



**FCC 47 CFR § 2.1093  
IEEE Std 1528-2013**

**SAR EVALUATION REPORT  
(Part 0 : SAR CHARACTERIZATION)**

**FOR**

**GSM/WCDMA/LTE/5G NR Phone + BT/BLE, DTS/UNII a/b/g/n/ac, and NFC**

**MODEL NUMBER: SM-A236U, SM-A236U1/DS, SM-S236DL**

**FCC ID: A3LSMA236U**

**REPORT NUMBER: 4790379967-S1V4**

**ISSUE DATE: 12/21/2022**

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**TL-637**

**Revision History**

Rev.	Date	Revisions	Revised By
V1	6/24/2022	Initial Issue	--
V2	6/30/2022	Added Note.6 in SAR Characterizations table of Sec.6.3. Revised LTE Band 40's output power in Sec.6.3 & 7.	Sunghoon Kim
V3	7/5/2022	Revised Plimit in NR Band n48-SRS2. - SAR Characterizations table of Sec.6.3. - Head/Body/Hotspot/Product Specific 10-g SAR in Sec.7.	Sunghoon Kim
V4	12/21/2022	Revised due to Edge 4 and Edge 2 being misidentified in the sensor description in the operational description exhibit. New data in section 7 for DSI=0, 10-g SAR at 0mm for Edge 2 and at 6mm for edge 4. SAR characterization table (section 6.3), list of test equipment (section 4.3) updated accordingly.	Jeongyeon Won

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# 1. Attestation of SAR Characterization

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.
FCC ID	A3LSMA236U
Model Number	SM- A236U, SM-A236U1/DS, SM-S236DL
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures
Report type	Part.0 : SAR Characterization
Date Tested	5/16/2022 to 7/5/2022, 12/15/2022 to 12/19/2022
Part 0 Purpose	Part 0 is the procedures for determining $P_{Limit}$ for 2G/3G/4G/5G NR sub6 to satisfy <i>SAR_design_target</i> in order to FCC limit's requirement.

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government

Approved & Released By: 	Prepared By: 
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Sunghoon Kim Senior Laboratory Engineer UL Korea, Ltd. Suwon Laboratory

## 2. Introduction

The equipment under test (EUT) is SAMSUNG Smartphone (FCC ID : A3LSMA236U), it contains the Qualcomm modems supporting 2G/3G/4G/5G NR technologies. These modems are enable with Qualcomm Smart Transmit feature to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is in compliance with FCC requirement.

This purpose of the part 0 report is to determine SAR char is derived from SAR test measurements and conducted power measurements to determine  $P_{Limit}$  for each technology/band. The  $P_{Limit}$  represents the maximum time-averaged power level for the corresponding radio/antenna configuration.

## 3. Facilities and Accreditation

The test sites and measurement facilities used to collect data are located at

Suwon	
SAR 1 Room	SAR 6 Room
SAR 2 Room	SAR 7 Room
SAR 3 Room	SAR 8 Room
SAR 4 Room	SAR 9 Room
SAR 5 Room	

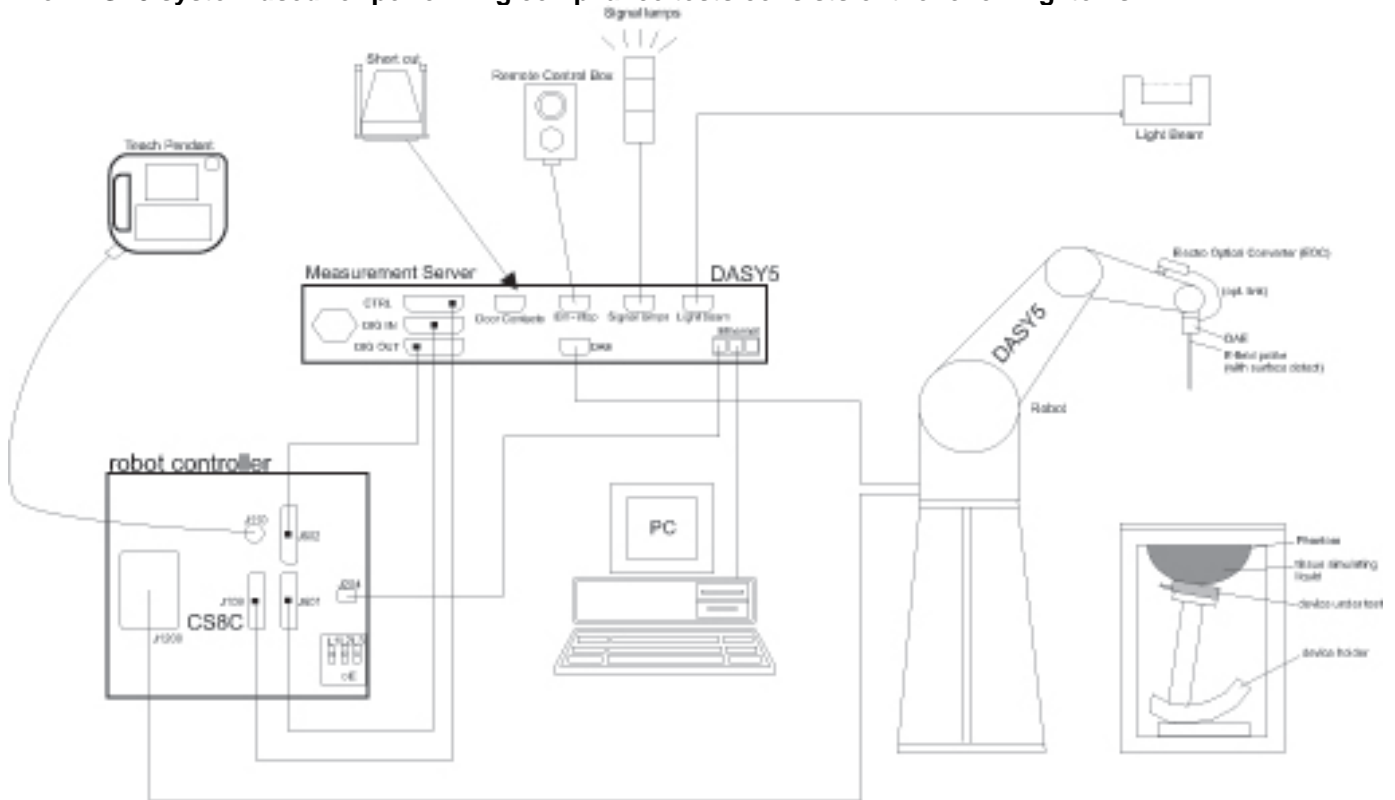
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

## 4. SAR Measurement System & Test Equipment

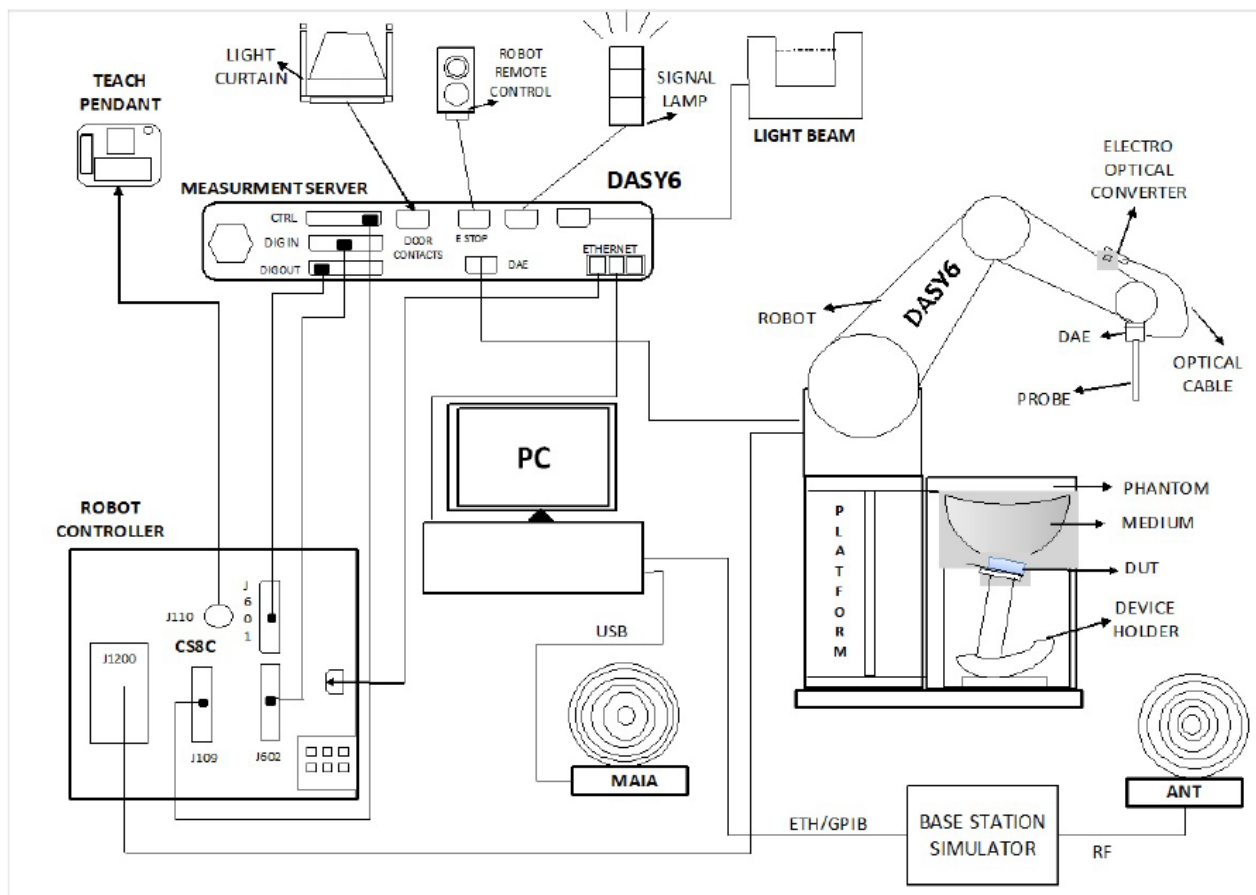
### 4.1. SAR Measurement System

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 WinXP or 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.

The DASY6 & 8 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 Win10 and the DASY6 or 8 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 SAR Measurement 100 MHz to 6 GHz

	$\leq 3$ GHz	$> 3$ GHz
Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface	$5 \pm 1$ mm	$\frac{1}{2} \cdot \delta \cdot \ln(2) \pm 0.5$ mm
Maximum probe angle from probe axis to phantom surface normal at the measurement location	$30^\circ \pm 1^\circ$	$20^\circ \pm 1^\circ$
Maximum area scan spatial resolution: $\Delta x_{Area}$ , $\Delta y_{Area}$	$\leq 2$ GHz: $\leq 15$ mm $2 - 3$ GHz: $\leq 12$ mm	$3 - 4$ GHz: $\leq 12$ mm $4 - 6$ GHz: $\leq 10$ mm
	When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be $\leq$ the corresponding x or y dimension of the test device with at least one measurement point on the test device.	



**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 SAR Measurement 100 MHz to 6 GHz

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: $\Delta x_{Zoom}, \Delta y_{Zoom}$			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$ : between 1 <sup>st</sup> 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 · $\Delta z_{Zoom}(n-1)$	
Minimum zoom scan volume	x, y, z	≥ 30 mm	3 – 4 GHz: ≥ 28 mm 4 – 5 GHz: ≥ 25 mm 5 – 6 GHz: ≥ 22 mm	
Note: $\delta$ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see draft standard IEEE P1528-2011 for details. * When zoom scan is required and the <i>reported</i> SAR from the <i>area scan based 1-g SAR estimation</i> procedures of KDB 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 GHz to 3 GHz, 3 GHz to 4 GHz and 4 GHz to 6 GHz.				

**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 larger 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.

Date Tested : 5/16/2022 to 6/24/2022

#### Dielectric Property Measurements

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8/6/2022
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	8/6/2022
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7/21/2022
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8/4/2022
Thermometer	LKM	DTM3000	3862	8/4/2022

#### System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8/4/2022
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	8/4/2022
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	8/4/2022
Power Sensor	Keysight	U2000A	MY60180020	8/4/2022
Power Sensor	Agilent	U2000A	MY54260007	8/4/2022
Power Sensor	Agilent	U2000A	MY54260010	8/4/2022
Power Sensor	Keysight	U2000A	MY60490008	8/4/2022
Power Sensor	Keysight	U2000A	MY61060004	8/4/2022
Power Sensor	Keysight	U2000A	MY61010006	8/4/2022
Power Sensor	Keysight	U2000A	MY61010010	8/4/2022
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	8/4/2022
Power Amplifier	EXODUS	AMP2027ADB	10002	8/4/2022
Directional Coupler	Agilent	772D	MY52180193	8/3/2022
Directional Coupler	H.P	778D	16133	8/3/2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8/3/2022
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8/3/2022
Low Pass Filter	MICROLAB	LA-15N	3943	8/3/2022
Low Pass Filter	FILTRON	L14012FL	1410003S	8/3/2022
Low Pass Filter	MICROLAB	LA-60N	3942	8/3/2022
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8/4/2022
Attenuator	KEYSIGHT	8491B/003	VE2017A0283	8/4/2022
Attenuator	KEYSIGHT	8491B/010	MY39271981	8/4/2022
Attenuator	KEYSIGHT	8491B/010	MY39272011	8/4/2022
Attenuator	KEYSIGHT	8491B/020	MY39271973	8/4/2022
E-Field Probe	SPEAG	EX3DV4	7330	1/28/2023
E-Field Probe	SPEAG	EX3DV4	7313	3/2/2023
E-Field Probe	SPEAG	EX3DV4	7545	8/26/2022
E-Field Probe	SPEAG	EX3DV4	7645	4/29/2023
E-Field Probe	SPEAG	EX3DV4	7652	4/28/2023
E-Field Probe	SPEAG	EX3DV4	7646	3/29/2023
E-Field Probe	SPEAG	EX3DV4	7376	7/30/2022

**Test Equipment (Continued)**

Data Acquisition Electronics	SPEAG	DAE4	1447	3-25-2023
Data Acquisition Electronics	SPEAG	DAE4	1468	9-27-2022
Data Acquisition Electronics	SPEAG	DAE4	1591	3-24-2023
Data Acquisition Electronics	SPEAG	DAE4	1343	8-23-2022
Data Acquisition Electronics	SPEAG	DAE4	1667	4-27-2023
Data Acquisition Electronics	SPEAG	DAE4	1668	4-27-2023
Data Acquisition Electronics	SPEAG	DAE4	912	11-22-2022
System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d174	3-17-2023
System Validation Dipole	SPEAG	D1750V2	1125	2-24-2023
System Validation Dipole	SPEAG	D1750V2	1180	4-27-2023
System Validation Dipole	SPEAG	D1900V2	5d190	11-24-2022
System Validation Dipole	SPEAG	D2300V2	1090	11-18-2022
System Validation Dipole	SPEAG	D2300V2	1115	4-23-2023
System Validation Dipole	SPEAG	D2450V2	960	3-24-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023
System Validation Dipole	SPEAG	D3500V2	1121	4-21-2023
System Validation Dipole	SPEAG	D3700V2	1036	5-21-2023
System Validation Dipole	SPEAG	D3900V2	1069	4-21-2023
System Validation Dipole	SPEAG	D5GHzV2	1184	12-3-2022
System Validation Dipole	SPEAG	D5GHzV2	1209	11-24-2022
Thermometer (SAR1)	Lutron	MHB-382SD	AH.91463	8-4-2022
Thermometer (SAR2)	Lutron	MHB-382SD	AH.50215	8-3-2022
Thermometer (SAR3)	Lutron	MHB-382SD	AH.50213	8-4-2022
Thermometer (SAR4, 5)	Lutron	MHB-382SD	AH.45903	8-3-2022
Thermometer (SAR6, 7)	Lutron	MHB-382SD	AK.18789	8-4-2022
Thermometer (SAR8, 9)	Lutron	MHB-382SD	AK.12102	8-3-2022

**Others**

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-3-2022
Base Station Simulator	R & S	CMW500	150314	8-4-2022
Base Station Simulator	R & S	CMW500	162790	8-3-2022
Base Station Simulator	R & S	CMW500	169803	5-27-2023
Base Station Simulator	R & S	CMW500	169801	8-3-2022
Base Station Simulator	R & S	CMW500	169799	8-3-2022
Base Station Simulator	R & S	CMW500	169800	6-20-2023
Base Station Simulator	R & S	CMW500	169797	8-3-2022
Base Station Simulator	R & S	CMW500	169798	8-3-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY59150850	12-13-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58460570	12-13-2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	8-6-2022
Radio Communication Test Station	Anritsu	MT8000A	6272398203	6-17-2023

**Note(s):**

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (for blue box items)
3. All equipments were used until Cal.Due data.

Date Tested : 12/15/2022 to 12/19/2022

**Dielectric Property Measurements**

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Network Analyzer	Agilent	E5071C	MY46522054	8-5-2023
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	8-5-2023
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	7-25-2023
Shorting block	SPEAG	DAK-3.5 Short	SM DAK 200 BA	N/A
Thermometer	LKM	DTM3000	3851	8-3-2023
Thermometer	LKM	DTM3000	3862	8-3-2023

**System Check**

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Agilent	N5181A	MY50145882	8-4-2023
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	8-4-2023
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	8-4-2023
Power Sensor	Keysight	U2000A	MY60180020	8-3-2023
Power Sensor	Agilent	U2000A	MY54260007	8-3-2023
Power Sensor	Keysight	U2000A	MY60490008	8-3-2023
Power Sensor	Keysight	U2000A	MY61060004	8-3-2023
Power Sensor	Keysight	U2000A	MY61010006	8-3-2023
Power Sensor	Keysight	U2000A	MY61010010	8-3-2023
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	2-15-2023
Power Amplifier	EXODUS	AMP2027ADB	10002	3-30-2023
Directional Coupler	Agilent	772D	MY52180193	8-3-2023
Directional Coupler	H.P	778D	16133	8-3-2023
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8-2-2023
Directional Coupler	MINI-CIRCUITS	ZUDC20-183+	N/A	8-3-2023
Low Pass Filter	FILTRON	L14012FL	1410003S	8-3-2023
Low Pass Filter	MICROLAB	LA-60N	3942	8-3-2023
Low Pass Filter	MINI-CIRCUITS	NLP-1200	VUU19301915	8-2-2023
Attenuator	KEYSIGHT	8491B/003	VE2017A0283	8-3-2023
Attenuator	KEYSIGHT	8491B/010	MY39271981	8-3-2023
Attenuator	KEYSIGHT	8491B/010	MY39272011	8-2-2023
Attenuator	KEYSIGHT	8491B/020	MY39271973	8-3-2023
Attenuator	MINI-CIRCUITS	BW-S3W10+	N/A	4-27-2023
E-Field Probe	SPEAG	EX3DV4	7330	1-28-2023
E-Field Probe	SPEAG	EX3DV4	7645	11-15-2023
E-Field Probe	SPEAG	EX3DV4	7652	4-28-2023
E-Field Probe	SPEAG	EX3DV4	7314	5-23-2023
Data Acquisition Electronics	SPEAG	DAE4	1447	3-25-2023
Data Acquisition Electronics	SPEAG	DAE4	1468	8-18-2023
Data Acquisition Electronics	SPEAG	DAE4	1671	5-31-2023
Data Acquisition Electronics	SPEAG	DAE4	1667	4-27-2023

**Test Equipment (Continued)**

System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d194	3-24-2023
System Validation Dipole	SPEAG	D1750V2	1125	2-24-2023
System Validation Dipole	SPEAG	D1750V2	1180	9-21-2023
System Validation Dipole	SPEAG	D1900V2	5d190	11-16-2023
System Validation Dipole	SPEAG	D1900V2	5d199	3-25-2023
System Validation Dipole	SPEAG	D2300V2	1115	4-23-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023
Thermometer	Lutron	MHB-382SD	AH.91463	8-4-2023
Thermometer	Lutron	MHB-382SD	AH.50213	8-4-2023
Thermometer	Lutron	MHB-382SD	AH.45903	8-9-2023

**Others**

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	8-2-2023
Base Station Simulator	R & S	CMW500	150314	8-2-2023
Base Station Simulator	R & S	CMW500	162790	8-2-2023
UXM5G Wireless Test Platform	Keysight	E7515B	MY57510596	8-5-2023
Radio Communication Test Station	Anritsu	MT8000A	6272398203	9-8-2023
Radio Communication Analyzer	Anritsu	MT8821C	6161094351	9-8-2023

**Note(s):**

1. For System Validation Dipole, Calibration interval applied every 2 years according to referencing KDB 865664 guidance.
2. Refer to Appendix F that mentioned about justification for Extended SAR Dipole Calibrations. (for blue box items)
3. All equipments were used until Cal.Due data.

## 5. Device Under Test (DUT) Information

### 5.1. Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK)	GPRS Multi-Slot Class:	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
		GPRS (GMSK)	<input type="checkbox"/> Class 8 - 1 Up, 4 Down	
		EGPRS (8PSK)	<input type="checkbox"/> Class 10 - 2 Up, 4 Down	
			<input type="checkbox"/> Class 12 - 4 Up, 4 Down	
			<input checked="" type="checkbox"/> Class 33 - 4 Up, 5 Down	
Does this device support DTM (Dual Transfer Mode)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
W-CDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	FDD Band 2 / FDD Band 4 FDD Band 5 / FDD Band 7 FDD Band 12 / FDD Band 13 FDD Band 14 / FDD Band 25 FDD Band 26 / FDD Band 30 TDD Band 38 / TDD Band 40 TDD Band 41 <sup>Power Class 3</sup> TDD Band 41 <sup>Power Class 2</sup> TDD Band 48 / FDD Band 71 FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (2 Uplink and 4 Downlinks)  <u>Uplink inter-band</u> <u>Carrier Aggregation(2CC)</u> CA_41C & CA_48C		100% (FDD) 63.3% (TDD) <sup>Power Class 3</sup> 43.3% (TDD) <sup>Power Class 2</sup>
		Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
5G NR (Sub 6)	FDD Band n2 / FDD Band n5 FDD Band n25 / FDD Band n30 TDD Band n41 <sup>Power Class 3</sup> TDD Band n41 <sup>Power Class 2</sup> TDD Band n48 / FDD Band n66 FDD Band n70 / FDD Band n71 TDD Band n77 <sup>Power Class 3</sup> TDD Band n77 <sup>Power Class 2</sup>	DFT-s-ODFM: ■ $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM  CP-ODFM: ■ QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b / 802.11g/ 802.11n (HT20)		99.0% (802.11b)
	5 GHz	802.11a / 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80)		98.7% (802.11a) 98.4% (802.11ac (VHT80))
	Does this device support bands 5.60 ~ 5.65 GHz? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Does this device support Band gap channel(s)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Bluetooth	2.4 GHz	Version 5.1 LE		77.4% (DH5)
NFC	13.56 MHz	Type A/B/F		N/A <sup>6</sup>

**Notes:**

- The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 77.4% and was considered and used for SAR Testing.
- Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
- This device supports Power Class 2(HPUE) and Power Class 3 for LTE Band 41 & NR Band n41 & NR Band n77
- This device supports UL CA intra-band non-continues.
- NR TDD Band n48 & n77 has support SRS(0,1,2,3) modes.
- Measured Duty Cycle is not required due to SAR test exemption.

## 5.2. Time-Averaging for SAR

This device is enabled with Qualcomm Smart Transmit algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from 2G/3G/4G/5G NR Sub6 WWAN is compliance with FCC requirement. This part.0 report shows SAR characterization of WWAN radios for 2G/3G/4G/5G NR Sub6. Characterization is achieved by determining  $P_{limit}$  for 2G/3G/4G/5G NR Sub6 that correspond to the  $SAR_{design\_target}$  after accounting for all device design related uncertainty. The SAR Characterization is denoted as SAR Char in this report.

## 5.3. Nomenclature for Part 0 Report

Technology	Term	Description
2G/3G/4G/ 5G NR Sub6	$P_{limit}$	Power level that corresponds to the exposure design target ( $SAR_{design\_target}$ ) after accounting for all device design related uncertainties
	$P_{max}$	Maximum tune up output power
	$SAR_{design\_target}$	Target SAR level < FCC SAR limit after accounting for all device design related uncertainties
	$SAR_{Char}$	Table containing $P_{limit}$ for all technologies and bands

## 6. SAR Characterizations

### 6.1. SAR Design Target

*SAR\_Design\_target* is determined by ensuring that it is less than FCC SAR limit after accounting for total device designed related uncertainties specified by the manufacturer.

<i>SAR_design_target</i>			
$SAR\_design\_target < SAR\_regulatory\_limit \times 10^{\frac{-Total\ Uncertainty}{10}}$			
1g SAR (W/kg)		10g SAR (W/kg)	
Total Uncertainty	1.0 dB	Total Uncertainty	1.0 dB
<i>SAR_regulatory_limit</i>	1.6 W/kg	<i>SAR_regulatory_limit</i>	4.0 W/kg
<i>SAR_design_target</i>	1.0 W/kg	<i>SAR_design_target</i>	2.5 W/kg

### 6.2. DSI and SAR Determination

This device uses different Device State Index (DSI) to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the Tablet, the worst-case SAR was determined by measurements for the relevant exposure conditions for that DSI. Detailed descriptions of the detection mechanisms are included in the operational description.

The device state index (DSI) conditions used in below table represent different exposure scenarios.

#### DSI and Corresponding Exposure Scenarios

RF exposure Scenarios	DSI No.	Description	KDB guide For SAR test
Head exposure	2	1. Next to the ear exposure condition. 2. Handset's Receiver(ear piece) is active during voice or VoIP call.	KDB 648474 D04
Body-w orn exposure	0	1. Handset are used w ith body-w orn accessories.	KDB 648474 D04
Hotspot exposure	3	1. SAR test requirements for Handset w ith wireless router or hotspot mode capabilities. 2. Hotspot mode SAR test for Near body use condition.	KDB 941225 D06
Product Specific 10-g	1 or 4	1. Hand use conditions for Handset(Phablet) and Proximity sensor is triggered 2. Connected ear-jack.	KDB 648474 D04 KDB 616217 D04
	0	1. Hand use conditions for Handset(Phablet) and Proximity sensor is not triggered.	KDB 648474 D04 KDB 616217 D04



### 6.3. SAR Char

SAR results corresponding to  $P_{max}$  for each antenna/technology/band/DSI can be found in Section.7.  $P_{limit}$  is calculated by linearly scaling with the measured SAR at the  $P_{max}$  to correspond to the SAR\_design\_target.  $P_{limit}$  determination for each exposure scenario corresponding to SAR\_design\_target are shown in table.

#### ***P*Limit Determination**

Device State Index (DSI)	Plimit Determination Scenarios
DSI = 0	The worst-case SAR exposure is determined as maximum SAR normalized to the limit among; <ol style="list-style-type: none"> <li>1. Body-worn exposure SAR</li> <li>2. Product Specific 10-g SAR measured at 13, 7 and 6 mm spacing for Back, Edge.3, Edge.4</li> <li>3. Product Specific 10-g SAR measured at 0 mm for Front, Edge1, Edge2.</li> </ol>
DSI = 1 or 4	<ol style="list-style-type: none"> <li>1. Plimit is calculated based on Product Specific 10-g SAR at 0 mm for Back, Edge3, Edge 4.</li> </ol>
DSI = 2	<ol style="list-style-type: none"> <li>1. Plimit is calculated based on Head exposure SAR</li> </ol>
DSI = 3	<ol style="list-style-type: none"> <li>1. Plimit is calculated based on Hotspot SAR at 10mm.</li> </ol>

#### **Notes:**

For DSI = 0,  $P_{limit}$  is calculated by:

$$P_{limit} = \min\{ P_{limit} \text{ corresponding to 1g Body worn SAR evaluation at 15mm spacing, } \\ P_{limit} \text{ corresponding to Product specific 10g SAR evaluation at 13(Rear), 7(Edge3). 6(Edge4) mm spacing, } \\ P_{limit} \text{ corresponding to Product specific 10g SAR evaluation at at 0 mm for Front and Edge2 surfaces} \}$$

**SAR Characterizations**

Exposure condition			Body-Worn	Product Specific 10-g Without triggering sensor	Product Specific 10-g With triggering sensor	Head (RCV)	Hotspot	Ear-jack	P <sub>max</sub> (Maximum tune-up Power) (dBm)
Spatial-average			1g	10g	10g	1g	1g	10g	
Test distance (mm)			15	13/ 0/ 6/ 7	0	0	10	0	
DSI:			0	0	1	2	3	4	
RF Air Interface	Antenna	Antenn Group	P <sub>limit</sub> corresponding to 1.0 W/kg (SAR <sub>design_target</sub> ) (1g) / 2.5 W/kg (SAR <sub>design_target</sub> ) (10g)						
GSM 850	Main.1	AG0	29.29	32.32	29.62	30.54	26.08	29.62	25.48
GSM 1900	Main.2	AG0	29.12	26.22	17.48	31.63	17.48	17.48	21.98
WCDMA Band II	Main.2	AG0	28.85	25.53	20.50	31.77	20.50	20.50	23.50
WCDMA Band IV	Main.2	AG0	22.50	25.57	20.50	22.50	20.50	20.50	23.50
WCDMA Band V	Main.1	AG0	29.90	32.21	28.25	30.30	26.33	28.25	24.20
LTE Band 7	Main.2	AG0	22.00	23.44	20.50	22.00	20.50	20.50	23.50
LTE Band 12	Main.1	AG0	30.47	32.01	29.61	32.08	27.38	29.61	24.50
LTE Band 13	Main.1	AG0	28.84	31.14	28.77	30.91	27.17	28.77	24.50
LTE Band 14	Main.1	AG0	29.18	33.30	29.57	31.28	27.04	29.57	24.50
LTE Band 25/2	Main.2	AG0	29.25	25.24	21.00	32.26	21.00	21.00	24.00
LTE Band 25/2	Sub.1	AG1	29.47	25.21	25.21	18.50	26.70	25.21	22.50
LTE Band 26/5	Main.1	AG0	29.81	31.71	28.59	30.24	26.17	28.59	24.50
LTE Band 30	Main.2	AG0	30.17	27.55	20.00	31.46	20.00	20.00	23.00
LTE Band 40	Main.2	AG0	17.15	21.81	20.93	18.10	24.47	18.93	10.00
LTE Band 66/4	Main.2	AG0	23.00	23.00	21.00	23.00	21.00	21.00	23.50
LTE Band 66/4	Sub.1	AG1	33.17	26.98	26.98	20.50	28.91	26.98	22.50
LTE Band 71	Main.1	AG0	30.47	32.39	28.99	32.43	28.09	28.99	24.50
LTE Band 41/38 PC3	Main.2	AG0	26.03	22.84	20.00	28.12	20.00	20.00	22.00
LTE Band 41 PC2	Main.2	AG0	26.34	24.11	20.00	27.99	20.00	20.00	21.90
LTE Band 48	Sub.3	AG1	17.00	17.00	17.00	17.00	17.00	17.00	20.50
NR Band n5	Main.1	AG0	29.27	31.50	28.70	30.83	26.11	28.70	24.50
NR Band n25/n2	Main.2	AG0	28.33	24.91	21.00	31.70	21.00	21.00	24.00
NR Band n30	Main.2	AG0	30.48	27.15	20.00	31.94	20.00	20.00	23.00
NR Band n66	Main.2	AG0	29.22	24.47	21.00	31.32	21.00	21.00	24.00
NR Band n70	Main.2	AG0	28.03	24.61	20.00	31.55	20.00	20.00	22.00
NR Band n71	Main.1	AG0	29.57	32.53	29.48	31.23	27.15	29.48	23.50
NR Band n41 PC3/PC2	Main.2	AG0	19.50	19.50	17.00	19.50	19.50	17.00	25.50
NR Band n48-SRS 0	Sub.3	AG0	16.00	16.00	16.00	16.00	16.00	16.00	20.50
NR Band n48-SRS 1	Sub.5	AG1	9.50	9.50	9.50	9.50	9.50	9.50	10.50
NR Band n48-SRS 2	Sub.2	AG1	12.00	16.50	16.50	12.00	12.00	12.00	19.50
NR Band n48-SRS 3	Main.2	AG1	16.50	16.50	16.50	16.50	16.50	16.50	20.50
NR Band n77-SRS 0-PC3/PC2	Sub.3	AG0	17.00	17.00	17.00	17.00	17.00	17.00	25.50
NR Band n77-SRS 1-PC/3PC2	Sub.5	AG1	9.50	9.50	9.50	9.50	9.50	9.50	15.50
NR Band n77-SRS 2-PC/3PC2	Sub.2	AG1	11.00	11.00	11.00	11.00	11.00	11.00	22.00
NR Band n77-SRS 3-PC/3PC2	Main.2	AG1	16.00	16.00	16.00	16.00	16.00	16.00	22.00

**Notes:**

1. If  $P_{limit}$  is higher than  $P_{max}$  for some modes / bands, The modes/bands will operate at a power level up to  $P_{max}$ .
2.  $P_{max}$  (Maximum tune-up power) is specified in tune-up document. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty.
3. All  $P_{limit}$  EFS and maximum tune up output P<sub>max</sub> levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of LTE TDD modulation schemes.
4. For GSM bands,  $P_{limit}$  was calculated according to frame-average output power.
5.  $P_{limit}(DSI=0)$  was determined to be the lower of “Body-worn” and “Product Specific 10-g at Max power” in each WWAN Bands.
6. Some band’s DSIs were determined more conservative  $P_{limit}$  instead of calculation  $P_{limit}$  in Section.7.

## 7. SAR Test results for $P_{limit}$ calculations

### Head exposure (DSI = 2)

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Head	2	GSM 850	Main.1	GPRS	251	0	Left Touch	25.97	0.295	31.27	30.54
						0	Left Tilt	25.97	0.163	33.85	
						0	Right Touch	25.97	0.349	30.54	
						0	Right Tilt	25.97	0.196	33.05	
Head	2	GSM 1900	Main.2	GPRS	810	0	Left Touch	22.49	0.122	31.63	31.63
						0	Left Tilt	22.49	0.063	34.50	
						0	Right Touch	22.49	0.106	32.24	
						0	Right Tilt	22.49	0.057	34.93	
Head	2	WCDMA Band II	Main.2	Rel.99	9400	0	Left Touch	24.17	0.166	31.97	31.77
						0	Left Tilt	24.17	0.095	34.40	
						0	Right Touch	24.17	0.174	31.77	
						0	Right Tilt	24.17	0.087	34.78	
Head	2	WCDMA Band IV	Main.2	Rel.99	1413	0	Left Touch	22.80	0.119	32.05	31.80
						0	Left Tilt	22.80	0.097	32.93	
						0	Right Touch	22.80	0.126	31.80	
						0	Right Tilt	22.80	0.097	32.93	
Head	2	WCDMA Band V	Main.1	Rel.99	4183	0	Left Touch	24.53	0.227	30.97	30.30
						0	Left Tilt	24.53	0.120	33.74	
						0	Right Touch	24.53	0.265	30.30	
						0	Right Tilt	24.53	0.143	32.97	
Head	2	LTE Band 7	Main.2	QPSK BW=20 RB 1/0	21100	0	Left Touch	22.15	0.278	27.71	27.71
						0	Left Tilt	22.15	0.076	33.34	
						0	Right Touch	22.15	0.166	29.95	
						0	Right Tilt	22.15	0.159	30.14	
Head	2	LTE Band 12	Main.1	QPSK BW=10 RB 1/49	23095	0	Left Touch	24.78	0.185	32.11	32.08
						0	Left Tilt	24.78	0.092	35.14	
						0	Right Touch	24.78	0.186	32.08	
						0	Right Tilt	24.78	0.089	35.29	
Head	2	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	0	Left Touch	24.49	0.195	31.59	30.91
						0	Left Tilt	24.49	0.097	34.62	
						0	Right Touch	24.49	0.228	30.91	
						0	Right Tilt	24.49	0.097	34.62	
Head	2	LTE Band 14	Main.1	QPSK BW=10 RB 1/25	23330	0	Left Touch	24.52	0.146	32.88	31.28
						0	Left Tilt	24.52	0.088	35.08	
						0	Right Touch	24.52	0.211	31.28	
						0	Right Tilt	24.52	0.126	33.52	
Head	2	LTE Band 25/2	Main.2	QPSK BW=20 RB 1/99	26365	0	Left Touch	24.25	0.158	32.26	32.26
						0	Left Tilt	24.25	0.102	34.16	
						0	Right Touch	24.25	0.126	33.25	
						0	Right Tilt	24.25	0.088	34.81	

#### Notes:

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative  $P_{limit}$  instead of calculation  $P_{limit}$ .

**Head exposure (DSI = 2) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Head	2	LTE Band 25/2	Sub.1	QPSK BW=20 RB 50/0	26590	0	Left Touch	18.92	0.527	21.70	21.70
						0	Left Tilt	18.92	0.432	22.57	
						0	Right Touch	18.92	0.230	25.30	
						0	Right Tilt	18.92	0.250	24.94	
Head	2	LTE Band 26/5	Main.1	QPSK BW=15 RB 1/37	26865	0	Left Touch	24.52	0.196	31.60	30.24
						0	Left Tilt	24.52	0.103	34.39	
						0	Right Touch	24.52	0.268	30.24	
						0	Right Tilt	24.52	0.132	33.32	
Head	2	LTE Band 30	Main.2	QPSK BW=10 RB 1/49	27710	0	Left Touch	23.31	0.153	31.46	31.46
						0	Left Tilt	23.31	0.058	35.67	
						0	Right Touch	23.31	0.103	33.18	
						0	Right Tilt	23.31	0.087	33.91	
Head	2	LTE Band 40	Main.2	QPSK BW=10 RB 1/0	39200	0	Left Touch	10.03	0.156	18.10	18.10
						0	Left Tilt	10.03	0.056	22.55	
						0	Right Touch	10.03	0.088	20.59	
						0	Right Tilt	10.03	0.087	20.63	
Head	2	LTE Band 66/4	Main.2	QPSK BW=20 RB 1/0	132322	0	Left Touch	22.90	0.130	31.76	31.73
						0	Left Tilt	22.90	0.093	33.21	
						0	Right Touch	22.90	0.131	31.73	
						0	Right Tilt	22.90	0.089	33.41	
Head	2	LTE Band 66/4	Sub.1	QPSK BW=20 RB 1/99	132072	0	Left Touch	20.49	0.257	26.39	26.39
						0	Left Tilt	20.49	0.211	27.25	
						0	Right Touch	20.49	0.166	28.29	
						0	Right Tilt	20.49	0.170	28.19	
Head	2	LTE Band 71	Main.1	QPSK BW=20 RB 1/0	133297	0	Left Touch	24.83	0.112	34.34	32.43
						0	Left Tilt	24.83	0.065	36.70	
						0	Right Touch	24.83	0.174	32.43	
						0	Right Tilt	24.83	0.091	35.24	
Head	2	LTE Band 41/38 PC3	Main.2	QPSK BW=20 RB 1/0	40185	0	Left Touch	22.25	0.259	28.12	28.12
						0	Left Tilt	22.25	0.077	33.39	
						0	Right Touch	22.25	0.171	29.92	
						0	Right Tilt	22.25	0.146	30.61	
Head	2	LTE Band 41 PC2	Main.2	QPSK BW=20 RB 1/0	40185	0	Left Touch	22.80	0.303	27.99	27.99
Head	2	LTE Band 48	Main.2	QPSK BW=20 RB 50/50	56207	0	Left Touch	17.62	0.050	30.63	23.10
						0	Left Tilt	17.62	0.031	32.71	
						0	Right Touch	17.62	0.283	23.10	
						0	Right Tilt	17.62	0.084	28.38	
Head	2	NR Band n5	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	167300	0	Left Touch	24.60	0.204	31.50	30.83
						0	Left Tilt	24.60	0.115	33.99	
						0	Right Touch	24.60	0.238	30.83	
						0	Right Tilt	24.60	0.131	33.43	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Head exposure (DSI = 2) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Head	2	NR Band n25/n2	Main.2	DFT-s-OFDM QPSK BW=20 RB 1/1	376500	0	Left Touch	24.49	0.190	31.70	31.70
						0	Left Tilt	24.49	0.112	34.00	
						0	Right Touch	24.49	0.168	32.24	
						0	Right Tilt	24.49	0.096	34.67	
Head	2	NR Band n30	Main.2	DFT-s-OFDM QPSK BW=10 RB 25/14	462000	0	Left Touch	23.34	0.138	31.94	31.94
						0	Left Tilt	23.34	0.050	36.35	
						0	Right Touch	23.34	0.090	33.80	
						0	Right Tilt	23.34	0.089	33.85	
Head	2	NR Band n66	Main.2	DFT-s-OFDM QPSK BW=20 RB 108/54	349000	0	Left Touch	24.13	0.191	31.32	31.32
						0	Left Tilt	24.13	0.155	32.22	
						0	Right Touch	24.13	0.181	31.55	
						0	Right Tilt	24.13	0.145	32.51	
Head	2	NR Band n70	Main.2	DFT-s-OFDM QPSK BW=15 RB 36/22	340500	0	Left Touch	22.79	0.112	32.30	31.55
						0	Left Tilt	22.79	0.082	33.64	
						0	Right Touch	22.79	0.133	31.55	
						0	Right Tilt	22.79	0.071	34.25	
Head	2	NR Band n71	Main.1	DFT-s-OFDM QPSK BW=20 RB 1/104	136100	0	Left Touch	23.30	0.090	33.76	31.23
						0	Left Tilt	23.30	0.051	36.22	
						0	Right Touch	23.30	0.161	31.23	
						0	Right Tilt	23.30	0.058	35.67	
Head	2	NR Band n41	Main.2	DFT-s-OFDM QPSK BW=100 RB 1/137	518598	0	Left Touch	19.55	0.188	26.81	26.81
						0	Left Tilt	19.55	0.057	31.99	
						0	Right Touch	19.55	0.121	28.72	
						0	Right Tilt	19.55	0.114	28.98	
Head	2	NR Band n48 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 1/1	640444	0	Left Touch	16.84	0.046	30.21	21.80
						0	Left Tilt	16.84	0.022	33.42	
						0	Right Touch	16.84	0.319	21.80	
						0	Right Tilt	16.84	0.080	27.81	
Head	2	NR Band n48 -SRS 1-	Sub.5	SRS CW	640444	0	Left Touch	9.89	0.016	27.85	26.09
						0	Left Tilt	9.89	0.024	26.09	
						0	Right Touch	9.89	0.002	37.34	
						0	Right Tilt	9.89	0.022	26.47	
Head	2	NR Band n48 -SRS 2-	Sub.2	SRS CW	642888	0	Left Touch	12.82	0.243	18.96	16.81
						0	Left Tilt	12.82	0.231	19.18	
						0	Right Touch	12.82	0.387	16.94	
						0	Right Tilt	12.82	0.399	16.81	
Head	2	NR Band n48 -SRS 3-	Main.2	SRS CW	640444	0	Left Touch	16.61	0.010	36.61	34.57
						0	Left Tilt	16.61	0.005	39.62	
						0	Right Touch	16.61	0.005	39.62	
						0	Right Tilt	16.61	0.016	34.57	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Head exposure (DSI = 2) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Head	2	NR Band n77 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 1/271	662000	0	Left Touch	16.54	0.074	27.85	22.90
						0	Left Tilt	16.54	0.020	33.53	
						0	Right Touch	16.54	0.231	22.90	
						0	Right Tilt	16.54	0.060	28.76	
Head	2	NR Band n77 -SRS 1-	Sub.5	SRS CW	662000	0	Left Touch	9.78	0.043	23.45	22.00
						0	Left Tilt	9.78	0.060	22.00	
						0	Right Touch	9.78	0.044	23.35	
						0	Right Tilt	9.78	0.029	25.16	
Head	2	NR Band n77 -SRS 2-	Sub.2	SRS CW	662000	0	Left Touch	11.38	0.161	19.31	15.58
						0	Left Tilt	11.38	0.180	18.83	
						0	Right Touch	11.38	0.336	16.12	
						0	Right Tilt	11.38	0.380	15.58	
Head	2	NR Band n77 -SRS 3-	Main.2	SRS CW	662000	0	Left Touch	16.45	0.001	46.45	46.45
						0	Left Tilt	16.45	0.001	46.45	
						0	Right Touch	16.45	0.001	46.45	
						0	Right Tilt	16.45	0.001	46.45	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Body-worn exposure (DSI = 0)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Bodyworn	0	GSM 850	Main.1	GPRS	251	15	Rear	25.97	0.466	29.29	29.29
							Front	25.97	0.234	32.28	
Bodyworn	0	GSM1900	Main.2	GPRS	810	15	Rear	22.49	0.217	29.12	29.12
							Front	22.49	0.171	30.16	
Bodyworn	0	WCDMA Band II	Main.2	Rel.99	9400	15	Rear	24.17	0.341	28.85	28.85
							Front	24.17	0.247	30.25	
Bodyworn	0	WCDMA Band IV	Main.2	Rel.99	1413	15	Rear	22.80	0.466	26.12	26.12
							Front	22.80	0.334	27.56	
Bodyworn	0	WCDMA Band V	Main.1	Rel.99	4183	15	Rear	24.53	0.290	29.90	29.90
							Front	24.53	0.211	31.29	
Bodyworn	0	LTE Band 7	Main.2	QPSK BW=20 RB 1/0	21100	15	Rear	22.15	0.642	24.08	24.08
							Front	22.15	0.465	25.48	
Bodyworn	0	LTE Band 12	Main.1	QPSK BW=10 RB 1/49	23095	15	Rear	24.78	0.270	30.47	30.47
							Front	24.78	0.183	32.16	
Bodyworn	0	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	15	Rear	24.49	0.367	28.84	28.84
							Front	24.49	0.226	30.95	
Bodyworn	0	LTE Band 14	Main.1	QPSK BW=10 RB 1/25	23330	15	Rear	24.52	0.342	29.18	29.18
							Front	24.52	0.213	31.24	
Bodyworn	0	LTE Band 25/2	Main.2	QPSK BW=20 RB 1/99	26365	15	Rear	24.25	0.316	29.25	29.25
							Front	24.25	0.224	30.75	
Bodyworn	0	LTE Band 25/2	Sub.1	QPSK BW=20 RB 1/0	26590	15	Rear	23.05	0.228	29.47	29.47
							Front	23.05	0.137	31.68	
Bodyworn	0	LTE Band 26/5	Main.1	QPSK BW=15 RB 1/37	26865	15	Rear	24.52	0.296	29.81	29.81
							Front	24.52	0.187	31.80	
Bodyworn	0	LTE Band 30	Main.2	QPSK BW=10 RB 1/49	27710	15	Rear	23.31	0.206	30.17	30.17
							Front	23.31	0.175	30.88	
Bodyworn	0	LTE Band 40	Main.2	QPSK BW=10 RB 1/0	39200	15	Rear	10.03	0.194	17.15	17.15
							Front	10.03	0.159	18.02	
Bodyworn	0	LTE Band 66/4	Main.2	QPSK BW=20 RB 1/0	132322	15	Rear	22.90	0.491	25.99	25.99
							Front	22.90	0.425	26.62	
Bodyworn	0	LTE Band 66/4	Sub.1	QPSK BW=20 RB 1/99	132072	15	Rear	23.04	0.097	33.17	33.17
							Front	23.04	0.062	35.12	
Bodyworn	0	LTE Band 71	Main.1	QPSK BW=20 RB 1/0	133297	15	Rear	24.83	0.273	30.47	30.47
							Front	24.83	0.154	32.96	
Bodyworn	0	LTE Band 41/38 PC3	Main.2	QPSK BW=20 RB 1/0	40185	15	Rear	22.25	0.419	26.03	26.03
							Front	22.25	0.323	27.16	
Bodyworn	0	LTE Band 41 PC2	Main.2	QPSK BW=20 RB 1/0	40185	15	Rear	22.80	0.443	26.34	26.34
Bodyworn	0	LTE Band 48	Main.2	QPSK BW=20 RB 1/0	56207	15	Rear	17.49	0.215	24.17	24.17
							Front	17.49	0.033	32.30	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Body-worn exposure (DSI = 0) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Bodyworn	0	NR Band n5	Main.1	DFT-s-OFDM QPSK BW=20 RB 1/53	167300	15	Rear	24.66	0.346	29.27	29.27
							Front	24.66	0.178	32.16	
Bodyworn	0	NR Band n25/n2	Main.2	DFT-s-OFDM QPSK BW=20 RB 1/1	376500	15	Rear	24.49	0.413	28.33	28.33
							Front	24.49	0.314	29.52	
Bodyworn	0	NR Band n30	Main.2	DFT-s-OFDM QPSK BW=10 RB 1/26	462000	15	Rear	23.34	0.193	30.48	30.48
							Front	23.34	0.164	31.19	
Bodyworn	0	NR Band n66	Main.2	DFT-s-OFDM QPSK BW=20 RB 1/108	349000	15	Rear	24.27	0.320	29.22	29.22
							Front	24.27	0.315	29.29	
Bodyworn	0	NR Band n70	Main.2	DFT-s-OFDM QPSK BW=15 RB 1/77	340500	15	Rear	22.83	0.302	28.03	28.03
							Front	22.83	0.246	28.92	
Bodyworn	0	NR Band n71	Main.1	DFT-s-OFDM QPSK BW=20 RB 1/104	136100	15	Rear	23.30	0.236	29.57	29.57
							Front	23.30	0.122	32.44	
Bodyworn	0	NR Band n41	Main.2	DFT-s-OFDM QPSK BW=100	518598	15	Rear	19.55	0.230	25.93	25.93
							Front	19.55	0.151	27.76	
Bodyworn	0	NR Band n48 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 50/0	640444	15	Rear	16.62	0.300	21.85	21.85
							Front	16.62	0.047	29.90	
Bodyworn	0	NR Band n48 -SRS 1-	Sub.5	SRS CW	640444	15	Rear	9.89	0.011	29.48	29.48
							Front	9.89	0.001	39.89	
Bodyworn	0	NR Band n48 -SRS 2-	Sub.2	SRS CW	642888	15	Rear	12.82	0.046	26.19	26.19
							Front	12.82	0.046	26.19	
Bodyworn	0	NR Band n48 -SRS 3-	Main.2	SRS CW	640444	15	Rear	16.61	0.061	28.76	28.76
							Front	16.61	0.013	35.47	
Bodyworn	0	NR Band n77 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 1/271	662000	15	Rear	16.54	0.177	24.06	24.06
							Front	16.54	0.030	31.77	
Bodyworn	0	NR Band n77 -SRS 1-	Sub.5	SRS CW	662000	15	Rear	9.38	0.014	27.92	27.92
							Front	9.38	0.006	31.60	
Bodyworn	0	NR Band n77 -SRS 2-	Sub.2	SRS CW	662000	15	Rear	11.38	0.054	24.06	24.06
							Front	11.38	0.054	24.06	
Bodyworn	0	NR Band n77 -SRS 3-	Main.2	SRS CW	662000	15	Rear	16.45	0.101	26.41	26.41
							Front	16.45	0.011	36.04	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.



**Hotspot exposure (DSI = 3)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Hotspot	3	GSM 850	Main.1	GPRS	251	10	Rear	25.97	0.975	26.08	26.08
						10	Front	25.97	0.225	32.45	
						10	Edge 2	25.97	0.404	29.91	
						10	Edge 3	25.97	0.476	29.20	
						10	Edge 4	25.97	0.194	33.09	
Hotspot	3	GSM 1900	Main.2	GPRS	661	10	Rear	17.87	0.161	25.80	25.80
						10	Front	17.87	0.094	28.14	
						10	Edge 3	17.87	0.117	27.19	
						10	Edge 4	17.87	0.069	29.48	
Hotspot	3	WCDMA Band II	Main.2	Rel.99	9400	10	Rear	21.20	0.306	26.35	26.14
						10	Front	21.20	0.238	27.44	
						10	Edge 3	21.20	0.321	26.14	
						10	Edge 4	21.20	0.148	29.50	
Hotspot	3	WCDMA Band IV	Main.2	Rel.99	1413	10	Rear	20.71	0.355	25.20	25.20
						10	Front	20.71	0.281	26.22	
						10	Edge 3	20.71	0.329	25.53	
						10	Edge 4	20.71	0.186	28.01	
Hotspot	3	WCDMA Band V	Main.1	Rel.99	4183	10	Rear	24.53	0.661	26.33	26.33
						10	Front	24.53	0.199	31.54	
						10	Edge 2	24.53	0.378	28.75	
						10	Edge 3	24.53	0.370	28.85	
						10	Edge 4	24.53	0.182	31.93	
Hotspot	3	LTE Band 7	Main.2	QPSK BW=20 RB 1/0	21100	10	Rear	20.77	0.579	23.14	23.14
						10	Front	20.77	0.397	24.78	
						10	Edge 3	20.77	0.500	23.78	
						10	Edge 4	20.77	0.257	26.67	
						10	Rear	24.78	0.549	27.38	
Hotspot	3	LTE Band 12	Main.1	QPSK BW=10 RB 1/49	23095	10	Front	24.78	0.163	32.66	27.38
						10	Edge 2	24.78	0.275	30.39	
						10	Edge 3	24.78	0.239	31.00	
						10	Edge 4	24.78	0.152	32.96	
						10	Rear	24.49	0.539	27.17	
Hotspot	3	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	10	Front	24.49	0.206	31.35	27.17
						10	Edge 2	24.49	0.377	28.73	
						10	Edge 3	24.49	0.251	30.49	
						10	Edge 4	24.49	0.194	31.61	
						10	Rear	24.52	0.560	27.04	
Hotspot	3	LTE Band 14	Main.1	QPSK BW=10 RB 1/25	23330	10	Front	24.52	0.177	32.04	27.04
						10	Edge 2	24.52	0.366	28.89	
						10	Edge 3	24.52	0.253	30.49	
						10	Edge 4	24.52	0.189	31.76	
						10	Rear	21.38	0.315	26.40	
Hotspot	3	LTE Band 25/2	Main.2	QPSK BW=20 RB 50/50	26365	10	Front	21.38	0.230	27.76	26.40
						10	Edge 3	21.38	0.280	26.91	
						10	Edge 4	21.38	0.156	29.45	
						10	Rear	23.05	0.432	26.70	
Hotspot	3	LTE Band 25/2	Sub.1	QPSK BW=20 RB 1/0	26590	10	Front	23.05	0.248	29.11	26.70
						10	Edge 1	23.05	0.384	27.21	
						10	Edge 2	23.05	0.118	32.33	
						10	Rear	24.52	0.684	26.17	
Hotspot	3	LTE Band 26/5	Main.1	QPSK BW=15 RB 1/37	26865	10	Front	24.52	0.170	32.22	26.17
						10	Edge 2	24.52	0.284	29.99	
						10	Edge 3	24.52	0.360	28.96	
						10	Edge 4	24.52	0.133	33.28	
Hotspot	3	LTE Band 30	Main.2	QPSK BW=10 RB 25/25	27710	10	Rear	20.05	0.181	27.47	27.47
						10	Front	20.05	0.132	28.84	
						10	Edge 3	20.05	0.179	27.52	
						10	Edge 4	20.05	0.109	29.68	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Hotspot exposure (DSI = 3) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Hotspot	3	LTE Band 40	Main.2	QPSK BW=10 RB 25/0	39200	10	Rear	10.03	0.036	24.47	24.47
						10	Front	10.03	0.025	26.05	
						10	Edge 3	10.03	0.032	24.98	
						10	Edge 4	10.03	0.026	25.88	
Hotspot	3	LTE Band 66/4	Main.2	QPSK BW=20 RB 1/0	132322	10	Rear	20.98	0.291	26.34	26.02
						10	Front	20.98	0.232	27.33	
						10	Edge 3	20.98	0.313	26.02	
						10	Edge 4	20.98	0.189	28.22	
Hotspot	3	LTE Band 66/4	Sub.1	QPSK BW=20 RB 1/99	132072	10	Rear	23.04	0.259	28.91	28.91
						10	Front	23.04	0.131	31.87	
						10	Edge 1	23.04	0.190	30.25	
						10	Edge 2	23.04	0.056	35.56	
Hotspot	3	LTE Band 71	Main.1	QPSK BW=20 RB 1/0	133297	10	Rear	24.83	0.472	28.09	28.09
						10	Front	24.83	0.141	33.34	
						10	Edge 2	24.83	0.227	31.27	
						10	Edge 3	24.83	0.170	32.53	
Hotspot	3	LTE Band 41 PC3	Main.2	QPSK BW=20 RB 50/0	40185	10	Rear	19.65	0.594	21.91	21.91
						10	Front	19.65	0.385	23.80	
						10	Edge 3	19.65	0.418	23.44	
						10	Edge 4	19.65	0.203	26.58	
Hotspot	3	LTE Band 41 PC2	Main.2	QPSK BW=20 RB 50/0	40185	10	Rear	20.50	0.536	23.21	23.21
Hotspot	3	LTE Band 48	Main.2	QPSK BW=20 RB 1/0	56207	10	Rear	17.49	0.533	20.22	20.22
						10	Front	17.49	0.074	28.80	
						10	Edge 3	17.49	0.012	36.70	
						10	Edge 4	17.49	0.272	23.14	
Hotspot	3	NR Band n5	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	167300	10	Rear	24.60	0.706	26.11	26.11
						10	Front	24.60	0.173	32.22	
						10	Edge 2	24.60	0.257	30.50	
						10	Edge 3	24.60	0.362	29.01	
Hotspot	3	NR Band n25/n2	Main.2	DFT-s-OFDM QPSK BW=20 RB 1/1	376500	10	Rear	21.15	0.414	24.98	24.98
						10	Front	21.15	0.258	27.04	
						10	Edge 3	21.15	0.360	25.59	
						10	Edge 4	21.15	0.164	29.00	
Hotspot	3	NR Band n30	Main.2	DFT-s-OFDM QPSK BW=10 RB 25/14	462000	10	Rear	20.36	0.193	27.50	27.50
						10	Front	20.36	0.125	29.39	
						10	Edge 3	20.36	0.147	28.69	
						10	Edge 4	20.36	0.093	30.68	
Hotspot	3	NR Band n66	Main.2	DFT-s-OFDM QPSK BW=20 RB 108/54	349000	10	Rear	21.83	0.369	26.16	26.16
						10	Front	21.83	0.344	26.46	
						10	Edge 3	21.83	0.327	26.68	
						10	Edge 4	21.83	0.255	27.76	
Hotspot	3	NR Band n70	Main.2	DFT-s-OFDM QPSK BW=15 RB 1/77	340500	10	Rear	20.63	0.274	26.25	26.25
						10	Front	20.63	0.236	26.90	
						10	Edge 3	20.63	0.228	27.05	
						10	Edge 4	20.63	0.158	28.64	
Hotspot	3	NR Band n71	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	136100	10	Rear	23.20	0.403	27.15	27.15
						10	Front	23.20	0.121	32.37	
						10	Edge 2	23.20	0.228	29.62	
						10	Edge 3	23.20	0.143	31.65	
						10	Edge 4	23.20	0.121	32.37	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Hotspot exposure (DSI = 3) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Hotspot	3	NR Band n41	Main.2	DFT-s-OFDM QPSK BW=100 RB 135/69	518598	10	Rear	17.57	0.320	22.52	22.52
						10	Front	17.57	0.193	24.71	
						10	Edge 3	17.57	0.202	24.52	
						10	Edge 4	17.57	0.130	26.43	
Hotspot	3	NR Band n48 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 50/0	640444	10	Rear	16.62	0.735	17.96	17.96
						10	Front	16.62	0.083	27.43	
						10	Edge 3	16.62	0.044	30.19	
						10	Edge 4	16.62	0.476	19.84	
Hotspot	3	NR Band n48 -SRS 1-	Sub.5	SRS CW	640444	10	Rear	9.89	0.023	26.27	26.27
						10	Front	9.89	0.004	33.87	
						10	Edge 3	9.89	0.021	26.67	
						10	Edge 4	9.89	0.007	31.44	
Hotspot	3	NR Band n48 -SRS 2-	Sub.2	SRS CW	640444	10	Rear	12.82	0.116	22.18	22.18
						10	Front	12.82	0.091	23.23	
						10	Edge 1	12.82	0.114	22.25	
						10	Edge 4	12.82	0.029	28.20	
Hotspot	3	NR Band n48 -SRS 3-	Main.2	SRS CW	640444	10	Rear	16.61	0.197	23.67	23.67
						10	Front	16.61	0.036	31.05	
						10	Edge 3	16.61	0.070	28.16	
						10	Edge 4	16.61	0.028	32.14	
Hotspot	3	NR Band n77 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 50/28	662000	10	Rear	16.54	0.441	20.10	20.10
						10	Front	16.54	0.058	28.91	
						10	Edge 3	16.54	0.027	32.23	
						10	Edge 4	16.54	0.272	22.19	
Hotspot	3	NR Band n77 -SRS 1-	Sub.5	SRS CW	662000	10	Rear	9.78	0.040	23.76	23.76
						10	Front	9.78	0.011	29.37	
						10	Edge 3	9.78	0.032	24.73	
						10	Edge 4	9.78	0.001	39.78	
Hotspot	3	NR Band n77 -SRS 2-	Sub.2	SRS CW	662000	10	Rear	11.38	0.101	21.34	20.93
						10	Front	11.38	0.075	22.63	
						10	Edge 3	11.38	0.111	20.93	
						10	Edge 4	11.38	0.034	26.07	
Hotspot	3	NR Band n77 -SRS 3-	Main.2	SRS CW	662000	10	Rear	16.45	0.177	23.97	23.97
						10	Front	16.45	0.018	33.90	
						10	Edge 3	16.45	0.080	27.42	
						10	Edge 4	16.45	0.031	31.54	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Product Specific 10-g without triggering sensor (DSI = 0)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Product Specific-10g (Sensor Off)	0	GSM 850	Main.1	GPRS	251	13	Rear	25.97	0.341	34.62	32.32
						0	Front	25.97	0.552	32.53	
						0	Edge 2	25.97	0.580	32.32	
						7	Edge 3	25.97	0.351	34.50	
						6	Edge 4	25.97	0.133	38.71	
Product Specific-10g (Sensor Off)	0	GSM 1900	Main.2	GPRS	810	13	Rear	22.49	0.166	34.27	26.22
						0	Front	22.49	1.060	26.22	
						7	Edge 3	22.49	0.412	30.32	
						6	Edge 4	22.49	0.213	33.19	
Product Specific-10g (Sensor Off)	0	WCDMA Band II	Main.2	Rel.99	9400	13	Rear	24.17	0.276	33.74	25.53
						0	Front	24.17	1.830	25.53	
						7	Edge 3	24.17	0.530	30.91	
						6	Edge 4	24.17	0.332	32.94	
Product Specific-10g (Sensor Off)	0	WCDMA Band IV	Main.2	Rel.99	1413	13	Rear	22.80	0.200	33.77	25.57
						0	Front	22.80	1.320	25.57	
						7	Edge 3	22.80	0.413	30.62	
						6	Edge 4	22.80	0.317	31.77	
Product Specific-10g (Sensor Off)	0	WCDMA Band V	Main.1	Rel.99	4183	13	Rear	24.53	0.271	34.18	32.21
						0	Front	24.53	0.419	32.29	
						0	Edge 2	24.53	0.426	32.21	
						7	Edge 3	24.53	0.331	33.31	
						6	Edge 4	24.53	0.109	38.13	
Product Specific-10g (Sensor Off)	0	LTE Band 7	Main.2	QPSK BW=20 RB 1/0	21100	13	Rear	22.15	0.258	32.02	23.44
						0	Front	22.15	1.860	23.44	
						7	Edge 3	22.15	0.510	29.06	
						6	Edge 4	22.15	0.482	29.30	
						13	Rear	24.78	0.211	35.52	
Product Specific-10g (Sensor Off)	0	LTE Band 12	Main.1	QPSK BW=10 RB 1/49	23095	13	Rear	24.78	0.289	34.15	32.01
						0	Front	24.78	0.473	32.01	
						7	Edge 3	24.78	0.188	36.02	
						6	Edge 4	24.78	0.128	37.69	
						13	Rear	24.49	0.197	35.52	
Product Specific-10g (Sensor Off)	0	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	13	Rear	24.49	0.341	33.14	31.14
						0	Front	24.49	0.541	31.14	
						7	Edge 3	24.49	0.213	35.19	
						6	Edge 4	24.49	0.159	36.46	
						13	Rear	23.51	0.173	35.11	
Product Specific-10g (Sensor Off)	0	LTE Band 14	Main.1	QPSK BW=10 RB 1/25	23330	0	Front	24.52	0.314	33.53	33.30
						0	Edge 2	24.52	0.331	33.30	
						7	Edge 3	24.52	0.218	35.11	
						6	Edge 4	24.52	0.136	37.16	
						13	Rear	24.25	0.230	34.61	
Product Specific-10g (Sensor Off)	0	LTE Band 25/2	Main.2	QPSK BW=20 RB 1/99	26365	0	Front	24.25	1.990	25.24	25.24
						7	Edge 3	24.25	0.729	29.60	
						6	Edge 4	24.25	0.146	36.59	
						0	Rear	23.05	1.520	25.21	
Product Specific-10g (Sensor Off)	0	LTE Band 25/2	Sub.1	QPSK BW=20 RB 1/0	26590	0	Front	23.05	0.861	27.68	25.21
						0	Edge 2	23.05	1.170	26.35	
						0	Edge 3	23.05	0.329	31.86	
						13	Rear	24.52	0.293	33.83	
Product Specific-10g (Sensor Off)	0	LTE Band 26/5	Main.1	QPSK BW=15 RB 1/37	26865	0	Front	24.52	0.416	32.31	31.71
						0	Edge 2	24.52	0.478	31.71	
						7	Edge 3	24.52	0.280	34.03	
						6	Edge 4	24.52	0.124	37.57	
						13	Rear	23.31	0.152	35.47	
Product Specific-10g (Sensor Off)	0	LTE Band 30	Main.2	QPSK BW=10 RB 1/49	27710	0	Front	23.31	0.942	27.55	27.55
						7	Edge 3	23.31	0.419	31.06	
						6	Edge 4	23.31	0.209	34.08	
						13	Rear	23.31	0.152	35.47	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Product Specific 10-g without triggering sensor (DSI = 0) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Product Specific-10g (Sensor Off)	0	LTE Band 40	Main.2	QPSK BW=10 RB 1/0	39200	13	Rear	12.03	0.139	24.58	21.81
						0	Front	12.03	0.104	25.84	
						7	Edge 3	12.03	0.263	21.81	
						6	Edge 4	12.03	0.186	23.31	
Product Specific-10g (Sensor Off)	0	LTE Band 66/4	Main.2	QPSK BW=20 RB 1/0	132322	13	Rear	22.90	0.182	34.28	30.00
						0	Front	22.90	0.140	35.42	
						7	Edge 3	22.90	0.488	30.00	
						6	Edge 4	22.90	0.362	31.29	
Product Specific-10g (Sensor Off)	0	LTE Band 66/4	Sub.1	QPSK BW=20 RB 1/99	132072	0	Rear	23.04	1.010	26.98	26.98
						0	Front	23.04	0.523	29.83	
						0	Edge 1	23.04	0.944	27.27	
						0	Edge 2	23.04	0.165	34.84	
Product Specific-10g (Sensor Off)	0	LTE Band 71	Main.1	QPSK BW=20 RB 1/0	133297	13	Rear	24.83	0.196	35.89	32.39
						0	Front	24.83	0.234	35.12	
						0	Edge 2	24.83	0.439	32.39	
						7	Edge 3	24.83	0.135	37.51	
Product Specific-10g (Sensor Off)	0	LTE Band 41/38 PC3	Main.2	QPSK BW=20 RB 1/0	40185	13	Rear	22.25	0.226	32.69	22.84
						0	Front	22.25	2.180	22.84	
						7	Edge 3	22.25	0.484	29.38	
						6	Edge 4	22.25	0.255	32.16	
Product Specific-10g (Sensor Off)	0	LTE Band 41 PC2	Main.2	QPSK BW=20 RB 1/0	40185	0	Front	22.80	1.850	24.11	24.11
Product Specific-10g (Sensor Off)	0	LTE Band 48	Main.2	QPSK BW=20 RB 1/0	56207	0	Rear	17.49	1.480	19.77	19.77
						0	Front	17.49	0.151	29.68	
						0	Edge 1	17.49	0.072	32.90	
						0	Edge 4	17.49	0.661	23.27	
Product Specific-10g (Sensor Off)	0	NR Band n5	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	167300	13	Rear	24.60	0.273	34.22	31.50
						0	Front	24.60	0.411	32.44	
						0	Edge 2	24.60	0.510	31.50	
						7	Edge 3	24.60	0.248	34.63	
Product Specific-10g (Sensor Off)	0	NR Band n25/n2	Main.2	QPSK BW=20 RB 1/1	376500	13	Rear	24.49	0.308	33.58	24.91
						0	Front	24.49	2.270	24.91	
						7	Edge 3	24.49	0.644	30.38	
						6	Edge 4	24.49	0.282	33.97	
Product Specific-10g (Sensor Off)	0	NR Band n30	Main.2	QPSK BW=10 RB 25/14	462000	13	Rear	23.34	0.140	35.86	27.15
						0	Front	23.34	1.040	27.15	
						7	Edge 3	23.34	0.267	33.05	
						6	Edge 4	23.34	0.231	33.68	
Product Specific-10g (Sensor Off)	0	NR Band n66	Main.2	QPSK BW=20 RB 1/108	349000	13	Rear	24.27	0.337	32.98	24.47
						0	Front	24.27	2.390	24.47	
						7	Edge 3	24.27	0.611	30.39	
						6	Edge 4	24.27	0.304	33.43	
Product Specific-10g (Sensor Off)	0	NR Band n70	Main.2	QPSK BW=15 RB 1/77	340500	13	Rear	22.83	0.217	33.44	24.61
						0	Front	22.83	1.660	24.61	
						7	Edge 3	22.83	0.444	30.34	
						6	Edge 4	22.83	0.192	33.98	
Product Specific-10g (Sensor Off)	0	NR Band n71	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	136100	13	Rear	23.20	0.150	35.42	32.53
						0	Front	23.20	0.178	34.68	
						0	Edge 2	23.20	0.292	32.53	
						7	Edge 3	23.20	0.121	36.35	
Product Specific-10g (Sensor Off)	0	NR Band n41	Main.2	DFT-s-OFDM QPSK BW=20 RB 1/137	518598	13	Rear	19.55	0.176	31.07	23.56
						0	Front	19.55	0.992	23.56	
						7	Edge 3	19.55	0.251	29.53	
						6	Edge 4	19.55	0.143	31.98	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Product Specific 10-g without triggering sensor (DSI = 0) (Continued)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Product Specific-10g (Sensor Off)	0	NR Band n48 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 1/1	640444	0	Rear	16.84	1.440	19.24	19.24
						0	Front	16.84	0.198	27.85	
						0	Edge 1	16.84	0.058	33.19	
						0	Edge 4	16.84	1.050	20.61	
Product Specific-10g (Sensor Off)	0	NR Band n48 -SRS 1-	Sub.5	SRS CW	640444	0	Rear	9.89	0.004	37.85	37.85
Product Specific-10g (Sensor Off)	0	NR Band n48 -SRS 2-	Sub.2	SRS CW	640444	0	Rear	16.93	0.215	27.59	27.59
Product Specific-10g (Sensor Off)	0	NR Band n48 -SRS 3-	Main.2	SRS CW	640444	0	Rear	16.61	1.250	19.62	19.62
Product Specific-10g (Sensor Off)	0	NR Band n77 -SRS 0-	Sub.3	DFT-s-OFDM QPSK BW=20 RB 1/271	662000	0	Rear	16.48	0.990	20.50	20.50
						0	Front	16.54	0.130	29.38	
						0	Edge 1	16.54	0.036	34.96	
						0	Edge 4	16.54	0.703	22.05	
Product Specific-10g (Sensor Off)	0	NR Band n77 -SRS 1-	Sub.5	SRS CW	662000	0	Rear	9.78	0.077	24.89	24.89
Product Specific-10g (Sensor Off)	0	NR Band n77 -SRS 2-	Sub.2	SRS CW	662000	0	Edge 1	11.38	0.189	22.59	22.59
Product Specific-10g (Sensor Off)	0	NR Band n77 -SRS 3-	Main.2	SRS CW	662000	0	Rear	16.45	1.340	19.16	19.16

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Product Specific 10-g with triggering sensor (DSI = 1&4)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Product Specific-10g (Sensor Off)	1, 4	GSM 850	Main.1	GPRS	251	0	Rear	25.97	0.795	30.95	29.62
						0	Edge 3	25.97	1.080	29.62	
						0	Edge 4	25.97	0.144	38.37	
Product Specific-10g (Sensor Off)	1, 4	GSM 1900	Main.2	GPRS	661	0	Rear	18.09	0.597	24.31	24.31
						0	Edge 3	18.09	0.274	27.70	
						0	Edge 4	18.09	0.236	28.34	
Product Specific-10g (Sensor Off)	1, 4	WCDMA Band II	Main.2	Rel.99	9400	0	Rear	21.20	1.920	22.35	22.35
						0	Edge 3	21.20	0.714	26.65	
						0	Edge 4	21.20	0.635	27.16	
Product Specific-10g (Sensor Off)	1, 4	WCDMA Band IV	Main.2	Rel.99	1413	0	Rear	20.70	1.670	22.45	22.45
						0	Edge 3	20.70	0.989	24.72	
						0	Edge 4	20.70	0.136	33.34	
Product Specific-10g (Sensor Off)	1, 4	WCDMA Band V	Main.1	Rel.99	4183	0	Rear	24.53	0.773	29.63	28.25
						0	Edge 3	24.53	1.060	28.25	
						0	Edge 4	24.53	0.078	39.59	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 7	Main.2	QPSK BW=20 RB 1/0	21100	0	Rear	20.74	2.350	21.01	21.01
						0	Edge 3	20.74	1.550	22.82	
						0	Edge 4	20.74	1.210	23.89	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 12	Main.1	QPSK BW=10 RB 1/49	23095	0	Rear	24.78	0.822	29.61	29.61
						0	Edge 3	24.78	0.603	30.96	
						0	Edge 4	24.78	0.106	38.51	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	0	Rear	24.49	0.933	28.77	28.77
						0	Edge 3	24.49	0.731	29.83	
						0	Edge 4	24.49	0.112	37.98	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 14	Main.1	RB 25/25	23330	0	Rear	23.51	0.619	29.57	29.57
				QPSK BW=10 RB 1/25	0	Edge 3	24.52	0.682	30.16		
					0	Edge 4	24.52	0.106	38.25		
Product Specific-10g (Sensor Off)	1, 4	LTE Band 25/2	Main.2	QPSK BW=20 RB 1/99	26365	0	Rear	21.28	1.690	22.98	22.98
						0	Edge 3	21.28	0.720	26.69	
						0	Edge 4	21.28	0.645	27.16	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 25/2	Sub.1	QPSK BW=20 RB 1/0	26590	0	Rear	23.05	1.520	25.21	25.21
						0	Front	23.05	0.861	27.68	
						0	Edge 1	23.05	1.170	26.35	
						0	Edge 2	23.05	0.329	31.86	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 26/5	Main.1	QPSK BW=15 RB 1/37	26865	0	Rear	24.52	0.837	29.27	28.59
						0	Edge 3	24.52	0.980	28.59	
						0	Edge 4	24.52	0.111	38.05	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 30	Main.2	QPSK BW=20 RB 25/25	27710	0	Rear	20.03	1.570	22.05	22.05
						0	Edge 3	20.03	0.602	26.21	
						0	Edge 4	20.03	0.760	25.20	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 40	Main.2	QPSK BW=10 RB 1/0	39200	0	Rear	12.03	0.322	20.93	20.93
						0	Edge 3	12.03	0.102	25.92	
						0	Edge 4	12.03	0.107	25.72	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 66/4	Main.2	QPSK BW=20 RB 1/0	132322	0	Rear	20.99	1.510	23.18	23.18
						0	Edge 3	20.99	0.950	25.19	
						0	Edge 4	20.99	0.529	27.73	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 66/4	Sub.1	QPSK BW=20 RB 1/99	132072	0	Rear	23.04	1.010	26.98	26.98
						0	Front	23.04	0.523	29.83	
						0	Edge 1	23.04	0.944	27.27	
						0	Edge 2	23.04	0.165	34.84	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 71	Main.1	QPSK BW=20 RB 1/0	133297	0	Rear	24.83	0.960	28.99	28.99
						0	Edge 3	24.83	0.541	31.48	
						0	Edge 4	24.83	0.083	39.62	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 41 PC3	Main.2	QPSK BW=20 RB 1/0	40185	0	Rear	19.59	1.950	20.67	20.67
						0	Edge 3	19.59	1.320	22.36	
						0	Edge 4	19.59	0.524	26.38	
Product Specific-10g (Sensor Off)	1, 4	LTE Band 41 PC2	Main.2	QPSK BW=20 RB 1/0	41490	0	Rear	20.38	1.850	21.69	21.69
Product Specific-10g (Sensor Off)	1, 4	LTE Band 48	Sub.3	QPSK BW=20 RB 1/0	56207	0	Rear	17.49	1.480	19.77	19.77
						0	Front	17.49	0.151	29.68	
						0	Edge 1	17.49	0.072	32.90	
						0	Edge 4	17.49	0.661	23.27	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**Product Specific 10-g with triggering sensor (DSI = 1&4)**

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P <sub>limit</sub> (dBm)	Minimum P <sub>limit</sub> (dBm)
Product Specific-10g (Sensor Off)	1, 4	NR Band n5	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	167300	0	Rear	24.60	0.563	31.07	28.70
						0	Edge 3	24.60	0.973	28.70	
						0	Edge 4	24.60	0.105	38.37	
Product Specific-10g (Sensor Off)	1, 4	NR Band n25/n2	Main.2	QPSK BW=20 RB 1/1	376500	0	Rear	21.18	1.580	23.17	23.17
						0	Edge 3	21.18	0.790	26.18	
						0	Edge 4	21.18	0.506	28.12	
Product Specific-10g (Sensor Off)	1, 4	NR Band n30	Main.2	QPSK BW=10 RB 25/14	462000	0	Rear	20.38	1.210	23.53	23.53
						0	Edge 3	20.38	0.404	28.30	
						0	Edge 4	20.38	0.402	28.32	
Product Specific-10g (Sensor Off)	1, 4	NR Band n66	Main.2	QPSK BW=20 RB 1/108	349000	0	Rear	21.59	1.680	23.32	23.32
						0	Edge 3	21.59	0.772	26.69	
						0	Edge 4	21.59	0.528	28.34	
Product Specific-10g (Sensor Off)	1, 4	NR Band n70	Main.2	QPSK BW=15 RB 1/77	340500	0	Rear	20.67	1.130	24.12	24.12
						0	Edge 3	20.67	0.676	26.35	
						0	Edge 4	20.67	0.383	28.82	
Product Specific-10g (Sensor Off)	1, 4	NR Band n71	Main.1	DFT-s-OFDM QPSK BW=20 RB 50/28	136100	0	Rear	23.20	0.589	29.48	29.48
						0	Edge 3	23.20	0.343	31.83	
						0	Edge 4	23.20	0.095	37.40	
Product Specific-10g (Sensor Off)	1, 4	NR Band n41	Main.2	DFT-s-OFDM QPSK BW=100	518598	0	Rear	19.55	1.150	22.92	22.92
						0	Edge 3	19.55	0.648	25.41	
						0	Edge 4	19.55	0.332	28.32	

**Notes:**

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR part.1 report.
3. Some bands were determined more conservative P<sub>limit</sub> instead of calculation P<sub>limit</sub>.

**END OF REPORT**