TEST REPORT

Report Number : 4791050050-E1V1

Applicant	:	SAMSUNG ELECTRONICS CO., LTD. 129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI, GYEONGGI-DO, 16677, KOREA
Model	:	SM-X308U
FCC ID	:	A3LSMX308U
EUT Description	:	Tablet PC
Test Standard(s)	:	FCC 47 CFR PART 96.47

Date Of Issue:
2023-11-06

Prepared by:
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26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL KOREA LTD. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
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IAS ACCREDITED
Testing Laboratory
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2023-11-06	Initial Issue	SunGeun Lee

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: Tablet PC

MODEL: SM-X308U

SERIAL NUMBER: R32WA000J6A (Radiated)

TEST BAND: LTE Band 48, 5G NR n48

DATE TESTED: 2023-10-22 ~ 2023-11-06

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 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.

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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.

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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. DECISION RULE

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2021.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Tablet PC. 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

TEST SETUP

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

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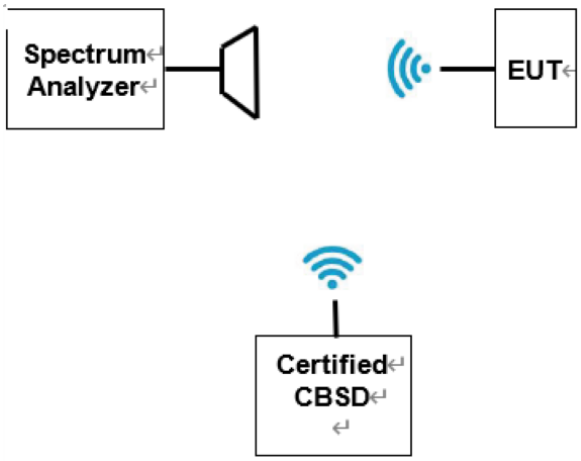
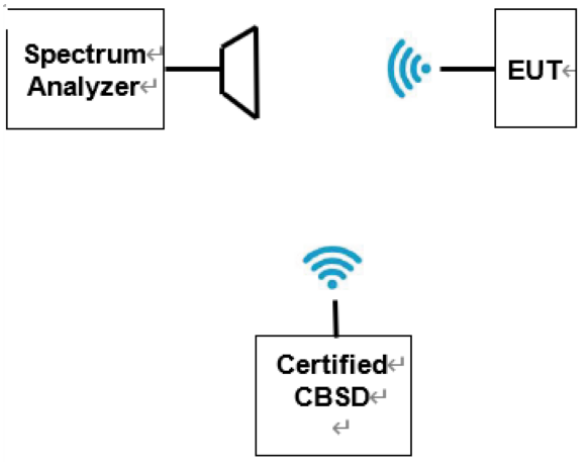
SETUP DIAGRAM FOR TESTS (LTE B48 CBSD TEST SETUP)



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

SETUP DIAGRAM FOR TESTS (5G NR n48 CBSD TEST SETUP)



Remarks:
Certified CBSD – FCC ID: PIDAS2900
Connection between Certified CBSD and EUT is radiated 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	2024-07-23
Spectrum Analyzer, PXA	Agilent (Keysight) Technologies	N9030B	MY57143652	2024-07-25
Horn Antenna	ETS LINDGREN	3115	00167211	2024-08-04

CBSD support software and equipment			
Description	**Manufacturer**	**Model**	**Version Number**
Laptop (SAS – WINNForum Test Harness)	SAMSUNG	NT550XDA-KC58G	2.0
Laptop for n48 CBSD connection	HP	HP EliteBook 830 G5	-
Laptop for n48 CBSD connection	DELL	Latitude 5520	-

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7. END USER DEVICE ADDITIONAL REQUIREMENT

7.1. TEST REQUIREMENT

RULE PART(S)

FCC: §96.47

LIMITS

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.

TEST PROCEDURE

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

Additional requirements are required to End-User Device LTE Band 48 and 5G NR n48 devices base on CBSD protocol. During the test, the EUT and its companion certified CBSD (FCC ID: 2AS48SC-220) and (FCC ID: PIDAS2900) devices communicate with each other.

Band	Configuration	Frequency (MHz)	Power (dBm/MHz)	Bandwidth (MHz)
LTE B48	1	3560 – 3580	8	20
	2	3600 – 3620	16	20
5G NR n48	3	3590 – 3610	15	20
	4	3640 – 3660	7	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.

Configuration 3

e) Setup WINNF.PT.C.HBT.1 with 3590MHz-3610MHz and power level 15 dBm/MHz
f) Enable AP service from companion device.
g) Check EUT Transmitter Frequency and power
h) Disable AP service from companion device and check EUT stop transmission within 10s.

Configuration 4

e) Setup WINNF.PT.C.HBT.1 with 3640MHz-3660MHz and power level 7 dBm/MHz
f) Enable AP service from companion device.
g) Check EUT Transmitter Frequency and power
h) Disable AP service from companion device and check EUT stop transmission within 10s.

RESULTS

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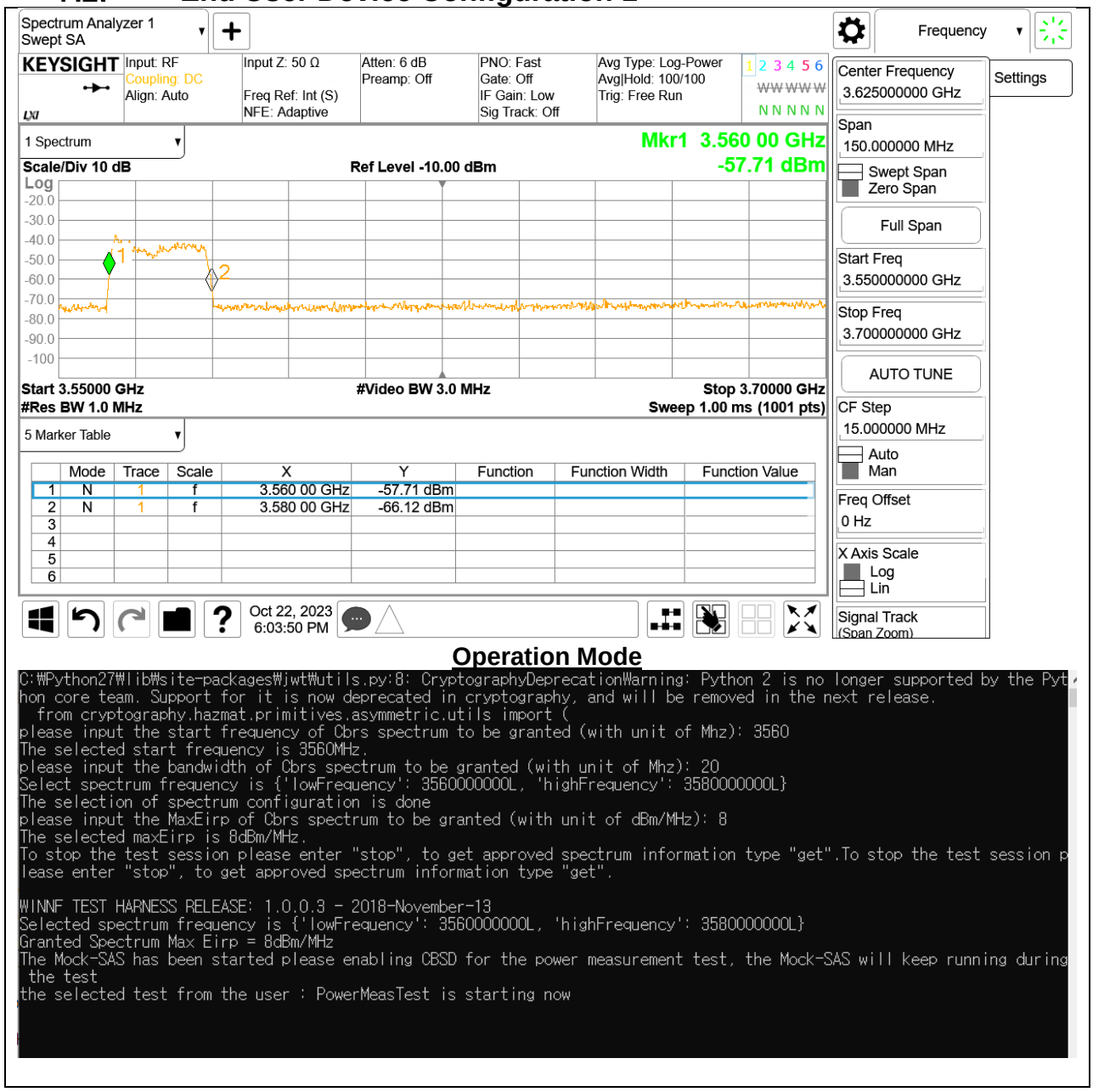
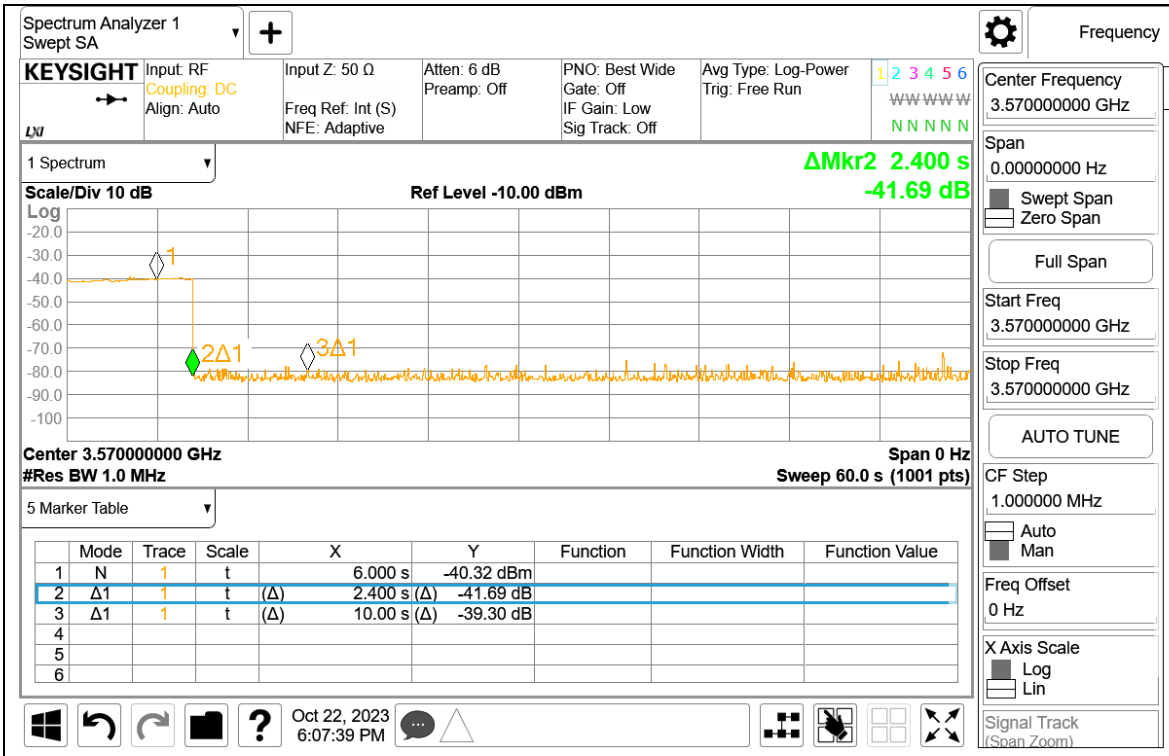
7.2. End User Device Configuration 1



Operation Mode

```
C:\Python27\lib\site-packages\jwt\utils.py:8: CryptographyDeprecationWarning: Python 2 is no longer supported by the Pyt
hon core team. Support for it is now deprecated in cryptography, and will be removed in the next release.
  from cryptography.hazmat.primitives.asymmetric.utils import (
please input the start frequency of Cbrs spectrum to be granted (with unit of Mhz): 3560
The selected start frequency is 3560MHz.
please input the bandwidth of Cbrs spectrum to be granted (with unit of Mhz): 20
Select spectrum frequency is {'lowFrequency': 3560000000L, 'highFrequency': 3580000000L}
The selection of spectrum configuration is done
please input the MaxEirp of Cbrs spectrum to be granted (with unit of dBm/MHz): 8
The selected maxEirp is 8dBm/MHz.
To stop the test session please enter "stop", to get approved spectrum information type "get".To stop the test session p
lease enter "stop", to get approved spectrum information type "get".

WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
Selected spectrum frequency is {'lowFrequency': 3560000000L, 'highFrequency': 3580000000L}
Granted Spectrum Max Eirp = 8dBm/MHz
The Mock-SAS has been started please enabling CBSD for the power measurement test, the Mock-SAS will keep running during
 the test
the selected test from the user : PowerMeasTest is starting now
```

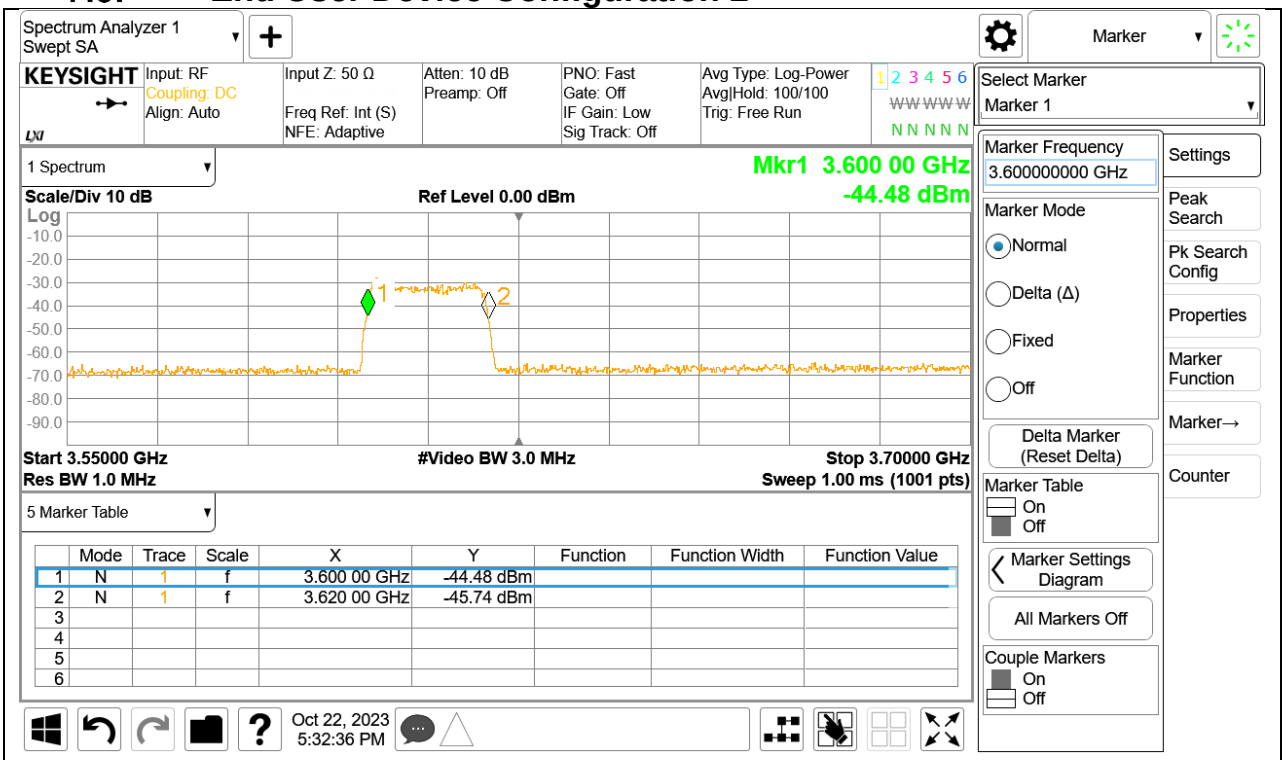


Stop Operation Within 10 second Mode

NOTE:

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

7.3. End User Device Configuration 2



Operation Mode

```
C:\Python27\lib\site-packages\jwt\utils.py:8: CryptographyDeprecationWarning: Python 2 is no longer supported by the Pyt
hon core team. Support for it is now deprecated in cryptography, and will be removed in the next release.
  from cryptography.hazmat.primitives.asymmetric.utils import (
please input the start frequency of Cbrs spectrum to be granted (with unit of Mhz): 3600
The selected start frequency is 3600MHz.
please input the bandwidth of Cbrs spectrum to be granted (with unit of Mhz): 20
Select spectrum frequency is {'lowFrequency': 3600000000L, 'highFrequency': 3620000000L}
The selection of spectrum configuration is done
please input the MaxEirp of Cbrs spectrum to be granted (with unit of dBm/MHz): 16
The selected maxEirp is 16dBm/MHz.
To stop the test session please enter "stop", to get approved spectrum information type "get".To stop the test session p
lease enter "stop", to get approved spectrum information type "get".

WINNF TEST HARNESS RELEASE: 1.0.0.3 - 2018-November-13
Selected spectrum frequency is {'lowFrequency': 3600000000L, 'highFrequency': 3620000000L}
Granted Spectrum Max Eirp = 16dBm/MHz
The Mock-SAS has been started please enabling CBSD for the power measurement test, the Mock-SAS will keep running during
 the test
the selected test from the user : PowerMeasTest is starting now
```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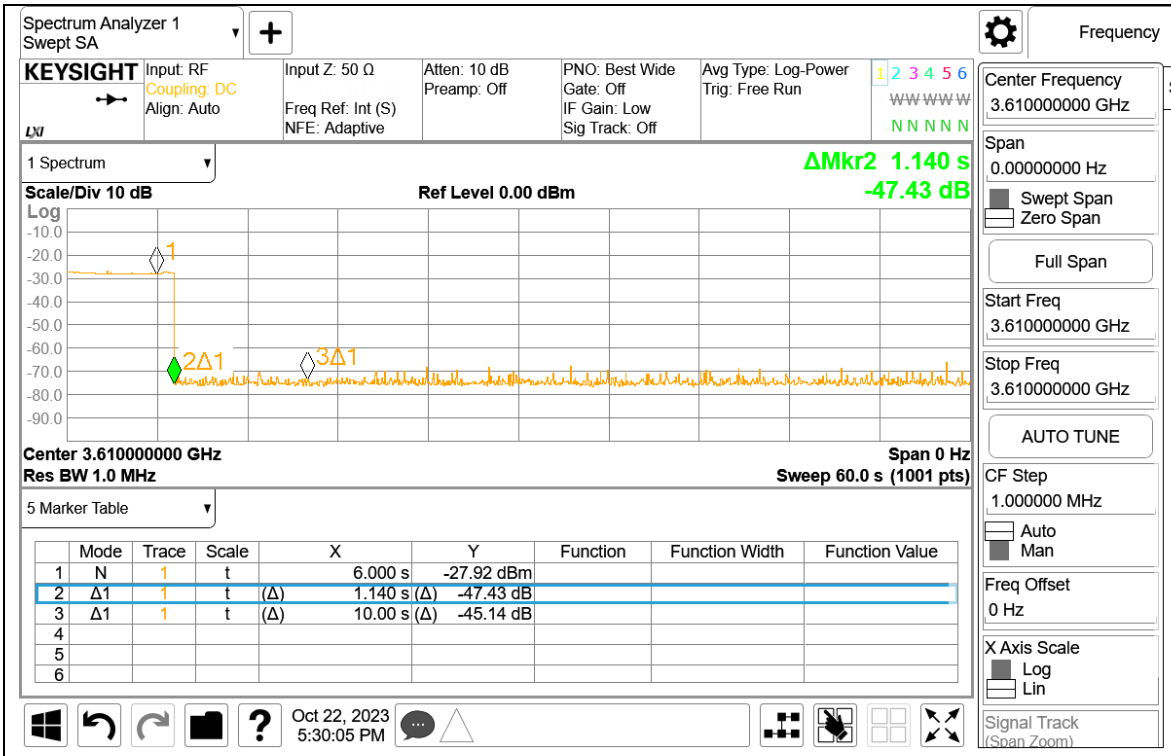
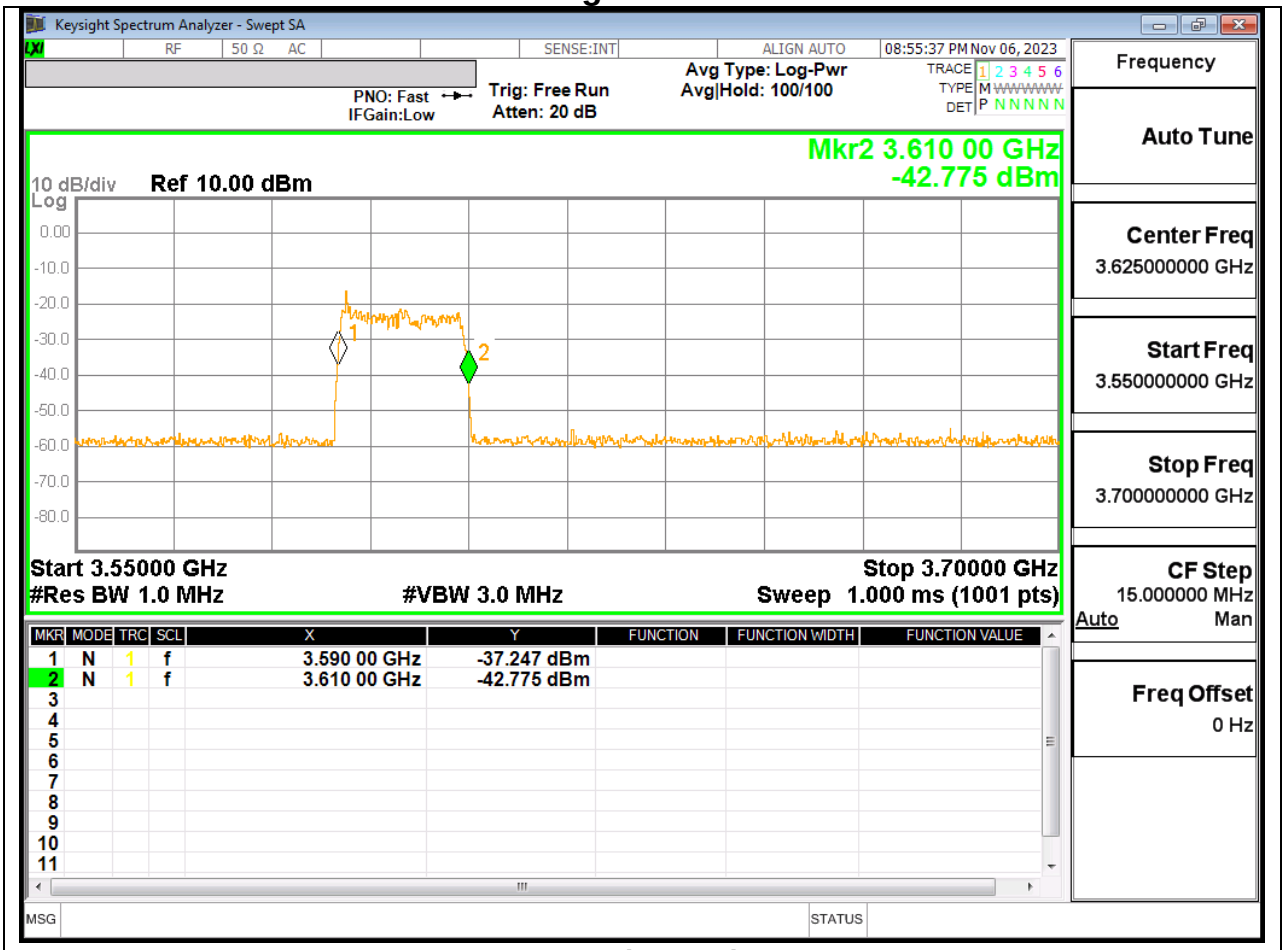


Stop Operation Within 10 second Mode

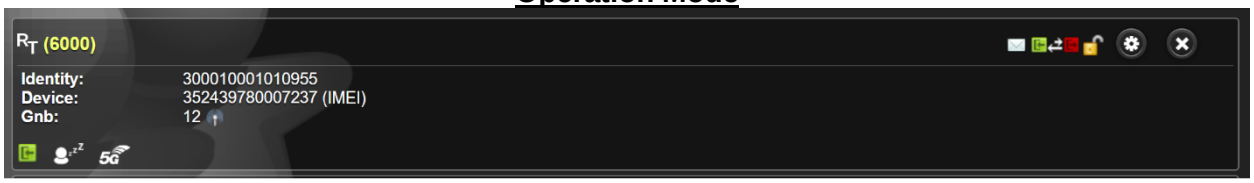
NOTE:

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

7.4. End User Device Configuration 3



Operation Mode



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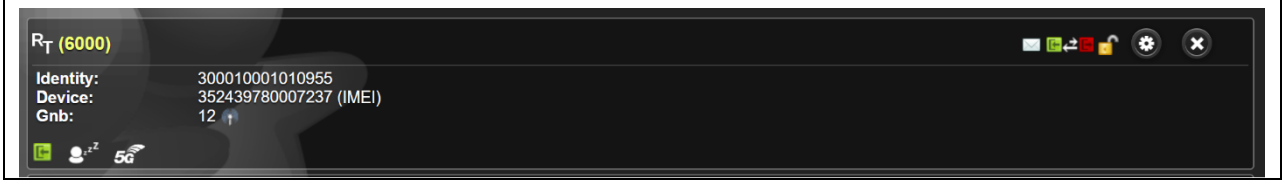
Stop Operation Within 10 second Mode

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

7.5. End User Device Configuration 4

Operation Mode



Stop Operation Within 10 second Mode

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

END OF REPORT

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