

# FCC PART 15.249 TEST REPORT

For

# Zaidtek Electronic Technology (Xiamen) Co., Ltd.

No.285, Wengjiao Road, Haicang District, Xiamen, Fuji, Xiamen, 361022, China

FCC ID: YVYHYXHR036

Report Type:		Product Type:		
Original Report		USB Dongle		
Test Engineer:	Lion Xiao	Lio	n Xiao	
Report Number:	RXM160620053-00			
Report Date:	2016-07-07			
Reviewed By:	Jerry Zhang EMC Manager	Jerry	y Zhang	
Test Laboratory:	No.69 Pulongci	36858891	l Zone,	

**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

# TABLE OF CONTENTS

GENERAL INFORMATION	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
Objective	
RELATED SUBMITTAL(S)/GRANT(S)	
TEST METHODOLOGY	
TEST FACILITY	
SYSTEM TEST CONFIGURATION	
JUSTIFICATION	
EUT Exercise Software	
EQUIPMENT MODIFICATIONS	4
SUPPORT EQUIPMENT LIST AND DETAILS	
BLOCK DIAGRAM OF TEST SETUP	
SUMMARY OF TEST RESULTS	6
FCC§15.203 - ANTENNA REQUIREMENT	
APPLICABLE STANDARD	
ANTENNA CONNECTOR CONSTRUCTION	7
FCC §15.207 (A) – AC LINE CONDUCTED EMISSIONS	8
APPLICABLE STANDARD	
Measurement Uncertainty	
EUT Setup	
EMI TEST RECEIVER SETUP	
TEST PROCEDURE	
CORRECTED AMPLITUDE & MARGIN CALCULATION	
TEST EQUIPMENT LIST AND DETAILS	
TEST RESULTS SUMMARY TEST DATA	
FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS	
APPLICABLE STANDARD	
MEASUREMENT UNCERTAINTY	
EUT SETUP TEST EQUIPMENT SETUP	
TEST PROCEDURE	
CORRECTED AMPLITUDE & MARGIN CALCULATION	
TEST EQUIPMENT LIST AND DETAILS.	
TEST RESULTS SUMMARY	
TEST DATA	
FCC §15.215(C) – 20 DB BANDWIDTH TESTING	20
APPLICABLE STANDARD	
TEST PROCEDURE	
TEST EQUIPMENT LIST AND DETAILS.	
Test Data	

### **GENERAL INFORMATION**

### **Product Description for Equipment under Test (EUT)**

The *Zaidtek Electronic Technology (Xiamen) Co., Ltd.*'s product, model number: *HR036 (FCC ID: YVYHYXHR036)* (the "EUT") in this report was a *USB Dongle*, was measured approximately: 18.5 mm (L) x 14 mm (W) x 6 mm(H), rated input voltage: DC5V from USB Port.

Report No.: RXM160620053-00

\* All measurement and test data in this report was gathered from production sample serial number: 160620053 (Assigned by BACL.Dongguan). The EUT was received on 2016-06-22.

### **Objective**

This type approval report is prepared on behalf of *Zaidtek Electronic Technology (Xiamen) Co., Ltd.* in accordance with Part 2-Subpart J, and Part 15-Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205,15.207, 15.209 and 15.249 rules.

### Related Submittal(s)/Grant(s)

N/A

### **Test Methodology**

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

### **Test Facility**

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

FCC Part 15.249 Page 3 of 22

# **SYSTEM TEST CONFIGURATION**

### **Justification**

The system was configured for testing in engineering mode with maximum power output and switched the channels by key.

Report No.: RXM160620053-00

Channels list as follows:

Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2405	5	2440
2	2413	6	2450
3	2422	7	2460
4	2430	8	2470

Channel 1, 4, 8 were selected to test.

### **EUT Exercise Software**

No software was used in test.

## **Equipment Modifications**

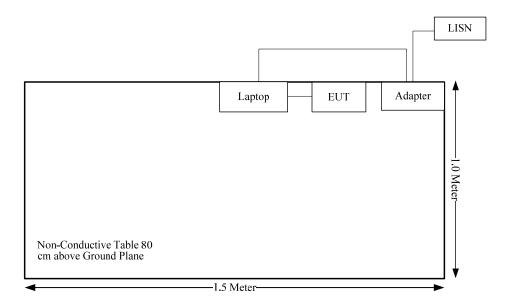
No modifications were made to the EUT.

### **Support Equipment List and Details**

Manufacturer	Description	Model	Serial Number
Dell	Laptop	PP27LA	PP27LA001

FCC Part 15.249 Page 4 of 22

# **Block Diagram of Test Setup**



FCC Part 15.249 Page 5 of 22

# SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conduction Emissions	Compliance
15.205, §15.209, §15.249	Radiated Emissions	Compliance
§15.215 (c)	20 dB Bandwidth	Compliance

Report No.: RXM160620053-00

FCC Part 15.249 Page 6 of 22

# FCC§15.203 - ANTENNA REQUIREMENT

### **Applicable Standard**

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Report No.: RXM160620053-00

### **Antenna Connector Construction**

The EUT has one integral antenna arrangement, which was permanently attached and the antenna gain is -1.0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliant.

FCC Part 15.249 Page 7 of 22

# FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

### **Applicable Standard**

FCC§15.207

### **Measurement Uncertainty**

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

Report No.: RXM160620053-00

If  $U_{\text{lab}}$  is less than or equal to  $U_{\text{cispr}}$  of Table 1, then:

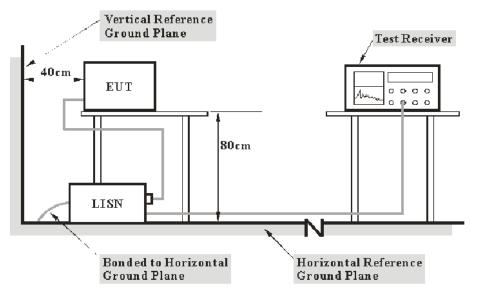
- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit. If  $U_{\text{lab}}$  is greater than  $U_{\text{cispr}}$  of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by  $(U_{lab} U_{cispr})$ , exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level, increased by  $(U_{\text{lab}} U_{\text{cispr}})$ , exceeds the disturbance limit.

Based on CISPR 16-4-2-2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.12 dB (150 kHz to 30 MHz).

Table 1 – Values of  $U_{\text{cispr}}$ 

Measurement	$U_{cispr}$
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

### **EUT Setup**



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

FCC Part 15.249 Page 8 of 22

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

Report No.: RXM160620053-00

The spacing between the peripherals was 10 cm.

The adapter of laptop was connected to a 120 VAC/60 Hz power source.

### **EMI Test Receiver Setup**

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W	
150 kHz – 30 MHz	9 kHz	

#### **Test Procedure**

During the conducted emission test, the adapter of laptop was connected to the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

### **Corrected Amplitude & Margin Calculation**

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$
$$C_f = A_C + VDF$$

Herein,

V<sub>C</sub> (cord. Reading): corrected voltage amplitude

 $V_R$ : reading voltage amplitude  $A_c$ : attenuation caused by cable loss VDF: voltage division factor of AMN  $C_f$ : Correction Factor

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

FCC Part 15.249 Page 9 of 22

### **Test Equipment List and Details**

Manufacturer	Description	Description Model Serial Number		Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2015-10-20	2016-10-20
R&S	L.I.S.N	ESH2-Z5	892107/021	2016-06-09	2017-06-09
R&S	Two-line V-network	ENV 216	3560.6550.12	2015-11-26	2016-11-25
N/A	Coaxial Cable	1.8m	N/A	2016-05-06	2017-05-06
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

Report No.: RXM160620053-00

### **Test Results Summary**

According to the recorded data in following table, the EUT complied with the <u>FCC Part 15.207</u>, with the worst margin reading of:

### 14.7 dB at 0.378019 MHz in the Neutral conducted mode

### **Test Data**

### **Environmental Conditions**

Temperature:	30.7°C
Relative Humidity:	45 %
ATM Pressure:	100.1 kPa

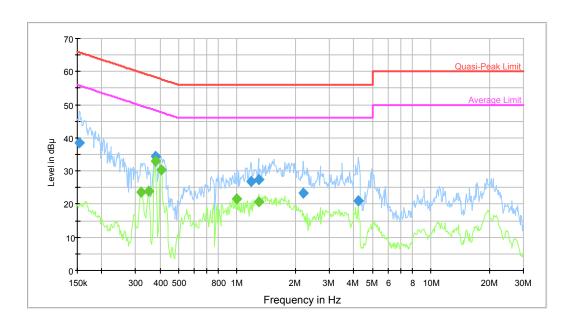
The testing was performed by Lion Xiao on 2016-07-06.

FCC Part 15.249 Page 10 of 22

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Mode: Transmitting

# AC120 V, 60 Hz, Line:



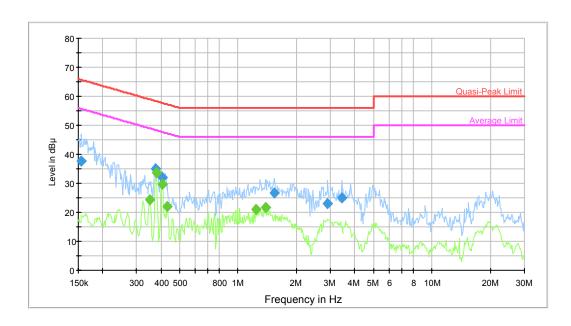
Report No.: RXM160620053-00

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.153629	38.4	9.000	L1	10.2	27.4	65.8	Compliance
0.378019	34.3	9.000	L1	10.2	24.0	58.3	Compliance
1.181325	26.9	9.000	L1	10.4	29.1	56.0	Compliance
1.289541	27.4	9.000	L1	10.4	28.6	56.0	Compliance
2.199332	23.5	9.000	L1	10.4	32.5	56.0	Compliance
4.227217	20.9	9.000	L1	10.7	35.1	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.319773	23.7	9.000	L1	10.3	26.0	49.7	Compliance
0.349066	23.8	9.000	L1	10.3	25.2	49.0	Compliance
0.378019	32.9	9.000	L1	10.2	15.4	48.3	Compliance
0.406123	30.3	9.000	L1	10.2	17.4	47.7	Compliance
0.999305	21.7	9.000	L1	10.4	24.3	46.0	Compliance
1.289541	20.8	9.000	L1	10.4	25.2	46.0	Compliance

FCC Part 15.249 Page 11 of 22

# AC120 V, 60 Hz, Neutral:



Report No.: RXM160620053-00

Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.156097	37.7	9.000	N	10.1	28.0	65.7	Compliance
0.375019	35.1	9.000	N	10.2	23.3	58.4	Compliance
0.406123	32.2	9.000	N	10.2	25.5	57.7	Compliance
1.536622	26.7	9.000	N	10.4	29.3	56.0	Compliance
2.906762	23.0	9.000	N	10.5	33.0	56.0	Compliance
3.436218	24.9	9.000	N	10.6	31.1	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.351859	24.2	9.000	N	10.3	24.7	48.9	Compliance
0.378019	33.6	9.000	N	10.2	14.7	48.3	Compliance
0.406123	29.7	9.000	N	10.2	18.0	47.7	Compliance
0.432855	22.1	9.000	N	10.1	25.1	47.2	Compliance
1.239175	21.2	9.000	N	10.4	24.8	46.0	Compliance
1.385415	21.8	9.000	N	10.4	24.2	46.0	Compliance

FCC Part 15.249 Page 12 of 22

## FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS

### **Applicable Standard**

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

Report No.: RXM160620053-00

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) 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 to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

### **Measurement Uncertainty**

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If  $U_{\text{lab}}$  is less than or equal to  $U_{\text{cispr}}$  of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit. If  $U_{\text{lab}}$  is greater than  $U_{\text{cispr}}$  of Table 1, then:
- compliance is deemed to occur if no measured disturbance level, increased by  $(U_{lab} U_{cispr})$ , exceeds the disturbance limit;
- non compliance is deemed to occur if any measured disturbance level, increased by  $(U_{\text{lab}} U_{\text{cispr}})$ , exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is: 30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical; 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical; 1G~6GHz: 4.45 dB, 6G~18GHz: 5.23 dB

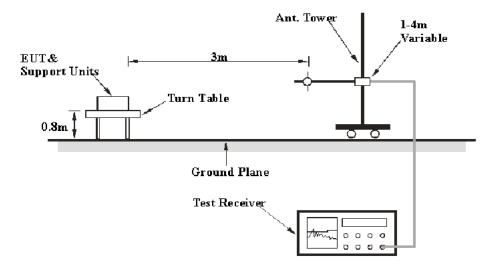
FCC Part 15.249 Page 13 of 22

Report No.: RXM160620053-00

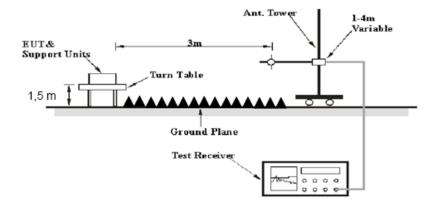
Measurement				
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB			
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB			
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB			

# **EUT Setup**

Below 1 GHz:



Above 1 GHz:



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013 The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

FCC Part 15.249 Page 14 of 22

### **Test Equipment Setup**

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 CHz	1MHz	3 MHz	/	PK
Above 1 GHz	1MHz	10 Hz	/	Ave.

Report No.: RXM160620053-00

### **Test Procedure**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode from 30 MHz to 1GHz, peak and average detection mode above 1 GHz.

### **Corrected Amplitude & Margin Calculation**

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit –Corrected Amplitude

FCC Part 15.249 Page 15 of 22

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-08-03	2016-08-02
Sunol Sciences	Antenna	JB3	A060611-3	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2015-09-01	2016-09-01
Agilent	Spectrum Analyzer	E4440A	SG43360054	2015-12-04	2016-12-04
ETS-Lindgren	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2016-02-19	2017-02-19
R&S	Spectrum Analyzer	FSP 38	100478	2016-05-09	2017-05-09
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2014-06-16	2017-06-15
Quinstar	Amplifier	QLW- 18405536-JO	15964001001	2015-09-06	2016-09-06
N/A	Coaxial Cable	14m	N/A	2016-05-06	2017-05-06
N/A	Coaxial Cable	8m	N/A	2016-05-06	2017-05-06

Report No.: RXM160620053-00

### **Test Results Summary**

According to the data in the following table, the EUT complied with the FCC Part 15.209 &15.205 & 15.249, with the worst margin reading of:

### 6.11 dB at 2400 MHz in the Horizontal polarization

### **Test Data**

### **Environmental Conditions**

Temperature:	26.8 °C
Relative Humidity:	49%
ATM Pressure:	100.3 kPa

The testing was performed by Lion Xiao on 2016-07-01.

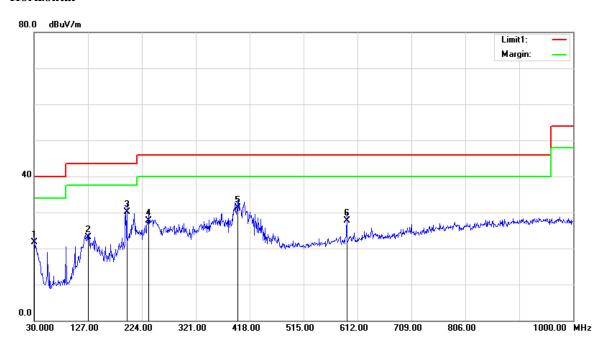
FCC Part 15.249 Page 16 of 22

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Mode: Transmitting

### 30MHz-1GHz(the middle channel is the worst):

### Horizontal

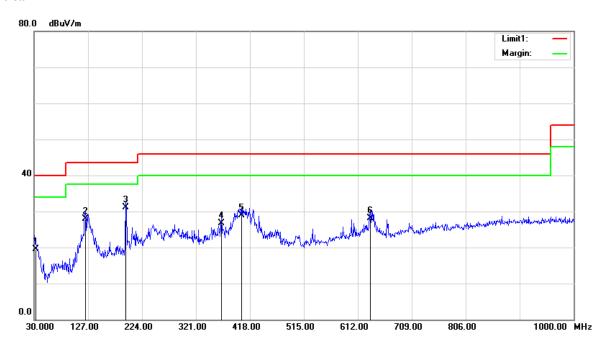


Report No.: RXM160620053-00

Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.0000	20.75	QP	0.95	21.70	40.00	18.30
127.0000	28.70	QP	-5.60	23.10	43.50	20.40
196.8400	37.89	QP	-7.69	30.20	43.50	13.30
235.6400	35.55	QP	-7.85	27.70	46.00	18.30
396.6600	35.08	QP	-3.68	31.40	46.00	14.60
592.6000	28.54	QP	-0.74	27.80	46.00	18.20

FCC Part 15.249 Page 17 of 22

### Vertical



Report No.: RXM160620053-00

Frequency (MHz)	Receiver Reading (dBµV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBµV/m)	Limit (dBμV/m)	Margin (dB)
32.9100	20.84	QP	-1.24	19.60	40.00	20.40
122.1500	33.41	QP	-5.51	27.90	43.50	15.60
194.9000	39.03	QP	-7.93	31.10	43.50	12.40
366.5900	31.21	QP	-4.51	26.70	46.00	19.30
403.4500	32.45	QP	-3.55	28.90	46.00	17.10
634.3100	27.79	QP	0.41	28.20	46.00	17.80

FCC Part 15.249 Page 18 of 22

1G-25GHz:

Frequency	Re	ceiver	Rx An	tenna	Cable	Amplifier	Corrected	Limit	Margin
	Reading	Detector	Polar	Factor	loss	Gain	Amplitude		
MHz	dΒμV	PK/QP/AV	H/V	dB(1/m)	dB	dB	dBμV/m	dBμV/m	dB
	·		fr	equency:24	05MHz		•	•	
2405	62	PK	Н	25.65	3.66	0.00	91.31	114.00	22.69
2405	50.27	AV	Н	25.65	3.66	0.00	79.58	94.00	14.42
2405	60.24	PK	V	25.65	3.66	0.00	89.55	114.00	24.45
2405	47.75	AV	V	25.65	3.66	0.00	77.06	94.00	16.94
2400	38.6	PK	Н	25.64	3.65	0.00	67.89	74.00	6.11
2400	13.46	AV	Н	25.64	3.65	0.00	42.75	54.00	11.25
4810	49.74	PK	Н	30.61	5.05	27.41	57.99	74.00	16.01
4810	16.83	AV	Н	30.61	5.05	27.41	25.08	54.00	28.92
7215	43.38	PK	Н	34.12	6.62	25.91	58.21	74.00	15.79
7215	16.79	AV	Н	34.12	6.62	25.91	31.62	54.00	22.38
3186	32.9	PK	Н	27.80	6.33	27.38	39.65	74.00	34.35
3186	20.56	AV	Н	27.80	6.33	27.38	27.31	54.00	26.69
			fr	equency:24	30MHz				
2430	61.66	PK	Н	25.72	3.73	0.00	91.11	114.00	22.89
2430	49.61	AV	Н	25.72	3.73	0.00	79.06	94.00	14.94
2430	60.21	PK	V	25.72	3.73	0.00	89.66	114.00	24.34
2430	47.34	AV	V	25.72	3.73	0.00	76.79	94.00	17.21
4860	53.24	PK	Н	30.74	5.05	27.42	61.61	74.00	12.39
4860	20.51	AV	Н	30.74	5.05	27.42	28.88	54.00	25.12
7290	49.83	PK	Н	34.30	6.71	25.89	64.95	74.00	9.05
7290	16.87	AV	Н	34.30	6.71	25.89	31.99	54.00	22.01
3012	32.11	PK	Н	27.24	6.75	27.52	38.58	74.00	35.42
3012	21.47	AV	Н	27.24	6.75	27.52	27.94	54.00	26.06
3257	32.61	PK	Н	28.02	6.15	27.32	39.46	74.00	34.54
3257	21.53	AV	Н	28.02	6.15	27.32	28.38	54.00	25.62
			fr	equency:24	70MHz				
2470	60.35	PK	Н	25.82	3.72	0.00	89.89	114.00	24.11
2470	47.46	AV	Н	25.82	3.72	0.00	77.00	94.00	17.00
2470	59.81	PK	V	25.82	3.72	0.00	89.35	114.00	24.65
2470	46.92	AV	V	25.82	3.72	0.00	76.46	94.00	17.54
2483.5	27.15	PK	Н	25.86	3.67	0.00	56.68	74.00	17.32
2483.5	13.9	AV	Н	25.86	3.67	0.00	43.43	54.00	10.57
4940	50.47	PK	Н	30.94	5.36	27.43	59.34	74.00	14.66
4940	17.73	AV	Н	30.94	5.36	27.43	26.60	54.00	27.40
7410	48.77	PK	Н	34.58	6.85	25.89	64.31	74.00	9.69
7410	16.25	AV	Н	34.58	6.85	25.89	31.79	54.00	22.21
3186	31.96	PK	Н	27.80	6.33	27.38	38.71	74.00	35.29
3186	20.34	AV	Н	27.80	6.33	27.38	27.09	54.00	26.91

Report No.: RXM160620053-00

FCC Part 15.249 Page 19 of 22

## FCC §15.215(c) – 20 dB BANDWIDTH TESTING

### **Applicable Standard**

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Report No.: RXM160620053-00

#### **Test Procedure**

- 1. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
- 2. Repeat above procedures until all frequencies measured were complete.

### **Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	831259/019	2015-07-28	2016-07-27
ETS-Lindgren	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2016-02-19	2017-02-19
N/A	Coaxial Cable	14m	N/A	2016-05-06	2017-05-06
N/A	Coaxial Cable	8m	N/A	2016-05-06	2017-05-06

<sup>\*</sup> Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

### **Test Data**

#### **Environmental Conditions**

Temperature:	26.8°C
Relative Humidity:	49 %
ATM Pressure:	100.3 kPa

<sup>\*</sup> The testing was performed by Lion Xiao on 2016-07-01.

Test Result: Compliant.

Please refer to following tables and plots

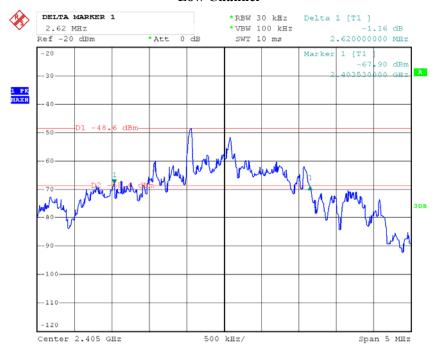
FCC Part 15.249 Page 20 of 22

Test Mode: Transmitting

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Low	2405	2.62
Middle	2430	2.37
High	2470	2.28

Report No.: RXM160620053-00

### **Low Channel**



Date: 1.JUL.2016 11:08:06

FCC Part 15.249 Page 21 of 22

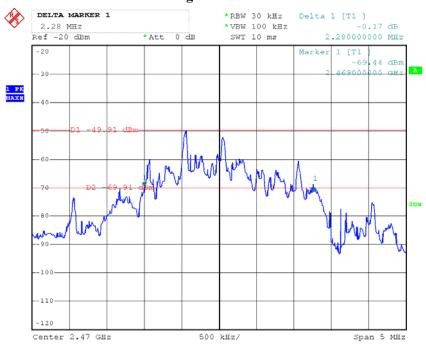
### Middle Channel

Report No.: RXM160620053-00



Date: 1.JUL.2016 11:01:45

### **High Channel**



Date: 1.JUL.2016 11:04:23

\*\*\*\*\* END OF REPORT \*\*\*\*\*

FCC Part 15.249 Page 22 of 22