

CBSD-EUD Test Report

Report No.: RFBICM-WTW-P22110528-8

FCC ID: S9E-125500

Test Model: 125500

Received Date: 2022/11/18

Test Date: 2023/9/20

Issued Date: 2023/10/31

Applicant: Trimble Inc.

Address: 5475 Kellenburger Road, Dayton, Ohio, 45424

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 / 788550 / TW0003

Designation Number:



This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

| | |
|---|-----------|
| Release Control Record | 3 |
| 1 Certificate of Conformity | 4 |
| 2 Summary of Test Results | 5 |
| 2.1 Modification Record | 5 |
| 3 General Information | 6 |
| 3.1 General Description of EUT | 6 |
| 4 Measurement | 7 |
| 4.1 End User Device additional requirements..... | 7 |
| 4.2 Test Procedure | 7 |
| 4.3 Test Environment | 8 |
| 4.4 Test Equipment | 8 |
| 4.5 Test Setup | 8 |
| 4.6 Test Result..... | 9 |
| 5 Pictures of Test Arrangements | 12 |
| Appendix – Information of the Testing Laboratories | 13 |

Release Control Record

| Issue No. | Description | Date Issued |
|------------------------|------------------|-------------|
| RFBICM-WTW-P22110528-8 | Original release | 2023/10/31 |

1 Certificate of Conformity

Product: Rugged Handheld Computer

Brand: 

Test Model: 125500

Sample Status: Engineering sample

Applicant: Trimble Inc.

Test Date: 2023/9/20

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 : , **Date:** 2023/10/31
Polly Chien / Specialist

Approved by : , **Date:** 2023/10/31
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 | Rugged Handheld Computer |
| Brand |  |
| Test Model | 125500 |
| Status of EUT | Engineering sample |
| Accessory Device | Refer to Note |
| Data Cable Supplied | Refer to Note |

Note:

1. This report is for 5GNR CBSD test.
2. The EUT uses following accessories.

| Battery | | |
|-----------|--------------|--|
| Brand | Model | Specification |
| unitech | 1400-900069G | Power Rating : 3.85 Vdc 4950mAh |
| USB Cable | | |
| Brand | Model | Specification |
| Trimble | 121920 | Signal Line : 2 meters, shielded cable. w/o ferrite core |

3. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

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

Following test procedure can be done by WINNF-TS-0122 CBRS CBSD Test Specification, use the certified 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 0.88 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 6.031 dBm/MHz.
- b) Enable CBSD service from EPC management.
- c) Check EUD Tx Frequency and connection successful.
- d) Change power to 0.98 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 handshake testing under Part 96.

4.3 Test Environment

Test Condition

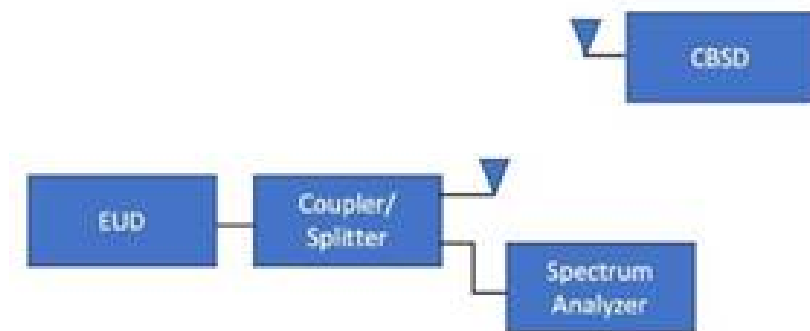
| Test Item | Environmental Conditions | Input Power | Tested By |
|---|--------------------------|--------------|--------------|
| End User Device additional requirements | 25deg. C, 70%RH | 120Vac, 60Hz | Matthew Yang |

4.4 Test Equipment

| Description & Manufacturer | Model no. | Serial No. | Calibrated Date | Calibrated Until |
|----------------------------|----------------------------------|---------------|-----------------|------------------|
| CBSD Sercomm | SCE5164 (FCCID: P27-SCE5164-B48) | 2208DR6000016 | NA | NA |
| Laptop DELL | Inspiron 15 3000 | D67MYN2 | NA | NA |
| Spectrum Analyzer KEYSIGHT | PXA N9030A | E2-010473 | Jul. 25, 2023 | Jul. 24, 2024 |
| 2WAY DIV WOKEN | 0.5-8GHz 2Way SMA | DCMACMW1E4 | Jan. 10, 2023 | Jan. 09, 2024 |

- 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: 2023/9/20

4.5 Test Setup

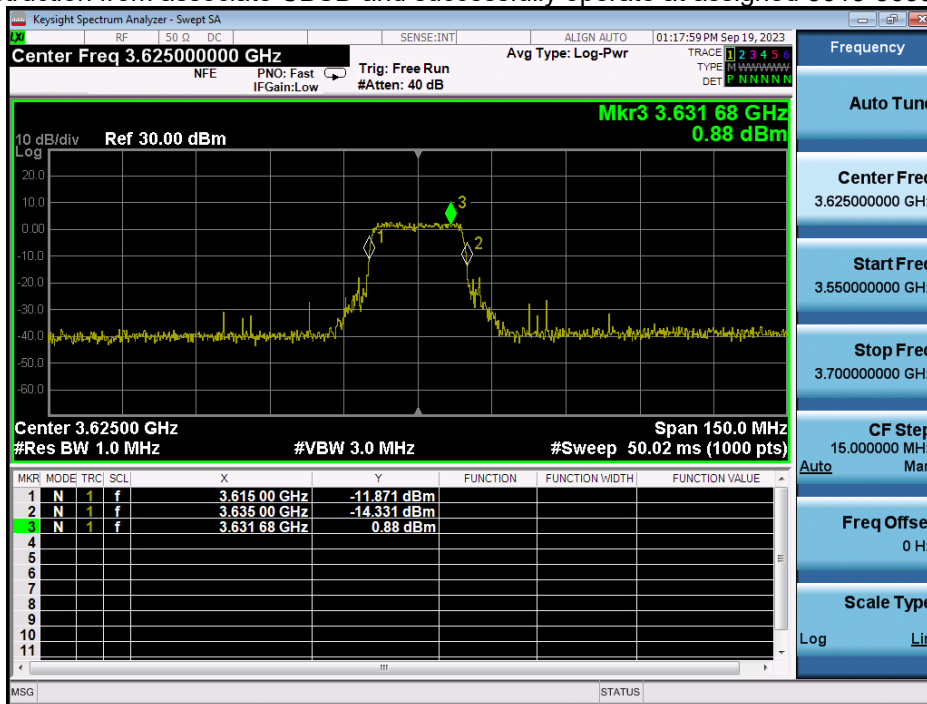


NOTE: The CBSD device is certified CBSD(FCC ID: P27-SCE5164-B48). Where the CBSD device connection with EUD is by radiated method. The EUD device connection with Spectrum Analyzer is by conducted method.

4.6 Test Result

Step Test #1-(c)

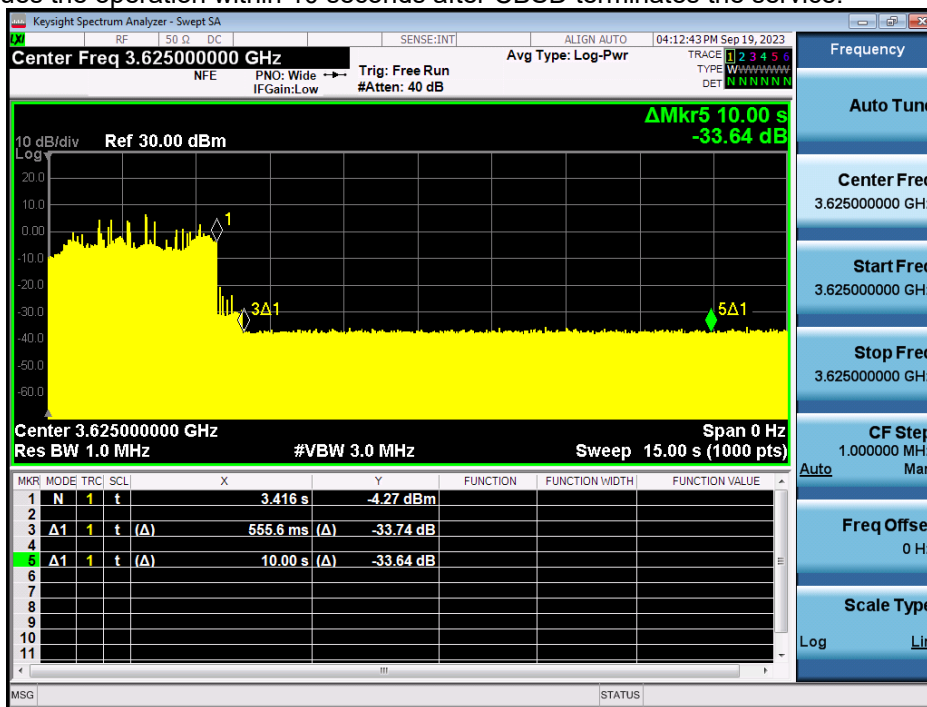
EUD follow instruction from associate CBSD and successfully operate at assigned 3615-3635 MHz channel.



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 :

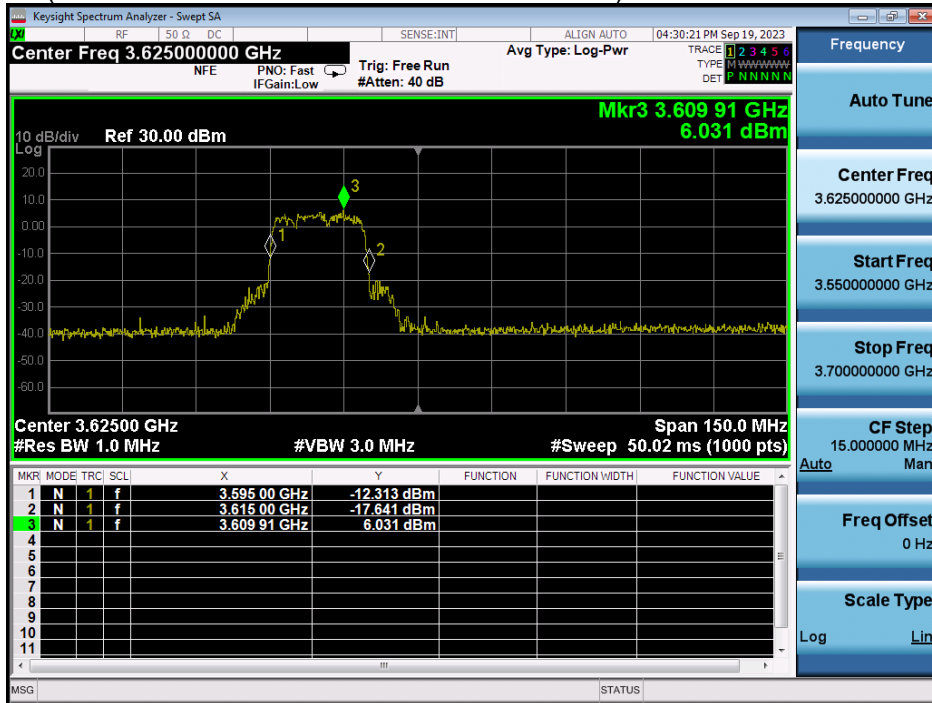
Marker 1: CBSD sends instructions to discontinues operations.

Marker 3: EUD discontinues operation.

Marker 5: 10 seconds elapsed time from CBSD sending instructions to EUD.

Test #2(c)

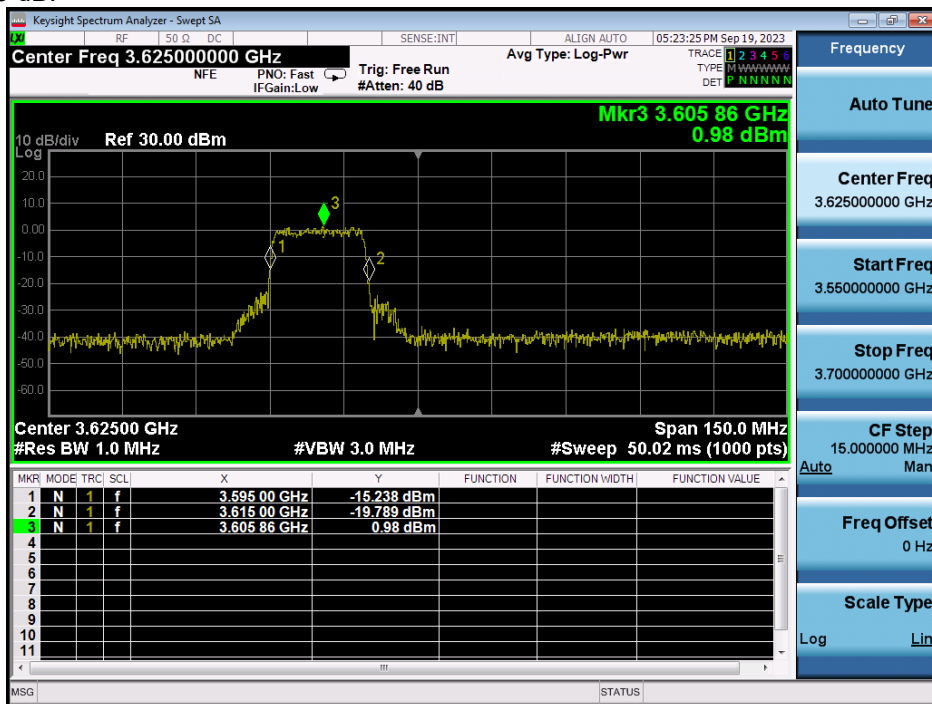
following plots demonstrate that EUD response to the associated CBSD instruction and operate at a new assigned channel (3595 ~ 3615 MHz and MaxEIRP at 5 dBm/MHz)



Plot 5-3 EUD frequency of operations

Test #2(e)

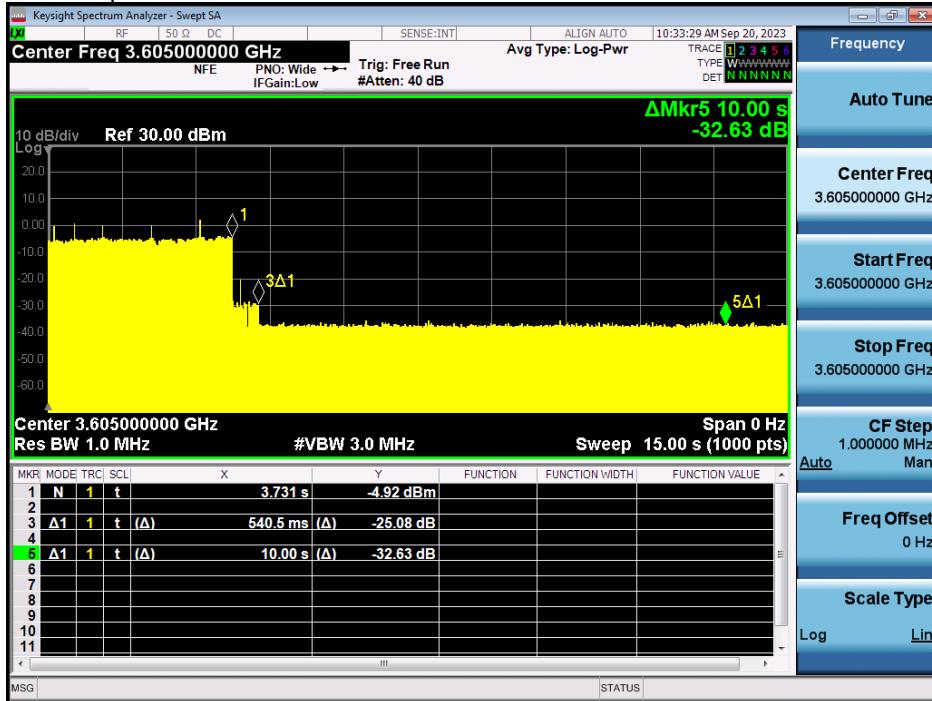
following plot demonstrates that EUD response to the associated CBSD power reduce instruction and reduce the power for 5 dB.



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.

Marker 3: EUD discontinues operation.

Marker 5: 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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

--- END ---