.85	0	19.25	19.41	18.85	1
	1	14	20.31	19.96	19.87	0	19.10	19.38	18.93	1
	8	0	19.37	19.17	19.02	1	18.35	18.19	18.01	2
	8	3	19.39	19.26	19.00	1	18.43	18.23	17.99	2
	8	7	19.27	19.14	19.09	1	18.40	18.09	18.11	2
	15	0	19.34	19.06	19.05	1	18.45	18.04	18.04	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18625 1852.5 MHz	Mid CH 18900 1880.0 MHz	High CH 19175 1907.5 MHz		Low CH 18625 1852.5 MHz	Mid CH 18900 1880.0 MHz	High CH 19175 1907.5 MHz	
2 / 5M	1	0	20.58	20.14	19.83	0	19.35	19.27	18.82	1
	1	12	20.51	20.11	19.90	0	19.15	19.45	18.93	1
	1	24	20.42	19.95	19.96	0	19.12	19.22	18.96	1
	12	0	19.30	19.13	19.03	1	18.45	18.23	17.92	2
	12	6	19.46	19.19	18.96	1	18.35	18.21	18.11	2
	12	13	19.44	19.08	18.98	1	18.43	17.98	18.11	2
	25	0	19.44	19.10	19.04	1	18.42	18.09	18.06	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18650 1855.0 MHz	Mid CH 18900 1880.0 MHz	High CH 19150 1905.0 MHz		Low CH 18650 1855.0 MHz	Mid CH 18900 1880.0 MHz	High CH 19150 1905.0 MHz	
2 / 10M	1	0	20.52	20.16	19.88	0	19.30	19.36	18.99	1
	1	24	20.56	20.14	19.86	0	19.16	19.30	18.96	1
	1	49	20.38	20.11	19.94	0	19.10	19.21	18.93	1
	25	0	19.45	19.10	18.95	1	18.33	18.24	18.08	2
	25	12	19.40	19.19	18.99	1	18.44	18.25	17.95	2
	25	25	19.33	19.05	19.03	1	18.36	18.11	18.00	2
	50	0	19.39	19.19	19.10	1	18.28	18.11	18.06	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18675 1857.5 MHz	Mid CH 18900 1880.0 MHz	High CH 19125 1902.5 MHz		Low CH 18675 1857.5 MHz	Mid CH 18900 1880.0 MHz	High CH 19125 1902.5 MHz	
2 / 15M	1	0	20.51	20.21	19.83	0	19.28	19.35	18.94	1
	1	37	20.38	20.25	19.85	0	19.32	19.37	18.96	1
	1	74	20.49	20.11	19.93	0	19.24	19.26	18.88	1
	36	0	19.42	19.25	18.92	1	18.41	18.21	18.06	2
	36	19	19.38	19.21	19.06	1	18.31	18.23	17.99	2
	36	39	19.32	19.13	19.00	1	18.42	18.15	18.09	2
	75	0	19.31	19.18	18.99	1	18.27	18.03	18.04	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 18700 1860.0 MHz	Mid CH 18900 1880.0 MHz	High CH 19100 1900.0 MHz		Low CH 18700 1860.0 MHz	Mid CH 18900 1880.0 MHz	High CH 19100 1900.0 MHz	
2 / 20M	1	0	**20.59**	20.27	19.95	0	19.43	19.46	18.99	1
	1	50	20.58	20.29	19.96	0	19.34	19.48	19.00	1
	1	99	20.50	20.13	20.06	0	19.29	19.39	19.00	1
	50	0	19.50	19.29	19.08	1	18.51	18.28	18.12	2
	50	25	19.49	19.28	19.11	1	18.50	18.29	18.12	2
	50	50	19.47	19.20	19.12	1	18.45	18.18	18.15	2
	100	0	19.50	19.22	19.11	1	18.47	18.22	18.11	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 19957 1710.7 MHz	Mid CH 20175 1732.5 MHz	High CH 20393 1754.3 MHz		Low CH 19957 1710.7 MHz	Mid CH 20175 1732.5 MHz	High CH 20393 1754.3 MHz	
4 / 1.4M	1	0	19.30	19.38	19.39	0	18.77	18.64	18.78	1
	1	2	19.32	19.54	19.56	0	18.71	18.56	18.60	1
	1	5	19.27	19.23	19.42	0	18.63	18.67	18.56	1
	3	0	19.67	19.70	19.72	0	18.85	18.67	18.81	1
	3	1	19.62	19.62	19.81	0	18.89	18.76	18.83	1
	3	3	19.73	19.76	19.82	0	18.74	18.71	18.82	1
	6	0	18.65	18.89	18.97	1	17.78	17.89	17.77	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 19965 1711.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20385 1753.5 MHz		Low CH 19965 1711.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20385 1753.5 MHz	
4 / 3M	1	0	19.16	19.28	19.31	0	18.78	18.64	18.62	1
	1	7	19.26	19.47	19.51	0	18.63	18.62	18.58	1
	1	14	19.11	19.24	19.29	0	18.54	18.69	18.67	1
	8	0	18.57	18.69	18.82	1	17.74	17.78	17.80	2
	8	3	18.58	18.77	18.75	1	17.85	17.83	17.80	2
	8	7	18.61	18.86	18.96	1	17.80	17.73	17.82	2
	15	0	18.64	18.75	18.92	1	17.91	17.72	17.87	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 19975 1712.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20375 1752.5 MHz		Low CH 19975 1712.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20375 1752.5 MHz	
4 / 5M	1	0	19.31	19.30	19.38	0	18.71	18.57	18.63	1
	1	12	19.37	19.37	19.56	0	18.53	18.66	18.66	1
	1	24	19.22	19.23	19.38	0	18.56	18.53	18.70	1
	12	0	18.50	18.65	18.83	1	17.84	17.82	17.71	2
	12	6	18.65	18.70	18.71	1	17.77	17.81	17.92	2
	12	13	18.78	18.80	18.85	1	17.83	17.62	17.82	2
	25	0	18.74	18.79	18.91	1	17.88	17.77	17.89	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20000 1715.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20350 1750.0 MHz		Low CH 20000 1715.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20350 1750.0 MHz	
4 / 10M	1	0	19.25	19.32	19.43	0	18.66	18.66	18.80	1
	1	24	19.42	19.40	19.52	0	18.54	18.51	18.69	1
	1	49	19.18	19.39	19.36	0	18.54	18.52	18.67	1
	25	0	18.65	18.62	18.75	1	17.72	17.83	17.87	2
	25	12	18.59	18.70	18.74	1	17.86	17.85	17.76	2
	25	25	18.67	18.77	18.90	1	17.76	17.75	17.71	2
	50	0	18.69	18.88	18.97	1	17.74	17.79	17.89	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20025 1717.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20325 1747.5 MHz		Low CH 20025 1717.5 MHz	Mid CH 20175 1732.5 MHz	High CH 20325 1747.5 MHz	
4 / 15M	1	0	19.24	19.37	19.38	0	18.64	18.65	18.75	1
	1	37	19.24	19.51	19.51	0	18.70	18.58	18.69	1
	1	74	19.29	19.39	19.35	0	18.68	18.57	18.62	1
	36	0	18.62	18.77	18.72	1	17.80	17.80	17.85	2
	36	19	18.57	18.72	18.81	1	17.73	17.83	17.80	2
	36	39	18.66	18.85	18.87	1	17.82	17.79	17.80	2
	75	0	18.61	18.87	18.86	1	17.73	17.71	17.87	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20050 1720.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20300 1745.0 MHz		Low CH 20050 1720.0 MHz	Mid CH 20175 1732.5 MHz	High CH 20300 1745.0 MHz	
4 / 20M	1	0	19.32	19.43	19.50	0	18.79	18.76	18.80	1
	1	50	19.44	19.55	**19.62**	0	18.72	18.69	18.73	1
	1	99	19.30	19.41	19.48	0	18.73	18.70	18.74	1
	50	0	18.70	18.81	18.88	1	17.90	17.87	17.91	2
	50	25	18.68	18.79	18.86	1	17.92	17.89	17.93	2
	50	50	18.81	18.92	18.99	1	17.85	17.82	17.86	2
	100	0	18.80	18.91	18.98	1	17.93	17.90	17.94	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20407 824.7 MHz	Mid CH 20525 836.5 MHz	High CH 20643 848.3 MHz		Low CH 20407 824.7 MHz	Mid CH 20525 836.5 MHz	High CH 20643 848.3 MHz	
5 / 1.4M	1	0	24.24	24.36	24.35	0	23.44	23.20	23.35	1
	1	2	24.23	24.26	24.30	0	23.07	23.05	23.20	1
	1	5	24.40	24.38	24.21	0	23.39	23.19	23.17	1
	3	0	24.14	24.35	24.37	0	23.21	23.27	23.26	1
	3	1	24.26	24.32	24.24	0	23.19	23.22	23.27	1
	3	3	24.35	24.24	24.34	0	23.31	23.35	23.15	1
	6	0	23.30	23.23	23.33	1	22.25	22.25	22.22	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20415 825.5 MHz	Mid CH 20525 836.5 MHz	High CH 20635 847.5 MHz		Low CH 20415 825.5 MHz	Mid CH 20525 836.5 MHz	High CH 20635 847.5 MHz	
5 / 3M	1	0	24.31	24.38	24.44	0	23.28	23.08	23.31	1
	1	7	24.10	24.28	24.20	0	23.17	23.22	23.38	1
	1	14	24.49	24.32	24.19	0	23.42	23.20	23.20	1
	8	0	23.22	23.21	23.35	1	22.09	22.24	22.35	2
	8	3	23.23	23.21	23.34	1	22.12	22.21	22.22	2
	8	7	23.27	23.25	23.18	1	22.28	22.40	22.17	2
	15	0	23.25	23.24	23.27	1	22.32	22.28	22.34	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20425 826.5 MHz	Mid CH 20525 836.5 MHz	High CH 20625 846.5 MHz		Low CH 20425 826.5 MHz	Mid CH 20525 836.5 MHz	High CH 20625 846.5 MHz	
5 / 5M	1	0	24.21	24.26	24.52	0	23.38	23.14	23.28	1
	1	12	24.17	24.34	24.30	0	23.18	23.08	23.37	1
	1	24	24.47	24.37	24.27	0	23.40	23.23	23.28	1
	12	0	23.28	23.30	23.28	1	22.17	22.25	22.32	2
	12	6	23.16	23.35	23.28	1	22.22	22.15	22.33	2
	12	13	23.33	23.33	23.20	1	22.34	22.30	22.22	2
	25	0	23.15	23.25	23.38	1	22.15	22.29	22.35	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 20450 829.0 MHz	Mid CH 20525 836.5 MHz	High CH 20600 844.0 MHz		Low CH 20450 829.0 MHz	Mid CH 20525 836.5 MHz	High CH 20600 844.0 MHz	
5 / 10M	1	0	24.39	24.41	**24.52**	0	23.45	23.28	23.47	1
	1	24	24.25	24.43	24.40	0	23.23	23.25	23.39	1
	1	49	24.51	24.42	24.32	0	23.43	23.29	23.35	1
	25	0	23.31	23.35	23.45	1	22.27	22.33	22.41	2
	25	12	23.32	23.39	23.44	1	22.27	22.34	22.42	2
	25	25	23.39	23.41	23.34	1	22.38	22.41	22.30	2
	50	0	23.35	23.37	23.40	1	22.34	22.36	22.38	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23017 699.7 MHz	Mid CH 23095 707.5 MHz	High CH 23173 715.3 MHz		Low CH 23017 699.7 MHz	Mid CH 23095 707.5 MHz	High CH 23173 715.3 MHz	
12 / 1.4M	1	0	24.13	24.11	23.97	0	23.05	22.88	22.87	1
	1	2	23.95	23.95	23.77	0	22.92	22.78	22.62	1
	1	5	23.85	23.94	23.82	0	23.04	22.72	22.44	1
	3	0	23.89	24.01	23.96	0	22.88	22.90	22.89	1
	3	1	24.03	24.07	23.92	0	23.02	22.93	22.88	1
	3	3	23.98	23.92	23.69	0	22.82	22.91	22.69	1
	6	0	22.90	22.93	22.76	1	22.01	22.02	21.79	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23025 700.5 MHz	Mid CH 23095 707.5 MHz	High CH 23165 714.5 MHz		Low CH 23025 700.5 MHz	Mid CH 23095 707.5 MHz	High CH 23165 714.5 MHz	
12 / 3M	1	0	24.05	24.16	24.11	0	23.12	23.01	22.89	1
	1	7	23.87	23.94	23.72	0	22.92	22.82	22.61	1
	1	14	24.01	23.88	23.68	0	23.01	22.66	22.54	1
	8	0	23.01	23.03	22.87	1	21.91	21.97	21.81	2
	8	3	23.02	22.91	23.00	1	21.93	22.07	21.81	2
	8	7	22.91	22.92	22.68	1	21.82	21.93	21.83	2
	15	0	22.97	22.98	22.86	1	22.02	21.89	21.80	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23035	Mid CH 23095	High CH 23155		Low CH 23035	Mid CH 23095	High CH 23155	
			701.5 MHz	707.5 MHz	713.5 MHz		701.5 MHz	707.5 MHz	713.5 MHz	
12 / 5M	1	0	24.06	23.98	23.95	0	23.02	22.98	22.75	1
	1	12	23.86	24.01	23.86	0	22.93	22.85	22.50	1
	1	24	24.04	23.81	23.66	0	22.95	22.71	22.36	1
	12	0	23.07	23.10	22.83	1	21.97	21.99	21.96	2
	12	6	23.01	23.00	22.92	1	21.91	22.04	21.98	2
	12	13	22.88	22.94	22.81	1	21.89	21.86	21.68	2
	25	0	22.98	22.92	22.82	1	21.99	21.94	21.75	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23060	Mid CH 23095	High CH 23130		Low CH 23060	Mid CH 23095	High CH 23130	
			704.0 MHz	707.5 MHz	711.0 MHz		704.0 MHz	707.5 MHz	711.0 MHz	
12 / 10M	1	0	24.14	**24.17**	24.15	0	23.15	23.06	22.90	1
	1	24	24.05	24.04	23.90	0	23.05	22.87	22.66	1
	1	49	24.05	23.96	23.83	0	23.09	22.81	22.56	1
	25	0	23.08	23.11	23.00	1	22.04	22.06	21.98	2
	25	12	23.09	23.08	23.01	1	22.04	22.09	21.99	2
	25	25	23.04	22.94	22.85	1	22.00	21.94	21.85	2
	50	0	23.07	23.03	22.90	1	22.04	22.03	21.91	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23755	Mid CH 23790	High CH 23825		Low CH 23755	Mid CH 23790	High CH 23825	
			706.5 MHz	710.0 MHz	713.5 MHz		706.5 MHz	710.0 MHz	713.5 MHz	
17 / 5M	1	0	24.06	24.20	24.06	0	23.17	22.90	22.83	1
	1	12	24.07	23.94	24.01	0	23.00	22.87	22.71	1
	1	24	23.85	23.92	23.92	0	22.81	22.77	22.61	1
	12	0	22.91	22.99	23.11	1	21.96	22.04	22.10	2
	12	6	23.14	23.15	22.97	1	22.10	22.15	22.05	2
	12	13	23.06	22.90	22.83	1	21.98	22.00	21.86	2
	25	0	22.97	23.04	22.99	1	22.03	21.93	22.09	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 23780	Mid CH 23790	High CH 23800		Low CH 23780	Mid CH 23790	High CH 23800	
			709.0 MHz	710.0 MHz	711.0 MHz		709.0 MHz	710.0 MHz	711.0 MHz	
17 / 10M	1	0	24.22	**24.23**	24.22	0	23.21	23.07	22.97	1
	1	24	24.10	24.10	24.09	0	23.07	22.91	22.81	1
	1	49	24.01	24.08	24.03	0	23.00	22.95	22.81	1
	25	0	23.11	23.13	23.13	1	22.08	22.14	22.12	2
	25	12	23.20	23.21	23.11	1	22.15	22.17	22.09	2
	25	25	23.08	23.06	23.00	1	22.05	22.05	21.99	2
	50	0	23.14	23.11	23.02	1	22.09	22.08	22.10	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39715	Mid CH 40620	High CH 41565		Low CH 39715	Mid CH 40620	High CH 41565	
			2502.5 MHz	2593 MHz	2687.5 MHz		2502.5 MHz	2593 MHz	2687.5 MHz	
41/ 5	1	0	20.00	20.29	20.58	0	19.02	18.90	19.18	1
	1	12	20.08	20.24	20.55	0	19.11	18.89	19.27	1
	1	24	20.13	20.28	20.60	0	19.08	18.77	19.21	1
	12	0	19.14	19.30	19.56	1	18.13	18.47	18.56	2
	12	6	19.00	19.42	19.46	1	18.10	18.32	18.40	2
	12	13	19.04	19.36	19.62	1	18.22	18.41	18.46	2
	25	0	19.15	19.33	19.57	1	18.03	18.21	18.61	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39740	Mid CH 40620	High CH 41540		Low CH 39740	Mid CH 40620	High CH 41540	
			2505 MHz	2593 MHz	2685 MHz		2505 MHz	2593 MHz	2685 MHz	
41/ 10	1	0	20.11	20.29	20.61	0	19.05	18.82	19.27	1
	1	24	20.13	20.19	20.59	0	19.16	18.91	19.17	1
	1	49	20.15	20.21	20.68	0	19.08	18.91	19.28	1
	25	0	19.08	19.37	19.60	1	18.03	18.33	18.56	2
	25	12	18.99	19.36	19.49	1	18.13	18.42	18.52	2
	25	25	19.24	19.39	19.55	1	18.05	18.25	18.49	2
	50	0	19.15	19.25	19.47	1	17.98	18.32	18.47	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39765	Mid CH 40620	High CH 41515		Low CH 39740	Mid CH 40620	High CH 41540	
			2507.5 MHz	2593 MHz	2682.5 MHz		2505 MHz	2593 MHz	2685 MHz	
41/ 15	1	0	20.10	20.27	20.61	0	19.14	18.83	19.32	1
	1	37	20.07	20.29	20.59	0	19.13	18.79	19.12	1
	1	74	20.27	20.18	20.58	0	19.22	18.91	19.18	1
	36	0	19.08	19.35	19.55	1	18.04	18.38	18.39	2
	36	19	19.06	19.34	19.44	1	17.98	18.39	18.38	2
	36	39	19.09	19.34	19.50	1	18.11	18.41	18.56	2
	75	0	19.15	19.33	19.63	1	18.08	18.37	18.52	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 39790	Mid CH 40620	High CH 41490		Low CH 39790	Mid CH 40620	High CH 41490	
			2510 MHz	2593 MHz	2680 MHz		2510 MHz	2593 MHz	2680 MHz	
41/ 20	1	0	20.12	20.40	20.69	0	19.15	19.02	19.37	1
	1	50	20.21	20.37	20.73	0	19.25	18.96	19.31	1
	1	99	20.29	20.34	**20.74**	0	19.27	18.95	19.36	1
	50	0	19.18	19.48	19.60	1	18.18	18.51	18.57	2
	50	25	19.17	19.48	19.60	1	18.18	18.49	18.57	2
	50	50	19.24	19.41	19.65	1	18.24	18.41	18.60	2
	100	0	19.18	19.43	19.64	1	18.16	18.40	18.63	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 131979	Mid CH 132322	High CH 132665		Low CH 131979	Mid CH 132322	High CH 132665	
			1710.7 MHz	1745 MHz	1779.3 MHz		1710.7 MHz	1745 MHz	1779.3 MHz	
66 /1.4M	1	0	19.66	19.63	19.64	0	18.36	18.44	18.90	1
	1	2	19.53	19.71	19.49	0	18.48	18.50	18.75	1
	1	5	19.64	19.42	19.55	0	18.32	18.50	18.71	1
	3	0	19.43	19.52	19.52	1	18.41	18.43	18.60	1
	3	1	19.42	19.45	19.62	1	18.44	18.49	18.60	1
	3	3	19.49	19.43	19.48	1	18.46	18.49	18.61	1
	6	0	18.38	18.61	18.64	1	17.37	17.57	17.47	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 131987	Mid CH 132322	High CH 132657		Low CH 131987	Mid CH 132322	High CH 132657	
			1711.5 MHz	1745 MHz	1778.5 MHz		1711.5 MHz	1745 MHz	1778.5 MHz	
66 / 3M	1	0	19.52	19.53	19.56	0	18.37	18.44	18.74	1
	1	7	19.47	19.64	19.44	0	18.40	18.56	18.73	1
	1	14	19.48	19.43	19.42	0	18.23	18.52	18.82	1
	8	0	18.33	18.51	18.62	1	17.30	17.54	17.59	2
	8	3	18.38	18.60	18.56	1	17.40	17.56	17.57	2
	8	7	18.37	18.53	18.62	1	17.52	17.51	17.61	2
	15	0	18.37	18.47	18.59	1	17.50	17.40	17.57	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 131997	Mid CH 132322	High CH 132647		Low CH 131997	Mid CH 132322	High CH 132647	
			1712.5 MHz	1745 MHz	1777.5 MHz		1712.5 MHz	1745 MHz	1777.5 MHz	
66 / 5M	1	0	19.67	19.55	19.63	0	18.30	18.37	18.75	1
	1	12	19.58	19.54	19.49	0	18.30	18.60	18.81	1
	1	24	19.59	19.42	19.51	0	18.25	18.36	18.85	1
	12	0	18.26	18.47	18.63	1	17.40	17.58	17.50	2
	12	6	18.45	18.53	18.52	1	17.32	17.54	17.69	2
	12	13	18.54	18.47	18.51	1	17.55	17.40	17.61	2
	25	0	18.47	18.51	18.58	1	17.47	17.45	17.59	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 132022	Mid CH 132322	High CH 132622		Low CH 132022	Mid CH 132322	High CH 132622	
			1715 MHz	1745 MHz	1775 MHz		1715 MHz	1745 MHz	1775 MHz	
66 / 10M	1	0	19.61	19.57	19.68	0	18.25	18.46	18.92	1
	1	24	19.63	19.57	19.45	0	18.31	18.45	18.84	1
	1	49	19.55	19.58	19.49	0	18.23	18.35	18.82	1
	25	0	18.41	18.44	18.55	1	17.28	17.59	17.66	2
	25	12	18.39	18.53	18.55	1	17.41	17.58	17.53	2
	25	25	18.43	18.44	18.56	1	17.48	17.53	17.50	2
	50	0	18.42	18.60	18.64	1	17.33	17.47	17.59	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 132047	Mid CH 132322	High CH 132597		Low CH 132047	Mid CH 132322	High CH 132597	
			1717.5 MHz	1745 MHz	1772.5 MHz		1717.5 MHz	1745 MHz	1772.5 MHz	
66 / 15M	1	0	19.60	19.62	19.63	0	18.23	18.45	18.87	1
	1	37	19.45	19.68	19.44	0	18.47	18.52	18.84	1
	1	74	19.66	19.58	19.48	0	18.37	18.40	18.77	1
	36	0	18.38	18.59	18.52	1	17.36	17.56	17.64	2
	36	19	18.37	18.55	18.62	1	17.28	17.56	17.57	2
	36	39	18.42	18.52	18.53	1	17.54	17.57	17.59	2
	75	0	18.34	18.59	18.53	1	17.32	17.39	17.57	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 132072	Mid CH 132322	High CH 132572		Low CH 132072	Mid CH 132322	High CH 132572	
			1720 MHz	1745 MHz	1770 MHz		1720 MHz	1745 MHz	1770 MHz	
66 / 20M	1	0	19.68	19.68	**19.75**	0	18.38	18.56	18.92	1
	1	50	19.65	19.72	19.55	0	18.49	18.63	18.88	1
	1	99	19.67	19.60	19.61	0	18.42	18.53	18.89	1
	50	0	18.46	18.63	18.68	1	17.46	17.63	17.70	2
	50	25	18.48	18.62	18.67	1	17.47	17.62	17.70	2
	50	50	18.57	18.59	18.65	1	17.57	17.60	17.65	2
	100	0	18.53	18.63	18.65	1	17.52	17.58	17.64	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 133147	Mid CH 133297	High CH 133447		Low CH 133147	Mid CH 133297	High CH 133447	
			6657.5 MHz	680.5 MHz	695.5 MHz		6657.5 MHz	680.5 MHz	695.5 MHz	
71/ 5	1	0	23.94	23.88	23.78	0	22.65	22.68	22.84	1
	1	12	23.91	23.78	23.83	0	22.66	22.80	22.97	1
	1	24	23.75	23.66	23.74	0	22.47	22.55	22.97	1
	12	0	22.87	22.93	22.84	1	22.03	21.84	21.71	2
	12	6	23.03	22.83	22.75	1	21.95	21.82	21.90	2
	12	13	22.90	22.75	22.68	1	21.93	21.63	21.79	2
	25	0	22.96	22.75	22.82	1	21.93	21.73	21.79	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 133172	Mid CH 133297	High CH 133422		Low CH 133172	Mid CH 133297	High CH 133422	
			668 MHz	680.5 MHz	693 MHz		668 MHz	680.5 MHz	693 MHz	
71/ 10	1	0	23.88	23.90	23.83	0	22.60	22.77	23.01	1
	1	24	23.96	23.81	23.79	0	22.67	22.65	23.00	1
	1	49	23.71	23.82	23.72	0	22.45	22.54	22.94	1
	25	0	23.02	22.90	22.76	1	21.91	21.85	21.87	2
	25	12	22.97	22.83	22.78	1	22.04	21.86	21.74	2
	25	25	22.79	22.72	22.73	1	21.86	21.76	21.68	2
	50	0	22.91	22.84	22.88	1	21.79	21.75	21.79	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 133197	Mid CH 133297	High CH 133397		Low CH 133197	Mid CH 133297	High CH 133397	
			670.5 MHz	680.5 MHz	690.5 MHz		670.5 MHz	680.5 MHz	690.5 MHz	
71/ 15	1	0	23.87	23.95	23.78	0	22.58	22.76	22.96	1
	1	37	23.78	23.92	23.78	0	22.83	22.72	23.00	1
	1	74	23.82	23.82	23.71	0	22.59	22.59	22.89	1
	36	0	22.99	23.05	22.73	1	21.99	21.82	21.85	2
	36	19	22.95	22.85	22.85	1	21.91	21.84	21.78	2
	36	39	22.78	22.80	22.70	1	21.92	21.80	21.77	2
	75	0	22.83	22.83	22.77	1	21.78	21.67	21.77	2

LTE Band / BW	RB Size	RB Offset	QPSK			3GPP MPR (dB)	16QAM			3GPP MPR (dB)
			Low CH 133222	Mid CH 133322	High CH 133372		Low CH 133222	Mid CH 133322	High CH 133372	
			673 MHz	683 MHz	688 MHz		673 MHz	683 MHz	688 MHz	
71/ 20	1	0	23.95	**24.01**	23.90	0	22.73	22.87	23.01	1
	1	50	23.98	23.96	23.89	0	22.85	22.83	23.04	1
	1	99	23.83	23.84	23.84	0	22.64	22.72	23.01	1
	50	0	23.07	23.09	22.89	1	22.09	21.89	21.91	2
	50	25	23.06	22.92	22.90	1	22.10	21.90	21.91	2
	50	50	22.93	22.87	22.82	1	21.95	21.83	21.83	2
	100	0	23.02	22.87	22.89	1	21.98	21.86	21.84	2

BW (MHz)	Modulation	Modulation	RB Size	RB Offset	Power Low Ch./Frep.	Power Mid Ch./Frep.	Power High Ch./Frep.	Tune-up (dBm)	MPR (dB)
Channel					134600	136100	137600		
Frequency (MHz)					673	680.5	688		
N71/20 M	DFT-s-OFDM	π/2 BPSK	1	1	23.57	23.34	23.35	24.5	0.0
		π/2 BPSK	1	53	**23.98**	23.95	23.93		
		π/2 BPSK	1	104	**23.49**	23.38	23.18		
		π/2 BPSK	50	0	21.79	21.56	21.57	22.5	2.0
		π/2 BPSK	50	28	**22.20**	22.17	22.15	22.5	2.0
		π/2 BPSK	50	56	21.71	21.60	21.40	22.5	2.0
		π/2 BPSK	100	0	21.85	21.74	21.54		
		QPSK	1	1	23.07	22.86	22.88	24.5	0.0
		QPSK	1	53	23.06	**23.96**	23.93		
		QPSK	1	104	23.02	22.93	22.70		
		QPSK	50	0	21.60	21.09	21.11	22.5	2.0
		QPSK	50	28	21.29	**22.19**	22.16	22.5	2.0
		QPSK	50	56	21.25	21.16	20.93	22.5	2.0
		QPSK	100	0	21.43	22.33	22.30		
		16QAM	1	1	**22.88**	22.84	22.81	23.5	1.0
		64QAM	1	1	**21.95**	21.87	21.90	22.5	2.0
		256QAM	1	1	**21.17**	21.14	21.08	21.5	3.0
Channel					134100	136100	138100	Tune-up limit	MPR (dB)
Frequency (MHz)					670.5	680.5	690.5		
15 M	QPSK		1	1	23.94	23.91	23.89	24.5	0.0
Channel					133600	136100	138600	Tune-up limit	MPR (dB)
Frequency (MHz)					668	680.5	693		
10 M	QPSK		1	1	23.96	23.92	23.88	24.5	0.0

All Rate have been tested, the Worst average power (Unit: dBm) is shown as below.

<WLAN 2.4G>

Mode	802.11b (1Mbps)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	12.38	12.32	**12.62**
Mode	802.11g (6Mbps)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	12.94	12.88	**13.11**
Mode	802.11n (HT20) (MCS0)		
Channel / Frequency (MHz)	1 (2412)	6 (2437)	11 (2462)
Average Power	13.26	13.58	**13.69**
Mode	802.11n (HT40) (MCS0)		
Channel / Frequency (MHz)	3 (2422)	6 (2437)	9 (2452)
Average Power	**12.43**	12.31	12.32

<WLAN 5.2G>

Mode	802.11a (6Mbps)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Average Power	**11.24**	10.91	10.80	10.74
Mode	802.11n (HT20) (MCS0)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Average Power	**11.29**	11.28	11.21	11.15
Mode	802.11n (HT40) (MCS0)			
Channel / Frequency (MHz)	38 (5190)		46 (5230)	
Average Power	**10.70**		10.04	
Mode	802.11ac (VHT20) (MCS0)			
Channel / Frequency (MHz)	36 (5180)	40 (5200)	44 (5220)	48 (5240)
Average Power	10.34	10.28	10.29	10.31
Mode	802.11ac (VHT40) (MCS0)			
Channel / Frequency (MHz)	38 (5190)		46 (5230)	
Average Power	10.11		10.48	
Mode	802.11ac (VHT80) (MCS0)			
Channel / Frequency (MHz)	42 (5210)			
Average Power	9.51			

<WLAN 5.8G>

Mode	802.11a (6Mbps)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Average Power	**10.89**	10.73	10.65	10.56	10.35
Mode	802.11n (HT20) (MCS0)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Average Power	**11.77**	11.06	10.58	10.36	10.17
Mode	802.11n (HT40) (MCS0)				
Channel / Frequency (MHz)	151 (5755)			159 (5795)	
Average Power	**10.46**			10.03	
Mode	802.11ac (VHT20) (MCS0)				
Channel / Frequency (MHz)	149 (5745)	153 (5765)	157 (5785)	161 (5805)	165 (5825)
Average Power	9.84	9.24	8.73	8.33	7.23
Mode	802.11ac (VHT40) (MCS0)				
Channel / Frequency (MHz)	151 (5755)			159 (5795)	
Average Power	8.46			8.08	
Mode	802.11ac (VHT80) (MCS0)				
Channel / Frequency (MHz)	155 (5775)				
Average Power	**7.00**				

<Bluetooth>

Mode	Bluetooth GFSK		
Channel / Frequency (MHz)	0 (2402)	39 (2441)	78 (2480)
Average Power	3.43	3.87	3.37
Mode	Bluetooth π/4-DQPSK		
Channel / Frequency (MHz)	0 (2402)	39 (2441)	78 (2480)
Average Power	2.92	**3.23**	2.72
Mode	Bluetooth 8DPSK		
Channel / Frequency (MHz)	0 (2402)	39 (2441)	78 (2480)
Average Power	2.87	**3.19**	2.70
Mode	Bluetooth LE 1M		
Channel / Frequency (MHz)	0 (2402)	19 (2440)	39 (2480)
Average Power	1.98	**2.95**	2.16

8 SAR Testing Results

8.1 SAR Test Reduction Considerations

<KDB 447498 D01, General RF Exposure Guidance>

Testing of other required channels within the operating mode of a frequency band is not required when the reported SAR for the mid-band or highest output power channel is:

(1) ≤ 0.8 W/kg or 2.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≤ 100 MHz

(2) ≤ 0.6 W/kg or 1.5 W/kg, for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz

(3) ≤ 0.4 W/kg or 1.0 W/kg, for 1-g or 10-g respectively, when the transmission band is ≥ 200 MHz

<KDB 941225 D01, 3G SAR Measurement Procedures>

The mode tested for SAR is referred to as the primary mode. The equivalent modes considered for SAR test reduction are denoted as secondary modes. Both primary and secondary modes must be in the same frequency band. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ 1/4 dB higher than the primary mode or when the highest reported SAR of the primary mode is scaled by the ratio of specified maximum output power and tune-up tolerance of secondary to primary mode and the adjusted SAR is ≤ 1.2 W/kg, SAR measurement is not required for the secondary mode.

<KDB 941225 D05, SAR Evaluation Considerations for LTE Devices>

(1) QPSK with 1 RB and 50% RB allocation

Start with the largest channel bandwidth and measure SAR, using the RB offset and required test channel combination with the highest maximum output power among RB offsets at the upper edge, middle and lower edge of each required test channel. When the reported SAR is ≤ 0.8 W/kg, testing of the remaining RB offset configurations and required test channels is not required; 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.

(2) 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.

(3) Higher order modulations

SAR is required only when the highest maximum output power for the configuration in the higher order modulation is > 1/2 dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

(4) Other channel bandwidth

SAR is required when the highest maximum output power of the smaller channel bandwidth is > 1/2 dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

<KDB 248227 D01, SAR Guidance for Wi-Fi Transmitters>

(1) For handsets operating next to ear, hotspot mode or mini-tablet configurations, the initial test position procedures were applied. The test position with the highest extrapolated peak SAR will be used as the initial test position. When the reported SAR of initial test position is <= 0.4 W/kg, SAR testing for remaining test positions is not required. Otherwise, SAR is evaluated at the subsequent highest peak SAR positions until the reported SAR result is <= 0.8 W/kg or all test positions are measured.

(2) For WLAN 2.4 GHz, the highest measured maximum output power channel for DSSS was selected for SAR measurement. When the reported SAR is <= 0.8 W/kg, no further SAR testing is required. Otherwise, SAR is evaluated at the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel. For OFDM modes (802.11g/n), SAR is not required when the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and it is <= 1.2 W/kg.

(3) For WLAN 5 GHz, the initial test configuration was selected according to the transmission mode with the highest maximum output power. When the reported SAR of initial test configuration is > 0.8 W/kg, SAR is required for the subsequent highest measured output power channel until the reported SAR result is <= 1.2 W/kg or all required channels are measured. For other transmission modes, SAR is not required when the highest reported SAR for initial test configuration is adjusted by the ratio of subsequent test configuration to initial test configuration specified maximum output power and it is <= 1.2 W/kg.

(4) For WLAN MIMO mode, the power-based standalone SAR test exclusion or the sum of SAR provision in KDB 447498 to determine simultaneous transmission SAR test exclusion should be applied. Otherwise, SAR for MIMO mode will be measured with all applicable antennas transmitting simultaneously at the specified maximum output power of MIMO operation.

8.2 SAR Results for Head Exposure Condition

Plot No.	Band	Mode	Test Position	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
1	GSM850	GPRS 4TS	Right Cheek	251	Ant5	30.5	30.34	1.04	0.04	0.441	**0.46**
	GSM850	GPRS 4TS	Right Tilted	251	Ant5	30.5	30.34	1.04	0.00	0.18	0.19
	GSM850	GPRS 4TS	Left Cheek	251	Ant5	30.5	30.34	1.04	0.05	0.386	0.40
	GSM850	GPRS 4TS	Left Tilted	251	Ant5	30.5	30.34	1.04	0.02	0.215	0.22
	GSM1900	GPRS 4TS	Right Cheek	661	Ant2	27.5	27.26	1.06	0.00	0.878	0.93
	GSM1900	GPRS 4TS	Right Tilted	661	Ant2	27.5	27.26	1.06	0.03	0.611	0.65
	GSM1900	GPRS 4TS	Left Cheek	661	Ant2	27.5	27.26	1.06	0.05	0.789	0.83
	GSM1900	GPRS 4TS	Left Tilted	661	Ant2	27.5	27.26	1.06	0.02	0.712	0.75
2	GSM1900	GPRS 4TS	Right Cheek	512	Ant2	27.5	27.13	1.09	-0.01	0.963	**1.05**
	GSM1900	GPRS 4TS	Right Cheek	810	Ant2	27.5	27.11	1.09	-0.05	0.809	0.89
	GSM1900	GPRS 4TS	Right Cheek	512	Ant2	27.5	27.13	1.09	0.03	0.933	1.02
3	WCDMA II	RMC12.2K	Right Cheek	9262	Ant2	24.0	23.92	1.02	0.02	0.545	**0.56**
	WCDMA II	RMC12.2K	Right Tilted	9262	Ant2	24.0	23.92	1.02	0.05	0.454	0.46
	WCDMA II	RMC12.2K	Left Cheek	9262	Ant2	24.0	23.92	1.02	0.02	0.541	0.55
	WCDMA II	RMC12.2K	Left Tilted	9262	Ant2	24.0	23.92	1.02	-0.01	0.458	0.47
4	WCDMA IV	RMC12.2K	Right Cheek	1513	Ant2	23.0	22.72	1.07	0.02	0.664	**0.71**
	WCDMA IV	RMC12.2K	Right Tilted	1513	Ant2	23.0	22.72	1.07	0.03	0.306	0.33
	WCDMA IV	RMC12.2K	Left Cheek	1513	Ant2	23.0	22.72	1.07	0.05	0.432	0.46
	WCDMA IV	RMC12.2K	Left Tilted	1513	Ant2	23.0	22.72	1.07	0.02	0.353	0.38
5	WCDMA V	RMC12.2K	Right Cheek	4132	Ant5	23.0	22.83	1.04	-0.02	0.236	**0.25**
	WCDMA V	RMC12.2K	Right Tilted	4132	Ant5	23.0	22.83	1.04	0.06	0.128	0.13
	WCDMA V	RMC12.2K	Left Cheek	4132	Ant5	23.0	22.83	1.04	0.03	0.224	0.23
	WCDMA V	RMC12.2K	Left Tilted	4132	Ant5	23.0	22.83	1.04	-0.01	0.085	0.09

Plot No.	Band	SCS (kHz)	Mode	Test Position	Ch.	Ant.	RB#	RB Offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
6	LTE 2	-	QPSK20M	Right Cheek	18700	Ant2	1	0	21.0	20.59	1.10	0.00	0.725	**0.80**
	LTE 2	-	QPSK20M	Right Tilted	18700	Ant2	1	0	21.0	20.59	1.10	-0.05	0.517	0.57
	LTE 2	-	QPSK20M	Left Cheek	18700	Ant2	1	0	21.0	20.59	1.10	0.03	0.685	0.75
	LTE 2	-	QPSK20M	Left Tilted	18700	Ant2	1	0	21.0	20.59	1.10	0.05	0.533	0.59
	LTE 2	-	QPSK20M	Right Cheek	18700	Ant2	50	0	21.0	20.59	1.10	0.02	0.58	0.64
	LTE 2	-	QPSK20M	Right Tilted	18700	Ant2	50	0	21.0	20.59	1.10	-0.02	0.414	0.45
	LTE 2	-	QPSK20M	Left Cheek	18700	Ant2	50	0	21.0	20.59	1.10	0.06	0.548	0.60
	LTE 2	-	QPSK20M	Left Tilted	18700	Ant2	50	0	21.0	20.59	1.10	0.03	0.427	0.47
	LTE 2	-	QPSK20M	Right Cheek	18900	Ant2	1	0	21.0	20.27	1.18	-0.01	0.617	0.73
	LTE 2	-	QPSK20M	Right Cheek	19100	Ant2	1	0	21.0	19.95	1.27	0.03	0.596	0.76
7	LTE 66&4	-	QPSK20M	Right Cheek	132572	Ant2	1	0	20.0	19.75	1.06	0.11	0.844	**0.89**
	LTE 66&4	-	QPSK20M	Right Tilted	132572	Ant2	1	0	20.0	19.75	1.06	0.03	0.415	0.44
	LTE 66&4	-	QPSK20M	Left Cheek	132572	Ant2	1	0	20.0	19.75	1.06	0.05	0.625	0.66
	LTE 66&4	-	QPSK20M	Left Tilted	132572	Ant2	1	0	20.0	19.75	1.06	0.02	0.424	0.45
	LTE 66&4	-	QPSK20M	Right Cheek	132572	Ant2	50	0	19.0	18.68	1.08	-0.02	0.675	0.73
	LTE 66&4	-	QPSK20M	Right Tilted	132572	Ant2	50	0	19.0	18.68	1.08	0.06	0.332	0.36
	LTE 66&4	-	QPSK20M	Left Cheek	132572	Ant2	50	0	19.0	18.68	1.08	0.03	0.501	0.54
	LTE 66&4	-	QPSK20M	Left Tilted	132572	Ant2	50	0	19.0	18.68	1.08	-0.01	0.339	0.36
	LTE 66&4	-	QPSK20M	Right Cheek	132072	Ant2	1	0	20.0	19.68	1.08	0.02	0.809	0.87
	LTE 66&4	-	QPSK20M	Right Cheek	132322	Ant2	1	0	20.0	19.68	1.08	-0.02	0.819	0.88
	LTE 66&4	-	QPSK20M	Right Cheek	132572	Ant2	100	0	19.0	18.65	1.08	0.06	0.628	0.68
	LTE 66&4	-	QPSK20M	Right Cheek	132572	Ant2	1	0	20.0	19.75	1.06	0.03	0.802	0.85

8	LTE 5	-	QPSK10M	Right Cheek	20600	Ant5	1	0	25.0	24.52	1.12	0.04	0.15	**0.17**
	LTE 5	-	QPSK10M	Right Tilted	20600	Ant5	1	0	25.0	24.52	1.12	0.05	0.09	0.10
	LTE 5	-	QPSK10M	Left Cheek	20600	Ant5	1	0	25.0	24.52	1.12	0.02	0.105	0.12
	LTE 5	-	QPSK10M	Left Tilted	20600	Ant5	1	0	25.0	24.52	1.12	-0.02	0.137	0.15
	LTE 5	-	QPSK10M	Right Cheek	20600	Ant5	25	0	24.0	23.45	1.14	0.06	0.121	0.14
	LTE 5	-	QPSK10M	Right Tilted	20600	Ant5	25	0	24.0	23.45	1.14	0.03	0.072	0.08
	LTE 5	-	QPSK10M	Left Cheek	20600	Ant5	25	0	24.0	23.45	1.14	-0.01	0.084	0.10
	LTE 5	-	QPSK10M	Left Tilted	20600	Ant5	25	0	24.0	23.45	1.14	-0.06	0.112	0.13
9	LTE 12&17	-	QPSK10M	Right Cheek	23095	Ant5	1	0	24.5	24.17	1.08	-0.05	0.067	**0.07**
	LTE 12&17	-	QPSK10M	Right Tilted	23095	Ant5	1	0	24.5	24.17	1.08	0.06	0.037	0.04
	LTE 12&17	-	QPSK10M	Left Cheek	23095	Ant5	1	0	24.5	24.17	1.08	0.03	0.054	0.06
	LTE 12&17	-	QPSK10M	Left Tilted	23095	Ant5	1	0	24.5	24.17	1.08	-0.01	0.061	0.07
	LTE 12&17	-	QPSK10M	Right Cheek	23095	Ant5	25	0	23.5	23.11	1.09	0.02	0.054	0.06
	LTE 12&17	-	QPSK10M	Right Tilted	23095	Ant5	25	0	23.5	23.11	1.09	-0.02	0.031	0.03
	LTE 12&17	-	QPSK10M	Left Cheek	23095	Ant5	25	0	23.5	23.11	1.09	0.06	0.043	0.05
	LTE 12&17	-	QPSK10M	Left Tilted	23095	Ant5	25	0	23.5	23.11	1.09	-0.02	0.051	0.06
10	LTE 41	-	QPSK20M	Right Cheek	41490	Ant6	1	99	21.0	20.74	1.06	0.06	0.039	**0.04**
	LTE 41	-	QPSK20M	Right Tilted	41490	Ant6	1	99	21.0	20.74	1.06	0.03	0.028	0.03
	LTE 41	-	QPSK20M	Left Cheek	41490	Ant6	1	99	21.0	20.74	1.06	-0.01	0.035	0.04
	LTE 41	-	QPSK20M	Left Tilted	41490	Ant6	1	99	21.0	20.74	1.06	0.02	0.026	0.03
	LTE 41	-	QPSK20M	Right Cheek	41490	Ant6	50	50	20.0	19.65	1.08	-0.02	0.032	0.03
	LTE 41	-	QPSK20M	Right Tilted	41490	Ant6	50	50	20.0	19.65	1.08	0.06	0.023	0.02
	LTE 41	-	QPSK20M	Left Cheek	41490	Ant6	50	50	20.0	19.65	1.08	-0.02	0.029	0.03
	LTE 41	-	QPSK20M	Left Tilted	41490	Ant6	50	50	20.0	19.65	1.08	-0.04	0.022	0.02
11	LTE 71	-	QPSK20M	Right Cheek	133322	Ant5	1	0	24.5	24.01	1.12	0.02	0.062	**0.07**
	LTE 71	-	QPSK20M	Right Tilted	133322	Ant5	1	0	24.5	24.01	1.12	0.03	0.036	0.04
	LTE 71	-	QPSK20M	Left Cheek	133322	Ant5	1	0	24.5	24.01	1.12	-0.01	0.044	0.05
	LTE 71	-	QPSK20M	Left Tilted	133322	Ant5	1	0	24.5	24.01	1.12	0.02	0.059	0.07
	LTE 71	-	QPSK20M	Right Cheek	133322	Ant5	50	0	23.5	23.09	1.10	-0.02	0.051	0.06
	LTE 71	-	QPSK20M	Right Tilted	133322	Ant5	50	0	23.5	23.09	1.10	0.06	0.029	0.03
	LTE 71	-	QPSK20M	Left Cheek	133322	Ant5	50	0	23.5	23.09	1.10	-0.01	0.035	0.04
	LTE 71	-	QPSK20M	Left Tilted	133322	Ant5	50	0	23.5	23.09	1.10	-0.04	0.055	0.06
12	N 71	30	DFT-s-OFDM BPSK 20M	Right Cheek	134600	Ant5	1	53	24.5	23.98	1.13	-0.05	0.173	**0.20**
	N 71	30	DFT-s-OFDM BPSK 20M	Right Tilted	134600	Ant5	1	53	24.5	23.98	1.13	0.03	0.093	0.10
	N 71	30	DFT-s-OFDM BPSK 20M	Left Cheek	134600	Ant5	1	53	24.5	23.98	1.13	-0.06	0.156	0.18
	N 71	30	DFT-s-OFDM BPSK 20M	Left Tilted	134600	Ant5	1	53	24.5	23.98	1.13	0.03	0.022	0.02
	N 71	30	DFT-s-OFDM BPSK 20M	Right Cheek	134600	Ant5	50	28	22.5	22.20	1.07	-0.02	0.061	0.07
	N 71	30	DFT-s-OFDM BPSK 20M	Right Tilted	134600	Ant5	50	28	22.5	22.20	1.07	0.06	0.034	0.04
	N 71	30	DFT-s-OFDM BPSK 20M	Left Cheek	134600	Ant5	50	28	22.5	22.20	1.07	-0.01	0.05	0.05
	N 71	30	DFT-s-OFDM BPSK 20M	Left Tilted	134600	Ant5	50	28	22.5	22.20	1.07	-0.09	0.024	0.03

Plot No.	Band	Mode	Test Position	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	802.11b	-	Right Cheek	11	Ant0	13.0	12.62	1.09	-0.04	0.069	0.08
	802.11b	-	Right Tilted	11	Ant0	13.0	12.62	1.09	0.01	0.067	0.07
13	802.11b	-	Left Cheek	11	Ant0	13.0	12.62	1.09	0.01	0.17	**0.19**
	802.11b	-	Left Tilted	11	Ant0	13.0	12.62	1.09	0.00	0.124	0.14
	802.11a	-	Right Cheek	36	Ant0	11.5	11.24	1.06	0.07	0.169	0.18
	802.11a	-	Right Tilted	36	Ant0	11.5	11.24	1.06	-0.07	0.149	0.16
14	802.11a	-	Left Cheek	36	Ant0	11.5	11.24	1.06	0.08	0.404	**0.43**
	802.11a	-	Left Tilted	36	Ant0	11.5	11.24	1.06	0.04	0.314	0.33
	802.11n	HT20	Right Cheek	149	Ant0	12.0	11.77	1.05	0.01	0.582	0.61
	802.11n	HT20	Right Tilted	149	Ant0	12.0	11.77	1.05	-0.12	0.607	0.64
15	802.11n	HT20	Left Cheek	149	Ant0	12.0	11.77	1.05	0.07	0.612	**0.65**
	802.11n	HT20	Left Tilted	149	Ant0	12.0	11.77	1.05	-0.16	0.487	0.51
	BT	1-DH5	Right Cheek	39	Ant0	4.0	3.87	1.03	-0.06	0.011	0.01
	BT	1-DH5	Right Tilted	39	Ant0	4.0	3.87	1.03	-0.02	0.013	0.01
16	BT	1-DH5	Left Cheek	39	Ant0	4.0	3.87	1.03	0.06	0.04	**0.04**
	BT	1-DH5	Left Tilted	39	Ant0	4.0	3.87	1.03	0.05	0.037	0.04

8.3 SAR Results for Body-worn Exposure Condition (Separation Distance is 1.0 cm Gap)

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS 4TS	Front Face	1	251	Ant5	30.5	30.34	1.04	-0.03	0.412	0.43
17	GSM850	GPRS 4TS	Rear Face	1	251	Ant5	30.5	30.34	1.04	0.00	0.521	**0.54**
	GSM1900	GPRS 4TS	Front Face	1	661	Ant2	27.5	27.26	1.06	-0.05	0.406	0.43
18	GSM1900	GPRS 4TS	Rear Face	1	661	Ant2	27.5	27.26	1.06	-0.03	0.466	**0.49**
	WCDMA II	RMC12.2K	Front Face	1	9262	Ant2	24.0	23.92	1.02	-0.01	0.167	0.17
19	WCDMA II	RMC12.2K	Rear Face	1	9262	Ant2	24.0	23.92	1.02	0.04	0.288	**0.29**
	WCDMA IV	RMC12.2K	Front Face	1	1513	Ant2	23.0	22.72	1.07	-0.04	0.184	0.20
20	WCDMA IV	RMC12.2K	Rear Face	1	1513	Ant2	23.0	22.72	1.07	-0.07	0.298	**0.32**
	WCDMA V	RMC12.2K	Front Face	1	4132	Ant5	23.0	22.83	1.04	0.03	0.135	0.14
21	WCDMA V	RMC12.2K	Rear Face	1	4132	Ant5	23.0	22.83	1.04	0.00	0.228	**0.24**

Plot No.	Band	SCS (KHz)	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	RB#	RB Offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	1	0	21.0	20.59	1.10	0.04	0.232	0.25
22	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	1	0	21.0	20.59	1.10	-0.02	0.367	**0.40**
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.06	0.186	0.21
	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.03	0.294	0.33
	LTE 66&4	-	QPSK20M	Front Face	1	132572	Ant2	1	0	20.0	19.75	1.06	0.07	0.219	0.23
23	LTE 66&4	-	QPSK20M	Rear Face	1	132572	Ant2	1	0	20.0	19.75	1.06	0.02	0.366	**0.39**
	LTE 66&4	-	QPSK20M	Front Face	1	132572	Ant2	50	0	19.0	18.68	1.08	0.02	0.175	0.19
	LTE 66&4	-	QPSK20M	Rear Face	1	132572	Ant2	50	0	19.0	18.68	1.08	-0.02	0.293	0.32
	LTE 5	-	QPSK10M	Front Face	1	20600	Ant5	1	0	25.0	24.52	1.12	-0.06	0.137	0.15
24	LTE 5	-	QPSK10M	Rear Face	1	20600	Ant5	1	0	25.0	24.52	1.12	-0.04	0.312	**0.35**
	LTE 5	-	QPSK10M	Front Face	1	20600	Ant5	25	0	24.0	23.45	1.14	0.05	0.111	0.13
	LTE 5	-	QPSK10M	Rear Face	1	20600	Ant5	25	0	24.0	23.45	1.14	0.02	0.251	0.28
	LTE 12&17	-	QPSK10M	Front Face	1	23095	Ant5	1	0	24.5	24.17	1.08	0.05	0.094	0.10
25	LTE 12&17	-	QPSK10M	Rear Face	1	23095	Ant5	1	0	24.5	24.17	1.08	-0.03	0.323	**0.35**
	LTE 12&17	-	QPSK10M	Front Face	1	23095	Ant5	25	0	23.5	23.11	1.09	-0.02	0.075	0.08
	LTE 12&17	-	QPSK10M	Rear Face	1	23095	Ant5	25	0	23.5	23.11	1.09	0.05	0.258	0.28
	LTE 41	-	QPSK20M	Front Face	1	41490	Ant6	1	99	21.0	20.74	1.06	0.07	0.035	0.04
26	LTE 41	-	QPSK20M	Rear Face	1	41490	Ant6	1	99	21.0	20.74	1.06	-0.01	0.072	**0.08**
	LTE 41	-	QPSK20M	Front Face	1	41490	Ant6	50	50	20.0	19.65	1.08	-0.04	0.028	0.03
	LTE 41	-	QPSK20M	Rear Face	1	41490	Ant6	50	50	20.0	19.65	1.08	0.02	0.058	0.06
	LTE 71	-	QPSK20M	Front Face	1	133322	Ant5	1	0	24.5	24.01	1.12	0.08	0.079	0.09
27	LTE 71	-	QPSK20M	Rear Face	1	133322	Ant5	1	0	24.5	24.01	1.12	-0.01	0.306	**0.34**
	LTE 71	-	QPSK20M	Front Face	1	133322	Ant5	50	0	23.5	23.09	1.10	0.02	0.063	0.07
	LTE 71	-	QPSK20M	Rear Face	1	133322	Ant5	50	0	23.5	23.09	1.10	0.04	0.245	0.27
	N 71	30	DFT-s-OFDM BPSK 20M	Front Face	1	134600	Ant5	1	53	24.5	23.98	1.13	0.06	0.081	0.09
28	N 71	30	DFT-s-OFDM BPSK 20M	Rear Face	1	134600	Ant5	1	53	24.5	23.98	1.13	0.03	0.334	**0.38**
	N 71	30	DFT-s-OFDM BPSK 20M	Front Face	1	134600	Ant5	50	28	22.5	22.20	1.07	0.05	0.081	0.09
	N 71	30	DFT-s-OFDM BPSK 20M	Rear Face	1	134600	Ant5	50	28	22.5	22.20	1.07	-0.03	0.317	0.34

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	802.11b	-	Front Face	1	11	Ant0	13.0	12.62	1.09	0.02	0.004	0.00
29	802.11b	-	Rear Face	1	11	Ant0	13.0	12.62	1.09	-0.06	0.107	**0.12**
	802.11a	-	Front Face	1	36	Ant0	11.5	11.24	1.06	-0.03	0.105	0.11
30	802.11a	-	Rear Face	1	36	Ant0	11.5	11.24	1.06	-0.18	0.152	**0.16**
31	802.11n	HT20	Front Face	1	149	Ant0	12.0	11.77	1.05	-0.09	0.152	**0.16**
	802.11n	HT20	Rear Face	1	149	Ant0	12.0	11.77	1.05	-0.05	0.045	0.05
	BT	1-DH5	Front Face	1	39	Ant0	4.0	3.87	1.03	0.04	0.016	0.02
32	BT	1-DH5	Rear Face	1	39	Ant0	4.0	3.87	1.03	-0.06	0.023	**0.02**

8.4 SAR Results for Hotspot Exposure Condition (Separation Distance is 1.0 cm Gap)

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	GSM850	GPRS 4TS	Front Face	1	251	Ant5	30.5	30.34	1.04	-0.03	0.412	0.43
33	GSM850	GPRS 4TS	Rear Face	1	251	Ant5	30.5	30.34	1.04	0.00	0.521	**0.54**
	GSM850	GPRS 4TS	Left Side	1	251	Ant5	30.5	30.34	1.04	-0.02	0.211	0.22
	GSM850	GPRS 4TS	Right Side	1	251	Ant5	30.5	30.34	1.04	0.05	0.411	0.43
	GSM850	GPRS 4TS	Bottom Side	1	251	Ant5	30.5	30.34	1.04	0.02	0.144	0.15
	GSM1900	GPRS 4TS	Front Face	1	661	Ant2	27.5	27.26	1.06	-0.05	0.406	0.43
34	GSM1900	GPRS 4TS	Rear Face	1	661	Ant2	27.5	27.26	1.06	-0.03	0.466	**0.49**
	GSM1900	GPRS 4TS	Left Side	1	661	Ant2	27.5	27.26	1.06	-0.02	0.325	0.34
	GSM1900	GPRS 4TS	Right Side	1	661	Ant2	27.5	27.26	1.06	0.05	0.176	0.19
	GSM1900	GPRS 4TS	Top Side	1	661	Ant2	27.5	27.26	1.06	0.02	0.352	0.37
	WCDMA II	RMC12.2K	Front Face	1	9262	Ant2	24.0	23.92	1.02	-0.01	0.167	0.17
35	WCDMA II	RMC12.2K	Rear Face	1	9262	Ant2	24.0	23.92	1.02	0.04	0.288	**0.29**
	WCDMA II	RMC12.2K	Left Side	1	9262	Ant2	24.0	23.92	1.02	-0.05	0.137	0.14
	WCDMA II	RMC12.2K	Right Side	1	9262	Ant2	24.0	23.92	1.02	-0.03	0.085	0.09
	WCDMA II	RMC12.2K	Top Side	1	9262	Ant2	24.0	23.92	1.02	-0.02	0.129	0.13
	WCDMA IV	RMC12.2K	Front Face	1	1513	Ant2	23.0	22.72	1.07	-0.04	0.184	0.20
36	WCDMA IV	RMC12.2K	Rear Face	1	1513	Ant2	23.0	22.72	1.07	-0.07	0.298	**0.32**
	WCDMA IV	RMC12.2K	Left Side	1	1513	Ant2	23.0	22.72	1.07	0.03	0.161	0.17
	WCDMA IV	RMC12.2K	Right Side	1	1513	Ant2	23.0	22.72	1.07	0.00	0.052	0.06
	WCDMA IV	RMC12.2K	Top Side	1	1513	Ant2	23.0	22.72	1.07	0.04	0.126	0.13
	WCDMA V	RMC12.2K	Front Face	1	4132	Ant5	23.0	22.83	1.04	0.03	0.135	0.14
37	WCDMA V	RMC12.2K	Rear Face	1	4132	Ant5	23.0	22.83	1.04	0.00	0.228	**0.24**
	WCDMA V	RMC12.2K	Left Side	1	4132	Ant5	23.0	22.83	1.04	0.04	0.107	0.11
	WCDMA V	RMC12.2K	Right Side	1	4132	Ant5	23.0	22.83	1.04	-0.02	0.19	0.20
	WCDMA V	RMC12.2K	Bottom Side	1	4132	Ant5	23.0	22.83	1.04	0.05	0.06	0.06

Plot No.	Band	SCS (KHz)	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	RB#	RB Offset	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	1	0	21.0	20.59	1.10	0.04	0.232	0.25
38	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	1	0	21.0	20.59	1.10	-0.02	0.367	**0.40**
	LTE 2	-	QPSK20M	Left Side	1	18700	Ant2	1	0	21.0	20.59	1.10	0.05	0.245	0.27
	LTE 2	-	QPSK20M	Right Side	1	18700	Ant2	1	0	21.0	20.59	1.10	0.02	0.143	0.16
	LTE 2	-	QPSK20M	Top Side	1	18700	Ant2	1	0	21.0	20.59	1.10	-0.02	0.236	0.26
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.06	0.186	0.21
	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.03	0.294	0.33
	LTE 2	-	QPSK20M	Left Side	1	18700	Ant2	50	0	20.0	19.50	1.12	-0.01	0.196	0.22
	LTE 2	-	QPSK20M	Right Side	1	18700	Ant2	50	0	20.0	19.50	1.12	0.02	0.114	0.13
	LTE 2	-	QPSK20M	Top Side	1	18700	Ant2	50	0	20.0	19.50	1.12	-0.02	0.189	0.21
	LTE 66&4	-	QPSK20M	Front Face	1	132572	Ant2	1	0	20.0	19.75	1.06	0.07	0.219	0.23
39	LTE 66&4	-	QPSK20M	Rear Face	1	132572	Ant2	1	0	20.0	19.75	1.06	0.02	0.366	**0.39**
	LTE 66&4	-	QPSK20M	Left Side	1	132572	Ant2	1	0	20.0	19.75	1.06	0.04	0.182	0.19
	LTE 66&4	-	QPSK20M	Right Side	1	132572	Ant2	1	0	20.0	19.75	1.06	-0.02	0.059	0.06
	LTE 66&4	-	QPSK20M	Top Side	1	132572	Ant2	1	0	20.0	19.75	1.06	0.05	0.142	0.15
	LTE 66&4	-	QPSK20M	Front Face	1	132572	Ant2	50	0	19.0	18.68	1.08	0.02	0.175	0.19
	LTE 66&4	-	QPSK20M	Rear Face	1	132572	Ant2	50	0	19.0	18.68	1.08	-0.02	0.293	0.32
	LTE 66&4	-	QPSK20M	Left Side	1	132572	Ant2	50	0	19.0	18.68	1.08	0.06	0.146	0.16
	LTE 66&4	-	QPSK20M	Right Side	1	132572	Ant2	50	0	19.0	18.68	1.08	0.03	0.047	0.05
	LTE 66&4	-	QPSK20M	Top Side	1	132572	Ant2	50	0	19.0	18.68	1.08	-0.08	0.115	0.12
	LTE 5	-	QPSK10M	Front Face	1	20600	Ant5	1	0	25.0	24.52	1.12	-0.06	0.137	0.15
40	LTE 5	-	QPSK10M	Rear Face	1	20600	Ant5	1	0	25.0	24.52	1.12	-0.04	0.312	**0.35**
	LTE 5	-	QPSK10M	Left Side	1	20600	Ant5	1	0	25.0	24.52	1.12	0.02	0.165	0.18
	LTE 5	-	QPSK10M	Right Side	1	20600	Ant5	1	0	25.0	24.52	1.12	0.04	0.25	0.28
	LTE 5	-	QPSK10M	Bottom Side	1	20600	Ant5	1	0	25.0	24.52	1.12	-0.02	0.068	0.08
	LTE 5	-	QPSK10M	Front Face	1	20600	Ant5	25	0	24.0	23.45	1.14	0.05	0.111	0.13
	LTE 5	-	QPSK10M	Rear Face	1	20600	Ant5	25	0	24.0	23.45	1.14	0.02	0.251	0.28
	LTE 5	-	QPSK10M	Left Side	1	20600	Ant5	25	0	24.0	23.45	1.14	-0.02	0.132	0.15
	LTE 5	-	QPSK10M	Right Side	1	20600	Ant5	25	0	24.0	23.45	1.14	0.06	0.201	0.23
	LTE 5	-	QPSK10M	Bottom Side	1	20600	Ant5	25	0	24.0	23.45	1.14	0.03	0.055	0.06
	LTE 12&17	-	QPSK10M	Front Face	1	23095	Ant5	1	0	24.5	24.17	1.08	0.05	0.094	0.10
41	LTE 12&17	-	QPSK10M	Rear Face	1	23095	Ant5	1	0	24.5	24.17	1.08	-0.03	0.323	**0.35**
	LTE 12&17	-	QPSK10M	Left Side	1	23095	Ant5	1	0	24.5	24.17	1.08	-0.04	0.129	0.14
	LTE 12&17	-	QPSK10M	Right Side	1	23095	Ant5	1	0	24.5	24.17	1.08	0.02	0.171	0.18
	LTE 12&17	-	QPSK10M	Bottom Side	1	23095	Ant5	1	0	24.5	24.17	1.08	0.04	0.026	0.03
	LTE 12&17	-	QPSK10M	Front Face	1	23095	Ant5	25	0	23.5	23.11	1.09	-0.02	0.075	0.08
	LTE 12&17	-	QPSK10M	Rear Face	1	23095	Ant5	25	0	23.5	23.11	1.09	0.05	0.258	0.28
	LTE 12&17	-	QPSK10M	Left Side	1	23095	Ant5	25	0	23.5	23.11	1.09	0.02	0.103	0.11
	LTE 12&17	-	QPSK10M	Right Side	1	23095	Ant5	25	0	23.5	23.11	1.09	-0.02	0.137	0.15
	LTE 12&17	-	QPSK10M	Bottom Side	1	23095	Ant5	25	0	23.5	23.11	1.09	0.06	0.021	0.02
	LTE 41	-	QPSK20M	Front Face	1	41490	Ant6	1	99	21.0	20.74	1.06	0.07	0.035	0.04
42	LTE 41	-	QPSK20M	Rear Face	1	41490	Ant6	1	99	21.0	20.74	1.06	-0.01	0.072	**0.08**
	LTE 41	-	QPSK20M	Right Side	1	41490	Ant6	1	99	21.0	20.74	1.06	-0.04	0.076	0.08
	LTE 41	-	QPSK20M	Bottom Side	1	41490	Ant6	1	99	21.0	20.74	1.06	-0.03	0.012	0.01
	LTE 41	-	QPSK20M	Front Face	1	41490	Ant6	50	50	20.0	19.65	1.08	-0.04	0.028	0.03
	LTE 41	-	QPSK20M	Rear Face	1	41490	Ant6	50	50	20.0	19.65	1.08	0.02	0.058	0.06
	LTE 41	-	QPSK20M	Right Side	1	41490	Ant6	50	50	20.0	19.65	1.08	-0.02	0.061	0.07
	LTE 41	-	QPSK20M	Bottom Side	1	41490	Ant6	50	50	20.0	19.65	1.08	0.03	0.010	0.01
	LTE 71	-	QPSK20M	Front Face	1	133322	Ant5	1	0	24.5	24.01	1.12	0.08	0.079	0.09

43	LTE 71	-	QPSK20M	Rear Face	1	133322	Ant5	1	0	24.5	24.01	1.12	-0.01	0.306	**0.34**
	LTE 71	-	QPSK20M	Left Side	1	133322	Ant5	1	0	24.5	24.01	1.12	0.05	0.134	0.15
	LTE 71	-	QPSK20M	Right Side	1	133322	Ant5	1	0	24.5	24.01	1.12	-0.03	0.155	0.17
	LTE 71	-	QPSK20M	Bottom Side	1	133322	Ant5	1	0	24.5	24.01	1.12	-0.04	0.024	0.03
	LTE 71	-	QPSK20M	Front Face	1	133322	Ant5	50	0	23.5	23.09	1.10	0.02	0.063	0.07
	LTE 71	-	QPSK20M	Rear Face	1	133322	Ant5	50	0	23.5	23.09	1.10	0.04	0.245	0.27
	LTE 71	-	QPSK20M	Left Side	1	133322	Ant5	50	0	23.5	23.09	1.10	-0.02	0.107	0.12
	LTE 71	-	QPSK20M	Right Side	1	133322	Ant5	50	0	23.5	23.09	1.10	0.05	0.124	0.14
	LTE 71	-	QPSK20M	Bottom Side	1	133322	Ant5	50	0	23.5	23.09	1.10	-0.01	0.019	0.02
	N 71	30	DFT-s-OFDM BPSK 20M	Front Face	1	134600	Ant5	1	53	24.5	23.98	1.13	0.06	0.081	0.09
44	N 71	30	DFT-s-OFDM BPSK 20M	Rear Face	1	134600	Ant5	1	53	24.5	23.98	1.13	0.03	0.334	**0.38**
	N 71	30	DFT-s-OFDM BPSK 20M	Left Side	1	134600	Ant5	1	53	24.5	23.98	1.13	0.01	0.142	0.16
	N 71	30	DFT-s-OFDM BPSK 20M	Right Side	1	134600	Ant5	1	53	24.5	23.98	1.13	-0.03	0.173	0.20
	N 71	30	DFT-s-OFDM BPSK 20M	Bottom Side	1	134600	Ant5	1	53	24.5	23.98	1.13	-0.04	0.013	0.01
	N 71	30	DFT-s-OFDM BPSK 20M	Front Face	1	134600	Ant5	50	28	22.5	22.20	1.07	0.05	0.081	0.09
	N 71	30	DFT-s-OFDM BPSK 20M	Rear Face	1	134600	Ant5	50	28	22.5	22.20	1.07	-0.03	0.317	0.34
	N 71	30	DFT-s-OFDM BPSK 20M	Left Side	1	134600	Ant5	50	28	22.5	22.20	1.07	-0.04	0.139	0.15
	N 71	30	DFT-s-OFDM BPSK 20M	Right Side	1	134600	Ant5	50	28	22.5	22.20	1.07	0.02	0.17	0.18
	N 71	30	DFT-s-OFDM BPSK 20M	Bottom Side	1	134600	Ant5	50	28	22.5	22.20	1.07	0.06	0.012	0.01
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	1	0	21.0	20.59	1.10	0.04	0.232	0.25
38	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	1	0	21.0	20.59	1.10	-0.02	0.367	**0.40**
	LTE 2	-	QPSK20M	Left Side	1	18700	Ant2	1	0	21.0	20.59	1.10	0.05	0.245	0.27
	LTE 2	-	QPSK20M	Right Side	1	18700	Ant2	1	0	21.0	20.59	1.10	0.02	0.143	0.16
	LTE 2	-	QPSK20M	Top Side	1	18700	Ant2	1	0	21.0	20.59	1.10	-0.02	0.236	0.26
	LTE 2	-	QPSK20M	Front Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.06	0.186	0.21
	LTE 2	-	QPSK20M	Rear Face	1	18700	Ant2	50	0	20.0	19.50	1.12	0.03	0.294	0.33
	LTE 2	-	QPSK20M	Left Side	1	18700	Ant2	50	0	20.0	19.50	1.12	-0.01	0.196	0.22
	LTE 2	-	QPSK20M	Right Side	1	18700	Ant2	50	0	20.0	19.50	1.12	0.02	0.114	0.13
	LTE 2	-	QPSK20M	Top Side	1	18700	Ant2	50	0	20.0	19.50	1.12	-0.02	0.189	0.21

Plot No.	Band	Mode	Test Position	Separation Distance (cm)	Ch.	Ant.	Max. Tune-up Power (dBm)	Measured Conducted Power (dBm)	Scaling Factor	Power Drift (dB)	Measured SAR-1g (W/kg)	Scaled SAR-1g (W/kg)
	802.11b	-	Front Face	1	11	Ant0	13.0	12.62	1.09	0.02	0.07	0.08
45	802.11b	-	Rear Face	1	11	Ant0	13.0	12.62	1.09	-0.06	0.107	**0.12**
	802.11b	-	Right Side	1	11	Ant0	13.0	12.62	1.09	-0.02	0.064	0.07
	802.11b	-	Top Side	1	11	Ant0	13.0	12.62	1.09	0.04	0.023	0.03
	802.11a	-	Front Face	1	36	Ant0	11.5	11.24	1.06	-0.03	0.105	0.11
46	802.11a	-	Rear Face	1	36	Ant0	11.5	11.24	1.06	-0.18	0.152	**0.16**
	802.11a	-	Right Side	1	36	Ant0	11.5	11.24	1.06	0.01	0.129	0.14
	802.11a	-	Top Side	1	36	Ant0	11.5	11.24	1.06	-0.04	0.126	0.13
47	802.11n	HT20	Front Face	1	149	Ant0	12.0	11.77	1.05	-0.09	0.152	**0.16**
	802.11n	HT20	Rear Face	1	149	Ant0	12.0	11.77	1.05	-0.05	0.045	0.05
	802.11n	HT20	Right Side	1	149	Ant0	12.0	11.77	1.05	-0.04	0.129	0.14
	802.11n	HT20	Top Side	1	149	Ant0	12.0	11.77	1.05	0.01	0.13	0.14
	BT	1-DH5	Front Face	1	39	Ant0	4.0	3.87	1.03	0.04	0.016	0.02
48	BT	1-DH5	Rear Face	1	39	Ant0	4.0	3.87	1.03	-0.06	0.023	**0.02**
	BT	1-DH5	Right Side	1	39	Ant0	4.0	3.87	1.03	-0.07	0.018	0.02
	BT	1-DH5	Top Side	1	39	Ant0	4.0	3.87	1.03	0.02	0.006	0.01

8.5 SAR Results for NFC

1. According to the 2022.04 TCBC Workshop meeting, the power threshold is ≤ 100MHz, refer to P_{6s}

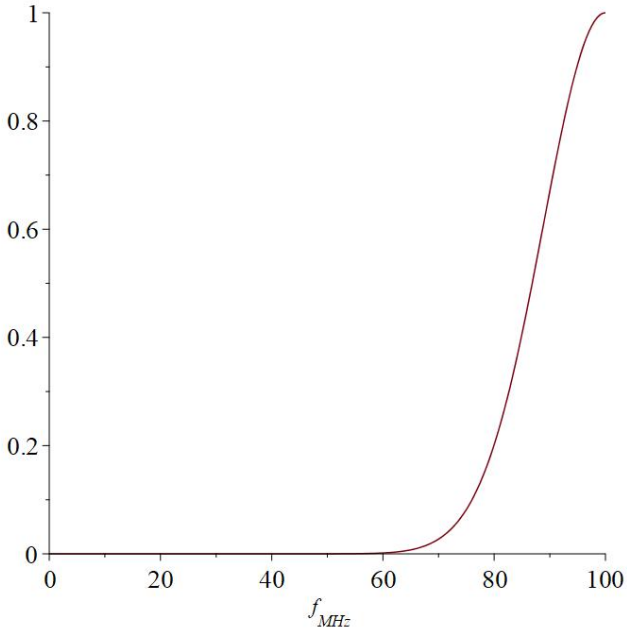
$$P_{7X}(d_{mm}, f_{MHz}) := \begin{cases} P_{6S}(d_{mm}, f_{MHz}) & f_{MHz} \le 100 \\ P_{6to7}(d_{mm}, f_{MHz}) & 100 < f_{MHz} \le 300 \\ P_{7}(d_{mm}, f_{MHz}) & 300 < f_{MHz} \end{cases}$$

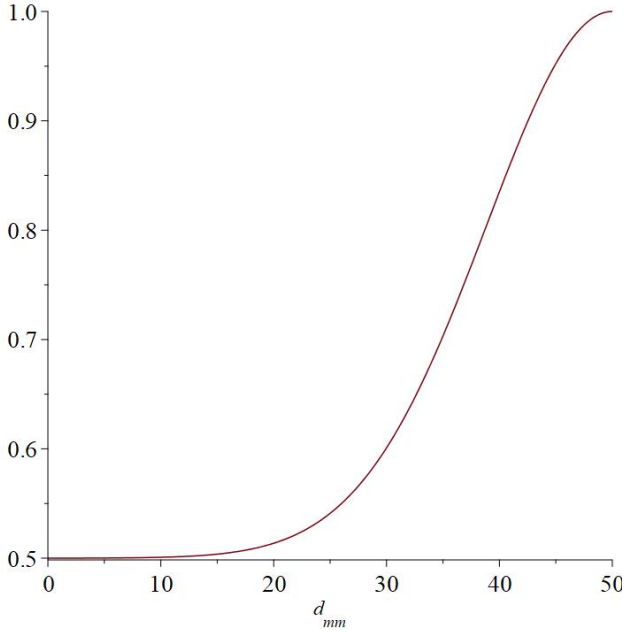
2. For portable products, when using a distance of ≤ 50mm, such as mobile phone NFC, P_{6s} is calculated with the following formula calculate.

$$S_f(f_{MHz}) \cdot P_{431a}(d_{mm}, f_{MHz}) + (1 - S_f(f_{MHz})) \cdot S_d(d_{mm})\, P_{431b1}(50., 100.) \cdot \left(1. + log10\left(\frac{100.}{f_{MHz}}\right)\right) \qquad d_{mm} \le 50 \text{ and } f_{MHz} \le 100$$

3. The smoothing functions Sf and Sd in P_{6s} calculate the limits based on KDB 447498 V06 and are calculated as follows.

$$S_f(f_{MHz}) := exp\left(-10\frac{(f_{MHz} - f_{\max})^2}{\Delta f^2}\right) \qquad S_d(d_{mm}) := 0.5 + 0.5 \cdot exp\left(-10\frac{(d_{mm} - d_{\max})^2}{\Delta d^2}\right)$$





d≤50mm				
f Max(MHz)	100		d Max(mm)	50
f MHz	13.56		d(mm)	5
△f(MHz)	100		△d	50
S_f (f_{MHz})	0.000568861		$S_d(d_{mm})$	0.50015177
P_{6s}(mW)	443.1257378			
Note: SAR testing is required when the distance is 5mm and the power is greater than 443.13mW.				

4. According to the ANSI C63.10 clause 11.12.2.2 :
The value of maximum peak output power is according to the method described in ANSI C63.10 clause 11.12.2.2 General procedure for conducted measurements in restricted bands:
a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the ERP level (see guidance on determining the applicable antenna gain)
c) Add the appropriate maximum ground reflection factor to the ERP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the ERP of all chains in linear terms (e.g., Watts, mW).
e) Convert the resultant ERP level to an equivalent electric field strength using the following relationship: E = ERP - 20log D + 104.8
where:
E = electric field strength in dBμV/m,
ERP = equivalent isotropic radiated power in dBm D = specified measurement distance in meters.

Mode	f (MHz)	Max. E-Fieldstrength (dBuV/m)	D (m)	Ground reflection factor (dB)	ERP (dBm)
NFC(13.56MHz)	13.56	6.35	3	6	-82.91
Note: 1. Add the appropriate maximum ground reflection factor to the ERP level (6 dB for frequencies ≤ 30 MHz). 2.ERP= 6.35+20*Log(3) - 104.8 + 6 = - 82.91(dBm)					

According to the FCC KDB 447498 D04
Estimated SAR: SAR test =1.6 P_{ant} / P_{th} [W/kg]

Estimated SAR	1.6·P_{ant} / P_{th} [W/kg]		
Pmeas.(dBm)	-82.91	Pmeas.(mW)	<0.00001
Pth.(mW)	443.13		
NFC Estimated 1g SAR [W/kg]	〈0.001		

8.6 SAR Measurement Variability

According to KDB 865664 D01, SAR measurement variability was 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. Alternatively, if the highest measured SAR for both head and body tissue-equivalent media are ≤ 1.45 W/kg and the ratio of these highest SAR values, i.e., largest divided by smallest value, is ≤ 1.10, the highest SAR configuration for either head or body tissue-equivalent medium may be used to perform the repeated measurement. These additional measurements are repeated after the completion of all measurements requiring the same head or body tissue-equivalent medium in a frequency band. The test device should be returned to ambient conditions (normal room temperature) with the battery fully charged before it is re-mounted on the device holder for the repeated measurement(s) to minimize any unexpected variations in the repeated results.

SAR repeated measurement procedure:

1. When the highest measured SAR is < 0.80 W/kg, repeated measurement is not required.
2. When the highest measured SAR is >= 0.80 W/kg, repeat that measurement once.
3. If the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20, or when the original or repeated measurement is >= 1.45 W/kg, perform a second repeated measurement.
4. If the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20, and the original, first or second repeated measurement is >= 1.5 W/kg, perform a third repeated measurement.

Band	Test Position	Ch.	Original Measured SAR-1g (W/kg)	1st Repeated SAR-1g (W/kg)	L/S Ratio	2nd Repeated SAR-1g (W/kg)	L/S Ratio	3rd Repeated SAR-1g (W/kg)	L/S Ratio
GSM1900	Right Cheek	512	0.963	0.933	1.03	N/A	N/A	N/A	N/A
LTE 66	Right Cheek	132572	0.844	0.802	1.05	N/A	N/A	N/A	N/A

8.7 Simultaneous Multi-band Transmission Evaluation

<SAR Summation Analysis>

Simultaneous transmission SAR test exclusion is determined for each operating configuration and exposure condition according to the reported standalone SAR of each applicable simultaneous transmitting antenna. When the sum of SAR_{1g} of all simultaneously transmitting antennas in an operating mode and exposure condition combination is within the SAR limit (SAR_{1g} 1.6 W/kg), the simultaneous transmission SAR is not required. When the sum of SAR_{1g} is greater than the SAR limit (SAR_{1g} 1.6 W/kg), SAR test exclusion is determined by the SPLSR.

No.	Conditions (SAR1 + SAR2)	Exposure Condition	Test Position	Max. SAR1	Max. SAR2	SAR Summation	SPLSR Analysis
1	GSM850 + WLAN (DTS)	Head	Right Cheek	0.46	0.08	0.54	ΣSAR < 1.6, Not required
			Right Tilted	0.19	0.07	0.26	ΣSAR < 1.6, Not required
			Left Cheek	0.40	0.19	0.59	ΣSAR < 1.6, Not required
			Left Tilted	0.22	0.14	0.36	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.08	0.51	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.12	0.66	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.08	0.51	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.12	0.66	ΣSAR < 1.6, Not required
			Left Side	0.22		0.22	ΣSAR < 1.6, Not required
			Right Side	0.43	0.07	0.50	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.15		0.15	ΣSAR < 1.6, Not required
2	GSM1900 + WLAN (DTS)	Head	Right Cheek	1.05	0.08	1.13	ΣSAR < 1.6, Not required
			Right Tilted	0.65	0.07	0.72	ΣSAR < 1.6, Not required
			Left Cheek	0.83	0.19	1.02	ΣSAR < 1.6, Not required
			Left Tilted	0.75	0.14	0.89	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.08	0.51	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.12	0.61	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.08	0.51	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.12	0.61	ΣSAR < 1.6, Not required
			Left Side	0.34		0.34	ΣSAR < 1.6, Not required
			Right Side	0.19	0.07	0.26	ΣSAR < 1.6, Not required
			Top Side	0.37	0.03	0.40	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
3	WCDMA II + WLAN (DTS)	Head	Right Cheek	0.56	0.08	0.64	ΣSAR < 1.6, Not required
			Right Tilted	0.46	0.07	0.53	ΣSAR < 1.6, Not required
			Left Cheek	0.55	0.19	0.74	ΣSAR < 1.6, Not required
			Left Tilted	0.47	0.14	0.61	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.17	0.08	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.12	0.41	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.08	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.12	0.41	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.09	0.07	0.16	ΣSAR < 1.6, Not required
			Top Side	0.13	0.03	0.16	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
4	WCDMA IV + WLAN (DTS)	Head	Right Cheek	0.71	0.08	0.79	ΣSAR < 1.6, Not required
			Right Tilted	0.33	0.07	0.40	ΣSAR < 1.6, Not required
			Left Cheek	0.46	0.19	0.65	ΣSAR < 1.6, Not required
			Left Tilted	0.38	0.14	0.52	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.20	0.08	0.28	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.12	0.44	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.20	0.08	0.28	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.12	0.44	ΣSAR < 1.6, Not required
			Left Side	0.17		0.17	ΣSAR < 1.6, Not required
			Right Side	0.06	0.07	0.13	ΣSAR < 1.6, Not required
			Top Side	0.13	0.03	0.16	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
5	WCDMA V + WLAN (DTS)	Head	Right Cheek	0.25	0.08	0.33	ΣSAR < 1.6, Not required
			Right Tilted	0.13	0.07	0.20	ΣSAR < 1.6, Not required
			Left Cheek	0.23	0.19	0.42	ΣSAR < 1.6, Not required
			Left Tilted	0.09	0.14	0.23	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.14	0.08	0.22	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.12	0.36	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.14	0.08	0.22	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.12	0.36	ΣSAR < 1.6, Not required
			Left Side	0.11		0.11	ΣSAR < 1.6, Not required
			Right Side	0.20	0.07	0.27	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.06		0.06	ΣSAR < 1.6, Not required
6	LTE 2 + WLAN (DTS)	Head	Right Cheek	0.80	0.08	0.88	ΣSAR < 1.6, Not required
			Right Tilted	0.57	0.07	0.64	ΣSAR < 1.6, Not required
			Left Cheek	0.75	0.19	0.94	ΣSAR < 1.6, Not required
			Left Tilted	0.59	0.14	0.73	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.25	0.08	0.33	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.12	0.52	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.25	0.08	0.33	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.12	0.52	ΣSAR < 1.6, Not required
			Left Side	0.27		0.27	ΣSAR < 1.6, Not required
			Right Side	0.16	0.07	0.23	ΣSAR < 1.6, Not required
			Top Side	0.26	0.03	0.29	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
7	LTE 66&4 + WLAN (DTS)	Head	Right Cheek	0.89	0.08	0.97	ΣSAR < 1.6, Not required
			Right Tilted	0.44	0.07	0.51	ΣSAR < 1.6, Not required
			Left Cheek	0.66	0.19	0.85	ΣSAR < 1.6, Not required
			Left Tilted	0.45	0.14	0.59	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.23	0.08	0.31	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.12	0.51	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.23	0.08	0.31	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.12	0.51	ΣSAR < 1.6, Not required
			Left Side	0.19		0.19	ΣSAR < 1.6, Not required
			Right Side	0.06	0.07	0.13	ΣSAR < 1.6, Not required
			Top Side	0.15	0.03	0.18	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
8	LTE 5 + WLAN (DTS)	Head	Right Cheek	0.17	0.08	0.25	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.07	0.17	ΣSAR < 1.6, Not required
			Left Cheek	0.12	0.19	0.31	ΣSAR < 1.6, Not required
			Left Tilted	0.15	0.14	0.29	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.15	0.08	0.23	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.12	0.47	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.15	0.08	0.23	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.12	0.47	ΣSAR < 1.6, Not required
			Left Side	0.18		0.18	ΣSAR < 1.6, Not required
			Right Side	0.28	0.07	0.35	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.08		0.08	ΣSAR < 1.6, Not required
9	LTE 12&17 + WLAN (DTS)	Head	Right Cheek	0.07	0.08	0.15	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.07	0.11	ΣSAR < 1.6, Not required
			Left Cheek	0.06	0.19	0.25	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.14	0.21	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.10	0.08	0.18	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.12	0.47	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.10	0.08	0.18	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.12	0.47	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.18	0.07	0.25	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
10	LTE 41 + WLAN (DTS)	Head	Right Cheek	0.04	0.08	0.12	ΣSAR < 1.6, Not required
			Right Tilted	0.03	0.07	0.10	ΣSAR < 1.6, Not required
			Left Cheek	0.04	0.19	0.23	ΣSAR < 1.6, Not required
			Left Tilted	0.03	0.14	0.17	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.04	0.08	0.12	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.12	0.20	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.04	0.08	0.12	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.12	0.20	ΣSAR < 1.6, Not required
			Left Side				ΣSAR < 1.6, Not required
			Right Side	0.08	0.07	0.15	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required
11	LTE 71 + WLAN (DTS)	Head	Right Cheek	0.07	0.08	0.15	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.07	0.11	ΣSAR < 1.6, Not required
			Left Cheek	0.05	0.19	0.24	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.14	0.21	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.09	0.08	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.12	0.46	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.08	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.12	0.46	ΣSAR < 1.6, Not required
			Left Side	0.15		0.15	ΣSAR < 1.6, Not required
			Right Side	0.17	0.07	0.24	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
12	n 71 + WLAN (DTS)	Head	Right Cheek	0.20	0.08	0.28	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.07	0.17	ΣSAR < 1.6, Not required
			Left Cheek	0.18	0.19	0.37	ΣSAR < 1.6, Not required
			Left Tilted	0.02	0.14	0.16	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.09	0.08	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.12	0.50	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.08	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.12	0.50	ΣSAR < 1.6, Not required
			Left Side	0.16		0.16	ΣSAR < 1.6, Not required
			Right Side	0.20	0.07	0.27	ΣSAR < 1.6, Not required
			Top Side		0.03	0.03	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required
13	GSM850 + WLAN (NII)	Head	Right Cheek	0.46	0.61	1.07	ΣSAR < 1.6, Not required
			Right Tilted	0.19	0.64	0.83	ΣSAR < 1.6, Not required
			Left Cheek	0.40	0.65	1.05	ΣSAR < 1.6, Not required
			Left Tilted	0.22	0.51	0.73	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.16	0.59	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.16	**0.70**	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.16	0.59	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.16	**0.70**	ΣSAR < 1.6, Not required
			Left Side	0.22		0.22	ΣSAR < 1.6, Not required
			Right Side	0.43	0.14	0.57	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.15		0.15	ΣSAR < 1.6, Not required
14	GSM1900 + WLAN (NII)	Head	Right Cheek	1.05	0.61	**1.66**	**Analyzed as below**
			Right Tilted	0.65	0.64	1.29	ΣSAR < 1.6, Not required
			Left Cheek	0.83	0.65	1.48	ΣSAR < 1.6, Not required
			Left Tilted	0.75	0.51	1.26	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.16	0.59	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.16	0.65	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.16	0.59	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.16	0.65	ΣSAR < 1.6, Not required
			Left Side	0.34		0.34	ΣSAR < 1.6, Not required
			Right Side	0.19	0.14	0.33	ΣSAR < 1.6, Not required
			Top Side	0.37	0.14	0.51	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
15	WCDMA II + WLAN (NII))	Head	Right Cheek	0.56	0.61	1.17	ΣSAR < 1.6, Not required
			Right Tilted	0.46	0.64	1.10	ΣSAR < 1.6, Not required
			Left Cheek	0.55	0.65	1.20	ΣSAR < 1.6, Not required
			Left Tilted	0.47	0.51	0.98	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.17	0.16	0.33	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.16	0.45	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.16	0.33	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.16	0.45	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.09	0.14	0.23	ΣSAR < 1.6, Not required
			Top Side	0.13	0.14	0.27	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
16	WCDMA IV + WLAN (NII)	Head	Right Cheek	0.71	0.61	1.32	ΣSAR < 1.6, Not required
			Right Tilted	0.33	0.64	0.97	ΣSAR < 1.6, Not required
			Left Cheek	0.46	0.65	1.11	ΣSAR < 1.6, Not required
			Left Tilted	0.38	0.51	0.89	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.20	0.16	0.36	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.16	0.48	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.20	0.16	0.36	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.16	0.48	ΣSAR < 1.6, Not required
			Left Side	0.17		0.17	ΣSAR < 1.6, Not required
			Right Side	0.06	0.14	0.20	ΣSAR < 1.6, Not required
			Top Side	0.13	0.14	0.27	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
17	WCDMA V + WLAN (NII)	Head	Right Cheek	0.25	0.61	0.86	ΣSAR < 1.6, Not required
			Right Tilted	0.13	0.64	0.77	ΣSAR < 1.6, Not required
			Left Cheek	0.23	0.65	0.88	ΣSAR < 1.6, Not required
			Left Tilted	0.09	0.51	0.60	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.14	0.16	0.30	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.16	0.40	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.14	0.16	0.30	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.16	0.40	ΣSAR < 1.6, Not required
			Left Side	0.11		0.11	ΣSAR < 1.6, Not required
			Right Side	0.20	0.14	0.34	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.06		0.06	ΣSAR < 1.6, Not required
18	LTE 2 + WLAN (NII)	Head	Right Cheek	0.80	0.61	1.41	ΣSAR < 1.6, Not required
			Right Tilted	0.57	0.64	1.21	ΣSAR < 1.6, Not required
			Left Cheek	0.75	0.65	1.40	ΣSAR < 1.6, Not required
			Left Tilted	0.59	0.51	1.10	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.25	0.16	0.41	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.16	0.56	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.25	0.16	0.41	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.16	0.56	ΣSAR < 1.6, Not required
			Left Side	0.27		0.27	ΣSAR < 1.6, Not required
			Right Side	0.16	0.14	0.30	ΣSAR < 1.6, Not required
			Top Side	0.26	0.14	0.40	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
19	LTE 66&4 + WLAN (NII)	Head	Right Cheek	0.89	0.61	**1.50**	ΣSAR < 1.6, Not required
			Right Tilted	0.44	0.64	1.08	ΣSAR < 1.6, Not required
			Left Cheek	0.66	0.65	1.31	ΣSAR < 1.6, Not required
			Left Tilted	0.45	0.51	0.96	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.23	0.16	0.39	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.16	0.55	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.23	0.16	0.39	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.16	0.55	ΣSAR < 1.6, Not required
			Left Side	0.19		0.19	ΣSAR < 1.6, Not required
			Right Side	0.06	0.14	0.20	ΣSAR < 1.6, Not required
			Top Side	0.15	0.14	0.29	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
20	LTE 5 + WLAN (NII)	Head	Right Cheek	0.17	0.61	0.78	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.64	0.74	ΣSAR < 1.6, Not required
			Left Cheek	0.12	0.65	0.77	ΣSAR < 1.6, Not required
			Left Tilted	0.15	0.51	0.66	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.15	0.16	0.31	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.16	0.51	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.15	0.16	0.31	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.16	0.51	ΣSAR < 1.6, Not required
			Left Side	0.18		0.18	ΣSAR < 1.6, Not required
			Right Side	0.28	0.14	0.42	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.08		0.08	ΣSAR < 1.6, Not required
21	LTE 12&17 + WLAN (NII)	Head	Right Cheek	0.07	0.61	0.68	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.64	0.68	ΣSAR < 1.6, Not required
			Left Cheek	0.06	0.65	0.71	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.51	0.58	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.10	0.16	0.26	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.16	0.51	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.10	0.16	0.26	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.16	0.51	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.18	0.14	0.32	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
22	LTE 41 + WLAN (NII)	Head	Right Cheek	0.04	0.61	0.65	ΣSAR < 1.6, Not required
			Right Tilted	0.03	0.64	0.67	ΣSAR < 1.6, Not required
			Left Cheek	0.04	0.65	0.69	ΣSAR < 1.6, Not required
			Left Tilted	0.03	0.51	0.54	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.04	0.16	0.20	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.16	0.24	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.04	0.16	0.20	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.16	0.24	ΣSAR < 1.6, Not required
			Left Side				ΣSAR < 1.6, Not required
			Right Side	0.08	0.14	0.22	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required
23	LTE 71 + WLAN (NII)	Head	Right Cheek	0.07	0.61	0.68	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.64	0.68	ΣSAR < 1.6, Not required
			Left Cheek	0.05	0.65	0.70	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.51	0.58	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.09	0.16	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.16	0.50	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.16	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.16	0.50	ΣSAR < 1.6, Not required
			Left Side	0.15		0.15	ΣSAR < 1.6, Not required
			Right Side	0.17	0.14	0.31	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
24	n 71 + WLAN (NII)	Head	Right Cheek	0.20	0.61	0.81	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.64	0.74	ΣSAR < 1.6, Not required
			Left Cheek	0.18	0.65	0.83	ΣSAR < 1.6, Not required
			Left Tilted	0.02	0.51	0.53	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.09	0.16	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.16	0.54	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.16	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.16	0.54	ΣSAR < 1.6, Not required
			Left Side	0.16		0.16	ΣSAR < 1.6, Not required
			Right Side	0.20	0.14	0.34	ΣSAR < 1.6, Not required
			Top Side		0.14	0.14	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required
25	GSM850 + BT (DSS)	Head	Right Cheek	0.46	0.01	0.47	ΣSAR < 1.6, Not required
			Right Tilted	0.19	0.01	0.20	ΣSAR < 1.6, Not required
			Left Cheek	0.40	0.04	0.44	ΣSAR < 1.6, Not required
			Left Tilted	0.22	0.04	0.26	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.02	0.45	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.02	0.56	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.02	0.45	ΣSAR < 1.6, Not required
			Rear Face	0.54	0.02	0.56	ΣSAR < 1.6, Not required
			Left Side	0.22		0.22	ΣSAR < 1.6, Not required
			Right Side	0.43	0.02	0.45	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.15		0.15	ΣSAR < 1.6, Not required
26	GSM1900 + BT (DSS)	Head	Right Cheek	1.05	0.01	1.06	ΣSAR < 1.6, Not required
			Right Tilted	0.65	0.01	0.66	ΣSAR < 1.6, Not required
			Left Cheek	0.83	0.04	0.87	ΣSAR < 1.6, Not required
			Left Tilted	0.75	0.04	0.79	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.43	0.02	0.45	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.02	0.51	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.43	0.02	0.45	ΣSAR < 1.6, Not required
			Rear Face	0.49	0.02	0.51	ΣSAR < 1.6, Not required
			Left Side	0.34		0.34	ΣSAR < 1.6, Not required
			Right Side	0.19	0.02	0.21	ΣSAR < 1.6, Not required
			Top Side	0.37	0.01	0.38	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
27	WCDMA II + BT (DSS)	Head	Right Cheek	0.56	0.01	0.57	ΣSAR < 1.6, Not required
			Right Tilted	0.46	0.01	0.47	ΣSAR < 1.6, Not required
			Left Cheek	0.55	0.04	0.59	ΣSAR < 1.6, Not required
			Left Tilted	0.47	0.04	0.51	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.17	0.02	0.19	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.02	0.31	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.17	0.02	0.19	ΣSAR < 1.6, Not required
			Rear Face	0.29	0.02	0.31	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.09	0.02	0.11	ΣSAR < 1.6, Not required
			Top Side	0.13	0.01	0.14	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
28	WCDMA IV + BT (DSS)	Head	Right Cheek	0.71	0.01	0.72	ΣSAR < 1.6, Not required
			Right Tilted	0.33	0.01	0.34	ΣSAR < 1.6, Not required
			Left Cheek	0.46	0.04	0.50	ΣSAR < 1.6, Not required
			Left Tilted	0.38	0.04	0.42	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.20	0.02	0.22	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.02	0.34	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.20	0.02	0.22	ΣSAR < 1.6, Not required
			Rear Face	0.32	0.02	0.34	ΣSAR < 1.6, Not required
			Left Side	0.17		0.17	ΣSAR < 1.6, Not required
			Right Side	0.06	0.02	0.08	ΣSAR < 1.6, Not required
			Top Side	0.13	0.01	0.14	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
29	WCDMA V + BT (DSS)	Head	Right Cheek	0.25	0.01	0.26	ΣSAR < 1.6, Not required
			Right Tilted	0.13	0.01	0.14	ΣSAR < 1.6, Not required
			Left Cheek	0.23	0.04	0.27	ΣSAR < 1.6, Not required
			Left Tilted	0.09	0.04	0.13	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.14	0.02	0.16	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.02	0.26	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.14	0.02	0.16	ΣSAR < 1.6, Not required
			Rear Face	0.24	0.02	0.26	ΣSAR < 1.6, Not required
			Left Side	0.11		0.11	ΣSAR < 1.6, Not required
			Right Side	0.20	0.02	0.22	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.06		0.06	ΣSAR < 1.6, Not required
30	LTE 2 + BT (DSS)	Head	Right Cheek	0.80	0.01	0.81	ΣSAR < 1.6, Not required
			Right Tilted	0.57	0.01	0.58	ΣSAR < 1.6, Not required
			Left Cheek	0.75	0.04	0.79	ΣSAR < 1.6, Not required
			Left Tilted	0.59	0.04	0.63	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.25	0.02	0.27	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.02	0.42	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.25	0.02	0.27	ΣSAR < 1.6, Not required
			Rear Face	0.40	0.02	0.42	ΣSAR < 1.6, Not required
			Left Side	0.27		0.27	ΣSAR < 1.6, Not required
			Right Side	0.16	0.02	0.18	ΣSAR < 1.6, Not required
			Top Side	0.26	0.01	0.27	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
31	LTE 66&4 + BT (DSS)	Head	Right Cheek	0.89	0.01	0.90	ΣSAR < 1.6, Not required
			Right Tilted	0.44	0.01	0.45	ΣSAR < 1.6, Not required
			Left Cheek	0.66	0.04	0.70	ΣSAR < 1.6, Not required
			Left Tilted	0.45	0.04	0.49	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.23	0.02	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.02	0.41	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.23	0.02	0.25	ΣSAR < 1.6, Not required
			Rear Face	0.39	0.02	0.41	ΣSAR < 1.6, Not required
			Left Side	0.19		0.19	ΣSAR < 1.6, Not required
			Right Side	0.06	0.02	0.08	ΣSAR < 1.6, Not required
			Top Side	0.15	0.01	0.16	ΣSAR < 1.6, Not required
			Bottom Side				ΣSAR < 1.6, Not required
32	LTE 5 + BT (DSS)	Head	Right Cheek	0.17	0.01	0.18	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.01	0.11	ΣSAR < 1.6, Not required
			Left Cheek	0.12	0.04	0.16	ΣSAR < 1.6, Not required
			Left Tilted	0.15	0.04	0.19	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.15	0.02	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.02	0.37	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.15	0.02	0.17	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.02	0.37	ΣSAR < 1.6, Not required
			Left Side	0.18		0.18	ΣSAR < 1.6, Not required
			Right Side	0.28	0.02	0.30	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.08		0.08	ΣSAR < 1.6, Not required
33	LTE 12&17 + BT (DSS)	Head	Right Cheek	0.07	0.01	0.08	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.01	0.05	ΣSAR < 1.6, Not required
			Left Cheek	0.06	0.04	0.10	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.04	0.11	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.10	0.02	0.12	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.02	0.37	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.10	0.02	0.12	ΣSAR < 1.6, Not required
			Rear Face	0.35	0.02	0.37	ΣSAR < 1.6, Not required
			Left Side	0.14		0.14	ΣSAR < 1.6, Not required
			Right Side	0.18	0.02	0.20	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
34	**LTE 41 + BT (DSS)**	Head	Right Cheek	0.04	0.01	0.05	ΣSAR < 1.6, Not required
			Right Tilted	0.03	0.01	0.04	ΣSAR < 1.6, Not required
			Left Cheek	0.04	0.04	0.08	ΣSAR < 1.6, Not required
			Left Tilted	0.03	0.04	0.07	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.04	0.02	0.06	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.02	0.10	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.04	0.02	0.06	ΣSAR < 1.6, Not required
			Rear Face	0.08	0.02	0.10	ΣSAR < 1.6, Not required
			Left Side				ΣSAR < 1.6, Not required
			Right Side	0.08	0.02	0.10	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required
35	**LTE 71 + BT (DSS)**	Head	Right Cheek	0.07	0.01	0.08	ΣSAR < 1.6, Not required
			Right Tilted	0.04	0.01	0.05	ΣSAR < 1.6, Not required
			Left Cheek	0.05	0.04	0.09	ΣSAR < 1.6, Not required
			Left Tilted	0.07	0.04	0.11	ΣSAR < 1.6, Not required
		Body-Worn	Front Face	0.09	0.02	0.11	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.02	0.36	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.02	0.11	ΣSAR < 1.6, Not required
			Rear Face	0.34	0.02	0.36	ΣSAR < 1.6, Not required
			Left Side	0.15		0.15	ΣSAR < 1.6, Not required
			Right Side	0.17	0.02	0.19	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.03		0.03	ΣSAR < 1.6, Not required
36	**n 71 + BT (DSS)**	Head	Right Cheek	0.20	0.01	0.21	ΣSAR < 1.6, Not required
			Right Tilted	0.10	0.01	0.11	ΣSAR < 1.6, Not required
			Left Cheek	0.18	0.04	0.22	ΣSAR < 1.6, Not required
			Left Tilted	0.02	0.04	0.06	ΣSAR < 1.6, Not required

		Body-Worn	Front Face	0.09	0.02	0.11	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.02	0.40	ΣSAR < 1.6, Not required
		Hotspot	Front Face	0.09	0.02	0.11	ΣSAR < 1.6, Not required
			Rear Face	0.38	0.02	0.40	ΣSAR < 1.6, Not required
			Left Side	0.16		0.16	ΣSAR < 1.6, Not required
			Right Side	0.20	0.02	0.22	ΣSAR < 1.6, Not required
			Top Side		0.01	0.01	ΣSAR < 1.6, Not required
			Bottom Side	0.01		0.01	ΣSAR < 1.6, Not required

<SAR to Peak Location Separation Ratio Analysis>

The simultaneous transmitting antennas in each operating mode and exposure condition combination are considered one pair at a time to determine the SPLSR. When SAR is measured for both antennas in the pair, the peak location separation distance is computed by the following formula.

$$\text{Peak Location Separation Distance} = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2 + (z_1 - z_2)^2}$$

Where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates of the extrapolated peak SAR locations in the area or zoom scans.

When standalone test exclusion applies, SAR is estimated; the peak location is assumed to be at the feed-point or geometric center of the antenna. Due to curvatures on the SAM phantom, when SAR is estimated for one of the antennas in an antenna pair, the measured peak SAR location will be translated onto the test device to determine the peak location separation for the antenna pair.

The SPLSR is determined by the following formula.

$$\text{SPLSR} = \frac{(\text{SAR}_1 + \text{SAR}_2)^{1.5}}{R_i}$$

Where SAR_1 and SAR_2 are the highest reported or estimated SAR for each antenna in the pair, and R_i is the separation distance between the peak SAR locations for the antenna pair in mm.

When the SPLSR is <= 0.04, the simultaneous transmission SAR is not required. Otherwise, the enlarged zoom scan and volume scan post-processing procedures will be performed.

Conditions	Exposure Condition	Test Position	SAR Value (W/kg)	Coordinates			Peak Location Separation Distance (R_i, mm)	SPLSR	Simultaneous Transmission SAR Test
				x	y	z			
GSM1900 Ch512	Head	Right Cheek	1.05	0.0329	-0.3272	-0.1751	58.1	0.037	SPLSR < 0.04, Not required
802.11n Ch149			0.61	-0.0082	-0.2868	-0.1676			

9 Equitpment List

Equipment	Manufacturer	Model	SN	Cal. Data	Cal. interval
System Validation Dipole	SPEAG	D450V3	1118	May. 27, 2022	3 years
System Validation Dipole	SPEAG	D750V3	1219	May. 22, 2022	3 years
System Validation Dipole	SPEAG	D850V2	1026	May. 23, 2022	3 years
System Validation Dipole	SPEAG	D1450V2	1092	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D1750V2	1192	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D1900V2	5d247	May. 23, 2022	3 years
System Validation Dipole	SPEAG	D2000V2	1099	May. 25, 2022	3 years
System Validation Dipole	SPEAG	D2300V2	1126	May. 25, 2022	3 years
System Validation Dipole	SPEAG	D2450V2	1081	May. 25, 2022	3 years
System Validation Dipole	SPEAG	D2600V2	1195	May. 25, 2022	3 years
System Validation Dipole	SPEAG	D3500V2	1140	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D3700V2	1116	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D3900V2	1087	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D4900V2	1066	May. 24, 2022	3 years
System Validation Dipole	SPEAG	D5GHzV2	1353	May. 27, 2022	3 years
System Validation Dipole	SPEAG	D6.5GHz|V2	1057	May. 24, 2022	3 years
Dosimetric E-Field Probe	SPEAG	EX3DV4	7628	July. 03, 2024	1 year
Data Acquisition Electronics	SPEAG	DAE4	1557	Oct. 08, 2024	1 year
Wideband Radio Communication Tester	R&S	CMW500	168558	May. 25, 2024	1 year
Wideband Radio Communication Tester	Anritsu	MT8000A	6272354169	Jan. 08, 2025	1 year
Signal Analyzer	R&S	FSV	104408	May. 22, 2024	1 year
Vector Network Analyzer	R&S	ZNB 40	101544	May. 25, 2024	1 year
Dielectric assessment Kit	SPEAG	DAK-3.5	1327	Oct. 22, 2022	N/A
Signal Generator	R&S	SMB 100B	101440	Sep. 23, 2024	1 year
Power Sensor	R&S	NRP18S-10	101843	Sep. 20, 2024	1 year
Power Sensor	R&S	NRP18S-10	101845	Sep. 20, 2024	1 year
DC Power Supply	Topward	3303D	810984	Sep. 20, 2024	1 year
Cavity Coupler	/	/	LS0300103	Jan. 08, 2025	1 year
Directional Couper	/	SHX-DC04/12-20N	2206171042	Jan. 08, 2025	1 year
Coaxial attenuator	R&S	8491A	1424.6721k02-101845-HX	Sep. 20, 2024	1 year
Coaxial attenuator	R&S	8491A	1424.6721K02-101843-aM	Sep. 20, 2024	1 year
Digital Thermometer	LKM	DTM3000	3946	Jan. 13, 2025	1 year
temperature and humidity indicator	LINI-T	A10T	C193561473	Apr. 28, 2024	1 year
Power Amplifier Mini circuit	mini-circuits	ZVA-183W-S+	726202215	Jan. 08, 2025	1 year
PHANTOM	SPEAG	ELI V8.0	2171	N/A	N/A
System Validation Dipole	SPEAG	D450V3	1118	May. 27, 2022	3 years
System Validation Dipole	SPEAG	D750V3	1219	May. 22, 2022	3 years

10 Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Divisor	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)	Vi Veff
Measurement System Errors								
Probe Calibration	±11.0%	Normal (k=2)	2	1	1	± 5.5 %	± 5.5 %	∞
Probe Calibration Drift	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
Probe Linearity	±4.7%	Rectangular	√3	1	1	±2.7%	±2.7%	∞
Broadband Signal	±3.0%	Rectangular	√3	1	1	±1.7%	±1.7%	∞
Probe Isotropy	±7.6%	Rectangular	√3	1	1	±4.4%	±4.4%	∞
Other Probe + Electronic	±0.7%	Normal	1	1	1	±0.7%	±0.7%	∞
RF Ambient	±1.8%	Normal	1	1	1	±1.8%	±1.8%	∞
Probe Positioning	±0.006mm	Normal	1	0.14	0.14	±0.10%	±0.10%	∞
Data Processing	±1.2%	Normal	1	1	1	±1.2%	±1.2%	∞
Phantom and Device Errors								
Conductivity (meas.)^{DAK}	±2.5%	Normal	1	0.78	0.71	±2.0%	±1.8%	100
Conductivity (temp.)^{BB}	±3.3%	Rectangular	√3	0.78	0.71	±1.5%	±1.4%	∞
Phantom Permittivity	±14.0%	Rectangular	√3	0	0	±0%	±0%	∞
Distance DUT – TSL	±2.0%	Normal	1	2	2	±4.0%	±4.0%	∞
Device Positioning	±2.4%/±2.8%	Normal	1	1	1	±2.8%	±2.8%	30
Device Holder	±3.4%/±3.5%	Normal	1	1	1	±3.5%	±3.5%	30
DUT Modulation^{m}	±2.4%	Rectangular	√3	1	1	±1.4%	±1.4%	∞
Time-average SAR	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
DUT drift	±2.5%	Normal	1	1	1	±2.5%	±2.5%	30
Val Antenna Unc.^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Unc. Input Power^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Correction to the SAR results								
C(ε,σ)	±1.9%	Normal	1	1	0.84	±1.9%	±1.6%	
SAR scaling^{p}	±0.0%	Rectangular	√3	1	1	±0%	±0%	
Combined Standard Uncertainty (K = 1)						±12.54%	±12.44%	
Expanded Uncertainty (K = 2)						**±25.1%**	**±24.9%**	

Uncertainty budget for frequency range 300 MHz to 3 GHz

Source of Uncertainty	Tolerance (± %)	Probability Distribution	Diviso r	Ci (1g)	Ci (10g)	Standard Uncertainty (1g)	Standard Uncertainty (10g)	Vi Veff
Measurement System Errors								
Probe Calibration	±13.1%	Normal (k=2)	2	1	1	± 6.55 %	± 6.55 %	∞
Probe Calibration Drift	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
Probe Linearity	±4.7%	Rectangular	√3	1	1	±2.7%	±2.7%	∞
Broadband Signal	±2.6%	Rectangular	√3	1	1	±1.5%	±1.5%	∞
Probe Isotropy	±7.6%	Rectangular	√3	1	1	±4.4%	±4.4%	∞
Other Probe + Electronic	±1.2%	Normal	1	1	1	±1.2%	±1.2%	∞
RF Ambient	±1.8%	Normal	1	1	1	±1.8%	±1.8%	∞
Probe Positioning	±0.005mm	Normal	1	0.29	0.29	±0.15%	±0.15%	∞
Data Processing	±2.3%	Normal	1	1	1	±2.3%	±2.3%	∞
Phantom and Device Errors								
Conductivity (meas.)^{DAK}	±2.5%	Normal	1	0.78	0.71	±2.0%	±1.8%	60
Conductivity (temp.)^{BB}	±3.3%	Rectangular	√3	0.78	0.71	±1.5%	±1.4%	∞
Phantom Permittivity	±14.0%	Rectangular	√3	0.25	0.25	±2%	±2%	∞
Distance DUT – TSL	±2.0%	Normal	1	2	2	±4.0%	±4.0%	∞
Device Positioning	±2.4%/±2.8%	Normal	1	1	1	±2.8%	±2.8%	30
Device Holder	±3.4%/±3.5%	Normal	1	1	1	±3.5%	±3.5%	30
DUT Modulation^{m}	±2.4%	Rectangular	√3	1	1	±1.4%	±1.4%	∞
Time-average SAR	±1.7%	Rectangular	√3	1	1	±1.0%	±1.0%	∞
DUT drift	±2.5%	Normal	1	1	1	±2.5%	±2.5%	30
Val Antenna Unc.^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Unc. Input Power^{val}	±0.0%	Normal	1	1	1	±0%	±0%	
Correction to the SAR results								
Deviation to Target	±1.9%	Normal	1	1	0.84	±1.9%	±1.6%	
SAR scaling^{p}	±0.0%	Rectangular	√3	1	1	±0%	±0%	
Combined Standard Uncertainty (K = 1)						±12.8%	±12.7%	
Expanded Uncertainty (K = 2)						**±26.1%**	**±25.9%**	

Uncertainty budget for frequency range 3 GHz to 6 GHz

11 Appendixes

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: SAR Plots of System Verification

The plots for system verification with largest deviation for each SAR system combination are shown as follows.

Appendix B: SAR Plots of SAR Measurement

Appendix C: Calibration Certificate for probe and Dipole

Refer the appendix Calibration Report.

Appendix D: Photographs of EUT and setup

Important

(1) The test report is invalid without the official stamp of CVC;

(2) Any part photocopies of the test report are forbidden without the written permission from CVC;

(3) The test report is invalid without the signatures of Approval and Reviewer;

(4) The test report is invalid if altered;

(5) Objections to the test report must be submitted to CVC within 15 days.

(6) Generally, commission test is responsible for the tested samples only.

(7) As for the test result “-” or “N” means “not applicable”, “/” means “not test”, “P” means “pass” and “F” means “fail”

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