



166 South Carter, Genoa City, WI 53128

Company:	Wilson Sporting Goods Co.
Model Tested:	MSC1417_ASSY Rev B
Project Number:	12719
Report Number:	28749 rev1.0

Code of Federal Regulations Title 47 Part 15 – Radio Frequency Devices

Subpart C – Intentional Radiators – Section 15.247
Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz,
5725 - 5875 MHz, and 24.0 - 24.25 GHz.

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

(The Digital Device requirements (Part 15.107 & 15.109 Class B) will be addressed as an SDoC)

FCC ID: 2AHBQ-QBIDP1

(Body-worn use with antenna distance to user < 5 mm)

Formal Name:	QBID Player Tag
Kind of Equipment:	Portable / Sensor Beacon with: Bluetooth Low Energy (BLE) Transceiver (in this report), and 125 kHz Low Power Transceiver (See DLS Test Report #28751)
Frequency Range(s):	2402 – 2480 MHz
Test Configuration:	Table top, stand-alone, rotated through 3 orthogonal axes to find worst-case orientation and on wireless charging pad
Model Number(s):	MSC1417_ASSY Rev B
Model(s) Tested:	MSC1417_ASSY Rev B
Serial Number(s):	Radiated unit: A2547_0290 RF conducted unit: B1060150011
Date of Tests:	August 23 - September 3, 2024
Test Conducted For:	Wilson Sporting Goods Co. 9509 Foster Avenue Schiller Park, Illinois, 60176, USA

NOTICE: This test report contains test data, equipment lists and/or other information regarding only the sample provided by the client for testing. This test report shall not be used to claim product approval or endorsement by any governmental, regulatory, or accrediting agency. Please see the "Description of Test Sample" page listed inside of this report.

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166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Signature Page

Report By:

Craig Brandt
Test Engineer

Reviewed By:

Brian Mattson
General Manager

Approved By:

Brian Mattson
General Manager



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Table of Contents

i.	Cover Page	1
ii.	Signature Page	2
iii.	Table of Contents	3
iv.	ANAB Certificate of Accreditation	4
1.0	Summary of Test Report	5
2.0	Introduction.....	6
3.0	Test Facilities.....	6
4.0	Description of Test Sample.....	6
5.0	Test Equipment	8
6.0	Test Arrangements	11
7.0	Test Conditions	11
8.0	Modifications Made to EUT For Compliance	12
9.0	Additional Descriptions	12
10.0	FCC 15.31(e) Supply Voltage Requirement statement.....	13
11.0	FCC 15.203 Antenna Requirement statement	13
12.0	Results.....	14
13.0	Conclusion	14
	Section A – Measurement Data	15
	A1.0 Duty Cycle of Test Unit.....	15
	A2.0 DTS Bandwidth (6 dB bandwidth)	18
	A3.0 Peak Output Power	22
	A4.0 Peak Power Spectral Density	26
	A5.0 Emissions in Non-Restricted Frequency Bands – RF Conducted	30
	A5.1 Low Channel	31
	A5.2 Middle Channel.....	36
	A5.3 High Channel	41
	A6.0 Emissions in Restricted Frequency Bands - Radiated	46
	A6.1 Emissions – Restricted Bands: 30-1000 MHz	47
	A6.2 Emissions – Restricted Bands: 1-18 GHz	51
	A6.3 Emissions – Restricted Bands: 18-25 GHz	54
	A7.0 Authorized Band Edge – RF Conducted.....	57
	A8.0 Restricted Band Edge – Radiated	60
	A9.0 AC Line Conducted Emissions.....	69
	Section B – Measurement Uncertainty	82



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0



CERTIFICATE OF ACCREDITATION

The ANSI National Accreditation Board

Hereby attests that

DLS Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090
(and satellite locations as shown on the scope)

Fulfills the requirements of

ISO/IEC 17025:2017

and

**U.S. Federal Communication Commission (FCC) EMC and Telecommunications (EC&T)
Testing Designation Program**

and

**Recognition of Telecommunications Testing - Innovation, Science, and Economic Development
(ISED) Canada**

and

**FDA Accreditation Scheme for Conformity Assessment (ASCA) Pilot Program -Basic Safety
and Essential Performance of Medical Electrical Equipment, Medical Electrical Systems, and
Laboratory Medical Equipment**

In the field of

TESTING

This certificate is valid only when accompanied by a current scope of accreditation document.

The current scope of accreditation can be verified at www.anab.org

Jason Stine, Vice President
Expiry Date: 23 April 2026
Certificate Number: AT-1859



This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory
quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

SATELLITE SITE

DLS Electronic Systems, Inc. (OATS Site)

166 South Carter
Genoa City, Wisconsin 53128

www.dlsemc.com



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

1.0 Summary of Test Report

It was determined that the QBID Player Tag, model MSC1417_ASSY Rev B, complies with the requirements of Title 47 CFR Part 15, Subpart C, Section 15.247.

Subpart C Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
15.31(e)	Supply Voltage Statement	N/A		Yes
15.203	Antenna Requirement Statement	N/A		Yes
Informative	Duty Cycle of Test Unit	ANSI C63.10-2020 Section 11.6(b)	1	NA
15.247(a)(2)	DTS Bandwidth (6 dB Bandwidth)	ANSI C63.10-2020 Section 11.8.2	1	Yes
15.247(b)(3)	Peak Output Power	ANSI C63.10-2020 Section 11.9.1.1	1	Yes
15.247(e)	Peak Power Spectral Density	ANSI C63.10-2020 Section 11.10.2	1	Yes
15.247(d)	Emissions in Non-Restricted Frequency Bands	ANSI C63.10-2020 Section 11.11	1	Yes
15.247(d) 15.205(b) 15.209(a)	Emissions in Restricted Frequency Bands	ANSI C63.10-2020 Section 11.12.1	2	Yes
15.247(d)	Authorized Band Edge	ANSI C63.10-2020 Section 6.10.4	1	Yes
15.247(d) 15.205(b) 15.209(a)	Restricted Band Edge	ANSI C63.10-2020 Section 6.10.5	2	Yes
15.207	AC Line Conducted Emissions	ANSI C63.10-2020 Section 6.2	3	Yes

Note 1: RF Conducted measurement.

Note 2: Radiated Emission measurement; tested in 3 orthogonal axes.

Note 3: AC Line Conducted measurement.



166 South Carter, Genoa City, WI 53128

Company:	Wilson Sporting Goods Co.
Model Tested:	MSC1417_ASSY Rev B
Project Number:	12719
Report Number:	28749 rev1.0

2.0 Introduction

During August 23 - September 3, 2024 the QBID Player Tag, model MSC1417_ASSY Rev B, as provided by Wilson Sporting Goods Co., was tested to the requirements of Title 47 CFR Part 15, Subpart C, Section 15.247. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S. Electronic Systems, Inc.

3.0 Test Facilities

D.L.S. Electronic Systems, Inc. is a full-service EMC/Safety Testing Laboratory accredited to ISO 17025. ANAB Certificate and Scope can be viewed at <http://www.dlsemc.com/certificate>. Our facilities are registered with the FCC, ISED Canada, and VCCI.

Wisconsin Test Facility:

D.L.S. Electronic Systems, Inc.
166 S. Carter Street
Genoa City, Wisconsin 53128

Wheeling Test Facility:

D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090

FCC Registration #90531

4.0 Description of Test Sample

Description:

The QBID Player Tag is part of a data acquisition system used to evaluate and quantify a player's performance. It communicates with a QBID Ball Tag which senses features like ball velocity, ball spin rate, spiral efficiency, release time, and others. The QBID Player Tag also uses a low power, low frequency proximity transceiver to identify which player has the ball. This system allows players to evaluate their level of performance.

Type of Equipment:

Portable / Body-worn

DTS – Bluetooth Low Energy (BLE 5.0) (in this report)

DCD – 125 kHz Low Power Transceiver (see DLS Test Report #28751)



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

4.0 Description of Test Sample – continued

Frequency Range:

2402 – 2480 MHz

Physical Dimensions of Equipment Under Test:

Length: 2 in. x Width: 3 in. x Height: 1 in.

Power Source:

3.7 Volt DC provided by internal rechargeable battery
Battery is only rechargeable by wireless charging

Crystal Frequencies:

32 MHz, 32.768 kHz

Transmit Frequencies Used For Test Purpose:

2402 MHz, 2440 MHz, 2480 MHz

Type of Modulation(s)

GFSK (40 Channels), 1 MHz bandwidth, 1 Mbps

Antenna Type:

PCB Trace
Gain: unknown

Production Firmware / Software:

Normal Operational Firmware: 1D00E052
(This identifies the build code and the version as well.)

Firmware / Software Used for Test Purpose:

Special FCC Test Firmware: 1DFCCE50
(This identifies the build code and the version as well.)



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

5.0 Test Equipment

A list of the equipment used can be found in the table below. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

D.L.S. Wisconsin – RF Conducted – Site 2 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESW-44	103075	2 Hz-44 GHz	3-29-23	3-29-25
Cable	Micro-Coax	UFC142A	CBL-093	30 MHz-40 GHz	7-12-24	7-12-25
20 dB Attenuator	Aeroflex/ Weinschel	75A-20-12	1071	30 MHz-40 GHz	7-12-24	7-12-25

D.L.S. Wisconsin – Radiated Emissions 30-1000 MHz – Site 2 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESW-44	103075	2 Hz-44 GHz	3-29-23	3-29-25
Antenna	EMCO	3104C	0005-4892	20 MHz-300 MHz	1-5-23	1-5-26
Antenna	EMCO	3146	1604	200 MHz-1 GHz	3-13-24	3-13-26
Cable	Beldin	9914	CBL-005	9 kHz-1 GHz	7-2-24	7-2-25
Cable	Pasternack Enterprises	PE3087-48	CBL-109	9 kHz-1 GHz	4-7-24	4-7-25
Cable	Pasternack Enterprises	PE3087-48	CBL-111	9 kHz-1 GHz	4-7-24	4-7-25
Cable	Coleman Cable	991079	CBL-122	9 kHz-1 GHz	4-7-24	4-7-25
Preamplifier	Rohde & Schwarz	TS-PR10	032001/004	9 kHz-1 GHz	7-2-24	7-2-25
Test Software	ETS Lindgren	TILE 7	N/A	N/A	N/A	N/A



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

5.0 Test Equipment – continued

D.L.S. Wisconsin – Radiated Emissions 1-4 GHz – Site W1 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz-26.5 GHz	3-29-23	3-29-25
Horn Antenna	EMCO	3115	9502-4451	1 GHz-18 GHz	10-9-23	10-9-25
Cable	Micro-Coax	UFB311A	CBL-100	1 GHz-18 GHz	5-16-24	5-16-25
Test Software	Rohde & Schwarz	ESK1	V1.7.1	N/A	N/A	N/A

D.L.S. Wisconsin – Radiated Emissions 4-18 GHz – Site W1 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz-26.5 GHz	3-29-23	3-29-25
Horn Antenna	EMCO	3115	9502-4451	1 GHz-18 GHz	10-9-23	10-9-25
Cable	Micro-Coax	UFB311A	CBL-100	1 GHz-18 GHz	5-16-24	5-16-25
High Pass Filter	Q Microwave	100462	1	4 GHz-18 GHz	5-16-24	5-16-25
Preamp	Miteq	AMF-7D-01001800-22-10P	1809602	1 GHz-18 GHz	7-12-24	7-12-25
Test Software	Rohde & Schwarz	ESK1	V1.7.1	N/A	N/A	N/A



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

5.0 Test Equipment – continued

D.L.S. Wisconsin – Radiated Emissions 18-25 GHz – Site W1 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz-26 GHz	3-29-23	3-29-25
Horn Antenna	A.H Systems	SAS-574	222	18 GHz-40 GHz	12-14-22	12-14-24
Cable	Pasternack Enterprises	PE3C0666-24	CBL-103	30 MHz-40 GHz	7-12-24	7-12-25
Cable	Micro-Coax	UFC142A	CBL-093	30 MHz-40 GHz	7-12-24	7-12-25
Preamplifier	Miteq	AMF-8B-180265-40-10P-H/S	438727	18 GHz-26 GHz	5-17-24	5-17-25
Test Software	ETS Lindgren	TILE 7	N/A	N/A	N/A	N/A

D.L.S. Wisconsin – AC Line Conducted Emissions – Site 1 – Test Equipment:

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Dates	Cal Due Dates
Receiver	Narda	9010F	020WW40102	10 Hz-50 MHz	3-14-24	3-14-25
Limiter	Electro-Metrics	EM-7600	705	9 kHz-100 MHz	3-8-24	3-8-25
Cable	Manhattan/CDT	RG-223/U	CBL-035	9 kHz-30 MHz	3-7-24	3-7-25
Cable	Beldin	9914	CBL-043	9 kHz-30 MHz	3-7-24	3-7-25
Cable	Pasternack Enterprises	PE3087-72	CBL-112	9 kHz-1 GHz	3-7-24	3-7-25
High Pass Filter	Solar Electronics	7930-120	090702	120 kHz-30 MHz	3-6-24	3-6-25
LISN	Com-Power	LI-220A	192036	9 kHz-30 MHz	8-7-24	8-7-25
Test Software	Narda	PMM Emission Suite	V2.4.0	N/A	N/A	N/A



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

6.0 Test Arrangements

Measurement Arrangement:

All measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2020, unless otherwise noted. Descriptions of procedures and measurements can be found in Section A – Measurement Data. See Section B for measurement uncertainty. See separate exhibit for photos of the test set up.

Unless otherwise noted, the bandwidth of the measuring receiver / analyzer used during testing is shown below.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

7.0 Test Conditions

Temperature and Humidity:

72 °F at 46% RH

Supply Voltage:

3.7 Volt DC provided by internal rechargeable battery.
Battery can only be charged via wireless charging pad.

All RF Conducted Emissions and Radiated Emissions were tested with a fully charged battery. AC line conducted was tested while continuously transmitting and charging the battery.

AC line conducted testing was performed using a Shenzhen Dak Technology Co., Ltd., Choetech Dual Fast Wireless Charger, Model: T535-S



166 South Carter, Genoa City, WI 53128

Company:	Wilson Sporting Goods Co.
Model Tested:	MSC1417_ASSY Rev B
Project Number:	12719
Report Number:	28749 rev1.0

8.0 Modifications Made to EUT For Compliance

The output power setting was changed from 4 to 0.

9.0 Additional Descriptions

Following FCC Part 15 and ANSI C63.10 requirements, the EUT was programmed to transmit continuously, modulated, with a high duty cycle (highest duty cycle achievable with test software). The transmit Output power was set to a setting of 0 using the test software.

For RF Conducted measurements, a spectrum analyzer was connected through an RF cable and a 20 dB attenuator to a temporary SMA connector that was soldered to the RF circuit board in place of the antenna. Correction factors for the loss of the RF cable and attenuator were downloaded into the spectrum analyzer so that the values displayed on the spectrum analyzer are already corrected for the cable and attenuator losses, and no further corrections are needed.

For Radiated Emission measurements, the EUT was tested while transmitting from the on-board trace antenna. The device was set up on a non-conductive table for testing purposes.

The EUT was programmed for continuous transmission on the lowest, middle, and highest channels of operation in the 2.4 GHz BLE frequency band. The EUT was rotated through three orthogonal axes to find worst-case emission levels. The worst-case levels are recorded in this test report.

See Section A for operation and setup specific to the FCC Rule part and ANSI C63.10 guidance reference for each test performed. See the separate Setup Photos exhibit for photos of the Radiated Emissions, AC Line Conducted, and RF Conducted measurement test setups.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

10.0 FCC 15.31(e) Supply Voltage Requirement statement

FCC 15.31(e) - For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Compliance Statement: This device complies with the requirements of Part 15.31(e):

- ☒ This device is battery operated. All tests were performed using a new (or fully charged) battery.
- ☐ This device provides a constant regulated voltage to the RF circuitry regardless of supply voltage (see schematic diagrams).
- ☐ This device does not provide a constant regulated voltage to the RF circuitry regardless of supply voltage. Data has been supplied in this test report that supports compliance. Details:

11.0 FCC 15.203 Antenna Requirement statement

SECTION 15.203 ANTENNA REQUIREMENT

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.... This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221.

Statement: This wireless device (Intentional Radiator) meets the requirements of FCC Part 15.203:

- ☒ The antenna is permanently attached.
- ☐ The antenna has a unique coupling to the intentional radiator.
Description of coupling:
- ☐ This intentional radiator is professionally installed.
- ☐ This intentional radiator, in accordance with Section 15.31(d), must be measured at the installation site.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

12.0 Results

Measurements were performed in accordance with ANSI C63.10-2020. Graphical and tabular data can be found in Section A at the end of this report.

13.0 Conclusion

The QBID Player Tag, model MSC1417_ASSY Rev B, as provided by Wilson Sporting Goods Co., tested during August 23 - September 3, 2024 **meets** the requirements of Title 47 CFR Part 15, Subpart C, Section 15.247.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A – Measurement Data

A1.0 Duty Cycle of Test Unit

Rule Part:

Informative

Test Procedure:

ANSI C63.10-2020, Section 11.6(b)
Zero-span mode on a spectrum analyzer

Limit:

Informative

Results:

Duty Cycle Correction Factor: **0.48 dB**

Notes:

This test was performed using a radiated test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Duty Cycle - Radiated
Operator: cbrandt

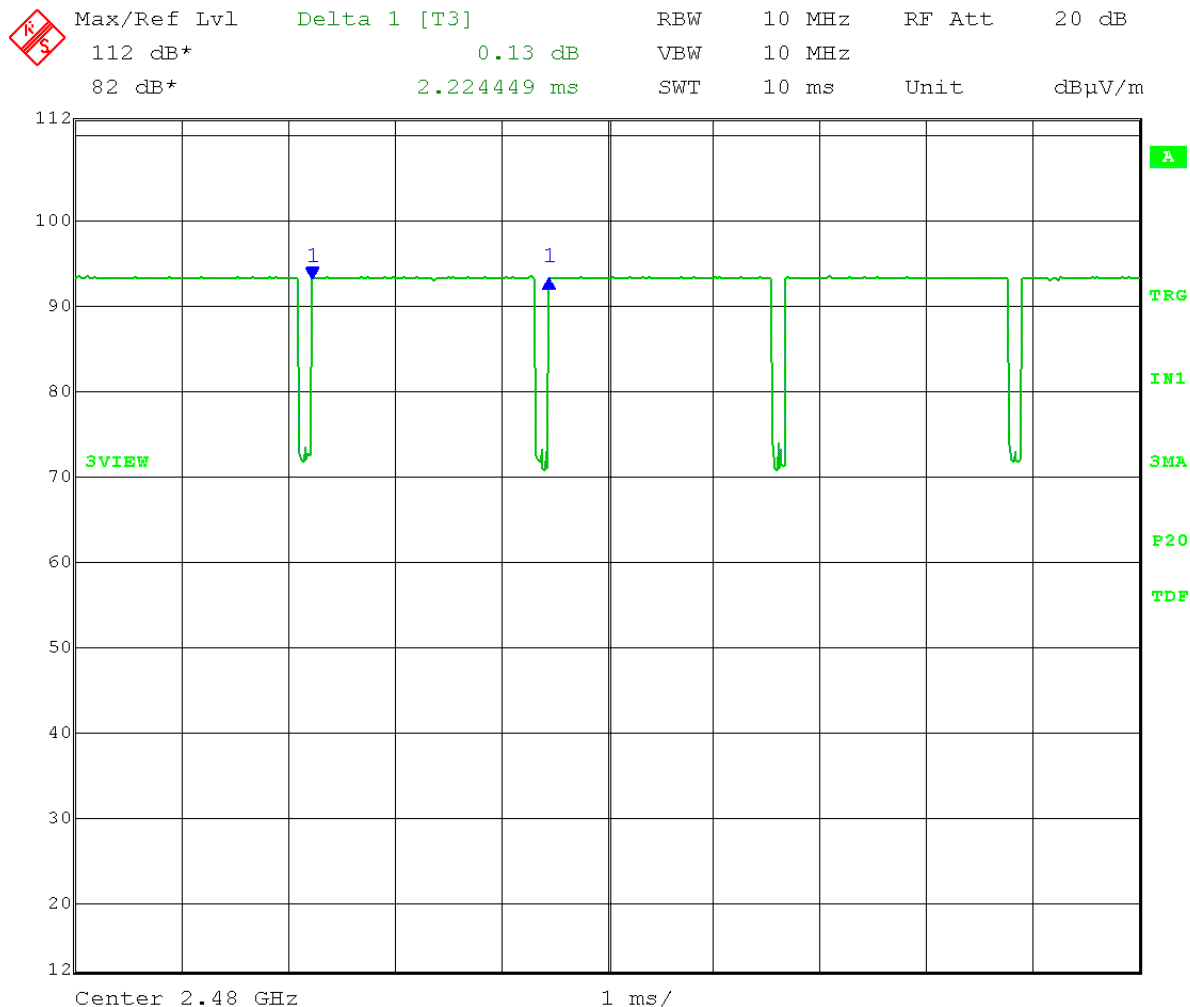
Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

Time of one cycle = 2.224449 ms

Duty cycle x = (2.104208 ms / 2.224449 ms) = 0.946 = 94.6%

Voltage Duty Cycle Correction Factor = $20 \log (1/0.946) = 0.48 \text{ dB}$

One cycle: 2.224449 ms



Date: 23.AUG.2024 14:07:07



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Duty Cycle - Radiated
Operator: cbrandt

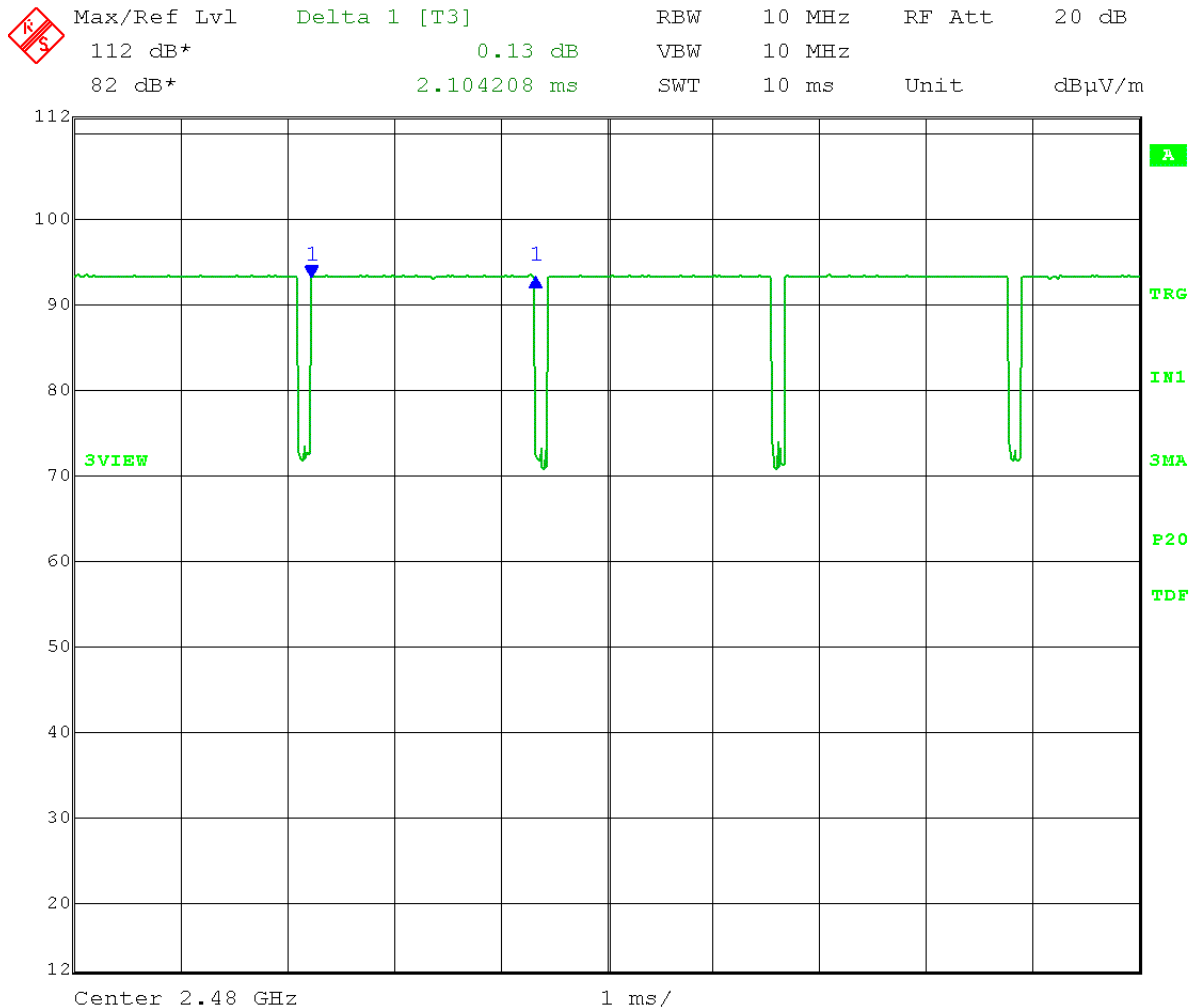
Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

Time of one cycle = 2.224449 ms

Duty cycle x = (2.104208 ms / 2.224449 ms) = 0.946 = 94.6%

Voltage Duty Cycle Correction Factor = $20 \log (1/0.946) = 0.48 \text{ dB}$

ON time during one cycle = 2.104208 ms



Date: 23.AUG.2024 14:07:50



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A2.0 DTS Bandwidth (6 dB bandwidth)

Rule Part:

Section 15.247(a)(2)

Test Procedure:

ANSI C63.10-2020, Section 11.8.2

DTS Bandwidth

Option 2: Automatic bandwidth measurement function of spectrum analyzer

Limit:

Minimum 6 dB bandwidth must be at least 500 kHz

Results:

Compliant.

Minimum 6 dB bandwidth = **697.87 kHz**

Notes:

This test was performed using an RF Conducted test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

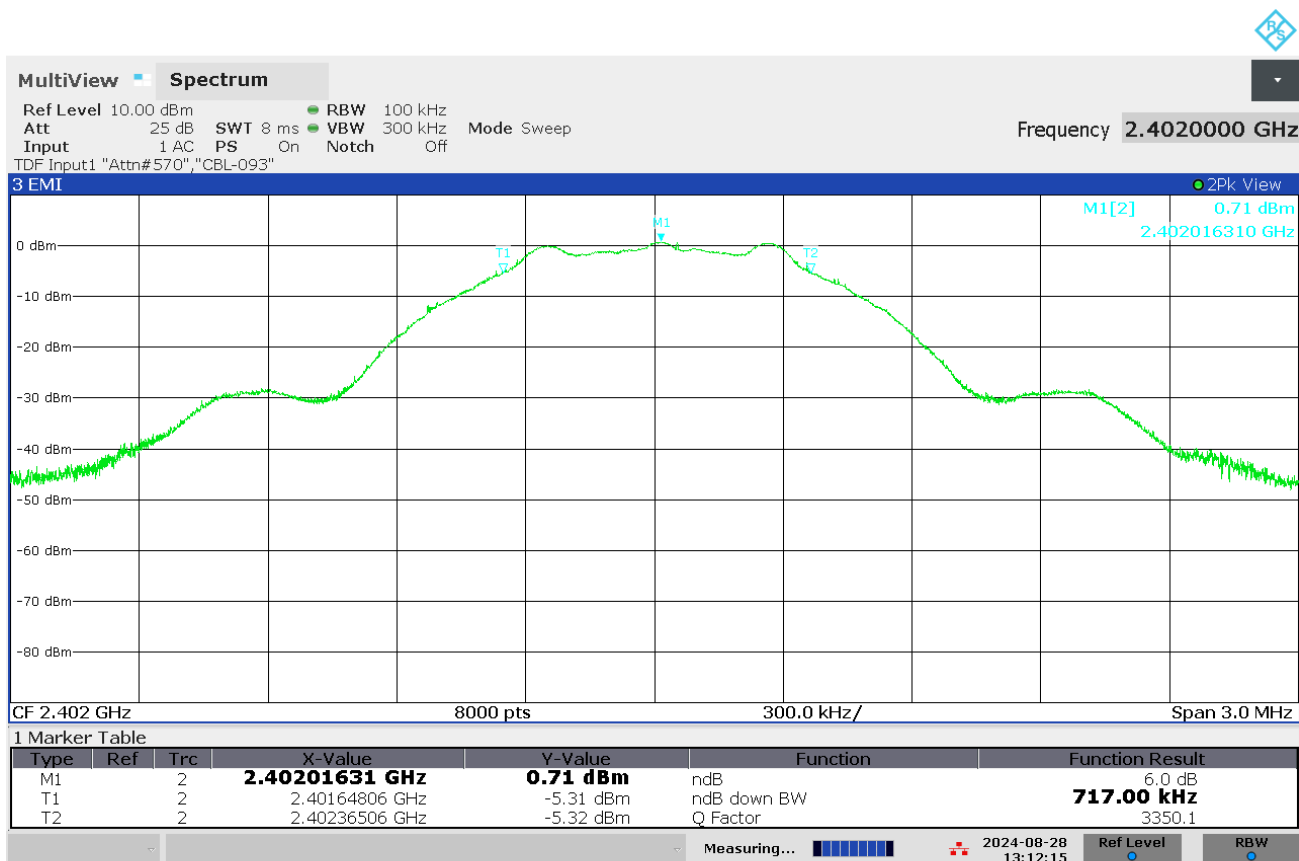
Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: DTS (6 dB) Bandwidth – RF Conducted
Operator: cbrandt

Comment: Low Channel: 2402 MHz

6 dB Bandwidth = **717.00 kHz**



01:12:16 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

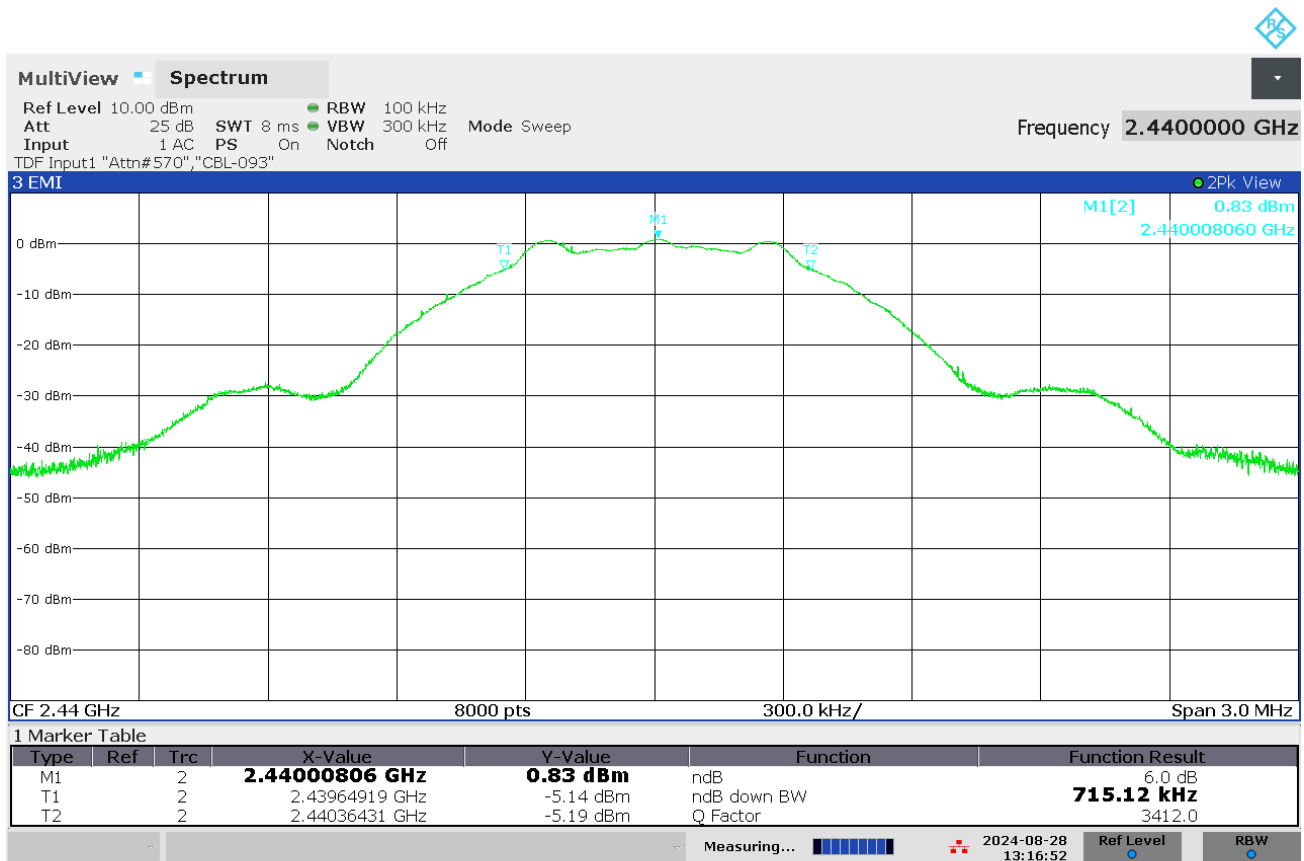
Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: DTS (6 dB) Bandwidth – RF Conducted
Operator: cbrandt

Comment: Mid Channel: 2440 MHz

6 dB Bandwidth = 715.12 kHz



01:16:52 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

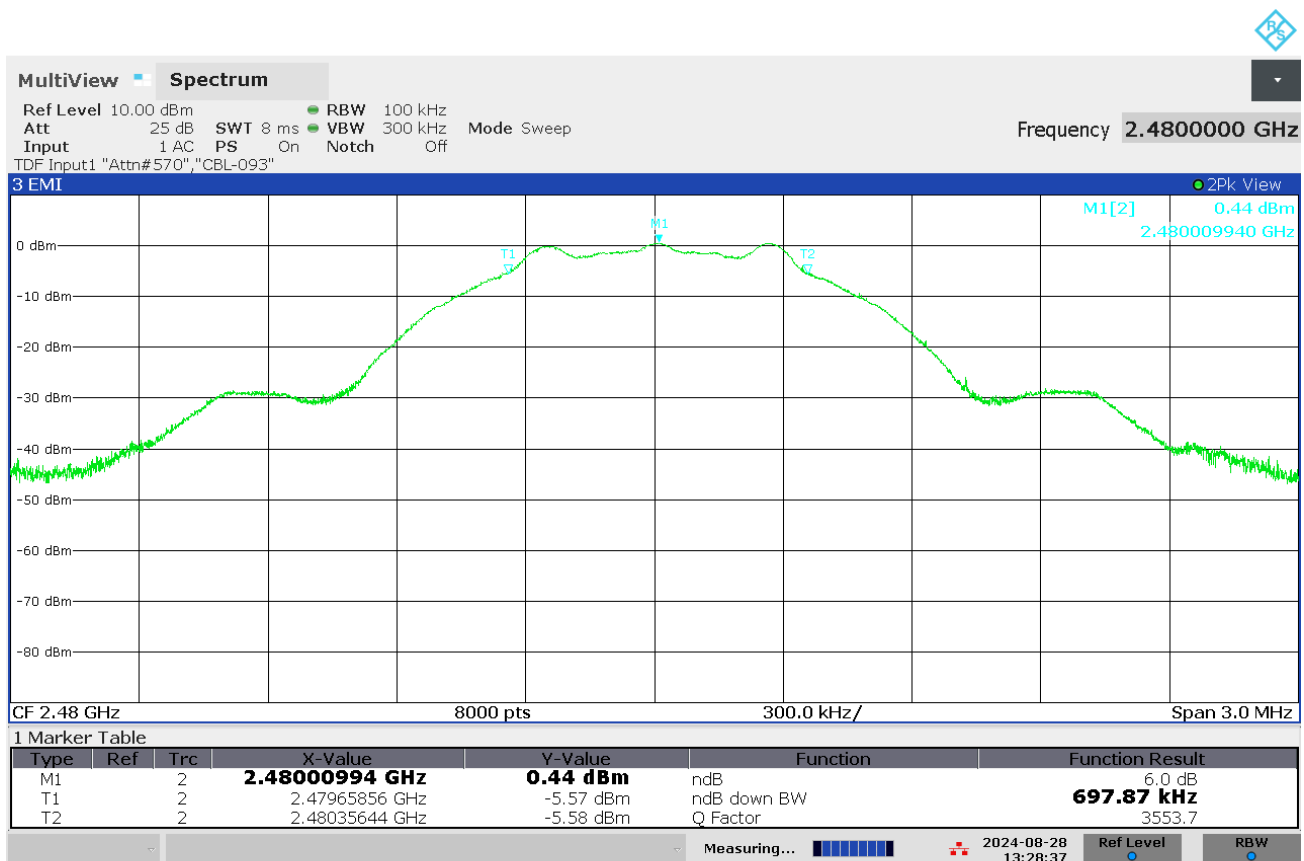
Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: DTS (6 dB) Bandwidth – RF Conducted
Operator: cbrandt

Comment: High Channel: 2480 MHz

6 dB Bandwidth = **697.87 kHz**



01:28:37 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A3.0 Peak Output Power

Rule Part:

Section 15.247(b)(3)

Test Procedure:

ANSI C63.10-2020, Section 11.9.1.1
Maximum peak conducted output power
RBW $\geq$ DTS bandwidth method

Limit:

1 Watt (30 dBm) RF Conducted

Results:

Compliant
Maximum Peak Output Power measured 0.71 dBm = **1.178 mW**

Notes:

This test was performed using an RF Conducted test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Peak Output Power – RF Conducted
Operator: cbrandt

Comment: Low Channel: 2402 MHz

Peak Output Power = 0.71 dBm = **1.178 mW**



01:04:12 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

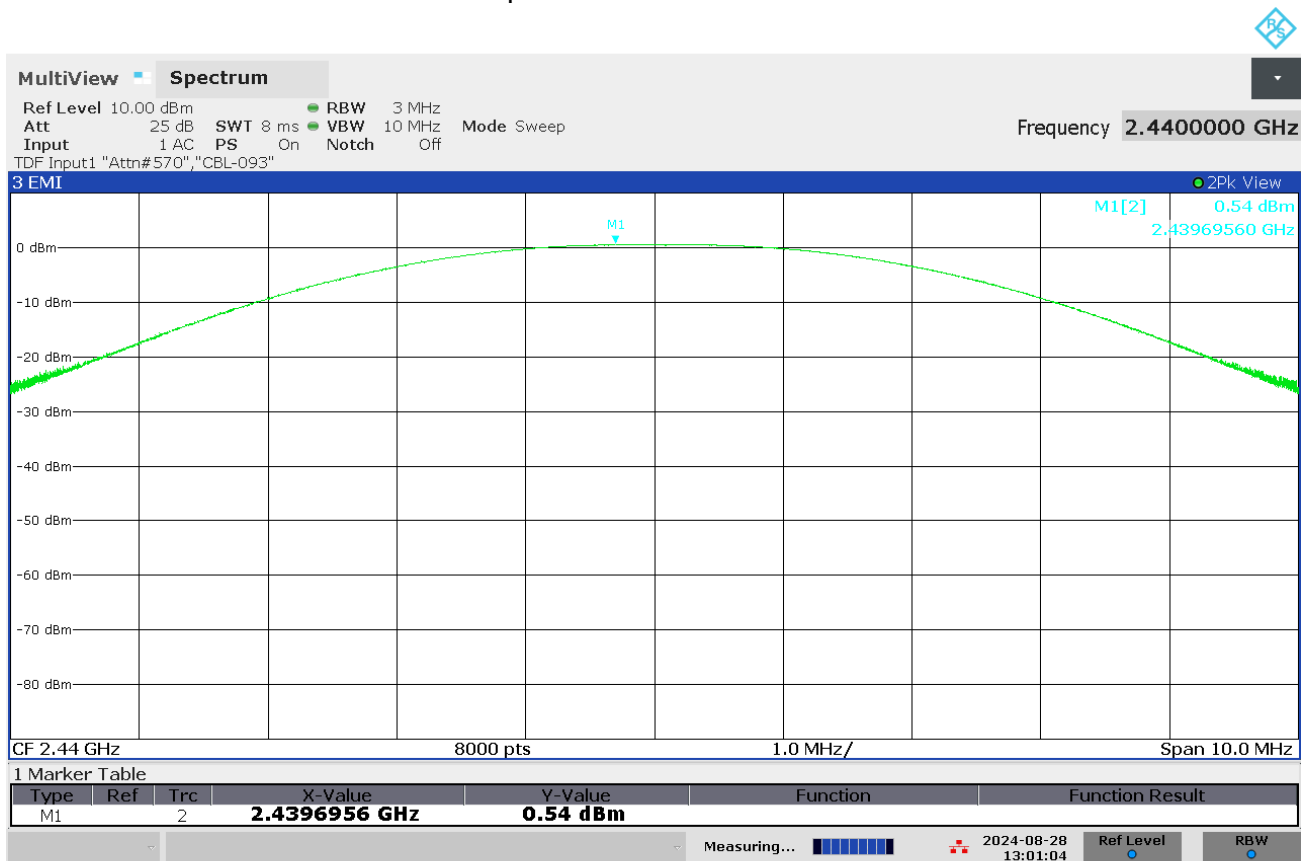
Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Peak Output Power – RF Conducted
Operator: cbrandt

Comment: Mid Channel: 2440 MHz

Peak Output Power = 0.54 dBm = **1.132 mW**



01:01:05 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

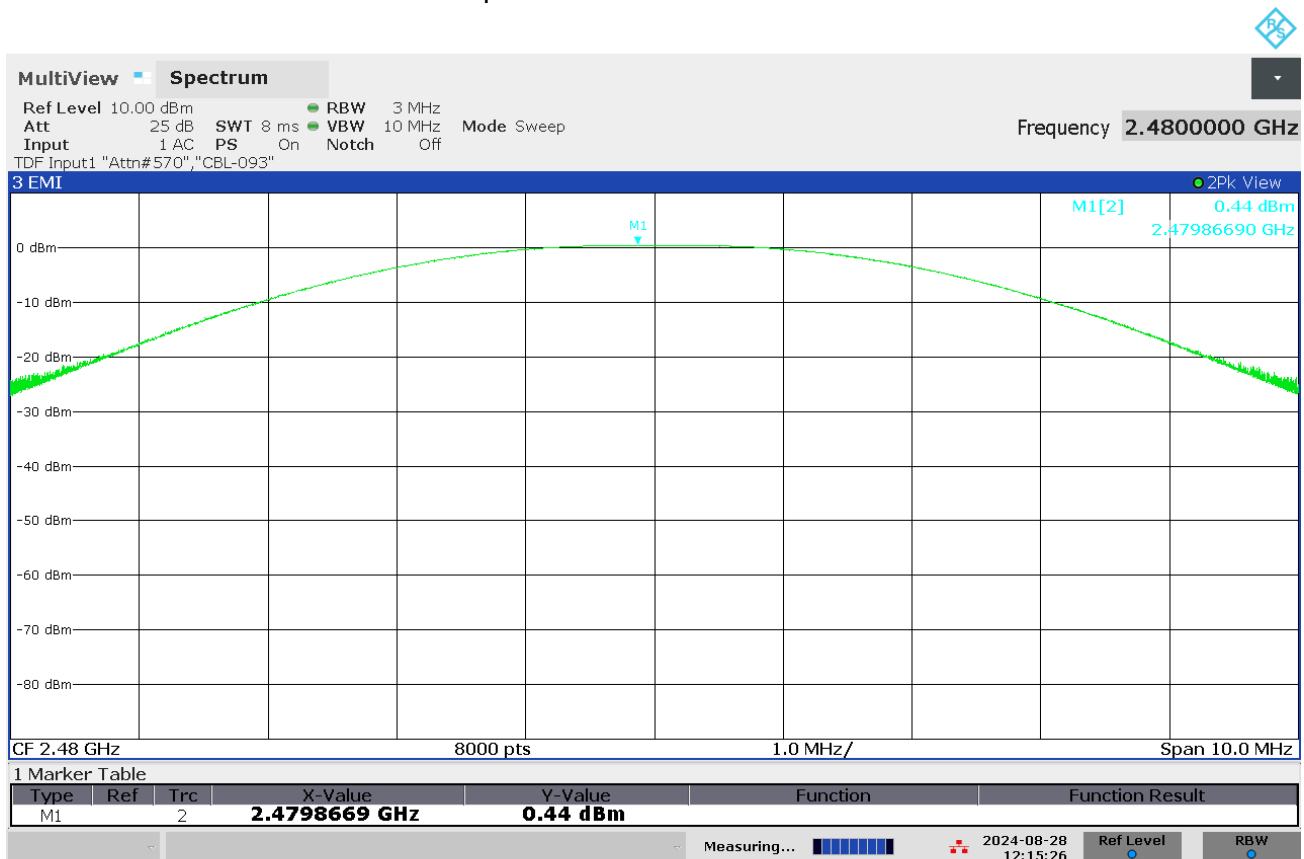
Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Peak Output Power – RF Conducted
Operator: cbrandt

Comment: High Channel: 2480 MHz

Peak Output Power = 0.44 dBm = **1.107 mW**



12:15:27 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A4.0 Peak Power Spectral Density

Rule Part:

Section 15.247(e)

Test Procedure:

ANSI C63.10-2020, Section 11.10.2
Maximum Peak Power Spectral Density
Method PKPSD (peak PSD)

Limit:

+8 dBm in any 3 kHz band during continuous transmission

Results:

Compliant
Peak Power Spectral Density measured **-11.71** dBm/3kHz

Notes:

This test was performed using an RF Conducted test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

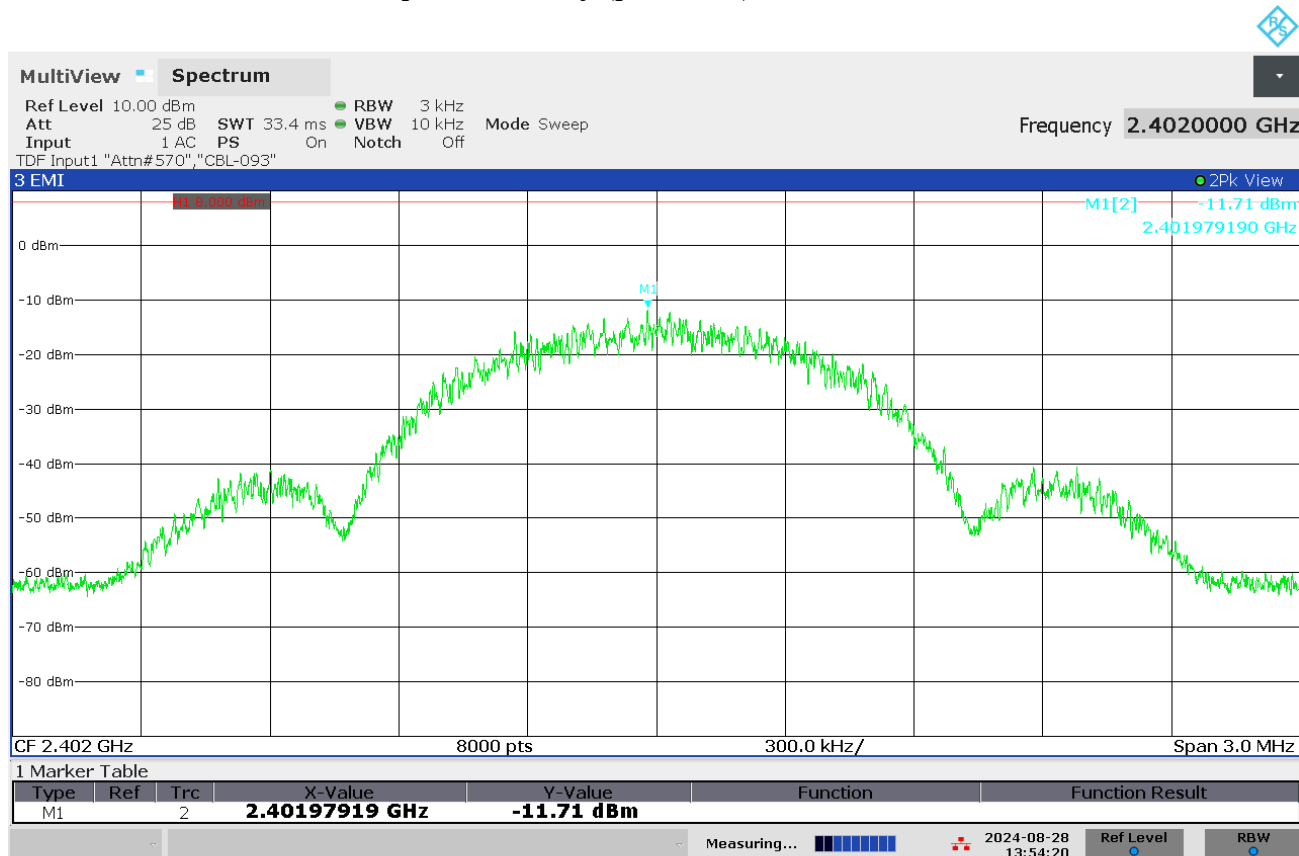
Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Power Spectral Density – RF Conducted
Operator: cbrandt
Detector: Peak; max hold

Comment: Low Channel: 2402 MHz

Limit: +8 dBm/3kHz

Power Spectral Density (peak PSD) = -11.71 dBm/3kHz



01:54:20 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

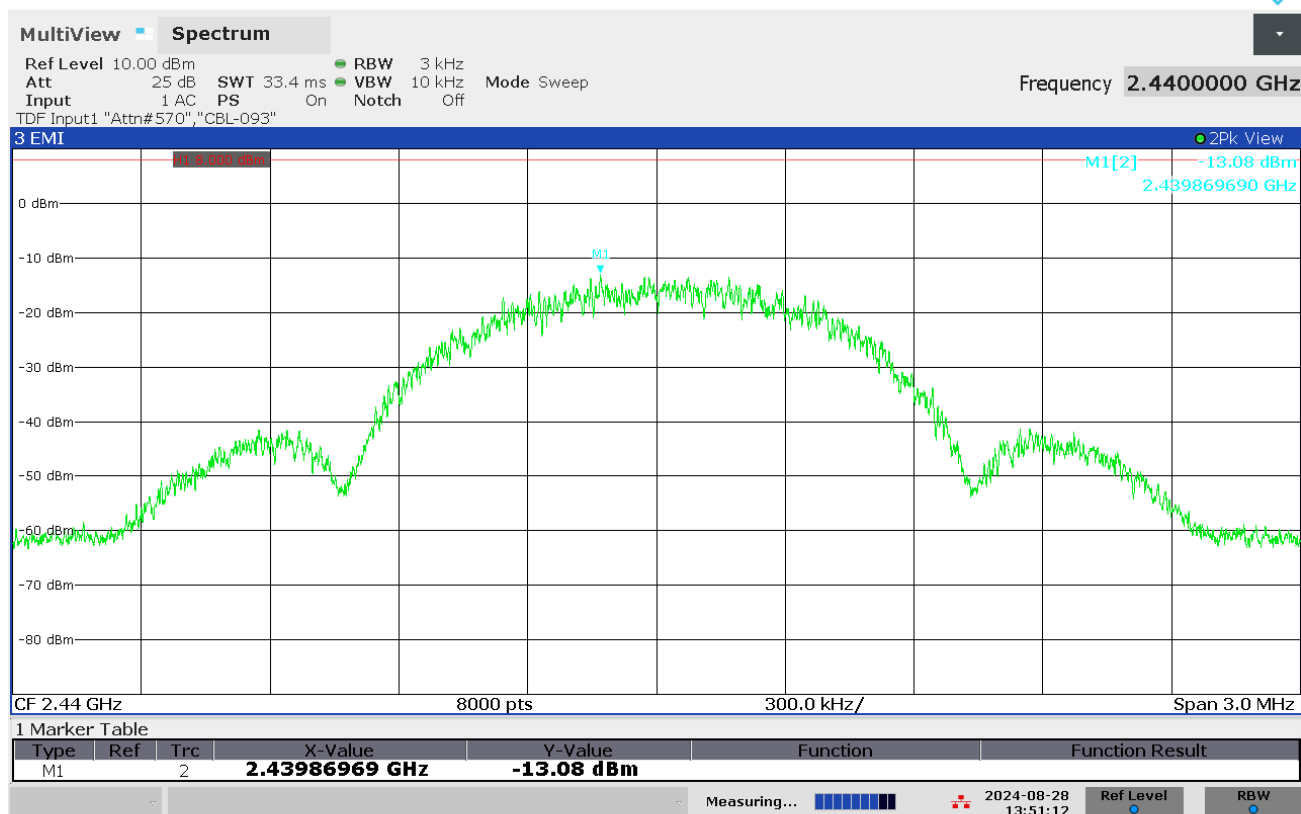
Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Power Spectral Density – RF Conducted
Operator: cbrandt
Detector: Peak; max hold

Comment: Mid Channel: 2440 MHz

Limit: +8 dBm/3kHz

Power Spectral Density (peak PSD) = **-13.08 dBm/3kHz**



01:51:12 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

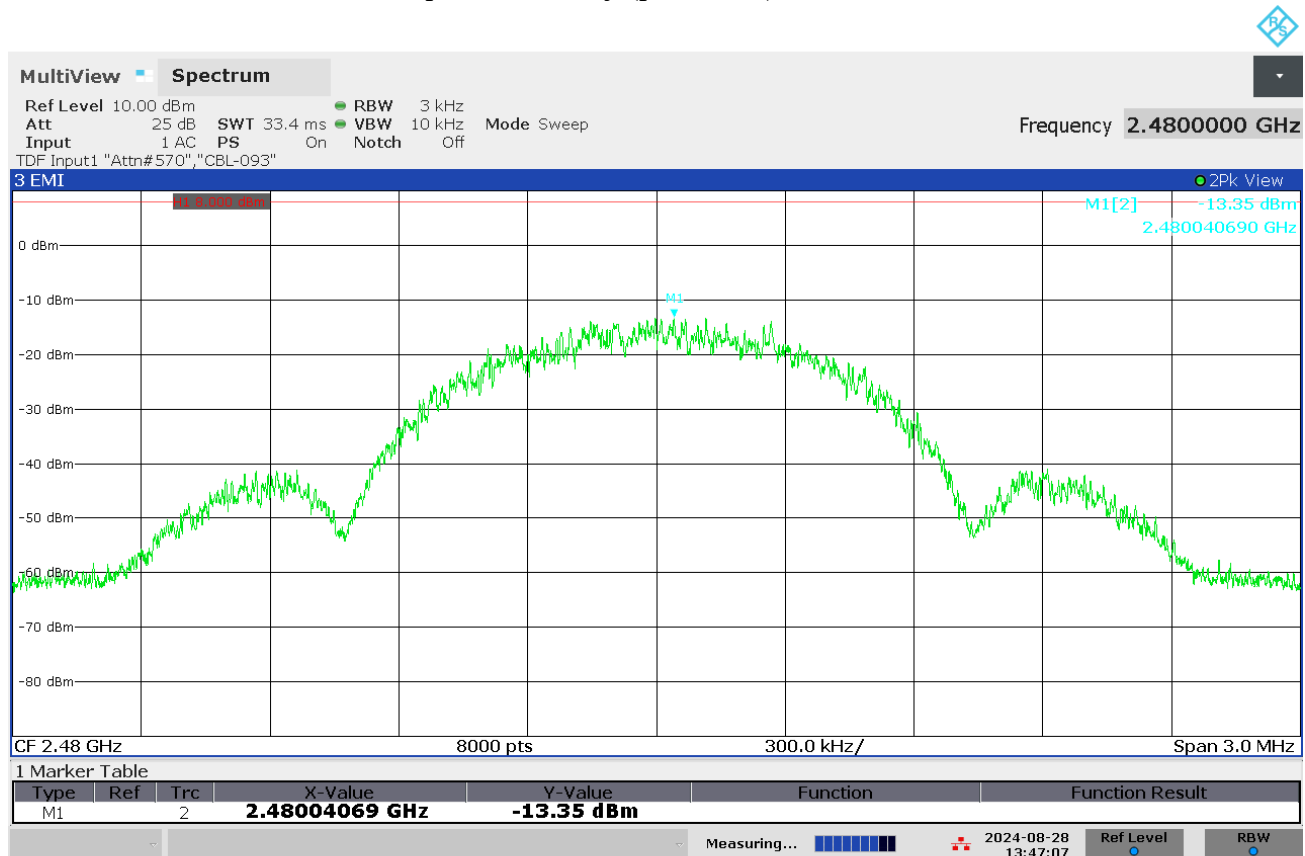
Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Power Spectral Density – RF Conducted
Operator: cbrandt
Detector: Peak; max hold

Comment: High Channel: 2480 MHz

Limit: +8 dBm/3kHz

Power Spectral Density (peak PSD) = -13.35 dBm/3kHz



01:47:08 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A5.0 Emissions in Non-Restricted Frequency Bands – RF Conducted

Rule Part:

Section 15.247(d)

Test Procedure:

ANSI C63.10-2020, Section 11.11
Emissions in non-restricted frequency bands

Limit:

20 dB down from the highest emission level within the authorized band as
measured with a 100 kHz resolution bandwidth (RBW)

Results:

Compliant

Notes:

This test was performed using an RF Conducted test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A5.1 Low Channel

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Span $\geq$ 1.5 x DTS bandwidth
Sweep = auto couple Trace = max hold
Detector = Peak

Low Channel: 2402 MHz

Reference Level measurement

Limit = 0.65 dBm – 20 dB = -19.35 dBm





166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

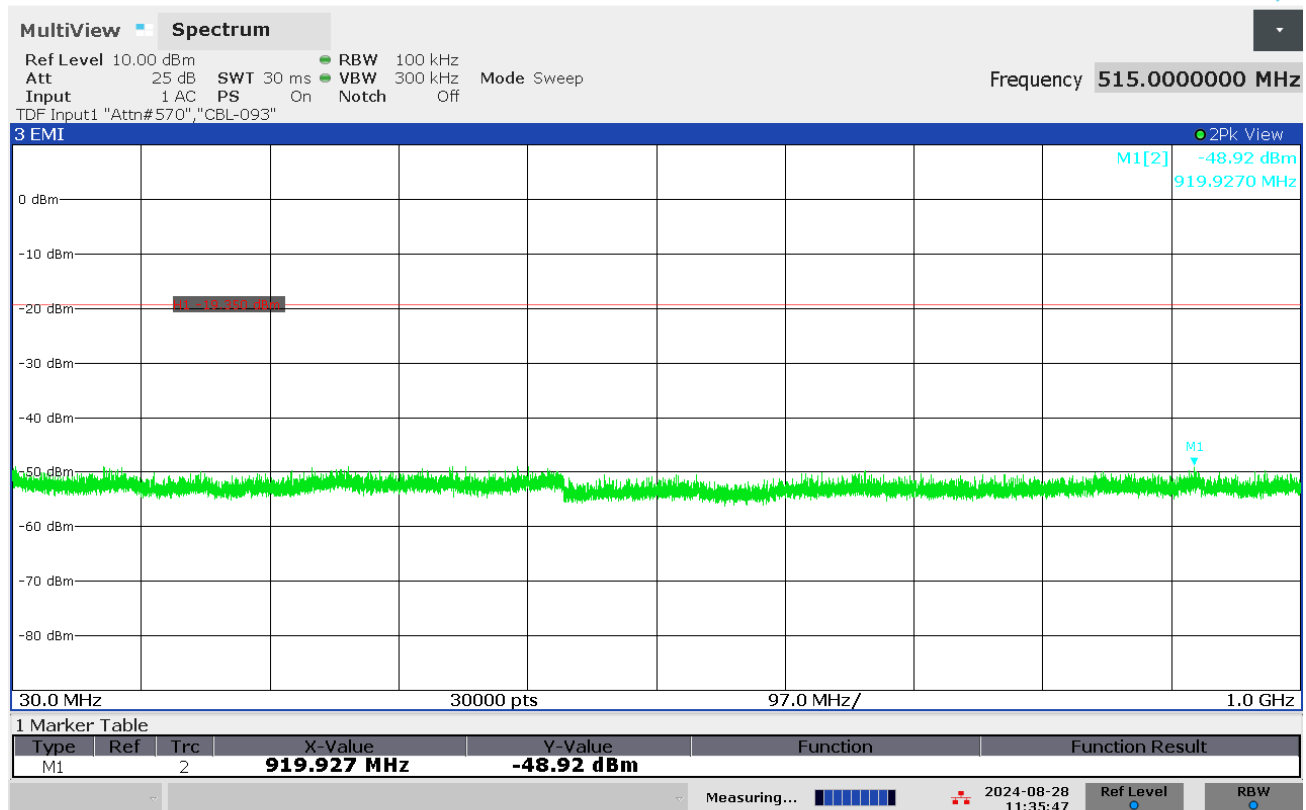
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Low Channel: 2402 MHz

Emission Level measurement

Limit = 0.65 dBm – 20 dB = -19.35 dBm

Frequency Range 30-1000 MHz



11:35:48 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

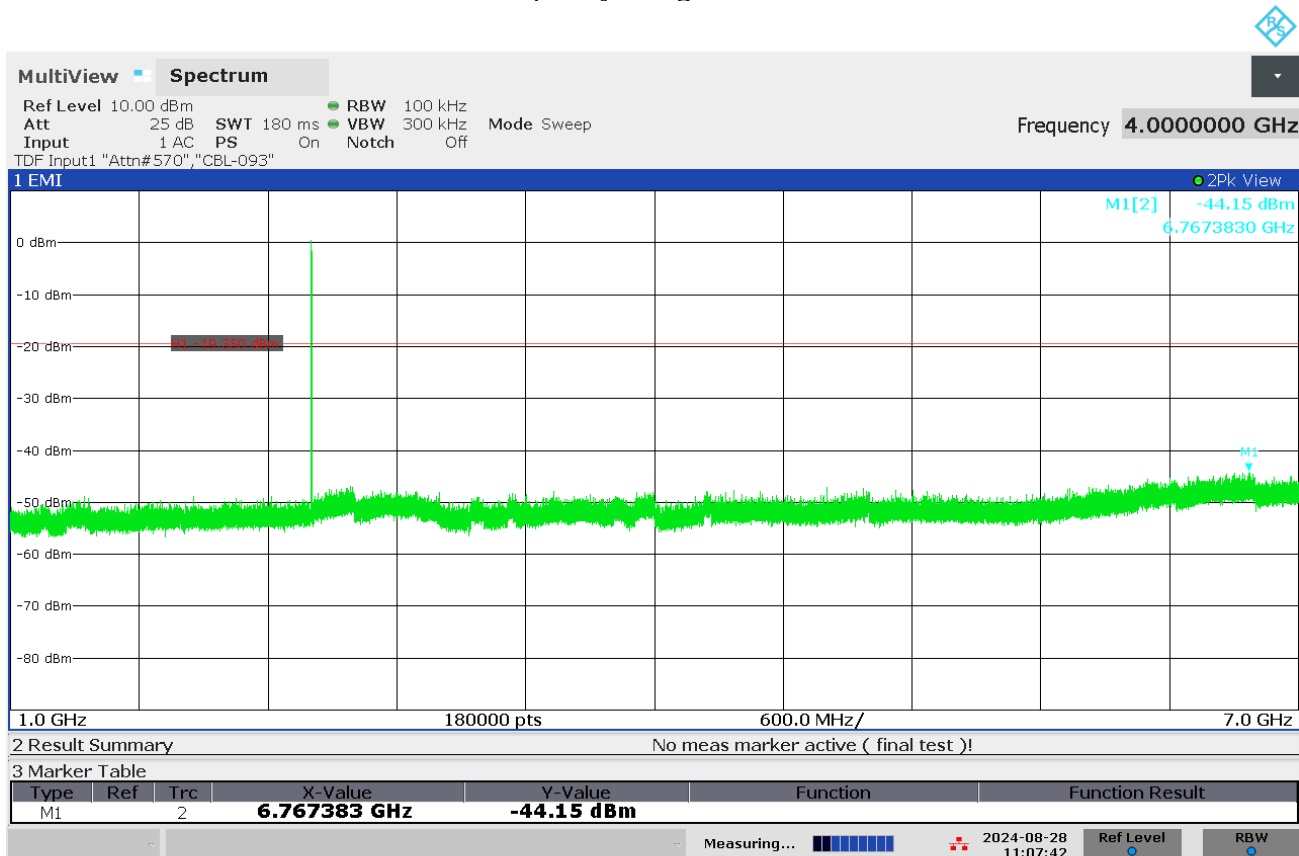
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Low Channel: 2402 MHz

Emission Level measurement

Limit = 0.65 dBm – 20 dB = -19.35 dBm

Frequency Range 1-7 GHz



11:07:42 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

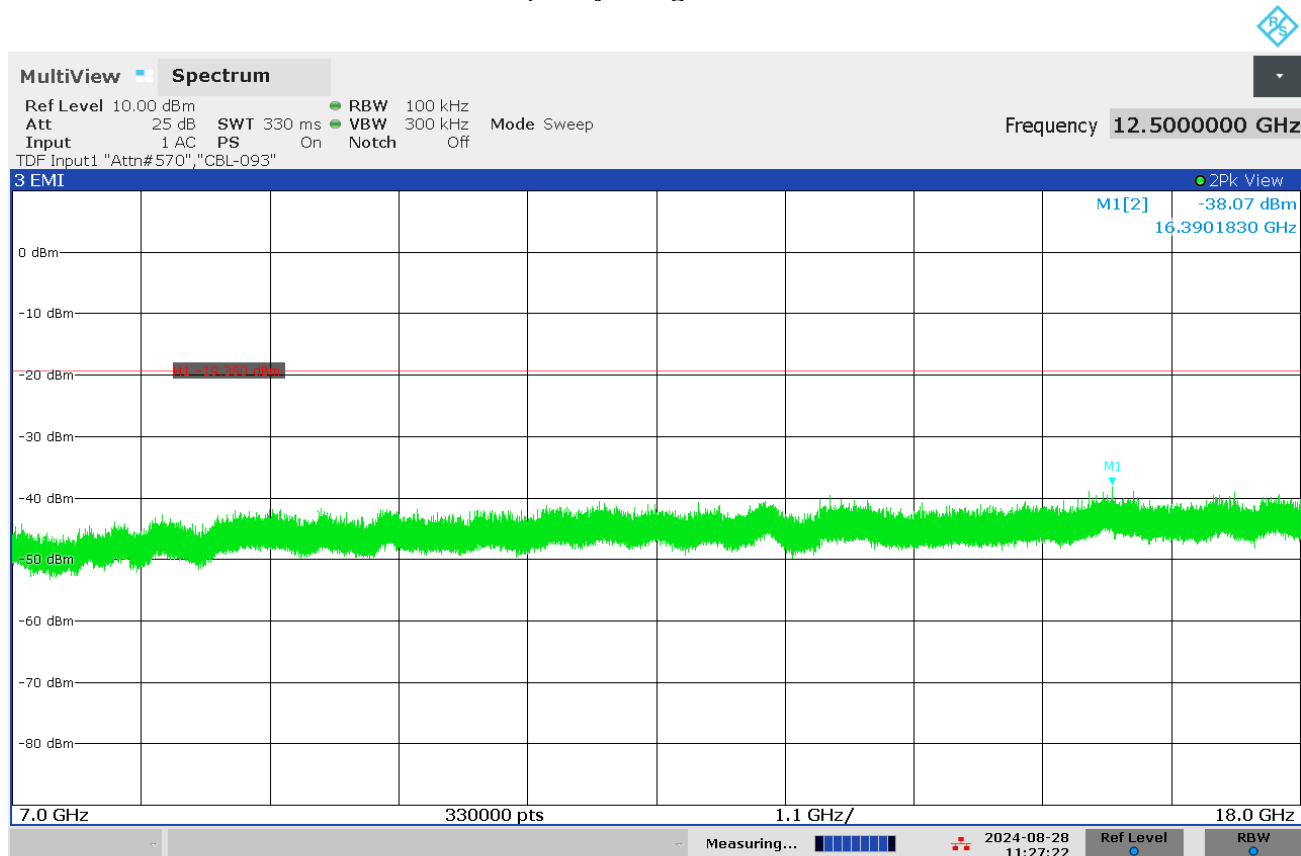
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Low Channel: 2402 MHz

Emission Level measurement

Limit = 0.65 dBm – 20 dB = -19.35 dBm

Frequency Range 7-18 GHz



11:27:23 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

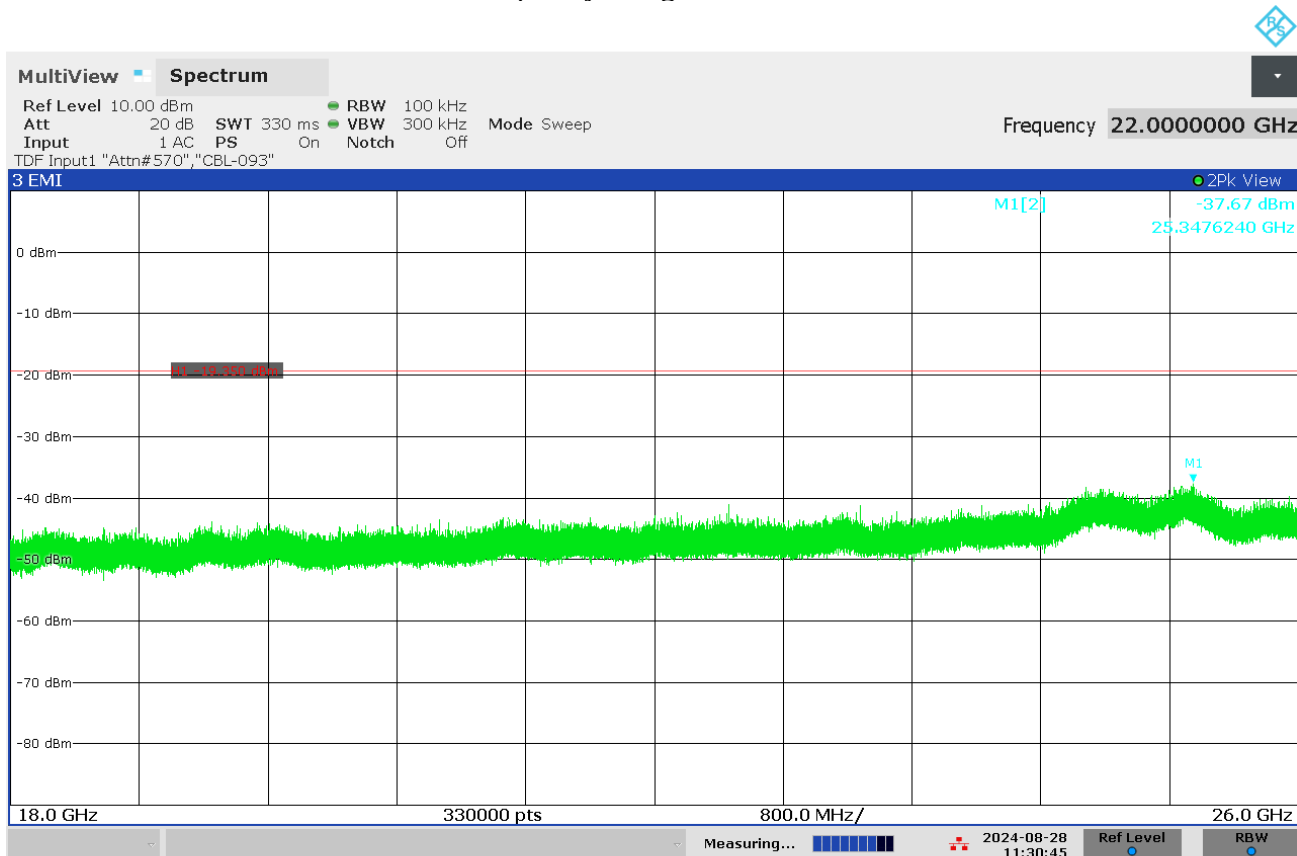
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Low Channel: 2402 MHz

Emission Level measurement

Limit = 0.65 dBm – 20 dB = -19.35 dBm

Frequency Range 18-26 GHz



11:30:46 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A5.2 Middle Channel

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Span $\geq$ 1.5 x DTS bandwidth
Sweep = auto couple Trace = max hold
Detector = Peak

Mid Channel: 2440 MHz

Reference Level measurement

Limit = 0.71 dBm – 20 dB = -19.29 dBm



11:40:48 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

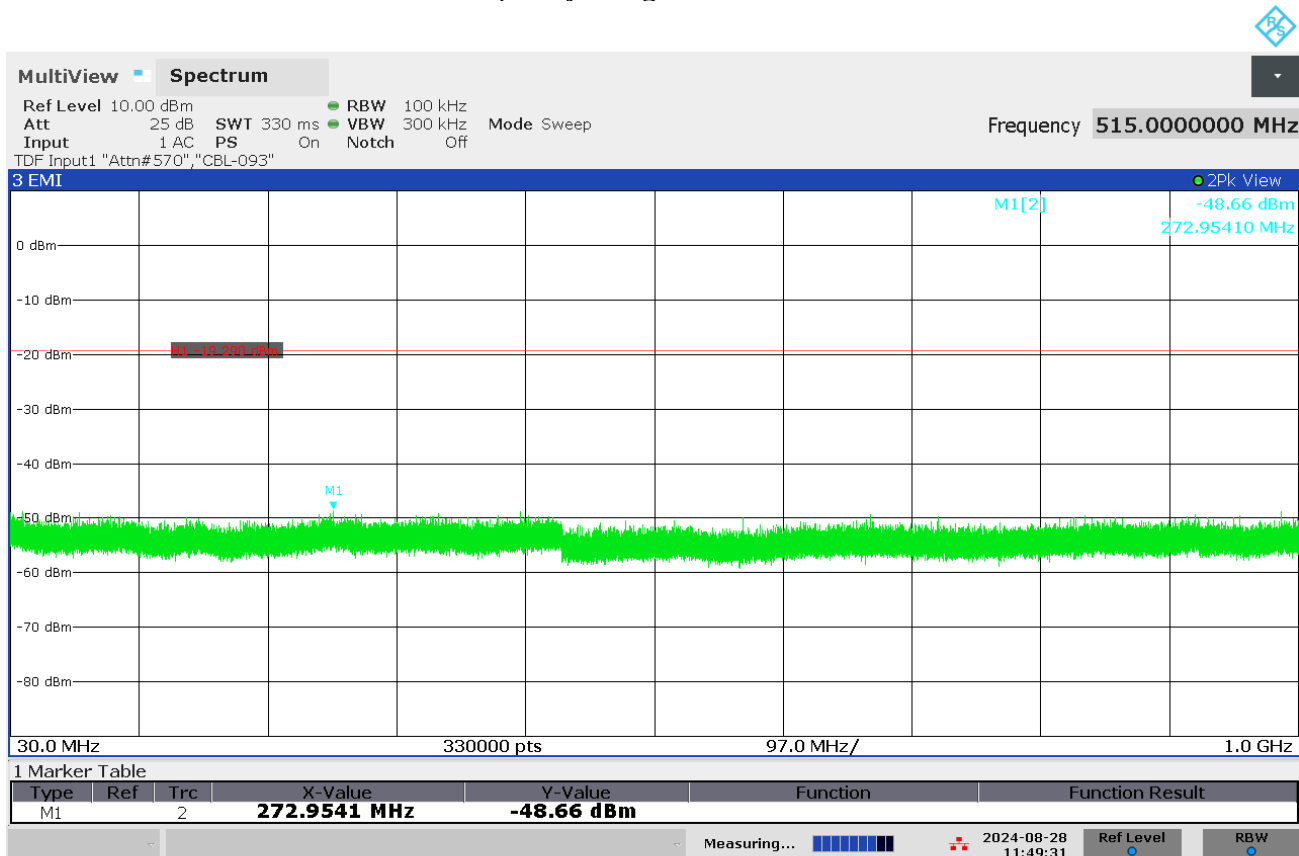
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Mid Channel: 2440 MHz

Emission Level measurement

Limit = 0.71 dBm – 20 dB = -19.29 dBm

Frequency Range 30-1000 MHz



11:49:32 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Mid Channel: 2440 MHz

Emission Level measurement

Limit = 0.71 dBm – 20 dB = -19.29 dBm

Frequency Range 1-7 GHz



11:43:32 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

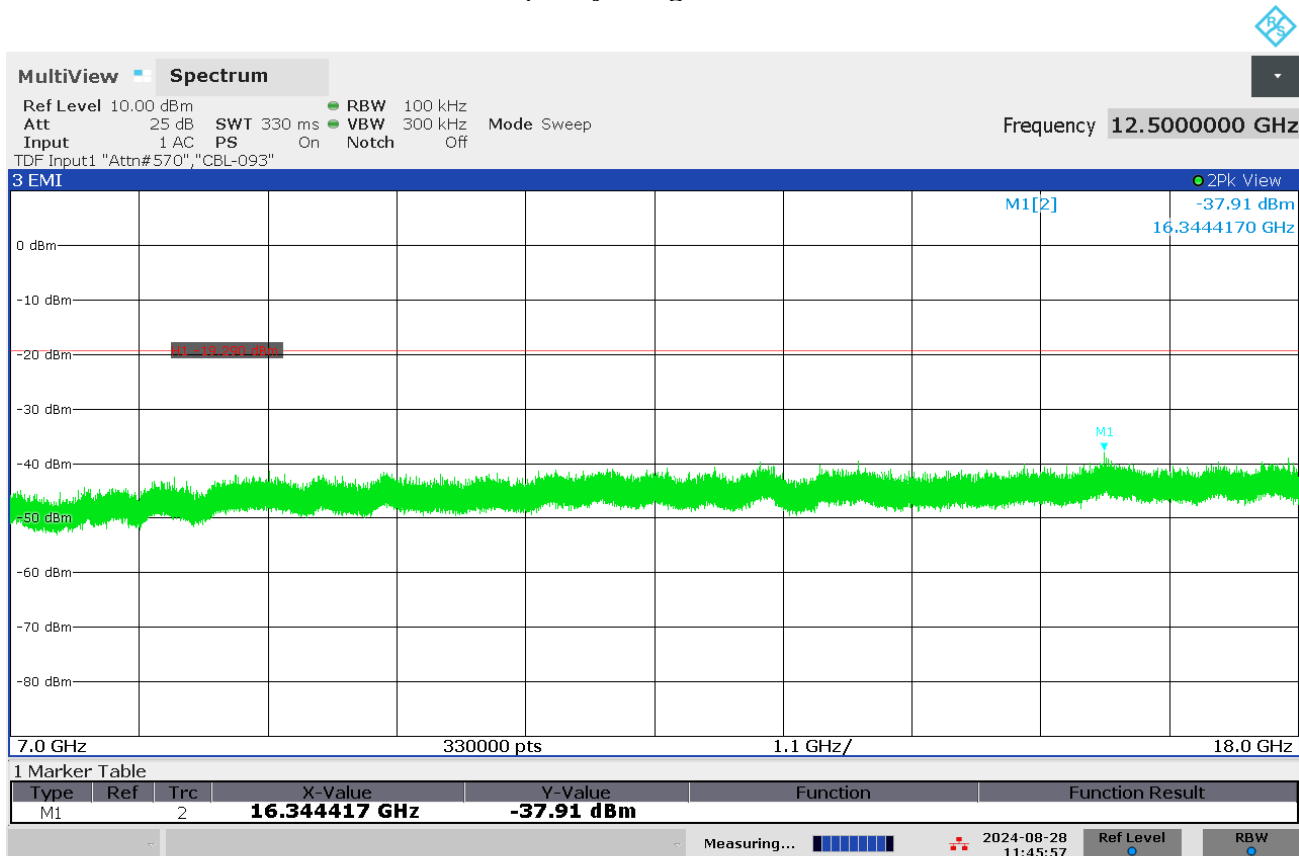
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Mid Channel: 2440 MHz

Emission Level measurement

Limit = 0.71 dBm – 20 dB = -19.29 dBm

Frequency Range 7-18 GHz



11:45:57 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

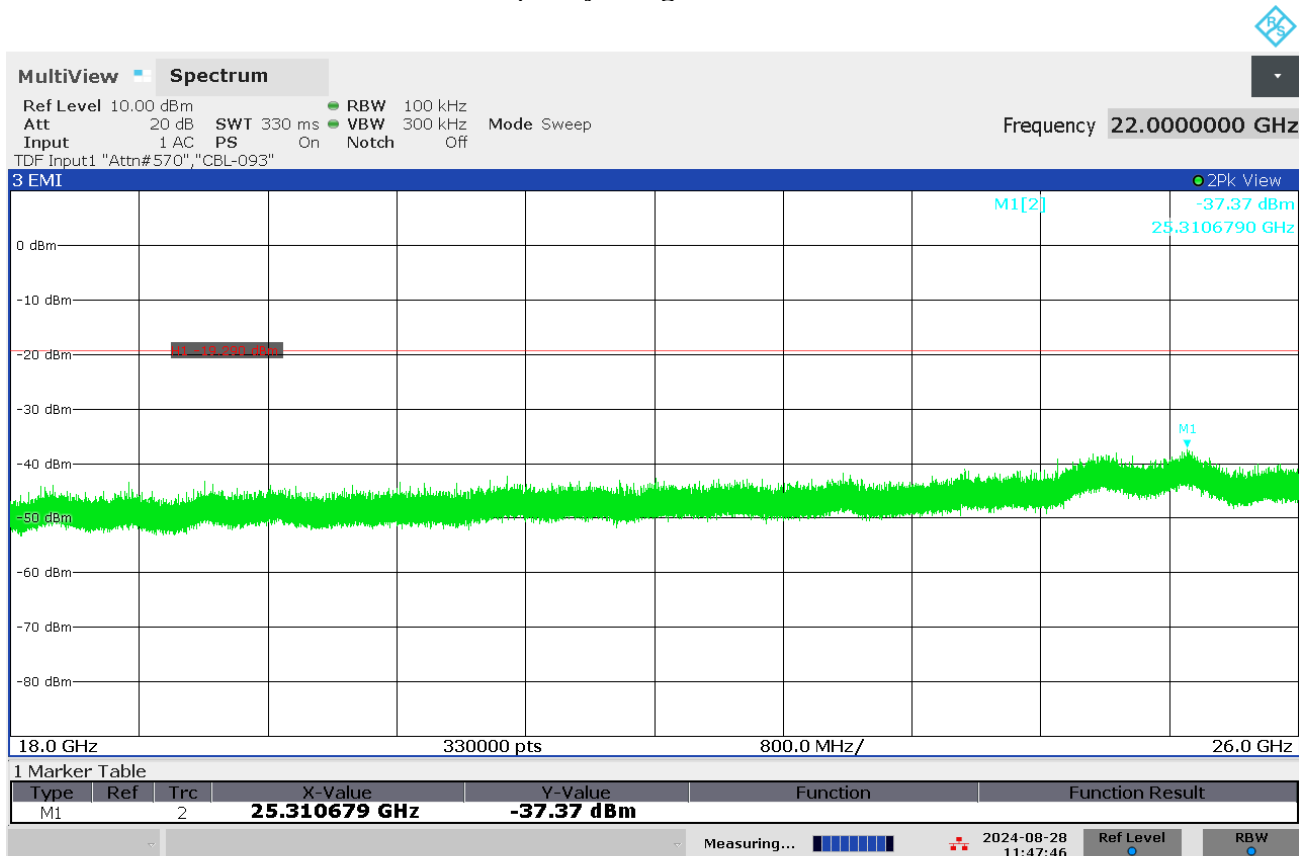
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

Mid Channel: 2440 MHz

Emission Level measurement

Limit = 0.71 dBm – 20 dB = -19.29 dBm

Frequency Range 18-26 GHz



11:47:46 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A5.3 High Channel

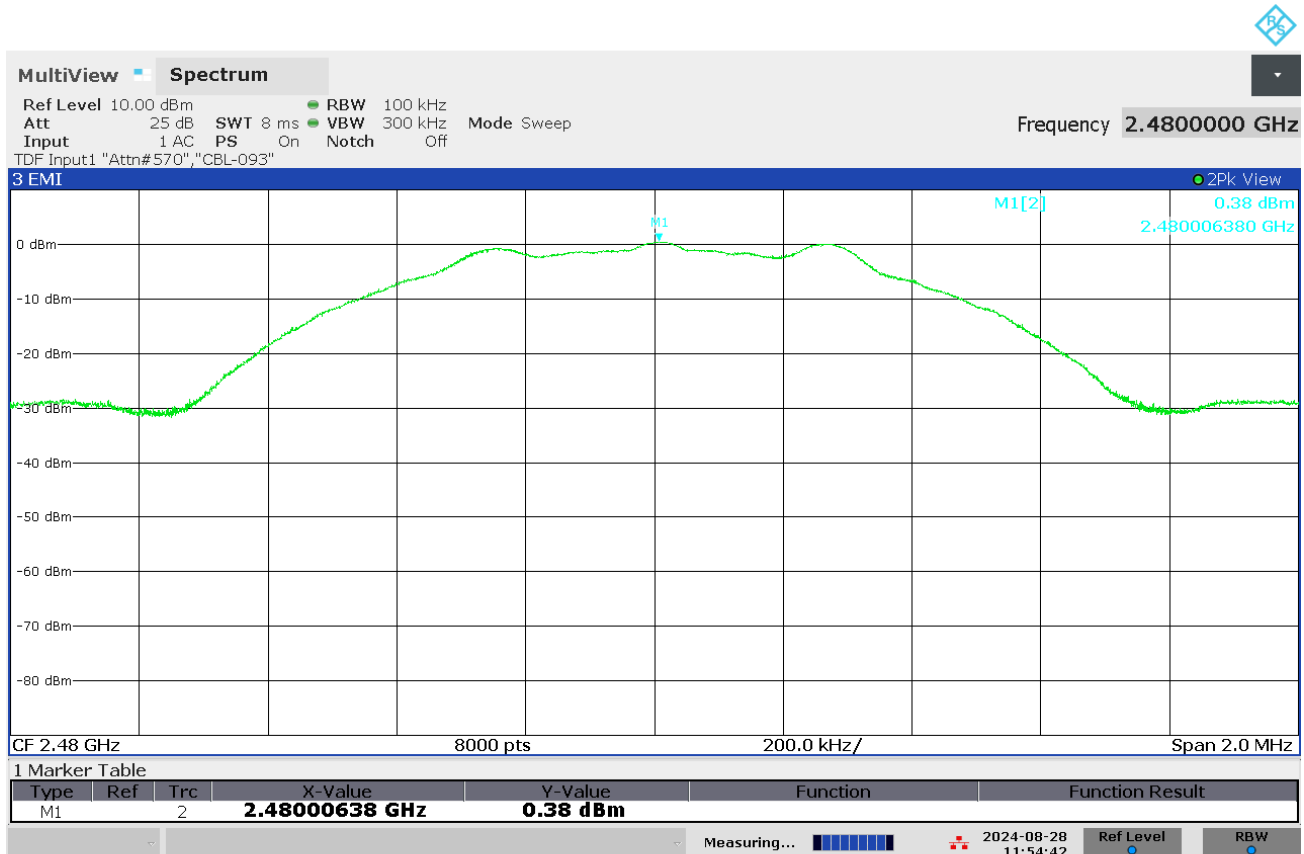
Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Span $\geq$ 1.5 x DTS bandwidth
Sweep = auto couple Trace = max hold
Detector = Peak

High Channel: 2480 MHz

Reference Level measurement

Limit = 0.38 dBm – 20 dB = -19.62 dBm



11:54:43 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

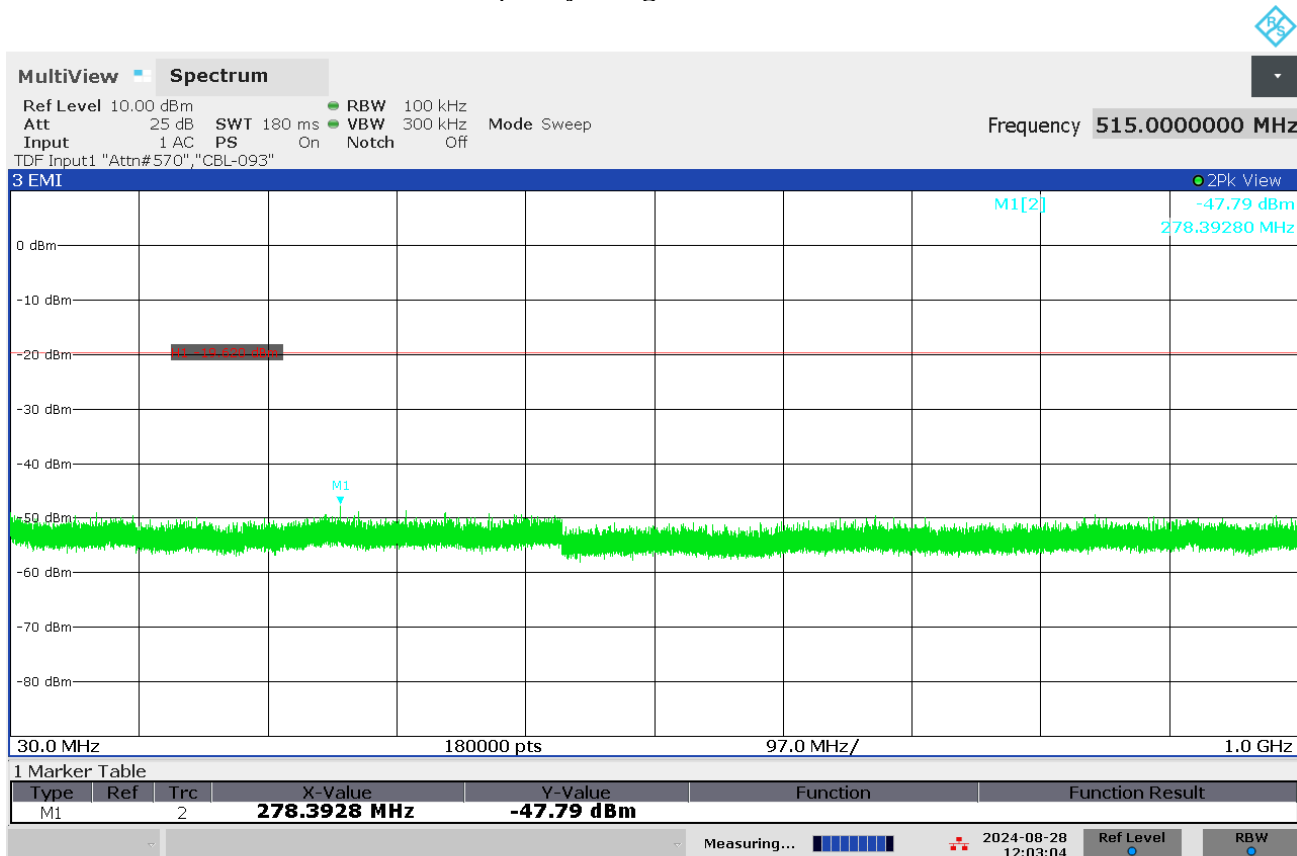
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

High Channel: 2480 MHz

Emission Level measurement

Limit = 0.38 dBm – 20 dB = -19.62 dBm

Frequency Range 30-1000 MHz



12:03:05 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

High Channel: 2480 MHz

Emission Level measurement

Limit = 0.38 dBm – 20 dB = -19.62 dBm

Frequency Range 1-7 GHz



11:56:57 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

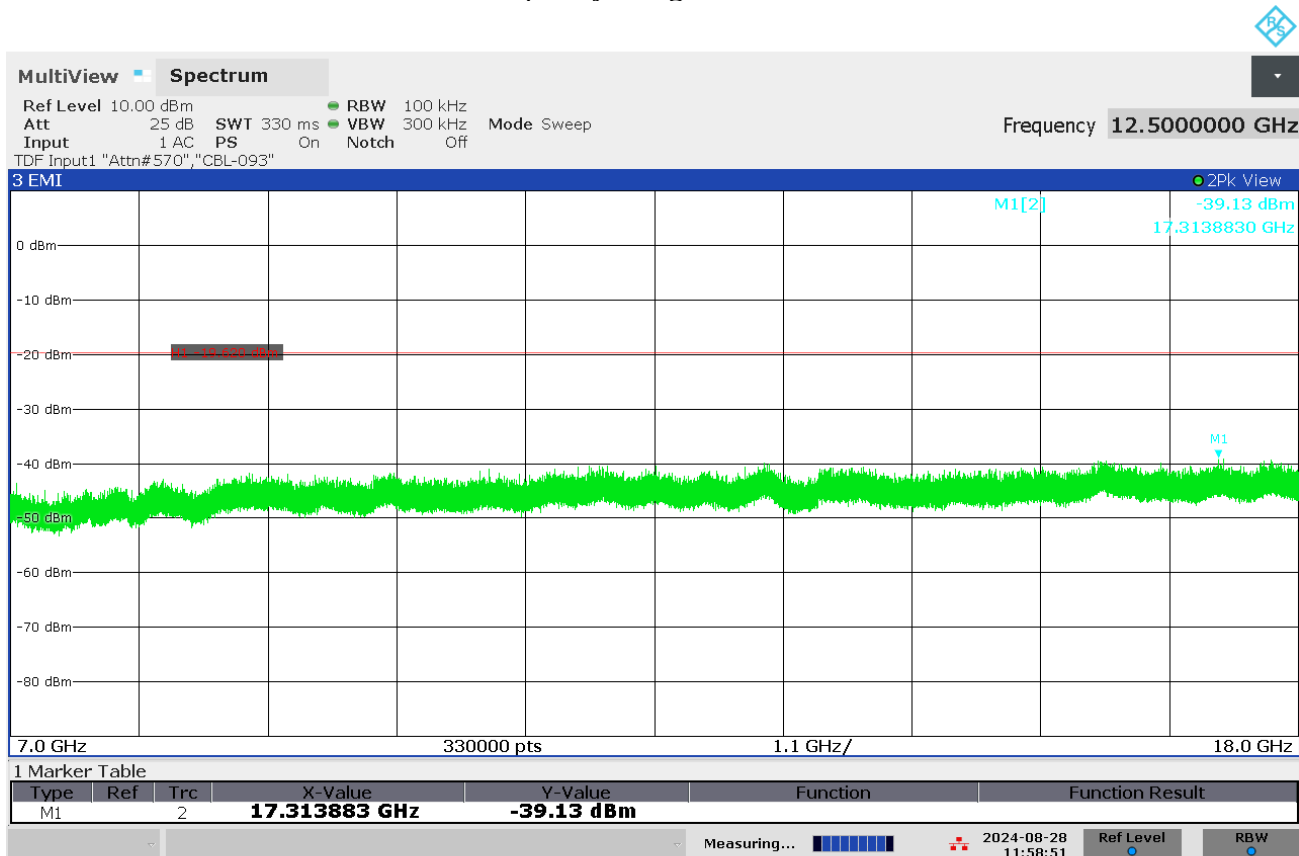
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

High Channel: 2480 MHz

Emission Level measurement

Limit = 0.38 dBm – 20 dB = -19.62 dBm

Frequency Range 7-18 GHz



11:58:52 AM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Spurious Emissions in Non-Restricted Frequency Bands – RF Conducted
Operator: cbrandt

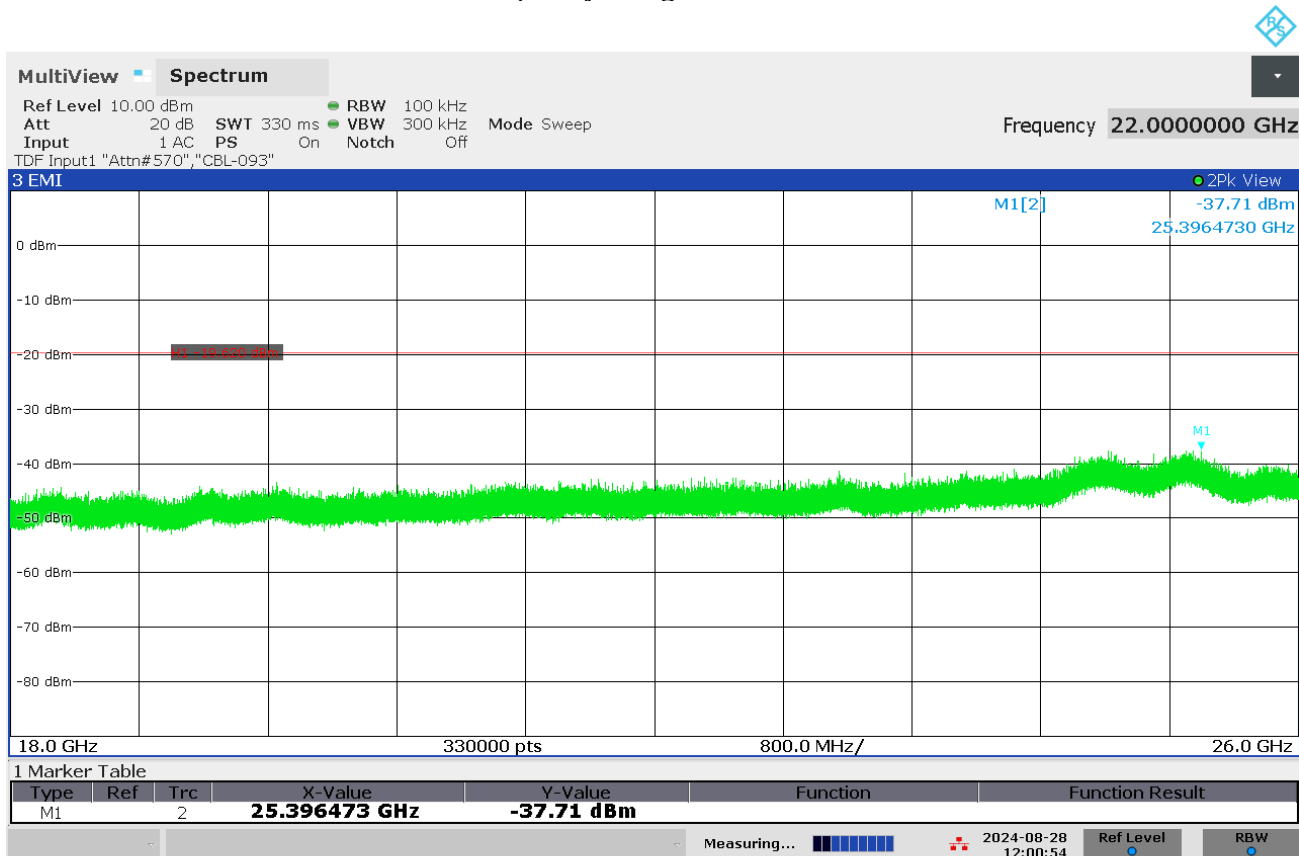
Comment: RBW = 100 kHz VBW $\geq$ 300 kHz
Sweep = auto couple Trace = max hold
Detector = Peak

High Channel: 2480 MHz

Emission Level measurement

Limit = 0.38 dBm – 20 dB = -19.62 dBm

Frequency Range 18-26 GHz



12:00:54 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A6.0 Emissions in Restricted Frequency Bands - Radiated

Rule Part:

Sections 15.247(d), 15.205(b), and 15.209(a)

Test Procedure:

ANSI C63.10-2020, Section 11.12.1
Radiated emission measurements

Limit:

Table in FCC 15.209

Results:

Compliant

Notes:

This was a Radiated Emissions test. The EUT was tested while transmitting from the on-board trace antenna. The device was set up on a non-conductive table for testing purposes.

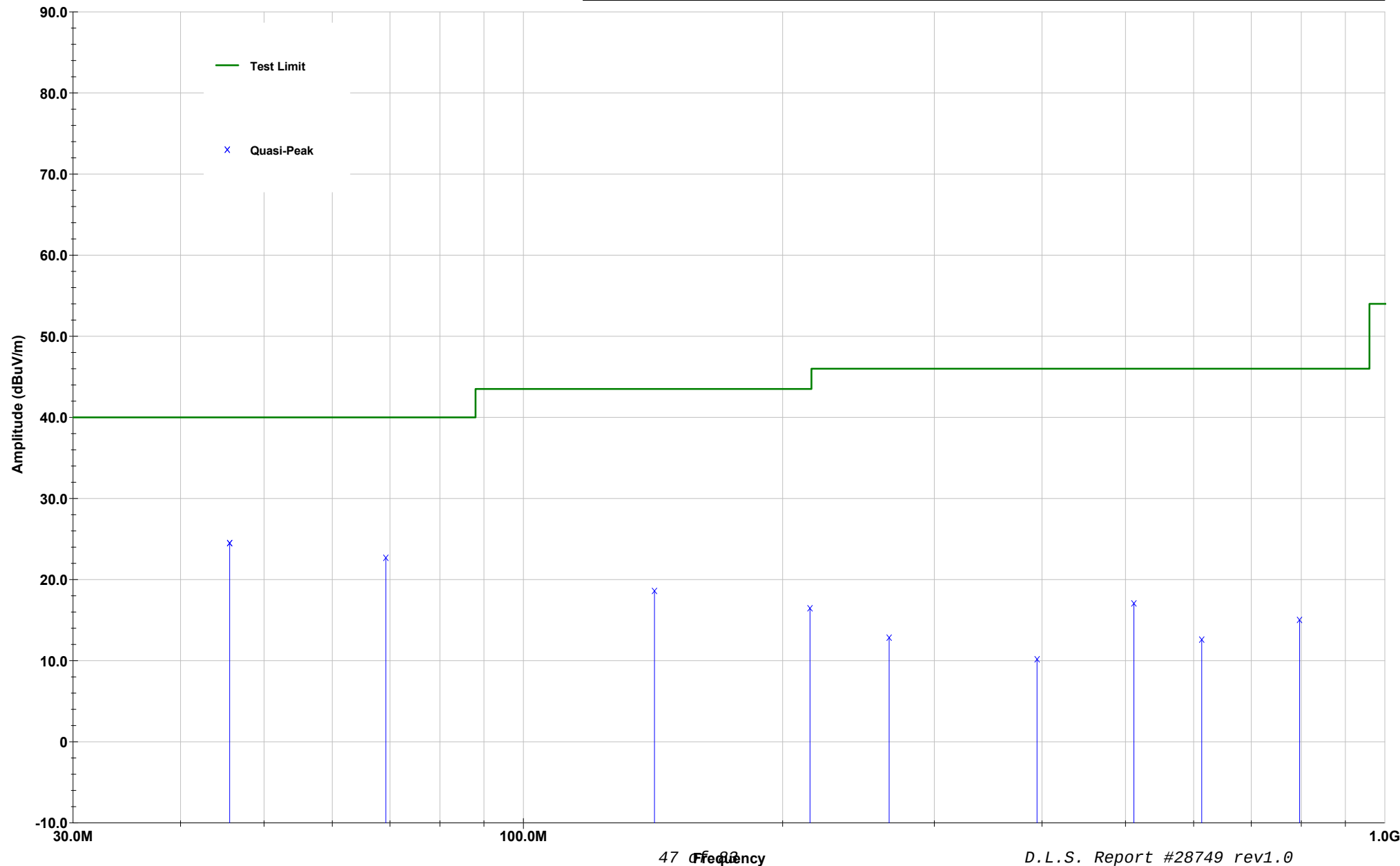
The test software was set to transmit a modulated signal at 94.6% duty cycle. The EUT was rotated through three orthogonal axes to find the worst-case emission levels. The worst-case levels are recorded in this test report.

DLS Electronic Systems, Inc.

Radiated Emissions - OATS

Vertical Quasi-Peak Graph

Limit/Distance - FCC Part 15.209 / 3-meter
Customer - Garrett Technologies
EUT Info - QBID Player Tag; DLS Proj. #12719
Voltage/Site - Fully charged battery / Site 2
Engineer - cbrandt
Notes - Continuous Tx at 125 kHz; Continuous Tx BLE mode;
No emissions found in either 125 kHz or BLE transmit modes.



Limit/Distance: FCC Part 15.209 / 3-meter

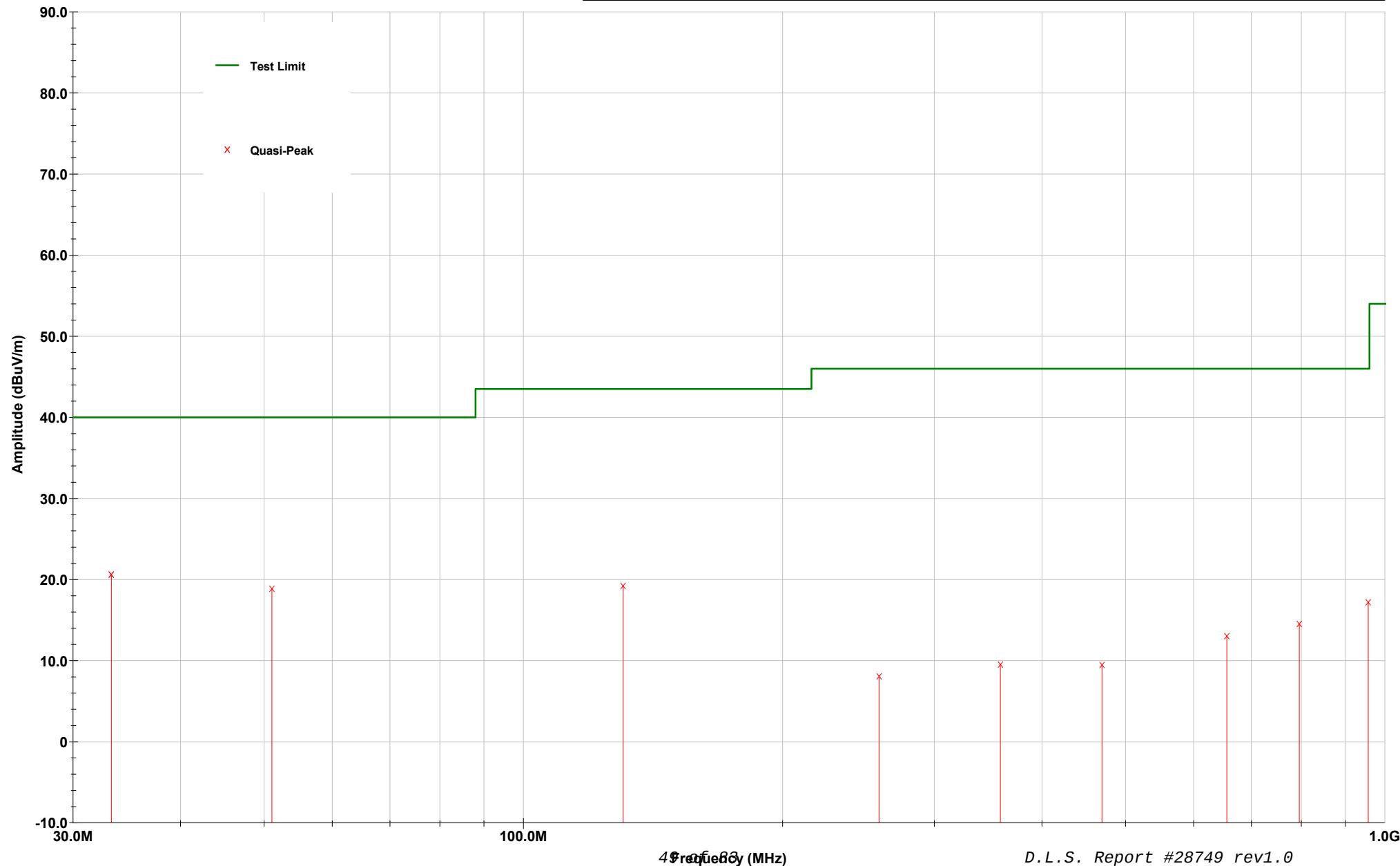
[illegible]

DLS Electronic Systems, Inc.

Radiated Emissions - OATS

Horizontal Quasi-Peak Graph

Limit/Distance - FCC Part 15.209 / 3-meter
Customer - Garrett Technologies
EUT Info - QBID Player Tag; DLS Proj. #12719
Voltage/Site - Fully charged battery / Site 2
Engineer - cbrandt
Notes - Continuous Tx at 125 kHz; Continuous Tx BLE mode;
No emissions found in either 125 kHz or BLE transmit modes.



Markers Horizontal

Limit/Distance: FCC Part 15.209 / 3-meter

[illegible]

Radiated Harmonic and Spurious Emissions – 1 to 18 GHz

Tested at a 3 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on Low channel (2402 MHz), 1 Mbps, 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

Low channel (2402 MHz)

Frequency (MHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
4804.02	Max Peak	Vert	68.10	32.95	-52.4	0	48.7	74	25.4	1.47	105
4804.02	Average	Vert	58.96	32.95	-52.4	0.48	40.0	54	14.0	1.47	105
4804.00	Max Peak	Horz	71.77	32.95	-52.4	0	52.3	74	21.7	1.20	218
4804.00	Average	Horz	61.61	32.95	-52.4	0.48	42.6	54	11.4	1.20	218

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.

Radiated Harmonic and Spurious Emissions – 1 to 18 GHz

Tested at a 3 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on Mid channel (2440 MHz), 1 Mbps, 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

Mid channel (2440 MHz)

Frequency (MHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
4879.99	Max Peak	Vert	67.73	33.18	-52.2	0	48.7	74	25.3	1.32	108
4879.99	Average	Vert	58.48	33.18	-52.2	0.48	39.9	54	14.1	1.32	108
4880.10	Max Peak	Horz	71.77	33.18	-52.2	0	52.8	74	21.3	1.94	147
4880.10	Average	Horz	62.74	33.18	-52.2	0.48	44.2	54	9.8	1.94	147
7319.38	Max Peak	Vert	65.26	36.63	-49.9	0	52.0	74	22.0	1.88	265
7319.38	Average	Vert	54.37	36.63	-49.9	0.48	41.6	54	12.4	1.88	265
7320.69	Max Peak	Horz	64.72	36.63	-49.9	0	51.5	74	22.6	2.16	295
7320.69	Average	Horz	54.05	36.63	-49.9	0.48	41.3	54	12.7	2.16	295

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.

Radiated Harmonic and Spurious Emissions – 1 to 18 GHz

Tested at a 3 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on High channel (2480 MHz), 1 Mbps, 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

High channel (2480 MHz)

Frequency (MHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
4960.10	Max Peak	Vert	68.35	33.21	-52.0	0	49.6	74	24.4	1.82	111
4960.10	Average	Vert	59.77	33.21	-52.0	0.48	41.5	54	12.5	1.82	111
4960.06	Max Peak	Horz	71.51	33.21	-52.0	0	52.7	74	21.3	1.82	2
4960.06	Average	Horz	63.22	33.21	-52.0	0.48	44.9	54	9.1	1.82	2
7440.67	Max Peak	Vert	67.09	36.79	-50.0	0	53.9	74	20.1	2.24	260
7440.67	Average	Vert	57.43	36.79	-50.0	0.48	44.7	54	9.3	2.24	260
7440.69	Max Peak	Horz	67.73	36.79	-50.0	0	54.5	74	19.5	2.09	167
7440.69	Average	Horz	58.13	36.79	-50.0	0.48	45.4	54	8.6	2.09	167

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.

Radiated Harmonic and Spurious Emissions – 18 to 25 GHz

Tested at a 1 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on Low channel (2402 MHz), 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

Low channel (2402 MHz)

Frequency (GHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
19.218	Max Peak	Vert	54.43	40.16	-40.2	0	54.4	83.5	29.1	1.4	167
19.218	Average	Vert	42.15	40.16	-40.2	0.48	42.6	63.5	20.9	1.4	167
19.218	Max Peak	Horz	53.76	40.16	-40.2	0	53.7	83.5	29.8	1.2	322
19.218	Average	Horz	41.74	40.16	-40.2	0.48	42.2	63.5	21.3	1.2	322

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.

Radiated Harmonic and Spurious Emissions – 18 to 25 GHz

Tested at a 1 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on Mid channel (2440 MHz), 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

Mid channel (2440 MHz)

Frequency (MHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
19.518	Max Peak	Vert	54.44	40.05	-39.9	0	54.6	83.5	28.9	1.3	45
19.518	Average	Vert	41.76	40.05	-39.9	0.48	42.4	63.5	21.1	1.3	45
19.518	Max Peak	Horz	54.09	40.05	-39.9	0	54.2	83.5	29.3	1.2	260
19.518	Average	Horz	41.82	40.05	-39.9	0.48	42.5	63.5	21.1	1.2	260

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.

Radiated Harmonic and Spurious Emissions – 18 to 25 GHz

Tested at a 1 Meter Distance

EUT: QBID Player Tag
Manufacturer: Wilson Sporting Goods Co.
Operating Condition: 72 deg F; 46% R.H.
Test Site: DLS Genoa Site W1
Operator: cbrandt; DLS Proj. #12719
Test Specification: Emissions in Restricted Frequency Bands
Comment: Transmit on High channel (2480 MHz), 94.6% duty cycle, power setting: 0
Date: 08-26-2024
Notes: All other emissions at least 20 dB under the limit.

High channel (2480 MHz)

Frequency (MHz)	Measurement Type	Antenna Polarization	Level (dBμV/m)	Antenna Factor (dB/m)	System Loss (dB)	Duty Cycle Correction* (dB)	Total Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Antenna Height (m)	EUT Angle (deg)
19.838	Max Peak	Vert	52.46	40.02	-39.5	0	53.0	83.5	30.5	1.4	145
19.838	Average	Vert	40.19	40.02	-39.5	0.48	41.2	63.5	22.3	1.4	145
19.838	Max Peak	Horz	54.62	40.02	-39.5	0	55.1	83.5	28.4	1.2	260
19.838	Average	Horz	42.00	40.02	-39.5	0.48	43.0	63.5	20.5	1.2	260

*Correction factor **added** to the maximum Average (linear voltage) detector measurement to show that, even with a 100% duty cycle, the EUT would comply with the Average limit.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A7.0 Authorized Band Edge – RF Conducted

Rule Part:

Section 15.247(d)

Test Procedure:

ANSI C63.10-2020, Section 6.10.4
Authorized-band band-edge measurements (relative method).

Limit:

20 dB down from the highest emission level within the authorized band as measured with a 100 kHz resolution bandwidth (RBW).

Results:

Compliant

Notes:

This test was performed using an RF Conducted test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

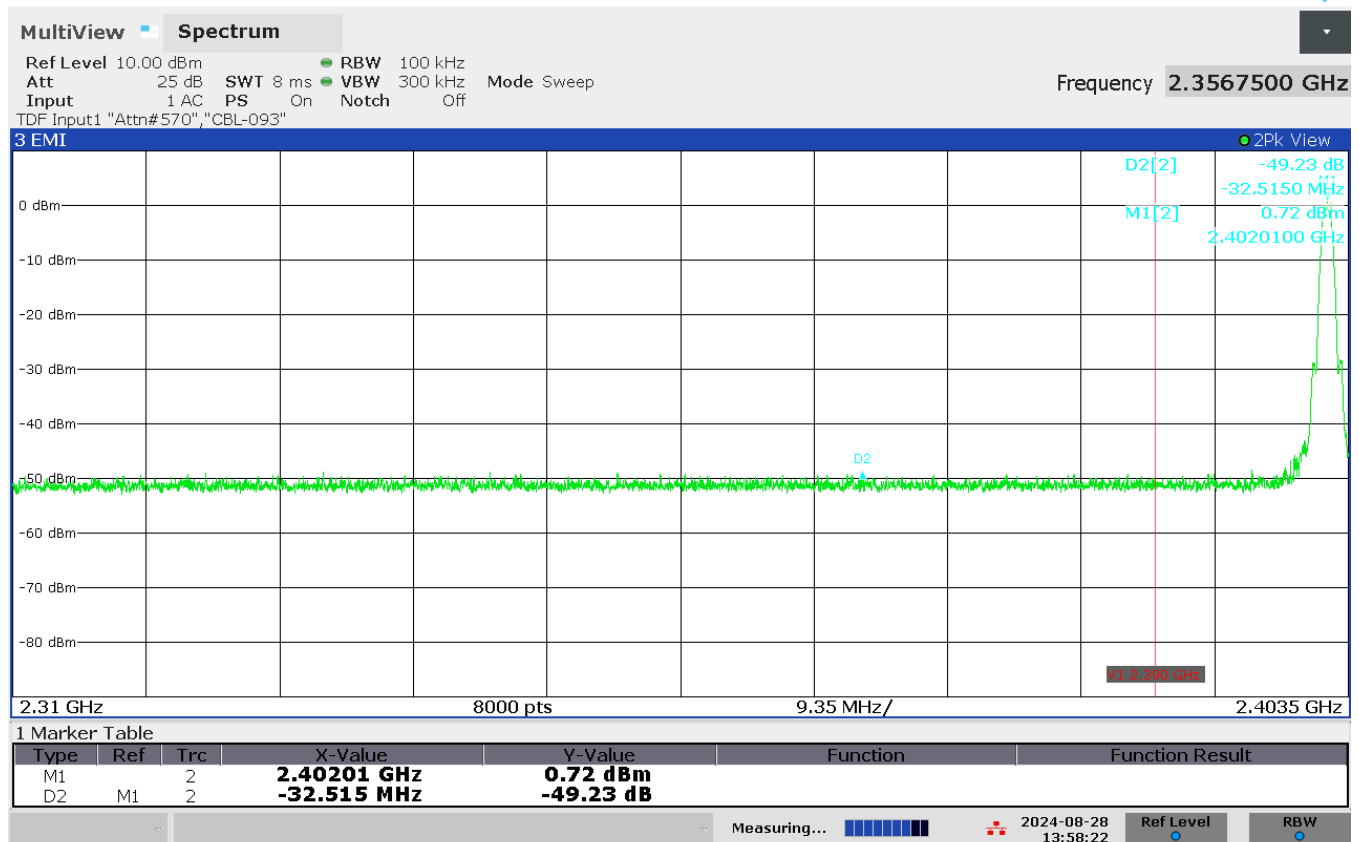
Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Lower Bandedge Compliance – RF Conducted
Operator: cbrandt
Detector: Peak; max hold
Comment: Low Channel: 2402 MHz

Bandedge Frequency = 2.4 GHz

Limit at Bandedge > 20 dB below Peak In-Band Emission

Emission at Bandedge is **49.23 dB** below the Peak in-band emission.



01:58:22 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

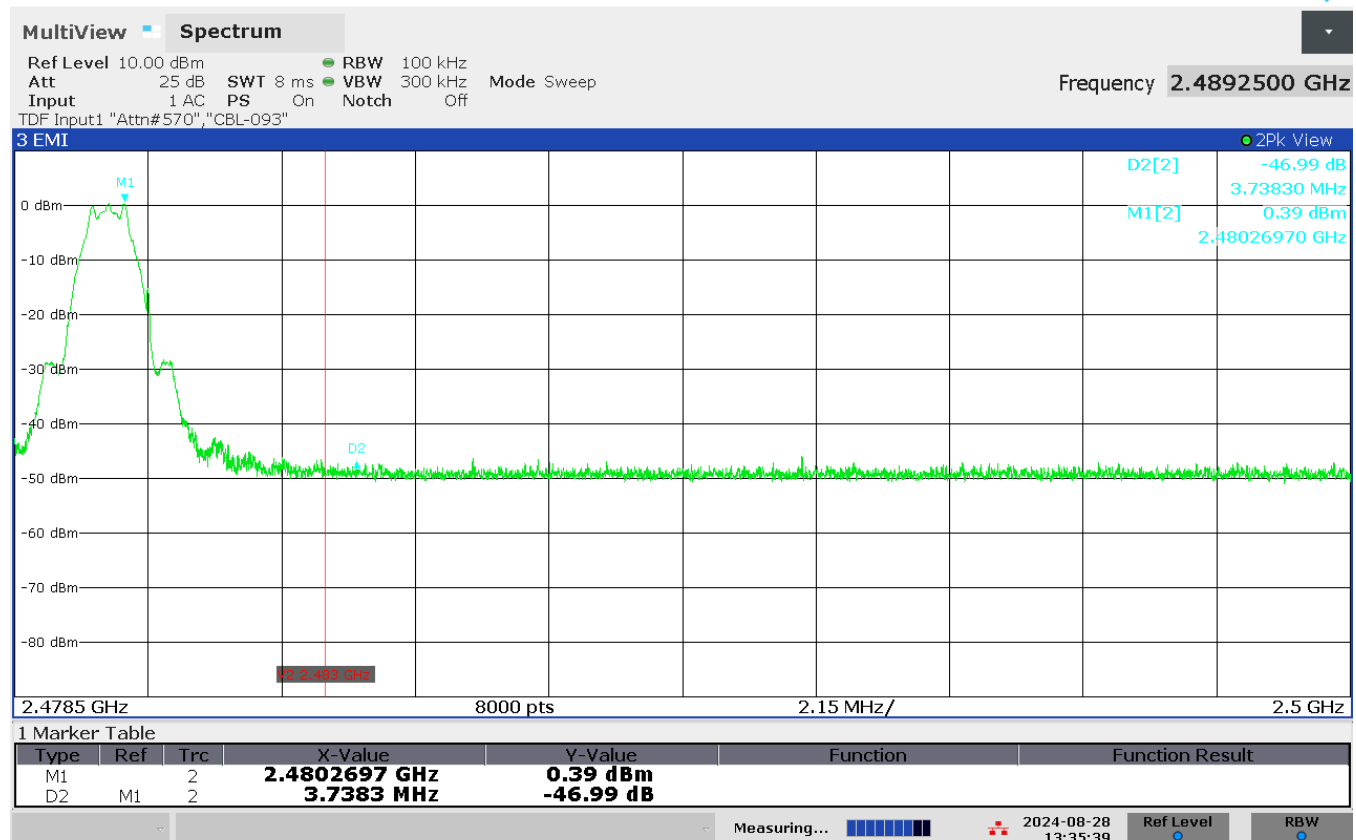
Section A

Test Date: 08-28-2024
Company: Wilson Sporting Goods Co.
EUT: QBID Player Tag
Test: Upper Bandedge Compliance – RF Conducted
Operator: cbrandt
Detector: Peak; max hold
Comment: High Channel: 2480 MHz

Bandedge Frequency = 2.4835 GHz

Limit at Bandedge > 20 dB below Peak In-Band Emission

Emission at Bandedge is **46.99 dB** below the Peak in-band emission.



01:35:39 PM 08/28/2024



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A8.0 Restricted Band Edge – Radiated

Rule Part:

Sections 15.247(d), 15.205(b), and 15.209(a)

Test Procedure:

ANSI C63.10-2020, Section 6.10.5
Restricted-band band-edge measurements.

Limit:

Table in FCC 15.209

Results:

Compliant

Notes:

This test was performed using a radiated test configuration. The test software was set to transmit a modulated signal at 94.6% duty cycle. The same software settings were used for all RF Conducted and Radiated Emissions testing.

The EUT was tested at the low and high channels of operation and was rotated through three orthogonal axes to find worst-case emission levels. The worst-case maximum field strength levels at the restricted band edges (including all modulation products outside of the authorized band) were measured and recorded.



166 South Carter, Genoa City, WI 53128

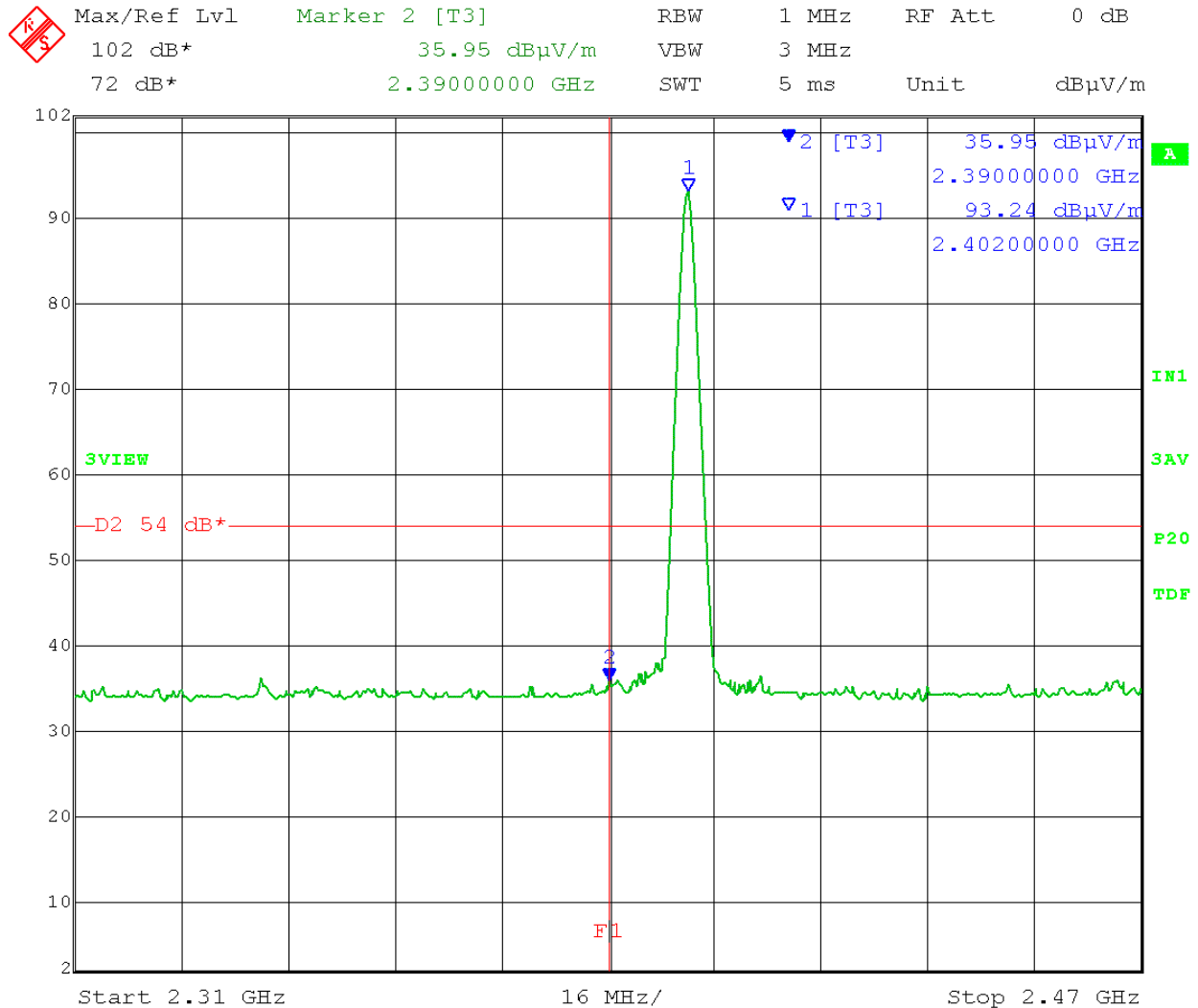
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Lower Restricted Band Edge (2390 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
Low Channel: 2402 MHz
Test Distance: 3 meters
Detector: Linear Average; Duty Cycle Correction = 0.48 dB

VERTICAL: Average = $35.95 \text{ dB}\mu\text{V/m} + 0.48 \text{ dB (duty cycle cor.)} = 36.43 \text{ dB}\mu\text{V/m}$
AVERAGE: Limit: $54 \text{ dB}\mu\text{V/m}$ at 3 meters



Date: 23.AUG.2024 14:58:50



166 South Carter, Genoa City, WI 53128

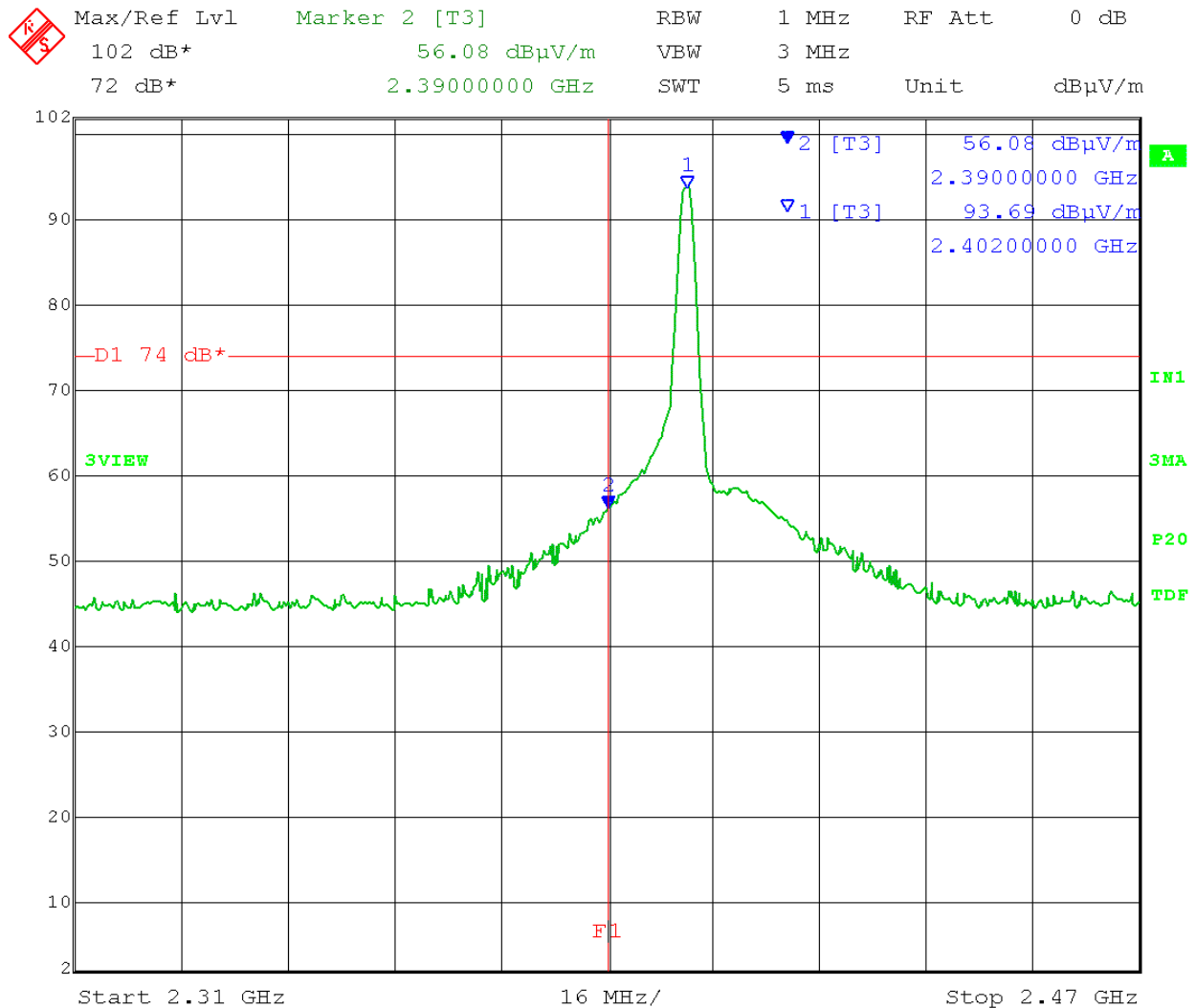
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Lower Restricted Band Edge (2390 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
Low Channel: 2402 MHz
Test Distance: 3 meters
Detector: Max-Peak

VERTICAL: Peak = **56.08 dB μ V/m**
PEAK: Limit: 74 dB μ V/m at 3 meters



Date: 23.AUG.2024 15:00:56



166 South Carter, Genoa City, WI 53128

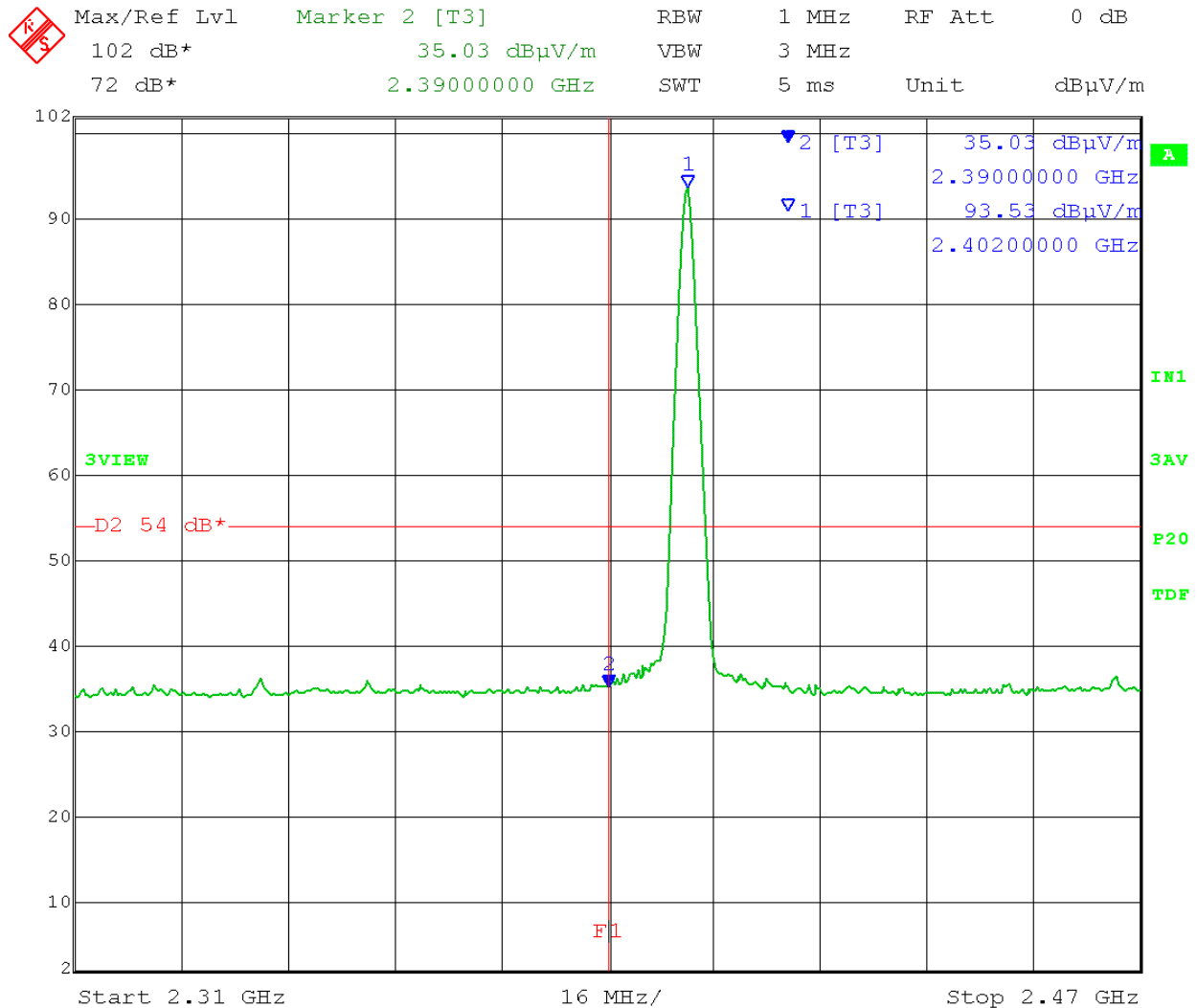
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Lower Restricted Band Edge (2390 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
Low Channel: 2402 MHz
Test Distance: 3 meters
Detector: Linear Average; Duty Cycle Correction = 0.48 dB

HORIZONTAL: Average = 35.03 dBμV/m + 0.48 dB (duty cycle cor.) = **35.51 dBμV/m**
AVERAGE: Limit: 54 dBμV/m at 3 meters



Date: 23.AUG.2024 15:12:07



166 South Carter, Genoa City, WI 53128

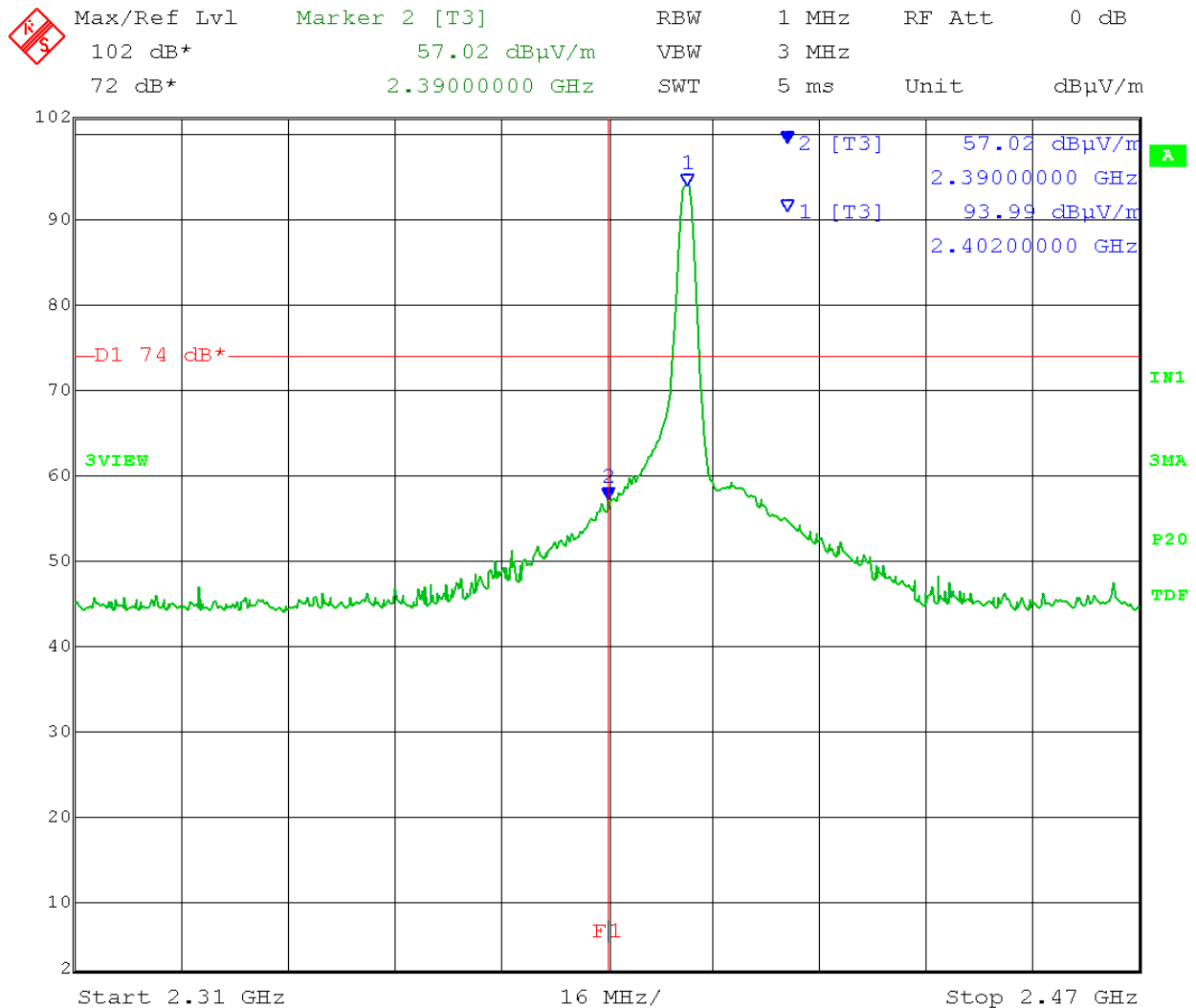
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Lower Restricted Band Edge (2390 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
Low Channel: 2402 MHz
Test Distance: 3 meters
Detector: Max-Peak

HORIZONTAL: Peak = 57.02 dBμV/m
PEAK: Limit: 74 dBμV/m at 3 meters



Date: 23.AUG.2024 15:10:31



166 South Carter, Genoa City, WI 53128

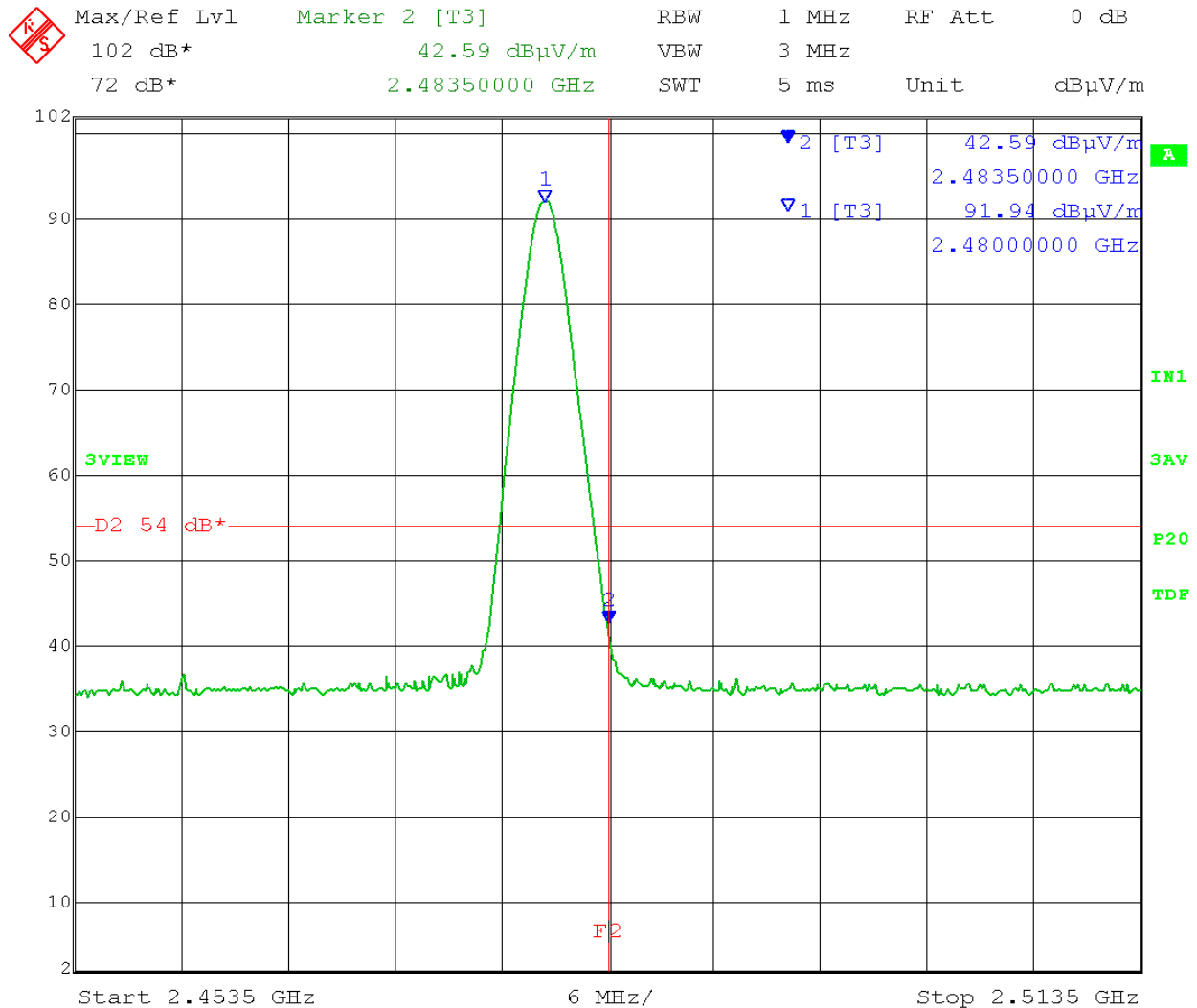
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Upper Restricted Band Edge (2483.5 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
High Channel: 2480 MHz
Test Distance: 3 meters
Detector: Linear Average; Duty Cycle Correction = 0.48 dB

VERTICAL: Average = 42.59 dBμV/m + 0.48 dB (duty cycle cor.) = **43.07 dBμV/m**
AVERAGE: Limit: 54 dBμV/m at 3 meters



Date: 23.AUG.2024 13:36:47



166 South Carter, Genoa City, WI 53128

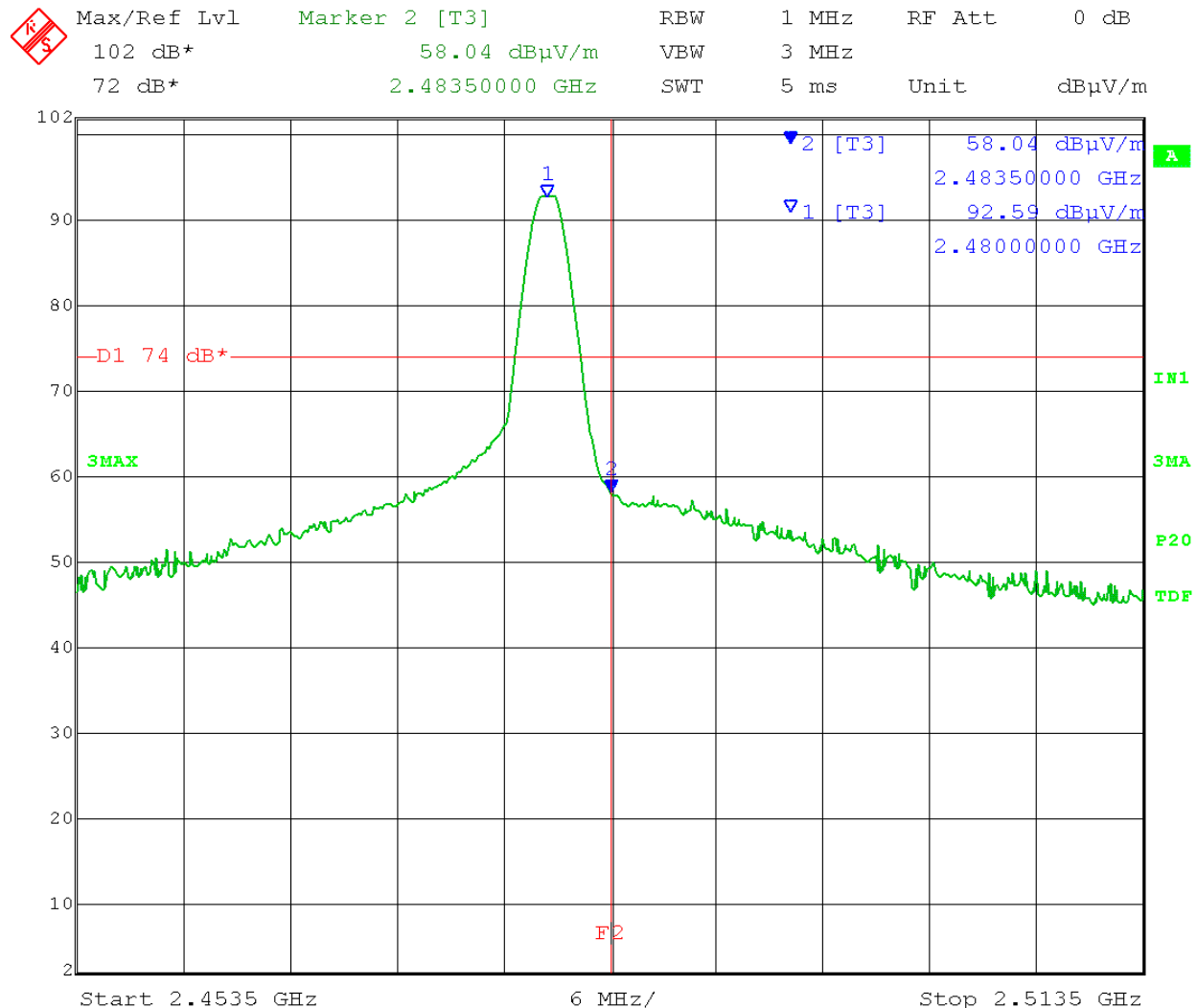
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Upper Restricted Band Edge (2483.5 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
High Channel: 2480 MHz
Test Distance: 3 meters
Detector: Max-Peak

VERTICAL: Peak = **58.04 dB μ V/m**
PEAK: Limit: 74 dB μ V/m at 3 meters



Date: 23.AUG.2024 13:51:54



166 South Carter, Genoa City, WI 53128

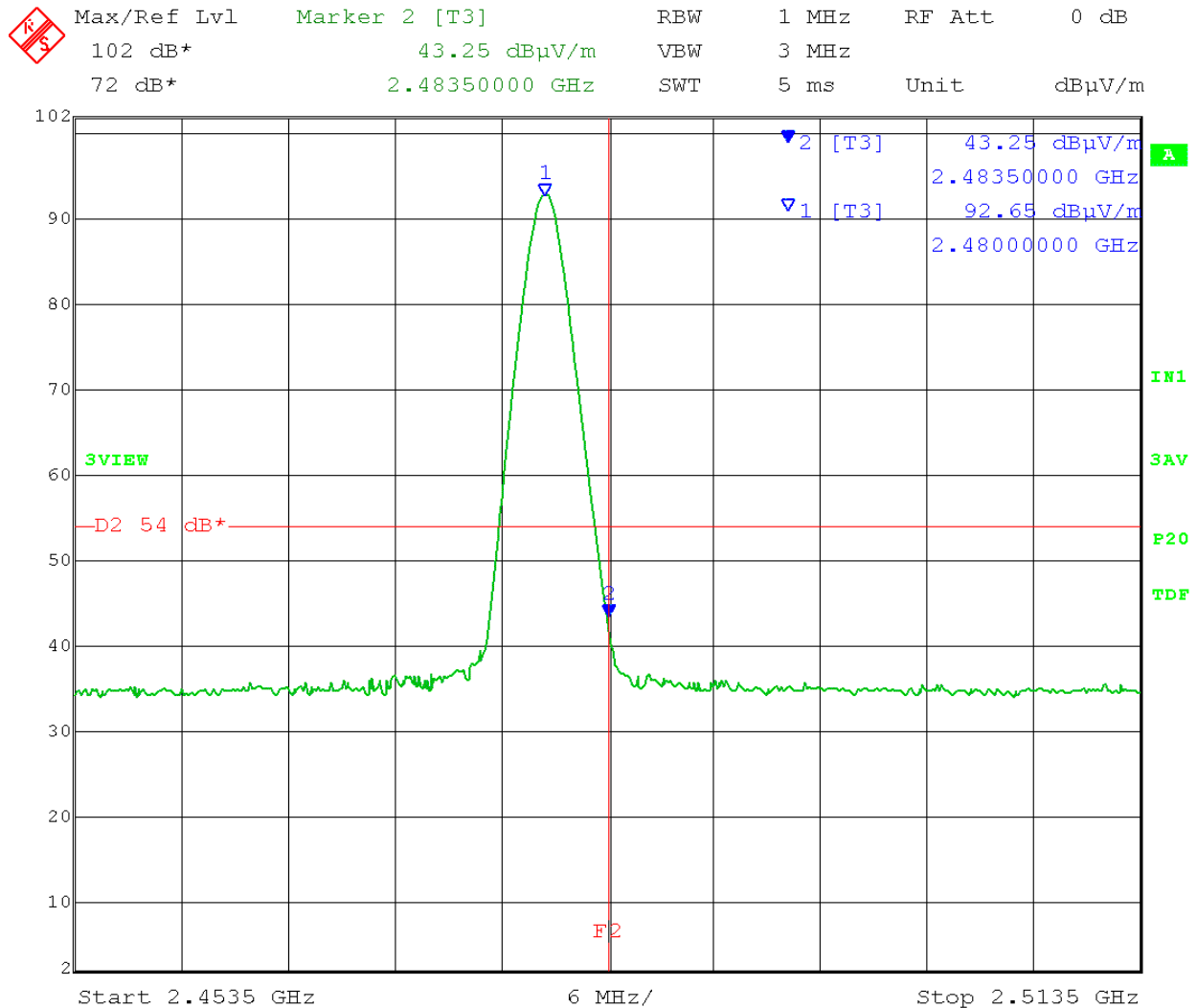
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Upper Restricted Band Edge (2483.5 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
High Channel: 2480 MHz
Test Distance: 3 meters
Detector: Linear Average; Duty Cycle Correction = 0.48 dB

HORIZONTAL: Average = 43.25 dB μ V/m + 0.48 dB (duty cycle cor.) = **43.73 dB μ V/m**
AVERAGE: Limit: 54 dB μ V/m at 3 meters



Date: 23.AUG.2024 14:23:42



166 South Carter, Genoa City, WI 53128

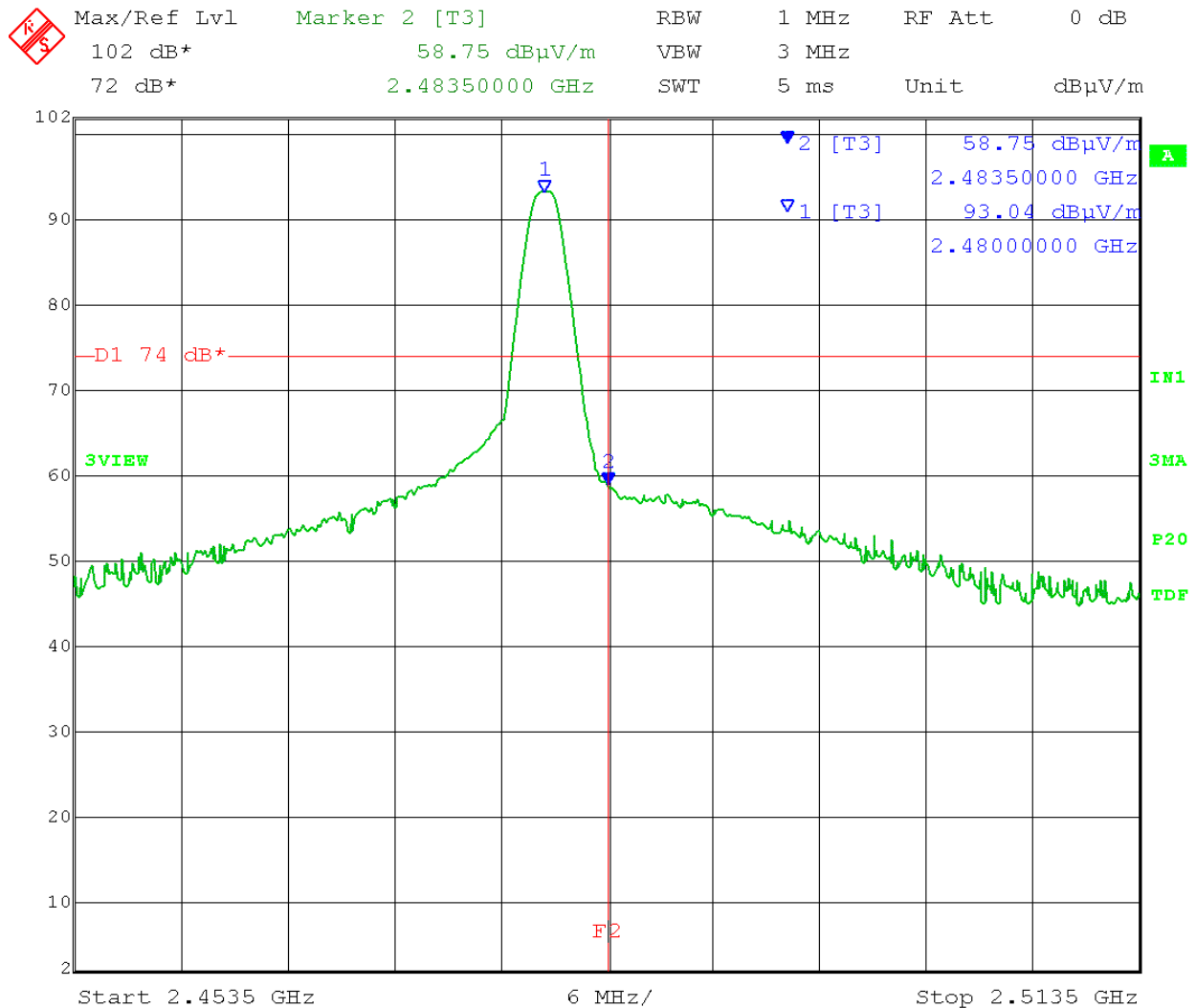
Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

Test Date: 08-23-2024
Company: Wilson Sporting Goods
EUT: QBID Player Tag
Test: Upper Restricted Band Edge (2483.5 MHz) – Radiated
Operator: cbrandt
Comment: Power Setting: +4
High Channel: 2480 MHz
Test Distance: 3 meters
Detector: Max-Peak

HORIZONTAL: Peak = 58.75 dB μ V/m
PEAK: Limit: 74 dB μ V/m at 3 meters



Date: 23.AUG.2024 14:22:40



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section A

A9.0 AC Line Conducted Emissions

Rule Part:

Section 15.207(a)

Test Procedure:

ANSI C63.10-2020, Section 6.2

Standard test method for ac powerline conducted emissions from unlicensed wireless devices.

Limit:

Table in FCC Part 15.207(a)

Results:

Compliant

Notes:

AC Line Conducted Emissions were tested with the EUT in continuous transmit mode, while charging the internal battery. The EUT was placed on a wireless charging pad, and the AC line conducted emissions test was performed on the charging pad (powered by its 120 Volt AC adapter) to show that the EUT does not cause the wireless charging pad to fail the AC line conducted emissions limit. The EUT has no ports for a cable connection and can only be charged via wireless charging.

PMM NARDA REPORT: 12719 Player Tag Tx L1_000



Report issuing date : 08-28-2024

Standard : FCC Part 15.207
Test Type : Voltage Mains Test
Test Site : Screen Room
Temperature : 76 °F
Humidity : 56 %
Test Specs : Line 1; [X]Quasi-Peak Detector []Average Detector
Operator : cbrandt
DLS Project # : 12719
Result : Pass

EUT

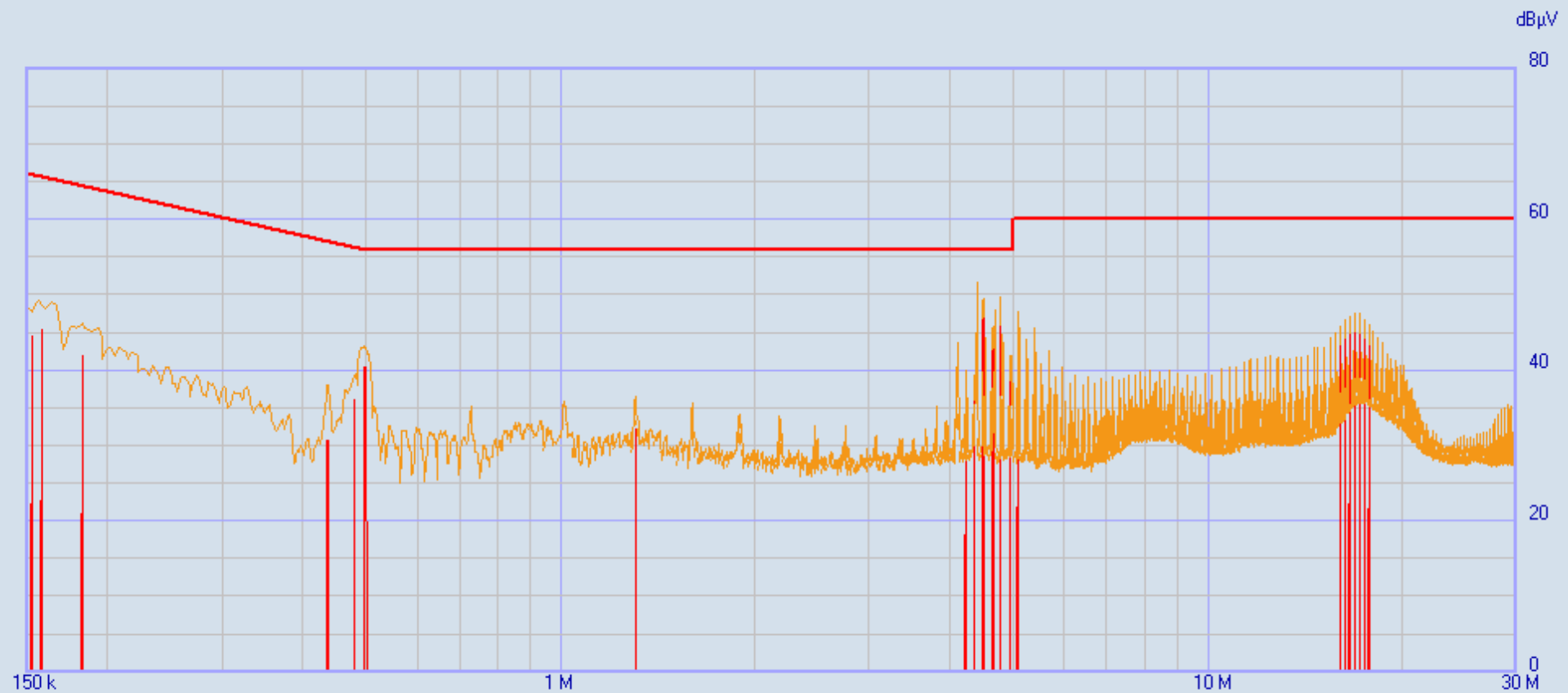
Manufacturer : Garrett Technologies
Model : QBID Player Tag
Product : Wireless sensor device
Notes : Charges wireless via a Qi charging pad
Comments : Tested with Choetech Dual Fast Wireless Charger, Model: T535-S
: Continuous BLE transmit mode while charging a drained battery.

Testing Company : DLS Electronic Systems
Tel./Fax : 262-279-0210
Web site : <http://www.dlsemc.com>

Receiver Details

Model : PMM 9010F
Brand : Narda
S/N : 020WW40102
Last Calibration : 03/14/2024

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



12719 Player Tag Tx L1_000

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary	L
1	0.15	30	AUTO (2.04468 kHz)	PQ	2000 ms	9 kHz-C	10	OFF	ON	...	...	...

Ancillary = General
Nr. of Worst = Infinite (3)

Limits:
FCC 15_207 QP

Factors:
LISN DLS#665
LIM #507
HPF #592
SR CBL-112_43_35

Peak ———
QPeak ———

12719 Player Tag Tx L1_000 28/08/2024 15:56:56
 Rel. SW 2.40 (January 2021)
 Rel. FW 2.02 21/04/21
 Margin: 100 dB

	Frequency	QPeak	Limit	Delta	Factor	Factor	Factor	Factor
	[MHz]	[dBμV]	FCC 15_20..	[dB]	LISN DLS#..	LIM #507	HPF #592	SR CBL- 1..
			[dBμV]		[dB]	[dB]	[dB]	[dB]
1	0.15204468	44.43	65.89	-21.46	0.09	9.32	2.25	0.11
2	0.15817872	45.26	65.56	-20.30	0.09	9.33	2.17	0.10
3	0.18271488	41.96	64.36	-22.40	0.08	9.40	1.92	0.11
4	0.4362552	30.60	57.13	-26.53	0.07	9.70	0.95	0.19
5	0.48123816	36.01	56.32	-20.31	0.07	9.71	0.86	0.20
6	0.4975956	40.34	56.04	-15.70	0.07	9.71	0.83	0.20
7	0.50168496	39.86	56.00	-16.14	0.07	9.71	0.83	0.20
8	1.3052442	32.12	56.00	-23.88	0.07	9.76	0.39	0.30
9	4.20255576	36.38	56.00	-19.62	0.08	9.77	0.18	0.45
10	4.34772804	35.91	56.00	-20.09	0.08	9.77	0.17	0.46
11	4.49290032	46.93	56.00	-9.07	0.08	9.77	0.17	0.47
12	4.6380726	42.66	56.00	-13.34	0.08	9.77	0.17	0.48
13	4.78324488	45.67	56.00	-10.33	0.08	9.77	0.16	0.49
14	4.92841716	38.48	56.00	-17.52	0.07	9.77	0.16	0.50
15	5.07154476	43.71	60.00	-16.29	0.07	9.77	0.16	0.51
16	15.94106364	43.27	60.00	-16.73	-0.04	9.77	0.22	0.79
17	16.2314082	44.11	60.00	-15.89	-0.04	9.77	0.22	0.79
18	16.52175276	44.69	60.00	-15.31	-0.05	9.77	0.23	0.79
19	16.81209732	44.85	60.00	-15.15	-0.05	9.77	0.23	0.80
20	17.1003972	44.74	60.00	-15.26	-0.06	9.77	0.23	0.80
21	17.39074176	44.01	60.00	-15.99	-0.06	9.77	0.23	0.81
22	17.68108632	43.07	60.00	-16.93	-0.07	9.77	0.24	0.81

PMM NARDA REPORT: 12719 Player Tag Tx L1_001



Report issuing date : 08-28-2024

Standard : FCC Part 15.207
Test Type : Voltage Mains Test
Test Site : Screen Room
Temperature : 76 °F
Humidity : 56 %
Test Specs : Line 1; [☐]Quasi-Peak Detector [☒]Average Detector
Operator : cbrandt
DLS Project # : 12719
Result : Pass

EUT

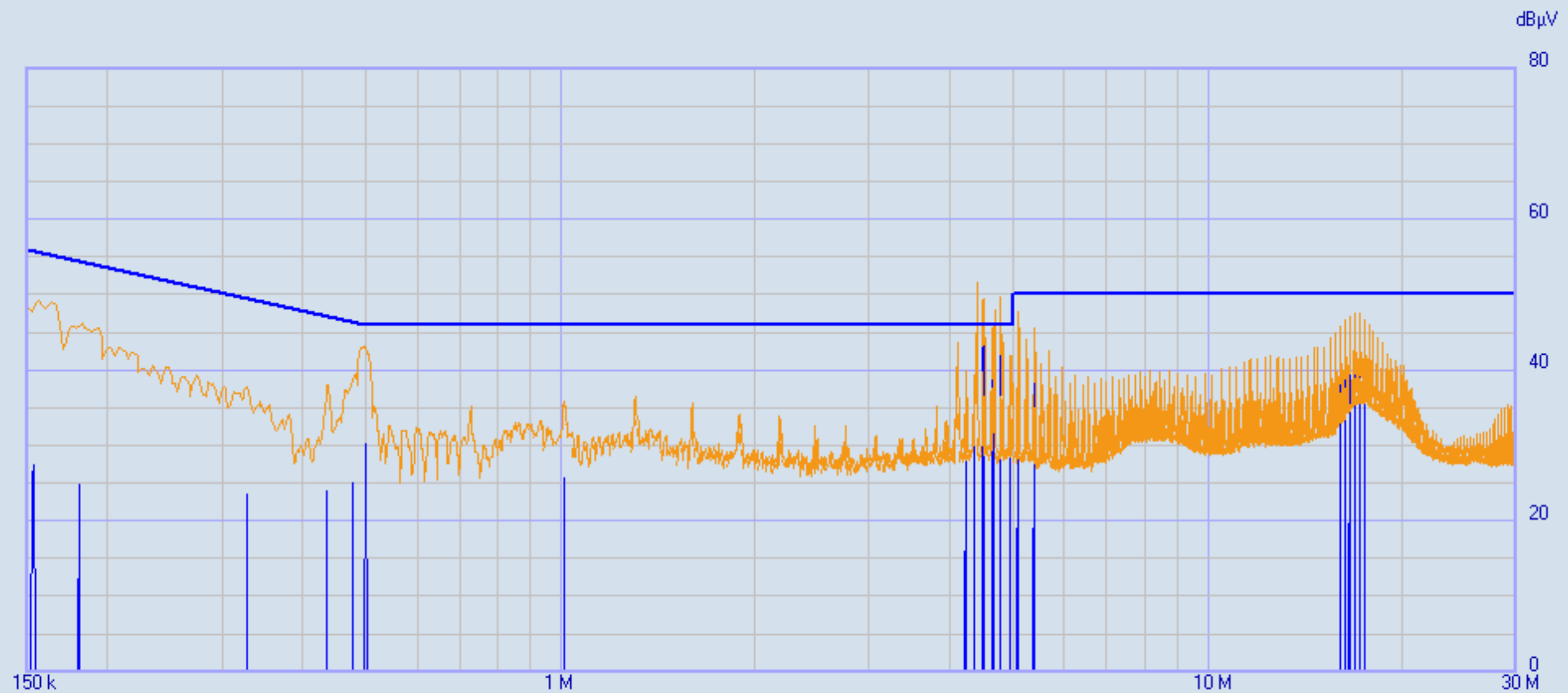
Manufacturer : Garrett Technologies
Model : QBID Player Tag
Product : Wireless sensor device
Notes : Charges wireless via a Qi charging pad
Comments : Tested with Choetech Dual Fast Wireless Charger, Model: T535-S
: Continuous BLE transmit mode while charging a drained battery.

Testing Company : DLS Electronic Systems
Tel./Fax : 262-279-0210
Web site : <http://www.dlsemc.com>

Receiver Details

Model : PMM 9010F
Brand : Narda
S/N : 020WW40102
Last Calibration : 03/14/2024

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



12719 Player Tag Tx L1_001

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary	L
1	0.15	30	AUTO (2.04468 kHz)	PC	2000 ms	9 kHz-C	10	OFF	ON	...	...	...

Ancillary = General
Nr. of Worst = Infinite (3)

Limits:
FCC 15_207 AV

Factors:
LISN DLS#665
LIM #507
HPF #592
SR CBL-112_43_35

Peak ———
C-Avg ———

12719 Player Tag Tx L1_001 28/08/2024 16:00:34
 Rel. SW 2.40 (January 2021)
 Rel. FW 2.02 21/04/21
 Margin: 100 dB

	Frequency	C-Avg	Limit	Delta	Factor	Factor	Factor	Factor
	[MHz]	[dBμV]	FCC 15_20..	[dB]	LISN DLS#..	LIM #507	HPF #592	SR CBL- 1..
			[dBμV]		[dB]	[dB]	[dB]	[dB]
1	0.15204468	25.95	55.89	-29.94	0.09	9.32	2.25	0.11
2	0.15408936	27.47	55.78	-28.31	0.09	9.32	2.22	0.11
3	0.1806702	24.69	54.45	-29.76	0.08	9.40	1.93	0.11
4	0.32788716	23.60	49.50	-25.90	0.07	9.65	1.21	0.17
5	0.43421052	23.88	47.17	-23.29	0.07	9.70	0.95	0.19
6	0.47919348	24.93	46.35	-21.42	0.07	9.71	0.87	0.20
7	0.49964028	29.95	46.01	-16.06	0.07	9.71	0.83	0.20
8	0.50168496	30.23	46.00	-15.77	0.07	9.71	0.83	0.20
9	1.01489964	25.73	46.00	-20.27	0.07	9.75	0.44	0.28
10	4.20255576	32.18	46.00	-13.82	0.08	9.77	0.18	0.45
11	4.34772804	31.73	46.00	-14.27	0.08	9.77	0.17	0.46
12	4.49290032	43.17	46.00	-2.83	0.08	9.77	0.17	0.47
13	4.6380726	38.78	46.00	-7.22	0.08	9.77	0.17	0.48
14	4.78324488	41.88	46.00	-4.12	0.08	9.77	0.16	0.49
15	4.92841716	34.42	46.00	-11.58	0.07	9.77	0.16	0.50
16	5.07154476	38.20	50.00	-11.80	0.07	9.77	0.16	0.51
17	5.36188932	38.13	50.00	-11.87	0.07	9.77	0.16	0.52
18	15.94106364	38.03	50.00	-11.97	-0.04	9.77	0.22	0.79
19	16.2314082	38.72	50.00	-11.28	-0.04	9.77	0.22	0.79
20	16.52175276	39.18	50.00	-10.82	-0.05	9.77	0.23	0.79
21	16.81209732	39.30	50.00	-10.70	-0.05	9.77	0.23	0.80
22	17.1003972	39.10	50.00	-10.90	-0.06	9.77	0.23	0.80
23	17.39074176	38.62	50.00	-11.38	-0.06	9.77	0.23	0.81

PMM NARDA REPORT: 12719 Player Tag Tx L2_000



Report issuing date : 08-28-2024

Standard : FCC Part 15.207
Test Type : Voltage Mains Test
Test Site : Screen Room
Temperature : 76 °F
Humidity : 56 %
Test Specs : Line 2; [X]Quasi-Peak Detector []Average Detector
Operator : cbrandt
DLS Project # : 12719
Result : Pass

EUT

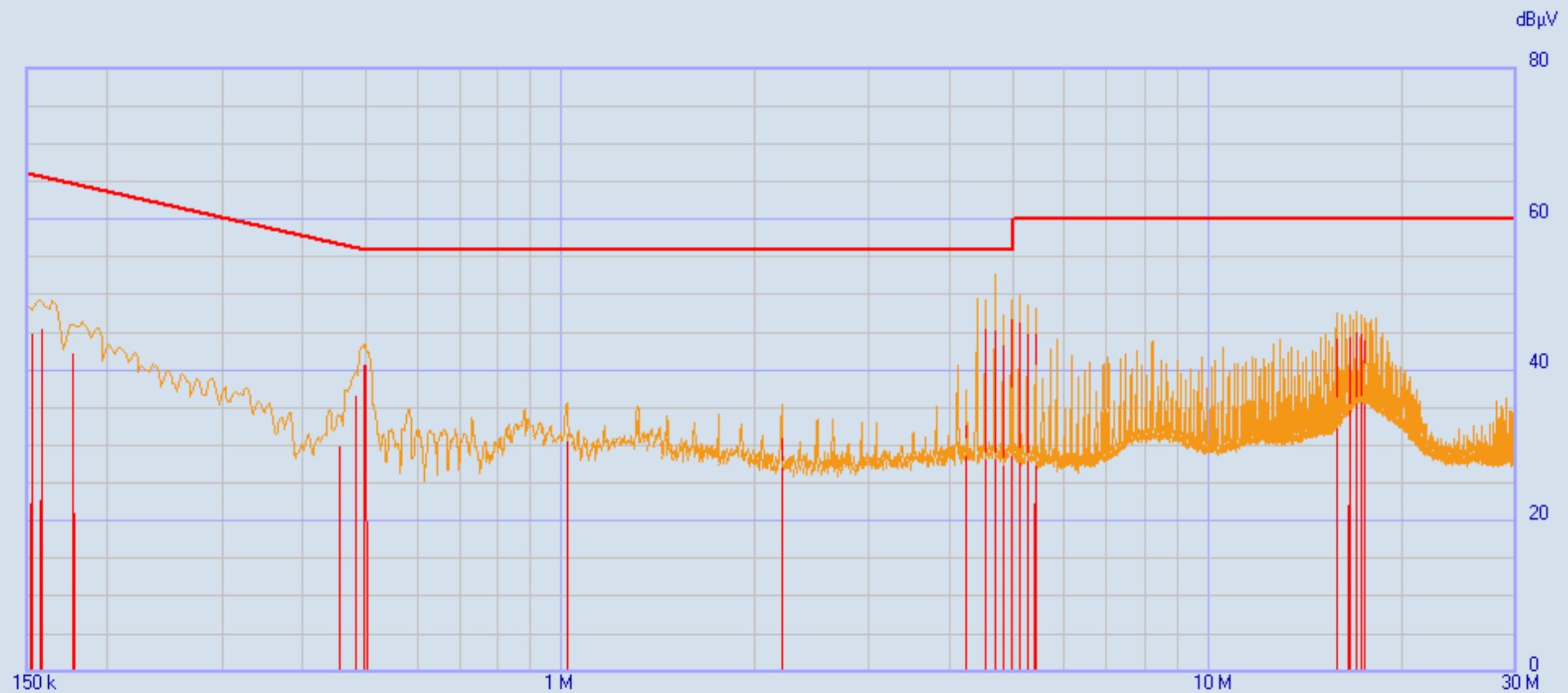
Manufacturer : Garrett Technologies
Model : QBID Player Tag
Product : Wireless sensor device
Notes : Charges wireless via a Qi charging pad
Comments : Tested with Choetech Dual Fast Wireless Charger, Model: T535-S
: Continuous BLE transmit mode while charging a drained battery.

Testing Company : DLS Electronic Systems
Tel./Fax : 262-279-0210
Web site : <http://www.dlsemc.com>

Receiver Details

Model : PMM 9010F
Brand : Narda
S/N : 020WW40102
Last Calibration : 03/14/2024

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



12719 Player Tag Tx L2_000

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary	L
1	0.15	30	AUTO (2.04468 kHz)	PQ	2000 ms	9 kHz-C	10	OFF	ON	...	...	...

Ancillary = General
Nr. of Worst = Infinite (3)

Limits:
FCC 15_207 QP

Factors:
LISN DLS#665
LIM #507
HPF #592
SR CBL-112_43_35

Peak ———
QPeak ———

12719 Player Tag Tx L2_000 28/08/2024 16:12:46
 Rel. SW 2.40 (January 2021)
 Rel. FW 2.02 21/04/21
 Margin: 100 dB

	Frequency	QPeak	Limit	Delta	Factor	Factor	Factor	Factor
	[MHz]	[dBμV]	FCC 15_20..	[dB]	LISN DLS#..	LIM #507	HPF #592	SR CBL- 1..
			[dBμV]		[dB]	[dB]	[dB]	[dB]
1	0.15204468	44.69	65.89	-21.20	0.09	9.32	2.25	0.11
2	0.15817872	45.23	65.56	-20.33	0.09	9.33	2.17	0.10
3	0.17658084	42.01	64.64	-22.63	0.08	9.38	1.97	0.11
4	0.456702	29.78	56.75	-26.97	0.07	9.70	0.91	0.19
5	0.48328284	36.45	56.28	-19.83	0.07	9.71	0.86	0.20
6	0.4975956	40.54	56.04	-15.50	0.07	9.71	0.83	0.20
7	0.50168496	40.04	56.00	-15.96	0.07	9.71	0.83	0.20
8	1.02307836	31.37	56.00	-24.63	0.07	9.75	0.44	0.28
9	2.19059064	30.90	56.00	-25.10	0.08	9.77	0.25	0.36
10	4.23322596	32.50	56.00	-23.50	0.08	9.77	0.18	0.46
11	4.5256152	45.26	56.00	-10.74	0.08	9.77	0.17	0.48
12	4.67078748	45.21	56.00	-10.79	0.08	9.77	0.17	0.49
13	4.81800444	43.18	56.00	-12.82	0.08	9.77	0.16	0.50
14	4.96317672	46.71	56.00	-9.29	0.07	9.77	0.16	0.51
15	5.11039368	46.12	60.00	-13.88	0.07	9.77	0.16	0.51
16	5.25556596	44.66	60.00	-15.34	0.07	9.77	0.16	0.52
17	5.40073824	44.75	60.00	-15.25	0.07	9.77	0.16	0.52
18	15.76726584	43.95	60.00	-16.05	-0.04	9.77	0.22	0.78
19	16.4972166	44.35	60.00	-15.65	-0.05	9.77	0.22	0.79
20	16.93477812	44.88	60.00	-15.12	-0.06	9.77	0.23	0.80
21	17.22716736	44.59	60.00	-15.41	-0.06	9.77	0.23	0.81
22	17.37233964	43.81	60.00	-16.19	-0.06	9.77	0.23	0.81



Report issuing date : 08-28-2024

Standard : FCC Part 15.207
Test Type : Voltage Mains Test
Test Site : Screen Room
Temperature : 76 °F
Humidity : 56 %
Test Specs : Line 2; []Quasi-Peak Detector [X]Average Detector
Operator : cbrandt
DLS Project # : 12719
Result : Pass

EUT

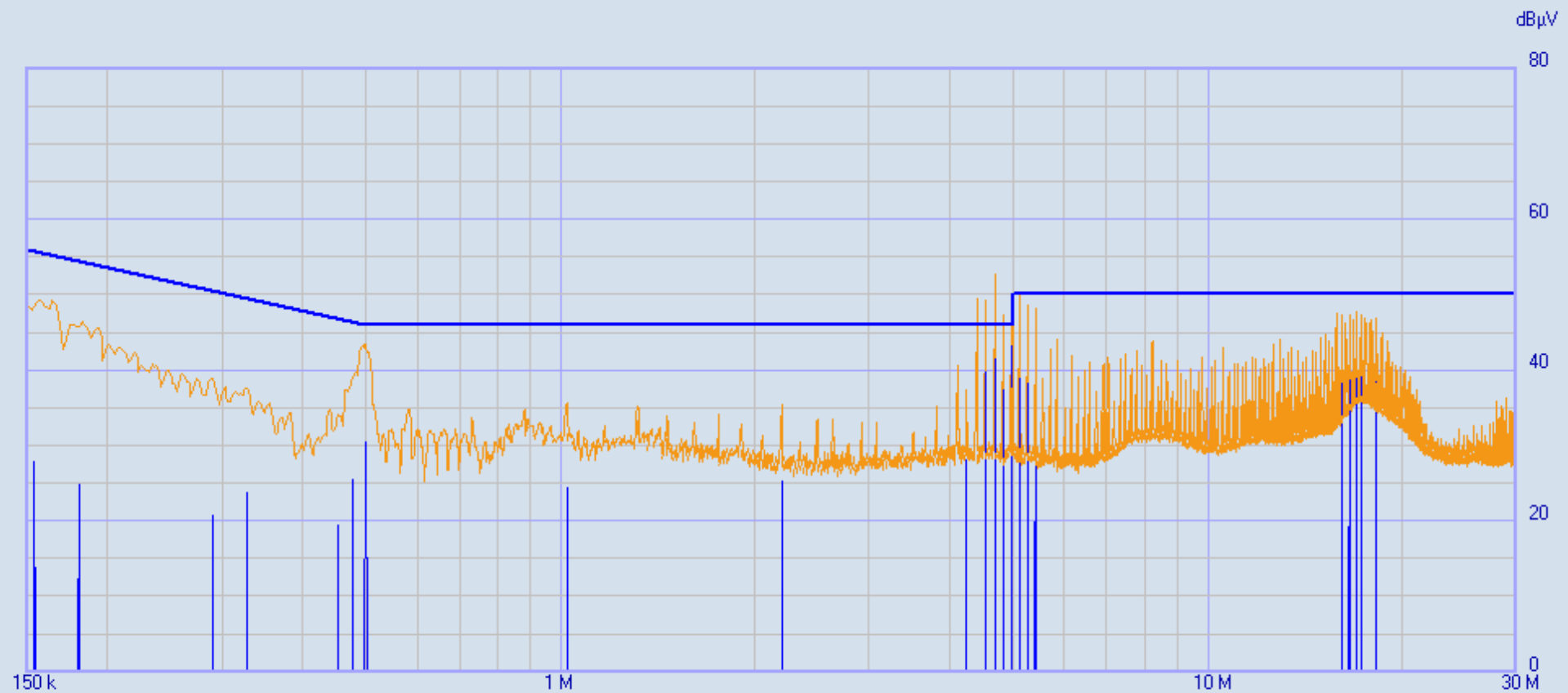
Manufacturer : Garrett Technologies
Model : QBID Player Tag
Product : Wireless sensor device
Notes : Charges wireless via a Qi charging pad
Comments : Tested with Choetech Dual Fast Wireless Charger, Model: T535-S
 : Continuous BLE transmit mode while charging a drained battery.

Testing Company : DLS Electronic Systems
Tel./Fax : 262-279-0210
Web site : <http://www.dlsemc.com>

Receiver Details

Model : PMM 9010F
Brand : Narda
S/N : 020WW40102
Last Calibration : 03/14/2024

NOTE: The column in the table that is labeled "delta" shows the margin in dB with respect to the limit. A negative number indicates the level of the emission is under the limit by the given value, while a positive number indicates the emission level is above the limit by the given value.



12719 Player Tag Tx L2_001

	Start [MHz]	Stop [MHz]	Step	Detector	Hold Time	RBW	Min Att	Pre Amp	Pre Sel	Prompt start	Ancillary	L
1	0.15	30	AUTO (2.04468 kHz)	PC	2000 ms	9 kHz-C	10	OFF	ON	...	...	...

Ancillary = General
Nr. of Worst = Infinite (3)

Limits:
FCC 15_207 AV

Factors:
LISN DLS#665
LIM #507
HPF #592
SR CBL-112_43_35

Peak ———
C-Avg ———



12719 Player Tag Tx L2_001 28/08/2024 16:15:02
Rel. SW 2.40 (January 2021)
Rel. FW 2.02 21/04/21
Margin: 100 dB

Frequency	C-Avg	Limit	Delta	Factor	Factor	Factor	Factor
[MHz]	[dBμV]	FCC 15_20..	[dB]	LISN DLS#..	LIM #507	HPF #592	SR CBL- 1..
		[dBμV]		[dB]	[dB]	[dB]	[dB]
1 0.15	27.43	56.00	-28.57	0.09	9.31	2.28	0.11
2 0.15408936	27.73	55.78	-28.05	0.09	9.32	2.22	0.11
3 0.1806702	24.89	54.45	-29.56	0.08	9.40	1.93	0.11
4 0.29108292	20.58	50.49	-29.91	0.07	9.62	1.34	0.16
5 0.32788716	23.78	49.50	-25.72	0.07	9.65	1.21	0.17
6 0.45465732	19.46	46.79	-27.33	0.07	9.70	0.91	0.19
7 0.47919348	25.48	46.35	-20.87	0.07	9.71	0.87	0.20
8 0.49964028	30.02	46.01	-15.99	0.07	9.71	0.83	0.20
9 0.50168496	30.46	46.00	-15.54	0.07	9.71	0.83	0.20
10 1.02307836	24.41	46.00	-21.59	0.07	9.75	0.44	0.28
11 2.19059064	25.23	46.00	-20.77	0.08	9.77	0.25	0.36
12 4.23322596	28.00	46.00	-18.00	0.08	9.77	0.18	0.46
13 4.5256152	39.68	46.00	-6.32	0.08	9.77	0.17	0.48
14 4.67078748	41.52	46.00	-4.48	0.08	9.77	0.17	0.49
15 4.81800444	37.36	46.00	-8.64	0.08	9.77	0.16	0.50
16 4.96317672	43.10	46.00	-2.90	0.07	9.77	0.16	0.51
17 5.11039368	38.90	50.00	-11.10	0.07	9.77	0.16	0.51
18 5.25556596	38.21	50.00	-11.79	0.07	9.77	0.16	0.52
19 5.40073824	39.98	50.00	-10.02	0.07	9.77	0.16	0.52
20 16.0576104	38.19	50.00	-11.81	-0.04	9.77	0.22	0.79
21 16.4972166	38.73	50.00	-11.27	-0.05	9.77	0.22	0.79
22 16.93477812	38.87	50.00	-11.13	-0.06	9.77	0.23	0.80
23 17.22716736	39.14	50.00	-10.86	-0.06	9.77	0.23	0.81
24 18.1022904	38.32	50.00	-11.68	-0.07	9.77	0.24	0.82



166 South Carter, Genoa City, WI 53128

Company:
Model Tested:
Project Number:
Report Number:

Wilson Sporting Goods Co.
MSC1417_ASSY Rev B
12719
28749 rev1.0

Section B – Measurement Uncertainty

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Radiated & RF Conducted Emission 30 MHz to 25 GHz Uncertainty
AC Line Conducted Emission 9 kHz to 30 MHz Uncertainty

Parameter	Expanded Uncertainty (K=2)
Occupied Channel Bandwidth	+/- 1.14%
RF Output Power, Conducted	+/- 0.89 dB
Unwanted Emissions, RF Conducted	+/- 2.62 dB
All Emissions, Radiated	+/- 4.95 dB
DC and Low Frequency Voltages	+/- 2.42%
Time	+/- 0.01%
Duty Cycle	+/- 0.05%
AC Line Conducted Emissions	+/- 2.10 dB



166 South Carter, Genoa City, WI 53128

Company:

Model Tested:

Project Number:

Report Number:

Wilson Sporting Goods Co.

MSC1417_ASSY Rev B

12719

28749 rev1.0

END OF REPORT

Revision #	Date	Comments	By
1.0	03-03-2025	Initial Release	CB