



TEST REPORT

FCC ID: V2V-1807 IC: 7607A-1807

Applicant : LigoWave LLC

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

Equipment under Test (EUT):

Name : Broadband Digital Transmission System
Model : NFT 2ac

Standards : FCC PART 15, SUBPART E: 2015 (Section 15.407)
RSS-247 ISSUE 1 MAY 2015
ANSI C63.4:2014 ; ANSI C63.10:2013

Report No. : T1861433 05

Date of Test : July 25, 2016- August 03, 2016

Date of Issue : August 04, 2016

Test Result :	PASS *
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* 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. : NFT 2ac
(B) Trademark : N/A
(C) Ratings Supply : DC 48V From External Power
(D) Test Voltage : DC 48V From External Power

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart E 15.407 ,

RSS-247 ISSUE 1 MAY 2015,

ANSI C63.4-2014, ANSI C63.10-2013

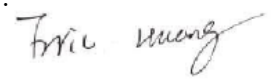
The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this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

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

Tested by (name + signature).....:

Eric Huang
Test Engineer

.....

.....

Approved by (name + signature).....:

Simple Guan
Project Manager

.....

.....

Date of issue.....

August 04, 2016

1 General Information

1.1 Description of Device (EUT)

Trade Name	: N/A
EUT	: Broadband Digital Transmission System
Model No.	NFT 2ac
DIFF.	: N/A
Operation Type	: MIMO Tx mode
Antenna Type	: Integrated antenna with two antennas, antenna gain 2dBi. Directional gain 5dBi
Operation Frequency	: IEEE 802.11a:5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz,5745MHz-5825MHz IEEE 802.11n HT40:5190MHz-5230MHz,5755MHz-5795MHz IEEE 802.11ac:5210MHz, 5775MHz
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 IEEE 802.11ac:1channel for 5.2GHz IEEE 802.11ac:1channel for 5.8GHz
Modulation type	: IEEE 802.11n :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a :OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256 QAM)
Power Supply	: DC 48V From External power
Adapter	Model No.: GRT-POE20-480050A, G0720-480-050
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

March 25, 2015 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. Due to	Cal Interval
3m Semi-Anechoic	CHENYU	N/A	N/A	2018.01.18	2Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2017.01.16	1Year
Receiver	R&S	ESPI	101873	2017.01.16	1Year
Receiver	R&S	ESCI	101165	2017.01.16	1Year
Bilog Antenna	SCHWARZBECK	VULB 9168	VULB9168-438	2018.01.18	2Year
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D(1201)	2017.01.20	2Year
Cable	Resenberger	N/A	No.1	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.2	2017.01.16	1Year
Cable	SCHWARZBECK	N/A	No.3	2017.01.16	1Year
Pre-amplifier	HP	HP8347A	2834A00455	2017.01.18	1Year
Pre-amplifier	Agilent	8449B	3008A02664	2017.01.18	1Year
vector Signal Generator	Agilent	N5182A	MY49060042	2016.11.16	1 Year
vector Signal Generator	Agilent	E4438C	US44271917	2016.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54080020	2016.11.16	1 Year
X-series USB Peak and Average Power Sensor	Agilent	U2021XA	MY54110001	2016.11.16	1 Year

Signal Analyzer	Agilent	N9020A	MY48030494	2016.11.16	1 Year
L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2017.01.16	1 Year
L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	101043	2017.01.16	1 Year

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°C 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°C 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.

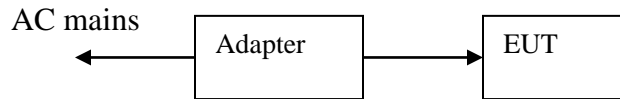
4 Summary of Measurement

4.1 Summary of test result

Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15 : 2015	Section 15.407(b)&15.209	Compliance
Conduction Emission	FCC PART 15 : 2015	Section 15.207	Compliance
Bandwidth Test	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Peak Power	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Power Density	FCC PART 15 : 2015	Section 15.407(a)	Compliance
Undesirable emission	FCC PART 15 : 2015	Section 15.407(b)	Compliance
Antenna Requirement	FCC PART 15 : 2015	Section 15.203	Compliance
Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	IC RSS-247	Section RSS-247 Section 6.2.4	Compliance
Conduction Emission	IC RSS Gen	Section 8.8	Compliance
Bandwidth Test	IC RSS-247	Section 6.2.4	Compliance
Peak Power	IC RSS-247	Section 6.2.4	Compliance
Power Density	IC RSS-247	Section 6.2.4	Compliance
Undesirable emission	IC RSS-247	Section 6.2.4	Compliance
Antenna Requirement	IC RSS Gen	Section 6.7	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-POE20-480050A

Description	:	Adapter
Manufacturer	:	N/A
Model No.	:	G0720-480-050

4.4 Test mode

Dutycycle :100%			
Keeping MIMO TX mode			
Mode	Data rate (Mbps) 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
IEEE 802.11ac	433.3	CH42	5210
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 (Mbps)(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
IEEE 802.11ac with 5.8G	433.3	CH155	5775
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 ac with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH42	5210		

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		

For IEEE 802.11 ac with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH155	5775				

4.6 Test Conditions

Temperature range	21-25°C
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	2.71dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.90 dB	Polarize: V
	3.92dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (above>1GHz)	4.26 dB	Polarize: H
	4.28 dB	Polarize: V
Uncertainty for conducted RF Power	0.16dB	

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

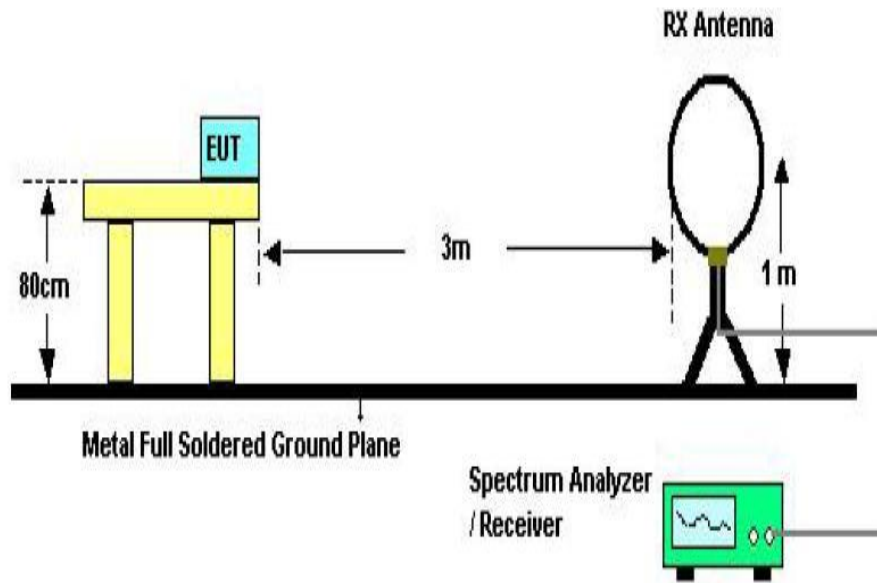
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit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

NOTE:

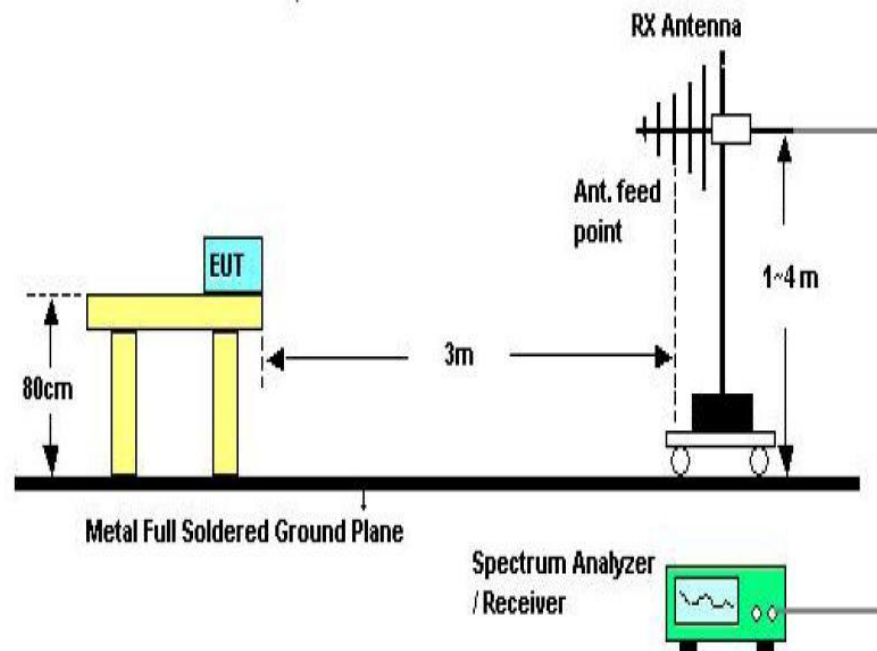
- The tighter limit applies at the band edges.
- Emission Level(dB uV/m)=20log Emission Level(Uv/m)

5.1.2 Test Setup

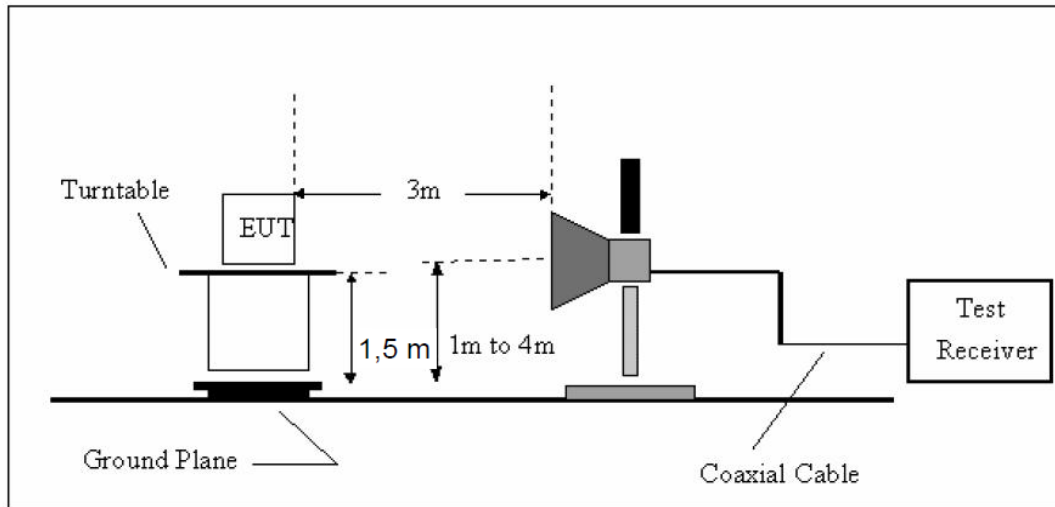
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

5.1.3 Test Procedure

- 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
- The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
- 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
- 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.
- 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	VBW 1KHz
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.

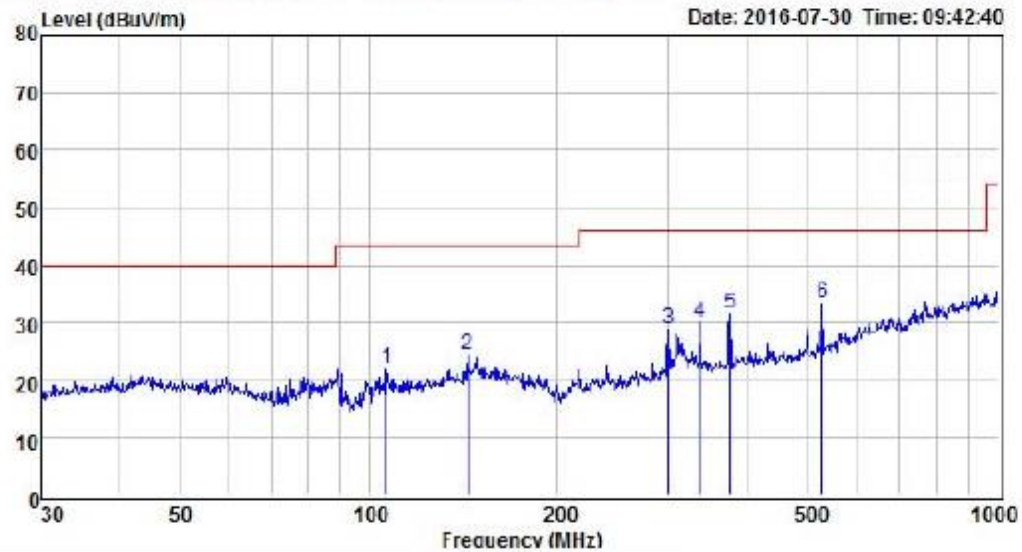
From 9KHz to 30MHz: Conclusion: PASS

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

Data: 7

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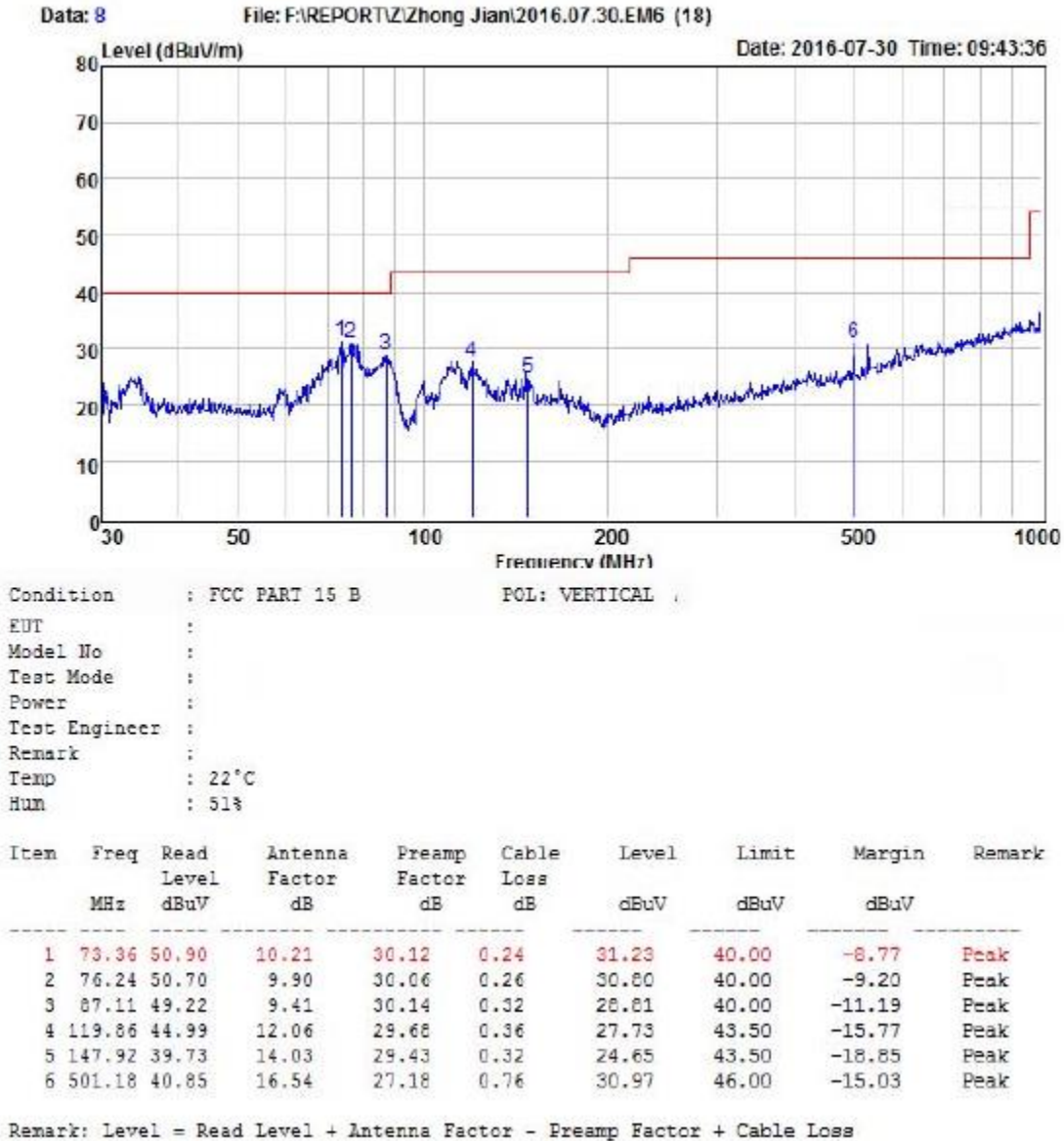
Date: 2016-07-30 Time: 09:42:40



Condition : FCC PART 15 B POL: HORIZONTAL
 EUT :
 Model No :
 Test Mode :
 Power :
 Test Engineer :
 Remark :
 Temp : 22°C
 Hum : 51%

Item	Freq MHz	Read Level dBuV	Antenna Factor dB	Preamplifier Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	106.76	40.63	10.93	30.00	0.42	21.98	43.50	-21.52	Peak
2	143.83	39.71	13.77	29.39	0.38	24.47	43.50	-19.03	Peak
3	300.37	43.39	12.85	28.02	0.64	28.86	46.00	-17.14	Peak
4	336.04	43.40	13.61	27.84	0.78	29.95	46.00	-16.05	Peak
5	375.94	43.49	14.35	27.42	0.96	31.38	46.00	-14.62	Peak
6	528.25	42.43	17.03	27.20	1.07	33.33	46.00	-12.67	Peak

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



Remark1: All modes and channels have been tested and only worst data of 802.11a, 5180MHz are listed in this report.

Remark2: Two different PoE adapter were used during tests and only worst data listed in this report.

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

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.39	---	2.36	50.75	---	54	/	3.25	Peak
15540	V	35.91	---	4.52	40.43	---	54	/	13.57	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.85	---	2.36	51.21	---	54	/	2.79	Peak
15540	H	37.79	---	4.52	42.31	---	54	/	11.69	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.89	---	2.36	51.25	---	54	/	2.75	Peak
15600	V	37.13	---	4.52	41.65	---	54	/	12.35	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.50	---	2.36	50.86	---	54	/	3.14	Peak
15600	H	37.55	---	4.52	42.07	---	54	/	11.93	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	50.85	---	2.36	53.21	---	54	/	0.79	Peak
15720	V	34.91	---	4.52	39.43	---	54	/	14.57	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	47.52	---	2.36	49.88	---	54	/	4.12	Peak
15720	H	36.43	---	4.52	40.95	---	54	/	13.05	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		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V 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	48.44	---	2.36	50.8	---	54	/	3.20	Peak
15540	V	36.99	---	4.52	41.51	---	54	/	12.49	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	50.12	---	2.36	52.48	---	54	/	1.52	Peak
15540	H	35.67	---	4.52	40.19	---	54	/	13.81	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.07	---	2.36	51.43	---	54	/	2.57	Peak
15600	V	38.07	---	4.52	42.59	---	54	/	11.41	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.25	---	2.36	51.61	---	54	/	2.39	Peak
15600	H	35.87	---	4.52	40.39	---	54	/	13.61	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	50.07	---	2.36	52.43	---	54	/	1.57	Peak
15720	V	37.02	---	4.52	41.54	---	54	/	12.46	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.65	---	2.36	52.01	---	54	/	1.99	Peak
15720	H	35.13	---	4.52	39.65	---	54	/	14.35	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		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V 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)	Remarks
					Peak (dBuV/m)	AV (dBuV/m)				
10380	V	49.29	---	2.36	51.65	---	54	/	2.35	Peak
15570	V	37.43	---	4.52	41.95	---	54	/	12.05	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.88	---	2.36	52.24	---	54	/	1.76	Peak
15570	H	36.06	---	4.52	40.58	---	54	/	13.42	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.87	---	2.36	52.23	---	54	/	1.77	Peak
15690	V	36.23	---	4.52	40.75	---	54	/	13.25	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	50.29	---	2.36	52.65	---	54	/	1.35	Peak
15690	H	36.91	---	4.52	41.43	---	54	/	12.57	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 802.11ac with 5.2G

EUT		Broadband Digital Transmission System			Model Name		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V From adapter			
Test Mode		MIMO TX								
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)	Remarks
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	48.26	---	2.42	50.68	---	54	/	3.32	Peak
15570	V	36.91	---	4.52	41.43	---	54	/	12.57	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX		

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	48.90	---	2.42	51.32	---	54	/	2.68	Peak
15570	H	36.33	---	4.52	40.85	---	54	/	13.15	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		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V 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	50.27	---	2.36	52.63	---	54	/	1.37	Peak
17235	V	37.69	---	4.52	42.21	---	54	/	11.79	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.66	---	2.36	52.02	---	54	/	1.98	Peak
17235	H	36.94	---	4.52	41.46	---	54	/	12.54	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.88	---	2.36	52.24	---	54	/	1.76	Peak
17355	V	37.36	---	4.52	41.88	---	54	/	12.12	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.00	---	2.36	51.36	---	54	/	2.64	Peak
17355	H	37.09	---	4.52	41.61	---	54	/	12.39	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.97	---	2.36	52.33	---	54	/	1.67	Peak
17475	V	36.94	---	4.52	41.46	---	54	/	12.54	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.29	---	2.36	50.65	---	54	/	3.35	Peak
17475	H	36.91	---	4.52	41.43	---	54	/	12.57	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		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V 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	50.35	---	2.36	52.71	---	54	/	1.29	Peak
17235	V	37.21	---	4.52	41.73	---	54	/	12.27	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.82	---	2.36	51.18	---	54	/	2.82	Peak
17235	H	36.72	---	4.52	41.24	---	54	/	12.76	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.3	---	2.36	51.66	---	54	/	2.34	Peak
17355	V	37.72	---	4.52	42.24	---	54	/	11.76	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	48.33	---	2.36	50.69	---	54	/	3.31	Peak
17355	H	36.91	---	4.52	41.43	---	54	/	12.57	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.90	---	2.36	52.26	---	54	/	1.74	Peak
17475	V	37.09	---	4.52	41.61	---	54	/	12.39	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	50.29	---	2.36	52.65	---	54	/	1.35	Peak
17475	H	36.91	---	4.52	41.43	---	54	/	12.57	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		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V 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	50.29	---	2.36	52.65	---	54	/	1.35	Peak
17265	V	37.10	---	4.52	41.62	---	54	/	12.38	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.40	---	2.36	51.76	---	54	/	2.24	Peak
17265	H	37.12	---	4.52	41.64	---	54	/	12.36	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	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.66	---	2.36	52.02	---	54	/	1.98	Peak
17385	V	37.27	---	4.52	41.79	---	54	/	12.21	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V 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	49.51	---	2.36	51.87	---	54	/	2.13	Peak
17385	H	37.13	---	4.52	41.65	---	54	/	12.35	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 802.11ac with 5.8G

EUT		Broadband Digital Transmission System			Model Name		NFT 2ac			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 48V From adapter			
Test Mode		MIMO TX								
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)				
11550	V	50.23	---	2.38	52.61	---	54	/	1.39	Peak
17265	V	36.42	---	4.52	40.94	---	54	/	13.06	Peak
N/A										

EUT	Broadband Digital Transmission System	Model Name	NFT 2ac
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 48V From adapter
Test Mode	MIMO TX		

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)				
11550	H	48.60	---	2.38	50.98	---	54	/	3.02	Peak
17265	H	36.21	---	4.52	40.73	---	54	/	13.27	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)

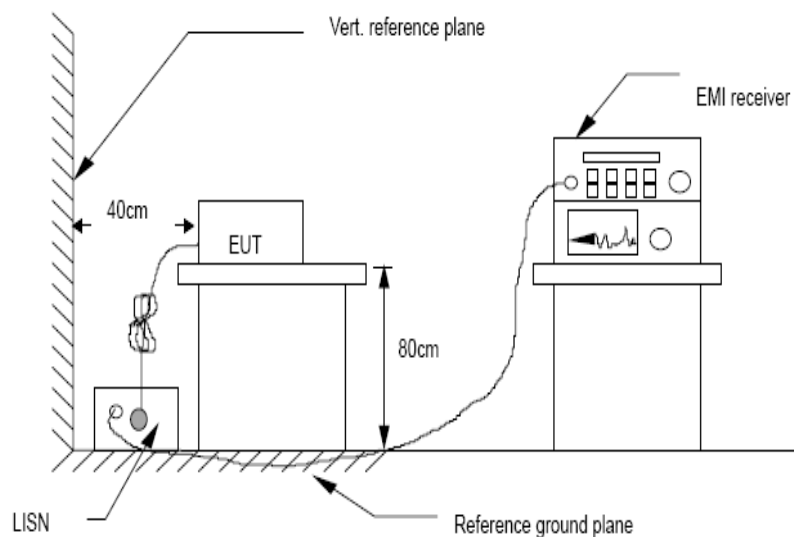
Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

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 C63.4:2014 on Conducted Emission Measurement. The bandwidth of test receiver is set at 9 kHz.

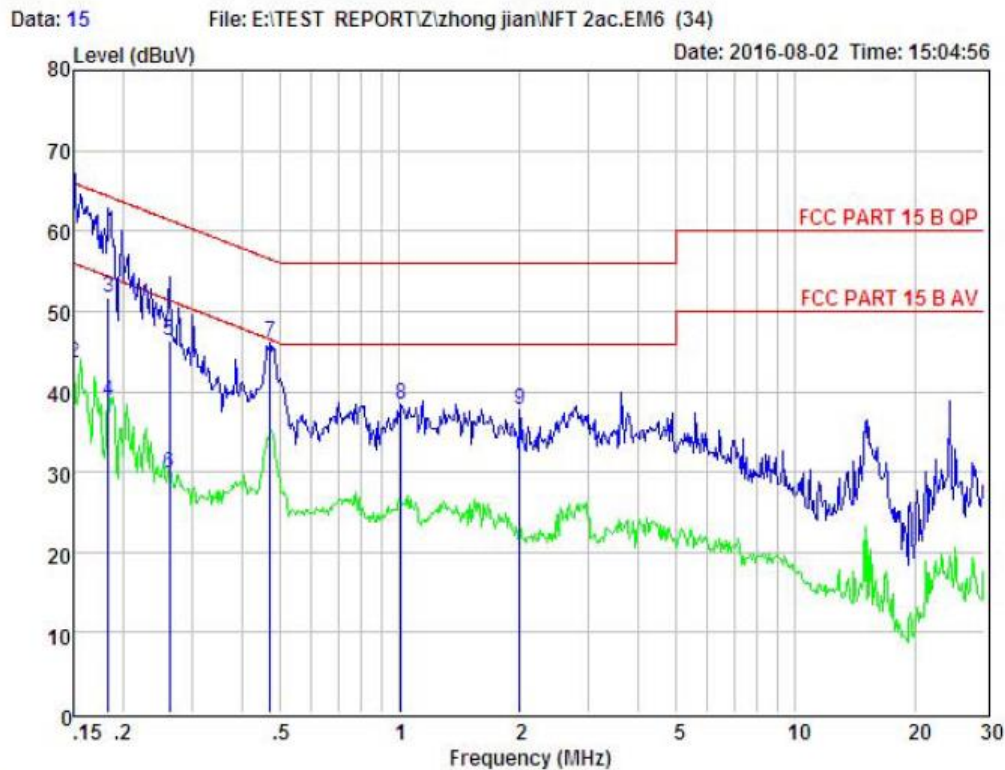
6.4 Test Results

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: 25°C Hum: 51 %
 EUT : WIFI ROUTER
 Model No : NFT2ac
 Test Mode : Working
 Power : DC48V From POE Adapter with AC 120V/60Hz
 Test Engineer : Peter
 Remark : POE GRI-POE20-480050A

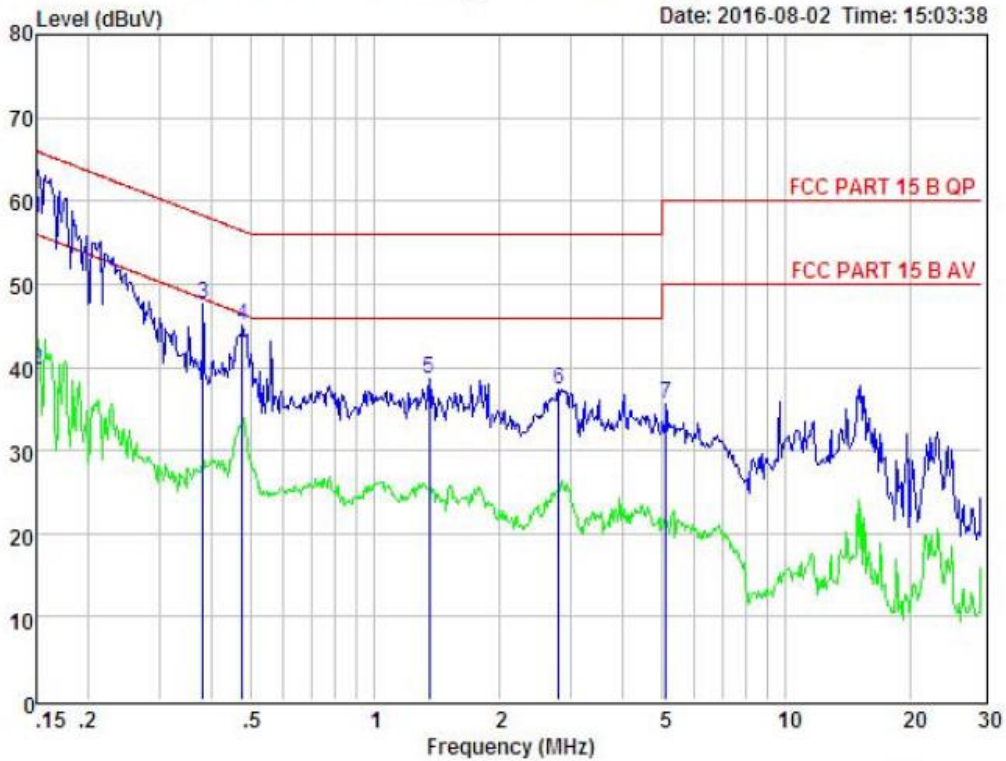
Item	Freq MHz	Read Level dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.150	52.30	0.03	-9.49	0.10	61.92	66.00	-4.08	QP
2	0.150	33.90	0.03	-9.49	0.10	43.52	56.00	-12.48	Average
3	0.183	42.00	0.03	-9.52	0.10	51.65	64.33	-12.68	QP
4	0.183	29.11	0.03	-9.52	0.10	38.76	54.33	-15.57	Average
5	0.262	36.68	0.03	-9.56	0.10	46.37	61.38	-15.01	QP
6	0.262	20.22	0.03	-9.56	0.10	29.91	51.38	-21.47	Average
7	0.471	36.50	0.03	-9.58	0.10	46.21	56.49	-10.28	Peak
8	1.010	28.70	0.04	-9.63	0.10	38.47	56.00	-17.53	Peak
9	2.012	27.83	0.06	-9.72	0.10	37.71	56.00	-18.29	Peak

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

Data: 13

File: E:\TEST REPORT\Z\zhong jian\NFT 2ac.EM6 (34)

Date: 2016-08-02 Time: 15:03:38



Condition : FCC PART 15 B QP POL: NEUTRAL Temp: 25°C Hum: 51 %
 EUT : WIFI ROUTER
 Model No : NFT2ac
 Test Mode : Working
 Power : DC48V From POE Adapter with AC 120V/60Hz
 Test Engineer :
 Remark : POE GRT-POE20-480050A

Item	Freq MHz	Read Level dBuV	LISN Factor dB	Preamp Factor dB	Cable Loss dB	Level dBuV	Limit dBuV	Margin dBuV	Remark
1	0.150	48.33	0.03	-9.49	0.10	57.95	66.00	-8.05	QP
2	0.150	30.00	0.03	-9.49	0.10	39.62	56.00	-16.38	Average
3	0.381	37.83	0.03	-9.57	0.10	47.53	58.25	-10.72	Peak
4	0.476	35.37	0.03	-9.58	0.10	45.08	56.41	-11.33	Peak
5	1.352	28.77	0.05	-9.66	0.10	38.58	56.00	-17.42	Peak
6	2.794	27.42	0.07	-9.78	0.12	37.39	56.00	-18.61	Peak
7	5.112	25.51	0.10	-9.93	0.12	35.66	60.00	-24.34	Peak

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

7 Conducted Maximum Output Power

7.1 Test limit

Band 5150-5250MHz

For an indoor access point 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

Band 5725-5850MHz

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.2 Test Procedure

Details see the KDB558074 Meas Guidance V03

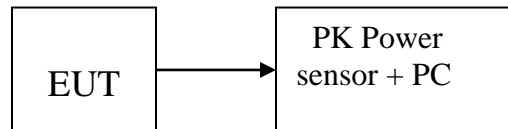
7.2.1 Place the EUT on the table and set it in transmitting mode.

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.

5.2G Band

EUT: Broadband Digital Transmission System			M/N: NFT 2ac			
Test date: 2016-08-05		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	16.26	19.33	30	Pass
		1	16.38			
	CH40:5200	0	16.11	19.19	30	Pass
		1	16.24			
	CH48:5240	0	16.73	19.65	30	Pass
		1	16.54			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	16.52	19.41	30	Pass
		1	16.27			
	CH40:5200	0	16.39	19.50	30	Pass
		1	16.59			
	CH48:5240	0	16.41	19.47	30	Pass
		1	16.51			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	16.29	19.20	30	Pass
		1	16.09			
	CH46:5230	0	16.35	19.30	30	Pass
		1	16.22			
IEEE 802.11 ac with 5.2G	CH42:5210	0	16.61	19.33	30	Pass
		1	16.01			
Conclusion: PASS						

5.8G Band

EUT: Broadband Digital Transmission System				M/N: NFT 2ac		
Test date: 2016-08-05		Test site: RF site		Tested by: Simple Guan		
Mode	Frequency (MHz)	Ant Port	PK Output powe(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	0	21.33	24.21	30	Pass
		1	21.06			
	CH157:5785	0	26.02	29.28	30	Pass
		1	26.51			
	CH165:5825	0	21.41	24.36	30	Pass
		1	21.29			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	21.26	24.32	30	Pass
		1	21.35			
	CH157:5785	0	26.14	29.27	30	Pass
		1	26.37			
	CH165:5825	0	21.52	24.44	30	Pass
		1	21.34			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	21.18	24.43	30	Pass
		1	21.64			
	CH159:5795	0	21.23	24.32	30	Pass
		1	21.39			
IEEE 802.11 ac with 5.8G	CH155:5775	0	21.53	24.42	30	Pass
		1	21.28			
Conclusion: PASS						

8 PEAK POWER SPECTRAL DENSITY

8.1 Test limit

Band 5150-5250MHz

For an indoor access point 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.

Band 5725-5850MHz

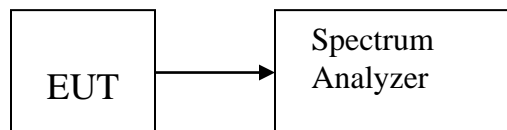
For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

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 RBW = 3kHz, VBW = 10kHz, span=5-30%EBW, detail see the test plot.
- 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



Detailed information please see the following page.

EUT: Broadband Digital Transmission System				M/N: NFT 2ac		
Test date: 2016-08-05		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	5.773	8.78	17	Pass
		1	5.761			
	CH40:5200	0	5.304	8.34	17	Pass
		1	5.353			
	CH48:5240	0	4.442	7.52	17	Pass
		1	4.575			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	5.518	8.48	17	Pass
		1	5.418			
	CH40:5200	0	5.319	8.25	17	Pass
		1	5.167			
	CH48:5240	0	4.135	7.17	17	Pass
		1	4.186			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	2.607	5.68	17	Pass
		1	2.736			
	CH46:5230	0	1.353	4.31	17	Pass
		1	1.253			
IEEE 802.11 ac with 5.2G	CH42:5210	0	6.023	8.63	17	Pass
		1	5.183			
Conclusion: PASS						

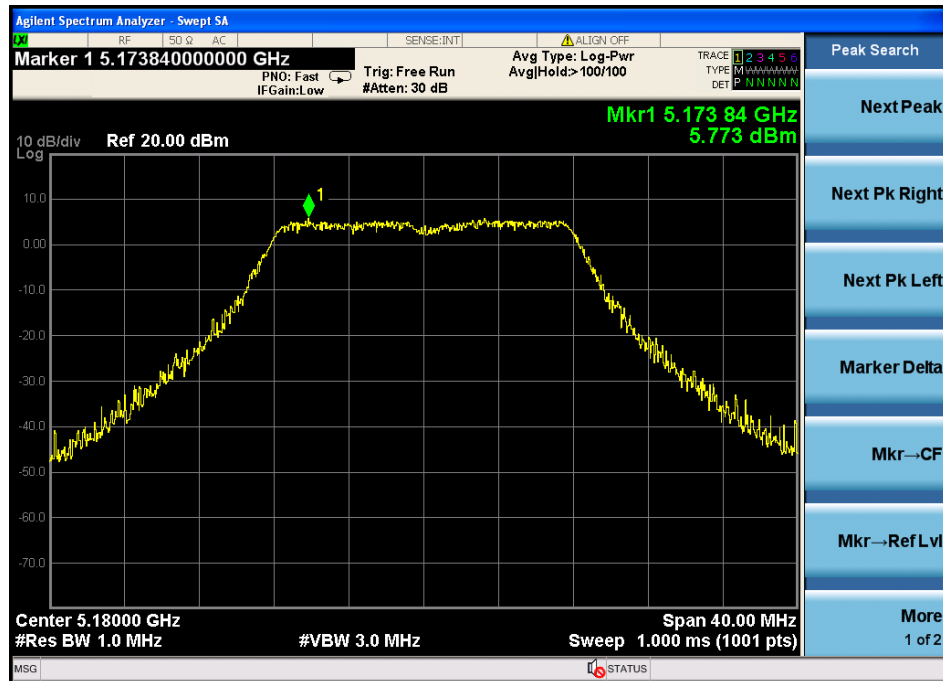
5.8G Band

EUT: Broadband Digital Transmission System				M/N: NFT 2ac		
Test date: 2016-08-05		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	6.646	9.41	30	Pass
		1	6.142			
	CH157:5785	0	12.602	15.80	30	Pass
		1	12.968			
	CH165:5825	0	5.081	8.23	30	Pass
		1	5.358			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	7.232	9.91	30	Pass
		1	6.543			
	CH157:5785	0	11.643	14.67	30	Pass
		1	11.670			
	CH165:5825	0	5.252	8.32	30	Pass
		1	5.362			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	5.602	8.67	30	Pass
		1	5.745			
	CH159:5795	0	5.452	8.47	30	Pass
		1	5.458			
IEEE 802.11 ac with 5.8G	CH155:5755	0	5.273	8.02	30	Pass
		1	4.724			
Conclusion: PASS						

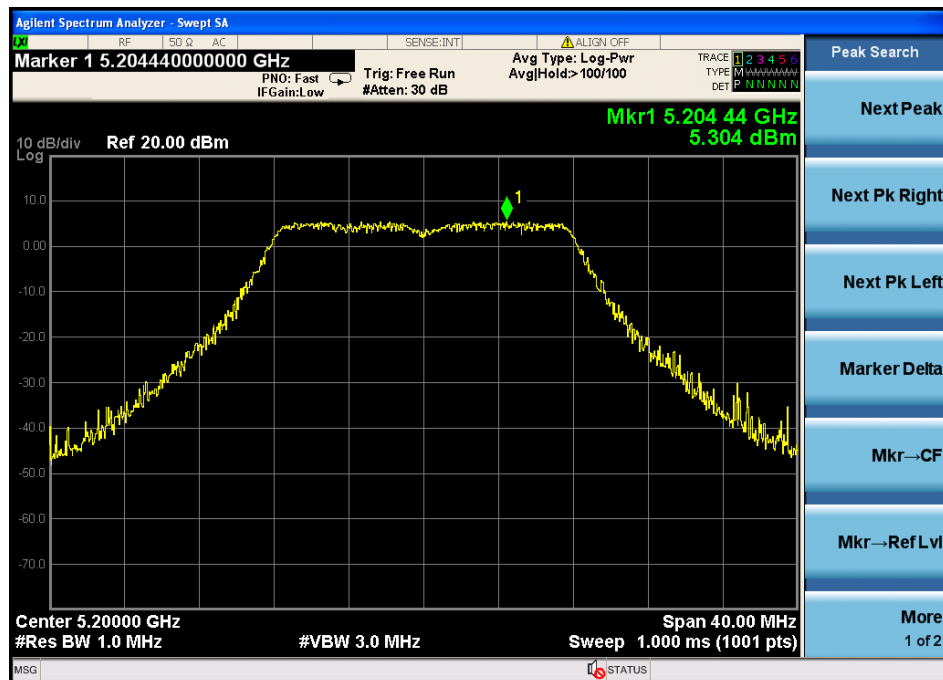
Port 0 antenna with 5.2G

IEEE 802.11a :

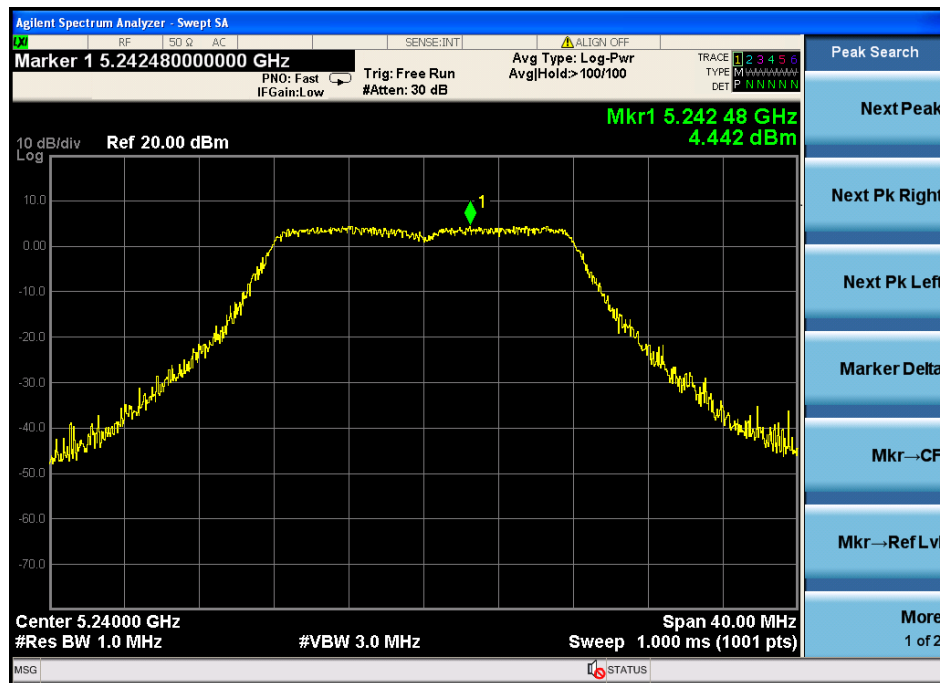
CH Low :



CH Mid:

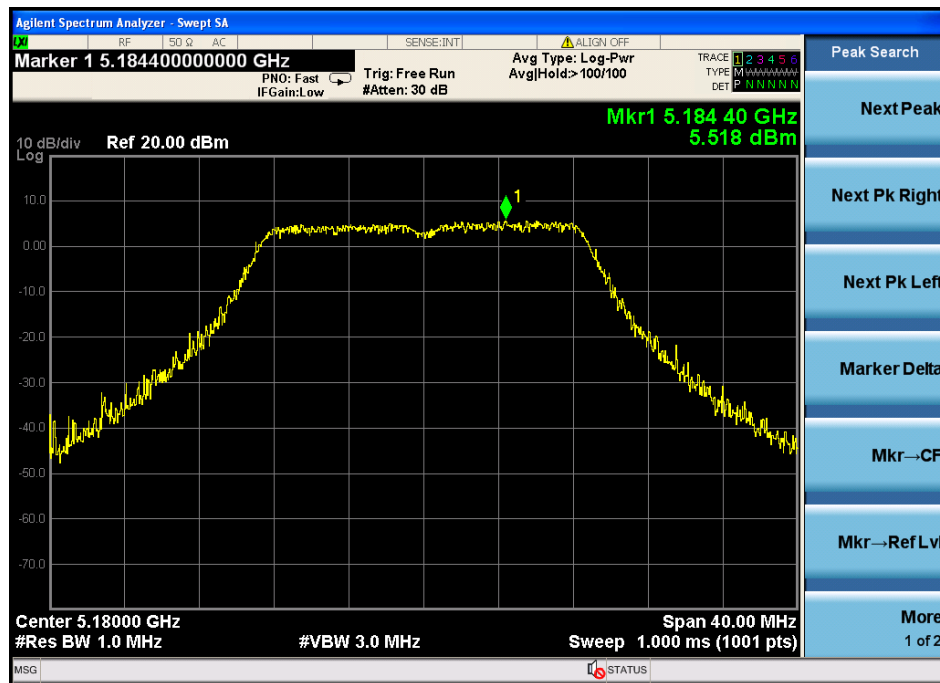


CH Hig:

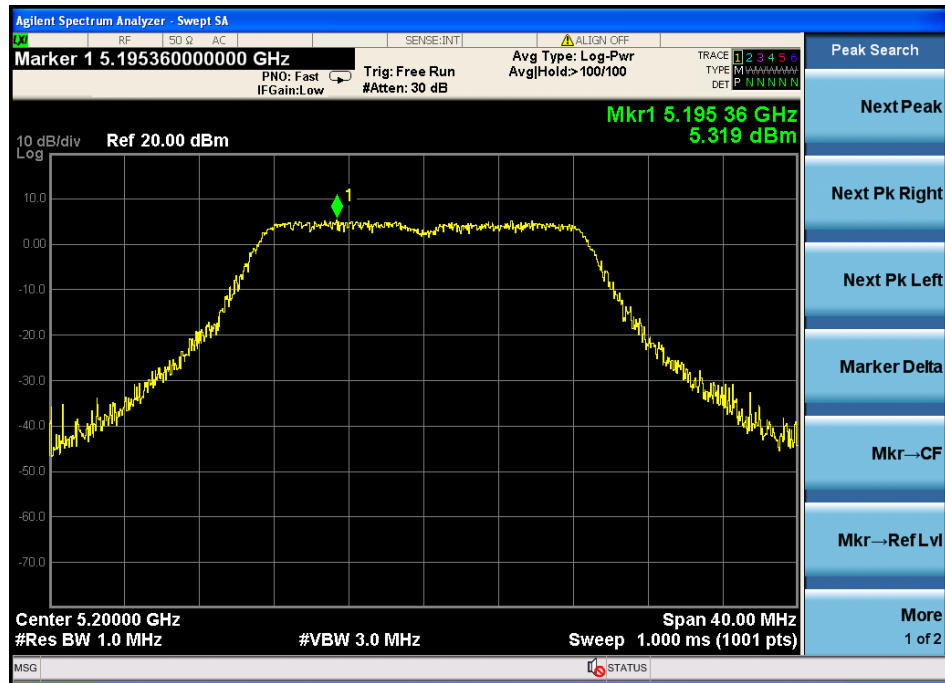


IEEE 802.11n HT20 :

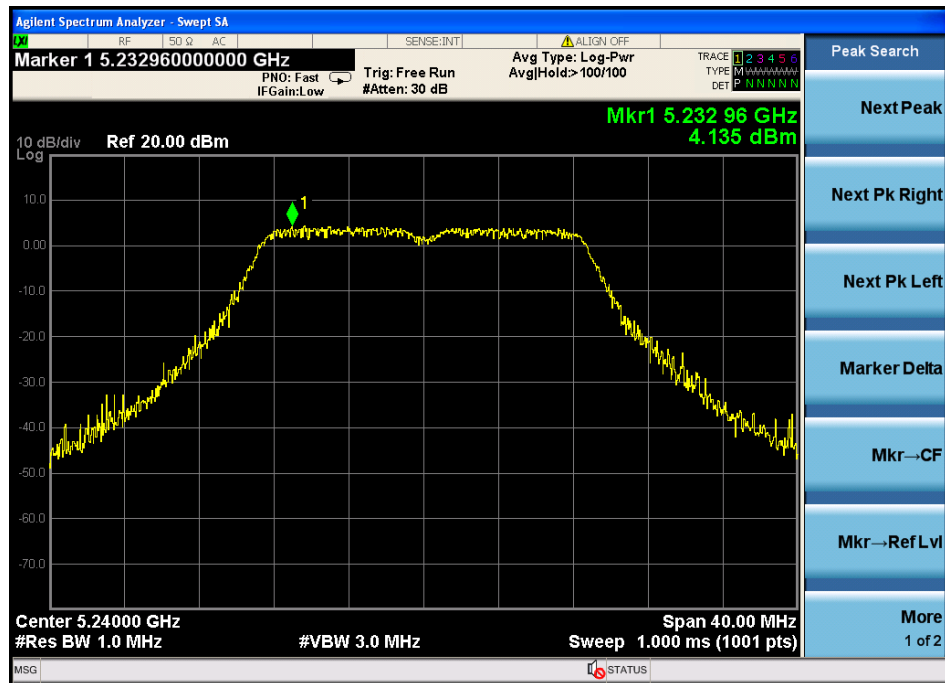
CH Low :



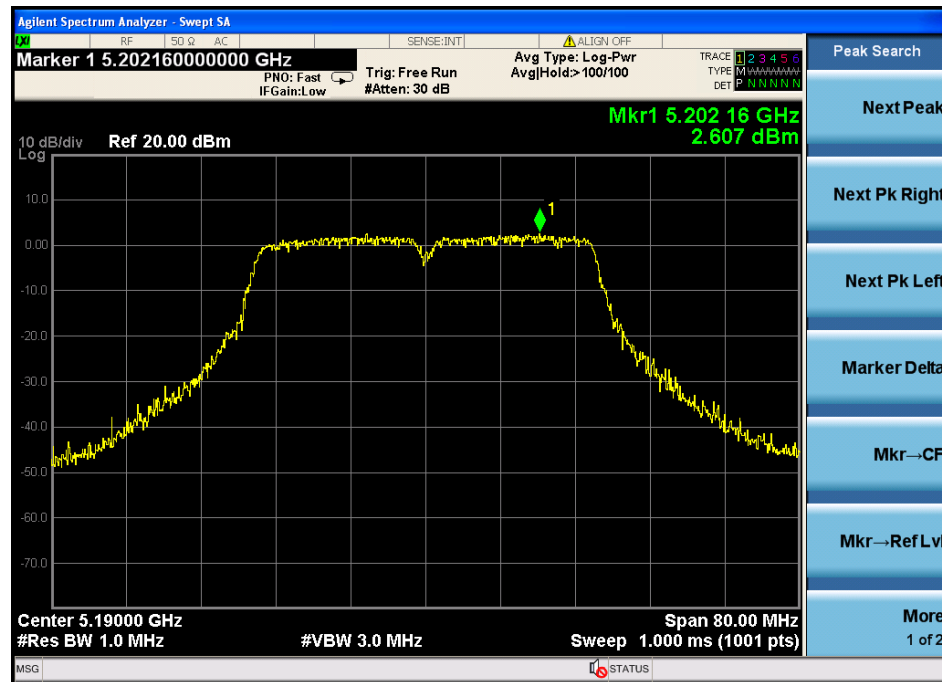
CH Mid:



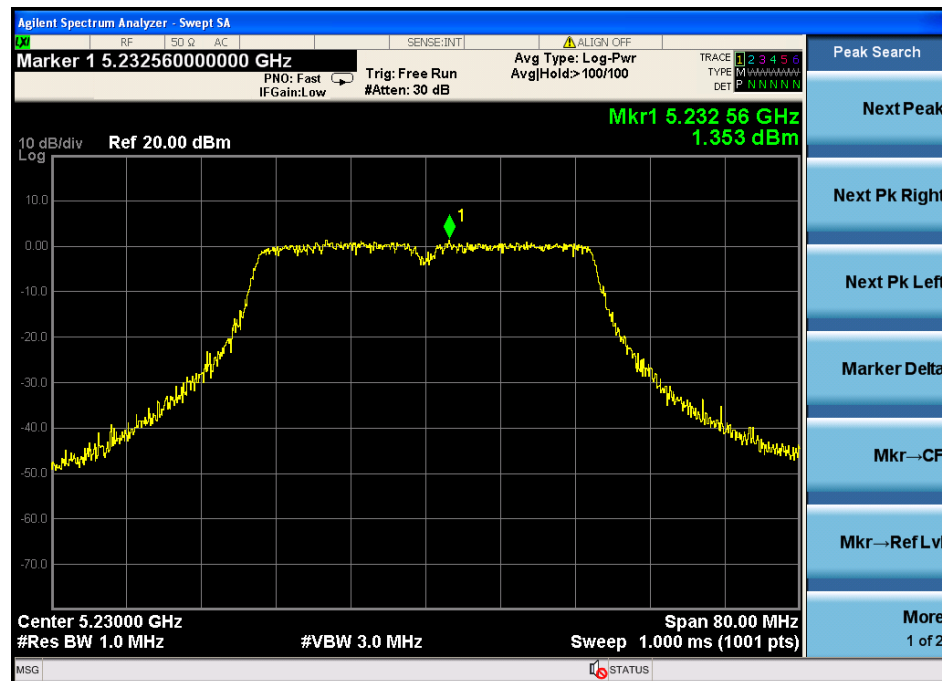
CH Hig:



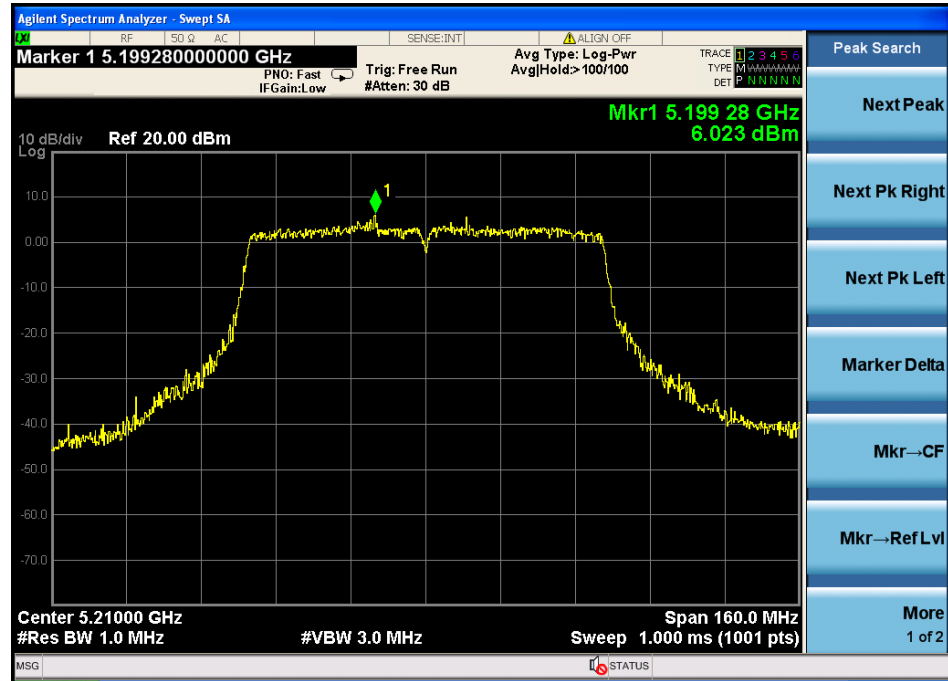
IEEE 802.11n HT40 :
CH Low :



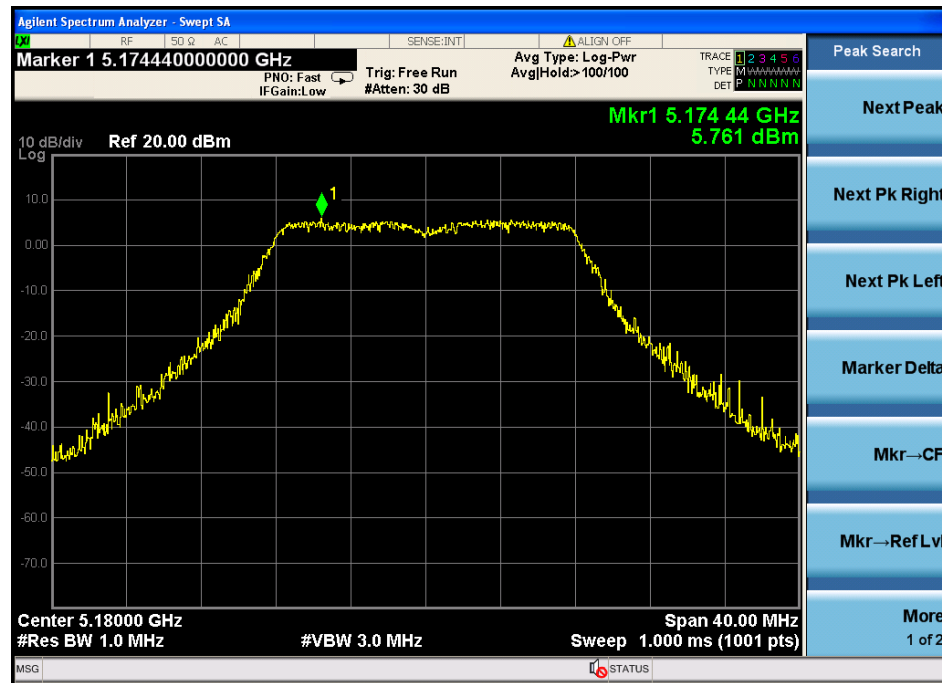
CH Hig:



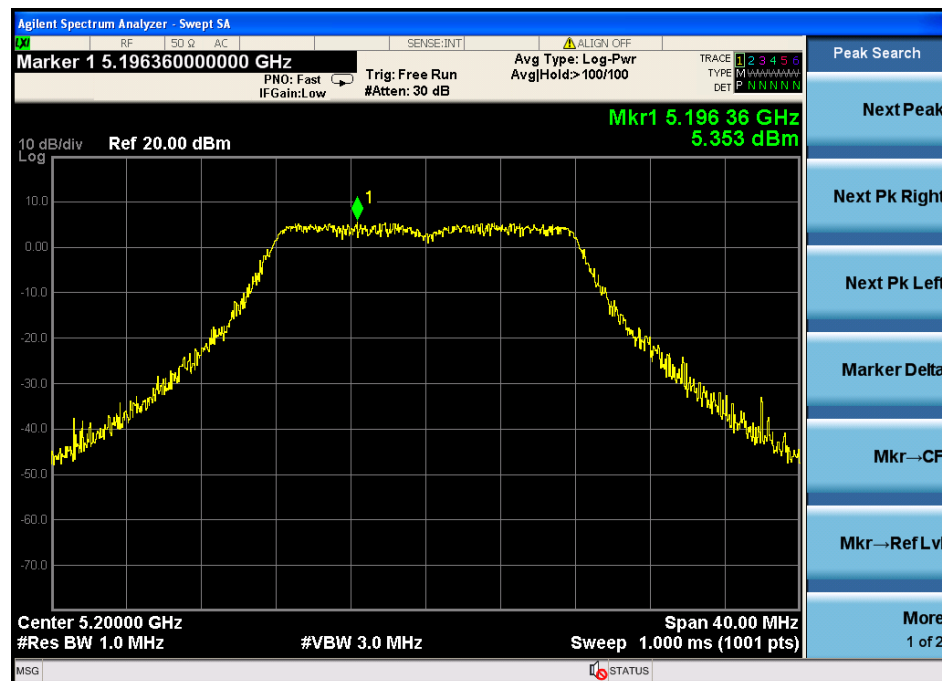
IEEE 802.11ac :



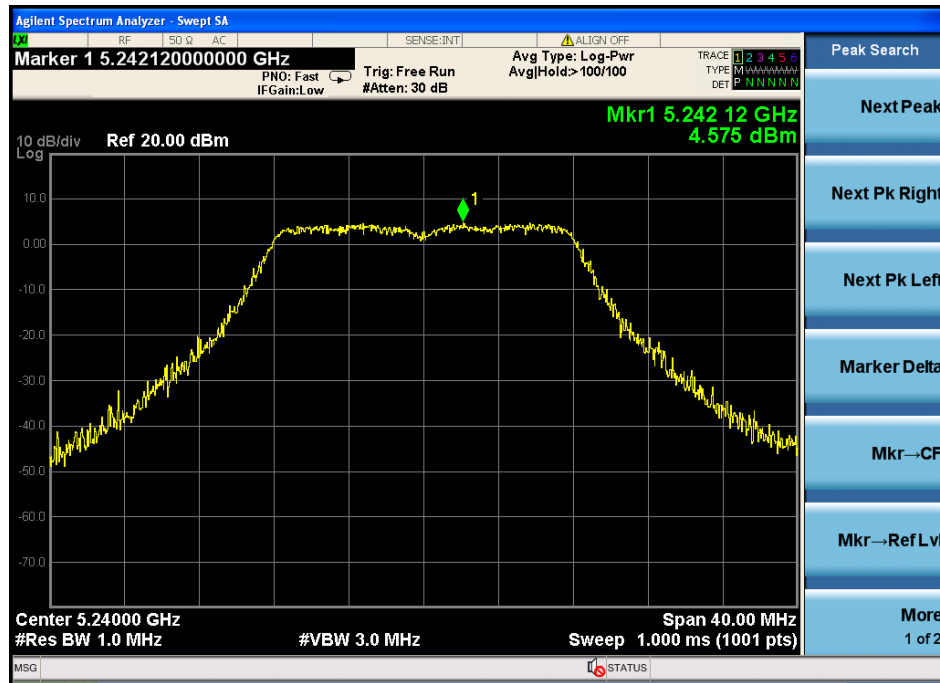
port 1 antenna with 5.2G
IEEE 802.11a :
CH Low :



CH Mid:

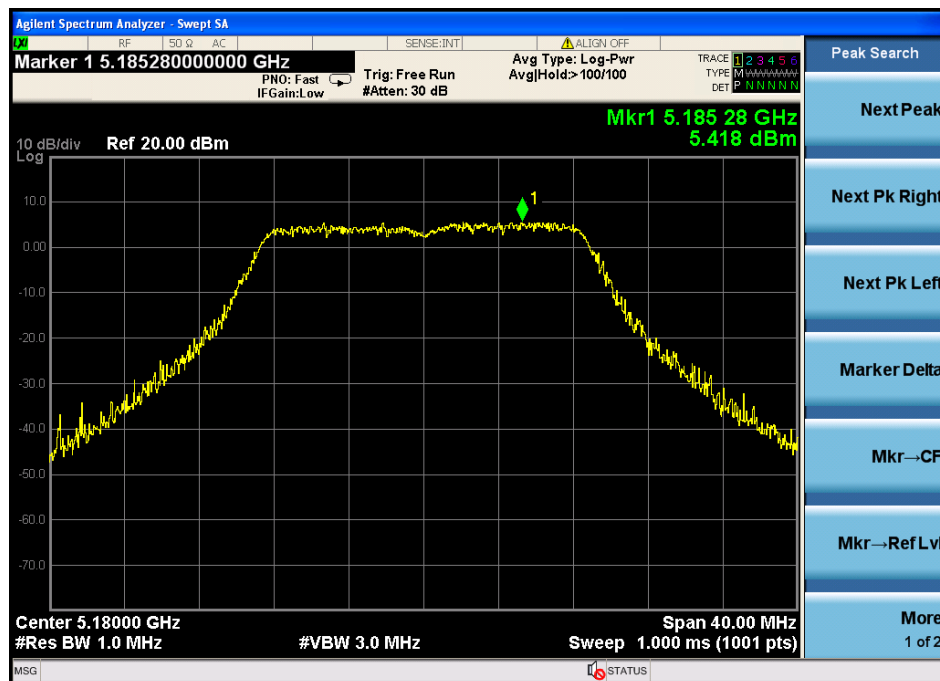


CH Hig:

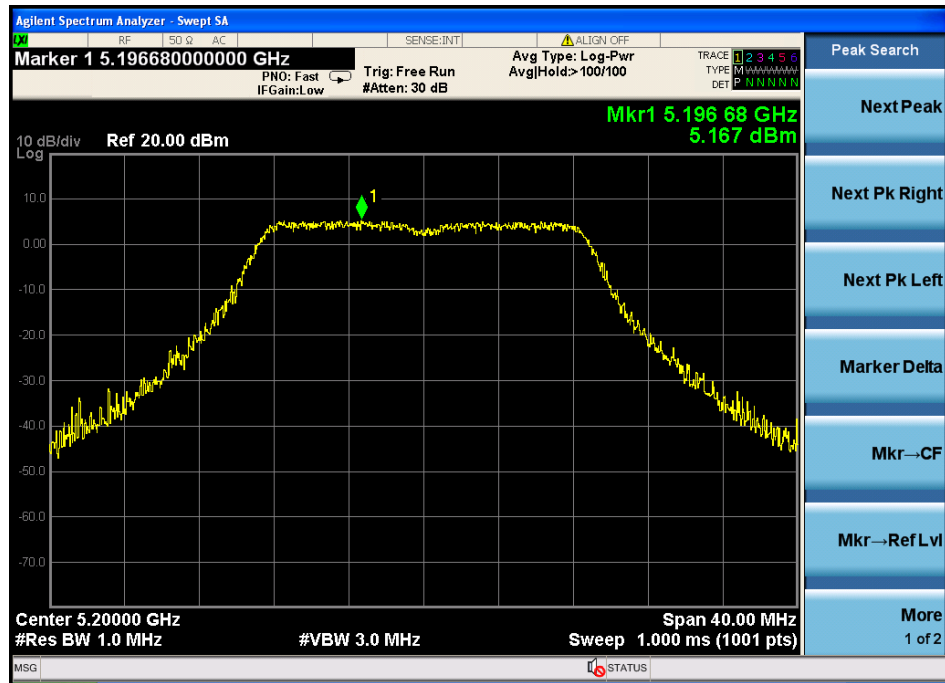


IEEE 802.11n HT20 :

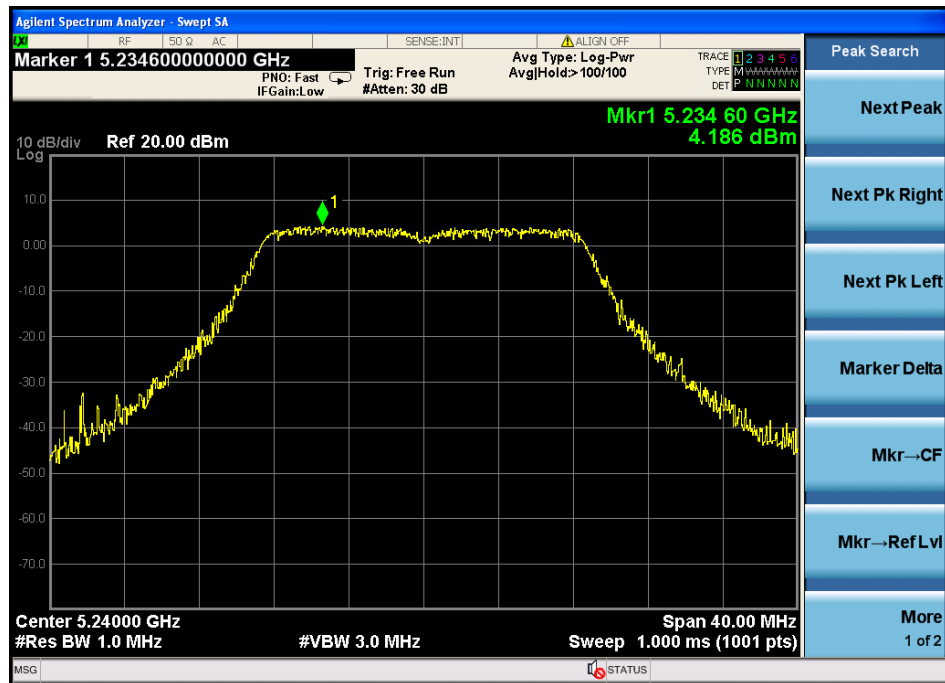
CH Low :



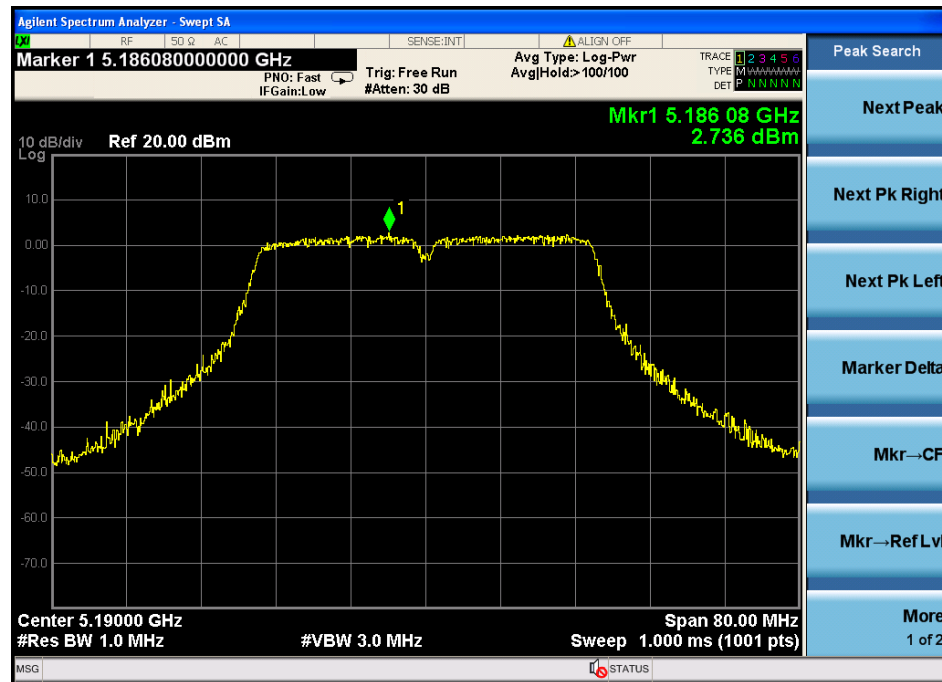
CH Mid:



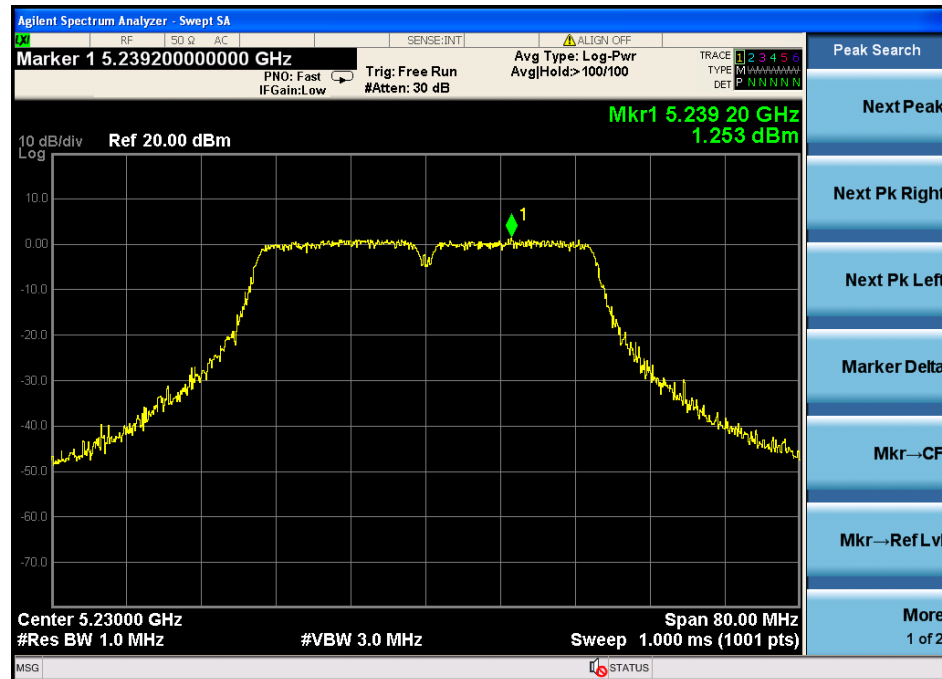
CH Hig:



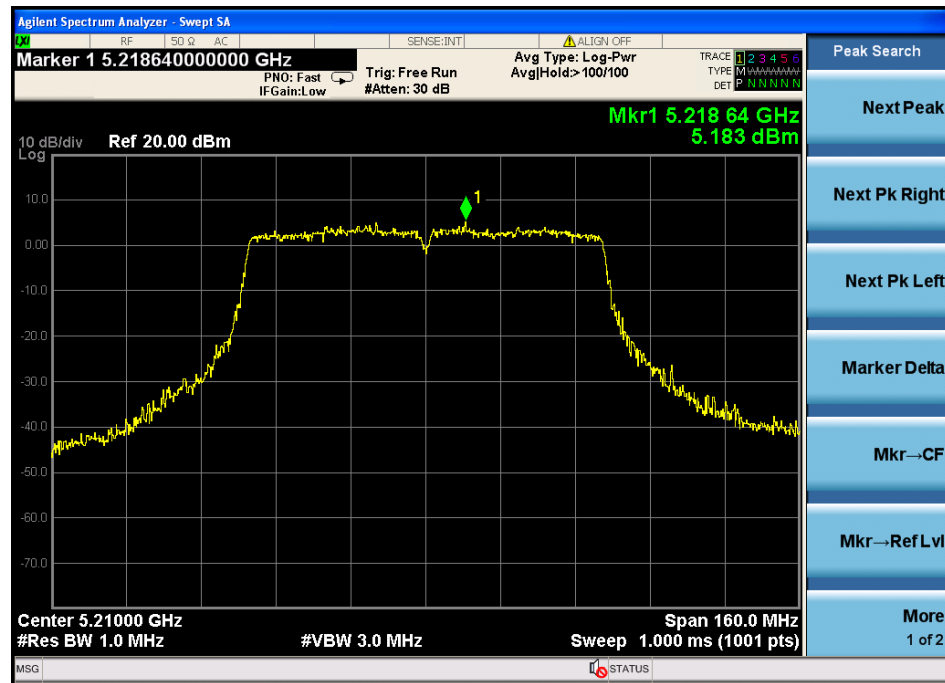
IEEE 802.11n HT40 :
CH Low :



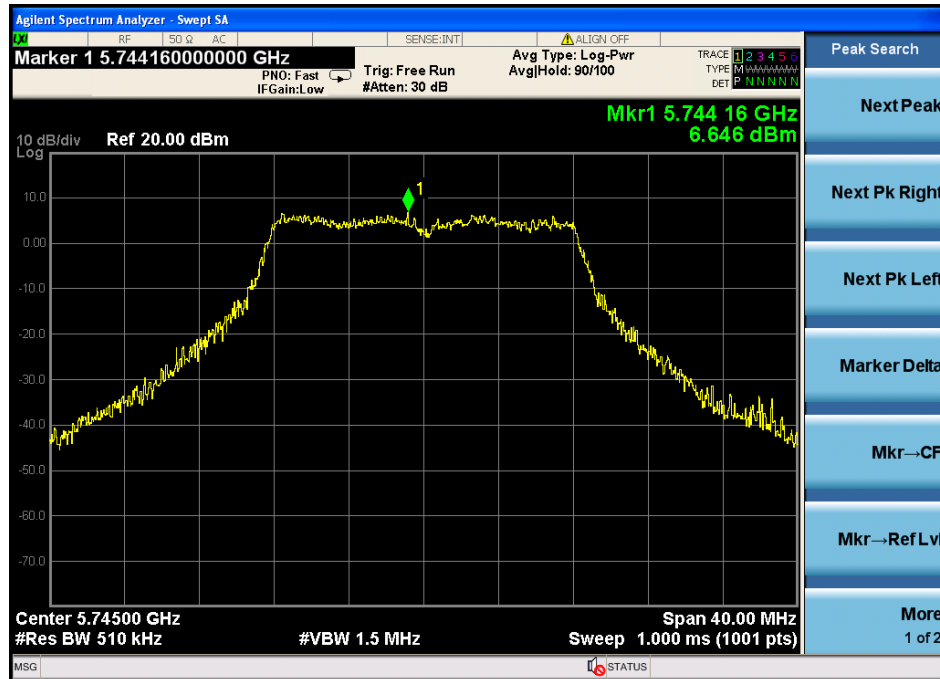
CH Hig:



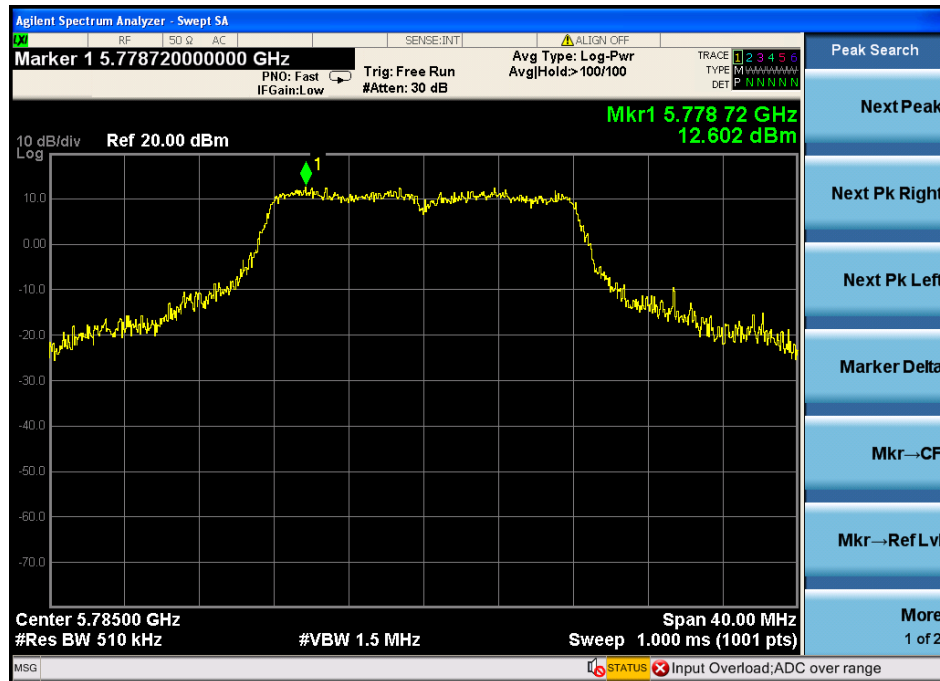
IEEE 802.11ac :



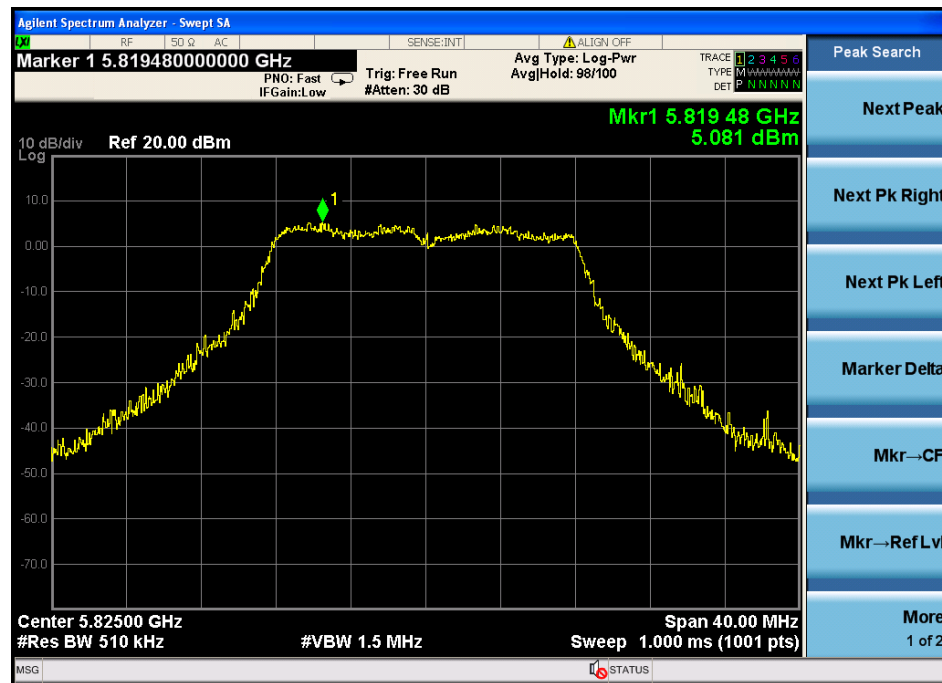
IEEE 802.11a with 5.8G Ant port0:
CH Low :



CH Mid:

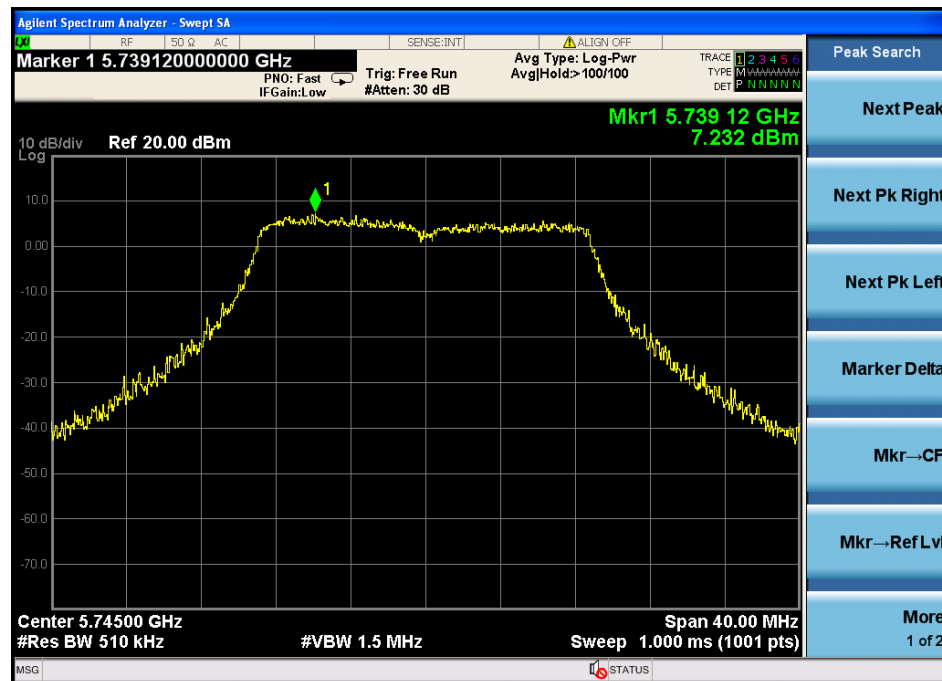


CH Hig:

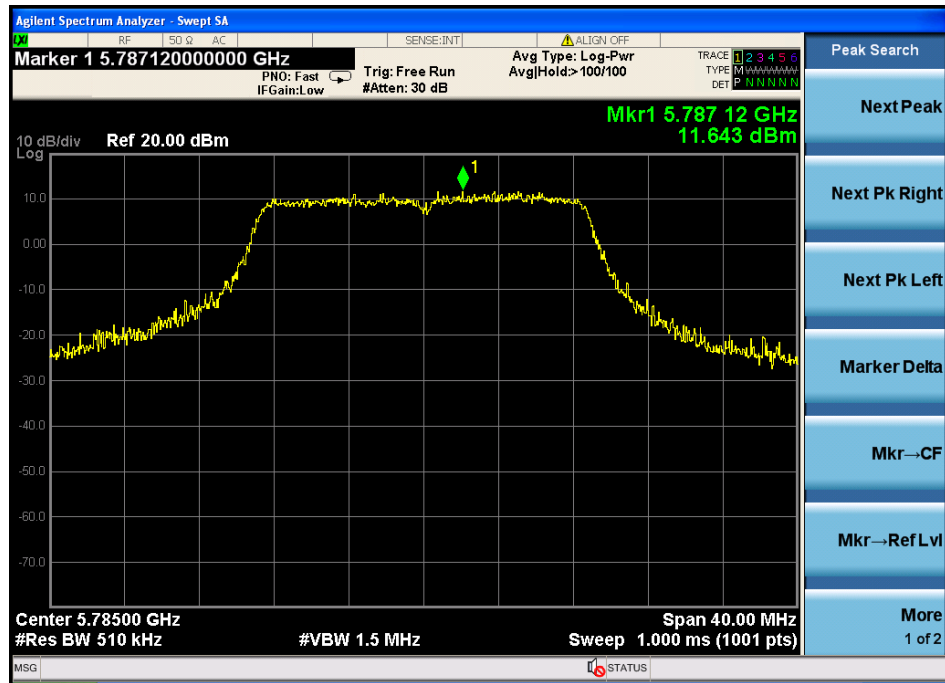


IEEE 802.11n HT20 with 5.8G:

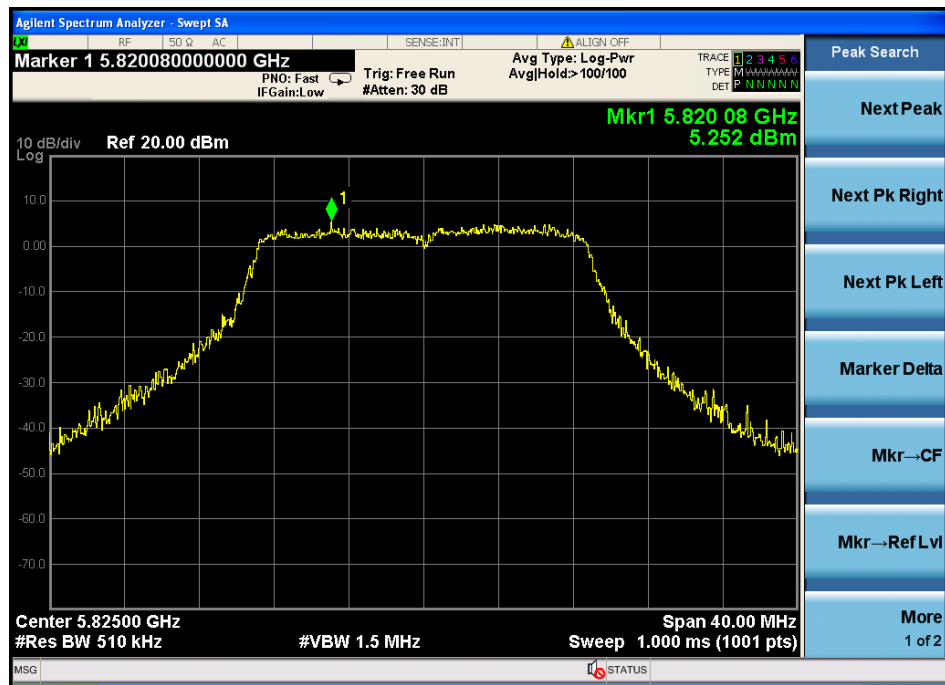
CH Low :



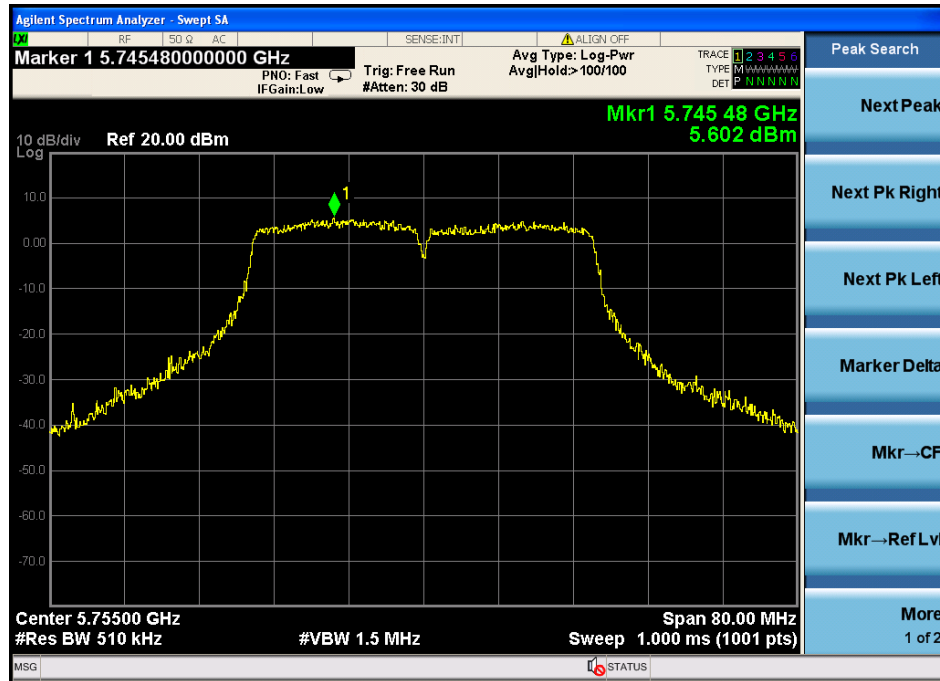
CH Mid:



CH Hig:



IEEE 802.11n HT40 with 5.8G:
CH Low :



CH Hig:

