FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT
(Part 0: SAR CHARACTERIZATION)

FOR

GSM/WCDMA/LTE/5G NR Tablet + BT/BLE, DTS/UNII a/b/g/n/ac/ax and WPT

FCC ID: A3LSMX716B

Report Number: R14720550-S0V1

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Prepared for

SAMSUNG ELECTRONICS CO., LTD
129 Samsung-Ro, Yeongtong-Gu
Suwon-Si, Gyeonggi-Do, 16677, Korea

Prepared by

UL LLC
12 LABORATORY DR
RTP, NC 27709, U.S.A.
TEL: (919) 549-1400

Revision History

Rev.	Date	Revisions	Revised By
V1	5/20/2023	Initial Issue	Richard Jankovics

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1. Attestation of SAR Characterization

Applicant Name	SAMSUNG ELECTRONICS CO., LTD
FCC ID	A3LSMX716B
Model Name	SM-X716B
Reference SAR Report	R14720550-S1
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures
Report type	Part.0: SAR Characterization
Date Tested	
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 LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

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Approved & Released By:	Prepared By:
	
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Richard Jankovics Operations Leader UL LLC

2. Introduction

The equipment under test (EUT) is SAMSUNG Tablet (FCC ID : A3LSMX716B), 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.

The EUT supports WLAN/BT radio(s) as well, but the WLAN/BT modem is not enabled with Qualcomm's Smart Transmit feature.

3. Facilities and Accreditation

UL LLC is accredited by A2LA, cert. # 0751.06 for all testing performed within the scope of this report. Testing was performed at the locations noted below.

The test sites and measurement facilities used to collect data are located at 2800 Perimeter Park Dr, Morrisville, NC, USA.

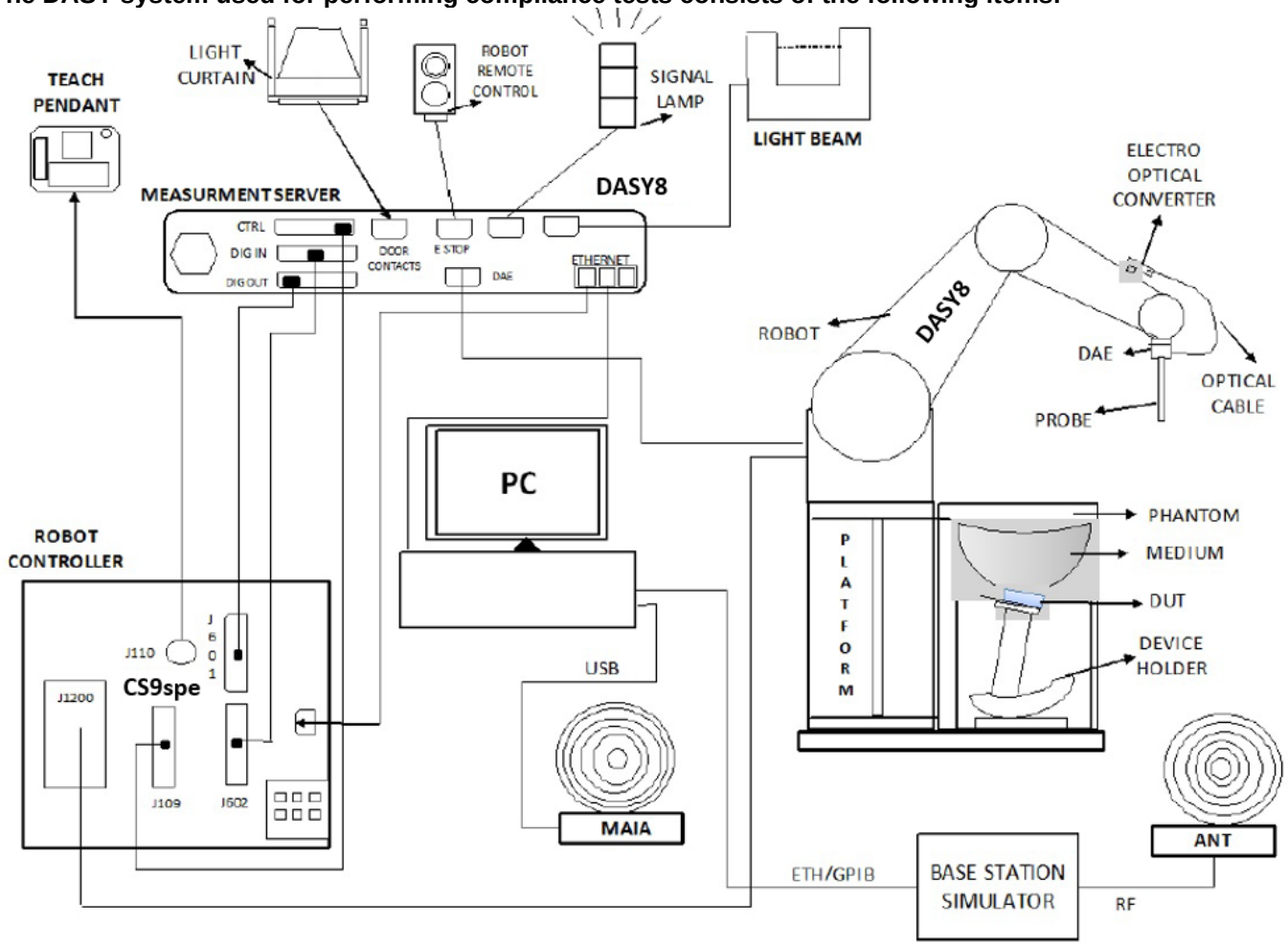
- SAR Lab 1A
- SAR Lab 2A
- SAR Lab 2B

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	Building: 12 Laboratory Dr RTP, NC 27709, U.S.A	US0067	2180C	825374
☒	Building: 2800 Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

4. SAR Measurement System & Test Equipment

4.1. SAR Measurement System

The DASY 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 DASY8[1] 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.

[1] DASY8 software used: DASY16.2.2.1588 and older generations.

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 IEC/IEEE 62209-1528, 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 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	Keysight	E5063A	MY54100681	9/30/2023
Dielectric Probe	SPEAG	DAKS-3.5	1051	10/17/2023
Shorting Block	SPEAG	DAK-3.5 Short	SM DAK 200 DA	10/17/2023
Thermometer	Fisher Scientific	15-078-181	1817705017	3/30/2024

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Signal Generator	Keysight	N5181A	MY50140788	1/31/2024
Power Meter	Keysight	N1912A	MY55136012	8/30/2023
Power Sensor	Keysight	N1921A	MY55090023	4/03/2024
Power Sensor	Keysight	N1921A	MY55090047	2/02/2024
Signal Generator [1]	Rohde & Schwarz	SMA100B	105115	4/30/2023
3-Path Diode Power Sensor	Rohde & Schwarz	NRP8S	112236	5/31/2023
3-Path Diode Power Sensor	Rohde & Schwarz	NRP8S	112237	5/31/2023
Amplifier	MITEQ	AMF-4D-00400600-50-30P	N/A	N/A
Directional coupler	Mini-Circuits	ZUDC10-183+	1438	N/A
DC Power Supply	Miteq	PS 15V1	1990186	N/A
RF Power Source	Speag	PowerSource1	4278	6/21/2023

Lab Equipment

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe	SPEAG	EX3DV4	7709	12/12/2023
E-Field Probe	SPEAG	EX3DV4	7710	2/3/2024
E-Field Probe	SPEAG	EX3DV4	7711	3/29/2024
Data Acquisition Electronics	SPEAG	DAE4	1714	11/23/2023
Data Acquisition Electronics	SPEAG	DAE4	1715	1/23/2024
Data Acquisition Electronics	SPEAG	DAE4	1716	3/16/2024
System Validation Dipole	SPEAG	D750V3	1139	10/12/2023
System Validation Dipole	SPEAG	D900V2	1d180	10/12/2023
System Validation Dipole	SPEAG	D1750V2	1136	10/17/2023
System Validation Dipole	SPEAG	D1900V2	5d202	10/12/2023
System Validation Dipole	SPEAG	D2450V2	963	10/18/2023
System Validation Dipole	SPEAG	D2600V2	1104	10/21/2023
System Validation Dipole	SPEAG	D5GHzV2	1213	10/11/2023
System Validation Dipole	SPEAG	D6.5GHzV2	1068	12/1/2023
Environmental Indicator	Control Company	06-662-4	200037610	2/24/2024
Environmental Indicator	Control Company	06-662-4	200037635	2/24/2024

Other

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
3-Path Diode Power Sensor	Rohde & Schwarz	NRP8S	112236	5/31/2023
3-Path Diode Power Sensor	Rohde & Schwarz	NRP8S	112237	5/31/2023
RF Power Meter	Keysight	N1911a	MY55116001	7/07/2023
RF Power Meter	Keysight	N1911a	MY55116002	9/10/2023
RF Power Meter	Keysight	N1912a	MY55116004	9/2/2023
RF Power Sensor	Keysight	N1921a	MY55090025	9/27/2023
RF Power Sensor	Keysight	N1921a	MY55090030	6/15/2023
RF Power Sensor	Keysight	E9323A	MY55110006	6/15/2023
Base Station Simulator	R & S	CMW 500	170733	12/14/2023
Base Station Simulator	R & S	CMW 500	170732	12/8/2023
Base Station Simulator [1]	R & S	CMW 500	170193	5/2/2023
Base Station Simulator [1]	R & S	CMW 500	170194	5/5/2023
Base Station Simulator	Anritsu	MT8821C	6262116751	5/14/2023
Base Station Simulator [1]	Anritsu	MT8000A	6272354129	4/28/2023
Bluetooth Tester	R & S	CBT	1153.9000K35-100913-Xm	N/A

Note(s):

1. Equipment not used for calibrated measurements past calibration due date.

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) EDGE (8PSK)	GSM Class : B Multi-Slot Class: Class 12 - 4 Up, 4 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 IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Cat. 24) HSUPA (Cat. 6) DC-HSDPA (Cat. 24)		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[1] FDD Band 66	QPSK 16QAM 64QAM 256QAM Rel. 16 Carrier Aggregation (1 Uplink and 5 Downlinks)		100% (FDD) 63.3% (TDD) Power Class 3 43.3% (TDD)Power Class 2
5G NR (FR1)	FDD band n5 FDD band n66	DFT-S-OFDM: π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: π/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM		100% (FDD)
Wi-Fi	2.4 GHz	802.11b 802.11g 802.11n (HT20) 802.11n (HT40) 802.11ax (VHT160)		98.8% (802.11b) [2]
	5 GHz	802.11a 802.11n (HT20) 802.11n (HT40) 802.11ac (VHT20) 802.11ac (VHT40) 802.11ac (VHT80) 802.11ac (VHT160) 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80) 802.11ax (HE160)		86.4% (802.11n 40MHz BW) [2] 97.4% (802.11ac 80MHz BW) [2] 97.4% (802.11ac 160MHz BW) [2]
	Does this device support bands 5.60 ~ 5.65 GHz? ☒ Yes ☐ No			
	Does this device support Band gap channel(s)? ☒ Yes ☐ No			
	6 GHz	802.11a 802.11ax (HE20) 802.11ax (HE40) 802.11ax (HE80) 802.11ax (HE160)		99.7%(802.11ax 160MHz BW)[2]
Bluetooth	2.4 GHz	BR, EDR, LE		76.5%[2]

Notes:

1. This device supports Power Class 2 and Power Class 3 for LTE Band 41.
2. Duty cycle is referenced from the Section 9.

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)	
Total Uncertainty	**1.0 dB**
SAR_regulatory_limit	**1.6 W/kg**
SAR_design_target	**1.0 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
Standalone exposure Without triggering sensor	0	Proximity sensor is not triggered even if Device was touched to user's body or hands. Proximity sensor is not triggered due to triggering distance.	KDB 616217 D04
Standalone exposure With triggering sensor	1	Proximity sensor is triggered, when Device was touched to user's body or hands.	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. Standalone SAR measured at 21, 26, 11 mm spacing for Rear, Top, Right. Standalone SAR measured at 0 mm for Left (Main Ant.1)
DSI = 1	1. Plimit is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear, Top, Right (Main Ant.1)

Notes:

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

Main Ant.1)

P_{limit} = min{ P_{limit} corresponding to 1g Standalone SAR evaluation at 21 (Rear), 26 (Top), 11 (Right) mm spacing, P_{limit} corresponding to 1g Standalone SAR evaluation at 0 mm for Left surface}

SAR Characterizations

Exposure condition		Standalone (Proximity Sensor Off)	Standalone (Proximity Sensor On)	Pmax (Maximum tune-up Power) (dBm)
Averaging Volume		1g	1g	
test distance		21/26/11/0 mm	0 mm	
DSI:		0	1	
RF Air Interface	Antenna	Plimit corresponding to 1.0 W/kg (SAR_design_target)	Plimit corresponding to 1.0 W/kg (SAR_design_target)	
GSM 850	Main.1	34.76	13.54	24.98
GSM 1900	Main.1	34.64	11.04	21.98
WCDMA Band II	Main.1	26.65	14.00	23.50
WCDMA Band IV	Main.1	28.25	14.50	23.50
WCDMA Band V	Main.1	28.63	14.00	23.50
LTE Band 12/17	Main.1	30.80	14.00	23.50
LTE Band 13	Main.1	28.38	14.00	23.50
LTE Band 25/2	Main.1	27.20	14.00	23.50
LTE Band 26/5	Main.1	28.40	14.00	23.50
LTE Band 41-PC3	Main.1	33.14	13.00	21.50
LTE Band 41-PC2	Main.1	33.56		21.40
LTE Band 66/4	Main.1	28.46	14.00	23.50
NR Band n5	Main.1	28.40	14.00	24.00
NR Band n66	Main.1	28.27	14.00	23.50

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 Plimit EFS and maximum tune up output Pmax 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. 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

Standalone (Proximity sensor Off) (DSI = 0)

RF Exposure Conditions	Antenna	band	mode	DSI	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimim Plimit (dBm)
Standalone	Main Ant.1	GSM 850	GPRS 2 Slots	0	190	21	Rear	31.70	0.494	34.76	34.76
					190	26	Top	31.70	0.346	36.31	
					190	11	Right	31.70	0.121	40.87	
					190	0	Left	31.70	0.186	39.00	
Standalone	Main Ant.1	GSM 1900	GPRS 2 Slots	0	810	21	Rear	27.90	0.180	35.35	34.64
					810	26	Top	27.90	0.169	35.62	
					810	11	Right	27.90	0.051	40.82	
					810	0	Left	27.90	0.212	34.64	
Standalone	Main Ant.1	WCDMA Band II	Rel.99	0	9262	21	Rear	24.40	0.596	26.65	26.65
					9262	26	Top	24.40	0.394	28.45	
					9262	11	Right	24.40	0.122	33.54	
					9262	0	Left	24.40	0.297	29.67	
Standalone	Main Ant.1	WCDMA Band IV	Rel.99	0	1513	21	Rear	24.40	0.356	28.89	28.25
					1513	26	Top	24.40	0.254	30.35	
					1513	11	Right	24.40	0.137	33.03	
					1513	0	Left	24.40	0.412	28.25	
Standalone	Main Ant.1	WCDMA Band V	Rel.99	0	4183	21	Rear	24.00	0.344	28.63	28.63
					4183	26	Top	24.00	0.215	30.68	
					4183	11	Right	24.00	0.097	34.13	
					4183	0	Left	24.00	0.130	32.86	
Standalone	Main Ant.1	LTE Band 12/17	QPSK BW=10 RB 1/49	0	23095	21	Rear	24.30	0.224	30.80	30.80
					23095	26	Top	24.30	0.159	32.29	
					23095	11	Right	24.30	0.052	37.14	
					23095	0	Left	24.30	0.137	32.93	
Standalone	Main Ant.1	LTE Band 13	QPSK BW=10 RB 1/0	0	23230	21	Rear	23.50	0.325	28.38	28.38
					23230	26	Top	23.50	0.260	29.35	
					23230	11	Right	23.50	0.053	36.26	
					23230	0	Left	23.50	0.257	29.40	
Standalone	Main Ant.1	LTE Band 25/2	QPSK BW=20 RB 1/0	0	26140	21	Rear	23.80	0.457	27.20	27.20
					26140	26	Top	23.80	0.351	28.35	
					26140	11	Right	23.80	0.099	33.84	
					26140	0	Left	23.80	0.256	29.72	
Standalone	Main Ant.1	LTE Band 26/5	QPSK BW=15 RB 1/37	0	26865	21	Rear	23.60	0.331	28.40	28.40
					26865	26	Top	23.60	0.190	30.81	
					26865	11	Right	23.60	0.080	34.57	
					26865	0	Left	23.60	0.105	33.39	
Standalone	Main Ant.1	LTE Band 41 (PC3)	QPSK BW=20 RB 1/0	0	39750	21	Rear	23.90	0.083	34.71	33.14
					39750	26	Top	23.90	0.108	33.57	
					39750	11	Right	23.90	0.042	37.67	
					39750	0	Left	23.90	0.119	33.14	
Standalone	Main Ant.1	LTE Band 41 (PC2)	QPSK BW=20 RB 1/49	0	40185	21	Rear	24.80	0.095	35.02	33.56
					40185	26	Top	24.80	0.133	33.56	
					40185	11	Right	24.80	0.040	38.78	
					40185	0	Left	24.80	0.105	34.59	
Standalone	Main Ant.1	LTE Band 66/4	QPSK BW=20 RB 1/0	0	132572	21	Rear	24.00	0.310	29.09	28.46
					132572	26	Top	24.00	0.332	28.79	
					132572	11	Right	24.00	0.097	34.13	
					132572	0	Left	24.00	0.358	28.46	
Standalone	Main Ant.1	NR Band 5	DFT-s-OFDM QPSK BW=20 RB 50/28	0	167300	21	Rear	24.60	0.417	28.40	28.40
					167300	26	Top	24.60	0.229	31.00	
					167300	11	Right	24.60	0.085	35.31	
					167300	0	Left	24.60	0.168	32.35	
Standalone	Main Ant.1	NR Band 66	DFT-s-OFDM QPSK BW=20 RB 108/54	0	349000	21	Rear	24.20	0.377	28.44	28.27
					349000	26	Top	24.20	0.307	29.33	
					349000	11	Right	24.20	0.128	33.13	
					349000	0	Left	24.20	0.392	28.27	

Notes:

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

Standalone (Proximity sensor On) (DSI = 1)

RF Exposure Conditions	Antenna	band	mode	DSI	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimim Plimit (dBm)
Standalone	Main Ant.1	GSM 850	GPRS 3 Slots	1	190	0	Rear	17.70	0.212	24.44	23.31
					190	0	Top	17.70	0.275	23.31	
					190	0	Right	17.70	0.025	33.72	
Standalone	Main Ant.1	GSM 1900	GPRS 3 Slots	1	661	0	Rear	15.80	0.323	20.71	20.65
					661	0	Top	15.80	0.327	20.65	
					661	0	Right	15.80	0.022	32.38	
Standalone	Main Ant.1	WCDMA Band II	Rel.99	1	9400	0	Rear	14.70	0.862	15.34	15.13
					9400	0	Top	14.70	0.906	15.13	
					9400	0	Right	14.70	0.075	25.95	
Standalone	Main Ant.1	WCDMA Band IV	Rel.99	1	1413	0	Rear	14.90	0.630	16.91	15.46
					1413	0	Top	14.90	0.880	15.46	
					1413	0	Right	14.90	0.039	28.99	
Standalone	Main Ant.1	WCDMA Band V	Rel.99	1	4183	0	Rear	14.50	0.462	17.85	17.38
					4183	0	Top	14.50	0.515	17.38	
					4183	0	Right	14.50	0.026	30.35	
Standalone	Main Ant.1	LTE Band 12/17	QPSK BW=10 RB 1/25	1	23095	0	Rear	14.90	0.420	18.67	18.67
					23095	0	Top	14.90	0.403	18.85	
					23095	0	Right	14.90	0.019	32.11	
Standalone	Main Ant.1	LTE Band 13	QPSK BW=10 RB 25/0	1	23230	0	Rear	14.00	0.353	18.52	18.52
					23230	0	Top	14.00	0.350	18.56	
					23230	0	Right	14.00	0.019	31.21	
Standalone	Main Ant.1	LTE Band 25/2	QPSK BW=20 RB 50/0	1	26140	0	Rear	14.70	0.717	16.14	14.61
					26140	0	Top	14.70	1.020	14.61	
					26140	0	Right	14.70	0.041	28.57	
Standalone	Main Ant.1	LTE Band 26/5	QPSK BW=15 RB 36/0	1	26865	0	Rear	13.80	0.384	17.96	16.48
					26865	0	Top	13.80	0.540	16.48	
					26865	0	Right	13.80	0.019	31.01	
Standalone	Main Ant.1	LTE Band 41 (PC3)	QPSK BW=20 RB 50/24	1	41055	0	Rear	15.50	0.571	17.93	15.68
					41055	0	Top	15.50	0.959	15.68	
					41055	0	Right	15.50	0.036	29.94	
Standalone	Main Ant.1	LTE Band 66/4	QPSK BW=20 RB 50/50	1	132322	0	Rear	14.60	0.746	15.87	15.87
					132322	0	Top	14.60	0.735	15.94	
					132322	0	Right	14.60	0.133	23.36	
Standalone	Main Ant.1	NR Band 5	DFT-s-OFDM QPSK BW=20 RB 50/28	1	167300	0	Rear	14.20	0.368	18.54	17.07
					167300	0	Top	14.20	0.517	17.07	
					167300	0	Right	14.20	0.022	30.78	
Standalone	Main Ant.1	NR Band 66	DFT-s-OFDM QPSK BW=20 RB 1/108	1	352000	0	Rear	14.50	0.878	15.07	14.95
					352000	0	Top	14.50	0.901	14.95	
					352000	0	Right	14.50	0.046	27.87	

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