FCC SAR TEST REPORT

Application No.:	SZCR2506002435AT
Applicant:	Fujian Landi Commercial Equipment Co.,Ltd.
Address of Applicant:	Building 17, Area A, Software Park, No.89 Software Road, Gulou District, Fuzhou, 350003, Fujian, China
EUT Description:	Portable Data Terminal
Model No.:	P30
FCC ID:	2AG6N-P30
Standards:	FCC 47CFR §2.1093
Date of Receipt:	2025-06-20
Date of Test:	2025-06-23 to 2025-06-29
Date of Issue:	2025-07-07
Test Result :	**PASS ***

* In the configuration tested, the EUT detailed in this report complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2025-07-07		Original

Authorized for issue by:				
		Calvin Weng		
		Calvin Weng/Project Engineer		
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TEST SUMMARY

Frequency Band	Maximum Reported SAR(W/kg)
	Product specific 10g SAR
LTE Band 5	1.50
LTE Band 7	2.99
LTE Band 12/17	0.89
LTE Band 13	1.28
LTE Band 14	1.25
LTE Band 25/2	2.77
LTE Band 26	1.42
LTE Band 41	1.75
LTE Band 66/4	2.26
LTE Band 71	0.75
WI-FI (2.4GHz)	2.27
WI-FI (5GHz)	0.83
BT	0.20
SAR Limited(W/kg)	4.0
Maximum Simultaneous Transmission SAR (W/kg)	
Scenario	Product specific 10g SAR
Sum SAR	3.10
SPLSR	/
SPLSR Limited	0.1

Note: The Simultaneous transmission SAR is the same test position of the WWAN Antenna + WiFi/BT Antenna.

According to TCB workshop (Overlapping LTE Bands): SAR in LTE band 2 is covered by LTE band 25. SAR in LTE band 4 is covered by LTE band 66. SAR in LTE band 17 is covered by LTE band 12.

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.

Contents

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1 General Information

1.1 General Description of EUT

Product Name:	Portable Data Terminal		
Model No.:	P30		
Product Phase:	production unit		
Device Type:	portable device		
Exposure Category:	uncontrolled environment / general population		
IMEI:	254PCP300249/ 254PCP300252		
Hardware Version:	P3W1401101		
Software Version:	A3.01.01.00001		
Antenna Type:	PIFA antenna		
Device Operating Configurations:			
Modulation Mode:	**LTE**:QPSK,16QAM; **WIFI**:DSSS,OFDM;**BT**: GFSK, π/4DQPSK,8DPSK		
Device Class:	B		
GPRS Multi-slots Class:	/	EGPRS Multi-slots Class:	/
HSDPA UE Category:	/	HSUPA UE Category:	/
Frequency Bands:	Band	Tx(MHz)	
	LTE Band 2	1850 ~1910	
	LTE Band 4	1710~1755	
	LTE Band 5	824~849	
	LTE Band 7	2500~2570	
	LTE Band 12	699~716	
	LTE Band 13	777~787	
	LTE Band 14	788~798	
	LTE Band 17	704-716	
	LTE Band 25	814~849	
	LTE Band 26	814~849	
	LTE Band 41	2496~2690	
	LTE Band 66	1710~1780	
	LTE Band 71	663~698	

	WIFI 2.4G	2412~2462
	WIFI 5G	5180~5825
	BT	2402~2480
	NFC	13.56
RF Cable:	☒Provided by applicant ☐Provided by the laboratory	
Battery Information 1#:	Model:	LD18650M
	Normal Voltage :	DC7.2V
	Rated capacity :	2500mAh
	Battery Type :	Rechargeable Li-ion Battery
	Manufacturer1	Xinyu Ganfeng Electronic Co.,Ltd.
Battery Information 2#:	Model:	LD18650M
	Normal Voltage :	DC7.2V
	Rated capacity :	3250mAh
	Battery Type :	Rechargeable Li-ion Battery
	Manufacturer1	Xinyu Ganfeng Electronic Co.,Ltd.

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:
As above information is provided and confirmed by the applicant. SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

1.1.1 DUT Antenna Locations

The DUT Antenna Locations can be referred to Appendix D

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
KDB 941225 D05	SAR for LTE Devices v02r05
KDB 941225 D05A	LTE Rel.10 KDB Inquiry Sheet v01r02
KDB 248227 D01	SAR Guidance for IEEE 802 11 Wi-Fi SAR v02r02
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.)

1.4 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.
Tel: +86 755 2601 2053 Fax: +86 755 2671 0594
No tests were sub-contracted.

1.5 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.
Designation Number: CN1336. Test Firm Registration Number: 787754.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0006.
IC#: 4620C.

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 Configuraion

3.1 The SAR Measurement System

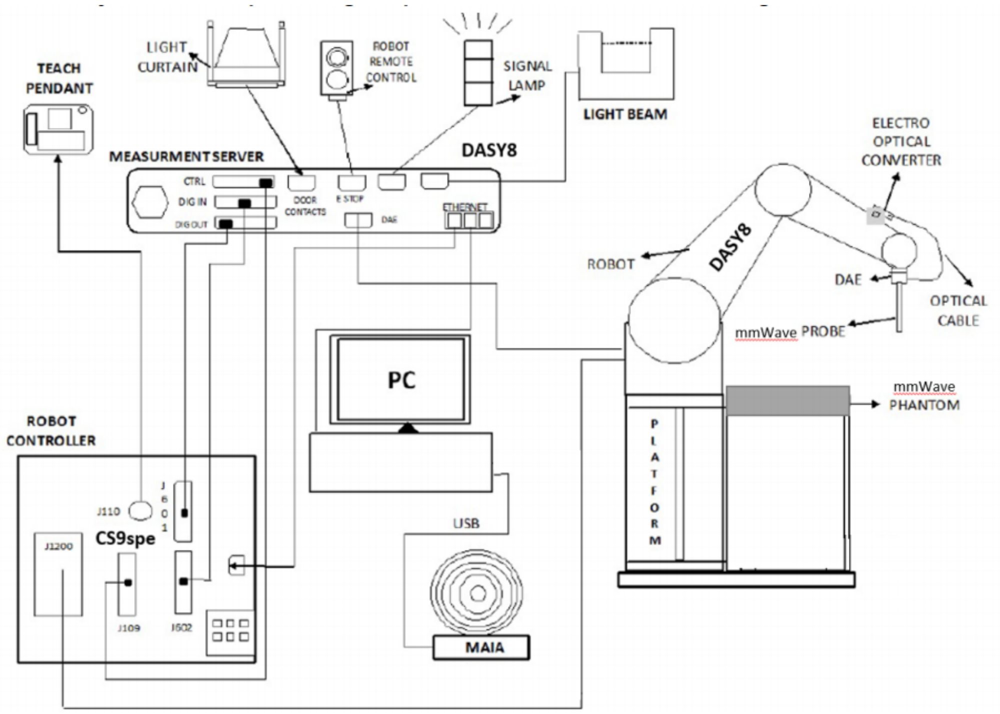
This SAR Measurement System uses a Computer-controlled 3-D stepper motor system (SPEAG DASY professional system). A E-field probe is used to determine the internal electric fields. The SAR can be obtained from the equation SAR= σ (|Ei|2)/ ρ where σ and ρ are the conductivity and mass density of the tissue-Simulate.

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 Proble 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	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in TSL (rotation around probe axis) ± 0.5 dB in TSL (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
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 6 GHz with precision of better 30%.
Compatibility	DASY52 SAR and higher, EASY4/MRI

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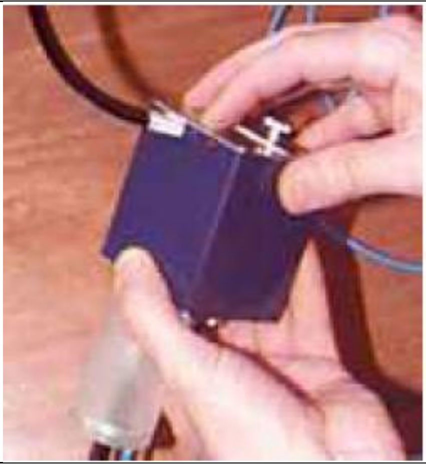
3.3 Data Acquisition Electronics (DAE)

Model	DAE	
Construction	Signal amplifier, multiplexer, A/D converter and control logic. Serial optical link for communication with DASY4/5 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	

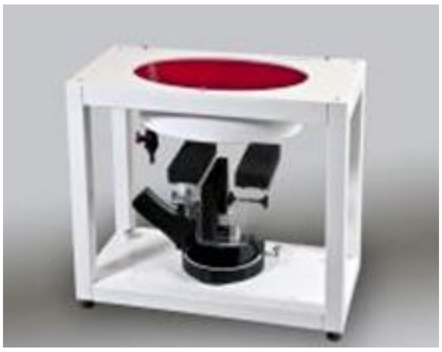
3.4 SAM Twin Phantom

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	pprox.. 25 liters	
Wooden Support	SPEAG standard phantom table	

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209-1. 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	pprox.. 30 liters
Wooden Support	SPEAG standard phantom table



Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI is fully compatible with the IEC 62209-2 standard and all known tissue simulating liquids. ELI has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is compatible with all 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 ε=3 and loss tangent δ=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≤2GHz), 30mm*30mm*30mm (f for 2-3GHz) and 24mm*24mm*22mm (f for 5-6GHz) was assessed by measuring 5x5x7 points (f≤2GHz), 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 straight-forward 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.

The area and zoom scan resolutions specified in the table below must be applied to the SAR measurements Probe boundary effect error compensation is required for measurements with the probe tip closer than half a probe tip diameter to the phantom surface. Both the probe tip diameter and sensor offset distance must satisfy measurement protocols; to ensure probe boundary effect errors are minimized and the higher fields closest to the phantom surface can be correctly measured and extrapolated to the phantom surface for computing 1-g SAR. Tolerances of the post-processing algorithms must be verified by the test laboratory for the scan resolutions used in the SAR measurements, according to the reference distribution functions specified in IEEE Std. 1528-2013.

<table>
<tr><th colspan="3"></th><th>≤ 3 GHz</th><th>> 3 GHz</th></tr>
<tr><td colspan="3">Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td colspan="3">Maximum probe angle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td colspan="3" rowspan="2">Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm*</td><td>3 – 4 GHz: ≤ 5 mm*
4 – 6 GHz: ≤ 4 mm*</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">$\leq 1.5 \cdot \Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Minimum zoom scan volume</td><td colspan="2">x, y, z</td><td>≥ 30 mm</td><td>3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
</table>

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:

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

With Vi = compensated signal of channel I (I = x, y, z)
Ui = input signal of channel I (I = x, y, z)
cf = crest factor of exciting field (DASY parameter)
dcp I = diode compression point (DASY parameter)

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

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$$E_i = (V_i / Norm_i \cdot ConvF)^{1/2}$$

H-field probes:

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

With Vi = compensated signal of channel I (I = x, y, z)
Normi = sensor sensitivity of channel I (I = x, y, z)
[mV/(V/m)2] for E-field Probes
ConvF = sensitivity enhancement in solution
aij = sensor sensitivity factors for H-field probes
f = carrier frequency [GHz]
Ei = electric field strength of channel I in V/m
Hi = magnetic field strength of channel I in A/m

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

$$E_{tot} = (E_x^2 + E_Y^2 + E_z^2)^{1/2}$$

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

$$SAR = (Etot^2 \cdot \sigma) / (\varepsilon \cdot 1000)$$

with SAR = local specific absorption rate in mW/g
Etot = 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.

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

with Ppwe = equivalent power density of a plane wave in mW/cm2
Etot = total electric field strength in V/m
Htot = total magnetic field strength in A/m

4 SAR measurement variability and uncertainty

4.1 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 (~ 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.

4.2 SAR measurement uncertainty

Per KDB865664 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.

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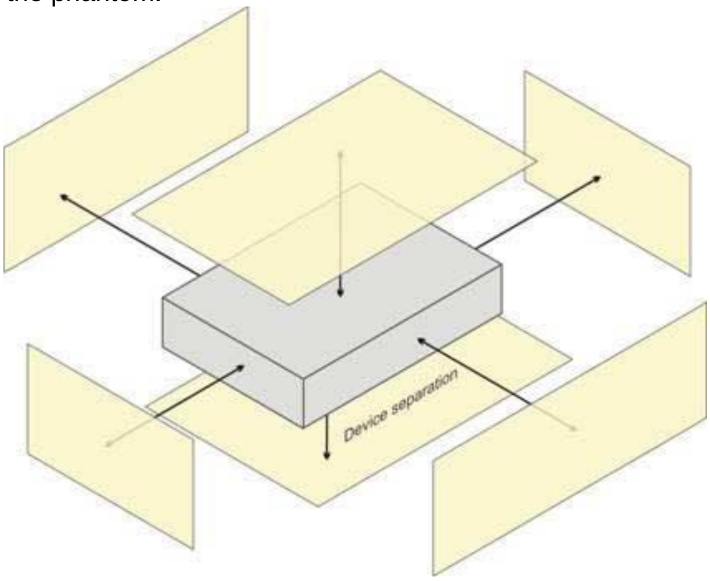
5 Desciption of Test Position

5.1 Generic device

The SAR evaluation shall be performed for all surfaces of the DUT that are accessible during intended use, as indicated in the below Figure. The separation distance in testing shall correspond to the intended use distance as specified in the user instructions provided by the manufacturer. If the intended use is not specified, all surfaces of the DUT shall be tested directly against the flat phantom. The surface of the generic device (or the surface of the carry accessory holding the DUT) pointing towards the flat phantom shall be parallel to the surface of the phantom.



a) Test positions for a generic device

6 SAR System Verificaion Procedure

6.1 Tissue Simulate Liquid

6.1.1 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
Sucrose: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity
HEC: Hydroxyethyl Cellulose
Tween: Polyoxyethylene (20) sorbitan monolaurate

HSL5GHz is composed of the following ingredients: (Manufactured by SPEAG)
Water: 50-65%
Mineral oil: 10-30%
Emulsifiers: 8-25%
Sodium salt: 0-1.5%

Table 1: Recipe of Tissue Simulate Liquid

6.1.2 Measurement for Tissue Simulate Liquid

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

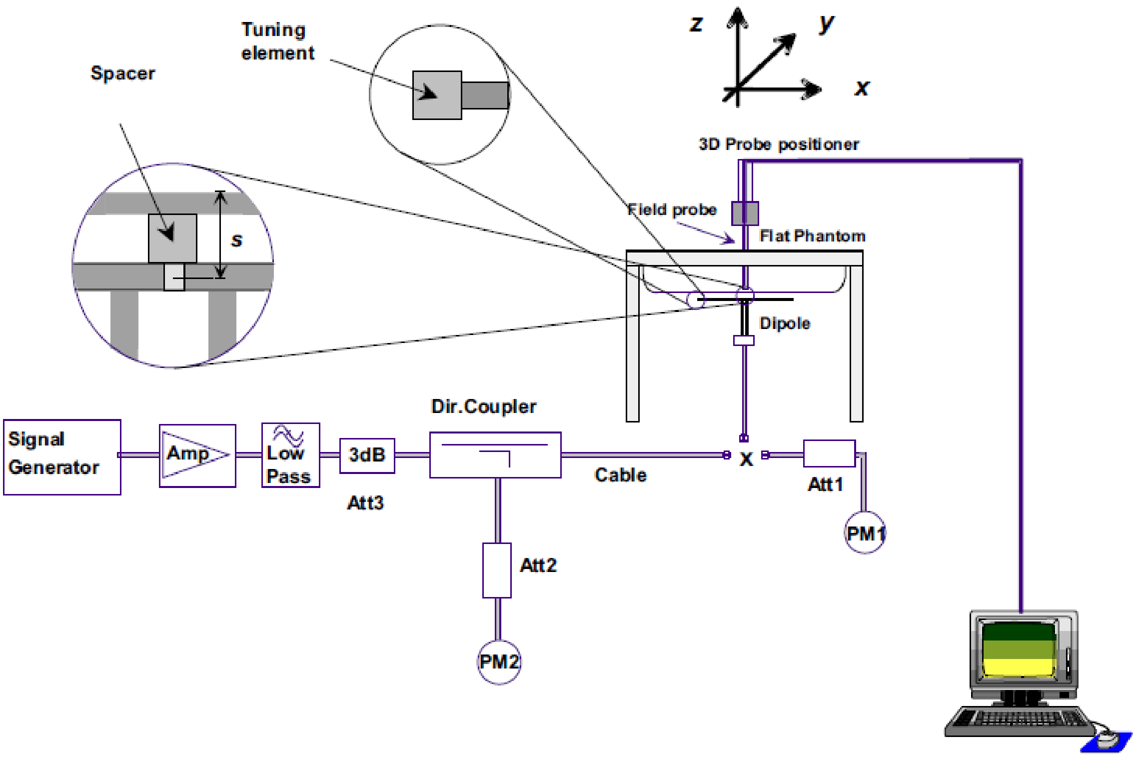
The temperature variation of the Tissue Simulate Liquids was 22±2°C.

Tissue Type	Measured Frequency （MHz）	Measured Tissue		Target Tissue (±5%)		Deviation (Within ±5%)		Liquid Temp. (℃)	Test Date
		ε_r	σ(S/m)	ε_r	σ(S/m)	ε_r	σ(S/m)		
750 Head	750	42.200	0.873	41.90	0.89	0.72%	-1.91%	22	2025/6/24
835 Head	835	41.900	0.922	41.50	0.90	0.96%	2.44%	21.9	2025/6/23
1750 Head	1750	40.200	1.360	40.10	1.37	0.25%	-0.73%	21.9	2025/6/26
1950 Head	1950	40.100	1.390	40.00	1.40	0.25%	-0.71%	21.9	2025/6/25
2450 Head	2450	40.000	1.740	39.20	1.80	2.04%	-3.33%	21.8	2025/6/28
2600 Head	2600	39.500	1.910	39.00	1.96	1.28%	-2.55%	21.8	2025/6/27
5250 Head	5250	35.300	4.630	35.90	4.71	-1.67%	-1.70%	22.0	2025/6/29
5600 Head	5600	34.500	5.010	35.50	5.07	-2.82%	-1.18%	22.0	2025/6/29
5750 Head	5750	34.300	5.200	35.40	5.22	-3.11%	-0.38%	22.0	2025/6/29

Table 2： Measurement result of Tissue electric parameters

6.2 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 +/- 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±2°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

6.2.1 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.

6.2.2 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 ±10%)		Liquid Temp. (℃)	Test Date
	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	10-g(W/kg)	10-g(W/kg)	10-g(W/kg)	10-g(W/kg)		
D750V3_Head	2.11	1.38	8.44	5.52	8.37	5.53	0.84%	-0.18%	22	2025/6/24
D835V2_Head	2.32	1.51	9.28	6.04	9.53	6.29	-2.62%	-3.97%	21.9	2025/6/23
D1750V2_Head	9.03	4.95	36.12	19.80	36.60	19.30	-1.31%	2.59%	21.9	2025/6/26
D1950V3_Head	10.10	5.30	40.40	21.20	40.50	20.80	-0.25%	1.92%	21.9	2025/6/25
D2450V2_Head	12.30	5.83	49.20	23.32	52.20	24.30	-5.75%	-4.03%	21.8	2025/6/28
D2600V2_Head	13.50	6.22	54.00	24.88	57.70	25.80	-6.41%	-3.57%	21.8	2025/6/27
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 ±10%)		Liquid Temp. (℃)	Test Date
	1g (W/kg)	10g (W/kg)	1g (W/kg)	10g (W/kg)	10-g(W/kg)	10-g(W/kg)	10-g(W/kg)	10-g(W/kg)		
D5GHzV2_5.25G_Head	7.77	2.30	77.70	23.00	77.30	22.10	0.52%	4.07%	22.0	2025/6/29
D5GHzV2_5.6G_Head	8.62	2.48	86.20	24.80	81.30	23.10	6.03%	7.36%	22.0	
D5GHzV2_5.75G_Head	7.69	2.22	76.90	22.20	77.10	21.30	-0.26%	4.23%	22.0	

Table 3： SAR System Check Result

6.2.3 Detailed System Check Results

Please see the Appendix A

7 Test Configuration

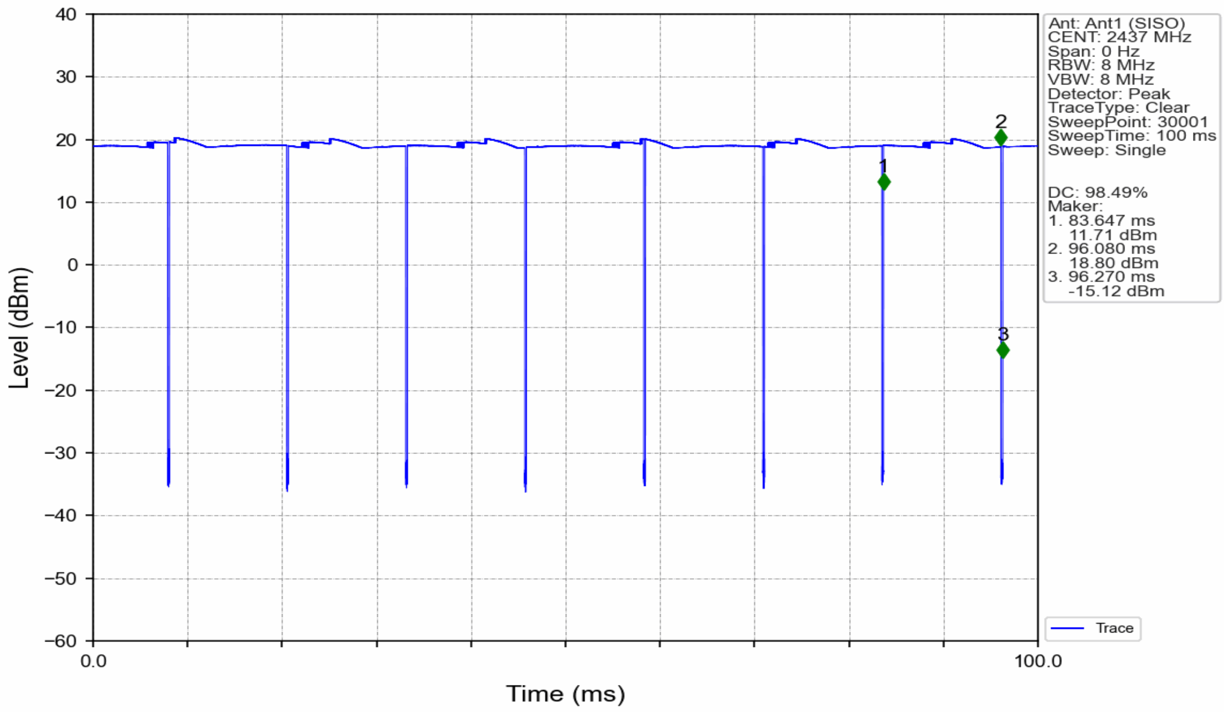
7.1 Operation Configurations

7.1.1 WIFI Test Configuration

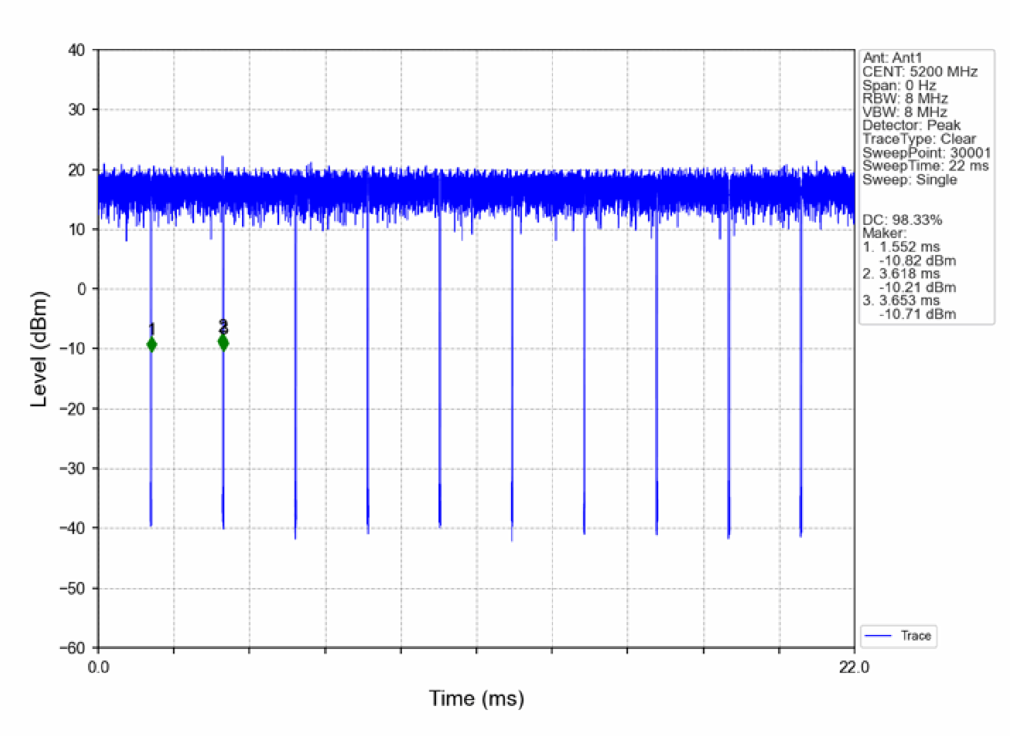
A Wi-Fi device must be configured to transmit continuously at the required data rate, channel bandwidth and signal modulation, using the highest transmission duty factor supported by the test mode tools for SAR measurement.

7.1.1.1 Duty cycle

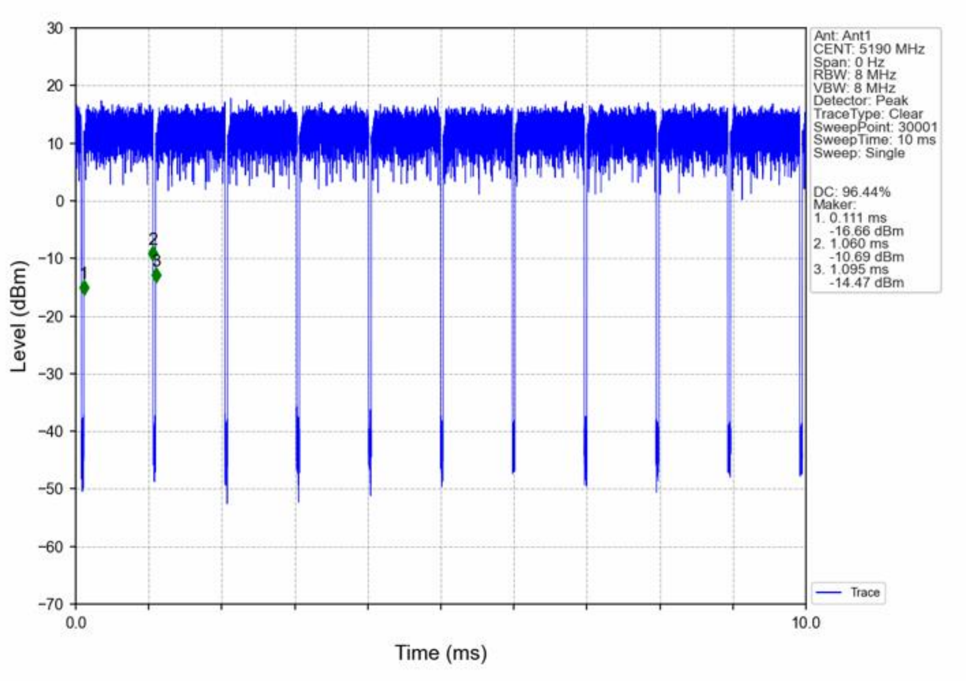
1) Wi-Fi 2.4GHz 802.11b:Duty cycle=99.92%



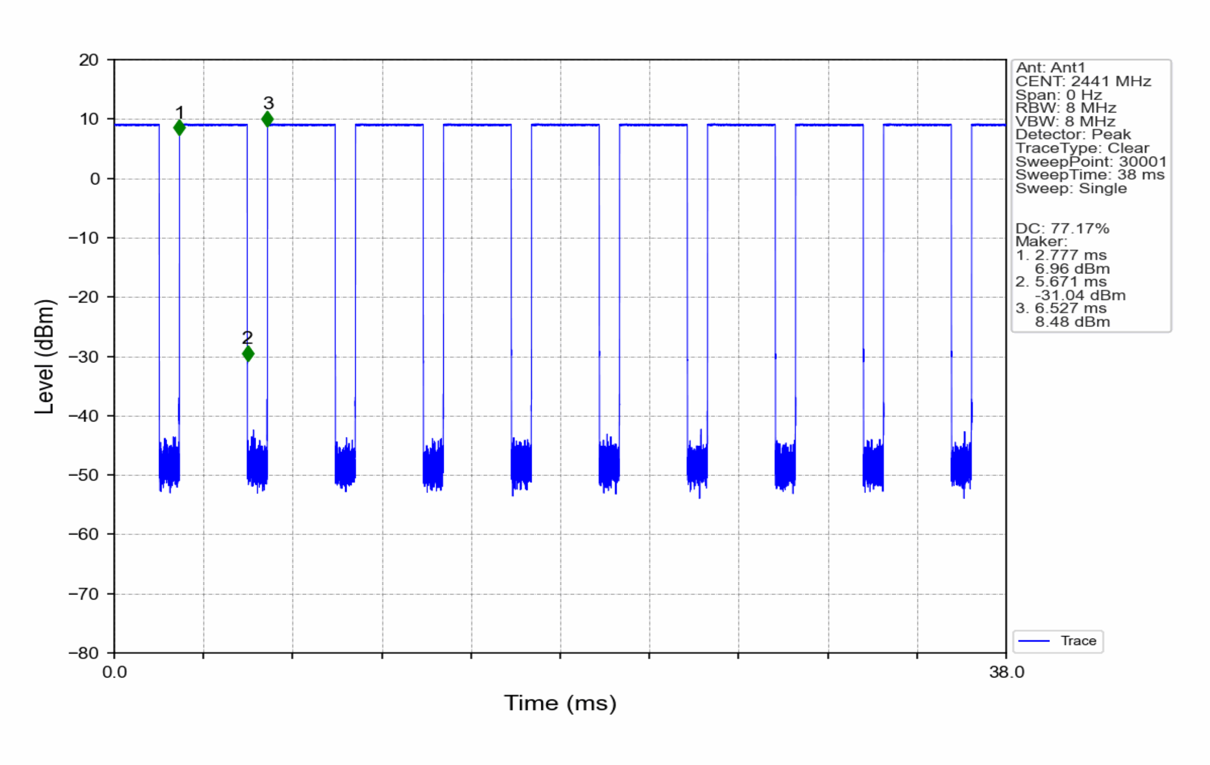
2) Wi-Fi 5GHz 802.11a:Duty cycle=98.33%



3) Wi-Fi 5GHz 802.11n40 Duty cycle=96.44%



4) DH5 Duty Cycle=77.17%



7.1.1.2 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.

7.1.1.3 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”

7.1.1.4 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.

7.1.1.5 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.

7.1.2 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.

7.1.3 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:

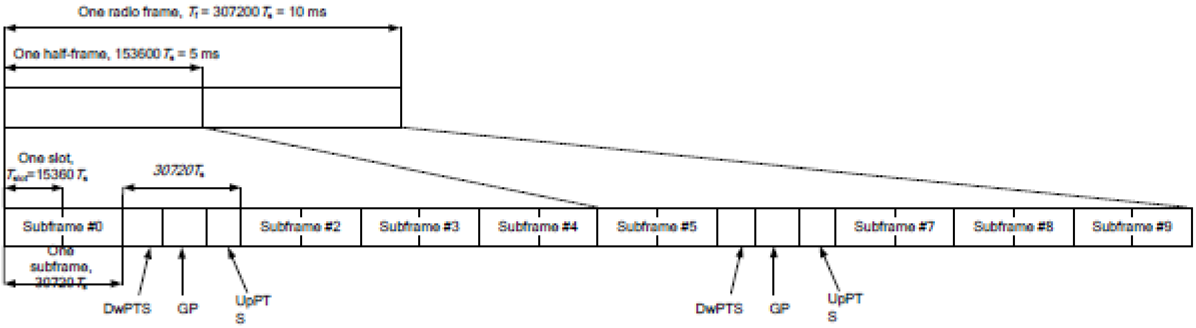


Table 4.2-1: Configuration of special subframe (lengths of DwPTS/GP/UpPTS).

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	4384.Ts	5120.Ts
5	6592.Ts	4384.Ts	5120.Ts	20480.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 > ½ 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 > ½ dB higher than the equivalent channel configurations in the largest channel bandwidth configuration or the reported SAR of a configuration for the largest channel bandwidth is > 1.45 W/kg.

8 Test Result

8.1 Measurement of RF Conducted Power

The detailed conducted power can be referred to Appendix E.

Note:

1）. 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

2）. The frame-averaged power is linearly proportion to the slot number configured and it is linearly scaled the maximum burst-averaged power based on time slots. The calculated method is shown as below:

Frame-averaged power = 10 x log (Burst-averaged power mW x Slot used / 8.

3）. When the maximum output power variation across the required test channels is > ½ dB, instead of the middle channel, the highest output power channel must be used.

4）. Conducted power measurement results of downlink LTE carrier aggregation are provided to quantify downlink only carrier aggregation SAR test exclusion per KDB 941225 D05A.Uplink maximum output power is measured with downlink carrier aggregation active, using the channel with highest measured maximum output power when downlink carrier aggregation is inactive, to confirm that when downlink carrier aggregation is active uplink maximum output power remains within the specified tune-up tolerance limits and not more than ¼ dB higher than the maximum output power measured when downlink carrier aggregation inactive, therefore SAR evaluation with downlink carrier aggregation can be excluded.

5）. For conducted power of WIFI must be measured at each transmit antenna port according to the DSSS and OFDM transmission configurations in each standalone and aggregated frequency band. For each transmission mode configuration, power must be measured for the highest and lowest channels; and at the mid-band channel(s) when there are at least 3 channels. For configurations with multiple mid-band channels, due to an even number of channels, both channels should be measured. Power measurement is required for the transmission mode configuration with the highest maximum output power specified for production units.

1) When the same highest maximum output power specification applies to multiple transmission modes, the largest channel bandwidth configuration with the lowest order modulation and lowest data rate is measured.

2) When the same highest maximum output power is specified for multiple largest channel bandwidth configurations with the same lowest order modulation or lowest order modulation and lowest data rate, power measurement is required for all equivalent 802.11 configurations with the same maximum output power.

8.2 Measurement of SAR Data

Note:

1) The maximum Scaled SAR value is marked in bold. Graph results refer to Appendix B.

2) Per KDB447498 D04, 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:

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

WiFi 2.4G:

1) When the highest reported SAR for the initial test configuration is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ⩽ 1.2 W/kg, SAR test for the other 802.11 modes are not required.

WiFi 5G:

1) When the same maximum output power is specified for both bands, begin SAR measurement in U-NII-2A band by applying the OFDM SAR requirements. As the highest reported SAR for a test configuration is ⩽ 1.2 W/kg, SAR is not required for U-NII-1 band for that configuration.

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

8.2.1 SAR Result of LTE Band 5

LTE Band 5 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Extremity Test data (Separate 0mm 1RB)												
Front side	10	QPSK 1_0	20525/836.5	1:1	0.319	0.183	0.08	23.85	24.50	1.161	0.213	21.2
Back side	10	QPSK 1_0	20525/836.5	1:1	0.299	0.196	-0.01	23.85	24.50	1.161	0.228	21.2
Left side	10	QPSK 1_0	20525/836.5	1:1	0.516	0.303	0.04	23.85	24.50	1.161	0.352	21.2
Right side	10	QPSK 1_0	20525/836.5	1:1	2.220	1.290	-0.02	23.85	24.50	1.161	**1.498**	21.2
Top side	10	QPSK 1_0	20525/836.5	1:1	0.192	0.116	0.17	23.85	24.50	1.161	0.135	21.2
Bottom side	10	QPSK 1_0	20525/836.5	1:1	0.043	0.027	0.19	23.85	24.50	1.161	0.031	21.2
Right with Battery 2#	10	QPSK 1_0	20525/836.5	1:1	1.990	1.090	0.03	23.85	24.50	1.161	1.266	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	10	QPSK 25_0	20525/836.5	1:1	0.243	0.139	-0.14	22.51	23.50	1.256	0.175	21.2
Back side	10	QPSK 25_0	20525/836.5	1:1	0.234	0.152	0.11	22.51	23.50	1.256	0.191	21.2
Left side	10	QPSK 25_0	20525/836.5	1:1	0.407	0.235	-0.12	22.51	23.50	1.256	0.295	21.2
Right side	10	QPSK 25_0	20525/836.5	1:1	1.650	0.871	0.12	22.51	23.50	1.256	1.094	21.2
Top side	10	QPSK 25_0	20525/836.5	1:1	0.124	0.075	0.10	22.51	23.50	1.256	0.094	21.2
Bottom side	10	QPSK 25_0	20525/836.5	1:1	0.035	0.020	0.18	22.51	23.50	1.256	0.025	21.2

8.2.2 SAR Result of LTE Band 7

LTE Band 7 SAR Test Record												
Ant 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 10-g (W/kg)	Liquid Temp.(℃)
Extremity Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_0	20850/2510	1:1	0.306	0.150	0.10	23.47	24.00	1.130	0.169	21.2
Back side	20	QPSK 1_0	20850/2510	1:1	0.261	0.132	0.03	23.47	24.00	1.130	0.149	21.2
Left side	20	QPSK 1_0	20850/2510	1:1	0.338	0.162	0.18	23.47	24.00	1.130	0.183	21.2
Right side	20	QPSK 1_0	20850/2510	1:1	5.547	2.124	0.16	23.47	24.00	1.130	2.400	21.2
Top side	20	QPSK 1_0	20850/2510	1:1	0.437	0.197	-0.12	23.47	24.00	1.130	0.223	21.2
Bottom side	20	QPSK 1_0	20850/2510	1:1	0.033	0.018	0.06	23.47	24.00	1.130	0.020	21.2
Right side	20	QPSK 1_0	21100/2535	1:1	6.390	2.640	-0.11	23.46	24.00	1.132	**2.990**	21.2
Right side	20	QPSK 1_0	21350/2560	1:1	6.150	2.310	0.02	23.24	24.00	1.191	2.752	21.2
Right side repeated	20	QPSK 1_0	21100/2535	1:1	6.210	2.540	-0.07	23.46	24.00	1.132	2.876	21.2
Right with Battery 2#	20	QPSK 1_0	20850/2510	1:1	5.719	2.315	-0.09	23.47	24.00	1.130	2.615	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_0	20850/2510	1:1	0.262	0.128	0.05	22.38	23.00	1.153	0.148	21.2
Back side	20	QPSK 50_0	20850/2510	1:1	0.220	0.114	0.10	22.38	23.00	1.153	0.131	21.2
Left side	20	QPSK 50_0	20850/2510	1:1	0.286	0.138	-0.02	22.38	23.00	1.153	0.159	21.2
Right side	20	QPSK 50_0	20850/2510	1:1	4.360	1.780	0.09	22.38	23.00	1.153	2.053	21.2
Top side	20	QPSK 50_0	20850/2510	1:1	0.347	0.158	0.10	22.38	23.00	1.153	0.182	21.2
Bottom side	20	QPSK 50_0	20850/2510	1:1	0.258	0.014	-0.16	22.38	23.00	1.153	0.016	21.2
Right side	20	QPSK 50_0	21100/2535	1:1	5.599	2.081	0.03	22.28	23.00	1.180	2.456	21.2
Right side	20	QPSK 50_0	21350/2560	1:1	5.753	2.124	-0.11	22.37	23.00	1.156	2.456	21.2
Extremity Test data (Separate 0mm 100%RB)												
Right side	20	QPSK 100_0	21100/2535	1:1	5.410	2.010	-0.08	22.33	23.00	1.167	2.345	21.2

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
Right side 0mm	21100/2535	2.640	2.540	1.039	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 10-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.

8.2.3 SAR Result of LTE Band 12

LTE Band 12 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Extremity Test data (Separate 0mm 1RB)												
Front side	10	QPSK 1_25	23095/707.5	1:1	0.322	0.188	0.17	24.39	24.50	1.026	0.193	21.2
Back side	10	QPSK 1_25	23095/707.5	1:1	0.245	0.174	0.00	24.39	24.50	1.026	0.178	21.2
Left side	10	QPSK 1_25	23095/707.5	1:1	0.253	0.130	-0.07	24.39	24.50	1.026	0.133	21.2
Right side	10	QPSK 1_25	23095/707.5	1:1	1.540	0.868	0.07	24.39	24.50	1.026	**0.890**	21.2
Top side	10	QPSK 1_25	23095/707.5	1:1	0.157	0.089	-0.16	24.39	24.50	1.026	0.091	21.2
Bottom side	10	QPSK 1_25	23095/707.5	1:1	0.028	0.017	0.03	24.39	24.50	1.026	0.017	21.2
Right with Battery 2#	10	QPSK 1_25	23095/707.5	1:1	1.490	0.851	0.06	24.39	24.50	1.026	0.873	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	10	QPSK 25_0	23095/707.5	1:1	0.262	0.155	-0.05	23.03	23.50	1.114	0.173	21.2
Back side	10	QPSK 25_0	23095/707.5	1:1	0.207	0.142	-0.13	23.03	23.50	1.114	0.158	21.2
Left side	10	QPSK 25_0	23095/707.5	1:1	0.213	0.114	0.02	23.03	23.50	1.114	0.127	21.2
Right side	10	QPSK 25_0	23095/707.5	1:1	1.380	0.719	-0.07	23.03	23.50	1.114	0.801	21.2
Top side	10	QPSK 25_0	23095/707.5	1:1	0.139	0.077	0.01	23.03	23.50	1.114	0.086	21.2
Bottom side	10	QPSK 25_0	23095/707.5	1:1	0.024	0.015	-0.12	23.03	23.50	1.114	0.017	21.2

8.2.4 SAR Result of LTE Band 13

LTE Band 13 SAR Test Record												
Ant 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 10-g (W/kg)	Liquid Temp.(℃)
Extremity Test data (Separate 0mm 1RB)												
Front side	10	QPSK 1_0	23230/782	1:1	0.310	0.186	-0.10	23.72	24.50	1.197	0.223	21.2
Back side	10	QPSK 1_0	23230/782	1:1	0.292	0.201	-0.08	23.72	24.50	1.197	0.241	21.2
Left side	10	QPSK 1_0	23230/782	1:1	0.388	0.243	-0.14	23.72	24.50	1.197	0.291	21.2
Right side	10	QPSK 1_0	23230/782	1:1	1.820	1.070	-0.03	23.72	24.50	1.197	**1.281**	21.2
Top side	10	QPSK 1_0	23230/782	1:1	0.133	0.077	0.11	23.72	24.50	1.197	0.092	21.2
Bottom side	10	QPSK 1_0	23230/782	1:1	0.032	0.020	0.08	23.72	24.50	1.197	0.024	21.2
Right with Battery 2#	10	QPSK 1_0	23230/782	1:1	1.920	1.030	0.01	23.72	24.50	1.197	1.233	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	10	QPSK 25_0	23230/782	1:1	0.241	0.144	0.15	22.76	23.50	1.186	0.171	21.2
Back side	10	QPSK 25_0	23230/782	1:1	0.233	0.162	-0.15	22.76	23.50	1.186	0.192	21.2
Left side	10	QPSK 25_0	23230/782	1:1	0.339	0.212	-0.09	22.76	23.50	1.186	0.251	21.2
Right side	10	QPSK 25_0	23230/782	1:1	1.620	0.864	-0.01	22.76	23.50	1.186	1.025	21.2
Top side	10	QPSK 25_0	23230/782	1:1	0.110	0.066	-0.18	22.76	23.50	1.186	0.078	21.2
Bottom side	10	QPSK 25_0	23230/782	1:1	0.029	0.018	-0.11	22.76	23.50	1.186	0.021	21.2

8.2.5 SAR Result of LTE Band 14

LTE Band 14 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Head Test Data (1RB) DSI												
Extremity Test data (Separate 0mm 1RB)												
Front side	10	QPSK 1_0	23330/793	1:1	0.276	0.191	0.00	24.06	24.50	1.107	0.211	21.2
Back side	10	QPSK 1_0	23330/793	1:1	0.299	0.174	-0.05	24.06	24.50	1.107	0.193	21.2
Left side	10	QPSK 1_0	23330/793	1:1	0.456	0.285	-0.06	24.06	24.50	1.107	0.315	21.2
Right side	10	QPSK 1_0	23330/793	1:1	1.930	1.130	0.01	24.06	24.50	1.107	**1.250**	21.2
Top side	10	QPSK 1_0	23330/793	1:1	0.140	0.085	-0.05	24.06	24.50	1.107	0.094	21.2
Bottom side	10	QPSK 1_0	23330/793	1:1	0.035	0.023	0.19	24.06	24.50	1.107	0.025	21.2
Right with Battery 2#	10	QPSK 1_0	23330/793	1:1	1.990	1.070	0.09	24.06	24.50	1.107	1.184	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	10	QPSK 25_0	23330/793	1:1	0.248	0.146	0.10	22.88	23.50	1.153	0.168	21.2
Back side	10	QPSK 25_0	23330/793	1:1	0.222	0.152	-0.15	22.88	23.50	1.153	0.175	21.2
Left side	10	QPSK 25_0	23330/793	1:1	0.374	0.225	-0.03	22.88	23.50	1.153	0.260	21.2
Right side	10	QPSK 25_0	23330/793	1:1	1.640	0.870	-0.15	22.88	23.50	1.153	1.004	21.2
Top side	10	QPSK 25_0	23330/793	1:1	0.108	0.067	-0.17	22.88	23.50	1.153	0.077	21.2
Bottom side	10	QPSK 25_0	23330/793	1:1	0.031	0.021	-0.12	22.88	23.50	1.153	0.024	21.2

8.2.6 SAR Result of LTE Band 25

LTE Band 25 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Extremity Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_50	26590/1905	1:1	0.369	0.154	0.00	24.67	25.00	1.079	0.166	21.2
Back side	20	QPSK 1_50	26590/1905	1:1	1.020	0.557	0.05	24.67	25.00	1.079	0.601	21.2
Left side	20	QPSK 1_50	26590/1905	1:1	0.379	0.177	-0.01	24.67	25.00	1.079	0.191	21.2
Right side	20	QPSK 1_50	26590/1905	1:1	4.020	2.260	0.10	24.67	25.00	1.079	2.438	21.2
Top side	20	QPSK 1_50	26590/1905	1:1	1.020	0.529	-0.14	24.67	25.00	1.079	0.571	21.2
Bottom side	20	QPSK 1_50	26590/1905	1:1	0.042	0.021	-0.19	24.67	25.00	1.079	0.023	21.2
Right side	20	QPSK 1_50	26140/1860	1:1	4.560	2.450	-0.04	24.47	25.00	1.130	**2.768**	21.2
Right side	20	QPSK 1_50	26365/1882.5	1:1	3.890	2.150	-0.10	24.66	25.00	1.081	2.325	21.2
Right side repeated	20	QPSK 1_50	26140/1860	1:1	4.410	2.350	-0.14	24.47	25.00	1.130	2.655	21.2
Right with Battery 2#	20	QPSK 1_50	26140/1860	1:1	4.490	2.390	0.11	24.47	25.00	1.130	2.700	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_50	26365/1882.5	1:1	0.257	0.116	-0.18	23.28	24.00	1.180	0.137	21.2
Back side	20	QPSK 50_50	26365/1882.5	1:1	0.797	0.430	0.03	23.28	24.00	1.180	0.508	21.2
Left side	20	QPSK 50_50	26365/1882.5	1:1	0.207	0.120	0.00	23.28	24.00	1.180	0.142	21.2
Right side	20	QPSK 50_50	26365/1882.5	1:1	3.110	1.670	0.03	23.28	24.00	1.180	1.971	21.2
Top side	20	QPSK 50_50	26365/1882.5	1:1	0.784	0.410	0.06	23.28	24.00	1.180	0.484	21.2
Bottom side	20	QPSK 50_50	26365/1882.5	1:1	0.034	0.020	-0.05	23.28	24.00	1.180	0.024	21.2
Extremity Test data (Separate 0mm 100RB)												
Right side	20	QPSK 100_0	26590/1905	1:1	3.010	1.520	0.05	23.37	24.00	1.156	1.757	21.2

Test Position	**Test ch./Freq.**	**Measured SAR (W/kg)**	**1st Repeated**	**Ratio**	**2nd Repeated**	**3rd Repeated**
Front side 0mm	26140/1860	2.450	2.350	1.043	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 10-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.						

8.2.7 SAR Result of LTE Band 26

LTE Band 26 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Extremity Test data (Separate 0mm 1RB)												
Front side	15	QPSK 1_0	26865/831.5	1:1	0.301	0.180	0.04	24.14	24.50	1.086	0.196	21.2
Back side	15	QPSK 1_0	26865/831.5	1:1	0.329	0.212	0.15	24.14	24.50	1.086	0.230	21.2
Left side	15	QPSK 1_0	26865/831.5	1:1	0.544	0.316	0.15	24.14	24.50	1.086	0.343	21.2
Right side	15	QPSK 1_0	26865/831.5	1:1	2.310	1.310	0.01	24.14	24.50	1.086	**1.423**	21.2
Top side	15	QPSK 1_0	26865/831.5	1:1	0.167	0.101	0.00	24.14	24.50	1.086	0.110	21.2
Bottom side	15	QPSK 1_0	26865/831.5	1:1	0.030	0.022	-0.16	24.14	24.50	1.086	0.024	21.2
Right with Battery 2#	15	QPSK 1_0	26865/831.5	1:1	2.290	1.210	-0.16	24.14	24.50	1.086	1.315	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	15	QPSK 36_0	26865/831.5	1:1	0.243	0.142	-0.10	22.97	23.50	1.130	0.160	21.2
Back side	15	QPSK 36_0	26865/831.5	1:1	0.277	0.179	0.03	22.97	23.50	1.130	0.202	21.2
Left side	15	QPSK 36_0	26865/831.5	1:1	0.419	0.252	0.07	22.97	23.50	1.130	0.285	21.2
Right side	15	QPSK 36_0	26865/831.5	1:1	1.710	0.922	0.02	22.97	23.50	1.130	1.042	21.2
Top side	15	QPSK 36_0	26865/831.5	1:1	0.138	0.084	0.16	22.97	23.50	1.130	0.095	21.2
Bottom side	15	QPSK 36_0	26865/831.5	1:1	0.025	0.017	-0.06	22.97	23.50	1.130	0.019	21.2

8.2.8 SAR Result of LTE Band 41

LTE Band 41 SAR Test Record												
Ant 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 10-g (W/kg)	Liquid Temp.(℃)
Extremity Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_50	41490/2680	1:1.58	0.219	0.103	-0.03	22.75	23.50	1.189	0.122	21.2
Back side	20	QPSK 1_50	41490/2680	1:1.58	0.192	0.109	0.12	22.75	23.50	1.189	0.130	21.2
Left side	20	QPSK 1_50	41490/2680	1:1.58	0.176	0.082	0.16	22.75	23.50	1.189	0.097	21.2
Right side	20	QPSK 1_50	41490/2680	1:1.58	3.870	1.470	-0.05	22.75	23.50	1.189	**1.747**	21.2
Top side	20	QPSK 1_50	41490/2680	1:1.58	0.328	0.153	0.15	22.75	23.50	1.189	0.182	21.2
Bottom side	20	QPSK 1_50	41490/2680	1:1.58	0.033	0.018	0.06	22.75	23.50	1.189	0.021	21.2
Right with Battery 2#	20	QPSK 1_50	41490/2680	1:1.58	3.853	1.390	0.09	22.75	23.50	1.189	1.652	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_0	41490/2680	1:1.58	0.176	0.083	0.04	22.15	22.50	1.084	0.090	21.2
Back side	20	QPSK 50_0	41490/2680	1:1.58	0.167	0.093	-0.16	22.15	22.50	1.084	0.101	21.2
Left side	20	QPSK 50_0	41490/2680	1:1.58	0.158	0.076	0.16	22.15	22.50	1.084	0.082	21.2
Right side	20	QPSK 50_0	41490/2680	1:1.58	3.289	1.294	0.01	22.15	22.50	1.084	1.403	21.2
Top side	20	QPSK 50_0	41490/2680	1:1.58	0.261	0.129	0.11	22.15	22.50	1.084	0.140	21.2
Bottom side	20	QPSK 50_0	41490/2680	1:1.58	0.029	0.014	-0.16	22.15	22.50	1.084	0.015	21.2

8.2.9 SAR Result of LTE Band 66

LTE Band 66 SAR Test Record												
Ant 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 10-g (W/kg)	Liquid Temp.(℃)
Extremity Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_99	132072/1720	1:1	0.353	0.165	-0.01	24.64	25.00	1.086	0.179	21.2
Back side	20	QPSK 1_99	132072/1720	1:1	0.514	0.290	-0.15	24.64	25.00	1.086	0.315	21.2
Left side	20	QPSK 1_99	132072/1720	1:1	0.202	0.115	-0.05	24.64	25.00	1.086	0.125	21.2
Right side	20	QPSK 1_99	132072/1720	1:1	3.770	2.080	-0.02	24.64	25.00	1.086	**2.260**	21.2
Top side	20	QPSK 1_99	132072/1720	1:1	0.684	0.379	-0.05	24.64	25.00	1.086	0.412	21.2
Bottom side	20	QPSK 1_99	132072/1720	1:1	0.049	0.029	-0.10	24.64	25.00	1.086	0.032	21.2
Right side	20	QPSK 1_50	132322/1745	1:1	3.690	1.920	-0.10	24.30	25.00	1.175	2.256	21.2
Right side	20	QPSK 1_50	132572/1770	1:1	3.843	2.045	0.19	24.60	25.00	1.096	2.242	21.2
Right side repeated	20	QPSK 1_50	132322/1745	1:1	3.510	2.010	0.11	24.64	25.00	1.086	2.184	21.2
Right with Battery 2#	20	QPSK 1_50	132322/1745	1:1	3.764	2.036	0.02	24.64	25.00	1.086	2.212	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_25	132322/1745	1:1	0.237	0.116	0.12	23.27	24.00	1.183	0.137	21.2
Back side	20	QPSK 50_25	132322/1745	1:1	0.471	0.265	-0.01	23.27	24.00	1.183	0.314	21.2
Left side	20	QPSK 50_25	132322/1745	1:1	0.143	0.088	0.02	23.27	24.00	1.183	0.104	21.2
Right side	20	QPSK 50_25	132322/1745	1:1	3.334	1.814	-0.19	23.27	24.00	1.183	2.146	21.2
Top side	20	QPSK 50_25	132322/1745	1:1	0.596	0.330	-0.13	23.27	24.00	1.183	0.390	21.2
Bottom side	20	QPSK 50_25	132322/1745	1:1	0.044	0.023	-0.12	23.27	24.00	1.183	0.027	21.2
Right side	20	QPSK 50_25	132072/1720	1:1	3.076	1.599	0.19	23.16	24.00	1.213	1.940	21.2
Right side	20	QPSK 50_25	132572/1770	1:1	3.327	1.706	0.15	23.27	24.00	1.183	2.018	21.2
Extremity Test data (Separate 0mm 50%RB)												
Right side	20	QPSK 100_0	132322/1745	1:1	3.150	1.720	0.11	23.32	24.00	1.169	2.012	21.2

Test Position	Test ch./Freq.	Measured SAR (W/kg)	1st Repeated	Ratio	2nd Repeated	3rd Repeated
Right side	132072/1720	2.080	2.010	1.035	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 10-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.

8.2.10 SAR Result of LTE Band n71

LTE Band 71 SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Extremity Test data (Separate 0mm 1RB)												
Front side	20	QPSK 1_50	133322/683	1:1	0.268	0.156	-0.04	24.13	24.50	1.089	0.170	21.2
Back side	20	QPSK 1_50	133322/683	1:1	0.134	0.079	-0.07	24.13	24.50	1.089	0.086	21.2
Left side	20	QPSK 1_50	133322/683	1:1	0.161	0.087	0.11	24.13	24.50	1.089	0.095	21.2
Right side	20	QPSK 1_50	133322/683	1:1	1.190	0.685	-0.02	24.13	24.50	1.089	**0.746**	21.2
Top side	20	QPSK 1_50	133322/683	1:1	0.168	0.096	0.18	24.13	24.50	1.089	0.105	21.2
Bottom side	20	QPSK 1_50	133322/683	1:1	0.031	0.021	0.01	24.13	24.50	1.089	0.023	21.2
Right with Battery 2#	20	QPSK 1_50	133322/683	1:1	1.270	0.622	0.17	24.13	24.50	1.089	0.677	21.2
Extremity Test data (Separate 0mm 50%RB)												
Front side	20	QPSK 50_0	133322/683	1:1	0.205	0.118	-0.14	23.02	23.50	1.117	0.132	21.2
Back side	20	QPSK 50_0	133322/683	1:1	0.113	0.080	0.15	23.02	23.50	1.117	0.089	21.2
Left side	20	QPSK 50_0	133322/683	1:1	0.126	0.070	-0.10	23.02	23.50	1.117	0.078	21.2
Right side	20	QPSK 50_0	133322/683	1:1	1.000	0.507	0.15	23.02	23.50	1.117	0.566	21.2
Top side	20	QPSK 50_0	133322/683	1:1	0.126	0.068	-0.15	23.02	23.50	1.117	0.076	21.2
Bottom side	20	QPSK 50_0	133322/683	1:1	0.028	0.017	0.18	23.02	23.50	1.117	0.019	21.2

8.2.11 SAR Result of WIFI 2.4G

Wi-Fi 2.4G SAR Test Record												
Ant Test Record chain0												
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.(℃)**
Extremity Test data (Separate 0mm)												
Front side	802.11b	11/2462	98.49%	1.015	0.196	0.096	-0.16	17.51	18.00	1.119	0.109	22
Back side	802.11b	11/2462	98.49%	1.031	0.158	0.094	0.14	17.51	18.00	1.119	0.108	22
Left side	802.11b	11/2462	98.49%	1.031	5.370	1.970	-0.02	17.51	18.00	1.119	**2.273**	22
Right side	802.11b	11/2462	98.49%	1.031	0.206	0.098	-0.13	17.51	18.00	1.119	0.113	22
Top side	802.11b	11/2462	98.49%	1.031	0.249	0.109	-0.13	17.51	18.00	1.119	0.126	22
Bottom side	802.11b	11/2462	98.49%	1.031	0.054	0.021	-0.18	17.51	18.00	1.119	0.024	22
Left side	802.11b	1/2412	98.49%	1.031	5.020	1.590	0.04	16.65	18.00	1.365	2.237	22
Left side	802.11b	6/2437	98.49%	1.031	5.210	1.720	-0.02	16.93	18.00	1.279	2.269	22
Left with Battery 2#	802.11b	11/2462	98.49%	1.031	5.210	1.890	0.14	17.51	18.00	1.119	2.181	22

8.2.12 SAR Result of WIFI 5G

Wi-Fi 5G SAR Test Record												
Ant Test Record chain0												
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.(℃)
Extremity Test data-2A (Separate 0mm)												
Front side	802.11a	64/5320	98.33%	1.017	0.349	0.119	0.18	16.63	17.00	1.089	0.132	22
Back side	802.11a	64/5320	98.33%	1.017	0.154	0.061	-0.05	16.63	17.00	1.089	0.068	22
Left side	802.11a	64/5320	98.33%	1.017	2.780	0.751	-0.02	16.63	17.00	1.089	0.832	22
Right side	802.11a	64/5320	98.33%	1.017	0.168	0.060	0.02	16.63	17.00	1.089	0.066	22
Top side	802.11a	64/5320	98.33%	1.017	0.404	0.122	-0.18	16.63	17.00	1.089	0.135	22
Bottom side	802.11a	64/5320	98.33%	1.017	0.054	0.013	0.10	16.63	17.00	1.089	0.014	22
Left with Battery 2#	802.11a	64/5320	98.33%	1.017	2.610	0.731	-0.07	16.63	17.00	1.089	0.810	22
Extremity Test data-2C (Separate 0mm)												
Front side	802.11a	116/5580	98.33%	1.017	0.237	0.080	-0.16	16.08	17.00	1.236	0.101	22
Back side	802.11a	116/5580	98.33%	1.017	0.261	0.097	0.01	16.08	17.00	1.236	0.122	22
Left side	802.11a	116/5580	98.33%	1.017	2.344	0.637	-0.11	16.08	17.00	1.236	0.801	22
Right side	802.11a	116/5580	98.33%	1.017	0.111	0.041	0.14	16.08	17.00	1.236	0.052	22
Top side	802.11a	116/5580	98.33%	1.017	0.299	0.083	-0.03	16.08	17.00	1.236	0.104	22
Bottom side	802.11a	116/5580	98.33%	1.017	0.049	0.010	-0.14	16.08	17.00	1.236	0.013	22
Extremity Test data-3 (Separate 0mm)												
Front side	802.11n HT40	151/5755	96.44%	1.037	0.155	0.044	-0.06	15.28	16.00	1.180	0.054	22
Back side	802.11n HT40	151/5755	96.44%	1.037	0.152	0.059	-0.01	15.28	16.00	1.180	0.072	22
Left side	802.11n HT40	151/5755	96.44%	1.037	1.212	0.341	-0.18	15.28	16.00	1.180	0.417	22
Right side	802.11n HT40	151/5755	96.44%	1.037	0.071	0.018	-0.05	15.28	16.00	1.180	0.022	22
Top side	802.11n HT40	151/5755	96.44%	1.037	0.114	0.039	0.09	15.28	16.00	1.180	0.048	22
Bottom side	802.11n HT40	151/5755	96.44%	1.037	0.075	0.017	-0.19	15.28	16.00	1.180	0.021	22

8.2.13 SAR Result of BT

Bluetooth SAR Test Record												
Ant 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 10-g (W/kg)**	**Liquid Temp.(℃)**
Hotspot Test data (Separate 10mm)												
Front side	DH5	0/2402	77.17%	1.296	0.033	0.013	0.00	11.38	11.50	1.028	0.017	22
Back side	DH5	0/2402	77.17%	1.296	0.015	0.006	0.04	11.38	11.50	1.028	0.008	22
Left side	DH5	0/2402	77.17%	1.296	0.421	0.148	0.04	11.38	11.50	1.028	**0.197**	22
Right side	DH5	0/2402	77.17%	1.296	0.038	0.018	-0.12	11.38	11.50	1.028	0.024	22
Top side	DH5	0/2402	77.17%	1.296	0.036	0.013	0.14	11.38	11.50	1.028	0.017	22
Bottom side	DH5	0/2402	77.17%	1.296	0.008	0.004	-0.05	11.38	11.50	1.028	0.005	22
Left with Battery 2#	DH5	0/2402	77.17%	1.296	0.415	0.141	-0.13	11.38	11.50	1.028	0.188	22

8.3 Multiple Transmitter Evaluation

8.3.1 Simultaneous SAR test evaluation

No.	Simultaneous Tx Combination	Extremity
1	BT+5G WIFI+WWAN	Yes
2	2.4G WIFI+WWAN	Yes
3	BT+5G WIFI	Yes

8.3.2 Simultaneous Transmission SAR Summation Scenario

0mm:

Test position		SARmax (W/kg)			Summed SAR
		WiFi 2.4G	WiFi 5G	BT	
		1	2	3	2+3
WLAN	Front side	0.109	0.132	0.017	0.149
	Back side	0.108	0.122	0.008	0.130
	Left side	2.273	0.832	0.197	1.029
	Right side	0.113	0.066	0.024	0.090
	Top side	0.126	0.135	0.017	0.152
	Bottom side	0.024	0.021	0.005	0.026

Test position		SARmax (W/kg)				Summed SAR	
		Main	WiFi 2.4G	WiFi 5G	BT		
		1	2	3	4	1+3+4	1+2
LTE Band 5	Front side	0.213	0.109	0.132	0.017	0.000	0.322
	Back side	0.228	0.108	0.122	0.008	0.358	0.336
	Left side	0.352	2.273	0.832	0.197	1.381	2.625
	Right side	1.498	0.113	0.066	0.024	1.588	1.611
	Top side	0.135	0.126	0.135	0.017	0.287	0.261
	Bottom side	0.031	0.024	0.021	0.005	0.057	0.055
LTE Band 7	Front side	0.169	0.109	0.132	0.017	0.318	0.278
	Back side	0.149	0.108	0.122	0.008	0.279	0.257
	Left side	0.183	2.273	0.832	0.197	1.212	2.456
	Right side	2.990	0.113	0.066	0.024	3.080	3.103
	Top side	0.223	0.126	0.135	0.017	0.375	0.349
	Bottom side	0.020	0.024	0.021	0.005	0.046	0.044
LTE Band 12	Front side	0.193	0.109	0.132	0.017	0.342	0.302
	Back side	0.178	0.108	0.122	0.008	0.308	0.286
	Left side	0.133	2.273	0.832	0.197	1.162	2.406
	Right side	0.890	0.113	0.066	0.024	0.980	1.003
	Top side	0.091	0.126	0.135	0.017	0.243	0.217
	Bottom side	0.017	0.024	0.021	0.005	0.043	0.041
LTE Band 13	Front side	0.223	0.109	0.132	0.017	0.372	0.332
	Back side	0.241	0.108	0.122	0.008	0.371	0.349
	Left side	0.291	2.273	0.832	0.197	1.320	2.564
	Right side	1.281	0.113	0.066	0.024	1.371	1.394
	Top side	0.092	0.126	0.135	0.017	0.244	0.218
	Bottom side	0.024	0.024	0.021	0.005	0.050	0.048
LTE Band 14	Front side	0.211	0.109	0.132	0.017	0.360	0.320
	Back side	0.193	0.108	0.122	0.008	0.323	0.301
	Left side	0.315	2.273	0.832	0.197	1.344	2.588

	Right side	1.250	0.113	0.066	0.024	1.340	1.363
	Top side	0.094	0.126	0.135	0.017	0.246	0.220
	Bottom side	0.025	0.024	0.021	0.005	0.051	0.049
LTE Band 25	Front side	0.166	0.109	0.132	0.017	0.315	0.275
	Back side	0.601	0.108	0.122	0.008	0.731	0.709
	Left side	0.191	2.273	0.832	0.197	1.220	2.464
	Right side	2.768	0.113	0.066	0.024	2.858	2.881
	Top side	0.571	0.126	0.135	0.017	0.723	0.697
	Bottom side	0.024	0.024	0.021	0.005	0.050	0.048
LTE Band 26	Front side	0.196	0.109	0.132	0.017	0.345	0.305
	Back side	0.230	0.108	0.122	0.008	0.360	0.338
	Left side	0.343	2.273	0.832	0.197	1.372	2.616
	Right side	1.423	0.113	0.066	0.024	1.513	1.536
	Top side	0.110	0.126	0.135	0.017	0.262	0.236
	Bottom side	0.024	0.024	0.021	0.005	0.050	0.048
LTE Band 41	Front side	0.122	0.109	0.132	0.017	0.271	0.231
	Back side	0.130	0.108	0.122	0.008	0.260	0.238
	Left side	0.097	2.273	0.832	0.197	1.126	2.370
	Right side	1.747	0.113	0.066	0.024	1.837	1.860
	Top side	0.182	0.126	0.135	0.017	0.334	0.308
	Bottom side	0.021	0.024	0.021	0.005	0.047	0.045
LTE Band 66	Front side	0.179	0.109	0.132	0.017	0.328	0.288
	Back side	0.315	0.108	0.122	0.008	0.445	0.423
	Left side	0.125	2.273	0.832	0.197	1.154	2.398
	Right side	2.260	0.113	0.066	0.024	2.350	2.373
	Top side	0.412	0.126	0.135	0.017	0.564	0.538
	Bottom side	0.032	0.024	0.021	0.005	0.058	0.056
LTE Band 71	Front side	0.170	0.109	0.132	0.017	0.319	0.279
	Back side	0.089	0.108	0.122	0.008	0.219	0.197
	Left side	0.095	2.273	0.832	0.197	1.124	2.368
	Right side	0.746	0.113	0.066	0.024	0.836	0.859
	Top side	0.105	0.126	0.135	0.017	0.257	0.231
	Bottom side	0.023	0.024	0.021	0.005	0.049	0.047

9 Equipment list

Test Platform		SPEAG DASY Professional				
Description		SAR Test System				
Software Reference		cDASY8 V16.4.0.5005				
Hardware Reference						
Equipment		Manufacturer	Model	Inventory No.	Calibration Date	Due date of calibration
☒	Test Phantom	SPEAG	SAM Twin	SZ-WSR-A-026	NCR	NCR
☒	DAE	SPEAG	DAE4ip	SZ-WSR-M-078	2024/10/18	2025/10/17
☒	E-Field Probe	SPEAG	EX3DV4	SZ-WSR-M-075	2024/08/29	2025/08/28
☒	Validation Kits	SPEAG	D750V3	SZ-WSR-R-011	2024/12/18	2027/12/17
☒	Validation Kits	SPEAG	D835V2	SZ-WSR-M-033	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D1750V2	SZ-WSR-R-012	2025/05/08	2028/05/07
☒	Validation Kits	SPEAG	D1950V3	SZ-WSR-M-037	2022/10/31	2025/10/30
☒	Validation Kits	SPEAG	D2450V2	SZ-WSR-M-039	2022/11/02	2025/11/01
☒	Validation Kits	SPEAG	D2600V2	SZ-WSR-R-014	2024/06/17	2027/06/16
☒	Validation Kits	SPEAG	D5GHzV2	SZ-WSR-M-046	2022/11/01	2025/10/31
☒	Dielectric parameter probes	SPEAG	DAK-3.5	SZ-WSR-M-093	2024/11/18	2025/11/17
☒	Agilent Network Analyzer	Agilent	E5071C	SZ-WSR-M-067	2024/12/19	2025/12/18
☒	Radio Communication Analyzer	Anritsu	MT8820C	SZ-WSR-M-005	2025/01/08	2026/01/07
☒	Radio Communication Analyzer	Anritsu	MT8820C	SZ-WSR-M-018	2025/05/22	2026/05/21
☒	Radio Communication Analyzer	Anritsu	MT8820C	SZ-WSR-M-020	2024/08/19	2025/08/18
☒	RF Bi-Directional Coupler	Agilent	86205-60001	SZ-WSR-A-004	NCR	NCR
☒	Signal Generator	Agilent	N5171B	SZ-WSR-M-006	2025/01/07	2026/01/06
☒	Preamplifier	Mini-Circuits	ZHL-42W	SZ-WSR-A-001	NCR	NCR
☒	Preamplifier	Compliance Directions Systems Inc.	AMP28-3W	SZ-WSR-A-002	NCR	NCR
☒	Power Meter	Agilent	E4416A	SZ-WSR-M-007	2025/01/07	2026/01/06
☒	Power Sensor	Agilent	8481H	SZ-WSR-M-008	2025/01/07	2026/01/06
☒	Power Sensor	R&S	NRP-Z92	SZ-WSR-M-009	2025/01/08	2026/01/07
☒	Attenuator	SHX	TS2-3dB	SZ-WSR-A-012	NCR	NCR
☒	Speed reading thermometer	Zhengzhou Boyang Instrument	TP3001	SZ-WSR-M-014	2025/05/19	2026/05/18
☒	Temperature	MingGao	T809	SZ-WSR-M-015	2025/05/19	2026/05/18

☒	Temperature	MingGao	T809	SZ-WSR-M-016	2025/05/19	2026/05/18
☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-013	2025/05/16	2026/05/15
☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-012	2025/05/16	2026/05/15
☒	Humidity and Temperature Indicator	CHIGAO	HTC-1	SZ-WSR-M-011	2025/05/19	2026/05/18

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

10 Calibration certificate

Please see the Appendix C

11 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 ---