

MEASUREMENT REPORT Part 96

Applicant Name:
 Netcomm Wireless Limited
 18-20 Orion Road
 Lane Cove NSW 2066,
 Sydney Australia


Date of Testing:
 6/2/2020 - 6/4/2020
Test Site/Location:
 PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
 3M2005290041

FCC ID:	XIA-CFW2182
APPLICANT:	Netcomm Wireless Limited



Application Type: Certification
Model: CFW-2182
EUT Type: Outdoor LTE Router
FCC Classification: Citizens Band End User Devices (CBE)
FCC Rule Part(s): 96
Test Procedure(s): KDB 940660 D01 Part 96 CBRS v02, WINNF-TS-0122 V1.0.0

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.




 Randy Ortanez
 President



FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 1 of 12

T A B L E O F C O N T E N T S

1.0	INTRODUCTION	3
1.1	Scope	3
1.2	PCTEST Test Location.....	3
1.3	Test Facility / Accreditations.....	3
2.0	PRODUCT INFORMATION.....	4
2.1	Equipment Description	4
2.2	Test Configuration	4
2.3	EMI Suppression Device(s)/Modifications	4
3.0	TEST EQUIPMENT CALIBRATION DATA	5
4.0	TEST RESULTS	6
4.1	Summary	6
4.2	End User Device Additional Requirement (CBSD Protocol).....	7
5.0	CONCLUSION.....	12

FCC ID: XIA-CFW2132	 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)	 NetComm	Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router	Page 2 of 12

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST Engineering Laboratory, LLC. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is a CBRS Alliance (OnGo) Approved Test Lab
- PCTEST is a WinnForum Approved Test Lab
- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for CBRS Alliance Certification Test Plan and WinnForum Conformance and Performance Test Technical Standard.
- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 3 of 12

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Netcomm Outdoor LTE Router FCC ID: XIA-CFW2182**. The test data contained in this report pertains only to the EUT's LTE Band 48 operation in the CBRS band.

EUT Serial Number(s): 354237109900308

EUT Hardware Version: 1.0



EUT Software Version: 1.1.29.7

2.2 Test Configuration

The EUT was tested per the guidance of KDB 940660 D01 Part 96 CBRS v02, WINNF-TS-0122 V1.0.0.

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.



FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router	Page 4 of 12	

3.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	7/20/2020	US46470561

Table 3-1. Test Equipment

FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router	Page 5 of 12	



4.0 TEST RESULTS

4.1 Summary

Company Name: Netcomm Wireless Limited
 FCC ID: XIA-CFW2182
 FCC Classification: Citizens Band End User Devices (CBE)
 Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
96.47	End User Device Additional Requirements (CBSD Protocol)	<p>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.</p> <p>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.</p>	CONDUCTED	PASS	Section 7.2

Table 4-1. Summary of Conducted Test Results

FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 6 of 12

4.2 End User Device Additional Requirement (CBSD Protocol)

§96.47

Test Overview and Limit

End user device additional requirements (CBSD Protocol) are tested per the test procedures listed below. During testing, the EUT is connected to a certified CBSD (Ruckus FCC ID: S9GQ910US00) as a companion device to show compliance with Part 96.47.

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.

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.

Test Procedure Used

KDB 940660 D01 Part 96 CBRS v02, WINNF-TS-0122 V1.0.0.

Test Setup/Method

The EUT was connected via an RF cable to a spectrum analyzer and to a certified CBSD. The following procedure is performed by applying WINNF-TS-0122 CBRS CBSD Test Specification.

1. Run#1:
 - a. Setup WINNF.PT.C.HBT.1 with 3615MHz – 3635MHz.
 - b. Enable AP service from Ruckus Cloud management.
 - c. Check EUT Tx frequency.
 - d. Disable AP service from Ruckus Cloud management and check EUT stop transmission within 10s.
2. Run#2:
 - a. Setup WINNF.PT.C.HBT.1 with 3660MHz – 3680MHz.
 - b. Enable AP service from Ruckus Cloud management.
 - c. Check EUT Tx frequency.
 - d. Disable AP service from Ruckus Cloud management and check EUT stop transmission within 10s.

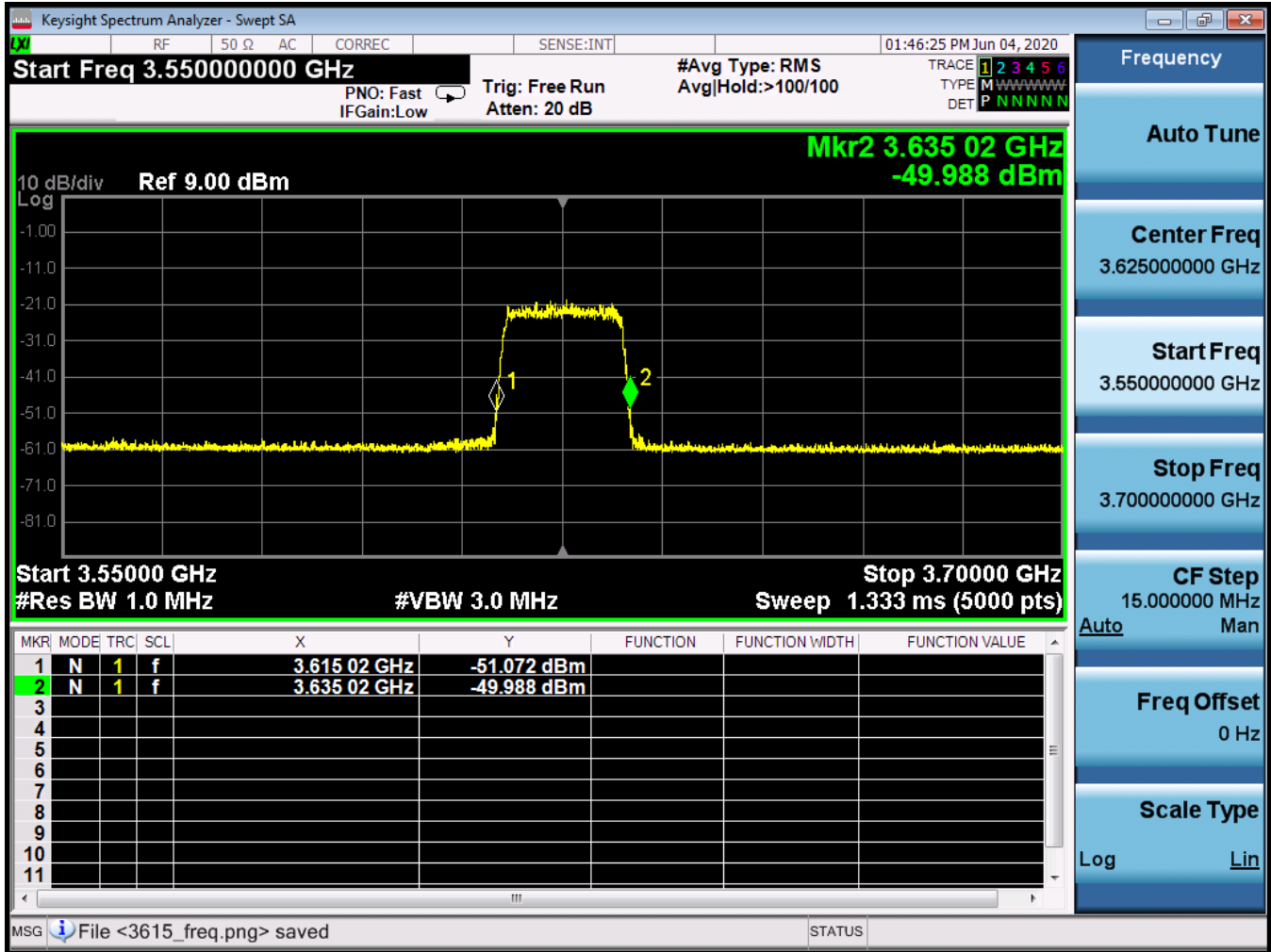
Test Notes

The EUT is an End User Device.



FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 7 of 12

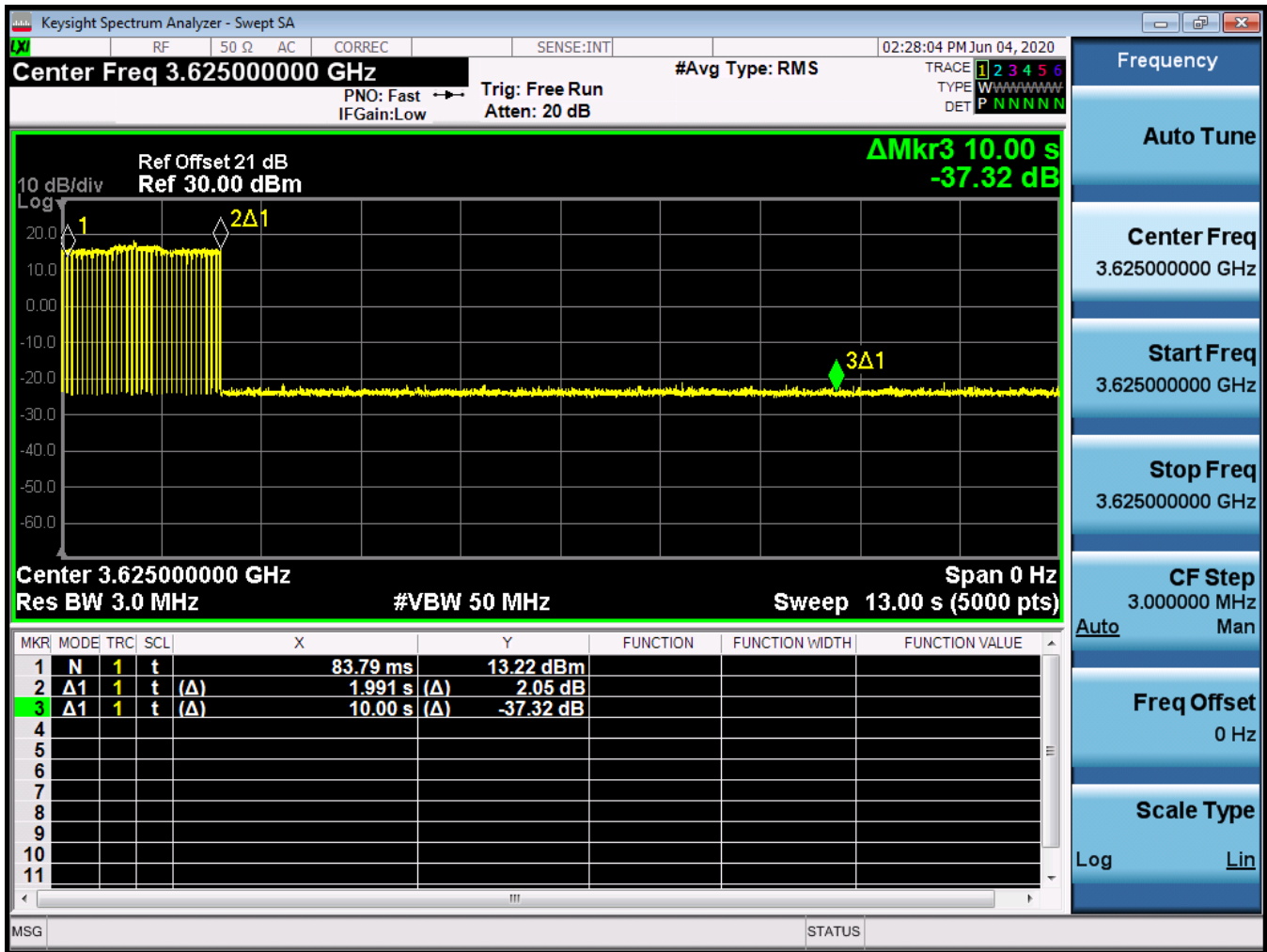
Run#1:

- Tx frequency set: 3615 – 3635MHz.



Plot 4-1. Run#1 End User Device Frequency of Operations

FCC ID: XIA-CFw2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 8 of 12



Plot 4-2. Run#1 End User Device Discontinues Operations within 10s

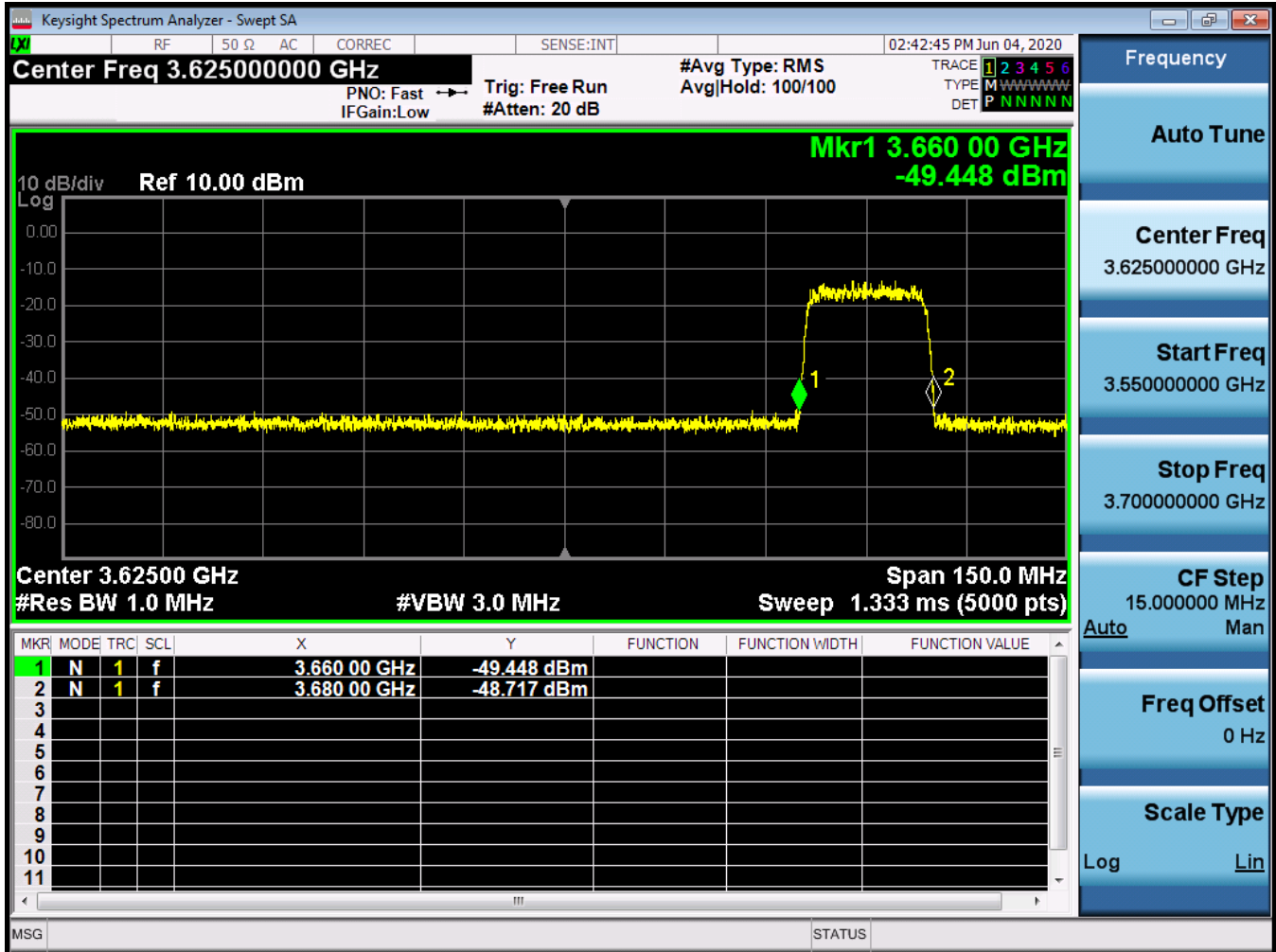
Note:

- Marker 1: CBSD sends instructions to discontinue LTE operations.
- Marker 2: EUT discontinues operation.
- Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.



FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 9 of 12

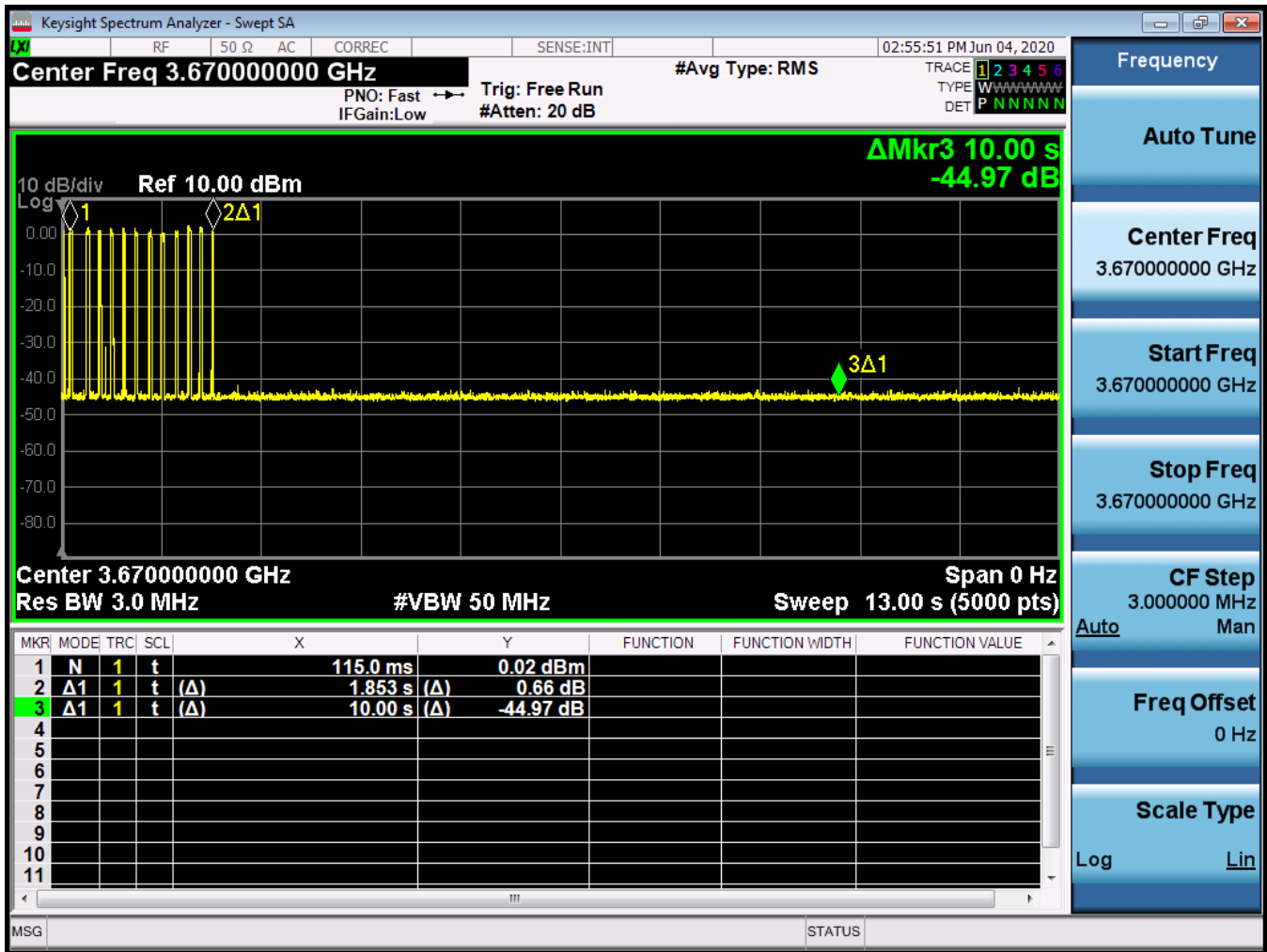
Run#2:

- Tx frequency set: 3660– 3680MHz.



Plot 4-3. Run#2 End User Device Frequency of Operations



FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 10 of 12



Plot 4-4. Run#2 End User Device Discontinues Operations within 10s



Note:

- Marker 1: CBSD sends instructions to discontinue LTE operations.
- Marker 2: EUT discontinues operation.
- Marker 3: 10 seconds elapsed time from CBSD sending instructions to EUT.

FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 11 of 12

5.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the Netcomm Outdoor LTE Router **FCC ID: XIA-CFW2182** complies with all of the End User Device requirements of Part 96.47 of the FCC Rules.

FCC ID: XIA-CFW2132		MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Quality Manager
Test Report S/N: 3M2005290041	Test Dates: 6/2/2020 - 6/4/2020	EUT Type: Outdoor LTE Router		Page 12 of 12