TEST REPORT

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1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
- Date of Receipt : 2023-03-14

2. Use of Report : Class II Permissive Change

3. Name of Product and Model : 5G Sub-6 GHz M.2 Module with WCDMA and LTE
- Model Number : RM520N-GL
- Manufacturer and Country of Origin : Samsung Electronics Co., Ltd. / Vietnam

4. Host Product Name : Notebook PC
- Host Model Name : NP935QNA
- Manufacturer : Samsung Electronics Co., Ltd.

5. FCC ID : A3LRM520N935QNA

6. Date of Test : 2023-04-07 ~ 2023-05-20

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

8. Test Standards : FCC 47 CFR § 2.1093

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

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

2023-05-30

Eurofins KCTL Co.,Ltd.

REPORT REVISION HISTORY

Date	Revision	Page No
2023-05-30	Originally issued	-

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.

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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
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.

This report may only be reproduced and distributed in full. If the product in this test report is used in any configuration other than that detailed in the test report, the manufacturer must ensure the new configuration complies with all relevant standards and certification requirements. Any mention of Eurofins KCTL Co.,Ltd. Wireless lab or testing done by Eurofins KCTL Co.,Ltd. Wireless lab made in connection with the distribution or use of the tested product must be approved in writing by Eurofins KCTL Co.,Ltd. Wireless lab.

1.2 Report Compositions

Report Type	Report name
SAR Report_Part.0	KR23-SPF0029 FCC Report SAR_Part 0
SAR Report_Part.1	KR23-SPF0030 FCC Report SAR_Part 1
RF exposure Report_Part.2	KR23-SPF0031 FCC Report RF exposure_Part 2

2. Device information

The equipment under test (EUT) is SAMSUNG Notebook PC (FCC ID: A3LRM520N935QNA), it contains the Qualcomm modems supporting 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.

Product Name	5G Sub-6 GHz M.2 Module with WCDMA and LTE
Product Model Number	RM520N-GL
Product Manufacturer	Samsung Electronics Co., Ltd.
Host Product Name	Notebook PC
Host Model Number	NP935QNA
Host Manufacturer	Samsung Electronics Co., Ltd.
Mode of Operation	WCDMA II/ IV/ V, LTE Band 2/4/5/12/14/66 NR Band n2/n5/n66/n77
Device Overview	WCDMA II: 1 852.4 ㎒ ~ 1 907.6 ㎒
	WCDMA IV: 1 712.4 ㎒ ~ 1 752.6 ㎒
	WCDMA V: 826.4 ㎒ ~ 846.6 ㎒
	LTE Band 2: 1 850.7 ㎒ ~ 1 909.3 ㎒
	LTE Band 4: 1 710.7 ㎒ ~ 1 754.3 ㎒
	LTE Band 5: 824.7 ㎒ ~ 848.3 ㎒
	LTE Band 12: 699.7 ㎒ ~ 715.3 ㎒
	LTE Band 14: 790.5 ㎒ ~ 795.5 ㎒
	LTE Band 66: 1 710.7 ㎒ ~ 1 779.3 ㎒
	NR Band n2: 1 852.5 ㎒ ~ 1 907.5 ㎒
	NR Band n5: 826.5 ㎒ ~ 846.5 ㎒
	NR Band n66: 1 712.5 ㎒ ~ 1 777.5 ㎒
	NR Band n77(DoD): 3 460.02 ㎒ ~ 3 540.00 ㎒
	NR Band n77: 3 710.01 ㎒ ~ 3 969.99 ㎒

3. 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 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.

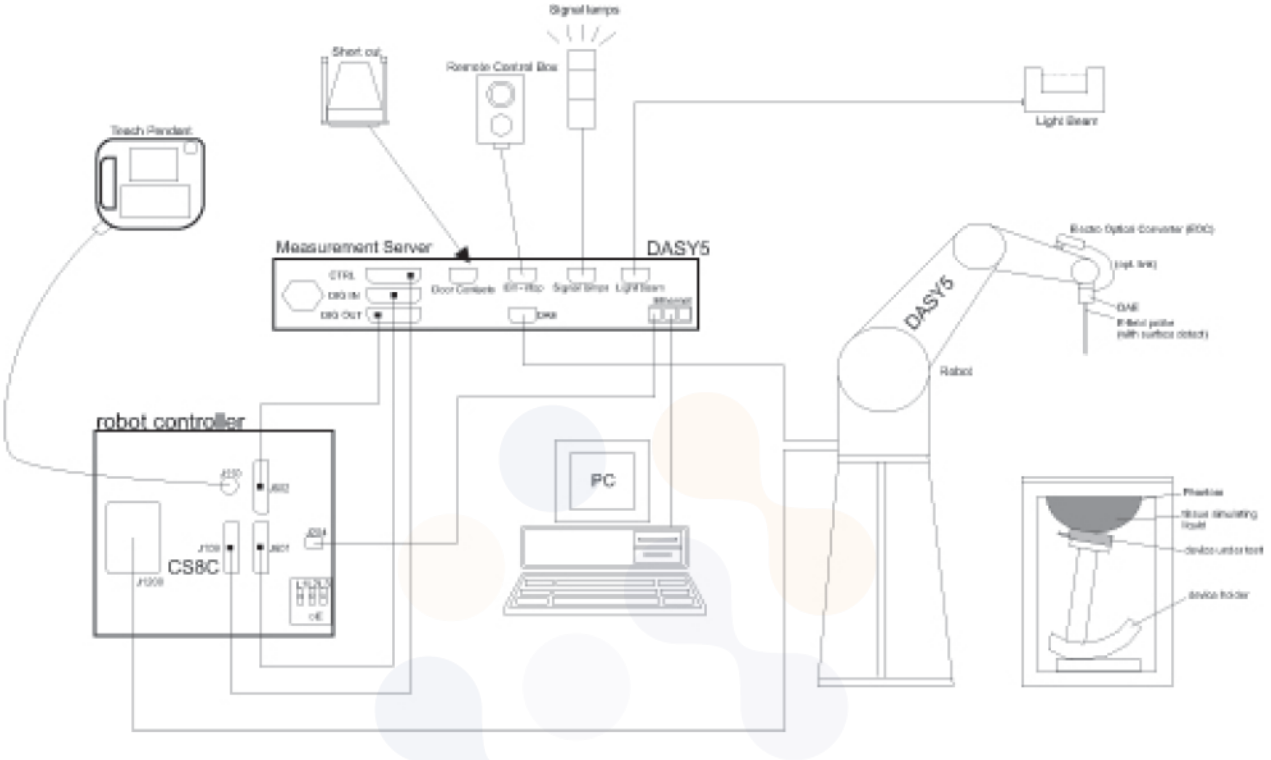
3.1 Nomenclature for Report

Supported Technologies	Term	Description
2G/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 WinXP or Win7 and the DASY5 software.
- Remote control and teach pendant as well as additional circuitry for robot safety such as warning lamps, etc.
- The phantom, the device holder and other accessories according to the targeted measurement.

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 / 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 - 4	-	-
	-	8F - 7	-	-
DASY6 Robot	TX60 Lspeag	F/19/0007289/A/001	-	-
DASY8 Robot	TX2-60L	F/22/0040787/A/001	-	-
Phantom	2mm Oval Phantom ELI5	1173	-	-
	2mm Oval Phantom ELI5	2098	-	-
Mounting Device	Laptop Holder	-	-	-
DAE	DAE4	666	2023-01-23	2024-01-23
	DAE4	1759	2022-11-07	2023-11-07
Probe	EX3DV4	7540	2022-04-29	2023-04-29
	EX3DV4	7541	2022-07-22	2023-07-22
	EX3DV4	7770	2022-11-18	2023-11-18
	EX3DV4	3697	2023-04-13	2024-04-13
ESG Vector Signal Generator	E4438C	MY42080845	2023-02-09	2024-02-09
MXA SIGNAL ANALYZER	N9020A	MY520900024	2022-11-22	2023-11-22
Dual Power Meter	E4419B	GB40202503	2022-11-21	2023-11-21
	E4419B	GB40202622	2022-11-21	2023-11-21
Power Sensor	E9301A	US39210857	2022-11-21	2023-11-21
	E9301A	US39212236	2022-11-21	2023-11-21
	E9301A	MY41497231	2022-11-21	2023-11-21
	E9301A	MY41499102	2022-11-21	2023-11-21
Attenuator	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
	PE7005-10	2228-7	2022-12-15	2023-12-15
	PE7005-10	2228-8	2022-12-15	2023-12-15
	PE7005-10	2228-9	2022-12-15	2023-12-15
Dual Directional Coupler	778D	16059	2023-02-09	2024-02-09
	772D	2839A00719	2023-02-09	2024-02-09

Equipment	Model	Serial Number	Date of Calibration	Due date of next Calibration
Directional Coupler	778D	17185	2022-11-21	2023-11-21
Power Amplifier	AMP2027ADB	10005	2022-07-06	2023-07-06
	AMP2027	10010	2022-05-02	2023-05-02
Low Pass Filter	NLP-1000+	VUU79701846	2022-05-02	2023-05-02
			2023-04-26	2024-04-26
	PE8721	2205	2022-12-14	2023-12-14
	LA-60N	40059	2023-02-09	2024-02-09
Dipole Validation Kits	D750V3	1183	2022-09-21	2024-09-21
	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
	D3500V2	1146	2022-11-01	2024-11-01
	D3700V2	1027	2022-08-19	2024-08-19
	D3900V2	1037	2023-02-27	2025-02-27
ENA Series Network Analyzer	E5071B	MY42403524	2023-02-09	2024-02-09
Dielectric Assessment Kit	DAK-3.5	1078	2022-05-30	2023-05-30
Dielectric Assessment Kit	DAKS-3.5	1165	2022-12-14	2023-12-14
VECTOR REFLECTOMETER	R140B	22420003	2023-01-03	2024-01-03
Humidity/Temp	PC-5400TRH	PC-5400TRH-3	2022-11-21	2023-11-21
	MHB-382SD	46301	2023-02-14	2024-02-14
Wideband Radio Communication Tester	CMW500	132423	2023-02-09	2024-02-09
Wideband Radio Communication Tester	CMW500	168683	2023-02-09	2024-02-09
Radio Communication Analyzer	MT8821C	6201807233	2023-01-19	2024-01-19
Radio Communication Analyzer	MT8821C	6262170371	2022-11-03	2023-11-03
Radio Communication Analyzer	MT8821C	6262170372	2022-11-03	2023-11-03
Radio Communication Test Station	MT8000A	6261987922	2023-02-09	2024-02-09
MXA SIGNAL ANALYZER	N9020A	MY520900024	2022-11-22	2023-11-22

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 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

Exposure Scenario (DSI = No.)		Description	KDB guide for SAR test
Notebook Mode	Standalone exposure Without triggering sensor (DSI = 0)	■ Grip sensor is not triggered even if Device was touched to user's body. ■ Grip sensor is not triggered due to triggering distance. ■ Standalone SAR measured at 12 mm spacing for Rear	KDB 616217 D04
Notebook Mode	Standalone exposure With triggering sensor (DSI = 1)	■ Grip sensor is triggered, when Device was touched to user's body.	KDB 616217 D04
Tablet Mode	Standalone exposure With Tablet mode Back-off (DSI = 2)	■ Back-off sensor is triggered, when Device was folded ≥ 190 degrees.	KDB 616217 D04

Notes:
For DSI = 0, P_{limit} is calculated by:
P_{limit} = P_{limit} corresponding to 1g Standalone SAR evaluation at 12 mm spacing at Rear

5.3 SAR Char

SAR results corresponding to P_{max} for each antenna/technology/band/DSI 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

Device State Index (DSI)		P_{limit} Determination Scenarios
Notebook Mode	DSI = 0	The worst-case SAR exposure is determined as maximum SAR normalized To the limit among; 1. Standalone SAR measured at 12 mm spacing for Rear (Ant.0) 2. Standalone SAR measured at 12 mm spacing for Rear (Ant.2)
Notebook Mode	DSI = 1	1. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear (Ant.0) 2. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear (Ant.2)
Tablet Mode	DSI = 2	1. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear (Ant.0) 2. P_{limit} is calculated based on Standalone SAR (1-g SAR) at 0 mm for Rear (Ant.2)

SAR Characterizations

Device State Index (DSI)		0	1	2	P_{max} (Maximum tune-up Power) (dBm)
Exposure scenario		Notebook Mode		Tablet Mode	
		Standalone SAR without triggering sensor	Standalone SAR with triggering sensor	Standalone SAR with tablet back-off	
Test Distance (mm)		Refer to Section 5.3.			
Spatial-average		1g	1g	1g	
WWAN Bands	Antenna	P_{limit} (dBm)			
WCDMA Band II	Ant.0	25.5	17.0	14.0	24.0
WCDMA Band IV	Ant.0	25.3	15.0	14.0	24.0
WCDMA Band V	Ant.0	30.0	22.0	20.0	24.0
LTE Band 2	Ant.0	25.7	16.0	13.0	23.0
LTE Band 2	Ant.2	27.0	16.0	13.0	22.0
LTE Band 4	Ant.0	25.0	14.0	13.0	23.0
LTE Band 4	Ant.2	28.4	14.0	13.0	22.0
LTE Band 5	Ant.0	30.3	21.0	19.0	23.0
LTE Band 12	Ant.0	32.4	19.0	14.0	23.0
LTE Band 14	Ant.0	30.3	20.0	18.0	23.0
LTE Band 66	Ant.0	25.0	14.0	13.0	23.0
LTE Band 66	Ant.2	28.4	14.0	13.0	22.0
NR Band 2	Ant.0	25.5	16.0	13.0	23.0
NR Band 2	Ant.2	29.7	16.0	13.0	23.0
NR Band 5	Ant.0	30.1	21.0	19.0	23.0
NR Band 66	Ant.0	25.2	14.0	13.0	23.0
NR Band 66	Ant.2	28.5	14.0	13.0	23.0
NR Band 77	Ant.2	24.9	11.5	6.5	25.0
NR Band 77 DoD	Ant.2	26.0	11.5	6.5	25.0

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. SAR for LTE Band 4 (Frequency range: 1 710.7 ~ 1 754.3 ㎒) is covered by LTE Band 66 (Frequency range: 1 710.7 ~ 1 779.3 ㎒) due to overlapping frequency range

6. SAR Test results for P_{limit} calculations

Standalone exposure without triggering proximity sensor (Notebook mode, DSI = 0)

Test results were refer to reference model (FCC ID : A3LRM520N935QNA).

Frequency (MHz)	Antenna	Band	Mode	DSI	Test position	Test distance (mm)	Measured Output power (dBm)	measured SAR 1g (W/kg)	P_{limit} (dBm)
1 852.4	Ant.0	UMTS Band 2	RMC	0	Rear	12	23.39	0.609	25.5
1 752.6	Ant.0	UMTS Band 4	RMC	0	Rear	12	23.63	0.684	25.3
836.6	Ant.0	UMTS Band 5	RMC	0	Rear	12	23.55	0.226	30.0
1 860.0	Ant.0	LTE Band 2	QPSK 20 MHz	0	Rear	12	23.79	0.645	25.7
1 880.0	Ant.2	LTE Band 2	QPSK 20 MHz	0	Rear	12	22.84	0.382	27.0
1 732.5	Ant.0	LTE Band 4	QPSK 20 MHz	0	Rear	12	23.60	0.730	25.0
1 732.5	Ant.2	LTE Band 4	QPSK 20 MHz	0	Rear	12	22.90	0.281	28.4
836.5	Ant.0	LTE Band 5	QPSK 10 MHz	0	Rear	12	23.86	0.228	30.3
707.5	Ant.0	LTE Band 12	QPSK 10 MHz	0	Rear	12	23.87	0.140	32.4
793.0	Ant.0	LTE Band 14	QPSK 10 MHz	0	Rear	12	23.93	0.229	30.3
1 745.0	Ant.0	LTE Band 66	QPSK 20 MHz	0	Rear	12	23.60	0.730	25.0
1 745.0	Ant.2	LTE Band 66	QPSK 20 MHz	0	Rear	12	22.90	0.281	28.4
1 860.0	Ant.0	NR Band 2	DFT-S-OFDM QPSK 20 MHz	0	Rear	12	23.73	0.671	25.5
1 880.0	Ant.2	NR Band 2	DFT-S-OFDM QPSK 20 MHz	0	Rear	12	23.89	0.263	29.7
836.5	Ant.0	NR Band 5	DFT-S-OFDM QPSK 20 MHz	0	Rear	12	24.61	0.283	30.1
1 745.0	Ant.0	NR Band 66	DFT-S-OFDM QPSK 30 MHz	0	Rear	12	23.99	0.761	25.2
1 745.0	Ant.2	NR Band 66	DFT-S-OFDM QPSK 30 MHz	0	Rear	12	23.98	0.352	28.5
3 930.0	Ant.2	NR Band 77	DFT-S-OFDM QPSK 100 MHz	0	Rear	12	24.67	0.949	24.9
3 500.01	Ant.2	NR Band 77 DoD	DFT-S-OFDM QPSK 100 MHz	0	Rear	12	24.77	0.758	26.0

Standalone exposure without triggering proximity sensor (Notebook mode, DSI = 1)

Test results were refer to reference model (FCC ID : A3LRM520N935QNA).

Frequency (MHz)	Antenna	Band	Mode	DSI	Test position	Test distance (mm)	Measured Output power (dBm)	measured SAR 1g (W/kg)	P_{limit} (dBm)
1 852.4	Ant.0	UMTS Band 2	RMC	1	Rear	0	17.01	0.954	17.0
1 752.6	Ant.0	UMTS Band 4	RMC	1	Rear	0	14.93	0.675	15.0
836.6	Ant.0	UMTS Band 5	RMC	1	Rear	0	22.06	0.826	22.0
1 860.0	Ant.0	LTE Band 2	QPSK 20 MHz	1	Rear	0	16.66	0.881	16.0
1 880.0	Ant.2	LTE Band 2	QPSK 20 MHz	1	Rear	0	16.85	0.353	16.0
1 732.5	Ant.0	LTE Band 4	QPSK 20 MHz	1	Rear	0	14.66	0.649	14.0
1 732.5	Ant.2	LTE Band 4	QPSK 20 MHz	1	Rear	0	15.00	0.346	14.0
836.5	Ant.0	LTE Band 5	QPSK 10 MHz	1	Rear	0	21.89	0.786	21.0
707.5	Ant.0	LTE Band 12	QPSK 10 MHz	1	Rear	0	19.89	0.434	19.0
793.0	Ant.0	LTE Band 14	QPSK 10 MHz	1	Rear	0	21.22	0.583	20.0
1 745.0	Ant.0	LTE Band 66	QPSK 20 MHz	1	Rear	0	14.66	0.649	14.0
1 745.0	Ant.2	LTE Band 66	QPSK 20 MHz	1	Rear	0	15.00	0.346	14.0
1 860.0	Ant.0	NR Band 2	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	16.82	0.933	16.0
1 880.0	Ant.2	NR Band 2	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	16.86	0.422	16.0
836.5	Ant.0	NR Band 5	DFT-S-OFDM QPSK 20 MHz	1	Rear	0	22.55	0.894	21.0
1 745.0	Ant.0	NR Band 66	DFT-S-OFDM QPSK 30 MHz	1	Rear	0	14.92	0.654	14.0
1 745.0	Ant.2	NR Band 66	DFT-S-OFDM QPSK 30 MHz	1	Rear	0	15.06	0.336	14.0
3 930.0	Ant.2	NR Band 77	DFT-S-OFDM QPSK 100 MHz	1	Rear	0	11.15	0.399	11.5
3 500.01	Ant.2	NR Band 77 DoD	DFT-S-OFDM QPSK 100 MHz	1	Rear	0	11.15	0.399	11.5

Standalone exposure tablet mode back-off (Tablet mode, DSI = 2)

Test results were refer to reference model (FCC ID : A3LRM520N935QNA).

Frequency (MHz)	Antenna	Band	Mode	DSI	Test position	Test distance (mm)	Measured Output power (dBm)	measured SAR 1g (W/kg)	P_{limit} (dBm)
1 907.6	Ant.0	UMTS Band 2	RMC	2	Rear	0	13.83	0.737	14.0
1 732.6	Ant.0	UMTS Band 4	RMC	2	Rear	0	13.89	0.516	14.0
836.6	Ant.0	UMTS Band 5	RMC	2	Rear	0	20.11	0.961	20.0
1 900.0	Ant.0	LTE Band 2	QPSK 20 MHz	2	Rear	0	13.70	0.694	13.0
1 880.0	Ant.2	LTE Band 2	QPSK 20 MHz	2	Rear	0	14.11	0.379	13.0
1 732.5	Ant.0	LTE Band 4	QPSK 20 MHz	2	Rear	0	13.78	0.694	13.0
1 732.5	Ant.2	LTE Band 4	QPSK 20 MHz	2	Rear	0	13.91	0.676	13.0
836.5	Ant.0	LTE Band 5	QPSK 10 MHz	2	Rear	0	19.96	0.999	19.0
707.5	Ant.0	LTE Band 12	QPSK 10 MHz	2	Rear	0	14.98	0.335	14.0
793.0	Ant.0	LTE Band 14	QPSK 10 MHz	2	Rear	0	19.18	0.839	18.0
1 770.0	Ant.0	LTE Band 66	QPSK 20 MHz	2	Rear	0	13.78	0.694	13.0
1 770.0	Ant.2	LTE Band 66	QPSK 20 MHz	2	Rear	0	13.91	0.676	13.0
1 900.0	Ant.0	NR Band 2	DFT-S-OFDM QPSK 20 MHz	2	Rear	0	13.69	0.824	13.0
1 880.0	Ant.2	NR Band 2	CP-OFDM QPSK 20 MHz	2	Rear	0	13.89	0.419	13.0
836.5	Ant.0	NR Band 5	DFT-S-OFDM QPSK 20 MHz	2	Rear	0	20.59	1.240	19.0
1 745.0	Ant.0	NR Band 66	DFT-S-OFDM QPSK 30 MHz	2	Rear	0	14.04	0.894	13.0
1 745.0	Ant.2	NR Band 66	CP-OFDM QPSK 30 MHz	2	Rear	0	13.98	0.537	13.0
3 930.0	Ant.2	NR Band 77	DFT-S-OFDM QPSK 100 MHz	2	Rear	0	6.13	0.506	6.5
3 500.01	Ant.2	NR Band 77(DoD)	DFT-S-OFDM QPSK 100 MHz	2	Rear	0	6.21	0.410	6.5

Notes:

1. SAR Test Results and Measured Output power refer in SAR part.1 report.
2. SAR for LTE Band 4 (Frequency range: 1 710.7 ~ 1 754.3 ㎒) is covered by LTE Band 66 (Frequency range: 1 710.7 ~ 1 779.3 ㎒) due to overlapping frequency range

End of test report