FCC 47 CFR § 2.1093
IEEE Std 1528-2013

SAR EVALUATION REPORT
(SAR CHARACTERIZATION Report)

FOR

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

MODEL NUMBER: SM-A166U, SM-A166U1, SM-S166V

FCC ID: A3LSMA166U

REPORT NUMBER: S-4791440365-S1V2

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Testing Laboratory

TL-637

Revision History

Rev.	Date	Revisions	Revised By
V1	2024-10-11	Initial Issue	--
V2	2024-10-18	Revised table in Sec. 5.1 Revised note in Sec. 5.1. Revised table 6.3.1.2. in Sec. 6.3.1.	Hakchul Lee

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1. Attestation of SAR Characterization

Applicant Name	SAMSUNG ELECTRONICS CO.,LTD.
FCC ID	A3LSMA166U
Model Number	SM-A166U, SM-A166U1, SM-S166V
Applicable Standards	FCC 47 CFR § 2.1093 IEEE Std 1528-2013 Published RF exposure KDB procedures
Report type	SAR Characterization Report
Date Tested	2024-08-13 to 2024-10-11
SAR Characterization Purpose	SAR Char is the procedures for determining P_{Limit} for WWAN (2G/3G/4G/5G-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

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	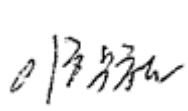
Justin Park Operations Leader UL Korea, Ltd. Suwon Laboratory	Hakchul Lee Laboratory Engineer UL Korea, Ltd. Suwon Laboratory

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2. Introduction

The equipment under test (EUT) is SAMSUNG Smartphone (FCC ID : A3LSMA166U), it contains S.LSI TAS supporting WWAN technologies (2G/3G/4G/5G-Sub6). TAS chipset is enabled with TAS (Time Average SAR) algorithm has been designed to meet the compliance limits over the required duration, while still allowing dynamic control of transmit power for meeting system performance.

And The EUT has also supports to WLAN/BT/NFC technologies, but There are not support to TAS algorithm.

This purpose of the SAR Char 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 2 Room	SAR 7 Room
SAR 3 Room	SAR 8 Room
SAR 4 Room	SAR 9 Room
SAR 5 Room	

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The full scope of accreditation can be viewed at

https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

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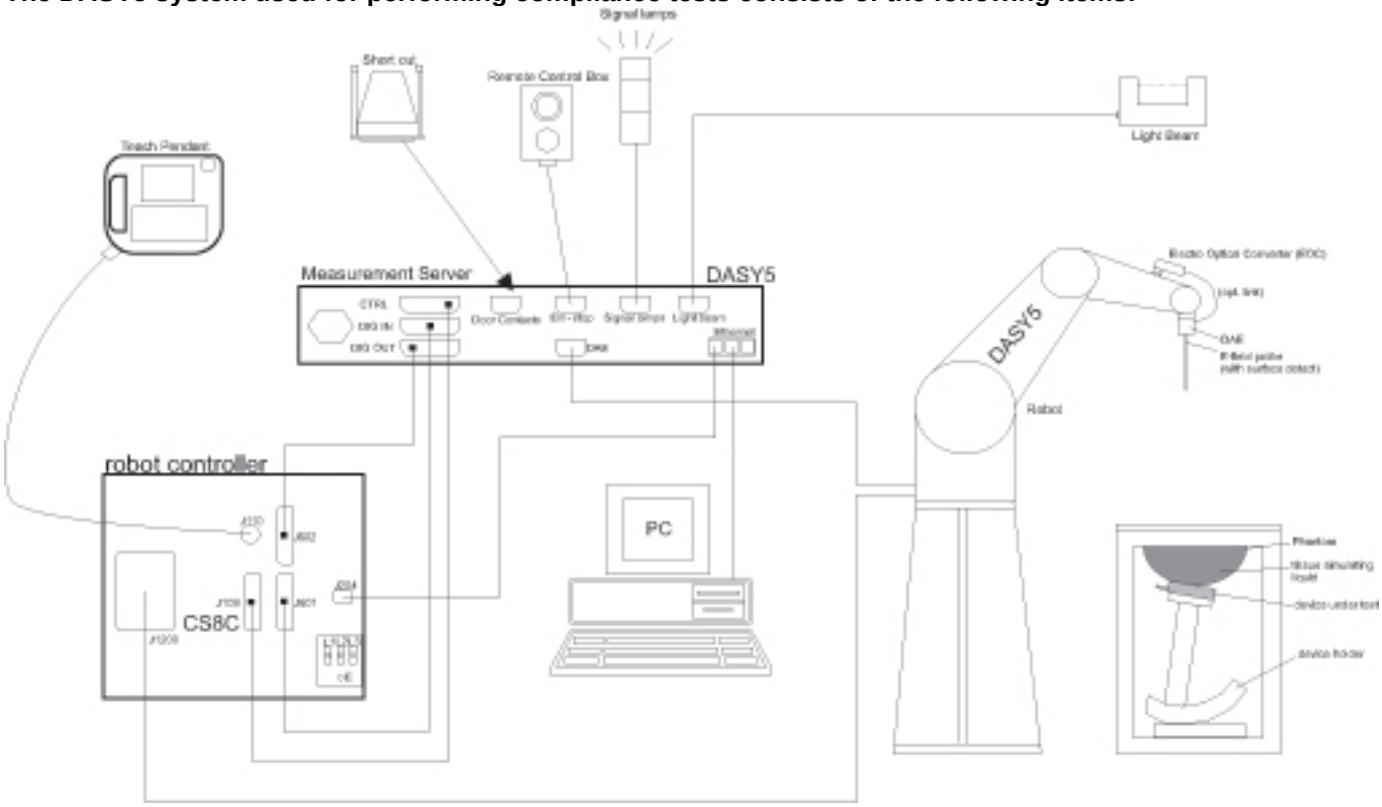
4. SAR Measurement System & Test Equipment

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 Win11 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.

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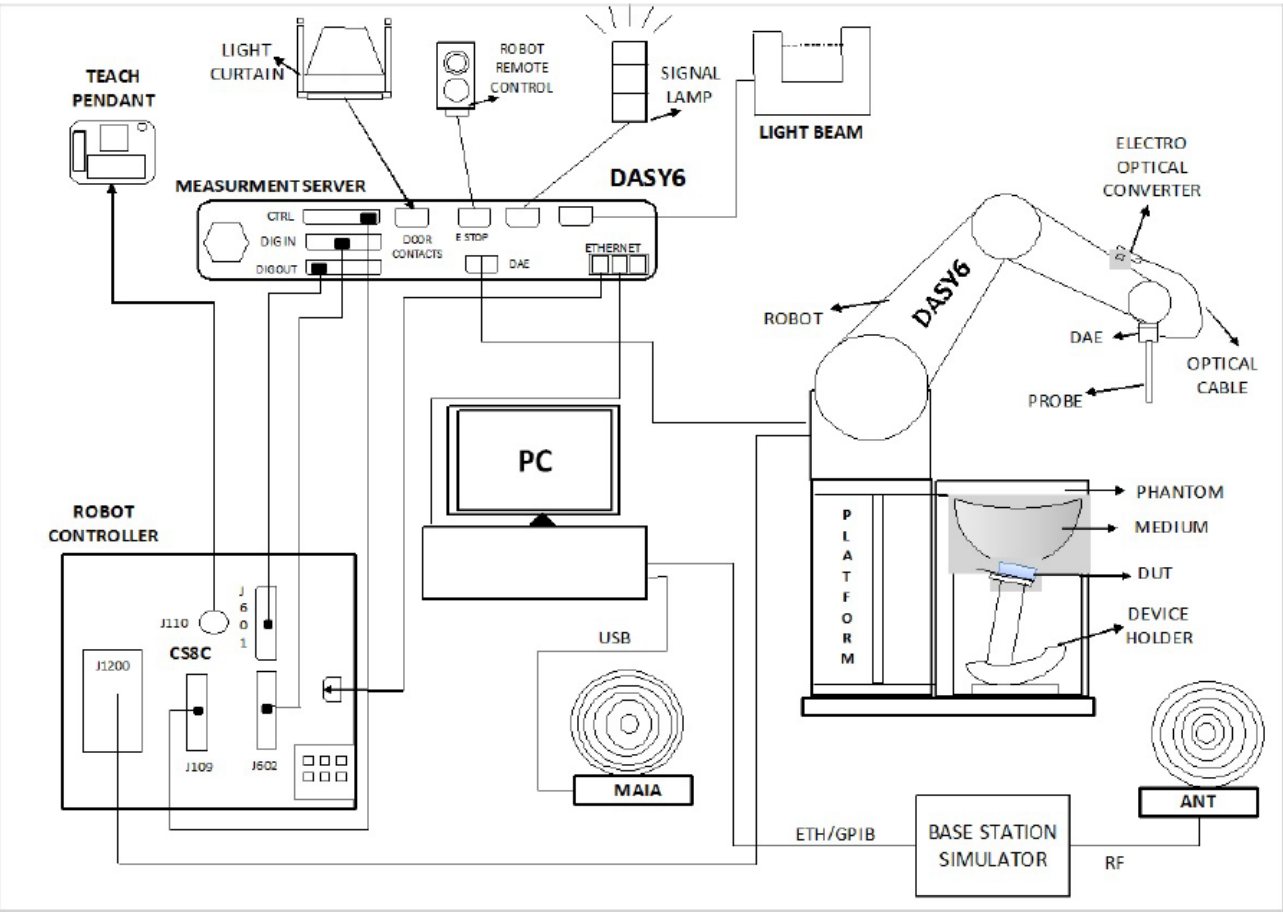
The DASY6 & 8 system used for performing compliance tests consists of the following items:



- 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 Win11 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.

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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 1.4 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.	

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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.

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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	2025-07-24
Network Analyzer	ROHDE & SCHWARZ	ZNB 20	102256	2025-07-22
Dielectric Assessment Kit	SPEAG	DAK-12	1158	2024-09-20
Dielectric Assessment Kit	SPEAG	DAK-3.5	1133	2025-02-19
Dielectric Assessment Kit	SPEAG	DAK-3.5	1134	2025-04-22
Dielectric Assessment Kit	SPEAG	DAK-3.5	1196	2025-06-10
Vector Network Analyzer	SPEAG	DAKS_VNA R140	SN0050221	2025-04-15
Vector Network Analyzer	SPEAG	DAKS_VNA R140	SN0060221	2025-03-21
Shorting block	SPEAG	DAK-3.5 Short	SMDAK 200 BA	N/A
Shorting block	SPEAG	DAK-12 Short	SMDAK 220 AD	N/A
Thermometer	LKM	DTM3000	3851	2025-07-23
Thermometer	LKM	DTM3000	3862	2025-07-23

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
MXG Analog Signal Generator	Keysight	N5181B	MY59100587	2025-07-25
MXG Analog Signal Generator	Keysight	N5173B	MY59101083	2025-07-23
Power Sensor	KEYSIGHT	U2000A	MY60490008	2025-07-23
Power Sensor	KEYSIGHT	U2000A	MY60160004	2025-07-23
Power Sensor	KEYSIGHT	U2000A	MY61010006	2025-07-23
Power Sensor	KEYSIGHT	U2000A	MY54260007	2025-07-25
Power Sensor	KEYSIGHT	U2004A USB Sensor	MY61200006	2025-01-03
Power Sensor	KEYSIGHT	U2004A USB Sensor	MY61280010	2025-01-03
Power Amplifier	EXODUS	AMP2027	1410025-AMP2027-10003	2025-02-14
Power Amplifier	MINI-CIRCUITS	TVA-R5-13A+	2111006	2025-01-03
Power Amplifier	EXODUS	AMP2027ADB	10002	2025-01-05
Power Amplifier	Sambo	BA00T60W2D	S3010-0001	2025-02-21
Directional Coupler	Aglient	772D	MY52180193	2025-07-25
Directional Coupler	H.P	778D	16133	2025-07-25
Directional Coupler	MINI-CIRCUITS	ZMDC-30-1+	SF569102123	2025-07-24
Directional Coupler	KRYTAR	100318010	215541	2025-01-04
Low Pass Filter	FILTRON	L14012FL	1410003S	2025-07-24
Low Pass Filter	MICROLAB	LA-60N	3942	2025-07-24
Low Pass Filter	MINI-CIRCUITS	VLF-6000+	S0142	2025-07-24
Low Pass Filter	MINI-CIRCUITS	VLF-3000+	S0143	2025-07-24
Low Pass Filter	MINI-CIRCUITS	NLP-1200+	VUU19301915	2025-01-04
Low Pass Filter	KRYTAR	VLKX10-11000-13640-21000-60TS	1	2025-07-23
Attenuator	KEYSIGHT	8491B003	MY39272275	2025-07-23
Attenuator	KEYSIGHT	8491B/003	MY39272276	2025-07-23
Attenuator	KEYSIGHT	8491B/010	MY39271981	2025-07-24
Attenuator	KEYSIGHT	8491B/010	MY39272011	2025-07-24
Attenuator	KEYSIGHT	8491B010	MY39272293	2025-07-23
Attenuator	KEYSIGHT	8491B010	MY39272306	2025-07-24
Attenuator	KEYSIGHT	8491B020	MY39272300	2025-07-23
Attenuator	KEYSIGHT	8491B/020	MY39272302	2025-07-24
Attenuator	KEYSIGHT	8491B/020	MY39271973	2025-07-24

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.

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Test Equipment (Continued)

System Check

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
E-Field Probe	SPEAG	EX3DV4	7313	2025-02-21
E-Field Probe	SPEAG	EX3DV4	7376	2025-07-17
E-Field Probe	SPEAG	EX3DV4	7314	2025-05-23
E-Field Probe	SPEAG	EX3DV4	7330	2025-01-22
E-Field Probe	SPEAG	EX3DV4	7645	2024-09-20
E-Field Probe	SPEAG	EX3DV4	7651	2025-03-18
E-Field Probe	SPEAG	EX3DV4	7646	2025-03-15
E-Field Probe	SPEAG	EX3DV4	7652	2025-04-22
Data Acquisition Electronics	SPEAG	DAE4	1494	2025-07-15
Data Acquisition Electronics	SPEAG	DAE4	1447	2025-03-13
Data Acquisition Electronics	SPEAG	DAE4	1591	2025-02-16
Data Acquisition Electronics	SPEAG	DAE4	1670	2025-05-15
Data Acquisition Electronics	SPEAG	DAE4	1671	2025-04-18
Data Acquisition Electronics	SPEAG	DAE4	1343	2025-07-12
Data Acquisition Electronics	SPEAG	DAE4	1668	2025-04-18
System Validation Dipole	SPEAG	CLA -13	1015	2025-08-22
System Validation Dipole	SPEAG	D750V3	1122	2025-02-22
System Validation Dipole	SPEAG	D835V2	4d194	2025-03-11
System Validation Dipole	SPEAG	D1750V2	1125	2024-11-30
System Validation Dipole	SPEAG	D1900V2	5d190	2024-11-16
System Validation Dipole	SPEAG	D1900V2	5d199	2025-03-13
System Validation Dipole	SPEAG	D2300V2	1115	2025-04-25
System Validation Dipole	SPEAG	D2450V2	939	2025-07-10
System Validation Dipole	SPEAG	D2450V2	960	2025-03-14
System Validation Dipole	SPEAG	D2600V2	1178	2025-04-25
System Validation Dipole	SPEAG	D3500V2	1075	2025-05-19
System Validation Dipole	SPEAG	D3700V2	1036	2025-05-19
System Validation Dipole	SPEAG	D3900V2	1069	2025-04-21
System Validation Dipole	SPEAG	D5GHzV2	1325	2025-04-21
Thermometer	Lutron	MHB-382SD	AH.50215	2025-01-04
Thermometer	Lutron	MHB-382SD	AH.50213	2025-01-04
Thermometer	Lutron	MHB-382SD	AJ.42446	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12102	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12103	2025-07-24
Thermometer	Lutron	MHB-382SD	AK.12123	2025-01-04
Thermometer	Lutron	MHB-382SD	AK.18789	2025-07-24
Thermometer	Lutron	MHB-382SD	AJ.45903	2025-01-04

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.

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Test Equipment (Continued)

Others

Name of Equipment	Manufacturer	Type/Model	Serial No.	Cal. Due Date
Base Station Simulator	R & S	CMW500	150313	2025-07-24
Base Station Simulator	R & S	CMW500	150314	2025-07-24
Base Station Simulator	R & S	CMW500	162790	2025-07-25
Base Station Simulator	R & S	CMW500	169803	2025-03-25
Base Station Simulator	R & S	CMW500	169801	2025-01-03
Base Station Simulator	R & S	CMW500	169802	2025-01-03
Base Station Simulator	R & S	CMW500	169799	2025-07-25
Base Station Simulator	R & S	CMW500	169800	2025-07-24
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY57510596	2025-07-30
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY59150850	2025-01-03
UXM 5G Wireless Test Platform	KEYSIGHT	E7515B	MY58120110	2025-01-03
Radio Communication Test Station	Anritsu	MT8000A	6272466165	2025-08-20
Radio Communication Analyzer	Anritsu	MT8821C	6161094351	2025-08-20

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.

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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 IV Band V	UMTS Rel. 99 (Voice & Data) HSDPA (Category 24) HSUPA (Category 6) DC-HSDPA (Category 24) HSPA+ (DL only)		100%
LTE	**FDD Bands** 2/ 25/ 66/ 4/ 5/ 26/ 29(DL)/ 7/ 12/ 13/ 14/ 30/ 71 **TDD Bands** 41[1]/ 38/ 48	QPSK 16QAM 64QAM 256QAM Rel. 16 Carrier Aggregation (2 Uplink and 4 Downlinks) **UL CA intraband-contiguous (2CC)** 41C/ 48C		100% (FDD) 63.3% (TDD) Power Class 3 43.3% (TDD) Power Class 2
	Does this device support SV-LTE (1xRTT-LTE)? ☐ Yes ☒ No			
5G NR (Sub 6)	**FDD Bands** n25/ n2/ n5/ n29(DL)/ n30/ n66/ n70/ n71 **TDD Bands** n41[1]/ n48/ n77[1]/ n78[1]	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)		98.9% (802.11b-SISO)
	5 GHz	802.11a / 802.11n (HT20/40) 802.11ac (VHT20/40/80)		96.8% (802.11a SISO) 92.2% (802.11ac (VHT80-SISO)
	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		97.5%(BLE)
NFC	13.56 MHz	Type A/B/F		100%

Notes

1. This device supports Power Class 2(HPUE) and Power Class 3 for LTE Band 41 and NR Band n41, n77, n78.
2. This device supports UL CA intra band in LTE Band. Detail of configuration refer to Appendix G.
3. NR TDD Band n48, n77, n78 has support SRS (0,1,2,3) modes.

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5.2 Time-Averaging for SAR

This device is enabled with Samsung S.LSI proprietary TAS (Time Average SAR) algorithm to control and manage transmitting power in real time and to ensure that the time-averaged RF exposure from WWAN is compliance with FCC requirement. This SAR Char report shows SAR characterization of WWAN radios. Characterization is achieved by determining P_{limit} for WWAN radios 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 SAR Characterization Report for WWAN

Term	Descroption
P_{max}	Maximum Tx power that can be transmitted physically from RFIC for a given RAT.
SAR_regulatory_limit	SAR value limit specified by FCC.
SAR_design_target	Target SAR level using in TAS algorithm. This SAR value should be less than SAR regulatory limit and should be determined after accounting for all uncertainties and other design considerations.
P_{limit}	Power level corresponds to the SAR design target.
SAR Char (SAR Characterization)	Table containing Plimit for all technologies and bands.

Table 5.3.1 Definitions for TAS algorithm

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6. SAR Characterizations

6.1 SAR Design Target

6.1.1 WWAN 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.

WWAN_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**

Table 6.1.1 Definitions of uncertainty and design target for WWAN techs.

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6.2 SAR Determination

6.2.1 RSI and SAR Determination in WWAN techs

This device uses different Radio SAR Index (RSI) **via S.LSI TAS** to configure different time averaged power levels based on certain exposure scenarios. Depending on the detection scheme implemented in the wireless device, the worst-case SAR was determined by measurements for the relevant exposure conditions for that RSI. Detailed descriptions of the detection mechanisms are included in the operational description.

The radio SAR Index (RSI) conditions used in below table represent different exposure scenarios.

RF exposure Conditions	Technologuies Supported	RSI conditions	Description
Head	All WWAN bands	4 (RCV)	1. Device positioned next to head. 2. Receiver Active.
Body-worn	All WWAN bands	0 (Free)	1. Device being used with a body-worn accessory.
Hotspot	All WWAN bands	3 (Hotspot)	1. Device transmits in hotspot mode near body. 2. Hotspot Mode Active.
Phablet-10g	All WWAN bands	0 (Free)	1. Device is held with hand.

Table 6.2.1 RSI and Corresponding Exposure Scenarios

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6.3 Plimit determination

6.3.1 Plimit determination of RSI scenarios

SAR results corresponding to P_{max} for each antenna/technology/band/RSI can be found in Section.7.1. P_{limit} is calculated by linearly scaling with 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.
If Plimit is lower than Pmax, then SAR Char's SAR data were referred to SAR data in SAR report.

Table 6.3.1.1 P_{Limit} Determination of WWAN's RSI scenarios

RSI state	Plimit Determination Scenarios
RCV	Plimit is calculated based on 1g Head exposure SAR results.
Hotspot	Plimit is calculated based on 1g Hotspot exposure SAR results at 10 mm test distance.
Free	The worst-case SAR exposure is determine as maximum SAR normalized to the limit (i.e. lowest Plimit) among: 1. 1g Body worn SAR measured at 10 mm test distance. 2. 10g Phablet SAR measured at 0 mm test distance.

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Table 6.3.1.2 Plimit result according to technologies and bands in each RSI

Exposure condition			Head (RCV)	Bodyworn & Hotspot	Phablet 10-g SAR	Pmax (Maximum tune-up Power) (dBm)
Spatial-average			1g	1g	10g	
Test distance (mm)			0	10	0	
RSI			4	0 & 3	0	
RF Air Interface	Antenna	Antenna Group	Plimit corresponding to 1.0 W/kg (SAR_design_target) (1g) / 2.5 W/kg (SAR_design_target) (10g)			
GSM 850	A	0	23.80	23.80		23.80
GSM 1900	A	0	22.10	22.10		22.10
WCDMA Band II	A	0	24.00	21.00		24.00
WCDMA Band IV	A	0	24.00	21.00		24.00
WCDMA Band V	A	0	24.50	24.50		24.50
LTE Band 2	B	1	21.00	20.00		23.00
LTE Band 25 (2)	A	0	23.00 (22.00)	20.00		24.00 (24.50)
LTE Band 66 (4)	A	0	24.50 (24.00)	21.00		24.50 (24.00)
LTE Band 66	B	1	21.00	21.00		24.50
LTE Band 5	A	0	22.50	23.00		24.50
LTE Band 26	A	0	24.50	24.50		24.50
LTE Band 7	A	0	23.00	20.00		23.00
LTE Band 12	A	0	24.50	24.50		24.50
LTE Band 13	A	0	24.00	22.50		24.00
LTE Band 14	A	0	24.00	22.50		24.00
LTE Band 30	A	0	21.50	17.50		21.50
LTE Band 71	A	0	24.50	22.50		24.50
LTE Band 41 PC3 (38)	A	0	18.00	16.00		21.50
LTE Band 41 PC2	A	0	18.90	16.90		22.90
LTE Band 48	E	1	12.00	12.00		18.50
NR Band n2	B	1	21.00	20.00		24.00
NR Band n25 (2)	A	0	22.50	20.00		24.50
NR Band n5	A	0	24.50	24.50		24.50
NR Band n30	A	0	21.50	20.00		21.50
NR Band n41 PC3	A	0	15.00	17.00		23.50
NR Band n41 PC2	A	0	15.00	17.00		26.50
NR Band n48	E	1	14.00	14.00		21.00
NR Band n48 SRS#1	G	1	14.00	14.00		20.00
NR Band n48 SRS#2	D	1	14.00	14.00		20.00
NR Band n48 SRS#3	F	1	14.00	14.00		19.50
NR Band n66	A	0	22.50	19.00		24.50
NR Band n66	B	1	20.00	20.00		24.00
NR Band n70	A	0	24.50	20.00		24.50
NR Band n71	A	0	24.50	24.50		24.50
NR Band n77 (78) PC3	E	1	14.00 (13.00)	14.00		24.00 (23.00)
NR Band n77 (78) PC2	E	1	14.00 (13.00)	14.00		27.00 (26.00)
NR Band n77 (78) SRS1	G	1	14.00 (13.00)	14.00		21.00 (21.00/19.50)
NR Band n77 (78) SRS2	D	1	14.00 (13.00)	14.00		20.00
NR Band n77 (78) SRS3	F	1	14.00 (13.00)	14.00		19.00/18.50

Notes:

1. All *PLimit* 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 (for e.g., GSM/LTE TDD). NR TDD's *Pmax* was listed as burst power.
2. Maximum tune up output power *Pmax* is used to configure EUT during RF tune up procedures. The maximum allowed output power is equal to maximum tune up output power + 1dB device design uncertainty.
3. Measurement Condition: All conducted power and SAR measurements in this SAR report were performed by setting static Power condition.
4. If *PLimit* is higher than *Pmax* for some modes / bands, The modes/bands will operate at a power level up to *Pmax*.
5. LTE Band 2, 25/ 4, 66/ NR Band n77, n78 has different tune-up power in RCV and Pmax.
6. NR Band n77 SRS3, n78 SRS1 and SRS3 has different tune-up power in DoD/Upper band.

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7. SAR Test results for Plimit calculations

7.1 SAR Test results for P_{limit} calculations in each RSI scenarios

Head exposure (RSI =4)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Head	4	GSM 850	A	GPRS 4 Slots		190	0	Left Touch	23.89	0.218	30.51	29.54
							0	Left Tilt	23.89	0.138	32.49	
							0	Right Touch	23.89	0.272	29.54	
							0	Right Tilt	23.89	0.170	31.59	
Head	4	GSM 1900	A	GPRS 3 Slots		661	0	Left Touch	22.02	0.122	31.16	31.16
							0	Left Tilt	22.02	0.113	31.49	
							0	Right Touch	22.02	0.097	32.15	
							0	Right Tilt	22.02	0.071	33.51	
Head	4	WCDMA Band II	A	Rel 99 RMC 12.2 kbps		9400	0	Left Touch	24.94	0.203	31.87	31.87
							0	Left Tilt	24.94	0.203	31.87	
							0	Right Touch	24.94	0.191	32.13	
							0	Right Tilt	24.94	0.123	34.04	
Head	4	WCDMA Band IV	A	Rel 99 RMC 12.2 kbps		1413	0	Left Touch	24.93	0.188	32.19	31.90
							0	Left Tilt	24.93	0.178	32.43	
							0	Right Touch	24.93	0.201	31.90	
							0	Right Tilt	24.93	0.158	32.94	
Head	4	WCDMA Band V	A	Rel 99 RMC 12.2 kbps		4183	0	Left Touch	25.02	0.235	31.31	30.50
							0	Left Tilt	25.02	0.145	33.41	
							0	Right Touch	25.02	0.283	30.50	
							0	Right Tilt	25.02	0.160	32.98	
Head	4	LTE Band 2	B	QPSK BW = 20	1/99	18900	0	Left Touch	20.49	0.091	30.90	27.03
							0	Left Tilt	20.49	0.052	33.33	
							0	Right Touch	20.49	0.222	27.03	
							0	Right Tilt	20.49	0.101	30.45	
Head	4	LTE Band 25 (2)	A	QPSK BW = 20	1/99	26365	0	Left Touch	22.40	0.225	28.88	28.88
							0	Left Tilt	22.40	0.174	29.99	
							0	Right Touch	22.40	0.193	29.54	
							0	Right Tilt	22.40	0.154	30.52	
Head	4	LTE Band 66 (4)	A	QPSK BW = 20	1/49	132322	0	Left Touch	23.94	0.164	31.79	31.56
							0	Left Tilt	23.94	0.151	32.15	
							0	Right Touch	23.94	0.173	31.56	
							0	Right Tilt	23.94	0.132	32.73	
Head	4	LTE Band 66	B	QPSK BW = 20	1/0	132072	0	Left Touch	20.14	0.080	31.11	27.97
							0	Left Tilt	20.14	0.076	31.33	
							0	Right Touch	20.14	0.165	27.97	
							0	Right Tilt	20.14	0.056	32.66	
Head	4	LTE Band 5	A	QPSK BW = 10	1/0	20525	0	Left Touch	22.50	0.215	29.18	28.49
							0	Left Tilt	22.50	0.150	30.74	
							0	Right Touch	22.50	0.252	28.49	
							0	Right Tilt	22.50	0.134	31.23	
Head	4	LTE Band 26	A	QPSK BW = 15	1/0	26865	0	Left Touch	24.32	0.234	30.63	29.99
							0	Left Tilt	24.32	0.112	33.83	
							0	Right Touch	24.32	0.271	29.99	
							0	Right Tilt	24.32	0.208	31.14	
Head	4	LTE Band 7	A	QPSK BW = 20	1/0	21350	0	Left Touch	22.71	0.282	28.21	28.21
							0	Left Tilt	22.71	0.138	31.31	
							0	Right Touch	22.71	0.265	28.48	
							0	Right Tilt	22.71	0.208	29.53	
Head	4	LTE Band 12	A	QPSK BW = 10	1/0	23095	0	Left Touch	24.15	0.173	31.77	30.81
							0	Left Tilt	24.15	0.094	34.42	
							0	Right Touch	24.15	0.216	30.81	
							0	Right Tilt	24.15	0.127	33.11	
Head	4	LTE Band 13	A	QPSK BW = 10	1/0	23230	0	Left Touch	23.65	0.178	31.15	30.25
							0	Left Tilt	23.65	0.120	32.86	
							0	Right Touch	23.65	0.219	30.25	
							0	Right Tilt	23.65	0.125	32.68	

Notes:

1. The maximum allowed power is equal to maximum tune up power + 1 dB device design uncertainty
2. Measured Output power refer to Sec.9 in SAR report.

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Head exposure (RSI =4) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Head	4	LTE Band 14	A	QPSK BW = 10	1/0	23330	0	Left Touch	23.67	0.154	31.79	30.97
							0	Left Tilt	23.67	0.102	33.58	
							0	Right Touch	23.67	0.186	30.97	
							0	Right Tilt	23.67	0.121	32.84	
Head	4	LTE Band 30	A	QPSK BW = 10	25/25	27710	0	Left Touch	21.75	0.201	28.72	28.72
							0	Left Tilt	21.75	0.107	31.46	
							0	Right Touch	21.75	0.115	31.14	
							0	Right Tilt	21.75	0.090	32.21	
Head	4	LTE Band 71	A	QPSK BW = 20	1/0	133297	0	Left Touch	23.96	0.176	31.50	30.91
							0	Left Tilt	23.96	0.081	34.88	
							0	Right Touch	23.96	0.202	30.91	
							0	Right Tilt	23.96	0.108	33.63	
Head	4	LTE Band 41 PC3 (38)	A	QPSK BW = 20	50/50	40620	0	Left Touch	18.71	0.087	29.31	29.31
							0	Left Tilt	18.71	0.023	35.09	
							0	Right Touch	18.71	0.030	33.94	
							0	Right Tilt	18.71	0.031	33.80	
Head	4	LTE Band 41 PC2	A	QPSK BW = 20	50/50	40620	0	Left Touch	20.38	0.079	31.40	31.40
Head	4	LTE Band 48	E	QPSK BW = 20	50/0	56640	0	Left Touch	12.75	0.053	28.02	20.60
							0	Left Tilt	12.75	0.045	26.22	
							0	Right Touch	12.75	0.164	20.60	
							0	Right Tilt	12.75	0.090	23.21	
Head	4	NR Band n25 (2)	A	DFT-s-OFDM QPSK BW=40	108/54	376500	0	Left Touch	22.45	0.215	29.13	29.13
							0	Left Tilt	22.45	0.202	29.40	
							0	Right Touch	22.45	0.206	29.31	
							0	Right Tilt	22.45	0.132	31.24	
Head	4	NR Band n2	B	DFT-s-OFDM QPSK BW=40	1/107	376000	0	Left Touch	20.27	0.097	30.40	27.05
							0	Left Tilt	20.27	0.054	32.95	
							0	Right Touch	20.27	0.210	27.05	
							0	Right Tilt	20.27	0.075	31.52	
Head	4	NR Band n5	A	DFT-s-OFDM QPSK BW=20	1/52	167300	0	Left Touch	23.90	0.219	30.50	29.16
							0	Left Tilt	23.90	0.145	32.29	
							0	Right Touch	23.90	0.298	29.16	
							0	Right Tilt	23.90	0.144	32.32	
Head	4	NR Band n30	A	DFT-s-OFDM QPSK BW=10	25/13	462000	0	Left Touch	20.96	0.227	27.40	27.40
							0	Left Tilt	20.96	0.108	30.63	
							0	Right Touch	20.96	0.079	31.98	
							0	Right Tilt	20.96	0.074	32.27	
Head	4	NR Band n41 PC2	A	DFT-s-OFDM QPSK BW=100	1/136	518598	0	Left Touch	15.66	0.081	26.58	26.58
							0	Left Tilt	15.66	0.021	32.44	
							0	Right Touch	15.66	0.028	31.19	
							0	Right Tilt	15.66	0.030	30.89	
Head	4	NR Band n48	E	DFT-s-OFDM QPSK BW=40	50/56	645332	0	Left Touch	14.56	0.113	24.03	17.50
							0	Left Tilt	14.56	0.088	25.12	
							0	Right Touch	14.56	0.508	17.50	
							0	Right Tilt	14.56	0.223	21.08	
Head	4	NR Band n48 SRS#1	D	SRS CW BW = 40		645332	0	Left Touch	14.21	0.466	17.53	17.53
							0	Left Tilt	14.21	0.465	17.54	
							0	Right Touch	14.21	0.296	19.50	
							0	Right Tilt	14.21	0.177	21.73	
Head	4	NR Band n48 SRS#2	G	SRS CW BW = 40		645332	0	Left Touch	13.87	0.126	22.87	20.29
							0	Left Tilt	13.87	0.118	23.15	
							0	Right Touch	13.87	0.228	20.29	
							0	Right Tilt	13.87	0.211	20.63	

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 report.

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Head exposure (RSI =4) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Head	4	NR Band n48 SRS3	F	SRS CW BW = 40		645332	0	Left Touch	13.76	0.223	20.28	20.28
							0	Left Tilt	13.76	0.122	22.90	
							0	Right Touch	13.76	0.053	26.52	
							0	Right Tilt	13.76	0.035	28.32	
Head	4	NR Band n66	A	DFT-s-OFDM QPSK BW=40	108/54	349000	0	Left Touch	21.82	0.170	29.52	29.15
							0	Left Tilt	21.82	0.162	29.72	
							0	Right Touch	21.82	0.185	29.15	
							0	Right Tilt	21.82	0.143	30.27	
Head	4	NR Band n66	B	DFT-s-OFDM QPSK BW=40	1/107	349000	0	Left Touch	19.14	0.143	27.59	27.59
							0	Left Tilt	19.14	0.076	30.35	
							0	Right Touch	19.14	0.113	28.61	
							0	Right Tilt	19.14	0.089	29.67	
Head	4	NR Band n70	A	DFT-s-OFDM QPSK BW=15	1/77	340500	0	Left Touch	23.98	0.191	31.17	29.98
							0	Left Tilt	23.98	0.177	31.50	
							0	Right Touch	23.98	0.251	29.98	
							0	Right Tilt	23.98	0.165	31.81	
Head	4	NR Band n71	A	DFT-s-OFDM QPSK BW=20	50/28	136100	0	Left Touch	24.50	0.125	33.53	33.23
							0	Left Tilt	24.50	0.074	35.81	
							0	Right Touch	24.50	0.134	33.23	
							0	Right Tilt	24.50	0.079	35.52	
Head	4	NR Band n77 PC2	E	DFT-s-OFDM QPSK BW=100	1/136	662000	0	Left Touch	13.90	0.045	27.37	21.70
							0	Left Tilt	13.90	0.043	27.57	
							0	Right Touch	13.90	0.166	21.70	
							0	Right Tilt	13.90	0.109	23.53	
Head	4	NR Band n77 PC2 SRS1	G	SRS CW BW = 100		650000	0	Left Touch	14.28	0.261	20.11	19.30
							0	Left Tilt	14.28	0.315	19.30	
							0	Right Touch	14.28	0.271	19.95	
							0	Right Tilt	14.28	0.248	20.34	
Head	4	NR Band n77 PC2 SRS2	D	SRS CW BW = 100		650000	0	Left Touch	14.63	0.176	22.17	19.43
							0	Left Tilt	14.63	0.170	22.33	
							0	Right Touch	14.63	0.331	19.43	
							0	Right Tilt	14.63	0.270	20.32	
Head	4	NR Band n77 PC2 SRS3	F	SRS CW BW = 100		650000	0	Left Touch	14.04	0.177	21.56	21.56
							0	Left Tilt	14.04	0.095	24.26	
							0	Right Touch	14.04	0.044	27.61	
							0	Right Tilt	14.04	0.017	31.74	

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 report.

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Body-worn & Hotspot exposure (RSI=0, 3)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Body worn & Hotspot	3	GSM 850	A	GPRS 4 Slots		190	10	Rear	23.89	0.345	28.51	28.51
							10	Front	23.89	0.203	30.82	
							10	Left	23.89	0.200	30.88	
							10	Bottom	23.89	0.236	30.16	
							10	Right	23.89	0.321	28.82	
Body worn & Hotspot	3	GSM 1900	A	GPRS 3 Slots		661	10	Rear	22.02	0.420	25.79	25.33
							10	Front	22.02	0.264	27.80	
							10	Left	22.02	0.163	29.90	
							10	Bottom	22.02	0.467	25.33	
							10	Right	22.02	0.073	33.39	
Body worn & Hotspot	3	WCDMA Band II	A	Rel 99 RMC 12.2 kbps		9400	10	Rear	21.62	0.375	25.88	25.88
							10	Front	21.62	0.205	28.50	
							10	Left	21.62	0.155	29.72	
							10	Bottom	21.62	0.358	26.08	
							10	Right	21.62	0.056	34.14	
Body worn & Hotspot	3	WCDMA Band IV	A	Rel 99 RMC 12.2 kbps		1312	10	Rear	21.75	0.335	26.50	26.50
							10	Front	21.75	0.218	28.37	
							10	Left	21.75	0.148	30.05	
							10	Bottom	21.75	0.331	26.55	
							10	Right	21.75	0.103	31.62	
Body worn & Hotspot	3	WCDMA Band V	A	Rel 99 RMC 12.2 kbps		1312	10	Rear	25.02	0.339	29.72	29.72
							10	Front	25.02	0.224	31.52	
							10	Left	25.02	0.198	32.05	
							10	Bottom	25.02	0.240	31.22	
							10	Right	25.02	0.284	30.49	
Body worn & Hotspot	3	LTE Band 2	B	QPSK BW = 20	50/50	18900	10	Rear	19.32	0.322	24.24	24.24
							10	Front	19.32	0.042	33.09	
							10	Left	19.32	0.170	27.02	
Body worn & Hotspot	3	LTE Band 25 (2)	A	QPSK BW = 20	50/50	26365	10	Rear	19.37	0.305	24.53	24.53
							10	Front	19.37	0.187	26.65	
							10	Left	19.37	0.112	28.88	
							10	Bottom	19.37	0.241	25.55	
							10	Right	19.37	0.041	33.24	
Body worn & Hotspot	3	LTE Band 66 (4)	A	QPSK BW= 20	50/0	132322	10	Rear	20.51	0.275	26.12	26.12
							10	Front	20.51	0.149	28.78	
							10	Left	20.51	0.142	28.99	
							10	Bottom	20.51	0.304	25.68	
							10	Right	20.51	0.084	31.27	
Body worn & Hotspot	3	LTE Band 66	B	QPSK BW = 20	1/0	132072	10	Rear	20.14	0.340	24.83	24.83
							10	Front	20.14	0.052	32.98	
							10	Left	20.14	0.109	29.77	
Body worn & Hotspot	3	LTE Band 5	A	QPSK BW = 10	1/0	20525	10	Rear	22.93	0.383	27.10	27.10
							10	Front	22.93	0.223	29.45	
							10	Left	22.93	0.202	29.88	
							10	Bottom	22.93	0.236	29.20	
							10	Right	22.93	0.297	28.20	
Body worn & Hotspot	3	LTE Band 26	A	QPSK BW = 15	1/0	26865	10	Rear	24.32	0.392	28.39	28.39
							10	Front	24.32	0.235	30.61	
							10	Left	24.32	0.213	31.04	
							10	Bottom	24.32	0.242	30.48	
							10	Right	24.32	0.296	29.61	
Body worn & Hotspot	3	LTE Band 7	A	QPSK BW = 20	50/0	21350	10	Rear	20.10	0.413	23.94	23.94
							10	Front	20.10	0.246	26.19	
							10	Left	20.10	0.226	26.56	
							10	Bottom	20.10	0.394	24.15	
							10	Right	20.10	0.062	32.18	
Body worn & Hotspot	3	LTE Band 12	A	QPSK BW = 10	1/0	23095	10	Rear	24.15	0.381	28.34	28.34
							10	Front	24.15	0.236	30.42	
							10	Left	24.15	0.174	31.74	
							10	Bottom	24.15	0.115	33.54	
							10	Right	24.15	0.280	29.68	

Notes:

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Body-worn & Hotspot exposure (RSI=0, 3) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Body worn & Hotspot	3	LTE Band 13	A	QPSK BW = 10	1/0	23230	10	Rear	21.92	0.321	26.85	26.85
							10	Front	21.92	0.238	28.15	
							10	Left	21.92	0.183	29.30	
							10	Bottom	21.92	0.179	29.39	
							10	Right	21.92	0.263	27.72	
Body worn & Hotspot	3	LTE Band 14	A	QPSK BW = 10	1/0	23330	10	Rear	22.29	0.326	27.16	27.16
							10	Front	22.29	0.187	29.57	
							10	Left	22.29	0.168	30.04	
							10	Bottom	22.29	0.193	29.43	
							10	Right	22.29	0.235	28.58	
Body worn & Hotspot	3	LTE Band 30	A	QPSK BW = 10	25/0	27710	10	Rear	17.25	0.361	21.67	21.67
							10	Front	17.25	0.305	22.41	
							10	Left	17.25	0.240	23.45	
							10	Bottom	17.25	0.342	21.91	
							10	Right	17.25	0.076	28.44	
Body worn & Hotspot	3	LTE Band 71	A	QPSK BW = 20	1/0	133297	10	Rear	22.21	0.285	27.66	27.66
							10	Front	22.21	0.204	29.11	
							10	Left	22.21	0.137	30.84	
							10	Bottom	22.21	0.122	31.35	
							10	Right	22.21	0.274	27.83	
Body worn & Hotspot	3	LTE Band 41 PC3 (38)	A	QPSK BW = 20	50/50	40620	10	Rear	16.08	0.155	24.18	24.18
							10	Front	16.08	0.086	26.74	
							10	Left	16.08	0.079	27.10	
							10	Bottom	16.08	0.138	24.68	
							10	Right	16.08	0.017	33.78	
Body worn & Hotspot	3	LTE Band 41 PC2	A	QPSK BW = 20	50/50	40620	10	Rear	19.43	0.144	27.85	27.85
Body worn & Hotspot	3	LTE Band 48	A	QPSK BW = 20	50/0	56640	10	Rear	12.75	0.132	21.54	21.54
							10	Front	12.75	0.039	26.84	
							10	Top	12.75	0.035	27.31	
							10	Left	12.75	0.101	22.71	
Body worn & Hotspot	3	NR Band n25 (2)	A	DFT-s-OFDM QPSK BW=40	108/54	376500	10	Rear	19.29	0.277	24.87	24.87
							10	Front	19.29	0.180	26.74	
							10	Left	19.29	0.120	28.50	
							10	Bottom	19.29	0.283	24.77	
							10	Right	19.29	0.040	33.27	
Body worn & Hotspot	3	NR Band n2	B	DFT-s-OFDM QPSK BW=40	108/54	376000	10	Rear	19.23	0.399	23.22	23.22
							10	Front	19.23	0.061	31.38	
							10	Left	19.23	0.225	25.71	
Body worn & Hotspot	3	NR Band n5	A	DFT-s-OFDM QPSK BW=20	50/28	167300	10	Rear	23.84	0.454	27.27	27.27
							10	Front	23.84	0.243	29.98	
							10	Left	23.84	0.191	31.03	
							10	Bottom	23.84	0.287	29.26	
							10	Right	23.84	0.279	29.38	
Body worn & Hotspot	3	NR Band n30	A	DFT-s-OFDM QPSK BW=10	25/13	462000	10	Rear	19.78	0.305	24.94	24.94
							10	Front	19.78	0.220	26.36	
							10	Left	19.78	0.221	26.34	
							10	Bottom	19.78	0.250	25.80	
							10	Right	19.78	0.045	33.25	
Body worn & Hotspot	3	NR Band n41 PC2	A	DFT-s-OFDM QPSK BW=100	1/136	518598	10	Rear	17.65	0.145	26.04	26.04
							10	Front	17.65	0.087	28.25	
							10	Left	17.65	0.090	28.11	
							10	Bottom	17.65	0.115	27.04	
							10	Right	17.65	0.022	34.23	
Body worn & Hotspot	3	NR Band n48	E	DFT-s-OFDM QPSK BW=40	1/104	645332	10	Rear	14.50	0.488	17.62	17.62
							10	Front	14.50	0.087	25.10	
							10	Top	14.50	0.085	25.21	
							10	Left	14.50	0.252	20.49	

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Body-worn & Hotspot exposure (RSI=0, 3) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 1g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Body worn & Hotspot	3	NR Band n48 SRS1	G	SRS CW BW = 40		645332	10	Rear	14.21	0.330	19.02	19.02
							10	Front	14.21	0.132	23.00	
							10	Top	14.21	0.288	19.62	
Body worn & Hotspot	3	NR Band n48 SRS2	D	SRS CW BW = 40		645332	10	Rear	13.87	0.070	25.42	25.42
							10	Front	13.87	0.037	28.19	
							10	Top	13.87	0.031	28.96	
							10	Left	13.87	0.024	30.07	
Body worn & Hotspot	3	NR Band n48 SRS3	F	SRS CW BW = 40		645332	10	Rear	13.76	0.138	22.36	22.36
							10	Front	13.76	0.048	26.95	
							10	Top	13.76	0.016	31.72	
Body worn & Hotspot	3	NR Band n66	A	DFT-s-OFDM QPSK BW=40	108/54	349000	10	Rear	18.82	0.239	25.04	25.04
							10	Front	18.82	0.122	27.96	
							10	Left	18.82	0.107	28.53	
							10	Bottom	18.82	0.191	26.01	
							10	Right	18.82	0.065	30.69	
Body worn & Hotspot	3	NR Band n66	B	DFT-s-OFDM QPSK BW=40	1/107	349000	10	Rear	19.14	0.243	25.28	24.41
							10	Front	19.14	0.145	27.53	
							10	Left	19.14	0.297	24.41	
Body worn & Hotspot	3	NR Band n70	A	DFT-s-OFDM QPSK BW=15	36/21	340500	10	Rear	19.97	0.361	24.39	24.39
							10	Front	19.97	0.219	26.57	
							10	Left	19.97	0.135	28.67	
							10	Bottom	19.97	0.348	24.55	
							10	Right	19.97	0.103	29.84	
Body worn & Hotspot	3	NR Band n71	A	DFT-s-OFDM QPSK BW=20	50/28	136100	10	Rear	24.50	0.215	31.18	31.18
							10	Front	24.50	0.152	32.68	
							10	Left	24.50	0.141	33.01	
							10	Bottom	24.50	0.090	34.96	
							10	Right	24.50	0.276	30.09	
Body worn & Hotspot	3	NR Band n77 PC2	E	DFT-s-OFDM QPSK BW=100	1/136	662000	10	Rear	13.90	0.248	23.93	23.93
							10	Front	13.90	0.043	31.54	
							10	Top	13.90	0.039	31.97	
							10	Left	13.90	0.118	27.16	
Body worn & Hotspot	3	NR Band n77 PC2 SRS1	G	SRS CW BW = 100		650000	10	Rear	14.28	0.173	25.88	25.85
							10	Front	14.28	0.074	29.57	
							10	Top	14.28	0.174	25.85	
Body worn & Hotspot	3	NR Band n77 PC2 SRS2	D	SRS CW BW = 100		650000	10	Rear	14.63	0.051	31.53	30.55
							10	Front	14.63	0.064	30.55	
							10	Top	14.63	0.052	31.45	
							10	Left	14.63	0.017	36.30	
Body worn & Hotspot	3	NR Band n77 PC2 SRS3	F	SRS CW BW = 100		650000	10	Rear	14.04	0.141	26.53	26.53
							10	Front	14.04	0.025	34.04	
							10	Top	14.04	0.011	37.61	
							10	Right	14.04	0.383	22.19	

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Product Specific 10-g exposure (RSI=0)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P_{limit} (dBm)	Minimum P_{limit} (dBm)
Product Specific-10g	0	GSM 850	A	GPRS 4 Slots		190	0	Rear	23.89	0.644	29.78	29.67
							0	Front	23.89	0.478	31.08	
							0	Left	23.89	0.143	36.32	
							0	Bottom	23.89	0.660	29.67	
							0	Right	23.89	0.441	31.43	
Product Specific-10g	0	GSM 1900	A	GPRS 3 Slots		661	0	Rear	22.02	2.090	22.80	22.80
							0	Front	22.02	0.877	26.57	
							0	Left	22.02	0.892	26.50	
							0	Bottom	22.02	1.490	24.27	
							0	Right	22.02	0.085	36.71	
Product Specific-10g	0	WCDMA Band II	A	Rel 99 RMC 12.2 kbps		9400	0	Rear	21.62	1.530	23.75	23.75
							0	Front	21.62	0.772	26.72	
							0	Left	21.62	0.568	28.06	
							0	Bottom	21.62	1.130	25.07	
							0	Right	21.62	0.058	37.97	
Product Specific-10g	0	WCDMA Band IV	A	Rel 99 RMC 12.2 kbps		1312	0	Rear	21.75	1.430	24.18	24.18
							0	Front	21.75	0.632	27.72	
							0	Left	21.75	0.448	29.22	
							0	Bottom	21.75	1.130	25.20	
							0	Right	21.75	0.155	33.83	
Product Specific-10g	0	WCDMA Band V	A	Rel 99 RMC 12.2 kbps		1312	0	Rear	25.02	1.270	27.96	27.96
							0	Front	25.02	0.711	30.48	
							0	Left	25.02	0.134	37.73	
							0	Bottom	25.02	1.060	28.75	
							0	Right	25.02	0.866	29.62	
Product Specific-10g	0	LTE Band 2	B	QPSK BW = 20	1/99	18900	0	Rear	19.21	1.430	21.64	21.64
							0	Front	19.21	0.157	31.23	
							0	Left	19.21	0.480	26.38	
Product Specific-10g	0	LTE Band 25 (2)	A	QPSK BW = 20	1/99	26365	0	Rear	19.30	1.320	22.07	22.07
							0	Front	19.30	0.716	24.73	
							0	Left	19.30	0.446	26.79	
							0	Bottom	19.30	0.843	24.02	
							0	Right	19.30	0.050	36.29	
Product Specific-10g	0	LTE Band 66 (4)	A	QPSK BW = 20	1/49	132322	0	Rear	20.48	1.270	23.42	23.42
							0	Front	20.48	0.610	26.61	
							0	Left	20.48	0.362	28.87	
							0	Bottom	20.48	0.920	24.82	
							0	Right	20.48	0.076	35.65	
Product Specific-10g	0	LTE Band 66	B	QPSK BW = 20	1/0	132072	0	Rear	20.14	1.310	22.95	22.95
							0	Front	20.14	0.125	33.15	
							0	Left	20.14	0.464	27.45	
Product Specific-10g	0	LTE Band 5	A	QPSK BW = 10	1/0	20525	0	Rear	22.93	1.310	25.74	25.74
							0	Front	22.93	0.754	28.14	
							0	Left	22.93	0.145	35.30	
							0	Bottom	22.93	1.150	26.30	
							0	Right	22.93	0.886	27.44	
Product Specific-10g	0	LTE Band 26	A	QPSK BW = 15	1/0	26865	0	Rear	24.32	1.310	27.13	27.13
							0	Front	24.32	0.730	29.67	
							0	Left	24.32	0.177	35.82	
							0	Bottom	24.32	1.160	27.65	
							0	Right	24.32	0.851	29.00	
Product Specific-10g	0	LTE Band 7	A	QPSK BW = 20	1/0	21350	0	Rear	20.06	1.610	21.97	21.97
							0	Front	20.06	0.724	25.44	
							0	Left	20.06	0.548	26.65	
							0	Bottom	20.06	1.100	23.63	
							0	Right	20.06	0.134	32.77	

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Product Specific 10-g exposure (RSI=0) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	Plimit (dBm)	Minimum Plimit (dBm)
Product Specific-10g	0	LTE Band 12	A	QPSK BW = 10	1/0	23095	0	Rear	24.15	0.921	28.49	28.49
							0	Front	24.15	0.429	31.80	
							0	Left	24.15	0.112	37.64	
							0	Bottom	24.15	0.735	29.47	
							0	Right	24.15	0.502	31.12	
Product Specific-10g	0	LTE Band 13	A	QPSK BW = 10	1/0	23230	0	Rear	21.92	1.130	25.37	25.37
							0	Front	21.92	0.611	28.04	
							0	Left	21.92	0.107	35.61	
							0	Bottom	21.92	0.985	25.97	
							0	Right	21.92	0.711	27.38	
Product Specific-10g	0	LTE Band 14	A	QPSK BW = 10	1/0	23330	0	Rear	22.29	1.000	26.27	26.27
							0	Front	22.29	0.502	29.26	
							0	Left	22.29	0.123	35.37	
							0	Bottom	22.29	0.977	26.37	
							0	Right	22.29	0.660	28.07	
Product Specific-10g	0	LTE Band 30	A	QPSK BW = 10	1/49	27710	0	Rear	17.37	0.621	23.42	23.42
							0	Front	17.37	0.341	26.02	
							0	Left	17.37	0.306	26.49	
							0	Bottom	17.37	0.402	25.31	
							0	Right	17.37	0.047	34.63	
Product Specific-10g	0	LTE Band 71	A	QPSK BW = 20	1/0	133297	0	Rear	22.21	0.663	27.97	27.97
							0	Front	22.21	0.286	31.63	
							0	Left	22.21	0.089	36.70	
							0	Bottom	22.21	0.527	28.97	
							0	Right	22.21	0.396	30.21	
Product Specific-10g	0	LTE Band 41 PC3 (38)	A	QPSK BW = 20	1/99	40620	0	Rear	16.11	0.585	22.42	22.42
							0	Front	16.11	0.250	26.11	
							0	Left	16.11	0.186	27.39	
							0	Bottom	16.11	0.367	24.44	
							0	Right	16.11	0.033	34.90	
Product Specific-10g	0	LTE Band 41 PC2	A	QPSK BW = 20	1/99	40620	0	Rear	19.43	0.564	25.90	25.90
Product Specific-10g	0	LTE Band 48	A	QPSK BW = 20	1/0	56640	0	Rear	12.91	0.606	19.06	19.06
							0	Left	12.91	0.261	22.72	
Product Specific-10g	0	NR Band n25 (2)	A	DFT-s-OFDM QPSK BW=40	1/107	376500	0	Rear	19.29	1.360	21.93	21.93
							0	Front	19.29	0.471	26.54	
							0	Left	19.29	0.438	26.85	
							0	Bottom	19.29	0.897	23.74	
							0	Right	19.29	0.046	36.64	
Product Specific-10g	0	NR Band n2	B	DFT-s-OFDM QPSK BW=40	1/107	376000	0	Rear	19.23	1.530	21.36	21.36
							0	Front	19.23	0.146	31.57	
							0	Left	19.23	0.470	26.49	
Product Specific-10g	0	NR Band n5	A	DFT-s-OFDM QPSK BW=20	1/52	167300	0	Rear	23.90	1.330	26.64	26.64
							0	Front	23.90	0.803	28.83	
							0	Left	23.90	0.130	36.74	
							0	Bottom	23.90	1.150	27.27	
							0	Right	23.90	0.639	29.82	
Product Specific-10g	0	NR Band n30	A	DFT-s-OFDM QPSK BW=10	1/50	462000	0	Rear	19.82	1.240	22.87	22.87
							0	Front	19.82	0.680	25.47	
							0	Left	19.82	0.616	25.90	
							0	Bottom	19.82	0.852	24.50	
							0	Right	19.82	0.076	34.99	

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Product Specific 10-g exposure (RSI=0) (Continued)

RF Exposure Conditions	RSI	band	Antenna	mode	RB	Ch.	Test distance (mm)	Test position	Output power (dbm)	meas SAR 10g (W/kg)	P_{limit} (dBm)	Minimum P_{limit} (dBm)
Product Specific-10g	0	NR Band n41 PC2	A	DFT-s-OFDM QPSK BW=100	1/136	518598	0	Rear	17.65	0.569	24.08	24.08
							0	Front	17.65	0.266	27.38	
							0	Left	17.65	0.177	29.15	
							0	Bottom	17.65	0.337	26.35	
							0	Right	17.65	0.042	35.40	
Product Specific-10g	0	NR Band n48	E	DFT-s-OFDM QPSK BW=40	1/104	645332	0	Rear	14.50	1.200	17.69	17.69
							0	Front	14.50	0.214	25.18	
							0	Top	14.50	0.145	26.87	
							0	Left	14.50	0.654	20.32	
Product Specific-10g	0	NR Band n48 SRS1	G	SRS CW BW = 40		645332	0	Rear	14.21	0.944	18.44	18.44
							0	Front	14.21	0.350	22.75	
							0	Top	14.21	0.667	19.95	
Product Specific-10g	0	NR Band n48 SRS2	D	SRS CW BW = 40		645332	0	Rear	13.87	0.231	24.21	24.21
							0	Front	13.87	0.170	25.54	
							0	Top	13.87	0.195	24.95	
							0	Left	13.87	0.045	31.32	
Product Specific-10g	0	NR Band n48 SRS3	F	SRS CW BW = 40		645332	0	Rear	13.76	0.450	21.21	21.21
							0	Front	13.76	0.141	26.25	
							0	Top	13.76	0.020	34.73	
							0	Right	13.76	0.363	22.14	
Product Specific-10g	0	NR Band n66	A	DFT-s-OFDM QPSK BW=40	1/107	349000	0	Rear	18.83	0.928	23.13	23.13
							0	Front	18.83	0.413	26.65	
							0	Left	18.83	0.328	27.65	
							0	Bottom	18.83	0.752	24.05	
							0	Right	18.83	0.067	34.55	
Product Specific-10g	0	NR Band n66	B	DFT-s-OFDM QPSK BW=40	1/107	349000	0	Rear	19.14	0.875	23.70	23.24
							0	Front	19.14	0.528	25.89	
							0	Left	19.14	0.973	23.24	
Product Specific-10g	0	NR Band n70	A	DFT-s-OFDM QPSK BW=15	1/77	340500	0	Rear	19.93	1.400	22.45	22.45
							0	Front	19.93	0.783	24.97	
							0	Left	19.93	0.491	27.00	
							0	Bottom	19.93	1.100	23.50	
							0	Right	19.93	0.157	31.95	
Product Specific-10g	0	NR Band n71	A	DFT-s-OFDM QPSK BW=20	1/52	136100	0	Rear	24.57	0.702	30.09	30.09
							0	Front	24.57	0.194	35.67	
							0	Left	24.57	0.078	39.63	
							0	Bottom	24.57	0.371	32.86	
							0	Right	24.57	0.422	32.30	
Product Specific-10g	0	NR Band n77 PC2	E	DFT-s-OFDM QPSK BW=100	1/136	662000	0	Rear	13.90	0.381	22.07	22.07
							0	Left	13.90	0.299	23.12	
Product Specific-10g	0	NR Band n77 PC2 SRS1	D	SRS CW BW = 100		650000	0	Rear	14.28	0.658	20.08	20.08
							0	Front	14.28	0.218	24.87	
							0	Top	14.28	0.390	22.35	
Product Specific-10g	0	NR Band n77 PC2 SRS2	G	SRS CW BW = 100		650000	0	Rear	14.63	0.121	27.78	25.94
							0	Front	14.63	0.183	25.98	
							0	Top	14.63	0.185	25.94	
							0	Left	14.63	0.039	32.70	
Product Specific-10g	0	NR Band n77 PC2 SRS3	F	SRS CW BW = 100		650000	0	Rear	14.04	0.394	22.06	22.06
							0	Front	14.04	0.124	27.09	
							0	Top	14.04	0.025	34.04	
							0	Right	14.04	0.383	22.19	

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END OF REPORT

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