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TEST REPORT

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR23-SPF0042-B Page (1) of (17)	eurofins | KCTL

1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2023-09-05

2. Use of Report : Certification

3. Name of Product and Model : Tablet PC

- Model Name : SM-X308U
- Manufacturer and Country of Origin : Samsung Electronics Co., Ltd. / Vietnam

4. FCC ID : A3LSMX308U

5. Date of Test : 2023-10-04 ~ 2023-12-19

6. Location of Test : ■ Permanent Testing Lab □ On Site Testing
(Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

7. Test Standards : FCC 47 CFR 2 § 2.1093

8. Test Results : Refer to the test result in the test report

	Tested by	Technical Manager
Affirmation	Name : Jewon Choi (Signature)	Name : Jongwon Ma (Signature)

2023-12-20

Eurofins KCTL Co.,Ltd.

As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.

REPORT REVISION HISTORY

Date	Revision	Page No
2023-11-28	Originally issued	-
2023-12-12	Revised Tx Frequency Revised P_{max} and P_{limit}	5 14~17
2023-12-20	Test date update due to addition of Part 2 Test	1

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General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ **Statement not required by the standard or client used for type testing**

1. Identification when information is provided by the customer: Information marked " # " is provided by the customer. - Disclaimer: This information is provided by the customer and can affect the validity of results.

CONTENTS

1. General information

Client	:	Samsung Electronics Co., Ltd
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	:	Samsung Electronics Co., Ltd.
Address	:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Factory	:	Samsung Electronics Vietnam Thai Nguyen Co., Ltd
Address	:	Yen Binh Industrial Park, Dong Tien Ward, Pho Yen Town, Thai Nguyen Province, Vietnam
Laboratory	:	Eurofins KCTL Co.,Ltd.
Address	:	65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	:	FCC Site Designation No: KR0040, FCC Site Registration No: 687132 VCCI Registration No. : R-3327, G-198, C-3706, T-1849 CAB Identifier: KR0040, ISED Number: 8035A KOLAS No.: KT231

1.1 Report Overview

This report details the results of testing carried out on the samples listed in section 2, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1.2 Report Compositions

Report Type	Report name
SAR Report_Part.0	KR23-SPF0042-B FCC Report SAR_Part 0
SAR Report_Part.1	KR23-SPF0043-B FCC Report SAR_Part 1
RF exposure Report_Part.2	KR23-SPF0044-B FCC Report RF exposure_Part 2

2. Device information

The equipment under test (EUT) is SAMSUNG Tablet (FCC ID: A3LSMX308U), it contains S.LSI chipset supporting 3G/4G/5G NR technologies. These chipsets are enable with Samsung S.LSI proprietary 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.

Product Name	Tablet PC		
Product Model Name	SM-X308U		
Product Manufacturer	Samsung Electronics Co., Ltd.		
Device Overview	Band & Mode	Operating Modes	Tx Frequency (㎒)
	WCDMA Band II	Data	1 852.4 ~ 1 907.6
	WCDMA Band IV	Data	1 712.4 ~ 1 752.6
	WCDMA Band V	Data	826.4 ~ 846.6
	LTE Band 2	Data	1 850.7 ~ 1 909.3
	LTE Band 4	Data	1 710.7 ~ 1 754.3
	LTE Band 5	Data	824.7 ~ 848.3
	LTE Band 7	Data	2 502.5 ~ 2 567.5
	LTE Band 12	Data	699.7 ~ 715.3
	LTE Band 13	Data	779.5 ~ 784.5
	LTE Band 14	Data	790.5 ~ 795.5
	LTE Band 25	Data	1 850.7 ~ 1 914.3
	LTE Band 26	Data	814.7 ~ 848.3
	LTE Band 30	Data	2 307.5 ~ 2 312.5
	LTE Band 40 (lower)	Data	2 307.5 ~ 2 312.5
	LTE Band 40 (upper)	Data	2 352.5 ~ 2 357.5
	LTE Band 41	Data	2 498.5 ~ 2 687.5
	LTE Band 48	Data	3 552.5 ~ 3 697.5
	LTE Band 66	Data	1 710.7 ~ 1 779.3
	LTE Band 71	Data	665.5 ~ 695.5
	NR Band n2	Data	1 852.5 ~ 1 907.5
	NR Band n5	Data	826.5 ~ 846.5
	NR Band n12	Data	701.5 ~ 713.5
	NR Band n25	Data	1 852.5 ~ 1 912.5
	NR Band n30	Data	2 307.5 ~ 2 312.5
	NR Band n41	Data	2 501.01 ~ 2 685.00
	NR Band n48	Data	3 555.00 ~ 3 694.98
	NR Band n66	Data	1 712.5 ~ 1 777.5
	NR Band n71	Data	665.5 ~ 695.5
	NR Band n77 DoD	Data	3 455.01 ~ 3 544.98
	NR Band n77	Data	3 705.00 ~ 3 975.00
	NR Band n78	Data	3 455.01 ~ 3 544.98
	2.4 ㎓ WLAN	Data	2 412.0 ~ 2 462.0
	U-NII-1	Data	5 180.0 ~ 5 240.0
	U-NII-2A	Data	5 260.0 ~ 5 320.0
	U-NII-2C	Data	5 500.0 ~ 5 720.0
	U-NII-3	Data	5 745.0 ~ 5 825.0
	Bluetooth	Data	2 402.0 ~ 2 480.0
	NFC	Data	13.56
	Digitizer	Data	0.531 25 ~ 0.593 75
TDWR Information	5.60 ㎓ ~ 5.65 ㎓ band (TDWR) is supported by the device.		

3. 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 3G/4G/5G NR Sub6 WWAN is 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.

This part.0 report shows SAR characterization of WWAN radios for 3G/4G/5G NR Sub6. Characterization is achieved by determining P_{limit} for 3G/4G/5G NR Sub6 that correspond to the SAR_design_targets after accounting for all device design related uncertainty.

The SAR Characterization is denoted as SAR Char in this report.

The P_{limit} represents the maximum time-averaged power level for the corresponding radio/antenna configuration.

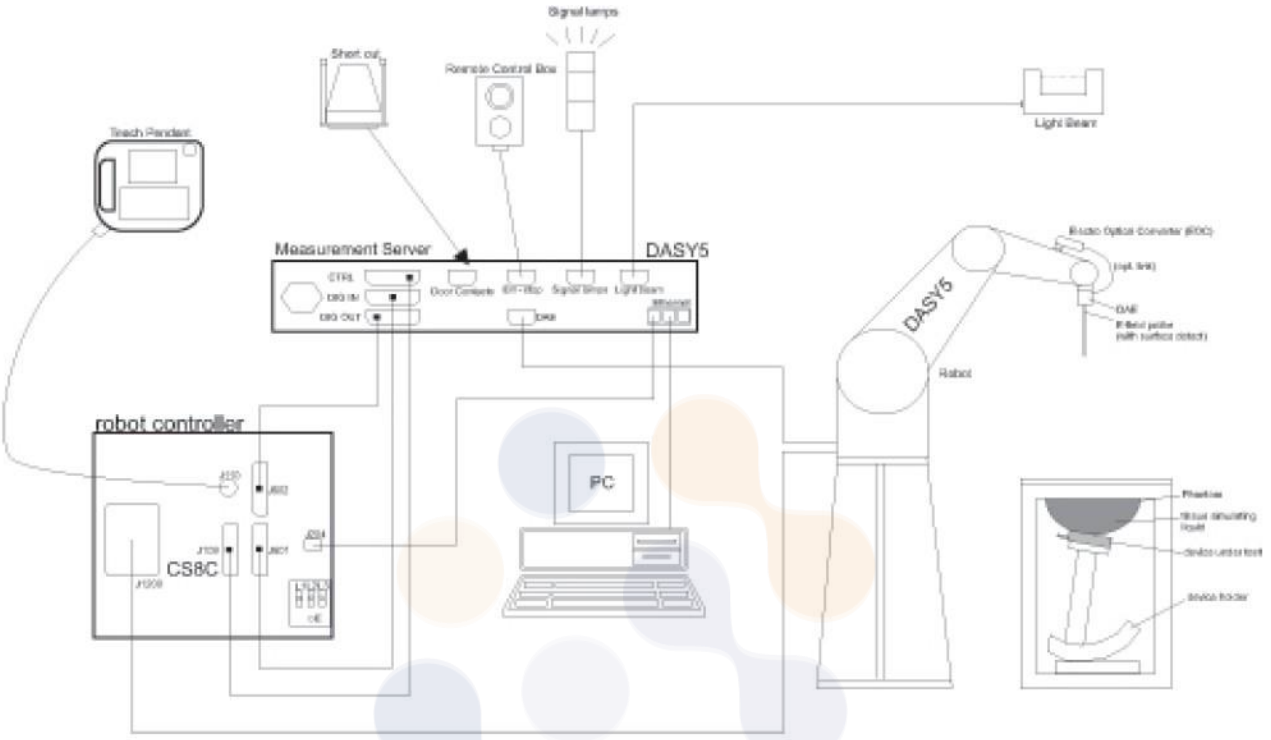
3.1 Nomenclature for Report

Supported Technologies	Term	Description
3G/4G/5G Sub6 NR	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
	T_{SAR}	Defined time averaging window for f < 6 GHz
	SAR_design_target	Target SAR level resulting in maximum time-averaged exposure optimized from total uncertainty
	SAR Char	Table containing P_{limit} for all technologies
	regulatory body	Regulatory body that the algorithm is designed to comply. Algorithm's time averaging window is dependent on either FCC ot ICNIRP requirements
	reserve_power_margin	Margin below P_{limit} reserved for future transmission
	$P_{reserve}$	Minimum transmit power with a designated margin below P_{limit}

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 Win 10 and the DASY5/6/8 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 mm ± 1 mm	½·δ·ln(2) mm 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

Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}			≤ 2 ㎓ : ≤ 8 mm 2 – 3 ㎓ : ≤ 5 mm*	3 – 4 ㎓ : ≤ 5 mm* 4 – 6 ㎓ : ≤ 4 mm*
Maximum zoom scan spatial resolution, normal to phantom surface	uniform grid: $\Delta z_{Zoom}(n)$		≤ 5 mm	3 – 4 ㎓ : ≤ 4 mm 4 – 5 ㎓ : ≤ 3 mm 5 – 6 ㎓ : ≤ 2 mm
	graded grid	$\Delta z_{Zoom}(1)$: between 1st two points closest to phantom surface	≤ 4 mm	3 – 4 ㎓ : ≤ 3 mm 4 – 5 ㎓ : ≤ 2.5 mm 5 – 6 ㎓ : ≤ 2 mm
		$\Delta z_{Zoom}(n>1)$: between subsequent points	≤ 1.5·$\Delta z_{Zoom}(n-1)$ mm	
Minimum zoom scan volume	x, y, z		≥ 30 mm	3 – 4 ㎓ : ≥ 28 mm 4 – 5 ㎓ : ≥ 25 mm 5 – 6 ㎓ : ≥ 22 mm
Note: δ is the penetration depth of a plane-wave at normal incidence to the tissue medium; see IEEE Std 1528-2013 for details. * When zoom scan is required and the reported SAR from the area scan based 1-g SAR estimation procedures of KDB Publication 447498 is ≤ 1.4 W/kg, ≤ 8 mm, ≤ 7 mm and ≤ 5 mm zoom scan resolution may be applied, respectively, for 2 ㎓ to 3 ㎓ , 3 ㎓ to 4 ㎓ and 4 ㎓ to 6 ㎓ .				

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.

Test Platform	SPEAG DASY5 System SPEAG DASY8 System			
Version	DASY52: 52.10.4.1535 / SEMCAD: 14.6.14 (7501) DASY8: 16.2.2.1588			
Location	Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, Korea			
Manufacture	SPEAG			
Hardware Reference				
Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Shield Room	-	8F - 1	-	-
		8F - 2		
	-	8F - 3	-	-
	-	8F - 5	-	-
DASY5 Robot	TX90XL speag	F07/554JA1/A/01	-	-
	TX90XL speag	F12/5L7FA1/A/01	-	-
DASY6 Robot	TX90XL speag	F/18/0004968/A/001	-	-
DASY8 Robot	TX2-60L	F/22/0040786/A/001	-	-
Phantom	2mm Oval Phantom ELI5	1178	-	-
	2mm Oval Phantom ELI5	1220	-	-
	2mm Oval Phantom ELI5	2097	-	-
	ELI Phantom V8.0	2182	-	-
Mounting Device	Mounting Device	-	-	-
	Laptop Holder	-	-	-
DAE	DAE4	1586	2023-04-26	2024-04-26
	DAE4	1587	2023-07-17	2024-07-17
	DAE4	1756	2023-09-20	2024-09-20
	DAE4	1758	2023-08-24	2024-08-24
MICROWAVE GENERATOR	SMP02	100295	2022-12-29	2023-12-29
Probe	EX3DV4	3697	2023-04-13	2024-04-13
	EX3DV4	3865	2023-01-22	2024-01-22
	EX3DV4	3928	2023-02-23	2024-02-23
	EX3DV4	7540	2023-05-04	2024-05-04
	EX3DV4	7840	2023-08-25	2024-08-25
ESG Vector Signal Generator	E4438C	MY42080845	2023-02-09	2024-02-09
	E4438C	MY42080486	2023-04-25	2024-04-25
Dual Power Meter	EPM-442A	GB37480680	2023-04-26	2024-04-26
	E4419B	GB43312301	2023-02-09	2024-02-09
	E4419B	GB40202503	2023-11-01	2024-11-01
	ML2438A	2323004	2023-07-04	2024-07-04
Power Sensor	8481H	2703A11902	2023-04-26	2024-04-26
	8481H	3318A18090	2023-04-26	2024-04-26
	8481H	3318A19377	2023-02-09	2024-02-09
	8481H	3318A19379	2023-02-09	2024-02-09
	MA2472D	2014492	2023-07-04	2024-07-04
	MA2472D	2014493	2023-07-04	2024-07-04
Attenuator	PE7005-10	2228-1	2022-12-15	2023-12-15
	PE7005-10	2228-2	2022-12-15	2023-12-15
	PE7005-10	2228-3	2022-12-15	2023-12-15
	PE7005-10	2228-4	2022-12-15	2023-12-15
	PE7005-10	2228-5	2022-12-15	2023-12-15
	PE7005-10	2228-6	2022-12-15	2023-12-15

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Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Dual Directional Coupler	778D	F708102210	2022-12-14	2023-12-14
	772D	2839A160504	2023-04-26	2024-04-26
	772D	2839A00719	2023-02-09	2024-02-09
	778D	16059	2023-02-09	2024-02-09
	CS10-19-436/19	2243-1	2022-12-14	2023-12-14
	CS10-19-436/19	2243-2	2022-12-14	2023-12-14
Power Amplifier	AMP2027	10010	2023-04-26	2024-04-26
	AMP2027ADB	10005	2023-04-26	2024-04-26
	GRF5039	1062	2023-02-09	2024-02-09
	2055-BBS3Q7E9I	1005D/C0521	2023-02-09	2024-02-09
	5190FE	1012	2023-02-09	2024-02-09
Low Pass Filter	NLP-1000+	VUU79701846	2023-04-26	2024-04-26
	VLF-3000+	31831	2023-04-26	2024-04-26
	VLF-6000+	31838	2023-04-26	2024-04-26
	LA-30N	40058	2023-02-09	2024-02-09
	LA-60N	40059	2023-02-09	2024-02-09
High Pass Filter	WHKX3.0/18G-12SS	44	2023-01-19	2024-01-19
	WHKX1.0/15G-10SS	14	2023-01-19	2024-01-19
Dipole Validation Kits	D750V3	1224	2022-10-12	2024-10-12
	D850V2	1030	2022-10-26	2024-10-26
	D1750V2	1195	2022-10-26	2024-10-26
	D1900V2	5d248	2022-10-20	2024-10-20
	D2300V2	1049	2023-01-20	2025-01-20
	D2450V2	895	2023-09-26	2025-09-26
	D2600V2	1050	2023-09-26	2025-09-26
	D2600V2	1200	2022-10-25	2024-10-25
	D3500V2	1065	2023-09-28	2025-09-28
	D3700V2	1027	2022-08-19	2024-08-19
	D3900V2	1043	2022-02-23	2024-02-23
	D5GHzV2	1293	2023-01-25	2025-01-25
Network Analyzer	E5071B	MY42403524	2023-02-09	2024-02-09
Dielectric Assessment Kit	DAK-3.5	1078	2023-05-24	2024-05-24
Humidity/Temp	MHB-382SD	25737	2023-05-03	2024-05-03
	MHB-382SD	46301	2023-02-14	2024-02-14
	MHB-382SD	46307	2023-02-14	2024-02-14
	MHB-382SD	73871	2023-05-10	2024-05-10
Radio Communication Test Station	MT8000A	6261987911	2023-08-07	2024-08-07
	MT8000A	6261987922	2023-02-09	2024-02-09
Radio Communication Analyzer	MT8821C	6201807233	2023-01-19	2024-01-19
	MT8821C	6262170371	2023-11-01	2024-11-01
	MT8821C	6262170372	2323-11-01	2024-11-01
Wideband Radio Communication Tester	CMW500	132120	2023-04-25	2024-04-25
	CMW500	168683	2023-02-09	2024-02-09
Spectrum Analyzer	FSU	200008	2022-12-13	2023-12-13
	FSP7	100289	2022-12-08	2023-12-08
MXA SIGNAL ANALYZER	N9020A	MY520900024	2023-11-01	2024-11-01

Notes:

1. Each equipment item is used solely within its respective calibration period.
2. Cal.certificates are refer to Appendix A in Part.1

5. SAR Characterizations

5.1 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

5.2 RSI and SAR Determination

This device uses different Radio SAR Index (RSI) 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 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.

RSI and Corresponding Exposure Scenarios

Exposure Scenario (RSI = No.)		Description	KDB guide for SAR test
Body Max power	Standalone exposure Without triggering sensor (RSI = 0)	■ Grip sensor is not triggered even if Device was touched to user's body. ■ Grip sensor is not triggered due to triggering distance.	KDB 616217 D04
Body Grip On Back-off Power	Standalone exposure With triggering sensor (RSI = 1)	■ Grip sensor is triggered, when Device was touched to user's body.	KDB 616217 D04

Notes:

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

Main.1 Ant

P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 19 mm spacing at Rear
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 14 mm spacing at Top
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 7 mm spacing at Right

Main.2 Ant

P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 18 mm spacing at Rear
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 14 mm spacing at Top

Sub.1 Ant

P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 19 mm spacing at Rear
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 7 mm spacing at Right
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 15 mm spacing at Bottom

5.3 SAR Char

SAR results corresponding to P_{max} for each antenna/technology/band/RSI can be found in Section.6. 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

Radio SAR Index (RSI)		P_{limit} Determination Scenarios
Body Max power	RSI = 0	The worst-case SAR exposure is determined as maximum SAR normalized To the limit among; 1. Standalone SAR measured at 19 mm spacing for Rear (Main1, Sub1) 2. Standalone SAR measured at 18 mm spacing for Rear (Main2) 3. Standalone SAR measured at 14 mm spacing for Top (Main1, Main2) 4. Standalone SAR measured at 7 mm spacing for Right (Main1,Sub1)
Body Grip Sensor On Back-off Power	RSI = 1	1. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear (Main1, Main2, Sub1) 2. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Top (Main1, Main2) 3. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Right (Main1)

SAR Characterizations

Radio SAR Index (RSI)		0	1	P_{max} (Maximum tune-up Power) (dBm)
Exposure scenario		Tablet Mode		
		Body Max Power	Body Grip sensor On Back-off Power	
Test Distance (mm)		Refer to Section 5.3.		
Spatial-average		1g	1g	
WWAN Bands	Antenna	P_{limit} (dBm)		
WCDMA Band II	Main1	28.6	14.0	24.5
WCDMA Band IV	Main1	27.6	14.0	24.5
WCDMA Band V	Main1	27.0	17.0	23.5
LTE B.2	Sub1	29.2	14.0	24.0
LTE B.5	Main1	28.0	17.0	24.5
LTE B.7	Main2	25.4	10.0	22.5
LTE B.7	Sub1	27.8	10.0	22.5
LTE B.12	Main1	30.9	17.0	24.5
LTE B.13	Main1	29.1	17.0	24.5
LTE B.14	Main1	29.5	17.0	24.5
LTE B.25(2)	Main1	30.5	14.0	24.5
LTE B.26	Main1	28.2	17.0	24.0
LTE B.30	Main2	26.6	14.0	22.3
LTE B.40	Main2	29.7	14.0	22.5
LTE B.41(PC2)	Main2	27.9	13.0	26.5
LTE B.41(PC3)	Main2	26.3	13.0	24.0
LTE B.48	Main2	26.3	12.5	22.5
LTE B.66(4)	Main1	27.3	14.0	24.5
LTE B.66(4)	Sub1	30.0	14.0	24.5
LTE B.71	Main1	31.5	19.0	23.5
NR n5	Main1	27.6	17.0	24.5
NR n12	Main1	29.9	17.0	24.5
NR n25(2)	Main1	29.5	14.0	24.5
NR n30	Main2	27.7	13.0	22.5
NR n41 (PC2)	Main2	20.0	11.0	27.0
NR n41 (PC3)	Main2	18.0	11.0	24.5
NR n48	Main2	16.5	8.0	22.5
NR n48(SRS1)	Sub4	6.0	-	12.0
NR n48(SRS2)	Sub3	6.0	-	12.0
NR n48(SRS3)	Sub2	10.0	-	16.0
NR n66	Main1	26.6	14.0	24.5
NR n71	Main1	31.7	19.0	23.5
NR n77 (PC2)	Main2	21.0	11.0	27.0
NR n77 (PC2)(SRS1)	Sub4	6.0	-	13.5
NR n77 (PC2)(SRS2)	Sub3	6.0	-	13.5
NR n77 (PC2)(SRS3)	Sub2	10.0	-	17.5
NR n77 (PC3)	Main2	18.0	11.0	24.5
NR n77 (PC3)(SRS1)	Sub4	6.0	-	12.0
NR n77 (PC3)(SRS2)	Sub3	6.0	-	12.0
NR n77 (PC3)(SRS3)	Sub2	10.0	-	16.0
NR n78 (PC3)	Main2	18.0	8.0	24.5
NR n78 (PC3)(SRS1)	Sub4	6.0	-	12.0
NR n78 (PC3)(SRS2)	Sub3	6.0	-	12.0
NR n78 (PC3)(SRS3)	Sub2	10.0	-	16.0

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Notes:

1. 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.
2. 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}.
3. All P_{limit} NV 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 LTE TDD modulation schemes.
4. For NR FR1 TDD Bands, P_{limit} listed averaged power level, and P_{max} listed burst power level.

6. SAR Test results for P_{limit} calculations

Standalone exposure without triggering proximity sensor (Tablet mode, RSI = 0)

Frequency (MHz)	Antenna	Band	Mode	RSI	Test position	Test distance (mm)	Measured Output power (dBm)	measured SAR 1g (W/kg)	P_{limit} (dBm)
1 880.0	Main1	UMTS Band 2	RMC	0	Rear	19	24.74	0.407	28.6
1 732.4	Main1	UMTS Band 4	RMC	0	Right	7	24.76	0.526	27.6
836.6	Main1	UMTS Band 5	RMC	0	Rear	19	24.20	0.528	27.0
1 880.0	Sub1	LTE Band 2	QPSK 20 MHz	0	Right	7	23.56	0.270	29.2
836.5	Main1	LTE Band 5	QPSK 10 MHz	0	Rear	19	23.85	0.385	28.0
2 510.0	Main2	LTE Band 7	QPSK 20 MHz	0	Top	14	23.48	0.720	25.4
2 560.0	Sub1	LTE Band 7	QPSK 20 MHz	0	Rear	19	22.15	0.270	27.8
707.5	Main1	LTE Band 12	QPSK 10 MHz	0	Top	14	23.95	0.215	30.9
782.0	Main1	LTE Band 13	QPSK 10 MHz	0	Rear	19	24.80	0.368	29.1
793.0	Main1	LTE Band 14	QPSK 10 MHz	0	Rear	19	24.55	0.319	29.5
1 905.0	Main1	LTE Band 25	QPSK 20 MHz	0	Rear	19	25.03	0.282	30.5
831.5	Main1	LTE Band 26	QPSK 15 MHz	0	Rear	19	23.72	0.351	28.2
2 310.0	Main2	LTE Band 30	QPSK 10 MHz	0	Top	14	22.86	0.427	26.6
2 355.0	Main2	LTE Band 40	QPSK 10 MHz	0	Top	14	23.05	0.217	29.7
2 593.0	Main2	LTE Band 41(PC3)	QPSK 20MHz	0	Top	14	24.92	0.725	26.3
3 690.0	Main2	LTE Band 48	QPSK 20MHz	0	Right	0	23.41	0.333	26.3
1 745.0	Main1	LTE Band 66	QPSK 20 MHz	0	Right	7	25.34	0.639	27.3
1 745.0	Sub1	LTE Band 66	QPSK 20 MHz	0	Right	7	24.00	0.253	30.0
680.5	Main1	LTE Band 71	QPSK 10 MHz	0	Rear	19	23.90	0.173	31.5
836.5	Main1	NR Band 5	DFT-S-OFDM QPSK 20 MHz	0	Rear	19	24.65	0.526	27.6
707.5	Main1	NR Band 12	DFT-S-OFDM QPSK 15 MHz	0	Rear	19	24.79	0.309	29.9
1 905.0	Main1	NR Band 25	DFT-S-OFDM QPSK 20 MHz	0	Rear	19	24.99	0.353	29.5
2 310.0	Main2	NR Band 30	DFT-S-OFDM QPSK 10 MHz	0	Top	14	23.46	0.381	27.7
2 592.99	Main2	NR Band 41(PC2)	DFT-S-OFDM QPSK 100 MHz	0	Top	14	20.74	0.449	20.0
3 679.98	Main2	NR Band 48	DFT-S-OFDM QPSK 40 MHz	0	Right	0	17.34	0.104	16.5
3 624.99	Sub4	NR Band48 (SRS1)	DFT-S-OFDM QPSK 40 MHz	0	Rear	0	6.88	1.010	6.0
3 624.99	Sub3	NR Band 48 (SRS2)	DFT-S-OFDM QPSK 40 MHz	0	Rear	0	6.92	0.818	6.0
3 679.98	Sub2	NR Band 48 (SRS3)	DFT-S-OFDM QPSK 40 MHz	0	Rear	0	10.92	0.523	10.0
1 745.0	Main1	NR Band 66	DFT-S-OFDM QPSK 40 MHz	0	Right	7	25.21	0.726	26.6
673.0	Main1	NR Band 71	DFT-S-OFDM QPSK 20 MHz	0	Top	14	23.87	0.163	31.7
3 500.01	Main2	NR Band 77(PC2)	DFT-S-OFDM QPSK 100 MHz	0	Rear	0	20.78	0.328	21.0
3 930.00	Sub4	NR Band 77 (SRS1)	DFT-S-OFDM QPSK 100 MHz	0	Rear	0	6.76	1.030	6.0
3 500.01	Sub3	NR Band 77 (SRS2)	DFT-S-OFDM QPSK 100 MHz	0	Rear	0	6.98	0.921	6.0
3 500.01	Sub2	NR Band 77 (SRS3)	DFT-S-OFDM QPSK 100 MHz	0	Rear	0	10.91	0.528	10.0

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Standalone exposure with triggering proximity sensor (Tablet mode, RSI = 1)

Frequency (MHz)	Antenna	Band	Mode	RSI	Test position	Test distance (mm)	Measured Output power (dBm)	measured SAR 1g (W/kg)	P_{limit} (dBm)
1 880.0	Main1	UMTS Band 2	RMC	1	Rear	0	14.27	0.512	14.0
1 732.4	Main1	UMTS Band 4	RMC	1	Rear	0	14.54	0.690	14.0
836.6	Main1	UMTS Band 5	RMC	1	Rear	0	17.63	0.401	17.0
1 880.0	Sub1	LTE Band 2	QPSK 20 MHz	1	Rear	0	14.46	0.458	14.0
836.5	Main1	LTE Band 5	QPSK 10 MHz	1	Rear	0	16.39	0.359	17.0
2 510.0	Main2	LTE Band 7	QPSK 20 MHz	1	Rear	0	9.25	0.487	10.0
2 560.0	Sub1	LTE Band 7	QPSK 20 MHz	1	Rear	0	10.98	0.399	10.0
707.5	Main1	LTE Band 12	QPSK 10 MHz	1	Rear	0	16.73	0.431	17.0
782.0	Main1	LTE Band 13	QPSK 10 MHz	1	Rear	0	16.94	0.333	17.0
793.0	Main1	LTE Band 14	QPSK 10 MHz	1	Rear	0	16.70	0.292	17.0
1 905.0	Main1	LTE Band 25	QPSK 20 MHz	1	Rear	0	13.63	0.387	14.0
831.5	Main1	LTE Band 26	QPSK 15 MHz	1	Rear	0	16.52	0.266	17.0
2 310.0	Main2	LTE Band 30	QPSK 10 MHz	1	Rear	0	13.72	0.612	14.0
2 310.0	Main2	LTE Band 40	QPSK 10 MHz	1	Rear	0	13.63	0.269	14.0
2 636.5	Main2	LTE Band 41(PC3)	QPSK 20 MHz	1	Rear	0	13.18	0.651	13.0
3 690.0	Main2	LTE Band 48	QPSK 10 MHz	1	Rear	0	13.44	0.470	12.5
1 745.0	Main1	LTE Band 66	QPSK 20 MHz	1	Rear	0	14.05	0.401	14.0
1 745.0	Sub1	LTE Band 66	QPSK 20 MHz	1	Rear	0	14.78	0.373	14.0
680.5	Main1	LTE Band 71	QPSK 20 MHz	1	Rear	0	19.08	0.699	19.0
836.5	Main1	NR Band 5	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	16.57	0.351	17.0
707.5	Main1	NR Band 12	DFT-S-OFDM QPSK 15 MHz	1	Rear	0	16.78	0.503	17.0
1 905.0	Main1	NR Band 25	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	13.79	0.428	14.0
2 310.0	Main2	NR Band 30	DFT-S-OFDM QPSK 10 MHz	1	Rear	0	12.73	0.558	13.0
2 592.99	Main2	NR Band 41(PC2)	DFT-S-OFDM QPSK 100 MHz	1	Rear	0	11.69	0.656	11.0
3 679.98	Main2	NR Band 48	DFT-S-OFDM QPSK 40 MHz	1	Rear	0	8.87	0.375	8.0
1 745.0	Main1	NR Band 66	DFT-S-OFDM QPSK 40 MHz	1	Rear	0	14.13	0.587	14.0
680.5	Main1	NR Band 71	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	18.32	0.603	19.0
3 500.01	Main2	NR Band 77(PC2)	DFT-S-OFDM QPSK 100 MHz	1	Rear	0	11.49	0.691	11.00

Notes:

1. SAR Test Results and Measured Output power refer in SAR part.1 report.

End of test report