CBSD-EUD Test Report

Report No.:	RF200409C06
FCC ID:	2AU8HMGL6201A
Test Model:	MGL6201A
Received Date:	Apr. 09, 2020
Test Date:	Apr. 14, 2020
Issued Date:	Apr. 17, 2020
Applicant:	Shanghai 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
RF200409C06	Original release	Apr. 17, 2020

1 Certificate of Conformity

Product:	LTE module
Brand:	Smawave
Test Model:	MGL6201A
Sample Status:	Engineering sample
Applicant:	Shanghai Smawave Technology Co., Ltd
Test Date:	Apr. 14, 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 : Pettie Chen , **Date:** Apr. 17, 2020

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Apr. 17, 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

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	LTE module
Brand	Smawave
Test Model	MGL6201A
Status of EUT	Engineering sample
Power Supply Rating	12Vdc (adapter)
Accessory Device	NA
Data Cable Supplied	NA

Note:
1. The EUT is powered by the following adapters.

Adapter 1 (Support unit only)	
Brand	Shenzhen Aqullstar Technology Co., Ltd.
Model	ASSA65A-120100
Input Power	100-240Vac~50/60Hz, 0.45A
Output Power	12.0Vdc / 1.0A
Power Cord	1.18m non-shielded power cord without core

Adapter 2 (Support unit only)	
Brand	IDEA POWER ELECTRONIC TECHNOLOGY
Model	AD018UV12015000
Input Power	100-240Vac~50/60Hz, 0.5A MAX
Output Power	12Vdc / 1.5A
Power Cord	1.5m non-shielded power cord without core

*The power adapter used in this test is only required for the test, and will not be shipped together with the shipment.

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.

4.3 Test Environment

Test Condition

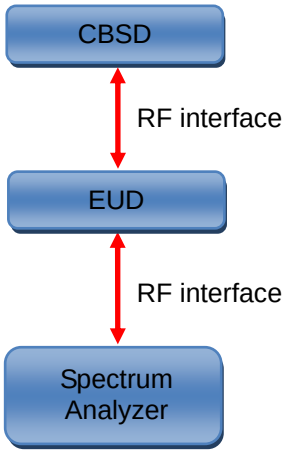
Test Item	Environmental Conditions	Input Power	Tested By
End User Device additional requirements	25deg. C, 70%RH	120Vac, 60Hz	Leona Hu

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, 2019	May 27, 2020

NOTE: 1. The test was performed in OVEN 4 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.

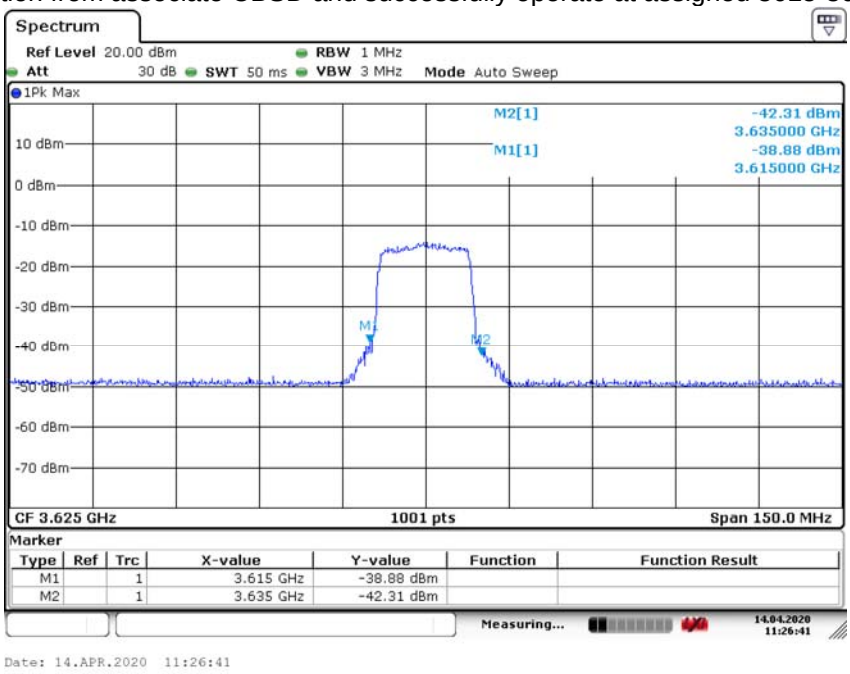
4.5 Test Setup



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.

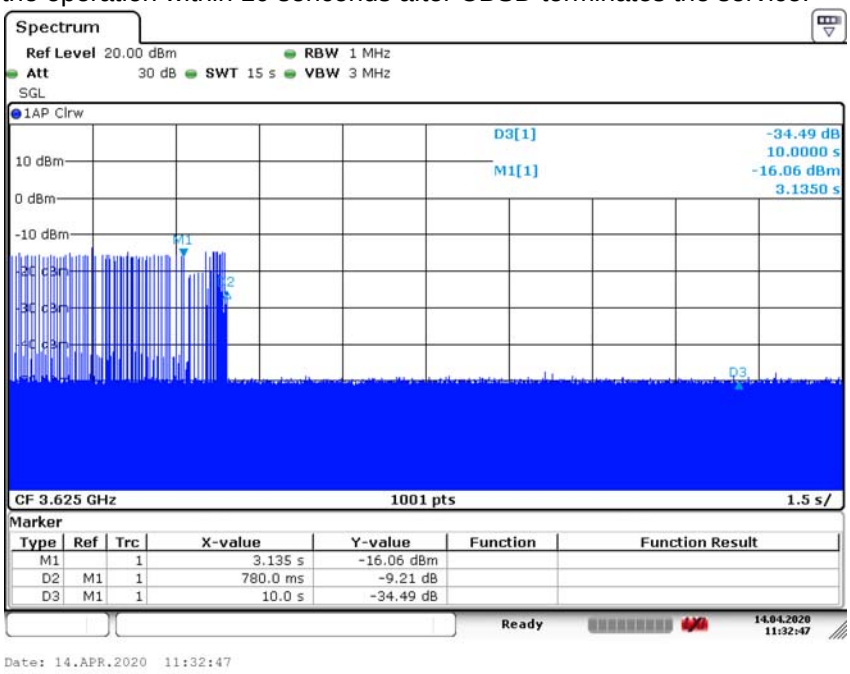
5 Test Result

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

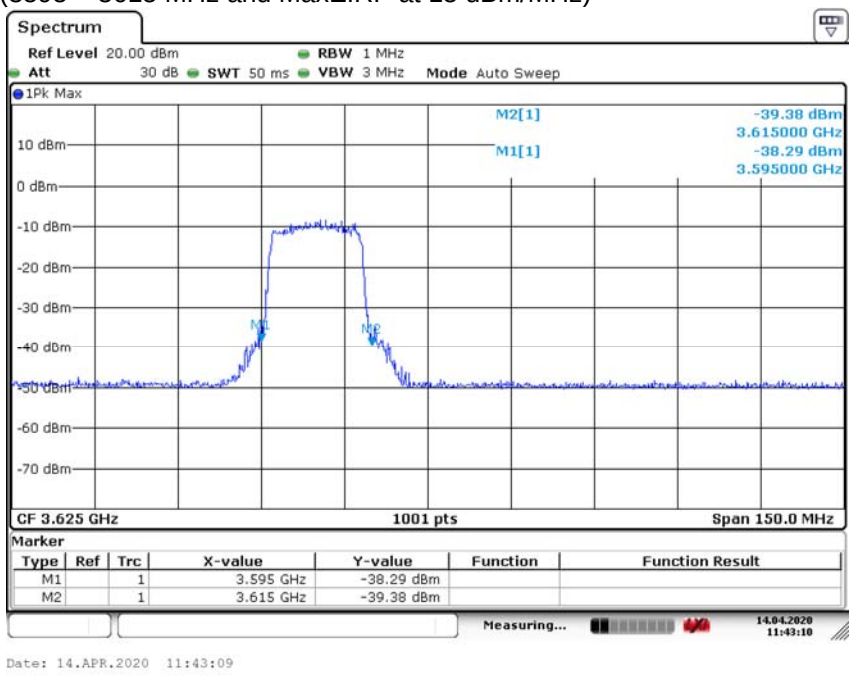
Step Test #1(e)
EUD discontinues the operation within 10 senconds after CBSD terminates the service:



Plot 5-2 EUD discontinues operations within 10s

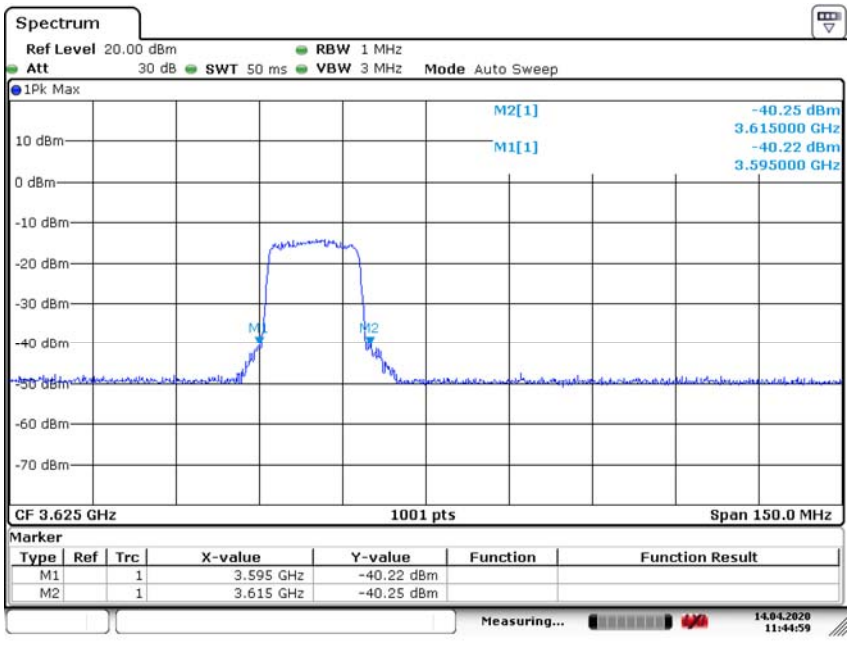
Note :
Marker 1: CBSD sends instructions to discontinues operations.
Marker 2: EUD discontinues operation.
Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUD.

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)



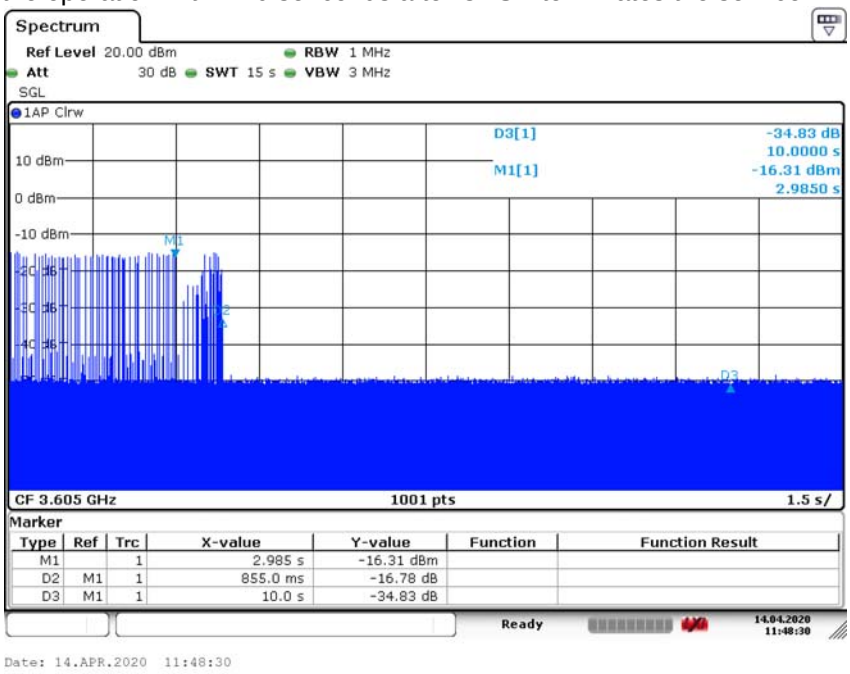
Plot 5-3 EUD frequency of operations

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.

6 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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