CBSD-EUD Test Report

Report No.:	RFBHZQ-WTW-P20120149
FCC ID:	2AU8HSMC411-A
Test Model:	SMC411-a
Received Date:	Dec. 05, 2020
Test Date:	Dec. 17, 2020
Issued Date:	Dec. 21, 2020
Applicant:	Smawave Technology Co. ,Ltd
Address:	3/F, Building 8, 1001 North Qinzhou Road，Xuhui District, Shanghai, China
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
RFBHZQ-WTW-P20120149	Original release	Dec. 21, 2020

1 Certificate of Conformity

Product: LTE-A Hotspot

Brand: Smawave

Test Model: SMC411-a

Sample Status: Engineering sample

Applicant: Smawave Technology Co. ,Ltd

Test Date: Dec. 17, 2020

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 : Polly Chen , **Date:** Dec. 21, 2020

Polly Chen / Specialist

Approved by : Bruce Chen , **Date:** Dec. 21, 2020

Bruce Chen / Senior 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	LTE-A Hotspot
Brand	Smawave
Test Model	SMC411-a
Status of EUT	Engineering sample
Accessory Device	NA
Data Cable Supplied	NA

Note: 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 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 10 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 10 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

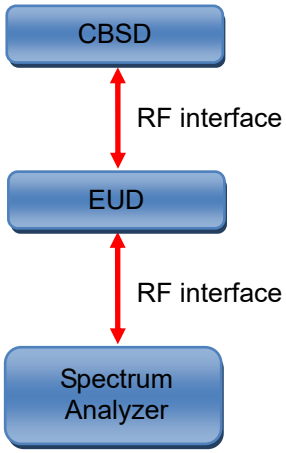
Test Item	Environmental Conditions	Input Power	Tested By
End User Device additional requirements	25deg. C, 70%RH	120Vac, 60Hz	Leona Hu

4.4 Test Equipment

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
CBSD Sercomm	P208-TP (FCCID:P27P208)	1801BVV000034	NA	NA
Laptop DELL	Inspiron 15 3000	D67MYN2	NA	NA
Spectrum Analyzer ROHDE & SCHWARZ	FSV	E2-010642	May. 28, 2020	May. 27, 2021

NOTE: 1. The test was performed in OVEN 3 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.

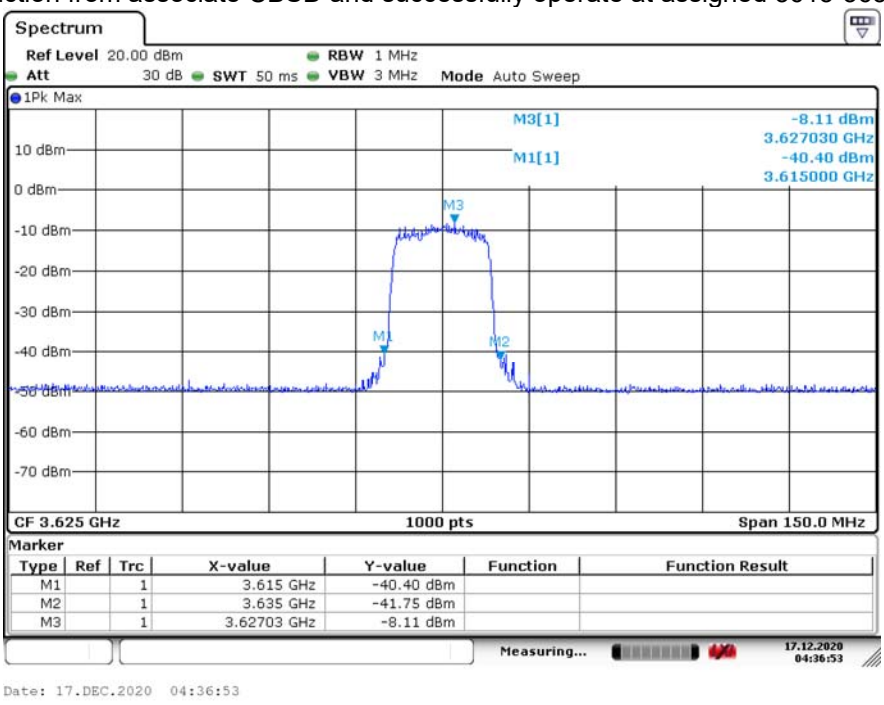
4.5 Test Setup



NOTE: The CBSD device is certified CBSD(FCC ID: P27P208). Where the CBSD device connection with EUD is by radiated method. The EUD device connection with Spectrum Analyzer is by conducted method.

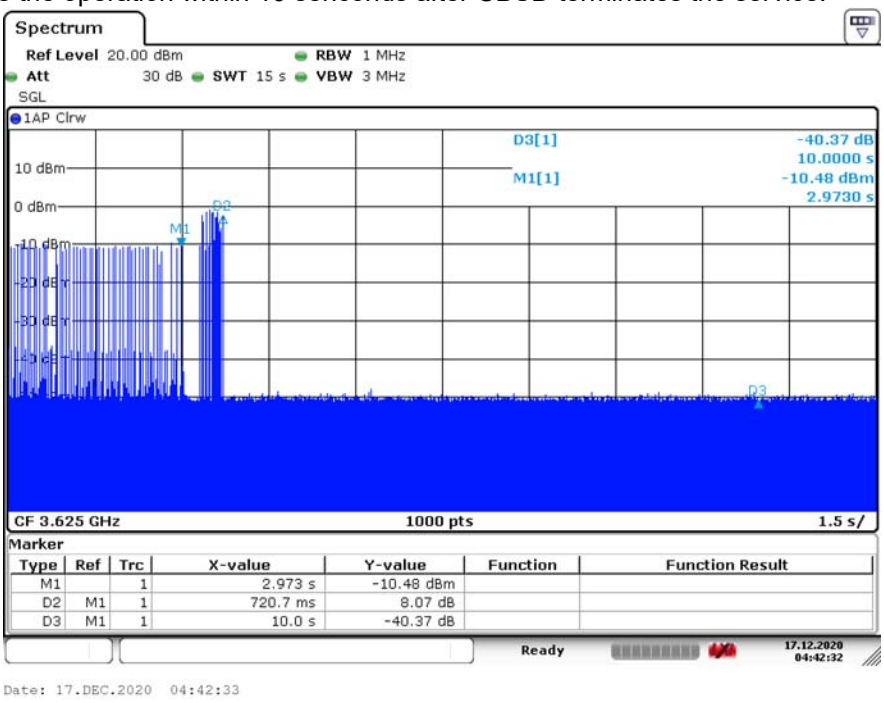
TEST RESULT

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

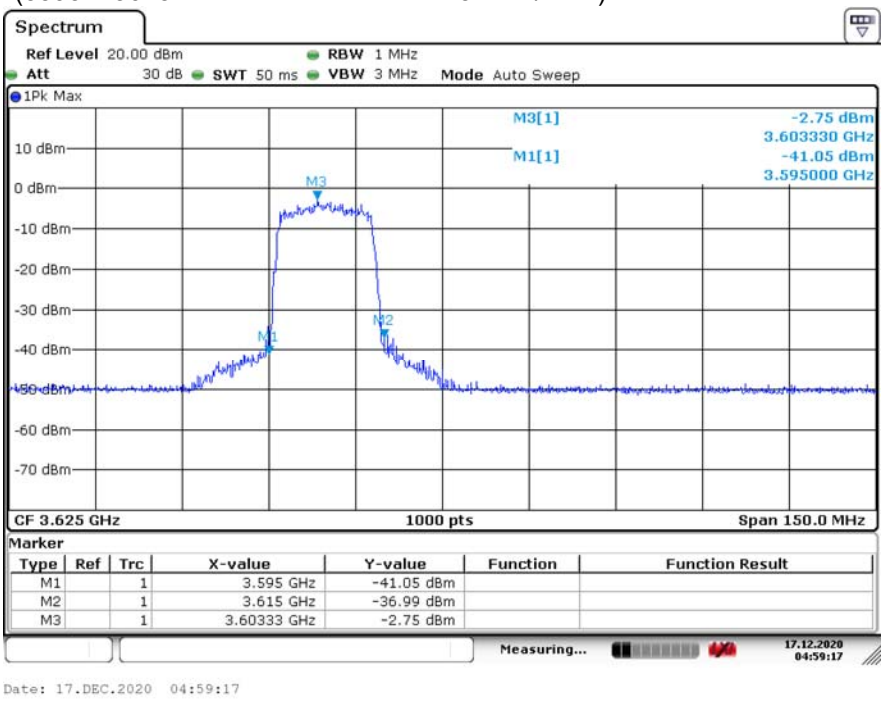
Step Test #1(e)
EUD discontinues the operation within 10 senconds after CBSD terminates the service:



Plot 5-2 EUD discontinues operations within 10s

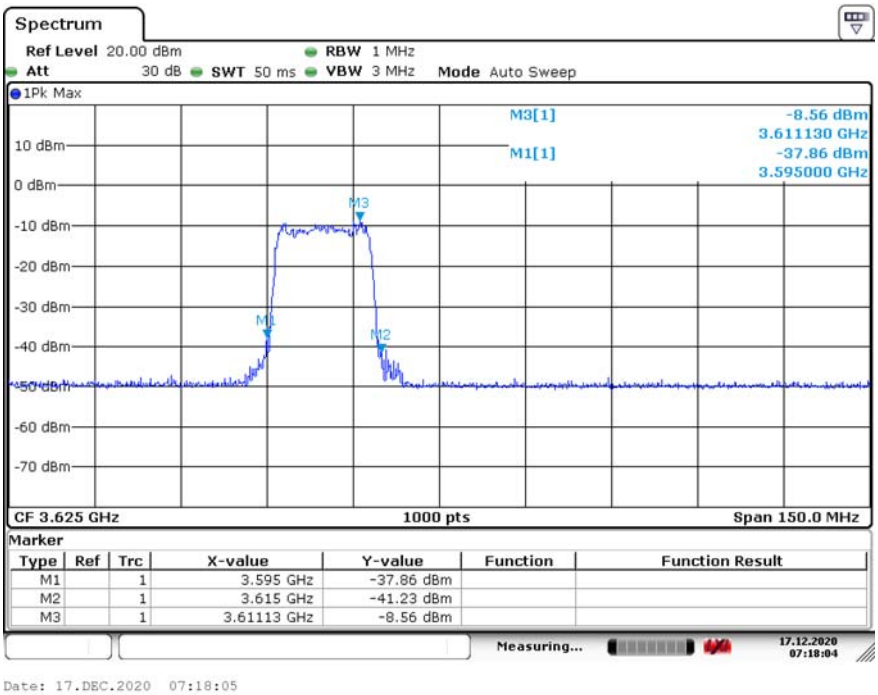
Note :
Marker 1: CBSD sends instructions to discontinues operations.
Marker 2: EUD discontinues operation.
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUD.

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

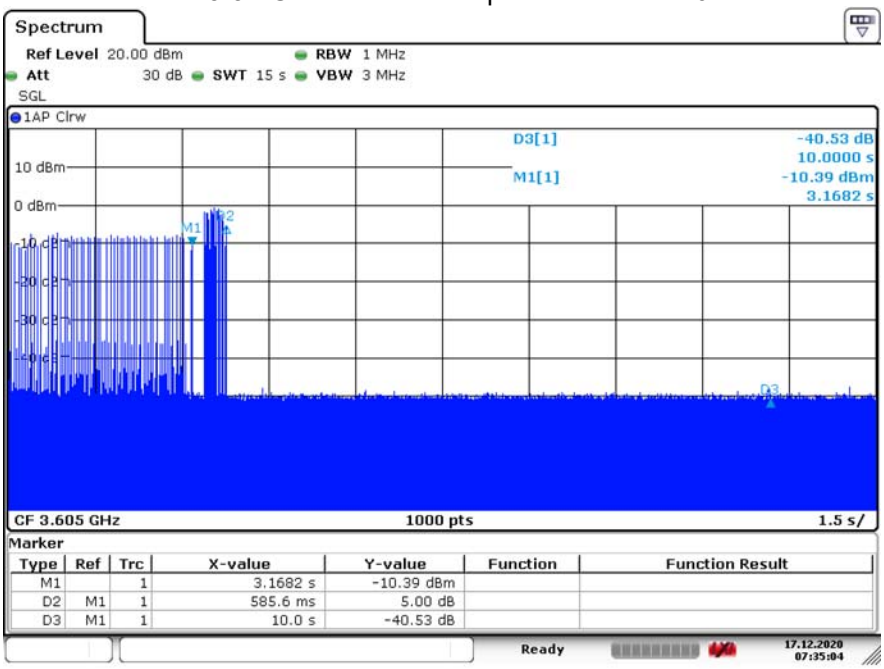
Test #2(e)
following plot demonstrates that EUD response to the associated CBSD power reduce instruction and reduce the power for 5 dB.



Plot 5-4 EUD changed output power

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

Plot 5-5 EUD discontinues operations within 10s.



Note :
Marker 1: CBSD sends instructions to discontinues operations.
Marker 2: EUD discontinues operation.
Marker 3: 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:

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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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