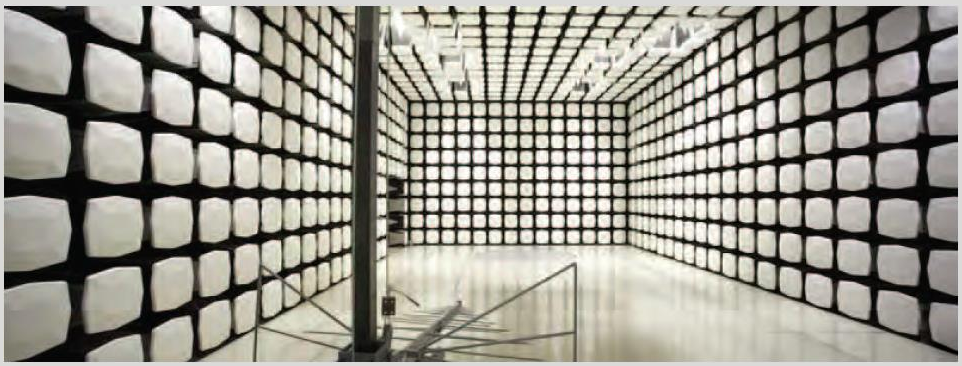
Koyo Electronics Industries Co., LTD

C2-03CPU

FCC 15.207:2020, FCC 15.247:2020

802.11bgn Radio

Report # KOYO0001.12



NVLAP LAB CODE: 200881-0

CERTIFICATE OF TEST

Last Date of Test: February 25, 2020
Koyo electronics Industries Co., LTD
EUT: C2-03CPU

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2020	ANSI C63.10:2013, KDB 558074
FCC 15.247:2020	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted 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	
11.12.1, 11.13.2, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Eric Brandon, Department 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

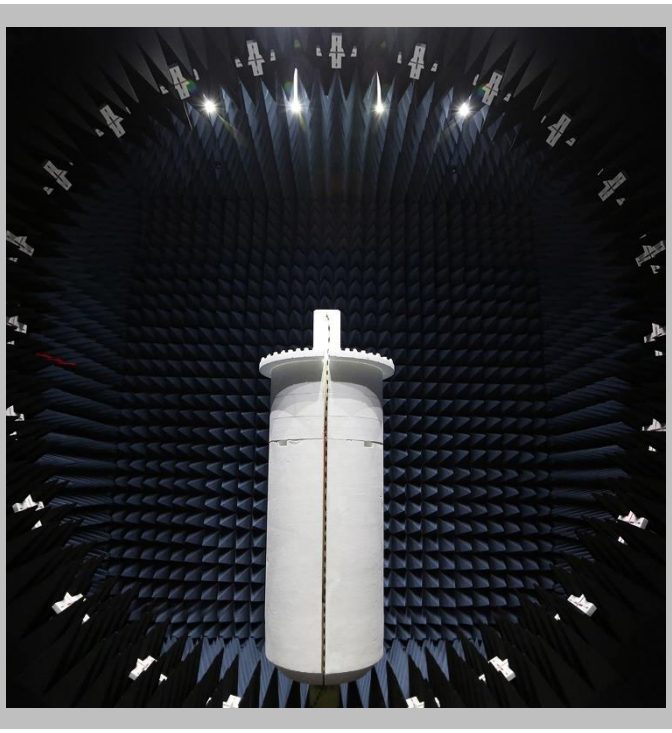
MIC – Recognized by MIC as a CAB for the acceptance of test data.

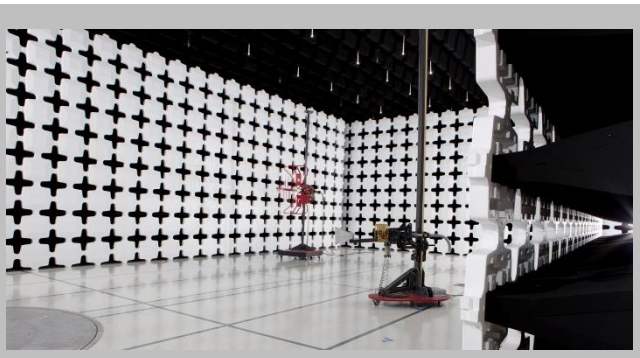
SCOPE

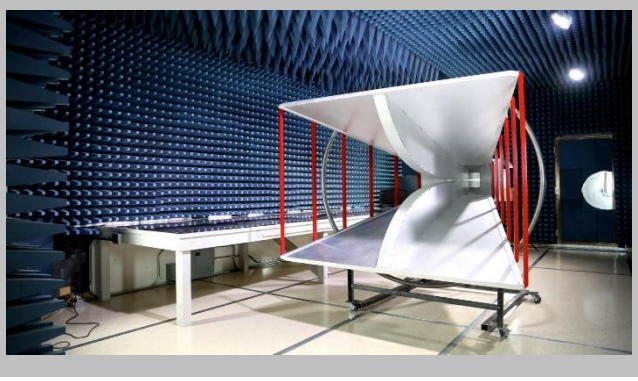
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

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.

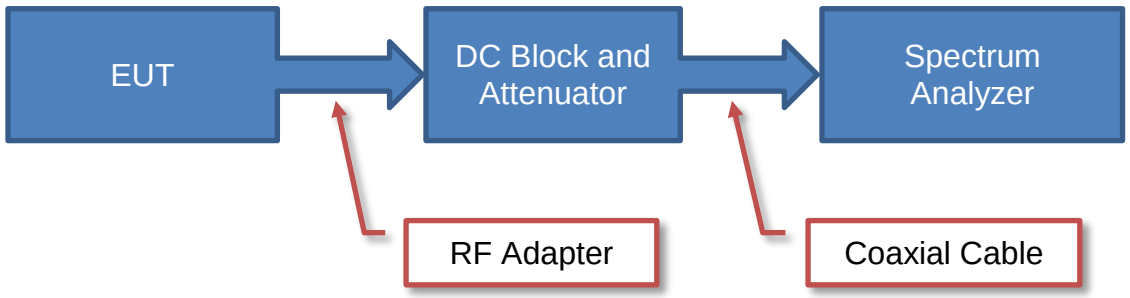
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable 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.

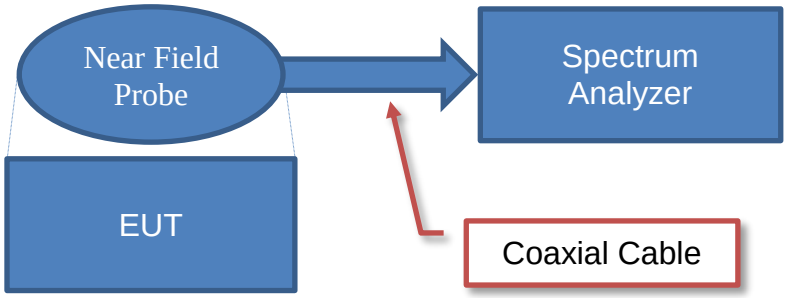
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

Test Setup Block Diagrams

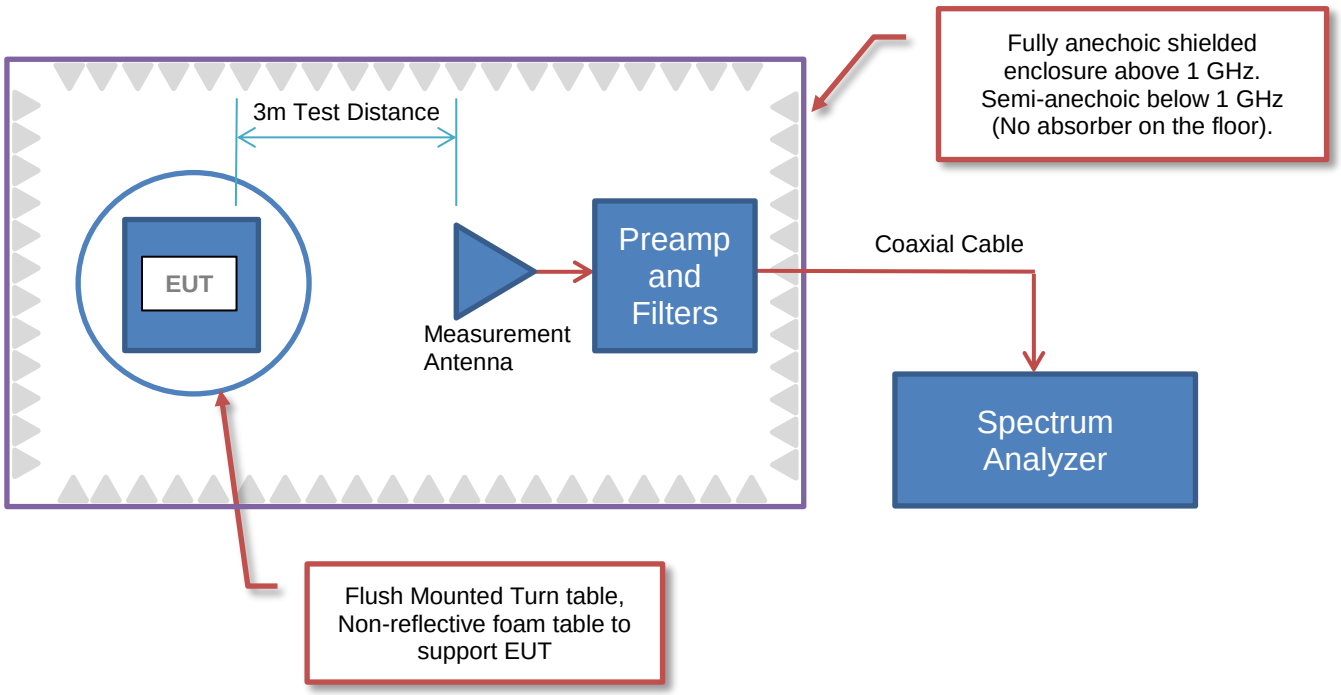
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Koyo Electronics Industries Co., LTD
Address:	4-9-1 Tenjin-cho
City, State, Zip:	Kodaira-City, Tokyo, 187-0004
Test Requested By:	Kuramoto Hiroyuki
EUT:	C2-03CPU
First Date of Test:	January 31, 2020
Last Date of Test:	February 25, 2020
Receipt Date of Samples:	January 27, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Embedded controller with 802.11 and BT

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

CONFIGURATIONS

Configuration KOYO0001- 2

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Module 2	Koyo Electronics Industries Co., LTD.	C0-01AC	C0-01AC+19923C443
Monopole Antenna	Automation Direct	SE-ANT210	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	2.9m	No	AC Mains	DC Power Module 2
DC Leads	No	0.1m	No	DC Power Module 2	C2-03CPU

Configuration KOYO0001- 3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Module 2	Koyo Electronics Industries Co., LTD.	C0-01AC	C0-01AC+19923C443
Dome Antenna	Automation Direct	SE-ANT250	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	2.9m	No	AC Mains	DC Power Module 2
DC Leads	No	0.1m	No	DC Power Module 2	C2-03CPU
Coax	Yes	3.0m	No	Dome Antenna	C2-03CPU

CONFIGURATIONS

Configuration KOYO0001- 11

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Monopole Antenna	Automation Direct	SE-ANT210	None
DC Power Supply 2	Kikusui	PMX35-3A	YB000467

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply 2
DC Power Leads	No	0.3m	No	DC Power Supply 2	C2-03CPU

Configuration KOYO0001- 17

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CLICK PLUS	Koyo Electronics Industries Co., LTD.	C2-03CPU	N/A

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	Kikusui	PWR401ML	TQL

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable (DC Power Supply)	No	1.8m	No	DC Power Supply	AC Mains
DC Leads	No	0.4 m	No	DC Power Supply	CLICK PLUS

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-01-31	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	2020-02-17	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	2020-02-25	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.
4	2020-02-25	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.
5	2020-02-25	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.
6	2020-02-25	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.
7	2020-02-25	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.
8	2020-02-25	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 (Antenna A 1.8 dBi)

Modulation Types	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
1 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
11 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
6 Mbps	20	1	Low Channel	2412	7 = -1.75dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
36 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
54 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	20	1	Low Channel	2412	9 = -2.25dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
MCS7	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	40	1/5	Low Channel	2422	7 = -1.75dB
		4/8	Mid Channel	2437	0
		7/11	High Channel	2452	8 = -2.0dB
MCS7	40	1/5	Low Channel	2422	0
		4/8	Mid Channel	2437	0
		7/11	High Channel	2452	0

SETTINGS FOR ALL TESTS IN THIS REPORT (Antenna B 1.5 dBi)

Modulation Types	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
1 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
11 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
6 Mbps	20	1	Low Channel	2412	6 = -1.5dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
36 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
54 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	20	1	Low Channel	2412	6 = -1.5dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
MCS7	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	40	1/5	Low Channel	2422	9 = -2.25dB
		4/8	Mid Channel	2437	0
		7/11	High Channel	2452	9 = -2.25dB
MCS7	40	1/5	Low Channel	2422	0
		4/8	Mid Channel	2437	0

POWER SETTINGS

		7/11	High Channel	2452	0

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

SETTINGS FOR ALL TESTS IN THIS REPORT (Direct connect)

Modulation Types	Channel Bandwidths	Channel	Position	Frequency (MHz)	Power Setting
1 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
11 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
6 Mbps	20	1	Low Channel	2412	7 = -1.75dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
36 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
54 Mbps	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	20	1	Low Channel	2412	9 = -2.25dB
		6	Mid Channel	2437	0
		11	High Channel	2462	6 = -1.5dB
MCS7	20	1	Low Channel	2412	0
		6	Mid Channel	2437	0
		11	High Channel	2462	0
MCS0	40	1/5	Low Channel	2422	9 = -2.25dB
		4/8	Mid Channel	2437	0
		7/11	High Channel	2452	9 = -2.25dB
MCS7	40	1/5	Low Channel	2422	0
		4/8	Mid Channel	2437	0
		7/11	High Channel	2452	0

POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

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
Receiver	Rohde & Schwarz	ESR7	ARI	2019-07-08	2020-07-08
Cable - Conducted Cable Assembly	Northwest EMC	MNC, HGN, TYK	MNCA	2019-03-13	2020-03-13
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	2019-03-15	2020-03-15

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

KOYO0001-11

MODES INVESTIGATED

Continuous transmit on WiFi, Monopole antenna, Mid channel (2437 MHz), 1Mbps

POWERLINE CONDUCTED EMISSIONS

EUT:	C2-03CPU	Work Order:	KOYO0001
Serial Number:	N/A	Date:	2020-02-17
Customer:	Koyo Electronics Industries Co., LTD	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	20.5%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Dan Haas	Job Site:	MN03
Power:	24VDC	Configuration:	KOYO0001-11

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	13	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

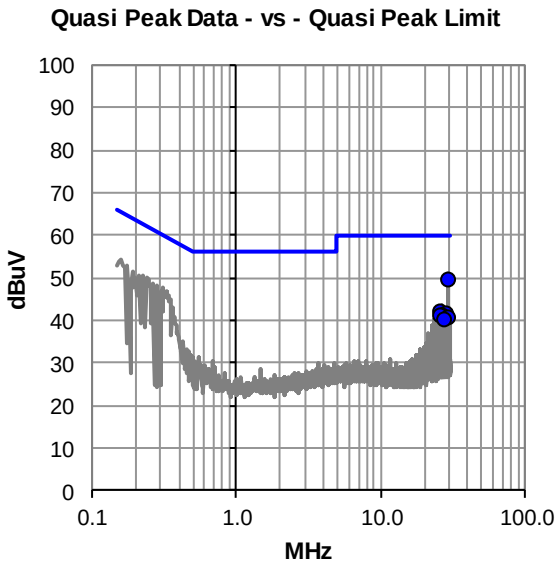
Kikusui 24VDC supply powered at 100VAC/60Hz.

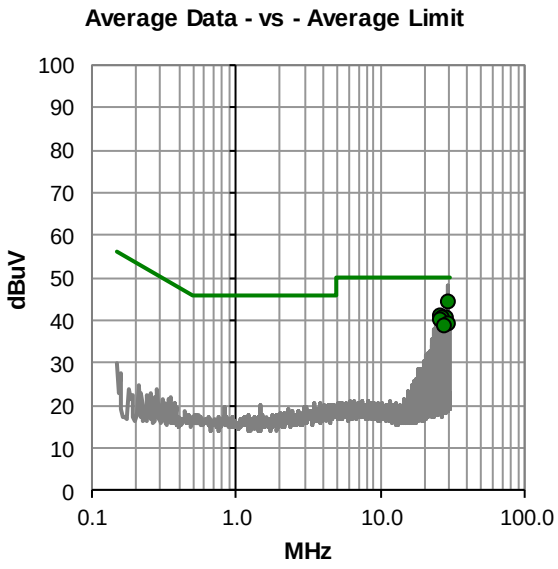
EUT OPERATING MODES

Continuous transmit on WiFi, Monopole antenna, Mid channel (2437 MHz), 1Mbps

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #13

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	28.300	21.2	49.5	60.0	-10.5
26.5	20.300	21.4	41.7	60.0	-18.3
28.8	20.000	21.3	41.3	60.0	-18.7
27.1	19.600	21.4	41.0	60.0	-19.0
25.9	19.500	21.4	40.9	60.0	-19.1
29.4	19.200	21.2	40.4	60.0	-19.6
28.2	18.600	21.3	39.9	60.0	-20.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	23.200	21.2	44.4	50.0	-5.6
26.5	19.700	21.4	41.1	50.0	-8.9
28.8	19.200	21.3	40.5	50.0	-9.5
27.1	19.000	21.4	40.4	50.0	-9.6
25.9	18.600	21.4	40.0	50.0	-10.0
29.4	17.700	21.2	38.9	50.0	-11.1
28.2	17.100	21.3	38.4	50.0	-11.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

EUT:	C2-03CPU	Work Order:	KOYO0001
Serial Number:	N/A	Date:	2020-02-17
Customer:	Koyo Electronics Industries Co., LTD	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	20.5%
Customer Project:	None	Bar. Pressure:	1014 mb
Tested By:	Dan Haas	Job Site:	MN03
Power:	24VDC	Configuration:	KOYO0001-11

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	14	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

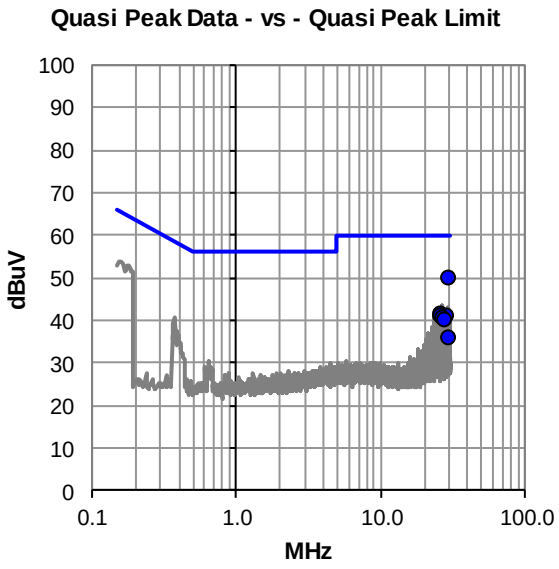
Kikusui 24VDC supply powered at 100VAC/60Hz.

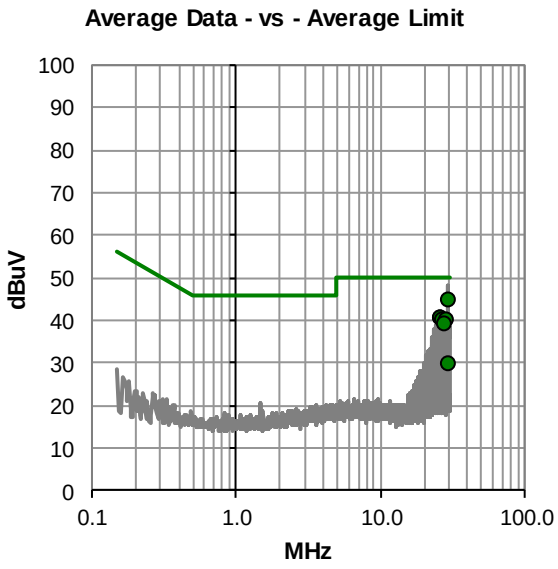
EUT OPERATING MODES

Continuous transmit on WiFi, Monopole antenna, Mid channel (2437 MHz), 1Mbps

DEVIATIONS FROM TEST STANDARD

None





POWERLINE CONDUCTED EMISSIONS

element
WTD.2019.10.29.0

RESULTS - Run #14

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	28.500	21.2	49.7	60.0	-10.3
26.5	19.900	21.4	41.3	60.0	-18.7
28.8	19.700	21.3	41.0	60.0	-19.0
25.9	19.400	21.4	40.8	60.0	-19.2
27.0	19.300	21.4	40.7	60.0	-19.3
28.2	18.600	21.3	39.9	60.0	-20.1
29.4	14.600	21.2	35.8	60.0	-24.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
29.5	23.400	21.2	44.6	50.0	-5.4
26.5	19.200	21.4	40.6	50.0	-9.4
25.9	18.900	21.4	40.3	50.0	-9.7
27.0	18.800	21.4	40.2	50.0	-9.8
28.8	18.800	21.3	40.1	50.0	-9.9
28.2	17.800	21.3	39.1	50.0	-10.9
29.4	8.300	21.2	29.5	50.0	-20.5

CONCLUSION

Pass

Tested By

DUTY CYCLE

XMit 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-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 test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

OCCUPIED BANDWIDTH

XMit 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
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Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-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 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	25-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.3 °C
Attendees:	None			**Humidity:**	27.3% RH
Project:	None			**Barometric Pres.:**	1028 mbar
Tested by:	Andrew Rogstad	**Power:**	24VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes measurement cable, DC block, and 20 dB attenuator.

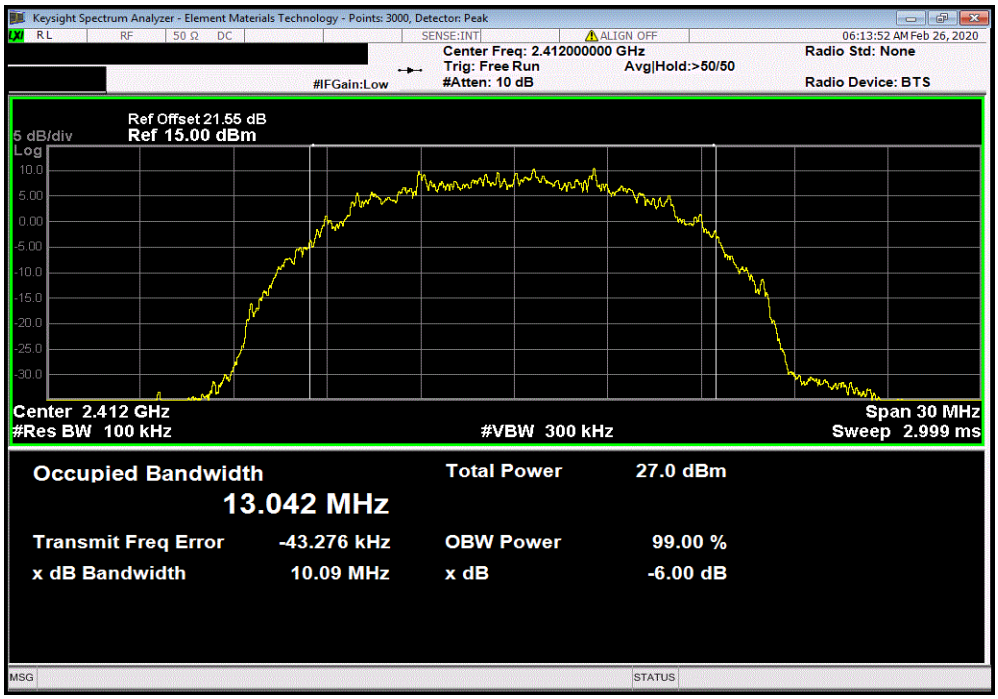
DEVIATIONS FROM TEST STANDARD

None

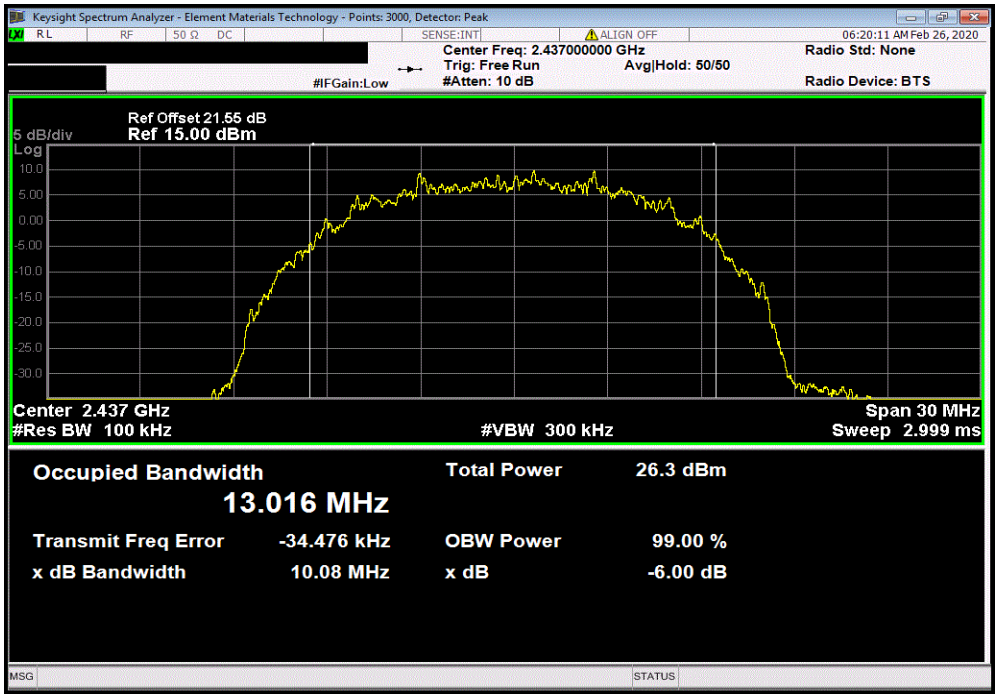
Configuration #	17	Signature

	Value	Limit (>)	Result
2400 MHz - 2483.5 MHz Band			
20 MHz Bandwidth			
802.11(b) 1 Mbps			
Low Channel 1, 2412 MHz	10.089 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	10.084 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	10.089 MHz	500 kHz	Pass
802.11(b) 11 Mbps			
Low Channel 1, 2412 MHz	9.652 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	9.647 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	9.651 MHz	500 kHz	Pass
802.11(g) 6 Mbps			
Low Channel 1, 2412 MHz	16.443 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.444 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.442 MHz	500 kHz	Pass
802.11(g) 36 Mbps			
Low Channel 1, 2412 MHz	16.498 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.503 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.501 MHz	500 kHz	Pass
802.11(g) 54 Mbps			
Low Channel 1, 2412 MHz	16.516 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	16.518 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	16.517 MHz	500 kHz	Pass
802.11(n) MCS0			
Low Channel 1, 2412 MHz	17.348 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	17.347 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	17.327 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel 1, 2412 MHz	17.484 MHz	500 kHz	Pass
Mid Channel 6, 2437 MHz	17.494 MHz	500 kHz	Pass
High Channel 11, 2462 MHz	17.491 MHz	500 kHz	Pass
40 MHz Bandwidth			
802.11(n) MCS0			
Low Channel 1/5, 2422 MHz	36.432 MHz	500 kHz	Pass
Mid Channel 4/8, 2437 MHz	36.433 MHz	500 kHz	Pass
High Channel 7/11, 2452 MHz	36.421 MHz	500 kHz	Pass
802.11(n) MCS7			
Low Channel 1/5, 2422 MHz	36.447 MHz	500 kHz	Pass
Mid Channel 4/8, 2437 MHz	36.448 MHz	500 kHz	Pass
High Channel 7/11, 2452 MHz	36.443 MHz	500 kHz	Pass

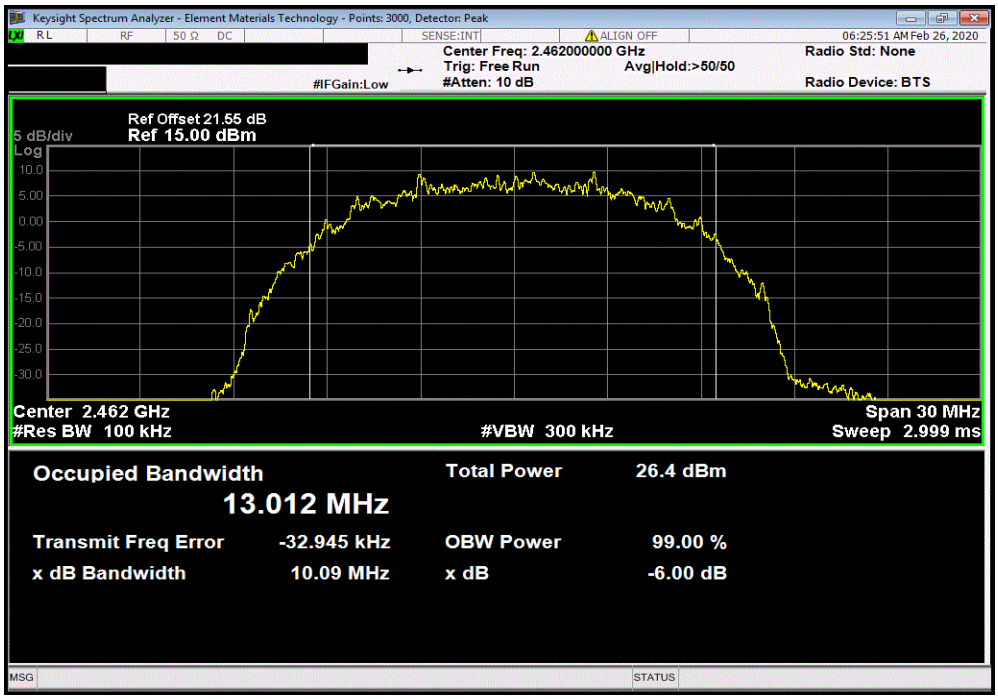
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				10.089 MHz	500 kHz	Pass



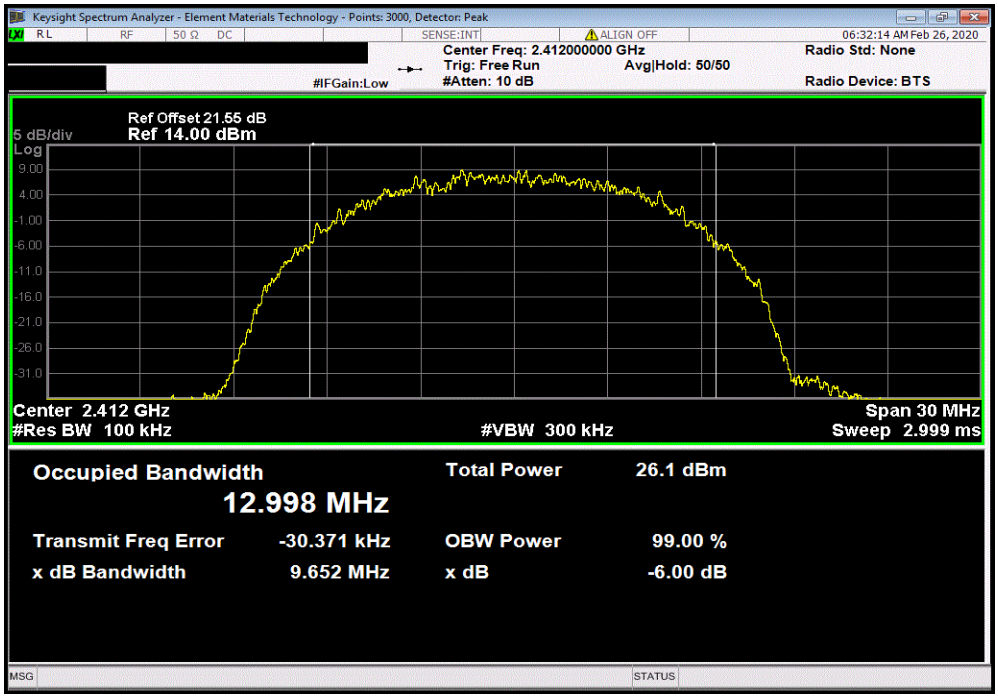
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				10.084 MHz	500 kHz	Pass



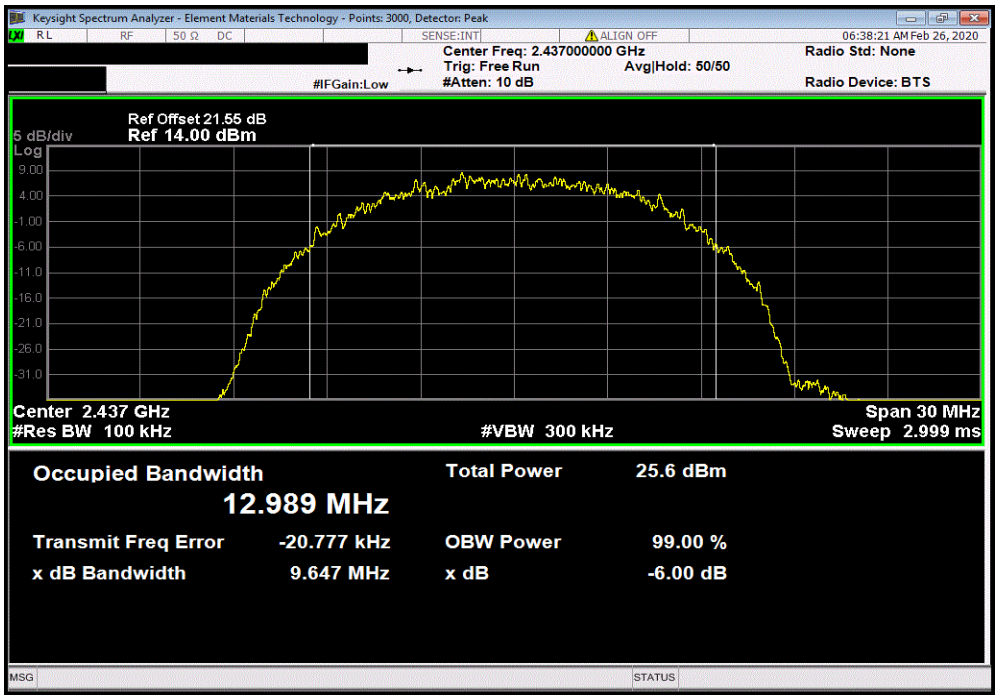
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				10.089 MHz	500 kHz	Pass



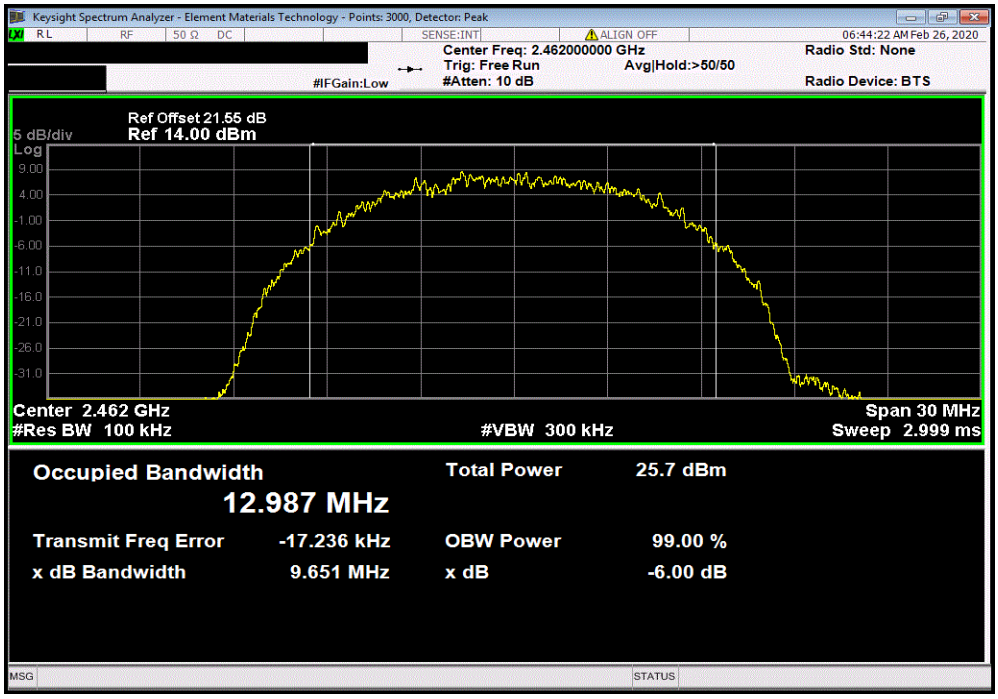
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				9.652 MHz	500 kHz	Pass



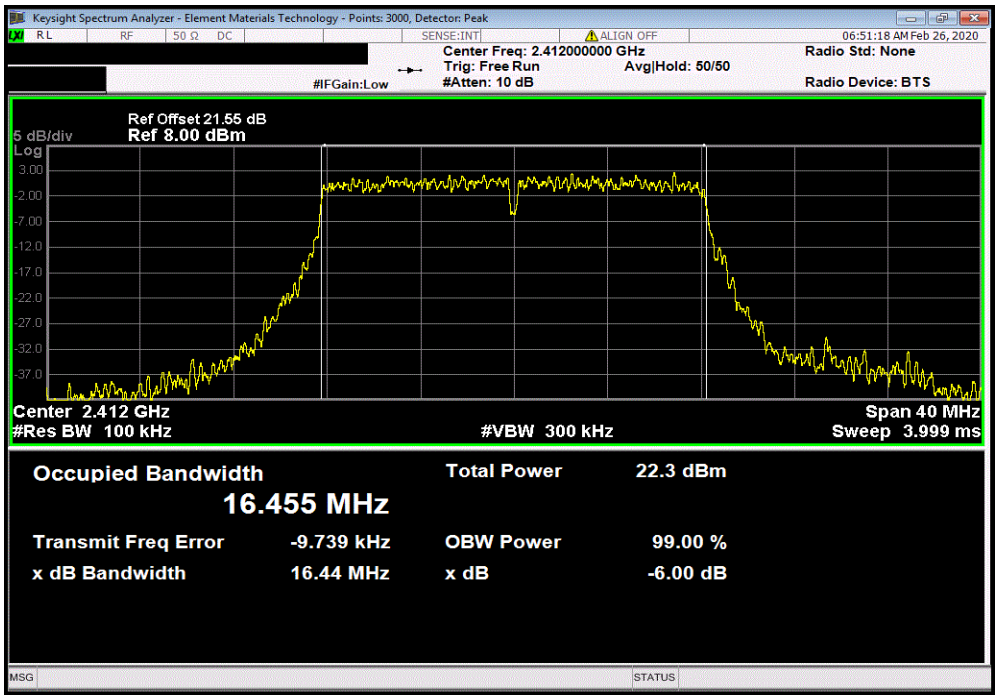
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				9.647 MHz	500 kHz	Pass



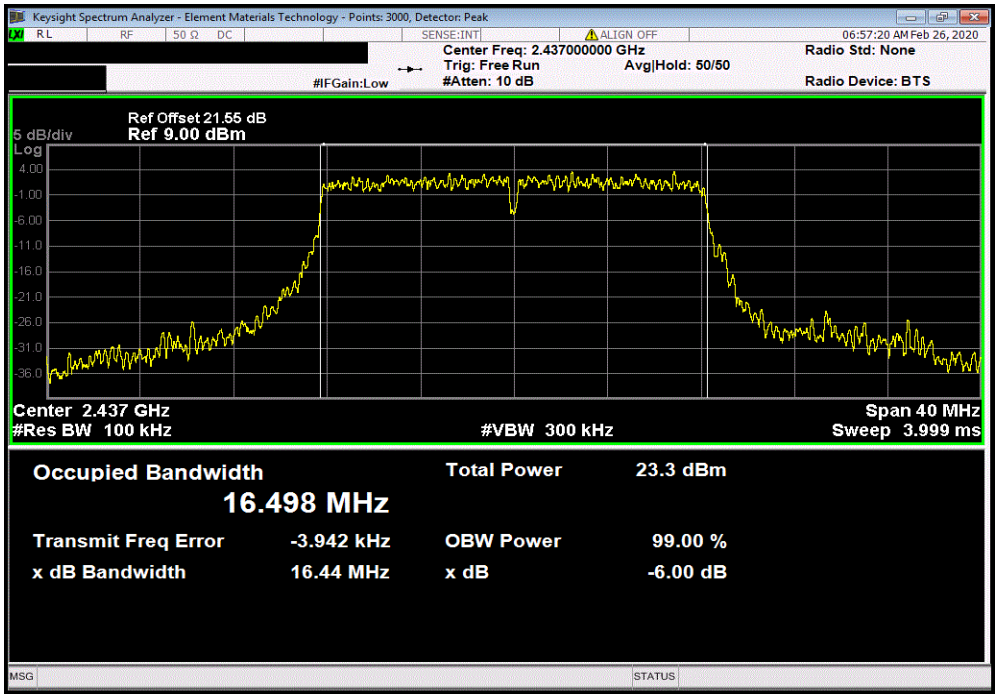
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				9.651 MHz	500 kHz	Pass



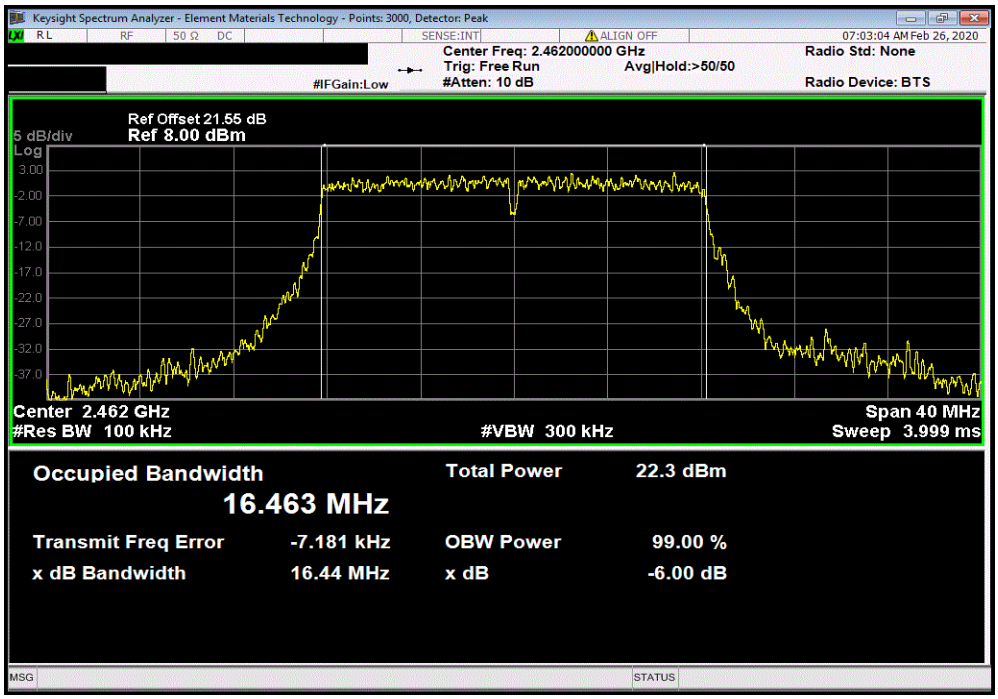
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.443 MHz	500 kHz	Pass



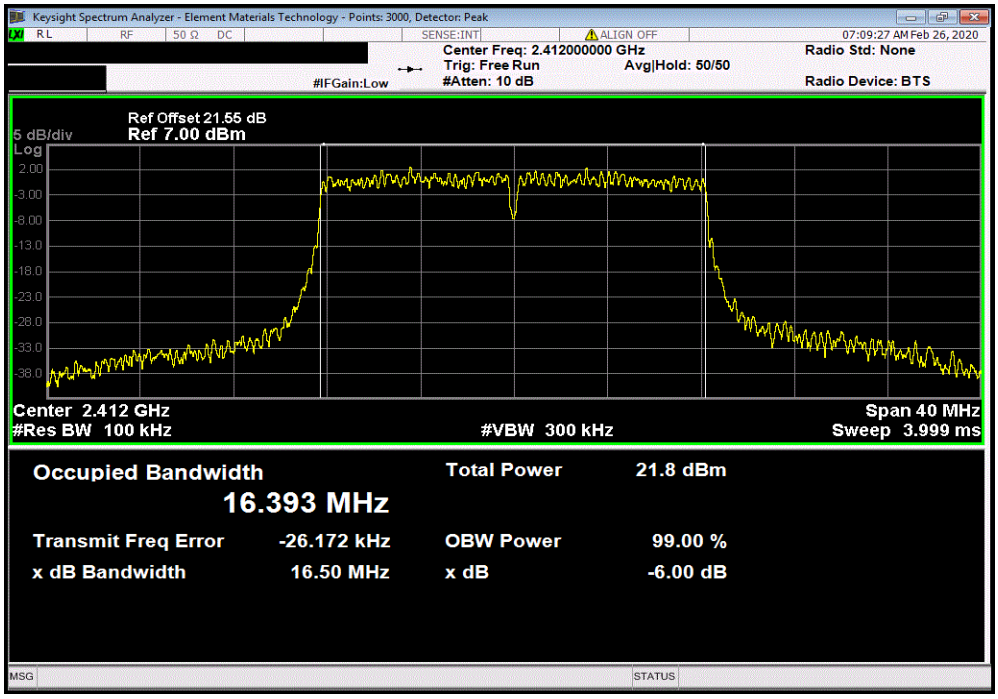
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.444 MHz	500 kHz	Pass



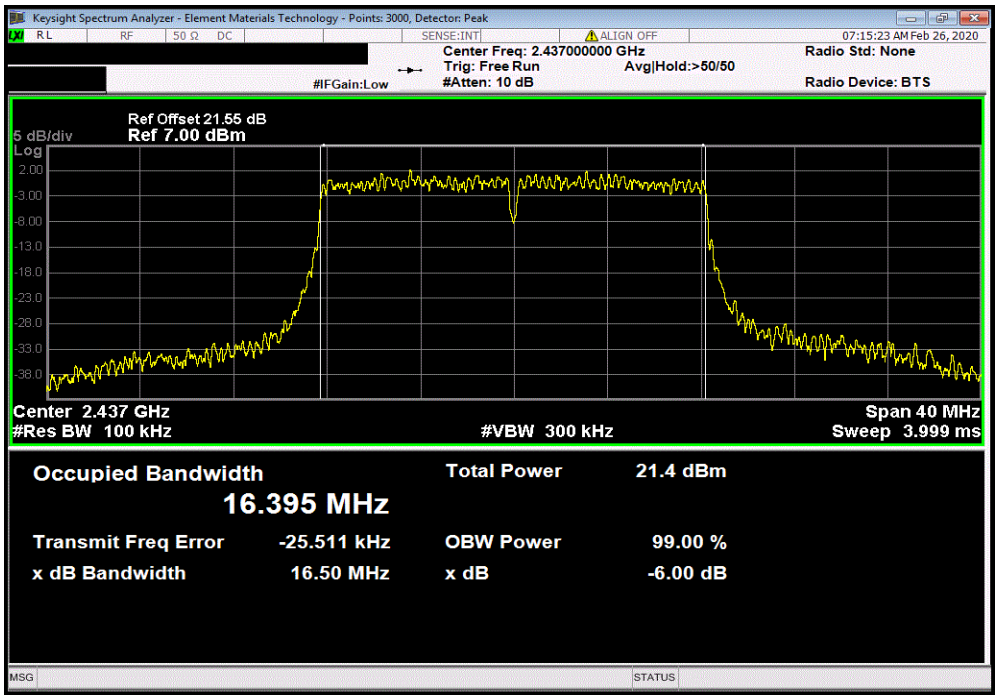
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.442 MHz	500 kHz	Pass



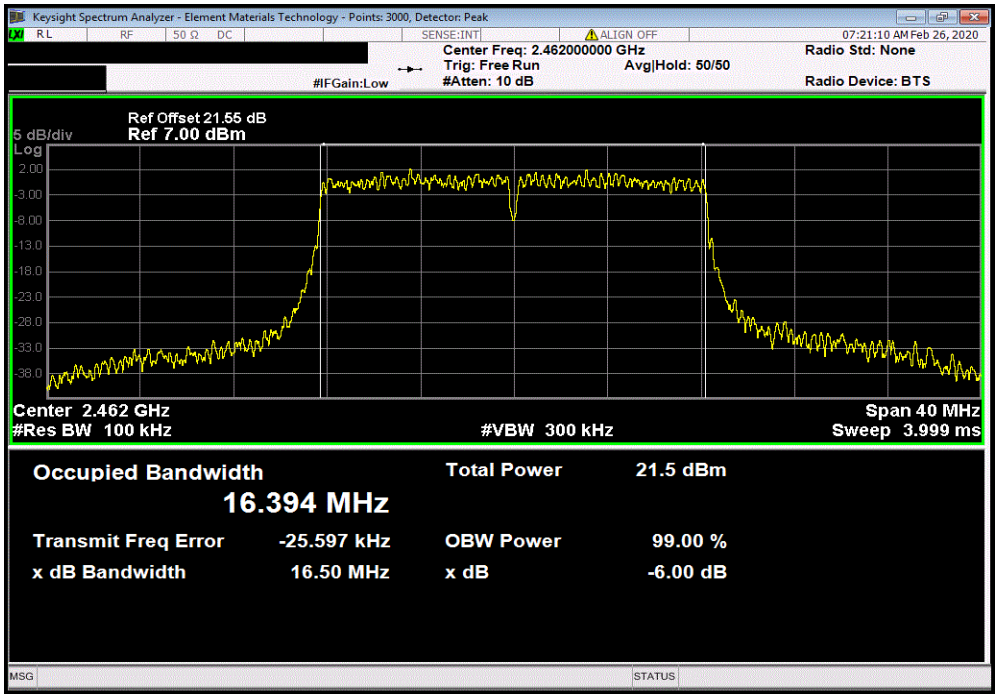
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.498 MHz	500 kHz	Pass



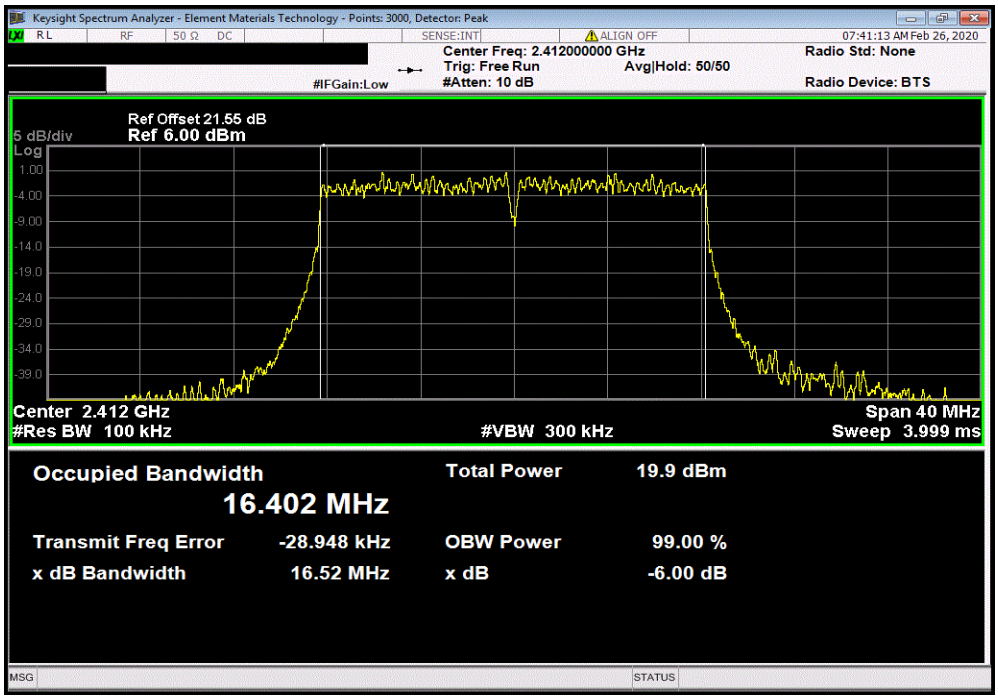
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.503 MHz	500 kHz	Pass



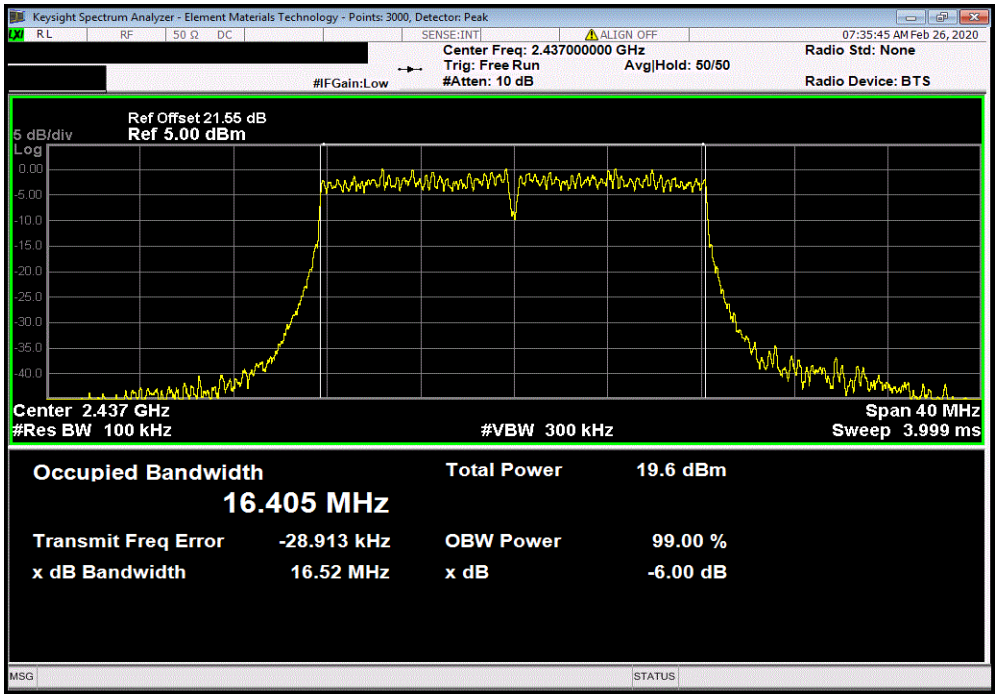
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				16.501 MHz	500 kHz	Pass



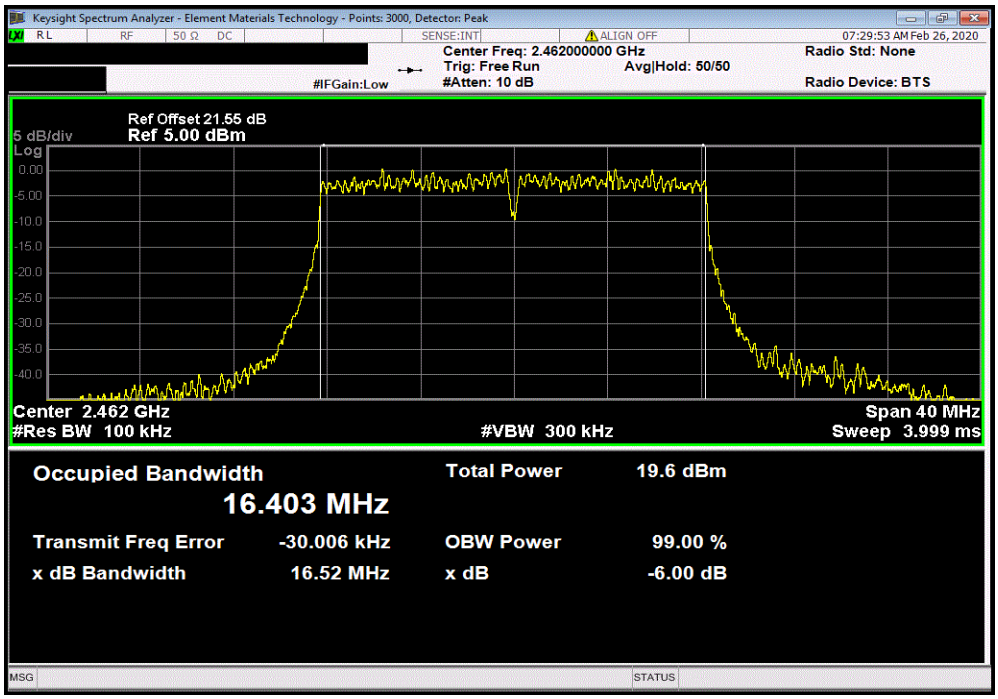
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				16.516 MHz	500 kHz	Pass



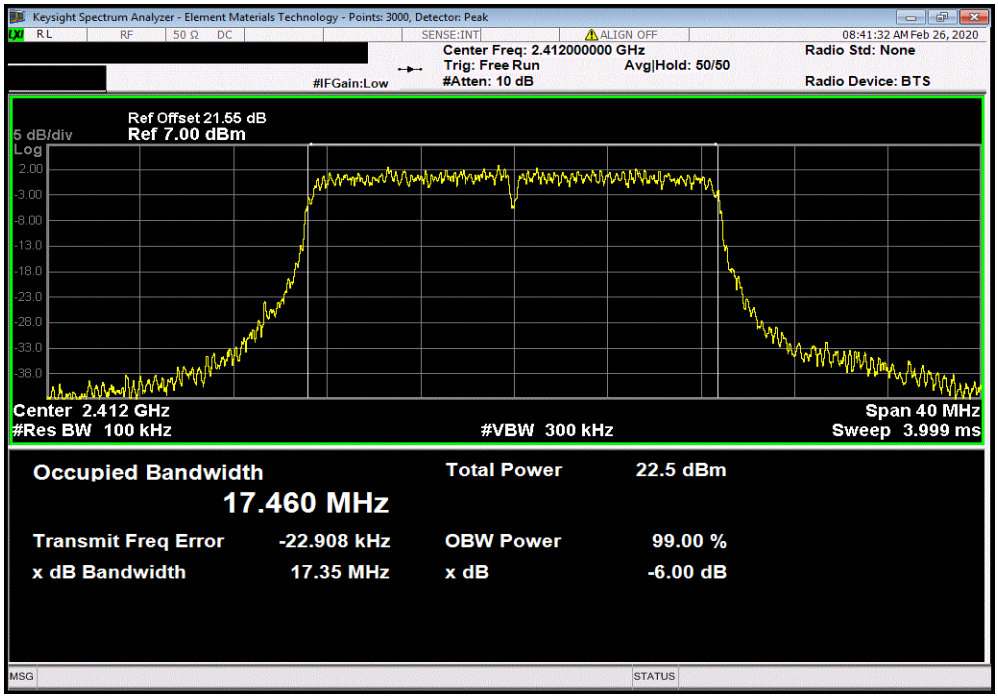
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				16.518 MHz	500 kHz	Pass



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

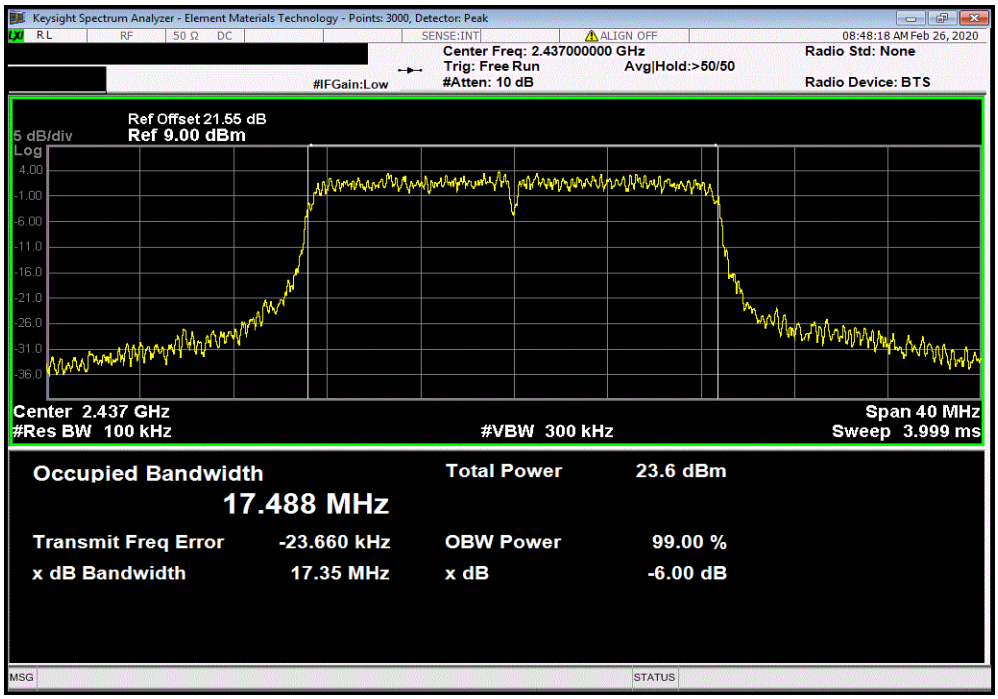


2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				17.348 MHz	500 kHz	Pass

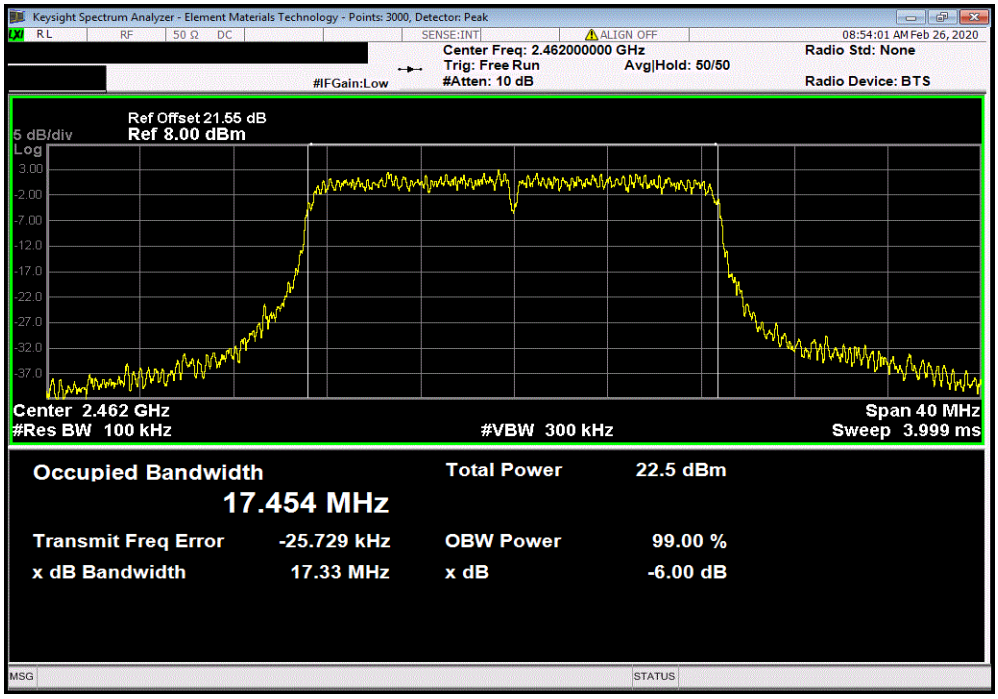


OCCUPIED BANDWIDTH

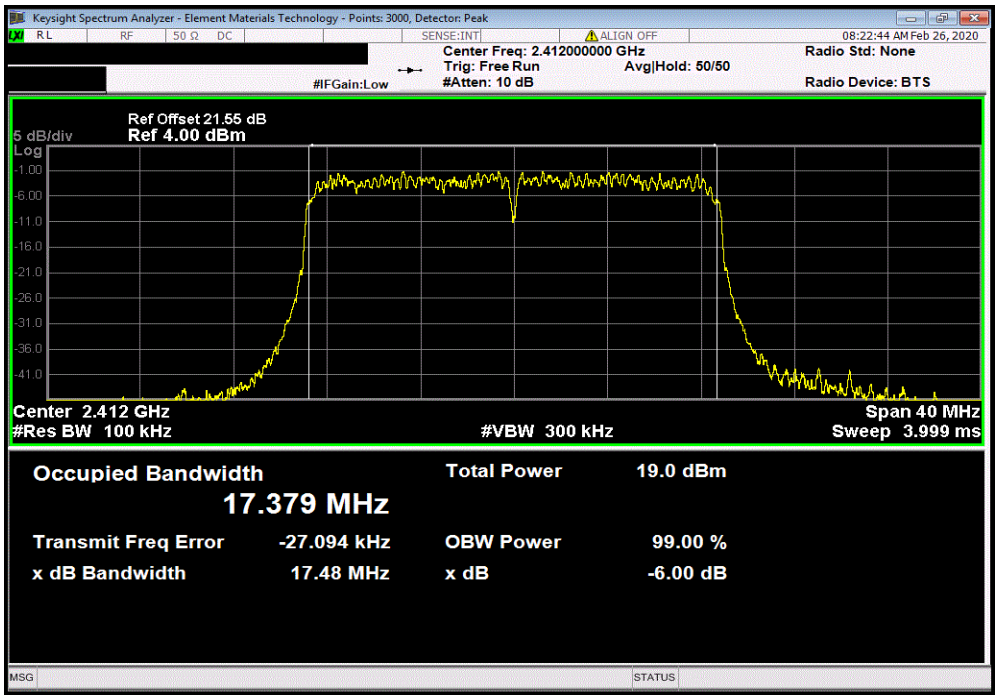
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				17.347 MHz	500 kHz	Pass



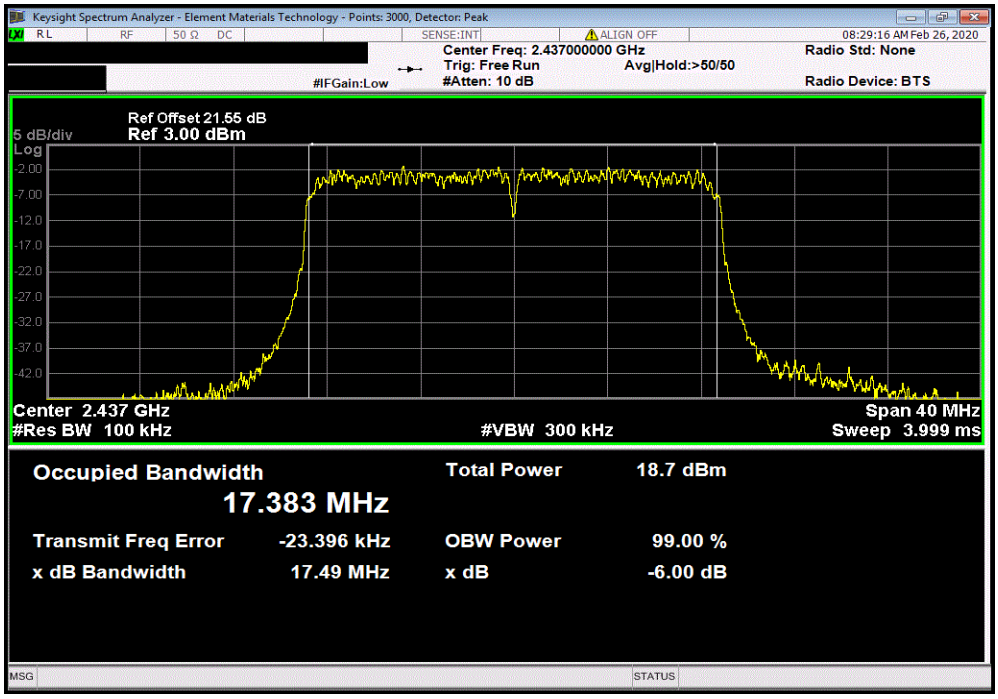
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				17.327 MHz	500 kHz	Pass



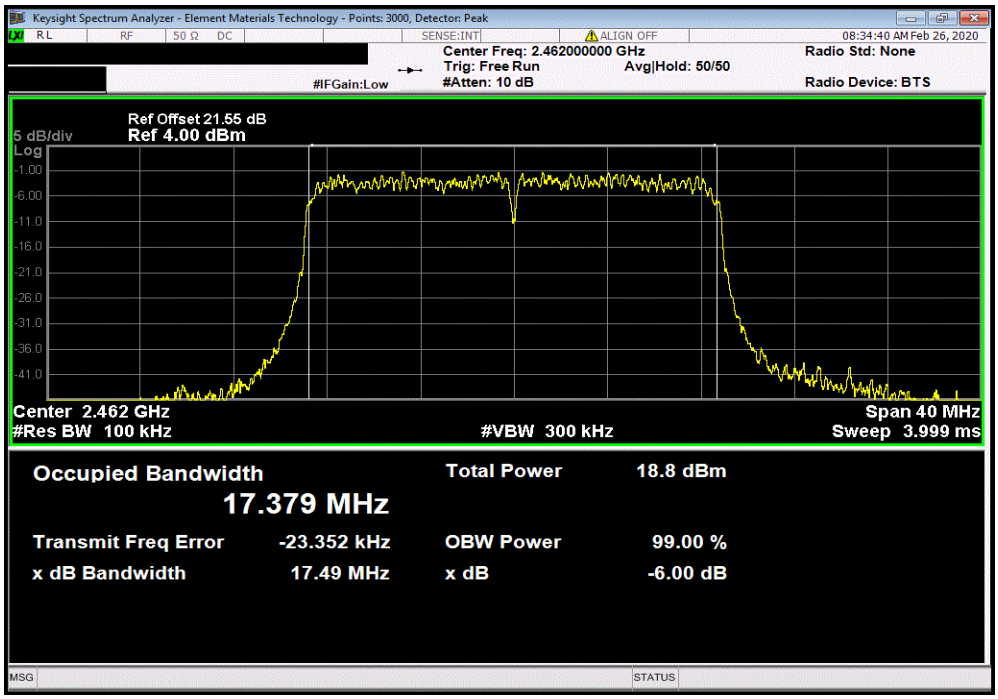
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
				Value	Limit (>)	Result
				17.484 MHz	500 kHz	Pass



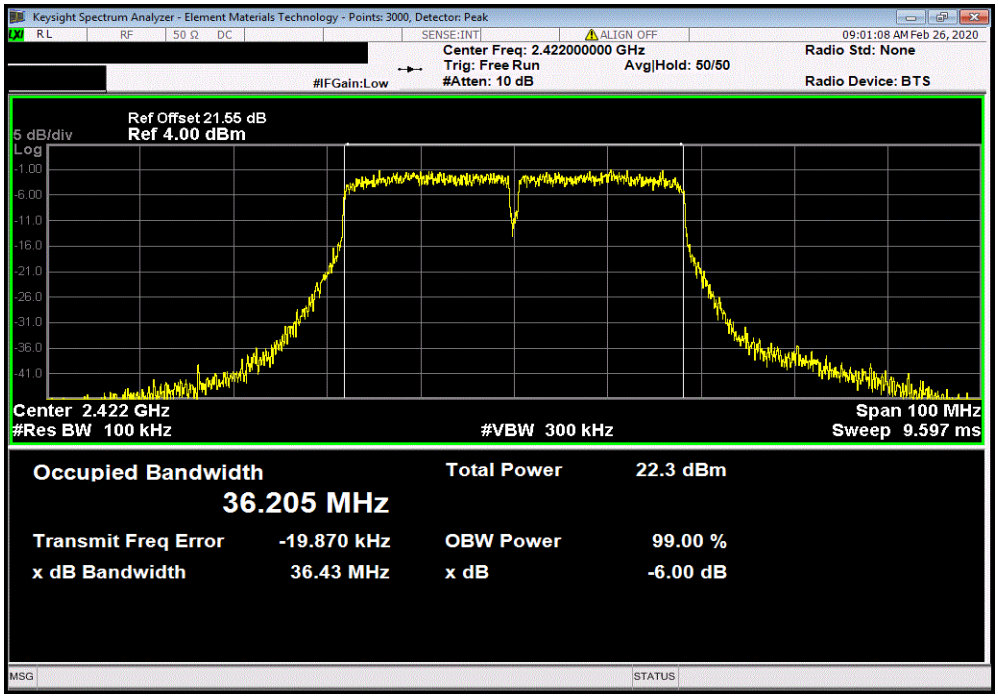
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
				Value	Limit (>)	Result
				17.494 MHz	500 kHz	Pass



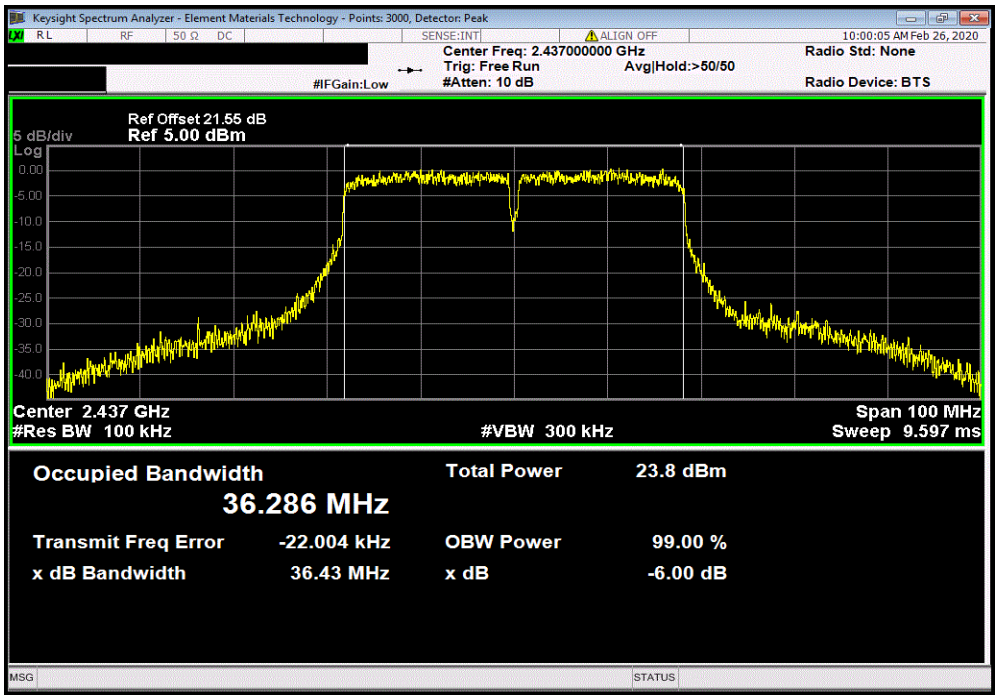
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, High Channel 11, 2462 MHz						
				Value	Limit (>)	Result
				17.491 MHz	500 kHz	Pass



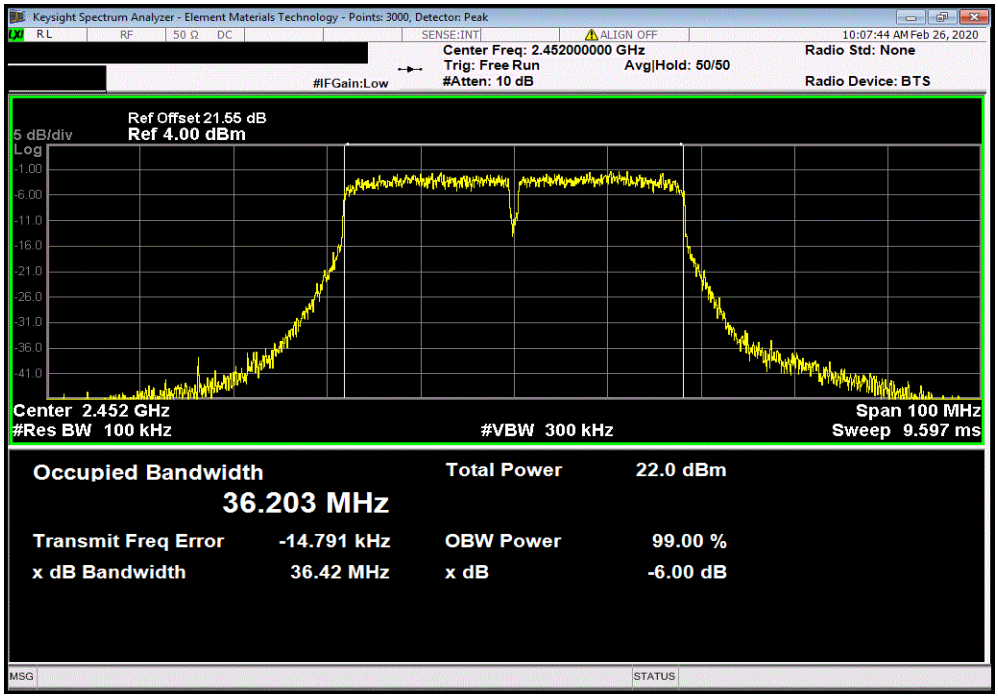
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
				Value	Limit (>)	Result
				36.432 MHz	500 kHz	Pass



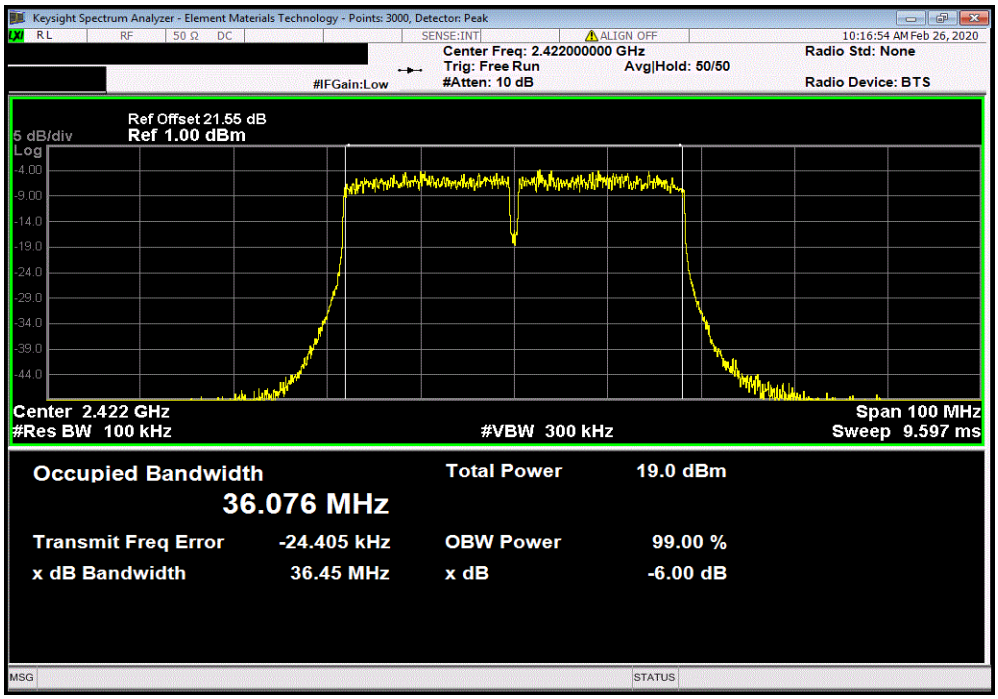
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
				Value	Limit (>)	Result
				36.433 MHz	500 kHz	Pass



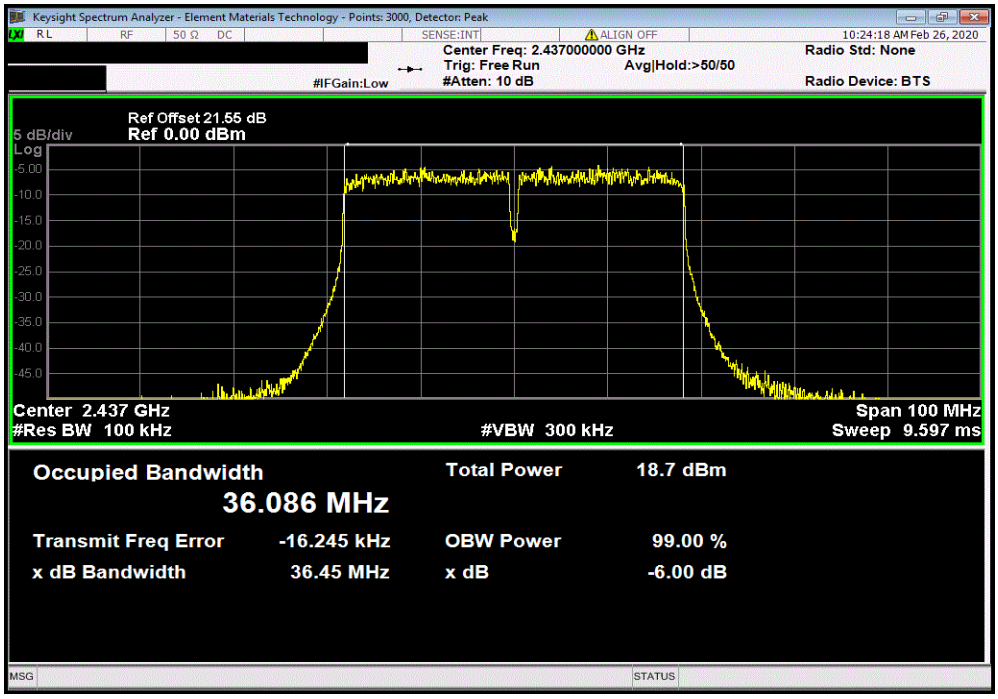
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
				Value	Limit (>)	Result
				36.421 MHz	500 kHz	Pass



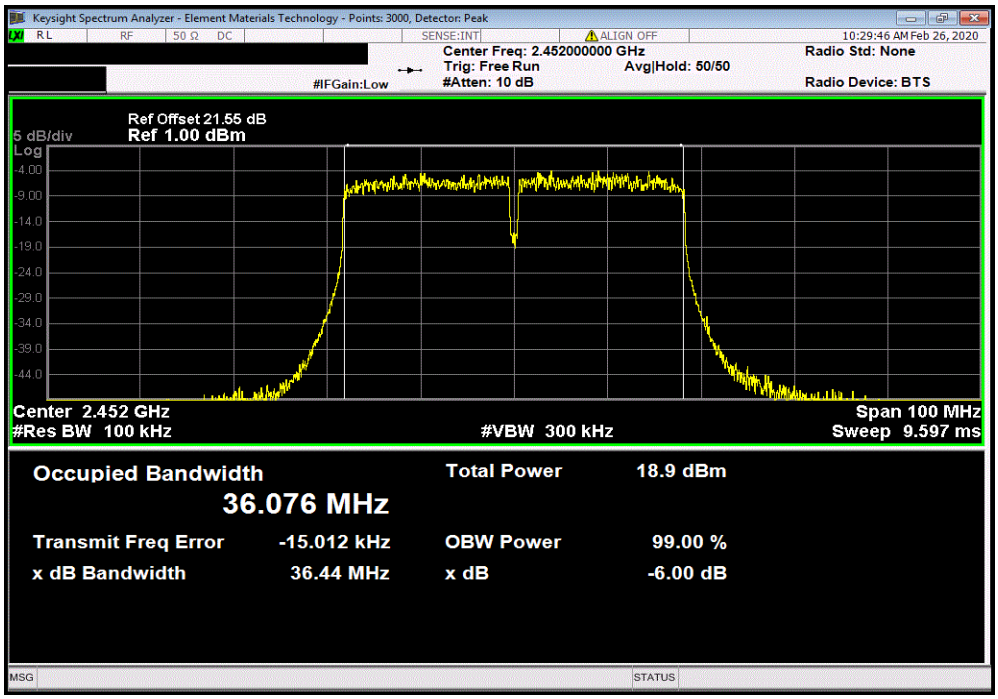
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
				Value	Limit (>)	Result
				36.447 MHz	500 kHz	Pass



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



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



OUTPUT POWER

XMit 2019.09.05

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
Power Supply	Kikusui	PWR401ML	TQL	NCR	NCR
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	23-Dec-19	23-Dec-20
Block - DC	Fairview Microwave	SD3379	AMI	6-Aug-19	6-Aug-20
Attenuator	S.M. Electronics	SA26B-20	TZP	9-Nov-19	9-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	15-Sep-19	15-Sep-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 2019.08.30.0 XMit 2019.09.05

EUT:	C2-03CPU			**Work Order:**	KOYO0001
Serial Number:	N/A			**Date:**	25-Feb-20
Customer:	Koyo Electronics Industries Co., LTD			**Temperature:**	22.4 °C
Attendees:	None			**Humidity:**	27.1% RH
Project:	None			**Barometric Pres.:**	1028 mbar
Tested by:	Andrew Rogstad	**Power:**	24VDC	**Job Site:**	MN08

TEST SPECIFICATIONS	Test Method
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes measurement cable, DC block, and 20 dB attenuator.

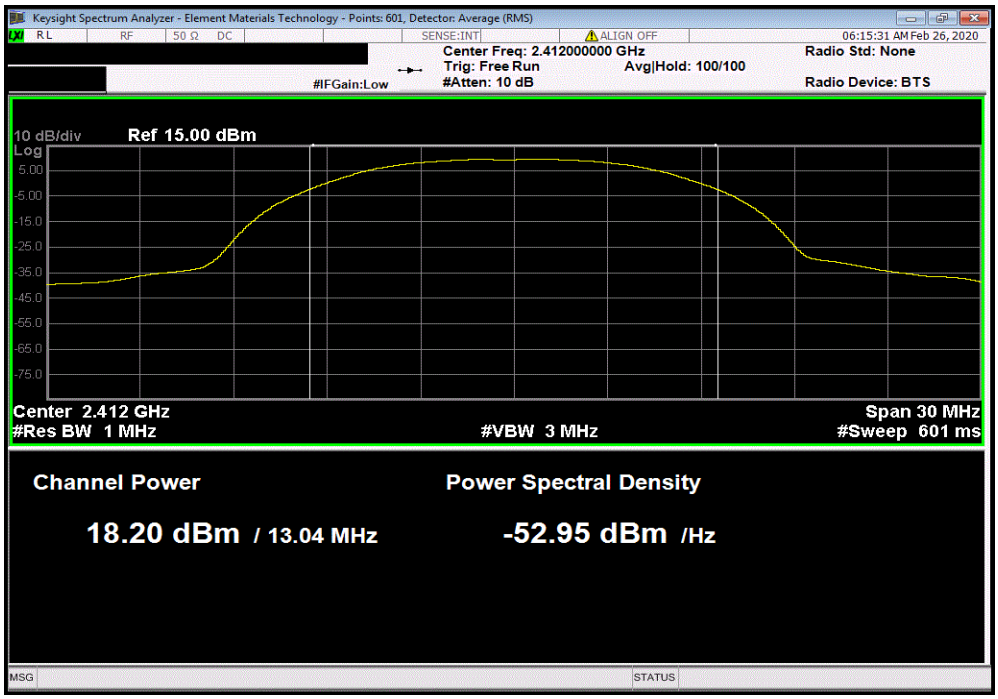
DEVIATIONS FROM TEST STANDARD

None

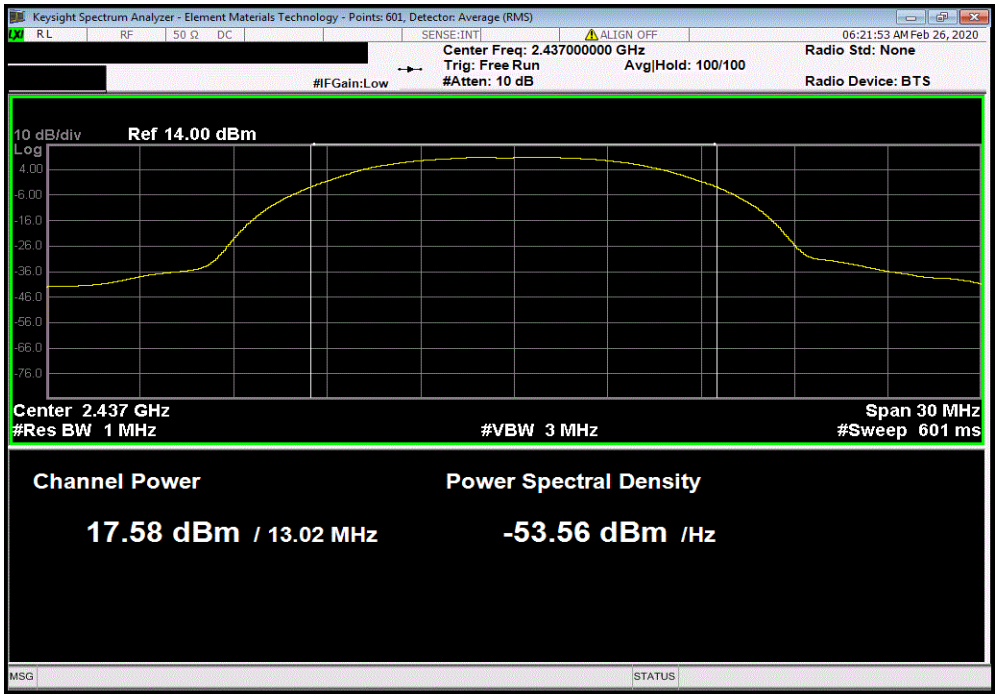
Configuration #	17	Signature

	Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
2400 MHz - 2483.5 MHz Band					
20 MHz Bandwidth					
802.11(b) 1 Mbps					
Low Channel 1, 2412 MHz	18.202	0	18.2	30	Pass
Mid Channel 6, 2437 MHz	17.581	0	17.6	30	Pass
High Channel 11, 2462 MHz	17.661	0	17.7	30	Pass
802.11(b) 11 Mbps					
Low Channel 1, 2412 MHz	17.945	0	17.9	30	Pass
Mid Channel 6, 2437 MHz	17.503	0	17.5	30	Pass
High Channel 11, 2462 MHz	17.606	0	17.6	30	Pass
802.11(g) 6 Mbps					
Low Channel 1, 2412 MHz	15.689	0	15.7	30	Pass
Mid Channel 6, 2437 MHz	16.628	0	16.6	30	Pass
High Channel 11, 2462 MHz	15.649	0	15.6	30	Pass
802.11(g) 36 Mbps					
Low Channel 1, 2412 MHz	14.768	0	14.8	30	Pass
Mid Channel 6, 2437 MHz	14.381	0	14.4	30	Pass
High Channel 11, 2462 MHz	14.453	0	14.5	30	Pass
802.11(g) 54 Mbps					
Low Channel 1, 2412 MHz	12.839	0	12.8	30	Pass
Mid Channel 6, 2437 MHz	12.472	0	12.5	30	Pass
High Channel 11, 2462 MHz	12.559	0	12.6	30	Pass
802.11(n) MCS0					
Low Channel 1, 2412 MHz	15.428	0	15.4	30	Pass
Mid Channel 6, 2437 MHz	16.565	0	16.6	30	Pass
High Channel 11, 2462 MHz	15.545	0	15.5	30	Pass
802.11(n) MCS7					
Low Channel 1, 2412 MHz	11.815	0	11.8	30	Pass
Mid Channel 6, 2437 MHz	11.477	0	11.5	30	Pass
High Channel 11, 2462 MHz	11.606	0	11.6	30	Pass
40 MHz Bandwidth					
802.11(n) MCS0					
Low Channel 1/5, 2422 MHz	15.416	0	15.4	30	Pass
Mid Channel 4/8, 2437 MHz	16.771	0	16.8	30	Pass
High Channel 7/11, 2452 MHz	15.144	0	15.1	30	Pass
802.11(n) MCS7					
Low Channel 1/5, 2422 MHz	11.879	0	11.9	30	Pass
Mid Channel 4/8, 2437 MHz	11.533	0	11.5	30	Pass
High Channel 7/11, 2452 MHz	11.713	0	11.7	30	Pass

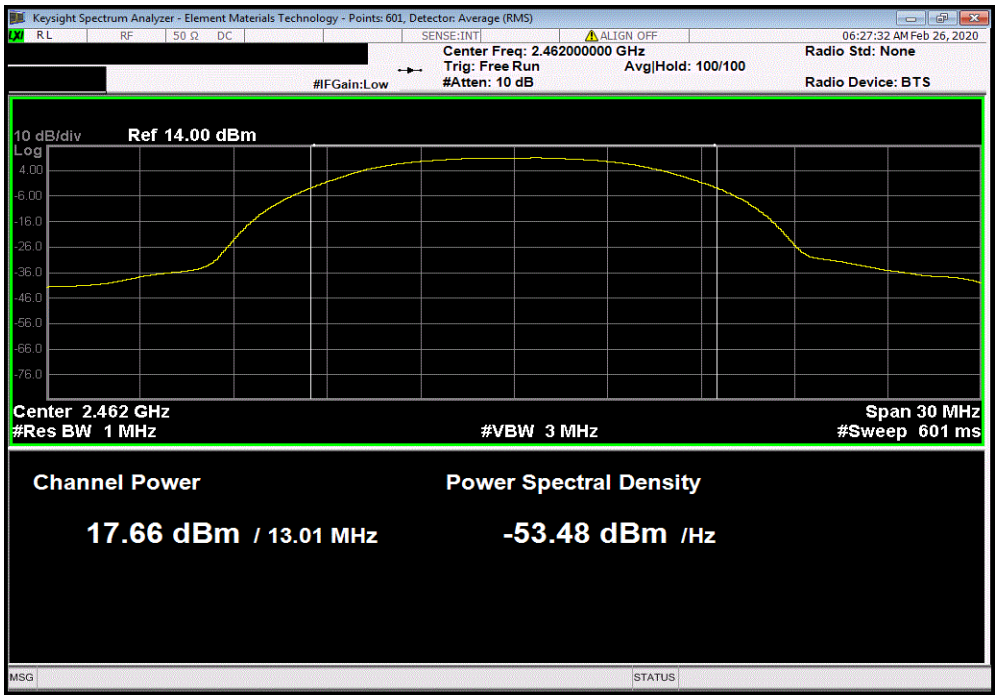
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		18.202	0	18.2	30	Pass



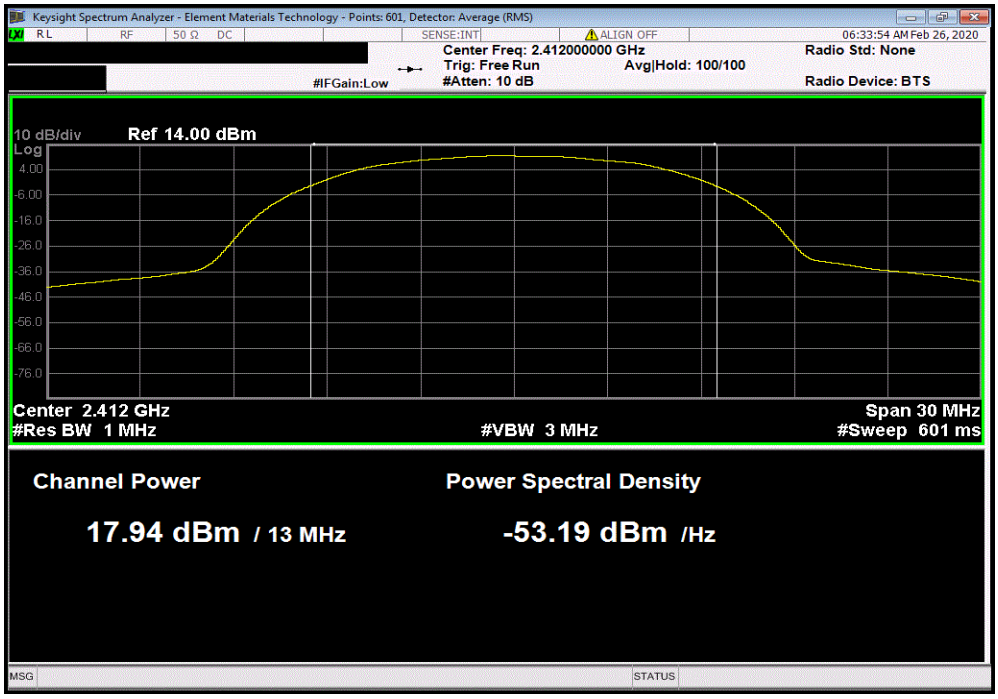
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		17.581	0	17.6	30	Pass



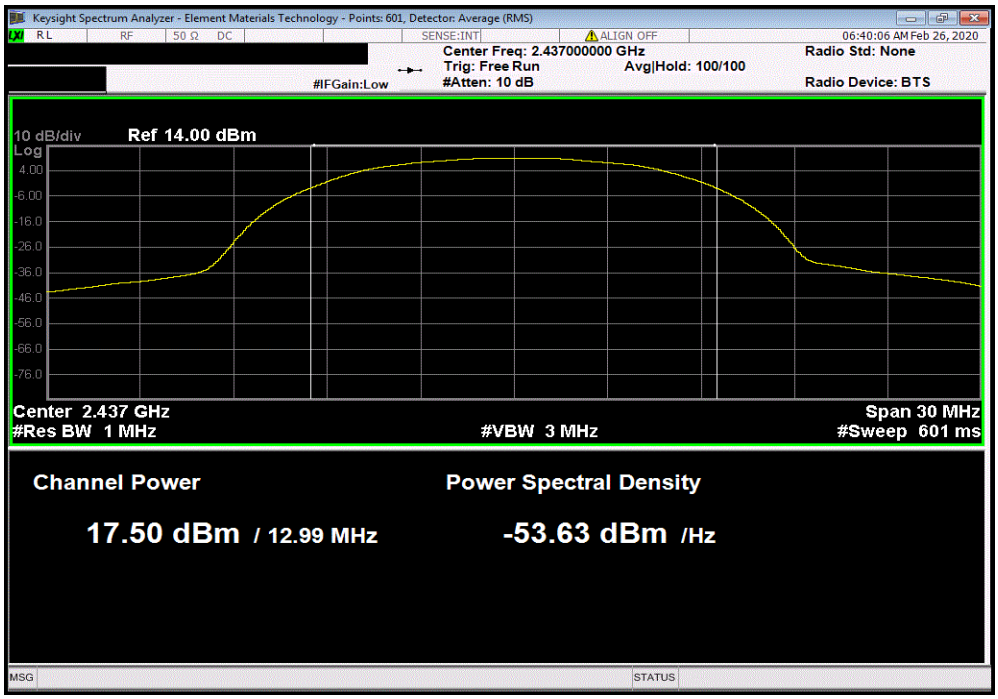
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		17.661	0	17.7	30	Pass



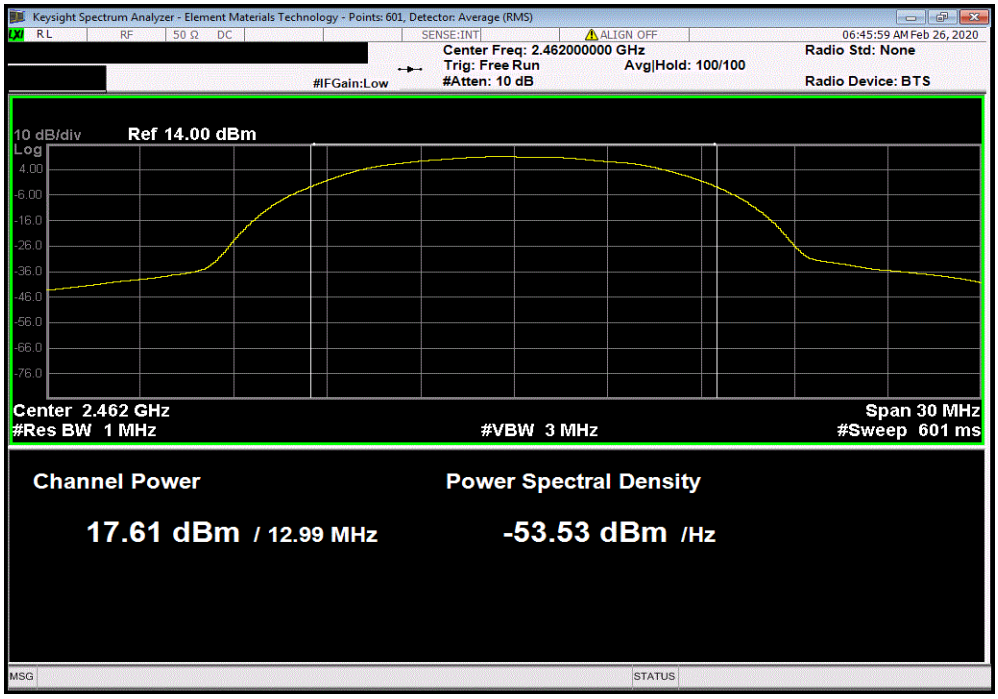
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		17.945	0	17.9	30	Pass



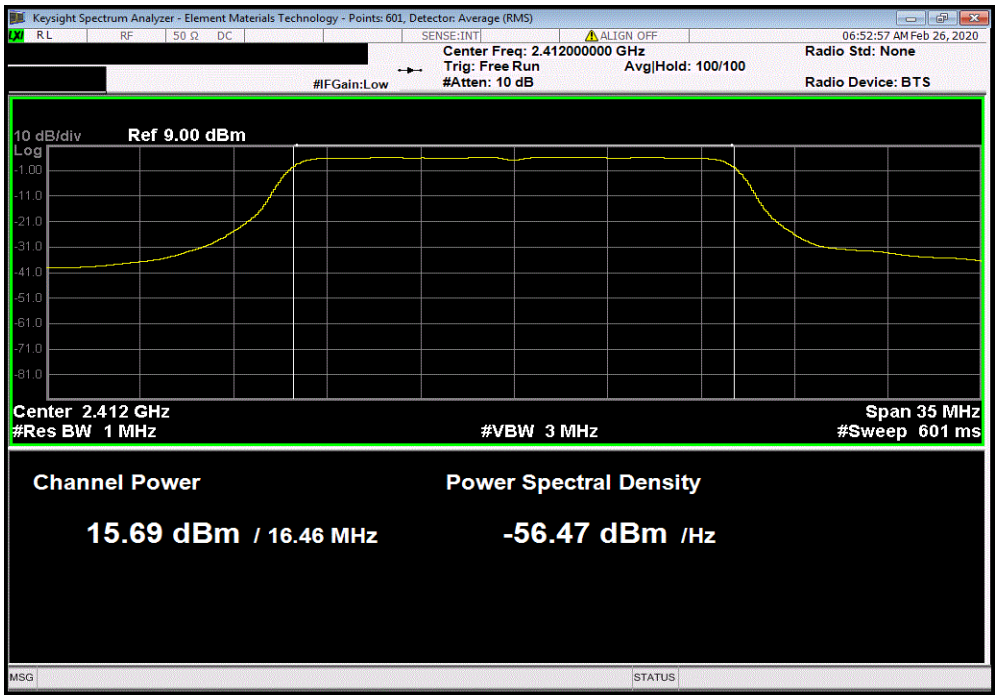
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		17.503	0	17.5	30	Pass



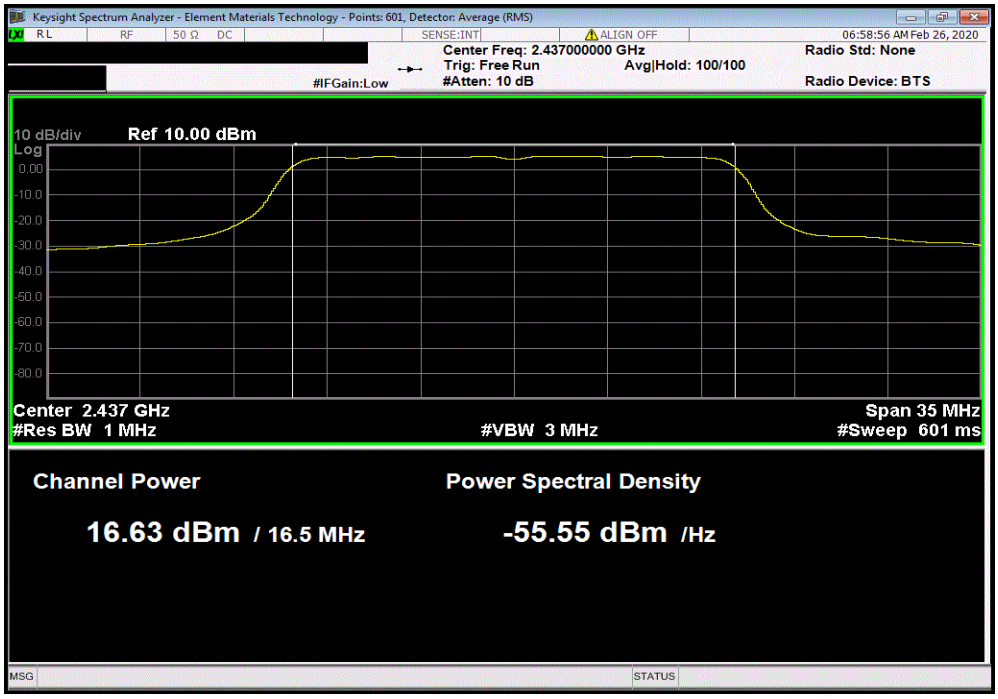
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(b) 11 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		17.606	0	17.6	30	Pass



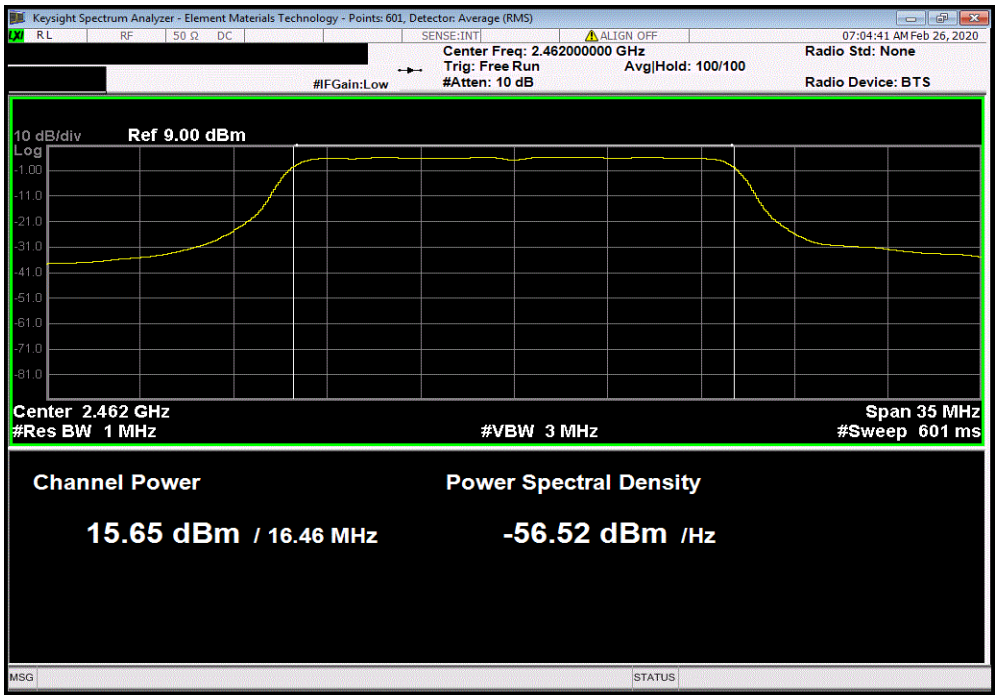
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.689	0	15.7	30	Pass



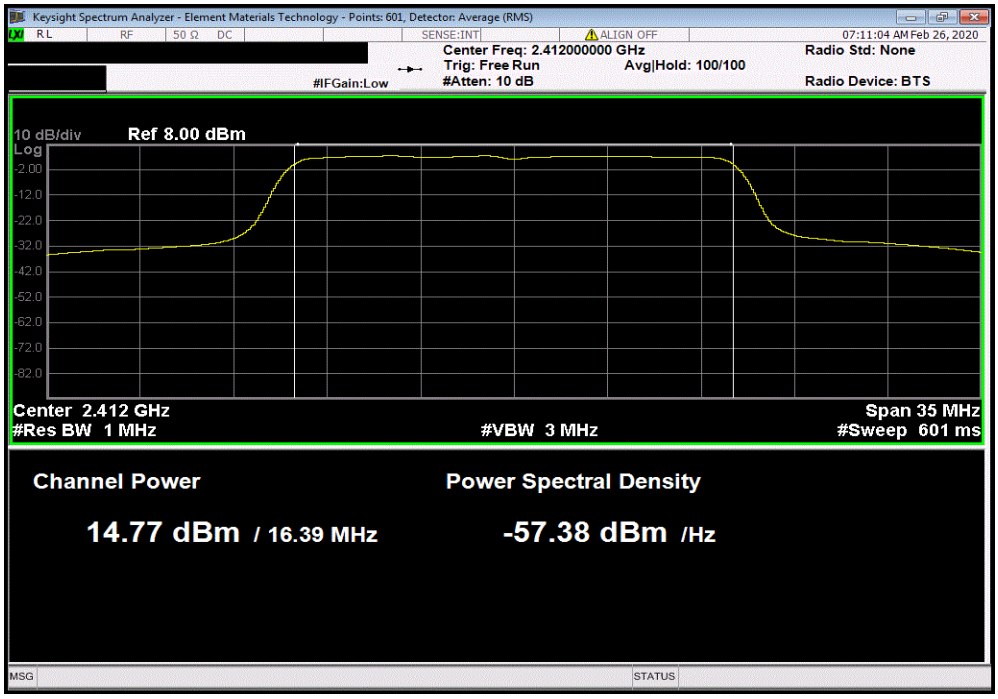
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.628	0	16.6	30	Pass



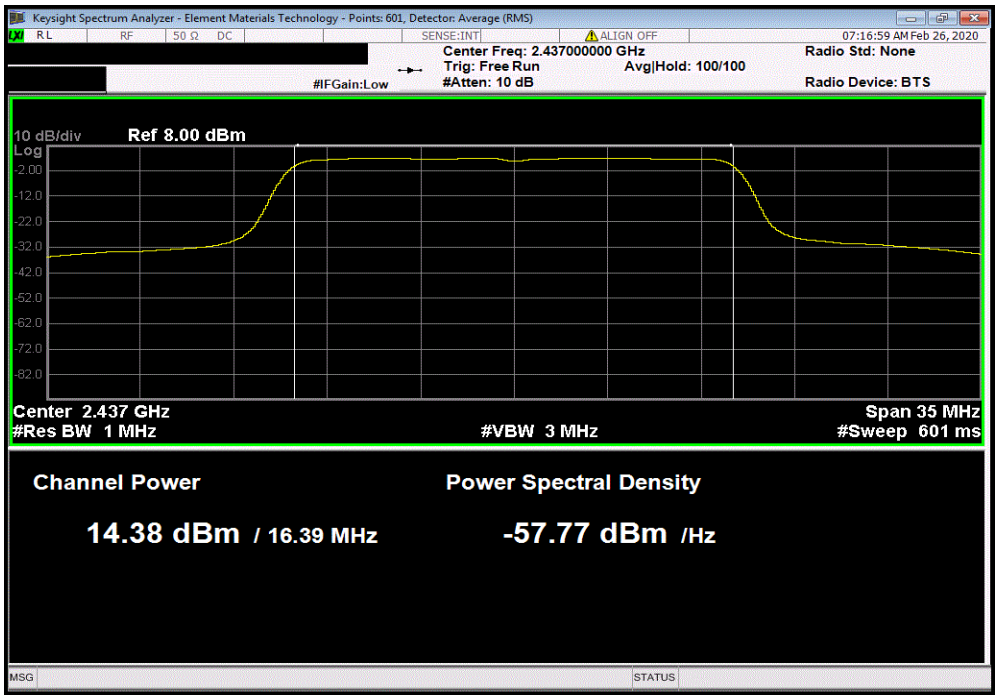
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.649	0	15.6	30	Pass



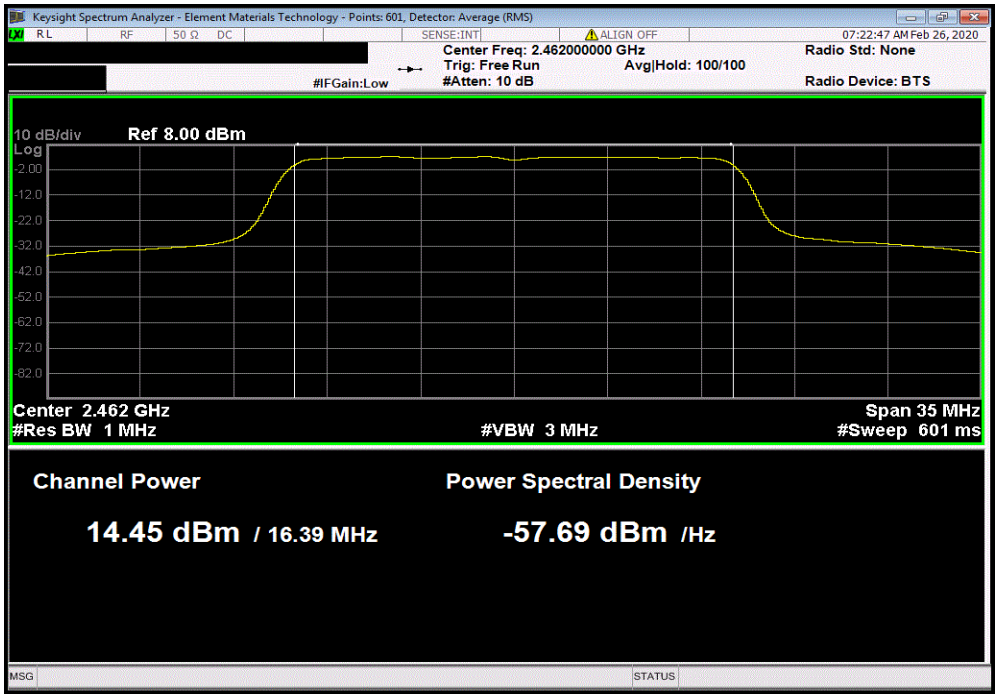
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		14.768	0	14.8	30	Pass



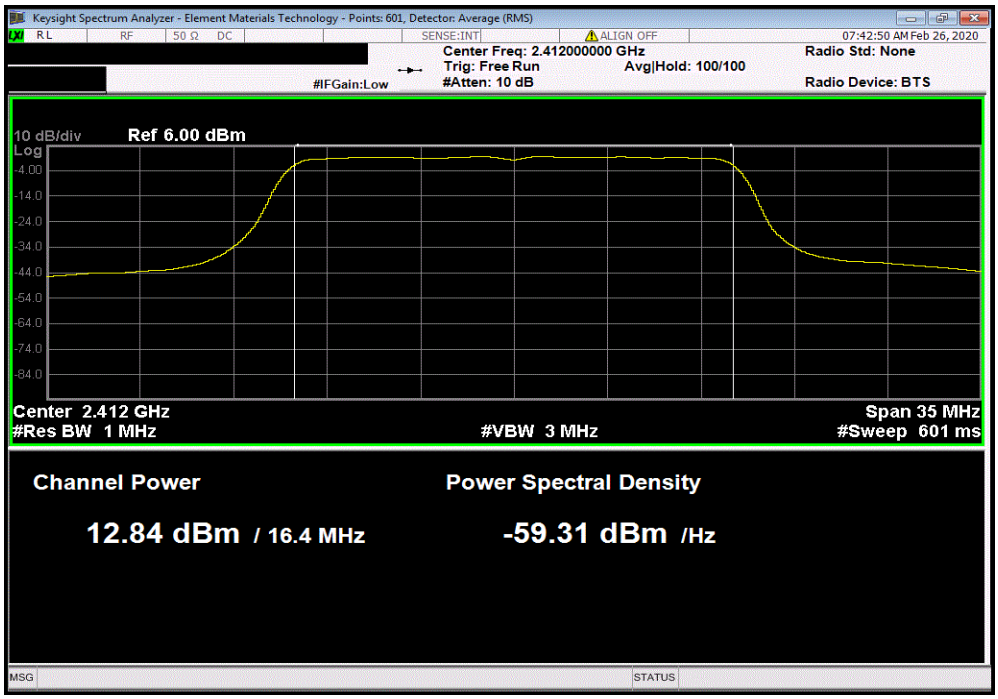
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		14.381	0	14.4	30	Pass



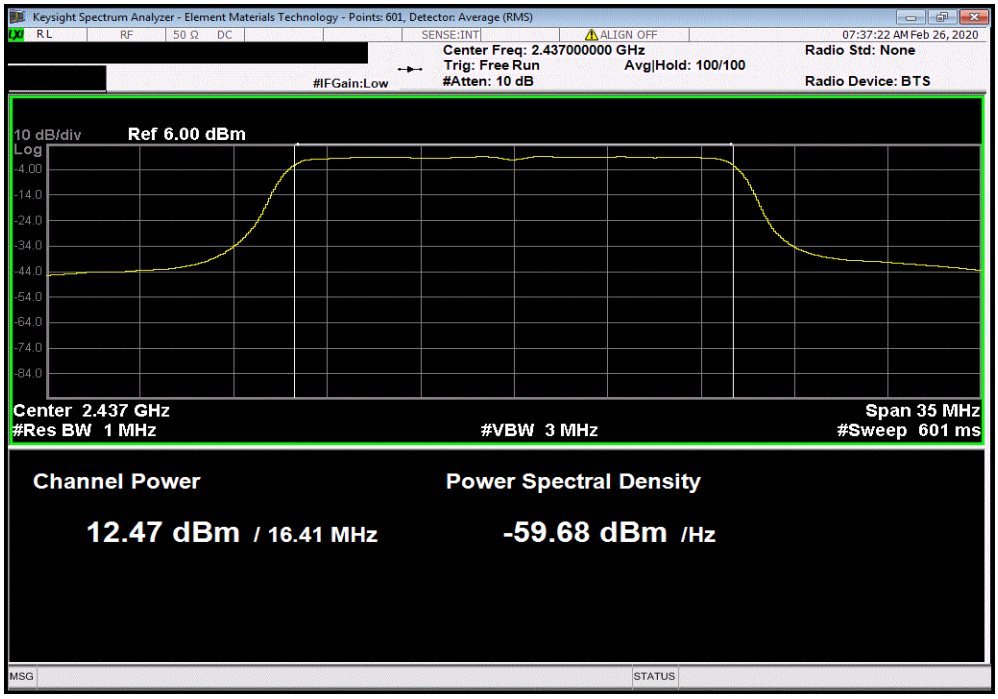
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 36 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		14.453	0	14.5	30	Pass



2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.839	0	12.8	30	Pass

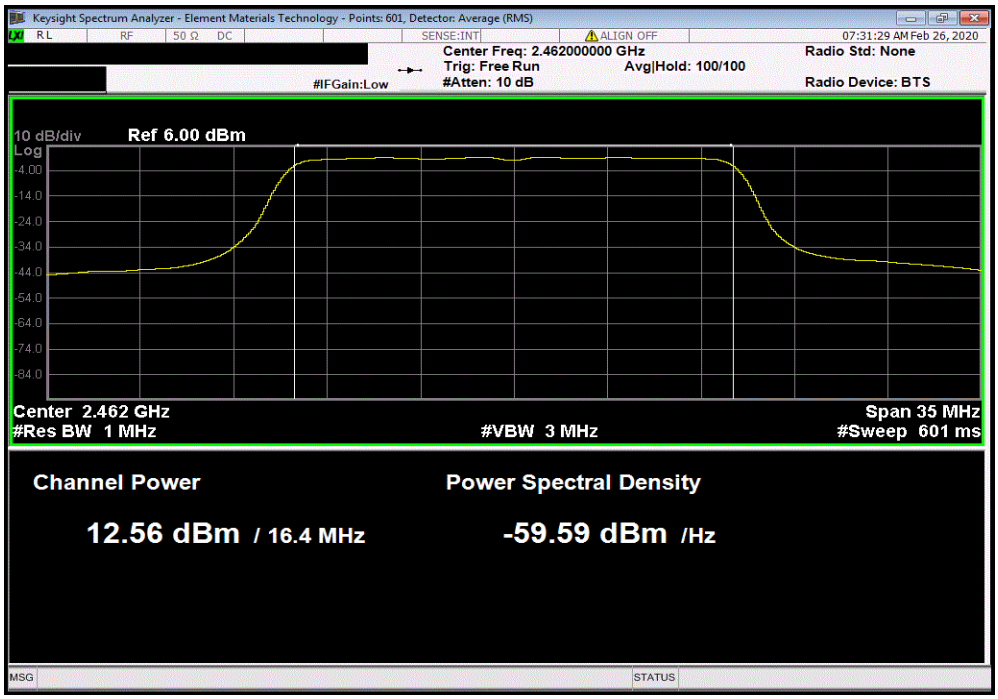


2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.472	0	12.5	30	Pass

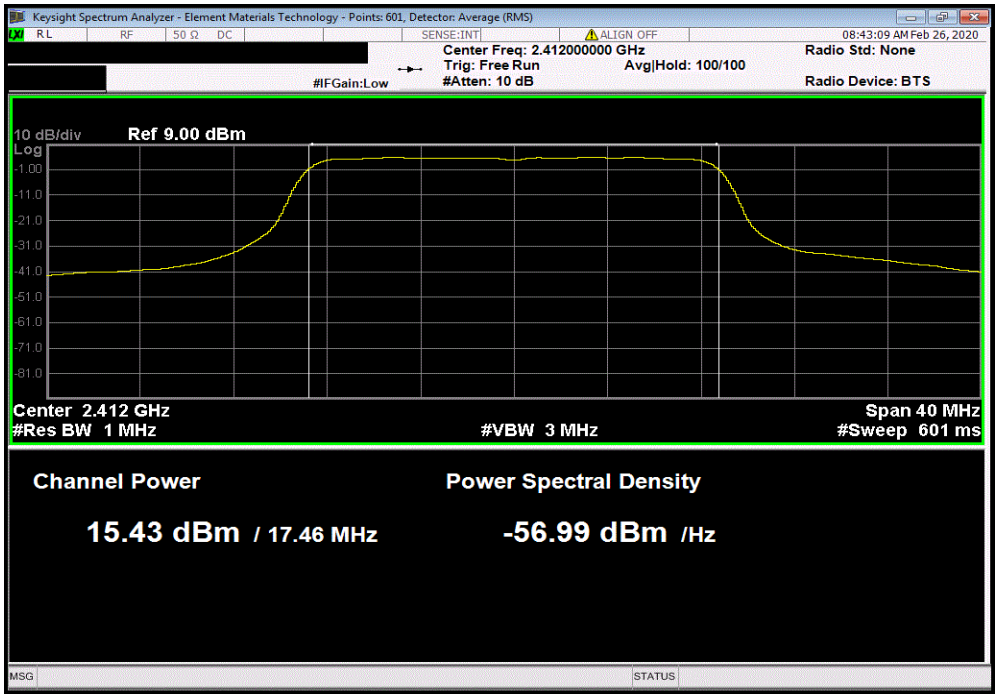


OUTPUT POWER

2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(g) 54 Mbps, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		12.559	0	12.6	30	Pass

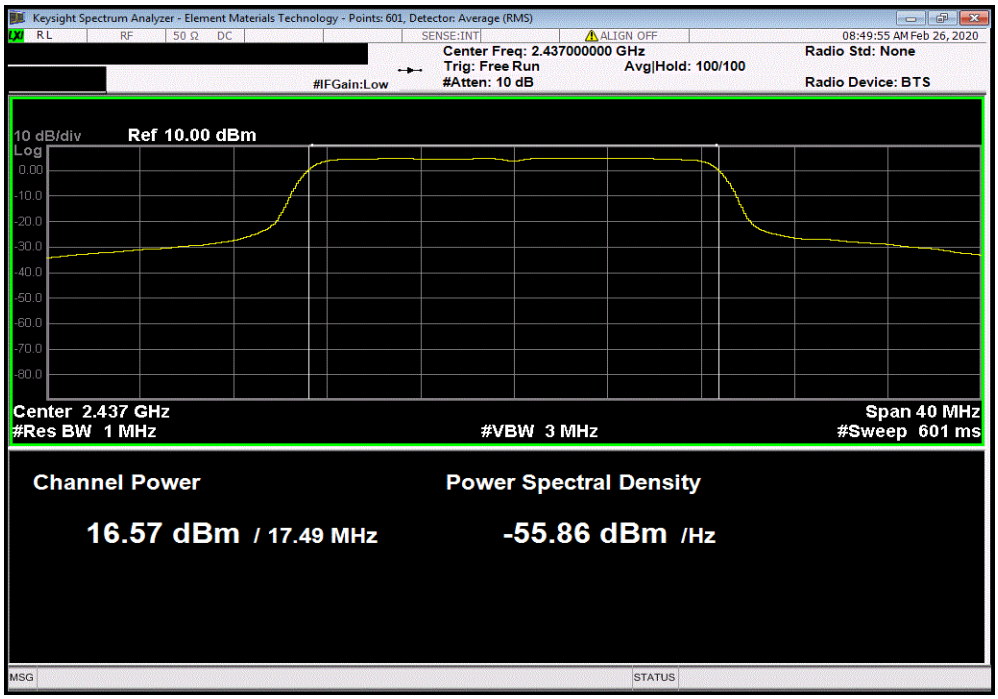


2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.428	0	15.4	30	Pass

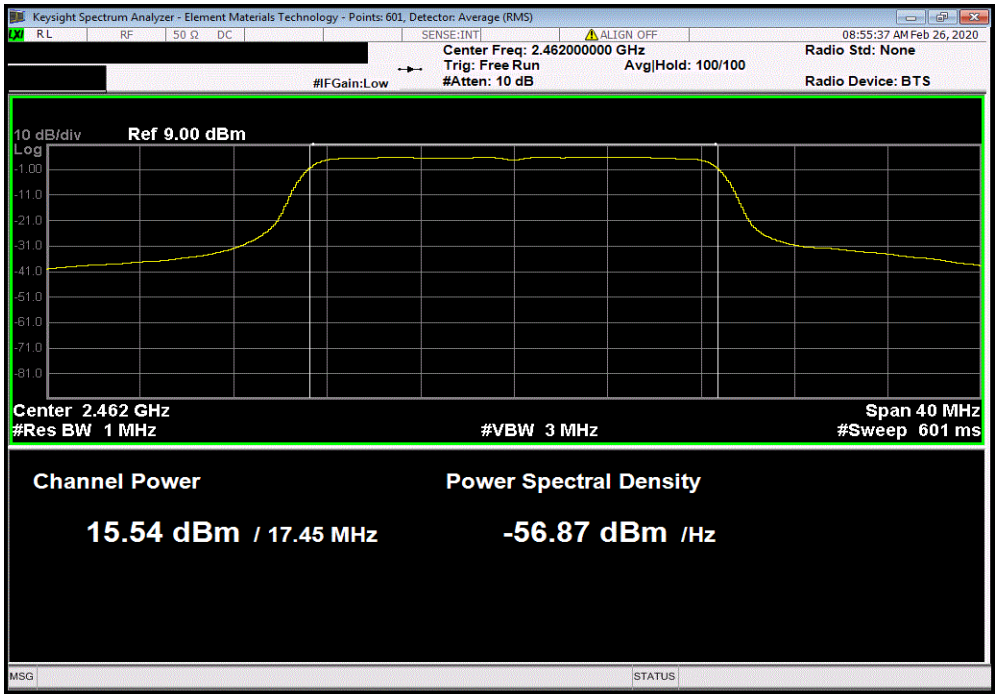


OUTPUT POWER

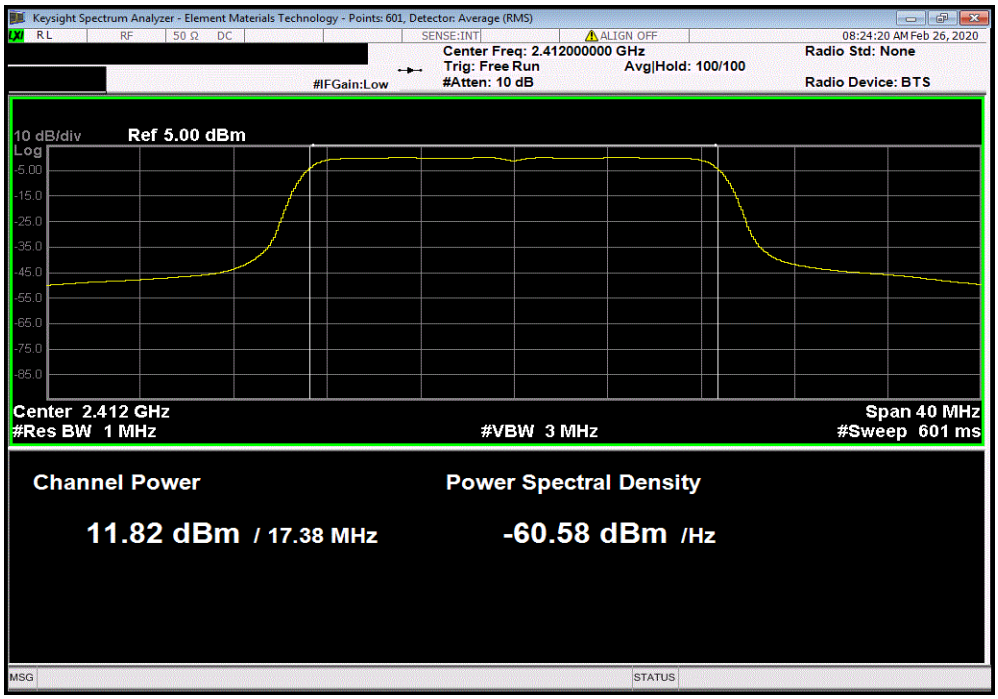
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.565	0	16.6	30	Pass



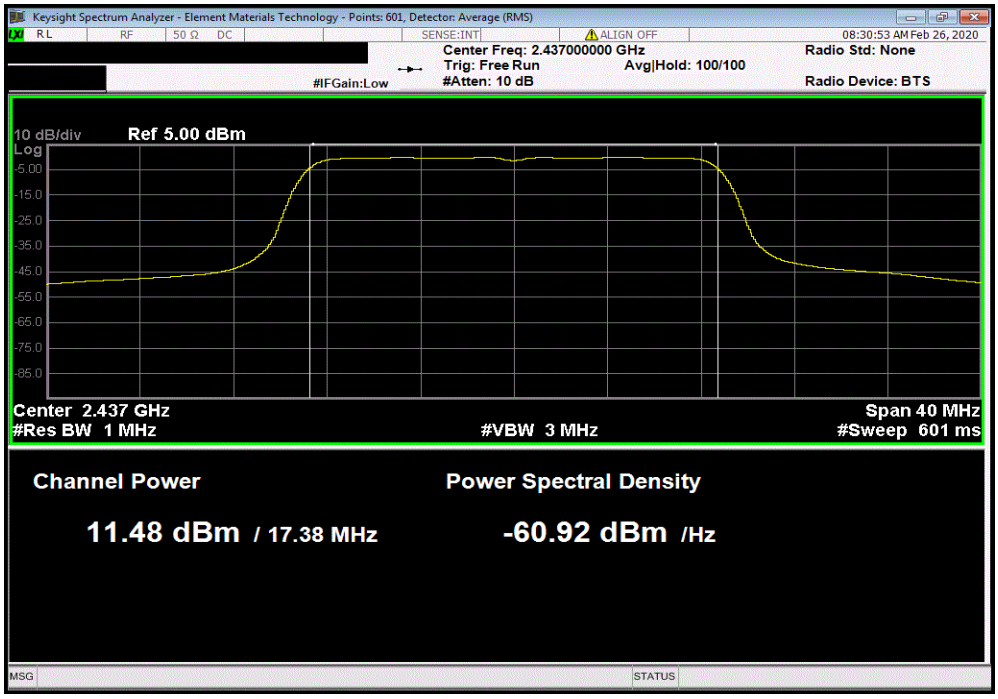
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS0, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.545	0	15.5	30	Pass



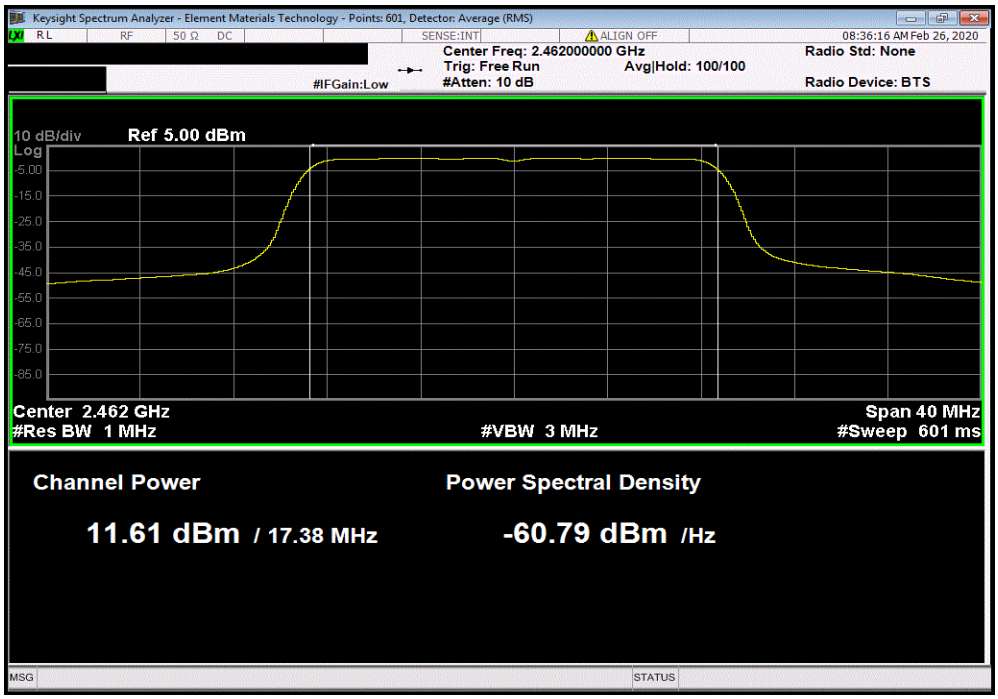
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1, 2412 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.815	0	11.8	30	Pass



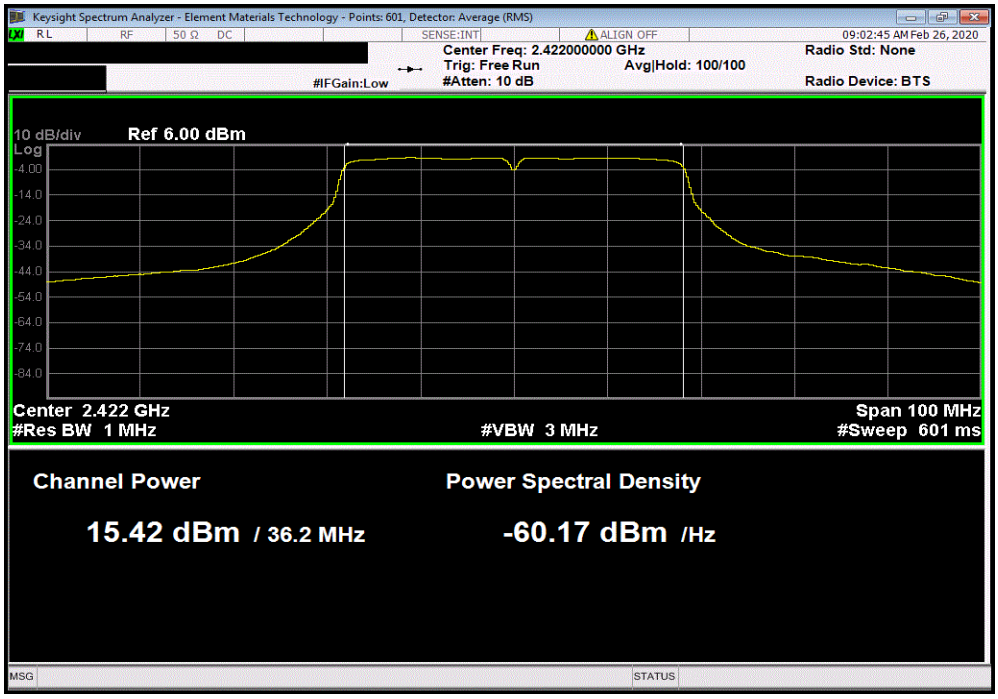
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 6, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.477	0	11.5	30	Pass



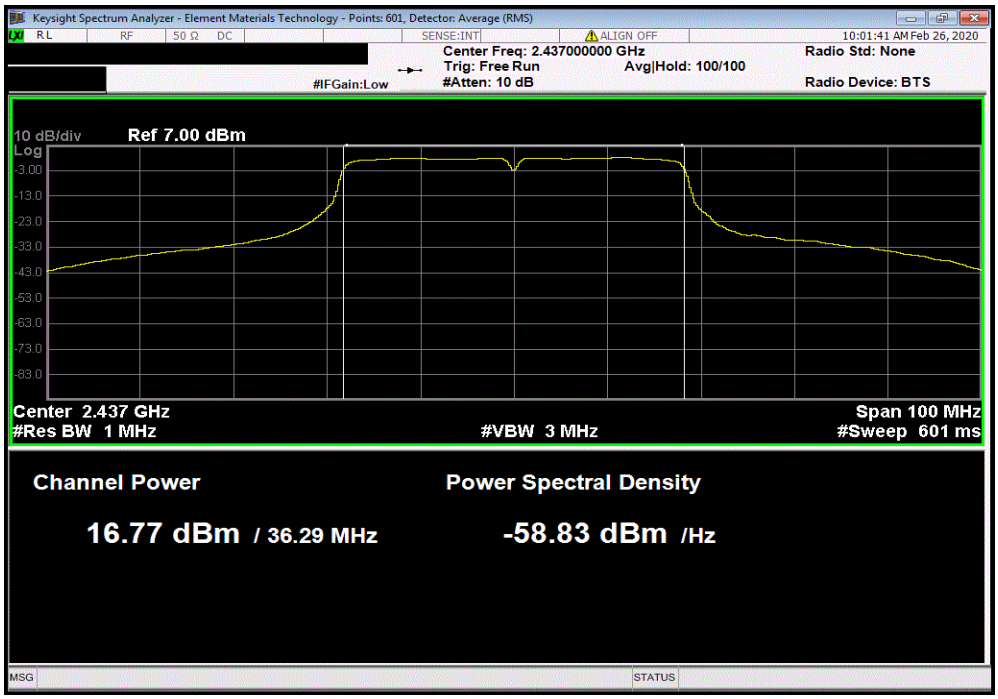
2400 MHz - 2483.5 MHz Band, 20 MHz Bandwidth, 802.11(n) MCS7, High Channel 11, 2462 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.606	0	11.6	30	Pass



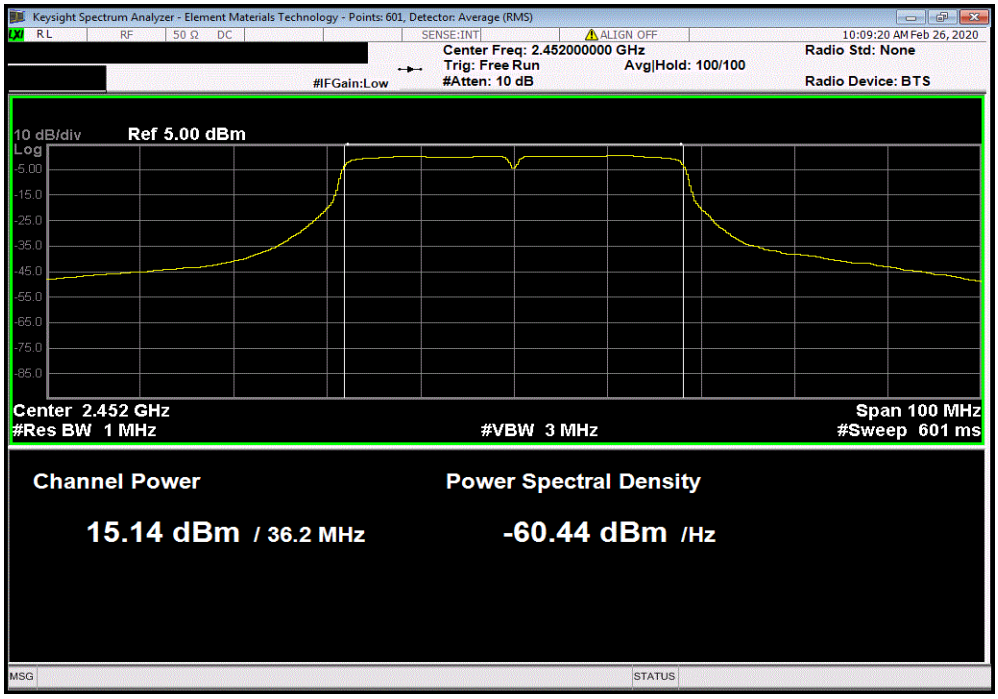
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.416	0	15.4	30	Pass



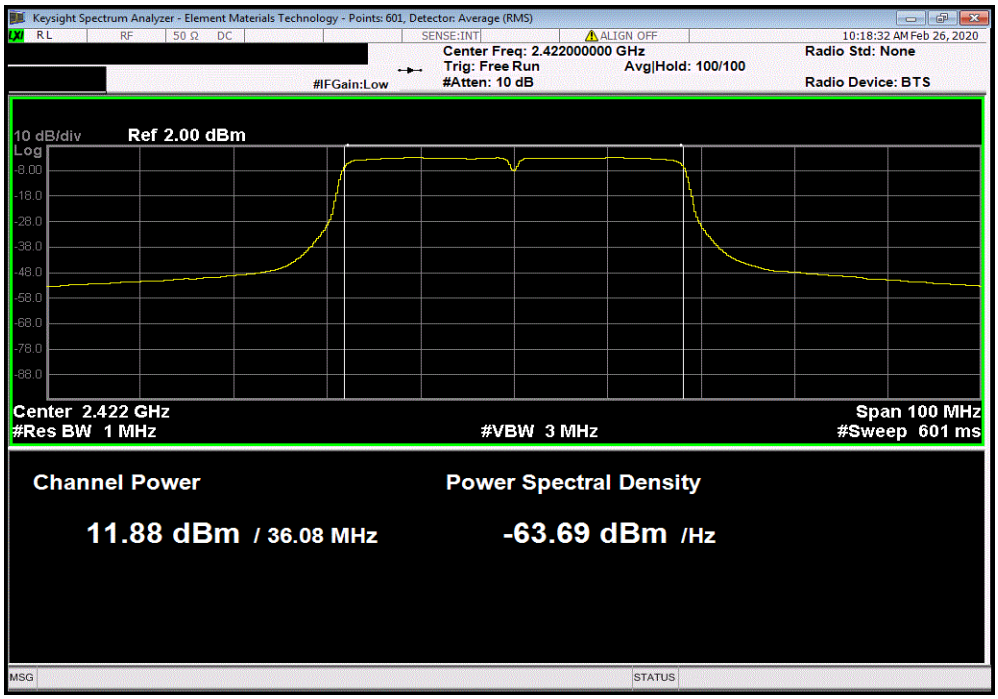
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		16.771	0	16.8	30	Pass



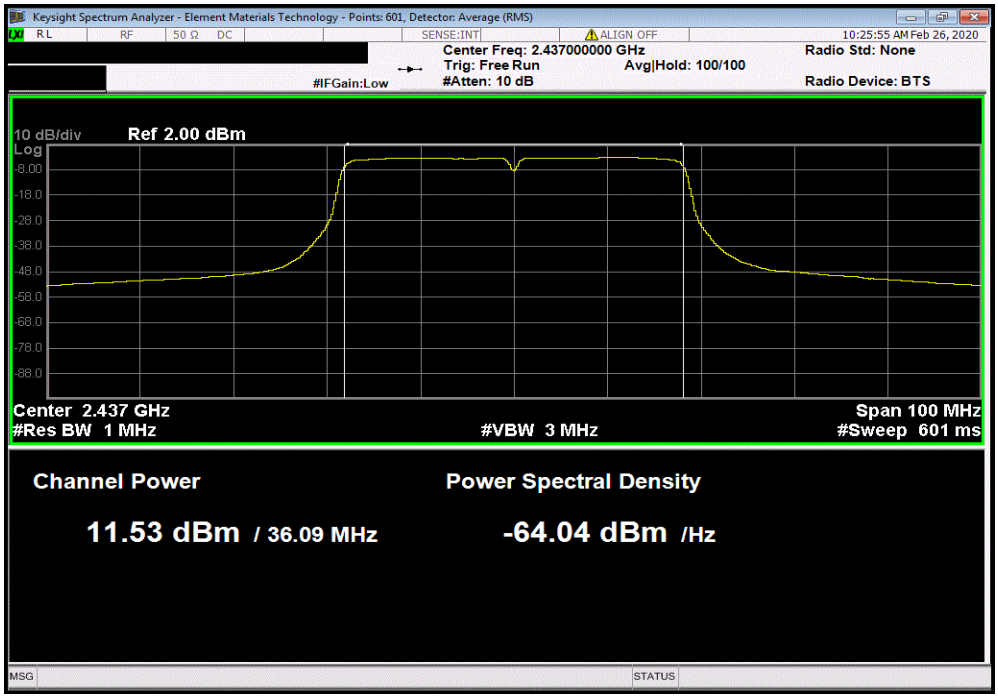
2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		15.144	0	15.1	30	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Low Channel 1/5, 2422 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.879	0	11.9	30	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, Mid Channel 4/8, 2437 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.533	0	11.5	30	Pass



2400 MHz - 2483.5 MHz Band, 40 MHz Bandwidth, 802.11(n) MCS7, High Channel 7/11, 2452 MHz						
		Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Out Pwr (dBm)	Limit (dBm)	Result
		11.713	0	11.7	30	Pass