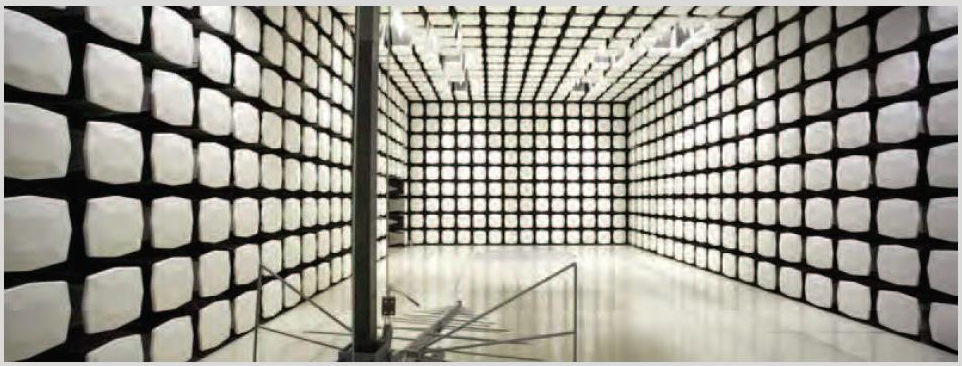
Masimo Corporation

MWMII

FCC 15.247:2019

802.11bgn SISO Radio

Report # MASI0553.1



NVLAP LAB CODE: 200676-0

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CERTIFICATE OF TEST

Last Date of Test: July 15, 2019
Masimo Corporation
Model: MWMII

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2019	ANSI C63.10:2013
FCC 15.247:2019	ANSI C63.10:2013, KDB 558074

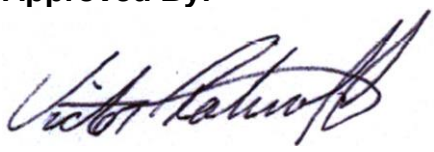
Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
6.5, 6.6, 11.12.1, 11.13.2,	Spurious Radiated Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.2.2.4	Output Power	Yes	Pass	
11.9.2.2.4	Equivalent Isotropic Radiated Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Victor Ratinoff, Operations Manager

Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

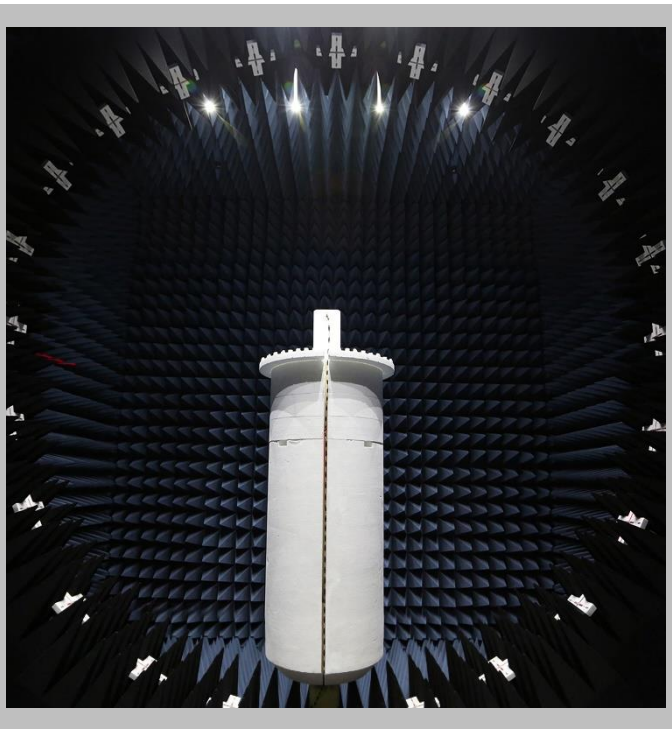
MIC – Recognized by MIC as a CAB for the acceptance of test data.

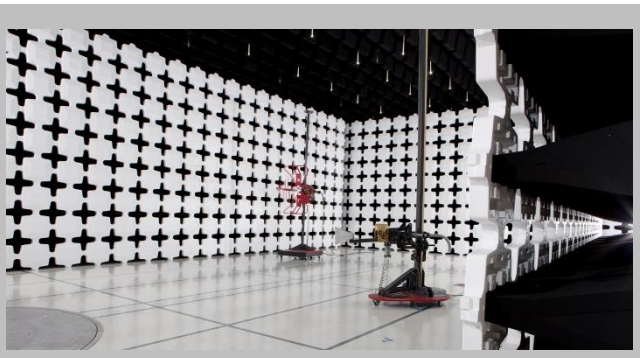
SCOPE

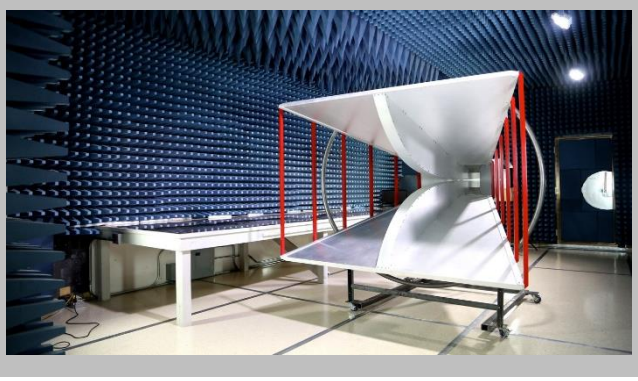
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

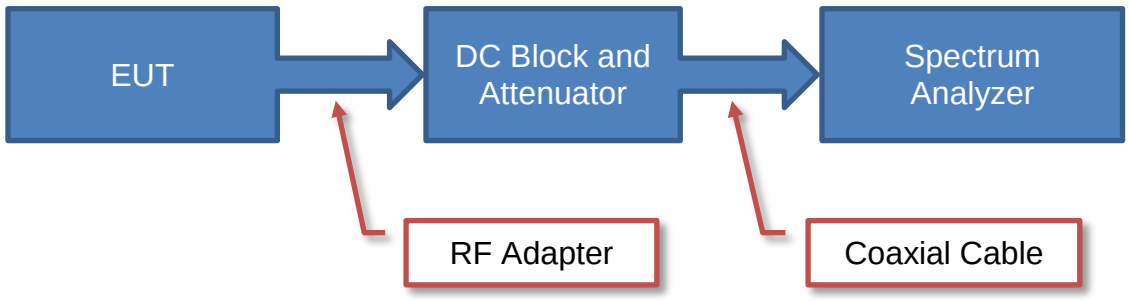
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

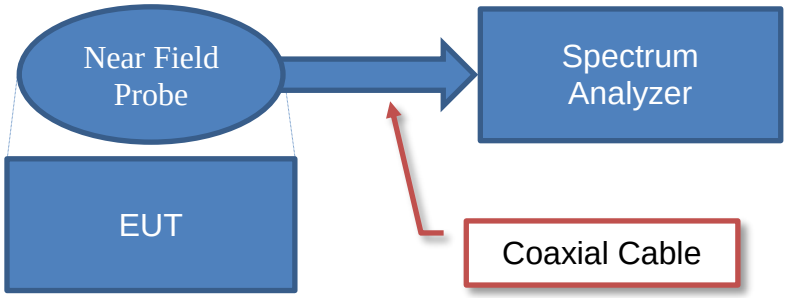
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

Test Setup Block Diagrams

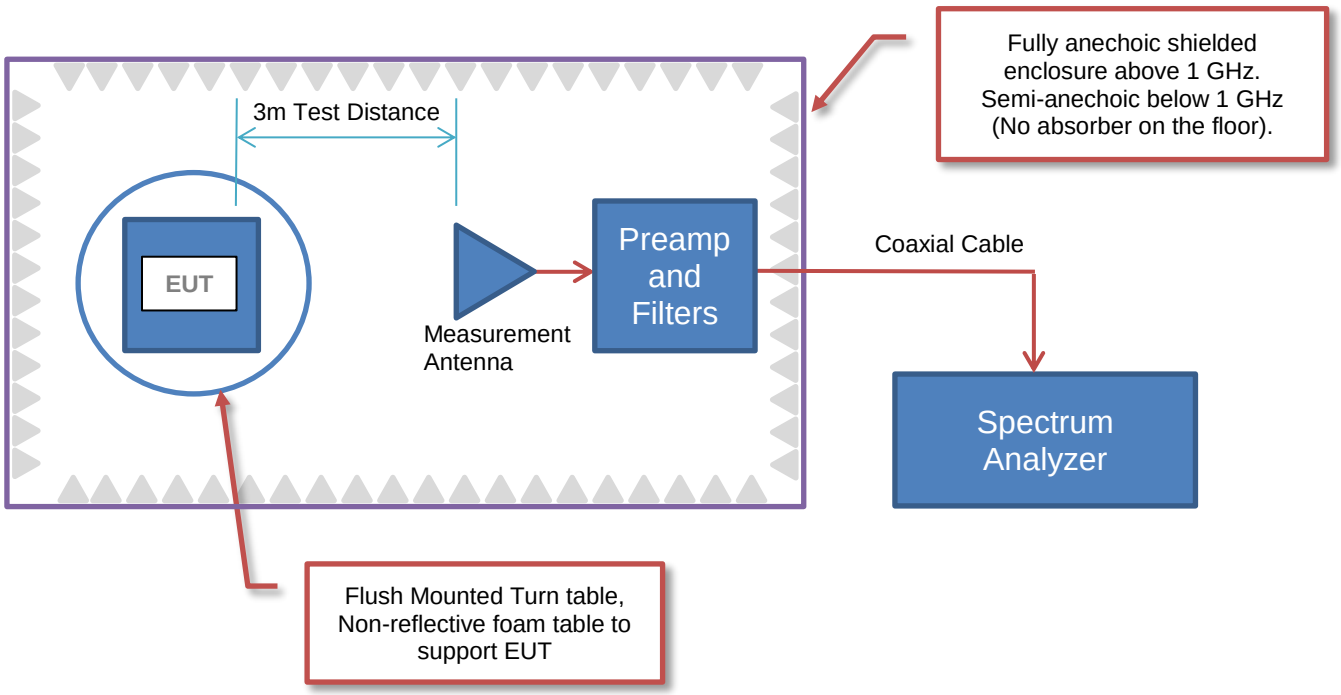
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Masimo Corporation
Address:	52 Discovery
City, State, Zip:	Irvine, CA 92618
Test Requested By:	Anami Joshi
Model:	MWMII
First Date of Test:	July 5, 2019
Last Date of Test:	July 15, 2019
Receipt Date of Samples:	July 1, 2019
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
The MWMII is a radio module (P/N 26269) which uses an AzureWave AW-CM256SM radio chipset that incorporates the Broadcom BCM43455 single chip.

Testing Objective:
To demonstrate compliance of the 802.11 radio under FCC 15.247 for operation in the 2.4 GHz band.

CONFIGURATIONS

Configuration MASI0553- 1

Software/Firmware Running during test	
Description	**Version**
Firmware	7.45.100.7-mfgtest

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Masimo Wireless Module II	Masimo	MWMII (P/N: 26269)	ENG-1

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
AC Adapter	XP Power	ACM18US05-3A	160803-00607
i.MX 53 Quick Start Board	FreeScale	iMx-53	None
Host Laptop	Hewlett-Packard	ProBook	CND638CWSR
Laptop Power Supply	Hewlett-Packard	PPP009H	WBGSU0BL91FXO9
USB Hub	plugable	USB3-HUB7C	Y-3184
Hawk Radio Board Debug Tool	Masimo	82403	None
Carrier Board	Masimo	26634 Rev.B	1847700024

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
u.FL Cable	Yes	.05m	No	RF Test Cable	MWMII Module
USB Cable	Yes	3.0m	No	Host Laptop	USB Hub
USB-to-Serial Cable	Yes	0.3m	No	USB Hub	Hawk Radio Board Debug Tool
AC Cable	No	1.2m	No	AC Mains	Laptop Power Supply
DC Cable	Yes	1.4m	Yes	Laptop Power Supply	Host Laptop
DC Cable	Yes	1.6m	No	i.MX 53 Quick Start Board	AC Adapter (AC Mains)

CONFIGURATIONS

Configuration MASI0553- 3

Software/Firmware Running during test	
Description	**Version**
Firmware	7.45.100.7-mfgtest

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Masimo Wireless Module II	Masimo	MWMII (P/N: 26269)	ENG-1
Antenna (2.4GHz-5.35GHz)	Ethertronics	1000672	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Carrier Board	Masimo	26634 Rev.B	1847700024
Hawk Radio Board Debug Tool	Masimo	82403	None
Battery	Masimo	23794	21826002827

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
RF Cable	Yes	0.1m	No	Masimo Wireless Module II	Antenna

CONFIGURATIONS

Configuration MASI0553- 6

Software/Firmware Running during test	
Description	**Version**
Firmware	7.45.100.7-mfgtest

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Masimo Wireless Module II	Masimo	MWMII (P/N: 26269)	ENG-1
Antenna (2.4GHz-5.35GHz)	Ethertronics	1000672	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Carrier Board	Masimo	26634 Rev.B	1847700024
DC Power Supply	TEKPOWER	TP6005E	187890
Hawk Radio Board Debug Tool	Masimo	82403	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.8m	No	AC Mains	Switching Power Supply
DC Cable	Yes	1.0m	No	Switching Power Supply	Hawk Radio Board Debug Tool
RF Cable	Yes	0.1m	No	Masimo Wireless Module II	Antenna

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2019-07-05	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2019-07-08	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2019-07-08	Spurious Radiated Emissions (Band Edge)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2019-07-15	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2019-07-15	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2019-07-15	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2019-07-15	Equivalent Isotropic Radiated Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2019-07-15	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2019-07-15	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
10	2019-07-15	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWER SETTINGS

The EUT was tested using the power settings provided by the manufacturer:

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types	Protocol	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
1 Mbps, 11 Mbps	b	20	1	Low Channel	2412	17
			6	Mid Channel	2437	17
			11	High Channel	2462	17
6 Mbps, 36 Mbps, 54 Mbps	g	20	1	Low Channel	2412	14
			6	Mid Channel	2437	14
			11	High Channel	2462	14
MCS0, MCS7	n	20	1	Low Channel	2412	15
			6	Mid Channel	2437	15
			11	High Channel	2462	15
MCS0, MCS7	n	40	1/5	Low Channel	2422	10
			4/8	Mid Channel	2437	10
			7/11	High Channel	2452	10

POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.1.24

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
LISN	Solar Electronics	9252-50-24-BNC	LIA	2019-01-08	2020-01-08
LISN	Solar Electronics	9252-50-24-BNC	LIB	2019-01-08	2020-01-08
Cable - Conducted Cable Assembly	Northwest EMC	OCP, HFP, AWC	OCPA	2018-10-05	2019-10-05
Power Supply	Pacific Power	AFX 12KVA	SMT	NCR	NCR
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	2019-07-02	2020-07-02

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

MASI0553-6

MODES INVESTIGATED

Transmitting 802.11b Mid Ch 6 (2437 MHz), 1 Mbps

POWERLINE CONDUCTED EMISSIONS

EUT:	MWMII	Work Order:	MASI0553
Serial Number:	ENG-1	Date:	2019-07-08
Customer:	Masimo Corporation	Temperature:	21.3°C
Attendees:	Anami Joshi, Nghi Nguyen	Relative Humidity:	50%
Customer Project:	None	Bar. Pressure:	1019 mb
Tested By:	Nolan De Ramos	Job Site:	OC06
Power:	120VAC/60Hz	Configuration:	MASI0553-6

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2019	ANSI C63.10:2013

TEST PARAMETERS

Run #:	9	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

EUT would not transmit 802.11 WiFi when DC is powered through LISN, therefore the AC line of the linear DC Power Supply was tested

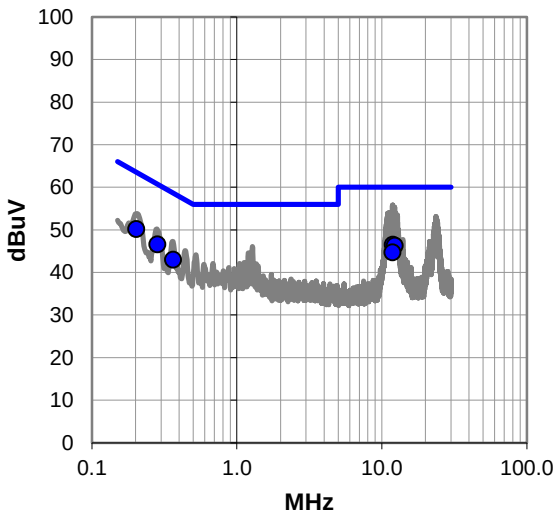
EUT OPERATING MODES

Transmitting 802.11b Mid Ch 6 (2437 MHz), 1 Mbps

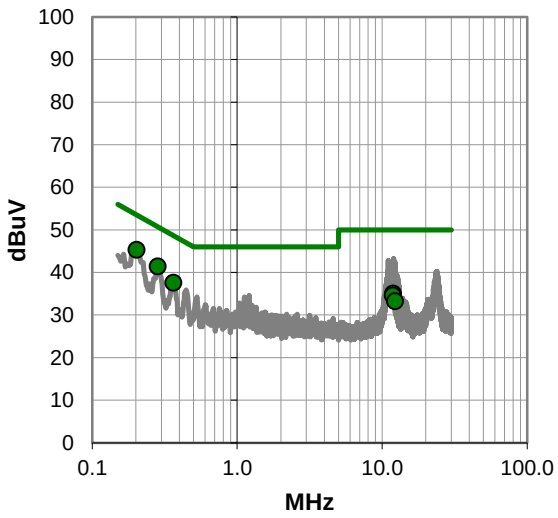
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.1.24

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.203	30.1	20.1	50.2	63.5	-13.3
11.923	25.8	20.7	46.5	60.0	-13.5
12.302	25.6	20.7	46.3	60.0	-13.7
0.283	26.5	20.1	46.6	60.7	-14.1
11.841	24.0	20.7	44.7	60.0	-15.3
0.363	22.9	20.1	43.0	58.7	-15.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.203	25.2	20.1	45.3	53.5	-8.2
0.283	21.3	20.1	41.4	50.7	-9.3
0.363	17.5	20.1	37.6	48.7	-11.1
11.923	14.3	20.7	35.0	50.0	-15.0
11.841	13.9	20.7	34.6	50.0	-15.4
12.302	12.5	20.7	33.2	50.0	-16.8

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	MWMII	Work Order:	MASI0553
Serial Number:	ENG-1	Date:	2019-07-08
Customer:	Masimo Corporation	Temperature:	21.3°C
Attendees:	Anami Joshi, Nghi Nguyen	Relative Humidity:	50%
Customer Project:	None	Bar. Pressure:	1019 mb
Tested By:	Nolan De Ramos	Job Site:	OC06
Power:	120VAC/60Hz	Configuration:	MASI0553-6

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2019	ANSI C63.10:2013

TEST PARAMETERS

Run #:	10	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

EUT would not transmit 802.11 WiFi when DC is powered through LISN, therefore the AC line of the linear DC Power Supply was tested

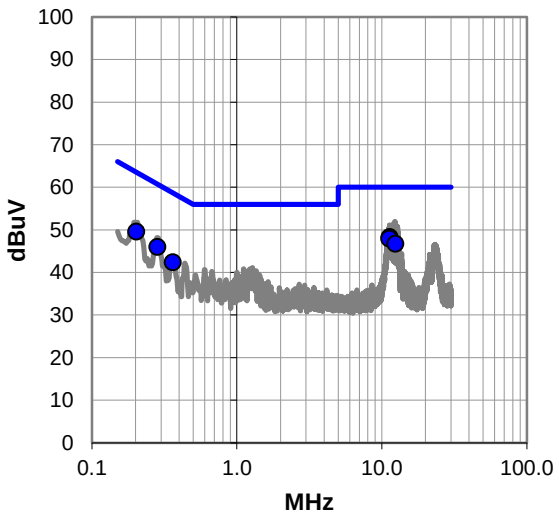
EUT OPERATING MODES

Transmitting 802.11b Mid Ch 6 (2437 MHz), 1 Mbps

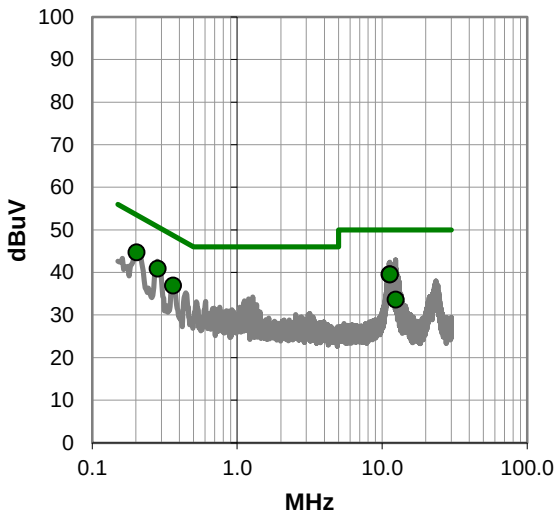
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.1.24

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
11.351	27.6	20.7	48.3	60.0	-11.7
11.267	27.3	20.6	47.9	60.0	-12.1
12.396	26.0	20.7	46.7	60.0	-13.3
0.202	29.5	20.1	49.6	63.5	-13.9
0.284	25.9	20.1	46.0	60.7	-14.7
0.362	22.3	20.1	42.4	58.7	-16.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.202	24.6	20.1	44.7	53.5	-8.8
0.284	20.8	20.1	40.9	50.7	-9.8
11.267	18.9	20.6	39.5	50.0	-10.5
11.351	18.8	20.7	39.5	50.0	-10.5
0.362	16.8	20.1	36.9	48.7	-11.8
12.396	12.9	20.7	33.6	50.0	-16.4

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2019.05.10

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting 802.11bgn, 20 MHz Bandwidth, Low Ch 1 (2412 MHz), Mid Ch 6 (2437 MHz), High Ch 11 (2462 MHz), &
40 MHz Bandwidth, Low Ch 1/5 (2422 MHz), Mid Ch 4/8 (2437 MHz), High Ch 7/11 (2452 MHz)

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

MASI0553 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFJ	18-Dec-2018	12 mo
Antenna - Double Ridge	EMCO	3115	AHB	28-Mar-2018	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHN	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHR	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AHT	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-10	AIX	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AOE	10-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AOF	10-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AOI	19-Dec-2018	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-4D-010120-30-10P-1	AOP	10-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1402	AOZ	2-Jul-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	JSW45-26004000-40-5P	AVQ	19-Dec-2018	12 mo
Antenna - Biconilog	Teseq	CBL 6141A	AYE	7-Nov-2017	24 mo
Filter - High Pass	Micro-Tronics	HPM50111	HHX	2-Jul-2019	12 mo
Cable	ESM Cable Corp.	KMKM-72	OC1	19-Dec-2018	12 mo
Cable	Northwest EMC	10kHz-1GHz RE Cables	OCH	20-Sep-2018	12 mo
Cable	Northwest EMC	1-8GHz RE Cables	OCJ	10-Jan-2019	12 mo
Cable	Northwest EMC	18-26GHz RE Cables	OCK	19-Dec-2018	12 mo
Cable	Northwest EMC	8-18GHz RE Cables	OCO	10-Jan-2019	12 mo
Attenuator	Fairview Microwave	SA18H-20	TKQ	2-Jul-2019	12 mo

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 10*LOG(dc).

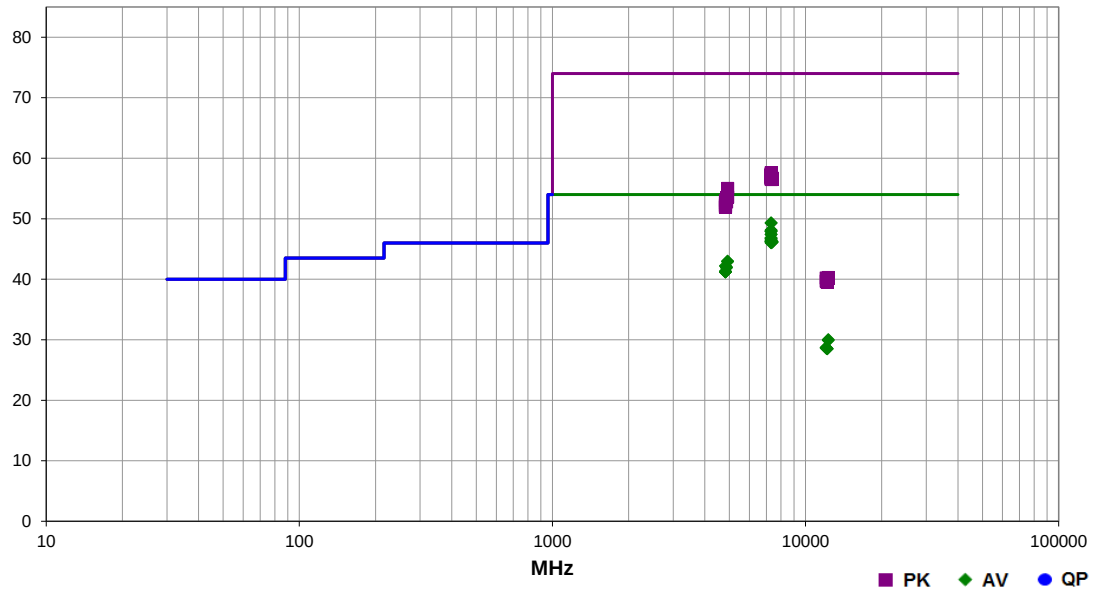
SPURIOUS RADIATED EMISSIONS

EmiR5 2019.05.20 PSA-ESCI 2019.05.10

Work Order:	MASI0553	**Date:**	5-Jul-2019		
Project:	None	**Temperature:**	21.9 °C		
Job Site:	OC10	**Humidity:**	48.8% RH		
Serial Number:	ENG-1	**Barometric Pres.:**	1019 mbar	**Tested by:**	Nolan De Ramos & Mark Baytan
EUT:	MWMII				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	Anami Joshi				
EUT Power:	3.6 VDC				
Operating Mode:	Transmitting 802.11bgn, 20 MHz Bandwidth, Low Ch 1 (2412 MHz), Mid Ch 6 (2437 MHz), High Ch 11 (2462 MHz), & 40 MHz Bandwidth, Low Ch 1/5 (2422 MHz), Mid Ch 4/8 (2437 MHz), High Ch 7/11 (2452 MHz)				
Deviations:	None				
Comments:	See comments below for Data Rate & Channel Bandwidth measured				

Test Specifications	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

Run #	24	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7309.450	27.7	18.4	1.5	182.0	3.2	0.0	Vert	AV	0.0	49.3	54.0	-4.7	Mid Ch 6, 40 MHz, MCS7, EUT Horz
7308.942	27.7	18.4	1.5	182.0	3.2	0.0	Horz	AV	0.0	49.3	54.0	-4.7	Mid Ch 6, 40 MHz, MCS7, EUT Horz
7310.008	27.6	18.4	1.5	182.0	2.1	0.0	Vert	AV	0.0	48.1	54.0	-5.9	Mid Ch 6, MCS7, EUT Horz
7310.150	27.5	18.4	1.5	182.0	2.1	0.0	Horz	AV	0.0	48.0	54.0	-6.0	Mid Ch 6, MCS7, EUT Horz
7309.142	27.5	18.4	1.5	182.0	2.0	0.0	Horz	AV	0.0	47.9	54.0	-6.1	Mid Ch 6, 54 Mbps, EUT Horz
7308.517	27.5	18.4	1.5	182.0	2.0	0.0	Vert	AV	0.0	47.9	54.0	-6.1	Mid Ch 6, 54 Mbps, EUT Horz
7309.158	27.5	18.4	1.5	51.0	1.5	0.0	Vert	AV	0.0	47.4	54.0	-6.6	Mid Ch 6, 36 Mbps, EUT Horz
7311.492	27.5	18.4	1.5	182.0	1.5	0.0	Horz	AV	0.0	47.4	54.0	-6.6	Mid Ch 6, 36 Mbps, EUT Horz
7308.550	27.7	18.4	1.5	182.0	0.7	0.0	Horz	AV	0.0	46.8	54.0	-7.2	Mid Ch 6, 40 MHz, MCS0, EUT Horz
7309.142	27.7	18.4	1.5	182.0	0.7	0.0	Vert	AV	0.0	46.8	54.0	-7.2	Mid Ch 6, 40 MHz, MCS0, EUT Horz
7309.900	27.8	18.4	1.5	182.0	0.5	0.0	Horz	AV	0.0	46.7	54.0	-7.3	Mid Ch 6, 11 Mbps, EUT Horz
7309.083	27.6	18.4	1.5	51.0	0.5	0.0	Vert	AV	0.0	46.5	54.0	-7.5	Mid Ch 6, 11 Mbps, EUT Horz
7308.692	27.6	18.4	1.5	182.0	0.3	0.0	Horz	AV	0.0	46.3	54.0	-7.7	Mid Ch 6, MCS0, EUT Horz
7312.892	27.6	18.4	1.5	182.0	0.3	0.0	Vert	AV	0.0	46.3	54.0	-7.7	Mid Ch 6, MCS0, EUT Horz
7313.075	27.5	18.4	1.5	182.0	0.3	0.0	Horz	AV	0.0	46.2	54.0	-7.8	Mid Ch 6, 6 Mbps, EUT Horz
7310.267	27.5	18.4	1.5	51.0	0.3	0.0	Vert	AV	0.0	46.2	54.0	-7.8	Mid Ch 6, 6 Mbps, EUT Horz
7385.200	27.3	18.4	1.5	158.0	0.5	0.0	Horz	AV	0.0	46.2	54.0	-7.8	High Ch 11, 1Mbps, EUT Horz
7310.625	27.7	18.4	1.5	21.0	0.0	0.0	Horz	AV	0.0	46.1	54.0	-7.9	Mid Ch 6, 1Mbps, EUT Horz
7384.067	27.2	18.4	1.5	353.0	0.5	0.0	Vert	AV	0.0	46.1	54.0	-7.9	High Ch 11, 1Mbps, EUT Horz
7309.308	27.6	18.4	1.5	99.0	0.0	0.0	Vert	AV	0.0	46.0	54.0	-8.0	Mid Ch 6, 1Mbps, EUT Horz
4924.067	28.9	13.6	1.5	360.0	0.5	0.0	Horz	AV	0.0	43.0	54.0	-11.0	High Ch 11, 1Mbps, EUT Horz
4925.217	28.8	13.6	1.5	91.0	0.5	0.0	Vert	AV	0.0	42.9	54.0	-11.1	High Ch 11, 1Mbps, EUT Horz
4824.050	29.3	12.9	1.5	84.0	0.0	0.0	Horz	AV	0.0	42.2	54.0	-11.8	Low Ch 1, 1Mbps, EUT Horz
4876.008	28.7	13.3	1.5	130.0	0.0	0.0	Horz	AV	0.0	42.0	54.0	-12.0	Mid Ch 6, 1Mbps, EUT Horz
4875.833	28.6	13.3	2.2	165.0	0.0	0.0	Vert	AV	0.0	41.9	54.0	-12.1	Mid Ch 6, 1Mbps, EUT Horz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4826.433	28.3	13.0	3.5	107.0	0.0	0.0	Vert	AV	0.0	41.3	54.0	-12.7	Low Ch 1, 1Mbps, EUT Horz
4825.908	28.3	12.9	1.5	310.0	0.0	0.0	Vert	AV	0.0	41.2	54.0	-12.8	Low Ch 1, 1Mbps, EUT On Side
4826.025	28.3	12.9	1.5	42.0	0.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	Low Ch 1, 1Mbps, EUT On Side
4825.850	28.3	12.9	1.5	331.0	0.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	Low Ch 1, 1Mbps, EUT Vert
4825.242	28.3	12.9	1.5	0.0	0.0	0.0	Vert	AV	0.0	41.2	54.0	-12.8	Low Ch 1, 1Mbps, EUT Vert
7311.333	39.2	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	57.6	74.0	-16.4	Mid Ch 6, 11 Mbps, EUT Horz
7312.917	39.0	18.4	1.5	99.0	0.0	0.0	Vert	PK	0.0	57.4	74.0	-16.6	Mid Ch 6, 1Mbps, EUT Horz
7312.308	38.9	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	57.3	74.0	-16.7	Mid Ch 6, 40 MHz, MCS7, EUT Horz
7310.183	38.8	18.4	1.5	51.0	0.0	0.0	Vert	PK	0.0	57.2	74.0	-16.8	Mid Ch 6, 11 Mbps, EUT Horz
7309.442	38.8	18.4	1.5	182.0	0.0	0.0	Vert	PK	0.0	57.2	74.0	-16.8	Mid Ch 6, 54 Mbps, EUT Horz
7308.725	38.8	18.4	1.5	182.0	0.0	0.0	Vert	PK	0.0	57.2	74.0	-16.8	Mid Ch 6, MCS7, EUT Horz
7311.225	38.7	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	57.1	74.0	-16.9	Mid Ch 6, 6 Mbps, EUT Horz
7311.233	38.7	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	57.1	74.0	-16.9	Mid Ch 6, 40 MHz, MCS0, EUT Horz
7313.292	38.7	18.4	1.5	182.0	0.0	0.0	Vert	PK	0.0	57.1	74.0	-16.9	Mid Ch 6, 40 MHz, MCS7, EUT Horz
7308.583	38.6	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	57.0	74.0	-17.0	Mid Ch 6, MCS0, EUT Horz
7310.017	38.5	18.4	1.5	21.0	0.0	0.0	Horz	PK	0.0	56.9	74.0	-17.1	Mid Ch 6, 1Mbps, EUT Horz
7312.142	38.5	18.4	1.5	51.0	0.0	0.0	Vert	PK	0.0	56.9	74.0	-17.1	Mid Ch 6, 6 Mbps, EUT Horz
7308.933	38.5	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	56.9	74.0	-17.1	Mid Ch 6, MCS7, EUT Horz
7312.358	38.3	18.4	1.5	51.0	0.0	0.0	Vert	PK	0.0	56.7	74.0	-17.3	Mid Ch 6, 36 Mbps, EUT Horz
7310.808	38.3	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Mid Ch 6, 36 Mbps, EUT Horz
7309.458	38.3	18.4	1.5	182.0	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Mid Ch 6, 54 Mbps, EUT Horz
7310.408	38.3	18.4	1.5	182.0	0.0	0.0	Vert	PK	0.0	56.7	74.0	-17.3	Mid Ch 6, MCS0, EUT Horz
7386.908	38.3	18.4	1.5	158.0	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	High Ch 11, 1Mbps, EUT Horz
7311.692	38.1	18.4	1.5	182.0	0.0	0.0	Vert	PK	0.0	56.5	74.0	-17.5	Mid Ch 6, 40 MHz, MCS0, EUT Horz
7386.367	38.1	18.4	1.5	353.0	0.0	0.0	Vert	PK	0.0	56.5	74.0	-17.5	High Ch 11, 1Mbps, EUT Horz
4922.650	41.4	13.6	1.5	360.0	0.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	High Ch 11, 1Mbps, EUT Horz
4924.875	40.0	13.6	1.5	91.0	0.0	0.0	Vert	PK	0.0	53.6	74.0	-20.4	High Ch 11, 1Mbps, EUT Horz
4873.350	40.2	13.3	2.2	165.0	0.0	0.0	Vert	PK	0.0	53.5	74.0	-20.5	Mid Ch 6, 1Mbps, EUT Horz
4824.333	40.1	12.9	1.5	84.0	0.0	0.0	Horz	PK	0.0	53.0	74.0	-21.0	Low Ch 1, 1Mbps, EUT Horz
4875.792	39.5	13.3	1.5	130.0	0.0	0.0	Horz	PK	0.0	52.8	74.0	-21.2	Mid Ch 6, 1Mbps, EUT Horz
4824.483	39.7	12.9	1.5	310.0	0.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	Low Ch 1, 1Mbps, EUT Horz
4823.717	39.4	12.9	1.5	42.0	0.0	0.0	Horz	PK	0.0	52.3	74.0	-21.7	Low Ch 1, 1Mbps, EUT On Side
4823.833	39.2	12.9	1.5	331.0	0.0	0.0	Horz	PK	0.0	52.1	74.0	-21.9	Low Ch 1, 1Mbps, EUT Vert
4826.108	39.1	12.9	1.5	0.0	0.0	0.0	Vert	PK	0.0	52.0	74.0	-22.0	Low Ch 1, 1Mbps, EUT Vert
4825.008	39.0	12.9	3.5	107.0	0.0	0.0	Vert	PK	0.0	51.9	74.0	-22.1	Low Ch 1, 1Mbps, EUT On Side
12307.670	31.9	-2.4	1.5	330.0	0.5	0.0	Horz	AV	0.0	30.0	54.0	-24.0	High Ch 11, 1Mbps, EUT Horz
12307.680	31.8	-2.4	1.7	221.0	0.5	0.0	Vert	AV	0.0	29.9	54.0	-24.1	High Ch 11, 1Mbps, EUT Horz
12057.740	32.2	-3.5	2.6	141.0	0.0	0.0	Vert	AV	0.0	28.7	54.0	-25.3	Low Ch 1, 1 Mbps, EUT Horz
12059.080	32.1	-3.5	1.5	110.0	0.0	0.0	Horz	AV	0.0	28.6	54.0	-25.4	Low Ch 1, 1 Mbps, EUT Horz
12184.410	31.0	-2.5	1.5	148.0	0.0	0.0	Horz	AV	0.0	28.5	54.0	-25.5	Mid Ch 6, 1 Mbps, EUT Horz
12186.180	31.0	-2.5	2.9	206.0	0.0	0.0	Vert	AV	0.0	28.5	54.0	-25.5	Mid Ch 6, 1 Mbps, EUT Horz
12308.770	42.7	-2.4	1.5	330.0	0.0	0.0	Horz	PK	0.0	40.3	74.0	-33.7	High Ch 11, 1Mbps, EUT Horz
12060.530	43.6	-3.4	1.5	110.0	0.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	Low Ch 1, 1 Mbps, EUT Horz
12310.280	42.6	-2.4	1.7	221.0	0.0	0.0	Vert	PK	0.0	40.2	74.0	-33.8	High Ch 11, 1Mbps, EUT Horz
12186.990	42.4	-2.5	1.5	148.0	0.0	0.0	Horz	PK	0.0	39.9	74.0	-34.1	Mid Ch 6, 1 Mbps, EUT Horz
12058.420	43.2	-3.5	2.6	141.0	0.0	0.0	Vert	PK	0.0	39.7	74.0	-34.3	Low Ch 1, 1 Mbps, EUT Horz
12184.820	42.0	-2.5	2.9	206.0	0.0	0.0	Vert	PK	0.0	39.5	74.0	-34.5	Mid Ch 6, 1 Mbps, EUT Horz

SPURIOUS RADIATED EMISSIONS (BAND EDGE)

PSA-ESCI 2019.05.10

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting 802.11bgn: Low Ch 1 (2412MHz) and High Ch 11(2462 MHz), 20 MHz Wide
Transmitting 802.11n: Low Ch 1/5 (2422MHz) and High Ch 7/11 (2452 MHz), 40 MHz Wide

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

MASI0553 - 3

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	40000 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator	S.M. Electronics	SA6-20	REO	23-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	PAD	3-Jul-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAN	20-Dec-2018	12 mo
Cable	ESM Cable Corp.	8-18GHz cables	OCY	16-Jan-2019	12 mo
Cable	ESM Cable Corp.	1-8GHz cables	OCX	16-Jan-2019	12 mo
Cable	ESM Cable Corp.	30-1GHz cables	OCW	8-May-2019	12 mo
Cable	D-Coax	None	OC4	20-Dec-2018	12 mo
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXV	15-May-2018	24 mo
Antenna - Biconilog	EMCO	3142	AXB	5-Apr-2018	24 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVP	16-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVL	16-Jan-2019	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVJ	16-Jan-2019	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AIR	28-Jun-2018	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHX	NCR	0 mo
Antenna - Standard Gain	EMCO	3160-08	AHK	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAY	30-Nov-2018	12 mo

TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 10*LOG(dc).

SPURIOUS RADIATED EMISSIONS (BAND EDGE)

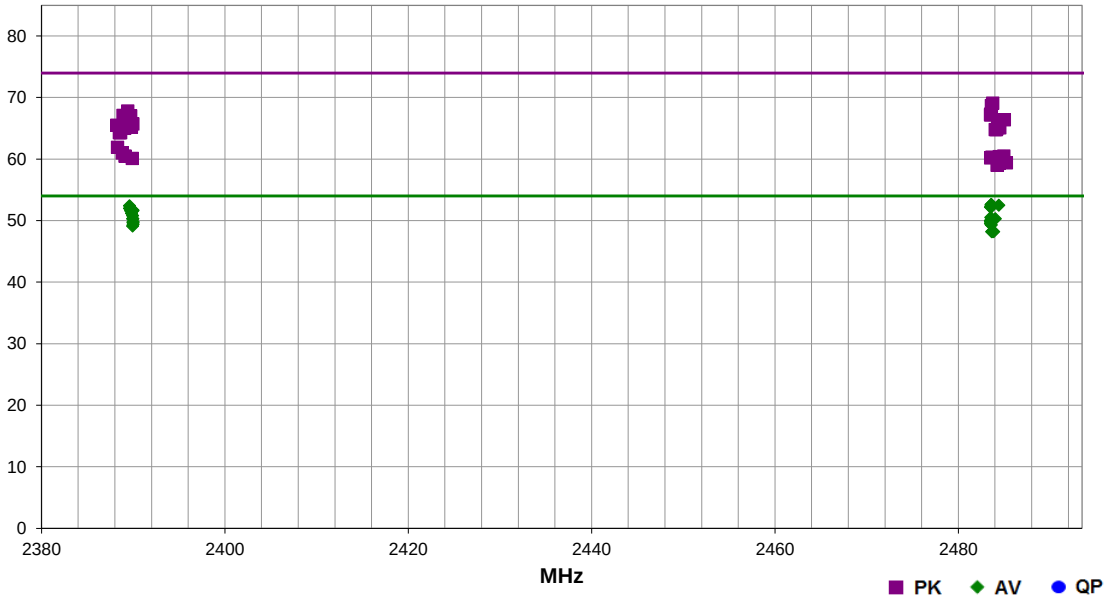
element

EmiR5 2019.05.20 PSA-ESCI 2019.05.10

Work Order:	MASI0553	**Date:**	8-Jul-2019		
Project:	None	**Temperature:**	23.8 °C		
Job Site:	OC07	**Humidity:**	44.3% RH		
Serial Number:	ENG-1	**Barometric Pres.:**	1019 mbar	**Tested by:**	Luis Flores & Mark Baytan
EUT:	MWMII				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	Mike Tran				
EUT Power:	3.6 VDC				
Operating Mode:	Transmitting 802.11bgn: Low Ch 1 (2412MHz) and High Ch 11(2462 MHz), 20 MHz Bandwidth				
Deviations:	None				
Comments:	See comments below for Data Rate measured				

Test Specifications	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

Run #	19	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.610	36.4	-4.1	1.7	8.0	0.3	20.0	Horz	AV	0.0	52.6	54.0	-1.4	High Ch 11, 6Mbps,EUT on side
2483.593	36.4	-4.1	1.4	9.0	0.3	20.0	Vert	AV	0.0	52.6	54.0	-1.4	High Ch 11, 6Mbps, EUT Vert
2483.597	35.1	-4.1	1.7	8.0	1.5	20.0	Horz	AV	0.0	52.5	54.0	-1.5	High Ch 11, 36Mbps, EUT on side
2484.427	34.6	-4.1	1.4	9.0	2.0	20.0	Vert	AV	0.0	52.5	54.0	-1.5	High Ch 11, 54Mbps, EUT Vert
2483.603	34.5	-4.1	1.7	8.0	2.1	20.0	Horz	AV	0.0	52.5	54.0	-1.5	High Ch 11, MCS7, EUT on side
2389.603	34.7	-4.4	1.7	8.0	2.1	20.0	Horz	AV	0.0	52.4	54.0	-1.6	Low Ch 1, MCS7, EUT on side
2483.647	34.9	-4.1	1.4	10.0	1.5	20.0	Vert	AV	0.0	52.3	54.0	-1.7	High Ch 11, 36Mbps, EUT Vert
2483.577	34.2	-4.1	1.4	9.0	2.1	20.0	Vert	AV	0.0	52.2	54.0	-1.8	High Ch 11, MCS7, EUT Vert
2483.520	34.3	-4.1	1.7	8.0	2.0	20.0	Horz	AV	0.0	52.2	54.0	-1.8	High Ch 11, 54Mbps, EUT on side
2389.607	34.4	-4.4	1.7	8.0	2.0	20.0	Horz	AV	0.0	52.0	54.0	-2.0	Low Ch 1, 54Mbps, EUT on Side
2389.833	34.6	-4.4	1.7	8.0	1.5	20.0	Horz	AV	0.0	51.7	54.0	-2.3	Low Ch 1, 36Mbps, EUT on Side
2389.987	35.8	-4.4	1.7	8.0	0.3	20.0	Horz	AV	0.0	51.7	54.0	-2.3	Low Ch 1, 6Mbps, EUT on side
2389.720	34.0	-4.4	1.4	9.0	2.0	20.0	Vert	AV	0.0	51.6	54.0	-2.4	Low Ch 1, 54Mbps, EUT Vert
2389.987	33.9	-4.4	1.4	10.0	2.1	20.0	Vert	AV	0.0	51.6	54.0	-2.4	Low Ch 1, MCS7, EUT Vert
2389.813	34.1	-4.4	1.4	9.0	1.5	20.0	Vert	AV	0.0	51.2	54.0	-2.8	Low Ch 1, 36Mbps, EUT Vert
2389.937	34.9	-4.4	1.7	8.0	0.3	20.0	Horz	AV	0.0	50.8	54.0	-3.2	Low Ch 1, MCS0, EUT on side
2483.557	34.3	-4.1	1.7	8.0	0.3	20.0	Horz	AV	0.0	50.5	54.0	-3.5	High Ch 11, MCS0, EUT on side
2389.963	34.4	-4.4	1.4	9.0	0.3	20.0	Vert	AV	0.0	50.3	54.0	-3.7	Low Ch 1, 6Mbps, EUT Vert
2484.040	34.1	-4.1	1.4	9.0	0.3	20.0	Vert	AV	0.0	50.3	54.0	-3.7	High Ch 11, MCS0, EUT Vert
2389.953	34.4	-4.4	1.4	9.0	0.3	20.0	Vert	AV	0.0	50.3	54.0	-3.7	Low Ch 1, MCS0, EUT Vert
2483.517	34.1	-4.1	1.4	9.0	0.0	20.0	Vert	AV	0.0	50.0	54.0	-4.0	High Ch 11, 1Mbps, EUT Vert
2483.503	34.0	-4.1	1.7	8.0	0.0	20.0	Horz	AV	0.0	49.9	54.0	-4.1	High Ch 11, 1Mbps, EUT on side
2389.993	33.7	-4.4	1.7	8.0	0.5	20.0	Horz	AV	0.0	49.8	54.0	-4.2	Low Ch 1, 11Mbps, EUT on side

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2389.970	34.1	-4.4	1.7	8.0	0.0	20.0	Horz	AV	0.0	49.7	54.0	-4.3	Low Ch 1, 1Mbps, EUT on side
2483.553	33.8	-4.1	2.8	116.0	0.0	20.0	Horz	AV	0.0	49.7	54.0	-4.3	High Ch 11, 1Mbps, EUT Horz
2483.507	33.1	-4.1	1.4	9.0	0.5	20.0	Vert	AV	0.0	49.5	54.0	-4.5	High Ch 11, 11Mbps, EUT Vert
2389.993	33.3	-4.4	1.4	9.0	0.5	20.0	Vert	AV	0.0	49.4	54.0	-4.6	Low Ch 1, 11Mbps, EUT Vert
2483.607	32.9	-4.1	1.7	8.0	0.5	20.0	Horz	AV	0.0	49.3	54.0	-4.7	High Ch 11, 11Mbps, EUT on side
2389.943	33.5	-4.4	1.4	9.0	0.0	20.0	Vert	AV	0.0	49.1	54.0	-4.9	Low Ch 1, 1Mbps,EUT Vert
2483.757	53.2	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	69.1	74.0	-4.9	High Ch 11, MCS0, EUT on side
2483.617	52.8	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	68.7	74.0	-5.3	High Ch 11, MCS0, EUT Vert
2483.870	32.3	-4.1	4.0	292.0	0.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	High Ch 11, 1Mbps, EUT Horz
2483.690	32.3	-4.1	1.5	3.0	0.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	High Ch 11, 1Mbps, EUT Vert
2483.643	32.3	-4.1	1.2	169.0	0.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	High Ch 11, 1Mbps, EUT on side
2389.397	52.2	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	67.8	74.0	-6.2	Low Ch 1, MCS7, EUT on side
2483.533	51.4	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	67.3	74.0	-6.7	High Ch 11, 6Mbps, EUT Vert
2483.570	51.3	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	67.2	74.0	-6.8	High Ch 11, 6Mbps,EUT on side
2483.507	51.3	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	67.2	74.0	-6.8	High Ch 11, MCS7, EUT on side
2388.880	51.5	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	67.1	74.0	-6.9	Low Ch 1, MCS0, EUT on side
2389.717	51.4	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	67.0	74.0	-7.0	Low Ch 1, 6Mbps, EUT on side
2485.023	50.5	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	66.4	74.0	-7.6	High Ch 11, MCS7, EUT Vert
2389.953	50.1	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	65.7	74.0	-8.3	Low Ch 1, 6Mbps, EUT Vert
2388.203	49.9	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	65.5	74.0	-8.5	Low Ch 1, 54Mbps, EUT on Side
2389.217	49.8	-4.4	1.4	10.0	0.0	20.0	Vert	PK	0.0	65.4	74.0	-8.6	Low Ch 1, MCS7, EUT Vert
2389.800	49.6	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	65.2	74.0	-8.8	High Ch 11, MCS0, EUT Vert
2484.530	49.2	-4.1	1.4	10.0	0.0	20.0	Vert	PK	0.0	65.1	74.0	-8.9	High Ch 11, 36Mbps, EUT Vert
2484.313	49.2	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	65.1	74.0	-8.9	High Ch 11, 36Mbps, EUT on side
2389.053	49.4	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	65.0	74.0	-9.0	Low Ch 1, 36Mbps, EUT on Side
2484.030	48.9	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	64.8	74.0	-9.2	High Ch 11, 54Mbps, EUT on side
2484.167	48.9	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	64.8	74.0	-9.2	High Ch 11, 54Mbps, EUT Vert
2388.627	48.7	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	64.3	74.0	-9.7	Low Ch 1, 54Mbps, EUT Vert
2388.477	48.7	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	64.3	74.0	-9.7	Low Ch 1, 36Mbps, EUT Vert
2388.277	46.3	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	61.9	74.0	-12.1	Low Ch 1, 11Mbps, EUT on side
2388.810	45.4	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	61.0	74.0	-13.0	Low Ch 1, 11Mbps, EUT Vert
2484.970	44.6	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	60.5	74.0	-13.5	High Ch 11, 11Mbps, EUT Vert
2389.110	44.9	-4.4	1.7	8.0	0.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	Low Ch 1, 1Mbps, EUT on side
2484.467	44.5	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	60.4	74.0	-13.6	High Ch 11, 1Mbps, EUT on side
2483.680	44.4	-4.1	1.4	9.0	0.0	20.0	Vert	PK	0.0	60.3	74.0	-13.7	High Ch 11, 1Mbps, EUT Vert
2483.527	44.3	-4.1	2.8	116.0	0.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	High Ch 11, 1Mbps, EUT Horz
2389.893	44.5	-4.4	1.4	9.0	0.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	Low Ch 1,1Mbps,EUT Vert
2484.720	43.8	-4.1	1.2	169.0	0.0	20.0	Vert	PK	0.0	59.7	74.0	-14.3	High Ch 11, 1Mbps, EUT on side
2485.250	43.5	-4.1	1.5	3.0	0.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	High Ch 11, 1Mbps, EUT Vert
2484.447	43.4	-4.1	1.7	8.0	0.0	20.0	Horz	PK	0.0	59.3	74.0	-14.7	High Ch 11, 11Mbps, EUT on side
2484.237	43.1	-4.1	4.0	292.0	0.0	20.0	Vert	PK	0.0	59.0	74.0	-15.0	High Ch 11, 1Mbps, EUT Horz

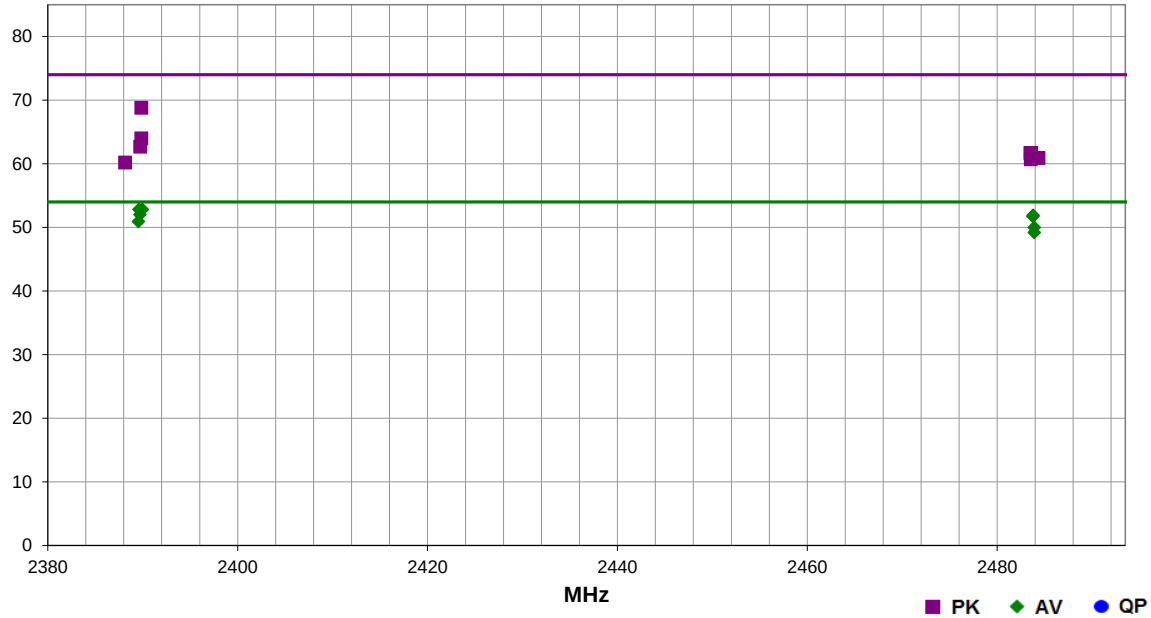
SPURIOUS RADIATED EMISSIONS (BAND EDGE)

EmiR5 2019.05.20 PSA-ESCI 2019.05.10

Work Order:	MASI0553	**Date:**	8-Jul-2019		
Project:	None	**Temperature:**	23.1 °C		
Job Site:	OC07	**Humidity:**	48.3% RH		
Serial Number:	ENG-1	**Barometric Pres.:**	1018 mbar	**Tested by:**	Luis Flores & Mark Baytan
EUT:	MWMII				
Configuration:	3				
Customer:	Masimo Corporation				
Attendees:	Mike Tran, Nghi Nguyen				
EUT Power:	3.6 VDC				
Operating Mode:	Transmitting 802.11n: Low Ch 1/5 (2422MHz) and High Ch 7/11 (2452 MHz), 40 MHz Bandwidth				
Deviations:	None				
Comments:	See comments below for Data Rate measured				

Test Specifications	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

Run #	17	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2389.623	34.0	-4.4	2.6	126.0	3.2	20.0	Vert	AV	0.0	52.8	54.0	-1.2	Ch 1/5, MCS7,EUT Vert
2389.973	36.5	-4.4	1.4	34.0	0.7	20.0	Horz	AV	0.0	52.8	54.0	-1.2	Ch 1/5, MCS0,EUT on side
2389.717	33.2	-4.4	1.5	144.0	3.2	20.0	Horz	AV	0.0	52.0	54.0	-2.0	Ch 1/5, MCS7,EUT on side
2483.793	32.8	-4.1	1.5	15.0	3.2	20.0	Horz	AV	0.0	51.9	54.0	-2.1	Ch 7/11, MCS7,EUT on side
2483.787	32.6	-4.1	2.1	71.0	3.2	20.0	Vert	AV	0.0	51.7	54.0	-2.3	Ch 7/11, MCS7,EUT Vert
2389.550	34.6	-4.4	1.5	73.0	0.7	20.0	Vert	AV	0.0	50.9	54.0	-3.1	Ch 1/5, MCS0,EUT Vert
2483.920	33.4	-4.1	1.5	359.0	0.7	20.0	Horz	AV	0.0	50.0	54.0	-4.0	Ch 7/11, MCS0,EUT on side
2483.907	32.6	-4.1	1.5	155.0	0.7	20.0	Vert	AV	0.0	49.2	54.0	-4.8	Ch 7/11, MCS0,EUT Vert
2389.850	53.2	-4.4	1.4	34.0	0.0	20.0	Horz	PK	0.0	68.8	74.0	-5.2	Ch 1/5, MCS0,EUT on side
2389.853	48.4	-4.4	1.5	73.0	0.0	20.0	Vert	PK	0.0	64.0	74.0	-10.0	Ch 1/5, MCS0,EUT Vert
2389.740	47.1	-4.4	2.6	126.0	0.0	20.0	Vert	PK	0.0	62.7	74.0	-11.3	Ch 1/5, MCS7,EUT Vert
2483.507	45.8	-4.1	1.5	359.0	0.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	Ch 7/11, MCS0,EUT on side
2483.583	45.8	-4.1	1.5	15.0	0.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	Ch 7/11, MCS7,EUT on side
2484.347	45.0	-4.1	1.5	155.0	0.0	20.0	Vert	PK	0.0	60.9	74.0	-13.1	Ch 7/11, MCS0,EUT Vert
2483.540	44.8	-4.1	2.1	71.0	0.0	20.0	Vert	PK	0.0	60.7	74.0	-13.3	Ch 7/11, MCS7,EUT Vert
2388.147	44.6	-4.4	1.5	144.0	0.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	Ch 1/5, MCS7,EUT on side

DUTY CYCLE

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

DUTY CYCLE

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

DEVIATIONS FROM TEST STANDARD

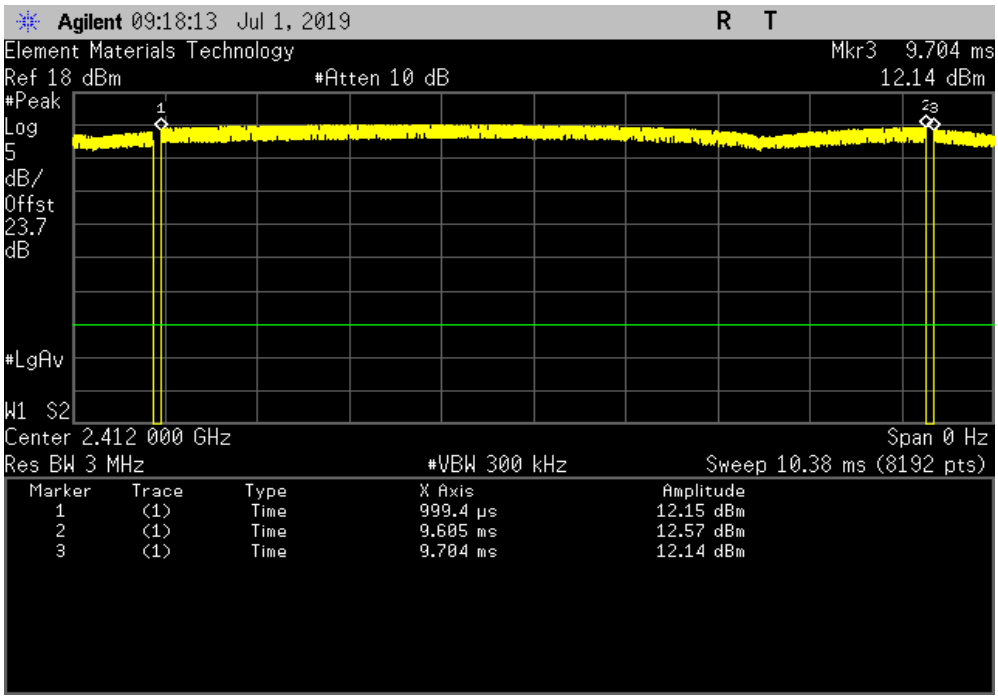
None

Configuration #	**1**	*Signature*

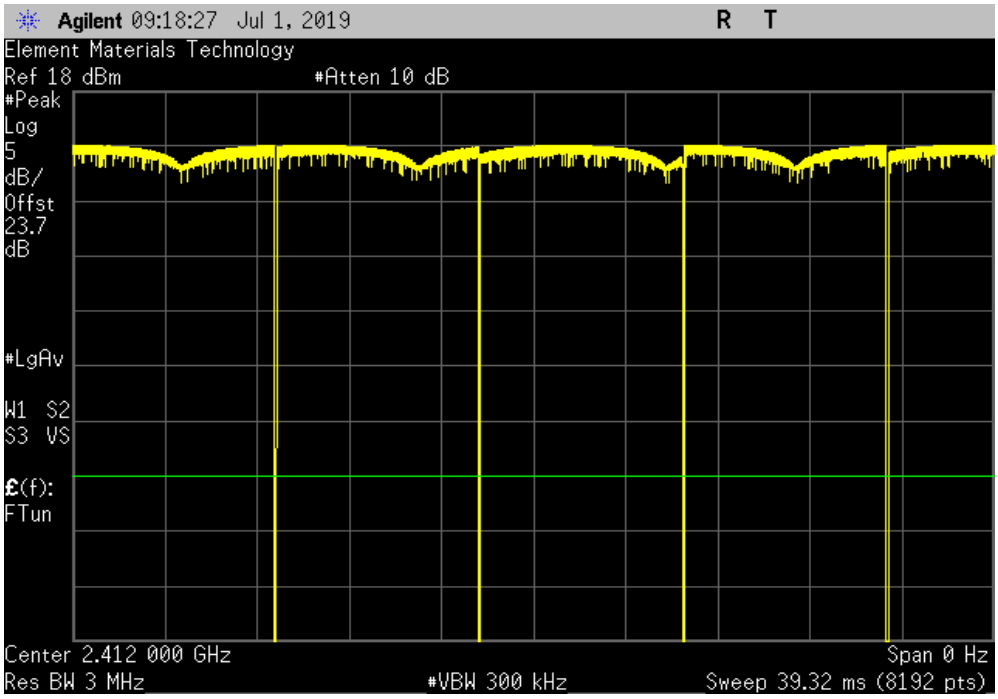
		Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
20 MHz							
	2400 MHz - 2483.5 MHz Band						
	802.11(b) 1 Mbps						
	Low Channel 1, 2412 MHz	8.605 ms	8.704 ms	1	98.9	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	8.604 ms	8.703 ms	1	98.9	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	8.6 ms	8.704 ms	1	98.8	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(b) 11 Mbps						
	Low Channel 1, 2412 MHz	857.649 us	958.003 us	1	89.5	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	855.372 us	956.7 us	1	89.4	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	857.326 us	956.7 us	1	89.6	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(g) 6 Mbps						
	Low Channel 1, 2412 MHz	1.426 ms	1.531 ms	1	93.2	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	1.426 ms	1.531 ms	1	93.2	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	1.426 ms	1.531 ms	1	93.2	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(g) 36 Mbps						
	Low Channel 1, 2412 MHz	254.4 us	359.2 us	1	70.8	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	254.2 us	359.3 us	1	70.7	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	254.3 us	358.8 us	1	70.9	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(g) 54 Mbps						
	Low Channel 1, 2412 MHz	178.2 us	282.8 us	1	63	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	178.3 us	282.9 us	1	63	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	178.3 us	282.8 us	1	63	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(n) MCS0						
	Low Channel 1, 2412 MHz	1.334 ms	1.438 ms	1	92.8	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	1.334 ms	1.438 ms	1	92.7	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	1.334 ms	1.439 ms	1	92.7	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(n) MCS7						
	Low Channel 1, 2412 MHz	166.234 us	270.9 us	1	61.4	N/A	N/A
	Low Channel 1, 2412 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 6, 2437 MHz	166.112 us	270.478 us	1	61.4	N/A	N/A
	Mid Channel 6, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 11, 2462 MHz	166.234 us	270.9 us	1	61.4	N/A	N/A
	High Channel 11, 2462 MHz	N/A	N/A	5	N/A	N/A	N/A
40 MHz							
	2400 MHz - 2483.5 MHz Band						
	802.11(n) MCS0						
	Low Channel 1/5, 2422 MHz	653.923 us	766.7 us	1	85.3	N/A	N/A
	Low Channel 1/5, 2422 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 4/8, 2437 MHz	653.635 us	765.223 us	1	85.4	N/A	N/A
	Mid Channel 4/8, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 7/11, 2452 MHz	654.412 us	766.944 us	1	85.3	N/A	N/A
	High Channel 7/11, 2452 MHz	N/A	N/A	5	N/A	N/A	N/A
	802.11(n) MCS7						
	Low Channel 1/5, 2422 MHz	97.448 us	202.612 us	1	48.1	N/A	N/A
	Low Channel 1/5, 2422 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel 4/8, 2437 MHz	97.548 us	202.834 us	1	48.1	N/A	N/A
	Mid Channel 4/8, 2437 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel 7/11, 2452 MHz	97.225 us	202.978 us	1	47.9	N/A	N/A
	High Channel 7/11, 2452 MHz	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.605 ms	8.704 ms	1	98.9	N/A	N/A

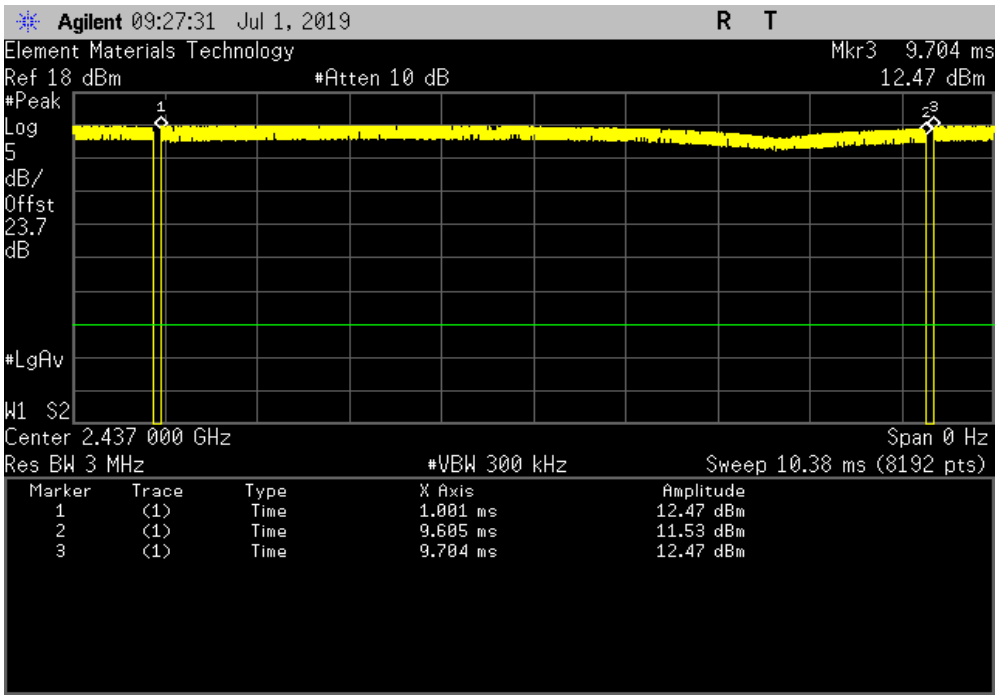


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

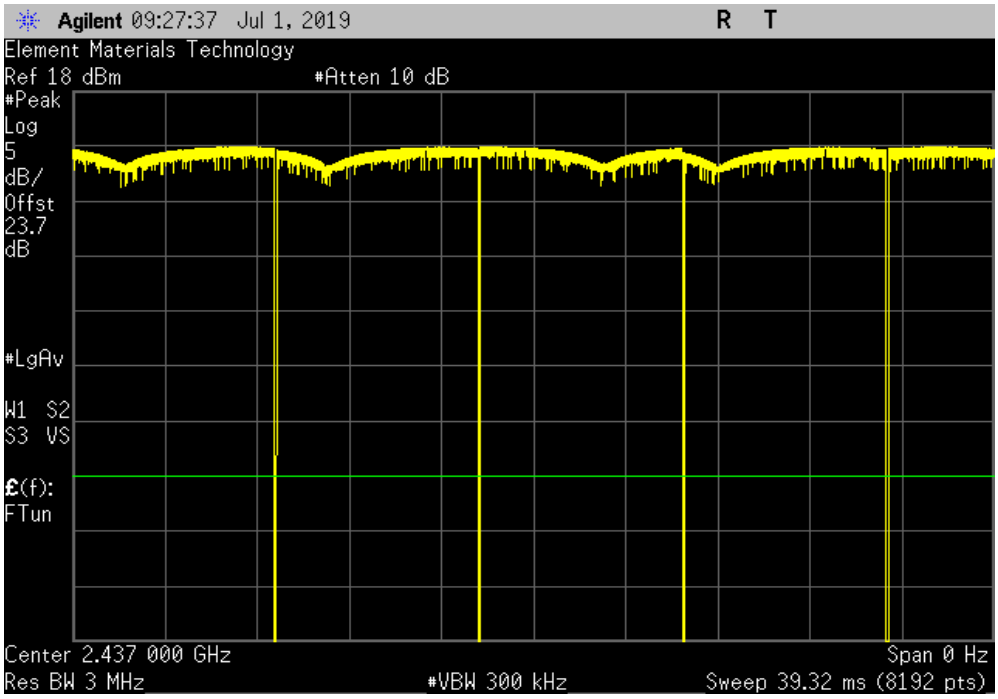


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.604 ms	8.703 ms	1	98.9	N/A	N/A

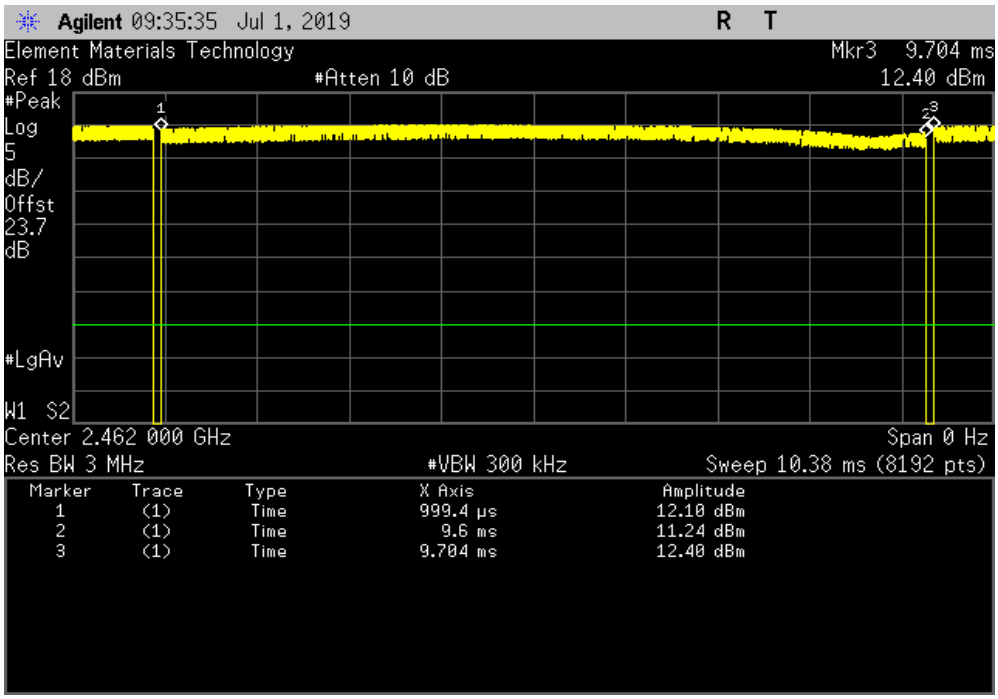


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

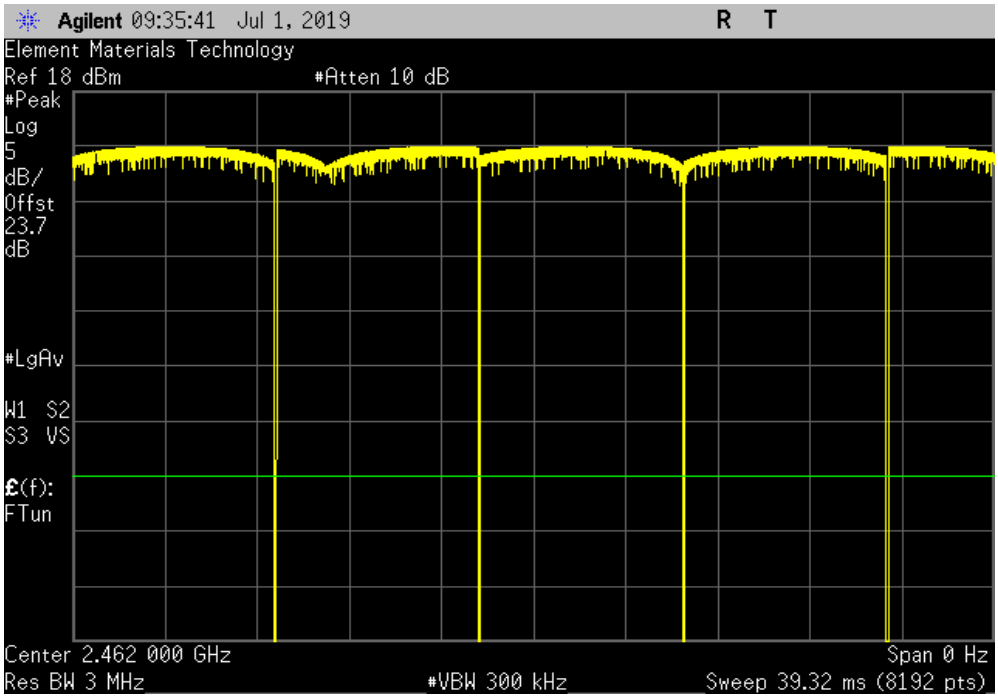


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	8.6 ms	8.704 ms	1	98.8	N/A	N/A

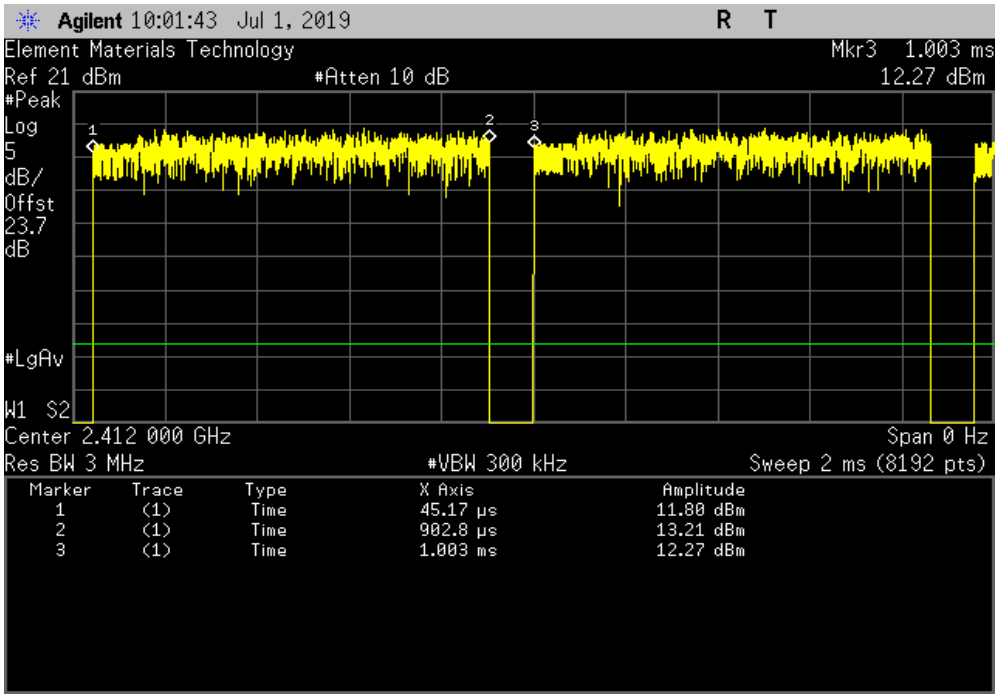


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

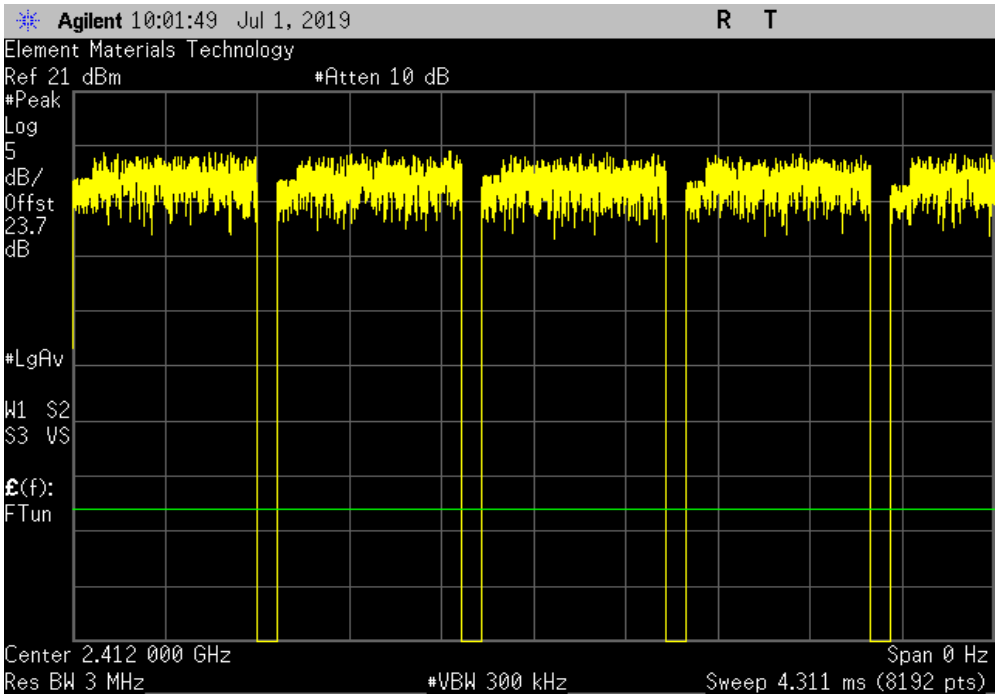


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	857.649 us	958.003 us	1	89.5	N/A	N/A

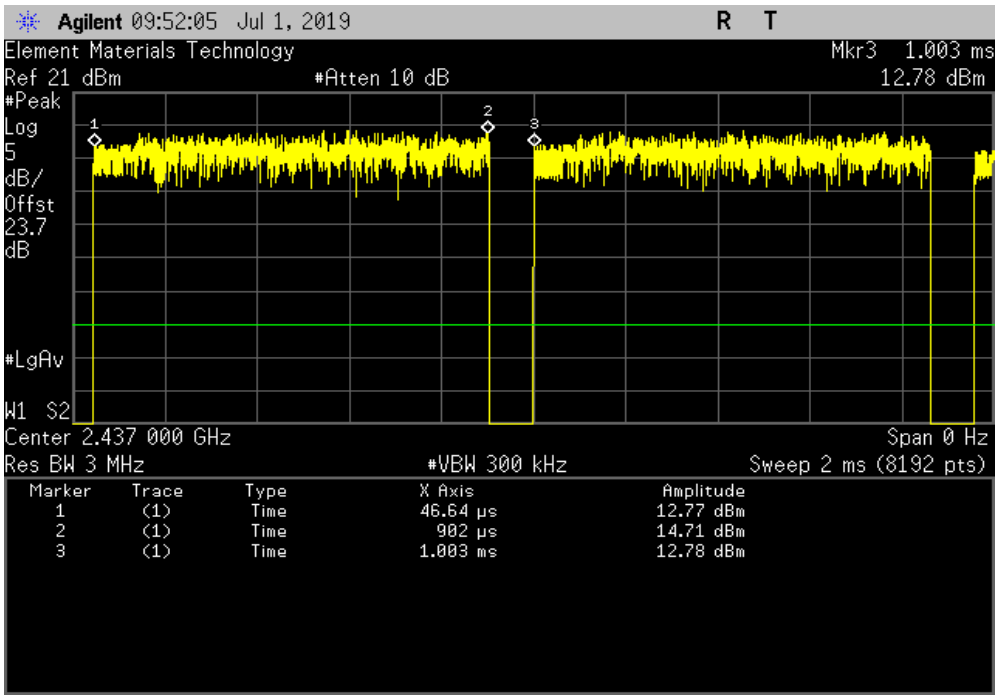


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

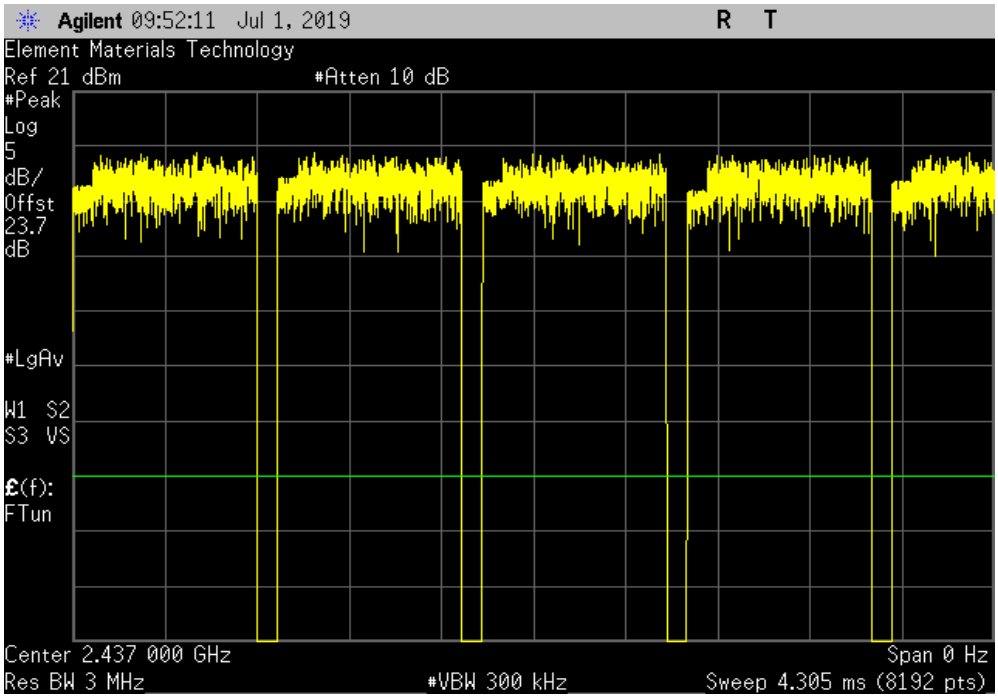


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	855.372 us	956.7 us	1	89.4	N/A	N/A

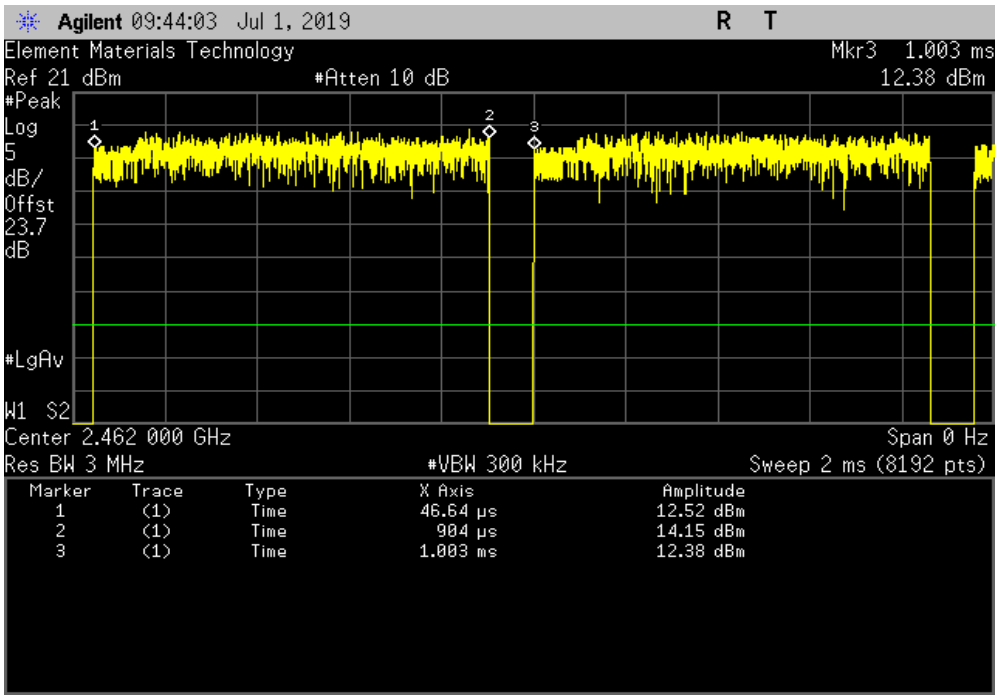


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

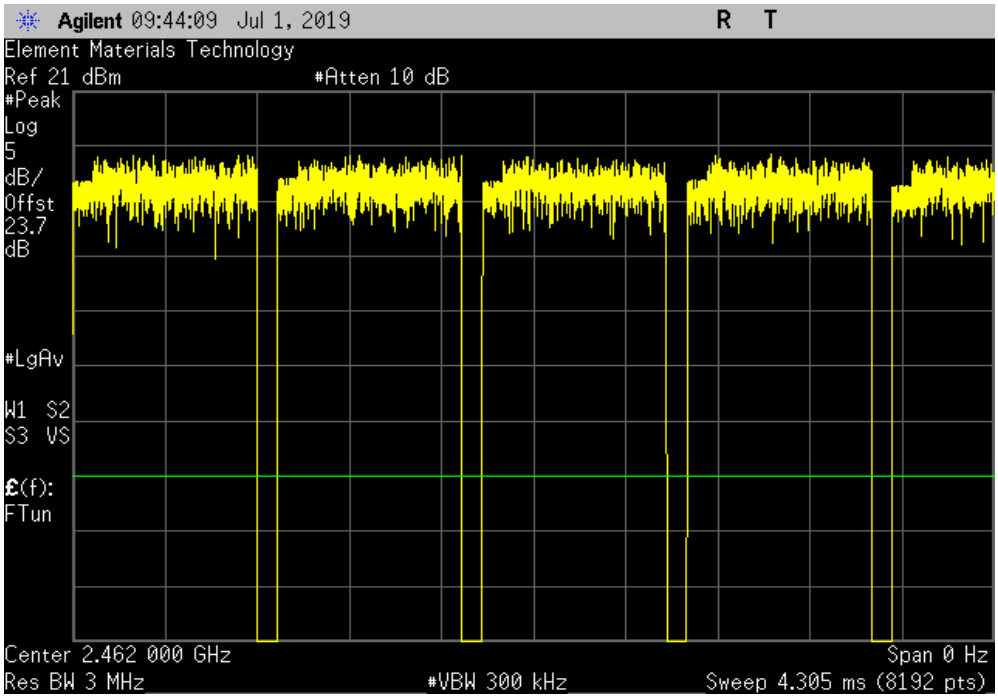


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	857.326 us	956.7 us	1	89.6	N/A	N/A

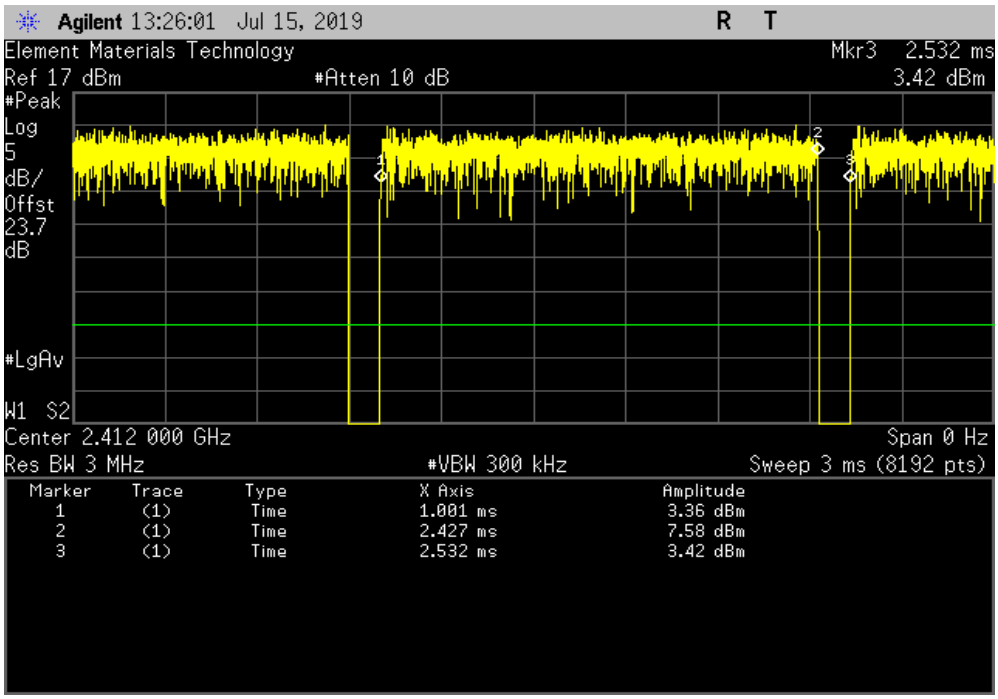


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

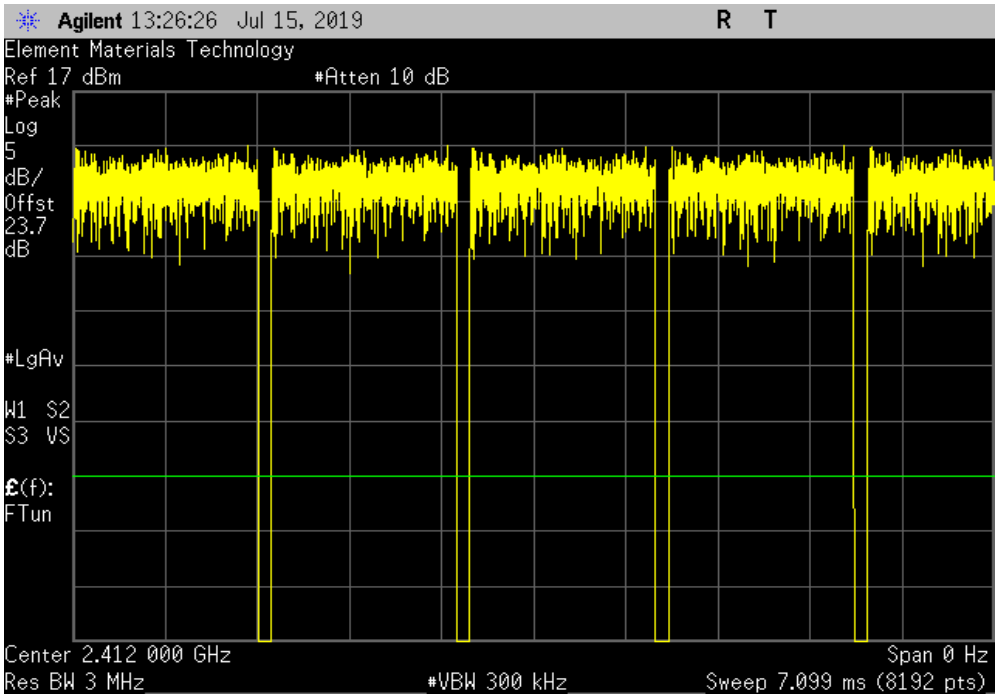


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.426 ms	1.531 ms	1	93.2	N/A	N/A

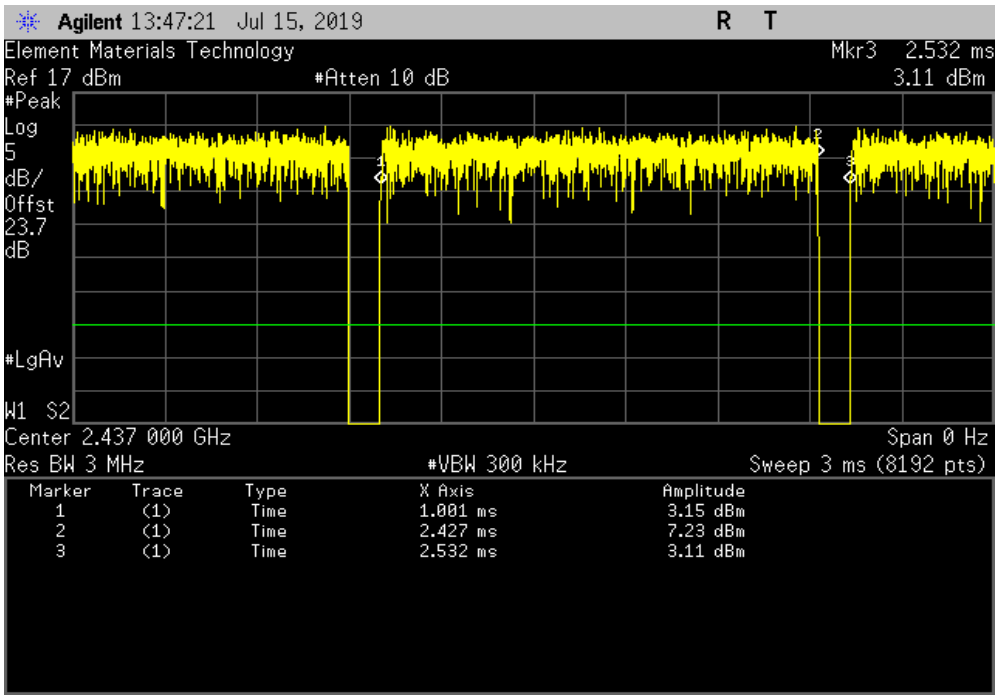


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

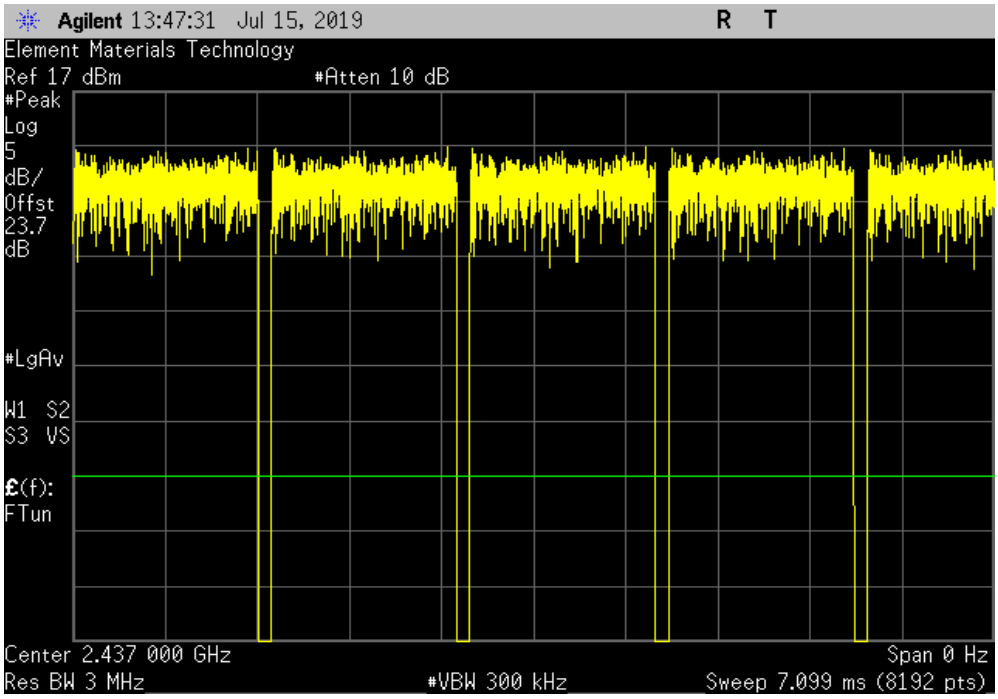


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.426 ms	1.531 ms	1	93.2	N/A	N/A

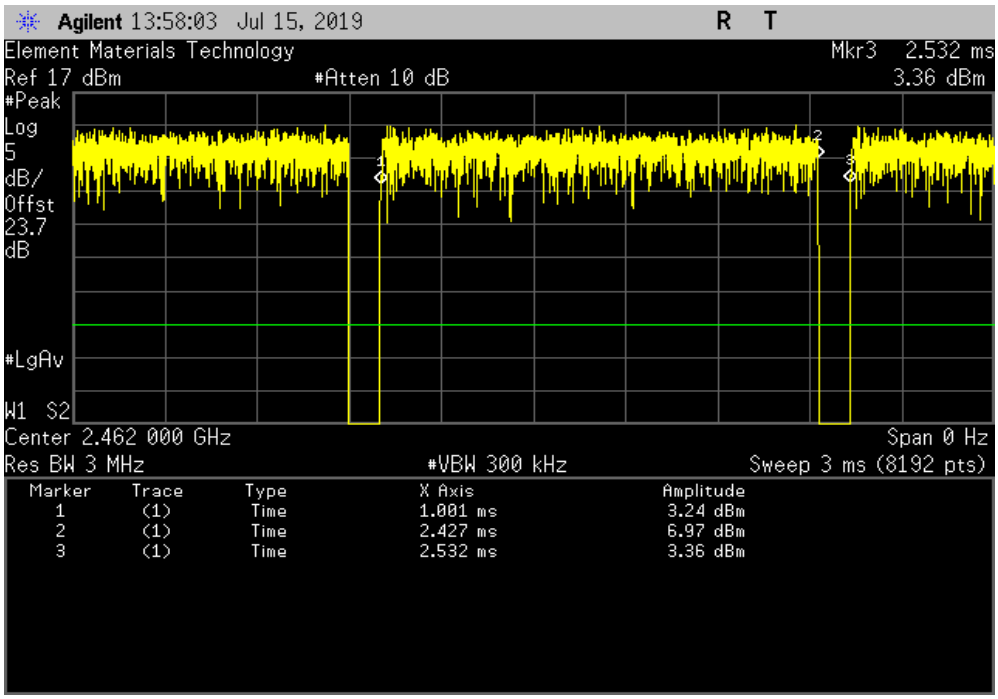


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

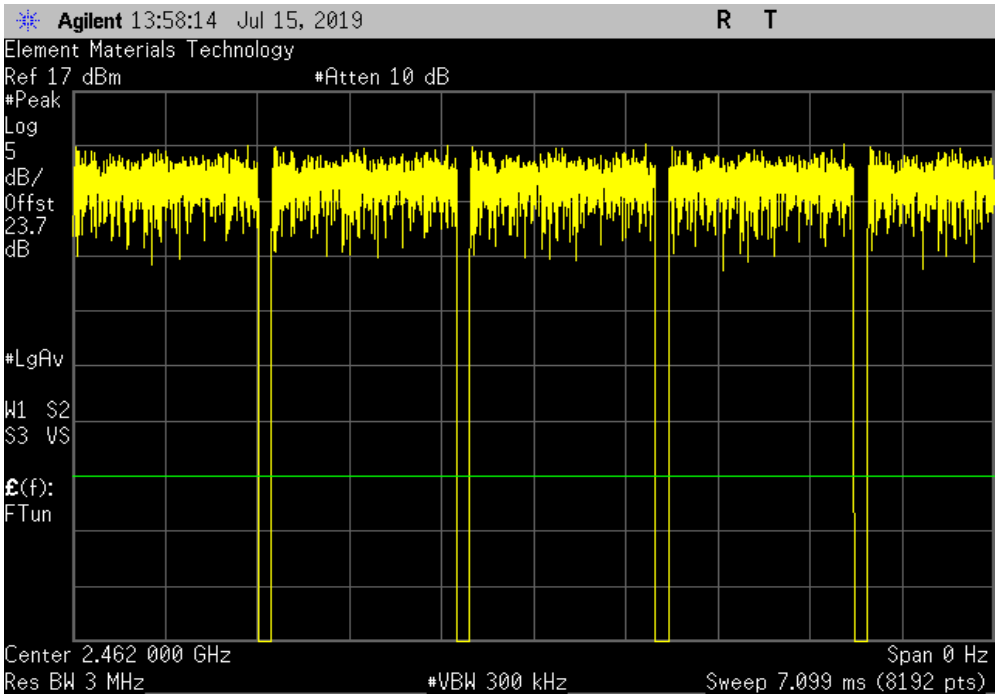


DUTY CYCLE

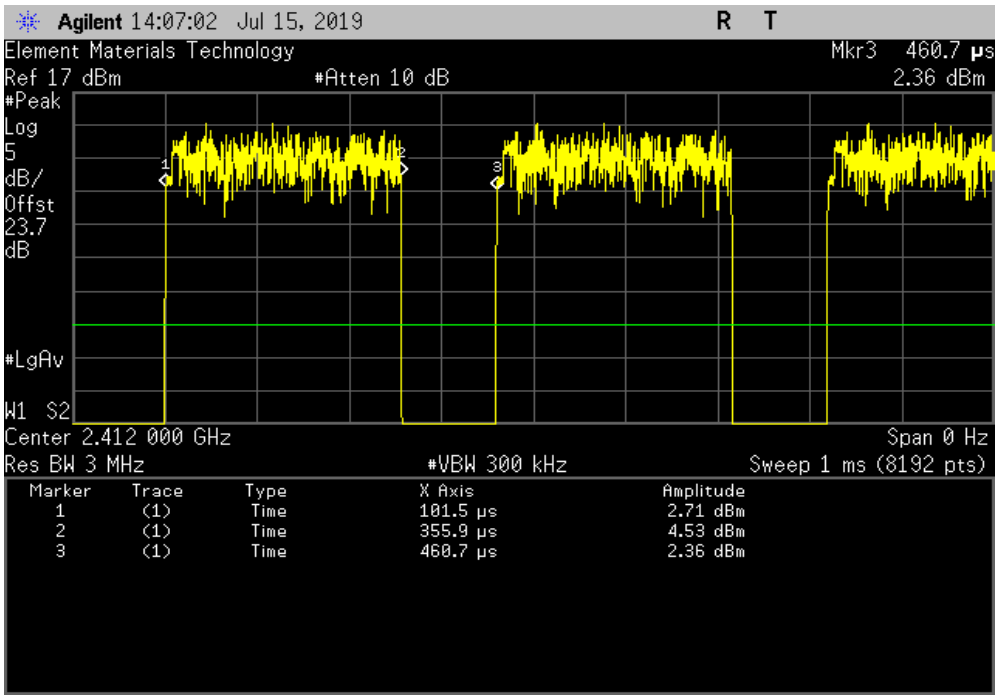
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.426 ms	1.531 ms	1	93.2	N/A	N/A



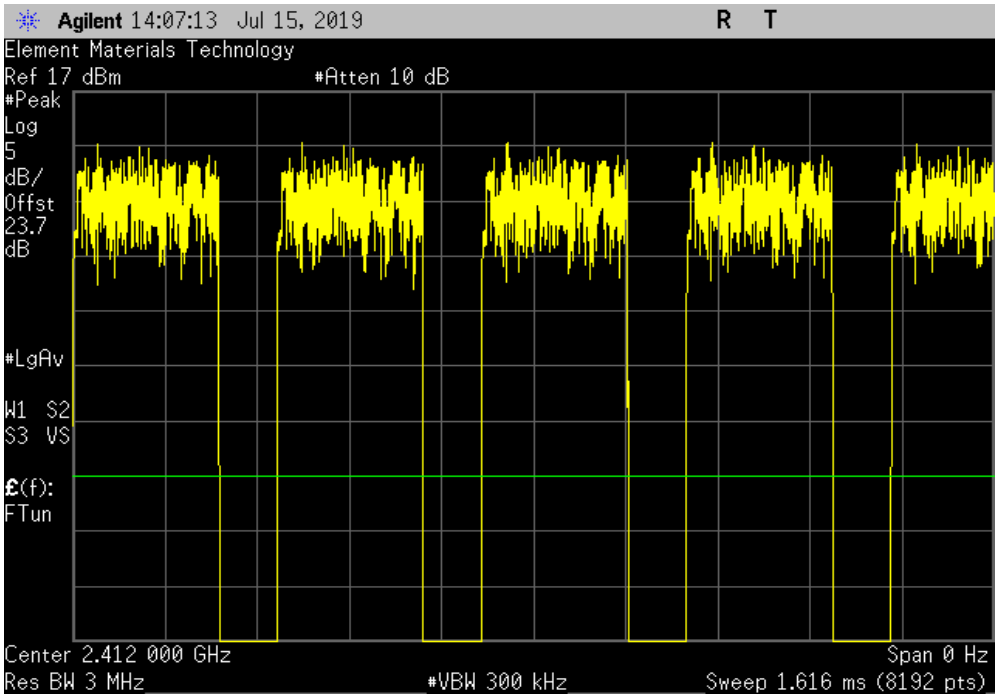
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	254.4 us	359.2 us	1	70.8	N/A	N/A

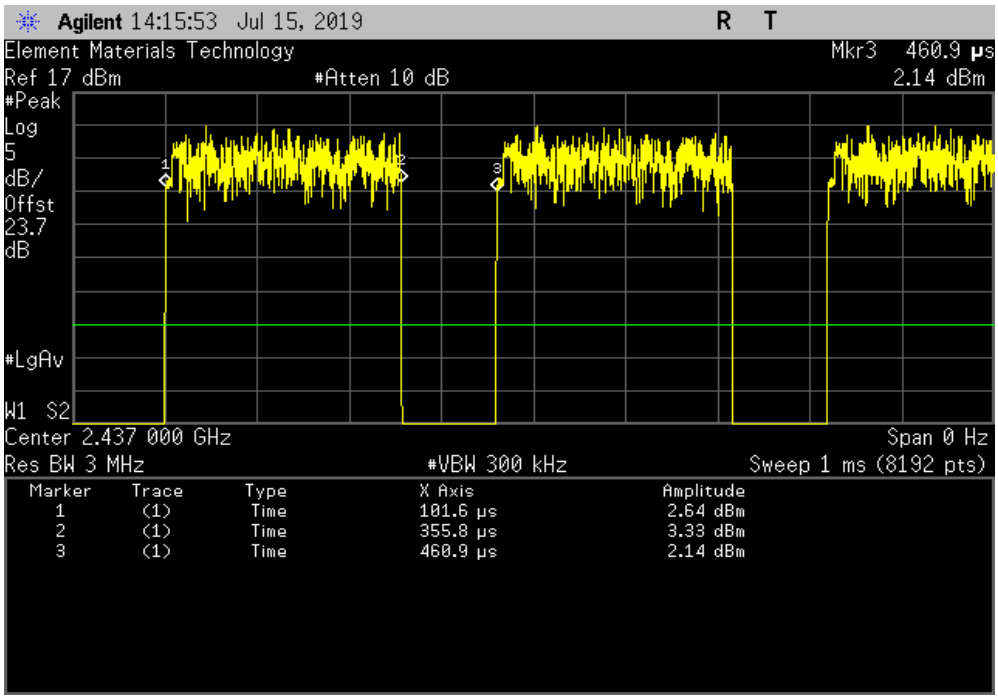


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

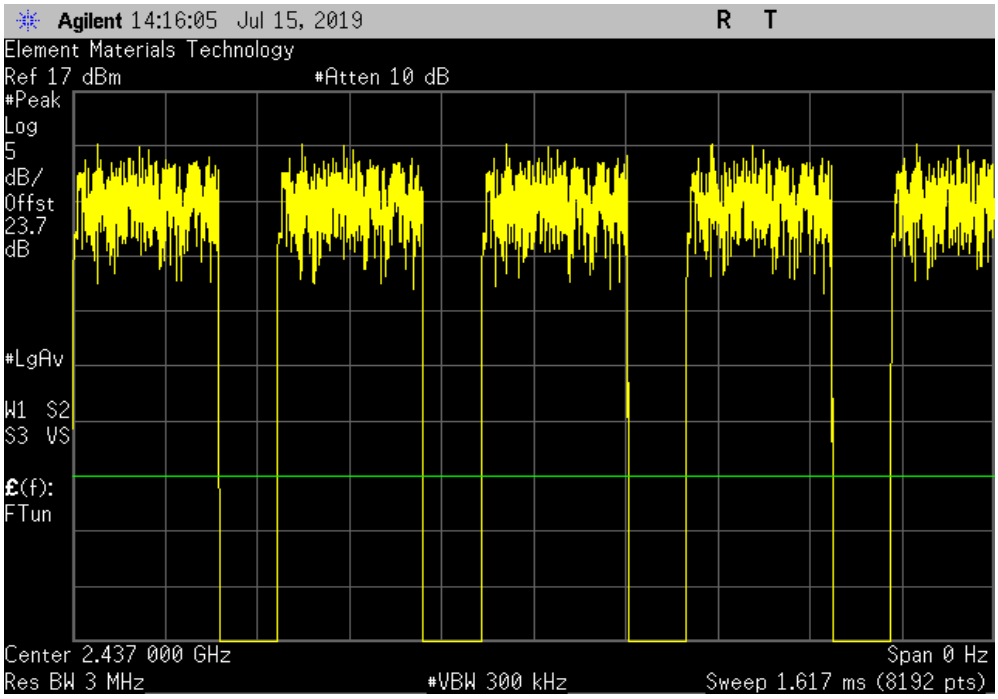


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	254.2 us	359.3 us	1	70.7	N/A	N/A

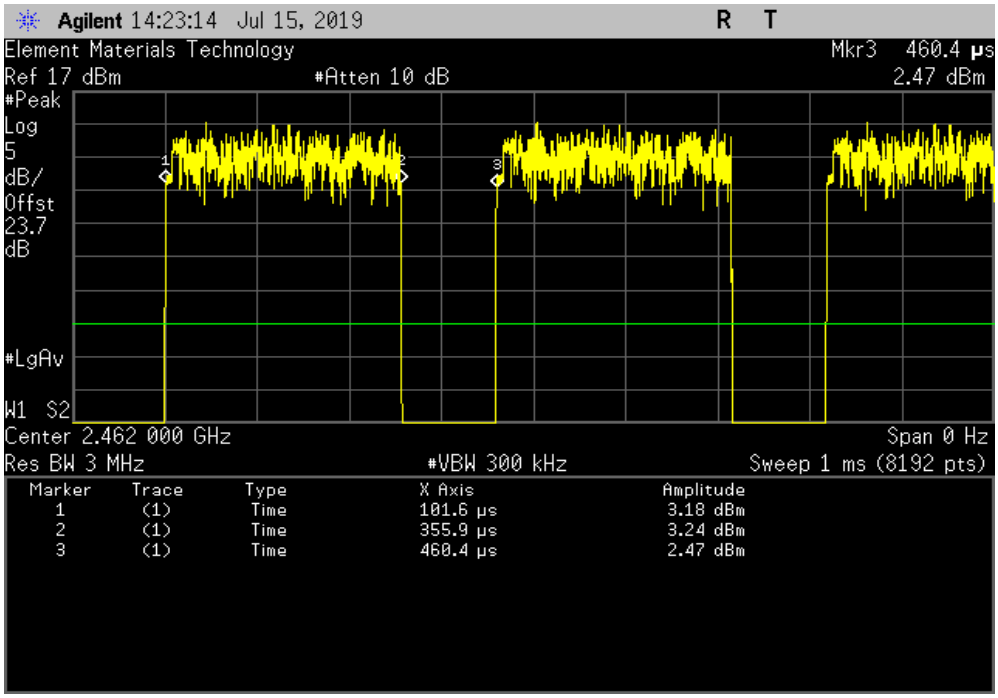


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

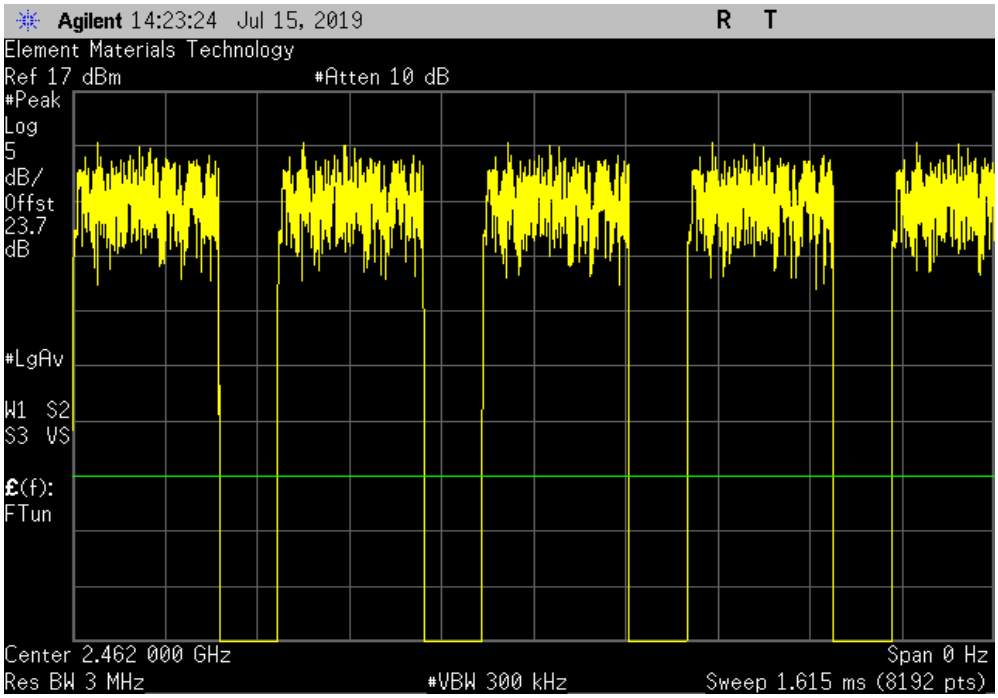


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	254.3 us	358.8 us	1	70.9	N/A	N/A

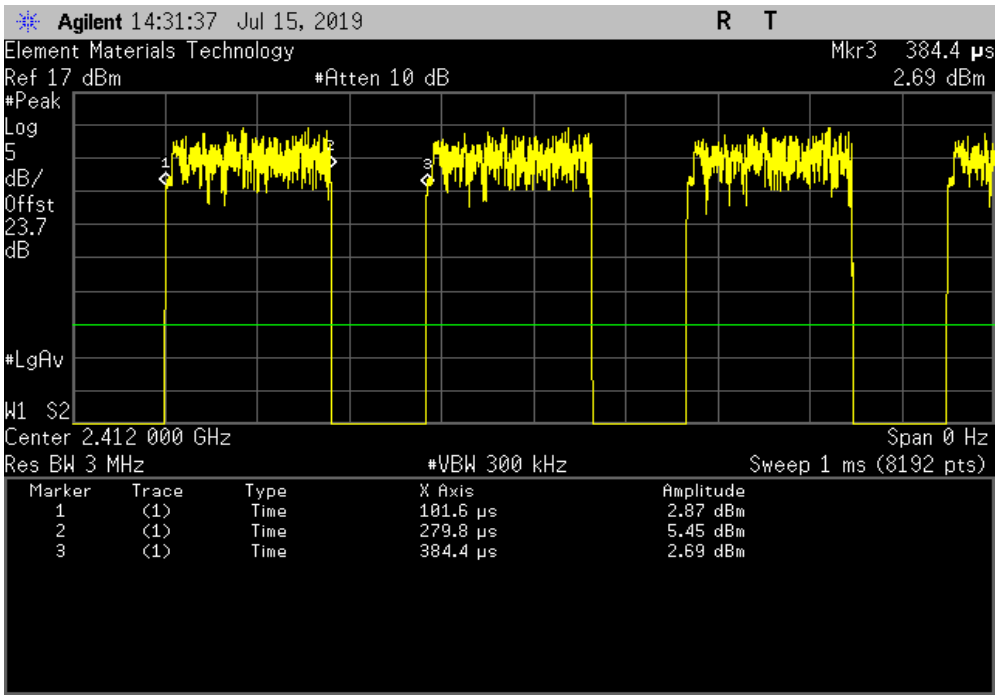


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

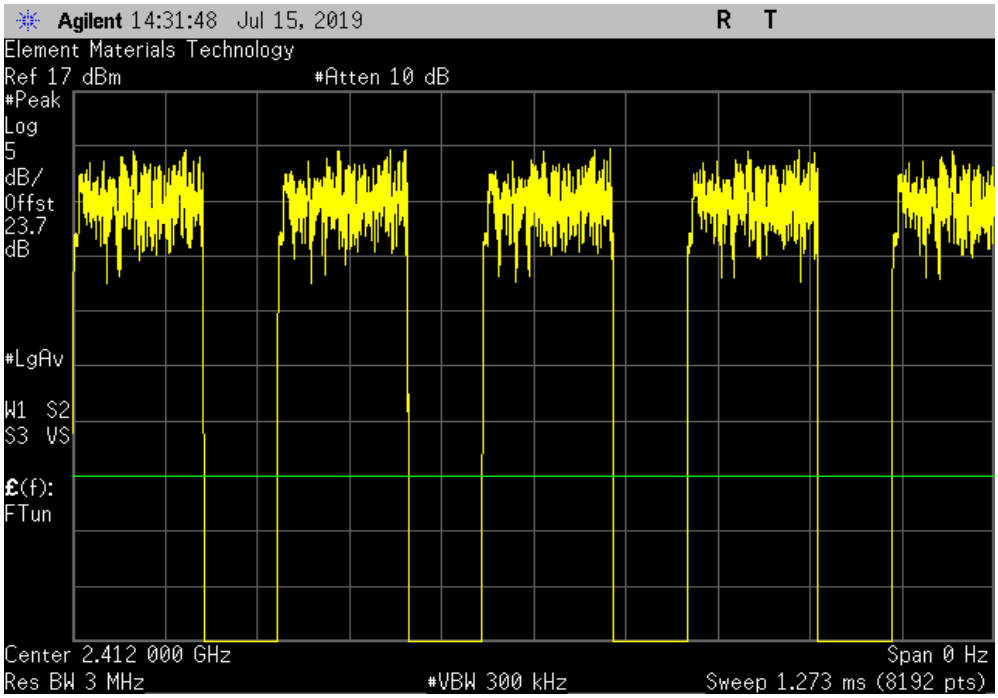


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	178.2 us	282.8 us	1	63	N/A	N/A

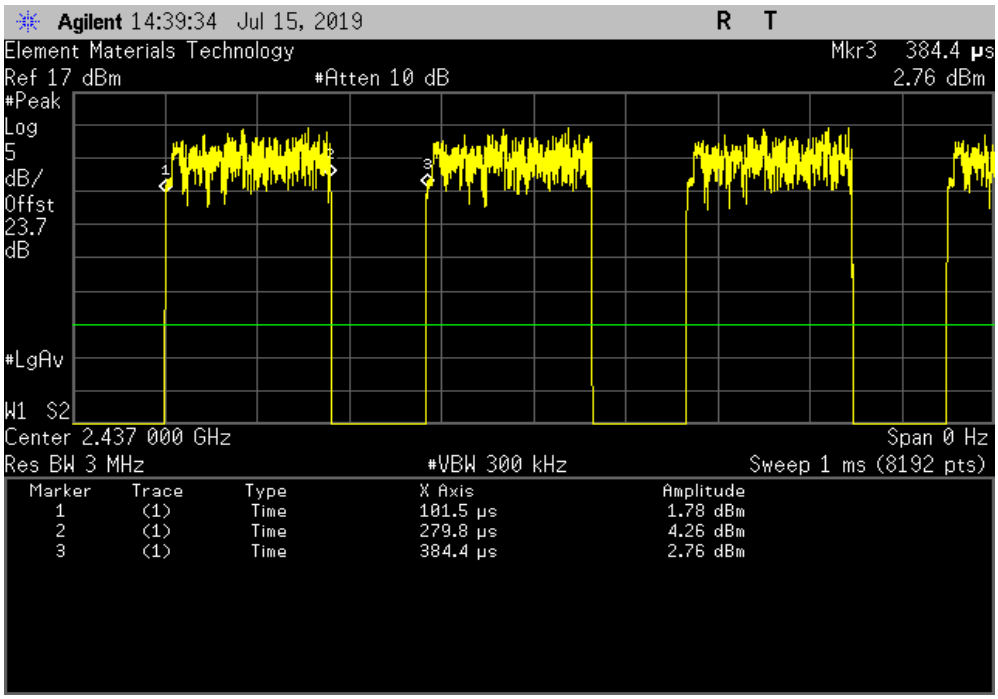


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

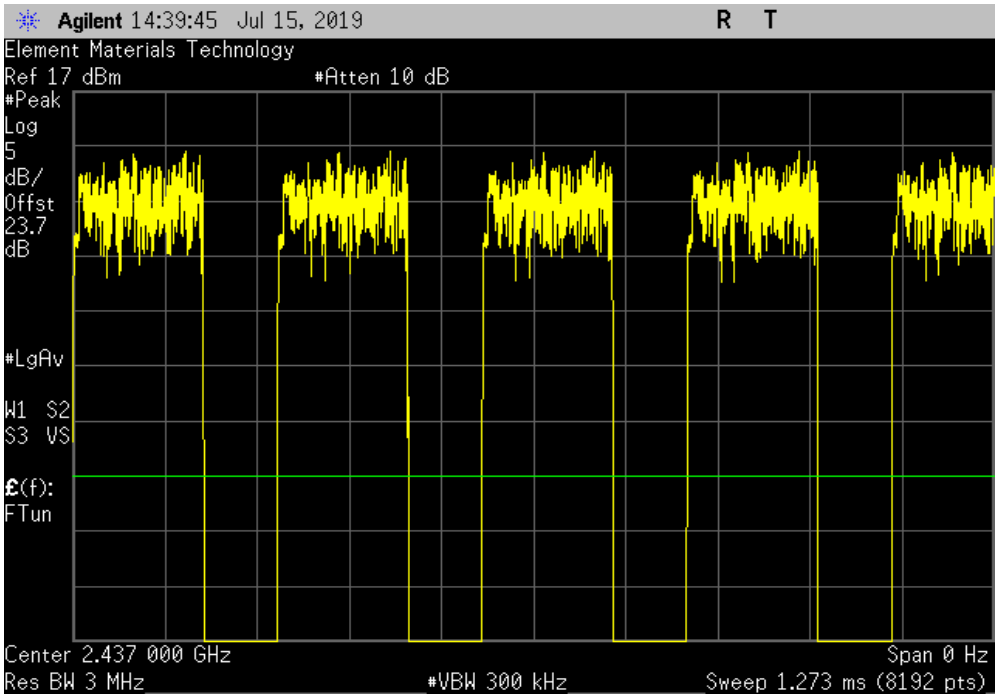


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	178.3 us	282.9 us	1	63	N/A	N/A

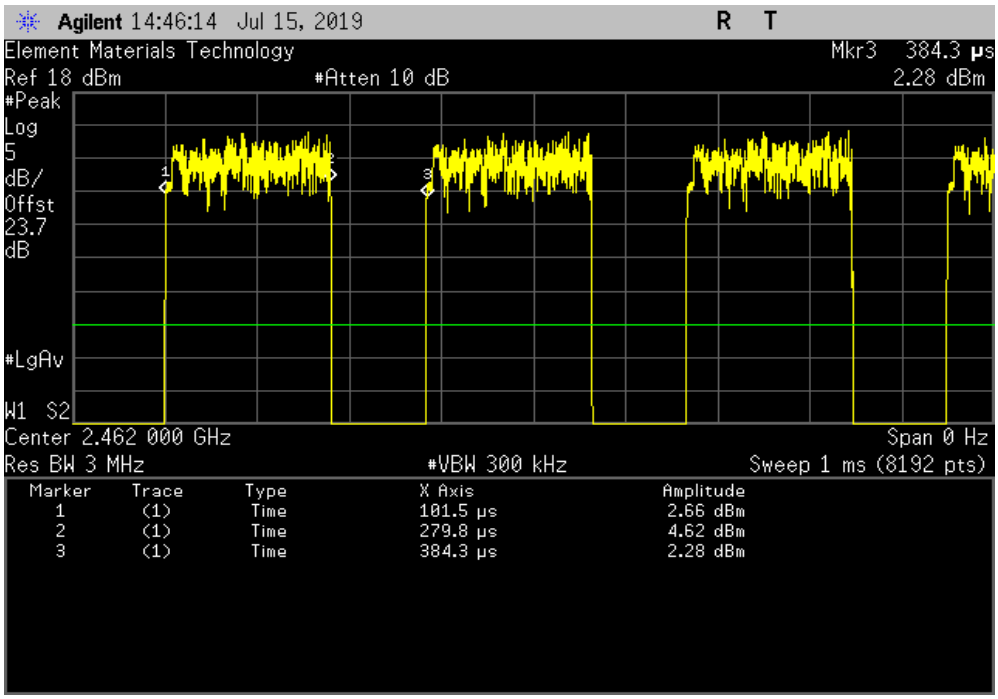


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

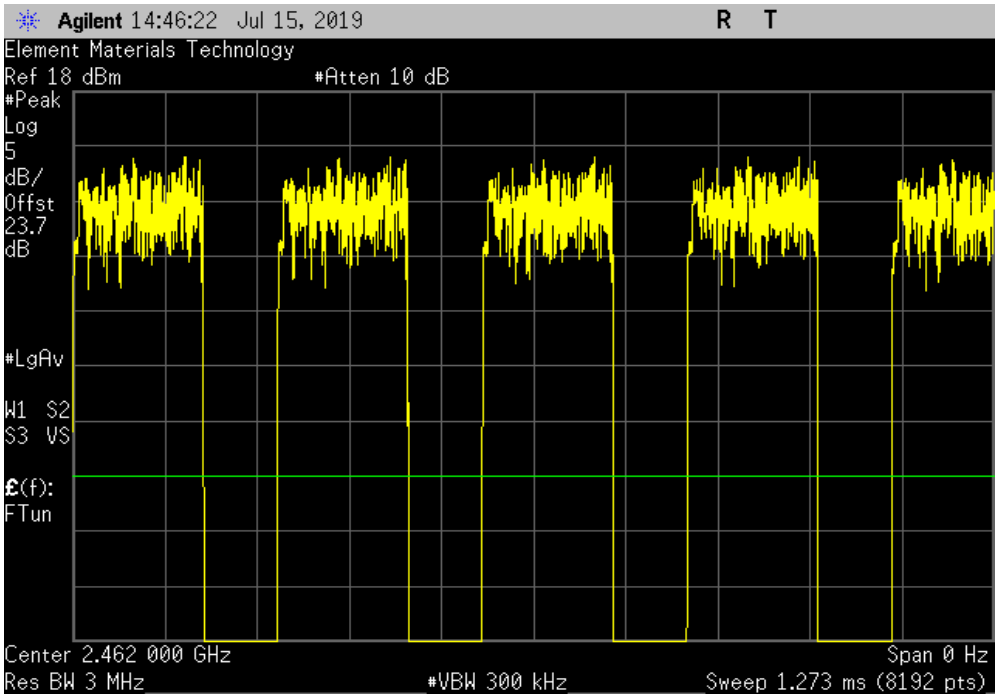


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	178.3 us	282.8 us	1	63	N/A	N/A

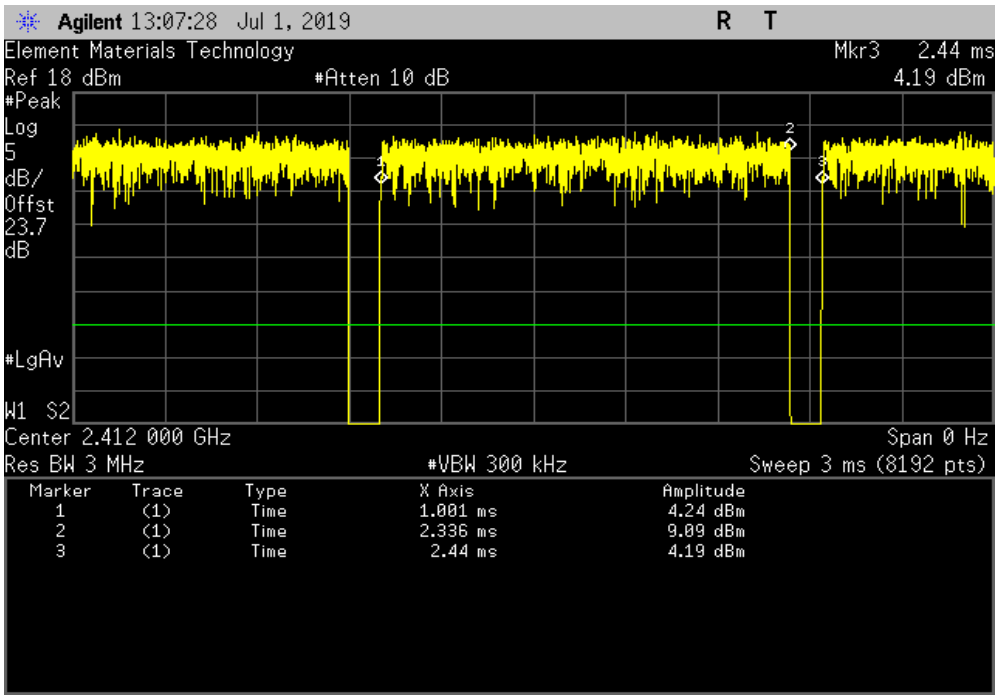


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

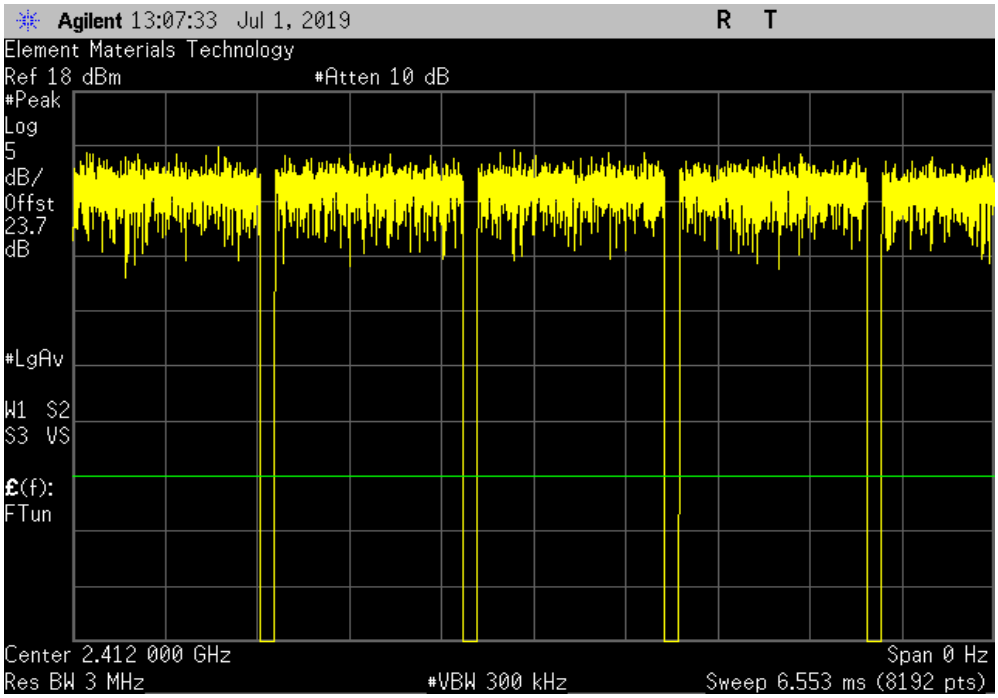


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.334 ms	1.438 ms	1	92.8	N/A	N/A

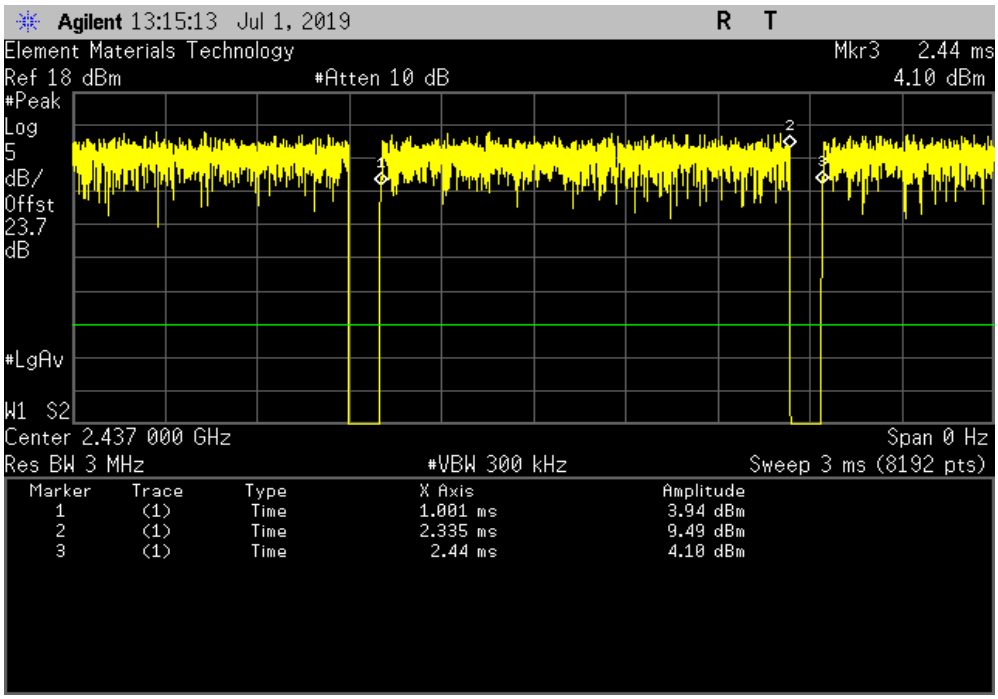


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

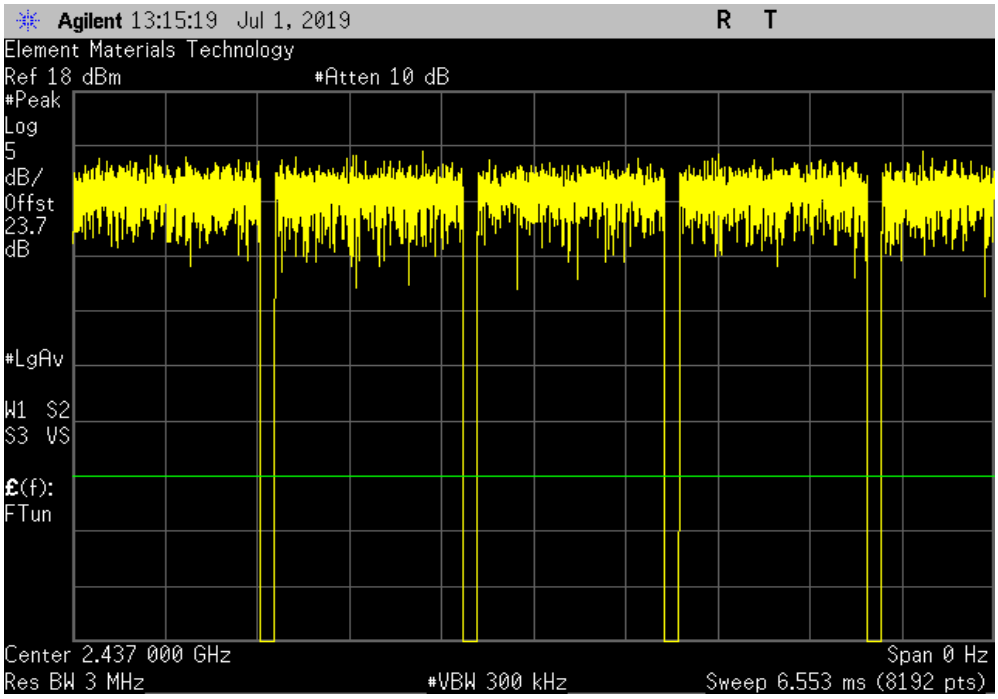


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.334 ms	1.438 ms	1	92.7	N/A	N/A

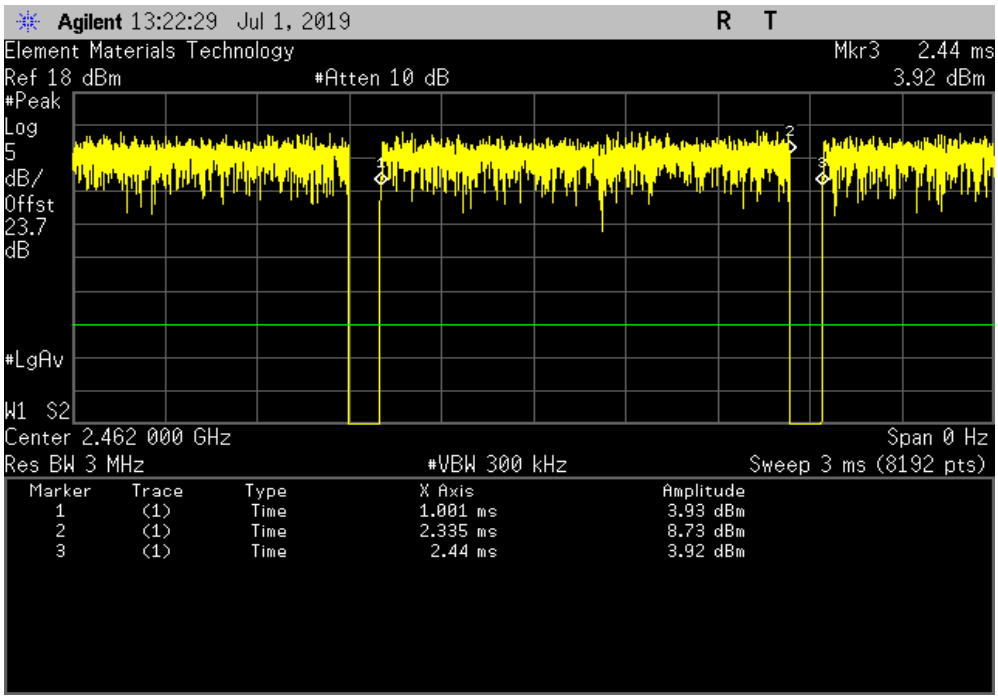


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

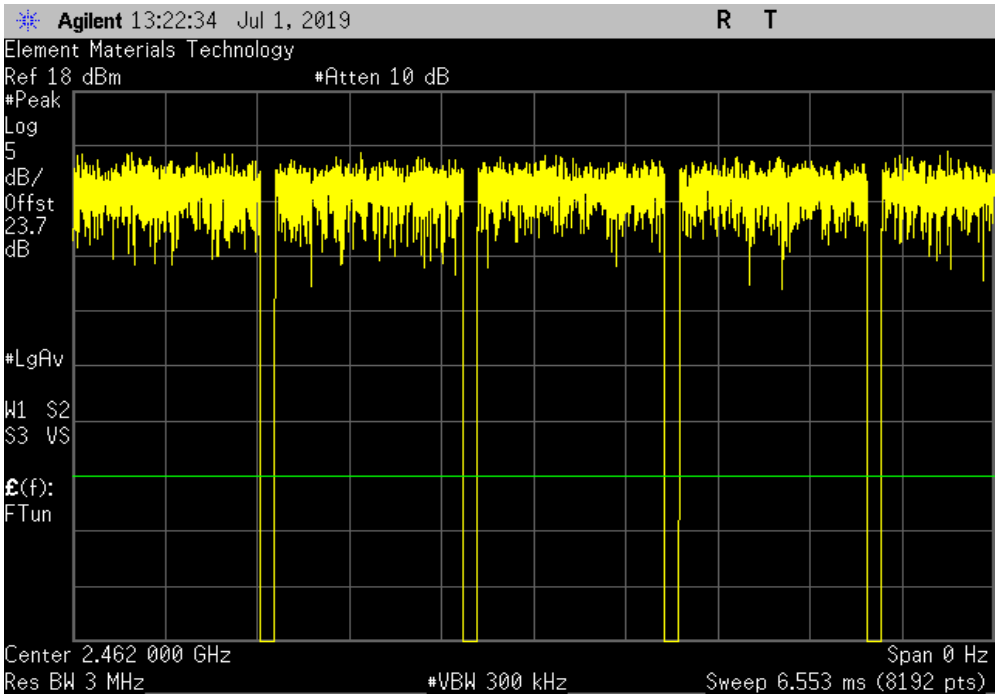


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	1.334 ms	1.439 ms	1	92.7	N/A	N/A

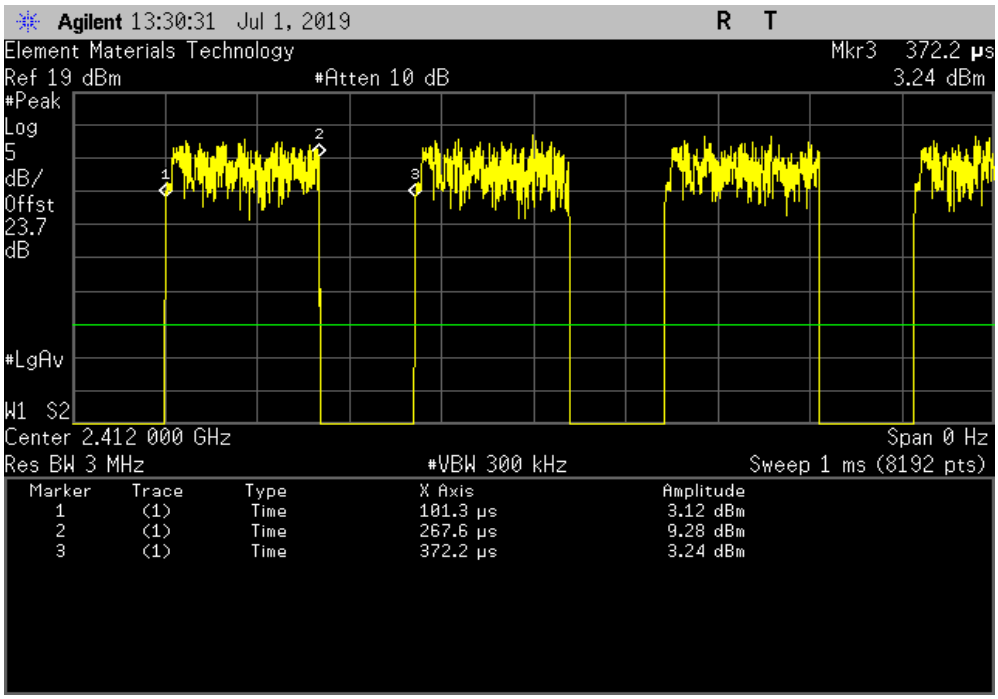


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

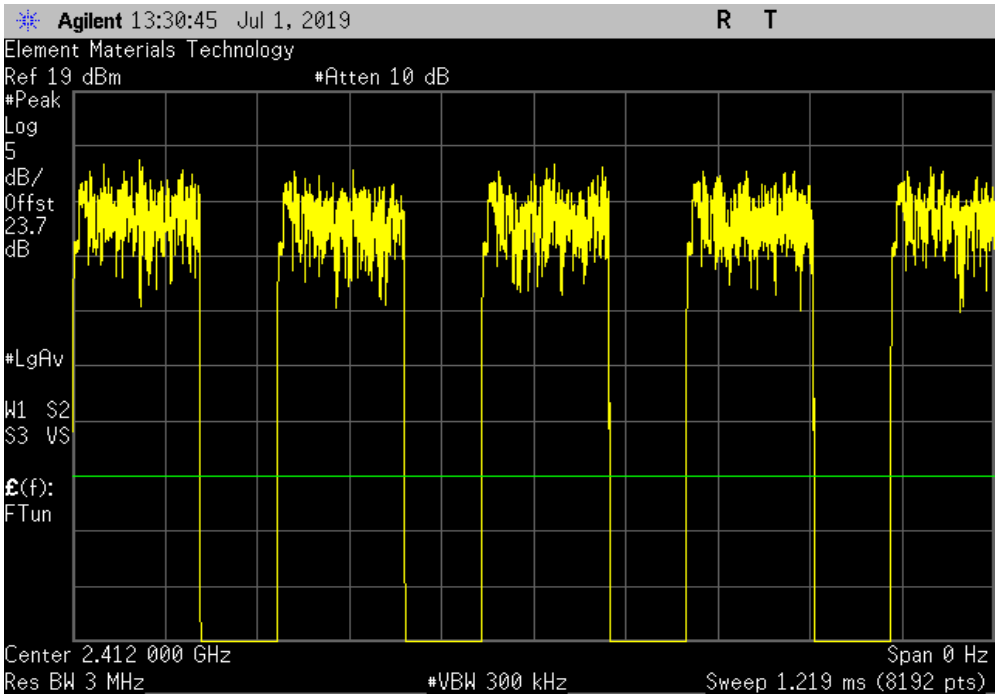


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	166.234 us	270.9 us	1	61.4	N/A	N/A

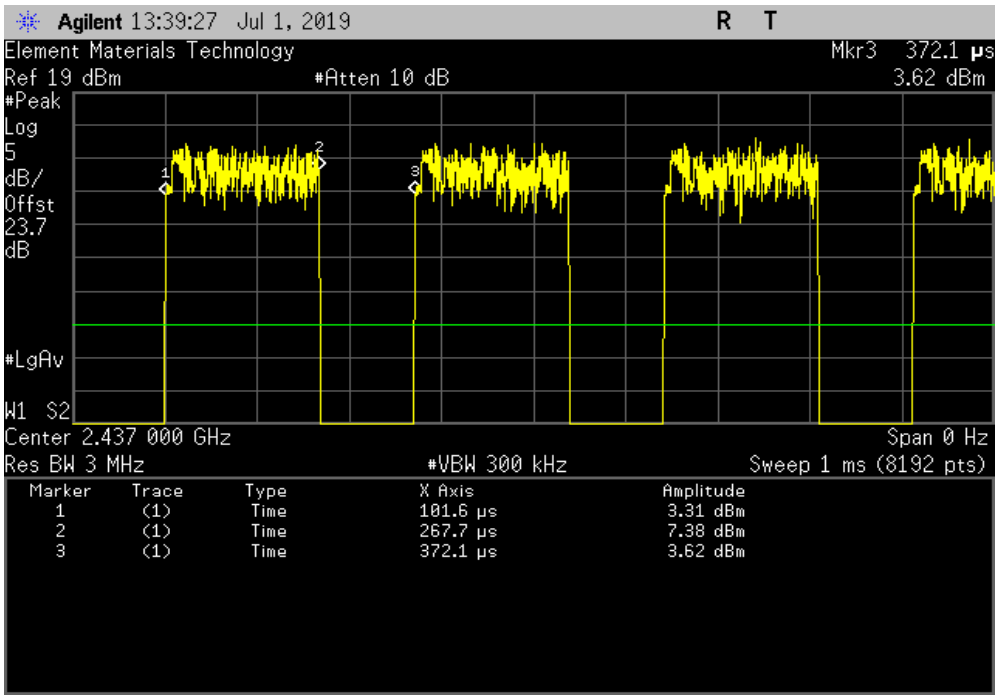


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

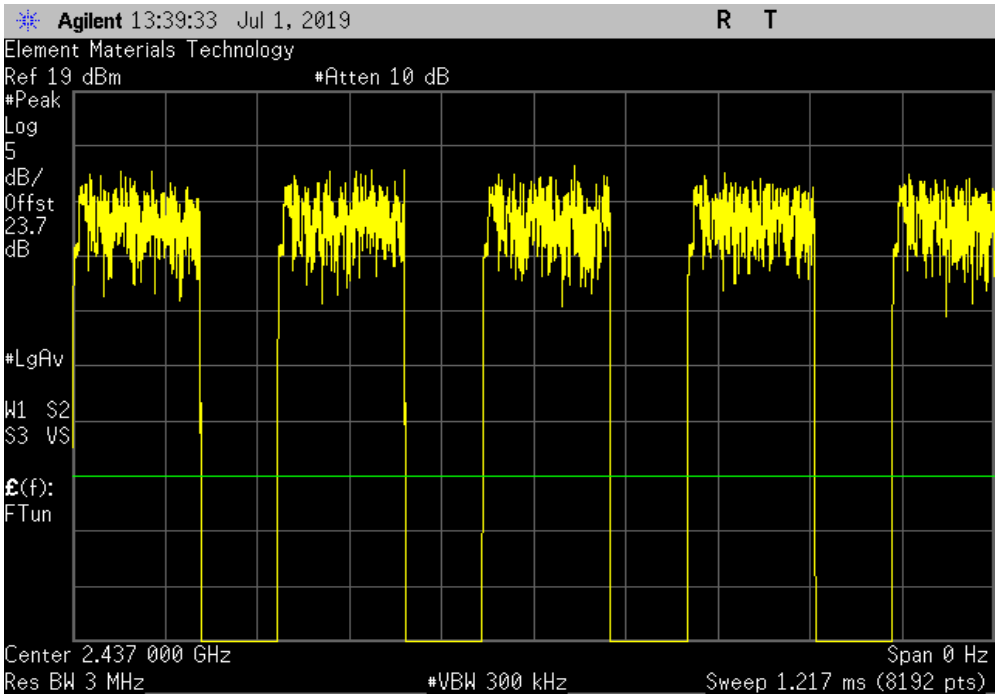


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	166.112 us	270.478 us	1	61.4	N/A	N/A

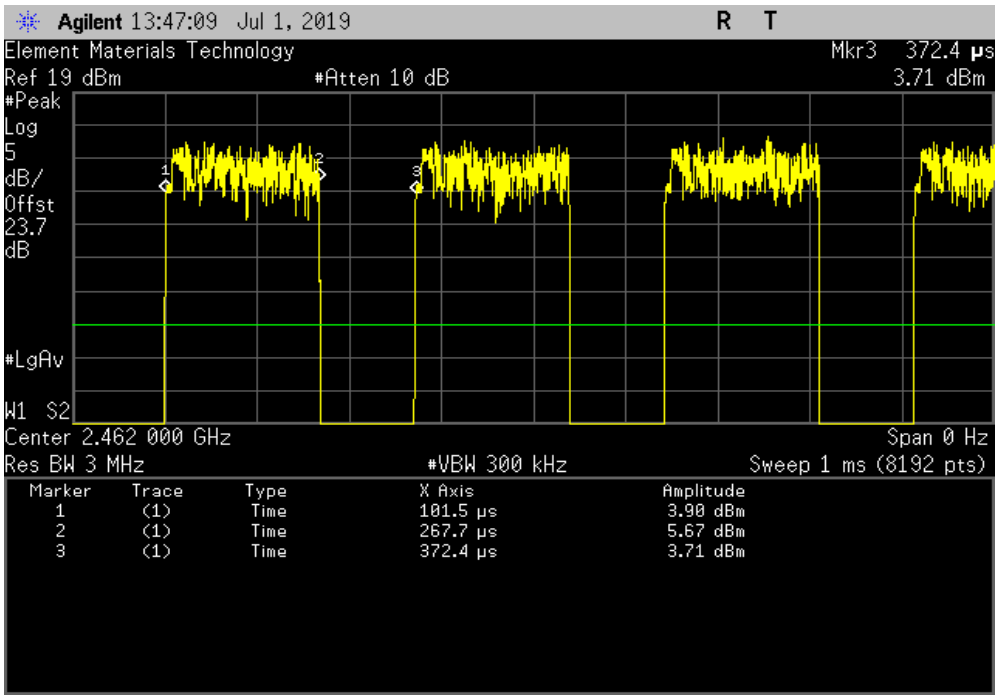


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

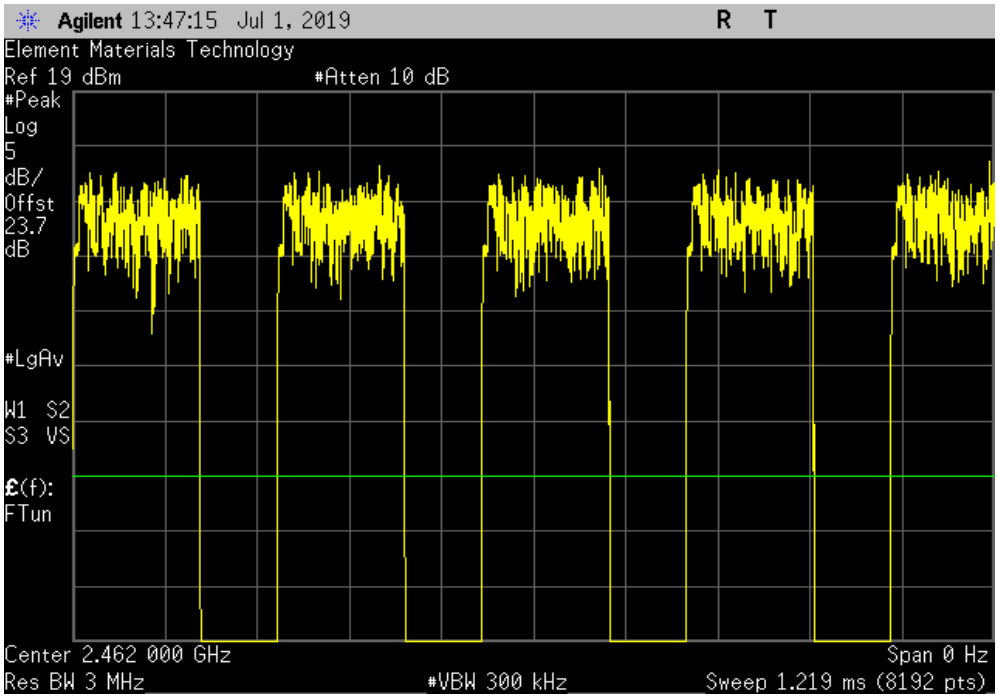


DUTY CYCLE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	166.234 us	270.9 us	1	61.4	N/A	N/A

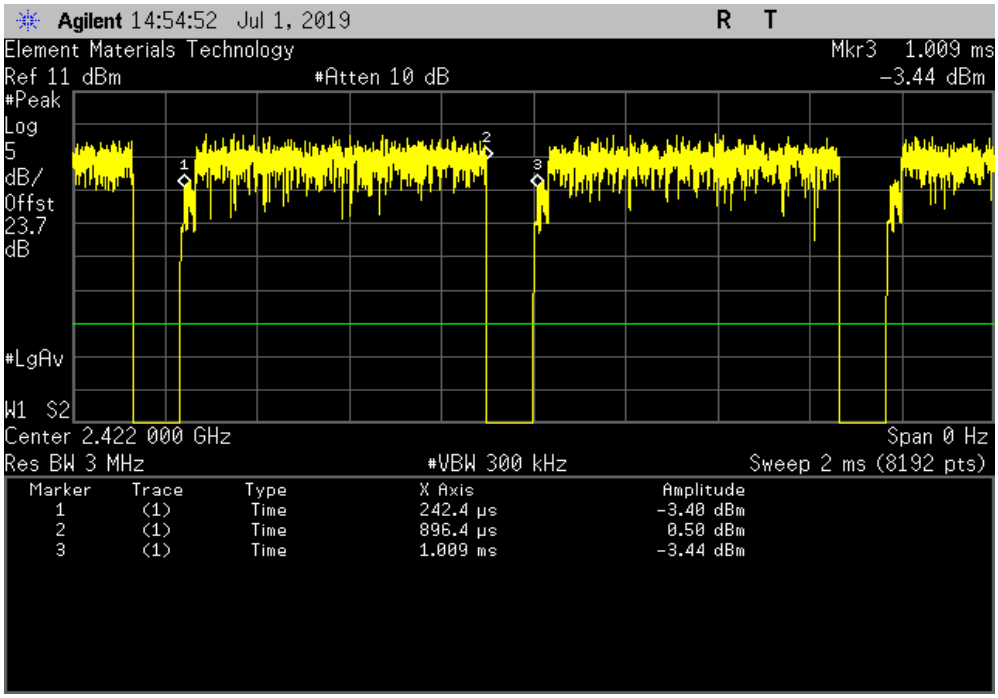


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

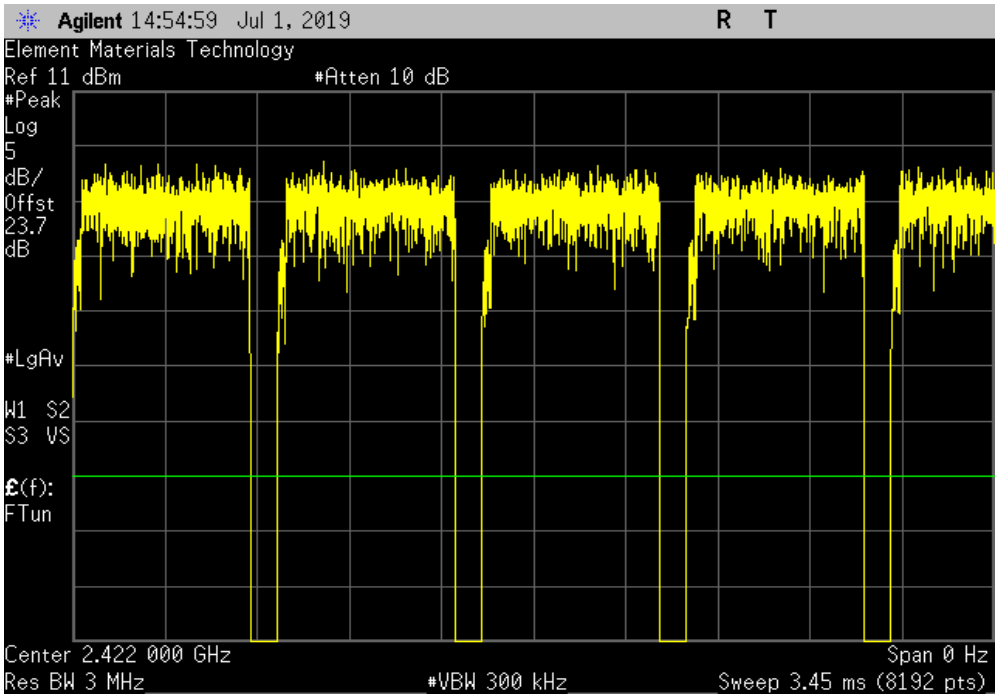


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	653.923 us	766.7 us	1	85.3	N/A	N/A

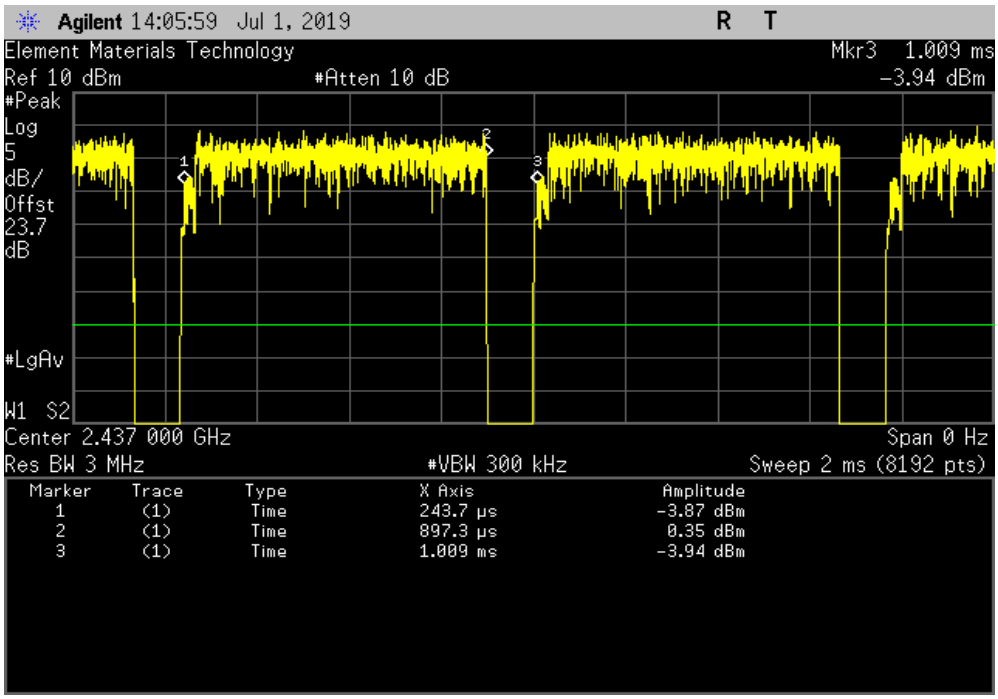


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

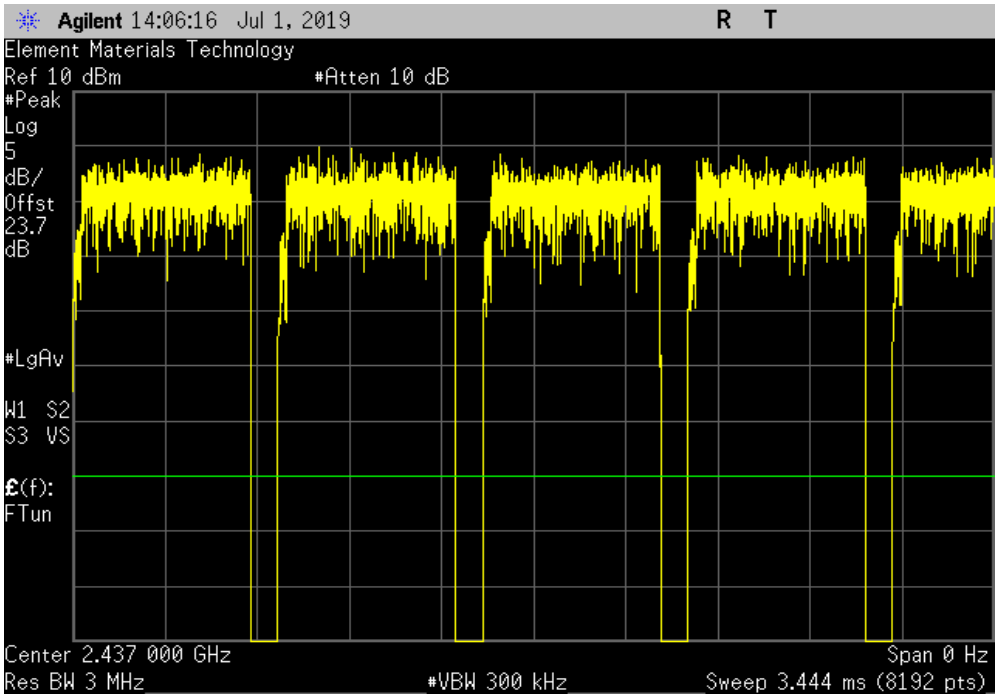


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	653.635 us	765.223 us	1	85.4	N/A	N/A

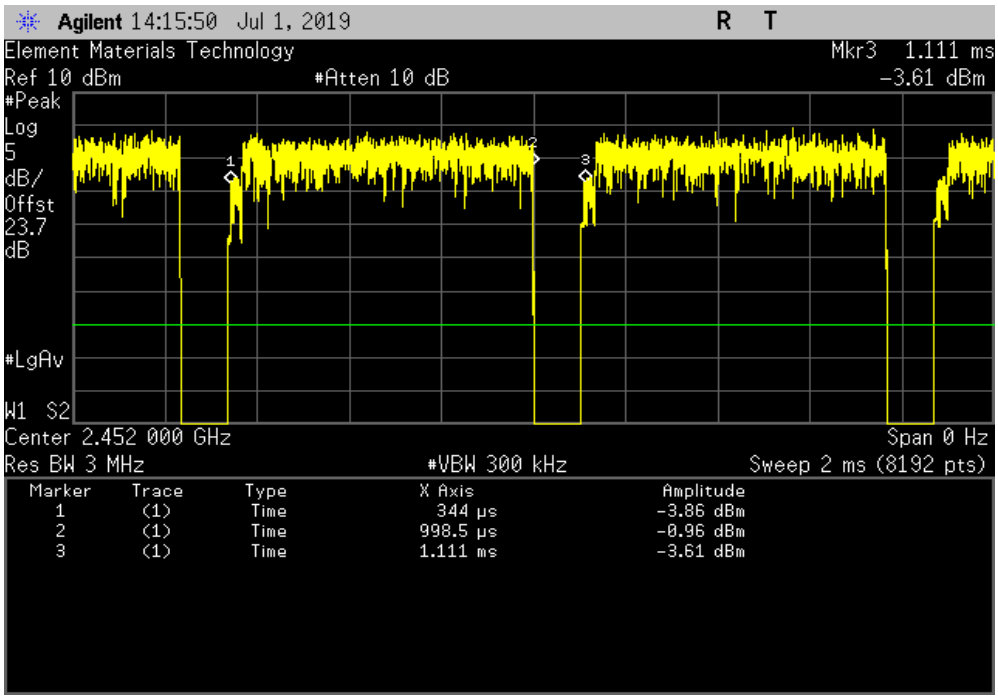


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

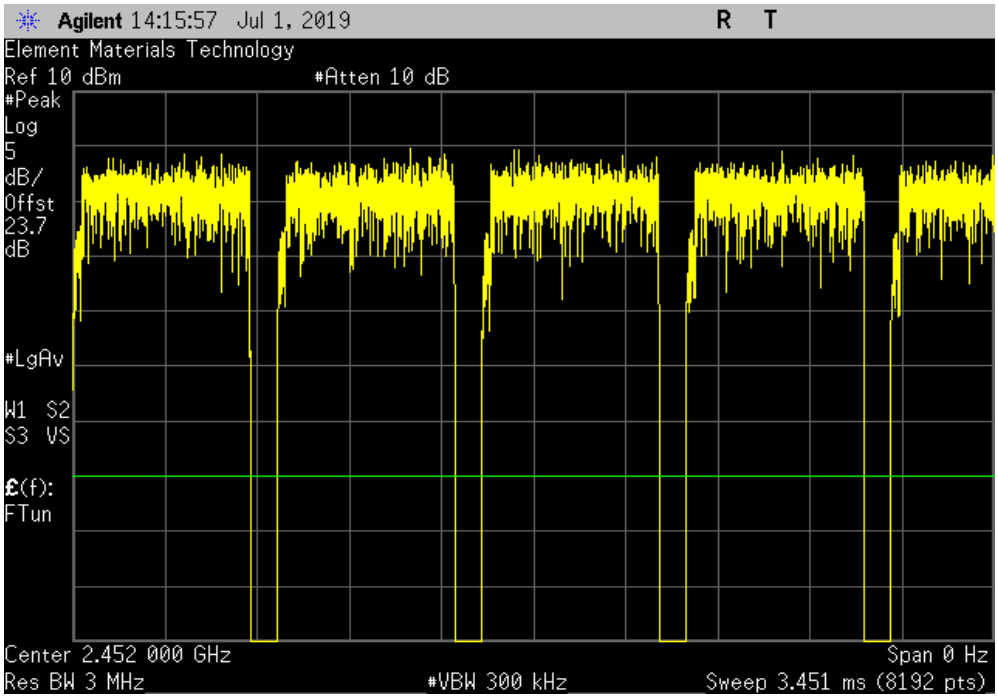


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	654.412 us	766.944 us	1	85.3	N/A	N/A

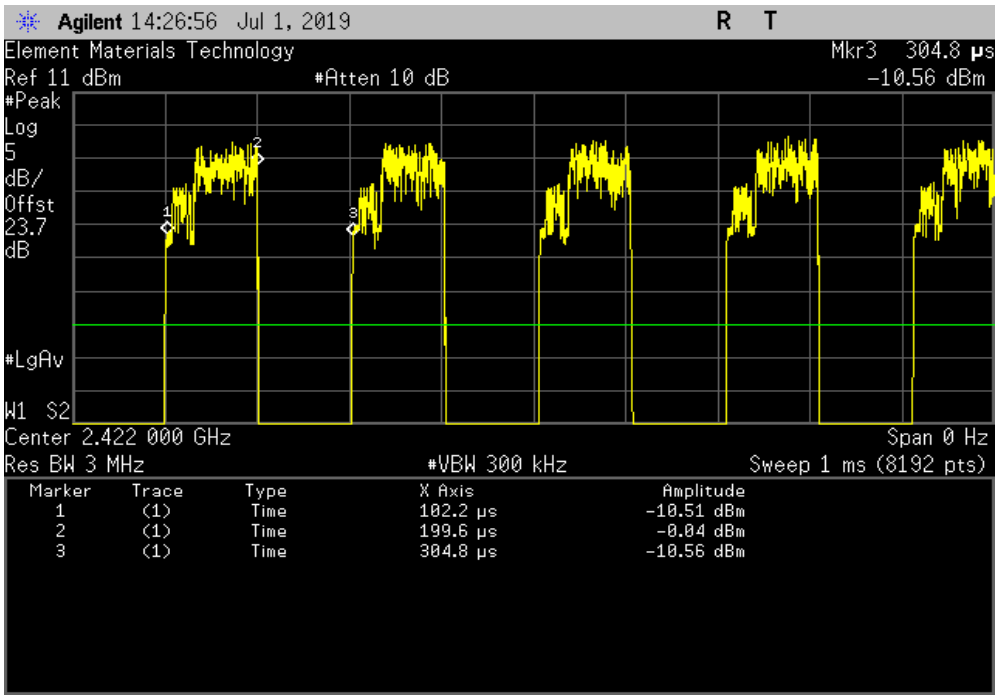


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

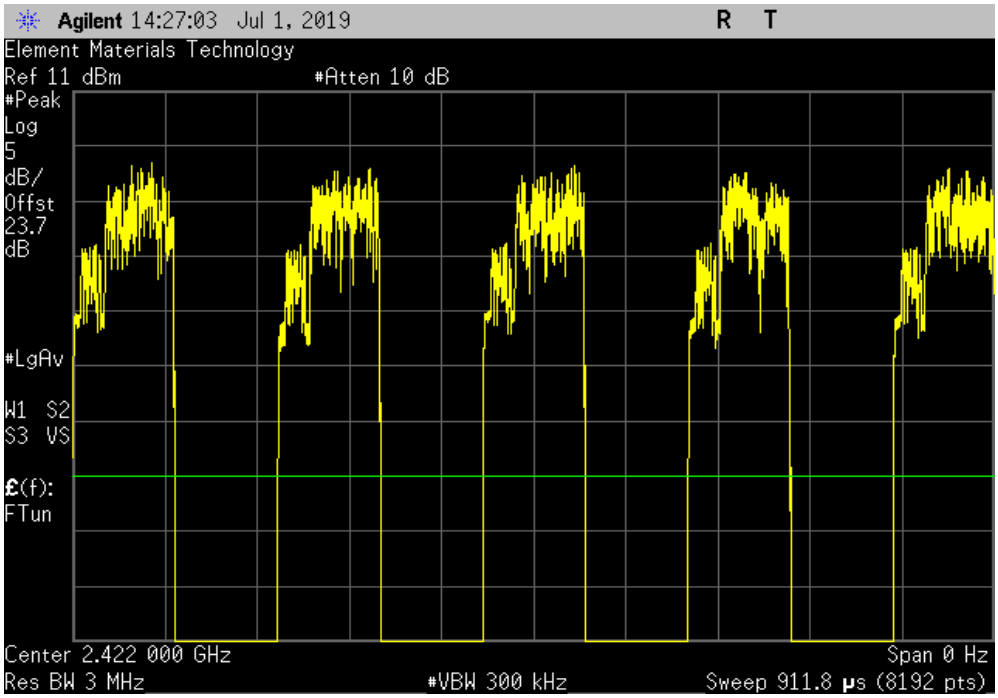


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	97.448 us	202.612 us	1	48.1	N/A	N/A

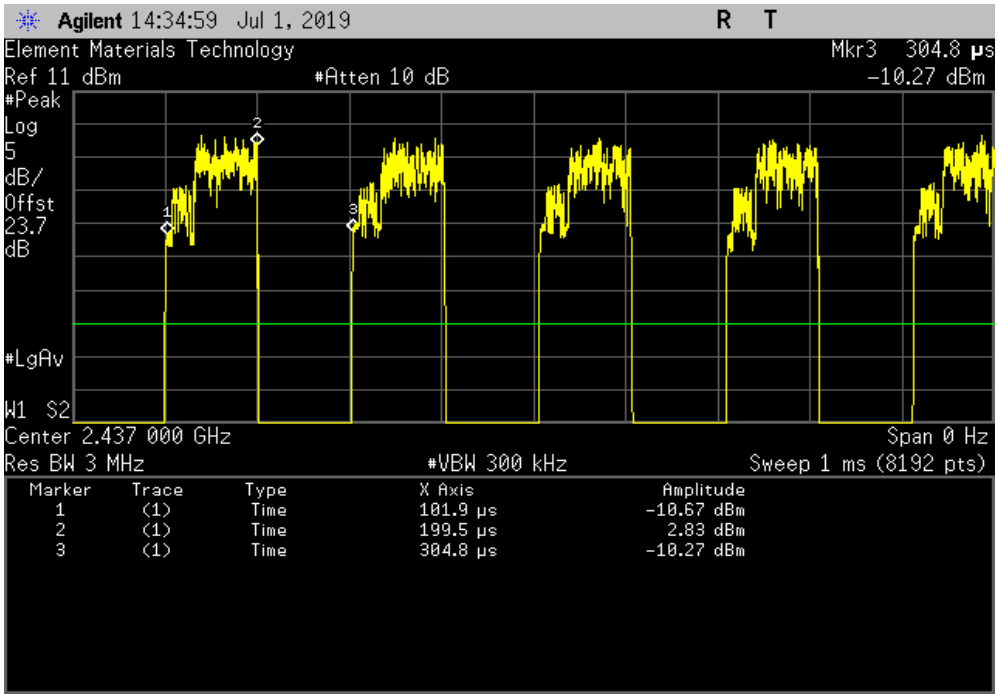


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

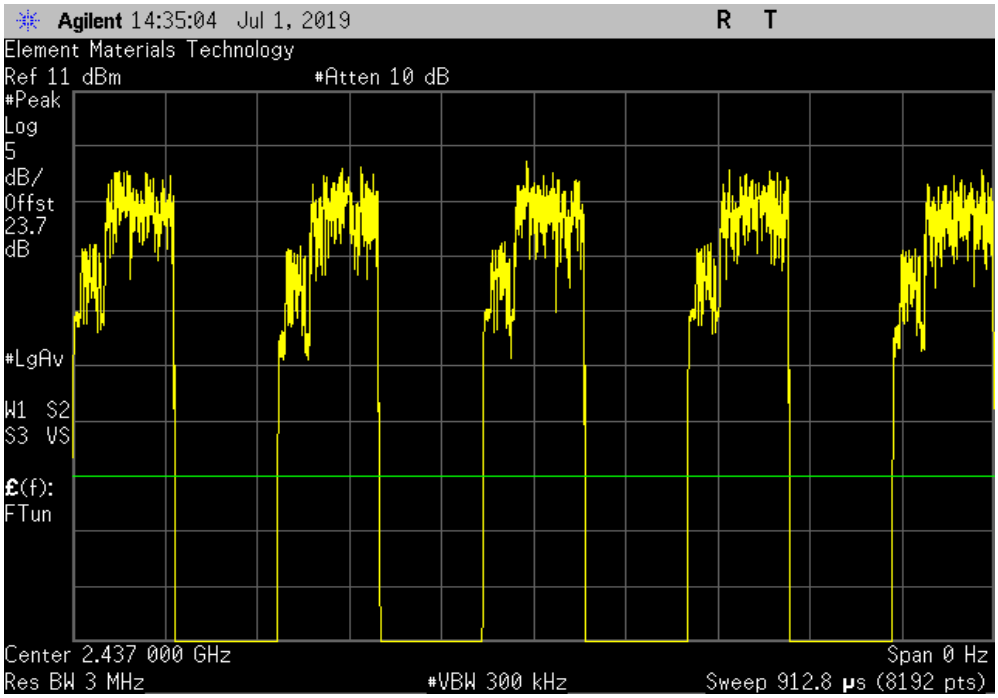


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	97.548 us	202.834 us	1	48.1	N/A	N/A

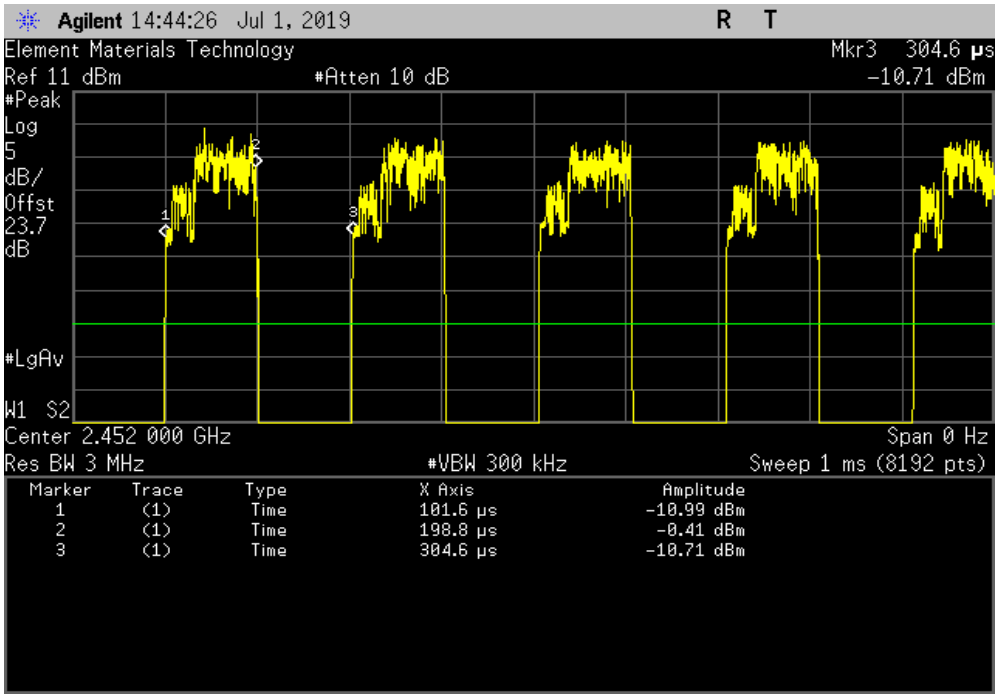


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

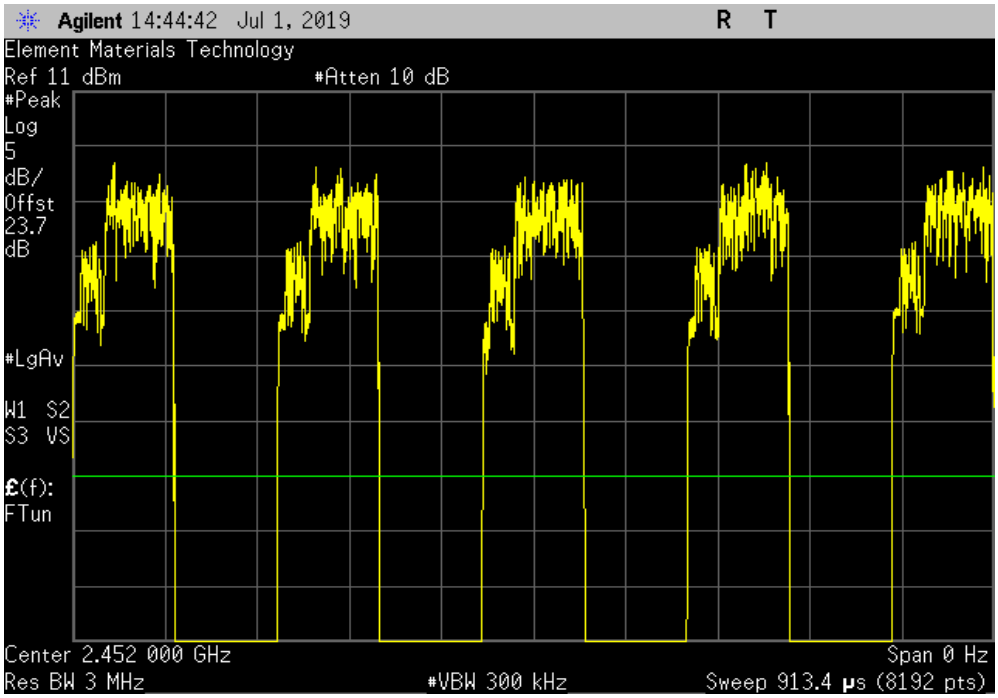


DUTY CYCLE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	97.225 us	202.978 us	1	47.9	N/A	N/A



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



OCCUPIED BANDWIDTH

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was set to the channels and modes listed in the datasheet.

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

OCCUPIED BANDWIDTH

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	MWMII			**Work Order:**	MASI0553
Serial Number:	ENG-1			**Date:**	15-Jul-19
Customer:	Masimo Corporation			**Temperature:**	23.8 °C
Attendees:	Anami Joshi & Nghi Nguyen			**Humidity:**	48.6% RH
Project:	None			**Barometric Pres.:**	1016 mbar
Tested by:	Johnny Candelas & Nolan De Ramos	**Power:**	3.6 VDC	**Job Site:**	OC13

TEST SPECIFICATIONS	Test Method
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

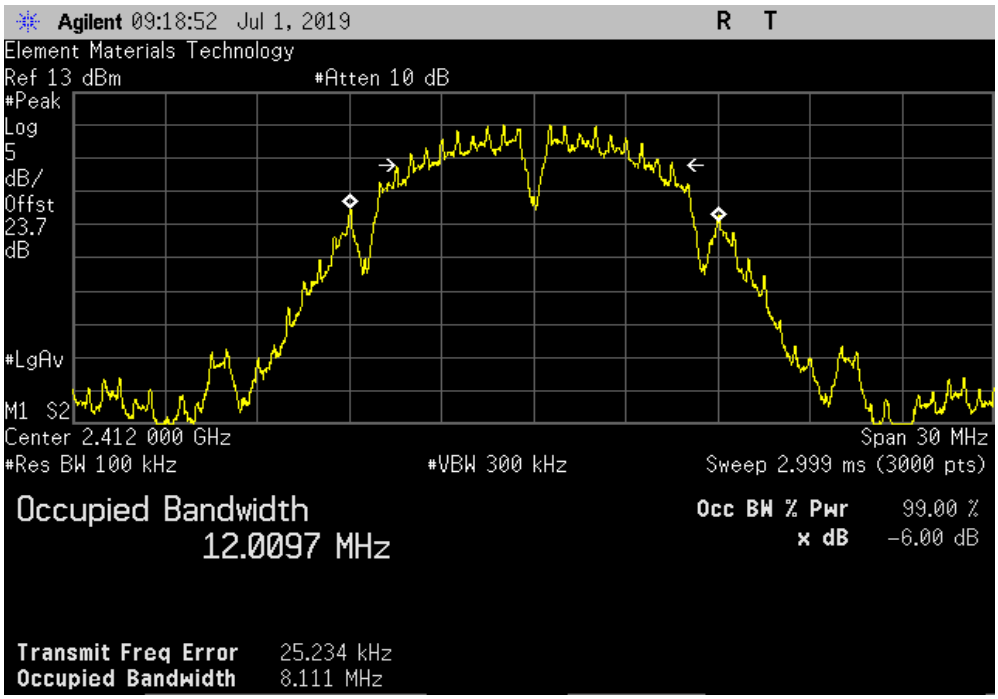
DEVIATIONS FROM TEST STANDARD

None

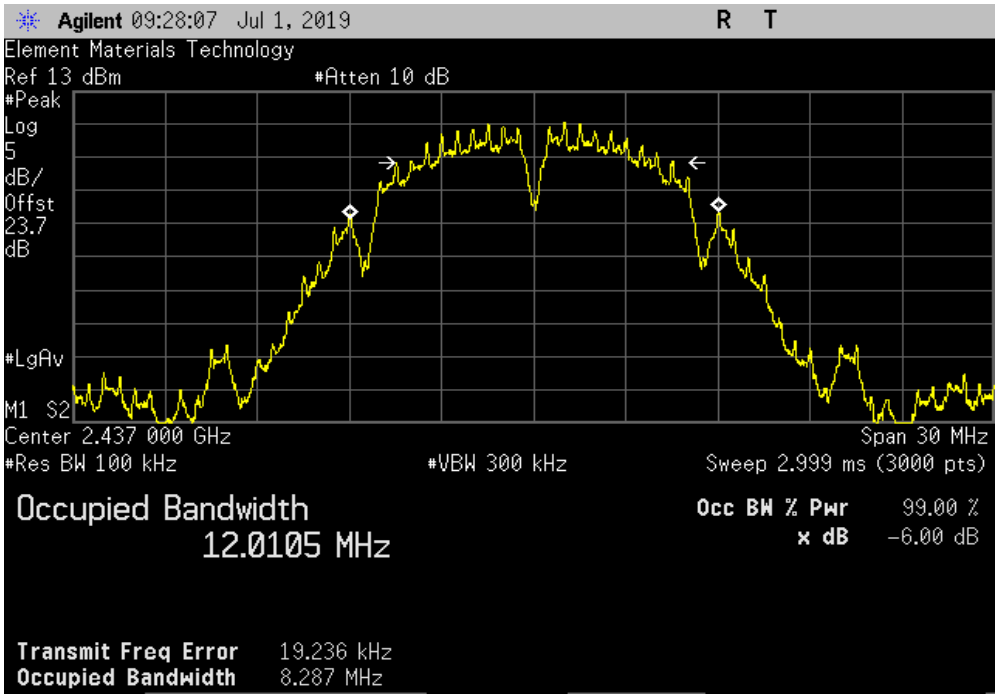
Configuration #	1	Signature

	Value	Limit (>)	Result
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	8.111 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	8.287 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	8.497 MHz	500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	8.271 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	7.923 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	8.136 MHz	500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	15.144 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	15.258 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	14.929 MHz	500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	15.379 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	15.16 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	15.084 MHz	500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	15.169 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	15.149 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	15.09 MHz	500 kHz	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	13.901 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	14.572 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	14.933 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	15.152 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	15.174 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	15.086 MHz	500 kHz	Pass
40 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS0			
Low Channel 1/5, 2422 MHz	35.075 MHz	500 kHz	Pass
Mid Channel 4/8, 2437 MHz	35.158 MHz	500 kHz	Pass
High Channel 7/11, 2452 MHz	35.090 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel 1/5, 2422 MHz	35.172 MHz	500 kHz	Pass
Mid Channel 4/8, 2437 MHz	35.181 MHz	500 kHz	Pass
High Channel 7/11, 2452 MHz	35.106 MHz	500 kHz	Pass

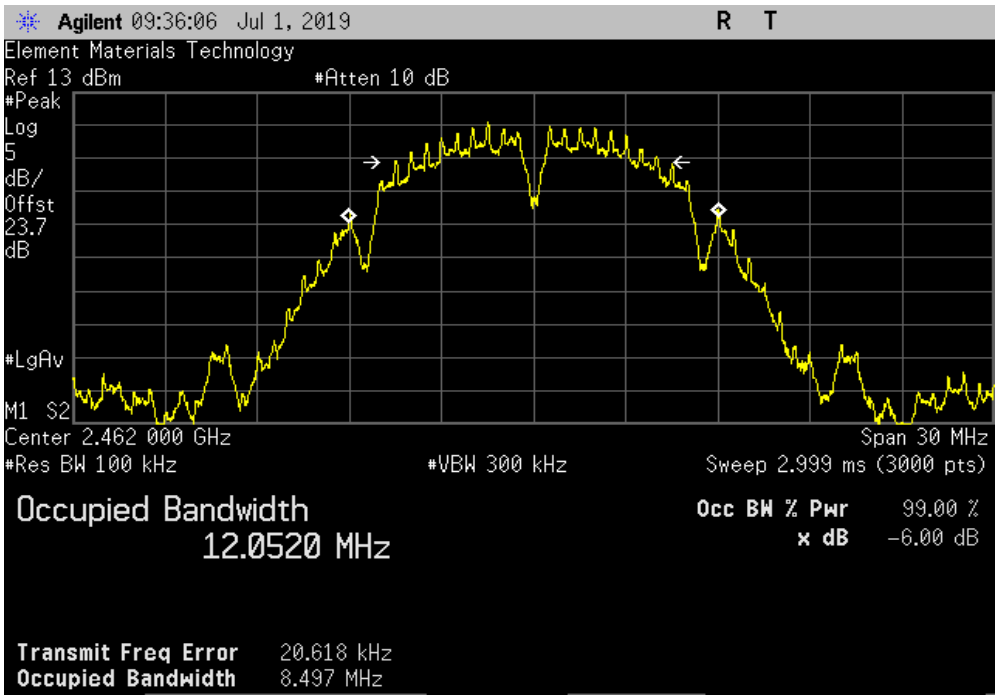
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				8.111 MHz	500 kHz	Pass



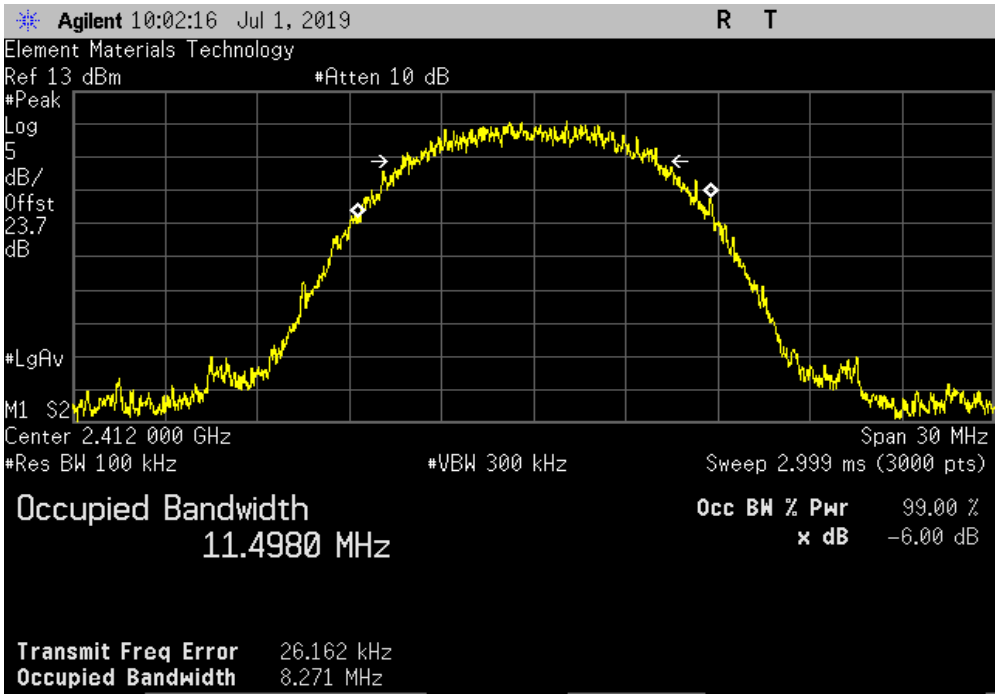
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				8.287 MHz	500 kHz	Pass



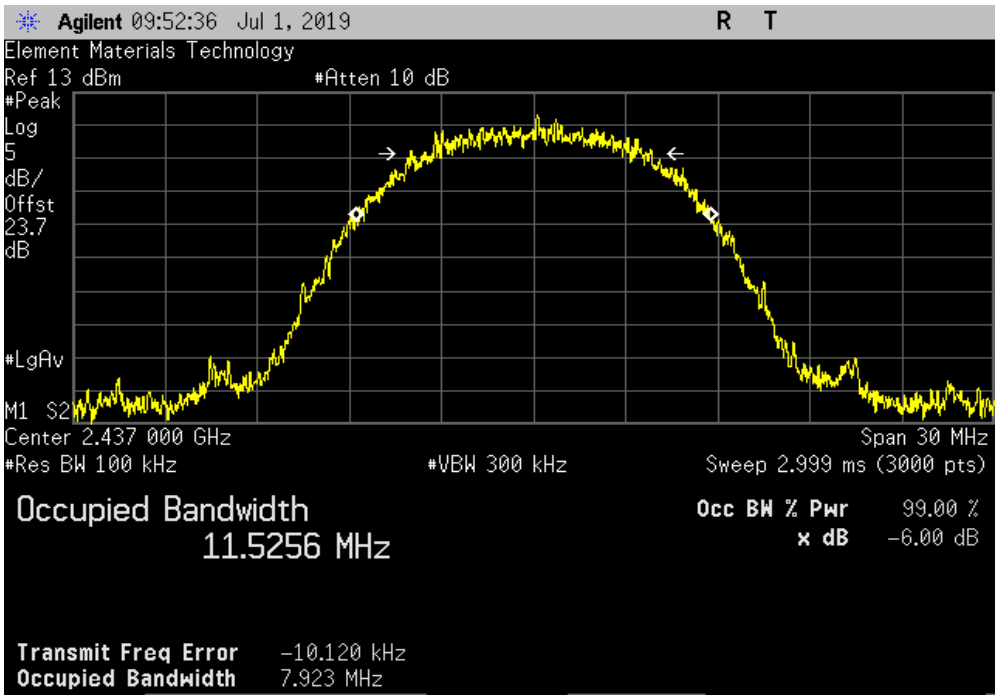
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				8.497 MHz	500 kHz	Pass



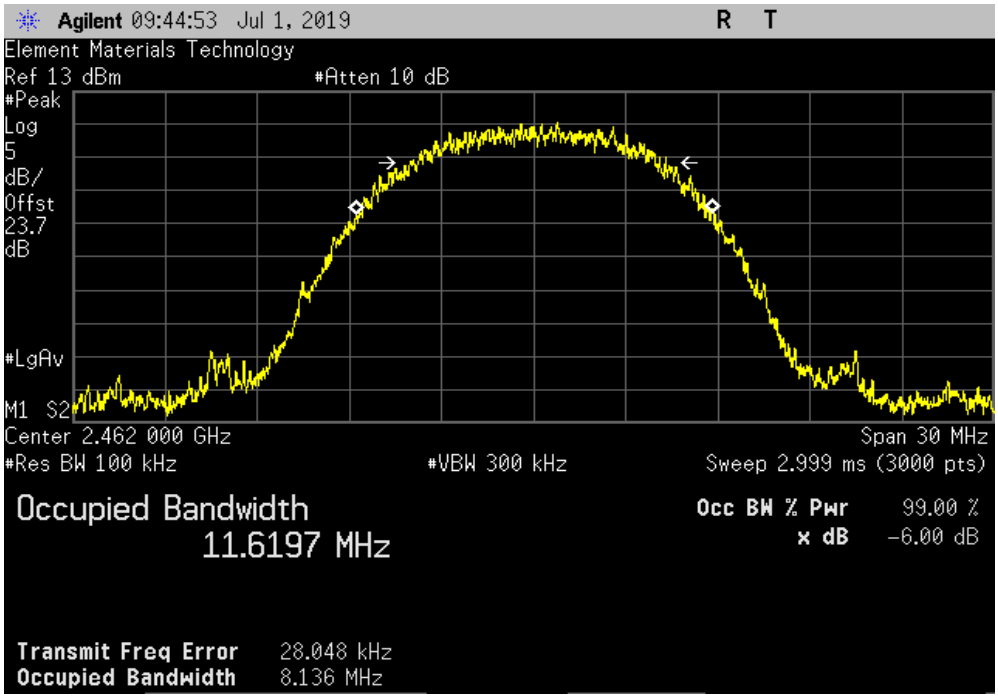
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				8.271 MHz	500 kHz	Pass



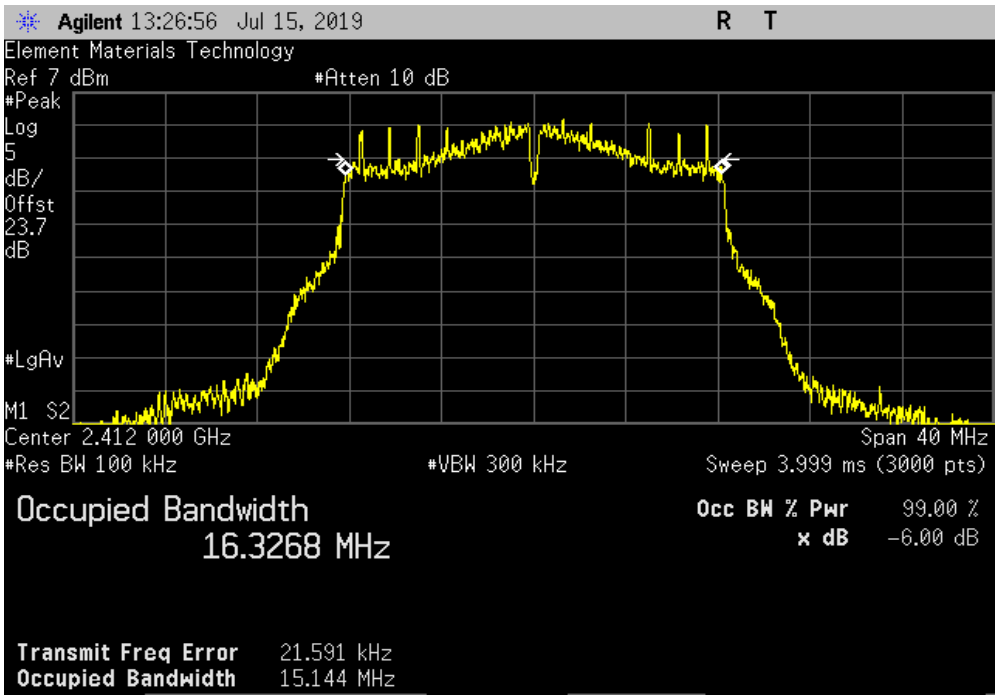
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				7.923 MHz	500 kHz	Pass



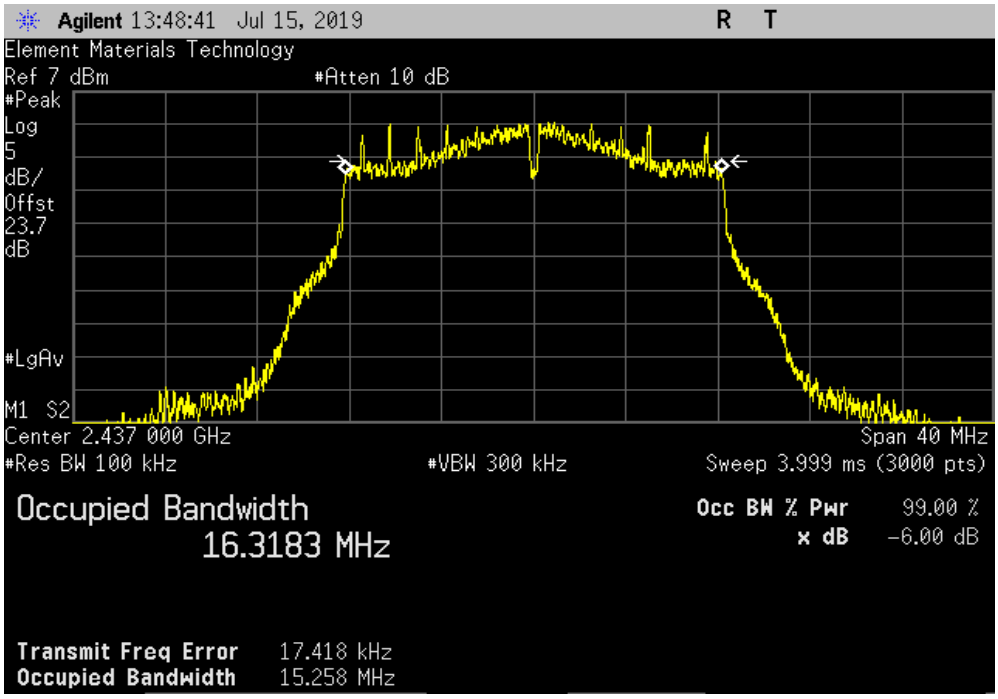
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				8.136 MHz	500 kHz	Pass



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				15.144 MHz	500 kHz	Pass

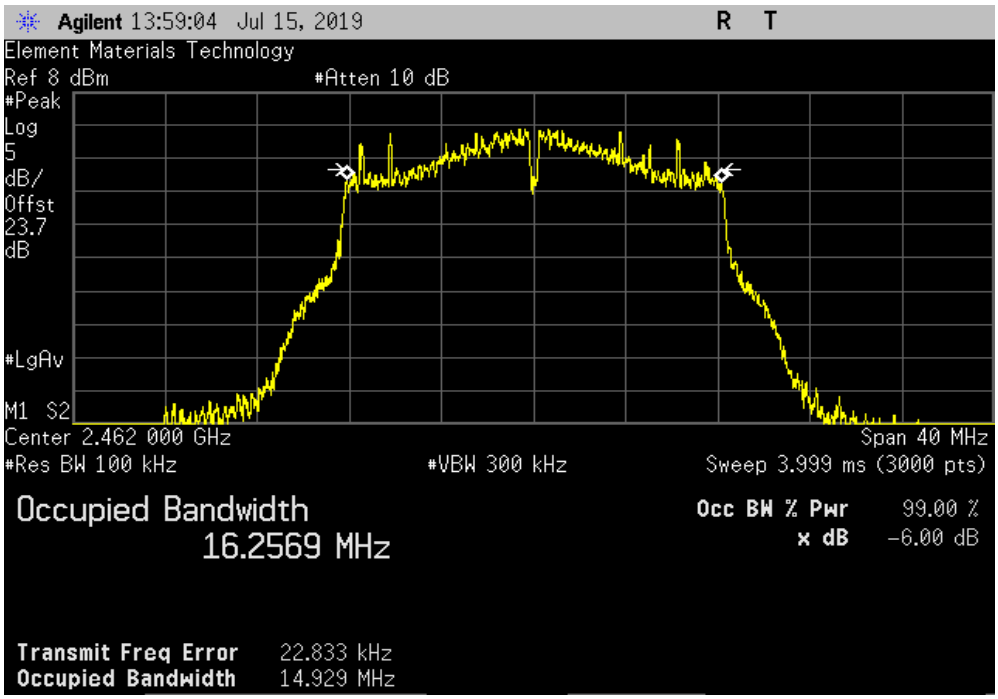


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				15.258 MHz	500 kHz	Pass

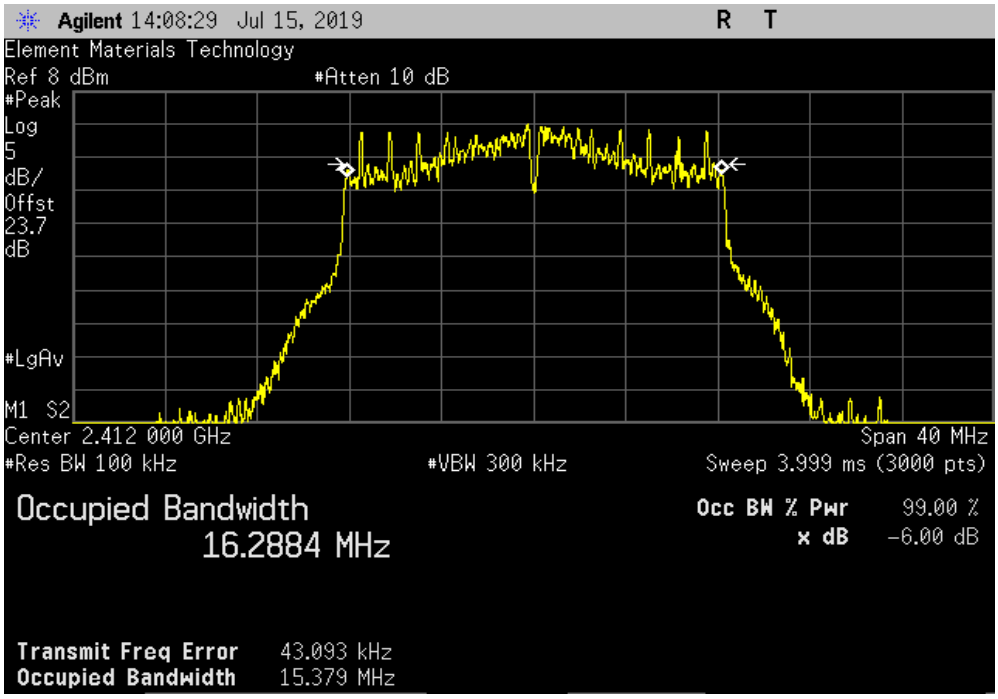


OCCUPIED BANDWIDTH

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				14.929 MHz	500 kHz	Pass

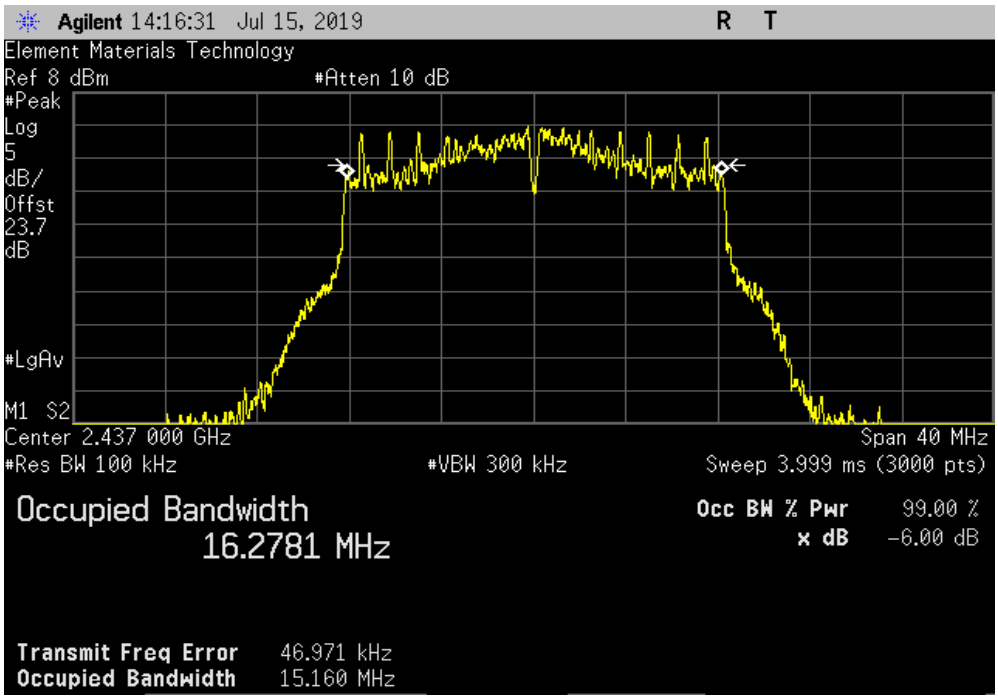


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				15.379 MHz	500 kHz	Pass

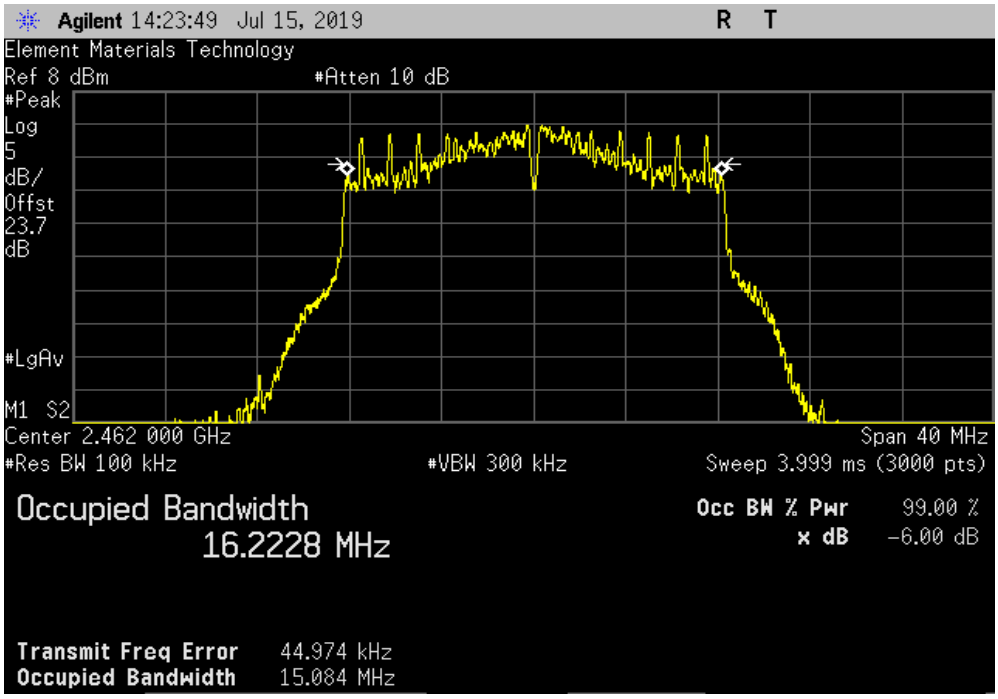


OCCUPIED BANDWIDTH

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				15.16 MHz	500 kHz	Pass

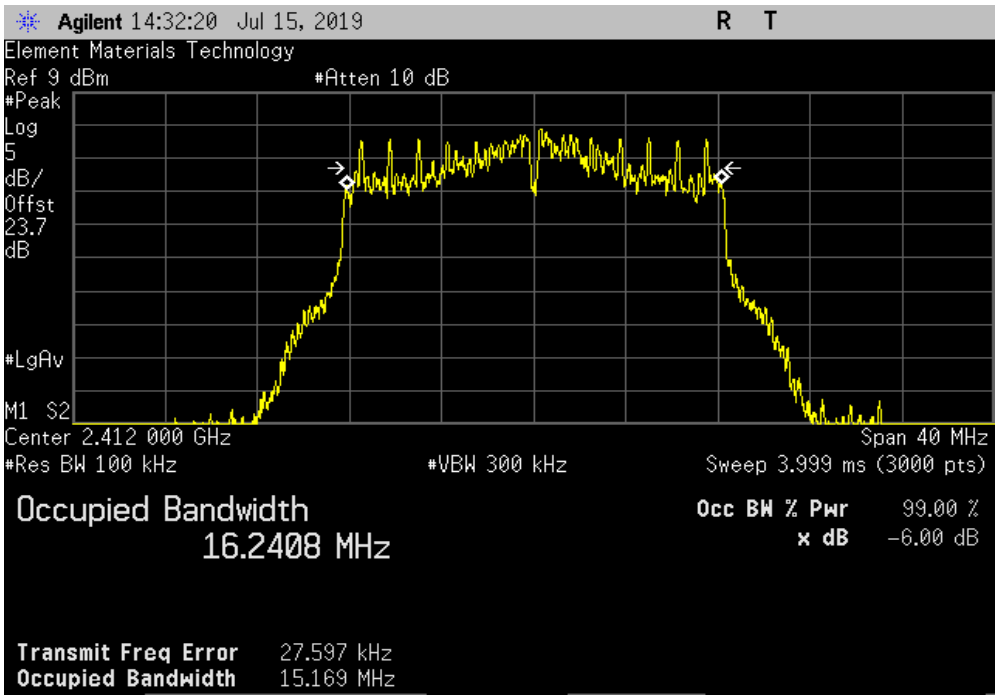


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.084 MHz	500 kHz	Pass

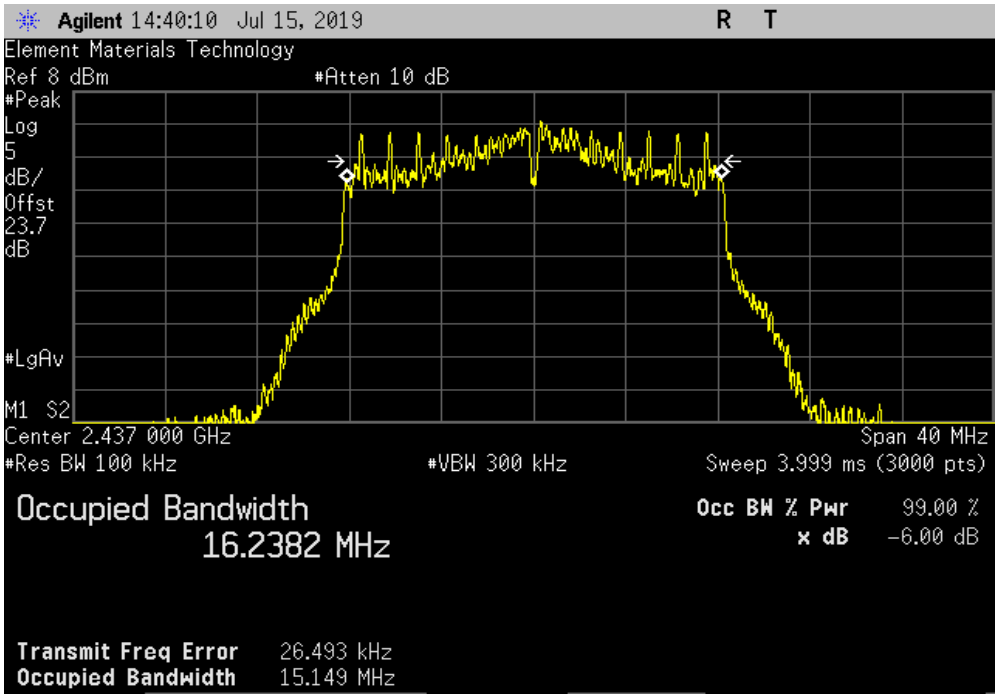


OCCUPIED BANDWIDTH

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				15.169 MHz	500 kHz	Pass

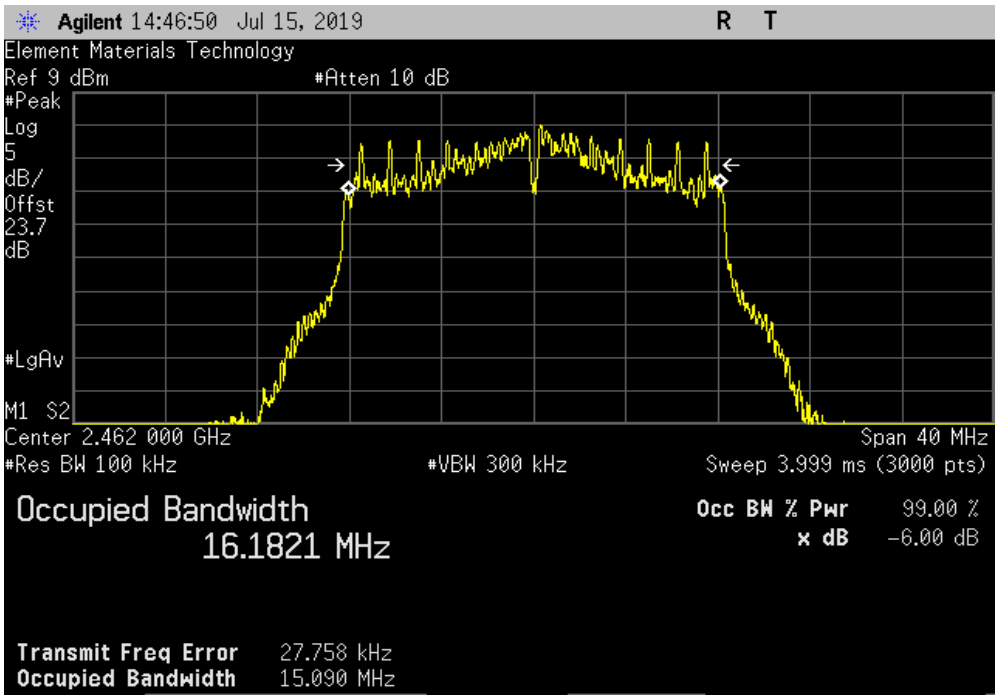


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				15.149 MHz	500 kHz	Pass

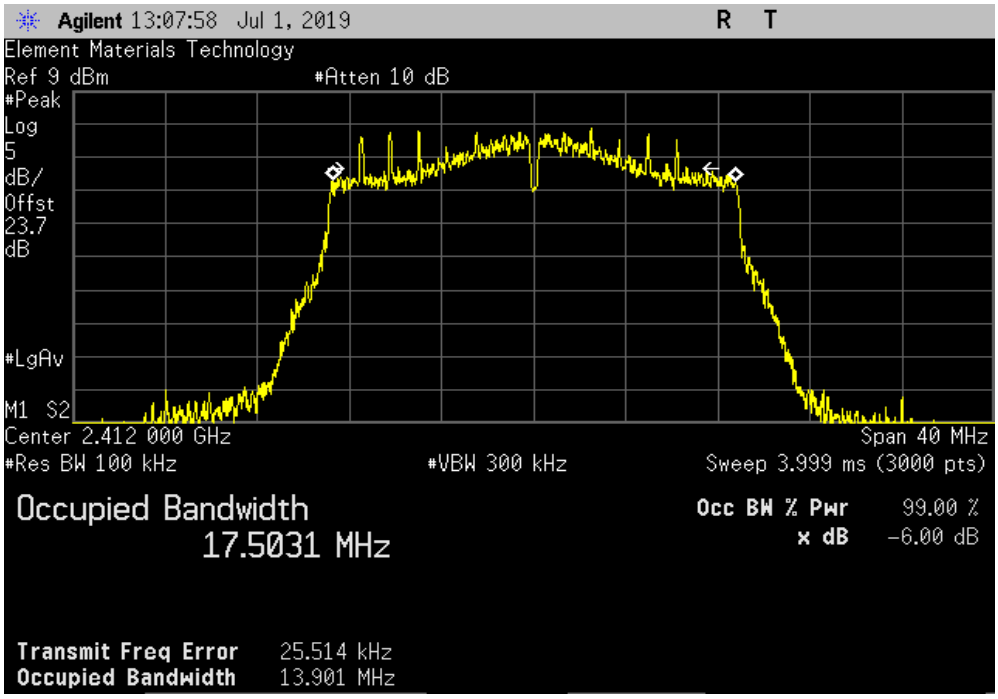


OCCUPIED BANDWIDTH

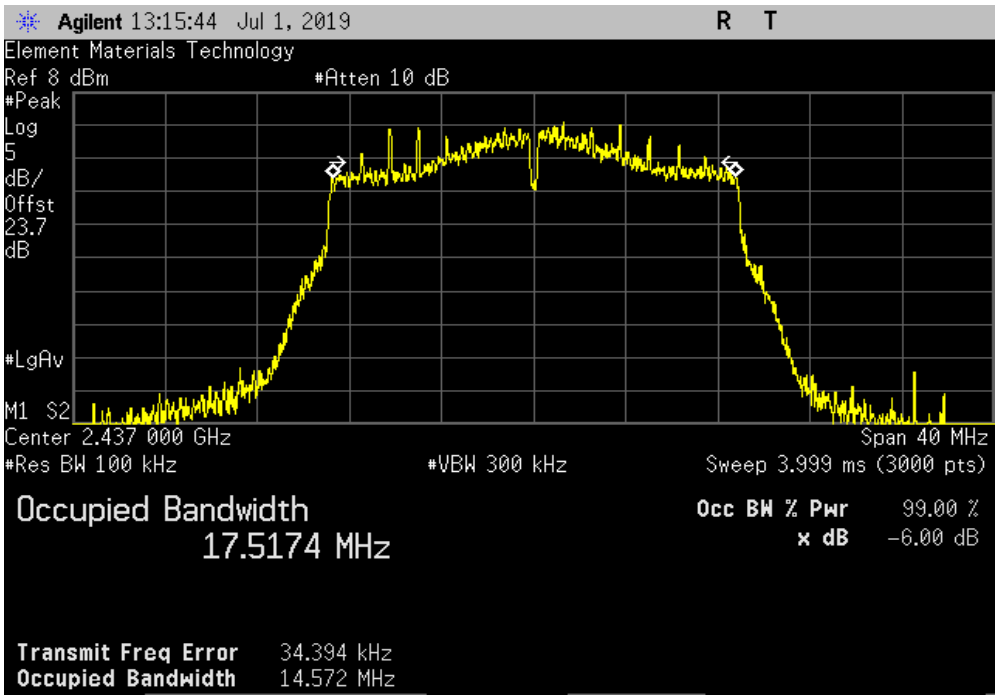
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.09 MHz	500 kHz	Pass



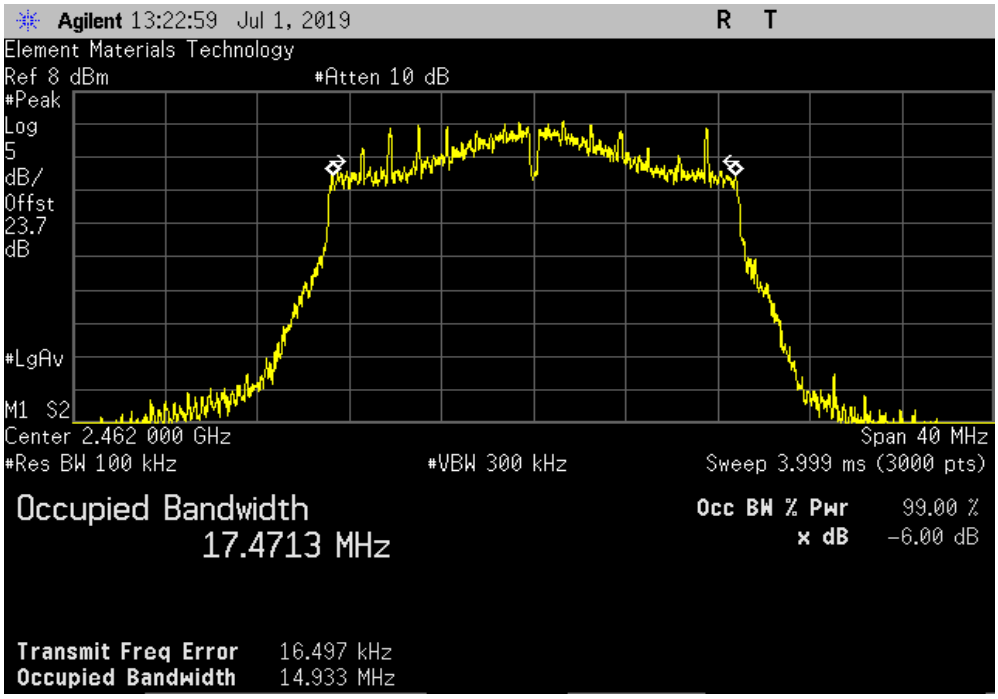
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				13.901 MHz	500 kHz	Pass



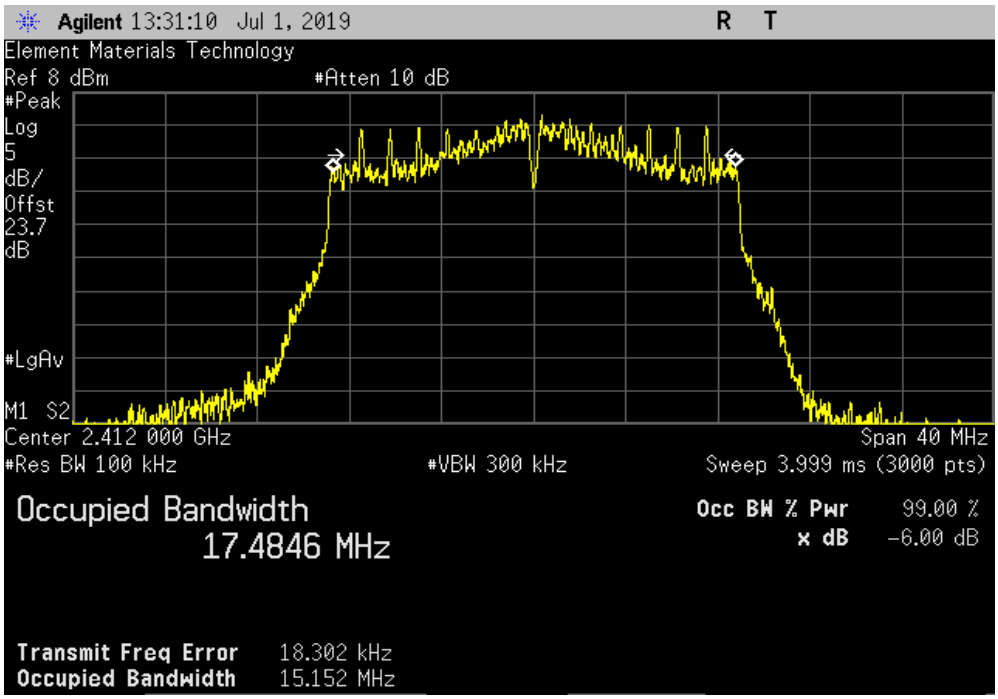
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				14.572 MHz	500 kHz	Pass



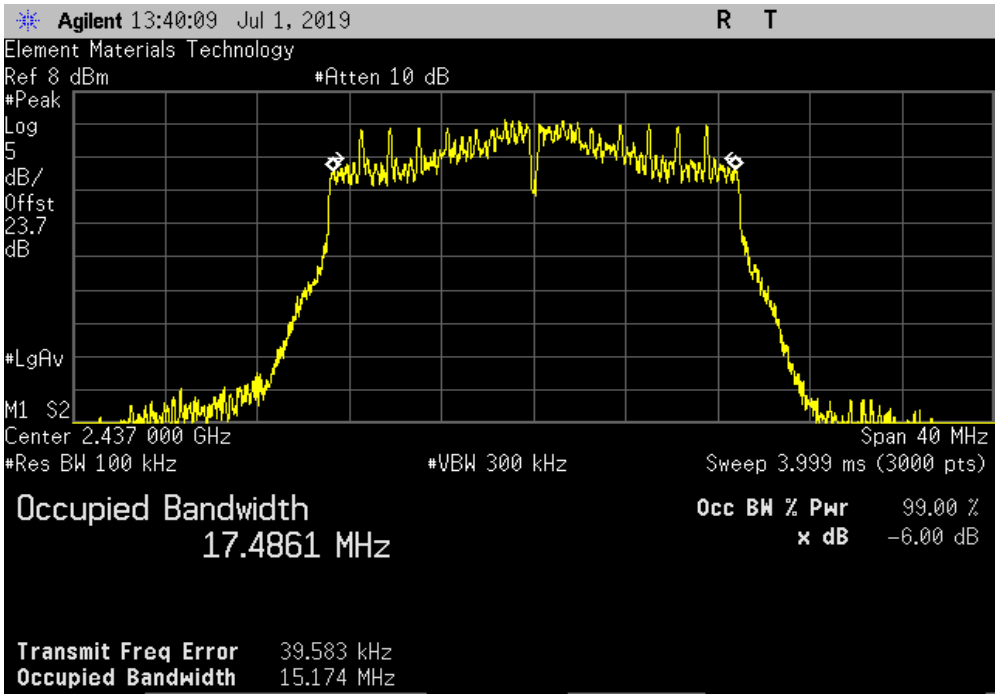
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				14.933 MHz	500 kHz	Pass



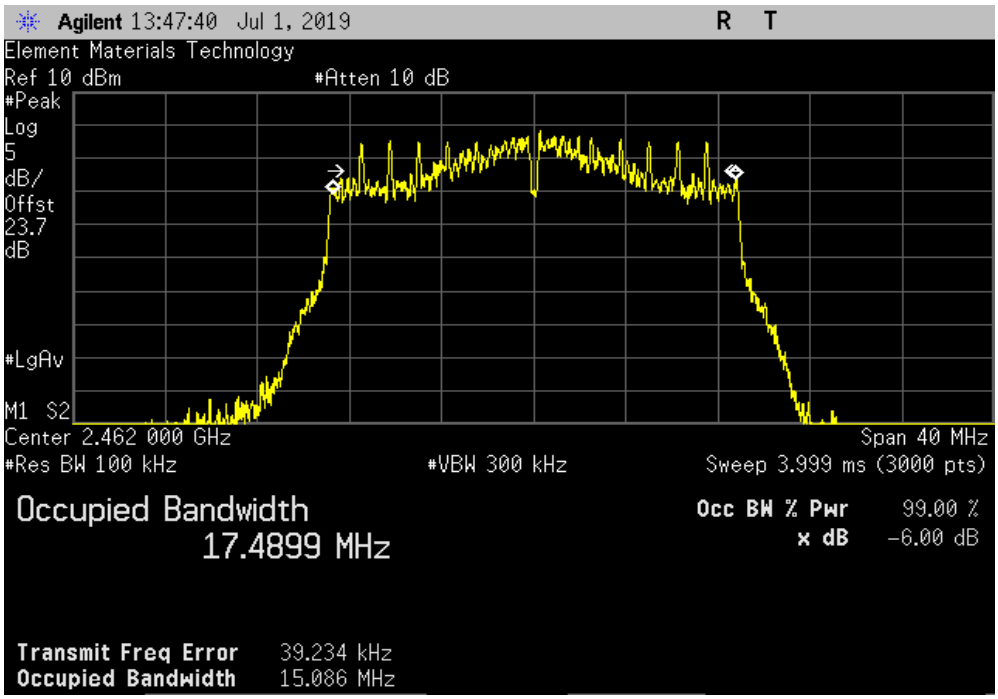
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				15.152 MHz	500 kHz	Pass



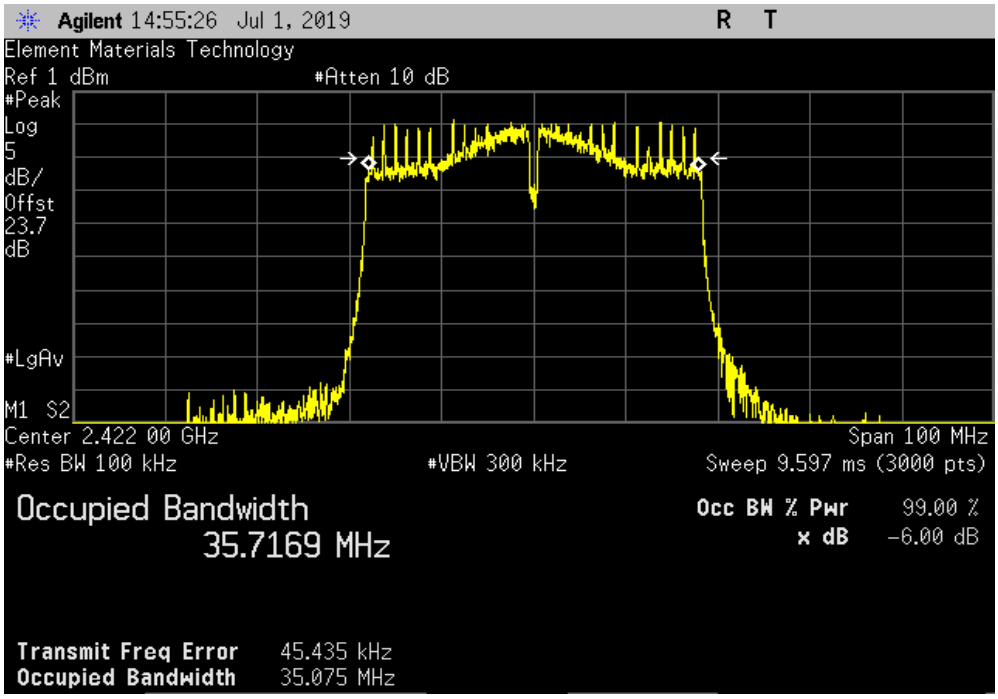
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				15.174 MHz	500 kHz	Pass



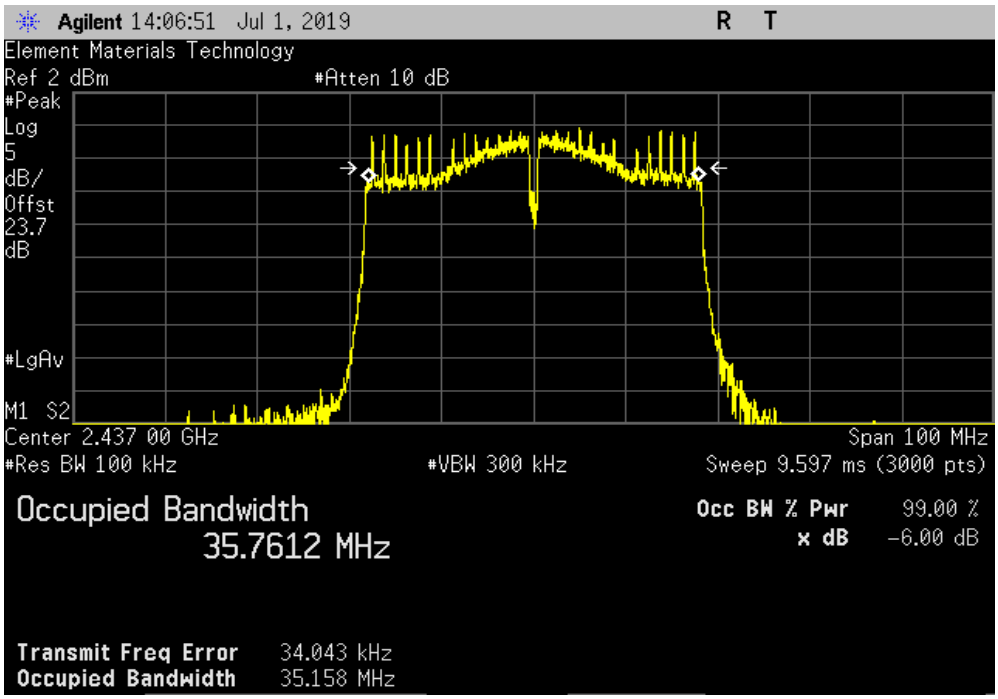
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				15.086 MHz	500 kHz	Pass



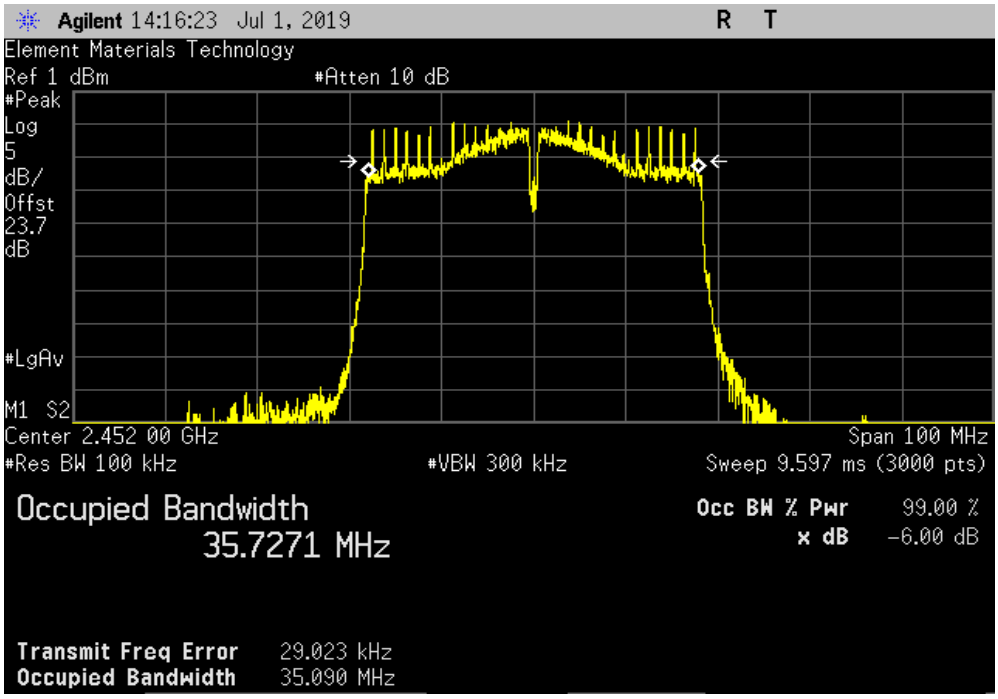
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
				Value	Limit (>)	Result
				35.075 MHz	500 kHz	Pass



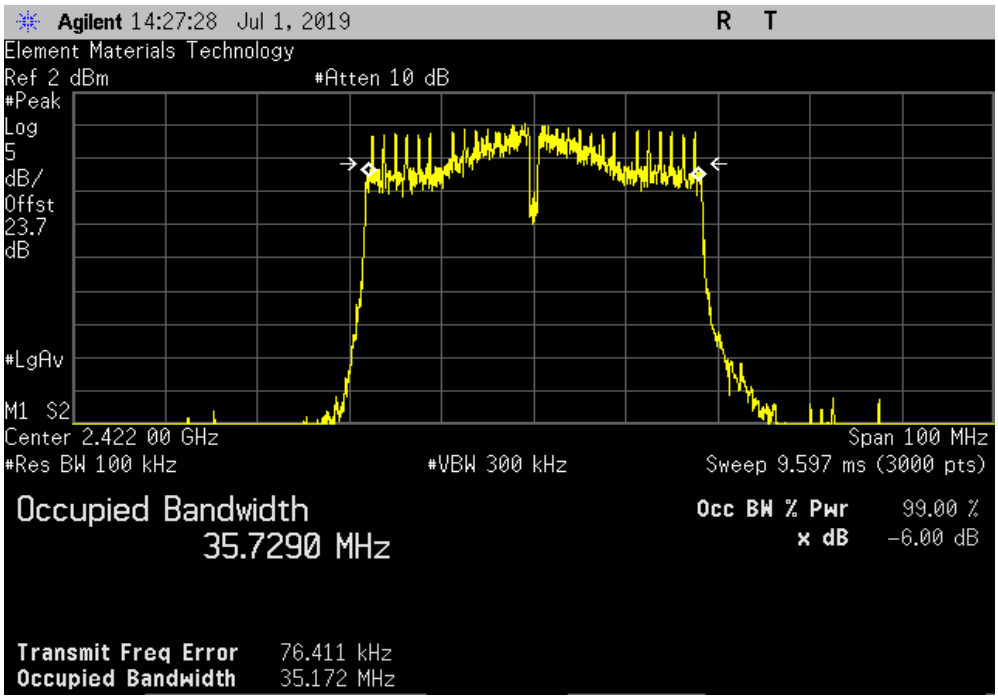
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
				Value	Limit (>)	Result
				35.158 MHz	500 kHz	Pass



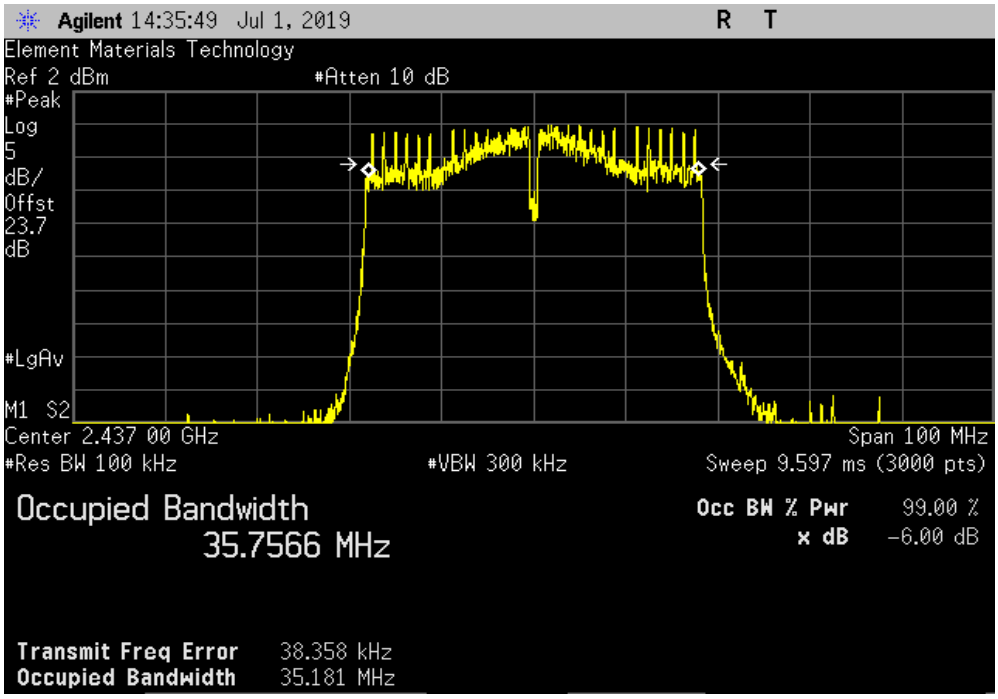
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
				Value	Limit (>)	Result
				35.090 MHz	500 kHz	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
				Value	Limit (>)	Result
				35.172 MHz	500 kHz	Pass

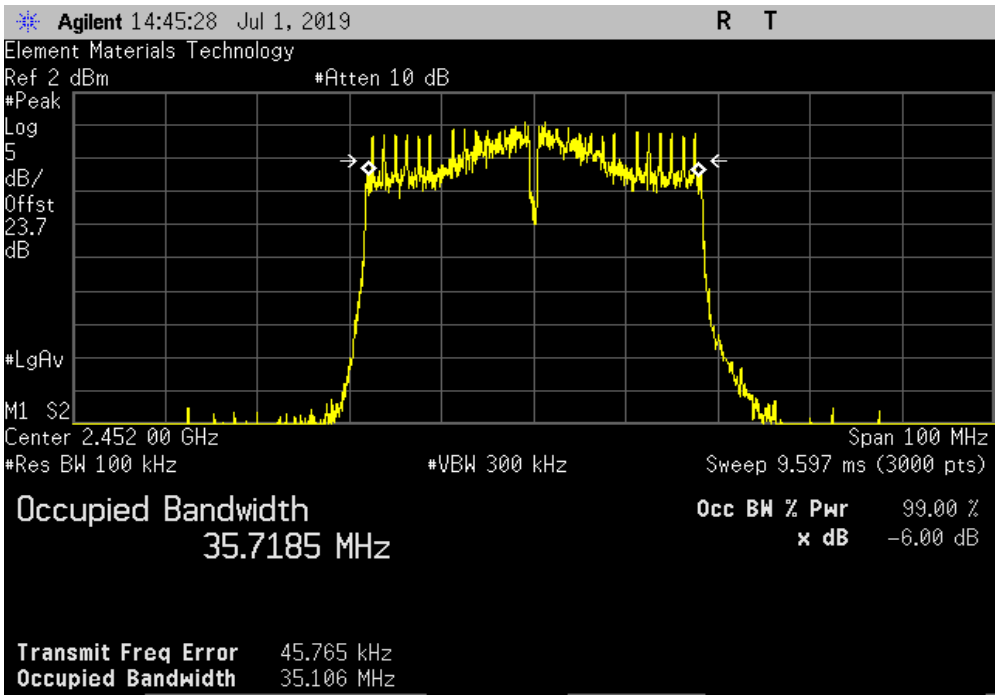


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
				Value	Limit (>)	Result
				35.181 MHz	500 kHz	Pass



OCCUPIED BANDWIDTH

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
				Value	Limit (>)	Result
				35.106 MHz	500 kHz	Pass



OUTPUT POWER

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission output power (maximum average conducted output power) was measured using the channels and modes as called out on the following data sheets. The transmit power was set to its default maximum.

Prior to measuring output power; the emission bandwidth (B) and the transmission pulse duration (T) were measured. Both are required to determine the method of measuring Maximum Conducted Output Power. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The method AVGSA-2 in section 11.9.2.2.4 of ANSI C63.10:2013 was used to make the measurement. This method uses trace averaging across ON and OFF times of the EUT transmissions in the spectrum analyzer channel power function using an RMS detector. Following the measurement a duty cycle correction was applied by adding [10 log (1 / D)], where D is the duty cycle, to the measured power to compute the average power during the actual transmission times.

OUTPUT POWER

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

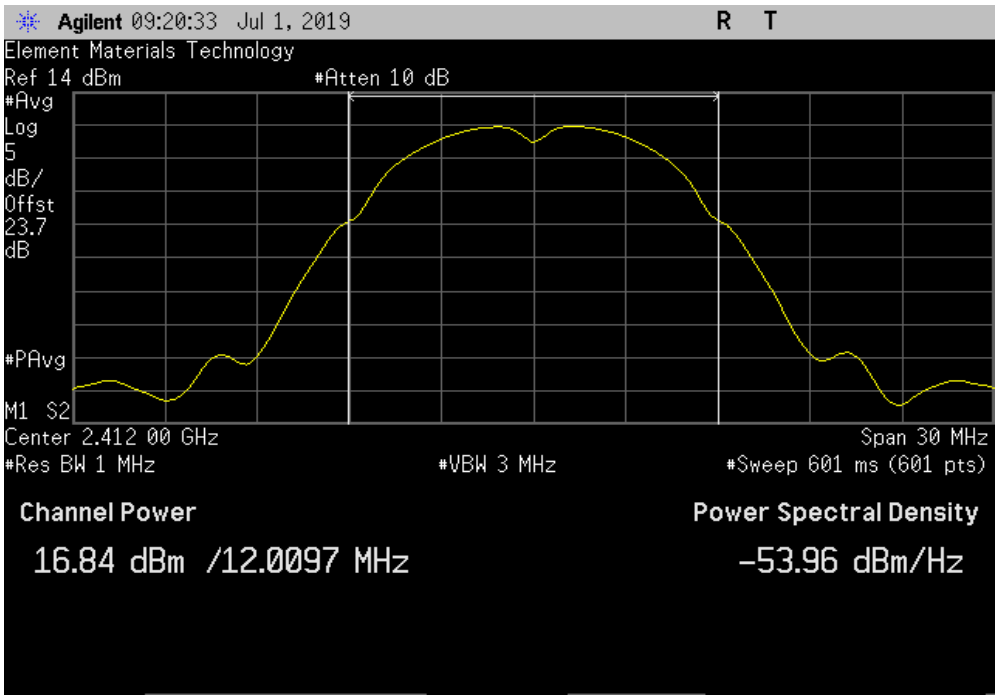
DEVIATIONS FROM TEST STANDARD

None

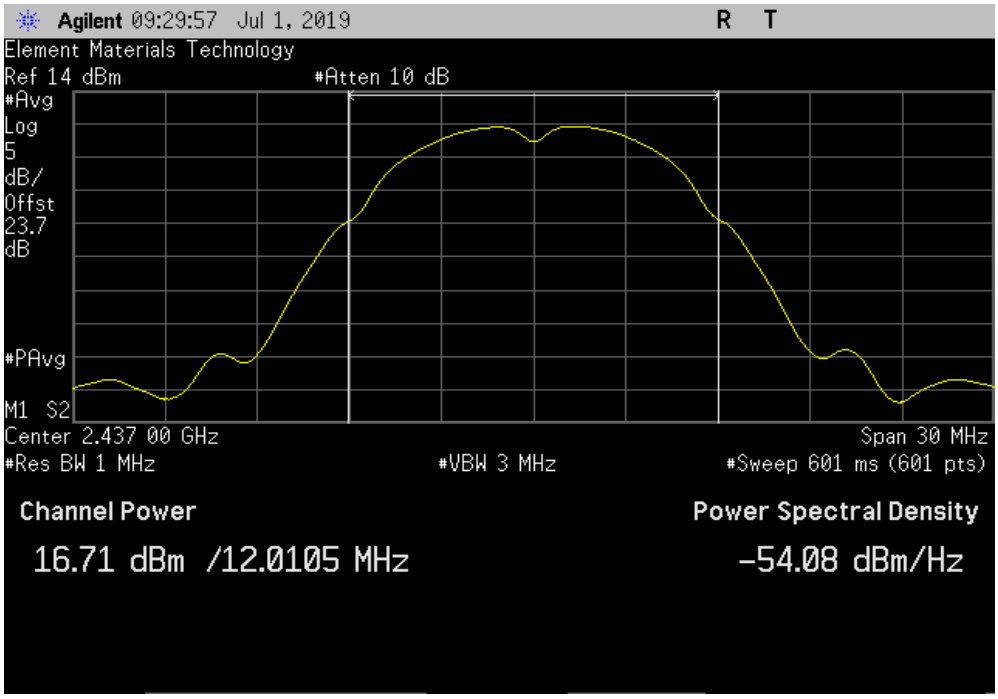
Configuration #	**1**	*Signature*

	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
20 MHz					
2400 MHz - 2483.5 MHz Band					
802.11(b) 1 Mbps					
Low Channel 1, 2412 MHz	16.837	0	16.9	30	Pass
Mid Channel 6, 2437 MHz	16.712	0	16.8	30	Pass
High Channel 11, 2462 MHz	16.670	0	16.7	30	Pass
802.11(b) 11 Mbps					
Low Channel 1, 2412 MHz	16.656	0.5	17.1	30	Pass
Mid Channel 6, 2437 MHz	16.558	0.5	17.0	30	Pass
High Channel 11, 2462 MHz	16.464	0.5	16.9	30	Pass
802.11(g) 6 Mbps					
Low Channel 1, 2412 MHz	13.689	0.3	14.0	30	Pass
Mid Channel 6, 2437 MHz	13.605	0.3	13.9	30	Pass
High Channel 11, 2462 MHz	13.635	0.3	13.9	30	Pass
802.11(g) 36 Mbps					
Low Channel 1, 2412 MHz	12.252	1.5	13.8	30	Pass
Mid Channel 6, 2437 MHz	12.267	1.5	13.8	30	Pass
High Channel 11, 2462 MHz	12.264	1.5	13.8	30	Pass
802.11(g) 54 Mbps					
Low Channel 1, 2412 MHz	11.789	2	13.8	30	Pass
Mid Channel 6, 2437 MHz	11.625	2	13.6	30	Pass
High Channel 11, 2462 MHz	11.880	2	13.9	30	Pass
802.11(n) MCS0					
Low Channel 1, 2412 MHz	14.191	0.3	14.5	30	Pass
Mid Channel 6, 2437 MHz	13.957	0.3	14.3	30	Pass
High Channel 11, 2462 MHz	13.969	0.3	14.3	30	Pass
802.11(n) MCS7					
Low Channel 1, 2412 MHz	12.283	2.1	14.4	30	Pass
Mid Channel 6, 2437 MHz	12.158	2.1	14.3	30	Pass
High Channel 11, 2462 MHz	12.139	2.1	14.3	30	Pass
40 MHz					
2400 MHz - 2483.5 MHz Band					
802.11(n) MCS0					
Low Channel 1/5, 2422 MHz	10.150	0.7	10.8	30	Pass
Mid Channel 4/8, 2437 MHz	9.753	0.7	10.4	30	Pass
High Channel 7/11, 2452 MHz	9.639	0.7	10.3	30	Pass
802.11(n) MCS7					
Low Channel 1/5, 2422 MHz	7.350	3.2	10.5	30	Pass
Mid Channel 4/8, 2437 MHz	7.463	3.2	10.6	30	Pass
High Channel 7/11, 2452 MHz	7.274	3.2	10.5	30	Pass

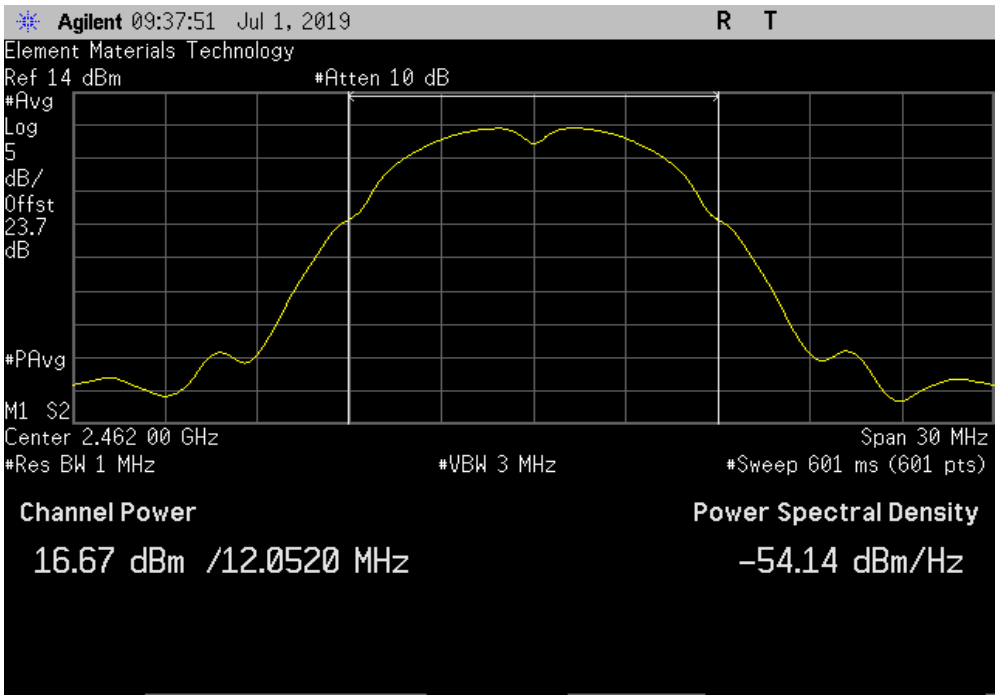
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.837	0	16.9	30	Pass



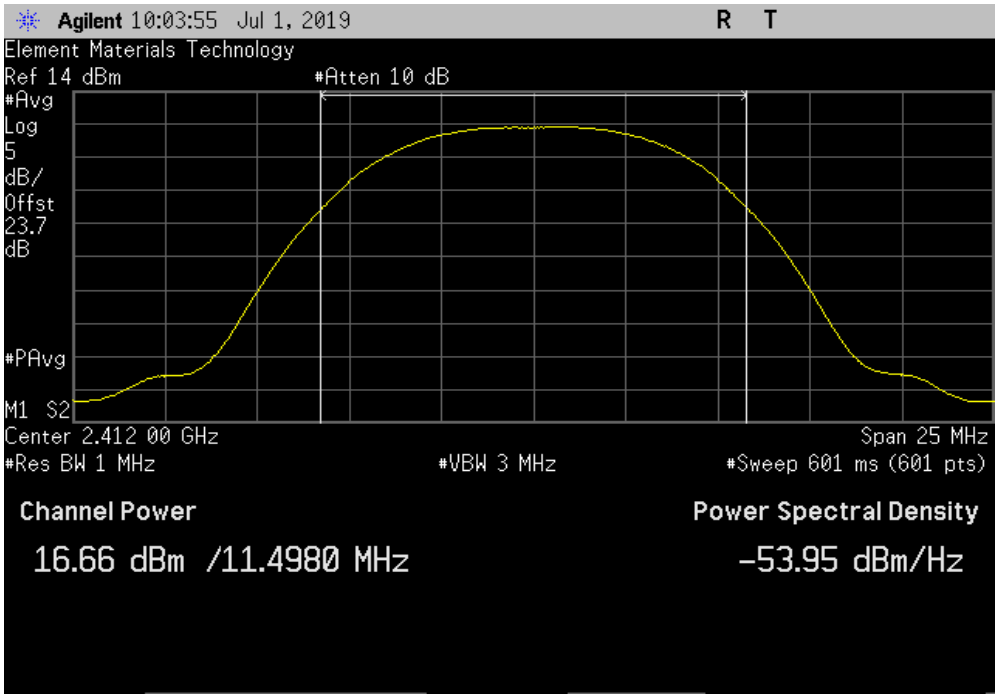
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.712	0	16.8	30	Pass



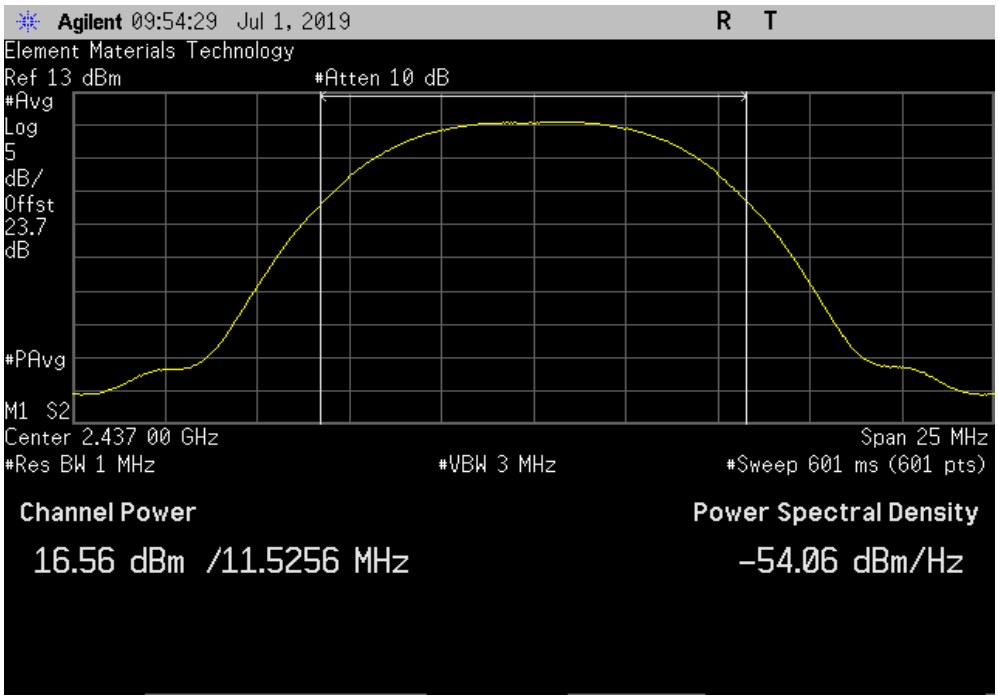
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.67	0	16.7	30	Pass



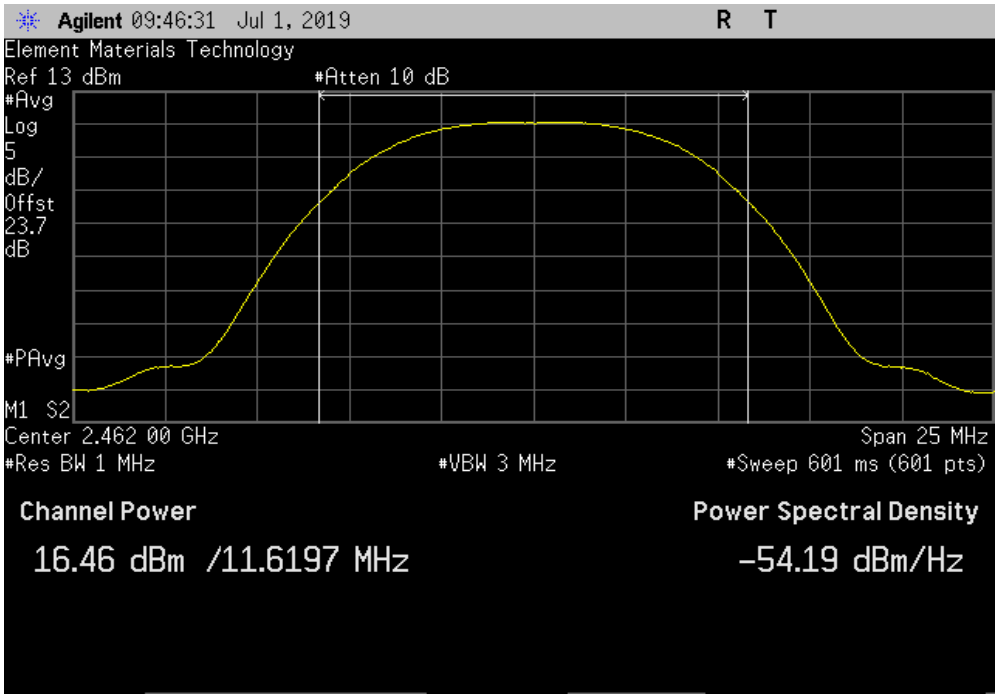
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.656	0.5	17.1	30	Pass



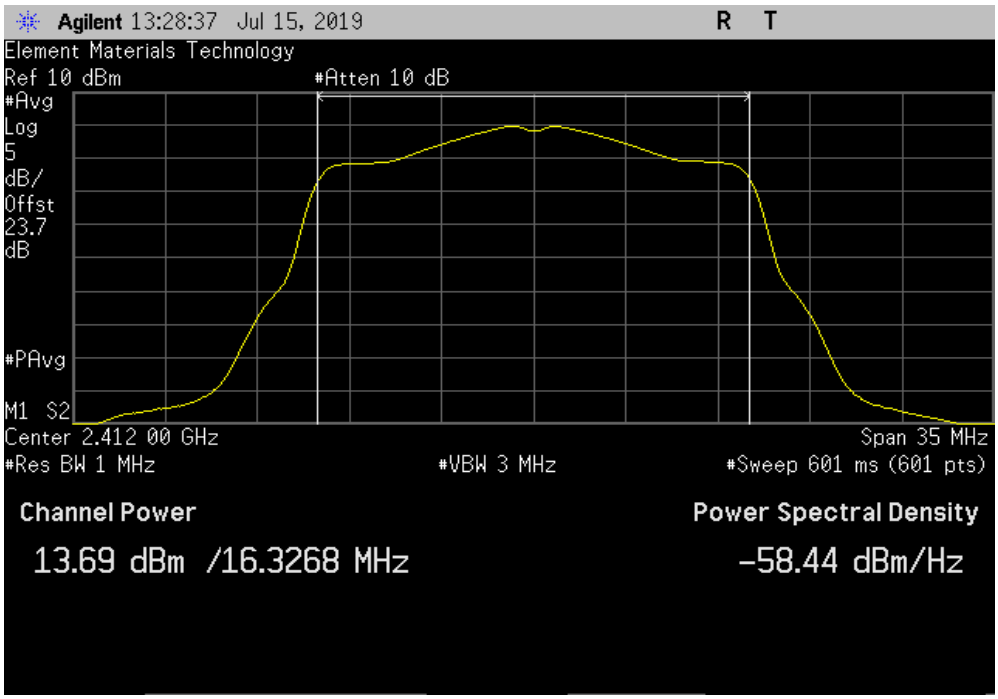
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.558	0.5	17	30	Pass



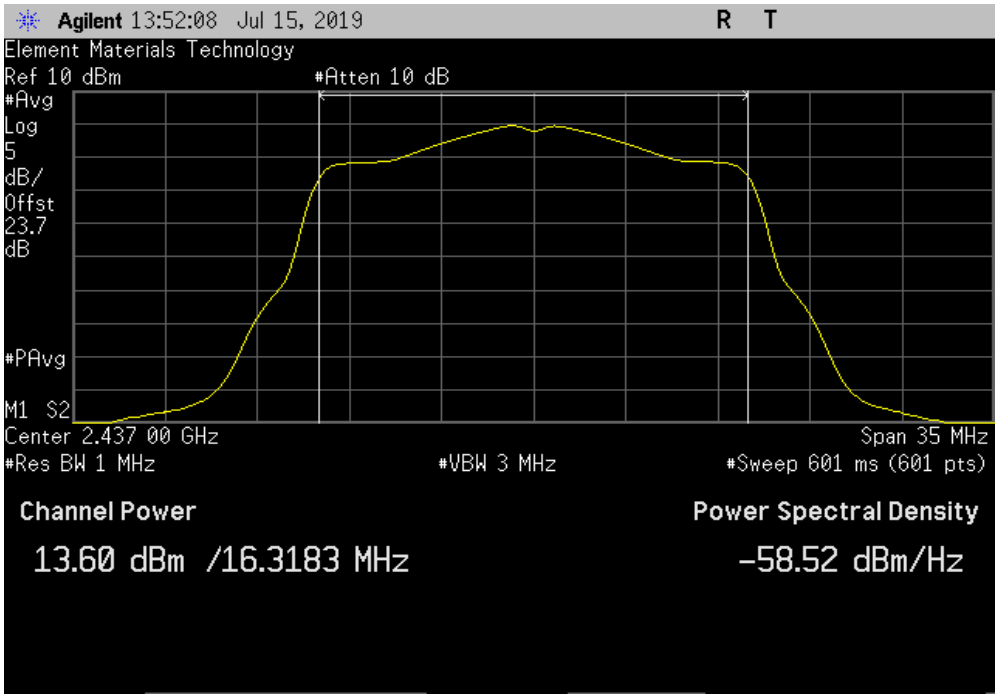
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.464	0.5	16.9	30	Pass



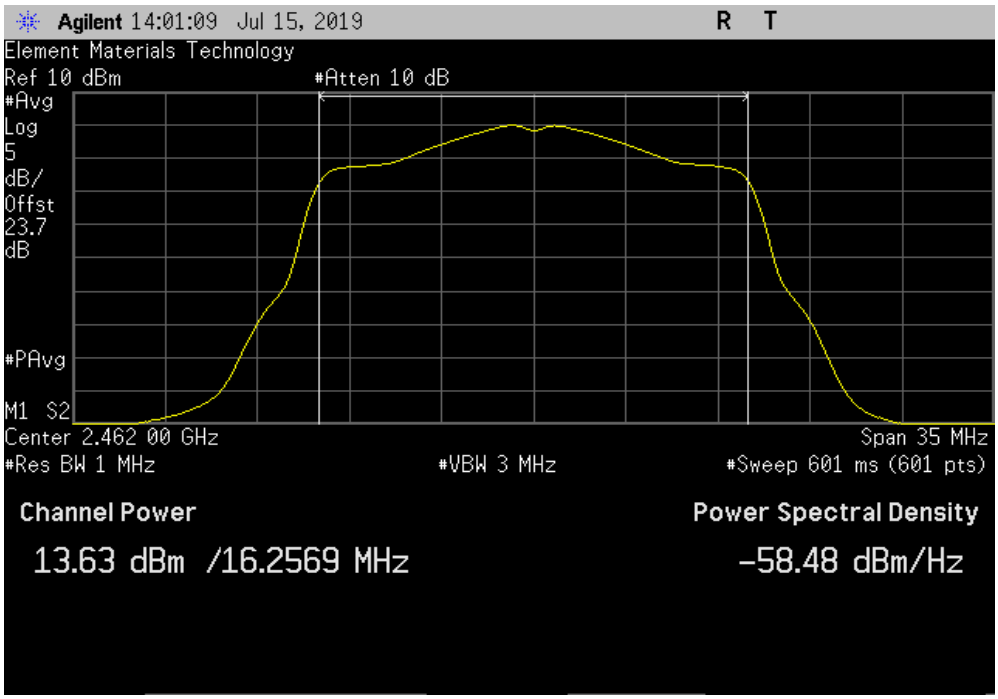
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		13.689	0.3	14	30	Pass



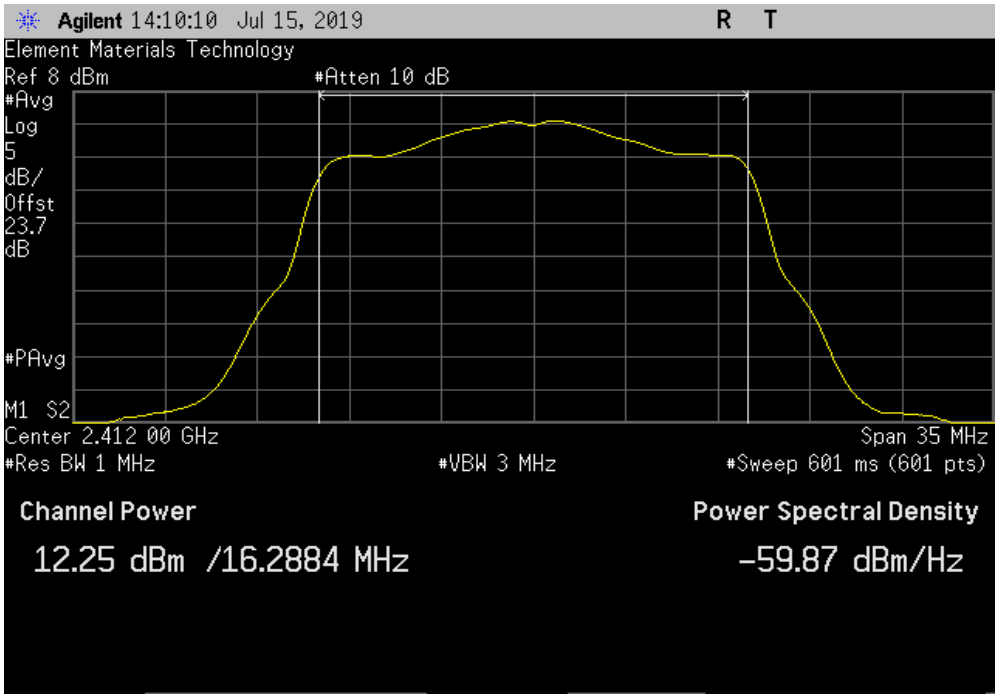
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		13.605	0.3	13.9	30	Pass



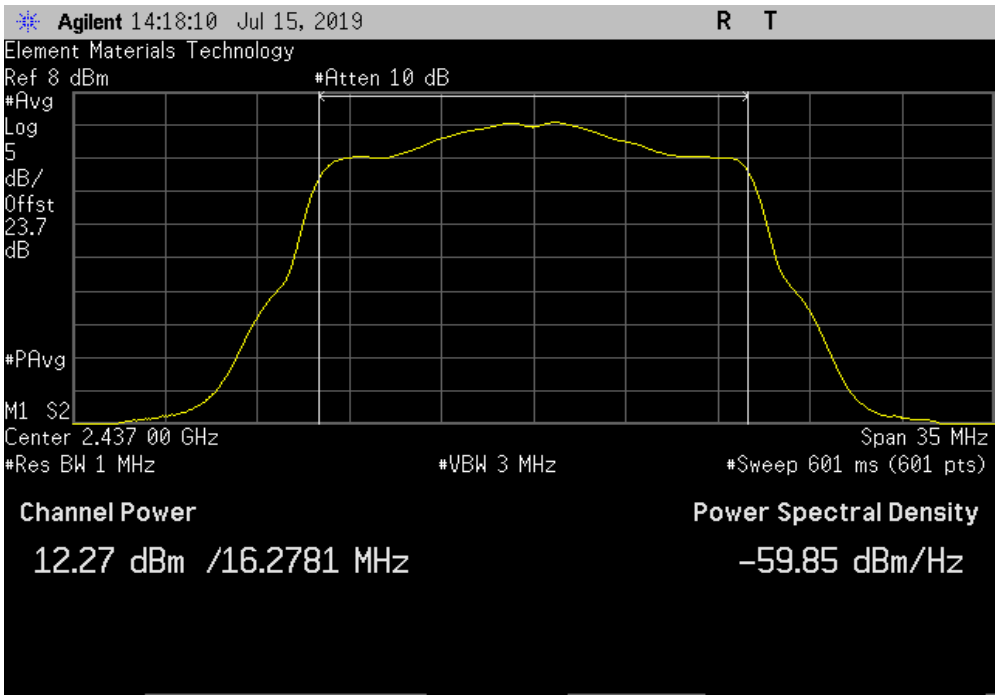
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		13.635	0.3	13.9	30	Pass



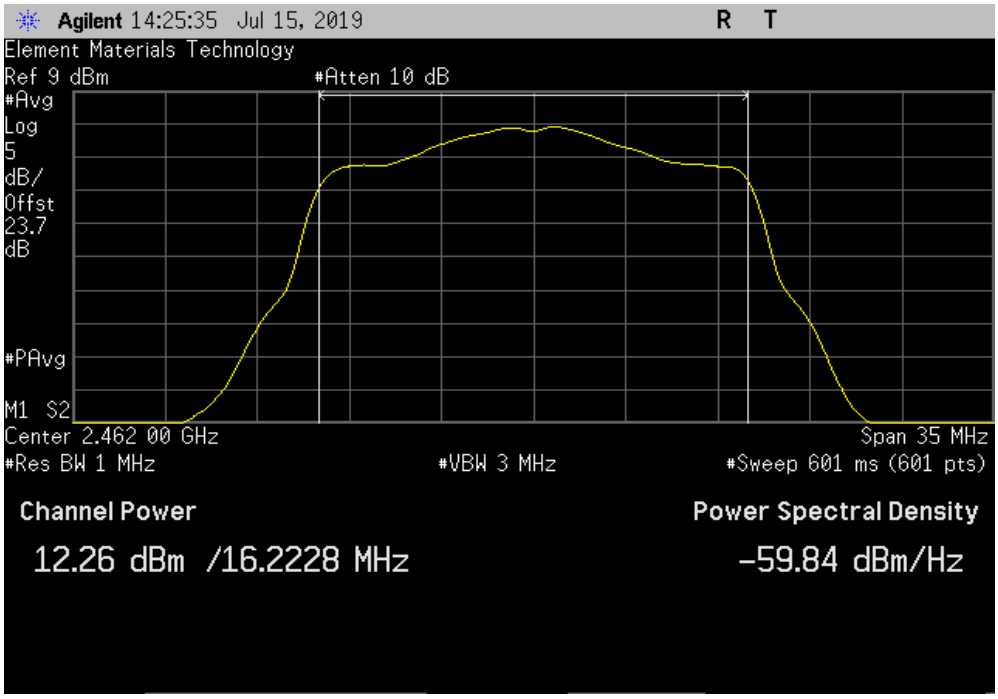
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.252	1.5	13.8	30	Pass



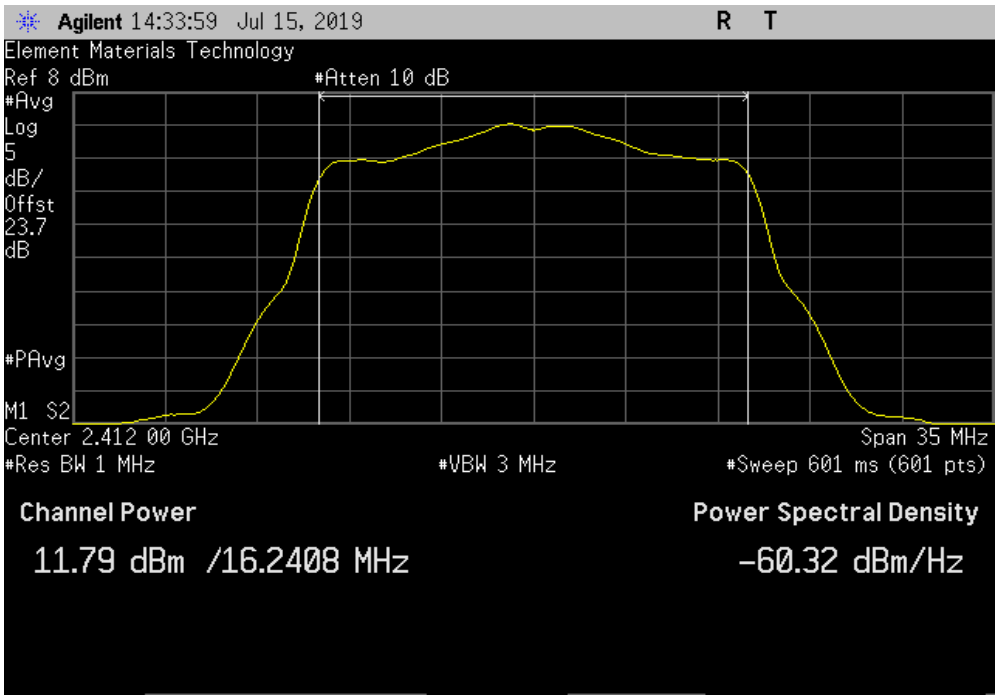
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.267	1.5	13.8	30	Pass



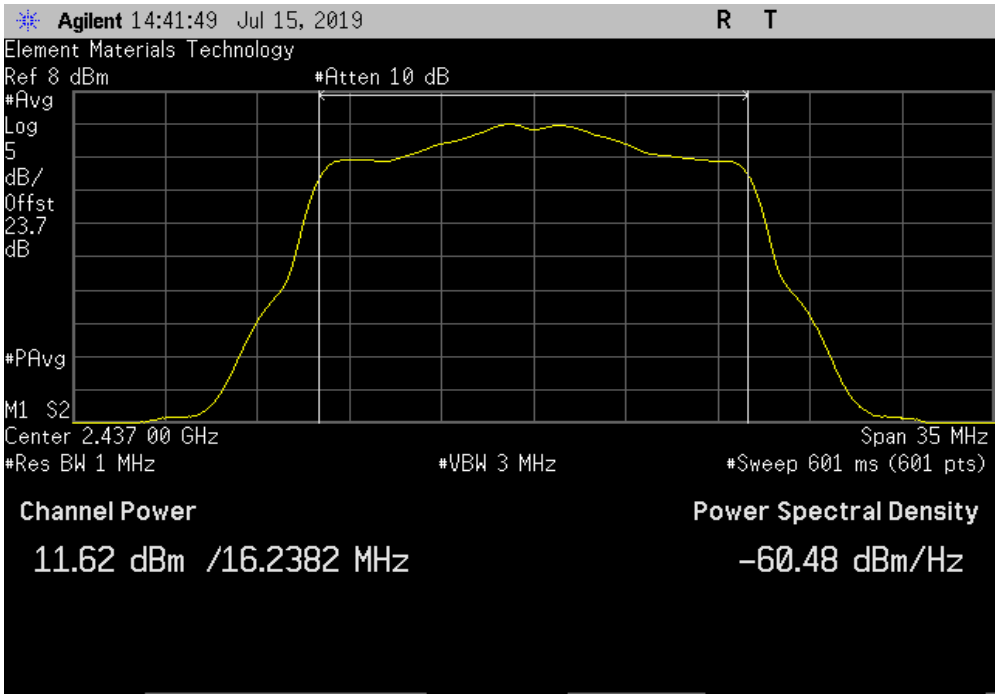
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.264	1.5	13.8	30	Pass



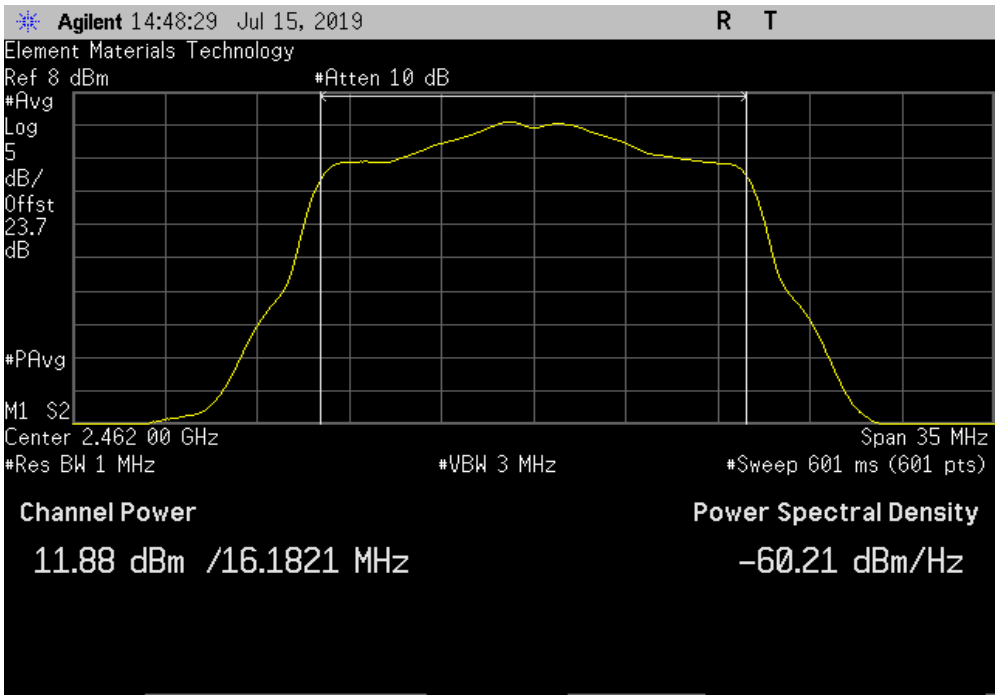
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.789	2	13.8	30	Pass



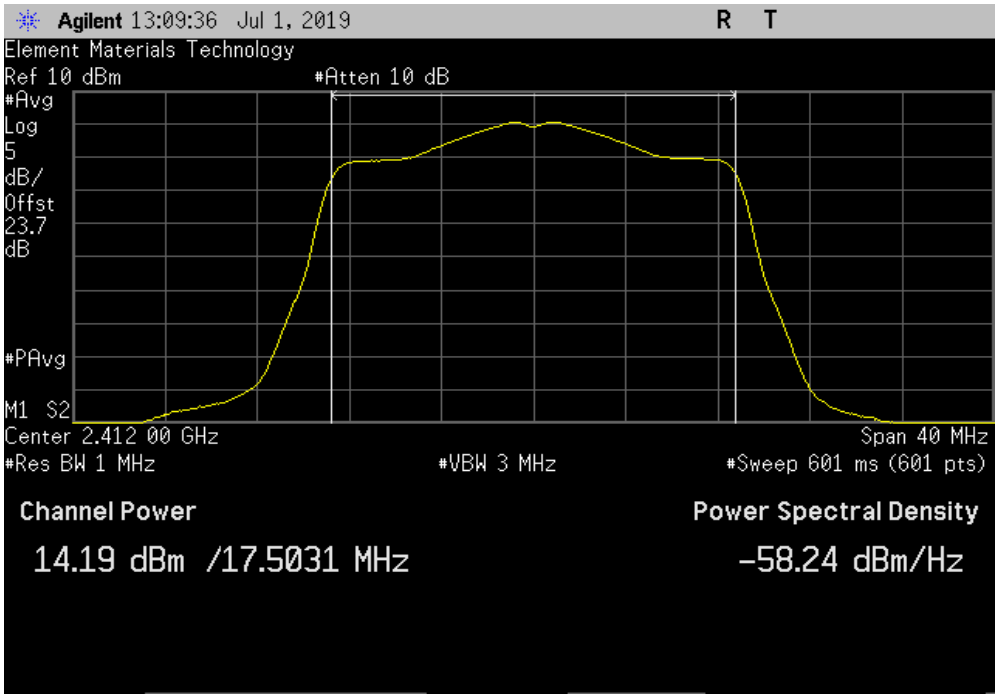
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.625	2	13.6	30	Pass



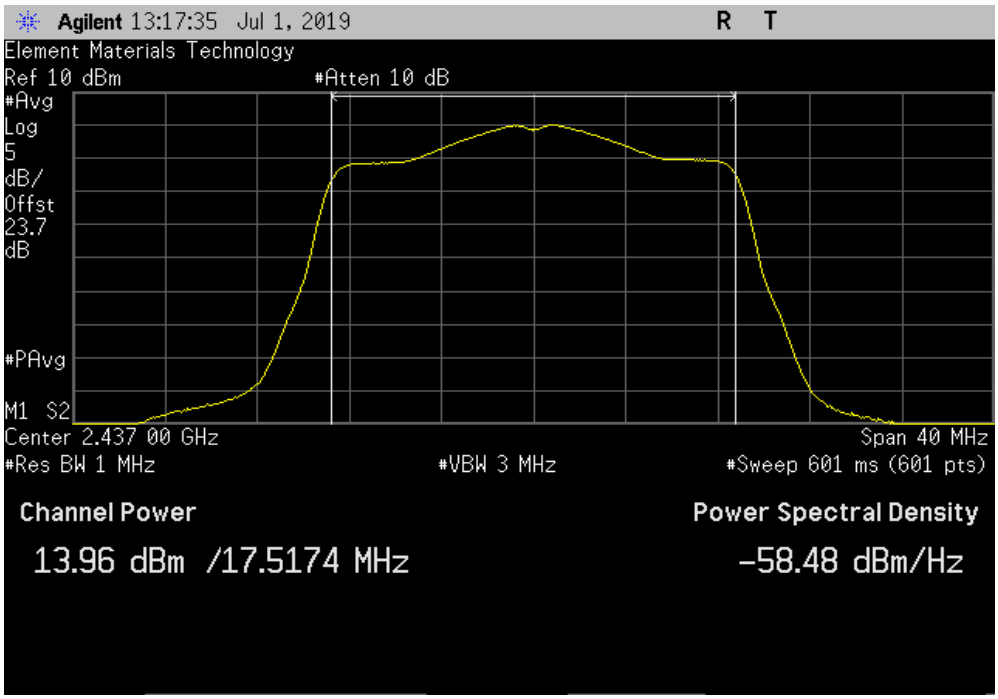
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.88	2	13.9	30	Pass



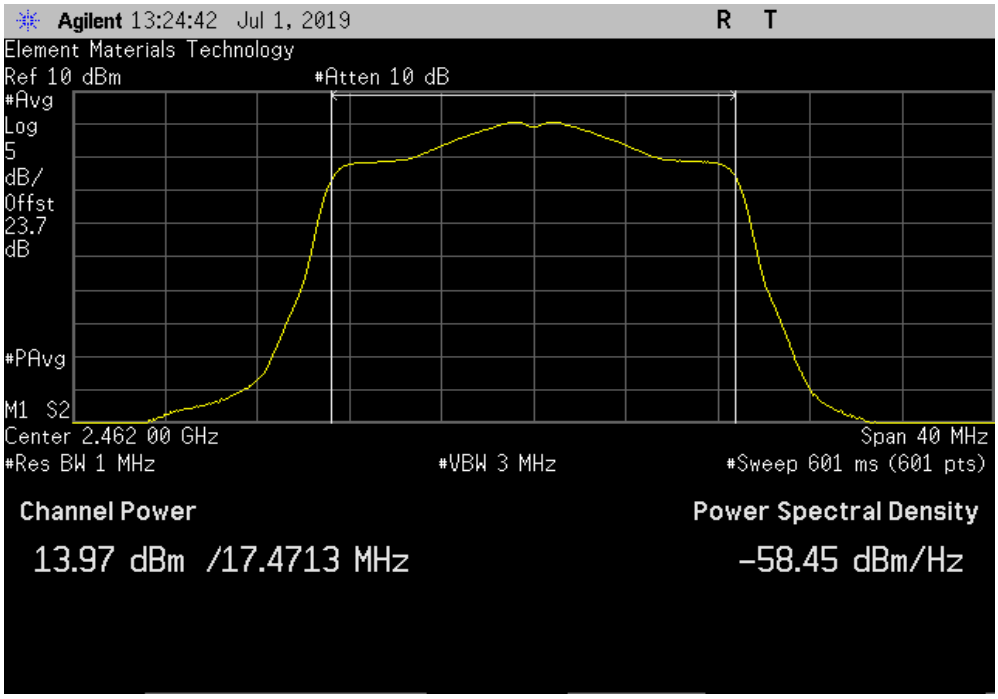
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		14.191	0.3	14.5	30	Pass



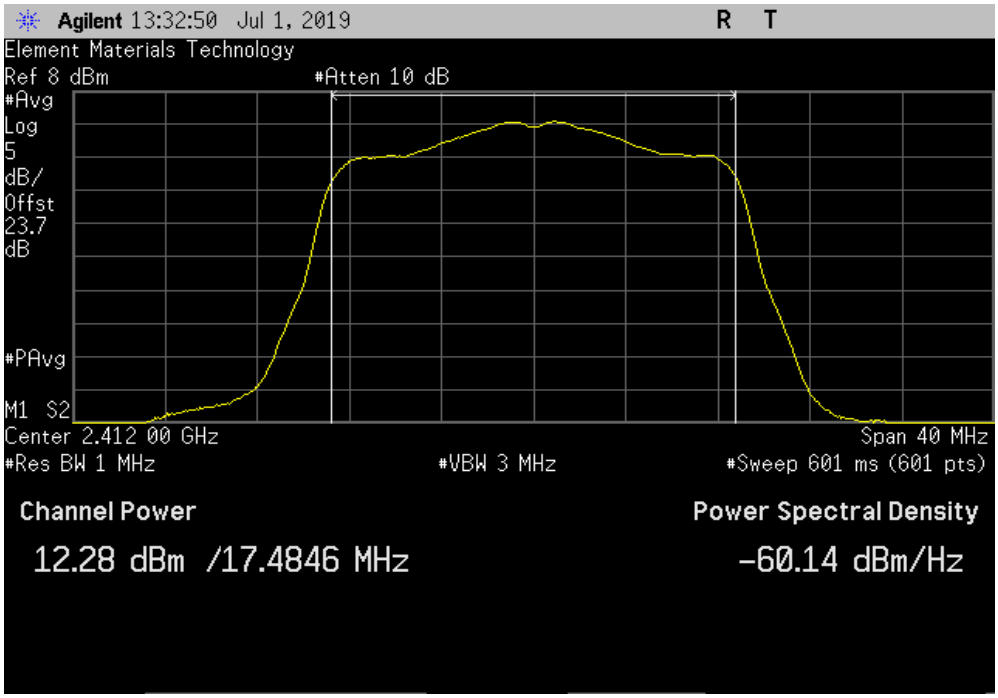
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		13.957	0.3	14.3	30	Pass



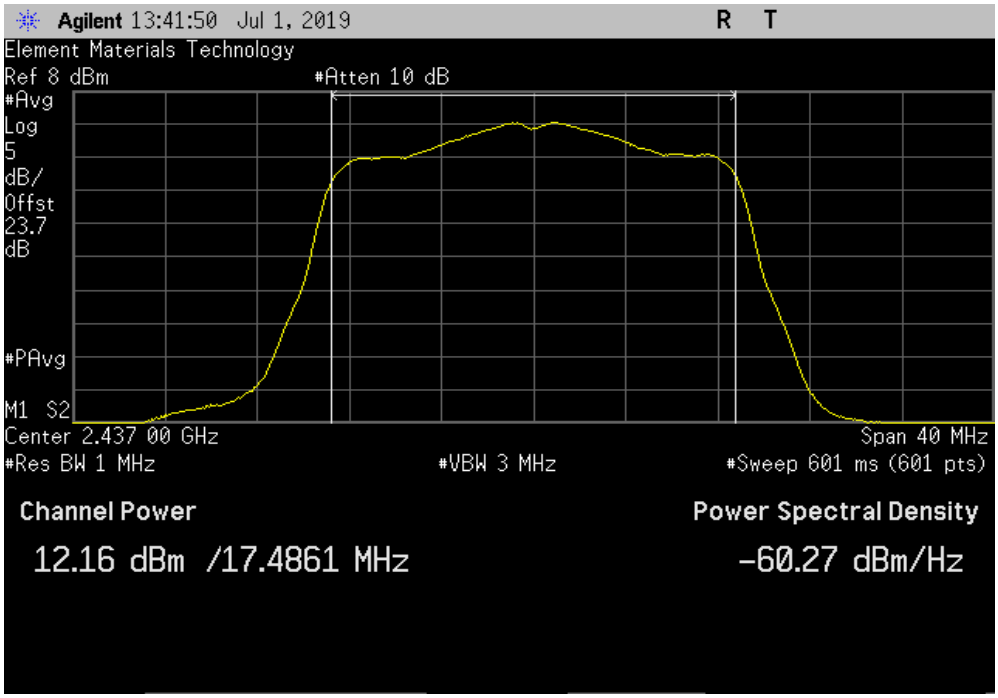
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		13.969	0.3	14.3	30	Pass



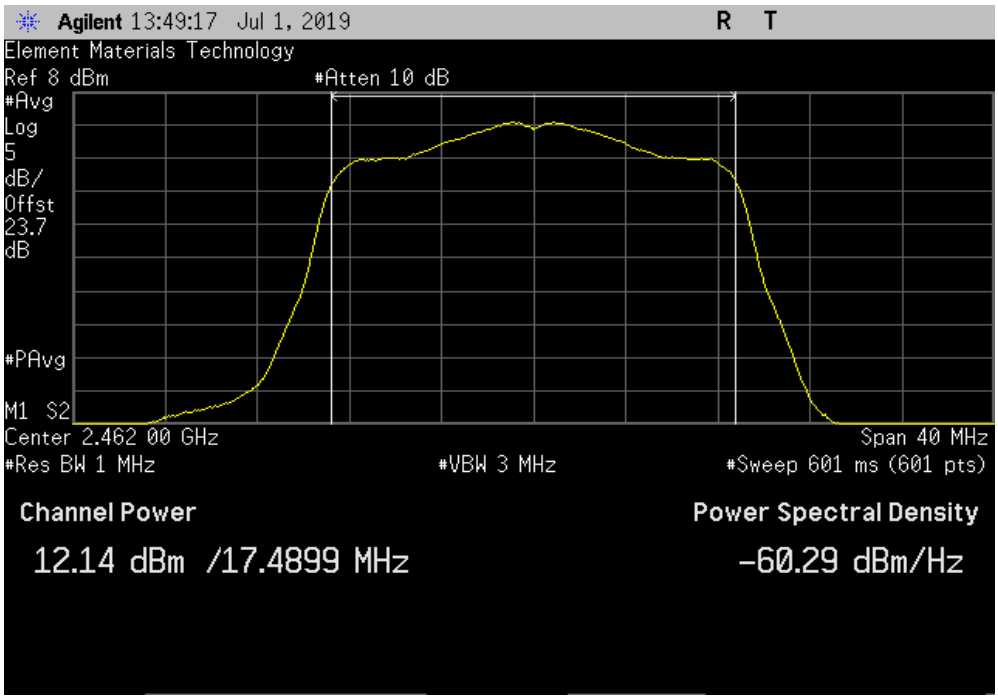
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.283	2.1	14.4	30	Pass



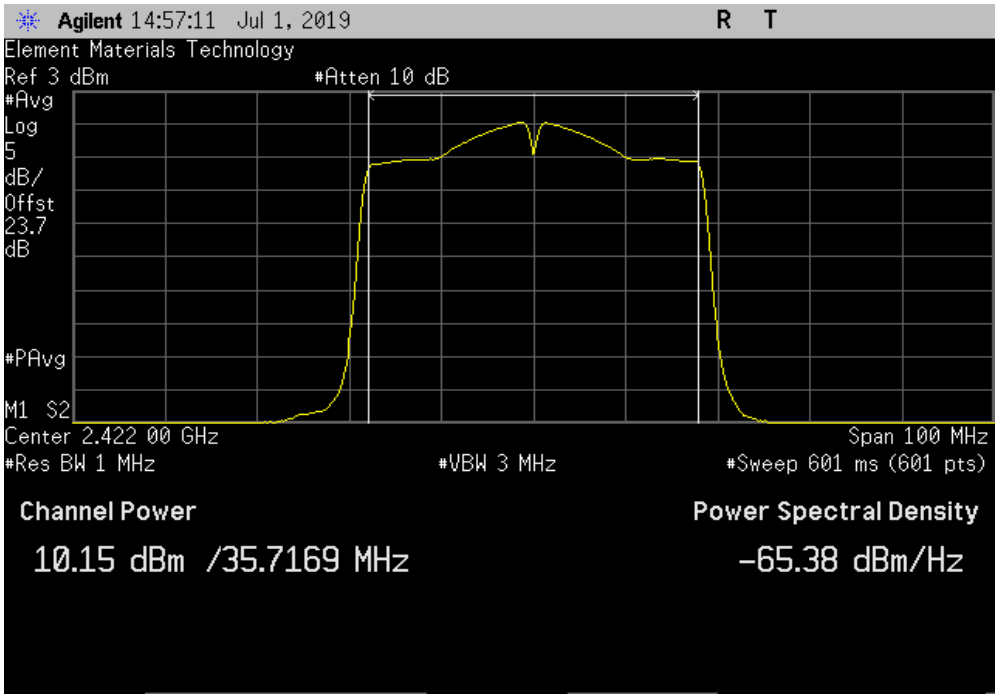
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.158	2.1	14.3	30	Pass



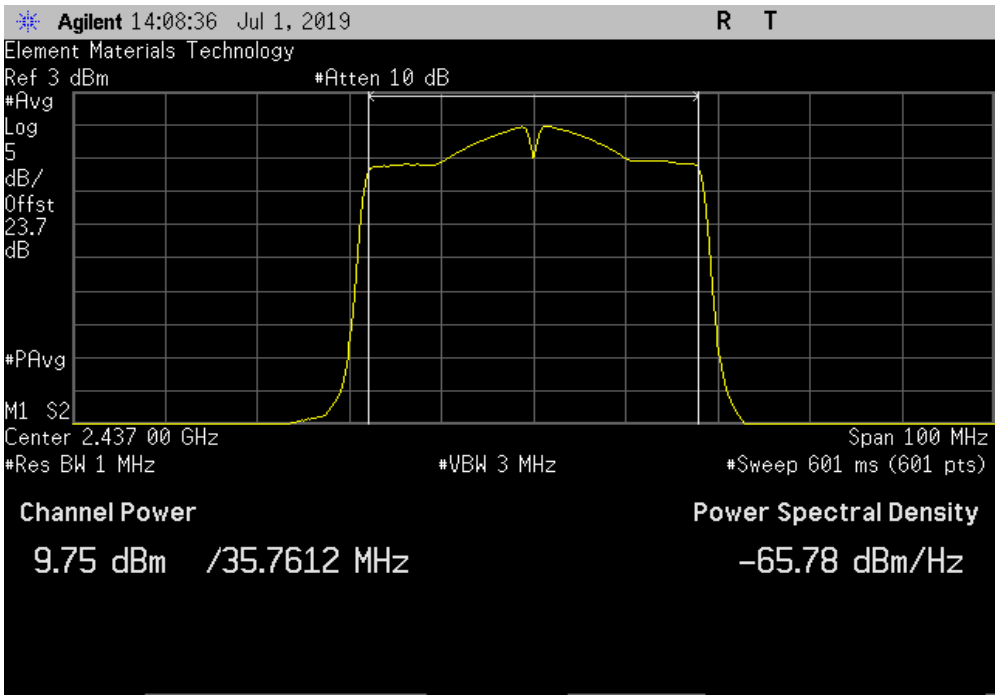
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.139	2.1	14.3	30	Pass



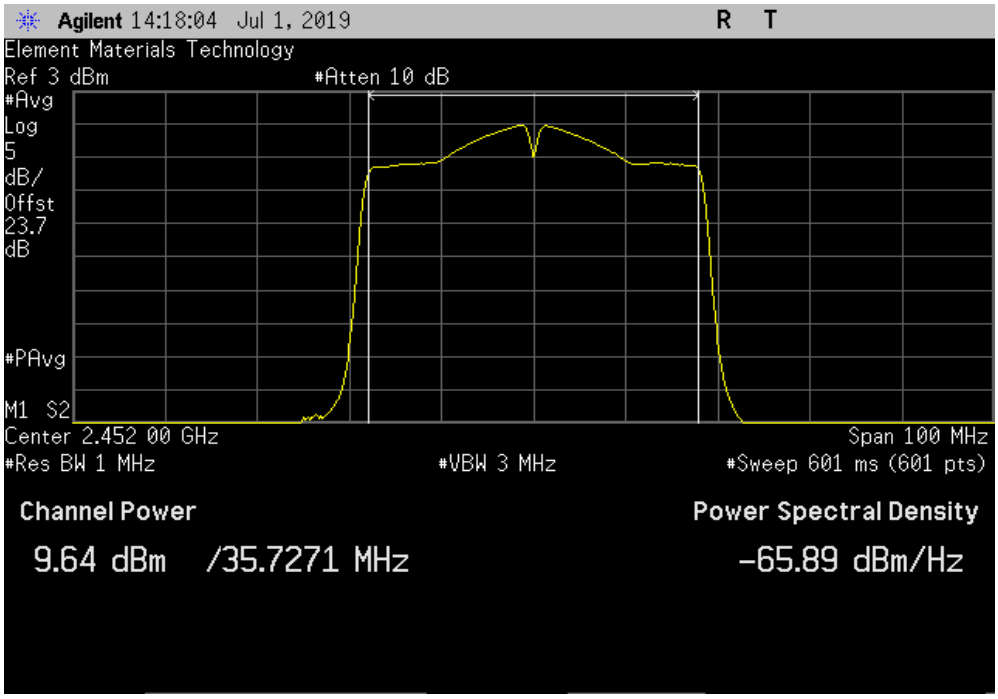
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		10.15	0.7	10.8	30	Pass



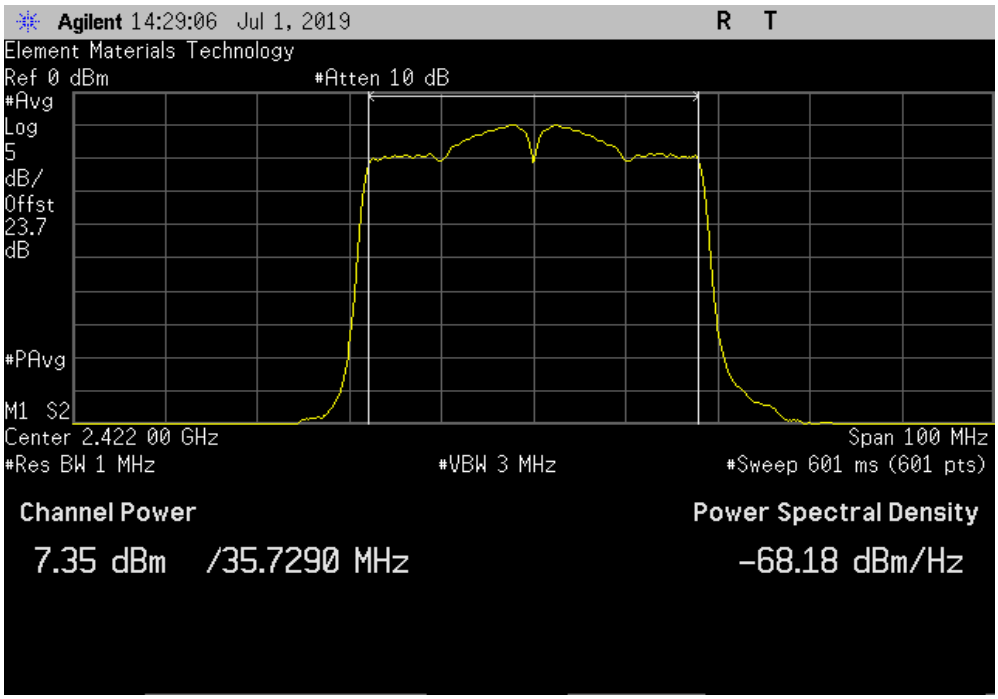
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		9.753	0.7	10.4	30	Pass



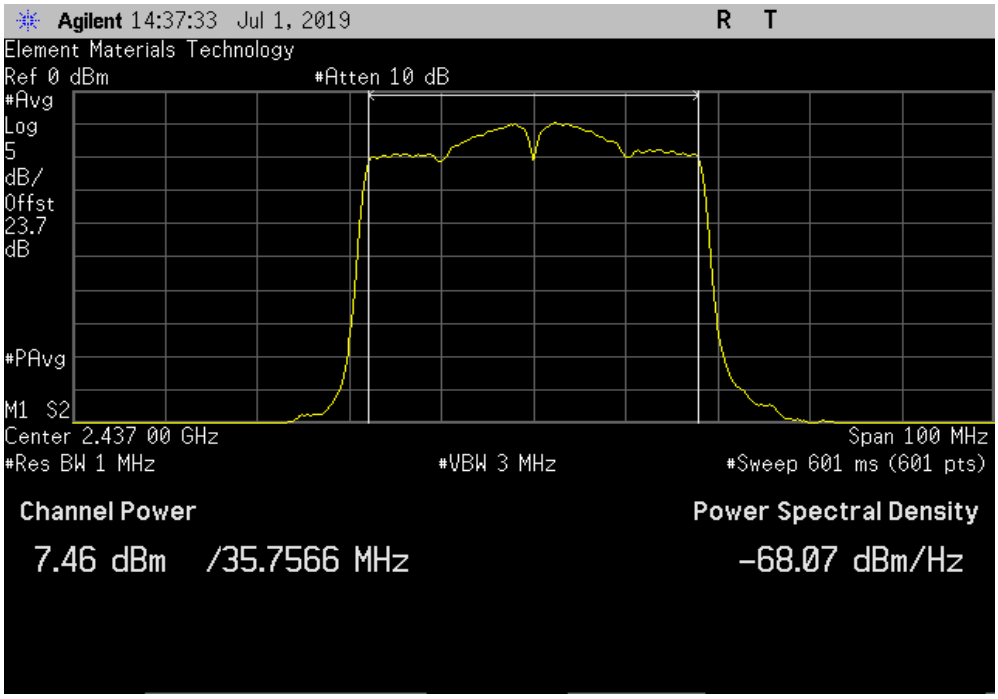
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		9.639	0.7	10.3	30	Pass



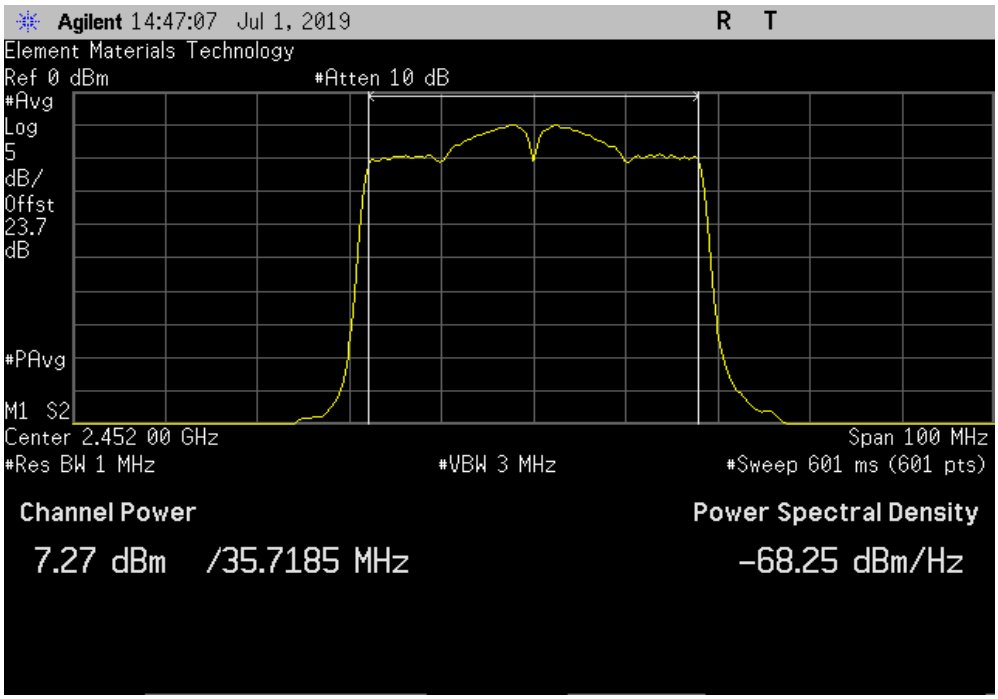
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		7.35	3.2	10.5	30	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		7.463	3.2	10.6	30	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		7.274	3.2	10.5	30	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

Prior to measuring maximum transmit power; the 99% emission bandwidth (B) and the transmission pulse duration (T) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report. The transmission pulse duration (T) was measured using a zero span on the spectrum analyzer to see the pulses in the time domain.

The maximum conducted output power was measured using ANSI C63.10, Method SA-2 (RMS detection and trace averaging across the on and off times of the EUT transmission and use of a duty cycle correction factor).

The spectrum analyzer settings were set per the guidance as well as the following specifics:

-RMS Detector

-Trace average 100 traces in power averaging mode.

-Power was integrated across “B”, by using the channel power function of the analyzer.

-EIRP = Max Measured Power + Antenna gain (dBi)

A duty cycle correction factor was added to the measurement using the results of the formula of 10*LOG(1/D) where D is the duty cycle.

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

DEVIATIONS FROM TEST STANDARD

None

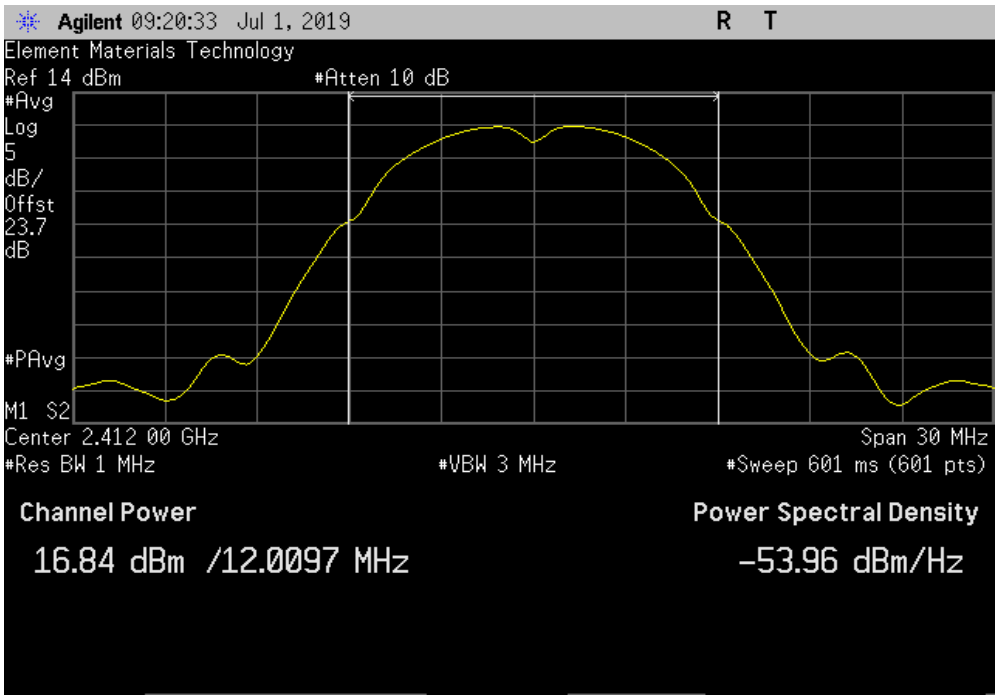
Configuration #	**1**	*Signature*

	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
20 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(b) 1 Mbps							
Low Channel 1, 2412 MHz	16.837	0	16.9	2.5	19.4	36	Pass
Mid Channel 6, 2437 MHz	16.712	0	16.8	2.5	19.3	36	Pass
High Channel 11, 2462 MHz	16.670	0	16.7	2.5	19.2	36	Pass
802.11(b) 11 Mbps							
Low Channel 1, 2412 MHz	16.656	0.5	17.1	2.5	19.6	36	Pass
Mid Channel 6, 2437 MHz	16.558	0.5	17.0	2.5	19.5	36	Pass
High Channel 11, 2462 MHz	16.464	0.5	16.9	2.5	19.4	36	Pass
802.11(g) 6 Mbps							
Low Channel 1, 2412 MHz	13.689	0.3	14.0	2.5	16.5	36	Pass
Mid Channel 6, 2437 MHz	13.605	0.3	13.9	2.5	16.4	36	Pass
High Channel 11, 2462 MHz	13.635	0.3	13.9	2.5	16.4	36	Pass
802.11(g) 36 Mbps							
Low Channel 1, 2412 MHz	12.252	1.5	13.8	2.5	16.3	36	Pass
Mid Channel 6, 2437 MHz	12.267	1.5	13.8	2.5	16.3	36	Pass
High Channel 11, 2462 MHz	12.264	1.5	13.8	2.5	16.3	36	Pass
802.11(g) 54 Mbps							
Low Channel 1, 2412 MHz	11.789	2	13.8	2.5	16.3	36	Pass
Mid Channel 6, 2437 MHz	11.625	2	13.6	2.5	16.1	36	Pass
High Channel 11, 2462 MHz	11.880	2	13.9	2.5	16.4	36	Pass
802.11(n) MCS0							
Low Channel 1, 2412 MHz	14.191	0.3	14.5	2.5	17.0	36	Pass
Mid Channel 6, 2437 MHz	13.957	0.3	14.3	2.5	16.8	36	Pass
High Channel 11, 2462 MHz	13.969	0.3	14.3	2.5	16.8	36	Pass
802.11(n) MCS7							
Low Channel 1, 2412 MHz	12.283	2.1	14.4	2.5	16.9	36	Pass
Mid Channel 6, 2437 MHz	12.158	2.1	14.3	2.5	16.8	36	Pass
High Channel 11, 2462 MHz	12.139	2.1	14.3	2.5	16.8	36	Pass
40 MHz							
2400 MHz - 2483.5 MHz Band							
802.11(n) MCS0							
Low Channel 1/5, 2422 MHz	10.150	0.7	10.8	2.5	13.3	36	Pass
Mid Channel 4/8, 2437 MHz	9.753	0.7	10.4	2.5	12.9	36	Pass
High Channel 7/11, 2452 MHz	9.639	0.7	10.3	2.5	12.8	36	Pass
802.11(n) MCS7							
Low Channel 1/5, 2422 MHz	7.350	3.2	10.5	2.5	13.0	36	Pass
Mid Channel 4/8, 2437 MHz	7.463	3.2	10.6	2.5	13.1	36	Pass
High Channel 7/11, 2452 MHz	7.274	3.2	10.5	2.5	13.0	36	Pass

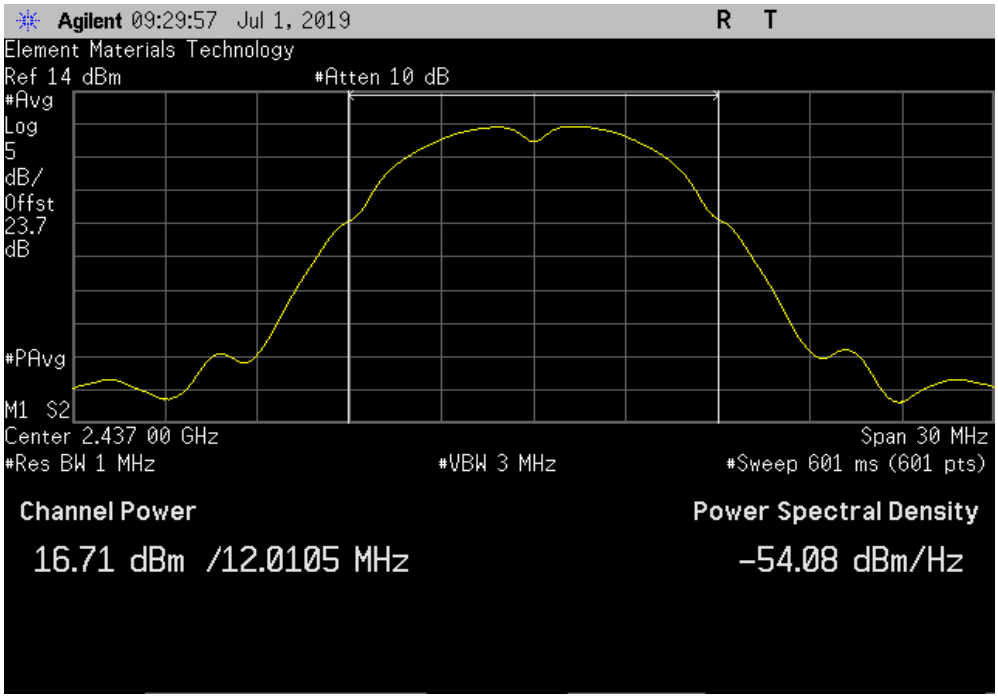
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2018.09.13 XMit 2019.06.11

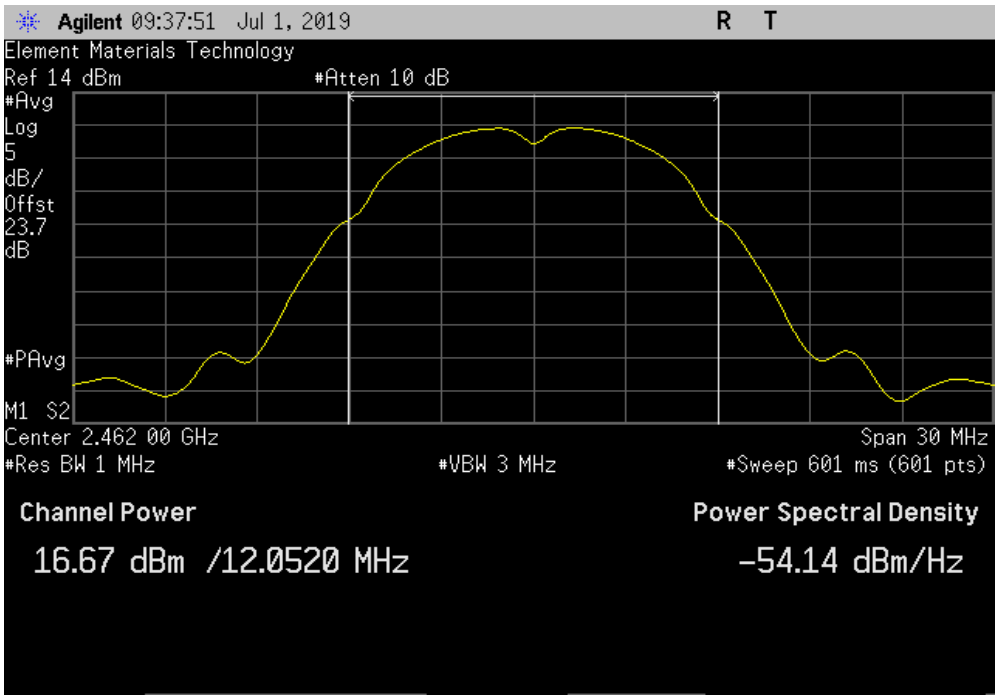
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.837	0	16.9	2.5	19.4	36	Pass



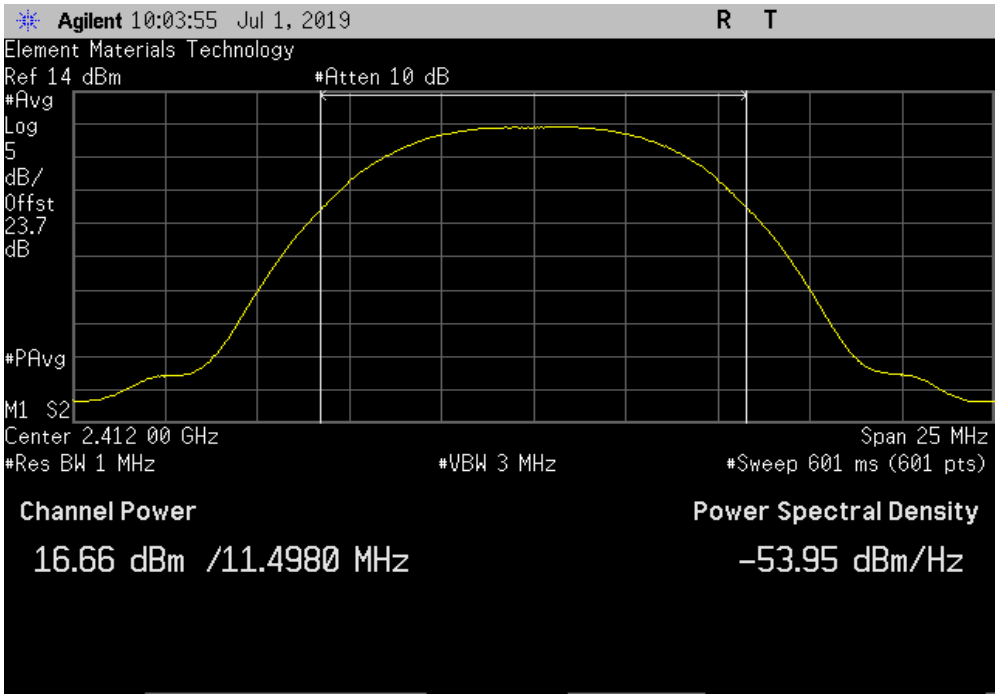
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.712	0	16.8	2.5	19.3	36	Pass



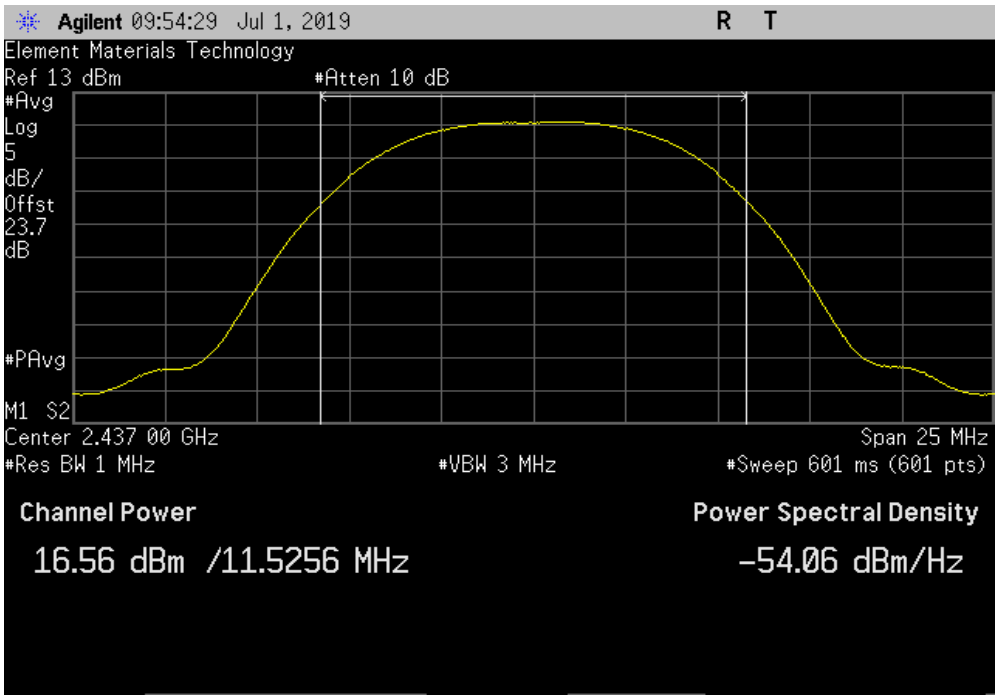
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.67	0	16.7	2.5	19.2	36	Pass



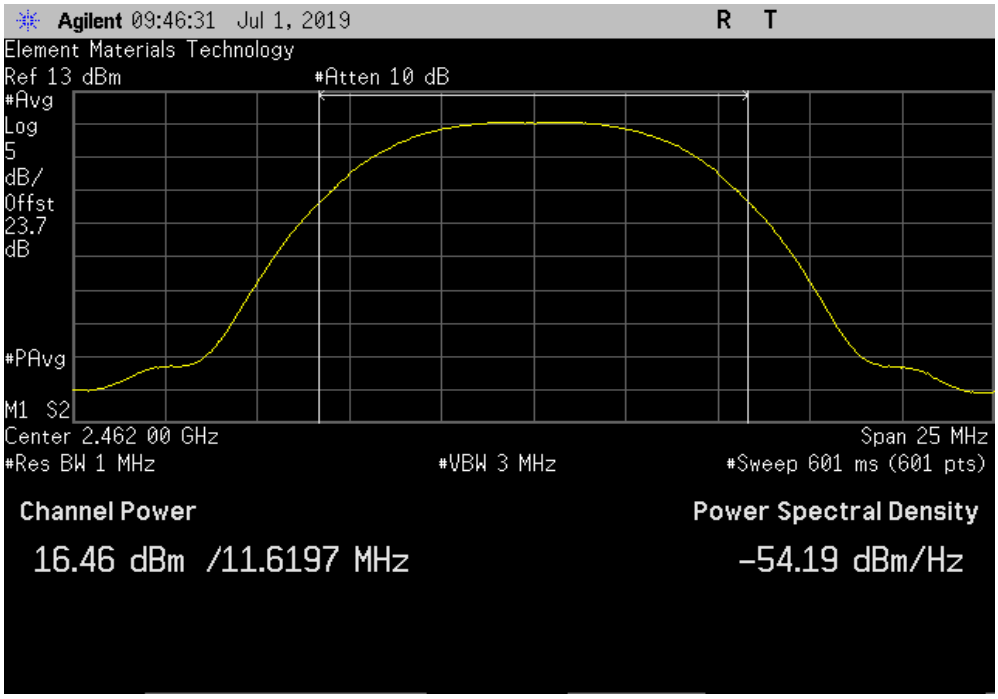
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.656	0.5	17.1	2.5	19.6	36	Pass



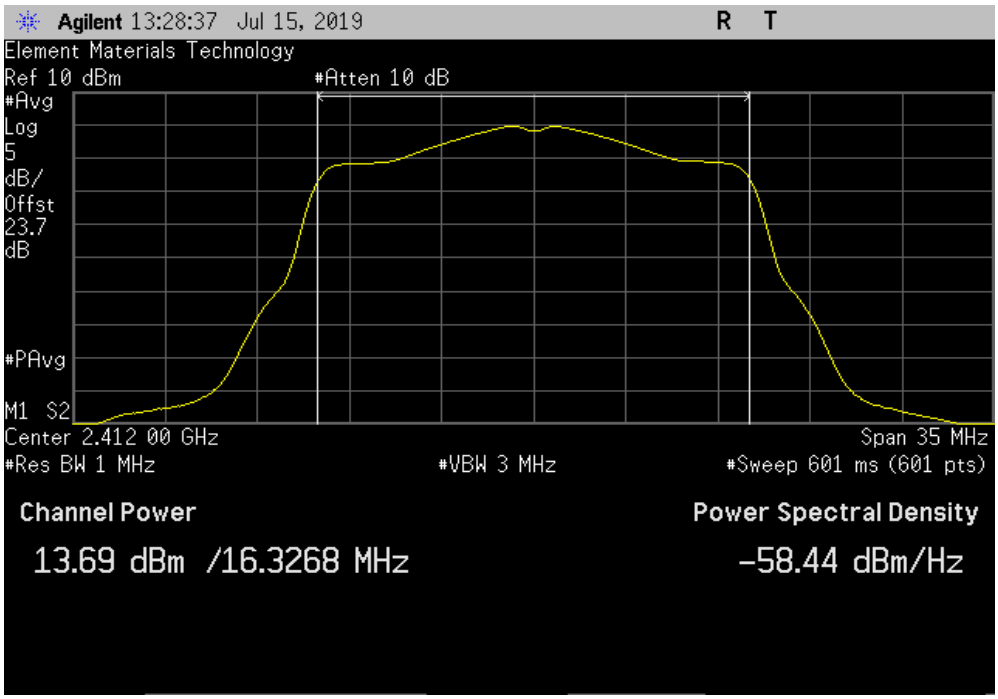
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.558	0.5	17	2.5	19.5	36	Pass



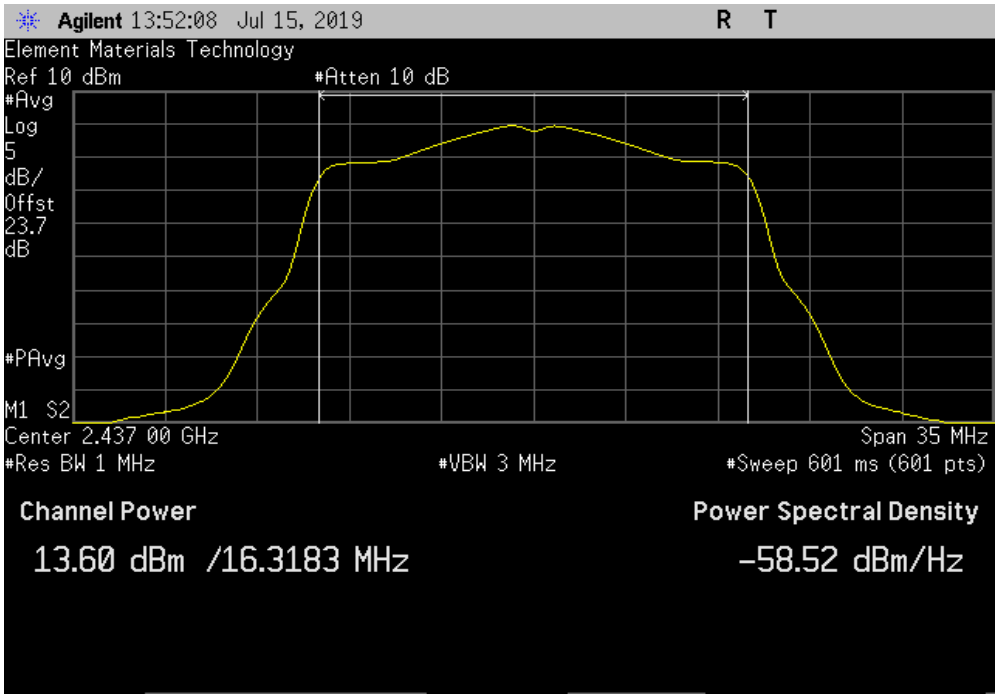
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
16.464	0.5	16.9	2.5	19.4	36	Pass



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.689	0.3	14	2.5	16.5	36	Pass

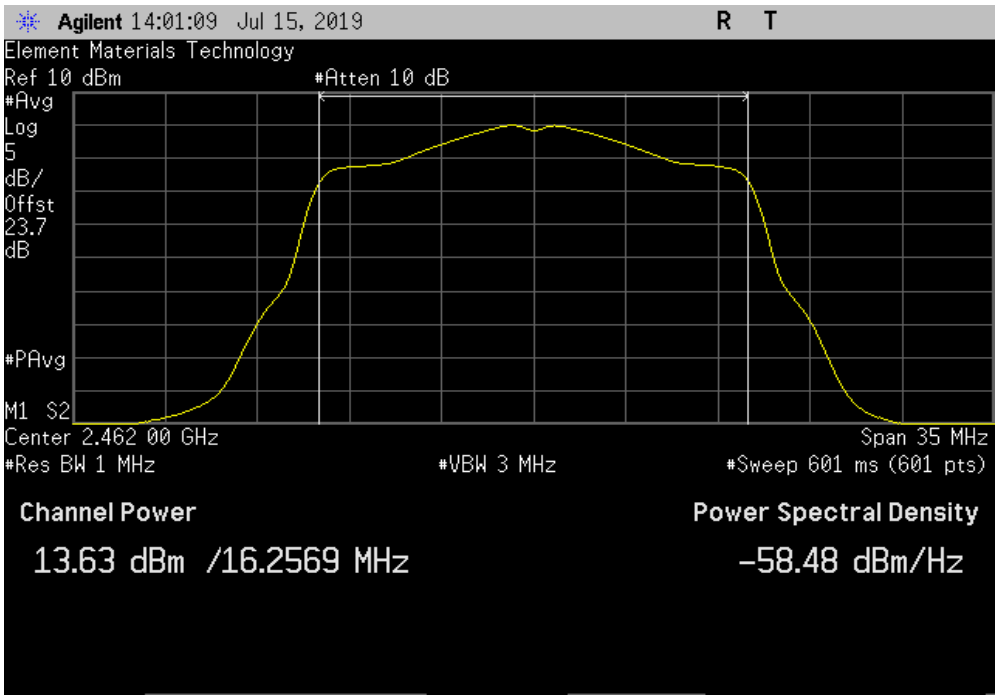


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.605	0.3	13.9	2.5	16.4	36	Pass

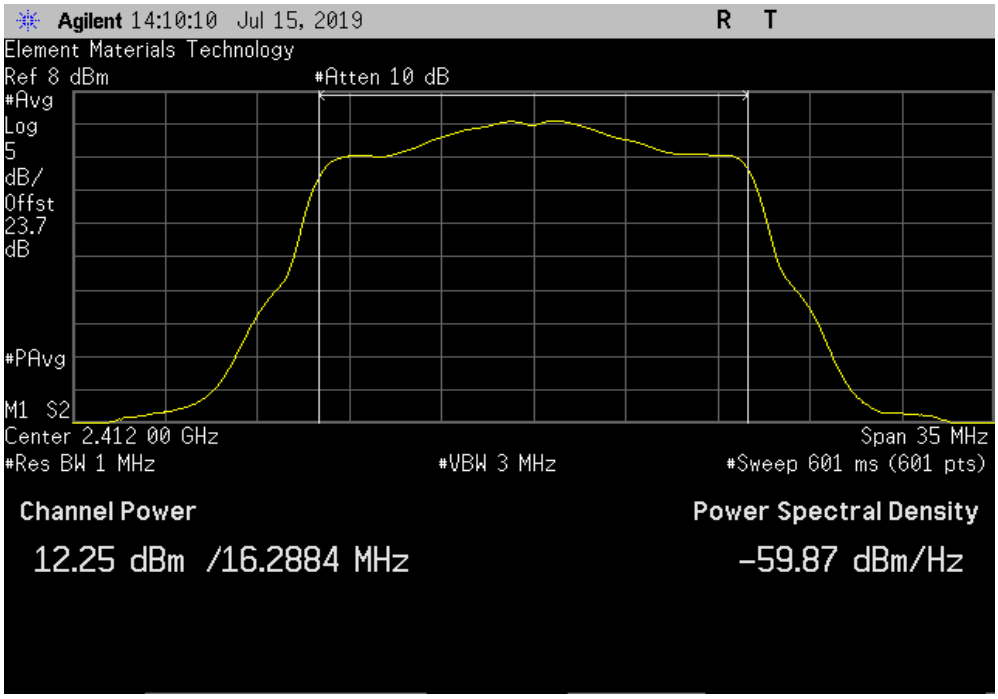


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

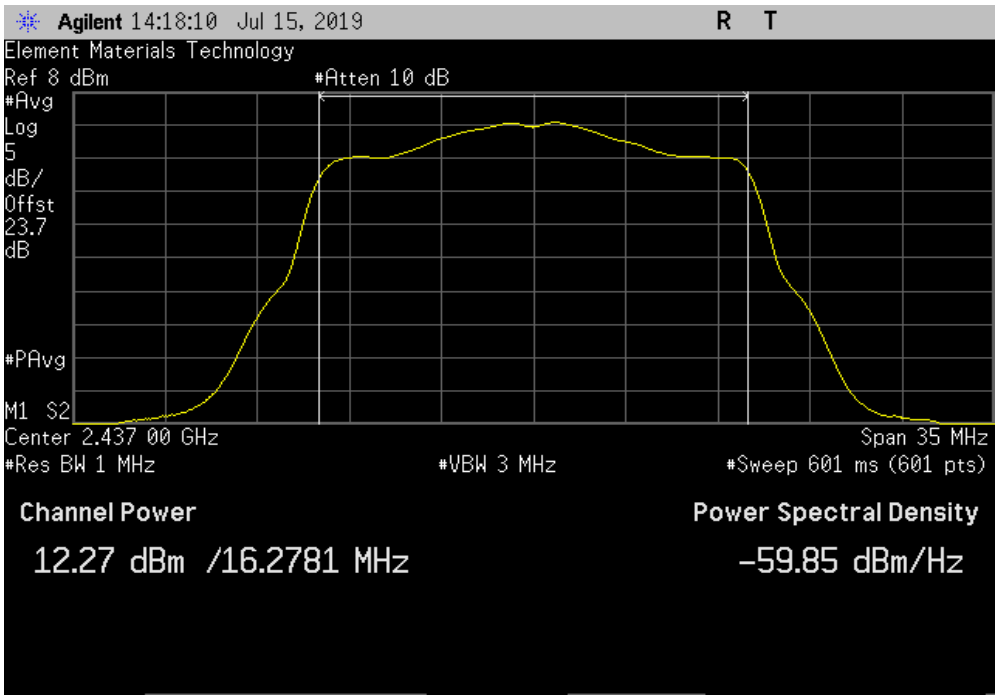
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.635	0.3	13.9	2.5	16.4	36	Pass



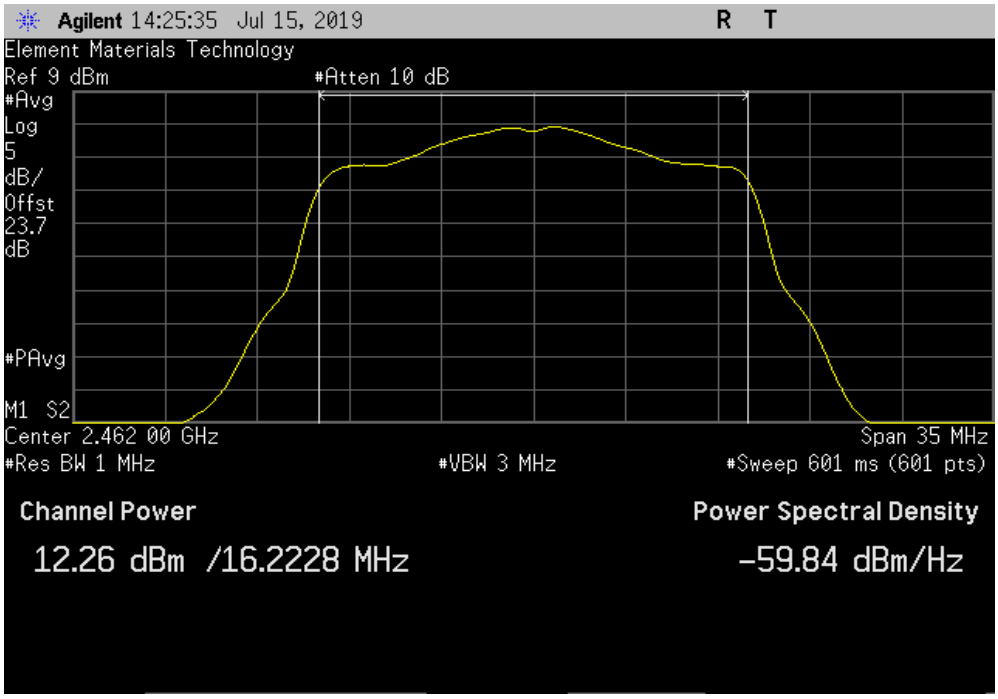
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.252	1.5	13.8	2.5	16.3	36	Pass



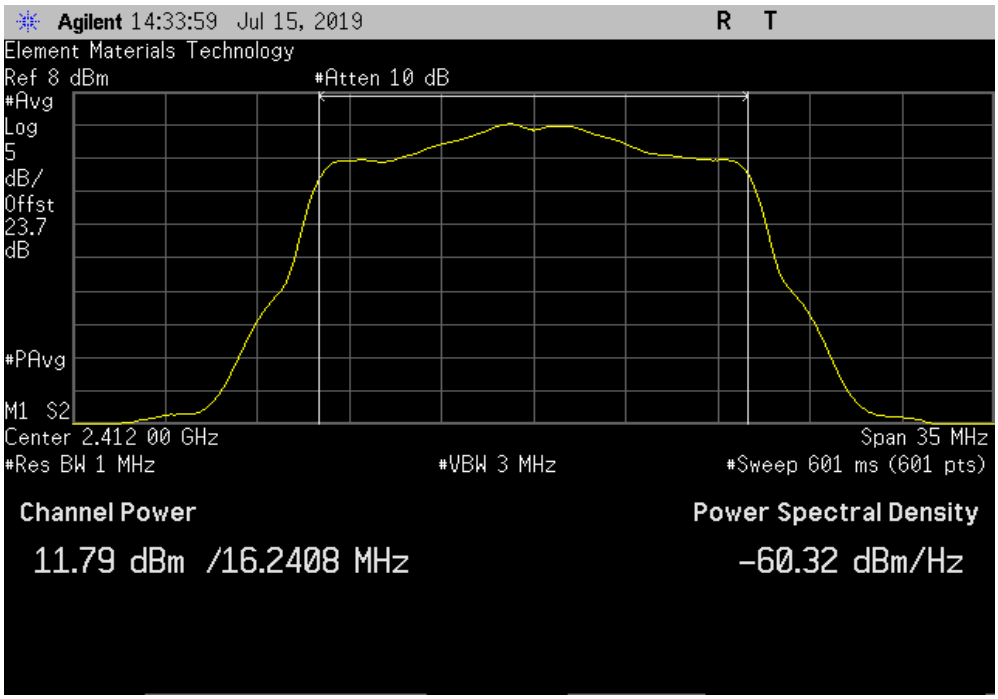
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.267	1.5	13.8	2.5	16.3	36	Pass



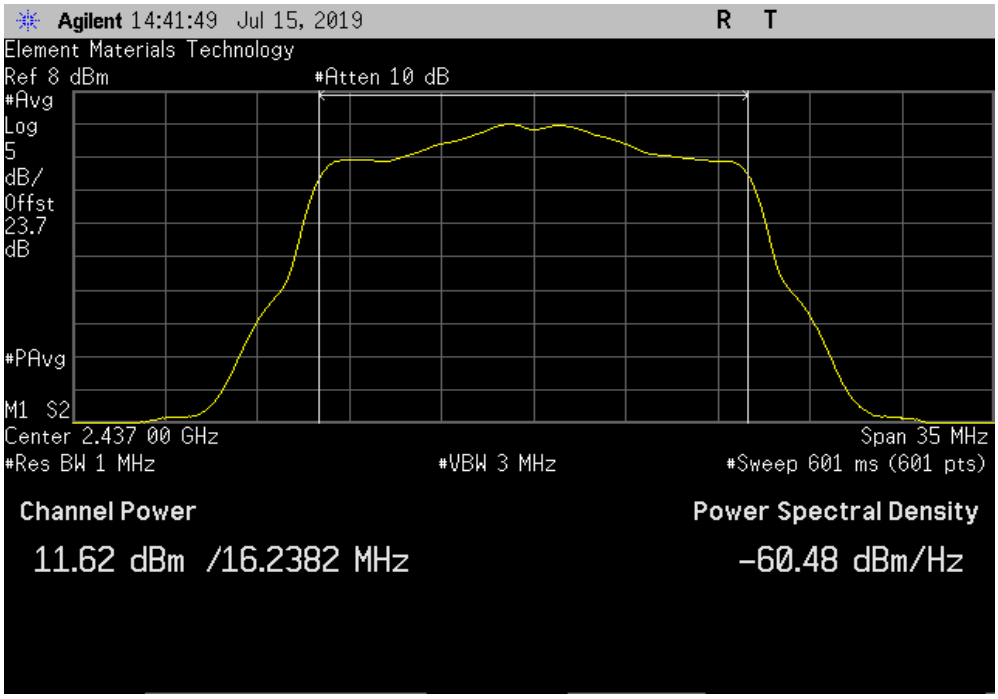
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.264	1.5	13.8	2.5	16.3	36	Pass



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.789	2	13.8	2.5	16.3	36	Pass

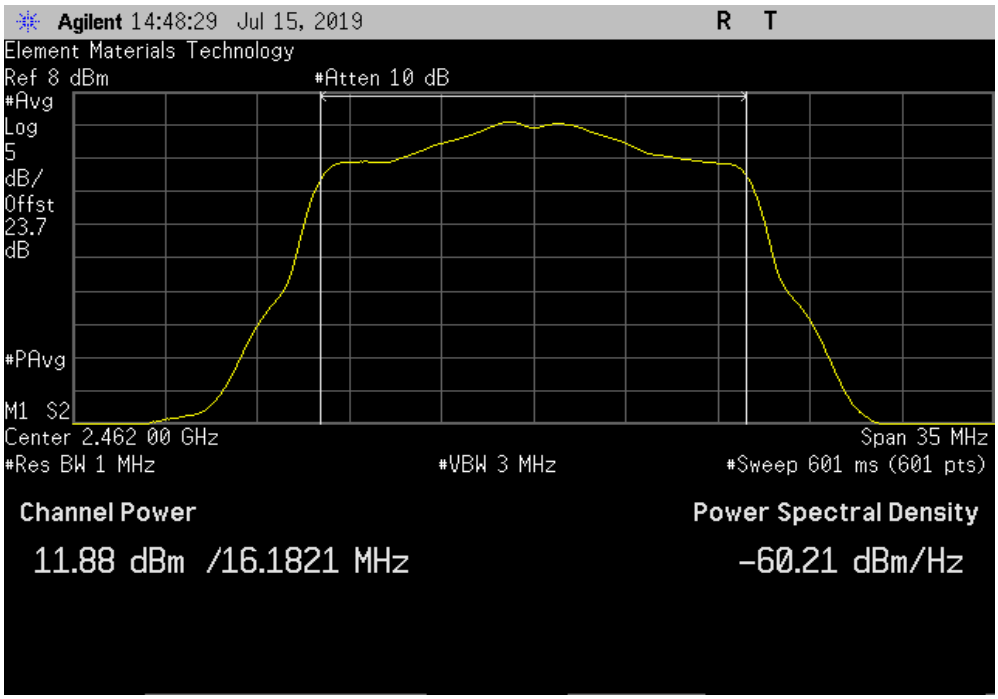


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.625	2	13.6	2.5	16.1	36	Pass

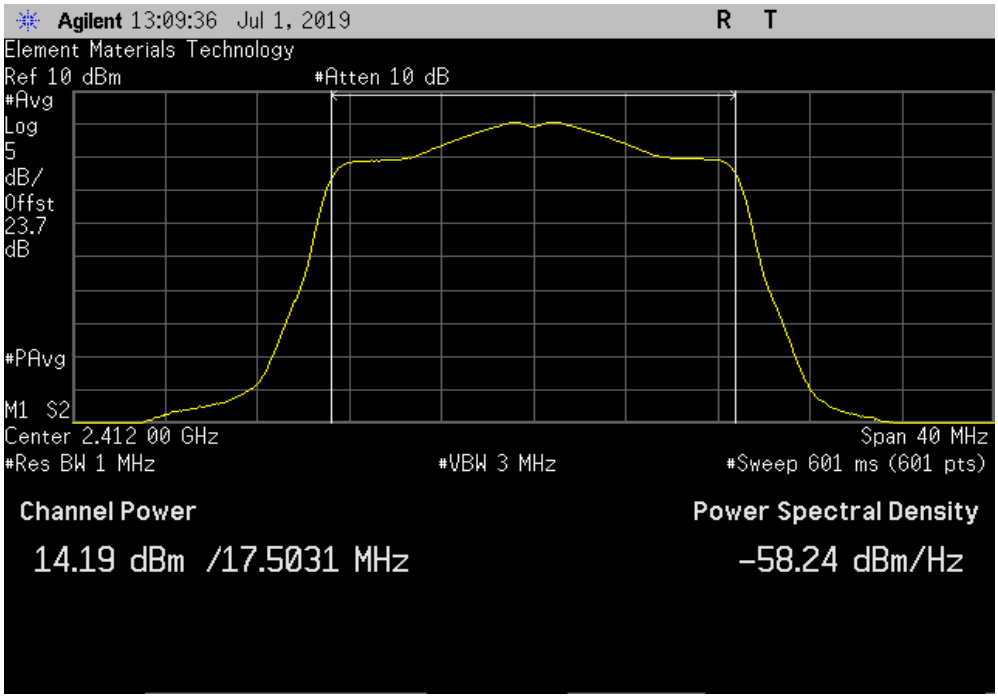


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
11.88	2	13.9	2.5	16.4	36	Pass

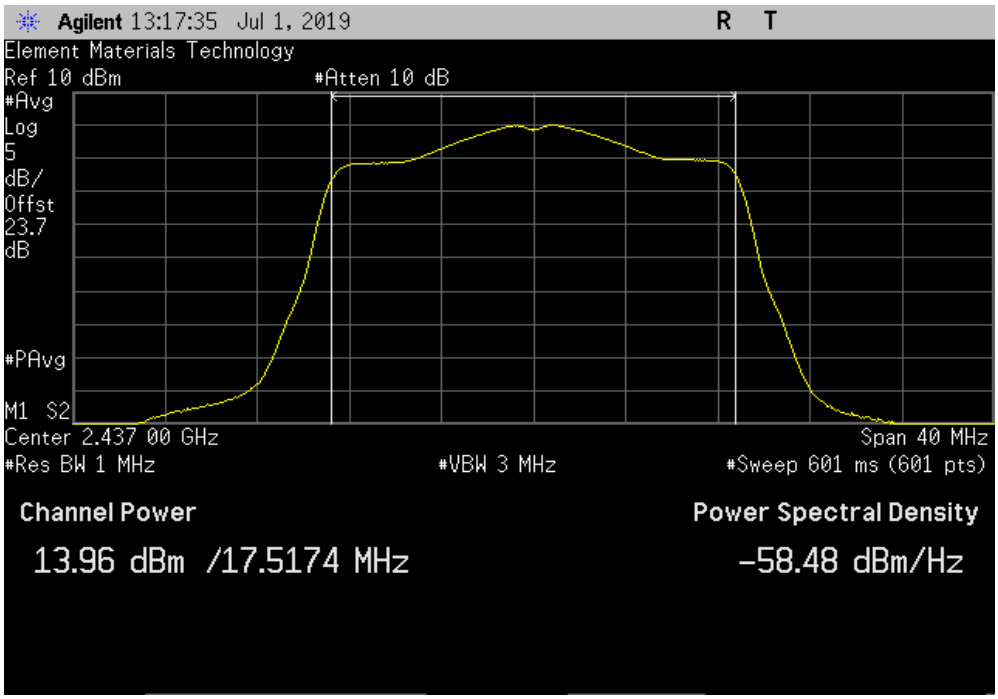


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
14.191	0.3	14.5	2.5	17	36	Pass

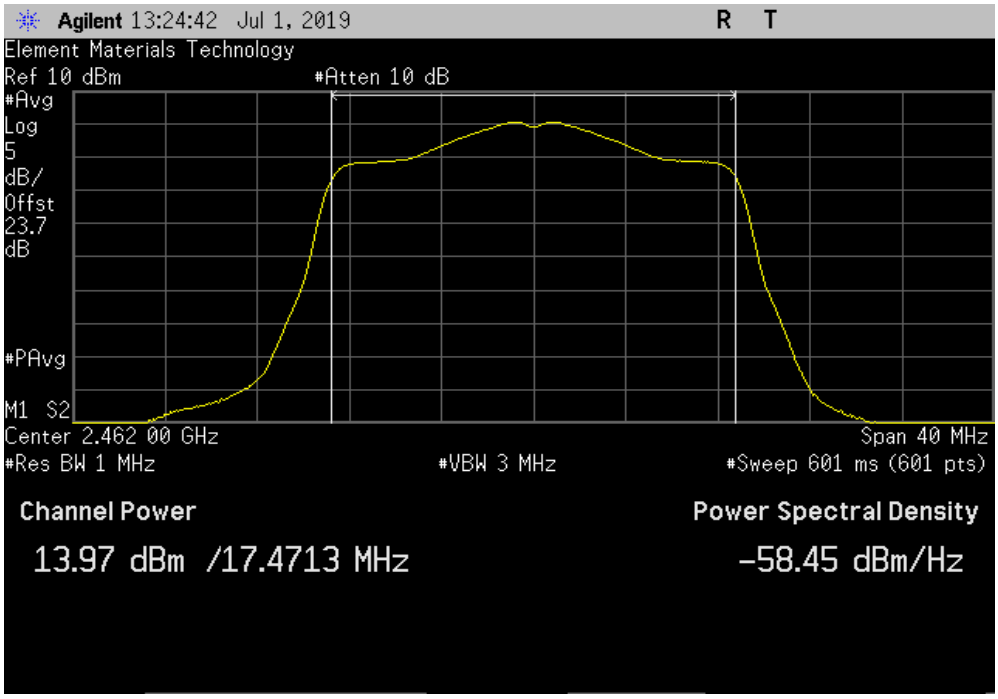


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.957	0.3	14.3	2.5	16.8	36	Pass

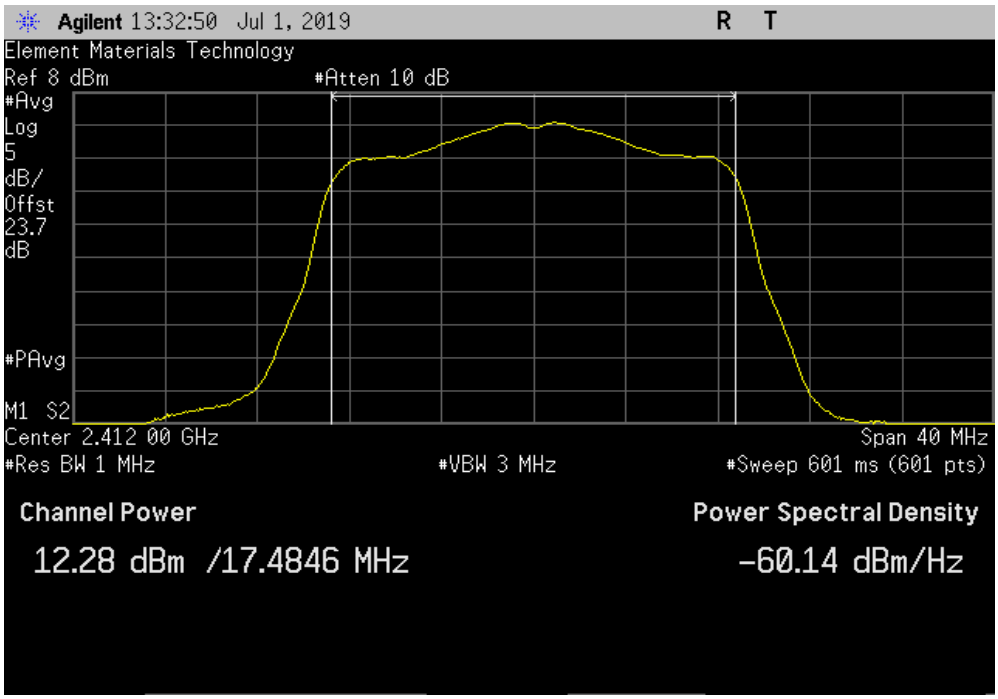


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
13.969	0.3	14.3	2.5	16.8	36	Pass

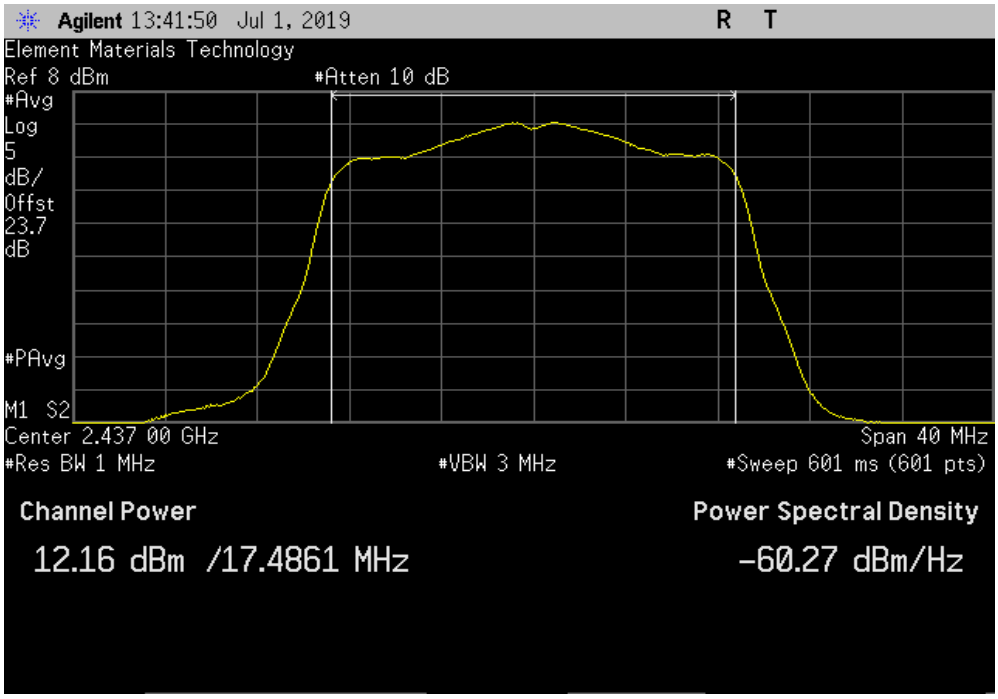


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.283	2.1	14.4	2.5	16.9	36	Pass

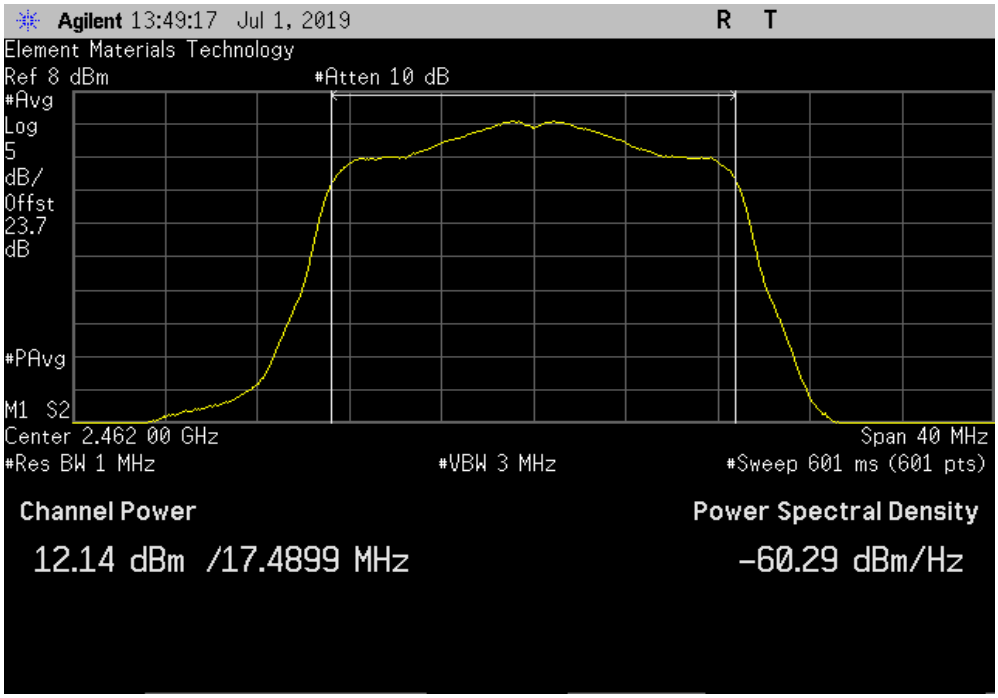


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.158	2.1	14.3	2.5	16.8	36	Pass

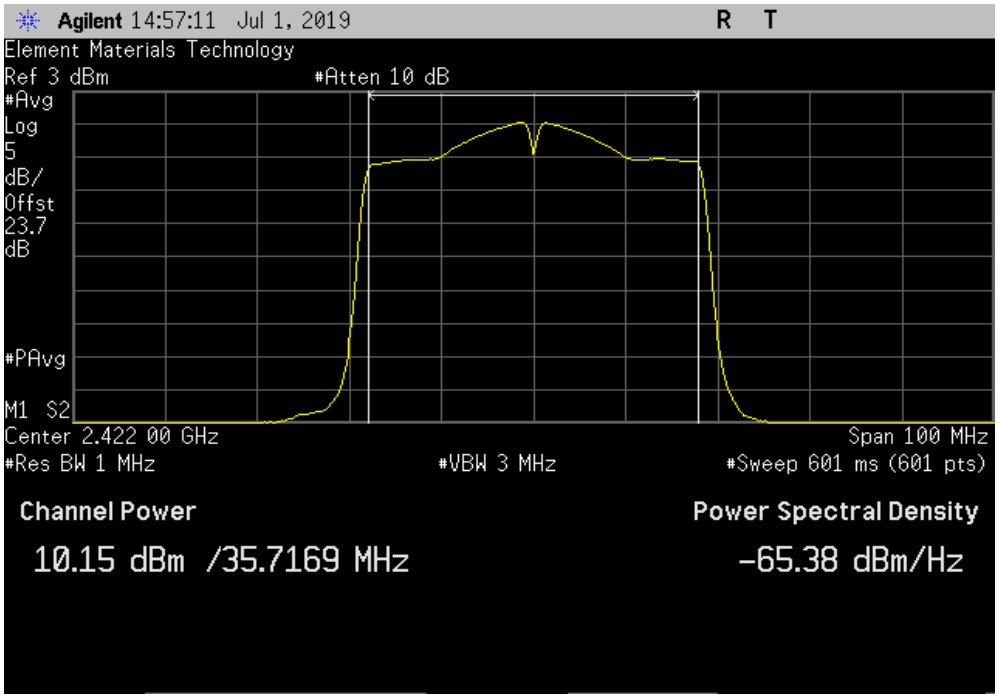


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

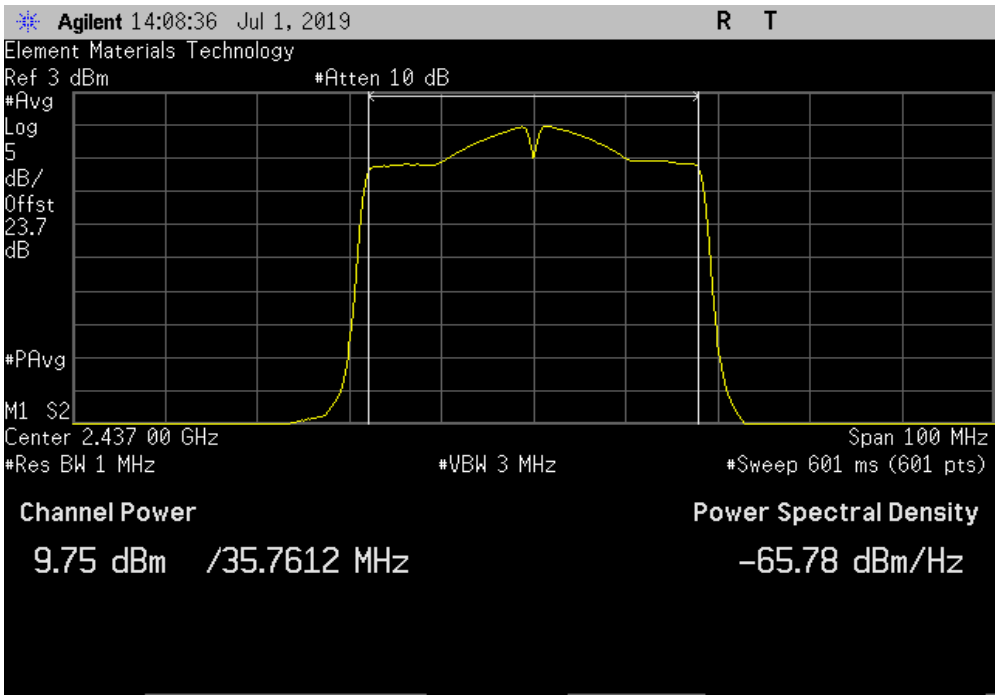
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
12.139	2.1	14.3	2.5	16.8	36	Pass



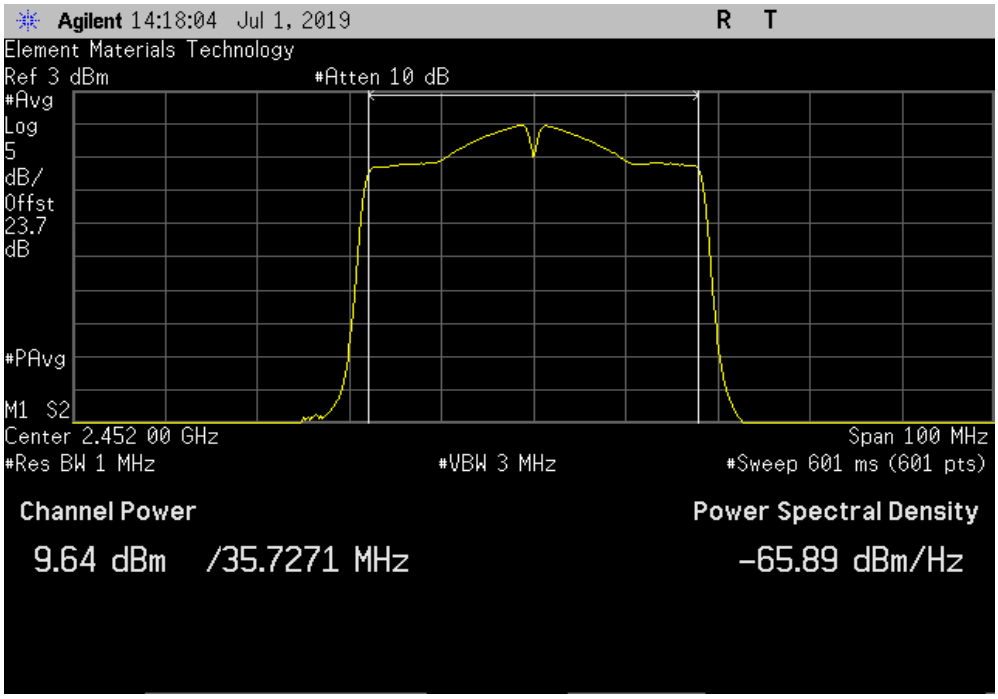
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
10.15	0.7	10.8	2.5	13.3	36	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
9.753	0.7	10.4	2.5	12.9	36	Pass

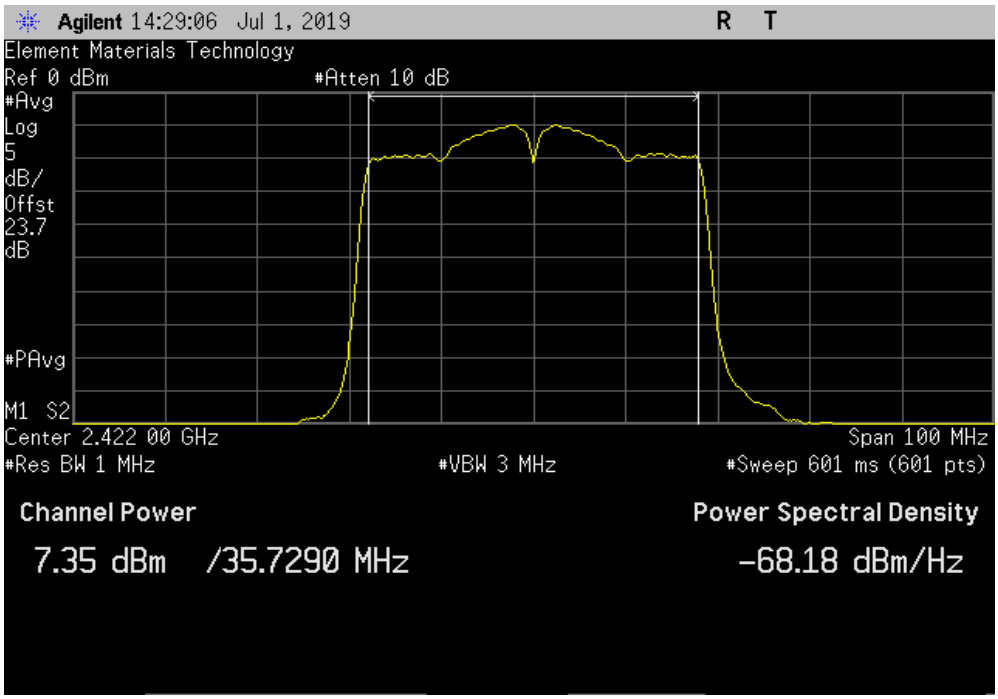


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
9.639	0.7	10.3	2.5	12.8	36	Pass

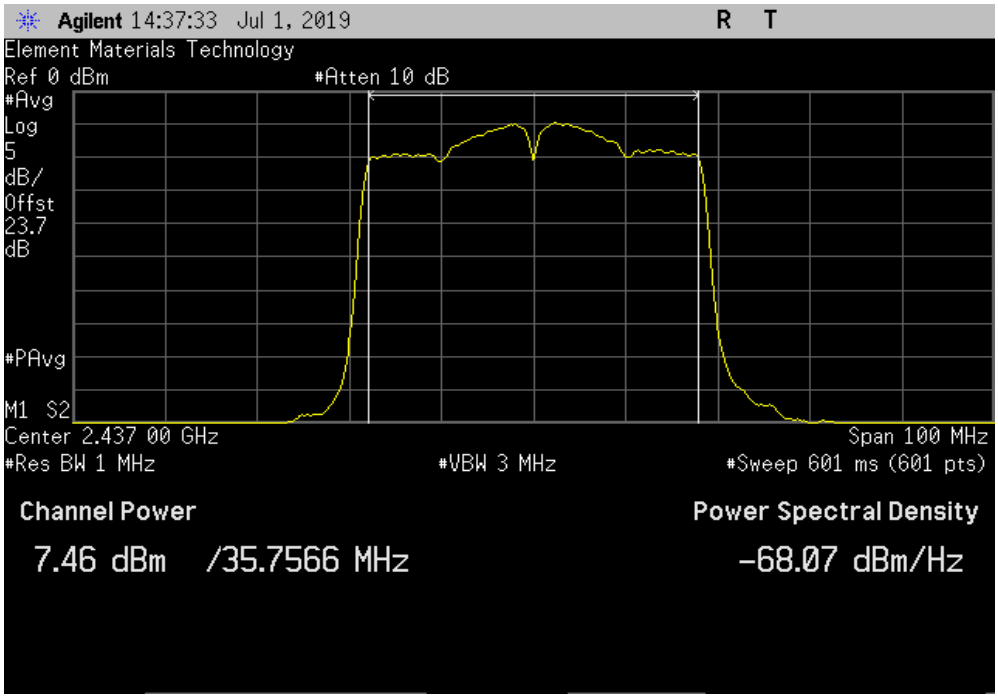


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
7.35	3.2	10.5	2.5	13	36	Pass

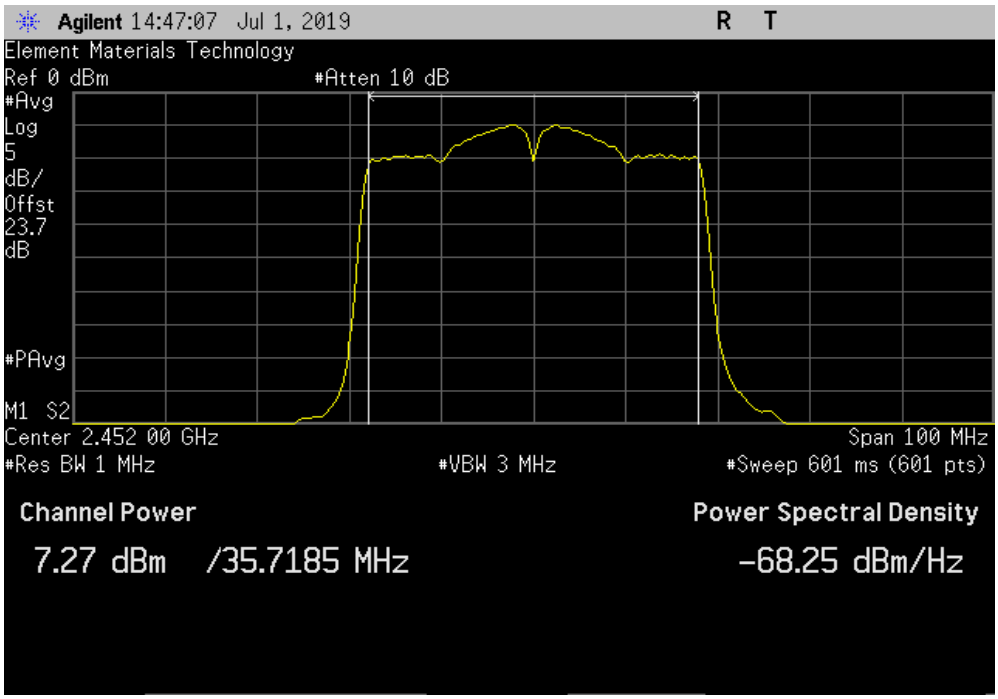


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
7.463	3.2	10.6	2.5	13.1	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
7.274	3.2	10.5	2.5	13	36	Pass



POWER SPECTRAL DENSITY

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

POWER SPECTRAL DENSITY

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

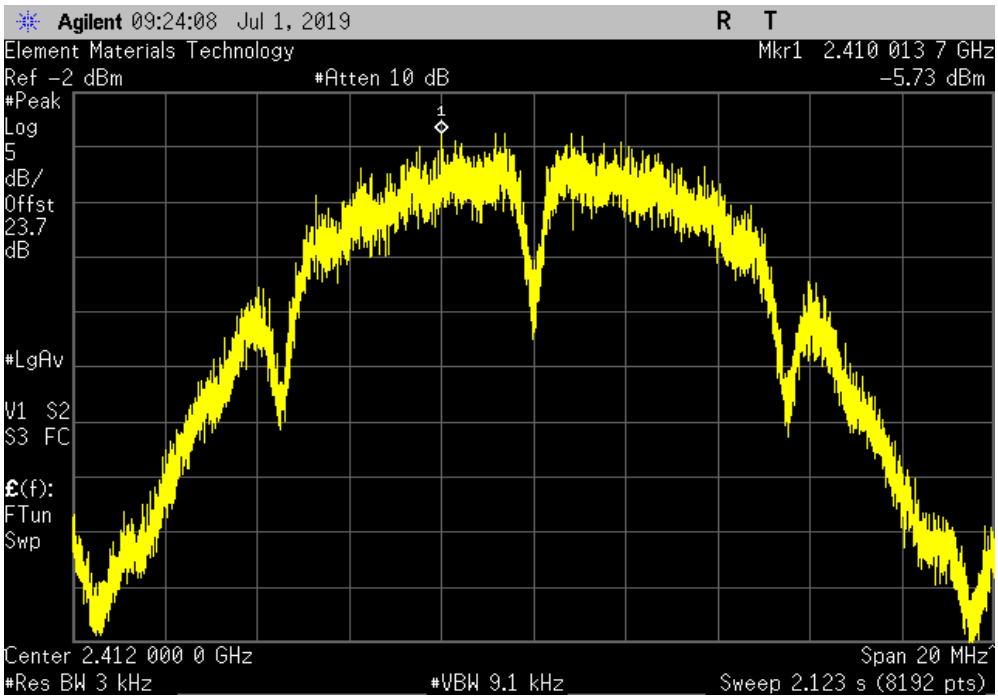
DEVIATIONS FROM TEST STANDARD

None

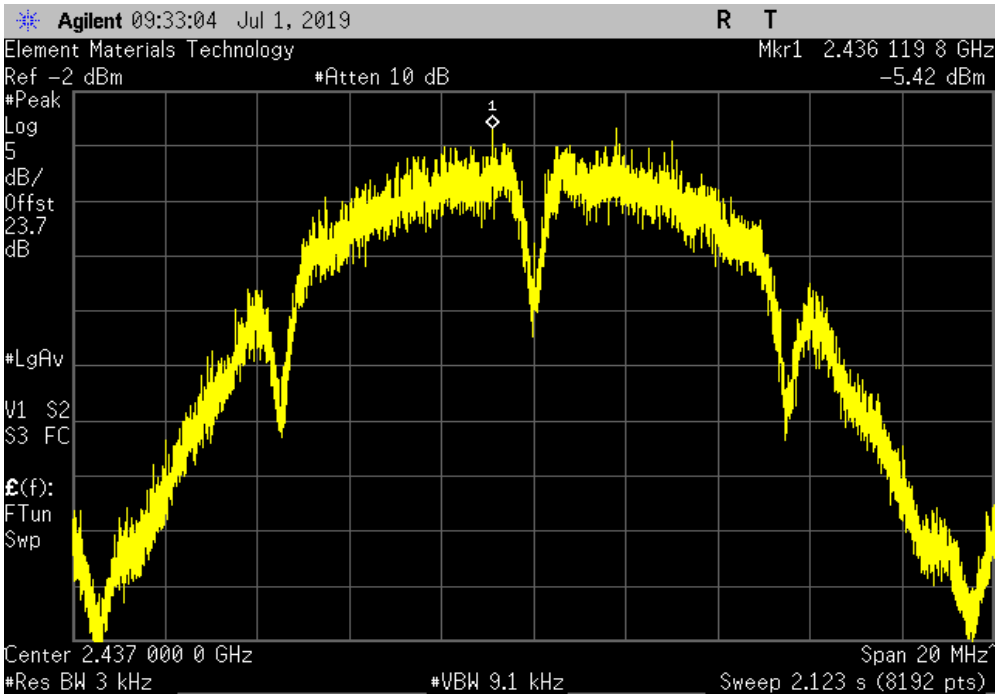
Configuration #	**1**	*Signature*

	Value dBm/3kHz	Limit < dBm/3kHz	Results
20 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	-5.728	8	Pass
Mid Channel 6, 2437 MHz	-5.423	8	Pass
High Channel 11, 2462 MHz	-5.801	8	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	-5.779	8	Pass
Mid Channel 6, 2437 MHz	-5.212	8	Pass
High Channel 11, 2462 MHz	-6.152	8	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	-9.224	8	Pass
Mid Channel 6, 2437 MHz	-9.161	8	Pass
High Channel 11, 2462 MHz	-9.014	8	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	-11.257	8	Pass
Mid Channel 6, 2437 MHz	-11.361	8	Pass
High Channel 11, 2462 MHz	-11.128	8	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	-11.469	8	Pass
Mid Channel 6, 2437 MHz	-11.735	8	Pass
High Channel 11, 2462 MHz	-10.975	8	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	-9.137	8	Pass
Mid Channel 6, 2437 MHz	-8.958	8	Pass
High Channel 11, 2462 MHz	-8.926	8	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	-9.756	8	Pass
Mid Channel 6, 2437 MHz	-11.140	8	Pass
High Channel 11, 2462 MHz	-10.012	8	Pass
40 MHz			
2400 MHz - 2483.5 MHz Band			
802.11(n) MCS0			
Low Channel 1/5, 2422 MHz	-16.509	8	Pass
Mid Channel 4/8, 2437 MHz	-16.135	8	Pass
High Channel 7/11, 2452 MHz	-15.806	8	Pass
802.11(n) MCS7			
Low Channel 1/5, 2422 MHz	-18.527	8	Pass
Mid Channel 4/8, 2437 MHz	-19.483	8	Pass
High Channel 7/11, 2452 MHz	-18.733	8	Pass

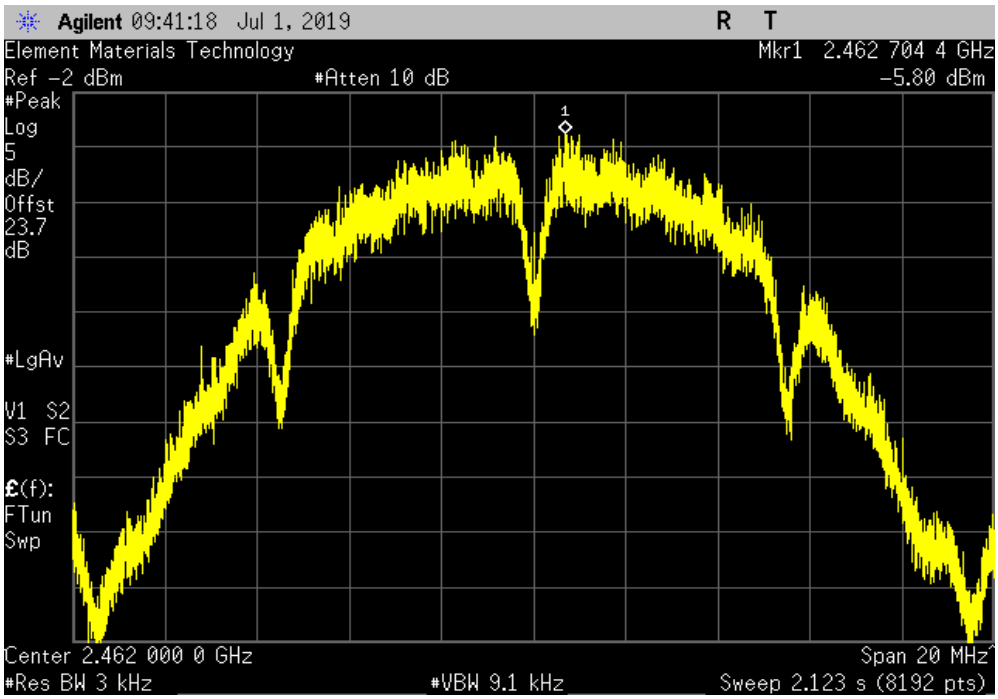
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-5.728	8	Pass



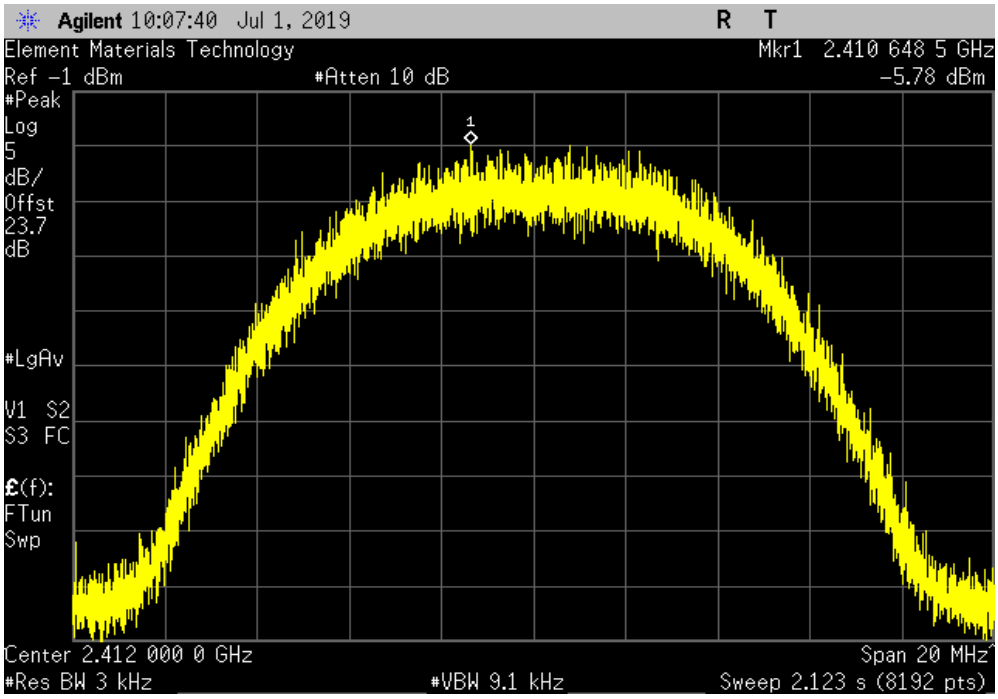
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-5.423	8	Pass



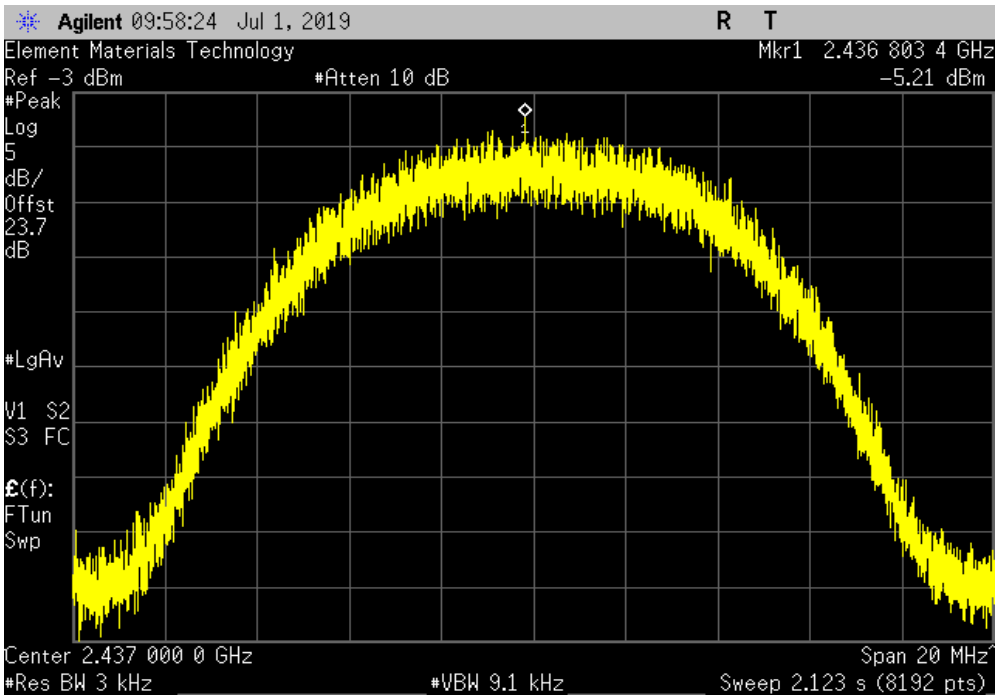
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-5.801	8	Pass



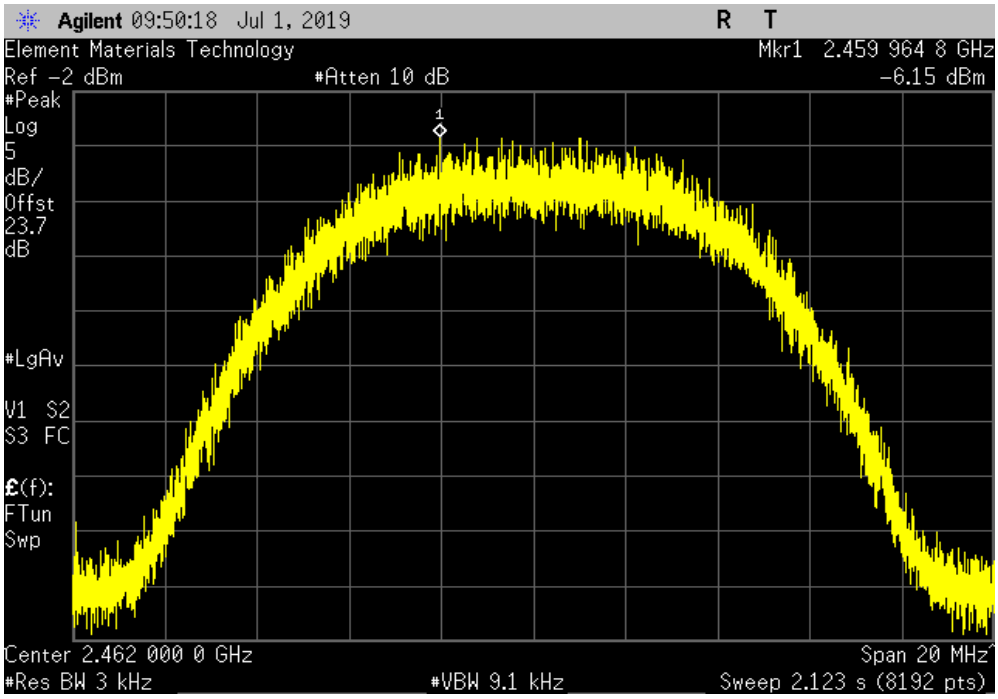
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-5.779	8	Pass



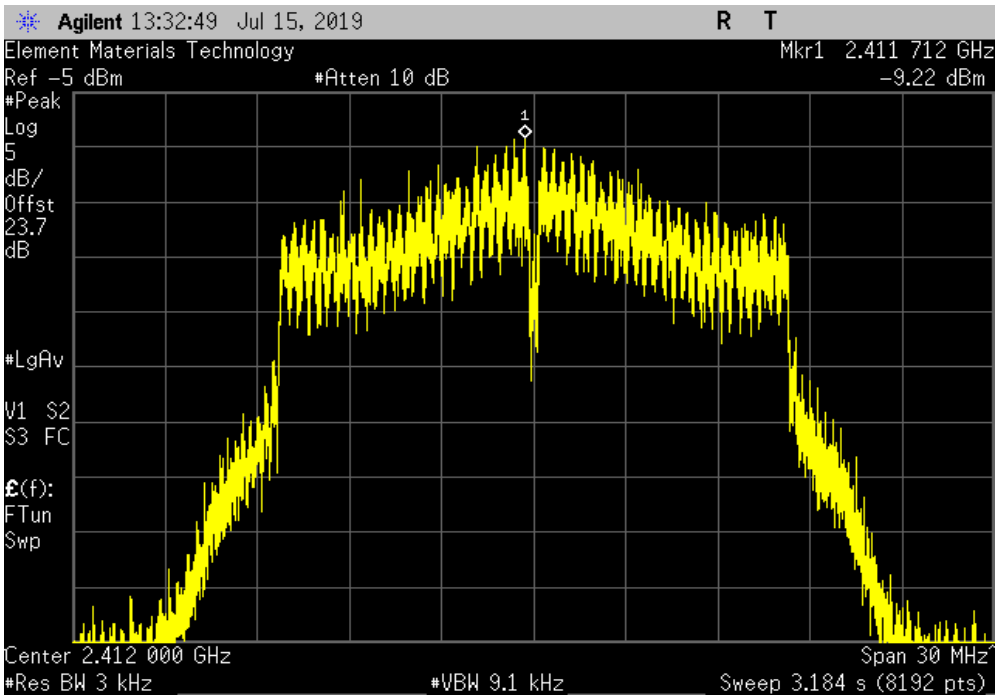
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-5.212	8	Pass



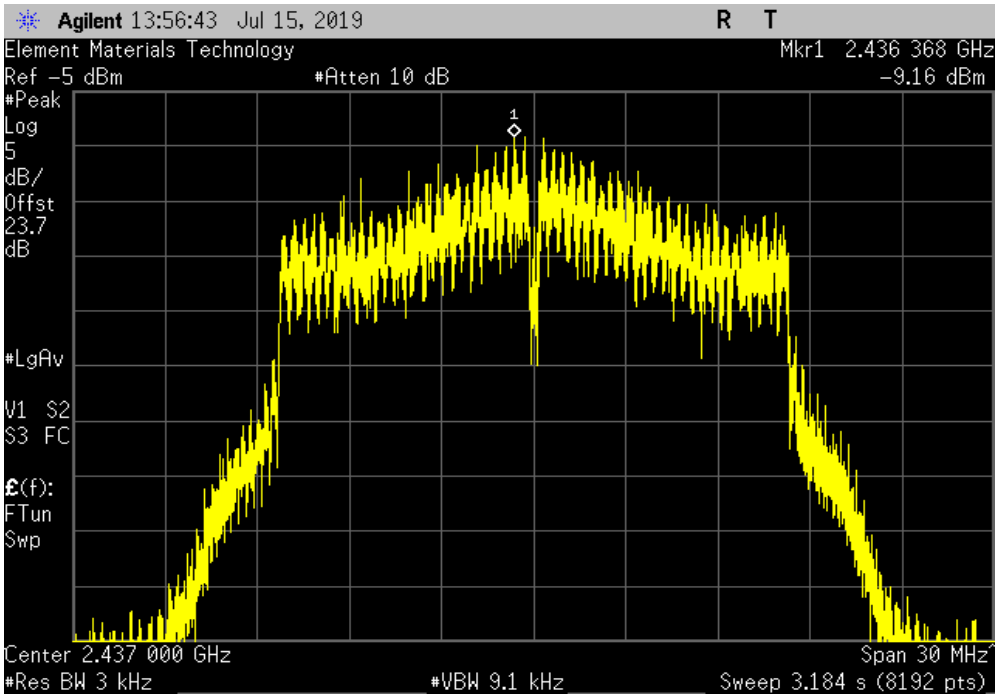
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-6.152	8	Pass



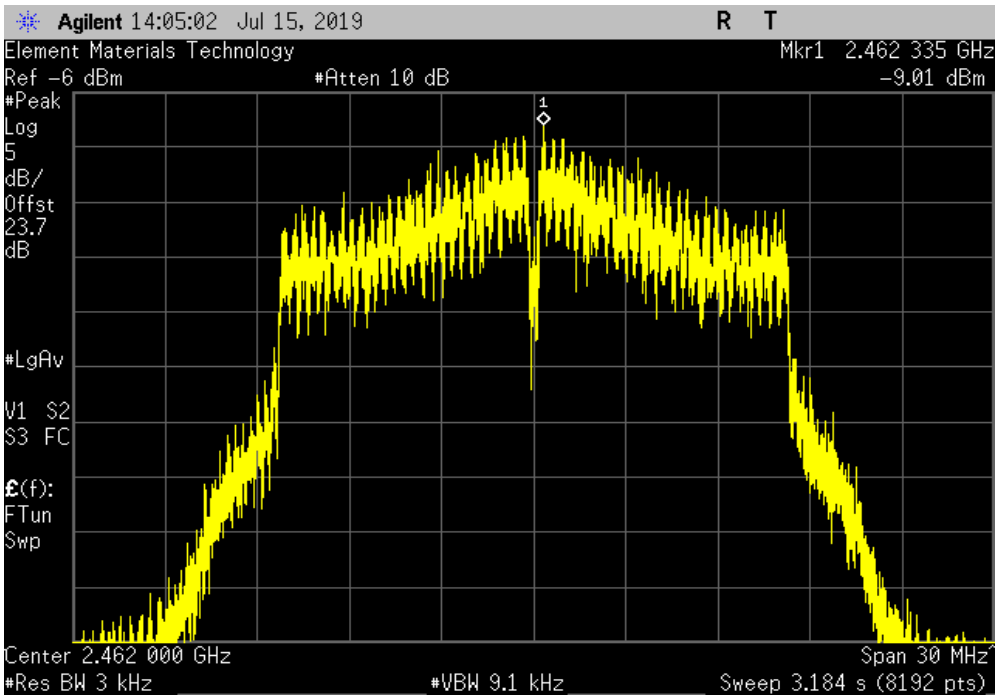
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-9.224	8	Pass



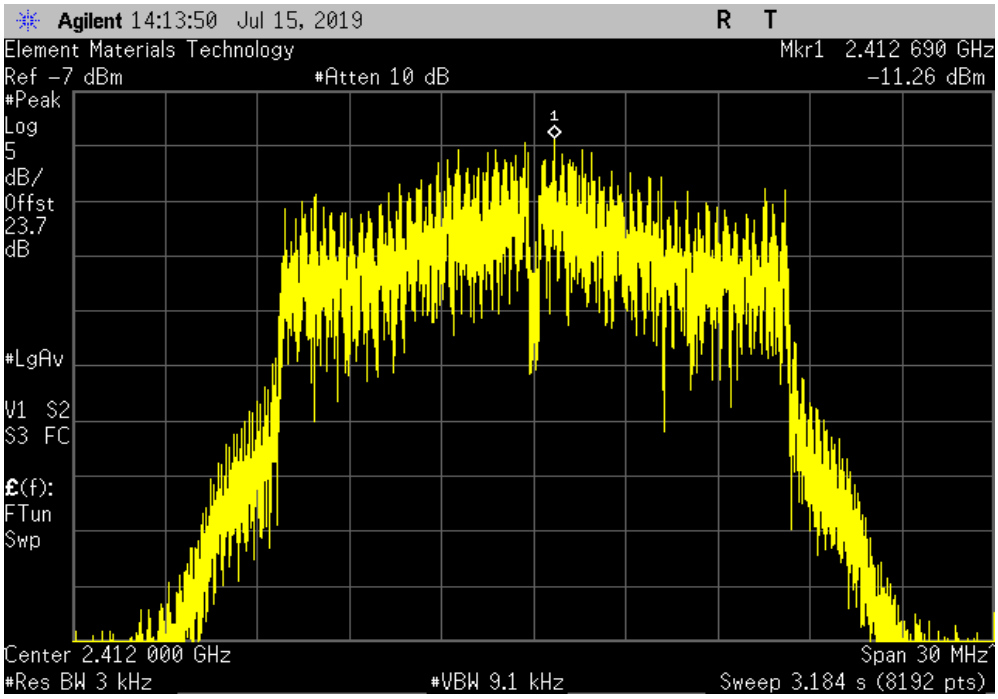
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-9.161	8	Pass



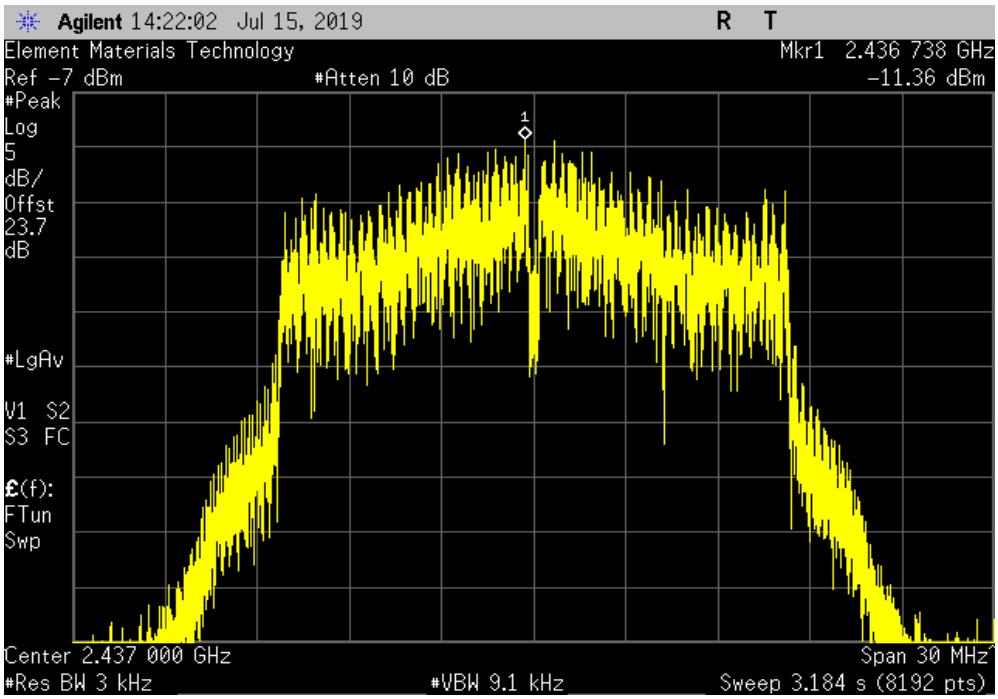
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-9.014	8	Pass



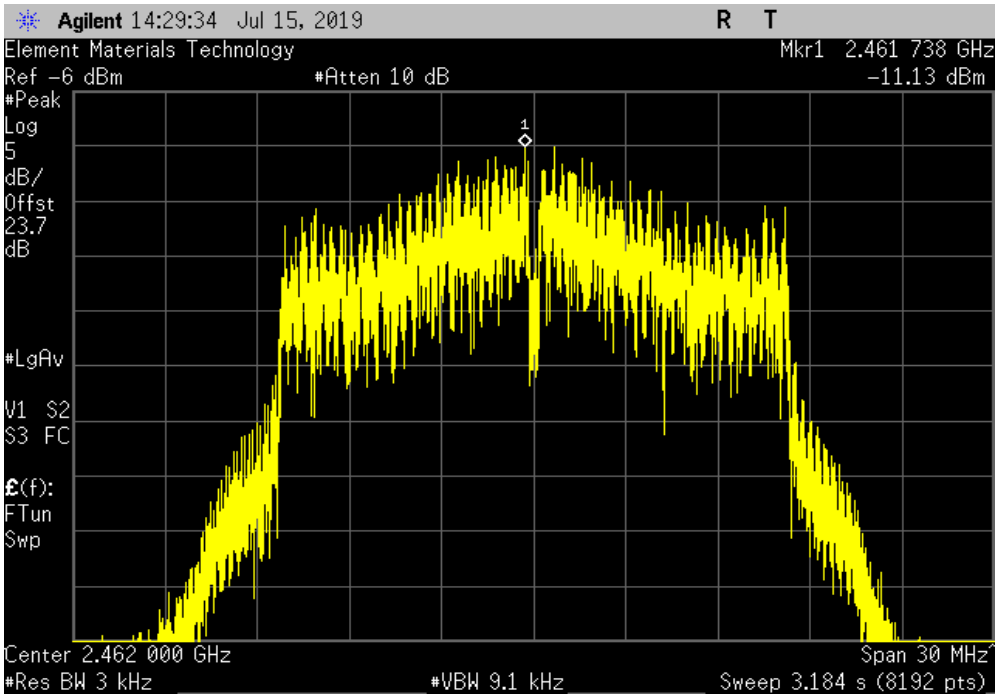
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.257	8	Pass



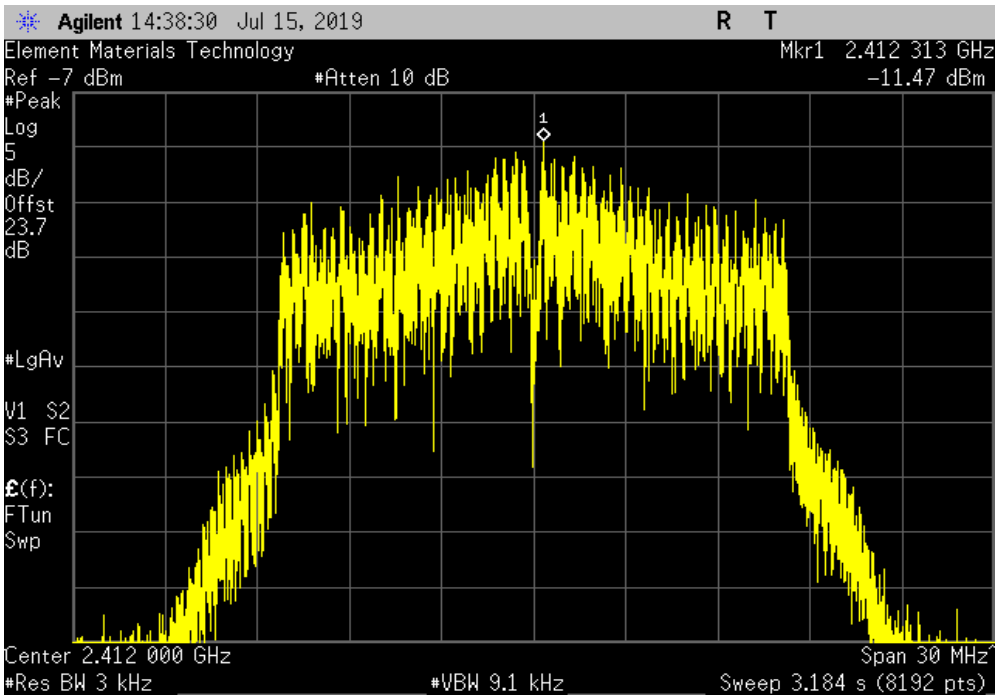
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.361	8	Pass



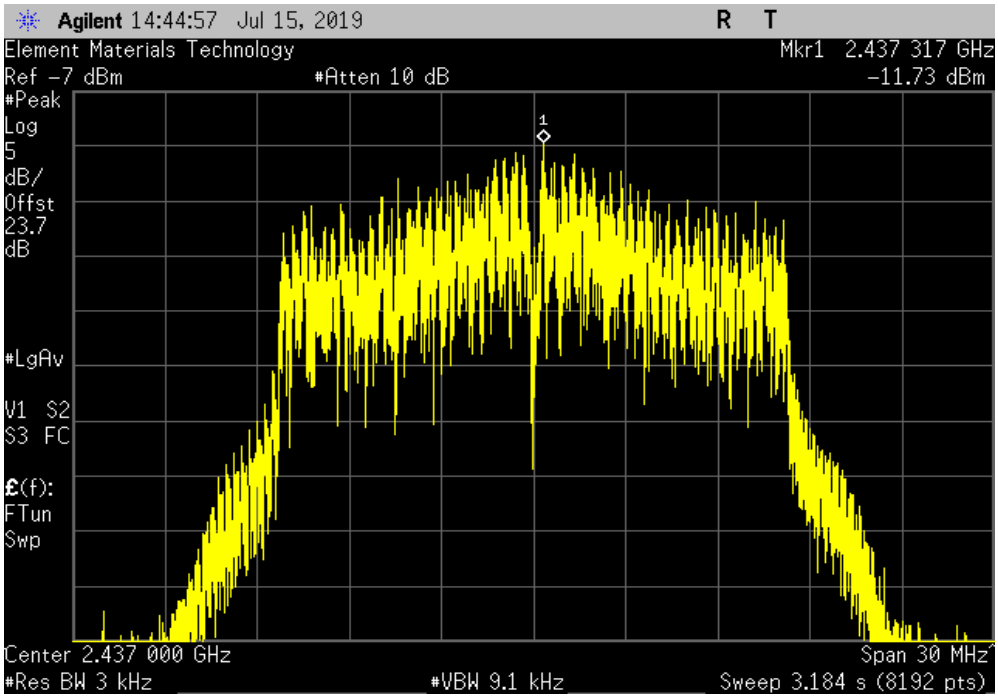
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.128	8	Pass



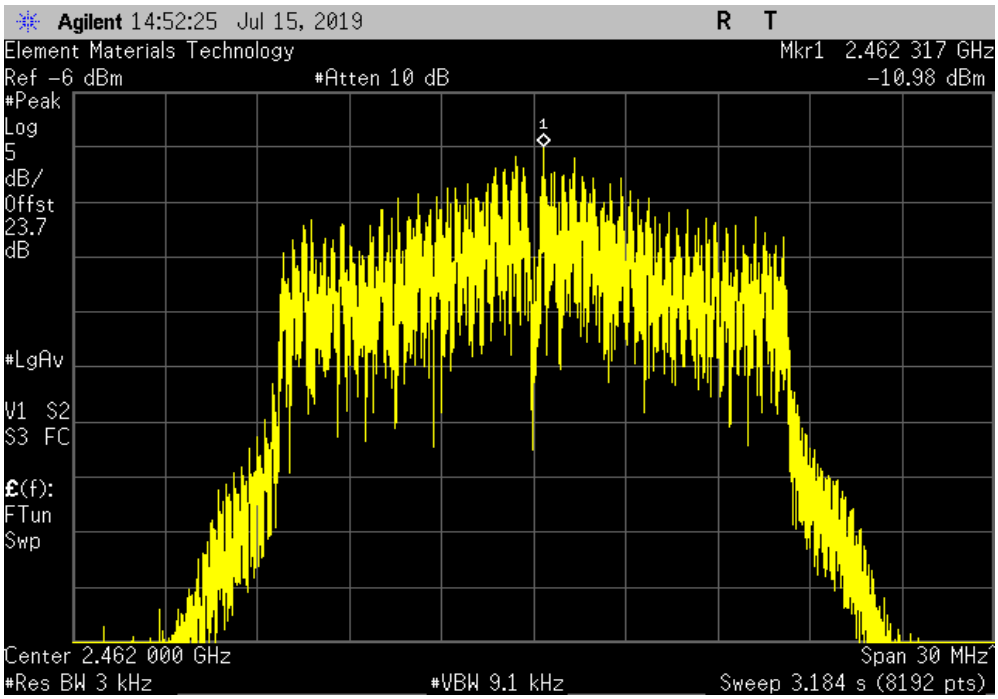
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.469	8	Pass



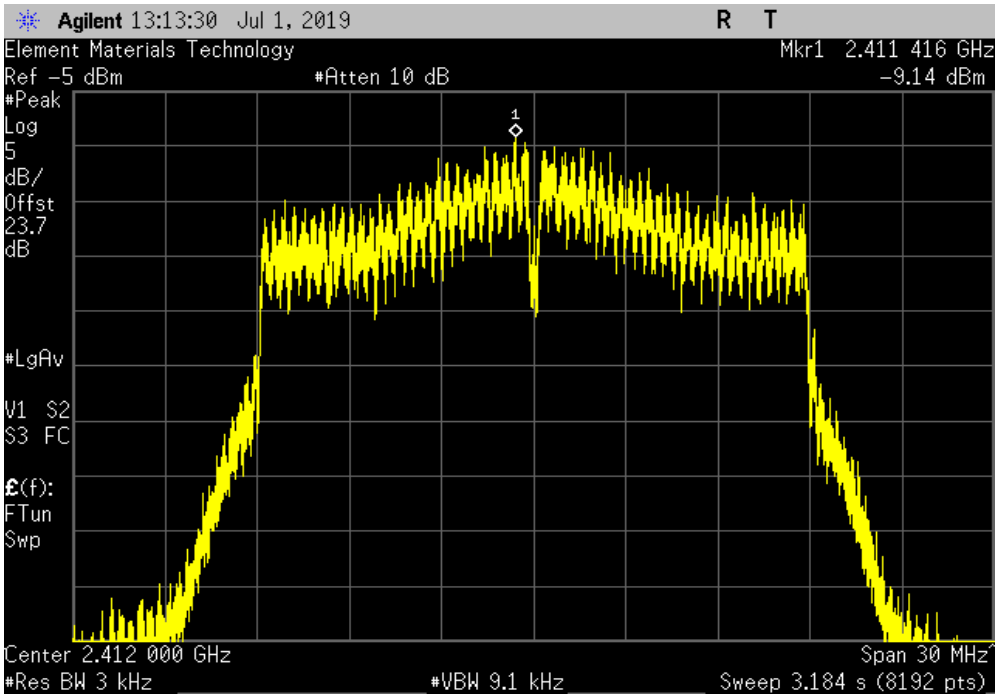
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.735	8	Pass



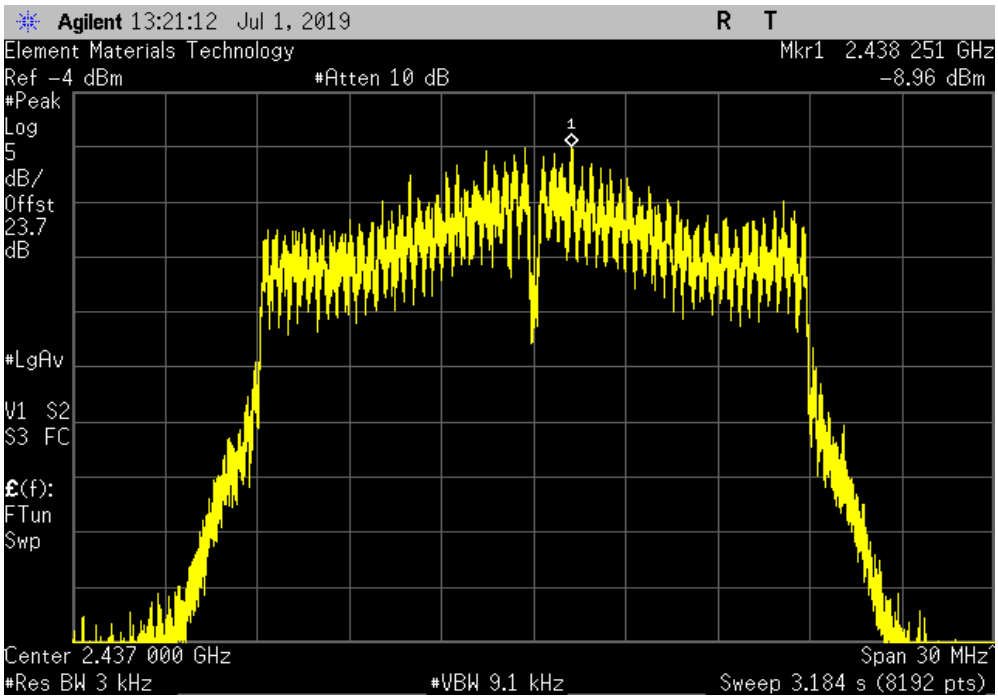
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-10.975	8	Pass



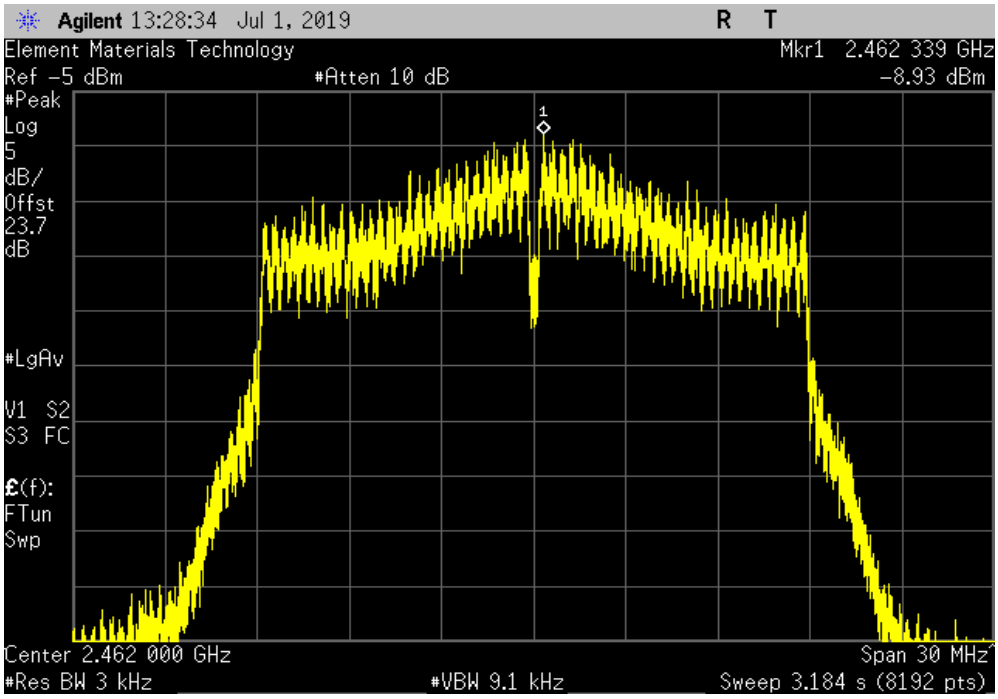
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-9.137	8	Pass



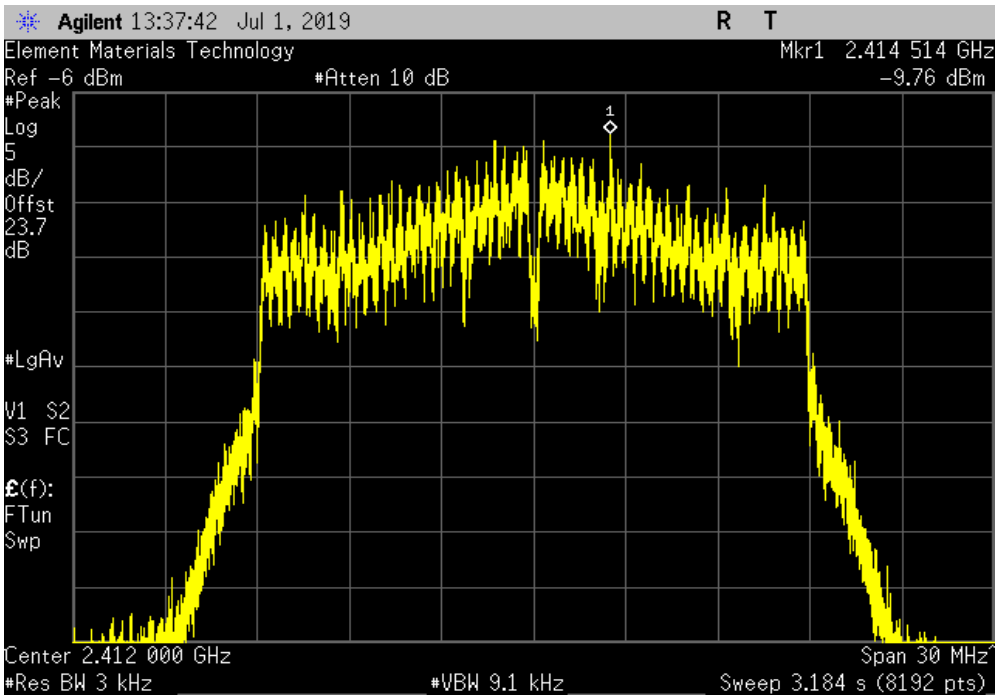
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-8.958	8	Pass



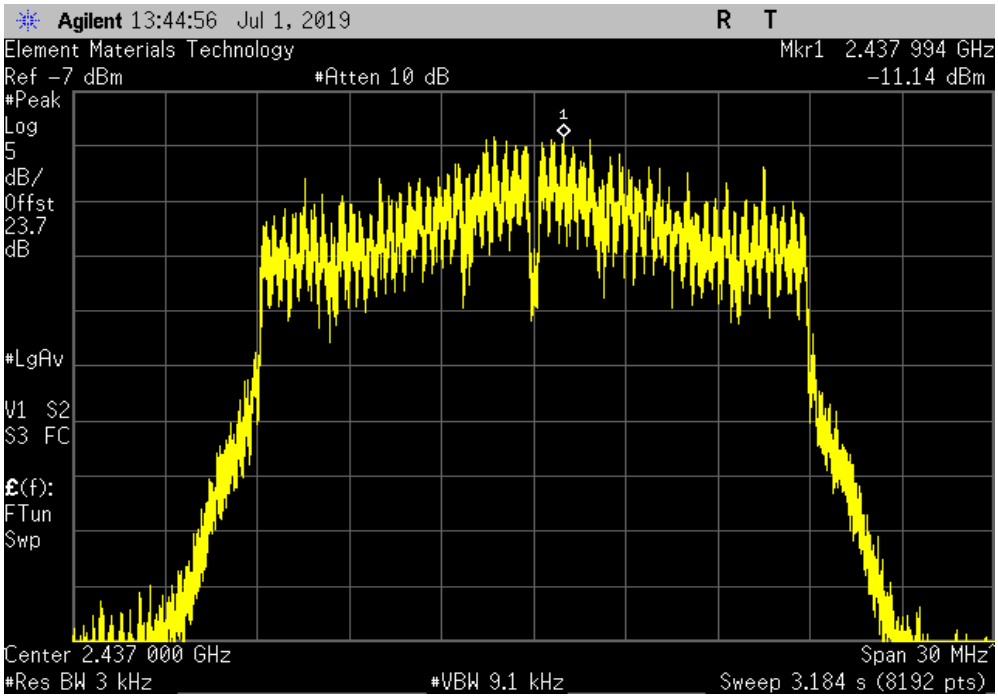
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-8.926	8	Pass



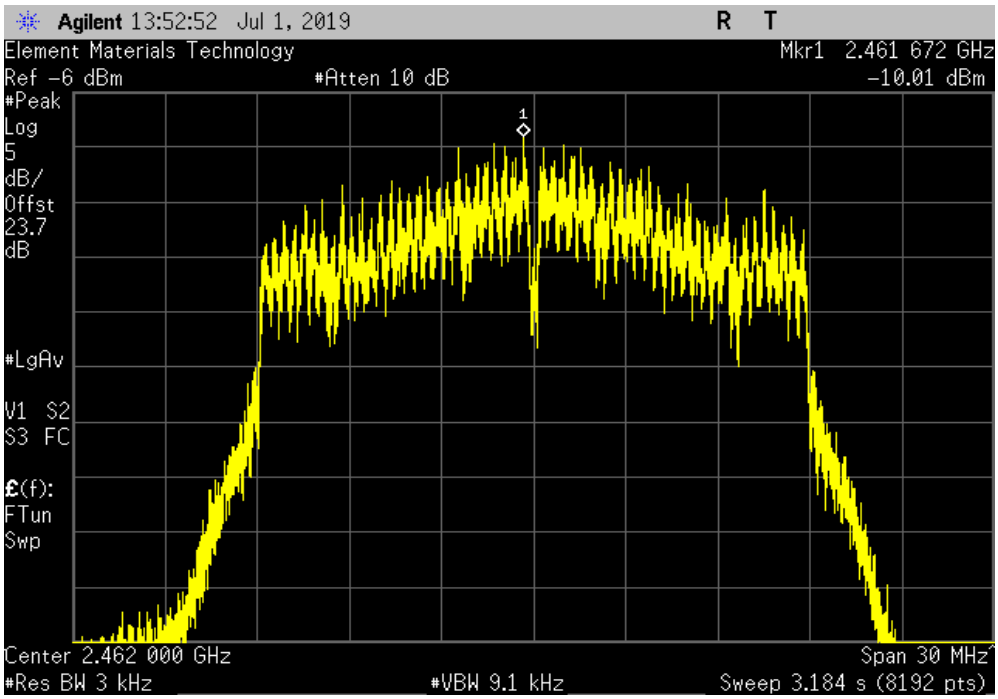
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-9.756	8	Pass



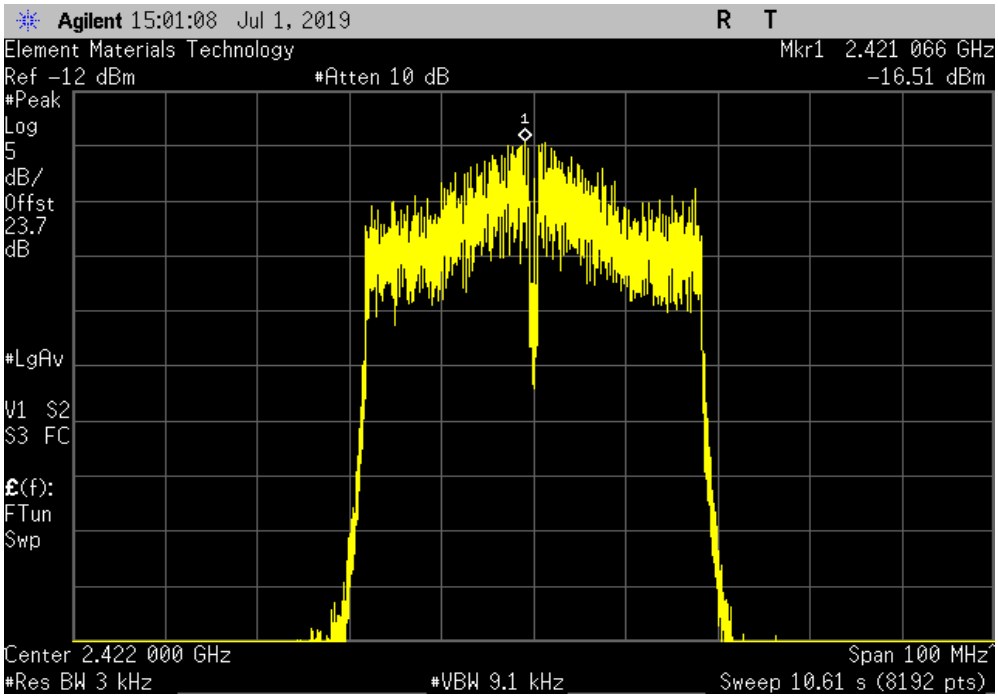
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-11.140	8	Pass



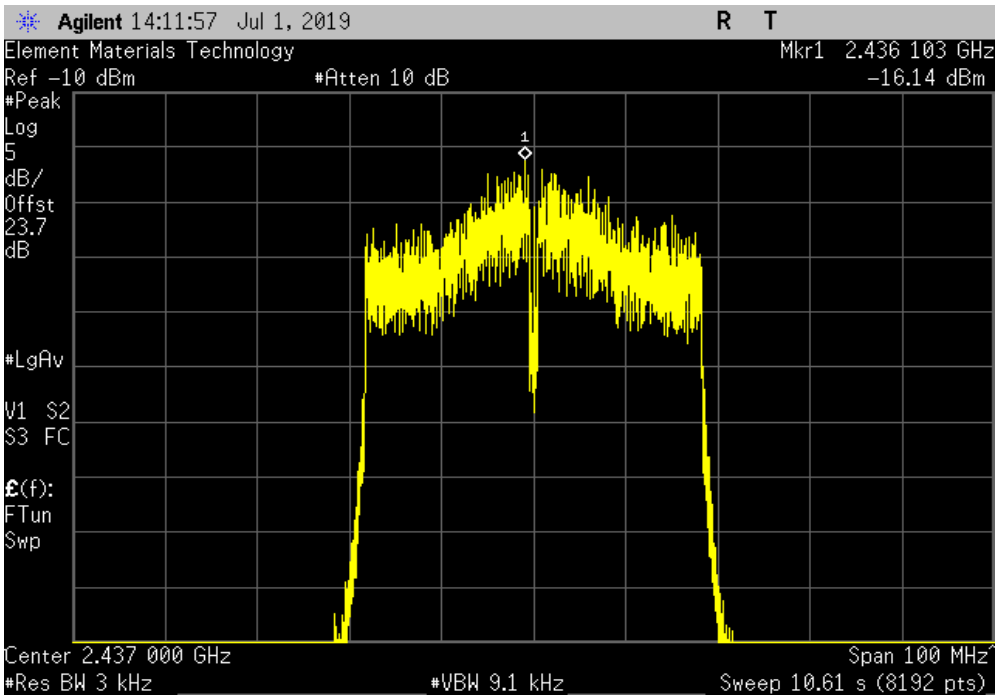
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-10.012	8	Pass



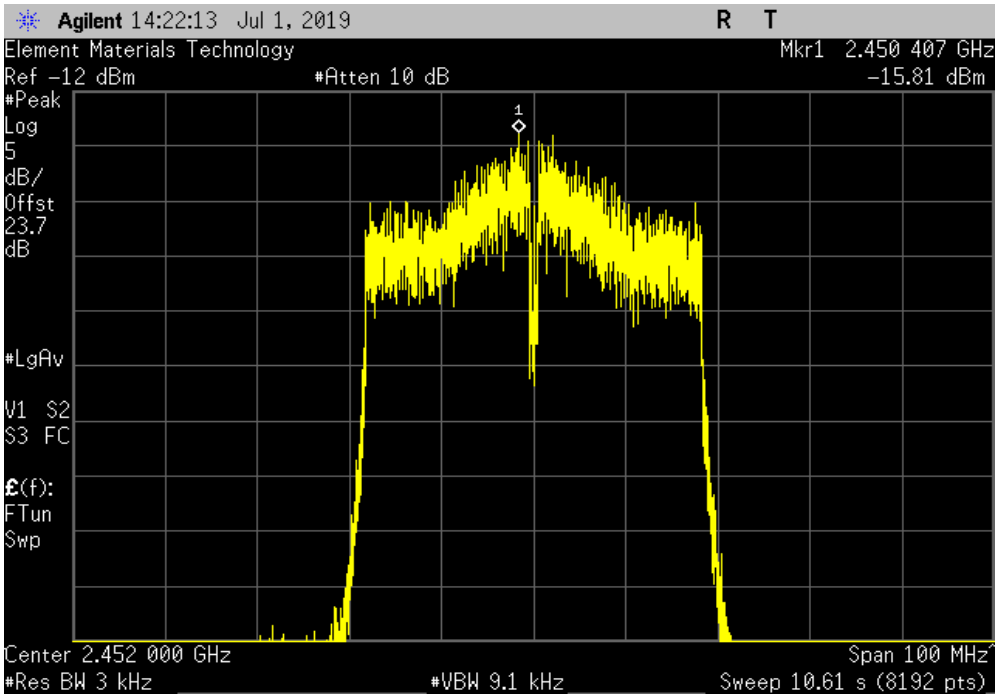
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-16.509	8	Pass



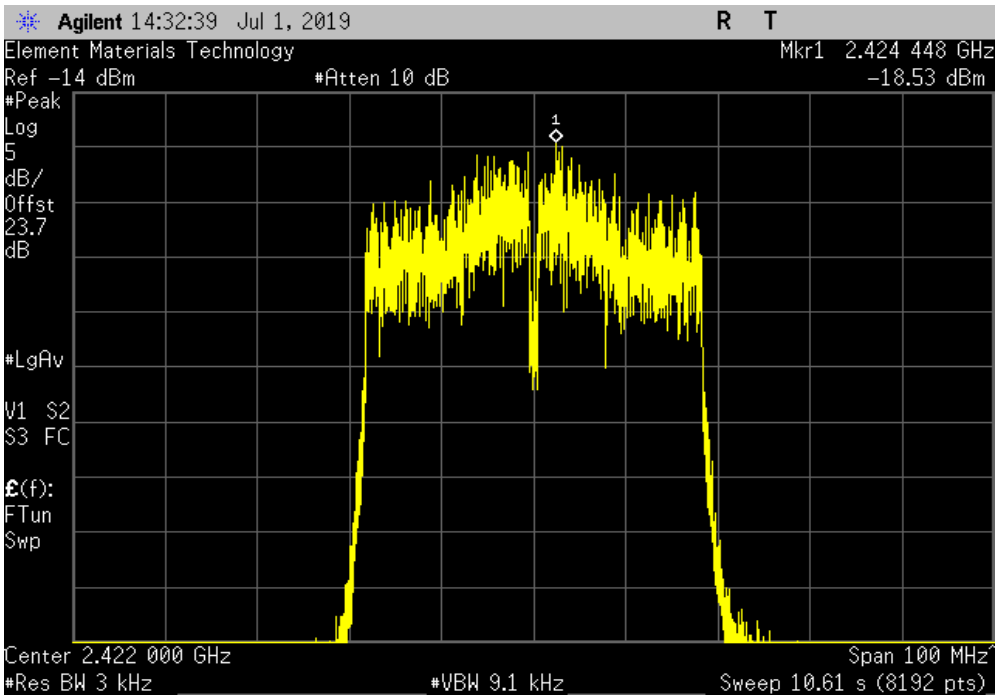
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-16.135	8	Pass



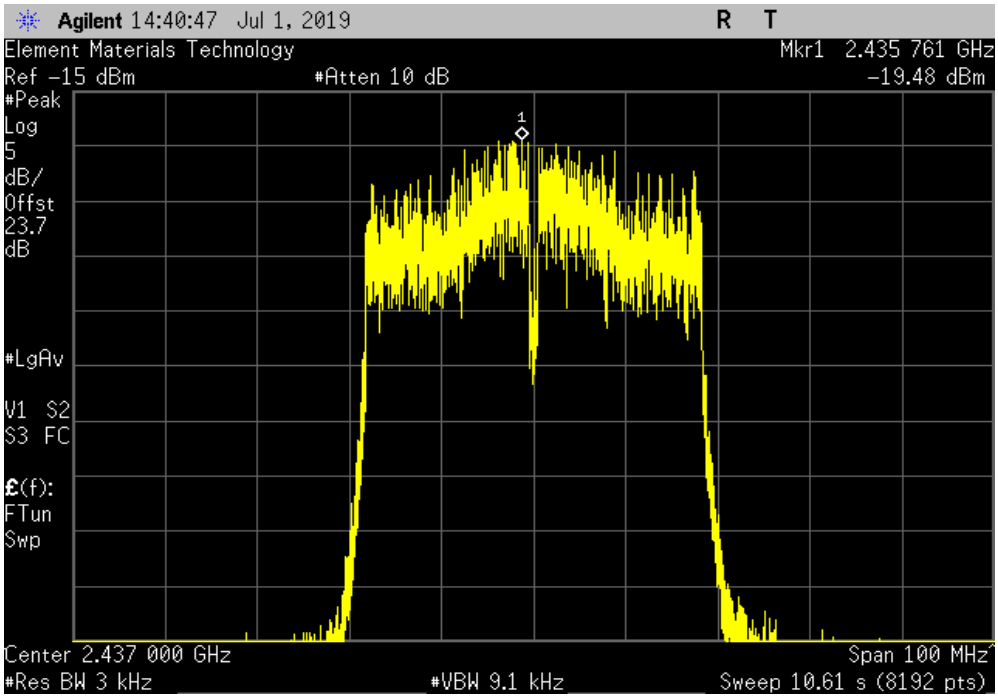
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-15.806	8	Pass



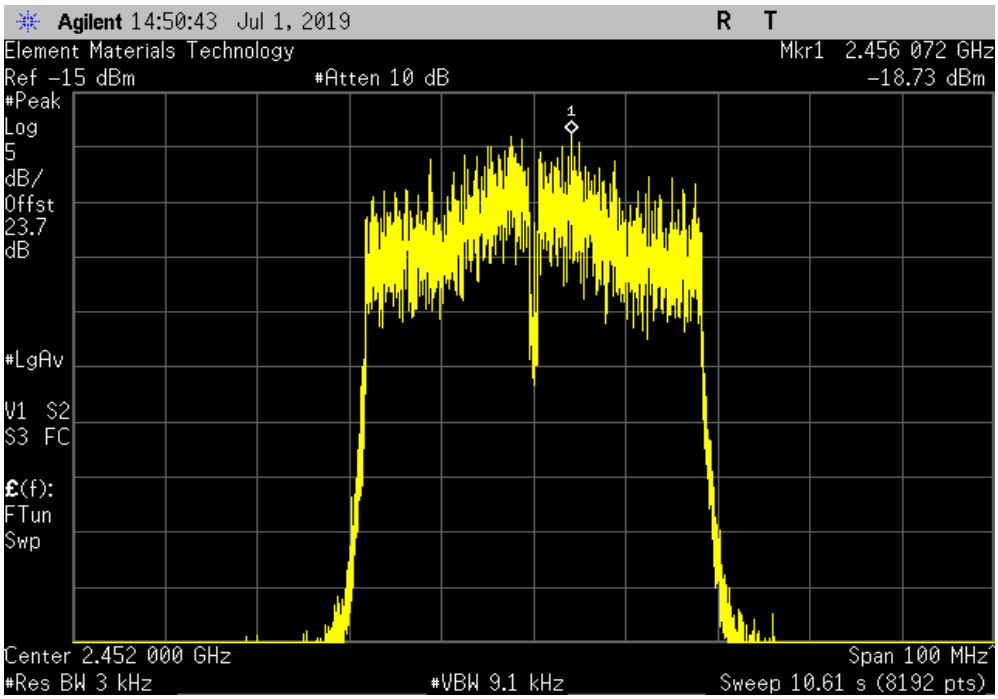
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-18.527	8	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-19.483	8	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				-18.733	8	Pass



BAND EDGE COMPLIANCE

XMit 2019.05.15

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

An RMS detector was used to match the method called out for Output Power. Because the reference level was taken with an RMS detector, the attenuation requirement is -30 dBc.

BAND EDGE COMPLIANCE

element

TbtTx 2018.09.13 XMit 2019.05.15

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

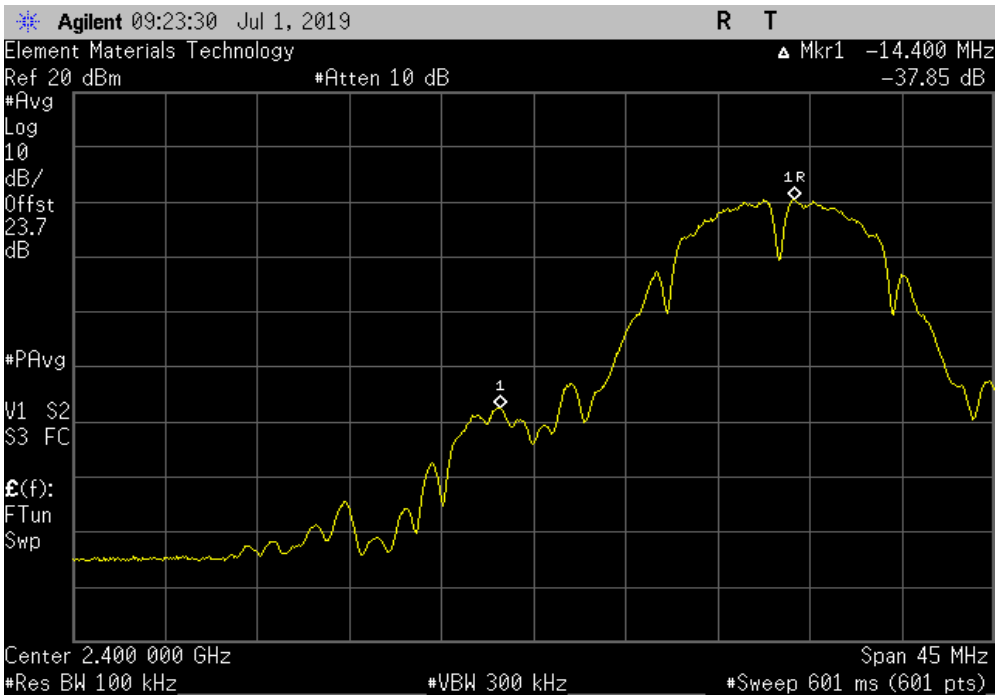
DEVIATIONS FROM TEST STANDARD

None

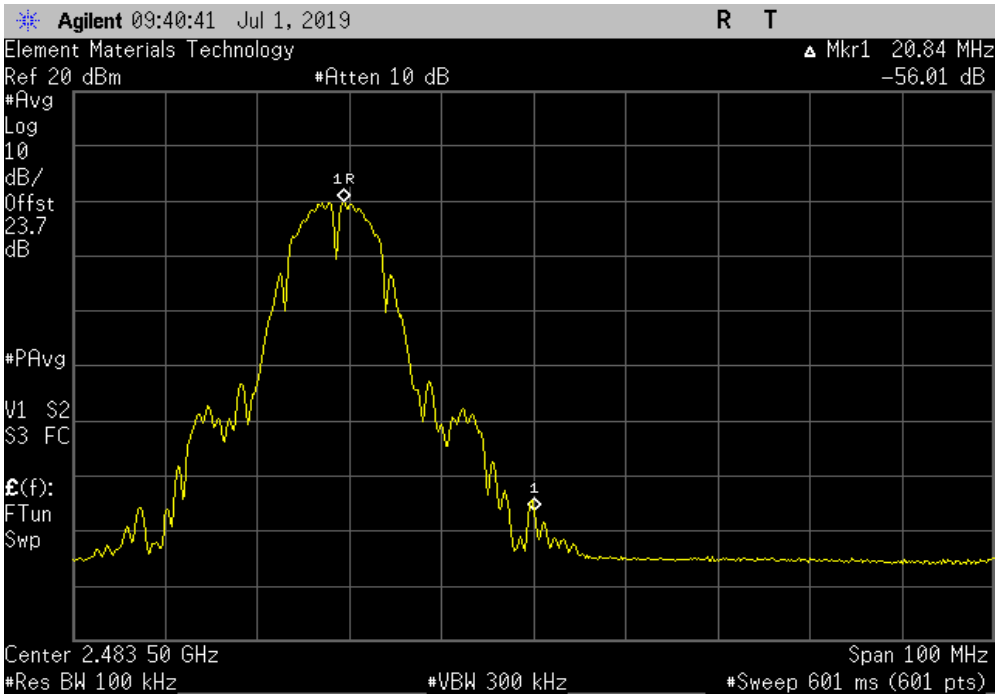
Configuration #	**1**	*Signature*

		Value (dBc)	**Limit ≤ (dBc)**	**Result**
20 MHz				
	2400 MHz - 2483.5 MHz Band			
	802.11(b) 1 Mbps			
	Low Channel 1, 2412 MHz	-37.85	-30	Pass
	High Channel 11, 2462 MHz	-56.01	-30	Pass
	802.11(b) 11 Mbps			
	Low Channel 1, 2412 MHz	-40.37	-30	Pass
	High Channel 11, 2462 MHz	-58.53	-30	Pass
	802.11(g) 6 Mbps			
	Low Channel 1, 2412 MHz	-41.32	-30	Pass
	High Channel 11, 2462 MHz	-52.60	-30	Pass
	802.11(g) 36 Mbps			
	Low Channel 1, 2412 MHz	-41.70	-30	Pass
	High Channel 11, 2462 MHz	-52.87	-30	Pass
	802.11(g) 54 Mbps			
	Low Channel 1, 2412 MHz	-43.92	-30	Pass
	High Channel 11, 2462 MHz	-53.67	-30	Pass
	802.11(n) MCS0			
	Low Channel 1, 2412 MHz	-41.51	-30	Pass
	High Channel 11, 2462 MHz	-53.39	-30	Pass
	802.11(n) MCS7			
	Low Channel 1, 2412 MHz	-41.88	-30	Pass
	High Channel 11, 2462 MHz	-51.45	-30	Pass
40 MHz				
	2400 MHz - 2483.5 MHz Band			
	802.11(n) MCS0			
	Low Channel 1/5, 2422 MHz	-43.17	-30	Pass
	High Channel 7/11, 2452 MHz	-48.75	-30	Pass
	802.11(n) MCS7			
	Low Channel 1/5, 2422 MHz	-44.26	-30	Pass
	High Channel 7/11, 2452 MHz	-45.86	-30	Pass

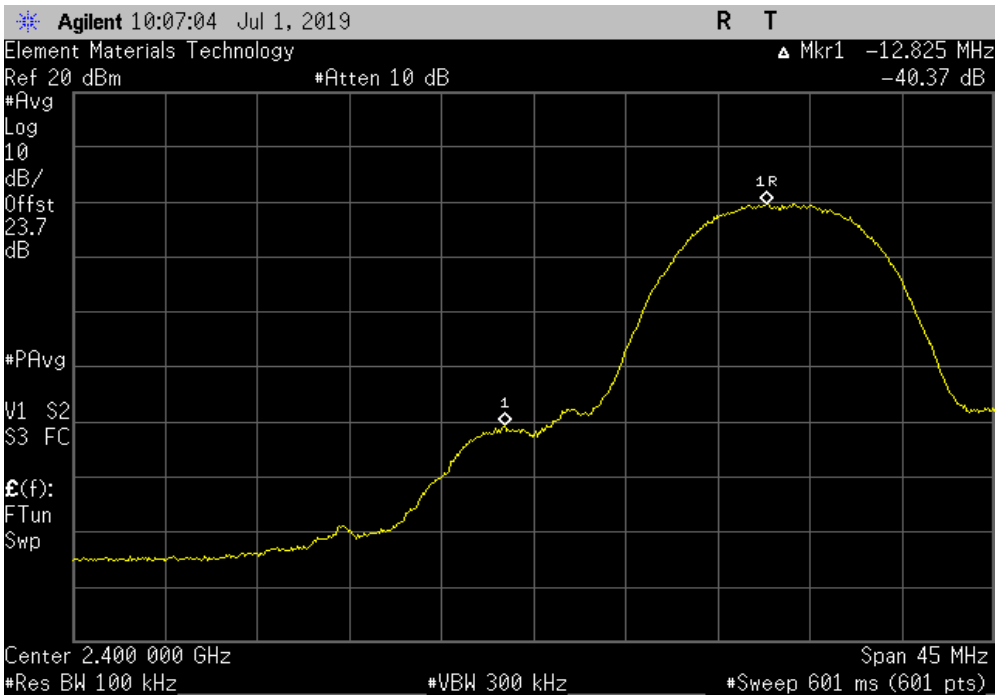
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-37.85	-30	Pass



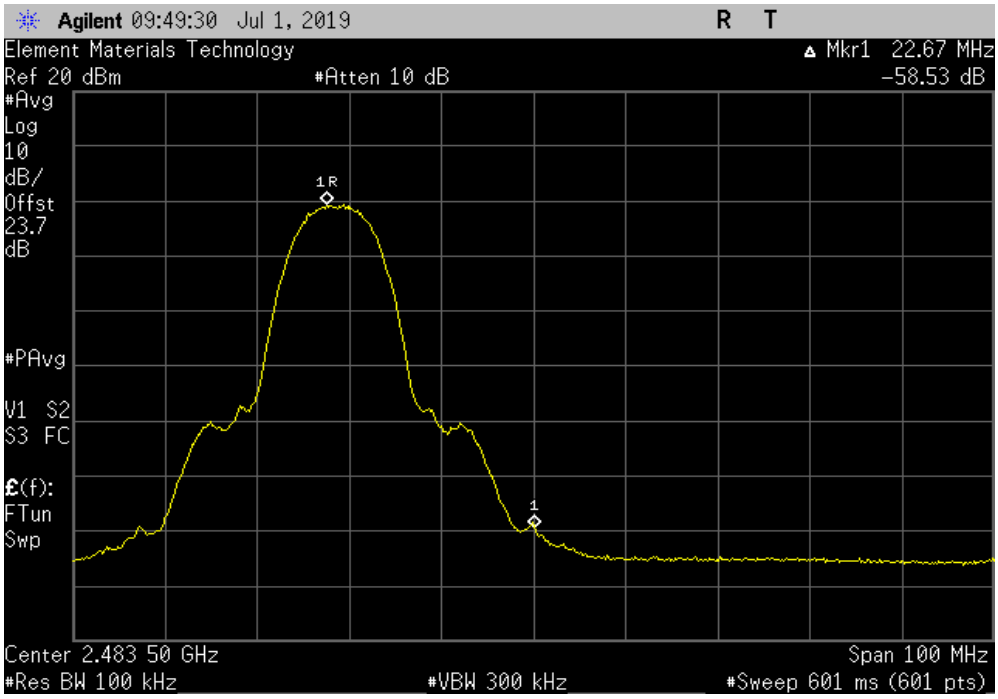
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-56.01	-30	Pass



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-40.37	-30	Pass

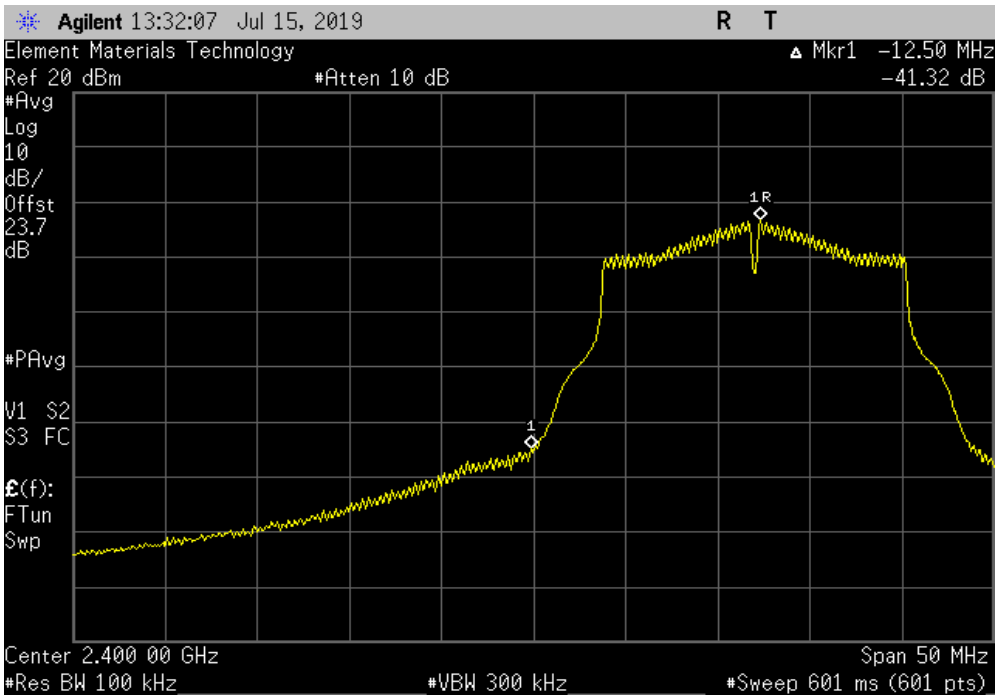


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-58.53	-30	Pass

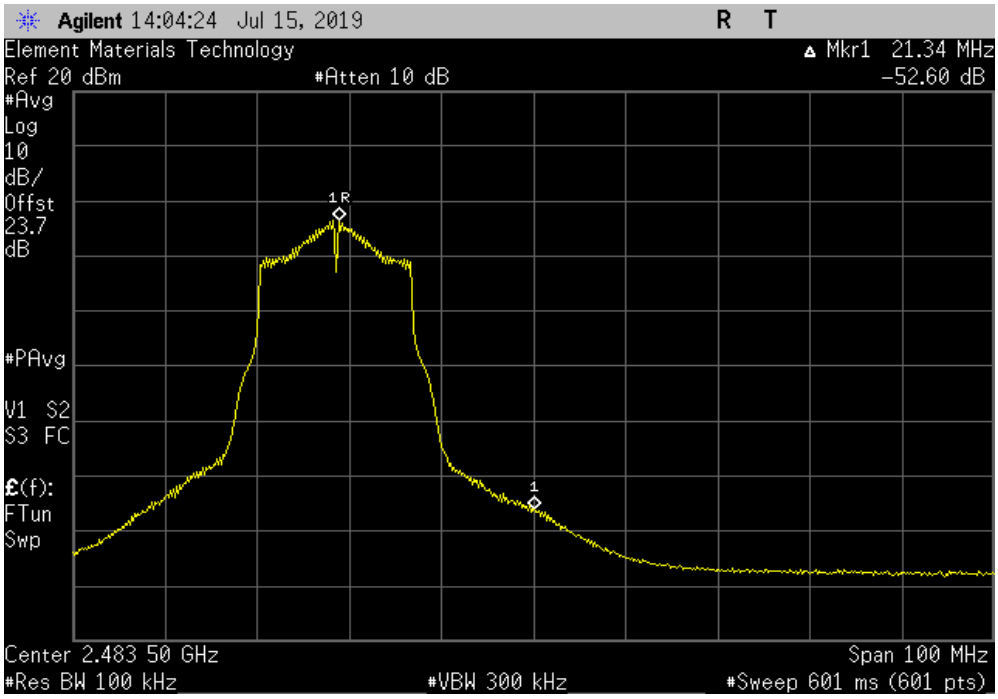


BAND EDGE COMPLIANCE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.32	-30	Pass

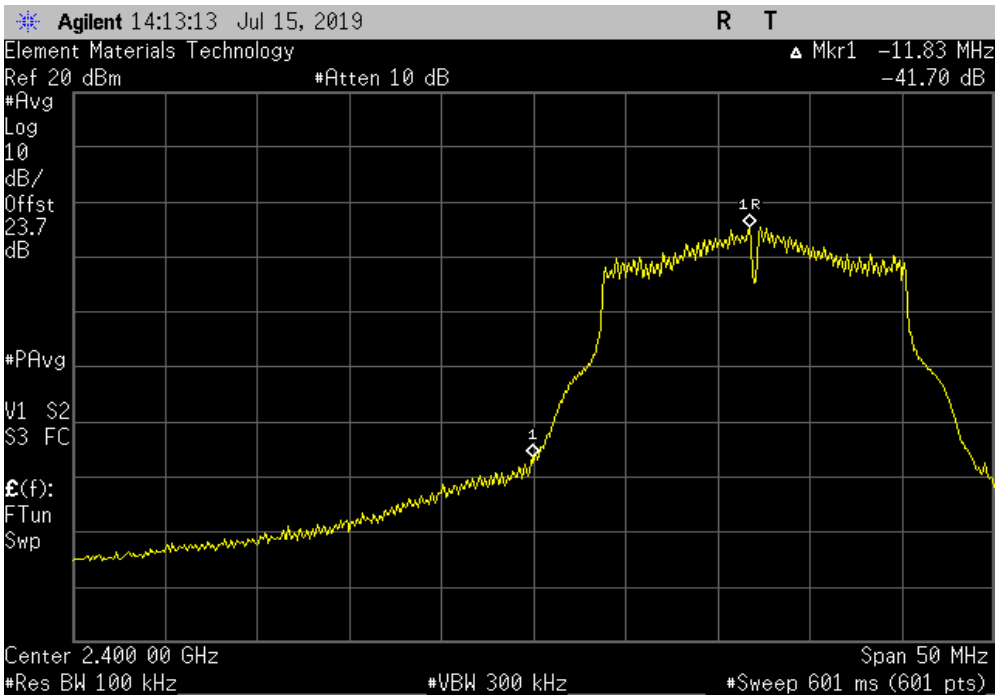


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-52.60	-30	Pass

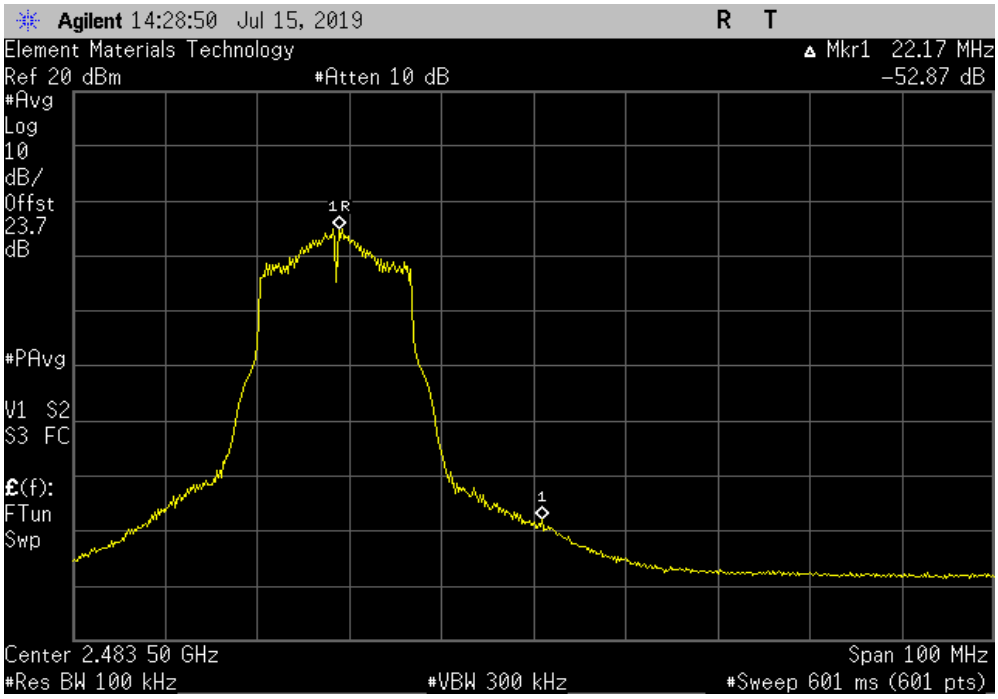


BAND EDGE COMPLIANCE

20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.70	-30	Pass

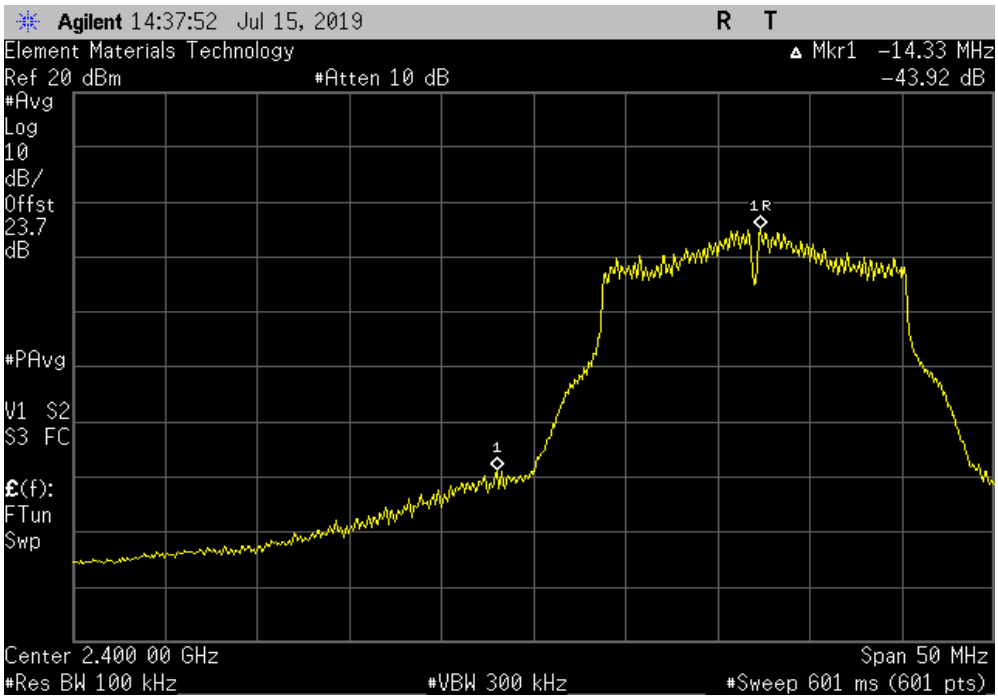


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-52.87	-30	Pass

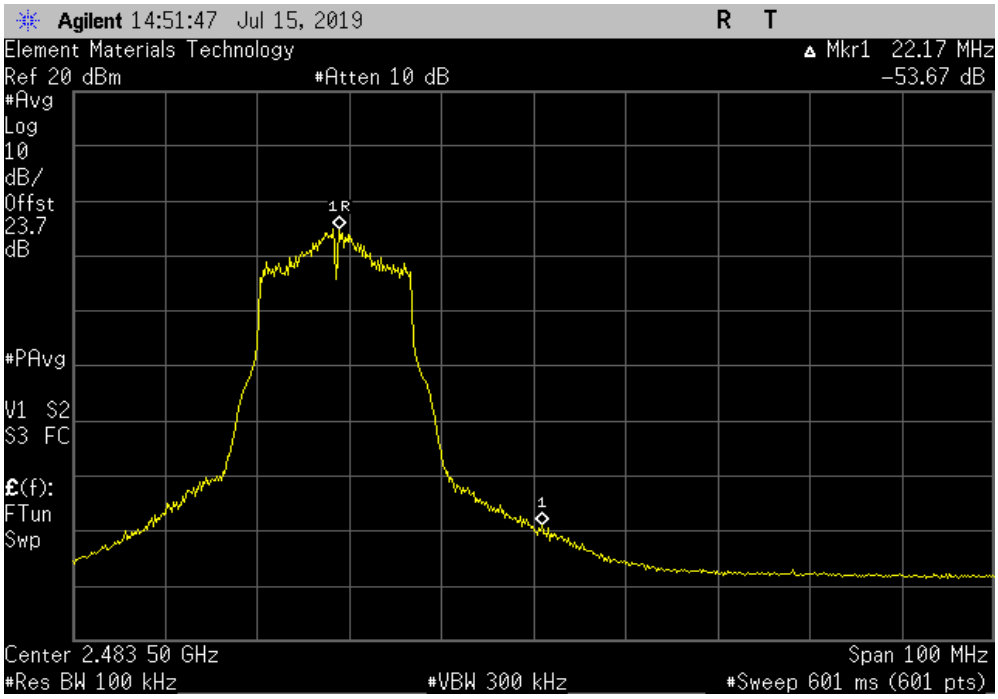


BAND EDGE COMPLIANCE

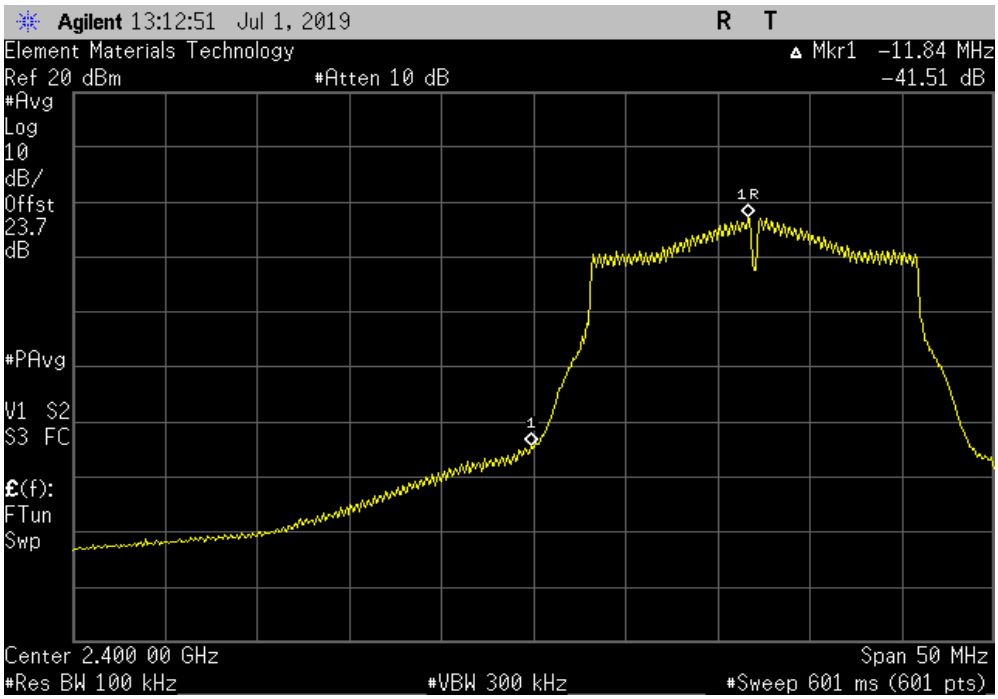
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-43.92	-30	Pass



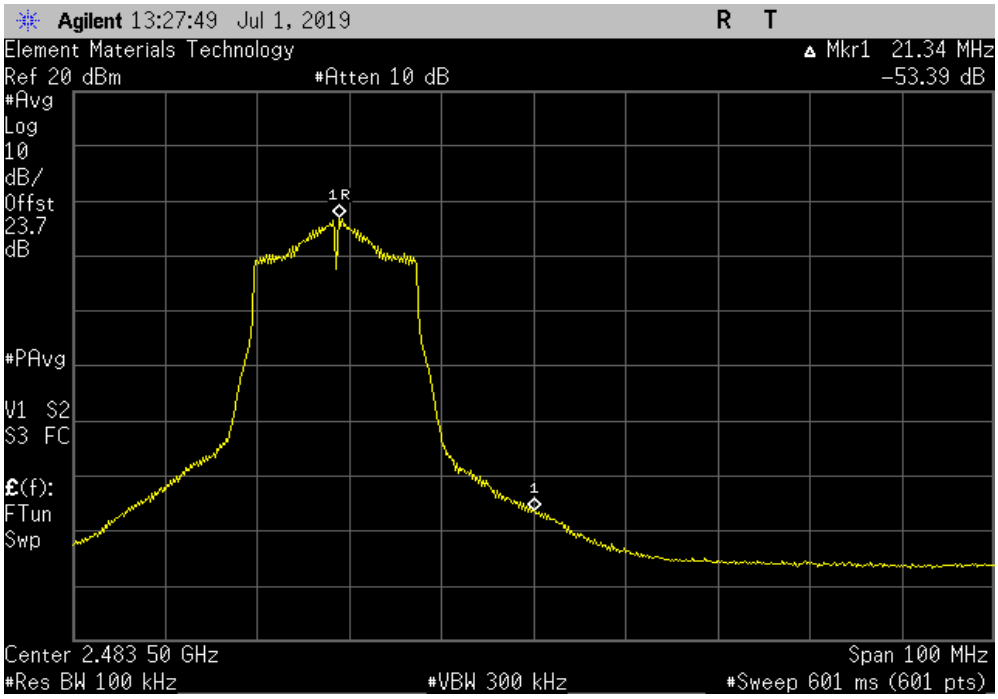
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-53.67	-30	Pass



20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.51	-30	Pass

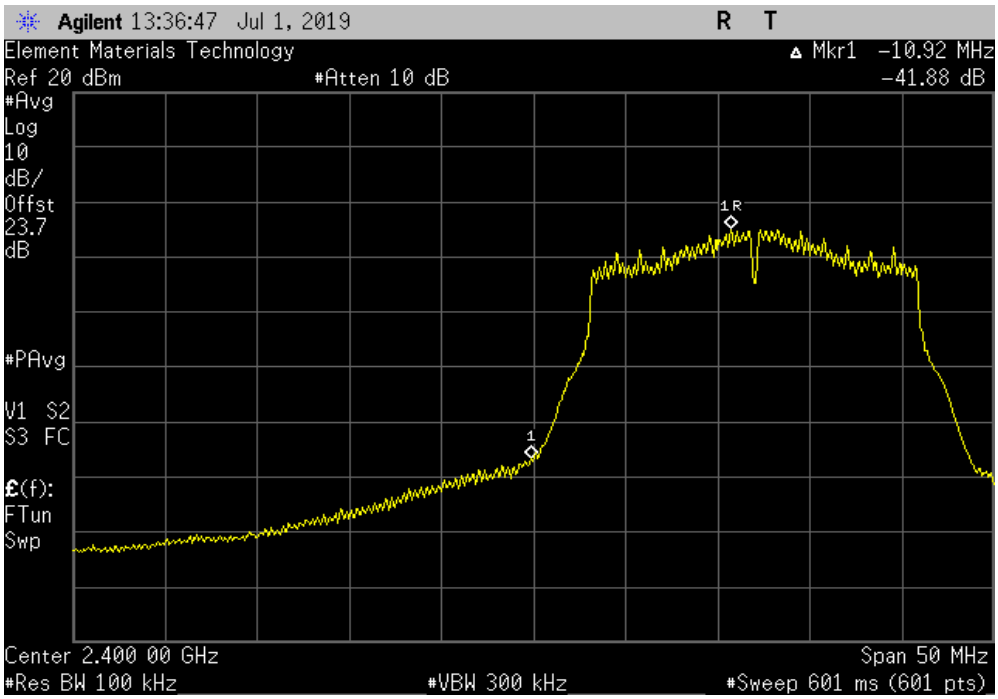


20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-53.39	-30	Pass

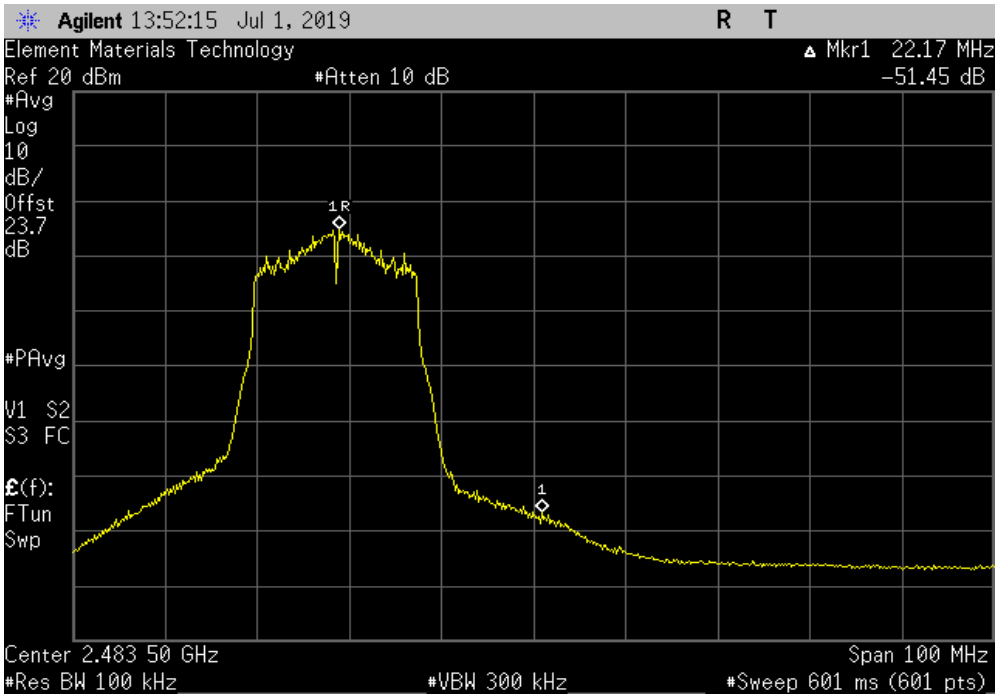


BAND EDGE COMPLIANCE

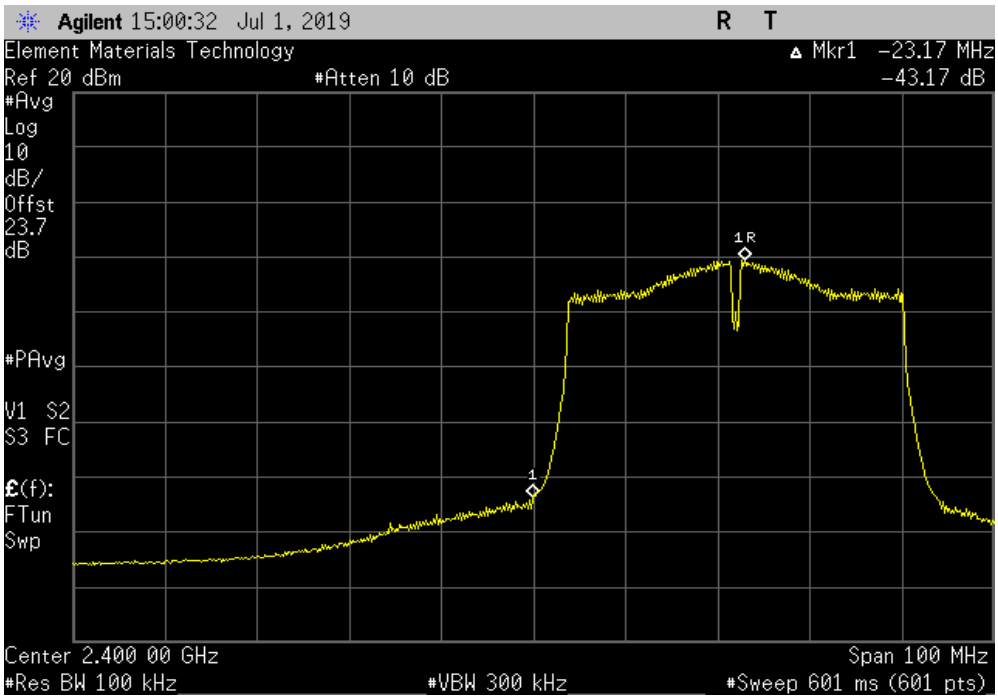
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.88	-30	Pass



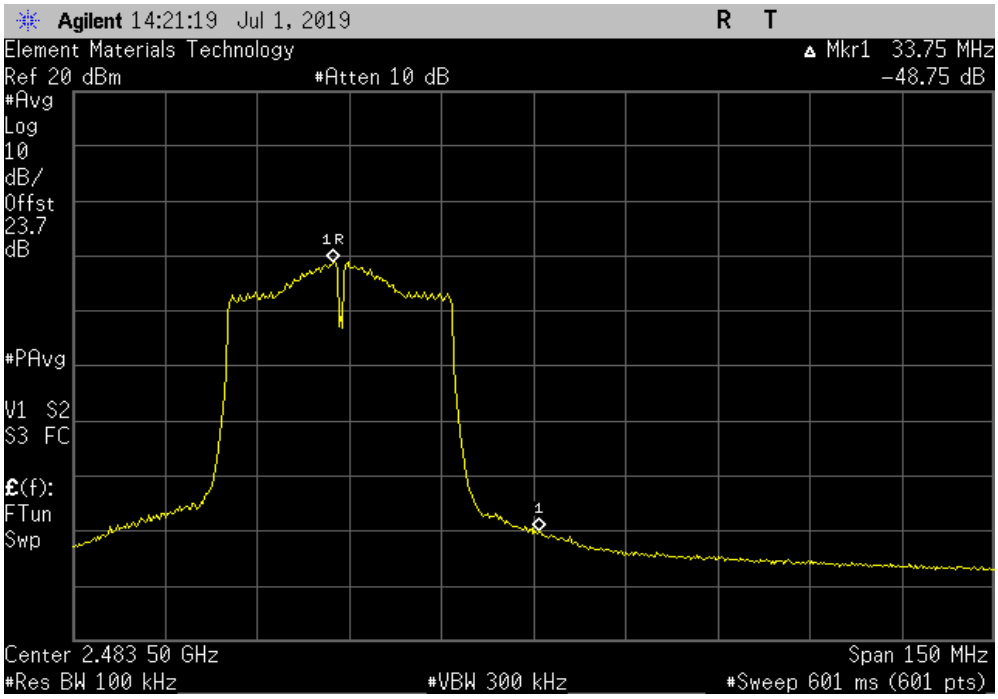
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51.45	-30	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-43.17	-30	Pass

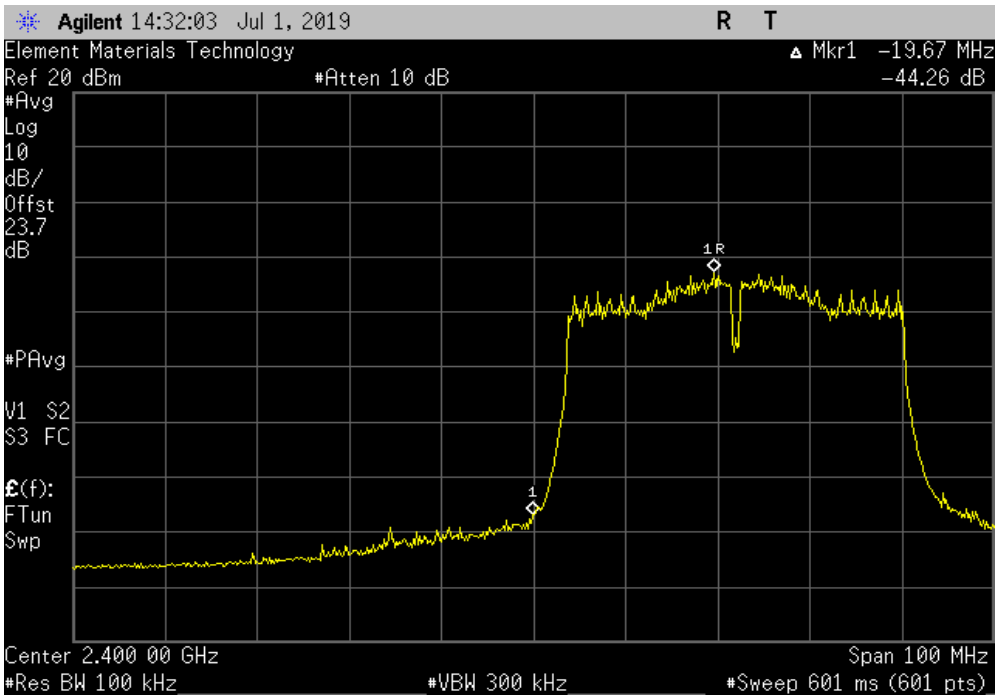


40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-48.75	-30	Pass

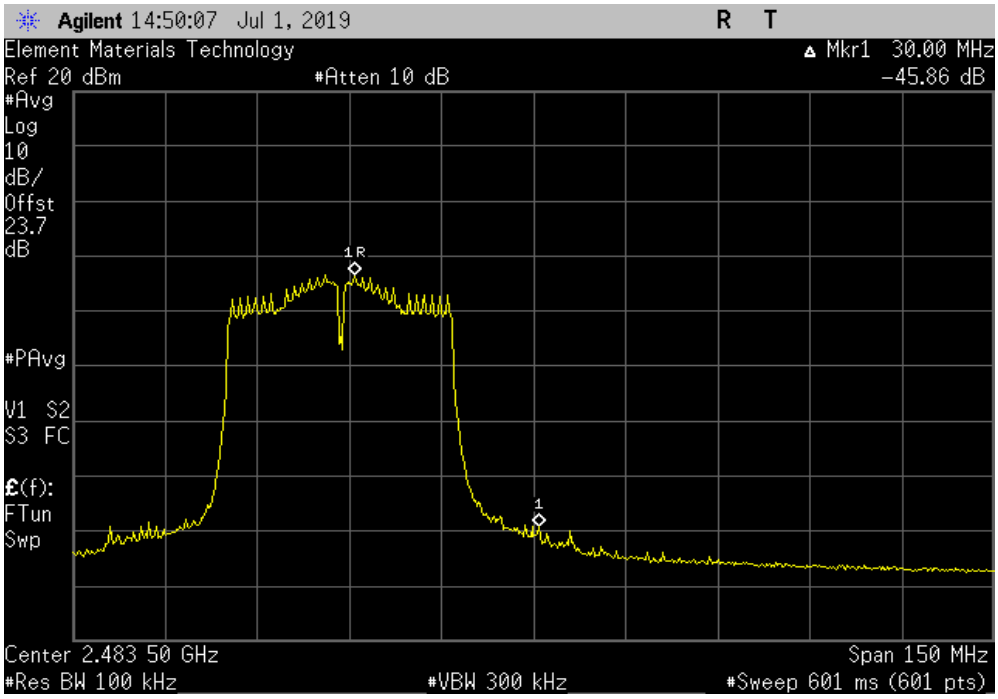


BAND EDGE COMPLIANCE

40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-44.26	-30	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-45.86	-30	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2019.06.11

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	12-Feb-19	12-Feb-20

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS

element

TbtTx 2018.09.13 XMit 2019.06.11

EUT:	**MWMII**			**Work Order:**	**MASI0553**
Serial Number:	**ENG-1**			**Date:**	**15-Jul-19**
Customer:	**Masimo Corporation**			**Temperature:**	**23.8 °C**
Attendees:	**Anami Joshi & Nghi Nguyen**			**Humidity:**	**48.6% RH**
Project:	**None**			**Barometric Pres.:**	**1016 mbar**
Tested by:	**Johnny Candelas & Nolan De Ramos**	**Power:**	**3.6 VDC**	**Job Site:**	**OC13**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2019	ANSI C63.10:2013

COMMENTS

Reference level offset: DC block + 20dB attenuator + coax cable + client provided patch cable = 23.7dB Total Offset

DEVIATIONS FROM TEST STANDARD

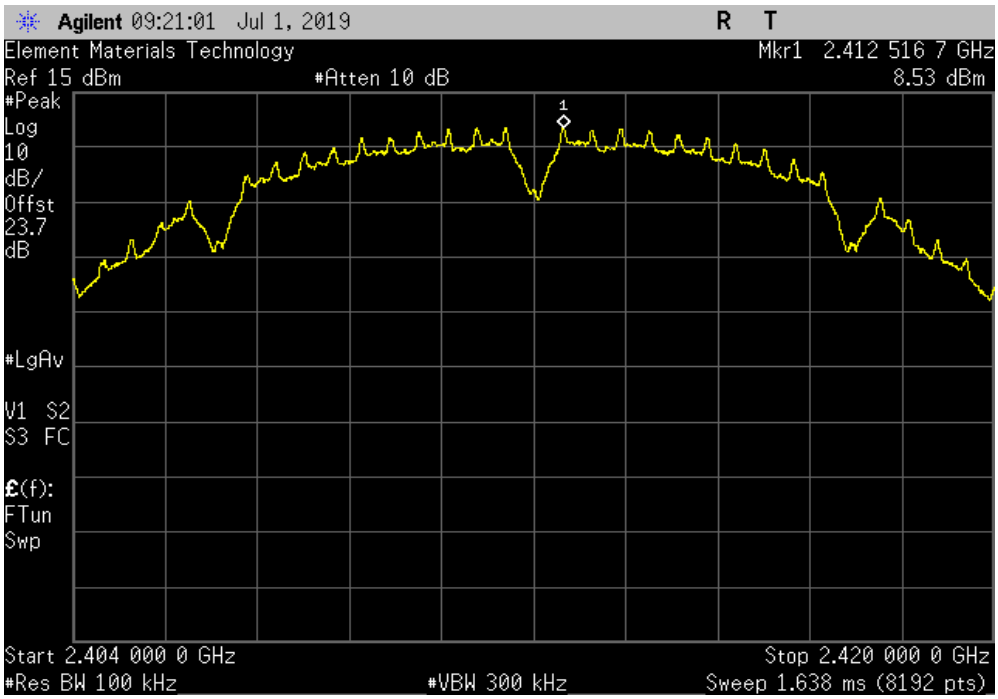
None

Configuration #	**1**	*Signature*

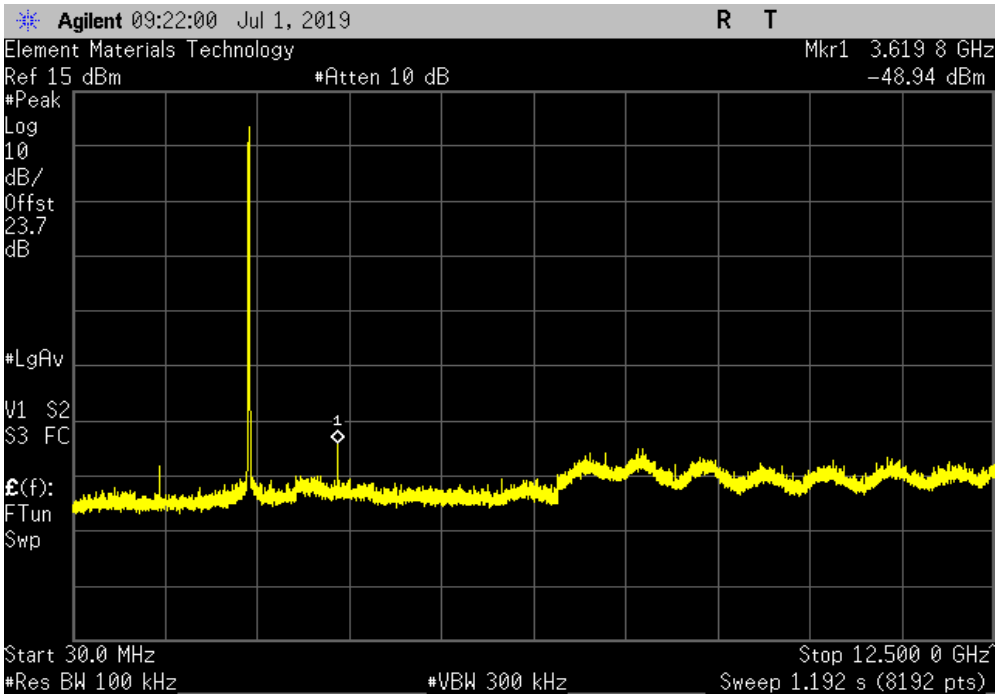
			Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
20 MHz							
	2400 MHz - 2483.5 MHz Band						
		802.11(b) 1 Mbps					
			Low Channel 1, 2412 MHz	Fundamental	2412.52	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	3619.8	-57.47	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	24621.5	-54.29	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2438.02	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	7042.2	-58.4	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24702.4	-52.8	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2461.01	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	7736.4	-57.78	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24736	-53.72	-30	Pass
		802.11(b) 11 Mbps					
			Low Channel 1, 2412 MHz	Fundamental	2411.49	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	3619.8	-58.96	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	24807.7	-55.63	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2435.85	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	3657.9	-58.77	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24794	-54.3	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2461.13	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	7788.2	-59.2	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24842.8	-53.94	-30	Pass
		802.11(g) 6 Mbps					
			Low Channel 1, 2412 MHz	Fundamental	2413.28	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	2380.6	-52.15	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	21047.5	-54.4	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2436.01	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	3654.8	-56.69	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	23742.5	-54.27	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2461.02	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	11250.1	-57.08	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24589.5	-54.25	-30	Pass
		802.11(g) 36 Mbps					
			Low Channel 1, 2412 MHz	Fundamental	2411.76	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	5769.5	-51.09	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	14531.2	-53.66	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2436.77	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	5764.9	-55.87	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24475	-54.44	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2461.76	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	3697.5	-56.93	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24009.6	-54.63	-30	Pass
		802.11(g) 54 Mbps					
			Low Channel 1, 2412 MHz	Fundamental	2412.29	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	2386.7	-53.67	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	24798.6	-55.74	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2437.29	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	5763.4	-55.22	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24972.5	-54.23	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2462.29	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	5757.3	-55.25	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24604.7	-55.06	-30	Pass
		802.11(n) MCS0					
			Low Channel 1, 2412 MHz	Fundamental	2413.3	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	2386.7	-52.36	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	24761.9	-49.32	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2438.28	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	7722.7	-54.4	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24760.4	-48.02	-30	Pass
			High Channel 11, 2462 MHz	Fundamental	2463.28	N/A	N/A	N/A
			High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	7792.7	-53.36	-30	Pass
			High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24707	-49.35	-30	Pass
		802.11(n) MCS7					
			Low Channel 1, 2412 MHz	Fundamental	2412.63	N/A	N/A	N/A
			Low Channel 1, 2412 MHz	30 MHz - 12.5 GHz	2386.7	-50.25	-30	Pass
			Low Channel 1, 2412 MHz	12.5 GHz - 25 GHz	24765	-50.01	-30	Pass
			Mid Channel 6, 2437 MHz	Fundamental	2437.31	N/A	N/A	N/A
			Mid Channel 6, 2437 MHz	30 MHz - 12.5 GHz	8522	-55.36	-30	Pass
			Mid Channel 6, 2437 MHz	12.5 GHz - 25 GHz	24774.1	-49.99	-30	Pass

		High Channel 11, 2462 MHz	Fundamental	2461.72	N/A	N/A	N/A
		High Channel 11, 2462 MHz	30 MHz - 12.5 GHz	7591.8	-55.02	-30	Pass
		High Channel 11, 2462 MHz	12.5 GHz - 25 GHz	24769.6	-50.89	-30	Pass
40 MHz							
	2400 MHz - 2483.5 MHz Band						
		802.11(n) MCS0					
		Low Channel 1/5, 2422 MHz	Fundamental	2425.75	N/A	N/A	N/A
		Low Channel 1/5, 2422 MHz	30 MHz - 12.5 GHz	7594.8	-46.58	-20	Pass
		Low Channel 1/5, 2422 MHz	12.5 GHz - 25 GHz	24751.3	-42.25	-20	Pass
		Mid Channel 4/8, 2437 MHz	Fundamental	2440.77	N/A	N/A	N/A
		Mid Channel 4/8, 2437 MHz	30 MHz - 12.5 GHz	7731.8	-46.99	-20	Pass
		Mid Channel 4/8, 2437 MHz	12.5 GHz - 25 GHz	24772.6	-42.31	-20	Pass
		High Channel 7/11, 2452 MHz	Fundamental	2447.01	N/A	N/A	N/A
		High Channel 7/11, 2452 MHz	30 MHz - 12.5 GHz	7716.6	-47.08	-20	Pass
		High Channel 7/11, 2452 MHz	12.5 GHz - 25 GHz	24827.6	-42.01	-20	Pass
		802.11(n) MCS7					
		Low Channel 1/5, 2422 MHz	Fundamental	2421.09	N/A	N/A	N/A
		Low Channel 1/5, 2422 MHz	30 MHz - 12.5 GHz	7604	-48.73	-20	Pass
		Low Channel 1/5, 2422 MHz	12.5 GHz - 25 GHz	24694.8	-43.78	-20	Pass
		Mid Channel 4/8, 2437 MHz	Fundamental	2436.1	N/A	N/A	N/A
		Mid Channel 4/8, 2437 MHz	30 MHz - 12.5 GHz	7635.9	-47.68	-20	Pass
		Mid Channel 4/8, 2437 MHz	12.5 GHz - 25 GHz	24867.2	-43.12	-20	Pass
		High Channel 7/11, 2452 MHz	Fundamental	2451.08	N/A	N/A	N/A
		High Channel 7/11, 2452 MHz	30 MHz - 12.5 GHz	7619.2	-47.76	-20	Pass
		High Channel 7/11, 2452 MHz	12.5 GHz - 25 GHz	24867.2	-42.78	-20	Pass

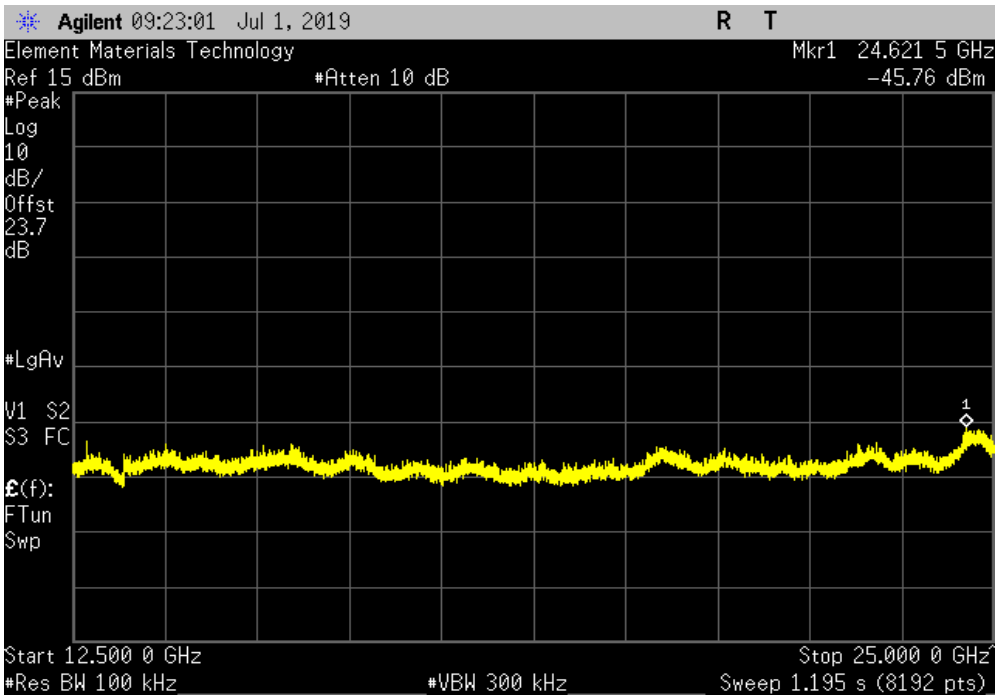
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2412.52	N/A	N/A	N/A



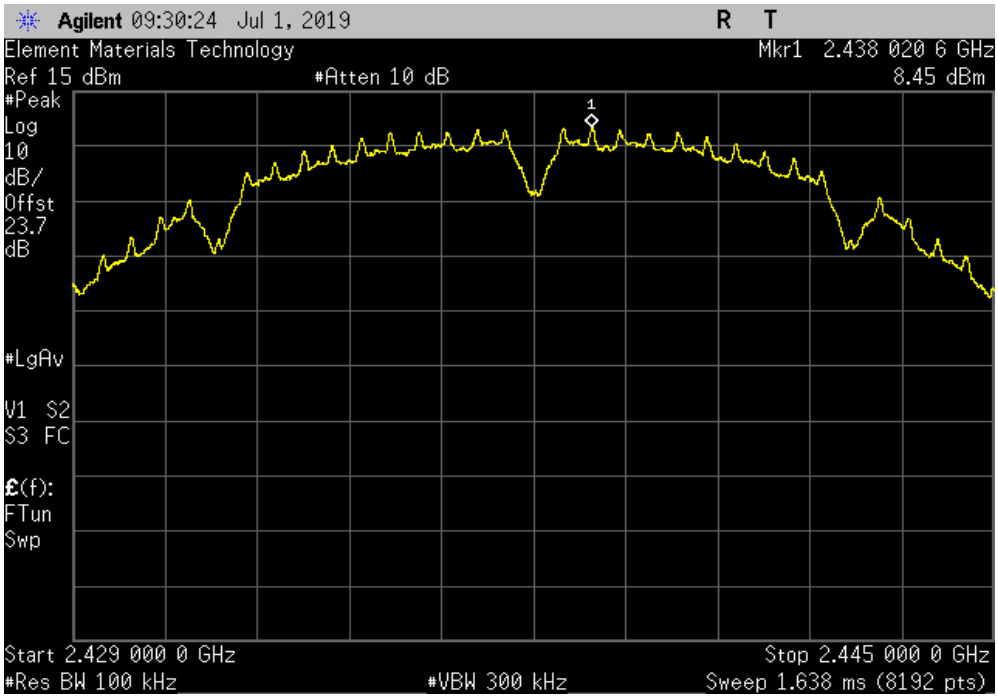
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	3619.8	-57.47	-30	Pass



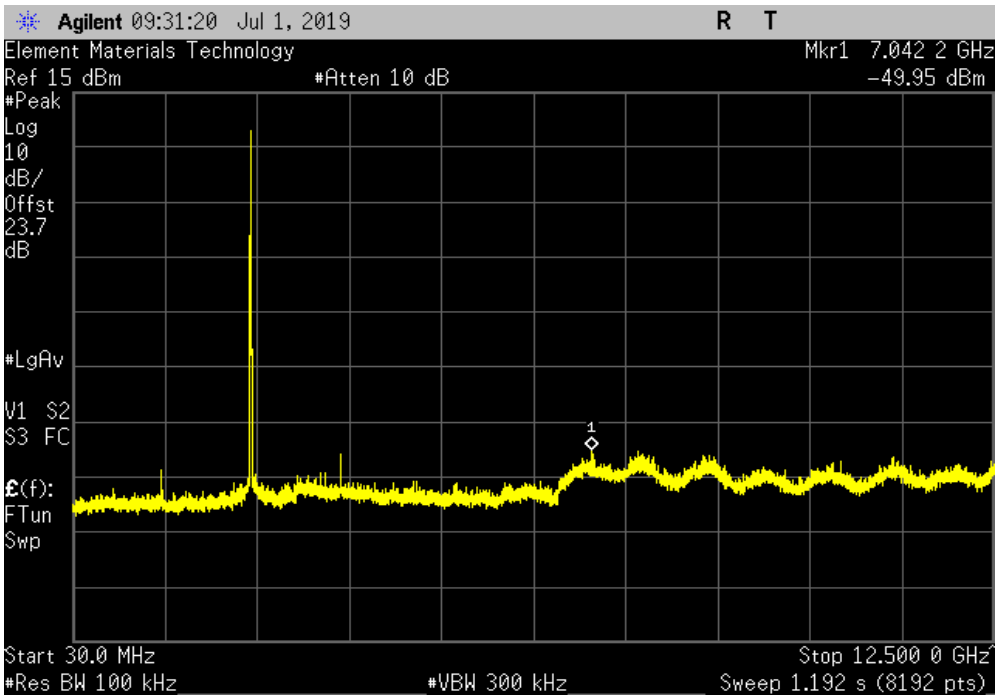
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24621.5	-54.29	-30	Pass



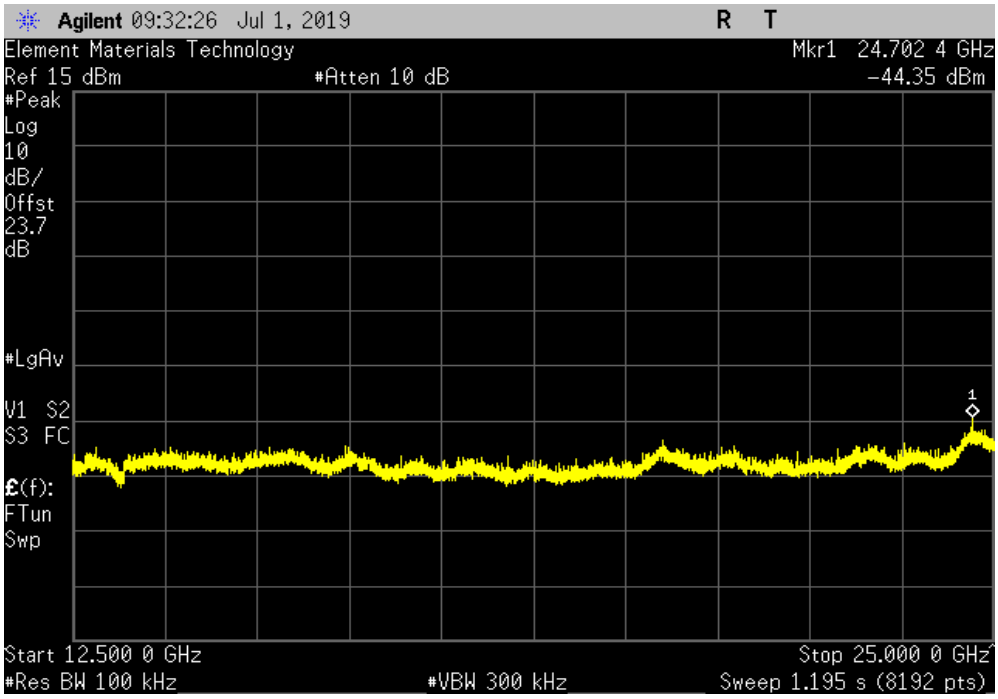
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2438.02	N/A	N/A	N/A



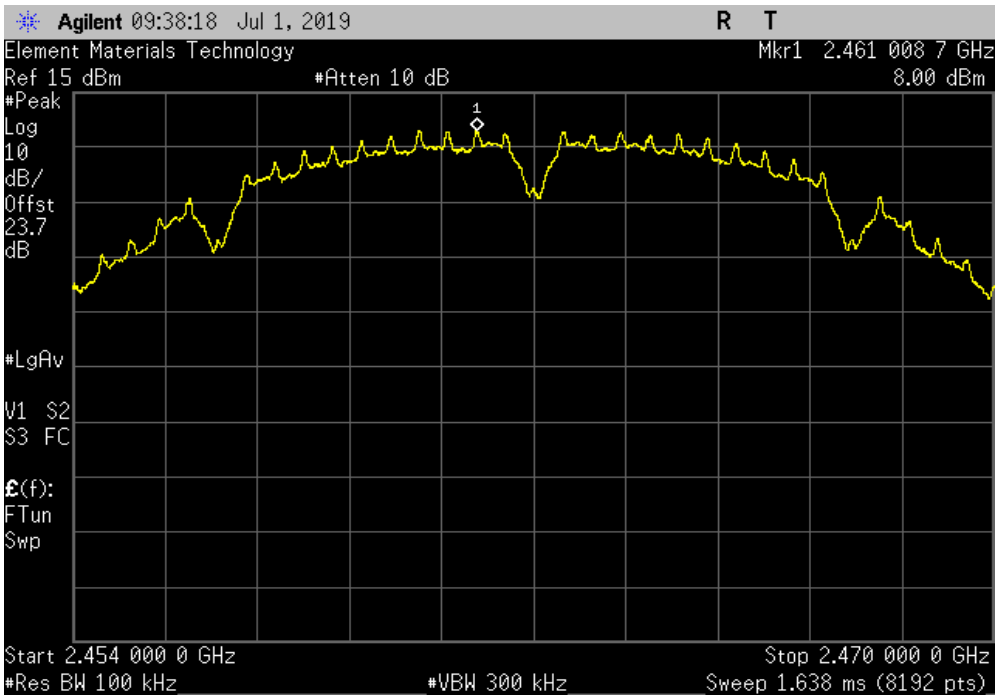
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7042.2	-58.4	-30	Pass



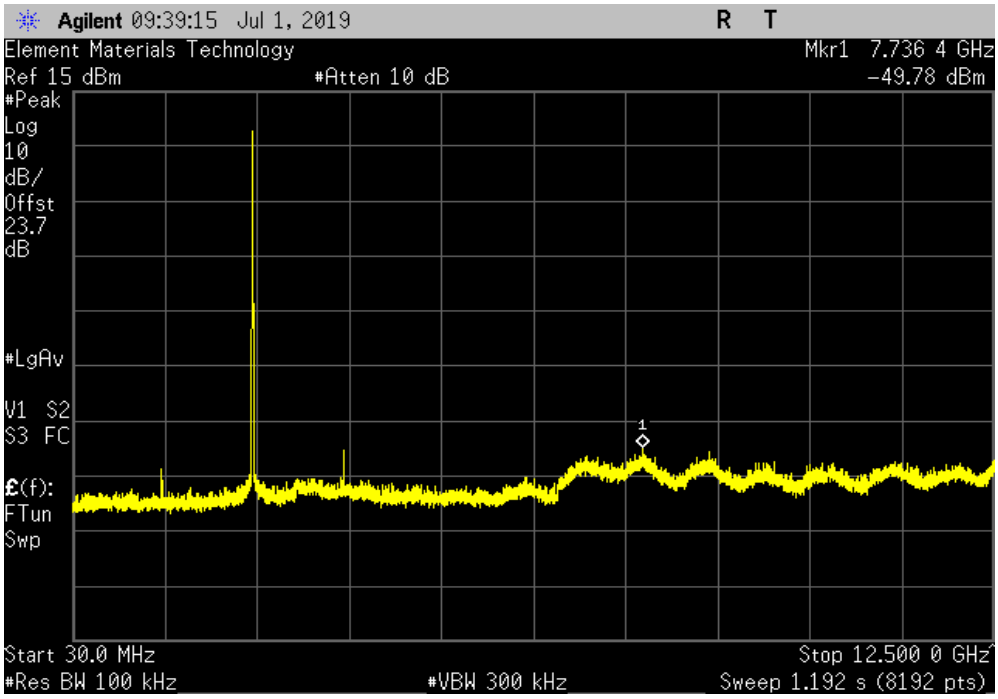
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24702.4	-52.8	-30	Pass



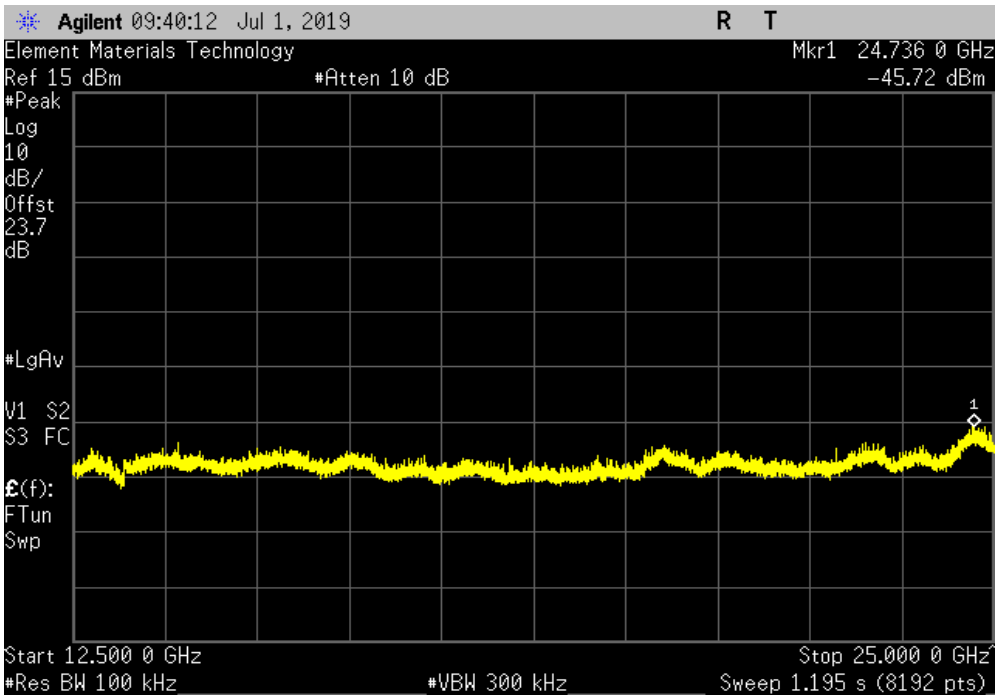
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2461.01	N/A	N/A	N/A



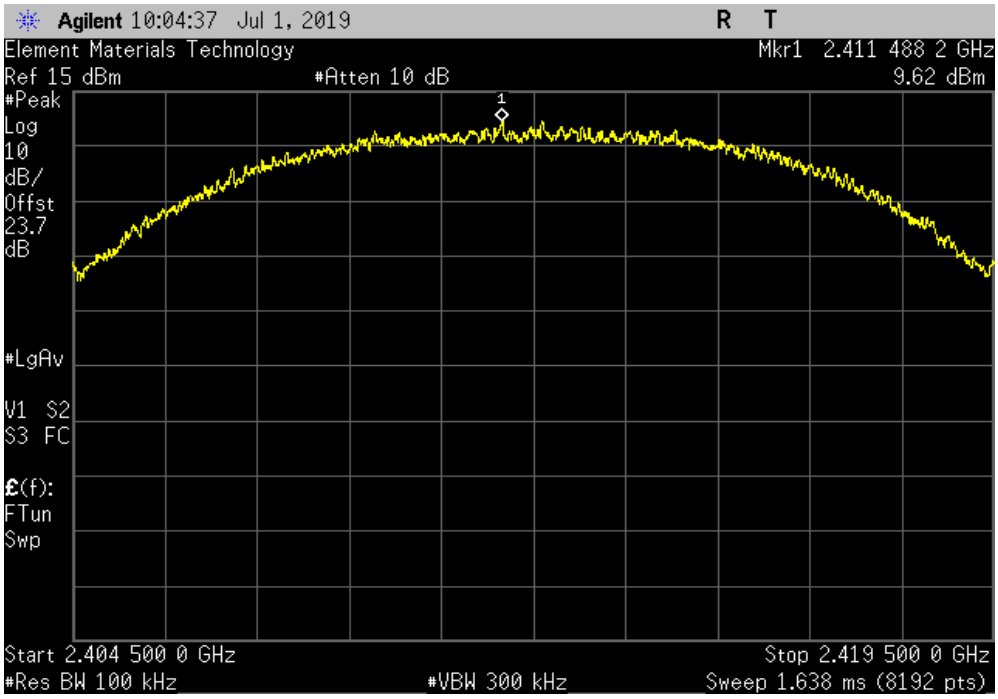
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7736.4	-57.78	-30	Pass



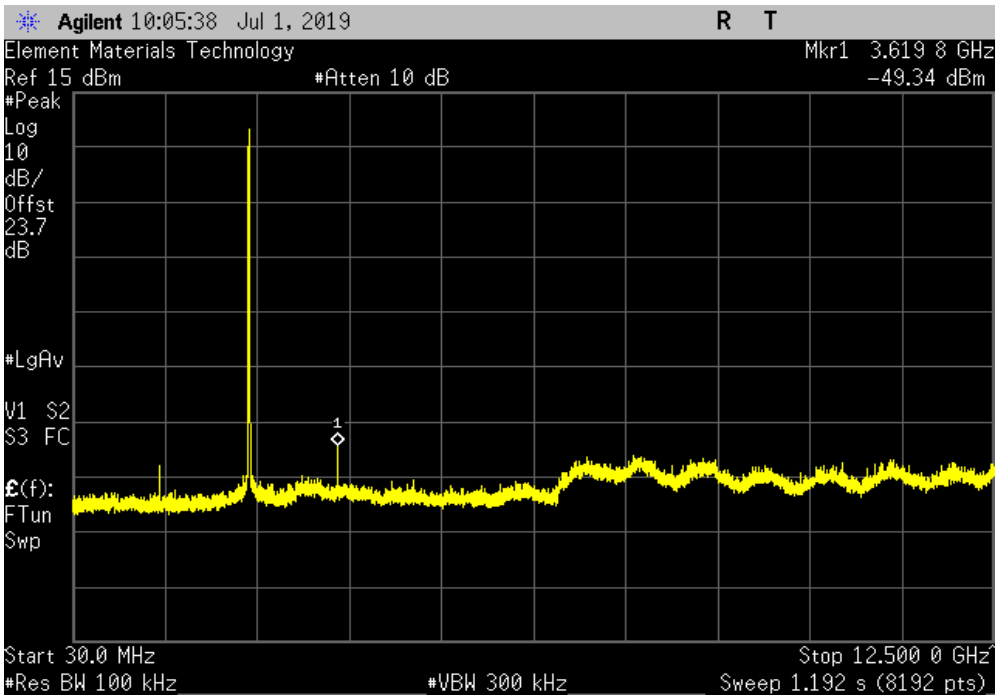
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24736	-53.72	-30	Pass



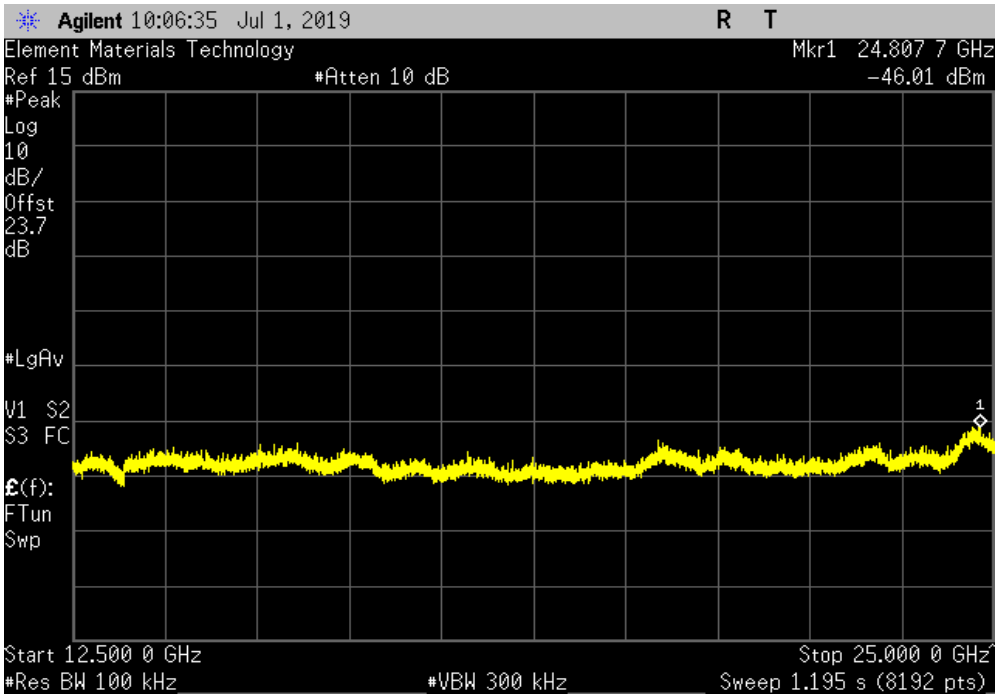
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental	2411.49	N/A	N/A	N/A



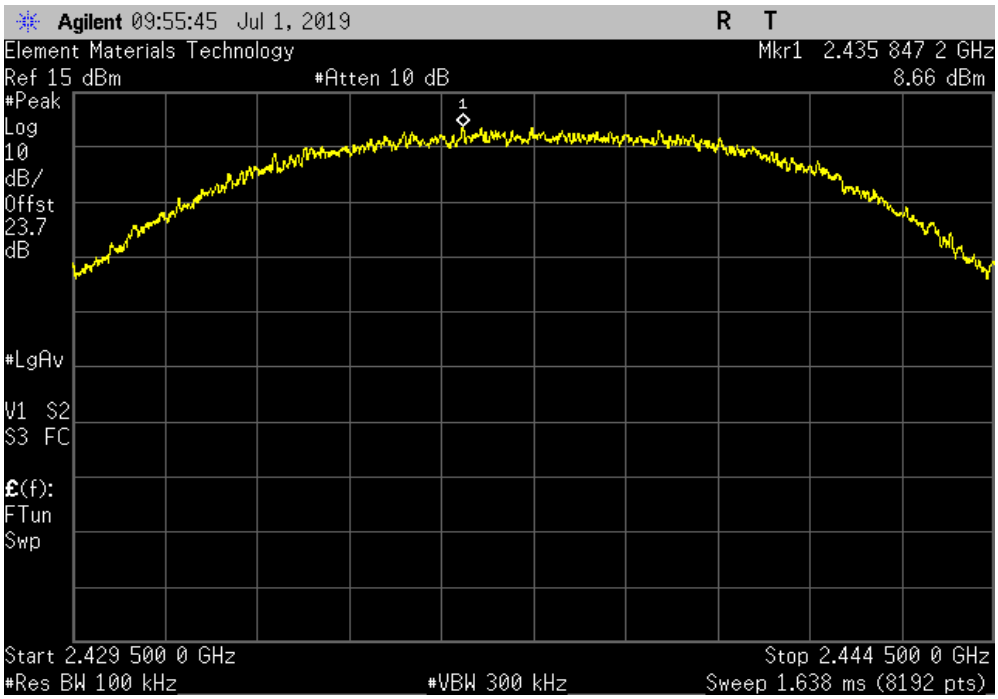
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	3619.8	-58.96	-30	Pass



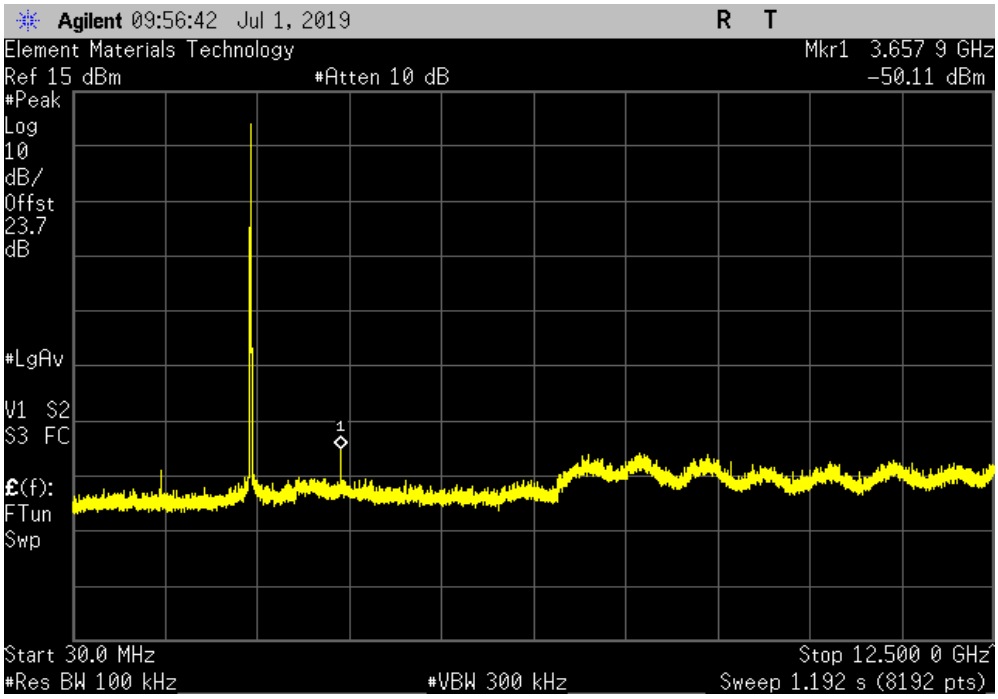
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24807.7	-55.63	-30	Pass



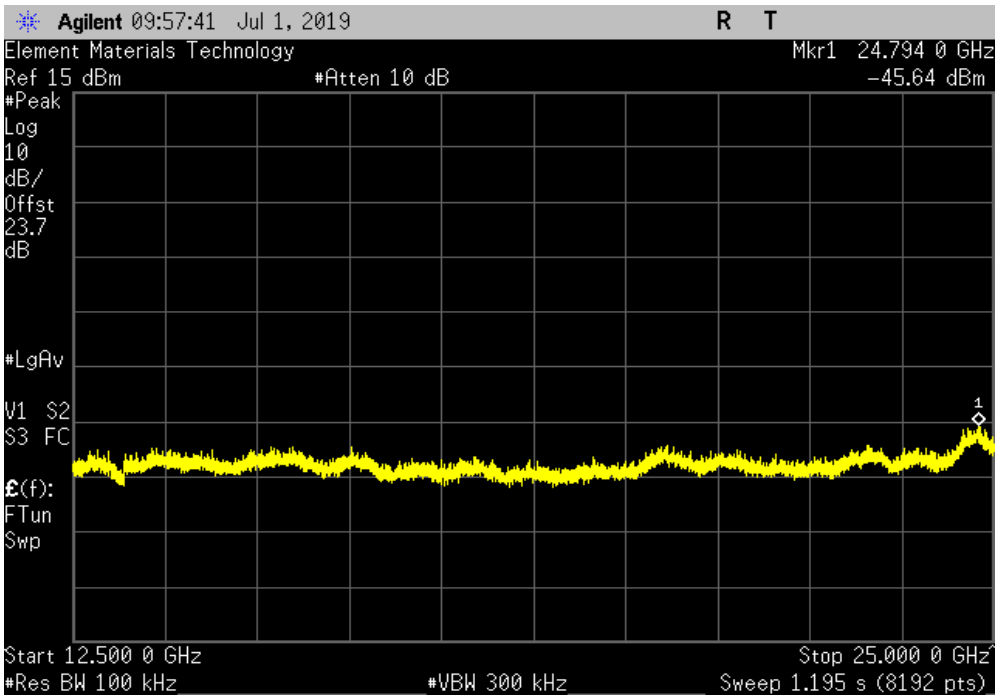
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
	Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental		2435.85	N/A	N/A	N/A



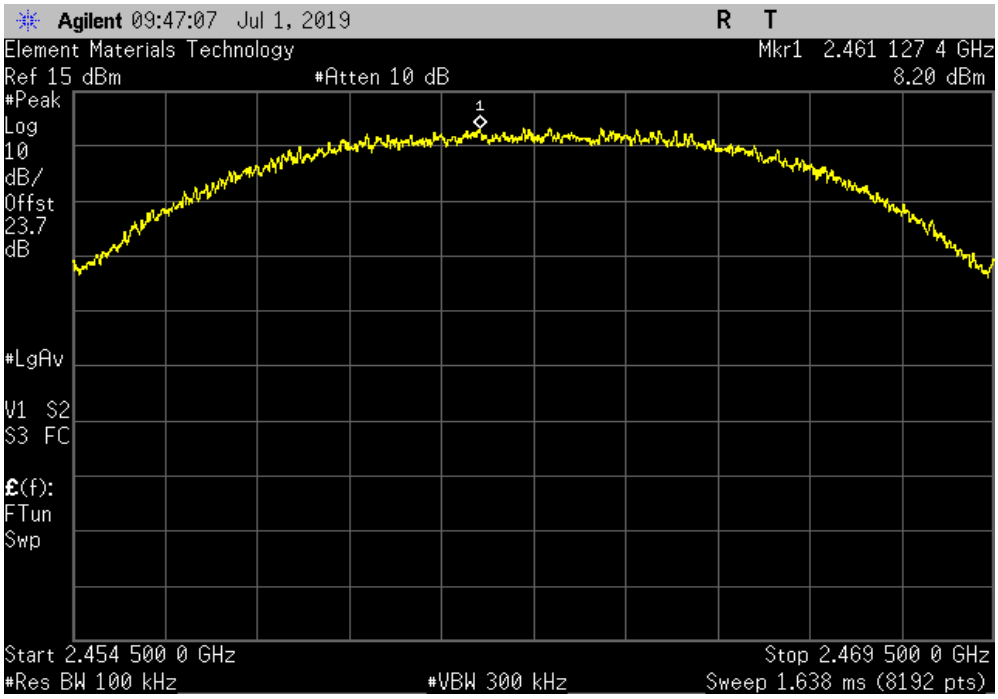
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	3657.9	-58.77	-30	Pass



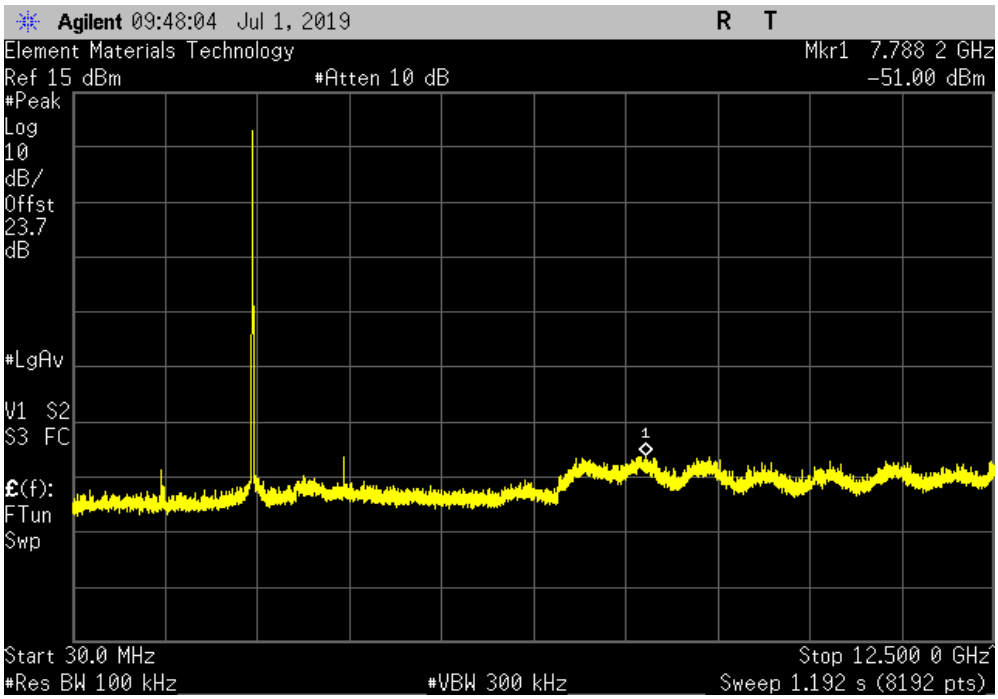
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24794	-54.3	-30	Pass



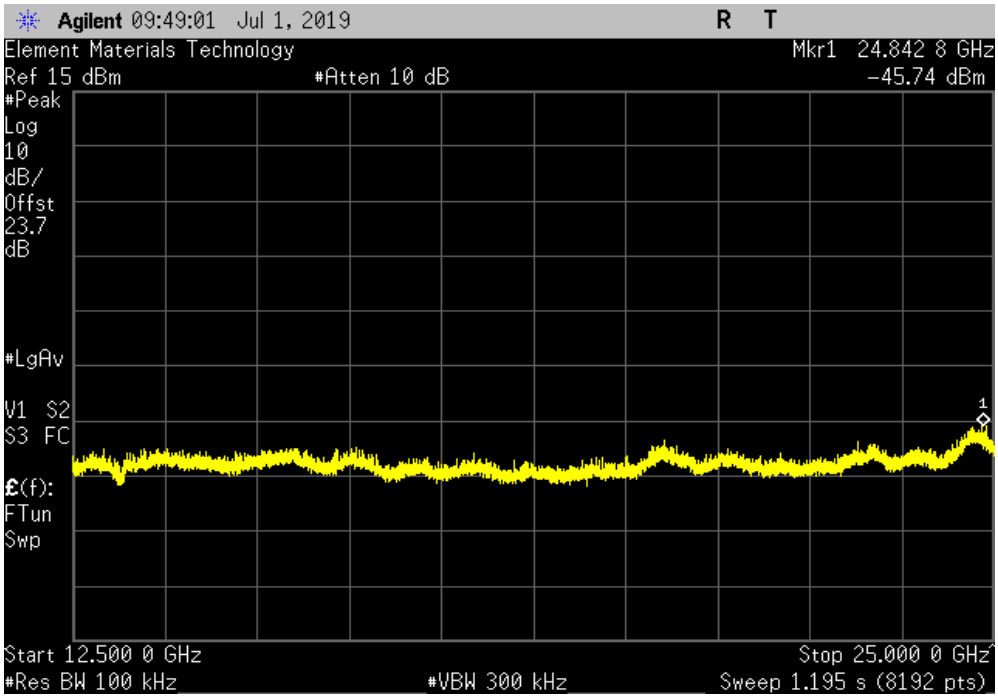
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental	2461.13	N/A	N/A	N/A



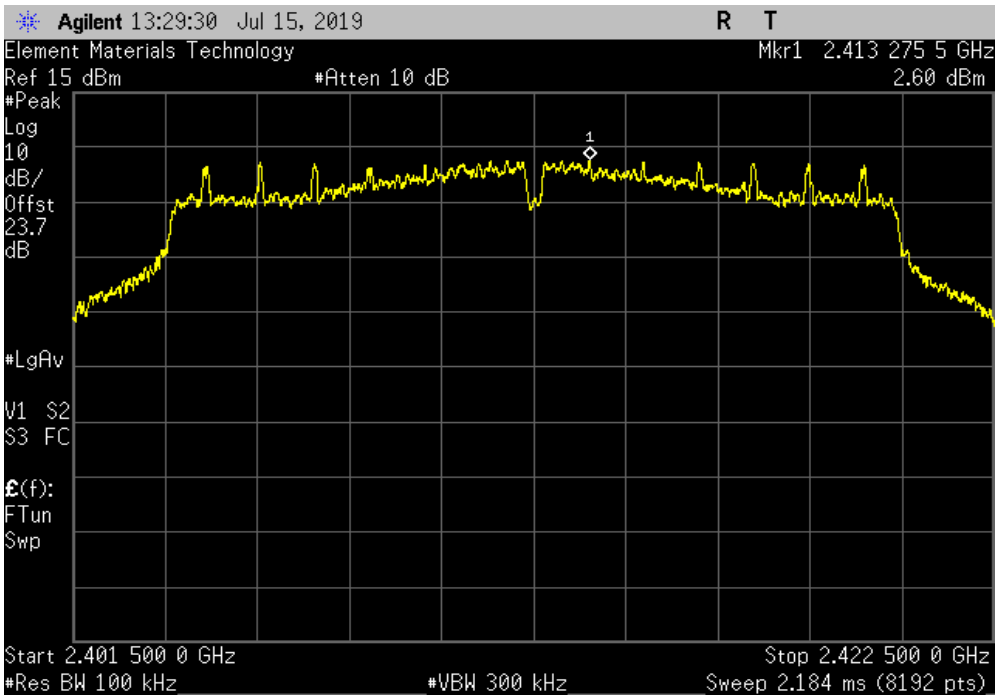
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7788.2	-59.2	-30	Pass



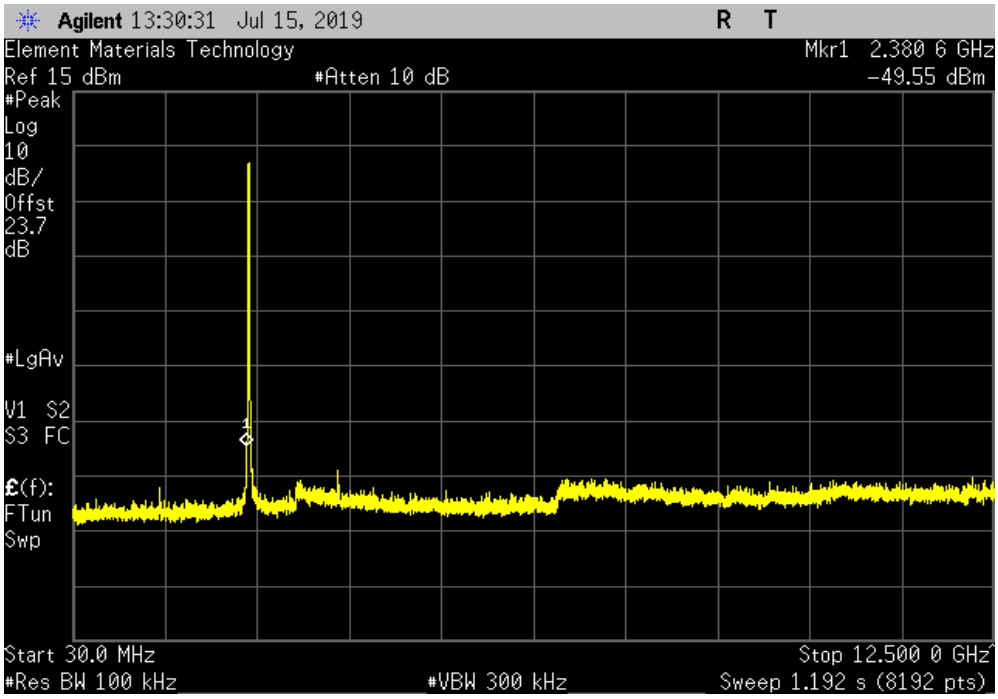
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24842.8	-53.94	-30	Pass



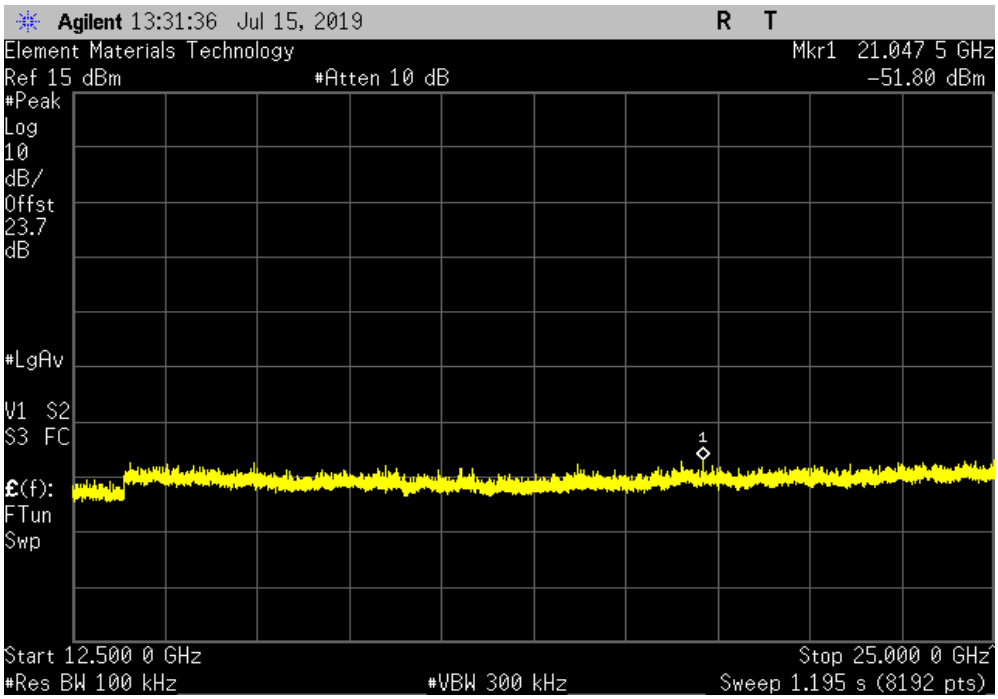
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2413.28	N/A	N/A	N/A



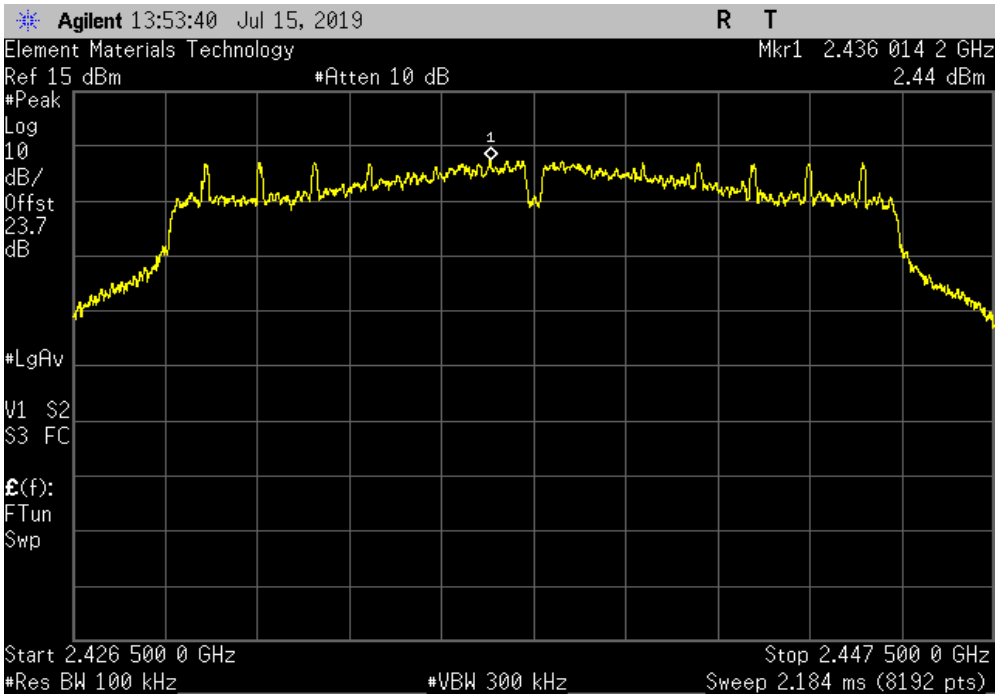
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2380.6	-52.15	-30	Pass



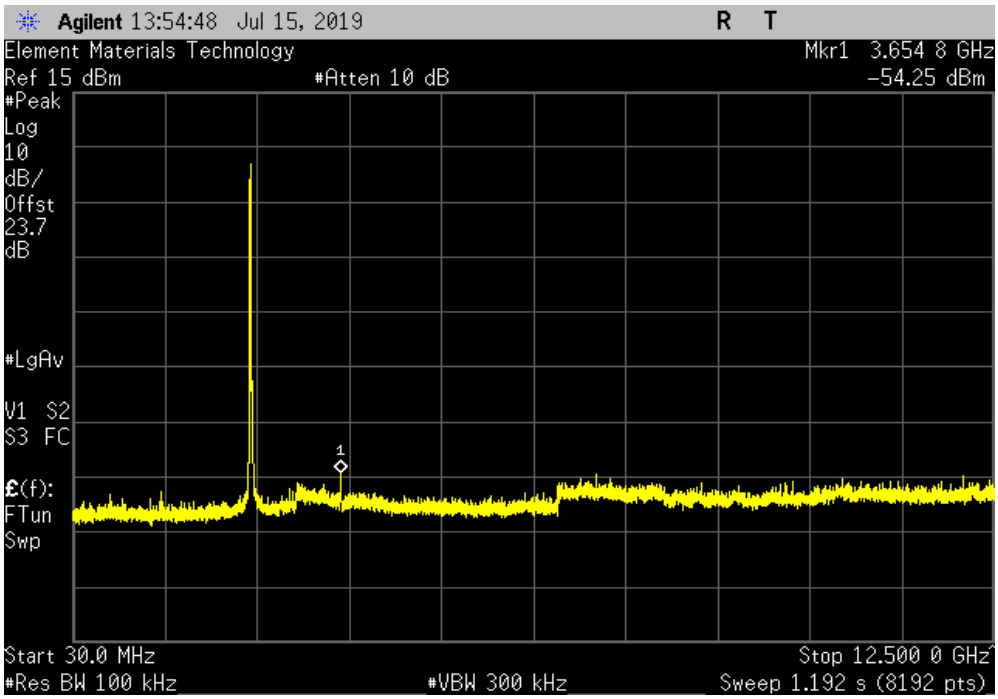
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	21047.5	-54.4	-30	Pass



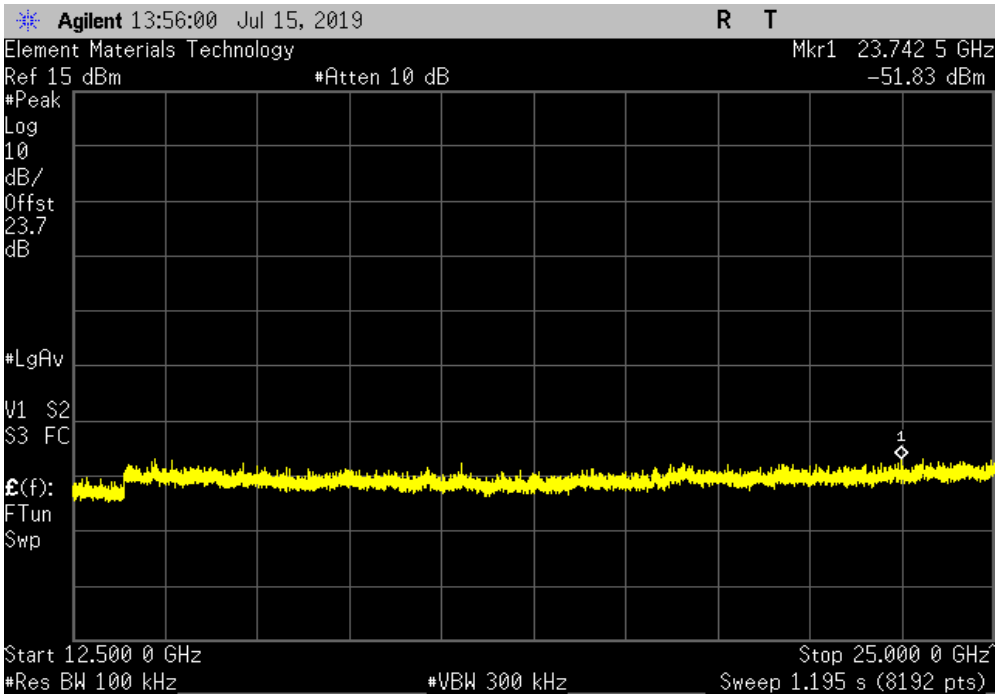
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental	2436.01	N/A	N/A	N/A



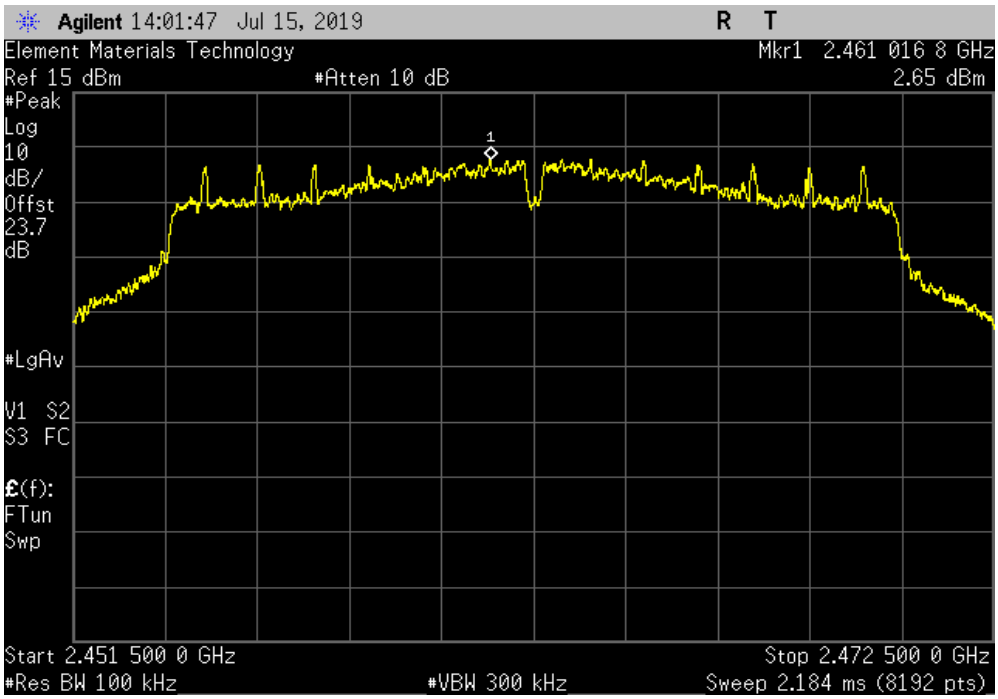
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	3654.8	-56.69	-30	Pass



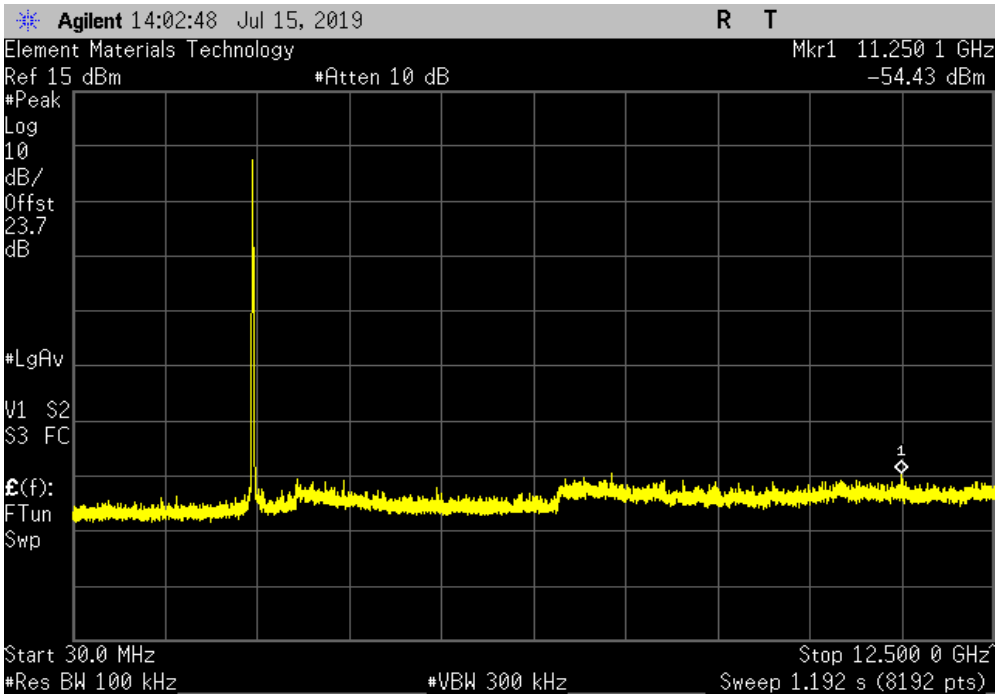
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	23742.5	-54.27	-30	Pass



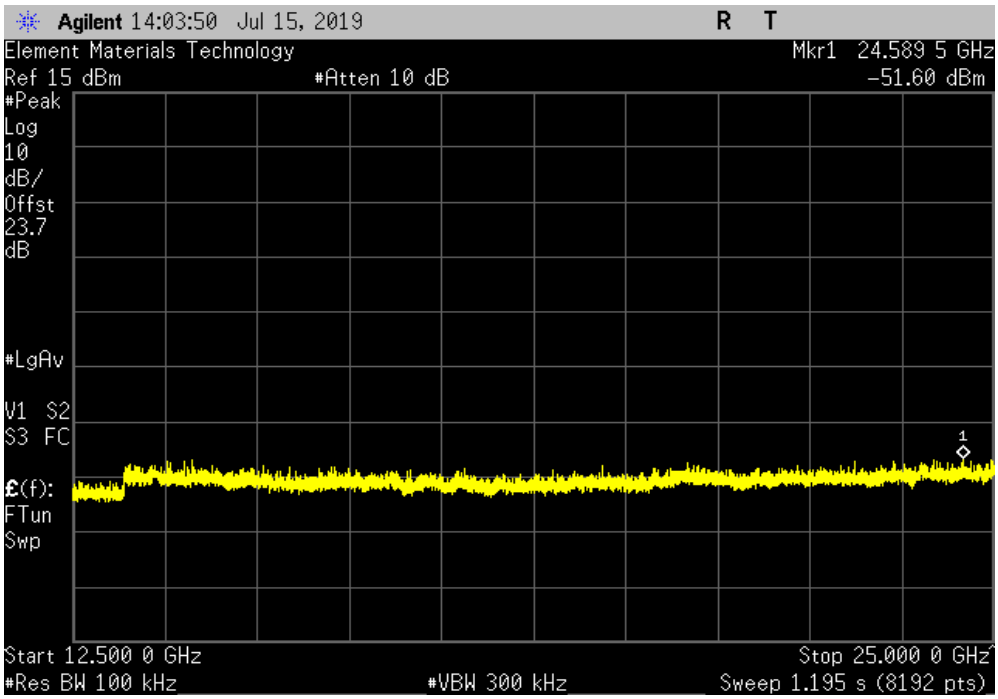
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2461.02	N/A	N/A	N/A



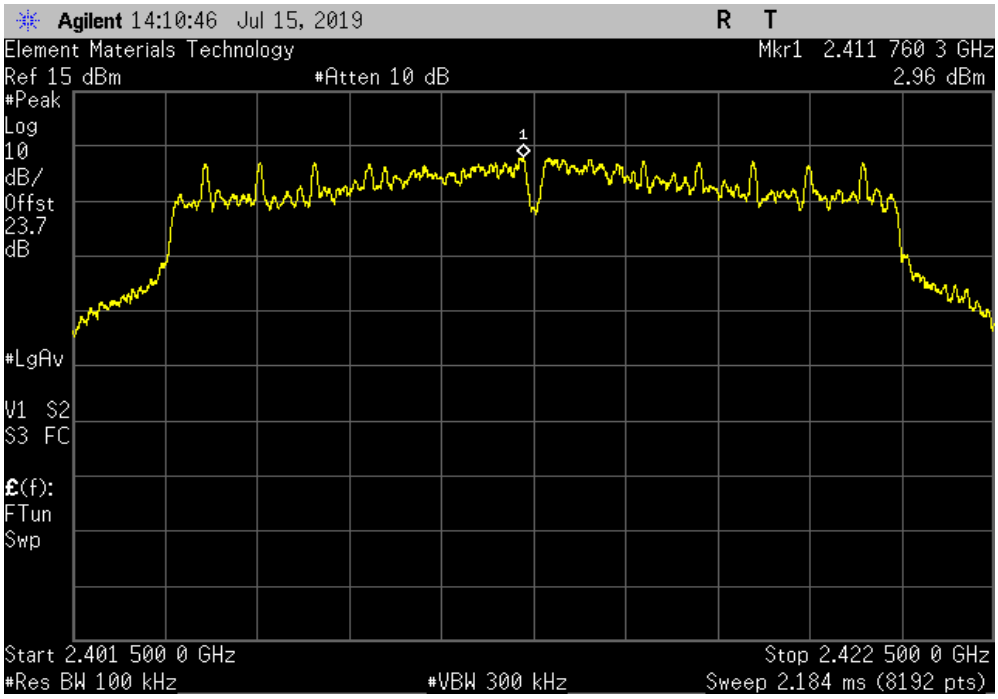
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	11250.1	-57.08	-30	Pass



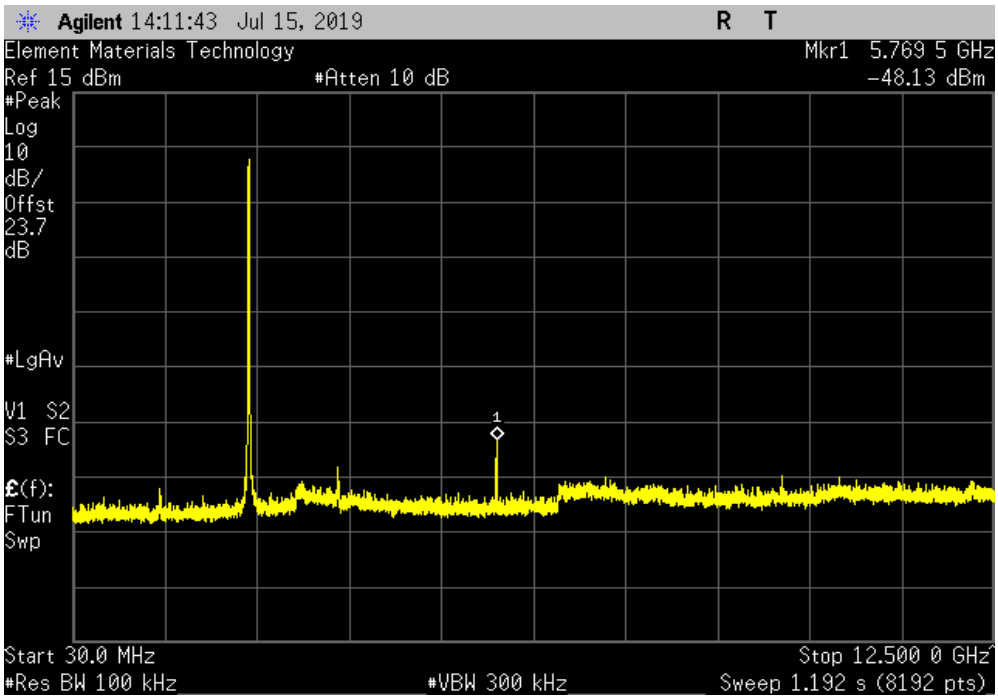
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24589.5	-54.25	-30	Pass



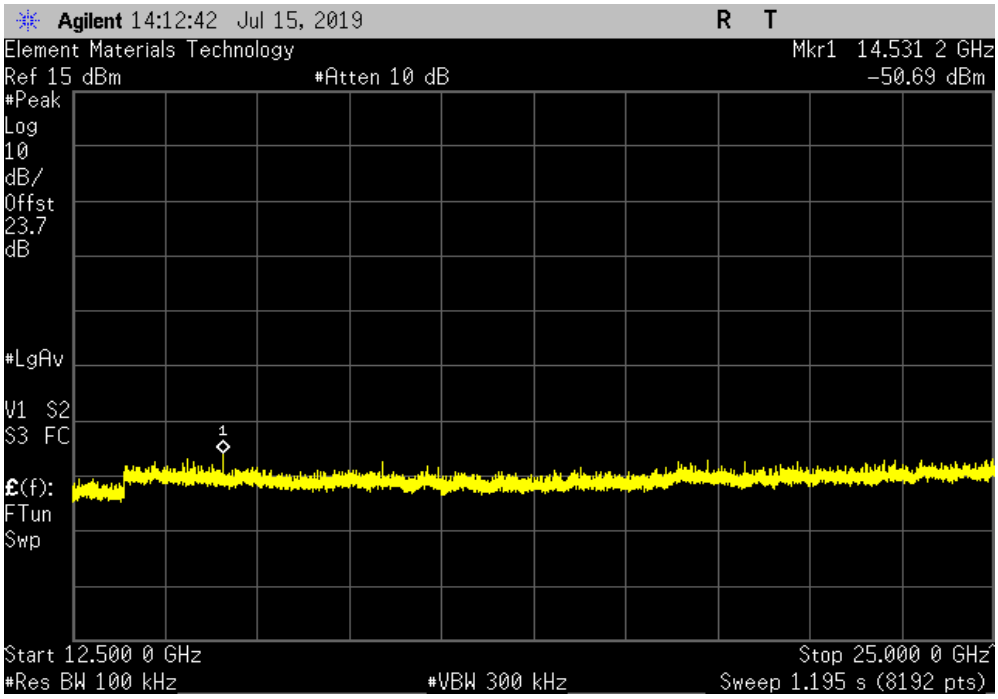
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2411.76	N/A	N/A	N/A



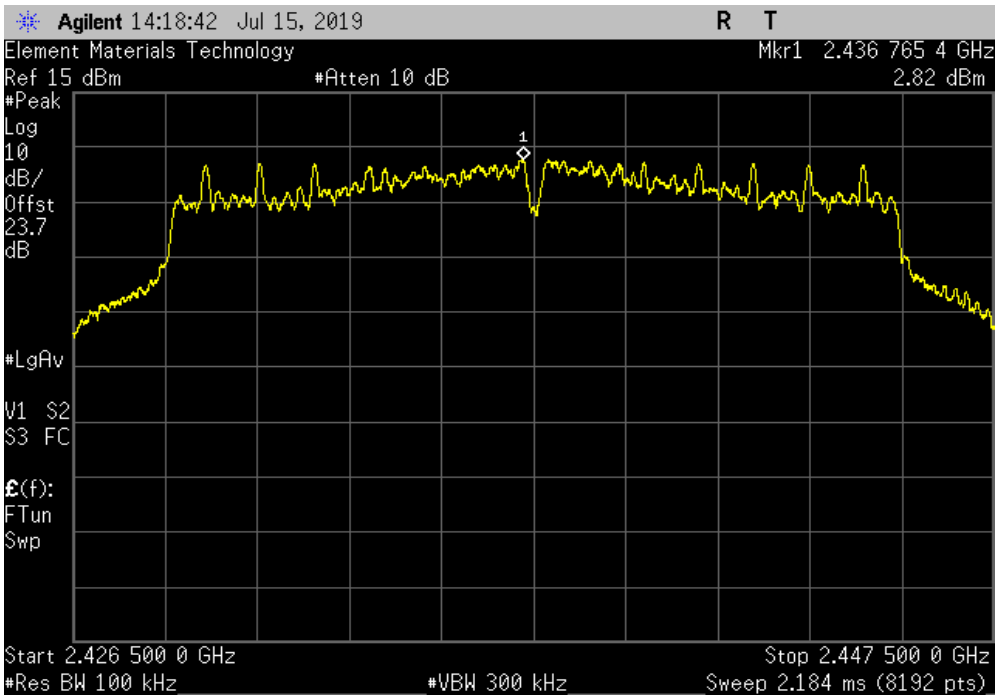
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	5769.5	-51.09	-30	Pass



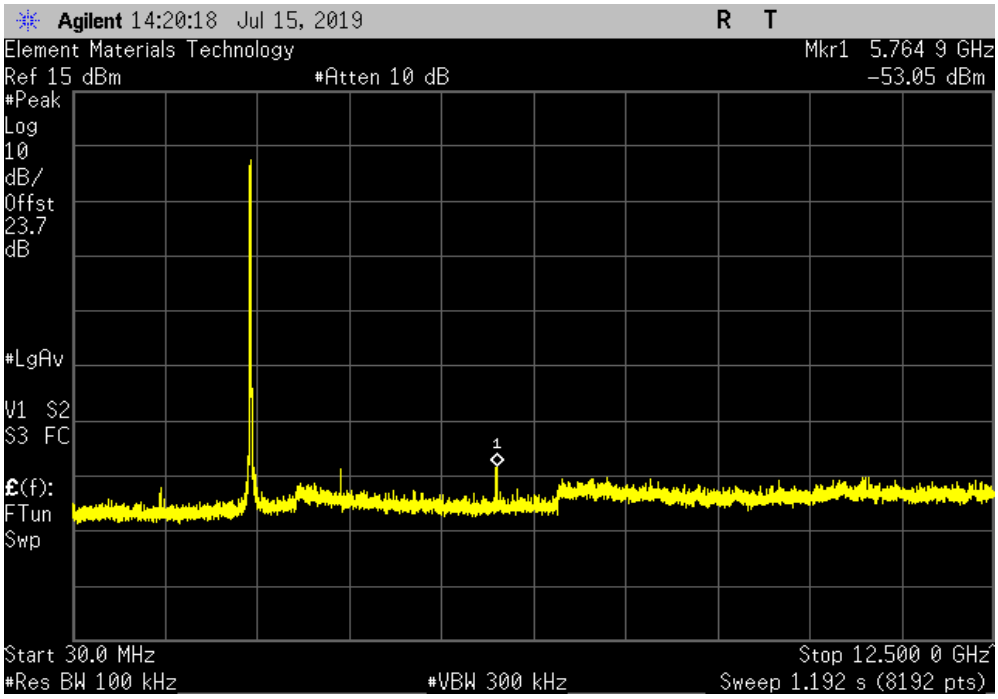
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	14531.2	-53.66	-30	Pass



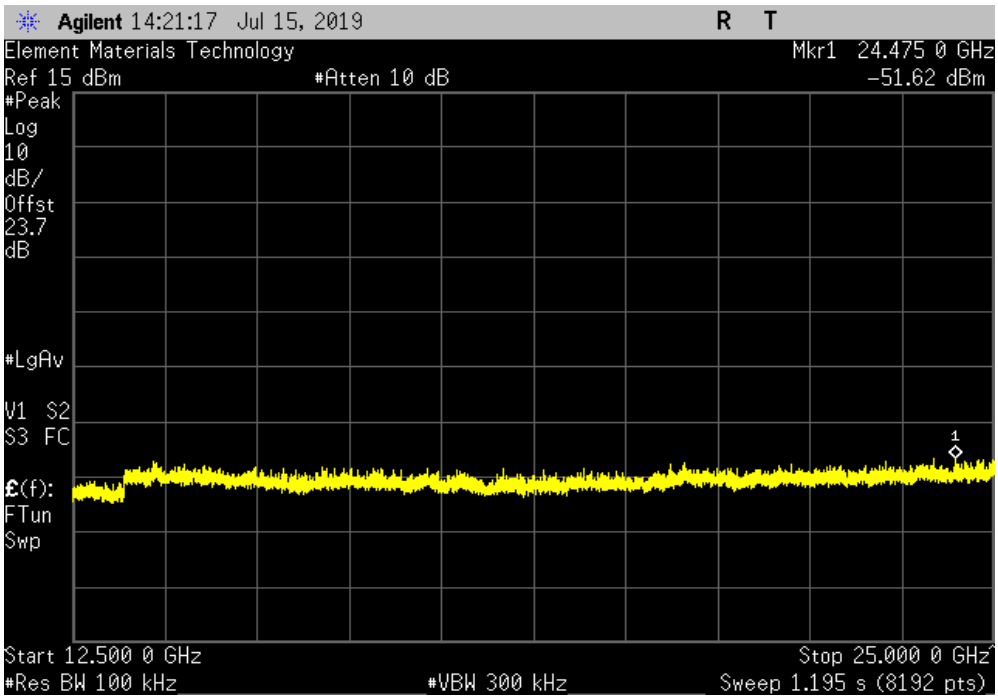
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2436.77	N/A	N/A	N/A



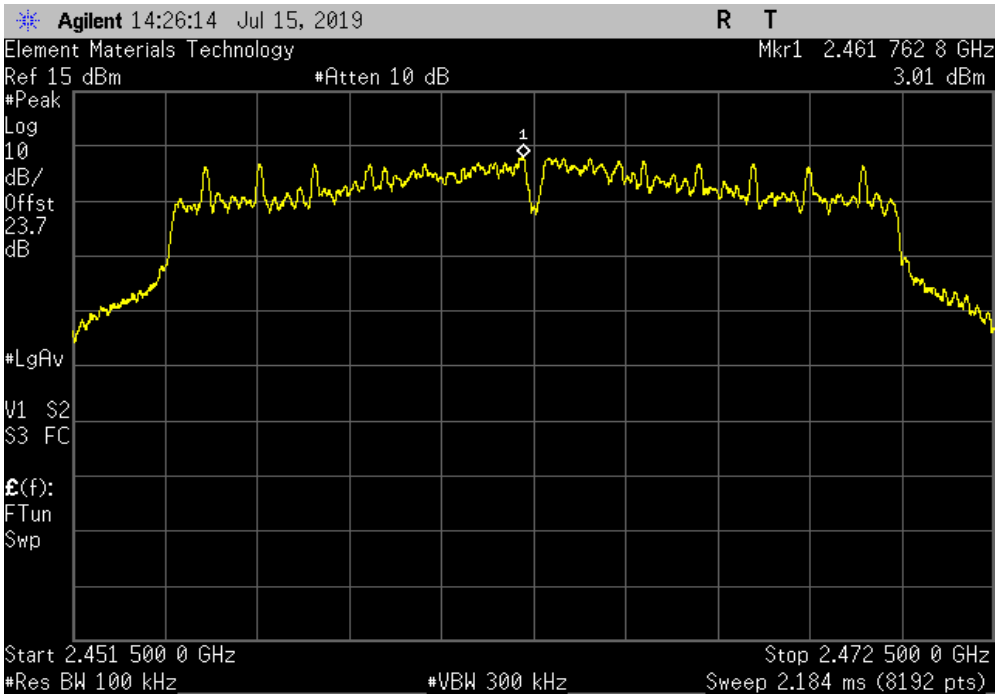
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	5764.9	-55.87	-30	Pass



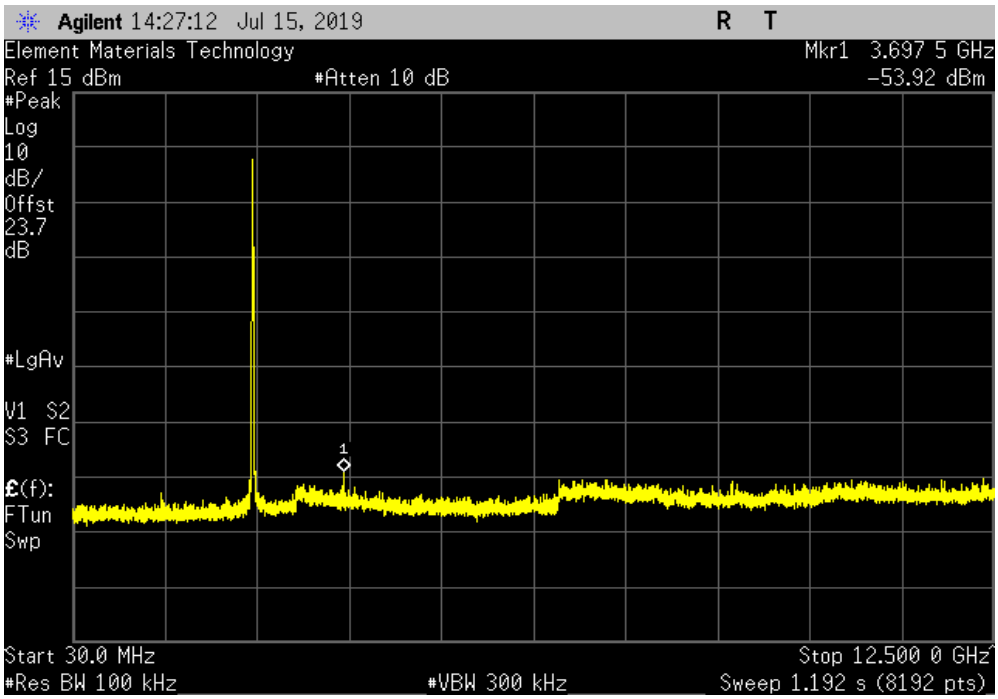
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24475	-54.44	-30	Pass



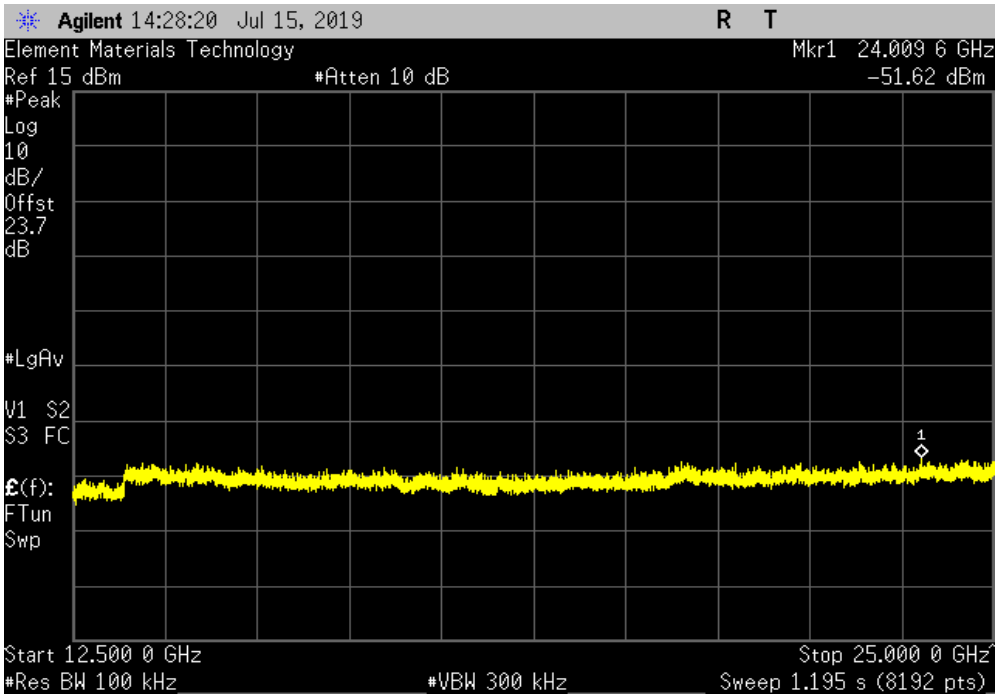
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2461.76	N/A	N/A	N/A



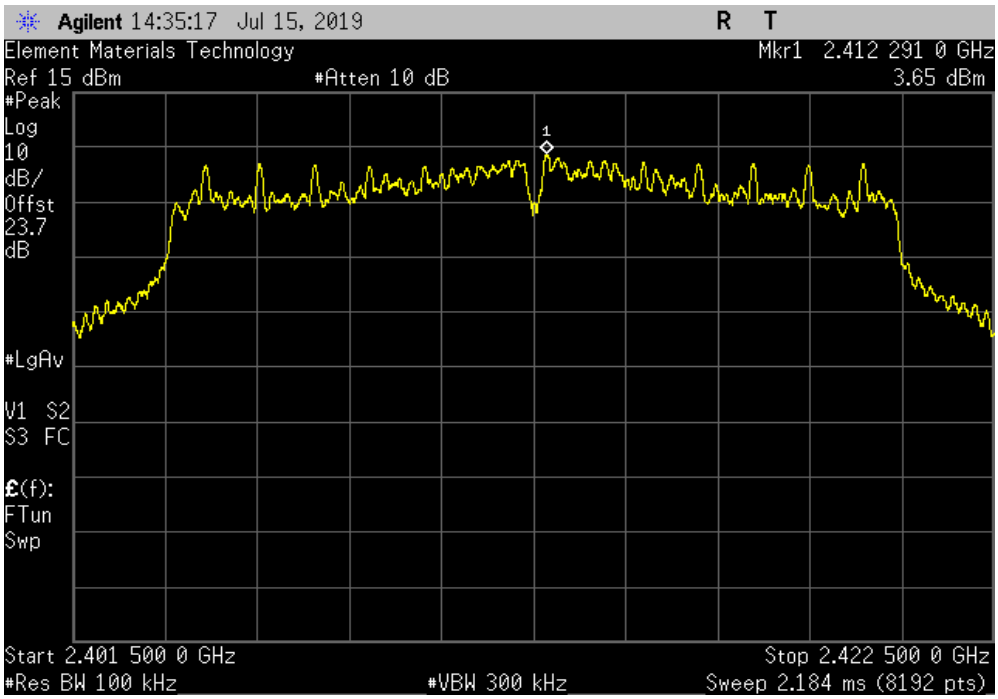
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	3697.5	-56.93	-30	Pass



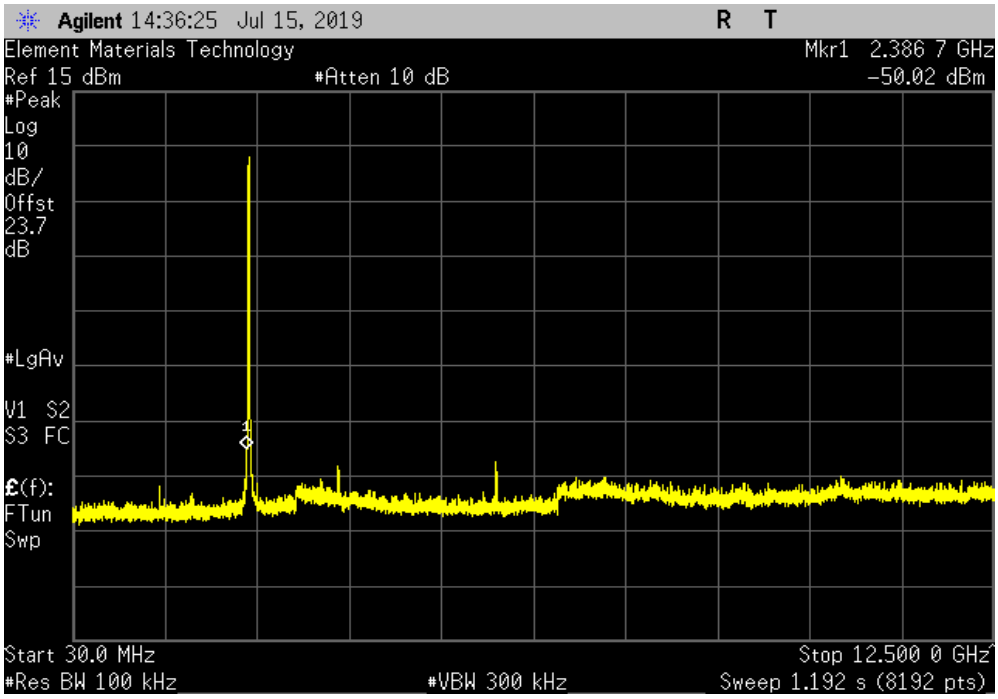
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24009.6	-54.63	-30	Pass



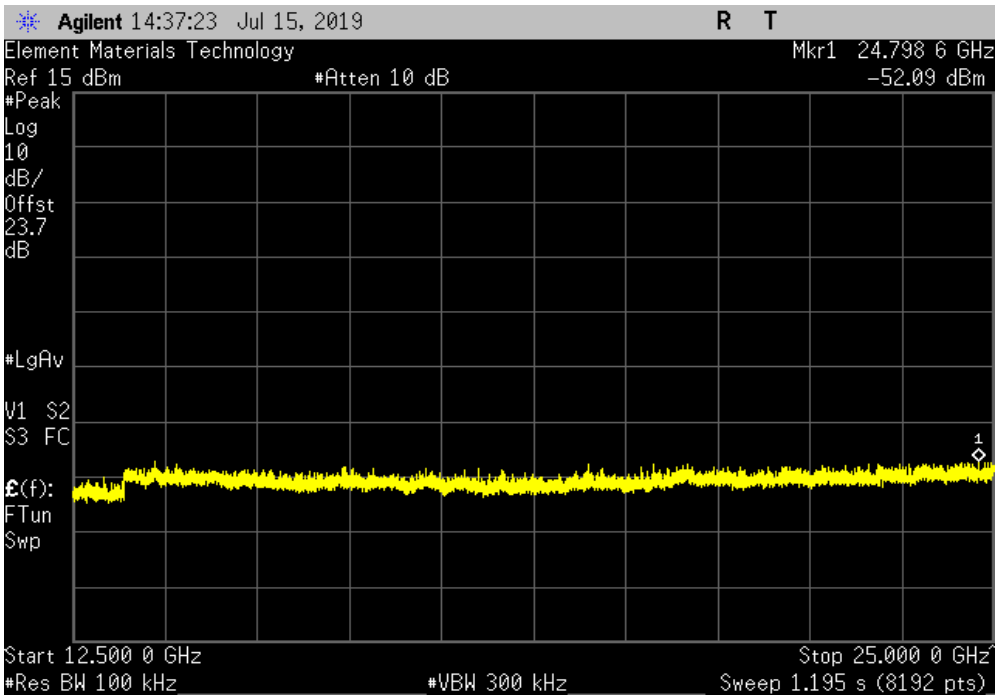
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2412.29	N/A	N/A	N/A



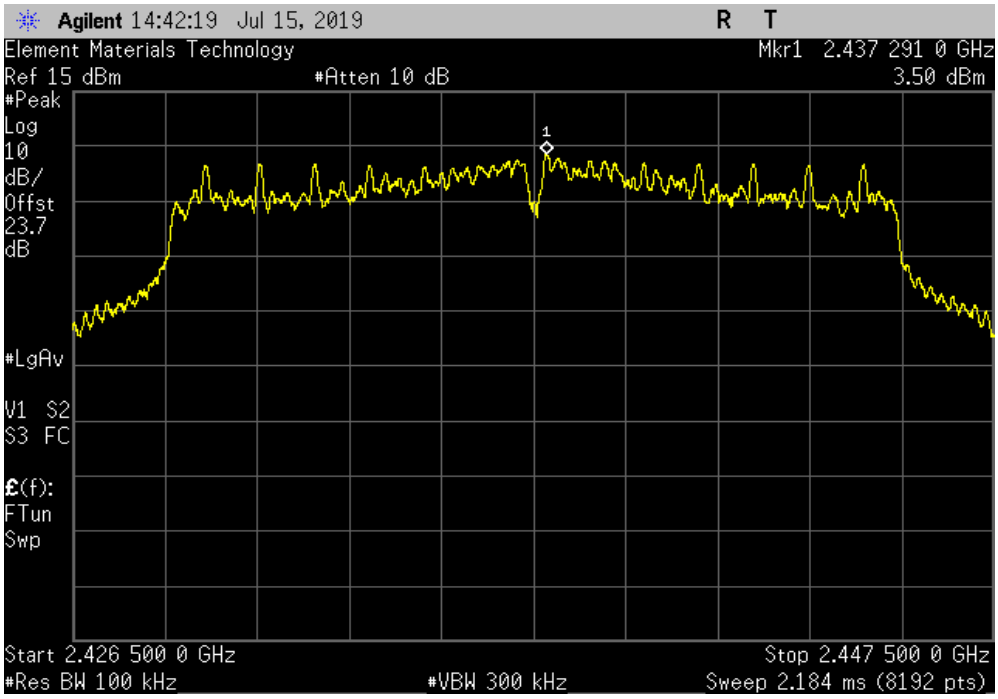
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2386.7	-53.67	-30	Pass



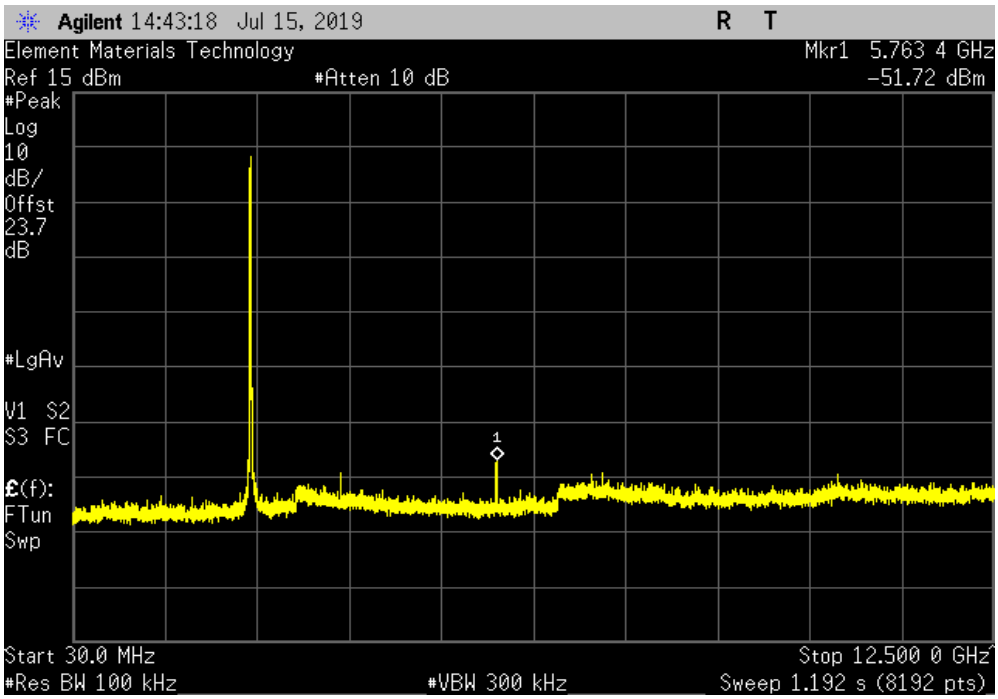
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24798.6	-55.74	-30	Pass



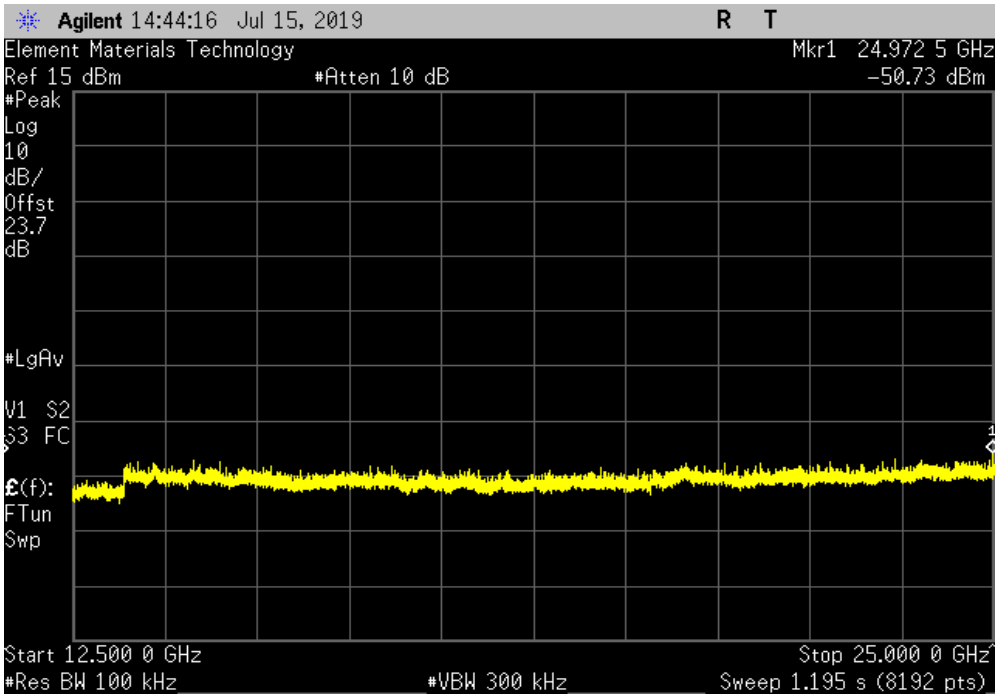
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2437.29	N/A	N/A	N/A



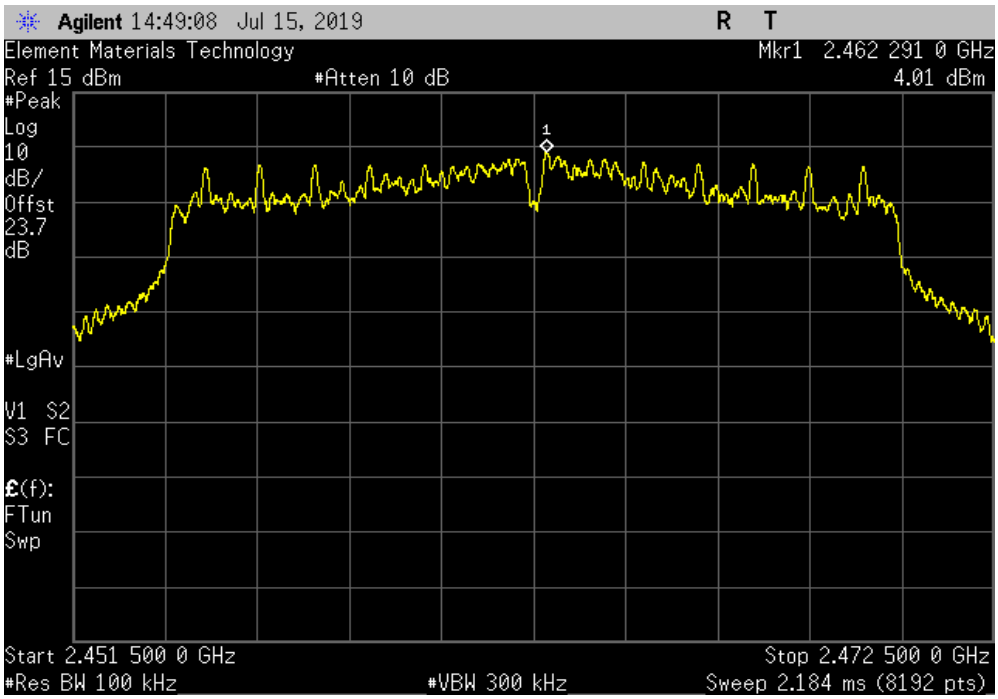
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	5763.4	-55.22	-30	Pass



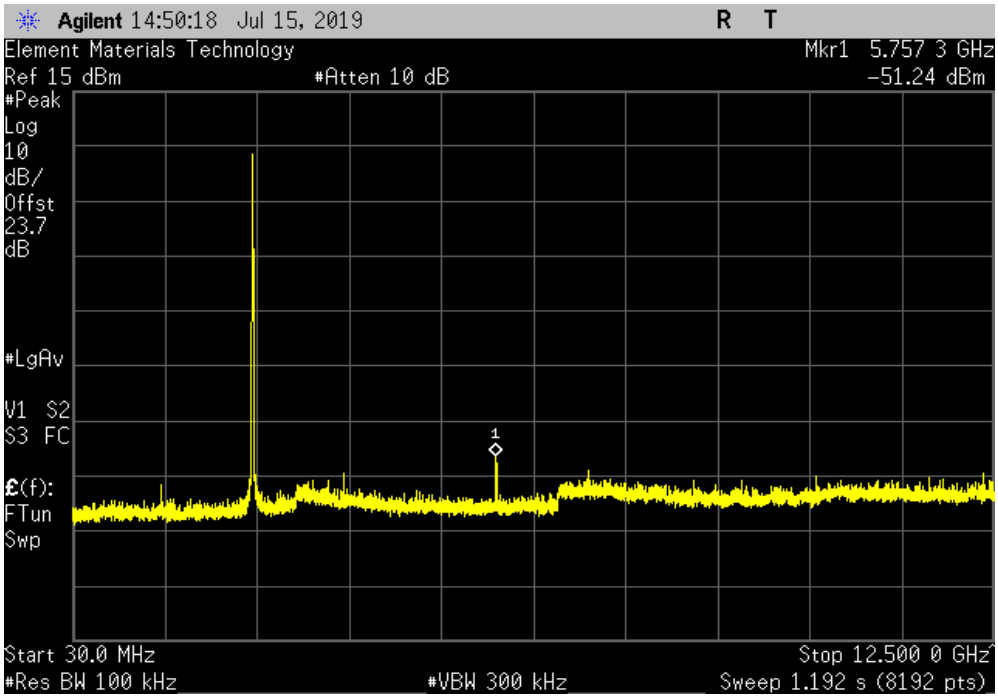
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24972.5	-54.23	-30	Pass



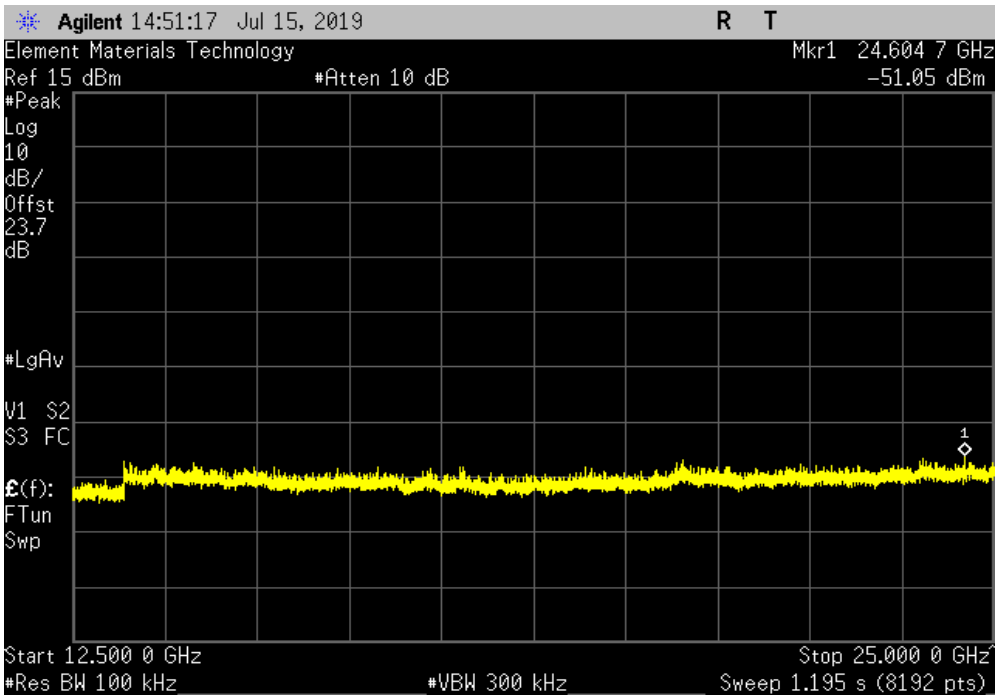
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2462.29	N/A	N/A	N/A



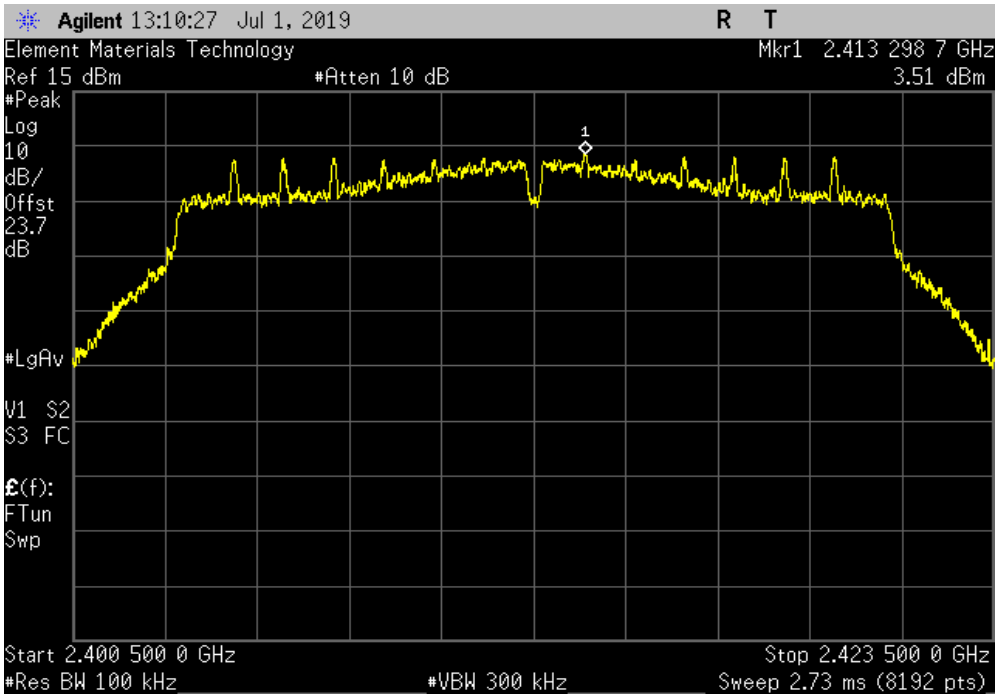
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	5757.3	-55.25	-30	Pass



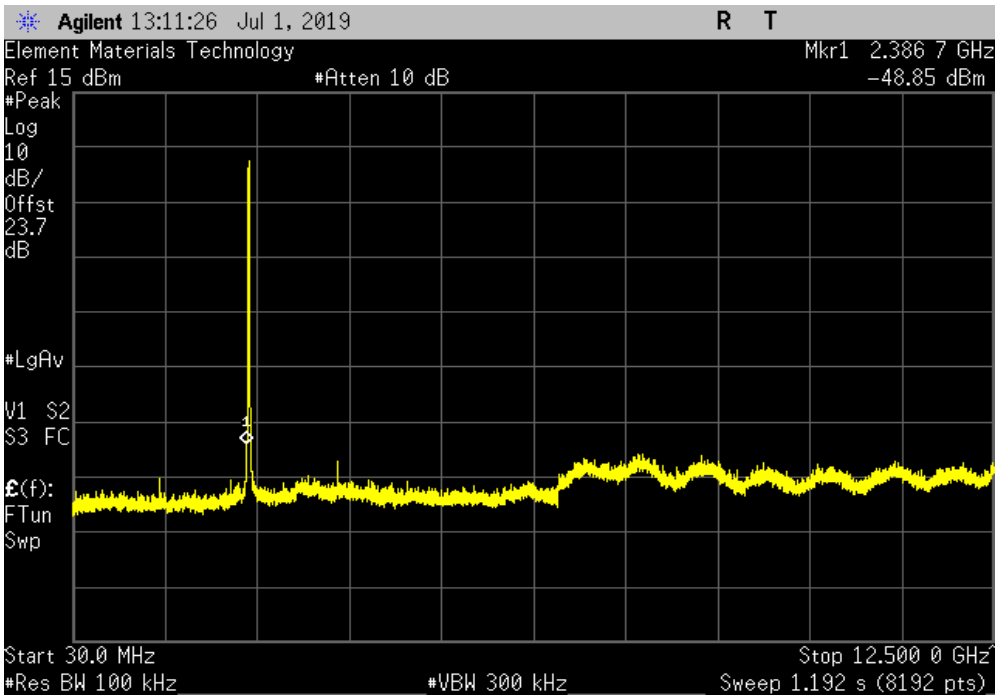
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24604.7	-55.06	-30	Pass



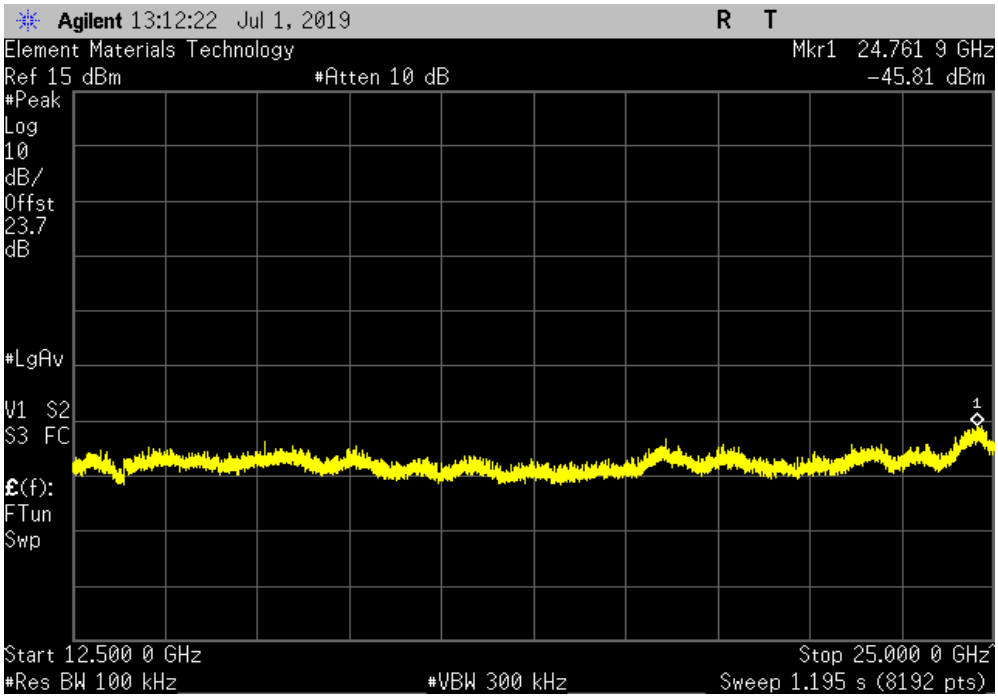
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental	2413.3	N/A	N/A	N/A



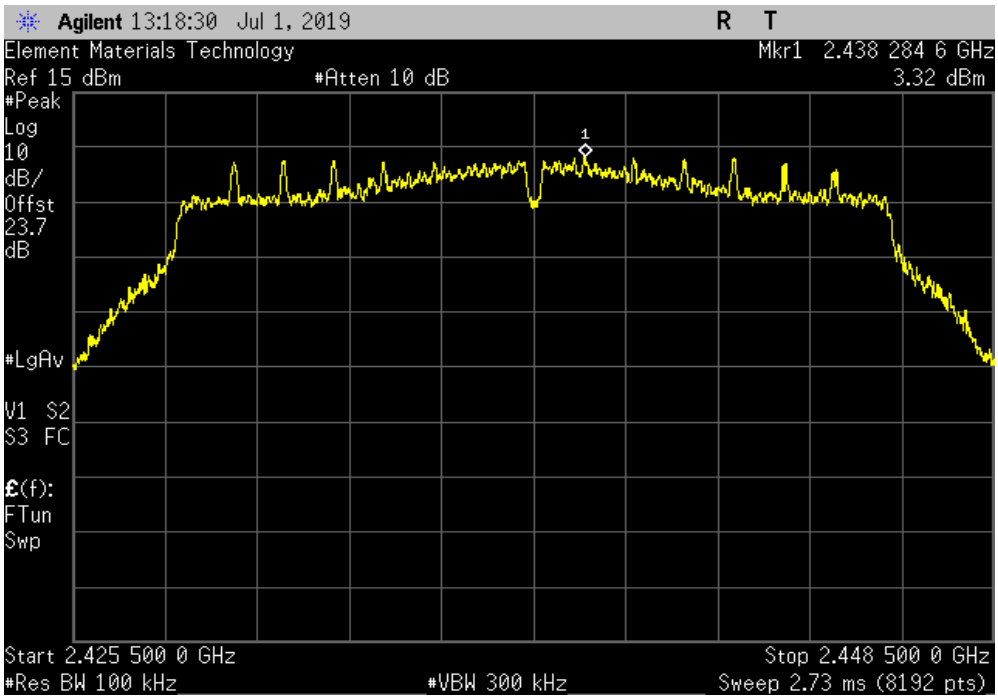
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2386.7	-52.36	-30	Pass



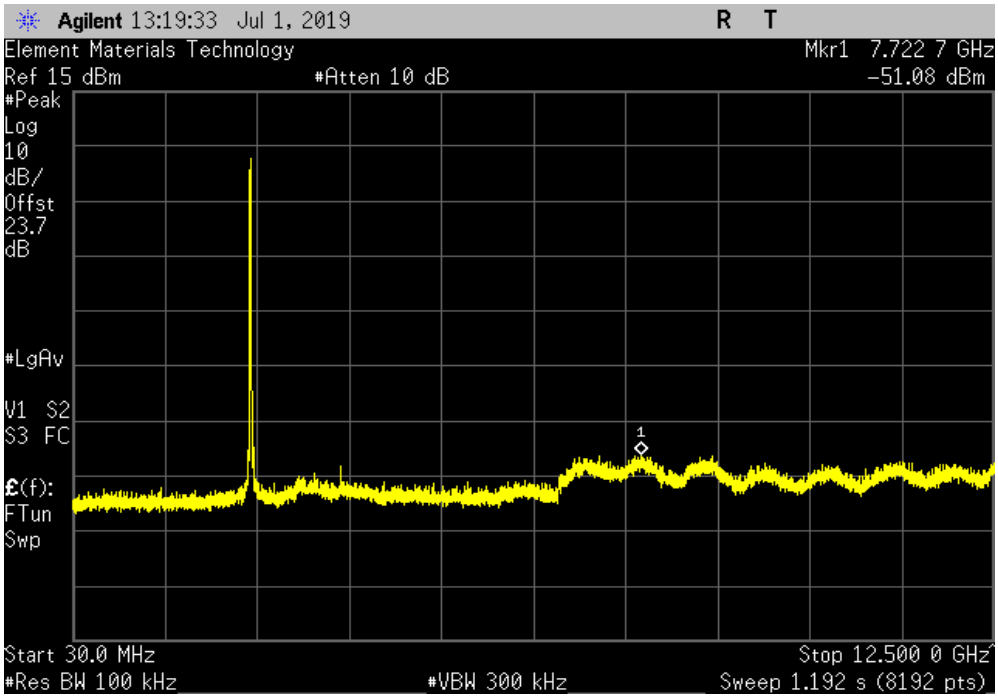
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1, 2412 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24761.9	-49.32	-30	Pass



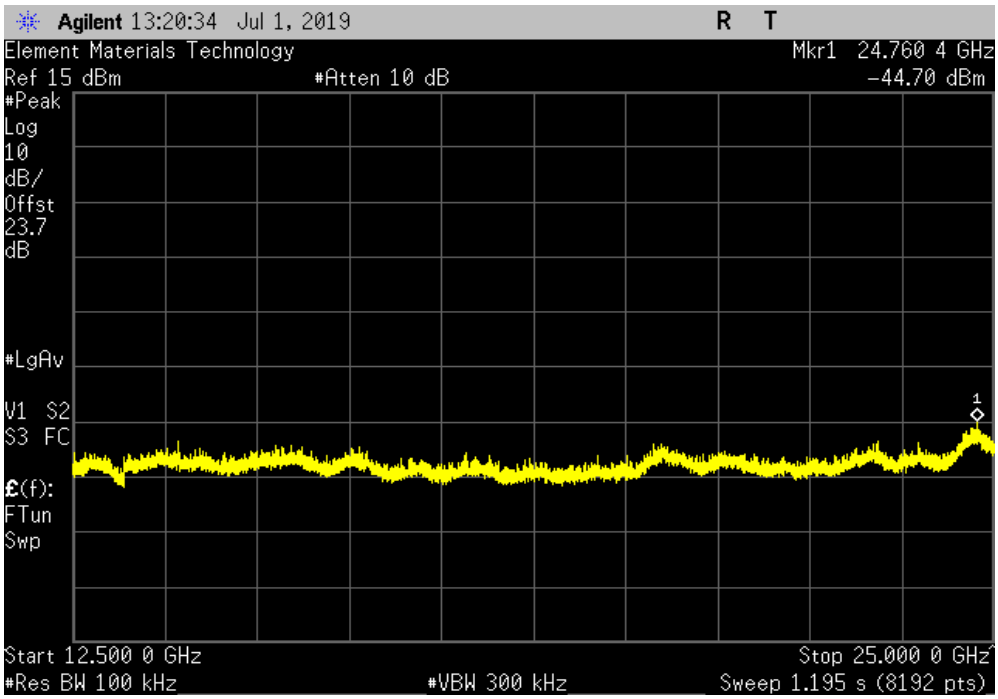
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2438.28	N/A	N/A	N/A



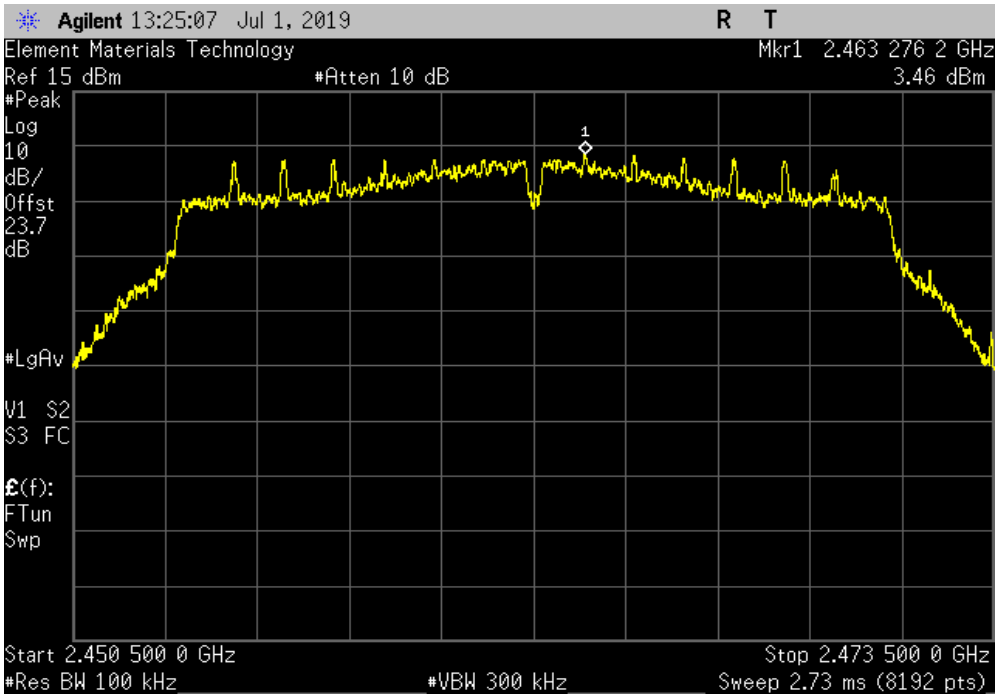
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7722.7	-54.4	-30	Pass



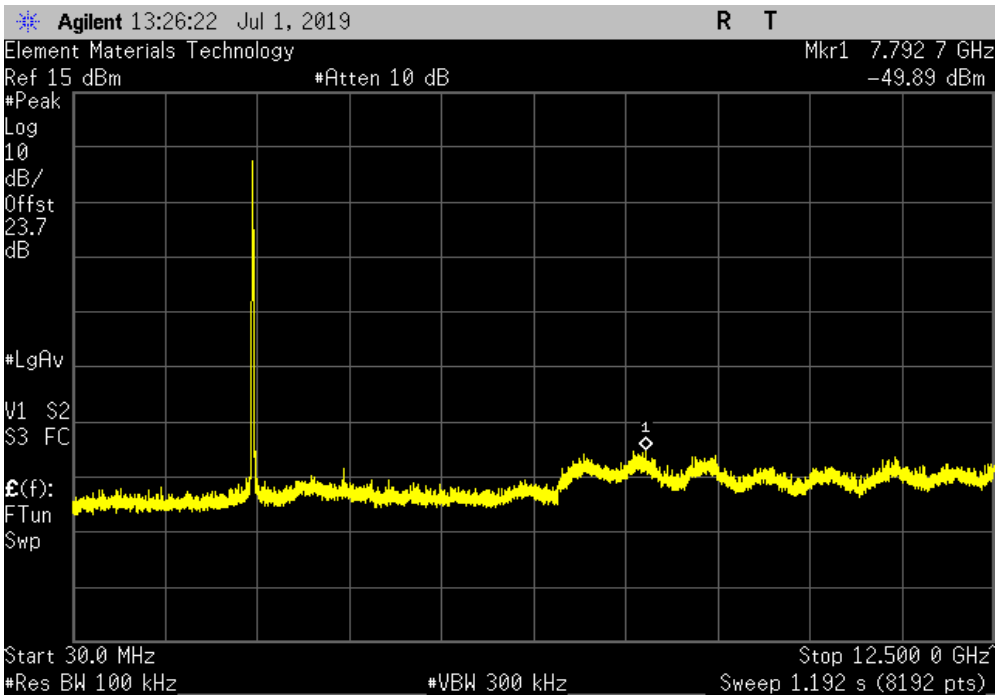
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24760.4	-48.02	-30	Pass



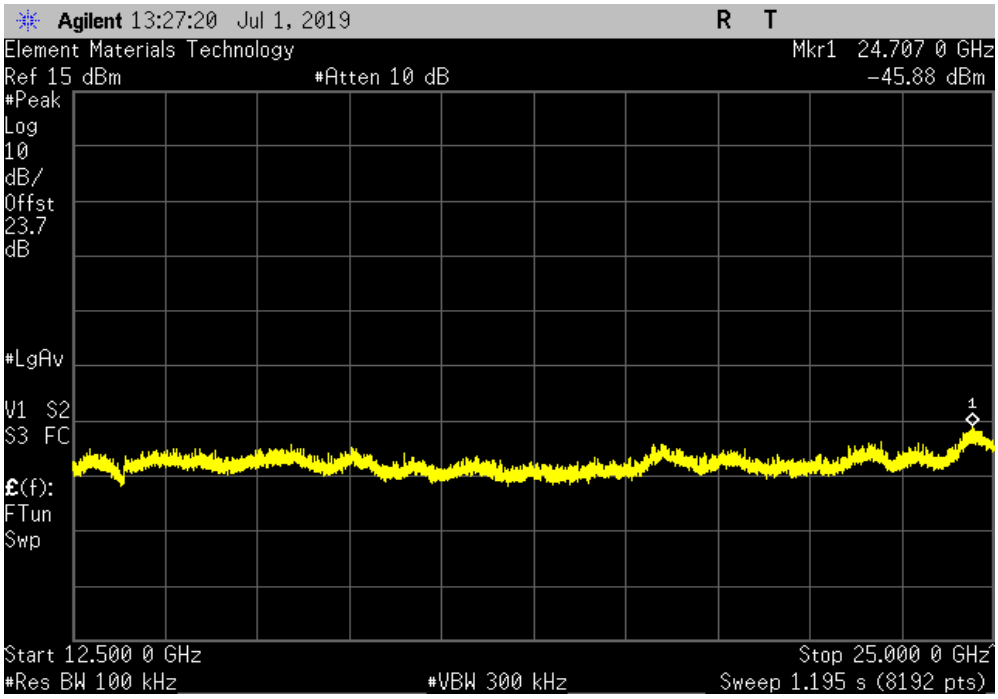
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2463.28	N/A	N/A	N/A



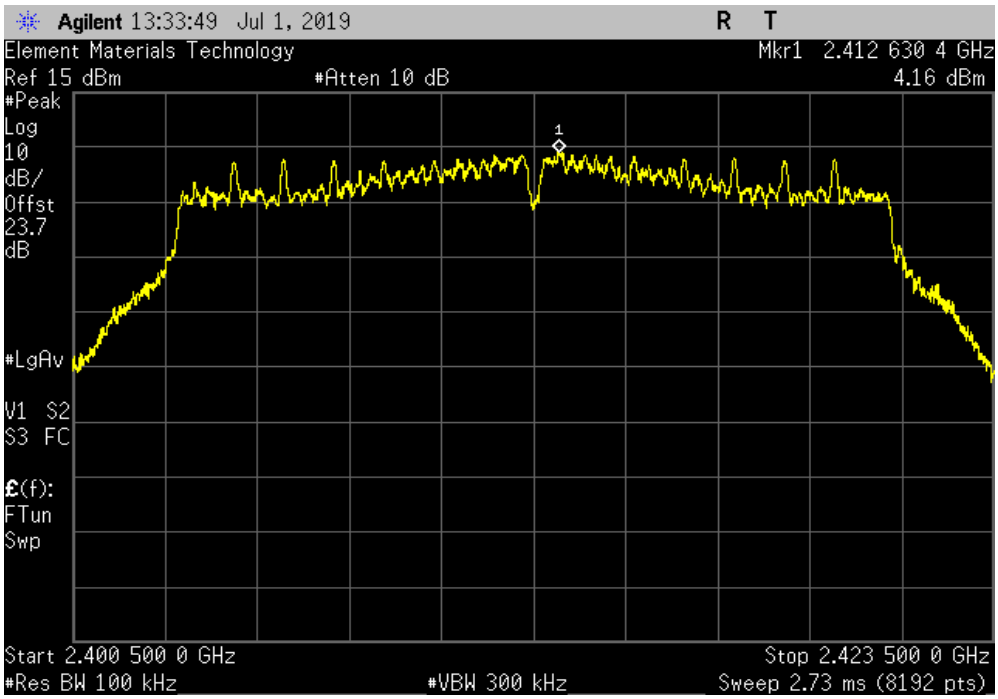
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7792.7	-53.36	-30	Pass



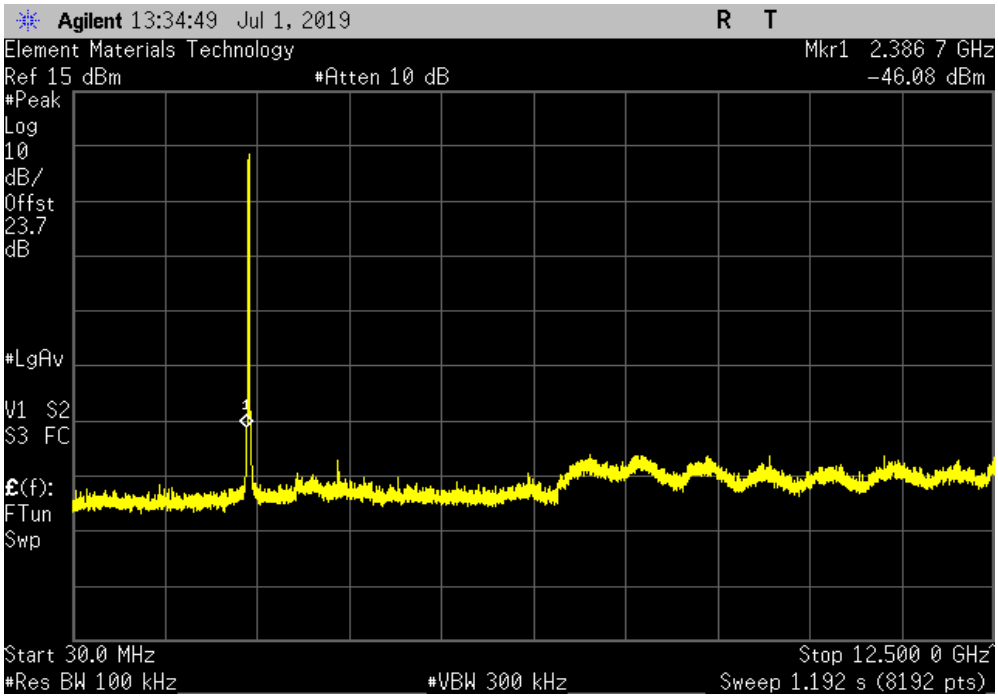
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24707	-49.35	-30	Pass



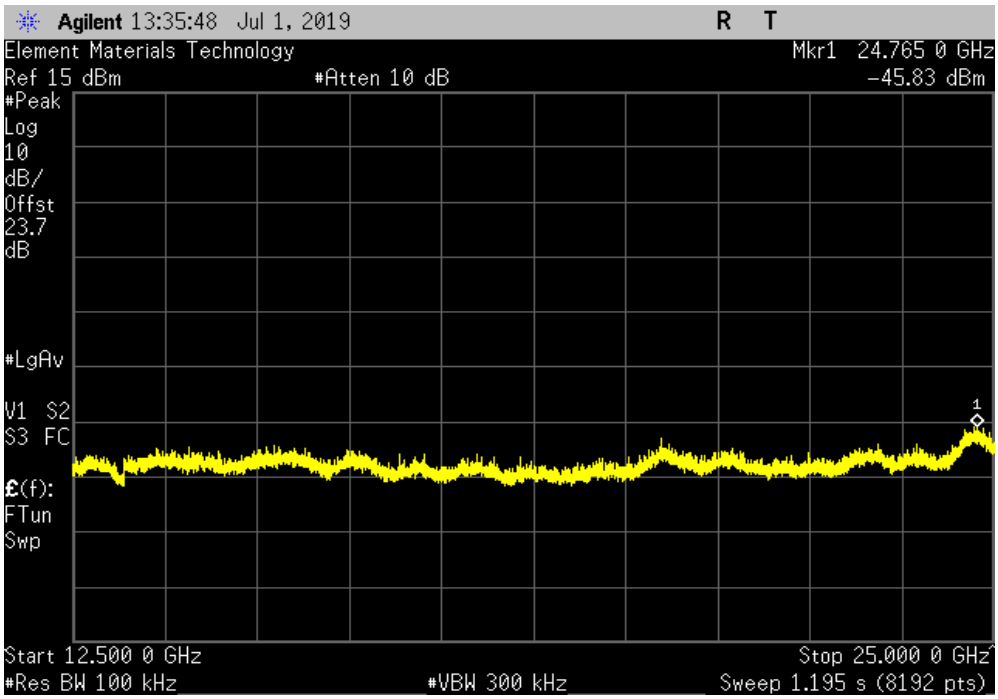
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2412.63	N/A	N/A	N/A



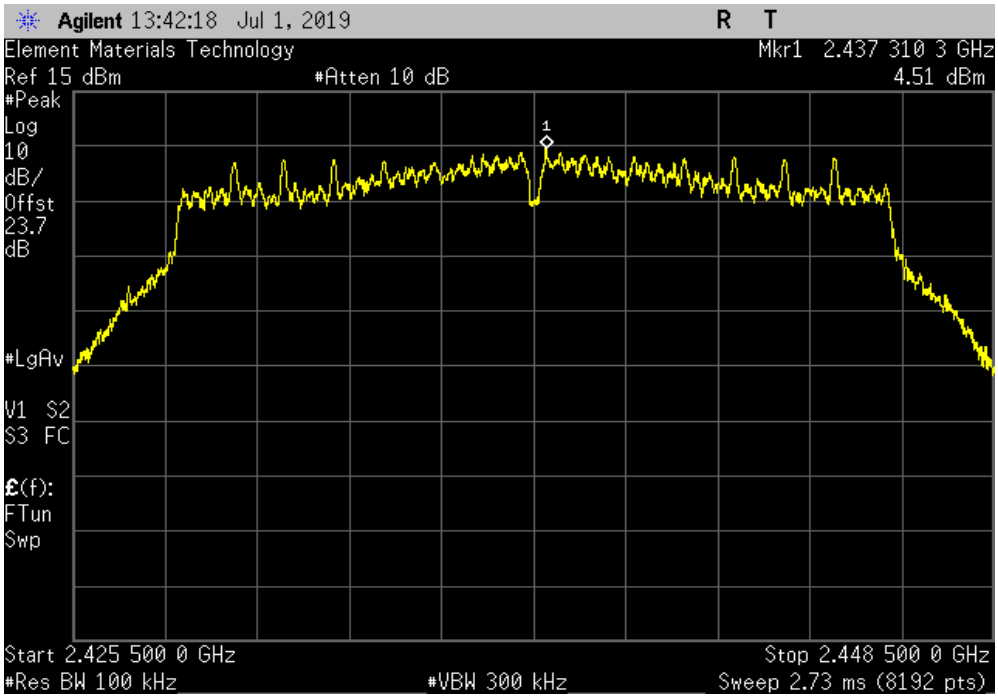
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2386.7	-50.25	-30	Pass



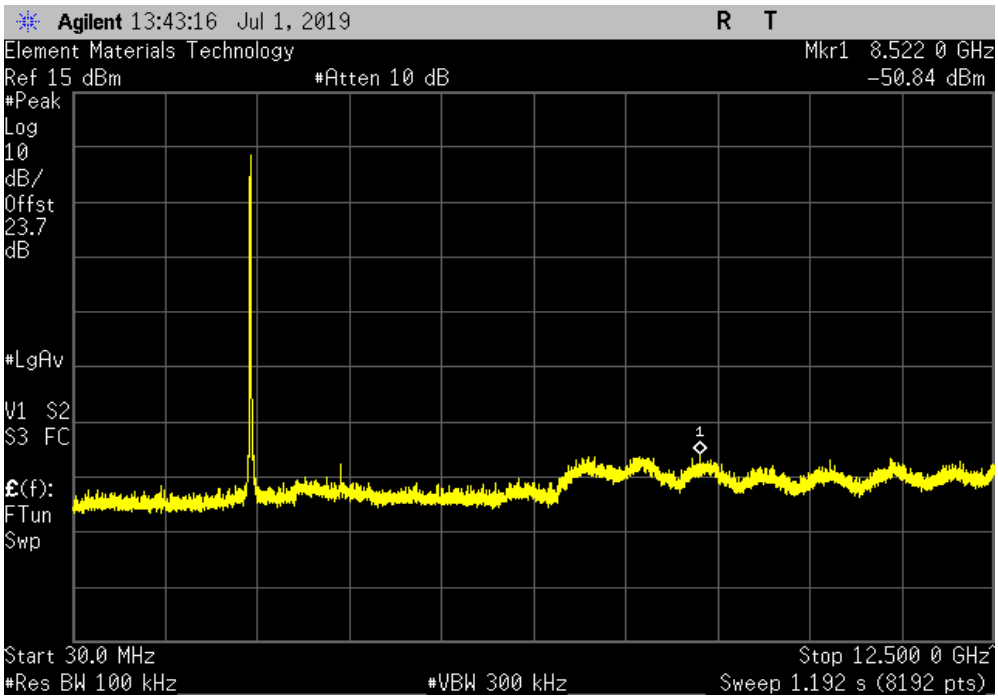
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1, 2412 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24765	-50.01	-30	Pass



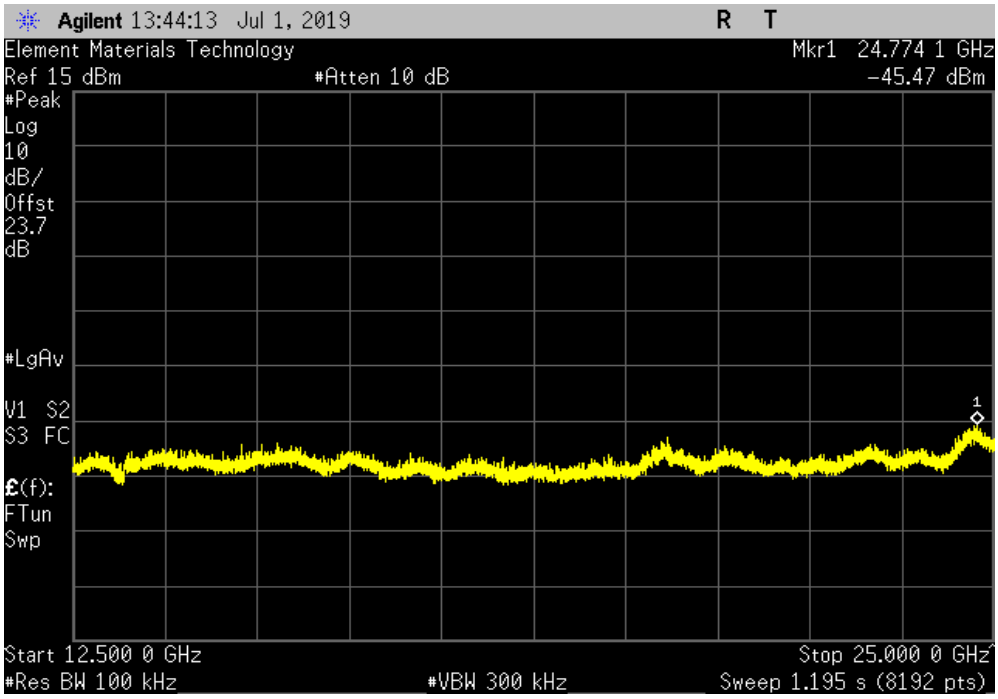
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2437.31	N/A	N/A	N/A



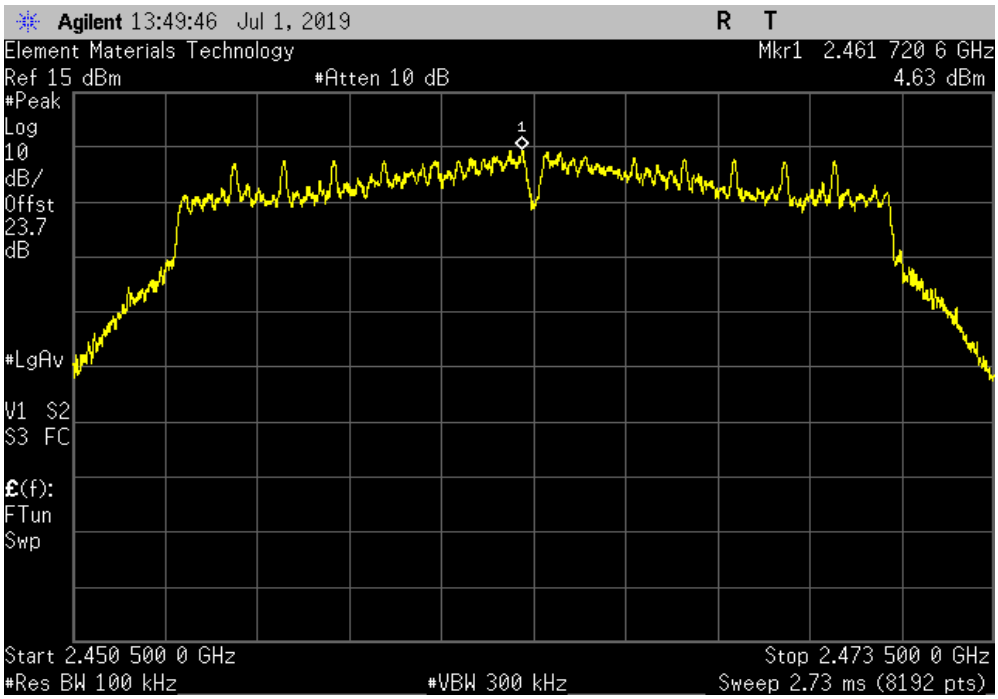
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	8522	-55.36	-30	Pass



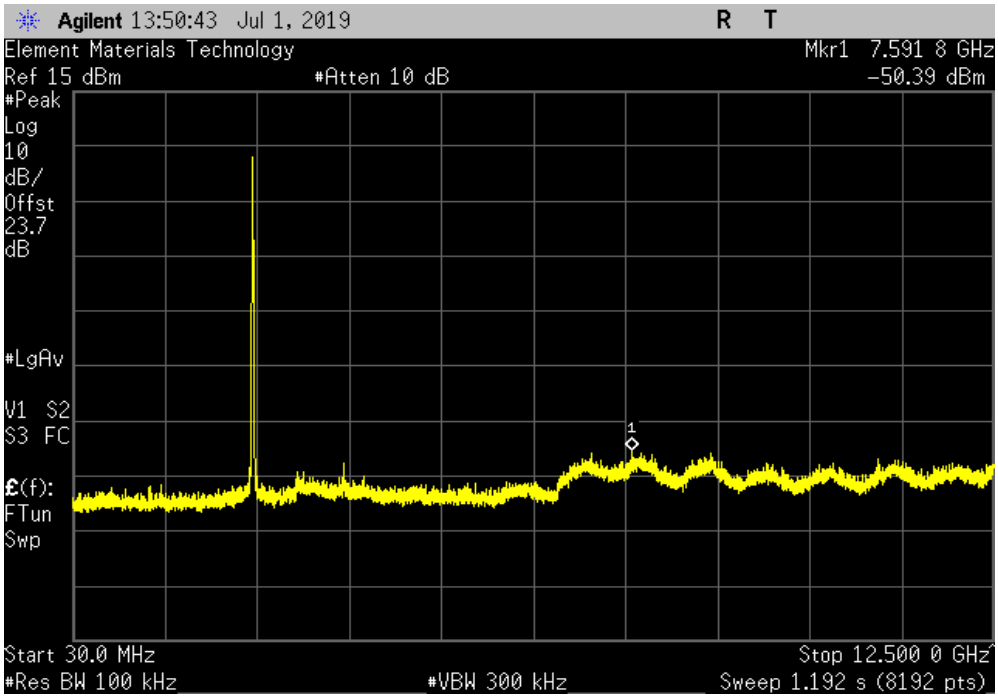
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 6, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24774.1	-49.99	-30	Pass



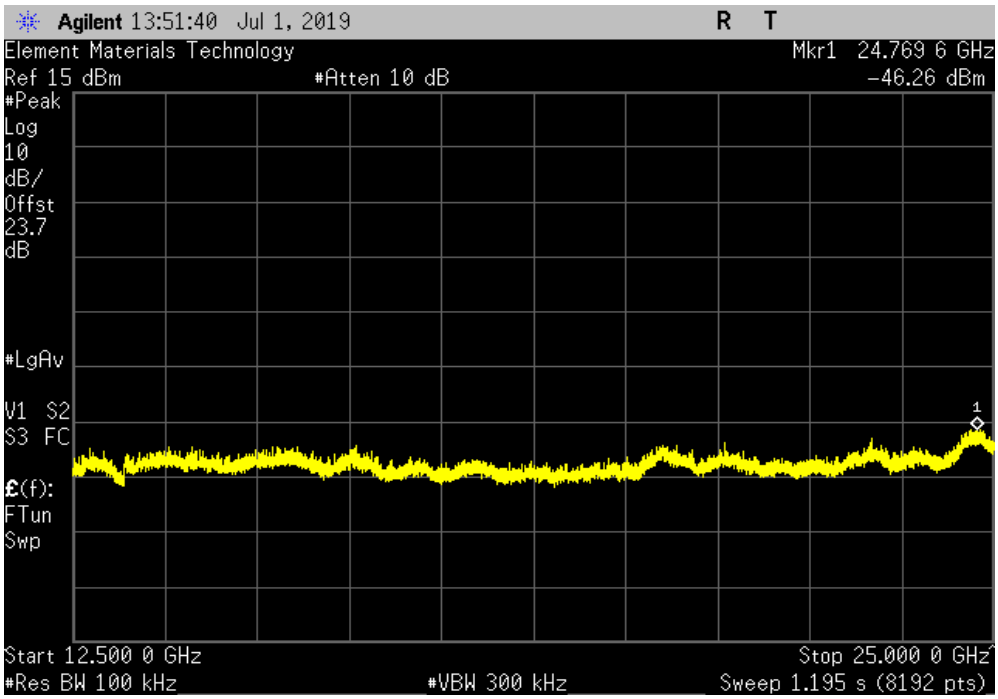
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2461.72	N/A	N/A	N/A



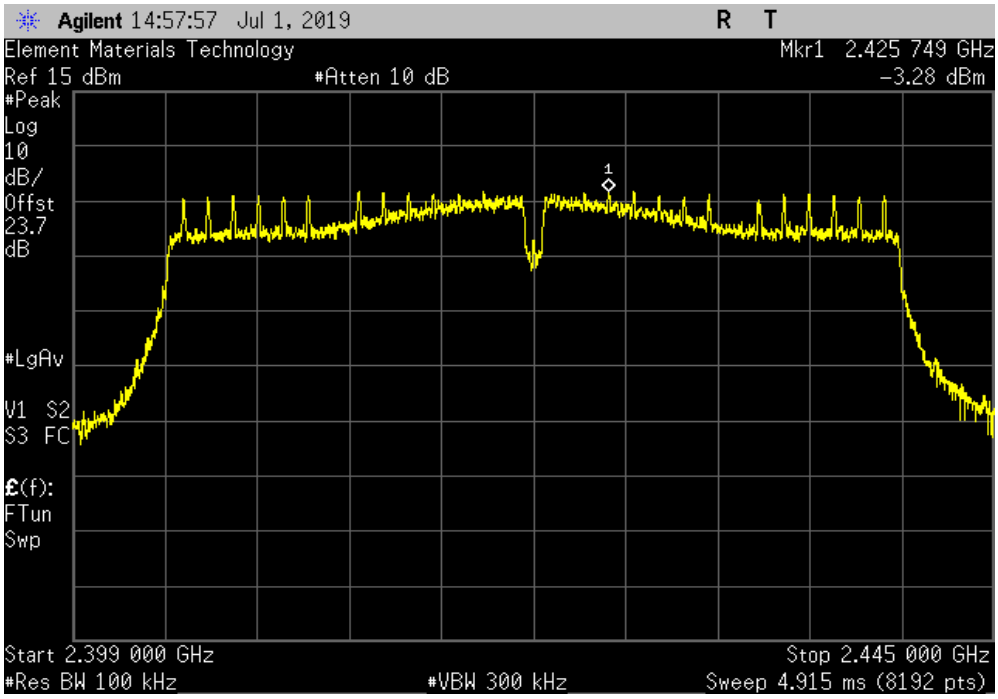
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7591.8	-55.02	-30	Pass



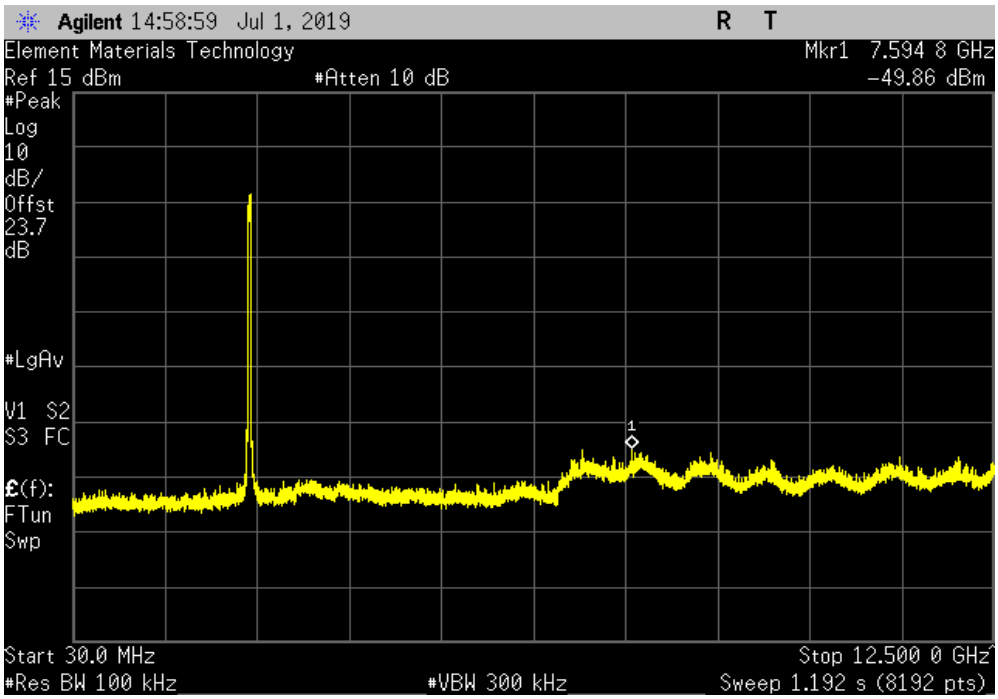
20 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 11, 2462 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24769.6	-50.89	-30	Pass



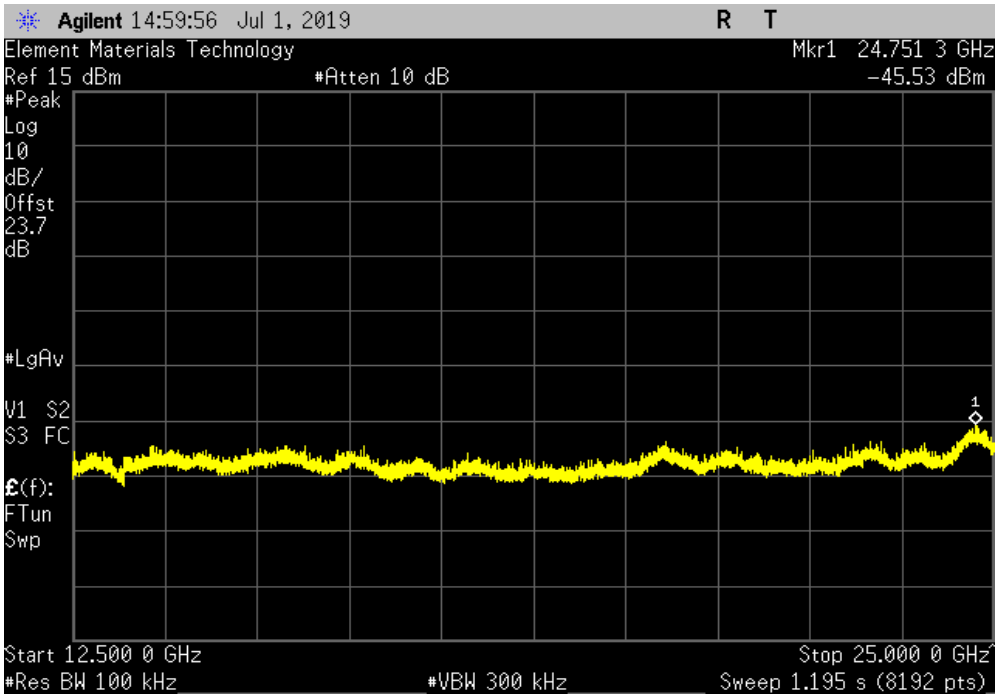
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2425.75	N/A	N/A	N/A



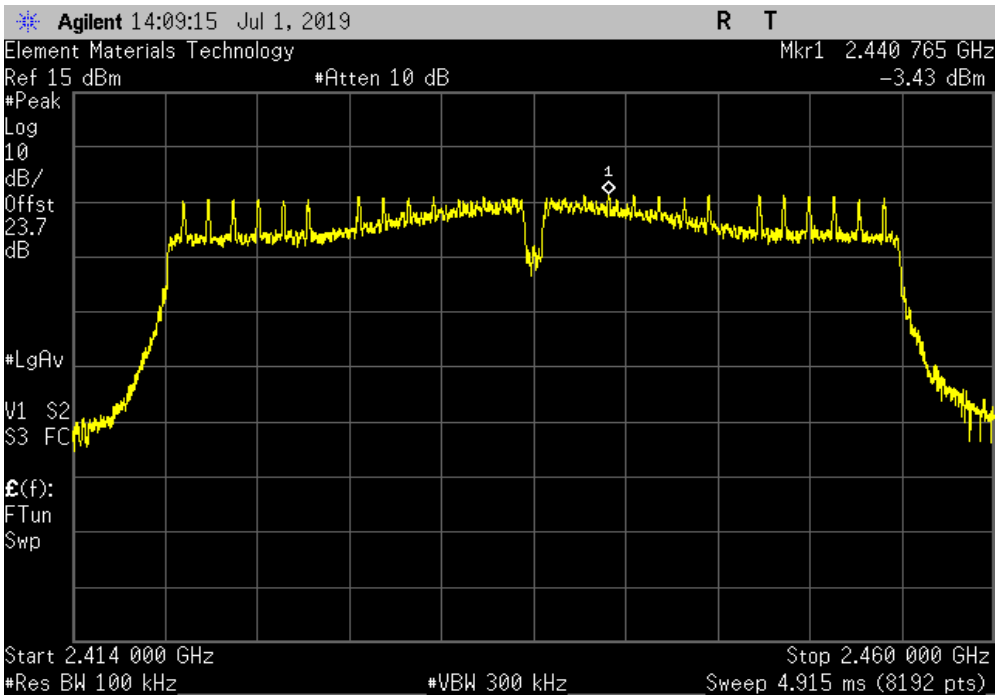
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7594.8	-46.58	-20	Pass



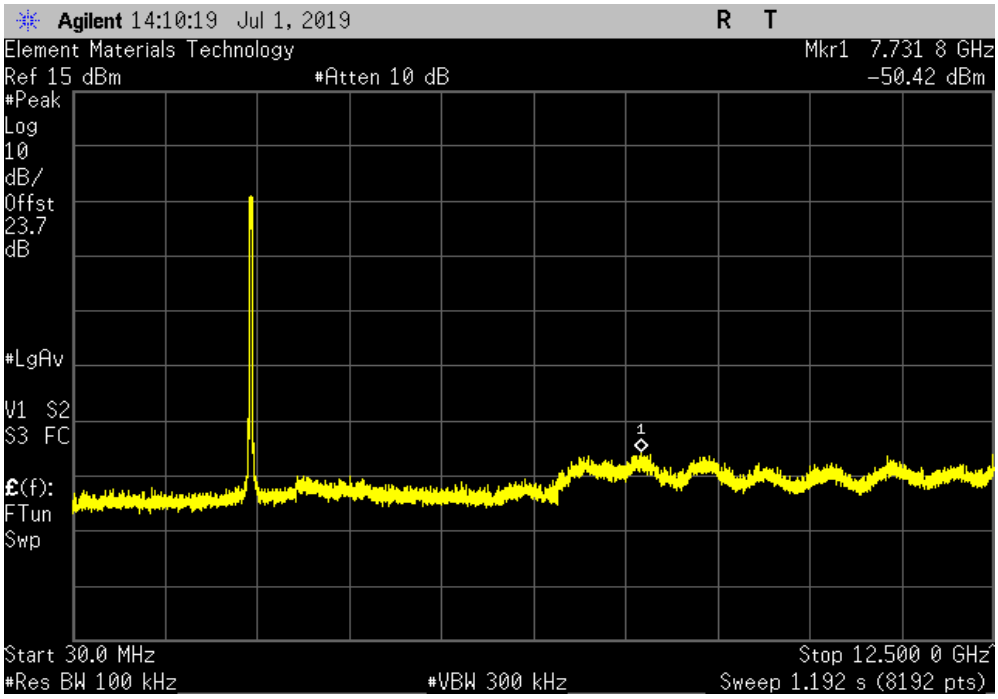
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24751.3	-42.25	-20	Pass



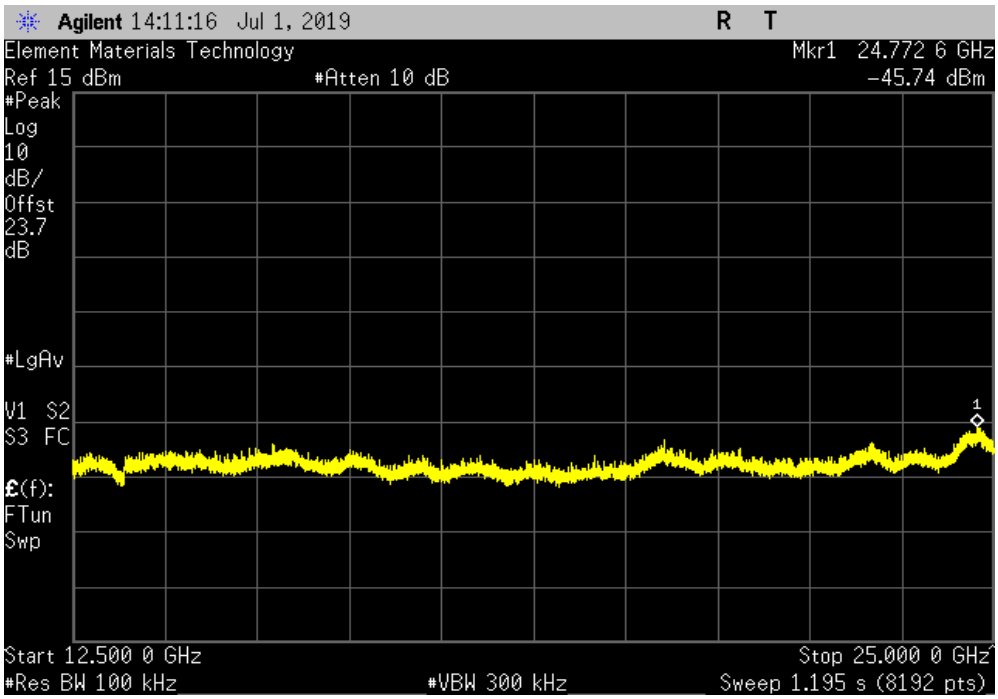
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2440.77	N/A	N/A	N/A



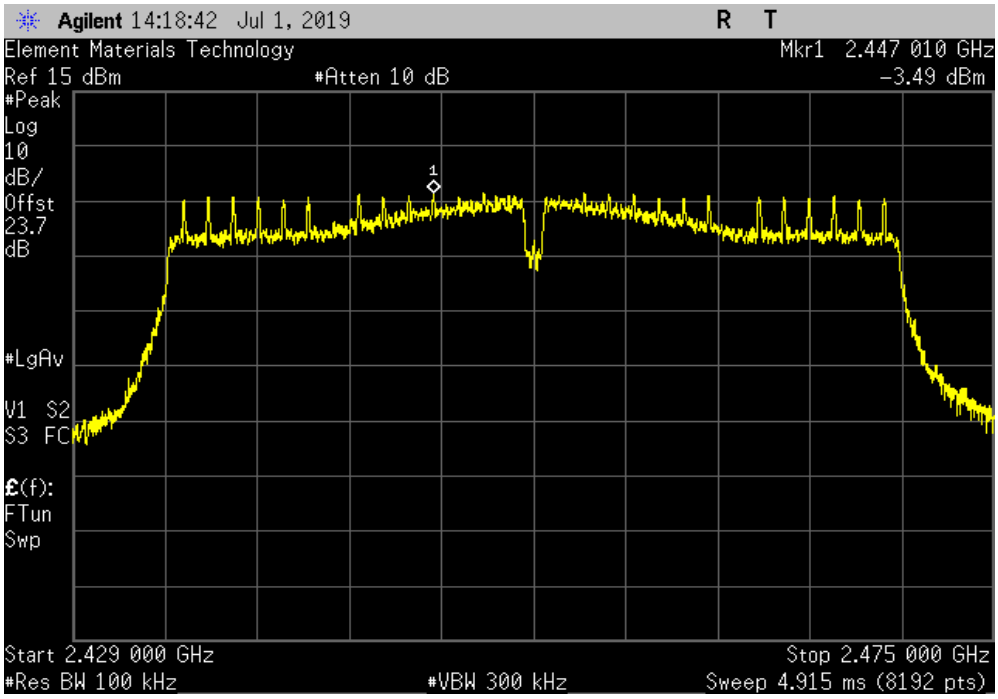
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7731.8	-46.99	-20	Pass



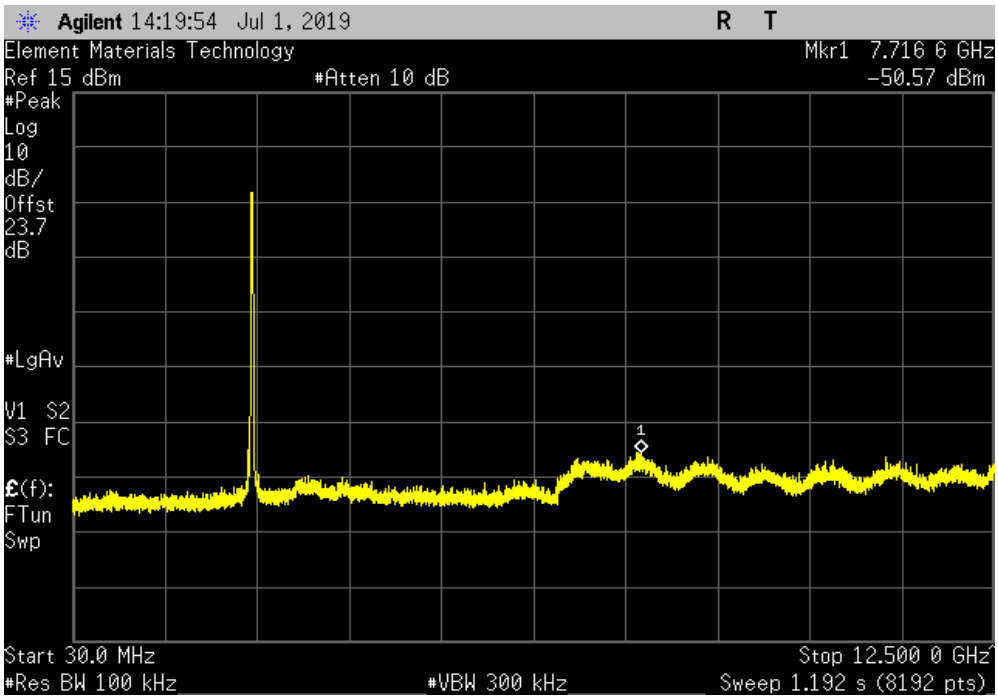
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24772.6	-42.31	-20	Pass



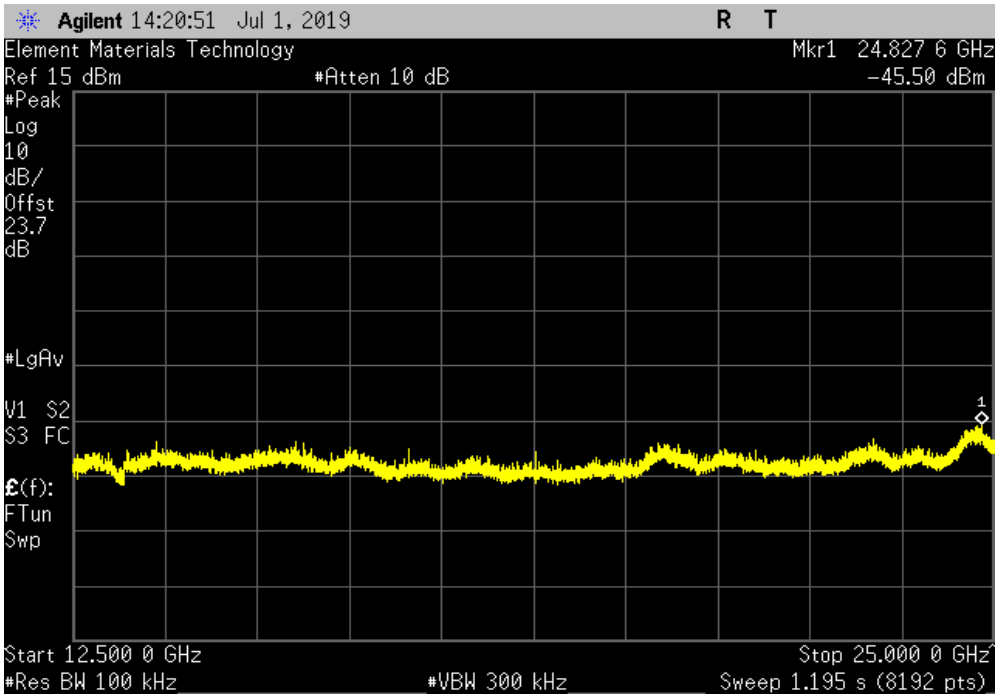
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental	2447.01	N/A	N/A	N/A



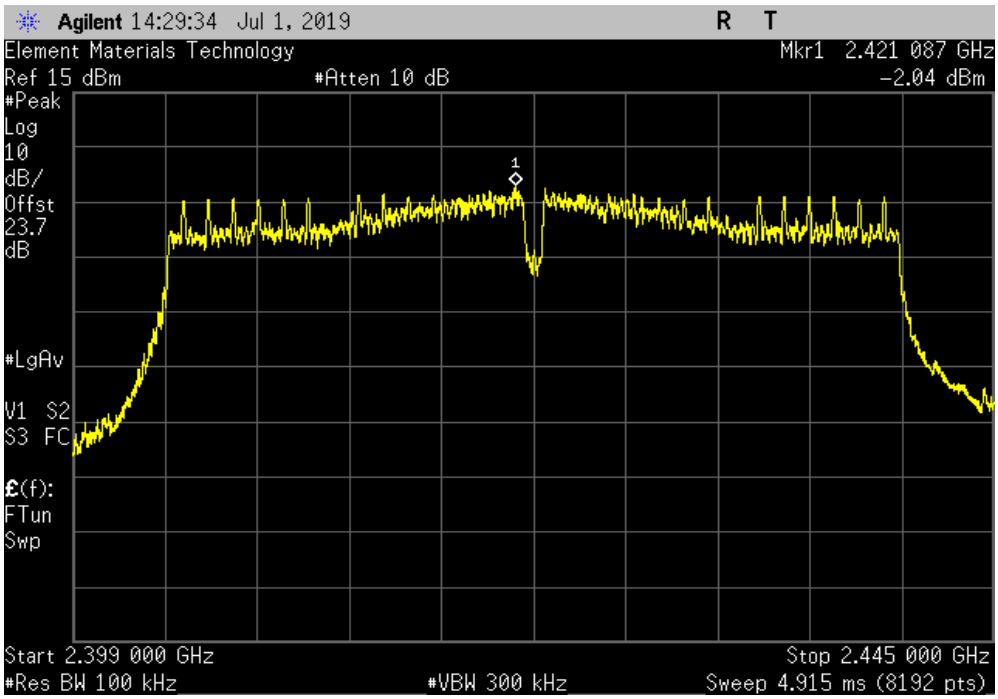
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7716.6	-47.08	-20	Pass



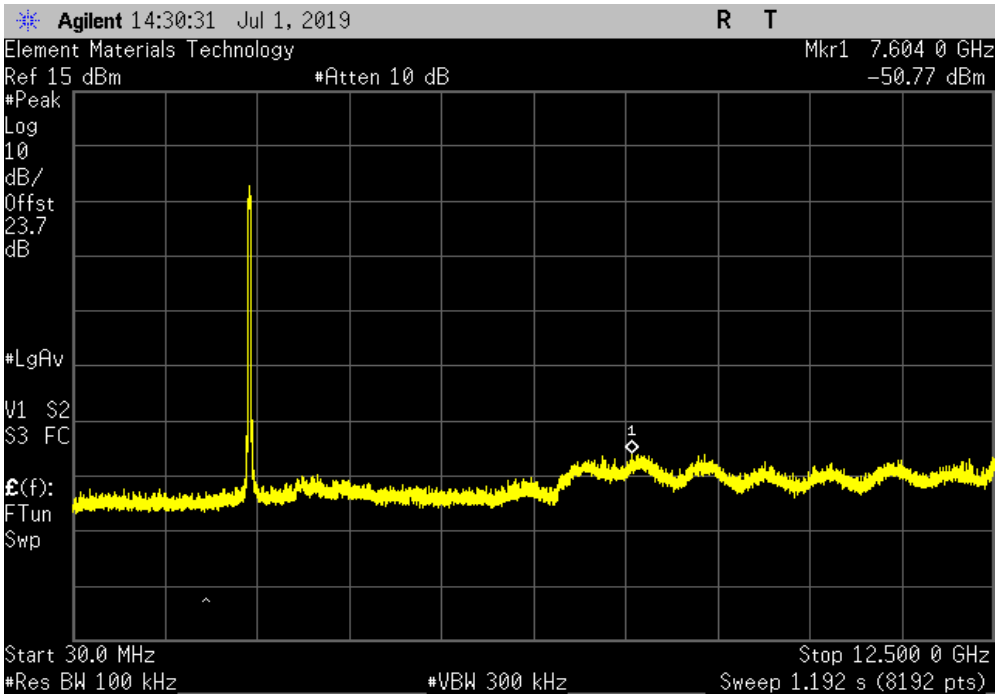
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS0, High Channel 7/11, 2452 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24827.6	-42.01	-20	Pass



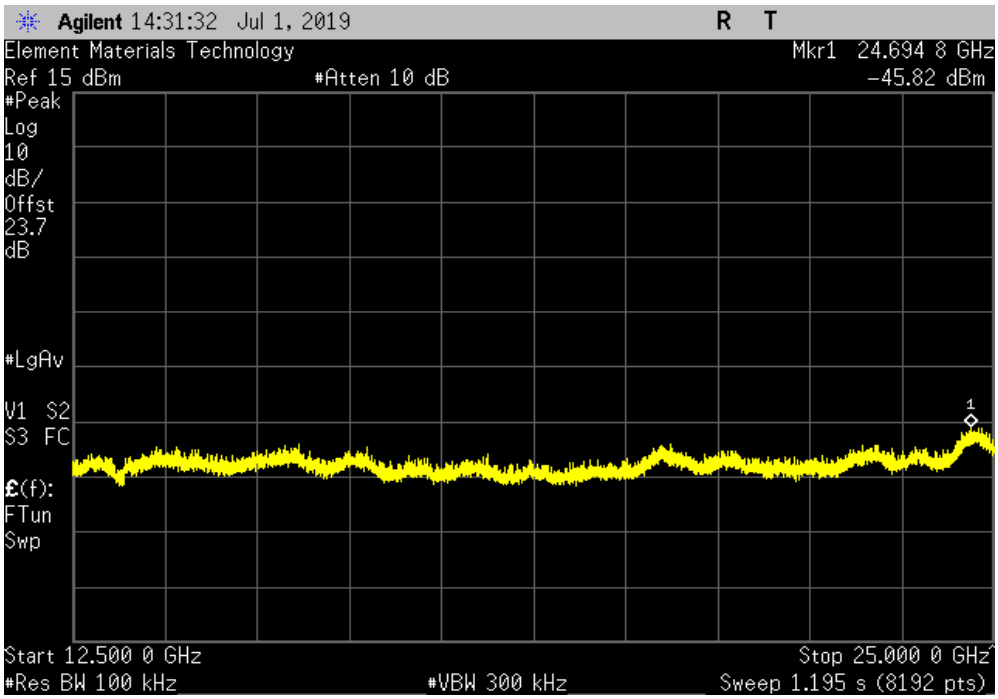
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2421.09	N/A	N/A	N/A



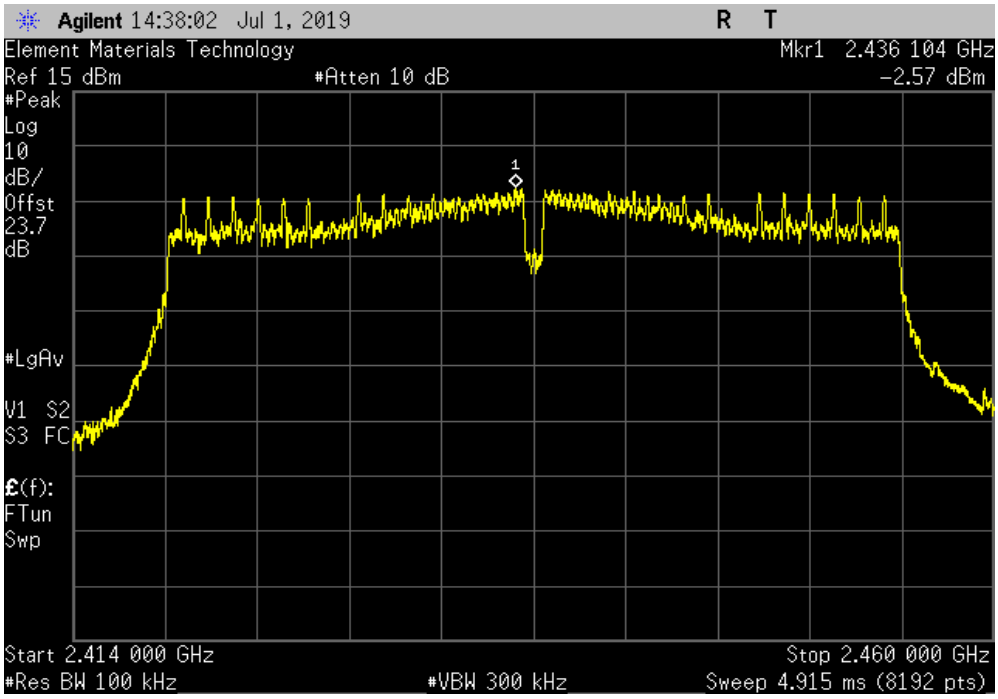
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7604	-48.73	-20	Pass



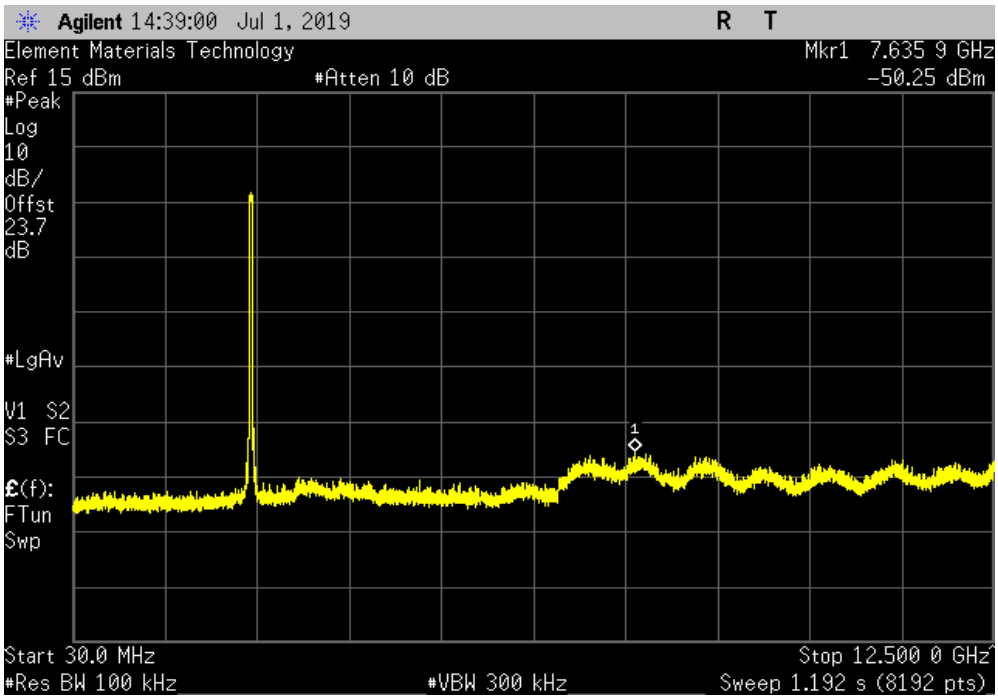
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24694.8	-43.78	-20	Pass



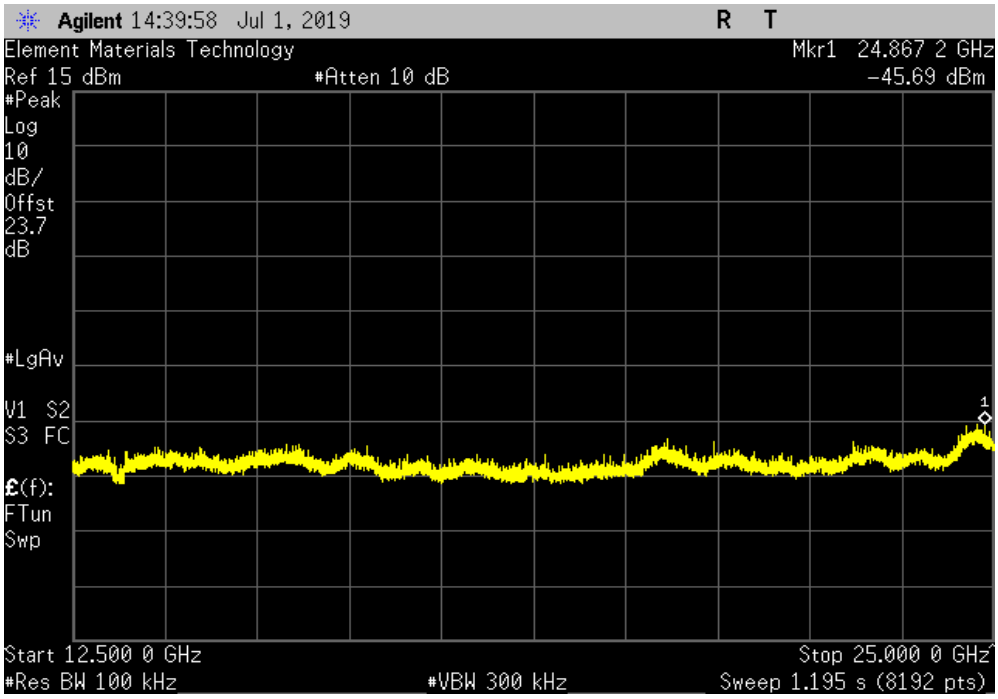
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental	2436.1	N/A	N/A	N/A



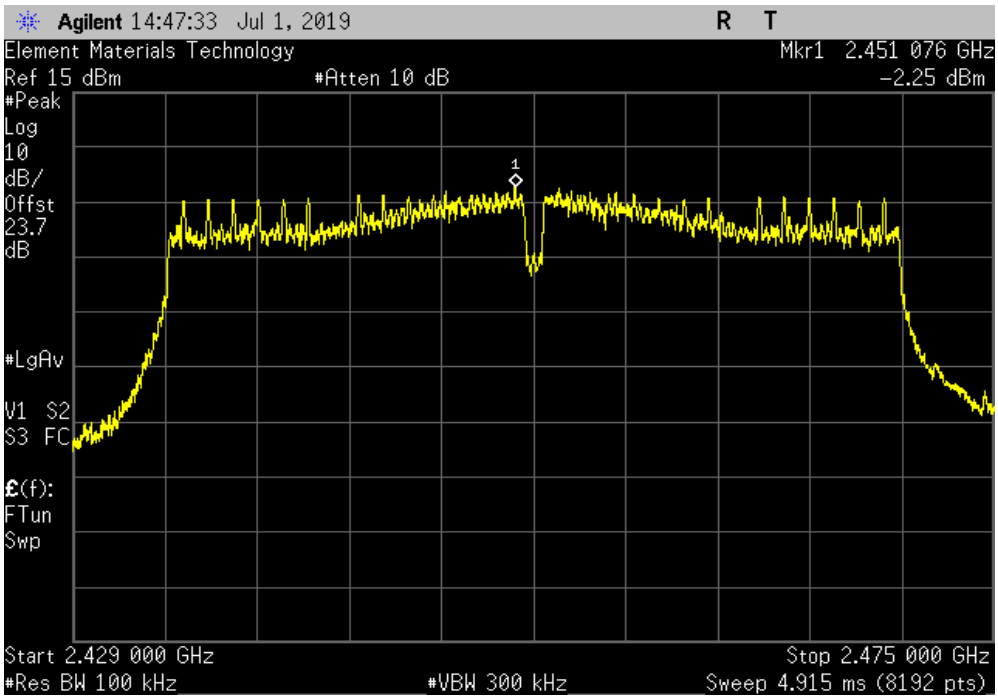
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	7635.9	-47.68	-20	Pass



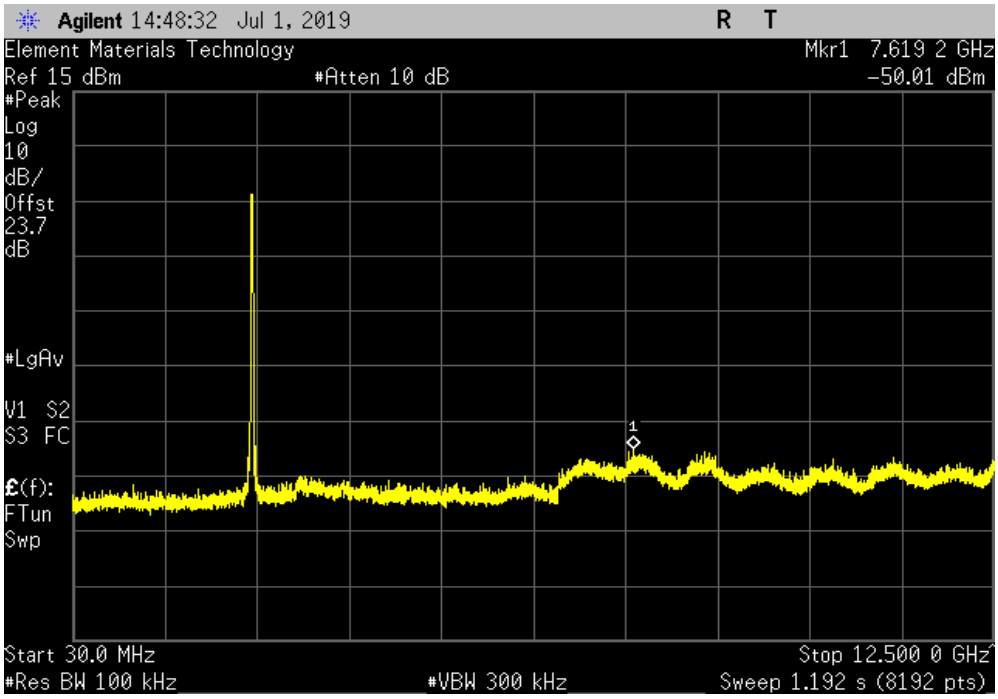
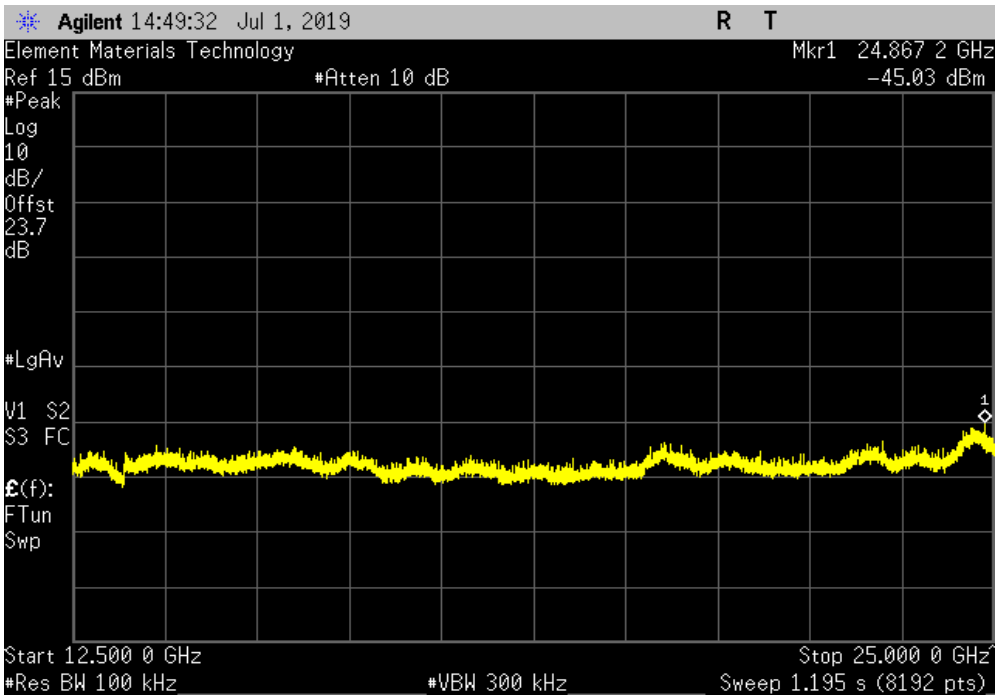
40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24867.2	-43.12	-20	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2451.08	N/A	N/A	N/A



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	7619.2	-47.76	-20	Pass



40 MHz, 2400 MHz - 2483.5 MHz Band, 802.11(n) MCS7, High Channel 7/11, 2452 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24867.2	-42.78	-20	Pass