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- A236V

FCC ID: A3LSMA236V

REPORT NUMBER: 4790558569 -S1V2

ISSUE DATE: 12/19/2022

Prepared for
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IAS ACCREDITED

Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	11/11/2022	Initial Issue	--
V2	12/19/2022	Revised in Sec.6.3 and 7	Juyeon Choi

Table of Contents

1. Attestation of SAR Characterization

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.
FCC ID	A3LSMA236V
Model Number	SM- A236V
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures
Report type	Part.0 : SAR Characterization
Date Tested	9/21/2022 to 12/16/2022
Part 0 Purpose	Part 0 is the procedures for determining P_{Limit} for 2G/3G/4G/5G NR sub6 to satisfy *SAR_design_target* 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	Juyeon Choi Laboratory Technician 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

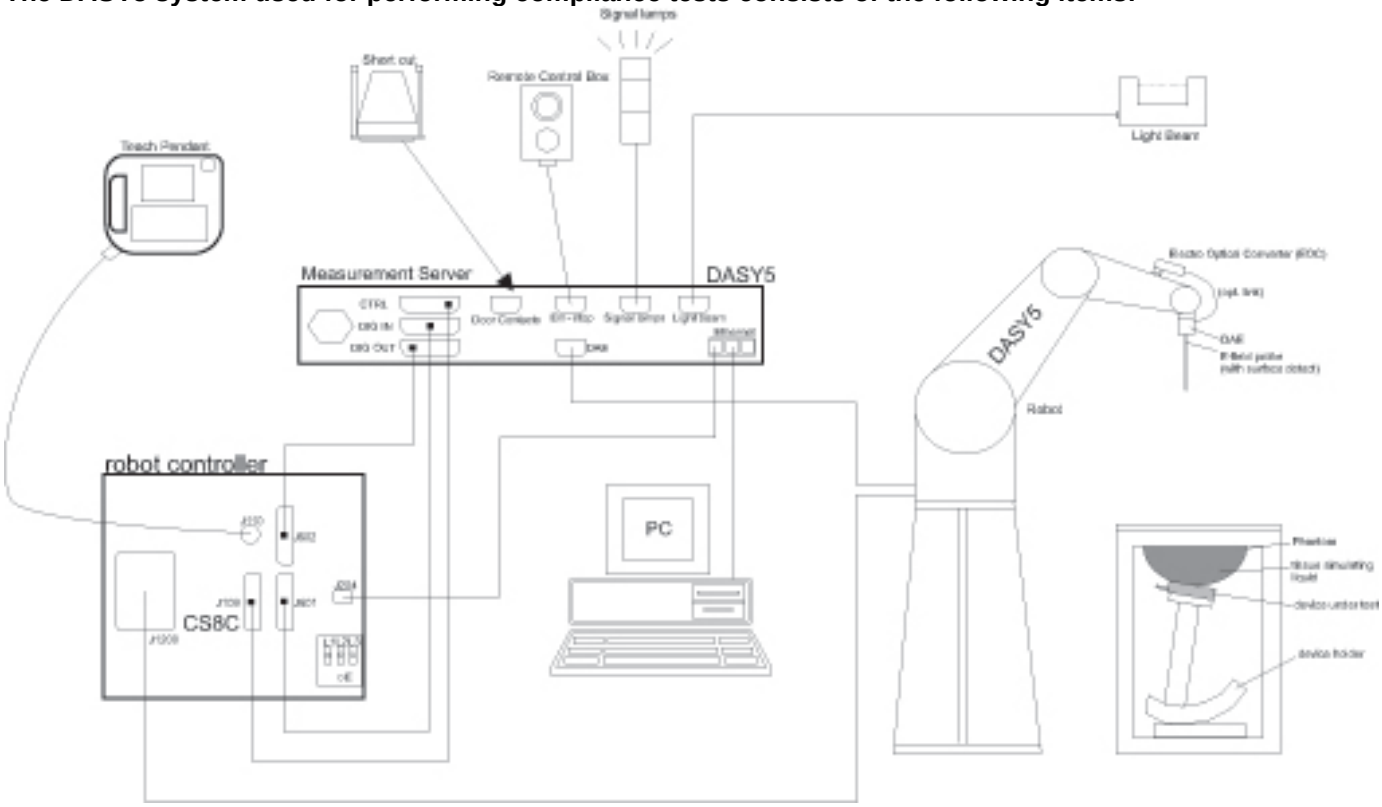
Suwon	
SAR 1 Room	SAR 6 Room
SAR 2 Room	SAR 7 Room
SAR 3 Room	SAR 8 Room
SAR 4 Room	SAR 9 Room
SAR 5 Room	

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

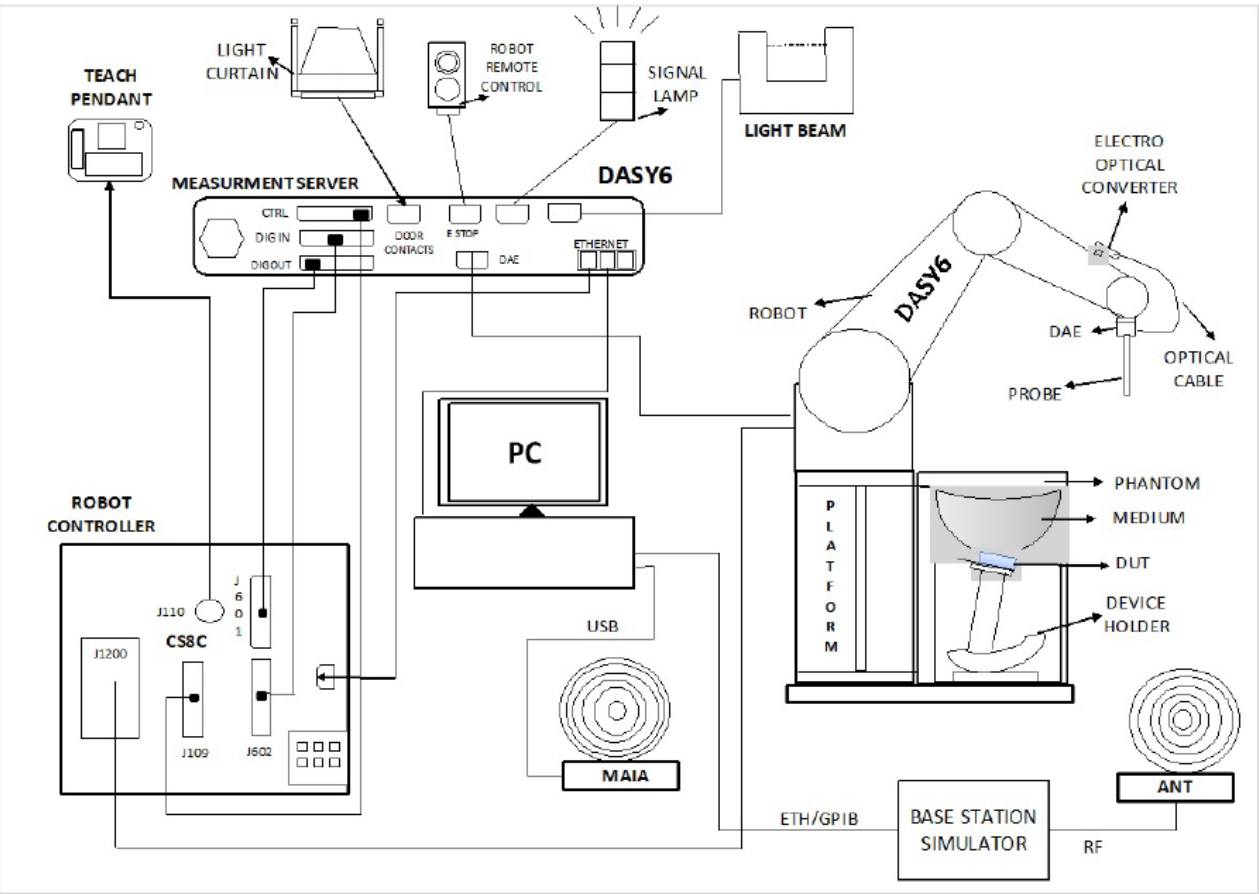
4.1. SAR Measurement System

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

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

Step 3: Zoom Scan

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

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

			≤ 3 GHz	> 3 GHz
Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 GHz: ≤ 8 mm 2 – 3 GHz: ≤ 5 mm*	3 – 4 GHz: ≤ 5 mm* 4 – 6 GHz: ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 GHz: ≤ 4 mm 4 – 5 GHz: ≤ 3 mm 5 – 6 GHz: ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 GHz: ≤ 3 mm 4 – 5 GHz: ≤ 2.5 mm 5 – 6 GHz: ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$	
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 *reported* SAR from the *area scan based 1-g SAR estimation* 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-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	TVA-R5-13A+	2111006	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	4-7-2023
E-Field Probe	SPEAG	EX3DV4	7313	3-2-2023
E-Field Probe	SPEAG	EX3DV4	7652	4-28-2023
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	1667	4-27-2023
Data Acquisition Electronics	SPEAG	DAE4	1468	8-18-2023
Data Acquisition Electronics	SPEAG	DAE4	1591	3-24-2023
Data Acquisition Electronics	SPEAG	DAE4	1668	4-27-2023
Data Acquisition Electronics	SPEAG	DAE4	1671	5-31-2023
Data Acquisition Electronics	SPEAG	DAE4	1494	7-18-2023
System Validation Dipole	SPEAG	D750V3	1205	4-27-2023
System Validation Dipole	SPEAG	D835V2	4d194	3-24-2023
System Validation Dipole	SPEAG	D1750V2	1180	9-21-2023
System Validation Dipole	SPEAG	D1900V2	5d190	11-24-2022
System Validation Dipole	SPEAG	D1900V2	5d199	3-25-2023
System Validation Dipole	SPEAG	D2600V2	1178	4-23-2023

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.

Test Equipment (Continued)

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
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.12123	8-9-2023
Thermometer	Lutron	MHB-382SD	AJ.42446	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

5.1. 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: ☐ Class 8 - 1 Up, 4 Down ☐ Class 10 - 2 Up, 4 Down ☐ Class 12 - 4 Up, 4 Down ☒ 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)? ☐ Yes ☒ No			
W-CDMA (UMTS)	Band II 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 66 TDD Band 48	QPSK 16QAM 64QAM 256QAM Rel. 15 Carrier Aggregation (2 Uplink and 4 Downlinks) **Uplink intra-band Carrier Aggregation(2CC)** CA_48C		100% (FDD) 63.3% (TDD)
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
NR (Sub6)	FDD Band n2 FDD Band n5 FDD Band n66 TDD Band n77 Power class 3 TDD Band n77 Power class 2	DFT-s-ODFM: ■ π/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)		98.8% (802.11b)
	5 GHz	802.11a / 802.11n (HT20) & (HT40) 802.11ac (VHT20) & (VHT40) & (VHT80)		98.7% (802.11a) 98.5% (802.11ac (VHT80)
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
Bluetooth	2.4 GHz	Version 5.3 LE		76.7% (DH5)
NFC	13.56 MHz	Type A/B/C		100%

Notes:

1. The Bluetooth protocol is considered source-based averaging. Bluetooth GFSK (DH5) was verified to have the highest duty cycle of 76.7% and was considered and used for SAR Testing.
2. Duty cycle for Wi-Fi is referenced from the DTS and UNII report.
3. This device supports Power Class 2(HPUE) and Power Class 3 for NR Band n77
4. This device supports UL CA intra-band non-continues.
5. NR TDD Band n77 has support SRS(0,1,2,3) modes.
6. 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.

SAR_design_target			
$SAR\_design\_target < SAR\_regulatory\_limit \times 10^{\frac{-Total\ Uncertainty}{10}}$			
1g SAR (W/kg)		**10g SAR (W/kg)**	
Total Uncertainty	**1.0 dB**	**Total Uncertainty**	**1.0 dB**
SAR_regulatory_limit	**1.6 W/kg**	***SAR_regulatory_limit***	**4.0 W/kg**
SAR_design_target	**1.0 W/kg**	***SAR_design_target***	**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.	Descroption	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-worn exposure	0	1. Handset are used with body-worn accessories.	KDB 648474 D04
Hotspot exposure	3	1. SAR test requirements for Handset with 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; 1. Body-worn exposure SAR 2. Product Specific 10-g SAR measured at 13, 7 and 6 mm spacing for Back, Edge.3, Edge.4 3. Product Specific 10-g SAR measued at 0 mm for Front, Edge1, Edge2.
DSI = 1 or 4	1. Plimit is calculated based on Product Spectic 10-g SAR at 0 mm for Back, Edge3, Edge 4.
DSI = 2	1. Plimit is calculated based on Head exposure SAR
DSI = 3	1. Plimit 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 15mm spacing,

P_{limit} corresponding to Product specifc 10g SAR evaluation at 13(Rear), 7(Edge3), 6(Edge4) mm spacing,

P_{limit} corresponding to Product specifc 10g SAR evaluation at 0 mm for Front and Edge2 surfaces}

Main.2 Ant

P_{limit} = min{ P_{limit} corresponding to 1g Body worn SAR evaluation at 15mm spacing,

P_{limit} corresponding to Product specifc 10g SAR evaluation at 13(Rear), 7(Edge3), 6(Edge4) mm spacing,

P_{limit} corresponding to Product specifc 10g SAR evaluation at 0 mm for Front surfaces}

Other Antennas (Sub.3 / Sub.5 / Sub.2)

P_{limit} = min{ P_{limit} corresponding to 1g Body worn SAR evaluation at 15 mm spacing,

P_{limit} corresponding to Product specifc 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	Product Specific 10-g With triggering	Head (RCV)	Hotspot	Ear-jack	Pmax (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	Plimit corresponding to 1.0 W/kg (SAR_design_target) (1g) / 2.5 W/kg (SAR_design_target) (10g)						
GSM 850	Main.1	AG0	29.81	30.48	28.93	29.66	26.91	28.93	25.48
GSM 1900	Main.2	AG0	27.80	23.48	17.49	30.48	17.49	17.49	21.98
WCDMA Band II	Main.2	AG0	27.53	23.97	20.50	31.15	20.50	20.50	23.50
WCDMA Band V	Main.1	AG0	29.44	33.08	27.15	30.91	28.29	27.15	24.20
LTE Band 2	Main.2	AG0	27.58	24.45	21.00	29.41	21.00	21.00	24.00
LTE Band 5	Main.1	AG0	31.51	31.52	26.43	30.94	28.32	26.43	24.50
LTE Band 7	Main.2	AG0	22.00	22.00	20.50	22.00	20.50	20.50	23.50
LTE Band 12	Main.1	AG0	30.09	33.12	27.08	32.62	28.54	27.08	24.50
LTE Band 13	Main.1	AG0	29.10	31.40	28.19	31.83	27.15	28.19	24.50
LTE Band 48	Sub.3	AG1	17.00	17.00	17.00	17.00	17.00	17.00	20.50
LTE Band 66(4)	Main.2	AG0	23.00	23.00	21.00	23.00	21.00	21.00	23.50
NR Band n2	Main.2	AG0	27.72	24.95	21.00	29.94	21.00	21.00	24.00
NR Band n5	Main.1	AG0	29.80	31.46	25.10	30.60	27.33	25.10	24.50
NR Band n66	Main.2	AG0	28.57	28.17	21.00	31.80	21.00	21.00	24.00
NR Band n77 -SRS 0-PC3	Sub.3	AG1	17.00	17.00	17.00	17.00	17.00	17.00	24.00
NR Band n77 -SRS 1-PC3	Sub.5	AG1	9.50	9.50	9.50	9.50	9.50	9.50	15.50
NR Band n77 -SRS 2-PC3	Sub.2	AG1	11.00	11.00	11.00	11.00	11.00	11.00	22.00
NR Band n77 -SRS 3-PC3	Main.2	AG0	16.00	16.00	16.00	16.00	16.00	16.00	22.00
NR Band n77 -SRS 0-PC2	Sub.3	AG1	17.00	17.00	17.00	17.00	17.00	17.00	26.00
NR Band n77 -SRS 1-PC2	Sub.5	AG1	9.50	9.50	9.50	9.50	9.50	9.50	15.50
NR Band n77 -SRS 2-PC2	Sub.2	AG1	11.00	11.00	11.00	11.00	11.00	11.00	22.00
NR Band n77 -SRS 3-PC2	Main.2	AG0	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_{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	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Head	2	GSM 850	Main.1	GPRS 2 Slots	190	0	Left Touch	24.85	0.261	30.68	29.66
						0	Left Tilt	24.85	0.148	33.15	
						0	Right Touch	24.85	0.330	29.66	
						0	Right Tilt	24.85	0.164	32.70	
Head	2	GSM 1900	Main.2	GPRS 2 Slots	661	0	Left Touch	21.62	0.130	30.48	30.48
						0	Left Tilt	21.62	0.080	32.59	
						0	Right Touch	21.62	0.120	30.83	
						0	Right Tilt	21.62	0.070	33.17	
Head	2	WCDMA Band II	Main.2	Rel 99	9400	0	Left Touch	23.94	0.190	31.15	31.15
						0	Left Tilt	23.94	0.160	31.90	
						0	Right Touch	23.94	0.150	32.18	
						0	Right Tilt	23.94	0.140	32.48	
Head	2	WCDMA Band V	Main.1	Rel 99	4183	0	Left Touch	24.69	0.218	31.31	30.91
						0	Left Tilt	24.69	0.137	33.32	
						0	Right Touch	24.69	0.239	30.91	
						0	Right Tilt	24.69	0.151	32.90	
Head	2	LTE Band 2	Main.2	QPSK BW=20 RB 1/99	19100	0	Left Touch	24.03	0.290	29.41	29.41
						0	Left Tilt	24.03	0.130	32.89	
						0	Right Touch	24.03	0.210	30.81	
						0	Right Tilt	24.03	0.110	33.62	
Head	2	LTE Band 5	Main.1	QPSK BW=10 RB 1/0	20525	0	Left Touch	24.81	0.237	31.06	30.94
						0	Left Tilt	24.81	0.156	32.88	
						0	Right Touch	24.81	0.244	30.94	
						0	Right Tilt	24.81	0.175	32.38	
Head	2	LTE Band 7	Main.2	QPSK BW=20 RB 1/99	21350	0	Left Touch	21.94	0.354	26.45	26.45
						0	Left Tilt	21.94	0.098	32.02	
						0	Right Touch	21.94	0.157	29.98	
						0	Right Tilt	21.94	0.166	29.74	
Head	2	LTE Band 12	Main.1	QPSK BW=10 RB 1/0	23095	0	Left Touch	24.47	0.137	33.10	32.62
						0	Left Tilt	24.47	0.074	35.78	
						0	Right Touch	24.47	0.153	32.62	
						0	Right Tilt	24.47	0.079	35.49	
Head	2	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	0	Left Touch	24.38	0.170	32.08	31.83
						0	Left Tilt	24.38	0.097	34.51	
						0	Right Touch	24.38	0.180	31.83	
						0	Right Tilt	24.38	0.110	33.97	
Head	2	LTE Band 48	Sub.3	QPSK BW=20 RB 50/24	56207	0	Left Touch	17.62	0.058	30.02	23.57
						0	Left Tilt	17.62	0.057	30.08	
						0	Right Touch	17.62	0.254	23.57	
						0	Right Tilt	17.62	0.094	27.88	
Head	2	LTE Band 66(4)	Main.2	QPSK BW=20 RB 50/24	132072	0	Left Touch	23.24	0.165	31.07	30.48
						0	Left Tilt	23.24	0.096	33.42	
						0	Right Touch	23.24	0.189	30.48	
						0	Right Tilt	23.24	0.074	34.57	
Head	2	NR Band n2	Main.2	DFT-s OFDM QPSK BW=20 RB 50/28	380000	0	Left Touch	23.92	0.250	29.94	29.94
						0	Left Tilt	23.92	0.130	32.78	
						0	Right Touch	23.92	0.180	31.37	
						0	Right Tilt	23.92	0.100	33.92	
Head	2	NR Band n5	Main.1	DFT-s OFDM QPSK BW=20 RB 50/28	167300	0	Left Touch	24.42	0.195	31.52	30.60
						0	Left Tilt	24.42	0.123	33.52	
						0	Right Touch	24.42	0.241	30.60	
						0	Right Tilt	24.42	0.141	32.93	
Head	2	NR Band n66	Main.2	DFT-s OFDM QPSK BW=40 RB 1/1	349000	0	Left Touch	24.10	0.170	31.80	31.80
						0	Left Tilt	24.10	0.110	33.69	
						0	Right Touch	24.10	0.170	31.80	
						0	Right Tilt	24.10	0.080	35.07	

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}.

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)	Plimit (dBm)	Minimum Plimit (dBm)
Head	2	NR Band n77-SRS0-	Sub.3	DFT-s OFDM QPSK BW=100 RB 135/138	650000	0	Left Touch	17.14	0.059	29.43	22.23
						0	Left Tilt	17.14	0.033	31.95	
						0	Right Touch	17.14	0.310	22.23	
						0	Right Tilt	17.14	0.128	26.07	
Head	2	NR Band n77-SRS1-	Sub.5	SRS CW	633334	0	Left Touch	9.82	0.056	22.34	21.43
						0	Left Tilt	9.82	0.069	21.43	
						0	Right Touch	9.82	0.003	35.05	
						0	Right Tilt	9.82	0.001	39.82	
Head	2	NR Band n77-SRS2-	Sub.2	SRS CW	650000	0	Left Touch	11.27	0.169	18.99	16.30
						0	Left Tilt	11.27	0.210	18.05	
						0	Right Touch	11.27	0.246	17.36	
						0	Right Tilt	11.27	0.314	16.30	
Head	2	NR Band n77-SRS3-	Main.2	SRS CW	633334	0	Left Touch	16.34	0.017	34.11	32.96
						0	Left Tilt	16.34	0.009	36.89	
						0	Right Touch	16.34	0.012	35.66	
						0	Right Tilt	16.34	0.022	32.96	

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	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Body-worn	0	GSM 850	Main.1	GPRS 2 slots	190	15	Rear	24.85	0.319	29.81	29.81
						15	Front	24.85	0.228	31.27	
Body-worn	0	GSM 1900	Main.2	GPRS 2 slots	661	15	Rear	21.62	0.241	27.80	27.80
						15	Front	21.62	0.215	28.30	
Body-worn	0	WCDMA Band II	Main.2	Rel 99	9400	15	Rear	23.94	0.438	27.53	27.53
						15	Front	23.94	0.343	28.59	
Body-worn	0	WCDMA Band V	Main.1	Rel 99	4183	15	Rear	24.69	0.335	29.44	29.44
						15	Front	24.69	0.217	31.33	
Body-worn	0	LTE Band 2	Main.2	QPSK BW=20 RB 1/99	19100	15	Rear	24.03	0.442	27.58	27.58
						15	Front	24.03	0.377	28.27	
Body-worn	0	LTE Band 5	Main.1	QPSK BW=10 1/0	20525	15	Rear	24.81	0.192	31.98	31.51
						15	Front	24.81	0.214	31.51	
Body-worn	0	LTE Band 7	Main.2	QPSK BW=20 50/50	21350	15	Rear	22.08	0.395	26.11	26.11
						15	Front	22.08	0.223	28.60	
Body-worn	0	LTE Band 12	Main.1	QPSK BW=10 RB 1/0	23095	15	Rear	24.47	0.274	30.09	30.09
						15	Front	24.47	0.169	32.19	
Body-worn	0	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	15	Rear	24.38	0.337	29.10	29.10
						15	Front	24.38	0.219	30.98	
Body-worn	0	LTE Band 48	Sub.3	QPSK BW=20 RB 50/24	56207	15	Rear	17.62	0.240	23.82	23.82
						15	Front	17.62	0.037	31.97	
Body-worn	0	LTE Band 66(4)	Main.2	QPSK BW=20 RB 50/24	132072	15	Rear	23.24	0.416	27.05	27.05
						15	Front	23.24	0.392	27.31	
Body-worn	0	NR Band n2	Main.2	DFT-s OFDM QPSK BW=20 RB 50/28	380000	15	Rear	23.92	0.417	27.72	27.72
						15	Front	23.92	0.346	28.53	
Body-worn	0	NR Band n5	Main.1	DFT-s OFDM QPSK BW=20 RB 1/104	167300	15	Rear	24.56	0.299	29.80	29.80
						15	Front	24.56	0.171	32.23	
Body-worn	0	NR Band n66	Main.2	DFT-s OFDM QPSK BW=40 RB 1/1	349000	15	Rear	24.10	0.357	28.57	28.57
						15	Front	24.10	0.342	28.76	
Body-worn	0	NR Band n77-SRS0-	Sub.3	DFT-s OFDM QPSK BW=100 RB 135/138	650000	15	Rear	17.14	0.380	21.34	21.34
						15	Front	17.14	0.039	31.23	
Body-worn	0	NR Band n77-SRS1-	Sub.5	SRS CW	650000	15	Rear	9.54	0.001	39.54	39.54
						15	Front	9.54	0.001	39.54	
Body-worn	0	NR Band n77-SRS2-	Sub.2	SRS CW	650000	15	Rear	11.27	0.057	23.71	23.71
						15	Front	11.27	0.039	25.36	
Body-worn	0	NR Band n77-SRS3-	Main.2	SRS CW	662000	15	Rear	15.92	0.075	27.17	27.17
						15	Front	15.92	0.010	35.92	

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	Ch.	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	190	10	Rear	24.85	0.622	26.91	26.91
						10	Front	24.85	0.224	31.35	
						10	Edge 2	24.85	0.274	30.47	
						10	Edge 3	24.85	0.422	28.60	
						10	Edge 4	24.85	0.118	34.13	
Hotspot	3	GSM 1900	Main.2	GPRS 4 Slots	661	10	Rear	17.47	0.166	25.27	25.27
						10	Front	17.47	0.138	26.07	
						10	Edge 3	17.47	0.166	25.27	
						10	Edge 4	17.47	0.072	28.90	
Hotspot	3	WCDMA Band II	Main.2	Rel 99	9400	10	Rear	20.90	0.420	24.67	24.67
						10	Front	20.90	0.280	26.43	
						10	Edge 3	20.90	0.377	25.14	
						10	Edge 4	20.90	0.177	28.42	
Hotspot	3	WCDMA Band V	Main.1	Rel 99	4183	10	Rear	24.69	0.437	28.29	28.29
						10	Front	24.69	0.206	31.55	
						10	Edge 2	24.69	0.272	30.34	
						10	Edge 3	24.69	0.399	28.68	
						10	Edge 4	24.69	0.110	34.28	
Hotspot	3	LTE Band 2	Main.2	QPSK BW=20 RB 50/0	19100	10	Rear	21.13	0.380	25.33	23.68
						10	Front	21.13	0.303	26.32	
						10	Edge 3	21.13	0.556	23.68	
						10	Edge 4	21.13	0.196	28.21	
Hotspot	3	LTE Band 5	Main.1	QPSK BW=10 1/0	20525	10	Rear	24.81	0.446	28.32	28.32
						10	Front	24.81	0.203	31.74	
						10	Edge 2	24.81	0.307	29.94	
						10	Edge 3	24.81	0.402	28.77	
						10	Edge 4	24.81	0.128	33.74	
Hotspot	3	LTE Band 7	Main.2	QPSK BW=20 50/50	21350	10	Rear	20.57	0.681	22.24	22.24
						10	Front	20.57	0.455	23.99	
						10	Edge 3	20.57	0.459	23.95	
						10	Edge 4	20.57	0.217	27.21	
Hotspot	3	LTE Band 12	Main.1	QPSK BW=10 RB 1/0	23095	10	Rear	24.47	0.392	28.54	28.54
						10	Front	24.47	0.137	33.10	
						10	Edge 2	24.47	0.209	31.27	
						10	Edge 3	24.47	0.174	32.06	
						10	Edge 4	24.47	0.167	32.24	
Hotspot	3	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	10	Rear	24.38	0.529	27.15	27.15
						10	Front	24.38	0.184	31.73	
						10	Edge 2	24.38	0.300	29.61	
						10	Edge 3	24.38	0.222	30.92	
						10	Edge 4	24.38	0.144	32.80	
Hotspot	3	LTE Band 48	Sub.3	QPSK BW=20 RB 50/24	56207	10	Rear	17.62	0.544	20.26	20.00
						10	Front	17.62	0.072	29.06	
						10	Edge 1	17.62	0.054	30.30	
						10	Edge 4	17.62	0.578	20.00	
Hotspot	3	LTE Band 66(4)	Main.2	QPSK BW=20 RB 50/24	132072	10	Rear	21.25	0.485	24.39	24.06
						10	Front	21.25	0.386	25.38	
						10	Edge 3	21.25	0.523	24.06	
						10	Edge 4	21.25	0.229	27.65	
Hotspot	3	NR Band n2	Main.2	DFT-s OFDM QPSK BW=20 RB 50/28	380000	10	Rear	21.02	0.404	24.96	24.54
						10	Front	21.02	0.294	26.34	
						10	Edge 3	21.02	0.445	24.54	
						10	Edge 4	21.02	0.173	28.64	
Hotspot	3	NR Band n5	Main.1	DFT-s OFDM QPSK BW=20 RB 1/104	167300	10	Rear	24.56	0.528	27.33	27.33
						10	Front	24.56	0.146	32.92	
						10	Edge 2	24.56	0.310	29.65	
						10	Edge 3	24.56	0.498	27.59	
						10	Edge 4	24.56	0.152	32.74	
Hotspot	3	NR Band n66	Main.2	DFT-s OFDM QPSK BW=40 RB 1/1	349000	10	Rear	21.58	0.342	26.24	25.84
						10	Front	21.58	0.285	27.03	
						10	Edge 3	21.58	0.375	25.84	
						10	Edge 4	21.58	0.196	28.66	

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) (Continued)

RF Exposure Conditions	DSI	band	Antenna	mode	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	P_{limit} (dBm)	Minimum P_{limit} (dBm)
Hotspot	3	NR Band n77-SRS0-	Sub.3	DFT-s OFDM QPSK BW=100 RB 135/138	650000	10	Rear	17.14	0.670	18.88	18.88
						10	Front	17.14	0.077	28.28	
						10	Edge 1	17.14	0.041	31.01	
						10	Edge 4	17.14	0.514	20.03	
Hotspot	3	NR Band n77-SRS1-	Sub.5	SRS CW	633334	10	Rear	9.82	0.039	23.91	23.91
						10	Front	9.82	0.015	28.06	
						10	Edge 1	9.82	0.031	24.91	
						10	Edge 4	9.82	0.001	39.82	
Hotspot	3	NR Band n77-SRS2-	Sub.2	SRS CW	650000	10	Rear	11.27	0.070	22.83	22.79
						10	Front	11.27	0.035	25.84	
						10	Edge 1	11.27	0.071	22.79	
						10	Edge 4	11.27	0.015	29.51	
Hotspot	3	NR Band n77-SRS3-	Main.2	SRS CW	662000	10	Rear	15.92	0.167	23.69	23.69
						10	Front	15.92	0.021	32.64	
						10	Edge 3	15.92	0.071	27.44	
						10	Edge 4	15.92	0.026	31.80	

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}.

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)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g (Sensor Off)	0	GSM 850	Main.1	GPRS 2 Slots	190	13	Rear	24.85	0.288	34.23	30.48
						0	Front	24.85	0.421	32.59	
						0	Edge 2	24.85	0.684	30.48	
						7	Edge 3	24.85	0.169	36.55	
						6	Edge 4	24.85	0.068	40.50	
Product Specific-10g (Sensor Off)	0	GSM 1900	Main.2	GPRS 2 Slots	661	13	Rear	21.62	0.229	32.00	23.48
						0	Front	21.62	1.630	23.48	
						7	Edge 3	21.62	0.479	28.80	
						6	Edge 4	21.62	0.190	32.81	
Product Specific-10g (Sensor Off)	0	WCDMA Band II	Main.2	Rel 99	9400	13	Rear	23.94	0.344	32.55	23.97
						0	Front	23.94	2.480	23.97	
						7	Edge 3	23.94	0.730	29.29	
						6	Edge 4	23.94	0.304	33.09	
Product Specific-10g (Sensor Off)	0	WCDMA Band V	Main.1	Rel 99	4183	0	Edge 2	24.69	0.362	33.08	33.08
Product Specific-10g (Sensor Off)	0	LTE Band 2	Main.2	QPSK BW=20 RB 1/99	19100	13	Rear	24.03	0.387	32.13	24.45
						0	Front	24.03	2.270	24.45	
						7	Edge 3	24.03	0.657	29.83	
						6	Edge 4	24.03	0.309	33.11	
Product Specific-10g (Sensor Off)	0	LTE Band 5	Main.1	QPSK BW=10 RB 1/0	20525	13	Rear	24.81	0.261	34.62	31.52
						0	Front	24.81	0.374	33.06	
						0	Edge 2	24.81	0.533	31.52	
						7	Edge 3	24.81	0.276	34.38	
						6	Edge 4	24.81	0.122	37.93	
Product Specific-10g (Sensor Off)	0	LTE Band 7	Main.2	QPSK BW=20 RB 1/99	21350	13	Rear	21.94	0.286	31.36	22.89
						0	Front	21.94	2.010	22.89	
						7	Edge 3	21.94	0.446	29.43	
						6	Edge 4	21.94	0.300	31.15	
Product Specific-10g (Sensor Off)	0	LTE Band 12	Main.1	QPSK BW=10 RB 1/0	23095	13	Rear	24.47	0.170	36.14	33.12
						0	Front	24.47	0.253	34.42	
						0	Edge 2	24.47	0.341	33.12	
						7	Edge 3	24.47	0.157	36.49	
						6	Edge 4	24.47	0.120	37.66	
Product Specific-10g (Sensor Off)	0	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	0	Edge 2	24.38	0.497	31.40	31.40
Product Specific-10g (Sensor Off)	0	LTE Band 48	Sub.3	QPSK BW=20 RB 1/0	56207	0	Rear	17.45	1.530	19.58	19.58
						0	Front	17.45	0.130	30.29	
						0	Edge 1	17.45	0.053	34.19	
						0	Edge 4	17.45	1.120	20.94	
Product Specific-10g (Sensor Off)	0	LTE Band 66(4)	Main.2	QPSK BW=20 RB 50/24	132072	13	Rear	23.24	0.382	31.40	24.10
						0	Front	23.24	2.050	24.10	
						7	Edge 3	23.24	0.725	28.62	
						6	Edge 4	23.24	0.212	33.96	
Product Specific-10g (Sensor Off)	0	NR Band n2	Main.2	DFT-s OFDM QPSK BW=20 RB 50/28	380000	13	Rear	23.92	0.310	32.99	24.95
						0	Front	23.92	1.970	24.95	
						7	Edge 3	23.92	0.646	29.80	
						6	Edge 4	23.92	0.266	33.65	
Product Specific-10g (Sensor Off)	0	NR Band n5	Main.1	DFT-s OFDM QPSK BW=20 RB 1/104	167300	0	Edge 2	24.56	0.510	31.46	31.46
Product Specific-10g (Sensor Off)	0	NR Band n66	Main.2	DFT-s OFDM QPSK BW=40 RB 1/1	349000	13	Rear	24.10	0.120	37.29	28.17
						0	Front	24.10	0.980	28.17	
						7	Edge 3	24.10	0.265	33.85	
						6	Edge 4	24.10	0.282	33.58	

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}.

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_{limit} (dBm)	Minimum P_{limit} (dBm)
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS0-	Sub.3	DFT-s OFDM QPSK BW=100 RB 135/138	650000	0	Rear	17.14	1.200	20.33	20.33
						0	Front	17.14	0.205	28.00	
						0	Edge 1	17.14	0.064	33.06	
						0	Edge 4	17.14	1.100	20.71	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS1-	Sub.5	SRS CW	633334	0	Rear	9.82	0.081	24.71	24.71
						0	Front	9.82	0.028	29.33	
						0	Edge 1	9.82	0.054	26.48	
						0	Edge 4	9.82	0.001	43.80	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS2-	Sub.2	SRS CW	650000	0	Rear	11.27	0.115	24.64	23.61
						0	Front	11.27	0.115	24.64	
						0	Edge 1	11.27	0.146	23.61	
						0	Edge 4	11.27	0.019	32.42	
Product Specific-10g (Sensor Off)	0	NR Band n77-SRS3-	Main.2	SRS CW	662000	0	Rear	15.92	0.052	32.74	20.11
						0	Front	15.92	0.952	20.11	
						0	Edge 3	15.92	0.209	26.70	
						0	Edge 4	15.92	0.062	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_{limit} instead of calculation P_{limit}.

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)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g (Sensor On)	1, 4	GSM 850	Main.1	GPRS 2 Slots	190	0	Rear	24.85	0.977	28.93	28.93
Product Specific-10g (Sensor On)	1, 4	GSM 1900	Main.2	GPRS 4 Slots	661	0	Rear	17.86	0.677	23.53	23.53
						0	Edge 3	17.86	0.257	27.74	
						0	Edge 4	17.86	0.479	25.04	
Product Specific-10g (Sensor On)	1, 4	WCDMA Band II	Main.2	Rel 99	9400	0	Rear	20.95	2.050	21.81	21.81
						0	Edge 3	20.95	1.000	24.93	
						0	Edge 4	20.95	1.110	24.48	
Product Specific-10g (Sensor On)	1, 4	WCDMA Band V	Main.1	Rel 99	4183	0	Rear	24.69	1.420	27.15	27.15
Product Specific-10g (Sensor On)	1, 4	LTE Band 2	Main.2	QPSK BW=20 RB 1/99	19100	0	Rear	21.06	1.940	22.16	22.16
						0	Edge 3	21.06	0.967	25.19	
						0	Edge 4	21.06	1.220	24.18	
Product Specific-10g (Sensor On)	1, 4	LTE Band 5	Main.1	QPSK BW=10 RB 25/12	20525	0	Rear	24.81	1.720	26.43	26.43
						0	Edge 3	24.81	0.836	29.57	
						0	Edge 4	24.81	0.084	39.55	
Product Specific-10g (Sensor On)	1, 4	LTE Band 7	Main.2	QPSK BW=20 RB 1/99	21350	0	Rear	20.44	2.140	21.12	21.12
						0	Edge 3	20.44	1.910	21.61	
						0	Edge 4	20.44	1.030	24.29	
Product Specific-10g (Sensor On)	1, 4	LTE Band 12	Main.1	QPSK BW=10 RB 1/0	23095	0	Rear	24.47	1.370	27.08	27.08
						0	Edge 3	24.47	0.543	31.10	
						0	Edge 4	24.47	0.051	41.37	
Product Specific-10g (Sensor On)	1, 4	LTE Band 13	Main.1	QPSK BW=10 RB 1/25	23230	0	Rear	24.38	1.040	28.19	28.19
Product Specific-10g (Sensor On)	1, 4	LTE Band 66(4)	Main.2	QPSK BW=20 RB 50/24	132072	0	Rear	21.25	1.860	22.53	22.53
						0	Edge 3	21.25	1.200	24.44	
						0	Edge 4	21.25	0.882	25.77	
Product Specific-10g (Sensor On)	1, 4	NR Band n2	Main.2	DFT-s OFDM QPSK BW=20 RB 50/28	380000	0	Rear	21.07	1.820	22.45	22.45
						0	Edge 3	21.07	0.997	25.06	
						0	Edge 4	21.07	1.370	23.68	
Product Specific-10g (Sensor On)	1, 4	NR Band n5	Main.1	DFT-s OFDM QPSK BW=20 RB 1/104	167300	0	Rear	24.56	2.210	25.10	25.10
Product Specific-10g (Sensor On)	1, 4	NR Band n66	Main.2	DFT-s OFDM QPSK BW=40 RB 1/1	349000	0	Rear	21.52	1.230	24.60	24.60
						0	Edge 3	21.52	0.879	26.06	
						0	Edge 4	21.52	0.406	29.41	

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}.

END OF REPORT