

RF EXPOSURE TEST REPORT

Application No.: SUCR2604000342WM
Applicant: FCNT LLC.
Address of Applicant: Sanki Yamato Bldg. 3F, 7-10-1, Chuorinkan, Yamato-shi, Kanagawa, 242-0007, Japan
Manufacturer: FCNT LLC.
Address of Manufacturer: Sanki Yamato Bldg. 3F, 7-10-1, Chuorinkan, Yamato-shi, Kanagawa, 242-0007, Japan
EUT Description: Mobile Cellular Phone
Model No.: F-51G;M10 ♣
♣ Please refer to section 1 of this report which indicates which model was actually tested and which were electrically identical.
Trade Mark: FCNT.LLC
FCC ID: 2BEPUFMP205
Standards: FCC 47CFR §2.1093
Date of Receipt: 2026-04-10
Date of Test: 2026-05-18 to 2026-05-31
Date of Issue: 2026-06-02, Amendment 01: 2026-07-01

Test Result :	PASS *
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* In the configuration tested, the EUT detailed in this report complied with the standards specified above.
 This report supersedes our previous report SUCR260400034210, issued on 2026-06-02, which is hereby deemed null and void.

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Revision Record			
Version	Description	Date	Remark
00	Original	2026-06-02	/
01	Update FCC comments	2026-07-01	Amendment

Authorized for issue by:		
Prepared By		
		Leon Liu/ Project Engineer
Approved By		
		Nick Hu/ Reviewer

TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)			
	Head	Body-worn	Hotspot	Product specific 10g SAR
GSM850	0.57	1.14	1.14	/
GSM1900	0.21	1.03	1.24	1.72
WCDMA Band II	0.31	0.87	1.18	/
WCDMA Band IV	0.24	0.99	1.28	1.79
WCDMA Band V	0.45	1.04	1.04	/
LTE Band 2	0.42	0.84	1.18	1.42
LTE Band 4	0.32	0.87	1.15	2.02
LTE Band 5	0.40	1.13	1.13	/
LTE Band 12	0.32	1.14	1.14	/
LTE Band 41(38)	0.23	1.04	1.12	1.61
LTE Band 42	0.79	0.71	0.43	/
NR Band n41	0.19	1.02	1.14	2.08
NR Band n77(78)	0.88	0.86	0.58	1.66
WI-FI (2.4GHz)	1.07	1.16	0.98	2.89
WI-FI (5GHz)	1.23	1.03	1.15	1.61
WI-FI 6E	0.76	0.51	/	0.51
BT	0.35	0.15	0.19	/
NFC	/	/	/	<0.10
SAR Limited(W/kg)	1.6			4.0
Maximum Simultaneous Transmission SAR (W/kg)				
Scenario	Head	Body-worn	Hotspot	Product specific 10g SAR
Sum SAR	1.57	1.59	1.58	3.15
SPLSR	/	0.02	0.03	/
SPLSR Limited	0.04			0.1

Frequency Band	Report Power Density (W/m ²)
WIFI 6E	6.37
SAR Limited(W/kg)	10.00

Note: According to TCB workshop (Overlapping LTE Bands): SAR in LTE band 38 is covered by LTE band 41. SAR in NR Band n78 is covered by NR Band n77. Because the frequency range is similar, the maximum tuning limit is the same, and the channel bandwidth and other operating parameters for the smaller band is fully supported by the larger band.

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1 General Information

1.1 General Description of EUT

Product Name:	Mobile Cellular Phone		
Model No.:	F-51G;M10		
Trade Mark:	FCNT.LLC		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
IMEI:	354986620023442, 354986620022840, 354986620023368		
Hardware Version:	DVT2		
Software Version:	fastboot_fujilt_dcm_sys_userdebug_16_W1WK36.0-64_b5b839-7dcc3a_intcfg-test-keys_global_JP		
Antenna Type:	IFA Antenna		
Device Operating Configurations:			
Test Mode Configuration:	GSM: GMSK; WCDMA: QPSK,16QAM LTE: QPSK,16QAM,64QAM 5G NR: DFT-s-OFDM(PI/2 BPSK,QPSK,16QAM,64QAM,256QAM) CP-OFDM(QPSK,16QAM,64QAM,256QAM) WIFI: DSSS,OFDM,OFDMA; BT:GFSK, $\pi/4$ DQPSK,8DPSK NFC: ASK		
Device Class:	B		
GPRS Multi-slots Class:	12		
HSDPA UE Category:	24	HSUPA UE Category:	7
DC-HSDPA UE Category:	24		
Power Class:	4, tested with power level 5(GSM850)		
	1, tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(WCDMA Band)		
	3, tested with power control “max power”(LTE Band)		
Frequency Bands:	Band	Tx(MHz)	
	GSM850	824~849	
	GSM1900	1850~1910	
	WCDMA Band II	1850~1910	
	WCDMA Band IV	1710~1755	
	WCDMA Band V	824~849	
	LTE Band 2	1850 ~1910	
	LTE Band 4	1710~1755	
	LTE Band 5	824~849	
	LTE Band 12	699~716	
	LTE Band 38	2570~2620	

	LTE Band 41	2496~2690
	LTE Band 42	3450~3550
	NR Band n41	2496~2690
	NR Band n77	3450~3550
		3700~3980
	NR Band n78	3450~3550
		3700~3800
	WIFI 2.4G	2412~2462
	WIFI 5G	5150~5250
		5250~5350
		5470~5725
		5725~5850
	WIFI 6E	5925~6425
		6425~6525
		6525~6875
		6875~7125
	BT	2402~2480
	NFC	13.56
RF Cable:	☒ Provided by applicant ☐ Provided by the laboratory	
Battery Information:	Model:	SB18F13388
	Normal Voltage:	3.8V
	Rated capacity:	5210mAh
	Manufacturer:	SUNWODA
Note: Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, SGS is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion. Remark: F-51G and M10 are the same product with identical prototypes, and only different model names are used for adaptation to different operators. This test involves two samples, and the differences between the prototypes can be referred to the Operational Description of Product Equality Declaration submitted separately. We selected Sample 1 to conduct a full test.		

1.2 Test Specification

Identity	Document Title
FCC 47CFR §2.1093	Radiofrequency Radiation Exposure Evaluation: Portable Devices
ANSI/IEEE C95.1-1992	IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz – 300 GHz.
IEEE 1528-2013	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques
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)
IEC/IEEE 63195-1:2022	Assessment of power density of human exposure to radio frequency fields from wireless devices in close proximity to the head and body (frequency range of 6 GHz to 300 GHz) – Part 1: Measurement procedure
KDB 941225 D01	3G SAR Measurement Procedures v03r01
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 941225 D06	Hotspot Mode SAR v02r01
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
KDB 648474 D04	Handset SAR v01r03
KDB 447498 D04	Interim General RF Exposure Guidance v01
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz v01r04
KDB 865664 D02	RF Exposure Reporting v01r02
KDB 690783 D01	SAR Listings on Grants v01r03

1.3 RF exposure limits

Human Exposure	Uncontrolled Environment General Population	Controlled Environment Occupational
Spatial Peak SAR* (Brain*Trunk)	1.60 mW/g	8.00 mW/g
Spatial Average SAR** (Whole Body)	0.08 mW/g	0.40 mW/g
Spatial Peak SAR*** (Hands/Feet/Ankle/Wrist)	4.00 mW/g	20.00 mW/g

Notes:

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

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

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

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

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

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Peak Spatially Averaged Power Density was evaluated over a circular area of 4cm² per interim FCC Guidance for near-field power density evaluations per October 2018 TCB Workshop notes.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

Note: 1.0 mW/cm² is equal to 10 W/m²

1.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd.

South of No. 6 Plant, No. 1, Runsheng Road, Suzhou Industrial Park, Suzhou Area, China (Jiangsu)

Pilot Free Trade Zone

No tests were sub-contracted.

1.5 Test Engineer

Test Engineer: Thomas Liang, Alan Zhang

1.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 6336.01)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. is accredited by the American Association for Laboratory Accreditation (A2LA).

- **FCC (Designation Number: CN1312)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized as an accredited testing laboratory.

Test Firm Registration Number: 717327

- **ISED (CAB Identifier: CN0120)**

SGS-CSTC Standards Technical Services (Suzhou) Co., Ltd. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 27594



2 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

3 SAR Measurements System Configuration

3.1 The SAR Measurement System

This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation $SAR = \sigma (|E_i|^2) / \rho$ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

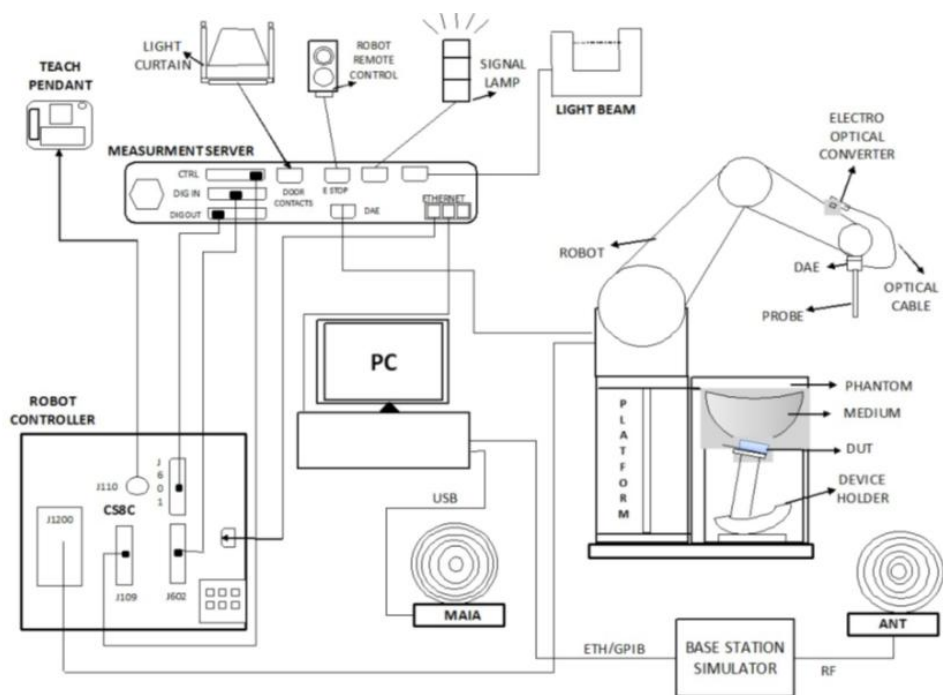
The DASY system for performing compliance tests consists of the following items:

A standard high precision 6-axis robot (Stabile RX family) with controller, teach pendant and software. An arm extension for accommodation the data acquisition electronics (DAE).

A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.

A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.



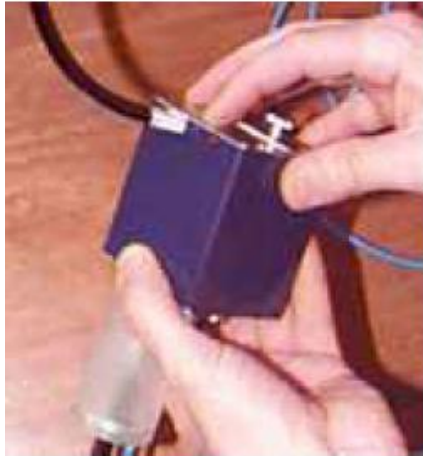
F-1. SAR Measurement System Configuration

- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows system.
- DASY software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand, right-hand and Body Worn usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validating the proper functioning of the system.

3.2 Isotropic E-field Probe EX3DV4

	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available.
Frequency	4 MHz - 10 GHz Linearity: ± 0.2 dB (30 MHz - 10 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 μ W/g - 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
Dimensions	Overall length: 337 mm (Tip: 9 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric 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 precision of better 30%.
Compatibility	DASY52 SAR and higher, EASY4/MRI

3.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)	
Input Offset Voltage	< 5μV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

3.4 SAM Twin Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2 ± 0.2 mm (6 ± 0.2 mm at ear point)	
Dimensions (incl. Wooden Support)	Length: 1000 mm Width: 500 mm Height: adjustable feet	
Filling Volume	approx. 25 liters	
Wooden Support	SPEAG standard phantom table	

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom. 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.

Twin SAM V5.0 has the same shell geometry and is manufactured from the same material as Twin SAM V4.0, but has reinforced top structure.

3.5 ELI Phantom

Material	Vinylester, glass fiber reinforced (VE-GF)	
Liquid Compatibility	Compatible with all SPEAG tissue simulating liquids (incl. DGBE type)	
Shell Thickness	2.0 ± 0.2 mm(bottom plate)	
Dimensions	Major axis: 600 mm Minor axis: 400 mm	
Filling Volume	approx. 30 liters	
Wooden Support	SPEAG standard phantom table	
Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 4 MHz to 10 GHz. 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 SPEAG dosimetric probes and dipoles. ELI V5.0 has the same shell geometry and is manufactured from the same material as ELI4 but has reinforced top structure.		

3.6 Device Holder for Transmitters



F-2. Device Holder for Transmitters

- The DASY device holder is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centres for both scales are the ear reference point (ERP). Thus the device needs no repositioning when changing the angles.
- The DASY device holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\epsilon=3$ and loss tangent $\delta=0.02$. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

3.7 Measurement Procedure

3.7.1 Scanning procedure

Step 1: Power reference measurement

The “reference” and “drift” measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure.

Step 2: Area scan

The SAR distribution at the exposed side of the head was measured at a distance of 4mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15mm*15mm or 12mm*12mm or 10mm*10mm. Based on the area scan data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Zoom scan

Around this point, a volume of 32mm*32mm*30mm ($f \leq 2\text{GHz}$), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points ($f \leq 2\text{GHz}$), 7x7x7 points (f for 2-3GHz) and 7x7x12 points (f for 5-6GHz). On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

The data at the surface was extrapolated, since the centre of the dipoles is 2.0mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2mm. (This can be variable. Refer to the probe specification). The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip. The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The volume was integrated with the trapezoidal algorithm. One thousand points were interpolated to calculate the average. All neighbouring volumes were evaluated until no neighboring volume with a higher average value was found.

If the zoom scan measured as specified in the preceding paragraphs complies with both i) and ii), or if the psSAR is below 0,1 W/kg, no additional measurements are needed.

i) The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak shall be larger than the horizontal grid steps in both x- and y-directions (Δx , Δy). This shall be checked for the measured zoom scan plane conformal to the phantom at the distance z_{M1} . The minimum distance shall be recorded in the SAR test report.

ii) The ratio of the SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum SAR value shall be at least 30 %. This ratio (in %) shall be recorded in the SAR test report.

			≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface			5 ± 1 mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location			$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: Δx_{Area} , Δy_{Area}			≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
			When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	
Maximum zoom scan spatial resolution: Δx_{Zoom} , Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm

Step 4: Power reference measurement (drift)

The Power Drift Measurement job measures the field at the same location as the most recent power reference measurement job within the same procedure, and with the same settings. The indicated drift is mainly the variation of the DUT's output power and should vary max ± 5 %.

3.7.2 Data storage

The DASY software stores the acquired data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension “DAE”. The software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of incorrect parameter settings. For example, if a measurement has been performed with a wrong crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be re-evaluated. The measured data can be visualized or exported in different units or formats, depending on the selected probe type ([V/m], [A/m], [°C], [m W/g], [m W/cm²], [dBrel], etc.). Some of these units are not available in certain situations or show meaningless results, e.g., a SAR output in a lossless media will always be zero. Raw data can also be exported to perform the evaluation with other software packages.

3.7.3 Data Evaluation by SEMCAD

The SEMCAD software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	Normi, ai0, ai1, ai2
- Conversion factor	ConvFi	
- Diode compression point	Dcpi	
Device parameters:	- Frequency	f
- Crest factor	cf	
Media parameters:	- Conductivity	ε
- Density	ρ	

These parameters must be set correctly in the software. They can be found in the component documents, or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics.

If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot cf / dcpi$$

With V_i = compensated signal of channel I (I = x, y, z)

U_i = input signal of channel I (I = x, y, z)

cf = crest factor of exciting field (DASY parameter)

dcpi = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$E_i = (V_i / \text{Norm}_i \cdot \text{ConvF})^{1/2}$$

H-field probes:

$$H_i = (V_i)^{1/2} \cdot (a_{i0} + a_{i1}f + a_{i2}f^2) / f$$

With V_i = compensated signal of channel i ($i = x, y, z$)

Norm_i = sensor sensitivity of channel i ($i = x, y, z$)

[mV/(V/m)²] for E-field Probes

ConvF = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{\text{tot}} = (E_x^2 + E_y^2 + E_z^2)^{1/2}$$

The primary field data are used to calculate the derived field units.

$$\text{SAR} = (E_{\text{tot}}^2 \cdot \sigma) / (\epsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ϵ = equivalent tissue density in g/cm³

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid. The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{\text{pwe}} = E_{\text{tot}}^2 / 3770 \quad \text{or} \quad P_{\text{pwe}} = H_{\text{tot}}^2 \cdot 37.7$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm²

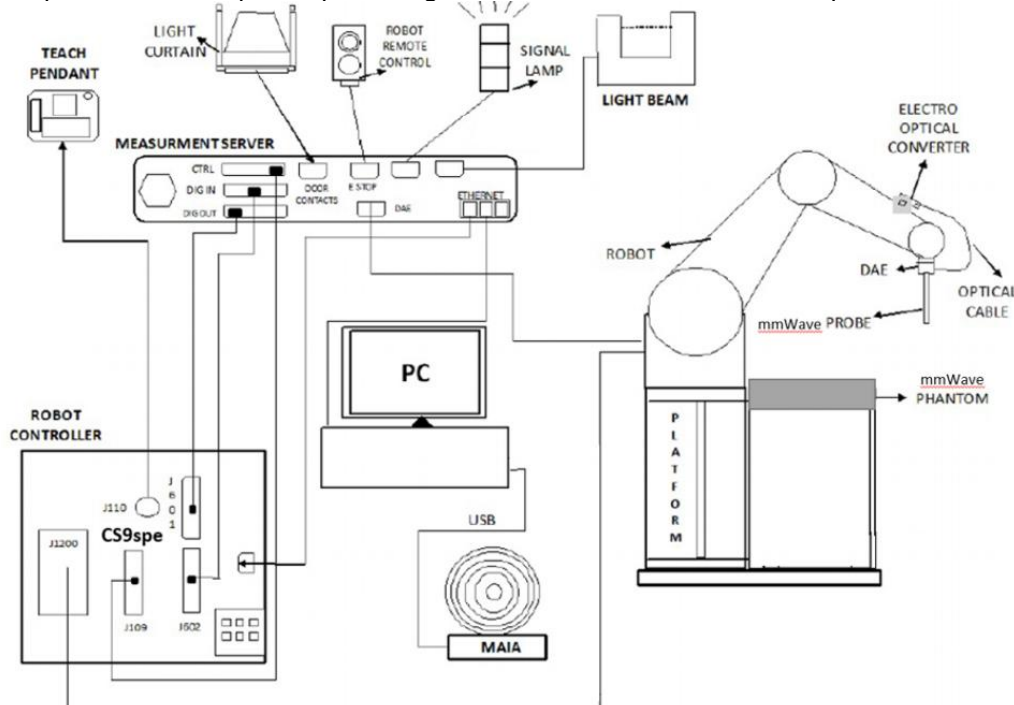
E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

4 PD Measurements System Configuration

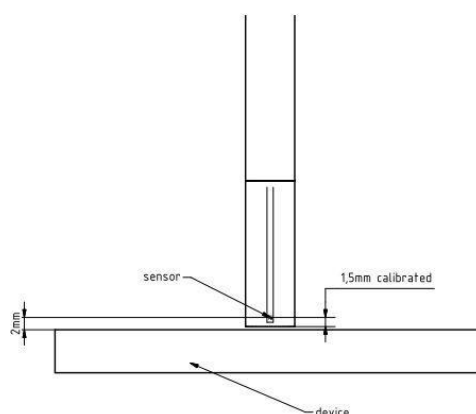
4.1 Power density measurement system

Power density measurements for mmWave frequencies were performed using SPEAG DASY8 or Higher with mmWave module. The system included a high precision robotics system (Staubli), robot controller, desktop computer, near-field probe, probe alignment sensor, and the mmWave phantom cover.



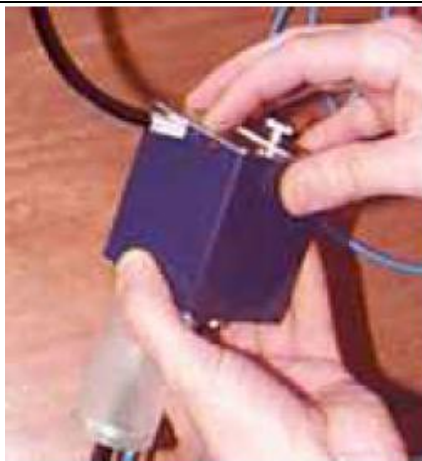
4.2 EUmmWaVe probe

Frequency	750 MHz – 110 GHz
Probe Overall Length	320 mm
Probe Body Diameter	8.0 mm
Tip Length	23.0 mm
Tip Diameter	8.0 mm
Probe's two dipoles length	0.9 mm – Diode loaded
Dynamic Range	< 20 V/m - 10000 V/m with PRE-10 (min < 50 V/m - 3000 V/m)
Position Precision	< 0.2 mm
Distance between diode sensors and probe's tip	1.5 mm
Minimum Mechanical separation between probe tip and a Surface	0.5 mm
Applications	E-field measurements of 5G devices and other mm-wave transmitters operating above 10GHz in < 2 mm distance from device (free-space) Power density, H-field and far-field analysis using total field reconstruction.
Compatibility	cDASY8 + 5G-Module SW1.0 and higher



The EUmmWaVe probe is based on the pseudo-vector probe design, which not only measures the field magnitude but also derives its polarization ellipse. The design entails two small 0.8mm dipole sensors mechanically protected by high-density foam, printed on both sides of a 0.9mm wide and 0.12mm thick glass substrate. The body of the probe is specifically constructed to minimize distortion by the scattered fields. The probe consists of two sensors with different angles (1 and 2) arranged in the same plane in the probe axis. Three or more measurements of the two sensors are taken for different probe rotational angles to derive the amplitude and polarization information. The probe design allows measurements at distances as small as 2mm from the sensors to the surface of the device under test (DUT). The typical sensor to probe tip distance is 1.5 mm. The exact distance is calibrated.

4.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY embedded system (fully remote controlled). Two step probe touch detector for mechanical surface detection and emergency robot stop.	
Measurement Range	-100 to +300 mV (16 bit resolution and two range settings: 4mV,400mV)	
Input Offset Voltage	< 5μV (with auto zero)	
Input Bias Current	< 50 f A	
Dimensions	60 x 60 x 68 mm	

4.4 Measurement Procedure

Fine-resolution scans on 2 different planes are performed to reconstruct the E- and H-fields as well as the power density; the z-distance between the 2 planes is set to $\lambda/4$. The (x, y) grid step is also set $\lambda/4$, the grid extent is set to sufficiently large to identify the field pattern and the peak.

5 SAR measurement variability and uncertainty

5.1 SAR measurement variability

Per KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01r04, SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. The 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.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds.

5.2 SAR measurement uncertainty

Per KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz, when the highest measured 1-g SAR within a frequency band is < 1.5 W/kg, the extensive SAR measurement uncertainty analysis described in IEEE Std 1528-2013 is not required in SAR reports submitted for equipment approval. The equivalent ratio (1.5/1.6) is applied to extremity and occupational exposure conditions.

6 PD measurement uncertainty

Declaration of Conformity:

The test results with all measurement uncertainty excluded is presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

The component of uncertainty may generally be categorized according to the methods used to evaluate them. The evaluation of uncertainty by the statistical analysis of a series of observations is termed a Type A evaluation of uncertainty. The evaluation of uncertainty by means other than the statistical analysis of a series of observation is termed a Type B evaluation of uncertainty. Each component of uncertainty, however evaluated, is represented by an estimated standard deviation, termed standard uncertainty, which is determined by the positive square root of the estimated variance.

A Type A evaluation of standard uncertainty may be based on any valid statistical method for treating data. This includes calculating the standard deviation of the mean of a series of independent observations; using the method of least squares to fit a curve to the data in order to estimate the parameter of the curve and their standard deviations; or carrying out an analysis of variance in order to identify and quantify random effects in certain kinds of measurement.

A type B evaluation of standard uncertainty is typically based on scientific judgment using all of the relevant information available. These may include previous measurement data, experience and knowledge of the behavior and properties of relevant materials and instruments, manufacture's specification, data provided in calibration reports and uncertainties assigned to reference data taken from handbooks. Broadly speaking, the uncertainty is either obtained from an outdoor source or obtained from an assumed distribution, such as the normal distribution, rectangular or triangular distributions indicated in table below.

Uncertainty Distributions	Normal	Rectangular	Triangular	U-Shape
Multiplying Factor ^(a)	1/k ^(b)	1/√3	1/√6	1/√2

Standard Uncertainty for Assumed Distribution

(a) standard uncertainty is determined as the product of the multiplying factor and the estimated range of variations in the measured quantity

(b) κ is the coverage factor

The combined standard uncertainty of the measurement result represents the estimated standard deviation of the result. It is obtained by combining the individual standard uncertainties of both Type A and Type B evaluation using the usual "root-sum-squares" (RSS) methods of combining standard deviations by taking the positive square root of the estimated variances.

Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. Typically, the coverage factor ranges from 2 to 3. Using a coverage factor allows the true value of a measured quantity to be specified with a defined probability within the specified uncertainty range. For purpose of this document, a coverage factor two is used, which corresponds to confidence interval of about 95 %. The DASY uncertainty Budget is shown in the following tables.

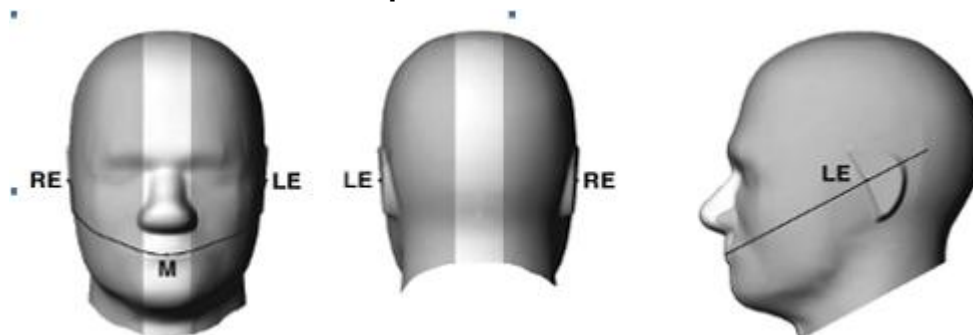
Expanded uncertainty is a measure of uncertainty that defines an interval about the measurement result within which the measured value is confidently believed to lie. It is obtained by multiplying the combined standard uncertainty by a coverage factor. The judgment of conformity in the report is based on the measurement results excluding the measurement uncertainty.

a	b	c	d	e	f=b*e/d	g
Error Description	Uncertainty Value (±dB)	Probability	Div.	Ci	Standard Uncertainty (±dB)	Vi (Veff)
Probe Calibration	0.49	N	1	1	0.49	∞
Probe correction	0.00	R	1.732	1	0.00	∞
Frequency response (BW ≤1 GHz)	0.20	R	1.732	1	0.12	∞
Sensor cross coupling	0.00	R	1.732	1	0.00	∞
Isotropy	0.50	R	1.732	1	0.29	∞
Linearity	0.20	R	1.732	1	0.12	∞
Probe scattering	0.00	R	1.732	1	0.00	∞
Probe positioning offset	0.30	R	1.732	1	0.17	∞
Probe positioning repeatability	0.04	R	1.732	1	0.02	∞
Sensor mechanical offset	0.00	R	1.732	1	0.00	∞
Probe spatial resolution	0.00	R	1.732	1	0.00	∞
Field impedance dependance	0.00	R	1.732	1	0.00	∞
Amplitude and phase drift	0.00	R	1.732	1	0.00	∞
Amplitude and phase noise	0.04	R	1.732	1	0.02	∞
Measurement area truncation	0.00	R	1.732	1	0.00	∞
Data acquisition	0.03	N	1	1	0.03	∞
Sampling	0.00	R	1.732	1	0.00	∞
Field reconstruction	2.00	R	1.732	1	1.15	∞
Forward transformation	0.00	R	1.732	1	0.00	∞
Power density scaling	0.00	R	1.732	1	0.00	∞
Spatial averaging	0.10	R	1.732	1	0.06	∞
System detection limit	0.04	R	1.732	1	0.02	∞
Probe coupling with DUT	0.00	R	1.732	1	0.00	∞
Modulation response	0.40	R	1.732	1	0.23	∞
Integration time	0.00	R	1.732	1	0.00	∞
Response time	0.00	R	1.732	1	0.00	∞
Device holder influence	0.10	R	1.732	1	0.06	∞
DUT alignment	0.00	R	1.732	1	0.00	∞
RF ambient conditions	0.04	R	1.732	1	0.02	∞
Ambient reflections	0.04	R	1.732	1	0.02	∞
Immunity / secondary reception	0.00	R	1.732	1	0.00	∞
Drift of the DUT		R	1.732	1	0.00	∞
Combined Std. Uncertainty					1.33	
Expanded STD Uncertainty (95%), K=2					2.67	

7 Description of Test Position

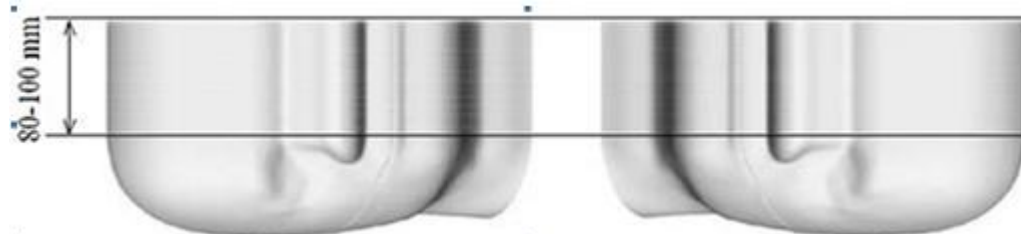
7.1 The Head Test Position

7.1.1 SAM Phantom Shape

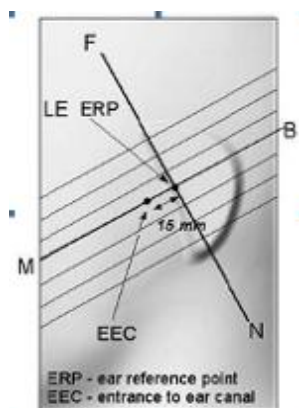


F-3. Front, back, and side views of SAM (model for the phantom shell). Full-head model is for illustration purposes only-procedures in this recommended practice are intended primarily for the phantom setup.

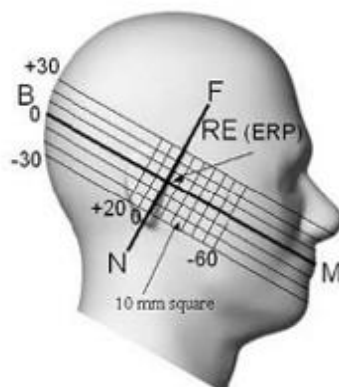
Note: The centre strip including the nose region has a different thickness tolerance.



F-4. Sagittally bisected phantom with extended perimeter (shown placed on its side as used for SAR measurements)

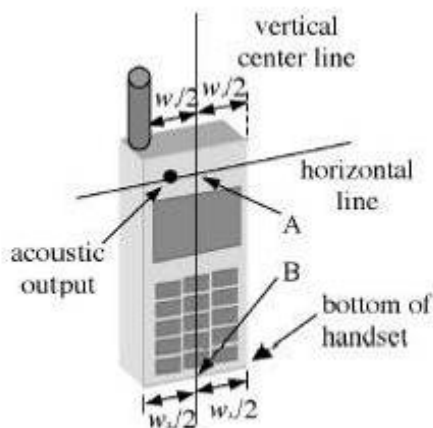


F-5. Close-up side view of phantom, showing the ear region, N-F and B-M lines, and seven cross-sectional plane locations

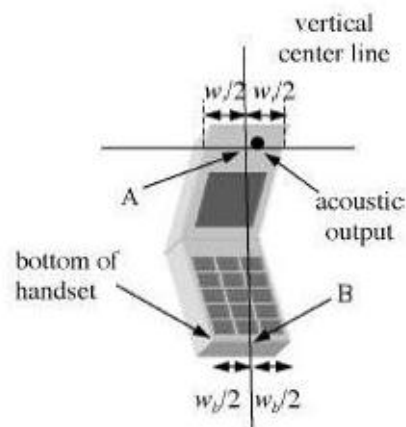


F-6.Side view of the phantom showing relevant markings and seven cross-sectional plane locations

7.1.2 EUT constructions



F-7. Handset vertical and horizontal reference lines-
“fixed case”



F-8.Handset vertical and horizontal reference lines-
“clam-shell case”

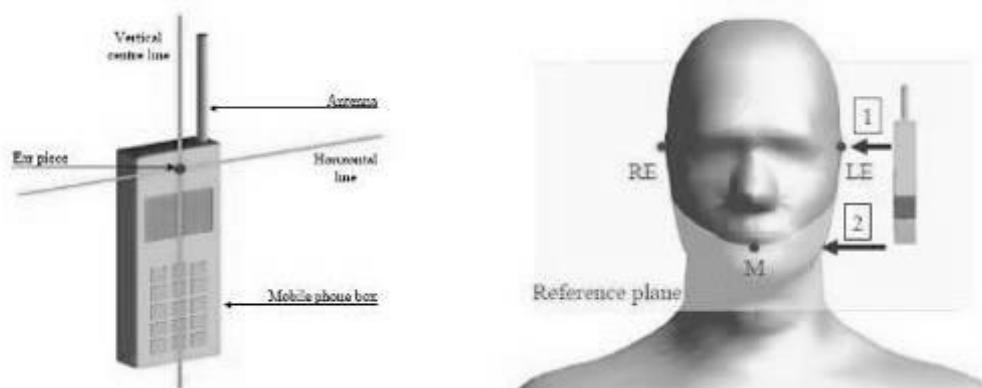
7.1.3 Definition of the “check” position

- Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom (“initial position”). While maintaining the device in this plane, align the vertical centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE) and align the centre of the ear piece with the line RE-LE.
- Translate the mobile phone box towards the phantom with the ear piece aligned with the line LE-RE until telephone touches the ear. While maintaining the device in the reference plane and maintaining the phone contact with the ear, move the bottom of the box until any point on the front side is in contact with the cheek of the phantom or until contact with the ear is lost.

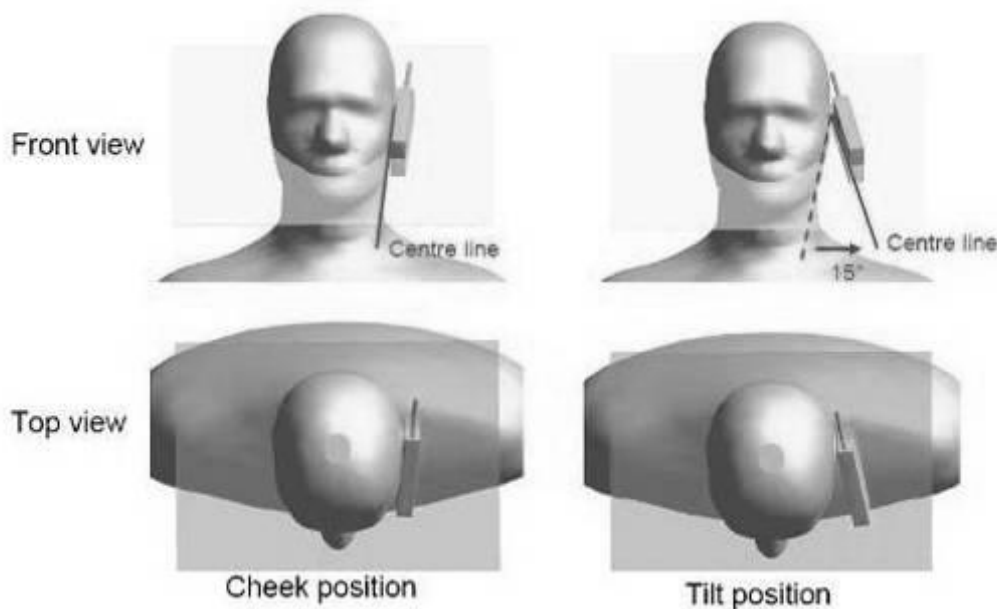
7.1.4 Definition of the “tilted” position

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

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



F-9. Definition of the reference lines and points, on the phone and on the phantom and initial position



F-10. “Cheek” and “tilt” positions of the mobile phone on the left side

7.2 The Body Test Position

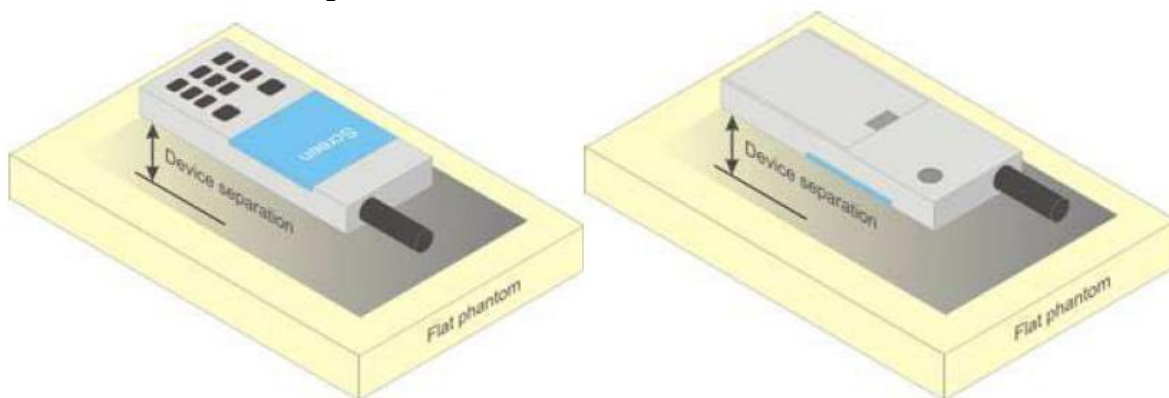
7.2.1 Body-worn exposure conditions

Body-worn operating configurations should be tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in normal use configurations.

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

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

Body-worn accessories may not always be supplied or available as options for some devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used. Test position spacing was documented. Transmitters that are designed to operate in front of a person's face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom in head fluid. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessories, including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.



F-11. Test positions for body-worn devices

7.2.2 Wireless Router exposure conditions

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

7.3 Extremity exposure conditions

Per FCC KDB 648474 D04, for smart phones with a display diagonal dimension > 15.0 cm or an overall diagonal dimension > 16.0 cm that provide similar mobile web access and multimedia support found in mini-tablets or UMPC mini-tablets that support voice calls next to the ear, the device is marketed as "Phablet". The UMPC mini-tablet procedures must also be applied to test the SAR of all surfaces and edges with an antenna located at ≤ 25 mm from that surface or edge, in direct contact with a flat phantom, for Product Specific 10-g SAR according to the body-equivalent tissue dielectric parameters in KDB 865664 to address interactive hand use exposure conditions. The UMPC mini-tablet 1-g SAR at 5 mm is not required. When hotspot mode applies, Product Specific 10-g SAR is required only for the surfaces and edges with hotspot mode 1-g reported SAR > 1.2 W/kg; however, when power reduction applies to hotspot mode the measured SAR must be scaled to the maximum output power, including tolerance, allowed for phablet modes to compare with the 1.2 W/kg SAR test reduction threshold.

Due to the SAR result, only the GSM1900, WCDMA Band IV, LTE Band 2/4/41, NR Band n41/n77 and WIFI 2.4G frequency bands need to test with 0mm for the Product Specific 10-g SAR, the others are not required.

GSM1900 SAR Test Record												
Ant 2 Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 5mm) ECI7												
Front side	GPRS 2TS	810/1909.8	1:4.15	0.736	0.381	0.01	23.23	26.00	1.892	1.393	22.7	NO
Back side	GPRS 2TS	810/1909.8	1:4.15	0.699	0.371	-0.03	23.23	26.00	1.892	1.323	22.7	NO
Right side	GPRS 2TS	810/1909.8	1:4.15	0.338	0.176	-0.04	23.23	26.00	1.892	0.639	22.7	YES
Bottom side	GPRS 2TS	810/1909.8	1:4.15	0.826	0.427	0.09	23.23	26.00	1.892	1.563	22.7	NO
Bottom side Repeated	GPRS 2TS	810/1909.8	1:4.15	0.810	0.417	-0.17	23.23	26.00	1.892	1.533	22.7	NO
Front side	GPRS 2TS	512/1850.2	1:4.15	0.701	0.364	-0.06	23.02	26.00	1.986	1.392	22.7	NO
Front side	GPRS 2TS	661/1880	1:4.15	0.698	0.356	-0.16	23.06	26.00	1.968	1.374	22.7	NO
Back side	GPRS 2TS	512/1850.2	1:4.15	0.681	0.344	0.05	23.02	26.00	1.986	1.352	22.7	NO
Back side	GPRS 2TS	661/1880	1:4.15	0.668	0.338	0.11	23.06	26.00	1.968	1.315	22.7	NO
Bottom side	GPRS 2TS	512/1850.2	1:4.15	0.775	0.396	-0.03	23.02	26.00	1.986	1.539	22.7	NO
Bottom side	GPRS 2TS	661/1880	1:4.15	0.790	0.407	0.11	23.06	26.00	1.968	1.555	22.7	NO

WB4 SAR Test Record												
Ant 2 Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data(Separate 5mm) ECI7												
Front side	RMC	1513/1752.6	1:1	0.746	0.374	0.06	18.15	20.50	1.718	1.282	22.4	NO
Back side	RMC	1513/1752.6	1:1	0.694	0.374	0.01	18.15	20.50	1.718	1.192	22.4	YES
Right side	RMC	1513/1752.6	1:1	0.252	0.127	-0.09	18.15	20.50	1.718	0.433	22.4	YES

Bottom side	RMC	1513/1752.6	1:1	0.940	0.488	-0.12	18.15	20.50	1.718	1.615	22.4	NO
Bottom side Repeated	RMC	1513/1752.6	1:1	0.929	0.476	0.05	18.15	20.50	1.718	1.596	22.4	NO
Front side	RMC	1312/1712.4	1:1	0.708	0.355	0.02	18.10	20.50	1.738	1.231	22.4	NO
Front side	RMC	1412/1732.4	1:1	0.705	0.345	0.08	18.12	20.50	1.730	1.220	22.4	NO
Back side	RMC	1312/1712.4	1:1	0.669	0.355	0.07	18.10	20.50	1.738	1.163	22.4	YES
Back side	RMC	1412/1732.4	1:1	0.640	0.338	0.09	18.12	20.50	1.730	1.107	22.4	YES
Bottom side	RMC	1312/1712.4	1:1	0.921	0.471	0.00	18.10	20.50	1.738	1.601	22.4	NO
Bottom side	RMC	1412/1732.4	1:1	0.910	0.462	-0.15	18.12	20.50	1.730	1.574	22.4	NO

LTE Band 2 SAR Test Record													
Ant 2 Test Record													
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm 1RB) ECI7													
Front side	20	QPSK 1_50	19100/1900	1:1	0.791	0.395	0.02	17.20	19.00	1.514	1.198	22.7	YES
Back side	20	QPSK 1_50	19100/1900	1:1	0.774	0.413	-0.11	17.20	19.00	1.514	1.172	22.7	YES
Right side	20	QPSK 1_50	19100/1900	1:1	0.339	0.174	-0.08	17.20	19.00	1.514	0.513	22.7	YES
Bottom side	20	QPSK 1_50	19100/1900	1:1	0.871	0.456	-0.01	17.20	19.00	1.514	1.319	22.7	NO
Bottom side Repeated	20	QPSK 1_50	19100/1900	1:1	0.852	0.451	0.15	17.20	19.00	1.514	1.290	22.7	NO
Front side	20	QPSK 1_50	18700/1860	1:1	0.766	0.379	-0.11	17.06	19.00	1.563	1.197	22.7	YES
Front side	20	QPSK 1_50	18900/1880	1:1	0.759	0.384	-0.17	17.08	19.00	1.556	1.181	22.7	YES
Back side	20	QPSK 1_50	18700/1860	1:1	0.749	0.405	0.03	17.06	19.00	1.563	1.171	22.7	YES
Back side	20	QPSK 1_50	18900/1880	1:1	0.740	0.400	0.04	17.08	19.00	1.556	1.151	22.7	YES
Bottom side	20	QPSK 1_50	18700/1860	1:1	0.821	0.445	0.14	17.06	19.00	1.563	1.283	22.7	NO
Bottom side	20	QPSK 1_50	18900/1880	1:1	0.829	0.440	-0.08	17.08	19.00	1.556	1.290	22.7	NO
Hotspot Test data (Separate 5mm 50%RB) ECI7													
Front side	20	QPSK 50_25	19100/1900	1:1	0.719	0.351	0.07	17.18	19.00	1.521	1.094	22.7	YES
Back side	20	QPSK 50_25	19100/1900	1:1	0.689	0.367	-0.05	17.18	19.00	1.521	1.048	22.7	YES
Left side	20	QPSK 50_25	19100/1900	1:1	0.328	0.161	0.11	17.18	19.00	1.521	0.499	22.7	YES
Right side	20	QPSK 50_25	19100/1900	1:1	0.302	0.154	-0.07	17.18	19.00	1.521	0.459	22.7	YES
Bottom side	20	QPSK 50_25	19100/1900	1:1	0.775	0.406	-0.09	17.18	19.00	1.521	1.179	22.7	YES
Front side	20	QPSK 50_25	18700/1860	1:1	0.758	0.402	-0.06	17.12	19.00	1.542	1.169	22.7	YES
Front side	20	QPSK 50_25	18900/1880	1:1	0.702	0.338	0.02	17.07	19.00	1.560	1.095	22.7	YES
Back side	20	QPSK 50_25	18700/1860	1:1	0.704	0.342	-0.06	17.12	19.00	1.542	1.086	22.7	YES
Back side	20	QPSK 50_25	18900/1880	1:1	0.666	0.360	-0.17	17.07	19.00	1.560	1.039	22.7	YES
Bottom side	20	QPSK 50_25	18700/1860	1:1	0.658	0.355	-0.04	17.12	19.00	1.542	1.015	22.7	YES
Bottom side	20	QPSK 50_25	18900/1880	1:1	0.731	0.396	-0.06	17.07	19.00	1.560	1.140	22.7	YES
Hotspot Test data (Separate 5mm 100%RB) ECI7													
Front side	20	QPSK 100_0	19100/1900	1:1	0.754	0.362	-0.13	17.17	19.00	1.524	1.149	22.7	YES
Back side	20	QPSK 100_0	19100/1900	1:1	0.694	0.372	-0.07	17.17	19.00	1.524	1.058	22.7	YES
Bottom side	20	QPSK 100_0	19100/1900	1:1	0.763	0.398	0.01	17.17	19.00	1.524	1.163	22.7	YES

LTE Band 4 SAR Test Record													
Ant 2 Test Record													
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm 1RB) ECI7													
Front side	20	QPSK 1_99	20175/1732.5	1:1	0.565	0.277	-0.04	15.16	19.50	2.716	1.535	22.4	NO

Back side	20	QPSK 1_99	20175/1732.5	1:1	0.496	0.267	0.17	15.16	19.50	2.716	1.347	22.4	NO
Right side	20	QPSK 1_99	20175/1732.5	1:1	0.194	0.098	0.16	15.16	19.50	2.716	0.527	22.4	YES
Bottom side	20	QPSK 1_99	20175/1732.5	1:1	0.750	0.389	0.07	15.16	19.50	2.716	2.037	22.4	NO
Hotspot Test data (Separate 5mm 50%RB) ECI7													
Front side	20	QPSK 50_50	20175/1732.5	1:1	0.517	0.258	-0.14	15.16	19.50	2.716	1.404	22.4	NO
Back side	20	QPSK 50_50	20175/1732.5	1:1	0.467	0.256	0.03	15.16	19.50	2.716	1.268	22.4	NO
Right side	20	QPSK 50_50	20175/1732.5	1:1	0.181	0.091	0.16	15.16	19.50	2.716	0.492	22.4	YES
Bottom side	20	QPSK 50_50	20175/1732.5	1:1	0.698	0.362	-0.07	15.16	19.50	2.716	1.896	22.4	NO
Hotspot Test data (Separate 5mm 100%RB) ECI7													
Front side	20	QPSK 100_0	20175/1732.5	1:1	0.573	0.286	-0.03	15.24	19.50	2.667	1.528	22.4	NO
Bottom side	20	QPSK 100_0	20175/1732.5	1:1	0.743	0.385	0.02	15.24	19.50	2.667	1.982	22.4	NO

LTE Band 41 SAR Test Record													
Ant 2 Test Record													
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm 1RB) ECI7													
Front side	20	QPSK 1_50	41055/2636.5	1:1.58	0.605	0.264	-0.01	19.58	21.00	1.387	0.839	21.2	YES
Back side	20	QPSK 1_50	41055/2636.5	1:1.58	0.667	0.290	-0.05	19.58	21.00	1.387	0.925	21.2	YES
Right side	20	QPSK 1_50	41055/2636.5	1:1.58	0.095	0.046	-0.19	19.58	21.00	1.387	0.132	21.2	YES
Bottom side	20	QPSK 1_50	41055/2636.5	1:1.58	0.995	0.445	0.01	19.58	21.00	1.387	1.380	21.2	NO
Bottom side PC2	20	QPSK 1_50	41055/2636.5	1:2.31	0.821	0.321	-0.18	20.80	21.00	1.047	0.860	21.2	YES
Front side	20	QPSK 1_50	39750/2506	1:1.58	0.611	0.271	0.07	19.43	21.00	1.435	0.877	21.2	YES
Front side	20	QPSK 1_50	40185/2549.5	1:1.58	0.621	0.276	-0.03	19.37	21.00	1.455	0.904	21.2	YES
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.603	0.261	0.00	19.28	21.00	1.486	0.896	21.2	YES
Front side	20	QPSK 1_50	41490/2680	1:1.58	0.631	0.280	0.14	19.21	21.00	1.510	0.953	21.2	YES
Back side	20	QPSK 1_50	39750/2506	1:1.58	0.684	0.304	0.10	19.43	21.00	1.435	0.982	21.2	YES
Back side	20	QPSK 1_50	40185/2549.5	1:1.58	0.696	0.309	0.16	19.37	21.00	1.455	1.013	21.2	YES
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.675	0.292	-0.07	19.28	21.00	1.486	1.003	21.2	YES
Back side	20	QPSK 1_50	41490/2680	1:1.58	0.707	0.314	0.19	19.21	21.00	1.510	1.068	21.2	YES
Bottom side	20	QPSK 1_50	39750/2506	1:1.58	0.813	0.360	-0.08	19.43	21.00	1.435	1.167	21.2	YES
Bottom side	20	QPSK 1_50	40185/2549.5	1:1.58	0.826	0.367	-0.06	19.37	21.00	1.455	1.202	21.2	NO
Bottom side	20	QPSK 1_50	40620/2593	1:1.58	0.802	0.347	0.08	19.28	21.00	1.486	1.192	21.2	YES
Bottom side	20	QPSK 1_50	41490/2680	1:1.58	0.839	0.372	0.00	19.21	21.00	1.510	1.267	21.2	NO
Bottom side	20	QPSK PCC 1_0	41055/2636.5	1:1.58	0.761	0.287	0.14	18.48	21.00	1.786	1.359	21.2	NO
		QPSK SCC 1_99	40857/2616.7										
Hotspot Test data (Separate 5mm 50%RB) ECI7													
Front side	20	QPSK 50_25	40185/2549.5	1:1.58	0.563	0.246	-0.15	19.57	21.00	1.390	0.783	21.2	YES
Back side	20	QPSK 50_25	40185/2549.5	1:1.58	0.620	0.270	-0.07	19.57	21.00	1.390	0.862	21.2	YES
Right side	20	QPSK 50_25	40185/2549.5	1:1.58	0.088	0.043	-0.10	19.57	21.00	1.390	0.122	21.2	YES
Bottom side	20	QPSK 50_25	40185/2549.5	1:1.58	0.764	0.299	0.18	19.57	21.00	1.390	1.062	21.2	YES
Front side	20	QPSK 50_25	39750/2506	1:1.58	0.568	0.252	0.14	18.96	21.00	1.600	0.909	21.2	YES
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.578	0.257	-0.19	19.22	21.00	1.507	0.871	21.2	YES
Front side	20	QPSK 50_25	41055/2636.5	1:1.58	0.561	0.243	-0.04	19.55	21.00	1.396	0.783	21.2	YES
Front side	20	QPSK 50_25	41490/2680	1:1.58	0.587	0.260	-0.09	19.20	21.00	1.514	0.889	21.2	YES
Back side	20	QPSK 50_25	39750/2506	1:1.58	0.636	0.283	-0.01	18.96	21.00	1.600	1.018	21.2	YES
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.647	0.287	-0.03	19.22	21.00	1.507	0.975	21.2	YES
Back side	20	QPSK 50_25	41055/2636.5	1:1.58	0.628	0.272	0.03	19.55	21.00	1.396	0.877	21.2	YES
Back side	20	QPSK 50_25	41490/2680	1:1.58	0.658	0.292	0.05	19.20	21.00	1.514	0.996	21.2	YES

Bottom side	20	QPSK 50_25	39750/2506	1:1.58	0.756	0.335	-0.11	18.96	21.00	1.600	1.210	21.2	NO
Bottom side	20	QPSK 50_25	40620/2593	1:1.58	0.768	0.341	0.16	19.22	21.00	1.507	1.157	21.2	YES
Bottom side	20	QPSK 50_25	41055/2636.5	1:1.58	0.746	0.323	0.14	19.55	21.00	1.396	1.041	21.2	YES
Bottom side	20	QPSK 50_25	41490/2680	1:1.58	0.780	0.346	-0.15	19.20	21.00	1.514	1.181	21.2	YES
Hotspot Test data (Separate 5mm 100%RB) ECI7													
Bottom side	20	QPSK 100_0	40185/2549.5	1:1.58	0.733	0.278	0.09	19.43	21.00	1.435	1.052	21.2	YES

SA N41 SAR Test Record													
Ant2 Test Record													
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm 1RB) ECI7													
Front side	100	QPSK 1_1	518598/2592.99	100%	0.441	0.210	-0.03	16.39	18.50	1.626	0.717	22.6	YES
Back side	100	QPSK 1_1	518598/2592.99	100%	0.517	0.228	-0.04	16.39	18.50	1.626	0.841	22.6	YES
Right side	100	QPSK 1_1	518598/2592.99	100%	0.119	0.057	0.09	16.39	18.50	1.626	0.193	22.6	YES
Bottom side	100	QPSK 1_1	518598/2592.99	100%	0.886	0.407	0.09	16.39	18.50	1.626	1.441	22.6	NO
Bottom side Repeated	100	QPSK 1_1	518598/2592.99	100%	0.868	0.390	-0.18	16.39	18.50	1.626	1.411	22.6	NO
Hotspot Test data (Separate 5mm 50%RB) ECI7													
Front side	100	QPSK 135_69	518598/2592.99	100%	0.481	0.215	-0.16	16.39	18.50	1.626	0.782	22.6	YES
Back side	100	QPSK 135_69	518598/2592.99	100%	0.576	0.251	-0.19	16.39	18.50	1.626	0.937	22.6	YES
Right side	100	QPSK 135_69	518598/2592.99	100%	0.110	0.054	-0.12	16.39	18.50	1.626	0.179	22.6	YES
Bottom side	100	QPSK 135_69	518598/2592.99	100%	0.837	0.388	-0.07	16.39	18.50	1.626	1.361	22.6	NO
Hotspot Test data (Separate 5mm 100%RB) ECI7													
Bottom side	100	QPSK 270_0	518598/2592.99	100%	0.621	0.265	-0.17	15.40	17.50	1.622	1.007	22.6	YES

SA N77 SAR Test Record													
Ant7 Test Record													
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm 1RB) ECI7													
Front side	100	QPSK 1_137	654800/3822	100%	0.228	0.094	0.02	13.21	18.50	3.381	0.771	22.2	YES
Back side	100	QPSK 1_137	654800/3822	100%	0.241	0.099	-0.18	13.21	18.50	3.381	0.815	22.2	YES
Left side	100	QPSK 1_137	654800/3822	100%	0.483	0.167	0.01	13.21	18.50	3.381	1.633	22.2	NO
Left side	100	QPSK 1_137	657200/3858	100%	0.459	0.151	-0.18	13.11	18.50	3.459	1.588	22.2	NO
Hotspot Test data (Separate 5mm 50%RB) ECI7													
Front side	100	QPSK 135_69	657200/3858	100%	0.248	0.102	-0.18	13.16	18.50	3.420	0.848	22.2	YES
Back side	100	QPSK 135_69	657200/3858	100%	0.225	0.094	0.16	13.16	18.50	3.420	0.770	22.2	YES
Left side	100	QPSK 135_69	657200/3858	100%	0.434	0.163	-0.05	13.16	18.50	3.420	1.484	22.2	NO
Left side	100	QPSK 135_69	654800/3822	100%	0.414	0.143	0.05	13.15	18.50	3.428	1.419	22.2	NO

Wi-Fi 2.4G SAR Test Record													
MIMO Test Record													
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)	Product Specific 10-g SAR Exclusion
Hotspot Test data (Separate 5mm)													
Front side	802.11b	6/2437	99.56%	1.004	0.308	0.145	-0.15	17.62	23.00	3.455	1.068	22.9	YES
Back side	802.11b	6/2437	99.56%	1.004	0.535	0.251	-0.10	17.62	23.00	3.455	1.856	22.9	NO



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Right side	802.11b	6/2437	99.56%	1.004	0.408	0.184	0.10	17.62	23.00	3.455	1.415	22.9	NO
Top side	802.11b	6/2437	99.56%	1.004	0.794	0.356	0.14	17.62	23.00	3.455	2.754	22.9	NO
Top side	802.11b	1/2412	99.56%	1.004	0.777	0.334	-0.18	17.53	23.00	3.524	2.749	22.9	NO
Top side	802.11b	11/2462	99.56%	1.004	0.743	0.341	0.00	17.38	23.00	3.648	2.721	22.9	NO

8 SAR System Verification Procedure

8.1 Tissue Simulate Liquid

8.1.1 Recipes for Tissue Simulate Liquid

The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands:

Ingredients (% by weight)	Frequency (MHz)				
	450	700-1000	1700-2000	2300-2500	2500-2700
Water	38.56	40.30	55.24	55.00	54.92
Salt (NaCl)	3.95	1.38	0.31	0.2	0.23
Sucrose	56.32	57.90	0	0	0
HEC	0.98	0.24	0	0	0
Bactericide	0.19	0.18	0	0	0
Tween	0	0	44.45	44.80	44.85
Salt: 99+% Pure Sodium Chloride Water: De-ionized, 16 MΩ+ resistivity Tween: Polyoxyethylene (20) sorbitan monolaurate Sucrose: 98+% Pure Sucrose HEC: Hydroxyethyl Cellulose					
1. Head Tissue Simulate Liquid (HBBL600-10000V6) is composed of the following ingredients : (Manufactured by SPEAG) Water: 50-65% Mineral oil: 10-30% Emulsifiers: 8-25% Sodium salt: 0-1.5% 2. Recipes for Tissue Simulate Liquid The bellowing tables give the recipes for tissue simulating liquids to be used in different frequency bands: HSL 4MHz~250MHz is composed of the following ingredients: Water: 50-90% Non-ionic detergents: 5-50% NaCl: 0-2% Preservative: 0.03-0.1%					

Table 1 : Recipe of Tissue Simulate Liquid

8.1.2 Measurement for Tissue Simulate Liquid

The Conductivity (σ) and Permittivity (ϵ_r) are listed in Table 2. For the SAR measurement given in this report.

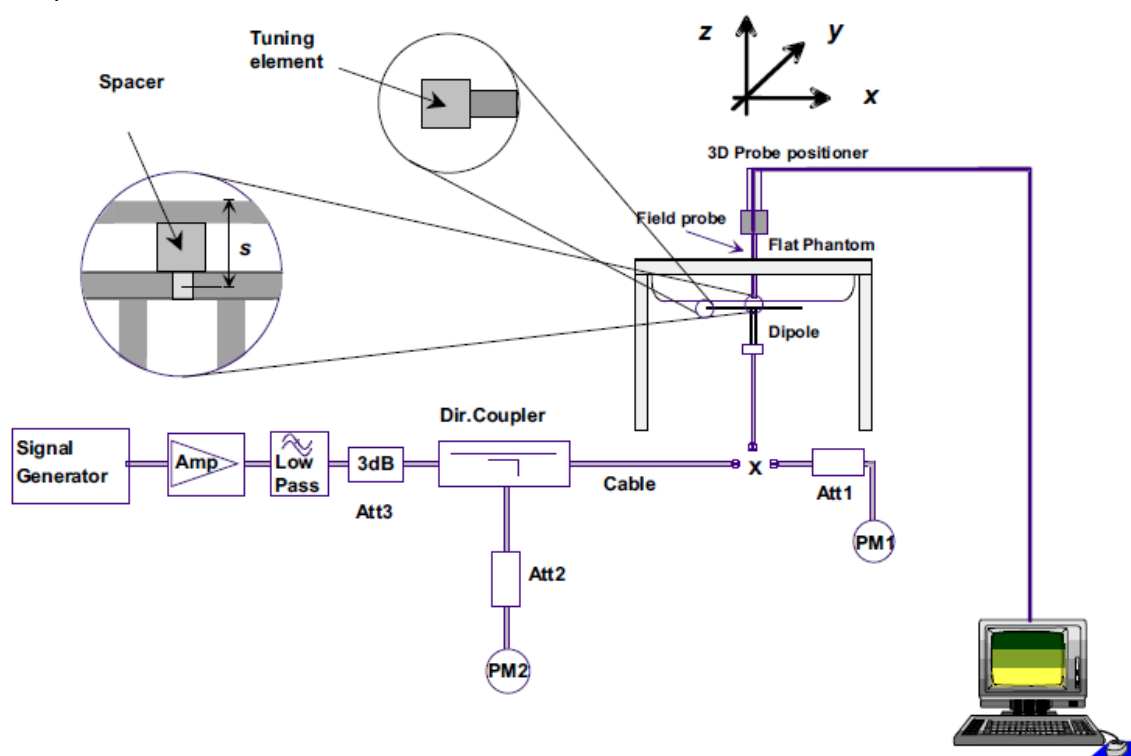
The temperature variation of the Tissue Simulate Liquids was $22 \pm 2^\circ\text{C}$.

Tissue Type	Measured Frequency (MHz)	Measured Tissue		Target Tissue ($\pm 5\%$)		Deviation (Within $\pm 5\%$)		Liquid Temp. ($^\circ\text{C}$)	Test Date
		ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$	ϵ_r	$\sigma(\text{S/m})$		
13 Head	13	55.665	0.741	55.00	0.75	1.21%	-1.20%	22.7	2026/5/18
750 Head	750	41.700	0.883	41.90	0.89	-0.48%	-0.79%	22.3	2026/5/19
835 Head	835	40.500	0.904	41.50	0.90	-2.41%	0.44%	22.5	2026/5/20
1750 Head	1750	40.800	1.350	40.10	1.37	1.75%	-1.46%	22.4	2026/5/22
1950 Head	1950	40.300	1.440	40.00	1.40	0.75%	2.86%	22.7	2026/5/23
2450 Head	2450	40.400	1.790	39.20	1.80	3.06%	-0.56%	22.9	2026/5/24
2600 Head	2600	39.700	1.950	39.00	1.96	1.79%	-0.51%	22.6	2026/5/25
3500 Head	3500	38.400	2.940	37.90	2.93	1.32%	0.34%	22.2	2026/5/26
3900 Head	3900	37.100	3.400	37.50	3.32	-1.07%	2.41%	22.2	2026/5/27
5250 Head	5250	35.900	4.730	35.90	4.71	0.00%	0.42%	22.9	2026/5/28
5600 Head	5600	34.900	5.120	35.50	5.07	-1.69%	0.99%	22.9	2026/5/29
5750 Head	5750	34.600	5.290	35.40	5.22	-2.26%	1.34%	22.9	2026/5/30
6500 Head	6500	34.100	6.200	34.50	6.07	-1.16%	2.14%	22.3	2026/5/31

Table 2 : Measurement result of Tissue electric parameters

8.2 SAR System Check

The microwave circuit arrangement for system Check is sketched in F-12. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within $\pm 10\%$ from the target SAR values. The tests were conducted on the same days as the measurement of the EUT. The obtained results from the system accuracy verification are displayed in the following table (A power level of 250mW (below 3GHz) or 100mW (3-6GHz) was input to the dipole antenna). During the tests, the ambient temperature of the laboratory was in the range $22\pm 2^{\circ}\text{C}$, the relative humidity was in the range 60% and the liquid depth above the ear reference points was above 15 ± 0.5 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.



F-12.The microwave circuit arrangement used for SAR system Check

8.2.1 Justification for Extended SAR Dipole Calibrations

1) Instead of the typical annual calibration recommended by measurement standards, longer calibration intervals of up to three years may be considered when it is demonstrated that the SAR target, impedance and return loss of a dipole have remain stable according to the following requirements. Each measured dipole is expected to evaluate with the following criteria at least on annual interval in Appendix C.

- a) There is no physical damage on the dipole;
- b) System check with specific dipole is within 10% of calibrated value;
- c) Return-loss is within 20% of calibrated measurement;
- d) Impedance is within 5Ω from the previous measurement.

2) Network analyzer probe calibration against air, distilled water and a shorting block performed before measuring liquid parameters.

8.2.2 Summary System Check Result(s)

Validation Kit	Measured SAR 250mW	Measured SAR 250mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within $\pm 10\%$)		Liquid Temp. (°C)	Test Date
	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
CLA13_Head	0.107	0.068	0.43	0.27	0.42	0.26	2.38%	3.85%	22.7	2026/5/18
D750V3_Head	2.11	1.42	8.44	5.68	8.54	5.80	-1.17%	-2.07%	22.3	2026/5/19
D835V2_Head	2.56	1.65	10.24	6.60	9.60	6.16	6.67%	7.14%	22.5	2026/5/20
D1750V2_Head	9.33	5.11	37.32	20.44	36.30	19.30	2.81%	5.91%	22.4	2026/5/22
D1950V2_Head	10.40	5.41	41.60	21.64	40.70	21.20	2.21%	2.08%	22.7	2026/5/23
D2450V2_Head	12.20	5.81	48.80	23.24	52.70	24.60	-7.40%	-5.53%	22.9	2026/5/24
D2600V2_Head	14.10	6.47	56.40	25.88	55.20	24.70	2.17%	4.78%	22.6	2026/5/25
Validation Kit	Measured SAR 100mW	Measured SAR 100mW	Measured SAR (normalized to 1W)	Measured SAR (normalized to 1W)	Target SAR (normalized to 1W)	Target SAR (normalized to 1W)	Deviation (Within $\pm 10\%$)		Liquid Temp. (°C)	Test Date
	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	1-g(W/kg)	10-g(W/kg)	1-g(W/kg)	10-g(W/kg)		
D3500V2_3.5GHz_Head	6.44	2.45	64.40	24.50	65.80	25.00	-2.13%	-2.00%	22.2	2026/5/26
D3900V2_3.9GHz_Head	6.61	2.31	66.10	23.10	67.60	23.50	-2.22%	-1.70%	22.1	2026/5/27
D5GHzV2_5.25G_Head	7.55	2.16	75.50	21.60	77.20	21.90	-2.20%	-1.37%	22.9	2026/5/28
D5GHzV2_5.6G_Head	8.66	2.41	86.60	24.10	81.10	22.80	6.78%	5.70%	22.9	2026/5/29
D5GHzV2_5.75G_Head	7.37	2.13	73.70	21.30	77.80	21.70	-5.27%	-1.84%	22.9	2026/5/30
D6500V2_Head	30.50	5.55	305.00	55.50	297.00	54.30	2.69%	2.21%	22.3	2026/5/31

Table 3 : SAR System Check Result

8.2.3 Detailed System Check Results

Please see the Appendix A

9 PD System Verification Procedure

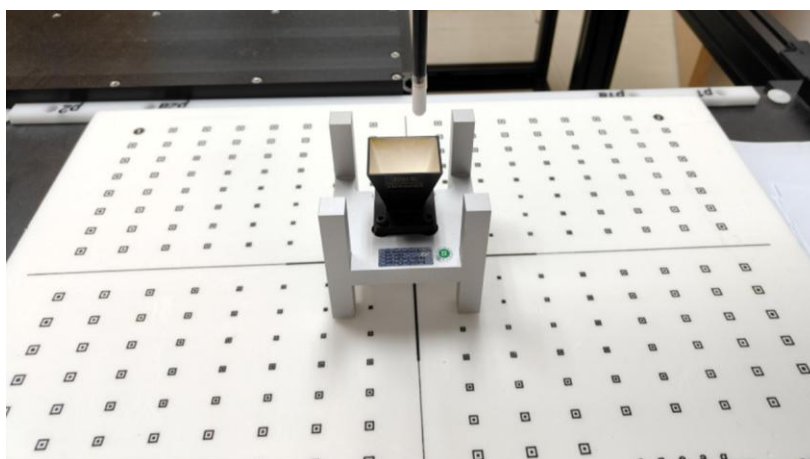
9.1 PD System Check Setting

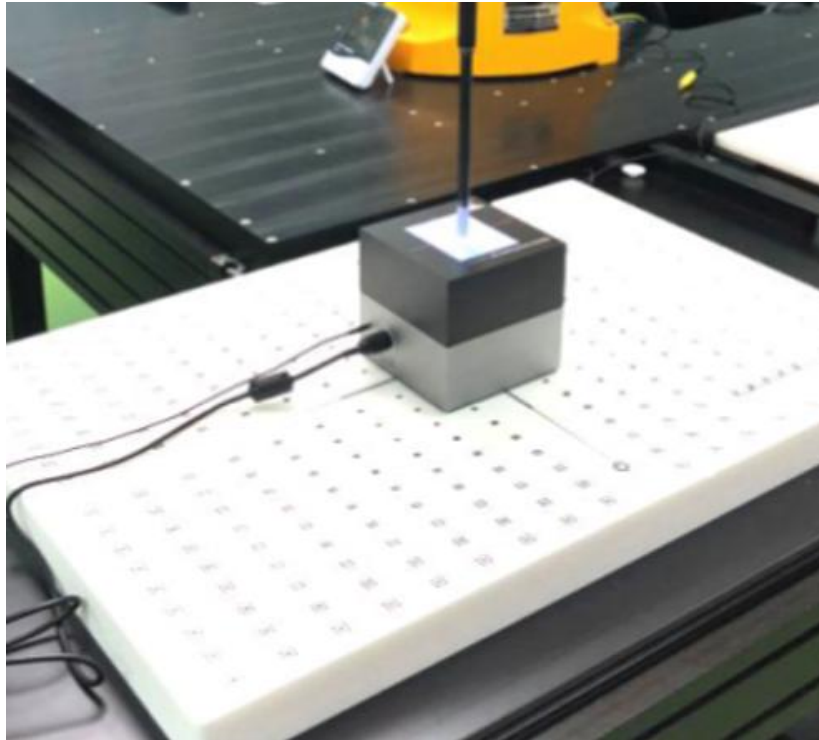
The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user's manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG's mmWave verification sources. The same spatial resolution and measurement region used in the source calibration was applied during the system check.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

Settings for measurement of verification sources

Frequency [GHz]	Grid step	Grid extent X/Y [mm]	Measurement points
10	$0.25 \left(\frac{\lambda}{4}\right)$	120/120	16×16
30	$0.25 \left(\frac{\lambda}{4}\right)$	60/60	24×24
60	$0.25 \left(\frac{\lambda}{4}\right)$	32.5/32.5	26×26
90	$0.25 \left(\frac{\lambda}{4}\right)$	30/30	36×36





System Verification Setup Photo



9.2 PD System Check Results

Frequent	Measured PD W/m ²	Target PD W/m ²	Circular Deviation (Within ±0.66dB)	Test Date
	4cm ²	4cm ²	4cm ²	
10G HZ Source	170.00	183	-0.32	2026/5/31

9.3 Detailed System Check Results

Please see the Appendix A

10 Test Configuration

10.1 Operation Configurations

10.1.1 GSM Test Configuration

SAR tests for GSM frequency band, a communication link is set up with a base station by air link. Using Radio Communication Analyzer, the power level is set to “5” or “0” in SAR of GSM frequency band. The tests in the GSM frequency band are performed in the mode of GPRS/EGPRS function.

SAR test reduction for GPRS and EDGE modes is determined by the source-based time-averaged output power specified for production units. 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, the higher number time-slot configuration should be tested.

When SAR tests for EGPRS mode is necessary, GMSK modulation should be used to minimize SAR measurement error due to higher peak-to-average power (PAR) ratios inherent in 8-PSK.

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

For SAR the time based average power is relevant. The difference in between depends on the duty cycle of the TDMA signal:

No. of timeslots	1	2	3	4
Duty Cycle	1:8.3	1:4.15	1:2.77	1:2.075
Time based avg. power compared to slotted avg. power	-9.19	-6.18	-4.42	-3.17

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).

10.1.2 WCDMA Test Configuration

1) Output Power Verification

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

2) 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. Otherwise, SAR is measured for 12.2 kbps AMR in 3.4 kbps SRB (signaling radio bearer) using the highest reported SAR configuration in 12.2 kbps RMC for head exposure.

3) Body SAR

SAR for body configurations is measured using a 12.2 kbps RMC with TPC bits configured to all “1’s”. The 3G SAR test reduction procedure is applied to other spreading codes and multiple DPDCHn configurations supported by the handset with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured using an applicable RMC configuration with the corresponding spreading code or DPDCHn, for the highest reported body-worn accessory exposure SAR configuration in 12.2 kbps RMC. When more than 2 DPDCHn are supported by the handset, it may be necessary to configure additional DPDCHn using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

4) HSDPA / HSUPA

RMC 12.2kbps setting is used to evaluate SAR. If the maximum output power for production units in HSDPA / HSUPA is $\leq \frac{1}{4}$ dB higher than RMC 12.2Kbps or when the highest measured SAR of the RMC12.2Kbps is scaled by the ratio of specified maximum output power of HSDPA / HSUPA to RMC12.2Kbps and the adjusted SAR is ≤ 1.5 W/kg, SAR measurement is not required for HSDPA / HSUPA.

a) 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 the following table. 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	Bd	β_d (SF)	β_c/β_d	β_{hs}	CM(dB)	MPR (dB)
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

Note1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8$ Ahs = $\beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1.A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 8$ (Ahs=30/15) with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 7$ (Ahs=24/15) with $\beta_{hs} = 24/15 * \beta_c$.

Note3: CM=1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.

Parameter	Value
Nominal average inf. bit rate	534 kbit/s
Inter-TTI Distance	3 TTI"s
Number of HARQ Processes	2 Processes
Information Bit Payload	3202 Bits
MAC-d PDU size	336 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	4800 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	9600 SMLs
Coding Rate	0.67
Number of Physical Channel Codes	5

Table 4 : settings of required H-Set 1 QPSK acc. to 3GPP 34.121

HS-DSCH Category	Maximum HS-DSCH Codes Received	Minimum Inter-TTI Interval	Maximum HS-DSCH Transport Block Bits/HS-DSCH TTI	Total Soft Channel Bits
1	5	3	7298	19200
2	5	3	7298	28800
3	5	2	7298	28800
4	5	2	7298	38400
5	5	1	7298	57600
6	5	1	7298	67200
7	10	1	14411	115200
8	10	1	14411	134400
9	15	1	25251	172800
10	15	1	27952	172800
11	5	2	3630	14400
12	5	1	3630	28800
13	15	1	34800	259200
14	15	1	42196	259200
15	15	1	23370	345600
16	15	1	27952	345600

Table 5 : HSDPA UE category

b) HSUPA

Due to inner loop power control requirements in HSUPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSUPA should be configured according to the values indicated below as well as other applicable procedures described in the WCDMA Handset and Release 5 HSUPA Data Device sections of 3G device.

Sub-test ¹	$\beta_{e,c}$	$\beta_{d,c}$	β_d (SF) ²	β_c/β_d	$\beta_{hs,c}^{(1)}$	$\beta_{acc,c}$	$\beta_{ed,c}$	$\beta_{e,c}^{(1)}$ (SF) ³	$\beta_{ed,c}^{(1)}$ (code) ⁴	CM ⁽²⁾ (dB) ⁵	MP R ⁽¹⁾ (dB) ⁶	AG ⁽⁴⁾ Inde ^x	E-TFC I ⁷
1 ¹	11/15 ⁽³⁾	15/15 ⁽³⁾	64 ²	11/15 ⁽³⁾	22/15 ²	209/225 ²	1039/225 ²	4 ²	1 ²	1.0 ²	0.0 ²	20 ²	75 ²
2 ¹	6/15 ²	15/15 ²	64 ²	6/15 ²	12/15 ²	12/15 ²	94/75 ²	4 ²	1 ²	3.0 ²	2.0 ²	12 ²	67 ²
3 ¹	15/15 ²	9/15 ²	64 ²	15/9 ²	30/15 ²	30/15 ²	$\beta_{ed1}:47/15^{2,4}$ $\beta_{ed2}:47/15^{2,4}$	4 ²	2 ²	2.0 ²	1.0 ²	15 ²	92 ²
4 ¹	2/15 ²	15/15 ²	64 ²	2/15 ²	4/15 ²	2/15 ²	56/75 ²	4 ²	1 ²	3.0 ²	2.0 ²	17 ²	71 ²
5 ¹	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64 ²	15/15 ⁽⁴⁾	30/15 ²	24/15 ²	134/15 ²	4 ²	1 ²	1.0 ²	0.0 ²	21 ²	81 ²
Note 1: ΔACK, $\Delta NACK$ and $\Delta CQI = 8$ $A_{hs} = \beta_{hs}/\beta_e = 30/15$ $\beta_{hs} = 30/15 * \beta_{e,c}$ Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_e = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference² 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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_e = 10/15$ and $\beta_d = 15/15$² 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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_e = 14/15$ and $\beta_d = 15/15$² Note 5 : Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g² Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.²													

Table 6 : Subtests for UMTS Release 6 HSUPA

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Spreading Factor	Maximum E-DCH Transport Block Bits	Max Rate (Mbps)
1	1	4	10	4	7110	0.7296
2	2	8	2	4	2798	1.4592
	2	4	10	4	14484	
3	2	4	10	4	14484	1.4592
4	2	8	2	2	5772	2.9185
	2	4	10	2	20000	2.00
5	2	4	10	2	20000	2.00
6 (No DPDCH)	4	8	10	2SF2&2SF	11484	5.76
	4	4	2	4	20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF	22996	?
	4	4	10	4	20000	?

NOTE: When 4 codes are transmitted in parallel, two codes shall be transmitted with SF2 and two with SF4. UE categories 1 to 6 support QPSK only. UE category 7 supports QPSK and 16QAM.(TS25.306-7.3.0).

Table 7 : HSUPA UE category

c) DC-HSDPA

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

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS 34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

Table E.5.0: Levels for HSDPA connection setup

Parameter During Connection setup	Unit	Value
P-CPICH_Ec/Ior	dB	-10
P-CCPCH and SCH_Ec/Ior	dB	-12
PICH_Ec/Ior	dB	-15
HS-PDSCH	dB	off
HS-SCCH_1	dB	off
DPCH_Ec/Ior	dB	-5
OCNS_Ec/Ior	dB	-3.1

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13.

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

The measurements were performed with a Fixed Reference Channel (FRC) H-Set 12 with QPSK.

Parameter	Value
Nominal average inf. bit rate	60 kbit/s
Inter-TTI Distance	1 TTI's
Number of HARQ Processes	6 Processes
Information Bit Payload	120 Bits
Number Code Blocks	1 Block
Binary Channel Bits Per TTI	960 Bits
Total Available SMLs in UE	19200 SMLs
Number of SMLs per HARQ Process	3200 SMLs
Coding Rate	0.15
Number of Physical Channel Codes	1

Table 8 : settings of required H-Set 12 QPSK acc. To 3GPP 34.121

Note:

1. The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table above.
2. Maximum number of transmission is limited to 1,i.e.,retransmission is not allowed. The redundancy and constellation version 0 shall be used.

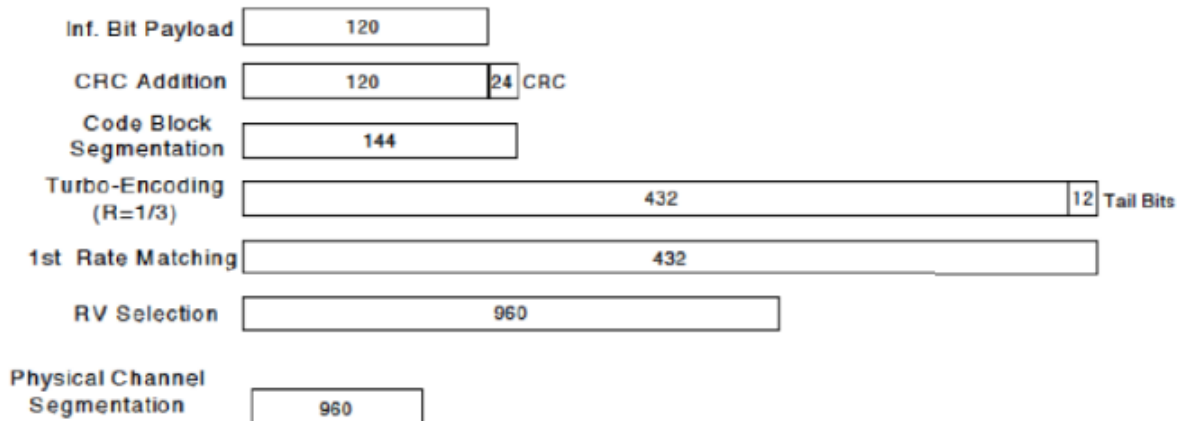


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

The following 4 Sub-tests for HSDPA were completed according to Release 5 procedures. A summary of subtest settings are illustrated below:

Sub-test ^o	β_c ^o	β_d ^o	$\beta_d \cdot (SF)$ ^o	β_c / β_d ^o	$\beta_{hs}(1)$ ^o	CM(dB)(2) ^o	MPR (dB) ^o
1 ^o	2/15 ^o	15/15 ^o	64 ^o	2/15 ^o	4/15 ^o	0.0 ^o	0 ^o
2 ^o	12/15(3) ^o	15/15(3) ^o	64 ^o	12/15(3) ^o	24/15 ^o	1.0 ^o	0 ^o
3 ^o	15/15 ^o	8/15 ^o	64 ^o	15/8 ^o	30/15 ^o	1.5 ^o	0.5 ^o
4 ^o	15/15 ^o	4/15 ^o	64 ^o	15/4 ^o	30/15 ^o	1.5 ^o	0.5 ^o

Note 1: ΔACK , $\Delta NACK$ and $\Delta CQI=8$ $A_{hs}=\beta_{hs}/\beta_c=30/15$ $\beta_{hs}=30/15 \cdot \beta_c$

Note 2: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

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 signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c=11/15$ and $\beta_d=15/15$

Up commands are set continuously to set the UE to Max power.

Note:

1. The Dual Carriers transmission only applies to HSDPA physical channels
2. The Dual Carriers belong to the same Node and are on adjacent carriers.
3. The Dual Carriers do not support MIMO to serve Ues configured for dual cell operation
4. The Dual Carriers operate in the same frequency band.
5. The device doesn't support the modulation of 16QAM in uplink but 64QAM in downlink for DC-HSDPA mode.
6. The device doesn't support carrier aggregation for it just can operate in Release 8.

d) HSPA+

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

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

Sub-test	β_{c+} (Note3)	β_d	β_{HS+} (Note1)	β_{ec+}	β_{ed+} (2xSF2) (Note 4)	β_{ed+} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105
Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. Note 2: CM = 3.5 and the MPR is based on the relative CM difference, $MPR = \text{MAX}(CM-1, 0)$. Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default. Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value. Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.											

5) 3G SAR Test Reduction Procedure

According to KDB 941225D01, in the following 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 $\leq \frac{1}{4}$ 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. This is referred to as the 3G SAR test reduction procedure in the following SAR test guidance, where the primary mode is identified in the applicable wireless mode test procedures and the secondary mode is wireless mode being considered for SAR test reduction by that procedure. When the 3G SAR test reduction procedure is not satisfied, it is identified as “otherwise” in the applicable procedures; SAR measurement is required for the secondary mode.

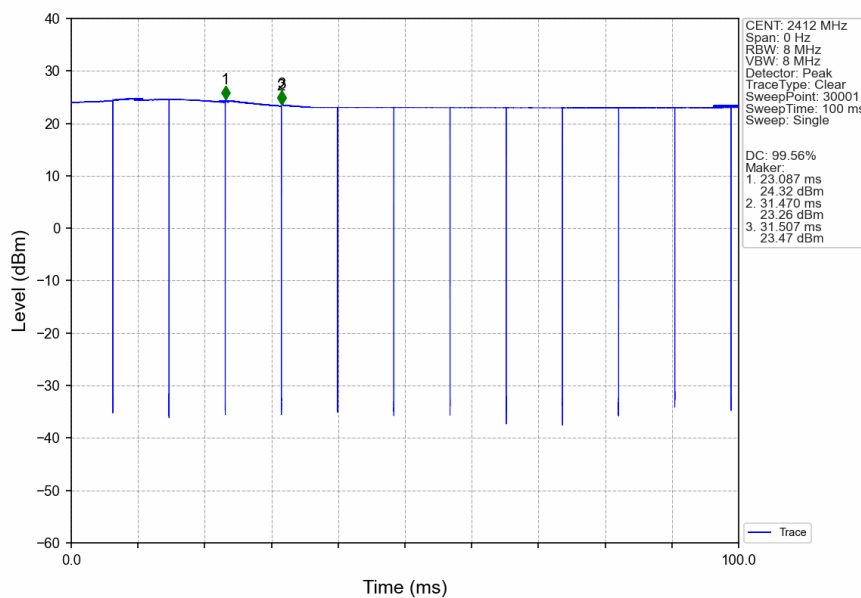
10.1.3 WIFI Test Configuration

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.

10.1.3.1 Duty cycle

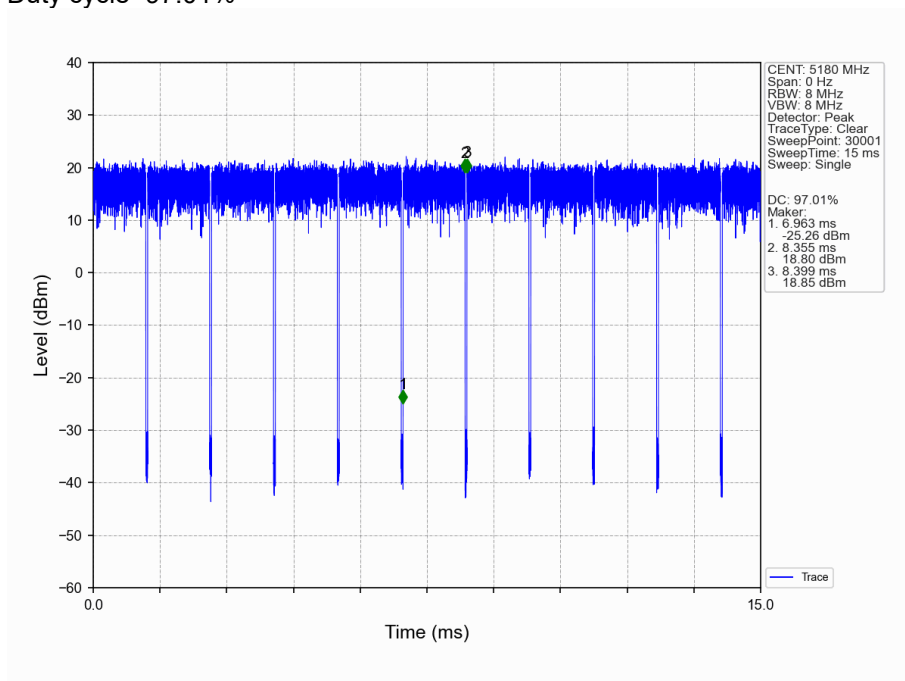
1) Wi-Fi 2.4GHz 802.11b:

Duty cycle=99.56%



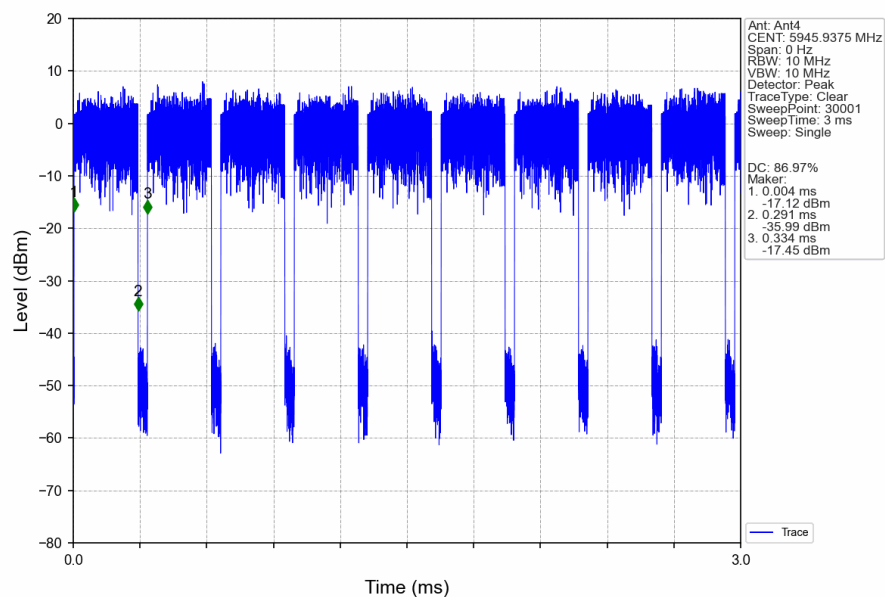
2) Wi-Fi 5GHz 802.11a:

Duty cycle=97.01%



2) Wi-Fi 6E 802.11ax HEW80M:

Duty cycle=86.97%



10.1.3.2 Initial Test Position SAR Test Reduction Procedure

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

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

10.1.3.3 Subsequent Test Configuration Procedures

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. The initial test position procedure is applied to next to the ear, UMPC mini-tablet and hotspot mode configurations. When the same maximum output power is specified for multiple transmission modes, additional power measurements may be required to determine if SAR measurements are required for subsequent highest output power channels in a subsequent test configuration. The subsequent test configuration and SAR measurement procedures are described in the following.

- 1) . When SAR test exclusion provisions of KDB Publication 447498 are applicable and SAR measurement is not required for the initial test configuration, SAR is also not required for the next highest maximum output power transmission mode subsequent test configuration(s) in that frequency band or aggregated band and exposure configuration.
- 2) . When the highest reported SAR for the initial test configuration (when applicable, include subsequent highest output channels), 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.
- 3) . The number of channels in the initial test configuration and subsequent test configuration can be different due to differences in channel bandwidth. When SAR measurement is required for a subsequent test configuration and the channel bandwidth is smaller than that in the initial test configuration, all channels in the subsequent test configuration that overlap with the larger bandwidth channel tested in the initial test configuration should be used to determine the highest maximum output power channel. This step requires additional power measurement to identify the highest maximum output power channel in the subsequent test configuration to determine SAR test reduction.
 - a) SAR should first be measured for the channel with highest measured output power in the subsequent test configuration.
 - b) SAR for subsequent highest measured maximum output power channels in the subsequent test configuration is required only when the reported SAR of the preceding higher maximum output power channel(s) in the subsequent test configuration is > 1.2 W/kg or until all required channels are tested. i) For channels with the same measured maximum output power, SAR should be measured using the channel closest to the center frequency of the larger channel bandwidth channel in the initial test configuration.
- 4) . SAR measurements for the remaining highest specified maximum output power OFDM transmission mode configurations that have not been tested in the initial test configuration (highest maximum output) or subsequent test configuration(s) (subsequent next highest maximum output power) is determined by recursively applying the subsequent test configuration procedures in this section to the remaining configurations according to the following:
 - a) replace "subsequent test configuration" with "next subsequent test configuration" (i.e., subsequent next highest specified maximum output power configuration)
 - b) replace "initial test configuration" with "all tested higher output power configurations"

10.1.3.4 2.4 GHz WiFi SAR Procedures

Separate SAR procedures are applied to DSSS and OFDM configurations in the 2.4 GHz band to simplify DSSS test requirements. For 802.11b DSSS SAR measurements, DSSS SAR procedure applies to fixed exposure test position and initial test position procedure applies to multiple exposure test positions. When SAR measurement is required for an OFDM configuration, the initial test configuration, subsequent test configuration and initial test position procedures are applied. The SAR test exclusion requirements for 802.11g/n OFDM configurations are described in following.

- **802.11b DSSS SAR Test Requirements**

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

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

- **2.4 GHz 802.11g/n OFDM SAR Test Exclusion Requirements**

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

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

- **SAR Test Requirements for OFDM configurations**

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

10.1.3.5 5 GHz WiFi SAR Procedures

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

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

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

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

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

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

OFDM Transmission Mode SAR Test Configuration and Channel Selection Requirements

The initial test configuration for 5 GHz OFDM transmission modes is determined by the 802.11 configuration with the highest maximum output power specified for production units, including tune-up tolerance, in each standalone and aggregated frequency band. SAR for the initial test configuration is measured using the highest maximum output power channel determined by the default power measurement procedures. When multiple configurations in a frequency band have the same specified maximum output power, the initial test configuration is determined according to the following steps applied sequentially.

- 1) The largest channel bandwidth configuration is selected among the multiple configurations with the same specified maximum output power.
- 2) If multiple configurations have the same specified maximum output power and largest channel bandwidth, the lowest order modulation among the largest channel bandwidth configurations is selected.
- 3) If multiple configurations have the same specified maximum output power, largest channel bandwidth and lowest order modulation, the lowest data rate configuration among these configurations is selected.
- 4) When multiple transmission modes (802.11a/g/n/ac) have the same specified maximum output power, largest channel bandwidth, lowest order modulation and lowest data rate, the lowest order 802.11 mode is selected; 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. These channel selection procedures apply to both the initial test configuration and subsequent test configuration(s), with respect to the default power measurement procedures or additional power measurements required for further SAR test reduction. The same procedures also apply to subsequent highest output power channel(s) selection.
 - a) The channel closest to mid-band frequency is selected for SAR measurement.
 - b) 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.

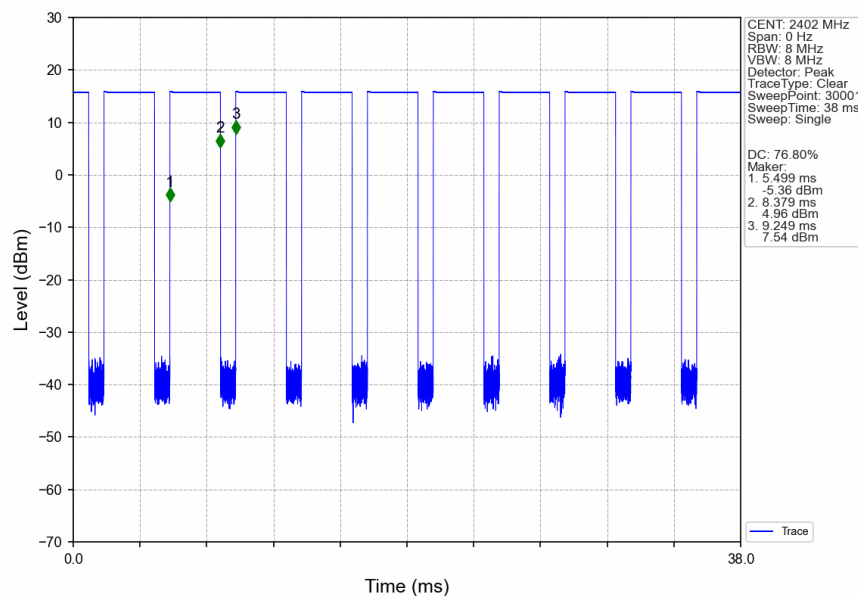
• SAR Test Requirements for OFDM configurations

When SAR measurement is required for 802.11 a/n/ac OFDM configurations, each standalone and frequency aggregated band is considered separately for SAR test reduction. When the same transmitter and antenna(s) are used for U-NII-1 and U-NII-2A bands, additional SAR test reduction applies. When band gap channels between U-NII-2C band and 5.8 GHz U-NII-3 or §15.247 band are supported, the highest maximum output power transmission mode configuration and maximum output power channel across the bands must be used to determine SAR test reduction, according to the initial test configuration and subsequent test configuration requirements. In applying the initial test configuration and subsequent test configuration procedures, the 802.11 transmission configuration with the highest specified maximum output power and the channel within a test configuration with the highest measured maximum output power should be clearly distinguished to apply the procedures.

10.1.4 BT Test Configuration

For the Bluetooth SAR tests, a communication link is set up with the test mode software for BT mode test. Bluetooth USES frequency hopping technology to divide the transmitted data into packets and transmit the packets respectively through 79 designated Bluetooth channels, frequency hops at 1600 hops/second per the Bluetooth standard, the EUT is operated at the RF continuous emission mode.

BT DH5 Duty Cycle=76.80%



10.1.5 LTE Test Configuration

LTE modes were tested according to FCC KDB 941225 D05 publication. Please see notes after the tabulated SAR data for required test configurations. Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR [4]. The Radio Communication Analyzer was used for LTE output power measurements and SAR testing. Max power control was used so the UE transmits with maximum output power during SAR testing. SAR must be measured with the maximum TTI (transmit time interval) supported by the device in each LTE configuration.

TDD LTE test consideration

For Time-Division Duplex (TDD) systems, SAR must be tested using a fixed periodic duty factor according to the highest transmission duty factor implemented for the device and supported by the defined 3GPP LTE TDD configurations.

SAR was tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7.

LTE TDD Band support 3GPP TS 36.211 section 4.2 for Type 2 Frame Structure and Table 4.2-2 for uplink-downlink configurations and Table 4.2-1 for Special subframe configurations.

Frame structure type 2:

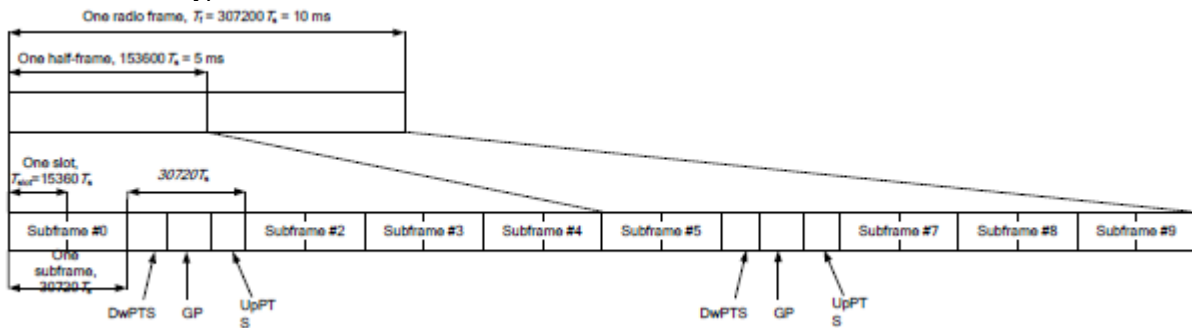


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

Special subframe configuration	Normal cyclic prefix in downlink			Extended cyclic prefix in downlink		
	DwPTS	UpPTS		DwPTS	UpPTS	
		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink		Normal cyclic prefix in uplink	Extended cyclic prefix in uplink
0	6592.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		
5	6592.Ts	4384.Ts	5120.Ts	20480.Ts	4384.Ts	5120.Ts
6	19760.Ts			23040.Ts		
7	21952.Ts			25600.Ts		
8	24144.Ts			-	-	-
9	13168.Ts			-	-	-

Table 4.2-2: Uplink-downlink configurations.

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

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

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

A) Spectrum Plots for RB Configurations

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

B) MPR

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

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

C) A-MPR

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

D) Largest channel bandwidth standalone SAR test requirements

1) QPSK with 1 RB allocation

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

2) QPSK with 50% RB allocation

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

3) QPSK with 100% RB allocation

For QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation in 1) and 2) 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.

4) Higher order modulations

For each modulation besides QPSK; e.g., 16-QAM, 64-QAM, apply the QPSK procedures in above sections to determine the QAM configurations that may need SAR measurement. For each configuration identified as required for testing, SAR is required only when the highest maximum output power for the configuration in the higher order modulation is $> \frac{1}{2}$ dB higher than the same configuration in QPSK or when the reported SAR for the QPSK configuration is > 1.45 W/kg.

E) Other channel bandwidth standalone SAR test requirements

For the other channel bandwidths used by the device in a frequency band, apply all the procedures required for the largest channel bandwidth in section A) to determine the channels and RB configurations that need SAR testing and only measure SAR when the highest maximum output power of a configuration requiring testing in the smaller channel bandwidth is $> \frac{1}{2}$ 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.

F) LTE CA additional specification

The device supports intra-band contiguous and inter-band discontinuous uplink and downlink LTE Carrier Aggregation (CA). When carrier aggregation applies, implementation and measurement details for the following are necessary.

- a) Intra-band carrier aggregation requirements for uplink.
- b) Intra-band and inter-band carrier aggregation requirements for downlink.

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

SAR test procedure for intra-band contiguous UL LTE CA as below:

1)Maximum output power is measured for each UL CA configuration for the required test channels described in KDB 941225 D05

- UL PCC configuration is determined by the required test channel
- SCC and subsequent CCs are added alternatively to either side of the PCC or within the transmission band for channels at the ends of a frequency band.

2)SAR for UL CA is required in each exposure condition and frequency band combination

3)For this device , as the maximum output for Intra-band uplink LTE CA is $\leq$ standalone LTE mode (without CA),

- PCC is configured according to the highest standalone SAR configuration tested.
- SCC and subsequent CCs are configured according to procedures used for power measurement and parameters (BW, RB etc.) similar to that used for the PCC

4)When the reported SAR for UL CA configuration, described above, is > 1.2 W/kg, UL CA SAR is also required for all required test channels (PCC based)

5)UL CA SAR is also required for standalone SAR configurations > 1.2 W/kg when they are scaled to the UL CA power level.

10.1.6 NR Band Test Configuration

1. The general information supported by the NR band is as following table:

Band			n41 PC3	n77 PC3	n77 PC2	n78 PC3	n78 PC2
Modulation	DFT-s-OFDM	PI/2 BPSK	Yes	Yes	Yes	Yes	Yes
		QPSK	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes
		256QAM	Yes	Yes	Yes	Yes	Yes
	CP-OFDM	QPSK	Yes	Yes	Yes	Yes	Yes
		16QAM	Yes	Yes	Yes	Yes	Yes
		64QAM	Yes	Yes	Yes	Yes	Yes
256QAM		Yes	Yes	Yes	Yes	Yes	
Max Duty cycle			100%	100%	100%	100%	100%

Band	SCS	Bandwidth														
		5Mhz	10Mhz	15Mhz	20Mhz	25Mhz	30Mhz	35Mhz	40Mhz	45Mhz	50Mhz	60Mhz	70Mhz	80Mhz	90Mhz	100Mhz
n41	30KHz	N/A	Yes	Yes	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes
n77	30KHz	N/A	Yes	Yes	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes
n78	30KHz	N/A	Yes	Yes	Yes	Yes	Yes	N/A	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes

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 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is $>$ not $\frac{1}{2}$ dB higher than the same configuration in DFT-QPSK and the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.
- b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not $\frac{1}{2}$ dB higher than the same configuration in the largest supported bandwidth.
- c. SAR testing start with the largest SCS and largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.
- d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure
- e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.
- f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not $\frac{1}{2}$ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.
- g. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not $\frac{1}{2}$ 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. MPR

MPR is permanently implemented for this device by the manufacturer. The specific manufacturer target MPR is indicated alongside the SAR results. MPR is enabled for this device, according to 3GPP TS 38.101-1 Section 6.2.2 under Table 6.2.2 -1 and Table 6.2.2 -2.

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	$\leq 3.5^1$	$\leq 1.2^1$	$\leq 0.2^1$
		$\leq 0.5^2$	$\leq 0.5^2$	0 ²
	QPSK	≤ 1		0
	16 QAM	≤ 2		≤ 1
	64 QAM	≤ 2.5		
	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 <i>powerBoosting-pi2BPSK</i> and if the IE <i>powerBoostPi2BPSK</i> 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 <i>powerBoostPi2BPSK</i> 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.				

Table 6.2.2-2 Maximum power reduction (MPR) for power class 2

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

4. For FDD NR Band operation does not have the fixed UL/DL frame structure, but during the transmitting/receiving it can be operated in the slot structure of 100% UL duty cycle, we are proposing the conservative way to evaluate SAR at 100% duty cycle. For the purpose of test NR Band standalone SAR, and also test SAR level at 100% TX duty cycle.

5. For 5G NR Sub6GHz SISO Mode, SAR Test plan as below:

For 5G NR NSA mode with the same UL EN_DC combination but different DL EN_DC combinations, eg: EN-DC configuration: UL DC_7A_n5 (UL two bands) with DL DC_7C_n5 (DL two bands)

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

b) The maximum output power, including tolerance, for the UL EN-DC configuration with DL two or more bands must be $\leq$ the same UL EN-DC configuration with DL two bands only to qualify for the SAR test exclusion.

6. For EN-DC SAR

For EN-DC mode, as the existing SAR test system cannot test the multiple different frequency bands simultaneous Transmission SAR at the same time, we suggest that the conservative “max + max” multi-Tx and SAR scaling method can be used to evaluate the inter-band Uplink EN-DC SAR from standalone SAR test results of each LTE and NR EN-DC component band and the conservative “max + max” multi-Tx method to combine the scaled SAR value from each EN-DC component band as the inter-band Uplink EN-DC SAR. All Simultaneous Transmission Scenarios will be evaluated independently in the final SAR report. When the reported SAR for and EN DC configuration is greater than 1.2 W/kg, EN DC SAR is also required for other NR based test channels. EN DC SAR is also required for standalone NR configurations greater than 1.2 W/kg when scaled to the EN DC power level.

LTE+NR Band operations are possible only with LTE under EN-DC mode and the operations are possible as following table:

Band/Antenna		LTE Band 41
		ANT2
n77	ANT3	
	ANT7	√
n78	ANT3	
	ANT7	√

7. NR MIMO SAR Test

The NR MIMO as below table:

LTE Band/Antenna		NR n77	NR n78
		Ant7	Ant7
NR n77	Ant3	√	
NR n78	Ant3		√

11 Test Result

11.1 DUT Antenna Locations (Back View)

The DUT Antenna Locations can be referred to Appendix D

Note:

- 1) The test device is a smart phone, and the diagonal distance of this device is $\geq 160\text{mm}$ but $\leq 200\text{mm}$, so it is a Phablet per KDB 648474 D04.
- 2) The distance between the antennas and the sides of the EUT show as below table, when the antenna-to-edge distance is greater than 25mm, such position does not need to be SAR tested.

Antenna to edge distance (Front View)						
Antenna	Front Side	Back Side	Left Side	Right Side	Top Side	Bottom Side
ANT0	<25mm	<25mm	<25mm	>25mm	>25mm	<25mm
ANT2	<25mm	<25mm	>25mm	<25mm	>25mm	<25mm
ANT3	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
ANT4	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
ANT5	<25mm	<25mm	>25mm	<25mm	<25mm	>25mm
ANT7	<25mm	<25mm	<25mm	>25mm	>25mm	>25mm

11.2 Measurement of RF Conducted Power

11.2.1 RF Conducted Power reduction specification

This device uses a single fixed level of power reduction through static table look-up for SAR compliance and it is triggered by a single event or operation

- 1) A fixed level power reduction is applied for some frequency bands when hotspot mode becomes active. When the hotspot is disabled, the power value will be recovered.
- 2) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions.
- 3) This device uses the receiver to indicate whether the user is making a voice call in head scenario or not. The selection between head and body power levels is based on the receiver detection mechanism. A fixed level power reduction is applied for some frequency bands when the audio receiver is on.

11.2.2 RF Conducted Power Data

The detailed power data can be referred to Appendix E Conducted RF Output Power.

11.3 Measurement of SAR Data

Note:

- 1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.
- 2) Testing of other required channels within the operating mode of a frequency band is not required when the reported 1-g or 10-g SAR for the mid-band or highest output power channel is:
 - $\leq 0.8\text{W/kg}$ for 1-g or 2.0W/kg for 10-g respectively, when the transmission band is $\leq 100\text{MHz}$.
 - $\leq 0.6\text{ W/kg}$ or 1.5 W/kg , for 1-g or 10-g respectively, when the transmission band is between 100 MHz and 200 MHz.
 - $\leq 0.4\text{ W/kg}$ or 1.0 W/kg , for 1-g or 10-g respectively, when the transmission band is $\geq 200\text{ MHz}$.
- 3) For LTE bands that do not support at least three non-overlapping channels in certain channel bandwidths, test the available non-overlapping channels instead. When a device supports overlapping channel assignment in a channel bandwidth configuration, the middle channel of the group of overlapping channels should be selected for testing; therefore, the requirement for H, M, and L channels may not fully apply.
- 4) The device does not support DTM function.
- 5) For WiFi 5G,U-NII-2A and U-NII-2C band does not support hotspot function.
- 6) For WiFi 6E does not support hotspot function.
- 7) For WiFi SAR test, as the highest reported SAR is smaller than 1.2 W/kg , and the tune-up of the other 802.11 modes are not higher than SAR measurement mode, therefore the adjusted SAR is $\leq 1.2\text{ W/kg}$ for other 802.11 modes, SAR test for the other 802.11 modes are not required. For Product specific 10gSAR the highest reported SAR is smaller than 3.0 W/kg , SAR test for the other 802.11 modes are also not required.
- 8) WIFI 6E SAR is measured by using 6-7GHz parameters per IEC/IEEE 62209-1528:2020.
- 9) NFC is different from the working scenario of WWAN/WIFI(Head/Body-worn/Hotspot) and does not participate in the simultaneous transmission.
- 10) According to TCB workshop (Overlapping LTE Bands): SAR in LTE band 38 is covered by LTE band 41. SAR in NR band 78 is covered by NR band 77. Because the frequency range is similar, the maximum tuning limit is the same, and the channel bandwidth and other operating parameters for the smaller band is fully supported by the larger band.
- 11) The simultaneous transmission is reduced by XdB (the detailed power reduced can be referred to Conducted Power Appendix E), therefore, those SAR of simultaneous transmission mode are scaled based on standalone SAR results.

11.3.1 SAR Result of GSM850

GSM850 SAR Test Record											
Ant 0 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data ECI2											
Left cheek	GPRS 4TS	251/848.8	1:2.075	0.443	0.333	0.04	28.90	30.00	1.288	0.571	22.5
Left tilted	GPRS 4TS	251/848.8	1:2.075	0.244	0.180	-0.18	28.90	30.00	1.288	0.314	22.5
Right cheek	GPRS 4TS	251/848.8	1:2.075	0.264	0.193	-0.14	28.90	30.00	1.288	0.340	22.5
Right tilted	GPRS 4TS	251/848.8	1:2.075	0.143	0.109	-0.14	28.90	30.00	1.288	0.184	22.5
Body worn Test data(Separate 5mm) ECI4											
Front side	GPRS 4TS	251/848.8	1:2.075	0.750	0.400	-0.09	26.05	27.00	1.245	0.934	22.5
Back side	GPRS 4TS	251/848.8	1:2.075	0.916	0.498	0.01	26.05	27.00	1.245	1.140	22.5
Back side Repeated	GPRS 4TS	251/848.8	1:2.075	0.907	0.491	-0.07	26.05	27.00	1.245	1.129	22.5
Front side	GPRS 4TS	128/824.2	1:2.075	0.718	0.380	-0.07	26.00	27.00	1.259	0.904	22.5
Front side	GPRS 4TS	190/836.6	1:2.075	0.707	0.374	-0.15	25.98	27.00	1.265	0.894	22.5
Back side	GPRS 4TS	128/824.2	1:2.075	0.838	0.463	-0.07	26.00	27.00	1.259	1.055	22.5
Back side	GPRS 4TS	190/836.6	1:2.075	0.834	0.453	0.05	25.98	27.00	1.265	1.055	22.5
Hotspot Test data(Separate 5mm) ECI7											
Front side	GPRS 4TS	251/848.8	1:2.075	0.750	0.400	-0.09	26.05	27.00	1.245	0.934	22.5
Back side	GPRS 4TS	251/848.8	1:2.075	0.916	0.498	0.01	26.05	27.00	1.245	1.140	22.5
Left side	GPRS 4TS	251/848.8	1:2.075	0.851	0.452	0.14	26.05	27.00	1.245	1.059	22.5
Bottom side	GPRS 4TS	251/848.8	1:2.075	0.491	0.261	0.09	26.05	27.00	1.245	0.611	22.5
Front side	GPRS 4TS	128/824.2	1:2.075	0.718	0.380	-0.07	26.00	27.00	1.259	0.904	22.5
Front side	GPRS 4TS	190/836.6	1:2.075	0.707	0.374	-0.15	25.98	27.00	1.265	0.894	22.5
Back side	GPRS 4TS	128/824.2	1:2.075	0.838	0.463	-0.07	26.00	27.00	1.259	1.055	22.5
Back side	GPRS 4TS	190/836.6	1:2.075	0.834	0.453	0.05	25.98	27.00	1.265	1.055	22.5
Left side	GPRS 4TS	128/824.2	1:2.075	0.806	0.445	0.04	26.00	27.00	1.259	1.015	22.5
Left side	GPRS 4TS	190/836.6	1:2.075	0.774	0.436	-0.06	25.98	27.00	1.265	0.979	22.5

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3rd Repeated
Back side 5mm	251/848.8	0.916	0.907	1.010	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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

3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

11.3.2 SAR Result of GSM1900

GSM1900 SAR Test Record											
Ant 2 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data ECI2											
Left cheek	GPRS 2TS	810/1909.8	1:4.15	0.148	0.095	-0.10	28.43	30.00	1.435	0.212	22.7
Left tilted	GPRS 2TS	810/1909.8	1:4.15	0.104	0.063	0.03	28.43	30.00	1.435	0.149	22.7
Right cheek	GPRS 2TS	810/1909.8	1:4.15	0.131	0.082	-0.12	28.43	30.00	1.435	0.188	22.7
Right tilted	GPRS 2TS	810/1909.8	1:4.15	0.108	0.066	-0.17	28.43	30.00	1.435	0.155	22.7
Body worn Test data(Separate 5mm) ECI4											
Front side	GPRS 2TS	810/1909.8	1:4.15	0.736	0.381	0.01	24.54	26.00	1.400	1.030	22.7
Back side	GPRS 2TS	810/1909.8	1:4.15	0.699	0.371	-0.03	24.54	26.00	1.400	0.979	22.7
Front side	GPRS 2TS	512/1850.2	1:4.15	0.701	0.364	-0.06	24.34	26.00	1.466	1.028	22.7
Front side	GPRS 2TS	661/1880	1:4.15	0.698	0.356	-0.16	24.46	26.00	1.426	0.995	22.7
Back side	GPRS 2TS	512/1850.2	1:4.15	0.681	0.344	0.05	24.34	26.00	1.466	0.998	22.7
Back side	GPRS 2TS	661/1880	1:4.15	0.668	0.338	0.11	24.46	26.00	1.426	0.953	22.7
Hotspot Test data(Separate 5mm) ECI7											
Front side	GPRS 2TS	810/1909.8	1:4.15	0.736	0.381	0.01	23.23	25.00	1.503	1.106	22.7
Back side	GPRS 2TS	810/1909.8	1:4.15	0.699	0.371	-0.03	23.23	25.00	1.503	1.051	22.7
Right side	GPRS 2TS	810/1909.8	1:4.15	0.338	0.176	-0.04	23.23	25.00	1.503	0.508	22.7
Bottom side	GPRS 2TS	810/1909.8	1:4.15	0.826	0.427	0.09	23.23	25.00	1.503	1.241	22.7
Bottom side Repeated	GPRS 2TS	810/1909.8	1:4.15	0.810	0.417	-0.17	23.23	25.00	1.503	1.217	22.7
Front side	GPRS 2TS	512/1850.2	1:4.15	0.701	0.364	-0.06	23.02	25.00	1.578	1.106	22.7
Front side	GPRS 2TS	661/1880	1:4.15	0.698	0.356	-0.16	23.06	25.00	1.563	1.091	22.7
Back side	GPRS 2TS	512/1850.2	1:4.15	0.681	0.344	0.05	23.02	25.00	1.578	1.075	22.7
Back side	GPRS 2TS	661/1880	1:4.15	0.668	0.338	0.11	23.06	25.00	1.563	1.044	22.7
Bottom side	GPRS 2TS	512/1850.2	1:4.15	0.775	0.396	-0.03	23.02	25.00	1.578	1.223	22.7
Bottom side	GPRS 2TS	661/1880	1:4.15	0.790	0.407	0.11	23.06	25.00	1.563	1.235	22.7
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm) ECI4											
Front side	GPRS 2TS	810/1909.8	1:4.15	2.660	1.010	0.03	24.54	26.00	1.400	1.414	22.7
Back side	GPRS 2TS	810/1909.8	1:4.15	2.410	0.980	0.02	24.54	26.00	1.400	1.372	22.7
Bottom side	GPRS 2TS	810/1909.8	1:4.15	3.040	1.230	0.18	24.54	26.00	1.400	1.722	22.7

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Bottom side 5mm	810/1909.8	0.826	0.810	1.020	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.3 SAR Result of WCDMA Band II

WB2 SAR Test Record											
Ant 2 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data ECI2											
Left cheek	RMC	9400/1880	1:1	0.164	0.100	0.02	22.95	24.00	1.274	0.209	22.7
Left tilted	RMC	9400/1880	1:1	0.145	0.086	-0.05	22.95	24.00	1.274	0.185	22.7
Right cheek	RMC	9400/1880	1:1	0.241	0.156	0.14	22.95	24.00	1.274	0.307	22.7
Right tilted	RMC	9400/1880	1:1	0.127	0.076	0.17	22.95	24.00	1.274	0.162	22.7
Body worn Test data(Separate 5mm) ECI4											
Front side	RMC	9400/1880	1:1	0.603	0.306	0.10	18.41	20.00	1.442	0.870	22.7
Back side	RMC	9400/1880	1:1	0.579	0.310	-0.03	18.41	20.00	1.442	0.835	22.7
Front side	RMC	9262/1852.4	1:1	0.587	0.289	-0.01	18.33	20.00	1.469	0.862	22.7
Front side	RMC	9538/1907.6	1:1	0.582	0.288	0.04	18.30	20.00	1.479	0.861	22.7
Back side	RMC	9262/1852.4	1:1	0.565	0.294	0.01	18.33	20.00	1.469	0.830	22.7
Back side	RMC	9538/1907.6	1:1	0.567	0.275	-0.10	18.30	20.00	1.479	0.839	22.7
Hotspot Test data(Separate 5mm) ECI7											
Front side	RMC	9400/1880	1:1	0.603	0.306	0.10	18.41	20.00	1.442	0.870	22.7
Back side	RMC	9400/1880	1:1	0.579	0.310	-0.03	18.41	20.00	1.442	0.835	22.7
Right side	RMC	9400/1880	1:1	0.340	0.178	-0.03	18.41	20.00	1.442	0.490	22.7
Bottom side	RMC	9400/1880	1:1	0.815	0.431	0.04	18.41	20.00	1.442	1.175	22.7
Bottom side Repeated	RMC	9400/1880	1:1	0.799	0.423	-0.18	18.41	20.00	1.442	1.152	22.7
Front side	RMC	9262/1852.4	1:1	0.587	0.289	-0.01	18.33	20.00	1.469	0.862	22.7
Front side	RMC	9538/1907.6	1:1	0.582	0.288	0.04	18.30	20.00	1.479	0.861	22.7
Back side	RMC	9262/1852.4	1:1	0.565	0.294	0.01	18.33	20.00	1.469	0.830	22.7
Back side	RMC	9538/1907.6	1:1	0.567	0.275	-0.10	18.30	20.00	1.479	0.839	22.7
Bottom side	RMC	9262/1852.4	1:1	0.795	0.425	-0.18	18.33	20.00	1.469	1.168	22.7
Bottom side	RMC	9538/1907.6	1:1	0.788	0.422	-0.16	18.30	20.00	1.479	1.165	22.7

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Bottom side 5mm	9400/1880	0.815	0.799	1.020	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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

3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

11.3.4 SAR Result of WCDMA Band IV

WB4 SAR Test Record											
Ant 2 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data ECI2											
Left cheek	RMC	1513/1752.6	1:1	0.167	0.104	0.01	22.91	24.00	1.285	0.215	22.4
Left tilted	RMC	1513/1752.6	1:1	0.107	0.066	-0.04	22.91	24.00	1.285	0.137	22.4
Right cheek	RMC	1513/1752.6	1:1	0.188	0.125	-0.16	22.91	24.00	1.285	0.242	22.4
Right tilted	RMC	1513/1752.6	1:1	0.115	0.071	0.18	22.91	24.00	1.285	0.148	22.4
Body worn Test data(Separate 5mm) ECI4											
Front side	RMC	1513/1752.6	1:1	0.702	0.361	0.15	19.01	20.50	1.409	0.989	22.4
Back side	RMC	1513/1752.6	1:1	0.652	0.352	-0.16	19.01	20.50	1.409	0.919	22.4
Front side	RMC	1312/1712.4	1:1	0.678	0.344	-0.09	18.92	20.50	1.439	0.976	22.4
Front side	RMC	1412/1732.4	1:1	0.668	0.342	-0.15	18.98	20.50	1.419	0.948	22.4
Back side	RMC	1312/1712.4	1:1	0.627	0.334	0.02	18.92	20.50	1.439	0.902	22.4
Back side	RMC	1412/1732.4	1:1	0.618	0.329	0.17	18.98	20.50	1.419	0.877	22.4
Hotspot Test data(Separate 5mm) ECI7											
Front side	RMC	1513/1752.6	1:1	0.746	0.374	0.06	18.15	19.50	1.365	1.018	22.4
Back side	RMC	1513/1752.6	1:1	0.694	0.374	0.01	18.15	19.50	1.365	0.947	22.4
Right side	RMC	1513/1752.6	1:1	0.252	0.127	-0.09	18.15	19.50	1.365	0.344	22.4
Bottom side	RMC	1513/1752.6	1:1	0.940	0.488	-0.12	18.15	19.50	1.365	1.283	22.4
Bottom side Repeated	RMC	1513/1752.6	1:1	0.929	0.476	0.05	18.15	19.50	1.365	1.268	22.4
Front side	RMC	1312/1712.4	1:1	0.708	0.355	0.02	18.10	19.50	1.380	0.977	22.4
Front side	RMC	1412/1732.4	1:1	0.705	0.345	0.08	18.12	19.50	1.374	0.969	22.4
Back side	RMC	1312/1712.4	1:1	0.669	0.355	0.07	18.10	19.50	1.380	0.923	22.4
Back side	RMC	1412/1732.4	1:1	0.640	0.338	0.09	18.12	19.50	1.374	0.879	22.4
Bottom side	RMC	1312/1712.4	1:1	0.921	0.471	0.00	18.10	19.50	1.380	1.271	22.4
Bottom side	RMC	1412/1732.4	1:1	0.910	0.462	-0.15	18.12	19.50	1.374	1.250	22.4
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm) ECI4											
Front side	RMC	1513/1752.6	1:1	2.210	0.930	0.02	19.01	20.50	1.409	1.310	22.4
Bottom side	RMC	1513/1752.6	1:1	2.790	1.270	0.18	19.01	20.50	1.409	1.789	22.4

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Bottom side 5mm	1513/1752.6	0.940	0.929	1.012	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.5 SAR Result of WCDMA Band V

WB5 SAR Test Record											
Ant 0 Test Record											
Test position	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data ECI2											
Left cheek	RMC	4182/836.4	1:1	0.361	0.285	-0.10	23.07	24.00	1.239	0.447	22.5
Left tilted	RMC	4182/836.4	1:1	0.215	0.157	0.05	23.07	24.00	1.239	0.266	22.5
Right cheek	RMC	4182/836.4	1:1	0.208	0.150	-0.03	23.07	24.00	1.239	0.258	22.5
Right tilted	RMC	4182/836.4	1:1	0.141	0.105	-0.16	23.07	24.00	1.239	0.175	22.5
Body worn Test data(Separate 5mm) ECI4											
Front side	RMC	4182/836.4	1:1	0.693	0.384	0.15	22.03	22.50	1.114	0.772	22.5
Back side	RMC	4182/836.4	1:1	0.933	0.511	-0.03	22.03	22.50	1.114	1.039	22.5
Back side Repeated	RMC	4182/836.4	1:1	0.917	0.501	0.02	22.03	22.50	1.114	1.022	22.5
Back side	RMC	4132/826.4	1:1	0.909	0.502	-0.18	22.00	22.50	1.122	1.020	22.5
Back side	RMC	4233/846.6	1:1	0.903	0.492	0.03	21.98	22.50	1.127	1.018	22.5
Hotspot Test data(Separate 5mm) ECI7											
Front side	RMC	4182/836.4	1:1	0.693	0.384	0.15	22.03	22.50	1.114	0.772	22.5
Back side	RMC	4182/836.4	1:1	0.933	0.511	-0.03	22.03	22.50	1.114	1.039	22.5
Left side	RMC	4182/836.4	1:1	0.722	0.351	0.00	22.03	22.50	1.114	0.804	22.5
Bottom side	RMC	4182/836.4	1:1	0.482	0.246	-0.05	22.03	22.50	1.114	0.537	22.5
Back side	RMC	4132/826.4	1:1	0.909	0.502	-0.18	22.00	22.50	1.122	1.020	22.5
Back side	RMC	4233/846.6	1:1	0.903	0.492	0.03	21.98	22.50	1.127	1.018	22.5

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Back side 5mm	4182/836.4	0.933	0.917	1.017	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.6 SAR Result of LTE Band 2

LTE Band 2 SAR Test Record												
Ant 2 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	20	QPSK 1_50	19100/1900	1:1	0.209	0.126	0.18	22.44	24.00	1.432	0.299	22.7
Left tilted	20	QPSK 1_50	19100/1900	1:1	0.161	0.097	0.09	22.44	24.00	1.432	0.231	22.7
Right cheek	20	QPSK 1_50	19100/1900	1:1	0.296	0.185	-0.01	22.44	24.00	1.432	0.424	22.7
Right tilted	20	QPSK 1_50	19100/1900	1:1	0.146	0.088	-0.08	22.44	24.00	1.432	0.209	22.7
Head Test Data (50%RB) ECI2												
Left cheek	20	QPSK 50_25	19100/1900	1:1	0.157	0.096	-0.05	21.55	23.00	1.396	0.219	22.7
Left tilted	20	QPSK 50_25	19100/1900	1:1	0.129	0.078	0.05	21.55	23.00	1.396	0.180	22.7
Right cheek	20	QPSK 50_25	19100/1900	1:1	0.224	0.138	0.19	21.55	23.00	1.396	0.313	22.7
Right tilted	20	QPSK 50_25	19100/1900	1:1	0.117	0.070	0.13	21.55	23.00	1.396	0.163	22.7
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	20	QPSK 1_50	19100/1900	1:1	0.601	0.313	-0.18	17.53	19.00	1.403	0.843	22.7
Back side	20	QPSK 1_50	19100/1900	1:1	0.550	0.293	-0.16	17.53	19.00	1.403	0.772	22.7
Front side	20	QPSK 1_50	18700/1860	1:1	0.572	0.307	-0.19	17.38	19.00	1.452	0.831	22.7
Front side	20	QPSK 1_50	18900/1880	1:1	0.568	0.304	-0.06	17.30	19.00	1.479	0.840	22.7
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	20	QPSK 50_25	19100/1900	1:1	0.524	0.272	-0.15	17.51	19.00	1.409	0.738	22.7
Back side	20	QPSK 50_25	19100/1900	1:1	0.478	0.254	0.09	17.51	19.00	1.409	0.674	22.7
Body worn Test data (Separate 5mm 100%RB) ECI4												
Front side	20	QPSK 100_0	19100/1900	1:1	0.528	0.281	0.05	17.50	19.00	1.413	0.746	22.7
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	20	QPSK 1_50	19100/1900	1:1	0.791	0.395	0.02	17.20	18.50	1.349	1.067	22.7
Back side	20	QPSK 1_50	19100/1900	1:1	0.774	0.413	-0.11	17.20	18.50	1.349	1.044	22.7
Right side	20	QPSK 1_50	19100/1900	1:1	0.339	0.174	-0.08	17.20	18.50	1.349	0.457	22.7
Bottom side	20	QPSK 1_50	19100/1900	1:1	0.871	0.456	-0.01	17.20	18.50	1.349	1.175	22.7
Bottom side Repeated	20	QPSK 1_50	19100/1900	1:1	0.852	0.451	0.15	17.20	18.50	1.349	1.149	22.7
Front side	20	QPSK 1_50	18700/1860	1:1	0.766	0.379	-0.11	17.06	18.50	1.393	1.067	22.7
Front side	20	QPSK 1_50	18900/1880	1:1	0.759	0.384	-0.17	17.08	18.50	1.387	1.053	22.7
Back side	20	QPSK 1_50	18700/1860	1:1	0.749	0.405	0.03	17.06	18.50	1.393	1.043	22.7
Back side	20	QPSK 1_50	18900/1880	1:1	0.740	0.400	0.04	17.08	18.50	1.387	1.026	22.7
Bottom side	20	QPSK 1_50	18700/1860	1:1	0.821	0.445	0.14	17.06	18.50	1.393	1.144	22.7
Bottom side	20	QPSK 1_50	18900/1880	1:1	0.829	0.440	-0.08	17.08	18.50	1.387	1.150	22.7
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	20	QPSK 50_25	19100/1900	1:1	0.719	0.351	0.07	17.18	18.50	1.355	0.974	22.7
Back side	20	QPSK 50_25	19100/1900	1:1	0.689	0.367	-0.05	17.18	18.50	1.355	0.934	22.7
Left side	20	QPSK 50_25	19100/1900	1:1	0.328	0.161	0.11	17.18	18.50	1.355	0.444	22.7
Right side	20	QPSK 50_25	19100/1900	1:1	0.302	0.154	-0.07	17.18	18.50	1.355	0.409	22.7
Bottom side	20	QPSK 50_25	19100/1900	1:1	0.775	0.406	-0.09	17.18	18.50	1.355	1.050	22.7
Front side	20	QPSK 50_25	18700/1860	1:1	0.758	0.402	-0.06	17.12	18.50	1.374	1.041	22.7
Front side	20	QPSK 50_25	18900/1880	1:1	0.702	0.338	0.02	17.07	18.50	1.390	0.976	22.7
Back side	20	QPSK 50_25	18700/1860	1:1	0.704	0.342	-0.06	17.12	18.50	1.374	0.967	22.7
Back side	20	QPSK 50_25	18900/1880	1:1	0.666	0.360	-0.17	17.07	18.50	1.390	0.926	22.7
Bottom side	20	QPSK 50_25	18700/1860	1:1	0.658	0.355	-0.04	17.12	18.50	1.374	0.904	22.7

Bottom side	20	QPSK 50_25	18900/1880	1:1	0.731	0.396	-0.06	17.07	18.50	1.390	1.016	22.7
Hotspot Test data (Separate 5mm 100%RB) ECI7												
Front side	20	QPSK 100_0	19100/1900	1:1	0.754	0.362	-0.13	17.17	18.50	1.358	1.024	22.7
Back side	20	QPSK 100_0	19100/1900	1:1	0.694	0.372	-0.07	17.17	18.50	1.358	0.942	22.7
Bottom side	20	QPSK 100_0	19100/1900	1:1	0.763	0.398	0.01	17.17	18.50	1.358	1.036	22.7
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) ECI4												
Front side	20	QPSK 1_50	19100/1900	1:1	1.780	0.703	0.09	17.53	19.00	1.403	0.986	22.7
Bottom side	20	QPSK 1_50	19100/1900	1:1	2.300	1.010	0.01	17.53	19.00	1.403	1.417	22.7
Product specific 10g SAR Test data (Separate 0mm 50%RB) ECI4												
Front side	20	QPSK 50_25	19100/1900	1:1	1.610	0.694	0.04	17.51	19.00	1.409	0.978	22.7
Bottom side	20	QPSK 50_25	19100/1900	1:1	2.320	1.010	-0.01	17.51	19.00	1.409	1.423	22.7

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Bottom side 5mm	19100/1900	0.871	0.852	1.022	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg (~ 10% from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.7 SAR Result of LTE Band 4

LTE Band 4 SAR Test Record												
Ant 2 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) EC12												
Left cheek	20	QPSK 1_99	20175/1732.5	1:1	0.196	0.120	0.19	22.41	24.00	1.442	0.283	22.4
Left tilted	20	QPSK 1_99	20175/1732.5	1:1	0.134	0.083	0.13	22.41	24.00	1.442	0.193	22.4
Right cheek	20	QPSK 1_99	20175/1732.5	1:1	0.220	0.149	-0.03	22.41	24.00	1.442	0.317	22.4
Right tilted	20	QPSK 1_99	20175/1732.5	1:1	0.145	0.089	-0.06	22.41	24.00	1.442	0.209	22.4
Head Test Data (50%RB) EC12												
Left cheek	20	QPSK 50_50	20175/1732.5	1:1	0.155	0.095	0.11	21.46	23.00	1.426	0.221	22.4
Left tilted	20	QPSK 50_50	20175/1732.5	1:1	0.107	0.066	-0.19	21.46	23.00	1.426	0.153	22.4
Right cheek	20	QPSK 50_50	20175/1732.5	1:1	0.175	0.109	0.19	21.46	23.00	1.426	0.250	22.4
Right tilted	20	QPSK 50_50	20175/1732.5	1:1	0.116	0.071	0.10	21.46	23.00	1.426	0.165	22.4
Body worn Test data (Separate 5mm 1RB) EC14												
Front side	20	QPSK 1_99	20175/1732.5	1:1	0.620	0.327	-0.11	18.02	19.50	1.406	0.872	22.4
Back side	20	QPSK 1_99	20175/1732.5	1:1	0.550	0.300	-0.08	18.02	19.50	1.406	0.773	22.4
Body worn Test data (Separate 5mm 50%RB) EC14												
Front side	20	QPSK 50_50	20175/1732.5	1:1	0.552	0.290	0.12	18.03	19.50	1.403	0.774	22.4
Back side	20	QPSK 50_50	20175/1732.5	1:1	0.489	0.267	-0.08	18.03	19.50	1.403	0.686	22.4
Body worn Test data (Separate 5mm 100%RB) EC14												
Front side	20	QPSK 100_0	20175/1732.5	1:1	0.572	0.299	-0.17	17.87	19.50	1.455	0.832	22.4
Hotspot Test data (Separate 5mm 1RB) EC17												
Front side	20	QPSK 1_99	20175/1732.5	1:1	0.565	0.277	-0.04	15.16	17.00	1.528	0.863	22.4
Back side	20	QPSK 1_99	20175/1732.5	1:1	0.496	0.267	0.17	15.16	17.00	1.528	0.758	22.4
Right side	20	QPSK 1_99	20175/1732.5	1:1	0.194	0.098	0.16	15.16	17.00	1.528	0.296	22.4
Bottom side	20	QPSK 1_99	20175/1732.5	1:1	0.750	0.389	0.07	15.16	17.00	1.528	1.146	22.4
Hotspot Test data (Separate 5mm 50%RB) EC17												
Front side	20	QPSK 50_50	20175/1732.5	1:1	0.517	0.258	-0.14	15.16	17.00	1.528	0.790	22.4
Back side	20	QPSK 50_50	20175/1732.5	1:1	0.467	0.256	0.03	15.16	17.00	1.528	0.714	22.4
Right side	20	QPSK 50_50	20175/1732.5	1:1	0.181	0.091	0.16	15.16	17.00	1.528	0.277	22.4
Bottom side	20	QPSK 50_50	20175/1732.5	1:1	0.698	0.362	-0.07	15.16	17.00	1.528	1.067	22.4
Hotspot Test data (Separate 5mm 100%RB) EC17												
Front side	20	QPSK 100_0	20175/1732.5	1:1	0.573	0.286	-0.03	15.24	17.00	1.500	0.860	22.4
Bottom side	20	QPSK 100_0	20175/1732.5	1:1	0.743	0.385	0.02	15.24	17.00	1.500	1.115	22.4
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_99	20175/1732.5	1:1	2.430	1.100	0.17	18.02	19.50	1.406	1.547	22.4
Back side	20	QPSK 1_99	20175/1732.5	1:1	2.060	0.897	-0.14	18.02	19.50	1.406	1.261	22.4
Bottom side	20	QPSK 1_99	20175/1732.5	1:1	2.920	1.370	-0.12	18.02	19.50	1.406	1.926	22.4
Product specific 10g SAR Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_50	20175/1732.5	1:1	3.270	1.000	0.08	18.03	19.50	1.403	1.403	22.4
Back side	20	QPSK 50_50	20175/1732.5	1:1	1.910	0.790	0.05	18.03	19.50	1.403	1.108	22.4
Bottom side	20	QPSK 50_50	20175/1732.5	1:1	3.050	1.440	0.06	18.03	19.50	1.403	2.020	22.4

11.3.8 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record												
Ant 0 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	10	QPSK 1_0	20525/836.5	1:1	0.315	0.256	-0.17	22.98	24.00	1.265	0.398	22.5
Left tilted	10	QPSK 1_0	20525/836.5	1:1	0.186	0.135	-0.15	22.98	24.00	1.265	0.235	22.5
Right cheek	10	QPSK 1_0	20525/836.5	1:1	0.183	0.131	0.00	22.98	24.00	1.265	0.231	22.5
Right tilted	10	QPSK 1_0	20525/836.5	1:1	0.122	0.092	-0.02	22.98	24.00	1.265	0.154	22.5
Head Test Data (50%RB) ECI2												
Left cheek	10	QPSK 25_25	20525/836.5	1:1	0.245	0.169	0.12	21.64	23.00	1.368	0.335	22.5
Left tilted	10	QPSK 25_25	20525/836.5	1:1	0.147	0.107	0.17	21.64	23.00	1.368	0.201	22.5
Right cheek	10	QPSK 25_25	20525/836.5	1:1	0.140	0.101	0.03	21.64	23.00	1.368	0.192	22.5
Right tilted	10	QPSK 25_25	20525/836.5	1:1	0.096	0.071	0.00	21.64	23.00	1.368	0.131	22.5
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.509	0.297	0.08	22.98	24.00	1.265	0.644	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.896	0.533	-0.14	22.98	24.00	1.265	1.133	22.5
Back side Repeated	10	QPSK 1_0	20525/836.5	1:1	0.888	0.522	-0.09	22.98	24.00	1.265	1.123	22.5
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	10	QPSK 25_25	20525/836.5	1:1	0.489	0.255	-0.17	21.64	23.00	1.368	0.669	22.5
Back side	10	QPSK 25_25	20525/836.5	1:1	0.755	0.429	0.06	21.64	23.00	1.368	1.033	22.5
Body worn Test data (Separate 5mm 100%RB) ECI4												
Back side	10	QPSK 50_0	20525/836.5	1:1	0.741	0.423	0.13	21.64	23.00	1.368	1.014	22.5
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.509	0.297	0.08	22.98	24.00	1.265	0.644	22.5
Back side	10	QPSK 1_0	20525/836.5	1:1	0.896	0.533	-0.14	22.98	24.00	1.265	1.133	22.5
Left side	10	QPSK 1_0	20525/836.5	1:1	0.617	0.307	-0.19	22.98	24.00	1.265	0.781	22.5
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.588	0.303	0.06	22.98	24.00	1.265	0.744	22.5
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	10	QPSK 25_25	20525/836.5	1:1	0.489	0.255	-0.17	21.64	23.00	1.368	0.669	22.5
Back side	10	QPSK 25_25	20525/836.5	1:1	0.755	0.429	0.06	21.64	23.00	1.368	1.033	22.5
Left side	10	QPSK 25_25	20525/836.5	1:1	0.585	0.267	0.02	21.64	23.00	1.368	0.800	22.5
Bottom side	10	QPSK 25_25	20525/836.5	1:1	0.527	0.235	0.06	21.64	23.00	1.368	0.721	22.5
Hotspot Test data (Separate 5mm 100%RB) ECI7												
Back side	10	QPSK 50_0	20525/836.5	1:1	0.741	0.423	0.13	21.64	23.00	1.368	1.014	22.5

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Back side 5mm	20525/836.5	0.896	0.888	1.009	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.9 SAR Result of LTE Band 12

LTE Band 12 SAR Test Record												
Ant 0 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	10	QPSK 1_0	23095/707.5	1:1	0.238	0.194	-0.03	22.71	24.00	1.346	0.320	22.3
Left tilted	10	QPSK 1_0	23095/707.5	1:1	0.120	0.089	-0.02	22.71	24.00	1.346	0.162	22.3
Right cheek	10	QPSK 1_0	23095/707.5	1:1	0.127	0.093	-0.09	22.71	24.00	1.346	0.171	22.3
Right tilted	10	QPSK 1_0	23095/707.5	1:1	0.076	0.057	-0.18	22.71	24.00	1.346	0.102	22.3
Head Test Data (50%RB) ECI2												
Left cheek	10	QPSK 25_0	23095/707.5	1:1	0.187	0.132	-0.08	21.62	23.00	1.374	0.257	22.3
Left tilted	10	QPSK 25_0	23095/707.5	1:1	0.098	0.072	0.10	21.62	23.00	1.374	0.135	22.3
Right cheek	10	QPSK 25_0	23095/707.5	1:1	0.106	0.078	0.18	21.62	23.00	1.374	0.146	22.3
Right tilted	10	QPSK 25_0	23095/707.5	1:1	0.067	0.050	0.16	21.62	23.00	1.374	0.092	22.3
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.649	0.328	0.00	22.71	24.00	1.346	0.874	22.3
Back side	10	QPSK 1_0	23095/707.5	1:1	0.844	0.469	-0.04	22.71	24.00	1.346	1.136	22.3
Back side Repeated	10	QPSK 1_0	23095/707.5	1:1	0.832	0.461	-0.13	22.71	24.00	1.346	1.120	22.3
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.509	0.268	-0.01	21.62	23.00	1.374	0.699	22.3
Back side	10	QPSK 25_0	23095/707.5	1:1	0.738	0.372	-0.08	21.62	23.00	1.374	1.014	22.3
Body worn Test data (Separate 5mm 100%RB) ECI4												
Front side	10	QPSK 50_0	23095/707.5	1:1	0.519	0.275	0.15	21.60	23.00	1.380	0.716	22.3
Back side	10	QPSK 50_0	23095/707.5	1:1	0.730	0.365	0.10	21.60	23.00	1.380	1.007	22.3
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	10	QPSK 1_0	23095/707.5	1:1	0.649	0.328	0.00	22.71	24.00	1.346	0.874	22.3
Back side	10	QPSK 1_0	23095/707.5	1:1	0.844	0.469	-0.04	22.71	24.00	1.346	1.136	22.3
Left side	10	QPSK 1_0	23095/707.5	1:1	0.650	0.342	0.08	22.71	24.00	1.346	0.875	22.3
Bottom side	10	QPSK 1_0	23095/707.5	1:1	0.428	0.211	-0.11	22.71	24.00	1.346	0.576	22.3
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.509	0.268	-0.01	21.62	23.00	1.374	0.699	22.3
Back side	10	QPSK 25_0	23095/707.5	1:1	0.738	0.372	-0.08	21.62	23.00	1.374	1.014	22.3
Left side	10	QPSK 25_0	23095/707.5	1:1	0.558	0.279	-0.10	21.62	23.00	1.374	0.767	22.3
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.393	0.189	-0.14	21.62	23.00	1.374	0.540	22.3
Hotspot Test data (Separate 5mm 100%RB) ECI7												
Front side	10	QPSK 50_0	23095/707.5	1:1	0.504	0.262	-0.17	21.60	23.00	1.380	0.696	22.3
Back side	10	QPSK 50_0	23095/707.5	1:1	0.730	0.365	-0.09	21.60	23.00	1.380	1.007	22.3
Left side	10	QPSK 50_0	23095/707.5	1:1	0.550	0.274	-0.09	21.60	23.00	1.380	0.759	22.3

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Back side 5mm	23095/707.5	0.844	0.832	1.014	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.10 SAR Result of LTE Band 41

LTE Band 41 SAR Test Record												
Ant 2 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	20	QPSK 1_50	41055/2636.5	1:1.58	0.128	0.068	0.12	22.62	24.00	1.374	0.176	22.6
Left cheek PC2	20	QPSK 1_50	41055/2636.5	1:2.31	0.158	0.063	0.09	25.47	27.00	1.422	0.225	22.6
Left tilted	20	QPSK 1_50	41055/2636.5	1:1.58	0.054	0.029	0.09	22.62	24.00	1.374	0.074	22.6
Right cheek	20	QPSK 1_50	41055/2636.5	1:1.58	0.062	0.033	0.04	22.62	24.00	1.374	0.085	22.6
Right tilted	20	QPSK 1_50	41055/2636.5	1:1.58	0.042	0.013	0.02	22.62	24.00	1.374	0.058	22.6
Left cheek	20	QPSK PCC 1_0	41055/2636.5	1:2.31	0.107	0.052	-0.16	22.24	24.00	1.500	0.161	22.6
		QPSK SCC 1_99	40857/2616.7									
Head Test Data (50%RB) ECI2												
Left cheek	20	QPSK 50_25	40185/2549.5	1:1.58	0.124	0.067	-0.09	21.69	23.00	1.352	0.168	22.6
Left tilted	20	QPSK 50_25	40185/2549.5	1:1.58	0.042	0.013	0.00	21.69	23.00	1.352	0.057	22.6
Right cheek	20	QPSK 50_25	40185/2549.5	1:1.58	0.073	0.039	0.05	21.69	23.00	1.352	0.099	22.6
Right tilted	20	QPSK 50_25	40185/2549.5	1:1.58	0.033	0.016	0.13	21.69	23.00	1.352	0.045	22.6
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	20	QPSK 1_50	41055/2636.5	1:1.58	0.828	0.361	0.02	20.46	21.00	1.132	0.937	22.6
Back side	20	QPSK 1_50	41055/2636.5	1:1.58	0.915	0.420	-0.08	20.46	21.00	1.132	1.036	22.6
Back side PC2	20	QPSK 1_50	41055/2636.5	1:2.31	0.744	0.307	0.19	21.59	23.00	1.384	1.030	22.6
Back side Repeated	20	QPSK 1_50	41055/2636.5	1:1.58	0.906	0.411	-0.18	20.46	21.00	1.132	1.026	22.6
Front side	20	QPSK 1_50	39750/2506	1:1.58	0.818	0.353	0.14	20.30	21.00	1.175	0.961	22.6
Front side	20	QPSK 1_50	40185/2549.5	1:1.58	0.816	0.344	-0.04	20.37	21.00	1.156	0.943	22.6
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.777	0.339	-0.19	20.28	21.00	1.180	0.917	22.6
Front side	20	QPSK 1_50	41490/2680	1:1.58	0.795	0.343	-0.11	20.25	21.00	1.189	0.945	22.6
Back side	20	QPSK 1_50	39750/2506	1:1.58	0.863	0.411	0.14	20.30	21.00	1.175	1.014	22.6
Back side	20	QPSK 1_50	40185/2549.5	1:1.58	0.839	0.405	-0.10	20.37	21.00	1.156	0.970	22.6
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.836	0.395	-0.05	20.28	21.00	1.180	0.986	22.6
Back side	20	QPSK 1_50	41490/2680	1:1.58	0.828	0.393	0.05	20.25	21.00	1.189	0.984	22.6
Back side	20	QPSK PCC 1_0	41055/2636.5	1:1.58	0.693	0.264	-0.17	19.41	21.00	1.442	0.999	22.6
		QPSK SCC 1_99	40857/2616.7									
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	20	QPSK 50_25	40185/2549.5	1:1.58	0.618	0.280	0.11	20.43	21.00	1.140	0.705	22.6
Back side	20	QPSK 50_25	40185/2549.5	1:1.58	0.677	0.302	-0.03	20.43	21.00	1.140	0.772	22.6
Front side	20	QPSK 50_25	39750/2506	1:1.58	0.798	0.345	0.07	20.25	21.00	1.189	0.949	22.6
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.796	0.336	0.17	20.42	21.00	1.143	0.910	22.6
Front side	20	QPSK 50_25	41055/2636.5	1:1.58	0.759	0.331	-0.16	20.37	21.00	1.156	0.877	22.6
Front side	20	QPSK 50_25	41490/2680	1:1.58	0.776	0.335	-0.18	20.32	21.00	1.169	0.907	22.6
Back side	20	QPSK 50_25	39750/2506	1:1.58	0.842	0.401	-0.11	20.25	21.00	1.189	1.001	22.6
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.819	0.395	-0.12	20.42	21.00	1.143	0.936	22.6
Back side	20	QPSK 50_25	41055/2636.5	1:1.58	0.816	0.386	-0.15	20.37	21.00	1.156	0.943	22.6
Back side	20	QPSK 50_25	41490/2680	1:1.58	0.809	0.384	-0.09	20.32	21.00	1.169	0.946	22.6
Body worn Test data (Separate 5mm 100%RB) ECI4												
Front side	20	QPSK 100_0	40185/2549.5	1:1.58	0.636	0.293	-0.06	20.34	21.00	1.164	0.740	22.6
Back side	20	QPSK 100_0	40185/2549.5	1:1.58	0.719	0.319	0.15	20.34	21.00	1.164	0.837	22.6
Hotspot Test data (Separate 5mm 1RB) ECI7												

Front side	20	QPSK 1_50	41055/2636.5	1:1.58	0.618	0.270	0.12	19.58	20.00	1.102	0.681	22.6
Back side	20	QPSK 1_50	41055/2636.5	1:1.58	0.681	0.296	0.18	19.58	20.00	1.102	0.750	22.6
Right side	20	QPSK 1_50	41055/2636.5	1:1.58	0.097	0.047	0.01	19.58	20.00	1.102	0.107	22.6
Bottom side	20	QPSK 1_50	41055/2636.5	1:1.58	1.020	0.454	-0.19	19.58	20.00	1.102	1.124	22.6
Bottom side PC2	20	QPSK 1_50	41055/2636.5	1:2.31	0.838	0.328	0.12	20.80	22.00	1.318	1.104	22.6
Bottom side Repeated	20	QPSK 1_50	41055/2636.5	1:1.58	0.992	0.449	0.01	19.58	20.00	1.102	1.093	22.6
Front side	20	QPSK 1_50	39750/2506	1:1.58	0.624	0.277	0.12	19.43	20.00	1.140	0.711	22.6
Front side	20	QPSK 1_50	40185/2549.5	1:1.58	0.634	0.282	0.10	19.37	20.00	1.156	0.733	22.6
Front side	20	QPSK 1_50	40620/2593	1:1.58	0.616	0.266	-0.01	19.28	20.00	1.180	0.727	22.6
Front side	20	QPSK 1_50	41490/2680	1:1.58	0.644	0.286	0.09	19.21	20.00	1.199	0.772	22.6
Back side	20	QPSK 1_50	39750/2506	1:1.58	0.698	0.310	-0.01	19.43	20.00	1.140	0.796	22.6
Back side	20	QPSK 1_50	40185/2549.5	1:1.58	0.711	0.315	0.04	19.37	20.00	1.156	0.822	22.6
Back side	20	QPSK 1_50	40620/2593	1:1.58	0.689	0.298	-0.08	19.28	20.00	1.180	0.813	22.6
Back side	20	QPSK 1_50	41490/2680	1:1.58	0.722	0.321	0.10	19.21	20.00	1.199	0.866	22.6
Bottom side	20	QPSK 1_50	39750/2506	1:1.58	0.830	0.368	-0.02	19.43	20.00	1.140	0.946	22.6
Bottom side	20	QPSK 1_50	40185/2549.5	1:1.58	0.843	0.375	-0.14	19.37	20.00	1.156	0.975	22.6
Bottom side	20	QPSK 1_50	40620/2593	1:1.58	0.819	0.354	-0.17	19.28	20.00	1.180	0.966	22.6
Bottom side	20	QPSK 1_50	41490/2680	1:1.58	0.857	0.380	-0.03	19.21	20.00	1.199	1.028	22.6
Bottom side	20	QPSK PCC 1_0	41055/2636.5	1:1.58	0.761	0.287	0.02	18.48	20.00	1.419	1.080	22.6
		QPSK SCC 1_99	40857/2616.7									
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	20	QPSK 50_25	40185/2549.5	1:1.58	0.575	0.251	0.10	19.57	20.00	1.104	0.635	22.6
Back side	20	QPSK 50_25	40185/2549.5	1:1.58	0.633	0.276	0.12	19.57	20.00	1.104	0.699	22.6
Right side	20	QPSK 50_25	40185/2549.5	1:1.58	0.090	0.044	0.02	19.57	20.00	1.104	0.099	22.6
Bottom side	20	QPSK 50_25	40185/2549.5	1:1.58	0.780	0.305	-0.13	19.57	20.00	1.104	0.861	22.6
Front side	20	QPSK 50_25	39750/2506	1:1.58	0.580	0.257	0.16	18.96	20.00	1.271	0.737	22.6
Front side	20	QPSK 50_25	40620/2593	1:1.58	0.590	0.262	-0.19	19.22	20.00	1.197	0.706	22.6
Front side	20	QPSK 50_25	41055/2636.5	1:1.58	0.573	0.248	0.14	19.55	20.00	1.109	0.635	22.6
Front side	20	QPSK 50_25	41490/2680	1:1.58	0.599	0.265	0.06	19.20	20.00	1.202	0.720	22.6
Back side	20	QPSK 50_25	39750/2506	1:1.58	0.649	0.289	-0.03	18.96	20.00	1.271	0.825	22.6
Back side	20	QPSK 50_25	40620/2593	1:1.58	0.661	0.293	-0.09	19.22	20.00	1.197	0.791	22.6
Back side	20	QPSK 50_25	41055/2636.5	1:1.58	0.641	0.278	0.16	19.55	20.00	1.109	0.711	22.6
Back side	20	QPSK 50_25	41490/2680	1:1.58	0.672	0.298	-0.03	19.20	20.00	1.202	0.808	22.6
Bottom side	20	QPSK 50_25	39750/2506	1:1.58	0.772	0.342	-0.02	18.96	20.00	1.271	0.981	22.6
Bottom side	20	QPSK 50_25	40620/2593	1:1.58	0.784	0.348	0.12	19.22	20.00	1.197	0.938	22.6
Bottom side	20	QPSK 50_25	41055/2636.5	1:1.58	0.762	0.330	-0.05	19.55	20.00	1.109	0.845	22.6
Bottom side	20	QPSK 50_25	41490/2680	1:1.58	0.780	0.346	0.04	19.20	20.00	1.202	0.938	22.6
Hotspot Test data (Separate 5mm 100%RB) ECI7												
Bottom side	20	QPSK 100_0	40185/2549.5	1:1.58	0.748	0.284	0.16	19.43	20.00	1.140	0.853	22.6
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) ECI4												
Bottom side	20	QPSK 1_50	41055/2636.5	1:1.58	4.100	1.420	-0.02	20.46	21.00	1.132	1.607	22.6
Bottom side PC2	20	QPSK 1_50	41055/2636.5	1:2.31	3.510	1.150	-0.10	21.59	23.00	1.384	1.592	22.6
Bottom side	20	QPSK PCC 1_0	41055/2636.5	1:1.58	3.670	1.140	0.07	19.41	20.00	1.146	1.306	22.6
		QPSK SCC 1_99	40857/2616.7									
Product specific 10g SAR Test data (Separate 0mm 50%RB) ECI4												
Bottom side	20	QPSK 50_25	40185/2549.5	1:1.58	4.000	1.400	0.12	20.43	21.00	1.140	1.596	22.6

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Back side 5mm	41055/2636.5	0.915	0.906	1.010	N/A	N/A
Bottom side 5mm	41055/2636.5	1.020	0.992	1.028	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.11 SAR Result of LTE Band 42

LTE Band 42 SAR Test Record												
Ant 7 Test Record												
Test position	BW.	Test mode	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	20	QPSK 1_0	43490/3590	1:1.58	0.363	0.149	-0.17	13.04	14.50	1.400	0.508	22.2
Left tilted	20	QPSK 1_0	43490/3590	1:1.58	0.079	0.035	0.18	13.04	14.50	1.400	0.111	22.2
Right cheek	20	QPSK 1_0	43490/3590	1:1.58	0.565	0.224	0.08	13.04	14.50	1.400	0.791	22.2
Right tilted	20	QPSK 1_0	43490/3590	1:1.58	0.217	0.088	-0.15	13.04	14.50	1.400	0.304	22.2
Right cheek	20	QPSK 1_0	41690/3410	1:1.58	0.548	0.207	-0.15	12.93	14.50	1.435	0.786	22.2
Right cheek	20	QPSK 1_0	42590/3500	1:1.58	0.527	0.201	-0.06	13.01	14.50	1.409	0.743	22.2
Right cheek	20	QPSK PCC 1_0	43490/3590	1:1.58	0.504	0.196	0.18	13.16	14.50	1.361	0.686	22.2
		QPSK SCC 1_99	43292/3570.2									
Head Test Data (50%RB) ECI2												
Left cheek	20	QPSK 50_50	41690/3410	1:1.58	0.284	0.117	-0.01	13.08	14.50	1.387	0.394	22.2
Left tilted	20	QPSK 50_50	41690/3410	1:1.58	0.062	0.028	-0.17	13.08	14.50	1.387	0.086	22.2
Right cheek	20	QPSK 50_50	41690/3410	1:1.58	0.435	0.194	-0.03	13.08	14.50	1.387	0.603	22.2
Right tilted	20	QPSK 50_50	41690/3410	1:1.58	0.169	0.068	-0.14	13.08	14.50	1.387	0.234	22.2
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	20	QPSK 1_0	43490/3590	1:1.58	0.487	0.194	-0.05	16.55	18.00	1.396	0.680	22.2
Back side	20	QPSK 1_0	42590/3500	1:1.58	0.505	0.211	-0.04	16.55	18.00	1.396	0.705	22.2
Back side	20	QPSK PCC 1_99	42590/3500	1:1.58	0.447	0.179	0.01	16.58	18.00	1.387	0.620	22.2
		QPSK SCC 1_0	42788/3519.8									
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	20	QPSK 50_50	41690/3410	1:1.58	0.370	0.170	0.06	16.57	18.00	1.390	0.514	22.2
Back side	20	QPSK 50_50	41690/3410	1:1.58	0.402	0.166	-0.03	16.57	18.00	1.390	0.559	22.2
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	20	QPSK 1_0	43490/3590	1:1.58	0.297	0.119	0.07	15.09	16.50	1.384	0.411	22.2
Back side	20	QPSK 1_0	43490/3590	1:1.58	0.309	0.132	0.01	15.09	16.50	1.384	0.428	22.2
Left side	20	QPSK 1_0	43490/3590	1:1.58	0.083	0.034	0.05	15.09	16.50	1.384	0.115	22.2
Top side	20	QPSK 1_0	43490/3590	1:1.58	0.012	0.003	-0.06	15.09	16.50	1.384	0.017	22.2
Back side	20	QPSK PCC 1_0	43490/3590	1:1.58	0.256	0.101	0.03	15.17	16.50	1.358	0.348	22.2
		QPSK SCC 1_99	43292/3570.2									
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	20	QPSK 50_50	41690/3410	1:1.58	0.214	0.088	0.06	15.06	16.50	1.393	0.298	22.2
Back side	20	QPSK 50_50	41690/3410	1:1.58	0.236	0.093	-0.14	15.06	16.50	1.393	0.329	22.2
Left side	20	QPSK 50_50	41690/3410	1:1.58	0.066	0.026	-0.13	15.06	16.50	1.393	0.092	22.2
Top side	20	QPSK 50_50	41690/3410	1:1.58	0.014	0.004	-0.18	15.06	16.50	1.393	0.020	22.2

11.3.12 SAR Result of NR Band n41

SA N41 SAR Test Record												
Ant2 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) EC12												
Left cheek	100	QPSK 1_1	518598/2592.99	100%	0.078	0.044	0.03	22.80	24.00	1.318	0.103	22.6
Left tilted	100	QPSK 1_1	518598/2592.99	100%	0.043	0.023	0.10	22.80	24.00	1.318	0.057	22.6
Right cheek	100	QPSK 1_1	518598/2592.99	100%	0.142	0.074	0.06	22.80	24.00	1.318	0.187	22.6
Right tilted	100	QPSK 1_1	518598/2592.99	100%	0.025	0.013	0.04	22.80	24.00	1.318	0.033	22.6
Head Test Data (50%RB) EC12												
Left cheek	100	QPSK 135_69	518598/2592.99	100%	0.071	0.041	-0.10	22.83	24.00	1.309	0.093	22.6
Left tilted	100	QPSK 135_69	518598/2592.99	100%	0.047	0.025	0.16	22.83	24.00	1.309	0.062	22.6
Right cheek	100	QPSK 135_69	518598/2592.99	100%	0.120	0.063	0.17	22.83	24.00	1.309	0.157	22.6
Right tilted	100	QPSK 135_69	518598/2592.99	100%	0.034	0.018	-0.07	22.83	24.00	1.309	0.045	22.6
Body worn Test data (Separate 5mm 1RB) EC14												
Front side	100	QPSK 1_1	518598/2592.99	100%	0.599	0.286	0.04	17.39	18.50	1.291	0.773	22.6
Back side	100	QPSK 1_1	518598/2592.99	100%	0.701	0.309	-0.14	17.39	18.50	1.291	0.905	22.6
Body worn Test data (Separate 5mm 50%RB) EC14												
Front side	100	QPSK 135_69	518598/2592.99	100%	0.654	0.293	-0.10	17.37	18.50	1.297	0.848	22.6
Back side	100	QPSK 135_69	518598/2592.99	100%	0.783	0.348	-0.10	17.37	18.50	1.297	1.016	22.6
Body worn Test data (Separate 5mm 100%RB) EC14												
Front side	100	QPSK 270_0	518598/2592.99	100%	0.493	0.219	0.08	16.40	17.50	1.288	0.635	22.6
Back side	100	QPSK 270_0	518598/2592.99	100%	0.528	0.243	0.11	16.40	17.50	1.288	0.680	22.6
Hotspot Test data (Separate 5mm 1RB) EC17												
Front side	100	QPSK 1_1	518598/2592.99	100%	0.441	0.210	-0.03	16.39	17.50	1.291	0.569	22.6
Back side	100	QPSK 1_1	518598/2592.99	100%	0.517	0.228	-0.04	16.39	17.50	1.291	0.667	22.6
Right side	100	QPSK 1_1	518598/2592.99	100%	0.119	0.057	0.09	16.39	17.50	1.291	0.154	22.6
Bottom side	100	QPSK 1_1	518598/2592.99	100%	0.886	0.407	0.09	16.39	17.50	1.291	1.144	22.6
Bottom side Repeated	100	QPSK 1_1	518598/2592.99	100%	0.868	0.390	-0.18	16.39	17.50	1.291	1.121	22.6
Hotspot Test data (Separate 5mm 50%RB) EC17												
Front side	100	QPSK 135_69	518598/2592.99	100%	0.481	0.215	-0.16	16.39	17.50	1.291	0.621	22.6
Back side	100	QPSK 135_69	518598/2592.99	100%	0.576	0.251	-0.19	16.39	17.50	1.291	0.744	22.6
Right side	100	QPSK 135_69	518598/2592.99	100%	0.110	0.054	-0.12	16.39	17.50	1.291	0.142	22.6
Bottom side	100	QPSK 135_69	518598/2592.99	100%	0.837	0.388	-0.07	16.39	17.50	1.291	1.081	22.6
Hotspot Test data (Separate 5mm 100%RB) EC17												
Bottom side	100	QPSK 270_0	518598/2592.99	100%	0.621	0.265	-0.17	15.40	16.50	1.288	0.800	22.6
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) EC14												
Bottom side	100	QPSK 1_1	518598/2592.99	100%	4.630	1.610	-0.18	17.39	18.50	1.291	2.079	22.6
Product specific 10g SAR Test data (Separate 0mm 50%RB) EC14												
Bottom side	100	QPSK 135_69	518598/2592.99	100%	4.450	1.460	0.02	17.37	18.50	1.297	1.894	22.6
Product specific 10g SAR Test data (Separate 0mm 100%RB) EC14												
Bottom side	100	QPSK 270_0	518598/2592.99	100%	3.280	1.050	0.04	16.40	17.50	1.288	1.352	22.6

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Bottom side 5mm	518598/2592.99	0.886	0.868	1.021	N/A	N/A
Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.						
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).						
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .						
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg						
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.						

11.3.13 SAR Result of NR Band n77 (3450-3550)

SA N77 SAR Test Record												
Ant3 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	100	QPSK 1_137	633334/3500	100%	0.273	0.117	-0.08	12.67	13.50	1.211	0.331	22.2
Left tilted	100	QPSK 1_137	633334/3500	100%	0.198	0.080	-0.16	12.67	13.50	1.211	0.240	22.2
Right cheek	100	QPSK 1_137	633334/3500	100%	0.153	0.065	-0.05	12.67	13.50	1.211	0.185	22.2
Right tilted	100	QPSK 1_137	633334/3500	100%	0.142	0.059	-0.06	12.67	13.50	1.211	0.172	22.2
Head Test Data (50%RB) ECI2												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.337	0.140	-0.18	12.61	13.50	1.227	0.413	22.2
Left tilted	100	QPSK 135_69	633334/3500	100%	0.160	0.067	0.19	12.61	13.50	1.227	0.196	22.2
Right cheek	100	QPSK 135_69	633334/3500	100%	0.117	0.051	-0.18	12.61	13.50	1.227	0.144	22.2
Right tilted	100	QPSK 135_69	633334/3500	100%	0.110	0.045	0.02	12.61	13.50	1.227	0.135	22.2
Head Evaluate Data (1RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 1_137	633334/3500	100%	0.273	0.117	-0.07	12.67	10.50	0.607	0.166	22.2
Left tilted	100	QPSK 1_137	633334/3500	100%	0.198	0.080	-0.19	12.67	10.50	0.607	0.120	22.2
Right cheek	100	QPSK 1_137	633334/3500	100%	0.153	0.065	-0.02	12.67	10.50	0.607	0.093	22.2
Right tilted	100	QPSK 1_137	633334/3500	100%	0.142	0.059	0.08	12.67	10.50	0.607	0.086	22.2
Head Evaluate Data (50%RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.337	0.140	-0.14	12.61	10.50	0.615	0.207	22.2
Left tilted	100	QPSK 135_69	633334/3500	100%	0.160	0.067	0.00	12.61	10.50	0.615	0.098	22.2
Right cheek	100	QPSK 135_69	633334/3500	100%	0.117	0.051	-0.03	12.61	10.50	0.615	0.072	22.2
Right tilted	100	QPSK 135_69	633334/3500	100%	0.110	0.045	-0.05	12.61	10.50	0.615	0.068	22.2
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	100	QPSK 1_137	633334/3500	100%	0.385	0.146	0.01	16.63	17.50	1.222	0.470	22.2
Back side	100	QPSK 1_137	633334/3500	100%	0.244	0.095	0.00	16.63	17.50	1.222	0.298	22.2
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	100	QPSK 135_69	633334/3500	100%	0.370	0.142	-0.07	16.56	17.50	1.242	0.460	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.425	0.174	-0.03	16.56	17.50	1.242	0.528	22.2
Body worn Evaluate data (Separate 5mm 1RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 1_137	633334/3500	100%	0.385	0.146	0.04	16.63	14.50	0.612	0.236	22.2
Back side	100	QPSK 1_137	633334/3500	100%	0.244	0.095	0.05	16.63	14.50	0.612	0.149	22.2
Body worn Evaluate data (Separate 5mm 50%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	633334/3500	100%	0.370	0.142	0.18	16.56	14.50	0.622	0.230	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.425	0.174	0.12	16.56	14.50	0.622	0.264	22.2
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	100	QPSK 1_137	633334/3500	100%	0.225	0.225	0.09	14.73	15.50	1.194	0.269	22.2
Back side	100	QPSK 1_137	633334/3500	100%	0.143	0.143	-0.17	14.73	15.50	1.194	0.171	22.2
Right side	100	QPSK 1_137	633334/3500	100%	0.058	0.058	-0.06	14.73	15.50	1.194	0.069	22.2
Top side	100	QPSK 1_137	633334/3500	100%	0.212	0.212	-0.03	14.73	15.50	1.194	0.253	22.2
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	100	QPSK 135_69	633334/3500	100%	0.224	0.224	0.12	14.72	15.50	1.197	0.268	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.240	0.240	-0.01	14.72	15.50	1.197	0.287	22.2
Right side	100	QPSK 135_69	633334/3500	100%	0.058	0.058	0.05	14.72	15.50	1.197	0.069	22.2
Top side	100	QPSK 135_69	633334/3500	100%	0.217	0.217	0.03	14.72	15.50	1.197	0.260	22.2
Hotspot Evaluate data (Separate 5mm 1RB) ECI7 with ENDC&UL_MIMO												

Front side	100	QPSK 1_137	633334/3500	100%	0.225	0.225	-0.02	14.73	12.50	0.598	0.135	22.2
Back side	100	QPSK 1_137	633334/3500	100%	0.143	0.143	0.12	14.73	12.50	0.598	0.086	22.2
Right side	100	QPSK 1_137	633334/3500	100%	0.058	0.058	-0.02	14.73	12.50	0.598	0.035	22.2
Top side	100	QPSK 1_137	633334/3500	100%	0.212	0.212	-0.07	14.73	12.50	0.598	0.127	22.2
Hotspot Evaluate data (Separate 5mm 50%RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	633334/3500	100%	0.224	0.224	0.04	14.72	12.50	0.600	0.134	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.240	0.240	-0.07	14.72	12.50	0.600	0.144	22.2
Right side	100	QPSK 135_69	633334/3500	100%	0.058	0.058	-0.09	14.72	12.50	0.600	0.035	22.2
Top side	100	QPSK 135_69	633334/3500	100%	0.217	0.217	0.02	14.72	12.50	0.600	0.130	22.2
Ant7 Test Record												
Test position	BW	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	100	QPSK 1_271	633334/3500	100%	0.391	0.161	0.10	12.59	13.50	1.233	0.482	22.2
Left tilted	100	QPSK 1_271	633334/3500	100%	0.086	0.037	0.08	12.59	13.50	1.233	0.106	22.2
Right cheek	100	QPSK 1_271	633334/3500	100%	0.600	0.268	-0.07	12.59	13.50	1.233	0.740	22.2
Right tilted	100	QPSK 1_271	633334/3500	100%	0.233	0.094	0.09	12.59	13.50	1.233	0.287	22.2
Head Test Data (50%RB) ECI2												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.304	0.129	0.16	12.62	13.50	1.225	0.372	22.2
Left tilted	100	QPSK 135_69	633334/3500	100%	0.090	0.039	0.12	12.62	13.50	1.225	0.110	22.2
Right cheek	100	QPSK 135_69	633334/3500	100%	0.646	0.292	0.01	12.62	13.50	1.225	0.791	22.2
Right tilted	100	QPSK 135_69	633334/3500	100%	0.277	0.109	-0.17	12.62	13.50	1.225	0.339	22.2
Head Evaluate Data (1RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 1_271	633334/3500	100%	0.391	0.161	0.17	12.59	10.50	0.618	0.242	22.2
Left tilted	100	QPSK 1_271	633334/3500	100%	0.086	0.037	0.17	12.59	10.50	0.618	0.053	22.2
Right cheek	100	QPSK 1_271	633334/3500	100%	0.600	0.268	0.15	12.59	10.50	0.618	0.371	22.2
Right tilted	100	QPSK 1_271	633334/3500	100%	0.233	0.094	0.11	12.59	10.50	0.618	0.144	22.2
Head Evaluate Data (50%RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 135_69	633334/3500	100%	0.304	0.129	-0.07	12.62	10.50	0.614	0.187	22.2
Left tilted	100	QPSK 135_69	633334/3500	100%	0.090	0.039	-0.07	12.62	10.50	0.614	0.055	22.2
Right cheek	100	QPSK 135_69	633334/3500	100%	0.646	0.292	0.12	12.62	10.50	0.614	0.397	22.2
Right tilted	100	QPSK 135_69	633334/3500	100%	0.277	0.109	-0.12	12.62	10.50	0.614	0.170	22.2
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	100	QPSK 1_271	633334/3500	100%	0.571	0.257	0.09	17.60	18.50	1.230	0.702	22.2
Back side	100	QPSK 1_271	633334/3500	100%	0.627	0.246	-0.15	17.60	18.50	1.230	0.771	22.2
Body worn Test data (Separate 5mm 50%RB)												
Front side	100	QPSK 135_69	633334/3500	100%	0.605	0.248	-0.06	17.57	18.50	1.239	0.750	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.641	0.262	0.15	17.57	18.50	1.239	0.794	22.2
Body worn Evaluate data (Separate 5mm 1RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 1_271	633334/3500	100%	0.571	0.257	0.05	17.60	15.50	0.617	0.352	22.2
Back side	100	QPSK 1_271	633334/3500	100%	0.627	0.246	-0.11	17.60	15.50	0.617	0.387	22.2
Body worn Evaluate data (Separate 5mm 50%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	633334/3500	100%	0.605	0.248	-0.17	17.57	15.50	0.621	0.376	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.641	0.262	-0.09	17.57	15.50	0.621	0.398	22.2
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	100	QPSK 1_271	633334/3500	100%	0.204	0.092	-0.08	13.09	14.00	1.233	0.252	22.2
Back side	100	QPSK 1_271	633334/3500	100%	0.224	0.089	0.05	13.09	14.00	1.233	0.276	22.2
Left side	100	QPSK 1_271	633334/3500	100%	0.338	0.130	-0.06	13.09	14.00	1.233	0.417	22.2
Hotspot Test data (Separate 5mm 50%RB) ECI7												

Front side	100	QPSK 135_69	633334/3500	100%	0.230	0.105	-0.18	13.07	14.00	1.239	0.285	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.241	0.102	0.13	13.07	14.00	1.239	0.299	22.2
Left side	100	QPSK 135_69	633334/3500	100%	0.331	0.128	-0.16	13.07	14.00	1.239	0.410	22.2
Hotspot Evaluate data (Separate 5mm 1RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 1_271	633334/3500	100%	0.204	0.092	-0.08	13.09	11.00	0.618	0.126	22.2
Back side	100	QPSK 1_271	633334/3500	100%	0.224	0.089	-0.12	13.09	11.00	0.618	0.138	22.2
Left side	100	QPSK 1_271	633334/3500	100%	0.338	0.130	0.09	13.09	11.00	0.618	0.209	22.2
Hotspot Evaluate data (Separate 5mm 50%RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	633334/3500	100%	0.230	0.105	-0.17	13.07	11.00	0.621	0.143	22.2
Back side	100	QPSK 135_69	633334/3500	100%	0.241	0.102	0.05	13.07	11.00	0.621	0.150	22.2
Left side	100	QPSK 135_69	633334/3500	100%	0.331	0.128	0.11	13.07	11.00	0.621	0.206	22.2

11.3.14 SAR Result of NR Band n77 (3700-3980)

SA N77 SAR Test Record												
Ant3 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	100	QPSK 1_271	657200/3858	100%	0.428	0.172	0.01	12.56	13.50	1.242	0.532	22.2
Left tilted	100	QPSK 1_271	657200/3858	100%	0.228	0.096	0.09	12.56	13.50	1.242	0.283	22.2
Right cheek	100	QPSK 1_271	657200/3858	100%	0.174	0.075	0.02	12.56	13.50	1.242	0.216	22.2
Right tilted	100	QPSK 1_271	657200/3858	100%	0.143	0.060	-0.02	12.56	13.50	1.242	0.178	22.2
Left cheek	100	QPSK 1_271	657200/3858	100%	0.413	0.168	-0.01	12.55	13.50	1.245	0.514	22.2
Head Test Data (50%RB) ECI2												
Left cheek	100	QPSK 135_69	657200/3858	100%	0.490	0.193	0.16	12.51	13.50	1.256	0.615	22.2
Left tilted	100	QPSK 135_69	657200/3858	100%	0.263	0.108	0.16	12.51	13.50	1.256	0.330	22.2
Right cheek	100	QPSK 135_69	657200/3858	100%	0.205	0.085	-0.19	12.51	13.50	1.256	0.257	22.2
Right tilted	100	QPSK 135_69	657200/3858	100%	0.121	0.055	0.06	12.51	13.50	1.256	0.152	22.2
Left cheek	100	QPSK 135_69	654800/3822	100%	0.581	0.188	-0.12	12.34	13.50	1.306	0.759	22.2
Head Evaluate Data (1RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 1_271	657200/3858	100%	0.428	0.172	0.19	12.56	10.50	0.622	0.266	22.2
Left tilted	100	QPSK 1_271	657200/3858	100%	0.228	0.096	0.10	12.56	10.50	0.622	0.142	22.2
Right cheek	100	QPSK 1_271	657200/3858	100%	0.174	0.075	0.14	12.56	10.50	0.622	0.108	22.2
Right tilted	100	QPSK 1_271	657200/3858	100%	0.143	0.060	-0.15	12.56	10.50	0.622	0.089	22.2
Left cheek	100	QPSK 1_271	657200/3858	100%	0.413	0.168	-0.11	12.55	10.50	0.624	0.258	22.2
Head Evaluate Data (50%RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 135_69	657200/3858	100%	0.490	0.193	-0.01	12.51	10.50	0.630	0.309	22.2
Left tilted	100	QPSK 135_69	657200/3858	100%	0.263	0.108	0.11	12.51	10.50	0.630	0.166	22.2
Right cheek	100	QPSK 135_69	657200/3858	100%	0.205	0.085	-0.15	12.51	10.50	0.630	0.129	22.2
Right tilted	100	QPSK 135_69	657200/3858	100%	0.121	0.055	0.17	12.51	10.50	0.630	0.076	22.2
Left cheek	100	QPSK 135_69	654800/3822	100%	0.581	0.188	-0.06	12.34	10.50	0.655	0.381	22.2
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	100	QPSK 1_137	657200/3858	100%	0.565	0.219	0.05	16.28	17.50	1.324	0.748	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.479	0.182	-0.13	16.28	17.50	1.324	0.634	22.2
Front side	100	QPSK 1_137	654800/3822	100%	0.548	0.208	-0.01	16.24	17.50	1.337	0.733	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.459	0.167	-0.11	16.24	17.50	1.337	0.614	22.2
Body worn Test data (Separate 5mm 50%RB) ECI4												
Front side	100	QPSK 135_69	657200/3858	100%	0.646	0.230	-0.03	16.28	17.50	1.324	0.855	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.493	0.190	0.14	16.28	17.50	1.324	0.653	22.2
Front side	100	QPSK 135_69	654800/3822	100%	0.626	0.208	0.09	16.27	17.50	1.327	0.831	22.2
Back side	100	QPSK 135_69	654800/3822	100%	0.459	0.172	-0.03	16.27	17.50	1.327	0.609	22.2
Body worn Test data (Separate 5mm 100%RB) ECI4												
Front side	100	QPSK 270_0	657200/3858	100%	0.497	0.204	0.03	15.30	16.50	1.318	0.655	22.2
Body worn Evaluate data (Separate 5mm 1RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 1_137	657200/3858	100%	0.565	0.219	-0.09	16.28	14.50	0.664	0.375	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.479	0.182	-0.11	16.28	14.50	0.664	0.318	22.2
Front side	100	QPSK 1_137	654800/3822	100%	0.548	0.208	0.10	16.24	14.50	0.670	0.367	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.459	0.167	0.03	16.24	14.50	0.670	0.308	22.2
Body worn Evaluate data (Separate 5mm 50%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	657200/3858	100%	0.646	0.230	-0.03	16.28	14.50	0.664	0.429	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.493	0.190	0.15	16.28	14.50	0.664	0.327	22.2

Front side	100	QPSK 135_69	654800/3822	100%	0.626	0.208	0.19	16.27	14.50	0.665	0.416	22.2
Back side	100	QPSK 135_69	654800/3822	100%	0.459	0.172	0.11	16.27	14.50	0.665	0.305	22.2
Body worn Evaluate data (Separate 5mm 100%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 270_0	657200/3858	100%	0.497	0.204	-0.08	15.30	13.50	0.661	0.329	22.2
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	100	QPSK 1_137	657200/3858	100%	0.204	0.071	-0.16	14.28	15.50	1.324	0.270	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.174	0.063	-0.02	14.28	15.50	1.324	0.230	22.2
Right side	100	QPSK 1_137	657200/3858	100%	0.073	0.036	-0.02	14.28	15.50	1.324	0.097	22.2
Top side	100	QPSK 1_137	657200/3858	100%	0.110	0.050	0.11	14.28	15.50	1.324	0.146	22.2
Front side	100	QPSK 1_137	657200/3858	100%	0.199	0.066	-0.04	14.17	15.50	1.358	0.270	22.2
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	100	QPSK 135_69	657200/3858	100%	0.230	0.078	0.19	14.21	15.50	1.346	0.310	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.178	0.066	0.15	14.21	15.50	1.346	0.240	22.2
Right side	100	QPSK 135_69	657200/3858	100%	0.079	0.039	0.11	14.21	15.50	1.346	0.106	22.2
Top side	100	QPSK 135_69	657200/3858	100%	0.114	0.056	0.03	14.21	15.50	1.346	0.153	22.2
Front side	100	QPSK 135_69	654800/3822	100%	0.228	0.084	-0.18	14.21	15.50	1.346	0.307	22.2
Hotspot Evaluate data (Separate 5mm 1RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 1_137	657200/3858	100%	0.330	0.115	-0.11	14.28	12.50	0.664	0.219	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.280	0.101	-0.18	14.28	12.50	0.664	0.186	22.2
Right side	100	QPSK 1_137	657200/3858	100%	0.119	0.058	0.13	14.28	12.50	0.664	0.079	22.2
Top side	100	QPSK 1_137	657200/3858	100%	0.178	0.080	0.08	14.28	12.50	0.664	0.118	22.2
Front side	100	QPSK 1_137	657200/3858	100%	0.322	0.106	-0.15	14.17	12.50	0.681	0.219	22.2
Hotspot Evaluate data (Separate 5mm 50%RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	657200/3858	100%	0.375	0.127	-0.01	14.21	12.50	0.675	0.253	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.288	0.107	-0.14	14.21	12.50	0.675	0.194	22.2
Right side	100	QPSK 135_69	657200/3858	100%	0.128	0.064	0.10	14.21	12.50	0.675	0.086	22.2
Top side	100	QPSK 135_69	657200/3858	100%	0.185	0.090	0.16	14.21	12.50	0.675	0.125	22.2
Front side	100	QPSK 135_69	654800/3822	100%	0.411	0.142	-0.16	14.21	12.50	0.675	0.277	22.2
Ant7 Test Record												
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data (1RB) ECI2												
Left cheek	100	QPSK 1_137	654800/3822	100%	0.210	0.093	0.02	12.67	13.50	1.211	0.254	22.2
Left tilted	100	QPSK 1_137	654800/3822	100%	0.073	0.031	0.04	12.67	13.50	1.211	0.088	22.2
Right cheek	100	QPSK 1_137	654800/3822	100%	0.653	0.266	-0.07	12.67	13.50	1.211	0.791	22.2
Right tilted	100	QPSK 1_137	654800/3822	100%	0.166	0.067	0.02	12.67	13.50	1.211	0.201	22.2
Right cheek	100	QPSK 1_137	657200/3858	100%	0.621	0.253	-0.01	12.65	13.50	1.216	0.755	22.2
Head Test Data (50%RB) ECI2												
Left cheek	100	QPSK 135_69	654800/3822	100%	0.186	0.086	0.02	12.68	13.50	1.208	0.225	22.2
Left tilted	100	QPSK 135_69	654800/3822	100%	0.068	0.028	0.16	12.68	13.50	1.208	0.082	22.2
Right cheek	100	QPSK 135_69	654800/3822	100%	0.732	0.279	-0.01	12.68	13.50	1.208	0.884	22.2
Right tilted	100	QPSK 135_69	654800/3822	100%	0.177	0.071	-0.18	12.68	13.50	1.208	0.214	22.2
Right cheek	100	QPSK 135_69	657200/3858	100%	0.697	0.263	0.10	12.61	13.50	1.227	0.855	22.2
Head Test Data (100%RB) ECI2												
Right cheek	100	QPSK 270_0	654800/3822	100%	0.536	0.185	-0.06	11.57	12.50	1.239	0.664	22.2
Head Evaluate Data (1RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 1_137	654800/3822	100%	0.210	0.093	-0.17	12.67	10.50	0.607	0.127	22.2
Left tilted	100	QPSK 1_137	654800/3822	100%	0.073	0.031	0.06	12.67	10.50	0.607	0.044	22.2
Right cheek	100	QPSK 1_137	654800/3822	100%	0.653	0.266	-0.13	12.67	10.50	0.607	0.396	22.2

Right tilted	100	QPSK 1_137	654800/3822	100%	0.166	0.067	0.15	12.67	10.50	0.607	0.101	22.2
Right cheek	100	QPSK 1_137	657200/3858	100%	0.621	0.253	-0.07	12.65	10.50	0.610	0.379	22.2
Head Evaluate Data (50%RB) ECI2 with ENDC&UL_MIMO												
Left cheek	100	QPSK 135_69	654800/3822	100%	0.186	0.086	0.11	12.68	10.50	0.605	0.113	22.2
Left tilted	100	QPSK 135_69	654800/3822	100%	0.068	0.028	-0.11	12.68	10.50	0.605	0.041	22.2
Right cheek	100	QPSK 135_69	654800/3822	100%	0.732	0.279	0.09	12.68	10.50	0.605	0.443	22.2
Right tilted	100	QPSK 135_69	654800/3822	100%	0.177	0.071	-0.03	12.68	10.50	0.605	0.107	22.2
Right cheek	100	QPSK 135_69	657200/3858	100%	0.697	0.263	-0.03	12.61	10.50	0.615	0.429	22.2
Head Evaluate Data (100%RB) ECI2 with ENDC&UL_MIMO												
Right cheek	100	QPSK 270_0	654800/3822	100%	0.536	0.185	-0.05	11.57	9.50	0.621	0.333	22.2
Body worn Test data (Separate 5mm 1RB) ECI4												
Front side	100	QPSK 1_137	654800/3822	100%	0.674	0.275	0.08	17.67	18.50	1.211	0.816	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.638	0.263	0.09	17.67	18.50	1.211	0.773	22.2
Front side	100	QPSK 1_137	657200/3858	100%	0.620	0.253	0.08	17.65	18.50	1.216	0.754	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.590	0.238	0.12	17.65	18.50	1.216	0.717	22.2
Body worn Test data (Separate 5mm 50%RB)												
Front side	100	QPSK 135_69	657200/3858	100%	0.697	0.265	0.05	17.68	18.50	1.208	0.842	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.629	0.263	0.07	17.68	18.50	1.208	0.760	22.2
Front side	100	QPSK 135_69	657200/3858	100%	0.665	0.248	-0.11	17.66	18.50	1.213	0.807	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.610	0.242	0.07	17.66	18.50	1.213	0.740	22.2
Body worn Test data (Separate 5mm 100%RB)												
Front side	100	QPSK 270_0	657200/3858	100%	0.449	0.198	0.15	16.65	17.50	1.216	0.546	22.2
Body worn Evaluate data (Separate 5mm 1RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 1_137	654800/3822	100%	0.674	0.275	-0.12	17.67	15.50	0.607	0.409	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.638	0.263	0.01	17.67	15.50	0.607	0.387	22.2
Front side	100	QPSK 1_137	657200/3858	100%	0.620	0.253	0.07	17.65	15.50	0.610	0.378	22.2
Back side	100	QPSK 1_137	657200/3858	100%	0.590	0.238	-0.11	17.65	15.50	0.610	0.360	22.2
Body worn Evaluate data (Separate 5mm 50%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 135_69	657200/3858	100%	0.697	0.265	-0.11	17.68	15.50	0.605	0.422	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.629	0.263	0.02	17.68	15.50	0.605	0.381	22.2
Front side	100	QPSK 135_69	657200/3858	100%	0.665	0.248	0.09	17.66	15.50	0.608	0.404	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.610	0.242	-0.09	17.66	15.50	0.608	0.371	22.2
Body worn Evaluate data (Separate 5mm 100%RB) ECI4 with ENDC&UL_MIMO												
Front side	100	QPSK 270_0	657200/3858	100%	0.463	0.204	-0.18	16.65	14.50	0.610	0.282	22.2
Hotspot Test data (Separate 5mm 1RB) ECI7												
Front side	100	QPSK 1_137	654800/3822	100%	0.228	0.094	0.02	13.21	14.00	1.199	0.273	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.241	0.099	-0.18	13.21	14.00	1.199	0.289	22.2
Left side	100	QPSK 1_137	654800/3822	100%	0.483	0.167	0.01	13.21	14.00	1.199	0.579	22.2
Left side	100	QPSK 1_137	657200/3858	100%	0.459	0.151	-0.18	13.11	14.00	1.227	0.563	22.2
Hotspot Test data (Separate 5mm 50%RB) ECI7												
Front side	100	QPSK 135_69	657200/3858	100%	0.248	0.102	-0.18	13.16	14.00	1.213	0.301	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.225	0.094	0.16	13.16	14.00	1.213	0.273	22.2
Left side	100	QPSK 135_69	657200/3858	100%	0.434	0.163	-0.05	13.16	14.00	1.213	0.526	22.2
Left side	100	QPSK 135_69	654800/3822	100%	0.414	0.143	0.05	13.15	14.00	1.216	0.503	22.2
Hotspot Evaluate data (Separate 5mm 1RB) ECI7 with ENDC&UL_MIMO												
Front side	100	QPSK 1_137	654800/3822	100%	0.228	0.094	0.08	13.21	11.00	0.601	0.137	22.2
Back side	100	QPSK 1_137	654800/3822	100%	0.241	0.099	-0.05	13.21	11.00	0.601	0.145	22.2
Left side	100	QPSK 1_137	654800/3822	100%	0.483	0.167	-0.12	13.21	11.00	0.601	0.290	22.2
Left side	100	QPSK 1_137	657200/3858	100%	0.459	0.151	0.08	13.11	11.00	0.615	0.282	22.2
Hotspot Evaluate data (Separate 5mm 50%RB) ECI7 with ENDC&UL_MIMO												

Front side	100	QPSK 135_69	657200/3858	100%	0.248	0.102	0.18	13.16	11.00	0.608	0.151	22.2
Back side	100	QPSK 135_69	657200/3858	100%	0.225	0.094	-0.11	13.16	11.00	0.608	0.137	22.2
Left side	100	QPSK 135_69	657200/3858	100%	0.434	0.163	0.04	13.16	11.00	0.608	0.264	22.2
Left side	100	QPSK 135_69	654800/3822	100%	0.414	0.143	0.06	13.15	11.00	0.610	0.253	22.2
Test position	BW.	Modulation	Test ch./Freq.	Duty Cycle	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm 1RB) ECI4												
Left side	100	QPSK 1_137	654800/3822	100%	4.510	1.370	0.00	17.67	18.50	1.211	1.659	22.2
Product specific 10g SAR Test data (Separate 0mm 50%RB) ECI4												
Left side	100	QPSK 135_69	657200/3858	100%	4.340	1.270	0.14	17.68	18.50	1.208	1.534	22.2

11.3.15 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record												
MIMO Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data												
Left cheek	802.11b	6/2437	99.56%	1.004	0.661	0.331	0.03	18.50	19.50	1.259	0.836	22.9
Left tilted	802.11b	6/2437	99.56%	1.004	0.850	0.386	0.01	18.50	19.50	1.259	1.074	22.9
Left tilted Repeated	802.11b	6/2437	99.56%	1.004	0.829	0.378	0.02	18.50	19.50	1.259	1.048	22.9
Right cheek	802.11b	6/2437	99.56%	1.004	0.556	0.278	-0.15	18.50	19.50	1.259	0.703	22.9
Right tilted	802.11b	6/2437	99.56%	1.004	0.657	0.313	0.00	18.50	19.50	1.259	0.830	22.9
Left cheek	802.11b	1/2412	99.56%	1.004	0.640	0.320	0.07	18.39	19.50	1.291	0.830	22.9
Left cheek	802.11b	11/2462	99.56%	1.004	0.638	0.310	0.10	18.35	19.50	1.303	0.835	22.9
Left tilted	802.11b	1/2412	99.56%	1.004	0.826	0.373	0.17	18.39	19.50	1.291	1.071	22.9
Left tilted	802.11b	11/2462	99.56%	1.004	0.805	0.356	0.13	18.35	19.50	1.303	1.053	22.9
Right tilted	802.11b	1/2412	99.56%	1.004	0.631	0.297	0.18	18.39	19.50	1.291	0.818	22.9
Right tilted	802.11b	11/2462	99.56%	1.004	0.623	0.284	0.12	18.35	19.50	1.303	0.815	22.9
Head Evaluate Data												
Left cheek	802.11b	6/2437	99.56%	1.004	0.661	0.331	-0.17	18.50	15.50	0.501	0.332	22.9
Left tilted	802.11b	6/2437	99.56%	1.004	0.850	0.386	-0.06	18.50	15.50	0.501	0.428	22.9
Left tilted Repeated	802.11b	6/2437	99.56%	1.004	0.829	0.378	0.08	18.50	15.50	0.501	0.417	22.9
Right cheek	802.11b	6/2437	99.56%	1.004	0.556	0.278	-0.18	18.50	15.50	0.501	0.280	22.9
Right tilted	802.11b	6/2437	99.56%	1.004	0.657	0.313	0.17	18.50	15.50	0.501	0.330	22.9
Left cheek	802.11b	1/2412	99.56%	1.004	0.640	0.320	-0.16	18.39	15.50	0.514	0.330	22.9
Left cheek	802.11b	11/2462	99.56%	1.004	0.638	0.310	0.12	18.35	15.50	0.519	0.332	22.9
Left tilted	802.11b	1/2412	99.56%	1.004	0.826	0.373	-0.08	18.39	15.50	0.514	0.426	22.9
Left tilted	802.11b	11/2462	99.56%	1.004	0.805	0.356	0.14	18.35	15.50	0.519	0.419	22.9
Right tilted	802.11b	1/2412	99.56%	1.004	0.631	0.297	-0.02	18.39	15.50	0.514	0.326	22.9
Right tilted	802.11b	11/2462	99.56%	1.004	0.623	0.284	-0.06	18.35	15.50	0.519	0.325	22.9
Body worn Test data (Separate 5mm)												
Front side	802.11b	6/2437	99.56%	1.004	0.632	0.285	-0.15	22.07	23.00	1.239	0.786	22.9
Back side	802.11b	6/2437	99.56%	1.004	0.932	0.484	0.12	22.07	23.00	1.239	1.159	22.9
Back side Repeated	802.11b	6/2437	99.56%	1.004	0.922	0.472	-0.08	22.07	23.00	1.239	1.147	22.9
Back side	802.11b	1/2412	99.56%	1.004	0.904	0.461	0.01	22.00	23.00	1.259	1.143	22.9
Back side	802.11b	11/2462	99.56%	1.004	0.871	0.445	-0.10	21.85	23.00	1.303	1.139	22.9
BodyEvaluate Test data (Separate 5mm)												
Front side	802.11b	6/2437	99.56%	1.004	0.632	0.285	0.16	22.07	16.00	0.247	0.157	22.9
Back side	802.11b	6/2437	99.56%	1.004	0.932	0.484	0.08	22.07	16.00	0.247	0.231	22.9
Back side Repeated	802.11b	6/2437	99.56%	1.004	0.922	0.472	0.16	22.07	16.00	0.247	0.229	22.9
Back side	802.11b	1/2412	99.56%	1.004	0.904	0.461	-0.15	22.00	16.00	0.251	0.228	22.9
Back side	802.11b	11/2462	99.56%	1.004	0.871	0.445	0.15	21.85	16.00	0.260	0.227	22.9
Hotspot Test data (Separate 5mm)												
Front side	802.11b	6/2437	99.56%	1.004	0.308	0.145	-0.15	17.62	18.50	1.226	0.379	22.9
Back side	802.11b	6/2437	99.56%	1.004	0.535	0.251	-0.10	17.62	18.50	1.226	0.659	22.9
Right side	802.11b	6/2437	99.56%	1.004	0.408	0.184	0.10	17.62	18.50	1.226	0.502	22.9
Top side	802.11b	6/2437	99.56%	1.004	0.794	0.356	0.14	17.62	18.50	1.226	0.977	22.9
Top side	802.11b	1/2412	99.56%	1.004	0.777	0.334	-0.18	17.53	18.50	1.250	0.975	22.9

Top side	802.11b	11/2462	99.56%	1.004	0.743	0.341	0.00	17.38	18.50	1.294	0.965	22.9
Hotspot Evaluate data (Separate 5mm)												
Front side	802.11b	6/2437	99.56%	1.004	0.308	0.145	0.05	17.62	13.50	0.388	0.120	22.9
Back side	802.11b	6/2437	99.56%	1.004	0.535	0.251	0.01	17.62	13.50	0.388	0.208	22.9
Right side	802.11b	6/2437	99.56%	1.004	0.408	0.184	-0.09	17.62	13.50	0.388	0.159	22.9
Top side	802.11b	6/2437	99.56%	1.004	0.794	0.356	0.10	17.62	13.50	0.388	0.309	22.9
Top side	802.11b	1/2412	99.56%	1.004	0.777	0.334	0.09	17.53	13.50	0.395	0.308	22.9
Top side	802.11b	11/2462	99.56%	1.004	0.743	0.341	0.14	17.38	13.50	0.409	0.305	22.9
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10g SAR Test data (Separate 0mm)												
Back side	802.11b	6/2437	99.56%	1.004	1.400	0.687	0.19	22.07	23.00	1.239	0.855	22.9
Right side	802.11b	6/2437	99.56%	1.004	3.810	1.400	-0.16	22.07	23.00	1.239	1.742	22.9
Top side	802.11b	6/2437	99.56%	1.004	6.440	2.320	0.06	22.07	23.00	1.239	2.886	22.9
Top side Repeated	802.11b	6/2437	99.56%	1.004	6.240	2.230	-0.02	22.07	23.00	1.239	2.774	22.9
Top side	802.11b	1/2412	99.56%	1.004	6.210	2.070	0.07	22.00	23.00	1.259	2.617	22.9
Top side	802.11b	11/2462	99.56%	1.004	6.300	2.030	0.19	21.85	23.00	1.303	2.656	22.9
Product specific 10g SAR Evaluate data (Separate 0mm)												
Back side	802.11b	6/2437	99.56%	1.004	1.400	0.687	-0.12	22.07	16.00	0.247	0.170	22.9
Right side	802.11b	6/2437	99.56%	1.004	3.810	1.400	0.10	22.07	16.00	0.247	0.347	22.9
Top side	802.11b	6/2437	99.56%	1.004	6.440	2.320	-0.15	22.07	16.00	0.247	0.575	22.9
Top side Repeated	802.11b	6/2437	99.56%	1.004	6.240	2.230	-0.13	22.07	16.00	0.247	0.553	22.9
Top side	802.11b	1/2412	99.56%	1.004	6.210	2.070	-0.12	22.00	16.00	0.251	0.522	22.9
Top side	802.11b	11/2462	99.56%	1.004	6.300	2.030	-0.13	21.85	16.00	0.260	0.530	22.9

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left tilted	6/2437	0.850	0.829	1.025	N/A	N/A
Back side 5mm	6/2437	0.932	0.922	1.011	N/A	N/A
Top side 0mm	6/2437	2.320	2.230	1.040	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.

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

3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg

5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

11.3.16 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record												
MIMO Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data of U-NII-1												
Left cheek	802.11a	44/5220	97.01%	1.031	0.843	0.273	-0.13	14.76	15.50	1.186	1.031	22.9
Left tilted	802.11a	44/5220	97.01%	1.031	0.680	0.217	0.13	14.76	15.50	1.186	0.831	22.9
Right cheek	802.11a	44/5220	97.01%	1.031	0.432	0.164	0.05	14.76	15.50	1.186	0.528	22.9
Right tilted	802.11a	44/5220	97.01%	1.031	0.370	0.138	-0.07	14.76	15.50	1.186	0.452	22.9
Left cheek	802.11a	48/5240	97.01%	1.031	0.820	0.251	-0.14	14.74	15.50	1.191	1.007	22.9
Left tilted	802.11a	48/5240	97.01%	1.031	0.827	0.259	0.03	14.74	15.50	1.191	1.015	22.9
Head Test Data of U-NII-2A												
Left cheek	802.11ac VHT160	60/5300	85.81%	1.165	0.741	0.238	-0.12	13.80	15.00	1.318	1.138	22.9
Left tilted	802.11ac VHT160	60/5300	85.81%	1.165	0.592	0.182	0.17	13.80	15.00	1.318	0.909	22.9
Right cheek	802.11ac VHT160	60/5300	85.81%	1.165	0.344	0.130	-0.04	13.80	15.00	1.318	0.528	22.9
Right tilted	802.11ac VHT160	60/5300	85.81%	1.165	0.307	0.114	-0.19	13.80	15.00	1.318	0.471	22.9
Head Test Data of U-NII-2C												
Left cheek	802.11a	144/5720	97.01%	1.031	0.759	0.273	-0.08	15.60	16.50	1.230	0.963	22.9
Left tilted	802.11a	144/5720	97.01%	1.031	0.505	0.184	0.15	15.60	16.50	1.230	0.640	22.9
Right cheek	802.11a	144/5720	97.01%	1.031	0.299	0.111	0.06	15.60	16.50	1.230	0.379	22.9
Right tilted	802.11a	144/5720	97.01%	1.031	0.256	0.094	-0.04	15.60	16.50	1.230	0.325	22.9
Left cheek	802.11a	104/5520	97.01%	1.031	0.744	0.261	-0.03	15.60	16.50	1.230	0.943	22.9
Head Test Data of U-NII-3												
Left cheek	802.11ac VHT80	155/5775	87.01%	1.149	0.859	0.260	-0.04	15.06	16.00	1.242	1.226	22.9
Left cheek Repeated	802.11ac VHT80	155/5775	87.01%	1.149	0.837	0.251	0.02	15.06	16.00	1.242	1.194	22.9
Left tilted	802.11ac VHT80	155/5775	87.01%	1.149	0.656	0.236	-0.06	15.06	16.00	1.242	0.936	22.9
Right cheek	802.11ac VHT80	155/5775	87.01%	1.149	0.336	0.126	0.19	15.06	16.00	1.242	0.479	22.9
Right tilted	802.11ac VHT80	155/5775	87.01%	1.149	0.265	0.098	0.02	15.06	16.00	1.242	0.378	22.9
Head Evaluate Data of U-NII-1												
Left cheek	802.11a	44/5220	97.01%	1.031	0.843	0.273	-0.10	15.78	12.50	0.470	0.408	22.9
Left tilted	802.11a	44/5220	97.01%	1.031	0.680	0.217	-0.02	15.78	12.50	0.470	0.330	22.9
Right cheek	802.11a	44/5220	97.01%	1.031	0.432	0.164	-0.09	15.78	12.50	0.470	0.209	22.9
Right tilted	802.11a	44/5220	97.01%	1.031	0.370	0.138	-0.06	15.78	12.50	0.470	0.179	22.9
Left cheek	802.11a	48/5240	97.01%	1.031	0.820	0.251	-0.11	15.76	12.50	0.472	0.399	22.9
Left tilted	802.11a	48/5240	97.01%	1.031	0.827	0.259	-0.15	15.76	12.50	0.472	0.402	22.9
Head Evaluate Data of U-NII-2A												
Left cheek	802.11ac VHT160	60/5300	85.81%	1.165	0.741	0.238	-0.14	13.87	11.00	0.517	0.446	22.9
Left tilted	802.11ac VHT160	60/5300	85.81%	1.165	0.592	0.182	0.17	13.87	11.00	0.517	0.357	22.9
Right cheek	802.11ac VHT160	60/5300	85.81%	1.165	0.344	0.130	0.17	13.87	11.00	0.517	0.207	22.9
Right tilted	802.11ac VHT160	60/5300	85.81%	1.165	0.307	0.114	-0.13	13.87	11.00	0.517	0.185	22.9
Head Evaluate Data of U-NII-2C												
Left cheek	802.11a	144/5720	97.01%	1.031	0.759	0.273	0.18	15.55	12.50	0.496	0.388	22.9
Left tilted	802.11a	144/5720	97.01%	1.031	0.505	0.184	0.08	15.55	12.50	0.496	0.258	22.9
Right cheek	802.11a	144/5720	97.01%	1.031	0.299	0.111	0.14	15.55	12.50	0.496	0.153	22.9
Right tilted	802.11a	144/5720	97.01%	1.031	0.256	0.094	0.08	15.55	12.50	0.496	0.131	22.9
Left cheek	802.11a	104/5520	97.01%	1.031	0.744	0.261	0.15	15.55	12.50	0.496	0.380	22.9
Head Evaluate Data of U-NII-3												
Left cheek	802.11ac VHT80	155/5775	87.01%	1.149	0.859	0.260	0.07	15.15	12.00	0.485	0.479	22.9
Left cheek Repeated	802.11ac VHT80	155/5775	87.01%	1.149	0.837	0.251	-0.02	15.15	12.00	0.485	0.466	22.9
Left tilted	802.11ac	155/5775	87.01%	1.149	0.656	0.236	-0.09	15.15	12.00	0.485	0.366	22.9

	VHT80											
Right cheek	802.11ac VHT80	155/5775	87.01%	1.149	0.336	0.126	0.12	15.15	12.00	0.485	0.187	22.9
Right tilted	802.11ac VHT80	155/5775	87.01%	1.149	0.265	0.098	0.19	15.15	12.00	0.485	0.148	22.9
Body worn Test data of U-NII-2A (Separate 5mm)												
Front side	802.11a	60/5300	97.01%	1.031	0.727	0.266	-0.18	18.75	19.50	1.188	0.890	22.9
Back side	802.11a	60/5300	97.01%	1.031	0.453	0.168	0.13	18.75	19.50	1.188	0.555	22.9
Front side	802.11a	56/5280	97.01%	1.031	0.703	0.250	-0.14	18.50	19.50	1.259	0.913	22.9
Body worn Test data of U-NII-2C (Separate 5mm)												
Front side	802.11a	144/5720	97.01%	1.031	0.716	0.230	0.15	19.18	20.00	1.208	0.892	22.9
Back side	802.11a	144/5720	97.01%	1.031	0.532	0.188	0.08	19.18	20.00	1.208	0.663	22.9
Front side	802.11a	104/5520	97.01%	1.031	0.696	0.218	-0.02	19.08	20.00	1.236	0.887	22.9
Body worn Test data of U-NII-3 (Separate 5mm)												
Front side	802.11ac VHT80	155/5775	87.01%	1.149	0.723	0.214	-0.04	18.57	19.50	1.239	1.029	22.9
Back side	802.11ac VHT80	155/5775	87.01%	1.149	0.493	0.185	0.18	18.57	19.50	1.239	0.702	22.9
Body worn Evaluate data of U-NII-2A (Separate 5mm)												
Front side	802.11a	60/5300	97.01%	1.031	0.727	0.266	-0.02	18.75	14.50	0.376	0.282	22.9
Back side	802.11a	60/5300	97.01%	1.031	0.453	0.168	0.04	18.75	14.50	0.376	0.176	22.9
Front side	802.11a	56/5280	97.01%	1.031	0.703	0.250	0.18	18.50	14.50	0.398	0.288	22.9
Body worn Evaluate data of U-NII-2C (Separate 5mm)												
Front side	802.11a	144/5720	97.01%	1.031	0.716	0.230	0.13	19.18	15.00	0.382	0.282	22.9
Back side	802.11a	144/5720	97.01%	1.031	0.532	0.188	-0.12	19.18	15.00	0.382	0.210	22.9
Front side	802.11a	104/5520	97.01%	1.031	0.696	0.218	0.11	19.08	15.00	0.391	0.281	22.9
Body worn Evaluate data of U-NII-3 (Separate 5mm)												
Front side	802.11ac VHT80	155/5775	87.01%	1.149	0.723	0.214	0.04	18.57	14.50	0.392	0.326	22.9
Back side	802.11ac VHT80	155/5775	87.01%	1.149	0.493	0.185	0.02	18.57	14.50	0.392	0.222	22.9
Hotspot Test data of U-NII-1 (Separate 5mm)												
Front side	802.11a	44/5220	97.01%	1.031	1.010	0.348	-0.16	19.56	20.00	1.106	1.152	22.9
Front side Repeated	802.11a	44/5220	97.01%	1.031	1.000	0.342	0.04	19.56	20.00	1.106	1.140	22.9
Back side	802.11a	44/5220	97.01%	1.031	0.503	0.179	-0.06	19.56	20.00	1.106	0.574	22.9
Right side	802.11a	44/5220	97.01%	1.031	0.736	0.233	-0.04	19.56	20.00	1.106	0.839	22.9
Top side	802.11a	44/5220	97.01%	1.031	0.425	0.171	-0.12	19.56	20.00	1.106	0.485	22.9
Front side	802.11a	48/5240	97.01%	1.031	0.920	0.333	-0.02	19.54	20.00	1.112	1.055	22.9
Right side	802.11a	48/5240	97.01%	1.031	0.717	0.220	-0.16	19.54	20.00	1.112	0.822	22.9
Hotspot Test data of U-NII-3 (Separate 5mm)												
Front side	802.11ac VHT80	155/5775	87.01%	1.149	0.862	0.293	-0.02	19.36	20.00	1.159	1.148	22.9
Back side	802.11ac VHT80	155/5775	87.01%	1.149	0.536	0.232	-0.15	19.36	20.00	1.159	0.714	22.9
Right side	802.11ac VHT80	155/5775	87.01%	1.149	0.669	0.251	0.12	19.36	20.00	1.159	0.891	22.9
Top side	802.11ac VHT80	155/5775	87.01%	1.149	0.401	0.125	0.17	19.36	20.00	1.159	0.534	22.9
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10gSAR Test data of U-NII-2A (Separate 0mm)												
Front side	802.11a	60/5300	97.01%	1.031	4.880	1.310	-0.15	18.75	19.50	1.188	1.605	22.9
Back side	802.11a	60/5300	97.01%	1.031	1.090	0.369	0.06	18.75	19.50	1.188	0.452	22.9
Right side	802.11a	60/5300	97.01%	1.031	3.250	0.885	0.06	18.75	19.50	1.188	1.084	22.9
Top side	802.11a	60/5300	97.01%	1.031	1.690	0.589	-0.13	18.75	19.50	1.188	0.721	22.9
Product specific 10gSAR Test data of U-NII-2C (Separate 0mm)												
Front side	802.11a	144/5720	97.01%	1.031	4.730	1.270	-0.15	19.18	20.00	1.208	1.582	22.9
Back side	802.11a	144/5720	97.01%	1.031	1.050	0.366	-0.09	19.18	20.00	1.208	0.456	22.9
Right side	802.11a	144/5720	97.01%	1.031	3.230	0.986	-0.18	19.18	20.00	1.208	1.228	22.9
Top side	802.11a	144/5720	97.01%	1.031	1.640	0.483	0.04	19.18	20.00	1.208	0.602	22.9

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1 st Repeated	Ratio	2 nd Repeated	3 rd Repeated
Left cheek	155/5775	0.859	0.837	1.026	N/A	N/A
Front side 5mm	44/5220	1.010	1.000	1.010	N/A	N/A

Note: 1) When the original highest measured SAR is ≥ 0.80 W/kg, the measurement was repeated once.
2) A second repeated measurement was performed only if the ratio of largest to smallest SAR for the original and first repeated measurements was > 1.20 or when the original or repeated measurement was ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
3) A third repeated measurement was performed only if the original, first or second repeated measurement was ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .
4) Repeated measurements are not required when the original highest measured SAR is < 0.80 W/kg
5) The same procedures should be adapted for measurements according to extremity and occupational exposure limits by applying a factor of 2.5 for extremity exposure and a factor of 5 for occupational exposure to the corresponding SAR thresholds. The repeated measurement results must be clearly identified in the SAR report.

11.3.17 SAR Result of WIFI 6E

Wi-Fi 6E SAR Test Record													
MIMO Test Record													
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	APD W/m ² (4cm ²)	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data of U-NII-5													
Left cheek	802.11ax HEW160M	15/6025	85.22%	1.173	0.601	0.202	4.070	0.15	14.66	15.00	1.081	0.762	22.3
Left tilted	802.11ax HEW160M	15/6025	85.22%	1.173	0.397	0.146	2.410	-0.02	14.66	15.00	1.081	0.503	22.3
Right cheek	802.11ax HEW160M	15/6025	85.22%	1.173	0.176	0.059	1.050	-0.11	14.66	15.00	1.081	0.223	22.3
Right tilted	802.11ax HEW160M	15/6025	85.22%	1.173	0.148	0.057	0.910	0.08	14.66	15.00	1.081	0.188	22.3
Head Test Data of U-NII-6													
Left cheek	802.11ax HEW80M	103/6465	86.97%	1.150	0.147	0.057	0.950	0.10	12.24	13.00	1.192	0.202	22.3
Left tilted	802.11ax HEW80M	103/6465	86.97%	1.150	0.099	0.031	0.720	-0.07	12.24	13.00	1.192	0.136	22.3
Right cheek	802.11ax HEW80M	103/6465	86.97%	1.150	0.055	0.012	0.400	0.11	12.24	13.00	1.192	0.075	22.3
Right tilted	802.11ax HEW80M	103/6465	86.97%	1.150	0.050	0.012	0.350	0.01	12.24	13.00	1.192	0.069	22.3
Head Test Data of U-NII-7													
Left cheek	802.11ax HEW160M	175/6825	85.22%	1.173	0.198	0.071	1.550	-0.15	14.07	15.00	1.240	0.288	22.3
Left tilted	802.11ax HEW160M	175/6825	85.22%	1.173	0.101	0.035	0.800	-0.05	14.07	15.00	1.240	0.147	22.3
Right cheek	802.11ax HEW160M	175/6825	85.22%	1.173	0.060	0.022	0.440	-0.10	14.07	15.00	1.240	0.087	22.3
Right tilted	802.11ax HEW160M	175/6825	85.22%	1.173	0.047	0.012	0.340	0.14	14.07	15.00	1.240	0.068	22.3
Head Test Data of U-NII-8													
Left cheek	802.11ax HEW160M	207/6985	85.22%	1.173	0.254	0.094	1.530	-0.17	15.70	16.00	1.072	0.319	22.3
Left tilted	802.11ax HEW160M	207/6985	85.22%	1.173	0.151	0.052	0.960	0.16	15.70	16.00	1.072	0.190	22.3
Right cheek	802.11ax HEW160M	207/6985	85.22%	1.173	0.089	0.031	0.580	0.07	15.70	16.00	1.072	0.112	22.3
Right tilted	802.11ax HEW160M	207/6985	85.22%	1.173	0.063	0.014	0.360	-0.14	15.70	16.00	1.072	0.079	22.3
Head Evaluate Data of U-NII-5													
Left cheek	802.11ax HEW160M	15/6025	85.22%	1.173	0.600	0.202	4.070	-0.05	14.66	13.00	0.682	0.480	22.3
Left tilted	802.11ax HEW160M	15/6025	85.22%	1.173	0.397	0.146	2.410	-0.10	14.66	13.00	0.682	0.318	22.3
Right cheek	802.11ax HEW160M	15/6025	85.22%	1.173	0.176	0.059	1.050	-0.13	14.66	13.00	0.682	0.141	22.3
Right tilted	802.11ax HEW160M	15/6025	85.22%	1.173	0.148	0.057	0.910	-0.07	14.66	13.00	0.682	0.118	22.3
Head Evaluate Data of U-NII-6													
Left cheek	802.11ax HEW80M	103/6465	86.97%	1.150	0.147	0.057	0.950	-0.09	12.24	13.00	1.192	0.202	22.3
Left tilted	802.11ax HEW80M	103/6465	86.97%	1.150	0.099	0.031	0.720	-0.18	12.24	13.00	1.192	0.136	22.3
Right cheek	802.11ax HEW80M	103/6465	86.97%	1.150	0.055	0.012	0.400	-0.17	12.24	13.00	1.192	0.075	22.3
Right tilted	802.11ax HEW80M	103/6465	86.97%	1.150	0.050	0.012	0.350	0.17	12.24	13.00	1.192	0.069	22.3
Head Evaluate Data of U-NII-7													
Left cheek	802.11ax HEW160M	175/6825	85.22%	1.173	0.198	0.071	1.550	-0.02	14.07	15.00	1.240	0.288	22.3
Left tilted	802.11ax HEW160M	175/6825	85.22%	1.173	0.101	0.035	0.800	-0.07	14.07	15.00	1.240	0.147	22.3
Right cheek	802.11ax HEW160M	175/6825	85.22%	1.173	0.060	0.022	0.440	-0.11	14.07	15.00	1.240	0.087	22.3
Right tilted	802.11ax HEW160M	175/6825	85.22%	1.173	0.047	0.012	0.340	-0.17	14.07	15.00	1.240	0.068	22.3
Head Evaluate Data of U-NII-8													
Left cheek	802.11ax HEW160M	207/6985	85.22%	1.173	0.254	0.094	1.530	-0.08	15.70	16.00	1.072	0.319	22.3
Left tilted	802.11ax HEW160M	207/6985	85.22%	1.173	0.151	0.052	0.960	-0.04	15.70	16.00	1.072	0.190	22.3
Right cheek	802.11ax HEW160M	207/6985	85.22%	1.173	0.089	0.031	0.580	-0.01	15.70	16.00	1.072	0.112	22.3
Right tilted	802.11ax HEW160M	207/6985	85.22%	1.173	0.063	0.014	0.360	-0.11	15.70	16.00	1.072	0.079	22.3
Body worn Test data of U-NII-5 (Separate 5mm)													
Front side	802.11ax HEW160M	15/6025	85.22%	1.173	0.369	0.134	2.480	-0.09	14.66	15.00	1.081	0.468	22.3
Back side	802.11ax HEW160M	15/6025	85.22%	1.173	0.386	0.130	2.360	0.08	14.66	15.00	1.081	0.489	22.3
Body worn Test data of U-NII-6 (Separate 5mm)													

Front side	802.11ax HEW80M	103/6465	86.97%	1.150	0.125	0.047	0.830	0.09	12.24	13.00	1.192	0.171	22.3
Back side	802.11ax HEW80M	103/6465	86.97%	1.150	0.156	0.033	1.170	0.16	12.24	13.00	1.192	0.214	22.3
Body worn Test data of U-NII-7 (Separate 5mm)													
Front side	802.11ax HEW160M	175/6825	85.22%	1.173	0.287	0.064	1.900	-0.11	14.07	15.00	1.240	0.417	22.3
Back side	802.11ax HEW160M	175/6825	85.22%	1.173	0.292	0.066	2.230	0.05	14.07	15.00	1.240	0.425	22.3
Body worn Test data of U-NII-8 (Separate 5mm)													
Front side	802.11ax HEW160M	207/6985	85.22%	1.173	0.169	0.062	1.130	-0.01	15.70	16.00	1.072	0.213	22.3
Back side	802.11ax HEW160M	207/6985	85.22%	1.173	0.408	0.128	2.610	0.09	15.70	16.00	1.072	0.513	22.3
Body worn Evaluate data of U-NII-5 (Separate 5mm)													
Front side	802.11ax HEW160M	15/6025	85.22%	1.173	0.369	0.134	2.480	0.04	14.66	11.00	0.430	0.186	22.3
Back side	802.11ax HEW160M	15/6025	85.22%	1.173	0.386	0.130	2.360	0.17	14.66	11.00	0.430	0.195	22.3
Body worn Evaluate data of U-NII-6 (Separate 5mm)													
Front side	802.11ax HEW80M	103/6465	86.97%	1.150	0.125	0.047	0.830	0.11	12.24	13.00	1.192	0.171	22.3
Back side	802.11ax HEW80M	103/6465	86.97%	1.150	0.156	0.033	1.170	-0.16	12.24	13.00	1.192	0.214	22.3
Body worn Evaluate data of U-NII-7 (Separate 5mm)													
Front side	802.11ax HEW160M	175/6825	85.22%	1.173	0.287	0.064	1.900	-0.02	14.07	12.00	0.622	0.209	22.3
Back side	802.11ax HEW160M	175/6825	85.22%	1.173	0.292	0.066	2.230	-0.17	14.07	12.00	0.622	0.213	22.3
Body worn Evaluate data of U-NII-8 (Separate 5mm)													
Front side	802.11ax HEW160M	207/6985	85.22%	1.173	0.169	0.062	1.130	0.10	15.70	12.00	0.427	0.085	22.3
Back side	802.11ax HEW160M	207/6985	85.22%	1.173	0.408	0.128	2.610	-0.13	15.70	12.00	0.427	0.204	22.3
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	APD W/m ² (4cm ²)	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
Product specific 10gSAR Test data of U-NII-5 (Separate 0mm)													
Front side	802.11ax HEW160M	15/6025	85.22%	1.173	1.550	0.402	10.500	0.00	14.66	15.00	1.081	0.510	22.3
Back side	802.11ax HEW160M	15/6025	85.22%	1.173	0.351	0.129	2.120	0.17	14.66	15.00	1.081	0.164	22.3
Right side	802.11ax HEW160M	15/6025	85.22%	1.173	1.400	0.365	9.330	0.09	14.66	15.00	1.081	0.463	22.3
Top side	802.11ax HEW160M	15/6025	85.22%	1.173	0.701	0.239	4.030	0.04	14.66	15.00	1.081	0.303	22.3
Product specific 10gSAR Test data of U-NII-6 (Separate 0mm)													
Front side	802.11ax HEW80M	103/6465	86.97%	1.150	0.447	0.139	3.310	0.19	12.24	13.00	1.192	0.191	22.3
Back side	802.11ax HEW80M	103/6465	86.97%	1.150	0.128	0.041	0.810	0.17	12.24	13.00	1.192	0.056	22.3
Right side	802.11ax HEW80M	103/6465	86.97%	1.150	0.507	0.130	3.570	-0.14	12.24	13.00	1.192	0.178	22.3
Top side	802.11ax HEW80M	103/6465	86.97%	1.150	0.137	0.045	0.930	-0.18	12.24	13.00	1.192	0.062	22.3
Product specific 10gSAR Test data of U-NII-7 (Separate 0mm)													
Front side	802.11ax HEW160M	175/6825	85.22%	1.173	0.511	0.172	3.670	-0.14	14.07	15.00	1.240	0.250	22.3
Back side	802.11ax HEW160M	175/6825	85.22%	1.173	0.207	0.069	1.520	-0.13	14.07	15.00	1.240	0.100	22.3
Right side	802.11ax HEW160M	175/6825	85.22%	1.173	0.404	0.107	3.040	0.01	14.07	15.00	1.240	0.156	22.3
Top side	802.11ax HEW160M	175/6825	85.22%	1.173	0.193	0.059	1.320	-0.11	14.07	15.00	1.240	0.086	22.3
Product specific 10gSAR Test data of U-NII-8 (Separate 0mm)													
Front side	802.11ax HEW160M	207/6985	85.22%	1.173	0.693	0.217	4.650	0.06	15.70	16.00	1.072	0.273	22.3
Back side	802.11ax HEW160M	207/6985	85.22%	1.173	0.468	0.161	3.050	-0.15	15.70	16.00	1.072	0.202	22.3
Right side	802.11ax HEW160M	207/6985	85.22%	1.173	0.486	0.162	3.300	-0.14	15.70	16.00	1.072	0.204	22.3
Top side	802.11ax HEW160M	207/6985	85.22%	1.173	0.428	0.123	2.650	0.04	15.70	16.00	1.072	0.155	22.3

11.3.18 SAR Result of BT

Bluetooth SAR Test Record												
Ant4 Test Record												
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 1-g	SAR (W/kg) 10-g	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaled factor	Scaled SAR 1-g (W/kg)	Liquid Temp.(°C)
Head Test Data												
Left cheek	DH5	39/2441	76.80%	1.302	0.179	0.086	0.05	16.36	17.00	1.159	0.270	22.9
Left tilted	DH5	39/2441	76.80%	1.302	0.234	0.102	-0.03	16.36	17.00	1.159	0.353	22.9
Right cheek	DH5	39/2441	76.80%	1.302	0.145	0.075	-0.18	16.36	17.00	1.159	0.219	22.9
Right tilted	DH5	39/2441	76.80%	1.302	0.182	0.091	-0.02	16.36	17.00	1.159	0.275	22.9
Body worn Test data (Separate 5mm)												
Front side	DH5	39/2441	76.80%	1.302	0.072	0.034	-0.06	16.36	17.00	1.159	0.109	22.9
Back side	DH5	39/2441	76.80%	1.302	0.099	0.047	-0.13	16.36	17.00	1.159	0.149	22.9
Hotspot Test data (Separate 5mm)												
Front side	DH5	39/2441	76.80%	1.302	0.072	0.034	-0.06	16.36	17.00	1.159	0.109	22.9
Back side	DH5	39/2441	76.80%	1.302	0.099	0.047	-0.13	16.36	17.00	1.159	0.149	22.9
Right side	DH5	39/2441	76.80%	1.302	0.012	0.006	0.08	16.36	17.00	1.159	0.018	22.9
Top side	DH5	39/2441	76.80%	1.302	0.124	0.054	0.06	16.36	17.00	1.159	0.187	22.9

11.3.19 SAR Result of NFC

NFC SAR Test Record									
Test position	Test mode	Test ch./Freq.	Duty Cycle	Duty Cycle Scaled factor	SAR (W/kg) 10-g	Power drift (dB)	Scaled factor	Scaled SAR 10-g (W/kg)	Liquid Temp.(°C)
NFC Test data (Separate 0mm)									
Front side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.7
Back side	NFC	13.56MHz	100.00%	1.000	0.024	0.02	1.000	0.024	22.7
Left side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.7
Right side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.7
Top side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.7
Bottom side	NFC	13.56MHz	100.00%	1.000	0.000	0.00	1.000	0.000	22.7

11.4 Measurement of PD Data

Note:

- 1) The maximum Scaled PD value is marked in bold. Graph results refer to Appendix B.
- 2) Since there is no different PD limit on different exposure conditions, therefore the PD test was performed of a 2mm separation between sensor and EUT surface to cover all exposure conditions of EUT.
- 3) Per equipment manufacturer guidance, power density was measured at $d=2\text{mm}$ and $d=\lambda/5\text{mm}$ using the same grid size and grid step size for some frequencies, surfaces and each antennas. The integrated Power Density (iPD) was calculated based on these measurements. Since iPD ratio between the two distances is $< 1\text{dB}$, the grid step (0.0625) was sufficient for determining compliance at $d=2\text{mm}$.
- 4) According to October 2020 TCB Workshop Interim procedures, power density results were scaled according to IEC 62479:2010 for the portion of the measurement uncertainty $> 30\%$. Total expanded uncertainty of 2.67 dB (85%) was used to determine the psPD measurement scaling factor.
- 5) Per October 2020 TCB Workshop Interim procedures, WIFI 6E start instead with a minimum of 5 test channels across the full band.

11.4.1 PD Result of WIFI 6E

Wi-Fi 6E PD Test Record MIMO															
Test position	Test mode	Test ch./Freq.	Distance (mm)	Grid Step (λ)	Duty Cycle	Duty Cycle Scaled factor	iPDn	iPD ratio	Measured PD 4cm ² (W/m ²)	Power drift (dB)	Conducted Power(dBm)	Tune up Limit(dBm)	Scaling Factor for measurement uncertainty	Tune up Scaled factor	Scaled PD 4cm ² (W/m ²)
Power Density Test DATA															
Front side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	/	/	2.41	-0.04	15.70	16.00	1.5493	1.072	4.694
Back side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	14.30	7.11	3.27	0.05	15.70	16.00	1.5493	1.072	6.369
Back side	802.11ax 160M	207/6985	9.7	0.0625	85.22%	1.173	2.78		1.06	0.12	15.70	16.00	1.5493	1.072	2.065
Left side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	/	/	0.67	-0.02	15.70	16.00	1.5493	1.072	1.305
Right side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	/	/	2.08	0.04	15.70	16.00	1.5493	1.072	4.051
Top side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	/	/	1.98	-0.06	15.70	16.00	1.5493	1.072	3.857
Bottom side	802.11ax 160M	207/6985	2	0.0625	85.22%	1.173	/	/	0.45	0.03	15.70	16.00	1.5493	1.072	0.877
Back side	802.11ax 160M	15/6025	2	0.0625	85.22%	1.173	/	/	3.04	0.12	14.66	15.00	1.5493	1.081	5.971
Back side	802.11ax 80M	103/6465	2	0.0625	86.97%	1.15	/	/	1.79	0.01	12.24	13.00	1.5493	1.192	3.801
Back side	802.11ax 160M	175/6825	2	0.0625	85.22%	1.173	/	/	2.73	0.01	14.07	15.00	1.5493	1.240	6.151
Back side	802.11ax 80M	215/7025	2	0.0625	86.97%	1.15	/	/	2.76	-0.06	13.35	14.00	1.5493	1.161	5.708

11.5 Multiple Transmitter Evaluation

11.5.1 Simultaneous SAR test evaluation

No.	Simultaneous Tx Combination	Head	Body worn	Hotspot	Product specific 10gSAR
1	WIFI 5G/6G SISO1+Bluetooth	YES	YES	YES	YES
2	WIFI 5G/6G SISO2+Bluetooth	YES	YES	YES	YES
3	WIFI 5G/6G MIMO+Bluetooth	YES	YES	YES	YES
4	WIFI 2.4G SISO1+WIFI 5G/6G SISO2	YES	YES	YES	YES
5	WWAN+WIFI 2.4G SISO1	YES	YES	YES	YES
6	WWAN+WIFI 2.4G SISO2	YES	YES	YES	YES
7	WWAN+WIFI 2.4G MIMO	YES	YES	YES	YES
8	WWAN+WIFI 5G/6G SISO1	YES	YES	YES	YES
9	WWAN+WIFI 5G/6G SISO2	YES	YES	YES	YES
10	WWAN+WIFI 5G/6G MIMO	YES	YES	YES	YES
11	WWAN+WIFI 5G/6G SISO1+Bluetooth	YES	YES	YES	YES
12	WWAN+WIFI 5G/6G SISO2+Bluetooth	YES	YES	YES	YES
13	WWAN+WIFI 5G/6G MIMO+Bluetooth	YES	YES	YES	YES
14	WWAN+WIFI 2.4G SISO1+WIFI 5G/6G SISO2	YES	YES	YES	YES
15	WWAN+WIFI 5G/6G SISO1+Bluetooth+NFC	/	/	/	YES
16	WWAN+WIFI 5G/6G SISO2+Bluetooth+NFC	/	/	/	YES
17	WWAN+WIFI 5G/6G MIMO+Bluetooth+NFC	/	/	/	YES
18	WWAN+WIFI 2.4G SISO1+WIFI 5G/6G SISO2+NFC	/	/	/	YES

11.5.2 Simultaneous Transmission SAR Summation Scenario

Head:

Test position		SARmax (W/kg)				Summed SAR	
		MAX	WiFi 2.4G MIMO	WiFi 5G&6G MIMO	BT Ant4		
		1	2	3	4	1+2+3	1+3+4
GSM850	Left cheek	0.571	0.332	0.480	0.270	1.383	1.321
	Left tilted	0.314	0.428	0.402	0.353	1.144	1.069
	Right cheek	0.340	0.280	0.209	0.219	0.829	0.768
	Right tilted	0.184	0.330	0.185	0.275	0.699	0.644
GSM1900	Left cheek	0.212	0.332	0.480	0.270	1.024	0.962
	Left tilted	0.149	0.428	0.402	0.353	0.979	0.904
	Right cheek	0.188	0.280	0.209	0.219	0.677	0.616
	Right tilted	0.155	0.330	0.185	0.275	0.670	0.615
WCDMA Band II	Left cheek	0.209	0.332	0.480	0.270	1.021	0.959
	Left tilted	0.185	0.428	0.402	0.353	1.015	0.940
	Right cheek	0.307	0.280	0.209	0.219	0.796	0.735
	Right tilted	0.162	0.330	0.185	0.275	0.677	0.622
WCDMA Band IV	Left cheek	0.215	0.332	0.480	0.270	1.027	0.965
	Left tilted	0.137	0.428	0.402	0.353	0.967	0.892
	Right cheek	0.242	0.280	0.209	0.219	0.731	0.670
	Right tilted	0.148	0.330	0.185	0.275	0.663	0.608
WCDMA Band V	Left cheek	0.447	0.332	0.480	0.270	1.259	1.197
	Left tilted	0.266	0.428	0.402	0.353	1.096	1.021
	Right cheek	0.258	0.280	0.209	0.219	0.747	0.686
	Right tilted	0.175	0.330	0.185	0.275	0.690	0.635
LTE Band 2	Left cheek	0.299	0.332	0.480	0.270	1.111	1.049
	Left tilted	0.231	0.428	0.402	0.353	1.061	0.986
	Right cheek	0.424	0.280	0.209	0.219	0.913	0.852
	Right tilted	0.209	0.330	0.185	0.275	0.724	0.669
LTE Band 4	Left cheek	0.283	0.332	0.480	0.270	1.095	1.033
	Left tilted	0.193	0.428	0.402	0.353	1.023	0.948
	Right cheek	0.317	0.280	0.209	0.219	0.806	0.745
	Right tilted	0.209	0.330	0.185	0.275	0.724	0.669
LTE Band 5	Left cheek	0.398	0.332	0.480	0.270	1.210	1.148
	Left tilted	0.235	0.428	0.402	0.353	1.065	0.990
	Right cheek	0.231	0.280	0.209	0.219	0.720	0.659
	Right tilted	0.154	0.330	0.185	0.275	0.669	0.614
LTE Band 12	Left cheek	0.320	0.332	0.480	0.270	1.132	1.070
	Left tilted	0.162	0.428	0.402	0.353	0.992	0.917
	Right cheek	0.171	0.280	0.209	0.219	0.660	0.599
	Right tilted	0.102	0.330	0.185	0.275	0.617	0.562
LTE Band 41(38)	Left cheek	0.225	0.332	0.480	0.270	1.037	0.975
	Left tilted	0.225	0.428	0.402	0.353	1.055	0.980
	Right cheek	0.074	0.280	0.209	0.219	0.563	0.502
	Right tilted	0.099	0.330	0.185	0.275	0.614	0.559
LTE Band 42	Left cheek	0.508	0.332	0.480	0.270	1.320	1.258
	Left tilted	0.111	0.428	0.402	0.353	0.941	0.866
	Right cheek	0.791	0.280	0.209	0.219	1.280	1.219
	Right tilted	0.304	0.330	0.185	0.275	0.819	0.764

NR Band n41	Left cheek	0.103	0.332	0.480	0.270	0.915	0.853
	Left tilted	0.062	0.428	0.402	0.353	0.892	0.817
	Right cheek	0.187	0.280	0.209	0.219	0.676	0.615
	Right tilted	0.045	0.330	0.185	0.275	0.560	0.505
NR Band n77(78)	Left cheek	0.759	0.332	0.480	0.270	1.571	1.509
	Left tilted	0.330	0.428	0.402	0.353	1.160	1.085
	Right cheek	0.884	0.280	0.209	0.219	1.373	1.312
	Right tilted	0.339	0.330	0.185	0.275	0.854	0.799
DC_41A_N77A	Left cheek	0.467	0.332	0.480	0.270	1.279	1.217
	Left tilted	0.280	0.428	0.402	0.353	1.110	1.035
	Right cheek	0.517	0.280	0.209	0.219	1.006	0.945
	Right tilted	0.269	0.330	0.185	0.275	0.784	0.729
DC_41A_N78A	Left cheek	0.467	0.332	0.480	0.270	1.279	1.217
	Left tilted	0.280	0.428	0.402	0.353	1.110	1.035
	Right cheek	0.517	0.280	0.209	0.219	1.006	0.945
	Right tilted	0.269	0.330	0.185	0.275	0.784	0.729
NR Band n77(78)UL MIMO	Left cheek	0.623	0.332	0.480	0.270	1.435	1.373
	Left tilted	0.221	0.428	0.402	0.353	1.051	0.976
	Right cheek	0.572	0.280	0.209	0.219	1.061	1.000
	Right tilted	0.259	0.330	0.185	0.275	0.774	0.719

Sum_ENDC&ULCA(Head)

LTE Band (EN_DC)	Exposure position	Ant2	N77	EN_DC Summed SAR
			Ant7	
		1	2	1+2
Band 41	Left cheek	0.225	0.242	0.467
	Left tilted	0.225	0.055	0.280
	Right cheek	0.074	0.443	0.517
	Right tilted	0.099	0.170	0.269

LTE Band UL MIMO	Exposure position	Ant3	N77	UL MIMO Summed SAR
			Ant7	
		1	2	1+2
N77	Left cheek	0.381	0.242	0.623
	Left tilted	0.166	0.055	0.221
	Right cheek	0.129	0.443	0.572
	Right tilted	0.089	0.170	0.259

Body-worn:

Test position		SARmax (W/kg)				Summed SAR			
		WWAN MAX	WiFi 2.4G MIMO	WiFi 5G&6E MIMO	BT Ant4				
		1	2	3	4	1+2+3	Case No.	1+3+4	Case No.
GSM850	Front side	0.934	0.157	0.326	0.109	1.417		1.369	
	Back side	1.140	0.231	0.222	0.149	1.593		1.511	
GSM1900	Front side	1.030	0.157	0.326	0.109	1.513		1.465	
	Back side	0.998	0.231	0.222	0.149	1.451		1.369	
WCDMA Band II	Front side	0.870	0.157	0.326	0.109	1.353		1.305	
	Back side	0.839	0.231	0.222	0.149	1.292		1.210	
WCDMA Band IV	Front side	0.989	0.157	0.326	0.109	1.472		1.424	
	Back side	0.919	0.231	0.222	0.149	1.372		1.290	
WCDMA Band V	Front side	0.772	0.157	0.326	0.109	1.255		1.207	
	Back side	1.039	0.231	0.222	0.149	1.492		1.410	
LTE Band 2	Front side	0.843	0.157	0.326	0.109	1.326		1.278	
	Back side	0.772	0.231	0.222	0.149	1.225		1.143	
LTE Band 4	Front side	0.872	0.157	0.326	0.109	1.355		1.307	
	Back side	0.773	0.231	0.222	0.149	1.226		1.144	
LTE Band 5	Front side	0.669	0.157	0.326	0.109	1.152		1.104	
	Back side	1.133	0.231	0.222	0.149	1.586		1.504	
LTE Band 12	Front side	0.874	0.157	0.326	0.109	1.357		1.309	
	Back side	1.136	0.231	0.222	0.149	1.589		1.507	
LTE Band 41(38)	Front side	0.961	0.157	0.326	0.109	1.444		1.396	
	Back side	1.036	0.231	0.222	0.149	1.489		1.407	
LTE Band 42	Front side	0.680	0.157	0.326	0.109	1.163		1.115	
	Back side	0.705	0.231	0.222	0.149	1.158		1.076	
NR Band n41	Front side	0.848	0.157	0.326	0.109	1.331		1.283	
	Back side	1.016	0.231	0.222	0.149	1.469		1.387	
NR Band n77(78)	Front side	0.855	0.157	0.326	0.109	1.338		1.290	
	Back side	0.794	0.231	0.222	0.149	1.247		1.165	
DC_41A_N77A	Front side	1.383	0.157	0.326	0.109	1.866	55#	1.818	59#
	Back side	1.434	0.231	0.222	0.149	1.887	56#	1.805	60#
DC_41A_N78A	Front side	1.383	0.157	0.326	0.109	1.866	57#	1.818	61#
	Back side	1.434	0.231	0.222	0.149	1.887	58#	1.805	62#
NR Band n77(78)UL MIMO	Front side	0.851	0.157	0.326	0.109	1.334		1.286	
	Back side	0.725	0.231	0.222	0.149	1.178		1.096	

Sum_ENDC&ULCA(Body-Worn)

LTE Band (EN_DC)	Exposure position	Ant2	N77	EN_DC Summed SAR
			Ant7	
		1	2	1+2
Band 41	Front side	0.961	0.422	1.383
	Back side	1.036	0.398	1.434

LTE Band UL MIMO	Exposure position	Ant3	N77	UL MIMO Summed SAR
			Ant7	
		1	2	1+2
N77	Front side	0.429	0.422	0.851
	Back side	0.327	0.398	0.725

Hotspot:

Test position		SARmax (W/kg)				Summed SAR			
		MAX	WiFi 2.4G MIMO	WiFi 5G MIMO	BT Ant4				
		1	2	3	4	1+2+3	Case No.	1+3+4	Case No.
GSM850	Front side	0.934	0.120	1.152	0.109	2.206	1#	2.195	29#
	Back side	1.140	0.208	0.714	0.149	2.062	2#	2.003	30#
	Left side	1.059	0.000	0.000	0.000	1.059		1.059	
	Right side	0.000	0.159	0.891	0.018	1.050		0.909	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	0.611	0.000	0.000	0.000	0.611		0.611	
GSM1900	Front side	1.106	0.120	1.152	0.109	2.378	3#	2.367	31#
	Back side	1.075	0.208	0.714	0.149	1.997	4#	1.938	32#
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.508	0.159	0.891	0.018	1.558		1.417	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.241	0.000	0.000	0.000	1.241		1.241	
WCDMA Band II	Front side	0.870	0.120	1.152	0.109	2.142	5#	2.131	33#
	Back side	0.839	0.208	0.714	0.149	1.761	6#	1.702	34#
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.490	0.159	0.891	0.018	1.540		1.399	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.175	0.000	0.000	0.000	1.175		1.175	
WCDMA Band IV	Front side	1.018	0.120	1.152	0.109	2.290	7#	2.279	35#
	Back side	0.947	0.208	0.714	0.149	1.869	8#	1.810	36#
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.344	0.159	0.891	0.018	1.394		1.253	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.283	0.000	0.000	0.000	1.283		1.283	
WCDMA Band V	Front side	0.772	0.120	1.152	0.109	2.044	9#	2.033	37#
	Back side	1.039	0.208	0.714	0.149	1.961	10#	1.902	38#
	Left side	0.804	0.000	0.000	0.000	0.804		0.804	
	Right side	0.000	0.159	0.891	0.018	1.050		0.909	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	0.537	0.000	0.000	0.000	0.537		0.537	
LTE Band 2	Front side	1.067	0.120	1.152	0.109	2.339	11#	2.328	39#
	Back side	1.044	0.208	0.714	0.149	1.966	12#	1.907	40#
	Left side	0.444	0.000	0.000	0.000	0.444		0.444	
	Right side	0.457	0.159	0.891	0.018	1.507		1.366	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.175	0.000	0.000	0.000	1.175		1.175	
LTE Band 4	Front side	0.863	0.120	1.152	0.109	2.135	13#	2.124	41#
	Back side	0.758	0.208	0.714	0.149	1.680	14#	1.621	
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.296	0.159	0.891	0.018	1.346		1.205	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.146	0.000	0.000	0.000	1.146		1.146	
LTE Band 5	Front side	0.669	0.120	1.152	0.109	1.941	15#	1.930	42#
	Back side	1.133	0.208	0.714	0.149	2.055	16#	1.996	43#
	Left side	0.800	0.000	0.000	0.000	0.800		0.800	
	Right side	0.000	0.159	0.891	0.018	1.050		0.909	

	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	0.744	0.000	0.000	0.000	0.744		0.744	
LTE Band 12	Front side	0.874	0.120	1.152	0.109	2.146	17#	2.135	44#
	Back side	1.136	0.208	0.714	0.149	2.058	18#	1.999	45#
	Left side	0.875	0.000	0.000	0.000	0.875		0.875	
	Right side	0.000	0.159	0.891	0.018	1.050		0.909	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	0.576	0.000	0.000	0.000	0.576		0.576	
LTE Band 41(38)	Front side	0.772	0.120	1.152	0.109	2.044	19#	2.033	46#
	Back side	0.866	0.208	0.714	0.149	1.788	20#	1.729	47#
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.107	0.159	0.891	0.018	1.157		1.016	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.124	0.000	0.000	0.000	1.124		1.124	
LTE Band 42	Front side	0.411	0.120	1.152	0.109	1.683	21#	1.672	48#
	Back side	0.428	0.208	0.714	0.149	1.350		1.291	
	Left side	0.115	0.000	0.000	0.000	0.115		0.115	
	Right side	0.000	0.159	0.891	0.018	1.050		0.909	
	Top side	0.020	0.309	0.534	0.187	0.863		0.741	
	Bottom side	0.000	0.000	0.000	0.000	0.000		0.000	
NR Band n41	Front side	0.621	0.120	1.152	0.109	1.893	22#	1.882	49#
	Back side	0.744	0.208	0.714	0.149	1.666	23#	1.607	
	Left side	0.000	0.000	0.000	0.000	0.000		0.000	
	Right side	0.154	0.159	0.891	0.018	1.204		1.063	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.144	0.000	0.000	0.000	1.144		1.144	
NR Band n77(78)	Front side	0.310	0.120	1.152	0.109	1.582		1.571	
	Back side	0.299	0.208	0.714	0.149	1.221		1.162	
	Left side	0.579	0.000	0.000	0.000	0.579		0.579	
	Right side	0.106	0.159	0.891	0.018	1.156		1.015	
	Top side	0.260	0.309	0.534	0.187	1.103		0.981	
	Bottom side	0.000	0.000	0.000	0.000	0.000		0.000	
DC_41A_N77A	Front side	1.073	0.120	1.152	0.109	2.345	24#	2.334	50#
	Back side	1.155	0.208	0.714	0.149	2.077	25#	2.018	51#
	Left side	0.579	0.000	0.000	0.000	0.579		0.579	
	Right side	0.107	0.159	0.891	0.018	1.157		1.016	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.124	0.000	0.000	0.000	1.124		1.124	
DC_41A_N78A	Front side	1.073	0.120	1.152	0.109	2.345	26#	2.334	52#
	Back side	1.155	0.208	0.714	0.149	2.077	27#	2.018	53#
	Left side	0.579	0.000	0.000	0.000	0.579		0.579	
	Right side	0.107	0.159	0.891	0.018	1.157		1.016	
	Top side	0.000	0.309	0.534	0.187	0.843		0.721	
	Bottom side	1.124	0.000	0.000	0.000	1.124		1.124	
NR Band n77(78)UL MIMO	Front side	0.578	0.120	1.152	0.109	1.850	28#	1.839	54#
	Back side	0.483	0.208	0.714	0.149	1.405		1.346	
	Left side	0.579	0.000	0.000	0.000	0.579		0.579	
	Right side	0.086	0.159	0.891	0.018	1.136		0.995	
	Top side	0.130	0.309	0.534	0.187	0.973		0.851	
	Bottom side	0.000	0.000	0.000	0.000	0.000		0.000	

Sum_ENDC(Hotspot)

LTE Band (EN_DC)	Exposure position	Ant2	N77	EN_DC Summed SAR
			Ant7	
		1	2	1+2
Band 41	Front side	0.772	0.301	1.073
	Back side	0.866	0.289	1.155
	Left side	0.000	0.579	0.579
	Right side	0.107	0.000	0.107
	Top side	0.000	0.000	0.000
	Bottom side	1.124	0.000	1.124

LTE Band UL MIMO	Exposure position	Ant3	N77	UL MIMO Summed SAR
			Ant7	
		1	2	1+2
N77	Front side	0.277	0.301	0.578
	Back side	0.194	0.289	0.483
	Left side	0.000	0.579	0.579
	Right side	0.086	0.000	0.086
	Top side	0.130	0.000	0.130
	Bottom side	0.000	0.000	0.000

Product Specific 10-g (0mm):

Test position		SARmax (W/kg)					Summed SAR	
		MAX	WiFi 2.4G MIMO	WiFi 5G&6E MIMO	BT Ant4	NFC		
		1	2	3	4	5		
GSM850	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GSM1900	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	1.722	0.000	0.000	0.000	0.000	1.722	1.722
WCDMA Band II	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WCDMA Band IV	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WCDMA Band V	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LTE Band 2	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	1.423	0.000	0.000	0.000	0.000	1.423	1.423
LTE Band 4	Front side	1.547	0.000	1.605	0.000	0.000	3.152	3.152
	Back side	1.261	0.170	0.456	0.000	0.024	1.911	1.741
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	2.020	0.000	0.000	0.000	0.000	2.020	2.020
LTE Band 5	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000

	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LTE Band 12	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
LTE Band 41(38)	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	1.607	0.000	0.000	0.000	0.000	1.607	1.607
LTE Band 42	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NR Band n41	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	2.079	0.000	0.000	0.000	0.000	2.079	2.079
NR Band n77(78)	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	1.659	0.000	0.000	0.000	0.000	1.659	1.659
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
DC_41A_N77A	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	1.659	0.000	0.000	0.000	0.000	1.659	1.659
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	1.607	0.000	0.000	0.000	0.000	1.607	1.607
DC_41A_N78A	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	1.659	0.000	0.000	0.000	0.000	1.659	1.659
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721
	Bottom side	1.607	0.000	0.000	0.000	0.000	1.607	1.607
NR Band n77(78)UL MIMO	Front side	0.000	0.000	1.605	0.000	0.000	1.605	1.605
	Back side	0.000	0.170	0.456	0.000	0.024	0.650	0.480
	Left side	1.659	0.000	0.000	0.000	0.000	1.659	1.659
	Right side	0.000	0.347	1.228	0.000	0.000	1.575	1.228
	Top side	0.000	0.575	0.721	0.000	0.000	1.296	0.721



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	Bottom side	0.000	0.000	0.000	0.000	0.000	0.000	0.000
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Sum_EN-DC&ULCA(0mm)

LTE Band (EN_DC)	Exposure position	Ant2	N77	EN_DC Summed SAR
			Ant7	
		1	2	1+2
Band 41	Front side	0.000	0.000	0.000
	Back side	0.000	0.000	0.000
	Left side	0.000	1.659	1.659
	Right side	0.000	0.000	0.000
	Top side	0.000	0.000	0.000
	Bottom side	1.607	0.000	1.607

LTE Band UL MIMO	Exposure position	Ant3	N77	UL MIMO Summed SAR
			Ant7	
		1	2	1+2
N77	Front side	0.000	0.000	0.000
	Back side	0.000	0.000	0.000
	Left side	0.000	1.659	1.659
	Right side	0.000	0.000	0.000
	Top side	0.000	0.000	0.000
	Bottom side	0.000	0.000	0.000

11.5.3 SPLSR Evaluation Analysis

- 1) When standalone SAR is measured for both antennas in the pair, the peak location separation distance is computed by the square root of $[(x_1-x_2)^2 + (y_1-y_2)^2 + (z_1-z_2)^2]$, where (x_1, y_1, z_1) and (x_2, y_2, z_2) are the coordinates in the area scans or extrapolated peak SAR locations in the zoom scans, as appropriate.
- 2) $SPLSR = (SAR_1 + SAR_2)1.5 / (\text{min. separation distance, mm})$. If $SPLSR \leq 0.04$ for 1g SAR, or $SPLSR \leq 0.10$ for 10g SAR simultaneously transmission SAR measurement is not necessary.
- 3) Per April 2022 TCB Workshop Notes, WLAN antenna 4/5 was summed algebraically with the BT Antenna 4 separately for the purposes of hybrid SPLSR combination and they are located at the top of the device.
- 4) Per April 2022 TCB Workshop, instead of doing a small volume scan over a co-located antenna pair, used summing the SAR values of the co-located pair and using that value in SPLSR calculation. In the calculation used the minimum distance between the spatially separated antenna and the closest antenna of the co-located antenna pair to be conservative.

Case No.	Position	Band	SAR (W/kg)	SAR peak location (cm)			3D distance (mm)	Summed SAR (W/kg)	SPLSR Results	Simultaneous SAR
				X	Y	Z				
1#	Front side 5mm	GSM 850(Ant0)	0.934	-70.1	-46.6	-207	151.717	2.206	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	GSM 850(Ant0)	0.934	-70.1	-46.6	-207	151.551	2.206	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
2#	Back side 5mm	GSM 850(Ant0)	1.140	3.5	-61.6	-207	138.148	2.062	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	GSM 850(Ant0)	1.140	3.5	-61.6	-207	137.874	2.062	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
3#	Front side 5mm	GSM1900 (Ant2)	1.106	-14.6	-56.9	-207	157.080	2.378	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	GSM1900 (Ant2)	1.106	-14.6	-56.9	-207	156.872	2.378	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
4#	Back side 5mm	GSM1900 (Ant2)	1.075	-48.9	-53.9	-207	112.782	1.997	0.03	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	GSM1900 (Ant2)	1.075	-48.9	-53.9	-207	112.553	1.997	0.03	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
5#	Front side 5mm	WCDMA Band II (Ant2)	0.870	-14.4	-56.7	-207	156.900	2.142	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	WCDMA Band II (Ant2)	0.870	-14.4	-56.7	-207	156.691	2.142	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
6#	Back side 5mm	WCDMA Band II (Ant2)	0.839	-48.7	-53.6	-207	112.517	1.761	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	WCDMA Band II (Ant2)	0.839	-48.7	-53.6	-207	112.288	1.761	0.02	Not Required
		WiFi 2.4G MIMO+WiFi	0.922	-66.3	57.3	-207				

		5G MIMO(WiFi 5G)								
7#	Front side 5mm	WCDMA Band IV (Ant2)	1.018	-14.3	-56.9	-207	157.108	2.290	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	WCDMA Band IV (Ant2)	1.018	-14.3	-56.9	-207	156.900	2.290	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
8#	Back side 5mm	WCDMA Band IV (Ant2)	0.947	-48.6	-53.8	-207	112.730	1.869	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	WCDMA Band IV (Ant2)	0.947	-48.6	-53.8	-207	112.501	1.869	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
9#	Front side 5mm	WCDMA Band V (Ant0)	0.772	-70.2	-46.7	-207	151.840	2.044	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	WCDMA Band V (Ant0)	0.772	-70.2	-46.7	-207	151.675	2.044	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
10#	Back side 5mm	WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207	138.270	1.961	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207	137.996	1.961	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
11#	Front side 5mm	LTE Band 2 (Ant2)	1.067	-14.4	-57.1	-207	157.298	2.339	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 2 (Ant2)	1.067	-14.4	-57.1	-207	157.089	2.339	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
12#	Back side 5mm	LTE Band 2 (Ant2)	1.044	-48.7	-54.1	-207	113.011	1.966	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	LTE Band 2 (Ant2)	1.044	-48.7	-54.1	-207	112.782	1.966	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
13#	Front side 5mm	LTE Band 4 (Ant2)	0.863	-14.3	-57.2	-207	157.407	2.135	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 4 (Ant2)	0.863	-14.3	-57.2	-207	157.198	2.135	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
14#	Back side 5mm	LTE Band 4 (Ant2)	0.758	-48.6	-54	-207	112.928	1.680	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	LTE Band 4 (Ant2)	0.758	-48.6	-54	-207	112.699	1.680	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
15#	Front side 5mm	LTE Band 5 (Ant0)	0.669	-70	-46.5	-207	151.594	1.941	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 5 (Ant0)	0.669	-70	-46.5	-207	151.428	1.941	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				

16#	Back side 5mm	LTE Band 5 (Ant0)	1.133	3.4	-61.5	-207	138.011	2.055	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	LTE Band 5 (Ant0)	1.133	3.4	-61.5	-207	137.737	2.055	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
17#	Front side 5mm	LTE Band 12 (Ant0)	0.874	-69.9	-46.6	-207	151.663	2.146	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 12 (Ant0)	0.874	-69.9	-46.6	-207	151.497	2.146	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
18#	Back side 5mm	LTE Band 12 (Ant0)	1.136	3.5	-61.6	-207	138.148	2.058	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	LTE Band 12 (Ant0)	1.136	3.5	-61.6	-207	137.874	2.058	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
19#	Front side 5mm	LTE Band 41(38) (Ant2)	0.772	-14.2	-57.1	-207	157.317	2.044	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 41(38) (Ant2)	0.772	-14.2	-57.1	-207	157.108	2.044	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
20#	Back side 5mm	LTE Band 41(38) (Ant2)	0.866	-48.7	-53.8	-207	112.714	1.788	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	LTE Band 41(38) (Ant2)	0.866	-48.7	-53.8	-207	112.485	1.788	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
21#	Front side 5mm	LTE Band 42 (Ant7)	0.411	-68	62	207	417.502	1.683	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	LTE Band 42 (Ant7)	0.411	-68	62	207	417.493	1.683	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
22#	Front side 5mm	NR Band n41 (Ant2)	0.621	-14.1	-57.2	-207	157.426	1.893	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	NR Band n41 (Ant2)	0.621	-14.1	-57.2	-207	157.217	1.893	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
23#	Back side 5mm	NR Band n41 (Ant2)	0.744	-48.4	-53.7	-207	112.663	1.666	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	NR Band n41 (Ant2)	0.744	-48.4	-53.7	-207	112.434	1.666	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
24#	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.345	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.127	2.345	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.073	-67	61	207	417.501	2.345	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				

	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.073	-67	61	207	417.492	2.345	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
25#	Back side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.155	-48.3	-53.5	-207	112.482	2.077	0.03	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.155	-48.3	-53.5	-207	112.253	2.077	0.03	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	421.427	2.077	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	421.393	2.077	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
26#	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.345	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.127	2.345	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N78A(N77 Ant7)	1.073	-67	61	207	417.501	2.345	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N78A(N77 Ant7)	1.073	-67	61	207	417.492	2.345	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
27#	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.155	-48.3	-53.5	-207	112.482	2.077	0.03	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.155	-48.3	-53.5	-207	112.253	2.077	0.03	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N78A(N77 Ant7)	1.155	12	64	207	421.427	2.077	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	0.922	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N78A(N77 Ant7)	1.155	12	64	207	421.393	2.077	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	0.922	-66.3	57.3	-207				
28#	Front side 5mm	NR Band n77(78)UL MIMO	0.578	-66	62	207	417.321	1.850	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G MIMO (WiFi 2.4G)	1.272	-29.2	99.5	-207				
	Front side 5mm	NR Band n77(78)UL MIMO	0.578	-66	62	207	417.312	1.850	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G MIMO(WiFi 5G)	1.272	-29.1	99.3	-207				
29#	Front side 5mm	GSM 850(Ant0)	0.934	-70.1	-46.6	-207	151.717	2.195	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	GSM 850(Ant0)	0.934	-70.1	-46.6	-207	152.638	2.195	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
30#	Back side	GSM 850(Ant0)	1.140	3.5	-61.6	-207	138.148	2.003	0.02	Not Required

	5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207	161.806	2.003	0.02	Not Required
	Back side 5mm	GSM 850(Ant0)	1.140	3.5	-61.6	-207				
31#		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204	157.080	2.367	0.02	Not Required
		GSM1900 (Ant2)	1.106	-14.6	-56.9	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207	157.958	2.367	0.02	Not Required
		GSM1900 (Ant2)	1.106	-14.6	-56.9	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207	112.782	1.938	0.02	Not Required
		GSM1900 (Ant2)	1.075	-48.9	-53.9	-207				
32#	Back side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207	152.651	1.938	0.02	Not Required
		GSM1900 (Ant2)	1.075	-48.9	-53.9	-207				
	Back side 5mm	WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204	156.900	2.131	0.02	Not Required
		WCDMA Band II (Ant2)	0.870	-14.4	-56.7	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207	157.777	2.131	0.02	Not Required
		WCDMA Band II (Ant2)	0.870	-14.4	-56.7	-207				
33#	Front side 5mm	WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207	112.517	1.702	0.02	Not Required
		WCDMA Band II (Ant2)	0.839	-48.7	-53.6	-207				
	Back side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207	152.326	1.702	0.01	Not Required
		WCDMA Band II (Ant2)	0.839	-48.7	-53.6	-207				
	Back side 5mm	WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204	157.108	2.279	0.02	Not Required
		WCDMA Band IV (Ant2)	1.018	-14.3	-56.9	-207				
34#	Front side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207	157.985	2.279	0.02	Not Required
		WCDMA Band IV (Ant2)	1.018	-14.3	-56.9	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207	112.730	1.810	0.02	Not Required
		WCDMA Band IV (Ant2)	0.947	-48.6	-53.8	-207				
	Back side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207	152.510	1.810	0.02	Not Required
		WCDMA Band IV (Ant2)	0.947	-48.6	-53.8	-207				
35#	Back side 5mm	WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204	151.840	2.033	0.02	Not Required
		WCDMA Band V (Ant0)	0.772	-70.2	-46.7	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207	152.761	2.033	0.02	Not Required
		WCDMA Band V (Ant0)	0.772	-70.2	-46.7	-207				
	Front side 5mm	WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207	138.270	1.902	0.02	Not Required
		WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207				
36#	Back side 5mm	WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207				
37#	Back side 5mm	WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207				
38#	Back side 5mm	WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207				

	Back side 5mm	WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207	161.983	1.902	0.02	Not Required
		WCDMA Band V (Ant0)	1.039	3.4	-61.8	-207				
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
39#	Front side 5mm	LTE Band 2 (Ant2)	1.067	-14.4	-57.1	-207	157.298	2.328	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 2 (Ant2)	1.067	-14.4	-57.1	-207	158.175	2.328	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
40#	Back side 5mm	LTE Band 2 (Ant2)	1.044	-48.7	-54.1	-207	113.011	1.907	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	LTE Band 2 (Ant2)	1.044	-48.7	-54.1	-207	152.821	1.907	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
41#	Front side 5mm	LTE Band 4 (Ant2)	0.863	-14.3	-57.2	-207	157.407	2.124	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 4 (Ant2)	0.863	-14.3	-57.2	-207	158.284	2.124	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
42#	Front side 5mm	LTE Band 5 (Ant0)	0.669	-70	-46.5	-207	151.594	1.930	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 5 (Ant0)	0.669	-70	-46.5	-207	152.514	1.930	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
43#	Back side 5mm	LTE Band 5 (Ant0)	1.133	3.4	-61.5	-207	138.011	1.996	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	LTE Band 5 (Ant0)	1.133	3.4	-61.5	-207	161.689	1.996	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
44#	Front side 5mm	LTE Band 12 (Ant0)	0.874	-69.9	-46.6	-207	151.663	2.135	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 12 (Ant0)	0.874	-69.9	-46.6	-207	152.584	2.135	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
45#	Back side 5mm	LTE Band 12 (Ant0)	1.136	3.5	-61.6	-207	138.148	1.999	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	LTE Band 12 (Ant0)	1.136	3.5	-61.6	-207	161.806	1.999	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
46#	Front side 5mm	LTE Band 41(38) (Ant2)	0.772	-14.2	-57.1	-207	157.317	2.033	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 41(38) (Ant2)	0.772	-14.2	-57.1	-207	158.194	2.033	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				

47#	Back side 5mm	LTE Band 41(38) (Ant2)	0.866	-48.7	-53.8	-207	112.714	1.729	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	LTE Band 41(38) (Ant2)	0.866	-48.7	-53.8	-207	152.524	1.729	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
48#	Front side 5mm	LTE Band 42 (Ant7)	0.411	-68	62	207	417.502	1.672	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	LTE Band 42 (Ant7)	0.411	-68	62	207	417.602	1.672	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
49#	Front side 5mm	NR Band n41 (Ant2)	0.621	-14.1	-57.2	-207	157.426	1.882	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	NR Band n41 (Ant2)	0.621	-14.1	-57.2	-207	158.303	1.882	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
50#	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	158.213	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	158.213	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
51#	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	421.427	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	414.217	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	421.427	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.155	12	64	207	414.217	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
52#	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	158.213	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				

	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	157.336	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.073	-14	-57.1	-207	158.213	2.334	0.02	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
53#	Back side 5mm	DC_41A_N78A(N77 Ant7)	1.155	12	64	207	421.427	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N78A(N77 Ant7)	1.155	12	64	207	414.217	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
	Back side 5mm	DC_41A_N77A(N78 Ant7)	1.155	12	64	207	421.427	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	0.863	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N78 Ant7)	1.155	12	64	207	414.217	2.018	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	0.863	-27.4	97.2	-204				
54#	Front side 5mm	NR Band n77(78)UL MIMO	0.578	-66	62	207	417.321	1.839	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(WiFi 5G)	1.261	-29.2	99.5	-207				
	Front side 5mm	NR Band n77(78)UL MIMO	0.578	-66	62	207	417.420	1.839	0.01	Not Required
		WiFi 5G MIMO+Bluetooth(BT)	1.261	-29	100.4	-207				
55#	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.028	1.866	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.483	-29.2	99.1	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.217	1.866	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 5G)	0.483	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.383	12.1	64.2	207	417.516	1.866	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.483	-29.2	99.1	-207				
	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.383	12.1	64.2	207	417.523	1.866	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO(WiFi 5G)	0.483	-29.1	99.3	-207				
56#	Back side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.301	1.887	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.453	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.071	1.887	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO(WiFi 5G)	0.453	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.434	12.2	64.1	207	421.466	1.887	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi	0.453	-66.5	57.5	-207				

	Back side 5mm	2.4G)								
		DC_41A_N77A(N77 Ant7)	1.434	12.2	64.1	207	421.431	1.887	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G&6E MIMO(WiFi 5G)	0.453	-66.3	57.3	-207				
57#	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.217	1.866	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.483	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.217	1.866	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G&6E MIMO(WiFi 5G)	0.483	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N78A(N78 Ant7)	1.383	12.1	64.2	207	417.523	1.866	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.483	-29.1	99.3	-207				
	Front side 5mm	DC_41A_N78A(N78 Ant7)	1.383	12.1	64.2	207	417.523	1.866	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G&6E MIMO(WiFi 5G)	0.483	-29.1	99.3	-207				
58#	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.301	1.887	0.02	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.453	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.071	1.887	0.02	Not Required
		WiFi 2.4G MIMO+WiFi 5G&6E MIMO(WiFi 5G)	0.453	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N78A(N77 Ant7)	1.434	12.2	64.1	207	421.466	1.887	0.01	Not Required
		WiFi 2.4G MIMO +WiFi 5G&6E MIMO (WiFi 2.4G)	0.453	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N78 Ant7)	1.434	12.2	64.1	207	421.431	1.887	0.01	Not Required
		WiFi 2.4G MIMO+WiFi 5G&6E MIMO(WiFi 5G)	0.453	-66.3	57.3	-207				
59#	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.028	1.818	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.435	-29.2	99.1	-207				
	Front side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	158.303	1.818	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.435	-29	100.4	-207				
	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.383	12.1	64.2	207	417.516	1.818	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.435	-29.2	99.1	-207				
	Front side 5mm	DC_41A_N77A(N77 Ant7)	1.383	12.1	64.2	207	417.607	1.818	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.435	-29	100.4	-207				
60#	Back side 5mm	DC_41A_N77A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.071	1.805	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi	0.371	-66.3	57.3	-207				

61#	Back side 5mm	5G)								
		DC_41A_N77A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.301	1.805	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.371	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.434	12.2	64.1	207	421.431	1.805	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.371	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N77A(N77 Ant7)	1.434	12.2	64.1	207	421.466	1.805	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.371	-66.5	57.5	-207				
	Front side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	157.028	1.818	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.435	-29.2	99.1	-207				
		DC_41A_N78A(LTE Band 41 Ant2)	1.383	-14.1	-57.2	-207	158.303	1.818	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.435	-29	100.4	-207				
		DC_41A_N78A(N78 Ant7)	1.383	12.1	64.2	207	417.516	1.818	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.435	-29.2	99.1	-207				
	Front side 5mm	DC_41A_N78A(N78 Ant7)	1.383	12.1	64.2	207	417.607	1.818	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.435	-29	100.4	-207				
62#	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.071	1.805	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.371	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N78A(LTE Band 41 Ant2)	1.434	-48.2	-53.3	-207	112.301	1.805	0.02	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.371	-66.5	57.5	-207				
	Back side 5mm	DC_41A_N78A(N78 Ant7)	1.434	12.2	64.1	207	421.431	1.805	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (WiFi 5G)	0.371	-66.3	57.3	-207				
	Back side 5mm	DC_41A_N78A(N78 Ant7)	1.434	12.2	64.1	207	421.466	1.805	0.01	Not Required
		WiFi 5G&6E MIMO+Bluetooth (BT)	0.371	-66.5	57.5	-207				

12 Equipment list

Test Platform		SPEAG DASY Professional				
Software Reference		DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)				
		cDASY8 V16.4.0.5005				
Hardware Reference						
Equipment		Manufacturer	Model	Serial Number	Calibration Date	Due date of calibration
☒	Test Phantom	SPEAG	ELI V5.0	1239	NCR	NCR
☒	Test Phantom	SPEAG	Twin-SAM V8.0	2155	NCR	NCR
☒	Test Phantom	SPEAG	mmWave	1777	NCR	NCR
☒	DAE	SPEAG	DAE4	1374	2026-02-02	2027-02-01
☒	DAE	SPEAG	DAE4ip	1826	2026-04-27	2027-04-26
☒	E-Field Probe	SPEAG	EX3DV4	3826	2025-07-03	2026-07-02
☒	E-Field Probe	SPEAG	EX3DV4	3982	2025-11-07	2026-11-06
☒	E-U Probe	SPEAG	EUmmWV4	9718	2025-08-04	2026-08-03
☒	Validation Kits	SPEAG	CLA13	1032	2026-02-18	2029-02-17
☒	Validation Kits	SPEAG	D750V3	1214	2025-04-01	2028-03-31
☒	Validation Kits	SPEAG	D835V2	4d161	2023-08-25	2026-08-24
☒	Validation Kits	SPEAG	D1750V2	1105	2023-11-03	2026-11-02
☒	Validation Kits	SPEAG	D1950V3	1138	2025-10-15	2028-10-15
☒	Validation Kits	SPEAG	D2450V2	922	2023-08-28	2026-08-27
☒	Validation Kits	SPEAG	D2600V2	1158	2025-03-31	2028-03-30
☒	Validation Kits	SPEAG	D3500V2	1133	2025-04-02	2028-04-01
☒	Validation Kits	SPEAG	D3900V2	1083	2025-03-31	2028-03-30
☒	Validation Kits	SPEAG	D5GHzV2	1174	2023-08-23	2026-08-22
☒	Validation Kits	SPEAG	D6.5GHzV2	1030	2025-02-13	2028-02-12
☒	5G Verification Source	SPEAG	10GHz	2004	2024-08-20	2027-08-19
☒	Dielectric parameter probes	SPEAG	DAKS-3.5	1120	2025-08-25	2026-08-24
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R140	50920	2025-08-25	2026-08-24
☒	Dielectric parameter probes	SPEAG	DAKS-12	1043	2025-09-22	2026-09-21
☒	Vector Network Analyzer and Vector Reflectometer	SPEAG	DAKS_VNA R60	21423005	2025-09-22	2026-09-21
☒	Universal Radio Communication Tester	R&S	CMW500	111637	2026-01-15	2027-01-14
☒	RF Bi-Directional Coupler	Agilent	86205-60001	MY31400031	NCR	NCR
☒	Signal Generator	R&S	SMB100A	182393	2026-01-14	2027-01-13
☒	Preamplifier	Qiji	YX28980933	202104001	NCR	NCR
☒	Preamplifier	QiJi	YX28982108	K2110F01	NCR	NCR
☒	USB Average Power Sensor	Keysight	U2002H	MY5639004	2025-08-25	2026-08-24
☒	USB Average Power Sensor	Agilent	U2002H	MY48200110	2025-11-20	2026-11-19

☒	USB Power Sensor	KEYSIGHT	U8481A	MZ52460001	2025-06-16	2026-06-14
☒	USB Power Sensor	KEYSIGHT	U8481A	MZ52460007	2025-06-16	2026-06-14
☒	Attenuator	SHX	TS2-3dB	30704	NCR	NCR
☒	Coaxial low pass filter	Mini-Circuits	VLF-2500(+)	NA	NCR	NCR
☒	Coaxial low pass filter	Microlab Fxr	LA-F13	NA	NCR	NCR
☒	DC POWER SUPPLY	SAKO	SK1730SL5A	NA	NCR	NCR
☒	Speed reading thermometer	DTM SPEZLAL	DTM3000	NA	2025-09-17	2026-09-16
☒	Humidity and Temperature Indicator	ASONE	THA-02L	2501-2342	2025-06-03	2026-06-02
☒	Humidity and Temperature Indicator	ASONE	THA-02L	2201-1017	2025-09-18	2026-09-17

Note: All the equipment are within the valid period when the tests are performed.



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13 Calibration certificate

Please see the Appendix C

14 Photographs

Please see the Appendix D

Appendix A: Detailed System Check Results

Appendix B: Detailed Test Results

Appendix C: Calibration certificate

Appendix D: Photographs

Appendix E: Conducted RF Output Power

--- End of report ---