

**MEASUREMENT REPORT****FCC Part 15.407 802.11a/ax/be WiFi 6GHz – Contention Based Protocol****Applicant Name:**

Microsoft Corporation  
1 Microsoft Way  
Redmond, WA 98052-8300  
United States

**Date of Testing:**

1/27/2025 – 3/5/2025

**Test Report Issue Date:**

3/28/2025

**Test Site/Location:**

Element Lab., Columbia, MD, USA

**Test Report Serial No.:**

1M2503050024-10-R2.C3K

**FCC ID:****C3K00002101****APPLICANT:****Microsoft Corporation****Application Type:**

Class II Permissive Change, Module Host Integration

**Host Model:**

2110

**EUT Type:**

Limited Modular Approval – Host Integration

**Frequency Range:**

5935 – 7115MHz

**FCC Classification:**

15E 6GHz Low Power Dual Client (6CD)

**FCC Rule Part(s):**

Part 15 Subpart E (15.407)

**Test Procedure(s):**

ANSI C63.10-2013, KDB 987594 D02 v01r01

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 ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

This revised Test Report (S/N: 1M2503050024-10-R2.C3K) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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.



RJ Ortiz  
Executive Vice President



<b>FCC ID:</b> C3K00002101	<b>MEASUREMENT REPORT</b> (Class II Permissive Change)		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2503050024-10-R1.C3K	<b>Test Dates:</b> 1/11/2025 – 2/20/2025	<b>EUT Type:</b> Limited Modular Approval	Page 1 of 26

## 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	Element Test Location.....	3
1.3	Test Facility / Accreditations.....	3
2.0	PRODUCT INFORMATION .....	4
2.1	Equipment Description .....	4
2.2	Device Capabilities.....	4
2.3	Antenna Description.....	6
2.4	Test Configuration.....	6
2.5	Software and Firmware .....	6
2.6	EMI Suppression Device(s) / Modifications.....	6
3.0	DESCRIPTION OF TESTS .....	7
3.1	Evaluation Procedure .....	7
3.2	Environmental Conditions.....	7
4.0	ANTENNA REQUIREMENTS .....	8
5.0	MEASUREMENT UNCERTAINTY .....	9
6.0	TEST EQUIPMENT CALIBRATION DATA.....	10
7.0	TEST RESULTS .....	11
7.1	Summary.....	11
7.2	Contention Based Protocol.....	12
7.2.1	AWGN Plots.....	15
7.2.2	CBP Timing Plots .....	16
7.2.3	Channel Move Plots .....	24
8.0	CONCLUSION.....	26

FCC ID: C3K00002101	<b>MEASUREMENT REPORT</b> (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 2 of 26

## 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 and the Innovation, Science and Economic Development Canada.

### 1.2 Element Test Location

Measurements were conducted at the Element laboratory(ies) indicated in Section 1.3 below. All measurement facilities are compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

### 1.3 Test Facility / Accreditations

**Measurements were performed at Element lab located in Columbia, MD 21046, U.S.A. ("MD")**

- Element Washington DC LLC is an ISO 17025-2017 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.
- Element Washington DC LLC 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).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

FCC ID: C3K00002101		MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		
1M2503050024-10-R2.C3K	1/11/2025 - 2/20/2025	Limited Modular Approval	Page 3 of 26	

## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Microsoft Module (FCC ID: C3K00002101)** integrated into the **Portable Computing Device Model 2110**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter while operating in the 6GHz band.

This host device (2110) contains a WLAN/BT transmitter module previously certified under FCC ID: C3K00002101. No changes have been made to the module and therefore all conducted testing performed on the original module remain applicable to this filing. This test report covers additional test cases for integrating the module transmitter into this host product.

**Test Device Serial No.:** 0F3K4CP24453Q6, 0F3K4CT24453Q6, 0F3K4CW24453Q6, 0F3K4CK24453Q6

### 2.2 Device Capabilities

This device contains the following capabilities:

Bluetooth (1x, EDR, LE), 802.11b/g/n/ac/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and GHz), Wireless Power Transfer

This device supports both channel puncturing and channel bandwidth reduction. In the case of incumbent avoidance the device either ceases operation or employs channel bandwidth reduction. Channel puncturing is not utilized for incumbent avoidance.

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)						
2	5935	97	6435	117	6535	189	6895
:	:	:	:	:	:	:	:
45	6175	105	6475	149	6695	209	6995
:	:	:	:	:	:	:	:
93	6415	113	6515	185	6875	233	7115

Table 2-1. 802.11a/ax/be (20MHz) Frequency / Channel Operations

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)						
3	5965	99	6445	123	6565	187	6885
:	:	:	:	:	:	:	:
43	6165	107	6485	155	6725	211	7005
:	:	:	:	:	:	:	:
91	6405	115	6525	179	6845	227	7085

Table 2-2. 802.11ax/be (40MHz BW) Frequency / Channel Operations

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 4 of 26	

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)						
7	5985	103	6465	119	6545	199	6945
:	:			:	:	:	:
39	6145			151	6705	215	7025
:	:			:	:		
87	6385			183	6865		

Table 2-3. 802.11ax/be (80MHz BW) Frequency / Channel Operations

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)						
15	6025	111	6505	143	6665	207	6985
47	6185			175	6825		
79	6345						

Table 2-4. 802.11axb/e (160MHz BW) Frequency / Channel Operations

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)						
31	6105	95	6425	127	6585	191	6905
63	6265			159	6745		

Table 2-5. 802.11be (320MHz BW) Frequency / Channel Operations

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 5 of 26	

## 2.3 Antenna Description

The following antenna gains are used in this device per the "Unlicensed Band Antenna Gain" document provided by the client. This document is also included in the filing as a public exhibit. This module will be integrated into host devices employing various antenna gains. For this report, the lowest possible antenna gain is used, as this creates the worst-case test conditions for contention based protocol.

	Ant1 Peak Gain [dBi]	Ant2 Peak Gain [dBi]	Measured Directional Gain [dBi]
5925 – 6425 MHz	5.87	4.94	7.08
6425 – 6525 MHz	3.93	4.35	7.08
6525 – 6875 MHz	3.78	3.92	6.55
6875 – 7125 MHz	2.74	3.78	5.91

**Table 2-6. Antenna Peak Gain**

The antenna gains shown in this table were provided by the manufacturer.

## 2.4 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 and KDB 987594 D02 v01r01.

This device supports operation under control of either a low-power indoor access point (LPi) or a standard power access point (SP).

This device operates in the 5.925-7.125 GHz band when under control of a lower indoor access point. Additionally, the device may operate in the 5.925-6.425 GHz and 6.525-6.875 GHz bands when under control of a standard power access point.

While two operating modes are supported the data in this report was the result of LPi operation and is representative of both modes.

## 2.5 Software and Firmware

The test was conducted with firmware version 1.0.4166.1200 installed on the EUT.

## 2.6 EMI Suppression Device(s) / Modifications

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

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 – 2/20/2025	EUT Type: Limited Modular Approval	Page 6 of 26

## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 987594 D02 v01r01 were used in the measurement of the EUT.

Deviation from measurement procedure.....**None**

### 3.2 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 7 of 26

## 4.0 ANTENNA REQUIREMENTS

### Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

### Conclusion:

The EUT complies with the requirement of §15.203.

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 8 of 26

## 5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the  $U_{CISPR}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty ( $\pm$ dB)
Contention Based Protocol Conducted Measurements	0.86
Conducted Bench Top Measurements	1.13
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

**Table 5-1. Measurement Uncertainty**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 9 of 26



## 6.0 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
Rohde & Schwarz	FSV40	EMI Test Receiver (40GHz)	9/6/2024	Annual	9/6/2025	101814
Rohde & Schwarz	SMW200A	Vector Signal Generator	4/4/2024	Annual	4/4/2025	103200
TPLink	ArcherBE900	WiFi 7 Access Point		N/A		22310J000044

**Table 6-1. Test Equipment Calibration Table – MD**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 10 of 26	

## 7.0 TEST RESULTS

### 7.1 Summary

Company Name: Microsoft Corporation  
 FCC ID: C3K00002101  
 FCC Classification: 15E 6GHz Low Power Dual Client (6CD)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(d)(6)	RSS-248(4.7)	Contention Based Protocol	EUT must detect AWGN signal with 90% (or better) certainty	Conducted	PASS	Section 7.2

**Table 7-1. Summary of Test Results**

**Notes:**

- 1) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 2) Per 15.407(a)(7), a device operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands must not have the maximum power spectral density exceed 17 dBm/MHz e.i.r.p., must limit the maximum e.i.r.p. over the frequency band of operation does not exceed 30 dBm, and must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power. Compliance to this clause is addressed via the AFC PRV test report.
- 3) The test data shown in this report follows the test plan prepared by the Grantee after consultation with FCC. Also, additional measurements are included based on worst-case findings from the filing of the original module report.

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 11 of 26

## 7.2 Contention Based Protocol

### Test Overview and Limit

Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band (herein referred to as unlicensed devices) are required to use technologies that include a contention-based protocol to avoid co-channel interference with incumbent devices sharing the band. To ensure incumbent co-channel operations are detected in a technology-agnostic manner, unlicensed devices are required to detect co-channel radio frequency energy (energy detect) and avoid simultaneous transmission.

Unlicensed indoor low-power devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel if detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain.

To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel.

### Test Procedure Used

KDB 987594 D02 v01r01

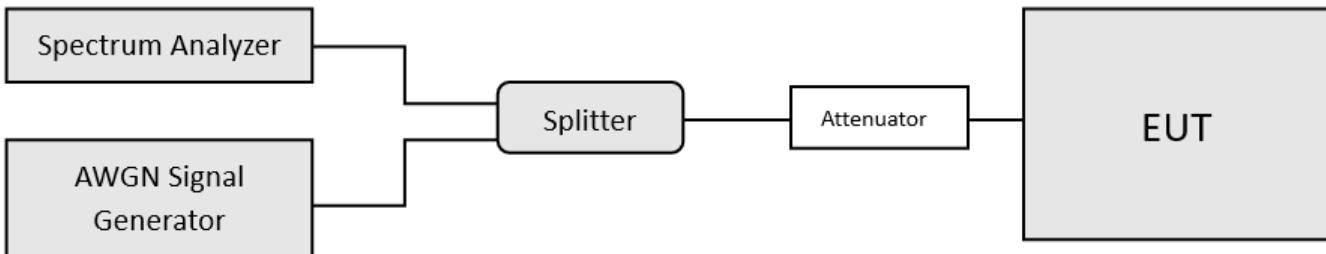
### Test Settings

1. Configure the EUT to transmit with a constant duty cycle.
2. Set the operating parameters of the EUT including power level, operating frequency, modulation, and bandwidth.
3. Set the signal analyzer center frequency to the nominal EUT channel center frequency. The span range of the signal analyzer shall be between two times and five times the OBW of the EUT. Connect the output port of the EUT to the signal analyzer 2. Ensure that the attenuator 2 provides enough attenuation to not overload the signal analyzer 2 receiver.
4. Monitoring the signal analyzer 2, verify the EUT is operating and transmitting with the parameters set at step two.
5. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
6. Set the AWGN signal power to an extremely low level (more than 20 dB below the -62 dBm threshold). Connect the AWGN signal source, via a 3-dB splitter, to the signal analyzer 1 and the EUT as shown in Figure 2.
7. Transmit the AWGN signal (RF ON) and verify its characteristics on the signal analyzer 1.
8. Monitor the signal analyzer 2 to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
9. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
10. Refer to Table 1 of KDB 987594 D02 v01r01 to determine the number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 5, choose a different center frequency for the AWGN signal, and repeat the process.

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 12 of 26

## Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-1. Contention-based protocol test setup conducted method.**

## Test Notes

1. Per guidance from KDB 987594 D02 v01r01, contention-based protocol was tested using an AWGN signal with a bandwidth of 10MHz (see Plot 7-313). The amplitude of the signal was increased until detected by the EUT, signaled by the ceasing of transmission (see Plot 7-329), M1 indicates the point at which the AWGN signal is introduced. D1 indicates where the AWGN signal is terminated, at least 10 seconds following M1.
2. 15 trials were run to assure that at least 90% of certainty was met.
3. Per Guidance from KDB 987594 D04 v01, contention-based protocol was tested with receiver with the lowest antenna gain.
4. All CBP Timing Plots shown are for the ceased condition. Some spikes that may be shown are from adjacent portions of the spectrum that are still transmitting.

$$\text{Detection Level} = \text{Injected AWGN Power (dBm)} - \text{Antenna Gain (dBi)} + \text{Path Loss (dB)}$$

**Equation 7-1. Detection Level Calculation**

Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	Injected (AWGN) [dBm]	Antenna Gain [dBi]	Path Loss (dB)	Adjusted Power Level [dBm]	Detection Limit [dBm]	Margin [dB]
UNII Band 5	53	6215	20	6215	-66.55	4.94	1.03	-70.46	-62.0	-8.46
				6110	-66.31	4.94	1.03	-70.22	-62.0	-8.22
	31	6265	320	6265	-66.64	4.94	1.03	-70.55	-62.0	-8.55
				6420	-66.85	4.94	1.03	-70.76	-62.0	-8.76
UNII Band 6	101	6455	20	6455	-67.17	3.93	1.03	-70.07	-62.0	-8.07
				6270	-65.78	3.93	1.03	-68.68	-62.0	-6.68
	95	6425	320	6425	-65.90	3.93	1.03	-68.80	-62.0	-6.80
				6580	-66.08	3.93	1.03	-68.98	-62.0	-6.98
UNII Band 7	149	6695	20	6695	-64.37	3.78	1.03	-67.12	-62.0	-5.12
				6590	-65.32	3.78	1.03	-68.07	-62.0	-6.07
	159	6745	320	6745	-64.69	3.78	1.03	-67.44	-62.0	-5.44
				6900	-65.10	3.78	1.03	-67.85	-62.0	-5.85
UNII Band 8	197	6935	20	6935	-64.71	2.74	1.03	-66.42	-62.0	-4.42
				6750	-65.12	2.74	1.03	-66.83	-62.0	-4.83
	191	6905	320	6905	-64.65	2.74	1.03	-66.36	-62.0	-4.36
				7060	-65.28	2.74	1.03	-66.99	-62.0	-4.99

**Table 7-2. Contention Based Protocol – Incumbent Detection Results**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 13 of 26	

Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	Antenna Gain [dBi]	EUT Transmission Status			Detection Limit [dBm]	Margin [dB]		
						Adjusted AWGN Power (dBm)						
						Normal	Minimal	Ceased				
UNII Band 5	53	6215	20	6215	4.94	-71.91	-71.19	-70.46	-62.0	-8.46		
				6110	4.94	-71.19	-70.95	-70.22	-62.0	-8.22		
	31	6265		6265	4.94	-72.00	-71.28	-70.55	-62.0	-8.55		
				6420	4.94	-71.37	-71.00	-70.76	-62.0	-8.76		
				101	6455	3.93	-71.40	-70.80	-70.07	-62.0	-8.07	
UNII Band 6	95	6425	320	6270	3.93	-69.65	-69.29	-68.68	-62.0	-6.68		
				6425	3.93	-70.13	-69.53	-68.80	-62.0	-6.80		
				6580	3.93	-69.71	-69.34	-68.98	-62.0	-6.98		
	149	6695		6695	3.78	-68.57	-67.85	-67.12	-62.0	-5.12		
				6590	3.78	-69.04	-68.43	-68.07	-62.0	-6.07		
UNII Band 7	159	6745	320	6745	3.78	-68.17	-67.92	-67.44	-62.0	-5.44		
				6900	3.78	-68.58	-68.33	-67.85	-62.0	-5.85		
				197	6935	2.74	-67.51	-66.78	-66.42	-62.0	-4.42	
				6750	2.74	-67.92	-67.44	-66.83	-62.0	-4.83		
				191	6905	2.74	-67.33	-66.84	-66.36	-62.0	-4.36	
				7060	2.74	-68.20	-67.47	-66.99	-62.0	-4.99		

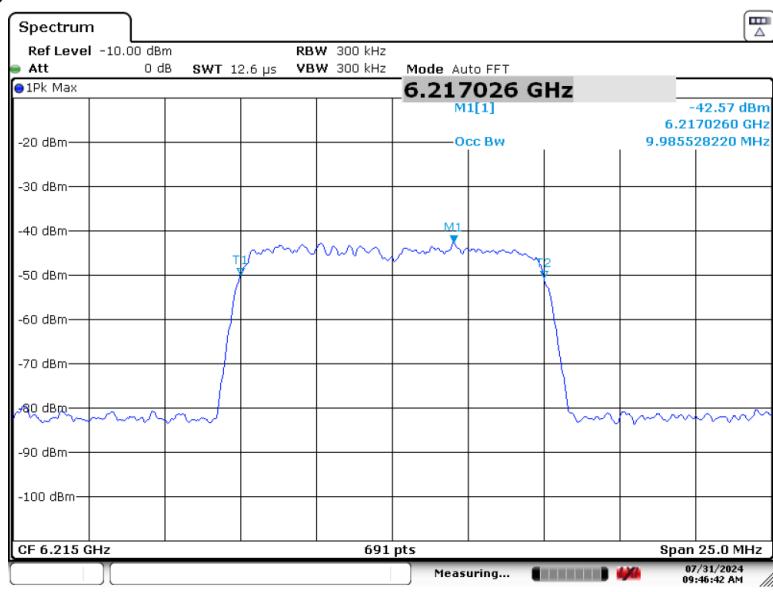
**Table 7-3. Contention Based Protocol – Detection Results – All Tx Cases**

CBP Detection (1 = Detection, Blank = No Detection)																				
Band	Channel	Channel Freq [MHz]	Channel BW [MHz]	Incumbent Freq [MHz]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Detection Rate (%)
UNII Band 5	53	6215	20	6215	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6190	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
	31	6265		6265	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6340	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
UNII Band 6	101	6455	320	6455	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6350	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
	95	6425		6425	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6500	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
UNII Band 7	149	6695	20	6695	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6670	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
	159	6745		6745	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6820	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
UNII Band 8	197	6935	320	6935	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6830	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
	191	6905		6905	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	
				6980	1	1	1	1	1	1	1	1	1	1	1	1	1	1	100	

**Table 7-4. Contention Based Protocol – Incumbent Detection Trial Results**

FCC ID: C3K00002101		MEASUREMENT REPORT (Class II Permissive Change)												Approved by: Technical Manager	
Test Report S/N: 1M2503050024-10-R2.C3K		Test Dates: 1/11/2025 – 2/20/2025		EUT Type: Limited Modular Approval								Page 14 of 26			

### 7.2.1 AWGN Plots

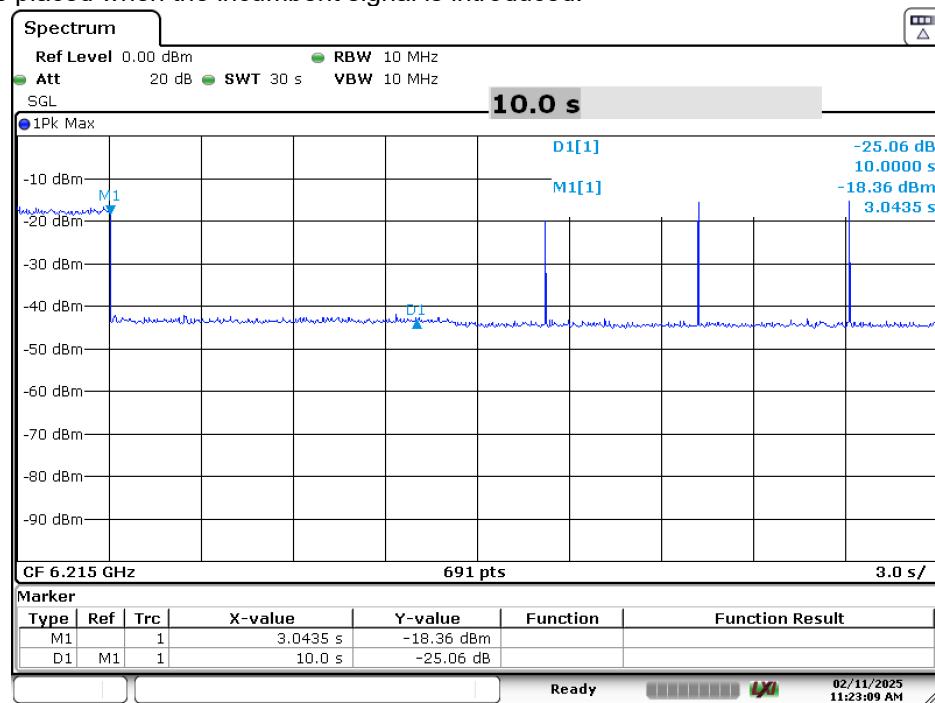


**Plot 7-1. AWGN Signal (Demonstration)**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 15 of 26

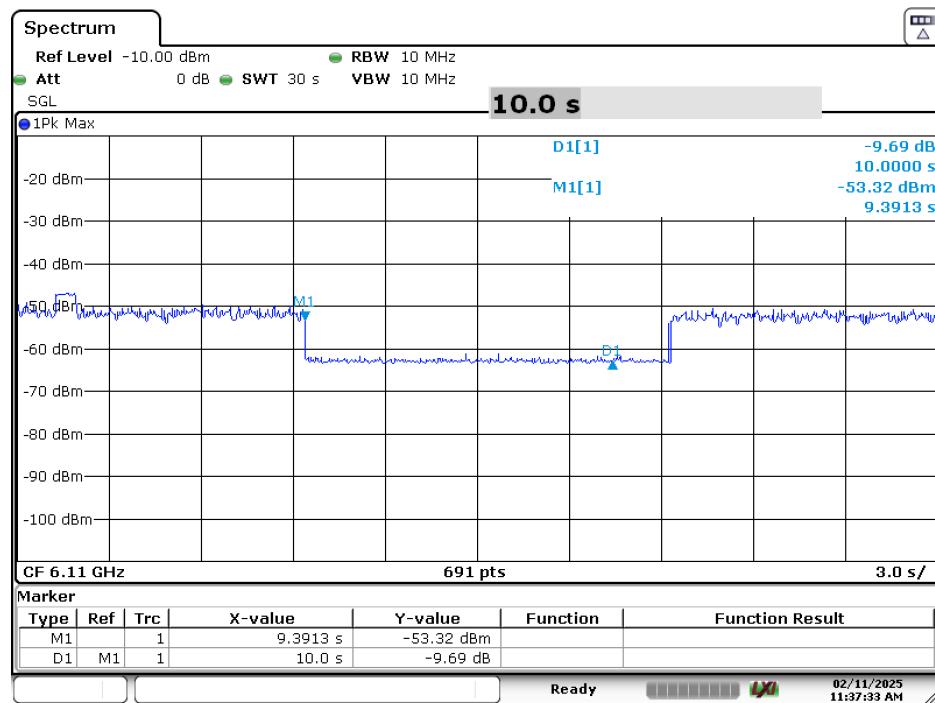
## 7.2.2 CBP Timing Plots

Note: Marker 1 is placed when the incumbent signal is introduced.



Date: 11.FEB.2025 11:23:09

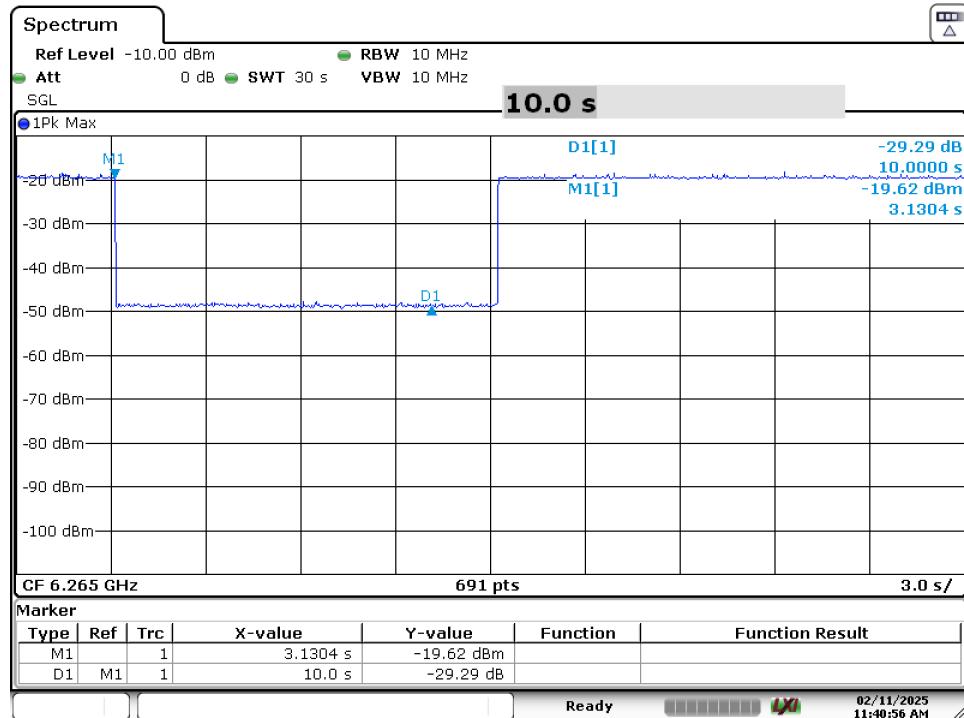
**Plot 7-2. Contention Based Protocol Timing Plot (20MHz (UNII Band 5) – Ch. 53) - Ceased**



Date: 11.FEB.2025 11:37:33

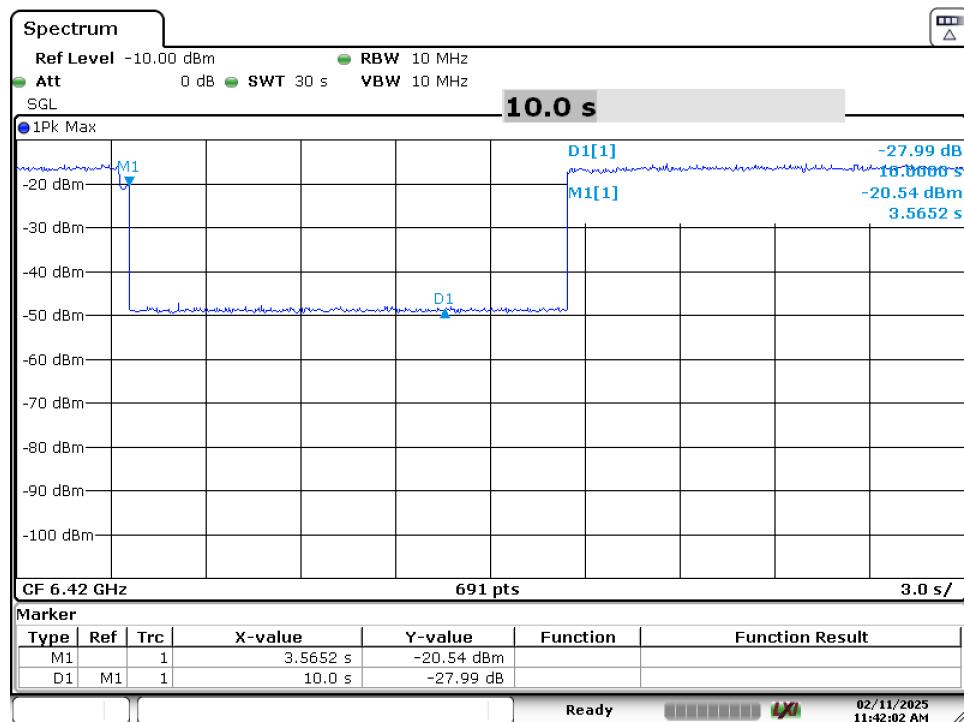
**Plot 7-3. Contention Based Protocol Timing Plot (320MHz (UNII Band 5) – Ch. 31 Low) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 16 of 26	



Date: 11.FEB.2025 11:40:56

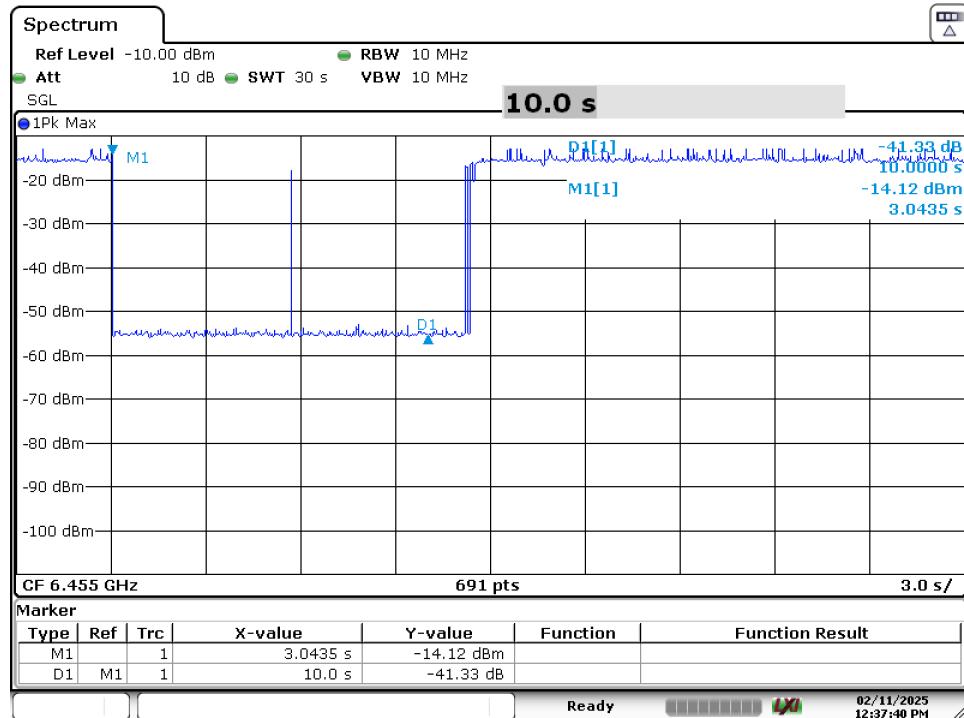
**Plot 7-4. Contention Based Protocol Timing Plot (320MHz (UNII Band 5) – Ch. 31 Mid) - Ceased**



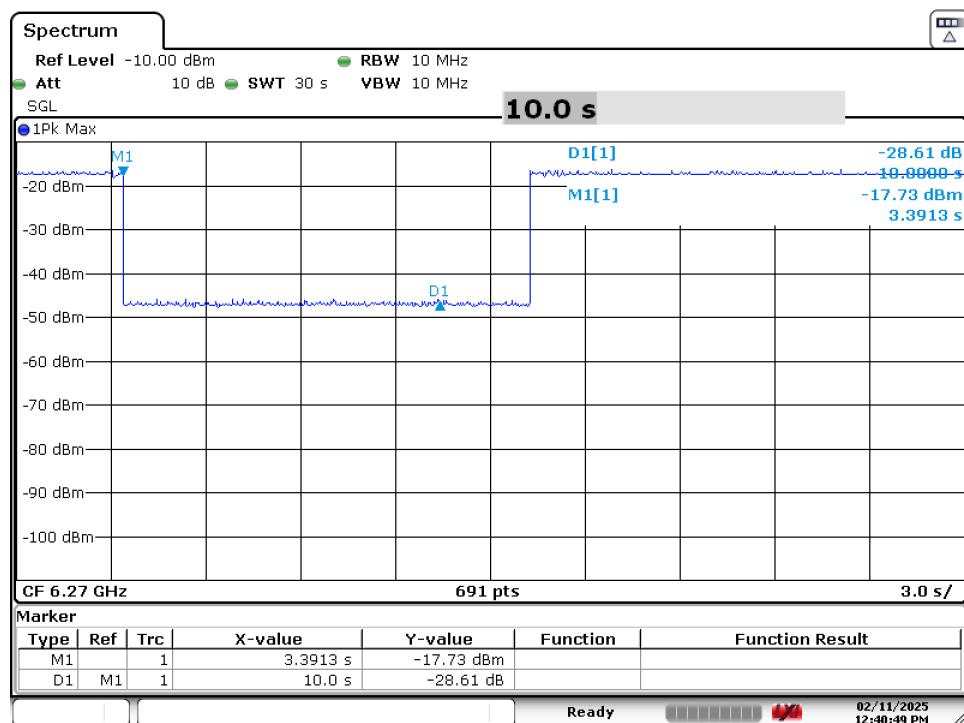
Date: 11.FEB.2025 11:42:02

**Plot 7-5. Contention Based Protocol Timing Plot (320MHz (UNII Band 5) – Ch. 31 High) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 17 of 26

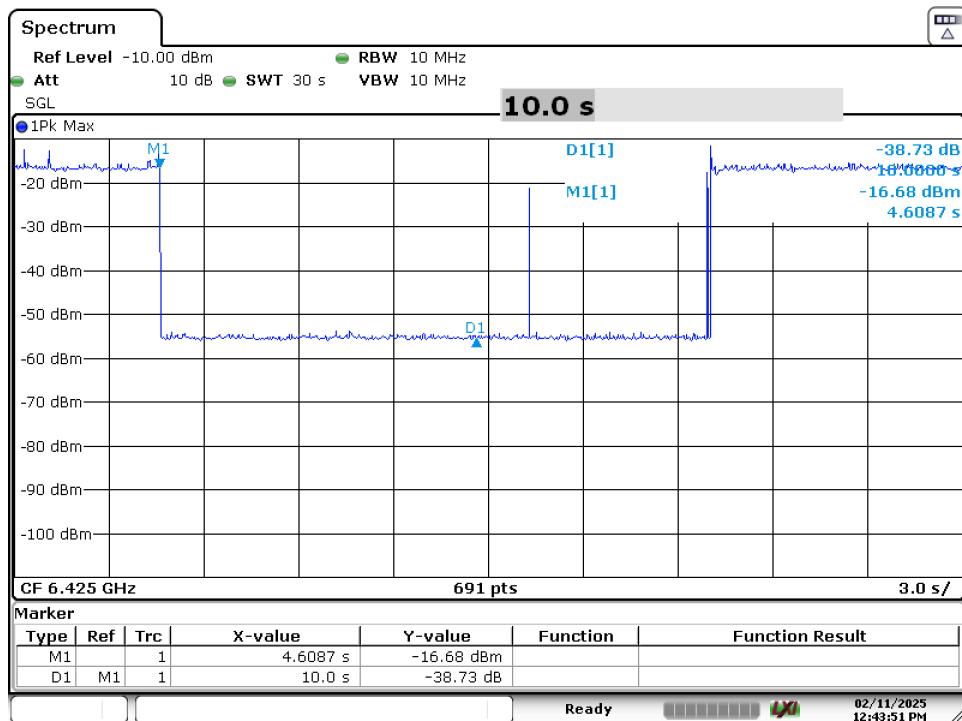


**Plot 7-6. Contention Based Protocol Timing Plot (20MHz (UNII Band 6) – Ch. 101) - Ceased**



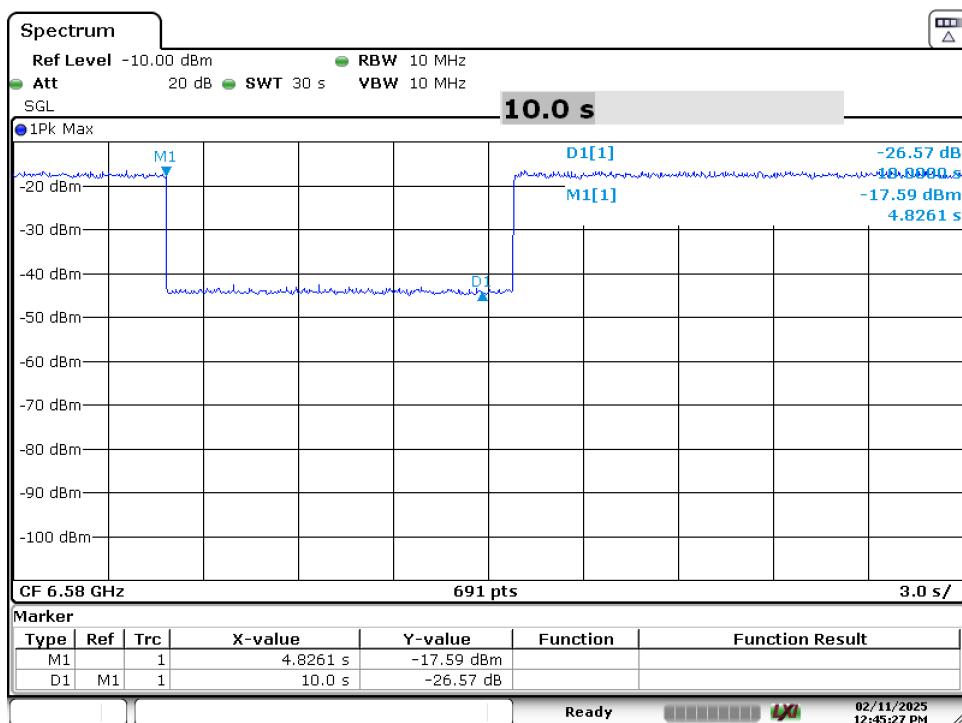
**Plot 7-7. Contention Based Protocol Timing Plot (320MHz (UNII Band 6) – Ch. 95 Low) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 18 of 26



Date: 11.FEB.2025 12:43:51

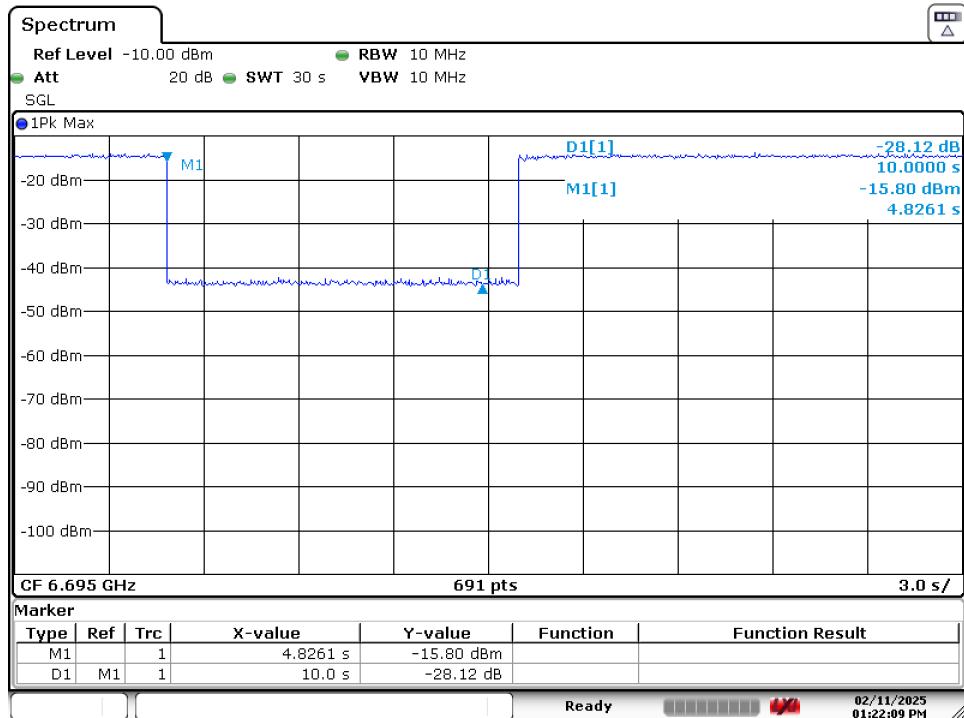
**Plot 7-8. Contention Based Protocol Timing Plot (320MHz (UNII Band 6) – Ch. 95 Mid) - Ceased**



Date: 11.FEB.2025 12:45:27

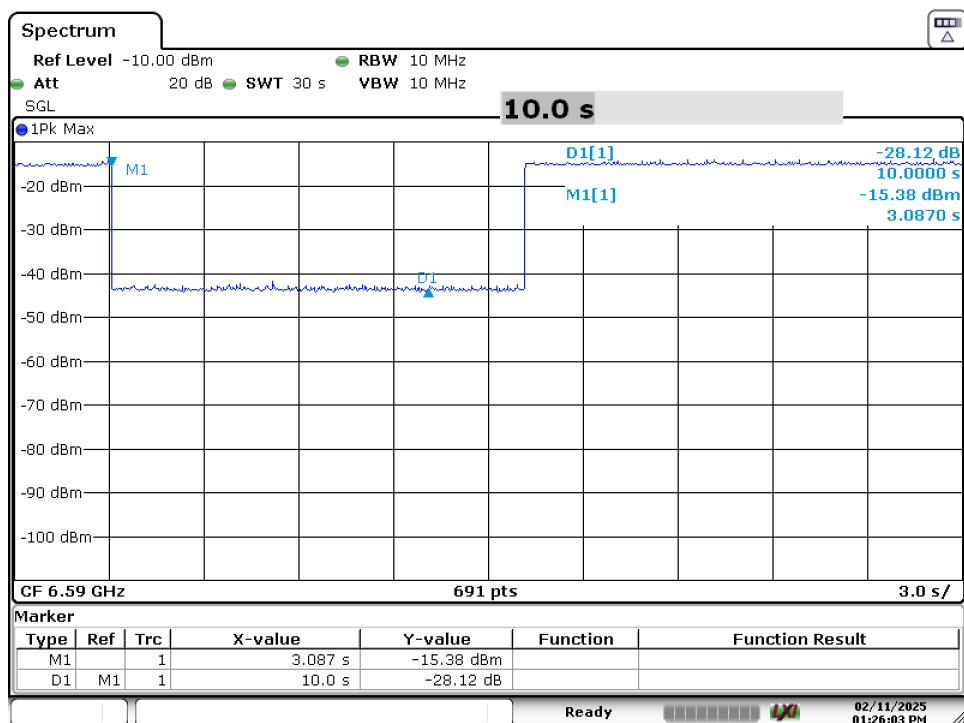
**Plot 7-9. Contention Based Protocol Timing Plot (320MHz (UNII Band 6) – Ch. 95 High) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 19 of 26	



Date: 11.FEB.2025 13:22:09

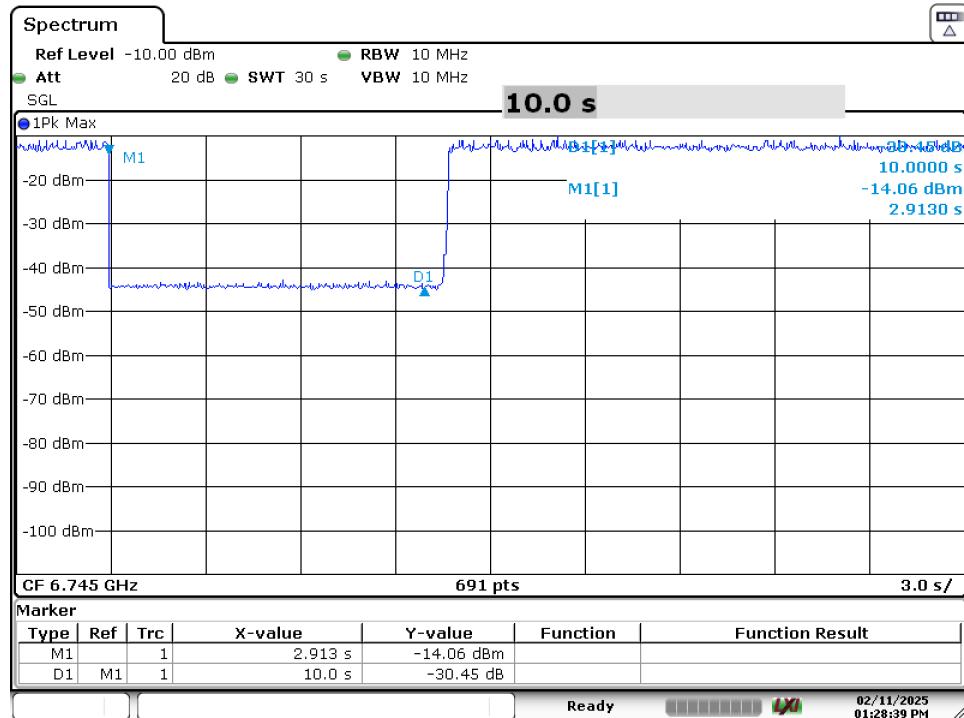
**Plot 7-10. Contention Based Protocol Timing Plot (20MHz (UNII Band 7) – Ch. 149) - Ceased**



Date: 11.FEB.2025 13:26:03

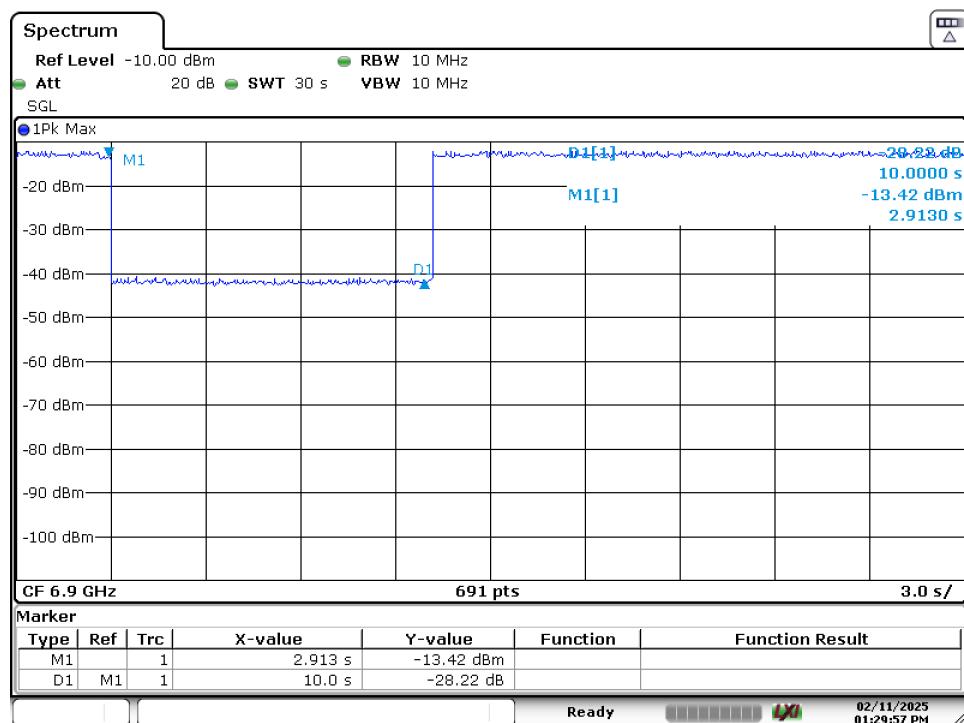
**Plot 7-11. Contention Based Protocol Timing Plot (320MHz (UNII Band 7) – Ch. 159 Low) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 20 of 26



Date: 11.FEB.2025 13:28:39

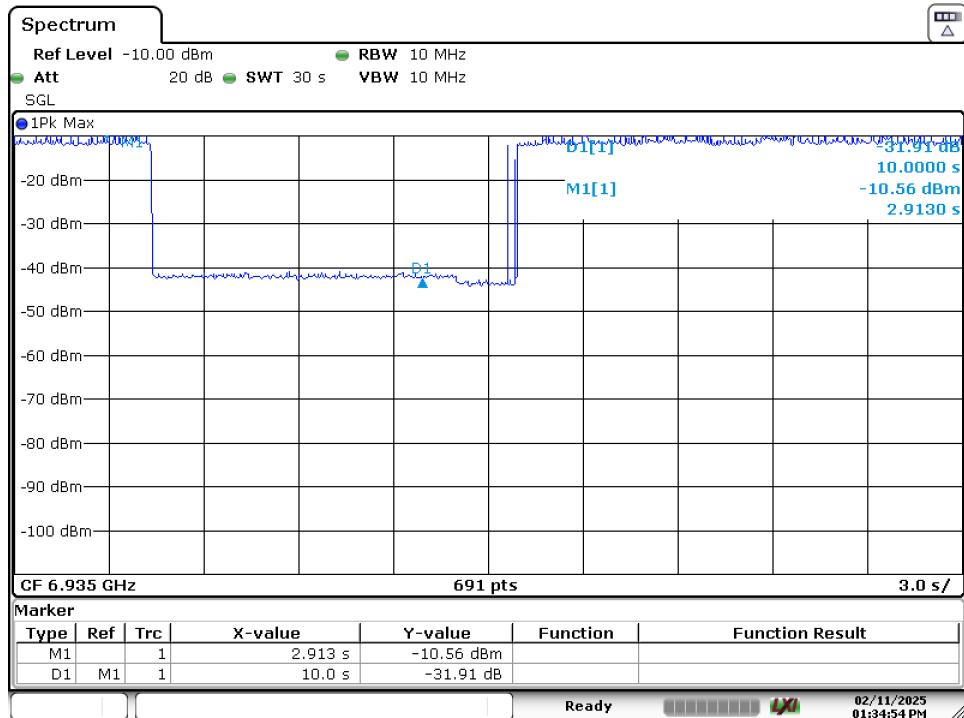
**Plot 7-12. Contention Based Protocol Timing Plot (320MHz (UNII Band 7) – Ch. 159 Mid) - Ceased**



Date: 11.FEB.2025 13:29:57

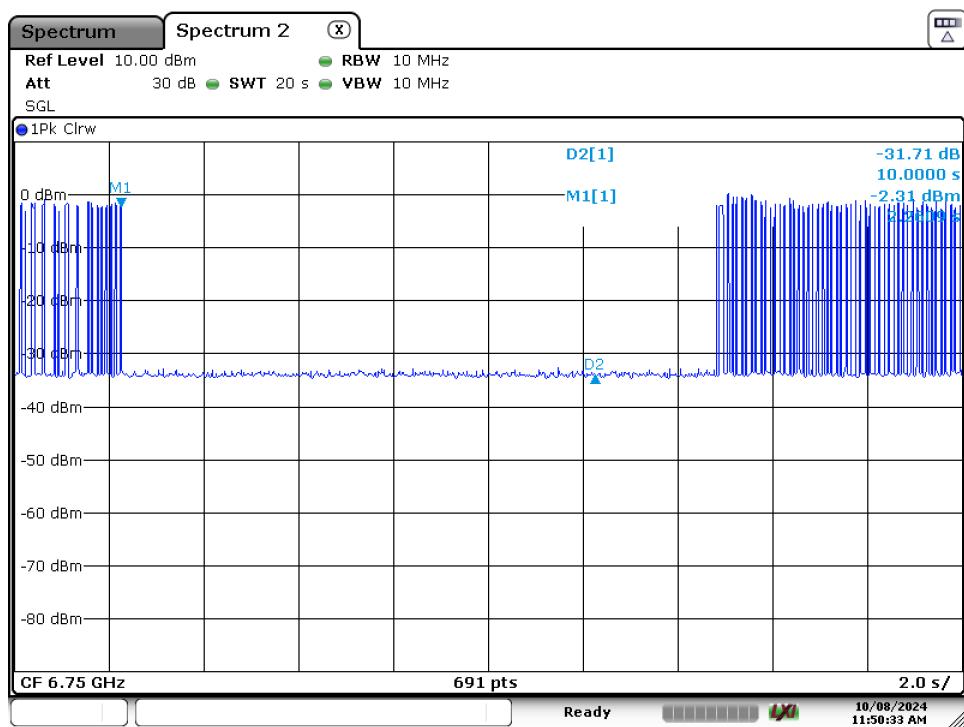
**Plot 7-13. Contention Based Protocol Timing Plot (320MHz (UNII Band 7) – Ch. 159 High) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 21 of 26



Date: 11.FEB.2025 13:34:54

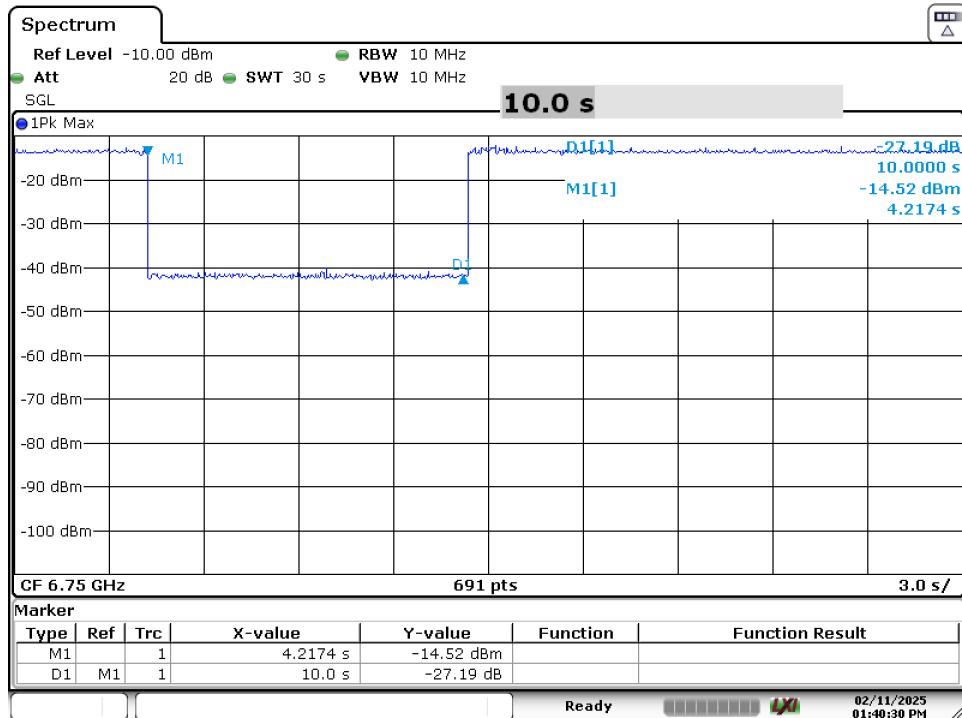
**Plot 7-14. Contention Based Protocol Timing Plot (20MHz (UNII Band 8) – Ch. 197) - Ceased**



Date: 8.OCT.2024 11:50:33

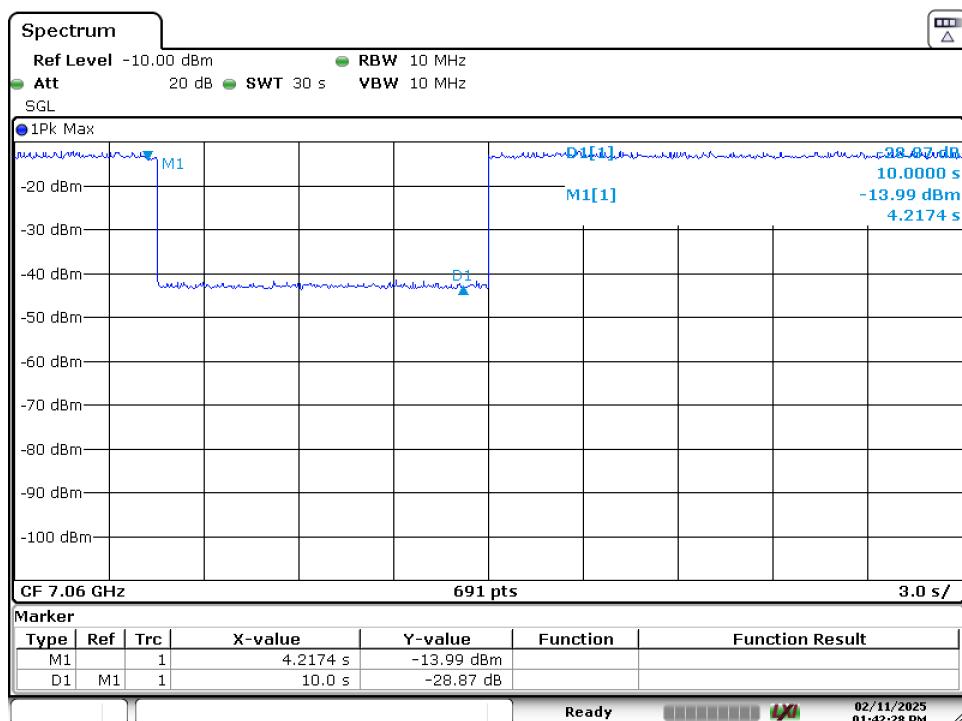
**Plot 7-15. Contention Based Protocol Timing Plot (320MHz (UNII Band 8) – Ch. 191 Low) - Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 22 of 26



Date: 11.FEB.2025 13:40:30

**Plot 7-16. Contention Based Protocol Timing Plot (320MHz (UNII Band 8) – Ch. 191 Mid) - Ceased**



Date: 11.FEB.2025 13:42:28

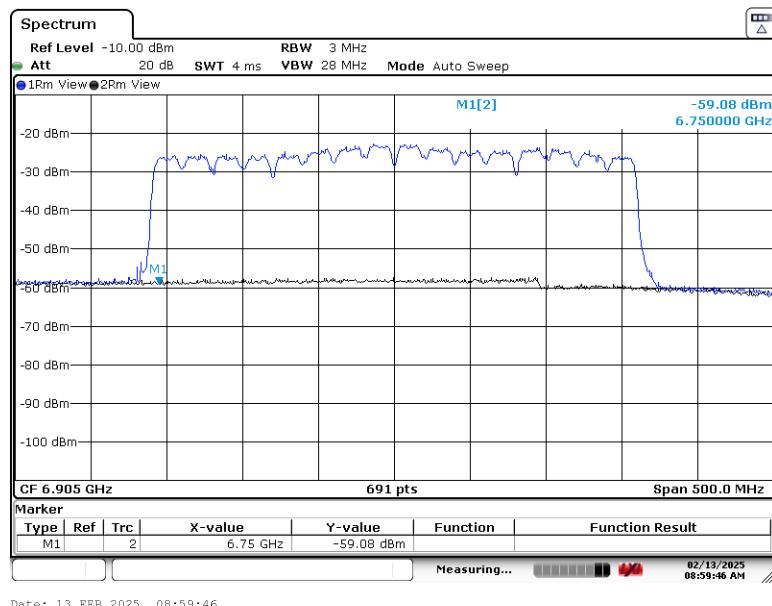
**Plot 7-17. Contention Based Protocol Timing Plot (320MHz (UNII Band 8) – Ch. 191 High) – Ceased**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval		Page 23 of 26

### 7.2.3 Channel Move Plots

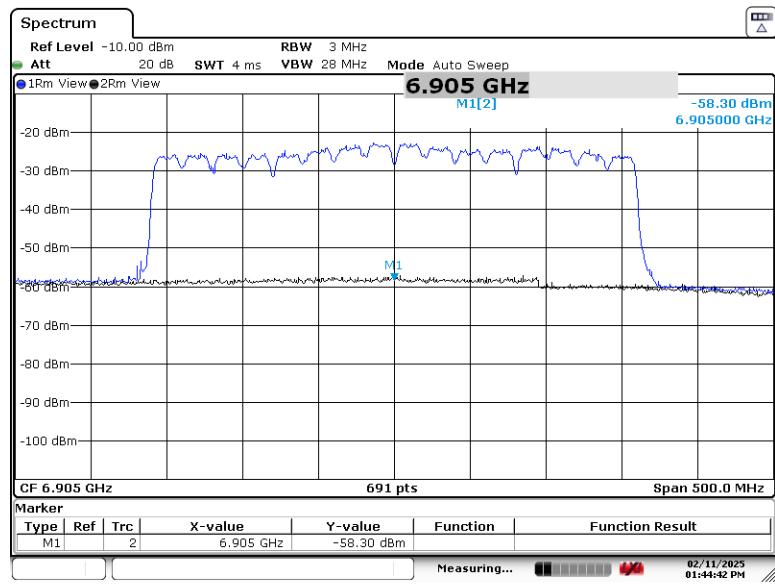
This section demonstrates the effect of injecting the AWGN signal at various locations throughout the 320MHz signal. The blue trace shows the full 320MHz signal prior to AWGN injection while the black trace shows the spectrum following AWGN injection. The following items were observed as demonstrated in the plots shown below. Table 7.5 summarizes the behavior following incumbent introduction. The DUT does not support channel puncturing for bandwidth reduction.

- When a 10 MHz AWGN signal centered at 6750 MHz (lower edge of channel) is injected, the channel completely stops transmitting.
- When a 10 MHz AWGN signal centered at 6905 MHz (middle of channel) is injected, the channel completely stops transmitting.
- When a 10 MHz AWGN signal centered at 7060 MHz (upper edge of channel) is injected, the channel completely stops transmitting.

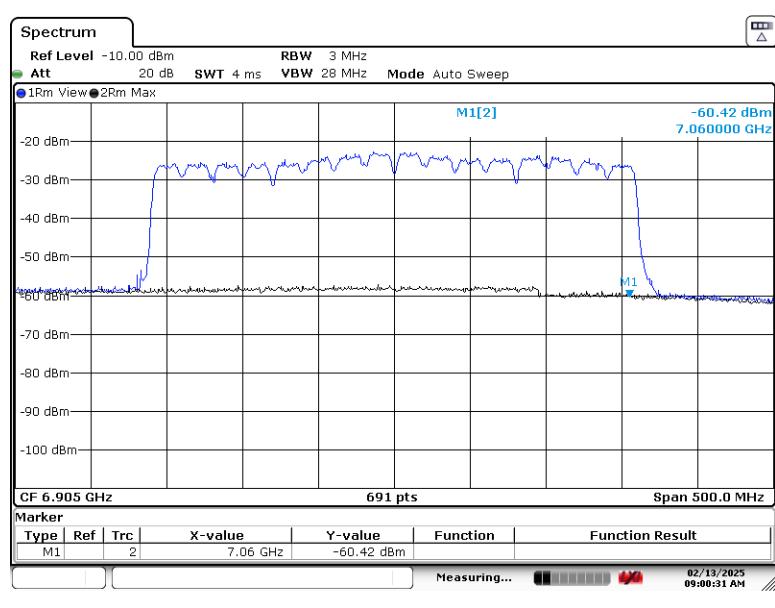


**Plot 7-18. CBP 320MHz Channel - Injection Lower Edge – [6750 MHz]**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 – 2/20/2025	EUT Type: Limited Modular Approval	Page 24 of 26	



**Plot 7-19. CBP 320MHz Channel - Injection Center – [6905 MHz]**



**Plot 7-20. CBP 320MHz Channel - Injection Upper Edge – [7060 MHz]**

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)			Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 – 2/20/2025	EUT Type: Limited Modular Approval		Page 25 of 26

## 8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Microsoft Portable Computing Device Model 2110 containing module FCC ID: C3K00002101** is in compliance with FCC Part Subpart E (15.407) of the FCC rules.

FCC ID: C3K00002101	MEASUREMENT REPORT (Class II Permissive Change)		Approved by: Technical Manager
Test Report S/N: 1M2503050024-10-R2.C3K	Test Dates: 1/11/2025 - 2/20/2025	EUT Type: Limited Modular Approval	Page 26 of 26