TEST REPORT

Report Number : 4790430333-E9V2

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-T638U
FCC ID	:	A3LSMT638U
EUT Description	:	WCDMA/LTE/5G NR Tablet + BT/BLE, DTS/UNII a/b/g/n/ac/ax and NFC.
Test Standard(s)	:	FCC PART 96.47

Date Of Issue:
2022-08-22

Prepared by:
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Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
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IAS ACCREDITED Testing Laboratory TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-08-11	Initial Issue	SunGeun Lee
V1	2022-08-22	Updated FORM ID	SunGeun Lee

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218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: WCDMA/LTE/5G NR Tablet + BT/BLE, DTS/UNII a/b/g/n/ac/ax and NFC.

MODEL: SM-T638U

FCC ID: A3LSMT638U

SERIAL NUMBER: 65246998f1357ece

DATE TESTED: 2022-07-22

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 96.47	Complies

UL LLC 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 LLC 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 LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC 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 A2LA, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:

Sungeun Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC Part 96.47, KDB 940660 D01 Part 96 CBRS Eqpt v03 and WINNF-TS-0122-v1.0.2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro
☐ Chamber 1(3m semi-anechoic chamber)
☒ Chamber 2(3m semi-anechoic chamber)
☐ Chamber 3(3m semi-anechoic chamber)
☐ Chamber 4(3m Full-anechoic chamber)
☐ Chamber 5(3m Full-anechoic chamber)

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf.

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.02 dB
Radiated Disturbance, 30 MHz to 1 GHz	4.05 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.78 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.58 dB

Uncertainty figures are valid to a confidence level of 95%.

4.4. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2007.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WCDMA/LTE/5G NR Tablet + BT/BLE, DTS/UNII a/b/g/n/ac/ax and NFC.
This test report addresses the WWAN operational mode.

5.2. SOFTWARE AND FIRMWARE

The test utility software used during testing was WINNF-TS-0122 V1.0.2

5.3. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Charger	SAMSUNG	EP-TA200	R37N6K421B2SE3	N/A
Data Cable	SAMSUNG	EP-DT725BWE	GH39-02020A	N/A
Charger	SAMSUNG	EP-TA800	R37N3MAH988DK3	N/A
Data Cable	SAMSUNG	EP-DN980	GH39-02115A	N/A
Earphone	SAMSUNG	GH59-15055A	EHS64AVFWE	N/A

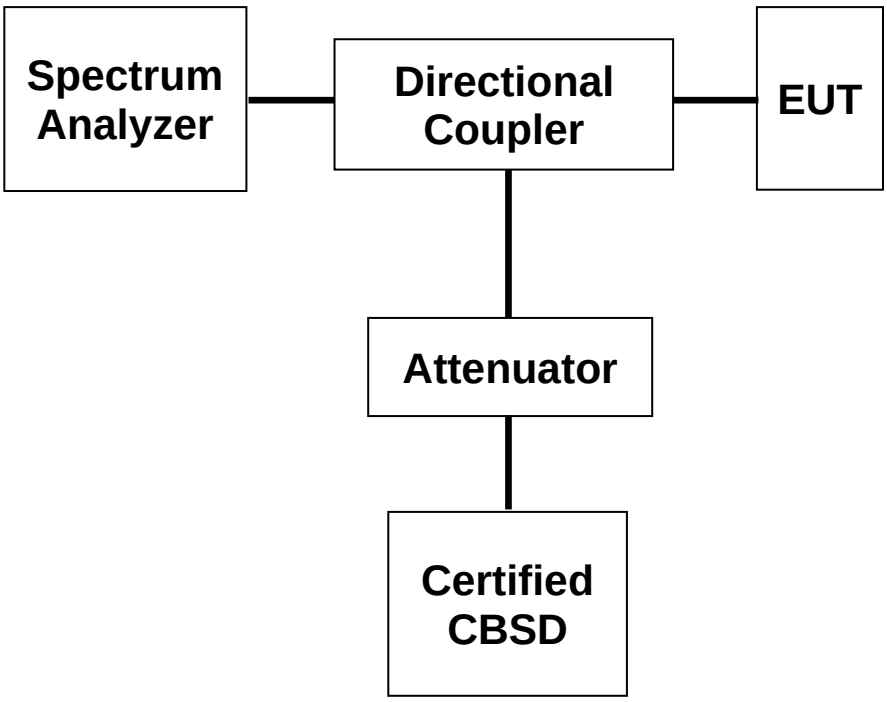
I/O CABLES

I/O Cable List						
Cable No.	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	A to C Type	Shielded	1.0 m	N/A
2	DC Power	1	C to C Type	Shielded	1.0 m	N/A
3	Audio	2	Mini-Jack	Unshielded	0.7 m	N/A

TEST SETUP

The standalone EUT connected to a certified CBSD and Spectrum Analyzer and an RF cable respectively.

SETUP DIAGRAM OF TEST SYSTEM



Remarks:
Certified CBSD – FCC ID: 2AS48SC-220
Connection between Certified CBSD and EUT is conducted method.
EUT is an End User Device (EUD)

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6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	S/N	**Cal Due**
Spectrum Analyzer, EXA	Agilent (Keysight) Technologies	N9010A	MY54200580	2023-08-01
Step Attenuator	Keysight	8494B	MY42155321	2023-08-02
Step Attenuator	Keysight	8496B	MY42149783	2023-08-02
Directional Coupler	KRYTAR	1850	164428	2023-08-01

Test Software			
Description	**Manufacturer**	**Model**	**Version Number**
Laptop (SAS – WINNForum Test Harness)	SAMSUNG	NT550XDA-KC58G	2.0

7. END USER DEVICE ADDITIONAL REQUIREMENT

7.1. TEST REQUIREMENT

FCC Part 96.47

(a) End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.

(1) An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

8. TEST PROCEDURE AND EUT CONFIGURATION

KDB 940660 D01 Part 96 CBRS v03, WINNF-TS-0122 V1.0.2

Additional requirements are required to End-User Device LTE Band 48 device base on CBSD protocol. During the test, the EUT and its companion certified CBSD (FCC ID: 2AS48SC-220) device communicate with each other.

Configuration	Frequency (MHz)	Power (dBm/MHz)	Bandwidth (MHz)
1	3560 – 3580	8	20
2	3600 – 3620	16	20

Configuration 1

a) Setup WINNF.PT.C.HBT.1 with 3560MHz-3580MHz and power level 8 dBm/MHz
b) Enable AP service from companion device.
c) Check EUT Transmitter Frequency and power
d) Disable AP service from companion device and check EUT stop transmission within 10s.

Configuration 2

a) Setup WINNF.PT.C.HBT.1 with 3600MHz-3620MHz and power level 16 dBm/MHz
b) Enable AP service from companion device.
c) Check EUT Transmitter Frequency and power
d) Disable AP service from companion device and check EUT stop transmission within 10s.

TEST RESULTS

8.1. END USER DEVICE CONFIGURATION 1 (3560MHz - 3580MHz; MaxEIRP: 8 dBm/MHz)

Operation Mode

```
- Device.X_QUCELL_CBRS.Grant.1.
- Device.X_QUCELL_CBRS.Grant.1.GrantID = 721045713
- Device.X_QUCELL_CBRS.Grant.1.Status = Authorized
- Device.X_QUCELL_CBRS.Grant.1.LowFrequency = 3560000000
- Device.X_QUCELL_CBRS.Grant.1.HighFrequency = 3580000000
- Device.X_QUCELL_CBRS.Grant.1.MaxEIRP = 8000
- Device.X_QUCELL_CBRS.Grant.1.GrantExpireTime = 2022-07-28T08:58:31Z
- Device.X_QUCELL_CBRS.Grant.1.HeartbeatInterval = 60
- Device.X_QUCELL_CBRS.Grant.1.ChannelType = GAA
w Device.X_QUCELL_CBRS.Grant.1.Relinquishment = 0
```


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Stop Operation Within 10 second Mode

NOTE:
Marker 1: Authorized CBSD sends a signal to stop LTE transmission.
Marker 2-1 Delta: Time elapsed since signal to stop LTE transmission. EUD has stopped transmission.
Marker 3-1 Delta: 10 seconds has elapsed since CBSD has sent a signal to stop LTE transmission to EUT.

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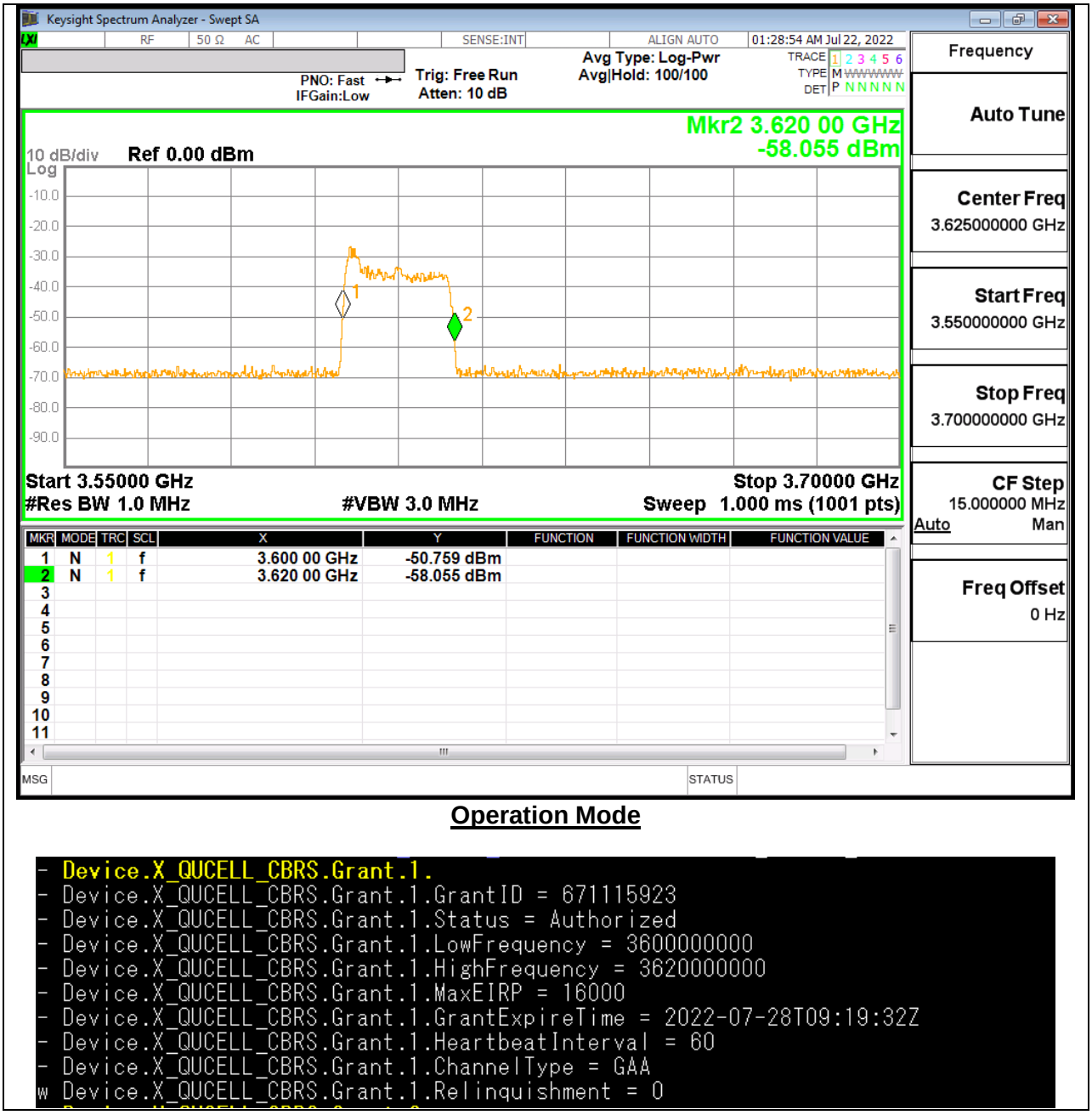
8.2. END USER DEVICE CONFIGURATION 2 (3600MHz - 3620MHz; MaxEIRP: 16 dBm/MHz)



Operation Mode

```
- Device.X_QUCELL_CBRS.Grant.1.
- Device.X_QUCELL_CBRS.Grant.1.GrantID = 671115923
- Device.X_QUCELL_CBRS.Grant.1.Status = Authorized
- Device.X_QUCELL_CBRS.Grant.1.LowFrequency = 3600000000
- Device.X_QUCELL_CBRS.Grant.1.HighFrequency = 3620000000
- Device.X_QUCELL_CBRS.Grant.1.MaxEIRP = 16000
- Device.X_QUCELL_CBRS.Grant.1.GrantExpireTime = 2022-07-28T09:19:32Z
- Device.X_QUCELL_CBRS.Grant.1.HeartbeatInterval = 60
- Device.X_QUCELL_CBRS.Grant.1.ChannelType = GAA
w Device.X_QUCELL_CBRS.Grant.1.Relinquishment = 0
```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Marker 2-1 Delta: Time elapsed since signal to stop LTE transmission. EUD has stopped transmission.
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END OF TEST REPORT

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