Radio Testing of the Covidien McGRATH™ MAC+ Connected Relay Model Number: 302-100-000

In accordance with FCC Part 15 Subpart C §15.247 and RSS-247 Issue 3 August 2023

America

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Covidien
5920 Longbow Dr
Boulder, CO 80301 USA

COMMERCIAL-IN-CONFIDENCE

Date: July 2025
Document Number: 721004549G Issue 01 | Version Number: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Authorized Signatory	Ferdinand S. Custodio	July 18, 2025	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

EXECUTIVE SUMMARY
A sample of this product was tested and found to be in compliance with 47 CFR Chapter I Subchapter A Part 15 Subpart C §15.247, RSS-247 Issue 3 August 2023 and RSS-Gen Issue 5, Amendment 2 February 2021.

A2LA Cert. No. 2955.13

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REPORT ON	Radio Testing of the Covidien McGRATH™ MAC+ Connected Relay
TEST REPORT NUMBER	721004549G
TEST REPORT DATE	July 2025
PREPARED FOR	Covidien 5920 Longbow Dr Boulder, CO 80301 USA
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APPROVED BY	Ferdinand S. Custodio **Name** Authorized Signatory Title: Senior EMC Test Engineer / Wireless Team Lead
DATED	July 17, 2025

Revision History

721004549G Covidien McGRATHᴹ MAC+ Connected Relay					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
07/18/2025	—	Initial Release			Ferdinand S. Custodio

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SECTION 1

REPORT SUMMARY

Radio Testing of the
Covidien
McGRATH™ MAC+ Connected Relay

1.1 INTRODUCTION

The information contained in this report is intended to show verification of the McGRATH™ MAC+ Connected Relay Model Number: 302-100-000 to the requirements of FCC Part 15 Subpart C §15.247 and RSS-247 Issue 3 August 2023.

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Covidien
EUT	Relay
Model Number(s)	302-100-000
Model Name	McGRATH™ MAC+ Connected Relay
FCC ID	P7G-MR3021
ISED/IC Number	23825-MR3021
FCC Classification	Low power Communications Device Transmitter (DTS)
Serial Number(s)	M6
Number of Samples Tested	1
Test Specification/Issue/Date	• FCC Part 15 Subpart C §15.247 (October 1, 2023). • RSS-247–Digital Transmission Systems (DTS), Frequency Hopping Systems (FHSS) and Licence-Exempt Local Area Network (LE-LAN) Devices (Issue 3, August 2023). • RSS-Gen - General Requirements for Compliance of Radio Apparatus (Issue 5, Amendment 2 February 2021).
Start of Test	March 25, 2025
Finish of Test	April 17, 2025
Name of Engineer(s)	Omar Castillo Miguel Angel Rabago Garcia
Related Document(s)	• ANSI C63.10-2013. American National Standard of Procedures for Compliance testing of Unlicensed Wireless Devices. • TUV New Brighton RF Test Plan - 9 FEB 2025

- KDB 558074 D01 15.247 v05r02 Guidance for compliance measurements on Digital Transmission System, Frequency Hopping Spread Spectrum System, and Hybrid System Devices operating under Section 15.247 of the FCC rules.
- Supporting documents for EUT certification are separate exhibits.

1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 and RSS-247 Issue 3 August 2023 with cross-reference to the corresponding IC RSS standard are shown below.

Section	§15.247 Spec Clause	RSS	Test Description	Result	Comments /Base Standard
2.1	§15.247(b)(3)	RSS-247 5.4(d)	Peak Output Power	Compliant	-
2.2	§15.207(a)	RSS-Gen 8.8	Conducted Emissions	N/A	-
2.3	-	RSS-Gen 6.7	99% Emission Bandwidth	Compliant	-
2.4	§15.247(a)(2)	RSS-247 5.2(a)	Minimum 6 dB RF Bandwidth	Compliant	-
2.5	§15.247(d)	RSS-247 5.5	Out-of-Band Emissions - Conducted	Compliant	-
2.6	§15.247(d)	RSS-247 5.5	Band-edge Compliance of RF Conducted Emissions	Compliant	-
2.7	§15.247(d)	RSS-247 5.5	Radiated Spurious Emissions	Compliant	-
-	-	RSS-Gen 7.3 and 7.4	Receiver Spurious Emissions	N/A*	-
2.8	§15.247(e)	RSS-247 5.2(b)	Power Spectral Density for Digitally Modulated Device	Compliant	-

N/A Not applicable. EUT is battery powered.
N/A* Not required as per RSS-Gen 5.3 The EUT does not fall into any category defined as Receiver under RSS-Gen.
Note: All tests were performed at Low Mid (channels 5 was used as Mid channel since manufacturer declared that EUT/System will operate at Ch 5 only) and High channel.
All tests were performed at all bitrates supported (see section 1.3.2) by the EUT. Results with the worst data rate for each mode were reported.

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) is a Covidien McGRATH™ MAC+ Connected Relay. The EUT is part of the Covidien McGRATH™ MAC+ system for Video Laryngoscopy.

A full description and detailed product specifications are available from the manufacturer.

1.3.2 EUT General Description

EUT Description	Relay
Model Name	McGRATH™ MAC+ Connected Relay
Model Number	302-100-000
Rated Voltage	VDC Internal Battery
Mode Verified	WLAN 802.11 b/g/n 2.4GHz
Capability	WLAN 802.11 b/g/n 2.4GHz
Data Rates	WLAN 802.11 b: 1Mbps. 2Mbps, 5.5Mbps and 11Mbps. WLAN 802.11 g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps and 54Mbps. WLAN 802.11 n: MCS0, MCS1, MCS2, MCS3, MCS4, MCS5, MCS6 and MCS7.
Primary Unit (EUT)	☐ Production ☒ Pre-Production ☐ Engineering (same as Production)
Manufacturer Declared Temperature Range	0°C to 40°C
Antenna Type	Multilayer Antenna for 2400-2484MHz, chip antenna
Antenna Model	ANT016008LCS2442MA1
Antenna Manufacturer	TDK
Antenna Gain	1.6dBi

1.3.3 Maximum Conducted Output Power

WLAN 802.11b 1Mbps	Frequency Range (MHz)	Gated RMS (dBm)	*Duty Cycle (%)
Wi Fi™	2412-2462	10.090	99.9

*Duty Cycle when EUT is configured in test mode

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
Default	EUT in a test mode configuration. A conducted sample (temporary antenna port with SMA connector) is provided. The manufacturer provided detailed instructions on how to program (set channel, data rate, modes, etc.) the EUT via Tera term using a support laptop with a UART-to-USB cable.

1.4.2 EUT Exercise Software

The manufacturer provided detailed instructions on how to program (set channel, data rate, modes, etc.) the EUT via Tera term.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Generic-	UART to USB cable	UART to USB cable
Lenovo	Support Laptop	Model: ThinkPad T440S
Lenovo	AC Adapter	Model: ADLX90NLC2A

1.4.1 Simplified Test Configuration Diagram

Not applicable. EUT verified on a standalone configuration.

1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

Description of Modification	Modification Fitted By	Date Modification Fitted
Serial Number: No modifications		
N/A	-	-

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

For conducted and radiated emissions, the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.10-2013. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY LOCATION

1.8.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: (858) 678-1400 FAX: (858) 546-0364

1.8.2 TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409). Phone: (858) 678-1400 FAX: (858) 546-0364.

1.9 TEST FACILITY REGISTRATION

1.9.1 FCC – Designation No.: US1146

TÜV SÜD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Designation is US1146.

1.9.2 Innovation, Science and Economic Development Canada (ISED) Registration No.: 3067A-1 & 22806-1

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Rancho Bernardo) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A-1.

The 3m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego Mira Mesa) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 22806-1.

1.9.3 BSMI – Laboratory Code: SL2-IN-E-028R (US0102)

TÜV Product Service Inc. (San Diego) is a recognized EMC testing laboratory by the BSMI under the MRA (Mutual Recognition Arrangement) with the United States. Accreditation includes CNS 13438 up to 6GHz.

1.9.4 NCC (National Communications Commission - US0102)

TÜV SÜD America Inc. (San Diego) is listed as a Foreign Recognized Telecommunication Equipment Testing Laboratory and is accredited to ISO/IEC 17025 (A2LA Certificate No.2955.13) which under APEC TEL MRA Phase 1 was designated as a Conformity Assessment Body competent to perform testing of equipment subject to the Technical Regulations covered under its scope of accreditation including RTTE01, PLMN01 and PLMN08 for TTE type of testing and LP0002 for Low-Power RF Device type of testing.

1.9.5 VCCI – Registration No. A-0412 and A-0413

TÜV SÜD America Inc. (San Diego) is a VCCI registered measurement facility which includes radiated field strength measurement, radiated field strength measurement above 1GHz, mains port interference measurement and telecommunication port interference measurement.

1.9.6 RRA – Identification No. US0102

TÜV SÜD America Inc. (San Diego) is National Radio Research Agency (RRA) recognized laboratory under Phase I of the APEC Tel MRA.

1.9.7 OFCA – U.S. Identification No. US0102

TÜV SÜD America Inc. (San Diego) is recognized by Office of the Communications Authority (OFCA) under Appendix B, Phase I of the APEC Tel MRA.

SECTION 2

TEST DETAILS

Radio Testing of the
Covidien
McGRATH™ MAC+ Connected Relay

2.1 PEAK OUTPUT POWER

2.1.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(b)(3)
RSS-247, Clause 5.4 (d)

2.1.2 Standard Applicable

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands, the maximum peak conducted output shall not exceed 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

2.1.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.1.4 Date of Test/Initial of test personnel who performed the test

March 29, 2025 / OC

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	18.5 °C
Relative Humidity	38.6 %
ATM Pressure	99.9 kPa

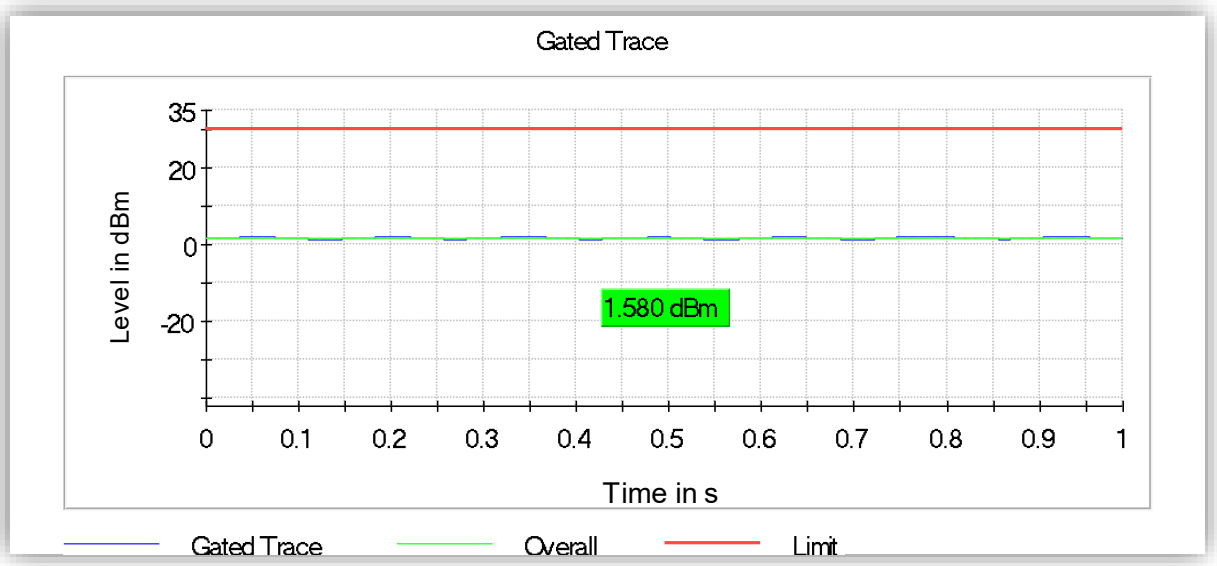
2.1.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(b), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.9.2.3.2.

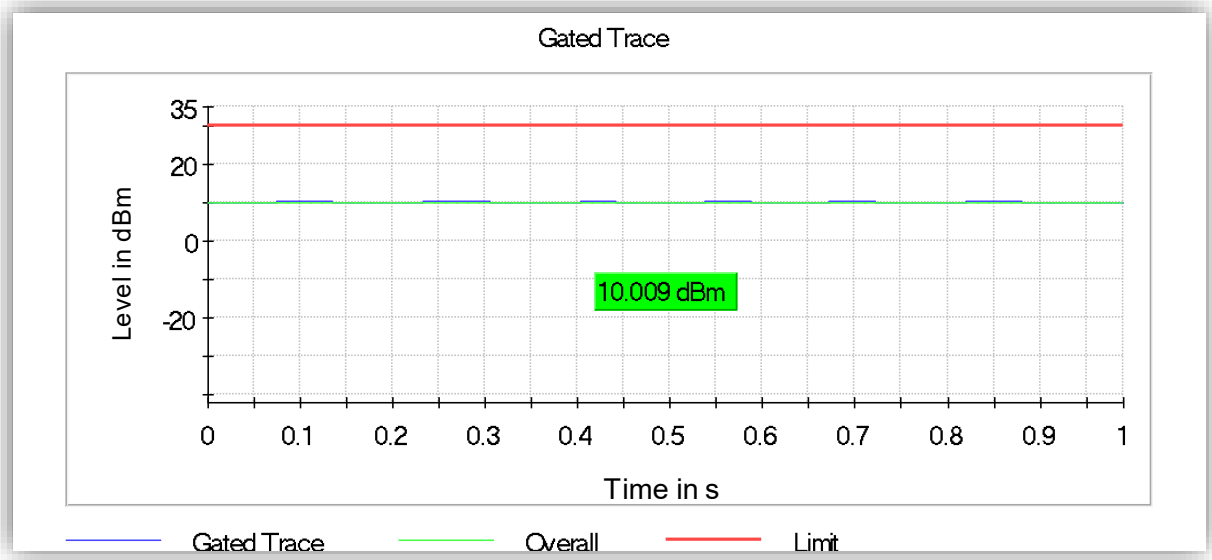
2.1.8 Test Results

DUT Frequency (MHz)	Mode	Data Rate	Gated RMS* (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2412.000	WLAN 802.11b	1Mbps	1.580	30.0	99.90	PASS
2432.000			**10.090**		99.90	PASS
2462.000			2.952		99.90	PASS
2412.000	WLAN 802.11g	6Mbps	3.055	30.0	99.25	PASS
2432.000			8.804		99.25	PASS
2462.000			3.985		99.25	PASS
2412.000	WLAN 802.11n	MCS0	2.444	30.0	99.19	PASS
2432.000			8.788		99.19	PASS
2462.000			3.684		99.19	PASS

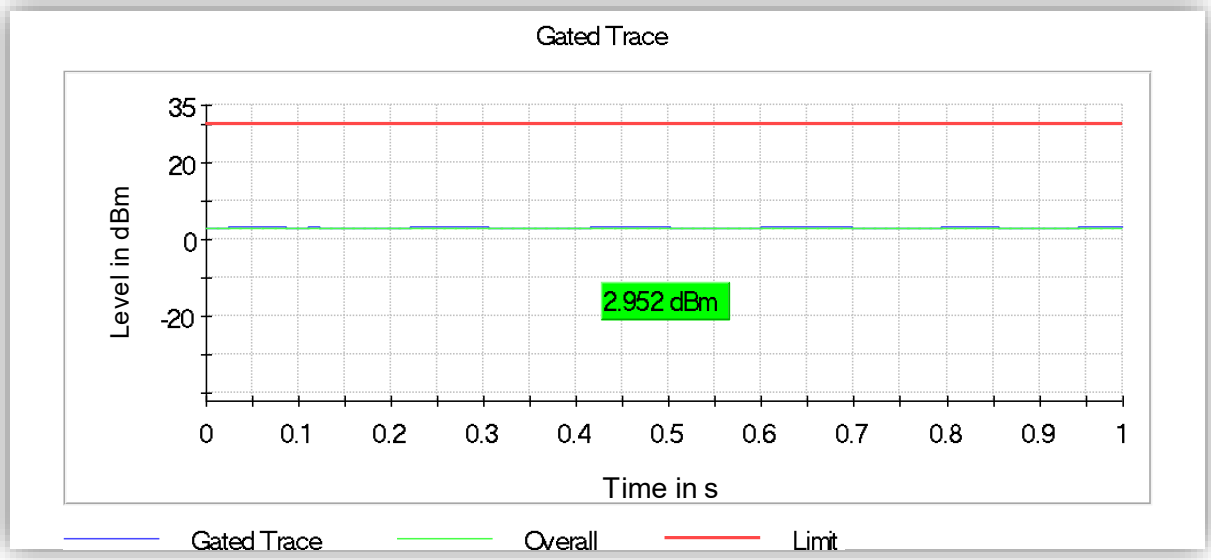
2.1.9 Test Plots



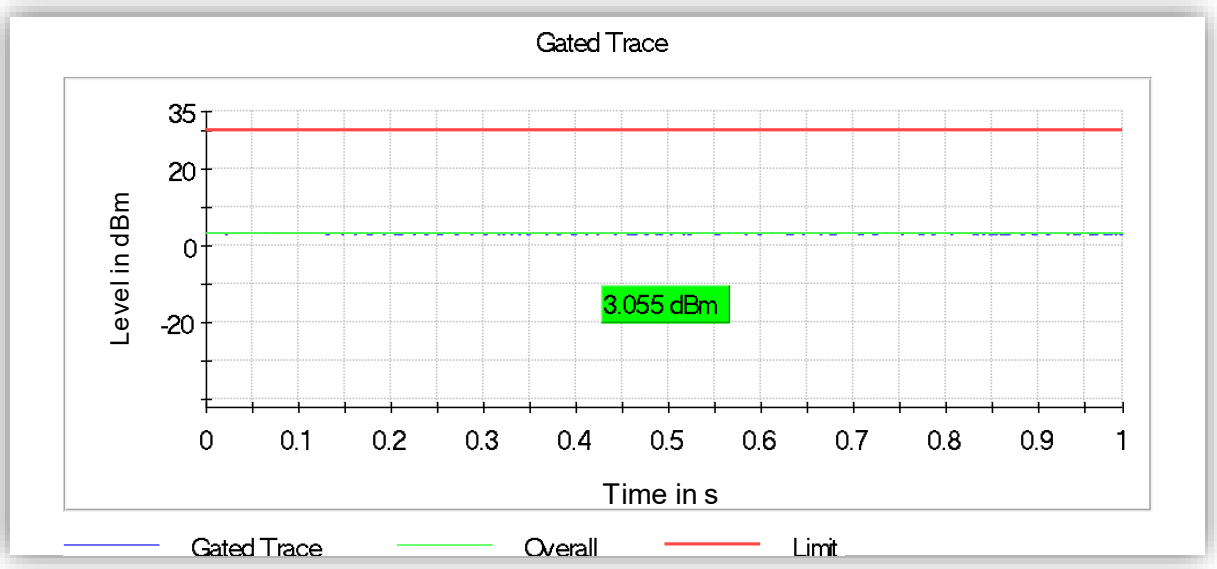
WLAN 802.11b 1Mbps. Low Channel



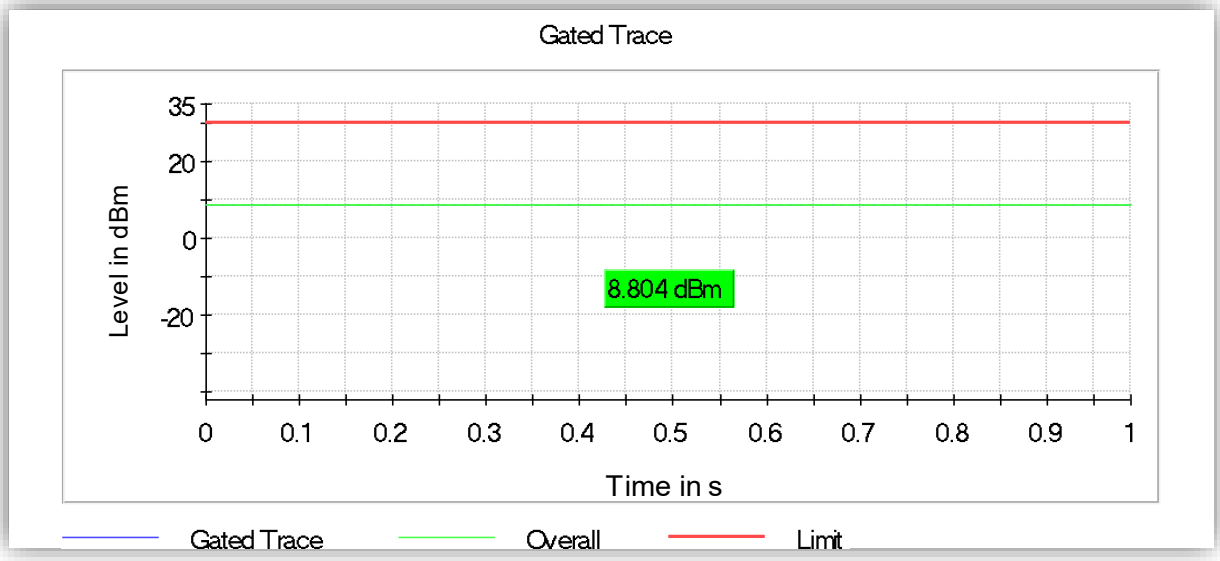
WLAN 802.11b 1Mbps. Mid Channel



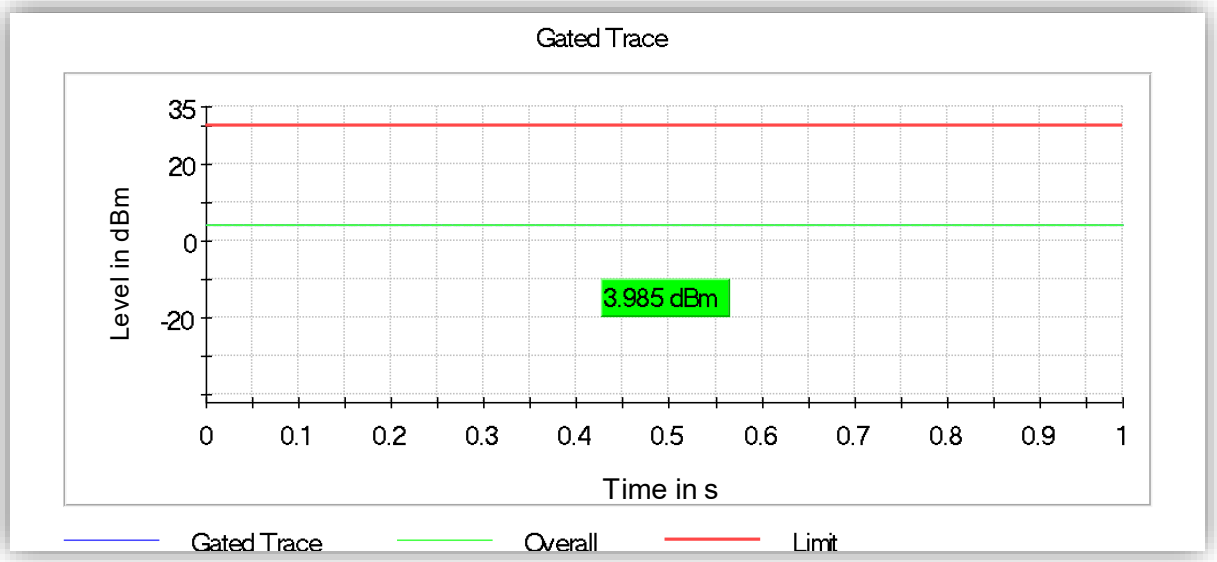
WLAN 802.11b 1Mbps. High Channel



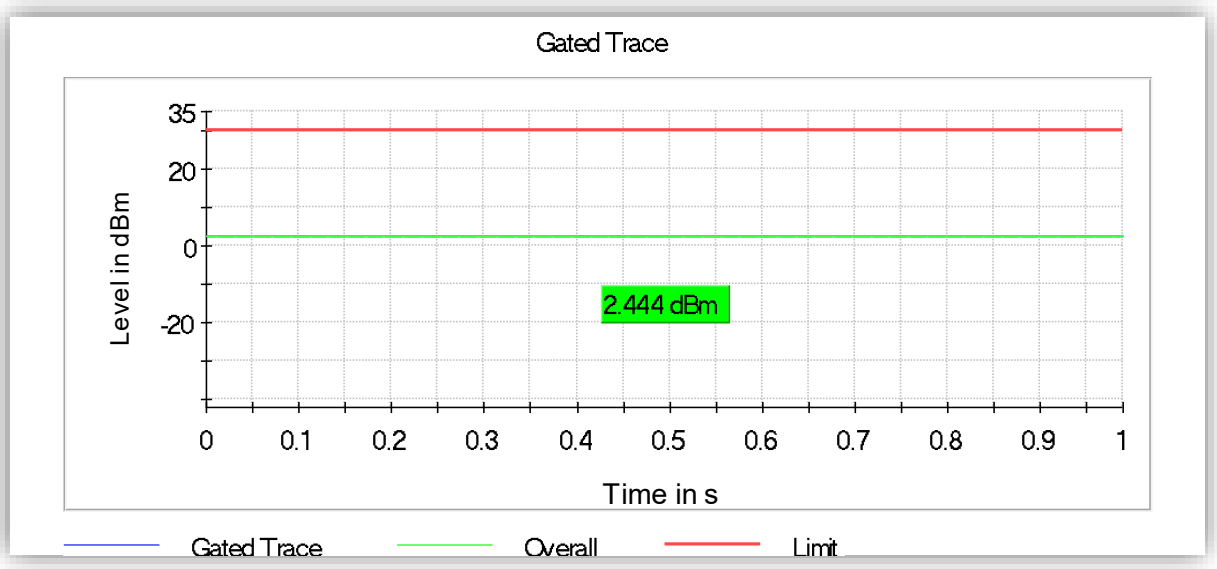
WLAN 802.11g 6Mbps. Low Channel



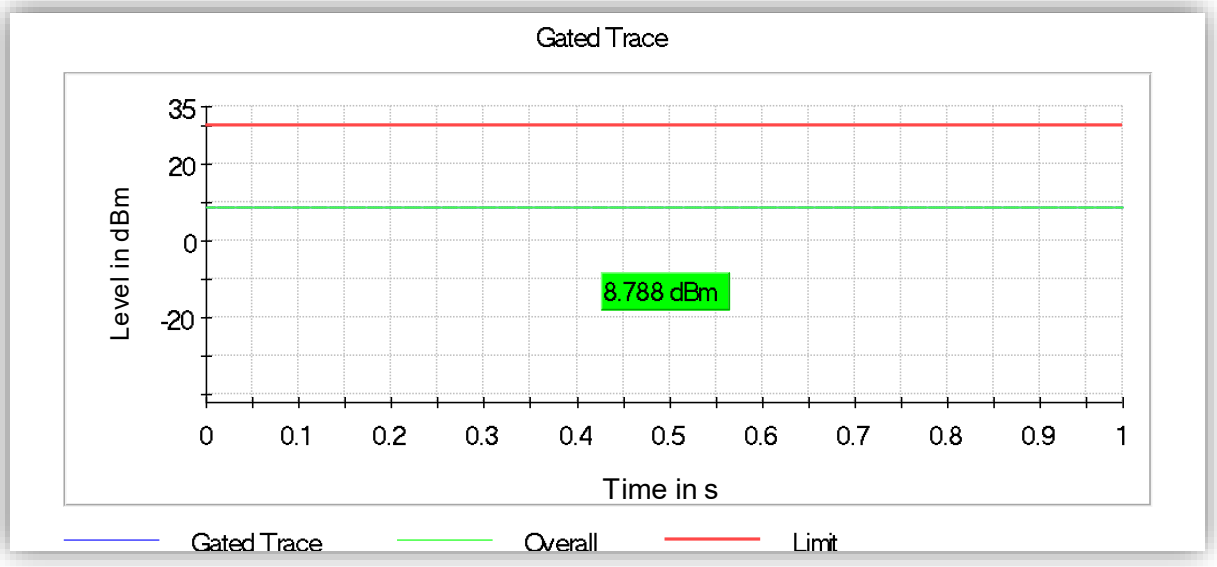
WLAN 802.11g 6Mbps. Mid Channel



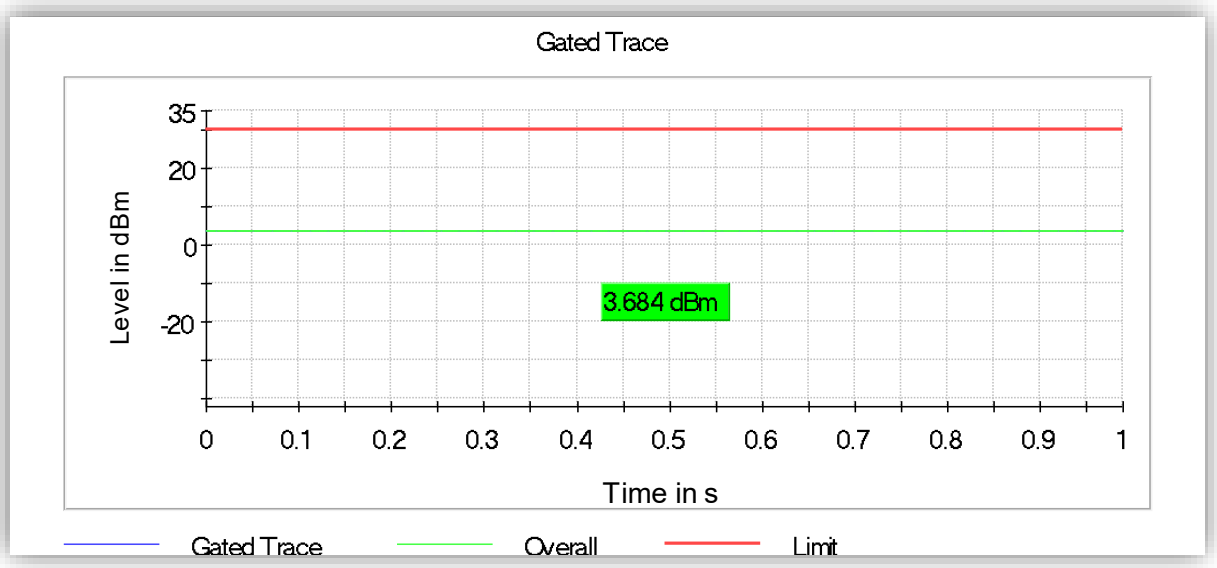
WLAN 802.11g 6Mbps. High Channel



WLAN 802.11n MCS0 Low Channel



WLAN 802.11n MCS0 Mid Channel



WLAN 802.11n MCS0 High Channel

2.1.10 Power Meter Settings

Setting	Instrument Value	Target Value
Measurement Time	1.000 s	1.000 s
Points	1000000	1000000
Time resolution	1.000 µs	1.000 µs

2.2 CONDUCTED EMISSIONS

2.2.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.207(a)
RSS-GEN, Clause 8.8

2.2.2 Standard Applicable

An intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN).

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

**Decreases with the logarithm of the frequency.*

2.2.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.2.4 Date of Test/Initial of test personnel who performed the test

April 17, 2025 / OC

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	23.4 °C
Relative Humidity	37.5 %
ATM Pressure	99.3 kPa

2.2.7 Additional Observations

- A representative AC/DC adapter (Model: PSA A05A-050QL6) was used to perform this test.
- Measurement was done using EMC32 V11.70 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.2.8 for sample computation.

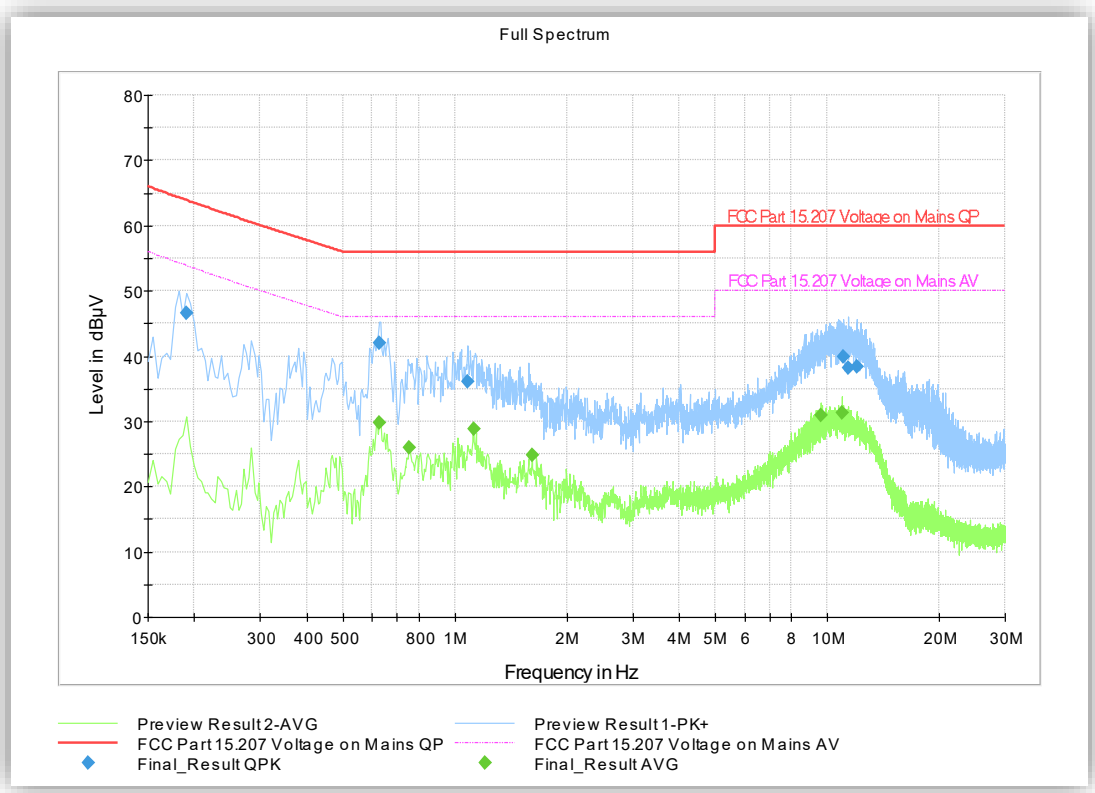
2.2.8 Sample Computation (Conducted Emission – Quasi Peak)

Measuring equipment raw measurement (dbµV) @ 150kHz			5.5
Correction Factor (dB)	Asset# 8607 (20 dB attenuator)	19.9	20.7
	Asset# 1177 (cable)	0.15	
	Asset# 1176 (cable)	0.35	
	Asset# 7568 (LISN)	0.30	
Reported QuasiPeak Final Measurement (dbµV) @ 150kHz			**26.2**

2.2.9 Test Results

Compliant. See attached plots and tables.

2.2.10 Line 1 (120VAC 60Hz)



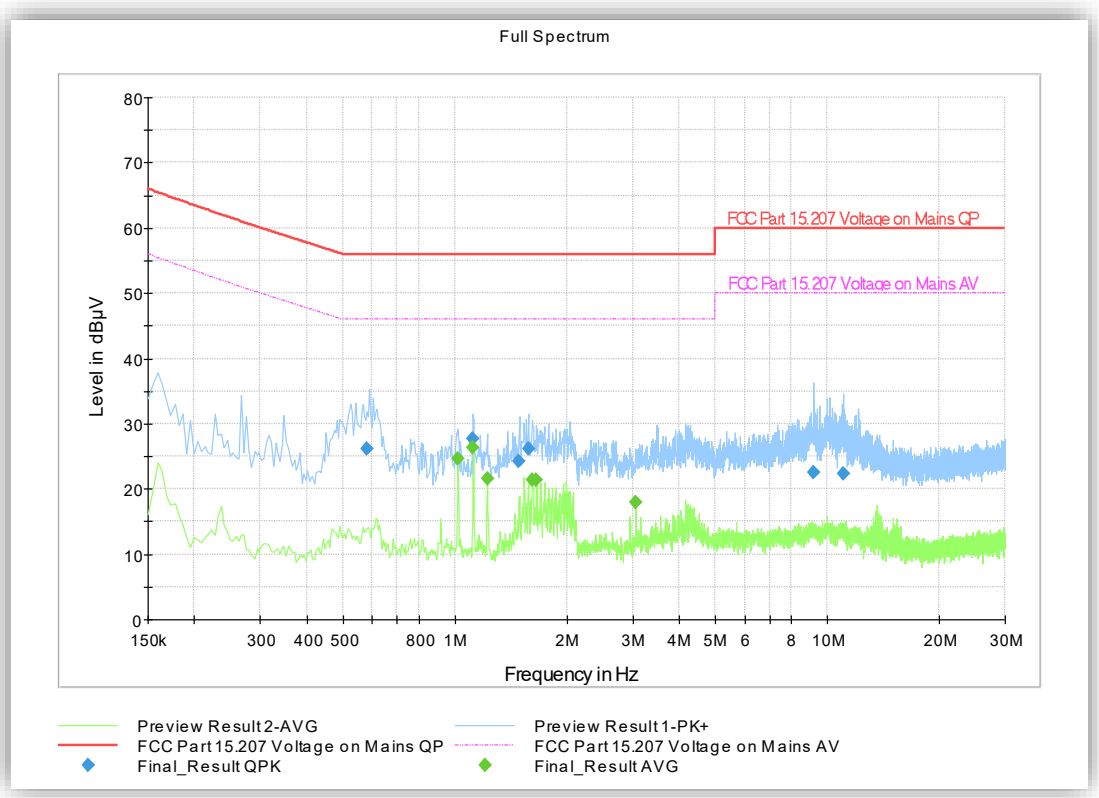
Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time	Band width (kHz)	Line	Filter	Corr. (dB)
0.190500	46.61	63.88	17.27	1000.	9.000	L1	OFF	20.1
0.627000	41.91	56.00	14.09	1000.	9.000	L1	OFF	20.1
1.086000	36.00	56.00	20.00	1000.	9.000	L1	OFF	20.1
11.053500	39.86	60.00	20.14	1000.	9.000	L1	OFF	20.4
11.409000	38.24	60.00	21.76	1000.	9.000	L1	OFF	20.4
12.003000	38.36	60.00	21.64	1000.	9.000	L1	OFF	20.4

Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time	Band width (kHz)	Line	Filter	Corr. (dB)
0.627000	29.86	46.00	16.14	1000.	9.000	L1	OFF	20.1
0.753000	26.01	46.00	19.99	1000.	9.000	L1	OFF	20.1
1.122000	28.89	46.00	17.11	1000.	9.000	L1	OFF	20.1
1.612500	24.81	46.00	21.19	1000.	9.000	L1	OFF	20.1
9.604500	30.98	50.00	19.02	1000.	9.000	L1	OFF	20.3
10.968000	31.22	50.00	18.78	1000.	9.000	L1	OFF	20.4

2.2.11 Neutral (120VAC 60Hz)



Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time	Band width (kHz)	Line	Filter	Corr. (dB)
0.582000	26.23	56.00	29.77	1000.	9.000	N	OFF	20.1
1.117500	27.60	56.00	28.40	1000.	9.000	N	OFF	20.1
1.486500	24.29	56.00	31.71	1000.	9.000	N	OFF	20.1
1.576500	26.12	56.00	29.88	1000.	9.000	N	OFF	20.1
9.204000	22.47	60.00	37.53	1000.	9.000	N	OFF	20.3
11.040000	22.28	60.00	37.72	1000.	9.000	N	OFF	20.3

Average

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time	Band width (kHz)	Line	Filter	Corr. (dB)
1.018500	**24.61**	**46.00**	**21.39**	**1000.**	**9.000**	**N**	**OFF**	**20.1**
1.117500	26.26	46.00	19.74	1000.	9.000	N	OFF	20.1
1.221000	21.61	46.00	24.39	1000.	9.000	N	OFF	20.1
1.612500	21.40	46.00	24.60	1000.	9.000	N	OFF	20.1
1.657500	21.40	46.00	24.60	1000.	9.000	N	OFF	20.1
3.052500	17.97	46.00	28.03	1000.	9.000	N	OFF	20.1

2.3 99% EMISSION BANDWIDTH

2.3.1 Specification Reference

RSS-Gen Clause 6.7

2.3.2 Standard Applicable

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.
When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

Note: Video averaging is not permitted.
A peak, or peak hold, may be used in place of the sampling detector as this may produce a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold may be necessary to determine the occupied bandwidth if the device is not transmitting continuously.
The trace data points are recovered and are directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded.
The difference between the two recorded frequencies is the 99% occupied bandwidth.

2.3.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.3.4 Date of Test/Initial of test personnel who performed the test

March 25 and 26, 2025 / OC

2.3.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.3.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	19.6 °C
Relative Humidity	38.2 %
ATM Pressure	99.8 kPa

2.3.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.

- The path loss was all accounted for with the test system calibration.
- Test methodology is per Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1.

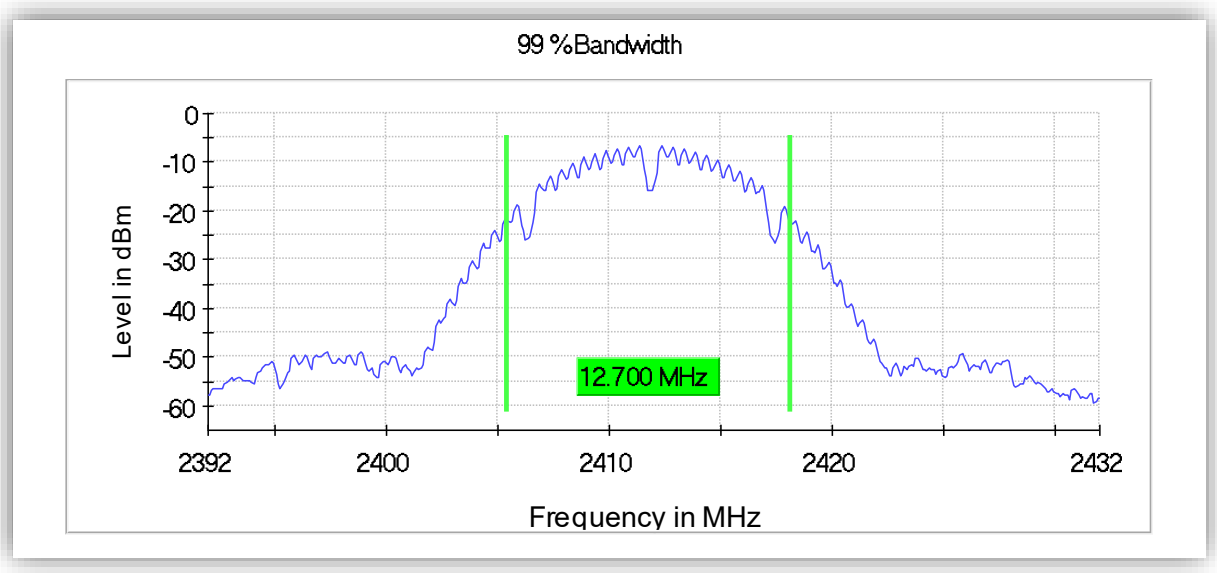
2.3.8 Sample Measurement Settings

Setting	Instrument Value	Target Value
Span	40.000 MHz	40.000 MHz
RBW	200.000 kHz	>= 200.000 kHz
VBW	1.000 MHz	>= 600.000 kHz
SweepPoints	400	~ 400
Sweeptime	28.477 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	6 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.15 dB	0.30 dB

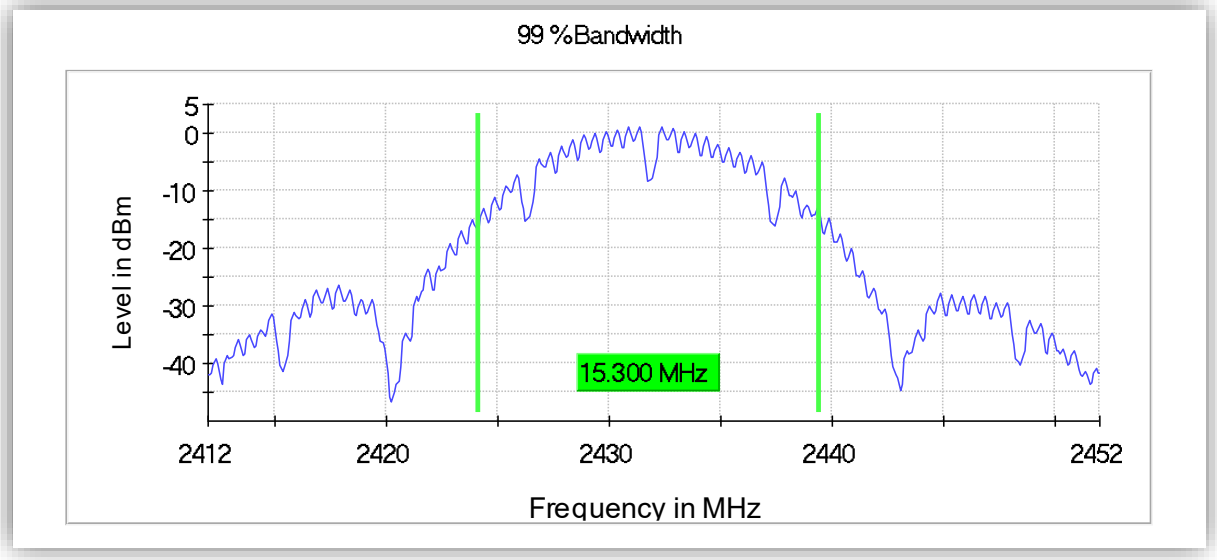
2.3.9 Test Results

DUT Frequency (MHz)	Mode	Data Rate	99% Bandwidth	Band Edge Left (MHz)	Band Edge Right (MHz)	Result
2412.000	WLAN 802.11b	1Mbps	12.700	**2405.450000**	2418.150000	PASS
2432.000			15.300	2424.150000	2439.450000	PASS
2462.000			12.900	2455.350000	**2468.250000**	PASS
2412.000	WLAN 802.11g	6Mbps	16.600	**2403.550000**	2420.150000	PASS
2432.000			26.600	2417.850000	2444.450000	PASS
2462.000			16.800	2453.450000	**2470.250000**	PASS
2412.000	WLAN 802.11n	MCS0	17.600	**2403.050000**	2420.650000	PASS
2432.000			26.800	2417.750000	2444.550000	PASS
2462.000			17.700	2453.050000	**2470.750000**	PASS

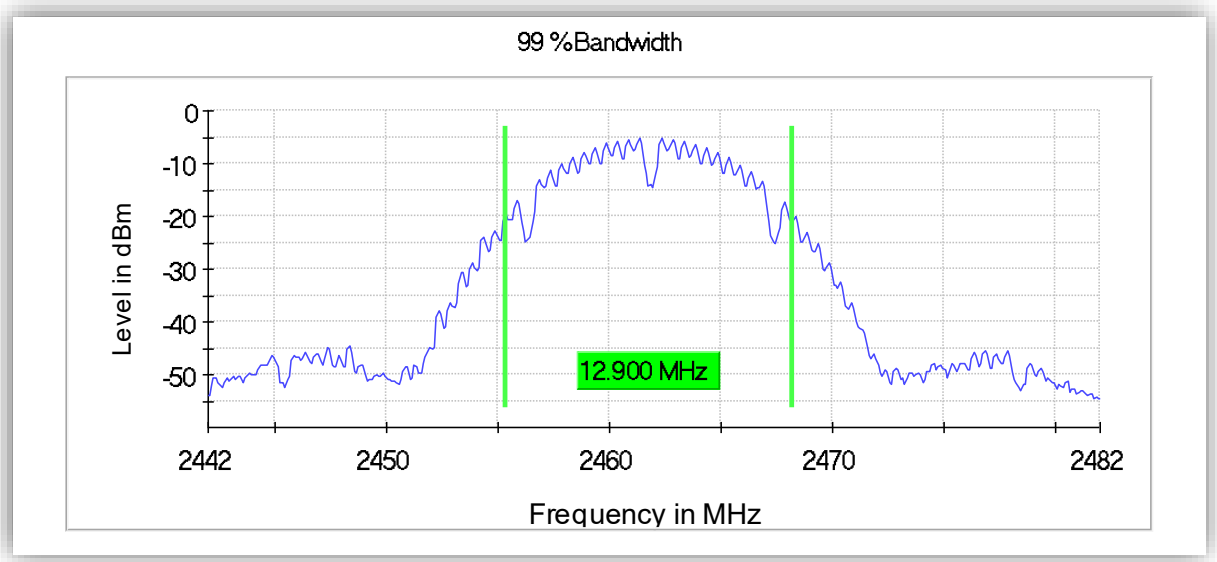
2.3.10 Test Plots



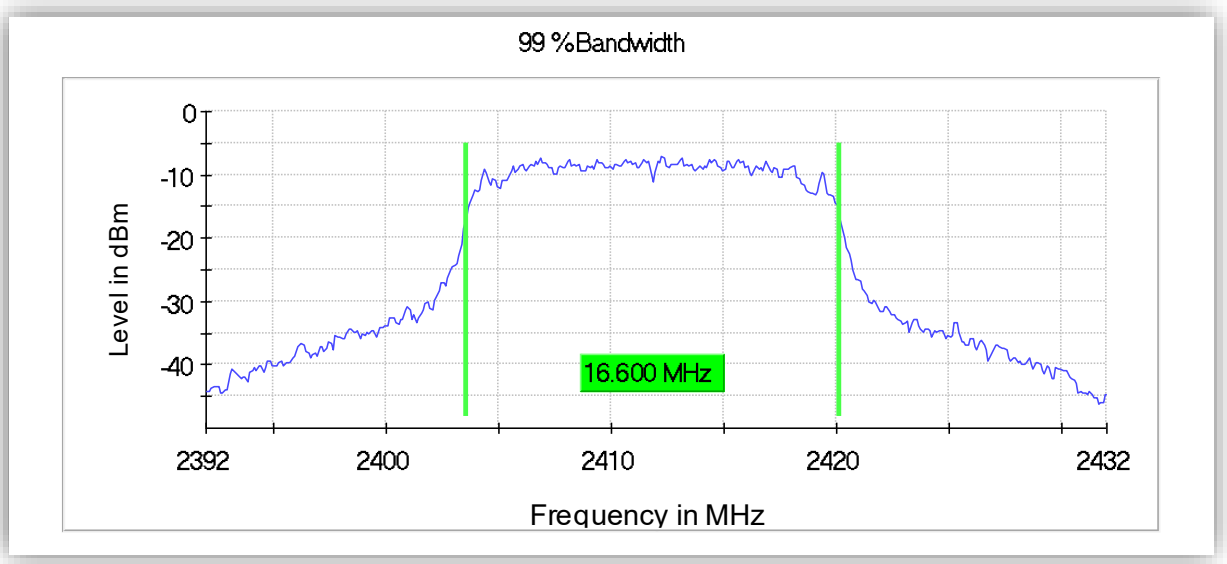
WLAN 802.11b 1Mbps Low Channel



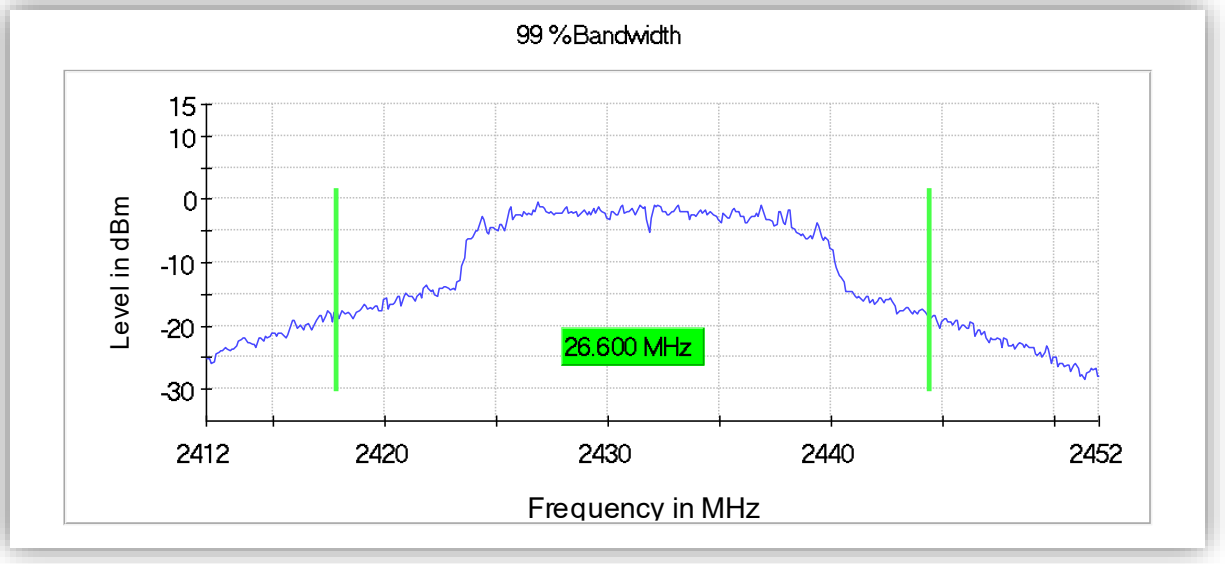
WLAN 802.11b 1Mbps Middle Channel



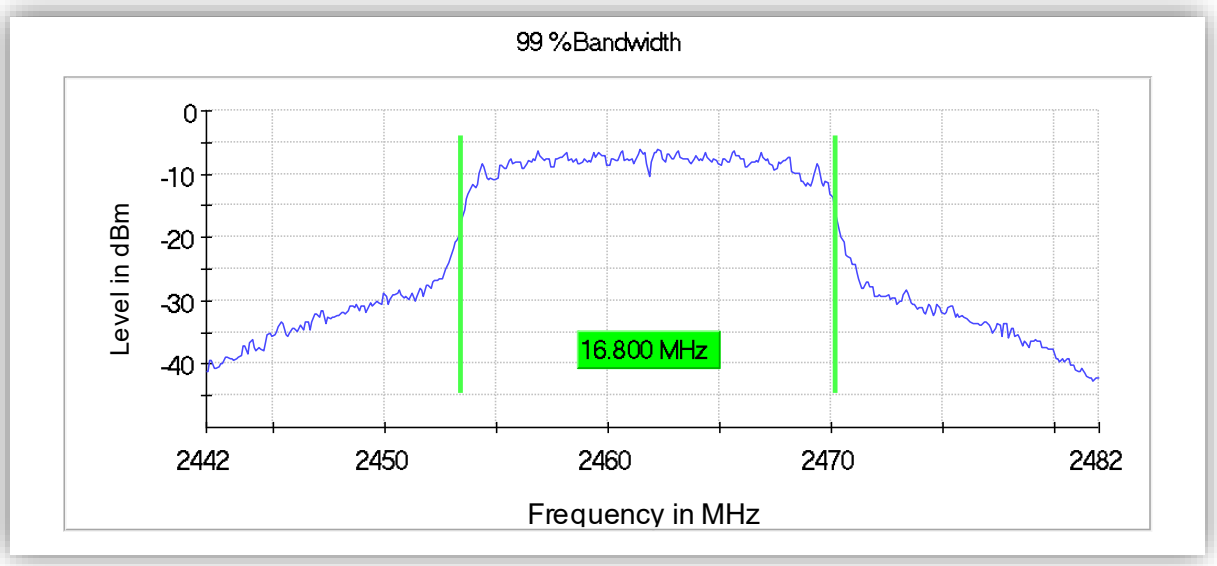
WLAN 802.11b 1Mbps High Channel



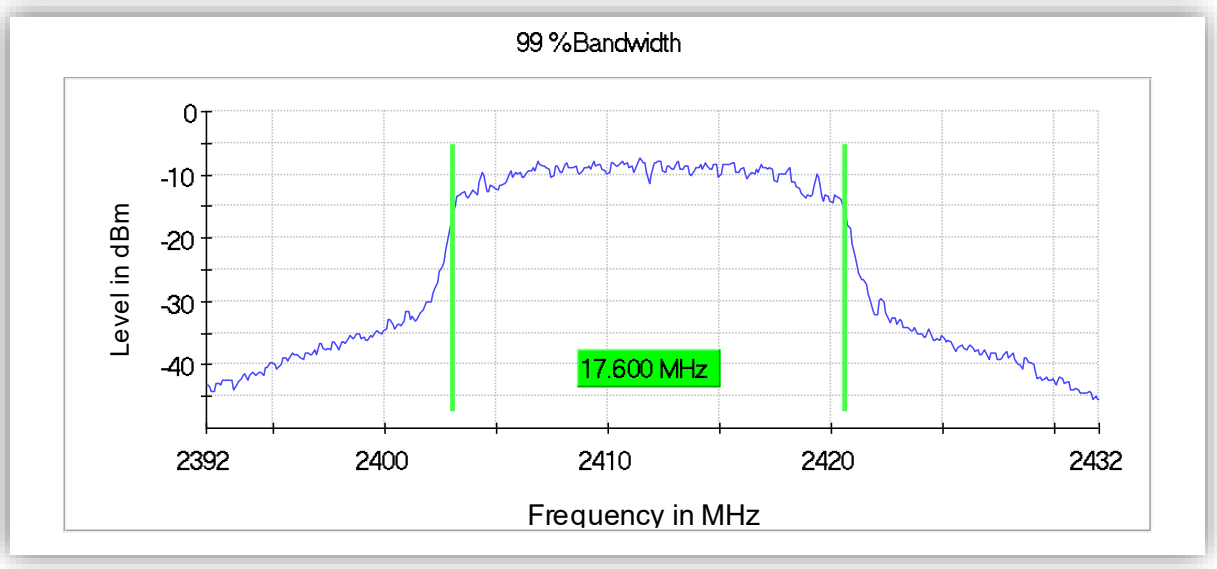
WLAN 802.11g 6Mbps Low Channel



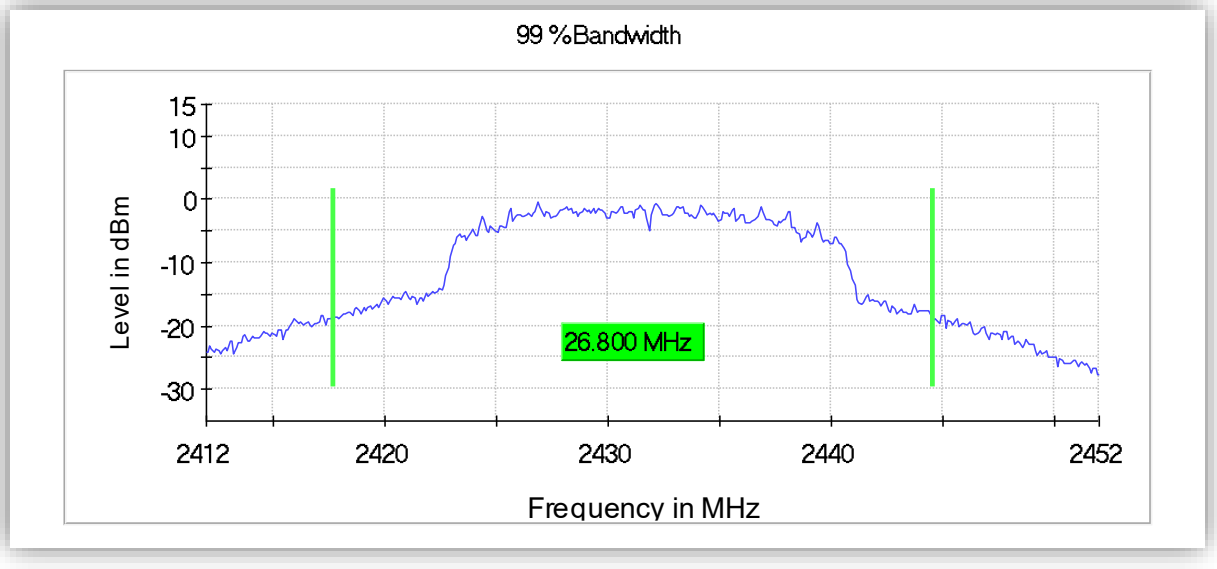
WLAN 802.11g 6Mbps Middle Channel



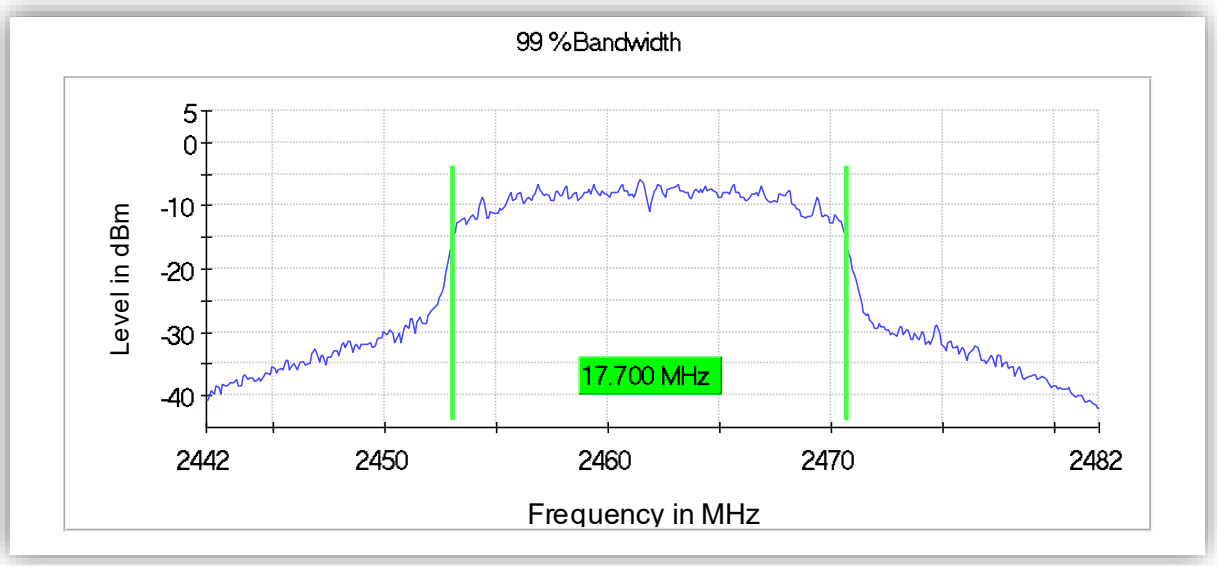
WLAN 802.11g 6Mbps High Channel



WLAN 802.11n MCS0 Low Channel



WLAN 802.11n MCS0 Middle Channel



WLAN 802.11n MCS0 High Channel

2.4 MINIMUM 6 dB RF BANDWIDTH

2.4.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(a)(2)
RSS-247, Clause 5.2 (a)

2.4.2 Standard Applicable

(2) Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

2.4.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.4.4 Date of Test/Initial of test personnel who performed the test

March 25 and 26, 2025 / OC

2.4.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	19.6 °C
Relative Humidity	38.2 %
ATM Pressure	99.8 kPa

2.4.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.8.1.

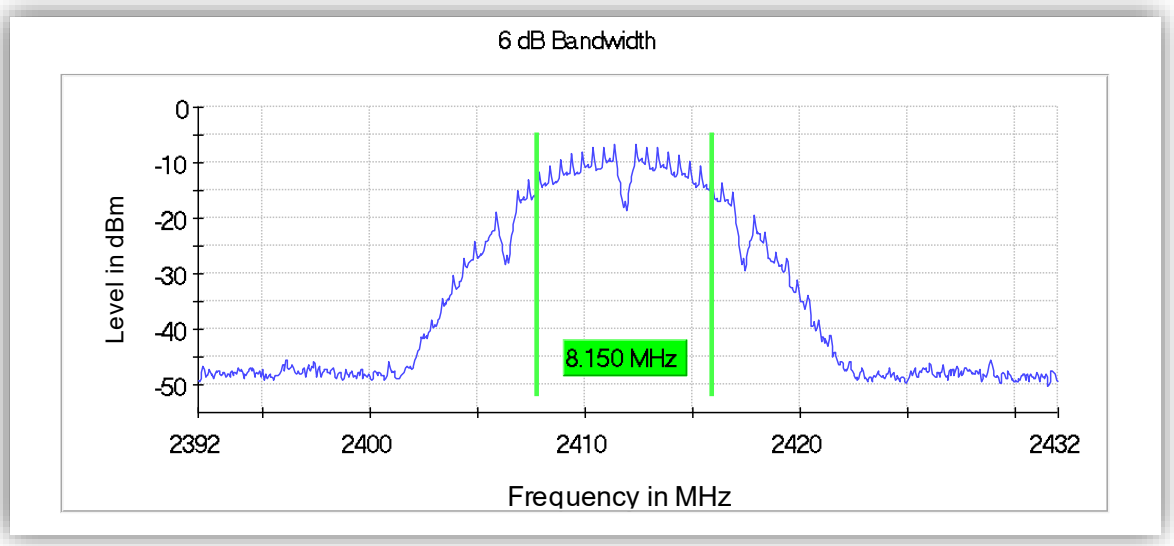
2.4.8 Sample Measurement Settings

Setting	Instrument Value	Target Value
Span	40.000 MHz	40.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	800	~ 800
Sweeptime	56.836 µs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	35 / max. 150	max. 150
Stable	5 / 5	5
Max Stable Difference	0.32 dB	0.50 dB

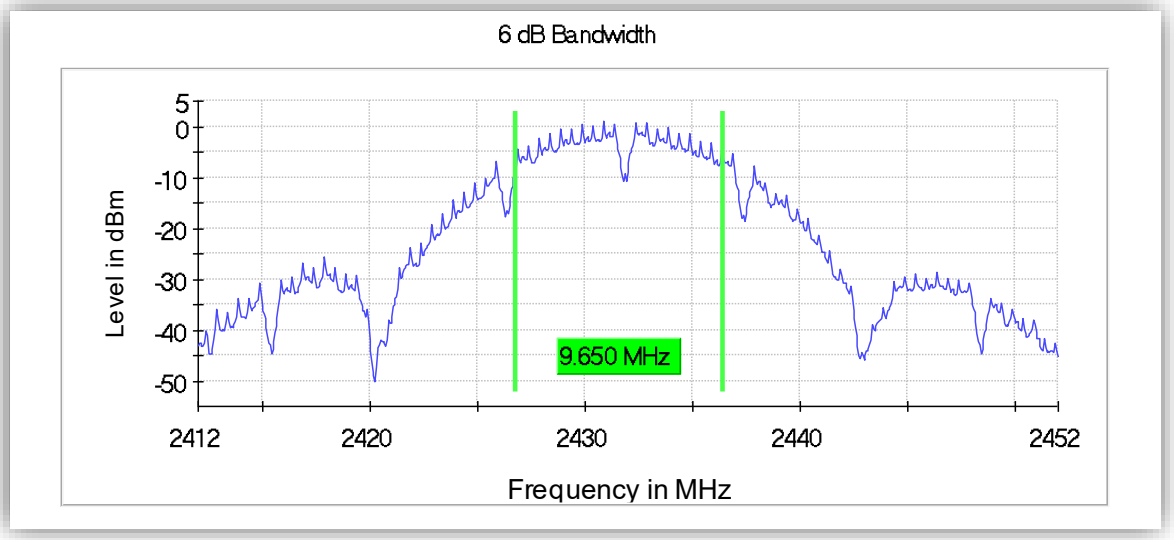
2.4.9 Test Results

DUT Frequency (MHz)	Mode	Data Rate	Limit Min (MHz)	Bandwidth (MHz)	Result
2412.000	WLAN 802.11b	1Mbps	0.500000	8.150000	PASS
2432.000				9.650000	PASS
2462.000				8.150000	PASS
2412.000	WLAN 802.11g	6Mbps	0.500000	15.200000	PASS
2432.000				15.200000	PASS
2462.000				15.200000	PASS
2412.000	WLAN 802.11n	MCS0	0.500000	15.200000	PASS
2432.000				15.800000	PASS
2462.000				15.200000	PASS

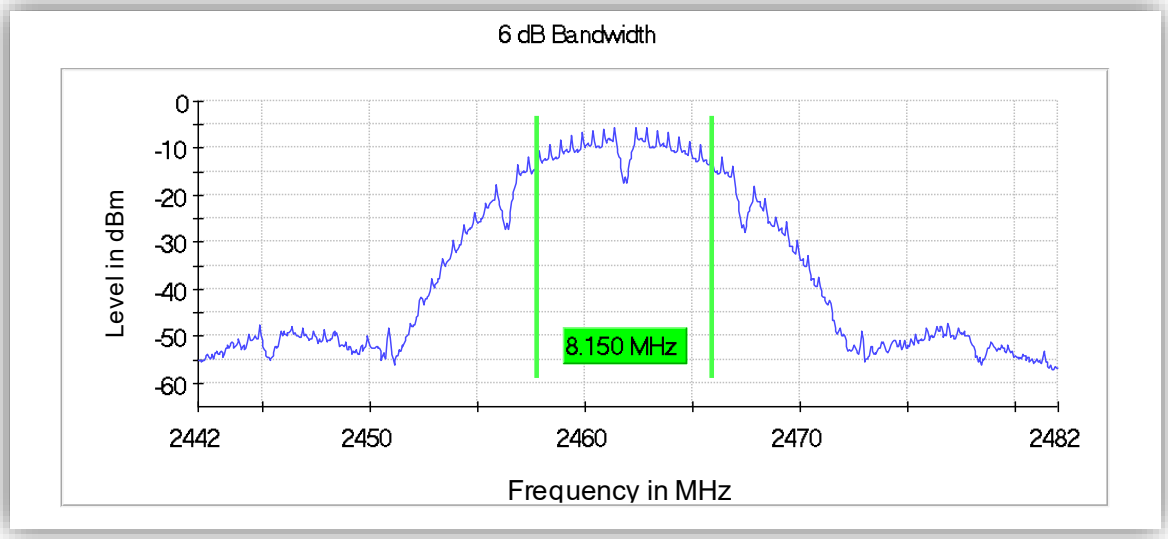
2.4.10 Test Plots



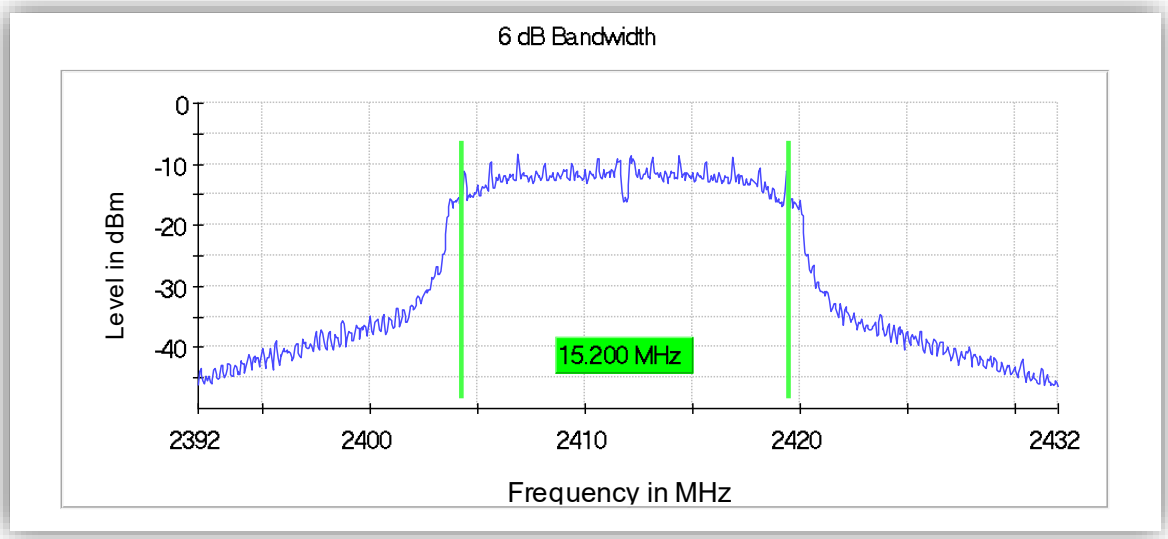
WLAN 802.11b 1Mbps Low Channel



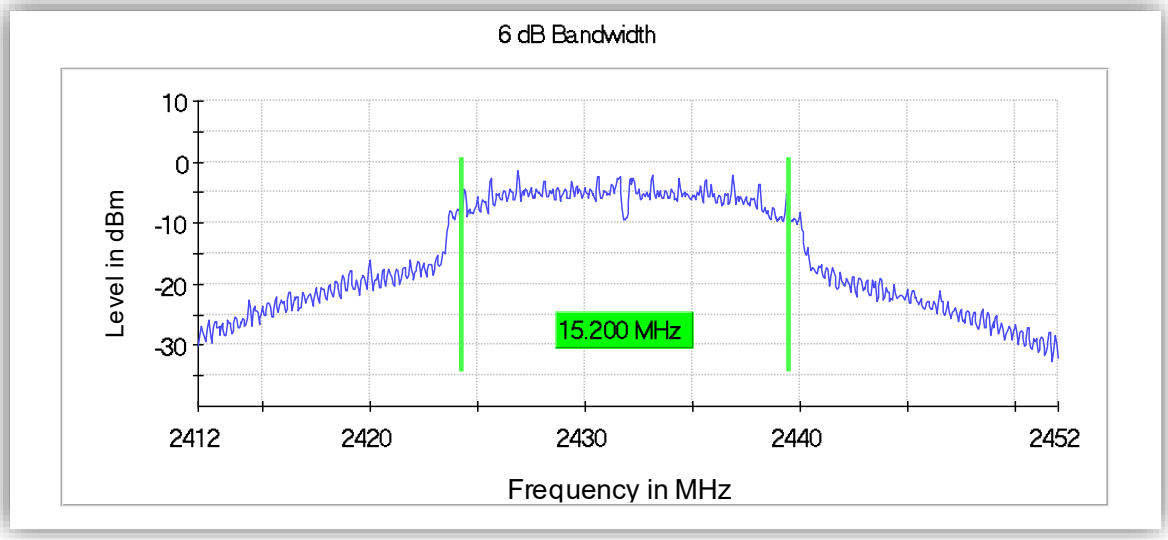
WLAN 802.11b 1Mbps Middle Channel



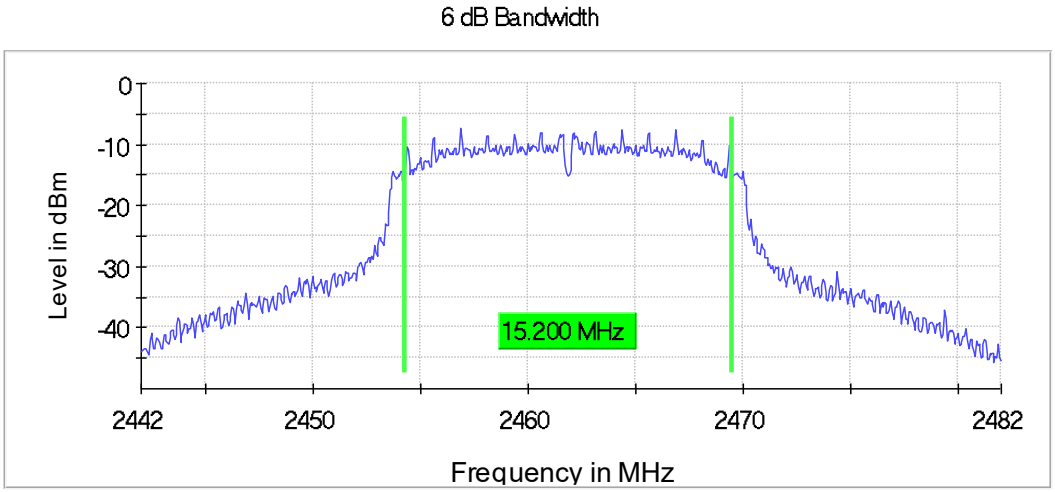
WLAN 802.11b 1Mbps High Channel



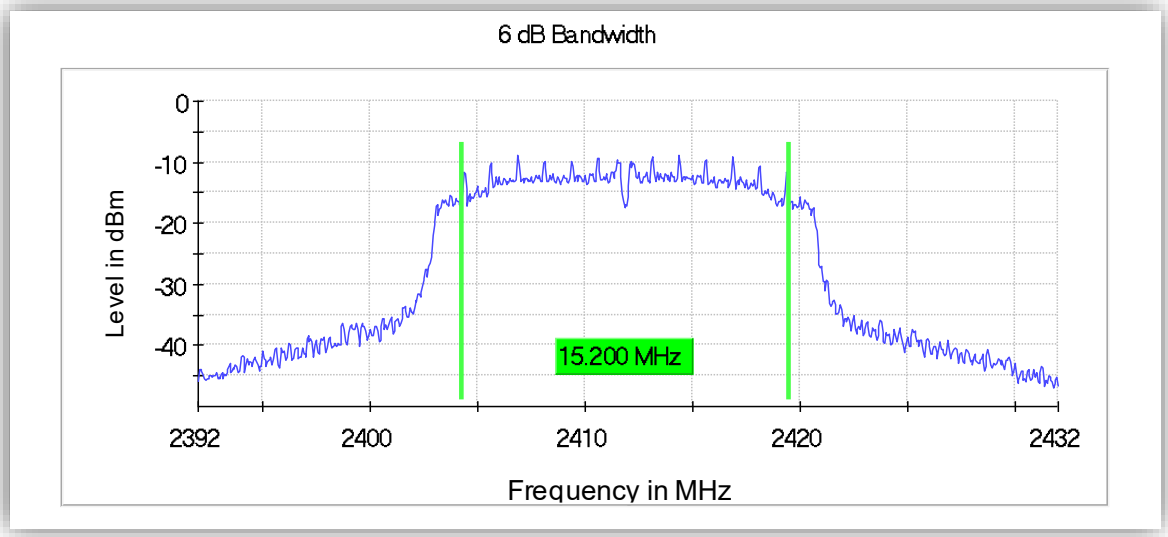
WLAN 802.11g 6Mbps Low Channel



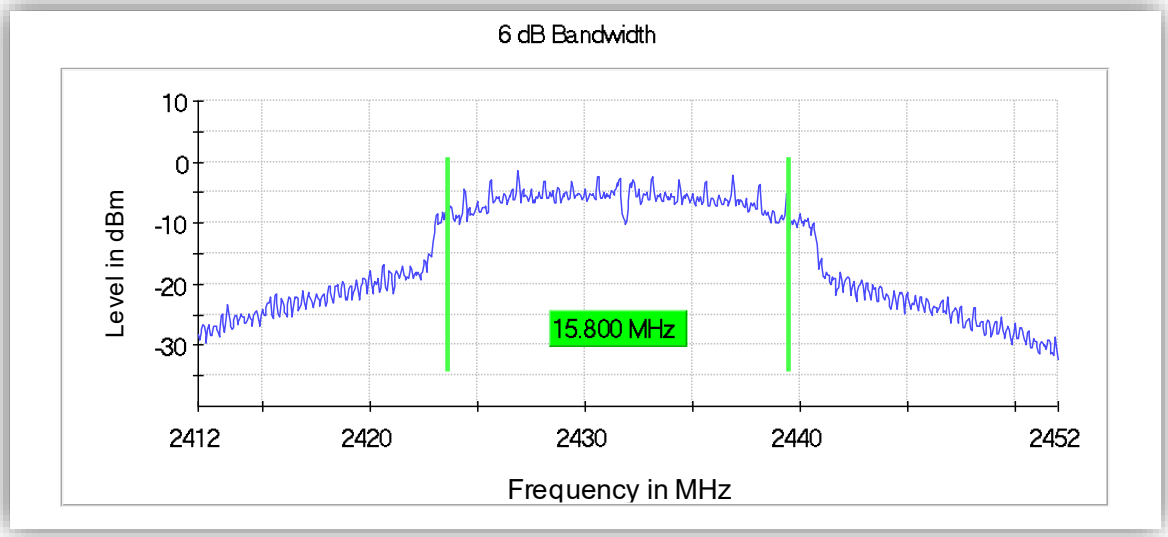
WLAN 802.11g 6Mbps Middle Channel



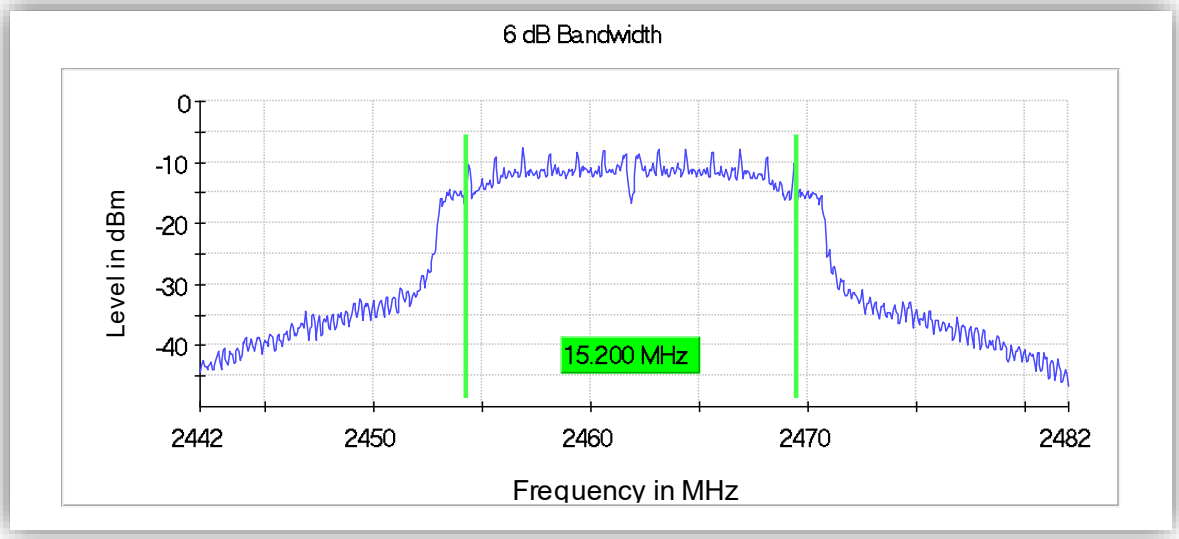
WLAN 802.11g 6Mbps High Channel



WLAN 802.11n MCS0 Low Channel



WLAN 802.11n MCS0Middle Channel



WLAN 802.11n MCS0 High Channel

2.5 OUT-OF-BAND EMISSIONS - CONDUCTED

2.5.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-247, Clause 5.5

2.5.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.5.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.5.4 Date of Test/Initial of test personnel who performed the test

March 25, 26 and April 10, 2025 / OC

2.5.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

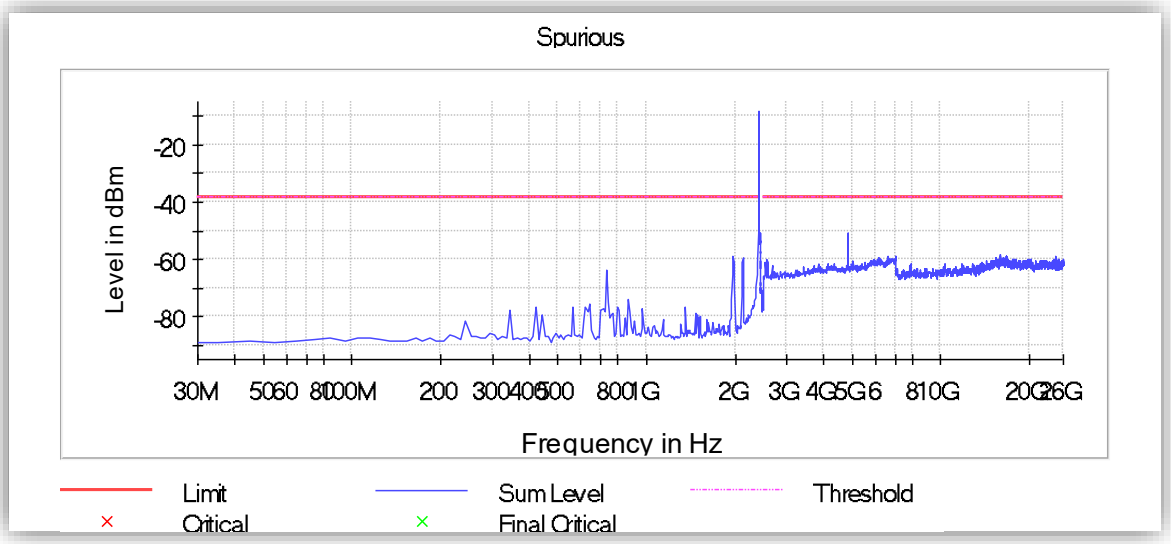
2.5.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	19.6 °C	18.7 °C
Relative Humidity	38.2 %	55.2 %
ATM Pressure	99.8 kPa	99.9 kPa

2.5.7 Additional Observations

- This is a conducted test using a spectrum analyser.
- The path loss was all accounted for using a transducer factor (TDF).
- Test methodology is per FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 and ANSI C63.10-2013 11.11.2 & 11.11.3.
- Both §15.205 and §15.247(d) requirements verified.
- Limits of §15.209 is converted to EIRP using formula from Clause 12.7.2(d) of ANSI C63.10-2013. Appropriate antenna gain is programmed as Offset for §15.205 verification.

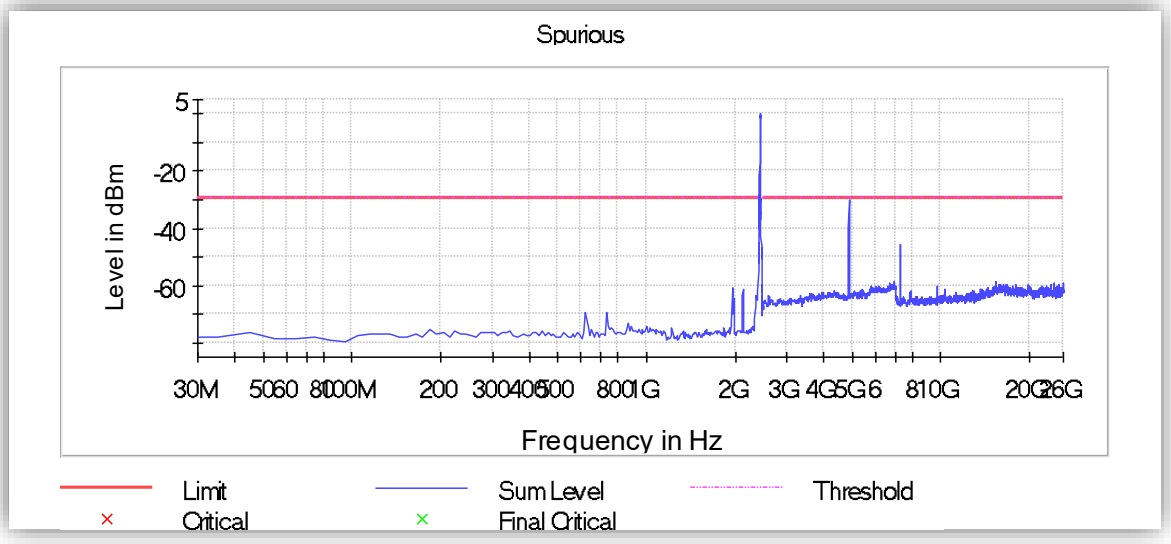
2.5.8 Test Results WLAN 802.11b 1Mbps Low Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
2395.021008	-48.8	-	-38.4	10.4	PASS
4827.154590	-51.0	-	-38.4	12.6	PASS
15900.797599	-58.5	-	-38.4	20.1	PASS

No emissions found above the limits during pre-measurements

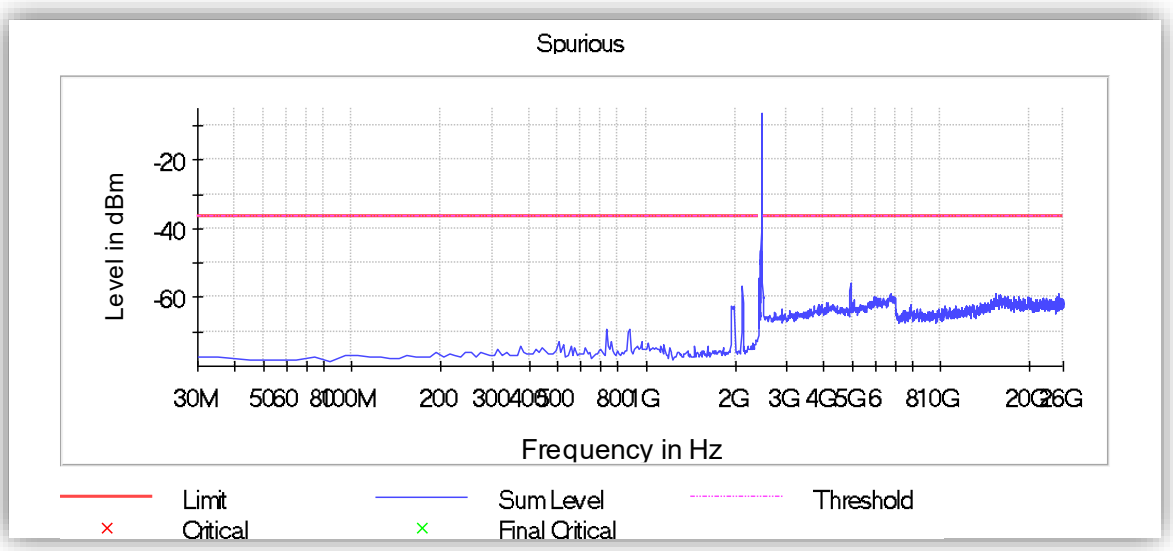
2.5.9 Test Results WLAN 802.11b 1Mbps Mid Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
4867.131640	-30.3	-	-29.6	0.7	PASS
4857.137378	-39.7	-	-29.6	10.0	PASS
7295.737463	-45.9	-	-29.6	16.3	PASS

No emissions found above the limits during pre-measurements

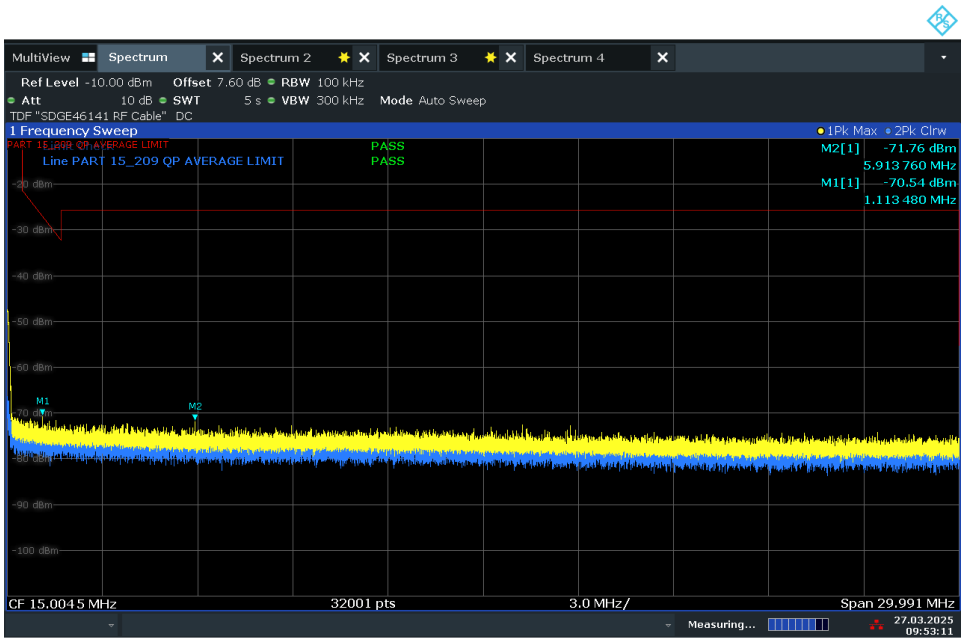
2.5.10 Test Results WLAN 802.11b 1Mbps High Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
4927.097216	-55.6	-	-36.6	19.0	PASS
2116.197479	-56.4	-	-36.6	19.9	PASS
4917.102954	-57.9	-	-36.6	21.4	PASS

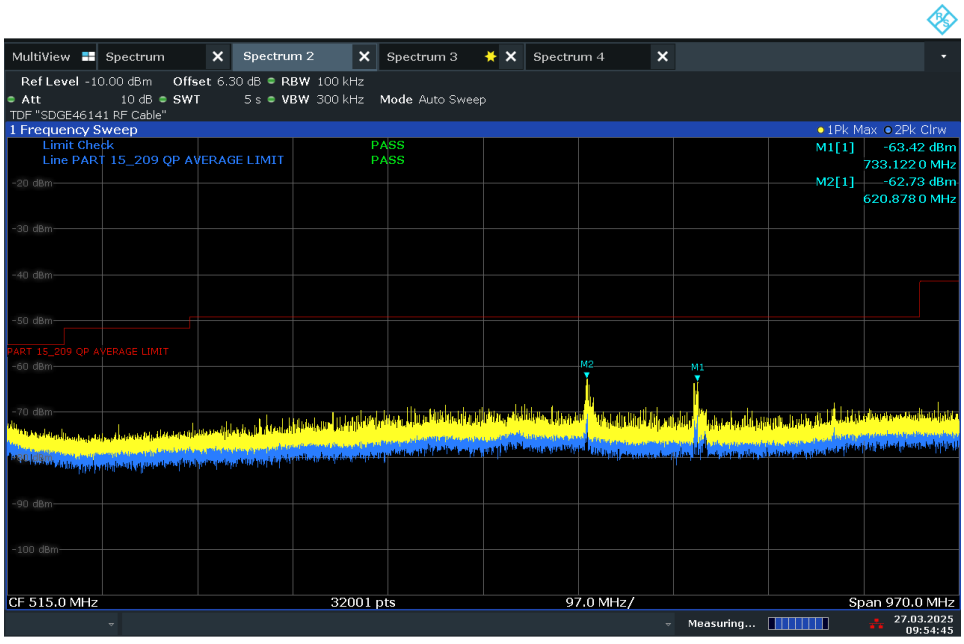
No emissions found above the limits during pre-measurements

2.5.11 Test Results (§15.205 requirements)



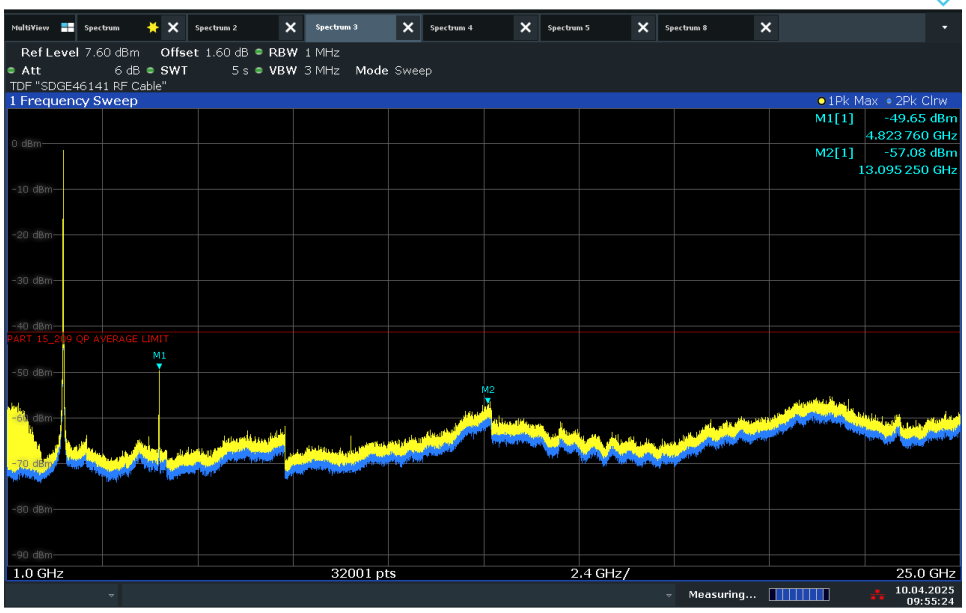
09:53:12 27.03.2025

WLAN 802.11b 1Mbps Low Channel (9kHz to 30MHz)



09:54:45 27.03.2025

WLAN 802.11b 1Mbps Low Channel (30MHz to 1GHz)

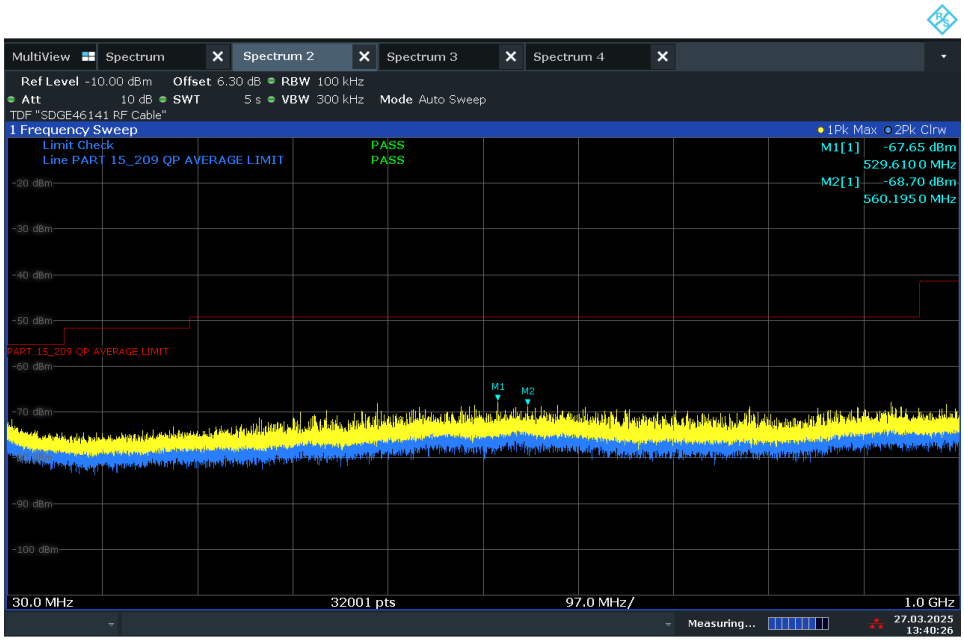


09:55:25 10.04.2025

WLAN 802.11b 1Mbps Low Channel (1GHz to 25GHz)

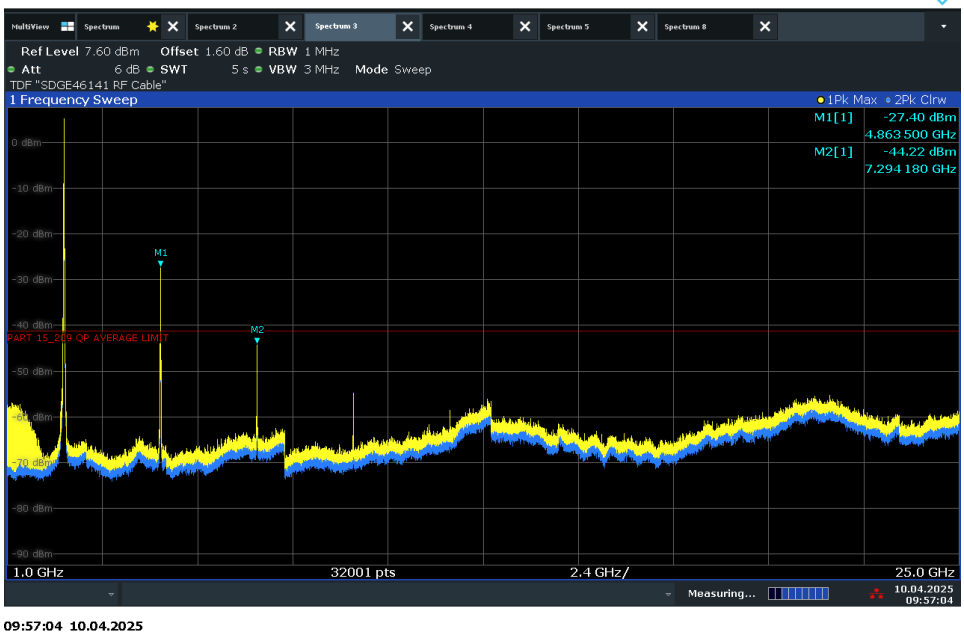
13:39:24 27.03.2025

WLAN 802.11b 1Mbps Mid Channel (9kHz to 30MHz)



13:40:26 27.03.2025

WLAN 802.11b 1Mbps Mid Channel (30MHz to 1GHz)

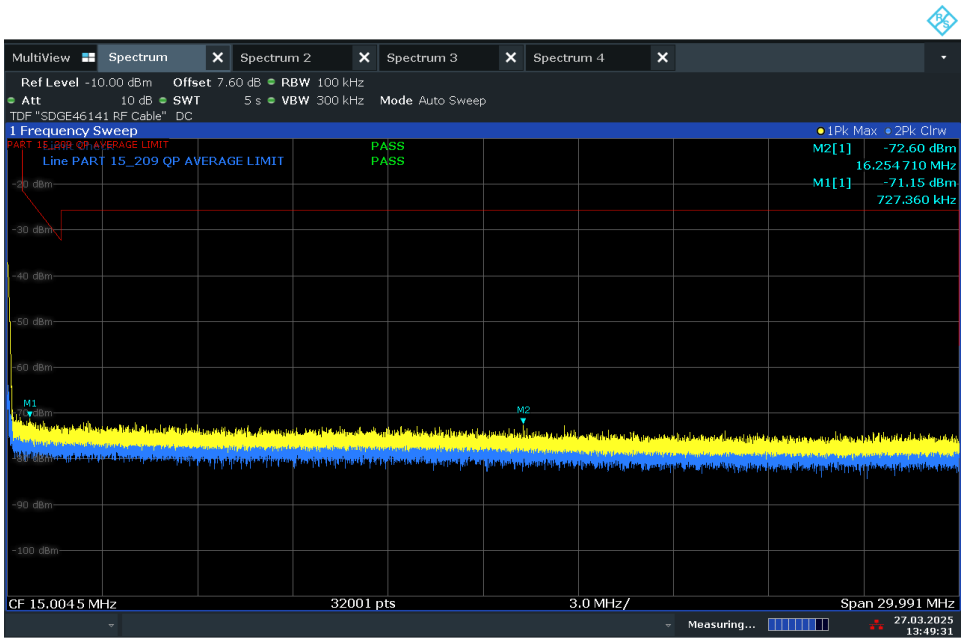


09:57:04 10.04.2025

WLAN 802.11b 1Mbps Mid Channel (1GHz to 25GHz)

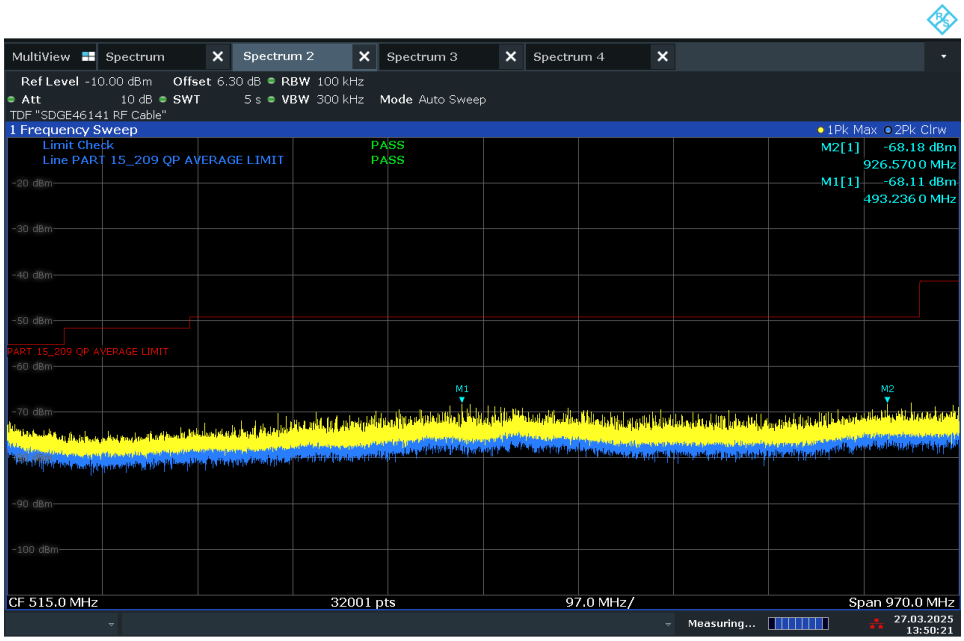
Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.8635	-27.4	18.34	-45.74	-41.23	4.51	Complies



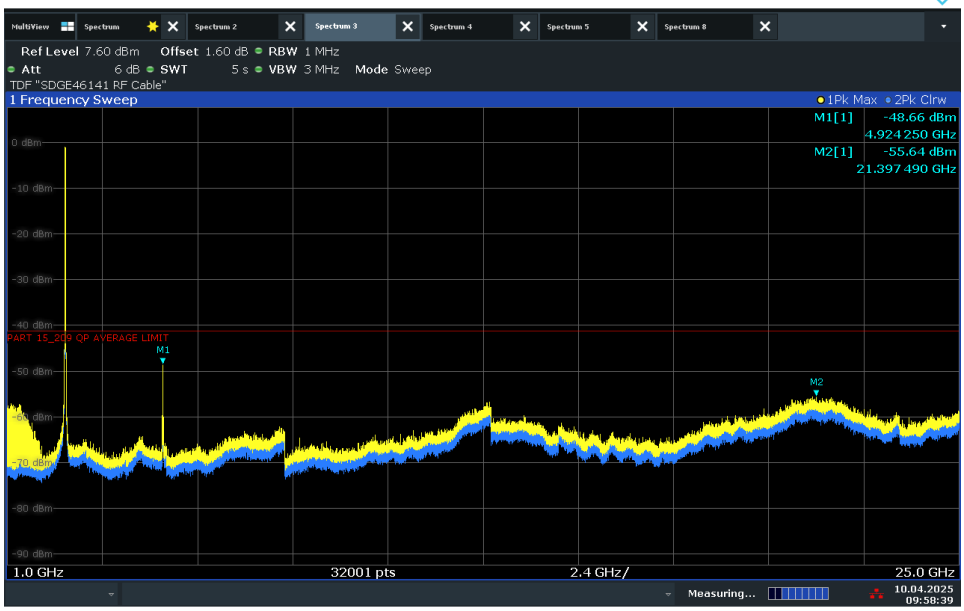
13:49:31 27.03.2025

WLAN 802.11b 1Mbps High Channel (9kHz to 30MHz)



13:50:22 27.03.2025

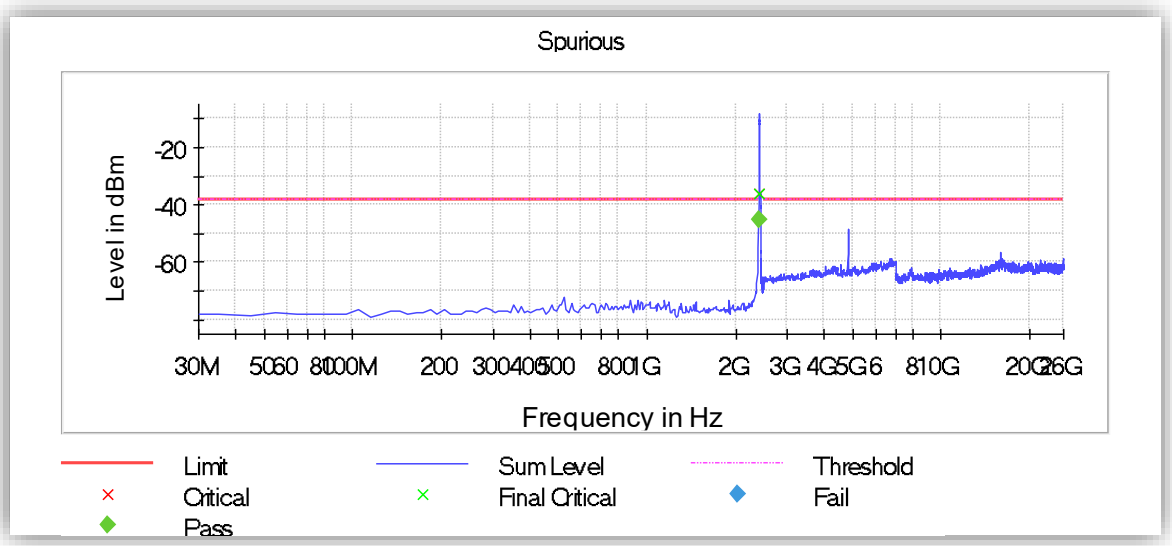
WLAN 802.11b 1Mbps High Channel (30MHz to 1GHz)



09:58:40 10.04.2025

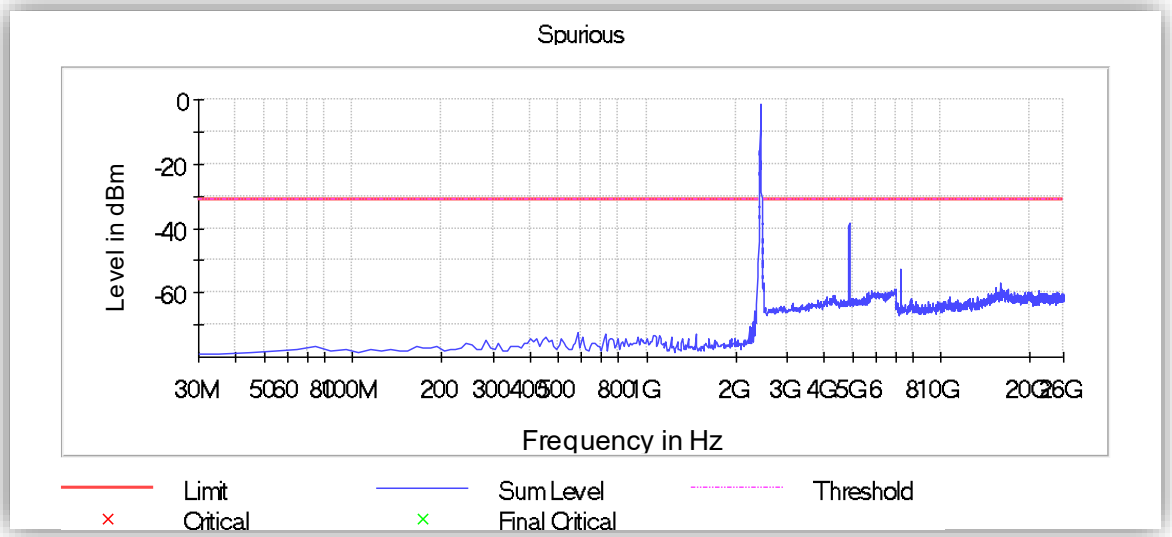
WLAN 802.11b 1Mbps High Channel (1GHz to 25GHz)

2.5.12 Test Results WLAN 802.11g 6Mbps Low Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.958664	-36.0	-45.0	-38.3	6.7	PASS

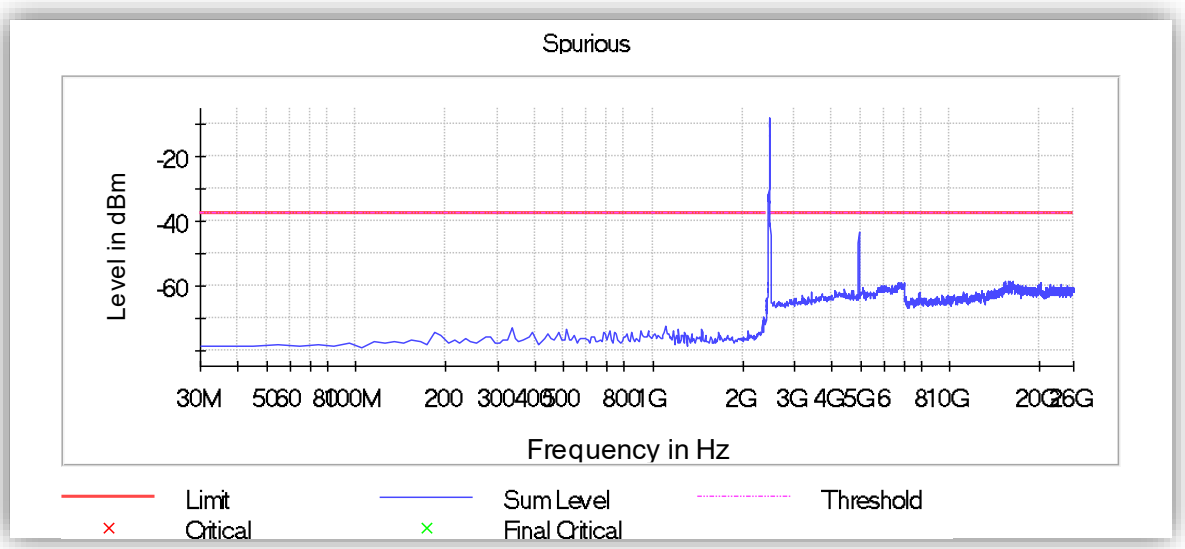
2.5.13 Test Results WLAN 802.11g 6Mbps Mid Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
4867.131640	-38.4	-	-31.4	7.1	PASS
4857.137378	-39.1	-	-31.4	7.7	PASS
4877.125903	-43.7	-	-31.4	12.3	PASS

No emissions found above the limits during pre-measurements

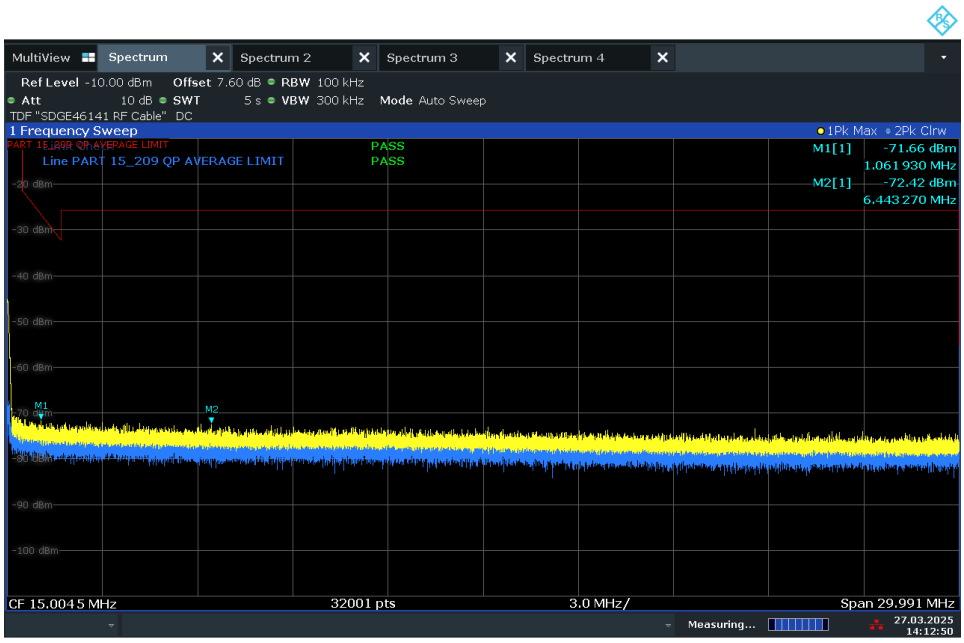
2.5.14 Test Results WLAN 802.11g 6Mbps High Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
4927.097216	-43.5	-	-37.7	5.7	PASS
4917.102954	-46.9	-	-37.7	9.1	PASS
2488.497131	-50.4	-	-37.7	12.7	PASS

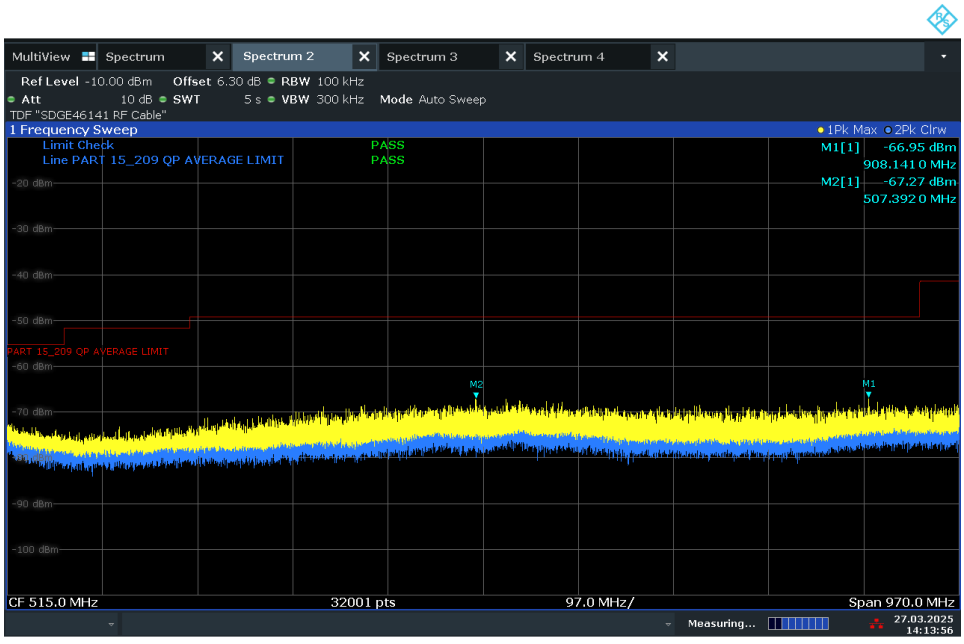
No emissions found above the limits during pre-measurements

2.5.15 Test Results (§15.205 requirements)



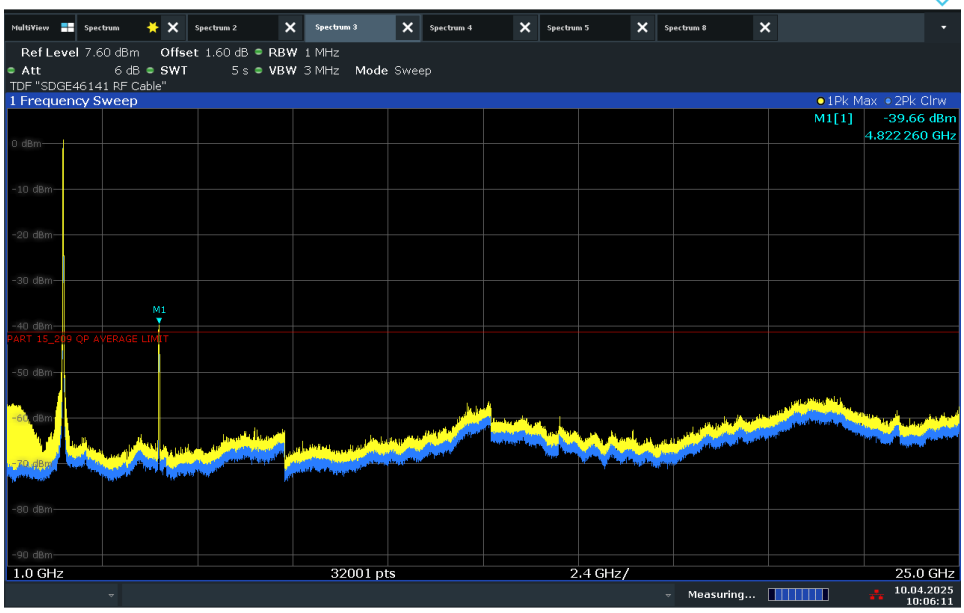
14:12:50 27.03.2025

WLAN 802.11g 6Mbps Low Channel (9kHz to 30MHz)



14:13:57 27.03.2025

WLAN 802.11g 6Mbps Low Channel (30MHz to 1GHz)

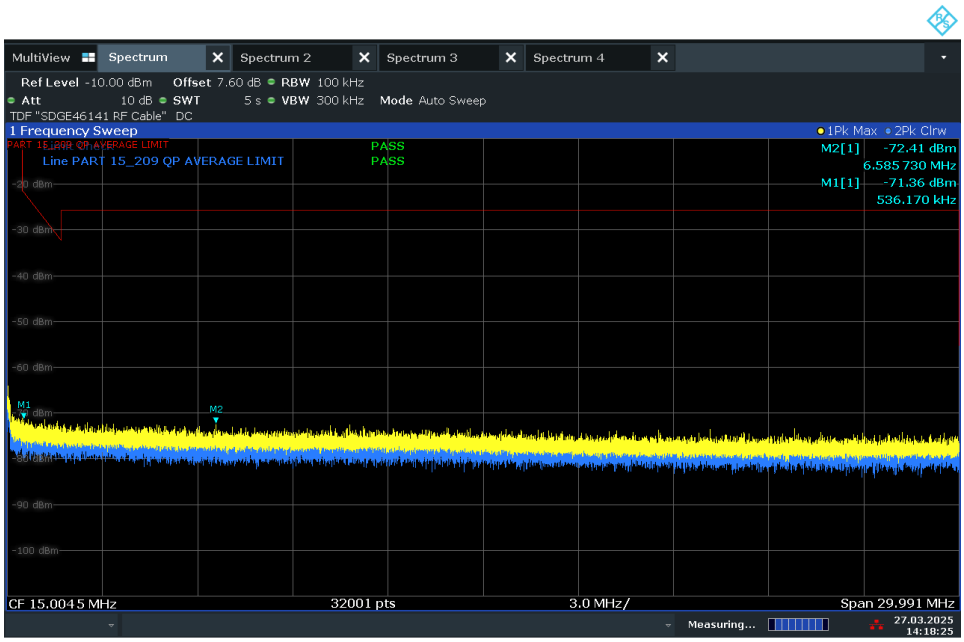


10:06:11 10.04.2025

WLAN 802.11g 6Mbps Low Channel (1GHz to 25GHz)

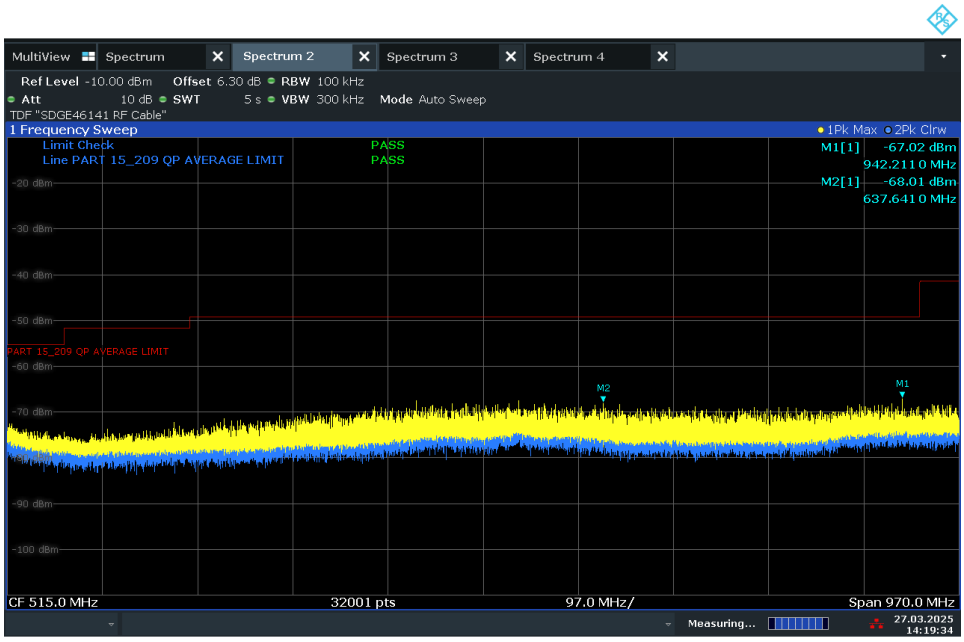
Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.82226	-39.66	18.34	-58	-41.23	16.77	Complies



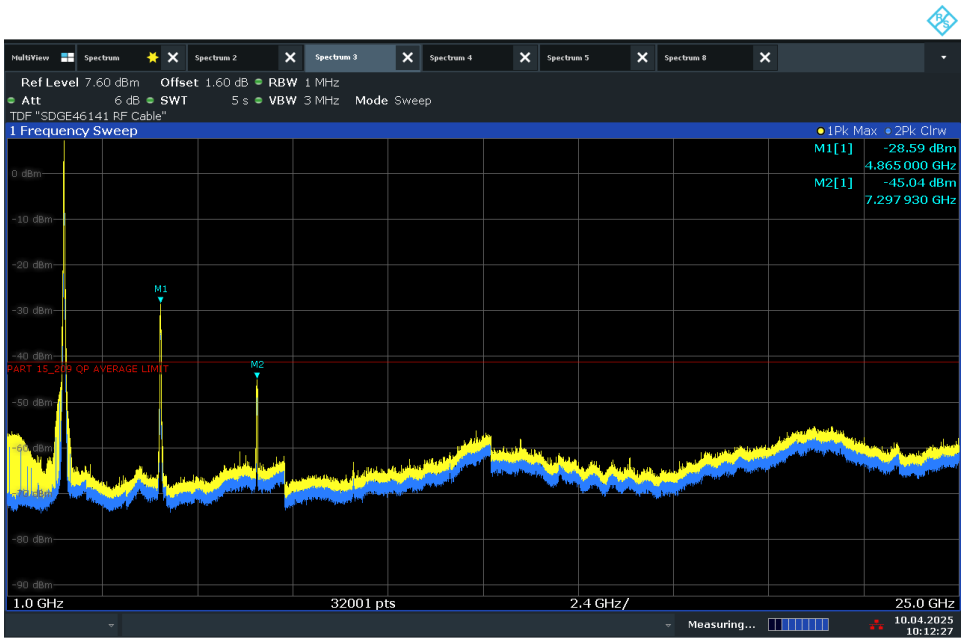
14:18:26 27.03.2025

WLAN 802.11g 6Mbps Mid Channel (9kHz to 30MHz)



14:19:35 27.03.2025

WLAN 802.11g 6Mbps Mid Channel (30MHz to 1GHz)



10:12:28 10.04.2025

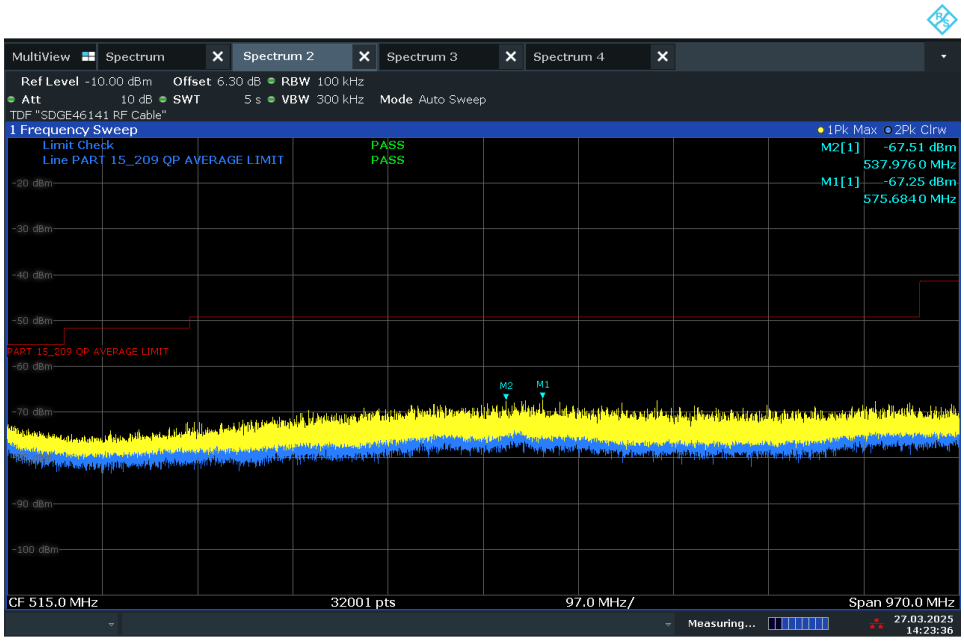
WLAN 802.11g 6Mbps Mid Channel (1GHz to 25GHz)

Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.865	-28.59	18.34	-46.93	-41.23	5.7	Complies

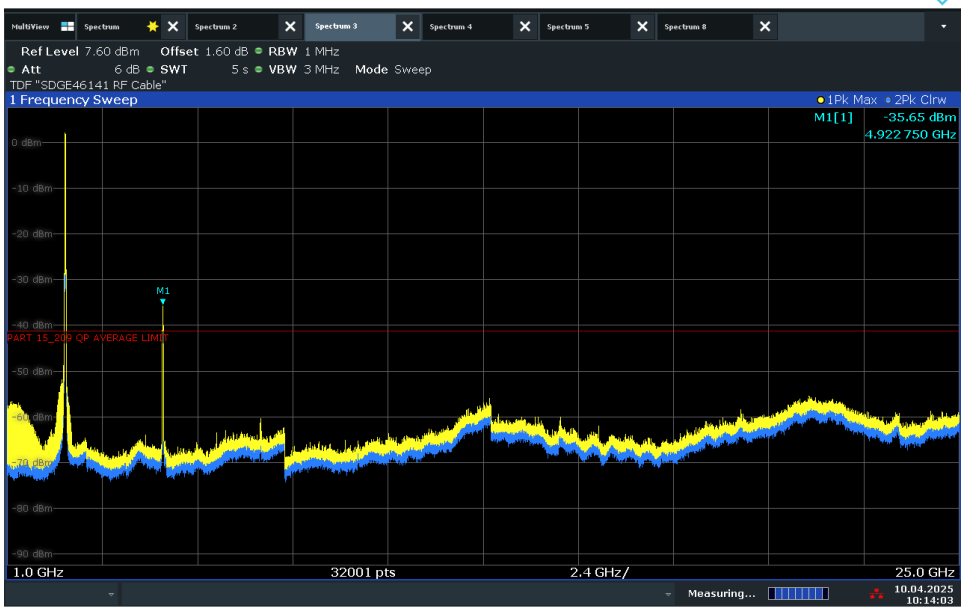
14:22:35 27.03.2025

WLAN 802.11g 6Mbps High Channel (9kHz to 30MHz)



14:23:37 27.03.2025

WLAN 802.11g 6Mbps High Channel (30MHz to 1GHz)



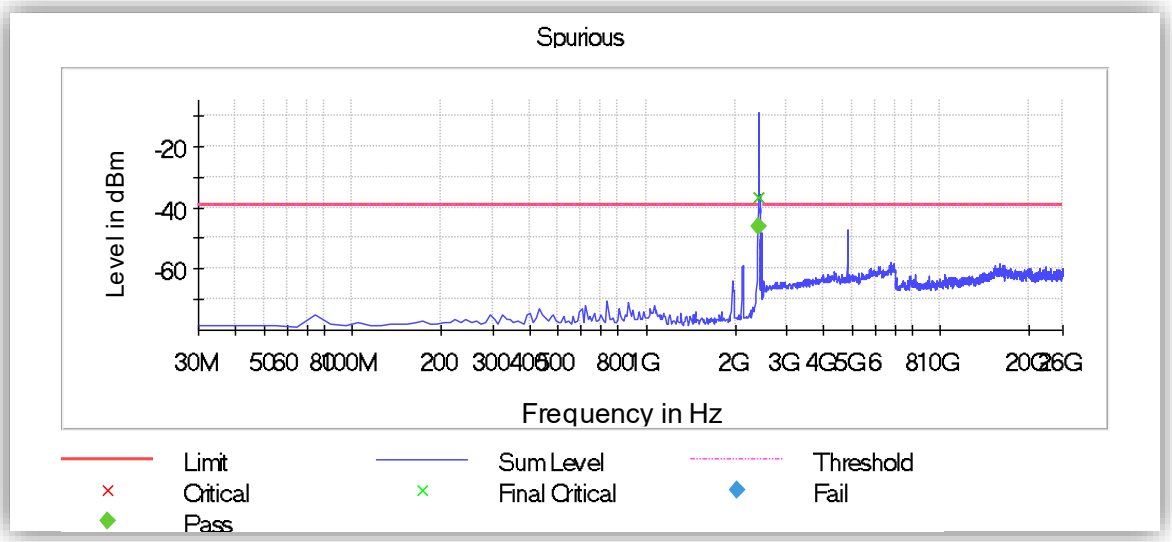
10:14:04 10.04.2025

WLAN 802.11g 6Mbps High Channel (1GHz to 25GHz)

Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

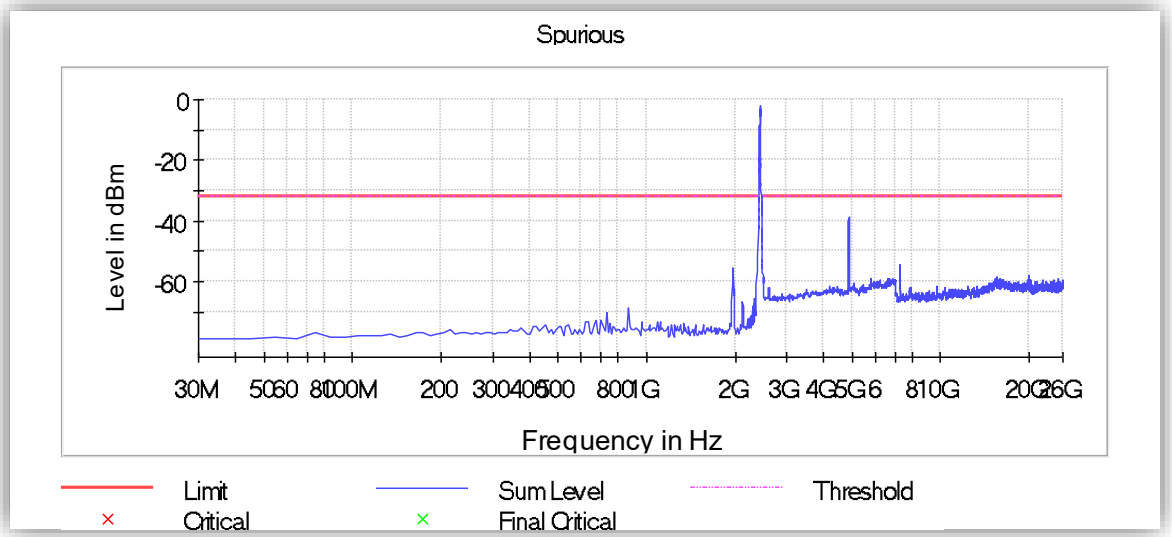
Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.92275	-35.65	18.34	-53.99	-41.23	12.76	Complies

2.5.16 Test Results WLAN 802.11n MCS0 Low Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
2399.659412	-35.7	-46.5	-39.1	7.4	PASS

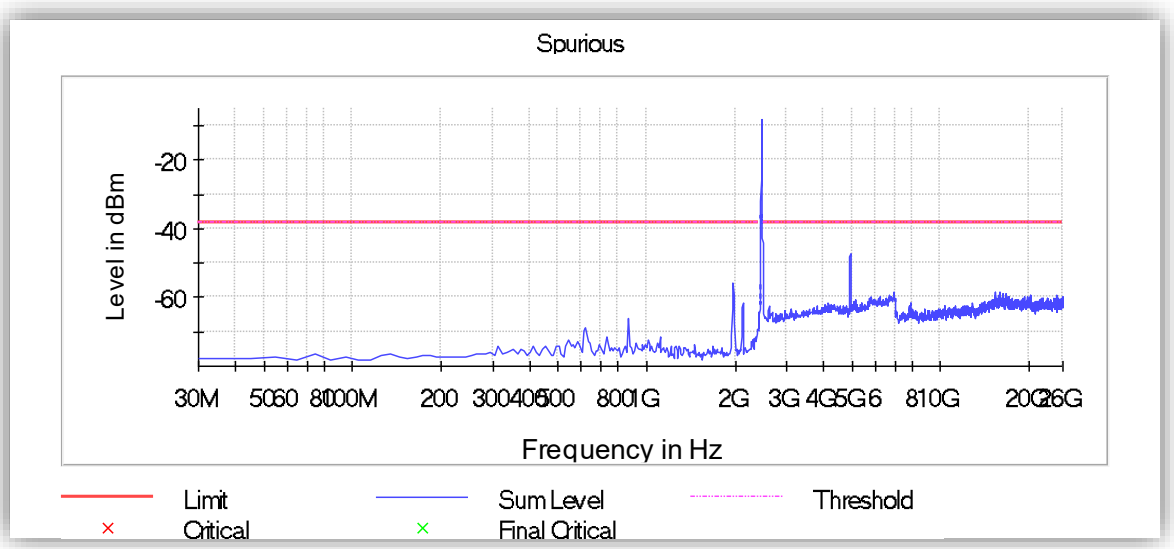
2.5.17 Test Results WLAN 802.11n MCS0 Mid Channel



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
4867.131640	-38.8	-	-31.9	6.9	PASS
4857.137378	-40.3	-	-31.9	8.4	PASS
4877.125903	-41.5	-	-31.9	9.6	PASS

No emissions found above the limits during pre-measurements

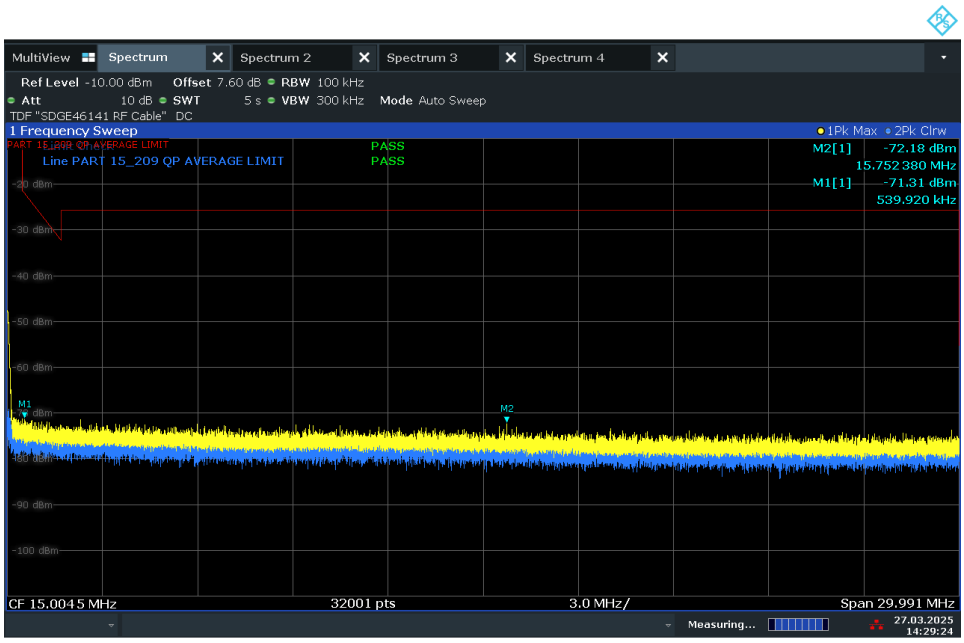
2.5.18 Test Results WLAN 802.11n MCS0 High Channel (§15.247 requirements)



Frequency (MHz)	Level Pre Measurement (dBm)	Level (dBm)	Limit (dBm)	Margin (dB)	Result
2488.497131	-46.9	-	-38.1	8.8	PASS
4927.097216	-47.2	-	-38.1	9.1	PASS
4917.102954	-48.2	-	-38.1	10.1	PASS

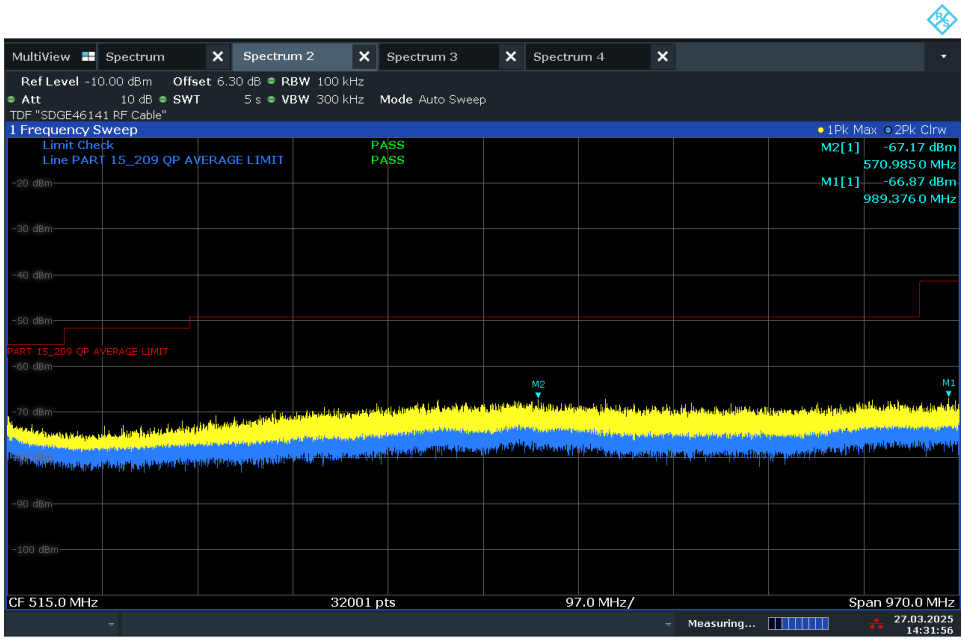
No emissions found above the limits during pre-measurements

2.5.19 Test Results (§15.205 requirements)



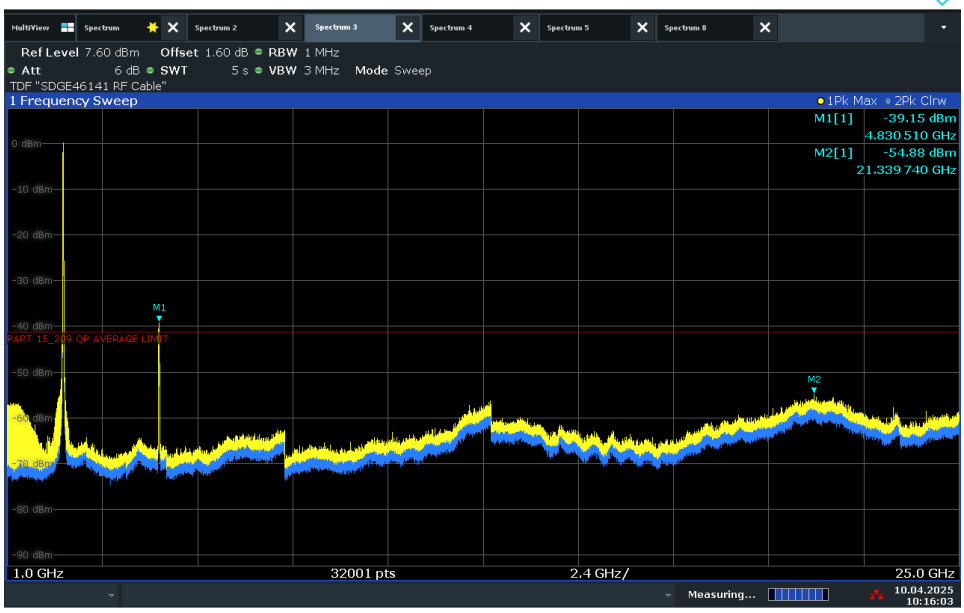
14:29:25 27.03.2025

WLAN 802.11n MCS0 Low Channel (9kHz to 30MHz)



14:31:57 27.03.2025

WLAN 802.11n MCS0 Low Channel (30MHz to 1GHz)



10:16:03 10.04.2025

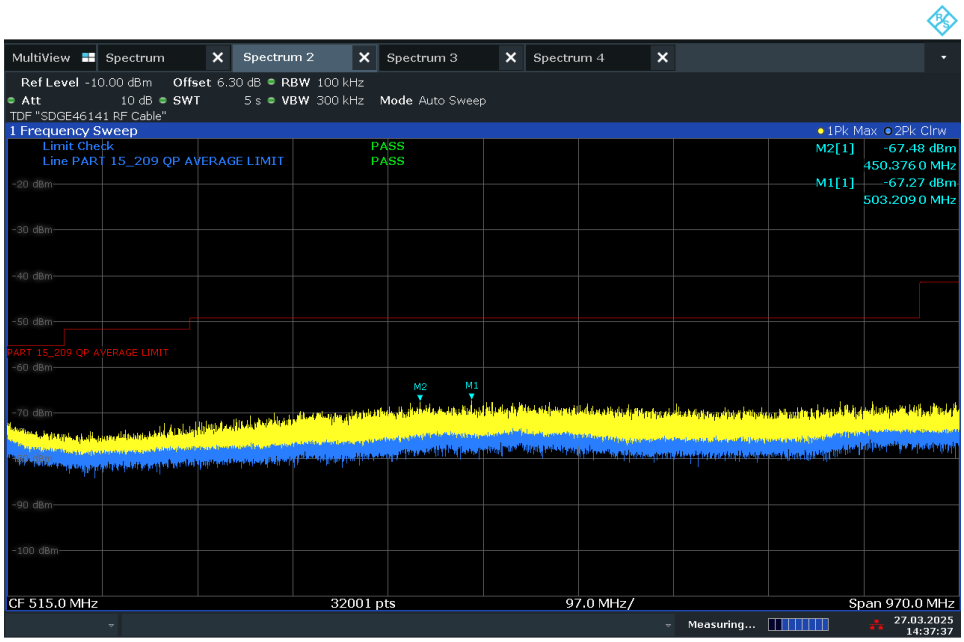
WLAN 802.11n MCS0 Low Channel (1GHz to 25GHz)

Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.83051	-39.15	18.34	-57.49	-41.23	16.26	Complies

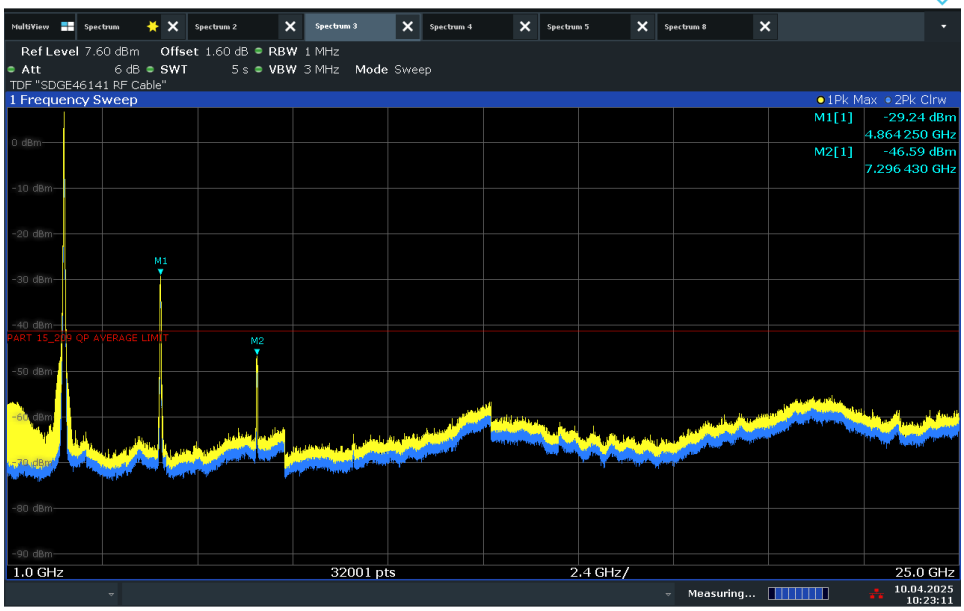
14:36:04 27.03.2025

WLAN 802.11n MCS0 Mid Channel (9kHz to 30MHz)



14:37:38 27.03.2025

WLAN 802.11n MCS0 Mid Channel (30MHz to 1GHz)

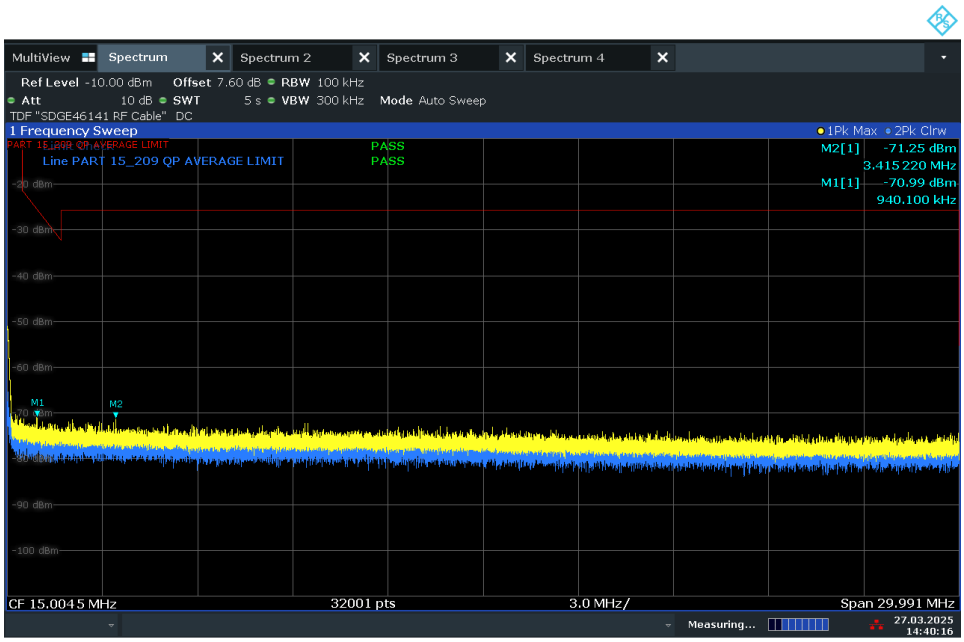


10:23:11 10.04.2025

WLAN 802.11n MCS0 Mid Channel (1GHz to 25GHz)

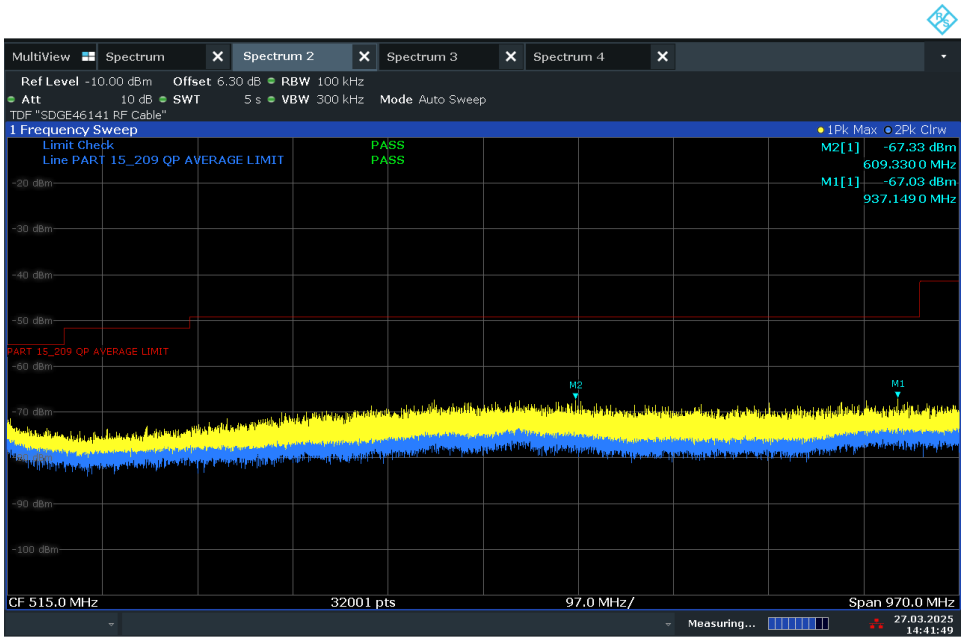
Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.86425	-29.24	18.34	-47.58	-41.23	6.35	Complies



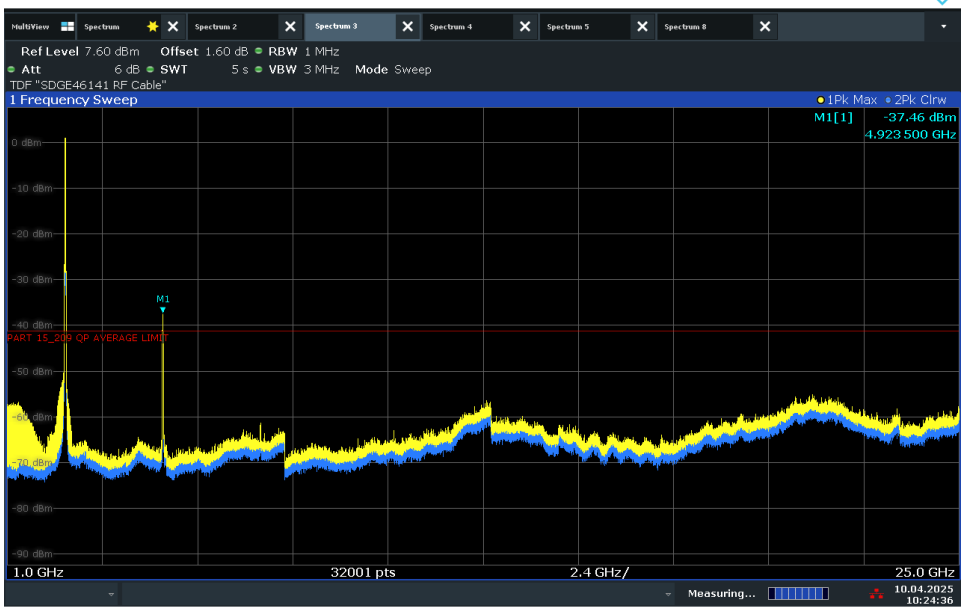
14:40:17 27.03.2025

WLAN 802.11n MCS0 High Channel (9kHz to 30MHz)



14:41:49 27.03.2025

WLAN 802.11n MCS0 High Channel (30MHz to 1GHz)



10:24:36 10.04.2025

WLAN 802.11n MCS0 High Channel (1GHz to 25GHz)

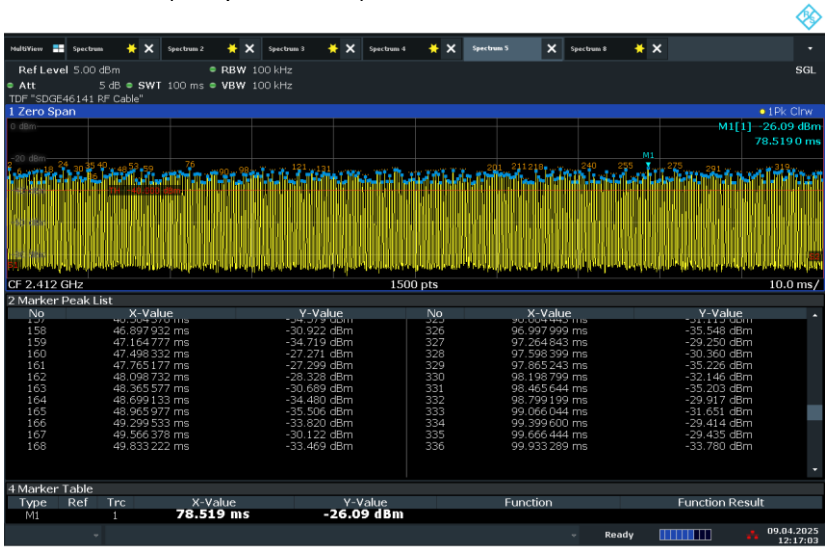
Note: Duty Cycle Correction Factor applied at harmonic(S) (see section 2.5.20):

Frequency (GHz)	Peak (dBm)	Duty Cycle Correction Factor (dB)	Value After DC Correction Factor (dBm)	Limit (dBm)	Margin (dB)	Result
4.9235	-37.46	18.34	-55.8	-41.23	14.57	Complies

America

2.5.20 Duty Cycle Correction Factor (§15.205 requirements)

The manufacturer declared 5% as operational Duty Cycle, although the lowest Duty Cycle when EUT is configured in test mode is 12.1% (see plots below).



12:17:03 09.04.2025

12:17:25 09.04.2025

Measured Duty Cycle = (Pulse width * number of pluses within 100ms) / 100ms
= (336 * 0.03602ms) / 100 = 0.1210 = 12.10%

Duty Cycle Correction Factor = 20*Log(Duty Cycle)
= 20*Log (0.1210) = 18.34 dB

18.34 dB Duty Cycle Correction Factor was applied to results on section 2.5.11 to 2.5.19.

2.6 BAND-EDGE COMPLIANCE OF RF CONDUCTED EMISSIONS

2.6.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
FCC 47 CFR Part 15, Clause 15.205
RSS-247, Clause 5.5

2.6.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.6.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.6.4 Date of Test/Initial of test personnel who performed the test

March 25 and 26, 2025 / OC

2.6.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	19.6 °C
Relative Humidity	38.2 %
ATM Pressure	99.8 kPa

2.6.7 Additional Observations

- This is a conducted test using direct connection to the Spectrum Analyzer being controlled by the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(d), KDB 558074 D01 DTS Meas Guidance v05 8.7 and ANSI C63.10-2013.

2.6.8 Sample Measurement Settings

Measurement 1		
Setting	**Instrument Value**	**Target Value**
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
Sweeptime	113.672 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	40 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.40 dB	0.50 dB

Measurement 2		
Setting	**Instrument Value**	**Target Value**
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1670	~ 1670
Sweeptime	94.727 µs	AUTO
Reference Level	-10.000 dBm	-10.000 dBm
Attenuation	10.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	13 / max. 150	max. 150
Stable	3 / 3	3
Max Stable Difference	0.15 dB	0.50 dB

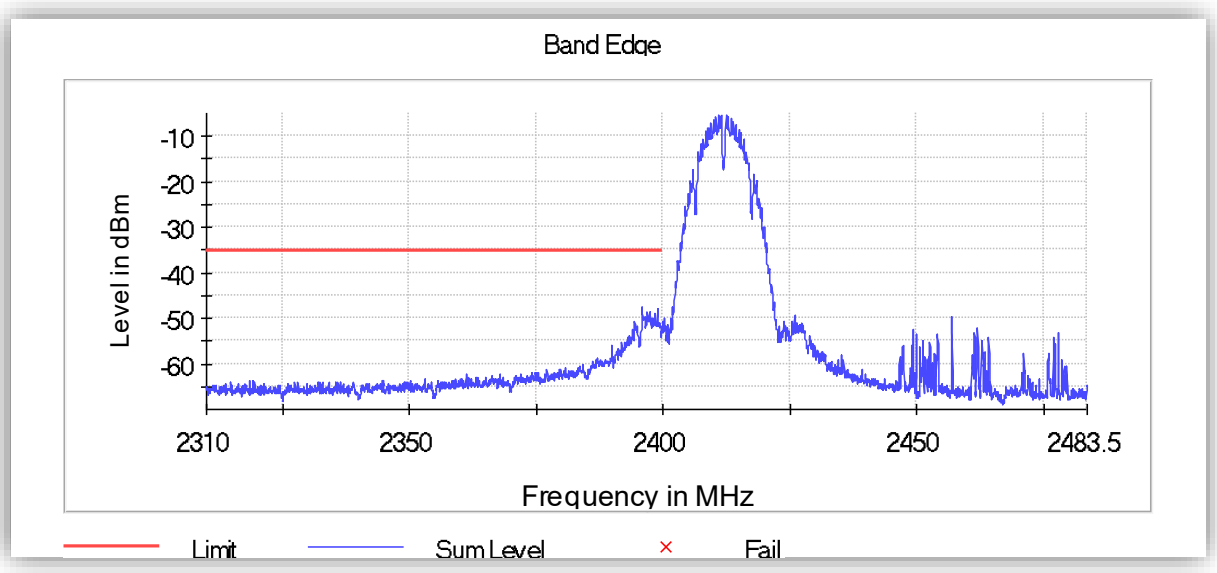
2.6.9 Test Results WLAN 802.11b 1Mbps (Lower Band Edge)

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2395.875000	-47.5	12.2	-35.3	PASS
2398.875000	-47.9	12.6	-35.3	PASS
2395.825000	-48.0	12.7	-35.3	PASS
2398.825000	-48.1	12.8	-35.3	PASS
2397.375000	-48.4	13.1	-35.3	PASS
2396.875000	-48.5	13.2	-35.3	PASS
2396.825000	-48.6	13.3	-35.3	PASS
2397.325000	-48.7	13.4	-35.3	PASS
2398.375000	-48.9	13.6	-35.3	PASS
2395.925000	-48.9	13.6	-35.3	PASS
2398.425000	-48.9	13.6	-35.3	PASS
2398.925000	-49.0	13.7	-35.3	PASS
2396.375000	-49.5	14.2	-35.3	PASS
2398.325000	-49.5	14.2	-35.3	PASS
2396.925000	-49.6	14.3	-35.3	PASS

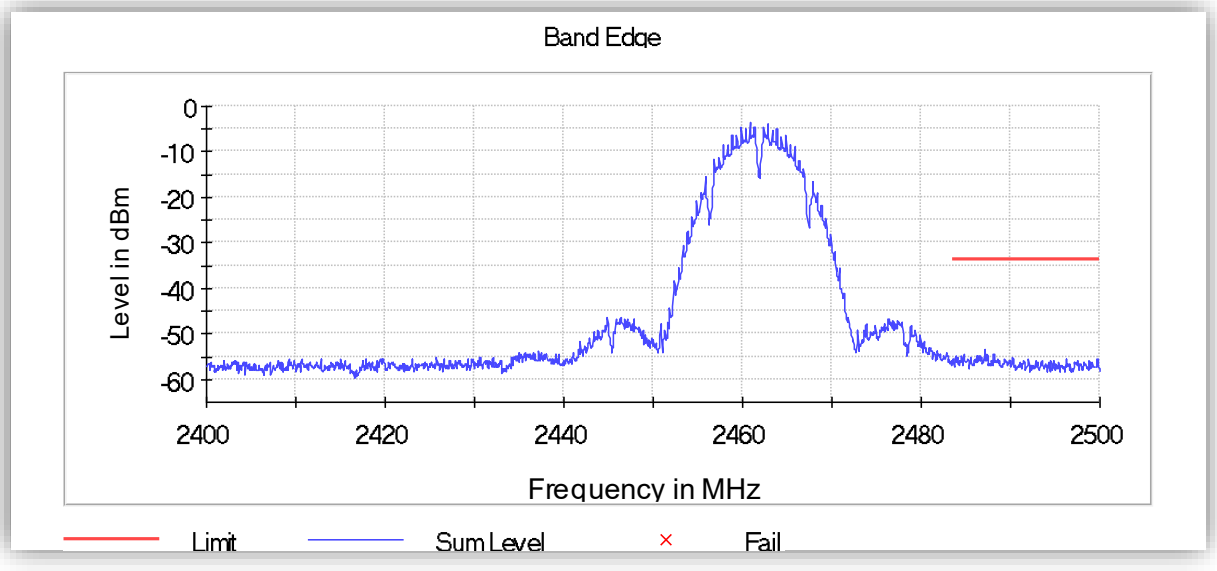
2.6.10 Test Results WLAN 802.11b 1Mbps (Upper Band Edge)

Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2487.125000	-53.3	19.7	-33.6	PASS
2487.175000	-53.6	20.0	-33.6	PASS
2487.075000	-54.4	20.8	-33.6	PASS
2487.375000	-54.4	20.8	-33.6	PASS
2484.825000	-54.4	20.8	-33.6	PASS
2484.775000	-54.5	20.9	-33.6	PASS
2488.175000	-54.5	20.9	-33.6	PASS
2488.125000	-54.6	21.0	-33.6	PASS
2487.425000	-54.7	21.1	-33.6	PASS
2486.575000	-54.8	21.2	-33.6	PASS
2486.525000	-54.8	21.2	-33.6	PASS
2484.525000	-54.8	21.2	-33.6	PASS
2486.275000	-54.8	21.2	-33.6	PASS
2486.225000	-54.9	21.3	-33.6	PASS
2483.875000	-55.0	21.3	-33.6	PASS

2.6.11 Test Plots WLAN 802.11b 1Mbps



WLAN 802.11b 1Mbps Low Band Edge 2400MHz 1M



WLAN 802.11b 1Mbps Upper Band Edge 2483.5MHz 1M

2.6.12 Upper band edge calculation WLAN 802.11b 1Mbps (2483.5 MHz) within Restricted Band:

- 2483.875000 MHz (in the restricted bands)
- Procedure is per Clause 12.7.2 of ANSI C63.10-2013.
- Use the following formula as per Clause 12.7.2(d) of ANSI C63.10-2013.

E(dBµV/m) = EIRP (dBm) + 95.2
= (-55.0 dBm +1.6 dBi antenna gain) + 95.2
= 41.8 dBµV/m @ 3 meters (Peak complies with 74 dBµV/m **Peak** limit)

= 41.8 dBµV/m @ 3 meters (Peak also complies with 54 dBµV/m **Average** limit)

2.6.13 Test Results WLAN 802.11g 6Mbps (Lower Band Edge)

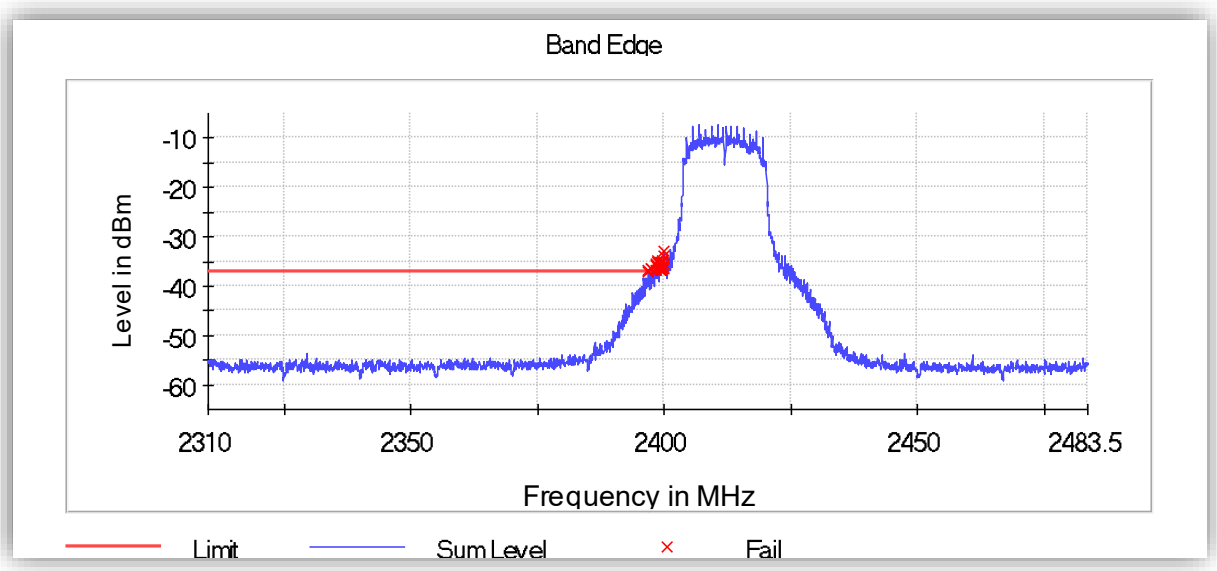
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975000	-32.8	1.33	-31.47	PASS
2399.925000	-33.7	2.23	-31.47	PASS
2399.725000	-34.8	3.33	-31.47	PASS
2398.725000	-34.8	3.33	-31.47	PASS
2399.575000	-35.1	3.63	-31.47	PASS
2399.625000	-35.1	3.63	-31.47	PASS
2399.325000	-35.1	3.63	-31.47	PASS
2399.375000	-35.1	3.63	-31.47	PASS
2398.775000	-35.2	3.73	-31.47	PASS
2399.675000	-35.2	3.73	-31.47	PASS
2399.775000	-35.5	4.03	-31.47	PASS
2398.375000	-35.5	4.03	-31.47	PASS
2399.075000	-35.6	4.13	-31.47	PASS
2399.125000	-35.6	4.13	-31.47	PASS
2398.325000	-35.8	4.33	-31.47	PASS
2399.825000	-36.1	4.63	-31.47	PASS
2398.675000	-36.1	4.63	-31.47	PASS
2399.525000	-36.1	4.63	-31.47	PASS
2399.175000	-36.4	4.93	-31.47	PASS
2399.875000	-36.4	4.93	-31.47	PASS
2399.425000	-36.5	5.03	-31.47	PASS
2398.975000	-36.5	5.03	-31.47	PASS
2397.525000	-36.5	5.03	-31.47	PASS
2399.025000	-36.6	5.13	-31.47	PASS
2397.475000	-36.6	5.13	-31.47	PASS
2399.275000	-36.7	5.23	-31.47	PASS
2398.425000	-36.8	5.33	-31.47	PASS
2396.875000	-36.8	5.33	-31.47	PASS
2399.475000	-36.9	5.43	-31.47	PASS
2396.825000	-37.1	5.63	-31.47	PASS

Note: Limit was calculated using results from section 2.8.8 (Middle Channel WLAN 802.11g 6Mbps) with 10kHz RBW(Worst Case) which is the power that contains the highest level of the desired power within the band

2.6.14 Test Results WLAN 802.11b 6Mbps (Upper Band Edge)

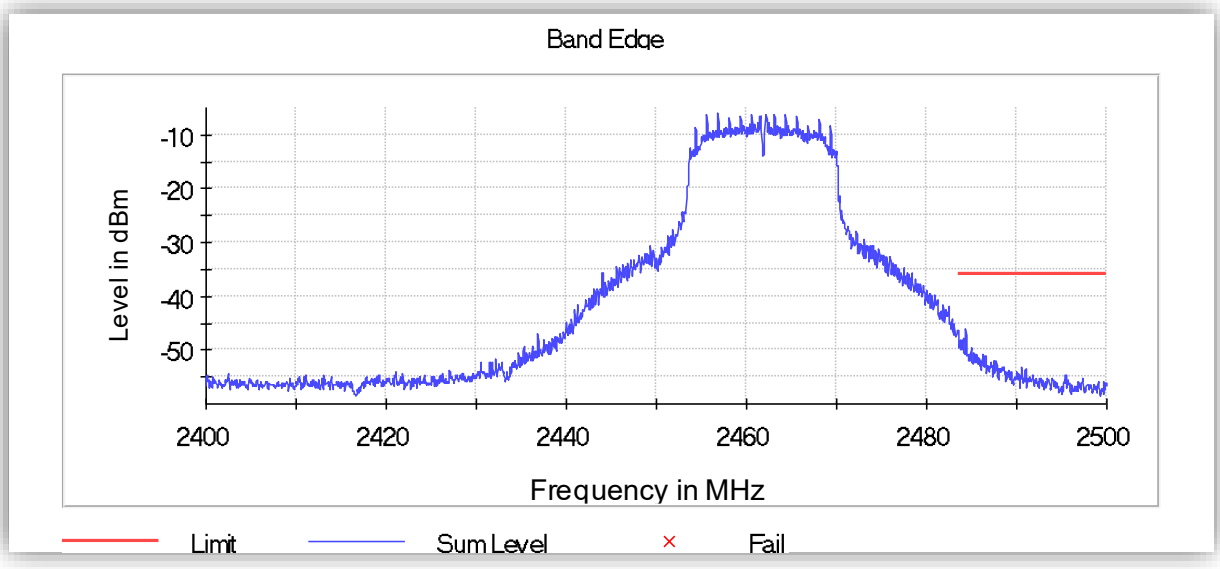
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.375000	-45.9	10.0	-35.9	PASS
2484.325000	-46.0	10.1	-35.9	PASS
2484.425000	-47.2	11.3	-35.9	PASS
2484.075000	-47.8	12.0	-35.9	PASS
2484.275000	-47.8	12.0	-35.9	PASS
2484.125000	-47.9	12.1	-35.9	PASS
2483.725000	-48.0	12.1	-35.9	PASS
2483.675000	-48.0	12.2	-35.9	PASS
2483.975000	-48.1	12.2	-35.9	PASS
2484.025000	-48.3	12.4	-35.9	PASS
2483.525000	-48.6	12.7	-35.9	PASS
2483.775000	-48.7	12.8	-35.9	PASS
2483.575000	-49.2	13.3	-35.9	PASS
2483.625000	-49.5	13.7	-35.9	PASS
2483.925000	-49.6	13.7	-35.9	PASS

2.6.15 Test Plots WLAN 802.11g 6Mbps



See note in section 2.6.13

WLAN 802.11g 6Mbps Low Band Edge 2400MHz



WLAN 802.11g 6Mbps Upper Band Edge 2483.5MHz

2.6.16 Upper band edge calculation WLAN 802.11g 1Mbps (2483.5 MHz) within Restricted Band:

- 2483.525000 MHz (in the restricted bands)
- Procedure is per Clause 12.7.2 of ANSI C63.10-2013.
- Use the following formula as per Clause 12.7.2(d) of ANSI C63.10-2013.

E(dBµV/m) = EIRP (dBm) + 95.2
= (-48.6 dBm +1.6 dBi antenna gain) + 95.2
= 48.2 dBµV/m @ 3 meters (Peak complies with 74 dBµV/m **Peak** limit)

= 48.2 dBµV/m @ 3 meters (Peak also complies with 54 dBµV/m **Average** limit)

2.6.17 Test Results WLAN 802.11n MCS0 (Lower Band Edge)

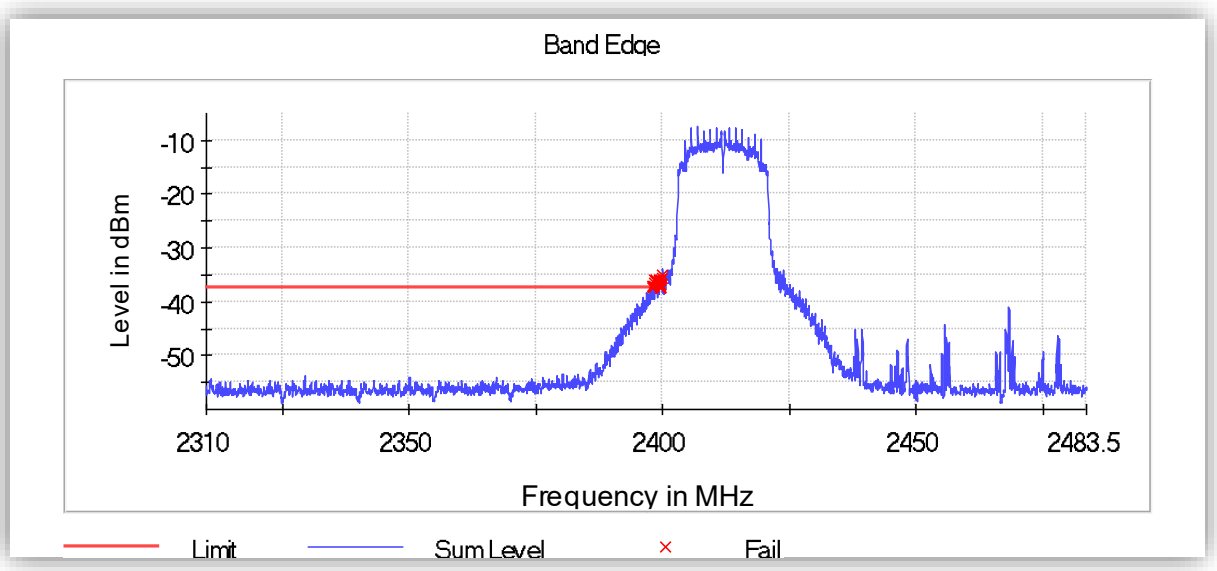
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.975	-32.8	1.27	-31.53	PASS
2399.925	-33.7	2.17	-31.53	PASS
2399.725	-34.8	3.27	-31.53	PASS
2398.725	-34.8	3.27	-31.53	PASS
2399.575	-35.1	3.57	-31.53	PASS
2399.625	-35.1	3.57	-31.53	PASS
2399.325	-35.1	3.57	-31.53	PASS
2399.375	-35.1	3.57	-31.53	PASS
2398.775	-35.2	3.67	-31.53	PASS
2399.675	-35.2	3.67	-31.53	PASS
2399.775	-35.5	3.97	-31.53	PASS
2398.375	-35.5	3.97	-31.53	PASS
2399.075	-35.6	4.07	-31.53	PASS
2399.125	-35.6	4.07	-31.53	PASS
2398.325	-35.8	4.27	-31.53	PASS
2399.825	-36.1	4.57	-31.53	PASS
2398.675	-36.1	4.57	-31.53	PASS
2399.525	-36.1	4.57	-31.53	PASS
2399.175	-36.4	4.87	-31.53	PASS
2399.875	-36.4	4.87	-31.53	PASS
2399.425	-36.5	4.97	-31.53	PASS
2398.975	-36.5	4.97	-31.53	PASS
2397.525	-36.5	4.97	-31.53	PASS

Note: Limit was calculated using results from section 2.8.8 (Middle Channel WLAN 802.11n MCS0) with 10kHz RBW(Worst Case) which is the power that contains the highest level of the desired power within the band

2.6.18 Test Results WLAN 802.11n MCS0 (Upper Band Edge)

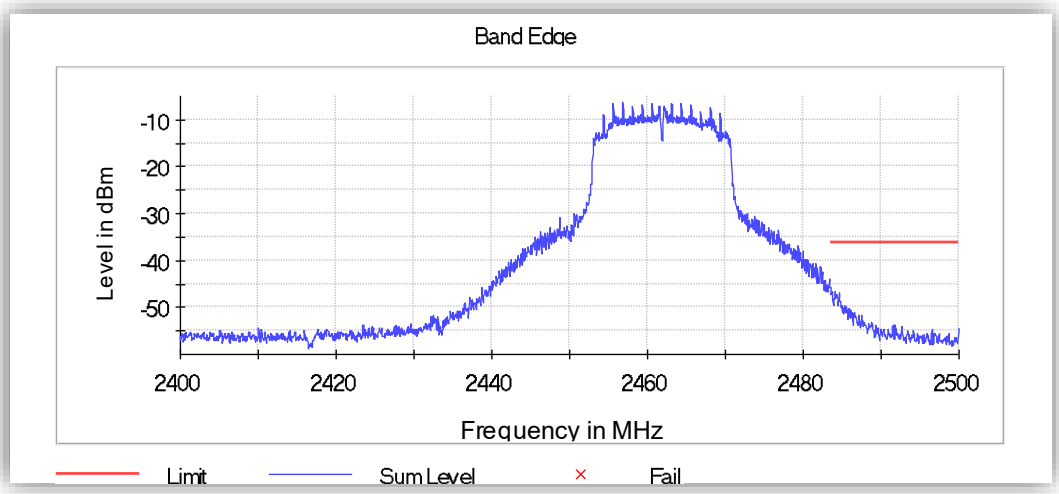
Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2483.725000	-46.6	10.4	-36.2	PASS
2484.075000	-46.7	10.5	-36.2	PASS
2483.675000	-46.7	10.6	-36.2	PASS
2483.575000	-46.9	10.7	-36.2	PASS
2484.625000	-46.9	10.8	-36.2	PASS
2484.125000	-47.0	10.9	-36.2	PASS
2484.675000	-47.1	10.9	-36.2	PASS
2484.325000	-47.2	11.0	-36.2	PASS
2483.625000	-47.2	11.0	-36.2	PASS
2484.375000	-47.2	11.1	-36.2	PASS
2483.525000	-47.3	11.1	-36.2	PASS
2483.775000	-47.4	11.2	-36.2	PASS
2484.275000	-47.5	11.3	-36.2	PASS
2484.225000	-47.8	11.6	-36.2	PASS
2484.575000	-47.9	11.7	-36.2	PASS

2.6.19 Test Plots WLAN 802.11n MCS0



See note in section 2.6.17

WLAN 802.11n MCS0 Low Band Edge 2400MHz



WLAN 802.11n MCS0 Upper Band Edge 2483.5MHz

2.6.20 Upper band edge calculation WLAN 802.11n MCS0 (2483.5 MHz) within Restricted Band:

- 2483.575000 MHz (in the restricted bands)
- Procedure is per Clause 12.7.2 of ANSI C63.10-2013.
- Use the following formula as per Clause 12.7.2(d) of ANSI C63.10-2013.

E(dBµV/m) = EIRP (dBm) + 95.2
= (-46.9 dBm +1.6 dBi antenna gain) + 95.2
= 49.9 dBµV/m @ 3 meters (Peak complies with 74 dBµV/m **Peak** limit)

= 49.9 dBµV/m @ 3 meters (Peak also complies with 54 dBµV/m **Average** limit)

2.7 RADIATED SPURIOUS EMISSIONS

2.7.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(d)
RSS-247, Clause 5.5

2.7.2 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.7.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.7.4 Date of Test/Initial of test personnel who performed the test

March 24 and 28, 2025 / MARG

2.7.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.7.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	23.2 °C	22.1 °C
Relative Humidity	48.2 %	38.5 %
ATM Pressure	98.0 kPa	99.1 kPa

2.7.7 Additional Observations

- Only the worst-case results between WLAN 802.11b/g/n standards are presented.
- Antenna port terminated with 20dB attenuator and 50 Ω load. Emissions coming out of the cabinet were verified.
- Only WLAN 802.11b 1Mbps ch5 radiated test data presented. There are no significant differences in emissions between channels when verifying cabinet spurious emissions.
- Measurement was done using EMX automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.7.8 for sample computation
- Only Noise Floer observed above 18GHz

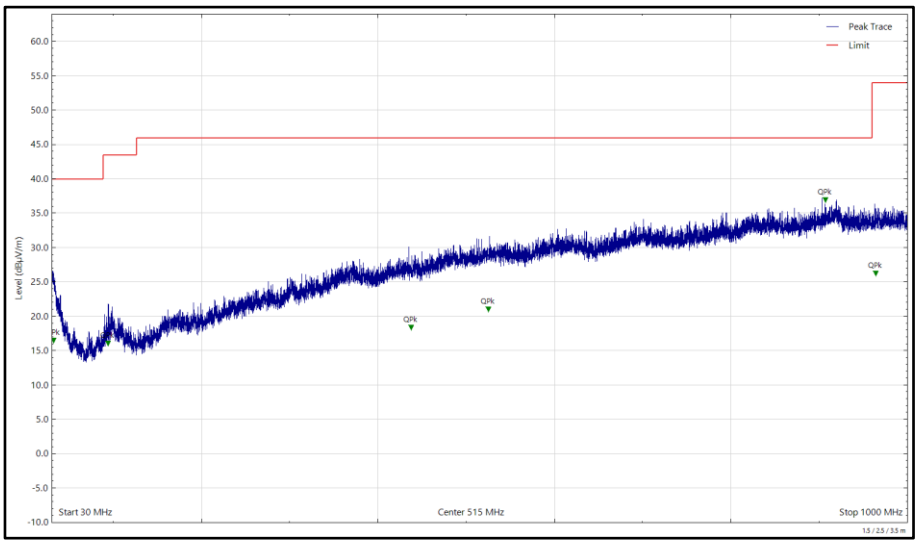
2.7.8 Sample Computation (Radiated Emission)

Measuring equipment raw measurement (dbµV) @ 30 MHz			-0.8
Correction Factor (dB)	Asset# 1066 (cable)	18.1	12.6
	Asset# 1172 (cable)	0.3	
	Asset# 1175(cable)	0.3	
	Asset# 1002 (antenna)	17.2	
Reported QuasiPeak Final Measurement (dbµV/m) @ 30MHz			**11.8**

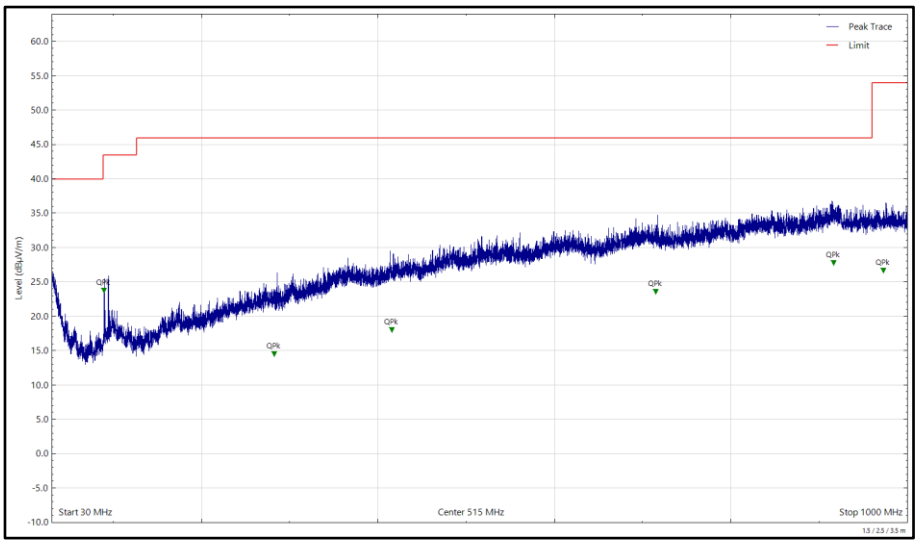
2.7.9 Test Results

EUT Complies.

2.7.10 Test Results for 30MHz to 1GHz



RSE, 30MHz-1GHz, 30 MHz to 1 GHz, Horizontal

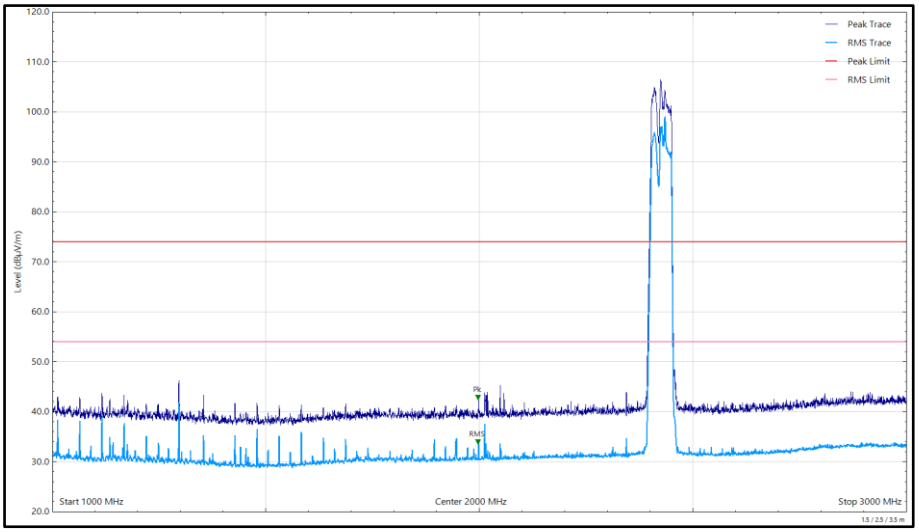


RSE, 30MHz-1GHz, 30 MHz to 1 GHz, Vertical

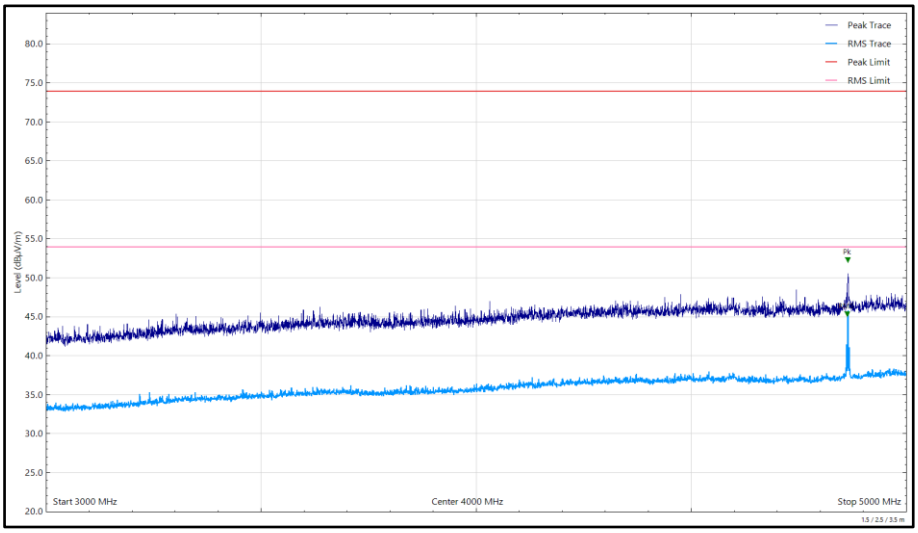
Test Data, 30 MHz to 1 GHz

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Pol
32.318	15.89	40.00	-24.11	Q-Peak	112	100	Horiz
89.515	23.17	43.50	-20.33	Q-Peak	358	100	Verti
94.042	15.48	43.50	-28.02	Q-Peak	278	101	Horiz
282.258	13.92	46.00	-32.08	Q-Peak	123	100	Verti
415.946	17.45	46.00	-28.55	Q-Peak	12	132	Verti
437.986	17.77	46.00	-28.23	Q-Peak	350	100	Horiz
525.110	20.43	46.00	-25.57	Q-Peak	69	100	Horiz
715.022	22.96	46.00	-23.04	Q-Peak	121	256	Verti
907.648	36.35	46.00	-9.65	Q-Peak	350	391	Horiz
916.901	27.15	46.00	-18.85	Q-Peak	118	132	Verti
964.469	25.63	54.00	-28.37	Q-Peak	201	128	Horiz
973.262	26.02	54.00	-27.98	Q-Peak	173	132	Verti

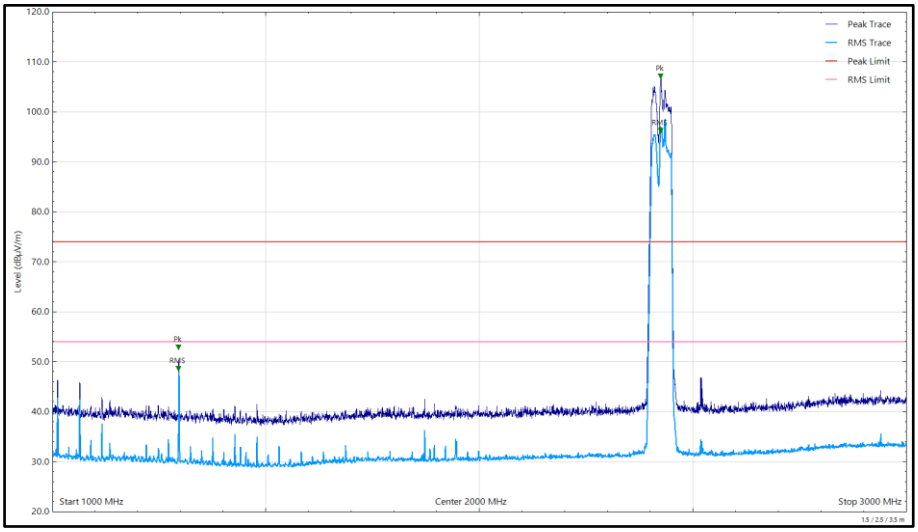
2.7.11 Test Results for 1GHz to 18GHz



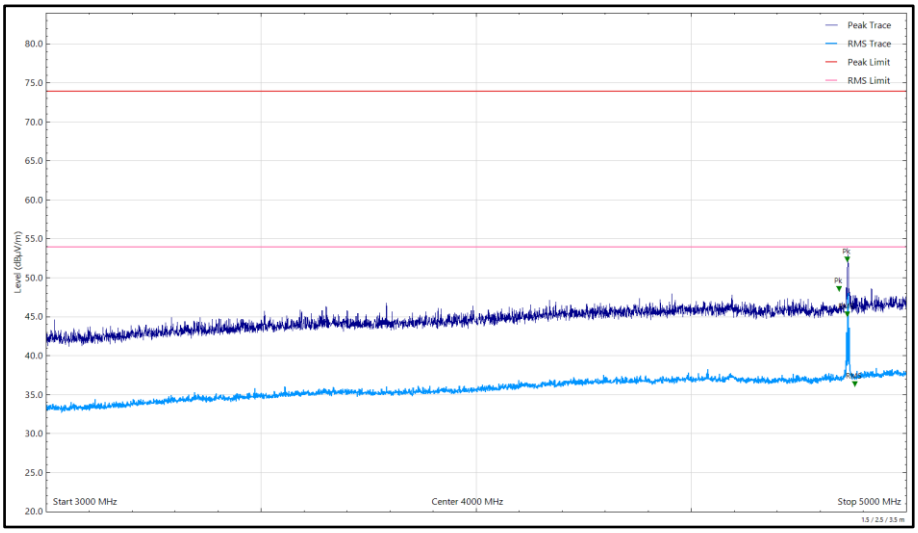
RSE, 1 to 5 GHz, 1 GHz to 3 GHz, Horizontal



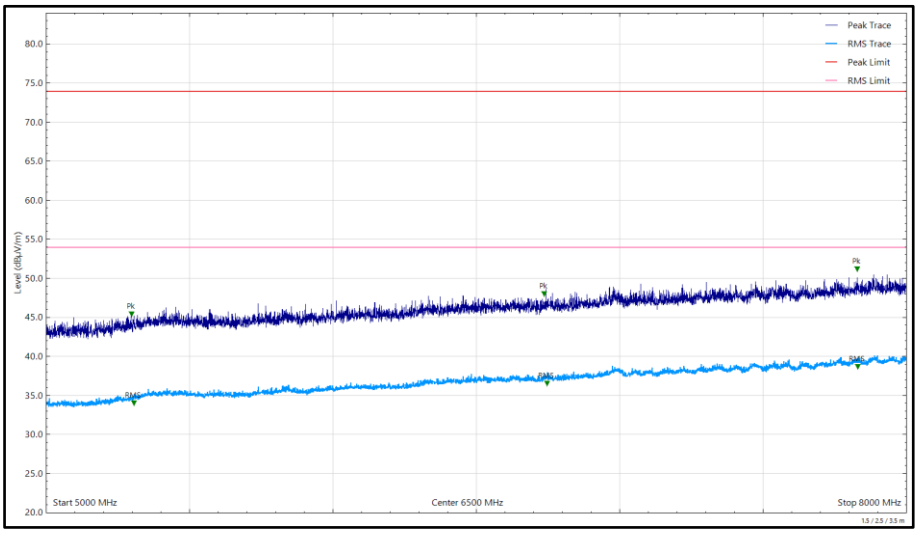
RSE, 1 to 5 GHz, 3 GHz to 5 GHz, Horizontal



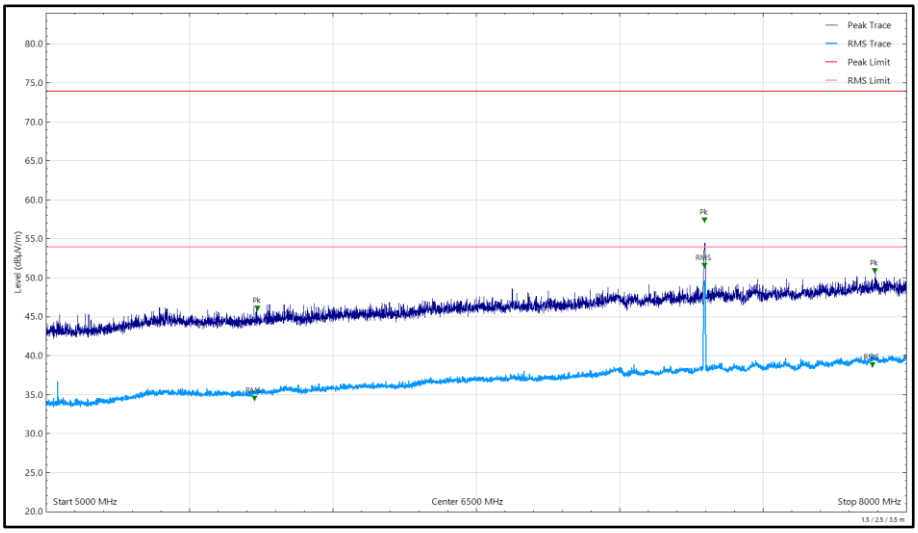
RSE, 1 to 5 GHz, 1 GHz to 3 GHz, Vertical



RSE, 1 to 5 GHz, 3 GHz to 5 GHz, Vertical



RSE, 5 to 8 GHz, 5 GHz to 8 GHz, Horizontal

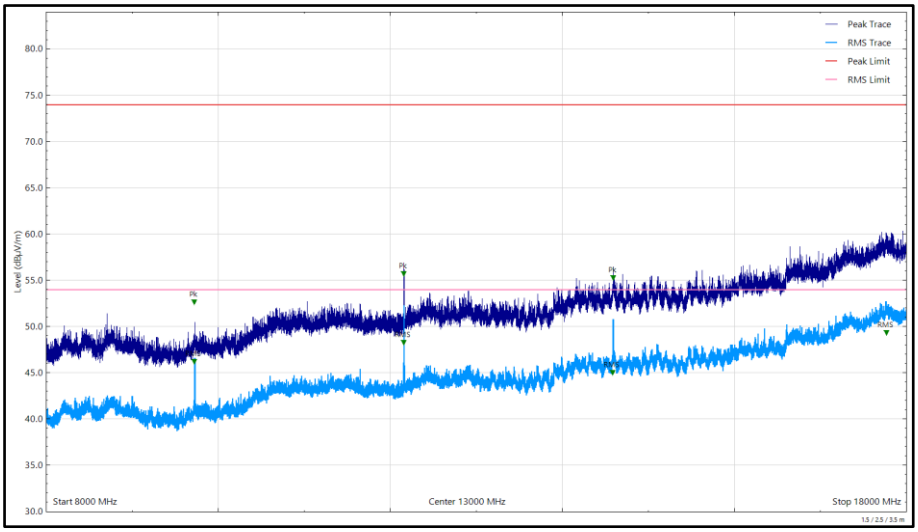


RSE, 5 to 8 GHz, 5 GHz to 8 GHz, Vertical

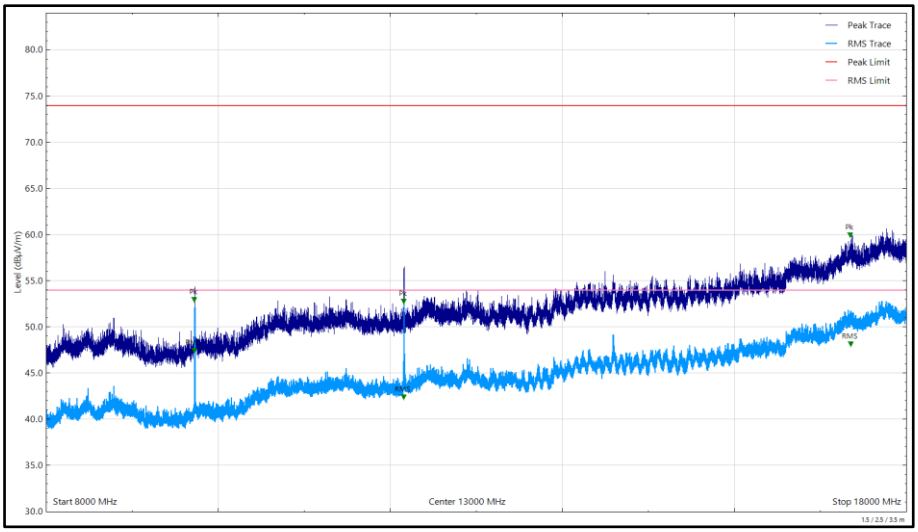
Test Data, 1 to 8 GHz

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Pol
1295.979	47.83	54.00	-6.17	RMS	83	128	Verti
1295.979	52.07	74.00	-21.93	Peak	83	128	Verti
1997.295	41.97	74.00	-32.03	Peak	69	108	Horiz
1997.934	33.11	54.00	-20.89	RMS	69	108	Horiz
4844.779	48.07	74.00	-25.93	Peak	323	324	Verti
4863.640	51.84	74.00	-22.16	Peak	131	102	Verti
4863.760	44.84	54.00	-9.16	RMS	4	324	Horiz
4863.800	44.85	54.00	-9.15	RMS	131	102	Verti
5298.715	44.88	74.00	-29.12	Peak	323	230	Horiz
5307.856	33.52	54.00	-20.48	RMS	323	230	Horiz
5726.958	34.05	54.00	-19.95	RMS	213	103	Verti
5737.177	45.60	74.00	-28.40	Peak	213	103	Verti
6738.252	47.45	74.00	-26.55	Peak	345	395	Horiz
6748.832	35.99	54.00	-18.01	RMS	345	395	Horiz
7297.560	51.06	54.00	-2.94	RMS	230	399	Verti
7297.590	56.86	74.00	-17.14	Peak	230	399	Verti
7829.678	50.66	74.00	-23.34	Peak	219	263	Horiz
7831.057	38.15	54.00	-15.85	RMS	219	263	Horiz
7882.430	38.31	54.00	-15.69	RMS	146	103	Verti
7890.252	50.34	74.00	-23.66	Peak	146	103	Verti

Test Notes: Fundamental will be ignored for this test (antenna port terminated).



RSE, 8 to 18GHz, 8 GHz to 18 GHz, Horizontal



RSE, 8 to 18GHz, 8 GHz to 18 GHz, Vertical

Test Data, 8 to 18GHz

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
9727.600	47.00	54.00	-7.00	RMS	157	102	Verti
9727.600	52.18	74.00	-21.82	Peak	127	135	Horiz
9727.600	45.77	54.00	-8.23	RMS	127	135	Horiz
9727.800	52.52	74.00	-21.48	Peak	157	102	Verti
12158.600	55.24	74.00	-18.76	Peak	97	102	Horiz
12161.500	52.29	74.00	-21.71	Peak	165	102	Verti
12162.200	47.84	54.00	-6.16	RMS	97	102	Horiz
12162.300	41.96	54.00	-12.04	RMS	165	102	Verti
14591.300	44.58	54.00	-9.42	RMS	72	102	Horiz
14594.100	54.84	74.00	-19.16	Peak	72	102	Horiz
17351.020	59.48	74.00	-14.52	Peak	266	102	Verti
17355.820	47.70	54.00	-6.30	RMS	266	102	Verti
17769.190	48.91	54.00	-5.09	RMS	325	108	Horiz

2.8 POWER SPECTRAL DENSITY

2.8.1 Specification Reference

FCC 47 CFR Part 15, Clause 15.247(e)
RSS-247, Clause 5.2(b)

2.8.2 Standard Applicable

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

2.8.3 Equipment Under Test and Modification State

Serial No: M6 / Default Test Configuration

2.8.4 Date of Test/Initial of test personnel who performed the test

March 25 and 26, 2025 / OC

2.8.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.8.6 Environmental Conditions (Rancho Bernardo Facility)

Ambient Temperature	19.6 °C
Relative Humidity	38.2 %
ATM Pressure	99.8 kPa

2.8.7 Additional Observations

- This is a conducted test using direct connection to the TS8997 Test System.
- The path loss was all accounted for with the test system calibration.
- Test methodology is per FCC title 47 part 15 §15.247(a),(e), KDB 558074 D01 DTS Meas Guidance v05 F and ANSI C63.10-2013.

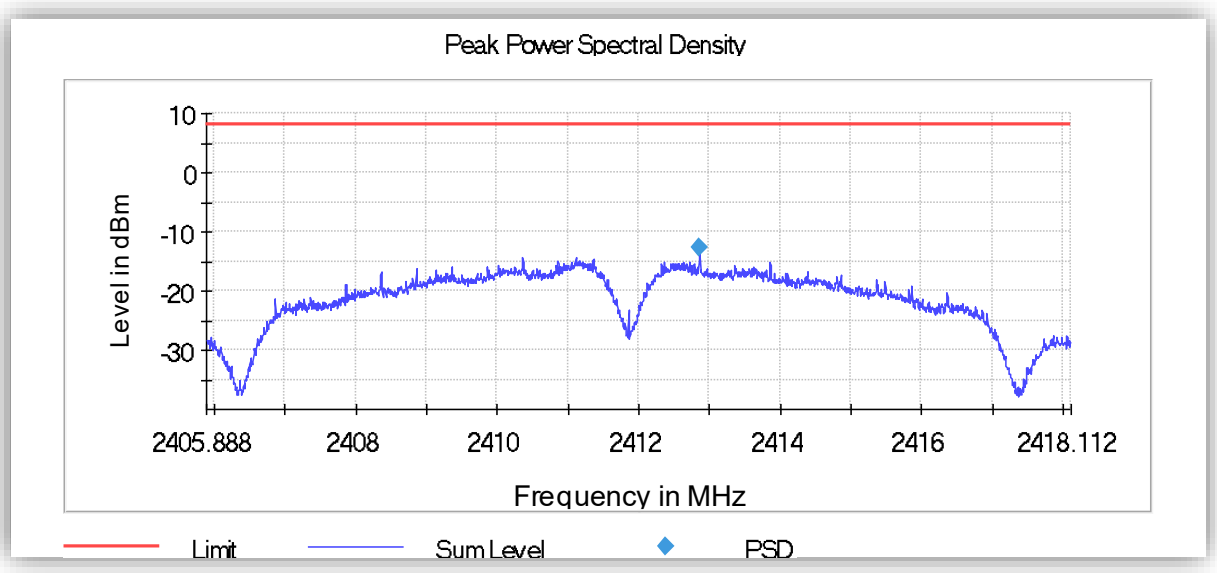
2.8.8 Test Results Summary

DUT Frequency (MHz)	Mode	Data Rate	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2412.000	WLAN 802.11b	1Mbps	2412.860000	-12.581	8.0	PASS
2432.000			2430.860000	-6.026	8.0	PASS
2462.000			2460.855000	-11.529	8.0	PASS
2412.000	WLAN 802.11g	6Mbps	2406.875000	-8.472	8.0	PASS
2432.000			2426.875000	-1.470	8.0	PASS
2462.000			2456.875000	-7.406	8.0	PASS
2412.000	WLAN 802.11n	MCS0	2406.875000	-8.876	8.0	PASS
2432.000			2426.875000	-1.533	8.0	PASS
2462.000			2456.875000	-7.735	8.0	PASS

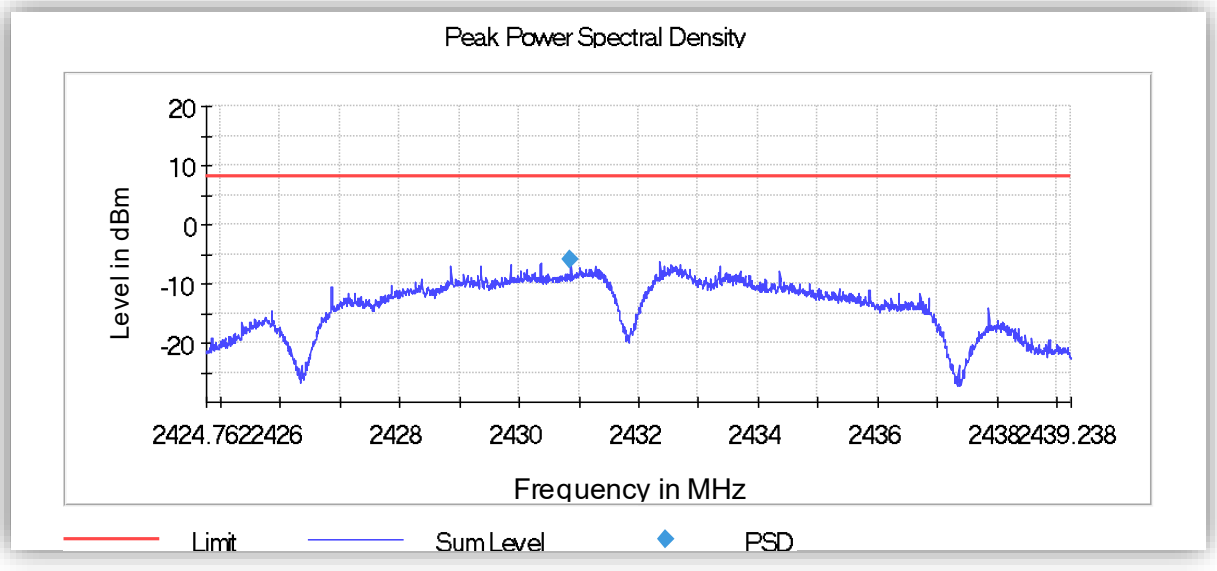
2.8.9 Sample Measurement Settings

Setting	Instrument Value	Target Value
Span	12.225 MHz	12.225 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	2445	~ 2445
Sweeptime	12.300 ms	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	104 / max. 150	max. 150
Stable	2 / 2	2
Max Stable Difference	0.45 dB	0.50 dB

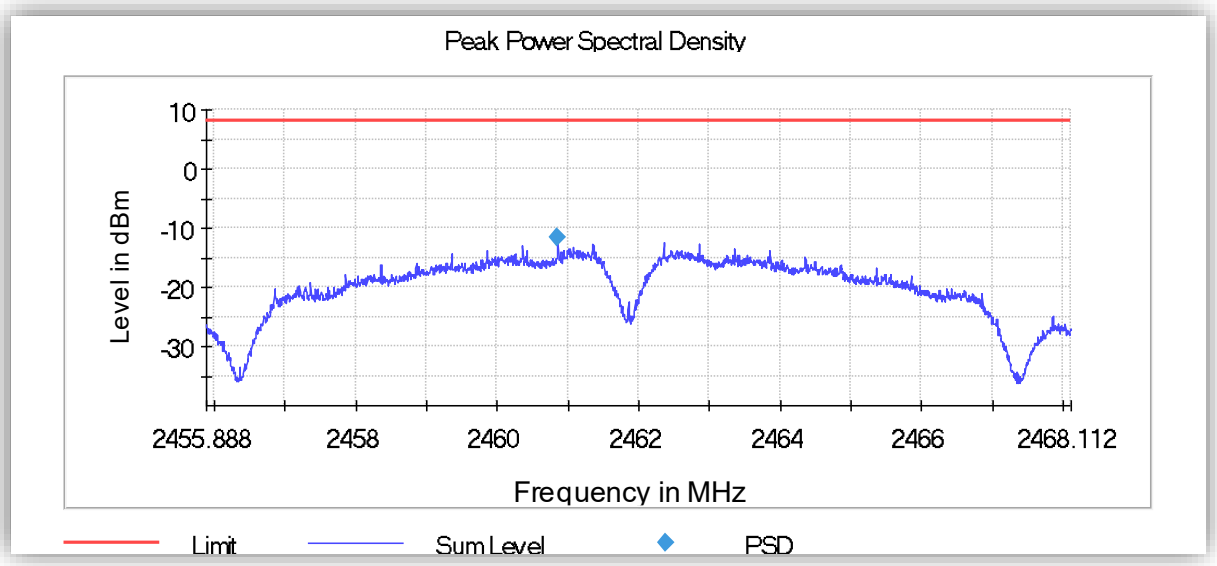
2.8.10 Test Plots WLAN 802.11b 1Mbps



WLAN 802.11b 1Mbps Low Channel

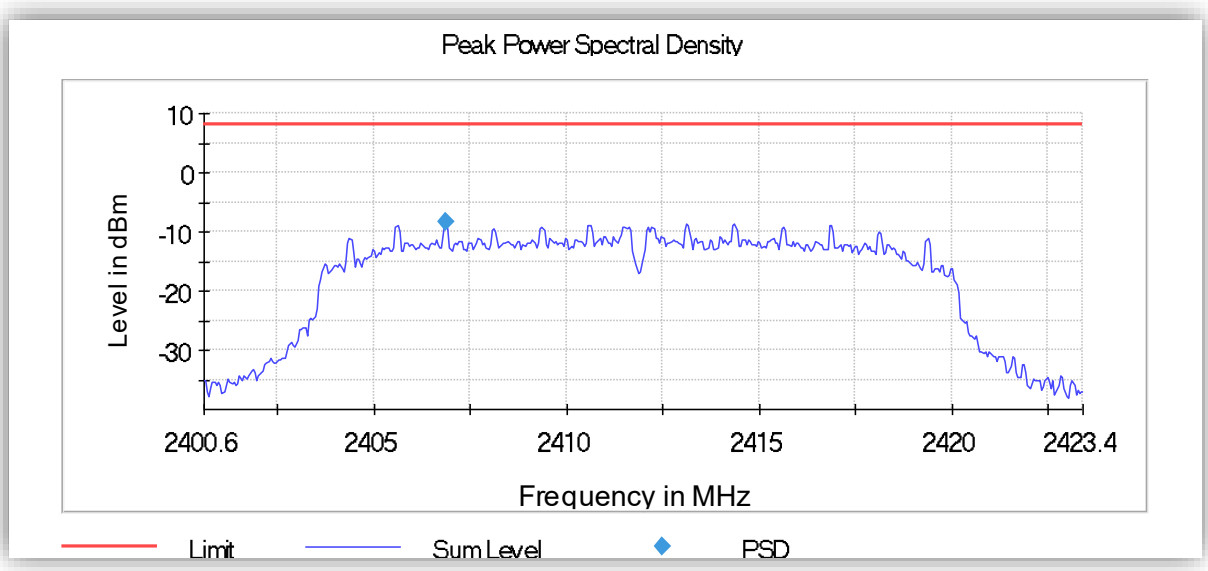


WLAN 802.11b 1Mbps Mid Channel

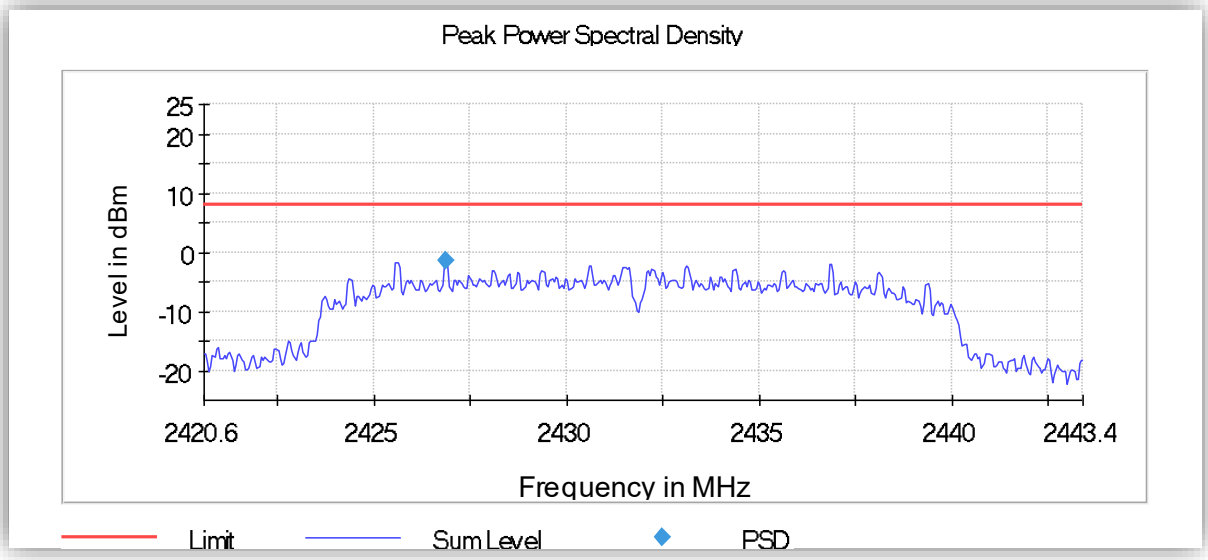


WLAN 802.11b 1Mbps High Channel

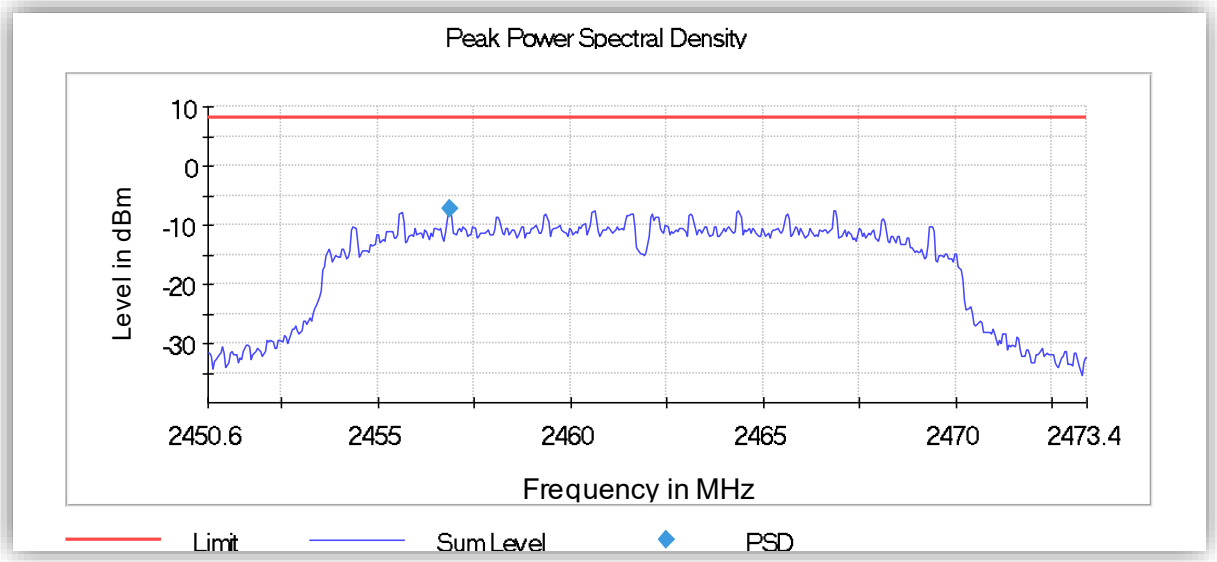
2.8.11 Test Plots WLAN 802.11g 6Mbps



WLAN 802.11g 6Mbps Low Channel

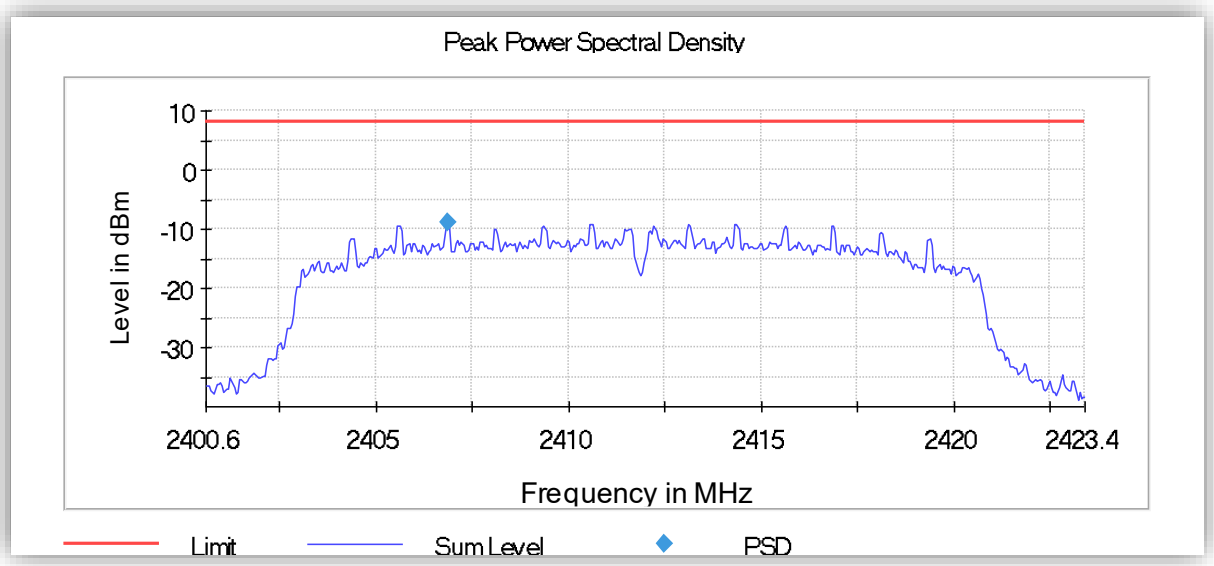


WLAN 802.11g 6Mbps Mid Channel

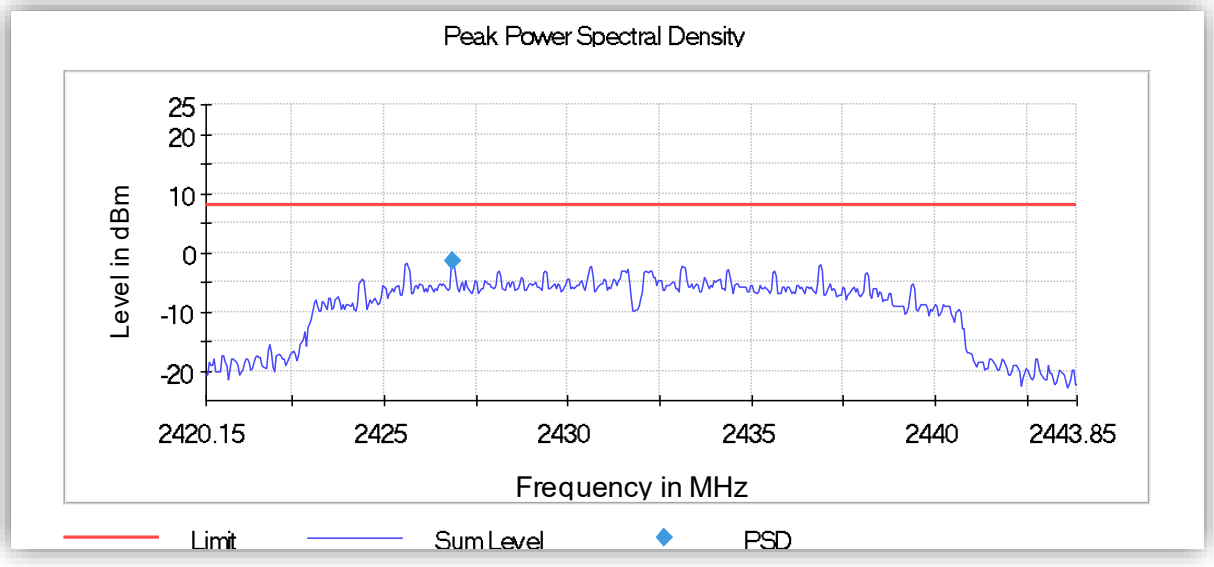


WLAN 802.11g 6Mbps High Channel

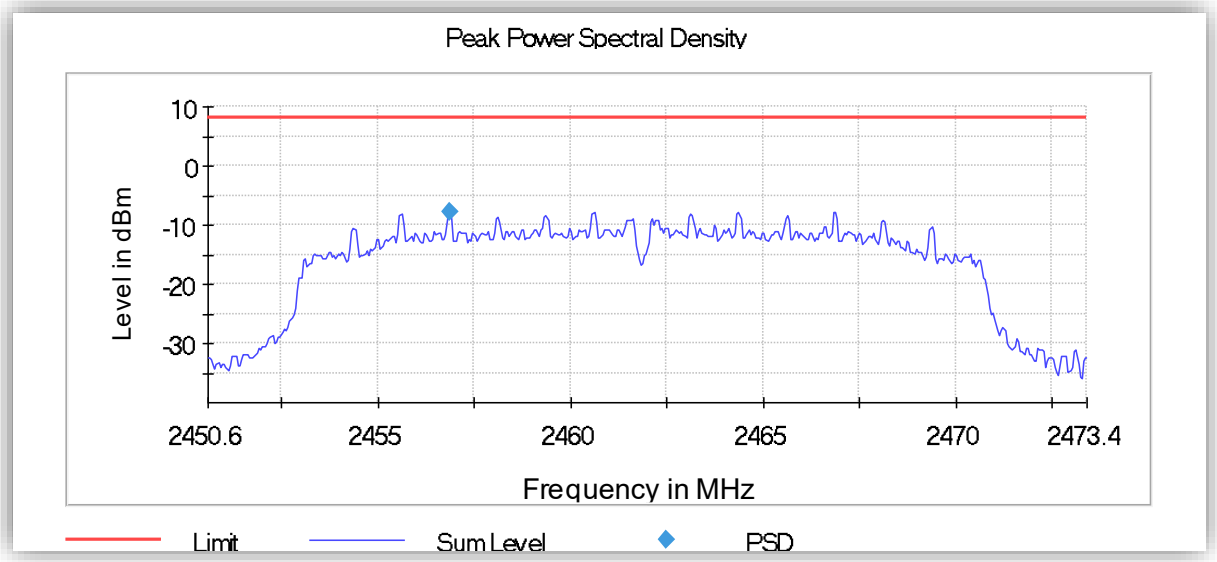
2.8.12 Test Plots WLAN 802.11n MCS0



WLAN 802.11n 6MCS0 Low Channel



WLAN 802.11n MCS0 Mid Channel



WLAN 802.11n MCS0 High Channel

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Conducted Port Setup						
SDGE07643	Signal/Spectrum Analyzer	FSV30	1321.3008K30/103166	Rhode & Schwarz	02/04/2025	02/04/2026
SDGE07582	Signal & Spectrum Analyzer	FSW26	101614	Rhode & Schwarz	02/04/2025	02/04/2026
SDGE07656	OSP with B157	OSP120	101310	Rhode & Schwarz	02/05/2025	02/05/2026
SDGE046141	DUT1 RF Cable	UFB142A	N/A	Utiflex	09/05/2024	09/05/2025
AC Mains Conducted Emission						
SDGE06836	Line Impedance Stabilization Network	FCC-LISN-50-25-2	05024	Fischer Custom Communications	04/10/2025	04/10/2026
SDGE08824	Fixed RF attenuator (CE_SR7)	34-20-34	BP4150	Weinschel	05/03/2024	05/03/2025
SDGE08822	Fixed RF attenuator (CE_SR7)	34-20-34	BP4180	Weinschel	05/03/2024	05/03/2025
SDGE56393	EMI Test Receiver	ESR7	102585	Rhode & Schwarz	04/01/2025	04/01/2026
Radiated Emission						
68210	ESW44 EMI Test Receiver	ESW44 with HF Option	103416	Rohde & Schwarz	02/27/2024	02/27/2025
SDRB1033	Bilog Antenna	3142C	00044556	EMCO	10/16/2023	10/16/2025
69563	1-10 GHz Broad-Band Horn Antenna	BBHA 9120 B	00875	Schwarzbeck Mess - Elektronik	11/06/2024	11/06/2025
69562	7.5-18 GHz Double Ridge Horn Antenna	HWRD 750	00076	Schwarzbeck Mess - Elektronik	11/06/2024	11/06/2025
SDGE46797	0.5 to 22GHz Preamplifier	PA-122	181925	Com Power	01/06/2025	01/06/2026
SDGE08656	SR-5 RF Cable 9k-2GHz	8421F	M17/75-RG214	RF Precision Cable	09/03/2024	09/03/2025
SDGE08878	SR-5 cable 1-18GHz	R90-088-240	16-02-401	Teledyne Microwave	09/03/2024	09/03/2025
Miscellaneous						
SDGE68516	Barometric Pressure/Humidity/	SD700	A.107085	Extech Instruments	08/20/2024	08/20/2025
-	Test Software	EMX	-	TÜV SÜD	NCR	

3.2 MEASUREMENT UNCERTAINTY

Calculation of Measurement Uncertainty per CISPR 16-4-2:2011 with Corr. 1

3.2.1 AC Conducted Measurements (for reference only)

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	LISN-receiver attenuation	0.10	dB	Normal, k=2	2.000	0.05	0.00
3	LISN voltage division factor	0.25	dB	Normal, k=2	2.000	0.13	0.02
4	Receiver sinewave accuracy	0.50	dB	Normal, k=2	2.000	0.25	0.06
5	Receiver pulse amplitude	1.50	dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50	dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.00	dB	Rectangular	1.732	0.00	0.00
8	AMN VDF frequency interpolation	0.10	dB	Rectangular	1.732	0.06	0.00
9	Mismatch	0.07	dB	U-shaped	1.414	0.05	0.00
10	LISN impedance	2.65	dB	Triangular	2.449	1.08	1.17
11	Effect of mains disturbance	0.00	dB			0.00	0.00
12	Effect of the environment						

Combined standard uncertainty	Normal	1.66 dB
Expanded uncertainty	Normal, k=2	**3.33 dB**

3.2.2 Antenna Conducted Port Measurements

	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Cable attenuation	1.00	dB	Normal, k=2	2.000	0.50	0.25
3	Receiver sinewave accuracy	0.08	dB	Normal, k=2	2.000	0.04	0.00
4	Receiver pulse amplitude	0.00	dB	Rectangular	1.732	0.00	0.00
5	Receiver pulse repetition rate	0.00	dB	Rectangular	1.732	0.00	0.00
6	Noise floor proximity	0.00	dB	Rectangular	1.732	0.00	0.00
7	Frequency interpolation	0.10	dB	Rectangular	1.732	0.06	0.00
8	Mismatch	0.07	dB	U-shaped	1.414	0.05	0.00

Combined standard uncertainty	Normal	0.52 dB
Expanded uncertainty	**Normal, k=2**	**1.03 dB**

3.2.3 Radiated Measurements (30MHz to 1GHz)

	Input Quantity (Contribution) X_i	Value	Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10 dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.20 dB	Normal, k=2	2.000	0.10	0.01
3	Antenna factor AF	0.58 dB	Normal, k=2	2.000	0.29	0.08
4	Receiver sinewave accuracy	0.15 dB	Normal, k=2	2.000	0.08	0.01
5	Receiver pulse amplitude	1.50 dB	Rectangular	1.732	0.87	0.75
6	Receiver pulse repetition rate	1.50 dB	Rectangular	1.732	0.87	0.75
7	Noise floor proximity	0.50 dB	Rectangular	1.732	0.29	0.08
8	Mismatch: antenna-receiver	0.95 dB	U-shaped	1.414	0.67	0.45
9	AF frequency interpolation	0.30 dB	Rectangular	1.732	0.17	0.03
10	AF height deviations	0.10 dB	Rectangular	1.732	0.06	0.00
11	Directivity difference at 3 m	3.12 dB	Rectangular	1.732	1.80	3.24
12	Phase center location at 3 m	1.00 dB	Rectangular	1.732	0.58	0.33
13	Cross-polarisation	0.90 dB	Rectangular	1.732	0.52	0.27
14	Balance	0.00 dB	Rectangular	1.732	0.00	0.00
15	Site imperfections	3.99 dB	Triangular	2.449	1.63	2.65
16	Separation distance at 3 m	0.30 dB	Rectangular	1.732	0.17	0.03
17	Effect of setup table material	0.12 dB	Rectangular	1.732	0.21	0.12
18	Table height at 3 m	0.10 dB	Normal, k=2	2.000	0.05	0.00
19	Near-field effects	0.00 dB	Triangular	2.449	0.00	0.00
20	Effect of ambient noise on OATS	0.00 dB				0.00
	Combined standard uncertainty		Normal	2.97 dB		
	Expanded uncertainty		Normal, k=2	**5.94 dB**		

3.2.4 Radiated Emission Measurements (1GHz to 18GHz)

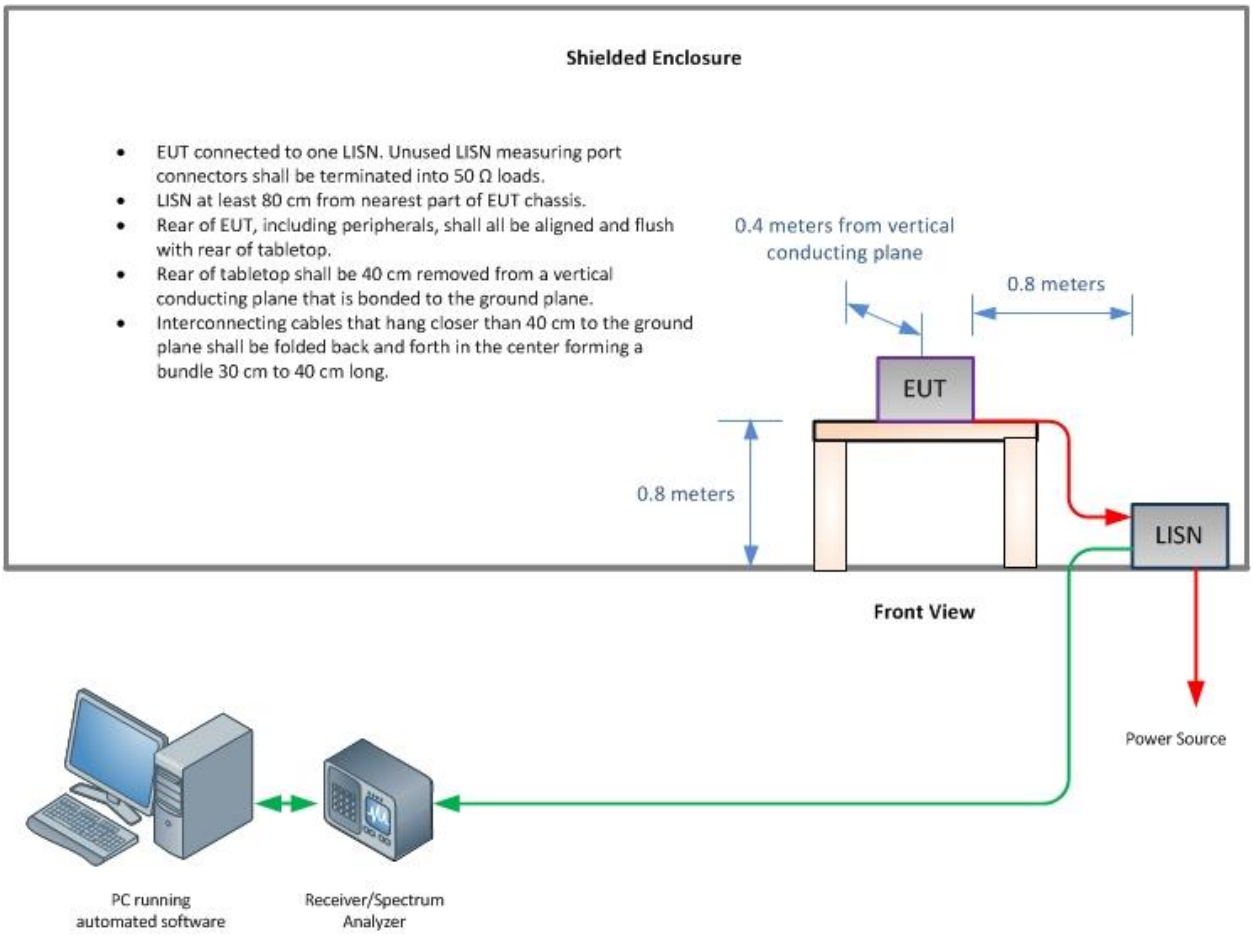
	Input Quantity (Contribution) X_i	Value		Prob. Dist.	Divisor	$u_i(x)$	$u_i(x)^2$
1	Receiver reading	0.10	dB	Normal, k=1	1.000	0.10	0.01
2	Attenuation: antenna-receiver	0.30	dB	Normal, k=2	2.000	0.15	0.02
3	Preamplifier Gain	0.20	dB	Normal, k=2	2.000	0.10	0.01
4	Antenna factor AF	0.47	dB	Normal, k=2	2.000	0.24	0.06
5	Sinewave accuracy	0.15	dB	Normal, k=2	2.000	0.08	0.01
6	Instability of preamp gain	1.21	dB	Rectangular	1.732	0.70	0.49
7	Noise floor proximity	0.70	dB	Rectangular	1.732	0.40	0.16
8	Mismatch: antenna-preamplifier	1.41	dB	U-shaped	1.414	1.00	0.99
9	Mismatch: preamplifier-receiver	1.30	dB	U-shaped	1.414	0.92	0.85
10	AF frequency interpolation	0.30	dB	Rectangular	1.732	0.17	0.03
11	Directivity difference at 3 m	1.50	dB	Rectangular	1.732	0.87	0.75
12	Phase center location at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
13	Cross-polarisation	0.90	dB	Rectangular	1.732	0.52	0.27
14	Site imperfections VSWR (Method 2)	5.03	dB	Triangular	2.000	4.89	1.03
15	Effect of setup table material	0.81	dB	Rectangular	1.732	1.41	0.81
16	Separation distance at 3 m	0.30	dB	Rectangular	1.732	0.17	0.03
17	Table height at 3 m	0.00	dB	Normal, k=2	2.000	0.00	0.00

Combined standard uncertainty	Normal	2.35 dB
Expanded uncertainty	Normal, k=2	**4.71 dB**

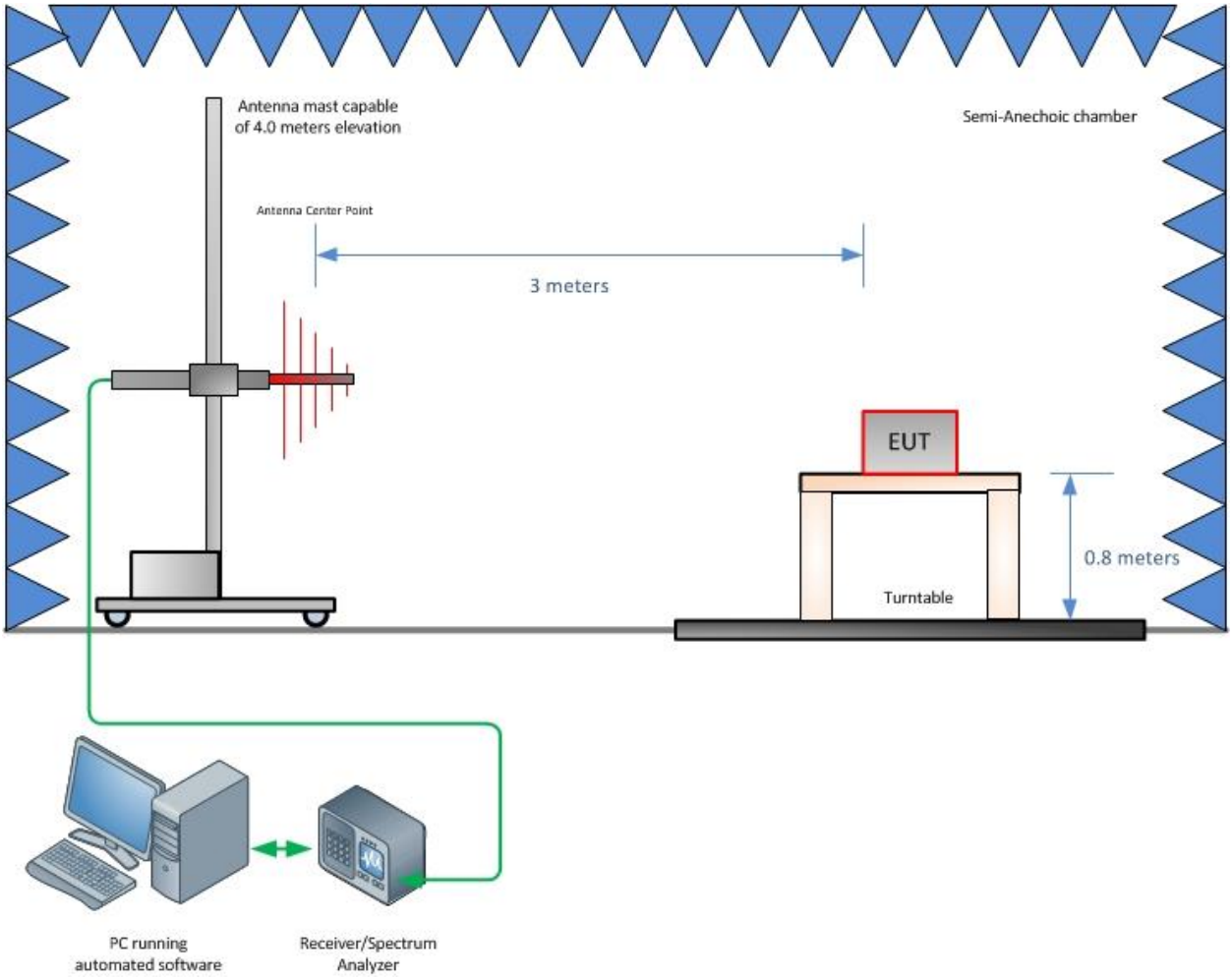
SECTION 4

DIAGRAM OF TEST SETUP

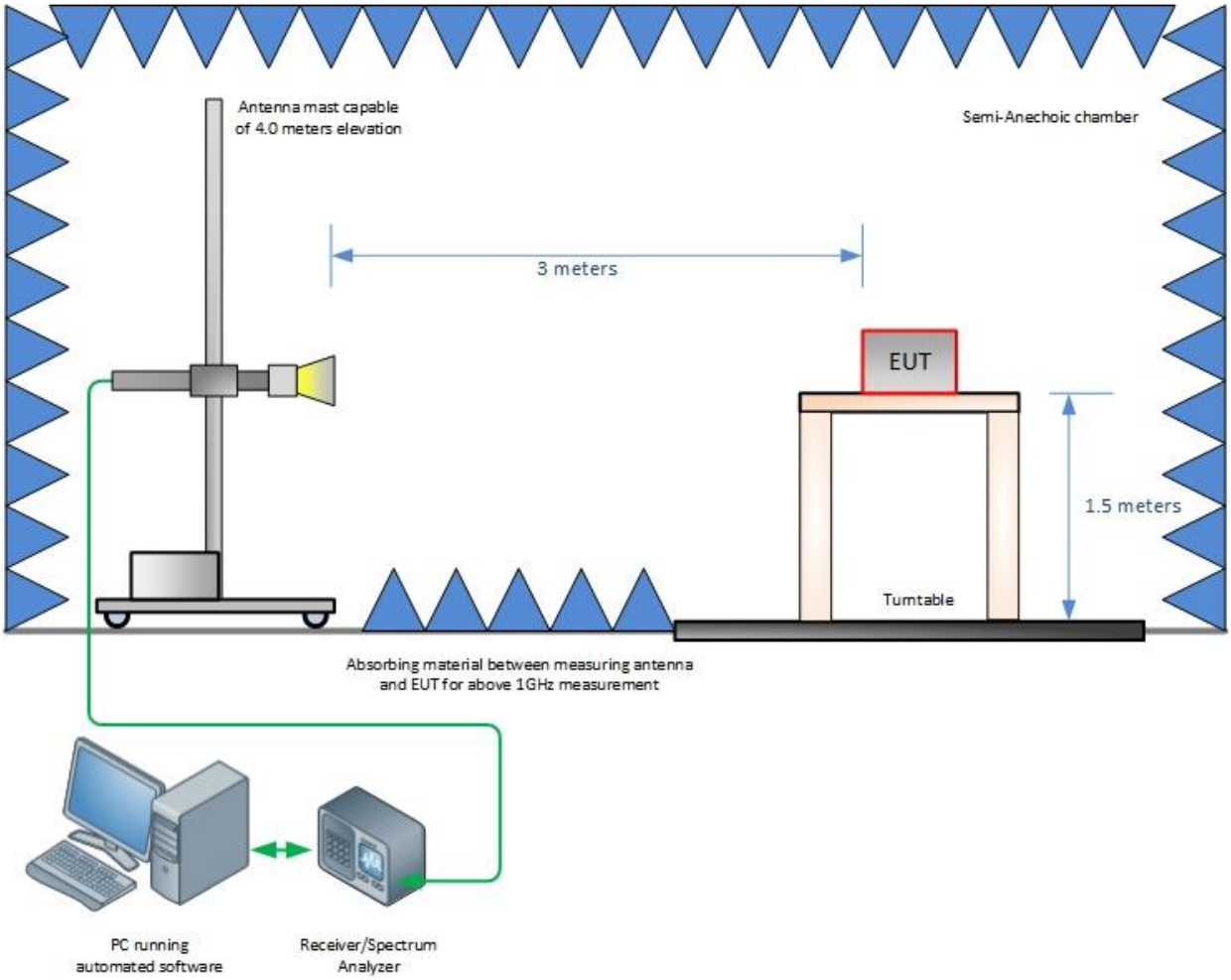
4.1 TEST SETUP DIAGRAM



AC Conducted Emission Test Setup (for reference only)



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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