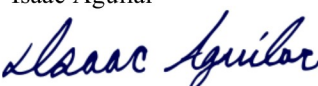
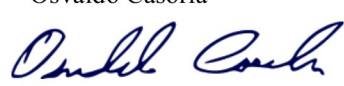


Test Report No. <i>Prüfbericht-Nr.:</i>	US25AEJP 002	Order No. <i>Auftrags-Nr.:</i>	P01914785 234232355-100	Page 1 of 69 Seite 1 von 69
Client Reference No.: <i>Kunden-Referenz-Nr.:</i>	2227277	Order date: <i>Auftragsdatum:</i>	2025-05-05	
Client: <i>Auftraggeber:</i>	Tintometer Inc. 6456 Parkland Drive 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 15.407/RSS-247 Issue 4 Module Integration Evaluation (UNII-2C)			
Test specification: <i>Prüfgrundlage</i>	47 CFR 15.407 / 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>	10/20/2025			
Test sample No: <i>Prüfmuster-Nr.:</i>	P4:103; P4:104			
Testing period: <i>Prüfzeitraum</i>	10/21/2025 - 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				
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark. <i>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</i>				

TÜV Rheinland of North America, Inc., 5015 Brandin Ct., Fremont, CA 94538, USA

Mail: info@us.tuv.com · Web: www.tuv.com/us

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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>
2	As contractually agreed, this document has been signed digitally only. TÜV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TÜV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. <i>Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.</i>
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	1. Client updated to from Lovibond Inc. to Tintometer Inc. 2. FCC/IC ID updated and placed in table 4. 3. Testing dates updated. 4. ANSI version updated to include FCC and ISED versions. 5. RSS Issue # reference updated to correct version. 6. AC Mains data section added. 7. Band-edge measurement data added 8. Equipment list updated to include AC Main Conducted Emissions test equipment and notch filter. 9. Rx testing limit reference updated 10. Test Setup appendix updated to include AC Main Conducted Emissions photos. 11. 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 the 47 CFR 15.407 / RSS-247 Issue 4/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 10/21/2025 to 9/9/2026 on EUT 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 with the integration of a certified radio module in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

UNII-2C 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 ²	47 CFR 15.407(a)(1) RSS-247 Issue 4 Section 7.3.3.2	Compliant
Power Spectral Density	47 CFR 15.407(a)(1) RSS-247 Issue 4 Section 7.3.3.2	Not Tested
26 dB Emission Bandwidth	47 CFR 2.1049 RSS-247 Issue 4 Section 7.3.3.3	Not Tested
99% Bandwidth	RSS-247 Issue 4 Section 6.7	Not Tested
Restricted Bands of Operation	47 CFR 15.205(a); 47 CFR 15.209(a) 47 CFR 15.407(b)(10) RSS-Gen Issue 6 Section 8.10	Compliant
Undesirable Emissions	47 CFR 15.407(b) RSS-247 Issue 4 Section 7.3.3.3	Compliant
Receiver Emissions	RSS-Gen Issue 6 Section 7	Compliant
AC Mains Conducted Emissions	47 CFR 15.207(a) RSS-Gen Issue 6 Section 7.2	Compliant
Note: 1. This test report covers UNII-2C band. 2. 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.

2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission, US1131



TÜV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 is 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 (Registration No. US1131). The laboratory scope of accreditation includes: 47 CFR 15, 18, and 90. The accreditation is updated every 3 years.

2.1.2 NIST / A2LA, Testing Cert #3331.02



TÜV Rheinland of North America is accredited by the National Voluntary Laboratory Accreditation Program, which is administered under the auspices of the National Institute of Standards and Technology. The laboratory has been assessed and accredited in accordance with ISO Guide 17025:2017 (Testing Certificate #3331.02). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

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



TÜV Rheinland of North America at the 1279 Quarry Ln, Pleasanton, CA 94566 address is accredited by Industry Canada for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted by Industry Canada (File Number 2932D). The accreditation is updated every 3 years.

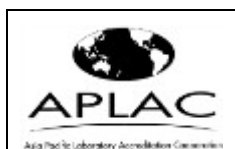
2.1.4 Japan – VCCI



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. TÜV Rheinland of North America at 1279 Quarry Ln, Pleasanton, CA 94566 has been assessed and approved in accordance with the Regulations for Voluntary Control Measures.

VCCI Registration No. for Fremont: A-409

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

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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.

2.2 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.

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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 (dBμV)

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 (dBuV/m)

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

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.	

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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 17025:2005. 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	6456 Parkland Drive Sarasota, FL 34243 USA
Contact Person	John Crowley
Telephone	+1 970-556-1963
Fax	john.crowley@lovibond.us

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	5G WLAN
Transmitter Frequency Band	UNII-1: 5.180 – 5.240 GHz UNII-2A: 5.26 – 5.320 GHz UNII-2C: 5.50 – 5.720 GHz UNII-3: 5.745 – 5.825 GHz
Antenna Manufacturer	Molex
Antenna Model	146153 (1461530250)
Antenna Type	Balanced Dipole
Antenna Gain	+3.2 dBi
Modulation Type	BSPK, QPSK, 16QAM, 64QAM, 256QAM
Data Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11ac: up to 867Mbps
Supported Bandwidths	20 MHz 40 MHz 80 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, Power
Note: None.				

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

Mode	Data Rate	Frequency (MHz)	Bandwidth (MHz)	Power Setting
802.11a	6Mbps	5600	20	See Note 1
802.11a	6Mbps	5500	20	See Note 1
802.11a	6Mbps	5580	20	See Note 1, 2
802.11ac	HT0	5600	20	See Note 1
802.11ac	VHT0	5610	80	See Note 1, 2
Note: 1. Power was set to the maximum firmware level set by the module manufacturer with no ability for adjustments. 2. Power evaluation only				

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 Interface/Port Specifications

EUT Port	Connect To	Location	Length	Shielded/ Unshielded
USB Type-C	Power Supply	Bottom	2 meters	Unshielded
Note: None				

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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 §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236

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

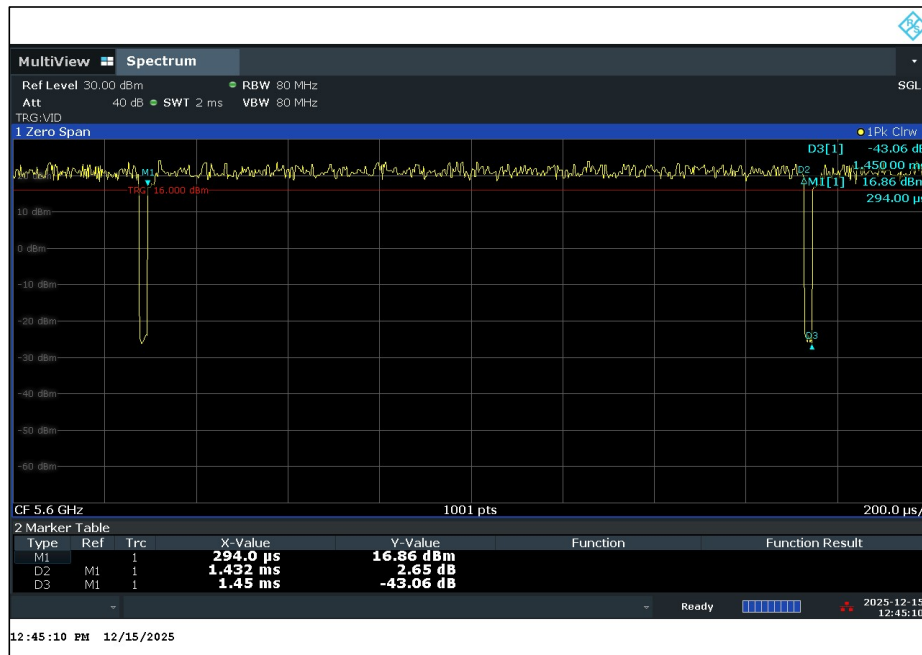
Table 11: Duty Cycle

Test Condition:	Conducted, Normal Temperature	Date:	12/15/2025 – 9/9/2026		
Antenna Type:	Balanced Dipole	Power Level:	See Table 6		
Max. Antenna Gain:	+3.2 dBi	Test Engineer	Isaac Aguilar		
Signal State: Modulated					
Mode	Data Rate	Frequency (MHz)	Bandwidth (MHz)	Duty Cycle	Duty Cycle Correction (dB)
802.11a	6Mbps	5600	20	0.986	N/A ²
802.11a	6Mbps	5500	20	0.963	0.16
802.11a	6Mbps	5580	20	0.986	N/A ²
802.11ac	HT0	5600	20	0.987	N/A ²
802.11ac	VHT0	5610	80	0.941	0.27
Note:					
1. All insertion loss and corrections are accounted for in the measurement plots.					
2. Correction is not required when the duty cycle is greater than or equal to 0.98 or 98%.					
3. Duty cycle calculated (M2-M1)/(M3-M1) → 802.11a: (1.432)/(1.45) = 0.986 or 98%.					

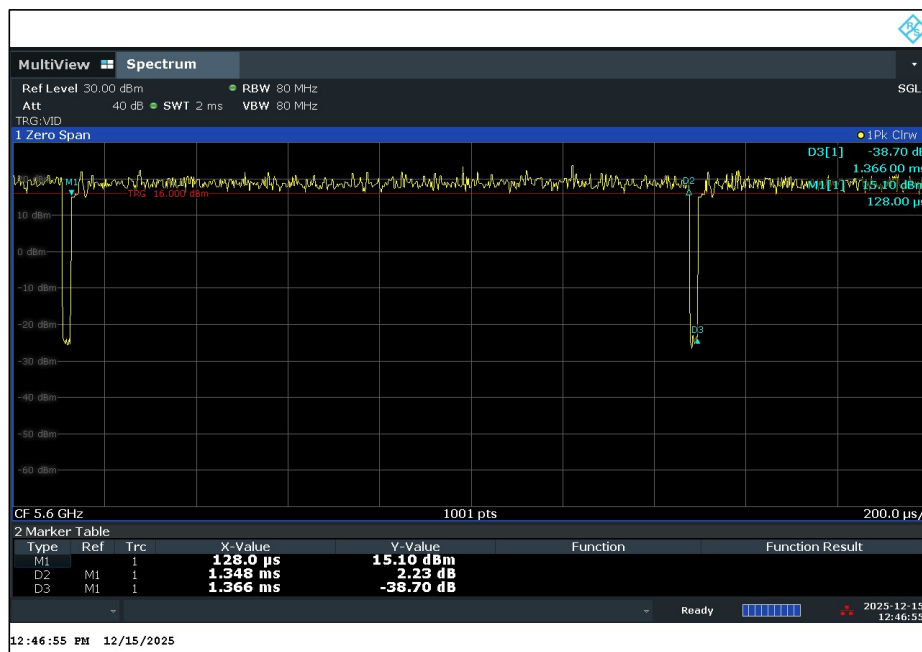
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4.5.2 Worst Case Duty Cycle



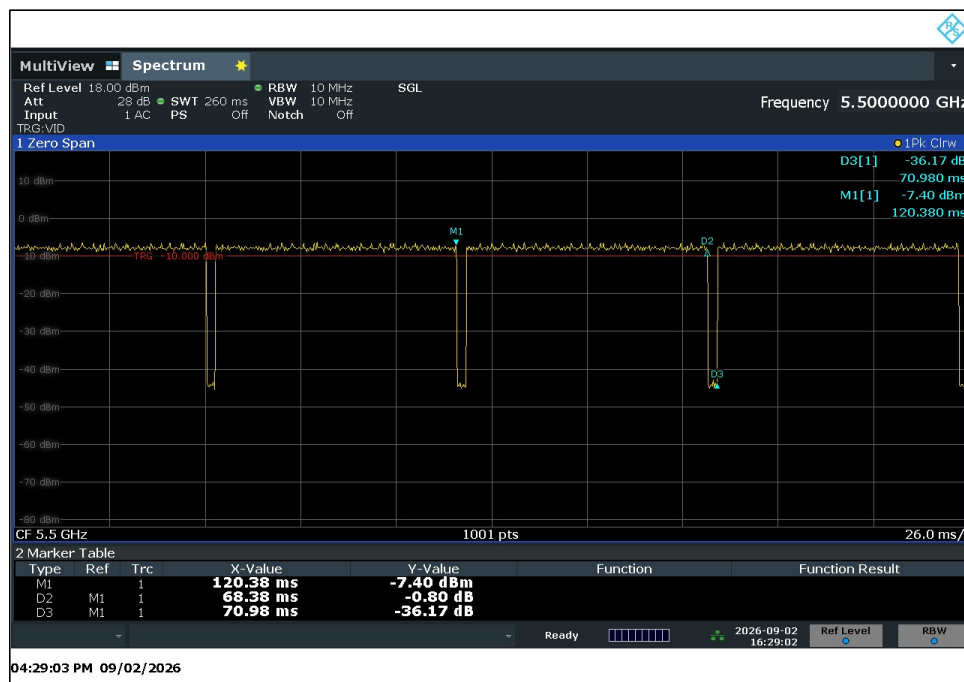
802.11a 6 Mbps 5600 MHz Duty Cycle



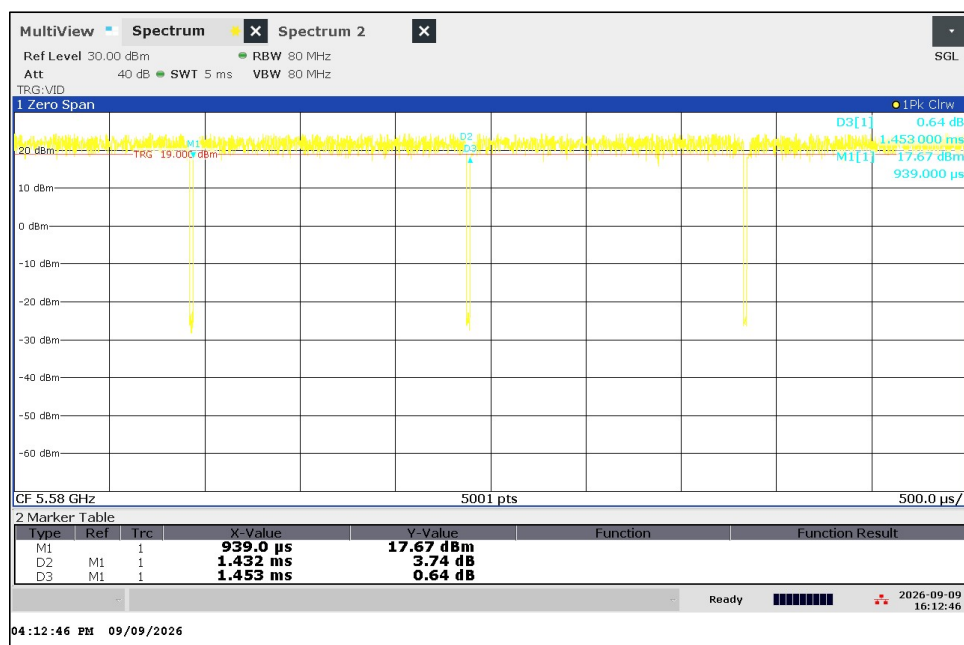
802.11ac HT0 5600 MHz Duty Cycle

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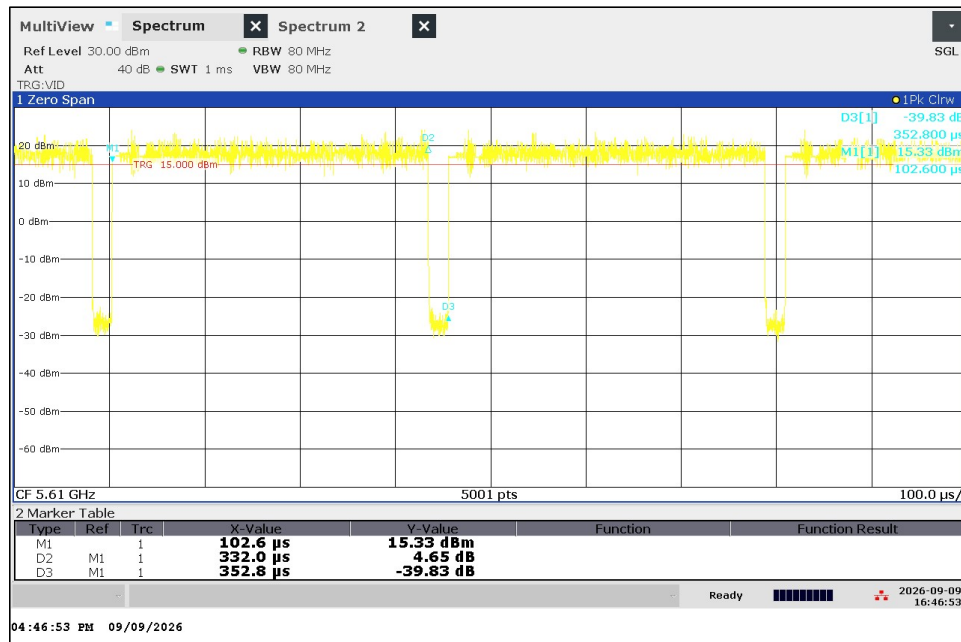
802.11a 6Mbps 5500 MHz Duty Cycle



802.11a 6Mbps 5580 MHz Duty Cycle

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802.11ac VHT0 5610 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. 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.

5.1 Maximum Output Power (LMA integration evaluation)

47 CFR 15.407(a)(1): For band 5.25 – 5.35 GHz & 5.47 – 5.745 GHz

The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz.

ISED RSS-247 Issue 4 Section 7.3.3

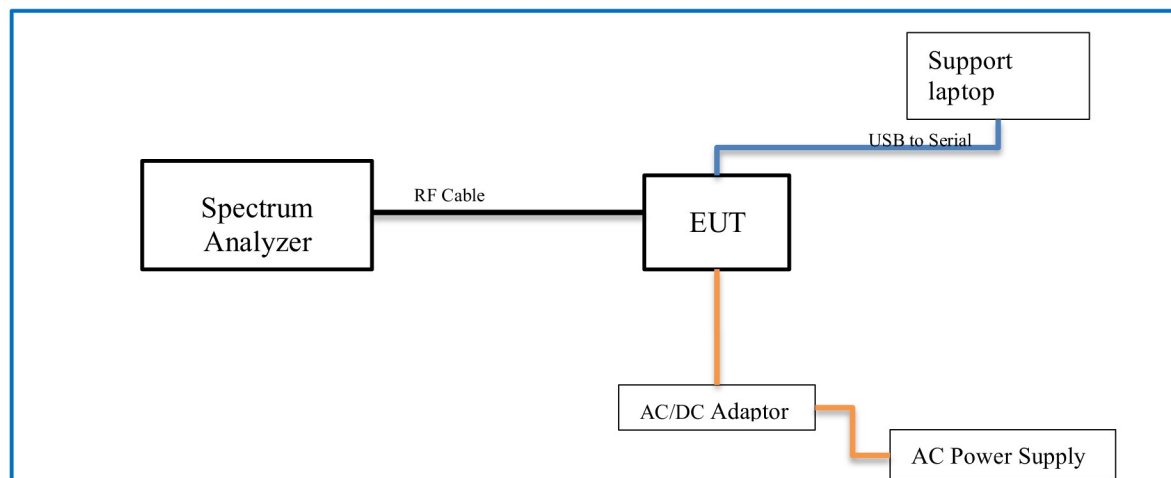
Equipment operating in the band 5470-5725 MHz band shall comply with the following power limits:

- a. the maximum conducted output power shall not exceed the lesser of:
 - i. 250 mW; or
 - ii. $11 + 10 \log_{10} B$, dBm.
- b. the maximum power spectral density shall not exceed 11 dBm/MHz.
- c. the maximum e.i.r.p. shall not exceed the lesser of:
 - i. 1.0 W; or
 - ii. $17 + 10 \log_{10} B$, dBm.
- d. equipment with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

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 12.4 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.

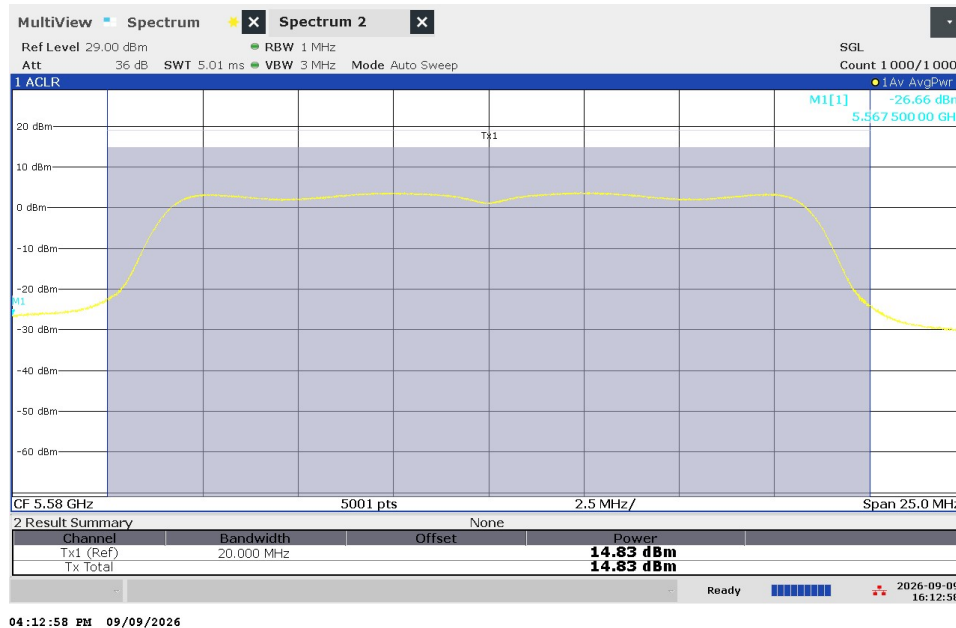
Table 12: RF Output Power at the Antenna Port – Test Results

Test Condition:		Conducted, Normal Temperature		Date:		9/09/2026		
Antenna Type:		Balanced Dipole		Power Level:		See Table 6		
Max. Antenna Gain:		+3.2 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
802.11a	6Mbps	5580	20	1.5	14.83	16.33	17.96	1.63
802.11ac	VHT0	5610	80	1.44	12.91	14.35	15.77	1.42
Note: 1. Duty cycle corrections are accounted for in the measurement plots. 2. Corr. Factor system losses added post measurement. 3. Worst-Case narrowest and widest bandwidth assessed.								

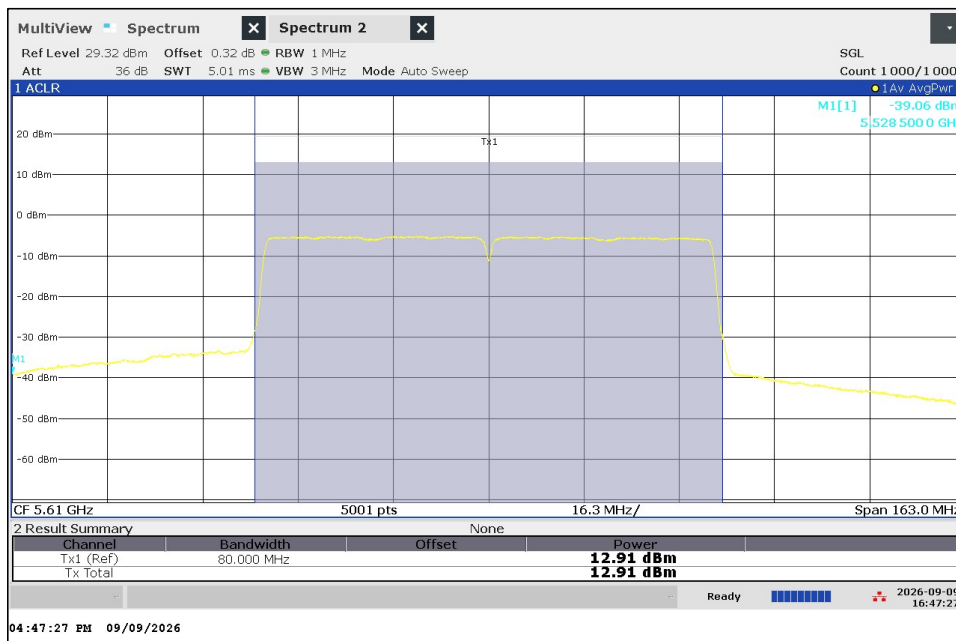
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5.1.4 Worst Case Analyzer Data



802.11a 6 Mbps 5580 MHz Output Power



802.11ac (80 MHz) VHT0 5610 MHz Output Power

5.2 Undesirable Emissions

47 CFR 15.407(b)(2): the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits: For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. 47 CFR 15.407(b)(10): The provisions of § 15.205 apply to intentional radiators operating under this section.

RSS-247 Issue 7.3.2.3:

Device shall comply with the following:

- a. All emissions outside the band 5150 – 5350 MHz shall not exceed -27 dBm/MHz peak e.i.r.p spectral density.*
- b. All emissions inside the band 5150 – 5250 MHz shall either:*
 - i. not exceed -27 dBm/MHz peak e.i.r.p spectral density, or*
 - ii. comply with the power spectral density for operation in section 7.3.1.2.*

5.2.1 Test Methodology

ANSI C63.10-2020 Section 12.7 was used to assess spurious emissions. Conducted measurements followed the additional requirements of section 12.7.4.2.

5.2.1.1 Radiated 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 Radiated 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.

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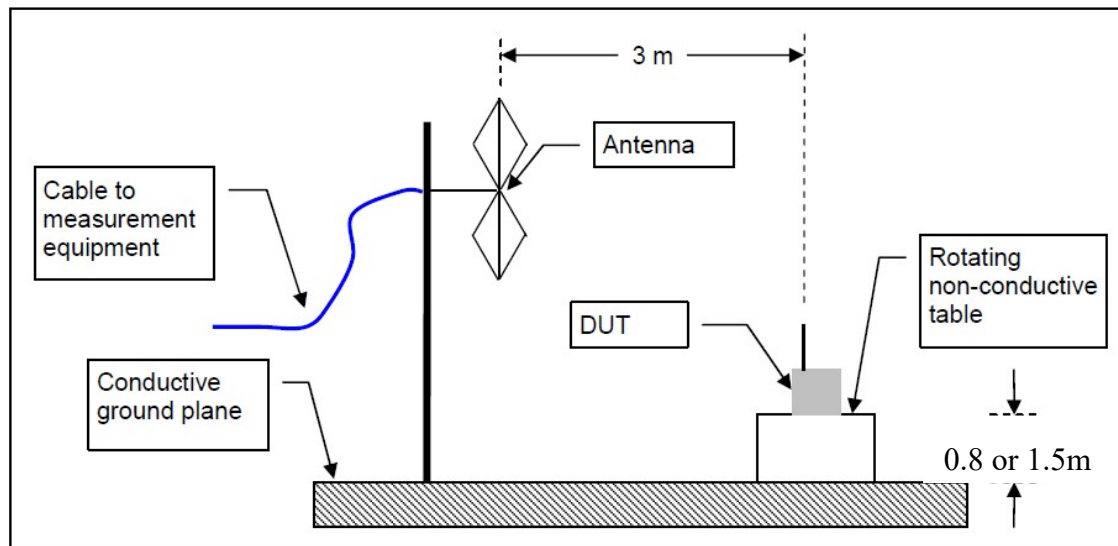
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Final testing was performed on an NSA compliant test site. The EUT was placed on a 1.0m x 1.5m non-conductive table 80cm (<1 GHz) and 150cm (>1 GHz) above the ground plane. The placement of EUT and cables were the same as for preliminary testing and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

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

5.2.2 Test Setup:

5.2.2.1 Radiated Measurements Setup



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5.2.3 Spurious Emission Limit

5.2.3.1 Restricted Bands

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 (µV/meter)	Magnetic Field Strength (µA/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.

5.2.3.2 Non-Restricted Bands

The spurious emissions outside the operating band of the transmitter shall not exceed the values in 47 CFR 15.407(b)(10) and RSS-247 Issue 4 Section 7.3.

Operating Band (MHz)	Limit (dBm/MHz)	Measurement distance (Meters)
5150 – 5250	-27	3
5250 – 5350	-27	3
5470 – 5725	-27	3
5725 – 5825 ¹	-27	3

Note:

1. -27 dBm/MHz limit applied at frequencies more than 75 MHz above or below the band edges.

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).

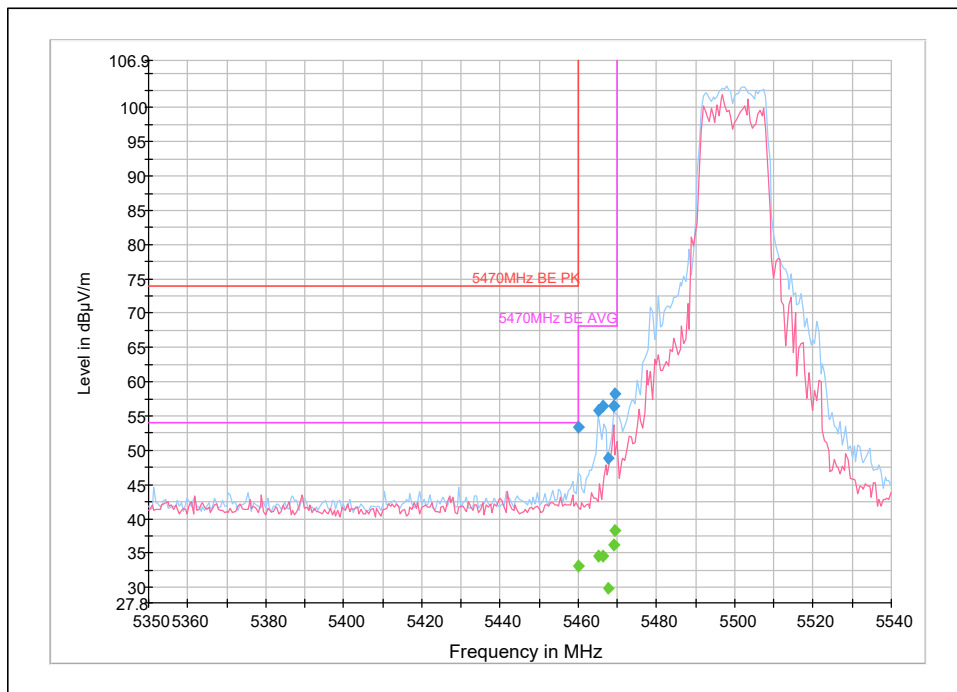
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5.2.5 Band-Edge

Table 13: Band-Edge 802.11a / 6 Mbps / 20 MHz / 5500 MHz

Test Condition:		Radiated, Normal Temperature			Date:		8/11/2026		
Antenna Type:		PCB Antenna			Power Level:		See Table 6		
Max. Antenna Gain:		+3.2 dBi			Test Engineer		Syed Ali		
Signal State: Modulated									
802.11a / 6 Mbps / 20 MHz									
Test Frequency: 5500v MHz									
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)
5460.00	53.4	---	74	20.6	1000	356	H	-5	8.9
5460.00	---	33.12	54	20.88	1000	356	H	-5	8.9
5465.00	---	34.54	68.16	33.62	1000	353	H	-5	8.8
5465.00	55.73	---	160	104.27	1000	353	H	-5	8.8
5466.25	56.52	---	160	103.48	1000	350	H	-5	8.8
5466.25	---	34.54	68.16	33.62	1000	350'	H	-5	8.8
5467.75	---	29.8	68.16	38.36	1000	254	H	-5	8.8
5467.75	48.87	---	160	111.13	1000	254	H	-5	8.8
5469.00	56.53	---	160	103.47	1000	254	V	39	8.9
5469.00	---	36.19	68.16	31.97	1000	254	V	39	8.9
5469.50	58.23	---	160	101.77	1000	356	H	-5	8.8
5469.50	---	38.27	68.16	29.89	1000	356	H	-5	8.8
Note: None									

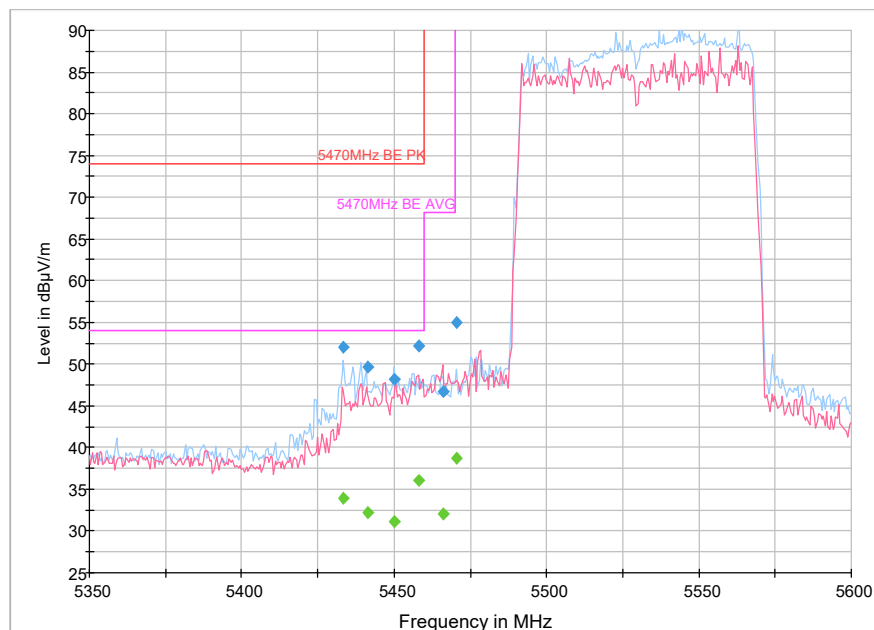


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Table 14: Band-Edge 802.11ac / VHT0/ 80 MHz / 5610 MHz

Test Condition:		Radiated, Normal Temperature				Date:		9/09/2026	
Antenna Type:		PCB Antenna				Power Level:		See Table 6	
Max. Antenna Gain:		+3.2 dBi				Test Engineer		Isaac Aguilar	
Signal State: Modulated									
802.11ac / VHT0 / 80 MHz									
Test Frequency: 5610 MHz									
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)
5433.50	---	33.88	54	20.12	1000	100	H	163	8.8
5433.50	52.01	---	74	21.99	1000	100	H	163	8.8
5441.50	49.59	---	74	24.41	1000	353	H	-5	8.8
5441.50	---	32.21	54	21.79	1000	353	H	-5	8.8
5450.25	48.17	---	74	25.83	1000	354	H	-5	8.8
5450.25	---	31.18	54	22.82	1000	354	H	-5	8.8
5458.25	52.15	---	74	21.85	1000	353	V	323	9
5458.25	---	36.07	54	17.93	1000	353	V	323	9
5466.00	---	32.03	68.16	36.13	1000	355	V	-1	8.9
5466.00	46.77	---	160	113.23	1000	355	V	-1	8.9
5470.50	54.96	---	160	105.04	1000	100	H	240	8.8
5470.50	---	38.77	160	121.23	1000	100	H	240	8.8
Note:									
1. Duty Cycle correction added to final reading: Final Reading = Corr. + Duty Cycle Correction									



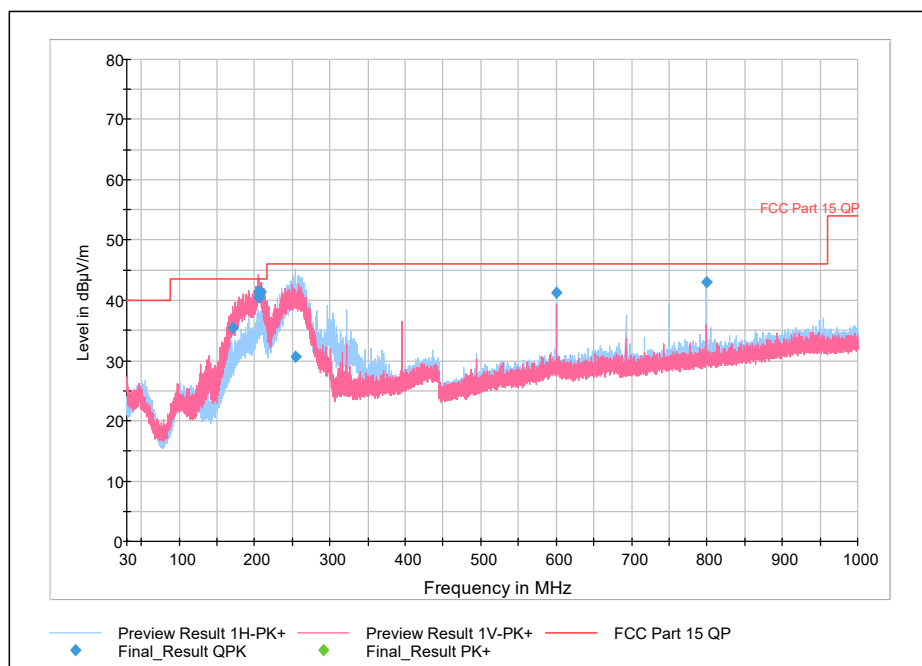
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5.2.6 Radiated Spurious Emissions 30 – 1000 MHz

Table 15: Tx Spurious Emission 30 – 1000 MHz: 802.11a / 6 Mbps / 20 MHz / 5600 MHz

Test Condition:	Radiated, Normal Temperature	Date:	10/22/2025							
Antenna Type:	PCB Antenna	Power Level:	See Table 6							
Max. Antenna Gain:	+3.2 dBi	Test Engineer	Eugene Choi							
Signal State: Modulated										
802.11a / 6 Mbps / 20 MHz										
Test Frequency: 5600 MHz										
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)
170.65	35.47	---	43.52	8.05	10000	120	100	V	-2	-14.8
205.30	40.56	---	43.52	2.96	10000	120	100	V	58	-12.8
205.71	41.43	---	43.52	2.09	10000	120	100	V	196	-12.7
206.55	40.53	---	43.52	2.99	10000	120	100	V	38	-12.8
208.04	41.43	---	43.52	2.09	10000	120	100	V	219	-12.8
255.14	30.54	---	46.02	15.48	10000	120	100	H	244	-10.7
599.99	41.22	---	46.02	4.8	10000	120	253	H	76	-3.2
799.99	43.05	---	46.02	2.97	10000	120	100	H	211	-0.8
Note: None										

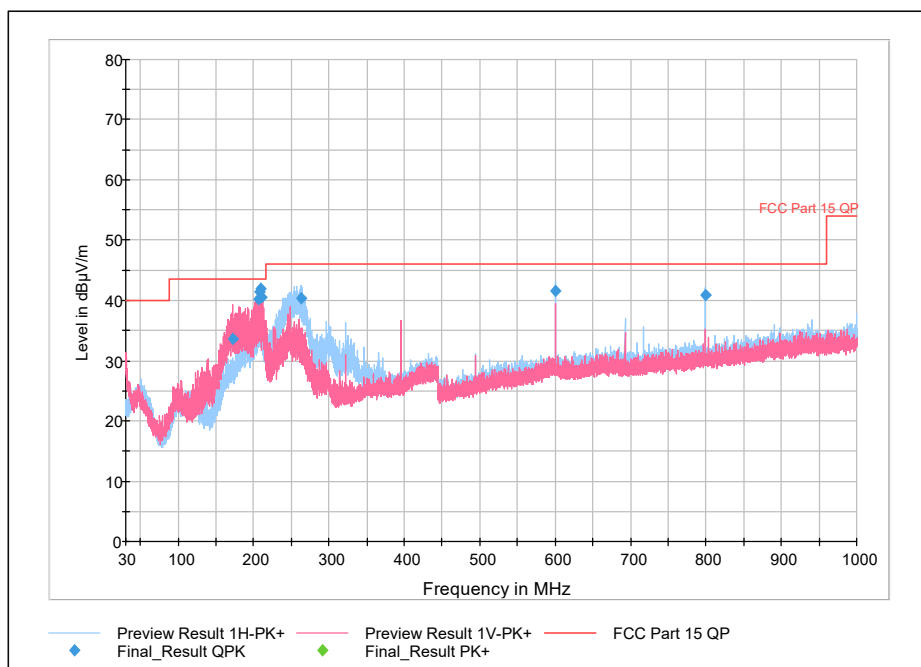


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Table 16: Tx Spurious Emission 30 – 1000 MHz: 802.11ac / HT0 / 20 MHz / 5600 MHz

Test Condition:		Radiated, Normal Temperature				Date:		10/22/2025		
Antenna Type:		PCB Antenna				Power Level:		See Table 6		
Max. Antenna Gain:		+3.2 dBi				Test Engineer		Eugene Choi		
Signal State: Modulated										
802.11a / HT0 / 20 MHz										
Test Frequency: 5600 MHz										
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)
172.44	33.71	---	43.52	9.81	10000	120	100	V	-1	-14.8
206.58	40.14	---	43.52	3.38	10000	120	100	V	68	-12.8
207.85	41.35	---	43.52	2.17	10000	120	100	V	217	-12.8
208.76	41.89	---	43.52	1.63	10000	120	100	V	199	-12.8
211.11	40.59	---	43.52	2.93	10000	120	100	V	222	-12.8
263.14	40.27	---	46.02	5.75	10000	120	104	H	247	-10.5
599.99	41.58	---	46.02	4.44	10000	120	255	H	74	-3.2
799.99	40.97	---	46.02	5.05	10000	120	100	H	258	-0.8
Note: None										



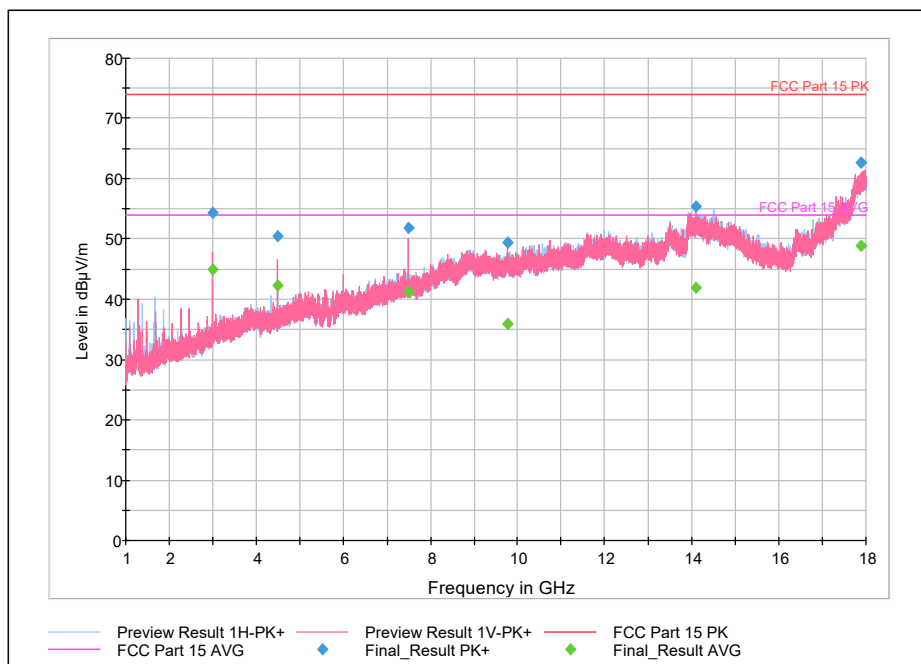
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5.2.7 Transmitter Spurious Emissions: 1 GHz – 18 GHz

Table 17: Tx Spurious Emission 1 – 18 GHz: 802.11a / 6 Mbps / 20 MHz / 5600 MHz

Test Condition:	Radiated, Normal Temperature	Date:	10/28/2025						
Antenna Type:	PCB Antenna	Power Level:	See Table 6						
Max. Antenna Gain:	+3.2 dBi	Test Engineer:	Isaac Aguilar						
Signal State: Modulated									
802.11a / 6 Mbps / 20 MHz									
Test Frequency: 5600 MHz									
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)
3000.00	54.4	---	74	19.6	1000	250	V	285	2.6
3000.00	---	44.88	54	9.12	1000	250	V	285	2.6
4499.65	50.42	---	74	23.58	1000	235	V	39	6.1
4499.65	---	42.3	54	11.7	1000	235	V	39	6.1
7499.34	51.83	---	74	22.17	1000	235	V	18	12.9
7499.34	---	41.31	54	12.69	1000	235	V	18	12.9
9771.55	49.29	---	74	24.71	1000	250	V	274	15.5
9771.55	---	35.95	54	18.05	1000	250	V	274	15.5
14101.00	---	41.92	54	12.08	1000	350	V	330	21
14101.00	55.42	---	74	18.58	1000	350	V	330	21
17865.69	---	48.77	54	5.23	1000	350	H	-1	28.1
17865.69	62.68	---	74	11.32	1000	350	H	-1	28.1
Note: None									

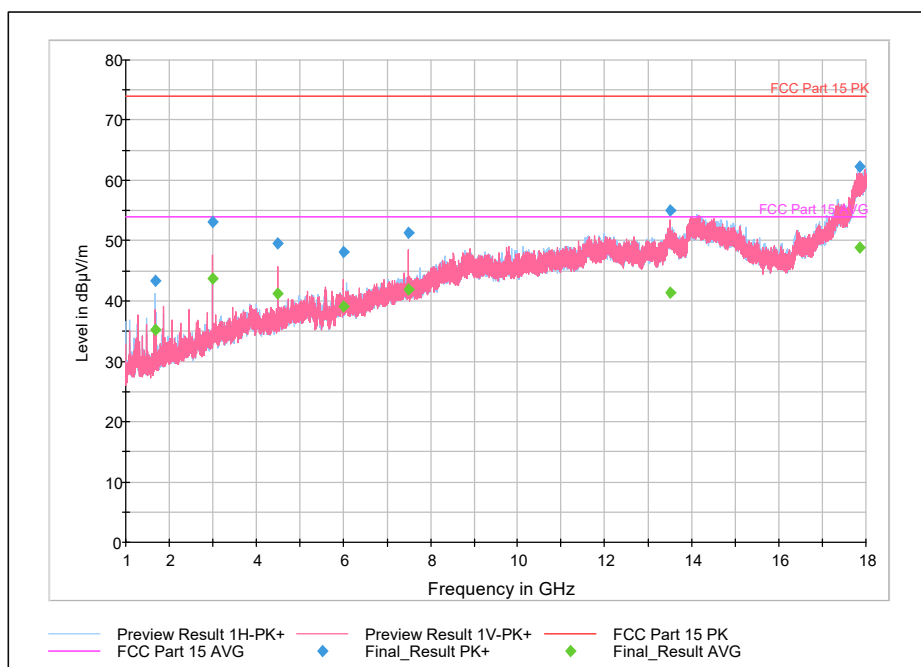


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Table 18: Tx Spurious Emission 1 – 18 GHz: 802.11ac / HT0 / 20 MHz / 5600 MHz

Test Condition:		Radiated, Normal Temperature		Date:		10/28/2025			
Antenna Type:		PCB Antenna		Power Level:		See Table 6			
Max. Antenna Gain:		+3.2 dBi		Test Engineer:		Isaac Aguilar			
Signal State: Modulated									
802.11a / HT0 / 20 MHz									
Test Frequency: 5600 MHz									
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)
1682.76	---	35.22	54	18.78	1000	254	H	343	-3.7
1682.76	43.44	---	74	30.56	1000	254	H	343	-3.7
2999.91	53.07	---	74	20.93	1000	105	V	257	2.6
2999.91	---	43.78	54	10.22	1000	105	V	257	2.6
4499.65	---	41.29	54	12.71	1000	237	V	38	6.1
4499.65	49.63	---	74	24.37	1000	237	V	38	6.1
5999.94	---	39.16	54	14.84	1000	100	V	332	9.7
5999.94	48.16	---	74	25.84	1000	100	V	332	9.7
7499.97	51.33	---	74	22.67	1000	105	V	56	12.9
7499.97	---	41.91	54	12.09	1000	105	V	56	12.9
13499.00	55.09	---	74	18.91	1000	255	V	315	19.7
13499.00	---	41.38	54	12.62	1000	255	V	315	19.7
17857.37	62.22	---	74	11.78	1000	154	V	159	28.1
17857.37	---	48.76	54	5.24	1000	154	V	159	28.1
Note: None									



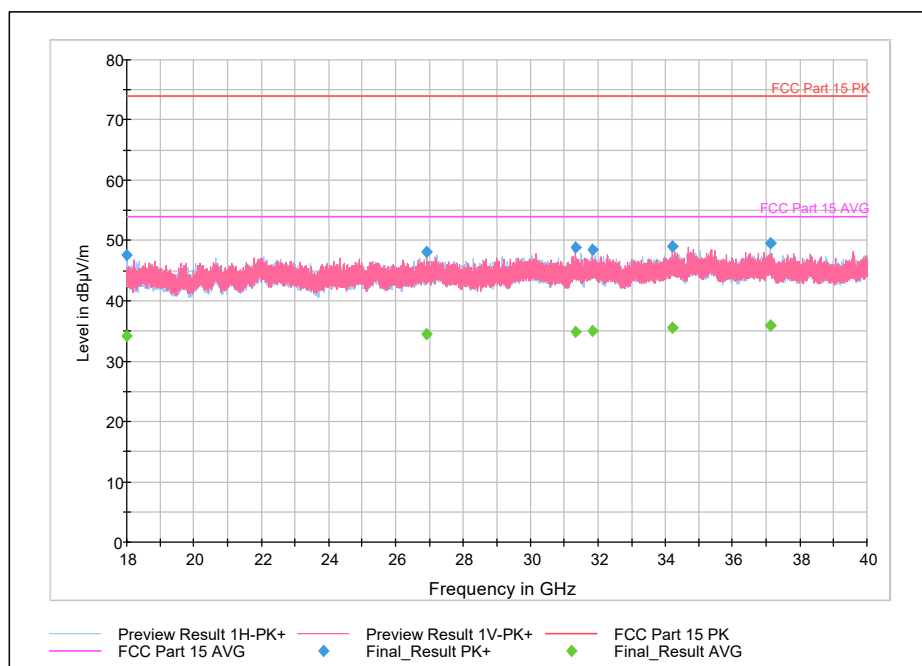
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5.2.8 Transmitter Spurious Emissions: 18 GHz – 40 GHz

Table 19: Tx Spurious Emission 18 – 40 GHz: 802.11a / 6 Mbps / 20 MHz / 5600 MHz

Test Condition:		Radiated, Normal Temperature				Date:		10/31/2025	
Antenna Type:		PCB Antenna				Power Level:		See Table 6	
Max. Antenna Gain:		+3.2 dBi				Test Engineer:		Isaac Aguilar	
Signal State: Modulated									
802.11a / 6 Mbps / 20 MHz									
Test Frequency: 5600 MHz									
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)
18013.09	---	34.23	54	19.77	1000	200	H	59	-3.4
18013.09	47.69	---	74	26.31	1000	200	H	59	-3.4
26925.85	---	34.51	54	19.49	1000	200	V	299	4.7
26925.85	48.2	---	74	25.8	1000	200	V	299	4.7
31348.03	---	34.86	54	19.14	1000	300	V	338	5.2
31348.03	48.9	---	74	25.1	1000	300	V	338	5.2
31836.21	48.48	---	74	25.52	1000	200	V	291	5.3
31836.21	---	35.06	54	18.94	1000	200	V	291	5.3
34203.49	---	35.52	54	18.48	1000	300	V	145	7.3
34203.49	49.02	---	74	24.98	1000	300	V	145	7.3
37117.88	49.47	---	74	24.53	1000	300	H	279	5.1
37117.88	---	35.9	54	18.1	1000	300	H	279	5.1
Note: None									

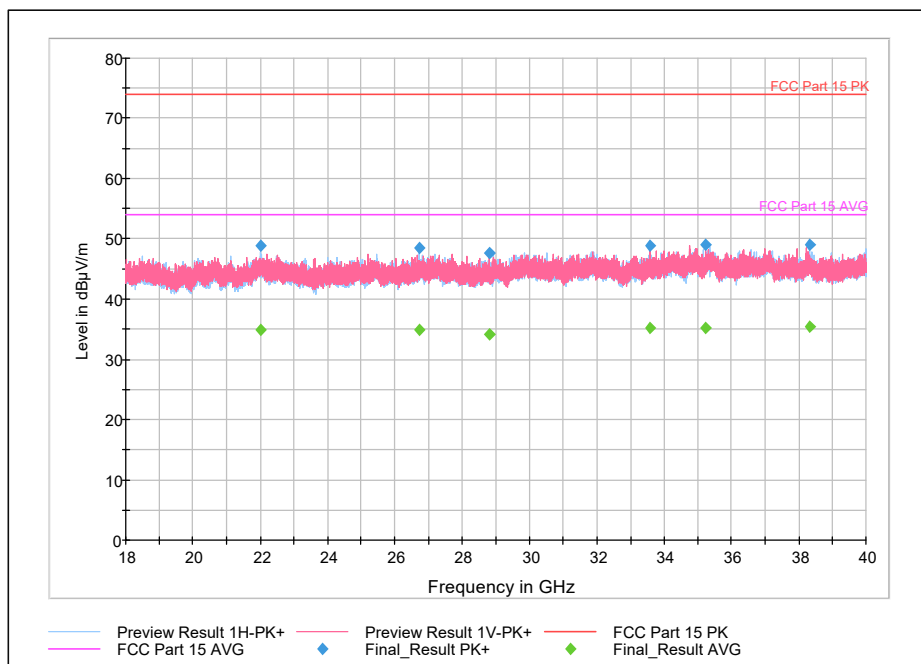


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Table 20: Tx Spurious Emission 18 - 40 GHz: 802.11ac / HT0 / 20 MHz / 5600 MHz

Test Condition:		Radiated, Normal Temperature				Date:		06/16/2025	
Antenna Type:		PCB Antenna				Power Level:		See Table 6	
Max. Antenna Gain:		+3.2 dBi				Test Engineer:		Isaac Aguilar	
Signal State: Modulated									
802.11a / HT0 / 20 MHz									
Test Frequency: 5600 MHz									
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)
22014.50	48.81	---	74	25.19	1000	200	H	1	0.1
22014.50	---	34.91	54	19.09	1000	200	H	1	0.1
26714.13	---	34.82	54	19.18	1000	300	H	56	4.6
26714.13	48.51	---	74	25.49	1000	300	H	56	4.6
28812.85	47.54	---	74	26.46	1000	300	V	166	4.3
28812.85	---	34.08	54	19.92	1000	300	V	166	4.3
33567.74	48.78	---	74	25.22	1000	200	V	63	6.8
33567.74	---	35.19	54	18.81	1000	200	V	63	6.8
35218.11	49.02	---	74	24.98	1000	100	V	100	7.1
35218.11	---	35.27	54	18.73	1000	100	V	100	7.1
38330.54	---	35.46	54	18.54	1000	100	H	247	5.4
38330.54	48.96	---	74	25.04	1000	100	H	247	5.4
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

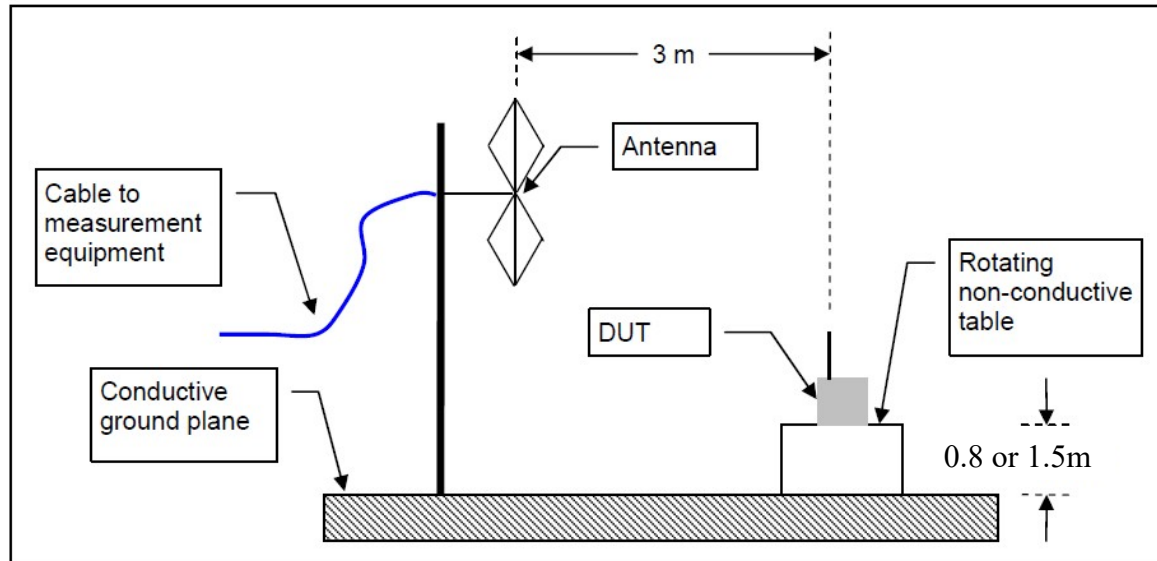
None.

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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).

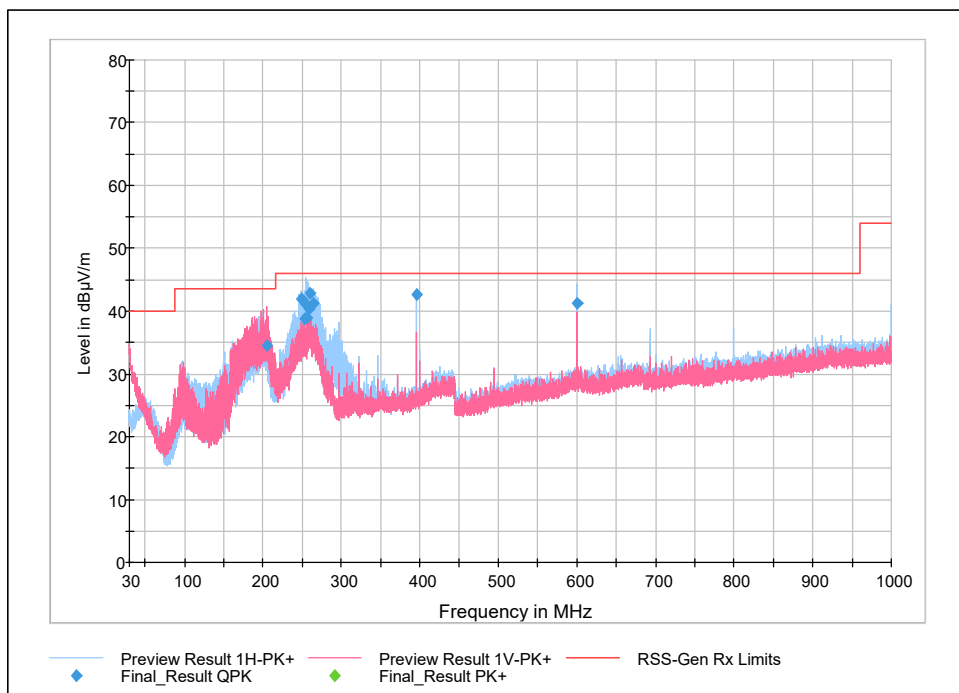
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5.3.5 Receiver Spurious Emissions: 30 – 1000 MHz

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:	+3.2 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										



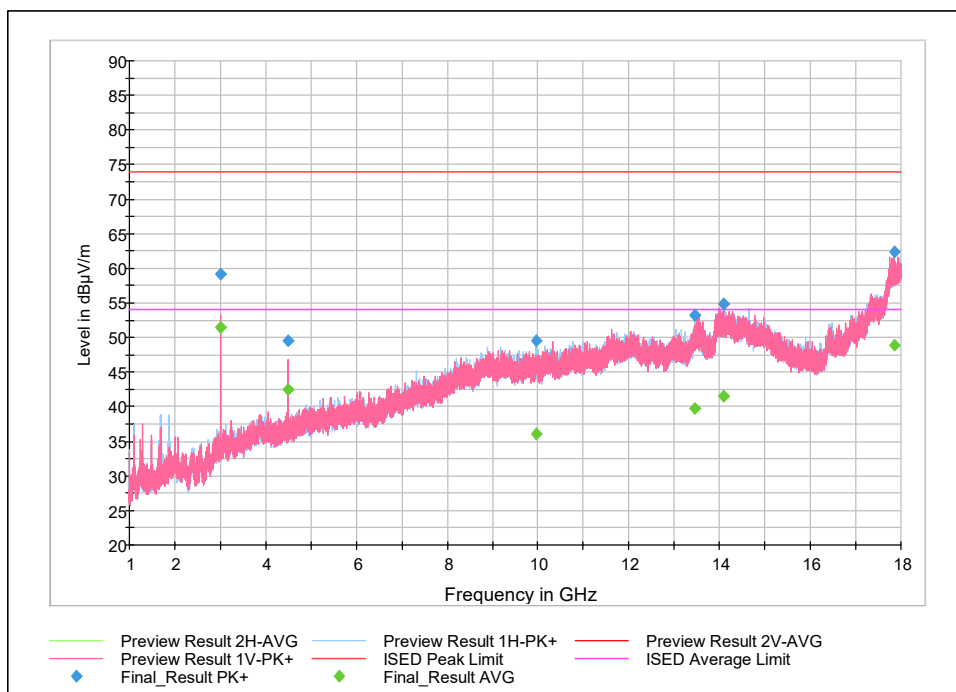
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5.3.6 Receiver Spurious Emissions: 1 – 18 GHz

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:	+3.2 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									



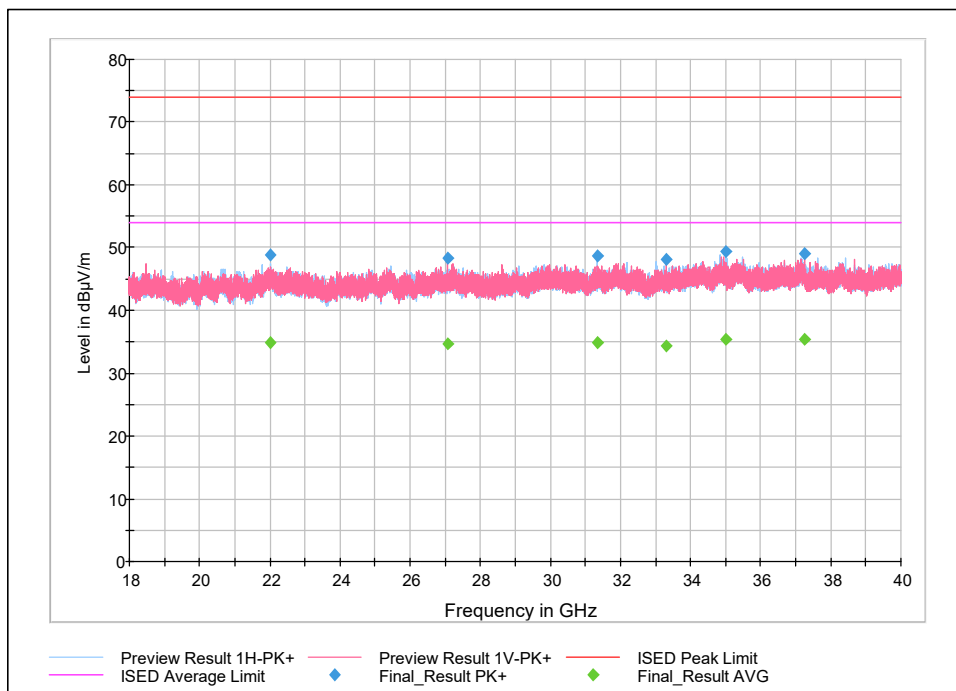
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5.3.7 Receiver Spurious Emissions: 18 – 26.5 GHz

Table 23: Rx Spurious Emission 18 – 26.5 GHz

Test Condition:	Radiated, Normal Temperature	Date:	10/30/2025						
Antenna Type:	Balanced Dipole	Power Level:	See Table 6						
Max. Antenna Gain:	+3.2 dBi	Test Engineer:							
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)
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:		+3.2 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

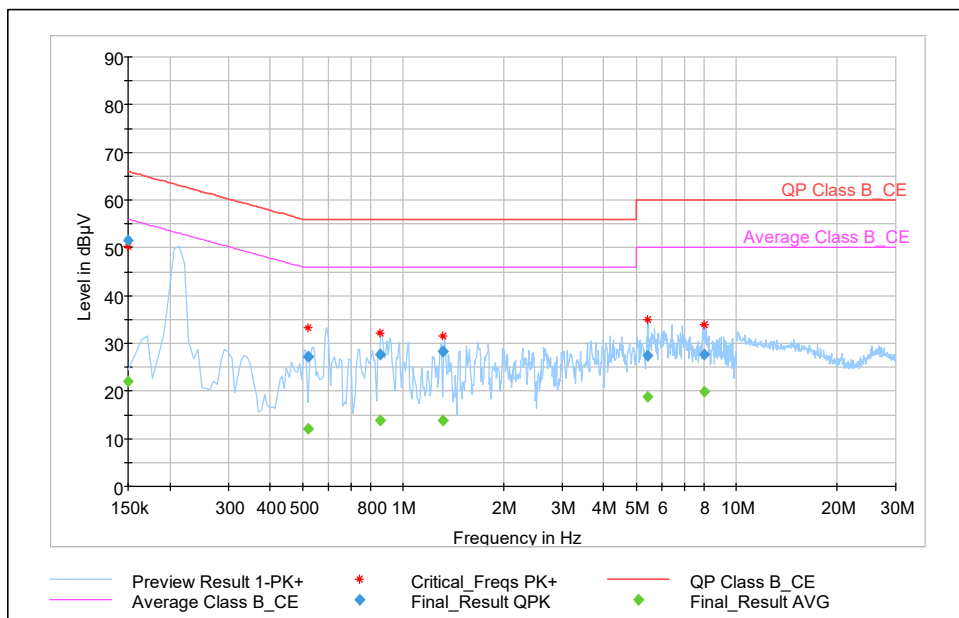
Test Condition:		Radiated, Normal Temperature			Date:		11/10/2025	
Antenna Type:		Balanced Dipole			Power Level:		See Table 6	
Max. Antenna Gain:		+3.2 dBi			Test Engineer		Kevin Archiga	
Signal State: Modulated								
Freq. (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Limit (dBμV/m)	Margin (dBμV/m)	Meas. 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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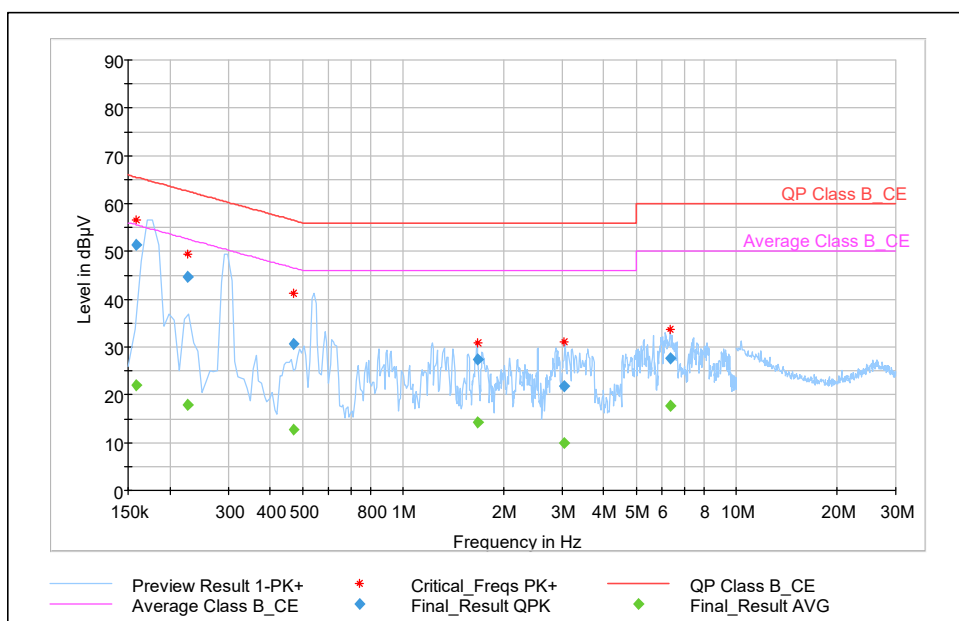
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5.4.2.2 Analyzer Data

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 Emissions²					
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	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
G1700968	Filter, Band Reject, 5470 - 5725 MHz	Micro-Tronics	BRC50704	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
Band-edge Measurements³					
9018108	ESW44 EMI Test Receiver 2 Hz to 44 GHz	Rohde & Schwarz	ESW44	02/04/2026	02/04/2027
9018047	Preamplifier, 1 - 18 GHz	Rohde & Schwarz	TS-PR18	02/17/2026	02/17/2027
G1700070	Horn Antenna, 1 GHz - 18 GHz	EMCO	3115	03/18/2025	03/30/2027
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: 8/11/2026 – 9/9/2026					

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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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