

# Test Report TR3877D

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

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**Report Issued by:** Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 7/31/2025

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

Signature: 

Date: 7/31/2025

**Report Constructed by:** Anthony Smith, EMC Engineering Specialist

Signature: 

Date: 7/29/2025

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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*



Government  
of Canada

### Innovation, Science and Economic Development Canada

*Accredited U.S. Identification Number: US0218*

*Recognition of two 3 meter Semi-Anechoic Chambers*

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## 1 TEST REPORT SUMMARY

During **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
15.247 RSS-247	Radiated Field Strength Measurement for determining antenna gain	ANSI C63.10	Yes
15.247(b)(3) RSS-247 Clause 5.4 (d)	RF Output Power	ANSI C63.10	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 dB below specified limit
Emissions – Frequency	1% less than the specification
Immunity	Tested at specified level

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## 2 CLIENT INFORMATION

Company Name	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.

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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	-
KDB 558074 D01	-	2019	-	-

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## 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	$1 \times 10^{-7}$	$0.55 \times 10^{-7}$
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 %

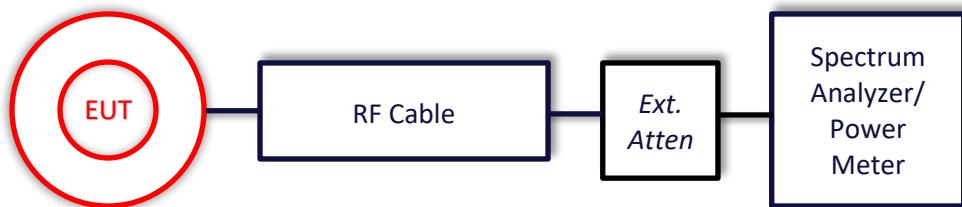
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## 5 TEST DATA

### 5.1 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



#### 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

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### 5.1.1 Maximum Conducted Output Power

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

**Limits: ≤30 dBm**

#### Test Parameters

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

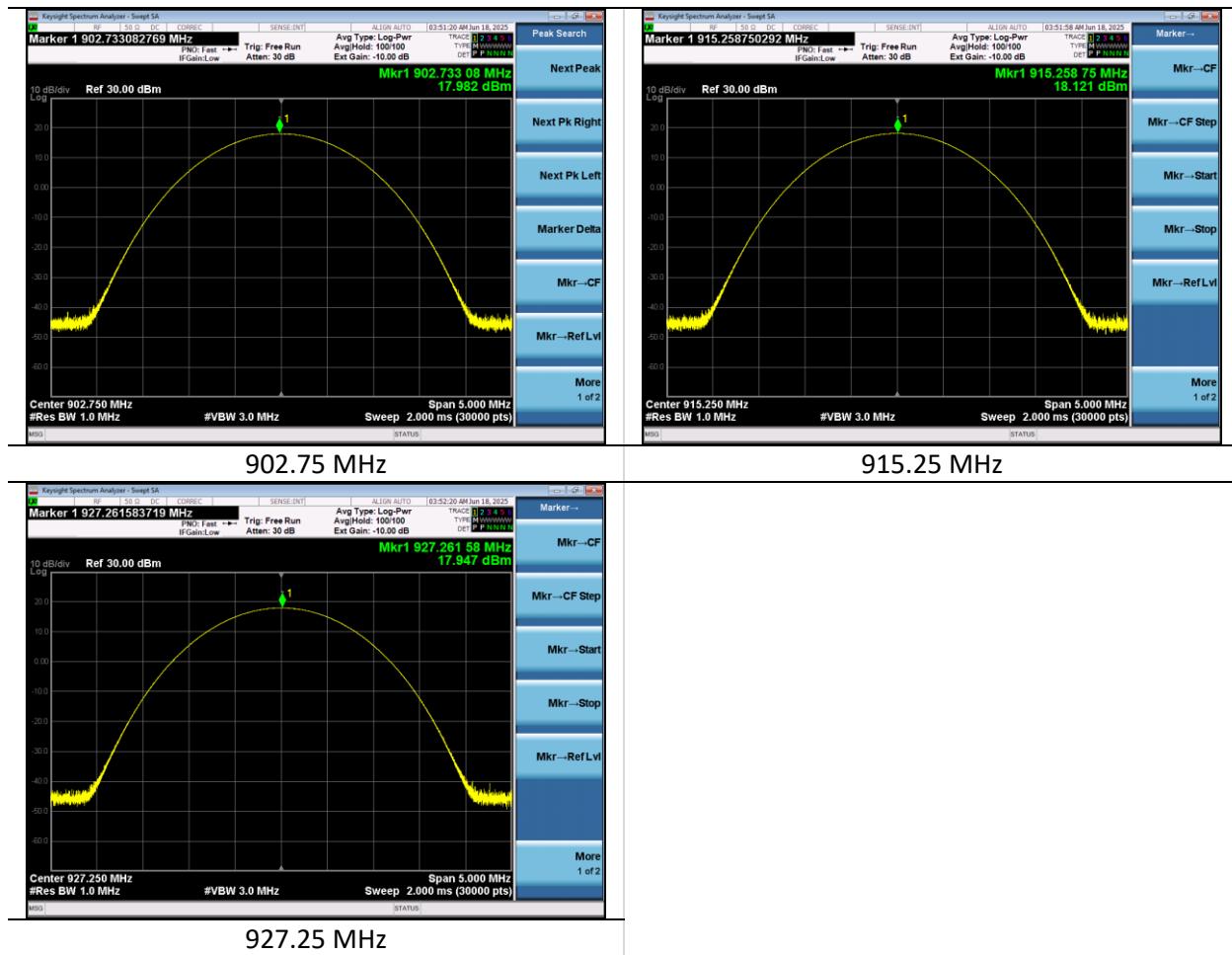
#### EUT Parameters

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

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**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
<b>915.3</b>	<b>18.1</b>	<b>0.7</b>	<b>18.8</b>	<b>30.0</b>	<b>11.3</b>
927.3	18.0	0.7	18.7	30.0	11.4

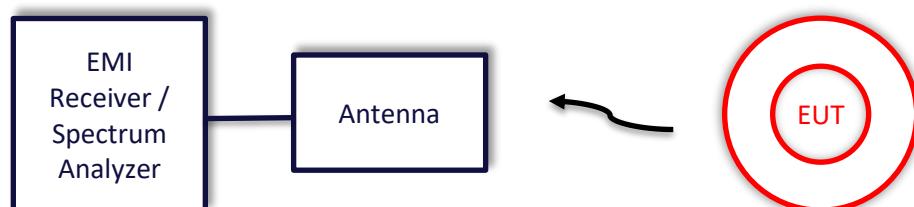
**Plots**


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## 5.2 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 (dB<math>\mu</math>V) + Cable factor (dB) + Other (dB) + Antenna Factor (dB/m) = Corrected Reading (dB<math>\mu</math>V/m)</p> <p>Margin (dB) = Limit (dB<math>\mu</math>V/m) - Corrected Reading (dB<math>\mu</math>V/m)</p> <p>Example at 4000 MHz:      Reading = 40 dB<math>\mu</math>V + 3.4 dB + 0.9 dB + 6.5 dB/m = 50.8 dB<math>\mu</math>V/m      Average Limit = 20 log (500) = 54 dB<math>\mu</math>V/m      Margin = 54 dB<math>\mu</math>V/m - 50.8 dB<math>\mu</math>V/m = 3.2 dB</p>

### Block Diagram



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### 5.2.1 Antenna Gain

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

### Test Parameters

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

### EUT Parameters

<b>Input Power</b>	Battery	<b>Mode</b>	Transmit Modulated
<b>Channels</b>	902.75, 915.25, 928.25 MHz	<b>EUT</b>	Low, Mid, High Channels

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## Instrumentation

Asset #	Description	Manufacturer	Model #	Serial #	Date	Due Date	Status
AA 960163	Antenna - Log Periodic	A.H. Systems, Inc.	SAS-512-2	500	12/11/2024	12/11/2025	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

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## Table

### Fundamental Radiated

Frequency (MHz)	Antenna Polarity	Height (cm)	Azimuth (degree)	Peak Reading (dB $\mu$ V/m)	EUT Orientation/Channel
915.3	H	100	63	88.9	EUT Flat
915.3	V	127	195	89.3	EUT Flat
915.3	V	110	197	84.4	EUT Horizontal
915.3	H	100	0	87.1	EUT Horizontal
915.3	H	154	206	89.1	EUT Vertical
915.3	V	118	47	87.4	EUT Vertical
902.8	V	127	212	88.2	EUT Flat
927.2	V	121	193	89.5	EUT Flat

### Antenna Gain

Frequency (MHz)	Radiated Field Strength (dB $\mu$ V/m)	Output Power (dBm)	Antenna Gain (dBi)
915.3	89.3	18.7	-24.6
902.8	88.2	18.8	-25.8
<b>927.2</b>	<b>89.5</b>	<b>18.7</b>	<b>-24.4</b>

### Example Calculation:

Radiated Field Strength (dB $\mu$ V/m @ 3m) – [Output Power (dBm) + 95.2 (conversion to dB $\mu$ V/m @ 3m)]

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## 6 REVISION HISTORY

Version	Date	Notes	Person
0.0	7/29/2025	Initial Draft	Anthony Smith
0.1	7/31/2025	Draft Reviewed	Anthony Smith

**END OF REPORT**

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