



FCC Part 96.47 TEST REPORT

FCC ID : 2ADZR5G2112WA
Equipment : NOK 5G21 GATEWAY GRY KIT
Brand Name : T-Mobile
Model Name : 5G21-12W-A
Applicant : Nokia Shanghai Bell Co., Ltd.
388#, Ningqiao Road, China (Shanghai) Pilot
Free Trade Zone, Shanghai 201206, China
Manufacturer : Nokia Solutions and Networks Oy,
Karakaari 7, 02610 Espoo, Finland
Standard : FCC Part 96.47

The product was received on Apr. 01, 2020 and testing was started from Apr. 23, 2020 and completed on Apr. 23, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jones Tsai

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test.....	5
1.2 Modification of EUT	5
1.3 Testing Location	5
1.4 Applicable Standards.....	5
2 Test Configuration of Equipment Under Test	6
2.1 Connection Diagram of Test System.....	6
3 End User Device additional requirement	7
3.1 Test Requirement	7
3.2 Test Procedure	7
3.3 Test Result.....	8
4 List of Measuring Equipment.....	10
Appendix A Test Setup Photo	



History of this test report

Report No.	Version	Description	Issued Date
FG040121	01	Initial issue of report	Jul. 30, 2020



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3	96.47	End User Device additional requirement	Pass	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: William Chen

Report Producer: Yimin Ho



1 General Description

1.1 Product Feature of Equipment Under Test

LTE/5G NR, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ac/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, and GNSS.

Product Specification subjective to this standard	
Antenna Type	WWAN: PCB Antenna WLAN: <Ant. 1> PCB Antenna <Ant. 2> PCB Antenna <Ant. 3> PCB Antenna <Ant. 4> PCB Antenna Bluetooth: PCB Antenna GPS / Glonass: Monopole Antenna

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No.
	DFS02-HY
Test Engineer	Howard Lin
Temperature	21 ~ 25 °C
Relative Humidity	50 ~ 56 %

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190

1.4 Applicable Standards

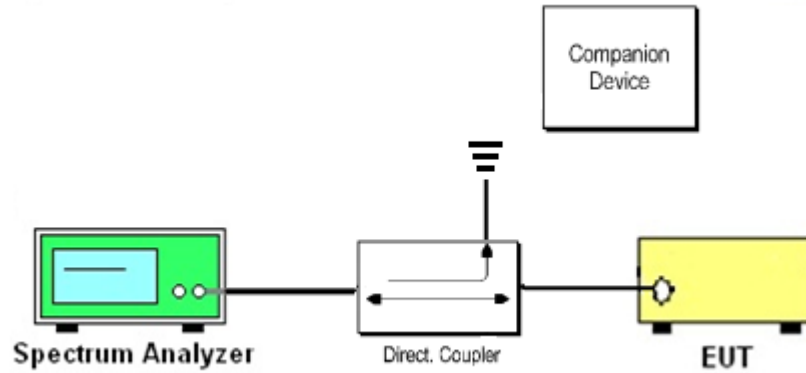
- ♦ FCC Part 96.47
- ♦ FCC KDB 940660 D01 Part 96 CBRS Eqpt v02
- ♦ WINNF-TS-0122-V1.0.1 CBRS CBSD Test Specification

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Connection Diagram of Test System



The companion device is certified CBRS (FCC ID: S9GQ710US02)



3 End User Device additional requirement

3.1 Test Requirement

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.

3.2 Test Procedure

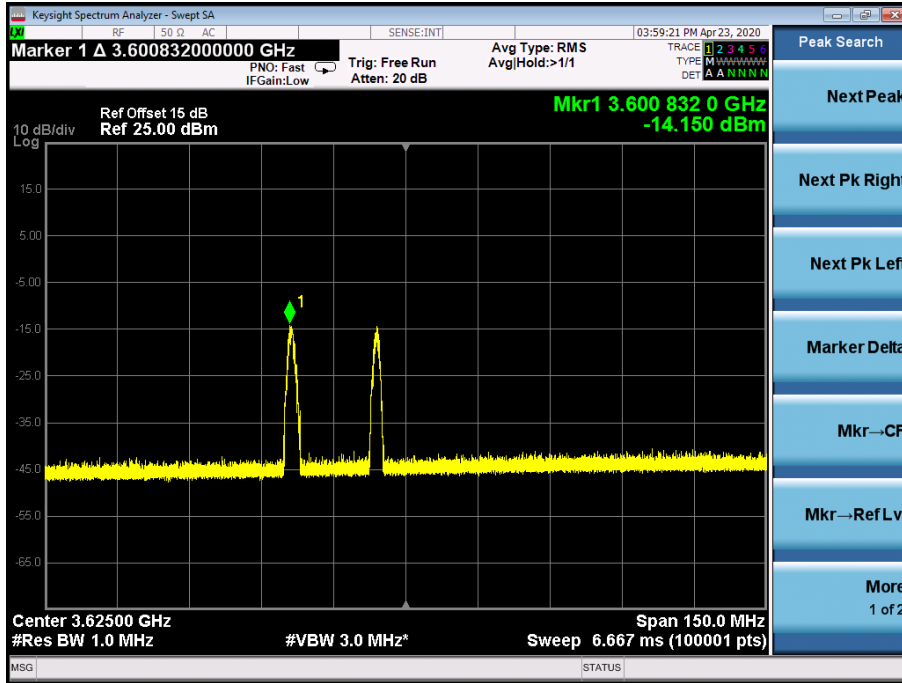
Following procedure can be done by applying WINNF-TS-0122-V1.0.1 CBRS CBSD Test Specification, use the certified Ruckus CBSD (FCC ID: S9GQ710US02) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

1. Setup with frequency 3600-3620MHz and power level 7dBm/MHz
2. Enable AP service from Ruckus Cloud management
3. Check EUD Tx Frequency and power
4. Disable AP service from Ruckus Cloud management
 - a. Check EUD stops transmission within 10seconds.
5. Setup with 3670-3690MHz & power level 17dBm/MHz
6. Enable AP service from Ruckus Cloud management
7. Check EUD Tx Frequency and power
8. Disable AP service from Ruckus Cloud management
 - a. Check EUD stops transmission within 10seconds.

3.3 Test Result

[Step 1] Setup with frequency 3600-3620MHz and power level 7dBm/MHz

[Step 3] Check EUD Tx Frequency and power

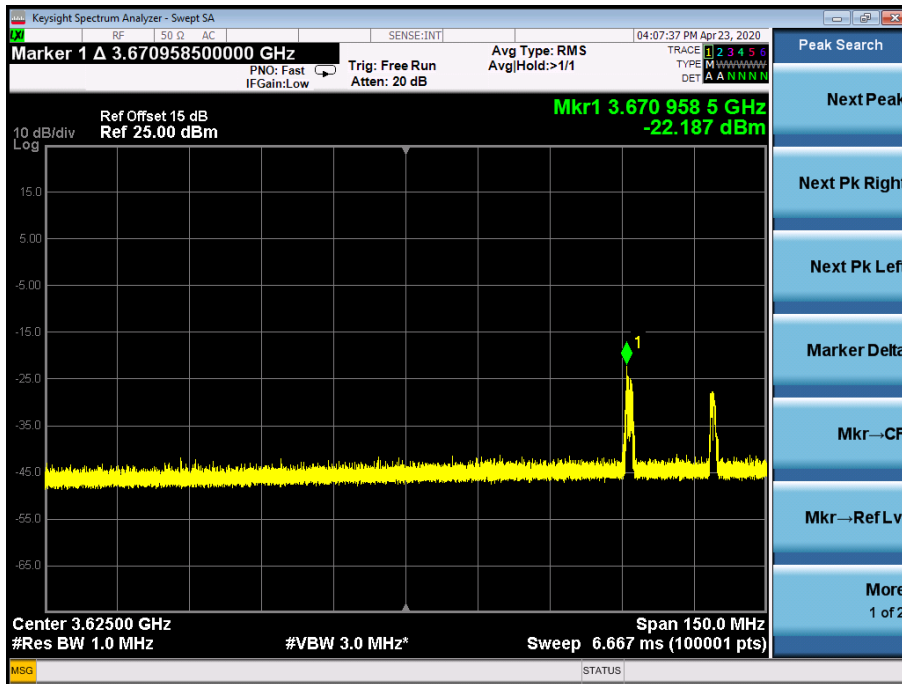


[Step 4.a.] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



[Step 5] Setup with 3670-3690MHz & power level 17dBm/MHz

[Step 7] Check EUD Tx Frequency and power



[Step 8.a.] After changing the frequency and power level,

The module (EUT) discontinues operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD. Test result is PASS.





4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY57120184	10Hz~7GHz	Nov. 20, 2019	Apr. 23, 2020	Nov. 19, 2020	DFS02-HY