

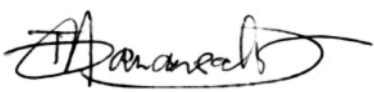
RF TEST REPORT



Report No.: FCC_RF_SL15072901-ZBR-024_DTS_2.4G Rev. 2.0
Supersede Report No.: FCC_RF_SL15072901-ZBR-024_DTS_2.4G Rev. 1.0

Applicant	:	Zebra Technologies Corporation
Product Name	:	WLAN IEEE 802.11ac/a/b/g/n 1x1 and Bluetooth 4.1 module
Model No.	:	WYSBHVGXG
Test Standard	:	47 CFR 15.247 RSS 247 Iss.1 : May 2015
Test Method	:	ANSI C63.10: 2013 RSS Gen Iss 4: Nov 2014 558074 D01 DTS Meas Guidance v03r03
FCC ID	:	I28MD-FXLAN11AC
IC ID	:	3798B-FXLAN11AC
Dates of test	:	09/08/2015
Issue Date	:	11/20/2015
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification [X]		
Equipment did not comply with the specification []		

This Test Report is Issued Under the Authority of:

	
Teody Manansala	Nima Molaei
Test Engineer	Engineer Reviewer

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA



775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

Visit us at: www.siemic.com; Follow us at:



Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF, Telecom
Hong Kong	OFTA (US002)	RF, Telecom

CONTENTS

1	REPORT REVISION HISTORY	4
2	EXECUTIVE SUMMARY	4
3	CUSTOMER INFORMATION	4
4	TEST SITE INFORMATION	4
5	MODIFICATION	4
6	EUT INFORMATION	5
6.1	EUT Description	5
6.2	Radio Description	5
6.3	EUT Photos	6
6.4	EUT Test Setup Photos	8
7	SUPPORTING EQUIPMENT/SOFTWARE AND CABLING DESCRIPTION.....	11
7.1	Supporting Equipment	11
7.2	Cabling Description	11
7.3	Test Software Description	11
8	TEST SUMMARY	12
9	MEASUREMENT UNCERTAINTY	13
10	MEASUREMENTS, EXAMINATION AND DERIVED RESULTS	14
10.1	Conducted Emissions	14
10.2	6dB Bandwidth	17
10.3	99% Occupied Bandwidth	21
10.4	Peak Output Power	25
10.5	Band Edge	27
10.6	Peak Spectral Density	30
10.7	Radiated Spurious Emissions below 1GHz	34
10.8	Radiated Spurious Emissions between 1GHz – 25GHz	43
ANNEX A. TEST INSTRUMENT		56
ANNEX B. SIEMIC ACCREDITATION		57

1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_IC_RF_SL15072901-ZBR-024_DTS_2.4G	None	Original	10/12/2015
FCC_IC_RF_SL15072901-ZBR-024_DTS_2.4G Rev. 1.0	1.0	Add Support equipmentnt description to PCBA and power supply	11/10/2015
FCC_IC_RF_SL15072901-ZBR-024_DTS_2.4G Rev. 1.0	2.0	Add remarks on the radio description	11/20/2015

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Zebra Technologies Corporation
Product: WLAN IEEE 802.11ac/a/b/g/n 1x1 and Bluetooth 4.1 module
Model: WYSBHVXGXG

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	Zebra Technologies Corporation
Applicant Address	:	333 Corporate Woods, Vernon Hills, IL, 60061, USA
Manufacturer Name	:	Zebra Technologies Corporation
Manufacturer Address	:	333 Corporate Woods, Vernon Hills, IL, 60061, USA

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	881796
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	:	WLAN IEEE 802.11ac/a/b/g/n 1x1 and Bluetooth 4.1 module
Model No.	:	WYSBHVXGX
Trade Name	:	Zebra Technologies Corporation
Serial No.	:	N/A
Host Model No.	:	N/A
Input Power	:	100-240VDC, 50/60Hz
Power Adapter Manu/Model	:	FSP GROPU INC./FSP025-DHAN2
Power Adapter SN	:	H00000048
Product Hardware version	:	Rev E
Product Software version	:	Ver V77.19.xx
Radio Hardware version	:	Rev D
Radio Software version	:	Ver 15.68.07.p36
Test Software version	:	Version 1.71
Date of EUT received	:	September 8, 2015
Equipment Class/ Category	:	DTS
Port/Connectors	:	USB

6.2 Radio Description

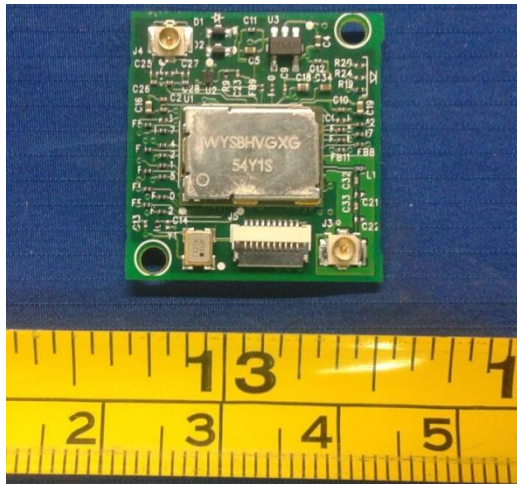
Radio Type	802.11b	802.11g	802.11n-20M	802.11n-40M
Operating Frequency	2412-2462MHz	2412-2462MHz	2412-2462MHz	2422-2462MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing	5MHz	5MHz	5MHz(2.4GHz)	40MHz
Number of Channels	11	11	11(2.4GH)	7(2.4GH)
Antenna Type	Omnidirectional Antenna Patch Antenna			
Antenna Gain (Peak)	Omnidirectional Antenna - 3dBi (for 2.4GHz) Patch Antenna - 3.66dBi (for 2.4GHz)			
Antenna Connector Type	Reverse SMA U.FL connector			
Remarks	2.4GHz and 5GHz Radio does not transmit simultaneously			

EUT Power level setting

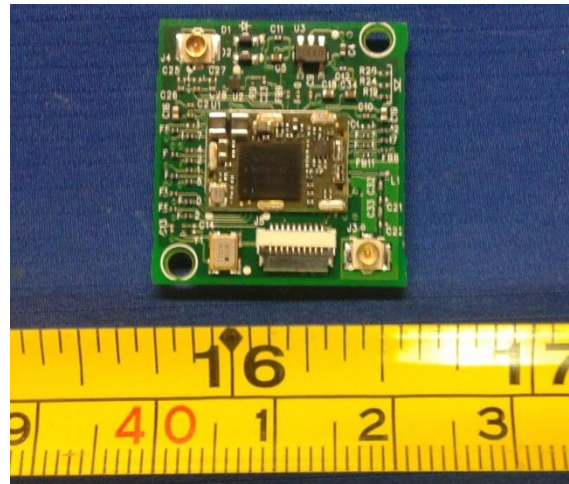
Mode	Frequency (MHz)	Power setting
802.11-b	2412	16
802.11-b	2437	16
802.11-b	2462	16
802.11-g	2412	13
802.11-g	2437	13
802.11-g	2462	13
802.11-n-20	2412	13
802.11-n-20	2437	13
802.11-n-20	2462	13
802.11-n-40	2422	13

802.11-n-40	2437	13
802.11-n-40	2452	13

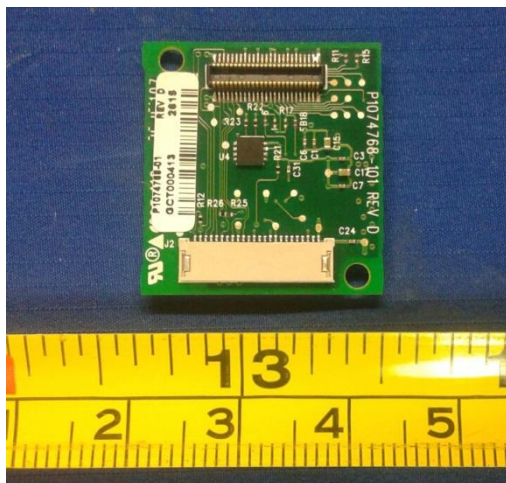
6.3 EUT Photos



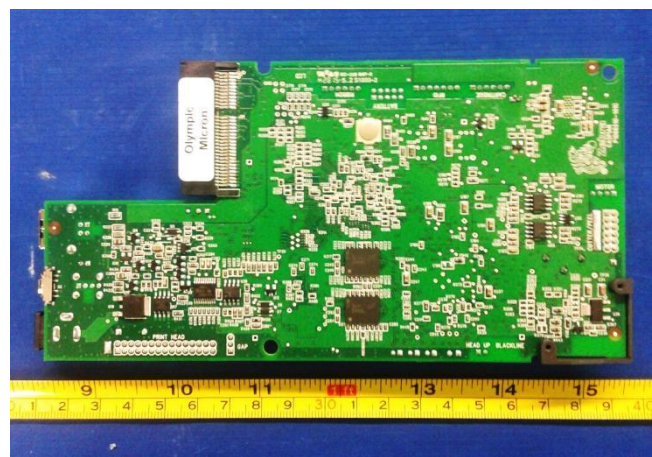
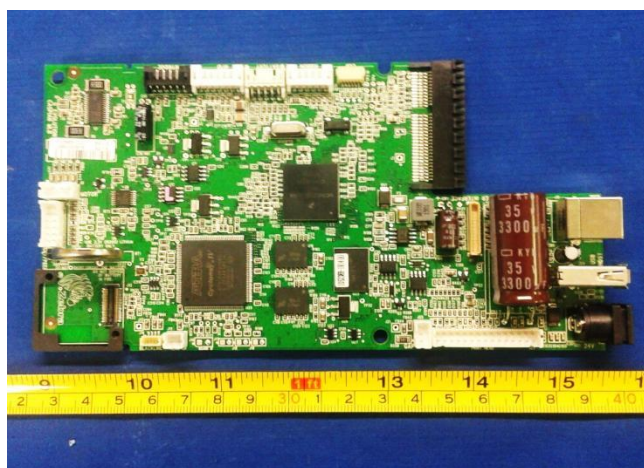
EUT Radio with Shielding Top View



EUT Radio without Shielding Top View



EUT Radio Bottom View



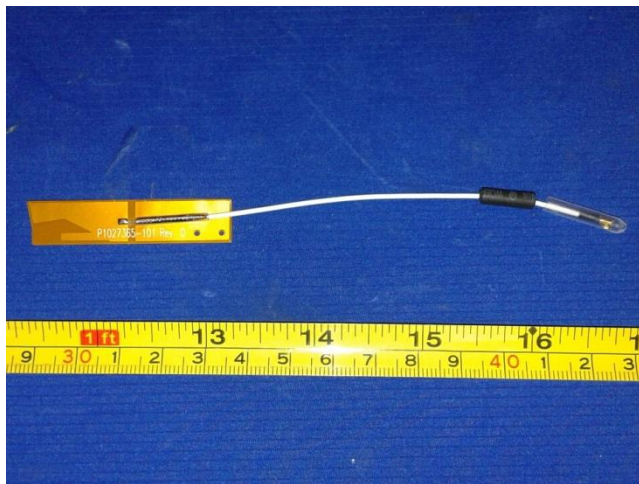
Support Equipment PCBA Top View



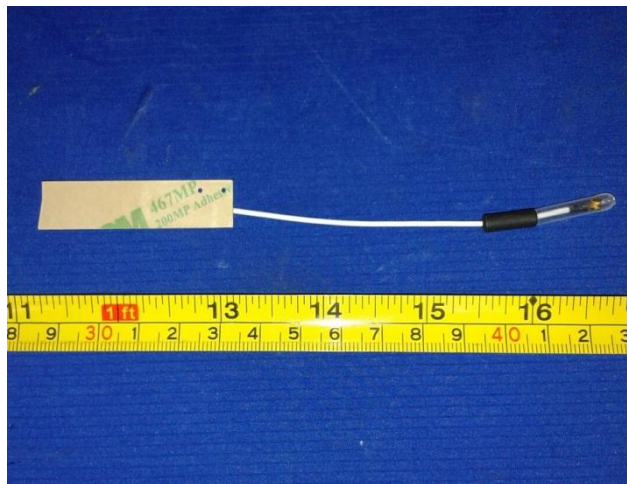
Support Equipment PCBA Bottom View



Omnidirectional Antenna



Omnidirectional Antenna



Patch Antenna Top View



Patch Antenna Bottom

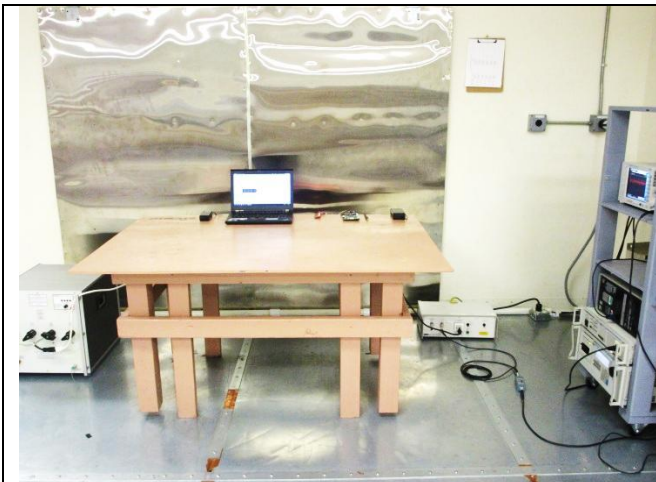


Support Equipment Power Supply Top View

Support Equipment Power Supply Bottom View

6.4 EUT Test Setup Photos

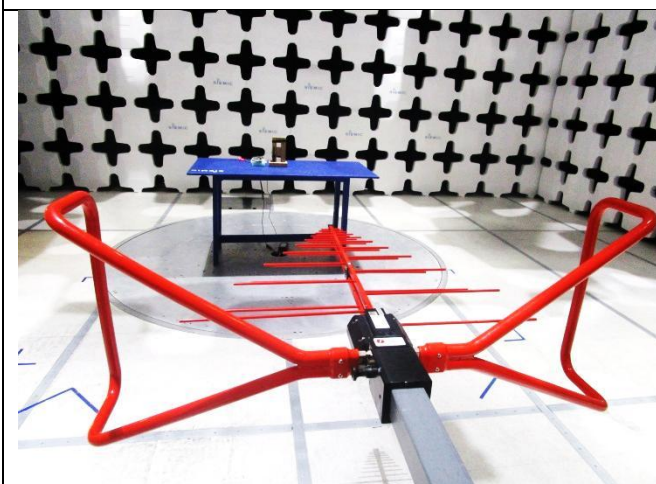
Onnidirectional Antenna



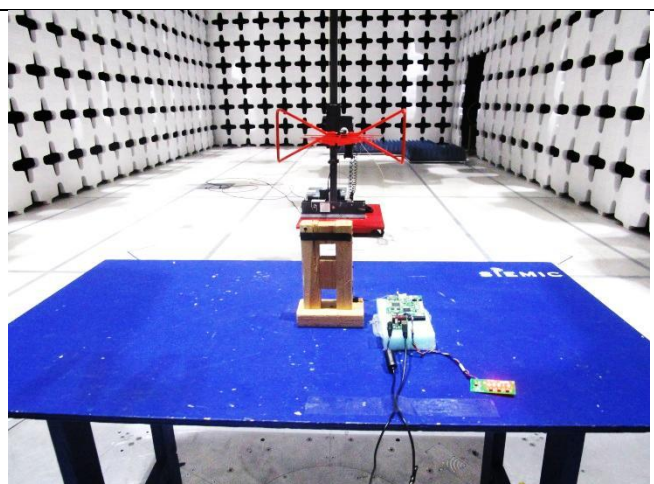
AC Line Conducted Emissions – Front View



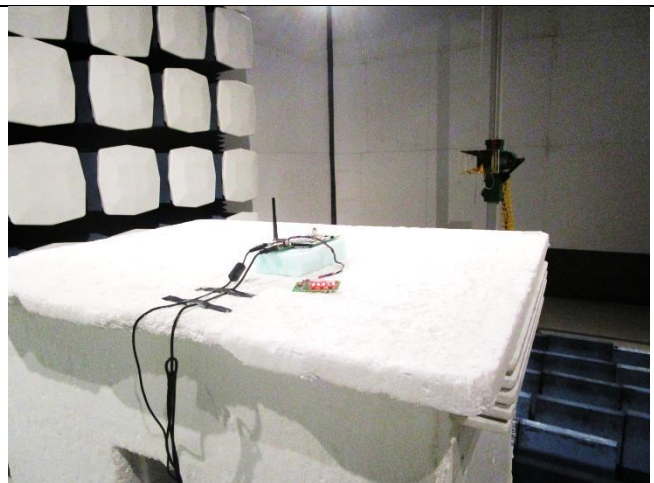
AC Line Conducted Emissions – Rear View



Radiated Emissions (<1GHz) – Front View



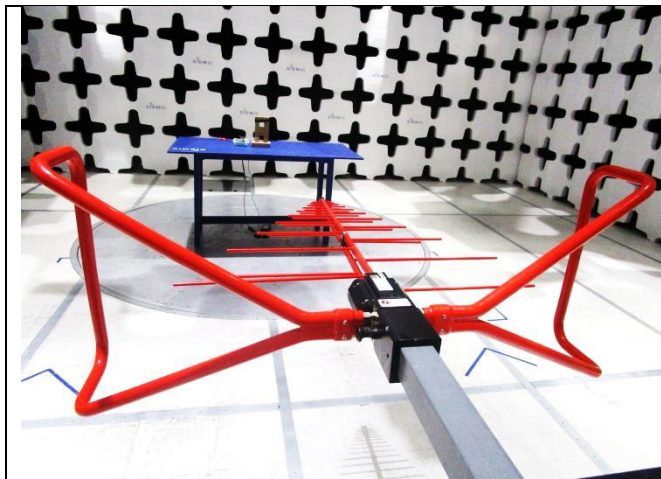
Radiated Emissions (<1GHz) – Rear View



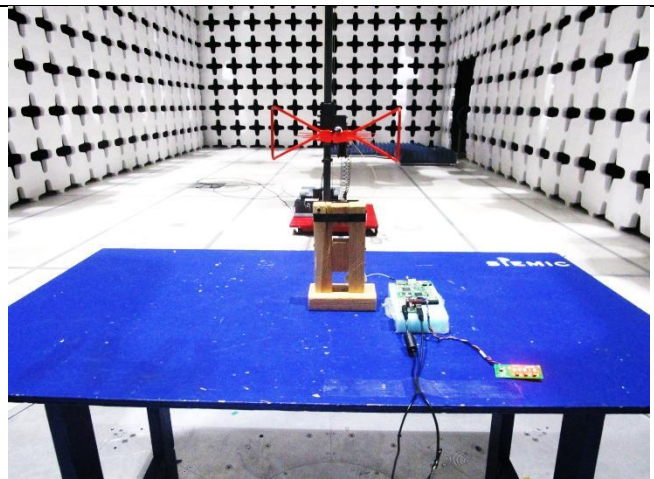
Radiated Emissions (>1GHz) – Front View

Radiated Emissions (>1GHz) – Rear View

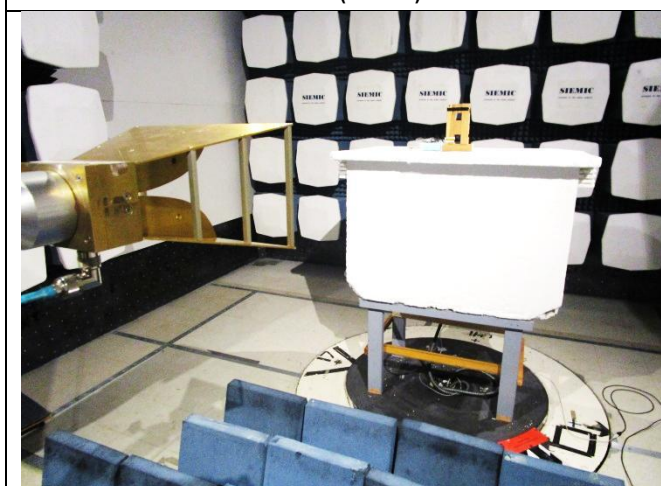
Patch Antenna



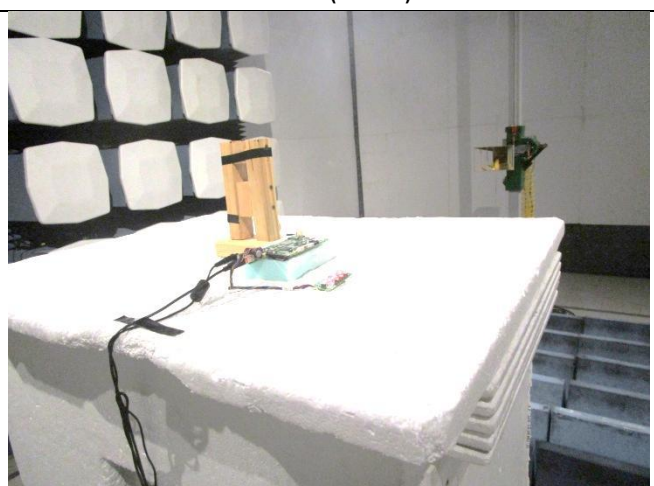
Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View



Radiated Emissions (>1GHz) – Front View



Radiated Emissions (>1GHz) – Rear View

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	P05F Latitude E5510	N/A	Dell	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
USB	EUT	I/O Port	Laptop	USB	2	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF Testing	Tool Box	Set the EUT to transmit continuously in diferent test mode

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
Restricted Band of Operation	FCC	15.205	FCC	ANSI C63.10:2013	☒ Pass
	IC	RSS Gen 8.10	IC	558074 D01 DTS Meas Guidance v03r03	☐ N/A
AC Conducted Emissions	FCC	15.207(a)	FCC	ANSI C63.10:2013	☒ Pass
	IC	RSS Gen 8.8	IC	RSS Gen Issue 4: 2014	☐ N/A

DTS Band Requirement

Test Item	Test standard		Test Method/Procedure		Pass / Fail
99% Occupied Bandwidth	-	-	-	-	☒ Pass
	IC	RSS Gen 6.6	IC	RSS Gen Issue 4: 2014 -	☐ N/A
6dB Bandwidth	FCC	15.247(a)(2)	FCC	558074 D01 DTS Meas Guidance v03r03	☒ Pass
	IC	RSS247 (5.2.1)	IC		☐ N/A
Band Edge and Radiated Spurious Emissions	FCC	15.247(d)	FCC	ANSI C63.10:2013	☒ Pass
	IC	RSS247 (5.5)	IC	558074 D01 DTS Meas Guidance v03r03	☐ N/A
Output Power	FCC	15.247(b)	FCC	558074 D01 DTS Meas Guidance v03r03	☒ Pass
	IC	RSS247 (5.4.4)	IC		☐ N/A
Receiver Spurious Emissions	IC	RSS Gen (4.8)	IC	RSS Gen Issue 4: 2014	☐ Pass ☒ N/A
Antenna Gain > 6 dBi	FCC	15.247(e)	FCC	-	☐ Pass
	IC	-	IC	-	☒ N/A
Power Spectral Density	FCC	15.247(e)	FCC	558074 D01 DTS Meas Guidance v03r03	☒ Pass
	IC	RSS247 (5.2.2)	IC		☐ N/A
RF Exposure requirement	FCC	15.247(i)	FCC	-	☐ Pass
	IC	RSS Gen(5.5)	IC	RSS Gen Issue 4: 2014	☒ N/A
Remark	- All measurement uncertainties do not take into consideration for all presented test results. - The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.				

9 Measurement Uncertainty

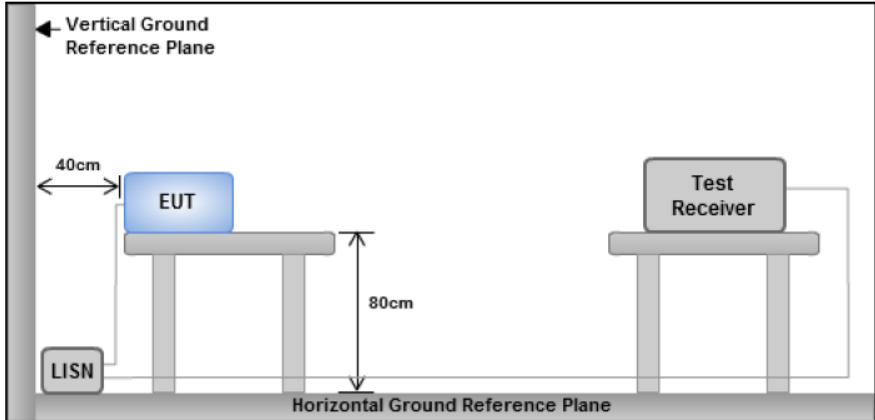
Emissions			
Test Item	Frequency Range	Description	Uncertainty
Band Edge and Radiated Spurious Emissions	30MHz – 1GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+5.6dB/-4.5dB
Band Edge and Radiated Spurious Emissions	1GHz – 40GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m)	+4.3dB/-4.1dB

10 Measurements, Examination and Derived Results

10.1 Conducted Emissions

Conducted Emission Limit

Frequency ranges (MHz)	Limit (dBuV)	
	QP	Average
0.15 ~ 0.5	66 – 56	56 – 46
0.5 ~ 5	56	46
5 ~ 30	60	50

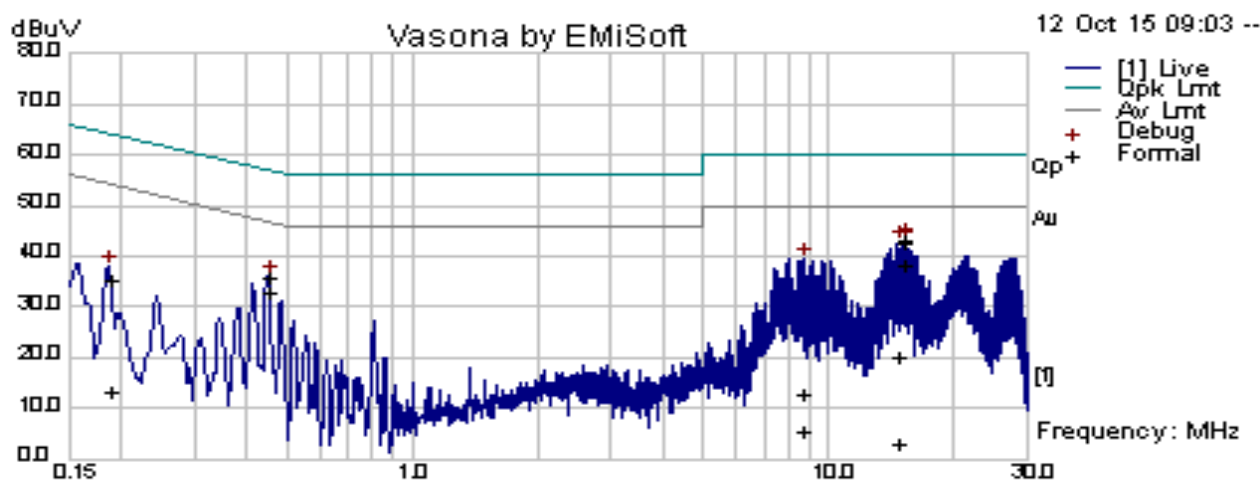
Spec	Item	Requirement	Applicable
§ 15.205 RSS Gen Issue 4: 2014 (8.8)	a)	For Low-power radio-frequency devices that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequency ranges.	☒
Test Setup	 Note: 1. Support units were connected to second LISN. 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes		
Procedure	- The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table, as shown in Annex B. - The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains. - The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable. - All other supporting equipment was powered separately from another main supply.		
Remark	EUT tested with AC 120V 60Hz		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Teody Manansala			
Test Date:	10/12/2015			
Remarks	AC Line @ Line			

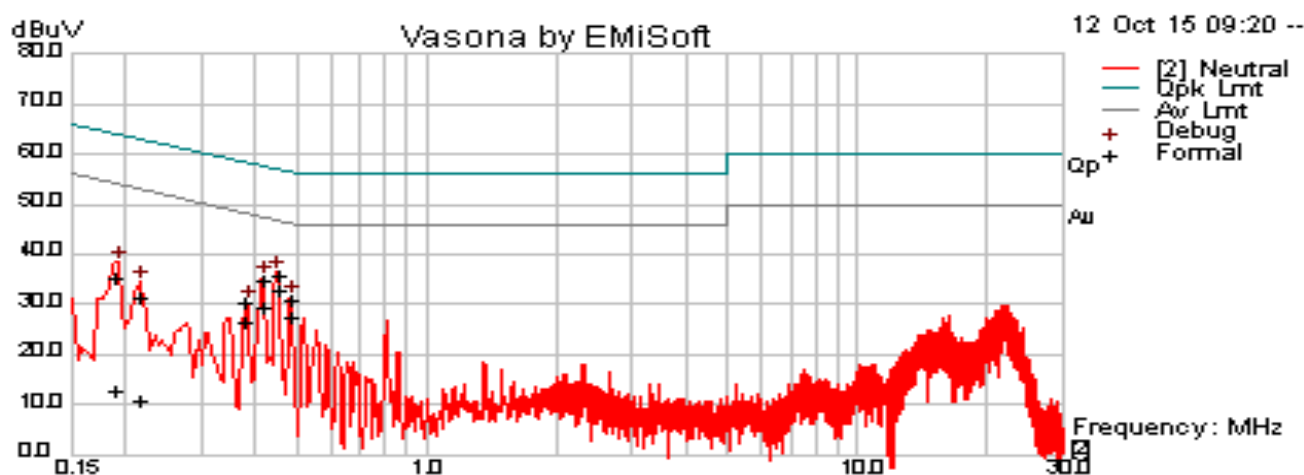


Line Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
15.12	31.83	10.06	0.60	42.49	Quasi Peak	Live	60.00	-17.51	Pass
15.24	32.62	10.06	0.60	43.28	Quasi Peak	Live	60.00	-16.72	Pass
14.65	9.47	10.06	0.60	20.12	Quasi Peak	Live	60.00	-39.88	Pass
8.66	2.09	10.05	0.55	12.69	Quasi Peak	Live	60.00	-47.31	Pass
0.45	25.03	10.01	0.71	35.75	Quasi Peak	Live	56.87	-21.12	Pass
0.19	24.02	10.00	1.39	35.41	Quasi Peak	Live	64.04	-28.63	Pass
15.12	27.64	10.06	0.60	38.31	Average	Live	50.00	-11.69	Pass
15.24	27.44	10.06	0.60	38.10	Average	Live	50.00	-11.90	Pass
14.65	-7.61	10.06	0.60	3.05	Average	Live	50.00	-46.95	Pass
8.66	-5.06	10.05	0.55	5.54	Average	Live	50.00	-44.46	Pass
0.45	21.90	10.01	0.71	32.62	Average	Live	46.87	-14.25	Pass
0.19	1.67	10.00	1.39	13.06	Average	Live	54.04	-40.98	Pass

Conducted Emission Test Results

Test specification:	Conducted Emissions			
Environmental Conditions:	Temp(°C):	21	Result:	☒ Pass ☐ Fail
	Humidity (%):	42		
	Atmospheric(mbar):	1021		
Mains Power:	120Vac, 60Hz			
Tested by:	Teody Manansala			
Test Date:	10/12/2015			
Remarks	AC Line @ Neutral			



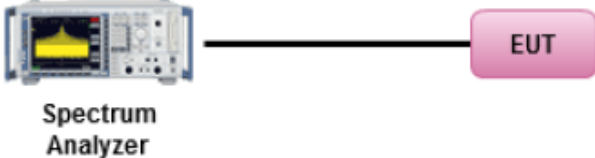
Neutral Plot at 120Vac, 60Hz

Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV)	Measurement Type	Line	Limit (dBuV)	Margin (dB)	Pass /Fail
0.45	25.23	10.01	0.71	35.95	Quasi Peak	Neutral	56.87	-20.92	Pass
0.42	24.02	10.01	0.74	34.77	Quasi Peak	Neutral	57.54	-22.77	Pass
0.48	20.45	10.01	0.69	31.15	Quasi Peak	Neutral	56.26	-25.11	Pass
0.19	24.15	10.00	1.39	35.54	Quasi Peak	Neutral	64.08	-28.54	Pass
0.38	19.74	10.01	0.77	30.52	Quasi Peak	Neutral	58.27	-27.75	Pass
0.22	20.05	10.00	1.22	31.27	Quasi Peak	Neutral	62.94	-31.67	Pass
0.45	22.05	10.01	0.71	32.77	Average	Neutral	46.87	-14.10	Pass
0.42	18.79	10.01	0.74	29.54	Average	Neutral	47.54	-18.00	Pass
0.48	16.60	10.01	0.69	27.29	Average	Neutral	46.26	-18.96	Pass
0.19	1.30	10.00	1.39	12.70	Average	Neutral	54.08	-41.38	Pass
0.38	15.92	10.01	0.77	26.70	Average	Neutral	48.27	-21.57	Pass
0.22	-0.43	10.00	1.22	10.79	Average	Neutral	52.94	-42.15	Pass

Note: The results above show only the worst case.

10.2 6dB Bandwidth

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247 RSS247 (5.2.1)	a)(2)	6dB BW≥500KHz;	☒
Test Setup			
Test Procedure	558074 D01 DTS Meas Guidance v03r03, 8.1 DTS bandwidth <u>6dB Emission bandwidth measurement procedure</u> - Set RBW = 100 kHz. - Set the video bandwidth (VBW) $\geq 3 \times$ RBW. - Detector = Peak. - Trace mode = max hold. - Sweep = auto couple. - Allow the trace to stabilize. - Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.		
Test Date	09/09/2015	Environmental condition	Temperature 23°C Relative Humidity 42% Atmospheric Pressure 1021mbar
Remark	N/A		
Result	☒ Pass ☐ Fail		

Equipment Setting

TEST	RBW	VBW	SPAN	Detector	SWEEP	Trace	NOTES
6 dB DTS Bandwidth	100KHz	3 x RBW	>EBW	Peak	Auto	Max hold	-

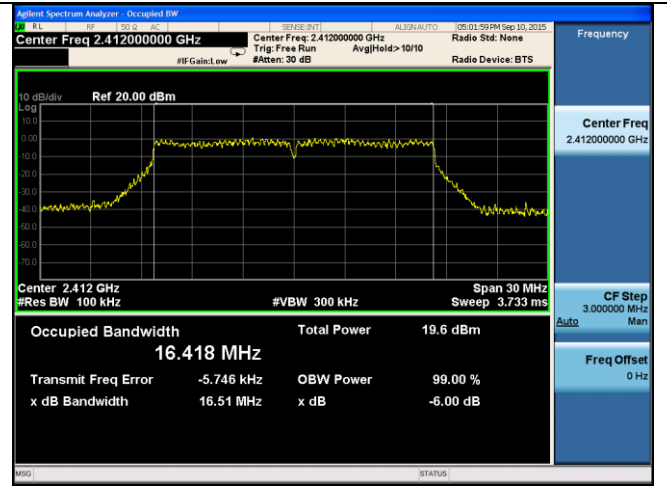
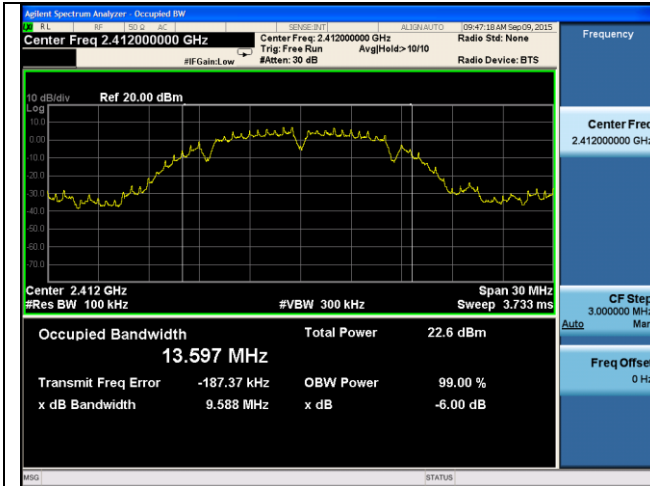
Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes ☐ N/A

6dB Bandwidth measurement result for 2.4GHz

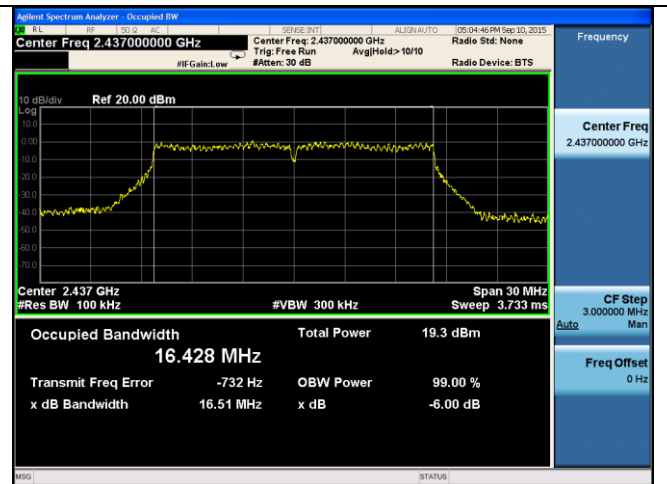
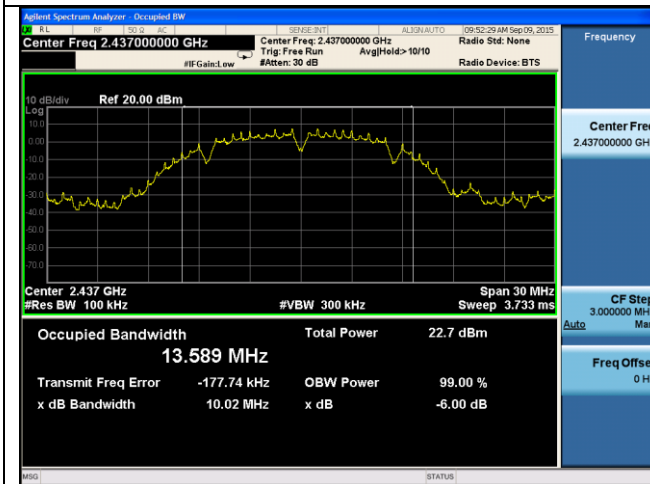
Type	Test mode	Freq (MHz)	CH	Result (MHz)	Limit (MHz)	Result
6dB BW	802.11b	2412	Low	9.588	≥0.5	Pass
6dB BW	802.11b	2437	Mid	10.02	≥0.5	Pass
6dB BW	802.11b	2462	High	10.08	≥0.5	Pass
6dB BW	802.11g	2412	Low	16.51	≥0.5	Pass
6dB BW	802.11g	2437	Mid	16.51	≥0.5	Pass
6dB BW	802.11g	2462	High	16.52	≥0.5	Pass
6dB BW	802.11n-20M	2412	Low	17.70	≥0.5	Pass
6dB BW	802.11n-20M	2437	Mid	17.71	≥0.5	Pass
6dB BW	802.11n-20M	2462	High	17.71	≥0.5	Pass
6dB BW	802.11n-40M	2422	Low	36.42	≥0.5	Pass
6dB BW	802.11n-40M	2437	Mid	36.46	≥0.5	Pass
6dB BW	802.11n-40M	2452	High	36.45	≥0.5	Pass

Test Plots



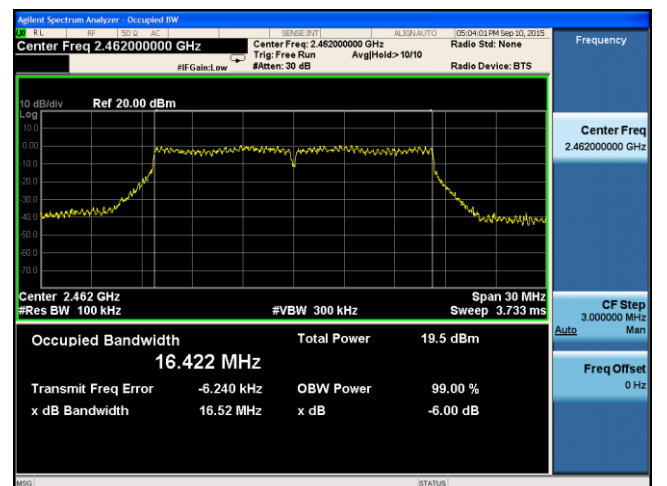
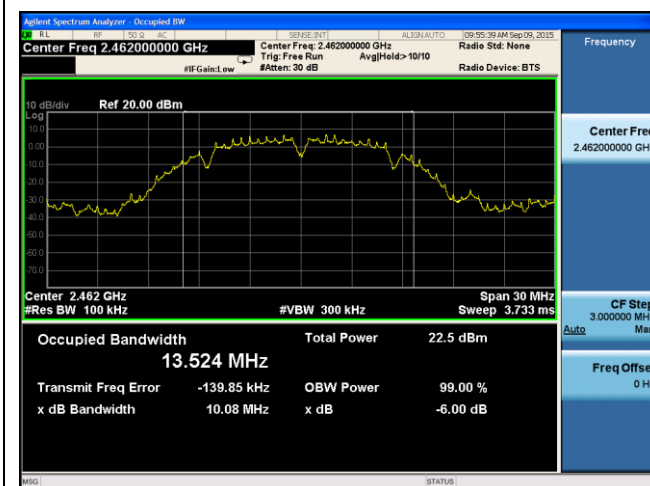
6dB BW -2.4G 802.11b 2412MHz

6dB BW -2.4G 802.11g 2412MHz



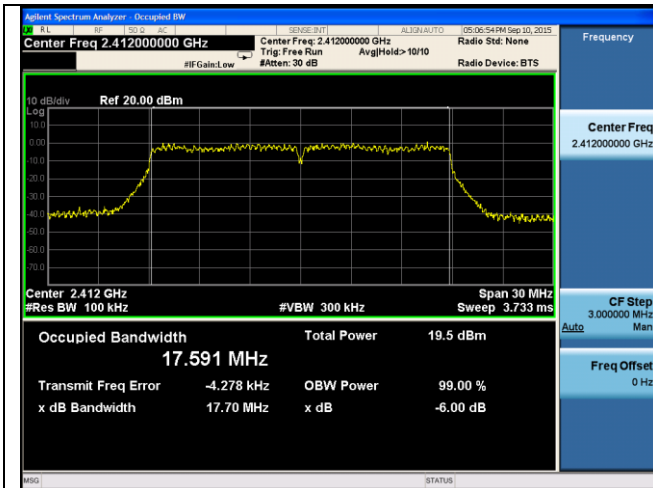
6dB BW -2.4G 802.11b 2437MHz

6dB BW -2.4G 802.11g 2437MHz

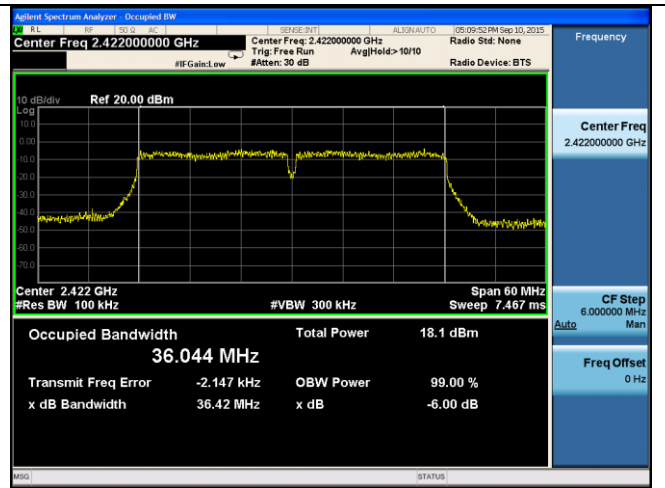


6dB BW -2.4G 802.11b 2462MHz

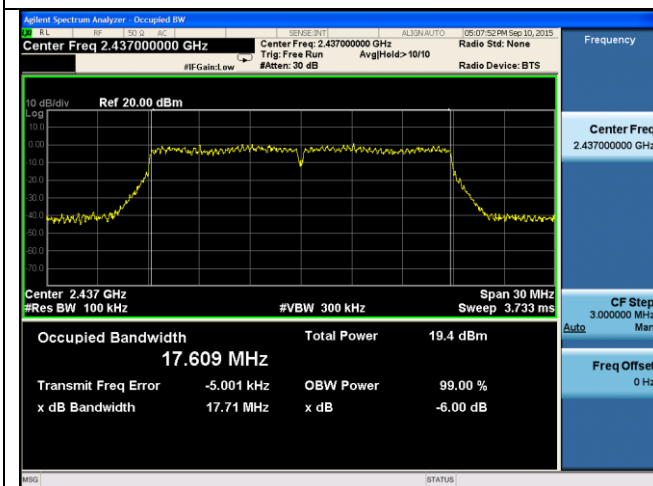
6dB BW -2.4G 802.11g 2462MHz



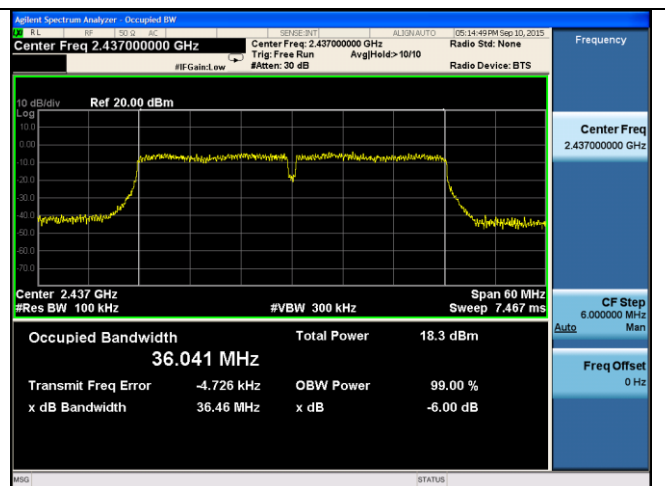
6dB BW -2.4G 802.11n-20M 2412MHz



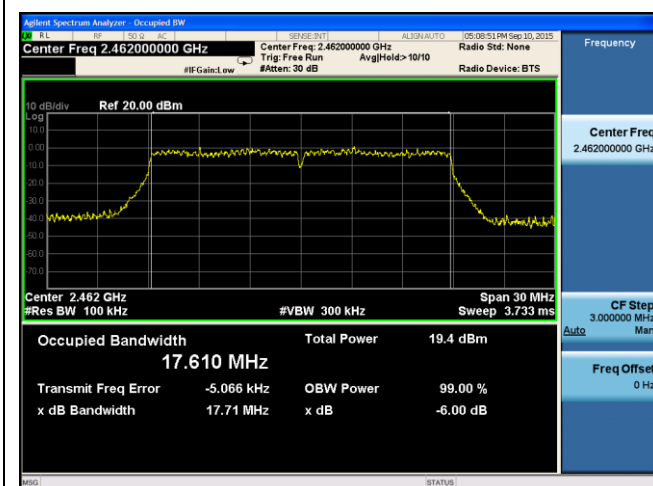
6dB BW -2.4G 802.11n-40M 2422MHz



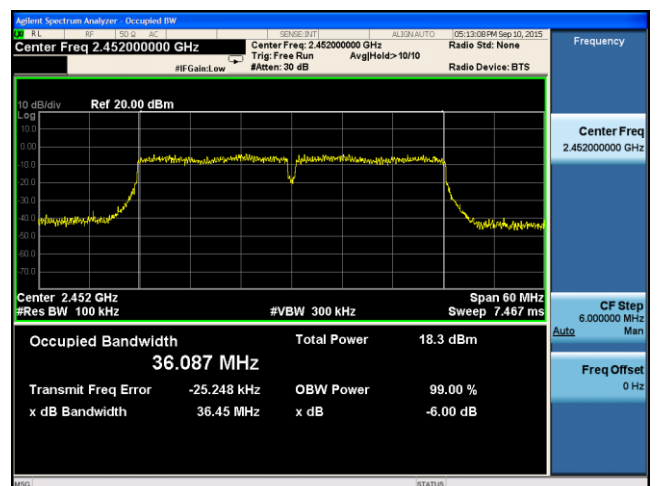
6dB BW -2.4G 802.11n-20M 2437MHz



6dB BW -2.4G 802.11n-40M 2437MHz



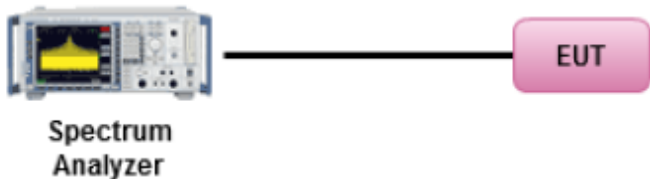
6dB BW -2.4G 802.11n-20M 2462MHz



6dB BW -2.4G 802.11n-40M 2452MHz

10.3 99% Occupied Bandwidth

Requirements:

Spec	Requirement	Applicable									
RSS Gen 4.6.1	The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used given that a peak or peak hold may produce a wider bandwidth than actual. The trace data points are recovered and directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth	☒									
Test Setup	 The diagram shows a Spectrum Analyzer on the left, connected by a cable to a pink box labeled 'EUT' on the right.										
Procedure	1. EUT was set for low , mid, high channel with modulated mode and highest RF output power. 2. The spectrum analyzer was connected to the antenna terminal.										
Test Date	09/09/2015	<table border="1"> <tr> <td>Environmental condition</td> <td>Temperature</td> <td>23oC</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>47%</td> </tr> <tr> <td></td> <td>Atmospheric Pressure</td> <td>1019mbar</td> </tr> </table>	Environmental condition	Temperature	23oC		Relative Humidity	47%		Atmospheric Pressure	1019mbar
Environmental condition	Temperature	23oC									
	Relative Humidity	47%									
	Atmospheric Pressure	1019mbar									
Remark	-										
Result	☒ Pass ☐ Fail										

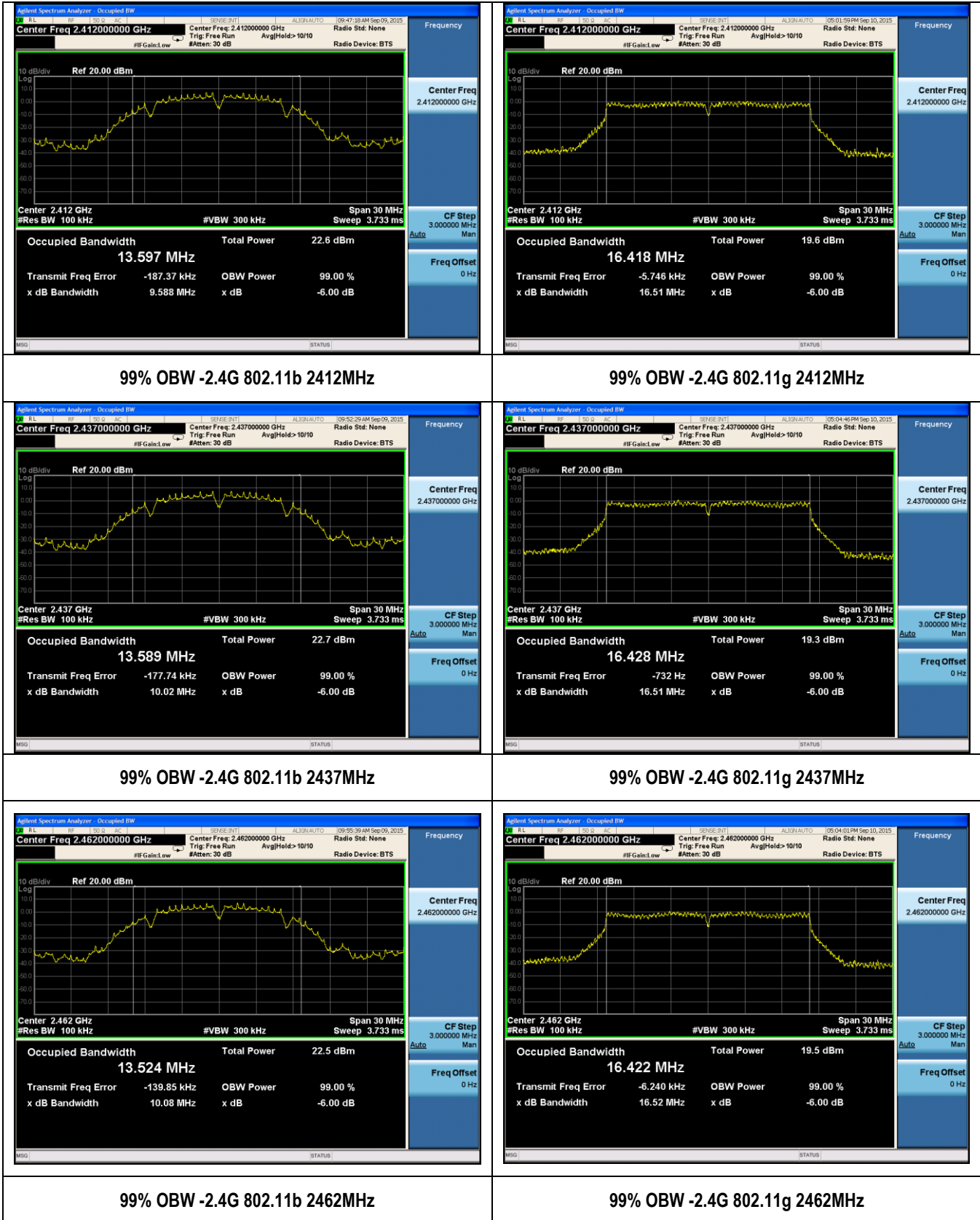
Test Data ☒ Yes (See below) ☐ N/A

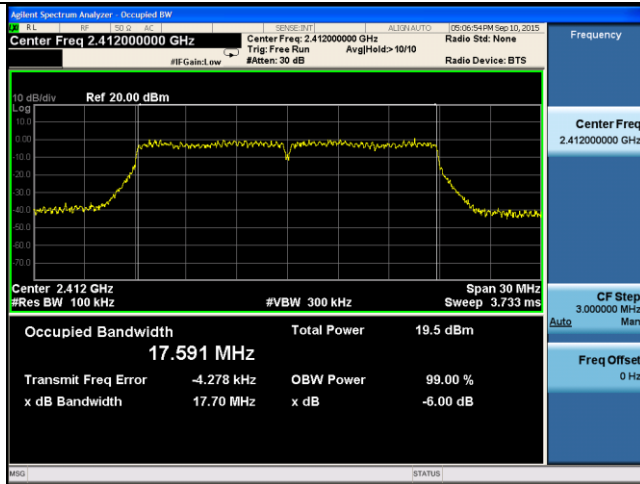
Test Plot ☒ Yes (See below) ☐ N/A

99% OBW measurement result for 2.4GHz

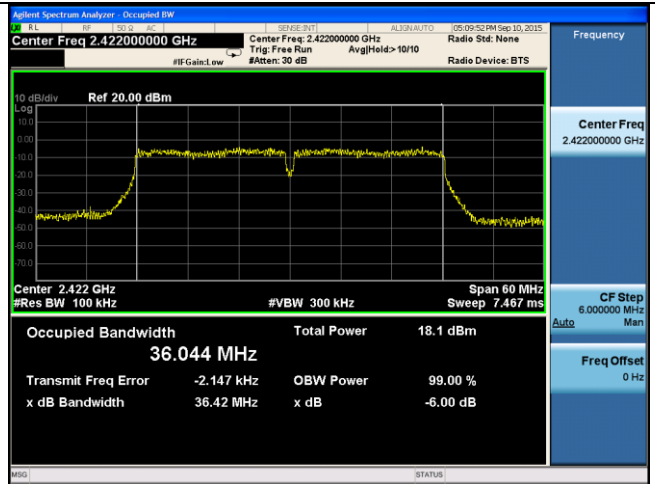
Type	Test mode	Freq (MHz)	CH	Result (MHz)
99% OBW	802.11b	2412	Low	13.597
99% OBW	802.11b	2437	Mid	13.589
99% OBW	802.11b	2462	High	13.524
99% OBW	802.11g	2412	Low	16.418
99% OBW	802.11g	2437	Mid	16.428
99% OBW	802.11g	2462	High	16.422
99% OBW	802.11n-20M	2412	Low	17.591
99% OBW	802.11n-20M	2437	Mid	17.609
99% OBW	802.11n-20M	2462	High	17.610
99% OBW	802.11n-40M	2422	Low	36.044
99% OBW	802.11n-40M	2437	Mid	36.041
99% OBW	802.11n-40M	2452	High	36.087

Test Plots

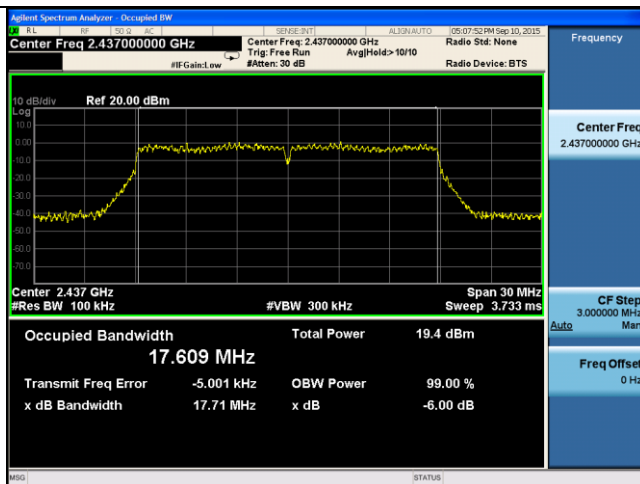




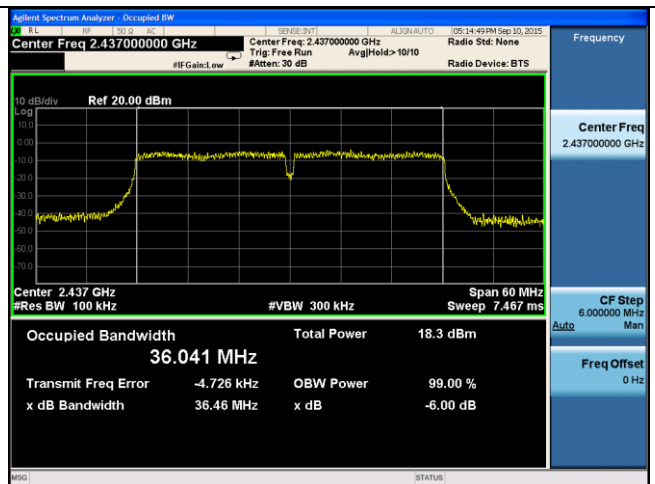
99% OBW -2.4G 802.11n-20M 2412MHz



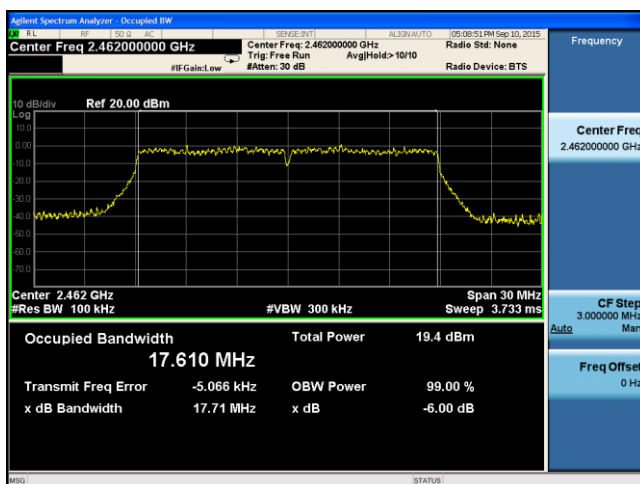
99% OBW -2.4G 802.11n-40M 2422MHz



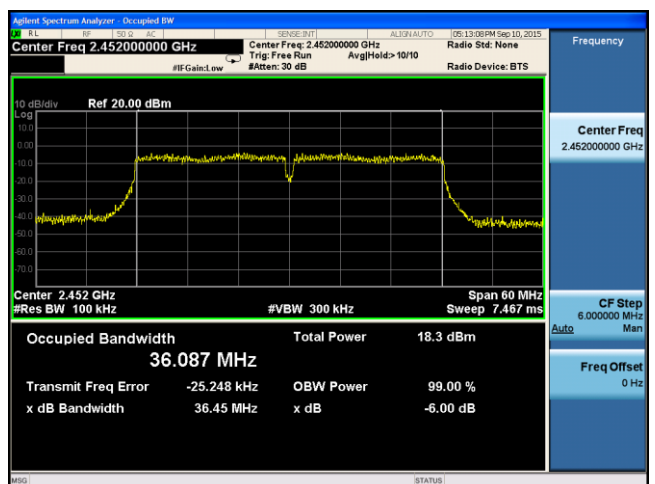
99% OBW -2.4G 802.11n-20M 2437MHz



99% OBW -2.4G 802.11n-40M 2437MHz



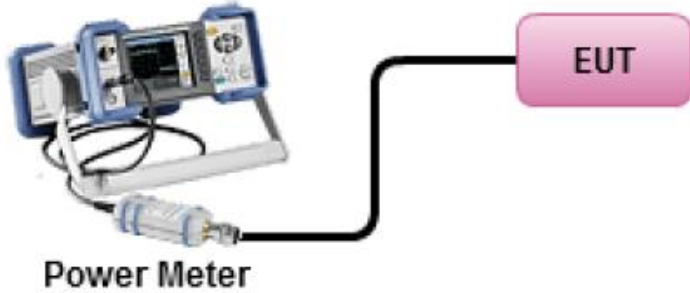
99% OBW -2.4G 802.11n-20M 2462MHz



99% OBW -2.4G 802.11n-40M 2452MHz

10.4 Peak Output Power

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.247 RSS247 (5.4.4)	a)	FHSS in 2400-2483.5MHz with ≥ 75 channels: ≤ 1 Watt	☐
	b)	FHSS in 5725-5850MHz: ≤ 1 Watt	☐
	c)	For all other FHSS in the 2400-2483.5MHz band: ≤ 0.125 Watt.	☐
	d)	FHSS in 902-928MHz with ≥ 50 channels: ≤ 1 Watt	☐
	e)	FHSS in 902-928MHz with ≥ 25 & < 50 channels: ≤ 0.25 Watt	☐
	f)	DSSS in 902-928MHz, 2400-2483.5MHz, 5725-5850MHz: ≤ 1 Watt	☒
Test Setup	 Power Meter		
Test Procedure	558074 D01 DTS Meas Guidance v03r03, 9.2.3.1 <u>Measurement using a Power Meter (PM)</u> Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required. - Connect EUT's RF output power to power meter - Set EUT to be continuous transmission mode - Measurement the average output power using power meter and record the result - Repeat above steps for different test channel and other modulation type.		
Test Date	09/09/2015	Environmental condition	Temperature 23°C Relative Humidity 44% Atmospheric Pressure 1021mbar
Remark	None		
Result	☒ Pass ☐ Fail		

Test Data ☒ Yes ☐ N/A

Test Plot ☐ Yes (See below) ☒ N/A

Output Power measurement result

Type	Test mode	Freq (MHz)	CH	Output Power (dBm)	Limit (dBm)	Result
Output power	802.11b	2412	Low	16.77	30	Pass
Output power	802.11b	2437	Mid	16.75	30	Pass
Output power	802.11b	2462	High	16.57	30	Pass
Output power	802.11g	2412	Low	13.38	30	Pass
Output power	802.11g	2437	Mid	12.86	30	Pass
Output power	802.11g	2462	High	13.05	30	Pass
Output power	802.11n-20M	2412	Low	13.15	30	Pass
Output power	802.11n-20M	2437	Mid	13.06	30	Pass
Output power	802.11n-20M	2462	High	12.98	30	Pass
Output power	802.11n-40M	2422	Low	12.36	30	Pass
Output power	802.11n-40M	2437	Mid	12.65	30	Pass
Output power	802.11n-40M	2452	High	12.67	30	Pass