



American Portwell Technology Inc.

Dual Band Wireless-AC 3160 Module

FCC 15.207:2017

FCC 15.247:2017

802.11bgn Radio

Report # APPR0043



NVLAP Lab Code: 201049-0

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CERTIFICATE OF TEST

Last Date of Test: May 23, 2017
American Portwell Technology Inc.
Model: Dual Band Wireless-AC 3160 Module

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2017	ANSI C63.10:2013
FCC 15.247:2017	

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	No	N/A	Not required for C2PC based on product description
11.9.2.2.4	Output Power	Yes	Pass	
11.10.2	Power Spectral Density	No	N/A	Not required for C2PC based on product description
11.11	Band Edge Compliance	No	N/A	Not required for C2PC based on product description
11.11	Spurious Conducted Emissions	No	N/A	Not required for C2PC based on product description

Deviations From Test Standards

None

Approved By:

Jeremiah Darden, 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.

REVISION HISTORY



Revision Number		Description	Date	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). Certification chambers and Open Area Test Sites are filed with ISED.

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

MSIP / 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:

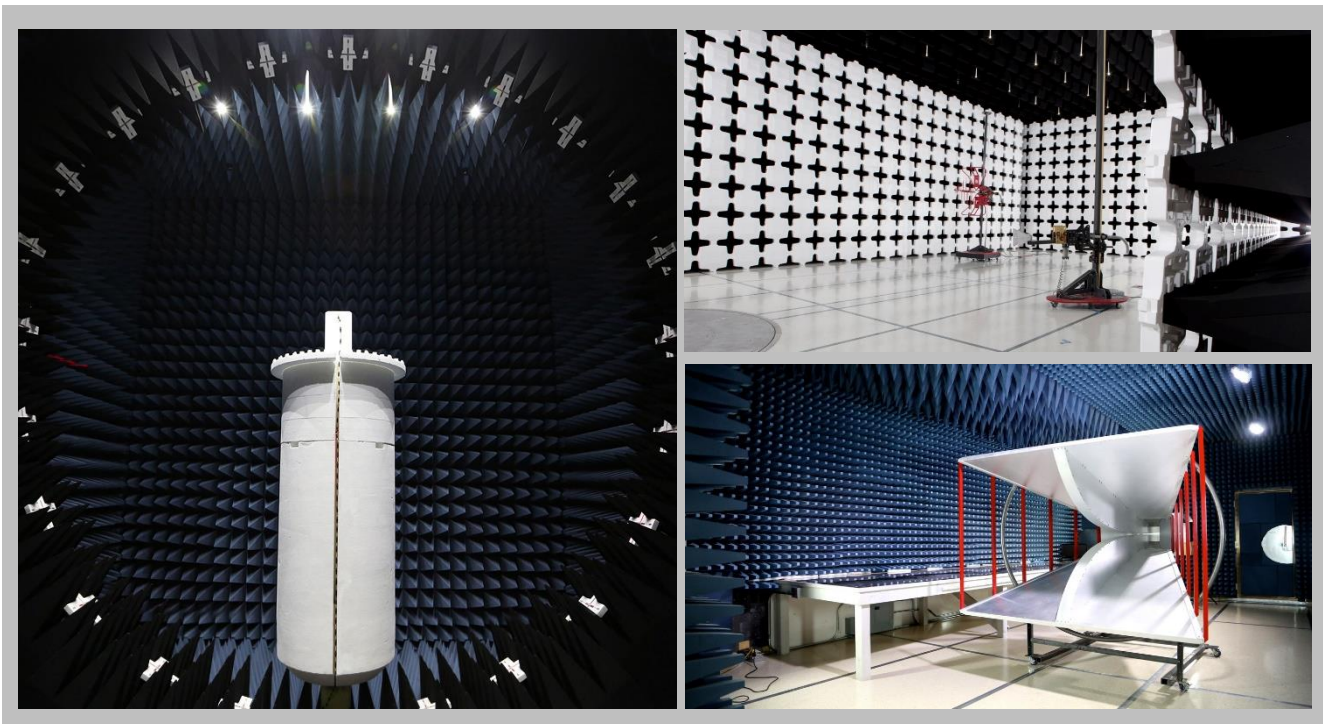
<http://portlandcustomer.element.com/ts/scope/scope.htm>

<http://gsi.nist.gov/global/docs/cabs/designations.html>

FACILITIES



California Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Oregon Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	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	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
BSMI					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA					
US0158	US0175	N/A	US0017	US0191	US0157



MEASUREMENT UNCERTAINTY

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.

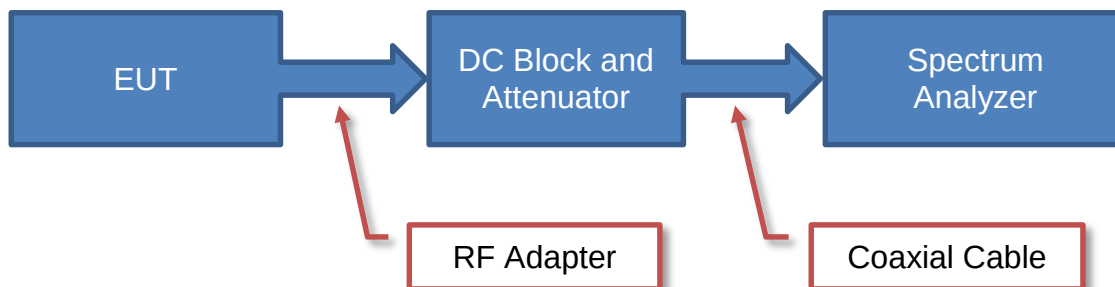
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable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

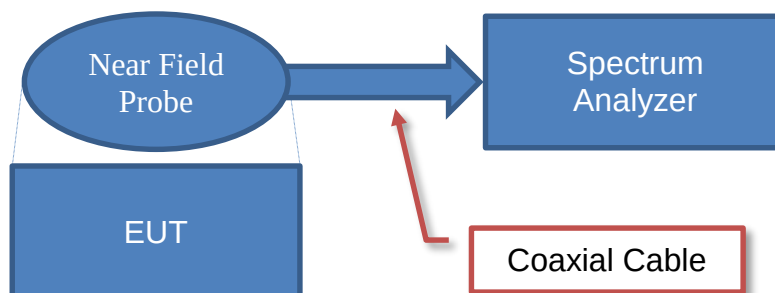
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	4.9 dB	-4.9 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

Test Setup Block Diagrams

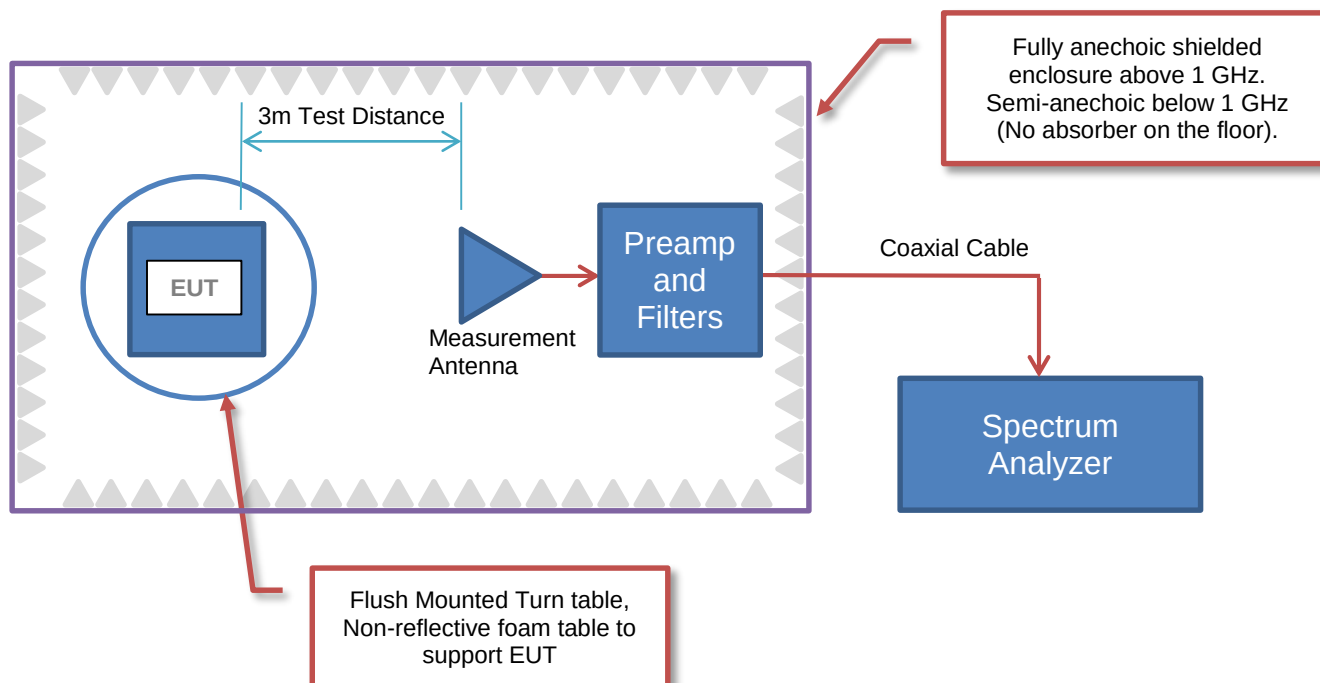
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions





PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	American Portwell Technology Inc.
Address:	44200 Christy Street
City, State, Zip:	Fremont, CA 94538
Test Requested By:	Brian Zhang
Model:	Dual Band Wireless-AC 3160 Module
First Date of Test:	May 10, 2017
Last Date of Test:	May 23, 2017
Receipt Date of Samples:	April 24, 2017
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

The equipment under test (EUT) consists of an Intel Atom Nano 6060 motherboard combined with an Intel dual band wireless module, 2.5" SATA 128 GB SSD, 8Gb DDR3L memory and GPIO connection for enabling and disabling the WiFi. The dual band wireless radio is a pre-certified unit (FCC ID: 2AMLS-MWISP, IC: 22866-MWISP, EU-Type Examination Cert Registration#: 60118682 001). This report is to support the change of the antennas to a dipole version (dipole + extension cable with an assembly gain of 2.6dBi for 2.4GHz and 3.41dBi for 5GHz). The radio module was tested outside of its normal aluminum chassis in a standalone configuration, where applicable.

This product is being developed for use in a GE Healthcare system. As such, the EUT will be mounted in their system for some of the tests. The GE system is the workstation for a mobile X-Ray system. The workstation functions to control an X-Ray generator, Flat Panel Photon detector and other electronics. The X-Ray images are passed through an interconnect cable to the mobile workstations which receives and processes the images. The EUT is used to wirelessly send images to a Patient Archival System (PACS) using a standard DICOM format.

Testing Objective:

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

CONFIGURATIONS



Configuration APPR0043- 1

Software/Firmware Running during test	
Description	Version
Intel DRTU Tool	1.7.7-02972

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Intel WiFi Radio Module	Intel Corporation	3160HMMW	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
LCD Monitor	NEC	E224Wi-BK	41103503NA
USB Mouse	Microsoft	1113	91705-523-2412291-21449
WiSP Module	American Portwell Technology Inc.	MWISP6060	None
USB Keyboard	Lenovo	KB1021	0002643
AC/DC Adapter	FSP Group Inc.	FSP060-DIBAN2	H6481000940
Wireless Switch	Unknown	Unknown	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power (Monitor)	No	1.8m	No	AC Mains	LCD Monitor
DisplayPort	Yes	3m	No	LCD Monitor	WiSP Module
USB (Mouse)	Yes	2.5m	No	USB Mouse	WiSP Module
USB (Keyboard)	Yes	2.5m	No	USB Keyboard	WiSP Module
AC Power (Adapter)	No	1.8m	Yes	AC Mains	AC/DC Adapter
DC Power (Adapter)	No	1.5m	No	AC/DC Adapter	WiSP Module
Wireless Switch Control	No	2.2m	No	Wireless Switch	WiSP Module
u.FL to RP-SMA	Yes	0.3m	No	Intel WiFi Radio Module	50 ohm termination
u.FL to RP-SMA	Yes	0.3m	No	Intel WiFi Radio Module	signal analyzer

CONFIGURATIONS



Configuration APPR0043- 2

Software/Firmware Running during test	
Description	Version
Intel DRTU Tool	1.7.7-02972

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Intel WiFi Radio Module	Intel Corporation	3160HMW	None

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
WiSP Module	American Portwell Technology Inc.	MWISP6060	None
AC/DC Adapter	FSP Group Inc.	FSP060-DIBAN2	H6481000940
Wireless Switch	Unknown	Unknown	None
Dipole Antenna x2	M.gear	C1685-510008-A	None

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
LCD Monitor	NEC	E224Wi-BK	41103503NA
USB Mouse	Microsoft	1113	91705-523-2412291-21449
USB Keyboard	Lenovo	KB1021	0002643

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power (Monitor)	No	1.8m	No	AC Mains	LCD Monitor
DisplayPort	Yes	3m	No	LCD Monitor	WiSP Module
USB (Mouse)	Yes	2.5m	No	USB Mouse	WiSP Module
USB (Keyboard)	Yes	2.5m	No	USB Keyboard	WiSP Module
AC Power (Adapter)	No	1.8m	Yes	AC Mains	AC/DC Adapter
DC Power (Adapter)	No	1.5m	No	AC/DC Adapter	WiSP Module
Wireless Switch Control	No	2.2m	No	Wireless Switch	WiSP Module
u.FL to RP-SMA x2	Yes	0.3m	No	Intel WiFi Radio Module	RP-SMA to SMA cable
RP-SMA to SMA x2	Yes	0.55m	No	u.FL to RP-SMA cable	Dipole Antenna

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	5/10/2017	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.
2	5/10/2017	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.
3	5/22/2017	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.
4	5/23/2017	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWER TABLE



US – DTS (2.4GHz) Transmit Power Table

Mode	BW (MHz)	Chanel Frequency (MHz)	RF Output Power at Main RF (dBm)
802.11b	20	2412	16.5
		2437	16.5
		2462	16.5
802.11g	20	2412	14.5
		2437	16.5
		2462	14.5
802.11n	20	2412	14.5
		2437	16.5
		2462	14.5
802.11n	40	2422	13
		2437	16.5
		2452	14

POWERLINE CONDUCTED EMISSIONS



WTD.2017.03.21

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	ESCI	ARF	6/22/2016	6/22/2017
Cable - Conducted Cable Assembly	Element	TXA, HHZ, TQR	TXAA	4/17/2017	4/17/2018
LISN	Solar Electronics	9252-50-R-24-BNC	LJK	9/21/2016	9/21/2017

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

APPR0043-2

MODES INVESTIGATED

Transmitting at Mid Ch 6 (2437MHz)

POWERLINE CONDUCTED EMISSIONS



EUT:	Dual Band Wireless-AC 3160 Module	Work Order:	APPR0043
Serial Number:	None	Date:	05/22/2017
Customer:	American Portwell Technology Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	46.4%
Customer Project:	None	Bar. Pressure:	1021 mb
Tested By:	Jonathan Kiefer	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	APPR0043-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	34	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

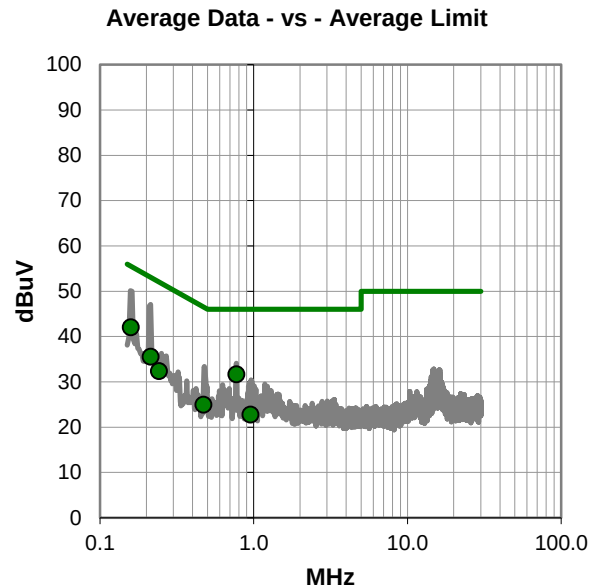
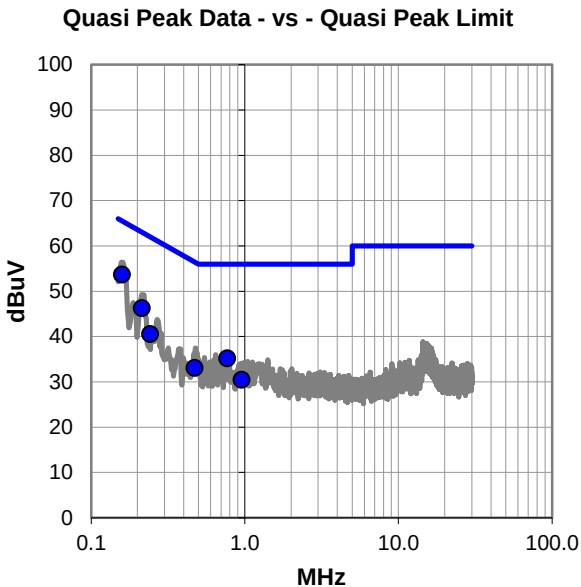
1 Mbps data rate. See power table for output power settings used.

EUT OPERATING MODES

Transmitting at Mid Ch 6 (2437MHz)

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS



WTD 2017.03.21

RESULTS - Run #34

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.159	33.9	19.8	53.7	65.5	-11.8
0.214	26.5	19.8	46.3	63.1	-16.8
0.770	15.2	20.0	35.2	56.0	-20.8
0.242	20.9	19.7	40.6	62.0	-21.4
0.471	13.2	19.9	33.1	56.5	-23.4
0.953	10.5	20.0	30.5	56.0	-25.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.159	22.3	19.8	42.1	55.5	-13.4
0.770	11.7	20.0	31.7	46.0	-14.3
0.214	15.8	19.8	35.6	53.1	-17.5
0.242	12.7	19.7	32.4	52.0	-19.6
0.471	5.1	19.9	25.0	46.5	-21.5
0.953	2.8	20.0	22.8	46.0	-23.2

CONCLUSION

Pass

Jonathan Kiefer

Tested By

POWERLINE CONDUCTED EMISSIONS



WTD 2017.03.21

EUT:	Dual Band Wireless-AC 3160 Module	Work Order:	APPR0043
Serial Number:	None	Date:	05/22/2017
Customer:	American Portwell Technology Inc.	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	46.4%
Customer Project:	None	Bar. Pressure:	1021 mb
Tested By:	Jonathan Kiefer	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	APPR0043-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	35	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

1 Mbps data rate. See power table for output power settings used.

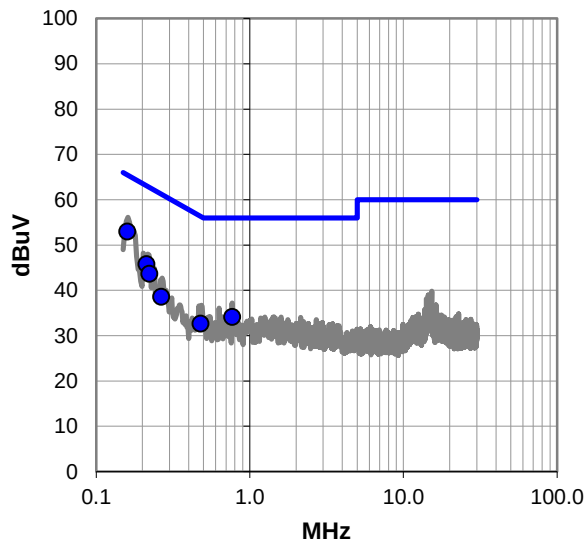
EUT OPERATING MODES

Transmitting at Mid Ch 6 (2437MHz)

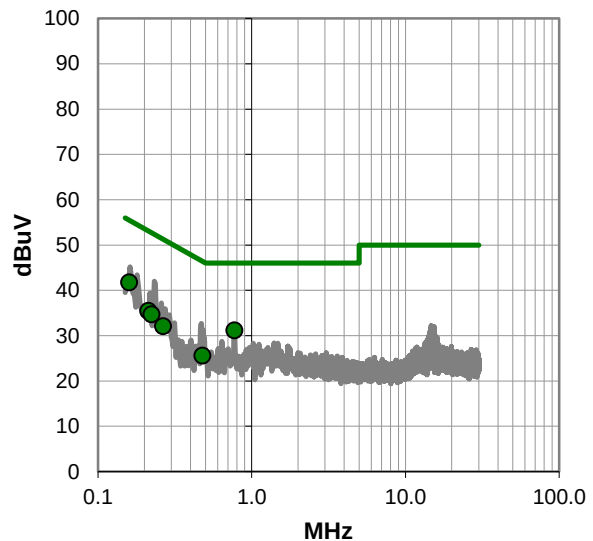
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS



WTD 2017.03.21

RESULTS - Run #35

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.160	33.2	19.8	53.0	65.5	-12.5
0.212	25.9	19.9	45.8	63.1	-17.3
0.222	23.9	19.8	43.7	62.7	-19.0
0.769	14.2	20.0	34.2	56.0	-21.8
0.265	18.9	19.7	38.6	61.3	-22.7
0.478	12.8	19.9	32.7	56.4	-23.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.160	22.0	19.8	41.8	55.5	-13.7
0.769	11.2	20.0	31.2	46.0	-14.8
0.212	15.6	19.9	35.5	53.1	-17.6
0.222	14.9	19.8	34.7	52.7	-18.0
0.265	12.4	19.7	32.1	51.3	-19.2
0.478	5.7	19.9	25.6	46.4	-20.8

CONCLUSION

Pass

Jonathan Kiefer

Tested By

SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2017.01.26

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 Continuously at Low Ch 2422 MHz, Mid Ch 2437 MHz, High Ch 2452 MHz

Transmitting Continuously at Low Ch 2412 MHz, Mid Ch 2437 MHz, High Ch 2462 MHz

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

APPR0043 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26500 MHz
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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
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	8/5/2016	12 mo
Attenuator	Weinschel Corp	4H-20	AWB	3/3/2017	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HGC	3/1/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAM	11/18/2016	12 mo
Antenna - Double Ridge	A.H. Systems, Inc.	SAS-574	AXW	8/5/2016	24 mo
Cable	Element	18-40GHz	TXE	11/18/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	10/12/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	10/18/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AJF	NCR	0 mo
Cable	Element	8-18GHz	TXD	5/31/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	5/31/2017	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJN	9/15/2016	24 mo
Cable	Element	1-8.2 GHz	TXC	5/31/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1551	PAH	11/9/2016	12 mo
Antenna - Biconilog	ETS Lindgren	3143B	AYF	4/13/2016	24 mo
Cable	Element	RE 9kHz - 1GHz	TXB	11/9/2016	12 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	10/4/2016	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

SPURIOUS RADIATED EMISSIONS



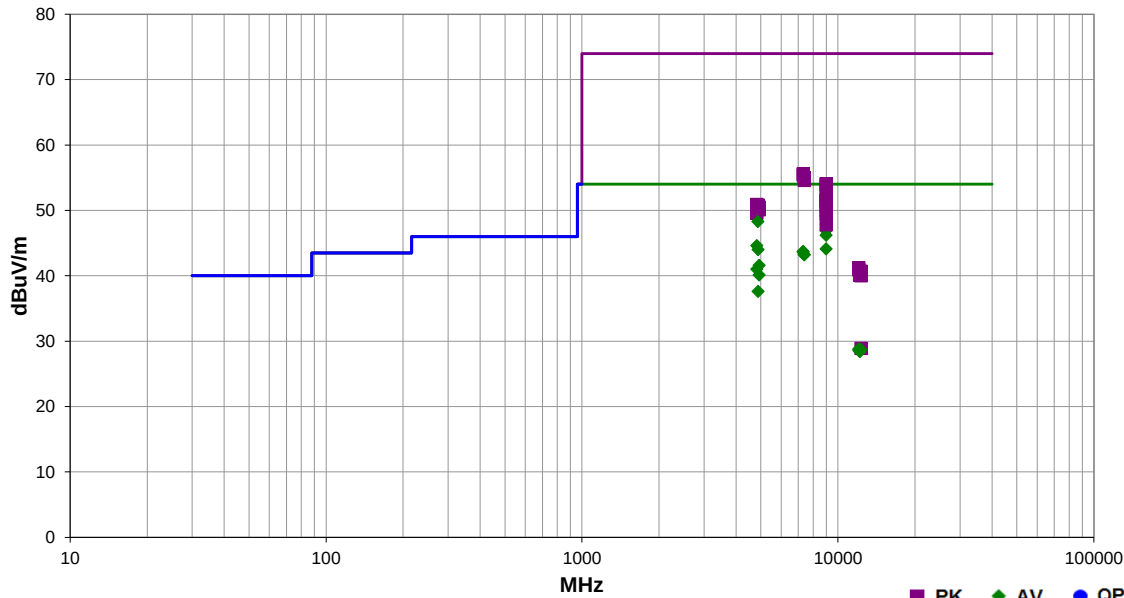
EmiR5 2017.01.25

PSA-ESCI 2017.01.26

Work Order:	APPR0043	Date:	05/23/17	
Project:	None	Temperature:	22.8 °C	
Job Site:	TX02	Humidity:	46.7% RH	
Serial Number:	None	Barometric Pres.:	1015 mbar	
		Tested by: Jonathan Kiefer		
EUT:	Dual Band Wireless-AC 3160 Module			
Configuration:	2			
Customer:	American Portwell Technology Inc.			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Continuously at Low Ch 2412 MHz, Mid Ch 2437 MHz, High Ch 2462 MHz			
Deviations:	None			
Comments:	Harmonics for 20 MHz bandwidth channels. See power table for output power settings used.			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	14	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
9000.363	56.4	-4.4	2.5	336.0	3.0	0.0	Vert	AV	0.0	52.0	54.0	-2.0	High Ch, EUT Horizontal, 11 Mbps
9000.388	56.2	-4.4	2.6	336.0	3.0	0.0	Vert	AV	0.0	51.8	54.0	-2.2	High Ch, EUT Horizontal, 6 Mbps
9000.378	56.0	-4.4	2.7	339.0	3.0	0.0	Vert	AV	0.0	51.6	54.0	-2.4	High Ch, EUT Horizontal, 1 Mbps
9000.353	55.0	-4.4	2.2	334.9	3.0	0.0	Vert	AV	0.0	50.6	54.0	-3.4	High Ch, EUT Vertical, 1 Mbps
9000.380	54.1	-4.4	1.3	348.0	3.0	0.0	Vert	AV	0.0	49.7	54.0	-4.3	High Ch, EUT Horizontal, 54 Mbps
9000.380	53.6	-4.4	1.2	351.0	3.0	0.0	Vert	AV	0.0	49.2	54.0	-4.8	High Ch, EUT Horizontal, 36 Mbps
9000.322	53.6	-4.4	1.2	349.0	3.0	0.0	Vert	AV	0.0	49.2	54.0	-4.8	High Ch, EUT Horizontal, MCS0
9000.380	53.4	-4.4	1.2	349.0	3.0	0.0	Vert	AV	0.0	49.0	54.0	-5.0	High Ch, EUT Horizontal, MCS7
9000.387	52.3	-4.4	2.7	342.0	3.0	0.0	Vert	AV	0.0	47.9	54.0	-6.1	High Ch, EUT On Side, 1 Mbps
9000.345	51.3	-4.4	2.6	345.9	3.0	0.0	Horz	AV	0.0	46.9	54.0	-7.1	High Ch, EUT Horizontal, 1 Mbps
9000.328	50.6	-4.4	2.8	81.9	3.0	0.0	Horz	AV	0.0	46.2	54.0	-7.8	High Ch, EUT On Side, 1 Mbps
4823.975	38.4	6.2	1.6	308.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	Low Ch, EUT Horizontal, 1 Mbps
9000.370	48.5	-4.4	1.3	351.9	3.0	0.0	Horz	AV	0.0	44.1	54.0	-9.9	High Ch, EUT Vertical, 1 Mbps
4874.025	37.7	6.3	1.2	309.9	3.0	0.0	Horz	AV	0.0	44.0	54.0	-10.0	Mid Ch, EUT Horizontal, 1 Mbps
7312.725	30.1	13.6	3.5	300.0	3.0	0.0	Horz	AV	0.0	43.7	54.0	-10.3	Mid Ch, EUT Horizontal, 1 Mbps
7310.008	30.0	13.6	1.2	256.9	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	Mid Ch, EUT Horizontal, 1 Mbps
7385.933	29.6	13.6	1.2	20.0	3.0	0.0	Horz	AV	0.0	43.2	54.0	-10.8	High Ch, EUT Horizontal, 1 Mbps
7388.242	29.6	13.6	1.2	21.9	3.0	0.0	Vert	AV	0.0	43.2	54.0	-10.8	High Ch, EUT Horizontal, 1 Mbps
4924.017	35.1	6.5	1.2	306.0	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	High Ch, EUT Horizontal, 1 Mbps
4823.967	34.8	6.2	3.3	154.9	3.0	0.0	Vert	AV	0.0	41.0	54.0	-13.0	Low Ch, EUT Horizontal, 1 Mbps
4923.833	33.6	6.5	3.3	345.9	3.0	0.0	Vert	AV	0.0	40.1	54.0	-13.9	High Ch, EUT Horizontal, 1 Mbps
4873.942	31.3	6.3	1.2	320.0	3.0	0.0	Vert	AV	0.0	37.6	54.0	-16.4	Mid Ch, EUT Horizontal, 1 Mbps
7311.200	42.0	13.6	3.5	300.0	3.0	0.0	Horz	PK	0.0	55.6	74.0	-18.4	Mid Ch, EUT Horizontal, 1 Mbps

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7312.775	41.8	13.6	1.2	256.9	3.0	0.0	Vert	PK	0.0	55.4	74.0	-18.6	Mid Ch, EUT Horizontal, 1 Mbps
7387.400	41.4	13.6	1.2	20.0	3.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	High Ch, EUT Horizontal, 1 Mbps
7384.017	41.0	13.6	1.2	21.9	3.0	0.0	Vert	PK	0.0	54.6	74.0	-19.4	High Ch, EUT Horizontal, 1 Mbps
9000.338	58.5	-4.4	2.5	336.0	3.0	0.0	Vert	PK	0.0	54.1	74.0	-19.9	High Ch, EUT Horizontal, 11 Mbps
9000.322	58.4	-4.4	2.6	336.0	3.0	0.0	Vert	PK	0.0	54.0	74.0	-20.0	High Ch, EUT Horizontal, 6 Mbps
9000.353	58.1	-4.4	2.7	339.0	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	High Ch, EUT Horizontal, 1 Mbps
9000.447	56.5	-4.4	1.3	348.0	3.0	0.0	Vert	PK	0.0	52.1	74.0	-21.9	High Ch, EUT Horizontal, 54 Mbps
9000.347	56.1	-4.4	1.2	349.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	High Ch, EUT Horizontal, MCS0
9000.322	55.9	-4.4	1.2	351.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	High Ch, EUT Horizontal, 36 Mbps
9000.222	55.9	-4.4	1.2	349.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	High Ch, EUT Horizontal, MCS7
4823.717	44.7	6.2	1.6	308.0	3.0	0.0	Horz	PK	0.0	50.9	74.0	-23.1	Low Ch, EUT Horizontal, 1 Mbps
4874.175	44.5	6.3	1.2	309.9	3.0	0.0	Horz	PK	0.0	50.8	74.0	-23.2	Mid Ch, EUT Horizontal, 1 Mbps
9000.087	55.1	-4.4	2.7	342.0	3.0	0.0	Vert	PK	0.0	50.7	74.0	-23.3	High Ch, EUT On Side, 1 Mbps
4923.617	44.0	6.5	3.3	345.9	3.0	0.0	Vert	PK	0.0	50.5	74.0	-23.5	High Ch, EUT Horizontal, 1 Mbps
4923.708	43.6	6.5	1.2	306.0	3.0	0.0	Horz	PK	0.0	50.1	74.0	-23.9	High Ch, EUT Horizontal, 1 Mbps
9000.362	54.3	-4.4	2.6	345.9	3.0	0.0	Horz	PK	0.0	49.9	74.0	-24.1	High Ch, EUT Horizontal, 1 Mbps
4823.992	43.4	6.2	3.3	154.9	3.0	0.0	Vert	PK	0.0	49.6	74.0	-24.4	Low Ch, EUT Horizontal, 1 Mbps
9000.420	53.9	-4.4	2.8	81.9	3.0	0.0	Horz	PK	0.0	49.5	74.0	-24.5	High Ch, EUT On Side, 1 Mbps
12310.630	30.4	-1.5	1.0	153.9	3.0	0.0	Vert	AV	0.0	28.9	54.0	-25.1	High Ch, EUT Horizontal, 1 Mbps
12058.070	31.0	-2.2	4.0	183.0	3.0	0.0	Horz	AV	0.0	28.8	54.0	-25.2	Low Ch, EUT Horizontal, 1 Mbps
12308.130	30.3	-1.6	1.2	219.0	3.0	0.0	Horz	AV	0.0	28.7	54.0	-25.3	High Ch, EUT Horizontal, 1 Mbps
12182.530	30.6	-2.0	3.3	249.9	3.0	0.0	Horz	AV	0.0	28.6	54.0	-25.4	Mid Ch, EUT Horizontal, 1 Mbps
12058.280	30.8	-2.2	1.2	289.0	3.0	0.0	Vert	AV	0.0	28.6	54.0	-25.4	Low Ch, EUT Horizontal, 1 Mbps
12184.000	30.4	-2.0	1.2	261.9	3.0	0.0	Vert	AV	0.0	28.4	54.0	-25.6	Mid Ch, EUT Horizontal, 1 Mbps
4872.492	42.0	6.3	1.2	320.0	3.0	0.0	Vert	PK	0.0	48.3	74.0	-25.7	Mid Ch, EUT Horizontal, 1 Mbps
9000.270	52.2	-4.4	1.3	351.9	3.0	0.0	Horz	PK	0.0	47.8	74.0	-26.2	High Ch, EUT Vertical, 1 Mbps
12057.810	43.4	-2.2	4.0	183.0	3.0	0.0	Horz	PK	0.0	41.2	74.0	-32.8	Low Ch, EUT Horizontal, 1 Mbps
12062.080	43.1	-2.2	1.2	289.0	3.0	0.0	Vert	PK	0.0	40.9	74.0	-33.1	Low Ch, EUT Horizontal, 1 Mbps
12309.380	42.2	-1.5	1.0	153.9	3.0	0.0	Vert	PK	0.0	40.7	74.0	-33.3	High Ch, EUT Horizontal, 1 Mbps
12185.440	42.5	-2.0	3.3	249.9	3.0	0.0	Horz	PK	0.0	40.5	74.0	-33.5	Mid Ch, EUT Horizontal, 1 Mbps
12185.700	42.1	-2.0	1.2	261.9	3.0	0.0	Vert	PK	0.0	40.1	74.0	-33.9	Mid Ch, EUT Horizontal, 1 Mbps
12312.200	41.5	-1.5	1.2	219.0	3.0	0.0	Horz	PK	0.0	40.0	74.0	-34.0	High Ch, EUT Horizontal, 1 Mbps

SPURIOUS RADIATED EMISSIONS



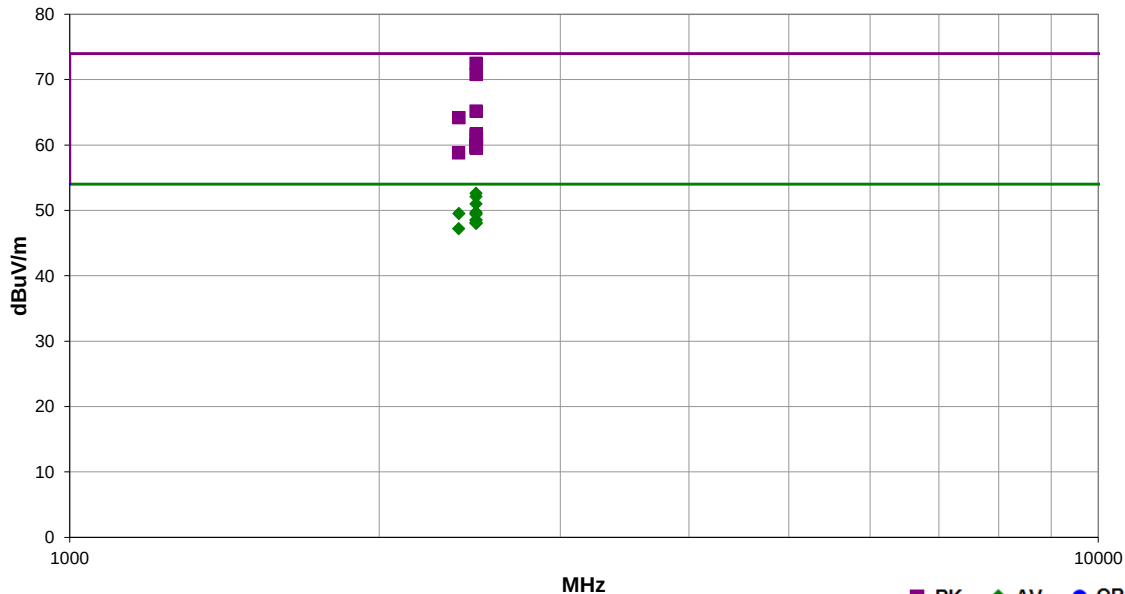
EmiRS 2017.01.25

PSA-ESCI 2017.01.26

Work Order:	APPR0043	Date:	05/23/17	<i>Jonathan Kiefer</i>
Project:	None	Temperature:	22.8 °C	
Job Site:	TX02	Humidity:	46.7% RH	
Serial Number:	None	Barometric Pres.:	1015 mbar	
EUT: Dual Band Wireless-AC 3160 Module				Tested by: Jonathan Kiefer
Configuration:	2			
Customer:	American Portwell Technology Inc.			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Continuously at Low Ch 2412 MHz, High Ch 2462 MHz			
Deviations:	None			
Comments:	Transmit Band Edge for 20 MHz bandwidth channels. See power table for output power settings used.			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	19	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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■ PK ◆ AV ● QP

Freq (MHz)	Calculated Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Marker Delta Comments
2483.500	37.3	-4.7	1.0	100.9	3.0	20.0	Horz	AV	0.0	52.6	54.0	-1.4	High Ch, EUT Horizontal, MCS7
2483.540	57.2	-4.7	1.0	100.9	3.0	20.0	Horz	PK	0.0	72.5	74.0	-1.5	High Ch, EUT Horizontal, MCS7
2483.507	36.8	-4.7	1.2	97.0	3.0	20.0	Horz	AV	0.0	52.1	54.0	-1.9	High Ch, EUT Horizontal, 54 Mbps
2483.507	35.7	-4.7	2.9	116.0	3.0	20.0	Horz	AV	0.0	51.0	54.0	-3.0	High Ch, EUT Horizontal, 1 Mbps
2483.717	55.5	-4.7	1.2	97.0	3.0	20.0	Horz	PK	0.0	70.8	74.0	-3.2	High Ch, EUT Horizontal, 54 Mbps
2483.520	34.4	-4.7	1.2	316.9	3.0	20.0	Horz	AV	0.0	49.7	54.0	-4.3	High Ch, EUT Horizontal, MCS0
2484.103	34.2	-4.7	2.8	333.9	3.0	20.0	Horz	AV	0.0	49.5	54.0	-4.5	High Ch, EUT Horizontal, 6 Mbps
2389.990	34.9	-5.4	1.2	351.0	3.0	20.0	Horz	AV	0.0	49.5	54.0	-4.5	High Ch, EUT Horizontal, 6 Mbps
2483.537	34.1	-4.7	1.2	104.0	3.0	20.0	Horz	AV	0.0	49.4	54.0	-4.6	High Ch, EUT Horizontal, 11 Mbps
2483.997	33.2	-4.7	1.2	98.0	3.0	20.0	Vert	AV	0.0	48.5	54.0	-5.5	High Ch, EUT Vertical, 6 Mbps
2483.770	33.2	-4.7	1.2	205.0	3.0	20.0	Horz	AV	0.0	48.5	54.0	-5.5	High Ch, EUT On Side, 6 Mbps
2483.613	32.8	-4.7	1.2	136.9	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High Ch, EUT On Side, 6 Mbps
2483.560	32.8	-4.7	1.2	271.0	3.0	20.0	Horz	AV	0.0	48.1	54.0	-5.9	High Ch, EUT Horizontal, 11 Mbps
2484.997	32.7	-4.7	1.2	217.0	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	High Ch, EUT Horizontal, 6 Mbps
2389.573	32.6	-5.4	1.2	30.0	3.0	20.0	Horz	AV	0.0	47.2	54.0	-6.8	Low Ch, EUT Horizontal, 1 Mbps
2483.637	49.9	-4.7	1.2	316.9	3.0	20.0	Horz	PK	0.0	65.2	74.0	-8.8	High Ch, EUT Horizontal, MCS0
2389.977	49.6	-5.4	1.2	351.0	3.0	20.0	Horz	PK	0.0	64.2	74.0	-9.8	High Ch, EUT Horizontal, 6 Mbps
2485.063	46.4	-4.7	2.8	333.9	3.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	High Ch, EUT Horizontal, 6 Mbps
2483.910	46.2	-4.7	2.9	116.0	3.0	20.0	Horz	PK	0.0	61.5	74.0	-12.5	High Ch, EUT Horizontal, 1 Mbps
2485.363	45.7	-4.7	1.2	104.0	3.0	20.0	Horz	PK	0.0	61.0	74.0	-13.0	High Ch, EUT Horizontal, 11 Mbps
2485.300	44.7	-4.7	1.2	98.0	3.0	20.0	Vert	PK	0.0	60.0	74.0	-14.0	High Ch, EUT Vertical, 6 Mbps
2483.523	44.7	-4.7	1.2	205.0	3.0	20.0	Horz	PK	0.0	60.0	74.0	-14.0	High Ch, EUT On Side, 6 Mbps
2484.210	44.5	-4.7	1.2	136.9	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	High Ch, EUT On Side, 6 Mbps

Freq (MHz)	Calculated Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Marker Delta Comments
2483.730	44.4	-4.7	1.2	217.0	3.0	20.0	Vert	PK	0.0	59.7	74.0	-14.3	High Ch, EUT Horizontal, 6 Mbps
2484.567	44.3	-4.7	1.2	271.0	3.0	20.0	Horz	PK	0.0	59.6	74.0	-14.4	High Ch, EUT Horizontal, 54 Mbps
2484.467	44.2	-4.7	1.2	190.9	3.0	20.0	Horz	PK	0.0	59.5	74.0	-14.5	High Ch, EUT Vertical, 6 Mbps
2388.523	44.2	-5.4	1.2	30.0	3.0	20.0	Horz	PK	0.0	58.8	74.0	-15.2	Low Ch, EUT Horizontal, 1 Mbps

SPURIOUS RADIATED EMISSIONS



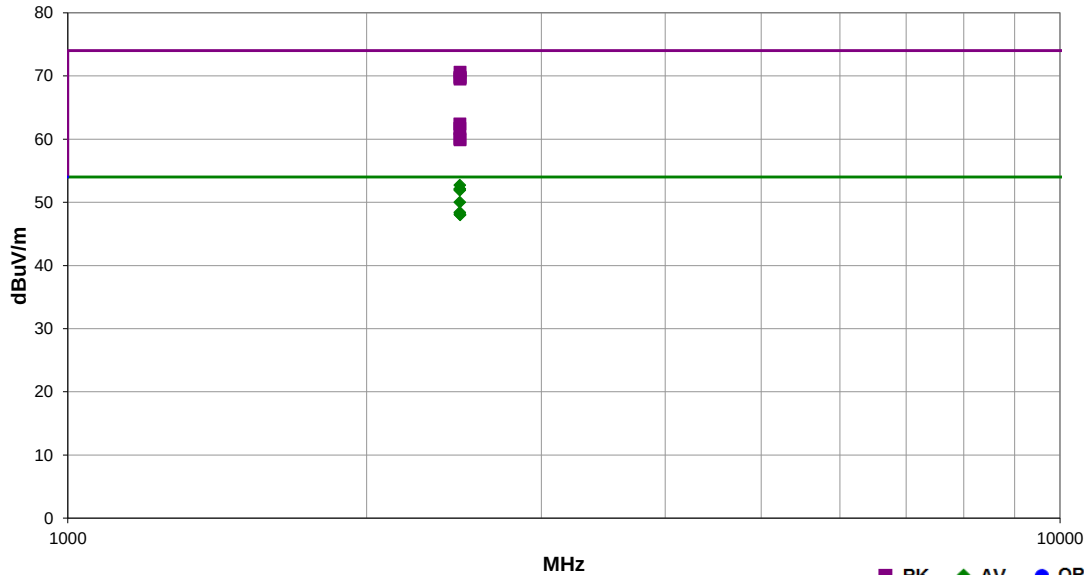
EmiRS 2017.01.25

PSA-ESCI 2017.01.26

Work Order:	APPR0043	Date:	05/23/17	<i>Jonathan Kiefer</i>
Project:	None	Temperature:	22.8 °C	
Job Site:	TX02	Humidity:	46.7% RH	
Serial Number:	None	Barometric Pres.:	1015 mbar	Tested by: Jonathan Kiefer
EUT:	Dual Band Wireless-AC 3160 Module			
Configuration:	2			
Customer:	American Portwell Technology Inc.			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Continuously at Low Ch 2422 MHz, High Ch 2452 MHz			
Deviations:	None			
Comments:	Transmit Band Edge for 40 MHz bandwidth channels. See power table for output power settings used.			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	20	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.557	37.4	-4.7	1.2	110.0	3.0	20.0	Horz	AV	0.0	52.7	54.0	-1.3	High Ch (40MHz), EUT Horizontal, MCS7
2484.137	36.8	-4.7	1.7	249.0	3.0	20.0	Vert	AV	0.0	52.1	54.0	-1.9	High Ch (40MHz), EUT Vertical, MCS7
2483.733	36.8	-4.7	3.2	211.0	3.0	20.0	Horz	AV	0.0	52.1	54.0	-1.9	High Ch (40MHz), EUT On Side, MCS7
2483.790	36.6	-4.7	3.8	15.9	3.0	20.0	Vert	AV	0.0	51.9	54.0	-2.1	High Ch (40MHz), EUT Horizontal, MCS7
2485.313	55.3	-4.7	1.2	110.0	3.0	20.0	Horz	PK	0.0	70.6	74.0	-3.4	High Ch (40MHz), EUT Horizontal, MCS7
2483.500	34.7	-4.7	1.2	99.9	3.0	20.0	Horz	AV	0.0	50.0	54.0	-4.0	High Ch (40MHz), EUT Horizontal, MCS0
2484.823	54.5	-4.7	3.2	211.0	3.0	20.0	Horz	PK	0.0	69.8	74.0	-4.2	High Ch (40MHz), EUT On Side, MCS7
2485.087	54.4	-4.7	1.7	249.0	3.0	20.0	Vert	PK	0.0	69.7	74.0	-4.3	High Ch (40MHz), EUT Vertical, MCS7
2485.187	54.2	-4.7	3.8	15.9	3.0	20.0	Vert	PK	0.0	69.5	74.0	-4.5	High Ch (40MHz), EUT Horizontal, MCS7
2484.050	33.1	-4.7	1.0	282.0	3.0	20.0	Horz	AV	0.0	48.4	54.0	-5.6	High Ch (40MHz), EUT Vertical, MCS7
2484.373	32.8	-4.7	3.3	357.9	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High Ch (40MHz), EUT Horizontal, MCS0
2485.430	32.7	-4.7	1.2	279.9	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	High Ch (40MHz), EUT On Side, MCS7
2483.947	47.1	-4.7	1.0	282.0	3.0	20.0	Horz	PK	0.0	62.4	74.0	-11.6	High Ch (40MHz), EUT Vertical, MCS7
2483.870	46.4	-4.7	1.2	99.9	3.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	High Ch (40MHz), EUT Horizontal, MCS0
2484.157	44.8	-4.7	1.2	279.9	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	High Ch (40MHz), EUT On Side, MCS7
2484.830	44.6	-4.7	3.3	357.9	3.0	20.0	Vert	PK	0.0	59.9	74.0	-14.1	High Ch (40MHz), EUT Horizontal, MCS0



SPURIOUS RADIATED EMISSIONS

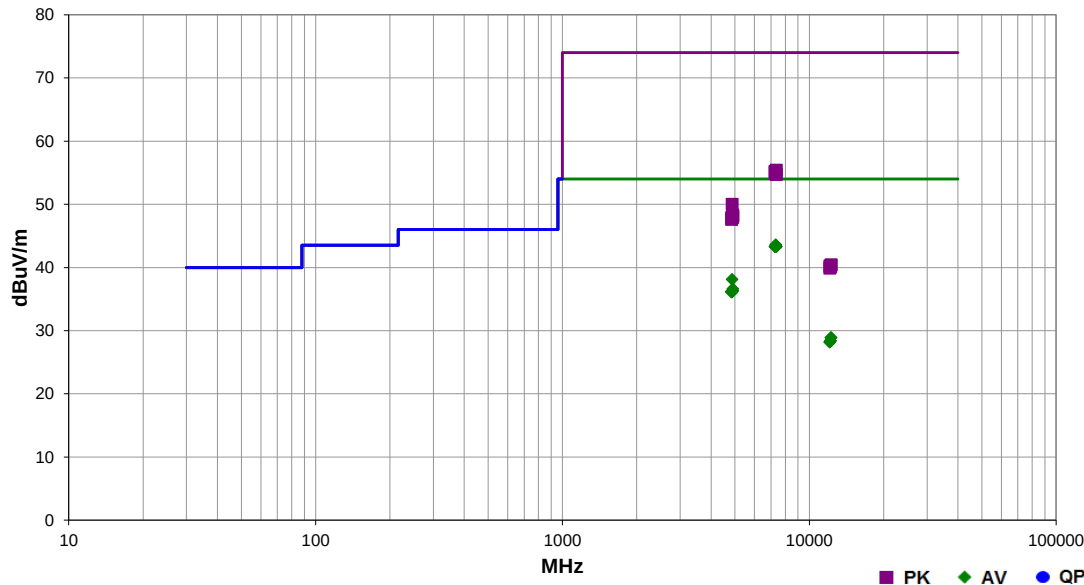
EmiRS 2017.01.25

PSA-ESCI 2017.01.26

Work Order:	APPR0043	Date:	05/23/17	<i>Jonathan Kiefer</i>
Project:	None	Temperature:	22.8 °C	
Job Site:	TX02	Humidity:	46.7% RH	
Serial Number:	None	Barometric Pres.:	1015 mbar	
EUT:	Dual Band Wireless-AC 3160 Module			Tested by: Jonathan Kiefer
Configuration:	2			
Customer:	American Portwell Technology Inc.			
Attendees:	None			
EUT Power:	110VAC/60Hz			
Operating Mode:	Transmitting Continuously at Low Ch 2422 MHz, Mid Ch 2437 MHz, High Ch 2452 MHz			
Deviations:	None			
Comments:	Harmonics for 40 MHz bandwidth channels. See power table for output power settings used.			

Test Specifications	Test Method
FCC 15.247:2017	ANSI C63.10:2013

Run #	21	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7311.950	30.0	13.6	1.2	307.0	3.0	0.0	Horz	AV	0.0	43.6	54.0	-10.4	Mid Ch (40MHz), EUT Horizontal, MCS7
7311.767	29.8	13.6	1.2	273.9	3.0	0.0	Vert	AV	0.0	43.4	54.0	-10.6	Mid Ch (40MHz), EUT Horizontal, MCS7
7357.650	29.7	13.6	1.2	308.0	3.0	0.0	Horz	AV	0.0	43.3	54.0	-10.7	High Ch (40MHz), EUT Horizontal, MCS7
7357.042	29.7	13.6	1.2	33.9	3.0	0.0	Vert	AV	0.0	43.3	54.0	-10.7	High Ch (40MHz), EUT Horizontal, MCS7
7268.392	29.8	13.5	1.2	324.0	3.0	0.0	Horz	AV	0.0	43.3	54.0	-10.7	Low Ch (40MHz), EUT Horizontal, MCS7
7268.175	29.8	13.5	1.2	163.0	3.0	0.0	Vert	AV	0.0	43.3	54.0	-10.7	Low Ch (40MHz), EUT Horizontal, MCS7
4872.850	31.8	6.3	1.2	309.0	3.0	0.0	Horz	AV	0.0	38.1	54.0	-15.9	Mid Ch (40MHz), EUT Horizontal, MCS7
4905.475	30.2	6.4	3.8	315.0	3.0	0.0	Horz	AV	0.0	36.6	54.0	-17.4	High Ch (40MHz), EUT Horizontal, MCS7
4905.858	29.9	6.4	1.2	182.0	3.0	0.0	Vert	AV	0.0	36.3	54.0	-17.7	High Ch (40MHz), EUT Horizontal, MCS7
4841.933	29.9	6.3	1.2	315.9	3.0	0.0	Vert	AV	0.0	36.2	54.0	-17.8	Low Ch (40MHz), EUT Horizontal, MCS7
4872.492	29.8	6.3	1.2	121.0	3.0	0.0	Vert	AV	0.0	36.1	54.0	-17.9	Mid Ch (40MHz), EUT Horizontal, MCS7
4841.792	29.8	6.3	1.2	73.0	3.0	0.0	Horz	AV	0.0	36.1	54.0	-17.9	Low Ch (40MHz), EUT Horizontal, MCS7
7354.883	41.8	13.6	1.2	308.0	3.0	0.0	Horz	PK	0.0	55.4	74.0	-18.6	High Ch (40MHz), EUT Horizontal, MCS7
7265.658	41.7	13.5	1.2	163.0	3.0	0.0	Vert	PK	0.0	55.2	74.0	-18.8	Low Ch (40MHz), EUT Horizontal, MCS7
7267.767	41.6	13.5	1.2	324.0	3.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	Low Ch (40MHz), EUT Horizontal, MCS7
7310.058	41.3	13.6	1.2	307.0	3.0	0.0	Horz	PK	0.0	54.9	74.0	-19.1	Mid Ch (40MHz), EUT Horizontal, MCS7
7312.992	41.3	13.6	1.2	273.9	3.0	0.0	Vert	PK	0.0	54.9	74.0	-19.1	Mid Ch (40MHz), EUT Horizontal, MCS7
7357.508	41.1	13.6	1.2	33.9	3.0	0.0	Vert	PK	0.0	54.7	74.0	-19.3	High Ch (40MHz), EUT Horizontal, MCS7
4873.008	43.7	6.3	1.2	309.0	3.0	0.0	Horz	PK	0.0	50.0	74.0	-24.0	Mid Ch (40MHz), EUT Horizontal, MCS7
12257.610	30.7	-1.8	1.2	228.0	3.0	0.0	Horz	AV	0.0	28.9	54.0	-25.1	High Ch (40MHz), EUT Horizontal, MCS7
12260.470	30.7	-1.8	1.2	339.0	3.0	0.0	Vert	AV	0.0	28.9	54.0	-25.1	High Ch (40MHz), EUT Horizontal, MCS7
12184.380	30.4	-2.0	1.2	66.0	3.0	0.0	Horz	AV	0.0	28.4	54.0	-25.6	Mid Ch (40MHz), EUT Horizontal, MCS7
12186.590	30.4	-2.0	1.2	309.9	3.0	0.0	Vert	AV	0.0	28.4	54.0	-25.6	High Ch (40MHz), EUT Horizontal, MCS7
4905.375	41.9	6.4	3.8	315.0	3.0	0.0	Horz	PK	0.0	48.3	74.0	-25.7	High Ch (40MHz), EUT Horizontal, MCS7
12107.910	30.3	-2.1	1.2	205.0	3.0	0.0	Horz	AV	0.0	28.2	54.0	-25.8	Low Ch (40 MHz), EUT Horizontal, MCS7
12107.880	30.3	-2.1	1.2	295.0	3.0	0.0	Vert	AV	0.0	28.2	54.0	-25.8	Low Ch (40 MHz), EUT Horizontal, MCS7
4905.867	41.6	6.4	1.2	182.0	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	High Ch (40MHz), EUT Horizontal, MCS7

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4874.058	41.6	6.3	1.2	121.0	3.0	0.0	Vert	PK	0.0	47.9	74.0	-26.1	Mid Ch (40MHz), EUT Horizontal, MCS7
4845.242	41.6	6.3	1.2	73.0	3.0	0.0	Horz	PK	0.0	47.9	74.0	-26.1	Low Ch (40MHz), EUT Horizontal, MCS7
4845.567	41.3	6.3	1.2	315.9	3.0	0.0	Vert	PK	0.0	47.6	74.0	-26.4	Low Ch (40MHz), EUT Horizontal, MCS7
12257.630	42.2	-1.8	1.2	228.0	3.0	0.0	Horz	PK	0.0	40.4	74.0	-33.6	High Ch (40MHz), EUT Horizontal, MCS7
12259.270	42.2	-1.8	1.2	339.0	3.0	0.0	Vert	PK	0.0	40.4	74.0	-33.6	High Ch (40MHz), EUT Horizontal, MCS7
12186.980	42.2	-2.0	1.2	66.0	3.0	0.0	Horz	PK	0.0	40.2	74.0	-33.8	High Ch (40MHz), EUT Horizontal, MCS7
12108.720	42.3	-2.1	1.2	295.0	3.0	0.0	Vert	PK	0.0	40.2	74.0	-33.8	Low Ch (40 MHz), EUT Horizontal, MCS7
12182.820	42.1	-2.0	1.2	309.9	3.0	0.0	Vert	PK	0.0	40.1	74.0	-33.9	High Ch (40MHz), EUT Horizontal, MCS7
12111.750	42.0	-2.1	1.2	205.0	3.0	0.0	Horz	PK	0.0	39.9	74.0	-34.1	Low Ch (40 MHz), EUT Horizontal, MCS7

DUTY CYCLE



XMIT 2017.02.08

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
Attenuator	Fairview Microwave	SA4018-20	TYE	10/24/2016	10/24/2017
Block - DC	Fairview Microwave	SD3379	AMT	10/24/2016	10/24/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	3/14/2017	3/14/2018

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



TestX 2017.01.27 XMit 2017.02.08

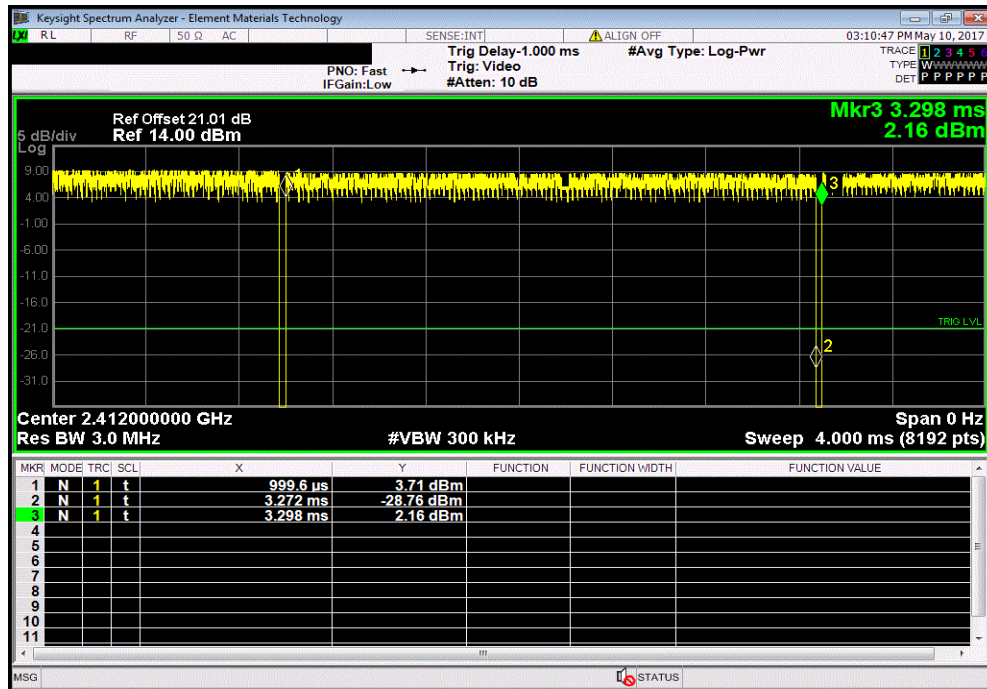
EUT: Dual Band Wireless-AC 3160 Module				Work Order: APPR0043					
Serial Number: None				Date: 05/10/17					
Customer: American Portwell Technology Inc.				Temperature: 22.9 °C					
Attendees: None				Humidity: 49.6% RH					
Project: None				Barometric Pres.: 1016 mbar					
Tested by: Jonathan Kiefer			Power: 110VAC/60Hz		Job Site: TX09				
TEST SPECIFICATIONS				Test Method					
FCC 15.247:2017			ANSI C63.10:2013						
COMMENTS									
See Power Table for output power settings used.									
DEVIATIONS FROM TEST STANDARD									
None									
Configuration #	1	Signature <i>Jonathan Kiefer</i>							
				Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
Chain A									
2400 MHz - 2483.5 MHz Band									
20 MHz BW									
802.11(b) 1 Mbps									
Low Channel 1, 2412 MHz				2.273 ms	2.299 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				2.273 ms	2.3 ms	1	98.8	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				2.273 ms	2.299 ms	1	98.9	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				2.065 ms	2.091 ms	1	98.7	N/A	N/A
Low Channel 1, 2412 MHz				N/A	N/A	6	N/A	N/A	N/A
Mid Channel 6, 2437 MHz				2.064 ms	2.092 ms	1	98.7	N/A	N/A
Mid Channel 6, 2437 MHz				N/A	N/A	6	N/A	N/A	N/A
High Channel 11, 2462 MHz				2.064 ms	2.092 ms	1	98.7	N/A	N/A
High Channel 11, 2462 MHz				N/A	N/A	6	N/A	N/A	N/A
802.11(n) MCS0									
Low Channel 1, 2412 MHz				1.921 ms	1.948 ms	1	98.6	N/A	N/A
Low Channel 1, 2412 MHz				N/A	N/A	6	N/A	N/A	N/A
Mid Channel 6, 2437 MHz				1.92 ms	1.947 ms	1	98.6	N/A	N/A
Mid Channel 6, 2437 MHz				N/A	N/A	6	N/A	N/A	N/A
High Channel 11, 2462 MHz				1.92 ms	1.947 ms	1	98.6	N/A	N/A
High Channel 11, 2462 MHz				N/A	N/A	6	N/A	N/A	N/A
40 MHz BW									
802.11(n) MCS0									
Low Channel 1/5, 2422 MHz				942.4 us	970.9 us	1	97.1	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				942.8 us	971.3 us	1	97.1	N/A	N/A
Mid Channel 4/8, 2437 MHz				N/A	N/A	6	N/A	N/A	N/A
High Channel 7/11, 2452 MHz				940.9 us	970.2 us	1	97	N/A	N/A
High Channel 7/11, 2452 MHz				N/A	N/A	6	N/A	N/A	N/A

DUTY CYCLE

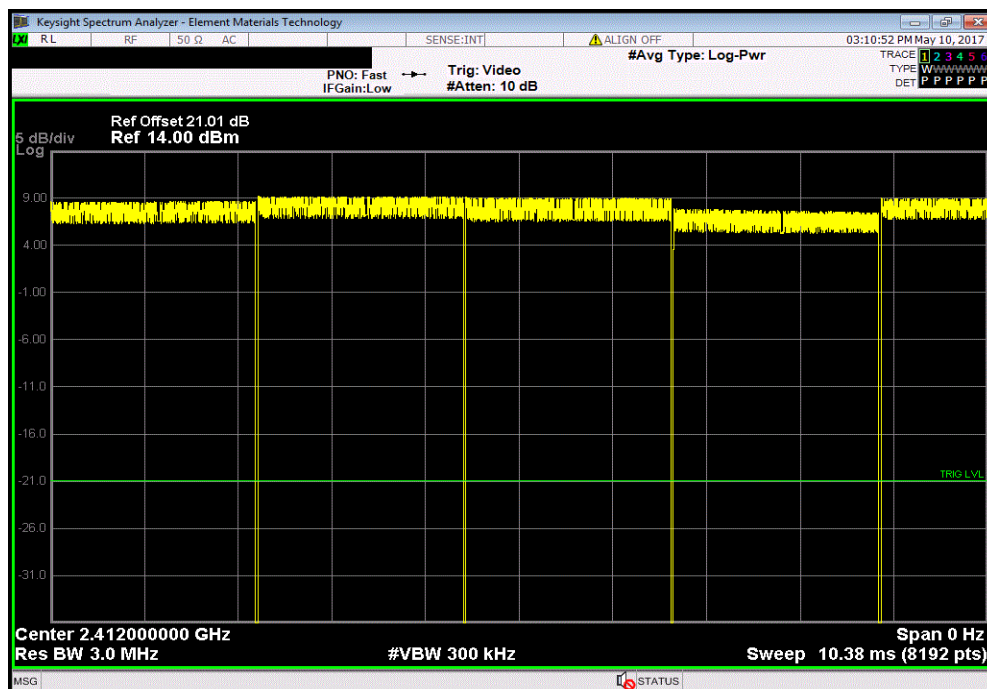


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.273 ms	2.299 ms	1	98.9	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 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	

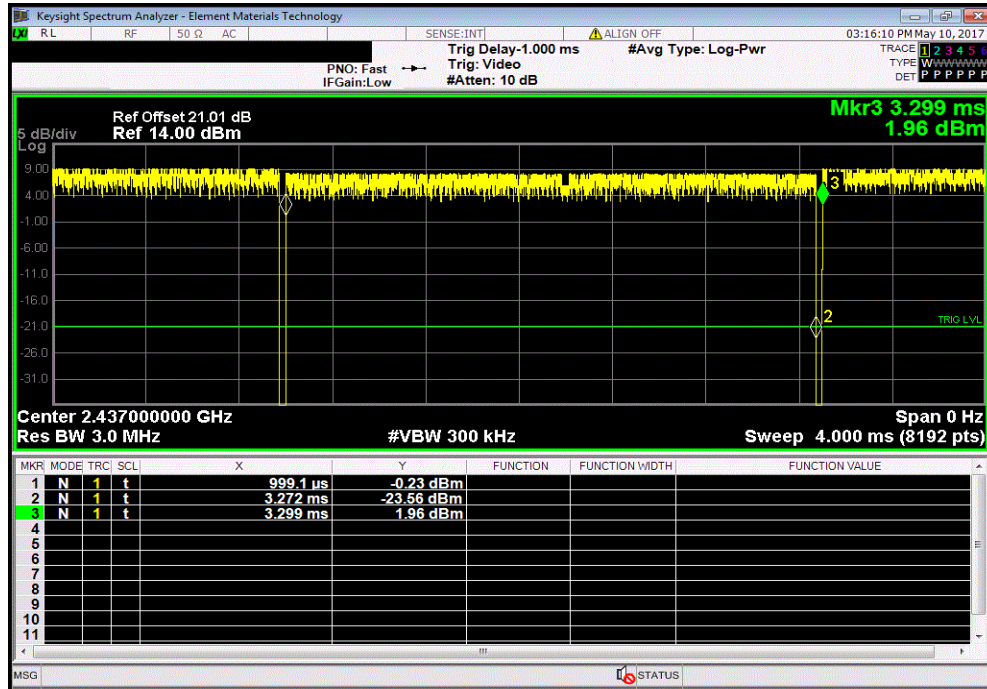


DUTY CYCLE

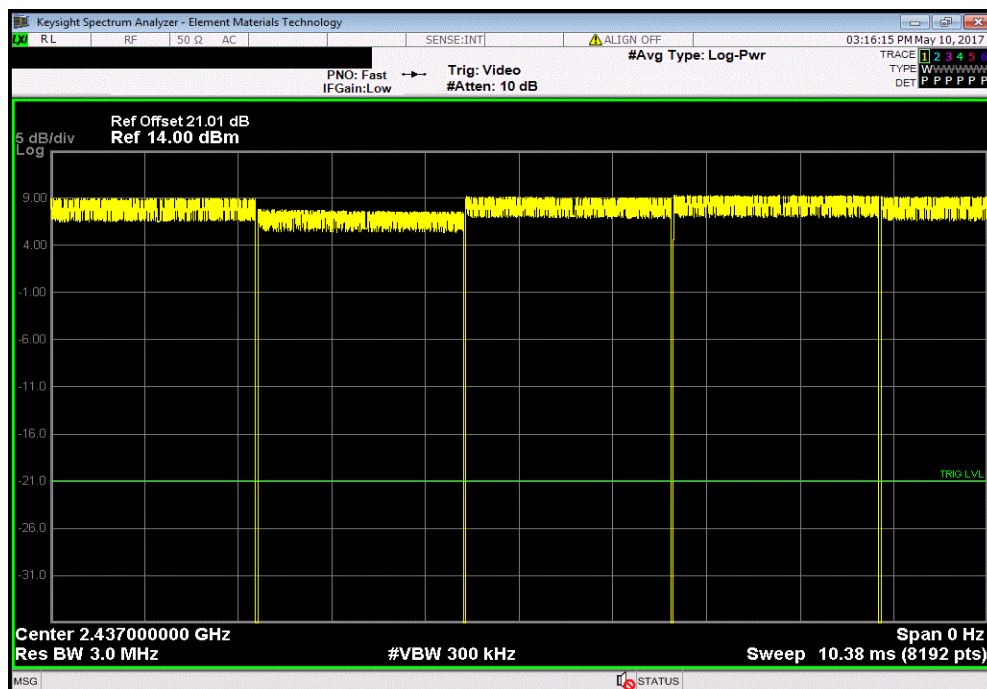


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.273 ms	2.3 ms	1	98.8	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 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	

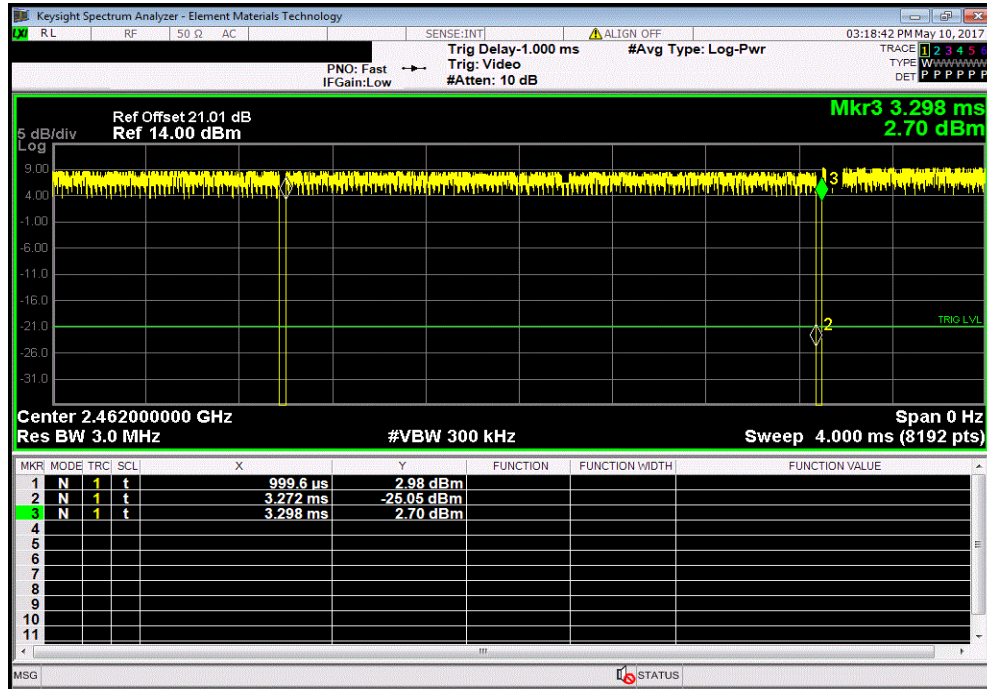


DUTY CYCLE

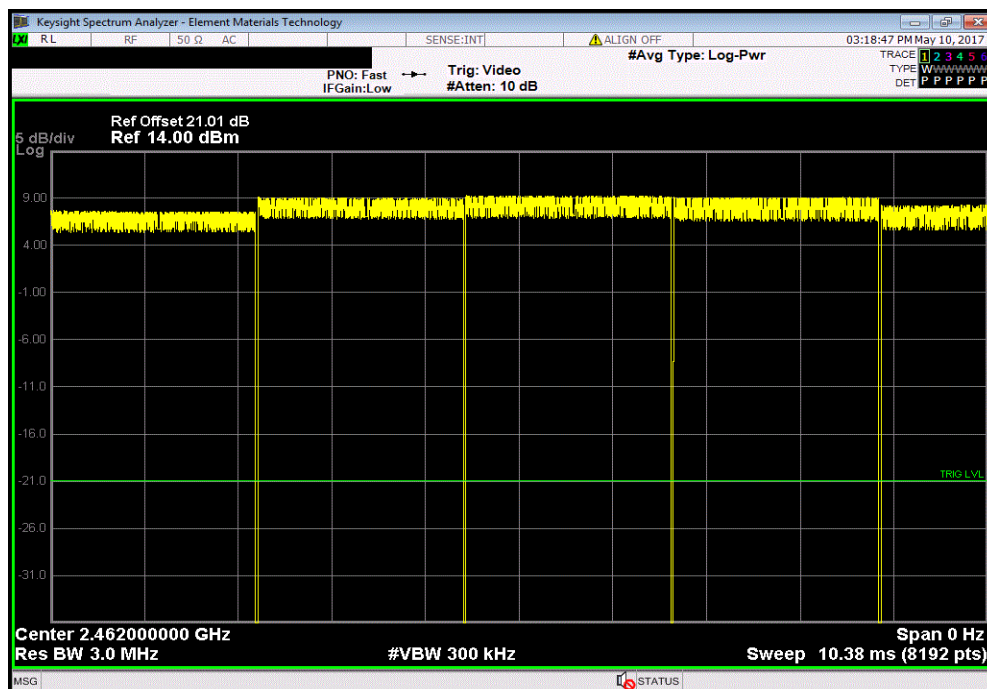


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.273 ms	2.299 ms	1	98.9	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 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	

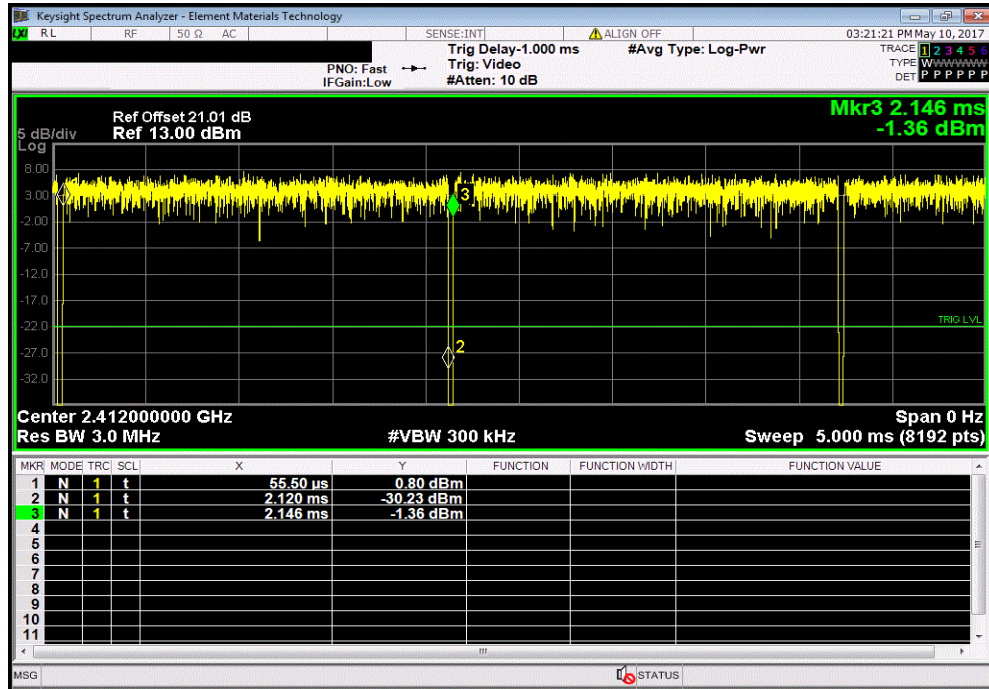


DUTY CYCLE

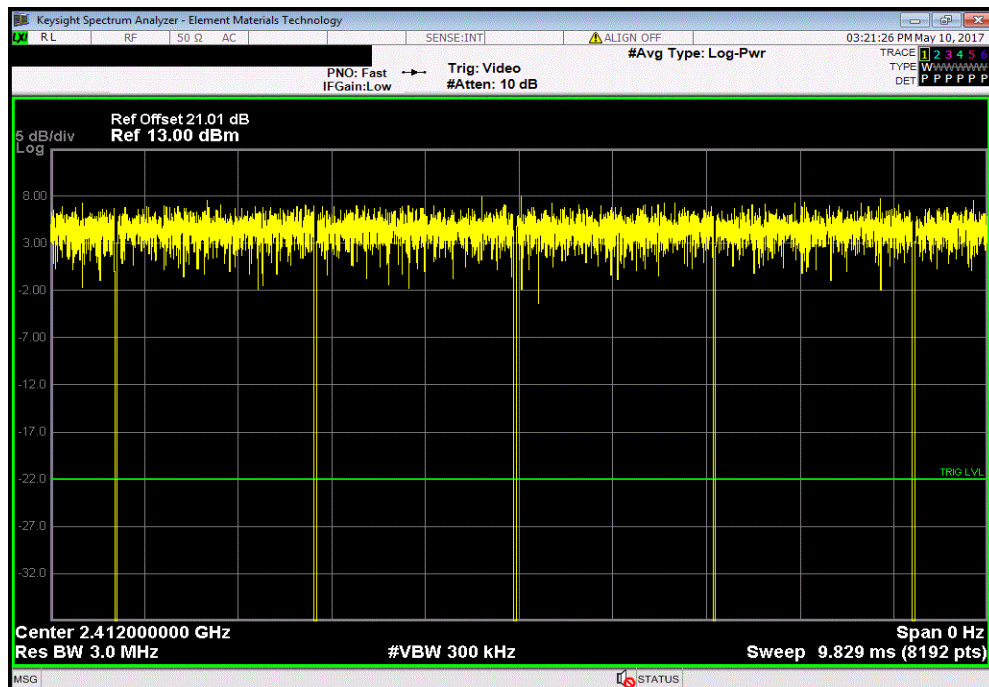


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.065 ms	2.091 ms	1	98.7	N/A	N/A	



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

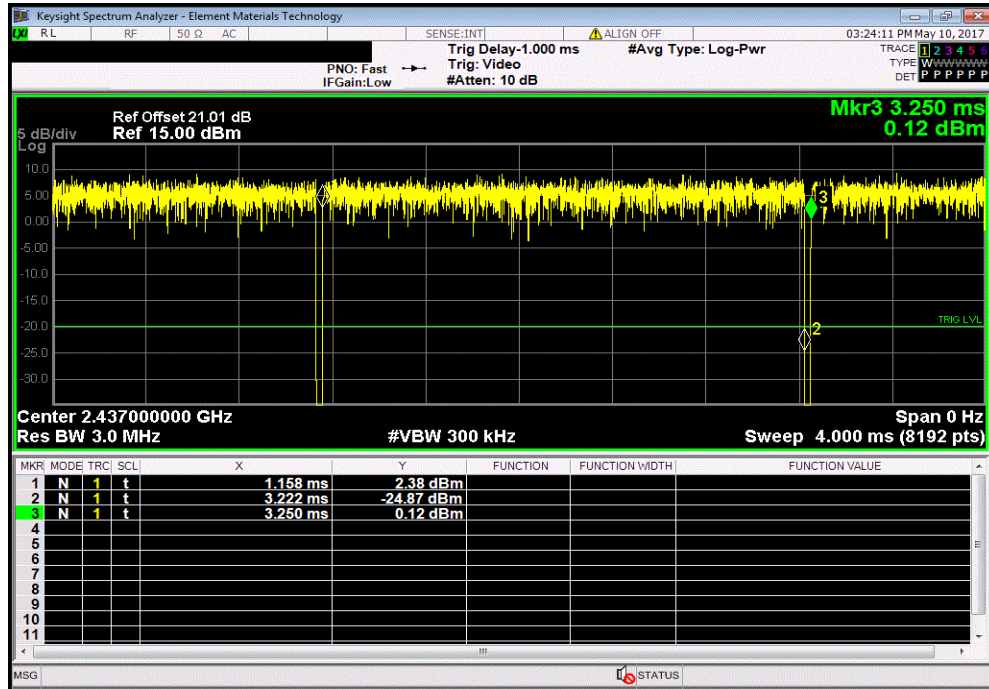


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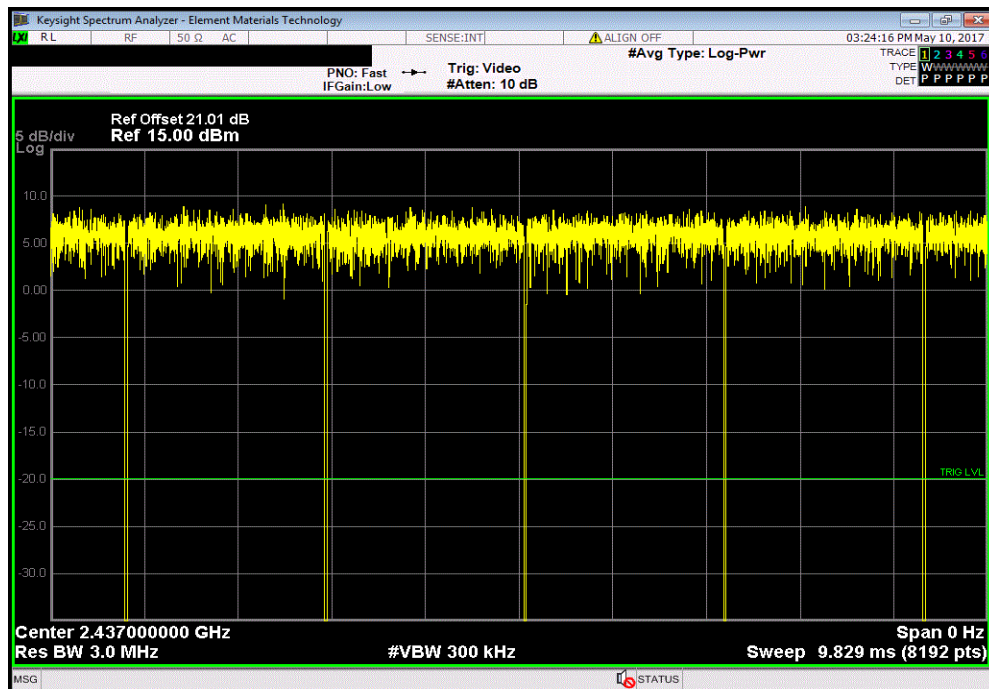


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.064 ms	2.092 ms	1	98.7	N/A	N/A	



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

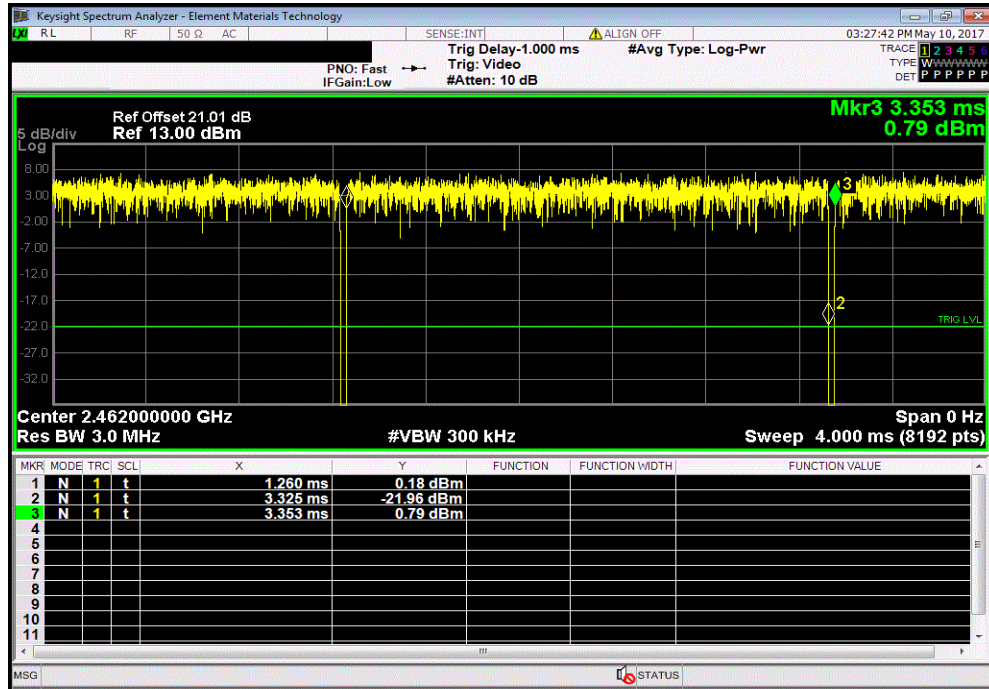


DUTY CYCLE

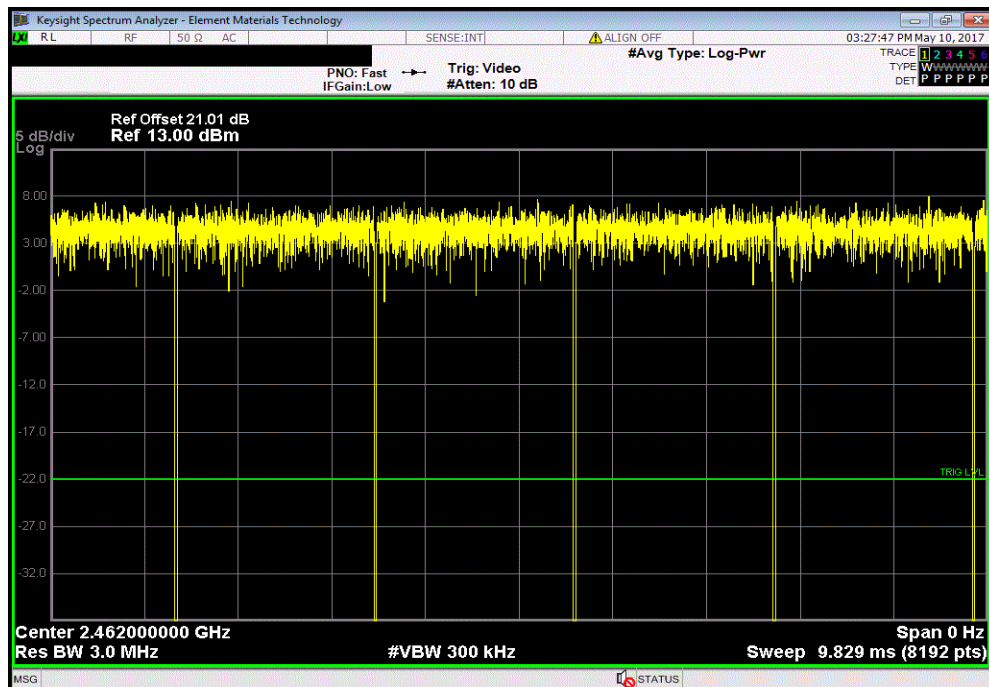


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
2.064 ms	2.092 ms	1	98.7	N/A	N/A	



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

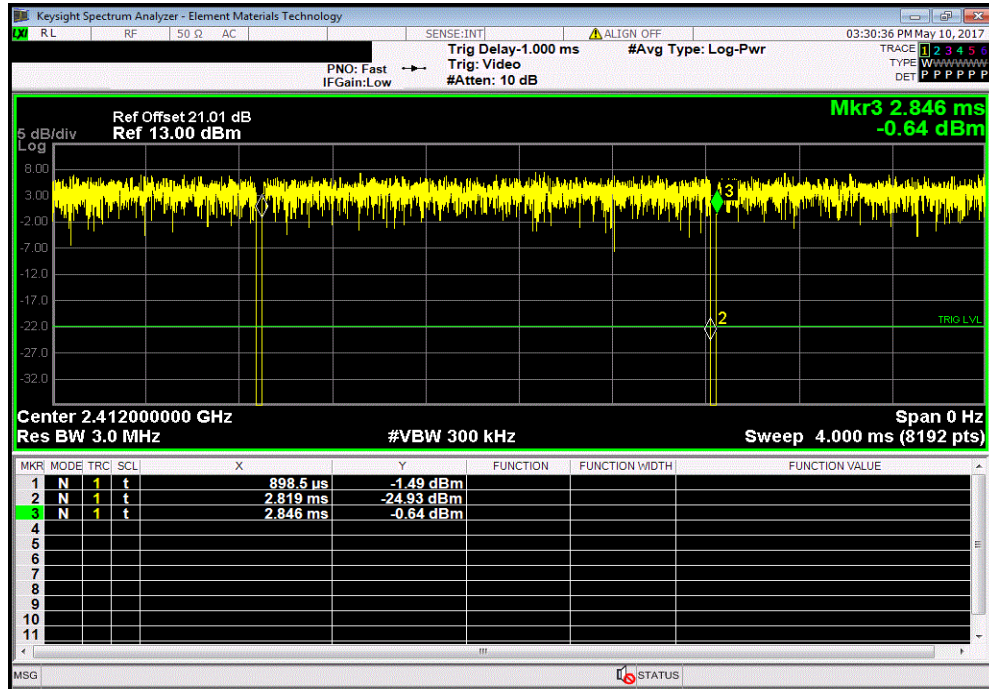


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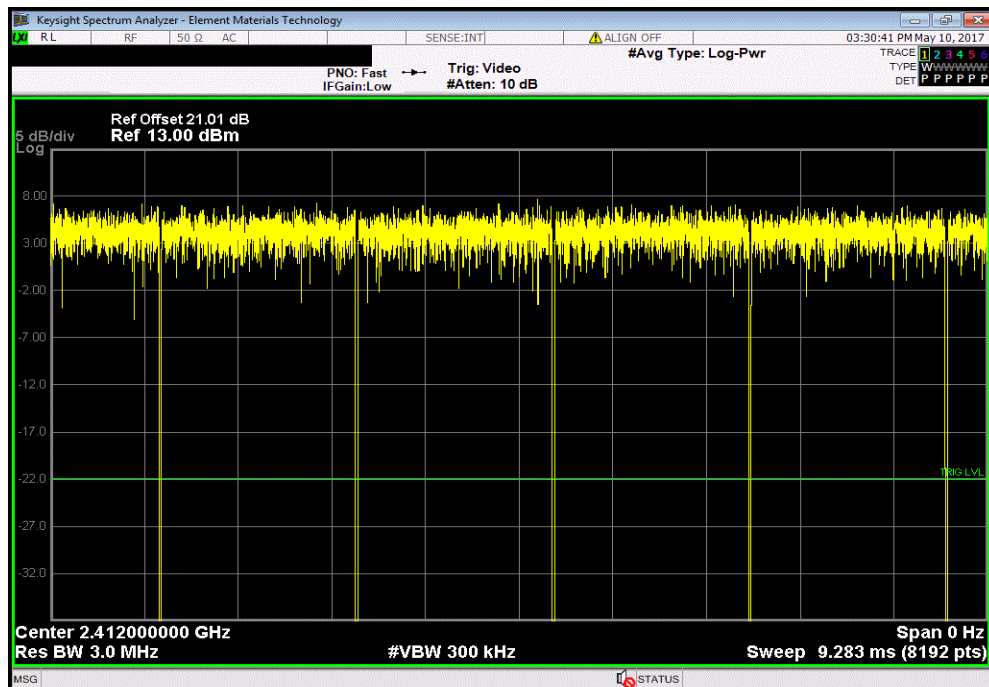


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
1.921 ms	1.948 ms	1	98.6	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	6	N/A	N/A	N/A	

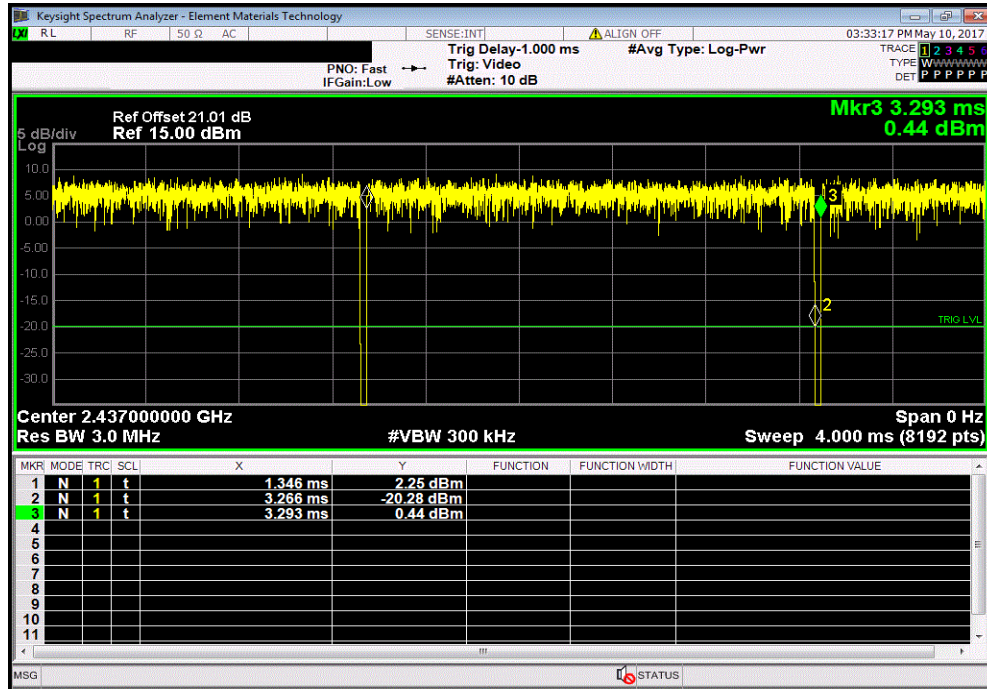


DUTY CYCLE

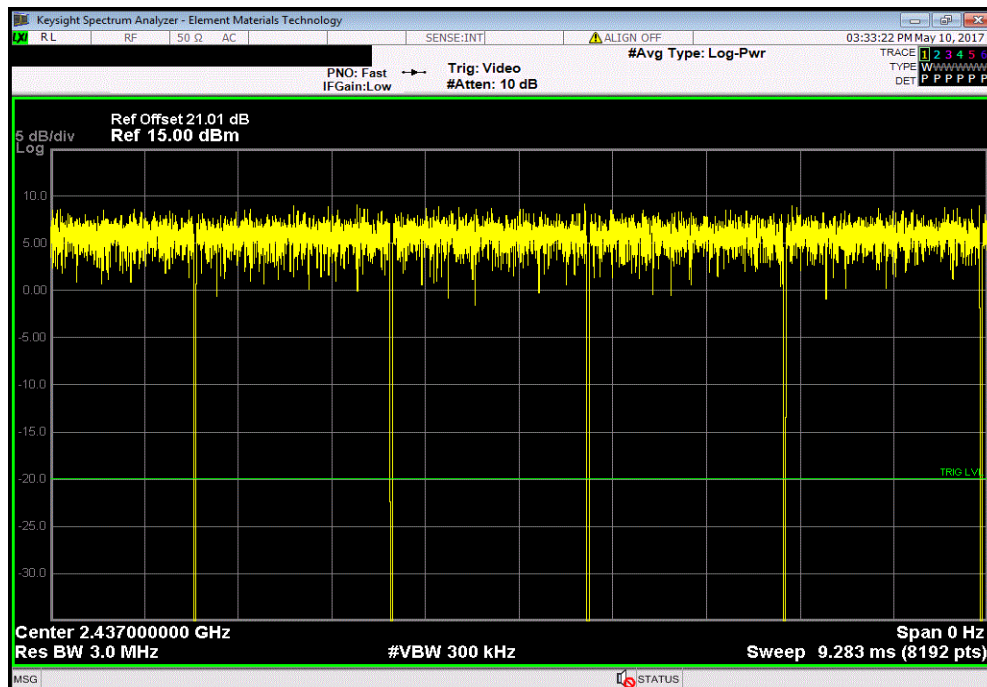


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
1.92 ms	1.947 ms	1	98.6	N/A	N/A	



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

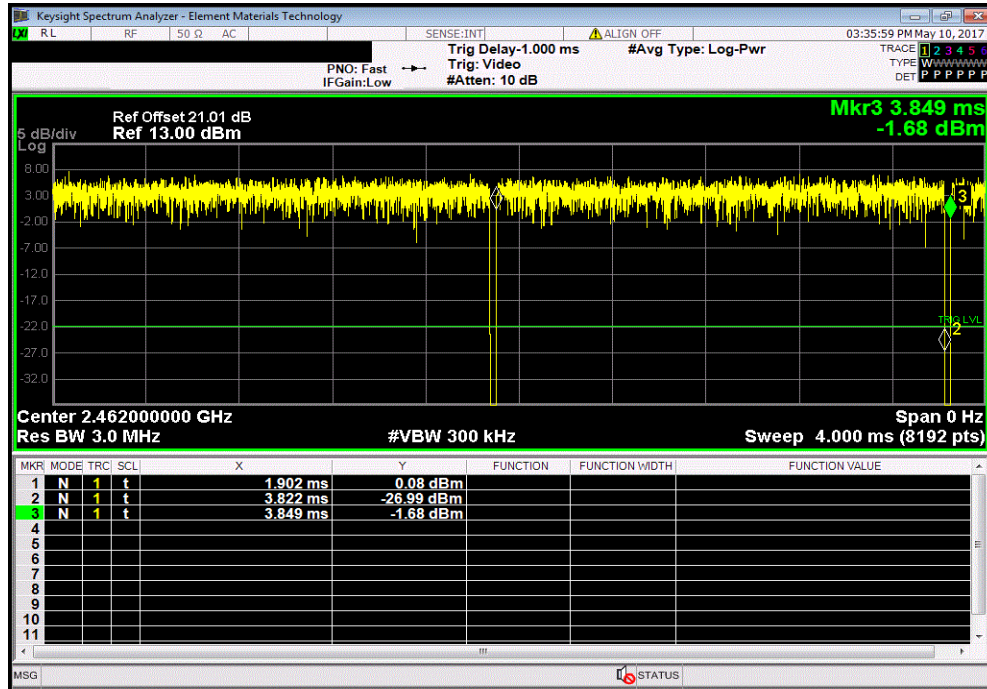


DUTY CYCLE

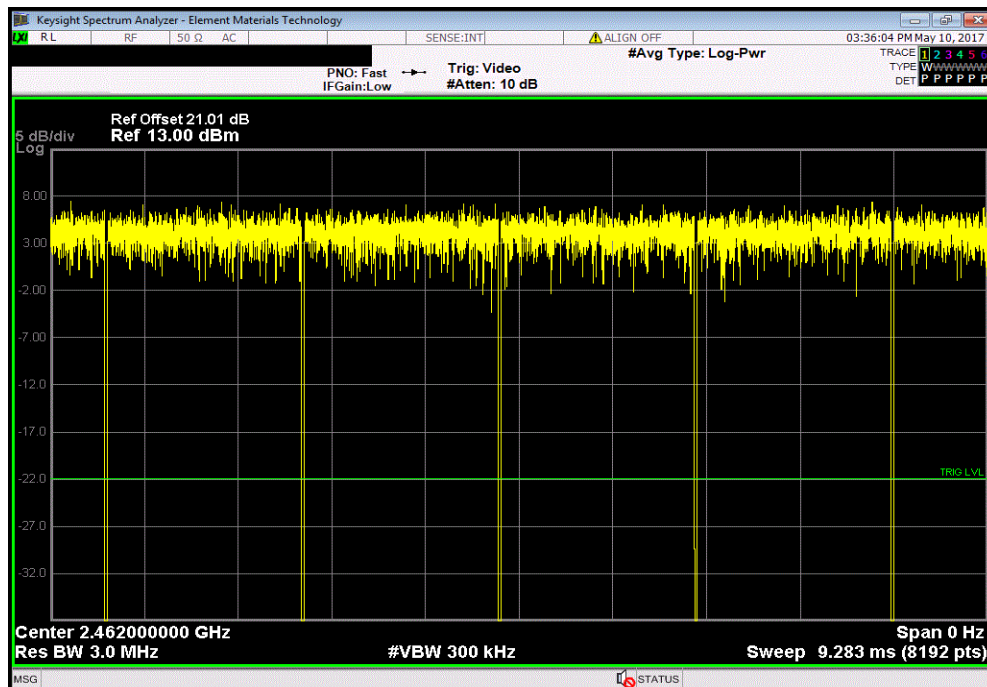


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
1.92 ms	1.947 ms	1	98.6	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel 11, 2462 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	6	N/A	N/A	N/A	

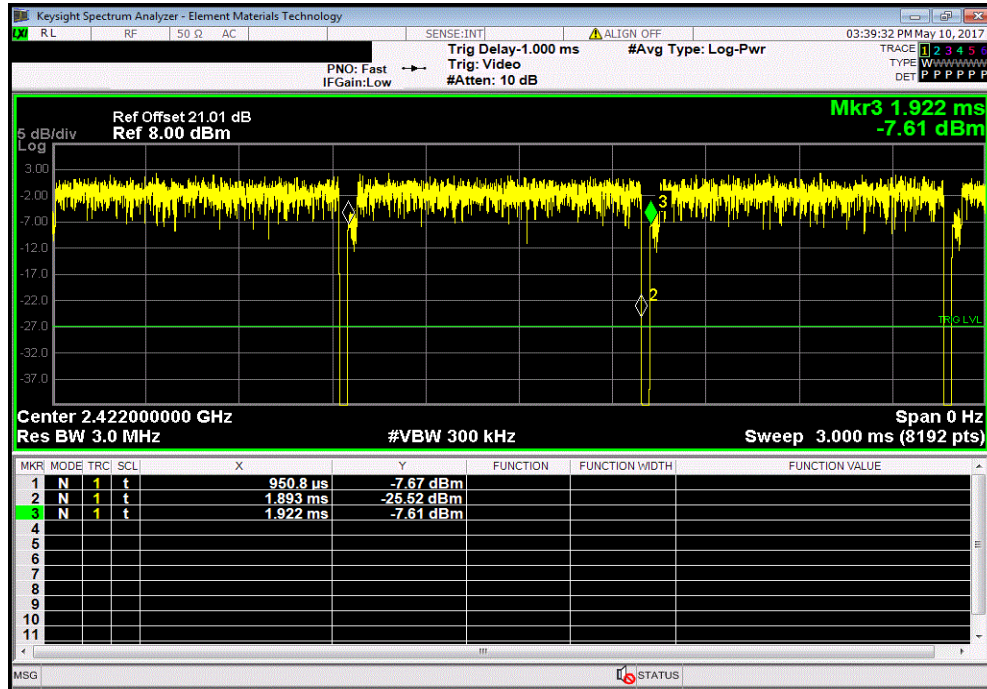


DUTY CYCLE

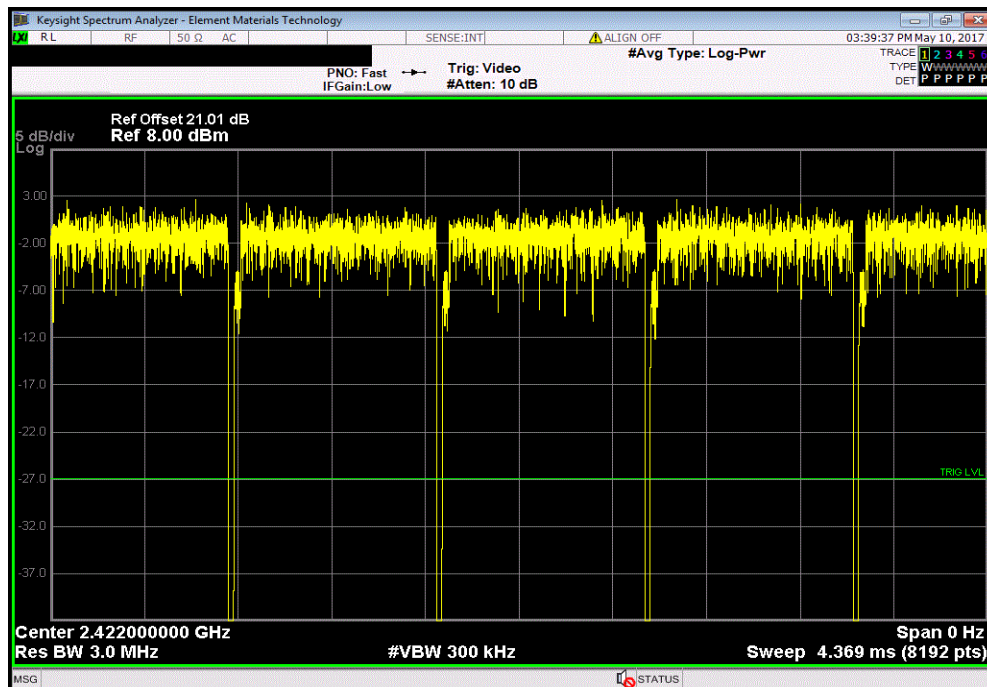


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
942.4 us	970.9 us	1	97.1	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 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	

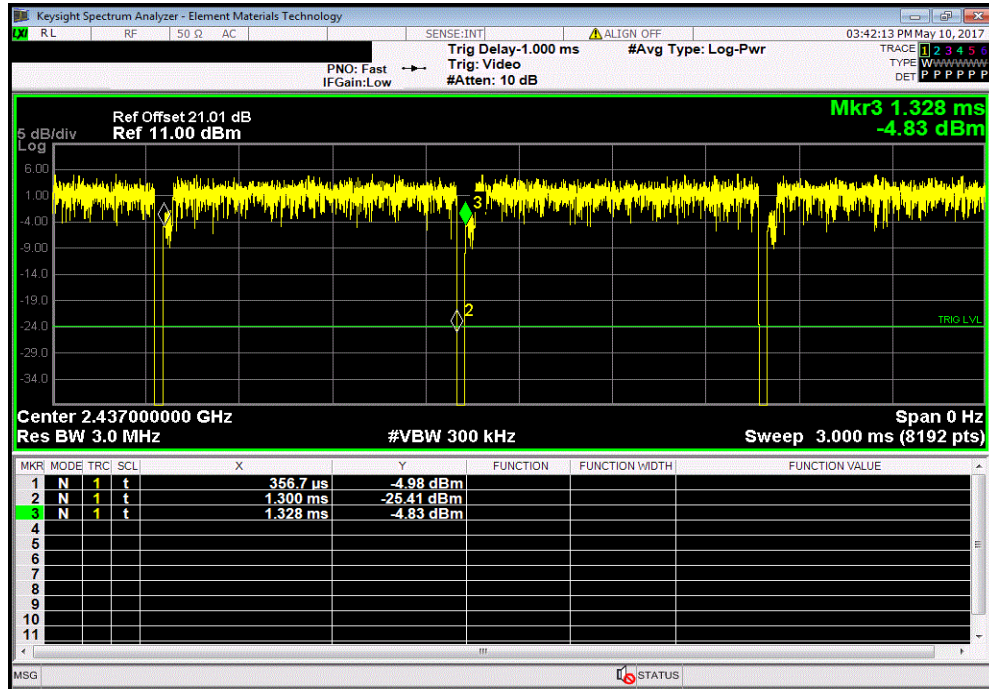


DUTY CYCLE

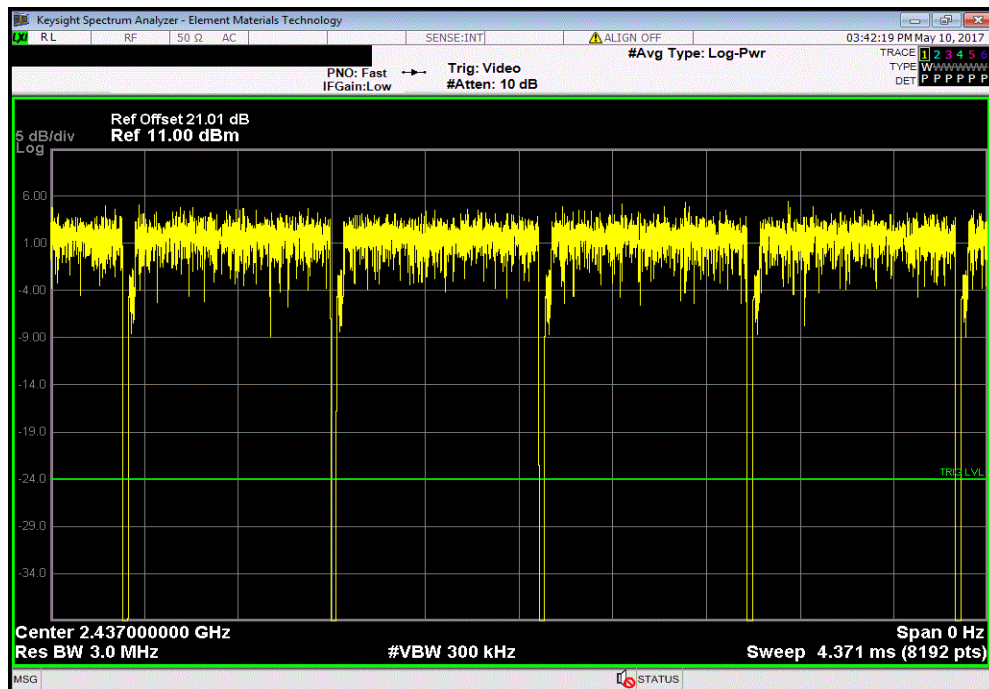


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
942.8 us	971.3 us	1	97.1	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	6	N/A	N/A	N/A	

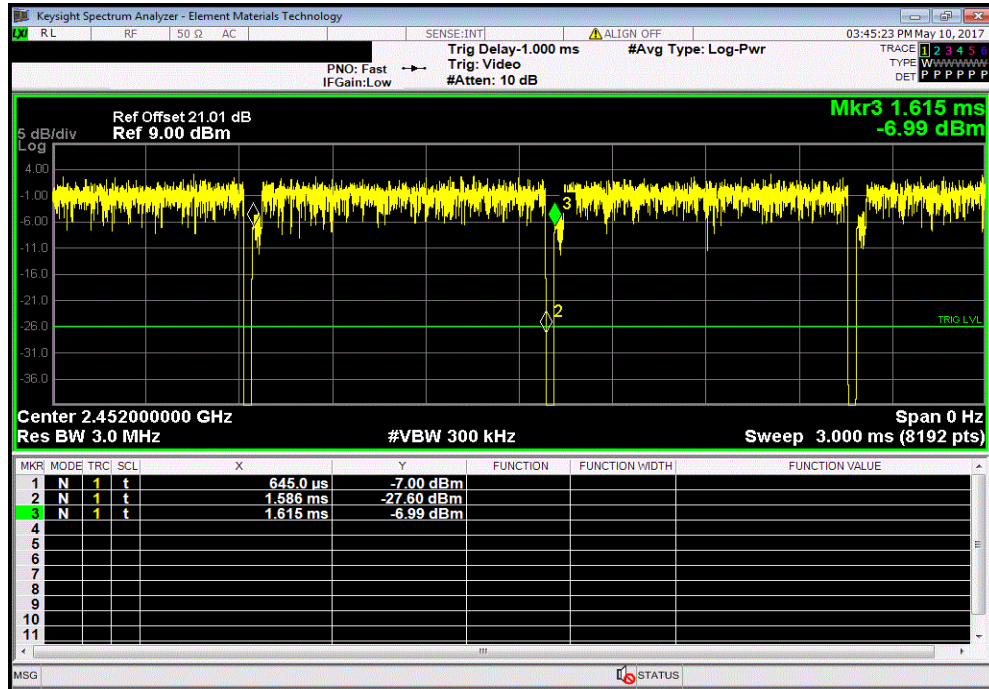


DUTY CYCLE

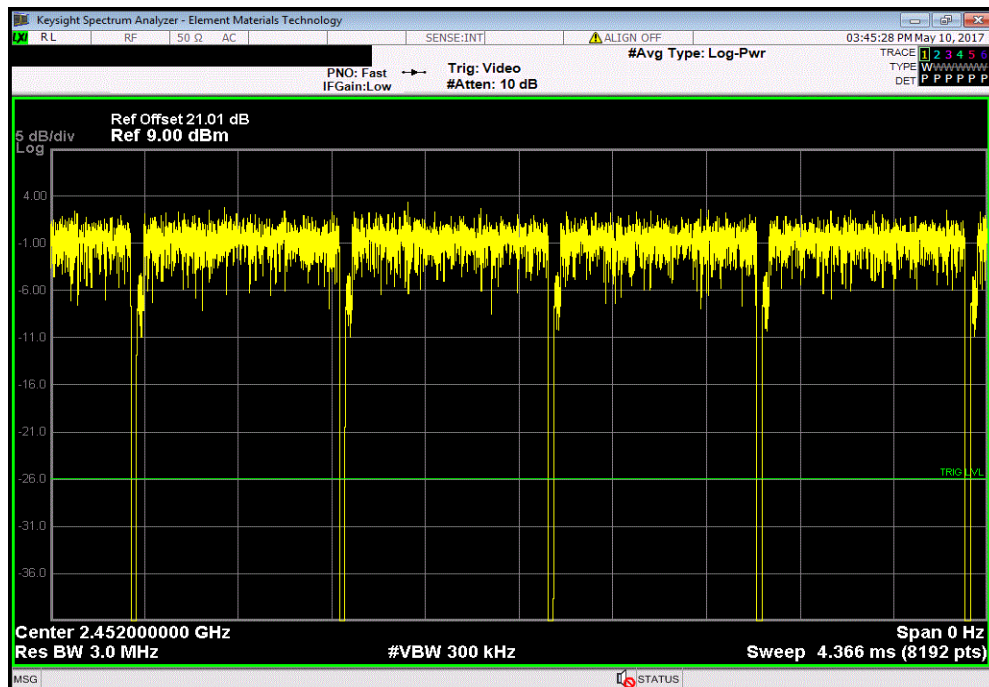


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
940.9 us	970.2 us	1	97	N/A	N/A	



Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results	
N/A	N/A	6	N/A	N/A	N/A	



OUTPUT POWER



XMIT 2017.02.08

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
Attenuator	Fairview Microwave	SA4018-20	TYE	10/24/2016	10/24/2017
Block - DC	Fairview Microwave	SD3379	AMT	10/24/2016	10/24/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	3/14/2017	3/14/2018

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.

De Facto EIRP Limit: The EUT meets the de facto EIRP limit of +36 dBm.

OUTPUT POWER



TN17 2017.01.27 XMR 2017.02.08

EUT:

Dual Band Wireless-AC 3160 Module

Serial Number:

None

Customer:

American Portwell Technology Inc.

Attendees:

None

Project:

None

Tested by:

Jonathan Kiefer

Power:

110VAC/60Hz

Work Order:

APPR0043

Date:

05/10/17

Temperature:

23 °C

Humidity:

50.2% RH

Barometric Pres.:

1016 mbar

Job Site:

TX09

TEST SPECIFICATIONS

Test Method

FCC 15.247:2017

ANSI C63.10:2013

COMMENTS

See Power Table for output power settings used. Measurements were made on the same data rates that were identified in the original FCC grant test report as worst case for each radio type (802.11b, 802.11g, 802.11n20, 802.11n40)

DEVIATIONS FROM TEST STANDARD

None

Configuration #

1

Signature

Jonathan Kiefer

Avg Cond Pwr (dBm)

Duty Cycle Factor (dB)

Value (dBm)

Limit (dBm)

Results

Chain A

2400 MHz - 2483.5 MHz Band

20 MHz BW

802.11(b) 1 Mbps

Low Channel 1, 2412 MHz

13.813

0

13.9

30

Pass

Mid Channel 6, 2437 MHz

14.087

0.1

14.1

30

Pass

High Channel 11, 2462 MHz

14.042

0

14.1

30

Pass

802.11(g) 6 Mbps

Low Channel 1, 2412 MHz

11.97

0.1

12

30

Pass

Mid Channel 6, 2437 MHz

13.273

0.1

13.3

30

Pass

High Channel 11, 2462 MHz

11.942

0.1

12

30

Pass

802.11(n) MCS0

Low Channel 1, 2412 MHz

12.006

0.1

12.1

30

Pass

Mid Channel 6, 2437 MHz

13.564

0.1

13.6

30

Pass

High Channel 11, 2462 MHz

11.915

0.1

12

30

Pass

40 MHz BW

802.11(n) MCS0

Low Channel 1/5, 2422 MHz

10.537

0.1

10.7

30

Pass

Mid Channel 4/8, 2437 MHz

13.623

0.1

13.8

30

Pass

High Channel 7/11, 2452 MHz

10.991

0.1

11.1

30

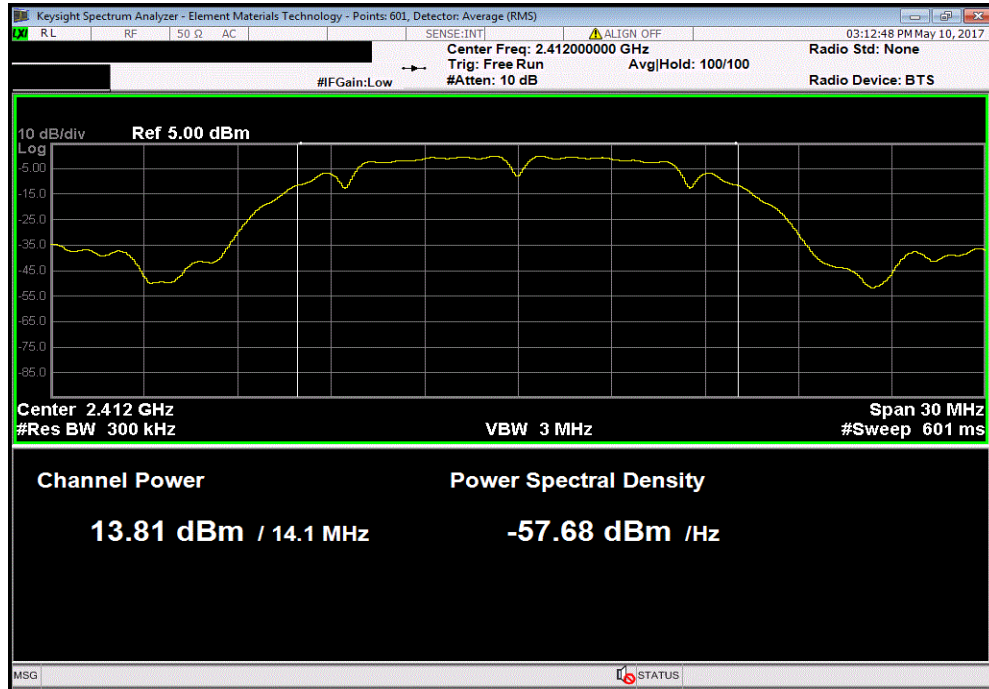
Pass

OUTPUT POWER

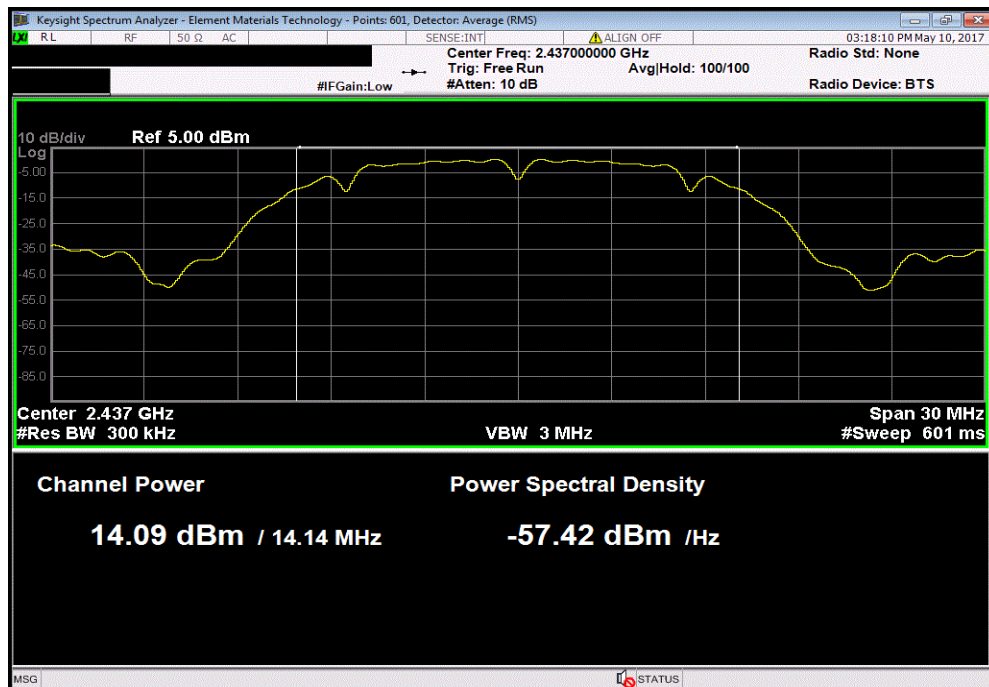


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, Low Channel 1, 2412 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
13.813	0	13.9	30	Pass		



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
14.087	0.1	14.1	30	Pass		

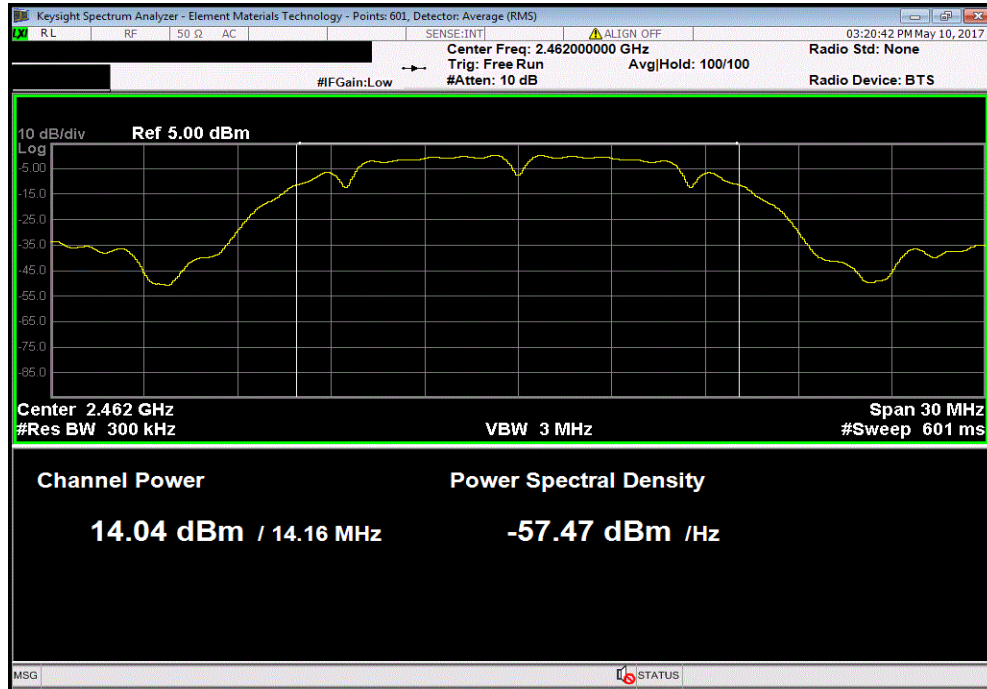


OUTPUT POWER

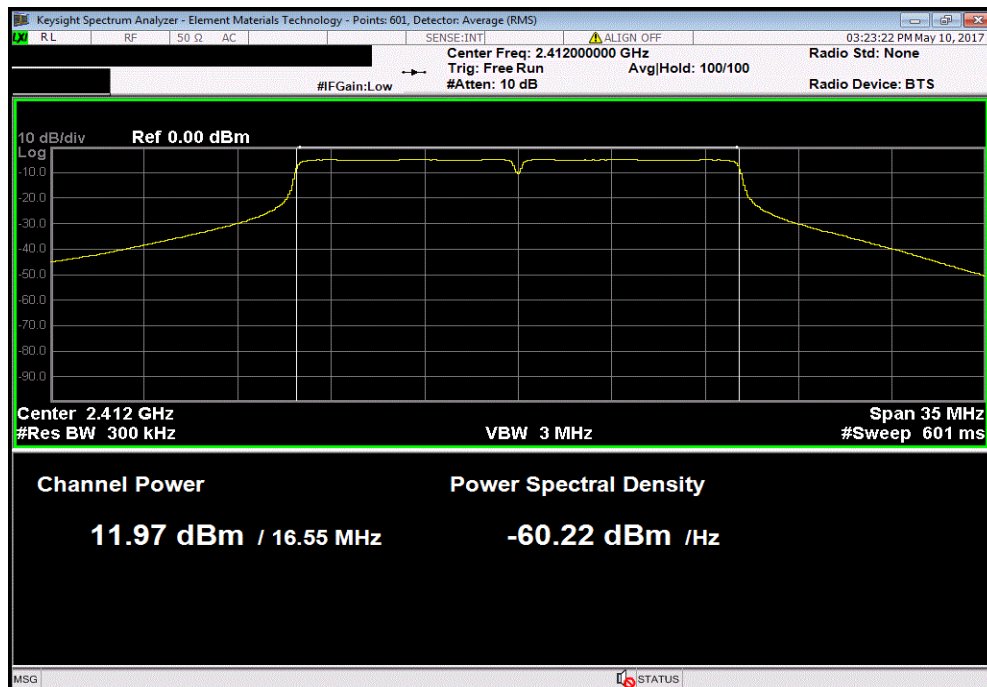


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(b) 1 Mbps, High Channel 11, 2462 MHz						
Avg Cond	Duty Cycle		Value	Limit	Results	
Pwr (dBm)	Factor (dB)		(dBm)	(dBm)		
14.042	0		14.1	30	Pass	



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, Low Channel 1, 2412 MHz						
Avg Cond	Duty Cycle		Value	Limit	Results	
Pwr (dBm)	Factor (dB)		(dBm)	(dBm)		
11.97	0.1		12	30	Pass	

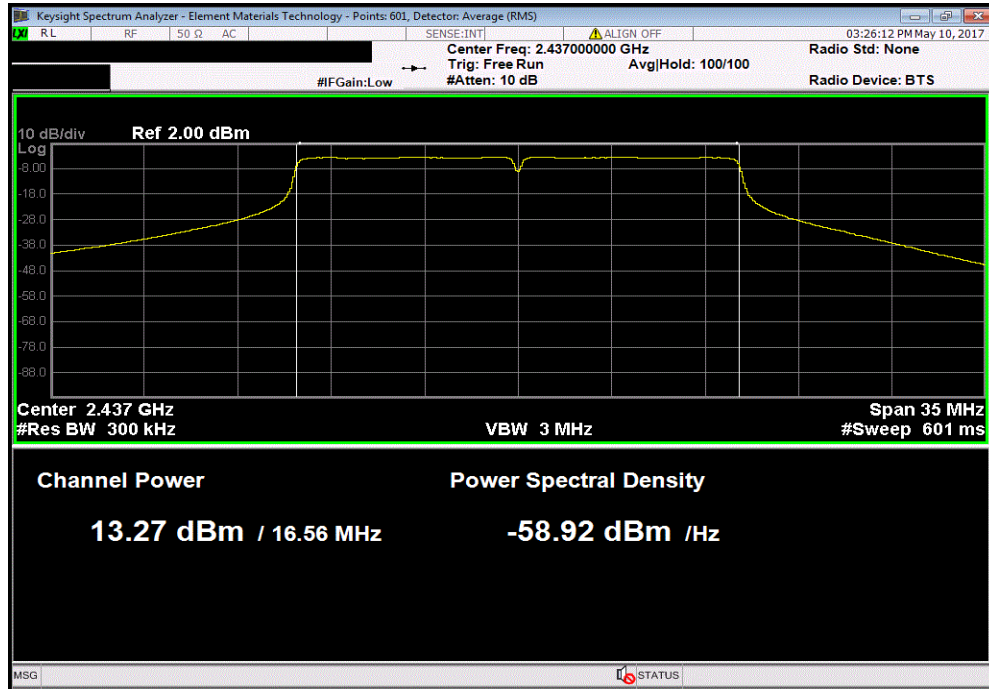


OUTPUT POWER

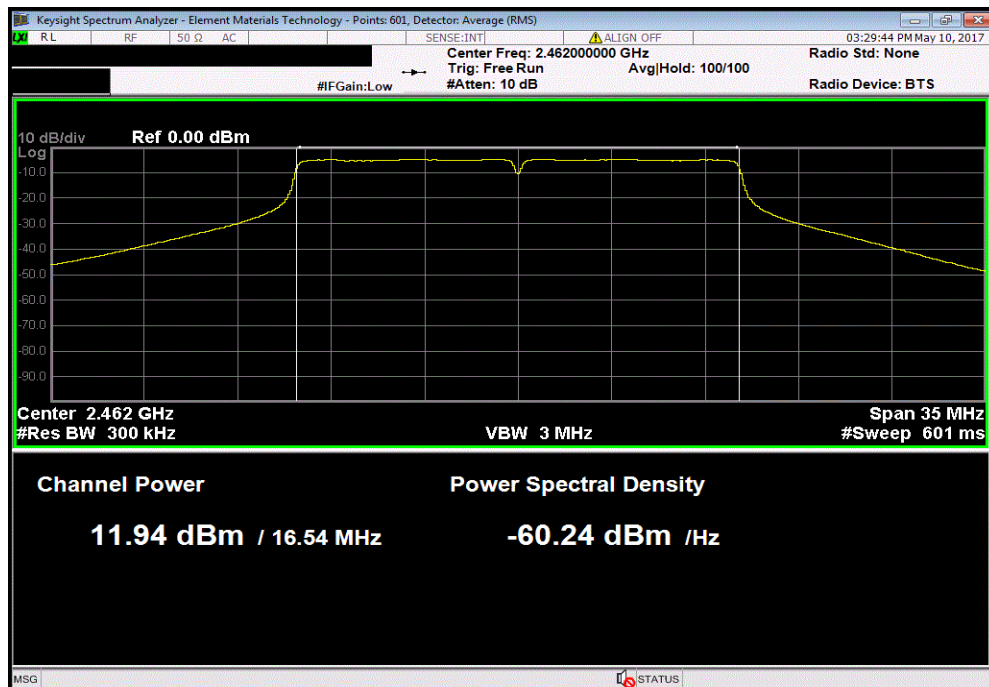


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, Mid Channel 6, 2437 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
13.273	0.1	13.3	30	Pass		



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(g) 6 Mbps, High Channel 11, 2462 MHz						
Avg Cond Pwr (dBm)	Duty Cycle Factor (dB)	Value (dBm)	Limit (dBm)	Results		
11.942	0.1	12	30	Pass		

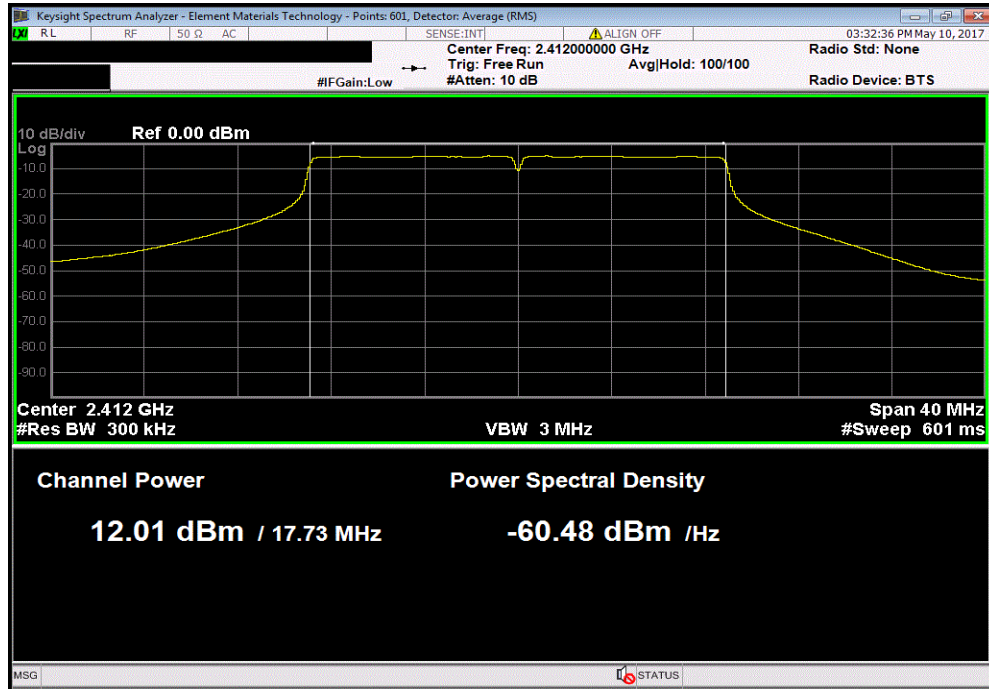


OUTPUT POWER

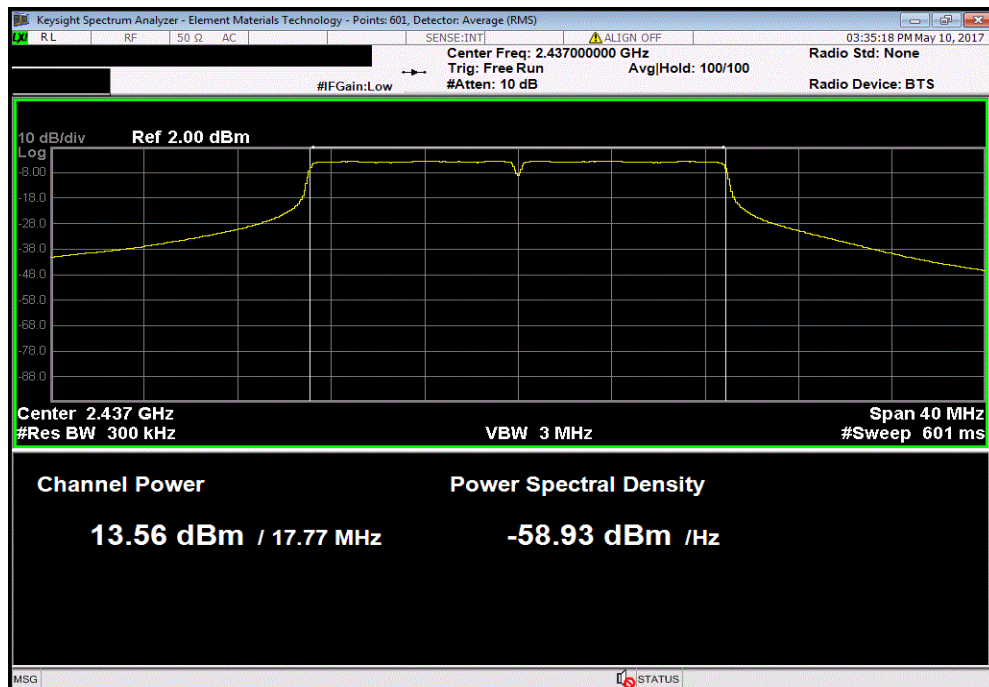


TMTx 2017.01.27 XMM 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, Low Channel 1, 2412 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
12.006	0.1	12.1	30	Pass		



Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, Mid Channel 6, 2437 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
13.564	0.1	13.6	30	Pass		

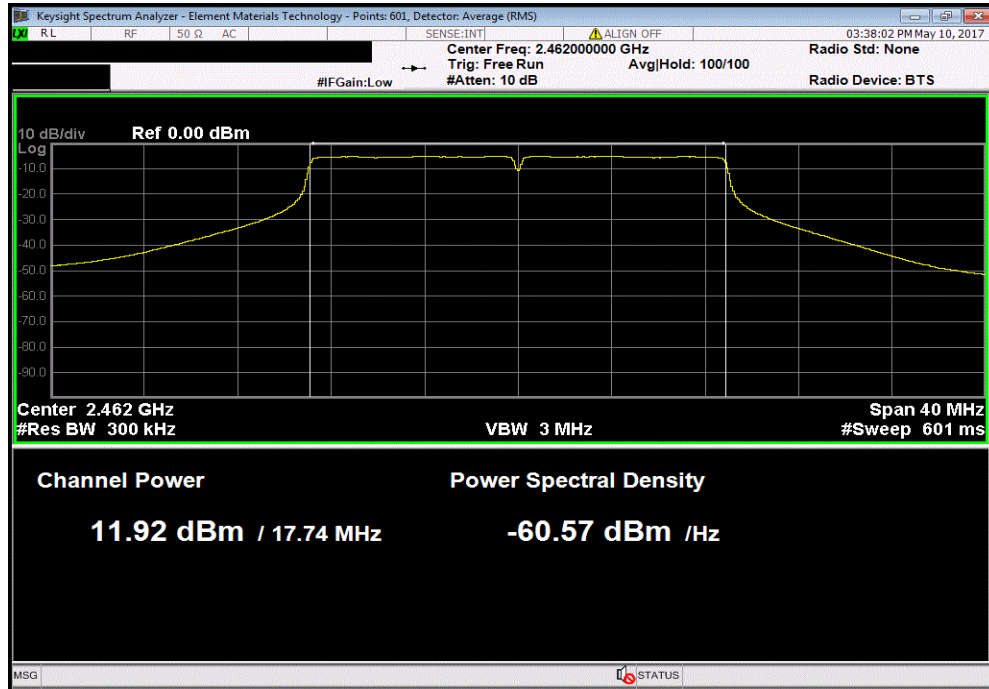


OUTPUT POWER

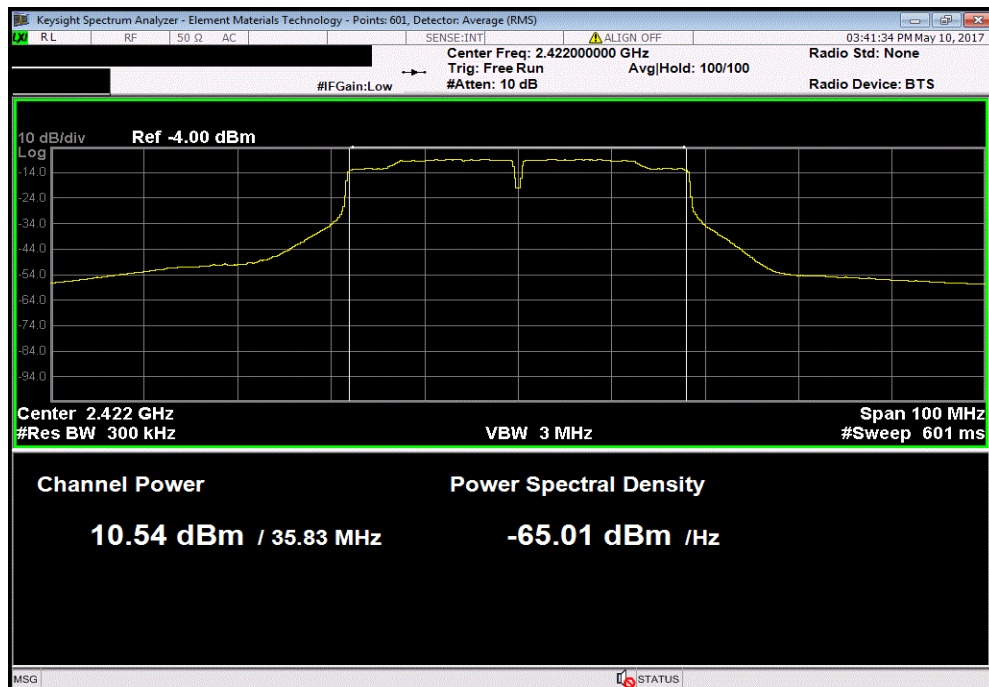


TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 20 MHz BW, 802.11(n) MCS0, High Channel 11, 2462 MHz						
Avg Cond	Duty Cycle	Value	Limit	Results		
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)			
11.915	0.1	12	30	Pass		



Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, Low Channel 1/5, 2422 MHz						
Avg Cond	Duty Cycle	Value	Limit	Results		
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)			
10.537	0.1	10.7	30	Pass		

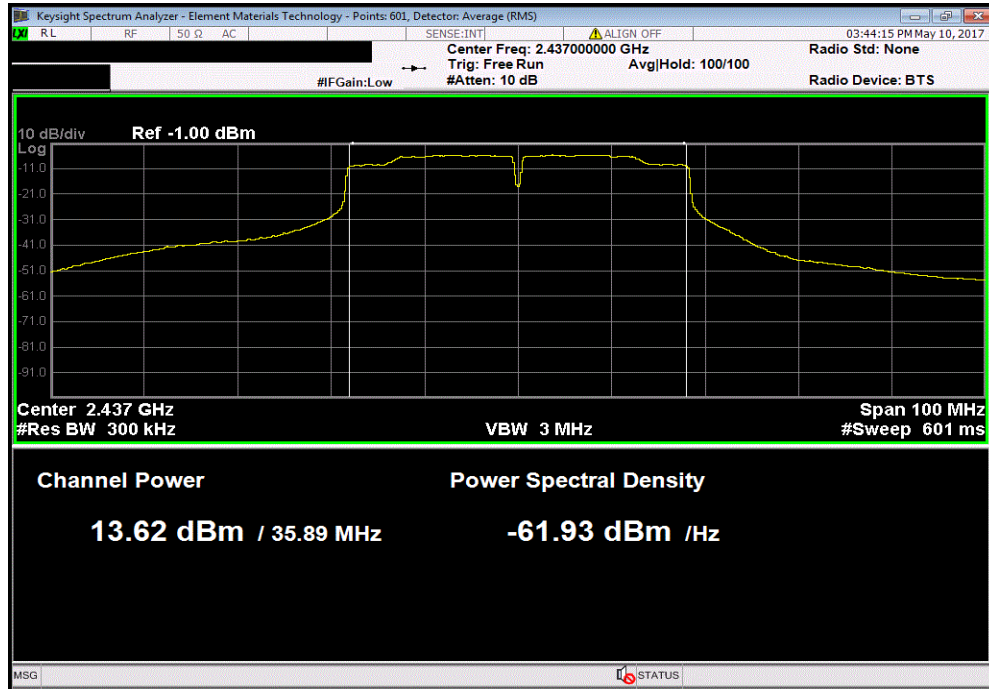


OUTPUT POWER



TMTx 2017.01.27 XMI 2017.02.08

Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, Mid Channel 4/8, 2437 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
13.623	0.1	13.8	30	Pass		



Chain A, 2400 MHz - 2483.5 MHz Band, 40 MHz BW, 802.11(n) MCS0, High Channel 7/11, 2452 MHz						
Avg Cond	Duty Cycle	Value	Limit			
Pwr (dBm)	Factor (dB)	(dBm)	(dBm)	Results		
10.991	0.1	11.1	30	Pass		

