SAR EVALUATION REPORT

FCC 47 CFR § 2.1093
IEEE Std 1528-2013

For

MD-PH-001

MODEL NUMBER: MD-PH-001

REPORT NUMBER: 4791159315-3-SAR-1

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Prepared for

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Prepared by

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Revision History

Rev.	Date	Revisions	Revised By
V1.0	Jan. 12, 2024	Initial Issue	\

Note:

1. The Measurement result for the sample received is<Pass> according to < IEEE Std. 1528-2013> when <Accuracy Method> decision rule is applied.
2. This report is only published to and used by the applicant, and it is not for evidence purpose in China.

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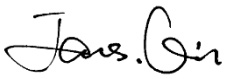
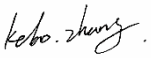
1. Attestation of Test Results

Applicant Name	Chengdu Shuiyueyu Technology Co., Ltd.			
Address	4th Floor, Building 2, No. 606, West Section of Haike Road, Chengdu Cross-Strait Science and Technology Industrial Development Park, Wenjiang District, Chengdu			
Manufacturer	Chengdu Shuiyueyu Technology Co., Ltd.			
Address	4th Floor, Building 2, No. 606, West Section of Haike Road, Chengdu Cross-Strait Science and Technology Industrial Development Park, Wenjiang District, Chengdu			
EUT Name	MD-PH-001			
Model	MD-PH-001			
Brand	\			
Sample Status	Normal			
Sample ID	7236063			
Sample Received Date	Mar. 21, 2024			
Date of Tested	April 12, 2024~ June 7,2024			
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**			
	PCE	**DTS**	**NII**	**DSS**
Head (0mm)	1.095	0.799	0.296	0.062
Body-worn (10mm)	0.959	0.324	0.575	0.021
Hotspot (10mm)	0.959	0.324	0.575	0.021
Extremity (0mm)	0.598	/	0.809	/
Simultaneous Transmission (1-g)	Head	1.587		
	Body-worn	1.594		
	Hotspot	1.594		
Simultaneous Transmission (10-g)	Extremity	/		
Test Results	Pass			

Prepared By:	Reviewed By:	Approved By:
		
James Qin Project Engineer	Kebo Zhang Senior Project Engineer	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

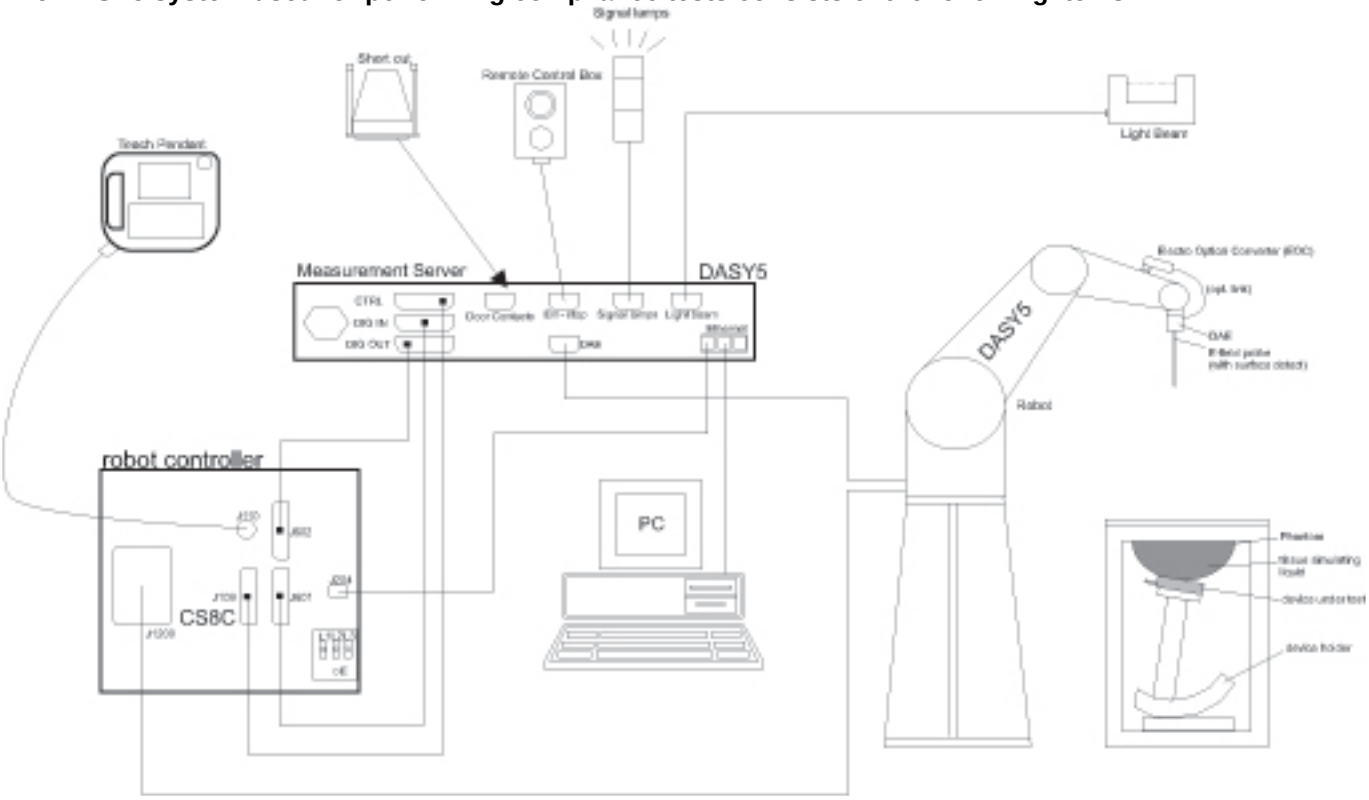
3. Facilities and Accreditation

Test Location	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Address	Building 10, Innovation Technology Park, Song Shan Lake Hi-tech Development Zone, Dongguan, 523808, 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.: G-20192, C-20153, T-20155 and R-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 D, the VCCI registration No. is G-20192 and R-20202. Shielding Room B, the VCCI registration No. is C-20153 and T-20155.
Description	All measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi-tech Development Zone, Dongguan, 523808, China.

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY5 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 Win7 and the DASY5 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	2024.10.11
Dielectric Probe kit	SPEAG	SM DAK 040 SA	1155	2025.02.27
DC power supply	Keysight	E36103A	MY55350020	2024.10.11
Signal Generator	Rohde & Schwarz	SME06	837633\001	2024.08.06
BI-Directional Coupler	KRYTAR	1850	54733	2024.10.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220002	2024.10.11
Peak and Average Power Sensor	Keysight	E9325A	MY62220003	2024.10.11
Dual Channel PK Power Meter	Keysight	N1912A	MY55416024	2024.10.11
Amplifier	CORAD TECHNOLOGY LTD	AMF-4D-00400600-50-30P	1983561	NCR
Dosimetric E-Field Probe	SPEAG	EX3DV4	7733	2025.02.20
Data Acquisition Electronic	SPEAG	DAE4	1739	2025.01.22
Dipole Kit 750 MHz	SPEAG	D750V3	1153	2024.12.14
Dipole Kit 835 MHz	SPEAG	D835V2	4d206	2024.12.16
Dipole Kit 1800 MHz	SPEAG	D1800V2	2d212	2024.12.20
Dipole Kit 1900 MHz	SPEAG	D1900V2	5d212	2024.12.19
Dipole Kit 2450 MHz	SPEAG	D2450V2	977	2024.12.16
Dipole Kit 2600 MHz	SPEAG	D2600V2	1117	2024.12.19
Dipole Kit 3500 MHz	SPEAG	D3500V2	1047	2025.01.30
Dipole Kit 3700 MHz	SPEAG	D3700V2	1013	2025.01.30
Dipole Kit 3900 MHz	SPEAG	D3900V2	1067	2025.03.26
Dipole Kit 5 GHz	SPEAG	D5GHzV2	1231	2024.12.15
Software	SPEAG	DASY52	N/A	NCR
Twin Phantom	SPEAG	SAM 5.0	1805	NCR
Thermometer	/	GX-138	150709653	2024.10.18
Thermometer	VICTOR	ITHX-SD-5	18470005	2024.10.18

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

EUT is a 5G smart phone with GSM/WCDMA/LTE/NR/IEEE 802.11a/ b/g/n/ac, Bluetooth and NFC radio	
Dimension	Overall (Length x Width x Height): 163 mm x 75 mm x 13 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 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☒ Class 12 - 4 Up, 4 Down ☐ Class 33 - 4 Up, 5 Down
	Does this device support DTM (Dual Transfer Mode)? ☐ Yes ☒ No		
WCDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Rel. 7) HSUPA (Rel. 7)	
LTE	FDD Band2 FDD Band4 FDD Band5 FDD Band7 FDD Band12 FDD Band17 FDD Band66 TDD Band38 TDD Band41	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)	
NR (FR1)	FDD Band n5 FDD Band n7 TDD Band n38 TDD Band n41 TDD Band n77 TDD Band n78	DFT-s-OFDM: Pi/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM	
Wi-Fi	2.4GHz	802.11b 802.11g 802.11n (HT20) 802.11n (HT40)	
Wi-Fi	5GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80)	
BT/BLE	2.4GHz	V5.0	
NFC	13.56MHz	ASK	

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.

7.1.1. 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/EGPRS 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 5. The EGPRS 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 5.

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.

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

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

7.1.2. 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 □c and □d gain factors for DPCCH and DPDCH were set according to the values in the below table, □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).

5. DC-HSDPA

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

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

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0
Levels for HSDPA connection setup

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

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

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

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

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

Note:

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

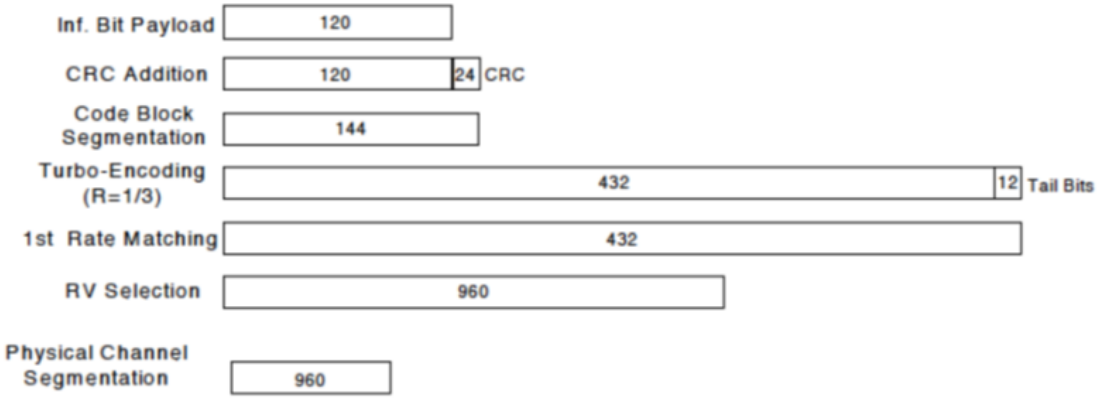


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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

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: 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 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

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

Note:

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

The device doesn't support carrier aggregation for it just can operate in Release 8.

7.2. 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.

7.3. NR Band Test Configuration

For 5G NR test procedure was following step similar FCC KDB 941225 D05:

a. For DFT-OFDM and CP-OFDM output power measurement reduction, according to 3GPP 38.101 maximum power reduction for power class 3, the CP-OFDM mode will not higher than DFT-OFDM mode, therefore, similar FCC KDB 941225 D05 procedure for other modulation output power for each RB allocation configuration is > not ½ dB higher than the same configuration in DFT-QPSK or the reported SAR for the DFT-QPSK configuration is ≤ 1.45 W/kg; CP-OFDM testing is not required.

b. For DFT-OFDM output power measurement reduction, according to 38.101 maximum power reduction for power class 3, for PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will spot check largest channel bandwidth worst RB configuration to ensure the PI/2 BPSK/16QAM/64QMA/256QAM and smaller bandwidth output power will not ½ dB higher than the same configuration in the largest supported bandwidth.

c. SAR testing start with the largest SCS and largest channel bandwidth and measure SAR for QPSK with 1 RB allocation, using the RB offset and required test channel combination with the highest maximum output power for RB offsets at the upper edge, middle and lower edge of each required test channel.

d. 50% RB allocation for QPSK SAR testing follows 1RB QPSK allocation procedure.

e. QPSK with 100% RB allocation, SAR is not required when the highest maximum output power for 100 % RB allocation is less than the highest maximum output power in 50% and 1 RB allocations and the highest reported SAR for 1 RB and 50% RB allocation are ≤ 0.8 W/kg. Otherwise, SAR is measured for the highest output power channel; and if the reported SAR is > 1.45 W/kg, the remaining required test channels must also be tested.

f. PI/2 BPSK/16QAM/64QAM/256QAM output powers according to 3GPP MPR will not ½ dB higher than the same configuration in QPSK, also reported SAR for the QPSK configuration is less than 1.45 W/kg, PI/2 BPSK/16QAM/64QAM/256QAM SAR testing are not required.

g. Smaller SCS/bandwidth output power for each RB allocation configuration for this device will not ½ dB higher than the same configuration in the largest supported bandwidth, and the reported SAR for the largest supported bandwidth is ≤ 1.45 W/kg, smaller bandwidth SAR testing is not required for this device.

7.4. SAR evaluation analysis for PC2 power level

From May 2017 TCB Workshop, SAR tested were performed using Power Class 3. SAR test for Power Class 2 is tested using the highest SAR test configuration in Power Class 3 for each LTE configuration and exposure condition combination. According to the highest time averaged power for UL-DL configurations, configuration # 1 with duty cycle 43.3% is used for Power Class 2 SAR test. Additional SAR testing for Power Class 2 is not required when the reported SAR vs. output power can be linearly scaled with < 10% discrepancy between power classes and all reported SAR are < 1.4 W/kg.

7.5. 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.

7.5.1. 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.

7.5.2. Initial Test Configuration Procedure

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

7.5.3. 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.

7.5.4. 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.

7.5.5. 2.4GHz BT/BLE SAR Test Requirements

2.4GHz BT operating modes are tested independently according to the service requirements in each frequency band for each antenna. DH5 / 3DH5 / 1M SISO modes are tested on the maximum average output power mode.

7.5.6. 5GHz Wi-Fi SAR Test 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 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.

7.6. 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. Power reduction specification

8.1. Power reduction mechanism

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

1) A fixed level power reduction is applied for some frequency bands when simultaneously transmitting with the other antennas in certain simultaneous transmission conditions. The standalone SAR compliance still uses the standalone SAR results tested at the maximum output power level without any power reduction.
2) A fixed level power reduction is applied for some frequency bands when handset operate "held to the ear" condition, the power reduction triggered by audio receiver detection. The audio receiver detection is used to determine head or body scenario.
3) The proximity sensor is used to indicate when the device is held close to a user's body exposure condition. It utilizes the proximity sensor to reduce the output power in specific wireless and operating modes of main antenna to ensure SAR compliance (Refer to section 8.2 for detailed proximity Sensor information and validation data per KDB 616217).

The following tables summarize the key power reduction information. The detailed full power which is the Max. power the state can use and reduced tune-up specifications and conducted power measurement results are provided in section 9 of this report.

Hotspot standalone power level(dBm)		
Power Reduction Scenario	N7	N78 C
Sensor on	21.5	20.5

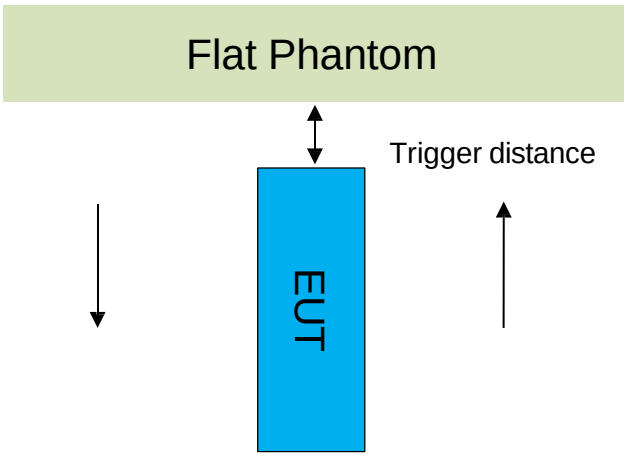
Head standalone power level(dBm)						
Power Reduction Scenario	N38	N41	N77 A	N77 C	N78 A	N78 C
Receiver on	21.5	22	20.5	19.5	21	19.5

EN-DC simultaneous transmission power level(dBm)									
Power Reduction Scenario	LTE B2	LTE B4	LTE B7	LTE B66	N41	N77 A	N77 C	N78 A	N78 C
Receiver on	\	\	18.5	\	21	19.5	19	19	19
Sensor on	20	19.5	18.5	20	22	21	21	20	19.5

8.2. Proximity Sensor Triggering Test

Proximity sensor coverage
If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.
The proximity sensor and main antenna use same metallic electrode, so there is no spatial offset.

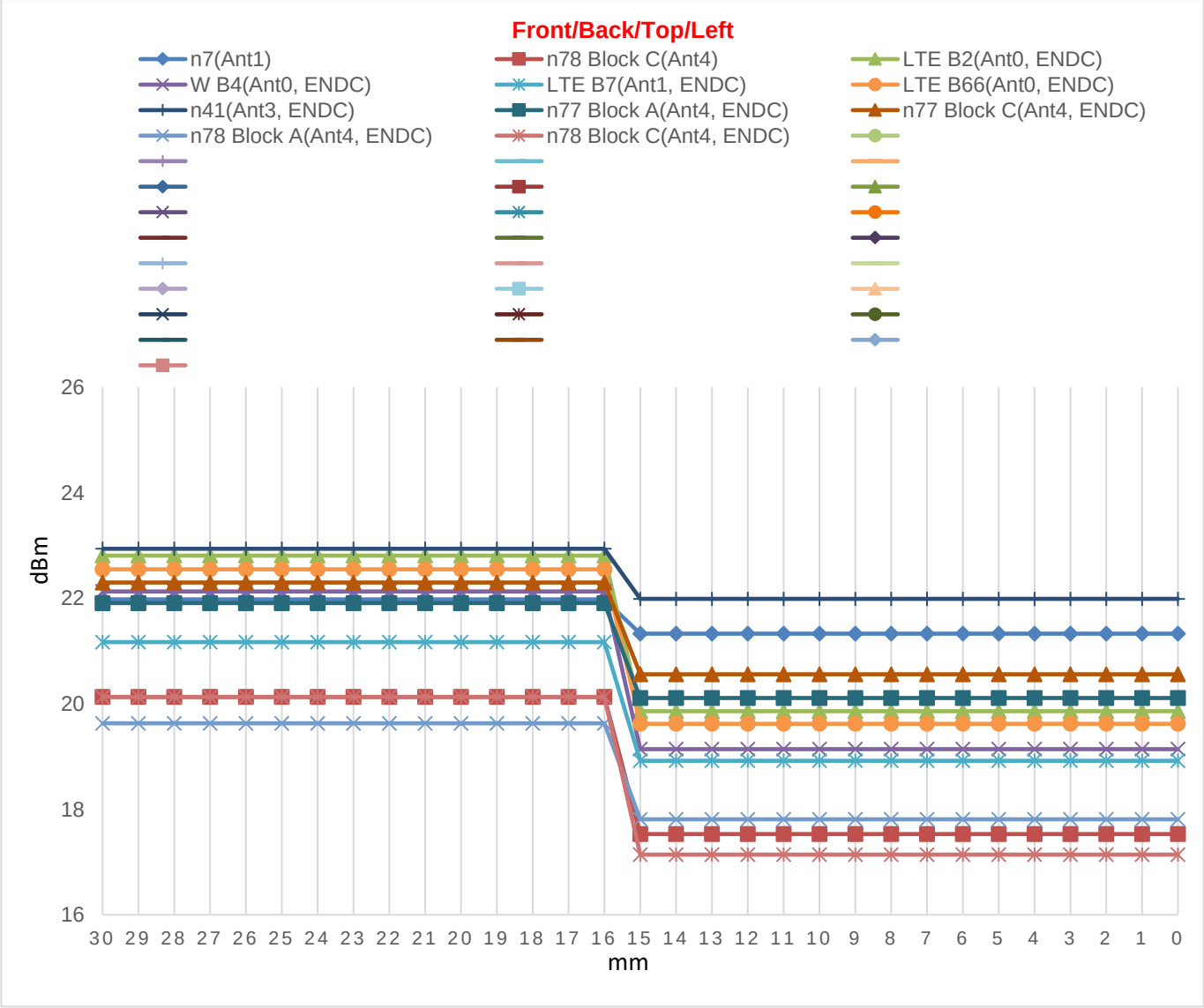
Proximity sensor triggering distances:
Proximity sensor triggering distance testing was performed according to the procedures outlined in KDB 616217 D04 section 6.2, and EUT moving further away from the flat phantom and EUT moving toward the flat phantom were both assessed.



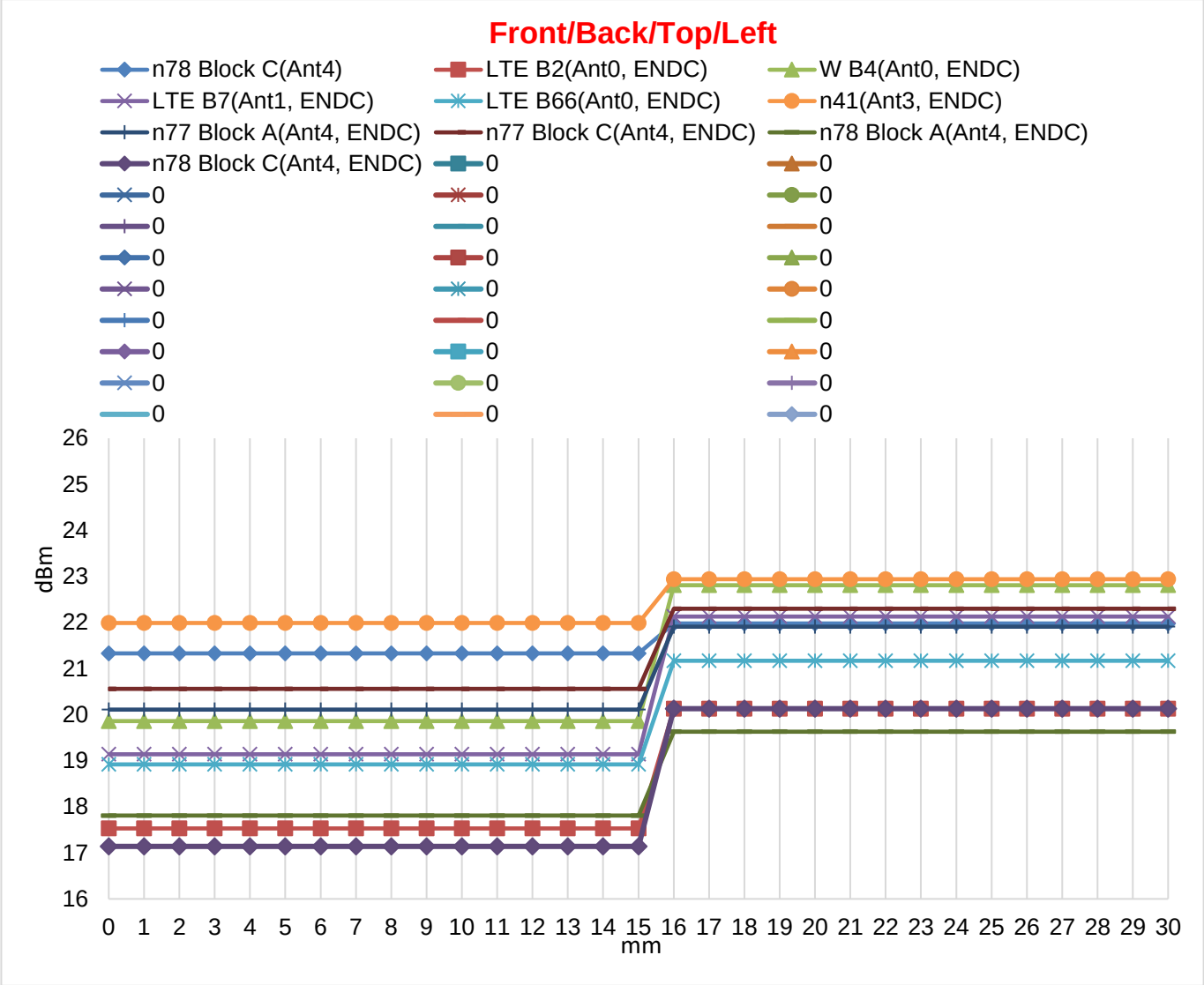
Proximity Sensor Triggering Distance(mm)						
ANT1						
Position	Front Surface	Back Surface	Top Edge	Bottom Edge	Left Edge	Right Edge
Minimum (mm)	15	15	15	\	15	\
Required SAR Test	Yes	Yes	Yes	\	Yes	\
ANT3						
Minimum (mm)	15	15	15	\	15	\
Required SAR Test	Yes	Yes	Yes	\	Yes	\
ANT4						
Minimum (mm)	15	15	15	\	15	\
Required SAR Test	Yes	Yes	Yes	\	Yes	\

Note:
SAR tests with proximity sensor power reduction are only required for the sides of frequency bands in the table above. For the other sides or other frequency bands of the device, SAR is still tested at the full power level with sensor off.

DUT moved toward (Trigger) the Phantom



DUT moved away (Release) from the Phantom



Proximity sensor coverage

If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. For p-sensor coverage testing, the device is moved and “along the direction of maximum antenna and sensor offset”.

The proximity sensor and main antenna use same metallic electrode, so there is no spatial offset.

8.3. Extremity exposure conditions

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

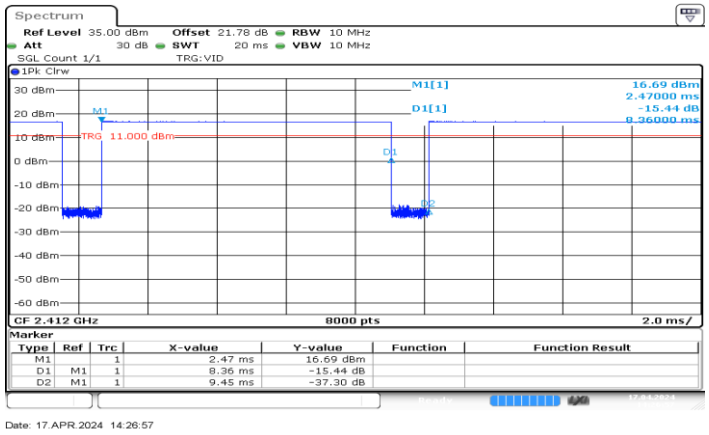
9. Conducted Output Power Measurement and tune-up tolerance

Detailed conducted power and tune-up tolerance please refer to 4791159315-3-SAR-1_App A Conducted power.

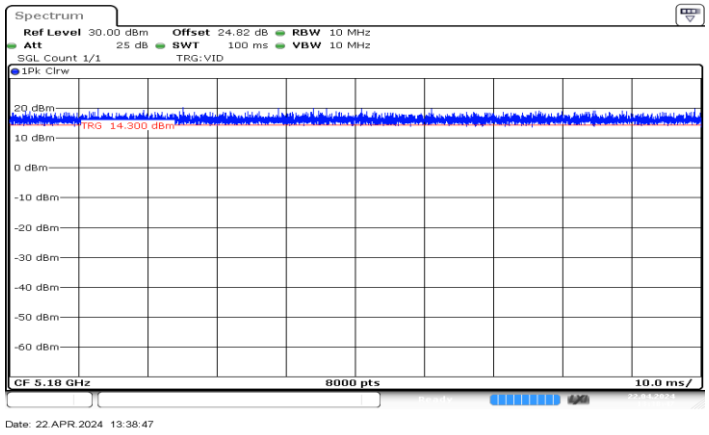
9.1. Duty Cycle

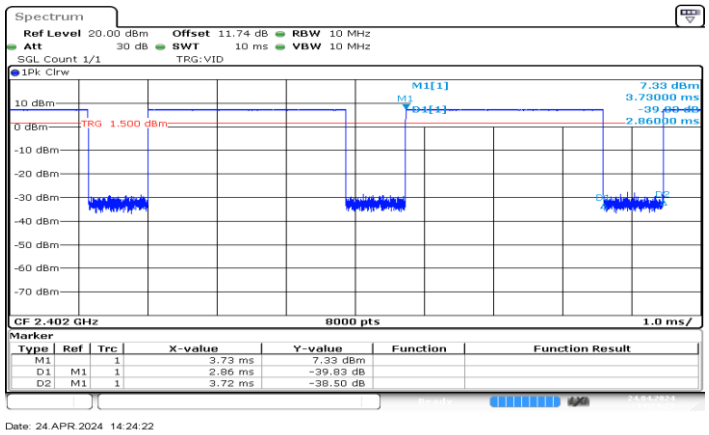
Test Mode	Duty Cycle (%)
802.11b	88.47
802.11a	100
DH5	76.88

802.11b_2412MHz



802.11a_5180MHz

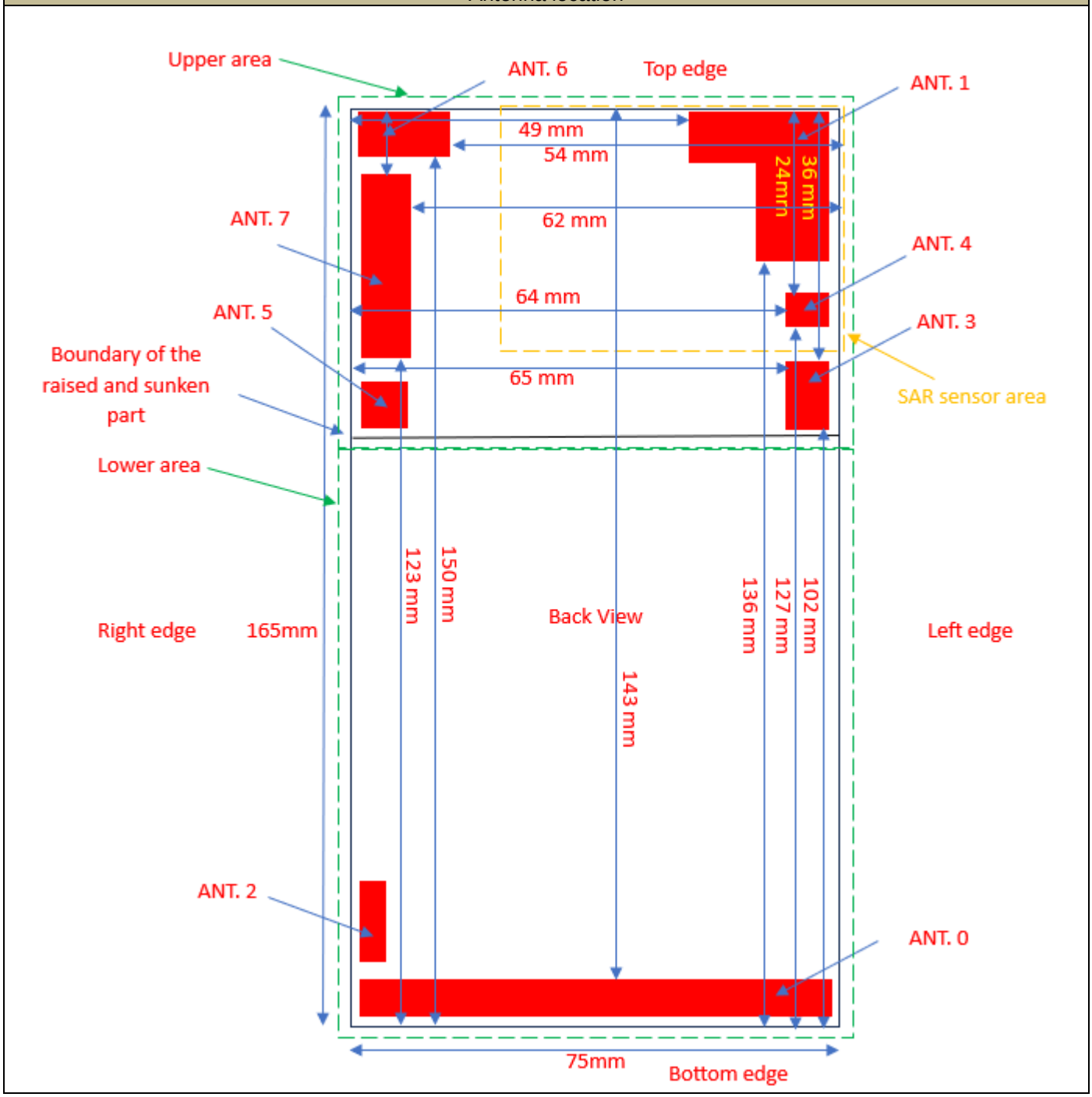


BT DH5_2402MHz


10. RF Exposure Conditions

Refer to the diagram inside the device which attached below for the specific details of the antenna-to-edges distances. 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 location



Antenna	Band	Front Surface	Back Surface	Left Edge	Right Edge	Top Edge	Bottom Edge
Ant0	GSM: 850/1900 WCDMA: B2/4/5 LTE: B2/4/5/12/17/66 NR: n5	Yes	Yes	Yes	Yes	No	Yes
Ant1	LTE: B7 NR: n7	Yes	Yes	Yes	No	Yes	No
Ant2	Receive only	No	No	No	No	No	No
Ant3	LTE: B38/41 NR: n38/41	Yes	Yes	Yes	No	No	No
Ant4	NR: n77/78	Yes	Yes	Yes	No	Yes	No
Ant5	Receive only	No	No	No	No	No	No
Ant6	2.4/5G WiFi	Yes	Yes	No	Yes	Yes	No
Ant7	2.4G WiFi/BT	Yes	Yes	No	Yes	Yes	No

10.1. SAR exclusion evaluation for NFC

As per KDB447498 D01,For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):

Appendix C

***SAR Test Exclusion Thresholds* for < 100 MHz and < 200 mm**

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	mW
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

For 13.56MHz NFC 1-g SAR

Frequency (MHz)	(dBμV/m)	Power (dBm)
13.56	11.14	-84.16

Frequency (MHz)	Power (dBm)	Power (mW)	Separation Distance (mm)	Calculation Result	SAR Test
13.56	-84.16	0.0	5.00	459.23	Excluded

Note:

1) NFC antenna guide edge distance is evaluated with the worst case.
2) The threshold of 13.56MHz is calculated in a linear manner based on the values in Appendix C, Calculation Result (mW)=474-(10-50)/(474-308)*(13.56-10)

11. Dielectric Property Measurements & System Check

11.1. 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 750	695	43.110	0.847	42.23	0.89	2.08	-4.83	±5	21.6	April 17, 2024
	750	42.460	0.898	41.94	0.89	1.24	0.90			
	790	41.850	0.934	41.73	0.90	0.29	3.78			
Head 835	805	43.030	0.878	41.66	0.90	3.29	-2.44	±5	22.6	April 15, 2024
	835	42.664	0.907	41.50	0.90	2.80	0.78			
	905	41.770	0.979	41.50	0.97	0.65	0.93			
Head 835	805	42.850	0.866	41.66	0.90	2.86	-3.78	±5	21.9	April 16, 2024
	835	42.710	0.915	41.50	0.90	2.92	1.67			
	905	41.820	0.972	41.50	0.97	0.77	0.21			
Head 835	805	42.710	0.877	41.66	0.90	2.52	-2.56	±5	22.7	May 18, 2024
	835	42.890	0.923	41.50	0.90	3.35	2.56			
	905	41.920	0.941	41.50	0.97	1.01	-2.99			
Head 835	805	42.690	0.855	41.66	0.90	2.47	-5.00	±5	22.4	May 20, 2024
	835	42.910	0.928	41.50	0.90	3.40	3.11			
	905	41.890	0.938	41.50	0.97	0.94	-3.30			
Head 1800	1720	40.560	1.320	40.13	1.35	1.07	-2.22	±5	22.6	April 15, 2024
	1800	41.150	1.430	40.00	1.40	2.88	2.14			
	1880	39.680	1.410	40.03	1.39	-0.87	1.44			
Head 1800	1720	40.750	1.350	40.13	1.35	1.54	0.00	±5	21.9	April 16, 2024
	1800	41.710	1.460	40.00	1.40	4.28	4.29			
	1880	40.800	1.450	40.00	1.40	2.00	3.57			
Head 1800	1720	40.630	1.360	40.13	1.35	1.25	0.74	±5	21.1	April 17, 2024
	1800	41.580	1.430	40.00	1.40	3.95	2.14			
	1880	40.480	1.390	40.00	1.40	1.20	-0.71			
Head 2450	2400	40.370	1.820	39.29	1.76	2.75	3.41	±5	21.3	May 12, 2024
	2450	40.490	1.870	39.20	1.80	3.29	3.89			
	2480	40.330	1.900	39.16	1.83	2.99	3.83			
Head 2600	2500	38.180	1.911	39.14	1.85	-2.45	3.30	±5	22.7	April 18, 2024
	2600	37.870	2.020	39.01	1.96	-2.92	3.06			
	2700	37.580	2.130	38.88	2.07	-3.34	2.90			
Head 2600	2500	38.240	1.920	39.14	1.85	-2.30	3.78	±5	22	April 23, 2024
	2600	38.890	2.030	39.01	1.96	-0.31	3.57			
	2700	37.540	2.110	38.88	2.07	-3.45	1.93			
Head 2600	2500	40.270	1.820	39.14	1.85	2.89	-1.62	±5	22.7	May 18, 2024
	2600	40.270	1.940	39.01	1.96	3.23	-1.02			
	2700	40.110	2.090	38.88	2.07	3.16	0.97			
Head 2600	2500	40.240	1.790	39.14	1.85	2.81	-3.24	±5	22.8	May 21, 2024

	2600	40.150	1.910	39.01	1.96	2.92	-2.55			
	2700	40.090	2.020	38.88	2.07	3.11	-2.42			
Head 3500	3450	37.210	2.780	37.96	2.86	-1.98	-2.80	±5	21.5	June 6, 2024
	3500	37.110	2.830	37.90	2.91	-2.08	-2.75			
	3550	36.990	2.870	37.85	2.96	-2.27	-3.04			
Head 3700	3650	38.360	2.920	37.75	3.07	1.62	-4.89	±5	21.3	June 7, 2024
	3700	38.260	3.010	37.70	3.12	1.49	-3.53			
	3800	38.220	3.080	37.60	3.22	1.65	-4.35			
Head 3900	3800	38.220	3.081	37.60	3.22	1.65	-4.32	±5	21.3	June 7, 2024
	3900	38.370	3.178	37.50	3.33	2.32	-4.56			
	4000	38.220	3.275	37.40	3.43	2.19	-4.52			
Head 5250	5160	36.910	4.380	36.03	4.61	2.44	-4.99	±5	21.7	May 12, 2024
	5250	36.670	4.490	35.93	4.71	2.06	-4.67			
	5340	36.630	4.580	35.83	4.80	2.23	-4.58			
Head 5600	5500	36.170	4.720	35.64	4.96	1.49	-4.84	±5	22.6	May 13, 2024
	5600	35.940	4.850	35.53	5.07	1.15	-4.34			
	5700	35.860	4.940	35.41	5.17	1.27	-4.45			
Head 5750	5660	35.830	4.890	35.46	5.13	1.04	-4.68	±5	22.8	May 11, 2024
	5750	35.570	5.040	35.36	5.22	0.59	-3.45			
	5840	35.500	5.190	35.27	5.30	0.65	-2.08			

11.2. 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
		Zoom Scan (W/Kg)	Normalize to 1W (W/Kg)					
Head 750	1-g	0.928	9.28	8.50	9.18	±10	21.6	April 17, 2024
	10-g	0.603	6.03	5.61	7.49			
Head 835	1-g	0.986	9.86	9.64	2.28	±10	22.6	April 15, 2024
	10-g	0.64	6.40	6.26	2.24			
Head 835	1-g	0.990	9.90	9.64	2.70	±10	21.9	April 16, 2024
	10-g	0.643	6.43	6.26	2.72			
Head 835	1-g	0.996	9.96	9.64	3.32	±10	22.7	April 18, 2024
	10-g	0.647	6.47	6.26	3.35			
Head 835	1-g	0.985	9.85	9.64	2.18	±10	22.4	April 20, 2024
	10-g	0.639	6.39	6.26	2.08			
Head 1800	1-g	3.890	38.90	38.70	0.52	±10	22.6	April 15, 2024
	10-g	2.040	20.40	19.90	2.51			
Head 1800	1-g	3.680	36.80	38.70	-4.91	±10	21.9	April 16, 2024
	10-g	1.930	19.30	19.90	-3.02			
Head 1800	1-g	3.720	37.20	38.70	-3.88	±10	21.6	April 17, 2024
	10-g	1.950	19.50	19.90	-2.01			
Head 2450	1-g	5.420	54.20	53.20	1.88	±10	21.3	April 12, 2024
	10-g	2.550	25.50	24.20	5.37			
Head 2600	1-g	5.760	57.60	55.40	3.97	±10	22.7	April 18, 2024
	10-g	2.570	25.70	24.50	4.90			
Head 2600	1-g	5.500	55.00	55.40	-0.72	±10	22	April 23, 2024
	10-g	2.450	24.50	24.50	0.00			
Head 2600	1-g	5.550	55.50	55.40	0.18	±10	22.7	May 18, 2024
	10-g	2.480	24.80	24.50	1.22			
Head 2600	1-g	5.770	57.70	55.40	4.15	±10	22.8	May 21, 2024
	10-g	2.570	25.70	24.50	4.90			
Head 3500	1-g	6.610	66.10	67.20	-1.64	±10	21.5	June 6, 2024
	10-g	2.500	25.00	25.60	-2.34			
Head 3700	1-g	6.580	65.80	67.40	-2.37	±10	21.3	June 7, 2024
	10-g	2.410	24.10	24.80	-2.82			
Head 3900	1-g	7.060	70.60	67.40	4.75	±10	21.3	June 7, 2024
	10-g	2.520	25.20	23.30	8.15			
Head 5250	1-g	7.130	71.30	77.90	-8.47	±10	21.7	May 12, 2024
	10-g	2.040	20.40	22.60	-9.73			
Head 5600	1-g	8.540	85.40	80.90	5.56	±10	22.6	May 13, 2024
	10-g	2.400	24.00	23.30	3.00			
Head 5750	1-g	7.600	76.00	78.30	-2.94	±10	22.8	May 11, 2024
	10-g	2.150	21.50	22.40	-4.02			

12. Measured and Reported (Scaled) SAR Results

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.
6) As per KDB 648474 D04, Phones with built-in NFC functions do not require separate SAR testing and can generally be tested according to the SAR measurement procedures normally required for the phone. Influences of the hardware and NFC antenna introduced are inherently considered through testing of the other transmitters that require SAR.

12.1. SAR Test Results of GSM850

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	GPRS 4 Slots	Left Cheek	0	190	27.0	26.78	0.304	-0.02	0.320	1
Head	GPRS 4 Slots	Left Tilt	0	190	27.0	26.78	0.155	-0.03	0.163	
Head	GPRS 4 Slots	Right Cheek	0	190	27.0	26.78	0.284	0.06	0.299	
Head	GPRS 4 Slots	Right Tilt	0	190	27.0	26.78	0.167	-0.04	0.176	
Body-worn & Hotspot	GPRS 4 Slots	Front Surface	10	190	27.0	26.78	0.141	-0.02	0.148	
Body-worn & Hotspot	GPRS 4 Slots	Back Surface	10	190	27.0	26.78	0.713	-0.08	0.750	2
Hotspot	GPRS 4 Slots	Left Edge	10	190	27.0	26.78	0.214	0.01	0.225	
Hotspot	GPRS 4 Slots	Right Edge	10	190	27.0	26.78	0.063	-0.05	0.066	
Hotspot	GPRS 4 Slots	Bottom Edge	10	190	27.0	26.78	0.373	-0.02	0.392	

12.2. SAR Test Results of GSM1900

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	GPRS 4 Slots	Left Cheek	0	661	23.0	22.80	0.087	0.08	0.091	
Head	GPRS 4 Slots	Left Tilt	0	661	23.0	22.80	0.081	-0.06	0.085	
Head	GPRS 4 Slots	Right Cheek	0	661	23.0	22.80	0.123	-0.07	0.129	3
Head	GPRS 4 Slots	Right Tilt	0	661	23.0	22.80	0.084	0.12	0.088	
Body-worn & Hotspot	GPRS 4 Slots	Front Surface	10	661	23.0	22.80	0.294	-0.05	0.308	
Body-worn & Hotspot	GPRS 4 Slots	Back Surface	10	661	23.0	22.80	0.445	-0.03	0.466	
Hotspot	GPRS 4 Slots	Left Edge	10	661	23.0	22.80	0.047	0.04	0.049	
Hotspot	GPRS 4 Slots	Right Edge	10	661	23.0	22.80	0.174	-0.03	0.182	
Hotspot	GPRS 4 Slots	Bottom Edge	10	661	23.0	22.80	0.536	-0.06	0.561	4

12.3. 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)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	RMC 12.2kbps	Left Cheek	0	9400	23.5	23.05	0.122	-0.32	0.135	
Head	RMC 12.2kbps	Left Tilt	0	9400	23.5	23.05	0.102	-0.07	0.113	
Head	RMC 12.2kbps	Right Cheek	0	9400	23.5	23.05	0.143	-0.02	0.159	5
Head	RMC 12.2kbps	Right Tilt	0	9400	23.5	23.05	0.100	0.02	0.111	
Body-worn & Hotspot	RMC 12.2kbps	Front Surface	10	9400	23.5	23.05	0.224	-0.03	0.248	
Body-worn & Hotspot	RMC 12.2kbps	Back Surface	10	9400	23.5	23.05	0.556	-0.01	0.617	
Hotspot	RMC 12.2kbps	Left Edge	10	9400	23.5	23.05	0.051	-0.13	0.057	
Hotspot	RMC 12.2kbps	Right Edge	10	9400	23.5	23.05	0.174	-0.07	0.193	
Hotspot	RMC 12.2kbps	Bottom Edge	10	9400	23.5	23.05	0.622	-0.02	0.690	6

12.4. 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)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	RMC 12.2kbps	Left Cheek	0	1513	23.0	22.57	0.075	-0.05	0.083	
Head	RMC 12.2kbps	Left Tilt	0	1513	23.0	22.57	0.073	-0.02	0.081	
Head	RMC 12.2kbps	Right Cheek	0	1513	23.0	22.57	0.082	0.03	0.091	7
Head	RMC 12.2kbps	Right Tilt	0	1513	23.0	22.57	0.080	-0.01	0.088	
Body-worn & Hotspot	RMC 12.2kbps	Front Surface	10	1513	23.0	22.57	0.320	0.00	0.353	
Body-worn & Hotspot	RMC 12.2kbps	Back Surface	10	1513	23.0	22.57	0.536	-0.02	0.592	
Hotspot	RMC 12.2kbps	Left Edge	10	1513	23.0	22.57	0.055	-0.04	0.061	
Hotspot	RMC 12.2kbps	Right Edge	10	1513	23.0	22.57	0.241	-0.01	0.266	
Hotspot	RMC 12.2kbps	Bottom Edge	10	1513	23.0	22.57	0.729	0.08	0.805	8
Hotspot	RMC 12.2kbps	Bottom Edge	10	1312	23.0	21.79	0.701	-0.03	0.926	
Hotspot	RMC 12.2kbps	Bottom Edge	10	1413	23.0	21.94	0.688	-0.05	0.878	

12.5. 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)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	RMC 12.2kbps	Left Cheek	0	4183	24.0	23.53	0.184	0.02	0.205	9
Head	RMC 12.2kbps	Left Tilt	0	4183	24.0	23.53	0.094	-0.03	0.105	
Head	RMC 12.2kbps	Right Cheek	0	4183	24.0	23.53	0.134	0.00	0.149	
Head	RMC 12.2kbps	Right Tilt	0	4183	24.0	23.53	0.082	-0.01	0.091	
Body-worn & Hotspot	RMC 12.2kbps	Front Surface	10	4183	24.0	23.53	0.148	-0.02	0.165	
Body-worn & Hotspot	RMC 12.2kbps	Back Surface	10	4183	24.0	23.53	0.520	0.03	0.579	10
Hotspot	RMC 12.2kbps	Left Edge	10	4183	24.0	23.53	0.155	0.00	0.173	
Hotspot	RMC 12.2kbps	Right Edge	10	4183	24.0	23.53	0.049	-0.01	0.055	
Hotspot	RMC 12.2kbps	Bottom Edge	10	4183	24.0	23.53	0.261	0.00	0.291	

12.6. SAR Test Results of LTE B2

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#49	Left Cheek	0	18900	23.0	22.81	0.101	-0.19	0.106	
Head	20M QPSK 50RB#0	Left Cheek	0	18900	22.0	21.80	0.069	-0.14	0.072	
Head	20M QPSK 1RB#49	Left Tilt	0	18900	23.0	22.81	0.097	-0.15	0.101	
Head	20M QPSK 50RB#0	Left Tilt	0	18900	22.0	21.80	0.077	-0.16	0.081	
Head	20M QPSK 1RB#49	Right Cheek	0	18900	23.0	22.81	0.118	-0.15	0.123	
Head	20M QPSK 50RB#0	Right Cheek	0	18900	22.0	21.80	0.111	-0.10	0.116	
Head	20M QPSK 1RB#49	Right Tilt	0	18900	23.0	22.81	0.143	-0.15	0.149	11
Head	20M QPSK 50RB#0	Right Tilt	0	18900	22.0	21.80	0.071	-0.15	0.074	
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	18900	23.0	22.81	0.335	-0.10	0.350	
Body-worn & Hotspot	20M QPSK 50RB#0	Front Surface	10	18900	22.0	21.80	0.283	-0.02	0.296	
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	18900	23.0	22.81	0.737	-0.05	0.770	12
Body-worn & Hotspot	20M QPSK 50RB#0	Back Surface	10	18900	22.0	21.80	0.686	-0.07	0.718	
Hotspot	20M QPSK 1RB#49	Left Edge	10	18900	23.0	22.81	0.174	-0.12	0.182	
Hotspot	20M QPSK 50RB#0	Left Edge	10	18900	22.0	21.80	0.154	-0.03	0.161	
Hotspot	20M QPSK 1RB#49	Right Edge	10	18900	23.0	22.81	0.177	-0.13	0.185	
Hotspot	20M QPSK 50RB#0	Right Edge	10	18900	22.0	21.80	0.151	-0.07	0.158	
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	18900	23.0	22.81	0.698	-0.03	0.729	
Hotspot	20M QPSK 50RB#0	Bottom Edge	10	18900	22.0	21.80	0.619	-0.01	0.648	

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	18900	20.0	19.86	0.152	-0.12	0.157
Body-worn & Hotspot	20M QPSK 50RB#0	Front Surface	10	18900	19.5	19.30	0.129	-0.07	0.135
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	18900	20.0	19.86	0.300	-0.06	0.310
Body-worn & Hotspot	20M QPSK 50RB#0	Back Surface	10	18900	19.5	19.30	0.295	-0.07	0.309
Hotspot	20M QPSK 1RB#49	Left Edge	10	18900	20.0	19.86	0.079	-0.09	0.082
Hotspot	20M QPSK 50RB#0	Left Edge	10	18900	19.5	19.30	0.070	-0.02	0.073
Hotspot	20M QPSK 1RB#49	Right Edge	10	18900	20.0	19.86	0.080	-0.15	0.083
Hotspot	20M QPSK 50RB#0	Right Edge	10	18900	19.5	19.30	0.069	-0.02	0.072
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	18900	20.0	19.86	0.317	-0.13	0.327
Hotspot	20M QPSK 50RB#0	Bottom Edge	10	18900	19.5	19.30	0.281	-0.15	0.294

12.7. SAR Test Results of LTE B4

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#99	Left Cheek	0	20300	22.5	22.13	0.129	-0.13	0.140	13
Head	20M QPSK 50RB#50	Left Cheek	0	20300	21.5	21.04	0.055	-0.15	0.061	
Head	20M QPSK 1RB#99	Left Tilt	0	20300	22.5	22.13	0.095	0.00	0.103	
Head	20M QPSK 50RB#50	Left Tilt	0	20300	21.5	21.04	0.050	-0.01	0.056	
Head	20M QPSK 1RB#99	Right Cheek	0	20300	22.5	22.13	0.123	-0.03	0.134	
Head	20M QPSK 50RB#50	Right Cheek	0	20300	21.5	21.04	0.097	-0.03	0.108	
Head	20M QPSK 1RB#99	Right Tilt	0	20300	22.5	22.13	0.092	-0.13	0.100	
Head	20M QPSK 50RB#50	Right Tilt	0	20300	21.5	21.04	0.059	-0.03	0.066	
Body-worn & Hotspot	20M QPSK 1RB#99	Front Surface	10	20300	22.5	22.13	0.432	-0.08	0.470	
Body-worn & Hotspot	20M QPSK 50RB#50	Front Surface	10	20300	21.5	21.04	0.356	-0.15	0.396	
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	20300	22.5	22.13	0.851	-0.07	0.927	14
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	20500	22.5	21.49	0.713	-0.05	0.900	
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	20175	22.5	21.67	0.735	-0.01	0.890	
Body-worn & Hotspot	20M QPSK 50RB#50	Back Surface	10	20300	21.5	21.04	0.681	-0.08	0.757	
Body-worn & Hotspot	20M QPSK 100RB#0	Back Surface	10	20300	21.5	20.85	0.632	-0.10	0.734	
Hotspot	20M QPSK 1RB#99	Left Edge	10	20300	22.5	22.13	0.142	-0.15	0.155	
Hotspot	20M QPSK 50RB#50	Left Edge	10	20300	21.5	21.04	0.130	-0.10	0.145	
Hotspot	20M QPSK 1RB#99	Right Edge	10	20300	22.5	22.13	0.163	-0.15	0.177	
Hotspot	20M QPSK 50RB#50	Right Edge	10	20300	21.5	21.04	0.142	-0.13	0.158	
Hotspot	20M QPSK 1RB#99	Bottom Edge	10	20300	22.5	22.13	0.587	-0.07	0.639	
Hotspot	20M QPSK 50RB#50	Bottom Edge	10	20300	21.5	21.04	0.516	-0.05	0.574	
Worst mode retest										
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	20300	22.5	22.13	0.806	-0.03	0.878	

Note:

1) Due to 0.851/0.806 = 1.06 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Body-worn & Hotspot	20M QPSK 1RB#99	Front Surface	10	20300	19.5	19.14	0.191	-0.06	0.208
Body-worn & Hotspot	20M QPSK 50RB#50	Front Surface	10	20300	18.5	18.21	0.158	-0.08	0.169
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	20300	19.5	19.14	0.377	-0.07	0.409
Body-worn & Hotspot	20M QPSK 50RB#50	Back Surface	10	20300	18.5	18.21	0.302	-0.03	0.322
Hotspot	20M QPSK 1RB#99	Left Edge	10	20300	19.5	19.14	0.063	-0.07	0.068
Hotspot	20M QPSK 50RB#50	Left Edge	10	20300	18.5	18.21	0.058	-0.14	0.062
Hotspot	20M QPSK 1RB#99	Right Edge	10	20300	19.5	19.14	0.072	-0.10	0.078
Hotspot	20M QPSK 50RB#50	Right Edge	10	20300	18.5	18.21	0.063	-0.01	0.067
Hotspot	20M QPSK 1RB#99	Bottom Edge	10	20300	19.5	19.14	0.260	-0.11	0.282
Hotspot	20M QPSK 50RB#50	Bottom Edge	10	20300	18.5	18.21	0.228	-0.09	0.244

12.8. SAR Test Results of LTE B5

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	10M QPSK 1RB#24	Left Cheek	0	20600	23.5	23.35	0.160	-0.11	0.166	15
Head	10M QPSK 25RB#12	Left Cheek	0	20600	22.5	22.36	0.077	-0.14	0.080	
Head	10M QPSK 1RB#24	Left Tilt	0	20600	23.5	23.35	0.079	-0.13	0.082	
Head	10M QPSK 25RB#12	Left Tilt	0	20600	22.5	22.36	0.039	-0.07	0.040	
Head	10M QPSK 1RB#24	Right Cheek	0	20600	23.5	23.35	0.128	-0.13	0.132	
Head	10M QPSK 25RB#12	Right Cheek	0	20600	22.5	22.36	0.060	-0.03	0.062	
Head	10M QPSK 1RB#24	Right Tilt	0	20600	23.5	23.35	0.076	0.00	0.079	
Head	10M QPSK 25RB#12	Right Tilt	0	20600	22.5	22.36	0.043	-0.13	0.044	
Body-worn & Hotspot	10M QPSK 1RB#24	Front Surface	10	20600	23.5	23.35	0.169	-0.12	0.175	
Body-worn & Hotspot	10M QPSK 25RB#12	Front Surface	10	20600	22.5	22.36	0.147	-0.06	0.152	
Body-worn & Hotspot	10M QPSK 1RB#24	Back Surface	10	20600	23.5	23.35	0.463	-0.10	0.479	16
Body-worn & Hotspot	10M QPSK 25RB#12	Back Surface	10	20600	22.5	22.36	0.435	-0.11	0.449	
Hotspot	10M QPSK 1RB#24	Left Edge	10	20600	23.5	23.35	0.215	-0.07	0.223	
Hotspot	10M QPSK 25RB#12	Left Edge	10	20600	22.5	22.36	0.146	-0.13	0.151	
Hotspot	10M QPSK 1RB#24	Right Edge	10	20600	23.5	23.35	0.087	-0.04	0.090	
Hotspot	10M QPSK 25RB#12	Right Edge	10	20600	22.5	22.36	0.048	-0.05	0.050	
Hotspot	10M QPSK 1RB#24	Bottom Edge	10	20600	23.5	23.35	0.254	-0.11	0.263	
Hotspot	10M QPSK 25RB#12	Bottom Edge	10	20600	22.5	22.36	0.192	-0.01	0.198	

12.9. SAR Test Results of LTE B7

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#49	Left Cheek	0	20850	21.5	21.17	0.254	-0.14	0.274	
Head	20M QPSK 50RB#25	Left Cheek	0	20850	20.5	20.24	0.217	-0.05	0.230	
Head	20M QPSK 1RB#49	Left Tilt	0	20850	21.5	21.17	0.222	-0.04	0.240	
Head	20M QPSK 50RB#25	Left Tilt	0	20850	20.5	20.24	0.196	-0.11	0.208	
Head	20M QPSK 1RB#49	Right Cheek	0	20850	21.5	21.17	0.659	-0.05	0.711	17
Head	20M QPSK 50RB#25	Right Cheek	0	20850	20.5	20.24	0.550	-0.11	0.584	
Head	20M QPSK 1RB#49	Right Tilt	0	20850	21.5	21.17	0.391	-0.01	0.422	
Head	20M QPSK 50RB#25	Right Tilt	0	20850	20.5	20.24	0.313	-0.05	0.332	
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	20850	21.5	21.17	0.178	-0.06	0.192	
Body-worn & Hotspot	20M QPSK 50RB#25	Front Surface	10	20850	20.5	20.24	0.144	-0.03	0.153	
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	20850	21.5	21.17	0.671	-0.13	0.724	
Body-worn & Hotspot	20M QPSK 50RB#25	Back Surface	10	20850	20.5	20.24	0.539	-0.02	0.572	
Hotspot	20M QPSK 1RB#49	Left Edge	10	20850	21.5	21.17	0.858	-0.13	0.926	18
Hotspot	20M QPSK 1RB#49	Left Edge	10	21100	21.5	21.08	0.850	-0.07	0.936	
Hotspot	20M QPSK 1RB#99	Left Edge	10	21350	21.5	21.07	0.746	-0.06	0.824	
Hotspot	20M QPSK 50RB#25	Left Edge	10	20850	20.5	20.24	0.748	-0.02	0.794	
Hotspot	20M QPSK 100RB#0	Left Edge	10	20850	20.5	20.16	0.701	-0.03	0.758	
Hotspot	20M QPSK 1RB#49	Right Edge	10	20850	21.5	21.17	0.038	-0.09	0.041	
Hotspot	20M QPSK 50RB#25	Right Edge	10	20850	20.5	20.24	0.032	-0.12	0.034	
Hotspot	20M QPSK 1RB#49	Top Edge	10	20850	21.5	21.17	0.312	-0.09	0.337	
Hotspot	20M QPSK 50RB#25	Top Edge	10	20850	20.5	20.24	0.253	-0.12	0.269	
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	20850	21.5	21.17	0.041	-0.10	0.044	
Hotspot	20M QPSK 50RB#25	Bottom Edge	10	20850	20.5	20.24	0.032	-0.05	0.034	
Worst mode retest										
Hotspot	20M QPSK 1RB#49	Left Edge	10	20850	21.5	21.17	0.824	-0.07	0.889	

Note:

1) Due to 0.858/0.824 = 1.04 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	20M QPSK 1RB#49	Left Cheek	0	20850	18.5	18.29	0.137	-0.03	0.143
Head	20M QPSK 50RB#25	Left Cheek	0	20850	17.5	17.45	0.117	-0.12	0.118
Head	20M QPSK 1RB#49	Left Tilt	0	20850	18.5	18.29	0.119	-0.12	0.125
Head	20M QPSK 50RB#25	Left Tilt	0	20850	17.5	17.45	0.105	-0.03	0.107
Head	20M QPSK 1RB#49	Right Cheek	0	20850	18.5	18.29	0.354	-0.14	0.372
Head	20M QPSK 50RB#25	Right Cheek	0	20850	17.5	17.45	0.296	0.00	0.299
Head	20M QPSK 1RB#49	Right Tilt	0	20850	18.5	18.29	0.210	-0.07	0.221
Head	20M QPSK 50RB#25	Right Tilt	0	20850	17.5	17.45	0.168	-0.04	0.170
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	20850	18.5	18.29	0.117	-0.05	0.123
Body-worn & Hotspot	20M QPSK 50RB#25	Front Surface	10	20850	17.5	17.45	0.095	-0.09	0.096
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	20850	18.5	18.29	0.442	-0.03	0.464
Body-worn & Hotspot	20M QPSK 50RB#25	Back Surface	10	20850	17.5	17.45	0.355	-0.03	0.359
Hotspot	20M QPSK 1RB#49	Left Edge	10	20850	18.5	18.29	0.565	-0.04	0.593
Hotspot	20M QPSK 50RB#25	Left Edge	10	20850	17.5	17.45	0.493	-0.05	0.499
Hotspot	20M QPSK 1RB#49	Right Edge	10	20850	18.5	18.29	0.025	-0.10	0.026

Hotspot	20M QPSK 50RB#25	Right Edge	10	20850	17.5	17.45	0.021	-0.14	0.021
Hotspot	20M QPSK 1RB#49	Top Edge	10	20850	18.5	18.29	0.206	-0.11	0.216
Hotspot	20M QPSK 50RB#25	Top Edge	10	20850	17.5	17.45	0.167	-0.09	0.169
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	20850	18.5	18.29	0.027	-0.11	0.028
Hotspot	20M QPSK 50RB#25	Bottom Edge	10	20850	17.5	17.45	0.021	-0.05	0.021

12.10. SAR Test Results of LTE B12

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	10M QPSK 1RB#49	Left Cheek	0	23130	23.5	23.49	0.100	0.00	0.100	19
Head	10M QPSK 25RB#25	Left Cheek	0	23060	22.5	22.34	0.070	-0.02	0.073	
Head	10M QPSK 1RB#49	Left Tilt	0	23130	23.5	23.49	0.056	-0.05	0.056	
Head	10M QPSK 25RB#25	Left Tilt	0	23060	22.5	22.34	0.041	-0.09	0.043	
Head	10M QPSK 1RB#49	Right Cheek	0	23130	23.5	23.49	0.081	-0.04	0.081	
Head	10M QPSK 25RB#25	Right Cheek	0	23060	22.5	22.34	0.049	0.00	0.051	
Head	10M QPSK 1RB#49	Right Tilt	0	23130	23.5	23.49	0.048	-0.04	0.048	
Head	10M QPSK 25RB#25	Right Tilt	0	23060	22.5	22.34	0.031	-0.02	0.032	
Body-worn & Hotspot	10M QPSK 1RB#49	Front Surface	10	23130	23.5	23.49	0.120	-0.04	0.120	
Body-worn & Hotspot	10M QPSK 25RB#25	Front Surface	10	23060	22.5	22.34	0.101	0.00	0.105	
Body-worn & Hotspot	10M QPSK 1RB#49	Back Surface	10	23130	23.5	23.49	0.201	-0.01	0.201	
Body-worn & Hotspot	10M QPSK 25RB#25	Back Surface	10	23060	22.5	22.34	0.174	-0.10	0.181	
Hotspot	10M QPSK 1RB#49	Left Edge	10	23130	23.5	23.49	0.169	-0.05	0.169	
Hotspot	10M QPSK 1RB#49	Left Edge	10	23130	23.5	23.49	0.208	-0.08	0.208	20
Hotspot	10M QPSK 25RB#25	Left Edge	10	23060	22.5	22.34	0.130	-0.12	0.135	
Hotspot	10M QPSK 1RB#49	Right Edge	10	23130	23.5	23.49	0.103	-0.07	0.103	
Hotspot	10M QPSK 25RB#25	Right Edge	10	23060	22.5	22.34	0.046	0.00	0.048	
Hotspot	10M QPSK 1RB#49	Bottom Edge	10	23130	23.5	23.49	0.111	-0.06	0.111	
Hotspot	10M QPSK 25RB#25	Bottom Edge	10	23060	22.5	22.34	0.085	0.00	0.088	

Note:

1) due to the maximum tune-up and maximum bandwidth of LTE B17 is same with LTE B12, so SAR result of LTE B17 can be covered by LTE B12.

12.11. SAR Test Results of LTE B38

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#49	Left Cheek	0	37850	22.5	22.03	0.301	-0.02	0.335	
Head	20M QPSK 50RB#0	Left Cheek	0	37850	21.5	21.23	0.245	-0.13	0.261	
Head	20M QPSK 1RB#49	Left Tilt	0	37850	22.5	22.03	0.146	-0.14	0.163	
Head	20M QPSK 50RB#0	Left Tilt	0	37850	21.5	21.23	0.117	-0.07	0.125	
Head	20M QPSK 1RB#49	Right Cheek	0	37850	22.5	22.03	0.471	-0.03	0.525	21
Head	20M QPSK 50RB#0	Right Cheek	0	37850	21.5	21.23	0.364	-0.12	0.387	
Head	20M QPSK 1RB#49	Right Tilt	0	37850	22.5	22.03	0.230	-0.13	0.256	
Head	20M QPSK 50RB#0	Right Tilt	0	37850	21.5	21.23	0.180	-0.01	0.192	
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	37850	22.5	22.03	0.141	-0.15	0.157	
Body-worn & Hotspot	20M QPSK 50RB#0	Front Surface	10	37850	21.5	21.23	0.113	-0.15	0.120	
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	37850	22.5	22.03	0.325	-0.12	0.362	22
Body-worn & Hotspot	20M QPSK 50RB#0	Back Surface	10	37850	21.5	21.23	0.263	-0.08	0.280	
Hotspot	20M QPSK 1RB#49	Left Edge	10	37850	22.5	22.03	0.260	-0.04	0.290	
Hotspot	20M QPSK 50RB#0	Left Edge	10	37850	21.5	21.23	0.209	-0.07	0.222	
Hotspot	20M QPSK 1RB#49	Right Edge	10	37850	22.5	22.03	0.012	-0.02	0.013	
Hotspot	20M QPSK 50RB#0	Right Edge	10	37850	21.5	21.23	0.011	-0.11	0.012	
Hotspot	20M QPSK 1RB#49	Top Edge	10	37850	22.5	22.03	0.049	-0.11	0.055	
Hotspot	20M QPSK 50RB#0	Top Edge	10	37850	21.5	21.23	0.039	-0.11	0.042	
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	37850	22.5	22.03	0.030	-0.03	0.033	
Hotspot	20M QPSK 50RB#0	Bottom Edge	10	37850	21.5	21.23	0.023	-0.01	0.024	

12.1. SAR Test Results of LTE B41

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#49	Left Cheek	0	39750	22.0	21.84	0.294	-0.10	0.305	
Head	20M QPSK 50RB#50	Left Cheek	0	39750	21.0	20.89	0.300	-0.05	0.308	
Head	20M QPSK 1RB#49	Left Tilt	0	39750	22.0	21.84	0.166	-0.15	0.172	
Head	20M QPSK 50RB#50	Left Tilt	0	39750	21.0	20.89	0.166	-0.11	0.170	
Head	20M QPSK 1RB#49	Right Cheek	0	39750	22.0	21.84	0.467	-0.15	0.485	
Head	20M QPSK 50RB#50	Right Cheek	0	39750	21.0	20.89	0.473	-0.08	0.485	23
Head	20M QPSK 1RB#49	Right Tilt	0	39750	22.0	21.84	0.260	-0.06	0.270	
Head	20M QPSK 50RB#50	Right Tilt	0	39750	21.0	20.89	0.232	-0.14	0.238	
Body-worn & Hotspot	20M QPSK 1RB#49	Front Surface	10	39750	22.0	21.84	0.117	-0.12	0.121	
Body-worn & Hotspot	20M QPSK 50RB#50	Front Surface	10	39750	21.0	20.89	0.124	-0.03	0.127	
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	39750	22.0	21.84	0.341	-0.05	0.354	
Body-worn & Hotspot	20M QPSK 50RB#50	Back Surface	10	39750	21.0	20.89	0.359	-0.09	0.368	24
Hotspot	20M QPSK 1RB#49	Left Edge	10	39750	22.0	21.84	0.270	-0.08	0.280	
Hotspot	20M QPSK 50RB#50	Left Edge	10	39750	21.0	20.89	0.267	-0.04	0.274	
Hotspot	20M QPSK 1RB#49	Right Edge	10	39750	22.0	21.84	0.017	-0.14	0.018	
Hotspot	20M QPSK 50RB#50	Right Edge	10	39750	21.0	20.89	0.017	-0.07	0.017	
Hotspot	20M QPSK 1RB#49	Top Edge	10	39750	22.0	21.84	0.066	-0.15	0.068	
Hotspot	20M QPSK 50RB#50	Top Edge	10	39750	21.0	20.89	0.065	-0.02	0.067	
Hotspot	20M QPSK 1RB#49	Bottom Edge	10	39750	22.0	21.84	0.036	-0.03	0.037	
Hotspot	20M QPSK 50RB#50	Bottom Edge	10	39750	21.0	20.89	0.038	-0.08	0.039	

12.2. SAR Test Results of LTE B66

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M QPSK 1RB#99	Left Cheek	0	132072	23.0	22.55	0.124	-0.05	0.138	25
Head	20M QPSK 50RB#50	Left Cheek	0	132072	22.0	21.51	0.104	-0.12	0.116	
Head	20M QPSK 1RB#99	Left Tilt	0	132072	23.0	22.55	0.088	-0.12	0.098	
Head	20M QPSK 50RB#50	Left Tilt	0	132072	22.0	21.51	0.072	-0.07	0.081	
Head	20M QPSK 1RB#99	Right Cheek	0	132072	23.0	22.55	0.095	-0.01	0.105	
Head	20M QPSK 50RB#50	Right Cheek	0	132072	22.0	21.51	0.073	-0.12	0.082	
Head	20M QPSK 1RB#99	Right Tilt	0	132072	23.0	22.55	0.089	-0.08	0.099	
Head	20M QPSK 50RB#50	Right Tilt	0	132072	22.0	21.51	0.071	0.00	0.079	
Body-worn & Hotspot	20M QPSK 1RB#99	Front Surface	10	132072	23.0	22.55	0.414	-0.14	0.459	
Body-worn & Hotspot	20M QPSK 50RB#50	Front Surface	10	132072	22.0	21.51	0.342	-0.13	0.383	
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	132072	23.0	22.55	0.747	-0.01	0.829	26
Body-worn & Hotspot	20M QPSK 1RB#49	Back Surface	10	132072	23.0	22.41	0.701	0.05	0.803	
Body-worn & Hotspot	20M QPSK 1RB#0	Back Surface	10	132072	23.0	22.12	0.675	-0.08	0.827	
Body-worn & Hotspot	20M QPSK 50RB#50	Back Surface	10	132072	22.0	21.51	0.624	-0.01	0.699	
Body-worn & Hotspot	20M QPSK 100RB#0	Back Surface	10	132072	22.0	21.37	0.612	-0.02	0.708	
Hotspot	20M QPSK 1RB#99	Left Edge	10	132072	23.0	22.55	0.122	-0.13	0.135	
Hotspot	20M QPSK 50RB#50	Left Edge	10	132072	22.0	21.51	0.099	-0.15	0.111	
Hotspot	20M QPSK 1RB#99	Right Edge	10	132072	23.0	22.55	0.154	-0.01	0.171	
Hotspot	20M QPSK 50RB#50	Right Edge	10	132072	22.0	21.51	0.127	-0.09	0.142	
Hotspot	20M QPSK 1RB#99	Bottom Edge	10	132072	23.0	22.55	0.582	-0.10	0.646	
Hotspot	20M QPSK 50RB#50	Bottom Edge	10	132072	22.0	21.51	0.472	-0.09	0.528	

EN-DC Power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Body-worn & Hotspot	20M QPSK 1RB#99	Front Surface	10	132072	20.0	19.62	0.192	-0.02	0.210
Body-worn & Hotspot	20M QPSK 50RB#50	Front Surface	10	132072	19.0	18.64	0.159	-0.10	0.173
Body-worn & Hotspot	20M QPSK 1RB#99	Back Surface	10	132072	20.0	19.62	0.347	-0.15	0.379
Body-worn & Hotspot	20M QPSK 50RB#50	Back Surface	10	132072	19.0	18.64	0.290	-0.12	0.315
Hotspot	20M QPSK 1RB#99	Left Edge	10	132072	20.0	19.62	0.057	-0.05	0.062
Hotspot	20M QPSK 50RB#50	Left Edge	10	132072	19.0	18.64	0.046	-0.14	0.050
Hotspot	20M QPSK 1RB#99	Right Edge	10	132072	20.0	19.62	0.072	-0.08	0.078
Hotspot	20M QPSK 50RB#50	Right Edge	10	132072	19.0	18.64	0.059	-0.05	0.064
Hotspot	20M QPSK 1RB#99	Bottom Edge	10	132072	20.0	19.62	0.270	-0.07	0.295
Hotspot	20M QPSK 50RB#50	Bottom Edge	10	132072	19.0	18.64	0.219	-0.11	0.238

12.3. SAR Test Results of NR n5

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	20M DFT-OFDM QPSK 1RB#104	Left Cheek	0	167300	23.5	23.13	0.153	-0.15	0.167	
Head	20M DFT-OFDM QPSK 50RB#25	Left Cheek	0	167800	22.5	22.30	0.167	-0.14	0.175	27
Head	20M DFT-OFDM QPSK 1RB#104	Left Tilt	0	167300	23.5	23.13	0.085	-0.06	0.093	
Head	20M DFT-OFDM QPSK 50RB#25	Left Tilt	0	167800	22.5	22.30	0.096	-0.13	0.101	
Head	20M DFT-OFDM QPSK 1RB#104	Right Cheek	0	167300	23.5	23.13	0.111	-0.04	0.121	
Head	20M DFT-OFDM QPSK 50RB#25	Right Cheek	0	167800	22.5	22.30	0.127	-0.07	0.133	
Head	20M DFT-OFDM QPSK 1RB#104	Right Tilt	0	167300	23.5	23.13	0.039	-0.12	0.042	
Head	20M DFT-OFDM QPSK 50RB#25	Right Tilt	0	167800	22.5	22.30	0.046	-0.14	0.048	
Body-worn & Hotspot	20M DFT-OFDM QPSK 1RB#104	Front Surface	10	167300	23.5	23.13	0.092	-0.04	0.100	
Body-worn & Hotspot	20M DFT-OFDM QPSK 50RB#25	Front Surface	10	167800	22.5	22.30	0.110	-0.13	0.115	
Body-worn & Hotspot	20M DFT-OFDM QPSK 1RB#104	Back Surface	10	167300	23.5	23.13	0.364	0.00	0.396	
Body-worn & Hotspot	20M DFT-OFDM QPSK 50RB#25	Back Surface	10	167800	22.5	22.30	0.414	-0.07	0.434	28
Hotspot	20M DFT-OFDM QPSK 1RB#104	Left Edge	10	167300	23.5	23.13	0.122	-0.02	0.133	
Hotspot	20M DFT-OFDM QPSK 50RB#25	Left Edge	10	167800	22.5	22.30	0.140	-0.07	0.147	
Hotspot	20M DFT-OFDM QPSK 1RB#104	Right Edge	10	167300	23.5	23.13	0.082	-0.12	0.089	
Hotspot	20M DFT-OFDM QPSK 50RB#25	Right Edge	10	167800	22.5	22.30	0.091	-0.01	0.095	
Hotspot	20M DFT-OFDM QPSK 1RB#104	Bottom Edge	10	167300	23.5	23.13	0.199	-0.05	0.217	
Hotspot	20M DFT-OFDM QPSK 50RB#25	Bottom Edge	10	167800	22.5	22.30	0.212	-0.01	0.222	

12.4. SAR Test Results of NR n7

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	40M DFT-OFDM QPSK 1RB#214	Left Cheek	0	512000	22.0	21.98	0.134	-0.01	0.135	
Head	40M DFT-OFDM QPSK 108RB#107	Left Cheek	0	512000	21.5	21.10	0.202	-0.03	0.221	
Head	40M DFT-OFDM QPSK 1RB#214	Left Tilt	0	512000	22.0	21.98	0.150	-0.11	0.151	
Head	40M DFT-OFDM QPSK 108RB#107	Left Tilt	0	512000	21.5	21.10	0.207	-0.10	0.227	
Head	40M DFT-OFDM QPSK 1RB#214	Right Cheek	0	512000	22.0	21.98	0.345	-0.02	0.347	
Head	40M DFT-OFDM QPSK 108RB#107	Right Cheek	0	512000	21.5	21.10	0.467	0.00	0.512	29
Head	40M DFT-OFDM QPSK 1RB#214	Right Tilt	0	512000	22.0	21.98	0.252	-0.01	0.253	
Head	40M DFT-OFDM QPSK 108RB#107	Right Tilt	0	512000	21.5	21.10	0.343	-0.06	0.376	
Body-worn & Hotspot	40M DFT-OFDM QPSK 1RB#214	Front Surface	10	512000	21.5	21.33	0.092	-0.05	0.095	
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#107	Front Surface	10	512000	20.5	20.36	0.118	-0.07	0.122	
Body-worn & Hotspot	40M DFT-OFDM QPSK 1RB#214	Back Surface	10	512000	21.5	21.33	0.608	-0.15	0.632	
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#107	Back Surface	10	512000	20.5	20.36	0.837	-0.13	0.864	30
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#107	Back Surface	10	502000	20.5	20.24	0.685	-0.11	0.728	
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#107	Back Surface	10	507000	20.5	20.26	0.791	-0.11	0.836	
Body-worn & Hotspot	40M DFT-OFDM QPSK 2160.RB#0	Back Surface	10	512000	20.5	20.37	0.660	-0.12	0.680	
Hotspot	40M DFT-OFDM QPSK 1RB#214	Left Edge	10	512000	21.5	21.33	0.440	-0.14	0.457	
Hotspot	40M DFT-OFDM QPSK 108RB#107	Left Edge	10	512000	20.5	20.36	0.606	-0.07	0.626	
Hotspot	40M DFT-OFDM QPSK 1RB#214	Right Edge	10	512000	21.5	21.33	0.032	-0.03	0.033	
Hotspot	40M DFT-OFDM QPSK 108RB#107	Right Edge	10	512000	20.5	20.36	0.092	-0.11	0.095	
Hotspot	40M DFT-OFDM QPSK 1RB#214	Top Edge	10	512000	21.5	21.33	0.301	-0.05	0.313	
Hotspot	40M DFT-OFDM QPSK 108RB#107	Top Edge	10	512000	20.5	20.36	0.442	-0.03	0.457	
Worst mode retest										
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#107	Back Surface	10	512000	20.5	20.36	0.809	-0.06	0.836	

Note:

1) Due to 0.837/0.809 = 1.03 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

12.5. SAR Test Results of NR n38

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	40M DFT-OFDM QPSK 1RB#214	Left Cheek	0	520000	21.5	21.01	0.389	-0.05	0.435	
Head	40M DFT-OFDM QPSK 108RB#54	Left Cheek	0	520000	20.5	20.21	0.439	-0.01	0.470	
Head	40M DFT-OFDM QPSK 1RB#214	Left Tilt	0	520000	21.5	21.01	0.234	-0.11	0.262	
Head	40M DFT-OFDM QPSK 108RB#54	Left Tilt	0	520000	20.5	20.21	0.244	-0.11	0.261	
Head	40M DFT-OFDM QPSK 1RB#214	Right Cheek	0	520000	21.5	21.01	0.716	-0.04	0.801	
Head	40M DFT-OFDM QPSK 1RB#214	Right Cheek	0	518000	21.5	20.89	0.729	-0.09	0.839	
Head	40M DFT-OFDM QPSK 1RB#214	Right Cheek	0	519000	21.5	20.98	0.735	-0.10	0.829	
Head	40M DFT-OFDM QPSK 108RB#54	Right Cheek	0	520000	20.5	20.21	0.917	-0.09	0.980	31
Head	40M DFT-OFDM QPSK 108RB#0	Right Cheek	0	518000	20.5	20.16	0.613	-0.13	0.663	
Head	40M DFT-OFDM QPSK 108RB#0	Right Cheek	0	519000	20.5	19.88	0.617	-0.10	0.712	
Head	40M DFT-OFDM QPSK 216RB#0	Right Cheek	0	518000	20.5	20.20	0.452	-0.09	0.485	
Head	40M DFT-OFDM QPSK 1RB#214	Right Tilt	0	520000	21.5	21.01	0.254	-0.10	0.285	
Head	40M DFT-OFDM QPSK 108RB#54	Right Tilt	0	520000	20.5	20.21	0.291	-0.11	0.311	
Body-worn & Hotspot	40M DFT-OFDM QPSK 1RB#214	Front Surface	10	519000	23.0	22.61	0.355	-0.10	0.388	
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#54	Front Surface	10	518000	22.0	21.77	0.392	-0.11	0.413	
Body-worn & Hotspot	40M DFT-OFDM QPSK 1RB#214	Back Surface	10	519000	23.0	22.61	0.504	-0.06	0.551	
Body-worn & Hotspot	40M DFT-OFDM QPSK 108RB#54	Back Surface	10	518000	22.0	21.77	0.544	-0.05	0.574	
Hotspot	40M DFT-OFDM QPSK 1RB#214	Left Edge	10	519000	23.0	22.61	0.665	-0.03	0.727	
Hotspot	40M DFT-OFDM QPSK 108RB#54	Left Edge	10	518000	22.0	21.77	0.889	-0.09	0.937	32
Hotspot	40M DFT-OFDM QPSK 50RB#0	Left Edge	10	519000	22.0	21.46	0.816	-0.06	0.924	
Hotspot	40M DFT-OFDM QPSK 50RB#0	Left Edge	10	520000	22.0	21.60	0.834	-0.10	0.914	
Hotspot	40M DFT-OFDM QPSK 100RB#0	Left Edge	10	518000	22.0	21.78	0.681	-0.15	0.716	
Worst mode retest										
Head	40M DFT-OFDM QPSK 108RB#54	Right Cheek	0	520000	20.5	20.21	0.885	-0.01	0.946	

Note:

1) Due to 0.917/0.885 = 1.04 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

12.6. SAR Test Results of NR n41

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	509202	22.0	21.99	0.619	-0.13	0.620	
Head	100M DFT-OFDM QPSK 135RB#69	Left Cheek	0	509202	21.0	20.77	0.704	-0.15	0.742	
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	509202	22.0	21.99	0.335	-0.09	0.335	
Head	100M DFT-OFDM QPSK 135RB#69	Left Tilt	0	509202	21.0	20.77	0.414	-0.09	0.437	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	509202	22.0	21.99	1.030	-0.05	1.032	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	518598	22.0	21.86	0.963	-0.03	0.995	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	528000	22.0	21.98	1.050	-0.11	1.055	33
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	509202	21.0	20.77	0.988	-0.14	1.042	
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	518598	21.0	20.31	0.934	-0.07	1.095	
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	528000	21.0	19.98	0.801	-0.01	1.013	
Head	100M DFT-OFDM QPSK 270RB#0	Right Cheek	0	509202	21.0	20.78	0.855	-0.03	0.899	
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	518598	22.0	21.99	0.546	-0.10	0.547	
Head	100M DFT-OFDM QPSK 135RB#69	Right Tilt	0	509202	21.0	20.77	0.689	-0.13	0.726	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	518598	23.0	22.94	0.322	-0.10	0.326	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Front Surface	10	509202	22.0	21.74	0.403	-0.01	0.428	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	518598	23.0	22.94	0.543	-0.08	0.551	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Back Surface	10	509202	22.0	21.74	0.666	-0.13	0.707	
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	509202	23.0	22.94	0.585	-0.13	0.593	
Hotspot	100M DFT-OFDM QPSK 135RB#69	Left Edge	10	509202	22.0	21.74	0.821	-0.03	0.872	34
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	518598	22.0	21.11	0.735	-0.13	0.902	
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	528000	22.0	20.41	0.634	-0.13	0.914	
Hotspot	100M DFT-OFDM QPSK 270RB#0	Left Edge	10	509202	22.0	21.79	0.561	-0.01	0.589	
Worst mode retest										
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	528000	22.0	21.98	0.967	-0.06	0.971	

Note:

1) Due to 1.050/0.967 = 1.09 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	509202	21.0	20.78	0.442	-0.13	0.465
Head	100M DFT-OFDM QPSK 135RB#69	Left Cheek	0	509202	19.5	19.39	0.503	-0.08	0.516
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	509202	21.0	20.78	0.239	-0.06	0.251
Head	100M DFT-OFDM QPSK 135RB#69	Left Tilt	0	509202	19.5	19.39	0.296	-0.08	0.304
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	509202	21.0	20.78	0.750	-0.11	0.789
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	509202	19.5	19.39	0.706	-0.01	0.724
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	509202	21.0	20.78	0.390	-0.01	0.410
Head	100M DFT-OFDM QPSK 135RB#69	Right Tilt	0	509202	19.5	19.39	0.492	-0.11	0.505
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	509202	22.0	21.99	0.249	-0.05	0.249
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Front Surface	10	509202	21.0	20.79	0.312	-0.11	0.327
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	509202	22.0	21.99	0.420	-0.07	0.421
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Back Surface	10	509202	21.0	20.79	0.515	0.00	0.540
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	509202	22.0	21.99	0.452	-0.15	0.453
Hotspot	100M DFT-OFDM QPSK 135RB#69	Left Edge	10	509202	21.0	20.79	0.635	-0.04	0.666

12.7. SAR Test Results of NR n77 block A

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	633332	20.5	20.43	0.396	-0.10	0.402	
Head	100M DFT-OFDM QPSK 135RB#0	Left Cheek	0	633332	20.0	19.95	0.462	-0.01	0.467	
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	633332	20.5	20.43	0.232	-0.12	0.236	
Head	100M DFT-OFDM QPSK 135RB#0	Left Tilt	0	633332	20.0	19.95	0.338	-0.04	0.342	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	633332	20.5	20.43	0.693	-0.07	0.704	
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	633332	20.0	19.95	0.886	-0.01	0.896	35
Head	100M DFT-OFDM QPSK 270RB#0	Right Cheek	0	633332	20.0	19.31	0.756	-0.01	0.886	
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	633332	20.5	20.43	0.403	-0.06	0.409	
Head	100M DFT-OFDM QPSK 135RB#0	Right Tilt	0	633332	20.0	19.95	0.598	-0.07	0.605	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	633332	22.0	21.90	0.228	-0.04	0.233	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Front Surface	10	633332	22.5	22.08	0.405	-0.07	0.446	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	633332	22.0	21.90	0.354	-0.08	0.362	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Back Surface	10	633332	22.5	22.08	0.493	0.00	0.543	
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	633332	22.0	21.90	0.646	-0.11	0.661	
Hotspot	100M DFT-OFDM QPSK 135RB#0	Left Edge	10	633332	22.5	22.08	0.843	-0.07	0.929	36
Hotspot	100M DFT-OFDM QPSK 270RB#0	Left Edge	10	633332	21.5	21.16	0.785	-0.05	0.849	
Hotspot	100M DFT-OFDM QPSK 1RB#271	Top Edge	10	633332	22.0	21.90	0.174	-0.13	0.178	
Hotspot	100M DFT-OFDM QPSK 135RB#0	Top Edge	10	633332	22.5	22.08	0.238	-0.11	0.262	
Worst mode retest										
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	633332	20.0	19.95	0.853	-0.07	0.863	

Note:

1) Due to 0.886/0.853 = 1.04 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	633332	19.5	18.72	0.282	-0.03	0.338
Head	100M DFT-OFDM QPSK 135RB#0	Left Cheek	0	633332	19.5	18.76	0.329	-0.13	0.390
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	633332	19.5	18.72	0.165	-0.10	0.198
Head	100M DFT-OFDM QPSK 135RB#0	Left Tilt	0	633332	19.5	18.76	0.241	-0.01	0.286
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	633332	19.5	18.72	0.494	-0.08	0.591
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	633332	19.5	18.76	0.632	-0.07	0.749
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	633332	19.5	18.72	0.287	-0.01	0.344
Head	100M DFT-OFDM QPSK 135RB#0	Right Tilt	0	633332	19.5	18.76	0.427	-0.04	0.506
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	633332	21.0	20.08	0.165	-0.05	0.204
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Front Surface	10	633332	21.0	20.18	0.294	-0.02	0.355
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	633332	21.0	20.08	0.257	-0.02	0.317
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Back Surface	10	633332	21.0	20.18	0.357	-0.11	0.432
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	633332	21.0	20.08	0.468	-0.05	0.579
Hotspot	100M DFT-OFDM QPSK 135RB#0	Left Edge	10	633332	21.0	20.18	0.611	-0.09	0.738
Hotspot	100M DFT-OFDM QPSK 1RB#271	Top Edge	10	633332	21.0	20.08	0.126	-0.09	0.156
Hotspot	100M DFT-OFDM QPSK 135RB#0	Top Edge	10	633332	21.0	20.18	0.173	-0.06	0.208

12.8. SAR Test Results of NR n77 block C

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	650000	19.5	19.23	0.379	-0.15	0.403	
Head	100M DFT-OFDM QPSK 135RB#137	Left Cheek	0	662000	19.5	19.46	0.389	-0.06	0.393	
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	650000	19.5	19.23	0.322	-0.11	0.343	
Head	100M DFT-OFDM QPSK 135RB#137	Left Tilt	0	662000	19.5	19.46	0.498	-0.12	0.503	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	650000	19.5	19.23	0.912	-0.05	0.970	37
Head	100M DFT-OFDM QPSK 1RB#136	Right Cheek	0	656000	19.5	19.17	0.621	-0.09	0.670	
Head	100M DFT-OFDM QPSK 1RB#1	Right Cheek	0	662000	19.5	19.21	0.646	-0.12	0.691	
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	650000	19.5	19.19	0.651	-0.12	0.699	
Head	100M DFT-OFDM QPSK 270RB#0	Right Cheek	0	662000	19.5	19.46	0.621	-0.15	0.627	
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	650000	19.5	19.23	0.542	0.00	0.577	
Head	100M DFT-OFDM QPSK 135RB#137	Right Tilt	0	662000	19.5	19.46	0.606	-0.01	0.612	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#136	Front Surface	10	650000	22.5	22.30	0.380	-0.03	0.398	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Front Surface	10	662000	22.5	22.46	0.571	-0.02	0.576	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#136	Back Surface	10	650000	22.5	22.30	0.578	-0.02	0.605	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	10	662000	22.5	22.46	0.950	0.00	0.959	38
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Back Surface	0	650000	22.5	22.28	0.785	-0.07	0.826	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	0	656000	22.5	22.15	0.842	-0.10	0.913	
Body-worn & Hotspot	100M DFT-OFDM QPSK 270RB#0	Back Surface	0	662000	21.0	20.99	0.681	0.00	0.683	
Hotspot	100M DFT-OFDM QPSK 1RB#136	Left Edge	10	650000	22.5	22.30	0.664	-0.03	0.695	
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	662000	22.5	22.46	0.940	-0.10	0.949	
Hotspot	100M DFT-OFDM QPSK 1RB#136	Top Edge	10	650000	22.5	22.30	0.512	-0.05	0.536	
Hotspot	100M DFT-OFDM QPSK 135RB#137	Top Edge	10	662000	22.5	22.46	0.670	-0.01	0.676	
Worst mode retest										
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	10	662000	22.5	22.46	0.907	-0.03	0.915	

Note:

1) Due to 0.950/0.907 = 1.05 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	650000	19.0	18.69	0.298	-0.05	0.320
Head	100M DFT-OFDM QPSK 135RB#137	Left Cheek	0	662000	19.0	18.59	0.306	-0.03	0.336
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	650000	19.0	18.69	0.253	0.00	0.272
Head	100M DFT-OFDM QPSK 135RB#137	Left Tilt	0	662000	19.0	18.59	0.391	-0.08	0.430
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	650000	19.0	18.69	0.717	-0.11	0.770
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	650000	19.0	18.59	0.512	-0.07	0.562
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	650000	19.0	18.69	0.426	-0.06	0.458
Head	100M DFT-OFDM QPSK 135RB#137	Right Tilt	0	662000	19.0	18.59	0.476	-0.05	0.523
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#136	Front Surface	10	650000	21.0	20.56	0.273	-0.04	0.302
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Front Surface	10	662000	21.0	20.90	0.410	-0.02	0.420
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#136	Back Surface	10	650000	21.0	20.56	0.415	-0.01	0.459
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	10	662000	21.0	20.90	0.673	-0.09	0.689
Hotspot	100M DFT-OFDM QPSK 1RB#136	Left Edge	10	650000	21.0	20.56	0.477	-0.13	0.528
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	662000	21.0	20.90	0.675	-0.01	0.691
Hotspot	100M DFT-OFDM QPSK 1RB#136	Top Edge	10	650000	21.0	20.56	0.368	-0.07	0.407
Hotspot	100M DFT-OFDM QPSK 135RB#137	Top Edge	10	662000	21.0	20.90	0.481	-0.01	0.492

12.9. SAR Test Results of NR n78 block A

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	100M DFT-OFDM QPSK 1RB#1	Left Cheek	0	633334	19.5	18.77	0.349	-0.07	0.413	
Head	100M DFT-OFDM QPSK 135RB#69	Left Cheek	0	633334	21.0	20.56	0.535	-0.06	0.592	
Head	100M DFT-OFDM QPSK 1RB#1	Left Tilt	0	633334	19.5	18.77	0.247	-0.07	0.292	
Head	100M DFT-OFDM QPSK 135RB#69	Left Tilt	0	633334	21.0	20.56	0.388	-0.04	0.429	
Head	100M DFT-OFDM QPSK 1RB#1	Right Cheek	0	633334	19.5	18.77	0.706	-0.09	0.835	
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	633334	21.0	20.56	0.956	-0.07	1.058	39
Head	100M DFT-OFDM QPSK 270RB#0	Right Cheek	0	633334	19.4	20.00	0.712	-0.12	0.617	
Head	100M DFT-OFDM QPSK 1RB#1	Right Tilt	0	633334	19.5	18.77	0.479	-0.12	0.567	
Head	100M DFT-OFDM QPSK 135RB#69	Right Tilt	0	633334	21.0	20.56	0.726	-0.05	0.803	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#1	Front Surface	10	633334	20.0	19.63	0.266	-0.04	0.290	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Front Surface	10	633334	21.5	21.38	0.408	-0.04	0.419	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#1	Back Surface	10	633334	20.0	19.63	0.417	-0.01	0.454	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#69	Back Surface	10	633334	21.5	21.38	0.618	-0.08	0.635	
Hotspot	100M DFT-OFDM QPSK 1RB#1	Left Edge	10	633334	20.0	19.63	0.674	-0.01	0.734	
Hotspot	100M DFT-OFDM QPSK 135RB#69	Left Edge	10	633334	21.5	21.38	0.881	-0.07	0.906	40
Hotspot	100M DFT-OFDM QPSK 270RB#0	Left Edge	10	633334	20.5	20.28	0.608	-0.14	0.640	
Hotspot	100M DFT-OFDM QPSK 1RB#1	Top Edge	10	633334	20.0	19.63	0.316	-0.01	0.344	
Hotspot	100M DFT-OFDM QPSK 135RB#69	Top Edge	10	633334	21.5	21.38	0.398	-0.10	0.409	
Worst mode retest										
Head	100M DFT-OFDM QPSK 135RB#69	Right Cheek	0	633334	21.0	20.56	0.898	-0.01	0.994	

Note:

1) Due to 0.956/0.898 = 1.06 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	100M DFT-OFDM QPSK 1RB#1	Left Cheek	0	633334	17.0	16.73	0.238	-0.03	0.254
Head	100M DFT-OFDM QPSK 135RB#0	Left Cheek	0	633334	19.0	18.46	0.365	-0.12	0.414
Head	100M DFT-OFDM QPSK 1RB#1	Left Tilt	0	633334	17.0	16.73	0.169	-0.05	0.180
Head	100M DFT-OFDM QPSK 135RB#0	Left Tilt	0	633334	19.0	18.46	0.265	-0.05	0.300
Head	100M DFT-OFDM QPSK 1RB#1	Right Cheek	0	633334	17.0	16.73	0.482	-0.06	0.513
Head	100M DFT-OFDM QPSK 135RB#0	Right Cheek	0	633334	19.0	18.46	0.653	-0.09	0.739
Head	100M DFT-OFDM QPSK 1RB#1	Right Tilt	0	633334	17.0	16.73	0.327	-0.11	0.348
Head	100M DFT-OFDM QPSK 135RB#0	Right Tilt	0	633334	19.0	18.46	0.496	-0.10	0.562
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#1	Front Surface	10	633334	18.0	17.81	0.186	-0.08	0.194
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Front Surface	10	633334	20.0	19.46	0.285	-0.06	0.322
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#1	Back Surface	10	633334	18.0	17.81	0.291	-0.10	0.304
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#0	Back Surface	10	633334	20.0	19.46	0.431	-0.14	0.488
Hotspot	100M DFT-OFDM QPSK 1RB#1	Left Edge	10	633334	18.0	17.81	0.470	-0.05	0.491
Hotspot	100M DFT-OFDM QPSK 135RB#0	Left Edge	10	633334	20.0	19.46	0.615	-0.01	0.696
Hotspot	100M DFT-OFDM QPSK 1RB#1	Top Edge	10	633334	18.0	17.81	0.221	-0.01	0.230
Hotspot	100M DFT-OFDM QPSK 135RB#0	Top Edge	10	633334	20.0	19.46	0.278	-0.08	0.315

12.10. SAR Test Results of NR n78 block C

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	650000	18.0	17.62	0.238	-0.08	0.260	
Head	100M DFT-OFDM QPSK 135RB#137	Left Cheek	0	650000	19.5	19.47	0.402	-0.05	0.405	
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	650000	18.0	17.62	0.345	-0.13	0.377	
Head	100M DFT-OFDM QPSK 135RB#137	Left Tilt	0	650000	19.5	19.47	0.453	-0.10	0.456	
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	650000	18.0	17.62	0.677	-0.04	0.739	
Head	100M DFT-OFDM QPSK 135RB#137	Right Cheek	0	650000	19.5	19.47	0.866	-0.11	0.872	41
Head	100M DFT-OFDM QPSK 270RB#0	Right Cheek	0	650000	18.5	18.12	0.712	-0.11	0.777	
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	650000	18.0	17.62	0.600	0.00	0.655	
Head	100M DFT-OFDM QPSK 135RB#137	Right Tilt	0	650000	19.5	19.47	0.827	-0.15	0.833	
Head	100M DFT-OFDM QPSK 270RB#0	Right Tilt	0	650000	18.5	18.12	0.701	-0.11	0.765	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	650000	19.0	18.18	0.272	-0.08	0.329	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Front Surface	10	650000	20.5	20.01	0.351	-0.15	0.393	
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	650000	19.0	18.18	0.345	-0.06	0.417	
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	10	650000	20.5	20.01	0.475	0.00	0.531	
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	650000	19.0	18.18	0.490	0.00	0.591	
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	650000	20.5	20.48	0.775	-0.01	0.779	42
Hotspot	100M DFT-OFDM QPSK 1RB#271	Top Edge	10	650000	19.0	18.18	0.261	-0.01	0.316	
Hotspot	100M DFT-OFDM QPSK 135RB#137	Top Edge	10	650000	20.5	20.01	0.334	-0.07	0.374	
Worst mode retest										
Head	100M DFT-OFDM QPSK 135RB#137	Right Cheek	0	650000	19.5	19.47	0.835	-0.04	0.841	

Note:

1) Due to 0.866/0.835 = 1.04 < 1.20, and SAR value of original and repeated measurement is ≤ 1.45 W/kg, so only one repeated measurement is required.

EN-DC power level

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)
					Tune-up Limit	Meas.	1-g (W/Kg)		
Head	100M DFT-OFDM QPSK 1RB#271	Left Cheek	0	650000	17.5	16.95	0.190	-0.02	0.216
Head	100M DFT-OFDM QPSK 135RB#137	Left Cheek	0	650000	19.0	18.79	0.321	-0.01	0.337
Head	100M DFT-OFDM QPSK 1RB#271	Left Tilt	0	650000	17.5	16.95	0.275	-0.07	0.312
Head	100M DFT-OFDM QPSK 135RB#137	Left Tilt	0	650000	19.0	18.79	0.361	-0.02	0.379
Head	100M DFT-OFDM QPSK 1RB#271	Right Cheek	0	650000	17.5	16.95	0.540	-0.02	0.613
Head	100M DFT-OFDM QPSK 135RB#137	Right Cheek	0	650000	19.0	18.79	0.691	-0.13	0.725
Head	100M DFT-OFDM QPSK 1RB#271	Right Tilt	0	650000	17.5	16.95	0.479	-0.15	0.543
Head	100M DFT-OFDM QPSK 135RB#137	Right Tilt	0	650000	19.0	18.79	0.660	-0.01	0.693
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Front Surface	10	650000	18.0	17.14	0.212	-0.05	0.259
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Front Surface	10	650000	19.5	19.10	0.273	-0.01	0.300
Body-worn & Hotspot	100M DFT-OFDM QPSK 1RB#271	Back Surface	10	650000	18.0	17.14	0.269	-0.01	0.328
Body-worn & Hotspot	100M DFT-OFDM QPSK 135RB#137	Back Surface	10	650000	19.5	19.10	0.370	-0.01	0.405
Hotspot	100M DFT-OFDM QPSK 1RB#271	Left Edge	10	650000	18.0	17.14	0.381	-0.15	0.465
Hotspot	100M DFT-OFDM QPSK 135RB#137	Left Edge	10	650000	19.5	19.10	0.604	-0.08	0.662
Hotspot	100M DFT-OFDM QPSK 1RB#271	Top Edge	10	650000	18.0	17.14	0.204	0.00	0.248
Hotspot	100M DFT-OFDM QPSK 135RB#137	Top Edge	10	650000	19.5	19.10	0.260	-0.08	0.285

12.11. SAR Test Results of 2.4GHz Wi-Fi

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured 1-g (W/Kg)	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up	Meas.					
Head	802.11 b	Left Cheek	0	2437	17.5	17.47	88.47	0.702	-0.14	0.799	43
Head	802.11 b	Left Cheek	0	2412	17.5	17.22	88.47	0.591	-0.09	0.713	
Head	802.11 b	Left Cheek	0	2462	17.5	17.23	88.47	0.647	-0.04	0.778	
Head	802.11 b	Left Tilt	0	2437	17.5	17.47	88.47	0.409	-0.02	0.466	
Head	802.11 b	Right Cheek	0	2437	17.5	17.47	88.47	0.347	-0.02	0.395	
Head	802.11 b	Right Tilt	0	2437	17.5	17.47	88.47	0.423	-0.10	0.481	
Body-worn & Hotspot	802.11 b	Front Surface	10	2437	17.5	17.47	88.47	0.149	0.00	0.170	
Body-worn & Hotspot	802.11 b	Back Surface	10	2437	17.5	17.47	88.47	0.285	0.00	0.324	44
Hotspot	802.11 b	Right Edge	10	2437	17.5	17.47	88.47	0.254	-0.01	0.289	
Hotspot	802.11 b	Top Edge	10	2437	17.5	17.47	88.47	0.205	-0.14	0.233	

12.12. SAR Test Results of 5GHz Wi-Fi U-NII-1

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up Limit	Meas.	1-g (W/Kg)			
Body-worn & Hotspot	802.11 n 40M	Front Surface	10	5190	14.5	14.39	0.010	-0.05	0.010	
Body-worn & Hotspot	802.11 n 40M	Back Surface	10	5230	14.5	14.39	0.401	-0.11	0.411	45
Hotspot	802.11 n 40M	Right Edge	10	5230	14.5	14.39	0.186	-0.18	0.191	
Hotspot	802.11 n 40M	Top Edge	10	5230	14.5	14.39	0.206	-0.17	0.211	

Note:
SAR result of head exposure scenarios is covered by U-NII-2A.

12.13. SAR Test Results of 5GHz Wi-Fi U-NII-2A

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up	Meas.		1-g (W/Kg)			
Head	802.11 a	Left Cheek	0	5280	16.0	15.86	100.00	0.174	-0.11	0.180	
Head	802.11 a	Left Tilt	0	5280	16.0	15.86	100.00	0.256	-0.06	0.264	46
Head	802.11 a	Right Cheek	0	5280	16.0	15.86	100.00	0.127	-0.01	0.131	
Head	802.11 a	Right Tilt	0	5280	16.0	15.86	100.00	0.233	-0.02	0.241	
Body	802.11 a	Front Surface	10	5280	16.0	15.86	100.00	0.012	-0.10	0.012	
Body	802.11 a	Back Surface	10	5280	16.0	15.86	100.00	0.422	-0.04	0.436	47
Extremity	802.11 a	Front Surface	0	5280	16.0	15.86	100.00	0.169	-0.04	0.175	
Extremity	802.11 a	Back Surface	0	5280	16.0	15.86	100.00	0.780	-0.13	0.806	48
Extremity	802.11 a	Right Edge	0	5280	16.0	15.86	100.00	0.494	-0.05	0.510	
Extremity	802.11 a	Top Edge	0	5280	16.0	15.86	100.00	0.579	-0.05	0.598	

12.14. SAR Test Results of 5GHz Wi-Fi U-NII-2C

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up	Meas.		1-g (W/Kg)			
Head	802.11 a	Left Cheek	0	5580	16.0	15.47	100.00	0.193	-0.06	0.218	
Head	802.11 a	Left Tilt	0	5580	16.0	15.47	100.00	0.204	-0.02	0.230	49
Head	802.11 a	Right Cheek	0	5580	16.0	15.47	100.00	0.188	-0.12	0.212	
Head	802.11 a	Right Tilt	0	5580	16.0	15.47	100.00	0.183	-0.15	0.207	
Body	802.11 a	Front Surface	10	5580	16.0	15.47	100.00	0.055	-0.07	0.062	
Body	802.11 a	Back Surface	10	5580	16.0	15.47	100.00	0.509	-0.06	0.575	50
Body	802.11 a	Right Edge	10	5580	16.0	15.47	100.00	0.316	-0.14	0.357	
Body	802.11 a	Top Edge	10	5580	16.0	15.47	100.00	0.273	-0.15	0.308	
Extremity	802.11 a	Front Surface	0	5580	16.0	15.47	100.00	0.120	-0.02	0.136	
Extremity	802.11 a	Back Surface	0	5580	16.0	15.47	100.00	0.716	-0.08	0.809	51
Extremity	802.11 a	Right Edge	0	5580	16.0	15.47	100.00	0.396	-0.06	0.447	
Extremity	802.11 a	Top Edge	0	5580	16.0	15.47	100.00	0.466	-0.05	0.526	

12.15. SAR Test Results of 5GHz Wi-Fi U-NII-3

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up	Meas.		1-g (W/Kg)			
Head	802.11 a	Left Cheek	0	5745	14.0	13.83	100.00	0.225	-0.10	0.234	
Head	802.11 a	Left Tilt	0	5745	14.0	13.83	100.00	0.285	-0.04	0.296	52
Head	802.11 a	Right Cheek	0	5745	14.0	13.83	100.00	0.193	-0.15	0.201	
Head	802.11 a	Right Tilt	0	5745	14.0	13.83	100.00	0.270	-0.15	0.281	
Body-worn & Hotspot	802.11 a	Front Surface	10	5745	14.0	13.83	100.00	0.052	-0.01	0.054	
Body-worn & Hotspot	802.11 a	Back Surface	10	5745	14.0	13.83	100.00	0.552	-0.01	0.574	53
Hotspot	802.11 a	Right Edge	10	5745	14.0	13.83	100.00	0.306	-0.05	0.318	
Hotspot	802.11 a	Top Edge	10	5745	14.0	13.83	100.00	0.412	-0.09	0.428	

12.16. SAR Test Results of Bluetooth

RF Exposure Condition	Test Mode	Test Position	Dist. (mm)	Channel	Pwr. (dBm)		DC. (%)	Measured	Pwr. Drift	Scaled (W/Kg)	Plot No.
					Tune-up	Meas.		1-g (W/Kg)			
Head	DH5	Left Cheek	0	2441	7.0	5.81	76.88	0.037	-0.10	0.062	54
Head	DH5	Left Tilt	0	2441	7.0	5.81	76.88	0.015	-0.03	0.026	
Head	DH5	Right Cheek	0	2441	7.0	5.81	76.88	0.005	-0.10	0.009	
Head	DH5	Right Tilt	0	2441	7.0	5.81	76.88	0.000	-0.08	0.000	
Body-worn & Hotspot	DH5	Front Surface	10	2441	7.0	5.81	76.88	0.000	-0.07	0.000	
Body-worn & Hotspot	DH5	Back Surface	10	2441	7.0	5.81	76.88	0.012	-0.04	0.021	55
Hotspot	DH5	Right Edge	10	2441	7.0	5.81	76.88	0.000	-0.10	0.000	
Hotspot	DH5	Top Edge	10	2441	7.0	5.81	76.88	0.002	-0.15	0.003	

13. Simultaneous Transmission SAR Analysis

Simultaneous transmission possibilities					
No.	Simultaneous TX Combination	Head	Body-worn	Hotspot	Product Specific 10-g (0mm)
1	WWAN (single antenna / EN-DC) + WIFI 2.4G ANT6/7 MIMO	Y	Y	Y	Y
2	WWAN (single antenna / EN-DC) + WIFI 5G ANT6/7 MIMO	Y	Y	Y	Y
3	WWAN (single antenna / EN-DC) + WIFI 5G ANT6/7 MIMO + BT	Y	Y	Y	Y
4	WWAN (single antenna / EN-DC) + WIFI 2.4G ANT6/7 MIMO + NFC	N	N	Y	Y
5	WWAN (single antenna / EN-DC) + WIFI 5G ANT6/7 MIMO + NFC	N	N	Y	Y
6	WWAN (single antenna / EN-DC) + WIFI 5G ANT6/7 MIMO + BT + NFC	N	N	Y	Y

Estimated SAR for NFC				
Frequency (GHz)	Power (dBm)	Power (mW)	Separation Distance (mm)	Estimated 1g SAR (W/Kg)
0.01356	-84.16	0.00	5	0.000

Note: the power of NFC is satisfied with the routine SAR exclusion policy, and the estimated SAR should token into simultaneous transmission analysis, but due to the estimated SAR of NFC is 0.00W/kg. so additional simultaneous transmission analysis contains NFC component is not necessary.

13.1. Analysis for WWAN single band & 2.4GHz Wi-Fi

RF Exposure Condition	Test Position	GSM850+2.4G Wi-Fi	GSM1900+2.4G Wi-Fi	WCDMA B2+2.4G Wi-Fi	WCDMA B4+2.4G Wi-Fi	WCDMA B5+2.4G Wi-Fi	LTE Band 2+2.4G Wi-Fi	LTE Band 4+2.4G Wi-Fi	LTE Band 5+2.4G Wi-Fi	LTE Band 7+2.4G Wi-Fi	LTE Band 12+2.4G Wi-Fi	LTE Band 38+2.4G Wi-Fi	LTE Band 41+2.4G Wi-Fi	LTE Band 48+2.4G Wi-Fi	LTE Band 66+2.4G Wi-Fi	NR n5+2.4G Wi-Fi	NR n7+2.4G Wi-Fi	NR n38+2.4G Wi-Fi	NR n41+2.4G Wi-Fi	NR n77 (Blcok A)+2.4G Wi-Fi	NR n77 (Blcok C)+2.4G Wi-Fi	NR n78 (Blcok A)+2.4G Wi-Fi	NR n78 (Blcok C)+2.4G Wi-Fi
Head	Left Cheek	1.119	0.890	0.934	0.882	1.004	0.905	0.939	0.965	1.073	0.899	1.134	1.107	0.799	0.937	0.974	1.020	1.269	1.541	1.266	1.202	1.391	1.204
	Left Tilt	0.629	0.551	0.579	0.547	0.571	0.567	0.569	0.548	0.706	0.522	0.629	0.638	0.466	0.564	0.567	0.693	0.728	0.903	0.808	0.969	0.895	0.922
	Right Cheek	0.694	0.524	0.554	0.486	0.544	0.518	0.529	0.527	1.106	0.476	0.920	0.880	0.395	0.500	0.528	0.907	1.375	1.490	1.291	1.365	1.453	1.267
	Right Tilt	0.657	0.569	0.592	0.569	0.572	0.630	0.581	0.560	0.903	0.529	0.737	0.751	0.481	0.580	0.529	0.857	0.792	1.207	1.086	1.093	1.284	1.314
Body-worn & Hotspot	Front Surface	0.318	0.478	0.418	0.523	0.335	0.520	0.640	0.345	0.362	0.290	0.327	0.297	0.170	0.629	0.285	0.292	0.583	0.598	0.616	0.746	0.589	0.563
	Back Surface	1.074	0.790	0.941	0.916	0.903	1.094	1.251	0.803	1.048	0.525	0.686	0.692	0.324	1.153	0.758	1.188	0.898	1.031	0.867	1.283	0.959	0.855
Hotspot	Left Edge	0.225	0.049	0.057	0.061	0.173	0.182	0.155	0.223	0.936	0.208	0.290	0.280	0.000	0.135	0.147	0.626	0.937	0.872	0.929	0.949	0.906	0.779
	Right Edge	0.355	0.471	0.482	0.555	0.344	0.474	0.466	0.379	0.330	0.392	0.302	0.307	0.289	0.460	0.384	0.384	0.289	0.878	0.289	0.289	0.289	0.289
	Top Edge	0.233	0.233	0.233	0.233	0.233	0.233	0.233	0.233	0.570	0.233	0.288	0.301	0.233	0.233	0.233	0.690	0.233	0.822	0.495	0.909	0.642	0.607
	Bottom Edge	0.392	0.561	0.690	0.926	0.291	0.729	0.639	0.263	0.044	0.111	0.033	0.039	0.000	0.646	0.222	0.000	0.000	0.589	0.000	0.000	0.000	0.000

13.2. Analysis for WWAN single band & U-NII Max

RF Exposure Condition	Test Position	GSM850+U-NII Max	GSM1900+U-NII Max	WCDMA B2+U-NII Max	WCDMA B4+U-NII Max	WCDMA B5+U-NII Max	LTE Band 2+U-NII Max	LTE Band 4+U-NII Max	LTE Band 5+U-NII Max	LTE Band 7+U-NII Max	LTE Band 12+U-NII Max	LTE Band 38+U-NII Max	LTE Band 41+U-NII Max	LTE Band 48+U-NII Max	LTE Band 66+U-NII Max	NR n5+U-NII Max	NR n7+U-NII Max	NR n38+U-NII Max	NR n41+U-NII Max	NR n77 (BlcokA)+U-NII Max	NR n77 (BlcokC)+U-NII Max	NR n78 (BlcokA)+U-NII Max	NR n78 (BlcokC)+U-NII Max
Head	Left Cheek	0.554	0.325	0.369	0.317	0.439	0.340	0.374	0.400	0.508	0.334	0.569	0.542	0.234	0.372	0.409	0.455	0.704	0.976	0.701	0.637	0.826	0.639
	Left Tilt	0.459	0.381	0.409	0.377	0.401	0.397	0.399	0.378	0.536	0.352	0.459	0.468	0.296	0.394	0.397	0.523	0.558	0.733	0.638	0.799	0.725	0.752
	Right Cheek	0.511	0.341	0.371	0.303	0.361	0.335	0.346	0.344	0.923	0.293	0.737	0.697	0.212	0.317	0.345	0.724	1.192	1.307	1.108	1.182	1.270	1.084
	Right Tilt	0.457	0.369	0.392	0.369	0.372	0.430	0.381	0.360	0.703	0.329	0.537	0.551	0.281	0.380	0.329	0.657	0.592	1.007	0.886	0.893	1.084	1.114
Body-worn & Hotspot	Front Surface	0.210	0.370	0.310	0.415	0.227	0.412	0.532	0.237	0.254	0.182	0.219	0.189	0.062	0.521	0.177	0.184	0.475	0.490	0.508	0.638	0.481	0.455
	Back Surface	1.325	1.041	1.192	1.167	1.154	1.345	1.502	1.054	1.299	0.776	0.937	0.943	0.575	1.404	1.009	1.439	1.149	1.282	1.118	1.534	1.210	1.106
Hotspot	Left Edge	0.225	0.049	0.057	0.061	0.173	0.182	0.155	0.223	0.936	0.208	0.290	0.280	0.000	0.135	0.147	0.626	0.937	0.872	0.929	0.949	0.906	0.779
	Right Edge	0.423	0.539	0.550	0.623	0.412	0.542	0.534	0.447	0.398	0.460	0.370	0.375	0.357	0.528	0.452	0.452	0.357	0.946	0.357	0.357	0.357	0.357
	Top Edge	0.428	0.428	0.428	0.428	0.428	0.428	0.428	0.428	0.765	0.428	0.483	0.496	0.428	0.428	0.428	0.885	0.428	1.017	0.690	1.104	0.837	0.802
	Bottom Edge	0.392	0.561	0.690	0.926	0.291	0.729	0.639	0.263	0.044	0.111	0.033	0.039	0.000	0.646	0.222	0.000	0.000	0.589	0.000	0.000	0.000	0.000

13.3. Analysis for WWAN single band & 2.4GHz Wi-Fi & BT

RF Exposure Condition	Test Position	GSM850+2.4G Wi-Fi+BT	GSM1900+2.4G Wi-Fi+BT	WCDMA B2+2.4G Wi-Fi+BT	WCDMA B4+2.4G Wi-Fi+BT	WCDMA B5+2.4G Wi-Fi+BT	LTE Band 2+2.4G Wi-Fi+BT	LTE Band 4+2.4G Wi-Fi+BT	LTE Band 5+2.4G Wi-Fi+BT	LTE Band 7+2.4G Wi-Fi+BT	LTE Band 12+2.4G Wi-Fi+BT	LTE Band 38+2.4G Wi-Fi+BT	LTE Band 41+2.4G Wi-Fi+BT	LTE Band 48+2.4G Wi-Fi+BT	LTE Band 66+2.4G Wi-Fi+BT	NR n5+2.4G Wi-Fi+BT	NR n7+2.4G Wi-Fi+BT	NR n38+2.4G Wi-Fi+BT	NR n41+2.4G Wi-Fi+BT	NR n77 (Blcok A)+2.4G Wi-Fi+BT	NR n77 (Blcok C)+2.4G Wi-Fi+BT	NR n78 (Blcok A)+2.4G Wi-Fi+BT	NR n78 (Blcok C)+2.4G Wi-Fi+BT
Head	Left Cheek	1.024	0.946	0.974	0.942	0.966	0.962	0.964	0.943	1.101	0.917	1.024	1.033	0.861	0.959	0.962	1.088	1.123	1.298	1.203	1.364	1.290	1.317
	Left Tilt	0.791	0.621	0.651	0.583	0.641	0.615	0.626	0.624	1.203	0.573	1.017	0.977	0.492	0.597	0.625	1.004	1.472	1.587	1.388	1.462	1.550	1.364
	Right Cheek	0.580	0.492	0.515	0.492	0.495	0.553	0.504	0.483	0.826	0.452	0.660	0.674	0.404	0.503	0.452	0.780	0.715	1.130	1.009	1.016	1.207	1.237
	Right Tilt	0.629	0.789	0.729	0.834	0.646	0.831	0.951	0.656	0.673	0.601	0.638	0.608	0.481	0.940	0.596	0.603	0.894	0.909	0.927	1.057	0.900	0.874
Body-worn & Hotspot	Front Surface	0.920	0.636	0.787	0.762	0.749	0.940	1.097	0.649	0.894	0.371	0.532	0.538	0.170	0.999	0.604	1.034	0.744	0.877	0.713	1.129	0.805	0.701
	Back Surface	0.570	0.394	0.402	0.406	0.518	0.527	0.500	0.568	1.281	0.553	0.635	0.625	0.345	0.480	0.492	0.971	1.282	1.217	1.274	1.294	1.251	1.124
Hotspot	Left Edge	0.066	0.182	0.193	0.266	0.055	0.185	0.177	0.090	0.041	0.103	0.013	0.018	0.000	0.171	0.095	0.095	0.000	0.589	0.000	0.000	0.000	0.000
	Right Edge	0.289	0.289	0.289	0.289	0.289	0.289	0.289	0.289	0.626	0.289	0.344	0.357	0.289	0.289	0.289	0.746	0.289	0.878	0.551	0.965	0.698	0.663
	Top Edge	0.628	0.797	0.926	1.162	0.527	0.965	0.875	0.499	0.280	0.347	0.269	0.275	0.236	0.882	0.458	0.236	0.236	0.825	0.236	0.236	0.236	0.236
	Bottom Edge	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

13.4. Analysis for WWAN single band & U-NII Max & BT

RF Exposure Condition	Test Position	GSM850+U-NII Max+BT	GSM1900+U-NII Max+BT	WCDMA B2+U-NII Max+BT	WCDMA B4+U-NII Max+BT	WCDMA B5+U-NII Max+BT	LTE Band 2+U-NII Max+BT	LTE Band 4+U-NII Max+BT	LTE Band 5+U-NII Max+BT	LTE Band 7+U-NII Max+BT	LTE Band 12+U-NII Max+BT	LTE Band 38+U-NII Max+BT	LTE Band 41+U-NII Max+BT	LTE Band 48+U-NII Max+BT	LTE Band 66+U-NII Max+BT	NR n5+U-NII Max+BT	NR n7+U-NII Max+BT	NR n38+U-NII Max+BT	NR n41+U-NII Max+BT	NR n77 (Block A)+U-NII Max+BT	NR n77 (Block C)+U-NII Max+BT	NR n78 (Block A)+U-NII Max+BT	NR n78 (Block C)+U-NII Max+BT
Head	Left Cheek	0.616	0.387	0.431	0.379	0.501	0.402	0.436	0.462	0.570	0.396	0.631	0.604	0.296	0.434	0.471	0.517	0.766	1.038	0.763	0.699	0.888	0.701
	Left Tilt	0.485	0.407	0.435	0.403	0.427	0.423	0.425	0.404	0.562	0.378	0.485	0.494	0.322	0.420	0.423	0.549	0.584	0.759	0.664	0.825	0.751	0.778
	Right Cheek	0.520	0.350	0.380	0.312	0.370	0.344	0.355	0.353	0.932	0.302	0.746	0.706	0.221	0.326	0.354	0.733	1.201	1.316	1.117	1.191	1.279	1.093
	Right Tilt	0.457	0.369	0.392	0.369	0.372	0.430	0.381	0.360	0.703	0.329	0.537	0.551	0.281	0.380	0.329	0.657	0.592	1.007	0.886	0.893	1.084	1.114
Body-worn & Hotspot	Front Surface	0.210	0.370	0.310	0.415	0.227	0.412	0.532	0.237	0.254	0.182	0.219	0.189	0.062	0.521	0.177	0.184	0.475	0.490	0.508	0.638	0.481	0.455
	Back Surface	1.346	1.062	1.213	1.188	1.175	1.366	1.523	1.075	1.320	0.797	0.958	0.964	0.596	1.425	1.030	1.460	1.170	1.303	1.139	1.555	1.231	1.127
Hotspot	Left Edge	0.225	0.049	0.057	0.061	0.173	0.182	0.155	0.223	0.936	0.208	0.290	0.280	0.000	0.135	0.147	0.626	0.937	0.872	0.929	0.949	0.906	0.779
	Right Edge	0.423	0.539	0.550	0.623	0.412	0.542	0.534	0.447	0.398	0.460	0.370	0.375	0.357	0.528	0.452	0.452	0.357	0.946	0.357	0.357	0.357	0.357
	Top Edge	0.431	0.431	0.431	0.431	0.431	0.431	0.431	0.431	0.768	0.431	0.486	0.499	0.431	0.431	0.431	0.888	0.431	1.020	0.693	1.107	0.840	0.805
	Bottom Edge	0.392	0.561	0.690	0.926	0.291	0.729	0.639	0.263	0.044	0.111	0.033	0.039	0.000	0.646	0.222	0.000	0.000	0.589	0.000	0.000	0.000	0.000

13.5. Analysis for WWAN single band & BT

RF Exposure Condition	Test Position	GSM850+BT	GSM1900+BT	WCDMA B2+BT	WCDMA B4+BT	WCDMA B5+BT	LTE Band 2+BT	LTE Band 4+BT	LTE Band 5+BT	LTE Band 7+BT	LTE Band 12+BT	LTE Band 38+BT	LTE Band 41+BT	LTE Band 48+BT	LTE Band 66+BT	NR n5+BT	NR n7+BT	NR n38+BT	NR n41+BT	NR n77 (Blcok A)+BT	NR n77 (Blcok C)+BT	NR n78 (Blcok A)+BT	NR n78 (Blcok C)+BT
Head	Left Cheek	0.382	0.153	0.197	0.145	0.267	0.168	0.202	0.228	0.336	0.162	0.397	0.370	0.062	0.200	0.237	0.283	0.532	0.804	0.529	0.465	0.654	0.467
	Left Tilt	0.189	0.111	0.139	0.107	0.131	0.127	0.129	0.108	0.266	0.082	0.189	0.198	0.026	0.124	0.127	0.253	0.288	0.463	0.368	0.529	0.455	0.482
	Right Cheek	0.308	0.138	0.168	0.100	0.158	0.132	0.143	0.141	0.720	0.090	0.534	0.494	0.009	0.114	0.142	0.521	0.989	1.104	0.905	0.979	1.067	0.881
	Right Tilt	0.176	0.088	0.111	0.088	0.091	0.149	0.100	0.079	0.422	0.048	0.256	0.270	0.000	0.099	0.048	0.376	0.311	0.726	0.605	0.612	0.803	0.833
Body-worn & Hotspot	Front Surface	0.148	0.308	0.248	0.353	0.165	0.350	0.470	0.175	0.192	0.120	0.157	0.127	0.000	0.459	0.115	0.122	0.413	0.428	0.446	0.576	0.419	0.393
	Back Surface	0.771	0.487	0.638	0.613	0.600	0.791	0.948	0.500	0.745	0.222	0.383	0.389	0.021	0.850	0.455	0.885	0.595	0.728	0.564	0.980	0.656	0.552
Hotspot	Left Edge	0.225	0.049	0.057	0.061	0.173	0.182	0.155	0.223	0.936	0.208	0.290	0.280	0.000	0.135	0.147	0.626	0.937	0.872	0.929	0.949	0.906	0.779
	Right Edge	0.066	0.182	0.193	0.266	0.055	0.185	0.177	0.090	0.041	0.103	0.013	0.018	0.000	0.171	0.095	0.095	0.000	0.589	0.000	0.000	0.000	0.000
	Top Edge	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.340	0.003	0.058	0.071	0.003	0.003	0.003	0.460	0.003	0.592	0.265	0.679	0.412	0.377
	Bottom Edge	0.392	0.561	0.690	0.926	0.291	0.729	0.639	0.263	0.044	0.111	0.033	0.039	0.000	0.646	0.222	0.000	0.000	0.589	0.000	0.000	0.000	0.000

13.6. EN-DC

RF Exposure Condition	Test Position	LTE Band 2	LTE Band 4	LTE Band 5	LTE Band 7	LTE Band 12	LTE Band 66	NR n41	NR n77 max	NR n78 max	DC_ 2A_n41A	DC_ 2A_n77A	DC_ 2A_n78A	DC_ 4A_n41A	DC_ 4A_n78A	DC_ 5A_n78A	DC_ 7A_n78A	DC_ 12A_n41A	DC_ 12A_n77A	DC_ 66A_n41A	DC_ 66A_n78A
Head	Left Cheek	0.106	0.140	0.166	0.143	0.100	0.138	0.516	0.390	0.414	0.621	0.496	0.519	0.656	0.554	0.580	0.557	0.616	0.490	0.653	0.551
	Left Tilt	0.101	0.103	0.082	0.125	0.056	0.098	0.304	0.430	0.379	0.405	0.532	0.481	0.407	0.483	0.461	0.505	0.360	0.486	0.401	0.477
	Right Cheek	0.123	0.134	0.132	0.372	0.081	0.105	0.789	0.770	0.739	0.912	0.893	0.863	0.923	0.873	0.871	1.111	0.870	0.851	0.894	0.845
	Right Tilt	0.149	0.100	0.079	0.221	0.048	0.099	0.505	0.523	0.693	0.654	0.673	0.842	0.605	0.793	0.772	0.913	0.553	0.571	0.603	0.791
Body-worn & Hotspot	Front Surface	0.157	0.208	0.175	0.123	0.120	0.210	0.327	0.420	0.322	0.484	0.577	0.480	0.535	0.530	0.497	0.446	0.447	0.540	0.537	0.532
	Back Surface	0.310	0.409	0.479	0.464	0.201	0.379	0.540	0.689	0.488	0.850	0.999	0.798	0.950	0.898	0.967	0.953	0.741	0.890	0.919	0.867
Hotspot	Left Edge	0.082	0.068	0.223	0.593	0.208	0.062	0.666	0.738	0.696	0.748	0.820	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.083	0.078	0.090	0.026	0.103	0.078	0.000	0.000	0.000	0.083	0.083	0.083	0.078	0.078	0.090	0.026	0.103	0.103	0.078	0.078
	Top Edge	0.000	0.000	0.000	0.216	0.000	0.000	0.000	0.492	0.315	0.000	0.492	0.315	0.000	0.315	0.315	0.530	0.000	0.492	0.000	0.315
	Bottom Edge	0.327	0.282	0.263	0.028	0.111	0.295	0.000	0.000	0.000	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

13.7. EN-DC Max & 2.4GHz Wi-Fi

RF Exposure Condition	Test Position	DC_2A_N41A+2.4G Wi-Fi	DC_2A-n77A+2.4G Wi-Fi	DC_2A-n78A+2.4G Wi-Fi	DC_4A_n41A+2.4G Wi-Fi	DC_4A-n78A+2.4G Wi-Fi	DC_5A-n78A+2.4G Wi-Fi	DC_7A-n78A+2.4G Wi-Fi	DC_12A-n41A+2.4G Wi-Fi	DC_12A-n77A+2.4G Wi-Fi	DC_66A_n41A+2.4G Wi-Fi	DC_66A_n78A+2.4G Wi-Fi
Head	Left Cheek	1.420	1.295	1.318	1.455	1.353	1.379	1.356	1.415	1.289	1.452	1.350
	Left Tilt	0.870	0.997	0.946	0.873	0.948	0.927	0.970	0.825	0.952	0.867	0.943
	Right Cheek	1.307	1.288	1.258	1.318	1.268	1.266	1.506	1.265	1.246	1.289	1.240
	Right Tilt	1.135	1.154	1.323	1.086	1.274	1.253	1.395	1.034	1.053	1.085	1.273
Body-worn & Hotspot	Front Surface	0.654	0.746	0.649	0.704	0.700	0.667	0.615	0.617	0.709	0.706	0.702
	Back Surface	1.175	1.323	1.123	1.274	1.222	1.292	1.277	1.066	1.214	1.243	1.192
Hotspot	Left Edge	0.748	0.820	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.372	0.372	0.372	0.368	0.368	0.379	0.315	0.392	0.392	0.367	0.367
	Top Edge	0.233	0.726	0.548	0.233	0.548	0.548	0.764	0.233	0.726	0.233	0.548
	Bottom Edge	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

13.8. EN-DC & U-NII Max

RF Exposure Condition	Test Position	DC_2A_N41A+U-NII Max	DC_2A-n77A+ U-NII Max	DC_2A-n78A+ U-NII Max	DC_4A_n41A+ U-NII Max	DC_4A-n78A+ U-NII Max	DC_5A-n78A+ U-NII Max	DC_7A-n78A+ U-NII Max	DC_12A-n41A+ U-NII Max	DC_12A-n77A+ U-NII Max	DC_66A_n41A+ U-NII Max	DC_66A_n78A+ U-NII Max
Head	Left Cheek	0.855	0.730	0.753	0.890	0.788	0.814	0.791	0.850	0.724	0.887	0.785
	Left Tilt	0.701	0.828	0.777	0.703	0.779	0.758	0.801	0.656	0.783	0.698	0.773
	Right Cheek	1.125	1.106	1.075	1.135	1.086	1.084	1.324	1.082	1.063	1.107	1.057
	Right Tilt	0.935	0.954	1.123	0.886	1.074	1.052	1.194	0.833	0.852	0.884	1.072
Body-worn & Hotspot	Front Surface	0.546	0.639	0.542	0.597	0.592	0.560	0.508	0.509	0.602	0.599	0.594
	Back Surface	1.425	1.574	1.373	1.525	1.473	1.543	1.528	1.316	1.465	1.494	1.442
Hotspot	Left Edge	0.748	0.999	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.440	0.440	0.440	0.435	0.435	0.447	0.383	0.460	0.460	0.435	0.435
	Top Edge	0.428	0.921	0.743	0.428	0.743	0.743	0.959	0.428	0.921	0.428	0.743
	Bottom Edge	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

13.9. EN-DC & 2.4GHz Wi-Fi & BT

RF Exposure Condition	Test Position	DC_2A_N41A+2.4G Wi-Fi+BT	DC_2A-n77A+ 2.4G Wi-Fi+BT	DC_2A-n78A+ 2.4G Wi-Fi+BT	DC_4A_n41A+ 2.4G Wi-Fi+BT	DC_4A-n78A+ 2.4G Wi-Fi+BT	DC_5A-n78A+ 2.4G Wi-Fi+BT	DC_7A-n78A+ 2.4G Wi-Fi+BT	DC_12A-n41A+ 2.4G Wi-Fi+BT	DC_12A-n77A+ 2.4G Wi-Fi+BT	DC_66A_n41A+ 2.4G Wi-Fi+BT	DC_66A_n78A+ 2.4G Wi-Fi+BT
Head	Left Cheek	1.483	1.357	1.381	1.518	1.416	1.441	1.418	1.477	1.352	1.515	1.413
	Left Tilt	0.896	1.023	0.972	0.898	0.974	0.953	0.996	0.851	0.977	0.892	0.968
	Right Cheek	1.316	1.297	1.266	1.326	1.277	1.275	1.515	1.273	1.254	1.298	1.248
	Right Tilt	1.135	1.154	1.323	1.086	1.274	1.253	1.395	1.034	1.053	1.085	1.273
Body-worn & Hotspot	Front Surface	0.654	0.746	0.649	0.704	0.700	0.667	0.615	0.617	0.709	0.706	0.702
	Back Surface	1.195	1.344	1.143	1.295	1.243	1.313	1.298	1.086	1.235	1.264	1.212
Hotspot	Left Edge	0.748	0.820	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.372	0.372	0.372	0.368	0.368	0.379	0.315	0.392	0.392	0.367	0.367
	Top Edge	0.237	0.729	0.551	0.237	0.551	0.551	0.767	0.237	0.729	0.237	0.551
	Bottom Edge	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

13.10. EN-DC & U-NII Max & BT

RF Exposure Condition	Test Position	DC_2A_N41A+U-NII Max+BT	DC_2A-n77A+ U-NII Max+BT	DC_2A-n78A+ U-NII Max+BT	DC_4A_n41A+ U-NII Max+BT	DC_4A-n78A+ U-NII Max+BT	DC_5A-n78A+ U-NII Max+BT	DC_7A-n78A+ U-NII Max+BT	DC_12A-n41A+ U-NII Max+BT	DC_12A-n77A+ U-NII Max+BT	DC_66A_n41A+ U-NII Max+BT	DC_66A_n78A+ U-NII Max+BT
Head	Left Cheek	0.918	0.792	0.816	0.953	0.851	0.876	0.853	0.912	0.787	0.950	0.848
	Left Tilt	0.727	0.854	0.803	0.729	0.805	0.783	0.827	0.682	0.808	0.723	0.799
	Right Cheek	1.133	1.114	1.084	1.144	1.094	1.092	1.332	1.091	1.072	1.115	1.066
	Right Tilt	0.935	0.954	1.123	0.886	1.074	1.052	1.194	0.833	0.852	0.884	1.072
Body-worn & Hotspot	Front Surface	0.546	0.639	0.542	0.597	0.592	0.560	0.508	0.509	0.602	0.599	0.594
	Back Surface	1.446	1.594	1.394	1.545	1.494	1.563	1.548	1.337	1.485	1.515	1.463
Hotspot	Left Edge	0.748	0.999	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.440	0.440	0.440	0.435	0.435	0.447	0.383	0.460	0.460	0.435	0.435
	Top Edge	0.432	0.924	0.746	0.432	0.746	0.746	0.962	0.432	0.924	0.432	0.746
	Bottom Edge	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

13.11. EN-DC & BT

RF Exposure Condition	Test Position	DC_2A_N41A+ BT	DC_2A-n77A+ BT	DC_2A-n78A+ U-NII Max+BT	DC_4A_n41A+ BT	DC_4A-n78A+ BT	DC_5A-n78A+ BT	DC_7A-n78A+ BT	DC_12A-n41A+ BT	DC_12A-n77A+ BT	DC_66A_n41A+ BT	DC_66A_n78A+ BT
Head	Left Cheek	0.684	0.558	0.519	0.719	0.617	0.642	0.619	0.678	0.553	0.716	0.614
	Left Tilt	0.431	0.557	0.481	0.433	0.509	0.487	0.530	0.385	0.512	0.427	0.503
	Right Cheek	0.921	0.902	0.863	0.931	0.882	0.880	1.120	0.879	0.859	0.903	0.853
	Right Tilt	0.654	0.673	0.842	0.605	0.793	0.772	0.913	0.553	0.571	0.603	0.791
Body-worn & Hotspot	Front Surface	0.484	0.577	0.480	0.535	0.530	0.497	0.446	0.447	0.540	0.537	0.532
	Back Surface	0.871	1.019	0.798	0.970	0.919	0.988	0.973	0.762	0.910	0.940	0.888
Hotspot	Left Edge	0.748	0.820	0.778	0.734	0.765	0.919	1.290	0.874	0.946	0.728	0.758
	Right Edge	0.083	0.083	0.083	0.078	0.078	0.090	0.026	0.103	0.103	0.078	0.078
	Top Edge	0.003	0.496	0.315	0.003	0.318	0.318	0.534	0.003	0.496	0.003	0.318
	Bottom Edge	0.327	0.327	0.327	0.282	0.282	0.263	0.028	0.111	0.111	0.295	0.295

Appendixes

Refer to separated files for the following appendixes.

4791159315-3-SAR-1_App A Conducted power

4791159315-3-SAR-1_App B Photo

4791159315-3-SAR-1_App C System Check Plots

4791159315-3-SAR-1_App D Highest Test Plots

4791159315-3-SAR-1_App E Cal. Certificates

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