



**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/ax, NFC, WPT and UWB

MODEL NUMBER: SM-S916B/DS, SM-S916B

FCC ID: A3LSMS916B

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TL-637


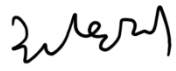
Revision History

Rev.	Date	Revisions	Revised By
V1	10/24/2022	Initial Issue	-
V2	11/2/2022	Revised items - Corrected BLE Version in Sec.6.2	Eunji Choi
V3	11/4/2022	Revised items - Corrected a typo in Sec.5	Eunji Choi

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1. Attestation of SAR Characterization

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.	
FCC ID	A3LSMS916B	
Model Number	SM-S916B/DS, SM-S916B	
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures	
Date Tested	8/31/2022 to 10/24/2022	
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.	
<p>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.</p> <p>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</p>		
Approved & Released By:		Prepared By:
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory		
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2. Introduction

The equipment under test (EUT) is SAMSUNG Smartphone (FCC ID : A3LSMS916B), 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	

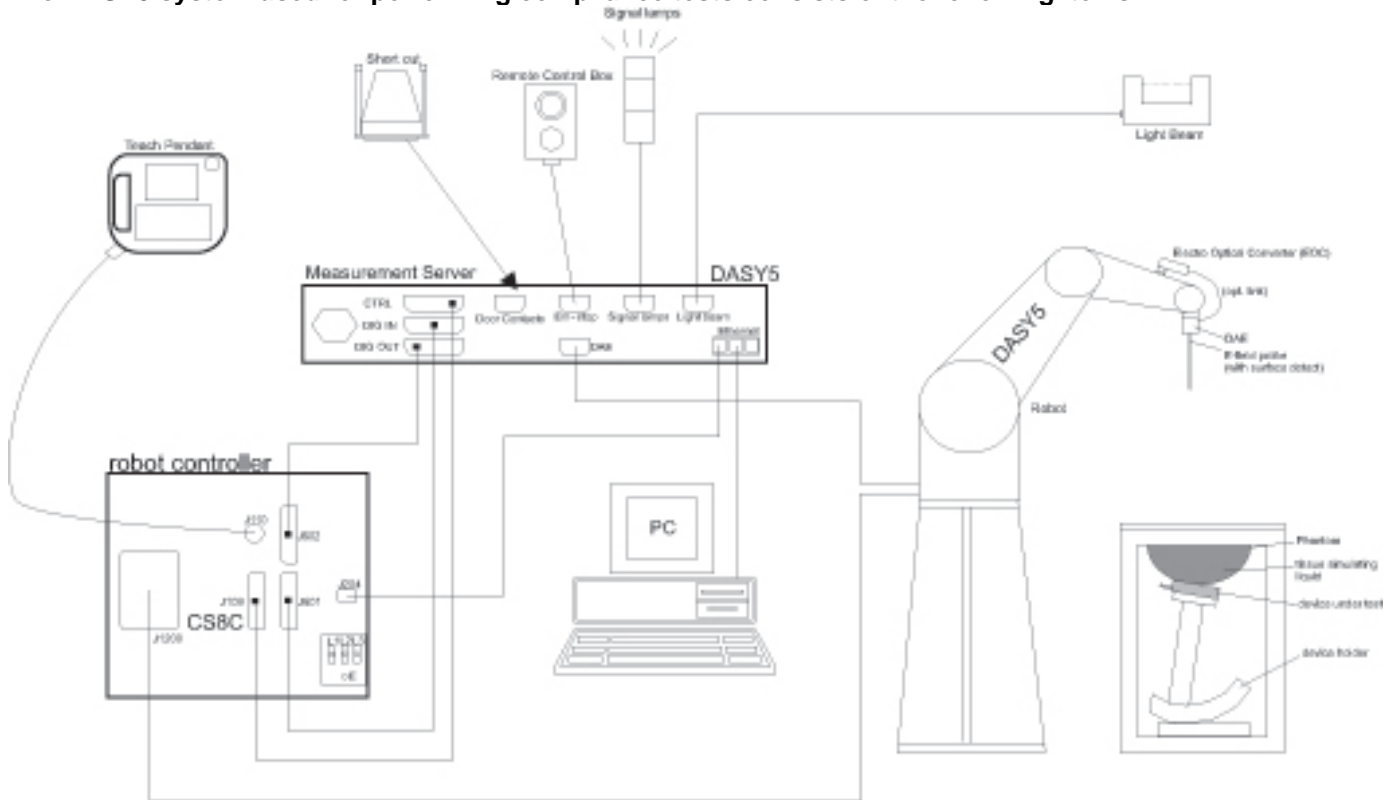
UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637.

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

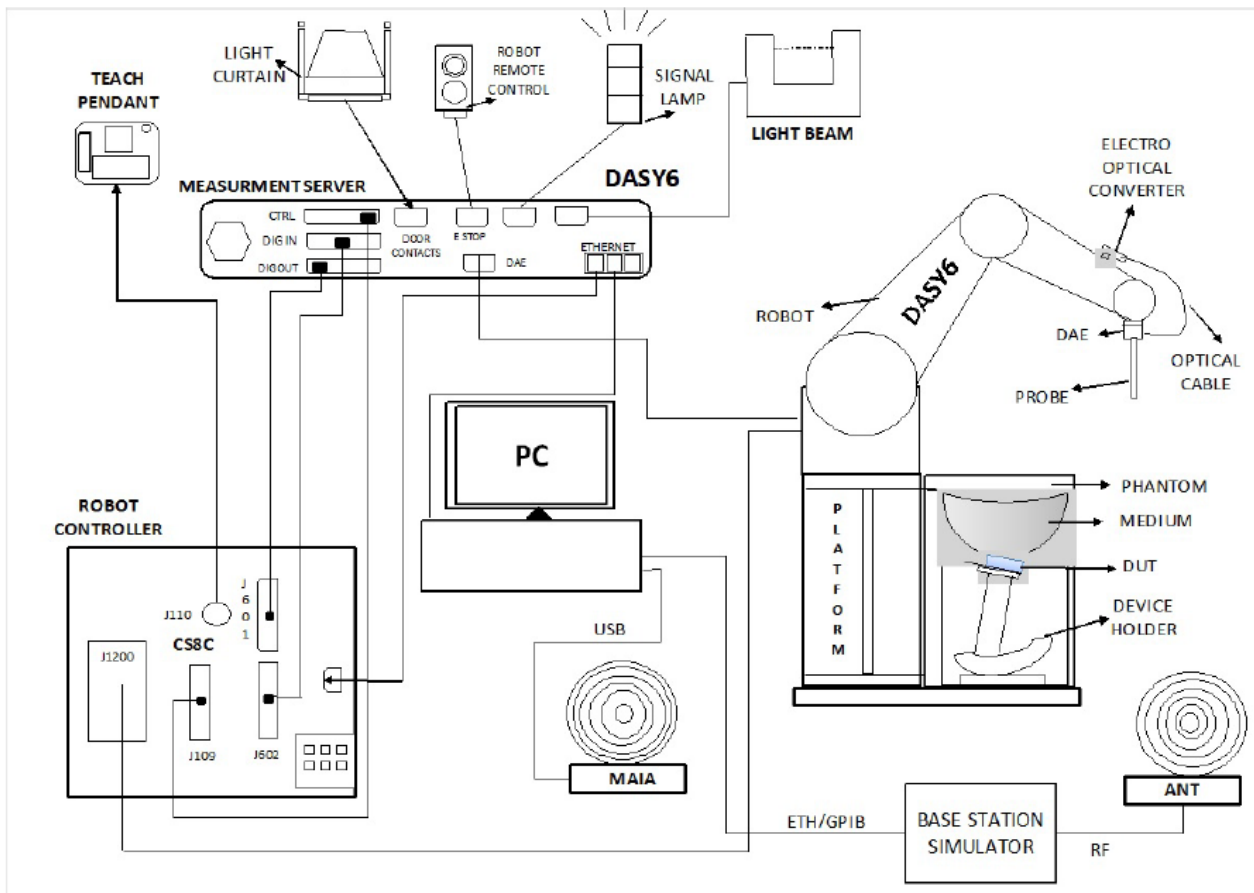
4.1. SAR Measurement System

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

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

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 st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 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: δ 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.

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-12	1158	10/20/2022
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	MINI-CIRCUITS	ZVE-3W-183+	311602009	8/4/2023
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	8/3/2023
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	4/7/2023
E-Field Probe	SPEAG	EX3DV4	7313	3/2/2023
E-Field Probe	SPEAG	EX3DV4	7314	5/31/2023
E-Field Probe	SPEAG	EX3DV4	7330	1/28/2023
E-Field Probe	SPEAG	EX3DV4	7376	7/27/2023
E-Field Probe	SPEAG	EX3DV4	7545	8/19/2023
E-Field Probe	SPEAG	EX3DV4	7651	5/30/2023
E-Field Probe	SPEAG	EX3DV4	7646	3/29/2023
Data Acquisition Electronics	SPEAG	DAE4	1343	8/18/2023
Data Acquisition Electronics	SPEAG	DAE4	1447	3/25/2023
Data Acquisition Electronics	SPEAG	DAE4	1468	8/18/2023
Data Acquisition Electronics	SPEAG	DAE4	1494	7/18/2023
Data Acquisition Electronics	SPEAG	DAE4	1591	3/24/2023
Data Acquisition Electronics	SPEAG	DAE4	1670	6/7/2023
Data Acquisition Electronics	SPEAG	DAE4	1671	5/31/2023
Data Acquisition Electronics	SPEAG	DAE4	1667	4/27/2023

Test Equipment (Continued)

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
System Validation Dipole	SPEAG	D750V3	1122	2/24/2023
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	D1900V2	5d190	11/24/2022
System Validation Dipole	SPEAG	D1900V2	5d199	3/25/2023
System Validation Dipole	SPEAG	D2450V2	960	3/24/2023
System Validation Dipole	SPEAG	D2600V2	1097	9/29/2023
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	1209	11/24/2023
System Validation Dipole	SPEAG	CLA-13	1015	8/23/2023
Thermometer	Lutron	MHB-382SD	AH.91463	8/4/2023
Thermometer	Lutron	MHB-382SD	AH.50215	8/9/2023
Thermometer	Lutron	MHB-382SD	AH.50213	8/4/2023
Thermometer	Lutron	MHB-382SD	AH.45903	8/9/2023
Thermometer	Lutron	MHB-382SD	AK.18789	8/9/2023
Thermometer	Lutron	MHB-382SD	AK.12102	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
Base Station Simulator	R & S	CMW500	169803	5/27/2023
Base Station Simulator	R & S	CMW500	169799	8/2/2023
Base Station Simulator	R & S	CMW500	169800	8/2/2023
Base Station Simulator	R & S	CMW500	169798	8/2/2023
UXM 5G Wireless Test Platform	Keysight	E7515B	MY59150850	12/13/2022
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120110	1/7/2023
UXM 5G Wireless Test Platform	Keysight	E7515B	MY57510596	8/5/2023
Radio Communication Test Station	Anritsu	MT8000A	6272466165	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

Wireless Technologies

Wireless technologies	Frequency bands	Operating mode		Duty Cycle used for SAR testing
GSM	850 1900	Voice (GMSK) GPRS (GMSK) EGPRS (8PSK)	GPRS Multi-Slot Class: <input type="checkbox"/> Class 8 - 1 Up, 4 Down <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	GSM Voice: 12.5% (E)GPRS: 1 Slot: 12.5% 2 Slots: 25% 3 Slots: 37.5% 4 Slots: 50%
	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 12 FDD Band 13 FDD Band 17 FDD Band 25 FDD Band 26 TDD Band 41 ^{Power Class 3 & 2} FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (2 Uplink and 5 Downlinks) Uplink inter-band Carrier Aggregation(2CC) CA_2A-4A, CA_4A-5A, CA_4A-12A, CA_5A-66A, CA_12A-66A		100% (FDD) 63.3% (TDD) ^{Power Class 3} 43.3% (TDD) ^{Power Class 2}
	Does this device support SV-LTE (1xRTT-LTE)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
NR (Sub6)	FDD Band n2 FDD Band n5 FDD Band n25 FDD Band n66 TDD Band n41 TDD Band n77	DFT-s-OFDM: ■ $\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: ■ QPSK, 16QAM, 64QAM, 256QAM		100%
Wi-Fi	2.4 GHz	802.11b / 802.11g 802.11n (HT20)/ 802.11ax (HE20)		98.9% (802.11b)
	5 GHz	802.11a / 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80) & (VHT160) 802.11ax (HE20) & (HE40) & (HE80) & (HE160)		96.2% (802.11a) 94.6% (802.11n (HT40)) 94.5% (802.11ac (VHT80))
	6 GHz	802.11a 802.11ax (HE20) & (HE40) & (HE80) & (HE160)		99.5% (802.11ax (HE160)) 99.3% (802.11ax (HE40))
	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 5.3 LE		76.7% (BDR/GFSK DH5) 85.2% (BLE 1 Mbps 255pkt)
NFC	13.56 MHz	Type A/B/F		N/A
UWB	6489.6 – 7987.2 MHz	Signal Configurations(0/1/3), PRF modes(BPRF, HPRF)		N/A

Notes:

- The Bluetooth protocol is considered source-based averaging.
BDR GFSK(DH5) was verified to have the highest duty cycle of 77.4% and used for Head SAR Testing.
BLE 1M 255pkt was verified to have the highest duty cycle of 85.2% and used for Body-worn & Hotspot 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.
- This device supports UL CA inter-band in LTE Band.
- NR TDD Band n41 & n77 has support SRS(0,1,2,3) modes.
- 6GHz RF Exposure report has test results of WiFi 6GHz and UWB.

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)	<i>P</i>Limit 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"> 1. Body-worn exposure SAR 2. Product Specific 10-g SAR measured at 8, 7 and 12 mm spacing for Rear, Front, Edge.3 3. Product Specific 10-g SAR measured at 0 mm for Edge1, Edge2, Edge4.
DSI = 1 or 4	1. P_{limit} is calculated based on Product Specific 10-g SAR at 0 mm for Rear, Front, Edge 3.
DSI = 2	1. P_{limit} is calculated based on Head exposure SAR
DSI = 3	1. P_{limit} is calculated based on Hotspot SAR at 10mm.

Notes:

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

Main.1 Ant

$P_{limit} = \min\{ P_{limit}$ corresponding to 1g Body worn SAR evaluation at 15 mm spacing,
 P_{limit} corresponding to Product specific 10g SAR evaluation at 8(Rear), 7(Front). 12(Edge3) mm spacing,
 P_{limit} corresponding to Product specific 10g SAR evaluation at 0 mm for Edge2 and Edge4 surfaces}

Main.2 Ant

$P_{limit} = \min\{ P_{limit}$ corresponding to 1g Body worn SAR evaluation at 15 mm spacing,
 P_{limit} corresponding to Product specific 10g SAR evaluation at 8(Rear), 7(Front). 12(Edge3) mm spacing,
 P_{limit} corresponding to Product specific 10g SAR evaluation at 0 mm for Edge4 surfaces}

Other Antennas (Main.3 / Main.4 / Sub.1 / Sub.2 / Sub.5)

$P_{limit} = \min\{ P_{limit}$ corresponding to 1g Body worn SAR evaluation at 15 mm spacing,
 P_{limit} corresponding to Product specific 10g SAR evaluation at 0 mm on all surfaces and side edges with each antenna location at within 25mm from that surface or edge.}

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 _{max} (Maximum tune-up Power) (dBm)
Spatial-average			1g	10g	10g	1g	1g	10g	
Test distance (mm)			15	8 / 7 / 0 / 12	0	0	10	0	
DSI:			0	0	1	2	3	4	
RF Air Interface	Antenna	Antenna Group	P _{limit} corresponding to 1.0 W/kg (SAR _{design_target}) (1g) / 2.5 W/kg (SAR _{design_target}) (10g)						
GSM 850	Main 1	AG0	31.33	30.02	27.25	31.05	28.57	27.25	24.98
GSM 1900	Main 1	AG0	26.21	27.75	18.99	32.25	18.99	18.99	21.98
WCDMA Band II	Main 1	AG0	24.87	26.72	21.00	31.44	18.00	21.00	23.00
WCDMA Band IV	Main 1	AG0	25.19	27.73	21.00	30.32	18.00	21.00	23.00
WCDMA Band V	Main 1	AG0	29.98	30.40	26.51	29.85	27.33	26.51	24.50
LTE Band 12(17)	Main 1	AG0	30.47	30.03	26.52	31.48	29.29	26.52	24.00
LTE Band 13	Main 1	AG0	29.28	31.33	27.29	31.26	27.03	27.29	24.00
LTE Band 5	Main 1	AG0	29.57	31.31	25.84	30.68	27.14	25.84	24.50
LTE Band 26	Main 1	AG0	29.95	31.02	26.81	30.87	27.31	26.81	24.00
LTE Band 66(4)	Main 1	AG0	24.98	26.61	20.00	31.18	19.00	20.00	23.00
LTE Band 4	Sub 2	AG1	20.00	20.00	20.00	16.50	19.00	20.00	23.00
LTE Band 25(2)	Main 1	AG0	25.83	27.05	20.00	31.69	18.00	20.00	23.00
LTE Band 41 -PC3-	Main 2	AG0	26.99	25.34	20.00	31.03	20.00	20.00	22.00
LTE Band 41 -PC2-	Main 2	AG0	28.41	25.65	20.40	30.68	20.40	20.40	21.90
NR Band n5	Main 1	AG0	29.19	31.56	26.79	31.11	26.11	26.79	24.00
NR Band n66	Main 1	AG0	24.03	26.78	20.00	30.18	19.00	20.00	23.00
NR Band n66	Sub 2	AG1	19.00	19.00	19.00	17.00	19.00	19.00	23.00
NR Band n25(n2)	Main 1	AG0	25.36	27.46	20.00	32.04	18.00	20.00	23.00
NR Band n41 -SRS0-	Sub 2	AG1	18.00	18.00	18.00	14.00	15.00	18.00	24.00
NR Band n41 -SRS1-	Main 2	AG0	15.00	15.00	15.00	12.00	12.00	15.00	21.00
NR Band n41 -SRS2-	Sub 1	AG1	15.00	15.00	15.00	12.00	12.00	15.00	19.50
NR Band n41 -SRS3-	Main 4	AG0	12.00	12.00	12.00	9.00	9.00	12.00	18.00
NR Band n77 -SRS0-	Sub 2	AG1	18.00	18.00	18.00	14.00	17.00	18.00	24.50
NR Band n77 -SRS1-	Main 3	AG1	15.00	15.00	15.00	10.00	14.00	15.00	21.50
NR Band n77 -SRS2-	Sub 5	AG1	14.00	14.00	14.00	10.00	13.00	14.00	20.50
NR Band n77 -SRS3-	Main 4	AG0	14.00	14.00	14.00	10.50	13.00	14.00	21.00

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_{max} levels entered in above Table correspond to average power levels after accounting for duty cycle in the case of TDD modulation schemes (e.g. GSM and LTE TDD).
4. 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.
5. 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	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	P_{limit} (dBm)	Minimum P_{limit} (dBm)
Head	2	GSM 850	Main 1	GPRS 2 Slots	251	0	Left Touch	25.20	0.173	32.82	31.05
						0	Left Tilt	25.20	0.104	35.03	
						0	Right Touch	25.20	0.260	31.05	
						0	Right Tilt	25.20	0.130	34.06	
Head	2	GSM 1900	Main 1	GPRS 2 Slots	661	0	Left Touch	21.50	0.084	32.25	32.25
						0	Left Tilt	21.50	0.036	35.90	
						0	Right Touch	21.50	0.046	34.90	
						0	Right Tilt	21.50	0.032	36.43	
Head	2	WCDMA Band II	Main 1	Rel 99	9400	0	Left Touch	23.11	0.147	31.44	31.44
						0	Left Tilt	23.11	0.085	33.83	
						0	Right Touch	23.11	0.076	34.32	
						0	Right Tilt	23.11	0.063	35.15	
Head	2	WCDMA Band IV	Main 1	Rel 99	1413	0	Left Touch	23.39	0.203	30.32	30.32
						0	Left Tilt	23.39	0.057	35.81	
						0	Right Touch	23.39	0.097	33.50	
						0	Right Tilt	23.39	0.084	34.16	
Head	2	WCDMA Band V	Main 1	Rel 99	4183	0	Left Touch	24.65	0.186	31.95	29.85
						0	Left Tilt	24.65	0.104	34.48	
						0	Right Touch	24.65	0.302	29.85	
						0	Right Tilt	24.65	0.142	33.13	
Head	2	LTE Band 12(17)	Main 1	QPSK BW=10 RB 1/0	23095	0	Left Touch	23.81	0.171	31.48	31.48
						0	Left Tilt	23.81	0.088	34.37	
						0	Right Touch	23.81	0.165	31.64	
						0	Right Tilt	23.81	0.076	35.00	
Head	2	LTE Band 13	Main 1	QPSK BW=10 RB 1/49	23230	0	Left Touch	23.57	0.121	32.74	31.26
						0	Left Tilt	23.57	0.075	34.81	
						0	Right Touch	23.57	0.170	31.26	
						0	Right Tilt	23.57	0.086	34.22	
Head	2	LTE Band 5	Main 1	QPSK BW=10 RB 1/0	20525	0	Left Touch	24.69	0.170	32.39	30.68
						0	Left Tilt	24.69	0.153	32.84	
						0	Right Touch	24.69	0.252	30.68	
						0	Right Tilt	24.69	0.136	33.36	
Head	2	LTE Band 26	Main 1	QPSK BW=15 RB 1/0	26865	0	Left Touch	24.13	0.143	32.58	30.87
						0	Left Tilt	24.13	0.100	34.15	
						0	Right Touch	24.13	0.212	30.87	
						0	Right Tilt	24.13	0.100	34.14	
Head	2	LTE Band 66(4)	Main 1	QPSK BW=20 RB 1/49	132322	0	Left Touch	23.08	0.155	31.18	31.18
						0	Left Tilt	23.08	0.059	35.40	
						0	Right Touch	23.08	0.130	31.94	
						0	Right Tilt	23.08	0.080	34.04	
Head	2	LTE Band 4	Sub 2	QPSK BW=20 RB 1/49	20175	0	Left Touch	17.02	0.246	23.11	19.45
						0	Left Tilt	17.02	0.427	20.72	
						0	Right Touch	17.02	0.530	19.78	
						0	Right Tilt	17.02	0.572	19.45	
Head	2	LTE Band 25(2)	Main 1	QPSK BW=20 RB 1/0	26140	0	Left Touch	22.80	0.129	31.69	31.69
						0	Left Tilt	22.80	0.062	34.84	
						0	Right Touch	22.80	0.060	34.99	
						0	Right Tilt	22.80	0.067	34.54	

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_{limit} instead of calculation P_{limit} .

Head exposure (DSI = 2) (Continued)

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	P _{limit} (dBm)	Minimum P _{limit} (dBm)
Head	2	LTE Band 41-PC3-	Main 2	QPSK BW=20 RB 1/0	41055	0	Left Touch	22.70	0.147	31.03	31.03
						0	Left Tilt	22.70	0.071	34.22	
						0	Right Touch	22.70	0.066	34.54	
						0	Right Tilt	22.70	0.041	36.54	
Head	2	LTE Band 41-PC2-	Main 2	QPSK BW=20 RB 1/0	41055	0	Left Touch	22.64	0.157	30.68	30.68
Head	2	NR Band n5	Main 1	DFT-s QPSK BW=20 RB 50/28	167300	0	Left Touch	24.69	0.160	32.65	31.11
						0	Left Tilt	24.69	0.126	33.69	
						0	Right Touch	24.69	0.228	31.11	
						0	Right Tilt	24.69	0.132	33.48	
Head	2	NR Band n66	Main 1	DFT-s QPSK BW=20 RB 1/104	349000	0	Left Touch	22.85	0.185	30.18	30.18
						0	Left Tilt	22.85	0.076	34.02	
						0	Right Touch	22.85	0.092	33.22	
						0	Right Tilt	22.85	0.086	33.52	
Head	2	NR Band n66	Sub 2	DFT-s QPSK BW=20 RB 50/0	349000	0	Left Touch	17.04	0.253	23.01	19.58
						0	Left Tilt	17.04	0.331	21.84	
						0	Right Touch	17.04	0.445	20.56	
						0	Right Tilt	17.04	0.557	19.58	
Head	2	NR Band n25(n2)	Main 1	DFT-s QPSK BW=20 RB 50/28	376500	0	Left Touch	22.76	0.118	32.04	32.04
						0	Left Tilt	22.76	0.057	35.18	
						0	Right Touch	22.76	0.074	34.10	
						0	Right Tilt	22.76	0.056	35.29	
Head	2	NR Band n41-SRS0-	Sub 2	DFT-s QPSK BW=100 RB 135/138	518598	0	Left Touch	14.62	0.317	19.61	16.43
						0	Left Tilt	14.62	0.369	18.95	
						0	Right Touch	14.62	0.591	16.90	
						0	Right Tilt	14.62	0.659	16.43	
Head	2	NR Band n41-SRS1-	Main 2	SRS CW	518598	0	Left Touch	11.30	0.007	32.85	32.85
						0	Left Tilt	11.30	0.001	41.30	
						0	Right Touch	11.30	0.001	41.30	
						0	Right Tilt	11.30	0.001	41.30	
Head	2	NR Band n41-SRS2-	Sub 1	SRS CW	518598	0	Left Touch	11.23	0.218	17.85	17.85
						0	Left Tilt	11.23	0.179	18.70	
						0	Right Touch	11.23	0.062	23.31	
						0	Right Tilt	11.23	0.070	22.78	
Head	2	NR Band n41-SRS3-	Main 4	SRS CW	518598	0	Left Touch	8.86	0.001	38.86	38.86
						0	Left Tilt	8.86	0.001	38.86	
						0	Right Touch	8.86	0.001	38.86	
						0	Right Tilt	8.86	0.001	38.86	
Head	2	NR Band n77-SRS0-	Sub 3	DFT-s QPSK BW=100 RB 1/271	633334	0	Left Touch	14.82	0.221	21.38	17.72
						0	Left Tilt	14.82	0.242	20.98	
						0	Right Touch	14.82	0.390	18.91	
						0	Right Tilt	14.82	0.513	17.72	
Head	2	NR Band n77-SRS1-	Main 3	SRS CW	633334	0	Left Touch	10.23	0.009	30.55	30.55
						0	Left Tilt	10.23	0.000	46.29	
						0	Right Touch	10.23	0.003	34.80	
						0	Right Tilt	10.23	0.003	35.01	
Head	2	NR Band n77-SRS2-	Sub 5	SRS CW	650000	0	Left Touch	9.80	0.035	24.33	22.24
						0	Left Tilt	9.80	0.003	35.03	
						0	Right Touch	9.80	0.057	22.24	
						0	Right Tilt	9.80	0.001	39.80	
Head	2	NR Band n77-SRS3-	Main 4	SRS CW	650000	0	Left Touch	9.57	0.001	39.57	39.57
						0	Left Tilt	9.57	0.001	39.57	
						0	Right Touch	9.57	0.001	39.57	
						0	Right Tilt	9.57	0.001	39.57	

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_{limit} instead of calculation P_{limit} .

Body-worn exposure (DSI = 0)

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	P _{limit} (dBm)	Minimum P _{limit} (dBm)
Body-worn	0	GSM 850	Main 1	GPRS 2 Slots	251	15	Rear	25.20	0.244	31.33	31.33
						15	Front	25.20	0.198	32.23	
Body-worn	0	GSM 1900	Main 1	GPRS 2 Slots	661	15	Rear	21.50	0.338	26.21	26.21
						15	Front	21.50	0.265	27.27	
Body-worn	0	WCDMA Band II	Main 1	Rel 99	9400	15	Rear	23.11	0.667	24.87	24.87
						15	Front	23.11	0.463	26.45	
Body-worn	0	WCDMA Band IV	Main 1	Rel 99	1413	15	Rear	23.39	0.660	25.19	25.19
						15	Front	23.39	0.549	25.99	
Body-worn	0	WCDMA Band V	Main 1	Rel 99	4183	15	Rear	24.65	0.293	29.98	29.98
						15	Front	24.65	0.239	30.87	
Body-worn	0	LTE Band 12(17)	Main 1	QPSK BW=10 RB 1/49	23095	15	Rear	23.81	0.199	30.82	30.47
						15	Front	23.81	0.216	30.47	
Body-worn	0	LTE Band 13	Main 1	QPSK BW=10 RB 1/49	23230	15	Rear	23.57	0.268	29.28	29.28
						15	Front	23.57	0.197	30.62	
Body-worn	0	LTE Band 5	Main 1	QPSK BW=10 RB 1/0	20525	15	Rear	24.69	0.325	29.57	29.57
						15	Front	24.69	0.233	31.02	
Body-worn	0	LTE Band 26	Main 1	QPSK BW=15 RB 1/0	26865	15	Rear	24.13	0.262	29.95	29.95
						15	Front	24.13	0.202	31.08	
Body-worn	0	LTE Band 66(4)	Main 1	QPSK BW=20 RB 1/49	132322	15	Rear	23.08	0.645	24.98	24.98
						15	Front	23.08	0.600	25.30	
Body-worn	0	LTE Band 4	Sub 2	QPSK BW=20 RB 1/49	20175	15	Rear	19.72	0.137	28.35	28.35
						15	Front	19.72	0.105	29.51	
Body-worn	0	LTE Band 25(2)	Main 1	QPSK BW=20 RB 1/0	26140	15	Rear	22.80	0.497	25.83	25.83
						15	Front	22.80	0.483	25.96	
Body-worn	0	LTE Band 41-PC3-	Main 2	QPSK BW=20 RB 1/0	41055	15	Rear	22.70	0.372	26.99	26.99
						15	Front	22.70	0.264	28.48	
Body-worn	0	LTE Band 41-PC2-	Main 2	QPSK BW=20 RB 1/0	41055	15	Rear	22.64	0.265	28.41	28.41
Body-worn	0	NR Band n5	Main 1	QPSK BW=20 RB 50/28 DFI-S	167300	15	Rear	24.69	0.355	29.19	29.19
						15	Front	24.69	0.250	30.71	
Body-worn	0	NR Band n66	Main 1	QPSK BW=20 RB 1/104 DFI-S	349000	15	Rear	22.75	0.744	24.03	24.03
						15	Front	22.75	0.491	25.84	
Body-worn	0	NR Band n66	Sub 2	QPSK BW=20 RB 1/104 DFI-S	349000	15	Rear	19.05	0.121	28.22	28.22
						15	Front	19.05	0.083	29.87	
Body-worn	0	NR Band n25(n2)	Main 1	QPSK BW=20 RB 50/28 DFI-S	376500	15	Rear	22.76	0.549	25.36	25.36
						15	Front	22.76	0.482	25.93	
Body-worn	0	NR Band n41-SRS0-	Sub 2	QPSK BW=100 DFI-S	518598	15	Rear	18.15	0.153	26.30	26.30
						15	Front	18.15	0.088	28.71	
Body-worn	0	NR Band n41-SRS1-	Main 2	SRS CW	518598	15	Rear	14.24	0.054	26.92	26.92
						15	Front	14.24	0.032	29.19	
Body-worn	0	NR Band n41-SRS2-	Sub 1	SRS CW	518598	15	Rear	14.12	0.039	28.21	27.99
						15	Front	14.12	0.041	27.99	
Body-worn	0	NR Band n41-SRS3-	Main 4	SRS CW	518598	15	Rear	11.92	0.007	33.47	33.47
						15	Front	11.92	0.001	41.92	
Body-worn	0	NR Band n77-SRS0-	Sub 3	QPSK BW=100 DFI-S	650000	15	Rear	18.76	0.335	23.51	23.51
						15	Front	18.76	0.036	33.22	
Body-worn	0	NR Band n77-SRS1-	Main 3	SRS CW	650000	15	Rear	14.40	0.034	29.15	29.15
						15	Front	14.40	0.007	36.26	
Body-worn	0	NR Band n77-SRS2-	Sub 5	SRS CW	662000	15	Rear	13.20	0.004	37.18	37.18
						15	Front	13.20	0.002	40.19	
Body-worn	0	NR Band n77-SRS3-	Main 4	SRS CW	650000	15	Rear	14.04	0.145	22.43	22.43
						15	Front	14.04	0.005	37.07	

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} .

Hotspot exposure (DSI = 3)

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Hotspot	3	GSM 850	Main 1	GPRS 2 Slots	251	10	Rear	25.20	0.460	28.57	28.57
						10	Front	25.20	0.280	30.73	
						10	Edge 2	25.20	0.351	29.75	
						10	Edge 3	25.20	0.217	31.83	
						10	Edge 4	25.20	0.167	32.97	
Hotspot	3	GSM 1900	Main 1	GPRS 4 Slots	661	10	Rear	18.61	0.295	23.91	20.86
						10	Front	18.61	0.127	27.57	
						10	Edge 2	18.61	0.038	32.81	
						10	Edge 3	18.61	0.596	20.86	
						10	Edge 4	18.61	0.051	31.51	
Hotspot	3	WCDMA Band II	Main 1	Rel 99	9400	10	Rear	18.21	0.586	20.53	19.00
						10	Front	18.21	0.477	21.42	
						10	Edge 2	18.21	0.065	30.07	
						10	Edge 3	18.21	0.834	19.00	
						10	Edge 4	18.21	0.081	29.12	
Hotspot	3	WCDMA Band IV	Main 1	Rel 99	1413	10	Rear	18.43	0.600	20.65	18.92
						10	Front	18.43	0.488	21.55	
						10	Edge 2	18.43	0.052	31.25	
						10	Edge 3	18.43	0.894	18.92	
						10	Edge 4	18.43	0.304	23.60	
Hotspot	3	WCDMA Band V	Main 1	Rel 99	4183	10	Rear	24.65	0.539	27.33	27.33
						10	Front	24.65	0.339	29.35	
						10	Edge 2	24.65	0.297	29.92	
						10	Edge 3	24.65	0.232	31.00	
						10	Edge 4	24.65	0.242	30.81	
Hotspot	3	LTE Band 12(17)	Main 1	QPSK BW=10 RB 1/49	23095	10	Rear	23.81	0.283	29.29	29.29
						10	Front	23.81	0.200	30.80	
						10	Edge 2	23.81	0.122	32.95	
						10	Edge 3	23.81	0.099	33.85	
						10	Edge 4	23.81	0.249	29.85	
Hotspot	3	LTE Band 13	Main 1	QPSK BW=10 RB 1/49	23230	10	Rear	23.57	0.450	27.03	27.03
						10	Front	23.57	0.257	29.47	
						10	Edge 2	23.57	0.175	31.14	
						10	Edge 3	23.57	0.159	31.55	
						10	Edge 4	23.57	0.142	32.04	
Hotspot	3	LTE Band 5	Main 1	QPSK BW=10 RB 1/0	20525	10	Rear	24.69	0.569	27.14	27.14
						10	Front	24.69	0.337	29.41	
						10	Edge 2	24.69	0.260	30.54	
						10	Edge 3	24.69	0.371	29.00	
						10	Edge 4	24.69	0.180	32.14	
Hotspot	3	LTE Band 26	Main 1	QPSK BW=15 RB 1/0	26865	10	Rear	24.13	0.481	27.31	27.31
						10	Front	24.13	0.252	30.12	
						10	Edge 2	24.13	0.233	30.46	
						10	Edge 3	24.13	0.295	29.43	
						10	Edge 4	24.13	0.175	31.70	
Hotspot	3	LTE Band 66(4)	Main 1	QPSK BW=20 RB 1/49	132322	10	Rear	19.26	0.541	21.93	19.94
						10	Front	19.26	0.434	22.89	
						10	Edge 2	19.26	0.055	31.88	
						10	Edge 3	19.26	0.855	19.94	
						10	Edge 4	19.26	0.109	28.89	
Hotspot	3	LTE Band 4	Sub 2	QPSK BW=20 RB 1/49	20175	10	Rear	18.67	0.224	25.17	22.83
						10	Front	18.67	0.162	26.57	
						10	Edge 1	18.67	0.384	22.83	
						10	Edge 4	18.67	0.092	29.06	

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 Plimit instead of calculation Plimit.

Hotspot exposure (DSI = 3) (Continued)

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Hotspot	3	LTE Band 25(2)	Main 1	QPSK BW=20 RB 50/0	26140	10	Rear	18.28	0.448	21.77	19.02
						10	Front	18.28	0.363	22.68	
						10	Edge 2	18.28	0.049	31.37	
						10	Edge 3	18.28	0.843	19.02	
						10	Edge 4	18.28	0.075	29.54	
Hotspot	3	LTE Band 41-PC3-	Main 2	QPSK BW=20 RB 50/24	41055	10	Rear	20.70	0.473	23.95	23.95
						10	Front	20.70	0.291	26.06	
						10	Edge 3	20.70	0.431	24.36	
						10	Edge 4	20.70	0.411	24.56	
Hotspot	3	LTE Band 41-PC2-	Main 2	QPSK BW=20 RB 50/24	41055	10	Rear	21.30	0.500	24.31	24.31
Hotspot	3	NR Band n5	Main 1	DFT-s QPSK BW=20 RB 50/28	167300	10	Rear	24.69	0.721	26.11	26.11
						10	Front	24.69	0.367	29.04	
						10	Edge 2	24.69	0.216	31.35	
						10	Edge 3	24.69	0.308	29.80	
						10	Edge 4	24.69	0.164	32.54	
Hotspot	3	NR Band n66	Main 1	DFT-s QPSK BW=20 RB 50/28	349000	10	Rear	18.81	0.555	21.37	20.07
						10	Front	18.81	0.428	22.50	
						10	Edge 2	18.81	0.044	32.35	
						10	Edge 3	18.81	0.749	20.07	
						10	Edge 4	18.81	0.081	29.71	
Hotspot	3	NR Band n66	Sub 2	DFT-s QPSK BW=20 RB 50/0	349000	10	Rear	19.23	0.219	25.83	23.32
						10	Front	19.23	0.152	27.41	
						10	Edge 1	19.23	0.390	23.32	
						10	Edge 4	19.23	0.078	30.30	
Hotspot	3	NR Band n25(n2)	Main 1	DFT-s QPSK BW=20 RB 50/28	376500	10	Rear	17.84	0.513	20.74	19.05
						10	Front	17.84	0.419	21.62	
						10	Edge 2	17.84	0.048	31.03	
						10	Edge 3	17.84	0.757	19.05	
						10	Edge 4	17.84	0.060	30.04	
Hotspot	3	NR Band n41-SRS0-	Sub 2	DFT-s QPSK BW=100 RB 1/271	518598	10	Rear	15.22	0.134	23.95	22.64
						10	Front	15.22	0.079	26.24	
						10	Edge 1	15.22	0.181	22.64	
						10	Edge 4	15.22	0.016	33.18	
Hotspot	3	NR Band n41-SRS1-	Main 2	SRS CW	518598	10	Rear	11.30	0.048	24.49	23.52
						10	Front	11.30	0.028	26.83	
						10	Edge 3	11.30	0.060	23.52	
						10	Edge 4	11.30	0.054	23.98	
Hotspot	3	NR Band n41-SRS2-	Sub 1	SRS CW	518598	10	Rear	11.23	0.025	27.25	26.04
						10	Front	11.23	0.026	27.08	
						10	Edge 1	11.23	0.033	26.04	
						10	Edge 2	11.23	0.018	28.68	
Hotspot	3	NR Band n41-SRS3-	Main 4	SRS CW	518598	10	Rear	8.86	0.010	28.86	28.86
						10	Front	8.86	0.001	38.86	
						10	Edge 2	8.86	0.001	38.86	
						10	Edge 3	8.86	0.001	38.86	

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 Plimit instead of calculation Plimit.

Hotspot exposure (DSI = 3) (Continued)

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Hotspot	3	NR Band n77-SRS0-	Sub 3	DFT-s QPSK BW=100 RB 1/271	662000	10	Rear	17.48	0.544	20.12	20.12
						10	Front	17.48	0.067	29.25	
						10	Edge 1	17.48	0.072	28.89	
						10	Edge 4	17.48	0.055	30.08	
Hotspot	3	NR Band n77-SRS1-	Main 3	SRS CW	633334	10	Rear	14.12	0.056	26.65	25.13
						10	Front	14.12	0.032	29.05	
						10	Edge 3	14.12	0.016	32.11	
						10	Edge 4	14.12	0.079	25.13	
Hotspot	3	NR Band n77-SRS2-	Sub 5	SRS CW	662000	10	Rear	12.10	0.015	30.34	30.34
						10	Front	12.10	0.007	33.65	
						10	Edge 4	12.10	0.003	37.33	
Hotspot	3	NR Band n77-SRS3-	Main 4	SRS CW	650000	10	Rear	13.05	0.246	19.14	19.14
						10	Front	13.05	0.012	32.15	
						10	Edge 2	13.05	0.012	32.33	
						10	Edge 3	13.05	0.050	26.04	

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 Plimit instead of calculation Plimit.

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

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g (Sensor Off)	0	GSM 850	Main 1	GPRS 2 Slots	251	8	Rear	25.20	0.538	31.87	30.02
						7	Front	25.20	0.369	33.51	
						0	Edge 2	25.20	0.396	33.20	
						12	Edge 3	25.20	0.143	37.63	
						0	Edge 4	25.20	0.824	30.02	
Product Specific-10g (Sensor Off)	0	GSM 1900	Main 1	GPRS 2 Slots	661	8	Rear	21.50	0.562	27.98	27.75
						7	Front	21.50	0.593	27.75	
						0	Edge 2	21.50	0.182	32.88	
						12	Edge 3	21.50	0.508	28.42	
						0	Edge 4	21.50	0.326	30.35	
Product Specific-10g (Sensor Off)	0	WCDMA Band II	Main 1	Rel 99	9400	8	Rear	23.11	0.871	27.69	26.72
						7	Front	23.11	0.782	28.16	
						0	Edge 2	23.11	0.382	31.27	
						12	Edge 3	23.11	1.090	26.72	
						0	Edge 4	23.11	0.616	29.19	
Product Specific-10g (Sensor Off)	0	WCDMA Band IV	Main 1	Rel 99	1413	8	Rear	23.39	0.921	27.73	27.73
						7	Front	23.39	0.832	28.17	
						0	Edge 2	23.39	0.333	32.14	
						12	Edge 3	23.39	0.915	27.76	
						0	Edge 4	23.39	0.807	28.30	
Product Specific-10g (Sensor Off)	0	WCDMA Band V	Main 1	Rel 99	4183	0	Edge 4	24.65	0.665	30.40	30.40
Product Specific-10g (Sensor Off)	0	LTE Band 12(17)	Main 1	QPSK BW=10 RB 1/49	23095	8	Rear	23.81	0.258	33.67	30.03
						7	Front	23.81	0.175	35.36	
						0	Edge 2	23.81	0.122	36.93	
						12	Edge 3	23.81	0.034	42.53	
						0	Edge 4	23.81	0.597	30.03	
Product Specific-10g (Sensor Off)	0	LTE Band 13	Main 1	QPSK BW=10 RB 1/49	23230	0	Edge 4	23.57	0.418	31.33	31.33
Product Specific-10g (Sensor Off)	0	LTE Band 5	Main 1	QPSK BW=10 RB 1/0	20525	8	Rear	24.69	0.481	31.85	31.31
						7	Front	24.69	0.355	33.17	
						0	Edge 2	24.69	0.386	32.80	
						12	Edge 3	24.69	0.174	36.27	
						0	Edge 4	24.69	0.544	31.31	
Product Specific-10g (Sensor Off)	0	LTE Band 26	Main 1	QPSK BW=15 RB 1/0	26865	0	Edge 4	24.13	0.512	31.02	31.02
Product Specific-10g (Sensor Off)	0	LTE Band 66(4)	Main 1	QPSK BW=20 RB 1/49	132322	8	Rear	23.08	1.110	26.61	26.61
						7	Front	23.08	0.839	27.82	
						0	Edge 2	23.08	0.303	32.24	
						12	Edge 3	23.08	0.781	28.13	
						0	Edge 4	23.08	0.620	29.13	
Product Specific-10g (Sensor Off)	0	LTE Band 4	Sub 2	QPSK BW=20 RB 1/49	20175	0	Edge 1	19.72	1.400	22.24	22.24
Product Specific-10g (Sensor Off)	0	LTE Band 25(2)	Main 1	QPSK BW=20 RB 1/0	26140	8	Rear	22.80	0.746	28.05	27.05
						7	Front	22.80	0.731	28.14	
						0	Edge 2	22.80	0.299	32.02	
						12	Edge 3	22.80	0.938	27.05	
						0	Edge 4	22.80	0.486	29.91	

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 Plimit instead of calculation Plimit.

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

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g (Sensor Off)	0	LTE Band 41-PC3-	Main 2	QPSK BW=20 RB 1/0	41055	8	Rear	22.70	0.511	29.60	25.34
						7	Front	22.70	0.338	31.39	
						0	Edge 2	22.70	0.300	31.91	
						12	Edge 3	22.70	0.252	32.67	
						0	Edge 4	22.70	1.360	25.34	
Product Specific-10g (Sensor Off)	0	LTE Band 41-PC2-	Main 2	QPSK BW=20 RB 1/0	41055	0	Edge 4	22.64	1.250	25.65	25.65
Product Specific-10g (Sensor Off)	0	NR Band n5	Main 1	DFT-s QPSK BW=20 RB 1/1	167300	0	Edge 4	24.84	0.532	31.56	31.56
Product Specific-10g (Sensor Off)	0	NR Band n25(n2)	Main 1	DFT-s QPSK BW=20 RB 50/28	376500	8	Rear	22.76	0.847	27.46	27.46
						7	Front	22.76	0.695	28.32	
						0	Edge 2	22.76	0.321	31.67	
						12	Edge 3	22.76	0.811	27.65	
						0	Edge 4	22.76	0.482	29.91	
Product Specific-10g (Sensor Off)	0	NR Band n66	Main 1	DFT-s QPSK BW=20 RB 50/28	349000	8	Rear	22.75	0.988	26.78	26.78
						7	Front	22.75	0.679	28.41	
						0	Edge 2	22.75	0.316	31.73	
						12	Edge 3	22.75	0.897	27.20	
						0	Edge 4	22.75	0.673	28.45	
Product Specific-10g (Sensor Off)	0	NR Band n66	Sub 2	DFT-s QPSK BW=20 RB 1/104	349000	0	Rear	19.05	0.584	25.37	22.70
						0	Front	19.05	0.611	25.17	
						0	Edge 1	19.05	1.080	22.70	
						0	Edge 4	19.05	0.229	29.43	
Product Specific-10g (Sensor Off)	0	NR Band n41-SRS0-	Sub 2	DFT-s QPSK BW=100 RB 135/138	518598	8	Rear	18.15	1.110	21.68	19.95
						7	Front	18.15	0.910	22.54	
						0	Edge 1	18.15	1.650	19.95	
						0	Edge 4	18.15	0.110	31.72	
Product Specific-10g (Sensor Off)	0	NR Band n41-SRS1-	Main 2	SRS CW	518598	0	Rear	14.24	0.410	22.09	22.09
						0	Front	14.24	0.256	24.14	
						0	Edge 3	14.24	0.062	30.30	
						0	Edge 4	14.24	0.270	23.91	
Product Specific-10g (Sensor Off)	0	NR Band n41-SRS2-	Sub 1	SRS CW	518598	0	Rear	14.12	0.371	22.41	22.41
						0	Front	14.12	0.365	22.48	
						0	Edge 1	14.12	0.226	24.56	
						0	Edge 2	14.12	0.249	24.14	
Product Specific-10g (Sensor Off)	0	NR Band n41-SRS3-	Main 4	SRS CW	518598	0	Rear	11.92	0.162	23.80	23.80
						0	Front	11.92	0.010	35.90	
						0	Edge 2	11.92	0.001	45.90	
						0	Edge 3	11.92	0.017	33.59	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS0-	Sub 3	DFT-s QPSK BW=100 RB 1/271	662000	0	Rear	18.71	0.636	24.65	23.97
						0	Front	18.71	0.741	23.99	
						0	Edge 1	18.71	0.745	23.97	
						0	Edge 4	18.71	0.069	34.32	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS1-	Main 3	SRS CW	633334	0	Rear	15.08	0.462	22.41	22.41
						0	Front	15.08	0.205	25.94	
						0	Edge 3	15.08	0.064	31.02	
						0	Edge 4	15.08	0.366	23.42	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS2-	Sub 5	SRS CW	662000	0	Rear	13.20	0.150	25.42	25.42
						0	Front	13.20	0.145	25.57	
						0	Edge 4	13.20	0.056	29.70	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS3-	Main 4	SRS CW	650000	0	Rear	14.04	1.010	17.98	17.98
						0	Front	14.04	0.107	27.73	
						0	Edge 2	14.04	0.037	32.29	
						0	Edge 3	14.04	0.171	25.69	

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 Plimit instead of calculation Plimit.

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

RF Exposure Conditions	DSI	Band	Antenna	Mode	Channel	Test distance (mm)	Test position	Output power (dbm)	Meas. SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g (Sensor On)	1, 4	GSM 850	Main 1	GPRS 2 Slots	251	0	Rear	25.20	1.560	27.25	27.25
						0	Front	25.20	1.020	29.09	
						0	Edge 3	25.20	0.606	31.35	
Product Specific-10g (Sensor On)	1, 4	GSM 1900	Main 1	GPRS 4 Slots	810	0	Rear	19.17	0.953	23.36	22.86
						0	Front	19.17	0.739	24.46	
						0	Edge 3	19.17	1.070	22.86	
Product Specific-10g (Sensor On)	1, 4	WCDMA Band II	Main 1	Rel 99	9400	0	Rear	21.12	1.730	22.72	21.33
						0	Front	21.12	1.640	22.95	
						0	Edge 3	21.12	2.380	21.33	
Product Specific-10g (Sensor On)	1, 4	WCDMA Band IV	Main 1	Rel 99	1413	0	Rear	21.32	1.820	22.70	21.50
						0	Front	21.32	1.680	23.05	
						0	Edge 3	21.32	2.400	21.50	
Product Specific-10g (Sensor On)	1, 4	WCDMA Band V	Main 1	Rel 99	4183	0	Rear	24.65	1.630	26.51	26.51
Product Specific-10g (Sensor On)	1, 4	LTE Band 12(17)	Main 1	QPSK BW=10 RB 1/49	23095	0	Rear	23.81	1.340	26.52	26.52
						0	Front	23.81	0.763	28.97	
						0	Edge 3	23.81	0.803	28.74	
Product Specific-10g (Sensor On)	1, 4	LTE Band 13	Main 1	QPSK BW=10 RB 1/49	23230	0	Rear	23.57	1.060	27.29	27.29
Product Specific-10g (Sensor On)	1, 4	LTE Band 5	Main 1	QPSK BW=10 RB 1/0	20525	0	Rear	24.69	1.920	25.84	25.84
						0	Front	24.69	1.320	27.46	
						0	Edge 3	24.69	0.448	32.16	
Product Specific-10g (Sensor On)	1, 4	LTE Band 26	Main 1	QPSK BW=15 RB 1/0	26865	0	Rear	24.13	1.350	26.81	26.81
Product Specific-10g (Sensor On)	1, 4	LTE Band 66(4)	Main 1	QPSK BW=20 RB 1/49	132322	0	Rear	20.24	1.320	23.01	22.67
						0	Front	20.24	1.330	22.98	
						0	Edge 3	20.24	1.430	22.67	
Product Specific-10g (Sensor On)	1, 4	LTE Band 25(2)	Main 1	QPSK BW=20 RB 1/0	26140	0	Rear	20.04	1.360	22.68	22.35
						0	Front	20.04	1.190	23.26	
						0	Edge 3	20.04	1.470	22.35	
Product Specific-10g (Sensor On)	1, 4	LTE Band 41-PC3-	Main 2	QPSK BW=20 RB 1/0	41055	0	Rear	20.66	1.940	21.76	21.76
						0	Front	20.66	1.050	24.43	
						0	Edge 3	20.66	1.590	22.63	
Product Specific-10g (Sensor On)	1, 4	LTE Band 41-PC2-	Main 2	QPSK BW=20 RB 1/0	41055	0	Rear	21.32	1.620	23.20	23.20
Product Specific-10g (Sensor On)	1, 4	NR Band n5	Main 1	QPSK BW=20 RB 50/28	167300	0	Rear	24.69	1.540	26.79	26.79
Product Specific-10g (Sensor On)	1, 4	NR Band n66	Main 1	QPSK BW=20 RB 50/28	349000	0	Rear	19.73	1.310	22.54	22.22
						0	Front	19.73	1.110	23.26	
						0	Edge 3	19.73	1.410	22.22	
Product Specific-10g (Sensor On)	1, 4	NR Band n25(n2)	Main 1	QPSK BW=20 RB 50/28	376500	0	Rear	19.55	1.260	22.53	21.43
						0	Front	19.55	1.130	23.00	
						0	Edge 3	19.55	1.620	21.43	

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 Plimit instead of calculation Plimit.

END OF REPORT