TEST REPORT

FCC ID: V2V-DLBPROP5

Applicant : **LigoWave LLC**

Address : **138 Mountain Brook Dr Canton, GA 30115 United States**

Equipment under Test (EUT):

Name : Broadband Digital Transmission System
Model : LigoDLB Propeller 5

Standards : FCC PART 15, SUBPART C : 2014 (Section 15.407)
ANSI C63.4:2014 ; ANSI C63.10:2013

Report No. : T1850693 05

Date of Test : June 19- July 08, 2015

Date of Issue : July 09, 2015

Test Result :	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

(Mark Zhu)
General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Alpha Product Testing Co., Ltd. Or test done by Shenzhen Alpha Product Testing Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Alpha Product Testing Co., Ltd. Approvals in writing.

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TEST REPORT VERIFICATION

Applicant	:	LigoWave LLC
Manufacturer	:	LigoWave LLC
EUT Description	:	Broadband Digital Transmission System
(A) Model No.	:	LigoDLB Propeller 5
(B) Trademark	:	N/A
(C) Ratings Supply	:	DC 24V Supply by POE adaptor with 120V/60Hz input
(D)Test Voltage	:	DC 24V Supply by POE adaptor with 120V/60Hz input

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C 2014, ANSI C63.4-2014

The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

Tested by (name + signature).....…..:	Eric Huang Test Engineer	…. …..
Approved by (name + signature)…....:	Simple Guan Project Manager	….. …….
Date of issue…… ……..:	July 09, 2015	

1 General Information

1.1 Description of Device (EUT)

Trade Name	:	N/A
EUT	:	Broadband Digital Transmission System
Model No.		LigoDLB Propeller 5
DIFF.	:	N/A
Operation Type	:	Point to Point, MIMO Tx mode
Antenna Type	:	Printed Antenna [printed antenna, directional gain is 15dBi (12dBi per antenna)
Operation Frequency	:	IEEE 802.11n HT20: 5180MHz-5240MHz,5745MHz-5825MHz IEEE 802.11n HT40:5190MHz-5230MHz,5755MHz-5795MHz IEEE 802.11a:5180MHz-5240MHz, 5.745GHz-5.825GHz
Channel number	:	IEEE 802.11n HT20 5.2GHz band: 4 Channels IEEE 802.11n HT20 5.8GHz band: 5 Channels IEEE 802.11n HT40 5.2GHz band: 2Channels IEEE 802.11n HT40 5.8GHz band: 2Channels IEEE 802.11a 5.2GHz band :4Channels IEEE 802.11a 5.8GHz band :5Channels
Modulation type	:	IIEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a :OFDM(64QAM, 16QAM, QPSK, BPSK)
Power Supply	:	DC 24V Supply by POE adaptor with 120V/60Hz input
Adapter		Model No.: GRT-240050, AY012E-ZF243
Applicant	:	LigoWave LLC
Address	:	138 Mountain Brook Dr Canton, GA 30115 United States
Manufacturer	:	LigoWave LLC
Address	:	138 Mountain Brook Dr Canton, GA 30115 United States

1.2 Description of Test Facility

Shenzhen Alpha Product Testing Co., Ltd
Building B, East Area of Nanchang Second, Industrial Zone, Gushu 2nd Road,
Bao'an, Shenzhen, China

August 11, 2014 File on Federal Communication Commission
Registration Number: 203110

July 18, 2014 Certificated by IC
Registration Number: 12135A

2 EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	2015.01.19	1Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2015.01.19	1Year
Receiver	R&S	ESCI	1166.5950K03-1011	2015.01.19	1Year
Receiver	R&S	ESCI	101202	2015.01.19	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	VULB9168-438	2015.01.21	1Year
Horn Antenna	EMCO	3115	640201028-06	2015.01.21	1Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2015.01.21	1Year
Cable	Resenberger	N/A	No.1	2015.01.19	1Year
Cable	SCHWARZBECK	N/A	No.2	2015.01.19	1Year
Cable	SCHWARZBECK	N/A	No.3	2015.01.19	1Year
Pre-amplifier	Schwarzbeck	BBV9743	9743-019	2015.01.19	1Year
Pre-amplifier	R&S	AFS33-18002650-30-8P-44	SEL0080	2015.01.19	1Year
Base station	Agilent	E5515C	GB44300243	2015.01.19	1 Year
Temperature controller	Terchy	MHQ	120	2015.01.19	1Year

Power divider	Anritsu	K240C	020346	2015.01.19	1 Year
Signal Generator	HP	83732B	VS3449051	2015.01.19	1 Year
Power Meter	Anritsu	ML2487A	6K00001491	2015.01.19	1Year
Power sensor	Anritsu	ML2491A	32516	2015.01.19	1Year
Pre-amplifier	SCHWARZBECK	BBV9743	9743-019	2015.01.19	1Year
Pre-amplifier	Quietek	AP-180C	CHM-0602012	2015.01.19	1Year

3 Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a 50 u H LISN. Both Lines were observed. The bandwidth of the receiver was 10kHz with an appropriate sweep speed. The ambient temperature of the EUT was 25℃ with a humidity of 58%.

RADIATION INTERFERENCE: The test procedure used was ANSI Standard ANSI C63.4:2014 using a ANRITSU spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a micro volt at the output of the antenna. The resolution bandwidth was 100kHz and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3MHz above 1 GHz. The ambient temperature of the EUT was 25℃ with a humidity of 58%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer and cable loss. The antenna correction factors and cable loss are stated in terms of dB. The gain of the Pre-selector was accounted for in the Spectrum Analyzer Meter Reading.
Example:
Freq (MHz) METER READING + ACF + CABLE = FS
33.20 dBuV + 10.36 dB + 0.9 dB= 44.46 dBuV/m @ 3m
ANSI STANDARD ANSI C63.4:2014 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes. The situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSI Standard ANSI C63.4:2014 10.1.7 with the EUT 40 cm from the vertical ground wall.

4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15 : 2014	Section 15.407(b)&15.209	Compliance
Conduction Emission	FCC PART 15 : 2014	Section 15.207	Compliance
Bandwidth Test	FCC PART 15 : 2014	Section 15.407(a)	Compliance
Peak Power	FCC PART 15 : 2014	Section 15.407(a)	Compliance
Power Density	FCC PART 15 : 2014	Section 15.407(a)	Compliance
Undesirable emission	FCC PART 15 : 2014	Section 15.407(b)	Compliance
Antenna Requirement	FCC PART 15 : 2014	Section 15.203	Compliance

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (The adapter be used during Test)

4.2 Test connection

4.3 Assistant equipment used for test

Description	:	Adapter
Manufacturer	:	N/A
Model No.	:	GRT-240050, AY012E-ZF243

4.4 Test mode

Tested mode, channel, and data rate information 5.2G			
Mode	Data rate (Mpbs) see Note	Channel	Frequency (MHz)
IEEE 802.11n HT20	6.5	CH36	5180
	6.5	CH40	5200
	6.5	CH48	5240
IEEE 802.11n HT40	13.5	CH38	5190
	13.5	CH46	5230
IEEE 802.11a	6	CH36	5180
	6	CH40	5200
	6	CH48	5240
Note: According exploratory test and product specification EUT will have maximum output power in those data rate, so those data rate were used for all test.			

Dutycycle :100% Keeping MIMO TX mode			
Mode	data rate (Mpbs)(see Note)	Channel	Frequency (MHz)
IEEE 802.11 n/HT20 with 5.8G	6.5	CH149	5745
	6.5	CH157	5785
	6.5	CH165	5825
IEEE 802.11 n/HT40 with 5.8G	13.5	CH151	5755
	13.5	CH159	5795
IEEE 802.11a with 5.8G	6	CH149	5745
	6	CH157	5785
	6	CH165	5825
Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.			

4.5 Channel list

For IEEE 802.11 a with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT20 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT40 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH38	5190	CH46	5230

For IEEE 802.11 a with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT20 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT40 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH151	5755	CH159	5795		

4.6 Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

4.7 Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13 dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	1×10-9	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2℃	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

5 Spurious Emission

5.1 Radiation Emission

5.1.1 Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

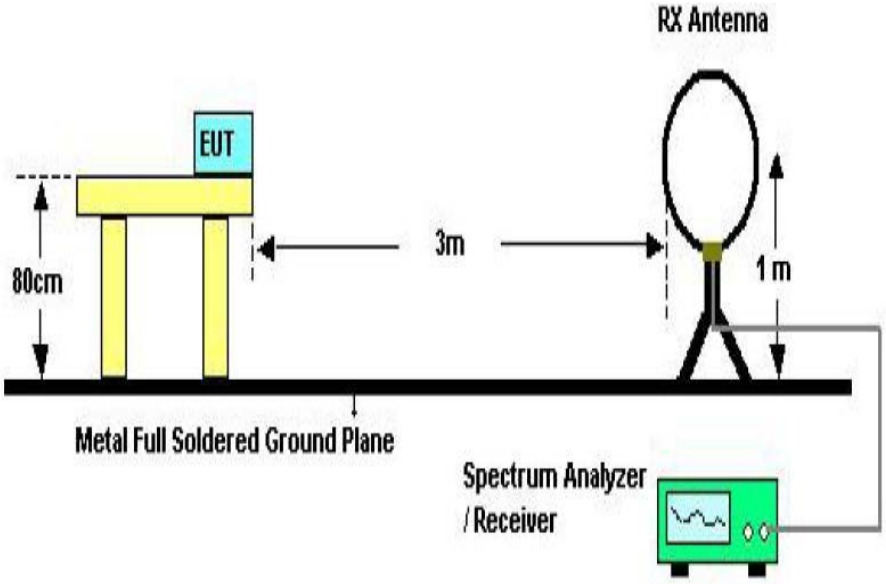
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

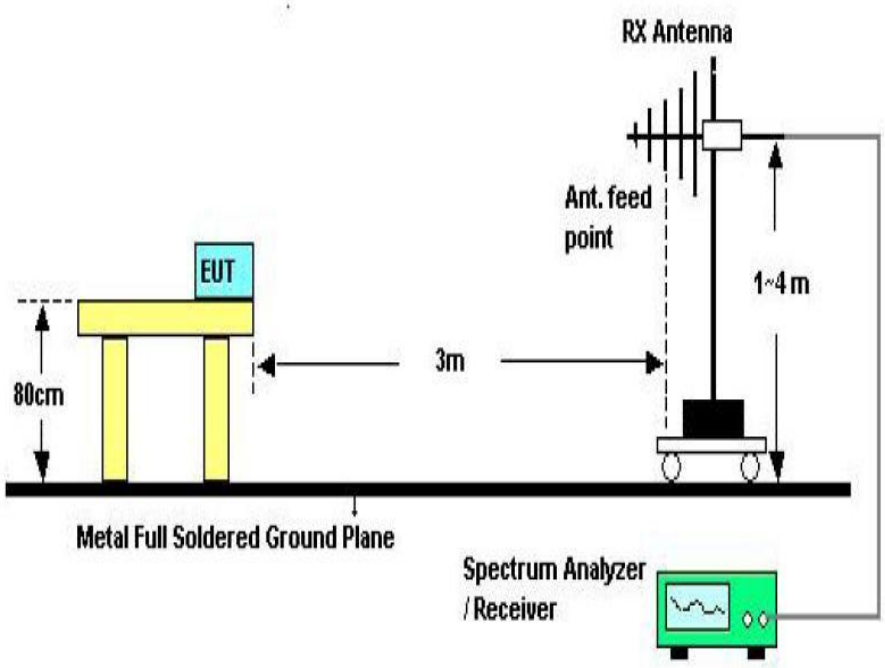
a) The tighter limit applies at the band edges.
b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

5.1.2 Test Setup

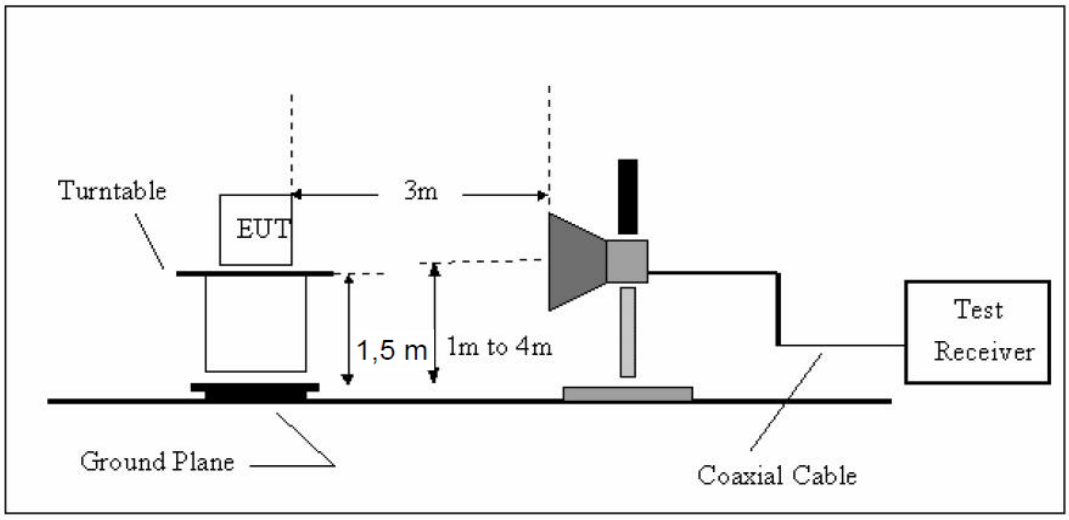
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
b) The Test antenna shall vary between 1m and 4m,Both Horizontal and Vertical antenna are set of make measurement.
c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
d) If Peak value comply with QP limit Below 1GHz.The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
e) For the actual test configuration, please see the test setup photo.

5.1.4 Test Equipment Setting For emission test Result

9KHz~150KHz	RBW 200Hz	VBW1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHZ~1GHz	RBW 120KHz	VBW 300KHz
Above 1GHz	RBW 1MHz	VBW 3MHz

5.1.5 Test Condition

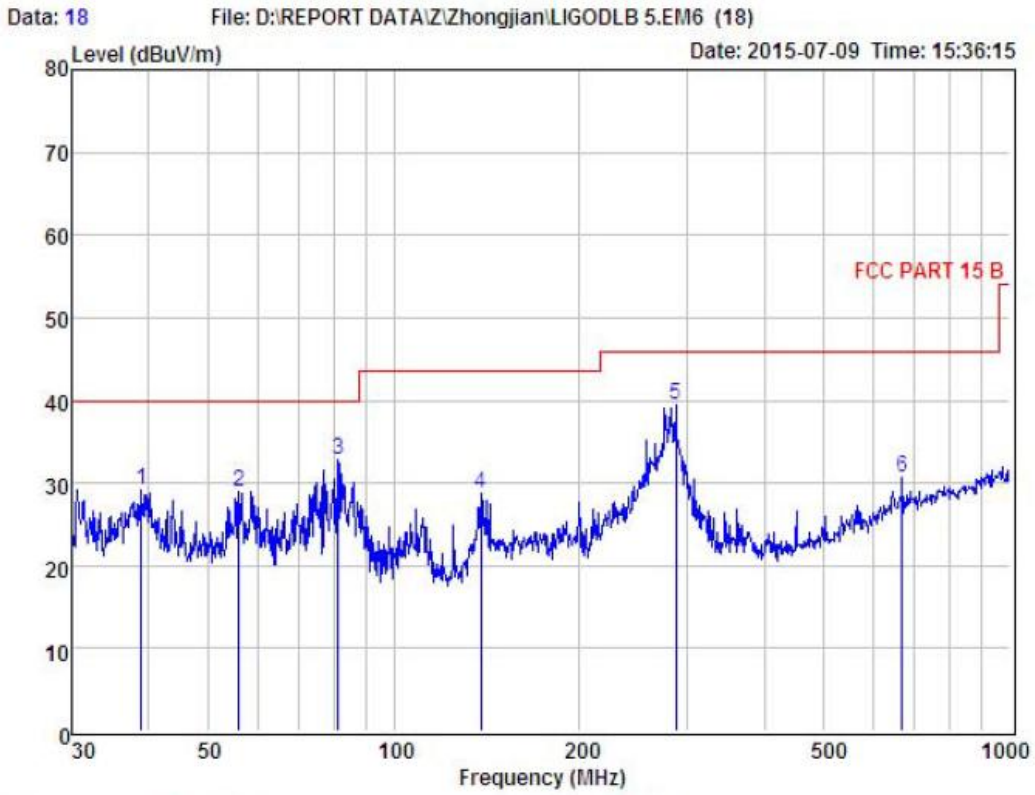
MIMO Continual Transmitting in maximum power.

5.1.6 Test Result

We have scanned the 9KHz from 25GHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

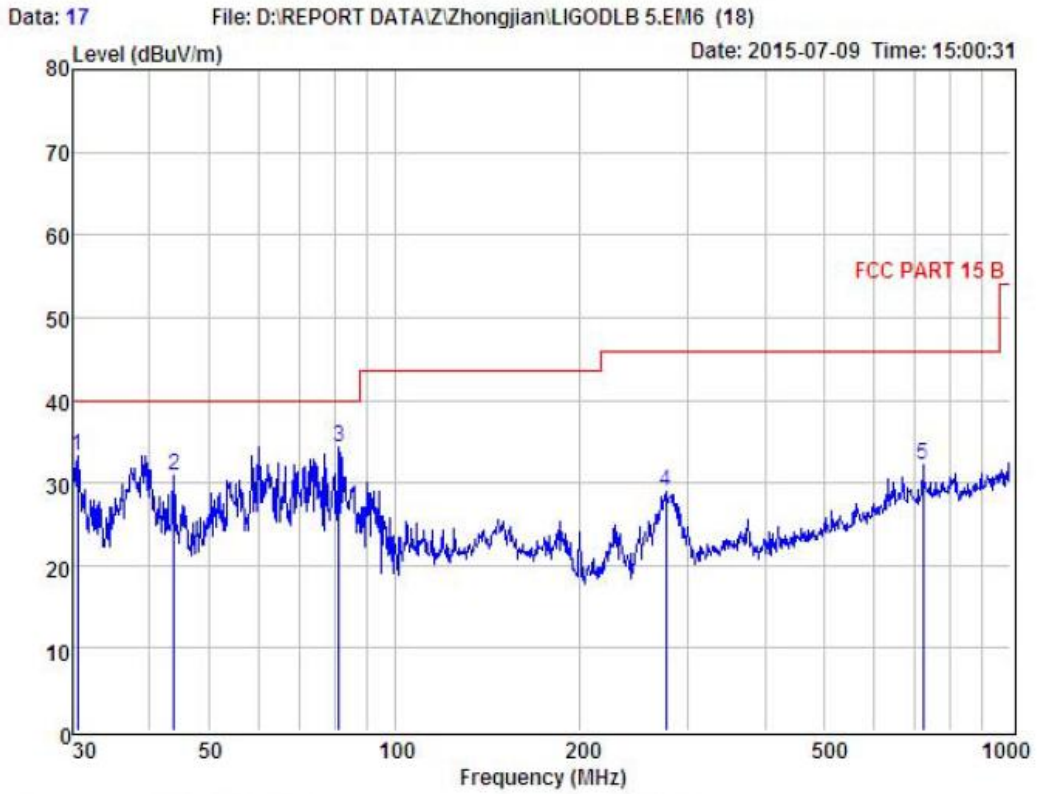
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Condition : FCC PART 15 B 3m POL: HORIZONTAL
EUT : 5GHz Wireless Device
Model No : LigoDLB Propeller 5
Test Mode :
Power : DC 24V From Adapter
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	38.89	46.75	14.07	31.89	0.13	29.06	40.00	-10.94	Peak
2	56.00	47.59	13.07	31.77	0.16	29.05	40.00	-10.95	Peak
3	81.21	54.96	9.32	31.58	0.17	32.87	40.00	-7.13	Peak
4	138.39	46.24	13.37	31.23	0.38	28.76	43.50	-14.74	Peak
5	286.98	56.75	12.54	30.60	0.72	39.41	46.00	-6.59	Peak
6	668.14	39.74	19.30	29.31	1.01	30.74	46.00	-15.26	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss



Condition : FCC PART 15 B 3m POL: VERTICAL
EUT : 5GHz Wireless Device
Model No : LigoDLB Propeller 5
Test Mode :
Power : DC 24V From Adapter
Test Engineer :
Remark :
Temp : 24.2℃
Hum : 54%

Item	Freq	Read Level	Antenna Factor	Preamp Factor	Cable Loss	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	30.53	52.06	13.22	32.05	0.07	33.30	40.00	-6.70	Peak
2	43.81	48.90	13.79	31.85	0.09	30.93	40.00	-9.07	Peak
3	81.21	56.36	9.32	31.58	0.17	34.27	40.00	-5.73	Peak
4	276.12	46.87	12.26	30.65	0.51	28.99	46.00	-17.01	Peak
5	721.73	40.19	19.92	29.25	1.26	32.12	46.00	-13.88	Peak

Remark: Level = Read Level + Antenna Factor - Preamp Factor + Cable Loss

Remark: All modes and channels have been tested and only worst data of 802.11a, 5180MHz are listed in this report.

From 1G-25GHz
IEEE 802.11a with 5.2G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	46.91	---	2.36	49.27	---	74	/	24.73	Peak
15540	V	25.92	---	4.52	30.44	---	54	/	23.56	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m))				
10360	H	46.05	---	2.36	48.41	---	74	/	25.59	Peak
15540	H	25.84	---	4.52	30.36	---	54	/	23.64	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	45.77	---	2.36	48.13	---	74	/	25.87	Peak
15600	V	25.16	---	4.52	29.68	---	54	/	24.32	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	47.29	---	2.36	49.65	---	74	/	24.35	Peak
15600	H	25.59	---	4.52	30.11	---	54	/	23.89	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	47.82	---	2.36	50.18	---	74	/	23.82	Peak
15720	V	26.72	---	4.52	31.24	---	54	/	22.76	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	47.47	---	2.36	49.83	---	74	/	24.17	Peak
15720	H	25.46	---	4.52	29.98	---	54	/	24.02	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.2G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	47.91	---	2.36	50.27	---	74	/	23.73	Peak
15540	V	26.63	---	4.52	31.15	---	54	/	22.85	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	H	48.07	---	2.36	50.43	---	74	/	23.57	Peak
15540	H	27.22	---	4.52	31.74	---	54	/	22.26	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	48.08	---	2.36	50.44	---	74	/	23.56	Peak
15600	V	26.30	---	4.52	30.82	---	54	/	23.18	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	48.12	---	2.36	50.48	---	74	/	23.52	Peak
15600	H	25.84	---	4.52	30.36	---	54	/	23.64	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	47.27	---	2.36	49.63	---	74	/	24.37	Peak
15720	V	26.81	---	4.52	31.33	---	54	/	22.67	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	48.26	---	2.36	50.62	---	74	/	23.38	Peak
15720	H	26.89	---	4.52	31.41	---	54	/	22.59	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.2G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10380	V	48.01	---	2.36	50.37	---	74	/	23.63	Peak
15570	V	26.59	---	4.52	31.11	---	54	/	22.89	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10380	H	47.05	---	2.36	49.41	---	74	/	24.59	Peak
15570	H	25.55	---	4.52	30.07	---	54	/	23.93	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	48.03	---	2.36	50.39	---	74	/	23.61	Peak
15690	V	25.41	---	4.52	29.93	---	54	/	24.07	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	H	48.02	---	2.36	50.38	---	74	/	23.62	Peak
15690	H	16.57	---	4.52	21.09	---	54	/	32.91	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

From 1G-25GHz:
IEEE 802.11a with 5.8G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	V	47.88	---	2.36	50.24	---	74	/	23.76	Peak
17235	V	27.30	---	4.52	31.82	---	54	/	22.18	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	H	47.32	---	2.36	49.68	---	74	/	24.32	Peak
17235	H	27.31	---	4.52	31.83	---	54	/	22.17	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	47.96	---	2.36	50.32	---	74	/	23.68	Peak
17355	V	26.63	---	4.52	31.15	---	54	/	22.85	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	48.57	---	2.36	50.93	---	74	/	23.07	Peak
17355	H	26.84	---	4.52	31.36	---	54	/	22.64	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	47.51	---	2.36	49.87	---	74	/	24.13	Peak
17475	V	27.63	---	4.52	32.15	---	54	/	21.85	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	48.48	---	2.36	50.84	---	74	/	23.16	Peak
17475	H	25.15	---	4.52	29.67	---	54	/	24.33	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.8G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	V	48.75	---	2.36	51.11	---	74	/	22.89	Peak
17235	V	27.80	---	4.52	32.32	---	54	/	21.68	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	H	38.96	---	2.36	41.32	---	74	/	32.68	Peak
17235	H	16.04	---	4.52	20.56	---	54	/	33.44	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	48.56	---	2.36	50.92	---	74	/	23.08	Peak
17355	V	25.22	---	4.52	29.74	---	54	/	24.26	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	46.71	---	2.36	49.07	---	74	/	24.93	Peak
17355	H	26.67	---	4.52	31.19	---	54	/	22.81	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	49.05	---	2.36	51.41	---	74	/	22.59	Peak
17475	V	25.66	---	4.52	30.18	---	54	/	23.82	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	47.12	---	2.36	49.48	---	74	/	24.52	Peak
17475	H	26.29	---	4.52	30.81	---	54	/	23.19	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.8G

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	V	47.56	---	2.36	49.92	---	74	/	24.08	Peak
17265	V	26.21	---	4.52	30.73	---	54	/	23.27	Peak
N/A										

EUT	Broadband Digital Transmission System	**Model Name**	LIGODLB PROPELLER 5
Temperature	26°C	**Relative Humidity**	56%
Pressure	960hPa	**Test voltage**	DC 24V From adapter
Test Mode	MIMO TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	H	47.88	---	2.36	50.24	---	74	/	23.76	Peak
17265	H	26.89	---	4.52	31.41	---	54	/	22.59	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	V	47.47	---	2.36	49.83	---	74	/	24.17	Peak
17385	V	25.82	---	4.52	30.34	---	54	/	23.66	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	LIGODLB PROPELLER 5
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 24V From adapter
Test Mode	MIMO TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	H	47.37	---	2.36	49.73	---	74	/	24.27	Peak
17385	H	26.30	---	4.52	30.82	---	54	/	23.18	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

6 POWER LINE CONDUCTED EMISSION

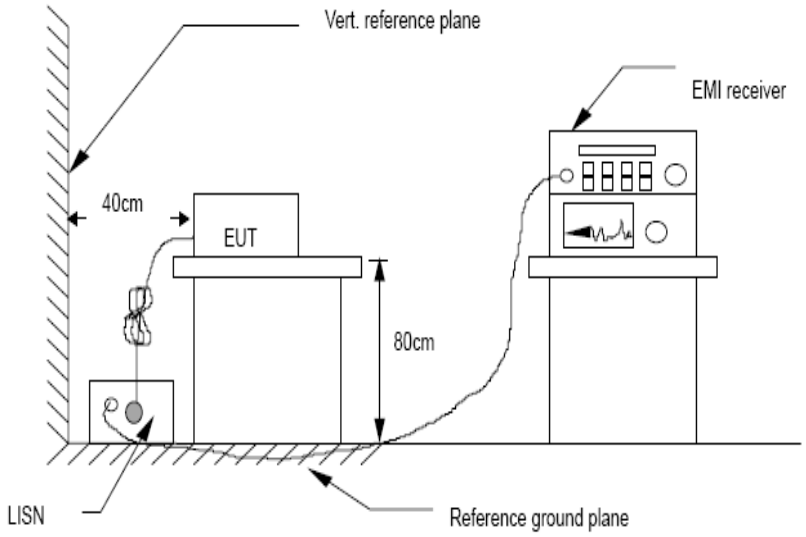
6.1 Conducted Emission Limits(15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.The limit decreases in line with the logarithm of the frequency in the rang of 0.15 to 0.50 MHz.

6.2 Test Setup



6.3 Test Procedure

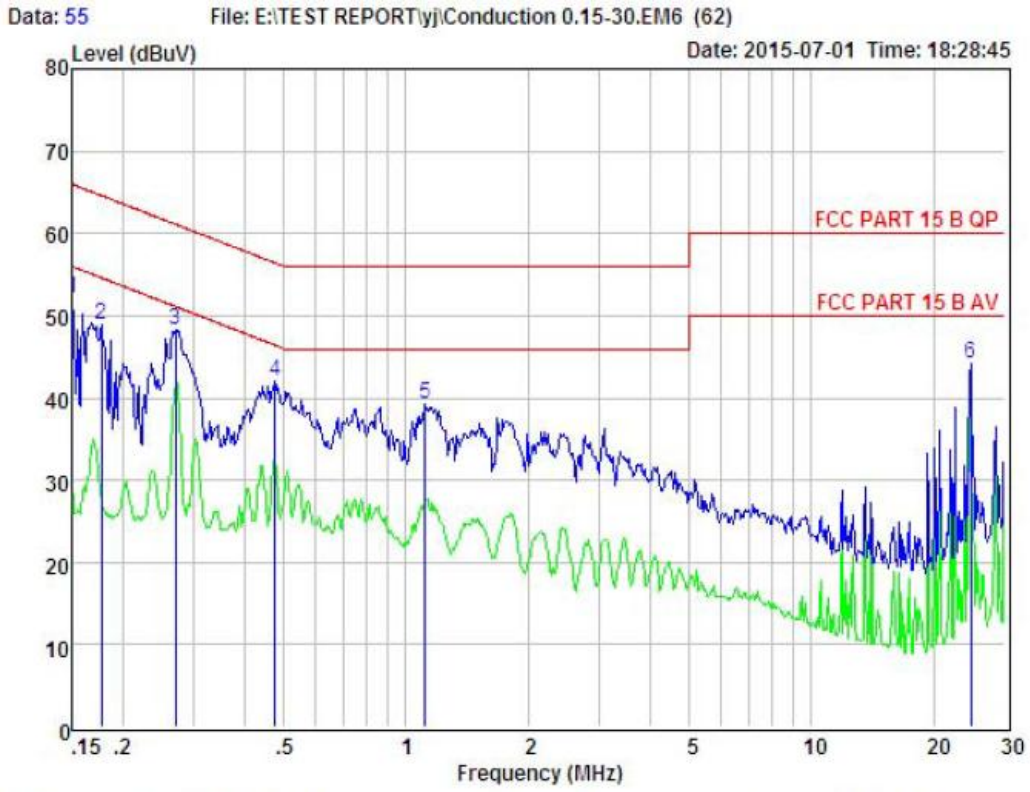
The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI ANSI C63.4:2014 on Conducted Emission Measurement.
The bandwidth of test receiver is set at 9 kHz.

6.4 Test Results

MIMO TX MODE
Worse case is reported only

PASS

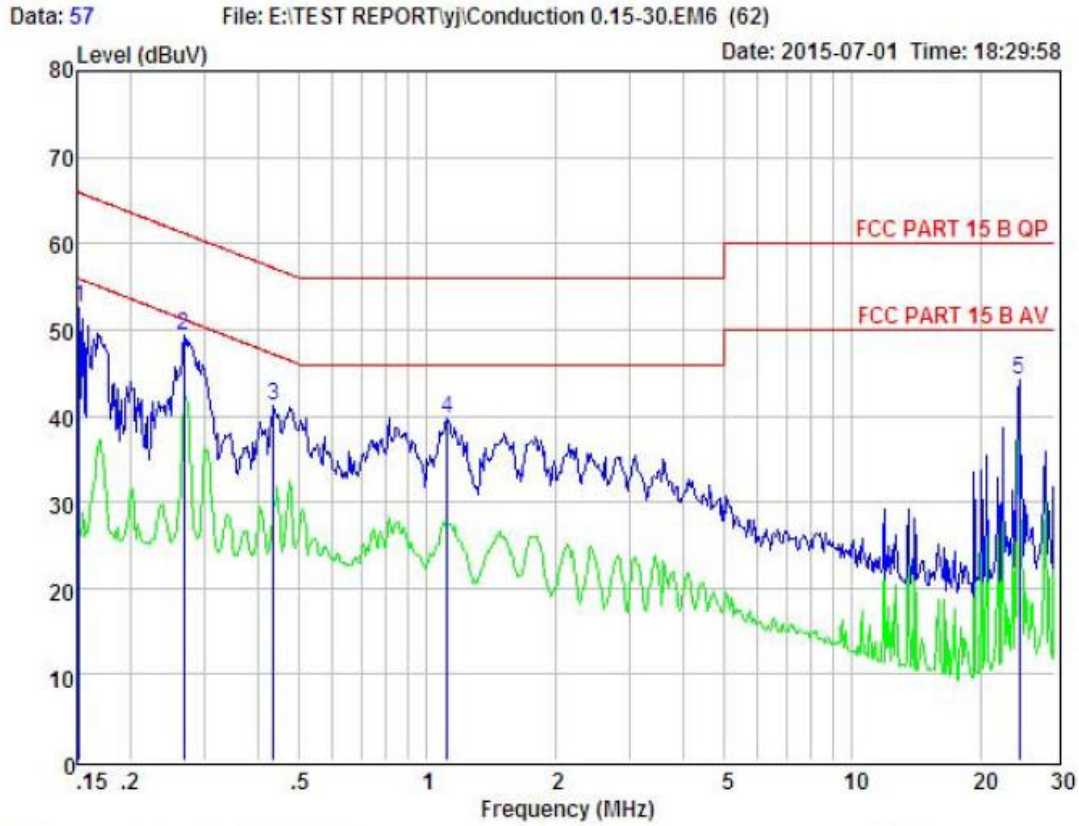
Detailed information please see the following page.



Condition : FCC PART 15 B QP POL: LINE Temp:24 ℃ Hum:56 %
EUT :
Model No : LigoDLB5
Test Mode :
Power : AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.150	42.37	0.03	-9.72	0.10	52.22	66.00	-13.78	Peak
2	0.178	39.08	0.03	-9.72	0.10	48.93	64.59	-15.66	Peak
3	0.270	38.44	0.03	-9.72	0.10	48.29	61.12	-12.83	Peak
4	0.476	32.26	0.03	-9.72	0.10	42.11	56.41	-14.30	Peak
5	1.117	29.45	0.04	-9.71	0.10	39.30	56.00	-16.70	Peak
6	24.790	33.75	0.46	-9.59	0.47	44.27	60.00	-15.73	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss



Condition : FCC PART 15 B QP POL: NEUTRAL Temp:24 ℃ Hum:56 %
EUT :
Model No : LigoDLB5
Test Mode :
Power : AC 120V/60Hz
Test Engineer:
Remark :

Item	Freq	Read	LISN Factor	Preamp Factor	Cable Lose	Level	Limit	Margin	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dBuV	
1	0.152	42.77	0.03	-9.72	0.10	52.62	65.91	-13.29	Peak
2	0.267	39.42	0.03	-9.72	0.10	49.27	61.20	-11.93	Peak
3	0.435	31.38	0.03	-9.72	0.10	41.23	57.15	-15.92	Peak
4	1.117	29.81	0.04	-9.71	0.10	39.66	56.00	-16.34	Peak
5	24.790	33.61	0.46	-9.59	0.47	44.13	60.00	-15.87	Peak

Remarks: Level = Read + LISN Factor - Preamp Factor + Cable loss

7 Conducted Maximum Output Power

7.1 Test limit

For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

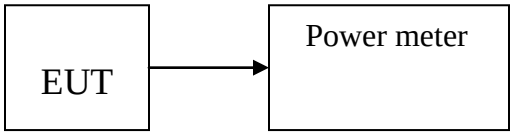
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

7.2 Test Procedure

Details see the KDB558074 Meas Guidance V03

7.2.1 Place the EUT on the table and set it in transmitting mode.
7.2.2 Connected the EUT's antenna port to peak power meter by 20dB attenuator.
7.2.3 Measure out each mode and each bands peak output power of EUT.
Note: The cable loss and attenuator loss were offset into measure device as amplitude offset. Details see the KDB558074 DTS Meas Guidance V03

7.3 Test Setup



7.4 Test Results

PASS

Detailed information please see the following page.

With 15dBi directional antenna gain, less than 23dBi.

EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5						
Test date: 2015-06-29 Test site: RF site Tested by: Simple Guan						
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Margin (dB)
IEEE 802.11 a with 5.2G	CH36:5180	0	23.52	26.17	30	3.83
		1	22.77			
	CH40:5200	0	23.04	25.82	30	4.18
		1	22.56			
	CH48:5240	0	23.37	26.12	30	3.88
		1	22.84			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	23.02	25.52	30	4.48
		1	21.94			
	CH40:5200	0	22.88	25.16	30	4.84
		1	21.26			
	CH48:5240	0	23.26	25.71	30	4.29
		1	22.05			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	23.21	25.72	30	4.28
		1	22.14			
	CH46:5230	0	23.35	25.94	30	4.06
		1	22.46			
Conclusion: PASS						

EUT: Broadband Digital Transmission System			M/N: LigoDLB Propeller 5			
Test date: 2015-06-29	Test site: RF site		Tested by: Simple Guan			
Mode	Frequency (MHz)	Ant Port	PK Output powe(dBm)		Limit (dBm)	Margin (dB)
IEEE 802.11 a with 5.8G	CH149:5745	0	25.12	28.04	30	1.96
		1	24.93			
	CH157:5785	0	25.08	27.93	30	2.07
		1	24.75			
	CH165:5825	0	25.84	28.25	30	1.75
		1	24.55			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	24.88	27.38	30	2.62
		1	23.79			
	CH157:5785	0	24.69	27.07	30	2.93
		1	23.32			
	CH165:5825	0	24.91	27.17	30	2.83
		1	23.24			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	23.84	26.38	30	3.62
		1	22.84			
	CH159:5795	0	23.92	26.45	30	3.55
		1	22.91			
Conclusion: PASS						

8 PEAK POWER SPECTRAL DENSITY

8.1 Test limit

For the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.
For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

8.2 Method of measurement

Details see the KDB558074 DTS Meas Guidance V03

8.2.1 Place the EUT on the table and set it in transmitting mode.

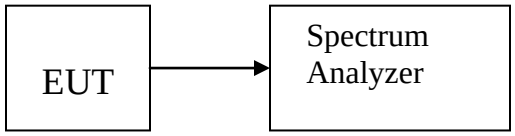
8.2.2 Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

8.2.3 Set the spectrum analyzer as plots exhibited.

8.2.4 Record the max reading.

8.2.5 Repeat the above procedure until the measurements for all frequencies are completed.

8.3 Test Setup



8.4 Test Results

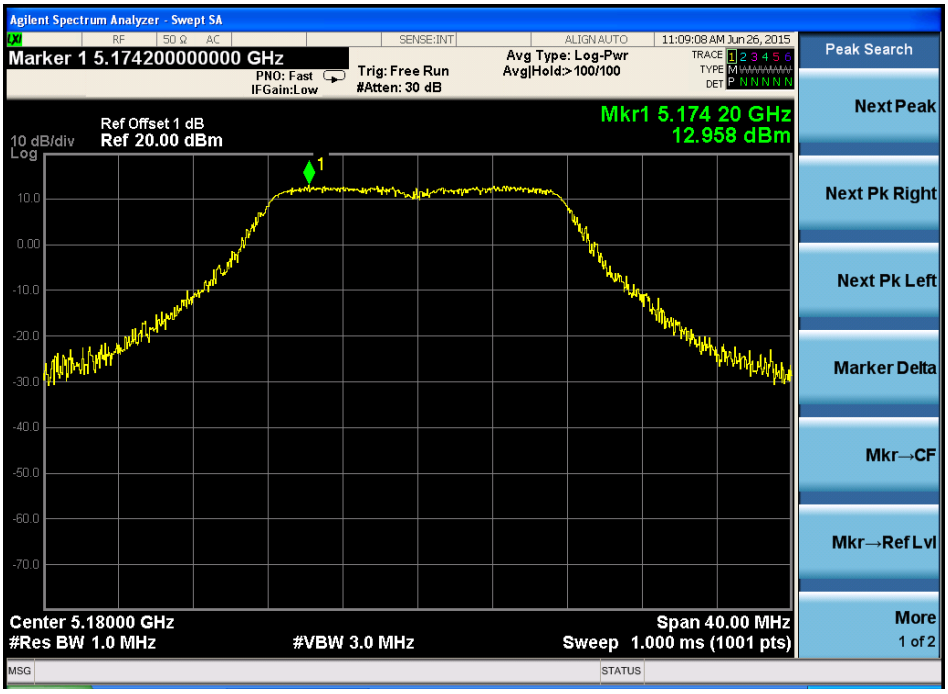
PASS.

Detailed information please see the following page.

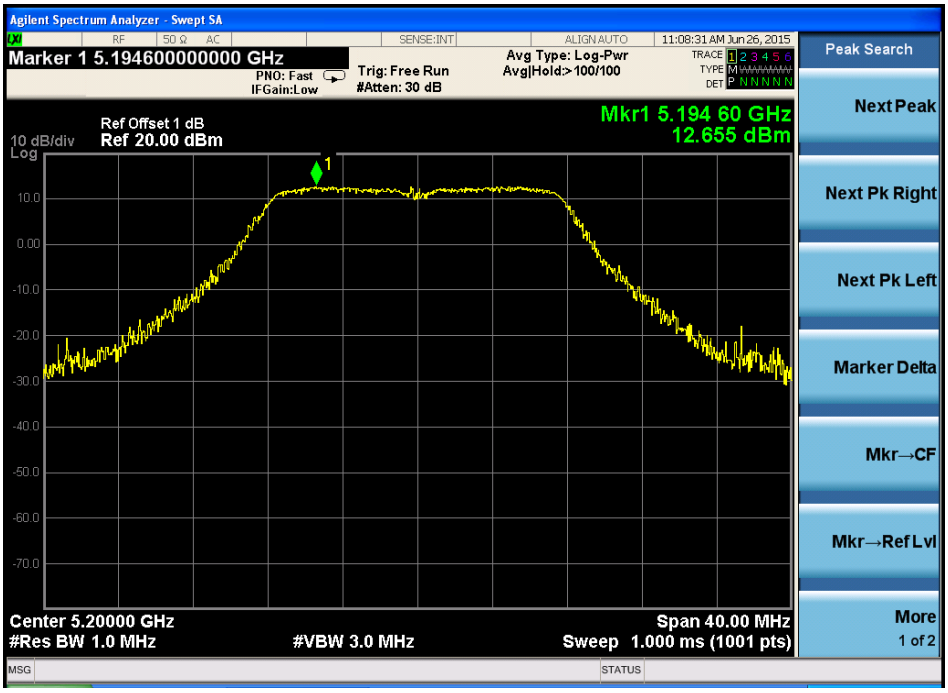
EUT: Broadband Digital Transmission System			M/N: LigoDLB Propeller 5			
Test date: 2015-06-29	Test site: RF site		Tested by: Simple Guan			
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.2G	CH36:5180	0	12.958	16.08	17	0.92
		1	13.187			
	CH40:5200	0	12.655	15.73	17	1.27
		1	12.779			
	CH48:5240	0	12.871	16.31	17	0.69
		1	13.687			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	13.262	15.68	17	1.32
		1	11.982			
	CH40:5200	0	13.068	15.57	17	1.43
		1	11.985			
	CH48:5240	0	12.889	15.68	17	1.32
		1	12.431			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	9.913	12.33	17	4.67
		1	8.628			
	CH46:5230	0	10.684	13.15	17	3.85
		1	9.520			
Conclusion: PASS						

EUT: Broadband Digital Transmission System			M/N: LigoDLB Propeller 5			
Test date: 2015-06-29		Test site: RF site	Tested by: Simple Guan			
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	0	6.314	10.44	30	PASS
		1	8.320			
	CH157:5785	0	6.455	9.91	30	PASS
		1	7.306			
	CH165:5825	0	5.399	8.35	30	PASS
		1	5.273			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	7.006	9.76	30	PASS
		1	6.476			
	CH157:5785	0	5.708	8.64	30	PASS
		1	5.556			
	CH165:5825	0	3.602	6.88	30	PASS
		1	4.124			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	4.895	7.72	30	PASS
		1	4.517			
	CH159:5795	0	4.729	6.69	30	PASS
		1	2.305			
Conclusion: PASS						

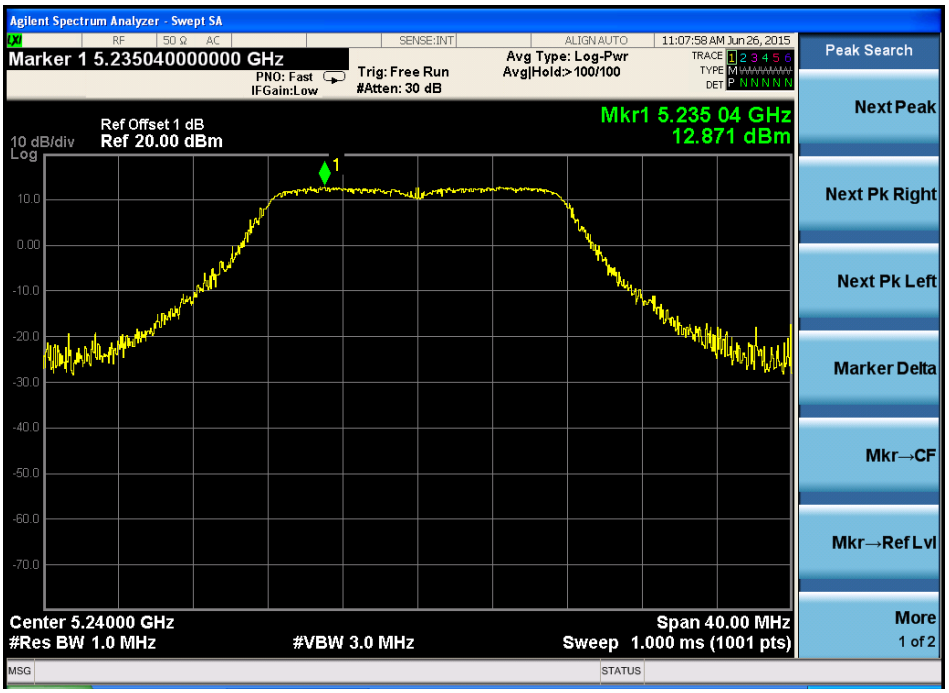
Port 0 antenna with5.2G
IEEE 802.11a :
CH Low :



CH Mid:

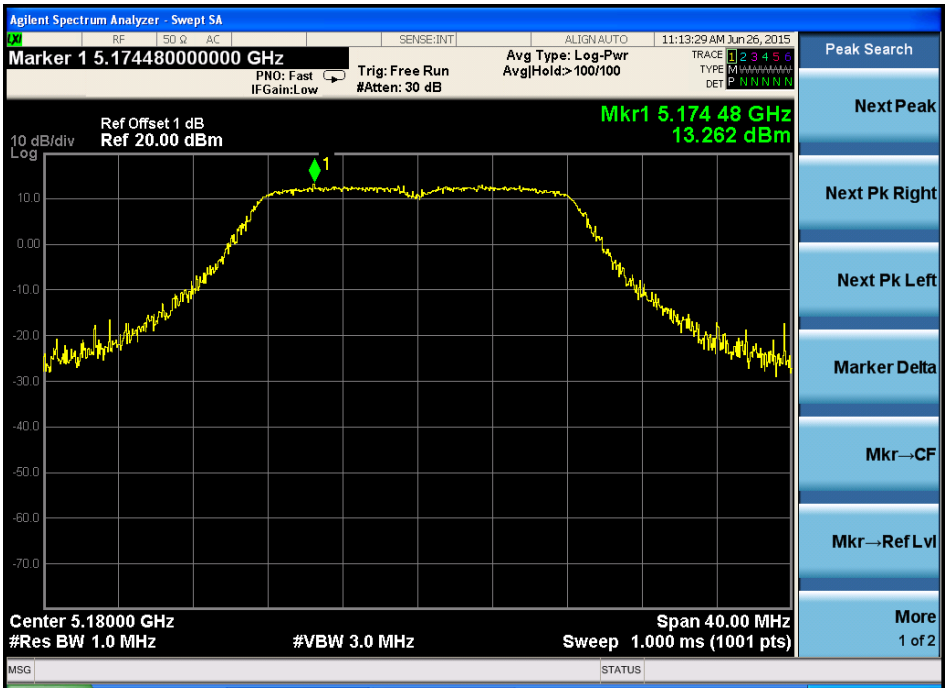


CH Hig:

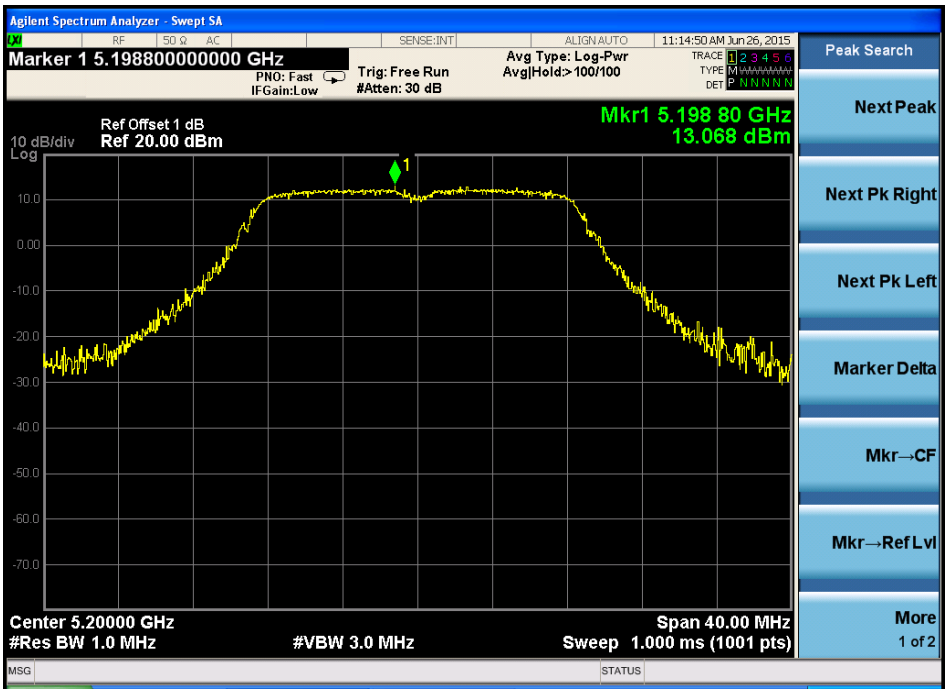


IEEE 802.11n HT20 :

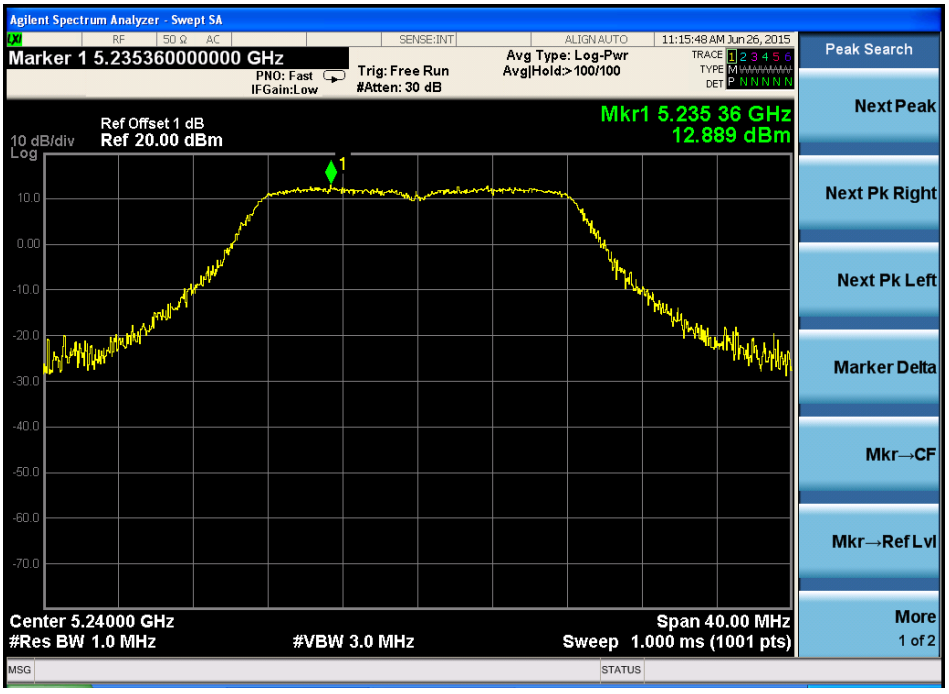
CH Low :



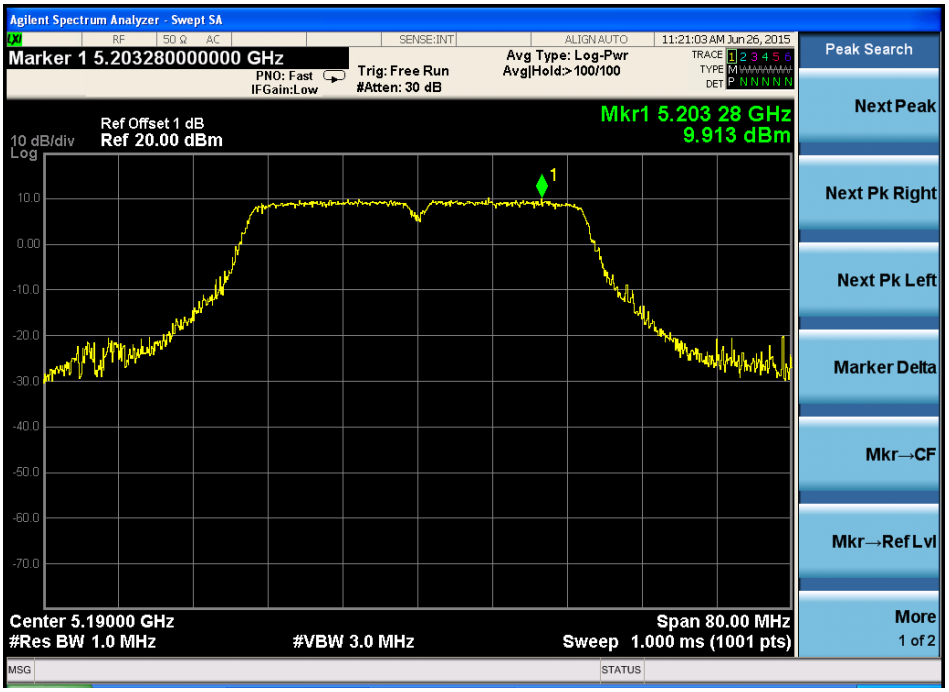
CH Mid:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.198800000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:14:50 AM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 5.198 80 GHz
13.068 dBm
Center 5.20000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

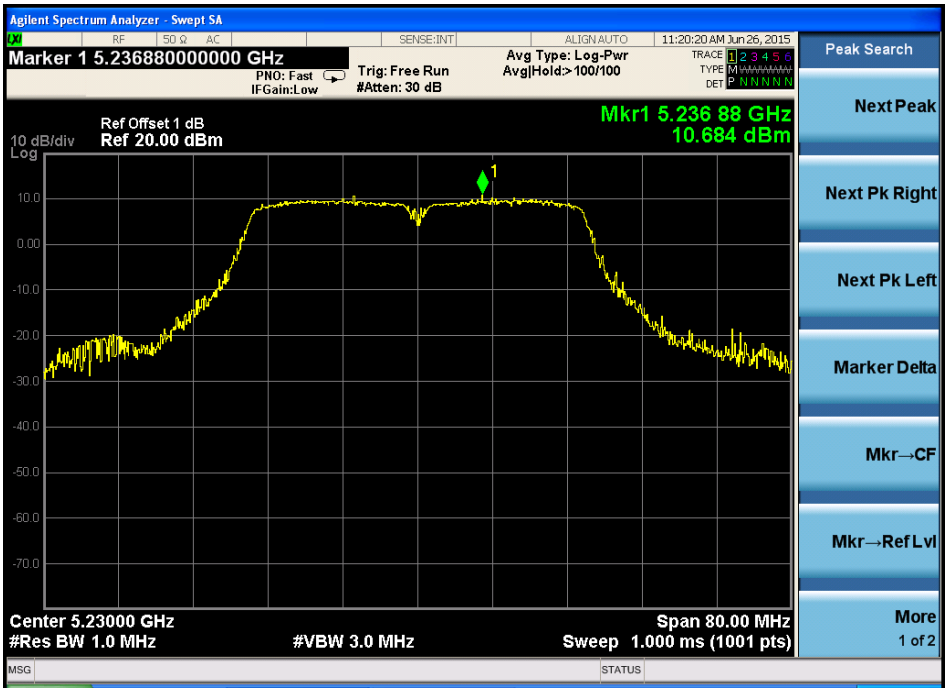
CH Hig:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.235360000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
11:15:48 AM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 5.235 36 GHz
12.889 dBm
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

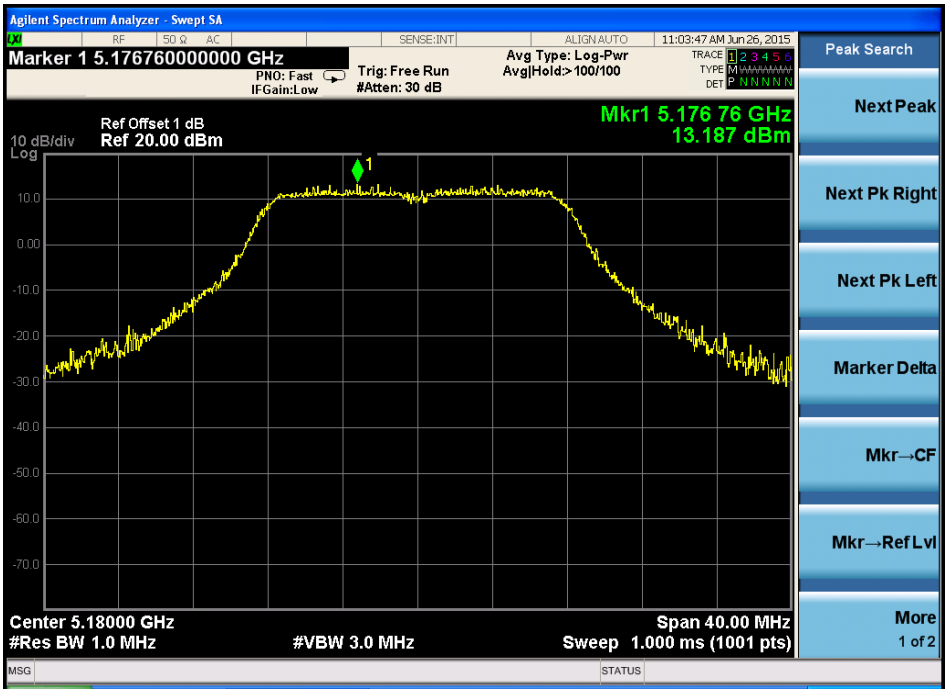
IEEE 802.11n HT40 :
CH Low :



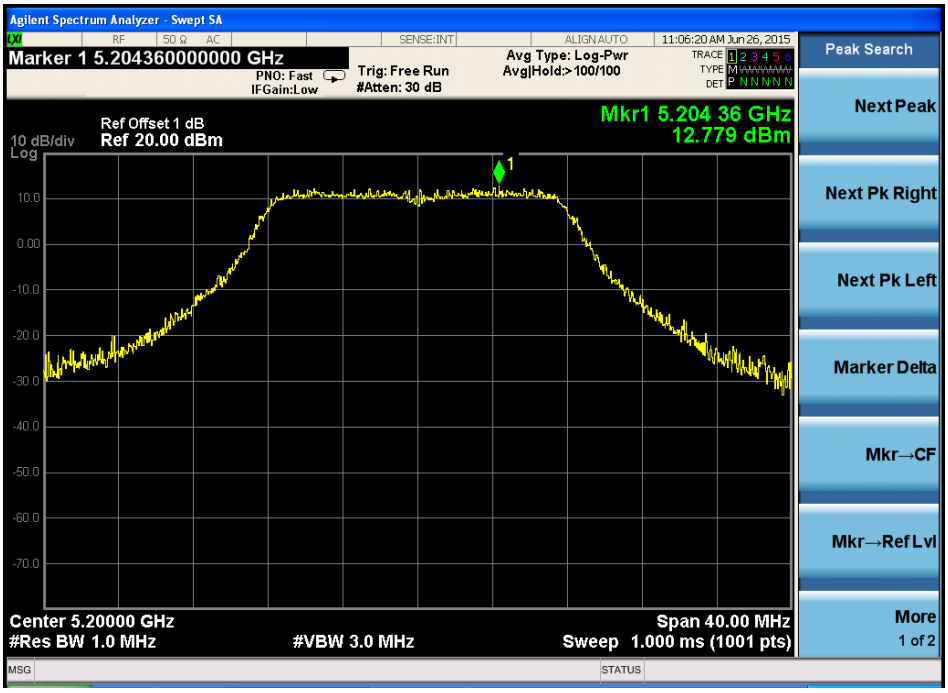
CH Hig:



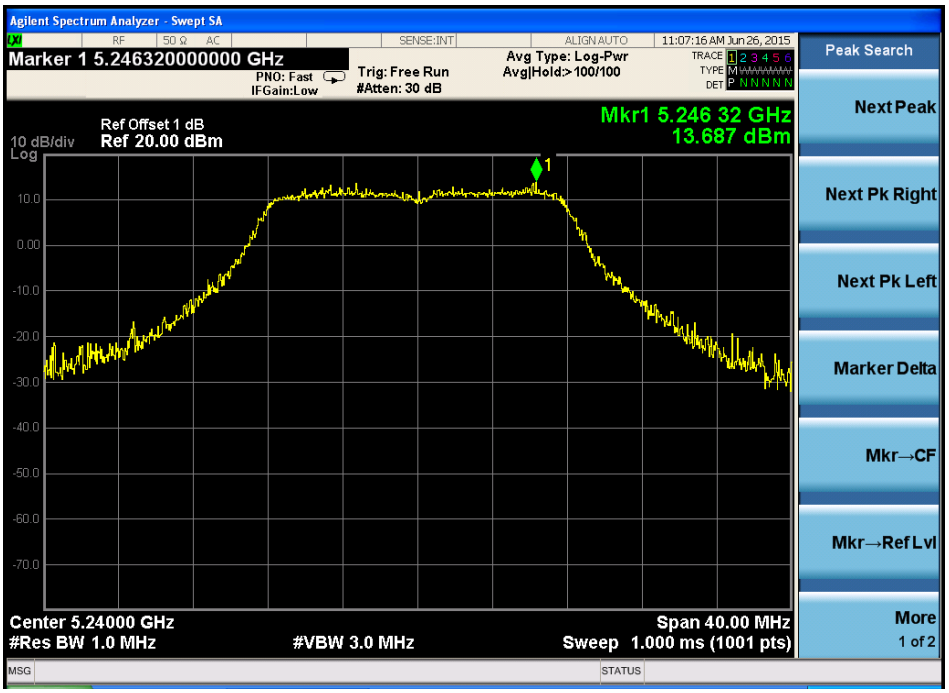
port 1 antenna with 5.2G
IEEE 802.11a :
CH Low :



CH Mid:

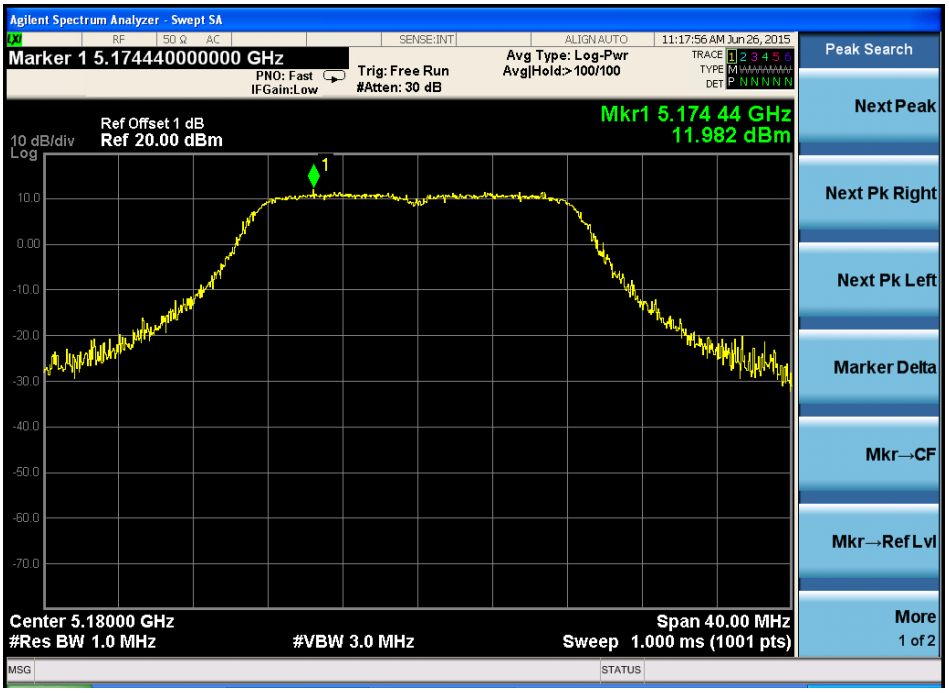


CH Hig:

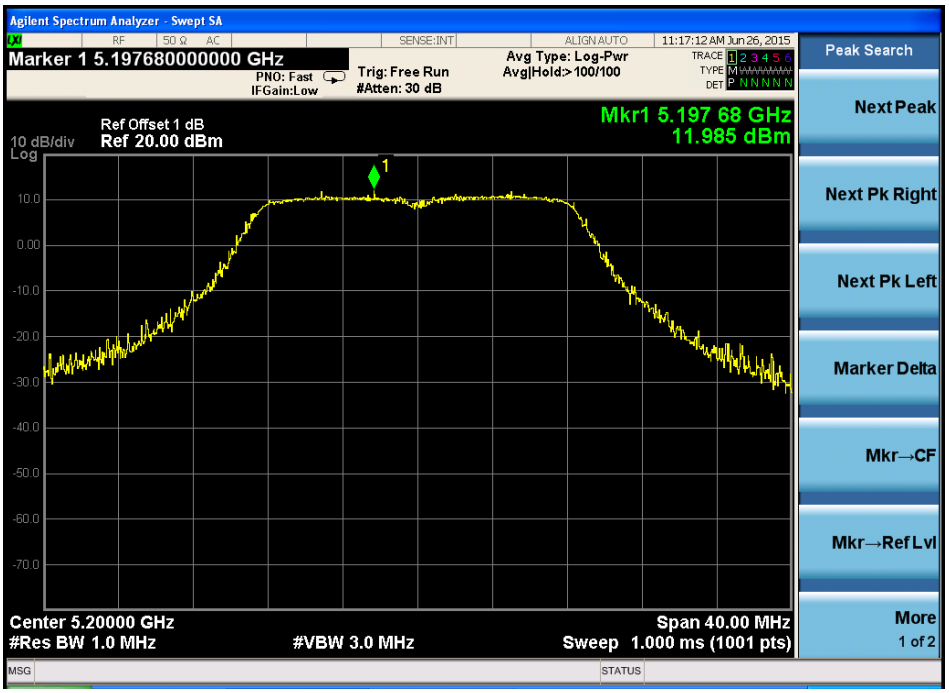


IEEE 802.11n HT20 :

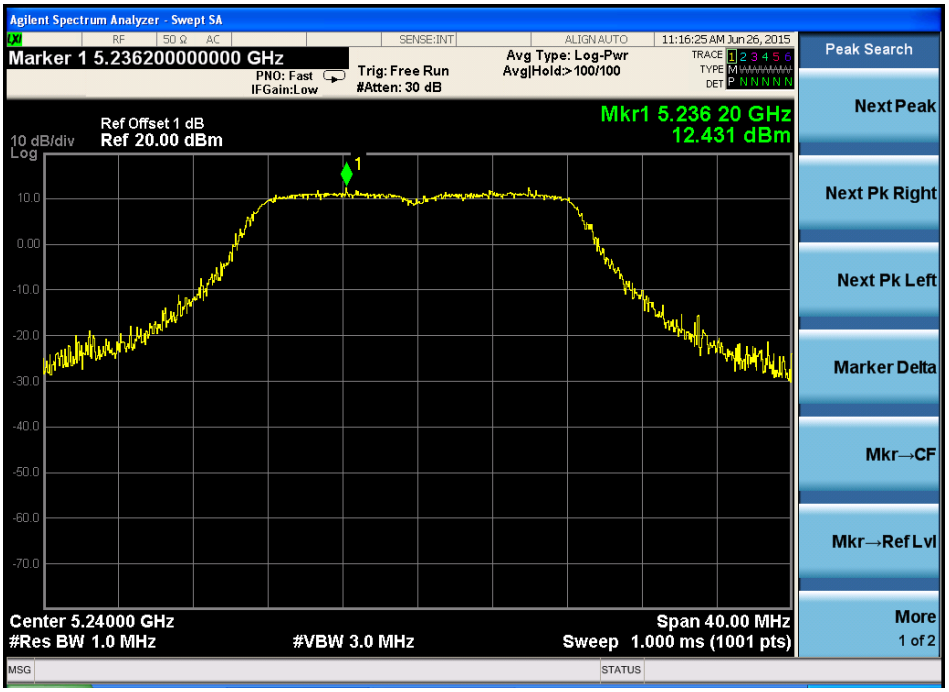
CH Low :



CH Mid:

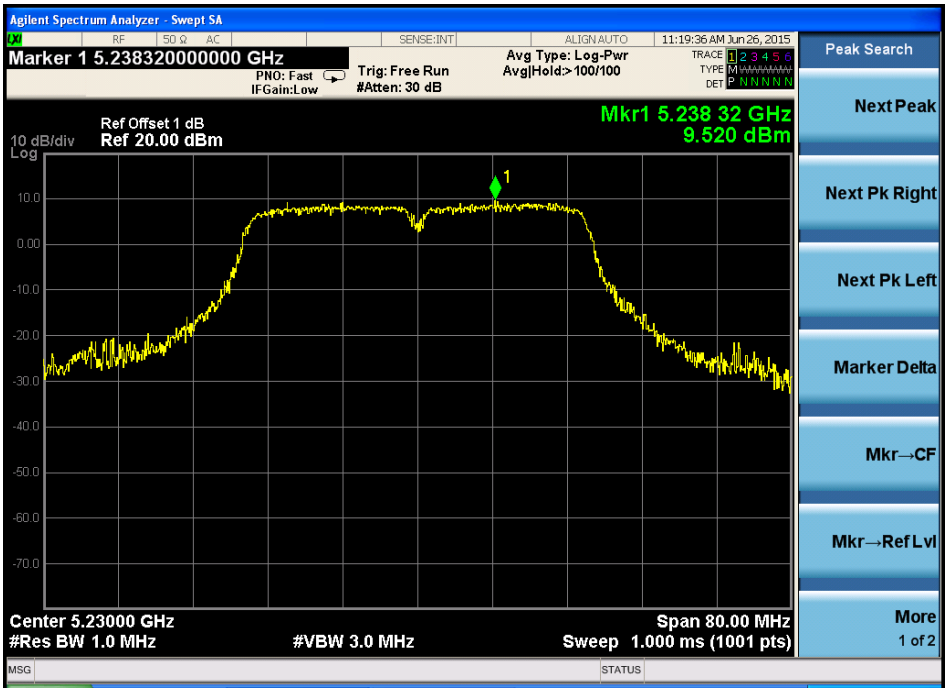

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
11:17:12 AM Jun 26, 2015
Marker 1 5.197680000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 5.197 68 GHz
11.985 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.20000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

CH Hig:


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
11:16:25 AM Jun 26, 2015
Marker 1 5.236200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 1 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 5.236 20 GHz
12.431 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
Center 5.24000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

IEEE 802.11n HT40 :
CH Low :

CH Hig:



From 1G-25GHz with port0 antenna
IEEE 802.11a with 5.8G:
CH Low :

CH Mid:

CH Hig:

IEEE 802.11n HT20 with 5.8G:
CH Low :

CH Mid:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.778320000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:04:51 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.778 32 GHz
5.708 dBm
Center 5.78500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

CH Hig:

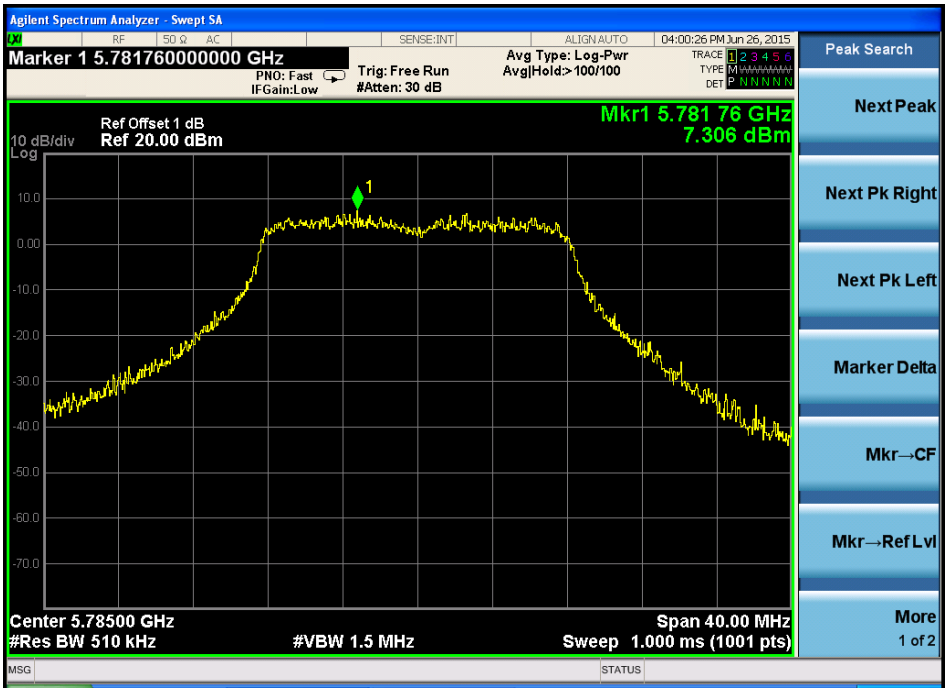

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.827800000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:04:22 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.827 80 GHz
3.602 dBm
Center 5.82500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

IEEE 802.11n HT40 with 5.8G:
CH Low :

CH Hig:

From 1G-25GHz with port 1 antenna
IEEE 802.11a with 5.8G:
CH Low :

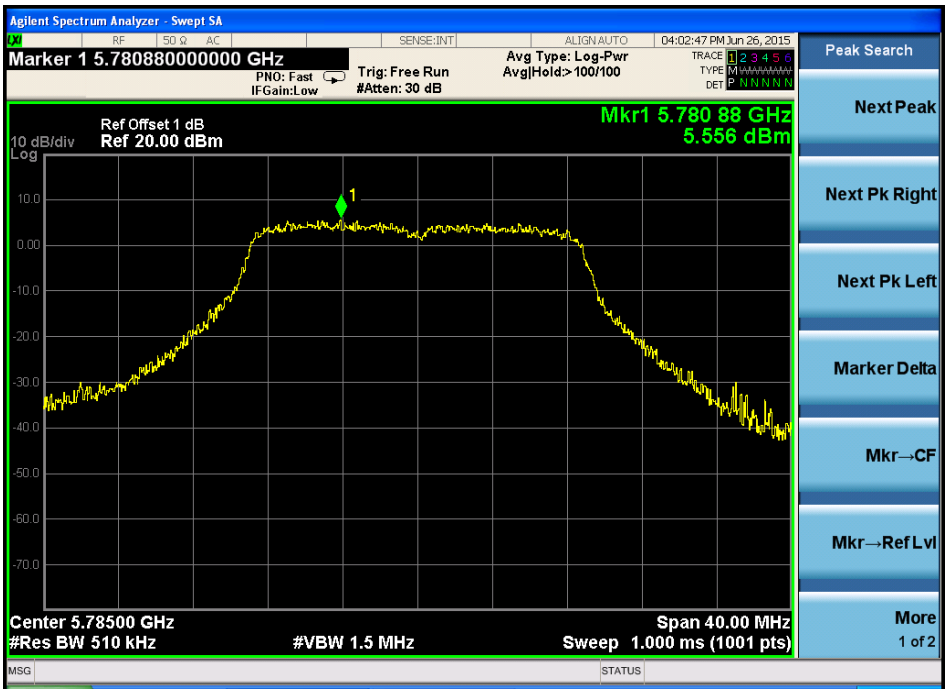
CH Mid:



CH Hig:

IEEE 802.11n HT20 with 5.8G:
CH Low :

CH Mid:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.780880000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:02:47 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.780 88 GHz
5.556 dBm
Center 5.78500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

CH Hig:


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.818840000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:03:28 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 20.00 dBm
Mkr1 5.818 84 GHz
4.124 dBm
Center 5.82500 GHz
#Res BW 510 kHz
#VBW 1.5 MHz
Span 40.00 MHz
Sweep 1.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

IEEE 802.11n HT40 with 5.8G:
CH Low :

CH Hig:

Remark: A RBW of 500KHz can not be set for the Spectrum Analyzer, and the results of RBW 510KHz are worse than RBW of 500KHz, therefore, if results of the RBW 510KHz complies with limit, results of RBW 500KHz are deemed to comply with limit

9 Bandwidth

9.1 Test limit

Please refer section15.407

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

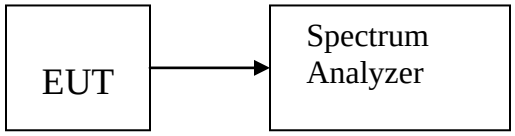
9.2 Method of measurement

Details see the KDB558074 D01 Meas Guidance

a) The bandwidth is measured at an amplitude level reduced 26dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

b) The test receiver set RBW = 1-5 % EBW, VBW≥3RBW, Sweep time set auto, detail see the test plot.

9.3 Test Setup



9.4 Test Results

PASS.

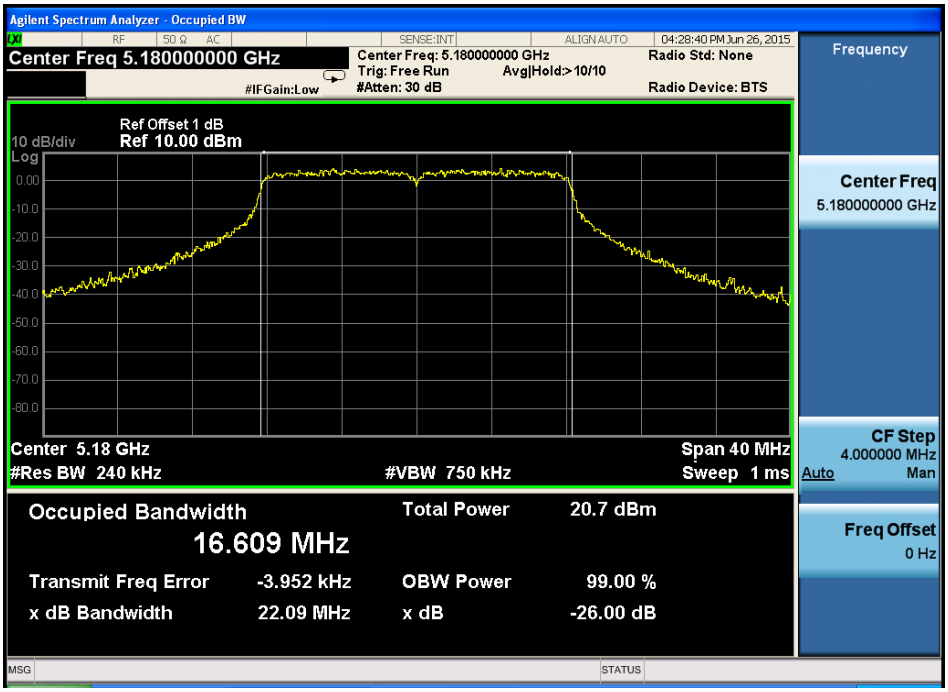
Antenna 0 and Antenna 1port all have been tested ,
only worse case is reported

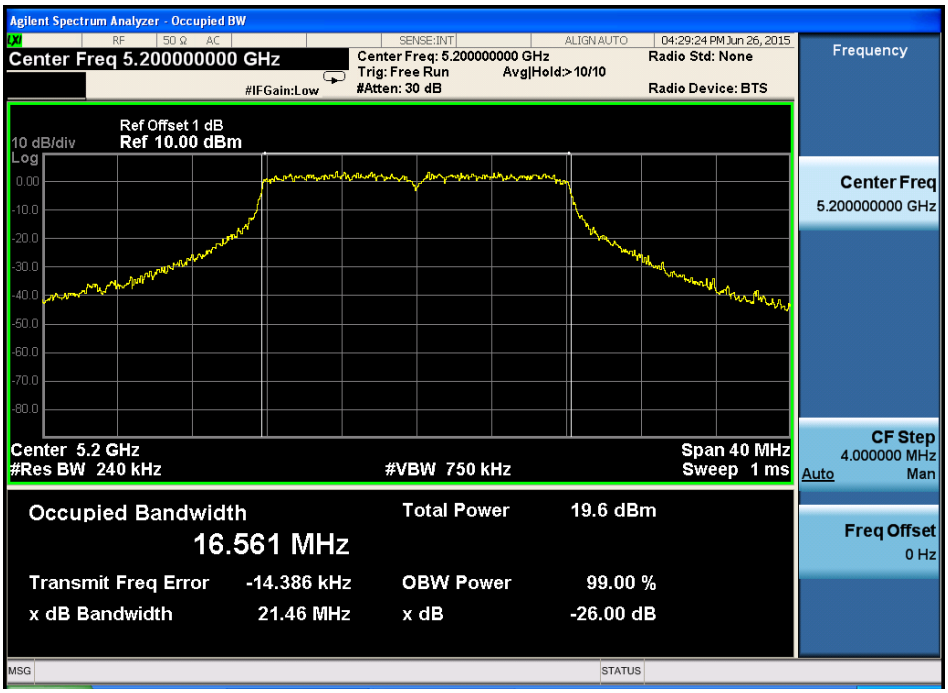
Detailed information please see the following page.

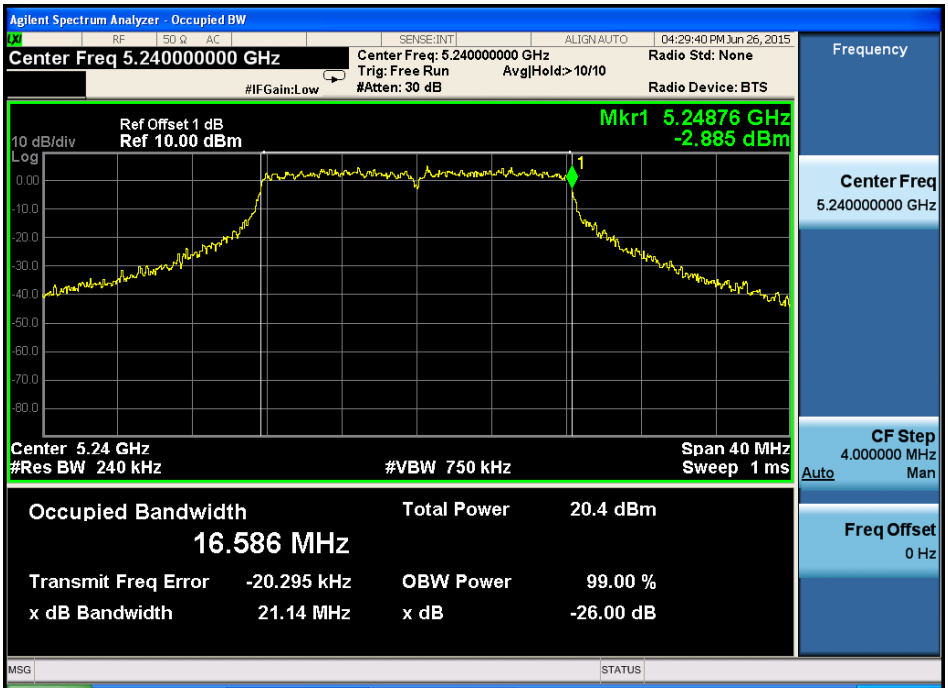
5.2G

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5180	22.09	16.609	/	PASS
Mid	5200	21.46	15.561	/	PASS
High	5240	21.14	16.586	/	PASS
IEEE 802.11n/HT20:					
Low	5180	22.62	17.76	/	PASS
Mid	5200	23.19	17.748	/	PASS
High	5240	23.15	17.745	/	PASS
IEEE 802.11n/HT40:					
Low	5190	46.23	36.43	/	PASS
High	5230	44.93	36.455	/	PASS

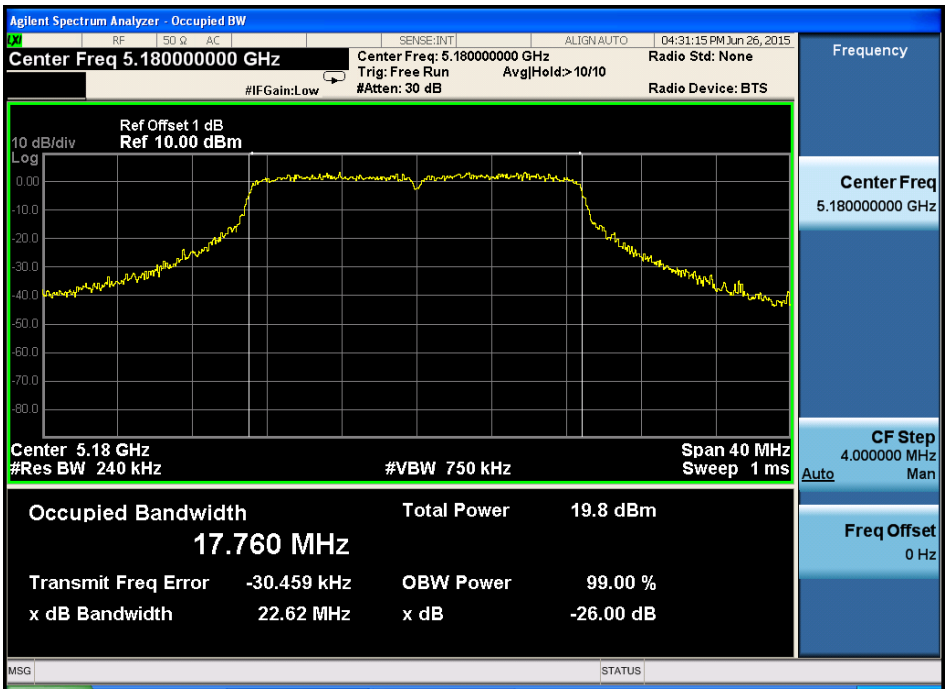
IEEE 802.11a

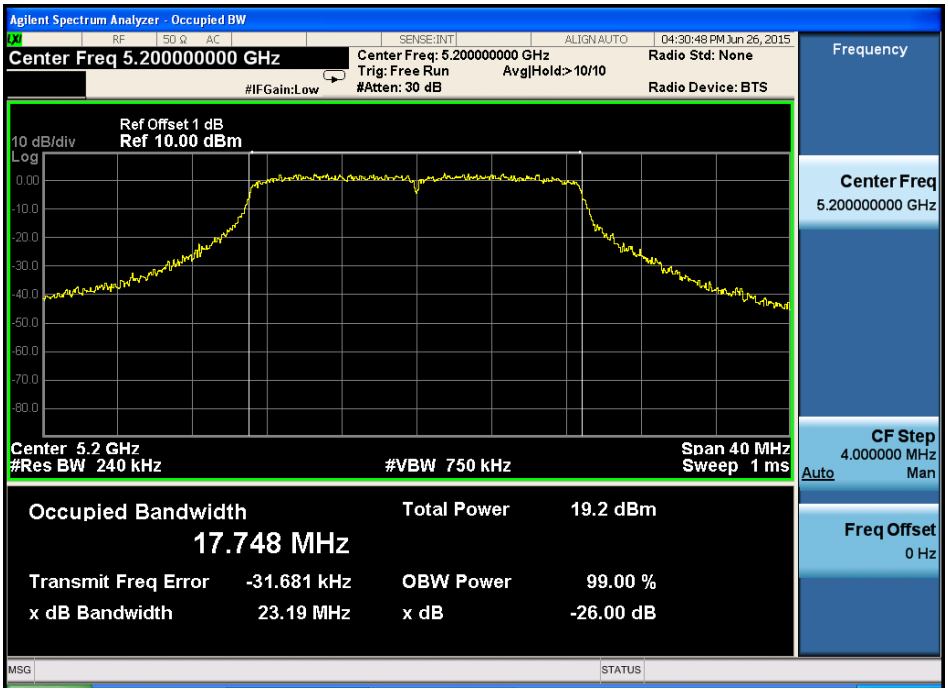

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:28:40 PM Jun 26, 2015
Center Freq 5.180000000 GHz
#IFGain:Low
Center Freq: 5.180000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.18 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
16.609 MHz
Total Power 20.7 dBm
Transmit Freq Error -3.952 kHz
OBW Power 99.00 %
x dB Bandwidth 22.09 MHz
x dB -26.00 dB
Center Freq
5.180000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

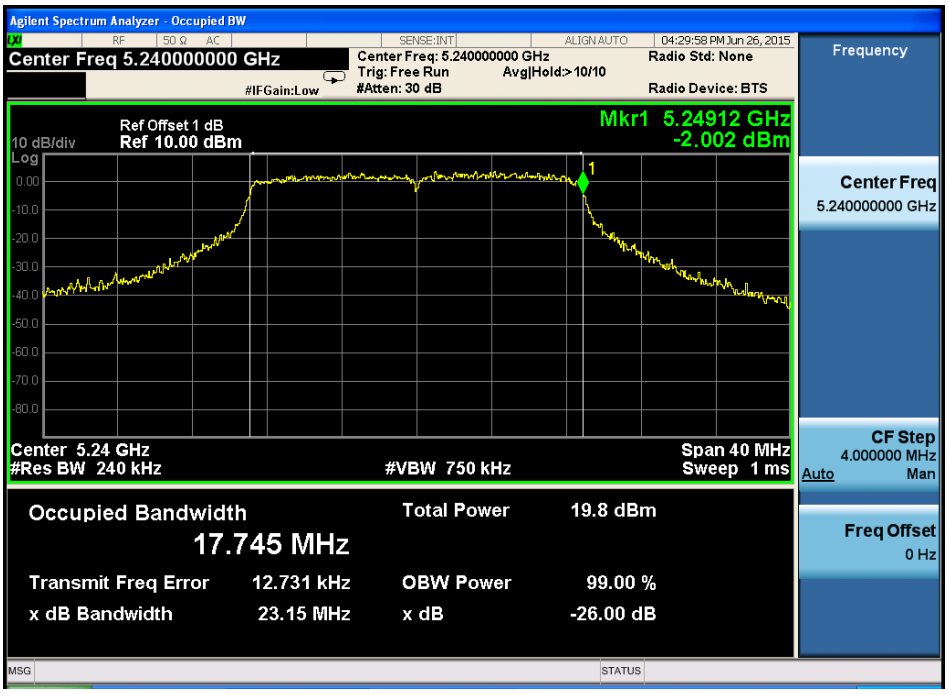

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:29:24 PM Jun 26, 2015
Center Freq 5.200000000 GHz
#IFGain:Low
Center Freq: 5.200000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.2 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
16.561 MHz
Total Power 19.6 dBm
Transmit Freq Error -14.386 kHz
OBW Power 99.00 %
x dB Bandwidth 21.46 MHz
x dB -26.00 dB
Center Freq
5.200000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS



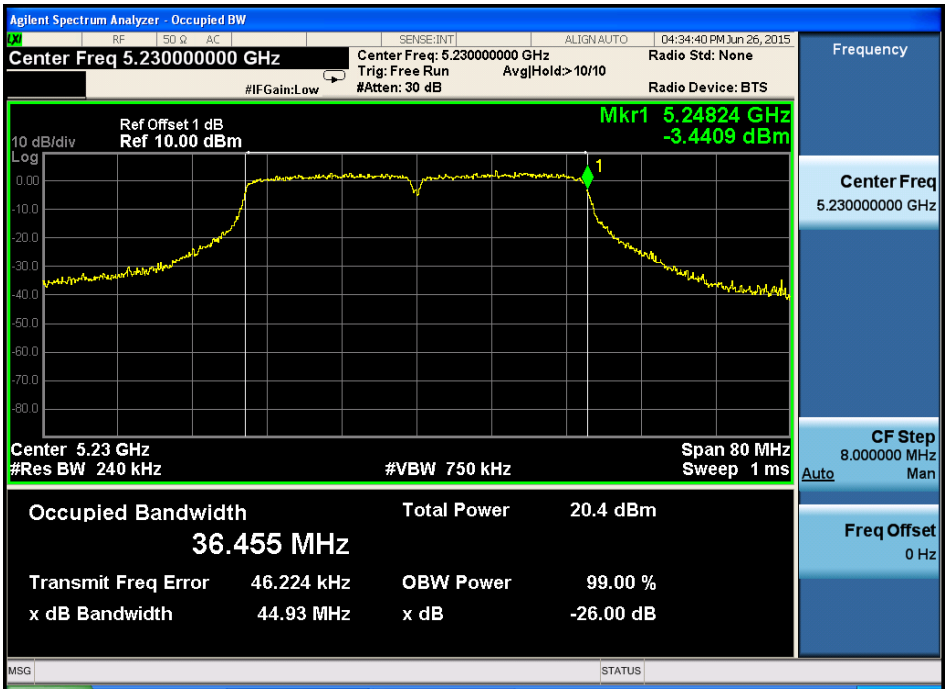
IEEE 802.11n HT20:




Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.200000000 GHz
Center Freq: 5.200000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:30:48 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Center 5.2 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.748 MHz
Total Power 19.2 dBm
Transmit Freq Error -31.681 kHz
OBW Power 99.00 %
x dB Bandwidth 23.19 MHz
x dB -26.00 dB
Frequency
Center Freq
5.200000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

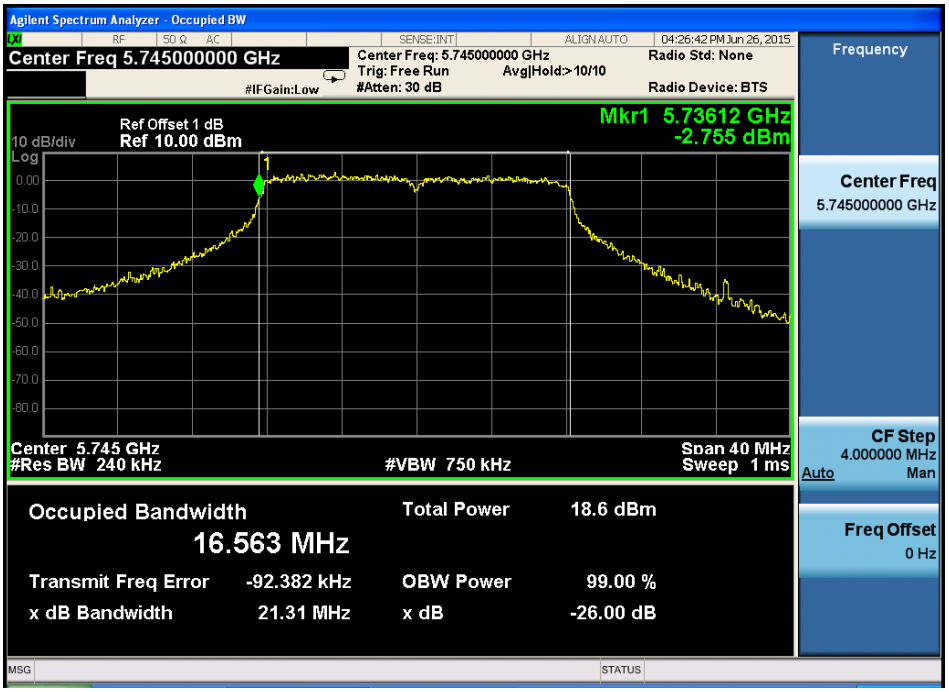

Agilent Spectrum Analyzer - Occupied BW
Center Freq 5.240000000 GHz
Center Freq: 5.240000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
04:29:58 PM Jun 26, 2015
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.24912 GHz
-2.002 dBm
Log
Center 5.24 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.745 MHz
Total Power 19.8 dBm
Transmit Freq Error 12.731 kHz
OBW Power 99.00 %
x dB Bandwidth 23.15 MHz
x dB -26.00 dB
Frequency
Center Freq
5.240000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

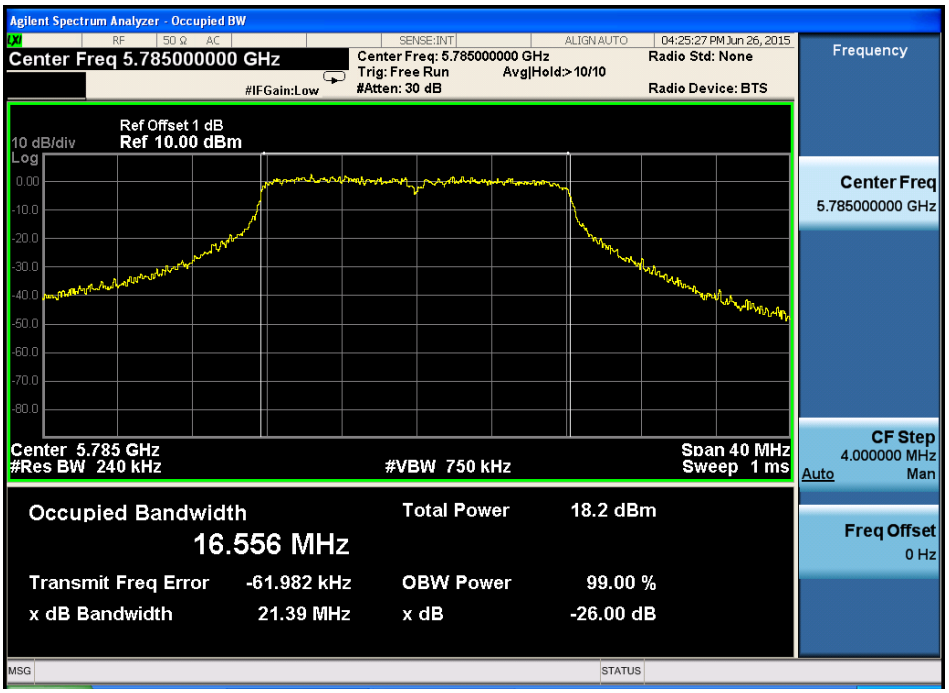
IEEE 802.11n HT40:

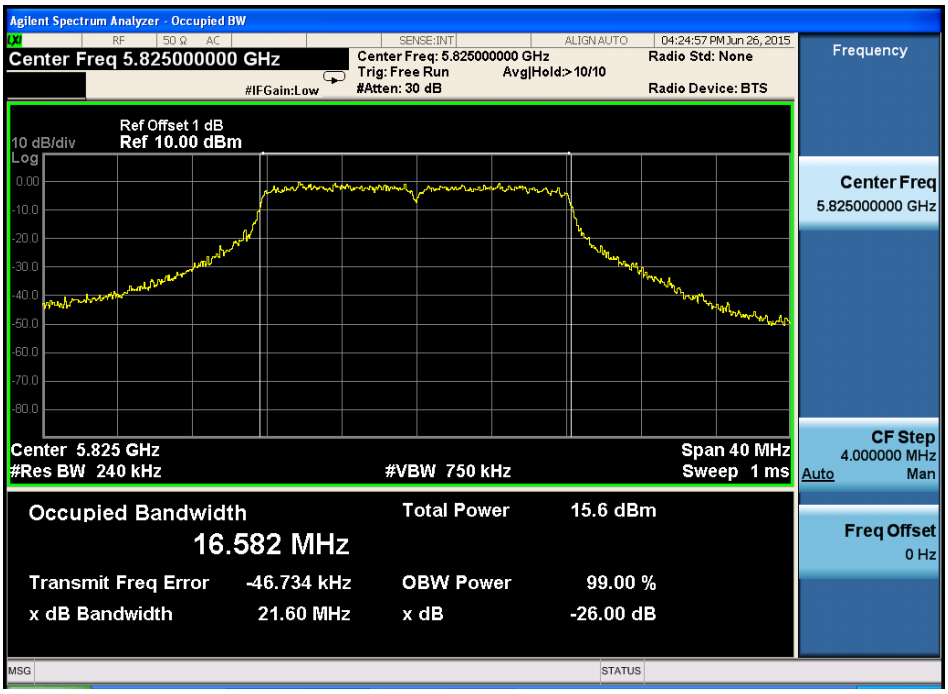


Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	21.31	16.563	/	PASS
Mid	5785	21.39	16.556	/	PASS
High	5825	21.60	16.582	/	PASS
IEEE 802.11n/HT20:					
Low	5745	23.08	17.931	/	PASS
Mid	5785	22.60	16.694	/	PASS
High	5825	22.54	17.708	/	PASS
IEEE 802.11n/HT40:					
Low	5755	45.36	36.469	/	PASS
High	5795	44.31	36.444	/	PASS

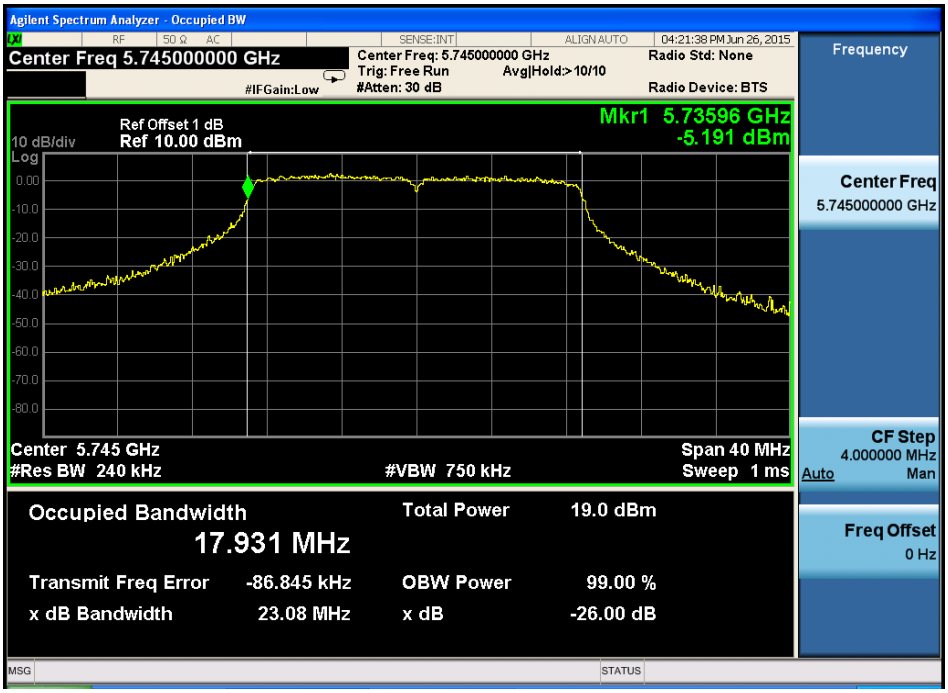
IEEE 802.11a

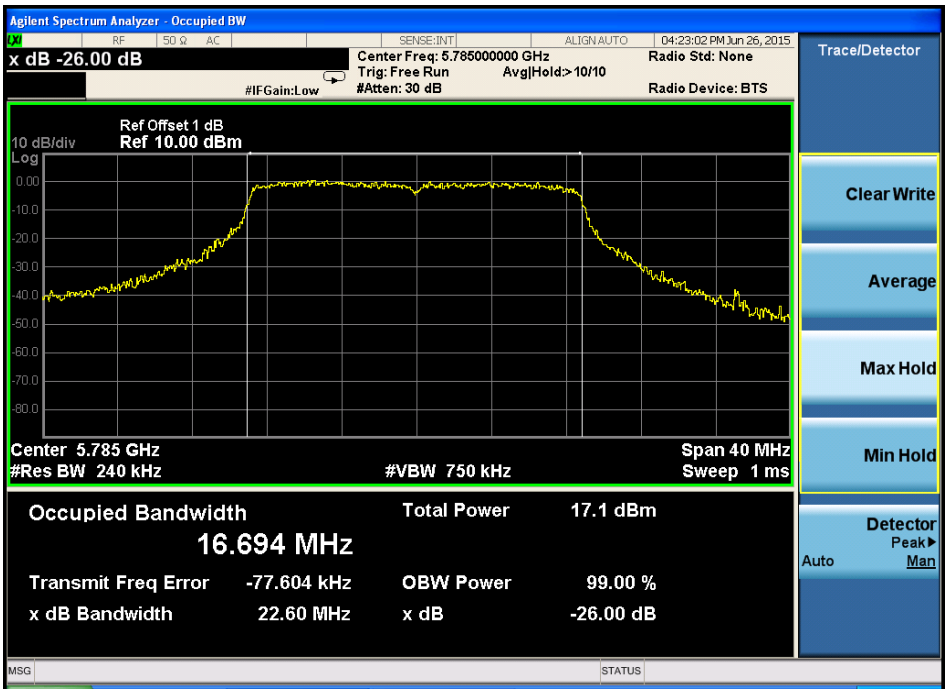

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:26:42 PM Jun 26, 2015
Center Freq 5.745000000 GHz
Center Freq: 5.745000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
Mkr1 5.73612 GHz
-2.755 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.745 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
16.563 MHz
Total Power 18.6 dBm
Transmit Freq Error -92.382 kHz
OBW Power 99.00 %
x dB Bandwidth 21.31 MHz
x dB -26.00 dB
Center Freq
5.745000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

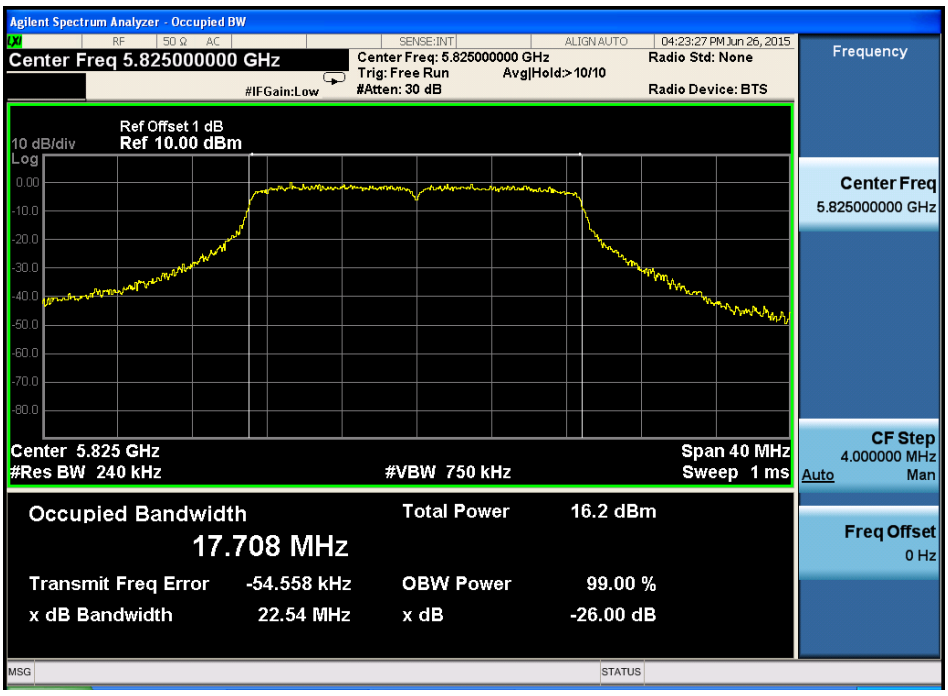

Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:25:27 PM Jun 26, 2015
Center Freq 5.785000000 GHz
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#IFGain:Low
#Atten: 30 dB
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.785 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
16.556 MHz
Total Power 18.2 dBm
Transmit Freq Error -61.982 kHz
OBW Power 99.00 %
x dB Bandwidth 21.39 MHz
x dB -26.00 dB
Center Freq
5.785000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS



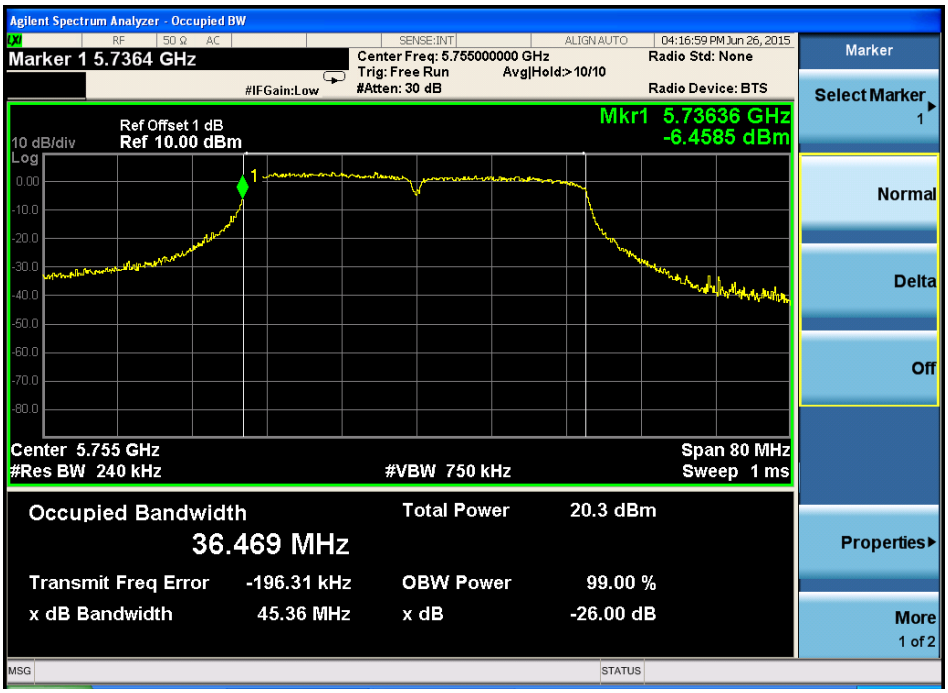
IEEE 802.11n HT20:

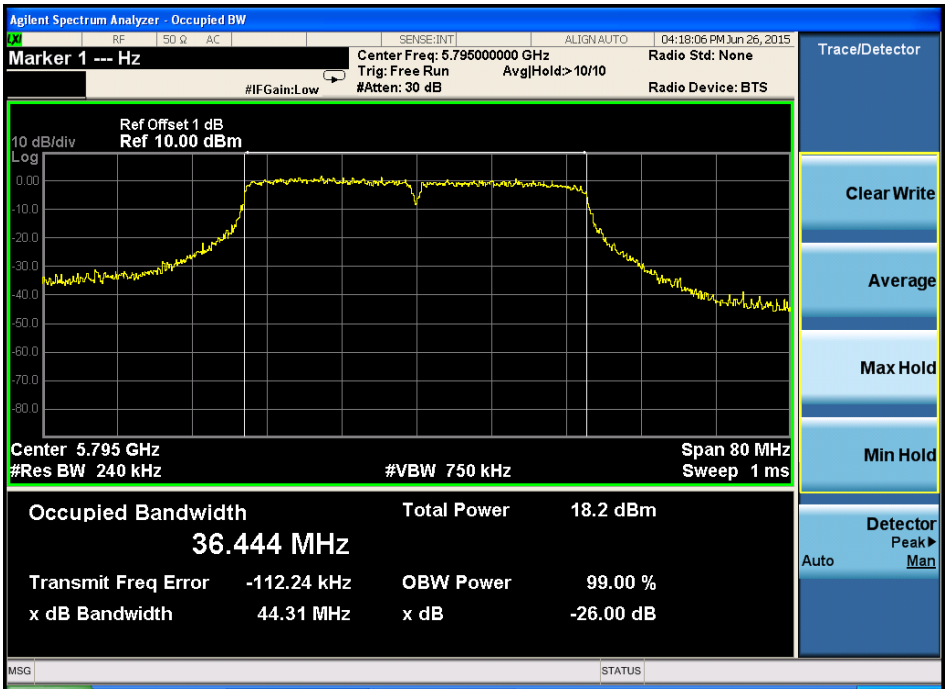



Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:23:02 PM Jun 26, 2015
x dB -26.00 dB
Center Freq: 5.785000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Trace/Detector
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.785 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
16.694 MHz
Total Power
17.1 dBm
Transmit Freq Error
-77.604 kHz
OBW Power
99.00 %
x dB Bandwidth
22.60 MHz
x dB
-26.00 dB
Clear Write
Average
Max Hold
Min Hold
Detector
Peak
Auto
Man
MSG
STATUS


Agilent Spectrum Analyzer - Occupied BW
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
04:23:27 PM Jun 26, 2015
Center Freq 5.825000000 GHz
Center Freq: 5.825000000 GHz
Trig: Free Run
Avg|Hold:>10/10
#Atten: 30 dB
#IFGain:Low
Radio Std: None
Radio Device: BTS
Frequency
Ref Offset 1 dB
10 dB/div
Ref 10.00 dBm
Log
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 5.825 GHz
#Res BW 240 kHz
#VBW 750 kHz
Span 40 MHz
Sweep 1 ms
Occupied Bandwidth
17.708 MHz
Total Power
16.2 dBm
Transmit Freq Error
-54.558 kHz
OBW Power
99.00 %
x dB Bandwidth
22.54 MHz
x dB
-26.00 dB
Center Freq
5.825000000 GHz
CF Step
4.000000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
STATUS

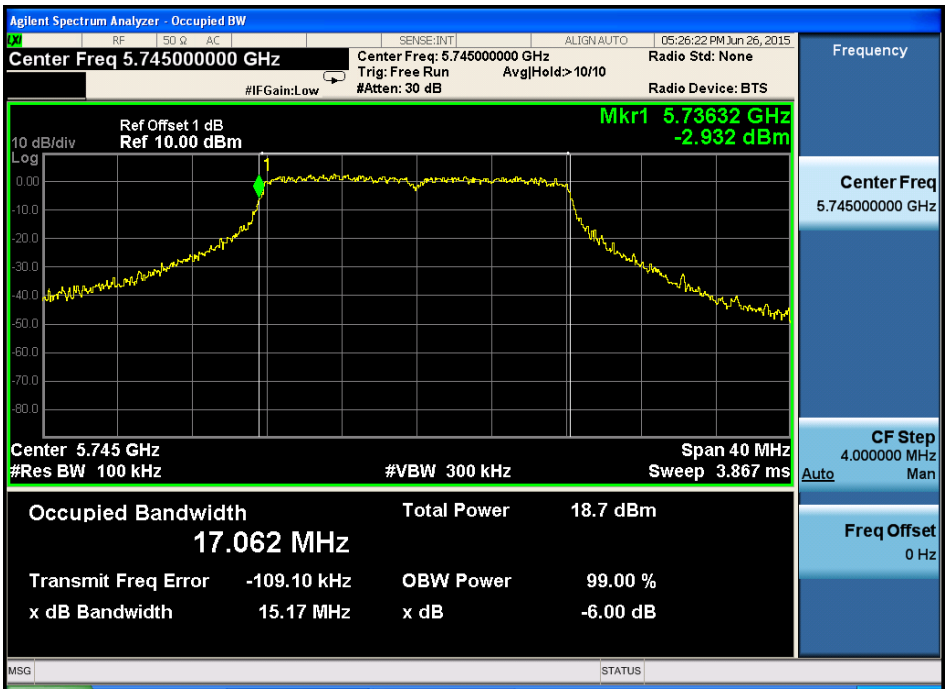
IEEE 802.11n HT40:



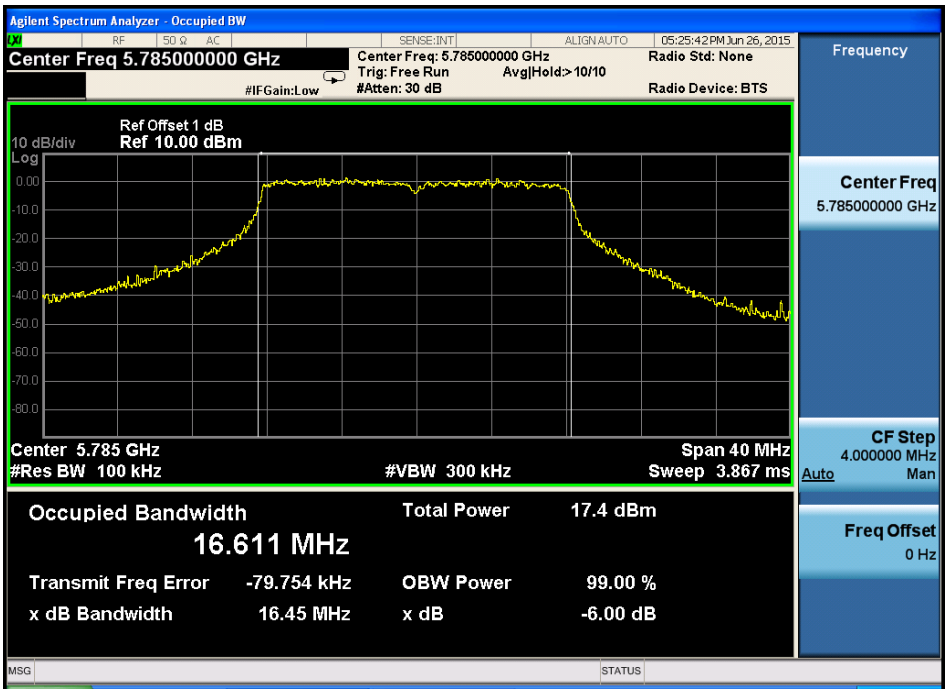


Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	15.17	17.062	0.5	PASS
Mid	5785	16.45	16.611	0.5	PASS
High	5825	15.11	16.593	0.5	PASS
IEEE 802.11n/HT20:					
Low	5745	15.16	17.863	0.5	PASS
Mid	5785	15.69	17.773	0.5	PASS
High	5825	15.04	17.718	0.5	PASS
IEEE 802.11n/HT40:					
Low	5755	35.23	36.312	0.5	PASS
High	5795	35.18	36.211	0.5	PASS

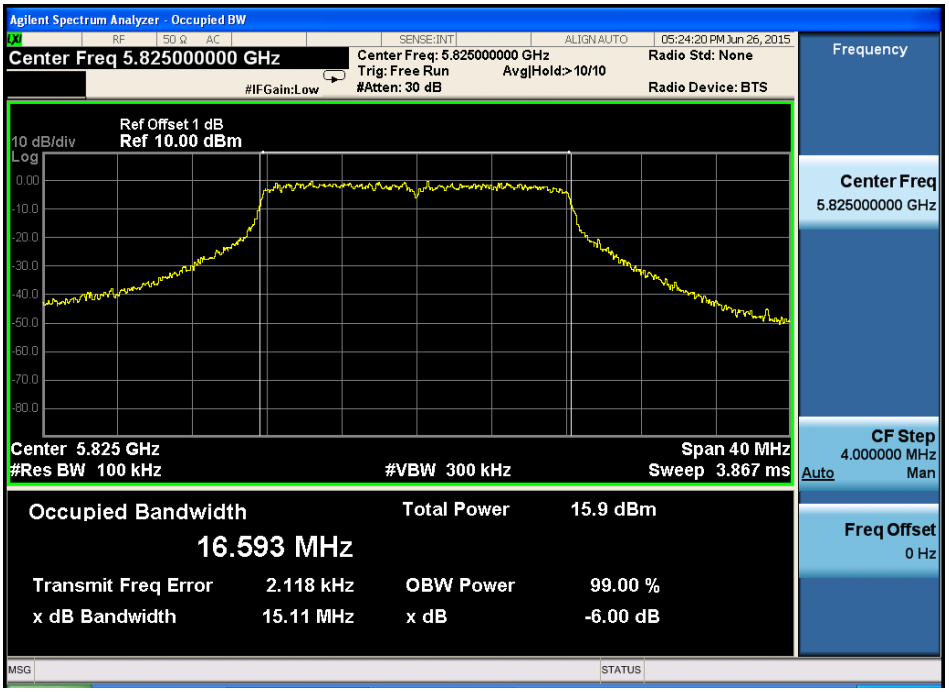
IEEE 802.11a with 5.8G:
CH Low :



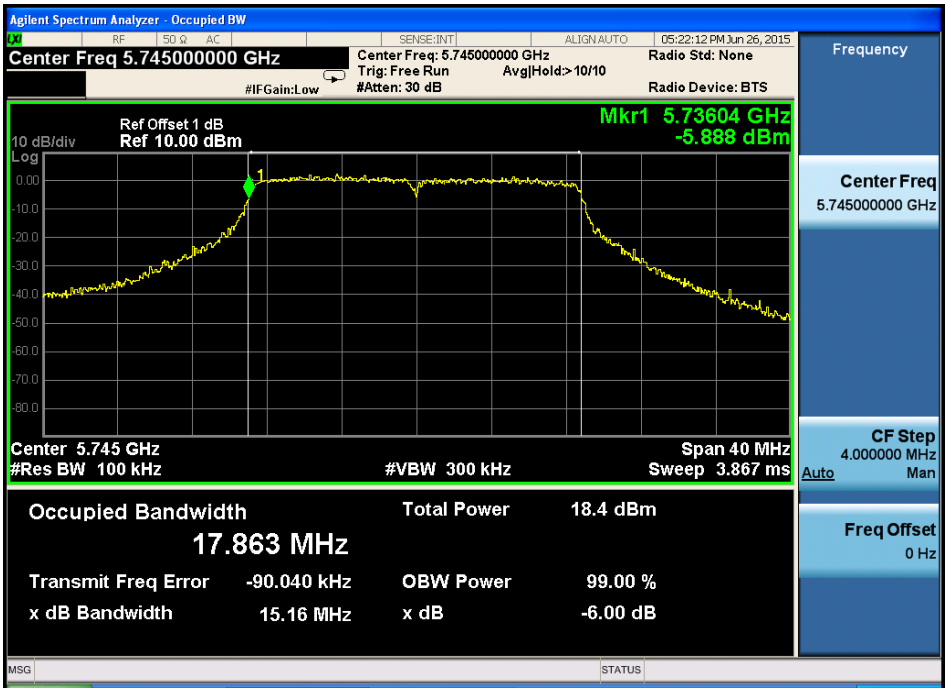
CH Mid :



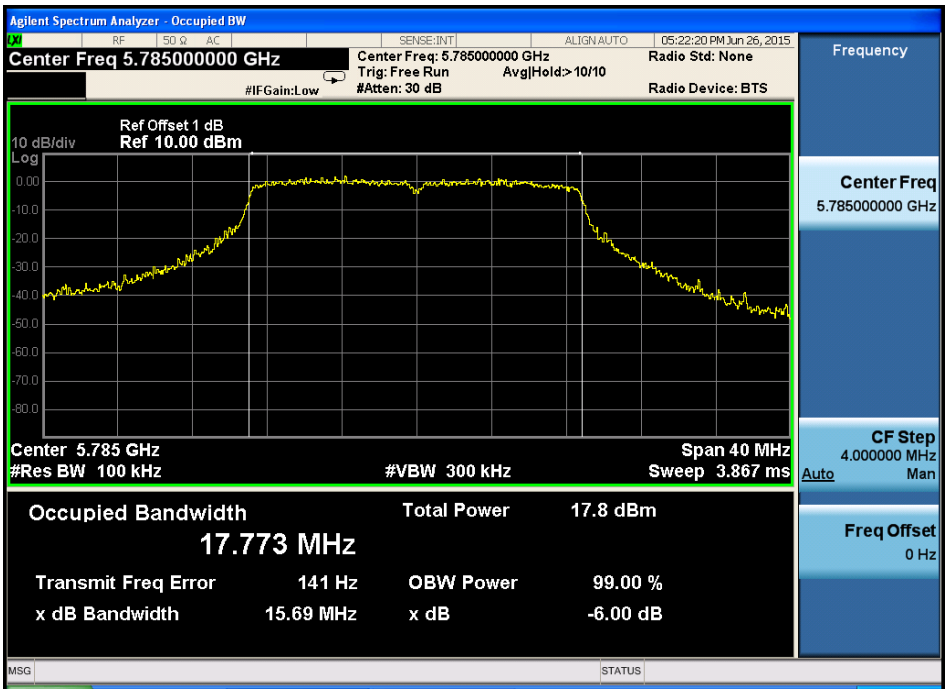
CH High :



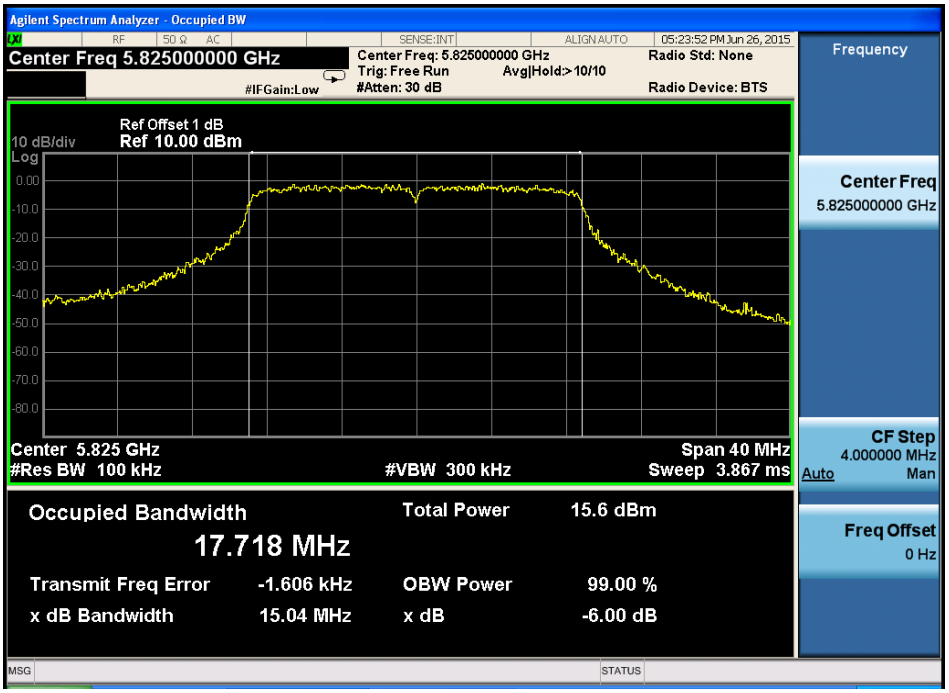
IEEE 802.11n HT20:
CH Low :



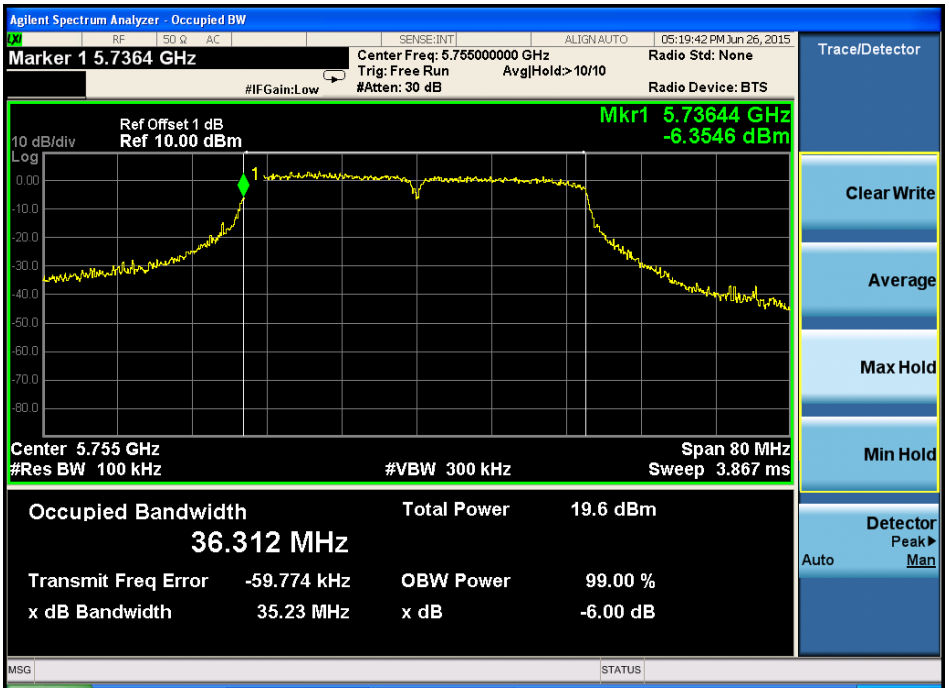
CH Mid :



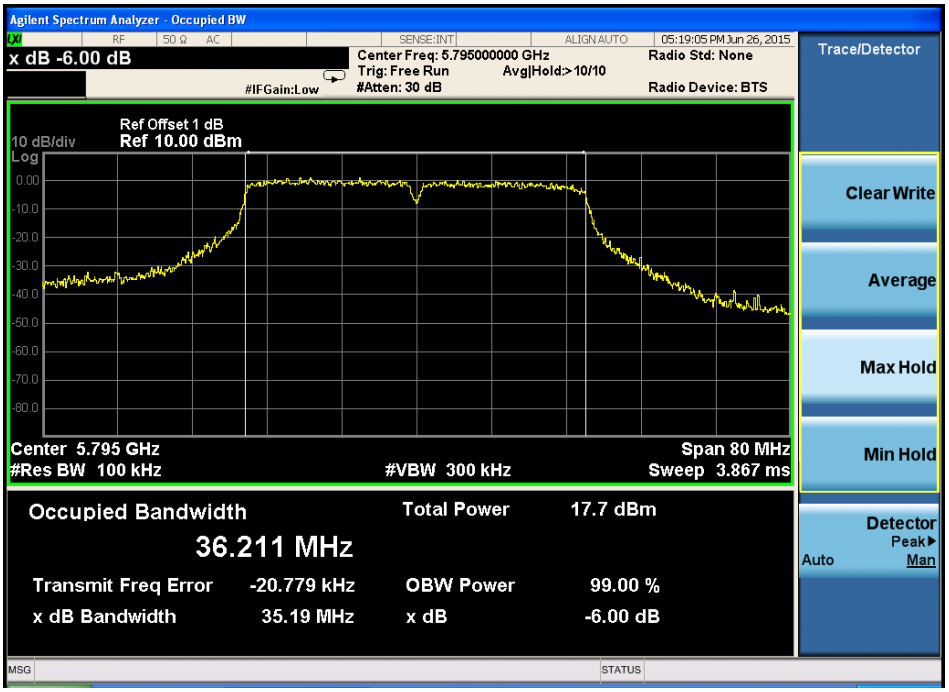
CH High :



IEEE 802.11n/HT40:
CH Low :



CH High :



10 Undesirable emission

10.1 Test limit

Except as shown in paragraph (7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth
in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits

10.2 Test Procedure

12.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

12.2.2 Check the spurious emissions out of band.

12.2.3 RBW 1MHz ,VBW 3MHz ,peak detector for peak value , RBW 1MHz ,VBW 3MHz , RMS detector for AV value.

10.3 Test Setup

Same as 5.2.2.

10.4 Test Result

PASS.

Detailed information please see the following page.

5.2G Band
Radiated Method:
IEEE 802.11a CH LOW

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	45.26	31.65	5.92	33.9	48.93	68.2	19.27	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	44.27	31.65	5.92	33.9	47.94	68.2	20.26	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	46.21	31.73	6.05	33.73	50.26	68.2	17.94	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	44.67	31.73	6.05	33.73	48.72	68.2	19.48	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	44.79	31.65	5.92	33.9	48.46	68.2	19.74	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.78	31.65	5.92	33.9	47.45	68.2	20.75	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	45.69	31.73	6.05	33.73	49.74	68.2	18.46	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	43.98	31.73	6.05	33.73	48.03	68.2	20.17	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	44.58	31.65	5.92	33.9	48.25	68.2	19.95	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.82	31.65	5.92	33.9	47.49	68.2	20.71	**PK**
--	--	--	--	--	--	--	--	--
Note: 1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK 2, Result = Read level + Antenna factor + cable loss-Amp factor 3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	45.96	31.73	6.05	33.73	50.01	68.2	18.19	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	43.74	31.73	6.05	33.73	47.79	68.2	20.41	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

5.8G Band
Radiated Method:
IEEE 802.11a CH LOW

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	42.36	31.81	6.11	33.68	46.6	68.2	21.6	**PK**
5725	44.75	32.17	6.26	33.58	49.6	78.2	28.6	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	40.78	31.81	6.11	33.68	45.02	68.2	23.18	**PK**
5725	45.26	32.17	6.26	33.58	50.11	78.2	28.09	PK
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	43.15	32.5	6.33	33.64	48.34	78.2	29.86	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	42.71	32.5	6.33	33.64	47.9	78.2	30.3	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	42.16	31.81	6.11	33.68	46.4	68.2	21.8	**PK**
5725	44.38	32.17	6.26	33.58	49.23	78.2	28.97	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	40.47	31.81	6.11	33.68	44.71	68.2	23.49	**PK**
5725	45.16	32.17	6.26	33.58	50.01	78.2	28.19	PK
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	43.56	32.5	6.33	33.64	48.75	78.2	29.45	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	42.96	32.5	6.33	33.64	48.15	78.2	30.05	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	42.36	31.81	6.11	33.68	46.6	68.2	21.6	**PK**
5725	43.58	32.17	6.26	33.58	48.43	78.2	29.77	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	40.78	31.81	6.11	33.68	45.02	68.2	23.18	**PK**
5725	44.72	32.17	6.26	33.58	49.57	78.2	28.63	PK
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result								
EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5								
Power: DC 24V From adapter								
Test date: 2015-06-30 Test site: 3m Chamber Tested by: Simple Guan								
Test mode: MIMO TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	44.27	32.5	6.33	33.64	49.46	78.2	28.74	**PK**
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	42.94	32.5	6.33	33.64	48.13	78.2	30.07	**PK**
--	--	--	--	--	--	--	--	--

Note:
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK
2, Result = Read level + Antenna factor + cable loss-Amp factor
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.

Note: According to KDB 789033, EIRP【dBm】=E【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

11 Frequency stability

11.1 Test limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

11.2 Result

802.11a Mode:

EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5					
Power: DC 24V From adapter					
Ambient Temperature:23℃		Relative Humidity: 60%			
Test date: 2015-06-30		Test site: RF site		Tested by: Simple Guan	
Conclusion: PASS					
Mode	Voltage (V)	FH_L (5180MHz)	Deviation (KHz)	FH_H (5240MHz)	Deviation (KHz)
5.2G Band	132 V	5179.975	25	5239.977	23
	120 V	5179.975	25	5239.974	24
	108 V	5179.974	24	5239.977	23
5.8G Band	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
	132 V	5744.935	65	5824.937	63
	120 V	5744.938	62	5824.941	59
	108 V	5744.942	58	5824.939	61

Mode	Temperature (℃)	FH_L (5180MHz)	Deviation (KHz)	FH_H (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.937	63	5239.938	62
	-20	5179.939	61	5239.955	45
	-10	5179.942	58	5239.959	41
	0	5179.953	47	5239.963	37
	10	5179.979	21	5239.929	71
	20	5179.928	72	5239.942	58
	30	5179.979	21	5239.954	46
	40	5179.964	36	5239.962	38
	50	5179.949	51	5239.977	23
5.8G Band	Temperature (℃)	FH_L (5745MHz)	Deviation (KHz)	FH_H (5825MHz)	Deviation (KHz)
	-30	5744.932	68	5824.942	58
	-20	5744.941	59	5824.939	61
	-10	5744.937	63	5824.929	71
	0	5744.949	51	5824.947	53
	10	5744.952	48	5824.951	49
	20	5744.947	53	5824.945	55
	30	5744.939	61	5824.938	62
	40	5744.952	48	5824.957	43
	50	5744.946	54	5824.963	37

802.11n20 Mode:

EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5					
Power: DC 24V From adapter					
Ambient Temperature:23℃		Relative Humidity: 60%			
Test date: 2015-06-30		Test site: RF site		Tested by: Simple Guan	
Conclusion: PASS					
Mode	Voltage (V)	FH_L (5180MHz)	Deviation (KHz)	FH_H (5240MHz)	Deviation (KHz)
5.2G Band	132 V	5179.975	25	5239.977	23
	120 V	5179.975	25	5239.974	24
	108 V	5179.974	24	5239.977	23
5.8G Band	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
	132 V	5744.934	66	5824.935	65
	120 V	5744.931	69	5824.946	54
	108 V	5744.946	54	5824.931	69

Mode	Temperature (℃)	FH_L (5180MHz)	Deviation (KHz)	FH_H (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.937	63	5239.937	63
	-20	5179.932	68	5239.956	44
	-10	5179.945	55	5239.952	48
	0	5179.951	49	5239.967	33
	10	5179.976	34	5239.935	65
	20	5179.927	73	5239.957	43
	30	5179.972	28	5239.948	52
	40	5179.961	39	5239.968	32
	50	5179.958	42	5239.971	29
5.8G Band	Temperature (℃)	FH_L (5745MHz)	Deviation (KHz)	FH_H (5825MHz)	Deviation (KHz)
	-30	5744.937	63	5824.947	53
	-20	5744.943	57	5824.943	57
	-10	5744.939	61	5824.938	62
	0	5744.948	52	5824.952	48
	10	5744.955	45	5824.956	44
	20	5744.949	51	5824.939	61
	30	5744.946	54	5824.967	33
	40	5744.956	44	5824.952	48
	50	5744.947	53	5824.958	42

802.11n40 Mode:

EUT: Broadband Digital Transmission System M/N: LigoDLB Propeller 5					
Power: DC 24V From adapter					
Ambient Temperature:23℃		Relative Humidity: 60%			
Test date: 2015-06-30		Test site: RF site		Tested by: Simple Guan	
Conclusion: PASS					
Mode	Voltage (V)	FH_L (5190MHz)	Deviation (KHz)	FH_H (5230MHz)	Deviation (KHz)
5.2G Band	132 V	5189.966	34	5229.968	32
	120 V	5189.967	33	5229.966	34
	108 V	5189.965	35	5229.967	33
5.8G Band	Voltage (V)	FHL (5755MHz)	Deviation (KHz)	FHH (5795MHz)	Deviation (KHz)
	132 V	5754.964	34	5794.965	35
	120 V	5754.961	39	5794.962	38
	108 V	5754.966	34	5794.967	33

Mode	Temperature (℃)	FH_L (5190MHz)	Deviation (KHz)	FH_H (5230MHz)	Deviation (KHz)
5.2G Band	-30	5189.965	35	5229.957	43
	-20	5189.962	38	5229.961	39
	-10	5189.967	33	5229.955	45
	0	5189.965	35	5229.962	38
	10	5189.962	38	5229.967	33
	20	5189.958	32	5229.967	33
	30	5189.966	34	5229.963	37
	40	5189.962	38	5229.964	36
	50	5189.965	35	5229.961	39
5.8G Band	Temperature (℃)	FH_L (5755MHz)	Deviation (KHz)	FH_H (5795MHz)	Deviation (KHz)
	-30	5754.945	55	5794.962	38
	-20	5754.951	49	5794.967	33
	-10	5754.962	38	5794.967	33
	0	5754.958	42	5794.966	34
	10	5754.962	38	5794.966	34
	20	5754.966	34	5794.961	39
	30	5754.964	36	5794.965	35
	40	5754.962	38	5794.962	38
	50	5754.963	37	5794.965	35

12 Antenna Requirement

12.1 Standard Requirement

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 use of a standard antenna jack or electrical connector is prohibited.

12.2 Antenna Connected Construction

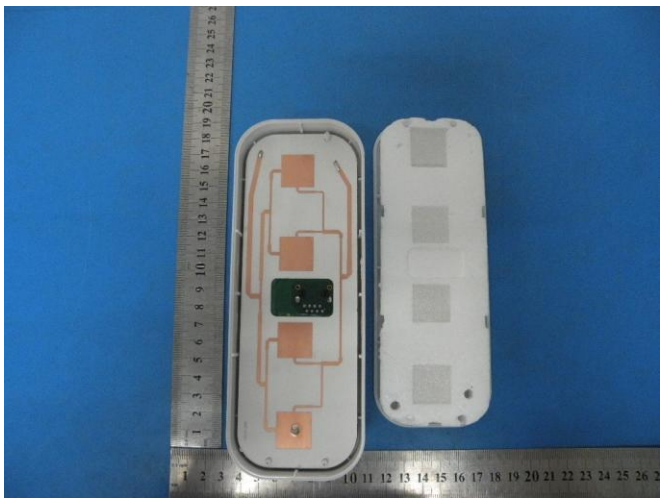
The antenna connector is unique antenna and no consideration of replacement. Please see EUT photo for details.

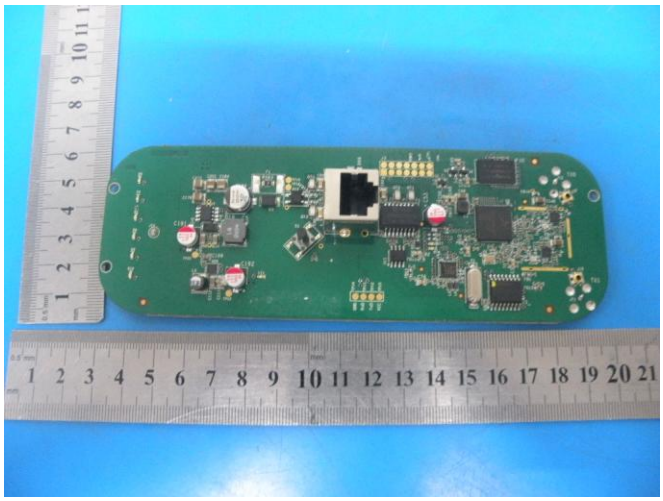
12.3 Result

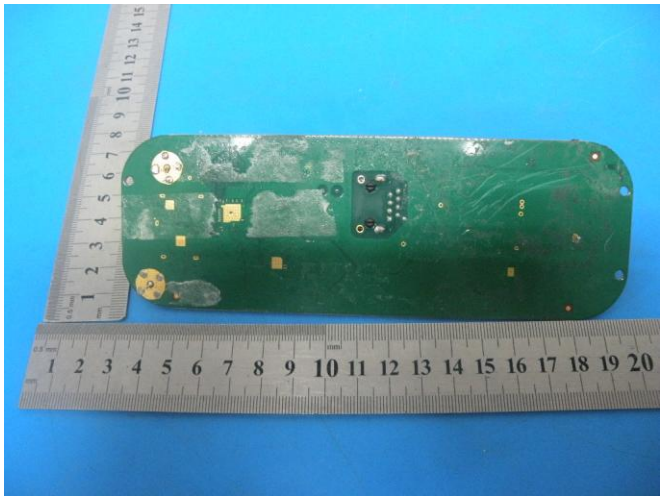
The EUT antenna is printed Antenna. It comply with the standard requirement.

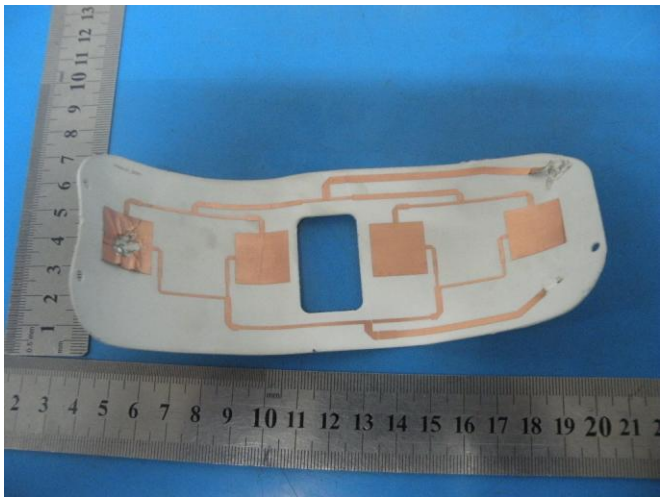
13 Photographs of EUT

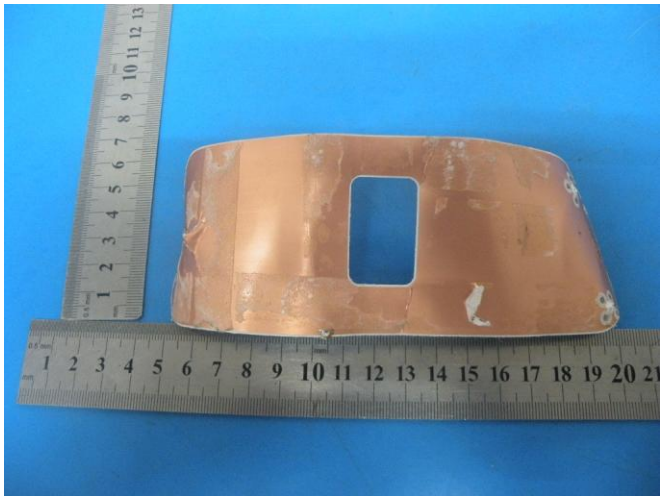

PWR
LAN












POE POWER ADAPTER
MODEL:GRT-240050
INPUT:100-240V~ 50/60Hz 0.5A
OUTPUT:24V 0.5A
MADE IN CHINA
20130421


POE POWER ADAPTER
MODEL:AY012E-ZF243
INPUT:100-240V~ 50/60Hz 0.5A
OUTPUT:24V 0.5A
For I.T.E Use only
MADE IN CHINA
20140124

---------END OF THE REPORT-------