
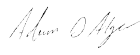



TR3818-5G-301-893

Equipment Under Test:	SONA TI351
Requirement(s):	ETSI EN 301 893 AS/NZS 4268
Test Date(s):	09/24/2024 – 12/17/2024
Prepared for:	Ezurio Attn: Brian Petted W66 N220 Commerce Ct. Cedarburg, WI 53012

Report Issued by: Dylan Rosenfeldt, EMC Engineer	
Signature: 	Date: 01/14/2025
Report Reviewed by: Adam Alger, Manager EMC Laboratory	
Signature: 	Date: 01/13/2025
Report Constructed by: Dylan Rosenfeldt, EMC Engineer	
Signature: 	Date: 01/14/2025

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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

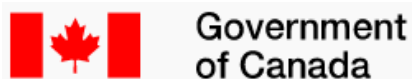
Scope of accreditation includes all test methods listed herein unless otherwise noted



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 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

1 TEST REPORT SUMMARY

During **09/24/2024 – 12/17/2024** the Equipment Under Test (EUT), **SONA TI351**, as provided by **Ezurio** was tested to the following requirements:

ETSI EN 301 893, AS/NZS 4268 – 5 GHz WLAN

Requirements	Description	Method	Specification	Compliant
4.2.1	Nominal Centre Frequencies	5.4.2	±20 ppm	Yes
4.2.2	Nominal Channel Bandwidth and Occupied Channel Bandwidth	5.4.3	16-20 MHz	Yes
4.2.3	RF output power, Transmit Power Control (TPC) and Power Density	5.4.4	23 dBm 10 dBm/MHz	Yes
4.2.4	Transmitter unwanted emissions	5.4.5 5.4.6	30-26000 MHz	Yes
4.2.5	Receiver spurious emissions	5.4.7	30-26000 MHz	Yes
4.2.6	Dynamic Frequency Selection (DFS)	5.4.8	Channel closing transmission time 1s Channel move time 10s	Yes
4.2.7	Adaptivity (Channel Access Mechanism)	5.4.9	-75 dBm/MHz	Yes
4.2.8	Receiver Blocking	5.4.10	-59 dBm CW -53 dBm CW	Yes

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	1.5 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

Company: Ezurio	Page 4 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

2 CLIENT INFORMATION

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

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	SONA TI351
Model Number	SONA TI351
Serial Number	00013 00008
FCC ID	SQG-SONATI351
IC ID	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

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

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
52	5260	20	
64	5320	20	
100	5500	20	
120	5600	20	
140	5580	20	

2.8 Power Table

Mode	Channel	Power Setting
802.11a	36-140	29
802.11n	36-140	28
802.11ac	36-140	29
802.11ax	36-140	29
802.11ax RU26	36-140	21
802.11ax RU52	36-140	22
802.11ax RU106	36-140	30
802.11ax RU242	36-140	30

3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
ETSI EN 301 893	2.1.1	2017	-	-
AS/NZS 4268	4	2017	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

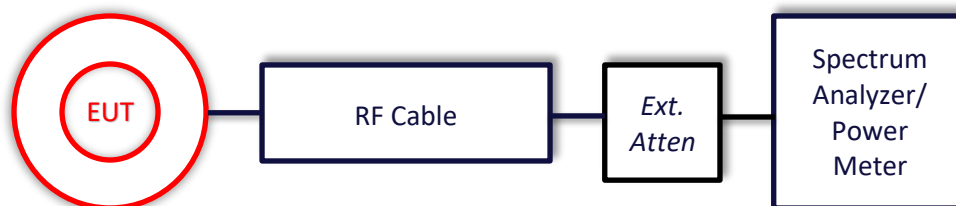
Parameter	ETSI U.C. \pm	U.C. \pm
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9 %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

5 TEST DATA

5.1 Antenna Port Conducted Emissions

Description of Measurement	<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>
Example Calculations	<p>Measurement (dBm) + Cable factor (dB) + External Attenuator (dB) = Corrected Reading (dBm)</p> <p>Margin (dB) = Limit (dBm) – Corrected Reading (dBm)</p>

Block Diagram



5.1.1 Carrier Frequencies

Operator	Dylan Rosenfeldt	QA	Anthony Smith
Temperature	21.5°C	R.H. %	30.90%
Test Date	10/28/2024	Location	Thermotron Temp Chamber
Requirement	ETSI 301 893 4.2.1 AS/NZS 4268 6.6	Method	ETSI 301 893 5.4.2

Limits: ETSI 301 893: ±20 ppm

Test Parameters

Frequency	5150-5725 MHz	Setup	Antenna Port
Detector(s)	Peak		
Example Calculation	Maximum Frequency Deviation = (Nominal Centre Frequency * 20E ⁻⁶)		

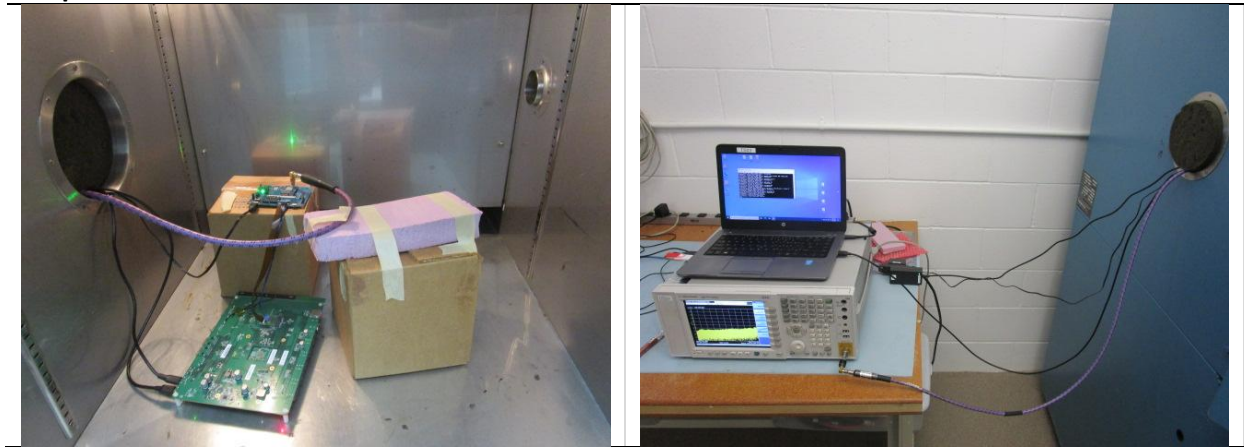
Instrumentation

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	4/11/2024	4/11/2025	Active Calibration

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5 GHz WLAN Tx
Frequency	5260, 5600 MHz	Channel	52, 120

Setup Photos



Measurements

Channel	Mode	Temp	Frequency (Hz)	Nominal Frequency (Hz)	Limit (Hz)	Margin (Hz)
52	CW	21.5°C	5259967832	5260000000	105200	73032
52	CW	85°C	5260080397	5260000000	105200	24803
52	CW	-40°C	5260021535	5260000000	105200	83665
120	CW	21.5°C	5599967498	5600000000	112000	79498
120	CW	85°C	5600101319	5600000000	112000	10681
120	CW	-40°C	5600030223	5600000000	112000	81777

5.1.2 Occupied Channel Bandwidth

Operator	Mitchell Freund	QA	Dylan Rosenfeldt
Temperature	21.1°C	R.H. %	36.30%
Test Date	10/15/2024	Location	RF Conducted Bench
Requirement	ETSI 301 893 4.2.2 AS/NZS 4268 6.5	Method	5.4.3

Limits: ETSI 301 893: The Occupied Channel Bandwidth shall be between 80 % and 100 % of the Nominal Channel Bandwidth.

AS/NZS: 4268: The upper and lower frequency limits of the transmitter 99% emission power bandwidth shall at all times remain within the operating frequency limits.

Test Parameters

Frequency	5150-5725 MHz	Setup	Antenna Port
Detector(s)	Peak		

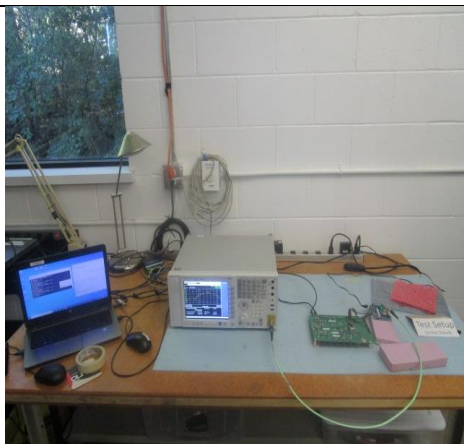
Instrumentation

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	4/11/2024	4/11/2025	Active Calibration

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5 GHz WLAN Tx
Frequency	5260, 5600 MHz	Channel	52, 120

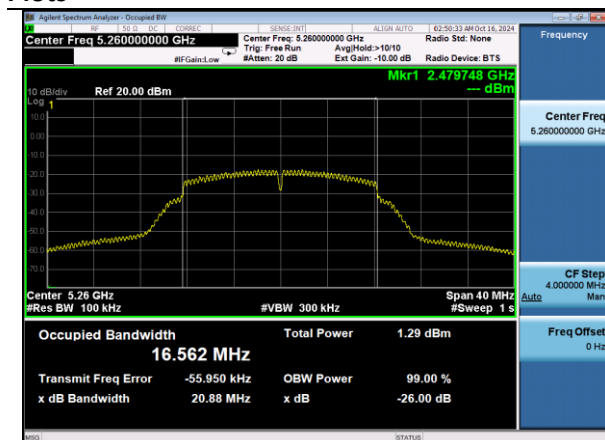
Setup Photos



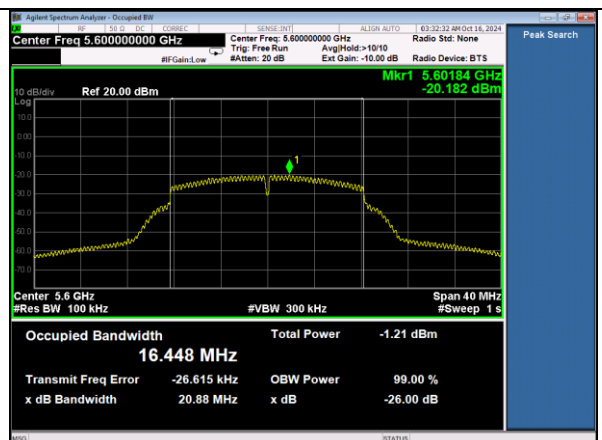
Measurements

Nominal Channel BW (MHz)	Channel	Mode	OCBW (MHz)
20	52	OFDM-6	16.562
		OFDM-54	16.297
		802.11n MCS0	17.645
		802.11n MCS7	17.503
		802.11ac MCS0	17.628
		802.11ac MCS7	17.499
		802.11ax MCS0	18.838
		802.11ax MCS7	18.828
	120	OFDM-6	16.448
		OFDM-54	16.292
		802.11n MCS0	17.590
		802.11n MCS7	17.490
		802.11ac MCS0	17.599
		802.11ac MCS7	17.496
		802.11ax MCS0	18.838
		802.11ax MCS7	18.807

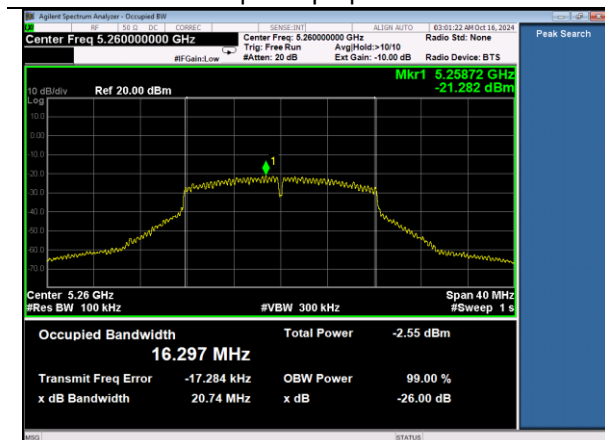
Plots



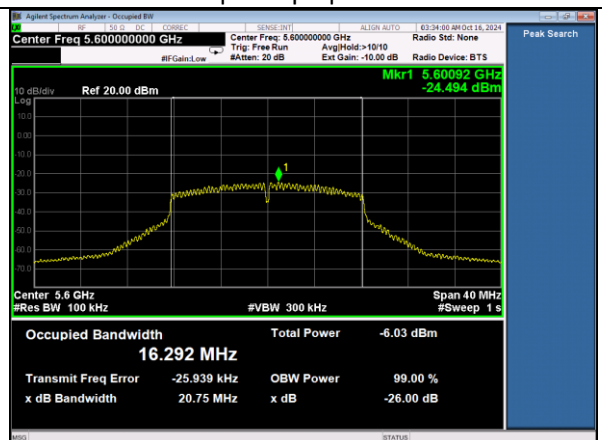
802.11a | 6Mbps | Channel 52



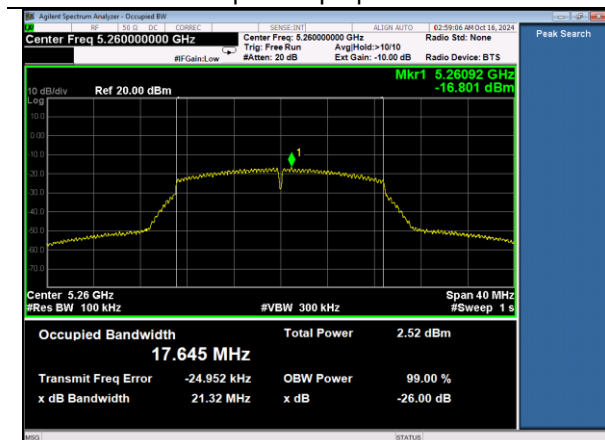
802.11a | 6Mbps | Channel 120



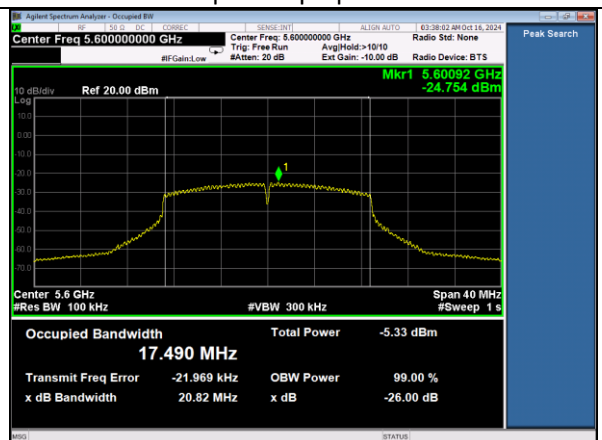
802.11a | 54Mbps | Channel 52



802.11a | 54Mbps | Channel 120

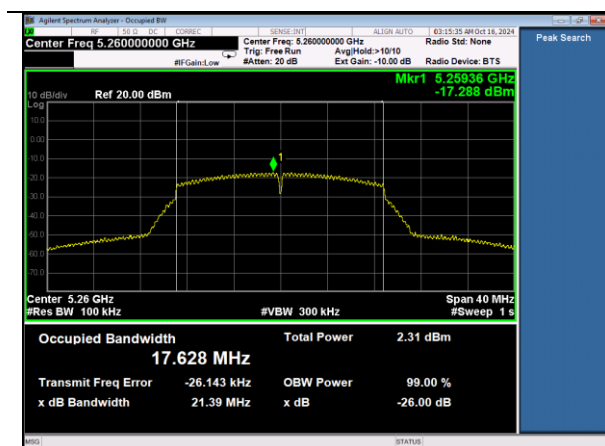


802.11n | MCS0 | Channel 52

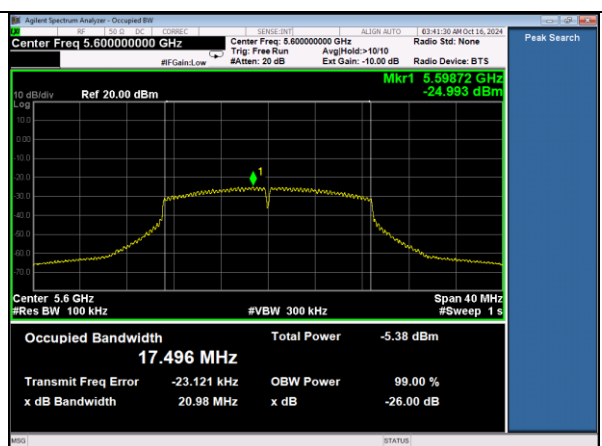


802.11n | MCS7 | Channel 120

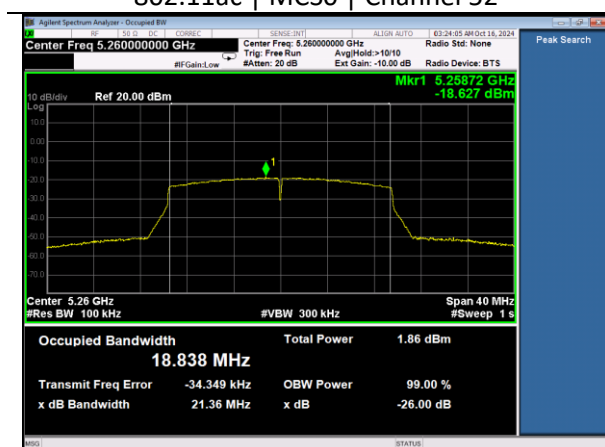
Company: Ezurio		Name: SONA TI351
Report: TR3818-5G-301-893	Page 15 of 62	Model: SONA TI351
Job: C-3818		Serial: 00013 00008



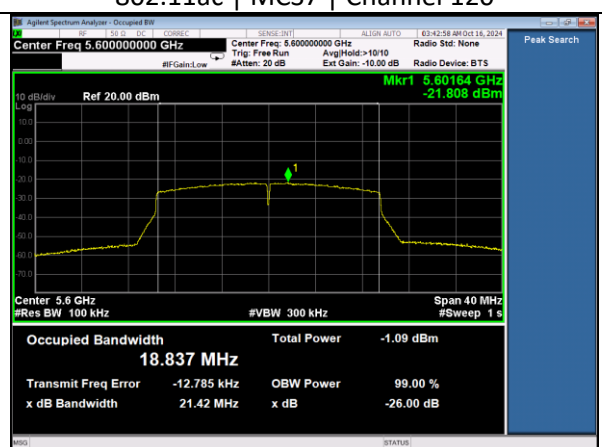
802.11ac | MCS0 | Channel 52



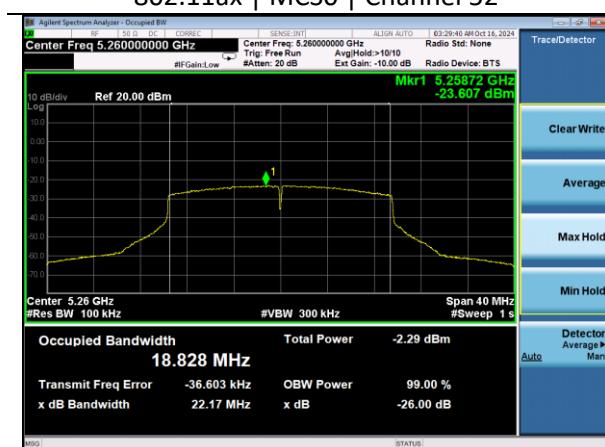
802.11ac | MCS7 | Channel 120



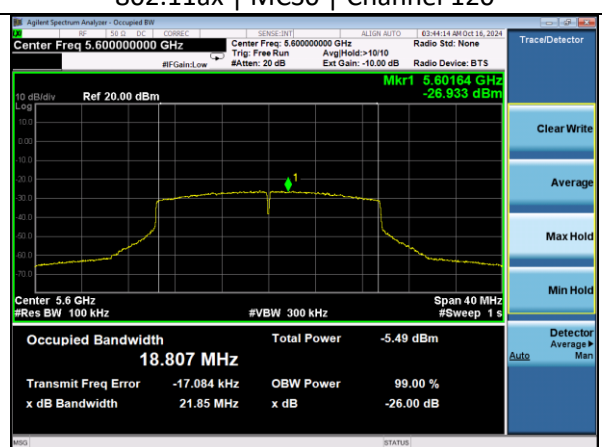
802.11ac | MCS0 | Channel 52



802.11ac | MCS7 | Channel 120



802.11ax | MCS0 | Channel 52



802.11ax | MCS7 | Channel 120

5.1.3 RF Output Power

Operator	Dylan Rosenfeldt	QA	Adam Alger
Temperature	21.1°C	R.H. %	44.90%
Test Date	11/06/2024	Location	Thermotron Temp Chamber
Requirement	ETSI 301 893 4.2.3 AS/NZS 4268 3.6	Method	ETSI 301 893 5.4.4

Limits: ETSI 301 893: The mean e.i.r.p limit for devices with TPC and without Radar Interference Detection is 23 dBm

AS/NZS 4268: Maximum EIRP is 200mW averaged over the entire transmission burst

Test Parameters

Frequency	5150-5725 MHz	Setup	Antenna Port
Operating Temperature	-40.0°C to +85.0°C	Sample Speed	32 MS/s

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960090	Meter - RF Power	Anritsu	ML2495A	1335006	4/13/2024	4/13/2025	Active Calibration
EE 960091	Sensor - RF Power	Anritsu	MA2491A	1249277	4/13/2024	4/13/2025	Active Calibration
AA 960144	Cable	Gore	EKD01D010720	5800373	6/13/2024	6/13/2025	Active Verification

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5 GHz WLAN Tx
Frequency	5180-5700 MHz	Channel	See 2.7

Setup Photos



Company: Ezurio	Page 18 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

Output Power Measurements +21.1°C

Channel	Mode	Data Rate	Avg Output Power (dBm)	Antenna Gain (dBi)	Corrected Measurement (dBm) e.i.r.p	Limit (dBm)	Margin (dB)	Power Setting
36	802.11a	6M	14.0	4.4	18.4	23.0	4.6	29
	802.11n	MCS0	13.2	4.4	17.6	23.0	5.4	28
	802.11ac	MCS0	14.3	4.4	18.7	23.0	4.3	29
	802.11ax	MCS0	14.1	4.4	18.5	23.0	4.5	29
	802.11ax	MCS0 RU26	6.9	4.4	11.3	23.0	11.7	21
	802.11ax	MCS0 RU52	8.0	4.4	12.4	23.0	10.6	22
	802.11ax	MCS0 RU106	11.1	4.4	15.5	23.0	7.5	30
	802.11ax	MCS0 RU242	11.1	4.4	15.5	23.0	7.5	30
64	802.11a	6M	14.4	4.4	18.8	23.0	4.2	29
	802.11n	MCS0	13.4	4.4	17.8	23.0	5.2	28
	802.11ac	MCS0	14.8	4.4	19.2	23.0	3.8	29
	802.11ax	MCS0	14.3	4.4	18.7	23.0	4.3	29
	802.11ax	MCS0 RU26	6.7	4.4	11.1	23.0	11.9	21
	802.11ax	MCS0 RU52	8.1	4.4	12.5	23.0	10.5	22
	802.11ax	MCS0 RU106	11.1	4.4	15.5	23.0	7.5	30
	802.11ax	MCS0 RU242	11.2	4.4	15.6	23.0	7.4	30
100	802.11a	6M	14.2	4.4	18.6	23.0	4.4	29
	802.11n	MCS0	13.1	4.4	17.5	23.0	5.5	28
	802.11ac	MCS0	14.2	4.4	18.6	23.0	4.4	29
	802.11ax	MCS0	14.0	4.4	18.4	23.0	4.6	29
	802.11ax	MCS0 RU26	6.5	4.4	10.9	23.0	12.1	21
	802.11ax	MCS0 RU52	8.0	4.4	12.4	23.0	10.6	22
	802.11ax	MCS0 RU106	10.9	4.4	15.3	23.0	7.7	30
	802.11ax	MCS0 RU242	11.0	4.4	15.4	23.0	7.6	30
140	802.11a	6M	13.8	4.4	18.2	23.0	4.8	29
	802.11n	MCS0	12.8	4.4	17.2	23.0	5.8	28
	802.11ac	MCS0	13.9	4.4	18.3	23.0	4.7	29
	802.11ax	MCS0	13.7	4.4	18.1	23.0	4.9	29
	802.11ax	MCS0 RU26	6.3	4.4	10.7	23.0	12.3	21
	802.11ax	MCS0 RU52	7.7	4.4	12.1	23.0	10.9	22
	802.11ax	MCS0 RU106	10.5	4.4	14.9	23.0	8.1	30
	802.11ax	MCS0 RU242	10.7	4.4	15.1	23.0	7.9	30

Output Power Measurements +85.0°C

Channel	Mode	Data Rate	Avg Output Power (dBm)	Antenna Gain (dBi)	Corrected Measurement (dBm) e.i.r.p	Limit (dBm)	Margin (dB)	Power Setting
36	802.11a	6M	12.0	4.4	16.4	23.0	6.6	29
	802.11n	MCS0	11.0	4.4	15.4	23.0	7.6	28
	802.11ac	MCS0	12.2	4.4	16.6	23.0	6.4	29
	802.11ax	MCS0	12.0	4.4	16.4	23.0	6.6	29
	802.11ax	MCS0 RU26	4.5	4.4	8.9	23.0	14.1	21
	802.11ax	MCS0 RU52	5.8	4.4	10.2	23.0	12.8	22
	802.11ax	MCS0 RU106	8.7	4.4	13.1	23.0	9.9	30
	802.11ax	MCS0 RU242	8.9	4.4	13.3	23.0	9.7	30
64	802.11a	6M	12.3	4.4	16.7	23.0	6.3	29
	802.11n	MCS0	11.2	4.4	15.6	23.0	7.4	28
	802.11ac	MCS0	12.4	4.4	16.8	23.0	6.2	29
	802.11ax	MCS0	12.0	4.4	16.4	23.0	6.6	29
	802.11ax	MCS0 RU26	4.8	4.4	9.2	23.0	13.8	21
	802.11ax	MCS0 RU52	5.8	4.4	10.2	23.0	12.8	22
	802.11ax	MCS0 RU106	9.2	4.4	13.6	23.0	9.4	30
	802.11ax	MCS0 RU242	9.2	4.4	13.6	23.0	9.4	30
100	802.11a	6M	12.0	4.4	16.4	23.0	6.6	29
	802.11n	MCS0	11.0	4.4	15.4	23.0	7.6	28
	802.11ac	MCS0	12.1	4.4	16.5	23.0	6.5	29
	802.11ax	MCS0	11.9	4.4	16.3	23.0	6.7	29
	802.11ax	MCS0 RU26	4.4	4.4	8.8	23.0	14.2	21
	802.11ax	MCS0 RU52	5.7	4.4	10.1	23.0	12.9	22
	802.11ax	MCS0 RU106	8.6	4.4	13.0	23.0	10.0	30
	802.11ax	MCS0 RU242	8.8	4.4	13.2	23.0	9.8	30
140	802.11a	6M	11.9	4.4	16.3	23.0	6.7	29
	802.11n	MCS0	10.7	4.4	15.1	23.0	7.9	28
	802.11ac	MCS0	11.9	4.4	16.3	23.0	6.7	29
	802.11ax	MCS0	11.6	4.4	16.0	23.0	7.0	29
	802.11ax	MCS0 RU26	4.3	4.4	8.7	23.0	14.3	21
	802.11ax	MCS0 RU52	5.5	4.4	9.9	23.0	13.1	22
	802.11ax	MCS0 RU106	8.5	4.4	12.9	23.0	10.1	30
	802.11ax	MCS0 RU242	8.5	4.4	12.9	23.0	10.1	30

Output Power Measurements -40.0°C

Channel	Mode	Data Rate	Avg Output Power (dBm)	Antenna Gain (dBi)	Corrected Measurement (dBm) e.i.r.p	Limit (dBm)	Margin (dB)	Power Setting
36	802.11a	6M	15.8	4.4	20.2	23.0	2.8	29
	802.11n	MCS0	14.8	4.4	19.2	23.0	3.8	28
	802.11ac	MCS0	16.0	4.4	20.4	23.0	2.6	29
	802.11ax	MCS0	15.9	4.4	20.3	23.0	2.7	29
	802.11ax	MCS0 RU26	8.6	4.4	13.0	23.0	10.0	21
	802.11ax	MCS0 RU52	9.9	4.4	14.3	23.0	8.7	22
	802.11ax	MCS0 RU106	12.8	4.4	17.2	23.0	5.8	30
	802.11ax	MCS0 RU242	12.8	4.4	17.2	23.0	5.8	30
64	802.11a	6M	16.1	4.4	20.5	23.0	2.5	29
	802.11n	MCS0	15.1	4.4	19.5	23.0	3.5	28
	802.11ac	MCS0	16.2	4.4	20.6	23.0	2.4	29
	802.11ax	MCS0	16.1	4.4	20.5	23.0	2.5	29
	802.11ax	MCS0 RU26	8.8	4.4	13.2	23.0	9.8	21
	802.11ax	MCS0 RU52	10.1	4.4	14.5	23.0	8.5	22
	802.11ax	MCS0 RU106	13.0	4.4	17.4	23.0	5.6	30
	802.11ax	MCS0 RU242	13.1	4.4	17.5	23.0	5.5	30
100	802.11a	6M	15.7	4.4	20.1	23.0	2.9	29
	802.11n	MCS0	14.7	4.4	19.1	23.0	3.9	28
	802.11ac	MCS0	15.8	4.4	20.2	23.0	2.8	29
	802.11ax	MCS0	15.6	4.4	20.0	23.0	3.0	29
	802.11ax	MCS0 RU26	8.2	4.4	12.6	23.0	10.4	21
	802.11ax	MCS0 RU52	9.5	4.4	13.9	23.0	9.1	22
	802.11ax	MCS0 RU106	12.4	4.4	16.8	23.0	6.2	30
	802.11ax	MCS0 RU242	12.6	4.4	17.0	23.0	6.0	30
140	802.11a	6M	15.5	4.4	19.9	23.0	3.1	29
	802.11n	MCS0	14.5	4.4	18.9	23.0	4.1	28
	802.11ac	MCS0	15.5	4.4	19.9	23.0	3.1	29
	802.11ax	MCS0	15.5	4.4	19.9	23.0	3.1	29
	802.11ax	MCS0 RU26	8.0	4.4	12.4	23.0	10.6	21
	802.11ax	MCS0 RU52	9.4	4.4	13.8	23.0	9.2	22
	802.11ax	MCS0 RU106	12.3	4.4	16.7	23.0	6.3	30
	802.11ax	MCS0 RU242	12.3	4.4	16.7	23.0	6.3	30

5.1.4 Power Spectral Density

Operator	Dylan Rosenfeldt	QA	Anthony Smith, Mitchell Freund
Temperature	21.1°C, 21.5°C	R.H. %	45.7%, 38.2%
Test Date	10/31/2024-11/01/2024	Location	Conducted RF Bench
Requirement	ETSI 301 893 4.2.3 AS/NZS 4268 Table 1	Method	ETSI 301 893 5.4.4

Limit: ETSI 301 893: The mean e.i.r.p density limit for devices with TPC and without Radar Interference Detection is 10 dBm/MHz

AS/NZS 4268: If the emission bandwidth is 1 MHz or greater, the radiated power spectral density in any 1 MHz is limited to 10 mW per MHz.

Test Parameters

Frequency	5150-5725 MHz	Setup	Antenna Port
RBW	10 kHz	VBW	30 kHz
Detector(s)	RMS	Settings	Max Hold

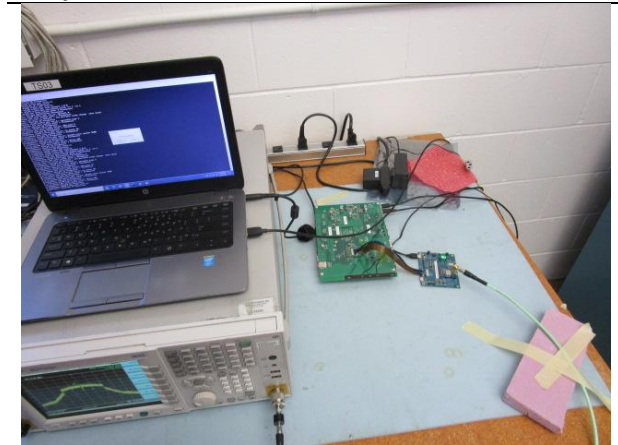
Instrumentation

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 960087	Analyzer – Spectrum	Agilent	N9010A	MY53400296	04/11/2024	04/11/2025	Active Calibration

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5 GHz WLAN Tx
Frequency	5180-5700 MHz	Channel	See 2.7

Setup Photos



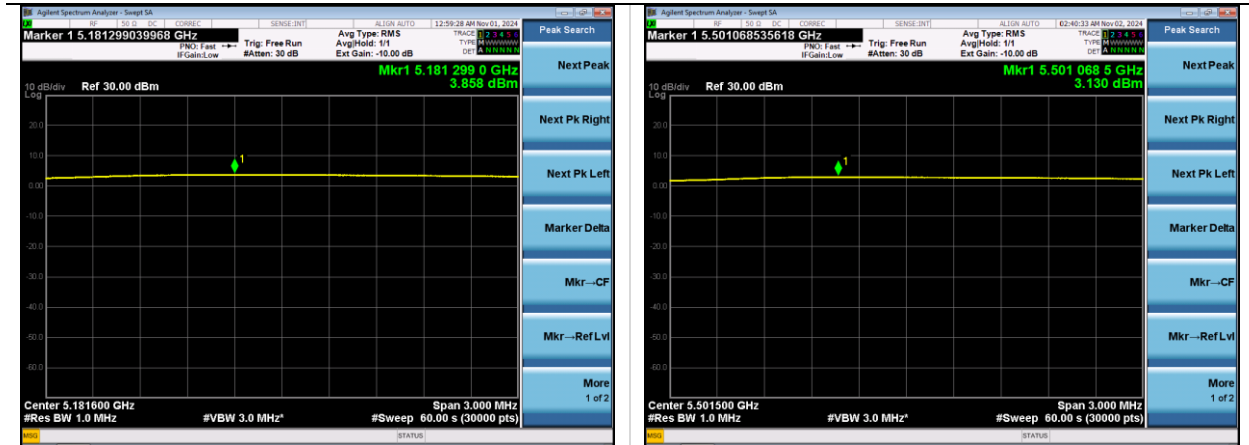
Company: Ezurio	Page 23 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

Measurements

Mode	Data Rate	Channel	PSD e.i.r.p (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Power Setting
802.11a	6Mbps	36	8.3	10.0	1.7	29
		64	8.0	10.0	2.0	29
		100	8.4	10.0	1.6	29
		140	8.0	10.0	2.0	29
802.11n	MCS0	36	6.8	10.0	3.2	28
		64	7.3	10.0	2.7	28
		100	7.5	10.0	2.5	28
		140	7.2	10.0	2.8	28
802.11ac	MCS0	36	7.9	10.0	2.1	29
		64	8.3	10.0	1.7	29
		100	8.3	10.0	1.7	29
		140	8.1	10.0	1.9	29
802.11ax	MCS0	36	7.9	10.0	2.1	29
		64	7.7	10.0	2.3	29
		100	7.7	10.0	2.3	29
		140	7.6	10.0	2.4	29

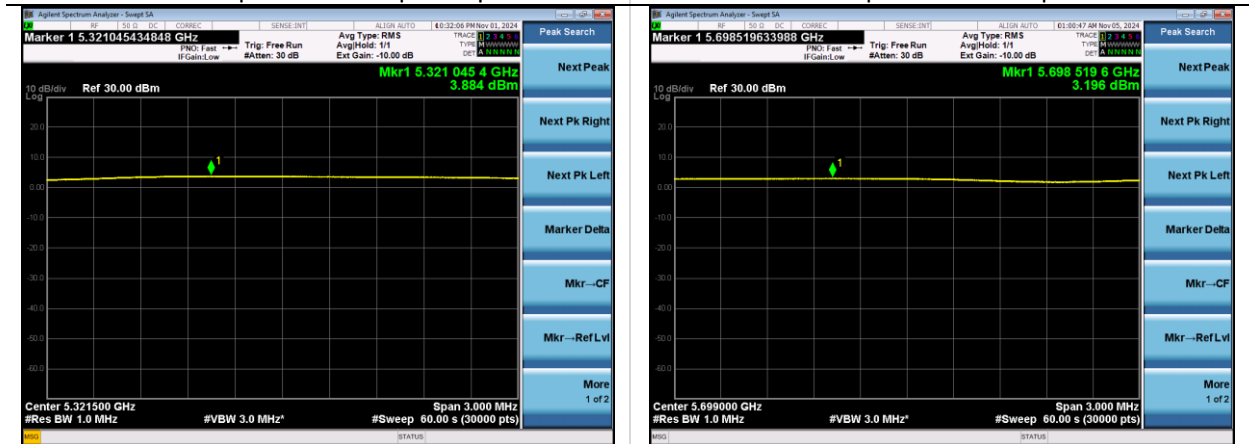
Mode	Data Rate	Channel	PSD e.i.r.p (dBm/MHz)	Limit (dBm/MHz)	Margin (dB)	Power Setting
802.11ax	MCS0 RU26	36	8.1	10.0	1.9	21
		64	7.7	10.0	2.3	21
		100	7.2	10.0	2.8	21
		140	7.5	10.0	2.5	21
802.11ax	MCS0 RU52	36	7.8	10.0	2.2	22
		64	8.4	10.0	1.6	22
		100	8.0	10.0	2.0	22
		140	7.9	10.0	2.1	22
802.11ax	MCS0 RU106	36	7.1	10.0	2.9	30
		64	7.4	10.0	2.6	30
		100	7.3	10.0	2.7	30
		140	7.0	10.0	3.0	30
802.11ax	MCS0 RU242	36	3.1	10.0	6.9	30
		64	3.6	10.0	6.4	30
		100	3.3	10.0	6.7	30
		140	3.3	10.0	6.7	30

Plots



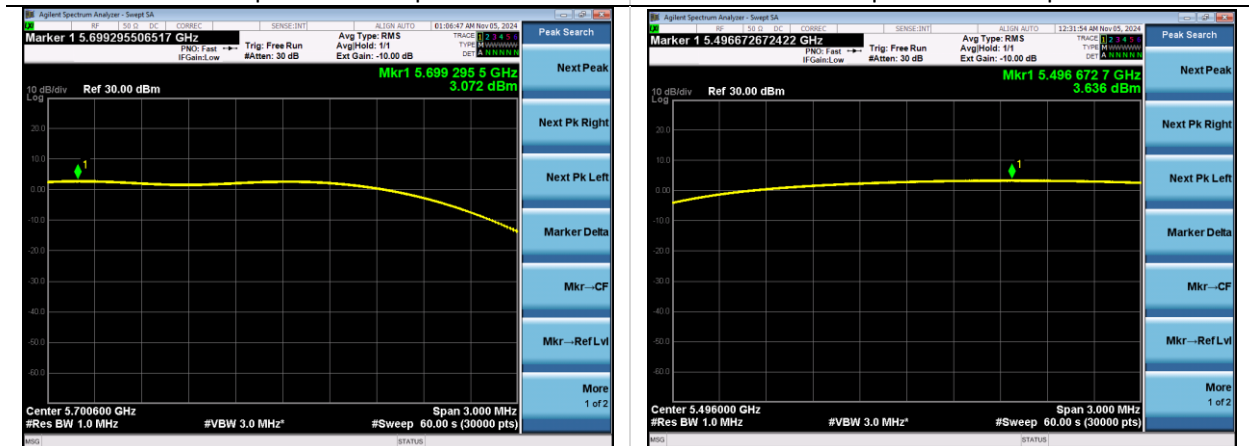
802.11a | Channel 36 | 6 Mbps

802.11n | Channel 100 | MCS0



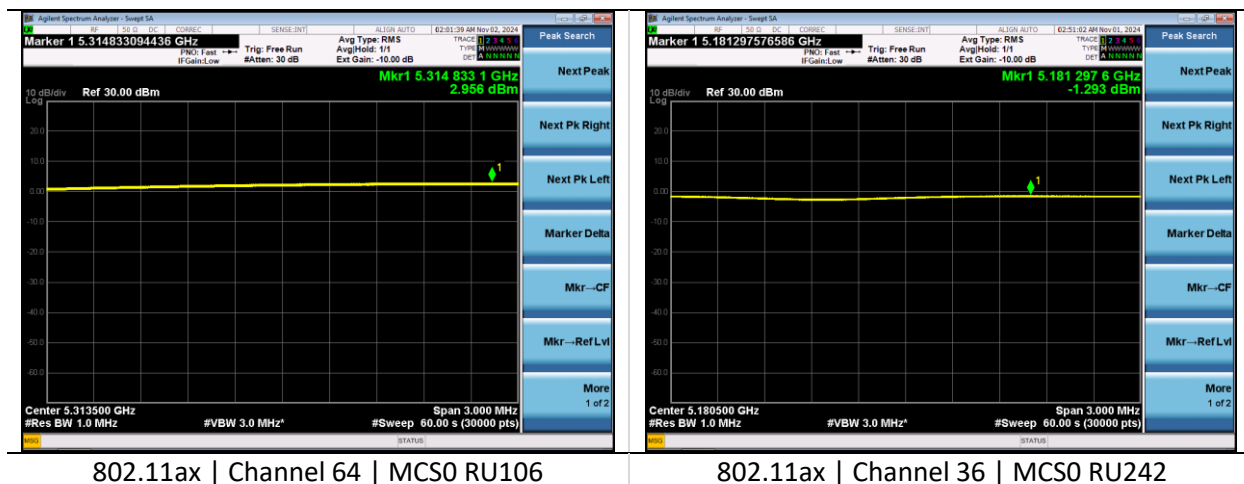
802.11ac | Channel 64 | MCS0

802.11ax | Channel 140 | MCS0



802.11ax | Channel 140 | MCS0 RU26

802.11ax | Channel 100 | MCS0 RU52



5.1.5 Transmitter unwanted emissions outside the 5 GHz RLAN bands

Operator	Mitchell Freund	QA	Dylan Rosenfeldt
Temperature	21.6°C	R.H. %	32.40%
Test Date	10/16/2024	Location	RF Conducted Bench
Requirement	ETSI 301 893 4.2.4.1 AS/NZS 4268 6.4	Method	ETSI 301 893 5.4.5

Limits:

Frequency (MHz)	Maximum Power	Bandwidth
30-47	-36 dBm	100 kHz
47-74	-54 dBm	100 kHz
74-87.5	-36 dBm	100 kHz
87.5-118	-54 dBm	100 kHz
118-174	-36 dBm	100 kHz
174-230	-54 dBm	100 kHz
230-470	-36 dBm	100 kHz
470-862	-54 dBm	100 kHz
862-1000	-36 dBm	100 kHz
1000-5150	-30 dBm	1 MHz
5350-5470	-30 dBm	1 MHz
5725-26000	-30 dBm	1 MHz

Test Parameters

Frequency	30-26000 MHz	Setup	Antenna Port
RBW	100kHz 1MHz	VBW	300kHz 3MHz
Detector(s)	Peak, RMS Average		

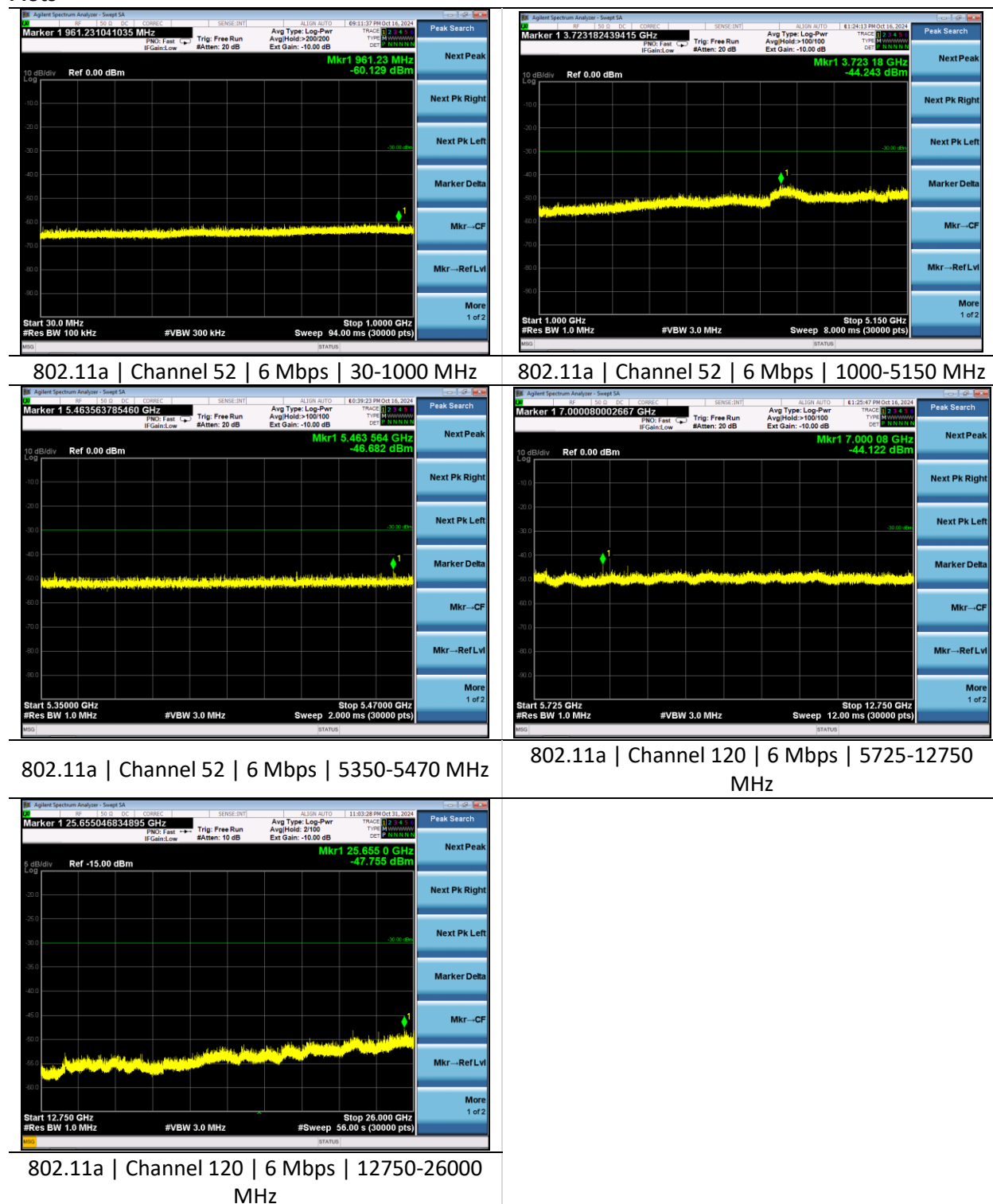
Instrumentation

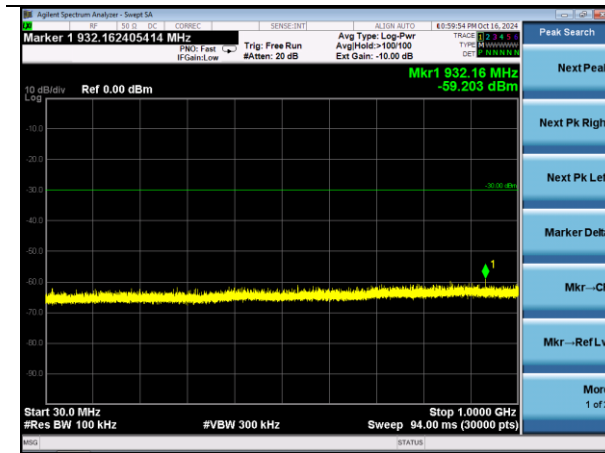
Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960088	Analyzer - EMI Receiver	Agilent	N9038A	MY51210138	4/11/2024	4/11/2025	Active Calibration
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	6/13/2024	6/12/2025	Active Verification

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Tx
Frequency	5180-5700 MHz	Channel	See 2.7

Plots

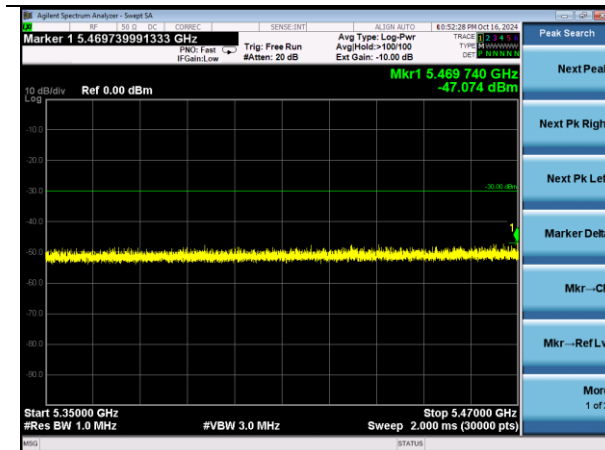




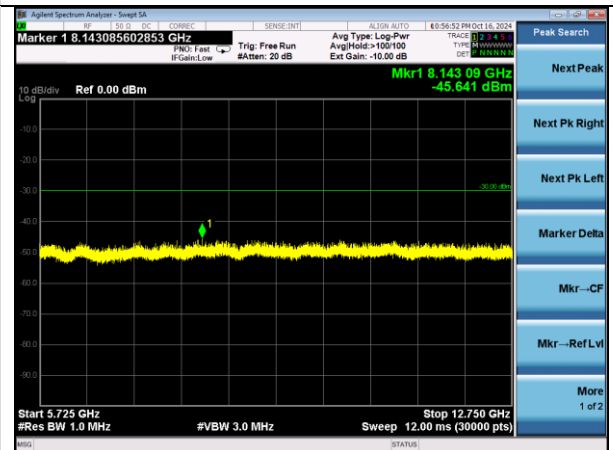
802.11ax | Channel 52 | MCS0 RU26 | 30-1000 MHz



802.11ax | Channel 52 | MCS0 RU26 | 1000-5150 MHz



802.11ax | Channel 52 | MCS0 RU26 | 5350-5470 MHz



802.11ax | Channel 120 | MCS0 RU26 | 5725-12750 MHz

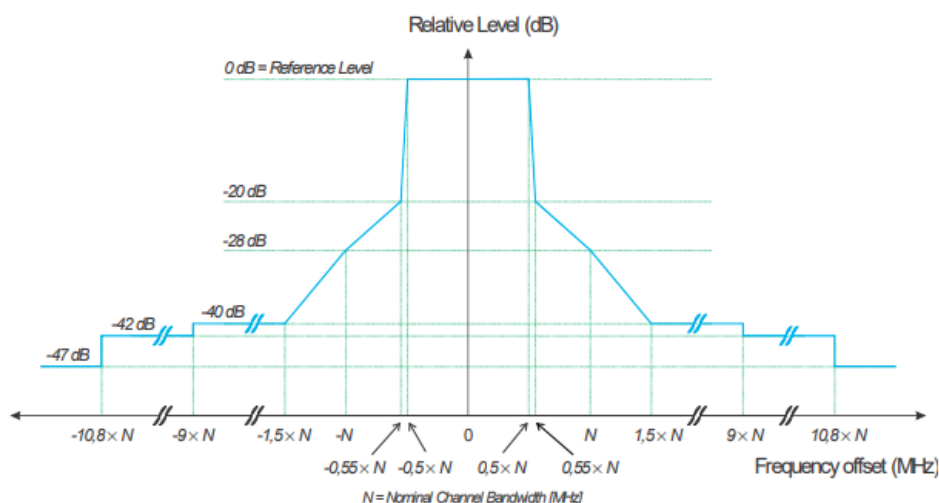


802.11ax | Channel 120 | MCS0 RU26 | 12750-26000 MHz

5.1.6 Transmitter unwanted emissions within the 5 GHz RLAN bands

Operator	Dylan Rosenfeldt	QA	Anthony Smith
Temperature	21.8°C	R.H. %	41.2%
Test Date	11/04/2024	Location	RF Conducted Bench
Requirement	ETSI 301 893 4.2.4.2 AS/NZS 4268 6.5	Method	ETSI 301 893 5.4.6

Limits: ETSI 301 893



AS/NZS: 4268: The upper and lower frequency limits of the transmitter 99% emission power bandwidth shall at all times remain within the operating frequency limits.

Test Parameters

Frequency	5150-5725 MHz	Setup	Antenna Port
RBW	430 kHz	VBW	1.3 MHz
Detector(s)	Average (RMS)		

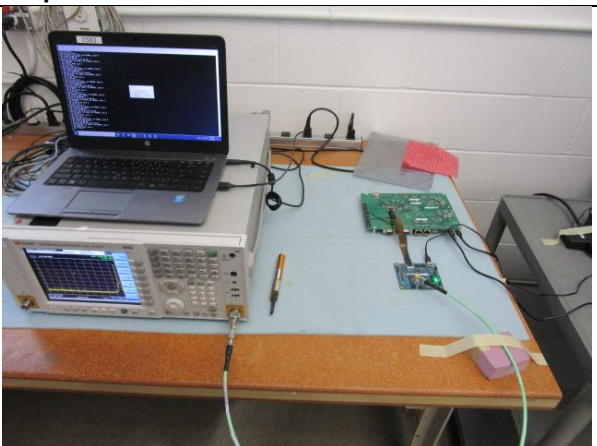
Instrumentation

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	4/10/2024	4/10/2025	Active Calibration

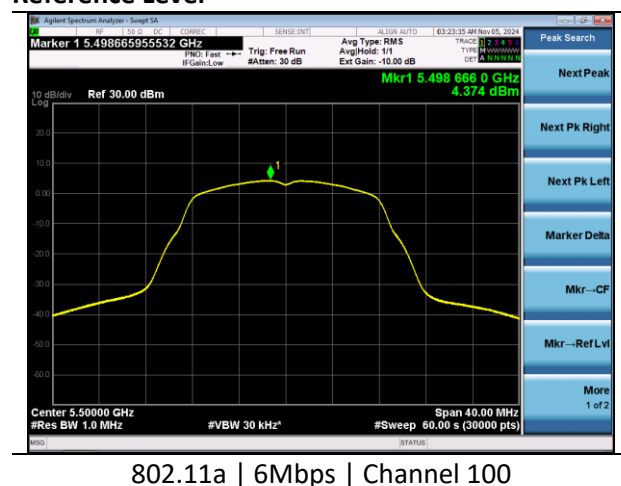
EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Tx
Frequency	5180-5700 MHz	Channel	See 2.7

Setup Photos



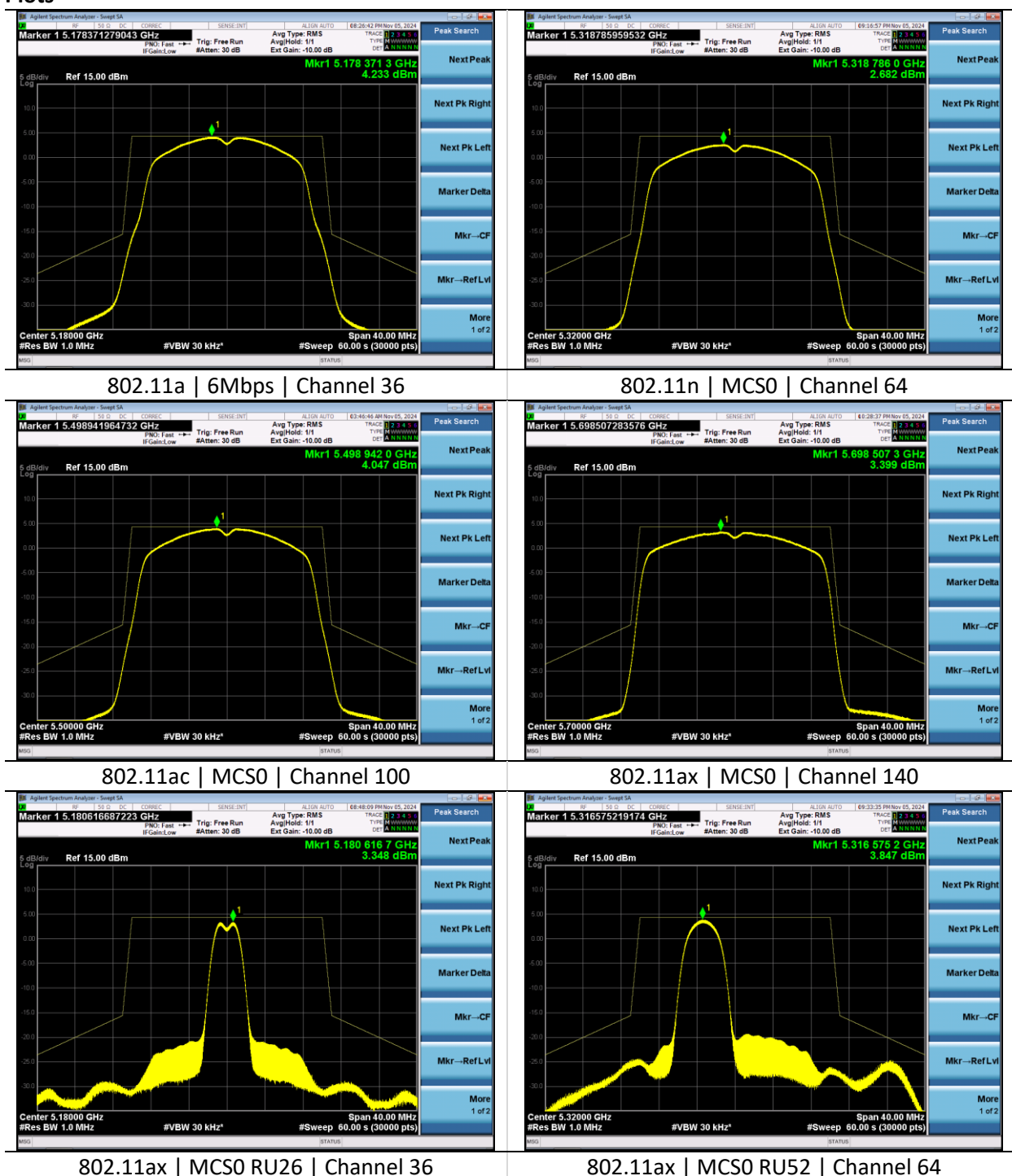
Reference Level

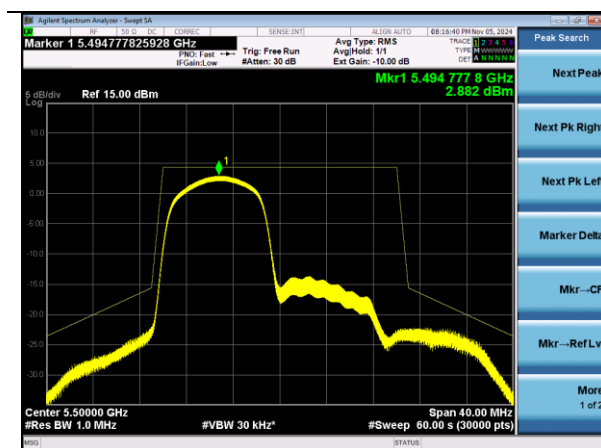


802.11a | 6Mbps | Channel 100

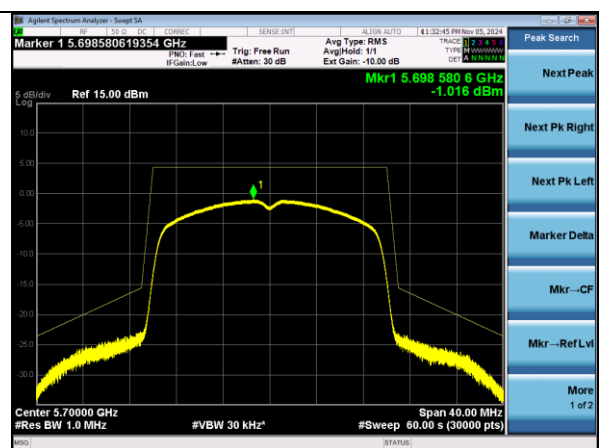
Company: Ezurio	Page 33 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

Plots





802.11ax | MCS0 RU106 | Channel 100



802.11ax | MCS0 RU242 | Channel 140

5.1.7 Receiver spurious emissions

Operator	Mitchell Freund	QA	Dylan Rosenfeldt
Temperature	21.6°C	R.H. %	32.40%
Test Date	10/16/2024	Location	RF Conducted Bench
Requirement	ETSI 301 893 4.2.5 AS/NZS 4268 7.2	Method	ETSI 301 893 5.4.7

Limits:

Frequency (MHz)	Maximum Power	Bandwidth
30-1000	-57 dBm	100 kHz
1000-26000	-47 dBm	1 MHz

Test Parameters

Frequency	30-26000 MHz	Setup	Antenna Port
RBW	100 kHz 1 MHz	VBW	300 kHz 3 MHz
Detector(s)	Peak – Trace Average (RMS) – Final		

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	4/11/2024	4/11/2025	Active Calibration

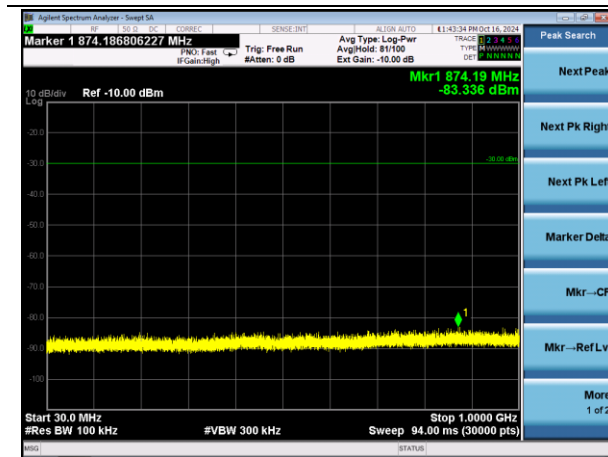
EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Tx
Frequency	5180-5700 MHz	Channel	See 2.7

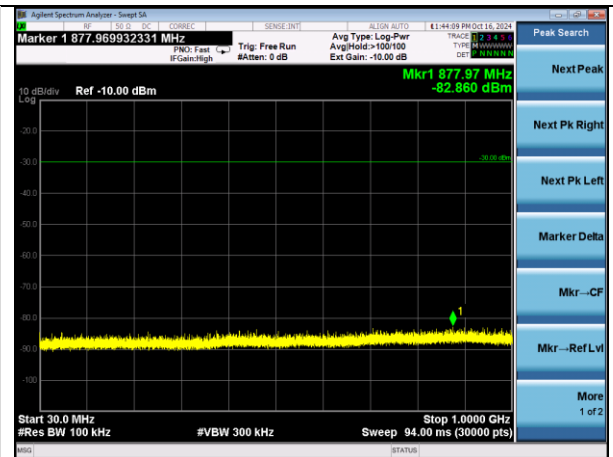
Setup Photos



Plots

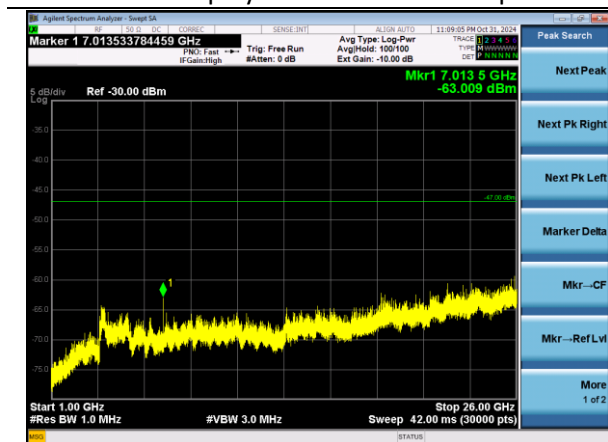


Channel 52 | RX | 30-1000 MHz

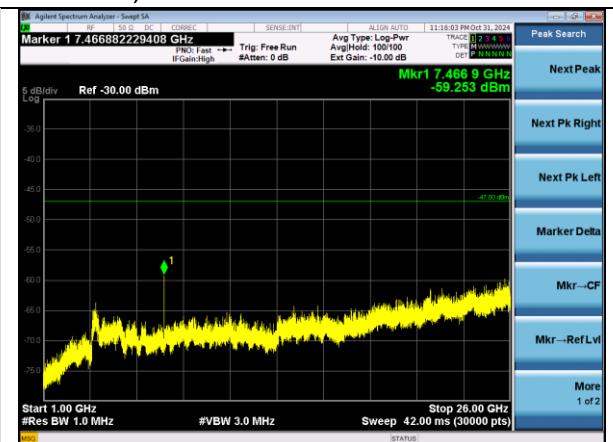


Channel 120 | RX | 30-1000 MHz

Display line does not correspond to emission limit, see above for correct limit



Channel 52 | RX | 1000-26000 MHz



Channel 120 | RX | 1000-26000 MHz

Company: Ezurio	Page 37 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

5.1.8 Dynamic Frequency Selection (DFS)

Operator	Dylan Rosenfeldt	QA	Adam Alger
Temperature	22.8°C	R.H. %	45.3%
Test Date	09/18/2024	Location	Conducted RF Bench
Requirement	ETSI 301 893 4.2.6 AS/NZS 4268 Table 1	Method	ETSI 301 893 5.4.8

Requirements:

Slave without Radar Detection

1. Channel Closing Time
1 second
2. Channel Move Time
10 seconds

Radar Test Signal

Pulse Width: 1 μ second

Pulse Repetition Frequency: 700

Pulses per burst: 18

Test Parameters

Frequency	5280 MHz	Setup	Conducted
RBW	3 MHz	VBW	3 MHz
Detector(s)	Peak Detector	Settings	Clear Write – Single Sweep
Notes	Radar Injection at the Master Device.		

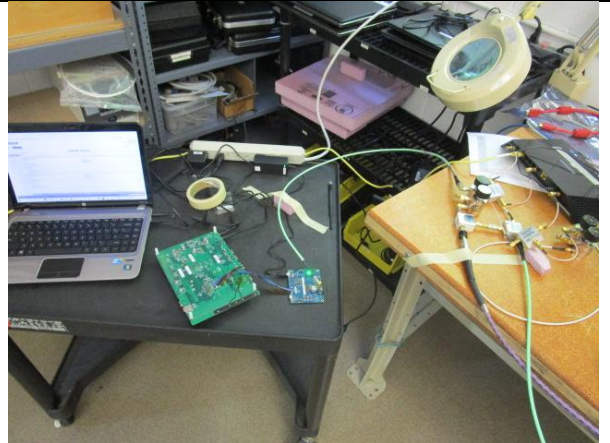
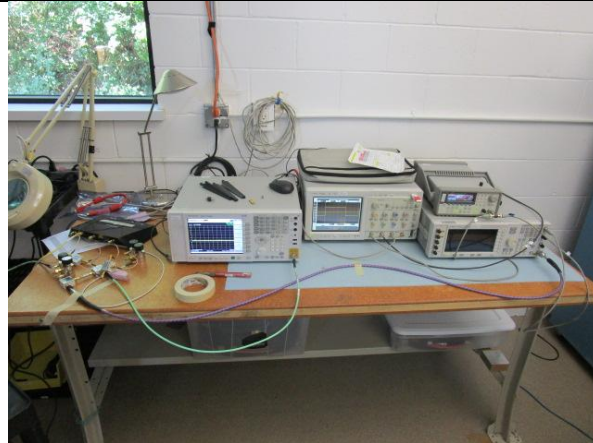
Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960172	Cable	A.H. Systems, Inc.	SAC-26G-1	387	6/13/2024	6/12/2025	Active Verification
AA 960173	Cable	A.H. Systems, Inc.	SAC-26G-1	388	6/13/2024	6/12/2025	Active Verification
AA 960180	Attenuator - Step Variable 1 dB	RF Lambda	RKT2G6A10	16100801	12/12/2023	12/12/2024	Active Verification
AA 960184	Attenuator - Step Variable 10 dB	RF Lambda	RKT2G6A60	17031005	12/12/2023	12/12/2024	Active Verification
CC 000259C	Generator - Function / Arbitrary Waveform	Agilent	33250A	US40000583	4/13/2024	4/13/2025	Active Calibration
CC 000314C	Vector Signal Generator	Agilent	E4438C	US 41469143	9/21/2022	9/20/2024	Active Calibration
CC 000710C	Oscilloscope	Agilent	MSO8104A	MY45001068	4/13/2024	4/13/2025	Active Calibration
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/11/2024	4/11/2025	Active Calibration
EE 960183	RF Splitter/Combiner	mini-circuits	ZFSC-2-10G +	S F707601702	12/12/2023	12/12/2024	Active Verification
EE 960184	RF Splitter/Combiner	mini-circuits	ZFSC-2-10G +	S F707601702	12/12/2023	12/12/2024	Active Verification
EE 960185	RF Splitter/Combiner	mini-circuits	ZFSC-2-10G +	S F707601702	12/12/2023	12/12/2024	Active Verification

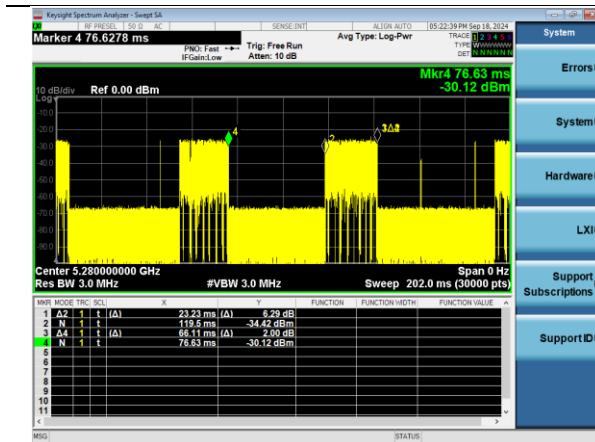
EUT Parameters

EUT Model	SONA TI351 with MHF4 connector	Mode	5G WLAN
Frequency	5280 MHz	Channel	56
EUT	Slave without radar detection	AE	HP Laptop and Router as Master Device
Notes	EUT setup to connect to Master device and perform data streaming using iPerf3 Channel loading greater than 17%		

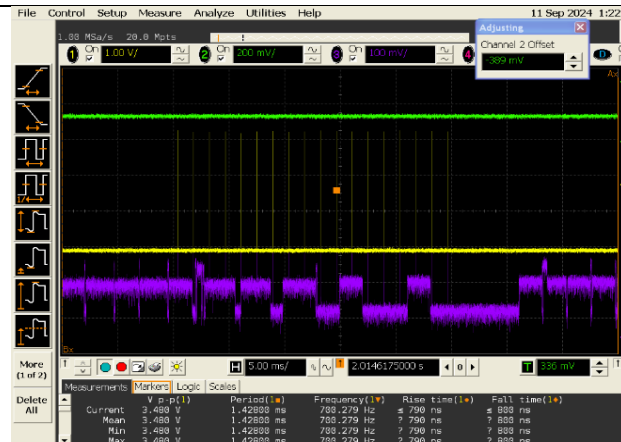
Setup Photos



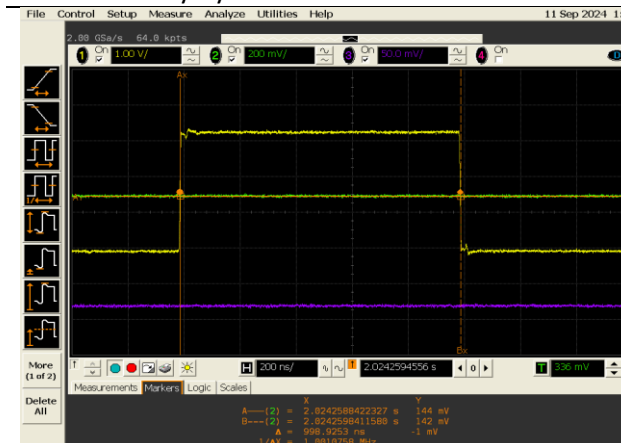
Plots



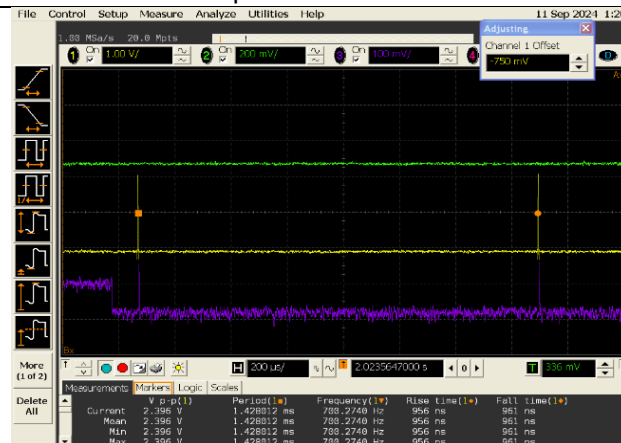
Duty Cycle of iPerf Traffic: 34%



Pulses per Burst: 18 Pulses

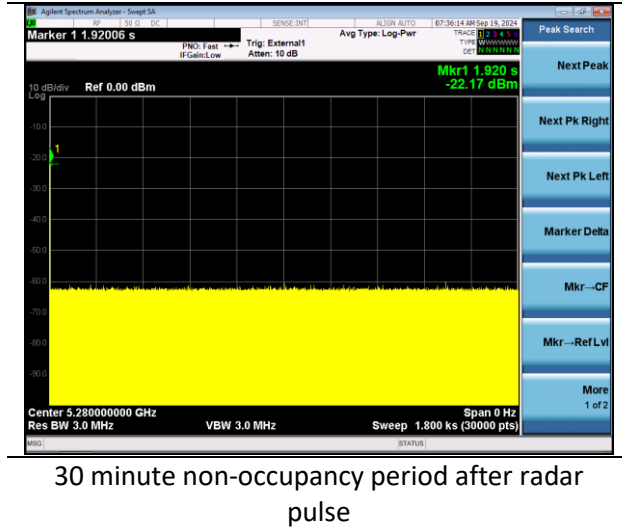
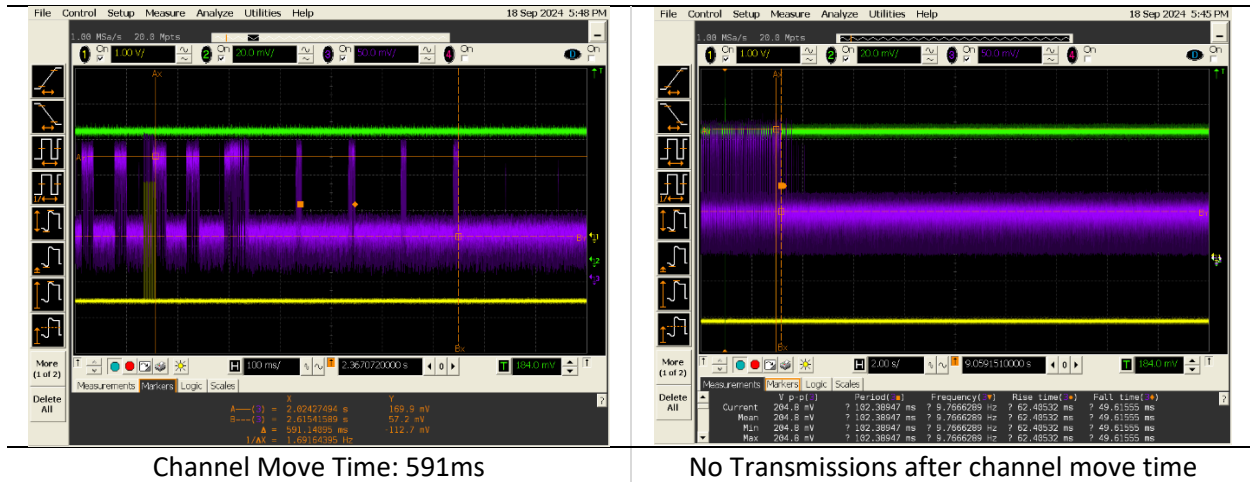


Radar Pulse: 1μsec Pulse Width



Pulse Repetition Frequency: 700 Hz

Company: Ezurio		Name: SONA TI351
Report: TR3818-5G-301-893	Page 40 of 62	Model: SONA TI351
Job: C-3818		Serial: 00013 00008



5.1.9 Adaptivity (Channel Access Mechanism)

Operator	Dylan Rosenfeldt	QA	Anthony Smith
Temperature	22.0°C	R.H. %	35.70%
Test Date	12/17/2024	Location	RF Conducted Bench
Requirement	ETSI 301 893 5.4.9 AS/NZS 4268 7.2	Method	ETSI 301 893 5.4.9.3

Test Parameters

Frequency	5240 MHz	Setup	Antenna Port
Threshold Level	-75 dBm/MHz	Unwanted Signal Level	AWGN: -75.3 dBm/MHz LTE: -75.3dBm/MHz OFDM: -75.2 dBm/MHz
Interference Signal Frequency	5240 MHz		

Instrumentation

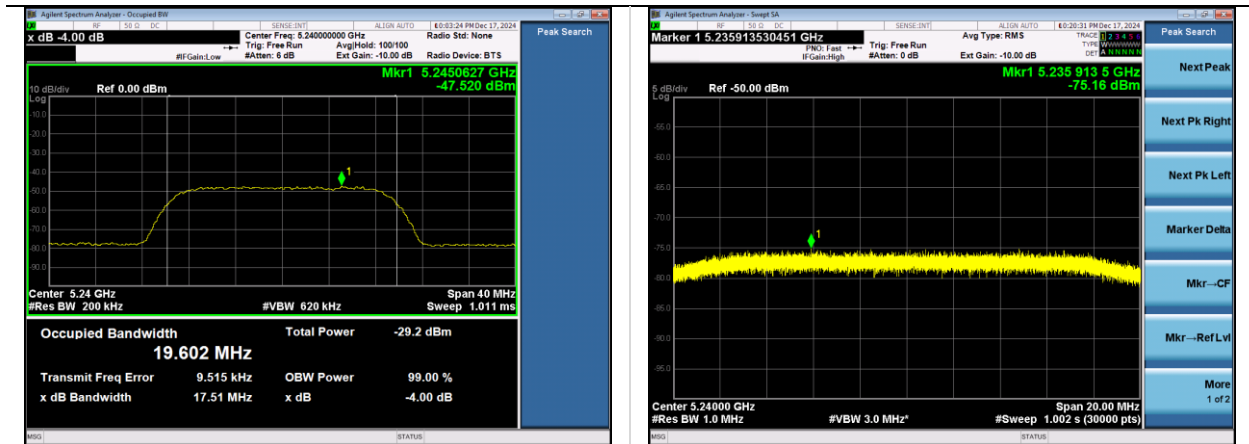
Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960180	Attenuator - Step Variable 1 dB	RF Lambda	RKT2G6A10	16100801	12/12/2024	12/12/2025	Active Verification
AA 960182	RF Splitter/Combiner	Mini-Circuits	ZFSC-2-10G+	F707701704	12/12/2024	12/12/2025	Active Verification
AA 960184	Attenuator - Step Variable 10 dB	RF Lambda	RKT2G6A60	17031005	12/12/2024	12/12/2025	Active Verification
CC 000259C	Generator - Function / Arbitrary Waveform	Agilent	33250A	US40000583	4/10/2024	4/10/2026	Active Calibration
CC 000314C	Vector Signal Generator	Agilent	E4438C	US 41469143	4/10/2024	4/10/2025	Active Calibration
CC 000710C	Oscilloscope	Agilent	MSO8104A	MY45001068	4/9/2024	4/9/2025	Active Calibration
EE 960086	Generator - Signal	Rohde & Schwarz	SMB100A	1406.600K03	4/13/2024	4/13/2025	Active Calibration
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/10/2024	4/10/2025	Active Calibration
EE 960166	Coupler - Directional	Narda	3202B-10	11605	1/8/2024	1/8/2025	Active Verification
EE 960184	RF Splitter/Combiner	mini-circuits	ZFSC-2-10G +	S F707601702	12/12/2024	12/12/2025	Active Verification

EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN
Frequency	5240 MHz	Channel	48

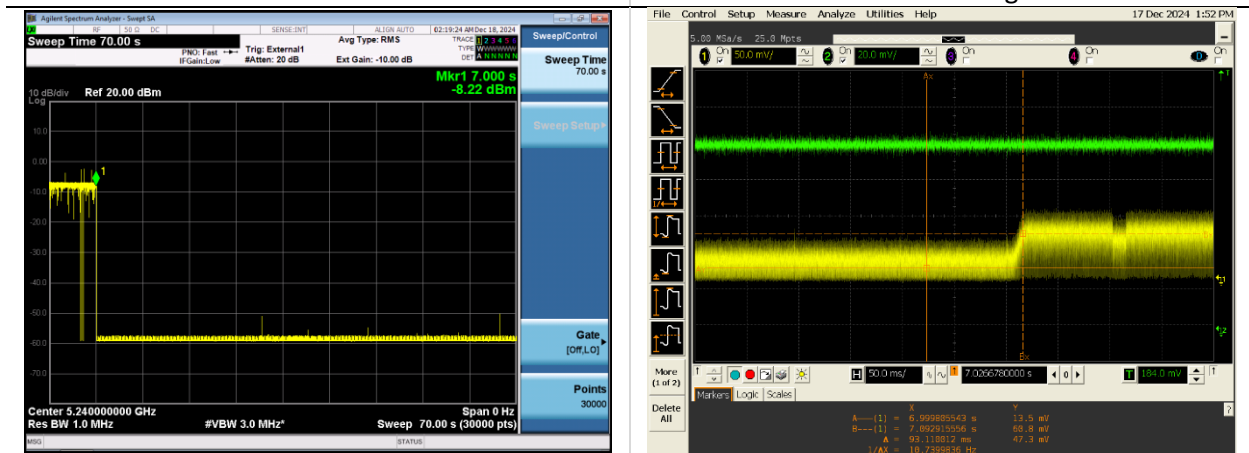
Interference Signal			
Frequency (MHz)	Modulation	Threshold Level (dBm)	Sig Gen Setting (dBm)
5785	AWGN	-75.3	-57.7
5785	LTE	-75.3	-57.5
5785	OFDM	-75.2	-57.5

AWGN Plots



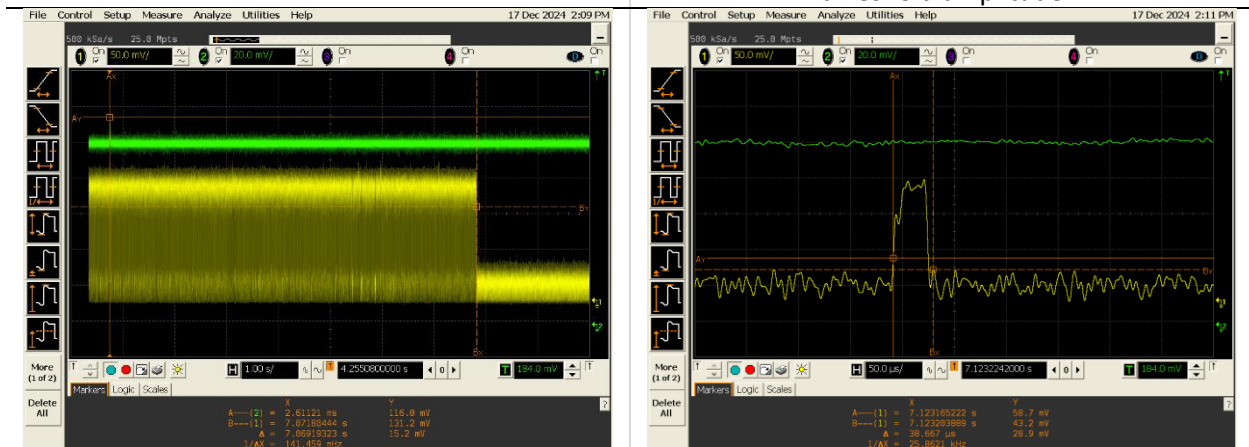
99% BW 19.6 MHz

Interference Signal



Interference Signal starts at 7 seconds

90ms delay for signal generator to reach threshold amplitude

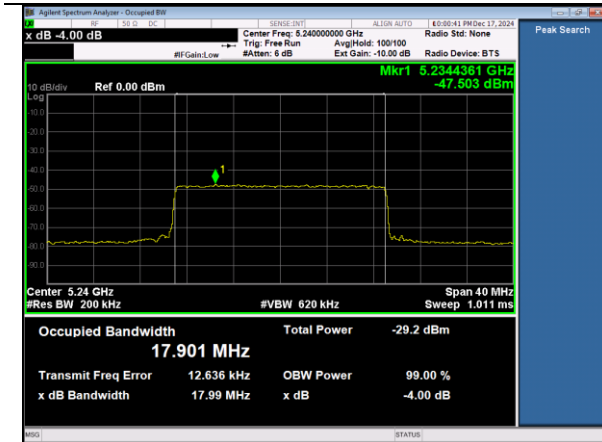


Transmissions stop at 7.072 seconds

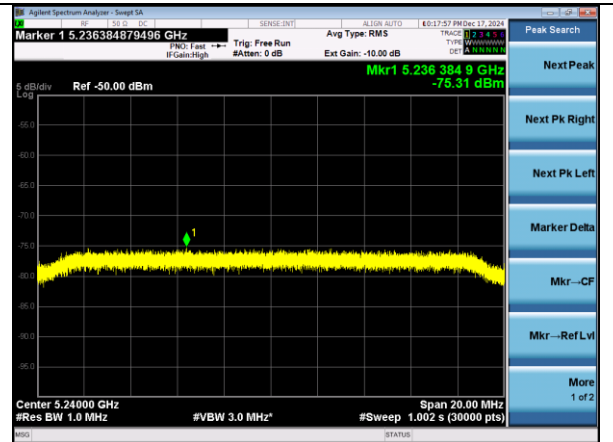
1 short control signalling transmission 38.7μs

Company: Ezurio		Name: SONA TI351
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Job: C-3818		Serial: 00013 00008

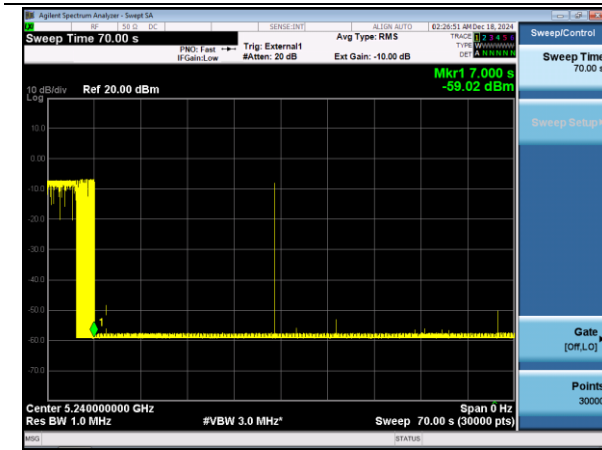
LTE Plots



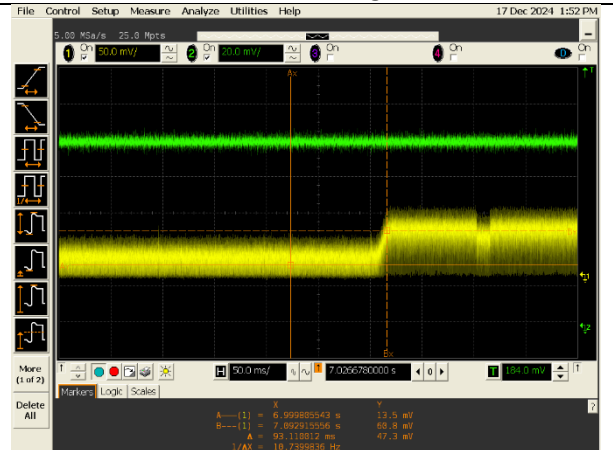
99% BW 17.9 MHz



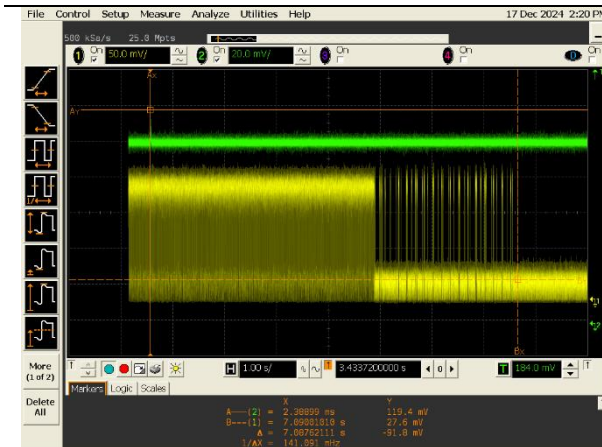
Interference Signal



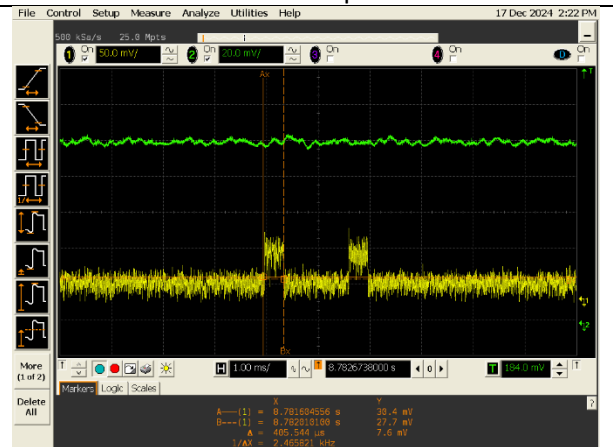
Interference Signal starts at 7 seconds



90ms delay for signal generator to reach threshold amplitude

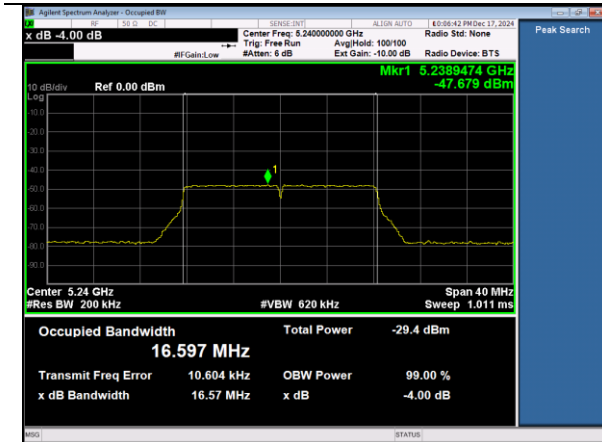


Transmissions stop at 7.088 seconds

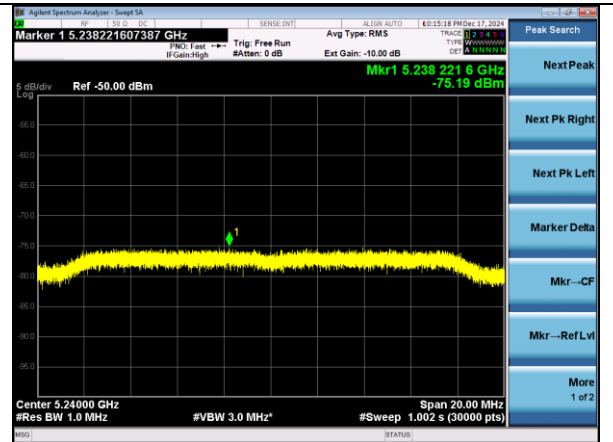


2 short control signalling transmission 405μs each

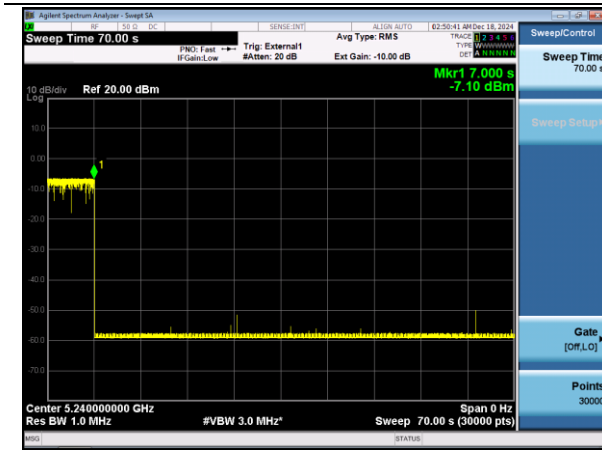
OFDM Plots



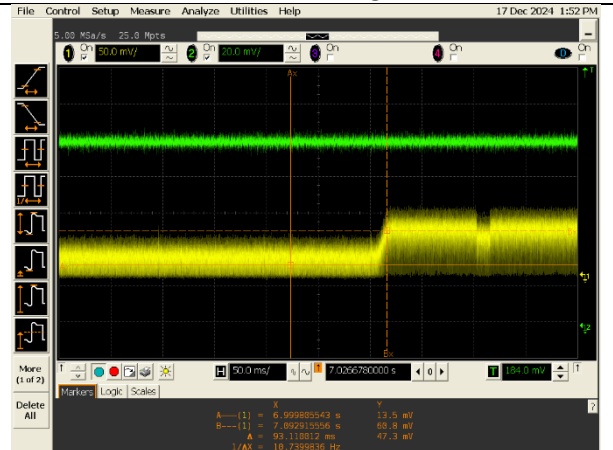
99% BW 16.6 MHz



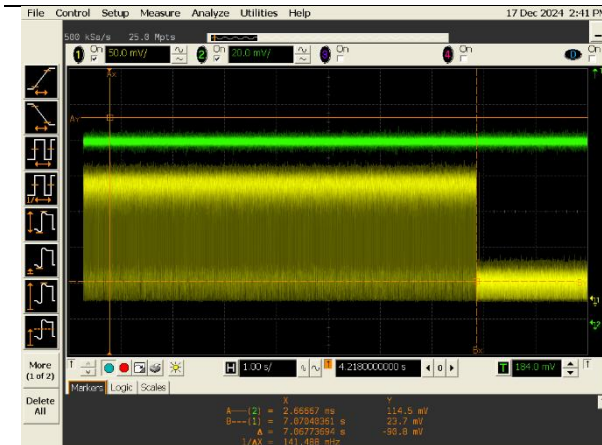
Interference Signal



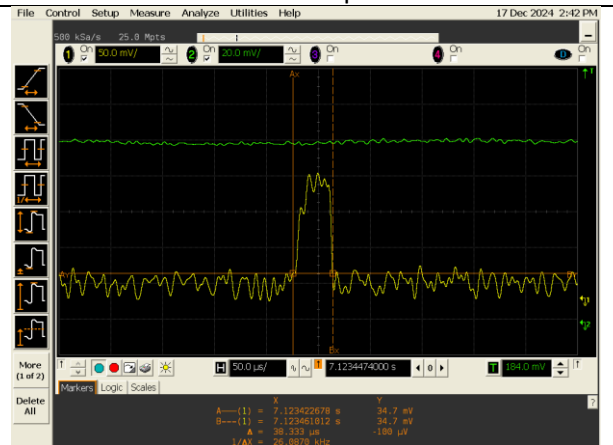
Interference Signal starts at 7 seconds



90ms delay for signal generator to reach threshold amplitude



Transmissions stop at 7.088 seconds



1 short control signalling transmission 38.3μs

5.1.10 Receiver Blocking

Operator	Anthony Smith	QA	Dylan Rosenfeldt
Temperature	21.4°C-21.5°C	R.H. %	36.9%-41.2%
Test Date	11/11/2024-11/12/2024	Location	Conducted RF Bench
Requirement	ETSI 301 893 4.2.8 AS/NZS 4268 7.2	Method	ETSI 301 893 5.4.10

Limits:

Table 9: Receiver Blocking parameters

Wanted signal mean power from companion device (dBm)	Blocking signal frequency (MHz)	Blocking signal power (dBm) (see note 2)		Type of blocking signal
		Master or Slave with radar detection (see table D.2, note 2)	Slave without radar detection (see table D.2, note 2)	
P _{min} + 6 dB	5 100	-53	-59	Continuous Wave
P _{min} + 6 dB	4 900 5 000 5 975	-47	-53	Continuous Wave
NOTE 1: P _{min} is the minimum level of the wanted signal (in dBm) required to meet the minimum performance criteria as defined clause 4.2.8.3 in the absence of any blocking signal.				
NOTE 2: The levels specified are levels in front of the UUT antenna. In case of conducted measurements, the same levels should be used at the antenna connector irrespective of antenna gain.				

Test Parameters

Receiver Category	Slave without radar detection	Performance Criteria	10% PER
Wanted signal mean Power from Companion	-74 dBm -74 dBm	Actual Signal Power from Companion Device	-78.4 dBm -78.4 dBm
Blocking Signal Frequencies	5100 MHz 4900, 5000, 5975 MHz		

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960086	Generator - Signal	Rohde & Schwarz	SMB100A	1406.600K03	4/13/2024	4/13/2025	Active Calibration
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/10/2024	4/10/2025	Active Calibration
AA 960180	Attenuator - Step Variable 1 dB	RF Lambda	RKT2G6A10	16100801	12/12/2023	12/12/2024	Active Verification
AA 960182	RF Splitter/Combiner	Mini-Circuits	ZFSC-2-10G+	F707701704	12/12/2023	12/12/2024	Active Verification
AA 960184	Attenuator - Step Variable 10 dB	RF Lambda	RKT2G6A60	17031005	12/12/2023	12/12/2024	Active Verification

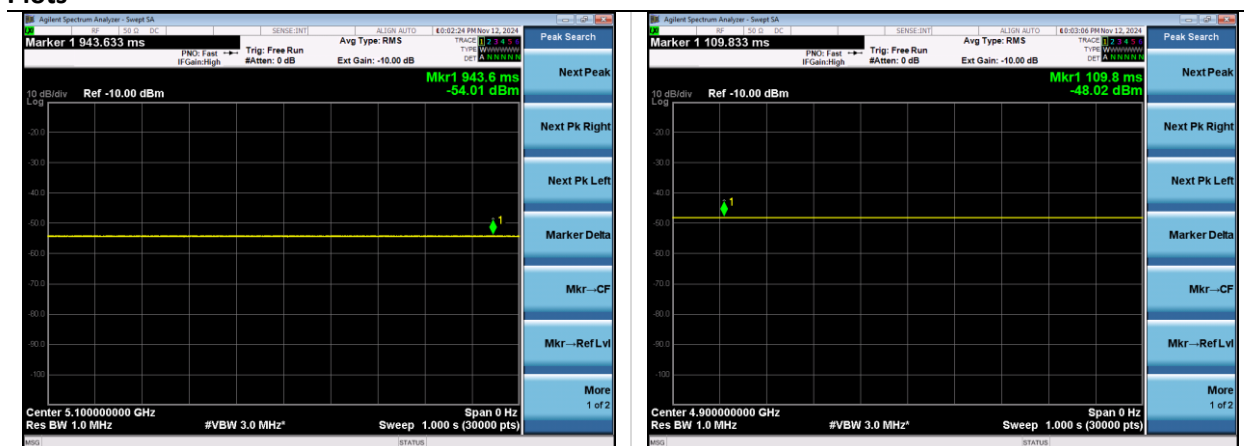
EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Rx
Frequency	5180-5720 MHz	Channel	See 2.7

Measurements

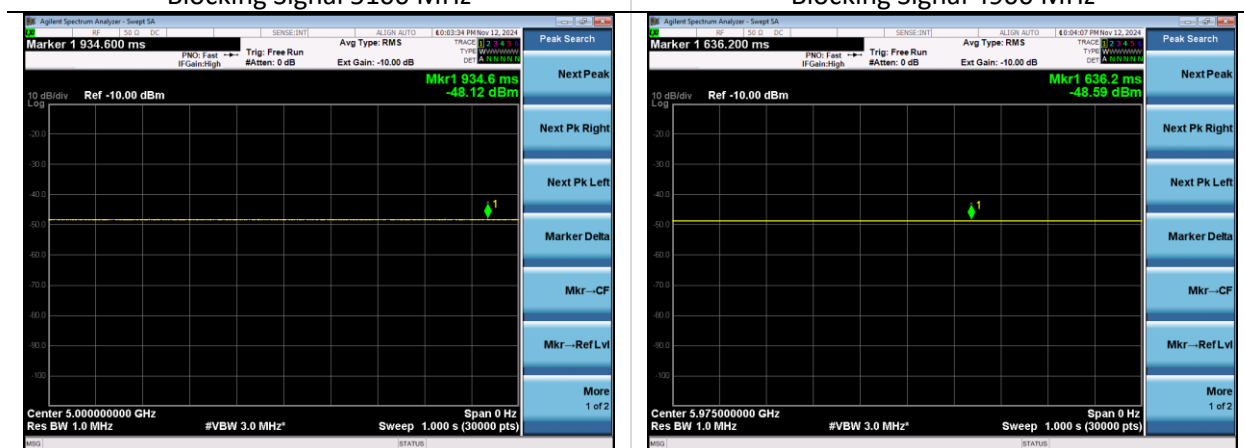
Channel	Rate	5100 MHz	4900 MHz	5000 MHz	5975 MHz	Packets Sent
PER%						
52	6 Mbps	0.0%	-	0.0%	0.0%	2000
120	6 Mbps	-	0.0%	-	-	2000
Packets Received						
52	6 Mbps	2000	-	2000	2000	2000
120	6 Mbps	-	2000	-	-	2000

Plots



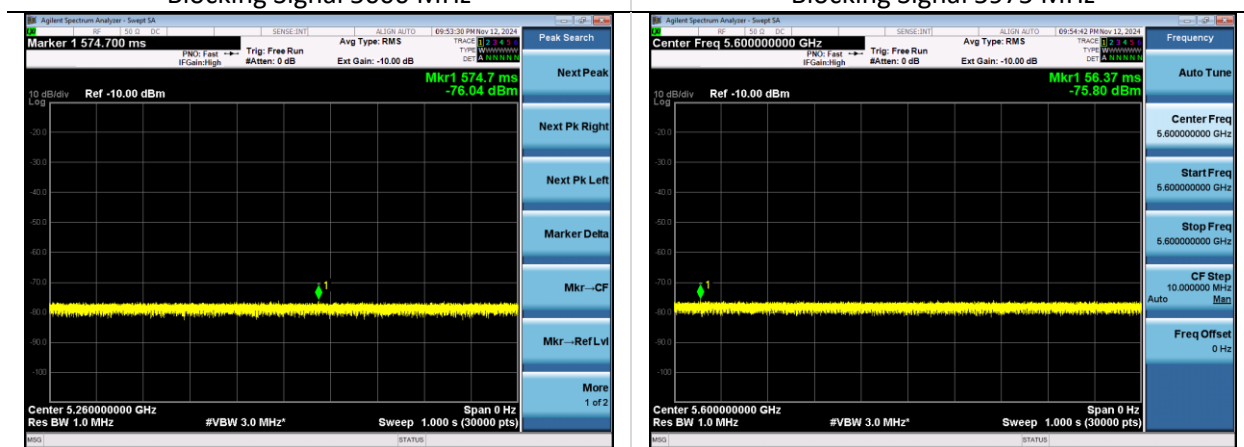
Blocking Signal 5100 MHz

Blocking Signal 4900 MHz



Blocking Signal 5000 MHz

Blocking Signal 5975 MHz



Companion Level low channel

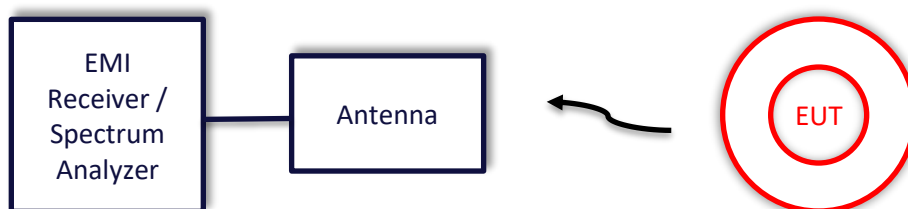
Companion Level low channel

Pmin found at litepoint setting -80, levels taken at -60 to be above noise floor of analyzer

5.2 Radiated Emissions

Description of Measurement	<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>
Example Calculations	<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



5.2.1 Transmitter unwanted emissions outside the 5 GHz RLAN bands

Operator	Mitchell Freund Jon Dilley Dylan Rosenfeldt	QA	Jon Dilley Mitchell Freund Adam Alger Anthony Smith
Temperature	20.7°C-21.9°C	R.H. %	36.1%-51.6%
Test Date	09/24/2024-9/26/2024, 10/14/2024, 10/23/2024-10/25/2024, 11/4/2024	Location	Chamber 3
Requirement	ETSI 301 893 4.2.4.1 AS/NZS 4268 6.4	Method	ETSI 301 893 5.4.5.2.2

Limits:

Frequency (MHz)	Maximum Power	Bandwidth
30-47	-36 dBm	100 kHz
47-74	-54 dBm	100 kHz
74-87.5	-36 dBm	100 kHz
87.5-118	-54 dBm	100 kHz
118-174	-36 dBm	100 kHz
174-230	-54 dBm	100 kHz
230-470	-36 dBm	100 kHz
470-862	-54 dBm	100 kHz
862-1000	-36 dBm	100 kHz
1000-5150	-30 dBm	1 MHz
5350-5470	-30 dBm	1 MHz
5725-26000	-30 dBm	1 MHz

Test Parameters

Frequency	30-26000 MHz	Distance	3 m
Detector(s)	Peak Trace Peak and Average Final	Table height	150 cm
RBW	<1000 MHz – 100 kHz >1000 MHz – 1 MHz	VBW	<1000 – 300 kHz >1000 MHz – 3MHz

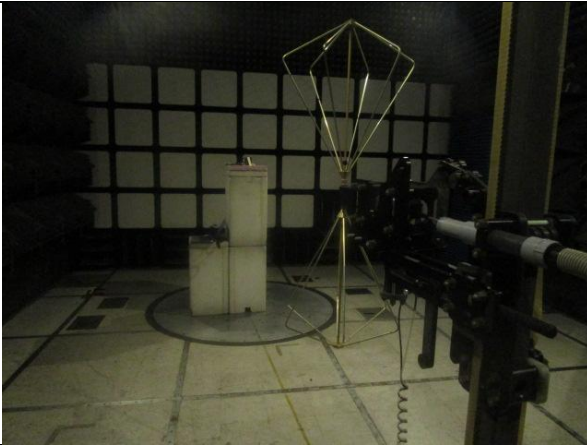
Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
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
AA 960218	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	853	7/17/2024	7/17/2025	Active Calibration
AA 960215	Antenna - LPDA	A.H. Systems, Inc.	SAS-512-2	706	7/18/2024	7/18/2025	Active Calibration
AA 960158	Antenna - Double Ridge Horn	ETS Lindgren	3117	109300	2/7/2024	2/7/2025	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	8/30/2024	8/30/2025	Active Calibration
AA 960211	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	977711030	2/7/2024	2/7/2025	Active Calibration
LSC-546	Cable	A.H. Systems, Inc.	SAC-26G-6	546	7/17/2024	7/18/2025	Active Verification

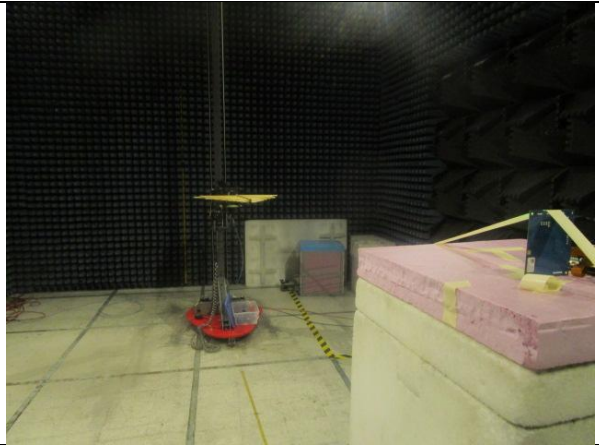
EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Tx
EUT	X, Y, Z Plane Orientations	AE	HP Elitebook 840G1 Development Kit, NXP 8MPLUS-BB
Notes	<1000 MHz Emissions from auxiliary equipment. Not a function of the EUT. Emission at 4GHz is not a function of the transmitter.		

Setup Photos



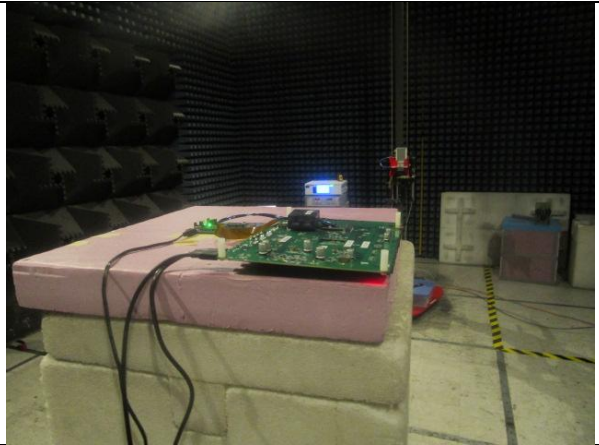
30-200 MHz



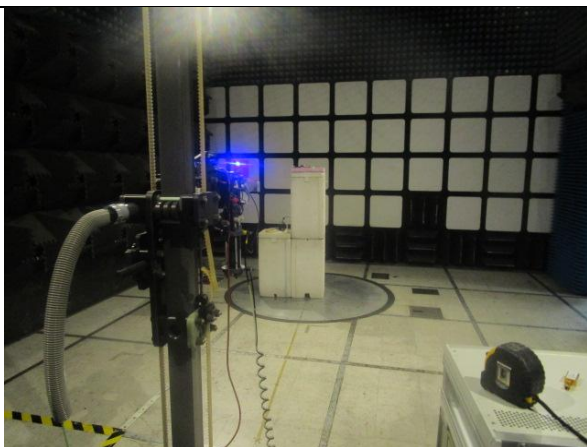
200-1000 MHz



1000-4000 MHz



4000-18000 MHz

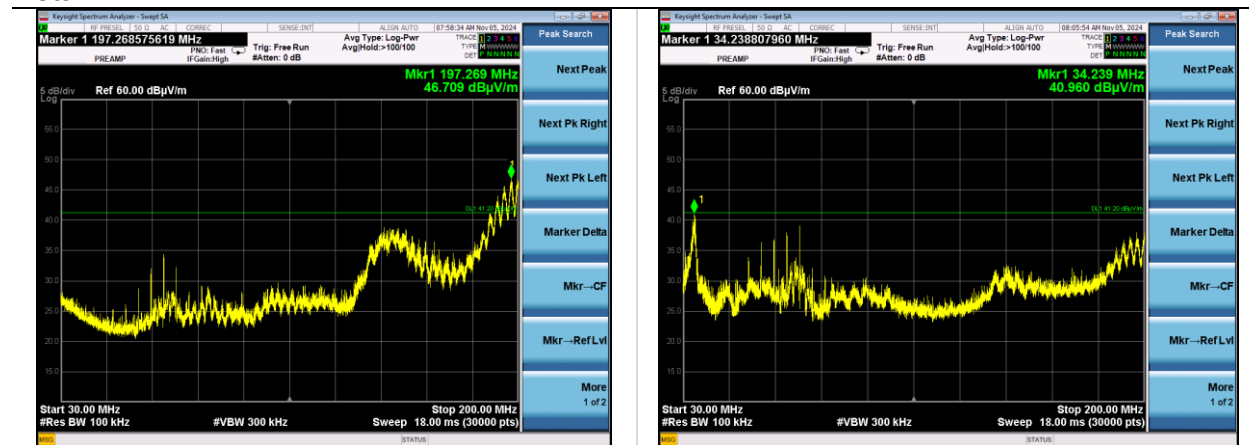


18000-26000 MHz

Measurements

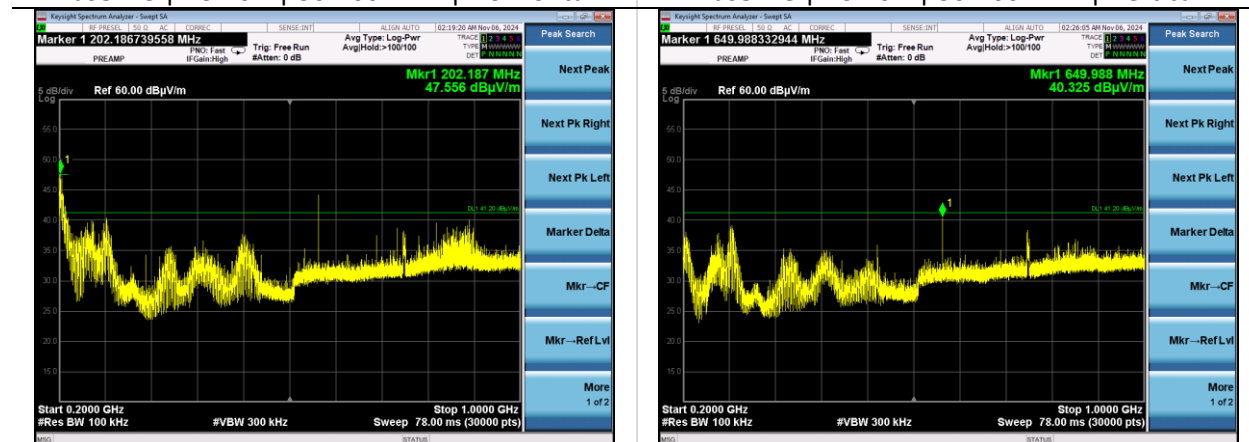
Channel	Mode	Data Rate	Frequency (MHz)	TDP Measurement (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Power Setting
36	802.11a	6M	4777.3	46.3	65.2	18.9	30
	802.11n	MCS0	5149.5	50.4	65.2	14.8	30
	802.11ac	MCS0	5149.5	50.4	65.2	14.8	30
	802.11ax	MCS0	5148.0	50.9	65.2	14.3	30
	802.11ax	MCS0 RU26	5149.5	47.0	65.2	18.2	30
	802.11ax	MCS0 RU52	5149.5	47.0	65.2	18.2	30
	802.11ax	MCS0 RU106	5148.1	47.1	65.2	18.1	30
	802.11ax	MCS0 RU242	5149.5	47.9	65.2	17.3	30
64	802.11a	6M	5350.5	49.3	65.2	15.9	30
	802.11n	MCS0	5350.6	50.0	65.2	15.2	30
	802.11ac	MCS0	5350.5	50.0	65.2	15.2	30
	802.11ax	MCS0	5350.9	50.6	65.2	14.6	30
	802.11ax	MCS0 RU26	5351.7	47.8	65.2	17.4	30
	802.11ax	MCS0 RU52	5350.5	48.2	65.2	17.0	30
	802.11ax	MCS0 RU106	5351.1	49.4	65.2	15.8	30
	802.11ax	MCS0 RU242	5350.5	49.3	65.2	15.9	30
100	802.11a	6M	5469.5	50.8	65.2	14.4	30
	802.11n	MCS0	5469.5	52.4	65.2	12.8	30
	802.11ac	MCS0	5469.5	52.2	65.2	13.0	30
	802.11ax	MCS0	5469.5	54.1	65.2	11.1	30
	802.11ax	MCS0 RU26	5469.5	47.9	65.2	17.3	30
	802.11ax	MCS0 RU52	5469.0	48.1	65.2	17.1	30
	802.11ax	MCS0 RU106	5469.0	48.1	65.2	17.1	30
	802.11ax	MCS0 RU242	5469.0	49.5	65.2	15.7	30
140	802.11a	6M	5726.7	50.3	65.2	14.9	30
	802.11n	MCS0	5725.5	52.0	65.2	13.2	30
	802.11ac	MCS0	5725.8	51.5	65.2	13.7	30
	802.11ax	MCS0	5725.5	55.6	65.2	9.6	30
	802.11ax	MCS0 RU26	5726.0	57.8	65.2	7.4	30
	802.11ax	MCS0 RU52	5725.9	51.7	65.2	13.5	30
	802.11ax	MCS0 RU106	5725.5	51.5	65.2	13.7	30
	802.11ax	MCS0 RU242	5725.5	52.0	65.2	13.2	30

Plots



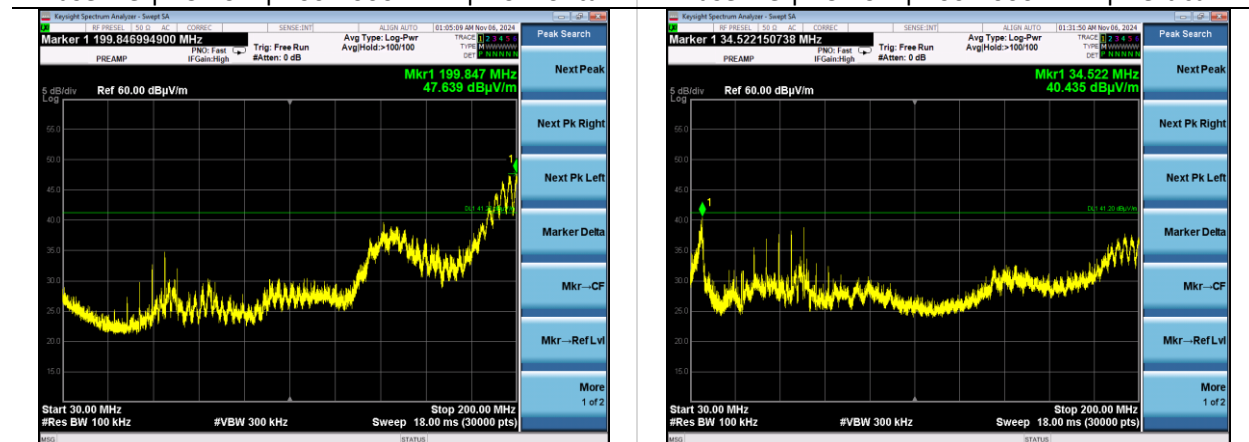
Baseline | EUT off | 30-200 MHz | Horizontal

Baseline | EUT off | 30-200 MHz | Vertical



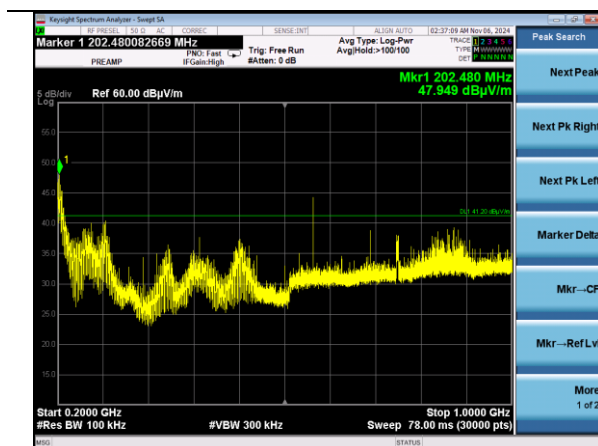
Baseline | EUT off | 200-1000 MHz | Horizontal

Baseline | EUT off | 200-1000 MHz | Vertical

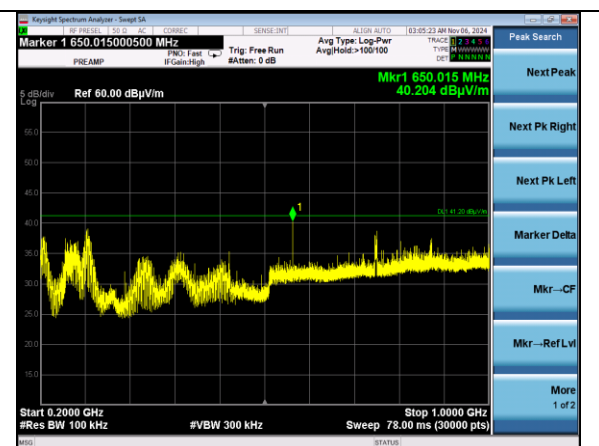


802.11a | Channel 52 | 6 Mbps | 30-200 MHz | Horizontal

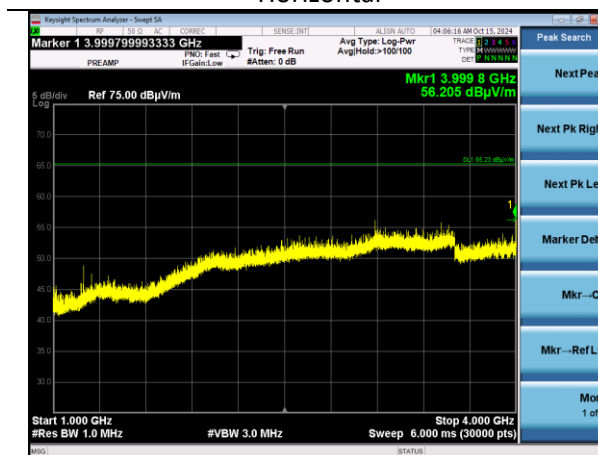
802.11a | Channel 120 | 6 Mbps | 30-200 MHz | Vertical



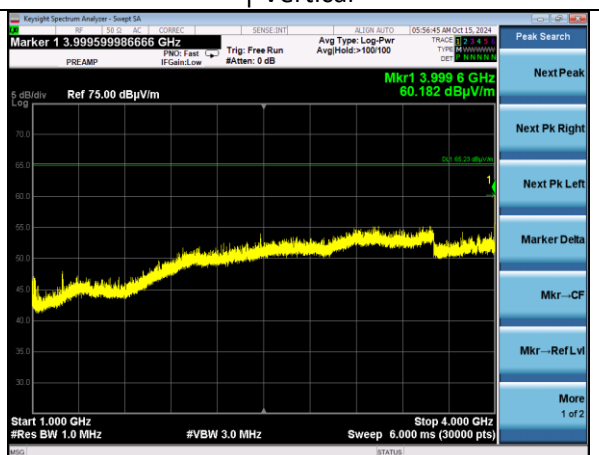
802.11a | Channel 52 | 6 Mbps | 200-1000 MHz | Horizontal



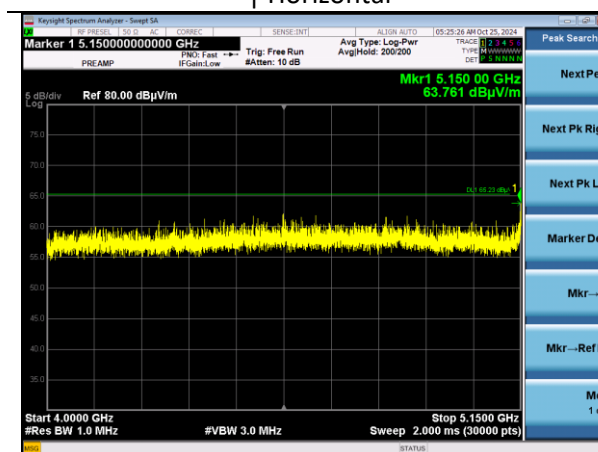
802.11a | Channel 120 | 6 Mbps | 200-1000 MHz | Vertical



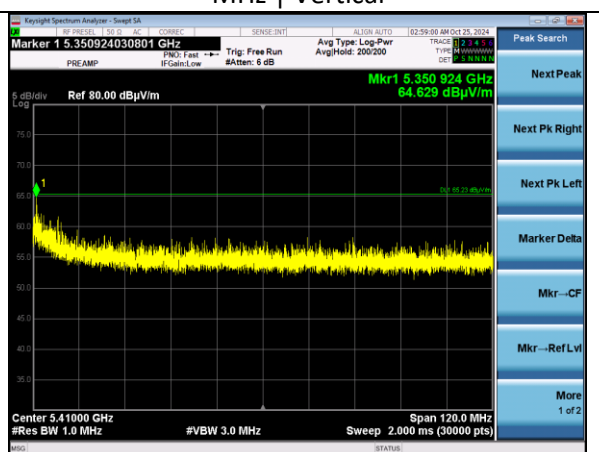
802.11a | Channel 52 | 6 Mbps | 1000-4000 MHz | Horizontal



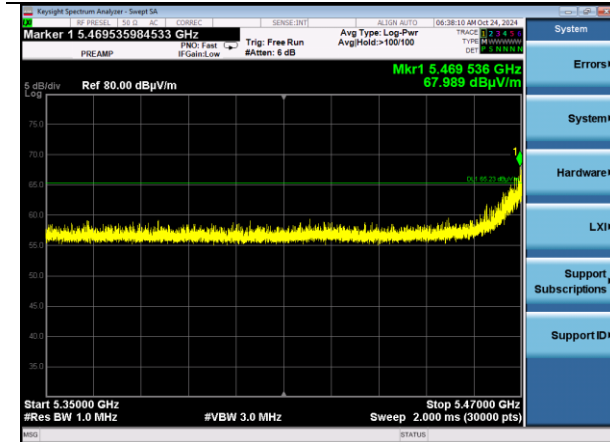
802.11a | Channel 120 | 6 Mbps | 1000-4000 MHz | Vertical



802.11n | Channel 36 | MCS0 | 4000-5150 MHz | Vertical



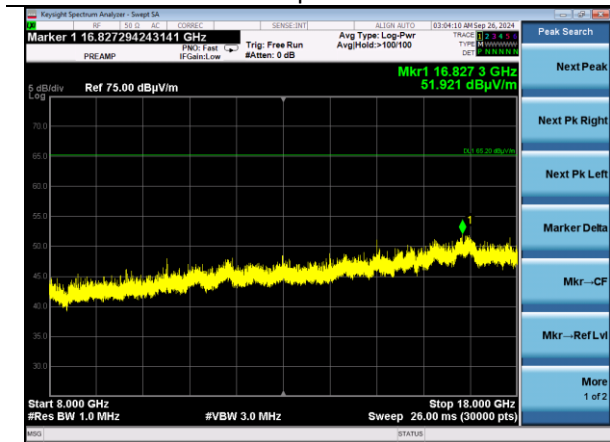
802.11ax | Channel 64 | MCS0 | 5350-5470 MHz | Vertical



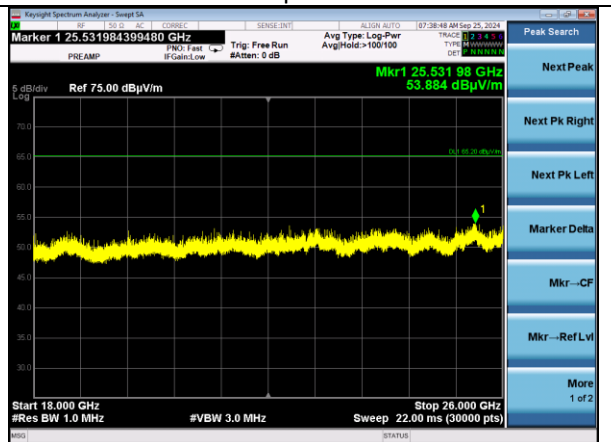
802.11a | Channel 100 | 6 Mbps | 5350-5470 MHz | Vertical



802.11ac | Channel 140 | MCS0 | 5725-8000 MHz | Vertical



802.11a | Channel 52 | 6 Mbps | 8000-18000 MHz | Horizontal



802.11a | Channel 120 | 6 Mbps | 18000-26000 MHz | Vertical

5.2.2 Receiver spurious emissions

Operator	Jon Dilley	QA	Dylan Rosenfeldt
Temperature	19.9°C	R.H. %	33.9%
Test Date	10/28/2024	Location	Chamber 3
Requirement	ETSI 300 328 4.2.5 AS/NZS 4268 7.2	Method	ETSI 300 328 5.4.7.2.2

Limits:

Frequency (MHz)	Maximum Power	Bandwidth
30-1000	-57 dBm	100 kHz
1000-12750	-47 dBm	1 MHz

Test Parameters

Frequency	30-26000 MHz	Distance	3 m
Detector(s)	Peak Trace Peak and Average Final	Table height	150 cm
RBW	<1000 MHz – 100 kHz >1000 MHz – 1 MHz	VBW	<1000 – 300 kHz >1000 MHz – 3 MHz

Instrumentation

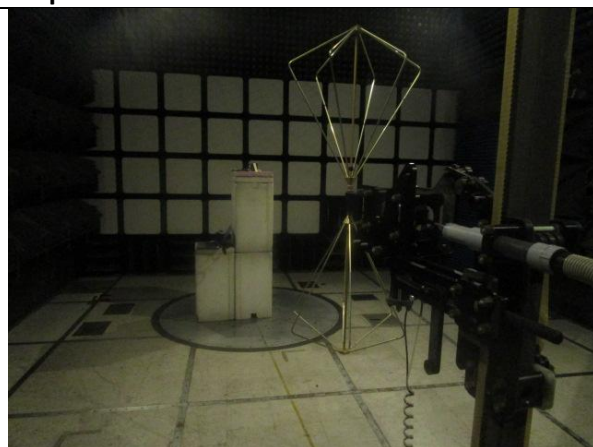
Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/11/2024	4/11/2025	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/5/2024	1/5/2025	Active Verification
AA 960218	Antenna - Biconical	A.H. Systems, Inc.	SAS-540	853	7/17/2024	7/17/2025	Active Calibration
AA 960215	Antenna - LPDA	A.H. Systems, Inc.	SAS-512-2	706	7/18/2024	7/18/2025	Active Calibration
AA 960158	Antenna - Double Ridge Horn	ETS Lindgren	3117	109300	2/7/2024	2/7/2025	Active Calibration
AA 960150	Antenna - Biconical	ETS Lindgren	3110B	0003-3346	8/16/2024	8/16/2025	Active Calibration
AA 960211	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	977711030	2/7/2024	2/7/2025	Active Calibration
LSC-546	Cable	A.H. Systems, Inc.	SAC-26G-6	546	7/17/2024	7/18/2025	Active Verification
AA 960162	Cable	MegaPhase	EM2-S1S1-120	51503501 001	6/13/2024	6/13/2025	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	4/10/2024	4/10/2025	Active Calibration

Company: Ezurio	Page 58 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

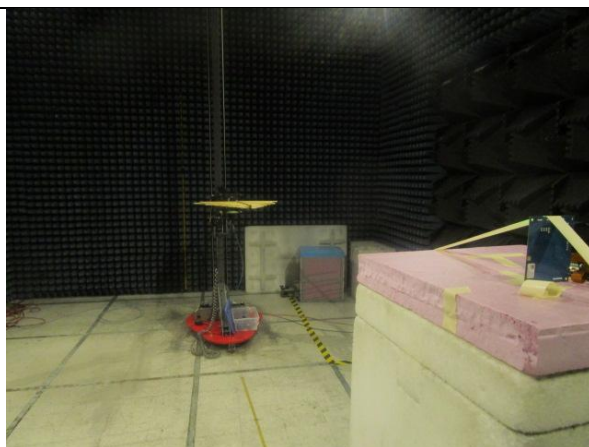
EUT Parameters

Input Power	120 VAC @ 60 Hz	Mode	5GHz WLAN Rx
EUT	X, Y, Z Plane Orientations	AE	HP Elitebook 840G1 Development Kit, NXP 8MPLUS-BB
Notes	<1000 MHz Emissions from auxiliary equipment. Not a function of the EUT. Emission at 4GHz and 6GHz is not a function of the receiver.		

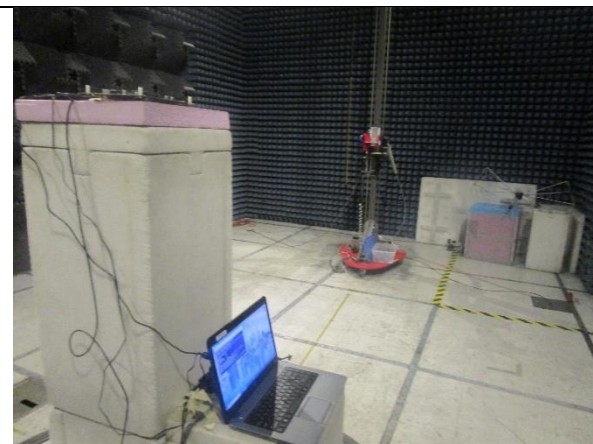
Setup Photos



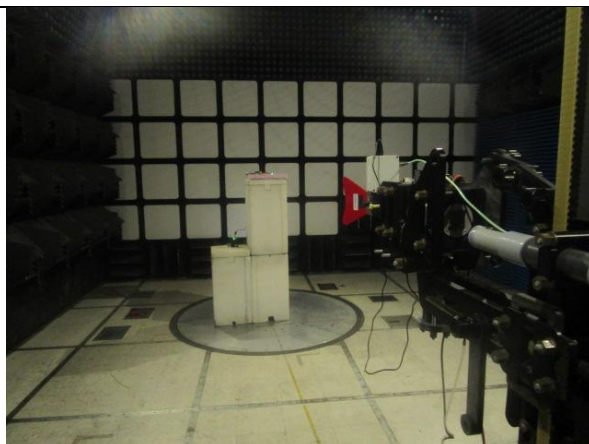
30-200 MHz



200-1000 MHz



1000-4000 MHz



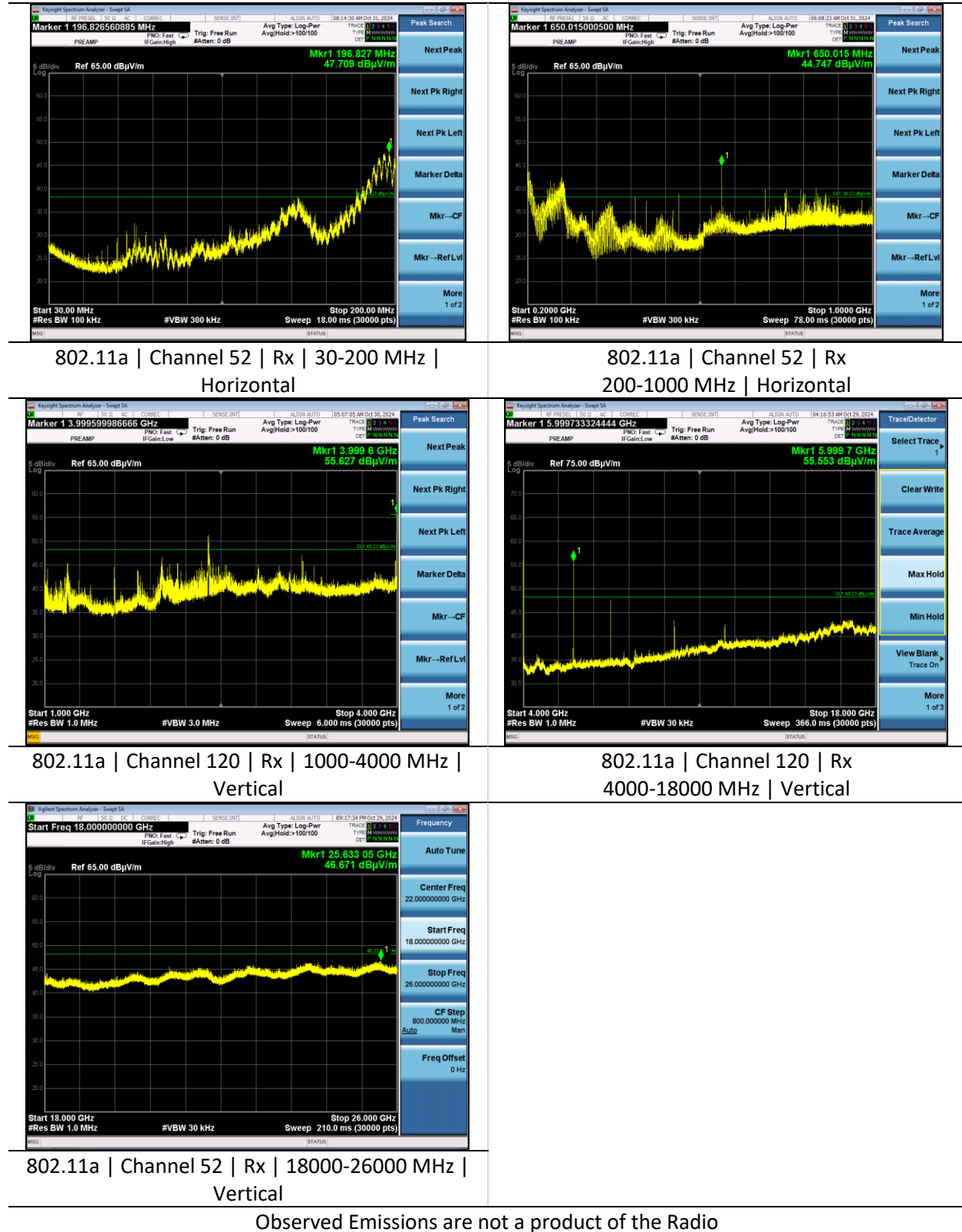
4000-18000 MHz



18000-26000 MHz

Company: Ezurio	Page 60 of 62	Name: SONA TI351
Report: TR3818-5G-301-893		Model: SONA TI351
Job: C-3818		Serial: 00013 00008

Plots



6 REVISION HISTORY

Version	Date	Notes	Person
0	12/12/2024	Initial Draft	Dylan Rosenfeldt
1	01/09/2025	Added AS/NZS 4268 References	Dylan Rosenfeldt
2	01/13/2025	Corrected/Updated Units, fixed grammatic mistakes	Dylan Rosenfeldt
3	01/14/2025	Final Draft	Dylan Rosenfeldt

END OF REPORT