

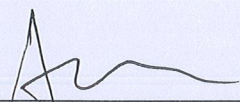
RADIO TEST REPORT

The device described below is tested by Dongguan Nore Testing Center Co., Ltd. to determine the maximum emission levels emanating from the device, the severe levels which the device can endure and E.U.T.'s performance criterion. The test results, data evaluation, test procedures, and equipment of configurations shown in this report were made in accordance with the procedures in ANSI C63.10(2013).

Applicant : Shenyang TECHE Technology Co., Ltd.
Address : No.1-1, Caixia Street, Hunnan new District, Shenyang City Liaoning Province China
Manufacturer /Factory : Shenyang TECHE Technology Co., Ltd.
Address : No.1-1, Caixia Street, Hunnan new District, Shenyang City Liaoning Province China
E.U.T. : PHIIMAX3D PANORAMIC CAMERA
Brand Name : TECHE
Model No. : PB342
FCC ID : 2ATFB-PB342
Measurement Standard : 47 CFR FCC PART 15 Subpart E (section 407)
Date of Receiver : October 26, 2018
Date of Test : October 26, 2018 to May 20, 2019
Date of Report : May 22, 2019

This Test Report is Issued Under the Authority of :

Prepared by


Alina Guo / Engineer

Approved & Authorized Signer


Iori Fan / Authorized Signatory

This test report is for the customer shown above and their specific product only. This report applies to above tested sample only and shall not be reproduced in part without written approval of Dongguan Nore Testing Center Co., Ltd.

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Revision History of This Test Report

Report Number	Description	Issued Date
NTC1810262FV00	Initial Issue	2019-05-22

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name	: PHIIMAX3D PANORAMIC CAMERA
Main Model Name	: PB342
Additional Model Name	: N/A
Brand Name	: TECHE
Power Supply	: DC 12.6V from adapter DC 7.4V from internal battery
Adapter 1	: Manufacturer: SHENZHEN LIANYUNDA ELECTRONIC CO., LTD Model: LYD1266000 Input: AC 100-240V, 2.5A, 50/60Hz Output: DC 12.6V, 6A
Adapter 2	: Manufacturer: Fuyuang Model: FY1206000 Input: AC 100-240V, 1.5A, 50/60Hz Output: DC 12V, 6A
Test voltage	: AC 120V/60Hz, AC 240V/50Hz Only the worst case was recorded in the report.
Hardware version	: V100
Software version	: 2.4.0
Serial number	: N/A
Note	: This report only applies to 5G WIFI(Band1+Band4) function.

**Technical parameters
For 5G Band**

Frequency Range	: 5180-5240MHz 5745-5825MHz
Modulation type	: IEEE 802.11a: OFDM IEEE 802.11n/ac: see the below table
Data Modulation	: IEEE 802.11a: OFDM (BPSK/QPSK/16QAM/64-QAM) IEEE 802.11n/ac: OFDM (BPSK/QPSK/16QAM/ 64-QAM/256-QAM)
Modulation Technology	: OFDM
Number of Channel	: 802.11a/n(HT20)/ac(VHT20): 9 802.11n(HT40)/ac (VHT40): 4
Data rate	: 802.11a: 6~54Mbps 802.11n(HT20): MCS 0~8 802.11n(HT40): MCS 0~9 802.11ac(VHT20): MCS 0~8, Nss=1-2 802.11ac(VHT40): MCS 0~9, Nss=1-2
Beamforming Mode	: Does not support
Antenna Type	: External plastic rod antenna
Number of Antenna	: 2
Antenna Gain	: 3dBi

Channel list for 5GHz Band

Band 5180~5240MHz			
802.11a/n(HT20)/ac(VHT20)		802.11n(HT40)/ac(VHT40)	
Channel	Frequency MHz	Channel	Frequency MHz
36	5180	38	5190
40	5200	46	5230
44	5220		
48	5240		

Band 5745~5825MHz			
802.11a/n(HT20)/ac(VHT20)		802.11n(HT40)/ac(VHT40)	
Channel	Frequency MHz	Channel	Frequency MHz
149	5745	151	5755
153	5765	159	5795
157	5785		
161	5805		
165	5825		

Note: According to section 15.31(m), regards to the operating frequency range over 10MHz, the Lowest, middle, and the Highest frequency of channel were selected to perform the test. The selected frequency see below:

Band 5180~5240MHz		Band 5745~5825MHz	
802.11a/n(HT20)/ac (VHT20)		802.11a/n(HT20)/ac(VHT20)	
Channel	Frequency MHz	Channel	Frequency MHz
36	5180	149	5745
40	5200	157	5785
48	5240	165	5825
802.11n(HT40)/ac(VHT40)		802.11n(HT40)/ac(VHT40)	
38	5190	151	5755
46	5230	159	5795

Test SW version	kitty_portable
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1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2ATFB-PB342** filing to comply with Section 15.407 of the FCC Part 15 subpart E(2016) Rule.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters. All other measurements were made in accordance with the procedures in 47 CFR part 2.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Support Device

Notebook	: Manufacturer: Lenovo Model: TP00067A P/N: SL10G10768 S/N: PF-0DS3YC 15/12 CE, FCC: DOC
Adapter (For notebook)	: Manufacturer: Lenovo Model: ADLX65NLC3A I/P: AC 100-240V 50-60Hz, 1.8A O/P: DC 20V 3.25A



1.6 Test Facility and Location

Site Description	
EMC Lab	: Listed by CNAS, August 13, 2018 The certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 The Certificate Registration Number is L5795. Listed by A2LA, November 01, 2017 The certificate is valid until December 31, 2019 The Laboratory has been assessed and proved to be in compliance with ISO17025 The Certificate Registration Number is 4429.01 Listed by FCC, November 06, 2017 The Designation Number is CN1214 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743
Name of Firm	: Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Site Location	: Building D, Gaosheng Science & Technology Park, Zhouxi Longxi Road, Nancheng District, Dongguan City, Guangdong Province, China

1.7 Summary of Test Results

FCC Rules	Description Of Test	Uncertainty	Result
§15.207 (a)	AC Power Conducted Emission	±1.06dB	Compliance
§15.407(a)	Max. Conducted Output Power	±1.06dB	Compliance
§15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	±1.42 x10 ⁻⁴ %	Compliance
§15.407(e)	6dB Bandwidth	±1.42 x10 ⁻⁴ %	Compliance
§15.407(a)	Power Spectral Density	±1.70dB	Compliance
§15.407(b) §15.205	Radiated Emissions	±3.70dB	Compliance
§15.407(b)	Band Edge Emissions	±1.06dB	Compliance
§15.407(g)	Frequency Stability	±8.42 x10 ⁻⁸	Compliance
§15.203	Antenna Requirement	---	Compliance

2. System Test Configuration

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 Special Accessories

Not available for this EUT intended for grant.

2.3 Description of test modes

The EUT has been tested under continuous operating condition. Test program used to control the EUT staying in continuous transmitting mode. The Lowest, middle and highest channel were chosen for testing, and modulation type OFDM, OFDM-BPSK, QPSK, 16QAM, 256QAM and all data rate were tested. But only the worst case data is shown in this report.

2.4 EUT Exercise

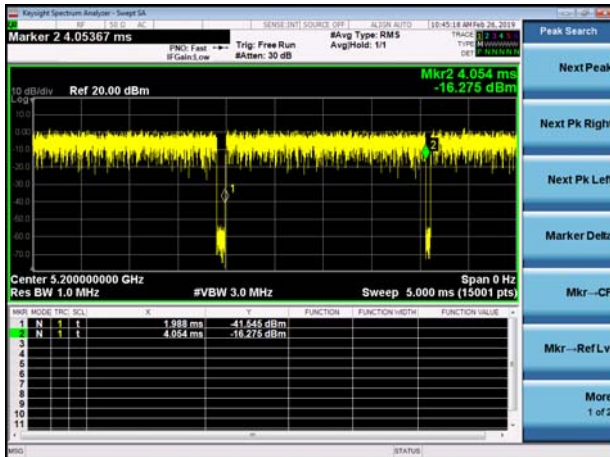
The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

2.5 Duty cycle

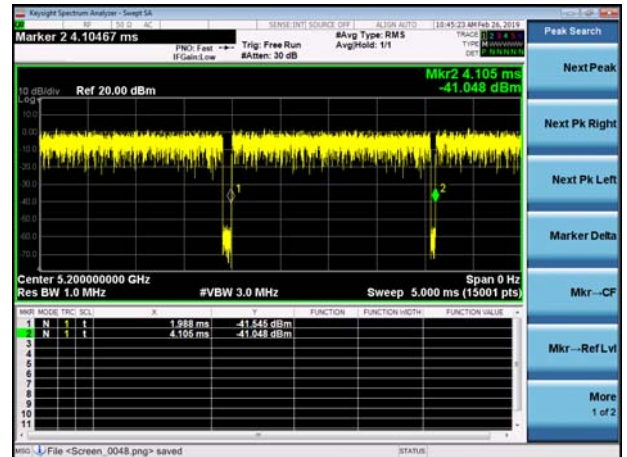
Operation Band (MHz)	Mode	Ton (ms)	Ton+off (ms)	Duty Cycle (%)	1/T minimum VBW (kHz)
5180~5240	802.11a	4.054	4.105	98.76%	0.25
	802.11n(HT20)	2.066	2.162	95.56%	0.48
	802.11n(HT40)	0.946	0.996	94.98%	1.06
	802.11ac(VHT20)	1.922	1.962	97.96%	0.52
	802.11ac(VHT40)	0.954	0.994	95.98%	1.05
5745~5825	802.11a	2.065	2.141	96.45%	0.48
	802.11n(HT20)	1.922	1.972	97.46%	0.52
	802.11n(HT40)	0.954	1.015	93.99%	1.05
	802.11ac(VHT20)	1.933	2.009	96.22%	0.52
	802.11ac(VHT40)	0.954	1.005	94.93%	1.05

Band 5150-5250MHz IEEE 802.11a

Ton

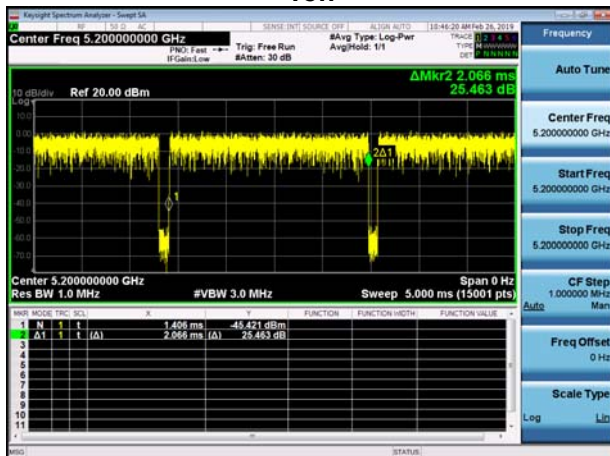


Ton+off

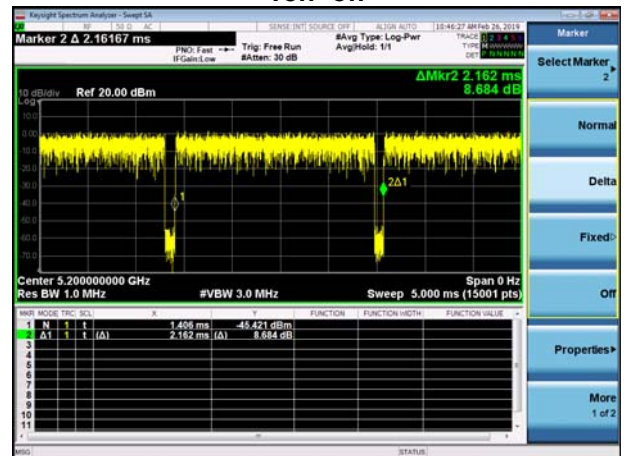


IEEE 802.11n(HT20)

Ton

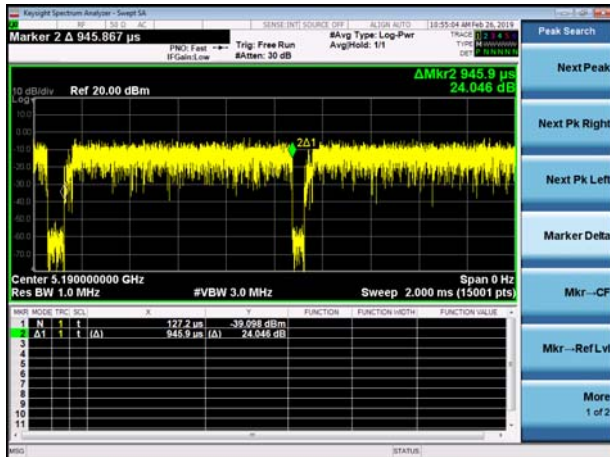


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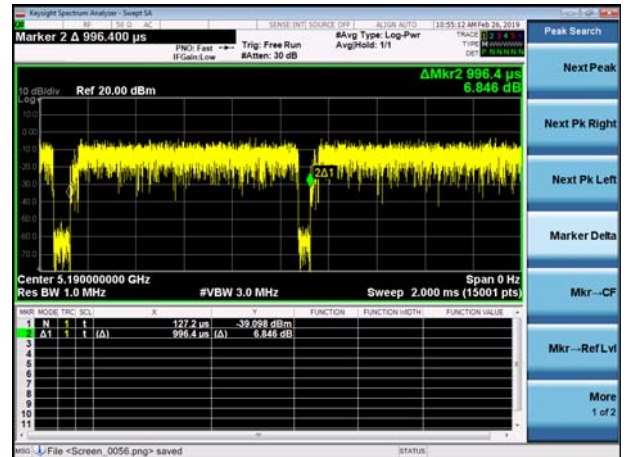


802.11n(HT40)

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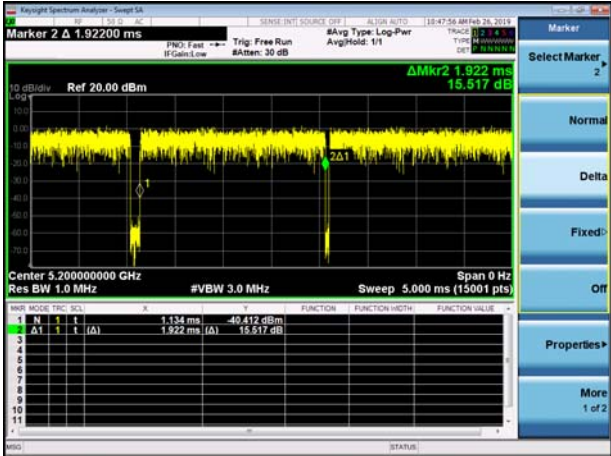


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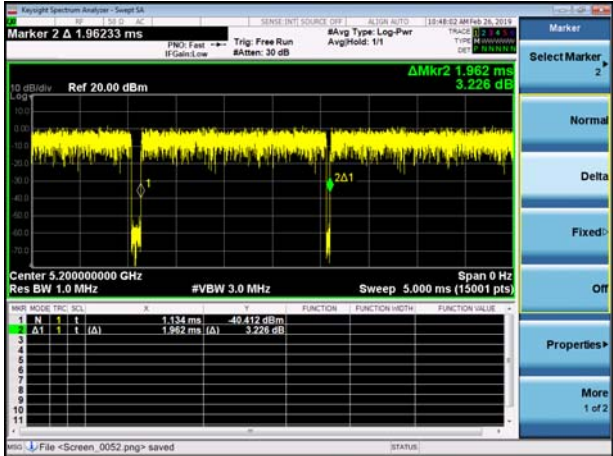


IEEE 802.11ac(VHT20)

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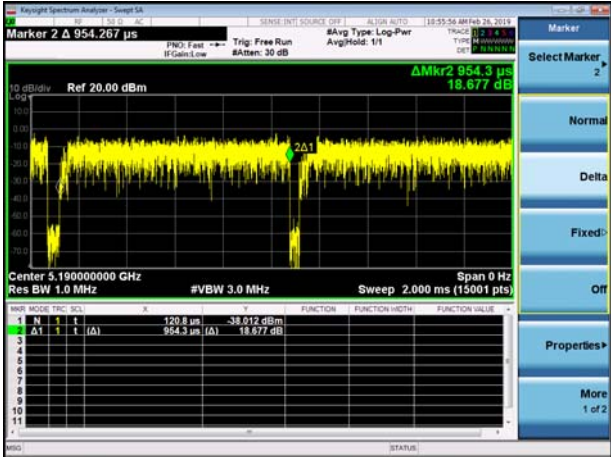


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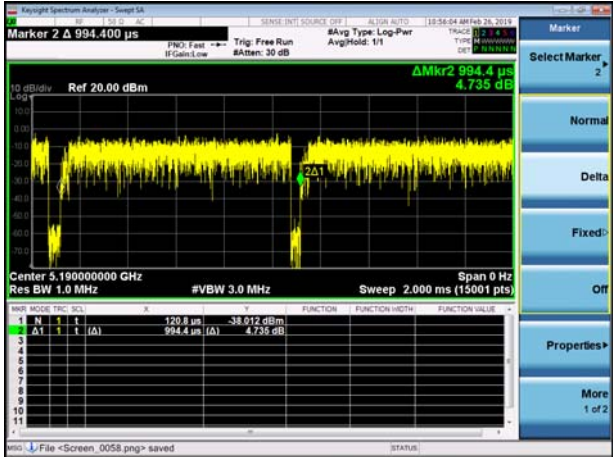


IEEE 802.11ac(VHT40)

Ton

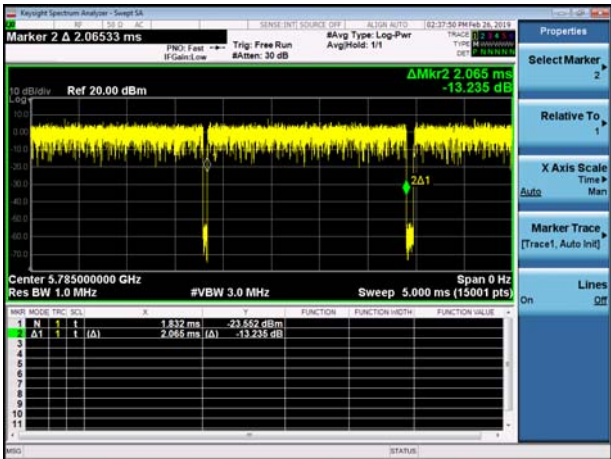


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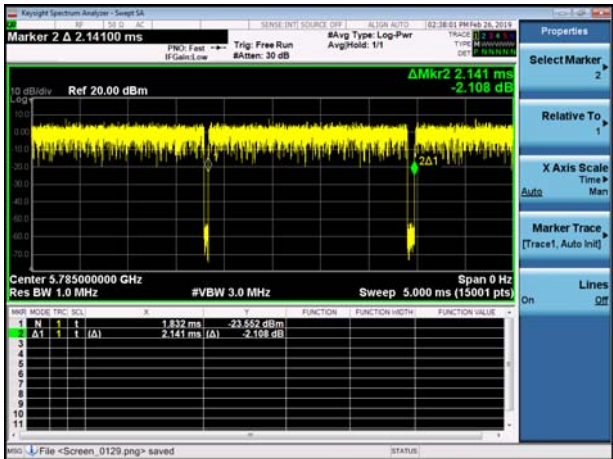


Band 4 5725-5850MHz
IEEE 802.11a

Ton

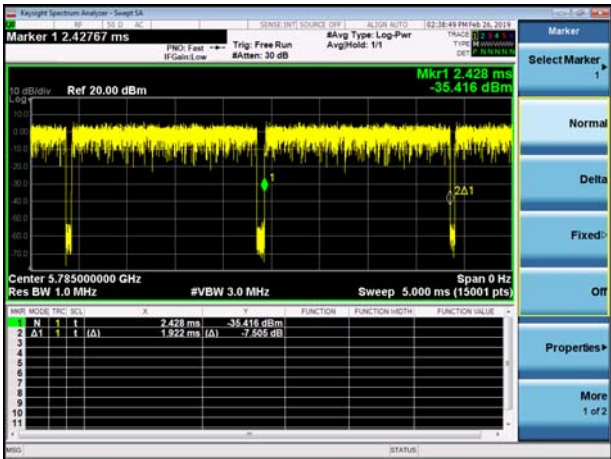


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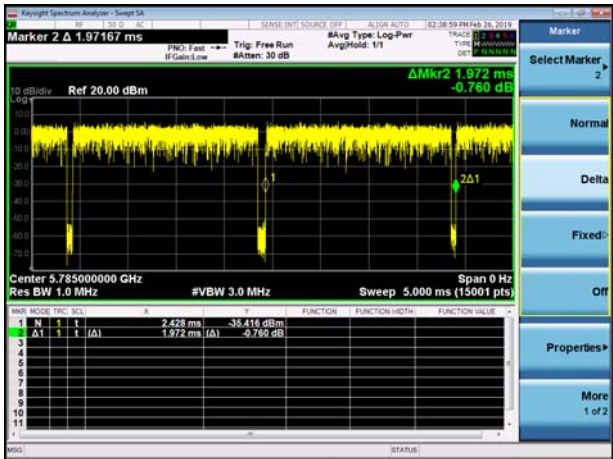


IEEE 802.11n(HT20)

Ton

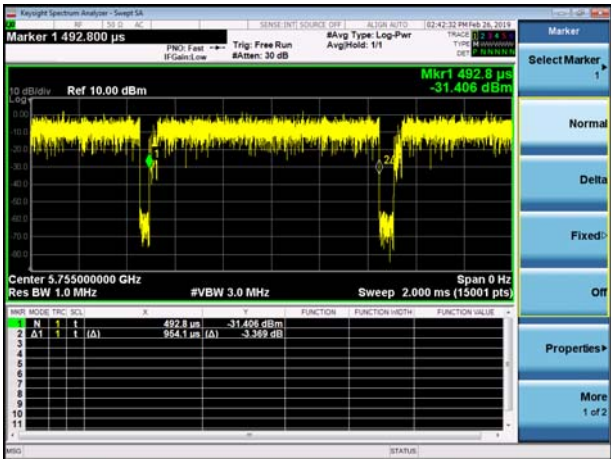


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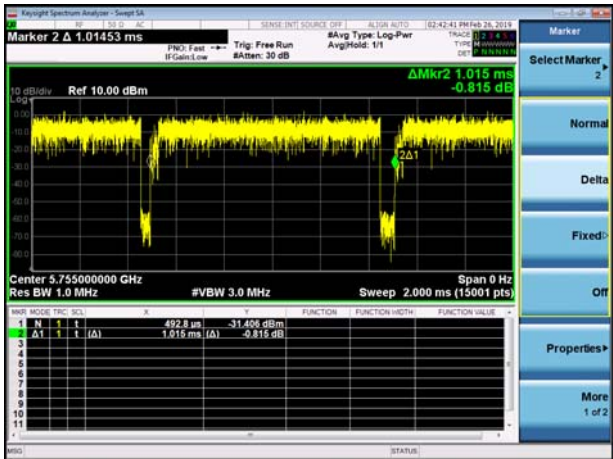


802.11n(HT40)

Ton



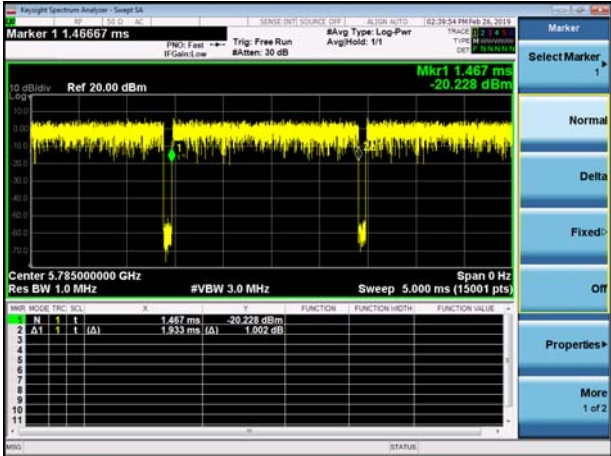
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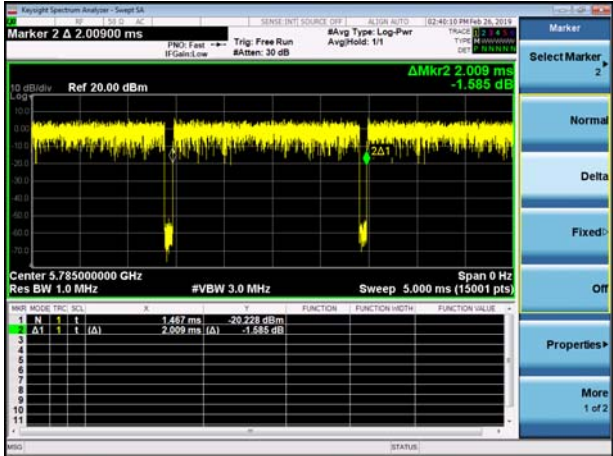


IEEE 802.11ac(VHT20)

Ton

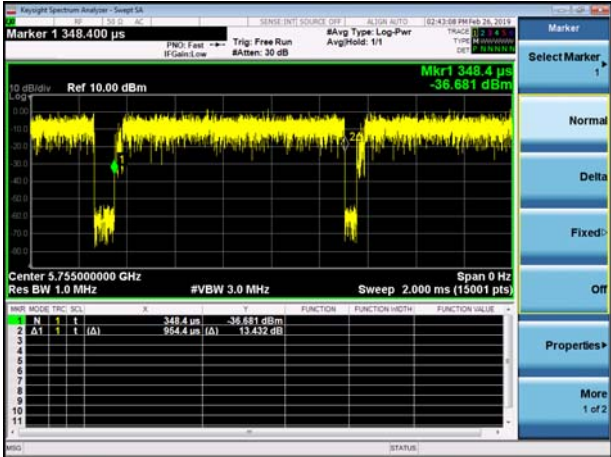


Ton+off

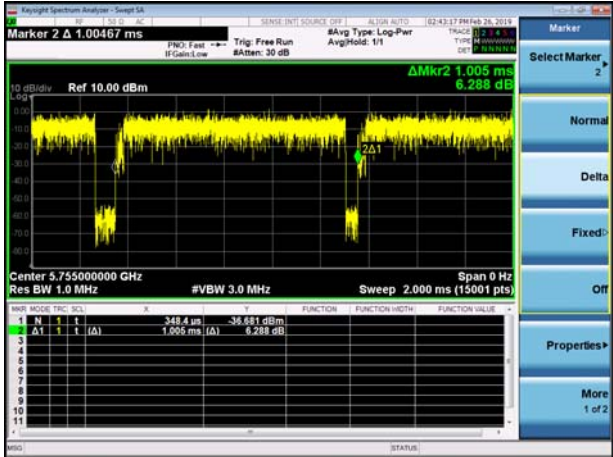


IEEE 802.11ac(VHT40)

Ton



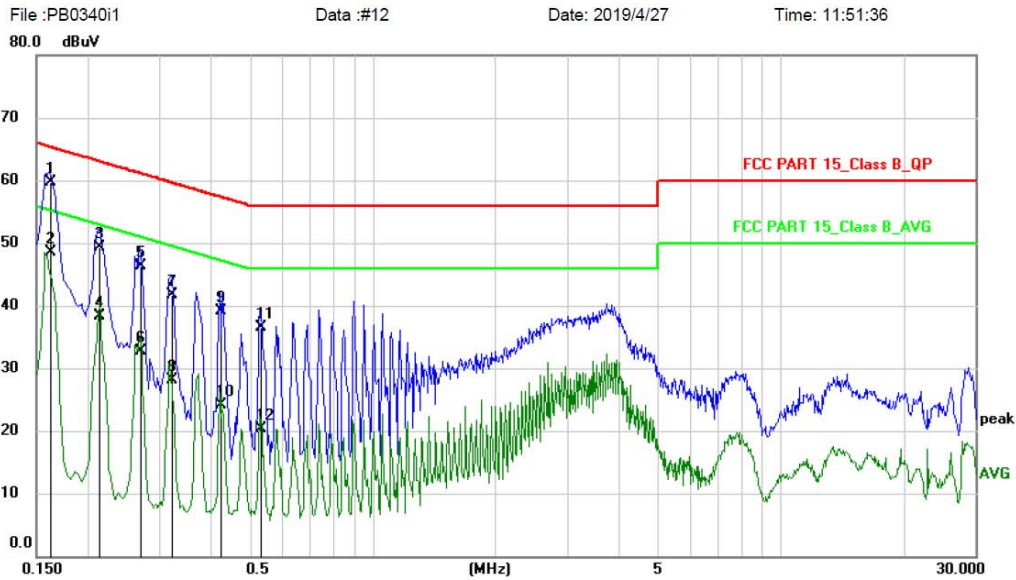
Ton+off





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Conducted Emission Measurement



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX (5G Band 1)
Note: adapter 2

Phase: **L1** Temperature: 26
Power: AC120V/60Hz Humidity: 60 %

No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1 *	0.1620	49.19	10.61	59.80	65.36	-5.56	QP	
2	0.1620	37.90	10.61	48.51	55.36	-6.85	AVG	
3	0.2139	38.69	10.61	49.30	63.05	-13.75	QP	
4	0.2139	27.79	10.61	38.40	53.05	-14.65	AVG	
5	0.2700	35.79	10.61	46.40	61.12	-14.72	QP	
6	0.2700	22.19	10.61	32.80	51.12	-18.32	AVG	
7	0.3220	31.19	10.61	41.80	59.66	-17.86	QP	
8	0.3220	17.49	10.61	28.10	49.66	-21.56	AVG	
9	0.4219	28.58	10.62	39.20	57.41	-18.21	QP	
10	0.4219	13.48	10.62	24.10	47.41	-23.31	AVG	
11	0.5299	25.98	10.62	36.60	56.00	-19.40	QP	
12	0.5299	9.78	10.62	20.40	46.00	-25.60	AVG	

*:Maximum data x:Over limit !:over margin

<Reference Only



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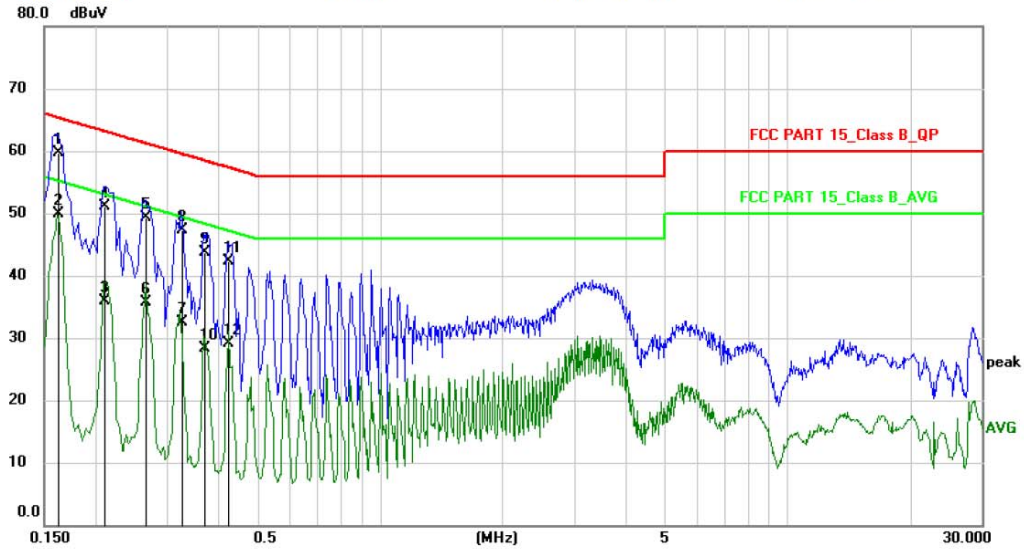
Conducted Emission Measurement

File : PB0340i1

Data : #11

Date: 2019/4/27

Time: 11:43:27



Site

Phase: **N**

Temperature: 26

Limit: FCC PART 15_Class B_QP

Power: AC120V/60Hz

Humidity: 60 %

EUT: PHIIMAX3D PANORAMIC CAMERA

M/N: PB342

Mode: TX (5G Band 1)

Note: adapter 2

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1620	49.19	10.61	59.80	65.36	-5.56	QP	
2	*	0.1620	39.21	10.61	49.82	55.36	-5.54	AVG	
3		0.2116	25.29	10.61	35.90	53.14	-17.24	AVG	
4		0.2116	40.59	10.61	51.20	63.14	-11.94	QP	
5		0.2660	38.69	10.61	49.30	61.24	-11.94	QP	
6		0.2660	25.09	10.61	35.70	51.24	-15.54	AVG	
7		0.3260	21.89	10.61	32.50	49.55	-17.05	AVG	
8		0.3260	36.69	10.61	47.30	59.55	-12.25	QP	
9		0.3700	33.19	10.61	43.80	58.50	-14.70	QP	
10		0.3700	17.79	10.61	28.40	48.50	-20.10	AVG	
11		0.4259	31.78	10.62	42.40	57.33	-14.93	QP	
12		0.4259	18.58	10.62	29.20	47.33	-18.13	AVG	

*:Maximum data x:Over limit !:over margin

<Reference Only



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Conducted Emission Measurement

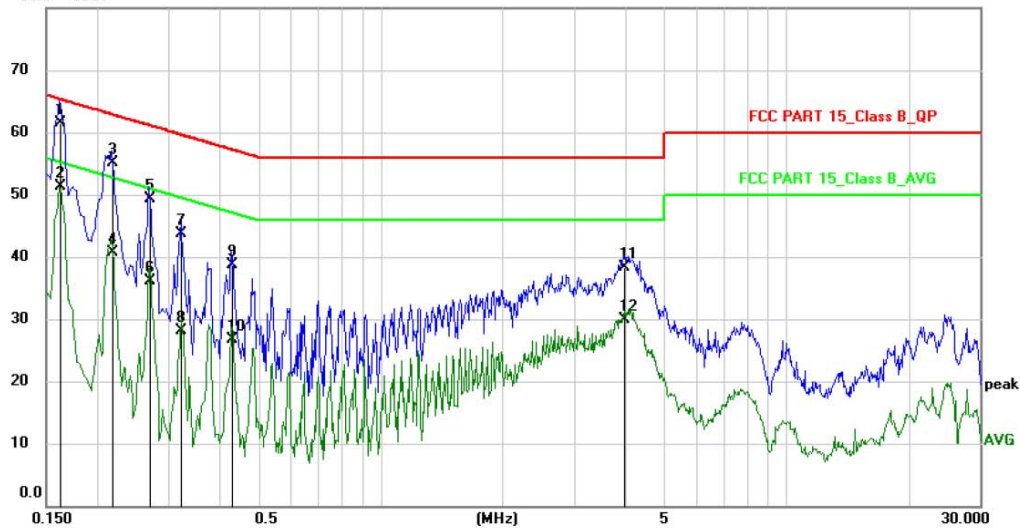
File : PB0340i1

Data : #9

Date: 2019/4/27

Time: 11:31:50

80.0 dBuV



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX (5G Band 4)
Note: adapter 2

Phase: **L1**
Power: AC120V/60Hz

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1620	50.89	10.61	61.50	65.36	-3.86	QP	
2		0.1620	40.65	10.61	51.26	55.36	-4.10	AVG	
3		0.2179	44.49	10.61	55.10	62.90	-7.80	QP	
4		0.2179	30.19	10.61	40.80	52.90	-12.10	AVG	
5		0.2700	38.69	10.61	49.30	61.12	-11.82	QP	
6		0.2700	25.49	10.61	36.10	51.12	-15.02	AVG	
7		0.3220	33.19	10.61	43.80	59.66	-15.86	QP	
8		0.3220	17.59	10.61	28.20	49.66	-21.46	AVG	
9		0.4300	28.18	10.62	38.80	57.25	-18.45	QP	
10		0.4300	16.08	10.62	26.70	47.25	-20.55	AVG	
11		3.9660	27.74	10.66	38.40	56.00	-17.60	QP	
12		3.9660	19.34	10.66	30.00	46.00	-16.00	AVG	

*:Maximum data x:Over limit !:over margin

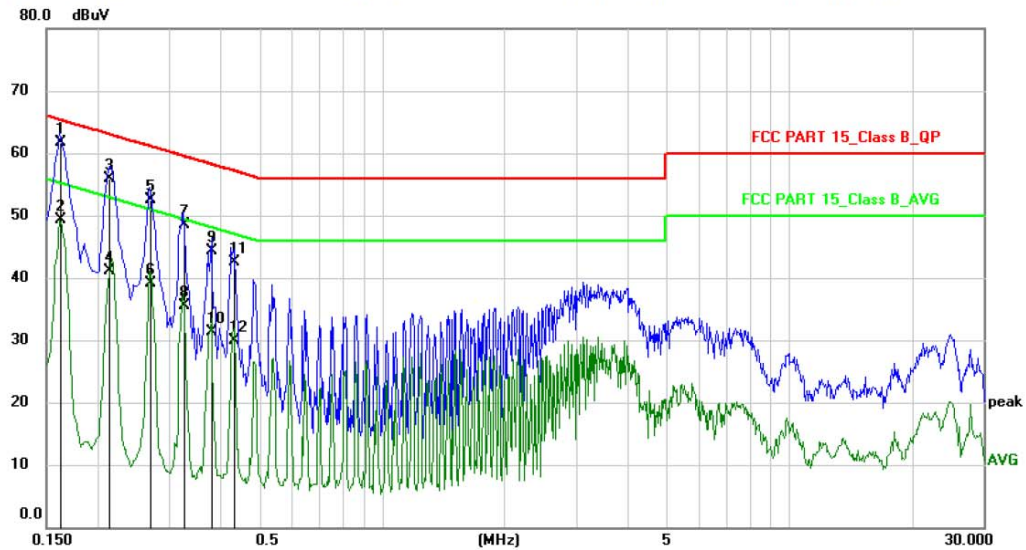
(Reference Only)



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Conducted Emission Measurement

File : PB0340i1 Data : #10 Date: 2019/4/27 Time: 11:39:24



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX (5G Band 4)
Note: adapter 2

Phase: **N** Temperature: 26
Power: AC120V/60Hz Humidity: 60 %

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1620	51.09	10.61	61.70	65.36	-3.66	QP	
2		0.1620	38.65	10.61	49.26	55.36	-6.10	AVG	
3		0.2139	45.29	10.61	55.90	63.05	-7.15	QP	
4		0.2139	30.49	10.61	41.10	53.05	-11.95	AVG	
5		0.2700	41.99	10.61	52.60	61.12	-8.52	QP	
6		0.2700	28.49	10.61	39.10	51.12	-12.02	AVG	
7		0.3260	37.89	10.61	48.50	59.55	-11.05	QP	
8		0.3260	24.99	10.61	35.60	49.55	-13.95	AVG	
9		0.3820	33.79	10.61	44.40	58.24	-13.84	QP	
10		0.3820	20.79	10.61	31.40	48.24	-16.84	AVG	
11		0.4339	31.88	10.62	42.50	57.18	-14.68	QP	
12		0.4339	19.28	10.62	29.90	47.18	-17.28	AVG	

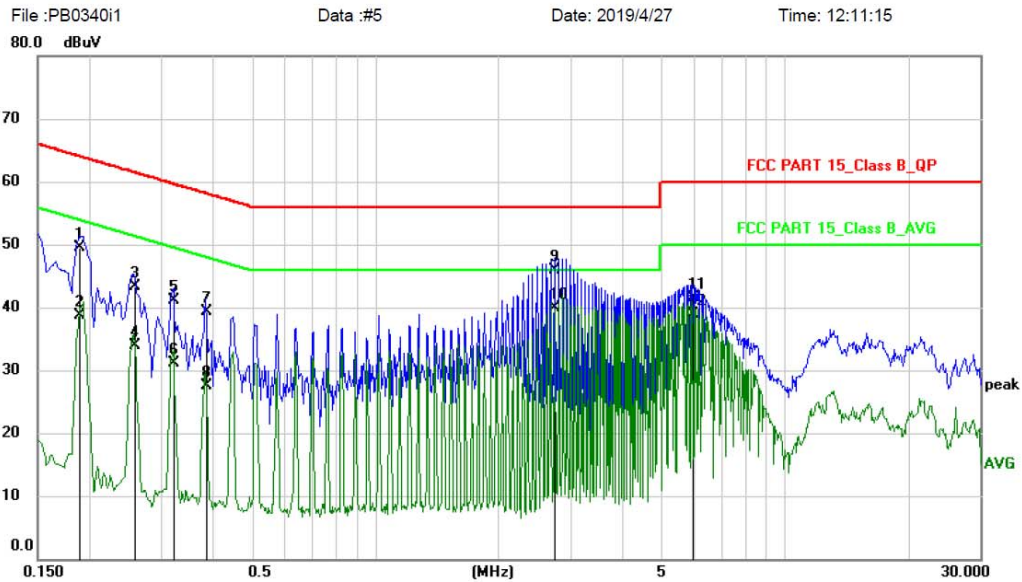
*:Maximum data x:Over limit !:over margin

<Reference Only



Dongguan NTC Co., Ltd.
Tel: +86-769-22022444 Fax: +86-769-22022799
Web: <http://www.ntc-c.com>

Conducted Emission Measurement



Site: Phase: **L1** Temperature: 26
Limit: FCC PART 15_Class B_QP Power: AC120V/60Hz Humidity: 60 %
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX(5G Band 1)
Note: adapter 1

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1900	38.89	10.61	49.50	64.04	-14.54	QP	
2	0.1900	28.19	10.61	38.80	54.04	-15.24	AVG	
3	0.2580	32.79	10.61	43.40	61.50	-18.10	QP	
4	0.2580	23.39	10.61	34.00	51.50	-17.50	AVG	
5	0.3220	30.59	10.61	41.20	59.66	-18.46	QP	
6	0.3220	20.59	10.61	31.20	49.66	-18.46	AVG	
7	0.3860	28.69	10.61	39.30	58.15	-18.85	QP	
8	0.3860	16.99	10.61	27.60	48.15	-20.55	AVG	
9	2.7500	35.25	10.65	45.90	56.00	-10.10	QP	
10 *	2.7500	29.35	10.65	40.00	46.00	-6.00	AVG	
11	5.9459	30.94	10.66	41.60	60.00	-18.40	QP	
12	5.9459	28.24	10.66	38.90	50.00	-11.10	AVG	

*:Maximum data x:Over limit !:over margin

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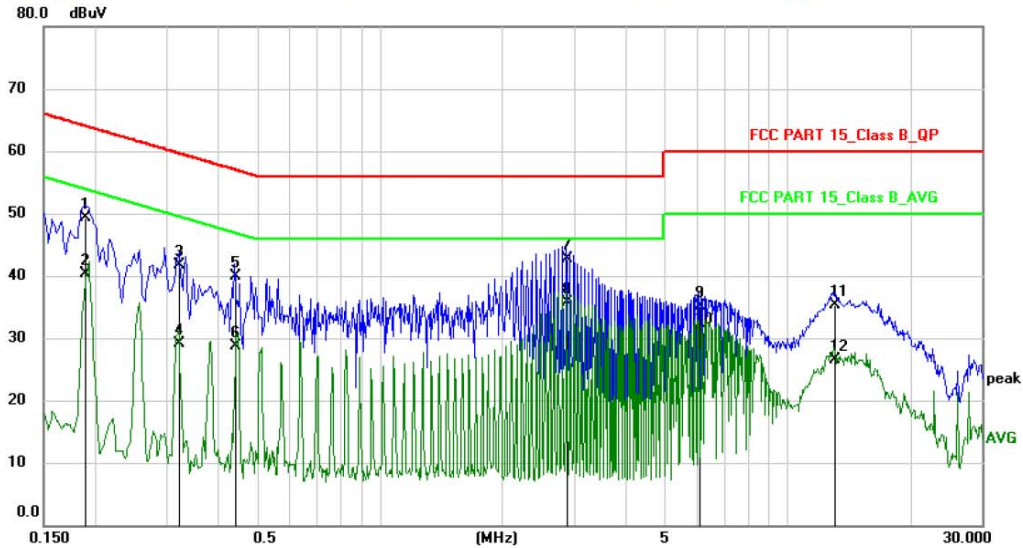
Conducted Emission Measurement

File : PB0340i1

Data : #6

Date: 2019/4/27

Time: 12:20:32



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX(5G Band 1)
Note: adapter 1

Phase: **N** Temperature: 26
Power: AC120V/60Hz Humidity: 60 %

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1900	38.79	10.61	49.40	64.04	-14.64	QP	
2	0.1900	29.69	10.61	40.30	54.04	-13.74	AVG	
3	0.3220	31.19	10.61	41.80	59.66	-17.86	QP	
4	0.3220	18.49	10.61	29.10	49.66	-20.56	AVG	
5	0.4420	29.38	10.62	40.00	57.02	-17.02	QP	
6	0.4420	18.08	10.62	28.70	47.02	-18.32	AVG	
7	2.8780	32.05	10.65	42.70	56.00	-13.30	QP	
8 *	2.8780	25.05	10.65	35.70	46.00	-10.30	AVG	
9	6.0700	24.54	10.66	35.20	60.00	-24.80	QP	
10	6.0700	20.24	10.66	30.90	50.00	-19.10	AVG	
11	13.0338	24.73	10.67	35.40	60.00	-24.60	QP	
12	13.0338	15.93	10.67	26.60	50.00	-23.40	AVG	

*:Maximum data x:Over limit !:over margin

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Conducted Emission Measurement

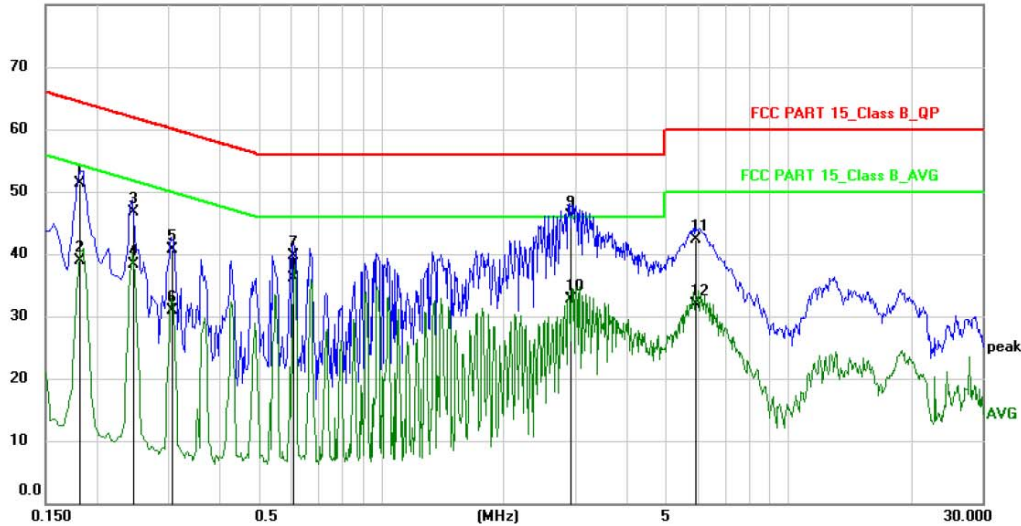
File : PB0340i1

Data : #8

Date: 2019/4/27

Time: 12:35:55

80.0 dBuV



Site

Phase: **L1**

Temperature: 26

Limit: FCC PART 15_Class B_QP

Power: AC120V/60Hz

Humidity: 60 %

EUT: PHIIMAX3D PANORAMIC CAMERA

M/N: PB342

Mode: TX(5G Band 4)

Note: adapter 1

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1819	40.69	10.61	51.30	64.40	-13.10	QP	
2		0.1819	28.29	10.61	38.90	54.40	-15.50	AVG	
3		0.2460	36.09	10.61	46.70	61.89	-15.19	QP	
4		0.2460	27.69	10.61	38.30	51.89	-13.59	AVG	
5		0.3060	30.19	10.61	40.80	60.08	-19.28	QP	
6		0.3060	20.29	10.61	30.90	50.08	-19.18	AVG	
7		0.6100	29.07	10.63	39.70	56.00	-16.30	QP	
8	*	0.6100	25.57	10.63	36.20	46.00	-9.80	AVG	
9		2.9020	35.45	10.65	46.10	56.00	-9.90	QP	
10		2.9020	22.15	10.65	32.80	46.00	-13.20	AVG	
11		5.9179	31.64	10.66	42.30	60.00	-17.70	QP	
12		5.9179	21.34	10.66	32.00	50.00	-18.00	AVG	

*:Maximum data x:Over limit !:over margin

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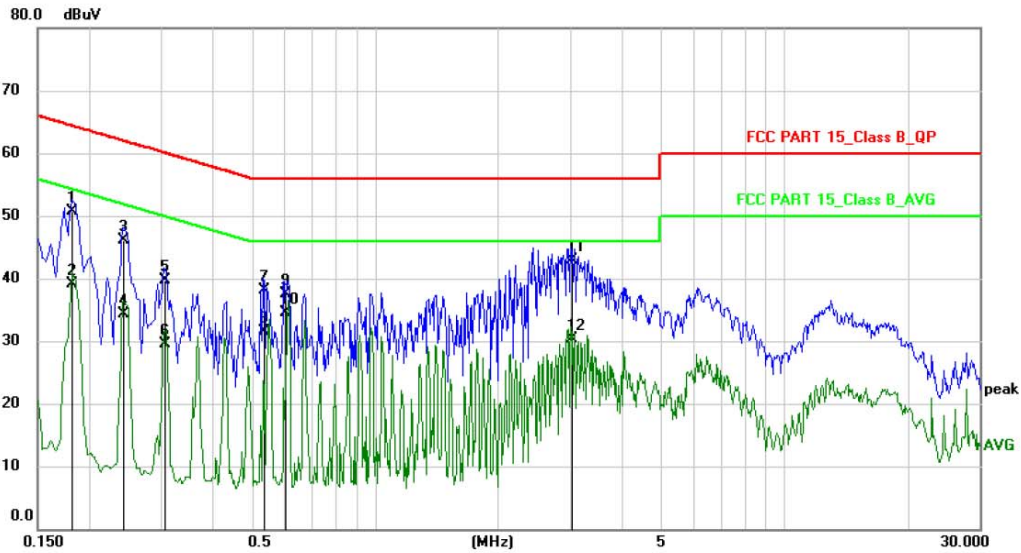
Conducted Emission Measurement

File : PB0340i1

Data : #7

Date: 2019/4/27

Time: 12:27:41



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB342
Mode: TX(5G Band 4)
Note: adapter 1

Phase: **N** Temperature: 26
Power: AC120V/60Hz Humidity: 60 %

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1819	40.09	10.61	50.70	64.40	-13.70	QP	
2	0.1819	28.49	10.61	39.10	54.40	-15.30	AVG	
3	0.2419	35.49	10.61	46.10	62.03	-15.93	QP	
4	0.2419	23.69	10.61	34.30	52.03	-17.73	AVG	
5	0.3059	29.19	10.61	39.80	60.08	-20.28	QP	
6	0.3059	18.99	10.61	29.60	50.08	-20.48	AVG	
7	0.5340	27.48	10.62	38.10	56.00	-17.90	QP	
8	0.5340	20.98	10.62	31.60	46.00	-14.40	AVG	
9	0.6019	26.97	10.63	37.60	56.00	-18.40	QP	
10 *	0.6019	23.97	10.63	34.60	46.00	-11.40	AVG	
11	3.0219	32.35	10.65	43.00	56.00	-13.00	QP	
12	3.0219	19.65	10.65	30.30	46.00	-15.70	AVG	

*:Maximum data x:Over limit !:over margin

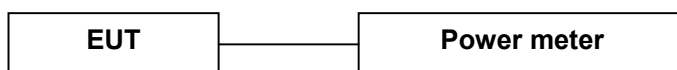
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4. Max. Conducted Output Power

4.1 Limits

Operation Band	EUT category	Limit
■5180~5240MHz	□Outdoor Access Point	1 Watt (30dBm) (Max. e.i.r.p ≤ 125mW(21dBm) at any elevation angle above 30 degrees as measured from the horizon)
	□Fixed point-to-point Access Point	1 Watt (30dBm)
	□Indoor Access Point	1 Watt (30dBm)
	■Mobile and Portable client device	250mW (24dBm)
■5745~5825MHz	-	1 Watt (30dBm)

4.2 Test SET-UP (Block Diagram of Configuration)



4.3 Test Procedure

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 v01r03 for compliance testing of Unlicensed National Information Infrastructure (U-NII) Device -section (E) Maximum conducted output power. =3. Measurement using a power meter (PM) =b Method PM-G (Measurement using a gated RF average power meter).

4.4 Measurement Results

Pass

Please refer to following table.

Band 1: 5180~5240MHz

Temperature :	23 °C	Humidity :	52%
Test By:	Lee	Test Date :	February 27, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	Peak Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=3dBi)			
Low Channel: 5180	6	10.39	24
Middle Channel: 5200	6	9.29	24
High Channel: 5240	6	11.22	24

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Frequency MHz	Data Rate Mbps	Peak Output Power dBm			Limit dBm
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5180	MCS0	ANT_0	ANT_1	Total	24
		10.23	7.37	12.04	
Middle Channel: 5200	MCS0	9.22	8.98	12.11	24
High Channel: 5240	MCS0	11.07	12.61	14.92	24
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=3Bi)					
Low Channel: 5190	MCS0	9.99	7.37	11.89	24
High Channel: 5230	MCS0	9.76	10.68	13.25	24
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5180	MCS0	10.21	7.31	12.01	24
Middle Channel: 5200	MCS0	9.44	8.63	12.06	24
High Channel: 5240	MCS0	10.97	12.54	14.84	24
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5190	MCS0	10.08	7.40	11.96	24
High Channel: 5230	MCS0	9.76	10.70	13.27	24

Note : The EUT working on MIMO mode.

Band 4: 5745~5825MHz

Temperature :	22 °C	Humidity :	54%
Test By:	Lee	Test Date :	February 27, 2019
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	Peak Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=3dBi)			
Low Channel: 5745	6	13.25	30
Middle Channel: 5785	6	13.95	30
High Channel: 5825	6	13.31	30

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Frequency MHz	Data Rate Mbps	Peak Output Power dBm			Limit dBm
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5745	MCS0	ANT_0	ANT_1	Total	30
		13.27	9.69	14.85	
Middle Channel: 5785	MCS0	13.23	10.23	15.03	30
High Channel: 5825	MCS0	12.91	10.27	14.80	30
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5755	MCS0	13.19	9.65	14.78	30
High Channel: 5795	MCS0	14.09	10.00	15.52	30
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5745	MCS0	13.25	9.71	14.84	30
Middle Channel: 5785	MCS0	13.27	10.40	15.08	30
High Channel: 5825	MCS0	12.92	10.28	14.81	30
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=3dBi)					
Low Channel: 5755	MCS0	13.18	9.58	14.75	30
High Channel: 5795	MCS0	13.47	9.95	15.07	30

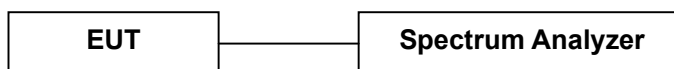
Note : The EUT working on MIMO mode.

5. 6dB Bandwidth

5.1 Limits

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz.

5.2 Test SET-UP (Block Diagram of Configuration)



5.3 Test Procedure

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to FCC KDB789033(v01r03):

1. For 6dB bandwidth, Set the RBW = 100KHz.
2. Set the VBW $\geq 3 \times$ RBW
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.4 Measurement Results

Pass

Please refer to following table and plots.

Band 1: 5180~5240MHz

Temperature :	21 °C	Humidity : 54 %	
Test By:	Lee	Test Date : April 12, 2019	
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11a Mode (OFDM)			
Low Channel: 5180	6	16.33	>500KHz
Middle Channel: 5200	6	16.33	>500KHz
High Channel: 5240	6	16.33	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5180	MCS0	16.33	>500KHz
Middle Channel: 5200	MCS0	16.34	>500KHz
High Channel: 5240	MCS0	16.34	>500KHz
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5190	MCS0	36.38	>500KHz
High Channel: 5230	MCS0	36.37	>500KHz
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5180	MCS0	16.32	>500KHz
Middle Channel: 5200	MCS0	16.33	>500KHz
High Channel: 5240	MCS0	16.34	>500KHz
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5190	MCS0	36.38	>500KHz
High Channel: 5230	MCS0	36.37	>500KHz

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.

Band 4: 5745~5825MHz

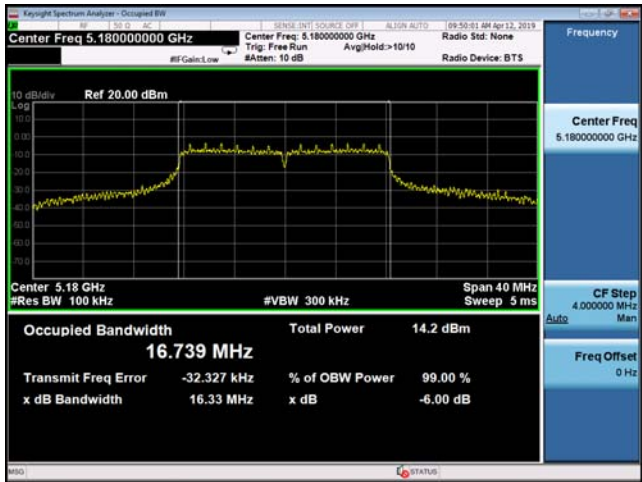
Temperature :	23 °C	Humidity : 53 %	
Test By:	Lee	Test Date : April 12, 2019	
Test Result:	PASS		
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11a Mode (OFDM)			
Low Channel: 5745	6	16.33	>500KHz
Middle Channel: 5785	6	16.33	>500KHz
High Channel: 5825	6	16.33	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Low Channel: 5745	MCS0	16.33	>500KHz
Middle Channel: 5785	MCS0	16.32	>500KHz
High Channel: 5825	MCS0	16.33	>500KHz
IEEE 802.11n(HT40) Mode (OFDM)			
Low Channel: 5755	MCS0	36.07	>500KHz
High Channel: 5795	MCS0	36.08	>500KHz
IEEE 802.11ac (VHT20) Mode (OFDM)			
Low Channel: 5745	MCS0	16.33	>500KHz
Middle Channel: 5785	MCS0	16.33	>500KHz
High Channel: 5825	MCS0	16.33	>500KHz
IEEE 802.11ac (VHT40) Mode (OFDM)			
Low Channel: 5755	MCS0	36.06	>500KHz
High Channel: 5795	MCS0	36.07	>500KHz

Note: Both of antennas have considered during pre-test, but only the worst case (ANT_0) was recorded.



Band 5150-5250MHz
IEEE 802.11a

Low Channel



Middle Channel



High Channel





802.11n(HT20)

Low Channel



Middle Channel



High Channel





802.11ac(VHT20)

Low Channel



Middle Channel



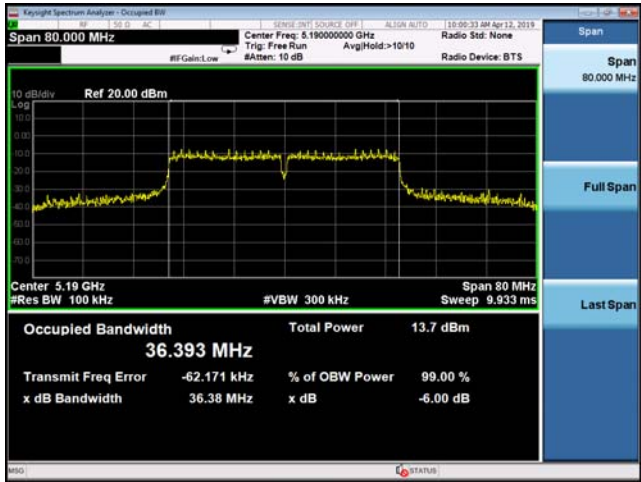
High Channel



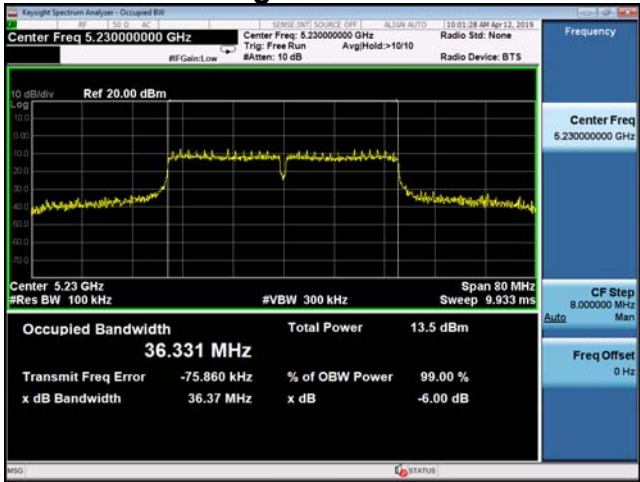


802.11n(HT40)

Low Channel

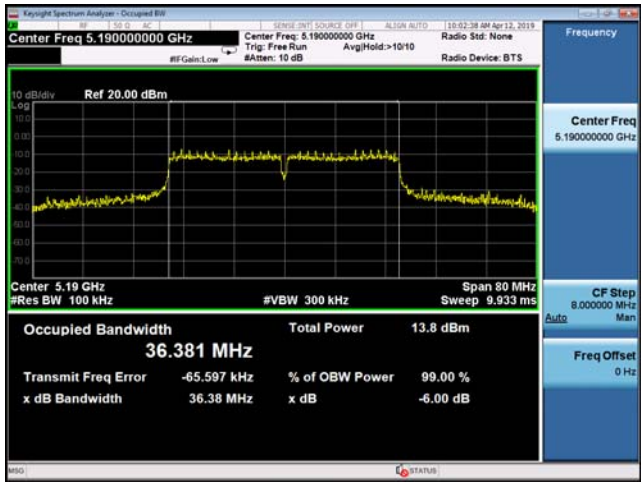


High Channel

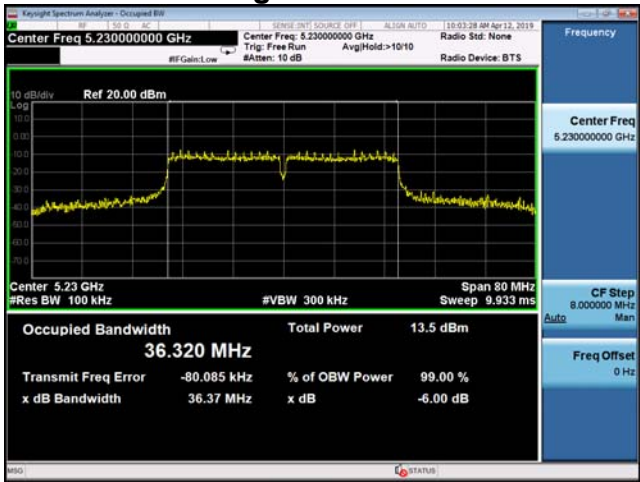


802.11ac(VHT40)

Low Channel



High Channel





Band 5725-5850MHz
IEEE 802.11a

Low Channel



Middle Channel



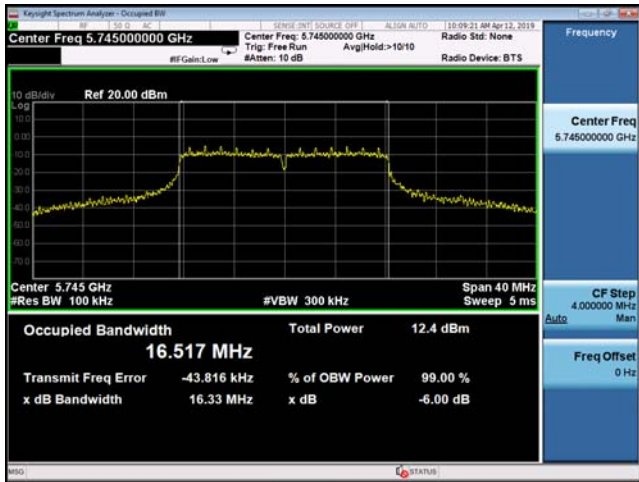
High Channel





802.11n(HT20)

Low Channel



Middle Channel



High Channel





802.11ac(VHT20)

Low Channel



Middle Channel



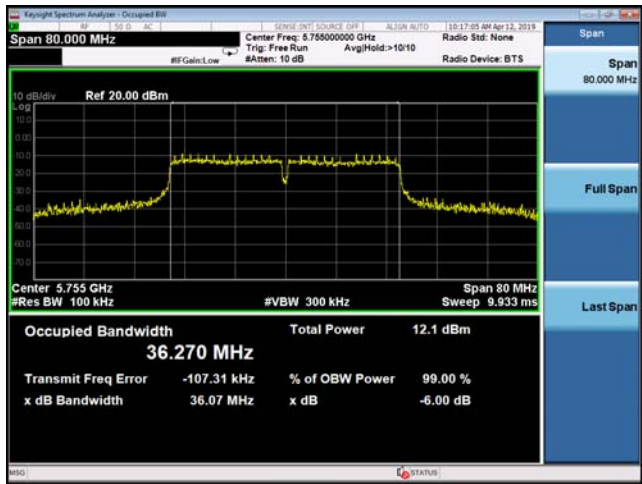
High Channel



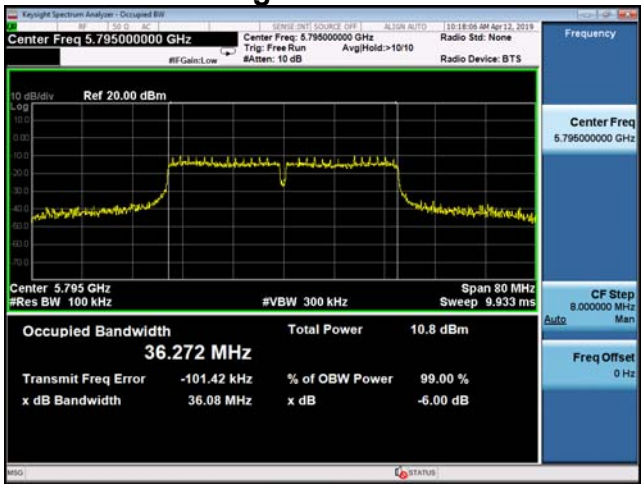


802.11n(HT40)

Low Channel

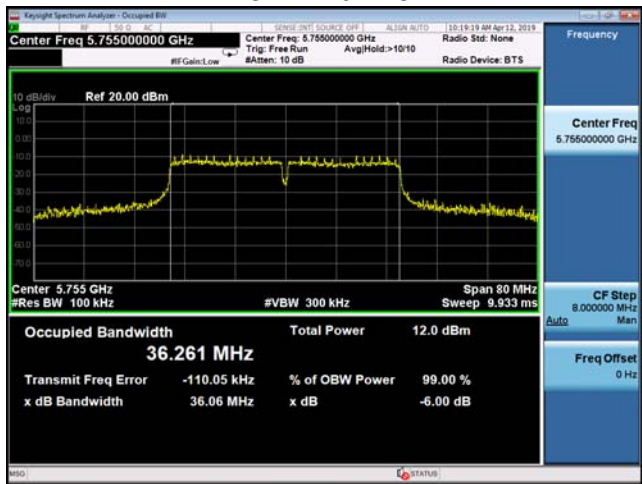


High Channel



802.11ac(VHT40)

Low Channel



High Channel

