CBSD Test Report

Report No.:	RFBCMN-WTW-P23100614-10
FCC ID:	Q3N-RS38
Test Model:	RS38
Series Model:	RS38WO (Refer to item 3.1 for more details)
Received Date:	2024/3/18
Test Date:	2024/5/3 ~ 2024/5/6
Issued Date:	2024/8/14
Applicant:	Cipherlab Co., Ltd.
Address:	12F, 333 Dunhua S. Rd., Sec. 2, Taipei, Taiwan 10669
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration/ Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBCMN-WTW-P23100614-10	Original release	2024/8/14

1 Certificate of Conformity

Product:	Mobile Computer
Brand:	CIPHERLAB
Test Model:	RS38
Series Model:	RS38WO (Refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	Cipherlab Co., Ltd.
Test Date:	2024/5/3 ~ 2024/5/6
Standards:	FCC Part 96.47

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** 2024/8/14

Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** 2024/8/14

Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 96.47			
FCC Clause	Test Item	Result	Remarks
96.47(a)(1)	End User Device additional requirements	Pass	Meet the requirement

2.1 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Mobile Computer
Brand	CIPHERLAB
Test Model	RS38
Series Model	RS38WO
Model Difference	Refer to note
Status of EUT	Engineering sample
Accessory Device	3.87 Vdc (from battery) 5 Vdc (from adapter or host equipment)
Data Cable Supplied	Refer to Note as below

Note:

1. All models are listed as below. After pretesting, RS38 was the worst case and chosen for final test.

Brand	Model	Difference
CIPHERLAB	RS38	WWAN+WLAN
	RS38WO	WLAN only

* The hardware of the two models has not changed, only the software is used to turn off WWAN.

2. The EUT uses following accessories.

Item	Brand	Model	Specification
Adapter	Channel WELL Technology	2AEA010BC3D	AC Input: 100-240 Vac, 50/60 Hz, 0.35 A DC Output: 5.0 Vdc, 2.0 A, 10.0 W
Reader 1	Zebra	SE4770	-
Reader 2	Zebra	SE4100	-
Reader 3	Zebra	SE5500	-
1st Battery	CIPHERLAB	BA-0174A5	3.87 Vdc, 4500 mAh, 17.42 Wh
2nd Battery	Chongqing VDL Electronics Co., Ltd	341322PM4	3.85 Vdc, 90 mAh
USB To Type C Cable	SUNCA CO., LTD	1Q11512211-XJ	0.9 m

* After pretesting, Reader 1 and 1st Battery were the worst case and chosen for final test.

4 Measurement

4.1 End User Device additional requirements

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.

4.2 Test Procedure

For LTE:

Following test procedure can be done by WINNF-TS-0122 CBRS CBSD Test Specification, use the certifited CBSD (FCC ID: P27P208) as CBSD device to show compliance with FCC Part 96.47 requirements for End User Device (EUD):

Test #1:

a) Setup WINNF.PT.C.HBT.1 with 3615 ~ 3635 MHz and MaxEIRP at -25 dBm/MHz.
b) Enable CBSD service from EPC management.
c) **Check** EUD Tx Frequency and connection successful.
d) Disable AP service from EPC management.
e) **Check** if EUT stop transmission within 10s.

Test #2:

a) Setup WINNF.PT.C.HBT.1 with 3595 ~ 3615 MHz and MaxEIRP at -20 dBm/MHz.
b) Enable CBSD service from EPC management.
c) **Check** EUD Tx Frequency and connection successful.
d) Change power to -25 dBm/MHz.
e) **Check** EUD Tx output power.
f) Disable AP service from EPC management.
g) **Check** if EUT stop transmission within 10s.

Note: Test #1 and #2 to show compliance with the hadshake testing under Part 96.

For 5GNR:

Following test procedure can be done by WINNF-TS-0122 CBRS CBSD Test Specification, use the certifited CBSD (FCC ID: P27-SCE5164-B48) as CBSD device to show compliance with FCC Part 96.47 requirements for End User Device (EUD):

Test #1:

a) Setup WINNF.PT.C.HBT.1 with 3615 ~ 3635 MHz and MaxEIRP at -20 dBm/MHz.
b) Enable CBSD service from EPC management.
c) **Check** EUD Tx Frequency and connection successful.
d) Disable AP service from EPC management.
e) **Check** if EUT stop transmission within 10s.

Test #2:

a) Setup WINNF.PT.C.HBT.1 with 3595 ~ 3615 MHz and MaxEIRP at -15 dBm/MHz.
b) Enable CBSD service from EPC management.
c) **Check** EUD Tx Frequency and connection successful.
d) Change power to -20 dBm/MHz.
e) **Check** EUD Tx output power.
f) Disable AP service from EPC management.
g) **Check** if EUT stop transmission within 10s.

Note: Test #1 and #2 to show compliance with the hadshake testing under Part 96.

4.3 Test Environment

Test Condition

Test Item	Environmental Conditions	Input Power	Tested By
End User Device additional requirements	25deg. C, 70%RH	120Vac, 60Hz	Matthew Yang

4.4 Test Equipment

For LTE:

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
CBSD Sercomm	P208-TP (FCC ID: P27P208)	1801BVV000034	NA	NA
Laptop DELL	Inspiron 15 3000	D67MYN2	NA	NA
Spectrum Analyzer R&S	FSV	E2-010642	May 16, 2023	May 15, 2024
2WAY DIV WOKEN	0.5-8GHz 2Way SMA	DCMACMW1E4	Jan. 09, 2024	Jan. 08, 2025

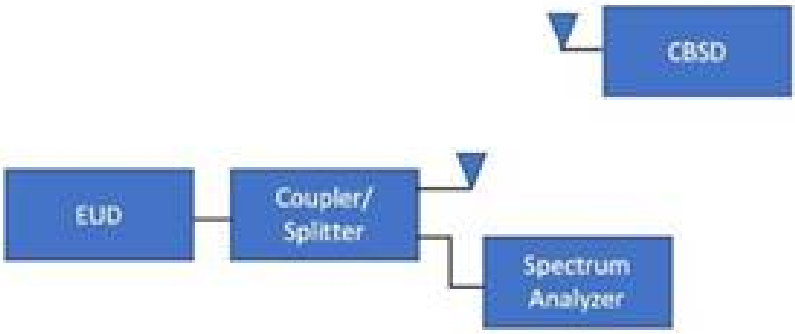
NOTE: 1. The test was performed in WM OVEN 1 Test Room
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 6, 2024

For 5GNR:

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
CBSD Sercomm	SCE5164 (FCCID: P27-SCE5164-B48)	2208DR6000016	NA	NA
Laptop DELL	P137G	P137G001	NA	NA
Spectrum Analyzer R&S	FSV	E2-010642	May 16, 2023	May 15, 2024
2WAY DIV WOKEN	0.5-8GHz 2Way SMA	DCMACMW1E4	Jan. 09, 2024	Jan. 08, 2025

NOTE: 1. The test was performed in WM OVEN 1 Test Room
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Tested Date: May 3, 2024

4.5 Test Setup

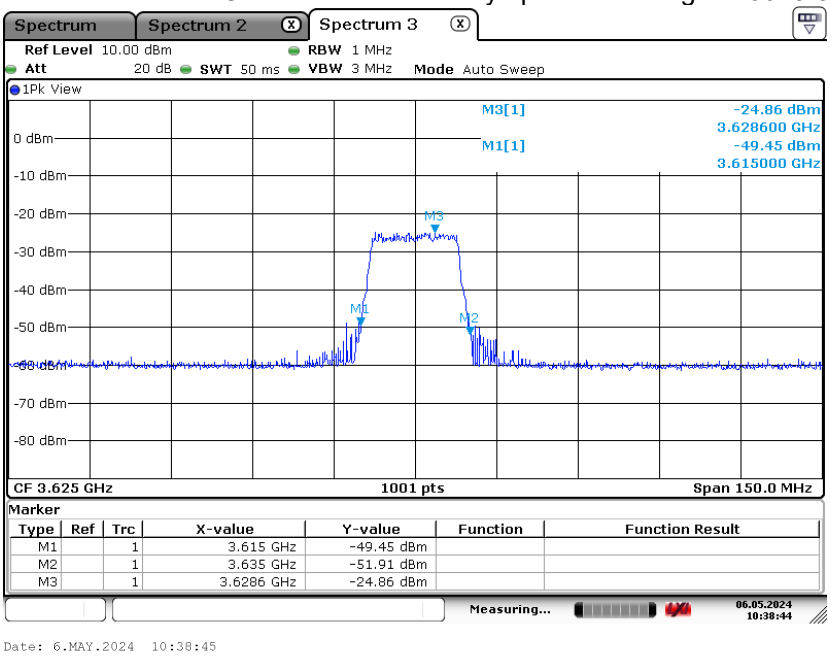


NOTE: The CBSD device is certified CBSD (For LTE: FCC ID: P27P208, For 5GNR: FCC ID: P27-SCE5164-B48). Where the CBSD device connection with EUD is by radiated method. The EUD device connection with Spectrum Analyzer is by conducted method.

4.6 Test Result

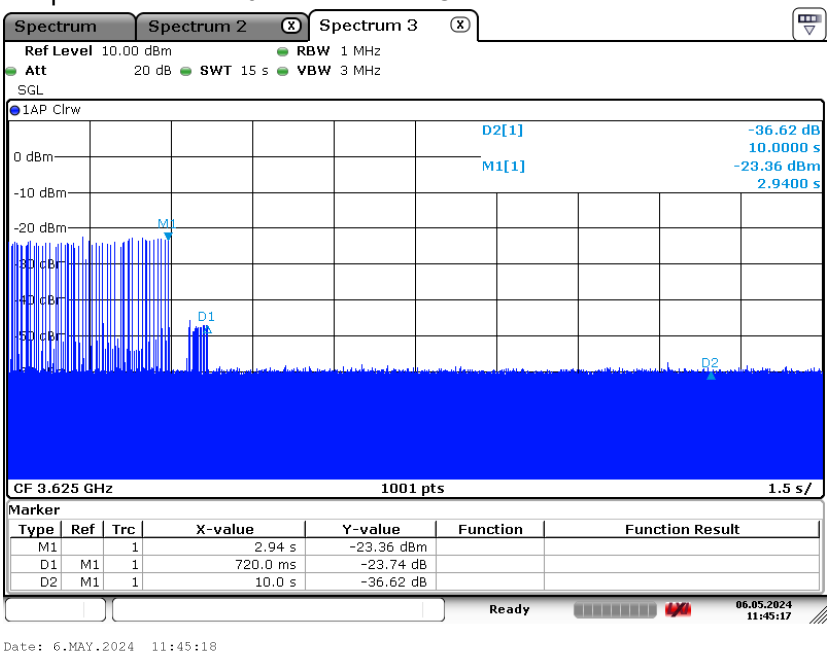
For LTE:

Step Test #1-(c)
EUD follow instruction from associate CBSD and successfully operate at assigned 3615-3635MHz channel.



Plot 5-1 EUD frequency of operations

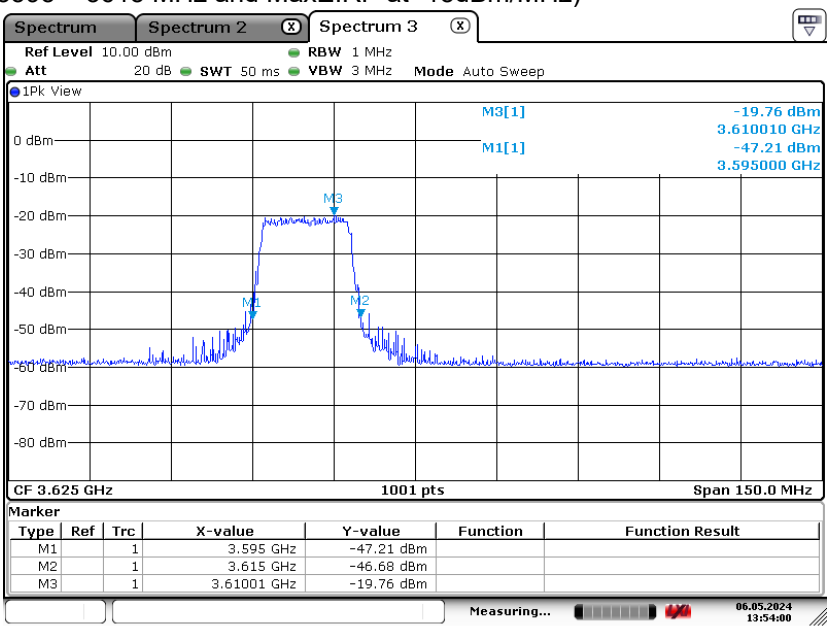
Step Test #1(e)
EUD discontinues the operation within 10 seconds after CBSD terminates the service:



Plot 5-2 EUD discontinues operations within 10s

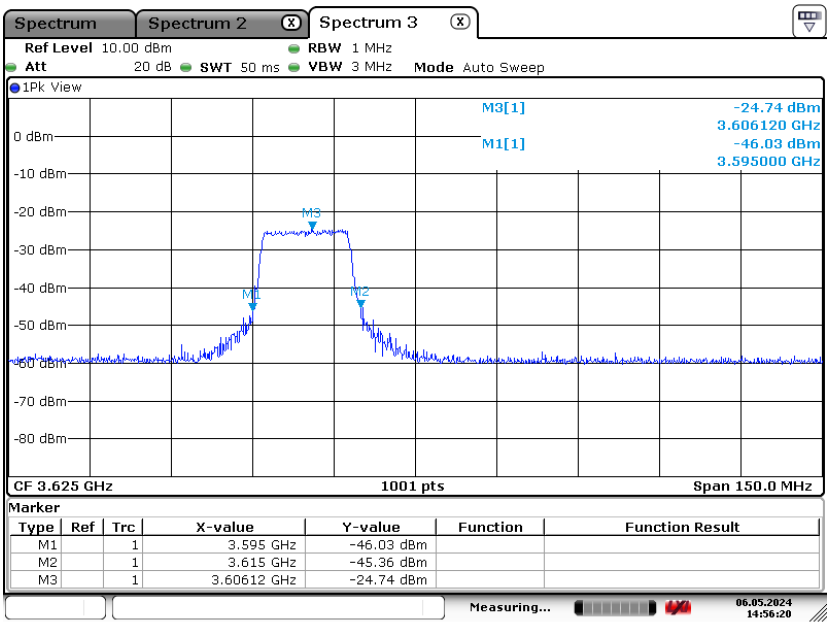
Note :
Marker 1: CBSD sends instructions to discontinues operations.
D1: EUD discontinues operation.
D2: 10 seconds elapsed time from CBSD sending instructions to EUD.

Test #2(c)
following plots demonstrate that EUD response to the associated CBSD instruction and operate at a new assigned channel (3595 ~ 3615 MHz and MaxEIRP at -15dBm/MHz)



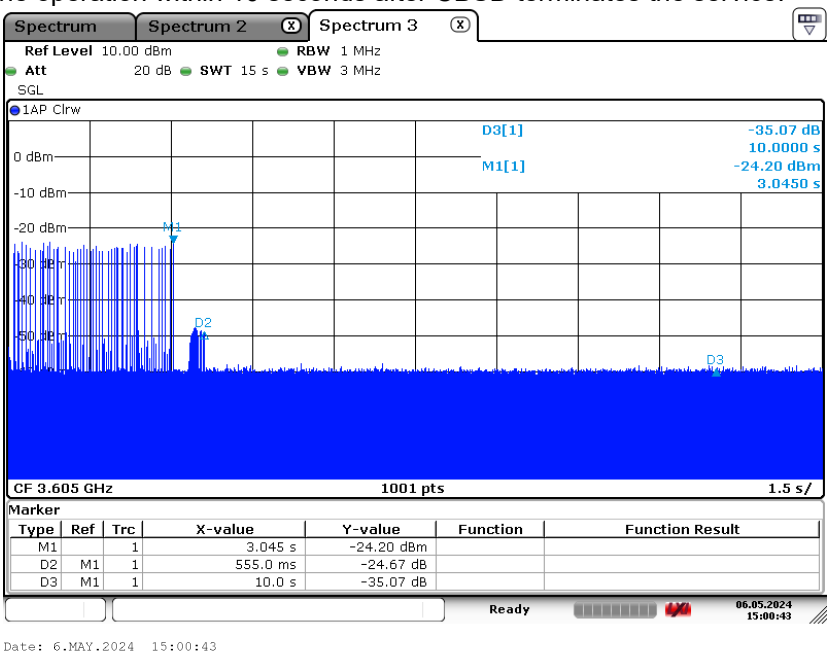
Plot 5-3 EUD frequency of operations

Test #2(e)
following plot demonstrates that EUD response to the associated CBSD power reduce instruction and reduce the power for 5 dB.



Plot 5-4 EUD changed output power

Step Test #2(g)
EUD discontinues the operation within 10 seconds after CBSD terminates the service:

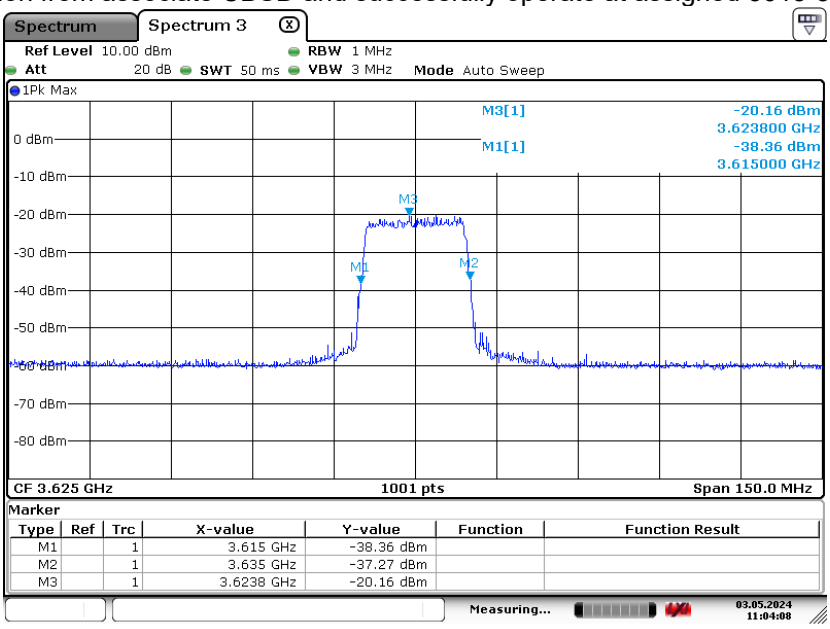


Plot 5-5 EUD discontinues operations within 10s.

Note :
Marker 1: CBSD sends instructions to discontinues operations.
D2: EUD discontinues operation.
D3: 10 seconds elapsed time from CBSD sending instructions to EUD.

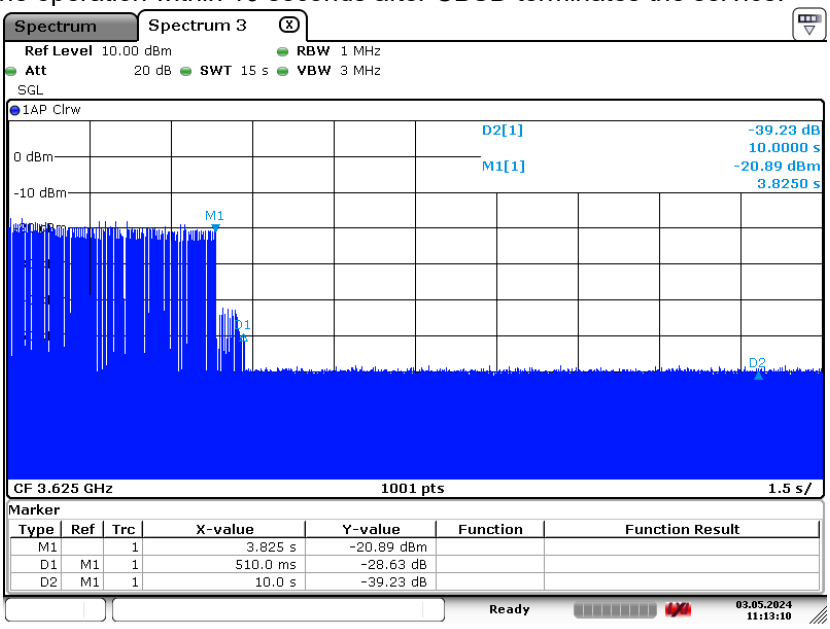
For 5GNR:

Step Test #1-(c)
EUD follow instruction from associate CBSD and successfully operate at assigned 3615-3635MHz channel.



Plot 5-1 EUD frequency of operations

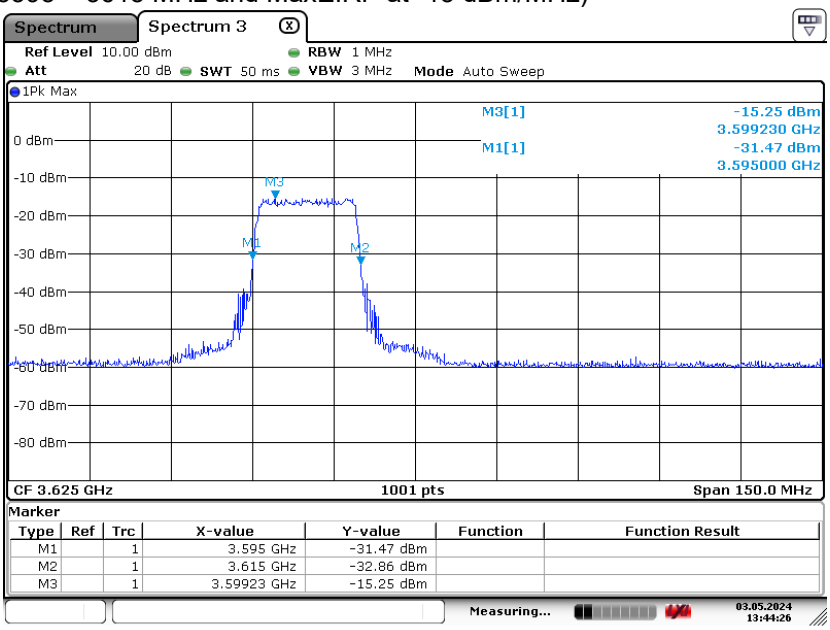
Step Test #1(e)
EUD discontinues the operation within 10 seconds after CBSD terminates the service:



Plot 5-2 EUD discontinues operations within 10s

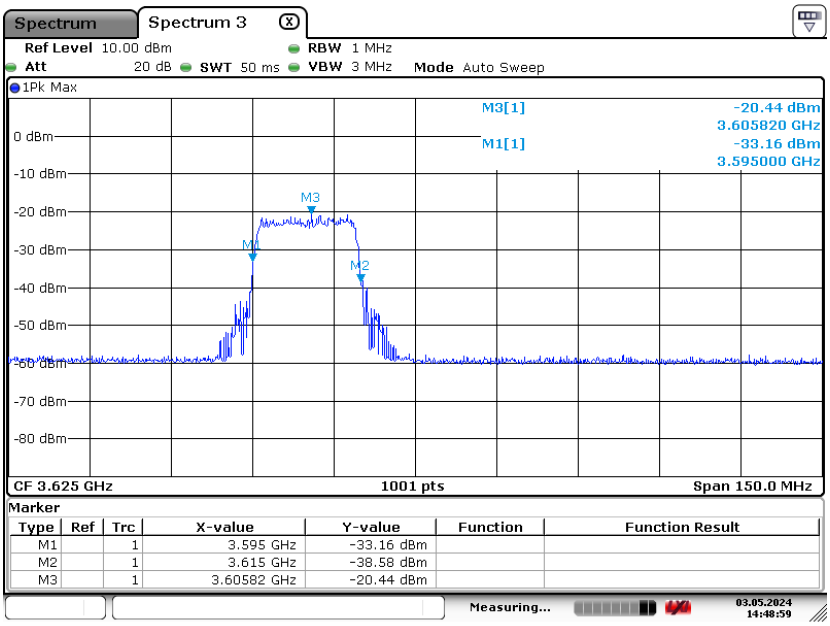
Note :
Marker 1: CBSD sends instructions to discontinues operations.
D1: EUD discontinues operation.
D2: 10 seconds elapsed time from CBSD sending instructions to EUD.

Test #2(c)
following plots demonstrate that EUD response to the associated CBSD instruction and operate at a new assigned channel (3595 ~ 3615 MHz and MaxEIRP at -15 dBm/MHz)



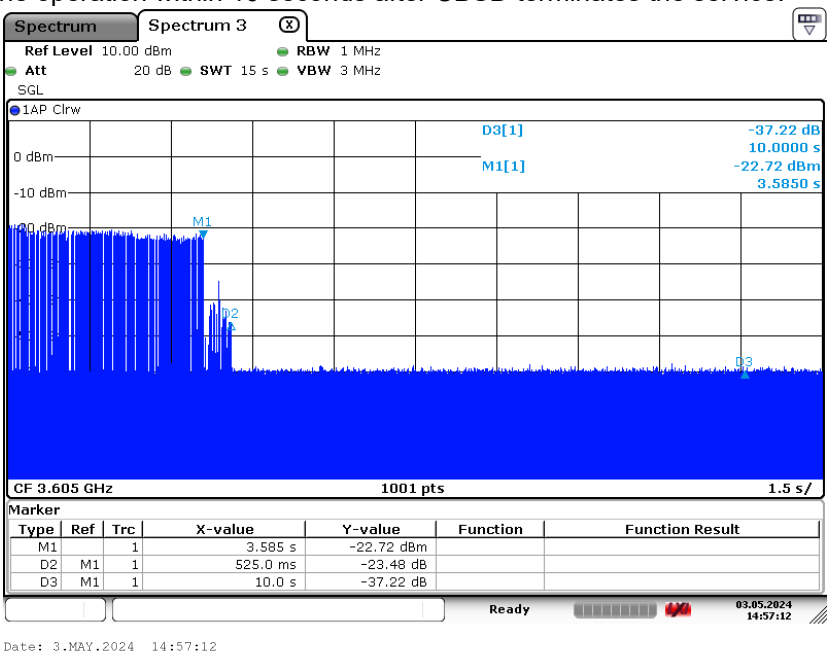
Plot 5-3 EUD frequency of operations

Test #2(e)
following plot demonstrates that EUD response to the associated CBSD power reduce instruction and reduce the power for 5 dB.



Plot 5-4 EUD changed output power

Step Test #2(g)
EUD discontinues the operation within 10 seconds after CBSD terminates the service:



Plot 5-5 EUD discontinues operations within 10s.

Note :
Marker 1: CBSD sends instructions to discontinues operations.
D2: EUD discontinues operation.
D3: 10 seconds elapsed time from CBSD sending instructions to EUD.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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