
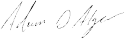



# TR3818-5G-B

<b>Equipment Under Test:</b>	SONA TI351
<b>Requirement(s):</b>	eCFR 47 Part 15.407   RSS-247
<b>Test Date(s):</b>	06/19/2024-10/01/2024
<b>Prepared for:</b>	Ezurio Attn: Brian Petted W66 N220 Commerce Ct. Cedarburg, WI 53012

<b>Report Issued by:</b> Dylan Rosenfeldt, EMC Engineer	
Signature: 	Date: 10/22/2024
<b>Report Reviewed by:</b> Adam Alger, Manager EMC Laboratory	
Signature: 	Date: 10/22/2024
<b>Report Constructed by:</b> Dylan Rosenfeldt, EMC Engineer	
Signature: 	Date: 10/22/2024

*This test report may not be reproduced, except in full, without approval of Ezurio*

Company: Ezurio	Page <b>1</b> of <b>64</b>	Name: SONA TI351
Report: TR3818-5G-B		Model: SONA TI351
Quote: C-3818		Serial: 00013   00008

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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*

Company: Ezurio	Page 3 of 64	Name: SONA TI351
Report: TR3818-5G-B		Model: SONA TI351
Quote: C-3818		Serial: 00013   00008

# 1 TEST REPORT SUMMARY

During **06/19/2024-10/01/2024** the Equipment Under Test (EUT), **SONA TI351**, as provided by Ezurio was tested to the following requirements:

## Operation in the 5.470-5.725 and 5.725-5.850 GHz bands

Requirements	Description	Method	Compliant
15.407(b)(3), (4), (9), & (10) 15.209 RSS-247 Clause 6.2.3 & 6.2.4 RSS-GEN	Spurious Radiated Emissions in Restricted Bands 30-40000 MHz	ANSI C63.10 12.7	Yes
15.407(a)(2) & (e) RSS-247 Clause 6.2.3 & 6.2.4	26dB and 6dB Emission Bandwidth and 99% Occupied Bandwidth	ANSI C63.10 12.5	Yes
15.407(a)(2) & (3) RSS-247 Clause 6.2.3 & 6.2.4	RF Output Power	ANSI C63.10 12.4	Yes
15.407(b)(3) & (4) RSS-247 Clause 6.2.3 & 6.2.4	Conducted Out-of-band Emissions	ANSI C63.10 12.7	Yes
15.407(a)(2)(3) RSS-247 Clause 6.2.3 & 6.2.4	Power Spectral Density	ANSI C63.10 12.6	Yes
15.407(b)(9) 15.207 RSS-GEN	AC Conducted Emissions	ANSI C63.10 6.2	Yes
15.407(g)	Frequency Stability	ANSI C63.10 6.8	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	0.5 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level



## 2 CLIENT INFORMATION

<b>Company Name</b>	Ezurio
<b>Contact Person</b>	Brian Petted
<b>Address</b>	W66 N220 Commerce Ct. Cedarburg, WI 53012

### 2.1 Equipment Under Test (EUT) Information

*The following information has been supplied by the client*

<b>Product Name</b>	SONA TI351
<b>Model Number</b>	SONA TI351
<b>Serial Number</b>	00013   00008
<b>FCC ID</b>	SQG-SONATI351
<b>IC ID</b>	3147A-SONATI351

### 2.2 Product Description

The TI351 is based upon TI CC3351 Wi-Fi 6 chipset. Feature-set includes 802.11 a/b/g/n/ac/ax Wi-Fi 6 and Bluetooth Low Energy v5.4.

### 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 EUT Information

Power Supply – INPUT:100-240VAC 50/60 Hz 0.3A

OUTPUT: 5VDC 2A

Firmware - image-imx8mp-evk-rdvk 1.0.0.5

## Ancillary Equipment

Development Kit, NXP 8MPLUS-BB

Power Supply: INPUT: 100-240 VAC 50/60Hz

OUTPUT: USB Type C 45W, 5V/3A; 9V/3A; 15V/3 A; 20V/2.25 A

HP Elitebook 840G1

TeraTerm Version: 5.1

## 2.6 Antenna Information

Manufacturer	Model	Part Number	Dimension	Type	Peak Gain (dBi)	
					2400-2500 MHz	4900-5925 MHz
Ezurio	FlexPIFA 6E	EFB2471A3S-10MH4L	16mm X 36mm X 2.5mm	PIFA	2.2	3.9
Ezurio	Mini NanoBlade Flex 6E	EMF2471A3S-10MH4L	36mm X 12mm X 0.3mm	PCB Dipole	2.4	4.4
Ezurio	FlexPIFA	001-0021	38.5mm X 12.7mm X 2.5mm	PIFA	2.5	3.0
Joymax Electronics	N/A	TWX-100BRS3B	137mm X 13mm	Dipole	2.0	4.0
Ezurio	FlexPIFA	EFB2455A3S-15MH4L	2.5mm X 38.6mm X 12.7mm	PIFA	2.5	3.0
Ezurio	Mini NanoBlade Flex	EMF2449A1-10MH4L	36mm x 12mm x 0.1mm	PIFA	2.8	3.4
Ezurio	NanoBlade	ENB2449A1-10MH4L	50.8mm x 16.5mm	PCB Dipole	3.2	4.1

## 2.7 Test Channels

Channel	Frequency (MHz)	Bandwidth (MHz)	Data Rates
36	5180	20	802.11a – 6 and 54 Mbps 802.11n – MCS0 and MCS7 802.11ac – MCS0 and MCS7 802.11ax – MCS0 and MCS7
40	5200	20	
48	5240	20	
52	5260	20	
56	5280	20	
64	5320	20	
100	5500	20	
116	5580	20	
144	5720	20	
157	5745	20	
161	5785	20	
165	5825	20	

## 2.8 Power Table and Reduced Video Bandwidth for Average Measurements

802.11	Channel BW (MHz)	Data Rate	Minimum Average VBW (Hz)
a	20	6 Mbps	211
a	20	54 Mbps	1838
n	20	MCS0	215
n	20	MCS7	545
ac	20	MCS0	215
ac	20	MCS7	543
ax	20	MCS0	217
ax	20	MCS7	545
ax RU26	20	MCS0	240
ax RU26	20	MCS7	2096
ax RU52	20	MCS0	474
ax RU52	20	MCS7	3663
ax RU106	20	MCS0	967
ax RU106	20	MCS7	6098
ax RU242	20	MCS0	2101
ax RU242	20	MCS7	9174

### 3 WORST CASE TEST RESULTS SUMMARY

#### UNII-2C

Requirement	Radio	Channel and Data Rate	Frequency (MHz)	Measurement	Limit	Margin
15.407(a)(5) RSS-247 Clause 6.2.1 26dB Bandwidth	802.11ax	116   MCS0	5580	21.40 MHz	0.500 MHz	20.90 MHz
15.407(a)(1) RSS-247 Clause 6.2.1 Output Power	802.11ac	116   MCS0	5580	15.1 dBm	24.0 dBm	9.1 dB
15.407(a)(1) RSS-247 Clause 6.2.1 PSD	802.11ax	116   MCS0 RU26	5580	8.6 dBm	11.0 dBm/MHz	2.1 dB
15.407(b)(1) RSS-247 Clause 6.2.1 Restricted Band	802.11ax	100   MCS0	5468.8	-28.7 dBm	-41.2 dBm	1.7dB

#### UNII-3

Requirement	Radio	Channel and Data Rate	Frequency (MHz)	Measurement	Limit	Margin
15.407(a)(5) RSS-247 Clause 6.2.1 26dB Bandwidth	802.11ax	157   MCS0 RU26	5785	2.06 MHz	0.500 MHz	1.56 MHz
15.407(a)(1) RSS-247 Clause 6.2.1 Output Power	802.11ac	165   MCS0	5850	15.0 dBm	30 dBm	15.0 dB
15.407(a)(1) RSS-247 Clause 6.2.1 PSD	802.11ax	165   MCS0 RU26	5850	5.3 dBm	30.0 dBm/500kHz	24.7 dB
15.407(b)(1) RSS-247 Clause 6.2.1 Restricted Band	802.11a	149   6 Mbps	7760.0	-44.3 dBm	-41.2 dBm	3.1 dB

## 4 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
FCC eCFR 47 Part 15	-	2024	-	-
ANSI C63.10	-	2020	-	-
RSS-247	3	2023	-	-
RSS-GEN	5	2018	2019	2021
KDB 558074 D01	-	2019	-	-

## 5 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

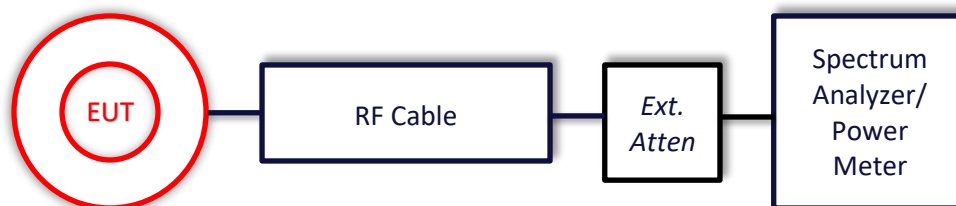
Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	$1 \times 10^{-7}$	$0.55 \times 10^{-7}$
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65°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

## 6 TEST DATA

### 6.1 Antenna Port Conducted Emissions

<b>Description of Measurement</b>	<p>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.</p> <p>The cable and attenuator factors are loaded into the analyzer or power meter allowing for direct measurement readings without the need for further corrections.</p>
<b>Example Calculations</b>	<p>Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm)</p> <p>Margin (dB) = Limit (dBm) – Corrected Reading (dBm)</p>

#### Block Diagram



### 6.1.1 26dB Emission Bandwidth and 99% Occupied Bandwidth

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	22.5°C-22.7°C	<b>R.H. %</b>	45.0%-59.2%
<b>Test Date</b>	7/2/2024   7/3/2024   7/8/2024	<b>Location</b>	Conducted RF Bench
<b>Requirement</b>	15.407(a)(2) & (e) RSS-247 Clause 6.2.3 & 6.2.4	<b>Method</b>	ANSI C63.10 12.5

**Limits:** UNII 2C (5500 – 5725 MHz): The minimum 26 dB bandwidth shall be at least 500 kHz

UNII 3 (5725 – 5825 MHz): The minimum 6 dB bandwidth shall be at least 500 kHz

#### Test Parameters

<b>Frequency</b>	5150-5350 MHz		
<b>RBW</b>	510 kHz	<b>VBW</b>	2MHz
<b>Detector(s)</b>	Peak	<b>Settings</b>	Max Hold

#### Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	6/13/2024	6/12/2025	Active Verification
EE 960088	Analyzer – EMI Receiver	Agilent	N9038A	MY51210138	4/10/2024	4/10/2025	Active Calibration
EE 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration

#### EUT Parameters

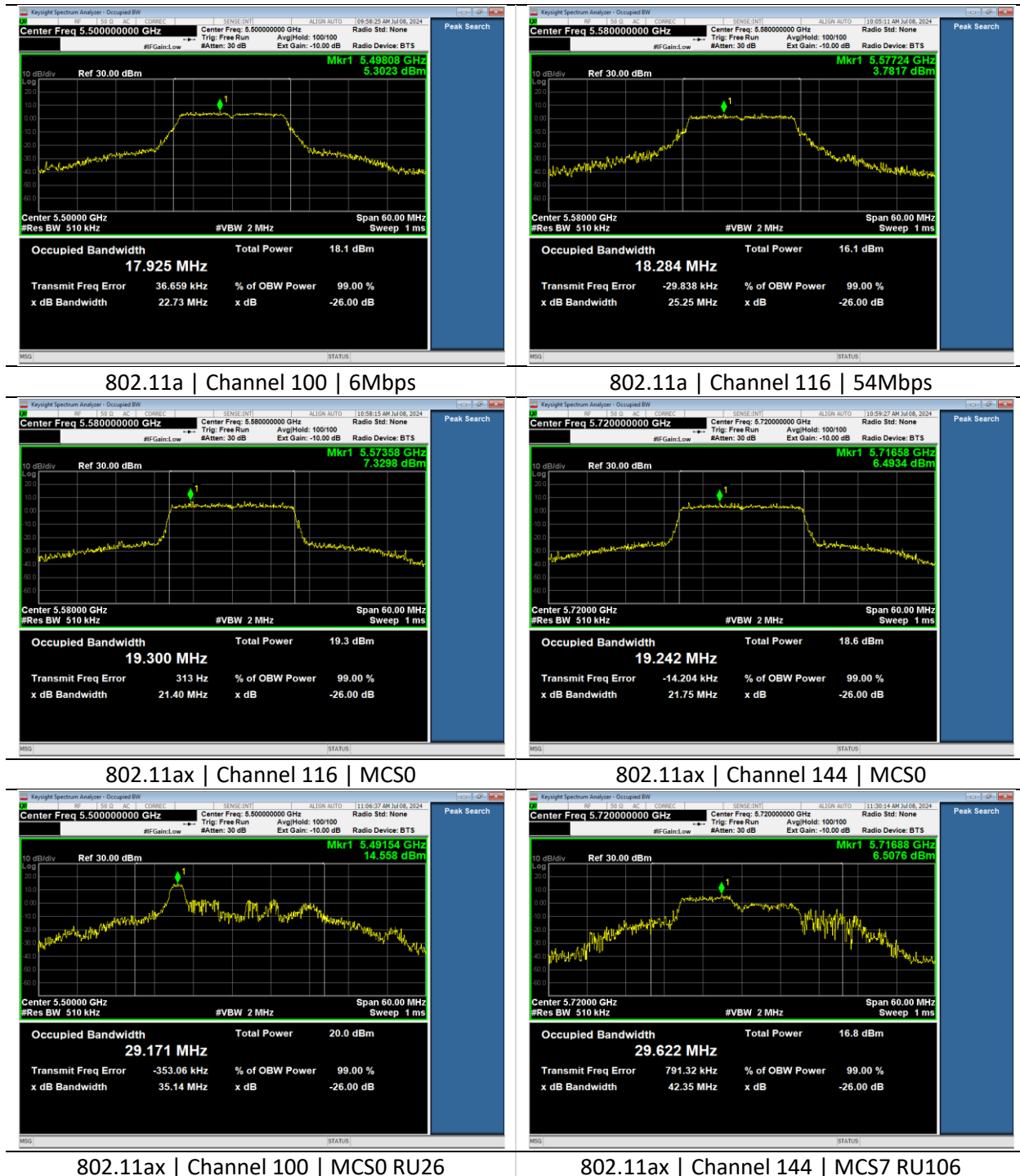
<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>Frequency</b>	5180-5825 MHz	<b>Channel</b>	See 2.8



## U-NII-2C Measurements

Channel	Mode	Data Rate	99% OBW (MHz)	26dB EBW (MHz)
100	802.11a	6M	17.925	22.73
116	802.11a	6M	17.842	22.98
144	802.11a	6M	17.999	22.97
100	802.11a	54M	18.194	24.71
116	802.11a	54M	18.284	25.25
144	802.11a	54M	18.103	24.69
100	802.11n	MCS0	18.375	22.31
116	802.11n	MCS0	18.375	22.43
144	802.11n	MCS0	18.344	22.21
100	802.11n	MCS7	18.587	25.27
116	802.11n	MCS7	18.605	27.13
144	802.11n	MCS7	18.677	25.77
100	802.11ac	MCS0	18.377	22.38
116	802.11ac	MCS0	18.354	22.03
144	802.11ac	MCS0	18.347	22.18
100	802.11ac	MCS7	18.669	24.91
116	802.11ac	MCS7	18.590	24.63
144	802.11ac	MCS7	18.597	24.62
100	802.11ax	MCS0	19.285	21.87
116	802.11ax	MCS0	19.300	21.40
144	802.11ax	MCS0	19.242	21.75
100	802.11ax	MCS7	19.392	25.45
116	802.11ax	MCS7	19.408	25.10
144	802.11ax	MCS7	19.403	25.05
100	802.11ax	MCS0 RU26	29.171	35.14
116	802.11ax	MCS0 RU26	28.535	33.70
144	802.11ax	MCS0 RU26	27.720	32.61
100	802.11ax	MCS7 RU26	28.238	36.15
116	802.11ax	MCS7 RU26	27.428	36.97
144	802.11ax	MCS7 RU26	27.970	36.24
100	802.11ax	MCS0 RU52	29.520	36.61
116	802.11ax	MCS0 RU52	28.874	37.82
144	802.11ax	MCS0 RU52	29.208	36.57
100	802.11ax	MCS7 RU52	27.428	37.40
116	802.11ax	MCS7 RU52	28.426	40.94
144	802.11ax	MCS7 RU52	28.511	36.27
100	802.11ax	MCS0 RU106	30.671	39.26
116	802.11ax	MCS0 RU106	31.451	41.85
144	802.11ax	MCS0 RU106	32.226	40.92
100	802.11ax	MCS7 RU106	30.268	41.48
116	802.11ax	MCS7 RU106	29.313	39.53
144	802.11ax	MCS7 RU106	29.622	42.35
100	802.11ax	MCS0 RU242	32.893	45.17
116	802.11ax	MCS0 RU242	32.366	44.72
144	802.11ax	MCS0 RU242	33.085	44.59
100	802.11ax	MCS7 RU242	32.055	42.69
116	802.11ax	MCS7 RU242	32.540	44.86
144	802.11ax	MCS7 RU242	32.085	44.15

## U-NII-2C Plots

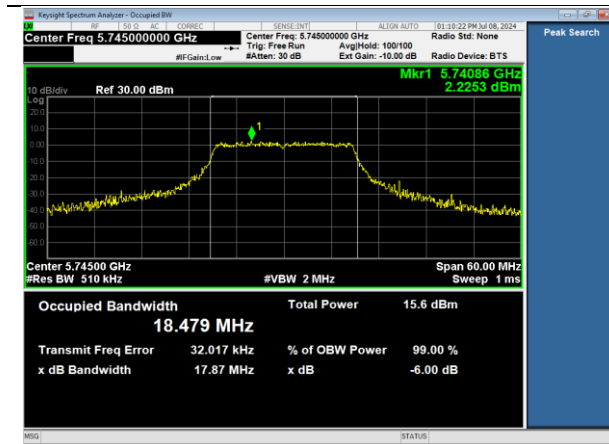


## U-NII-3 Measurements

Channel	Mode	Data Rate	99% OBW (MHz)	6dB EBW (MHz)
149	802.11a	6M	17.952	16.33
157	802.11a	6M	17.990	16.47
165	802.11a	6M	17.997	16.16
149	802.11a	54M	18.069	16.53
157	802.11a	54M	18.267	16.48
165	802.11a	54M	18.237	16.51
149	802.11n	MCS0	17.810	17.59
157	802.11n	MCS0	17.974	17.66
165	802.11n	MCS0	18.451	17.61
149	802.11n	MCS7	18.479	17.76
157	802.11n	MCS7	18.583	17.74
165	802.11n	MCS7	18.742	17.74
149	802.11ac	MCS0	18.317	17.75
157	802.11ac	MCS0	18.330	17.64
165	802.11ac	MCS0	18.352	17.56
149	802.11ac	MCS7	18.738	17.77
157	802.11ac	MCS7	18.665	17.81
165	802.11ac	MCS7	18.678	17.81
149	802.11ax	MCS0	19.273	18.84
157	802.11ax	MCS0	19.349	18.66
165	802.11ax	MCS0	19.334	18.99
149	802.11ax	MCS7	19.454	19.02
157	802.11ax	MCS7	19.382	19.11
165	802.11ax	MCS7	19.417	19.11
149	802.11ax	MCS0 RU26	29.534	2.09
157	802.11ax	MCS0 RU26	28.730	2.06
165	802.11ax	MCS0 RU26	27.681	2.12
149	802.11ax	MCS7 RU26	27.629	2.11
157	802.11ax	MCS7 RU26	27.149	2.12
165	802.11ax	MCS7 RU26	28.026	2.11
149	802.11ax	MCS0 RU52	29.119	13.34
157	802.11ax	MCS0 RU52	29.137	17.12
165	802.11ax	MCS0 RU52	28.999	17.03
149	802.11ax	MCS7 RU52	28.319	15.74
157	802.11ax	MCS7 RU52	27.546	17.08
165	802.11ax	MCS7 RU52	27.877	17.09
149	802.11ax	MCS0 RU106	30.873	17.17
157	802.11ax	MCS0 RU106	31.679	15.84
165	802.11ax	MCS0 RU106	32.016	15.95
149	802.11ax	MCS7 RU106	30.295	17.12
157	802.11ax	MCS7 RU106	30.668	17.17
165	802.11ax	MCS7 RU106	31.370	17.18
149	802.11ax	MCS0 RU242	33.677	19.03
157	802.11ax	MCS0 RU242	32.607	18.81
165	802.11ax	MCS0 RU242	32.190	18.46
149	802.11ax	MCS7 RU242	31.570	18.97
157	802.11ax	MCS7 RU242	31.113	19.09
165	802.11ax	MCS7 RU242	33.586	18.84

## U-NII-3 Plots 99% OBW

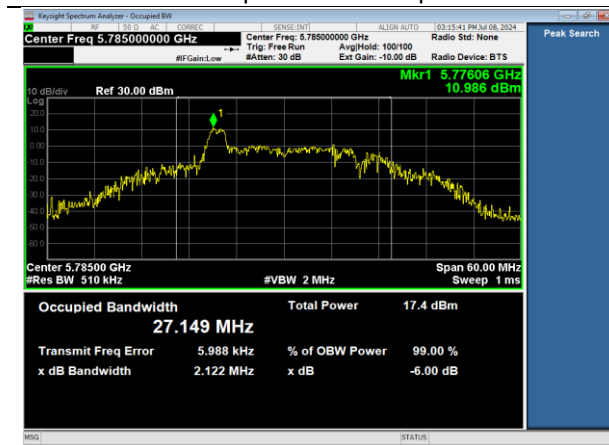
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Report: TR3818-5G-B		Model: SONA TI351
Quote: C-3818		Serial: 00013   00008



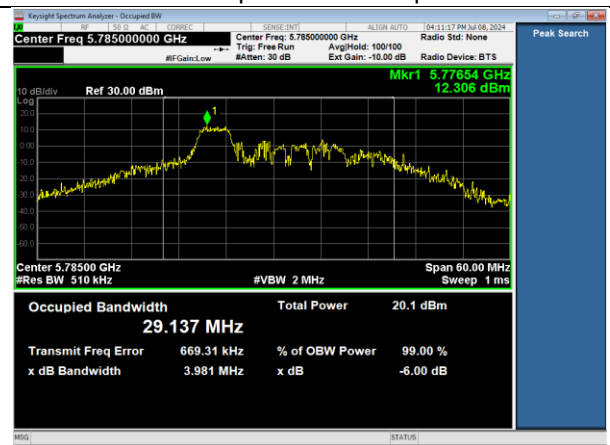
802.11n | Channel 149 | MCS7



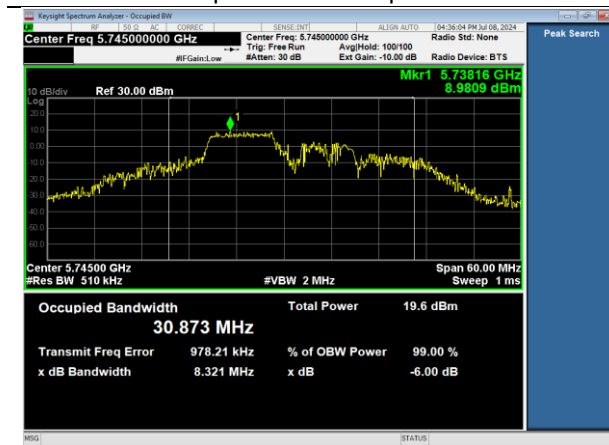
802.11ac | Channel 165 | MCS0



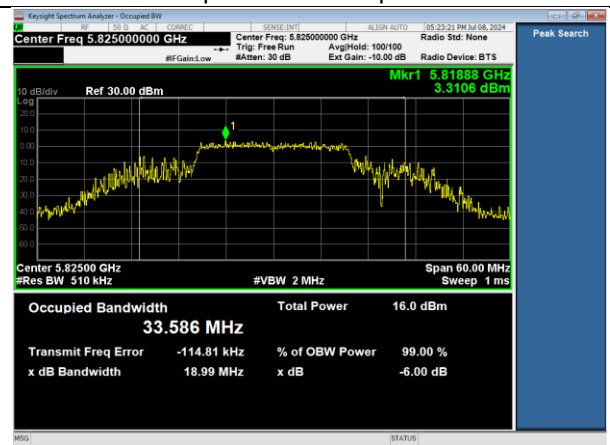
802.11ax | Channel 157 | MCS7 RU26



802.11ax | Channel 165 | MCS0 RU52

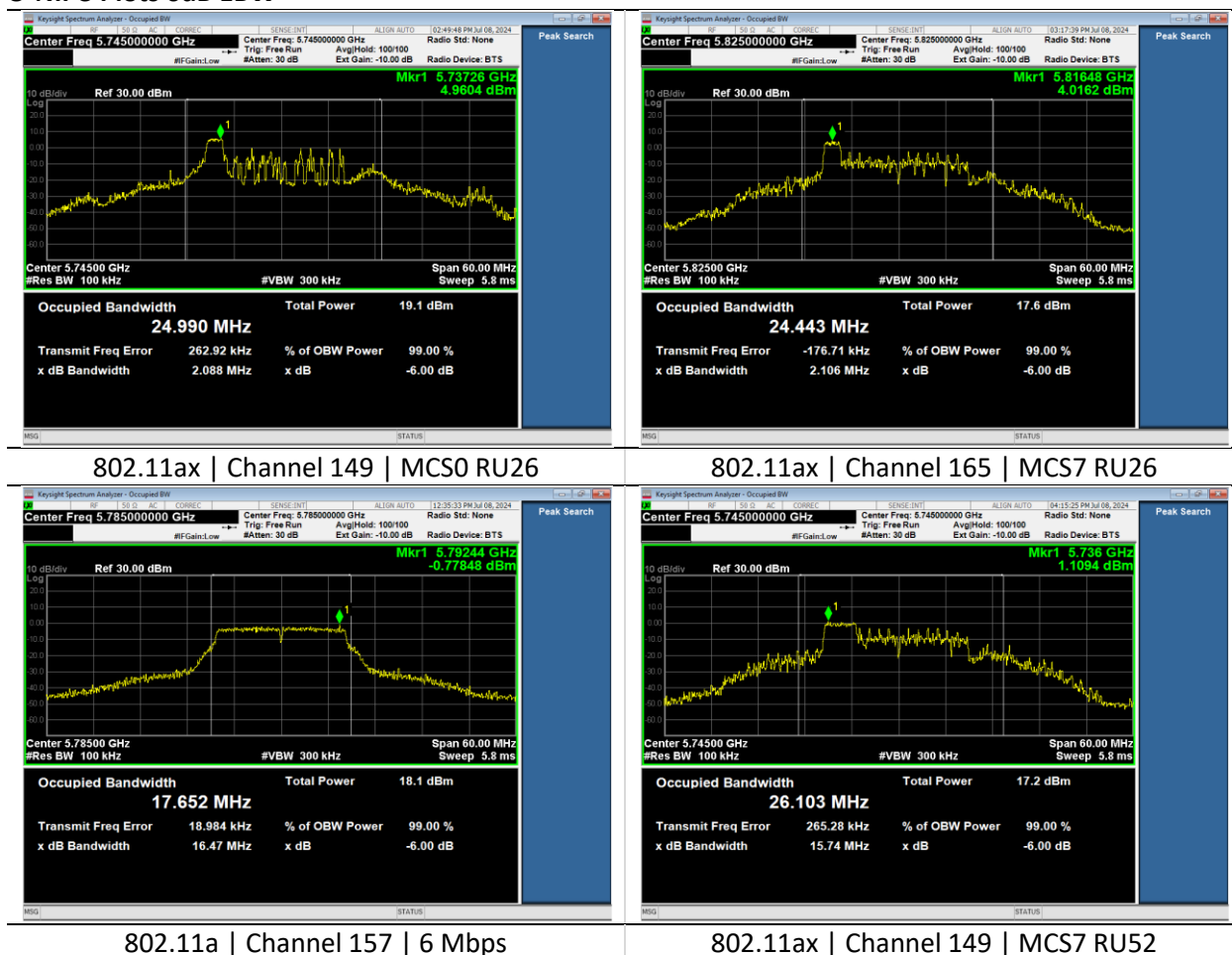


802.11ax | Channel 149 | MCS0 RU106



802.11ax | Channel 165 | MCS7 RU242

## U-NII-3 Plots 6dB EBW



## 6.1.2 RF Output Power

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	21.8°C-22.6°C	<b>R.H. %</b>	45.6%, 50.9%, 47.5%, 44.9%, 43.6%
<b>Test Date</b>	08/15/2024-08/21/2024	<b>Location</b>	RF Conducted Bench
<b>Requirement</b>	15.407(a)(2) & (3) RSS-247 Clause 6.2.3 & 6.2.4	<b>Method</b>	ANSI C63.10 12.4 AVGSA-2

**Limit:** UNII 2C (5500 – 5725 MHz): The maximum conducted output power of the intentional radiator shall not exceed 250 mW or 11dBm+10log(B), whichever is lower; where B is the 26dB emission bandwidth

UNII 3 (5725 – 5825 MHz): The maximum conducted output power of the intentional radiator shall not exceed 1W

### Test Parameters

<b>Frequency</b>	5470-5850 MHz	<b>Setup</b>	Antenna Port
<b>RBW</b>	1 MHz	<b>VBW</b>	3 MHz
<b>Detector(s)</b>	Average (RMS)	<b>Settings</b>	Trace Average Span: 30 MHz   50 MHz
<b>Example Calculations</b>	Average Output Power = Measured Power + 10*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	6/13/2024	6/12/2025	Active Verification
EE 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration

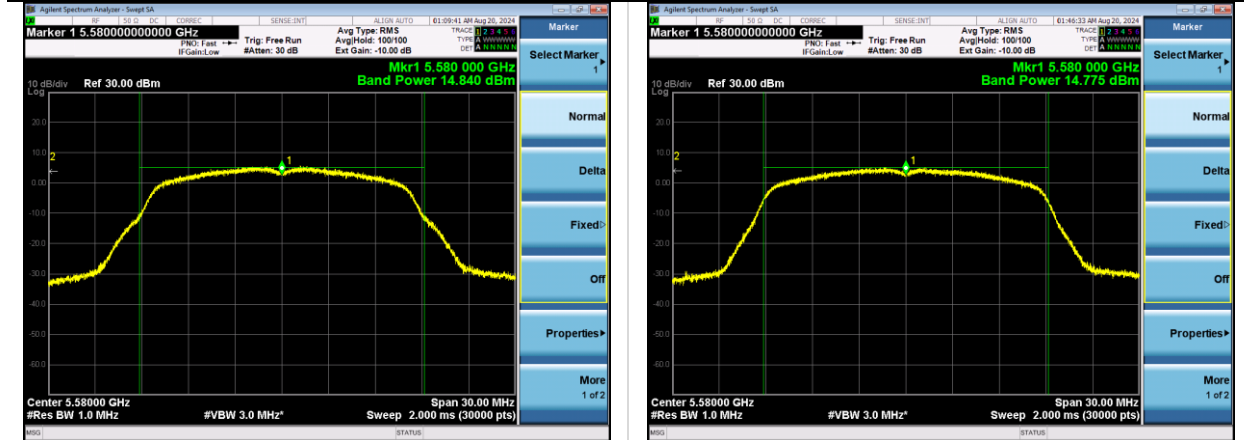
### EUT Parameters

<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>Frequency</b>	5500-5825 MHz	<b>Channel</b>	See 2.9

## U-NII-2C Measurements

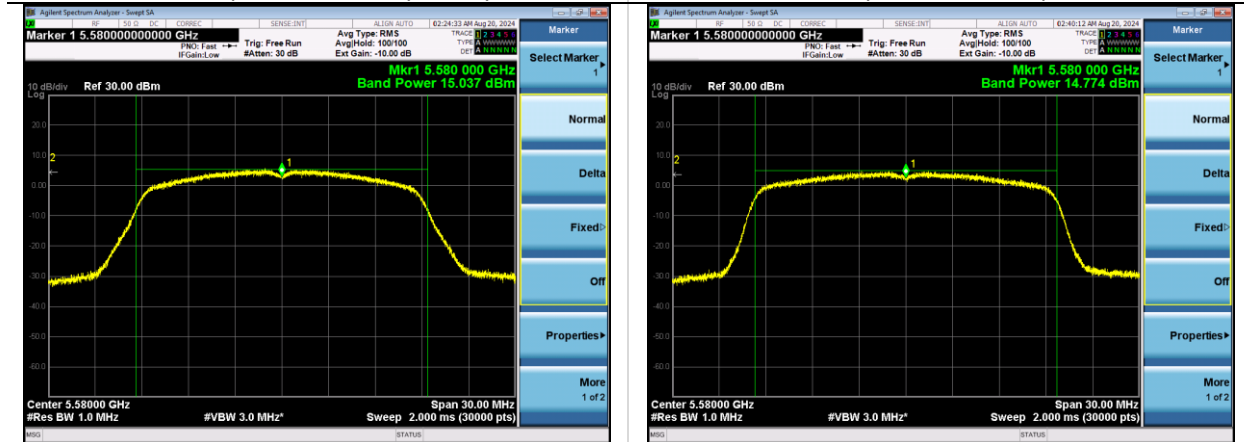
Mode	Rate	Channel	Average Output Power (dBm)	Duty Cycle Correction (dB)	Corrected Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6 Mbps	100	13.6	0.1	13.7	24	10.3	29
		116	14.8	0.1	14.9	24	9.1	30
		144	14.2	0.1	14.3	24	9.7	30
	54 Mbps	100	9.7	0.8	10.5	24	13.5	29
		116	10.0	0.8	10.8	24	13.2	30
		144	9.5	0.8	10.3	24	13.7	30
802.11n	MCS0	100	13.7	0.1	13.8	24	10.2	29
		116	14.8	0.1	14.9	24	9.1	30
		144	14.3	0.1	14.4	24	9.6	30
	MCS7	100	10.2	0.2	10.4	24	13.6	29
		116	10.4	0.2	10.6	24	13.4	30
		144	9.9	0.2	10.1	24	13.9	30
802.11ac	MCS0	100	13.8	0.1	13.9	24	10.1	29
		116	15.0	0.1	15.1	24	8.9	30
		144	14.4	0.1	14.5	24	9.5	30
	MCS8	100	10.1	0.2	10.3	24	13.7	29
		116	10.3	0.2	10.5	24	13.5	30
		144	9.9	0.2	10.1	24	13.9	30
802.11ax	MCS0	100	13.5	0.1	13.6	24	10.4	29
		116	14.8	0.1	14.9	24	9.1	30
		144	14.4	0.1	14.5	24	9.5	30
	MCS11	100	10.2	0.2	10.4	24	13.6	29
		116	10.3	0.2	10.5	24	13.5	30
		144	9.8	0.2	10.0	24	14.0	30
802.11ax	MCS0 RU26	100	8.2	0.3	8.5	24	15.5	23
		116	10.3	0.3	10.6	24	13.4	30
		144	9.8	0.3	10.1	24	13.9	30
	MCS7 RU26	100	7.0	1.7	8.7	24	15.3	23
		116	8.7	1.7	10.4	24	13.6	30
		144	8.4	1.7	10.1	24	13.9	30
802.11ax	MCS0 RU52	100	8.0	0.5	8.5	24	15.5	23
		116	10.2	0.5	10.7	24	13.3	30
		144	10.0	0.5	10.5	24	13.5	30
	MCS7 RU52	100	6.5	2.7	9.2	24	14.8	23
		116	8.2	2.7	10.9	24	13.1	30
		144	8.3	2.7	11.0	24	13.0	30
802.11ax	MCS0 RU106	100	8.1	0.9	9.0	24	15.0	23
		116	10.0	0.9	10.9	24	13.1	30
		144	9.6	0.9	10.5	24	13.5	30
	MCS7 RU106	100	5.1	3.9	9.0	24	15.0	23
		116	7.6	3.9	11.5	24	12.5	30
		144	7.2	3.9	11.1	24	12.9	30
802.11ax	MCS0 RU242	100	7.4	1.7	9.1	24	14.9	23
		116	9.3	1.7	11.0	24	13.0	30
		144	9.1	1.7	10.8	24	13.2	30
	MCS7 RU242	100	4.4	5.0	9.4	24	14.6	23
		116	6.6	5.0	11.6	24	12.4	30
		144	6.0	5.0	11.0	24	13.0	30

## U-NII-2C Plots



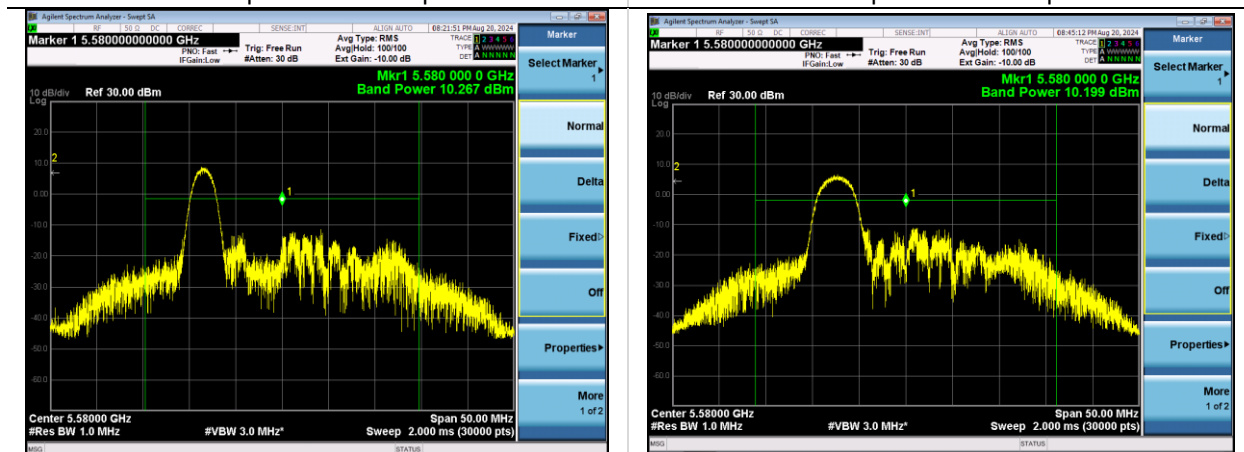
802.11a | Channel 116 | 6 Mbps

802.11n | Channel 116 | MCS0



802.11ac | Channel 116 | MCS0

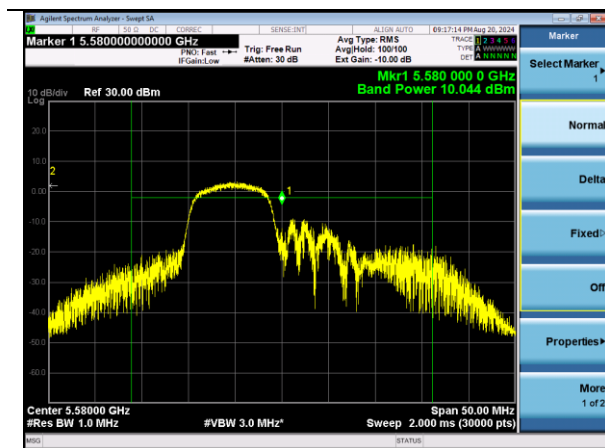
802.11ax | Channel 116 | MCS0



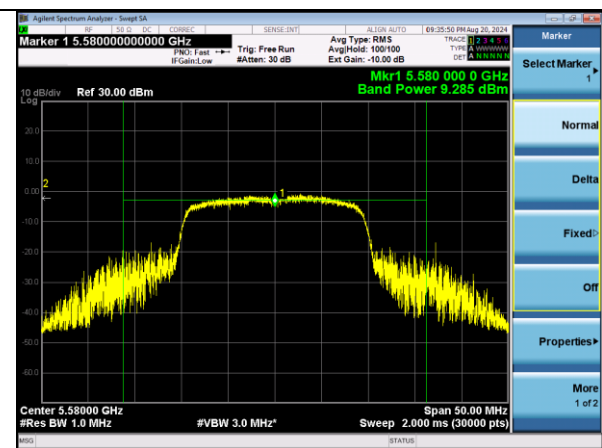
802.11ax | Channel 116 | MCS0 RU26

802.11ax | Channel 116 | MCS0 RU52





802.11ax | Channel 116 | MCS0 RU52

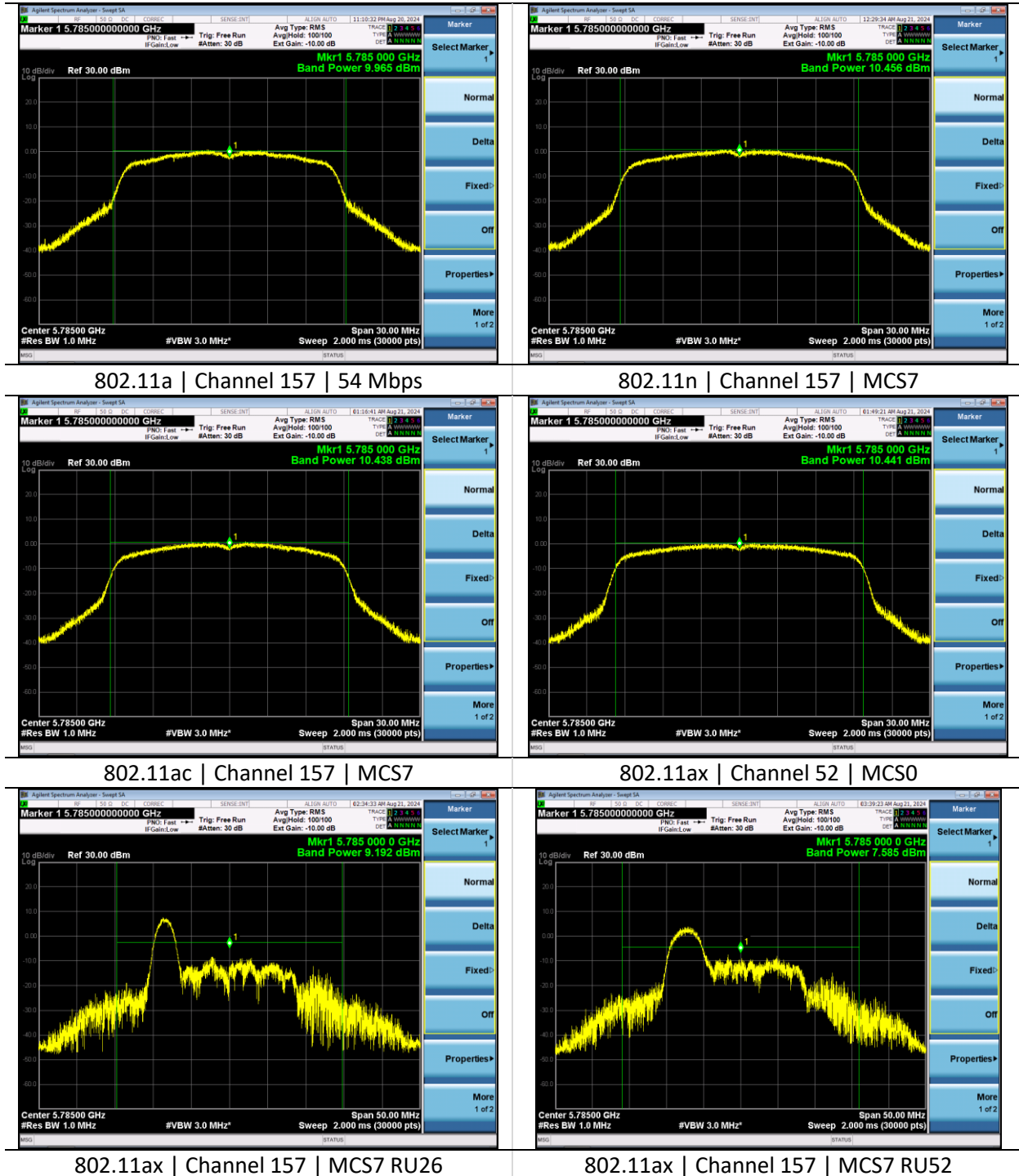


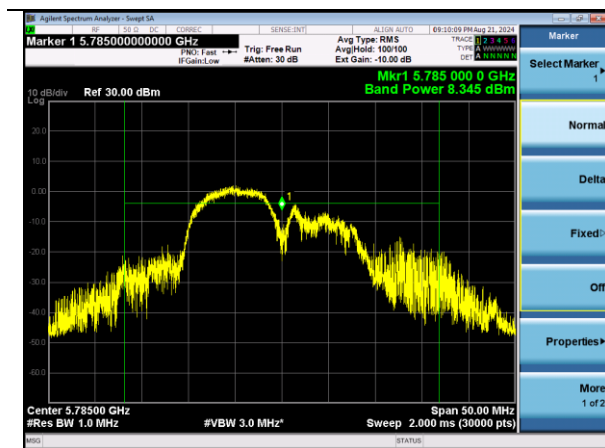
802.11ax | Channel 116 | MCS0 RU52

### U-NII-3 Measurements

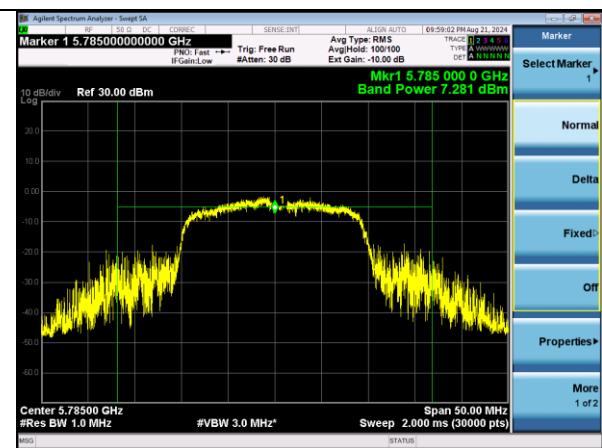
Mode	Rate	Channel	Average Output Power (dBm)	Duty Cycle Correction (dB)	Corrected Output Power (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6 Mbps	149	14.8	0.1	14.9	30	15.1	30
		157	14.9	0.1	15.0	30	15.0	30
		165	14.9	0.1	15.0	30	15.0	30
	54 Mbps	149	9.7	0.8	10.5	30	19.5	30
		157	10.0	0.8	10.8	30	19.2	30
		165	10.0	0.8	10.8	30	19.2	30
802.11n	MCS0	149	14.7	0.1	14.8	30	15.2	30
		157	14.9	0.1	15.0	30	15.0	30
		165	14.8	0.1	14.9	30	15.1	30
	MCS7	149	10.1	0.2	10.3	30	19.7	30
		157	10.5	0.2	10.7	30	19.3	30
		165	10.5	0.2	10.7	30	19.3	30
802.11ac	MCS0	149	14.5	0.1	14.6	30	15.4	30
		157	14.8	0.1	14.9	30	15.1	30
		165	14.9	0.1	15.0	30	15.0	30
	MCS7	149	10.0	0.2	10.2	30	19.8	30
		157	10.4	0.2	10.6	30	19.4	30
		165	10.4	0.2	10.6	30	19.4	30
802.11ax	MCS0	149	14.4	0.1	14.5	30	15.5	30
		157	14.8	0.1	14.9	30	15.1	30
		165	14.8	0.1	14.9	30	15.1	30
	MCS7	149	9.8	0.2	10.0	30	20.0	30
		157	10.4	0.2	10.6	30	19.4	30
		165	10.3	0.2	10.5	30	19.5	30
802.11ax	MCS0 RU26	149	9.9	0.3	10.2	30	19.8	30
		157	9.9	0.3	10.2	30	19.8	30
		165	10.0	0.3	10.3	30	19.7	30
	MCS7 RU26	149	8.9	1.7	10.6	30	19.4	30
		157	9.2	1.7	10.9	30	19.1	30
		165	9.4	1.7	11.1	30	18.9	30
802.11ax	MCS0 RU52	149	9.6	0.5	10.1	30	19.9	30
		157	9.8	0.5	10.3	30	19.7	30
		165	10.0	0.5	10.5	30	19.5	30
	MCS7 RU52	149	8.2	2.7	10.9	30	19.1	30
		157	7.6	2.7	10.3	30	19.7	30
		165	8.3	2.7	11.0	30	19.0	30
802.11ax	MCS0 RU106	149	10.3	0.9	11.2	30	18.8	30
		157	10.6	0.9	11.5	30	18.5	30
		165	10.5	0.9	11.4	30	18.6	30
	MCS7 RU106	149	7.8	3.9	11.7	30	18.3	30
		157	8.3	3.9	12.2	30	17.8	30
		165	8.3	3.9	12.2	30	17.8	30
802.11ax	MCS0 RU242	149	9.7	1.7	11.4	30	18.6	30
		157	10.0	1.7	11.7	30	18.3	30
		165	10.0	1.7	11.7	30	18.3	30
	MCS7 RU242	149	6.9	5.0	11.9	30	18.1	30
		157	7.3	5.0	12.3	30	17.7	30
		165	7.2	5.0	12.2	30	17.8	30

## U-NII-3 Plots





802.11ax | Channel 157 | MCS7 RU106



802.11ax | Channel 157 | MCS7 RU242

### 6.1.3 Power Spectral Density

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	21.8°C-22.6°C	<b>R.H. %</b>	43.6%-50.9%
<b>Test Date</b>	08/15/2024-08/21/2024	<b>Location</b>	RF Conducted Bench
<b>Requirement</b>	15.407(a)(2) & (3) RSS-247 Clause 6.2.3 & 6.2.4	<b>Method</b>	ANSI C63.10 12.6 AVGPSD-2

**Limits:** UNII 2C (5500 – 5725 MHz): Power spectral density shall not be greater than 11 dBm in any 1 MHz bandwidth.

UNII 3 (5725 – 5825 MHz): Power spectral density shall not be greater than 30 dBm in any 500 kHz bandwidth, or 26dB EBW, whichever is less.

#### Test Parameters

<b>Frequency</b>	5470-5850 MHz	<b>Detector(s)</b>	Average (RMS)
<b>RBW</b>	1 MHz	<b>VBW</b>	3 MHz
<b>Notes</b>	The same method of determining the conducted output power shall be used to determine the power spectral density		
<b>Example Calculations</b>	Average PSD = Measured PSD + 10*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	6/13/2024	6/12/2025	Active Verification
EE 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration

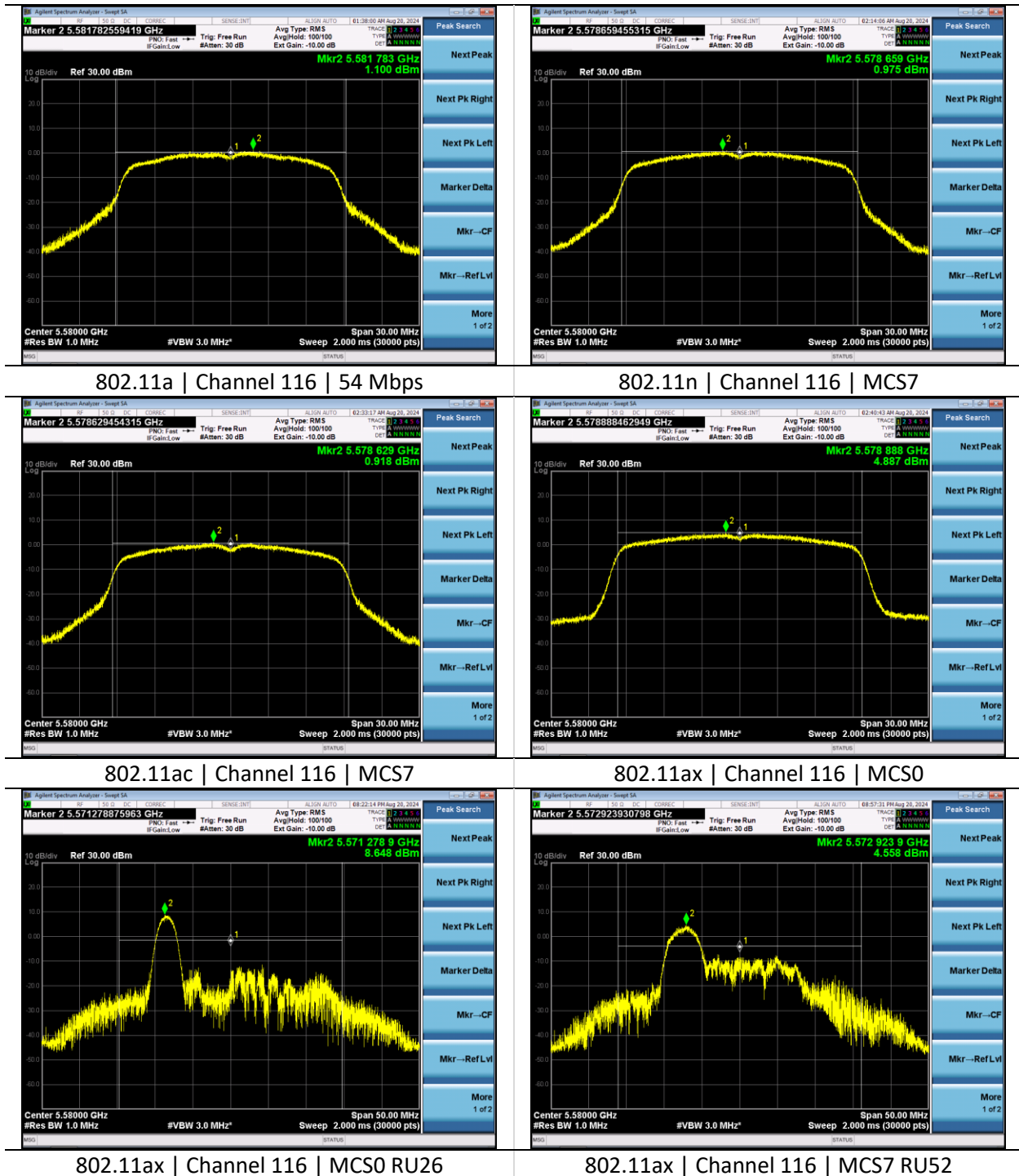
#### EUT Parameters

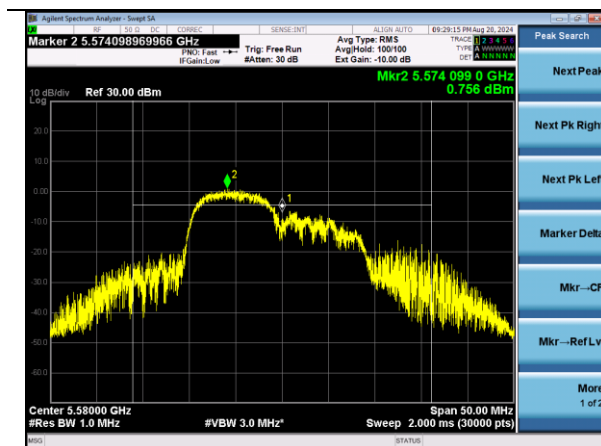
<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>Frequency</b>	5500-5850 MHz	<b>Channel</b>	See 2.9

## U-NII-2C Measurements

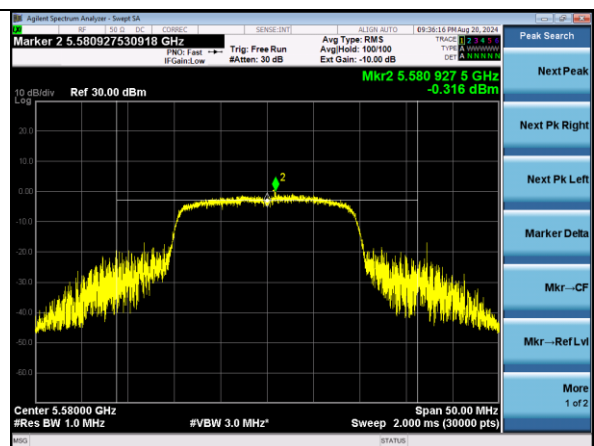
Mode	Rate	Channel	Average PSD (dBm)	Duty Cycle Correction (dB)	Corrected PSD (dBm)	Limit (dBm/MHz)	Margin (dB)	Power Setting
802.11a	6 Mbps	100	4.3	0.1	4.4	11	6.6	29
		116	5.7	0.1	5.8	11	5.2	30
		144	4.9	0.1	5.0	11	6.0	30
	54 Mbps	100	0.7	0.8	1.5	11	9.5	29
		116	1.1	0.8	1.9	11	9.1	30
		144	0.5	0.8	1.3	11	9.7	30
802.11n	MCS0	100	4.0	0.1	4.1	11	6.9	29
		116	5.2	0.1	5.3	11	5.7	30
		144	4.9	0.1	5.0	11	6.0	30
	MCS7	100	0.7	0.2	0.9	11	10.1	29
		116	1.0	0.2	1.2	11	9.8	30
		144	0.2	0.2	0.4	11	10.6	30
802.11ac	MCS0	100	4.2	0.1	4.3	11	6.7	29
		116	5.7	0.1	5.8	11	5.2	30
		144	5.0	0.1	5.1	11	5.9	30
	MCS7	100	0.5	0.2	0.7	11	10.3	29
		116	0.9	0.2	1.1	11	9.9	30
		144	0.5	0.2	0.7	11	10.3	30
802.11ax	MCS0	100	3.5	0.1	3.6	11	7.4	29
		116	4.9	0.1	5.0	11	6.0	30
		144	4.2	0.1	4.3	11	6.7	30
	MCS7	100	0.3	0.2	0.5	11	10.5	29
		116	0.4	0.2	0.6	11	10.4	30
		144	-0.2	0.2	0.0	11	11.0	30
802.11ax	MCS0 RU26	100	6.7	0.3	7.0	11	4.0	23
		116	8.6	0.3	8.9	11	2.1	30
		144	8.2	0.3	8.5	11	2.5	30
	MCS7 RU26	100	5.5	1.7	7.2	11	3.8	23
		116	6.9	1.7	8.6	11	2.4	30
		144	6.6	1.7	8.3	11	2.7	30
802.11ax	MCS0 RU52	100	4.3	0.5	4.8	11	6.2	23
		116	6.7	0.5	7.2	11	3.8	30
		144	6.2	0.5	6.7	11	4.3	30
	MCS7 RU52	100	2.9	2.7	5.6	11	5.4	23
		116	4.6	2.7	7.3	11	3.7	30
		144	4.5	2.7	7.2	11	3.8	30
802.11ax	MCS0 RU106	100	1.9	0.9	2.8	11	8.2	23
		116	3.2	0.9	4.1	11	6.9	30
		144	2.6	0.9	3.5	11	7.5	30
	MCS7 RU106	100	-2.0	3.9	1.9	11	9.1	23
		116	0.8	3.9	4.7	11	6.3	30
		144	0.1	3.9	4.0	11	7.0	30
802.11ax	MCS0 RU242	100	-2.3	1.7	-0.6	11	11.6	23
		116	-0.3	1.7	1.4	11	9.6	30
		144	-0.3	1.7	1.4	11	9.6	30
	MCS7 RU242	100	-4.1	5.0	0.9	11	10.1	23
		116	-2.0	5.0	3.0	11	8.0	30
		144	-2.3	5.0	2.7	11	8.3	30

## U-NII-2C Plots





802.11ax | Channel 116 | MCS7 RU106



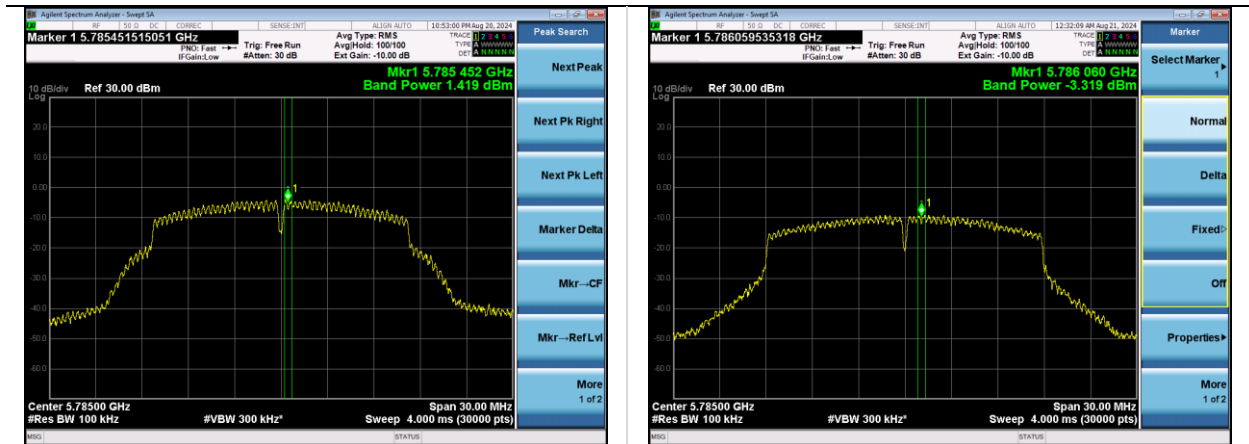
802.11ax | Channel 116 | MCS0 RU242



## U-NII-3 Measurements

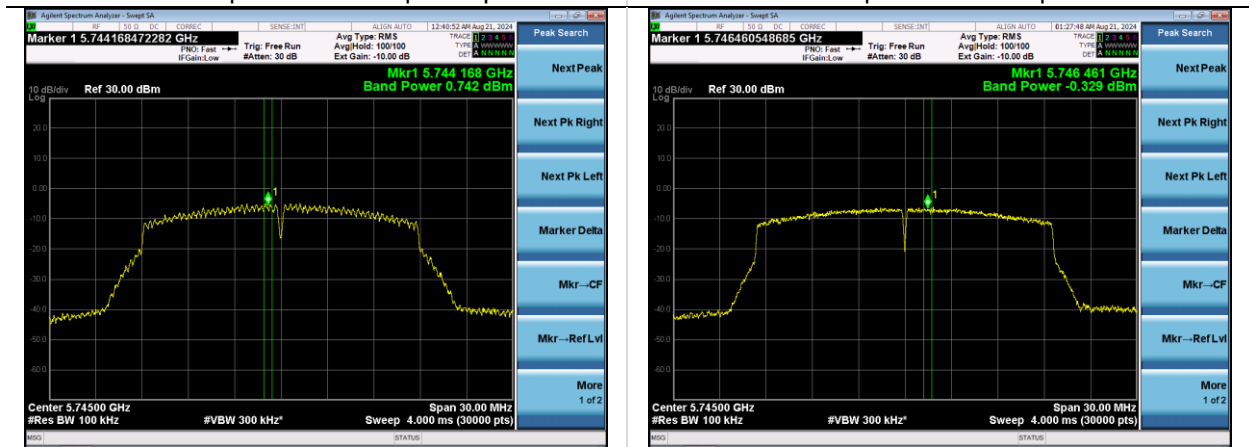
Mode	Rate	Channel	Average PSD (dBm)	Duty Cycle Correction (dB)	Corrected PSD (dBm)	Limit (dBm/500kHz)	Margin (dB)	Power Setting
802.11a	6 Mbps	149	0.5	0.1	0.6	30	29.4	30
		157	1.4	0.1	1.5	30	28.5	30
		165	1.0	0.1	1.1	30	28.9	30
	54 Mbps	149	-3.5	0.8	-2.7	30	32.7	30
		157	-3.5	0.8	-2.7	30	32.7	30
		165	-3.3	0.8	-2.5	30	32.5	30
802.11n	MCS0	149	0.9	0.1	1.0	30	29.0	30
		157	1.0	0.1	1.1	30	28.9	30
		165	1.1	0.1	1.2	30	28.8	30
	MCS7	149	-4.1	0.2	-3.9	30	33.9	30
		157	-3.3	0.2	-3.1	30	33.1	30
		165	-3.3	0.2	-3.1	30	33.1	30
802.11ac	MCS0	149	0.7	0.1	0.8	30	29.2	30
		157	1.1	0.1	1.2	30	28.8	30
		165	1.1	0.1	1.2	30	28.8	30
	MCS7	149	-3.8	0.2	-3.6	30	33.6	30
		157	-3.4	0.2	-3.2	30	33.2	30
		165	-3.6	0.2	-3.4	30	33.4	30
802.11ax	MCS0	149	-0.3	0.1	-0.2	30	30.2	30
		157	0.5	0.1	0.6	30	29.4	30
		165	0.4	0.1	0.5	30	29.5	30
	MCS7	149	-4.9	0.2	-4.7	30	34.7	30
		157	-4.2	0.2	-4.0	30	34.0	30
		165	-4.1	0.2	-3.9	30	33.9	30
802.11ax	MCS0 RU26	149	3.6	0.3	3.9	30	26.1	30
		157	4.8	0.3	5.1	30	24.9	30
		165	4.7	0.3	5.0	30	25.0	30
	MCS7 RU26	149	3.2	1.7	4.9	30	25.1	30
		157	3.2	1.7	4.9	30	25.1	30
		165	3.6	1.7	5.3	30	24.7	30
802.11ax	MCS0 RU52	149	1.4	0.5	1.9	30	28.1	30
		157	2.1	0.5	2.6	30	27.4	30
		165	2.2	0.5	2.7	30	27.3	30
	MCS7 RU52	149	-0.6	2.7	2.1	30	27.9	30
		157	-0.1	2.7	2.6	30	27.4	30
		165	-0.2	2.7	2.5	30	27.5	30
802.11ax	MCS0 RU106	149	-1.5	0.9	-0.6	30	30.6	30
		157	-0.7	0.9	0.2	30	29.8	30
		165	-0.9	0.9	0.0	30	30.0	30
	MCS7 RU106	149	-3.8	3.9	0.1	30	29.9	30
		157	-3.3	3.9	0.6	30	29.4	30
		165	-3.5	3.9	0.4	30	29.6	30
802.11ax	MCS0 RU242	149	-4.5	1.7	-2.8	30	32.8	30
		157	-4.0	1.7	-2.3	30	32.3	30
		165	-4.3	1.7	-2.6	30	32.6	30
	MCS7 RU242	149	-6.9	5.0	-1.9	30	31.9	30
		157	-6.4	5.0	-1.4	30	31.4	30
		165	-5.8	5.0	-0.8	30	30.8	30

## U-NII-3 Plots



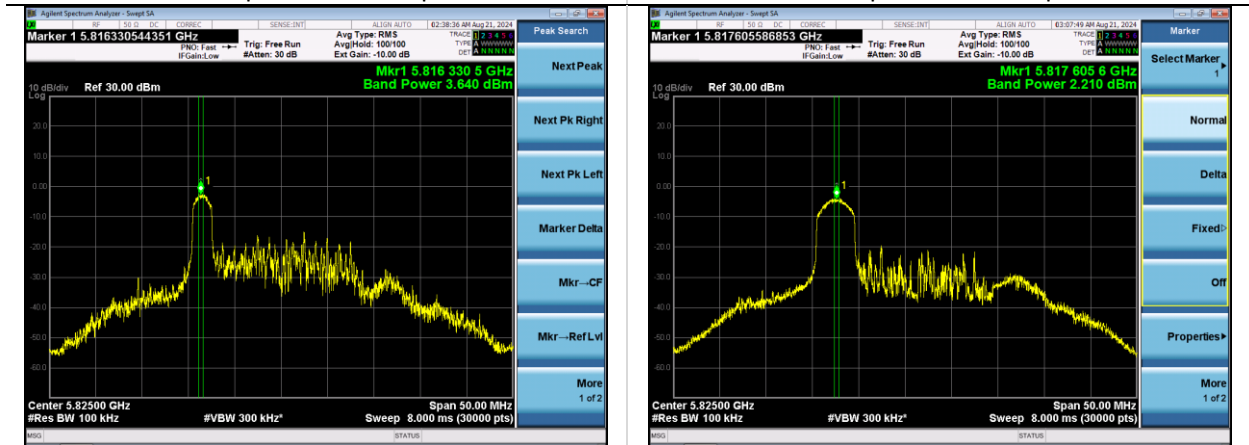
802.11a | Channel 157 | 6 Mbps

802.11n | Channel 157 | MCS7



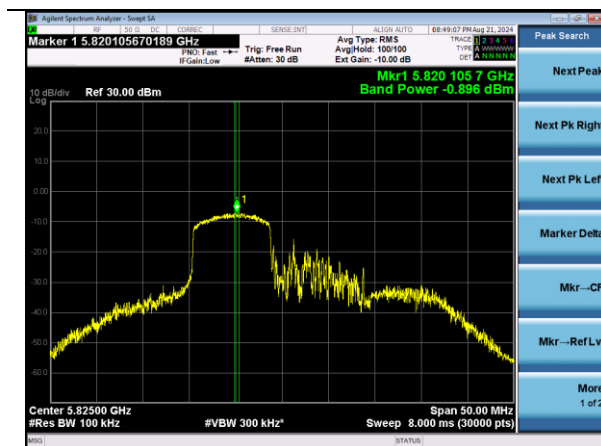
802.11ac | Channel 149 | MCS0

802.11ax | Channel 149 | MCS0

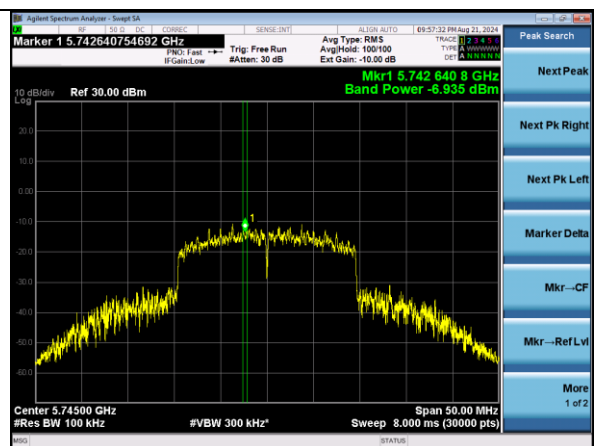


802.11ax | Channel 165 | MCS7 RU26

802.11ax | Channel 165 | MCS0 RU52



802.11ax | Channel 165 | MCS0 RU106



802.11ax | Channel 149 | MCS7 RU242

#### 6.1.4 Out of Band Emissions – Band Edge

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	22.4°C-23.2°C	<b>R.H. %</b>	43.4%-55.1%
<b>Test Date</b>	08/08/2024-08/14/2024	<b>Location</b>	Conducted RF Bench
<b>Requirement</b>	15.407(b)(3), (4), (9), & (10) RSS-247 Clause 6.2.3 & 6.2.4	<b>Method</b>	ANSI C63.10 12.7

**Limits:** For transmitters operating in the 5.47-5.725 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.

For transmitters operating in the 5.725-5.850 GHz Band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

#### 15.209 Limits:

Frequency (MHz)	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	74.0

#### Test Parameters

<b>Frequency</b>	30-40000 MHz	<b>Setup</b>	Antenna Port
<b>RBW</b>	1 MHz	<b>VBW</b>	3 MHz
<b>Detector(s)</b>	Peak and Average (RMS)		
<b>Notes</b>	Peak antenna gain 4.4 dBi		
<b>Example Calculations</b>	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	6/13/2024	6/12/2025	Active Verification
EE 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	4/10/2024	4/10/2025	Active Calibration

<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>Frequency</b>	5500-5850 MHz	<b>Channel</b>	See 2.9

## U-NII-2C Measurements – Lower Band Edge (5350-5460 MHz)

Mode	Rate	Channel	Measurement Type	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6	100	Peak	5455.2	-44.7	-40.3	-27.0	13.3	29
	Mbps	100	Average	5459.4	-55.3	-50.8	-41.2	9.6	29
	54	100	Peak	5458.7	-46.7	-42.3	-27.0	15.3	29
	Mbps	100	Average	5459.4	-57.9	-52.7	-41.2	11.5	29
802.11n	100	100	Peak	5459.6	-43.3	-38.9	-27.0	11.9	29
	MCS0	100	Average	5459.2	-54.8	-50.3	-41.2	9.1	29
	100	100	Peak	5459.2	-45.4	-41.0	-27.0	14.0	29
	MCS7	100	Average	5460.0	-56.3	-51.7	-41.2	10.5	29
802.11ac	100	100	Peak	5459.5	-43.3	-38.9	-27.0	11.9	29
	MCS0	100	Average	5459.8	-55.0	-50.5	-41.2	9.3	29
	100	100	Peak	5455.0	-47.2	-42.8	-27.0	15.8	29
	MCS7	100	Average	5458.1	-56.8	-52.2	-41.2	11.0	29
802.11ax	100	100	Peak	5459.9	-41.4	-37.0	-27.0	10.0	29
	MCS0	100	Average	5459.9	-53.4	-48.9	-41.2	7.7	29
	100	100	Peak	5457.7	-44.6	-40.2	-27.0	13.2	29
	MCS7	100	Average	5459.7	-56.0	-51.4	-41.2	10.2	29

Mode	Rate	Channel	Measurement Type	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11ax	MCS0	100	Peak	5459.4	-39.6	-35.2	-27.0	8.2	23
	RU26	100	Average	5411.7	-57.3	-52.6	-41.2	11.4	23
	MCS7	100	Peak	5456.7	-42.4	-38.0	-27.0	11.0	23
	RU26	100	Average	5459.7	-57.8	-51.7	-41.2	10.5	23
802.11ax	MCS0	100	Peak	5459.2	-42.1	-37.7	-27.0	10.7	23
	RU52	100	Average	5453.8	-58.8	-53.9	-41.2	12.7	23
	MCS7	100	Peak	5455.1	-42.4	-38.0	-27.0	11.0	23
	RU52	100	Average	5457.1	-59.5	-52.4	-41.2	11.2	23
802.11ax	MCS0	100	Peak	5457.1	-41.8	-37.4	-27.0	10.4	23
	RU106	100	Average	5459.4	-58.4	-53.1	-41.2	11.9	23
	MCS7	100	Peak	5459.3	-41.8	-37.4	-27.0	10.4	23
	RU106	100	Average	5457.1	-59.5	-51.2	-41.2	10.0	23
802.11ax	MCS0	100	Peak	5452.6	-42.6	-38.2	-27.0	11.2	23
	RU242	100	Average	5459.6	-56.4	-50.3	-41.2	9.1	23
	MCS7	100	Peak	5459.1	-38.2	-33.8	-27.0	6.8	23
	RU242	100	Average	5459.3	-59.0	-49.6	-41.2	8.4	23
802.11ax	MCS0	104	Peak	5459.9	-43.6	-39.2	-27.0	12.2	30
	RU26	104	Average	5431.6	-56.2	-51.5	-41.2	10.3	30
	MCS7	104	Peak	5455.9	-45.8	-41.4	-27.0	14.4	30
	RU26	104	Average	5431.5	-57.7	-51.6	-41.2	10.4	30
802.11ax	MCS0	104	Peak	5459.9	-46.1	-41.7	-27.0	14.7	30
	RU52	104	Average	5433.1	-58.4	-53.5	-41.2	12.3	30
	MCS7	104	Peak	5455.6	-44.9	-40.5	-27.0	13.5	30
	RU52	104	Average	5432.3	-59.4	-52.3	-41.2	11.1	30
802.11ax	MCS0	104	Peak	5421.2	-46.7	-42.3	-27.0	15.3	30
	RU106	104	Average	5433.7	-60.3	-55.0	-41.2	13.8	30
	MCS7	104	Peak	5421.5	-46.0	-41.6	-27.0	14.6	30
	RU106	104	Average	5435.1	-62.2	-53.9	-41.2	12.7	30
802.11ax	MCS0	104	Peak	5457.7	-43.4	-39.0	-27.0	12.0	30
	RU242	104	Average	5459.2	-60.6	-54.5	-41.2	13.3	30
	MCS7	104	Peak	5423.2	-45.5	-41.1	-27.0	14.1	30
	RU242	104	Average	5459.8	-61.8	-52.4	-41.2	11.2	30

## U-NII-2C Measurements – Lower Band Edge (5460-5470 MHz)

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6 Mbps	100	5469.9	-37.0	-32.6	-27.0	5.6	29
	54 Mbps	100	5467.3	-35.7	-31.3	-27.0	4.3	29
802.11n	MCS0	100	5468.0	-34.8	-30.4	-27.0	3.4	29
	MCS7	100	5467.5	-39.0	-34.6	-27.0	7.6	29
802.11ac	MCS0	100	5467.1	-36.0	-31.6	-27.0	4.6	29
	MCS7	100	5467.5	-38.1	-33.7	-27.0	6.7	29
802.11ax	MCS0	100	5468.8	-33.1	-28.7	-27.0	1.7	29
	MCS7	100	5468.4	-36.6	-32.2	-27.0	5.2	29
802.11a	6 Mbps	104	5466.9	-45.2	-40.8	-27.0	13.8	30
	54 Mbps	104	5468.6	-46.3	-41.9	-27.0	14.9	30
802.11n	MCS0	104	5469.5	-43.8	-39.4	-27.0	12.4	30
	MCS7	104	5469.7	-48.6	-44.2	-27.0	17.2	30
802.11ac	MCS0	104	5468.3	-44.5	-40.1	-27.0	13.1	30
	MCS7	104	5469.3	-48.6	-44.2	-27.0	17.2	30
802.11ax	MCS0	104	5469.8	-41.3	-36.9	-27.0	9.9	30
	MCS7	104	5468.6	-45.5	-41.1	-27.0	14.1	30

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11ax	MCS0 RU26	100	5469.7	-33.1	-28.7	-27.0	1.7	23
	MCS7 RU26	100	5469.9	-34.2	-29.8	-27.0	2.8	23
802.11ax	MCS0 RU52	100	5469.6	-36.0	-31.6	-27.0	4.6	23
	MCS7 RU52	100	5469.9	-36.0	-31.6	-27.0	4.6	23
802.11ax	MCS0 RU106	100	5469.0	-36.0	-31.6	-27.0	4.6	23
	MCS7 RU106	100	5469.1	-34.9	-30.5	-27.0	3.5	23
802.11ax	MCS0 RU242	100	5469.3	-37.4	-33.0	-27.0	6.0	23
	MCS7 RU242	100	5468.2	-35.7	-31.3	-27.0	4.3	23
802.11ax	MCS0 RU26	104	5466.0	-38.6	-34.2	-27.0	7.2	30
	MCS7 RU26	104	5469.7	-37.4	-33.0	-27.0	6.0	30
802.11ax	MCS0 RU52	104	5469.7	-35.9	-31.5	-27.0	4.5	26
	MCS7 RU52	104	5468.5	-39.4	-35.0	-27.0	8.0	26
802.11ax	MCS0 RU106	104	5469.3	-39.1	-34.7	-27.0	7.7	27
	MCS7 RU106	104	5469.4	-38.8	-34.4	-27.0	7.4	27
802.11ax	MCS0 RU242	104	5466.0	-40.5	-36.1	-27.0	9.1	28
	MCS7 RU242	104	5462.6	-38.9	-34.5	-27.0	7.5	28
802.11ax	MCS0 RU52	108	5466.5	-46.4	-42.0	-27.0	15.0	30
	MCS7 RU52	108	5466.3	-46.2	-41.8	-27.0	14.8	30
802.11ax	MCS0 RU106	108	5468.0	-48.1	-43.7	-27.0	16.7	30
	MCS7 RU106	108	5466.8	-46.4	-42.0	-27.0	15.0	30
802.11ax	MCS0 RU242	108	5469.2	-47.3	-42.9	-27.0	15.9	30
	MCS7 RU242	108	5465.1	-46.3	-41.9	-27.0	14.9	30

## U-NII-3 Measurements – Mask

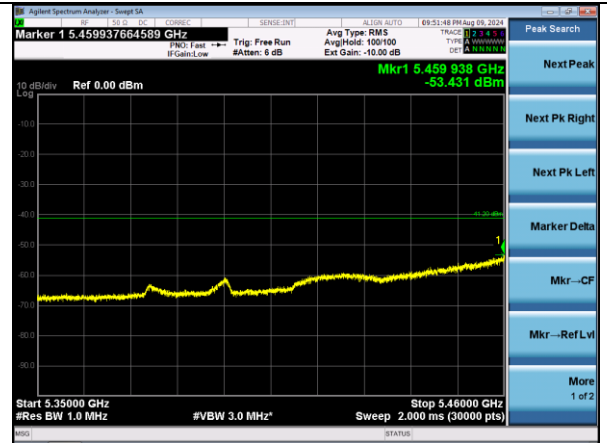
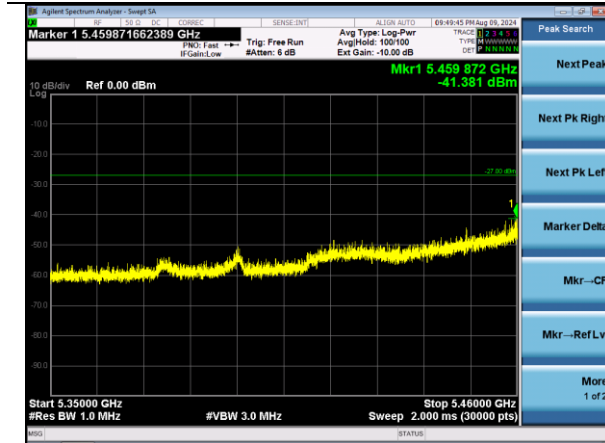
Mode	Rate	Channel	Measurement Type	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6 Mbps	149	Peak	5666.5	-47.3	-42.9	-14.8	28.1	30
		165	Peak	5851.1	-32.2	-27.8	24.5	52.3	30
	54 Mbps	149	Peak	5658.1	-51.5	-47.1	-21.0	26.1	30
		165	Peak	5902.9	-48.0	-43.6	-10.6	33.0	30
802.11n	MCS0	149	Peak	5665.8	-47.2	-42.8	-15.3	27.5	30
		165	Peak	5901.0	-46.1	-41.7	-9.2	32.5	30
	MCS7	149	Peak	5706.9	-38.2	-33.8	11.9	45.7	30
		165	Peak	5902.9	-50.1	-45.7	-10.6	35.1	30
802.11ac	MCS0	149	Peak	5724.6	-25.7	-21.3	26.1	47.4	30
		165	Peak	5912.9	-48.6	-44.2	-18.0	26.2	30
	MCS7	149	Peak	5688.8	-46.5	-42.1	1.7	43.8	30
		165	Peak	5904.7	-49.4	-45.0	-12.0	33.0	30
802.11ax	MCS0	149	Peak	5667.6	-47.2	-42.8	-14.0	28.8	30
		165	Peak	5900.3	-46.0	-41.6	-8.7	32.9	30
	MCS7	149	Peak	5670.3	-49.1	-44.7	-12.0	32.7	30
		165	Peak	5904.7	-49.2	-44.8	-12.0	32.8	30

Mode	Rate	Channel	Measurement Type	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)	Power Setting
802.11a	6 Mbps	149	Peak	5723.9	-12.4	-8.0	24.5	32.5	30
		165	Peak	5913.1	-43.8	-39.4	-18.2	21.2	30
	54 Mbps	149	Peak	5656.3	-45.0	-40.6	-22.3	18.3	30
		165	Peak	5913.4	-44.5	-40.1	-18.4	21.7	30
802.11n	MCS0	149	Peak	5724.9	-11.2	-6.8	26.8	33.6	30
		165	Peak	5912.8	-46.2	-41.8	-18.0	23.8	30
	MCS7	149	Peak	5723.7	-9.7	-5.3	24.0	29.3	30
		165	Peak	5913.1	-46.4	-42.0	-18.2	23.8	30
802.11ac	MCS0	149	Peak	5660.7	-48.4	-44.0	-19.1	24.9	30
		165	Peak	5850.0	-25.5	-21.1	27.0	48.1	30
	MCS7	149	Peak	5659.7	-47.7	-43.3	-19.8	23.5	30
		165	Peak	5851.3	-23.7	-19.3	24.0	43.3	30
802.11ax	MCS0	149	Peak	5662.1	-49.6	-45.2	-18.0	27.2	30
		165	Peak	5924.0	-50.7	-46.3	-26.3	20.0	30
	MCS7	149	Peak	5724.2	-8.5	-4.1	25.2	29.3	30
		165	Peak	5906.2	-48.3	-43.9	-13.1	30.8	30

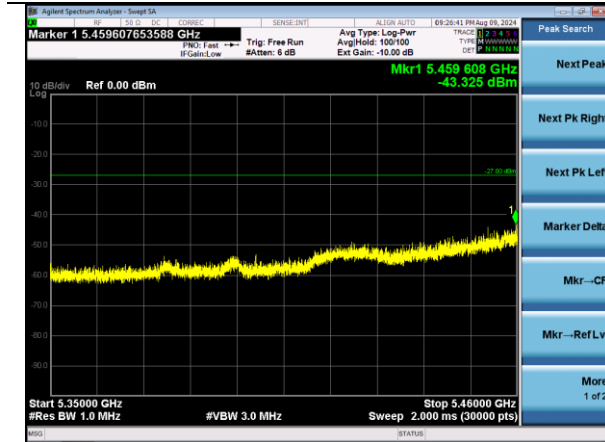


# Worst Case Plots UNII-2C

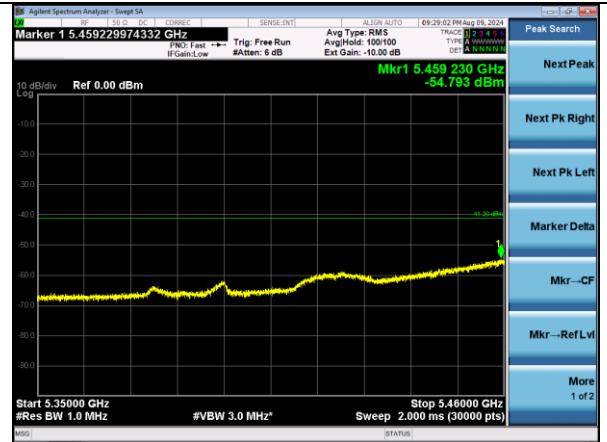
## 5350-5460 MHz



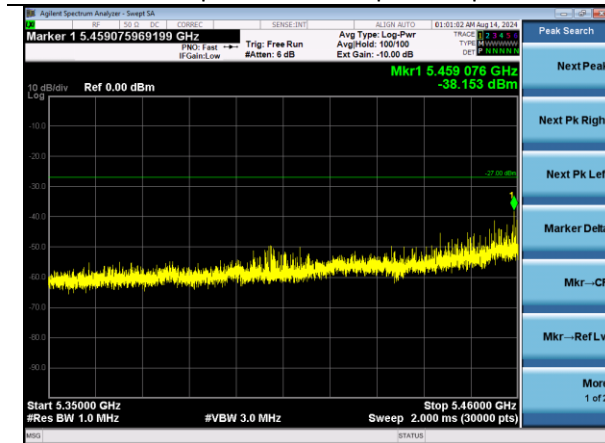
## 802.11ax | Channel 100 | MCS0 | Peak



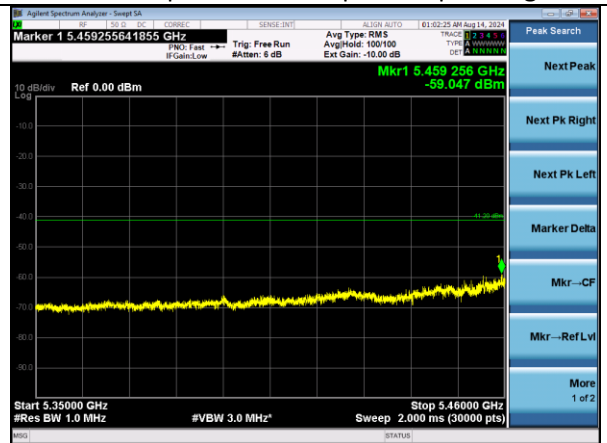
## 802.11ax | Channel 100 | MCS0 | Average



## 802.11n | Channel 100 | MCS0 | Peak

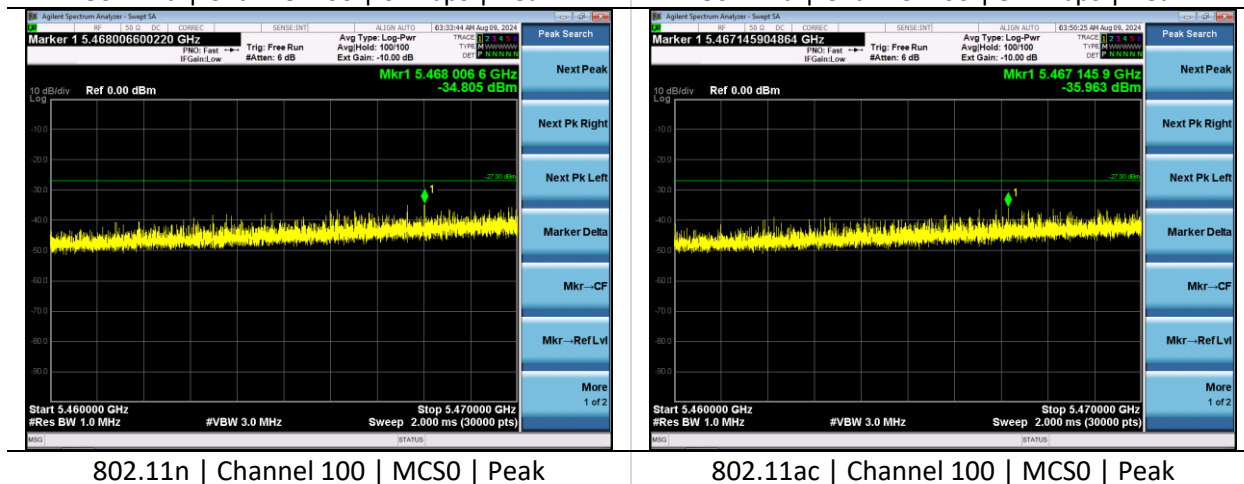
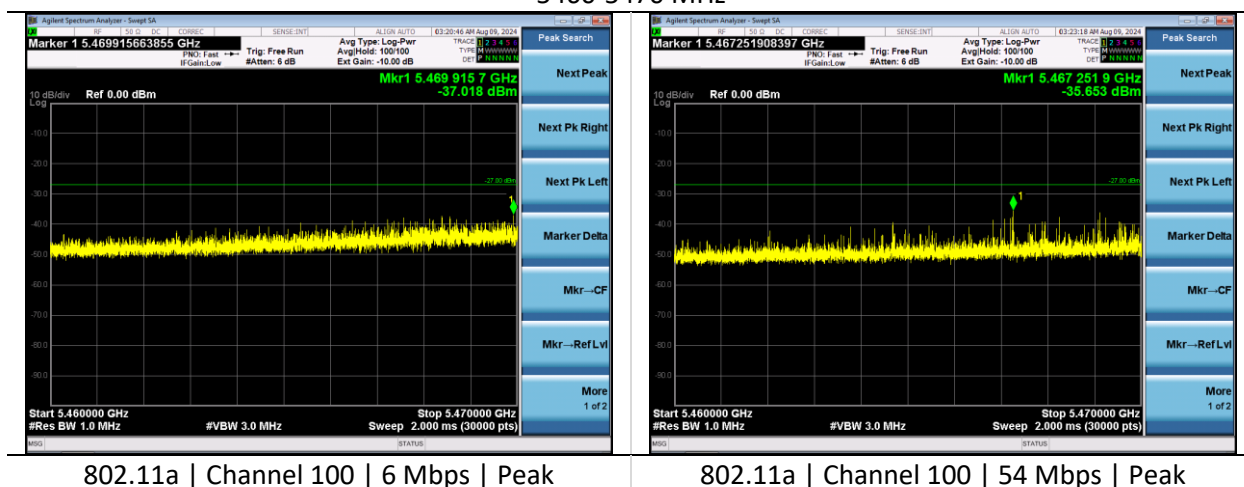
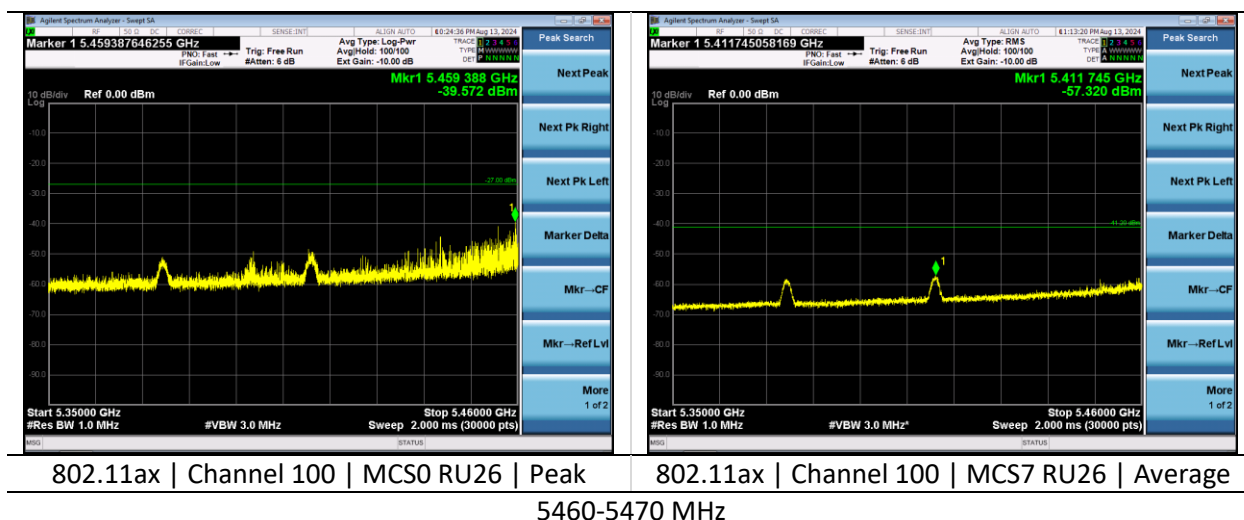


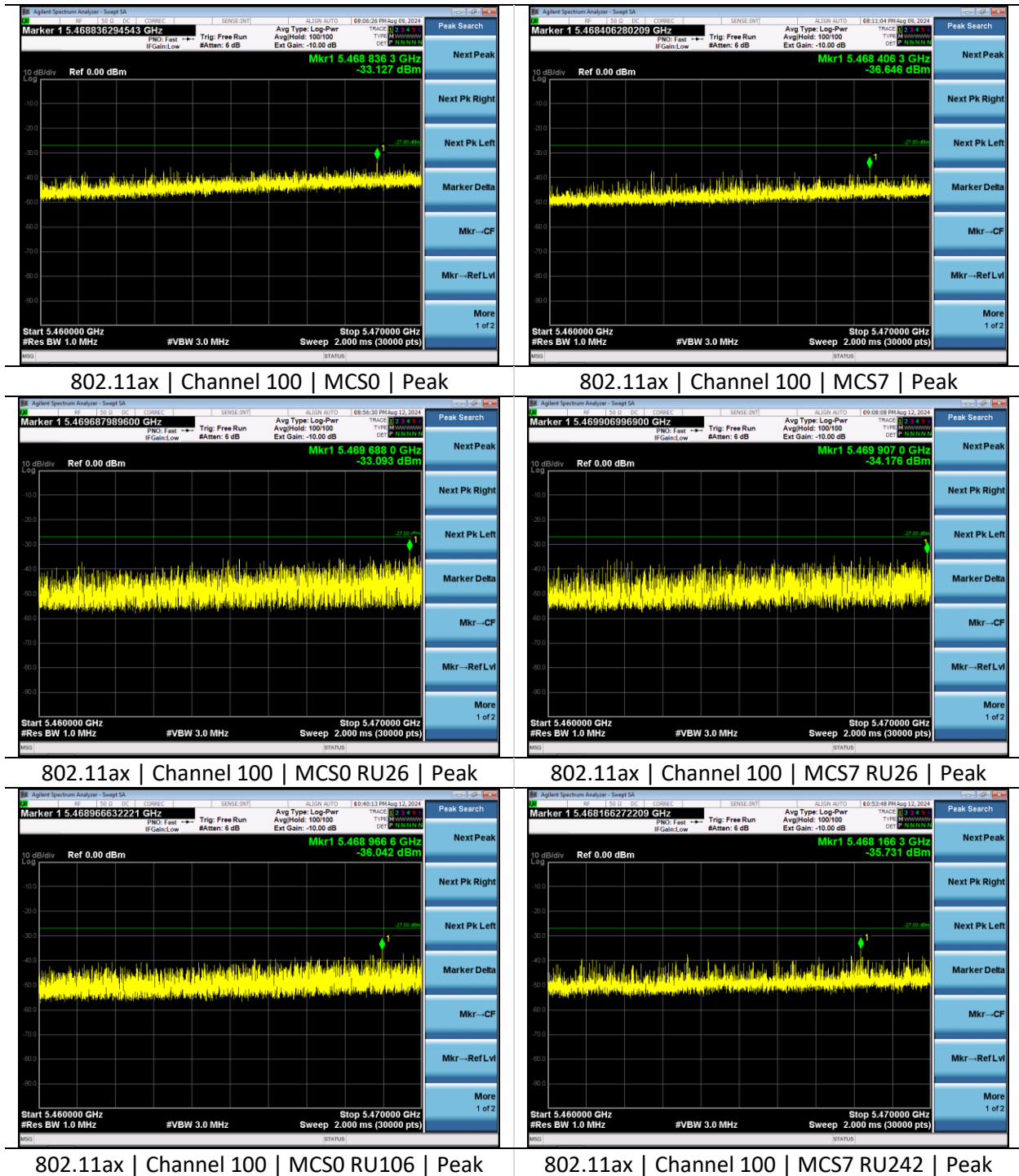
## 802.11n | Channel 100 | MCS0 | Average



## 802.11ax | Channel 100 | MCS7 RU242 | Peak

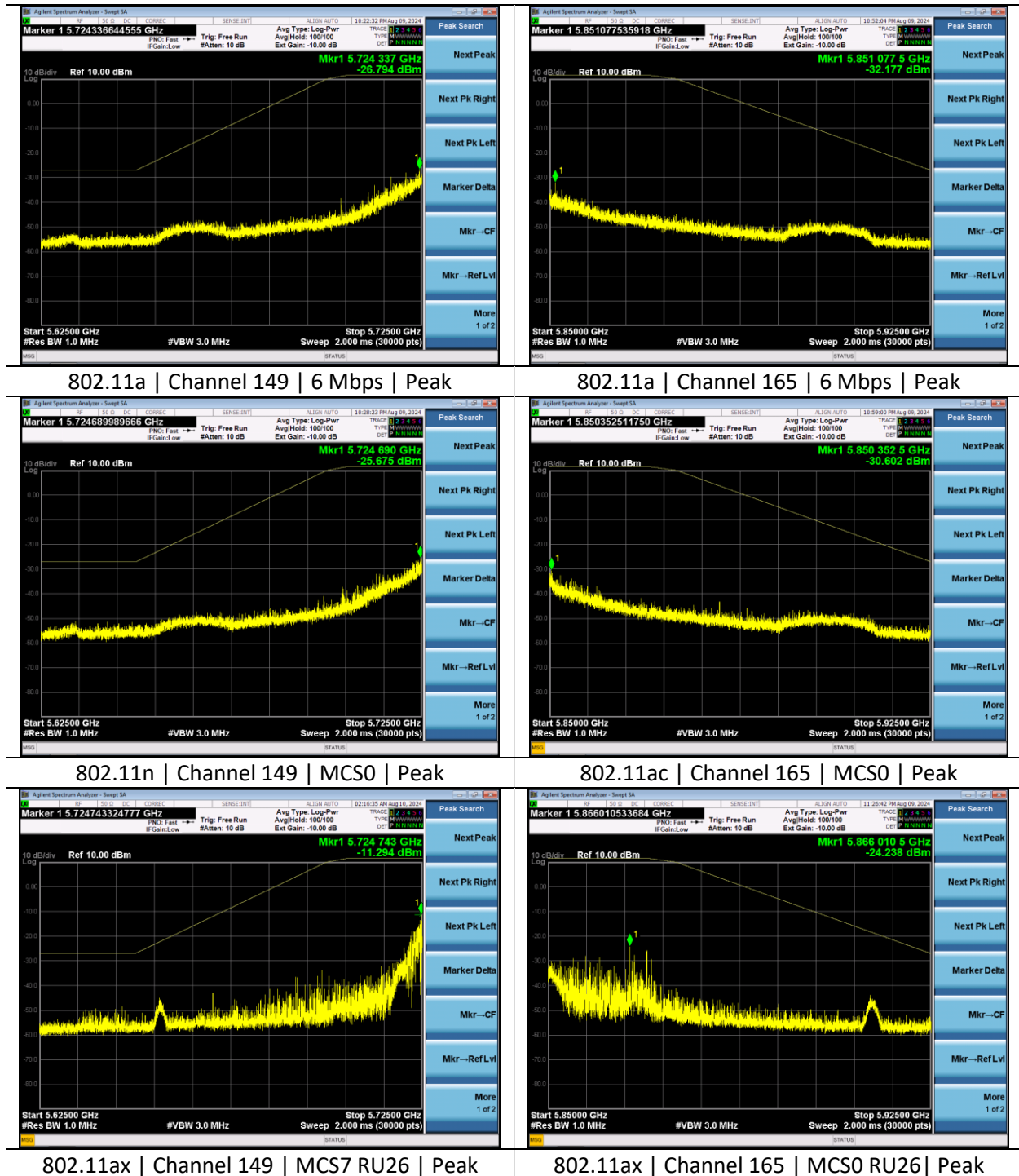
## 802.11ax | Channel 100 | MCS7 RU242 | Average

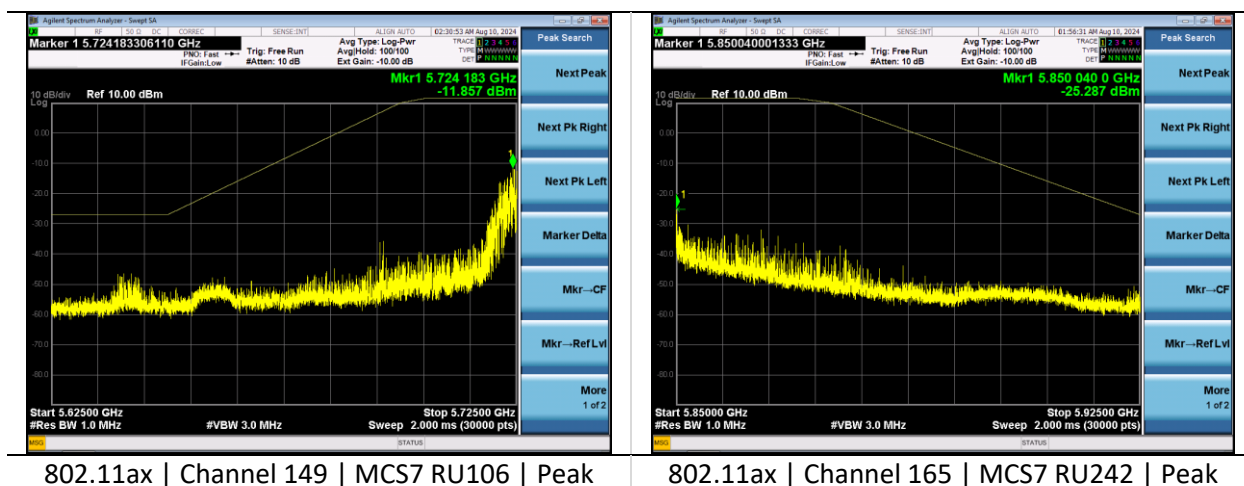




### Worst Case Plots UNII-3

Company: Ezurio	Page 39 of 64	Name: SONA TI351
Report: TR3818-5G-B		Model: SONA TI351
Quote: C-3818		Serial: 00013   00008





### 6.1.5 Spurious Emissions in Restricted Bands

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	21.8°C-22.9°C	<b>R.H. %</b>	43.0%-48.5%
<b>Test Date</b>	08/21/2024-08/27/2024	<b>Location</b>	Conducted RF Bench
<b>Requirement</b>	15.407(b)(3), (4), (9), & (10) RSS-247 Clause 6.2.3 & 6.2.4	<b>Method</b>	ANSI C63.10 12.7

**Limits:** For transmitters operating in the 5.47-5.725 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.

For transmitters operating in the 5.725-5.850 GHz Band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge.

### 15.209 Limits:

Frequency (MHz)	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	74.0

### Test Parameters

<b>Frequency</b>	30-40000 MHz	<b>Setup</b>	Antenna Port
<b>RBW</b>	1 MHz	<b>VBW</b>	3 MHz
<b>Detector(s)</b>	Peak	<b>Settings</b>	
<b>Notes</b>	Peak antenna gain 4.4 dBi		
<b>Example Calculations</b>	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	6/13/2024	6/12/2025	Active Verification
EE 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration

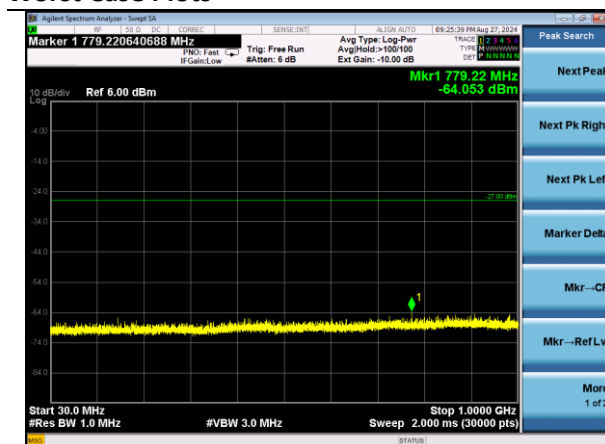
## EUT Parameters

<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>Frequency</b>	5500-5850 MHz	<b>Channel</b>	100, 116, 144, 149, 157, 165

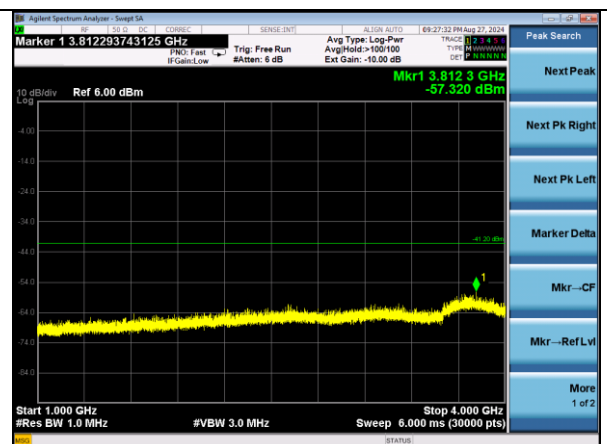
## Table

Mode	Rate	Channel	Measurement Type	Frequency (MHz)	Measurement (dBm)	Corrected Measurement (dBm)	Limit (dBm)	Margin (dB)
802.11a	6 Mbps	100	Peak	7333.4	-47.8	-43.4	-27.0	16.4
		100	Average	7333.2	-53.5	-49.1	-41.2	7.9
		149	Peak	7660.0	-45.2	-40.8	-27.0	13.8
		149	Average	7660.0	-48.7	-44.3	-41.2	3.1
		157	Peak	7231.2	-46.3	-41.9	-27.0	14.9
		165	Peak	7766.5	-45.4	-41.0	-27.0	14.0
802.11n	MCS0	149	Peak	7660.1	-45.2	-40.8	-27.0	13.8
		149	Average	7660.0	-49.2	-44.8	-41.2	3.6
802.11ac	MCS0	144	Peak	7626.6	-46.1	-41.7	-27.0	14.7
		144	Average	7626.6	-51.6	-47.2	-41.2	6.0
		157	Peak	7713.3	-44.9	-40.5	-27.0	13.5
		157	Average	7713.3	-49.5	-45.1	-41.2	3.9
		149	Peak	7659.8	-45.2	-40.8	-27.0	13.8
802.11ax	MCS0	149	Average	7660.0	-49.2	-44.8	-41.2	3.6
		100	Peak	5147.5	-43.3	-38.9	-27.0	11.9
802.11ax	MCS0 RU26	100	Average	5147.9	-55.5	-51.1	-41.2	9.9
		116	Peak	5223.0	-40.6	-36.2	-27.0	9.2
		144	Peak	6069.6	-40.6	-36.2	-27.0	9.2
		144	Peak	5354.3	-40.6	-36.2	-27.0	9.2
		144	Average	5354.0	-55.0	-50.6	-41.2	9.4
		149	Peak	5377.7	-40.4	-36.0	-27.0	9.0
		149	Average	5377.6	-54.2	-49.8	-41.2	8.6
		157	Peak	5415.4	-39.3	-34.9	-27.0	7.9
		157	Average	5415.1	-54.4	-50.0	-41.2	8.8
		165	Peak	6180.3	-40.3	-35.9	-27.0	8.9
		149	Peak	5378.8	-44.2	-39.8	-27.0	12.8
		149	Average	5378.5	-56.1	-51.7	-41.2	10.5
802.11ax	MCS0 RU52	165	Peak	5453.0	-42.2	-37.8	-27.0	10.8
		165	Average	5453.4	-54.1	-49.7	-41.2	8.5

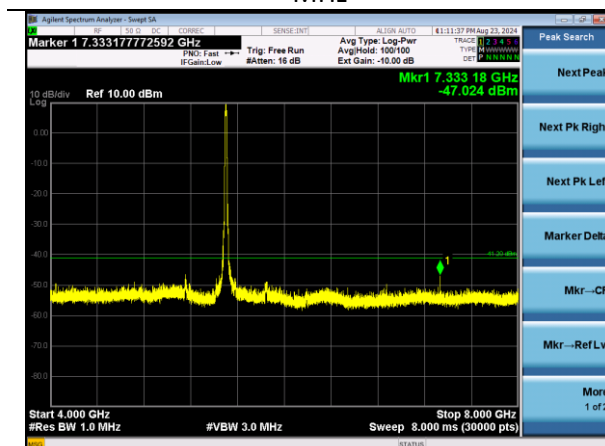
## Worst Case Plots



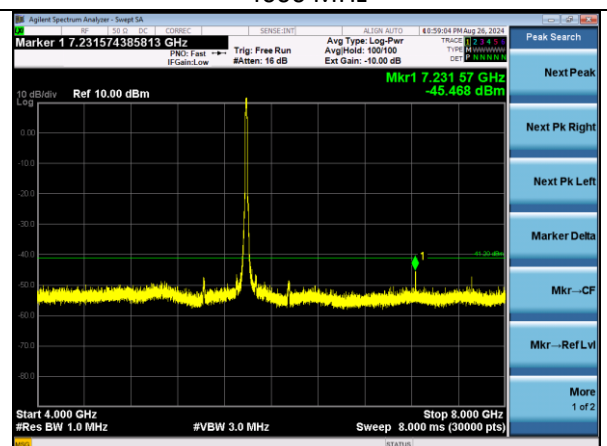
802.11ax | Channel 100 | MCS0 RU26 | 30-1000 MHz



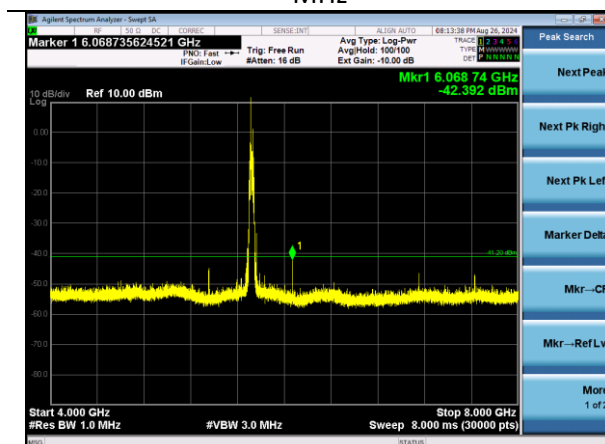
802.11ax | Channel 149 | MCS0 RU26 | 1000-4000 MHz



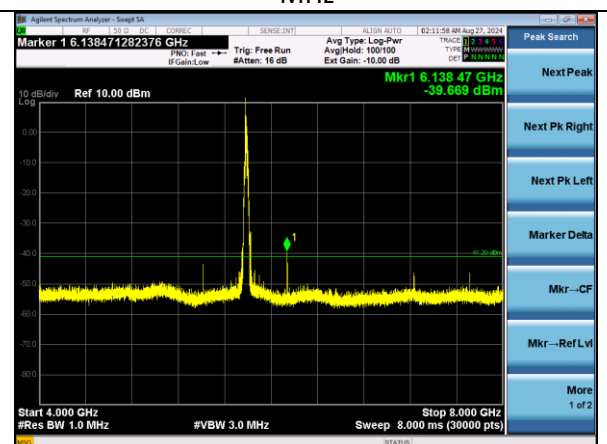
802.11a | Channel 100 | 6 Mbps | 4000-8000 MHz



802.11a | Channel 157 | 6 Mbps | 4000-8000 MHz

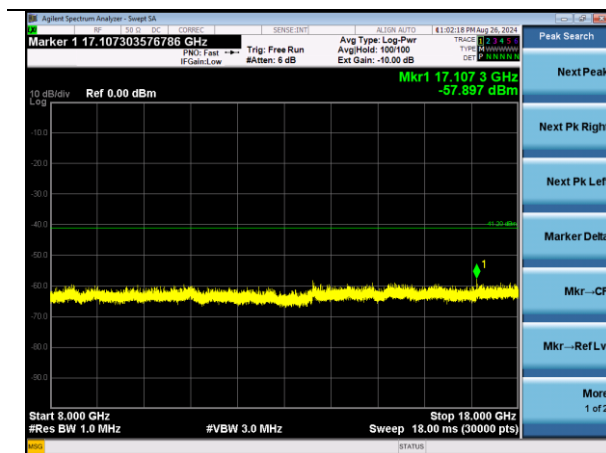


802.11ax | Channel 144 | MCS0 RU26 | 4000-8000 MHz

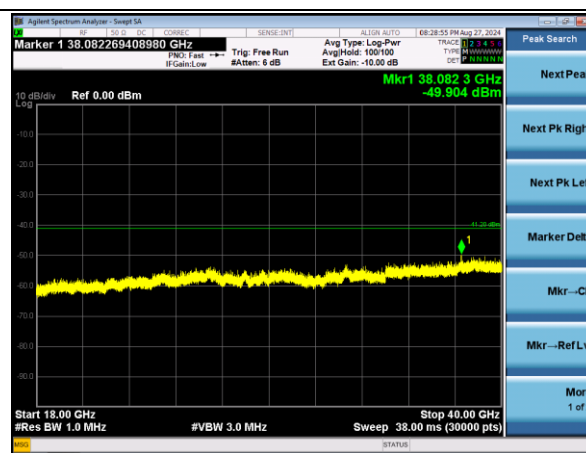


802.11ax | Channel 157 | MCS0 RU26 | 4000-8000 MHz





802.11a | Channel 157 | 6 Mbps | 8000-18000 MHz



802.11a | Channel 100 | 6 Mbps | 18000-40000 MHz

## 6.1.6 Frequency Stability

<b>Operator</b>	Dylan Rosenfeldt	<b>QA</b>	Anthony Smith
<b>Temperature</b>	22.9C	<b>R.H. %</b>	46.4%
<b>Test Date</b>	8/28/2024	<b>Location</b>	RF Conducted Bench
<b>Requirement</b>	15.407(g) RSS-GEN Clause 6.11	<b>Method</b>	ANSI C63.10 6.8

### Test Parameters

<b>Frequency</b>	5470-5850 MHz	<b>Voltage</b>	4.3 VDC, 5 VDC, and 5.8 VDC
<b>Detector(s)</b>	Peak	<b>Settings</b>	Max Hold

### Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	387	06/13/2024	06/12/2025	Active Verification
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	4/10/2024	4/10/2025	Active Calibration

### Table

Voltage	Channel	Center Frequency (Hz)
5	100	5499971005
	116	5579971019
	144	5719970062
5	149	5744971062
	157	5784970505
	165	5824970289
4.3	100	5499970824
	116	5579971914
	144	5719969827
4.3	149	5744972065
	157	5784969912
	165	5824971298
5.8	100	5499971097
	116	5579970524
	144	5719970799
5.8	149	5744970532
	157	5784971448
	165	5824969876

## 6.2 Radiated Emissions

<b>Description of Measurement</b>	<p>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.</p> <p>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.</p> <p>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.</p>
<b>Example Calculations</b>	<p>Measurement (dBμV) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dBμV/m)</p> <p>Margin (dB) = Limit (dBμV/m) - Corrected Reading (dBμV/m)</p> <p>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</p>

### Block Diagram



### 6.2.1 Spurious Radiated Emissions in the Restricted Bands – Cabinet Radiation

<b>Operator</b>	Mitchell Freund   Nicole Sedmak Jon Dilley   Zachary Brown	<b>QA</b>	Anthony Smith   Adam Alger Adam Hauke   Dylan Rosenfeldt
<b>Temperature</b>	19.8°C-24.7°C	<b>R.H. %</b>	42.6%-57.5%
<b>Test Date</b>	06/19/2024-08/26/2024	<b>Location</b>	Chamber 3   Chamber 5
<b>Requirement</b>	15.247 (b)(3),(4),(9) & (10) RSS-247 Clause 6.2.3 & 6.2.4 RSS-GEN Clause 8.9	<b>Method</b>	ANSI C63.10 12.7

**Limits:** For transmitters operating in the 5.47-5.725 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.

For transmitters operating in the 5.725-5.850 GHz Band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

#### 15.209 Limits:

Frequency (MHz)	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	74.0

#### Test Parameters

<b>Frequency</b>	30-40000 MHz	<b>Distance</b>	3 m
<b>Detector(s)</b>	Peak Trace Peak and Average Final	<b>Table height</b>	<1000 MHz 80cm >1000 MHz 150 cm
<b>RBW</b>	<1000 MHz – 120 kHz >1000 MHz – 1 MHz	<b>VBW</b>	<1000 – 1.2 MHz >1000 MHz – 3 MHz   See 2.9

## Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	8/10/2024	8/10/2025	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	8/30/2024	8/30/2025	Active Calibration
AA 960153	Filter - High Pass 2.4 GHz	KWM	HPF-L-14186	7272-04	4/11/2024	4/11/2025	Active Calibration
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	8/10/2024	8/10/2025	Active Calibration
AA 960217	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	852	7/17/2024	7/17/2025	Active Calibration
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	2/16/2024	2/16/2025	Active Verification
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/11/2024	4/11/2025	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/5/2024	1/5/2025	Active Verification
LSC-500	Cable	Chamber 5 Emissions	-	-	1/8/2024	1/8/2025	Active Verification
AA 960209	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	037101808	8/10/2024	8/10/2025	Active Calibration

## EUT Parameters

<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>EUT</b>	X, Y, Z Plane Orientations Antenna ports terminated with 50 $\Omega$ SMA terminators	<b>AE</b>	HP Elitebook 840G1 Development Kit, NXP 8MPLUS-BB
<b>Notes</b>	<1000 MHz Emissions from auxiliary equipment. Not a function of the EUT. Only worst case EUT orientation reported. UNII-3 Mask Emissions comply with Spurious Emissions limit		

## Radiated Spurious – 30-1000 MHz – All Modes

No Emissions in restricted frequency bands

## 1000-40000 MHz – 802.11ax RU26

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0 RU26-0	100	X Plane	Peak	5416.4	V	49.9	68.2	18.3
	100	X Plane	Average	5416.4	V	38.5	54.0	15.5
	100	X Plane	Peak	5460.1	V	53.3	68.2	14.9
MCS0 RU26-8	165	X Plane	Peak	5873.5	V	51.2	68.2	17.0

## 1000-40000 MHz – 802.11ax RU52

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0 RU52-37	100	X Plane	Peak	5415.1	V	50.2	68.2	18.0
	100	X Plane	Average	5415.1	V	38.6	54.0	15.4
	100	X Plane	Peak	5465.5	V	51.9	68.2	16.3
MCS0 RU52-40	165	X Plane	Peak	5858.2	V	50.5	68.2	17.7

## 1000-40000 MHz – 802.11ax RU106

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0 RU106-53	100	X Plane	Peak	5399.3	V	50.7	68.2	17.5
	100	X Plane	Average	5399.3	V	38.5	54.0	15.5
	100	X Plane	Peak	5468.7	V	50.8	68.2	17.4
MCS0 RU106-54	165	X Plane	Peak	5877.7	V	50.4	68.2	17.8

## 1000-40000 MHz – 802.11ax RU242

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0 RU106-53	100	X Plane	Peak	5433.7	V	50.5	68.2	17.7
	100	X Plane	Average	5433.7	V	39.7	54.0	14.3
	100	X Plane	Peak	5468.5	V	50.4	68.2	17.8
MCS0 RU106-54	165	X Plane	Peak	5897.6	V	50.4	68.2	17.8

## 1000-40000 MHz – 802.11a

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
6 Mbps	149	X Plane	Peak	5718.1	V	49.9	68.2	18.3
54 Mbps	149	X Plane	Peak	5724.3	V	49.8	68.2	18.4

## 1000-40000 MHz – 802.11n

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0	149	X Plane	Peak	5710.3	V	50.6	68.2	17.6
MCS7	149	X Plane	Peak	5688.0	V	49.7	68.2	18.5

## 1000-40000 MHz – 802.11ac

### Band Edge

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0	149	X Plane	Peak	5711.1	V	50.3	68.2	17.9
MCS7	149	X Plane	Peak	5652.3	V	50.0	68.2	18.2

## 1000-40000 MHz – 802.11ax

### Band Edge

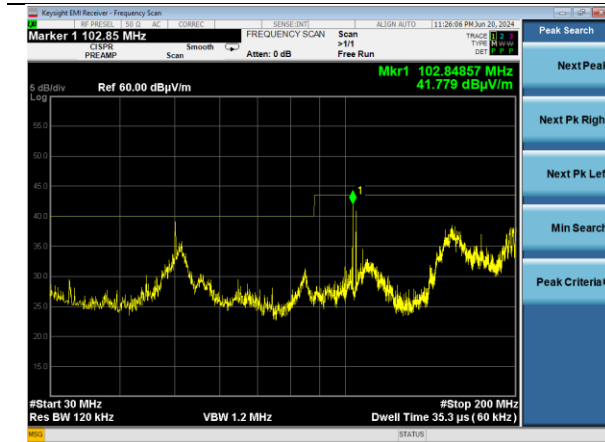
Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0	149	X Plane	Peak	5724.9	V	50.7	68.2	17.5
MCS7	149	X Plane	Peak	5723.4	V	49.8	68.2	18.4

## 1000-40000 MHz

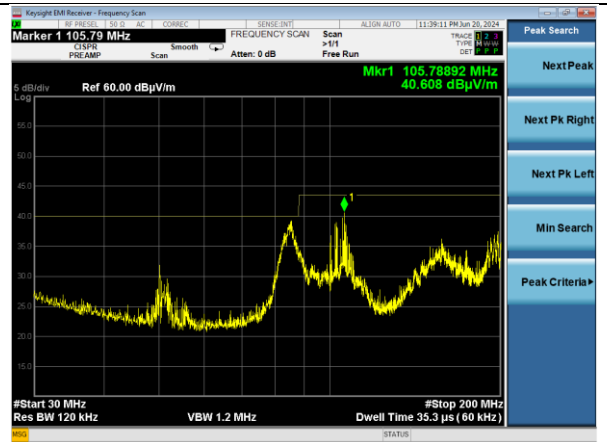
### Spurious Emissions

Rate	Channel	EUT Orientation	Measurement Type	Frequency (MHz)	Antenna Polarity	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)
MCS0	116	X Plane	Peak	4000.1	V	56.6	68.2	11.6
MCS7	116	X Plane	Average	4000.1	V	50.1	54.0	3.9

## Worst Case Plots



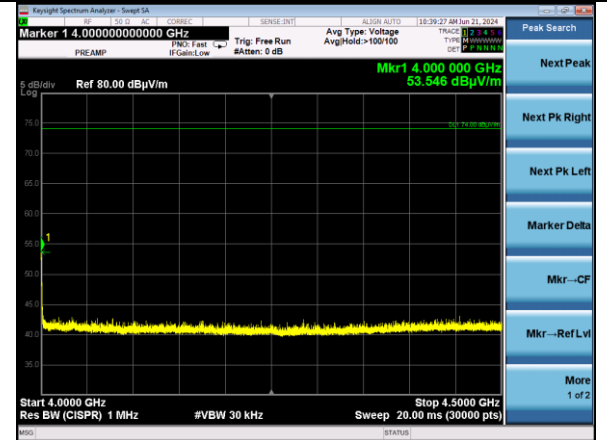
802.11a | Channel 116 | 6 Mbps | Y Plane  
30-200 MHz | Vertical



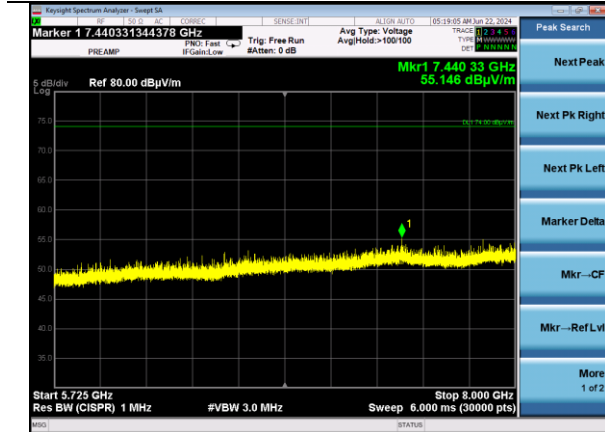
802.11a | Channel 116 | 6 Mbps | Y Plane  
200-1000 MHz | Horizontal



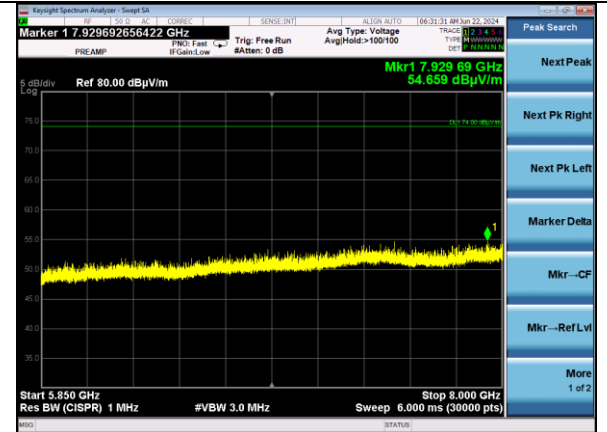
802.11a | Channel 157 | 6 Mbps | X Plane  
1000-4000 MHz | Vertical



802.11a | Channel 116 | 6 Mbps | X Plane  
4000-4500 MHz | Vertical

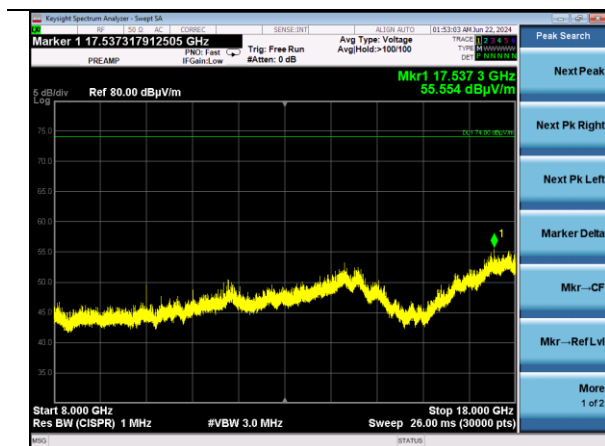


802.11a | Channel 116 | 6 Mbps | X Plane  
5725-8000 MHz | Vertical

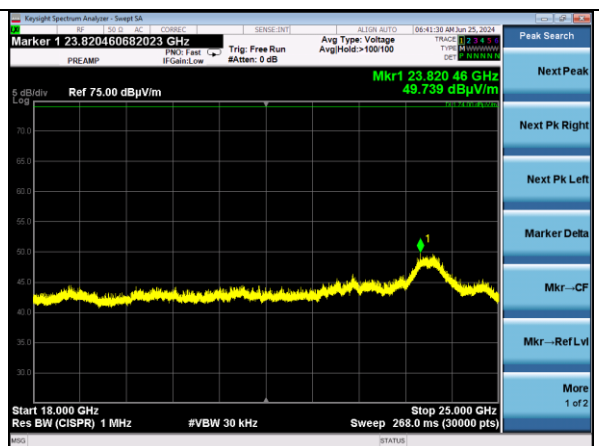


802.11a | Channel 157 | 6 Mbps | X Plane  
5850-8000 MHz | Vertical

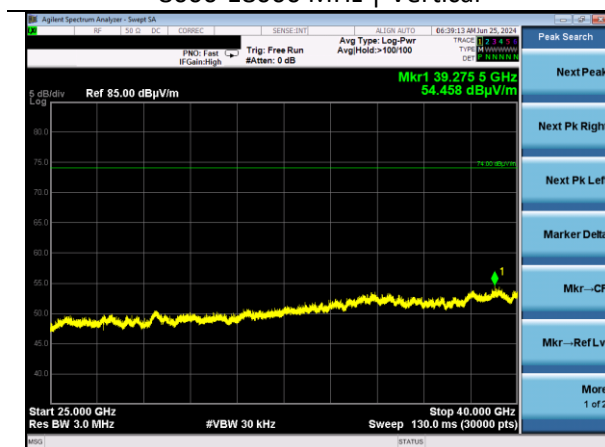




802.11a | Channel 157 | 6 Mbps | X Plane  
8000-18000 MHz | Vertical



802.11a | Channel 116 | 6 Mbps | Z Plane  
18000-25000 MHz | Vertical



802.11a | Channel 157 | 6 Mbps | X Plane  
25000-40000 MHz | Vertical

## 6.2.2 Spurious Radiated Emissions in the Restricted Bands – Chip Antenna

<b>Operator</b>	Mitchell Freund   Nicole Sedmak Jon Dilley   Zachary Brown	<b>QA</b>	Anthony Smith   Adam Alger Adam Hauke   Dylan Rosenfeldt
<b>Temperature</b>	19.2°C-24.7°C	<b>R.H. %</b>	47.1%-63.2%
<b>Test Date</b>	07/08/2024-08/26/2024	<b>Location</b>	Chamber 3   Chamber 5
<b>Requirement</b>	15.247 (b)(3),(4),(9) & (10) RSS-247 Clause 6.2.3 & 6.2.4 RSS-GEN Clause 8.9	<b>Method</b>	ANSI C63.10 12.7

**Limits:** For transmitters operating in the 5.47-5.725 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.

For transmitters operating in the 5.725-5.850 GHz Band:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

### 15.209 Limits:

Frequency (MHz)	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	74.0

### Test Parameters

<b>Frequency</b>	30-40000 MHz	<b>Distance</b>	3 m
<b>Detector(s)</b>	Peak Trace Peak and Average Final	<b>Table height</b>	<1000 MHz 80cm >1000 MHz 150 cm
<b>RBW</b>	<1000 MHz – 120 kHz >1000 MHz – 1 MHz	<b>VBW</b>	<1000 – 1.2 MHz >1000 MHz – 3 MHz   See 2.9

### Instrumentation

Company: Ezurio	Page 54 of 64	Name: SONA TI351
Report: TR3818-5G-B		Model: SONA TI351
Quote: C-3818		Serial: 00013   00008

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	8/10/2024	8/10/2025	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	8/30/2024	8/30/2025	Active Calibration
AA 960153	Filter - High Pass 2.4 GHz	KWM	HPF-L-14186	7272-04	4/11/2024	4/11/2025	Active Calibration
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	8/10/2024	8/10/2025	Active Calibration
AA 960217	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	852	7/17/2024	7/17/2025	Active Calibration
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	2/16/2024	2/16/2025	Active Verification
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/11/2024	4/11/2025	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/5/2024	1/5/2025	Active Verification
LSC-500	Cable	Chamber 5 Emissions	-	-	1/8/2024	1/8/2025	Active Verification
AA 960209	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	037101808	8/10/2024	8/10/2025	Active Calibration

#### EUT Parameters

<b>Input Power</b>	120 VAC @ 60 Hz	<b>Mode</b>	5 GHz WLAN Tx
<b>EUT</b>	X, Y, Z Plane Orientations	<b>AE</b>	HP Elitebook 840G1 Development Kit, NXP 8MPLUS-BB
<b>Notes</b>	<1000 MHz Emissions from auxiliary equipment. Not a function of the EUT. Only worst case EUT orientation reported.		

#### Radiated Spurious – 30-1000 MHz – All Modes

No Emissions in restricted frequency bands

## U-NII-2C Measurements – Lower Band Edge

### Peak Measurements

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
802.11a	6 Mbps	100	5353.1	52.4	68.2	15.8	28
802.11a	6 Mbps	100	5470.0	54.0	68.2	14.2	28
802.11n	MCS0	100	5457.1	52.1	68.2	16.1	27
802.11n	MCS0	100	5465.4	52.7	68.2	15.5	27
802.11ac	MCS0	100	5459.7	52.2	68.2	16.0	24
802.11ac	MCS0	100	5469.3	53.4	68.2	14.8	24
802.11ax	MCS0	100	5443.5	53.2	68.2	15.0	23
802.11ax	MCS0	100	5466.2	52.7	68.2	15.5	23
802.11a	6 Mbps	104	5370.6	53.3	68.2	14.9	30
802.11a	6 Mbps	104	5461.3	53.4	68.2	14.8	30
802.11n	MCS0	104	5442.2	53.8	68.2	14.4	30
802.11n	MCS0	104	5469.2	55.5	68.2	12.7	30
802.11ac	MCS0	104	5433.2	53.4	68.2	14.8	30
802.11ac	MCS0	104	5469.6	56.8	68.2	11.4	30
802.11ax	MCS0	104	5452.3	53.4	68.2	14.8	30
802.11ax	MCS0	104	5467.7	57.1	68.2	11.1	30

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
802.11ax	MCS0	100	5459.4	53.0	68.2	15.2	21
	RU26	100	5469.9	56.4	68.2	11.8	21
802.11ax	MCS0	100	5435.5	52.0	68.2	16.2	21
	RU52	100	5469.4	52.8	68.2	15.4	21
802.11ax	MCS0	100	5457.6	52.9	68.2	15.3	23
	RU106	100	5466.5	57.1	68.2	11.1	23
802.11ax	MCS0	100	5454.8	53.3	68.2	14.9	24
	RU242	100	5468.3	55.2	68.2	13.0	24
802.11ax	MCS0	104	5457.3	54.7	68.2	13.5	30
	RU26	104	5469.6	62.1	68.2	6.1	30
802.11ax	MCS0	104	5431.8	54.4	68.2	13.8	30
	RU52	104	5469.9	61.4	68.2	6.8	30
802.11ax	MCS0	104	5457.4	55.7	68.2	12.5	30
	RU106	104	5469.2	57.8	68.2	10.4	30
802.11ax	MCS0	104	5457.3	54.5	68.2	13.7	30
	RU242	104	5469.2	58.1	68.2	10.1	30

## Average Measurements

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
802.11a	6 Mbps	100	5459.1	39.2	54.0	14.8	28
802.11n	MCS0	100	5458.9	39.1	54.0	14.9	27
802.11ac	MCS0	100	5459.8	38.9	54.0	15.1	24
802.11ax	MCS0	100	5458.0	38.9	54.0	15.1	23
802.11a	6 Mbps	104	5442.0	40.1	54.0	13.9	30
802.11n	MCS0	104	5440.9	40.1	54.0	13.9	30
802.11ac	MCS0	104	5439.1	40.2	54.0	13.8	30
802.11ax	MCS0	104	5442.6	40.1	54.0	13.9	30

Mode	Rate	Channel	Frequency (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
802.11ax	MCS0 RU26	100	5411.6	39.0	54.0	15.0	21
802.11ax	MCS0 RU52	100	5406.0	39.0	54.0	15.0	21
802.11ax	MCS0 RU106	100	5452.8	39.3	54.0	14.7	23
802.11ax	MCS0 RU242	100	5453.3	40.0	54.0	14.0	23
802.11ax	MCS0 RU26	104	5431.8	41.2	54.0	12.8	30
802.11ax	MCS0 RU52	104	5432.9	40.8	54.0	13.2	30
802.11ax	MCS0 RU106	104	5435.3	40.3	54.0	13.7	30
802.11ax	MCS0 RU242	104	5450.6	40.4	54.0	13.6	30

## U-NII-3 Measurements – Mask

### Peak Measurements

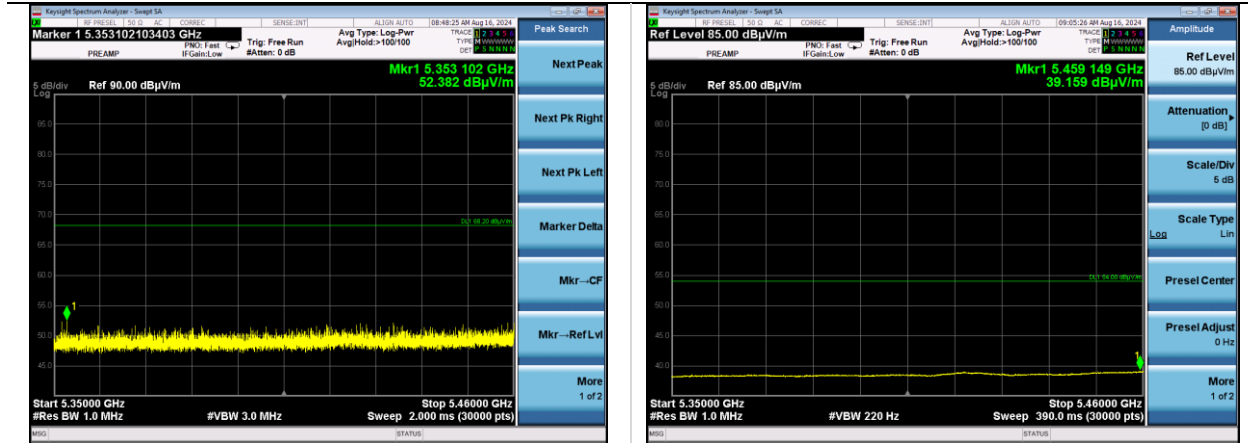
Mode	Rate	Channel	Frequency (MHz)	Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
802.11a	6 Mbps	149	5724.9	70.1	122.0	51.9	30
		165	5850.0	68.8	122.2	53.4	30
802.11n	MCS0	149	5724.5	72.6	121.1	48.5	30
		165	5850.7	63.0	120.6	57.6	30
802.11ac	MCS0	149	5724.1	75.0	120.1	45.1	30
		165	5850.4	77.8	121.3	43.5	30
802.11ax	MCS0	149	5723.5	73.1	118.8	45.7	30
		165	5850.2	67.2	121.7	54.5	30
802.11ax	MCS0 RU26	149	5724.4	77.9	120.8	42.9	30
		165	5850.7	73.3	120.6	47.3	30
802.11ax	MCS0 RU52	149	5724.7	79.1	121.5	42.4	30
		165	5851.1	77.6	119.7	42.1	30
802.11ax	MCS0 RU106	149	5724.8	82.8	121.7	38.9	30
		165	5850.0	73.0	122.2	49.2	30
802.11ax	MCS0 RU242	149	5724.2	83.8	120.4	36.6	30
		165	5850.7	71.4	120.6	49.2	30

## Spurious Emissions

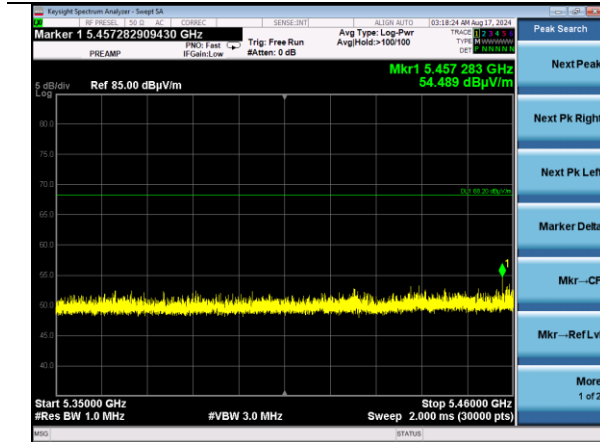
Mode	Rate	Channel	Measurement Type	Antenna Polarity	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Margin (dB)
802.11a	6 Mbps	157	Peak	V	7713.2	55.6	68.2	12.6
		157	Average	V	7713.2	47.7	54.0	6.3
		157	Peak	H	7713.3	57.0	68.2	11.2
		157	Average	H	7713.3	51.1	54.0	2.9
		157	Peak	H	7713.2	56.0	68.2	12.2
		157	Average	H	7713.2	49.5	54.0	4.5
		157	Peak	V	7713.3	56.1	68.2	12.1
		157	Average	V	7713.3	49.0	54.0	5.0
		157	Peak	V	7713.3	56.0	68.2	12.2
		157	Average	V	7713.3	48.4	54.0	5.6
		157	Peak	H	7713.3	56.4	68.2	11.8
		157	Average	H	7713.3	47.9	54.0	6.1
		157	Peak	H	11570.0	61.0	68.2	7.2
		157	Average	H	11570.0	49.7	54.0	4.3
		157	Peak	V	11569.8	51.0	68.2	17.2
		157	Average	V	11569.8	39.7	54.0	14.3
		157	Peak	V	11569.9	62.7	68.2	5.5
		157	Average	V	11569.9	50.8	54.0	3.2
		157	Peak	H	11569.9	56.8	68.2	11.4
		157	Average	H	11569.9	44.5	54.0	9.5
		157	Peak	H	11569.7	52.1	68.2	16.1
		157	Average	H	11569.7	39.9	54.0	14.1
		157	Peak	V	11569.9	56.3	68.2	11.9
		157	Average	V	11569.9	45.2	54.0	8.8
		116	Peak	H	7439.9	57.8	68.2	10.4
		116	Average	H	7439.9	50.7	54.0	3.3
		116	Peak	V	11160.0	60.3	68.2	7.9
		116	Average	V	11160.0	47.2	54.0	6.8
802.11ax	MCS0 RU26	157	Peak	V	7660.1	-45.2	-27.0	13.8
		157	Average	V	7660.0	-49.2	-41.2	3.6
		157	Peak	V	11569.9	53.2	68.2	15.0
		157	Average	V	11569.9	50.2	54.0	3.8
		116	Peak	H	7713.3	57.2	68.2	11.0
		116	Average	H	7713.3	50.6	54.0	3.4
		116	Peak	H	11159.9	51.7	68.2	16.5
		116	Average	H	11159.9	43.9	54.0	10.1

## Worst Case Plots – Band Edge

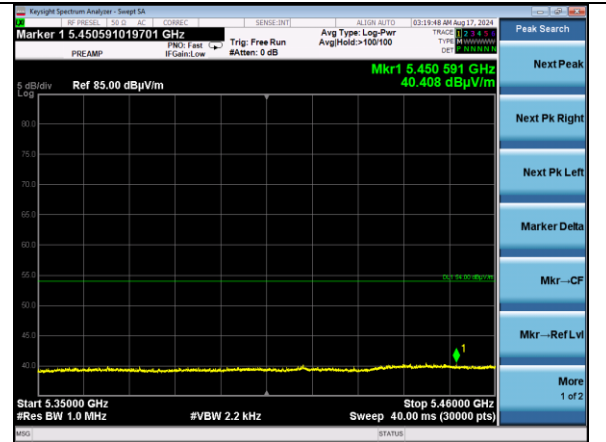
### 5350-5460 MHz



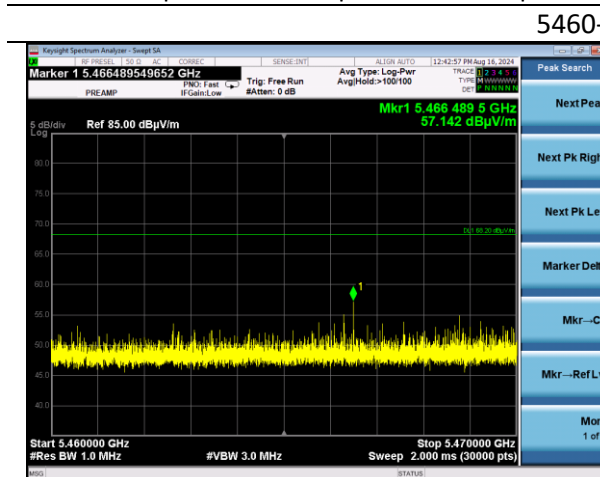
### 802.11a | Channel 100 | MCS0 | Peak



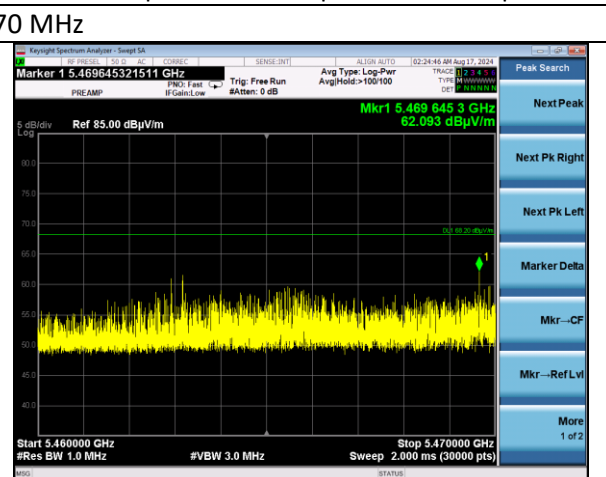
### 802.11a | Channel 100 | MCS0 | Average



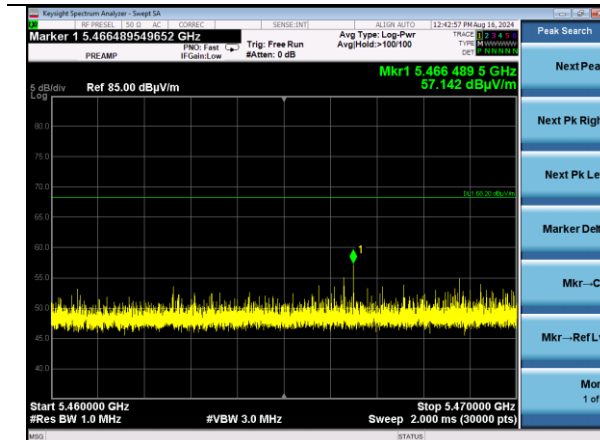
### 802.11ax | Channel 104 | MCS0 RU242 | Peak



### 802.11ax | Channel 104 | MCS0 RU242 | Peak



### 5460-5470 MHz



### 802.11ax | Channel 100 | MCS0 RU106 | Peak

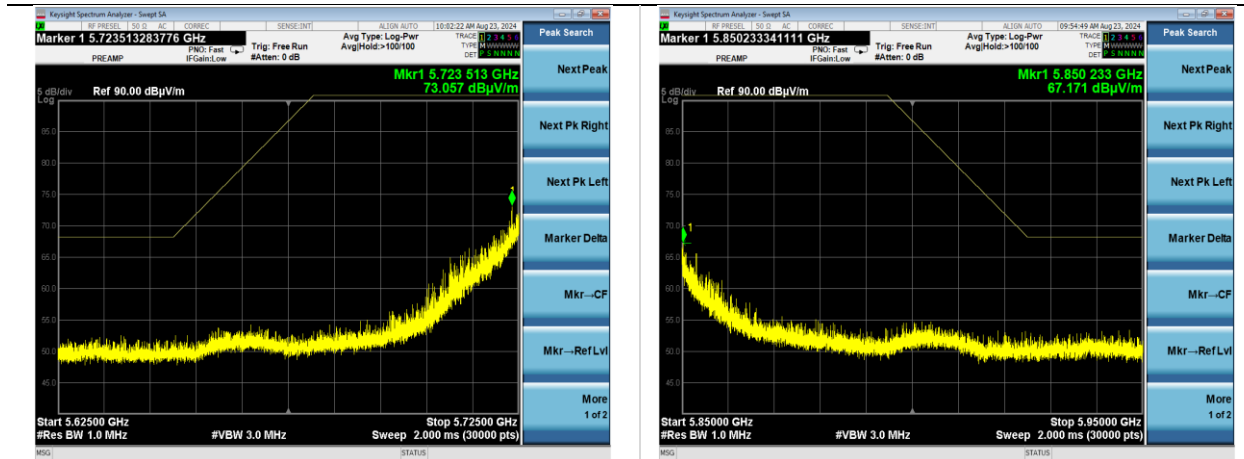


### 802.11ax | Channel 104 | MCS0 RU26 | Peak



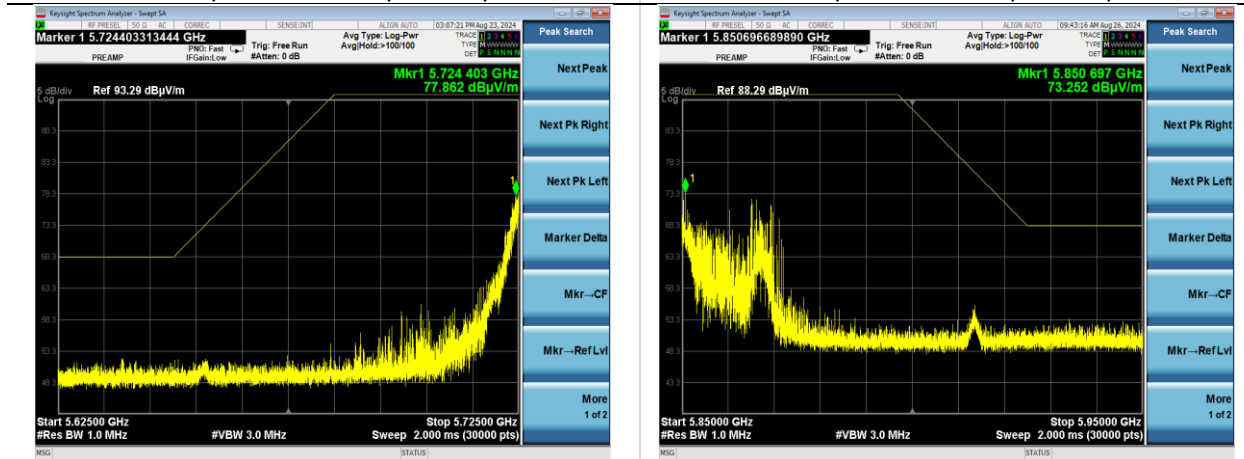


## UNII-3 Mask



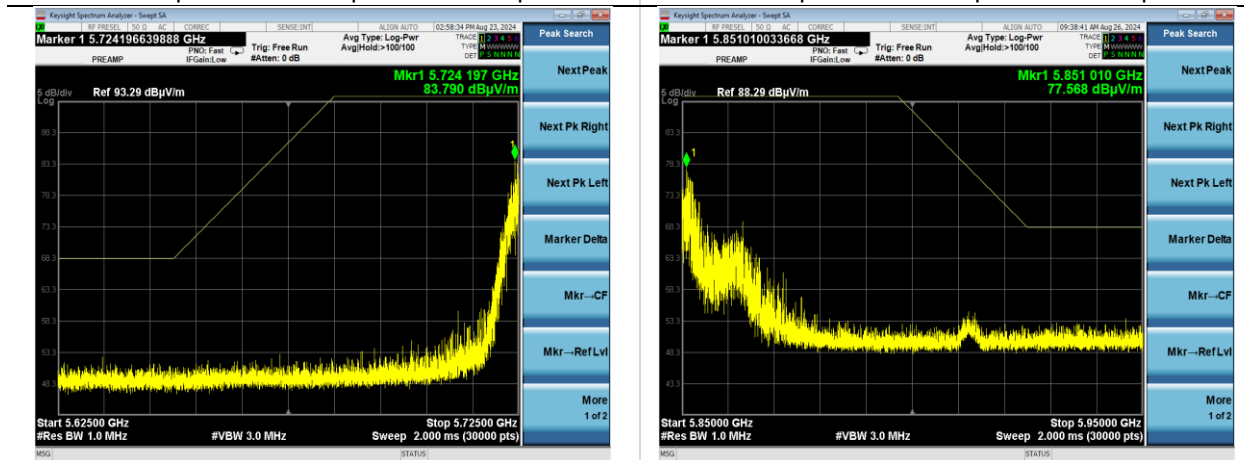
802.11ac | Channel 149 | MCS0 | Peak

802.11ac | Channel 165 | MCS0 | Peak



802.11ax | Channel 149 | MCS0 RU26 | Peak

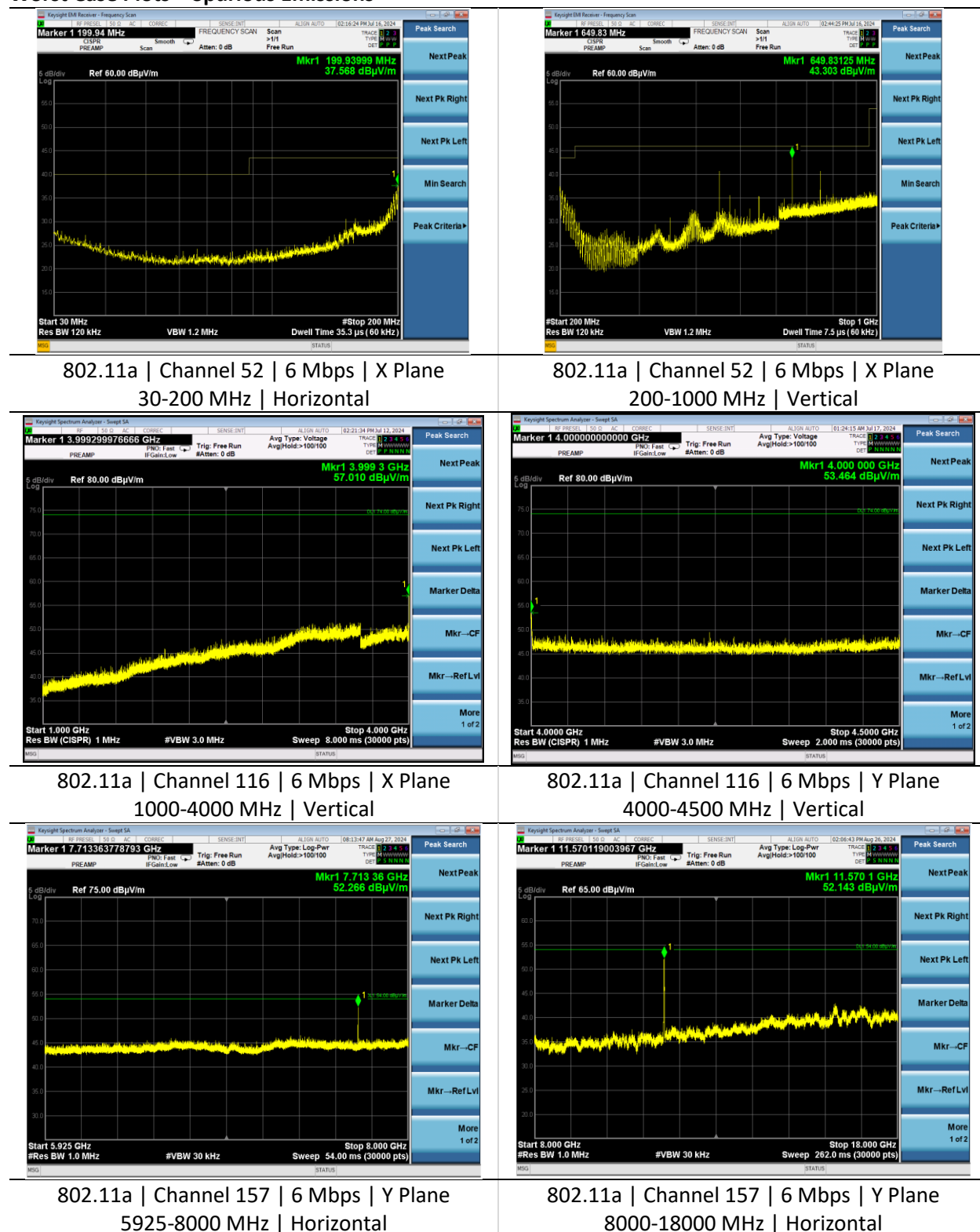
802.11ax | Channel 165 | MCS0 RU26 | Peak

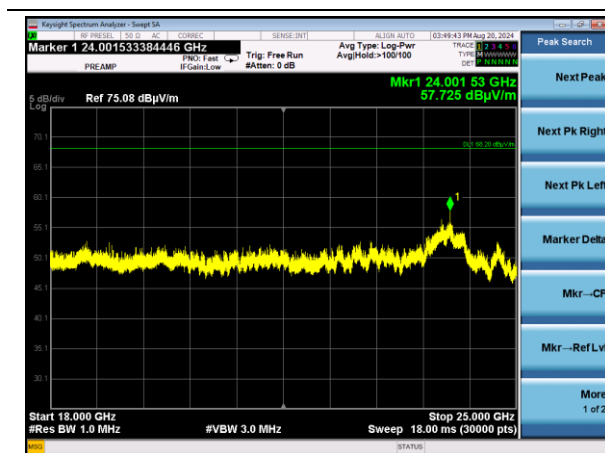


802.11ax | Channel 149 | MCS0 RU242 | Peak

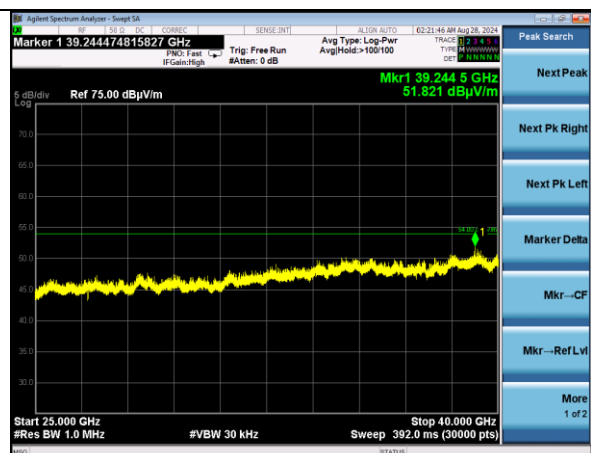
802.11ax | Channel 165 | MCS0 RU52 | Peak

## Worst Case Plots – Spurious Emissions





802.11a | Channel 116 | 6 Mbps | X Plane  
18000-25000 MHz | Vertical



802.11a | Channel 157 | 6 Mbps | Y Plane  
25000-40000 MHz | Horizontal

## 7 REVISION HISTORY

Version	Date	Notes	Person
0	10/21/2024	Initial Draft	Dylan Rosenfeldt
1	10/22/2024	Final Draft	Dylan Rosenfeldt

**END OF REPORT**