

Test Report TR3877A

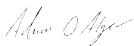
Equipment Under Test:	6059P
Requirement(s):	FCC 15.247, RSS-247
Test Date(s):	5/7/2025 – 6/17/2025
Prepared for:	Avery Dennison Attn: Michael Ouziel 170 Monarch Lane Miamisburg, OH 45342

Report Issued by: Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 7/2/2025

Report Reviewed by: Adam Alger, Sr. Manager, EMC Laboratory

Signature: 

Date: 7/2/2025

Report Constructed by: Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 6/19/2025

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Company: Avery Dennison	Page 1 of 43	Name: 6059P
Report: TR3877A		Model: 6059P
Job: C-3877		Serial: Engineering Sample

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Ezurio Test Services in Review

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



A2LA – American Association for Laboratory Accreditation

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

A2LA Certificate Number: 1255.01

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



Federal Communications Commission (FCC) – USA

Accredited Test Firm Registration Number: 953492

Recognition of two 3 meter Semi-Anechoic Chambers



Innovation, Science and Economic Development Canada

Accredited U.S. Identification Number: US0218

Recognition of two 3 meter Semi-Anechoic Chambers

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Job: C-3877		Serial: Engineering Sample

1 TEST REPORT SUMMARY

During **5/7/2025 to 6/17/2025** the Equipment Under Test (EUT), **6059P**, as provided by **Avery Dennison** was tested to the following requirements:

FCC 15.247 / RSS-247

Requirements	Description	Method	Compliant
FCC 15.247(a)(1)(i) RSS-247 5.1(a) RSS-GEN 4.6	20dB Bandwidth and 99% Bandwidth	ANSI C63.10	Pass
FCC 15.247(d) RSS-247 5.5	Spurious Emissions and Band Edge	ANSI C63.10	Pass
FCC 15.247(b)(2) RSS-247 5.4(a)	Maximum Peak Output Power	ANSI C63.10	Pass
FCC 15.205, 15.209 RSS-Gen 8.9, 8.10	Radiated Emissions	ANSI C63.10	Pass
FCC 15.247(a)(1) RSS-247 5.1(b)	Frequency Separation	ANSI C63.10	Pass
FCC 15.247(a)(1)(i) RSS-247 5.1(c)	Number of Hopping Frequencies	ANSI C63.10	Pass
FCC 15.247(a)(1)(i) RSS-247 5.1(c)	Time of Occupancy	ANSI C63.10	Pass
15.209, RSS-GEN	Radiated Emissions – Simultaneous Transmission	ANSI C63.10	Pass

Notice:

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

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

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

2 CLIENT INFORMATION

Company Name	Avery Dennison
Contact Person	Michael Ouziel
Address	170 Monarch Lane Miamisburg, OH 45342

2.1 Equipment Under Test (EUT) Information

The following information has been supplied by the client

Product Name	6059P
Model Number	6059P
Serial Number	Engineering Sample
FCC ID	GU6-R3100C
IC	1502A-R3100C
Contains FCC ID	GU6-SDPAC
Contains IC	1502A-SDPAC

2.2 Product Description

The 6059P prints, scans, and collects data. The printer uses the Android 12 platform. Printer contains an 802.11 a/b/g/n/ac WLAN plus Bluetooth 4.2 dual mode radio and a RFID module, which the printer uses to encode an RFID inlay while printing.

2.3 Modifications Incorporated for Compliance

None noted at time of test

2.4 Deviations and Exclusions from Test Specifications

None noted at time of test

2.5 Additional Information

Radio is FHSS device operating in 902-928 MHz band.

Programmed via Laptop to USB port on device. Software utilized is “6059 RFID Test Utility” Version 1.7 from Avery Dennison.

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Channels tested are 902.75, 915.25, and 927.25 MHz as Low, Mid, and High. Hopping mode across all channels also tested.

2.6 Additional Information

Device powered by a removable, rechargeable 7.4V lithium-ion battery.

2.7 Additional Information

Simultaneous operation checked for operation of GU6-R3100C radio with GU6-SDPAC radio found in section 5.2.2.

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3 REFERENCES

Publication	Edition	Date	AMD 1	AMD 2
FCC eCFR 47 Part 15.247	-	2025	-	-
RSS-247	3	2023	-	-
RSS-GEN	5	2018	2019	2021
ANSI C63.10	-	2020	2024	-

4 UNCERTAINTY SUMMARY

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

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

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

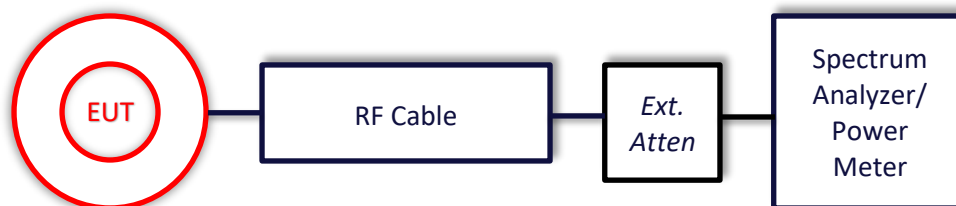
Parameter	ETSI U.C. $\pm$	U.C. $\pm$
Radio Frequency, from F0	1×10^{-7}	0.55×10^{-7}
Occupied Channel Bandwidth	5 %	2 %
RF conducted Power (Power Meter)	1.5 dB	1.2 dB
RF conducted emissions (Spectrum Analyzer)	3.0 dB	1.7 dB
All emissions, radiated	6.0 dB	5.3 dB
Temperature	1° C	0.65° C
Humidity	5 %	2.9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

5 TEST DATA

5.1 Antenna Port Conducted Emissions

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

Block Diagram



Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960172	Cable	A.H. Systems, Inc.	SAC-26G-1	387	1/28/2025	1/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration

5.1.1 Maximum Conducted Output Power

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(b)(2) RSS-247 5.4(a)	Method	ANSI C63.10

Limits: ≤30 dBm

Test Parameters

Frequency	902-930 MHz	Setup	Conducted RF
RBW	1 MHz	VBW	3 MHz
Detector(s)	Peak	Settings	Trace Max Hold

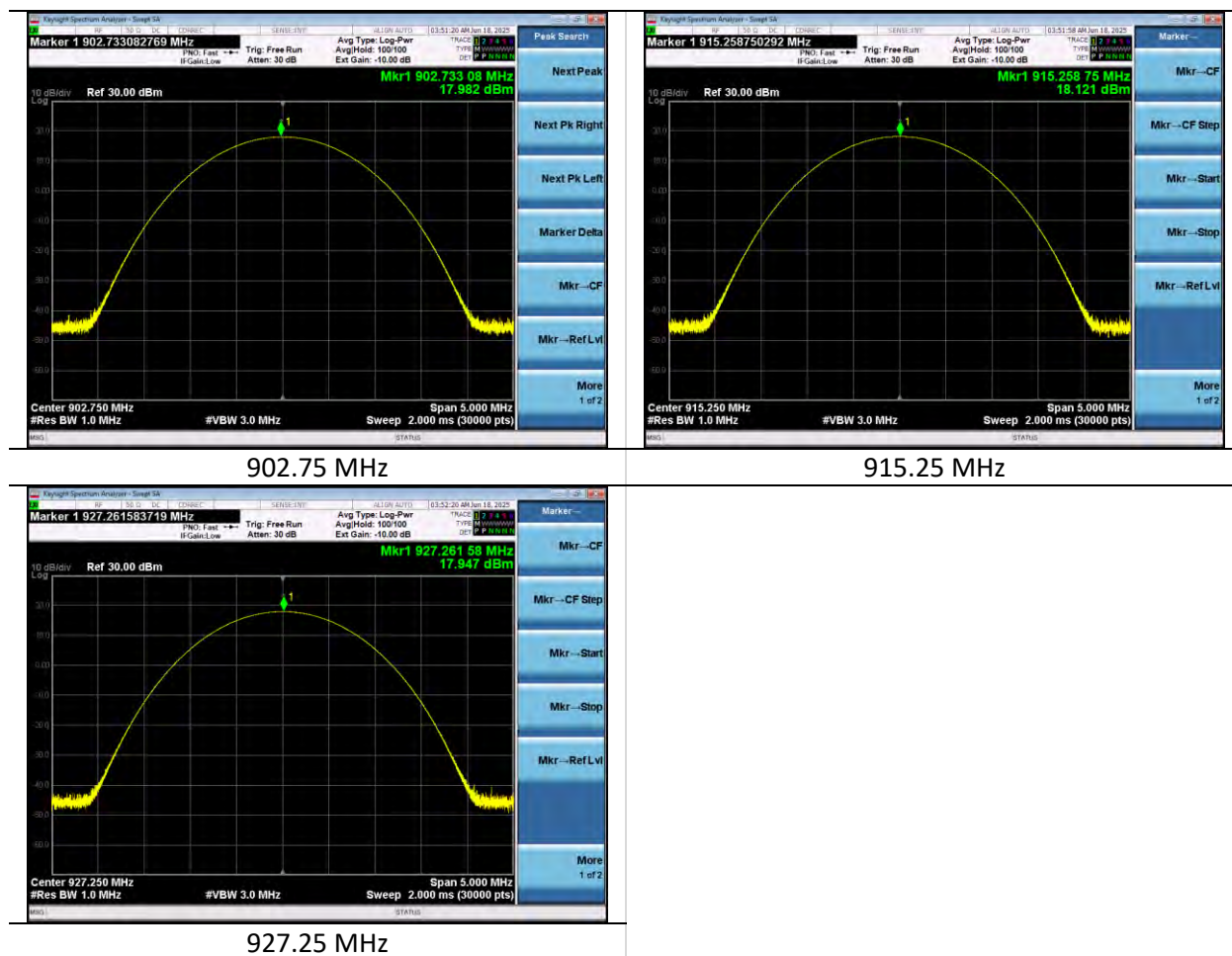
EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Frequency	902.25, 915.25, 927.25 MHz	Channel	Low, Mid, High

Table

Channel Frequency (MHz)	Measured Output Power (dBm)	Cable Correction Factor (dB)	Peak Output Power (dBm)	Peak Output Power Limit (dBm)	Margin (dB)
902.8	18.0	0.7	18.7	30.0	11.4
915.3	18.1	0.7	18.8	30.0	11.3
927.3	18.0	0.7	18.7	30.0	11.4

Plots



5.1.2 20dB Bandwidth and 99% Occupied Bandwidth

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(a)(1)(i) RSS-247 5.1(a) RSS-GEN 4.6	Method	ANSI C63.10

Limits: n/a

Test Parameters

Frequency	902-930 MHz	Setup	Conducted RF
RBW	3 kHz	VBW	10 kHz
Detector(s)	Peak	Settings	Trace Max Hold

EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Frequency	902.25, 915.25, 927.25 MHz	Channel	Low, Mid, High

Table

Channel Frequency (MHz)	20dB BW (kHz)	99% BW (kHz)	Limit
902.8	81.9	75.3	-
915.3	81.7	75.5	-
927.3	82.0	74.7	-

Plots



902.75 MHz

915.25 MHz



927.25 MHz

5.1.3 Frequency Separation

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(a)(1) RSS-247 5.1(b)	Method	ANSI C63.10

Limits: Minimum 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater

Test Parameters

Frequency	902-930 MHz	Setup	Conducted RF
RBW	100 kHz	VBW	300 kHz
Detector(s)	Peak	Settings	Trace Max Hold

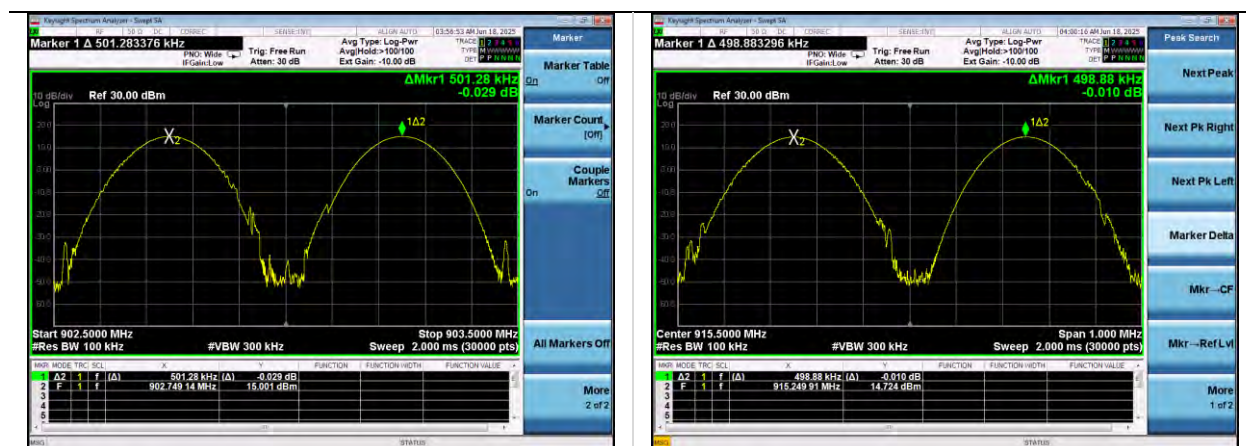
EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Frequency	902.75-927.25 MHz	Channel	Hopping

Table

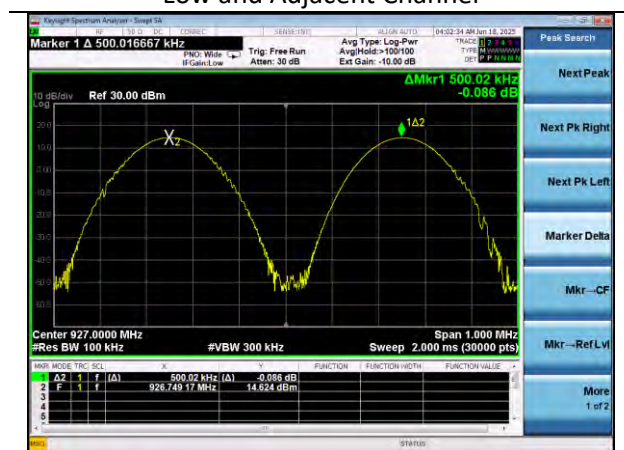
Channel	Channel Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)
Low Channel	902.75	0.501	0.025 MHz or 20 dB BW
Adjacency Channel	903.25		
Mid Channel	915.25	0.499	0.025 MHz or 20 dB BW
Adjacency Channel	915.75		
High Channel	927.25	0.500	0.025 MHz or 20 dB BW
Adjacency Channel	926.75		

Plots



Low and Adjacent Channel

Mid and Adjacent Channel



High and Adjacent Channel

5.1.4 Number of Hopping Frequencies

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(a)(1)(i) RSS-247 5.1(c)	Method	ANSI C63.10

Limits: ≥50 Channels

Test Parameters

Frequency	900-930 MHz	Setup	Conducted RF
RBW	100 kHz	VBW	300 kHz
Detector(s)	Peak	Settings	Trace Max Hold

EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Frequency	902.75-928.25 MHz	Channel	Hopping

Table

Hopping Channel Frequency Range (MHz)	Number of Hopping Channels	Limit
902-928	50	≥50

Plots



Number of Hopping Channels

5.1.5 Time of Occupancy (Dwell Time)

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(a)(1)(i) RSS-247 5.1(c)	Method	ANSI C63.10

Limits: The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

Test Parameters

Frequency	902.75 MHz	Setup	Conducted RF
RBW	100 kHz	VBW	300 kHz
Detector(s)	Peak	Settings	Trace Clear Write
Notes	Video Triggering utilized to capture radio pulse during hopping sequence		

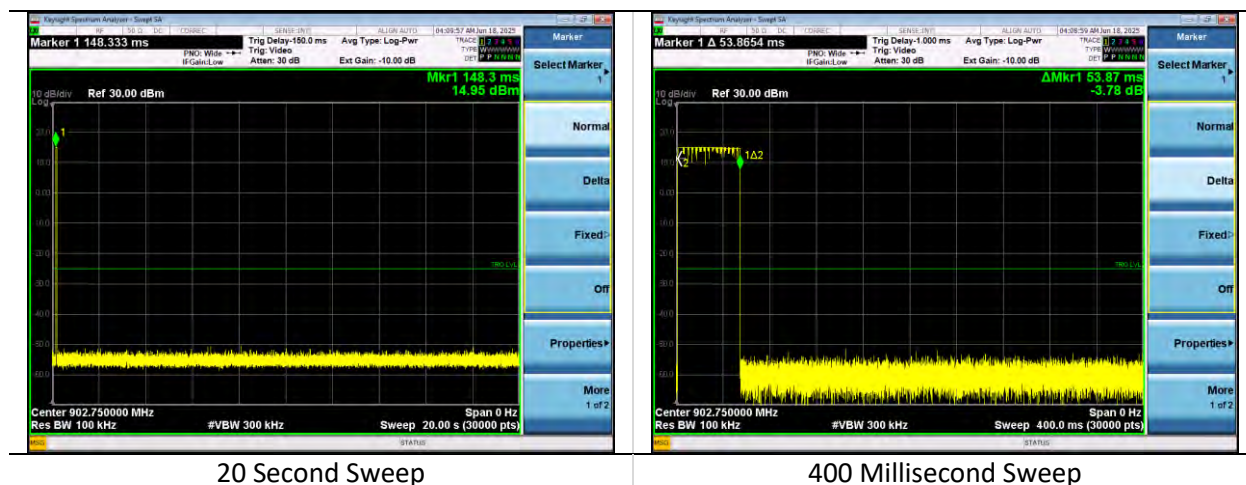
EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Frequency	902.75 MHz	Channel	Hopping

Table

Frequency (MHz)	Number of Bursts	Pulse Width (ms)	Dwell Time (ms)	Limit (ms)	Margin (ms)
902.75	1	53.9	53.9	400.0	346.1

Plots



5.1.6 Spurious Emissions

Operator	Anthony Smith	QA	Adam Alger
Temperature	22.2°C	R.H. %	56.3%
Test Date	6/17/2025	Location	Conducted RF Bench
Requirement	FCC 15.247(d) RSS-247 5.5	Method	ANSI C63.10

Limits:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

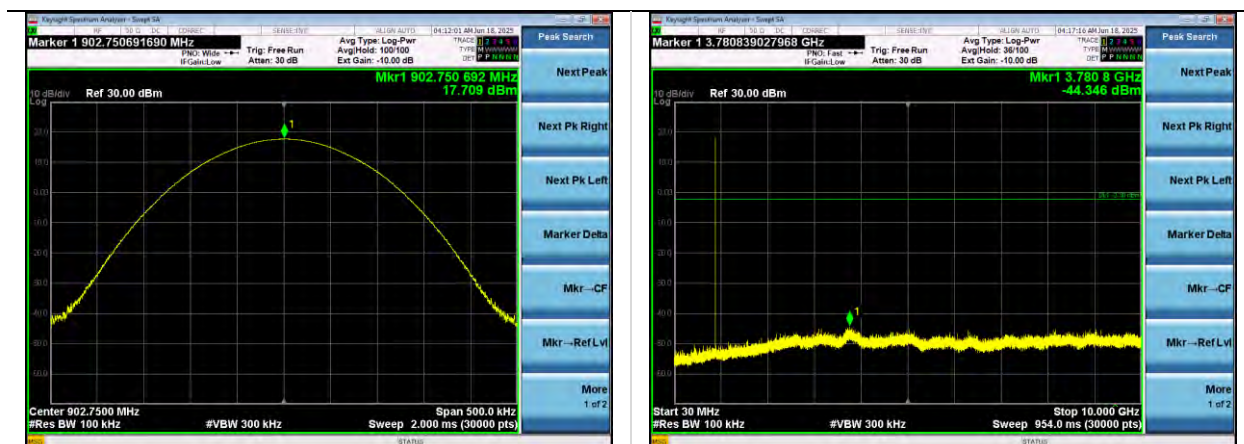
Test Parameters

Frequency	30-10000 MHz	Setup	Conducted RF
RBW	100 kHz	VBW	300 kHz
Detector(s)	Peak	Settings	Trace Max Hold

EUT Parameters

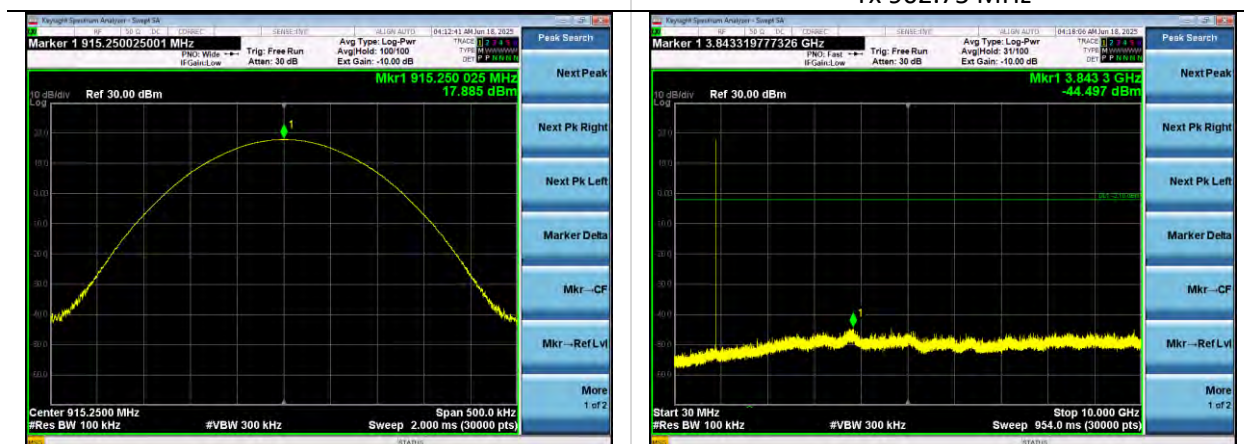
Input Power	Battery	Mode	Transmit Modulated
Frequency	902.75-927.25 MHz	Channel	Low, Mid, High Hopping

Plots



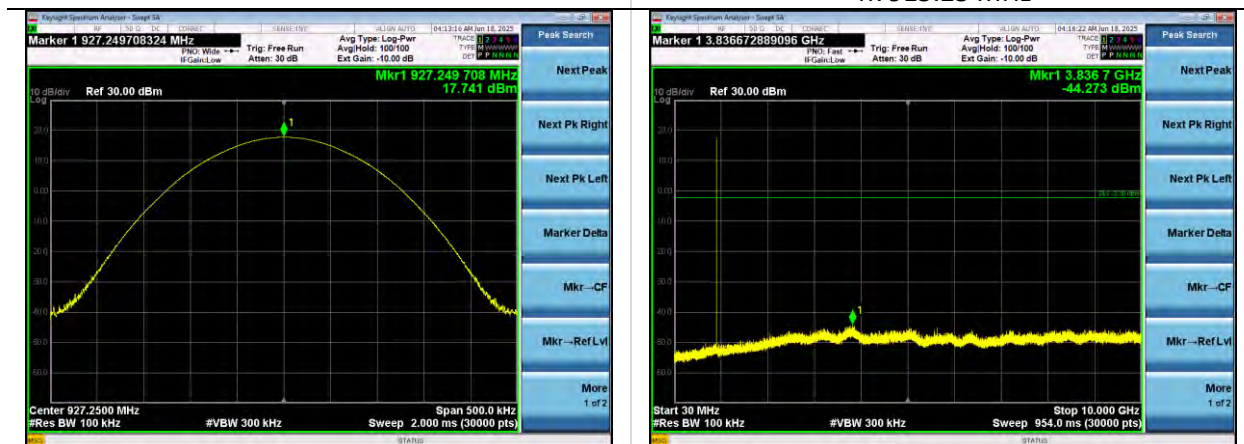
Reference Level 902.75 MHz

30-10000 MHz
Tx 902.75 MHz



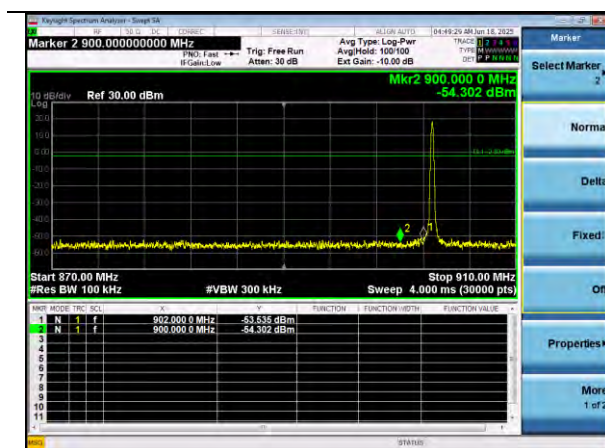
Reference Level 915.25 MHz

30-10000 MHz
Tx 915.25 MHz

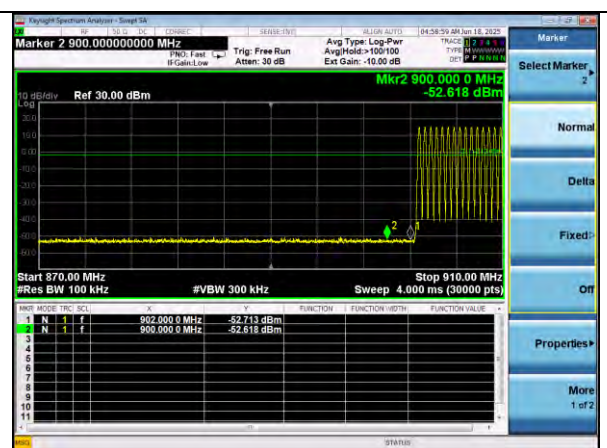


Reference Level 927.25 MHz

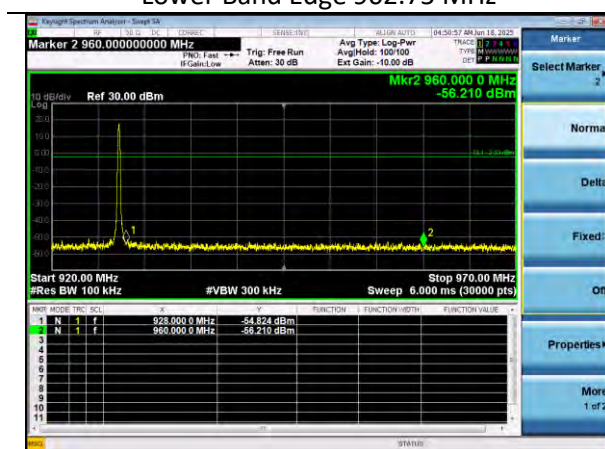
30-10000 MHz
Tx 927.25 MHz



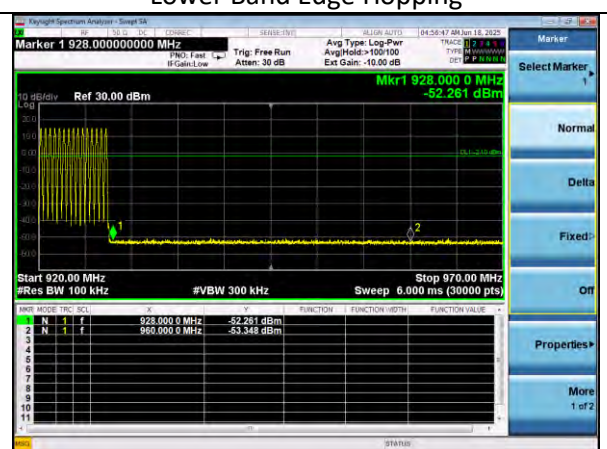
Lower Band Edge 902.75 MHz



Lower Band Edge Hopping



Upper Band Edge 927.25 MHz



Upper Band Edge Hopping

5.2 Radiated Emissions

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

Block Diagram



5.2.1 Radiated Emissions – Intentional Transmitter

Operator	Anthony Smith	QA	Adam Alger
Temperature	20.4-24.0°C	R.H. %	30.5-45.4
Test Date	5/7/2025- 5/28/2025	Location	Chamber 3
Requirement	FCC 15.205, 15.209 RSS-Gen 8.9, 8.10	Method	ANSI C63.10

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

Frequency	30-40000 MHz	Distance	3m
Detector(s)	Peak, Quasi-Peak, Average	Table height	80cm Below 1 GHz 150cm Above 1 GHz
RBW	120 kHz Below 1 GHz 1 MHz Above 1 GHz	VBW	1.2 MHz Below 1 GHz 3 MHz Above 1 GHz (Peak)

EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Channels	902.75, 915.25, 928.25 MHz	Notes	Worst Case Orientation identified as “EUT Flat”. All 3 orientations checked.

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	11/19/2024	11/19/2025	Active Calibration
AA 960150	Antenna - Biconical	ETS Lindgren	3110B	0003-3346	12/9/2024	12/9/2025	Active Calibration
AA 960155	Filter - High Pass Filter 900 MHz	KWM	HPF-L-14185	7272-03	4/3/2025	4/3/2026	Active Calibration
AA 960156	Filter - High Pass 900 MHz	KWM	HPF-L-14185	none	4/3/2025	4/3/2026	Active Calibration
AA 960158	Antenna - Double Ridge Horn	ETS Lindgren	3117	109300	2/21/2025	2/21/2026	Active Calibration
AA 960162	Cable	MegaPhase	EM2-S1S1-120	51503501 001	1/28/2025	1/28/2026	Active Verification
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	12/11/2024	12/11/2025	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	12/2/2024	12/2/2025	Active Calibration
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	1/28/2025	1/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/2/2025	4/2/2026	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/24/2025	1/24/2026	Active Verification

Table

Under 1 GHz

Spurious

Radio Mid Channel

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Quasi-Peak Reading (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Note
600.0	V	100	193	34.3	46.0	13.7	EUT Flat
240.0	H	112	164	41.2	46.0	6.8	EUT Flat
344.0	H	100	110	37.1	46.0	10.9	EUT Flat
431.9	H	100	136	35.6	46.0	12.4	EUT Flat
331.7	H	100	111	34.3	46.0	13.7	EUT Flat
319.5	H	100	124	35.0	46.0	13.0	EUT Flat

Band Edge

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Quasi-Peak Reading (dBμV/m)	Quasi-Peak Limit (dBμV/m)	Quasi-Peak Margin (dB)	Note
612.0	V	127	212	28.2	46.0	17.8	EUT Flat RFID 902.7
965.1	V	121	193	30.1	54.0	23.9	EUT Flat RFID 927

Above 1 GHz

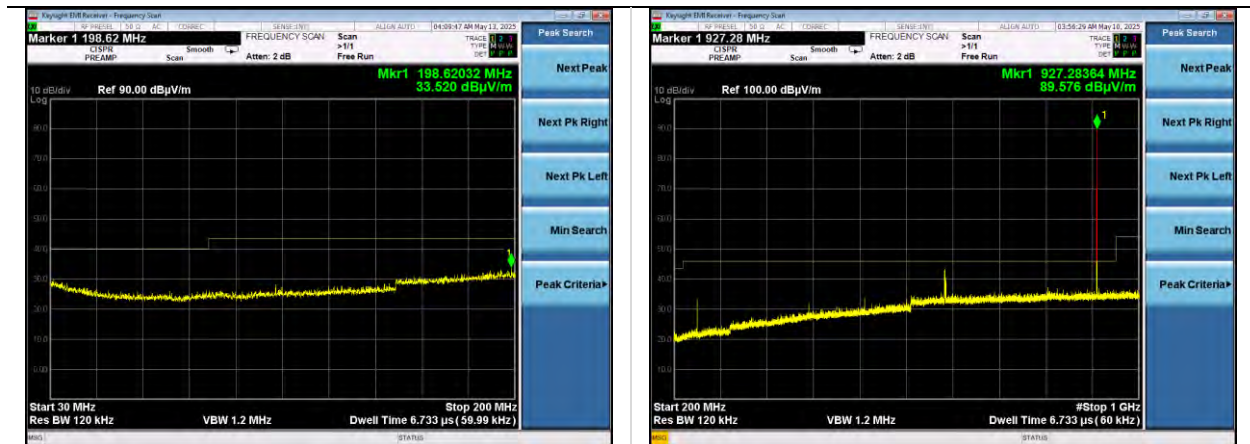
Average

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Average Reading (dBμV/m)	Average Limit (dBμV/m)	Average Margin (dB)	Radio Mode	Note
2745.8	V	124	272	49.2	54.0	4.8	Tx 915	EUT Flat
2745.7	H	178	75	42.9	54.0	11.1	Tx 915	EUT Flat
2745.8	H	112	58	44.7	54.0	9.3	Tx 915	EUT Vert
2745.7	V	111	104	48.8	54.0	5.2	Tx 915	EUT Vert
2745.7	V	122	315	42.8	54.0	11.2	Tx 915	EUT Horz
2745.8	H	194	351	48.4	54.0	5.6	Tx 915	EUT Horz
2708.2	V	136	271	49.1	54.0	4.9	Tx 903	EUT Flat
2781.7	V	106	271	48.6	54.0	5.4	Tx 927	EUT Flat
4576.2	V	109	255	43.7	54.0	10.3	Tx 915	EUT Flat
4576.4	H	164	57	41.1	54.0	12.9	Tx 915	EUT Flat
4576.2	H	185	298	46.5	54.0	7.5	Tx 915	EUT Vert
4576.2	V	263	331	43.3	54.0	10.7	Tx 915	EUT Vert
4576.3	V	100	119	42.4	54.0	11.6	Tx 915	EUT Horz
4576.2	H	240	354	44.2	54.0	9.8	Tx 915	EUT Horz
4513.7	H	204	314	47.4	54.0	6.6	Tx 902	EUT Vert
4636.2	H	210	296	47.2	54.0	6.8	Tx 927	EUT Vert

Peak

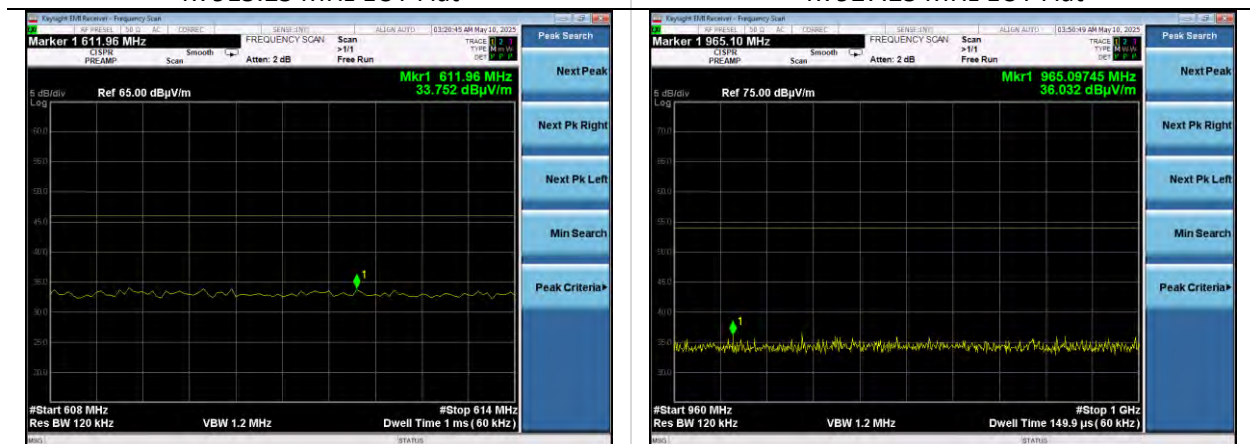
Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dB μ V/m)	Peak Limit (dB μ V/m)	Peak Margin (dB)	Radio Mode	Note
2745.8	V	124	272	51.8	74.0	22.2	Tx 915	EUT Flat
2745.7	H	178	75	47.3	74.0	26.7	Tx 915	EUT Flat
2745.8	H	112	58	48.7	74.0	25.3	Tx 915	EUT Vert
2745.7	V	111	104	51.9	74.0	22.1	Tx 915	EUT Vert
2745.7	V	122	315	47.3	74.0	26.7	Tx 915	EUT Horz
2745.8	H	194	351	51.6	74.0	22.4	Tx 915	EUT Horz
2708.2	V	136	271	52.1	74.0	21.9	Tx 903	EUT Flat
2781.7	V	106	271	51.9	74.0	22.1	Tx 927	EUT Flat
4576.2	V	109	255	47.2	74.0	26.8	Tx 915	EUT Flat
4576.4	H	164	57	46.1	74.0	27.9	Tx 915	EUT Flat
4576.2	H	185	298	49.7	74.0	24.3	Tx 915	EUT Vert
4576.2	V	263	331	47.3	74.0	26.7	Tx 915	EUT Vert
4576.3	V	100	119	46.5	74.0	27.5	Tx 915	EUT Horz
4576.2	H	240	354	47.8	74.0	26.2	Tx 915	EUT Horz
4513.7	H	204	314	50.6	74.0	23.4	Tx 902	EUT Vert
4636.2	H	210	296	50.6	74.0	23.4	Tx 927	EUT Vert

Plots



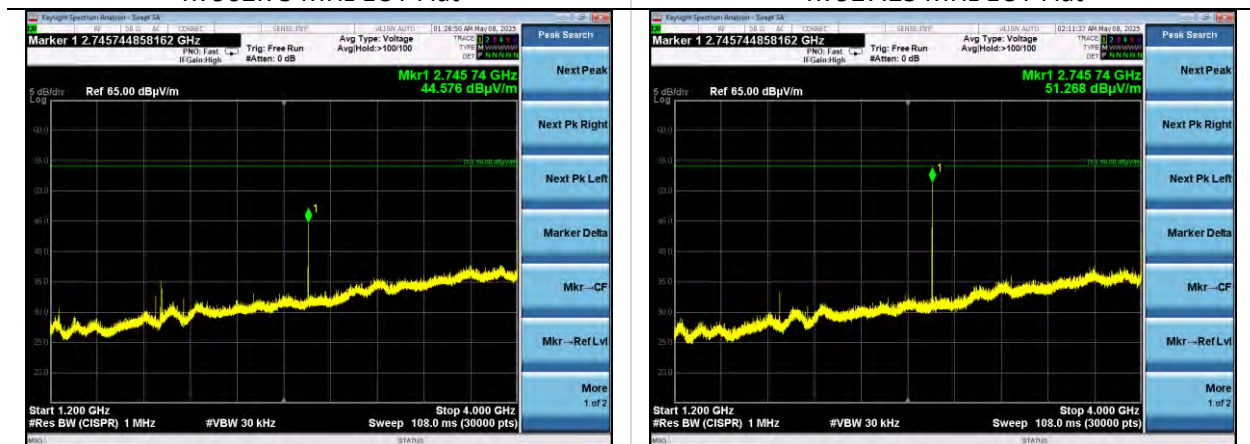
30-200 MHz Horizontal Polarity
Tx 915.25 MHz EUT Flat

200-1000 MHz Vertical Polarity
Tx 927.25 MHz EUT Flat



608-614 MHz Vertical Polarity
Tx 902.75 MHz EUT Flat

960-1000 MHz Vertical Polarity
Tx 927.25 MHz EUT Flat



1.2-4 GHz Horizontal Polarity
Tx 915.25 MHz EUT Flat

1.2-4 GHz Vertical Polarity
Tx 915.25 MHz

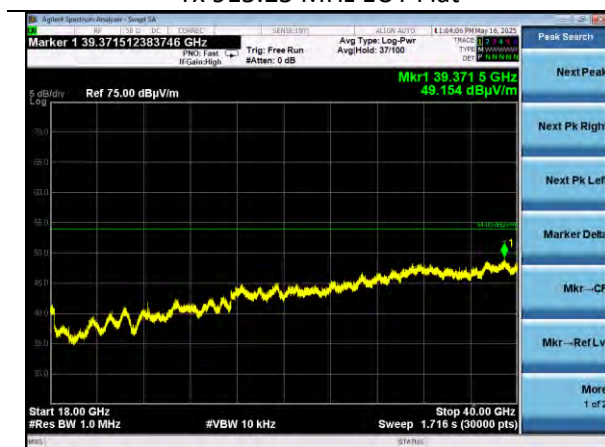
Company: Avery Dennison		Name: 6059P
Report: TR3877A	Page 29 of 43	Model: 6059P
Job: C-3877		Serial: Engineering Sample



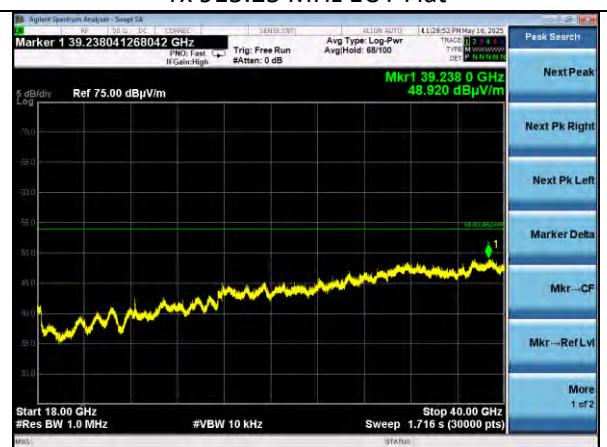
4-18 GHz Horizontal Polarity
 Tx 915.25 MHz EUT Flat



4-18 GHz Vertical Polarity
 Tx 915.25 MHz EUT Flat



18-40 GHz Horizontal Polarity
 Tx 915.25 MHz EUT Flat



18-40 GHz Vertical Polarity
 Tx 915.25 MHz EUT Flat

5.2.2 Radiated Emissions – Simultaneous Transmission

Operator	Anthony Smith	QA	Adam Alger
Temperature	20.4-24.0°C	R.H. %	30.5-45.4
Test Date	5/7/2025- 5/28/2025	Location	Chamber 3
Requirement	FCC 15.209, 15.247, 15.407 RSS-247, RSS-GEN	Method	ANSI C63.10

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

Frequency	30-40000 MHz	Distance	3m
Detector(s)	Peak, Quasi-Peak, Average	Table height	80cm Below 1 GHz 150cm Above 1 GHz
RBW	120 kHz Below 1 GHz 1 MHz Above 1 GHz	VBW	1.2 MHz Below 1 GHz 3 MHz Above 1 GHz (Peak)
Notes	Worst Case Plots only shown No intermodulation observed		

EUT Parameters

Input Power	Battery	Mode	Transmit Modulated
Channel Combinations	WLAN 2.4 + RFID: 2437 MHz + 915 MHz WLAN 5 + RFID: 5180 MHz + 915 MHz BT + RFID: 2440 MHz + 915 MHz (Unless otherwise noted in data/plots)	EUT	Worst Case Orientation identified as “EUT Flat”. All 3 orientations checked.

Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960007	Antenna - Double Ridge Horn	EMCO	3115	9311-4138	11/19/2024	11/19/2025	Active Calibration
AA 960150	Antenna - Biconical	ETS Lindgren	3110B	0003-3346	12/9/2024	12/9/2025	Active Calibration
AA 960153	Filter - High Pass 2.4 GHz	KWM	HPF-L-14186	7272-04	4/3/2025	4/3/2026	Active Calibration
AA 960155	Filter - High Pass Filter 900 MHz	KWM	HPF-L-14185	7272-03	4/3/2025	4/3/2026	Active Calibration
AA 960156	Filter - High Pass 900 MHz	KWM	HPF-L-14185	none	4/3/2025	4/3/2026	Active Calibration
AA 960158	Antenna - Double Ridge Horn	ETS Lindgren	3117	109300	2/21/2025	2/21/2026	Active Calibration
AA 960161	Filter - Highpass 5 GHz	K&L Microwave	11SH10-8000	2	4/3/2025	4/3/2026	Active Calibration
AA 960162	Cable	MegaPhase	EM2-S1S1-120	51503501001	1/28/2025	1/28/2026	Active Verification
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	12/11/2024	12/11/2025	Active Calibration
AA 960174	Antenna - Small Horn	ETS Lindgren	3116C-PA	00206880	12/2/2024	12/2/2025	Active Calibration
AA 960209	Antenna - Low Noise Amplifier	Mini-Circuits	ZVA-213X-S+	037101808	11/19/2024	11/19/2025	Active Calibration
AA 960220	Cable	A.H. Systems, Inc.	SAC-26G-6	552	1/28/2025	1/28/2026	Active Verification
EE 960087	Analyzer - Spectrum	Agilent	N9010A	MY53400296	6/1/2025	6/1/2026	Active Calibration
EE 960203	Analyzer - EMI Receiver	Keysight	N9038A	MY56400072	4/2/2025	4/2/2026	Active Calibration
LSC-300	Cable	Chamber 3 Emissions	-	-	1/24/2025	1/24/2026	Active Verification

Table

Band Edge Comparison

Peak

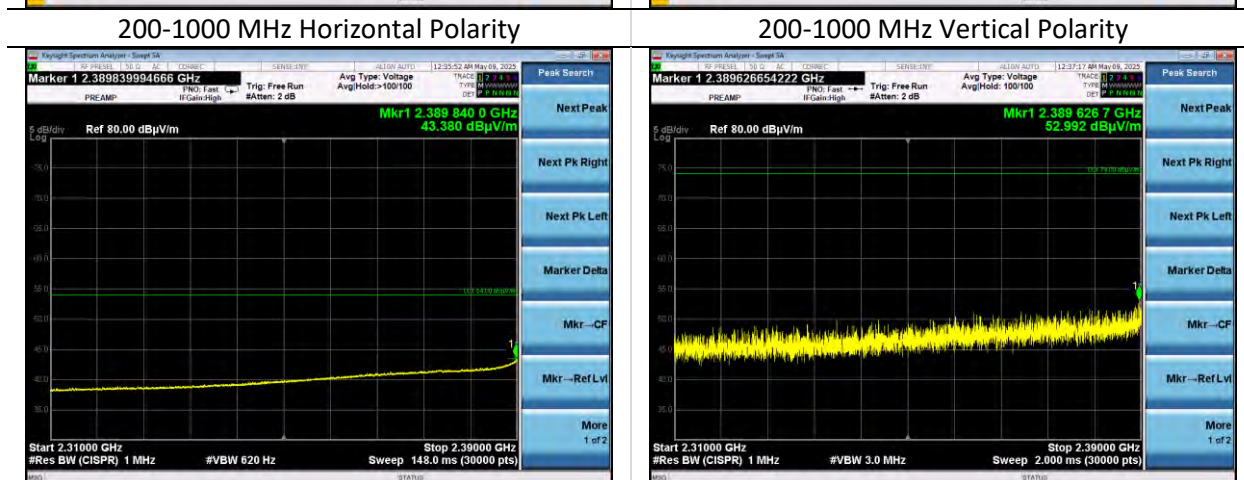
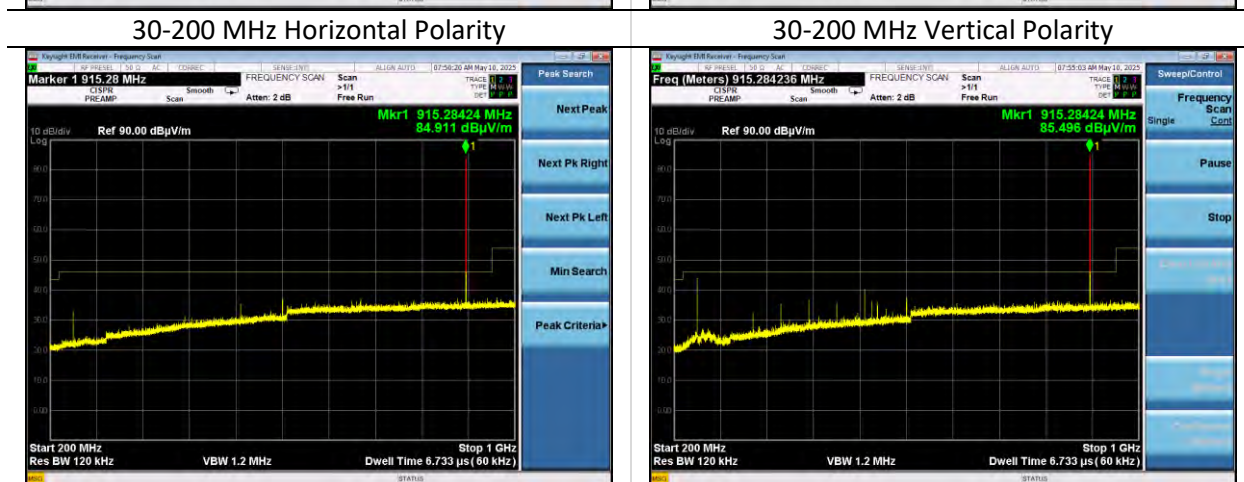
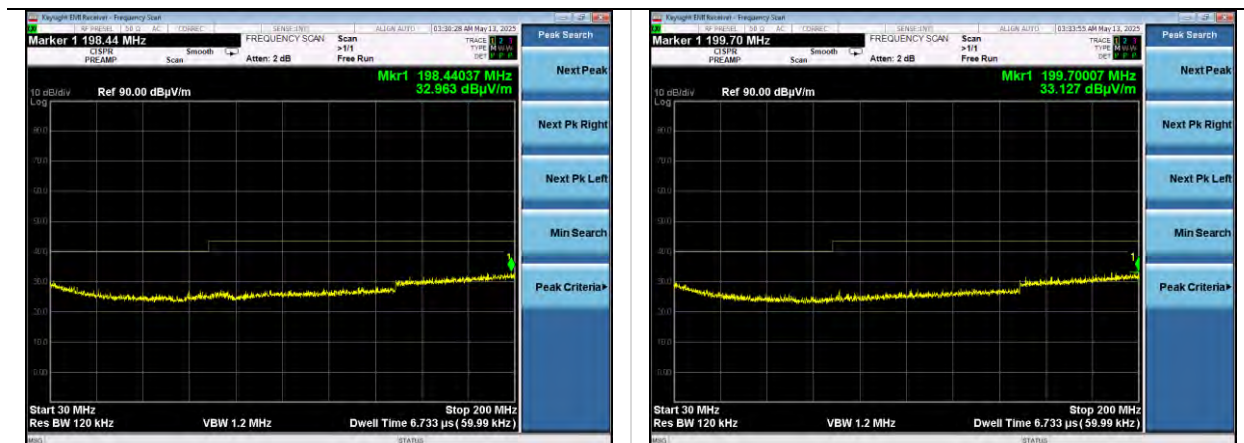
Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dBμV/m)	Peak Limit (dBμV/m)	Peak Margin (dB)	Radio Mode	Note
2374.4	V	117.0	233.0	52.4	74.0	21.6	Ch 1 MCS0	EUT Flat
2389.6	V	117.0	233.0	53.0	74.0	21.0	WLAN and RFID	EUT Flat
2483.9	V	178.0	276.0	52.4	74.0	21.6	Ch 11 MCS0	EUT Flat
2486.8	V	178.0	276.0	52.2	74.0	21.8	WLAN and RFID	EUT Flat
2345.4	V	107.0	230.0	50.1	74.0	23.9	BT 0 DH5	EUT Flat
2380.9	V	107.0	230.0	49.6	74.0	24.4	BT and RFID	EUT Flat
2483.5	V	121.0	226.0	50.3	74.0	23.7	Bt 78 DH5	EUT Flat
2497.3	V	121.0	226.0	49.5	74.0	24.5	BT and RFID	EUT Flat
5149.3	V	170.0	252.0	54.7	74.0	19.3	WLAN 36	EUT Flat
5148.9	V	170.0	252.0	55.4	74.0	18.6	WLAN 36 + RFID	EUT Flat

Average

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Avg Reading (dBμV/m)	Avg Limit (dBμV/m)	Avg Margin (dB)	Radio Mode	Note
2390.0	V	117	233	43.3	54.0	10.7	Ch 1 MCS0	EUT Flat
2389.8	V	117	233	43.4	54.0	10.6	WLAN and RFID	EUT Flat
2483.5	V	178	276	41.9	54.0	12.1	Ch 11 MCS0	EUT Flat
2483.7	V	178	276	41.8	54.0	12.2	WLAN and RFID	EUT Flat
2389.9	V	107	230	39.1	54.0	14.9	BT 0 DH5	EUT Flat
2388.6	V	107	230	38.9	54.0	15.1	BT and RFID	EUT Flat
2484.6	V	121	226	41.0	54.0	13.0	Bt 78 DH5	EUT Flat
2487.4	V	121	226	39.7	54.0	14.3	BT and RFID	EUT Flat
5150.0	V	170	252	45.5	54.0	8.5	WLAN 36	EUT Flat
5150.0	V	170	252	44.4	54.0	9.6	WLAN 36 + RFID	EUT Flat

Plots

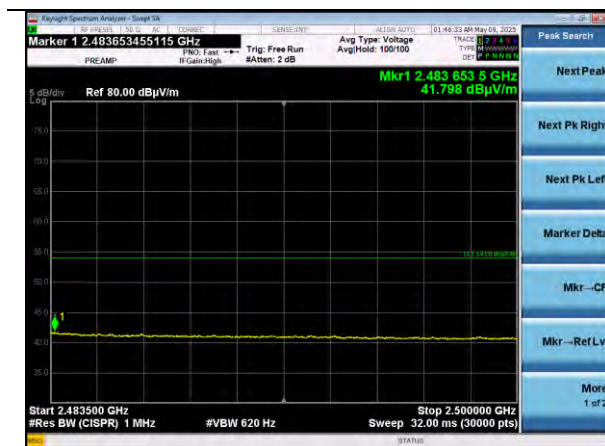
WLAN 2.4 + RFID



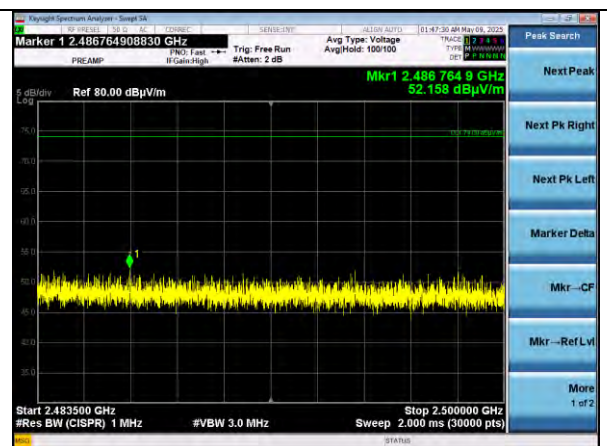
2.31-2.39 GHz Average
WLAN Channel 1 + RFID 915 MHz

2.31-2.39 GHz Peak
WLAN Channel 1 + RFID 915 MHz

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2.4835-2.5 GHz Average
WLAN Channel 11 + RFID 915 MHz



2.4835-2.5 GHz Peak
WLAN Channel 11 + RFID 915 MHz



1-2.31 GHz Vertical Polarity
WLAN Channel 1 + RFID 915 MHz



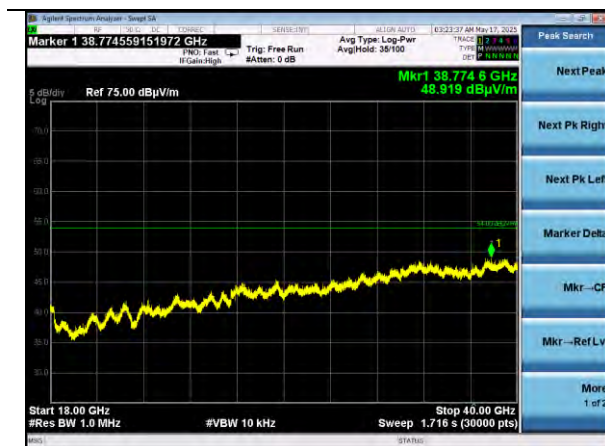
2.5-3.6 GHz Vertical Polarity
WLAN Channel 1 + RFID 915 MHz



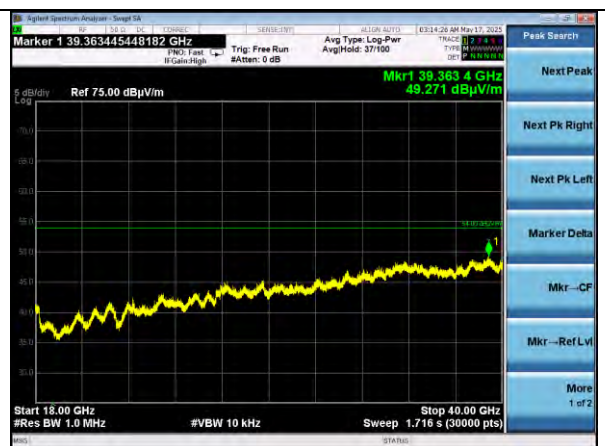
4-18 GHz Horizontal Polarity



4-18 GHz Vertical Polarity

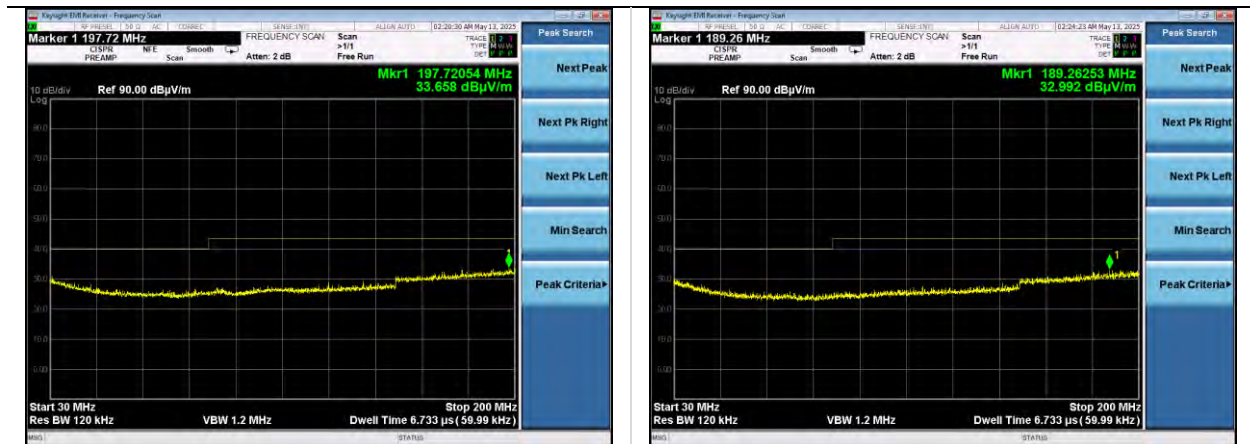


18-40 GHz Horizontal Polarity



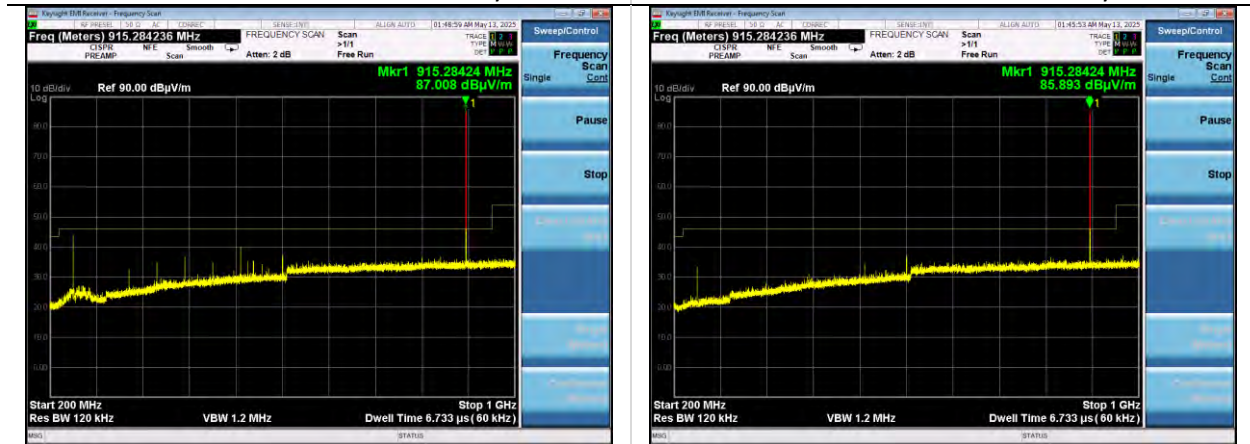
18-40 GHz Vertical Polarity

WLAN 5 + RFID



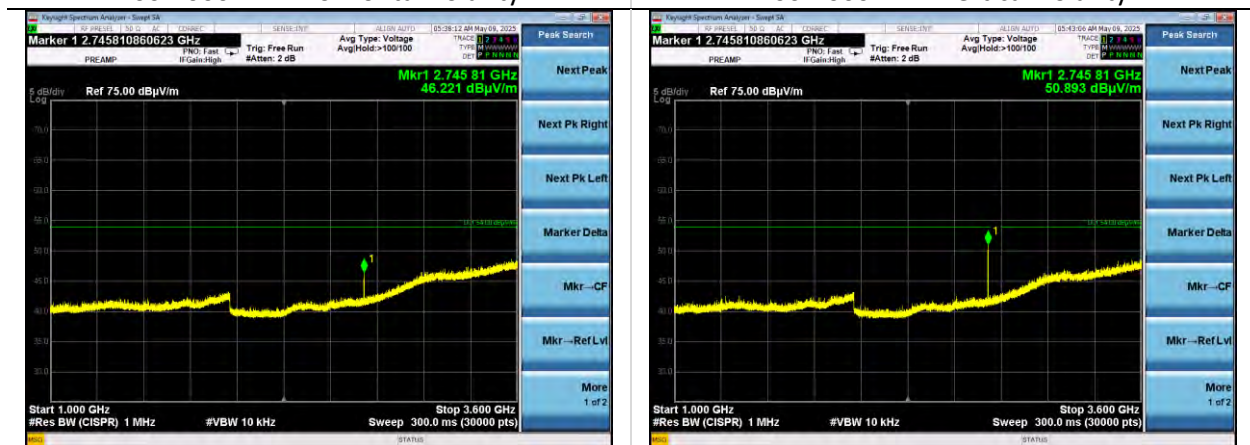
30-200 MHz Horizontal Polarity

30-200 MHz Vertical Polarity



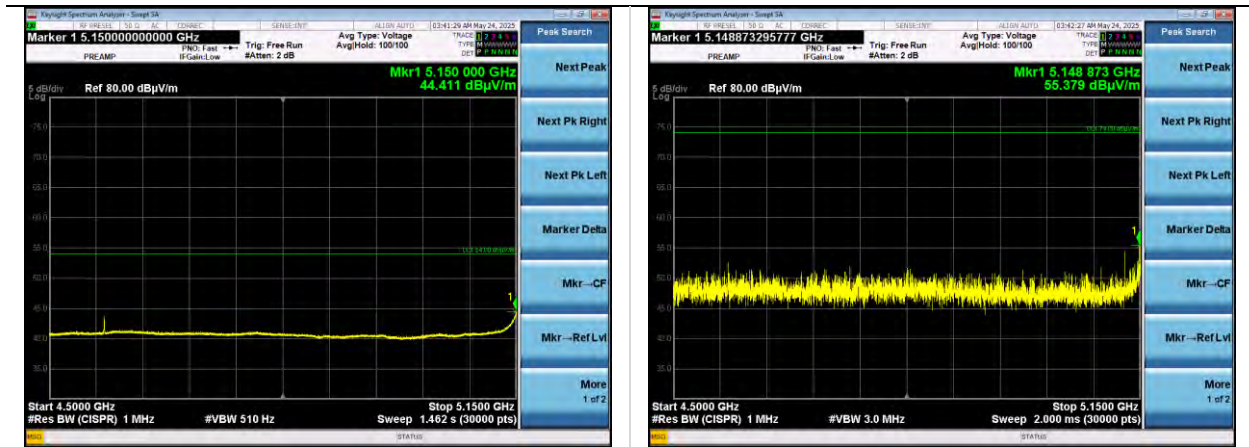
200-1000 MHz Horizontal Polarity

200-1000 MHz Vertical Polarity



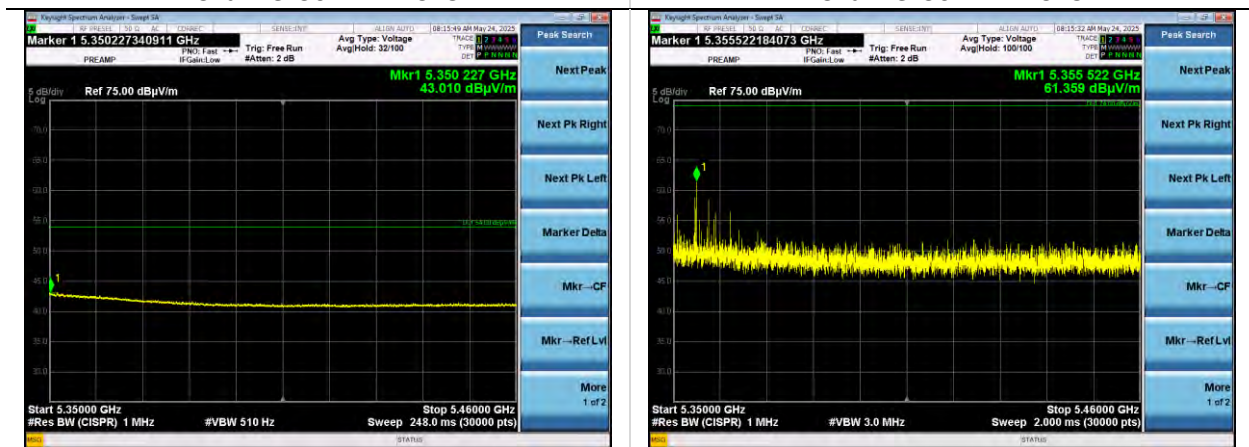
1-3.6 GHz Horizontal Polarity

1-3.6 GHz Vertical Polarity



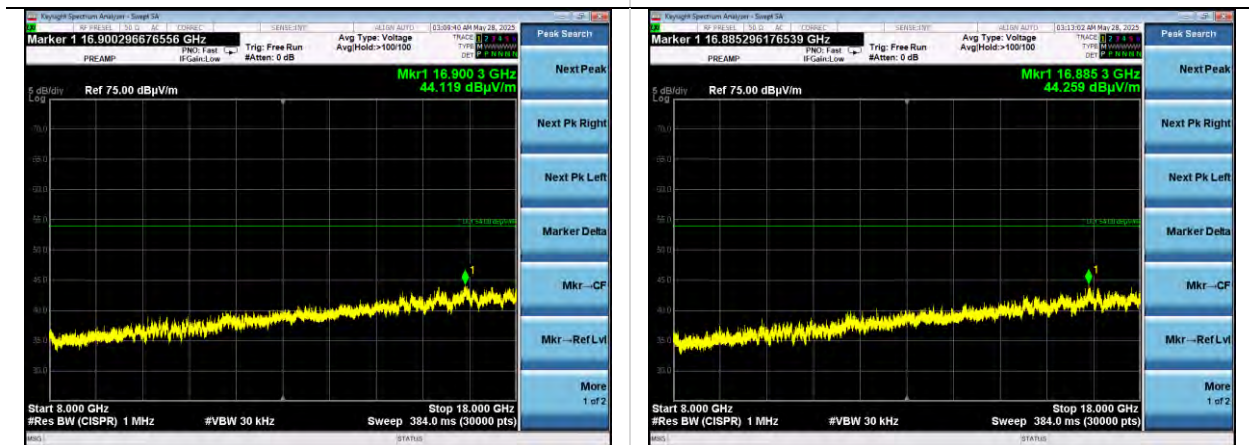
4.5-5.15 GHz Average
WLAN Channel 36 + RFID 915 MHz

4.5-5.15 GHz Peak
WLAN Channel 36 + RFID 915 MHz



5.35-5.46 GHz Average
WLAN Channel 64 + RFID 915 MHz

5.35-5.46 GHz Peak
WLAN Channel 64 + RFID 915 MHz

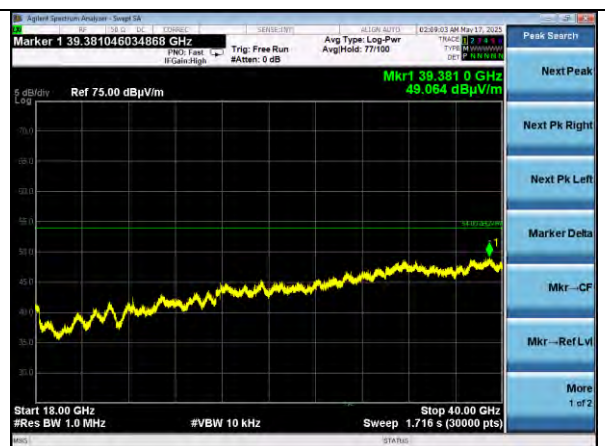


8-18 GHz Horizontal Polarity

8-18 GHz Vertical Polarity

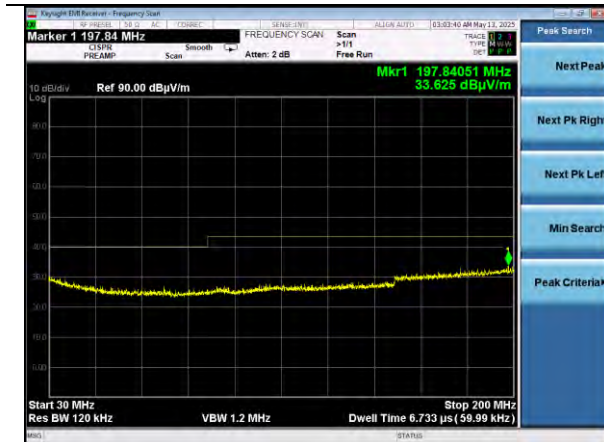


18-40 GHz Horizontal Polarity

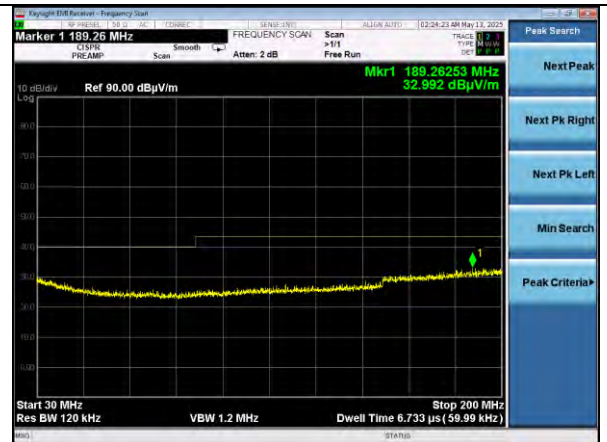


18-40 GHz Vertical Polarity

BT + RFID



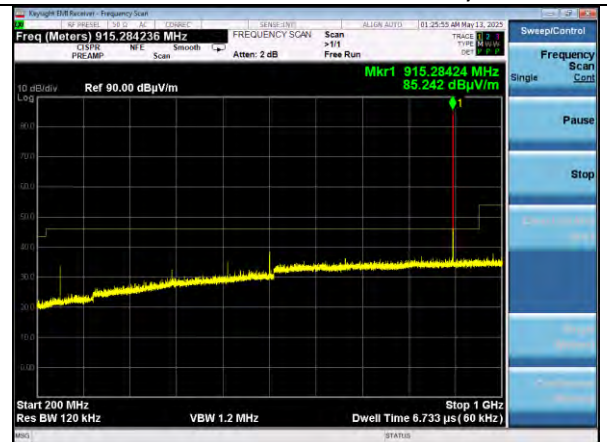
30-200 MHz Horizontal Polarity



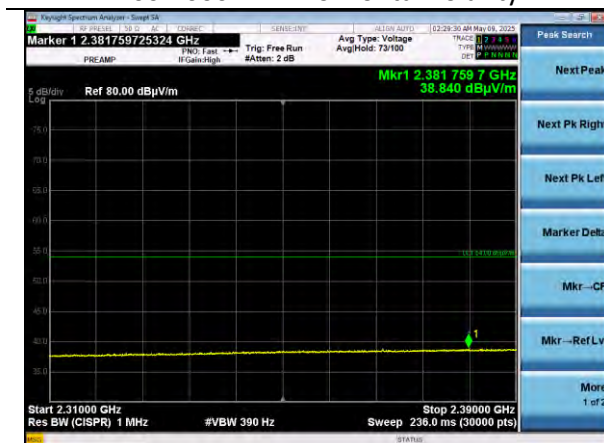
30-200 MHz Vertical Polarity



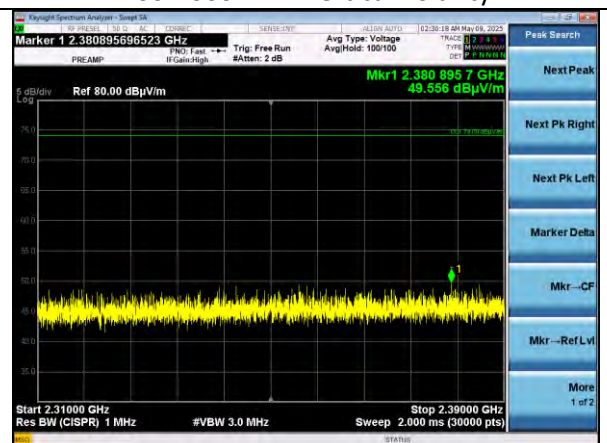
200-1000 MHz Horizontal Polarity



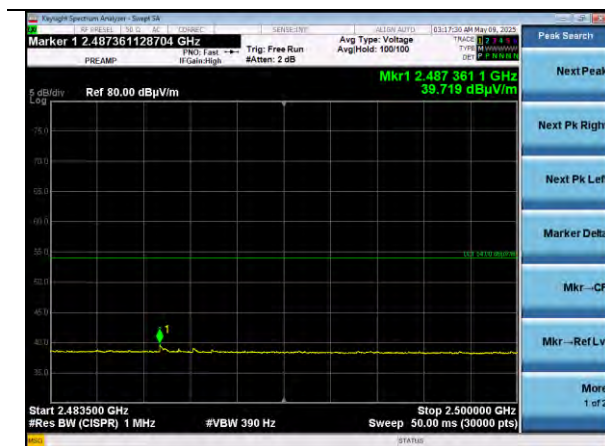
200-1000 MHz Vertical Polarity



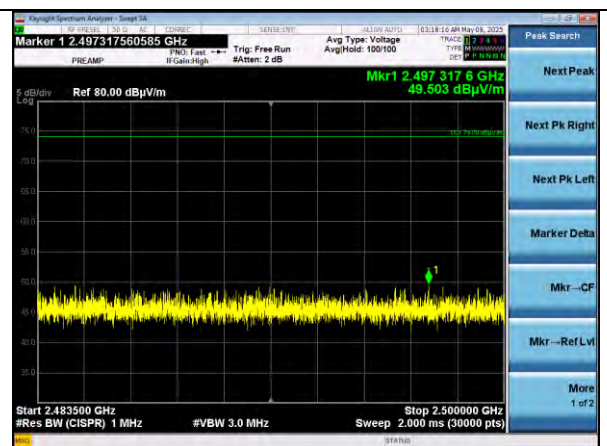
2.31-2.39 GHz Average
BT Ch 0 + RFID 915 MHz



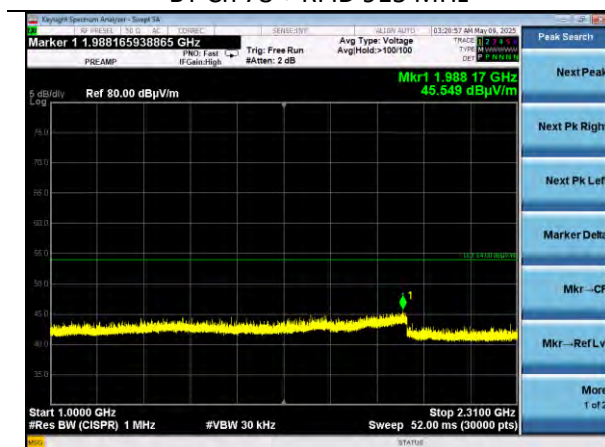
2.31-2.39 GHz Peak
BT Ch 0 + RFID 915 MHz



2.4835-2.5 GHz Average
BT Ch 78 + RFID 915 MHz



2.4835-2.5 GHz Peak
BT Ch 78 + RFID 915 MHz



1-2.31 GHz Vertical Polarity
BT Ch 78 + RFID 915 MHz



2.5-3.6 GHz Vertical Polarity
BT Ch 78 + RFID 915 MHz



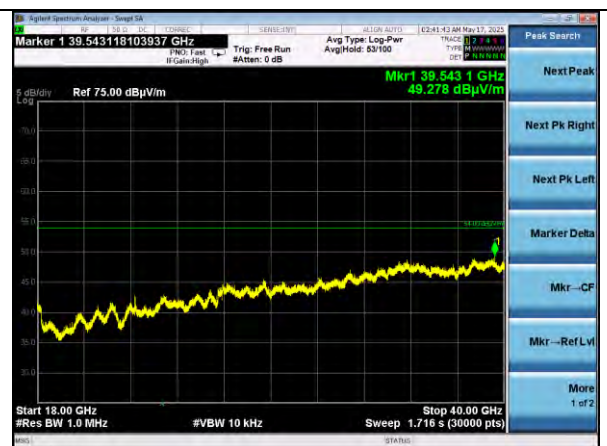
4-18 GHz Horizontal Polarity



4-18 GHz Vertical Polarity



18-40 GHz Horizontal Polarity



18-40 GHz Vertical Polarity

6 REVISION HISTORY

Version	Date	Notes	Person
0.0	6/19/2025	Initial Draft	Anthony Smith
1.0	7/2/2025	Revised Draft	Anthony Smith

END OF REPORT