SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

For

XAG XRTK7 Mobile Station

MODEL NUMBER: M3RTK7AH

REPORT NUMBER: 4791806224-1-SAR-1

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Prepared for

Guangzhou Xaircraft Technology CO.,LTD
Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R. 510663 China

Prepared by

UL Verification Services (Guangzhou) Co., Ltd, Song Shan Lake Branch

Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China

Tel: +86 769 22038881
Fax: +86 769 33244054
Website: www.ul.com

Revision History

Rev.	Issue Date	Revisions	Revised By
V1.0	July 19, 2025	Initial Issue	\

Note:

1) This test report is only published to and used by the applicant, and it is not for evidence purpose in China.
2) The measurement result for the sample received is <Pass> according to < IEEE Std. 1528>when <Simple Acceptance> decision rule is applied.

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1. Attestation of Test Results

Applicant Name	Guangzhou Xaircraft Technology CO.,LTD	
Address	Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R.510663 China	
Manufacturer	Guangzhou Xaircraft Technology CO.,LTD	
Address	Block C, No.115, Gaopu Road, Tianhe District, GuangzhouCity, Guangdong, P.R.510663 China	
EUT Name	XAG XRTK7 Mobile Station	
Model	M3RTK7AH	
Brand	/	
Sample Status	Normal	
Sample ID	8526717	
Sample Received Date	May 23, 2025	
Date of Tested	June 26, 2025~ July 12, 2025	
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std. 1528-2013 KDB publication	
SAR Limits (W/Kg)		
Exposure Category	Peak spatial-average (1g of tissue)	Extremities (hands, wrists, ankles, etc.) (10g of tissue)
General population / Uncontrolled exposure	1.6	4
Occupational / Controlled exposure	8	20

The Highest Reported SAR (W/kg)			
RF Exposure Conditions	**Equipment Class**		
	PCB	**DTS**	**U-NII-3**
Extremity 10-g (0mm)	0.797	2.129	1.094
Simultaneous Transmission (10-g)	3.632		
Test Results	Pass		

Prepared By: Burt Hu Burt Hu Laboratory Engineer	Reviewed By: Kebo Zhang Kebo Zhang Operations Leader	Approved By: Stephen Guo Stephen Guo Laboratory Manager

2. Test Specification, Methods and Procedures

The tests documented in this report were performed in accordance with IEEE Std.1528-2013 the following FCC Published RF exposure KDB procedures:

- 248227 D01 802.11 Wi-Fi SAR v02
- 447498 D01 General RF Exposure Guidance v06
- 690783 D01 SAR Listings on Grants v01
- 865664 D01 SAR measurement 100 MHz to 6 GHz v01
- 865664 D02 RF Exposure Reporting v01
- 941225 D05 SAR for LTE Devices v02
- 941225 D07 UMPC Mini Tablet v01
- 941225 D01 3G SAR Procedures v03

In addition to the above, the following information was used:

TCB workshop April 2024; RF Exposure Updates (SAR Evaluation for Complex Shapes)

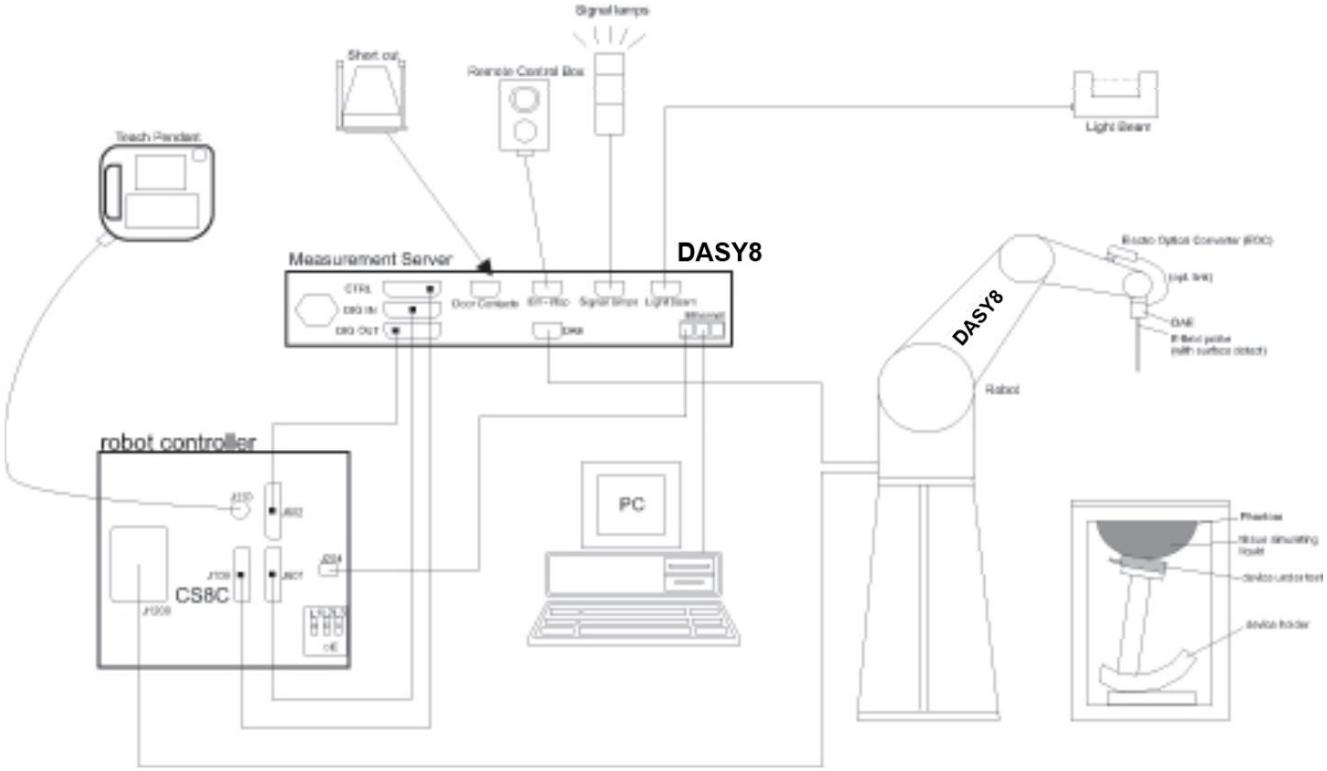
3. Facilities and Accreditation

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China
Accreditation Certificate	**A2LA (Certificate No.: 4102.01)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. **FCC (FCC Designation No.: CN1187)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Delcaration of Conformity (DoC) and Certification rules. **ISED (Company No.: 21320)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046. **VCCI (Registration No.: C-20202, G-20240, R-20248 and T-20202)** UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. Facility Name: Chamber E, the VCCI registration No. is G-20240 and R-20248 Shielding Room F, the VCCI registration No. is C-20202 and T-20202
Description	All measurement facilities use to collect the measurement data are located at Room 101, Building 2, No.4, Information Road, Songshan Lake, Dongguan, Guangdong, China

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY8 system used for performing compliance tests consists of the following items:



- A standard high precision 6-axis robot with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- An isotropic Field probe optimized and calibrated for the targeted measurement.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion from optical to electrical signals for the digital communication to the DAE. To use optical surface detection, a special version of the EOC is required. The EOC signal is transmitted to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.
- A computer running Win 10 and the DASY8 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

4.2. SAR Scan Procedures

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the distance of sensor calibration points to probe tip as defined in the probe properties.

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Area Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

	≤ 3 GHz	> 3 GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	5 mm ± 1 mm	½·δ·ln(2) mm ± 0.5 mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	30° ± 1°	20° ± 1°
Maximum area scan spatial resolution: Δx_{Area}, Δy_{Area}	≤ 2 GHz: ≤ 15 mm 2 – 3 GHz: ≤ 12 mm	3 – 4 GHz: ≤ 12 mm 4 – 6 GHz: ≤ 10 mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	

Step 3: Zoom Scan

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

Zoom Scan Parameters extracted from KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
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 drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan (FCC only)

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation the extrapolated distance should not be greater than the step size in Z-direction.

4.3. Test Equipment

The measuring equipment used to perform the tests documented in this report has been calibrated in accordance with the manufacturers' recommendations, and is traceable to recognized national standards.

Name of equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
ENA Network Analyzer	Keysight	E5080A	MY55100583	2025.09.27
Dielectric Probe kit	SPEAG	SM DAK 040 SA	1155	2028.02.26
DC power supply	Keysight	E36103A	MY55350020	2025.09.27
Signal Generator	Rohde & Schwarz	SME06	837633\001	2025.08.05
BI-Directional Coupler	KRYTAR	1850	54733	2025.09.27
Peak and Average Power Sensor	Keysight	E9325A	MY62220002	2025.09.27
Peak and Average Power Sensor	Keysight	E9325A	MY62220003	2025.09.27
Dual Channel PK Power Meter	Keysight	N1912A	MY55416024	2025.09.27
Amplifier	CORAD TECHNOLOGY LTD	AMF-4D-00400600-50-30P	1983561	NCR
Dosimetric E-Field Probe	SPEAG	EX3DV4	7383	2026.03.13
Data Acquisition Electronic	SPEAG	DAE4	1318	2025.10.08
Dipole Kit 835 MHz	SPEAG	D835V2	4d206	2027.12.23
Dipole Kit 1800 MHz	SPEAG	D1800V2	2d212	2027.12.25
Dipole Kit 1900 MHz	SPEAG	D1900V2	5d212	2027.12.24
Dipole Kit 2450 MHz	SPEAG	D2450V2	977	2027.12.25
Dipole Kit 2600 MHz	SPEAG	D2600V2	1117	2027.12.26
Dipole Kit 5 GHz	SPEAG	D5GHzV2	1231	2027.12.24
Software	SPEAG	DASY8	N/A	NCR
Phantom	SPEAG	SAM V8.0	2100	NCR
Thermometer	/	GX-138	150709653	2025.10.7
Thermometer	VICTOR	ITHX-SD-5	18470005	2025.10.7

Note:

1) As per KDB865664D01 requirements for dipole calibration, the test laboratory has adopted three-year extended calibration interval. 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) The most recent return-loss result, measured at least annually, deviates by no more than 20% from the previous measurement.
   d) The most recent measurement of the real or imaginary parts of the impedance, measured at least annually is within 5Ω from the previous measurement.
2) Dielectric assessment kit is calibrated against air, distilled water and a shorting block performed before measuring liquid parameters.
3) NCR is short for "No Calibration Requirement".

5. 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 and the measured 10-g SAR within a frequency band is < 3.75 W/kg. The expanded SAR measurement uncertainty must be ≤ 30%, for a confidence interval of k =2. If these conditions are met, extensive SAR measurement uncertainty analysis described in IEEE Std. 1528-2013 is not required in SAR reports submitted for equipment approval. Therefore, the measurement uncertainty is not required.

6. Device Under Test (DUT) Information

6.1. DUT Description

The DUT is a handheld Mobile Station supporting 2.4/5 GHz Wi-Fi BLE wireless technology and GSM/WCDMA/LTE communications.	
DUT Dimension	Overall (Length x Width x Height): 222.2 mm x 74.6 mm x 112.7 mm

6.2. Wireless Technology

Wireless technologies	Frequency bands	Operating mode	
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: ☐ Class 8 ☐ Class 10 ☐ Class 12 ☒ Class 33
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Data) HSDPA (Rel. 5) HSUPA (Rel. 6)	
LTE	FDD Band 2 FDD Band 4 FDD Band 5 FDD Band 7 FDD Band 25 FDD Band 26 TDD Band 38 TDD Band 41	QPSK 16QAM ☒ Rel. 10 Does not support Carrier Aggregation (CA) ☐ Rel. 10 Carrier Aggregation (Downlink only) ☐ Rel. 11 Carrier Aggregation (2 Uplink and 2 Downlinks)	
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20)	
Wi-Fi	5.8 GHz	802.11a 802.11n (HT20)	
BLE	2.4 GHz	1M/2M	
GNSS	/	BDS：B1C/B2a/B2b/B1I/B3I，GPS： LC/A L1C/L2C/L5，Galileo E1/E5a/E5b	

7. Test Configuration

7.1. 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 ≤ ¼ 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.

7.2. GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a base station by air link. Using CMW500 the power lever is set to “5”and “0” in SAR of GSM 850 and GSM 1900. The tests in the band of GSM 850 and GSM 1900 are performed in the mode of GPRS function. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink and at most 4 timeslots in downlink, the maximum total timeslot is.

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

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

7.2.1. UMTS Test Configuration

1. Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the procedures description in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all “1s” for WCDMA/HSDPA or applying the required inner loop power control procedure to maintain maximum output power while HSUPA is active. Result for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) Should be tabulated in the SAR report. All configuration that are not supported by the DUT or cannot be measured due to technical or equipment limitation should be clearly identified.

2. WCDMA

Body SAR Measurements

SAR for body-worn accessory 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.

3. HSDPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements"" procedures of 3G device. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ 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.

As per KDB941225 D01, the 3G SAR test reduction procedure is applied to HSDPA body configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSDPA using the HSDPA body SAR procedures for the highest reported SAR body exposure configuration in 12.2 kbps RMC.

HSDPA should be configured according to UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HAPRQ 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 condition, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. The β c and β d gain factors for DPCCH and DPDCH were set according to the values in the below table, β hs for HS-DPCCH is set automatically to the correct value when ΔACK, ΔNACK, ΔCQI = 8. The variation of the □c /□d ratio causes a power reduction at sub-tests 2 - 4.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM(dB)(2)	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

Note 1: △ACK, △NACK and △CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

Note 2 : CM=1 for β_c/β_d= 12/15, β_{hs}/β_c = 24/15. For all other combinations of DPDCH,DPCCH 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 β_c = 11/15 and β_d = 15/15

The measurements were performed with a Fixed Reference Channel (FRC) and H-Set 1 QPSK.
Settings of required H-Set 1 QPSK acc. to 3GPP 34.121

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

HSDPA UE category

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

4. HSUPA

SAR for body exposure configurations is measured according to the “Body SAR Measurements"" procedures of 3G device. When the maximum output power and tune-up tolerance specified for production units in a secondary mode is ≤ ¼ 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.

As per KDB941225 D01v03, the 3G SAR test reduction procedure is applied to HSPA (HSUPA/HSDPA with RMC) body configurations with 12.2 kbps RMC as the primary mode. Otherwise, SAR is measured for HSPA using the HSPA body SAR procedures for the highest reported body exposure SAR configuration in 12.2 kbps RMC.

Due to inner loop power control requirements in HSDPA, 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 HSDPA should be configured according to the values indicated below as well as other applicable procedures described in the „WCDMA Handset" and „Release 5 HSDPA Data Device" sections of 3G device.

Subtests for WCDMA Release 6 HSUPA

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs}(1)	β_{ec}	β_{ed}	β_{ec} (SF)	β_{ed} (code)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1}:47/15 β_{ed2}:47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ ACK, Δ NACK and Δ CQI = 8 $A_{hs} = \beta_{hs}/\beta_c = 30/15$ $\beta_{hs} = 30/15 * \beta_c$

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

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

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

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

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

HSUPA UE category

UE E-DCH Category	Maximum E-DCH Codes Transmitted	Number of HARQ Processes	E-DCH TTI(ms)	Minimum Speading 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&2SF4	11484	5.76
	4	4	2		20000	2.00
7 (No DPDCH)	4	8	2	2SF2&2SF4	22996	?
	4	4	10		20000	?

Note:

1) 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).

7.3. LTE Test Configuration

Establishing connections with base station simulators ensure a consistent means for testing SAR and are recommended for evaluating SAR. The R&S CMW500 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.

1) Spectrum Plots for RB configurations

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

2) MPR

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

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (N_{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

3) A-MPR

A-MPR (Additional MPR) has been disabled for all SAR tests by using Network Signaling Value of “NS=01” on the base station simulator.

4) SAR test requirements

A) Largest channel bandwidth standalone SAR test requirements

i) 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.

ii) QPSK with 50% RB allocation

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

iii) 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 i) and ii) 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.

iv) 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.

B) 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.

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

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

According to Figure 4.2-1, one radio frame is configured by 10 subframes, which consist of Uplink-subframe, Downlink-subframe and Special subframe. For TDD-LTE, the Duty Cycle should be calculated on Uplink-subframes and Special subframes, due to Special subframe containing both Uplink transmissions. So for one radio frame, Duty Cycle can be calculated with formula as below. The count of Uplink subframes are according to Table 4.2-2:

Duty cycle = (30720Ts*Ups + Uplink Component*Specials)/(307200Ts)

About the uplink component of Special subframes, we can figure out by Table 4.2-1:

Uplink Component = UpPTS

In conclusion, for the TDD LTE Band, Duty Cycle can be calculated with formula as below. all these sets are ok when we test, or we can set as below.

Duty cycle =[(30720Ts*Ups) + UpPTS * Specials]/(307200Ts)

And we can get different Duty cycles under different configurations:

Uplink-downlink configuratin	Subframe number			Configuration of special subframe							
				Normal cyclic prefix in downlink				Extended cyclic prefix in downlink			
				Normal cyclic prefix in uplink		Extended cyclic prefix in uplink		Normal cyclic prefix in uplink		Extended cyclic prefix in uplink	
	D	S	U	configuration 0-4	configuration 5-9	configuration 0-4	configuration 5-9	configuration 0-3	configuration 4-7	configuration 0-3	configuration
0	2	2	6	61.43%	62.85%	61.67%	63.33%	61.43%	62.85%	61.67%	63.33%
1	4	2	4	41.43%	42.85%	41.67%	43.33%	41.43%	42.85%	41.67%	43.33%
2	6	2	2	21.43%	22.85%	21.67%	23.33%	21.43%	22.85%	21.67%	23.33%
3	6	1	3	30.71%	31.43%	30.83%	31.67%	30.71%	31.43%	30.83%	31.67%
4	7	1	2	20.71%	21.43%	20.83%	21.67%	20.71%	21.43%	20.83%	21.67%
5	8	1	1	10.71%	11.43%	10.83%	11.67%	10.71%	11.43%	10.83%	11.67%
6	3	2	5	51.43%	52.85%	51.67%	53.33%	51.43%	52.85%	51.67%	53.33%

For TDD LTE, SAR should be tested with the highest transmission duty factor (63.33%) using Uplink-downlink configuration 0 and Special subframe configuration 7 for Frame structure type 2.

7.4. Wi-Fi Test Configuration

For Wi-Fi SAR testing, a communication link is set up with the testing software for Wi-Fi mode test. During the test, at each test frequency channel, the EUT is operated at the RF continuous emission mode. The test procedures in KDB 248227D01 are applied.

7.4.1. Initial Test Position Procedure

For exposure condition with multiple test position, such as handsets operating next to the ear, devices with hotspot mode or UMPC mini-tablet, procedures for initial test position can be applied. Using the transmission mode determined by the DSSS procedure or initial test configuration, area scans are measured for all position in an exposure condition. The test position with the highest extrapolated (peak) SAR is used as the initial test position. When reported SAR for the initial test position is ≤ 0.4W/kg, no additional testing for the remaining test position is required. Otherwise, SAR is evaluated at the subsequent highest peak SAR position until the reported SAR result is ≤ 0.8W/kg or all test position are measured. 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.

7.4.2. Initial Test Configuration Procedure

An initial test configuration is determined for OFDM transmission modes according to the channel bandwidth, modulation and data rate combination(s) with the highest maximum output power specified for production units in each standalone and aggregated frequency band. SAR is measured using the highest measured maximum output power channel. For configurations with the same specified or measured maximum output power, additional transmission mode and test channel selection procedures are required (see section 5.3.2 of KDB 248227D01). SAR test reduction of subsequent highest output test channels is based on the reported SAR of the initial test configuration.

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

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

7.4.3. Sub Test Configuration Procedure

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.

When the highest reported SAR for the initial test configuration, according to the initial test position or fixed exposure position requirements, is adjusted by the ratio of the subsequent test configuration to initial test configuration specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required for that subsequent test configuration.

7.4.4. 2.4GHz Wi-Fi SAR Test Procedures

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

A) 802.11b DSSS SAR Test Requirements

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

1) When the reported SAR of the highest measured maximum output power channel (section 3.1 of KDB 248227D01) for the exposure configuration is ≤ 0.8 W/kg, no further SAR testing is required for 802.11b DSSS in that exposure configuration.
2) When the reported SAR is > 0.8 W/kg, SAR is required for that exposure configuration using the next highest measured output power channel. When any reported SAR is > 1.2 W/kg, SAR is required for the third channel i.e., all channels require testing.

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

When SAR measurement is required for 2.4 GHz 802.11g/n OFDM configurations, the measurement and test reduction procedures for OFDM are applied (section 5.3 of KDB 248227D01). SAR is not required for the following 2.4 GHz OFDM conditions.

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

C) SAR Test Requirements for OFDM configurations

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

7.4.5. 5GHz Wi-Fi SAR Test Procedures

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 and SAR Test Channel Selection

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

7.5. Repeated measurements

Repeated measurements are required only when the measured SAR is ≥ 0.80 W/kg.18 If the measured SAR value of the initial repeated measurement is < 1.45 W/kg with ≤ 20% variation, only one repeated measurement is required to reaffirm that the results are not expected to have substantial variations, which may introduce significant compliance concerns. A second repeated measurement is required only if the measured result for the initial repeated measurement is within 10% of the SAR limit and vary by more than 20%, which are often related to device and measurement setup difficulties. The following procedures are applied to determine if repeated measurements are required. 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.19 The repeated measurement results must be clearly identified in the SAR report. All measured SAR, including the repeated results, must be considered to determine compliance and for reporting according to KDB Publication 690783.

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.

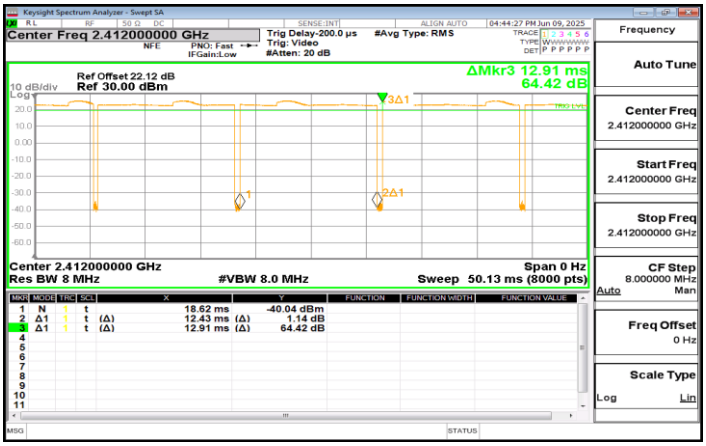
8. Conducted Output Power Measurement and tune-up tolerance

Detailed conducted power and tune-up tolerance please refer to 4791806224-1-SAR-1_App A Conducted power.

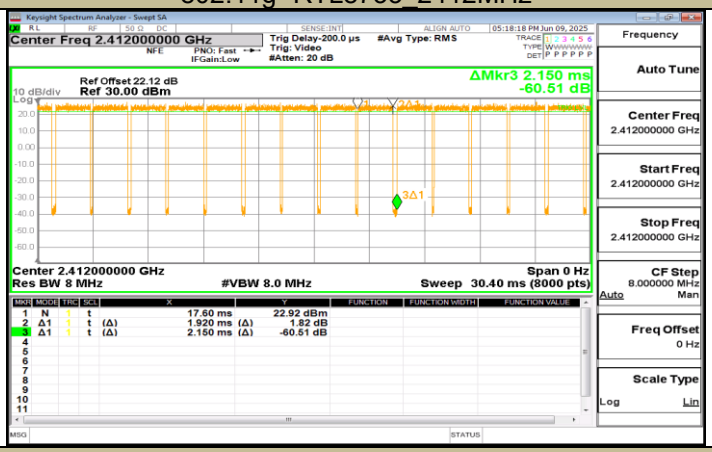
8.1. Duty Cycle

Test Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)
802.11b-RTL8733	12.43	12.91	0.9628	96.28
802.11g- RTL8733	2.06	2.30	0.8957	89.57
802.11a- RTL8733	2.07	2.25	0.9200	92.00
802.11b-XL100	100.00	100.00	1.0000	100.00
802.11n20-XL100	2.53	2.56	0.9883	98.83
BLE 1M	2.12	2.50	0.8480	84.80

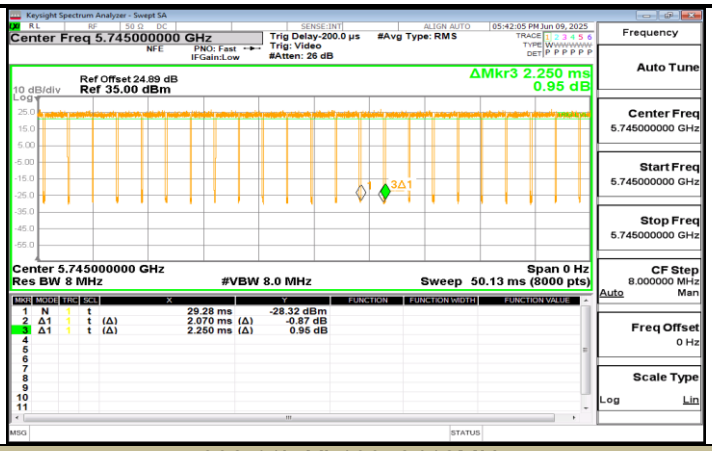
802.11b-RTL8733_2412MHz



802.11g- RTL8733_2412MHz

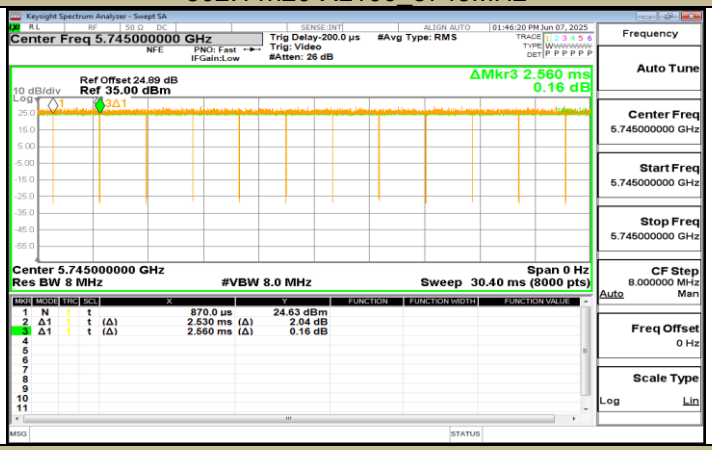


802.11a- RTL8733_5745MHz



802.11b-XL100_2412MHz

802.11n20-XL100_5745MHz



BLE 1M_2402MHz

9. RF Exposure Conditions

Wireless technologies	RF Exposure Conditions	DUT-to-User Separation
WWAN/WLAN/BLE	Extremity	0 mm

For specific details regarding the antenna-to-edge distance, please refer to Appendix B.
As per KDB 941225 D06, when the antenna to-edge-distance is greater than 2.5 cm, SAR evaluation is not required for the corresponding position.

Antenna	Front Surface	Back Surface	Left Edge	Right Edge	Top Edge	Bottom Edge
WWAN	Yes	Yes	Yes	Yes	No	No
RTL8733	Yes	Yes	Yes	Yes	No	No
XL100	Yes	Yes	Yes	Yes	No	Yes

10. Dielectric Property Measurements & System Check

10.1. Dielectric Property Measurements

The temperature of the tissue-equivalent medium used during measurement must also be within 18°C to 25°C and within ± 2°C of the temperature when the tissue parameters are characterized.
The dielectric parameters must be measured before the tissue-equivalent medium is used in a series of SAR measurements. The parameters should be re-measured after each 3 – 4 days of use; or earlier if the dielectric parameters can become out of tolerance; for example, when the parameters are marginal at the beginning of the measurement series.
Tissue dielectric parameters were measured at the low, middle and high frequency of each operating frequency range of the test device.

Tissue Dielectric Parameters

FCC KDB 865664 D01 v01r04 SAR Measurement 100 MHz to 6 GHz

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5000	36.2	4.45	49.3	5.07
5100	36.1	4.55	49.1	5.18
5200	36.0	4.66	49.0	5.30
5300	35.9	4.76	48.9	5.42
5400	35.8	4.86	48.7	5.53
5500	35.6	4.96	48.6	5.65
5600	35.5	5.07	48.5	5.77
5700	35.4	5.17	48.3	5.88
5800	35.3	5.27	48.2	6.00

IEEE Std 1528-2013
Refer to Table 3 within the IEEE Std 1528-2013

Dielectric Property Measurements Results:

Liquid	Freq.	Liquid Parameters				Deviation(%)		Limit (%)	Temp. (℃)	Test Date
		Measured		Target						
		ϵ_r	σ	ϵ_r	σ	ϵ_r	σ			
Head 835	805	42.500	0.861	41.66	0.90	2.02	-4.33	±5	21.6	June 26, 2025
	835	42.100	0.891	41.50	0.90	1.45	-1.00			
	950	40.800	0.991	41.41	0.99	-1.47	0.10			
Head 835	805	42.600	0.867	41.66	0.90	2.26	-3.67	±5	21.8	June 30, 2025
	835	42.200	0.897	41.50	0.90	1.69	-0.33			
	950	40.900	0.998	41.41	0.99	-1.23	0.81			
Head 1800	1720	40.700	1.300	40.13	1.35	1.42	-3.70	±5	21.6	June 26, 2025
	1780	40.100	1.340	40.03	1.39	0.17	-3.60			
	1800	40.00	1.38	40.00	1.40	0.00	-1.43			
Head 1800	1720	40.900	1.320	40.13	1.35	1.92	-2.22	±5	21.8	June 30, 2025
	1780	40.200	1.360	40.03	1.39	0.42	-2.16			
	1800	40.100	1.390	40.00	1.40	0.25	-0.71			
Head 1900	1850	40.100	1.390	40.00	1.40	0.25	-0.71	±5	21.6	June 26, 2025
	1900	39.900	1.410	40.00	1.40	-0.25	0.71			
	1920	39.800	1.430	40.00	1.40	-0.50	2.14			
Head 1900	1850	39.900	1.380	40.00	1.40	-0.25	-1.43	±5	21.8	June 30, 2025
	1900	39.800	1.400	40.00	1.40	-0.50	0.00			
	1920	39.700	1.410	40.00	1.40	-0.75	0.71			
Head 2450	2400	39.800	1.770	39.29	1.76	1.30	0.57	±5	21.5	July 11, 2025
	2450	39.900	1.830	39.20	1.80	1.79	1.67			
	2480	39.800	1.850	39.16	1.83	1.63	1.09			
Head 2600	2500	38.900	1.850	39.14	1.85	-0.61	0.00	±5	21.8	June 30, 2025
	2600	39.000	1.920	39.01	1.96	-0.03	-2.04			
	2700	38.700	2.030	38.88	2.07	-0.46	-1.93			
Head 5750	5660	34.80	5.09	35.46	5.13	-1.86	-0.78	±5	21.6	July 12, 2025
	5750	34.80	5.16	35.36	5.22	-1.58	-1.15			
	5840	34.60	5.27	35.27	5.30	-1.90	-0.57			

10.2. System Check

SAR system verification is required to confirm measurement accuracy, according to the tissue dielectric media, probe calibration points and other system operating parameters required for measuring the SAR of a test device. The system verification must be performed for each frequency band and within the valid range of each probe calibration point required for testing the device. The same SAR probe(s) and tissue-equivalent media combinations used with each specific SAR system for system verification must be used for device testing. When multiple probe calibration points are required to cover substantially large transmission bands, independent system verifications are required for each probe calibration point. A system verification must be performed before each series of SAR measurements using the same probe calibration point and tissue-equivalent medium. Additional system verification should be considered according to the conditions of the tissue-equivalent medium and measured tissue dielectric parameters, typically every three to four days when the liquid parameters are re-measured or sooner when marginal liquid parameters are used at the beginning of a series of measurements.

System Performance Check Measurement Conditions:

- The measurements were performed in the flat section of the TWIN SAM or ELI phantom, shell thickness: 2.0 ±0.2 mm (bottom plate) filled with Body or Head simulating liquid of the following parameters.
- The depth of tissue-equivalent liquid in a phantom must be ≥ 15.0 cm for SAR measurements ≤ 3 GHz and ≥ 10.0 cm for measurements > 3 GHz.
- The DASY system with an E-Field Probe was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm (above 1GHZ) and 15mm (below 1GHz) from dipole center to the simulating liquid surface.
- For area scan, standard grid spacing for head measurements is 15 mm in x- and y- dimension(≤2GHz), 12 mm in x- and y-dimension(2-4 GHz) and 10mm in x- and y- dimension(4-6GHz).
- For zoom scan, Δx_{zoom}, Δy_{zoom}≤ 2GHz - ≤8mm, 2-4GHz - ≤5 mm and 4-6 GHz-≤4mm; Δz_{zoom} ≤3GHz - ≤5 mm, 3-4 GHz- ≤4mm and 4-6GHz-≤2mm.
- Distance between probe sensors and phantom surface was set to 3 mm except for 5 GHz band. For 5GHz band, Distance between probe sensors and phantom surface was set to 2.5 mm
- The dipole input power (forward power) was set to 100 mW or 250 mW depend on the certificate of the dipoles.
- The results are normalized to 1 W input power.

System Check Results

The 1-g and 10-g SAR measured with a reference dipole, using the required tissue-equivalent medium at the test frequency, must be within 10% of the manufacturer calibrated dipole SAR target.

T.S. Liquid		Measured Results		Target (Ref. value)	Delta (%)	Limit (%)	Temp. (℃)	Test Date
		Result of 0.1W input power (W/Kg)	Normalize to 1W (W/Kg)					
Head 835	1-g	0.992	9.92	9.66	2.69	±10	21.6	June 26, 2025
	10-g	0.644	6.44	6.29	2.38			
Head 835	1-g	0.890	8.90	9.66	-7.87	±10	21.6	June 27, 2025
	10-g	0.577	5.77	6.29	-8.27			
Head 835	1-g	1.010	10.10	9.66	4.55	±10	21.8	June 30, 2025
	10-g	0.657	6.57	6.29	4.45			
Head 1800	1-g	3.980	39.80	39.10	1.79	±10	21.6	June 26, 2025
	10-g	2.080	20.80	20.60	0.97			
Head 1800	1-g	3.680	36.80	39.10	-5.88	±10	21.6	June 27, 2025
	10-g	1.930	19.30	20.60	-6.31			
Head 1800	1-g	4.080	40.80	39.10	4.35	±10	21.8	June 30, 2025
	10-g	2.130	21.30	20.60	3.40			
Head 1900	1-g	3.910	39.10	39.50	-1.01	±10	21.6	June 26, 2025
	10-g	2.030	20.30	20.60	-1.46			
Head 1900	1-g	3.980	39.80	39.50	0.76	±10	21.8	June 30, 2025
	10-g	2.070	20.70	20.60	0.49			
Head 2450	1-g	5.190	51.90	52.80	-1.70	±10	21.5	July 11, 2025
	10-g	2.400	24.00	24.40	-1.64			
Head 2450	1-g	5.170	51.70	52.80	-2.08	±10	21.6	July 12, 2025
	10-g	2.400	24.00	24.40	-1.64			
Head 2600	1-g	5.430	54.30	55.60	-2.34	±10	21.8	June 30, 2025
	10-g	2.540	25.40	24.80	2.42			
Head 5750	1-g	7.500	75.00	77.90	-3.72	±10	21.6	July 12, 2025
	10-g	2.150	21.50	21.50	0.00			

11. Measured and Reported (Scaled) SAR Results

SAR Test Reduction criteria are as follows：

●Reported SAR(W/kg) for Wi-Fi Measured SAR* Maximum Output Power scaling factor Duty Cycle scaling factor

●Duty Cycle scaling factor = 1 / Duty cycle (%)

General Notes:

1) As per KDB447498 D01, all SAR measurement results are scaled to the maximum tune-up tolerance limit to demonstrate SAR compliance.
2) As per KDB447498 D01, 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.
   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.
3) As per KDB865664 D01 for each frequency band, repeated SAR measurement is required only when the measured SAR is ≥0.8W/Kg; if the deviation among the repeated measurement is ≤20%, and the measured SAR <1.45W/Kg, only one repeated measurement is required.
4) As per KDB865664 D02, SAR plot is only required for the highest measured SAR in each exposure configuration, wireless mode and frequency band combination; Plots are also required when the measured SAR is > 1.5 W/kg, or > 7.0 W/kg for occupational exposure. The published RF exposure KDB procedures may require additional plots; for example, to support SAR to peak location separation ratio test exclusion and/or volume scan post-processing (Refer to appendix B for detailed SAR plots).
5) Additional SAR tests in simultaneous transmission fixed power reduction scenario are also tested in some frequency bands and required test positions for the SAR worst case, which are only used to ensure simultaneous transmission SAR test exclusion. The standalone SAR compliance still uses the SAR results tested at the maximum output power level.

11.1. SAR Test Results of GSM 850

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	GPRS 3 Slots	Front Surface	0	190	31.0	30.75	0.093	0.06	0.099
Extremity	GPRS 3 Slots	Back Surface	0	190	31.0	30.75	0.429	0.00	0.454
Extremity	GPRS 3 Slots	Left Edge	0	190	31.0	30.75	0.124	0.04	0.131
Extremity	GPRS 3 Slots	Right Edge	0	190	31.0	30.75	0.258	-0.01	0.273

11.2. SAR Test Results of GSM 1900

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	GPRS 2 Slots	Front Surface	0	810	27.5	27.46	0.073	0.01	0.074
Extremity	GPRS 2 Slots	Back Surface	0	810	27.5	27.46	0.114	-0.03	0.115
Extremity	GPRS 2 Slots	Left Edge	0	810	27.5	27.46	0.185	-0.07	0.187
Extremity	GPRS 2 Slots	Right Edge	0	810	27.5	27.46	0.076	0.04	0.077

11.3. SAR Test Results of WCDMA Band II

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	RMC 12.2kbps	Front Surface	0	9400	21.0	20.99	0.163	0.08	0.163
Extremity	RMC 12.2kbps	Back Surface	0	9400	21.0	20.99	0.256	0.02	0.257
Extremity	RMC 12.2kbps	Left Edge	0	9400	21.0	20.99	0.427	-0.01	0.428
Extremity	RMC 12.2kbps	Right Edge	0	9400	21.0	20.99	0.183	0.01	0.183

11.4. SAR Test Results of WCDMA Band IV

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	RMC 12.2kbps	Front Surface	0	1413	22.0	21.58	0.481	0.01	0.530
Extremity	RMC 12.2kbps	Back Surface	0	1413	22.0	21.58	0.163	0.03	0.180
Extremity	RMC 12.2kbps	Left Edge	0	1413	22.0	21.58	0.357	0.05	0.393
Extremity	RMC 12.2kbps	Right Edge	0	1413	22.0	21.58	0.106	-0.02	0.117

11.5. SAR Test Results of WCDMA Band V

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	RMC 12.2kbps	Front Surface	0	4183	24.0	23.43	0.074	-0.01	0.084
Extremity	RMC 12.2kbps	Back Surface	0	4183	24.0	23.43	0.405	-0.02	0.462
Extremity	RMC 12.2kbps	Left Edge	0	4183	24.0	23.43	0.124	0.08	0.141
Extremity	RMC 12.2kbps	Right Edge	0	4183	24.0	23.43	0.240	0.10	0.274

11.6. SAR Test Results of LTE B2

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#49	Front Surface	0	19100	22.0	21.57	0.136	0.03	0.150
Extremity	20M QPSK 50RB#50	Front Surface	0	19100	21.0	20.54	0.105	0.04	0.117
Extremity	20M QPSK 1RB#49	Back Surface	0	19100	22.0	21.57	0.199	-0.03	0.220
Extremity	20M QPSK 50RB#50	Back Surface	0	19100	21.0	20.54	0.149	0.08	0.166
Extremity	20M QPSK 1RB#49	Left Edge	0	19100	22.0	21.57	0.331	0.12	0.365
Extremity	20M QPSK 50RB#50	Left Edge	0	19100	21.0	20.54	0.229	0.01	0.255
Extremity	20M QPSK 1RB#49	Right Edge	0	19100	22.0	21.57	0.118	0.05	0.130
Extremity	20M QPSK 50RB#50	Right Edge	0	19100	21.0	20.54	0.091	-0.07	0.101

11.7. SAR Test Results of LTE B4

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#99	Front Surface	0	20050	23.0	22.61	0.516	0.00	0.564
Extremity	20M QPSK 50RB#50	Front Surface	0	20050	22.0	21.52	0.389	0.05	0.434
Extremity	20M QPSK 1RB#99	Back Surface	0	20050	23.0	22.61	0.183	0.02	0.200
Extremity	20M QPSK 50RB#50	Back Surface	0	20050	22.0	21.52	0.142	-0.04	0.159
Extremity	20M QPSK 1RB#99	Left Edge	0	20050	23.0	22.61	0.331	0.01	0.362
Extremity	20M QPSK 50RB#50	Left Edge	0	20050	22.0	21.52	0.263	0.02	0.294
Extremity	20M QPSK 1RB#99	Right Edge	0	20050	23.0	22.61	0.085	-0.06	0.093
Extremity	20M QPSK 50RB#50	Right Edge	0	20050	22.0	21.52	0.066	0.03	0.074

11.8. SAR Test Results of LTE B5

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	10M QPSK 1RB#24	Front Surface	0	20525	24.5	24.10	0.099	-0.05	0.109
Extremity	10M QPSK 25RB#12	Front Surface	0	20450	23.5	23.04	0.056	0.02	0.062
Extremity	10M QPSK 1RB#24	Back Surface	0	20525	24.5	24.10	0.458	-0.13	0.502
Extremity	10M QPSK 25RB#12	Back Surface	0	20450	23.5	23.04	0.326	0.01	0.362
Extremity	10M QPSK 1RB#24	Left Edge	0	20525	24.5	24.10	0.128	0.06	0.140
Extremity	10M QPSK 25RB#12	Left Edge	0	20450	23.5	23.04	0.085	0.07	0.094
Extremity	10M QPSK 1RB#24	Right Edge	0	20525	24.5	24.10	0.263	0.00	0.288
Extremity	10M QPSK 25RB#12	Right Edge	0	20450	23.5	23.04	0.202	-0.03	0.225

11.9. SAR Test Results of LTE B7

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#49	Front Surface	0	21350	22.0	21.78	0.246	0.04	0.259
Extremity	20M QPSK 50RB#50	Front Surface	0	21350	21.0	20.65	0.201	0.02	0.218
Extremity	20M QPSK 1RB#49	Back Surface	0	21350	22.0	21.78	0.086	0.00	0.090
Extremity	20M QPSK 50RB#50	Back Surface	0	21350	21.0	20.65	0.067	-0.03	0.073
Extremity	20M QPSK 1RB#49	Left Edge	0	21350	22.0	21.78	0.758	-0.07	0.797
Extremity	20M QPSK 50RB#50	Left Edge	0	21350	21.0	20.65	0.596	0.09	0.646
Extremity	20M QPSK 1RB#49	Right Edge	0	21350	22.0	21.78	0.121	0.06	0.127
Extremity	20M QPSK 50RB#50	Right Edge	0	21350	21.0	20.65	0.101	-0.01	0.109

11.10. SAR Test Results of LTE B25

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#49	Front Surface	0	26590	22.0	21.86	0.152	0.01	0.157
Extremity	20M QPSK 50RB#50	Front Surface	0	26590	21.0	20.87	0.124	0.03	0.128
Extremity	20M QPSK 1RB#49	Back Surface	0	26590	22.0	21.86	0.222	-0.06	0.229
Extremity	20M QPSK 50RB#50	Back Surface	0	26590	21.0	20.87	0.165	0.05	0.170
Extremity	20M QPSK 1RB#49	Left Edge	0	26590	22.0	21.86	0.329	0.08	0.340
Extremity	20M QPSK 50RB#50	Left Edge	0	26590	21.0	20.87	0.238	0.11	0.245
Extremity	20M QPSK 1RB#49	Right Edge	0	26590	22.0	21.86	0.131	-0.03	0.135
Extremity	20M QPSK 50RB#50	Right Edge	0	26590	21.0	20.87	0.103	0.04	0.106

11.11. SAR Test Results of LTE B26

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	15M QPSK 1RB#38	Front Surface	0	26965	24.0	23.80	0.113	0.05	0.118
Extremity	15M QPSK 36RB#0	Front Surface	0	26865	23.0	22.73	0.055	0.00	0.059
Extremity	15M QPSK 1RB#38	Back Surface	0	26965	24.0	23.80	0.515	0.10	0.539
Extremity	15M QPSK 36RB#0	Back Surface	0	26865	23.0	22.73	0.313	0.03	0.333
Extremity	15M QPSK 1RB#38	Left Edge	0	26965	24.0	23.80	0.141	-0.04	0.148
Extremity	15M QPSK 36RB#0	Left Edge	0	26865	23.0	22.73	0.089	-0.01	0.095
Extremity	15M QPSK 1RB#38	Right Edge	0	26965	24.0	23.80	0.261	0.04	0.273
Extremity	15M QPSK 36RB#0	Right Edge	0	26865	23.0	22.73	0.213	0.08	0.227

11.12. SAR Test Results of LTE B38

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#49	Front Surface	0	38000	23.0	22.51	0.155	0.05	0.174
Extremity	20M QPSK 50RB#25	Front Surface	0	38000	21.5	21.25	0.126	-0.04	0.133
Extremity	20M QPSK 1RB#49	Back Surface	0	38000	23.0	22.51	0.041	0.02	0.046
Extremity	20M QPSK 50RB#25	Back Surface	0	38000	21.5	21.25	0.033	-0.01	0.035
Extremity	20M QPSK 1RB#49	Left Edge	0	38000	23.0	22.51	0.380	0.02	0.425
Extremity	20M QPSK 50RB#25	Left Edge	0	38000	21.5	21.25	0.298	-0.04	0.316
Extremity	20M QPSK 1RB#49	Right Edge	0	38000	23.0	22.51	0.119	0.06	0.133
Extremity	20M QPSK 50RB#25	Right Edge	0	38000	21.5	21.25	0.095	0.08	0.101

11.13. SAR Test Results of LTE B41

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	10-g (W/Kg)		
Extremity	20M QPSK 1RB#49	Front Surface	0	41490	22.5	22.40	0.189	-0.03	0.193
Extremity	20M QPSK 50RB#0	Front Surface	0	41490	21.5	21.41	0.154	0.04	0.157
Extremity	20M QPSK 1RB#49	Back Surface	0	41490	22.5	22.40	0.027	0.08	0.028
Extremity	20M QPSK 50RB#0	Back Surface	0	41490	21.5	21.41	0.019	0.01	0.019
Extremity	20M QPSK 1RB#49	Left Edge	0	41490	22.5	22.40	0.147	-0.05	0.150
Extremity	20M QPSK 50RB#0	Left Edge	0	41490	21.5	21.41	0.122	-0.03	0.125
Extremity	20M QPSK 1RB#49	Right Edge	0	41490	22.5	22.40	0.138	0.06	0.141
Extremity	20M QPSK 50RB#0	Right Edge	0	41490	21.5	21.41	0.121	0.01	0.124

11.14. SAR Test Results of 2.4 GHz Wi-Fi & RTL8733

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured 10-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.				
Extremity	802.11 b	Front Surface	0	2412	20.0	19.82	96.28	0.375	-0.03	0.406
Extremity	802.11 b	Back Surface	0	2412	20.0	19.82	96.28	0.073	0.02	0.078
Extremity	802.11 b	Left Edge	0	2412	20.0	19.82	96.28	1.470	0.05	1.591
Extremity	802.11 b	Left Edge	0	2437	20.0	19.56	96.28	1.480	0.03	1.701
Extremity	802.11 b	Left Edge	0	2462	20.0	19.66	96.28	1.490	-0.04	1.674
Extremity	802.11 b	Right Edge	0	2412	20.0	19.82	96.28	0.102	-0.04	0.110
Extremity	802.11g	Front Surface	0	2412	20.5	20.16	89.57	0.334	0.00	0.403
Extremity	802.11g	Back Surface	0	2412	20.5	20.16	89.57	0.057	-0.09	0.069
Extremity	802.11g	Left Edge	0	2412	20.5	20.16	89.57	1.400	0.04	1.690
Extremity	802.11g	Left Edge	0	2437	20.5	19.46	89.57	1.420	0.02	2.014
Extremity	802.11g	Left Edge	0	2462	20.5	19.37	89.57	1.470	0.00	2.129
Extremity	802.11g	Right Edge	0	2412	20.5	20.16	89.57	0.095	0.03	0.115

Note:

1) The 11b mode is the W-Fi 2.4GHz maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

11.15. SAR Test Results of 5GHz Wi-Fi U-NII-3 & RTL8733

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 a	Front Surface	0	5825	20.0	19.66	92.00	0.405	0.04	0.476
Extremity	802.11 a	Back Surface	0	5825	20.0	19.66	92.00	0.156	0.11	0.183
Extremity	802.11 a	Left Edge	0	5825	20.0	19.66	92.00	0.859	0.03	1.010
Extremity	802.11 a	Left Edge	0	5745	20.0	19.43	92.00	0.883	0.05	1.094
Extremity	802.11 a	Left Edge	0	5785	20.0	19.25	92.00	0.840	0.05	1.085
Extremity	802.11 a	Right Edge	0	5825	20.0	19.66	92.00	0.077	-0.02	0.091

Note:

1) The 11a mode is the W-Fi 5GHz maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

11.16. SAR Test Results of 2.4GHz Wi-Fi & XL100 ANT 1

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.		10-g (W/Kg)		
Extremity	802.11 b	Front Surface	0	2462	20.0	19.66	100.00	0.770	0.01	0.833
Extremity	802.11 b	Front Surface	0	2412	20.0	19.30	100.00	1.030	0.01	1.210
Extremity	802.11 b	Front Surface	0	2437	20.0	19.30	100.00	0.880	0.04	1.034
Extremity	802.11 b	Back Surface	0	2462	20.0	19.66	100.00	0.021	0.06	0.023
Extremity	802.11 b	Left Edge	0	2462	20.0	19.66	100.00	0.186	-0.03	0.201
Extremity	802.11 b	Right Edge	0	2462	20.0	19.66	100.00	0.644	-0.02	0.696
Extremity	802.11 b	Bottom Edge	0	2462	20.0	19.66	100.00	0.033	0.01	0.036

Note:

1) The 11b mode is the W-Fi 2.4GHz maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

11.17. SAR Test Results of 2.4GHz Wi-Fi & XL100 ANT 2

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.		10-g (W/Kg)		
Extremity	802.11 b	Front Surface	0	2462	20.0	19.52	100.00	0.095	0.06	0.106
Extremity	802.11 b	Back Surface	0	2462	20.0	19.52	100.00	0.256	-0.03	0.286
Extremity	802.11 b	Left Edge	0	2462	20.0	19.52	100.00	0.117	0.04	0.131
Extremity	802.11 b	Right Edge	0	2462	20.0	19.52	100.00	0.284	0.11	0.317
Extremity	802.11 b	Right Edge	0	2412	20.0	19.33	100.00	0.255	-0.02	0.298
Extremity	802.11 b	Right Edge	0	2437	20.0	19.18	100.00	0.316	0.01	0.382
Extremity	802.11 b	Bottom Edge	0	2462	20.0	19.52	100.00	0.071	0.04	0.079

Note:

1) The 11b mode is the W-Fi 2.4GHz maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

11.18. SAR Test Results of 5GHz Wi-Fi U-NII-3 & XL100

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	802.11 n 20M	Front Surface	0	5745	26.0	25.74	98.83	0.830	-0.04	0.892
Extremity	802.11 n 20M	Front Surface	0	5785	26.0	25.66	98.83	0.760	0.03	0.832
Extremity	802.11 n 20M	Front Surface	0	5825	26.0	25.19	98.83	0.660	-0.02	0.805
Extremity	802.11 n 20M	Back Surface	0	5745	26.0	25.74	98.83	0.623	0.06	0.669
Extremity	802.11 n 20M	Left Edge	0	5745	26.0	25.74	98.83	0.600	-0.04	0.645
Extremity	802.11 n 20M	Right Edge	0	5745	26.0	25.74	98.83	0.727	0.08	0.781
Extremity	802.11 n 20M	Bottom Edge	0	5745	26.0	25.74	98.83	0.242	0.06	0.260

Note:

1) Test in MIMO mode
2) The 11n20 mode is the W-Fi 5GHz maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

11.19. SAR Test Results of BLE & XL100

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up	Meas.		10-g (W/Kg)		
Extremity	BLE 1M	Front Surface	0	2480	2.5	2.11	84.80	0.027	0.03	0.034
Extremity	BLE 1M	Back Surface	0	2480	2.5	2.11	84.80	0.001	-0.02	0.001
Extremity	BLE 1M	Left Edge	0	2480	2.5	2.11	84.80	0.047	0.00	0.061
Extremity	BLE 1M	Left Edge	0	2402	2.5	1.30	84.80	0.038	-0.01	0.059
Extremity	BLE 1M	Left Edge	0	2440	2.5	1.43	84.80	0.035	0.04	0.053
Extremity	BLE 1M	Right Edge	0	2480	2.5	2.11	84.80	0.012	-0.03	0.015
Extremity	BLE 1M	Bottom Edge	0	2480	2.5	2.11	84.80	0.002	0.04	0.003

Note:

1) The BLE 1M mode is the maximum power mode. When SAR is ≤ 1.2W /kg, there is no need to test other modes.

12. Simultaneous Transmission SAR Analysis

Simultaneous transmission possibilities	
No.	Simultaneous TX Combination
1	WWAN + 2.4G Wi-Fi (XL100) +BLE (XL100) + 5G Wi-Fi (RTL8733)
2	WWAN + 5G Wi-Fi (XL100) + BLE (XL100) + 2.4G Wi-Fi (RTL8733)

12.1. Simultaneously transmit SAR calculations

WWAN + 2.4G Wi-Fi (XL100) +BLE (XL100) + 5G Wi-Fi (RTL8733)							
RF Exposure Condition	**Test Position**	**WWAN max**	**2.4G Wi-Fi max (XL100)**	**BLE**	**5G Wi-Fi &U-NII-3_RTL8733**	**ΣSAR 10-g (W/kg)**	**Limit (W/kg)**
Extremity	**Front Surface**	0.564	1.210	0.034	0.476	2.284	4.0
	Back Surface	0.539	0.286	0.001	0.183	1.009	
	Left Edge	0.797	0.201	0.061	1.094	2.153	
	Right Edge	0.288	0.696	0.015	0.091	1.090	
	Bottom Edge	/	0.079	0.003	/	0.082	

WWAN + 5G Wi-Fi (XL100) + BLE (XL100) + 2.4G Wi-Fi (RTL8733)							
RF Exposure Condition	**Test Position**	**WWAN max**	**5G Wi-Fi &U-NII-3 (XL100)**	**BLE**	**2.4G Wi-Fi RTL8733**	**ΣSAR 10-g (W/kg)**	**Limit (W/kg)**
Extremity	**Front Surface**	0.564	0.892	0.034	0.406	1.896	4.0
	Back Surface	0.539	0.669	0.001	0.078	1.287	
	Left Edge	0.797	0.645	0.061	2.129	3.632	
	Right Edge	0.288	0.781	0.015	0.115	1.199	
	Bottom Edge	/	0.260	0.003	/	0.263	

Appendixes

Refer to separated files for the following appendixes.

4791806224-1-SAR-1_App A Conducted power

4791806224-1-SAR-1_App B Photo

4791806224-1-SAR-1_App C System Check Plots

4791806224-1-SAR-1_App D Highest Test Plots

4791806224-1-SAR-1_App E Cal. Certificates

---------End of Report---------