



RADIO TEST REPORT

FCC ID : LDK-9160S2579
Equipment : Catalyst Wireless 9166D1 Series Wi-Fi 6E Access Point
Brand Name : CISCO
Model Name : CW9166D1-B, CW9166D1-MR
Applicant : Cisco Systems Inc
125 West Tasman Drive San Jose California United States 95134-1706
Manufacturer : Cisco Systems Inc
125 West Tasman Drive San Jose California United States 95134-1706
Standard : 47 CFR FCC Part 15.407

The product was received on Dec. 24, 2025, and testing was started from Dec. 27, 2025 and completed on Dec. 27, 2025. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2020 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

Sporton International Inc. Hsinchu Laboratory

No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)



Table of Contents

History of this test report.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Information.....	5
1.2 Applicable Standards	13
1.3 Testing Location Information	13
1.4 Measurement Uncertainty	13
2 Test Configuration of EUT.....	14
2.1 The Worst Case Measurement Configuration	14
2.2 EUT Operation during Test	15
2.3 Accessories	15
2.4 Support Equipment.....	15
3 Transmitter Test Result	16
3.1 Contention Based Protocol.....	16
4 Test Equipment and Calibration Data	17
Appendix A. Test Results of Contention-Based Protocol	
Photographs of EUT v01	



TEL : 886-3-656-9065
FAX : 886-3-656-9085
Report Template No.: CB-A12_5 Ver2.0



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.407(d)	Contention-Based Protocol	PASS	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sam Chen

Report Producer: Sandy Chuang



1 General Description

1.1 Information

1.1.1 RF General Information

For LPI AP

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5925-7125	ax (HEW20)	5955-7115	1-233 [59]
5925-7125	ax (HEW40)	5965-7085	3-227 [29]
5925-7125	ax (HEW80)	5985-7025	7-215 [14]
5925-7125	ax (HEW160)	6025-6985	15-207 [7]

<Radio 2>

Band	Mode	BWch (MHz)	Nant
5.925-7.125GHz	802.11ax HEW20	20	1, 2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW20-BF	20	2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW40	40	1, 2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW40-BF	40	2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW80	80	1, 2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW80-BF	80	2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW160	160	1, 2, 4TX/4RX
5.925-7.125GHz	802.11ax HEW160-BF	160	2, 4TX/4RX

<Radio 3>

Band	Mode	BWch (MHz)	Nant
5.925-7.125GHz	802.11ax HEW20	20	1TX/2RX

**For Standard Power AP**

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
5925-6425	ax (HEW20)	5935-6415	1-93 [25]
6525-6875		6535-6855	117-181 [17]
5925-6425	ax (HEW40)	5965-6405	3-91 [12]
6525-6875		6565-6845	123-179 [8]
5925-6425	ax (HEW80)	5985-6385	7-87 [6]
6525-6875		6625-6785	135-167 [3]
5925-6425	ax (HEW160)	6025-6345	15-79 [3]
6525-6875		6665	143 [1]

<Radio 2>

Band	Mode	BWch (MHz)	Nant
5925-6425 / 6525-6875 MHz	802.11ax HEW20	20	1, 2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW20-BF	20	2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW40	40	1, 2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW40-BF	40	2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW80	80	1, 2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW80-BF	80	2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW160	160	1, 2, 4TX/4RX
5925-6425 / 6525-6875 MHz	802.11ax HEW160-BF	160	2, 4TX/4RX

<Radio 3>

Band	Mode	BWch (MHz)	Nant
5925-6425 / 6525-6875 MHz	802.11ax HEW20	20	1TX/2RX

Note:

- ♦ HEW20, HEW40, HEW80 and HEW160 use a combination of OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM modulation.
- ♦ BWch is the nominal channel bandwidth.



1.1.2 Antenna Information

Ant.	Brand	Model Name	Ant. Type	Connector	Gain (dBi)
1	CISCO	95XEAM15.G04 WIFI 2/5G_4	Dipole	I-PEX	Note2
2	CISCO	95XEAM15.G03 WIFI 2/5G_3	Dipole	I-PEX	
3	CISCO	95XEAM15.G02 WIFI 2/5G_2	Dipole	I-PEX	
4	CISCO	95XEAM15.G01 WIFI 2/5G_1	Dipole	I-PEX	
5	CISCO	95XEAM15.G05 WIFI 5/6G_1	Dipole	I-PEX	
6	CISCO	95XEAM15.G06 WIFI 5/6G_2	Dipole	I-PEX	
7	CISCO	95XEAM15.G07 WIFI 5/6G_3	Dipole	I-PEX	
8	CISCO	95XEAM15.G08 WIFI 5/6G_4	Dipole	I-PEX	
9	CISCO	95XEAM15.G10 AUX_2	Dipole	I-PEX	
10	CISCO	95XEAM15.G09 AUX_1	Dipole	I-PEX	
11	CISCO	95XEAM15.G11 IOT	Loop	I-PEX	

Ant.	Port										
	R1: WLAN 2.4GHz			R1: WLAN 5GHz UNII 1~3			R2: WLAN 5GHz UNII 2C~3/ WLAN 6GHz			R3: WLAN 2.4GHz / 5GHz UNII 1~3/ WLAN 6GHz	R4: Bluetooth/ Zigbee
	1TX	2TX	4TX	1TX	2TX	4TX	1TX	2TX	4TX	1TX/2RX	1TX
1	-	-	3	-	-	3	-	-	-	-	-
2	-	2	2	-	2	2	-	-	-	-	-
3	1	1	1	1	1	1	-	-	-	-	-
4	-	-	4	-	-	4	-	-	-	-	-
5	-	-	-	-	-	-	-	2	2	-	-
6	-	-	-	-	-	-	1	1	1	-	-
7	-	-	-	-	-	-	-	-	3	-	-
8	-	-	-	-	-	-	-	-	4	-	-
9	-	-	-	-	-	-	-	-	-	1	-
10	-	-	-	-	-	-	-	-	-	2	-
11	-	-	-	-	-	-	-	-	-	-	1

Note1: R means Radio.

Note2:

Ant.	Antenna Gain (dBi)					
	R1: WLAN 2.4GHz		R1: WLAN 5GHz UNII 1~3			
			5.2G	5.3G	5.6G	5.785G
1	6.57		5.21	4.46	4.78	5.2
2	4.11		4.59	4.32	4.02	4.45
3	5.46		4.55	3.8	3.49	3.89
4	6.55		4.84	4.48	3.62	5.02
Ant.	R2: WLAN 5GHz UNII 2C~3/WLAN 6GHz					
	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
	7.48	6.28	6.49	5.9	7.49	7.42
6	7.11	8.01	6	4.87	7.65	8.32
7	7.24	6.68	5.88	4.86	7.37	7.26
8	6.57	7.32	6.34	7.31	6.46	6.82
Ant.	R3: WLAN 2.4GHz/5GHz UNII 1~3/WLAN 6GHz					
	WLAN 2.4GHz		WLAN 5GHz UNII 1~3		WLAN 6GHz	
	9	6.9	10	6.6	10	6.8
Ant.	R4: Bluetooth/Zigbee					
	11	8.8				



Note3:

Item	Directional Gain (dBi)					
	R1: WLAN 2.4GHz	R1: WLAN 5GHz UNII 1~3				
		5.2G	5.3G	5.6G	5.785G	
2T1S	5.49	5.02	4.37	4.05		4.48
2T2S	5.46	4.59	4.32	4.02		4.45
4T1S	8.71	8.02	7.47	6.91		7.51
4T2S	6.57	5.21	4.48	4.78		5.2
4T4S	6.57	5.21	4.48	4.78		5.2
Item	R2: WLAN 5GHz UNII 2C~3/WLAN 6GHz					
	5.6G	5.785G	6.175G	6.475G	6.695G	6.995G
2T1S	7.66	8.11	6.51	6.24	7.67	8.38
2T2S	7.48	8.01	6.49	5.9	7.65	8.32
4T1S	9.91	10.4	9.21	9.03	10.32	10.71
4T2S	7.48	8.01	6.49	7.31	7.65	8.32
4T4S	7.48	8.01	6.49	7.31	7.65	8.32

Note4: 80+80MHz Directional gain information

Type	Maximum Output Power	Power Spectral Density
Non-BF	Directional gain = Max.gain + array gain. For power measurements on IEEE 802.11 devices Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right]$
BF	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right]$	$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right]$

Ex.

Directional Gain (NSS1) formula:

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{ANT}} \left(\sum_{k=1}^{N_{ANT}} g_{j,k} \right)^2}{N_{ANT}} \right]$$

$NSS1(g1,1) = 10^{G1/20}$; $NSS1(g1,2) = 10^{G2/20}$; $NSS1(g1,3) = 10^{G3/20}$; $NSS1(g1,4) = 10^{G4/20}$

$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2$

$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2 / N_{ANT}] \Rightarrow 10$

$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$

Where ;

For 80+80

5G Band1 G1 = 5.21 dBi; G2 = 4.59 dBi; G3 = 4.55 dBi; G4 = 4.84 dBi

5G Band2 G1 = 4.46 dBi; G2 = 4.32 dBi; G3 = 3.80 dBi; G4 = 4.48 dBi

5G Band3 G1 = 4.78 dBi; G2 = 4.02 dBi; G3 = 3.49 dBi; G4 = 3.62 dBi

For 2T1S

5G Band1 DG = 4.55 dBi

5G Band2 DG = 4.48 dBi

For 4T1S

5G Band1 DG = 7.58 dBi

5G Band2 DG = 7.48 dBi

For 2T2S

5G Band3 DG = 3.62 dBi

For 4T2S

5G Band3 DG = 7.01 dBi



Note5: The above information (except gain of Radio 1 and Radio 2) was declared by manufacturer.

Note6: Radio 1 (WLAN 2.4/5GHz UNII 1~3(except 80+80MHz)), Radio 2 (5GHz UNII 2C~3/6GHz UNII 5~8): The directional gain is measured which follows the procedure of KDB 662911 D03.

Radio 1 (5GHz UNII 1~2C(80+80MHz)): Maximum Directional Gain following KDB662911 D01

Note7: The EUT has eleven antennas.

For WLAN 2.4GHz function (Radio 1):

For IEEE 802.11b/g/n/VHT/ax mode (1TX,2TX,4TX/4RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

Only Port 1 and Port 2 can be use as transmitting antenna.

Port 1 and Port 2 could transmit simultaneously.

For 4TX

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

For 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For WLAN 5GHz function (Radio 1 and Radio 2):

For IEEE 802.11a/n/ac/lax mode (1TX,2TX,4TX/4RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

Only Port 1 and Port 2 can be use as transmitting antenna.

Port 1 and Port 2 could transmit simultaneously.

For 4TX

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

For Radio 1 80+80MHz 2TX

Only Port 1 and Port 4 can be use as transmitting antenna.

Port 1 and Port 4 could transmit simultaneously.

For 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For WLAN 6GHz function (Radio 2):

For IEEE 802.11ax mode (1TX,2TX,4TX/4RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2TX

Only Port 1 and Port 2 can be use as transmitting antenna.

Port 1 and Port 2 could transmit simultaneously.

For 4TX

Port 1, Port 2, Port 3 and Port 4 can be use as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

For 4RX

Port 1, Port 2, Port 3 and Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3 and Port 4 could receive simultaneously.

For Scanning Radio 3:

For WLAN 2.4GHz function

For 802.11b/g/n/VHT/ax mode (1TX/2RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2RX

Port 1 and Port 2 can be used as receiving antennas.



Port 1 and Port 2 could receive simultaneously.

For WLAN 5GHz function

For IEEE 802.11a/n/ac/ax mode (1TX/2RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2RX

Port 1 and Port 2 can be used as receiving antennas.

Port 1 and Port 2 could receive simultaneously.

For WLAN 6GHz function:

For IEEE 802.11ax mode (1TX/2RX):

For 1TX

Only Port 1 can be use as transmitting antenna.

For 2RX

Port 1 and Port 2 can be used as receiving antennas.

Port 1 and Port 2 could receive simultaneously.

For Bluetooth/Zigbee function (Radio 4):

For Bluetooth/Zigbee mode (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

1.1.3 EUT Operational Condition

EUT Power Type	From Power Adapter or PoE			
Beamforming Function	☒	With beamforming	☐	Without beamforming
	The product has beamforming function for n/VHT/ax in Radio1-2.4GHz, n/ac/ax in Radio1, 2-5GHz and ax in Radio2-6GHz.			
Device Type	☒	Indoor Access Point	☒	Subordinate
	☐	Indoor Client	☒	Standard Power Access Point
	☐	Dual Client	☐	Standard Client
	☐	Fixed Client	☐	Very Low Power
Condition of EUT	☒	Indoor	☐	Outdoor
Channel Puncturing Function	☐	Supported Static Puncturing		
	☐	Supported Dynamic Puncturing (Reduce BW)		
	☒	Unsupported		
	Note: The EUT doesn't support puncturing for CBP			
Support RU	☒	Full RU	☐	Partial RU
Software / Firmware Version for CBP	32-1-4-202509250018-G741833698f7e-rel-thinking			

Note: The above information was declared by manufacturer.

1.1.4 Table for Multiple Listing

Model Name	SW	R1: 2.4GHz	R1: 5GHz Low Band or R1: 5GHz Full Band	R2: 5GHz High Band or 6GHz	R3: 2.4GHz/ 5GHz/6GHz	R4: Bluetooth or Zigbee
CW9166D1-B	Cisco	V	V (With 80+80MHz)	V	V	V (Disable Zigbee function by SW)
CW9166D1-MR	Meraki	V	V (Without 80+80MHz)	V	V	V

Note 1: From the above models, the model: CW9166D1-MR was selected as representative model for the test and its data was recorded in this report.

Note 2: The above information was declared by manufacturer.

1.1.5 Table for EUT Support Function

Model Name	Software	Function	6GHz Mode	Supports Band
CW9166D1-B	Cisco	AP	Indoor Access Point and Standard Power Access Point	2.4GHz, 5GHz UNII 1~3, 6GHz UNII 5~8, Bluetooth, Zigbee
CW9166D1-MR	Meraki	AP	Indoor Access Point and Standard Power Access Point	2.4GHz, 5GHz UNII 1~3, 6GHz UNII 5~8, Bluetooth, Zigbee
		Mesh	Subordinate	6GHz UNII 5~8 for radio 2 only

Note: The above information was declared by manufacturer.

1.1.6 Table for Radio function

Radio \ Function	WLAN 2.4GHz	WLAN 5GHz UNII 1~2A	WLAN 5GHz UNII 2C~3	WLAN 6GHz	Bluetooth	Zigbee
1 (Iron Radio)	V	V	V	-	-	-
2 (Pine Radio)	-	-	V	V	-	-
3 (Scanning Radio)	V	V	V	V	-	-
4	-	-	-	-	V	V

Note1: The above information was declared by manufacturer.

Note2: For WLAN 2.4GHz: The Radio 1 and Radio 3 can't operate at the same frequency.

For WLAN 5GHz: The Radio 1 ~ 3 can't operate at the same frequency.

For WLAN 6GHz: The Radio 2 ~ 3 can't operate at the same frequency simultaneously.

1.1.7 Table for EUT Operation Function

Mode	Operation Function
1	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 2.4GHz+R4: Bluetooth
2	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 5GHz+R4: Bluetooth
3	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (LPI mode)+R4: Bluetooth
4	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 2.4GHz+R4: Bluetooth
5	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 5GHz+R4: Bluetooth
6	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 6GHz (LPI mode)+R4: Bluetooth
7	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 2.4GHz+R4: Zigbee
8	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 5GHz+R4: Zigbee
9	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (LPI mode)+R4: Zigbee
10	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 2.4GHz+R4: Zigbee
11	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 5GHz+R4: Zigbee
12	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 6GHz (LPI mode)+R4: Zigbee
13	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (Standard Power mode)+R4: Bluetooth
14	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 2.4GHz+R4: Bluetooth
15	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 5GHz+R4: Bluetooth
16	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 6GHz (Standard Power mode)+R4: Bluetooth
17	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (Standard Power mode)+R4: Zigbee
18	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 2.4GHz+R4: Zigbee
19	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 5GHz+R4: Zigbee
20	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 6GHz (Standard Power mode)+R4: Zigbee

Note: The above information was declared by manufacturer.

1.1.8 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR313002-07

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. Adding the Subordinate mode for Radio 2 for Meraki SW through FW change.	Contention-Based Protocol
2. Update the reference standard to "ANSI C63.10-2020" from "ANSI C63.10-2013".	After evaluation, it does not need to re-test.



1.2 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15.407
- ♦ ANSI C63.10-2020
- ♦ FCC KDB 789033 D02 v02r01

The following reference test guidance is not within the scope of accreditation of TAF.

- ♦ FCC KDB 987594 D02 v03

1.3 Testing Location Information

Testing Location Information	
Test Lab. : Sporton International Inc. Hsinchu Laboratory	
Hsinchu (TAF: 3787)	ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) TEL: 886-3-656-9065 FAX: 886-3-656-9085 Test site Designation No. TW3787 with FCC. Conformity Assessment Body Identifier (CABID) TW3787 with ISCED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted (Contention-Based Protocol test)	DF02-CB	Nyle Chang	19.9~21.9 / 65~69	Dec. 27, 2025

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Output Power Measurement	1.3 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	Contention Based Protocol
Test Condition	Conducted measurement at transmit chains
Test Mode	
1	Radio 2 for Meraki SW

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation
Operating Mode	
1	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 2.4GHz+R4: Bluetooth
2	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 5GHz+R4: Bluetooth
3	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (LPI mode)+R4: Bluetooth
4	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 2.4GHz+R4: Bluetooth
5	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 5GHz+R4: Bluetooth
6	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 6GHz (LPI mode)+R4: Bluetooth
7	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 2.4GHz+R4: Zigbee
8	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 5GHz+R4: Zigbee
9	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (LPI mode)+R4: Zigbee
10	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 2.4GHz+R4: Zigbee
11	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 5GHz+R4: Zigbee
12	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (LPI mode)+R3: 6GHz (LPI mode)+R4: Zigbee
13	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (Standard Power mode)+R4: Bluetooth
14	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 2.4GHz+R4: Bluetooth
15	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 5GHz+R4: Bluetooth
16	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 6GHz (Standard Power mode)+R4: Bluetooth
17	R1: 2.4GHz/5GHz Low Band+R2: 5GHz High band+R3: 6GHz (Standard Power mode)+R4: Zigbee
18	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 2.4GHz+R4: Zigbee



19	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 5GHz+R4: Zigbee
20	R1: 2.4GHz/5GHz Full Band+R2: 6GHz (Standard Power mode)+R3: 6GHz (Standard Power mode)+R4: Zigbee
Refer to Sporton Test Report No.: FA313002-13 for Co-location RF Exposure Evaluation.	

Note: The Adapter and PoEs are for measurement only and would not be marketed.

The Adapter and PoEs' information is listed as below:

Power	Brand	Model
Adapter	UMEC	MA-PWR-50WAC
PoE 1	PHIHONG	POEA33U-1ATE (MA-INJ-4)
PoE 2	PHIHONG	POE60U-1BT-X (MA-INJ-6)
PoE 3	Delta	ADH-65AR B (AIR-PWRINJ7)
PoE 4	Microchip	PD-9001GR/AT/AC (AIR-PWRINJ6)
PoE 5	PHIHONG	POE29U-1AT (AIR-PWRINJ6)

2.2 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.3 Accessories

Wall-mounted rack*1

2.4 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
A	Notebook	DELL	E4300	N/A
B	Notebook	DELL	E4300	N/A
C	WLAN AP	Meraki	CW9178I	N/A
D	WLAN AP	ASUS	RT-AX88U	MSQ-RTAXHP00
E	WLAN AP	Meraki	B-Q5BA-1	N/A
F	PoE 1	PHIHONG	POEA33U-1ATE (MA-INJ-4)	N/A

3 Transmitter Test Result

3.1 Contention Based Protocol

3.1.1 Contention Based Protocol Limit

EUT can detect an AWGN signal with 90% (or better) level of certainty.

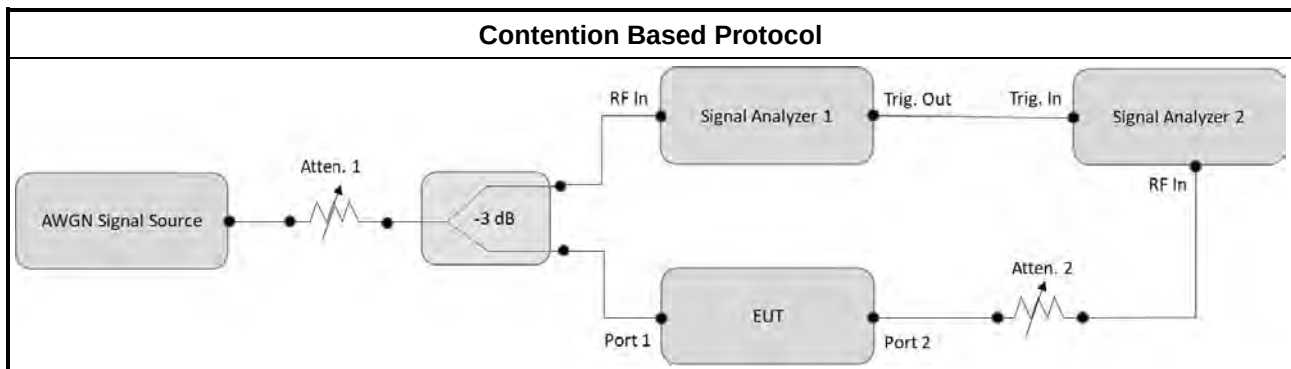
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method	
☐	For Contention Based Protocol shall be measured using following options below:
☒	Refer as FCC KDB 987594 D02, I) Contention Based Protocol.

3.1.4 Test Setup



3.1.5 Test Result of Contention Based Protocol

Refer as Appendix A



4 Test Equipment and Calibration Data

Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101025	9kHz ~ 40GHz	Nov. 12, 2025	Nov. 11, 2026	Conduction (DF02-CB)
Vector Signal Generator	R&S	SMM100A	101894	100kHz ~ 7.5GHz	Nov. 04, 2025	Nov. 03, 2026	Conduction (DF02-CB)
RF Power Divider	Woken	4 Way	DF02-DV02	1 ~ 6GHz	Sep. 20, 2025	Sep. 19, 2026	Conduction (DF02-CB)
RF Power Divider	Woken	4 Way	DF02-DV04	1 ~ 6GHz	Sep. 20, 2025	Sep. 19, 2026	Conduction (DF02-CB)
RF Power Divider	Woken	4 Way	DF02-DV05	1 ~ 6GHz	Sep. 20, 2025	Sep. 19, 2026	Conduction (DF02-CB)
RF Cable-high	Woken	RG402	Cable-60	1~18 GHz	Sep. 30, 2025	Sep. 29, 2026	Conduction (DF02-CB)
RF Cable-high	Woken	RG402	Cable-61	1~18 GHz	Sep. 30, 2025	Sep. 29, 2026	Conduction (DF02-CB)
RF Cable-high	Woken	RG402	Cable-63	1~18 GHz	Sep. 30, 2025	Sep. 29, 2026	Conduction (DF02-CB)

Note: Calibration Interval of instruments listed above is one year.

Contention Based Protocol Threshold Level 802.11ax HEW20										
UNII Band	Channel	Bandwidth (MHz)	Frequency (MHz)	Interference frequency (MHz)		EUT Status	Injected AWGN Power (dBm)	Ant Gain (dBi)	Detection Power(dBm)	Detection Limit (dBm)
5	53	20	6215	Center	6215	OFF	-59.14	4.86	-64.00	≤ -62
						Minimal	-60.14	4.86	-65.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
6	101	20	6455	Center	6455	OFF	-67.14	4.86	-72.00	≤ -62
						Minimal	-68.14	4.86	-73.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
7	149	20	6695	Center	6695	OFF	-67.14	4.86	-72.00	≤ -62
						Minimal	-68.14	4.86	-73.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
8	213	20	7015	Center	7015	OFF	-67.14	4.86	-72.00	≤ -62
						Minimal	-68.14	4.86	-73.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62

Contention Based Protocol Threshold Level 802.11ax HEW160										
UNII Band	Channel	Bandwidth (MHz)	Frequency (MHz)	Interference frequency (MHz)		EUT Status	Injected AWGN Power (dBm)	Ant Gain (dBi)	Detection Power(dBm)	Detection Limit (dBm)
5	47	160	6185	Low edge	6110	OFF	-61.14	4.86	-66.00	≤ -62
						Minimal	-62.14	4.86	-67.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				Center	6185	OFF	-58.14	4.86	-63.00	≤ -62
						Minimal	-59.14	4.86	-64.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				High edge	6260	OFF	-66.14	4.86	-71.00	≤ -62
						Minimal	-67.14	4.86	-72.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
6	111	160	6505	Low edge	6430	OFF	-59.14	4.86	-64.00	≤ -62
						Minimal	-60.14	4.86	-65.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				Center	6505	OFF	-65.14	4.86	-70.00	≤ -62
						Minimal	-66.14	4.86	-71.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				High edge	6580	OFF	-66.14	4.86	-71.00	≤ -62
						Minimal	-67.14	4.86	-72.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
7	143	160	6665	Low edge	6590	OFF	-59.14	4.86	-64.00	≤ -62
						Minimal	-60.14	4.86	-65.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				Center	6665	OFF	-61.14	4.86	-66.00	≤ -62
						Minimal	-62.14	4.86	-67.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				High edge	6740	OFF	-63.14	4.86	-68.00	≤ -62
						Minimal	-64.14	4.86	-69.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
8	207	160	6985	Low edge	6910	OFF	-61.14	4.86	-66.00	≤ -62
						Minimal	-62.14	4.86	-67.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				Center	6985	OFF	-62.14	4.86	-67.00	≤ -62
						Minimal	-63.14	4.86	-68.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62
				High edge	7060	OFF	-66.14	4.86	-71.00	≤ -62
						Minimal	-67.14	4.86	-72.00	≤ -62
						ON	-77.14	4.86	-82.00	≤ -62

Contention Based protocol 802.11ax HEW20											
UNII Band	Channel	Bandwidth (MHz)	Frequency (MHz)	Interference frequency (MHz)		AWGN Threshold Level (dBm)	EUT Status	Number of Detected (out of 10 times)	Detection Probability (%)	Limit (%)	Test Result
5	53	20	6215	Center	6215	-64.00	OFF	10	100	90	Pass
6	101	20	6455	Center	6455	-72.00	OFF	9	90	90	Pass
7	149	20	6695	Center	6695	-72.00	OFF	9	90	90	Pass
8	213	20	7015	Center	7015	-72.00	OFF	9	90	90	Pass

Contention Based protocol 802.11ax HEW160											
UNII Band	Channel	Bandwidth (MHz)	Frequency (MHz)	Interference frequency (MHz)		AWGN Threshold Level (dBm)	EUT Status	Number of Detected (out of 10 times)	Detection Probability (%)	Limit (%)	Test Result
5	47	160	6185	Low edge	6110	-66.00	OFF	9	90	90	Pass
				Center	6185	-63.00	OFF	9	90	90	Pass
				High edge	6260	-71.00	OFF	10	100	90	Pass
6	111	160	6505	Low edge	6430	-64.00	OFF	9	90	90	Pass
				Center	6505	-70.00	OFF	9	90	90	Pass
				High edge	6580	-71.00	OFF	10	100	90	Pass
7	143	160	6665	Low edge	6590	-64.00	OFF	9	90	90	Pass
				Center	6665	-66.00	OFF	9	90	90	Pass
				High edge	6740	-68.00	OFF	9	90	90	Pass
8	207	160	6985	Low edge	6910	-66.00	OFF	10	100	90	Pass
				Center	6985	-67.00	OFF	10	100	90	Pass
				High edge	7060	-71.00	OFF	9	90	90	Pass

Incumbent signal (AWGN) Plot

Bandwidth: 20MHz

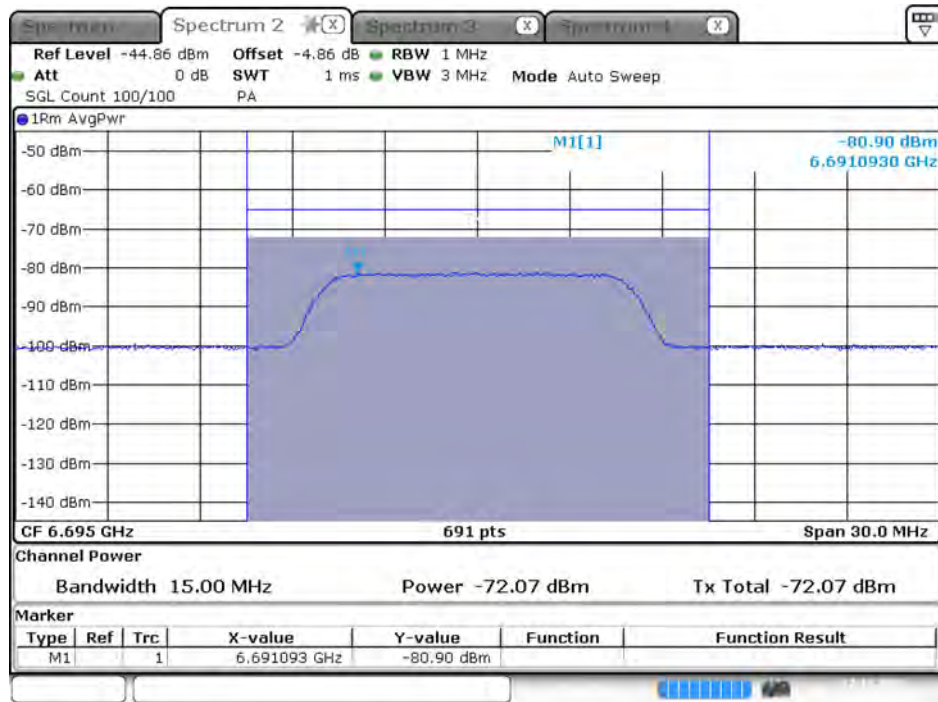
Frequency (MHz): 6215 MHz



Frequency (MHz): 6455 MHz

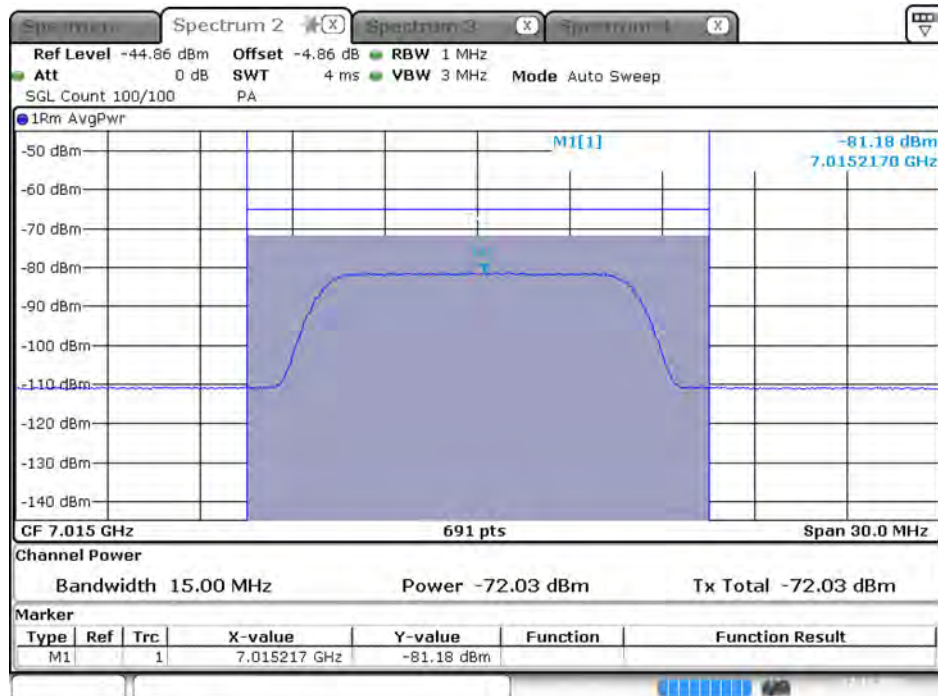


Frequency (MHz): 6695 MHz



Date: 27, DEC. 2025 18:14:45

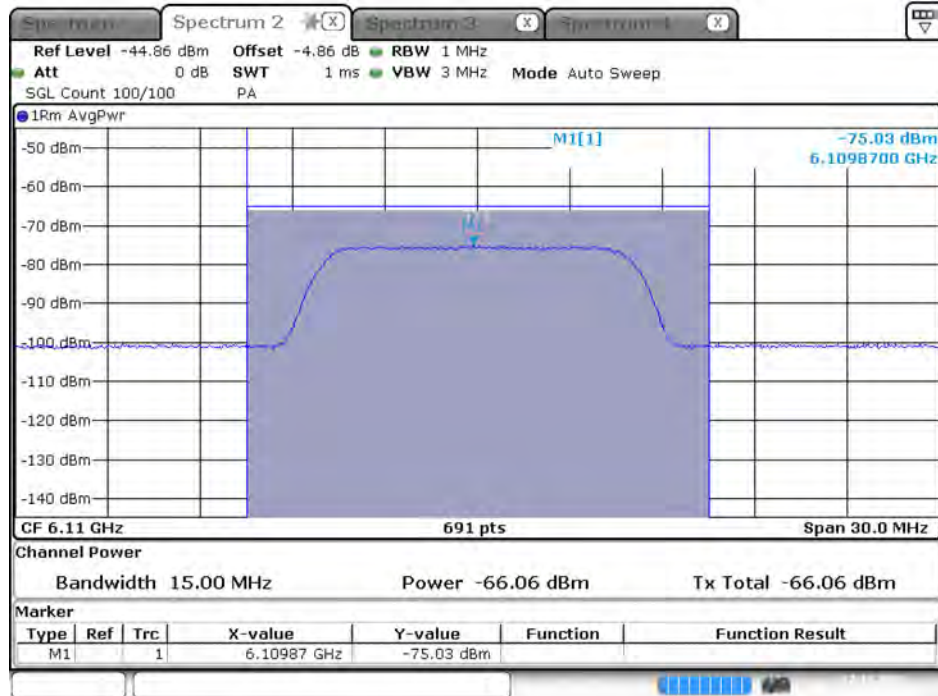
Frequency (MHz): 7015 MHz



Date: 27, DEC. 2025 18:15:31

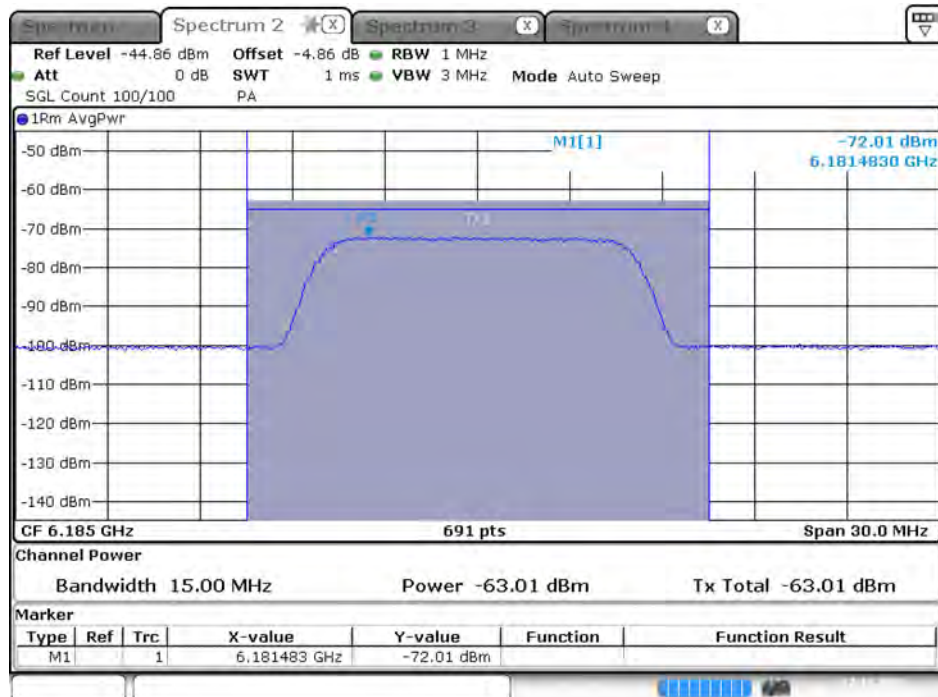
Bandwidth: 160MHz

Frequency (MHz): 6110 MHz



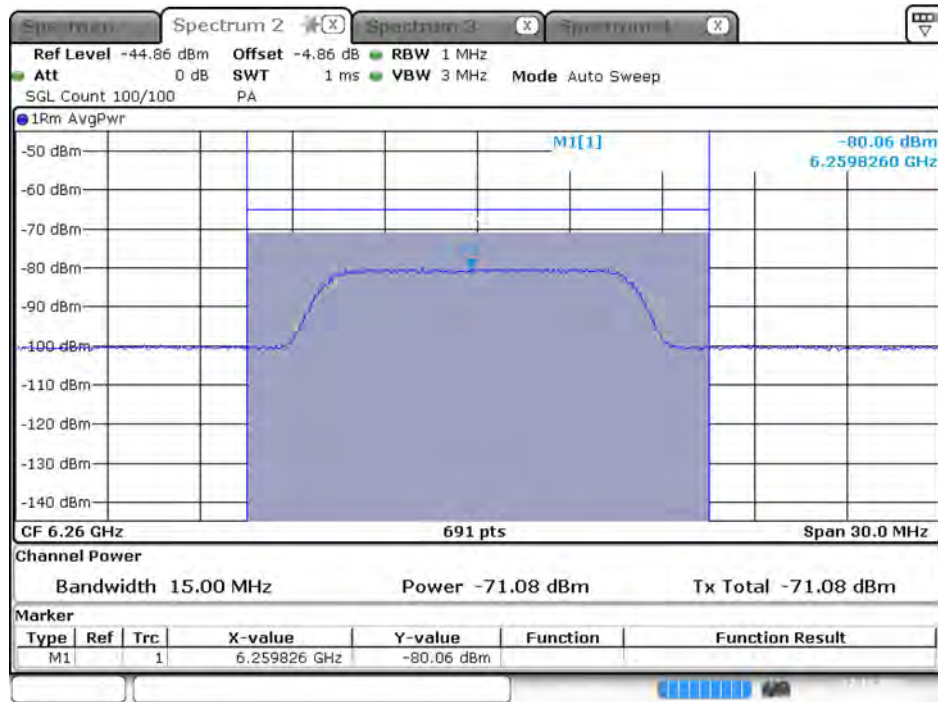
Date: 27, DEC. 2025 18:16:49

Frequency (MHz): 6185 MHz



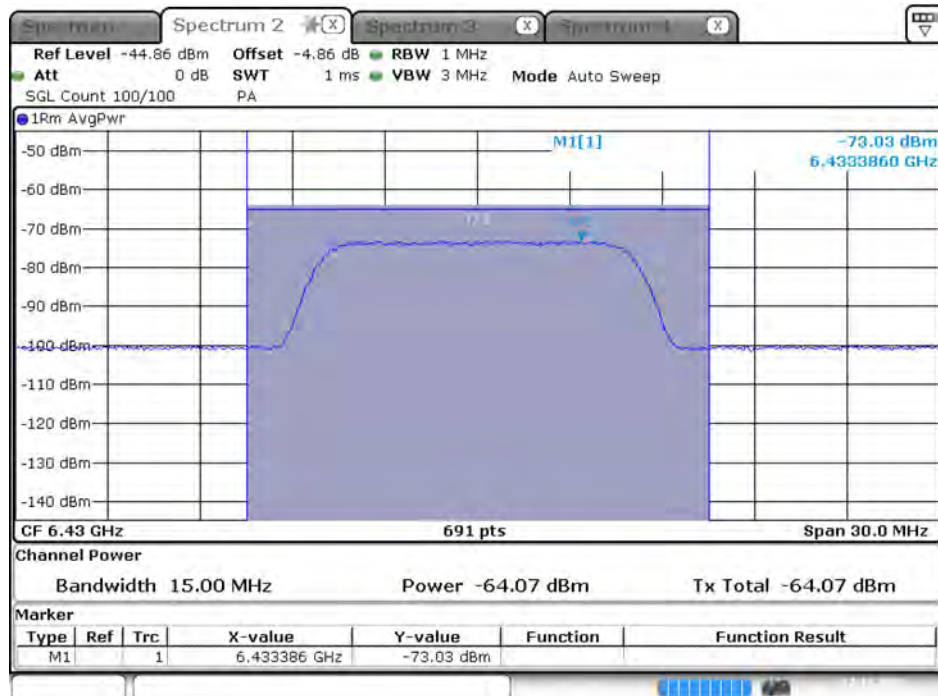
Date: 27, DEC. 2025 18:17:28

Frequency (MHz): 6260 MHz



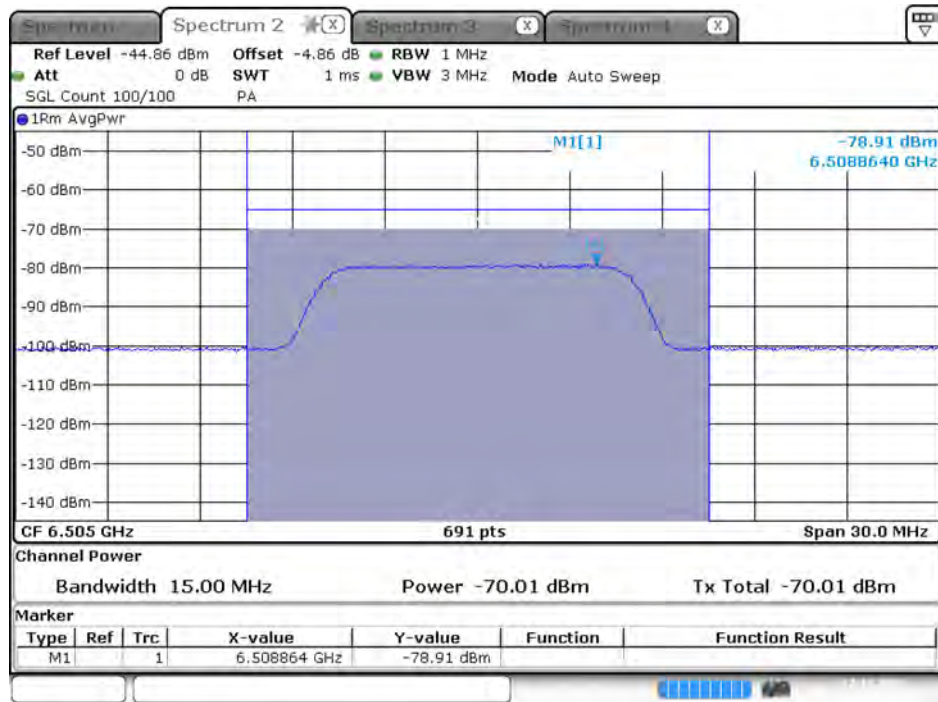
Date: 27.DEC.2025 18:18:19

Frequency (MHz): 6430 MHz



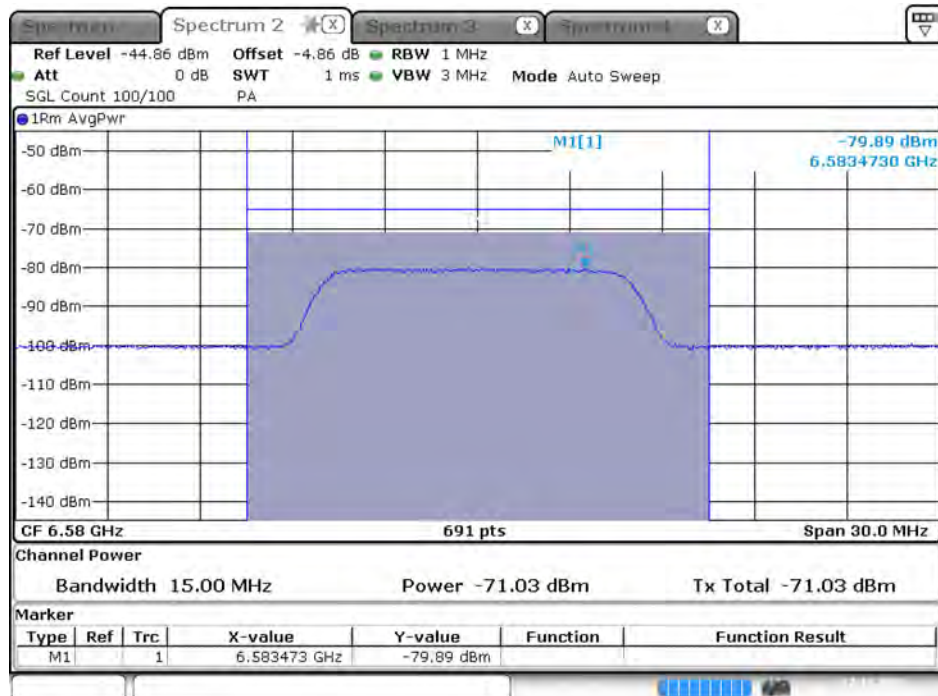
Date: 27.DEC.2025 18:19:14

Frequency (MHz): 6505 MHz



Date: 27, DEC. 2025 18:19:52

Frequency (MHz): 6580 MHz



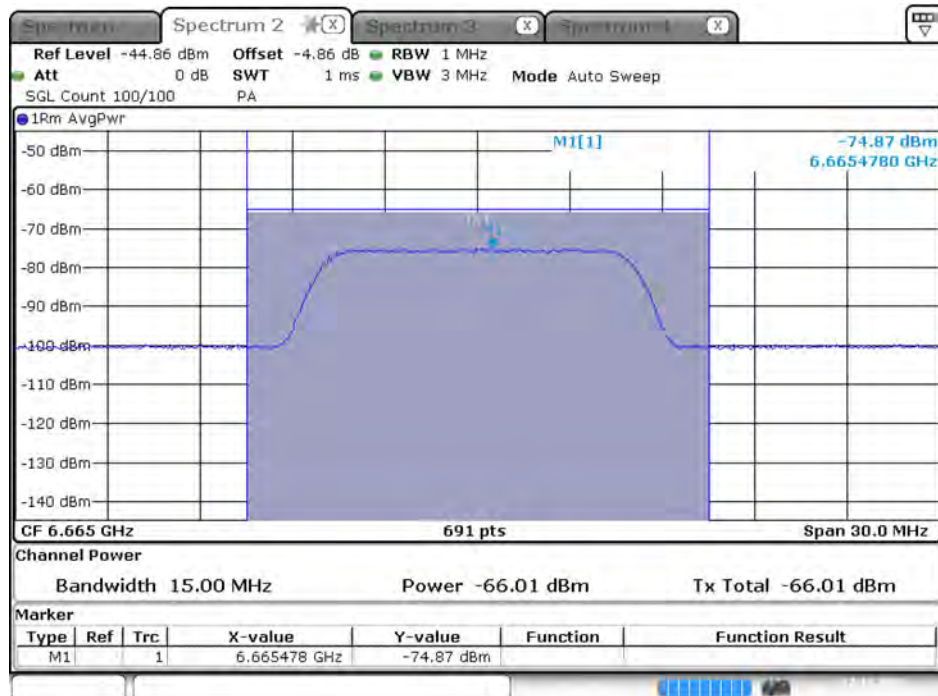
Date: 27, DEC. 2025 18:20:25

Frequency (MHz): 6590 MHz



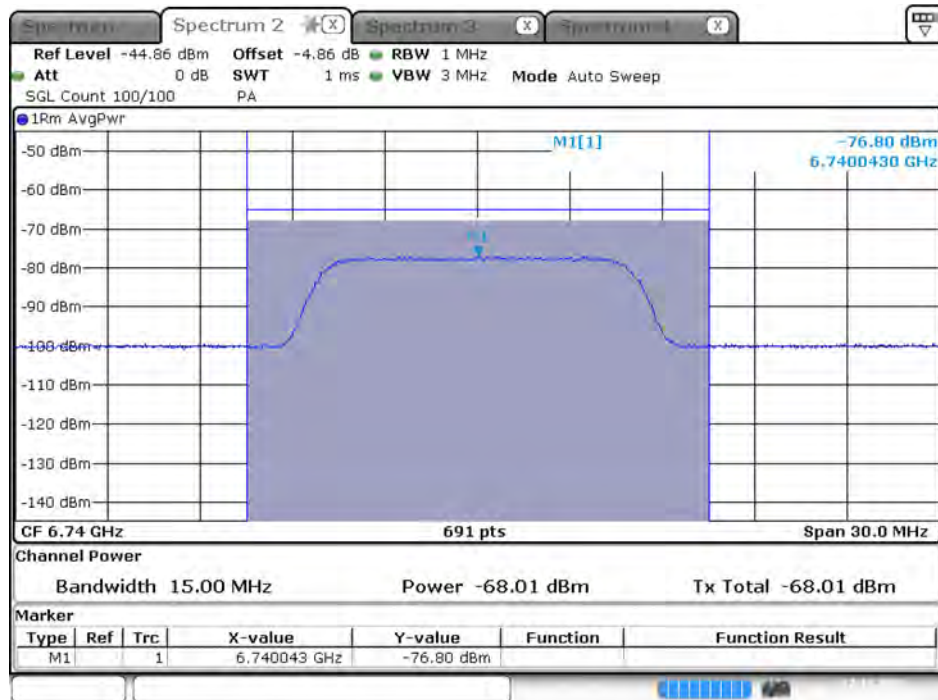
Date: 27, DEC. 2025 18:21:21

Frequency (MHz): 6665 MHz



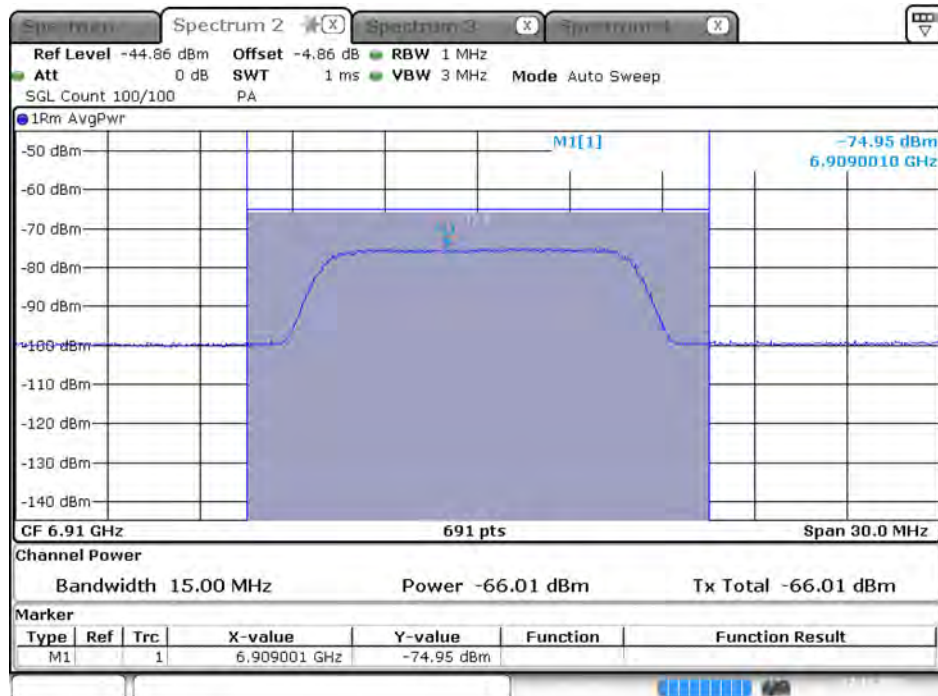
Date: 27, DEC. 2025 18:22:11

Frequency (MHz): 6740 MHz



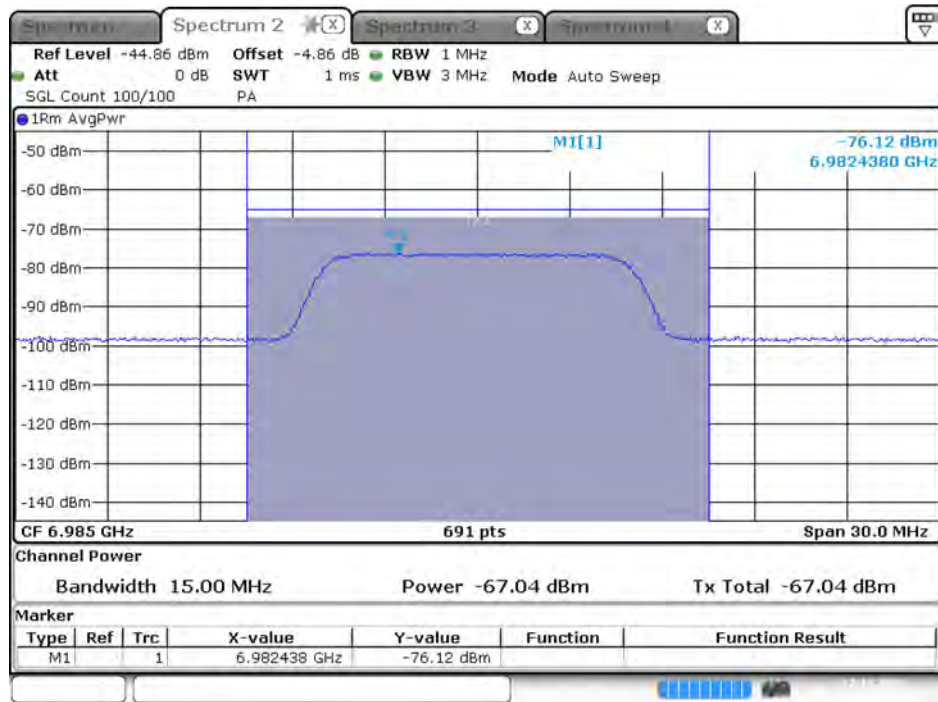
Date: 27, DEC. 2025 18:22:49

Frequency (MHz): 6910 MHz



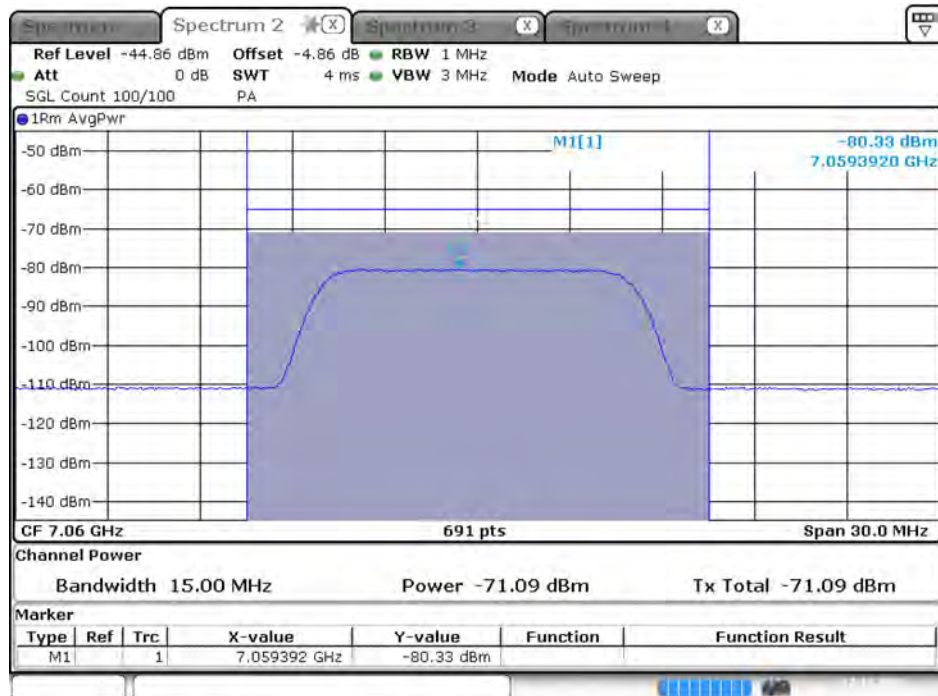
Date: 27, DEC. 2025 18:23:42

Frequency (MHz): 6985 MHz



Date: 27, DEC. 2025 18:25:26

Frequency (MHz): 7060 MHz

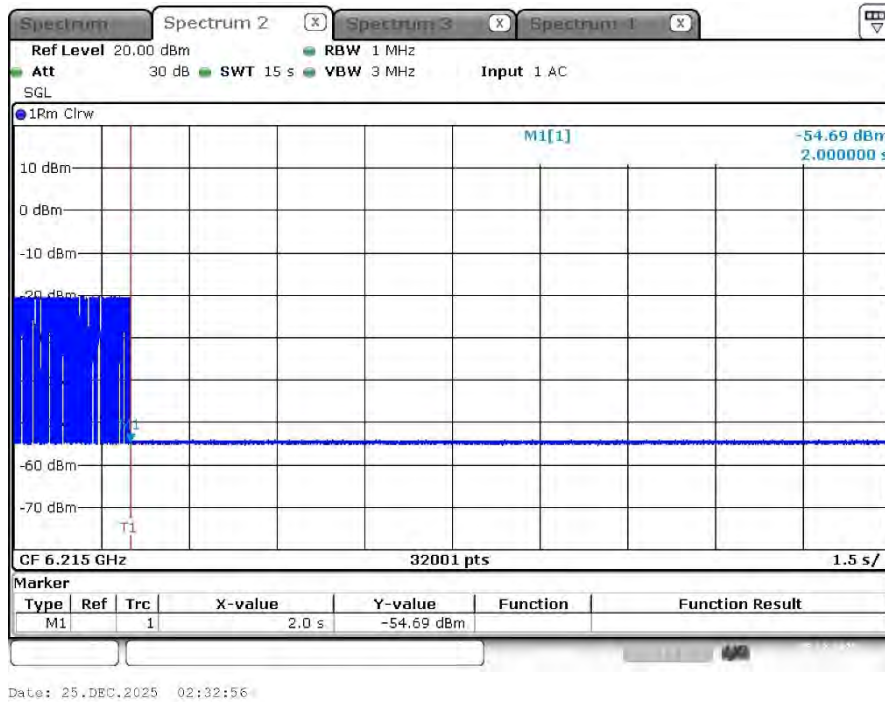


Date: 27, DEC. 2025 18:26:02

Contention-Based Protocol Plot

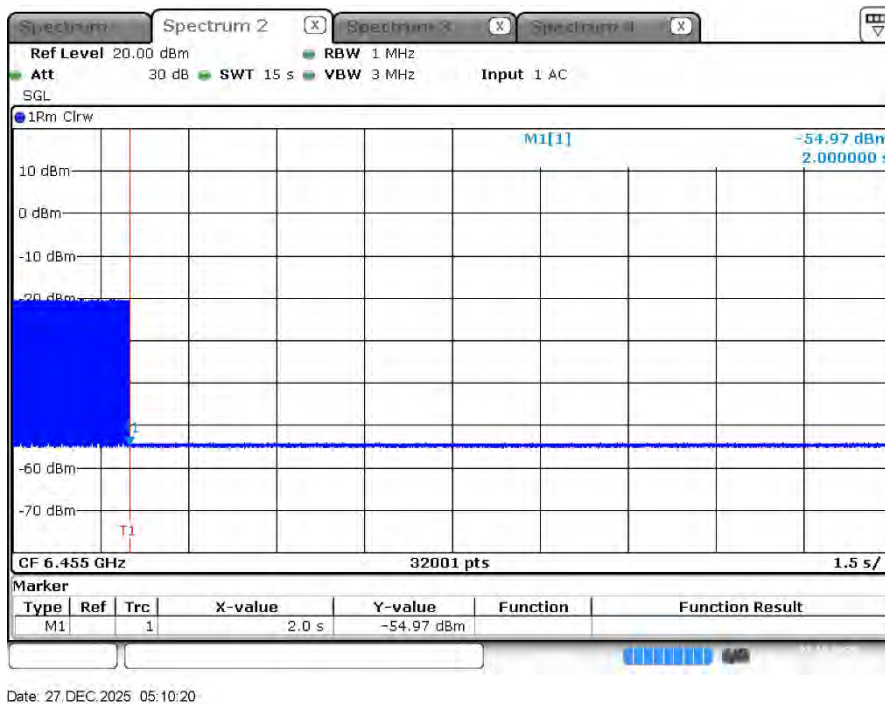
Bandwidth: 20MHz

Test CH 53 ; Incumbent signal 6215 MHz



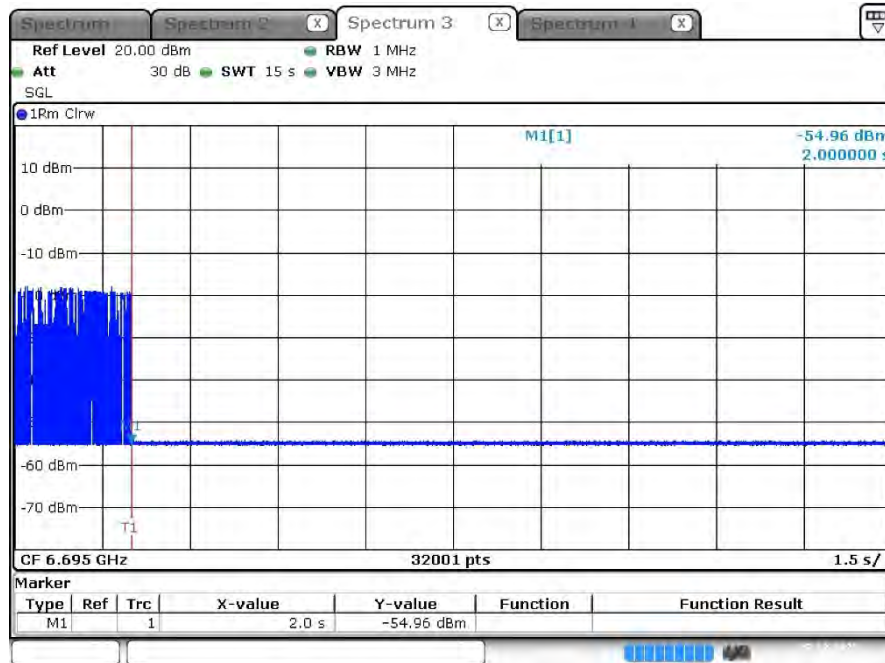
Note : M1 : Inject AWGN signal

Test CH 101 ; Incumbent signal 6455 MHz



Note : M1 : Inject AWGN signal

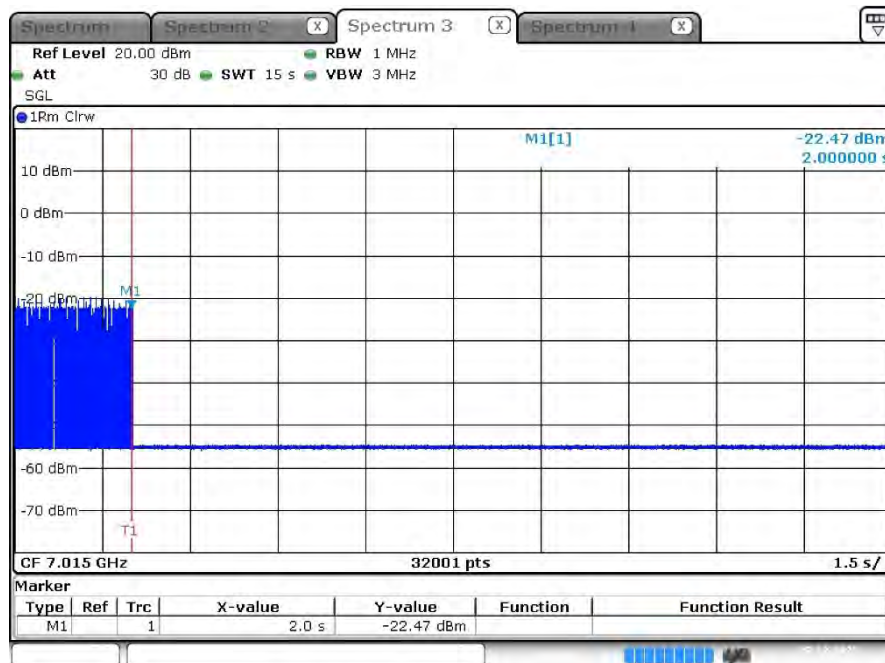
Test CH 149 ; Incumbent signal 6695 MHz



Date: 27.DEC.2025 10:04:57

Note : M1 : Inject AWGN signal

Test CH 213 ; Incumbent signal 7015 MHz

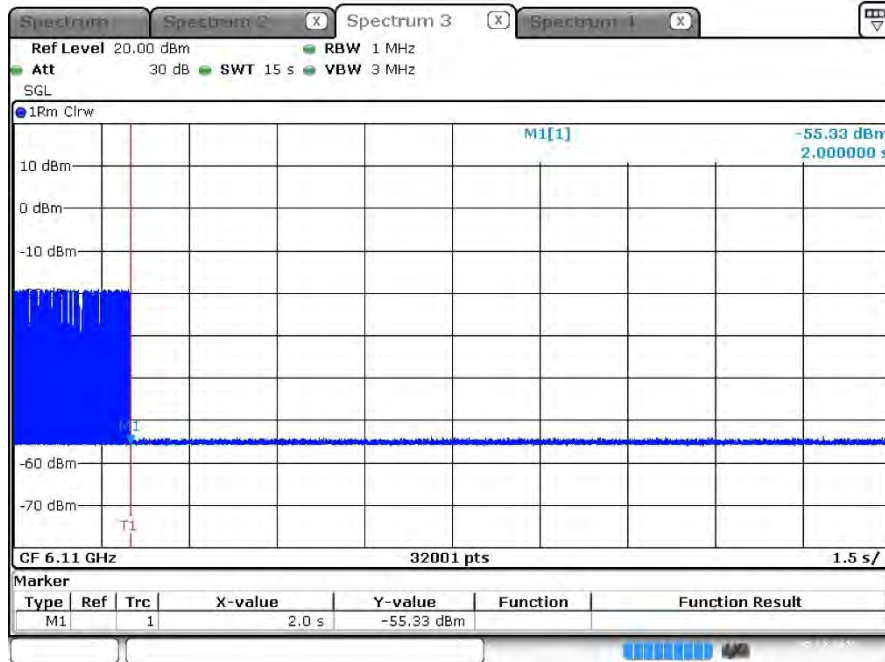


Date: 27.DEC.2025 11:35:14

Note : M1 : Inject AWGN signal

Bandwidth: 160MHz

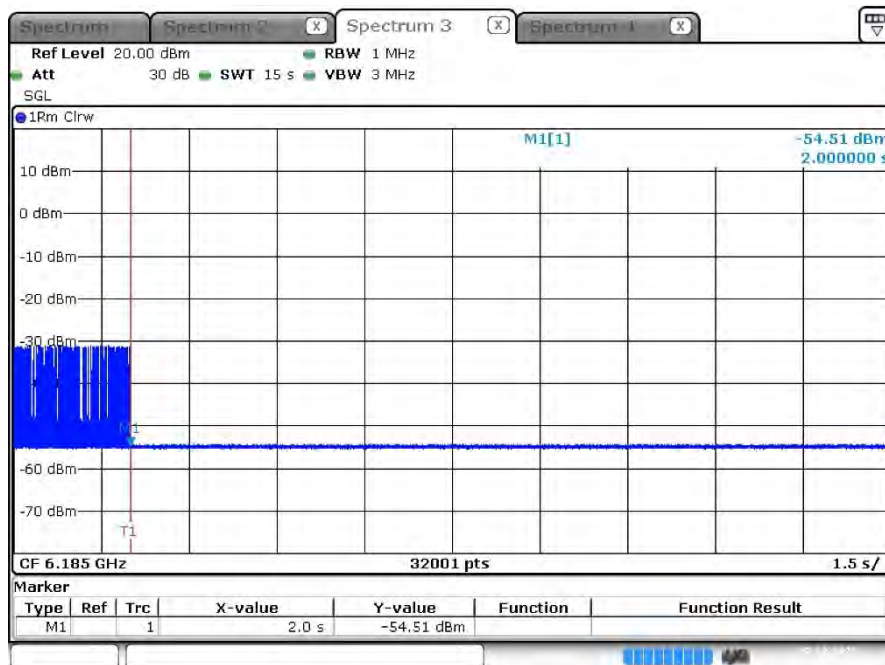
Test CH 47 ; Incumbent signal 6110 MHz



Date: 27.DEC.2025 16:17:45

Note : M1 : Inject AWGN signal

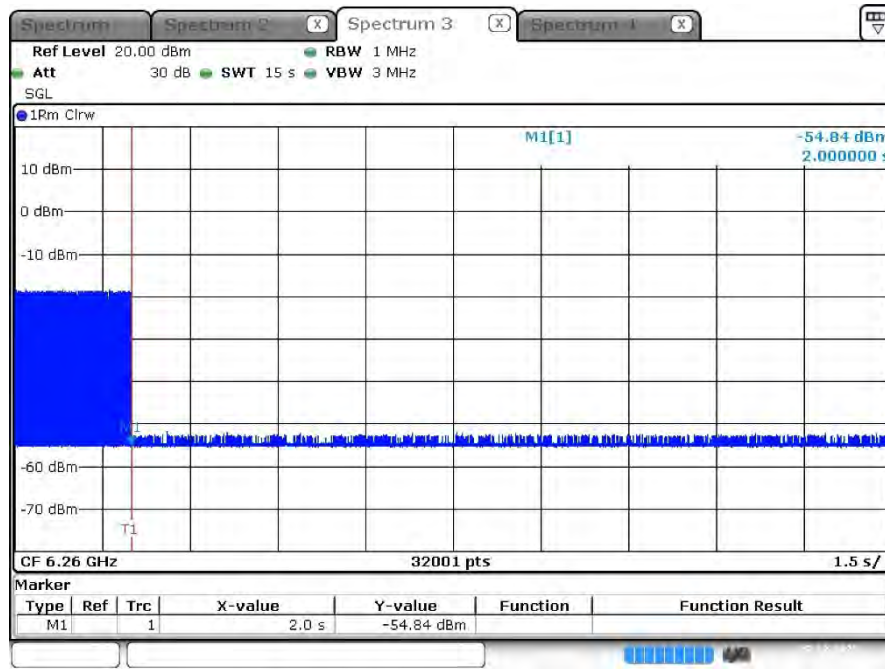
Test CH 47 ; Incumbent signal 6185 MHz



Date: 27.DEC.2025 14:00:59

Note : M1 : Inject AWGN signal

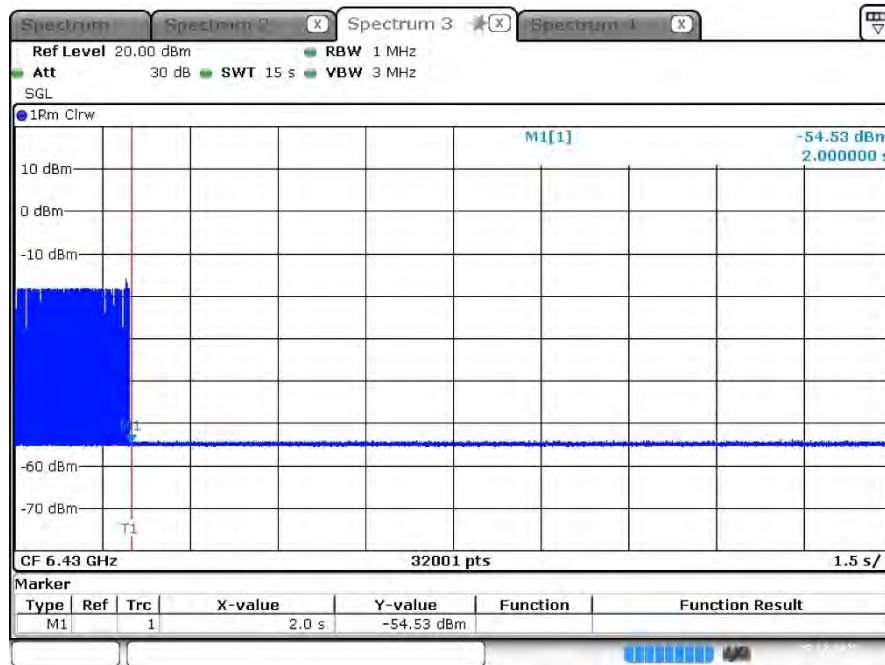
Test CH 47 ; Incumbent signal 6260 MHz



Date: 27.DEC.2025 16:32:08

Note : M1 : Inject AWGN signal

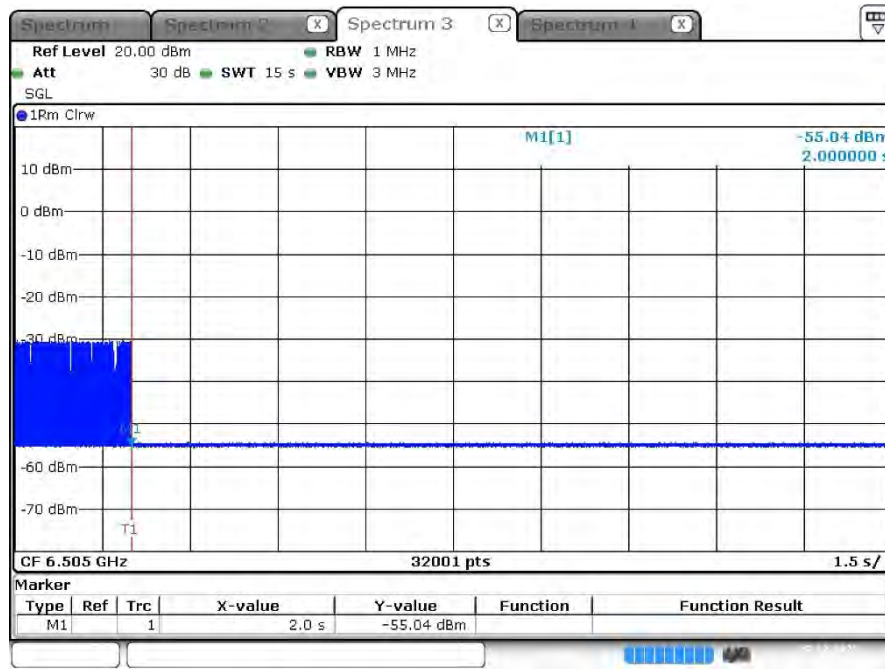
Test CH 111 ; Incumbent signal 6430 MHz



Date: 27.DEC.2025 16:17:38

Note : M1 : Inject AWGN signal

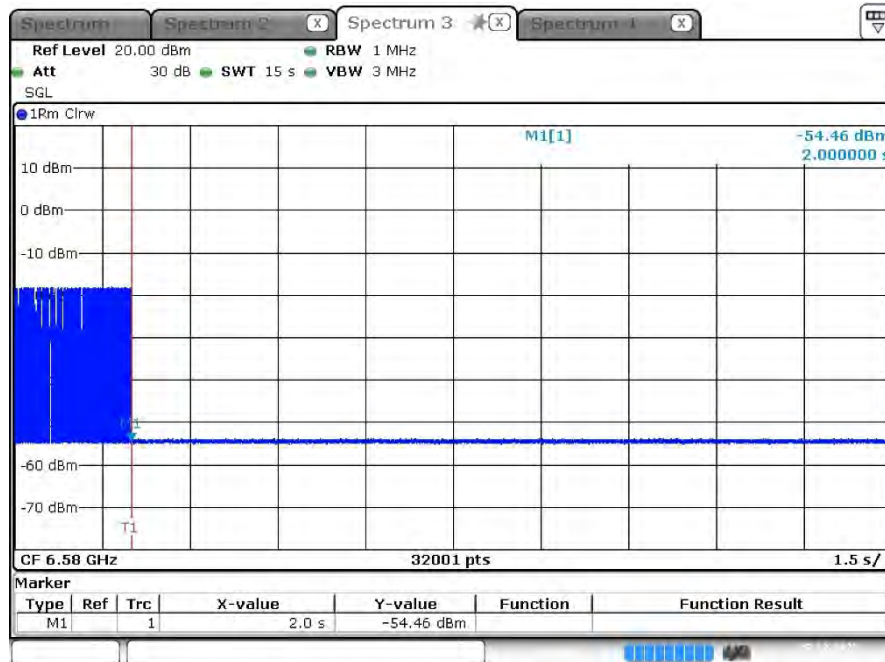
Test CH 111 ; Incumbent signal 6505 MHz



Date: 27.DEC.2025 15:07:16

Note : M1 : Inject AWGN signal

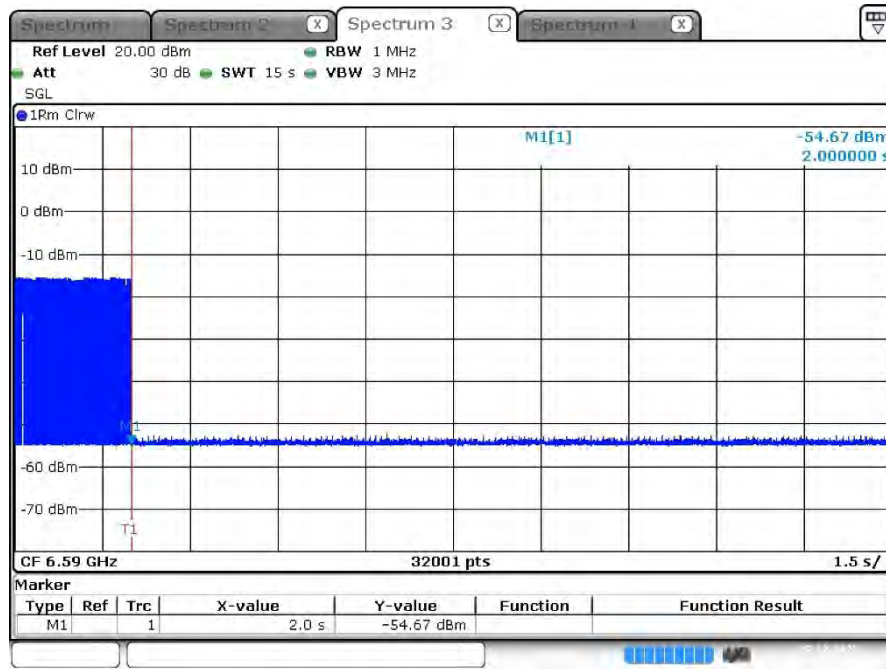
Test CH 111 ; Incumbent signal 6580 MHz



Date: 27.DEC.2025 15:32:54

Note : M1 : Inject AWGN signal

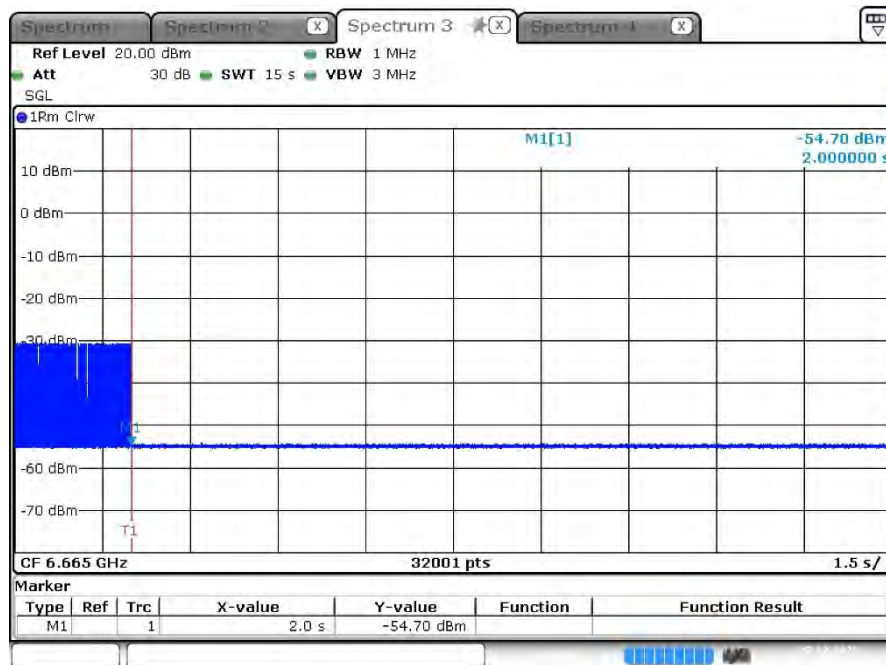
Test CH 143 ; Incumbent signal 6590 MHz



Date: 27.DEC.2025 17:22:41

Note : M1 : Inject AWGN signal

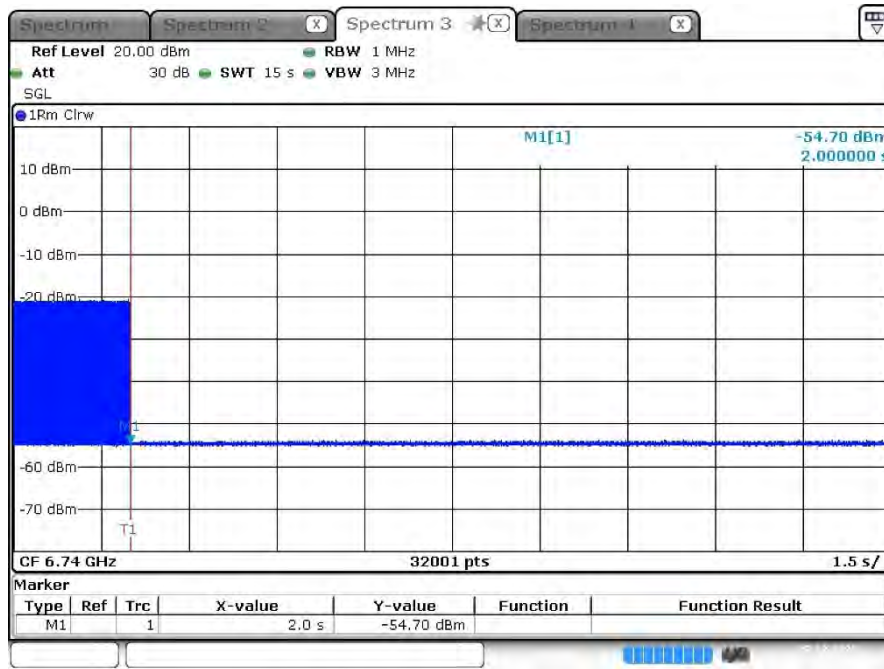
Test CH 143 ; Incumbent signal 6665 MHz



Date: 27.DEC.2025 17:33:40

Note : M1 : Inject AWGN signal

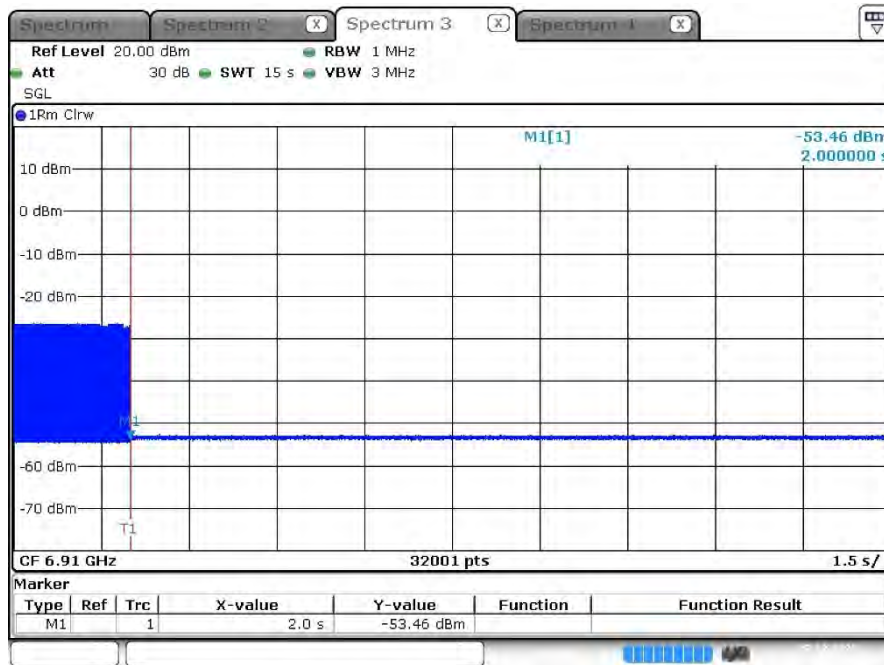
Test CH 143 ; Incumbent signal 6740 MHz



Date: 27.DEC.2025 17:42:16

Note : M1 : Inject AWGN signal

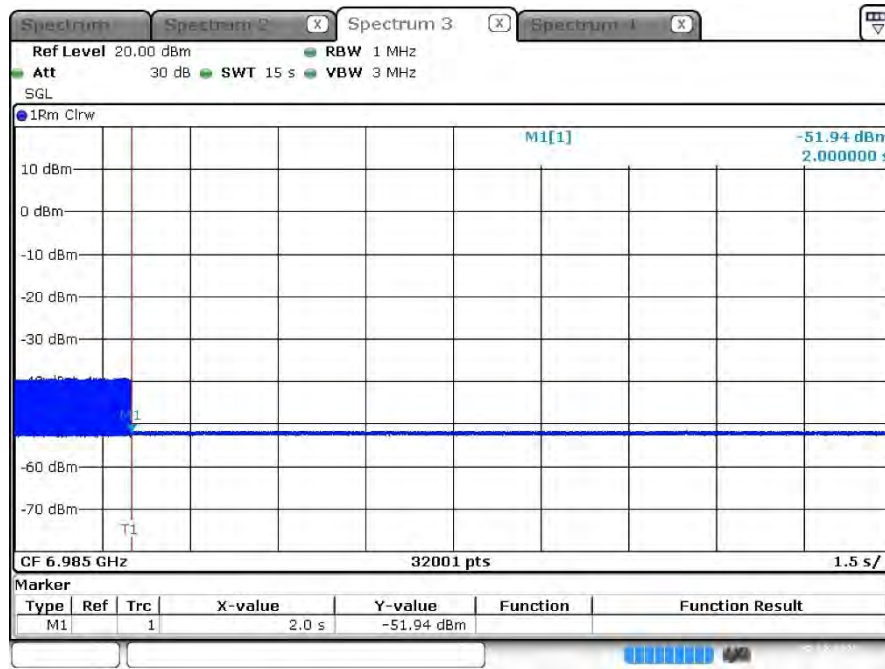
Test CH 207 ; Incumbent signal 6910 MHz



Date: 27.DEC.2025 04:21:26

Note : M1 : Inject AWGN signal

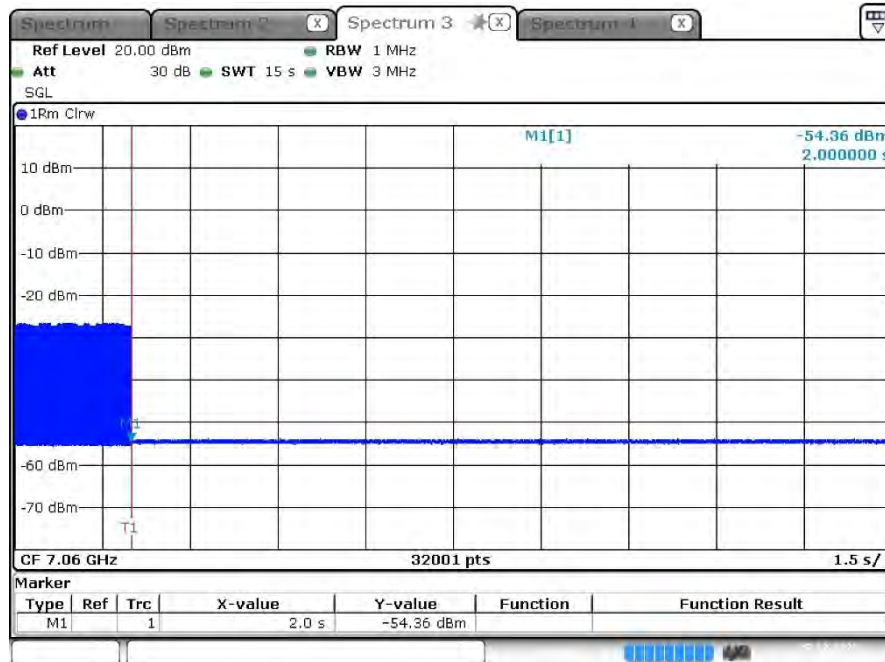
Test CH 207 ; Incumbent signal 6985 MHz



Date: 27.DEC.2025 04:33:43

Note : M1 : Inject AWGN signal

Test CH 207 ; Incumbent signal 7060 MHz



Date: 27.DEC.2025 04:28:41

Note : M1 : Inject AWGN signal

—THE END—