MEASUREMENT REPORT

FCC PART 15 Subpart E & RSS-247 WLAN 802.11a/n/ac

FCC ID:	2ALGLE1000
IC:	22505-E1000
APPLICANT:	Cassia Networks Inc.
Application Type:	Certification
Product:	Cassia Bluetooth Router
Model No.:	E1000, E1000-10, E1000-20
Brand Name:	CASSIA
FCC Classification:	Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s):	Part15 Subpart E (Section 15.407)
IC Rule(s):	RSS-247 Issue 2, RSS-GEN Issue 4
Test Procedure(s):	ANSI C63.10-2013, KDB 789033 D02v02r01
Test Date:	November 24 ~ December 13, 2017

Reviewed By : Jame Yuan
(Jame Yuan)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
1711RSU04003	Rev. 01	Initial report	12-13-2017	Valid

CONTENTS

Description Page

§2.1033General Information

Applicant:	Cassia Networks Inc.
Applicant Address:	1840 Majestic Way, San Jose, CA 95132
Manufacturer:	Cassia Networks Inc.
Manufacturer Address:	1840 Majestic Way, San Jose, CA 95132
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
FCC Registration No.:	893164
IC Registration No.:	11384A-1
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (G20034, R-20025, T-20020, C-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

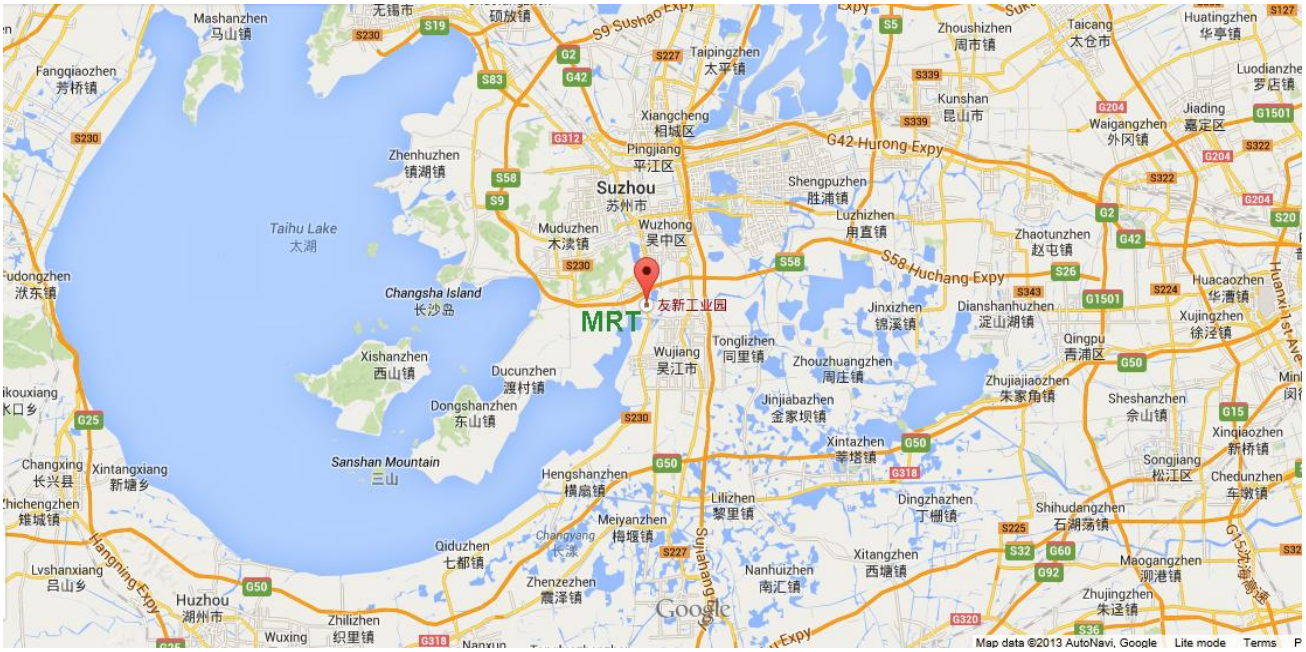
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the FederalCommunications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Cassia Bluetooth Router
Model No.:	E1000, E1000-10, E1000-20
Brand Name:	CASSIA
Wi-Fi Specification:	802.11a/b/g/n/ac
Bluetooth Version:	v4.2 single mode
Power Type:	POE input or AC adapter input
Components	
Adapter	M/N: A8A-050200U-US1 INPUT: 100-240V ~ 50/60Hz, 0.35A OUTPUT: 5Vdc, 2.0A

2.2. Product Specification Subjective to this Report

Wi-Fi Specification:	802.11a//n/ac
Frequency Range:	For 802.11a/n-HT20/ac-VHT20:5180~5240MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40:5190~5230MHz, 5755~5795MHz For 802.11ac-VHT80:5210MHz, 5775MHz
Maximum Average Output Power:	802.11a: 15.78dBm, 802.11n-HT20: 15.46dBm, 802.11n-HT40: 15.69dBm, 802.11ac-VHT20: 15.56dBm, 802.11ac-VHT40: 15.81dBm, 802.11ac-VHT80: 15.13dBm
Type of Modulation:	802.11a/n/ac: OFDM
Modulation Type:	16QAM, 64QAM, 256QAM, QPSK, BPSK

2.3. Operating Frequencies and Channel List

802.11a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz
48	5240 MHz	149	5745 MHz	153	5765 MHz
157	5785 MHz	161	5805 MHz	165	5825 MHz

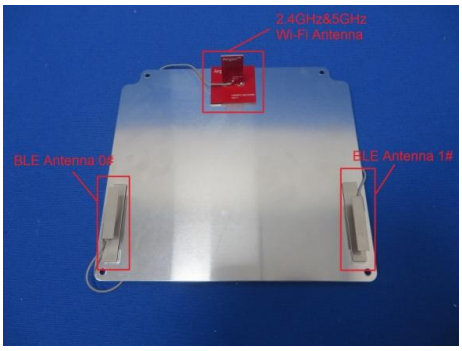
802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz	151	5755 MHz
159	5795 MHz	--	--	--	--

802.11ac-VHT80

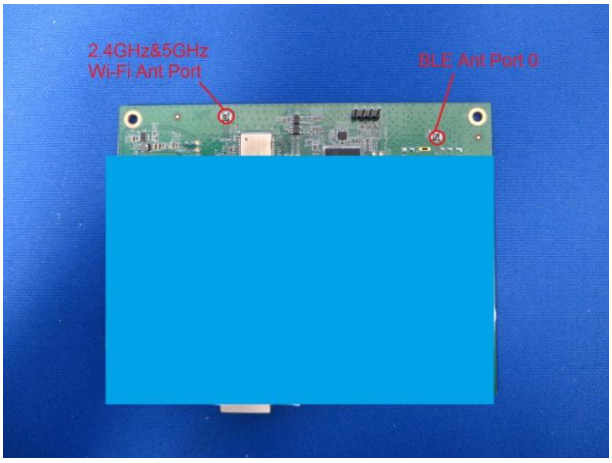
Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz	155	5775 MHz	--	--

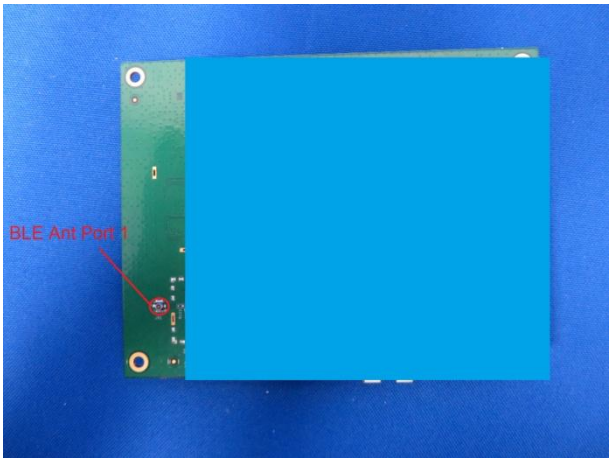
2.4. Description of Available Antennas

Antenna	Frequency Band (MHz)	Ant Gain (dBi)	Tx Paths
	2400 ~ 2483.5 (Wi-Fi)	3.7	1
	2400 ~ 2483.5 (BLE)	5.0	1
	5150 ~ 5250	6.6	1
	5745 ~ 5825	7.3	1

2.5. Description of Antenna RF Port

Antenna RF Port			
---	2.4GHz&5GHz Wi-Fi RF Port	2.4GHz BLE RF Port	
Software Control Port	--	Ant 0	Ant 1





2.6. Test Mode

Test Mode	Mode 1: Transmit by 802.11a (6Mbps)
	Mode 2: Transmit by 802.11n-HT20 (MCS0)
	Mode 3: Transmit by 802.11n-HT40 (MCS0)
	Mode 4: Transmit by 802.11ac-VHT20 (MCS0)
	Mode 5: Transmit by 802.11ac-VHT40 (MCS0)
	Mode 6: Transmit by 802.11ac-VHT80 (MCS0)

2.7. Description of Test Software

The test utility software used during testing was “engineering order” provided by the applicant.

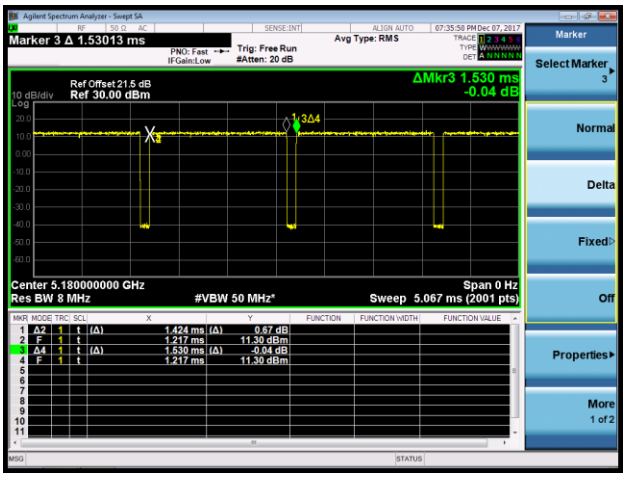
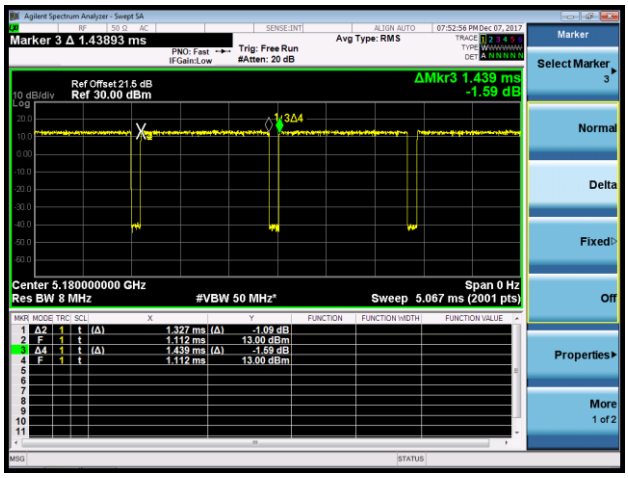
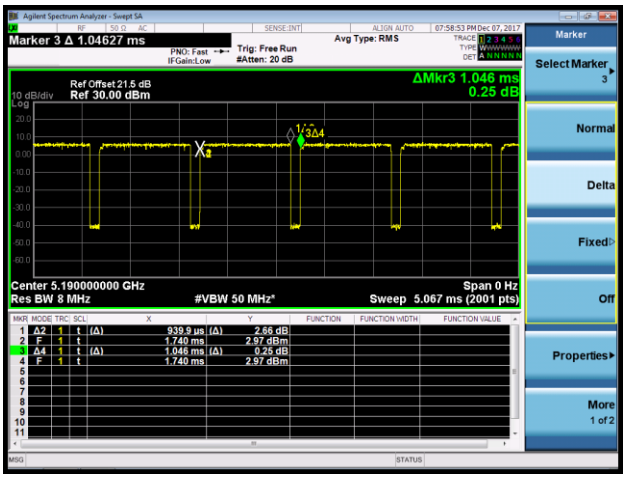
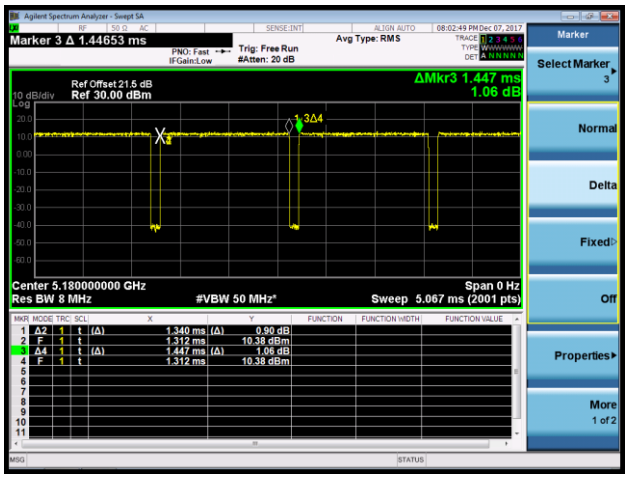
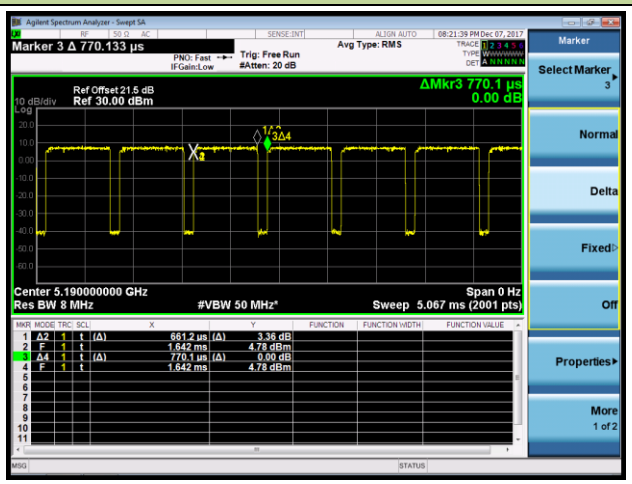
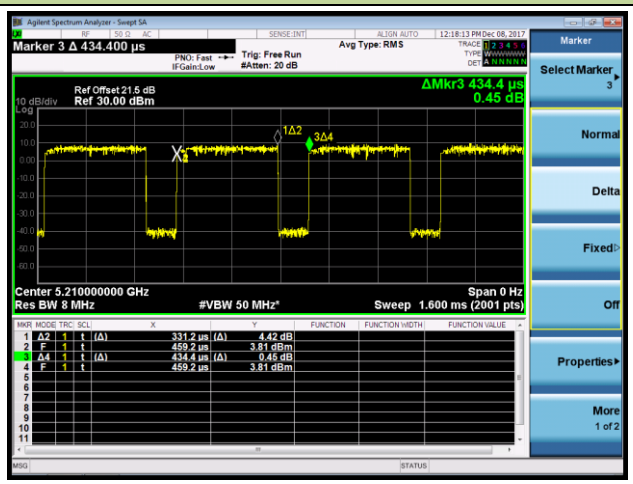
2.8. Device Capabilities

This device contains the following capabilities:

2.4GHz WLAN (DTS), 5GHzWLAN (NII) and Bluetooth (v4.2)

Note: 5GHz (NII) operation is possible in 20MHz, 40MHzand 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = average per the guidance of Section B)2)b) of ANSI C63.10-2013. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Test Mode	Duty Cycle
802.11a	93.07%
802.11n-HT20	92.22%
802.11n-HT40	89.86%
802.11ac-VHT20	92.61%
802.11ac-VHT40	85.86%
802.11ac-VHT80	76.24%

802.11a	802.11n-HT20
	
802.11n-HT40	802.11ac-VHT20
	
802.11ac-VHT40	802.11ac-VHT80
	

2.9. Test Configuration

The **Cassia Bluetooth Router** is tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.10. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.11. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphletsupplied to the user and be readily visible to the purchaser at the time of purchase. However, when the deviceis so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label andlabel location.

RSP-100 Issue 11 Section 3

The manufacturer, importer or distributor shall meet the labelling requirements set out in this section for every unit:

(i) prior to marketing in Canada, for products manufactured in Canada

(ii) prior to importation into Canada, for imported products

For information regarding the e-labelling option, see Notice 2014–DRS1003. The label for the certified product represents the manufacturer’s or importer’s compliance with Innovation, Science and Economic Development Canada’s (ISED) regulatory requirements.

Please see attachment for IC label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in ANSI C63.10-2013 were used in the measurement of the EUT**.**

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated tomaximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antennathat uses a unique coupling to the intentional radiator shall be considered sufficient to comply with theprovisions of this section."

- The antenna of the **Cassia Bluetooth Router** is permanently attached.
- There are no provisions of connects to an external antenna.

Conclusion:

The **Cassia Bluetooth Router** unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTTWA00045	1 year	2018/03/17
Two-Line V-Network	R&S	ENV216	MRTTWA00019	1 year	2018/03/23
Two-Line V-Network	R&S	ENV216	MRTTWA00020	1 year	2018/03/23
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/06/08

Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2018/03/02
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2018/03/16
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2018/04/06
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2018/04/06
Acitve Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2018/04/06
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00001	1 year	2018/04/06
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2018/04/06
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2018/04/06
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/06/08

Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2018/07/10
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00014	1 year	2018/03/18
X-Series USB Peak and Average Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2018/03/18
Programmable Temperature & Humidity Chamber	TEN BILLION	TTH-B3UP	MRTTWA00036	1 year	2018/05/11
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00033	1 year	2018/06/08

Software	**Version**	**Function**
EMI Software	V3	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
Output Power - SR1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB
Power Spectrum Density - SR1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.15dB
Occupied Bandwidth - SR1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.28%

7. TEST RESULT

7.1. Summary

Product Name: **Cassia Networks Inc.**

FCC ID: **2ALGLE1000**

IC: **22505-E1000**

FCC Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(a)	26dB Bandwidth	N/A	Conducted	Pass	Section7.2
15.407(e)	6dB Bandwidth	≥ 500kHz		Pass	Section 7.3
15.407(a)(1)(ii), (3)	Maximum Conducted Output Power	Refer to Section 7.4		Pass	Section 7.4
15.407(h)(1)	Transmit Power Control	≤ 24 dBm		N/A	Section 7.5
15.407(a)(1)(ii), (3), (5)	Peak Power Spectral Density	Refer to Section 7.6		Pass	Section 7.6
15.407(g)	Frequency Stability	N/A		Pass	Section 7.8
15.407(b)(1), (4)(i)	Undesirable Emissions	Refer to Section 7.9	Radiated	Pass	Section 7.8 & 7.9
15.205, 15.209 15.407(b)(5), (6), (7)	General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in15.209		Pass	
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.10

RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
RSS-247 §6.2	99% Bandwidth	N/A	Conducted	Pass	Section 7.2
RSS-247 §6.2.4	6dB Bandwidth	>500kHz		Pass	Section 7.3
RSS-247 §6.2.1, §6.2.4	Max Conducted Output Power	Refer to Section 7.4		Pass	Section 7.4
	Maximum E.I.R.P				
RSS-247 §6.2.2, §6.2.3	Transmit Power Control	≤ 24 dBm		N/A	Section 7.5
RSS-247 §6.2.1, §6.2.4	Peak Power Spectral Density	Refer to Section 7.6		Pass	Section 7.6
RSS-Gen [8.11]	Frequency Stability	N/A		Pass	Section 7.7
RSS-247 §6.2.1, §6.2.4	Out-of-Band Emissions	Refer to Section 7.9	Radiated	Pass	Section 7.8 & 7.9
RSS-247 §6.2.1, §6.2.4	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in RSS-Gen [8.9]		Pass	
RSS-Gen [8.8]	AC Conducted Emissions 150kHz - 30MHz	< RSS-Gen [8.8] limits	Line Conducted	Pass	Section 7.10

Notes:

1) All channels, modes, and modulations/data rates were investigated among all UNII bands. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer.The correction table was used to account for the losses of the cables and attenuators used as part ofthe system to connect the EUT to the analyzer at all frequencies of interest.

7.2. 26dB Bandwidth Measurement

7.2.1.Test Limit

N/A

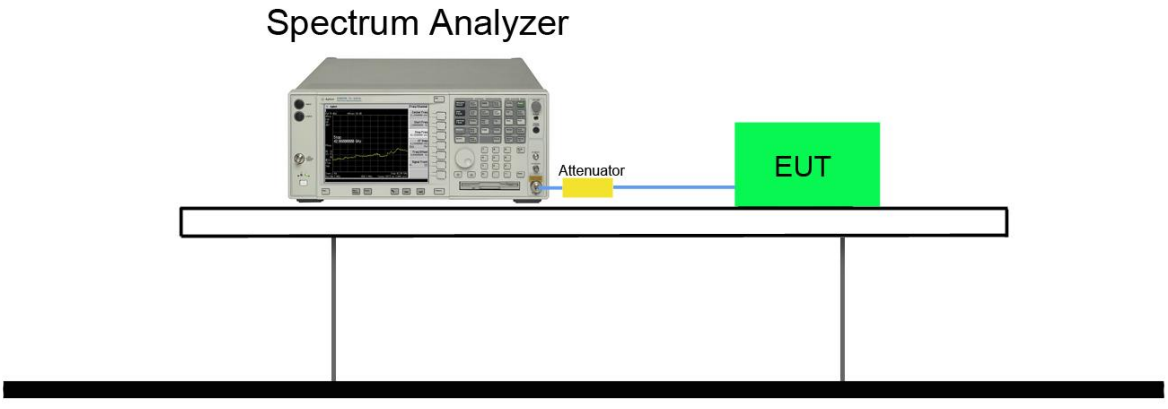
7.2.2.Test Procedure used

KDB 789033 D02v02r01 - Section C.1

7.2.3.Test Setting

1. The analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediated power nulls in the fundamental emission.
2. RBW = approximately 1% of the emission bandwidth.
3. VBW ≥ 3×RBW.
4. Detector = Peak.
5. Trace mode = max hold.

7.2.4.Test Setup



7.2.5.Test Result

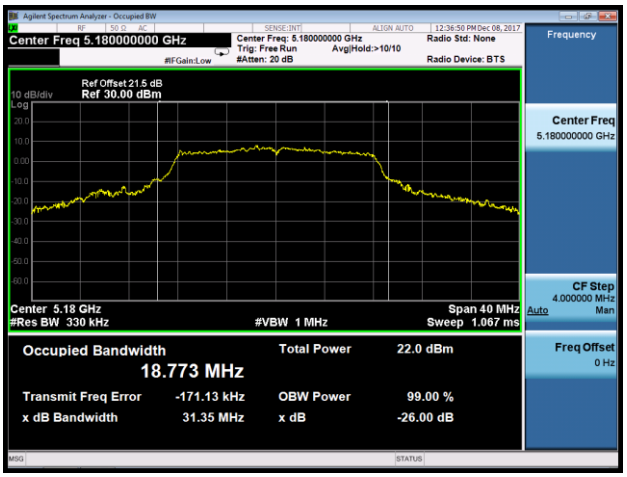
Product	Cassia	Temperature	24°C
Test Engineer	Hunk Li	Relative Humidity	59%
Test Site	SR2	Test Date	2017/12/08

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	6Mbps	36	5180	31.35	18.77
802.11a	6Mbps	44	5220	31.24	18.73
802.11a	6Mbps	48	5240	29.46	18.63
802.11a	6Mbps	149	5745	25.99	17.47
802.11a	6Mbps	157	5785	23.61	17.43
802.11a	6Mbps	165	5825	30.44	17.70
802.11n-HT20	MCS0	36	5180	33.48	19.33
802.11n-HT20	MCS0	44	5220	32.90	18.94
802.11n-HT20	MCS0	48	5240	32.65	18.75
802.11n-HT20	MCS0	149	5745	27.74	18.48
802.11n-HT20	MCS0	157	5785	33.60	18.77
802.11n-HT20	MCS0	165	5825	32.05	18.65
802.11n-HT40	MCS0	38	5190	40.17	36.31
802.11n-HT40	MCS0	46	5230	39.82	36.26
802.11n-HT40	MCS0	151	5755	41.09	36.33
802.11n-HT40	MCS0	159	5795	40.26	36.26
802.11ac-VHT20	MCS0	36	5180	32.85	18.76
802.11ac-VHT20	MCS0	44	5220	33.37	18.90
802.11ac-VHT20	MCS0	48	5240	31.71	18.85
802.11ac-VHT20	MCS0	149	5745	28.85	18.36
802.11ac-VHT20	MCS0	157	5785	31.63	18.47
802.11ac-VHT20	MCS0	165	5825	30.29	18.56

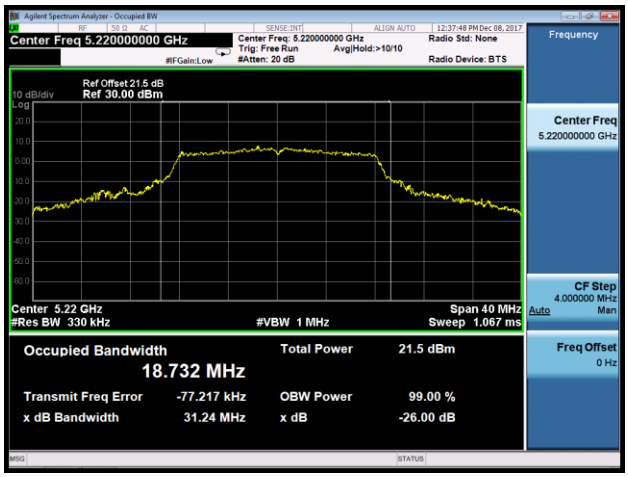
Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11ac-VHT40	MCS0	38	5190	79.80	39.54
802.11ac-VHT40	MCS0	46	5230	75.16	37.33
802.11ac-VHT40	MCS0	151	5755	62.20	36.92
802.11ac-VHT40	MCS0	159	5795	61.59	37.04
802.11ac-VHT80	MCS0	42	5210	125.70	76.22
802.11ac-VHT80	MCS0	155	5775	126.30	76.84

802.11a 26dB Bandwidth & 99% Bandwidth

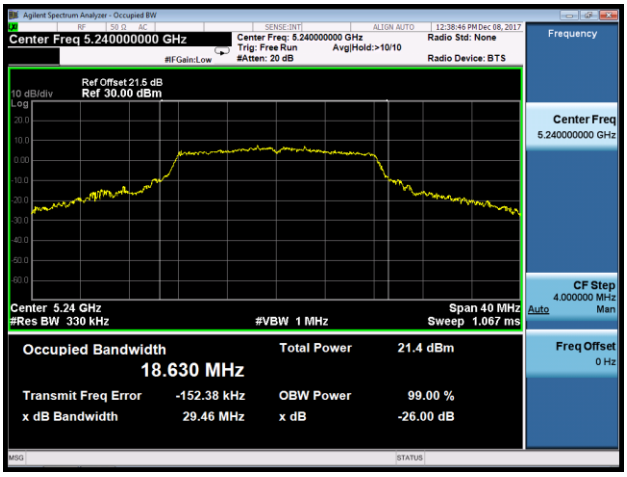
Channel 36 (5180MHz)



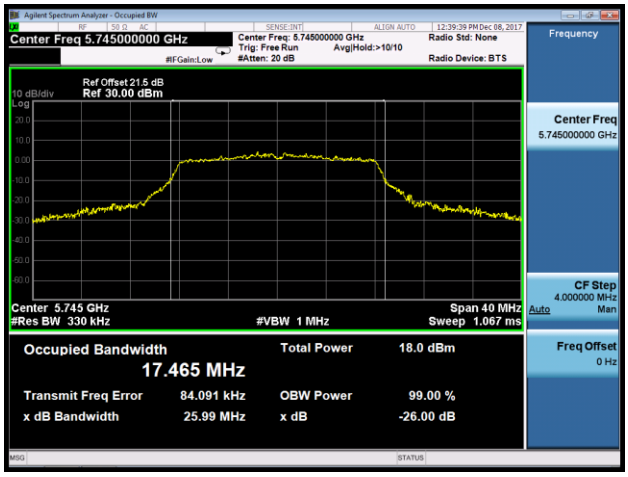
Channel 44 (5220MHz)



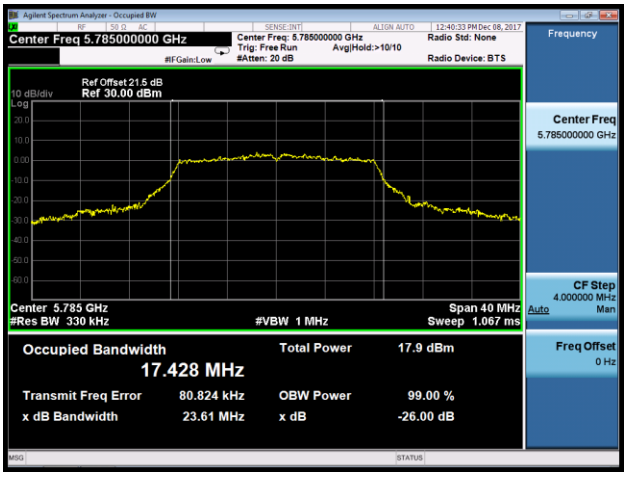
Channel 48 (5240MHz)



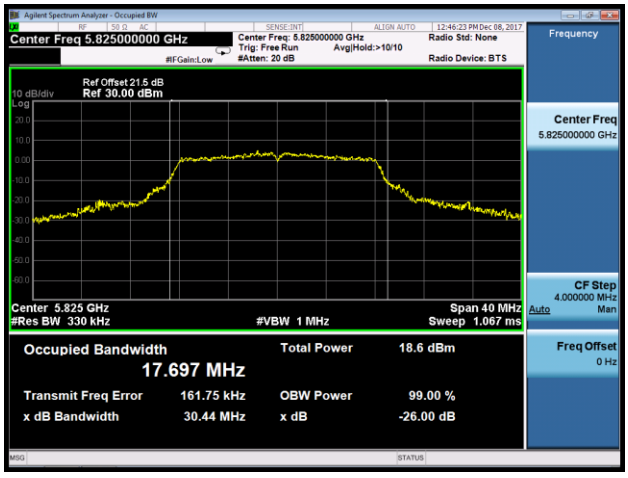
Channel 149 (5745MHz)



Channel 157 (5785MHz)

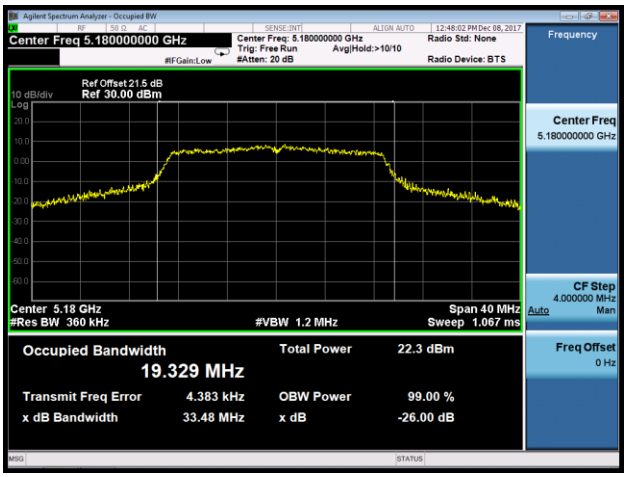


Channel 165 (5825MHz)

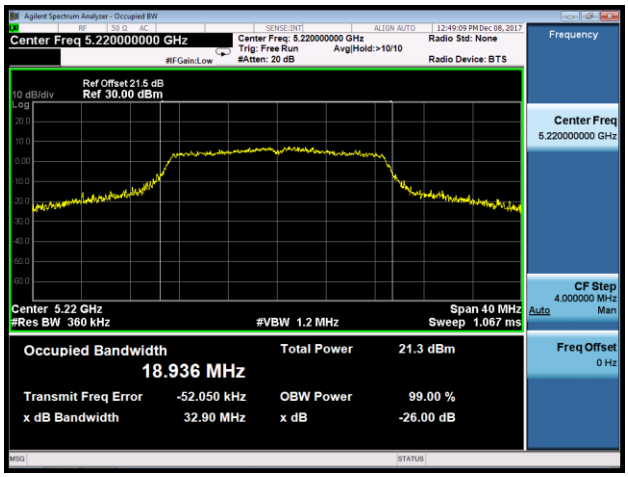


802.11n-HT20 26dB Bandwidth & 99% Bandwidth

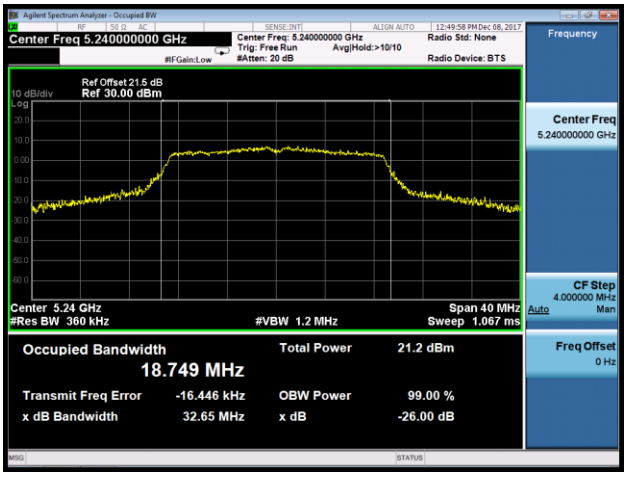
Channel 36 (5180MHz)



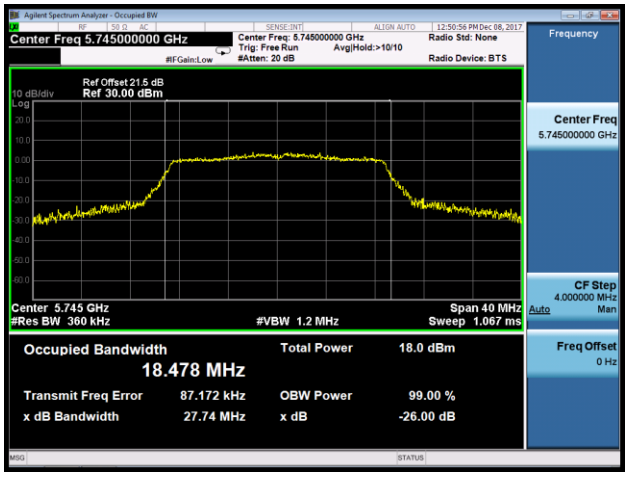
Channel 44 (5220MHz)



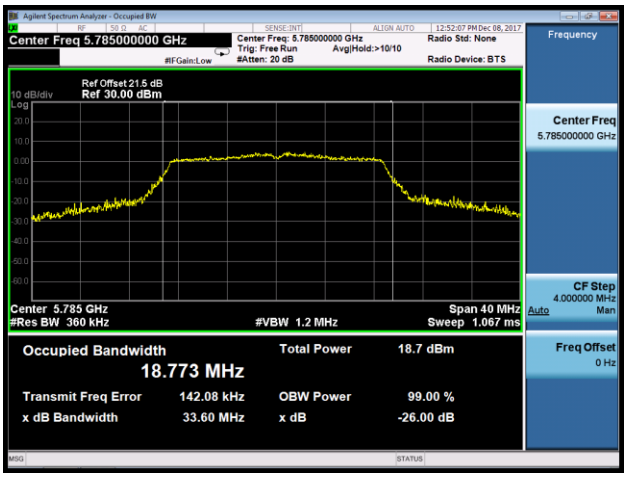
Channel 48 (5240MHz)



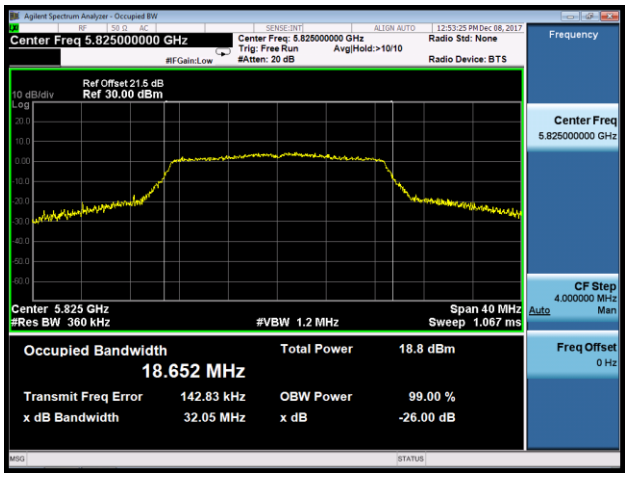
Channel 149 (5745MHz)

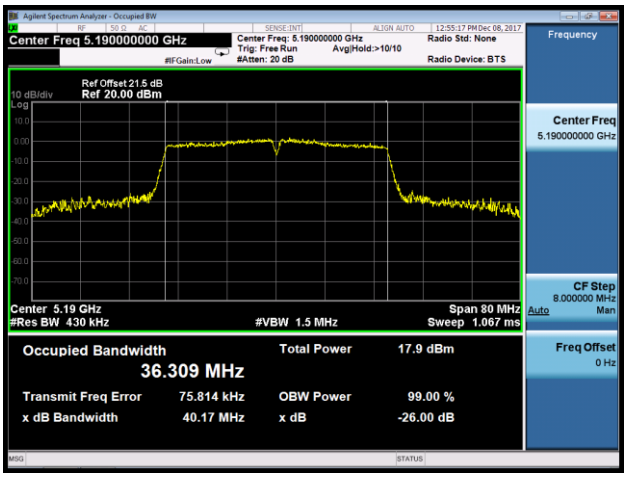
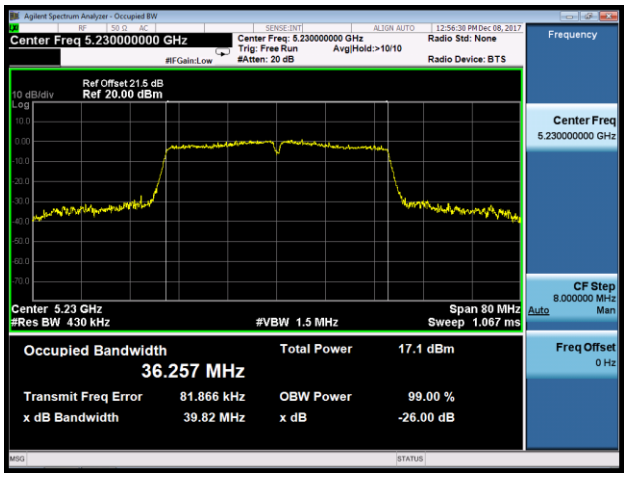
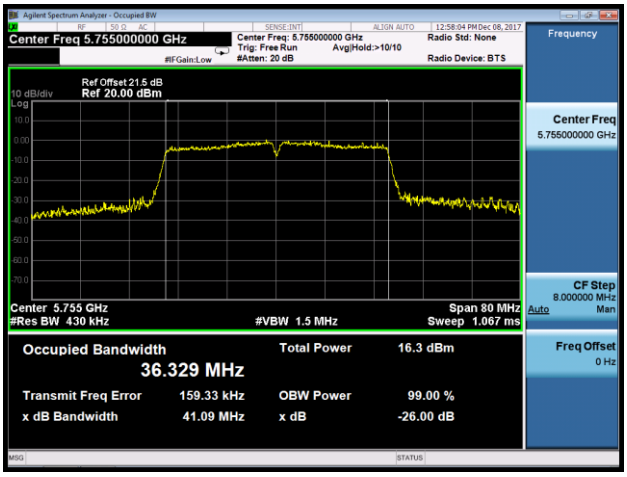
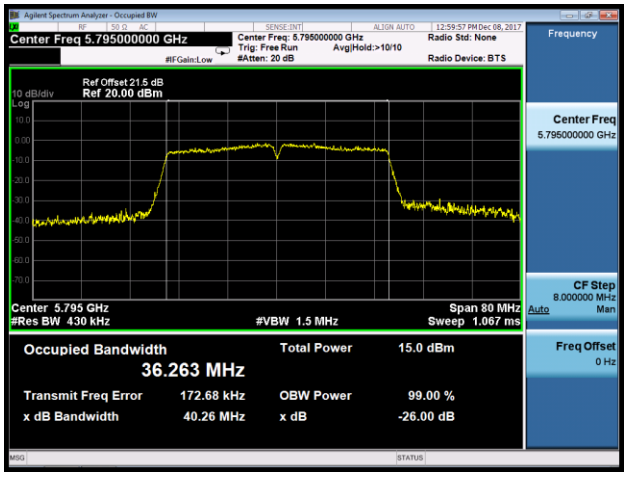


Channel 157 (5785MHz)



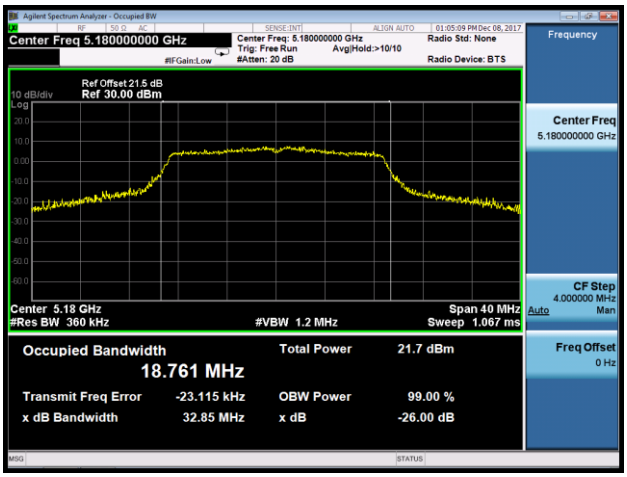
Channel 165 (5825MHz)



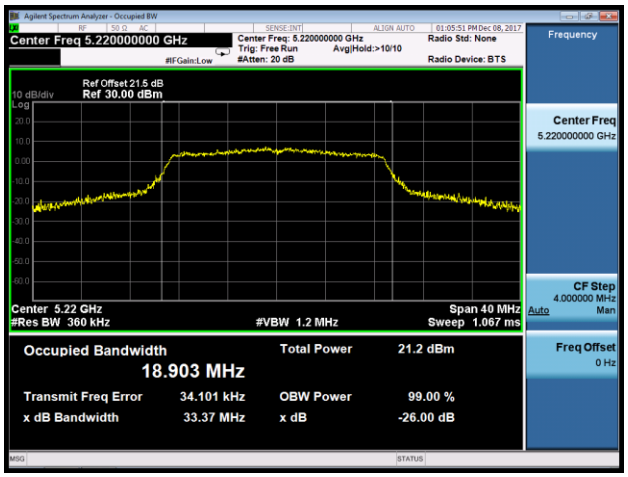
802.11n-HT40 26dB Bandwidth & 99% Bandwidth	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT20 26dB Bandwidth & 99% Bandwidth

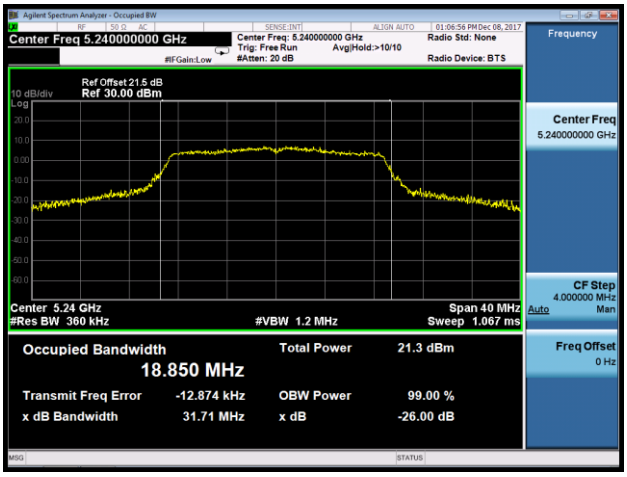
Channel 36 (5180MHz)



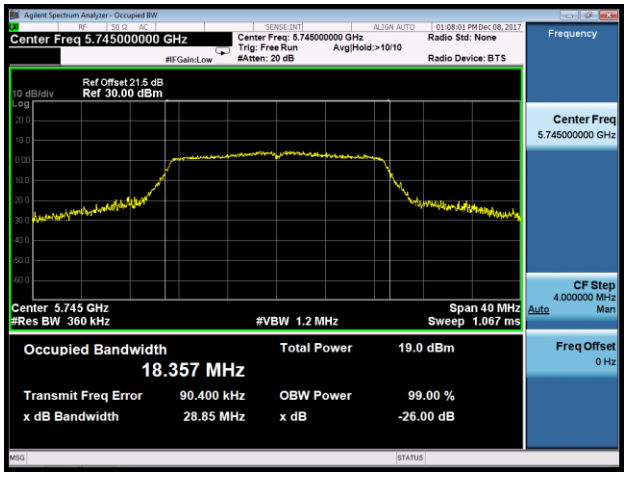
Channel 44 (5220MHz)



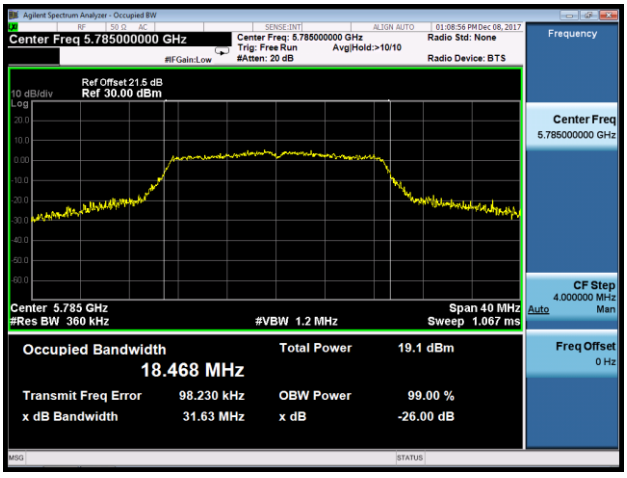
Channel 48 (5240MHz)



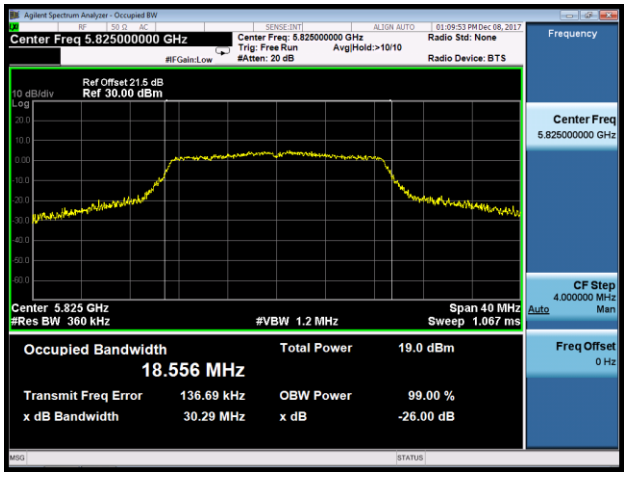
Channel 149 (5745MHz)

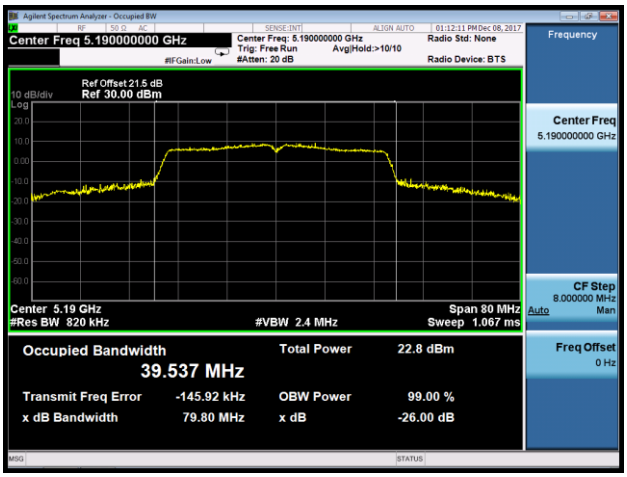
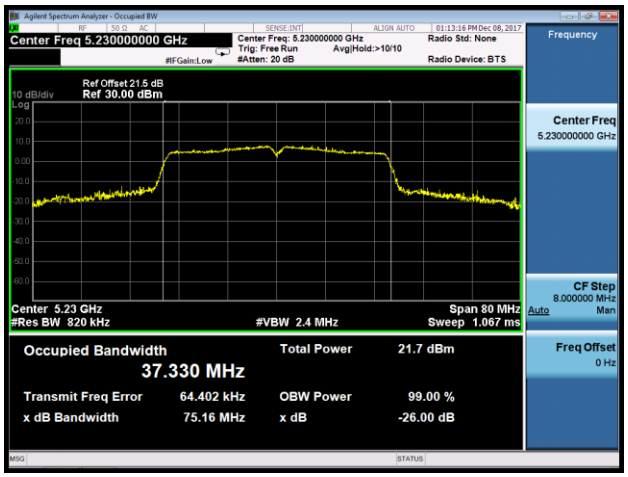
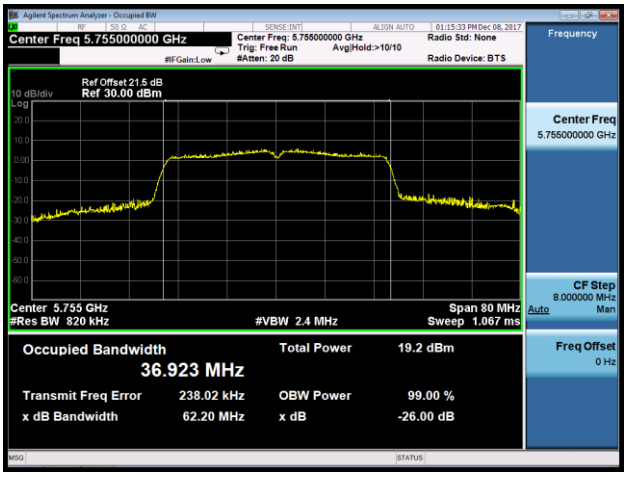
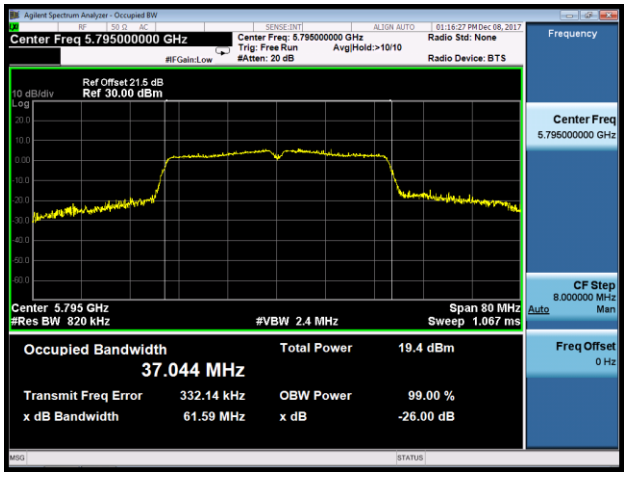


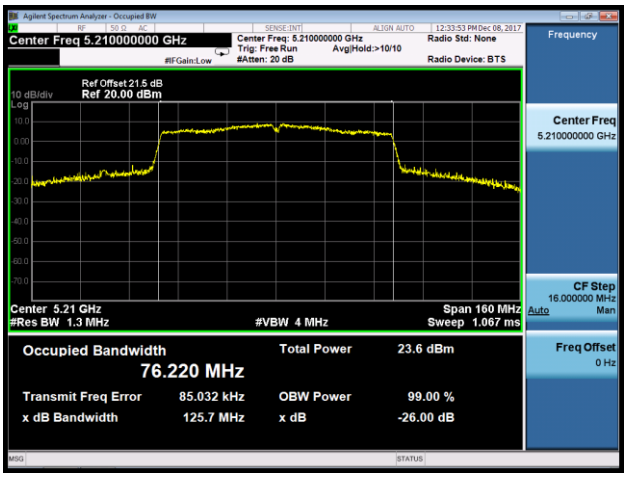
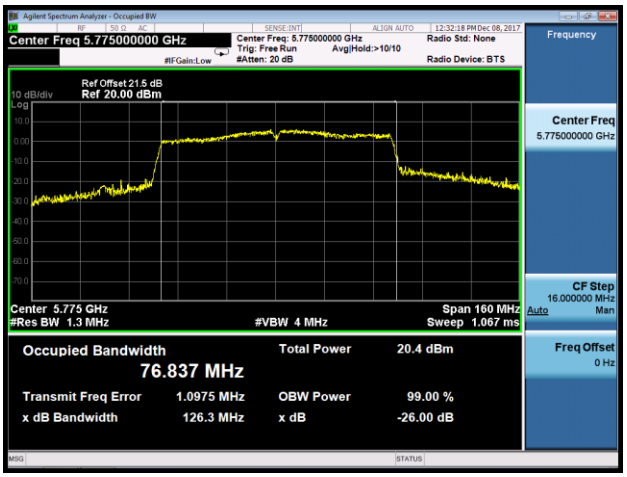
Channel 157 (5785MHz)



Channel 165 (5825MHz)



802.11ac-VHT40 26dB Bandwidth & 99% Bandwidth	
Channel 38 (5190MHz)	**Channel 46 (5230MHz)**
	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT80 26dB Bandwidth & 99% Bandwidth	
Channel 42 (5210MHz)	**Channel 155 (5775MHz)**
	

7.3. 6dB Bandwidth Measurement

7.3.1.Test Limit

The minimum 6dBbandwidth shall be at least 500 kHz.

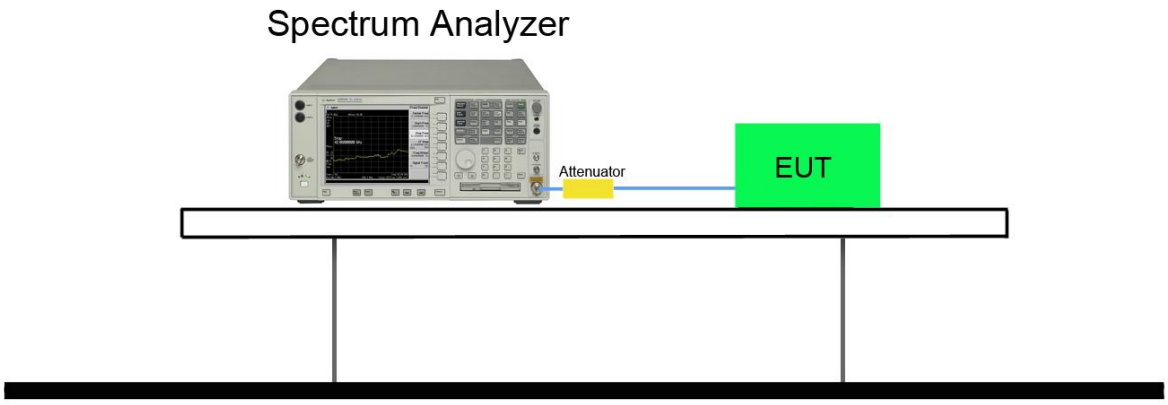
7.3.2.Test Procedure used

KDB 789033 D02v02r01 – Section C.2

7.3.3.Test Setting

1. Set center frequency to the nominal EUT channel center frequency.
2. RBW = 100 kHz.
3. VBW≧ 3 × RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Sweep = auto couple.
7. Allow the trace to stabilize.
8. 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.

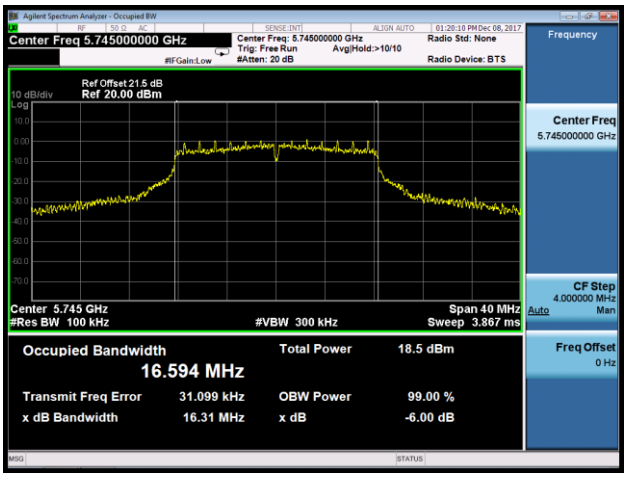
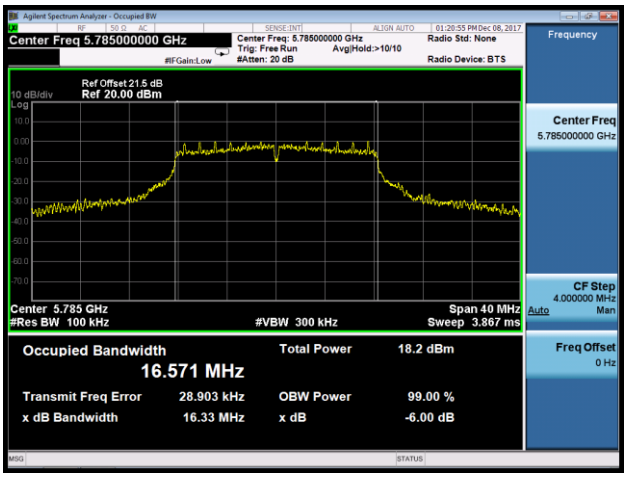
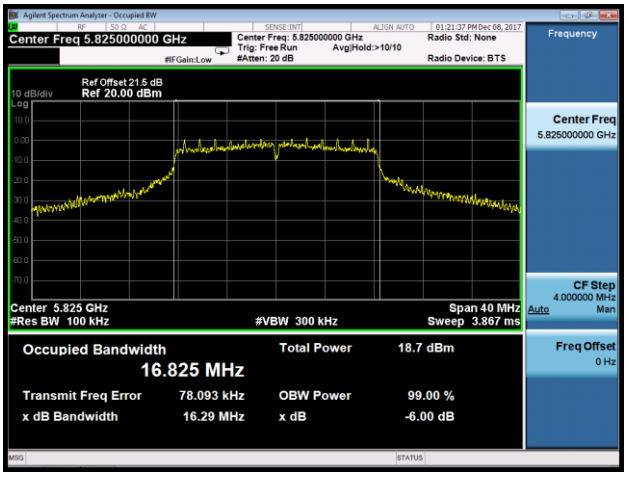
7.3.4.Test Setup

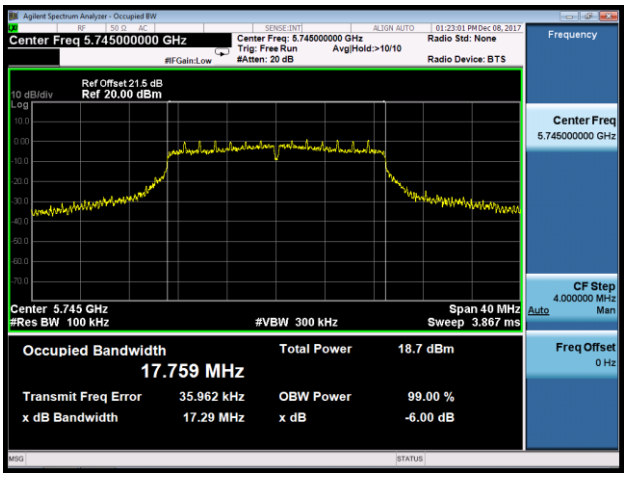
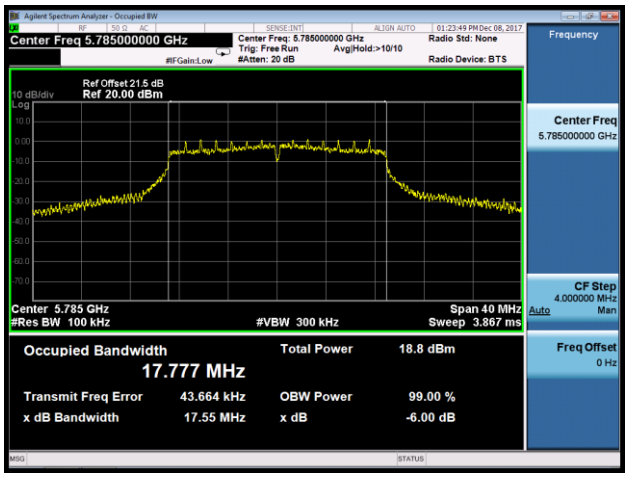
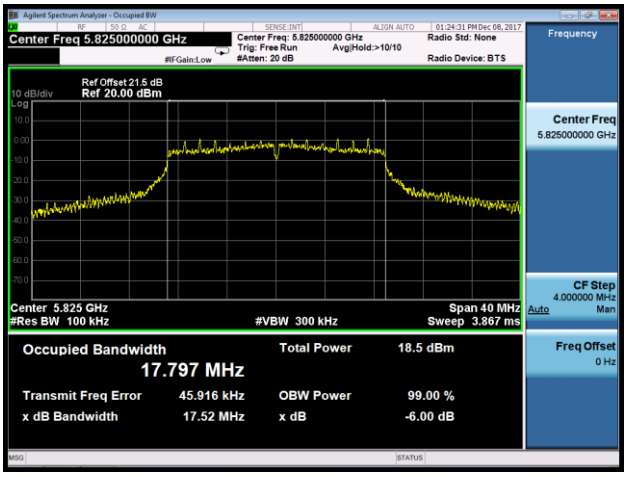
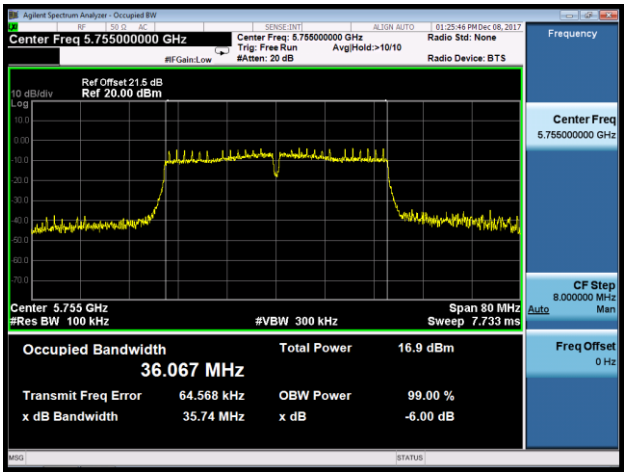
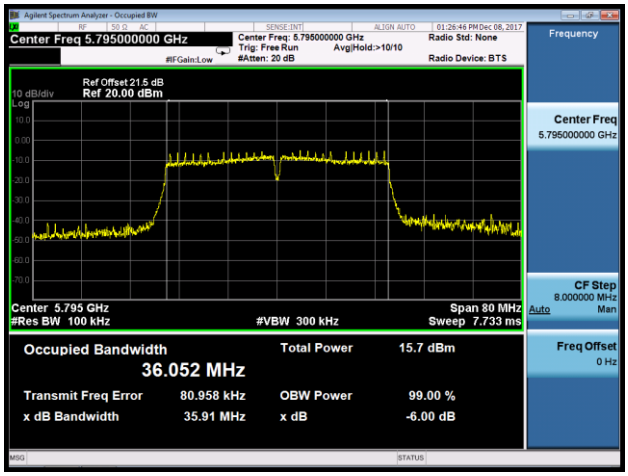


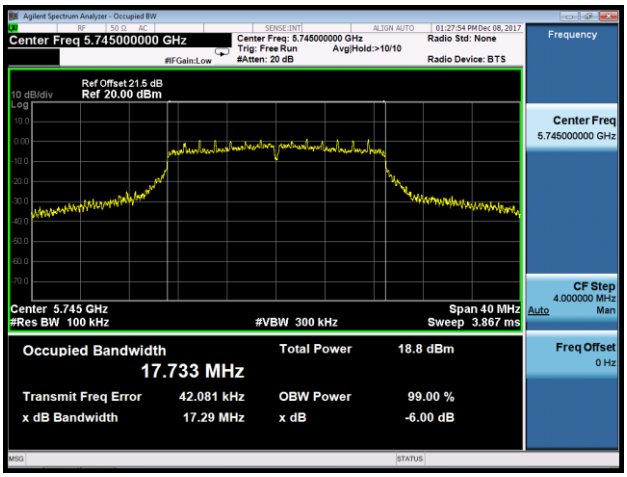
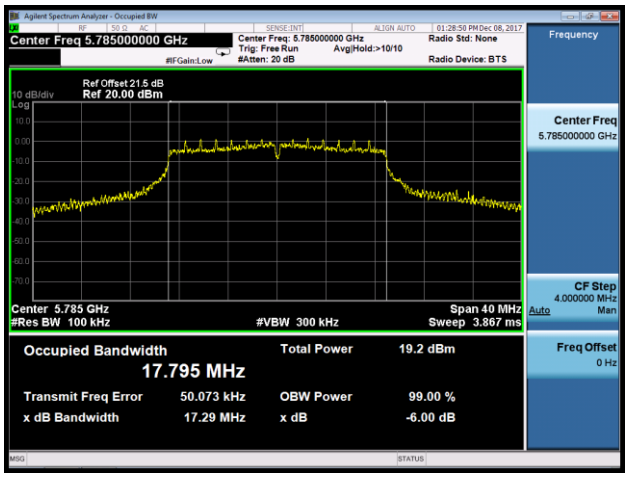
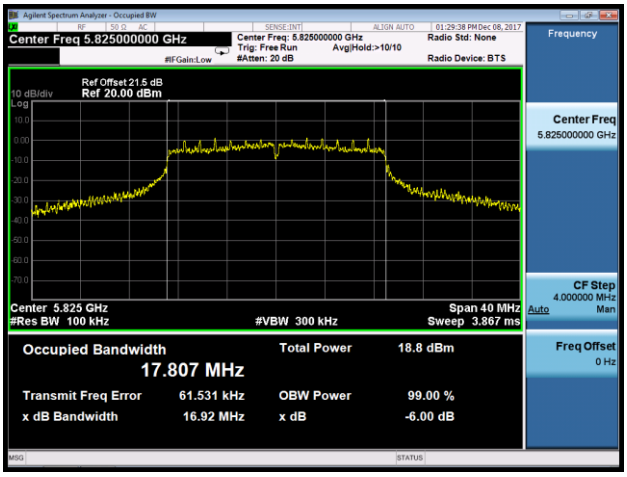
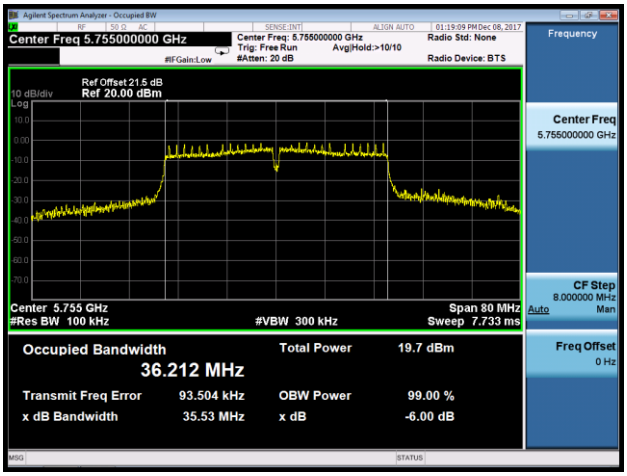
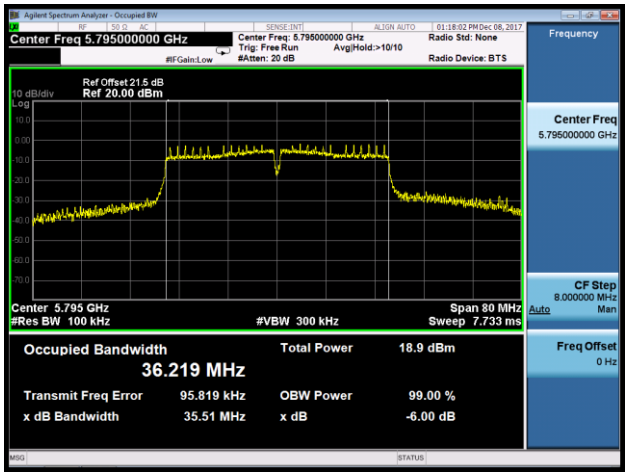
7.3.5.Test Result

Product	Cassia	Temperature	24°C
Test Engineer	Will Yan	Relative Humidity	59%
Test Site	SR2	Test Date	2017/12/08

Test Mode	Data Rate/ MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
802.11a	6Mbps	149	5745	16.31	≥ 0.5	Pass
802.11a	6Mbps	157	5785	16.33	≥ 0.5	Pass
802.11a	6Mbps	165	5825	16.29	≥ 0.5	Pass
802.11n-HT20	MCS0	149	5745	17.29	≥ 0.5	Pass
802.11n-HT20	MCS0	157	5785	17.55	≥ 0.5	Pass
802.11n-HT20	MCS0	165	5825	17.52	≥ 0.5	Pass
802.11n-HT40	MCS0	151	5755	35.74	≥ 0.5	Pass
802.11n-HT40	MCS0	159	5795	35.91	≥ 0.5	Pass
802.11ac-VHT20	MCS0	149	5745	17.29	≥ 0.5	Pass
802.11ac-VHT20	MCS0	157	5785	17.29	≥ 0.5	Pass
802.11ac-VHT20	MCS0	165	5825	16.92	≥ 0.5	Pass
802.11ac-VHT40	MCS0	151	5755	35.53	≥ 0.5	Pass
802.11ac-VHT40	MCS0	159	5795	35.51	≥ 0.5	Pass
802.11ac-VHT80	MCS0	155	5775	75.35	≥ 0.5	Pass

802.11a 6dB Bandwidth	
Channel 149 (5745MHz)	**Channel 157 (5785MHz)**
	
Channel 165 (5825MHz)	
	

802.11n-HT20 6dB Bandwidth	
Channel 149 (5745MHz)	**Channel 157 (5785MHz)**
	
Channel 165 (5825MHz)	
	
802.11n-HT40 6dB Bandwidth	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT20 6dB Bandwidth	
Channel 149 (5745MHz)	**Channel 157 (5785MHz)**
	
Channel 165 (5825MHz)	
	
802.11ac-VHT40 6dB Bandwidth	
Channel 151 (5755MHz)	**Channel 159 (5795MHz)**
	

802.11ac-VHT80 6dB Bandwidth	
Channel 155 (5775MHz)