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.	:	PB341
FCC ID	:	2ATFB-PB341
Measurement Standard	:	47 CFR FCC PART 15 Subpart E (section 407)
Date of Receiver	:	June 12, 2019
Date of Test	:	June 12, 2019 to August 21, 2019
Date of Report	:	August 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.

Table of Contents

Revision History of This Test Report

Report Number	Description	Issued Date
NTC1906130FV00	Initial Issue	2019-08-22

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test

Product Name	:	PHIIMAX3D PANORAMIC CAMERA
Main Model Name	:	PB341
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 ELECTRINIC 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, DC 7.4V Only the worst case was recorded in the report.
Hardware version	:	V200
Software version	:	2.4.1
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	:	EEE 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): 4 802.11ac (VHT80): 2
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=1-2 802.11ac(VHT80): 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	802.11 ac (VHT80)	
48	5240	42	5210

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	802.11 ac (VHT80)	
161	5805	155	155
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
802.11ac (VHT80)		802.11ac (VHT80)	
42	5210	155	5775

Test SW version	kitty_portable

1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: **2ATFB-PB341** 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

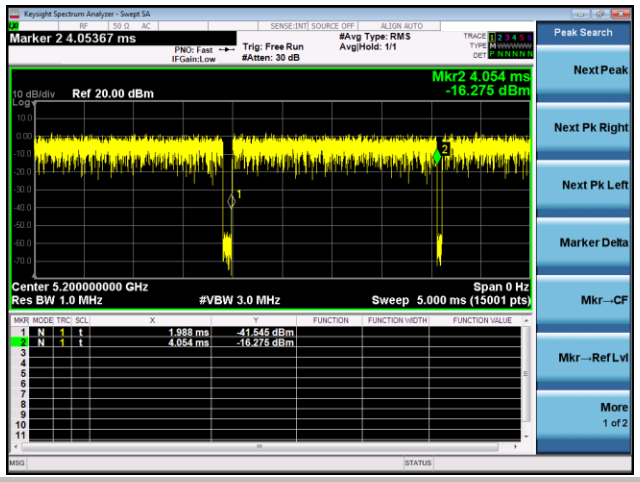
The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

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
	802.11ac(VHT80)	0.461	0.577	79.90%	2.17
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
	802.11ac(VHT80)	0.461	0.523	88.15%	2.17

Band 5150-5250MHz
IEEE 802.11a

Ton



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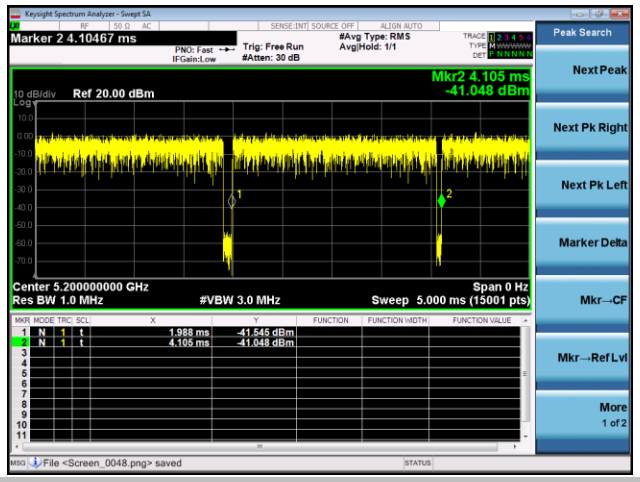
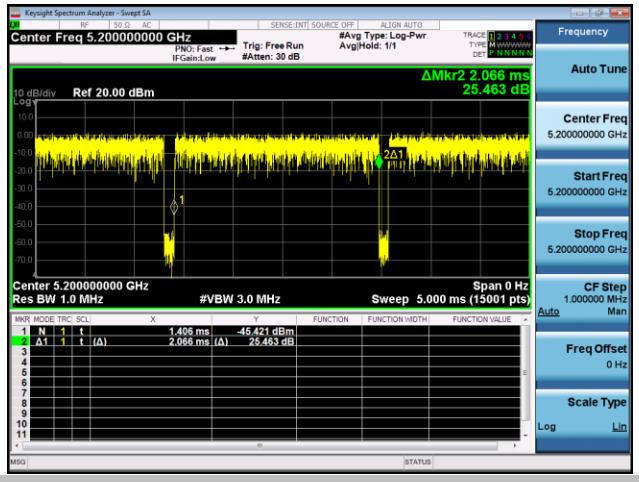


IEEE 802.11n(HT20)

Ton



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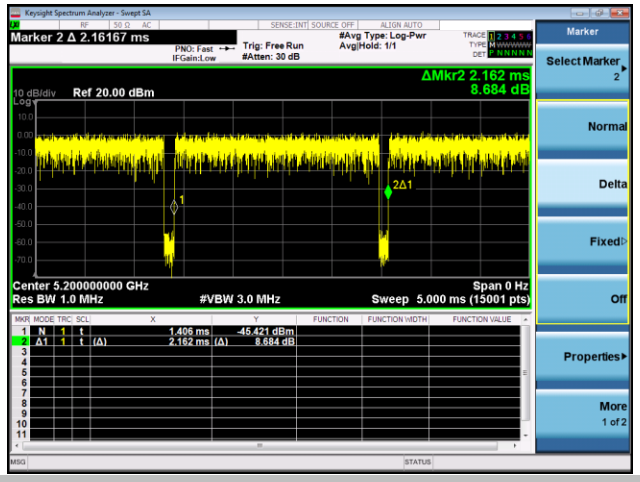

802.11n(HT40)

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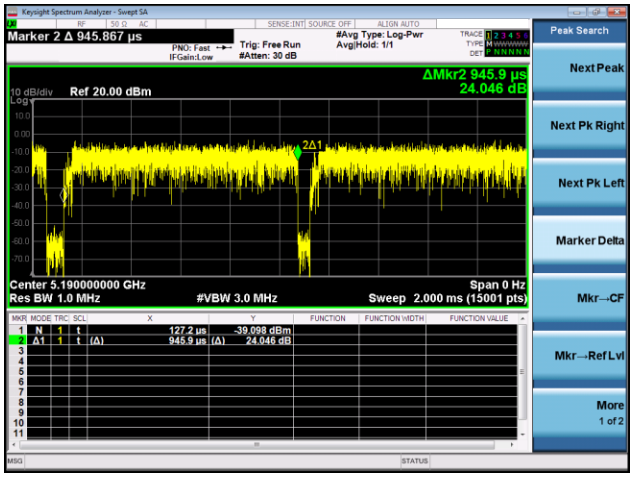

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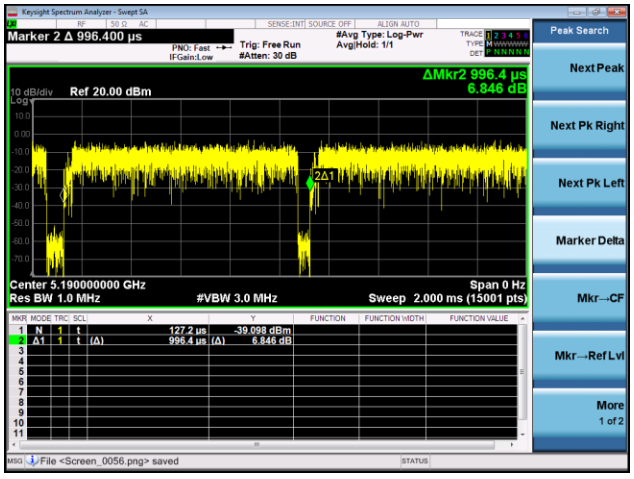

IEEE 802.11ac(VHT20)

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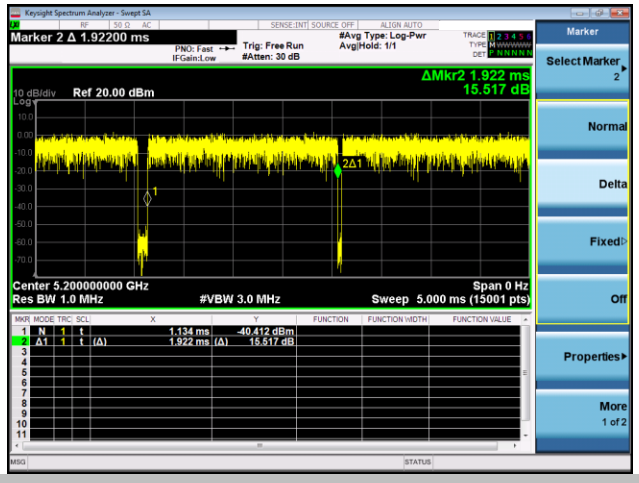

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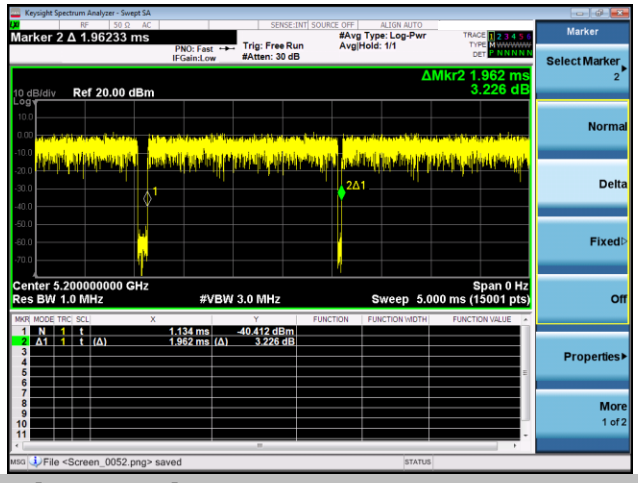

IEEE 802.11ac(VHT40)

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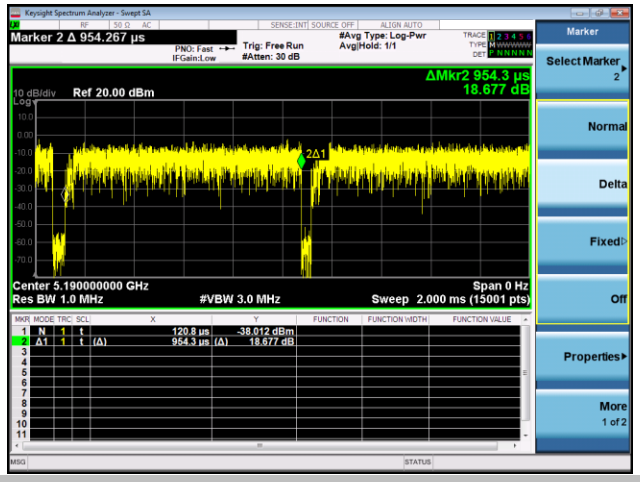

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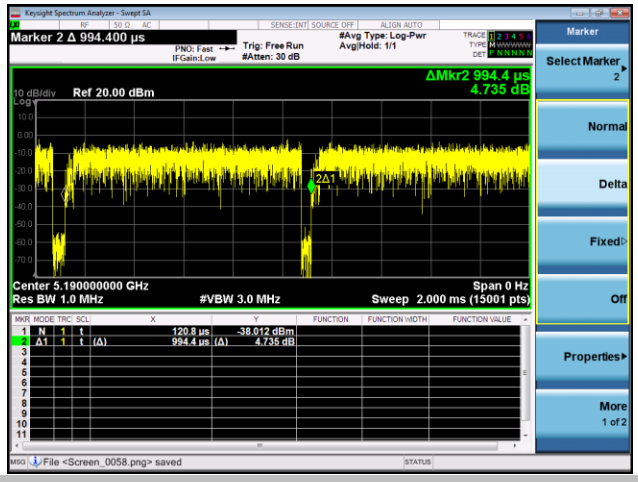

IEEE 802.11ac(VHT80)

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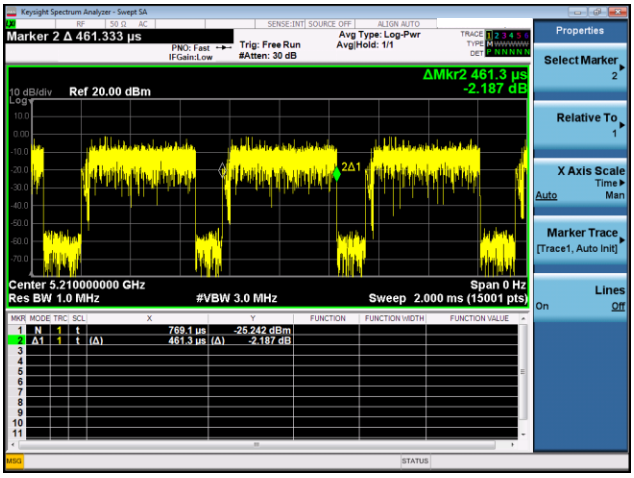

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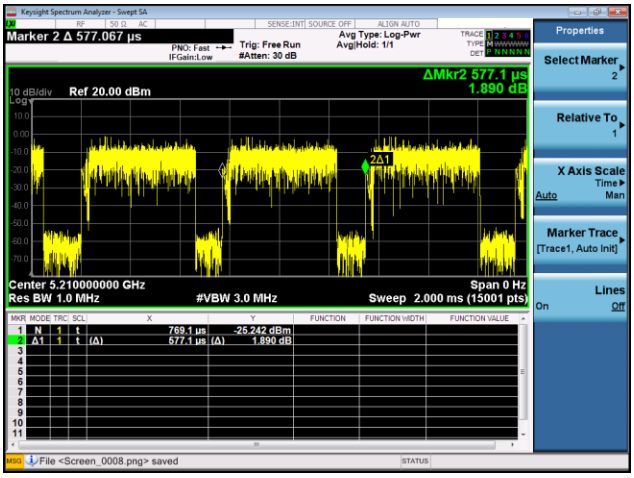
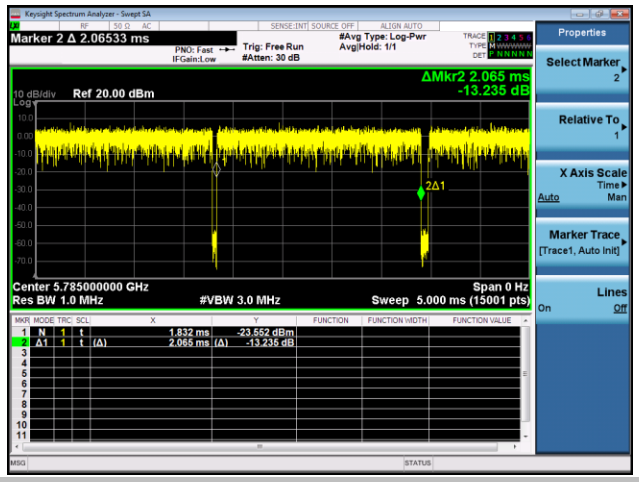


Band 4 5725-5850MHz
IEEE 802.11a

Ton



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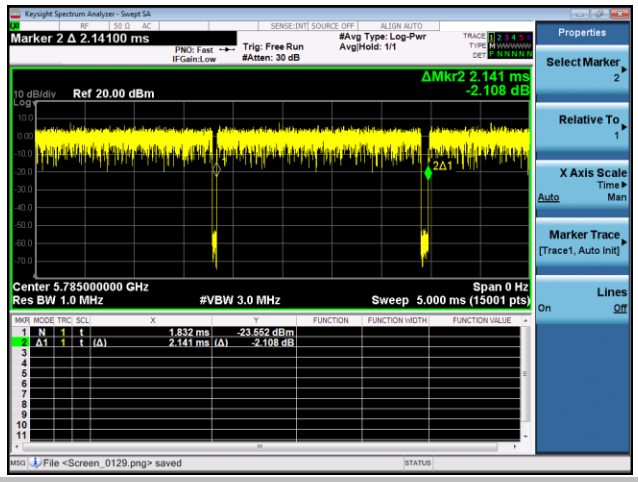

IEEE 802.11n(HT20)

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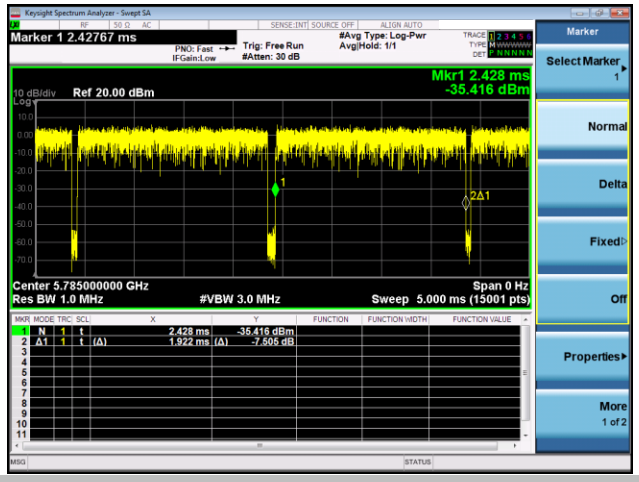

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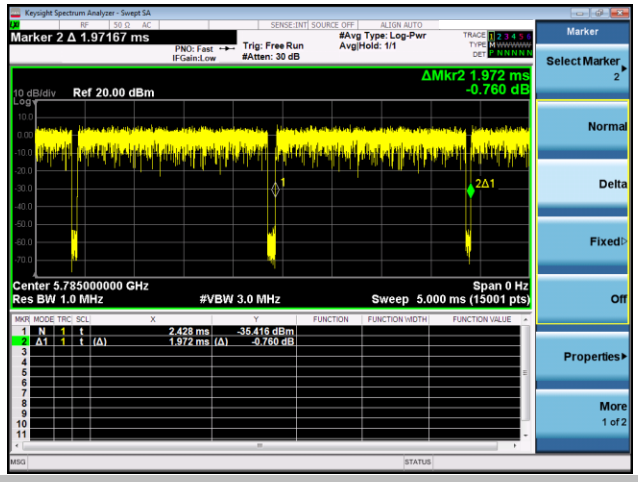

802.11n(HT40)

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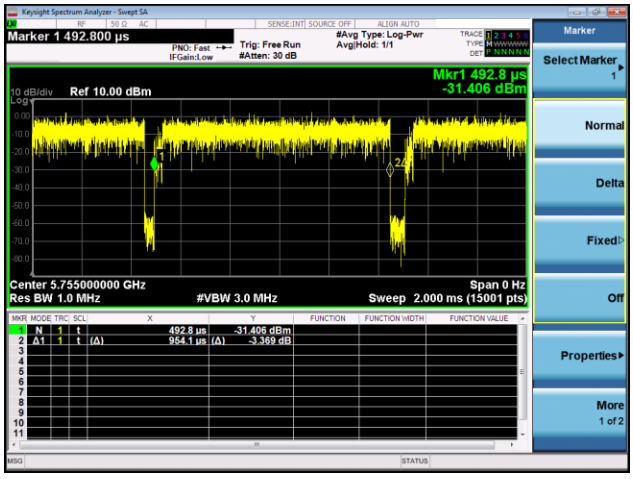

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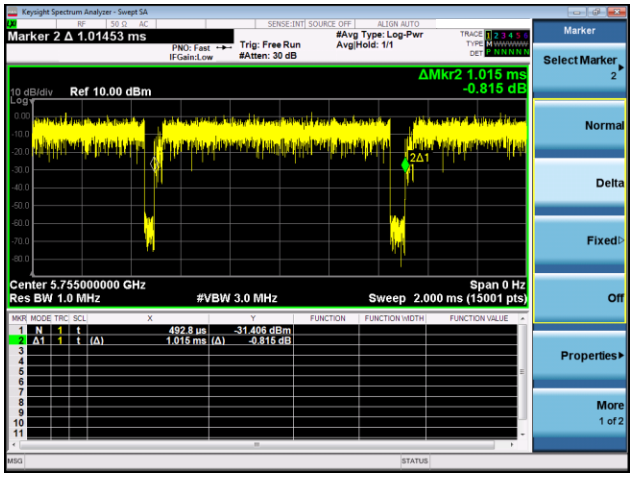

IEEE 802.11ac(VHT20)

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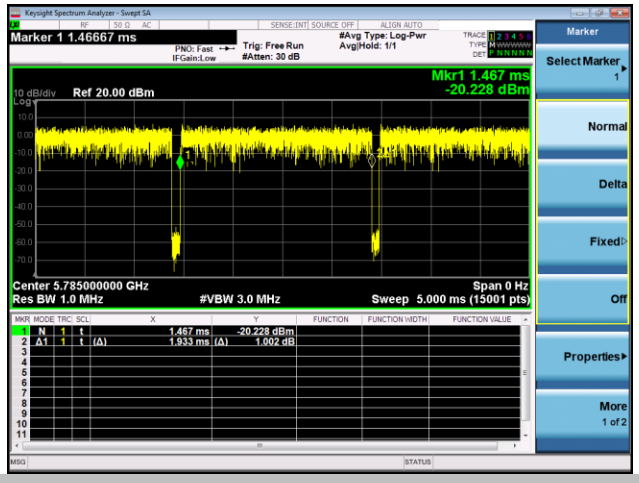

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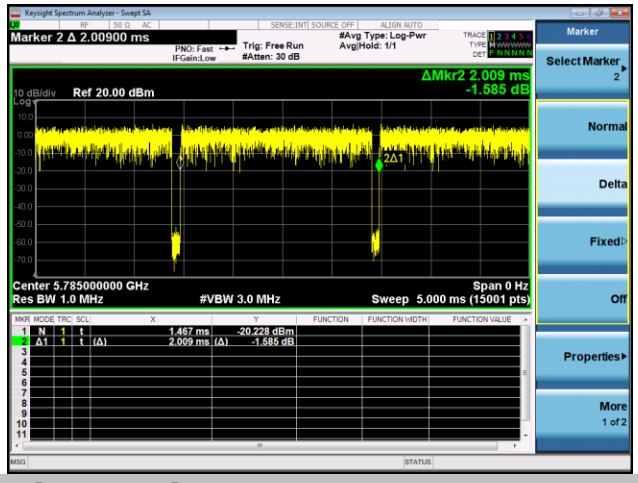

IEEE 802.11ac(VHT40)

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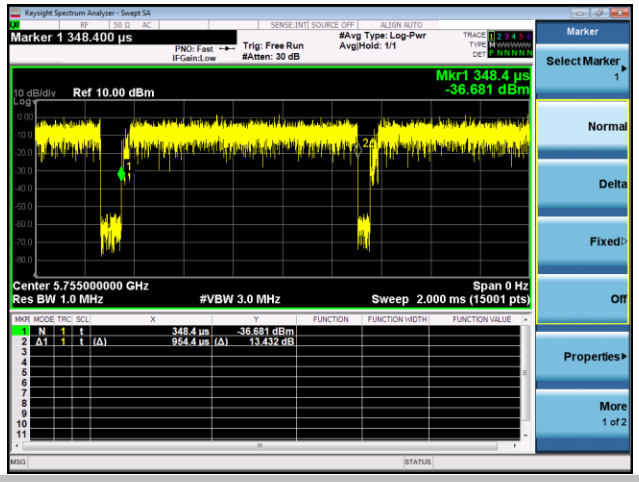

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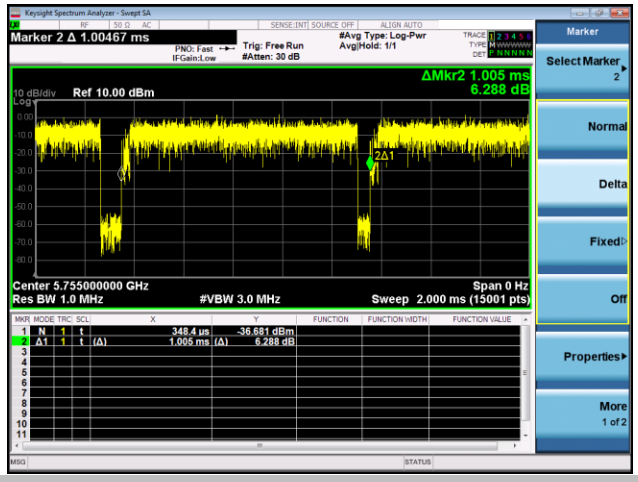

IEEE 802.11ac(VHT80)

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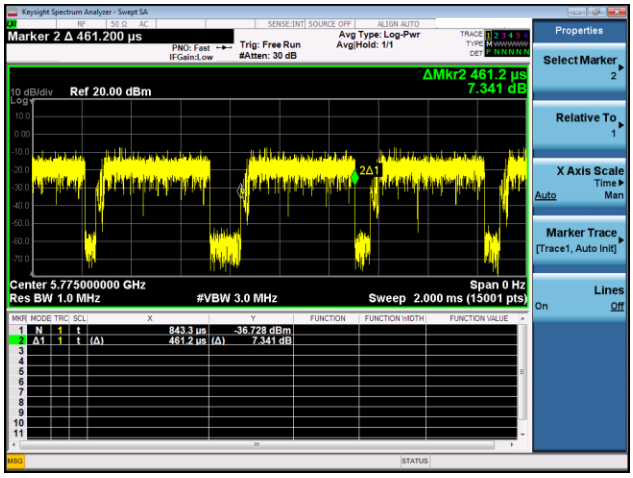

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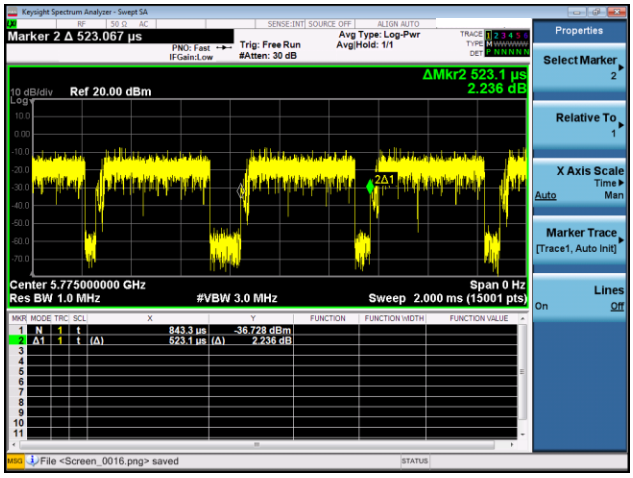
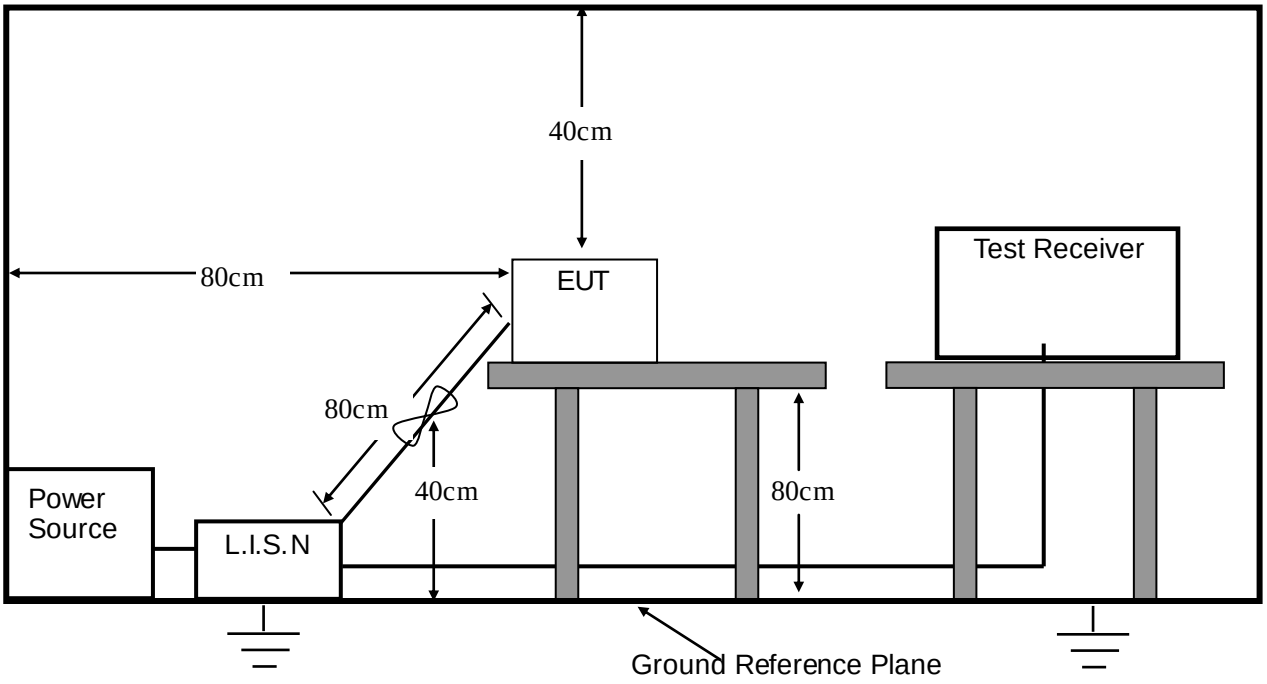


3. Conducted Emissions Test

3.1 Test SET-UP (Block Diagram of Configuration)



3.2 Test Condition

Test Requirement: FCC Part 15.207

Frequency Range: 150KHz ~ 30MHz

Detector: RBW 9KHz, VBW 30KHz

Operation Mode: TX (5G WIFI Band1), TX (5G WIFI Band4)

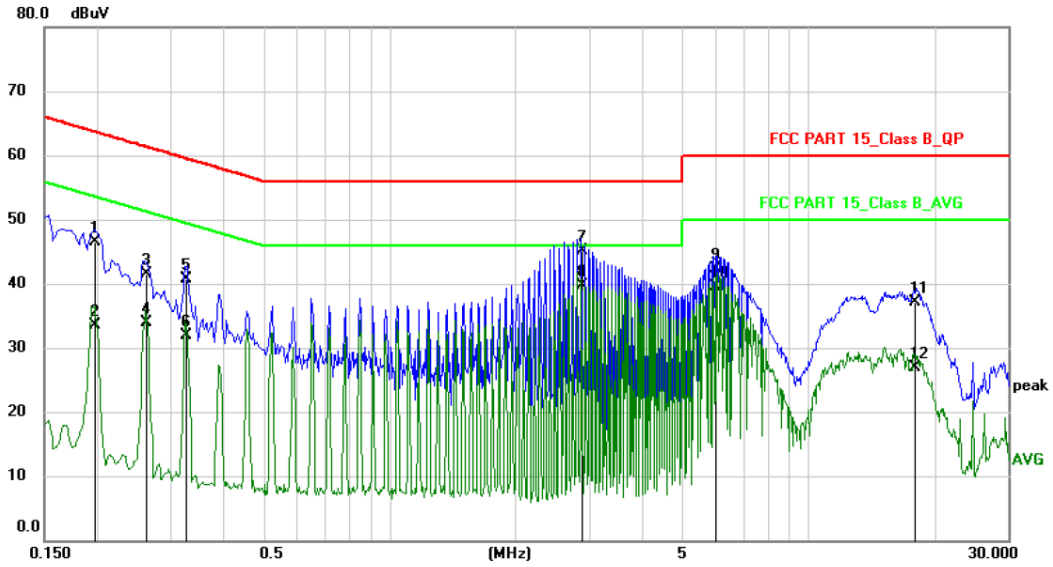
3.3 Measurement Results

For 5G WIFI Band 1
Please refer to following plots of the worst case: 802.11n(HT20) high channel.
For 5G WIFI Band 4
Please refer to following plots of the worst case : 802.11n(HT40) middle channel.

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

Conducted Emission Measurement

File :PB341 Data :#1 Date: 2019/6/17 Time: 9:32:25



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB341
Mode: TX(wifi 5G Band 1)
Note: LYD1266000

Phase: *L1*
Power: AC120V/60Hz

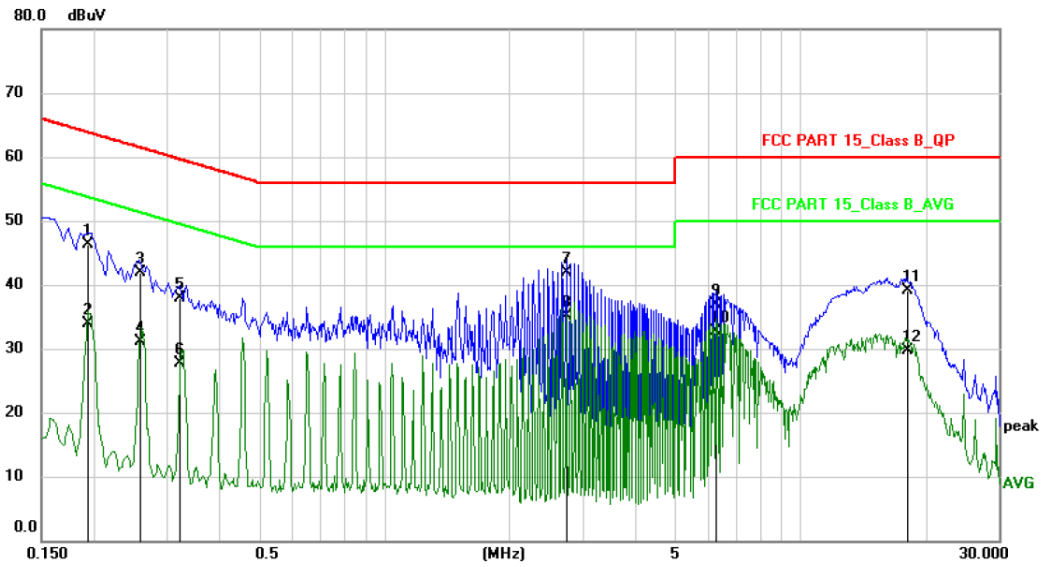
Temperature: 26
Humidity: 50 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1980	35.99	10.61	46.60	63.69	-17.09	QP	
2		0.1980	22.89	10.61	33.50	53.69	-20.19	AVG	
3		0.2620	30.89	10.61	41.50	61.37	-19.87	QP	
4		0.2620	23.29	10.61	33.90	51.37	-17.47	AVG	
5		0.3260	30.09	10.61	40.70	59.55	-18.85	QP	
6		0.3260	21.39	10.61	32.00	49.55	-17.55	AVG	
7		2.8780	34.55	10.65	45.20	56.00	-10.80	QP	
8	*	2.8780	29.05	10.65	39.70	46.00	-6.30	AVG	
9		6.0140	31.74	10.66	42.40	60.00	-17.60	QP	
10		6.0140	28.94	10.66	39.60	50.00	-10.40	AVG	
11		17.9019	26.53	10.67	37.20	60.00	-22.80	QP	
12		17.9019	16.33	10.67	27.00	50.00	-23.00	AVG	

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

Conducted Emission Measurement

File :PB341 Data :#2 Date: 2019/6/17 Time: 9:39:43



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB341
Mode: TX(wifi 5G Band 1)
Note: LYD1266000

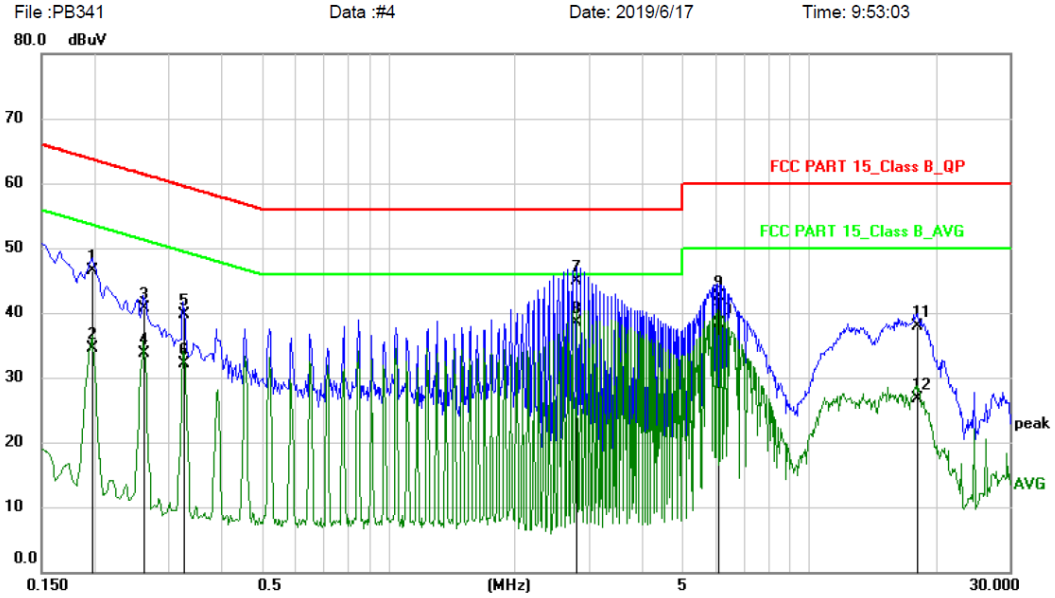
Phase: *N*
Power: AC120V/60Hz

Temperature: 26
Humidity: 50 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1940	35.79	10.61	46.40	63.86	-17.46	QP	
2		0.1940	23.29	10.61	33.90	53.86	-19.96	AVG	
3		0.2580	31.29	10.61	41.90	61.50	-19.60	QP	
4		0.2580	20.59	10.61	31.20	51.50	-20.30	AVG	
5		0.3220	27.29	10.61	37.90	59.66	-21.76	QP	
6		0.3220	17.09	10.61	27.70	49.66	-21.96	AVG	
7		2.7460	31.25	10.65	41.90	56.00	-14.10	QP	
8	*	2.7460	24.55	10.65	35.20	46.00	-10.80	AVG	
9		6.2700	26.34	10.66	37.00	60.00	-23.00	QP	
10		6.2700	22.04	10.66	32.70	50.00	-17.30	AVG	
11		17.9580	28.53	10.67	39.20	60.00	-20.80	QP	
12		17.9580	19.13	10.67	29.80	50.00	-20.20	AVG	

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

Conducted Emission Measurement



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB341
Mode: TX(wifi 5G Band 4)
Note: LYD1266000

Phase: *L1*
Power: AC120V/60Hz

Temperature: 26
Humidity: 50 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1980	35.89	10.61	46.50	63.69	-17.19	QP	
2		0.1980	23.99	10.61	34.60	53.69	-19.09	AVG	
3		0.2620	30.09	10.61	40.70	61.37	-20.67	QP	
4		0.2620	23.19	10.61	33.80	51.37	-17.57	AVG	
5		0.3260	29.19	10.61	39.80	59.55	-19.75	QP	
6		0.3260	21.49	10.61	32.10	49.55	-17.45	AVG	
7		2.8060	34.35	10.65	45.00	56.00	-11.00	QP	
8	*	2.8060	27.85	10.65	38.50	46.00	-7.50	AVG	
9		6.0700	31.84	10.66	42.50	60.00	-17.50	QP	
10		6.0700	27.74	10.66	38.40	50.00	-11.60	AVG	
11		18.0740	27.23	10.67	37.90	60.00	-22.10	QP	
12		18.0740	16.03	10.67	26.70	50.00	-23.30	AVG	

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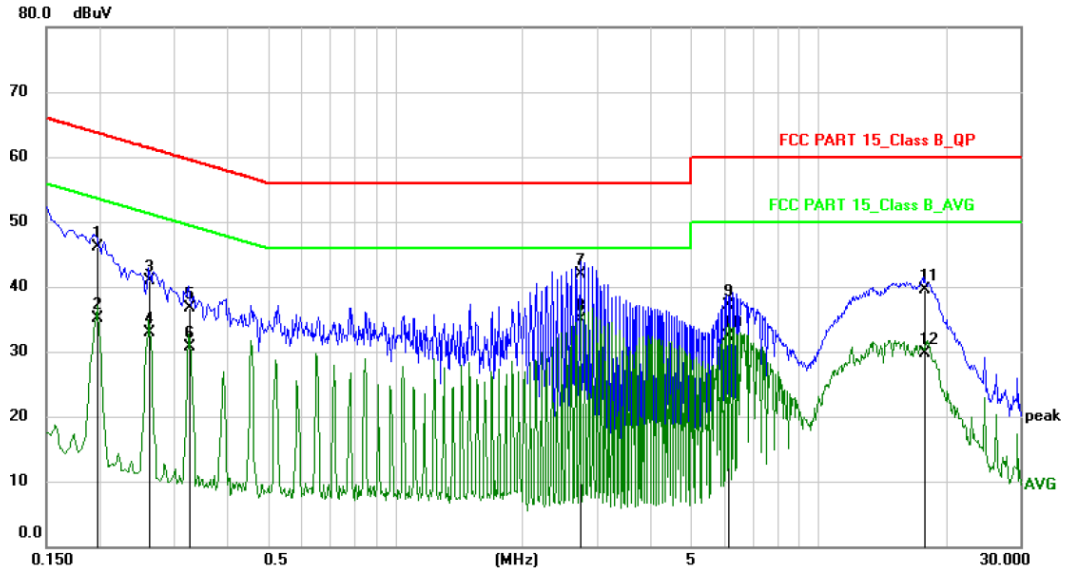
Conducted Emission Measurement

File :PB341 Data :#3 Date: 2019/6/17 Time: 9:46:44



Site
Limit: FCC PART 15_Class B_QP
EUT: PHIIMAX3D PANORAMIC CAMERA
M/N: PB341
Mode: TX(wifi 5G Band 4)
Note: LYD1266000

Phase: N
Power: AC120V/60Hz

Temperature: 26
Humidity: 50 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1980	35.59	10.61	46.20	63.69	-17.49	QP	
2		0.1980	24.49	10.61	35.10	53.69	-18.59	AVG	
3		0.2620	30.29	10.61	40.90	61.37	-20.47	QP	
4		0.2620	22.29	10.61	32.90	51.37	-18.47	AVG	
5		0.3260	26.09	10.61	36.70	59.55	-22.85	QP	
6		0.3260	20.09	10.61	30.70	49.55	-18.85	AVG	
7		2.7420	31.25	10.65	41.90	56.00	-14.10	QP	
8	*	2.7420	24.35	10.65	35.00	46.00	-11.00	AVG	
9		6.1380	26.44	10.66	37.10	60.00	-22.90	QP	
10		6.1380	21.74	10.66	32.40	50.00	-17.60	AVG	
11		17.7580	28.93	10.67	39.60	60.00	-20.40	QP	
12		17.7580	19.03	10.67	29.70	50.00	-20.30	AVG	