

Test Report C-3939L UNII2C

Equipment Under Test:	116.495.00.1
Requirement(s):	eCFR 47 Part 15.407 RSS-247 RSS-GEN
Test Date(s):	12/2/2025-4/28/2026
Prepared for:	Geberit International AG Attn: Robert Bobek Ziga Kovacic Schachenstrasse 77. 8645 Jona / Switzerland

Report Issued by: Mitchell Freund, EMC Test Engineer	
Signature: 	Date: 4/29/2026
Report Reviewed by: Adam Alger, Sr. Manager, EMC Laboratory	
Signature: 	Date: 4/29/2026
Report Constructed by: Mitchell Freund, EMC Test Engineer	
Signature: 	Date: 4/29/2026

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Company: Geberit International AG	Page 1 of 44	Name: 116.495.00.1
Report: TR3939L		Model: GW-21-A
Quote: NBO-01-2024-006892-4		Serial: Engineering Sample

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Ezurio Test Services in Review

The Ezurio laboratory located at W66 N220 Commerce Court Cedarburg, Wisconsin, 53012 USA is recognized through the following organizations:



A2LA – American Association for Laboratory Accreditation

Accreditation based on ISO/IEC 17025:2017 with Electrical (EMC) Scope

A2LA Certificate Number: 1255.01

Scope of accreditation includes all test methods listed herein unless otherwise noted



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

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1 TEST REPORT SUMMARY

During **12/2/2025-4/28/2026** the Equipment Under Test (EUT), **116.495.00.1**, as provided by **Geberit International AG** was tested to the following requirements:

Operation in the UNII2C Band

Requirements	Description	Method	Compliant
15.407(b)(3), (9), & (10) 15.209 RSS-247 Clause 7.3.3 RSS-GEN	Spurious Radiated Emissions in Restricted Bands 30-40000 MHz	ANSI C63.10	Yes
15.407(a)(2) RSS-247 Clause 7.3.3	26dB and 6dB Emission Bandwidth and 99% Occupied Bandwidth	ANSI C63.10	Yes
15.407(a)(2) RSS-247 Clause 7.3.3	RF Output Power	ANSI C63.10	Yes
15.407(b)(3) RSS-247 Clause 7.3.3	Conducted out of Band Emissions	ANSI C63.10	Yes
15.407(a)(2) RSS-247 Clause 7.3.3	Power Spectral Density	ANSI C63.10	Yes
15.407(b)(9) 15.207 RSS-GEN	AC Conducted Emissions	ANSI C63.10	Yes
15.407(g)	Frequency Stability	ANSI C63.10	Reported

Notice:

The results relate only to the item tested as configured and described in this report. Any additional configurations, modes of operation, or modifications made to the equipment under test after the specified test date(s) are at the decision of the client and may not apply to the data seen in this test report.

The decision rule for Pass / Fail assessment to the specification or standard listed in this test report has been agreed upon by the client and laboratory to be as follows:

Measurement Type	Rule
Emissions – Amplitude	1 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

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2 CLIENT INFORMATION

Company Name	Geberit International AG
Contact Person	Ziga Kovacic
Address	Schachenstrasse 77. 8645 Jona / Switzerland

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	116.495.00.1
Model Number	GW-21-A
Serial Number	Engineering Sample
Date of Receipt	11/25/2025
Condition	Good
FCC ID	2A75ZGW21A
IC ID	35230-GW21A

2.2 Product Description

The Geberit Gateway is a network device containing BLE & Wi-Fi radios to power and communicated with plumbing devices and building management systems.

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Additional Information

Input power 120 VAC @ 60 Hz, Channels

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2.6 EUT Programming

Equipment used for EUT programming (not part of the EUT)

HP EliteBook 840

Linksys E6900 V1.1

Teraterm Version 5.1 (Git 9ffa9f6b0)

2.7 Antenna Information

Linx Technologies

ANT-DB1-LCD-SMA

Dimensions : 83.1 mm x 10.0 mm x 10.0 mm

Range	2.4 GHz WiFi	U-NII	5.8 GHz WiFi/ U-NII-3 Band
Range (GHz)	2.4 - 2.5	5.125 – 5.725	5.725 – 5.875
Peak Gain	2.8 dBi	4.5 dBi	2.92 dBi

2.8 Test Channels

Channel	Frequency (MHz)	Bandwidth (MHz)	Data Rates
100	5500.0	20	802.11a – 6 and 54 Mbps 802.11n – MCS0 and MCS7 802.11ac – MCS0 and MCS9
120	5600.0	20	
144	5720.0	20	
102	5510.0	40	
118	5590.0	40	
142	5710.0	40	
106	5530.0	80	
138	5690.0	80	

2.9 Power Tables and Video Bandwidth for Average Measurements

802.11	Channel BW (MHz)	Data Rate	Minimum Average VBW (Hz)	Power Setting
a	20	6 Mbps	706	12
a	20	54 Mbps	6068	12
n	20	MCS0	757	12
n	20	MCS7	6329	12
n	40	MCS0	1610	10
n	40	MCS7	10416	10
ac	40	MCS0	10037	13
ac	40	MCS9	17927	13
ac	80	MCS0	3205	10
ac	80	MCS9	15748	10

*Refer to Section 5.1.2 for Duty Cycle Measurements

3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
FCC eCFR 47 Part 15		2026		
ANSI C63.10		2020	2024	
RSS-247	4	2025		
RSS-GEN	5	2018	2019	2021
KDB 789033		2021		

4 UNCERTAINTY SUMMARY

Using the guidance of the following publications the calculated measurement uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level, using a coverage factor of $k = 2$.

References
CISPR 16-4-1
CISPR 16-4-2
CISPR 32
ANSI C63.23
A2LA P103
A2LA P103c
ETSI TR 100-028

Measurement Type	Configuration	Uncertainty $\pm$
Radiated Emissions	Biconical Antenna	5.0 dB
Radiated Emissions	Log Periodic Antenna	5.3 dB
Radiated Emissions	Horn Antenna	4.7 dB
AC Line Conducted Emissions	Artificial Mains Network	3.4 dB
Telecom Conducted Emissions	Asymmetric Artificial Network	4.9 dB
Disturbance Power Emissions	Absorbing Clamp	4.1 dB
Radiated Immunity	3 Volts/meter	2.2 dB
Conducted Immunity	CDN/EM/BCI	2.4/3.5/3.4 dB
EFT Burst/Surge	Peak pulse voltage	164 volts
ESD Immunity	15 kV level	1377 Volts

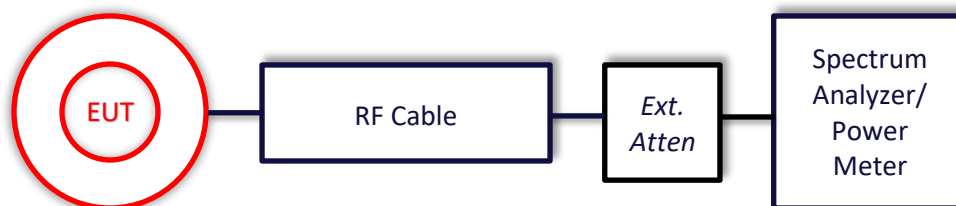
Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %
Supply voltages	3 %	1 %

5 TEST DATA

5.1 Antenna Port Conducted Emissions

Description of Measurement	The direct measurement of emissions at the antenna port of the EUT is achieved by use of a RF connection to a spectrum analyzer or power meter. The cable and attenuator factors are loaded into the analyzer or power meter allowing for direct measurement readings without the need for further corrections.
Example Calculations	Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm) Margin (dB) = Limit (dBm) – Corrected Reading (dBm)

Block Diagram



5.1.1 26dB and 99% Occupied Bandwidth

Operator	Mitchell Freund	QA	Adam Alger
Temperature	21.0°C	R.H. %	22.3%
Test Date	12/15/2025	Location	Cond. Bench
Requirement	15.407(a)(2) RSS-247 Clause 7.3.3	Method	ANSI C63.10

Limits: The minimum 26 dB bandwidth shall be at least 500 kHz

Test Parameters

Frequency	5470-5725 MHz	Setup	Connected via Antenna Port
RBW	20 MHz BW – 200 kHz 40 MHz BW – 430 kHz 80 MHz BW – 1 MHz	VBW	20 MHz BW – 620 kHz 40 MHz BW – 1.5 MHz 80 MHz BW – 3 MHz
Detector(s)	Peak	Settings	Max Hold

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G- 1	388	1/28/2025	2/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

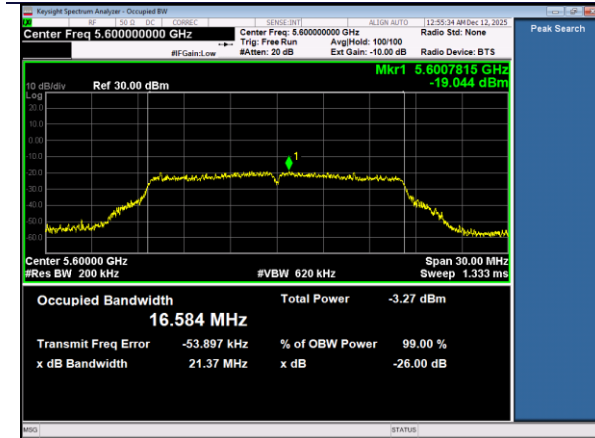
EUT Parameters

Input Power	120 VAC 60 Hz	Mode	5 GHz Tx
Frequency	5500-5720 MHz	Channel	100, 120, 144. 102, 118, 142, 106, 122, 138

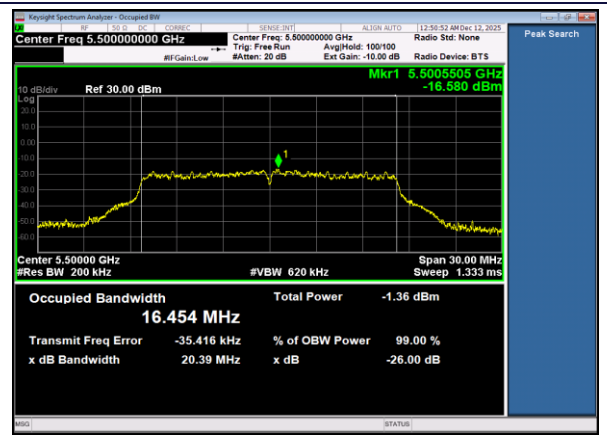
Table

Mode	Rate	Channel	26 dB BW (MHz)	99% BW (MHz)	Nominal BW
802.11a	OFDM-6	100	21.1	16.6	20
802.11a	OFDM-6	120	21.4	16.6	20
802.11a	OFDM-6	144	20.9	16.6	20
802.11a	OFDM-54	100	20.4	16.5	20
802.11a	OFDM-54	120	20.3	16.4	20
802.11a	OFDM-54	144	20.3	16.4	20
802.11n	MCS0	100	21.5	17.7	20
802.11n	MCS0	120	21.4	17.8	20
802.11n	MCS0	144	21.2	17.7	20
802.11n	MCS7	100	20.8	17.7	20
802.11n	MCS7	120	21.1	17.7	20
802.11n	MCS7	144	21.0	17.7	20
802.11n	MCS0	102	39.5	36.1	40
802.11n	MCS0	118	39.6	36.2	40
802.11n	MCS0	142	39.7	36.2	40
802.11n	MCS7	102	39.3	36.2	40
802.11n	MCS7	118	39.3	36.2	40
802.11n	MCS7	142	39.4	36.2	40
802.11ac	MCS0	102	39.6	36.2	40
802.11ac	MCS0	118	39.6	36.2	40
802.11ac	MCS0	142	39.4	36.2	40
802.11ac	MCS9	102	39.9	36.4	40
802.11ac	MCS9	118	39.9	36.3	40
802.11ac	MCS9	142	39.8	36.3	40
802.11ac	MCS0	106	81.6	75.6	80
802.11ac	MCS0	122	81.4	75.6	80
802.11ac	MCS0	138	81.7	75.5	80
802.11ac	MCS9	106	81.7	75.6	80
802.11ac	MCS9	122	81.3	75.7	80
802.11ac	MCS9	138	81.2	75.6	80

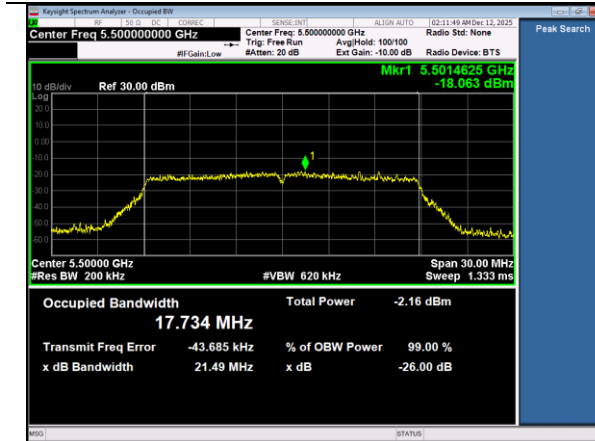
Plots



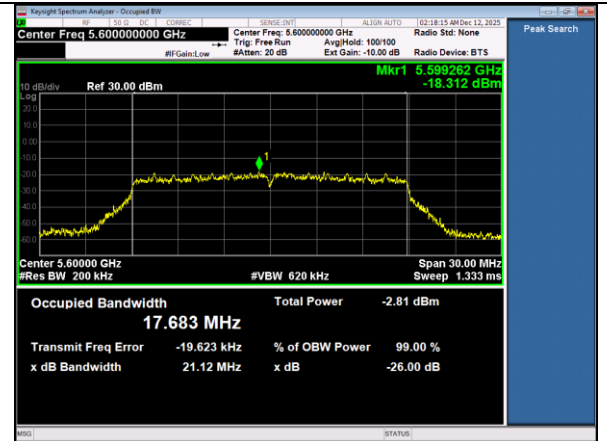
802.11a | 6 Mbps | Channel 120



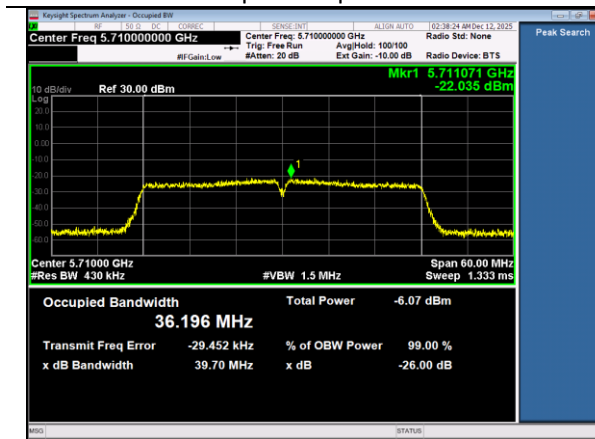
802.11a | 54 Mbps | Channel 100



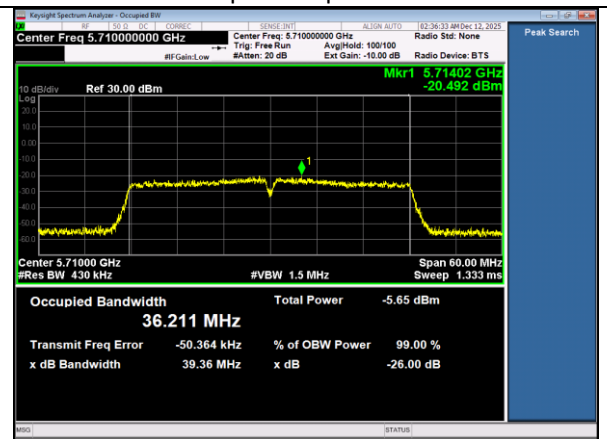
802.11n | MCS0 | Channel 100



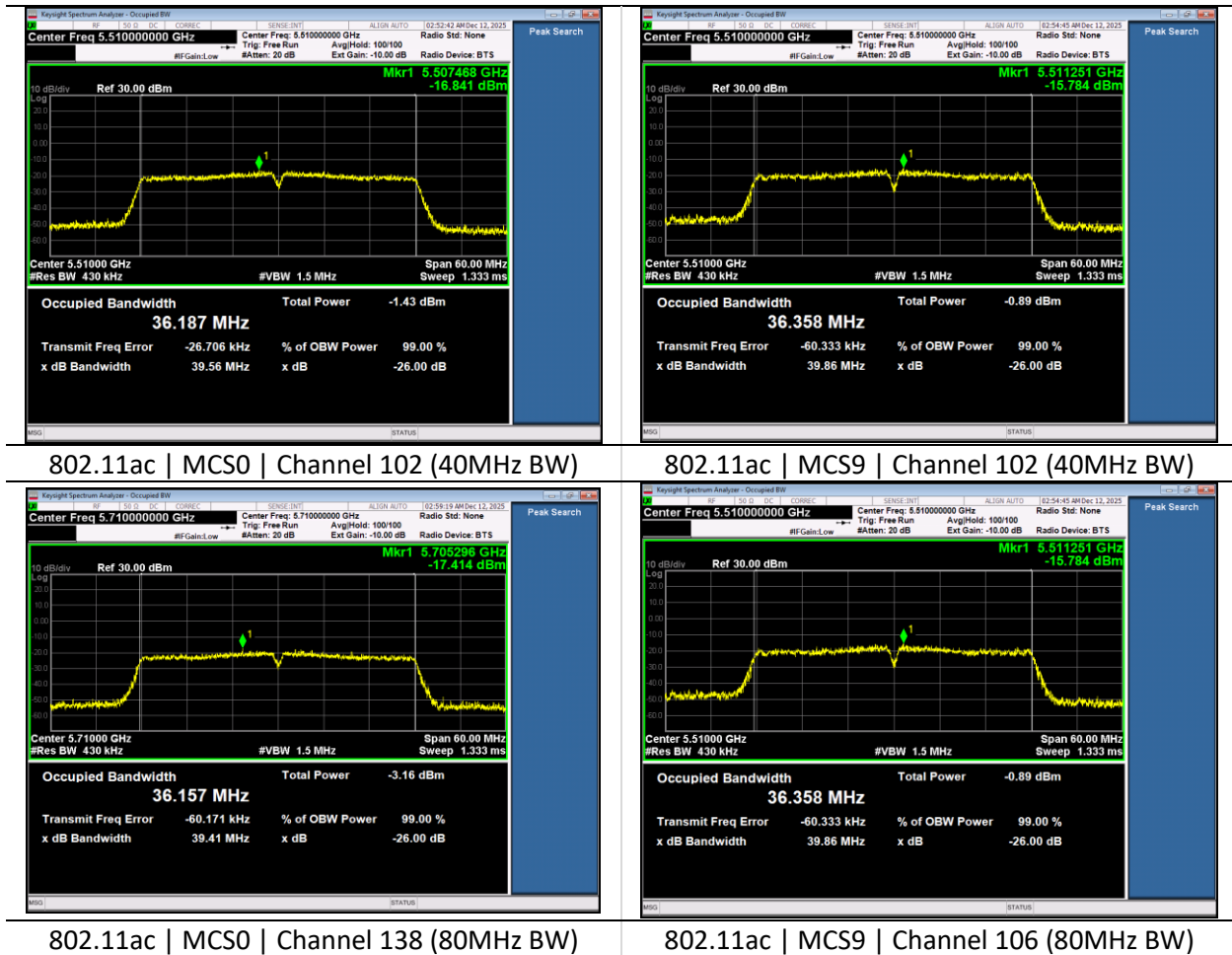
802.11n | MCS7 | Channel 120



802.11n | MCS0 | Channel 142 (40MHz BW)



802.11n | MCS7 | Channel 142(40MHz BW)



5.1.2 RF Output Power

Operator	Mitchell Freund	QA	Adam Alger
Temperature	20.6°C	R.H. %	20.40%
Test Date	12/17/2025, 4/28/2026	Location	Cond. Bench
Requirement	15.407(a)(2) RSS-247 Clause 7.3.3	Method	ANSI C63.10 12.4 AVGSA-2

Limits: For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz

Test Parameters

Frequency	5470-5725 MHz	Setup	Connected via Antenna Port
RBW	1 MHz	VBW	3 MHz
Detector(s)	RMS	Settings	Trace Averaging

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	1/28/2025	2/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

EUT Parameters

Input Power	120 VAC 60 Hz	Mode	5 GHz Tx
Frequency	5500-5720 MHz	Channel	100, 120, 144. 102, 118, 142, 106, 122, 138

Duty Cycle Table:

Mode	Data Rate	On-Time	On-Time (s)	Minimum VBW
802.11a	6 Mbps	1.417 ms	0.001417	706
802.11a	54 Mbps	165 μ s	0.0001648	6068
802.11n	MCS0	1.322 ms	0.001321	757
802.11n	MCS7	158 μ s	0.000158	6329
802.11n	MSC0	621 μ s	0.000621	1610
802.11n	MCS7	96.0 μ s	0.00009601	10416
802.11ac	MCS0	99.6 μ s	0.00009963	10037
802.11ac	MCS9	55.8 μ s	0.000055783	17927
802.11ac	MCS0	312 μ s	0.000312	3205
802.11ac	MCS9	63.5 μ s	0.0000635	15748

Plot:

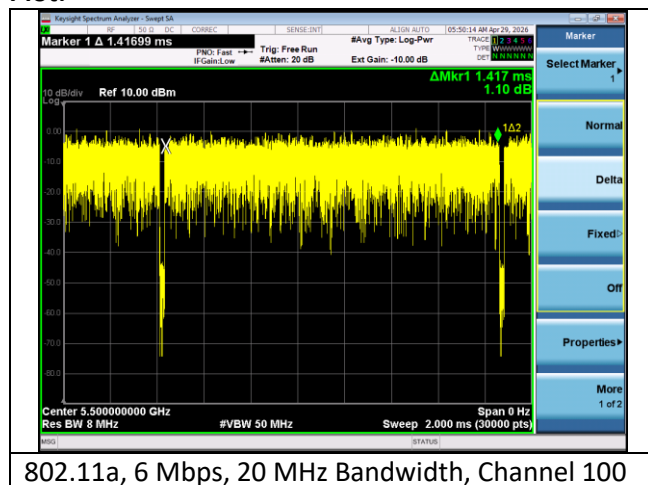
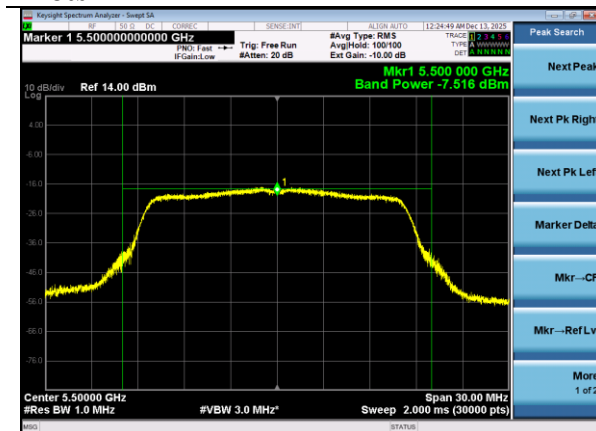


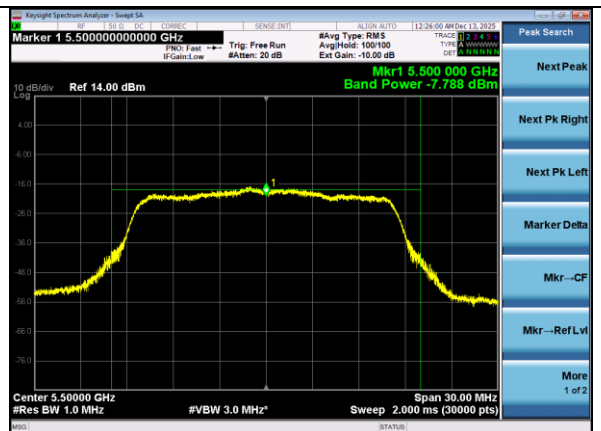
Table:

Mode	Rate	Channel	Average Output Power (dBm)	Duty Cycle Correction (dB)	Corrected Output Power (dBm)	Limit (dBm)	Margin (dB)
802.11a	OFDM-6	100	-7.5	0.1	-7.4	24.0	31.4
802.11a	OFDM-6	120	-8.9	0.1	-8.8	24.0	32.8
802.11a	OFDM-6	140	-10.4	0.1	-10.3	24.0	34.3
802.11a	OFDM-54	100	-7.8	0.6	-7.2	24.0	31.2
802.11a	OFDM-54	120	-9.5	0.6	-8.9	24.0	32.9
802.11a	OFDM-54	140	-10.8	0.6	-10.2	24.0	34.2
802.11n	MCS0	100	-7.9	0.1	-7.8	24.0	31.8
802.11n	MCS0	120	-9.3	0.1	-9.2	24.0	33.2
802.11n	MCS0	140	-10.7	0.1	-10.6	24.0	34.6
802.11n	MCS7	100	-8.2	0.4	-7.8	24.0	31.8
802.11n	MCS7	120	-9.6	0.4	-9.2	24.0	33.2
802.11n	MCS7	140	-11.1	0.4	-10.7	24.0	34.7
802.11a	OFDM-6	144	-10.9	0.1	-10.8	24.0	34.8
802.11a	OFDM-54	144	-11.4	0.6	-10.8	24.0	34.8
802.11n	MCS0	144	-11.2	0.1	-11.1	24.0	35.1
802.11n	MCS7	144	-11.5	0.4	-11.1	24.0	35.1
802.11n	MCS0	102	-9.6	0.2	-9.4	24.0	33.4
802.11n	MCS0	134	-11.6	0.2	-11.4	24.0	35.4
802.11n	MCS0	142	-9.5	0.2	-9.3	24.0	33.3
802.11n	MCS7	102	-10.3	0.5	-9.8	24.0	33.8
802.11n	MCS7	134	-12.4	0.5	-11.9	24.0	35.9
802.11n	MCS7	142	-12.8	0.5	-12.3	24.0	36.3
802.11ac	MCS0	102	-6.9	1.2	-5.7	24.0	29.7
802.11ac	MCS0	134	-8.8	1.2	-7.6	24.0	31.6
802.11ac	MCS0	142	-9.5	1.2	-8.3	24.0	32.3
802.11ac	MCS9	102	-7.7	1.4	-6.3	24.0	30.3
802.11ac	MCS9	134	-9.6	1.4	-8.2	24.0	32.2
802.11ac	MCS9	142	-10.1	1.4	-8.7	24.0	32.7
802.11ac	MCS0	106	-10.0	0.3	-9.7	24.0	33.7
802.11ac	MCS0	122	-10.8	0.3	-10.5	24.0	34.5
802.11ac	MCS0	138	-11.7	0.3	-11.4	24.0	35.4
802.11ac	MCS9	106	-11.0	1.3	-9.7	24.0	33.7
802.11ac	MCS9	122	-11.8	1.3	-10.5	24.0	34.5
802.11ac	MCS9	138	-12.6	1.3	-11.3	24.0	35.3

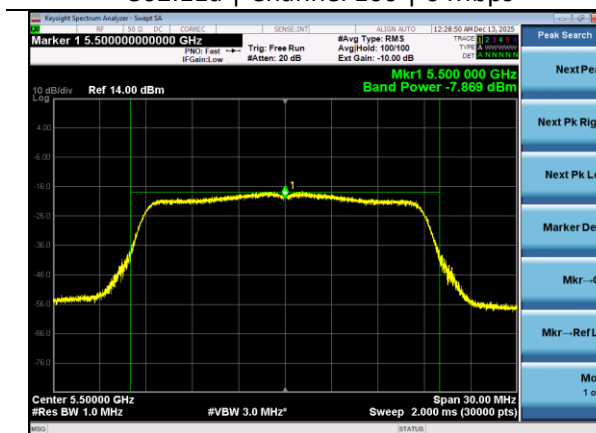
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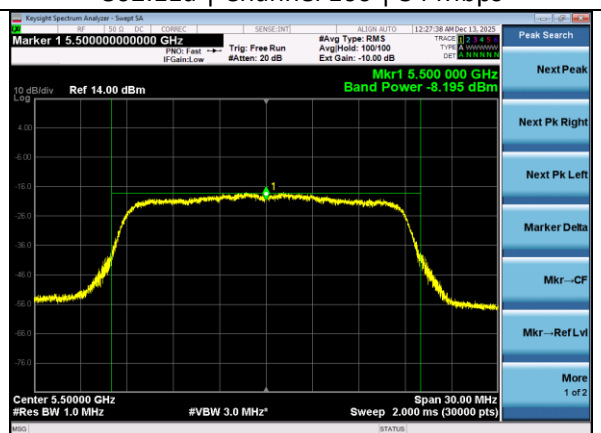
802.11a | Channel 100 | 6 Mbps



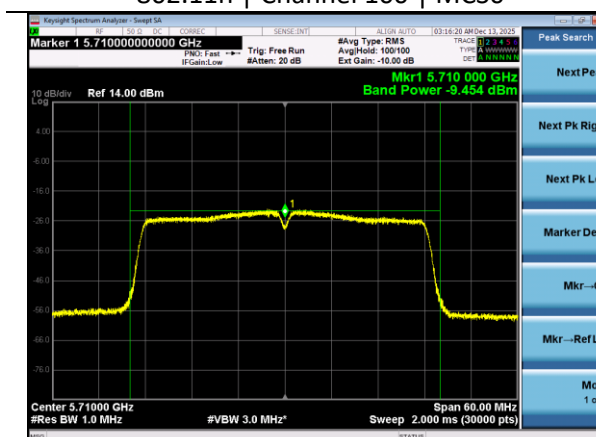
802.11a | Channel 100 | 54 Mbps



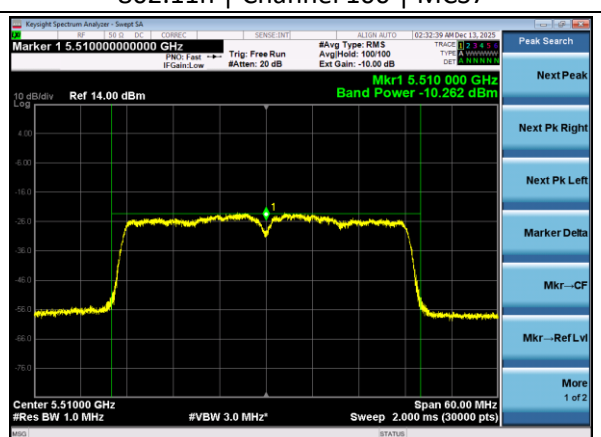
802.11n | Channel 100 | MCS0



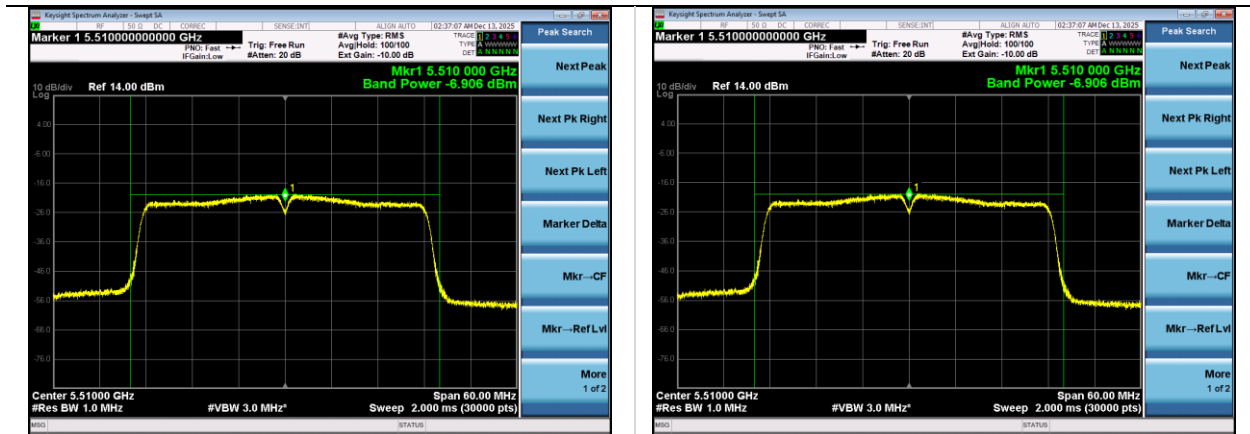
802.11n | Channel 100 | MCS7



802.11n | Channel 142 | MCS0

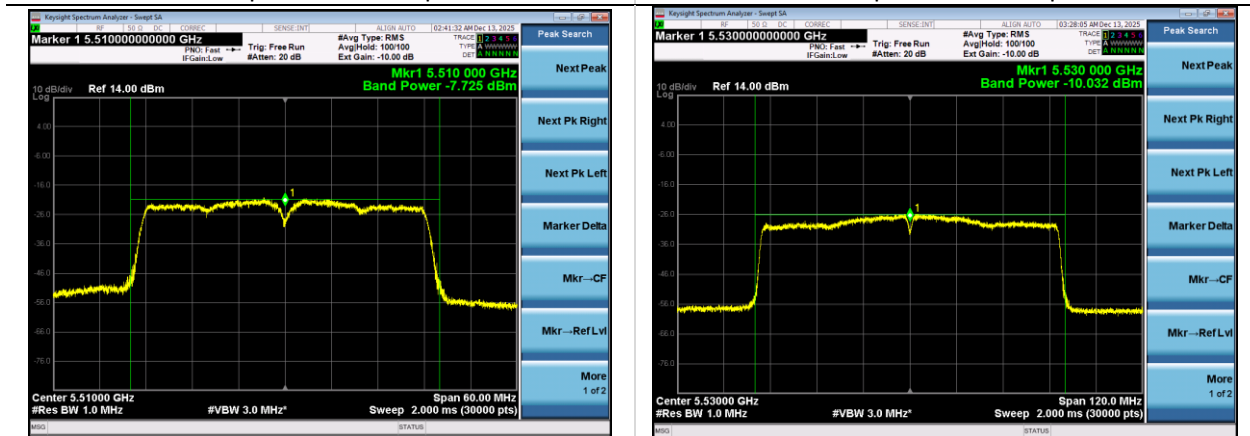


802.11n | Channel 102 | MCS7



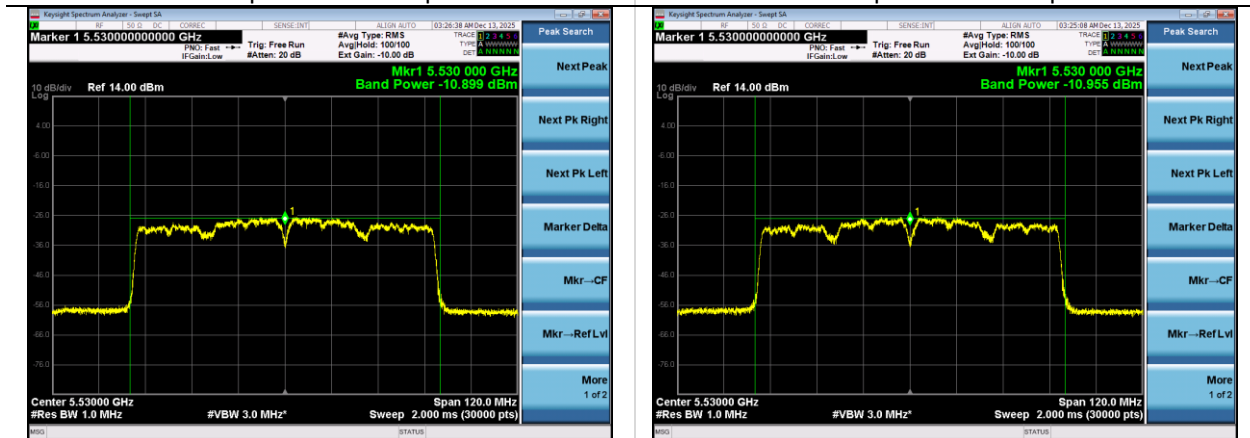
802.11ac | Channel 102 | MCS0

802.11ac | Channel 102 | MCS7



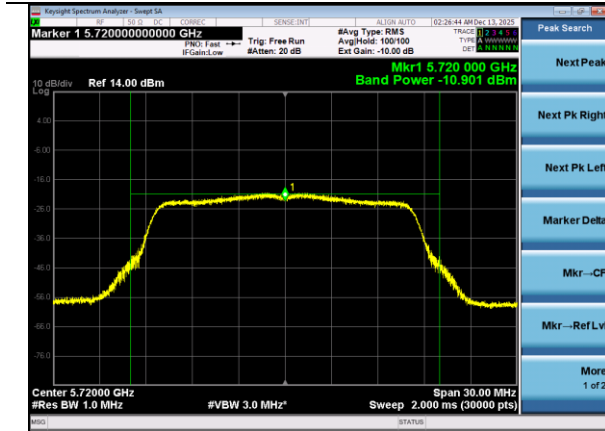
802.11ac | Channel 102 | MCS9

802.11ac | Channel 106 | MCS0

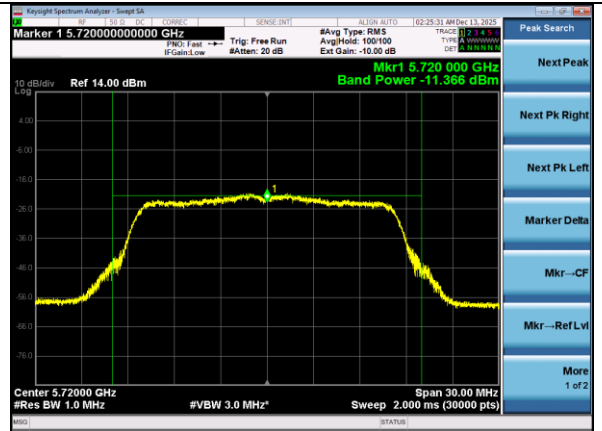


802.11ac | Channel 106 | MCS7

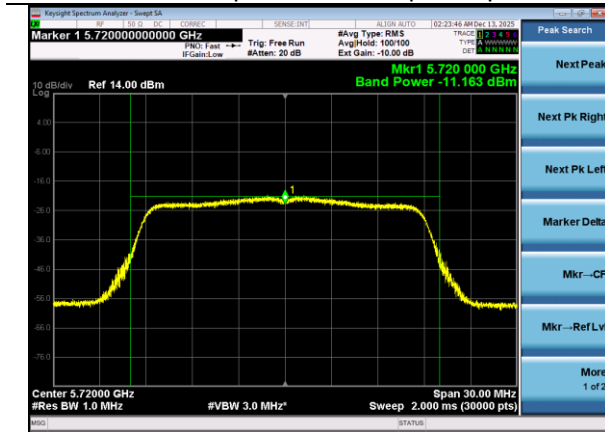
802.11ac | Channel 106 | MCS9



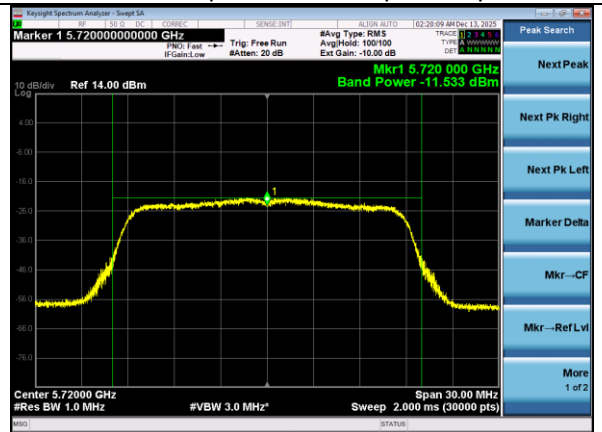
802.11a | Channel 144 | 6 Mbps



802.11a | Channel 144 | 54 Mbps



802.11n | Channel 144 | MCS0



802.11n | Channel 144 | MCS7

5.1.3 Power Spectral Density

Operator	Mitchell Freund	QA	Adam Alger
Temperature	20.6°C	R.H. %	20.40%
Test Date	12/17/2025	Location	Cond. Bench
Requirement	15.407(a)(2) RSS-247 Clause 7.3.3	Method	ANSI C63.10 12.6 AVGPSD-2

Limits: Power spectral density shall not be greater than 11 dBm in any 1 MHz band.

Test Parameters

Frequency	5470-5725 MHz	Detector(s)	RMS
RBW	1 MHz	VBW	3 MHz
Notes	The same method of determining the conducted output power shall be used to determine the power spectral density		
Example Calculations	Average PSD = Measured PSD + 10*log(1/D0 where D is the duty cycle.		

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G- 1	388	1/28/2025	2/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

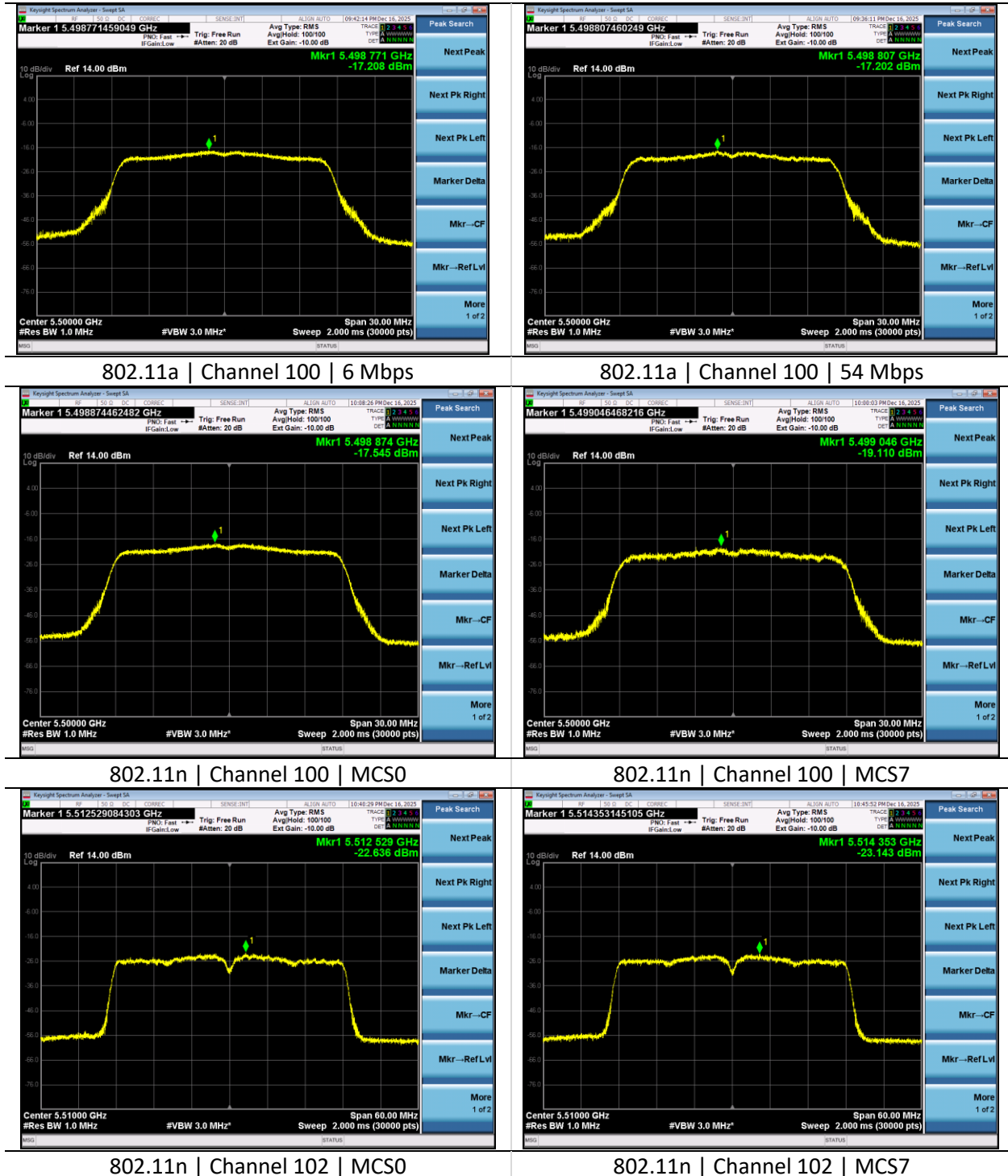
EUT Parameters

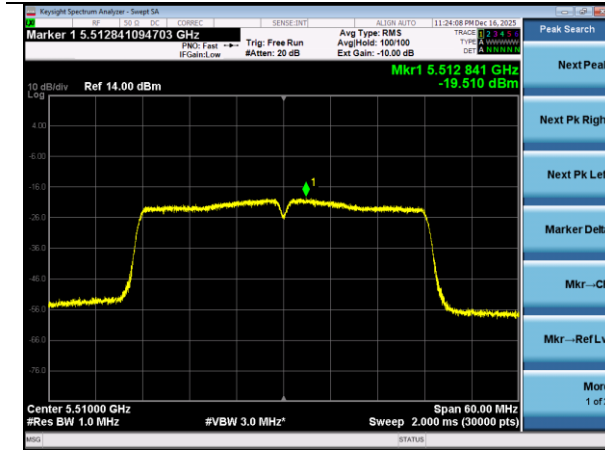
Input Power	120 VAC 60 Hz	Mode	5 GHz Tx
Frequency	5500-5725 MHz	Channel	100, 120, 144, 102, 142, 106, 122, 138

Table

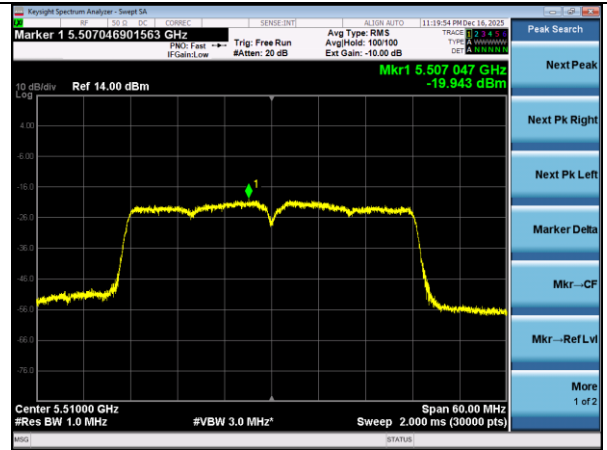
Mode	Rate	Channel	Maximum Average PSD (dBm/1 MHz)	Duty Cycle Correction (dB)	Corrected Output Value (dBm/1 MHz)	Limit (dBm/1 MHz)	Margin (dB)
802.11a	OFDM-6	100	-17.2	0.1	-17.1	11	28.1
802.11a	OFDM-6	120	-18.3	0.1	-18.2	11	29.2
802.11a	OFDM-6	144	-20.3	0.1	-20.2	11	31.2
802.11a	OFDM-54	100	-17.2	0.6	-16.6	11	27.6
802.11a	OFDM-54	120	-18.8	0.6	-18.2	11	29.2
802.11a	OFDM-54	144	-20.5	0.6	-19.9	11	30.9
802.11n	MCS0	100	-17.5	0.1	-17.4	11	28.4
802.11n	MCS0	120	-19.9	0.1	-19.8	11	30.8
802.11n	MCS0	144	-20.9	0.1	-20.8	11	31.8
802.11n	MCS7	100	-19.1	0.4	-18.7	11	29.7
802.11n	MCS7	120	-19.5	0.4	-19.1	11	30.1
802.11n	MCS7	144	-21.3	0.4	-20.9	11	31.9
802.11n	MCS0	102	-22.6	0.2	-22.4	11	33.4
802.11n	MCS0	142	-24.8	0.2	-24.6	11	35.6
802.11n	MCS7	102	-23.1	0.5	-22.6	11	33.6
802.11n	MCS7	142	-25.9	0.5	-25.4	11	36.4
802.11ac	MCS0	102	-19.5	1.2	-18.3	11	29.3
802.11ac	MCS0	142	-22.0	1.2	-20.8	11	31.8
802.11ac	MCS9	102	-24.4	1.4	-23.0	11	34.0
802.11ac	MCS9	142	-22.6	1.4	-21.2	11	32.2
802.11ac	MCS0	106	-20.1	0.3	-19.8	11	30.8
802.11ac	MCS0	122	-26.5	0.3	-26.2	11	37.2
802.11ac	MCS0	138	-27.0	0.3	-26.7	11	37.7
802.11ac	MCS9	106	-21.1	1.3	-19.8	11	30.8
802.11ac	MCS9	122	-27.0	1.3	-25.7	11	36.7
802.11ac	MCS9	138	-28.1	1.3	-26.8	11	37.8

Plots

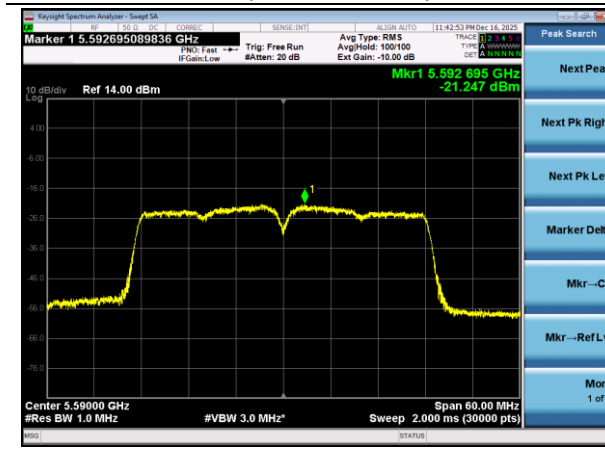




802.11ac | Channel 102 | MCS0



802.11ac | Channel 102 | MCS7



802.11ac | Channel 102 | MCS9



802.11ac | Channel 142 | MCS0

5.1.4 Out-of-Band Emissions

Operator	Mitchell Freund	QA	Adam Alger
Temperature	21.3°C	R.H. %	21.68%
Test Date	12/9/2025	Location	Cond. Bench
Requirement	15.407(b)(2), (9), & (10) RSS-247 Clause 7.3.3	Method	ANSI C63.10

Limits: For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

Test Parameters

Frequency	5350-5470 MHz	Setup	Antenna Port
RBW	1 MHz	VBW	3 MHz
Detector(s)	Peak and Average (RMS)		
Notes	Declared antenna gain for Bandedge = 5.125 - 5.725 GHz = 4.5 dBi 5.725 - 5.875 GHz = 2.92 dBi		
Example Calculations	Correction Factor = 20 log (1/D), where D is the duty cycle		

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	1/28/2025	2/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

EUT Parameters

Input Power	120 VAC 60 Hz	Mode	5 GHz Tx
Frequency	5500-5725 MHz	Channel	100, 102, 106

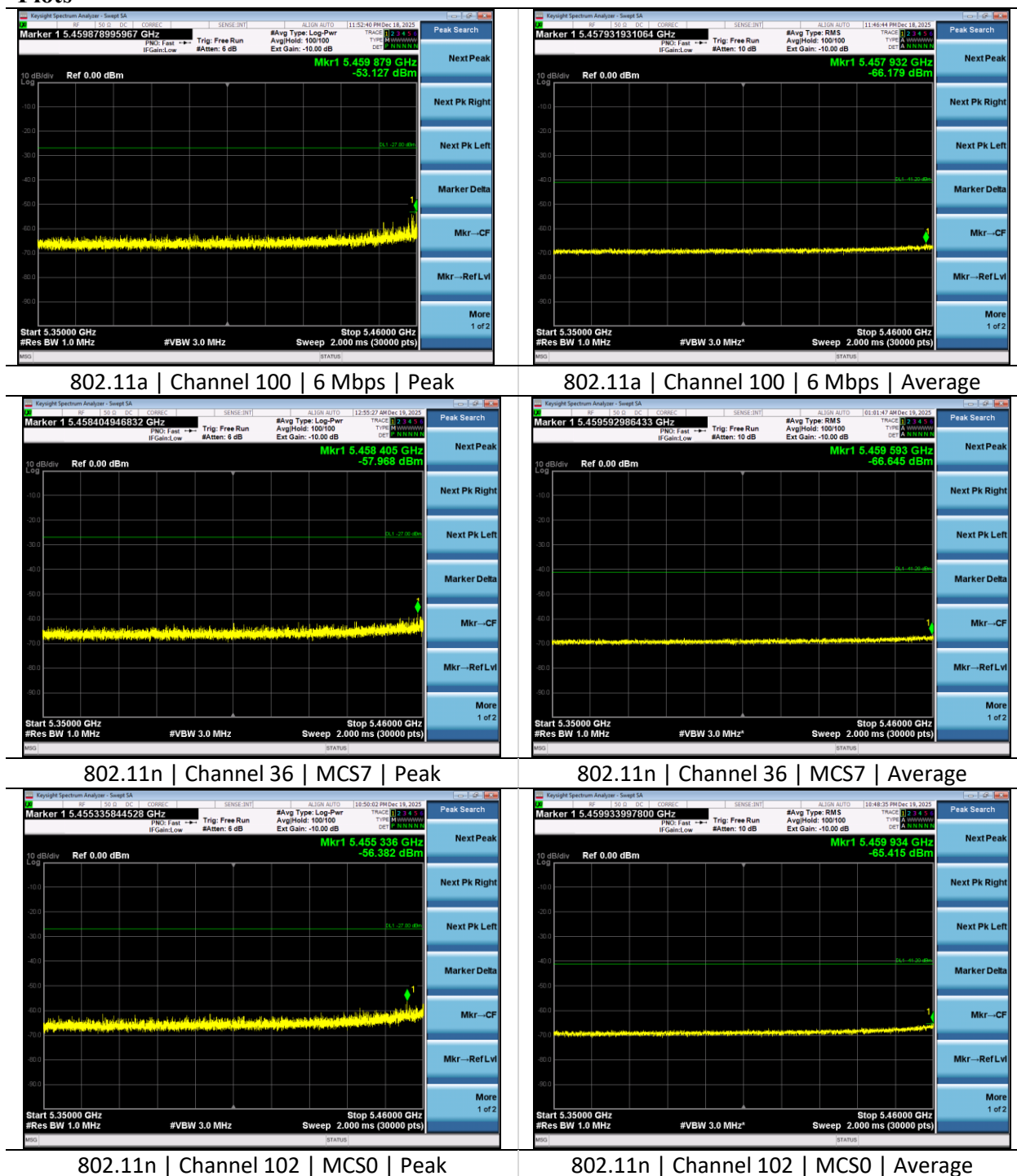
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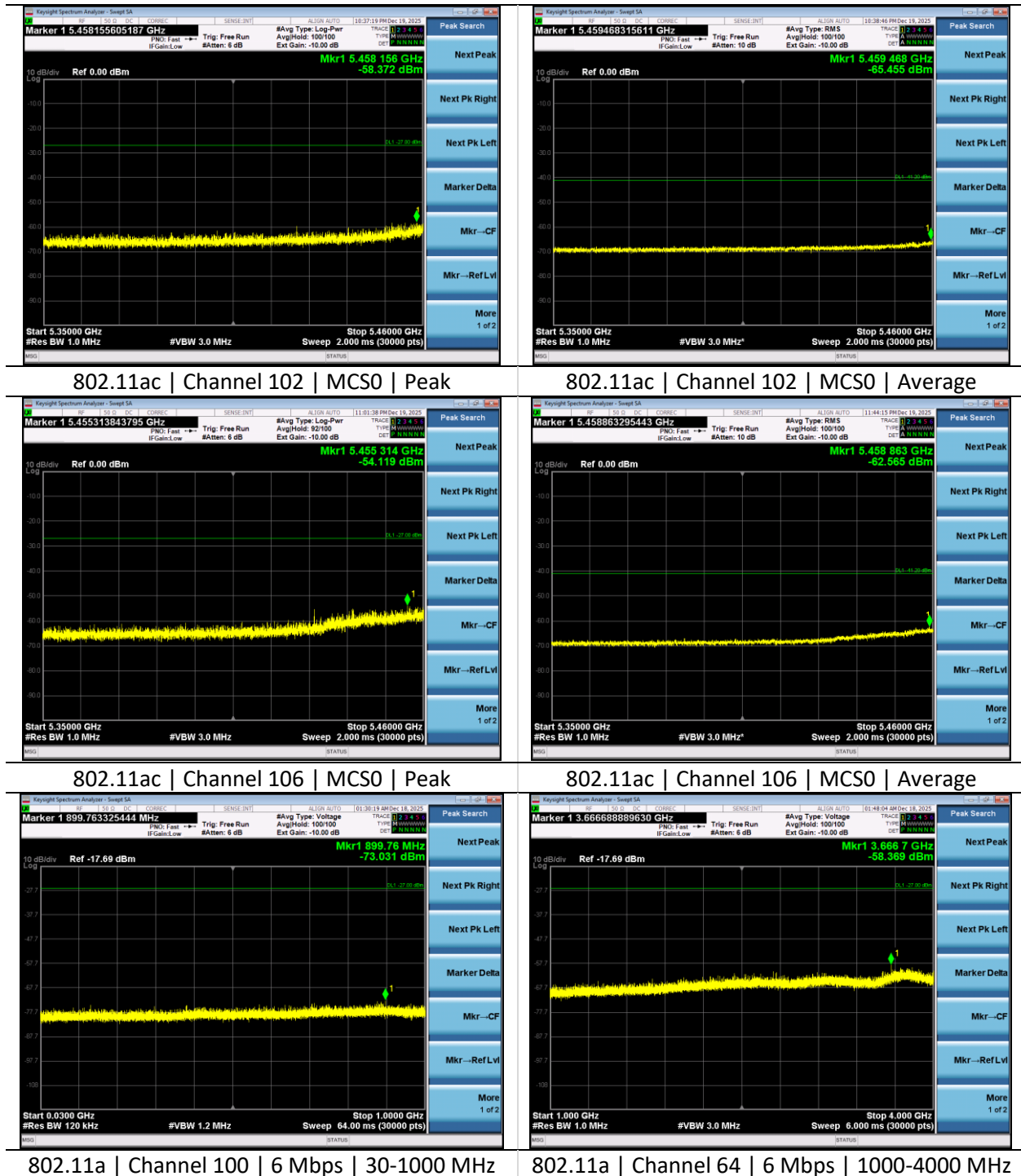
Mode	Rate	Channel	Measurement Type	Freq. (MHz)	Measurement (dBm)	Antenna Gain (dBi)	Duty Cycle Correction (dB)	Limit (dBm)	Margin (dB)
802.11a	OFDM-6	100	Pk	5469.9	-53.1	4.5	0.1	-27	21.5
802.11a	OFDM-6	100	Avg	5457.9	-66.2	4.5	0.1	-41.2	20.4
802.11a	OFDM-54	100	Pk	5456.0	-58.0	4.5	0.6	-27	25.9
802.11a	OFDM-54	100	Avg	5456.1	-66.6	4.5	0.6	-41.2	20.3
802.11n	MCS0	100	Pk	5459.9	-57.8	4.5	0.1	-27	26.2
802.11n	MCS0	100	Avg	5455.1	-66.8	4.5	0.1	-41.2	21.0
802.11n	MCS7	100	Pk	5458.4	-58.0	4.5	0.4	-27	26.1
802.11n	MCS7	100	Avg	5459.6	-66.6	4.5	0.4	-41.2	20.5
802.11n	MCS0	102	Pk	5455.3	-56.4	4.5	0.2	-27	24.7
802.11n	MCS0	102	Avg	5459.9	-65.4	4.5	0.2	-41.2	19.5
802.11n	MCS7	102	Pk	5456.9	-56.4	4.5	0.5	-27	24.4
802.11n	MCS7	102	Avg	5458.9	-66.3	4.5	0.5	-41.2	20.1
802.11ac	MCS0	102	Pk	5458.2	-58.4	4.5	1.2	-27	25.7
802.11ac	MCS0	102	Avg	5469.5	-65.5	4.5	1.2	-41.2	18.6
802.11ac	MCS9	102	Pk	5438.4	-58.9	4.5	1.4	-27	26.0
802.11ac	MCS9	102	Avg	5458.0	-66.4	4.5	1.4	-41.2	19.3
802.11ac	MCS0	106	Pk	5455.3	-54.1	4.5	0.3	-27	22.3
802.11ac	MCS0	106	Avg	5458.9	-62.6	4.5	0.3	-41.2	16.6
802.11ac	MCS9	106	Pk	5441.4	-54.0	4.5	1.3	-27	21.2
802.11ac	MCS9	106	Avg	5443.8	-57.2	4.5	1.3	-41.2	10.2

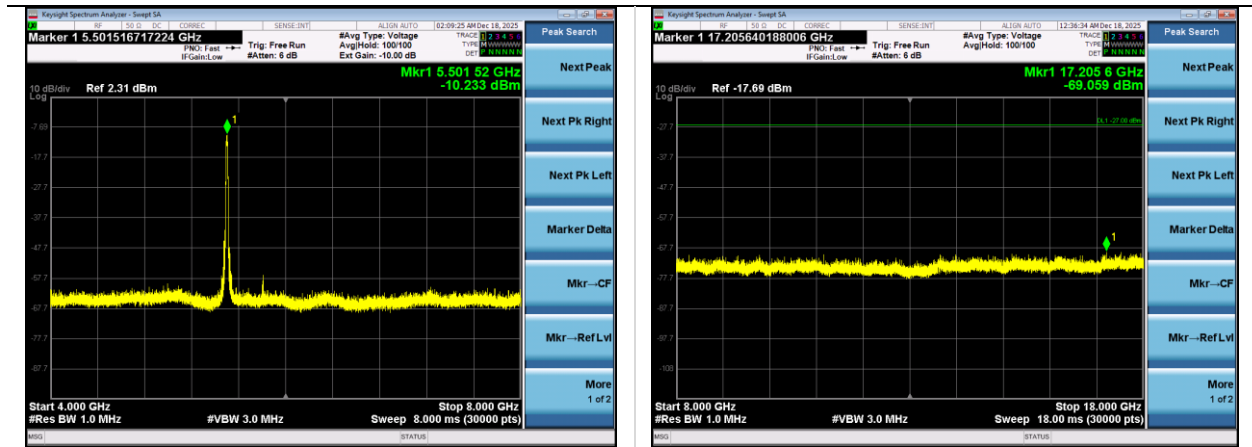
Spurious Table

Mode	Rate	Channel	Measurement Type	Freq. (MHz)	Measurement (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dB)
802.11a	6mbps	100	Peak	17205.6	-69.1	4.5	-27	37.6
802.11a	6mbps	100	Average	17201.4	-80.2	4.5	-41.2	43.5
802.11a	6mbps	116	Peak	17700.3	-69.7	4.5	-27	38.2
802.11a	6mbps	116	Average	17703.1	-80.9	4.5	-41.2	44.2
802.11a	6mbps	144	Peak	17844.3	-68.3	4.5	-27	36.8
802.11a	6mbps	144	Average	17841.8	-79.6	4.5	-41.2	42.9
802.11n	MCS0	100	Peak	17860.0	-69.5	4.5	-27	38.0
802.11n	MCS0	100	Average	17858.7	-81.1	4.5	-41.2	44.4
802.11n	MCS0	116	Peak	10707.4	-69.2	4.5	-27	37.7
802.11n	MCS0	116	Average	10704.8	-80.8	4.5	-41.2	44.1
802.11n	MCS0	144	Peak	17557.7	-68.4	4.5	-27	36.9
802.11n	MCS0	144	Average	17555.9	-79.7	4.5	-41.2	43.0
802.11n	MCS0	142	Peak	17805.7	-68.9	4.5	-27	37.4
802.11n	MCS0	142	Average	17806.2	-80.4	4.5	-41.2	43.7
802.11ac	MCS0	142	Peak	17539.7	-68.7	4.5	-27	37.2
802.11ac	MCS0	142	Average	17537.8	-80.6	4.5	-41.2	43.9
802.11ac	MCS0	138	Peak	15277.9	-69.4	4.5	-27	37.9
802.11ac	MCS0	138	Average	15278.5	-80.7	4.5	-41.2	44.0

Plots







802.11a | Channel 36 | 6 Mbps | 4000-8000 MHz

802.11a | Channel 40 | 6 Mbps | 8000-18000 MHz



802.11a | Channel 36 | 6 Mbps | 18000-40000 MHz

Company: Geberit International AG	Page 30 of 44	Name: 116.495.00.1
Report:TR3939L		Model: GW-21-A
Quote: NBO-01-2024-006892-4		Serial:Engineering Sample

5.1.5 Frequency Stability

Operator	Mitchell Freund	QA	Dylan Rosenfeldt
Temperature	22.9°C	R.H. %	29.8%
Test Date	1/13/2025	Location	Cond. Bench
Requirement	15.407(g) RSS-GEN Clause 6.11	Method	ANSI C63.10.6.8

Test Parameters

Frequency	5500-5725 MHz	Setup	Connected via Antenna Port
Detector(s)	Peak	Settings	Max Hold

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G- 1	388	1/28/2025	2/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

Table

Channel	Voltage	Center Frequency (Hz)
36	102	5179962610
36	120	5179960400
36	138	5179966204
40	102	5199962476
40	120	5199960387
40	138	5199964657
48	102	5239962004
48	120	5239960120
48	138	5239964758
52	102	5259961903
52	120	5259959801
52	138	5259964302
56	102	5279961808
56	120	5279958845
56	138	5279963699
64	102	5319961437
64	120	5319959491
64	138	5319963168
100	102	5499960116
100	120	5499958108

Company: Geberit International AG	Page 31 of 44	Name: 116.495.00.1
Report: TR3939L		Model: GW-21-A
Quote: NBO-01-2024-006892-4		Serial: Engineering Sample

100	138	5499961337
116	102	5579959572
116	120	5579957372
116	138	5579960518
120	102	5599959312
120	120	5599957383
120	138	5599960148
140	102	5699958441
140	120	5699956543
140	138	5699959978
149	102	5744959278
149	120	5744955948
149	138	5744957738
157	102	5784960015
157	120	5784955576
157	138	5784958042
165	102	5824961376
165	120	5824955241
165	138	5824957722

5.2 Radiated Emissions

Description of Measurement	The frequency spectrum is investigated for intentional and / or unintentional signals emanating from the EUT by use of a standardized test site and measurement antenna. The antenna, cable, pre-amp, and other necessary measurement system correction factors are loaded onto the EMI receiver / spectrum analyzer when the measurements are performed allowing the data to be gathered and reported as corrected values. The maximum emissions from the EUT are determined by turn-table azimuth rotation (360°) and scanning of the measurement antenna. Maximized levels are noted at degree values of azimuth, measurement antenna height, and measurement antenna polarity.
Example Calculations	Measurement (dBμV) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dBμV/m) Margin (dB) = Limit (dBμV/m) - Corrected Reading (dBμV/m) Example at 4000 MHz: Reading = 40 dBμV + 3.4 dB + 0.9 dB + 6.5 dB/m = 50.8 dBμV/m Average Limit = 20 log (500) = 54 dBμV/m Margin = 54 dBμV/m - 50.8 dBμV/m = 3.2 dB

Block Diagram



5.2.1 Radiated Emissions

Operator	Mitchell Freund, Marcos Pineda, Cheikhna Ouattara	QA	Dylan Rosenfeldt, Adam Alger, Anthony Smith
Temperature	24.1°C / 24.2°C	R.H. %	26.5% / 35.5%
Test Date	12/5/2025 -1/21/2026	Location	Chamber 3 and 5
Requirement	15.247 (b)(2),(9) & (10) RSS-247 Clause 7.3.3 RSS-GEN Clause 8.9	Method	ANSI C63.10 12.7

Limits: For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

15.209 Limits:

Frequency	Quasi-Peak Limit (dBμV/m)	Average Limit (dBμV/m)	Peak Limit (dBμV/m)
30-88	40.0		
88-216	43.5		
216-960	46.0		
960-1000	54.0		
1000-40000		54.0	68.2

Test Parameters

Frequency	30-40000 MHz	Distance	3 m
Detector(s)	Peak, Average, Quasi-Peak	Table height	150 cm
RBW	<1000 MHz – 120 kHz >1000 – 1 MHz	VBW	<1000 – 1.2 MHz >1000 – See 2.9

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
LSC-300	Cable	Chamber 3 Emissions	-	-	1/24/2025	2/24/2026	Active Verification
LSC-500	Cable	Chamber 5 Emissions	-	-	1/27/2025	2/27/2026	Active Verification
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	1/28/2025	1/28/2026	Active Verification
AA 960162	Cable	MegaPhase	EM2-S1S1-120	51503501001	1/28/2025	1/28/2026	Active Verification
AA 960194	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	780	10/9/2025	10/9/2026	Active Calibration
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	10/8/2025	10/8/2026	Active Calibration
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	9/24/2025	9/24/2026	Active Calibration
AA 960081	Antenna - Double Ridge Horn	EMCO	3115	6907	10/8/2025	10/8/2026	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	10/7/2025	10/7/2026	Active Calibration
AA 960161	Filter - Highpass 5 GHz	K&L Microwave	11SH10-8000	2	4/3/2025	4/3/2026	Active Calibration
AA 960209	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	037101808	9/24/2025	9/24/2026	Active Calibration
AA 960194	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	780	10/9/2025	10/9/2026	Active Calibration
EE 960067	Generator - Signal	HP	8648A	3636A02735	4/1/2025	4/1/2026	Active Calibration
EE 960085	Analyzer - EMI Receiver	Agilent	N9038A	MY51210148	4/3/2025	4/3/2026	Active Calibration
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/2/2025	4/2/2026	Active Calibration

EUT Parameters

Input Power	120 VAC 60 Hz	Mode	5 GHz WLAN Tx
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Under 1 GHz Table

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Quasi-Peak Reading (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)
100.8	H	100	0	18.7	29.3	43.5
161.3	H	200	140	28.9	35.9	43.5
30.2	V	100	60	28.8	33.0	40.0
161.3	V	100	82	27.8	34.3	43.5
980.8	H	100	0	30.1	36.3	54.0
992.4	V	100	0	30.3	36.4	54.0

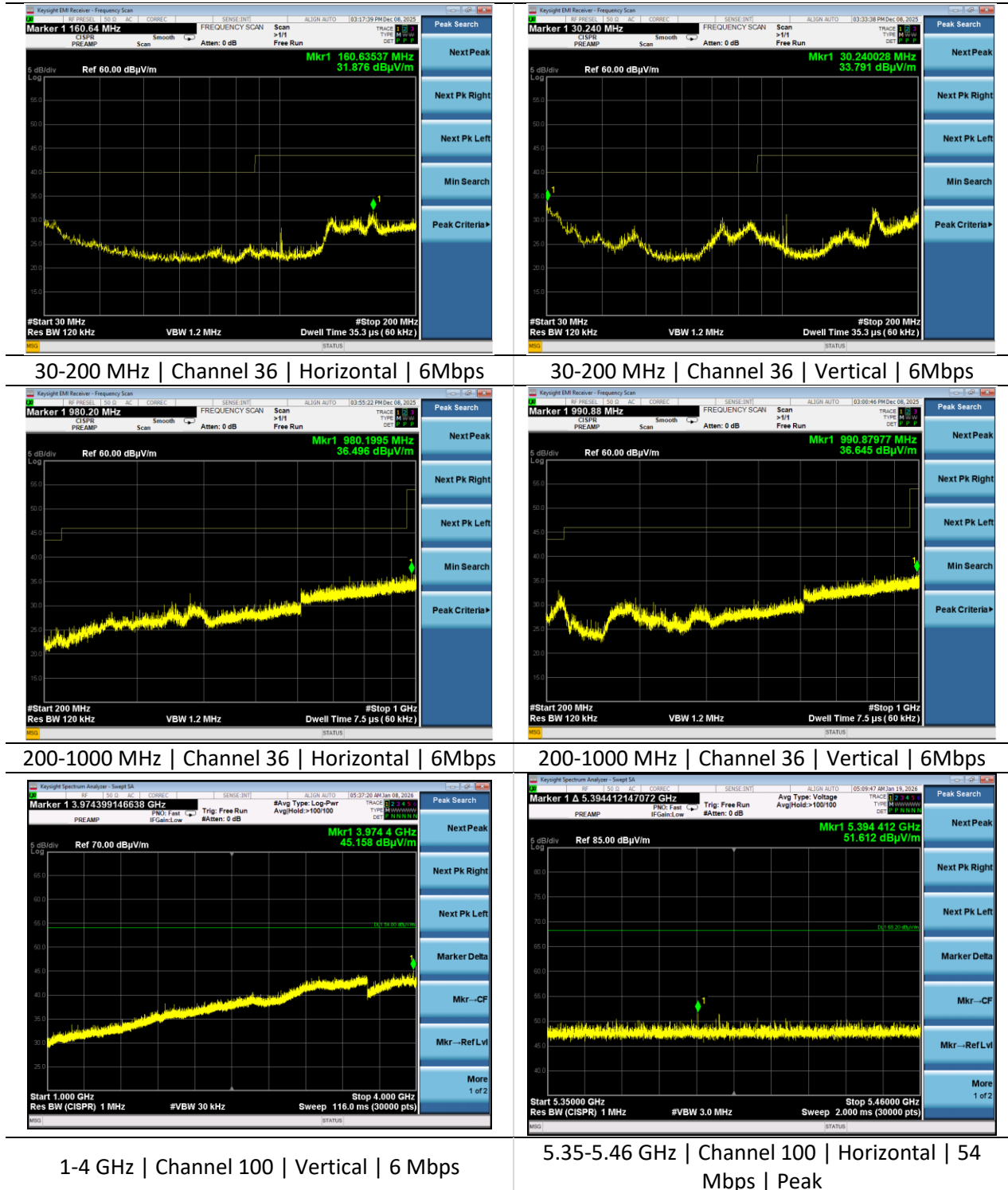
Above 1 GHz Table - Peak

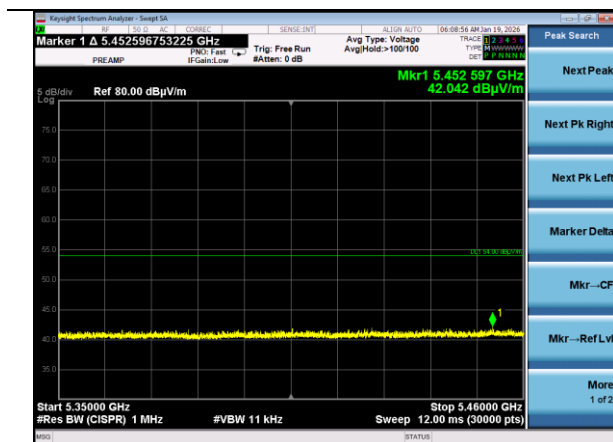
Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Channel
3927.4	H	150	200	52.7	68.2	15.5	100
3559.6	V	175	146	52.5	68.2	15.7	100
3537.0	V	150	135	52.1	68.2	16.1	116
3596.7	H	164	88	51.5	68.2	16.7	116
3569.9	H	150	289	53.2	68.2	15.0	140
3903.1	V	150	189	52.4	68.2	15.8	140
5447.5	H	119	127	51.2	74.0	22.8	100
5414.0	V	125	154	50.5	74.0	23.5	100
5441.3	V	125	154	51.4	74.0	22.6	100
5394.4	H	119	127	51.6	74.0	22.4	100
5452.4	V	125	154	50.4	74.0	23.6	100
5455.6	H	119	127	50.6	74.0	23.4	100
5429.0	H	119	127	50.6	74.0	23.4	100
5418.6	V	125	154	51.0	74.0	23.0	100
5452.3	V	120	134	51.2	74.0	22.8	102
5424.3	H	127	140	50.7	74.0	23.3	102
5459.6	H	127	140	51.4	74.0	22.6	102
5457.1	V	120	134	51.0	74.0	23.1	102
5369.5	H	127	140	51.0	74.0	23.0	102
5458.4	V	120	134	52.5	74.0	21.5	102
5454.7	V	120	134	51.6	74.0	22.4	102
5441.0	H	127	140	50.5	74.0	23.5	102
5433.1	H	127	140	50.6	74.0	23.4	102
5452.4	V	120	134	52.9	74.0	21.1	102
5427.9	H	245	153	51.0	74.0	23.0	120
5440.1	V	115	133	52.1	74.0	21.9	102
5455.0	V	115	133	51.6	74.0	22.4	102
5404.6	H	245	153	51.0	74.0	23.0	102
5384.1	H	245	153	51.6	74.0	22.4	106
5450.3	V	115	133	51.5	74.0	22.5	106

Above 1 GHz Table - Average

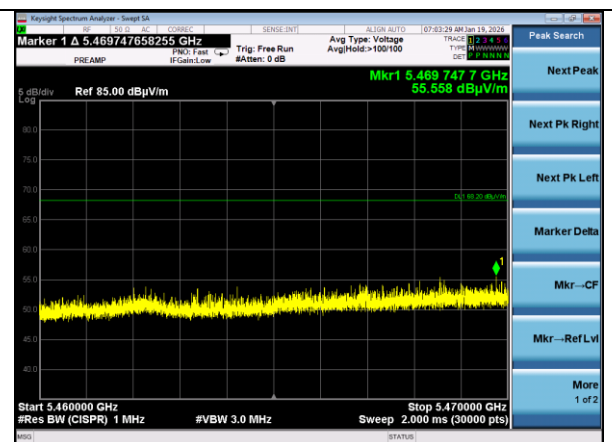
Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Average Reading (dB μ V/m)	Average Limit (dB μ V/m)	Average Margin (dB)	Channel
3887.7	H	150	200	39.3	54.0	14.7	100
3887.7	V	175	146	39.2	54.0	14.8	100
3885.4	V	150	135	39.1	54.0	14.9	116
3887.9	H	164	88	39.3	54.0	14.7	116
3887.3	H	150	289	39.4	54.0	14.6	140
3800.0	V	150	189	40.3	54.0	13.7	140
5448.0	H	119	127	39.3	54.0	14.7	100
5446.1	V	125	154	39.2	54.0	14.8	100
5457.2	V	125	154	41.0	54.0	13.0	100
5357.8	H	119	127	41.4	54.0	12.6	100
5456.1	V	125	154	41.2	54.0	12.8	100
5424.4	H	119	127	41.5	54.0	12.5	100
5424.2	H	119	127	39.4	54.0	14.6	100
5425.3	V	125	154	39.4	54.0	14.6	100
5452.6	V	120	134	42.0	54.0	12.0	102
5366.8	H	127	140	42.0	54.0	12.0	102
5361.0	H	127	140	40.0	54.0	14.0	102
5458.3	V	120	134	40.2	54.0	13.8	102
5417.8	H	127	140	43.4	54.0	10.6	102
5453.2	V	120	134	44.3	54.0	9.7	102
5453.8	V	120	134	42.8	54.0	11.2	102
5459.4	H	127	140	42.5	54.0	11.5	102
5398.2	H	127	140	40.0	54.0	14.0	102
5459.0	V	120	140	41.0	54.0	13.0	102
5427.6	H	245	153	43.0	54.0	11.0	102
5373.2	V	115	133	43.6	54.0	10.4	102
5453.5	V	115	133	43.0	54.0	11.0	102
5436.0	H	245	153	42.6	54.0	11.4	102
5415.7	H	245	153	40.5	54.0	13.5	106
5458.6	V	115	133	41.4	54.0	12.6	106

Plots

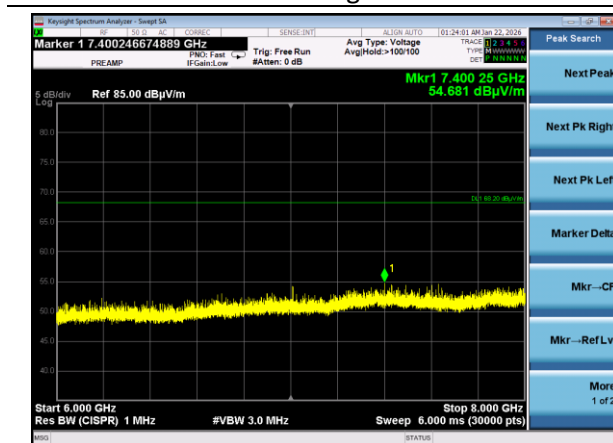




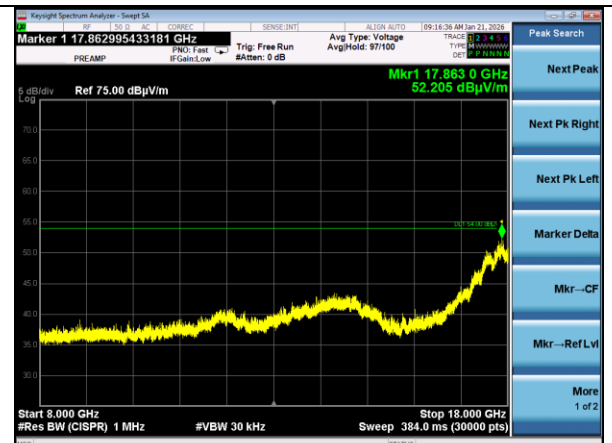
5.35-5.46 GHz | Channel 102 | Vertical | MCS7 |
Average



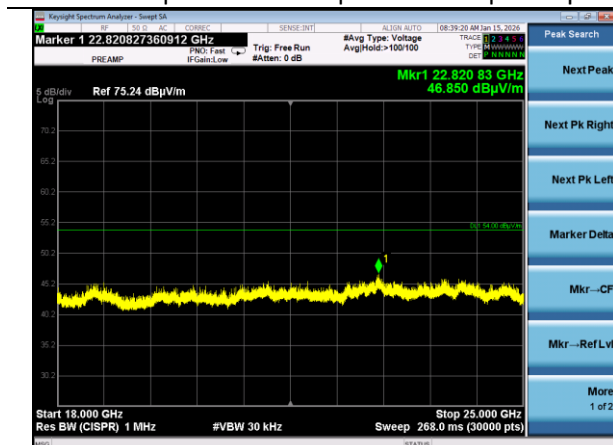
5.46-5.47 GHz | Channel 102 | Vertical | MCS7 |
Peak



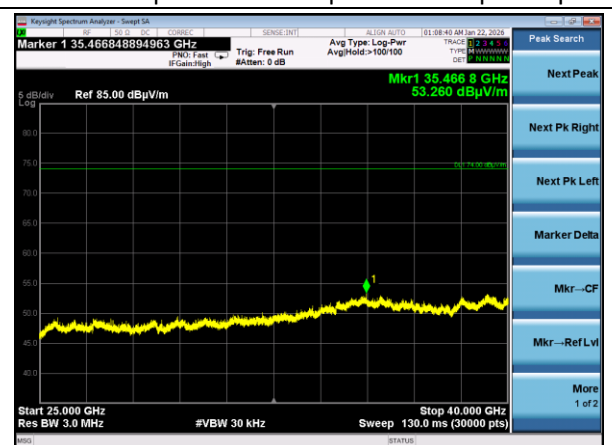
6-8 GHz | Channel 100 | Horizontal | 6 Mbps



8-18 GHz | Channel 100 | Horizontal | 6 Mbps



18-25 GHz | Channel 52 | Horizontal | 6 Mbps



25-40 GHz | Channel 36 | Horizontal | 6 Mbps

5.3 AC Mains Conducted Emissions

A line impedance stabilization network (LISN) or artificial mains network (AMN) allows the emissions of the power supply conductors to be measured while isolating the EUT from the supply mains.

Description of Measurement

The AMN, cable, and other necessary measurement system correction factors are loaded onto the EMI receiver when the measurements are performed. The data is gathered and reported as the corrected values.

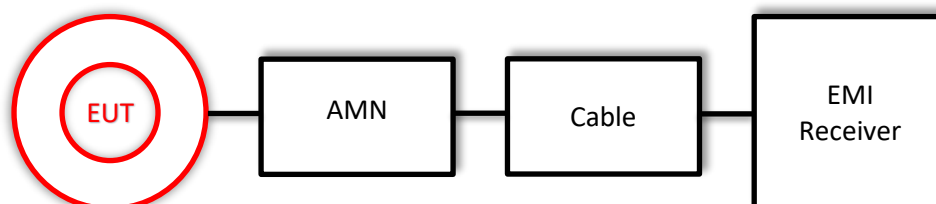
Maximum emissions are determined with a peak max hold trace then measurements at a selection of the highest points are made with quasi-peak and average detectors. Results are recorded and compared to limit for each line. (e.g. line and neutral)

Example Calculations

Measurement (dBμV) + Cable factor (dB) + Other (dB) = Corrected Reading (dBμV)

Margin (dB) = Limit (dBμV) - Corrected Reading (dBμV)

Block Diagram



5.3.1 AC Mains Conducted Emissions

Operator	Mitchell Freund	QA	Adam Alger
Temperature	20.7°C	R.H. %	39.9%
Test Date	2/10/2026	Location	Bench
Requirement	15.207	Method	ANSI C63.10

15.207 Limits:

Frequency	Quasi-Peak Limit (dBμV)	Average Limit (dBμV)
0.15 – 0.50	66.0-56.0*	56.0-46.0*
0.50 – 5	56.0	46.0
5 - 30	60.0	50.0

*Decreases with the logarithm of the frequency.

Test Parameters

Frequency	0.15-30 MHz	Distance	40 cm from wall 80 cm from LISN
Detector(s)	Peak, QP, Average	Table height	80 cm
RBW	9kHz	VBW	62kHz

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	4/1/2025	4/1/2026	Active Calibration
EE 960089	LISN	COM-POWER	LI-215A	191943	3/31/2025	3/31/2026	Active Calibration
LSC-214	Cable	Micro-Coax	UFB311A-0-1440-70U70U	64639 224071-006	1/29/2025	2/29/2026	Active Verification

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	Tx
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Table

Line	Frequency (MHz)	Peak Reading (dBμV)	Quasi-Peak Reading (dBμV)	Quasi-Peak Limit (dBμV)	Quasi-Peak Margin (dB)	Average Reading (dBμV)	Average Limit (dBμV)	Average Margin (dB)
L1	0.150	58.3	52.6	66.0	13.4	44.5	56.0	11.5
L1	0.176	55.4	49.4	64.6	15.3	44.6	54.6	10.0
L1	0.707	45.6	41.4	56.0	14.6	33.8	46.0	12.2
L2	0.150	62.0	51.8	66.0	14.2	44.6	56.0	11.4
L2	0.204	54.7	45.8	63.5	17.6	42.6	53.5	10.9
L2	0.707	45.3	41.9	56.0	14.1	33.6	46.0	12.4

Plots



6 REVISION HISTORY

Version	Date	Notes	Person
0.0	2/18/2026	Initial Draft	Mitchell Freund
1.0	4/1/2026	Revised Draft	Mitchell Freund
2.0	4/29/2026	CETECOM Comments Addressed	Mitchell Freund

END OF REPORT