

Test Report No. <i>Prüfbericht-Nr.:</i>	US25ITM8 002	Order No. <i>Auftrags-Nr.:</i>	P01939866 234232355-60	Page 1 of 70 <i>Seite 1 von 70</i>
Client Reference No.: <i>Kunden-Referenz-Nr.:</i>	2227277	Order date: <i>Auftragsdatum:</i>	2025-05-05	
Client: <i>Auftraggeber:</i>	Tintometer Inc. 6456 Parkland Drive Sarasota, FL 34243 USA			
Identification/ Type No.: <i>Bezeichnung / Typ-Nr</i>	Base Model: WM-300-1100 Additional Model: WM-300-1101 (OEM Version)			
Order content: <i>Auftrags-Inhalt:</i>	47 CFR 15.247 / RSS-247 Issue 4 Module Integration Report (2.4G WLAN)			
Test specification: <i>Prüfgrundlage</i>	47 CFR 15.247 / RSS-247 Issue 4 ANSI C63.10-2020 & ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024			
Date of sample receipt: <i>Wareneingangsdatum:</i>	10/21/2025			
Test sample No: <i>Prüfmuster-Nr.:</i>	P4:103; P4:104			
Testing period: <i>Prüfzeitraum</i>	10/20/2025 - 9/9/2026			
Place of testing: <i>Ort der Prüfung:</i>	TUV Rheinland of North America Inc. 5015 Brandin Ct Fremont CA 94538 USA			
Testing laboratory: <i>Prüflaboratorium</i>	TUV Rheinland of North America, Inc.			
Test result*: <i>Prüfergebnis*:</i>	Pass			
Tested by: <i>geprüft von:</i>	Isaac Aguilar	Authorized by: <i>genehmigt von:</i>	Osvaldo Casorla	
Date: 9/18/2026 <i>Datum:</i>		Issue Date: 9/18/2026 <i>Ausstellungsdatum:</i>		
Position / Stellung:	Test Engineer	Position / Stellung:	Expert	
Others / Sonstiges:				
Condition of the test item at delivery: <i>Zustand des Prüfgegenstandes bei Anlieferung:</i>				
* Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested * Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet				
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Remarks
Anmerkungen

1	The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request. <i>Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.</i> <i>Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.</i>
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3	Test clauses with remark of * are subcontracted to qualified subcontractors and described under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report. <i>Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben.</i> <i>Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.</i>
4	Electromagnetic Compatibility Test Report. The above product was found to be Compliant to the above test standard(s).

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Product description
Produktbeschreibung

1	Product details: <i>Produktdetails:</i>	Handheld spectrophotometer with wireless radio capabilities.
2	Dimensions / Weight: <i>Maße / Gewicht:</i>	24.1 x 10.4 x 10.8 cm ³ / 0.82 kg
3	Operating elements: <i>Bedienelemente:</i>	5 – 20 VDC / 750 mA; Battery & DC Powered
4	Equipment / Accessories: <i>Ausstattung / Zubehör:</i>	N/A
5	Used materials: <i>Verwendete Materialien:</i>	N/A
6	Other: <i>Sonstiges:</i>	Test sample(s), as well sample information, description, product details and intended usage was provided by customer.
7	Test sample obtaining: <i>Prüfmusterbereitstellung:</i>	☐ Sending by customer ☐ Sampling by TÜV Rheinland Group ☐ others:

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Revisions

Revision No.	Date MM/DD/YYYY	Reason for Change	Author
001	1/2/2026	Original Report	Isaac Aguilar
002	9/18/2026	- Client updated to from Lovibond Inc. to Tintometer Inc. - FCC/IC ID updated and placed in table 4. - Testing dates updated. - ANSI version updated to include FCC and ISED versions. - RSS Issue # reference updated to correct version. - AC Mains data section added. - Equipment list updated to include AC Main Conducted Emissions test equipment and notch filter. - Rx testing limit reference updated - Test Setup appendix updated to include AC Main Conducted Emissions photos. - Included LMA output power evaluation and test setup photos in appendix.	Isaac Aguilar
Note: Latest revision report will replace all previous reports.			

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1 Executive Summary

1.1 Scope

This report is intended to document the status of conformance with the requirements of 47 CFR 15.247 / RSS-247 Issue 4 to ANSI C63.10-2020 & ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024, based on the results of testing performed on 10/20/2025 to 9/9/2026 & on WM-300-1100; WM-300-1101 manufactured by Tintometer Inc. This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report. The 2400 MHz to 2483.5 MHz frequency band is covered in this document.

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1.3 Summary of Test Results

Table 1: Summary of Test Results

Test	Requirement	Result
Maximum Output Power ¹	47 CFR 15.247(b)(3) RSS-247 Issue 4 Section 6.3.2	Compliant
Occupied Bandwidth	47 CFR 15.247(a)(2) RSS-247 Issue 4 Section 6.3.1	Not Tested
Peak Power Spectral Density	47 CFR 15.247(e) RSS-247 Issue 4 Section 6.3.1	Not Tested
Out of Band Emission (Conducted)	47 CFR 15.247(d) RSS-247 Issue 4 Section 6.6	Not Tested
Restricted Bands: Radiated Spurious Emissions	47 CFR 15.247(d); 47 CFR 15.205 47 CFR 15.209(a) RSS-Gen Issue 6 Section 8.10	Compliant
Restricted Bands of Operation: Band-edge	47 CFR 15.247(d); 47 CFR 15.205 47 CFR 15.209(a) RSS-Gen Issue 6 Section 8.10	Compliant
Receiver Emissions	RSS-Gen Issue 6 Section 7	Compliant
AC Power Conducted Emissions	47 CFR 15.207	Compliant
Note: 1. LMA continued compliance evaluation for integration into a new host.		

1.4 Special Accessories

None

1.5 Equipment Modifications

Two ferrites manufactured by FAIR-RITE, serial number: 0431164951, were attached to the USB Type-C cable used for charging.

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2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission, US1131



TUV Rheinland of North America EMC test facilities located at 1279 Quarry Lane, Ste. A, Pleasanton, CA, 94566, and 5015 Brandin Ct, Fremont Ca., 94538, are recognized by the Commission for performing testing services for the general public on a fee basis. These laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (Pleasanton Registration No. US1131, Fremont Registration No. US1131). The laboratory Scopes of Accreditation include Title 47 CFR 15, 18 and 90. The accreditations are updated every three years.

2.1.2 NIST / A2LA, Testing Cert #3331.02



TUV Rheinland of North America EMC test facilities are accredited by the American Association for Laboratory Accreditation (A2LA). The laboratories have been assessed and accredited by A2LA in accordance with ISO Standard 17025:2017 (Testing Certificate #3331.02). The Scope of Laboratory Accreditation includes emission and immunity testing. The accreditations are updated annually.

2.1.3 Canada – Innovation, Science and Economic Development (ISED), 2932D



The Fremont 10-meter Semi-Anechoic Chamber, Registration No. 2932D, has been accepted by ISED to perform testing to 3 and 10 meters based on the test procedures described in ANSI C63.4-2014.

2.1.4 Japan – VCCI



The Voluntary Control Council for Interference by Information Technology Equipment (VCCI) is a group that consists of Information Technology Equipment (ITE) manufacturers and EMC test laboratories. The purpose of the Council is to take voluntary control measures against electromagnetic interference from Information Technology Equipment, and thereby contribute to the development of a socially beneficial and responsible state of affairs in the realm of Information Technology Equipment in Japan. TUV Rheinland of North America EMC test facilities located at 1279 Quarry Lane, Ste. A, Pleasanton, CA, 94566, and 5015 Brandin Ct, Fremont Ca., 94538, have been assessed and approved in accordance with the Regulations for Voluntary Control Measures.

VCCI Registration No. for Fremont: A-409

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2.1.5 Acceptance by Mutual Recognition Arrangement



The United States has an established agreement with specific countries under the Asia Pacific Laboratory Accreditation Corporation (APLAC) Mutual Recognition Arrangement. Under this agreement, all TÜV Rheinland at 1279 Quarry Ln, Pleasanton, CA 94566 test results and test reports within the scope of the laboratory NIST / A2LA accreditation will be accepted by each member

country.

2.1.6 BSMI

Registration No.: SL2-IN-E-1150R. The BSMI accreditation was obtained by NIST MRA with the BSMI

2.1.7 Korea

(Designation No.: US0185). Recognized by National Radio Research Agency (RRA) as an accredited Conformity Assessment Body (CAB) under the terms for Korea Phase I of the APEC TEL.

2.2 Test Facilities

Test facilities are located at 5015 Brandin Ct, Fremont, California, 94538, USA and 1279 Quarry Lane, Pleasanton, California 94566, USA (Fremont is the Pleasanton Annex).

2.2.1 Emission Test Facility

The Semi-Anechoic Chambers and AC Line Conducted measurement facilities used to collect radiated and conducted emissions data have been constructed in accordance with ANSI C63.7:1992. The Fremont 10 meter semi-anechoic chamber has been measured in accordance with and verified to comply with the theoretical volumetric normalized site attenuation of ANSI C63.4:2014 and SVSWR requirements of CISPR 16-1-4 Consol. Ed. 3.0 (2010-04), at test distances of 3 and 10 meters. This site has been described in reports dated November 1st, 2006, submitted to the FCC, and accepted by letter dated November 28, 2006. The site is listed with the FCC and accredited by A2LA (Testing Certificate #3331.02). The Pleasanton 5 meter semi-anechoic chamber has been verified to comply with the theoretical volumetric normalized site attenuation of ANSI C63.4:2009 and SVSWR requirements of CISPR 16-1-4 Consol. Ed. 3.0 (2010-04) at a test distance of 3 meters. This site has been described in reports dated November 1st, 2006, submitted to the FCC, and accepted by letter dated November 28, 2006. The site is listed with the FCC and accredited by A2LA (Testing Certificate #3331.02).

2.3 Measurement Uncertainty

Two types of measurement uncertainty are expressed in this report, per *ISO Guide To The Expression Of Uncertainty In Measurement*, 1st Edition, 1995.

The Combined Standard Uncertainty is the standard uncertainty of the result of a measurement when that result is obtained from the values of a number of other quantities; it is equal to the positive square root of the sum of the variances or co-variances of these other quantities, weighted according to how the measurement result varies with changes in these quantities. The term *standard uncertainty* is the result of a measurement expressed as a standard deviation.

The Expanded Uncertainty defines an interval about the result of a measurement that may be expected to encompass a large fraction of the distribution of values that could reasonably be attributed to the measurement and the fraction may be viewed as the coverage probability or level of confidence of the interval.

2.3.1 Sample Calculation – radiated & conducted emissions

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{RAW} - \text{AMP} + \text{CBL} + \text{ACF}$$

Where: RAW = Measured level before correction (dB μ V)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$\mu\text{V/m} = 10^{\frac{\text{dB}\mu\text{V/m}}{20}}$$

Sample radiated emissions calculation @ 30 MHz

Measurement +Antenna Factor–Amplifier Gain+Cable loss=Radiated Emissions (dB μ V/m)

$$25 \text{ dB}\mu\text{V/m} + 17.5 \text{ dB} - 20 \text{ dB} + 1.0 \text{ dB} = 23.5 \text{ dB}\mu\text{V/m}$$

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2.3.2 Measurement Uncertainty

Measurement Type	Expanded Uncertainty
Conducted Emissions (Antenna Port)	
Output Power	± 0.48 dB
Adjacent Channel Power	± 0.54 dB
Harmonics/Spurious Emissions	± 1.78 dB
Radiated Disturbances (3M)	
30 – 1000 MHz	± 4.09 dB
1 – 18 GHz	± 4.96 dB
18 – 40 GHz	± 5.14 dB
Radiated Disturbances (10M)	
30 – 1000 MHz	± 4.09 dB
1 – 18 GHz	± 4.96 dB
18 – 26.5 GHz	± 5.14 dB
18 – 40 GHz	± 4.92 dB
Conducted Disturbances (AC Mains)	
AC Main Conducted Emissions	± 3.28 dB
Notes:	
1. The expanded uncertainty at a level of 95% confidence is obtained by multiplying the combined standard uncertainty by a coverage factor of 2. Compliance criteria are not based on measurement uncertainty.	

2.4 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2017. Equipment calibration records are kept on file at the test facility.

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3 EMC Test Plan

3.1 Introduction

This section provides a description of the Equipment Under Test (EUT), configurations, operating conditions, and performance acceptance criteria. It is an overview of information provided by the manufacturer so that the test laboratory may perform the requested testing.

3.2 Customer

Table 2: Customer Information

Client	Tintometer Inc.
Address 1	6456 Parkland Drive Sarasota, FL 34243 USA
Contact Person	John Crowley
Telephone	+1 970-556-1963
Fax	N/A

Table 3: Technical Contact Information

Contact Person	John Crowley
Telephone	+1 970-556-1963
E-Mail	john.crowley@lovibond.us

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3.3 Equipment Under Test (EUT)

Table 4: EUT Specifications

EUT Specifications	
Dimensions	24.1 x 10.4 x 10.8 cm ³ / 0.82kg
Operating Temperature Range:	0 – 50 °C
Multiple Feeds:	SISO
Hardware Version/Model	WM-300-1100; WM-300-1101
Firmware Version	6.6.52
RF Software Version	1.1.1.1
Product Marketing Name	MD750
Operating Mode	2.4 GHz WLAN
Transmitter Frequency Band	2412 – 2462 MHz
Antenna Manufacturer	Molex
Antenna Model	146153 (1461530250)
Antenna Type	Balanced Dipole
Antenna Gain	+2.4 dBi
Modulation Type	DSSS, OFDM, 64-QAM
Data Rate	802.11b: 1/2/5.5/11 Mbps 802.11g: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 600 Mbps
Supported Bandwidths	20/40 MHz
TX/RX Chain (s)	1 Tx / 1 Rx
Directional Gain Type	N/A
Type of Equipment	Handheld / Household
Contains FCC ID:	2BT39MD750
Contains IC:	35046-MD750
Note:	
1. All EUT specifications are provided by the manufacturer or the TUV direct customer. Information supplied by the customer and can affect the validity of results.	

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Table 5: EUT Test Samples

Equipment	Manufacturer	Model	Serial	Used for
01	Tintometer Inc.	WM-300-1100	P4: 103	Radiated Emissions
02	Tintometer Inc.	WM-300-1100	P4: 104	Radiated Emissions
Note: None.				

Table 6: Channel Power Setting/Specification/Worst Case Modes

Mode	Data Rate	Frequency (MHz)	Bandwidth (MHz)	Power Setting
802.11b	1Mbps	2437	20	See Note 1
802.11b	1Mbps	2462	20	See Note 1
802.11g	6Mbps	2437	20	See Note 1
802.11g	6Mbps	2462	20	See Note 1
802.11n	HT0	2437	20	See Note 1
Note: 1. Power was set to the maximum firmware level set by the module manufacturer with no ability for adjustments.				

Table 7: General Product Information

Dimensions	Length:	24.1 cm	Width:	10.4 cm	Height:	10.8 cm
Weight	0.82 kg		Fork-lift Needed:		No	
Note: None						

Table 8: Electrical Power Type

Name	Type	Voltage		Frequency (Hz)	Current (A)
		Min	Max		
Phihong Switching Power Supply	AC	100	240	50 – 60	0.5
Note: None					

Table 9: EUT Interfaces/Port Specifications

EUT Port	Connect To	Location	Length	Shielded/Unshielded
USB Type-C	Power Supply	Bottom	2 meters	Unshielded
Note: 1. Video port not used and not active during testing.				

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Table 10: Support Equipment/Software

Type	Manufacturer	Model / Software	Connected To	Version / Serial #
Test Software	Murata	Murata_NXP_RF_Test Tool.2.0	N/A	2.0
Serial Cable	Tag-Connect	TC2030-FTDI-TLL-232-3V3	EUT	--
Note: None				

4 Product Information

4.1 Product Description

Handheld spectrophotometer for measuring color and spectral properties of light across various surfaces and materials with wireless communication capabilities.

4.2 Equipment Configuration

A description of the equipment configuration is given in the Test Plan Section. The EUT was tested as called for in the test standard and was configured and operated in a manner consistent with its intended use. The placement of the EUT system components was guided by the test standard and selected to represent typical installation conditions.

In the case of an EUT that can operate in more than one configuration, preliminary testing was performed to determine the configuration that produced maximum radiation.

The final configuration was selected to produce the worst-case radiation for emissions testing.

4.3 Operating Mode

A description of the operation mode is given in the Test Plan Section. In the case of an EUT that can operate in more than one state, preliminary testing was performed to determine the operating mode that produced maximum radiation.

The final operating mode was selected to produce the worst-case radiation for emissions testing.

4.4 Unique Antenna Connector

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of 47 CFR 15.211, 15.213, 15.217, 15.219, 15.221.

4.4.1 Results

The EUT utilizes an antenna dipole antenna with a u.fl connection which is installed by the manufacturer and is not end-user accessible.

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4.5 Duty Cycle

The duty cycle of the device was determined before testing was performed in order to choose the appropriate test methodology. Duty cycle was measured with a spectrum analyzer in zero span and calculated as the percentage between the transmitters on time over the signal period.

$$\text{Duty Cycle}(\%) = \frac{\text{Transmitter on Time}}{\text{Signal Period}} \times 100$$

4.5.1 Results

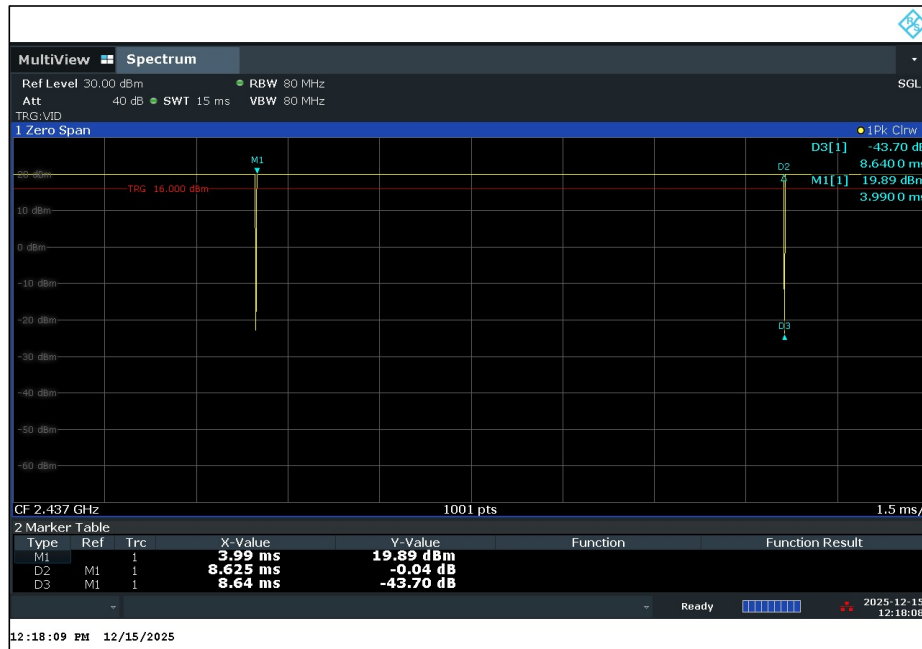
Table 11: Duty Cycle

Test Condition:		Conducted, Normal Temperature		Date:	12/15/2025
Antenna Type:		Balanced Dipole		Power Level:	See Table 6
Max. Antenna Gain:		+2.4 dBi		Test Engineer	
Signal State: Modulated					
Mode	Data Rate	Frequency (MHz)	Bandwidth (MHz)	Duty Cycle	Duty Cycle Correction (dB)
802.11b	1Mbps	2437	20	0.998	N/A ²
802.11b	1Mbps	2462	20	0.998	N/A ²
802.11g	6Mbps	2437	20	0.987	N/A ²
802.11g	6Mbps	2462	20	0.987	N/A ²
802.11n	HT0	2437	20	0.986	N/A ²
Note: 1. All insertion loss and corrections are accounted for in the measurement plots. 2. Correction not required since duty cycle is greater than or equal to 0.98 or 98% 3. Duty cycle calculated (M2-M1)/(M3-M1) → Ex: (16.212-4.004)/(16.3244-4.004) = 0.9908 or 99% 4. Duty Cycle correction = 10*Log(1/Duty Cycle) → Ex: 10*Log(1/0.75) = 1.25 dB					

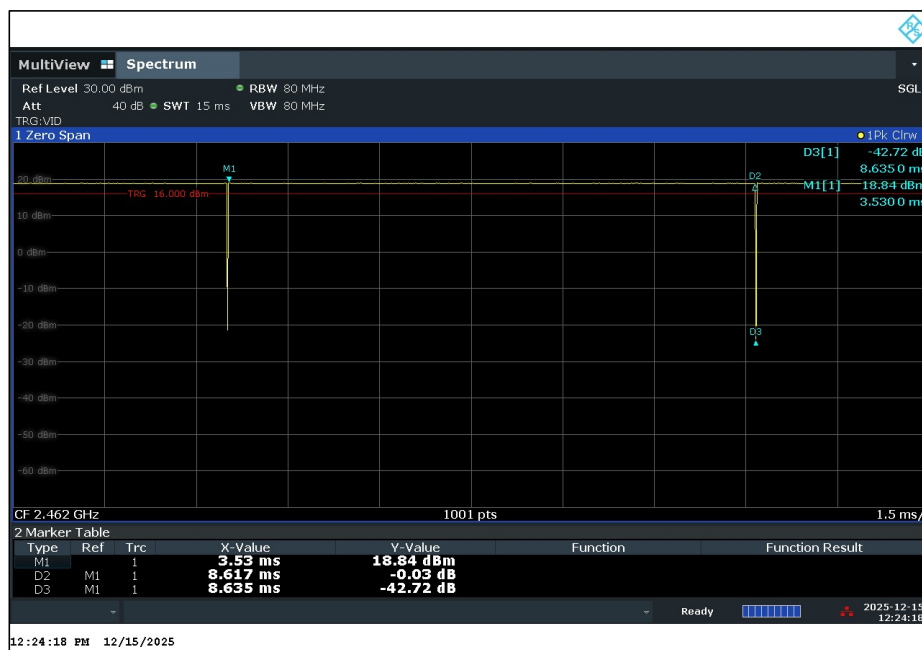
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4.5.2 Worst case Duty Cycle



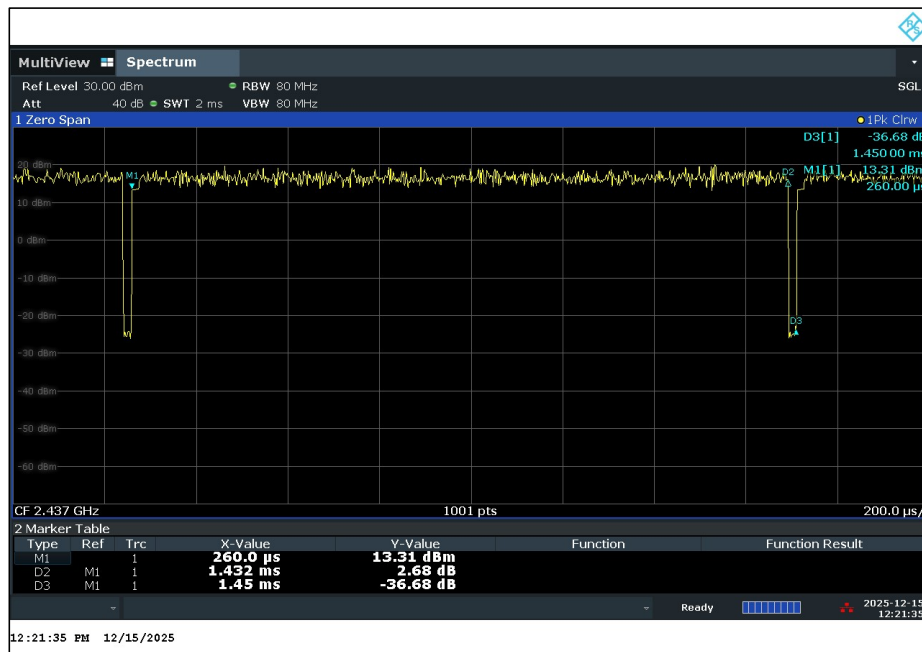
802.11b 1Mbps 2437MHz Duty Cycle



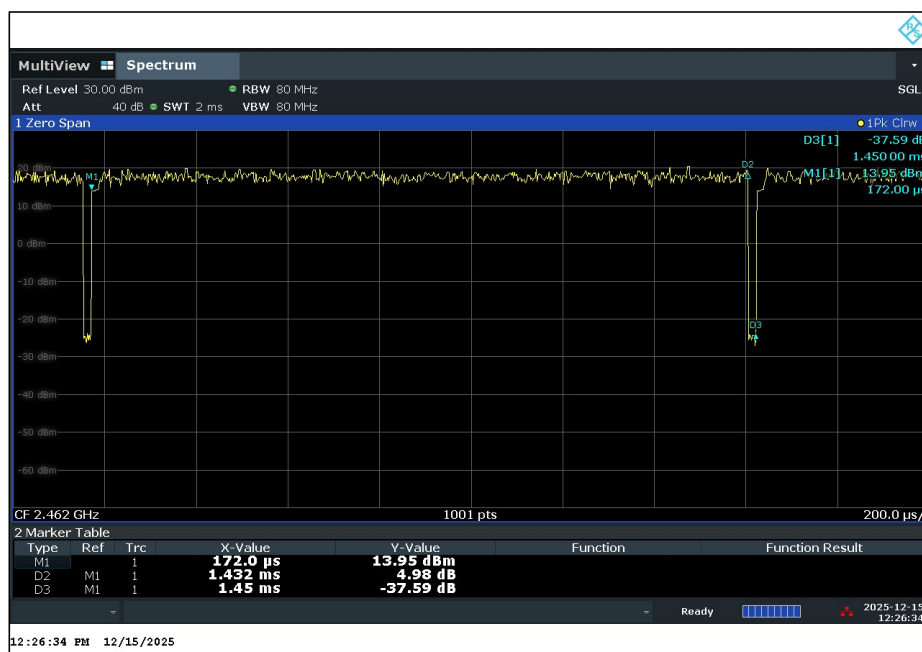
802.11b 1Mbps 2462 MHz Duty Cycle

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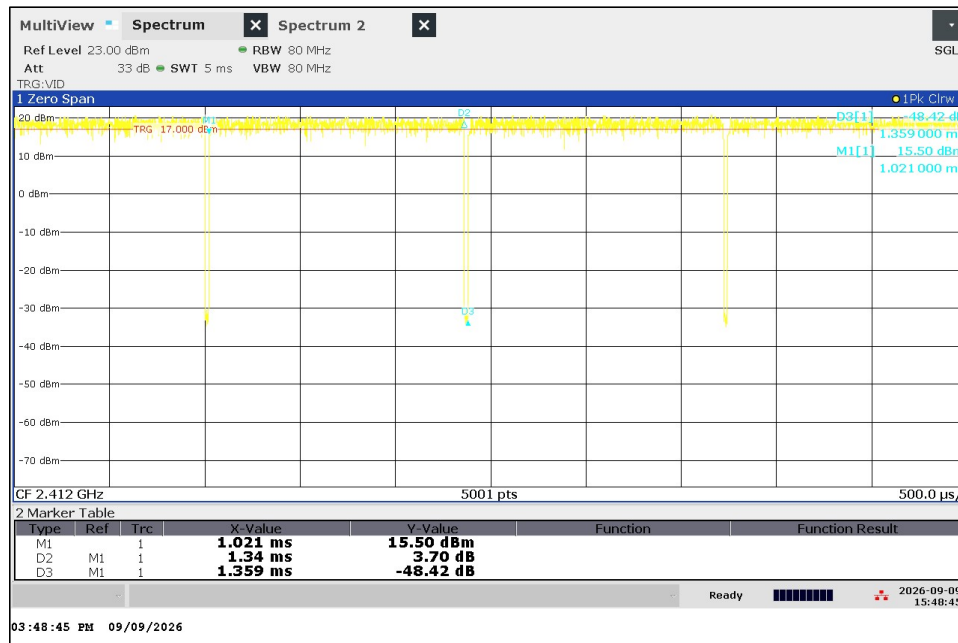
802.11g 6Mbps 2437 MHz Duty Cycle



802.11g 6Mbps 2462 MHz Duty Cycle

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802.11n HT0 2437 MHz Duty Cycle

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5 Emissions

Testing was performed in accordance with 47 CFR Part 15, RSS-247 Issue 4 & RSS-Gen Issue 6 and the applicable tests methods. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

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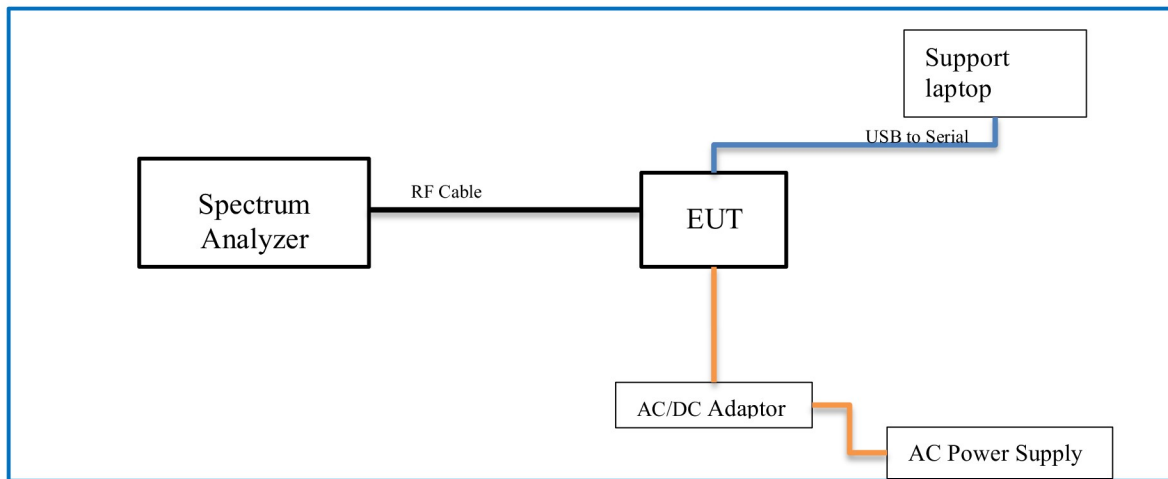
5.1 Maximum Output Power (LMA integration evaluation)

47 CFR 15.247(b)(3) & RSS-247 Issue 4 Section 6.3.2 states that the conducted output power of a DTS is 1W. The EIRP of the DTS is limited to 36 dBm (4W) respectively between FCC and ISSED.

5.1.1 Test Method

The ANSI C63.10-2020 & ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024 section 11.9 conducted method was used to measure the channel power output. The EUT was connected directly to spectrum analyzer, and the trace was allowed to maximize before the final reading was made. System losses and duty cycle correction, when applicable, were input into the analyzer as an offset.

5.1.2 Test Setup:



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5.1.3 Results

The EUT's conducted output power was evaluated to determine continued compliance of the LMA power output when integrated into a new host. The test mode chosen was based on the worst case reported value of the original module report (average measured value). The modules power measured when installed into the host product was measured and shown not to exceed the power listed in the original filing.

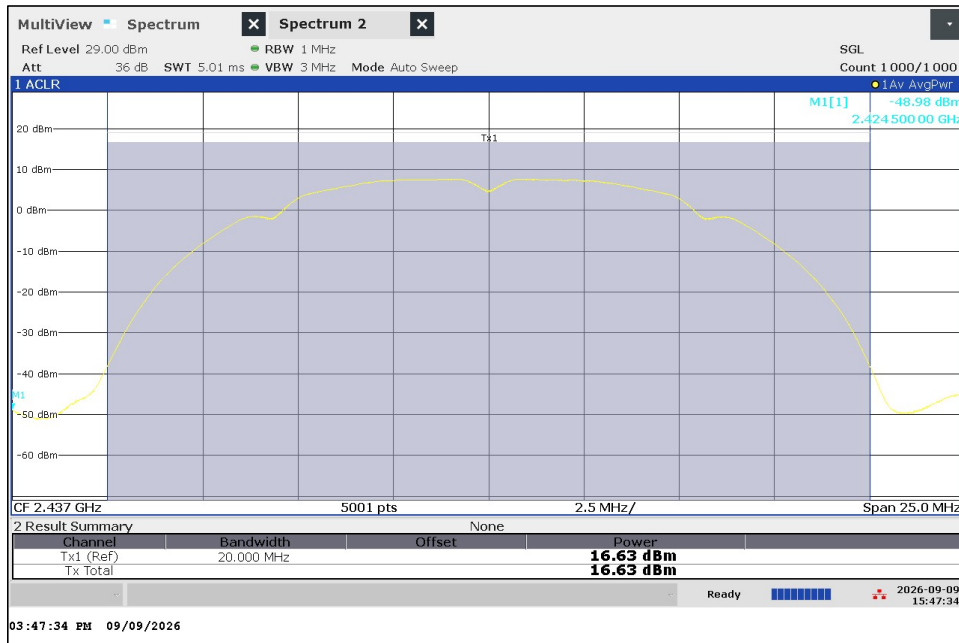
Table 12: RF Output Power at the Antenna Port – Test Results

Test Condition:		Conducted, Normal Temperature		Date:		9/09/2026		
Antenna Type:		Balanced Dipole		Power Level:		See Table 6		
Max. Antenna Gain:		+2.4 dBi		Test Engineer		Isaac Aguilar		
Signal State: Modulated								
Mode	Data Rate	Freq. (MHz)	Signal Bandwidth (MHz)	Corr. Factor (dB)	Measured Power (dBm)	Corrected Measured Power (dBm)	Reported Power (dBm)	Margin
802.11b	1Mbps	2437	1.09	20	16.63	17.72	19.8	2.08
802.11g	6Mbps	2437	1.09	20	14.39	15.48	17.9	2.42
802.11n	HT0	2437	1.09	20	13.41	14.5	16.94	2.44
Note: 1. Duty cycle corrections are accounted for in the measurement plots. 2. Corr. Factor system losses added post measurement. 3. Test Software limited to testing 2412, 2437 and 2462 MHz frequencies. Maximum average power from module report are: 802.11b: 2422MHz, 802.11g: 2447 MHz, 802.11n: 2447 MHz								

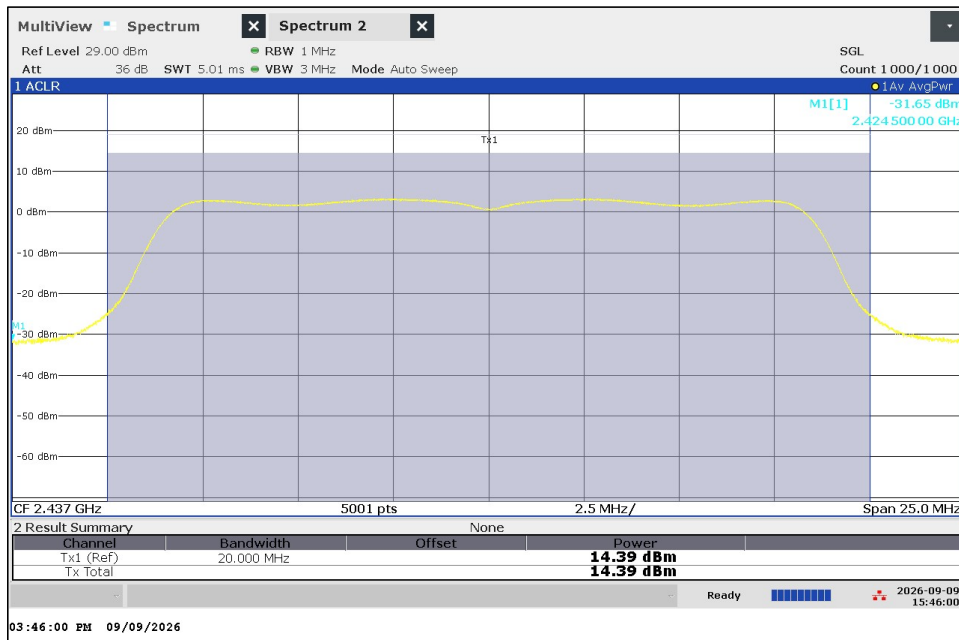
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5.1.4 Worst Case Analyzer Data



802.11b 1 Mbps 2437 MHz Output Power



802.11g 6 Mbps 2437 MHz Output Power

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802.11n HT0 2437 MHz Output Power

5.2 Transmit Spurious Emissions (Restricted Band)

47 CFR 15.247(d):

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)).

RSS-Gen Issue 6 Section 8.10:

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:

- a. The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).*
- b. Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.*
- c. Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.*

5.2.1 Test Methodology

ANSI C63.10-2020 section 11.12.1 and 11.12.2 was used to measure Spurious Emissions. Band-edge evaluation was performed using ANSI C63.10-2020 section 11.12.1.

5.2.1.1 Preliminary Test

A test program that controls instrumentation and data logging was used to automate the preliminary RF emission test procedure. The frequency range of interest was divided into sub-ranges to yield a frequency resolution of approximately 120 kHz and provide a reading at each frequency for no more than 12° of turntable rotation. For each frequency sub-range the turntable was rotated 360° while peak emission data was recorded and plotted over the frequency range of interest in horizontal and vertical antenna polarization's.

Preliminary emission profile testing was performed inside the anechoic chamber. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the floor. The EUT was positioned as shown in the setup photographs. The receiving antenna was placed at 3m at an initial fixed height of 1m and raised to 4m in 1m steps. Measurement equipment was located outside of the chamber. A video camera was placed inside the chamber to view the EUT.

Pre-scans were performed to determine the worst data rate/chains.

5.2.1.2 Final Test

For each frequency measured, the peak emission was maximized by manipulating the receiving antenna from 1 to 4 meters above the ground plane and placing it at the position that produced the maximum signal strength reading. The turntable was then rotated through 360° while observing the peak signal and placing the EUT at the position that produced maximum radiation. The six highest emissions relative to the limit were measured unless such emissions were more than 20 dB below the limit. If less than six emissions are within 20 dB of the limit, than the noise level of the receiver is measured at frequencies where emissions are expected. Multiples of all oscillator and microprocessor frequencies were also checked.

Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the ground plane. The placement of EUT and cables were the same as for preliminary testing and is shown in the setup photographs.

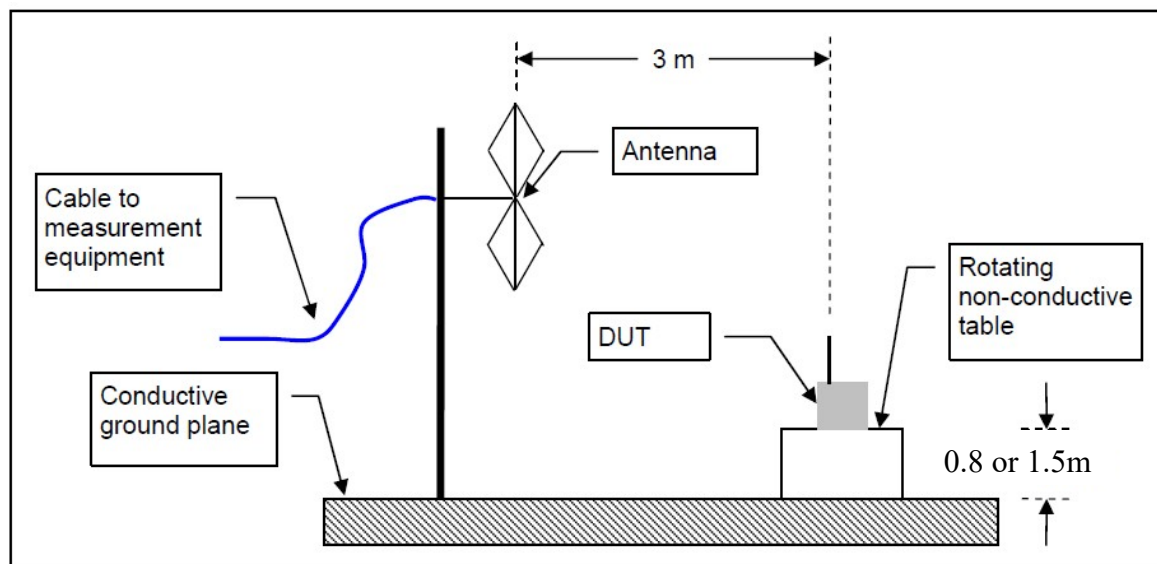
The resolution bandwidth of the measurement analyzer is chosen based on either peak

5.2.1.3 Deviations

None.

5.2.2 Test Setup:

5.2.2.1 Radiated Measurements Setup



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5.2.3 Spurious Emission Limit

The spurious emissions of the transmitter shall not exceed the values in 47 CFR 15.209(a) and RSS-Gen Issue 6 section 8.9.

Frequency (MHz)	Field Strength ($\mu\text{V}/\text{meter}$)	Magnetic Field Strength ($\mu\text{A}/\text{m}$)	Measurement Distance (Meters)
0.009 – 0.490 ¹	2400/F(kHz)	6.37/F(kHz)	300
0.490 – 1.705 ¹	24000/F(kHz)	63.7/F(kHz)	30
1.705 – 30.0 ¹	30	0.08	30
30.0 – 88	100	--	3
88 – 216	150	--	3
216 – 960	200	--	3
Above 960	500	--	3

Note:

1. RSS-Gen limit for this frequency range is the Magnetic Field Strength.

All harmonics and spurious emissions which are outside of the restricted band shall be 20dB below the in-band emission.

5.2.4 Test Results

The final measurement data was taken under the worst-case operating modes, configurations, and/or cable positions. It also reflects the results including any modifications and/or special accessories listed in Sections 1.4 and test plan.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

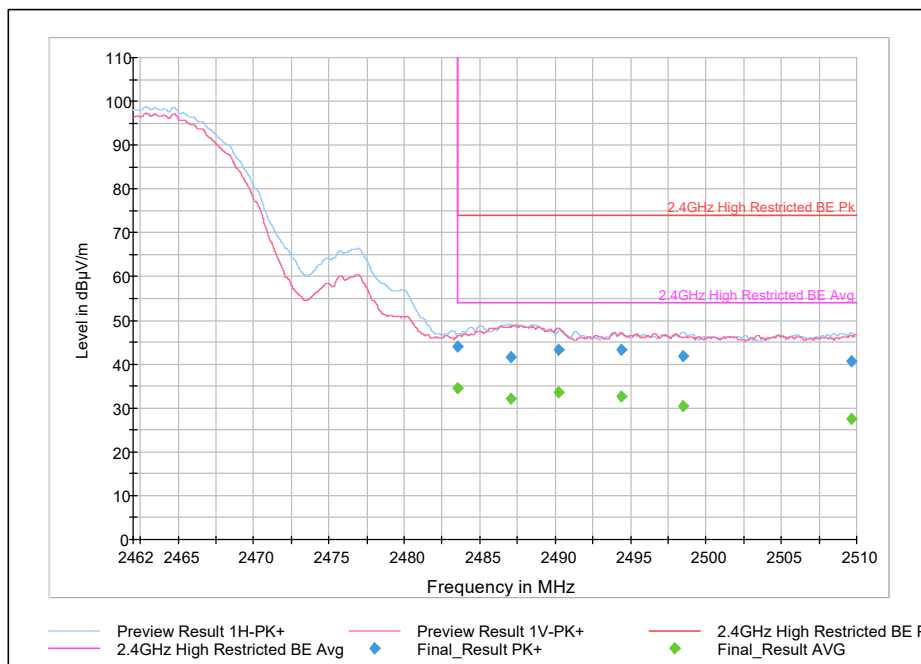
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5.2.4.1 Band-edge Data

Table 13: Restricted Band-edge: 802.11b / 1 Mbps / 2462 MHz

Test Condition:		Radiated, Normal Temperature				Date:		10/27/2025	
Antenna Type:		Balanced Dipole				Power Level:		See Table 6	
Max. Antenna Gain:		+2.4 dBi				Test Engineer:		Isaac Aguilar	
Signal State: Modulated									
Freq. (MHz)	Peak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
2483.50	---	34.59	54	19.41	1000	100	H	191	-0.6
2483.50	44.06	---	74	29.94	1000	100	H	191	-0.6
2487.04	---	32.24	54	21.76	1000	353	H	307	-0.6
2487.04	41.63	---	74	32.37	1000	353	H	307	-0.6
2490.21	---	33.49	54	20.51	1000	350	V	83	-0.6
2490.21	43.43	---	74	30.57	1000	350	V	83	-0.6
2494.43	---	32.51	54	21.49	1000	154	H	172	-0.6
2494.43	43.3	---	74	30.7	1000	154	H	172	-0.6
2498.50	---	30.5	54	23.5	1000	150	H	162	-0.6
2498.50	41.97	---	74	32.03	1000	150	H	162	-0.6
2509.63	---	27.47	54	26.53	1000	155	H	352	-0.5
2509.63	40.6	---	74	33.4	1000	155	H	352	-0.5
Note: None									



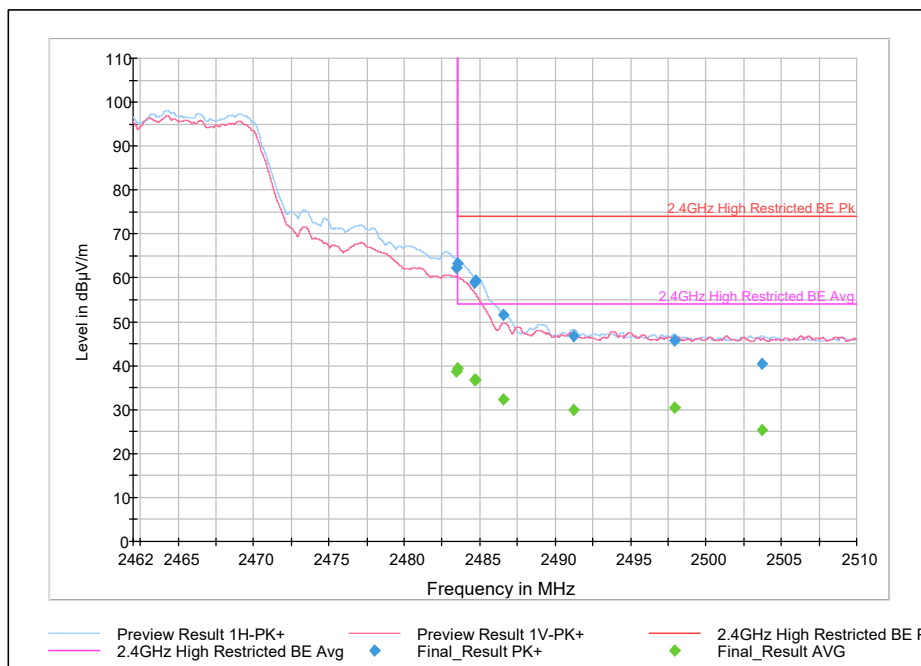
802.11b 1Mbps 2462 MHz – Restricted Band-edge

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Table 14: Restricted Band-edge: 802.11g / 6 Mbps / 2462

Test Condition:	Radiated, Normal Temperature		Date:	10/27/2025					
Antenna Type:	Balanced Dipole		Power Level:	See Table 6					
Max. Antenna Gain:	+2.4 dBi		Test Engineer:	Isaac Aguilar					
Signal State: Modulated									
Freq. (MHz)	Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
2483.48	62.26	---	160	97.74	1000	350	V	97	-0.7
2483.48	---	38.77	160	121.23	1000	350	V	97	-0.7
2483.50	63.37	---	74	10.63	1000	255	H	170	-0.6
2483.50	---	39.37	54	14.63	1000	255	H	170	-0.6
2484.66	58.97	---	74	15.03	1000	354	V	97	-0.7
2484.66	---	36.75	54	17.25	1000	354	V	97	-0.7
2484.74	59.39	---	74	14.61	1000	254	H	170	-0.6
2484.74	---	36.67	54	17.33	1000	254	H	170	-0.6
2486.59	51.54	---	74	22.46	1000	255	H	170	-0.6
2486.59	---	32.26	54	21.74	1000	255	H	170	-0.6
2491.20	46.61	---	74	27.39	1000	155	H	172	-0.6
2491.20	---	29.82	54	24.18	1000	155	H	172	-0.6
2497.94	45.83	---	74	28.17	1000	103	H	198	-0.6
2497.94	---	30.38	54	23.62	1000	103	H	198	-0.6
2503.74	40.45	---	74	33.55	1000	150	H	346	-0.5
2503.74	---	25.22	54	28.78	1000	150	H	346	-0.5
Note: None									



802.11g 6Mbps 2462 MHz – Restricted Band-edge

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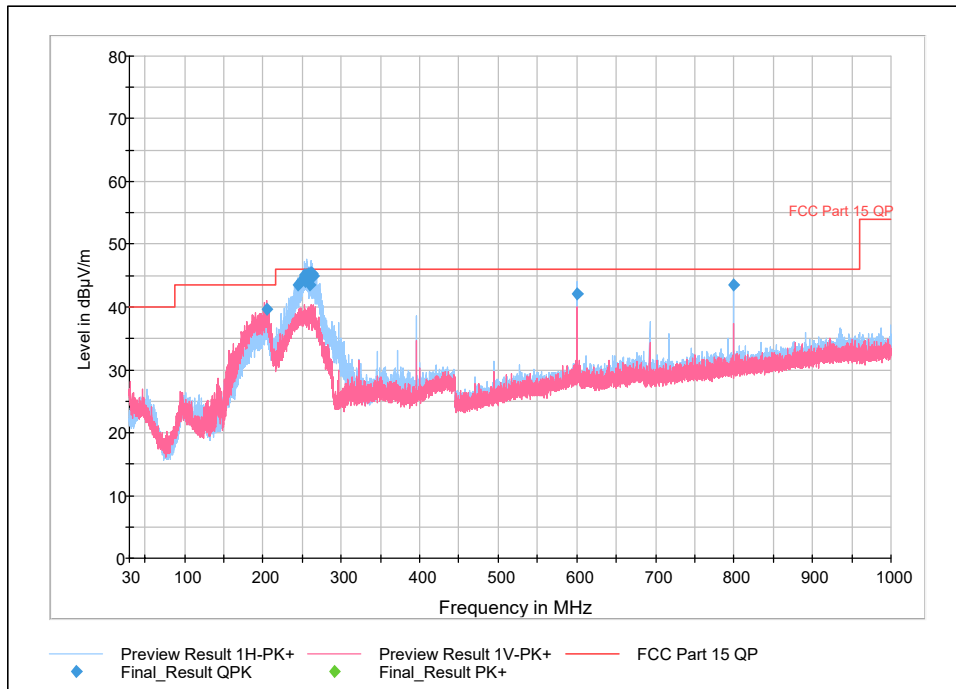
5.2.4.2 Transmitter Spurious Emissions: 30 MHz – 1000 MHz

Table 15: Tx Spurious Emissions 30 – 1000 MHz – 802.11b / 1 Mbps / 20 MHz / 2437 MHz

Test Condition:		Radiated, Normal Temperature				Date:		10/20/2025		
Antenna Type:		Balanced Dipole				Power Level:		See Table 6		
Max. Antenna Gain:		+2.4 dBi				Test Engineer		Eugene Choi		
Signal State: Modulated										
Freq. (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Meas. Time (ms)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
205.52	39.71	---	43.52	3.81	10000	120	100	V	188	-12.8
244.81	43.46	---	46.02	2.56	10000	120	106	H	247	-11.2
251.10	44.61	---	46.02	1.41	10000	120	104	H	231	-10.9
253.44	45.08	---	46.02	0.94	10000	120	100	H	240	-10.8
254.99	44.09	---	46.02	1.93	10000	120	104	H	224	-10.7
255.44	44.38	---	46.02	1.64	10000	120	104	H	227	-10.7
255.67	45.09	---	46.02	0.93	10000	120	100	H	247	-10.7
255.91	45.04	---	46.02	0.98	10000	120	100	H	237	-10.7
256.26	44.38	---	46.02	1.64	10000	120	100	H	258	-10.6
256.50	45.18	---	46.02	0.84	10000	120	100	H	247	-10.6
258.03	44.57	---	46.02	1.45	10000	120	104	H	227	-10.6
258.85	45.35	---	46.02	0.67	10000	120	100	H	240	-10.5
260.16	43.53	---	46.02	2.49	10000	120	100	H	58	-10.5
260.86	45.37	---	46.02	0.65	10000	120	105	H	240	-10.6
261.15	45.5	---	46.02	0.52	10000	120	104	H	244	-10.6
262.28	45.28	---	46.02	0.74	10000	120	105	H	247	-10.5
262.51	45.03	---	46.02	0.99	10000	120	105	H	251	-10.5
263.17	45.02	---	46.02	1	10000	120	105	H	241	-10.5
263.85	44.98	---	46.02	1.04	10000	120	103	H	244	-10.5
599.99	42.14	---	46.02	3.88	10000	120	255	H	98	-3.2
799.99	43.52	---	46.02	2.5	10000	120	100	H	212	-0.8
Note: None										

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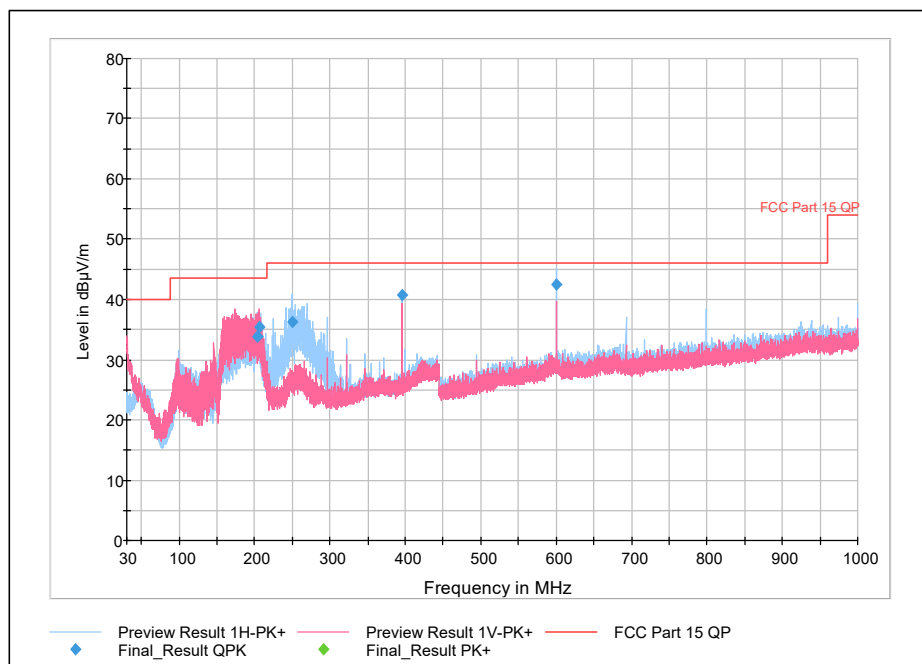
802.11b / 1 Mbps / 20 MHz / 2437 MHz – RSE 30M – 1000MHz

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Table 16: Tx Spurious Emissions 30 – 1000 MHz – 802.11g / 6 Mbps / 20 MHz / 2437 MHz

Test Condition:	Radiated, Normal Temperature					Date:	10/21/2025			
Antenna Type:	Balanced Dipole					Power Level:	See Table 6			
Max. Antenna Gain:	+2.4 dBi					Test Engineer	Eugene Choi			
Signal State: Modulated										
Freq. (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Meas. Time (ms)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
203.07	33.89	---	43.52	9.63	10000	120	104	H	233	-12.4
203.10	33.87	---	43.52	9.65	10000	120	103	H	233	-12.4
206.64	35.39	---	43.52	8.13	10000	120	103	V	181	-12.8
249.99	36.32	---	46.02	9.7	10000	120	103	H	237	-10.9
395.99	40.67	---	46.02	5.35	10000	120	103	H	245	-7.4
599.99	42.4	---	46.02	3.62	10000	120	254	H	247	-3.2
Note: None										



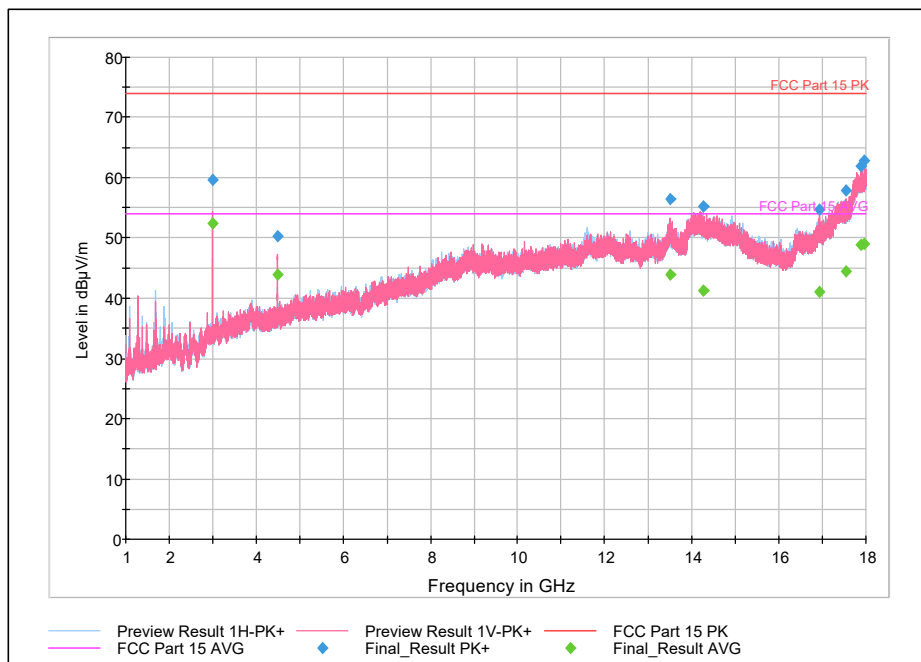
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5.2.4.3 Transmitter Spurious Emissions: 1 GHz – 18 GHz

Table 17: Tx Spurious Emissions 1 – 18 GHz – 802.11b / 1 Mbps / 20 MHz / 2437 MHz

Test Condition:		Radiated, Normal Temperature				Date:		10/24/2025	
Antenna Type:		Balanced Dipole				Power Level:		See Table 6	
Max. Antenna Gain:		+2.4 dBi				Test Engineer:		Eugene Choi	
Signal State: Modulated									
Freq. (MHz)	Peak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
2999.91	---	52.39	54	1.61	1000	104	V	251	2.6
2999.91	59.66	---	74	14.34	1000	104	V	251	2.6
4499.94	50.2	---	74	23.8	1000	150	V	47	6.1
4499.94	---	43.81	54	10.19	1000	150	V	47	6.1
13500.59	56.46	---	74	17.54	1000	250	V	337	19.7
13500.59	---	43.93	54	10.07	1000	250	V	337	19.7
14265.50	55.19	---	74	18.81	1000	355	H	224	21.2
14265.50	---	41.26	54	12.74	1000	355	H	224	21.2
16914.01	54.68	---	74	19.32	1000	100	V	217	20.9
16914.01	---	41.02	54	12.98	1000	100	V	217	20.9
17544.79	57.87	---	74	16.13	1000	336	V	176	25.5
17544.79	---	44.34	54	9.66	1000	336	V	176	25.5
17868.22	62.01	---	74	11.99	1000	150	H	16	28.2
17868.22	---	48.92	54	5.08	1000	150	H	16	28.2
17961.26	---	49.02	54	4.98	1000	105	H	225	28.1
Note: None									

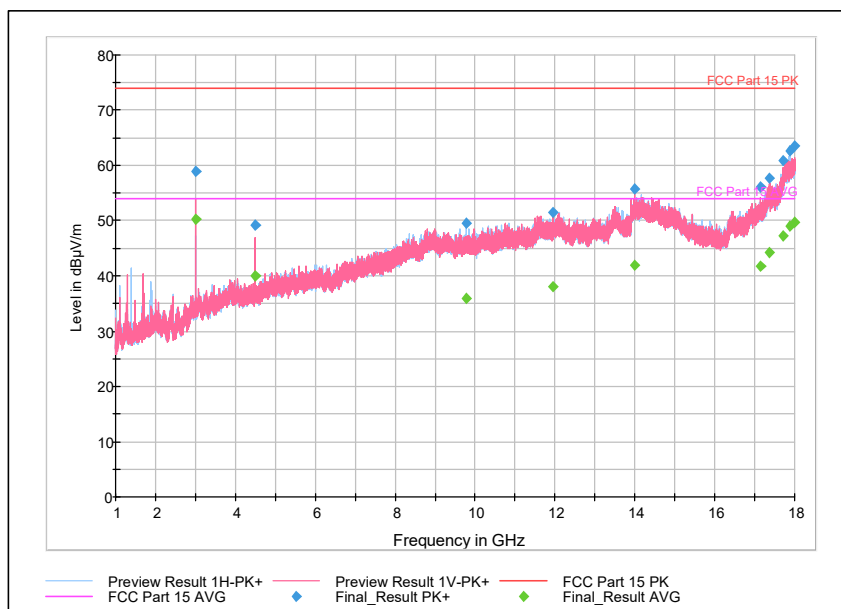


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Table 18: Tx Spurious Emissions 1 – 18 GHz – 802.11g / 6 Mbps / 20 MHz / 2437 MHz

Test Condition:		Radiated, Normal Temperature			Date:		10/24/2025		
Antenna Type:		Balanced Dipole			Power Level:		See Table 6		
Max. Antenna Gain:		+2.4 dBi			Test Engineer:		Eugene Choi		
Signal State: Modulated									
Freq. (MHz)	Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
3000.23	58.93	---	74	15.07	1000	108	V	251	2.6
3000.23	---	50.34	54	3.66	1000	108	V	251	2.6
4499.41	---	40.09	54	13.91	1000	256	V	37	6.1
4499.41	49.24	---	74	24.76	1000	256	V	37	6.1
9772.22	---	35.91	54	18.09	1000	236	H	229	15.5
9772.22	49.6	---	74	24.4	1000	236	H	229	15.5
11952.90	51.47	---	74	22.53	1000	105	V	32	17.9
11952.90	---	38.08	54	15.92	1000	105	V	32	17.9
13989.58	---	41.99	54	12.01	1000	100	V	169	20.7
13989.58	55.8	---	74	18.2	1000	100	V	169	20.7
17154.36	---	41.72	54	12.28	1000	238	V	107	22.6
17154.36	56.06	---	74	17.94	1000	238	V	107	22.6
17361.96	---	44.21	54	9.79	1000	153	V	96	24.2
17361.96	57.75	---	74	16.25	1000	153	V	96	24.2
17709.54	---	47.34	54	6.66	1000	335	V	238	27.1
17709.54	60.94	---	74	13.06	1000	335	V	238	27.1
17885.50	62.65	---	74	11.35	1000	155	H	42	28.4
17885.50	---	49.1	54	4.9	1000	155	H	42	28.4
17988.86	63.62	---	74	10.38	1000	103	V	250	28.8
17988.86	---	49.8	54	4.2	1000	103	V	250	28.8
Note: None									



802.11g / 6 Mbps / 20 MHz / 2437 MHz – RSE 1G – 18GHz

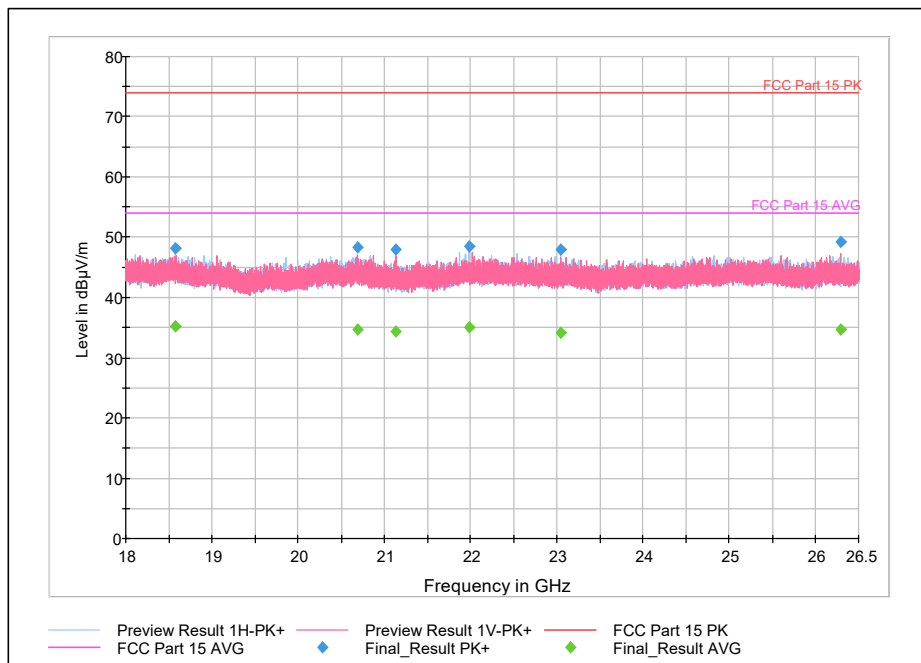
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5.2.4.4 Transmitter Spurious Emissions: 18 GHz – 26.5 GHz

Table 19: Tx Spurious Emissions 18 – 26.5 GHz – 802.11b / 1 Mbps / 20 MHz / 2437 MHz

Test Condition:	Radiated, Normal Temperature		Date:	10/30/2025					
Antenna Type:	Balanced Dipole		Power Level:	See Table 6					
Max. Antenna Gain:	+2.4 dBi		Test Engineer:	Isaac Aguilar					
Signal State: Modulated									
Freq. (MHz)	Peak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
18575.75	48.21	---	74	25.79	1000	200	H	-1	-2.7
18575.75	---	35.16	54	18.84	1000	200	H	-1	-2.7
20691.25	48.36	---	74	25.64	1000	300	H	-1	-0.2
20691.25	---	34.63	54	19.37	1000	300	H	-1	-0.2
21131.63	47.99	---	74	26.01	1000	200	V	103	0
21131.63	---	34.36	54	19.64	1000	200	V	103	0
21982.46	---	35.05	54	18.95	1000	200	H	-2	0.1
21982.46	48.42	---	74	25.58	1000	200	H	-2	0.1
23046.77	---	34.16	54	19.84	1000	200	H	269	0
23046.77	48.01	---	74	25.99	1000	200	H	269	0
26295.50	49.22	---	74	24.78	1000	100	V	1	4.2
26295.50	---	34.68	54	19.32	1000	100	V	1	4.2
Note: None									

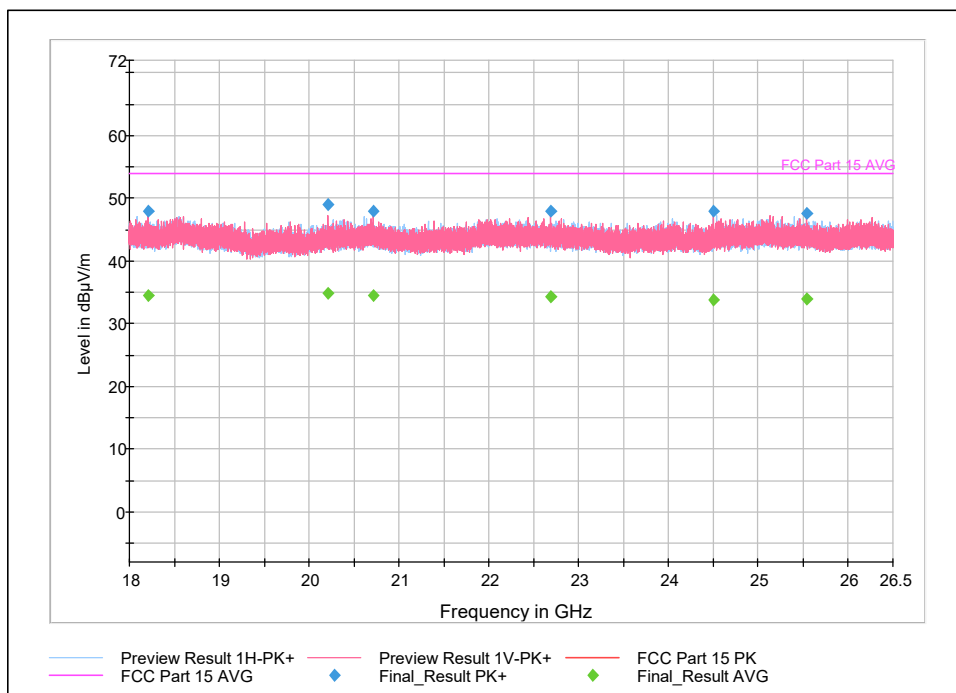


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Table 20: Tx Spurious Emissions 18 – 26.5 GHz – 802.11g / 6 Mbps / 20 MHz / 2437 MHz

Test Condition:	Radiated, Normal Temperature	Date:	5/27/2025						
Antenna Type:	Balanced Dipole	Power Level:	See Table 6						
Max. Antenna Gain:	+2.4 dBi	Test Engineer:	Isaac Aguilar						
Signal State: Modulated									
Freq. (MHz)	Peak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
18214.00	47.99	---	74	26.01	1000	300	V	220	-3
18214.00	---	34.48	54	19.52	1000	300	V	220	-3
20211.00	48.94	---	74	25.06	1000	300	V	158	-0.5
20211.00	---	34.84	54	19.16	1000	300	V	158	-0.5
20717.61	---	34.51	54	19.49	1000	200	V	139	-0.2
20717.61	47.92	---	74	26.08	1000	200	V	139	-0.2
22688.70	---	34.24	54	19.76	1000	300	V	1	0
22688.70	47.92	---	74	26.08	1000	300	V	1	0
24500.27	47.95	---	74	26.05	1000	200	V	110	1.6
24500.27	---	33.7	54	20.3	1000	200	V	110	1.6
25541.82	47.6	---	74	26.4	1000	100	V	87	3.5
25541.82	---	34.02	54	19.98	1000	100	V	87	3.5
Note: None									



5.3 Receiver Spurious Emissions

RSS-247 Issue 4 Section 7.3:

Radiated emission measurements shall be performed with the receiver antenna connected to the receiver antenna ports. The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least five times the highest tunable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.

5.3.1 Test Methodology

ANSI C63.4-2014 section 8.3.1 and 8.3.2 was used to measure Spurious Emissions

5.3.1.1 Preliminary Test

A test program that controls instrumentation and data logging was used to automate the preliminary RF emission test procedure. The frequency range of interest was divided into sub-ranges to yield a frequency resolution of approximately 120 kHz and provide a reading at each frequency for no more than 12° of turntable rotation. For each frequency sub-range the turntable was rotated 360° while peak emission data was recorded and plotted over the frequency range of interest in horizontal and vertical antenna polarization's.

Preliminary emission profile testing was performed inside the anechoic chamber. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the floor. The EUT was positioned as shown in the setup photographs. The receiving antenna was placed at 3m at an initial fixed height of 1m and raised to 4m in 1m steps. Measurement equipment was located outside of the chamber. A video camera was placed inside the chamber to view the EUT.

Pre-scans were performed to determine the worst data rate/chains.

5.3.1.2 Final Test

For each frequency measured, the peak emission was maximized by manipulating the receiving antenna from 1 to 4 meters above the ground plane and placing it at the position that produced the maximum signal strength reading. The turntable was then rotated through 360° while observing the peak signal and placing the EUT at the position that produced maximum radiation. The six highest emissions relative to the limit were measured unless such emissions were more than 20 dB below the limit. If less than six emissions are within 20 dB of the limit, then the noise level of the receiver is measured at frequencies where emissions are expected. Multiples of all oscillator and microprocessor frequencies were also checked.

Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the ground plane. The placement of EUT and cables were the same as for preliminary testing and is shown in the setup photographs.

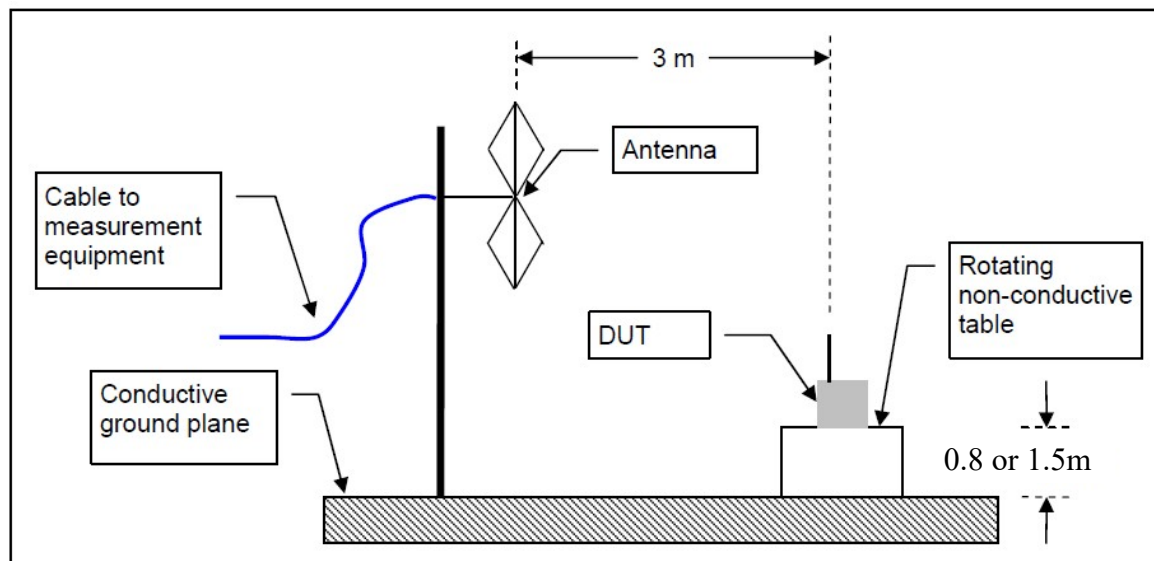
The resolution bandwidth of the measurement analyzer is chosen based on either peak

5.3.1.3 Deviations

None.

5.3.2 Test Setup:

5.3.2.1 Radiated Measurements Setup



5.3.3 Spurious Emission Limit

The spurious emissions of the transmitter shall not exceed the values in RSS-Gen Issue 6 Section 7.3.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (Meters)
30.0 – 88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

5.3.4 Test Results

The final measurement data was taken under the worst-case operating modes, configurations, and/or cable positions. It also reflects the results including any modifications and/or special accessories listed in Sections 1.4 and test plan.

As originally tested, the EUT was found to be compliant to the requirements of the test standard(s).

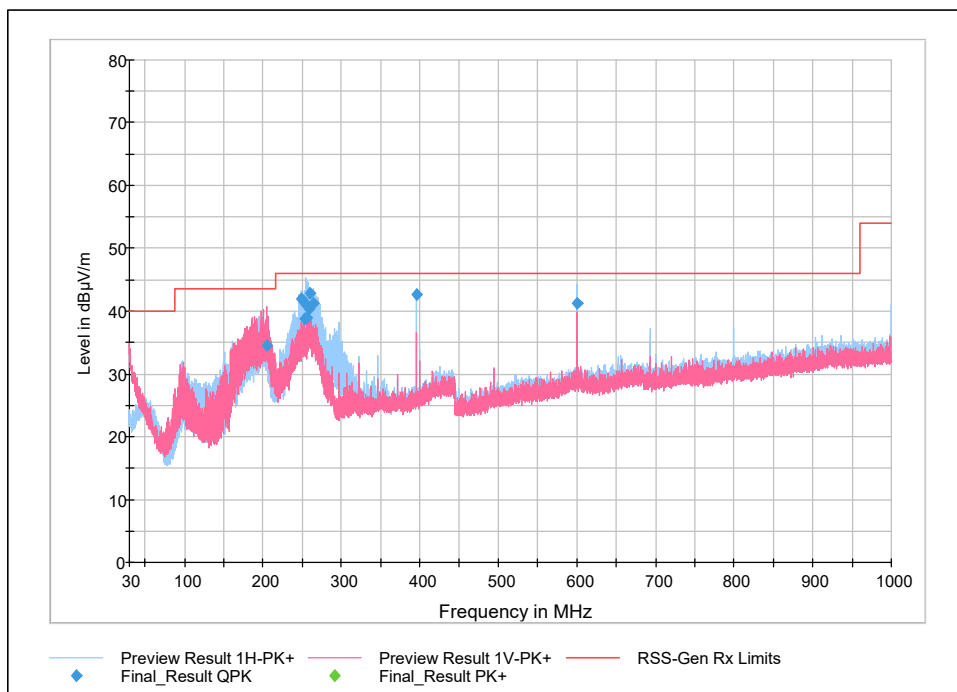
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5.3.5 Receiver Spurious Emissions: 30 – 1000 MHz

Table 21: Rx Spurious Emission 30 – 1000 MHz

Test Condition:	Radiated, Normal Temperature	Date:	10/21/2025							
Antenna Type:	Balanced Dipole	Power Level:	See Table 6							
Max. Antenna Gain:	+2.4 dBi	Test Engineer	Eugene Choi							
Signal State: Rx Mode										
Freq. (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Meas. Time (ms)	BW (kHz)	Height (cm)	Pol (V/H)	Azim uth (deg)	Corr. (dB)
205.03	34.46	---	43.52	9.06	10000	120	100	V	198	-12.8
248.76	41.93	---	46.02	4.09	10000	120	104	H	232	-11.1
253.15	38.76	---	46.02	7.26	10000	120	100	H	232	-10.8
254.41	40.98	---	46.02	5.04	10000	120	100	H	235	-10.8
256.06	38.94	---	46.02	7.08	10000	120	100	H	231	-10.7
257.47	40.74	---	46.02	5.28	10000	120	100	H	236	-10.6
259.03	40.27	---	46.02	5.75	10000	120	100	H	240	-10.5
260.45	42.89	---	46.02	3.13	10000	120	100	H	256	-10.5
264.93	41.25	---	46.02	4.77	10000	120	106	H	240	-10.5
396.00	42.63	---	46.02	3.39	10000	120	100	H	248	-7.4
599.99	41.32	---	46.02	4.7	10000	120	253	H	253	-3.2
Note: None										



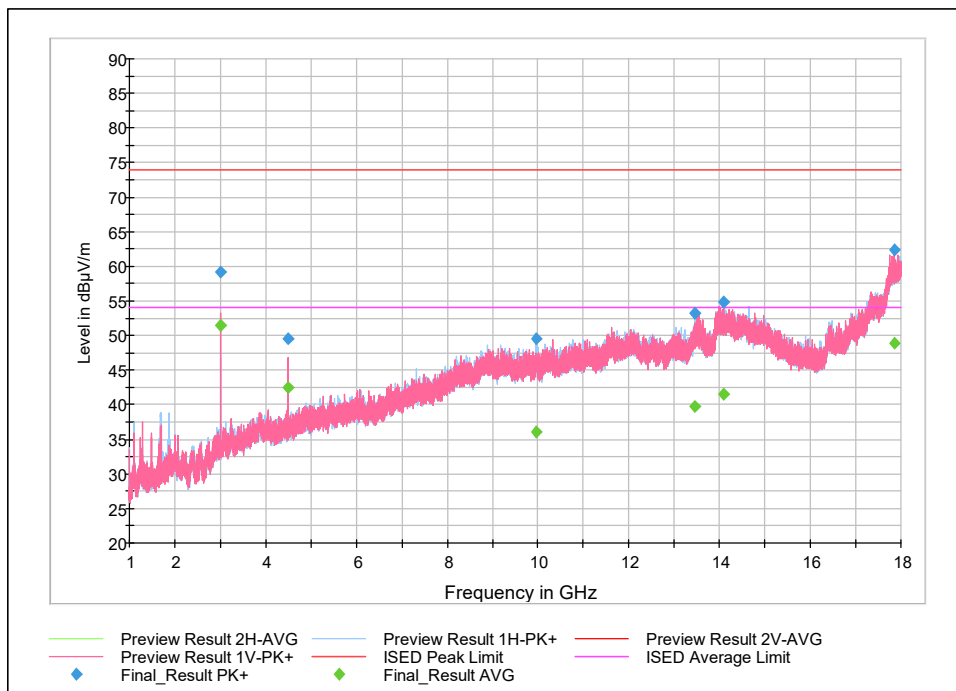
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5.3.6 Receiver Spurious Emissions: 1 – 18 GHz

Table 22: Rx Spurious Emission 1 – 18 GHz

Test Condition:	Radiated, Normal Temperature	Date:	10/28/2025						
Antenna Type:	Balanced Dipole	Power Level:	See Table 6						
Max. Antenna Gain:	+2.4 dBi	Test Engineer:	Isaac Aguilar						
Signal State: Rx Mode									
Freq. (MHz)	Peak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azimuth (deg)	Corr. (dB)
2999.96	---	51.49	54	2.51	1000	153	V	258	2.6
2999.96	59.13	---	74	14.87	1000	153	V	258	2.6
4499.80	---	42.44	54	11.56	1000	250	V	50	6.1
4499.80	49.57	---	74	24.43	1000	250	V	50	6.1
9960.00	---	35.99	54	18.01	1000	154	H	218	16.1
9960.00	49.56	---	74	24.44	1000	154	H	218	16.1
13457.58	53.24	---	74	20.76	1000	334	H	183	19.4
13457.58	---	39.75	54	14.25	1000	334	H	183	19.4
14090.00	54.76	---	74	19.24	1000	103	V	211	20.9
14090.00	---	41.58	54	12.42	1000	103	V	211	20.9
17842.11	---	48.89	54	5.11	1000	354	V	73	28
17842.11	62.33	---	74	11.67	1000	354	V	73	28
Note: None									



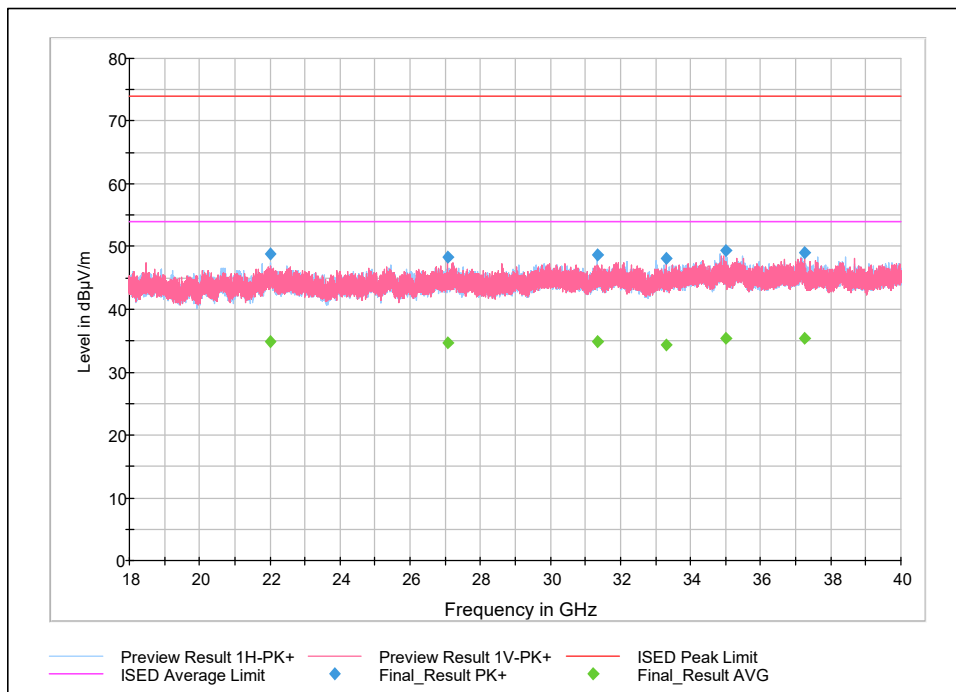
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5.3.7 Receiver Spurious Emissions: 18 – 40 GHz

Table 23: Rx Spurious Emission 18 – 40 GHz

Test Condition:	Radiated, Normal Temperature					Date:	10/30/2025		
Antenna Type:	Balanced Dipole					Power Level:	See Table 6		
Max. Antenna Gain:	+2.4 dBi					Test Engineer:	Isaac Aguilar		
Signal State: Rx Mode									
Freq. (MHz)	Peak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	BW (kHz)	Height (cm)	Pol (V/H)	Azim uth (deg)	Corr. (dB)
22000.81	48.82	---	74	25.18	1000	200	H	266	0.1
22000.81	---	34.89	54	19.11	1000	200	H	266	0.1
27086.15	---	34.64	54	19.36	1000	100	V	302	4.7
27086.15	48.31	---	74	25.69	1000	100	V	302	4.7
31343.50	---	34.83	54	19.17	1000	300	H	164	5.2
31343.50	48.69	---	74	25.31	1000	300	H	164	5.2
33308.62	48.16	---	74	25.84	1000	300	V	141	6.7
33308.62	---	34.38	54	19.62	1000	300	V	141	6.7
35005.85	49.44	---	74	24.56	1000	200	H	114	7.4
35005.85	---	35.45	54	18.55	1000	200	H	114	7.4
37244.03	49.05	---	74	24.95	1000	100	V	58	5
37244.03	---	35.47	54	18.53	1000	100	V	58	5
Note: None									



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5.4 AC Conducted Emissions

47 CFR 15.207(a)/RSS-Gen 7.4.2: Except as shown in paragraphs (b) and (c) of this section, for 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 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of Emissions (MHz)	Conducted Limit (dB μ V/m)	
	Quasi-Peak	Average
0.15 – 0.5	66 – 56 _(note)	56 – 46 _(note)
0.5 – 5	56	46
5 – 30	60	50

Note: Decreases with the logarithm of the frequency.

5.4.1 Test Methodology

A test program that controls instrumentation and data logging was used to automate the AC Power Line Conducted emission test procedure. The frequency range of interest was divided into sub-ranges such as to yield a frequency resolution of 9 kHz. Each phase and neutral of the AC power line were measured with respect to ground. Measurements were performed using a set of 50 μ H / 50 Ω LISNs.

The vertical ground plane used in the semi-anechoic chamber is a 2m x 2m solid aluminum frame and panel, and it is bonded to the horizontal ground plane.

In the case of tabletop equipment, the EUT is placed on a 1.0m x 1.5m non-conductive table 80cm above the ground plane and 40cm from a vertical ground reference plane. The rear of the EUT was positioned flush with the backside of the table and directly over the LISNs. The power and I/O cables were routed over the edge of the table and bundled approximately 40cm from the ground plane. Support equipment was powered from a separate LISN.

The radio was actively transmitting during testing.

5.4.1.1 Deviations

There were no deviations from this test methodology.

5.4.2 Test Results

The device passed as configured.

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5.4.2.1 Test Data

Table 24: AC Mains Conducted Emission – 120V/60 Hz Line

Test Condition:		Normal Temperature			Date:		11/10/2025	
Antenna Type:		Balanced Dipole			Power Level:		See Table 6	
Max. Antenna Gain:		+2.4 dBi			Test Engineer		Kevin Archiga	
Signal State: Modulated								
Freq. (MHz)	Quasi-Peak (dBµV/m)	Peak (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Meas. Time (ms)	Line	PE	Corr. (dB)
0.150000	---	21.98	56.00	34.02	10000.0	L1	GND	10.1
0.150000	51.65	---	66.00	14.35	10000.0	L1	GND	10.1
0.518250	---	12.01	46.00	33.99	10000.0	L1	GND	10.0
0.518250	27.15	---	56.00	28.85	10000.0	L1	GND	10.0
0.856125	---	13.80	46.00	32.20	10000.0	L1	GND	10.0
0.856125	27.64	---	56.00	28.36	10000.0	L1	GND	10.0
1.320750	---	13.81	46.00	32.19	10000.0	L1	GND	10.0
1.320750	28.28	---	56.00	27.72	10000.0	L1	GND	10.0
5.417500	---	18.72	50.00	31.28	10000.0	L1	GND	10.1
5.417500	27.37	---	60.00	32.63	10000.0	L1	GND	10.1
8.007000	---	19.94	50.00	30.06	10000.0	L1	GND	10.1
8.007000	27.59	---	60.00	32.41	10000.0	L1	GND	10.1
Note: None								

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Table 25: AC Mains Conducted Emissions – 120V/60 Hz Neutral

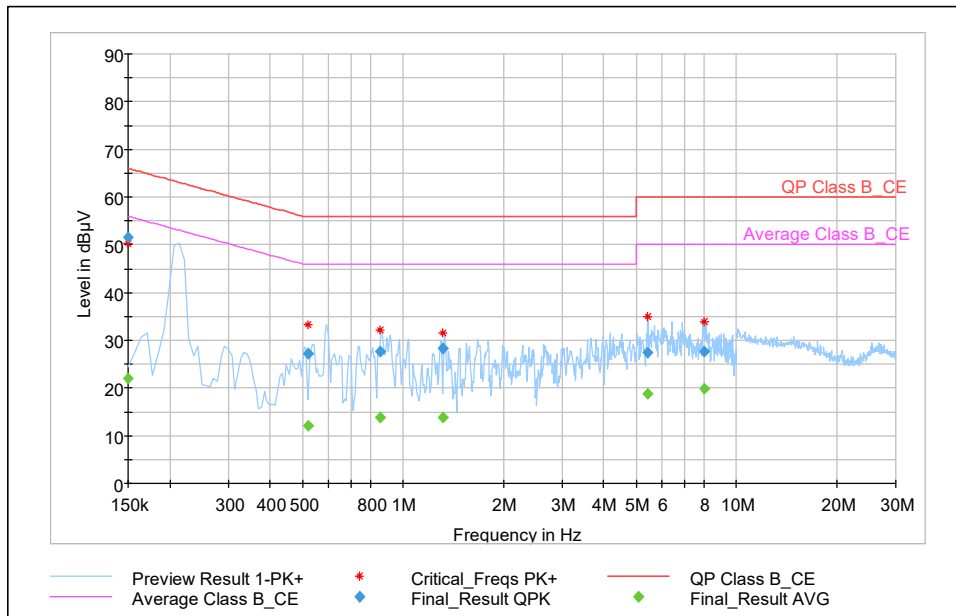
Test Condition:		Radiated, Normal Temperature			Date:		11/10/2025	
Antenna Type:		Balanced Dipole			Power Level:		See Table 6	
Max. Antenna Gain:		+2.4 dBi			Test Engineer		Kevin Archiga	
Signal State: Modulated								
Freq. (MHz)	Quasi-Peak (dBµV/m)	Peak (dBµV/m)	Limit (dBµV/m)	Margin (dBµV/m)	Meas. Time (ms)	Line	PE	Corr. (dB)
0.159315	---	22.08	55.50	33.42	10000.0	N	GND	10.1
0.159315	51.27	---	65.50	14.23	10000.0	N	GND	10.1
0.226125	---	17.89	52.59	34.70	10000.0	N	GND	10.0
0.226125	44.76	---	62.59	17.84	10000.0	N	GND	10.0
0.471375	---	12.80	46.49	33.69	10000.0	N	GND	10.0
0.471375	30.62	---	56.49	25.87	10000.0	N	GND	10.0
1.677750	---	14.31	46.00	31.69	10000.0	N	GND	10.0
1.677750	27.35	---	56.00	28.65	10000.0	N	GND	10.0
3.044500	---	9.87	46.00	36.13	10000.0	N	GND	10.1
3.044500	21.69	---	56.00	34.31	10000.0	N	GND	10.1
6.315500	---	17.64	50.00	32.36	10000.0	N	GND	10.1
6.315500	27.70	---	60.00	32.30	10000.0	N	GND	10.1
Note: None								

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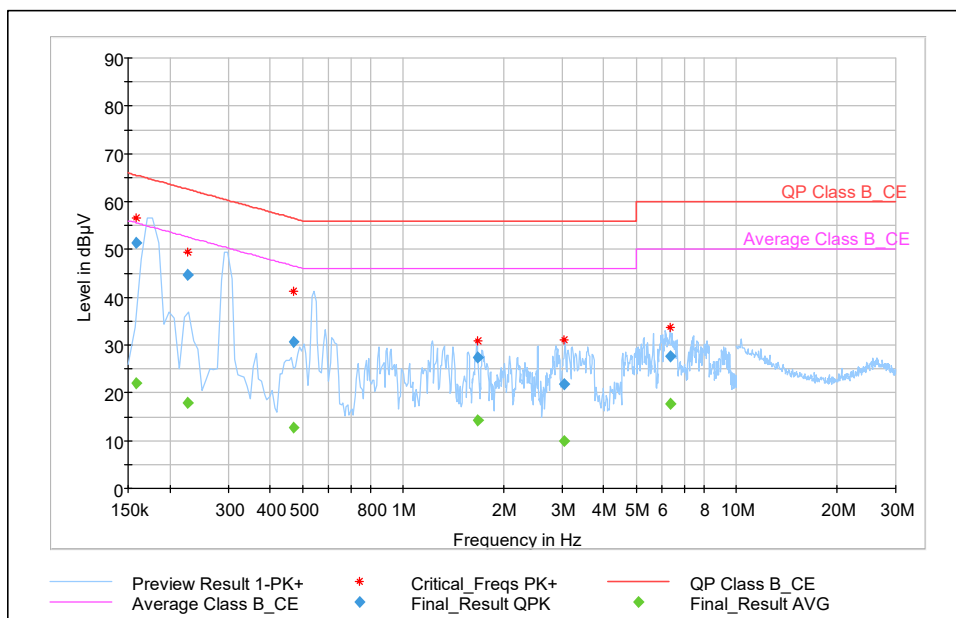
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5.4.2.2 Analyzer Data

5.4.2.2.1 AC Mains Conducted Emissions



Line



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6 Test Equipment & Software

6.1 Test Equipment List

Table 26: Equipment List

Inventory Number	Description	Manufacturer	Model Number	Last calibration	Calibration due date
Radiated Emissions					
9018108	ESW44 EMI Test Receiver 2 Hz to 44 GHz	Rohde & Schwarz	ESW44	02/18/2025	02/18/2026
9017639	Preamplifier, 30 MHz - 8 GHz	Rohde & Schwarz	TS-PR8	02/20/2025	02/20/2026
9017943	Trilog Antenna 30 - 7000 MHz; Attenuator	Schwarzbeck; Huber+Suhner	VULB 9162; 6804.17.A	03/18/2025	03/24/2027
9018047	Preamplifier, 1 - 18 GHz - Temp. Ext.	Rohde & Schwarz	TS-PR18	02/20/2025	02/20/2026
G1700070	Horn Antenna, 1 GHz - 18 GHz	EMCO	3115	03/18/2025	03/30/2027
9018046	Preamplifier, 18 - 40GHz	Rohde & Schwarz	TS-PR1840	02/21/2025	02/21/2026
9024554	Small Horn Antenna, 18GHz - 40GHz	ATM	180-442- KF	05/12/2025	05/12/2027
G1700124	Filter, Band Reject, 2.4 - 2.5 GHz	Micro-Tronics	BRC50702	N/A ¹	N/A ¹
Conducted Emissions²					
G1701026	Transient Limiter, 10dB, 9 kHz - 200 MHz	Agilent Technologies Inc.	11947A	02/18/2025	02/18/2026
9022991	EMI Test Receiver 2 Hz to 44 GHz	Rohde & Schwarz	ESW44	02/07/2025	02/07/2026
9042901	LISN, 9kHz to 30 MHz, 20 Amps	Com-Power	LI-220C	03/12/2025	03/12/2026
Conducted RF³					
G1700312	Signal Spectrum analyzer 2Hz to 67GHz	Rohde & Schwarz	FSW67	02/13/2026	02/13/2027
Note: 1. Notch Filters are characteristics verified on an on-going monthly basis. 2. Testing Performed: 10/21/2025 – 12/15/2025 3. Testing performed 9/9/2026					

6.2 Test Software

Table 27: Testing Software

Manufacturer	Name	Version	Test
Rohde & Schwarz	EMC 32	3m – 10.60.10	Radiated Emissions
Rohde & Schwarz	EMC 32	Imm – 10.50.10	Conducted Emissions

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