

## CBSD-EUD Test Report

**Report No.:** RF181220E07A-1

**FCC ID:** I88LTE7480-S905-V

**Test Model:** LTE7480-S905

**Received Date:** Apr. 29, 2020

**Test Date:** Sep. 24, 2020

**Issued Date:** Sep. 25, 2020

**Applicant:** Zyxel Communications Corporation

**Address:** No. 2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan

**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

This report is 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. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, 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. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

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### Release Control Record

Issue No.	Description	Date Issued
RF181220E07A-1	Original release	Sep. 25, 2020

## 1 Certificate of Conformity

**Product:** LTE-A Outdoor Router

**Brand:** ZYXEL

**Test Model:** LTE7480-S905

**Sample Status:** Engineering sample

**Applicant:** Zyxel Communications Corporation

**Test Date:** Sep. 24, 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 :** Celine Chou , **Date:** Sep. 25, 2020  
Celine Chou / Senior Specialist

**Approved by :** Bruce Chen , **Date:** Sep. 25, 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 Outdoor Router
Brand	ZYXEL
Test Model	LTE7480-S905
CPU Model No.	MT7621AT
WiFi Chip Model No.	MT7603E
LTE Chip Model No.	SDX20
FW Version	LTE7480-S905 V2.00(ABQT.2)C0
Status of EUT	Engineering sample
Power Supply Rating	48Vdc from POE
Antenna Type	Dipole antenna with 9.85dBi gain (1TX (fixed on Chain 0) / 4RX)
Antenna Connector	iPEX
Accessory Device	POE
Data Cable Supplied	1.8m non-shielded RJ45 cable without core

Note:

1. The EUT uses following POE.

POE	
Brand	RISUNIC
Model	RP020-4800500USG
Input Power	100-240Vac, 50/60Hz 0.7A
Output Power	48Vdc, 0.5A

2. The above information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 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: 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

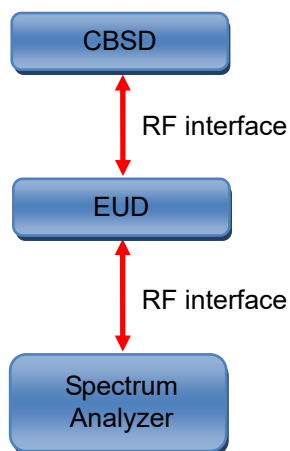
### 4.4 Test Equipment

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



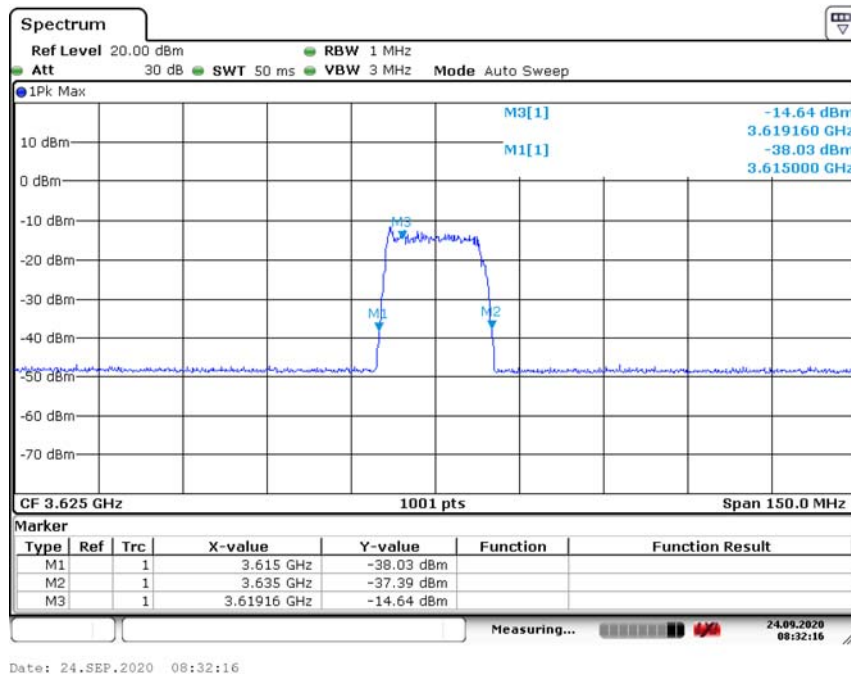
Note: The CBSD device is certified CBSD(FCC ID: P27P208). Where the CBSD device connection with EUD is by radiated method. The EUD device connection with Spectrum Analyzer is by conducted method.



## 4.6 Test Result

### Step Test #1-(c)

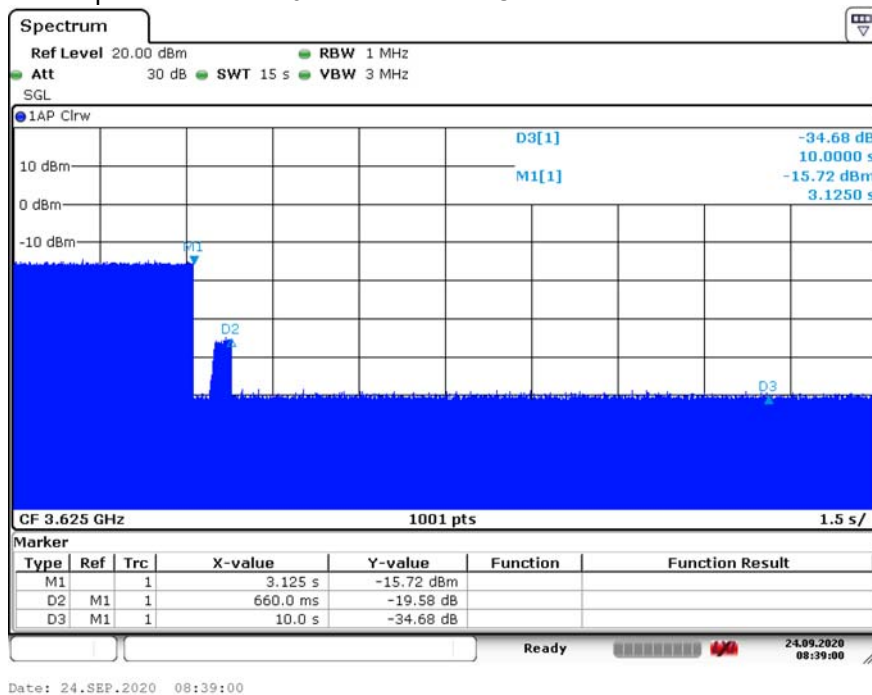
EUD follow instruction from associate CBSD and successfully operate at assigned 3615-3635MHz channel.



Plot 5-1 EUD frequency of operations

### Step Test #1(e)

EUD discontinues the operation within 10 seconds after CBSD terminates the service:



Plot 5-2 EUD discontinues operations within 10s

Note :

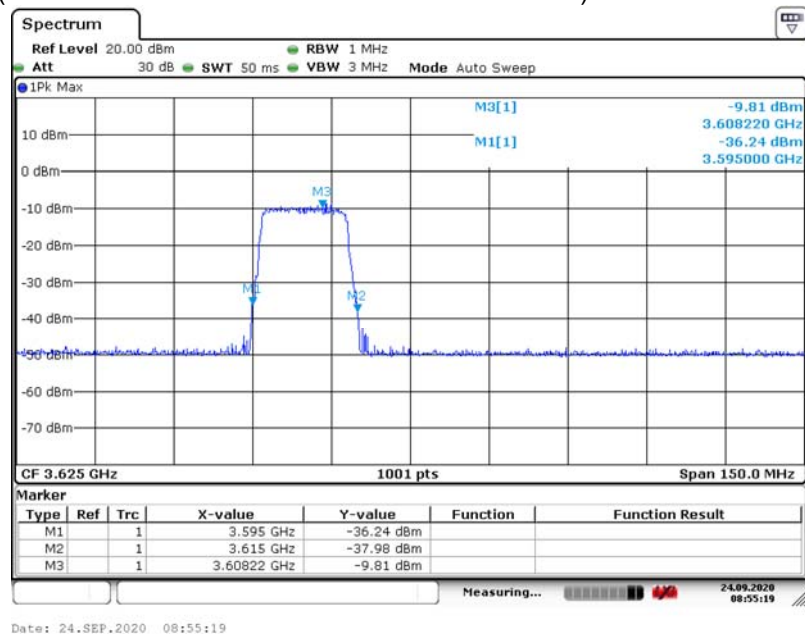
Marker 1: CBSD sends instructions to discontinues operations.

Marker 2: EUD discontinues operation.

Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUD.

### Test #2(c)

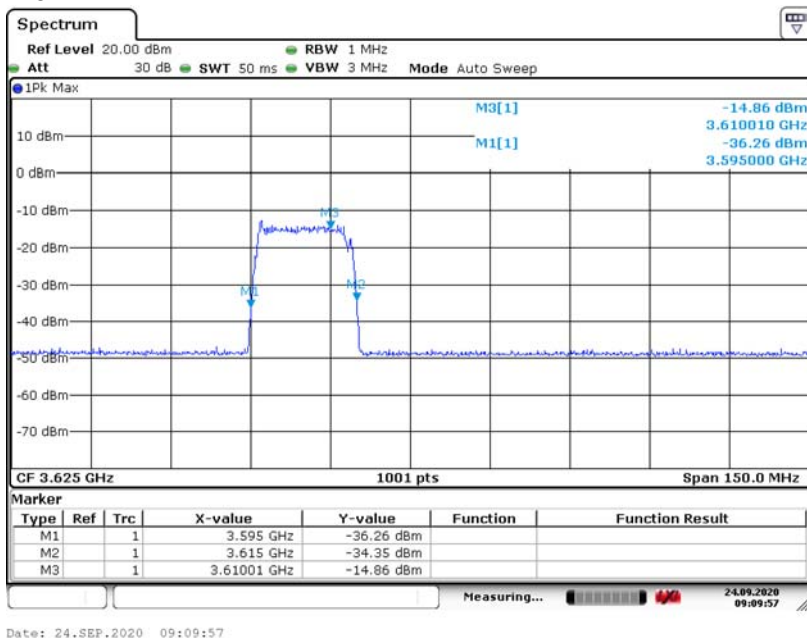
following plots demonstrate that EUD response to the associated CBSD instruction and operate at a new assigned channel (3595 ~ 3615 MHz and MaxEIRP at 15 dBm/MHz)



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.

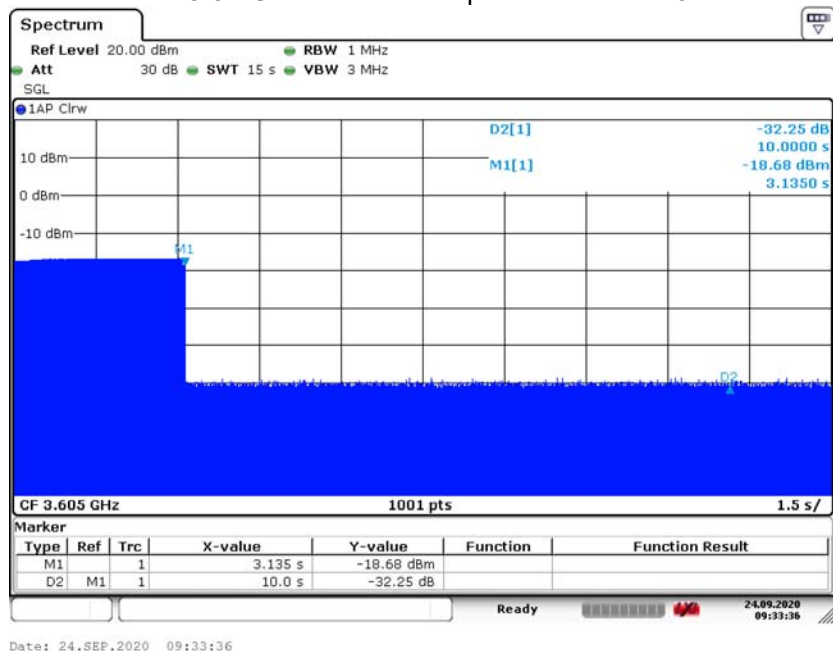


Plot 5-4 EUD changed output power

# Step Test #2(g)

EUD discontinues the operation within 10 seconds after CBSD terminates the service:

Plot 5-5 EUD discontinues operations within 10s.



Note :

Marker 1: CBSD sends instructions to discontinues operations.

Marker 2: 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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