RF TEST REPORT

Report No.: 17020575-FCC-R2
Supersede Report No.: N/A

Applicant	Nanjing Hanlong Technology Co., Ltd.
Product Name	IP PHONE
Model No.	UC926E
Serial No.	UC924E
Test Standard	FCC Part 15.247: 2016, ANSI C63.10: 2013
Test Date	June 09 to June 23, 2017
Issue Date	June 27, 2017
Test Result	☑ **Pass** ☐ **Fail**
Equipment complied with the specification	☑
Equipment did not comply with the specification	☐

Trety Lu	Deon Dai	
Trety Lu **Test Engineer**	**Deon Dai** **Engineer Reviewer**	

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Test result presented in this test report is applicable to the tested sample only

Issued by:
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Laboratories Introduction

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Accreditations for Conformity Assessment

Country/Region	Scope
USA	EMC, RF/Wireless, SAR, Telecom
Canada	EMC, RF/Wireless, SAR, Telecom
Taiwan	EMC, RF, Telecom, SAR, Safety
Hong Kong	RF/Wireless, SAR, Telecom
Australia	EMC, RF, Telecom, SAR, Safety
Korea	EMI, EMS, RF, SAR, Telecom, Safety
Japan	EMI, RF/Wireless, SAR, Telecom
Singapore	EMC, RF, SAR, Telecom
Europe	EMC, RF, SAR, Telecom, Safety

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1. Report Revision History

Report No.	Report Version	Description	Issue Date
17020575-FCC-R2	NONE	Original	June 27, 2017

2. Customer information

Applicant Name	Nanjing Hanlong Technology Co., Ltd.
Applicant Add	5th Floor, 1st Building, Huashen Tech Park, 10 Huashen Temple, Yuhuatai Dis, Nanjing China
Manufacturer	Nanjing Hanlong Technology Co., Ltd.
Manufacturer Add	5th Floor, 1st Building, Huashen Tech Park, 10 Huashen Temple, Yuhuatai Dis, Nanjing China

3. Test site information

Lab performing tests	SIEMIC (Nanjing-China) Laboratories
Lab Address	2-1 Longcang Avenue Yuhua Economic and Technology Development Park, Nanjing, China
FCC Test Site No.	986914
IC Test Site No.	4842B-1
Test Software	EZ_EMC

4. Equipment under Test (EUT) Information

Description of EUT:	IP PHONE
Main Model:	UC926E
Serial Model:	UC924E
Date EUT received:	May 18, 2017
Test Date(s):	June 09 to June 23, 2017
Antenna Gain:	WIFI:802.11b/g/n(20M/40M): 2.8 dBi
Type of Modulation:	WIFI:802.11b/g/n(20M/40M): DSSS, OFDM
RF Operating Frequency (ies):	WIFI:802.11b/g/n(20M): 2412-2472 MHz 802.11n(40M):2422-2462 MHz
Max. Output Power:	WIFI:802.11b: 19.24 dBm 802.11n(40M): 15.07 dBm
Number of Channels:	WIFI :802.11b/g/n(20M): 13CH WIFI :802.11n(40M): 9CH
Port:	Power Port、Ext Port、Internet Port、PC Port、Earphone Port、Telephone Port
Input Power:	Adapter: Model:NBS05B050120VU Input Power:100-240V,50/60Hz,0.2A Output:5V,1.2A
Trade Name :	Htek
FCC ID:	2ACUGUC926ESERIAL

Operating channel list

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467
13	2472

5. Test Summary

The product was tested in accordance with the following specifications.
All testing has been performed according to below product classification:

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.247 (a)(2)	DTS (6 dB&20 dB) CHANNEL BANDWIDTH	Compliance
§15.247(b)(3)	Conducted Maximum Output Power	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247(d)	Band-Edge & Unwanted Emissions into Non-Restricted Frequency Bands	Compliance
§15.207 (a),	AC Power Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions & Unwanted Emissions into Restricted Frequency Bands	Compliance

Measurement Uncertainty

Emissions		
Test Item	**Description**	**Uncertainty**
Band Edge and Radiated Spurious Emissions	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
-	-	-

6. Measurements, Examination And Derived Results

6.1 Antenna Requirement

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules.
§15.203 state that the subject device must meet the following criteria:
a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

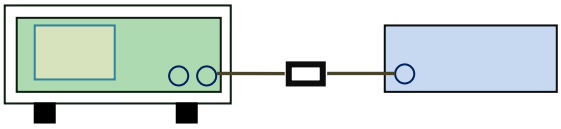
The EUT has 1 antennas:
A permanently attached PCB antenna for WIFI, the gain is 2.8 dBi for Bluetooth.

Antenna must be permanently attached to the unit ,it meets up with the ANTENNA REQUIREMENT.

Result: Compliant.

6.2 DTS (6 dB&20 dB) Channel Bandwidth

Temperature	22℃
Relative Humidity	54%
Atmospheric Pressure	1021mbar
Test date :	June 23, 2017
Tested By :	Trety Lu

Spec	Item	Requirement	Applicable
§ 15.247(a)(2) RSS Gen(4.6.1)	a)	6dB BW≥500kHz;	☑
	b)	99% BW: For FCC reference only; required by IC.	N/A
Test Setup			
Test Procedure	558074 D01 DTS MEAS Guidance V04, 8.1 DTS bandwidth 6dB bandwidth a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) ≥ 3 × RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associate d 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. 20dB bandwidth C63.10 Occupied Bandwidth (OBW=20dB bandwidth) 1. Set RBW = 1%-5% OBW. 2. Set the video bandwidth (VBW) ≥ 3 x RBW. 3. Set the span range between 2 times and 5 times of the OBW. 4. Sweep time=Auto, Detector=PK, Trace=Max hold. 5. Once the reference level is established, the equipment is conditioned with typical modulatin g signals to produce the worst- case (i.e., the widest) bandwidth. Unless otherwise specified for an unlicensed wireless device, measure the bandwidth at the 20 dB levels with respect to the reference level.		
Remark			
Result	☑ Pass ☐ Fail		

Test Data ☑ Yes ☐ N/A

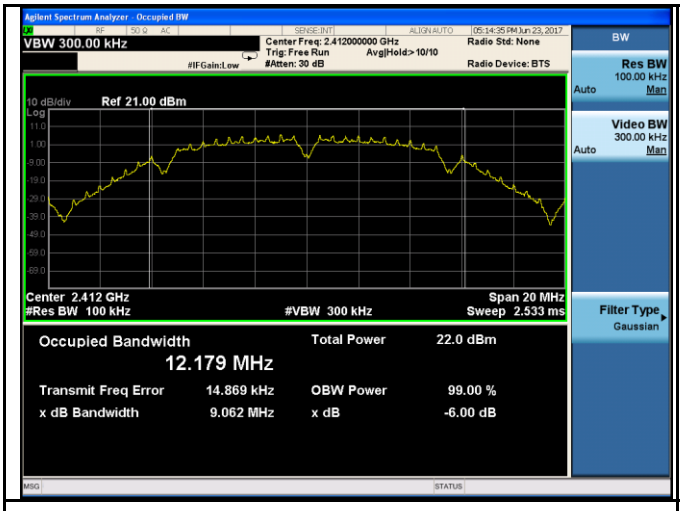
Test Plot ☑ Yes (See below) ☐ N/A

Measurement result

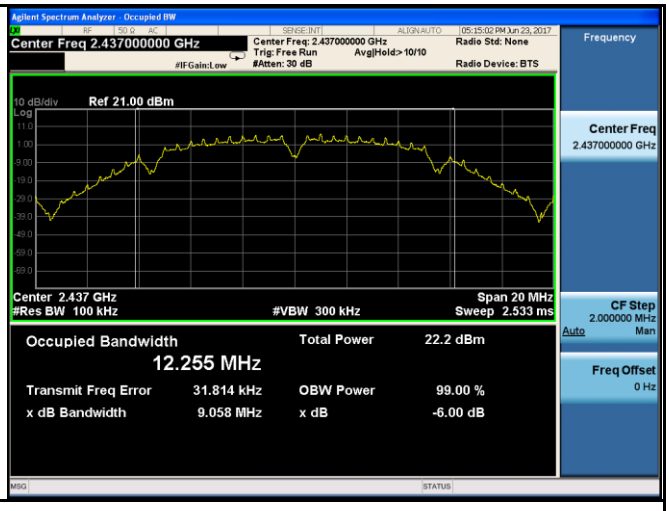
Test mode	CH	Freq (MHz)	6dB Bandwidth (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
802.11b	1	2412	9.06	13.36	≥0.5
	6	2437	9.06	13.36	≥0.5
	11	2462	9.08	13.39	≥0.5
	12	2467	9.05	13.38	≥0.5
	13	2472	9.08	13.38	≥0.5
802.11g	1	2412	16.03	18.85	≥0.5
	6	2437	16.00	18.78	≥0.5
	11	2462	15.78	18.76	≥0.5
	12	2467	16.01	18.99	≥0.5
	13	2472	15.80	18.73	≥0.5
802.11n (20M)	1	2412	17.03	19.31	≥0.5
	6	2437	15.96	19.36	≥0.5
	11	2462	16.66	19.30	≥0.5
	12	2467	16.31	19.22	≥0.5
	13	2472	17.02	19.28	≥0.5
802.11n (40M)	3	2422	35.67	39.13	≥0.5
	6	2437	35.71	39.34	≥0.5
	9	2452	35.39	39.00	≥0.5
	10	2457	35.21	39.19	≥0.5
	11	2462	35.48	39.22	≥0.5

Test Plots

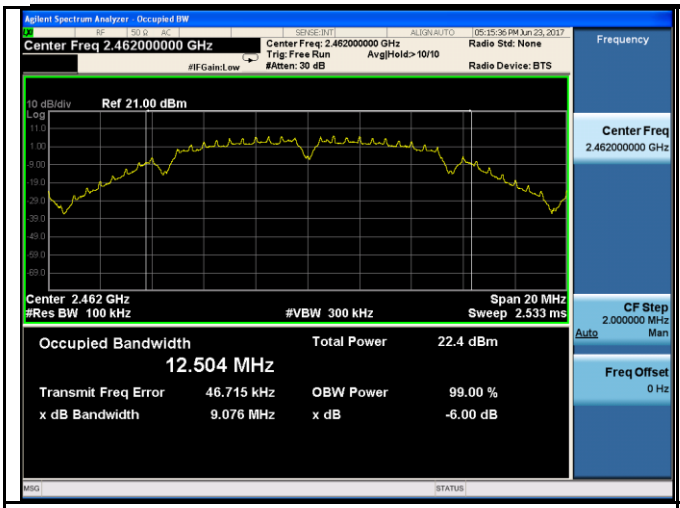
6dB Bandwidth measurement result



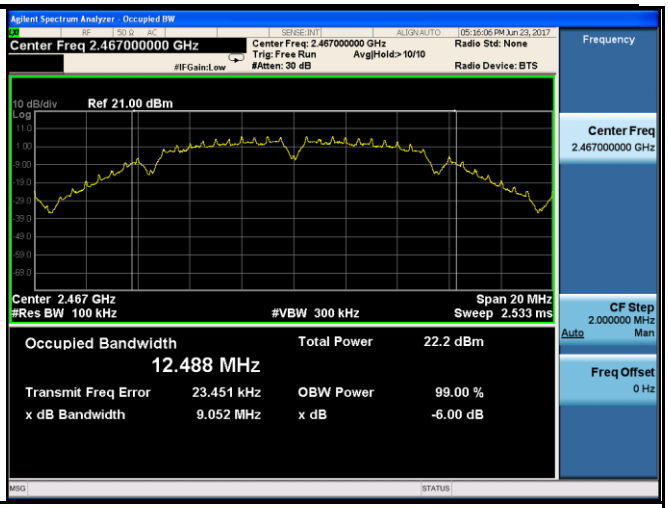
802.11b 6dB Bandwidth - CH 1



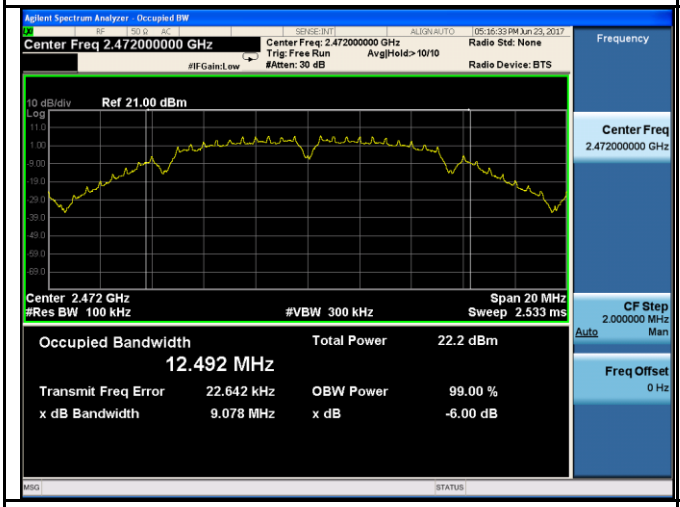
802.11b 6dB Bandwidth - CH 6



802.11b 6dB Bandwidth - CH 11

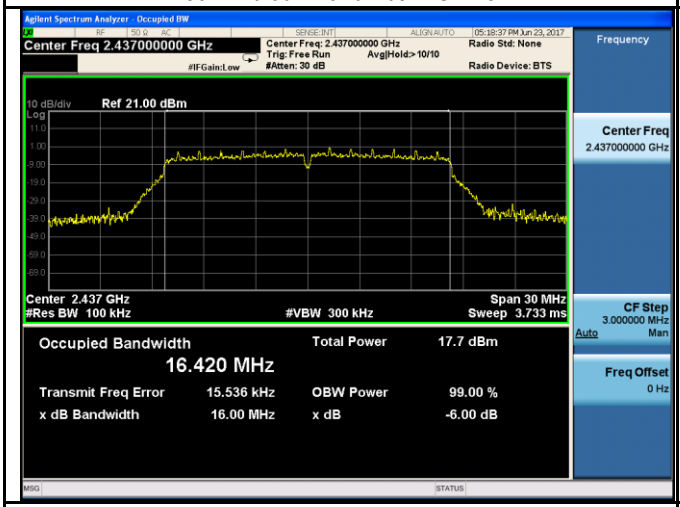


802.11b 6dB Bandwidth - CH 12



802.11b 6dB Bandwidth - CH 13

802.11g 6dB Bandwidth - CH 1



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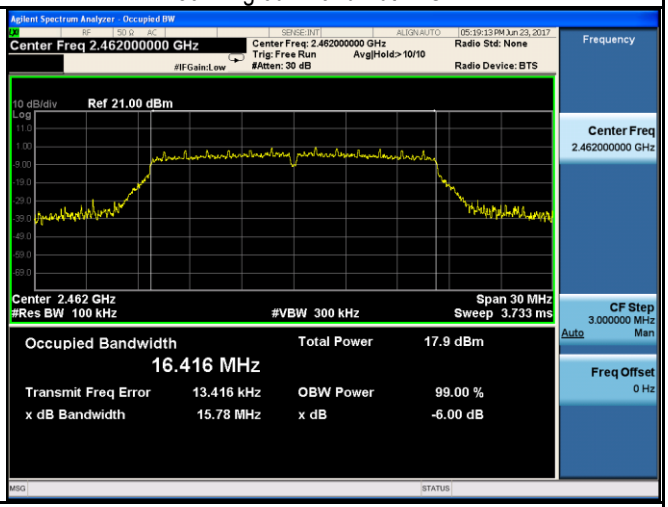

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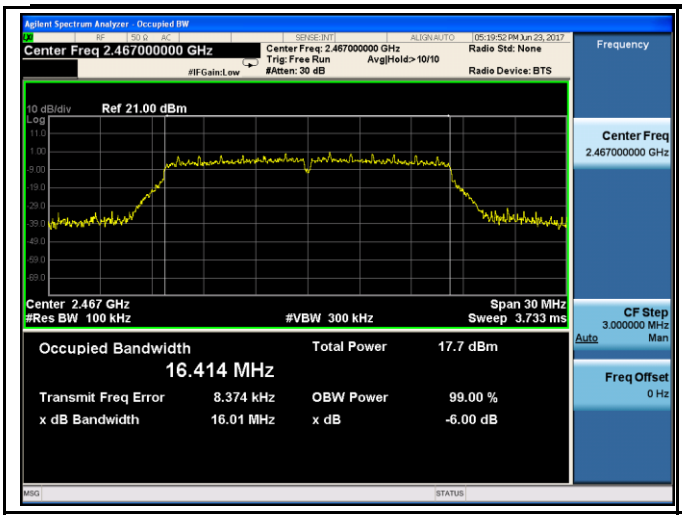

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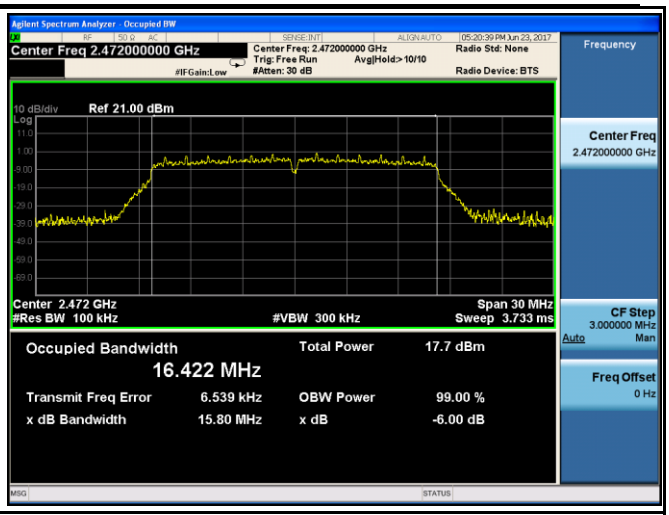

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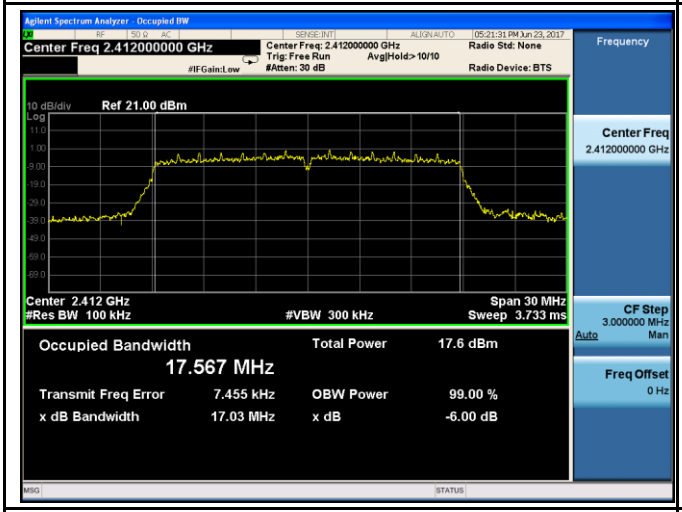
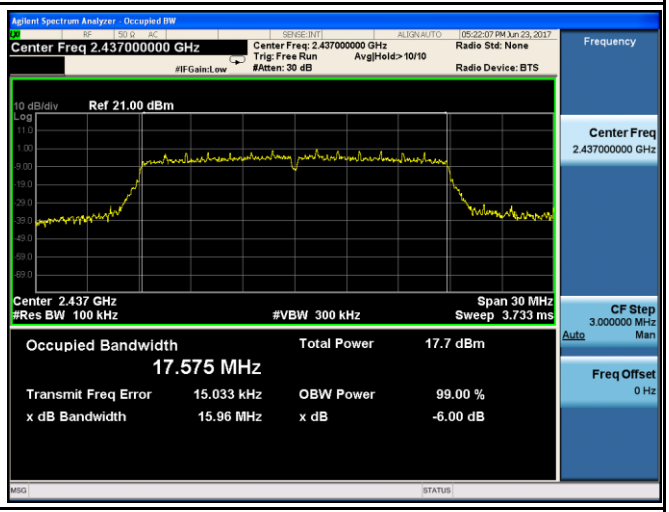
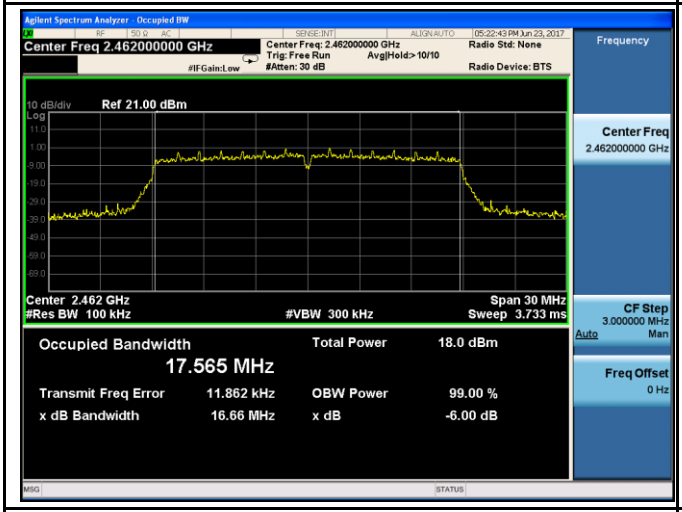


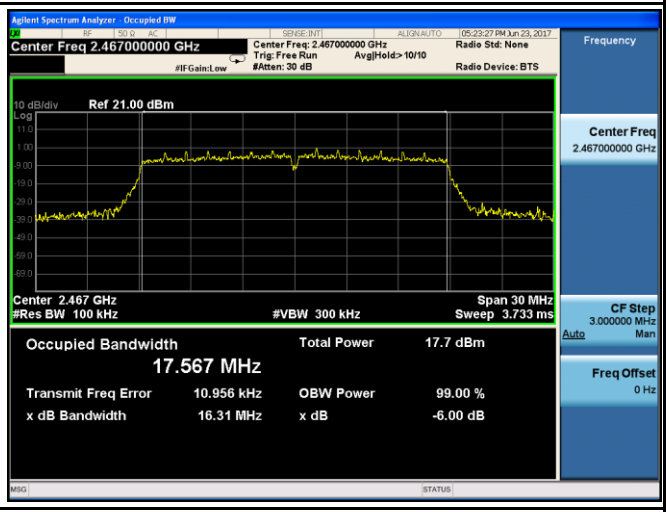
802.11n20 6dB Bandwidth - CH 1



802.11n20 6dB Bandwidth - CH 6



802.11n20 6dB Bandwidth - CH 11



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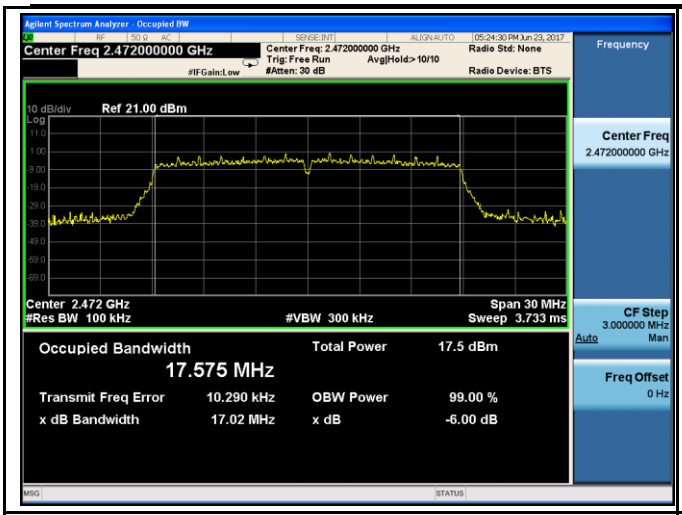
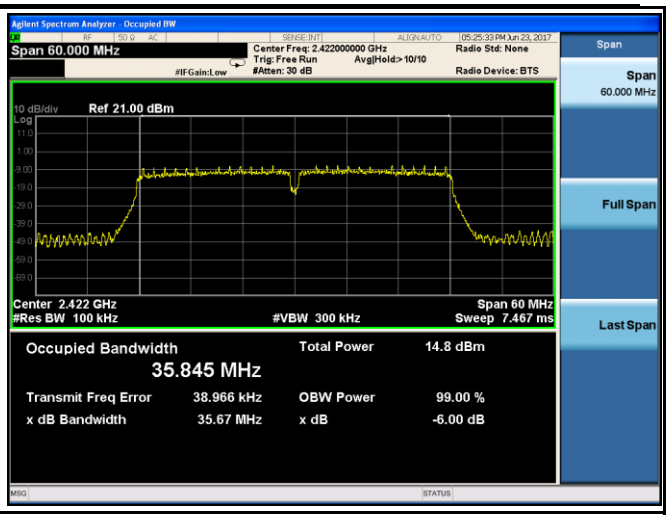
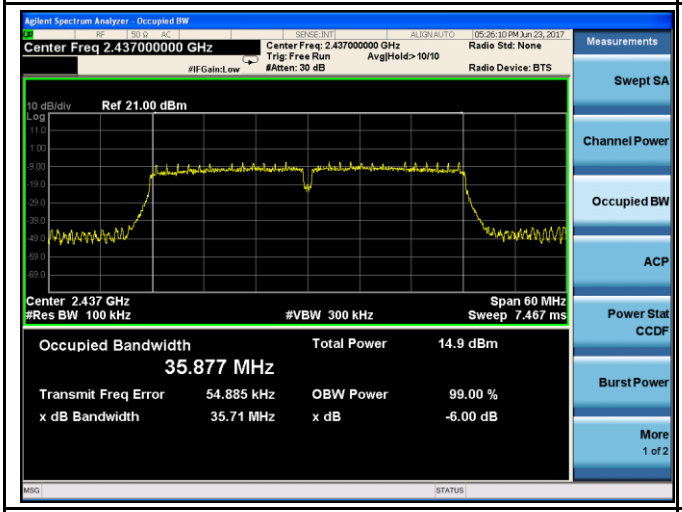


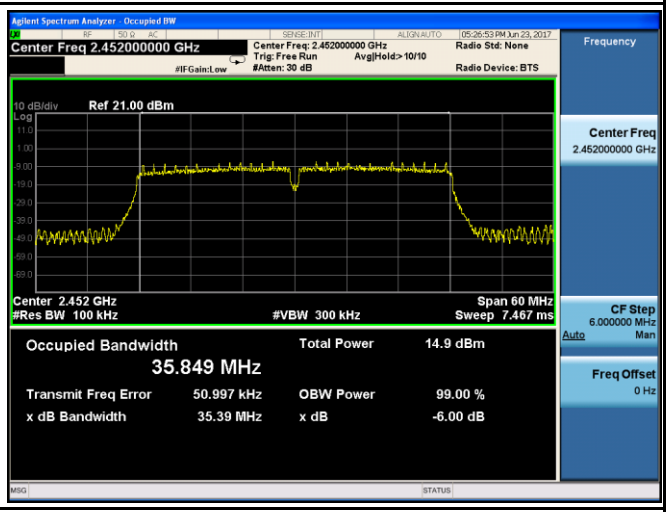
802.11n20 6dB Bandwidth - CH 13



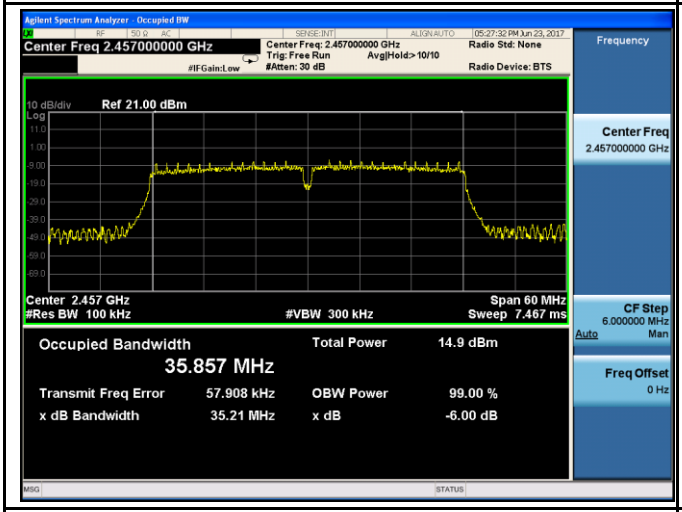
802.11n40 6dB Bandwidth - CH 3



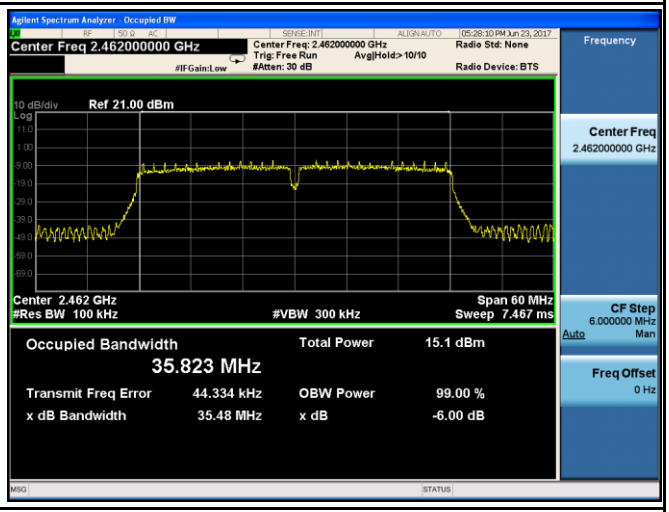
802.11n40 6dB Bandwidth - CH 6



802.11n40 6dB Bandwidth - CH 9

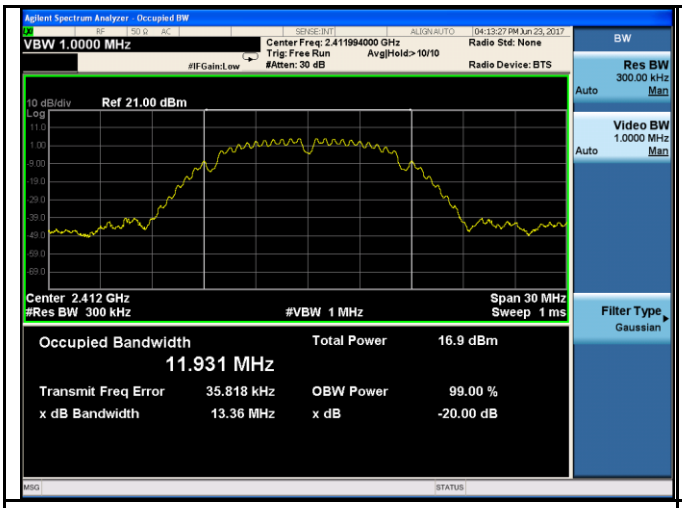


802.11n40 6dB Bandwidth - CH 10

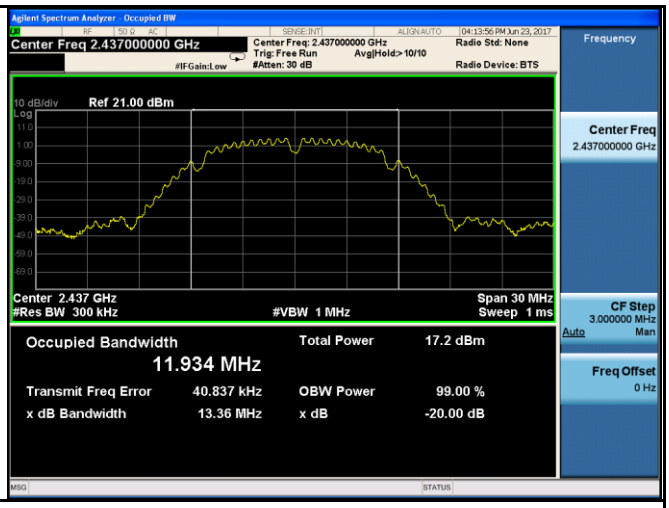


802.11n40 6dB Bandwidth - CH 11

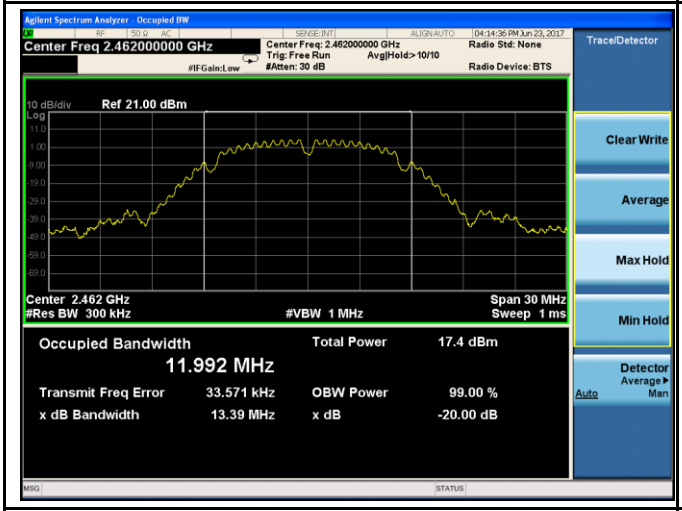
20 dB Bandwidth measurement result



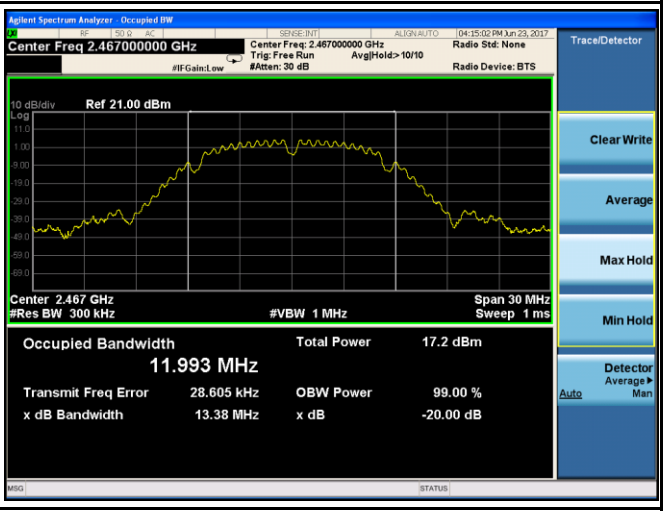
802.11b 20dB Bandwidth - CH 1



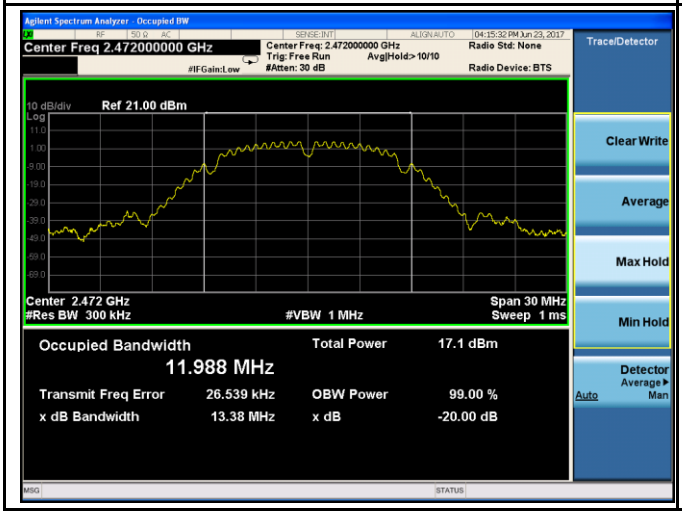
802.11b 20dB Bandwidth - CH 6



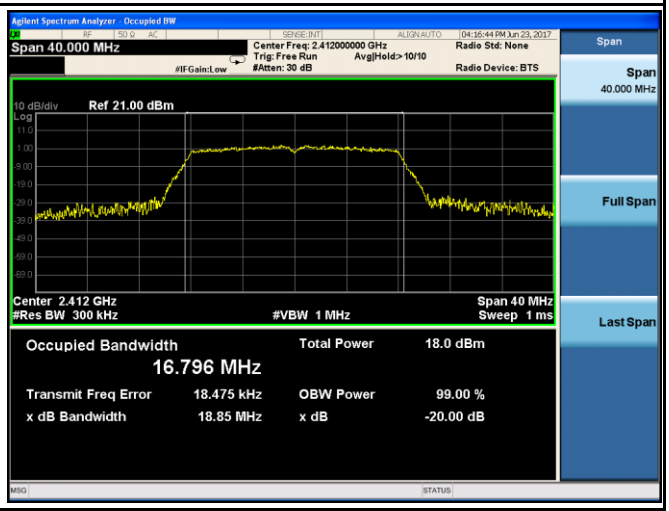
802.11b 20dB Bandwidth - CH 11



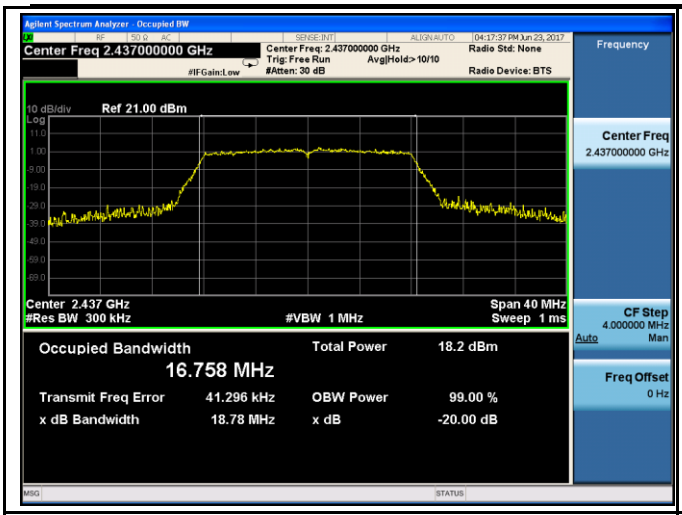
802.11b 20dB Bandwidth - CH 12



802.11b 20dB Bandwidth - CH 13



802.11g 20dB Bandwidth - CH 1



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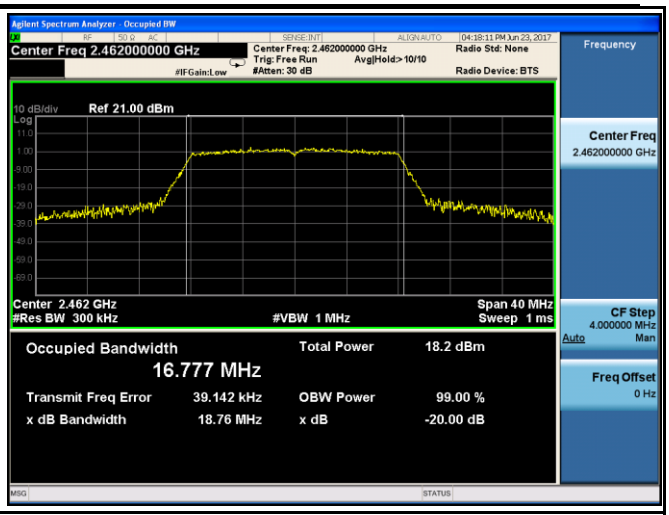

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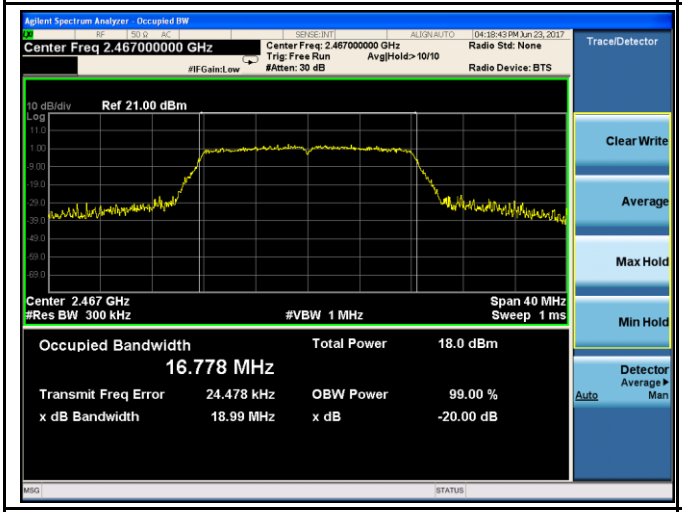
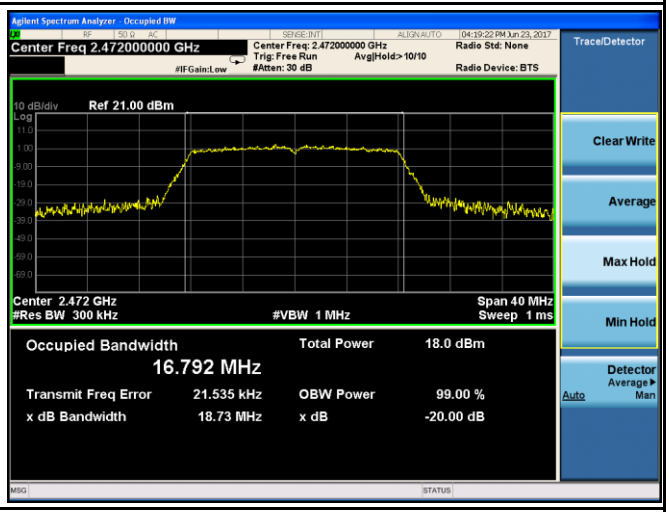
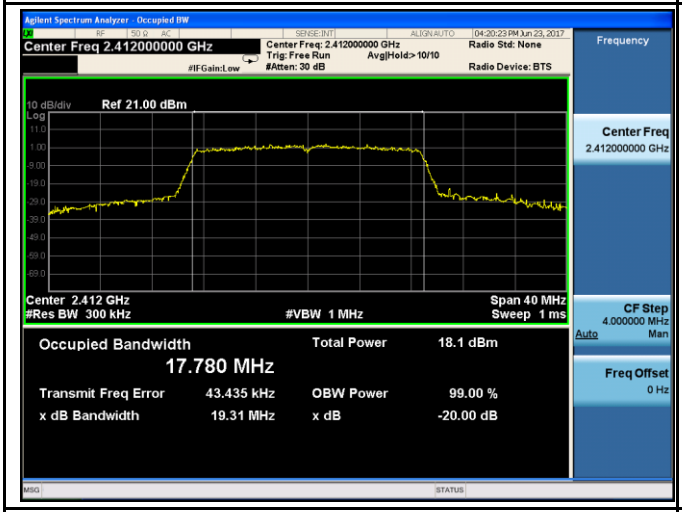


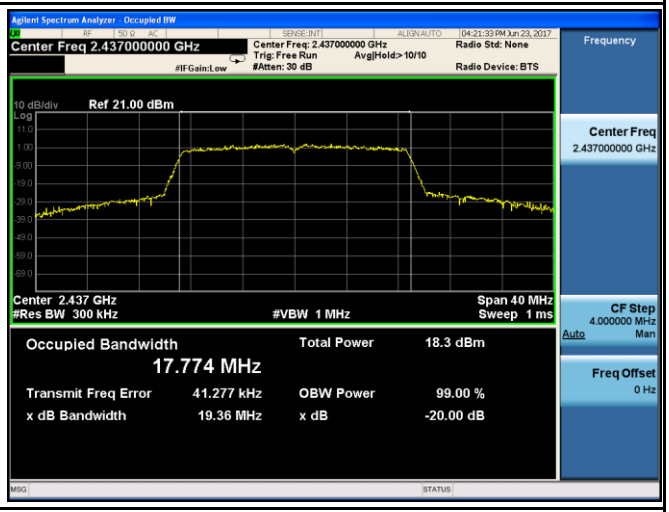
802.11g 20dB Bandwidth - CH 12



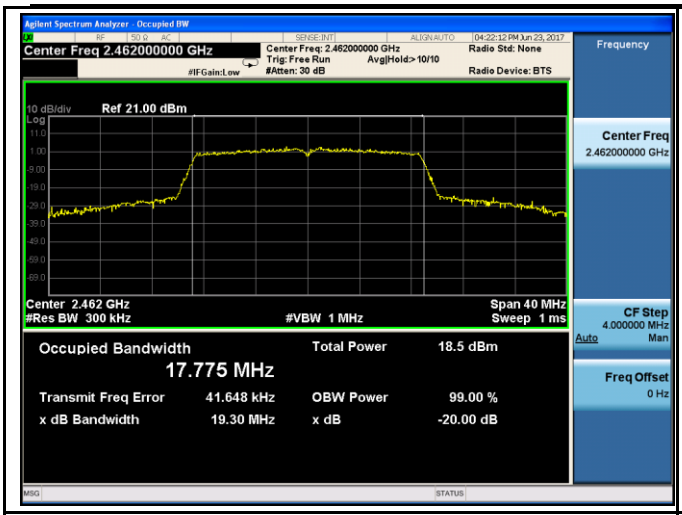
802.11g 20dB Bandwidth - CH 13



802.11n20 20dB Bandwidth - CH 1



802.11n20 20dB Bandwidth - CH 6



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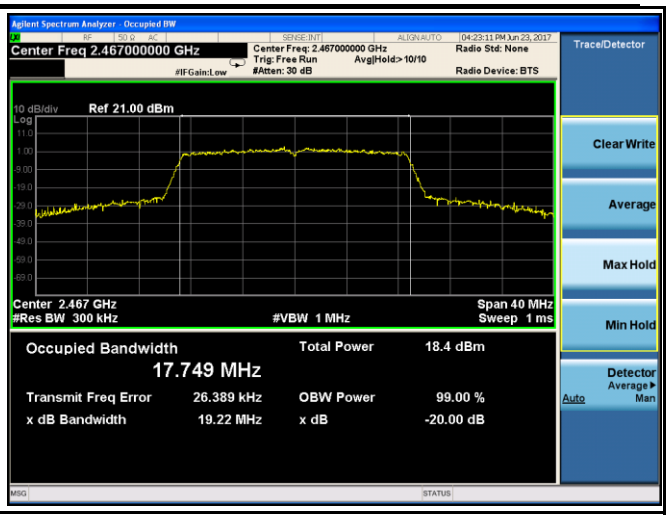
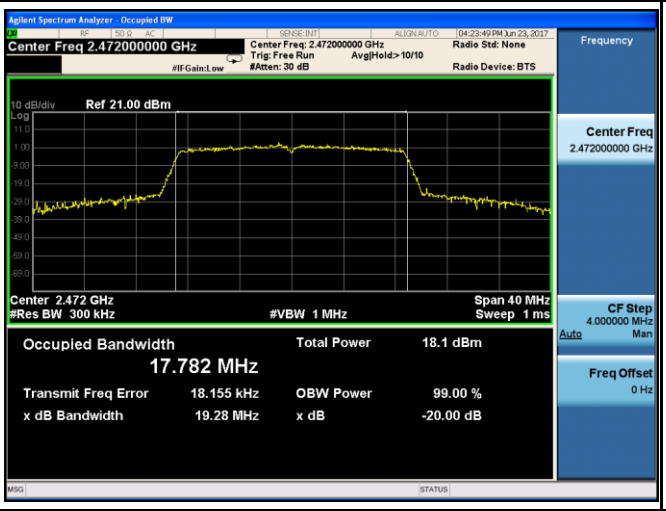
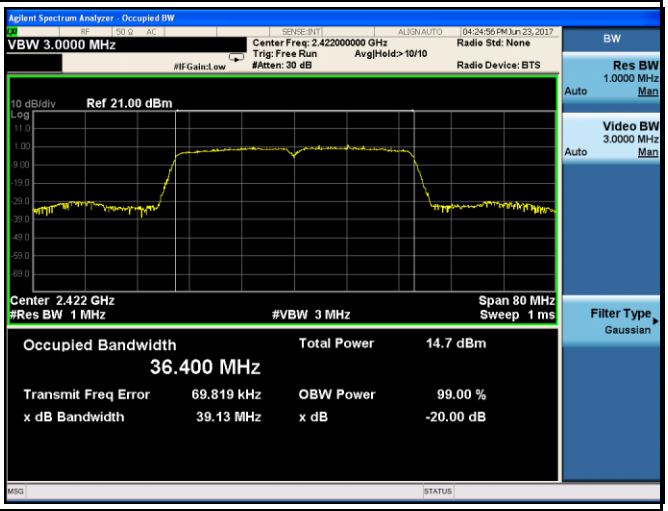


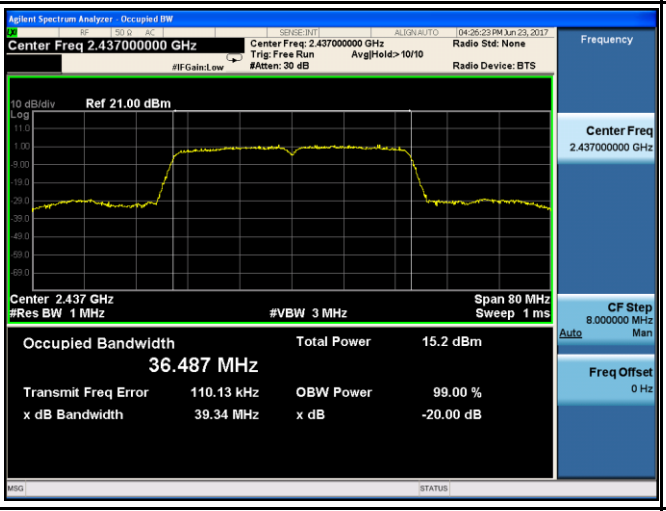
802.11n20 20dB Bandwidth - CH 12



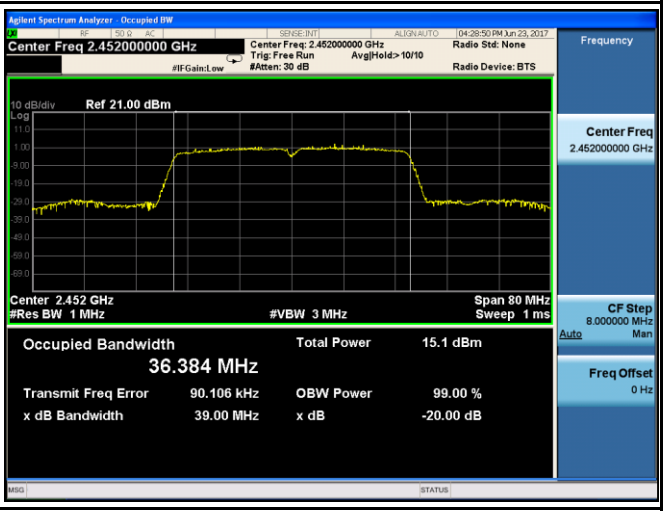
802.11n20 20dB Bandwidth - CH 13



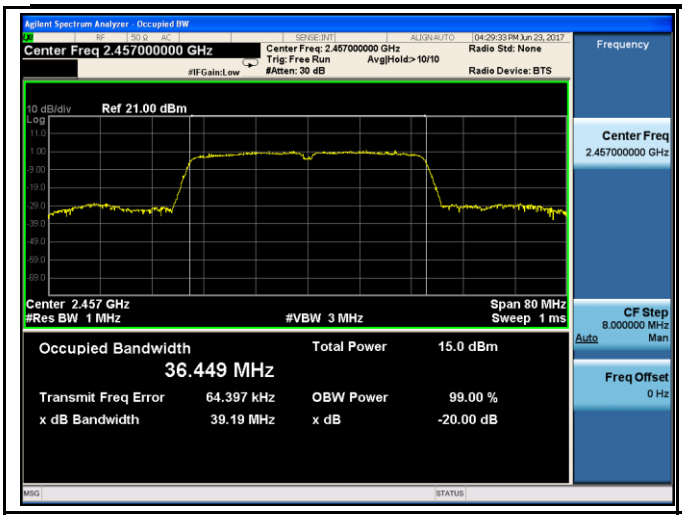
802.11n40 20dB Bandwidth - CH 3



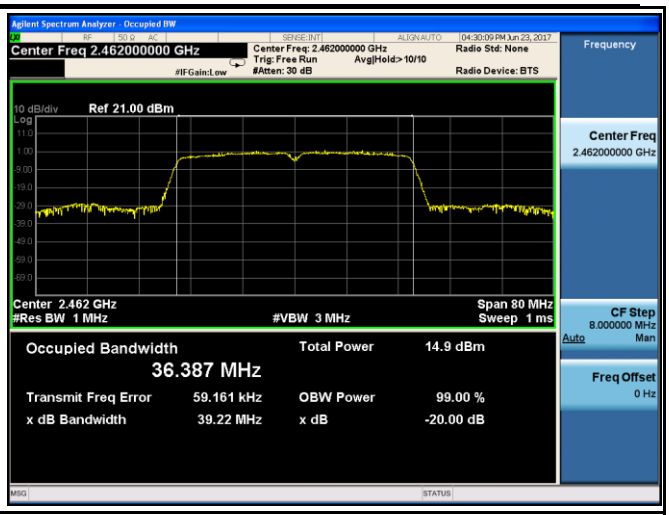
802.11n40 20dB Bandwidth - CH 6



802.11n40 20dB Bandwidth - CH 9



802.11n40 20dB Bandwidth - CH 10

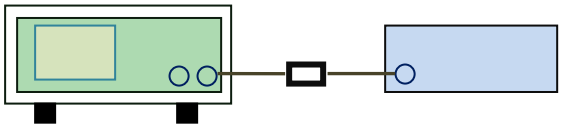


802.11n40 20dB Bandwidth - CH 11

6.3 Maximum Output Power

Temperature	22℃
Relative Humidity	54%
Atmospheric Pressure	1021mbar
Test date :	June 23, 2017
Tested By :	Trety Lu

Requirement(s):

Spec	Item	Requirement	Applicable
§15.247(b) (3)	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)	DTS in 902-928MHz, 2400-2483.5MHz: ≤1 Watt	☑
Test Setup	 Spectrum Analyzer EUT		
Test Procedure	558074 D01 DTS MEAS Guidance V04, 9.1.2 Integrated band power method Maximum output power measurement procedure - a) Set span to at least 1.5 times the OBW. - b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz. - c) Set VBW ≥ 3 x RBW. - d) Number of points in sweep ≥ 2 × span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.) - e) Sweep time = auto. - f) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode. - g) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”. - h) Trace average at least 100 traces in power averaging (i.e., RMS) mode. - i) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.		
Remark			
Result	☑ Pass ☐ Fail		

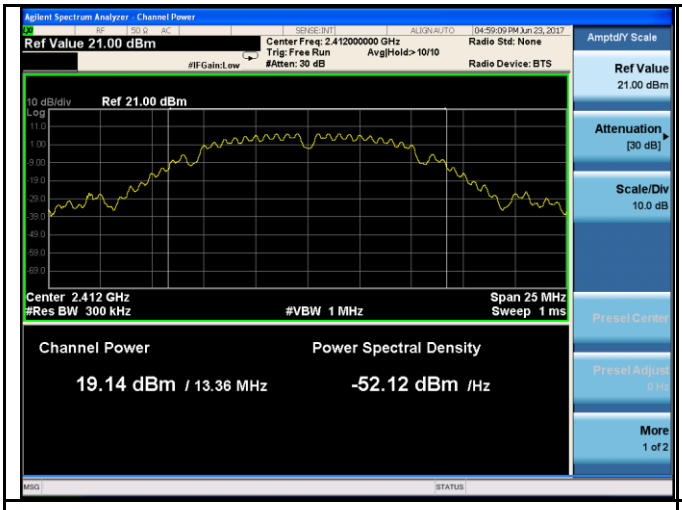
Test Data ☑ Yes ☐ N/A

Test Plot ☑ Yes (See below) ☐ N/A

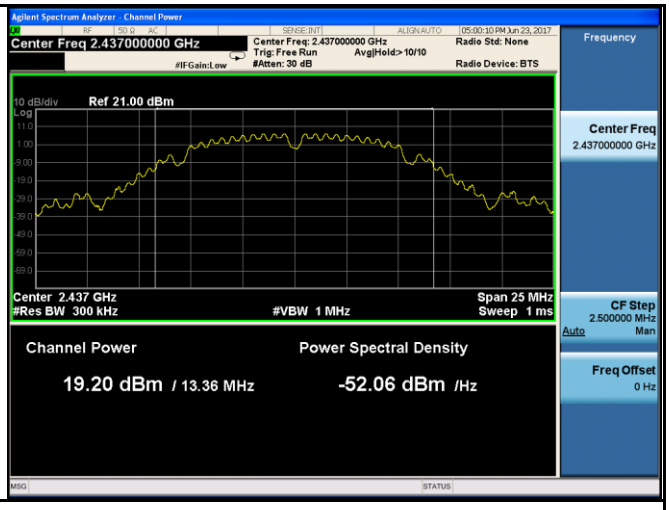
Output Power measurement result

Type	Test mode	CH	Freq (MHz)	Conducted Power (dBm)	Limit (dBm)	Result
Output power	802.11b	1	2412	19.14	30	Pass
		6	2437	19.20	30	Pass
		11	2462	19.24	30	Pass
		12	2467	19.06	30	Pass
		13	2472	19.08	30	Pass
	802.11g	1	2412	17.81	30	Pass
		6	2437	18.22	30	Pass
		11	2462	18.39	30	Pass
		12	2467	18.36	30	Pass
		13	2472	17.98	30	Pass
	802.11n(20M)	1	2412	18.09	30	Pass
		6	2437	18.25	30	Pass
		11	2462	18.39	30	Pass
		12	2467	18.23	30	Pass
		13	2472	18.09	30	Pass
	802.11n(40M)	3	2422	14.69	30	Pass
		6	2437	15.03	30	Pass
		9	2452	15.07	30	Pass
		10	2457	15.02	30	Pass
		11	2462	14.95	30	Pass

Test Plots



802.11b - AV Output power - CH 1



802.11b - AV Output power - CH 6