

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
ZEGO ELECTRONIC COMPANY LIMITED

X-Detector
Model No.: 66139

FCC ID: 2ACS624TX

Prepared for : ZEGO ELECTRONIC COMPANY LIMITED
Address : ROOM 703, KOWLOON BUILDING, 555 NATHAN
ROAD, KOWLOON, Hong Kong

Prepared by : Shenzhen Accurate Technology Co., Ltd.
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Report Number : ATE20171648
Date of Test : August 5-9, 2017
Date of Report : August 14, 2017

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Test Report Certification

Applicant : ZEGO ELECTRONIC COMPANY LIMITED
Address : ROOM 703, KOWLOON BUILDING, 555 NATHAN ROAD,
KOWLOON, Hong Kong
Manufacturer : Shenzhen Yangri Electronic Company Limited
Address : The Third Industrial Area, Luotian community, Songgang town,
Shenzhen City, China.
Product : X-Detector
Model No. : 66139

Measurement Procedure Used:


FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2013


The EUT was tested according to FCC 47CFR 15.249 for compliance to FCC 47CFR 15.249 requirements

The device described above is tested by ACCURATE TECHNOLOGY 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 Section 15.249 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : August 5-9, 2017
Date of Report : August 14, 2017

Prepared by : 
(Bob Wang, Engineer)

Approved & Authorized Signer : 
(Sean Liu, Manager)



1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	X-Detector
Model Number	:	66139
Power Supply	:	DC 6V
Operate Frequency	:	2405-2479MHz
Modulation mode	:	GFSK
Antenna Gain	:	1dBi
Antenna type	:	Integral Antenna
Applicant	:	ZEGO ELECTRONIC COMPANY LIMITED
Address	:	ROOM 703, KOWLOON BUILDING, 555 NATHAN ROAD, KOWLOON, Hong Kong
Manufacturer	:	Shenzhen Yangri Electronic Company Limited
Address	:	The Third Industrial Area, Luotian community, Songgang town, Shenzhen City, China.
Date of sample received	:	August 3, 2017
Date of Test	:	August 5-9, 2017

1.2. Special Accessory and Auxiliary Equipment

N/A

1.3. Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358
		Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2
		Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193
		Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.4. Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Cal. Interval
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 07, 2017	One Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 07, 2017	One Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 07, 2017	One Year
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 07, 2017	One Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	One Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	One Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	One Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan. 13, 2017	One Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 07, 2017	One Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 07, 2017	One Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 07, 2017	One Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 07, 2017	One Year

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

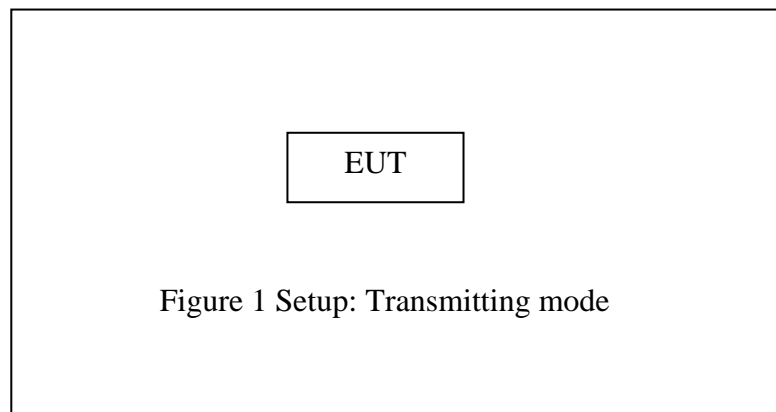
The mode is used: **Transmitting mode**

Low Channel: 2405MHz

Middle Channel: 2439MHz

High Channel: 2479MHz

3.2. Configuration and peripherals



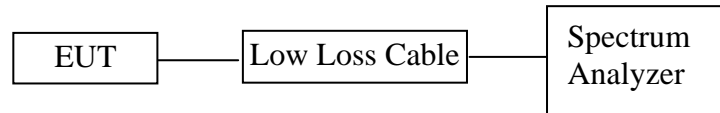
4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.215(c)	20dB Bandwidth	Compliant
Section 15.249(d)	Band Edge Compliance Test	Compliant
Section 15.205(a), Section 15.209(a), Section 15.249, Section 15.35	Radiated Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	N/A
Section 15.203	Antenna Requirement	Compliant

Note: The power supply mode of the EUT is DC 6V, According to the FCC standard requirements, conducted emission is not applicable.

5. 20DB BANDWIDTH MEASUREMENT

5.1. Block Diagram of Test Setup



5.2. The Requirement For Section 15.215(c)

The bandwidth of a frequency hopping channel is the 20 dB emission bandwidth, measured with the hopping stopped. The system RF bandwidth is equal to the channel bandwidth multiplied by the number of channels in the hopset. The hopset shall be such that the near-term distribution of frequencies appears random, with sequential hops randomly distributed in both direction and magnitude of change in the hopset while the long-term distribution appears evenly distributed.

5.3. Operating Condition of EUT

5.3.1. Setup the EUT and simulator as shown as Section 5.1.

5.3.2. Turn on the power of all equipment.

5.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2405, 2439, 2479MHz.

5.4. Test Procedure

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

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

5.4.3. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz, Detector function=peak, Trace=max hold, Sweep=auto.

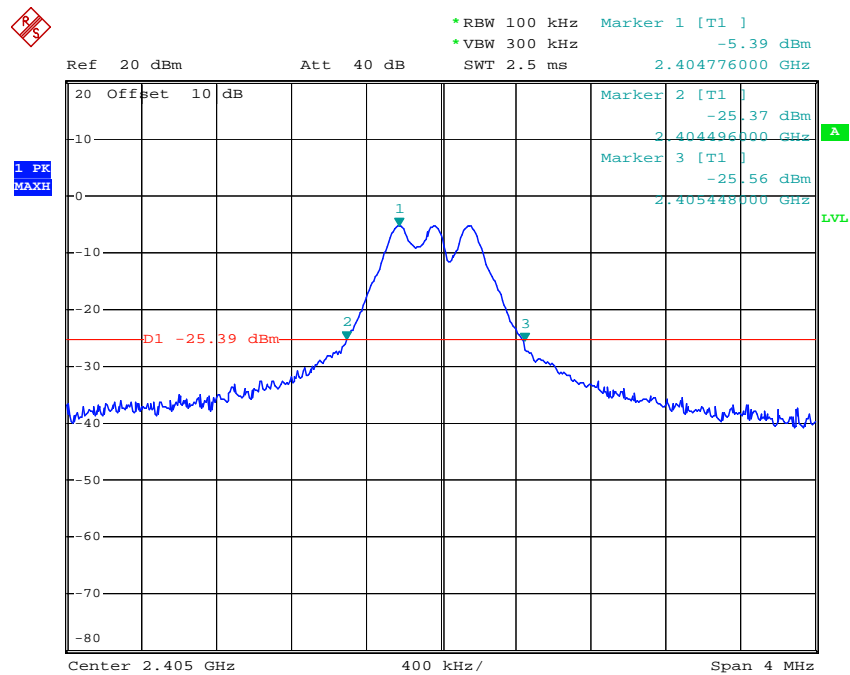
5.4.4. Set the measured low, middle and high frequency and test 20dB bandwidth with spectrum analyzer.

5.5. Test Result

Channel	Frequency(MHz)	20 dB Bandwidth(MHz)
Low	2405	0.952
Middle	2439	0.952
High	2479	0.944

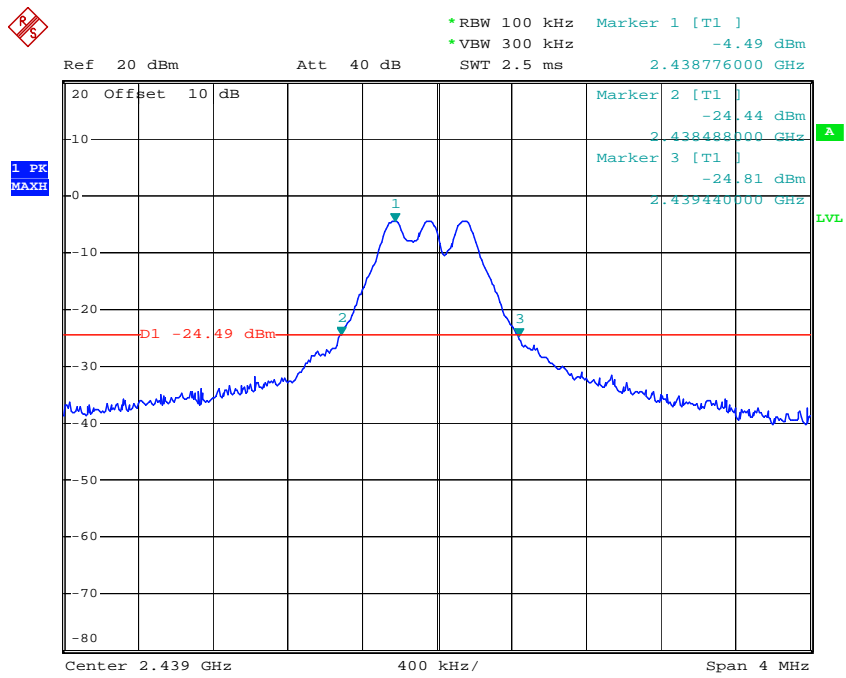
The spectrum analyzer plots are attached as below.

Low channel



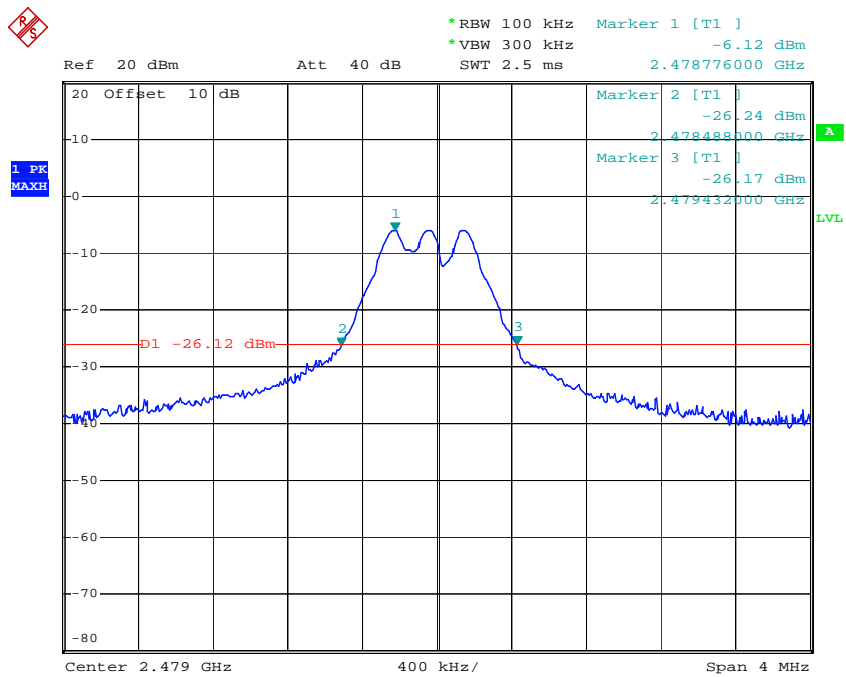
Comment A:
Date: 7.AUG.2017 15:54:38

Middle channel



Comment A:
 Date: 7.AUG.2017 16:02:08

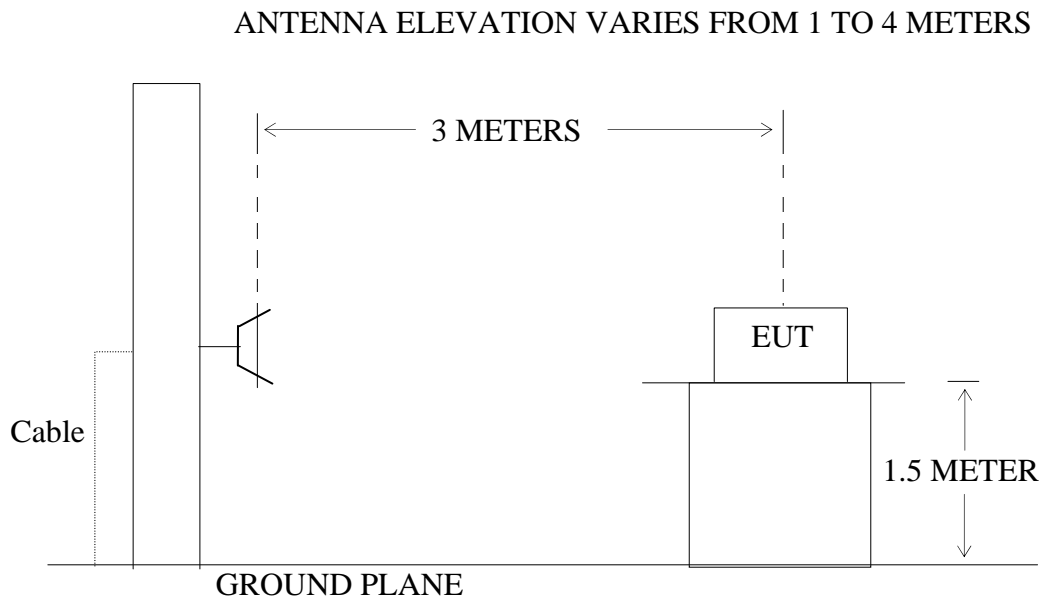
High channel



Comment A:
 Date: 7.AUG.2017 16:08:56

6. BAND EDGE COMPLIANCE TEST

6.1. Block Diagram of Test Setup



6.2. The Requirement For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

6.3. EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2405, 2479MHz.

6.5. Test Procedure

Radiate Band Edge:

6.5.1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

6.5.2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

6.5.3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

6.5.4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

6.5.5. The band edges was measured and recorded.

6.6. Test Result



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Job No.: frank2017 #858

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2405MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

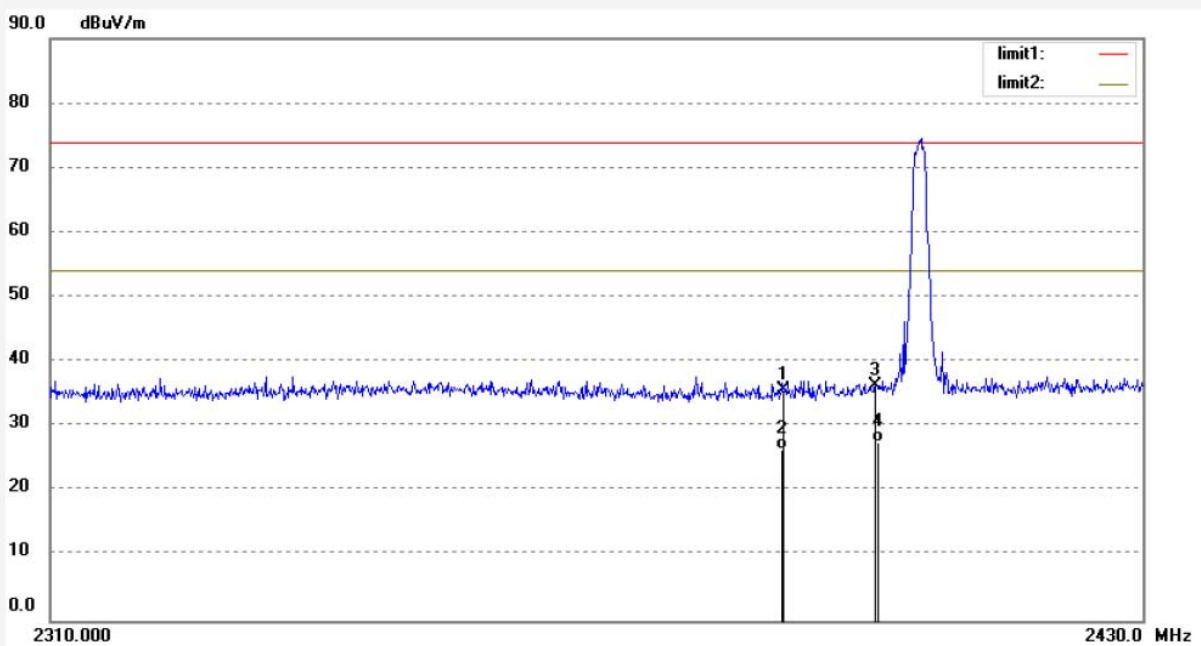
Date: 17/08/09/

Time: 14/37/12

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648

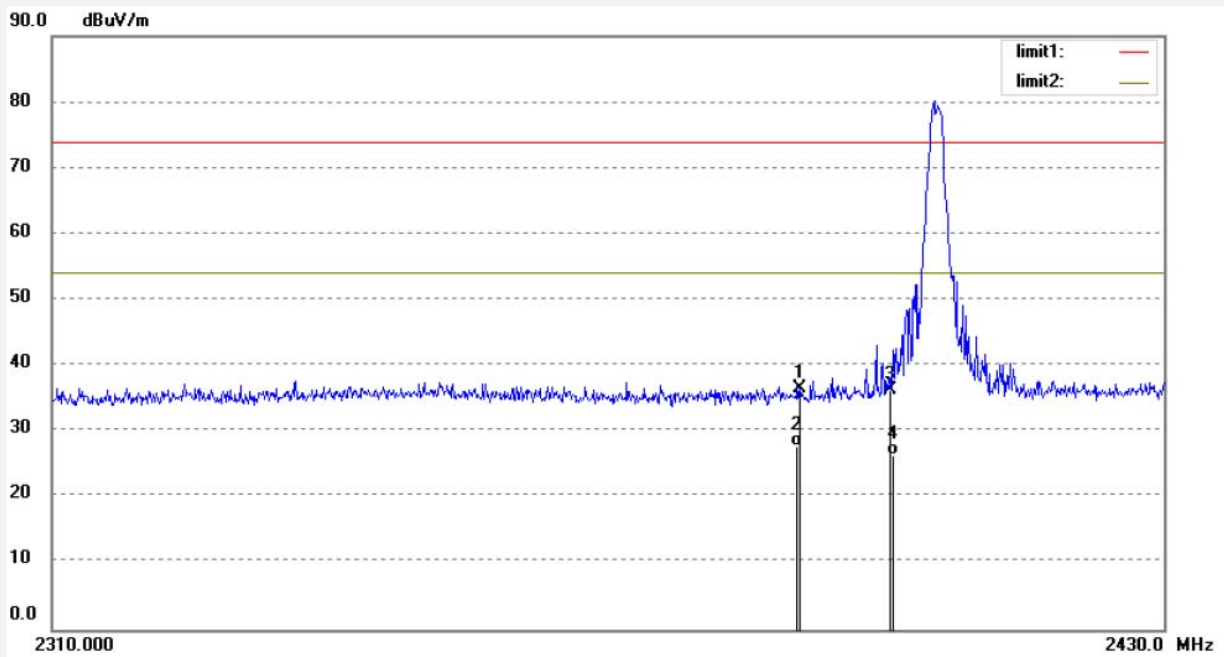


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	39.66	-3.96	35.70	74.00	-38.30	peak	150	221	
2	2390.000	30.45	-3.96	26.49	54.00	-27.51	AVG	150	134	
3	2400.000	40.26	-3.91	36.35	74.00	-37.65	peak	150	254	
4	2400.000	31.54	-3.91	27.63	54.00	-26.37	AVG	150	301	

Job No.: frank2017 #859
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: X-Detector
Mode: TX2405MHz
Model: 66139
Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal
Power Source: DC 6V
Date: 17/08/09/
Time: 14/38/36
Engineer Signature: Frank
Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	40.49	-3.96	36.53	74.00	-37.47	peak	150	132	
2	2390.000	31.65	-3.96	27.69	54.00	-26.31	AVG	150	256	
3	2400.000	40.28	-3.91	36.37	74.00	-37.63	peak	150	247	
4	2400.000	30.45	-3.91	26.54	54.00	-27.46	AVG	150	332	



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Job No.: frank2017 #860

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2479MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal

Power Source: DC 6V

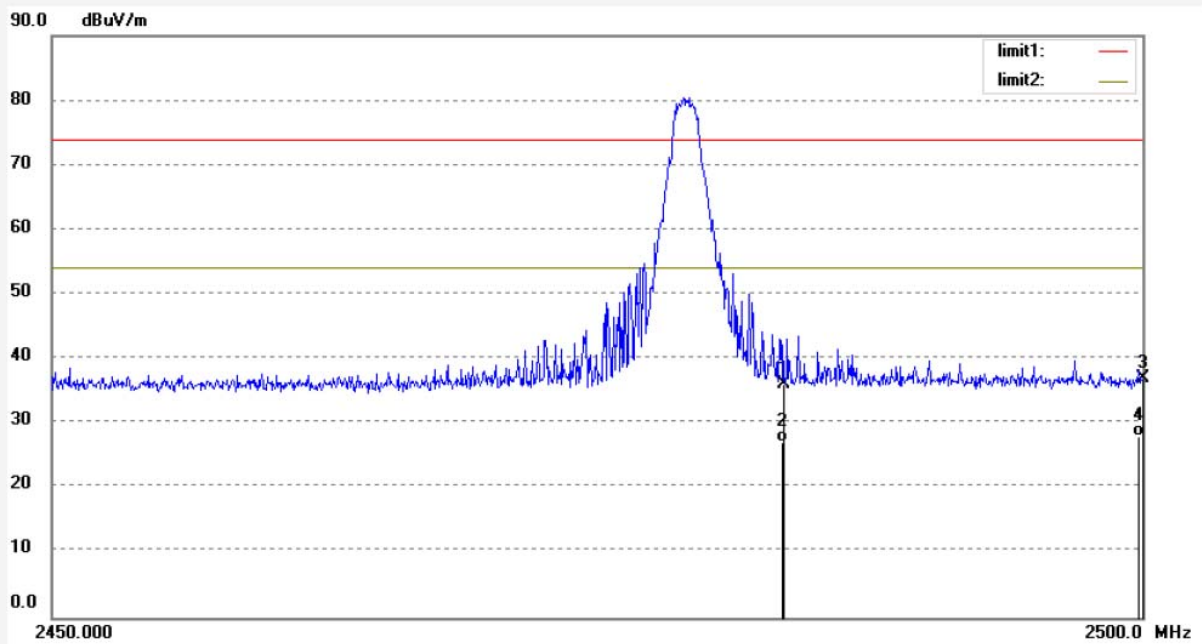
Date: 17/08/09/

Time: 15/08/34

Engineer Signature: Frank

Distance: 3m

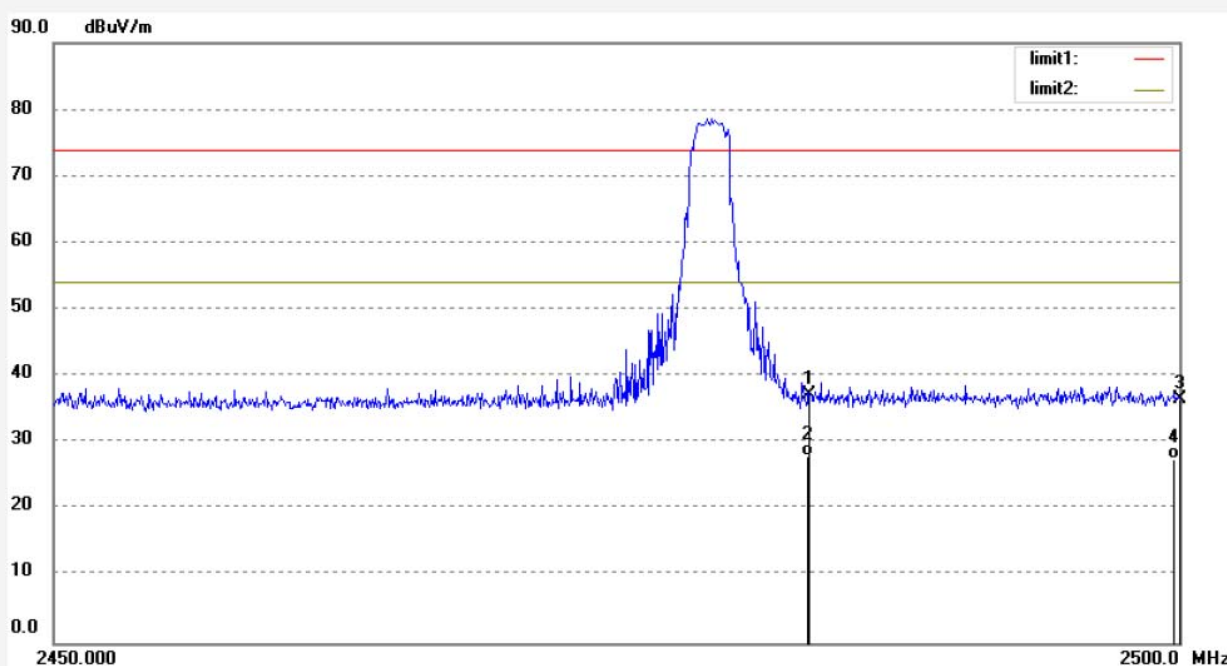
Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	39.65	-3.50	36.15	74.00	-37.85	peak	150	116	
2	2483.500	30.64	-3.50	27.14	54.00	-26.86	AVG	150	157	
3	2500.000	40.45	-3.42	37.03	74.00	-36.97	peak	150	222	
4	2500.000	31.48	-3.42	28.06	54.00	-25.94	AVG	150	257	

Job No.: frank2017 #861	Polarization: Vertical
Standard: FCC PK	Power Source: DC 6V
Test item: Radiation Test	Date: 17/08/09/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15/10/10
EUT: X-Detector	Engineer Signature: Frank
Mode: TX2479MHz	Distance: 3m
Model: 66139	
Manufacturer: Shenzhen Yangri Electronic Company Limit	

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	40.70	-3.50	37.20	74.00	-36.80	peak	150	154	
2	2483.500	31.54	-3.50	28.04	54.00	-25.96	AVG	150	147	
3	2500.000	40.01	-3.42	36.59	74.00	-37.41	peak	150	202	
4	2500.000	30.98	-3.42	27.56	54.00	-26.44	AVG	150	208	

Note:

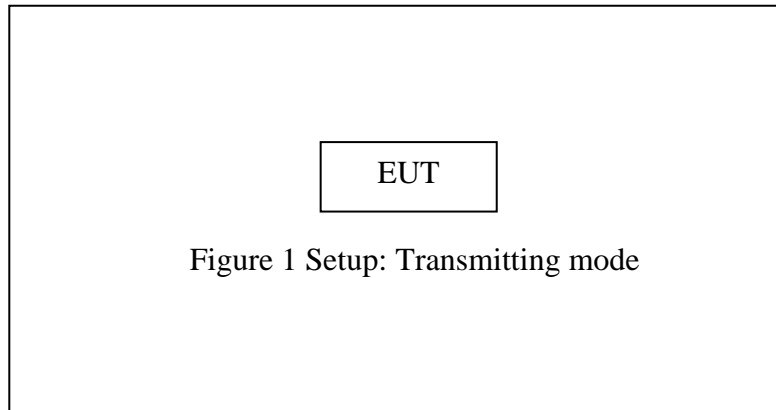
- Emissions attenuated more than 20 dB below the permissible value are not reported.
- The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$
- Display the measurement of peak values.
- The average measurement was not performed when peak measured data under the limit of average detection.

7. RADIATED SPURIOUS EMISSION TEST

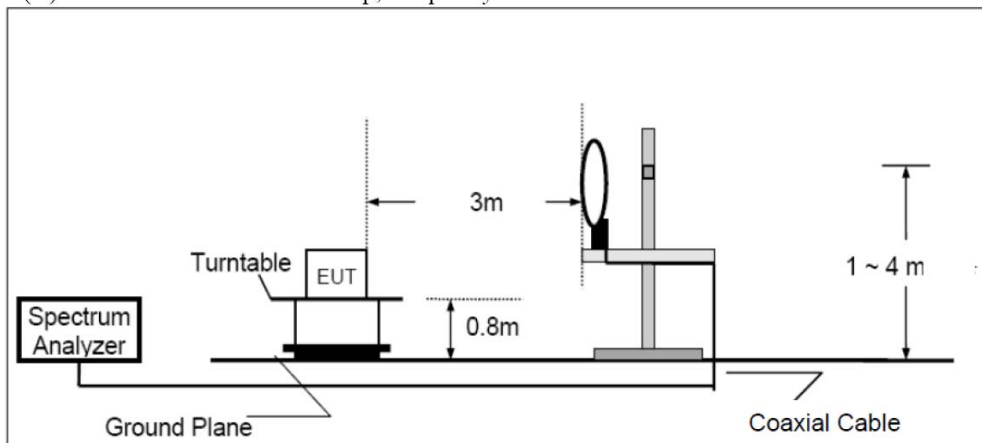
7.1. Block Diagram of Test Setup

7.1.1. Block diagram of connection between the EUT and peripherals

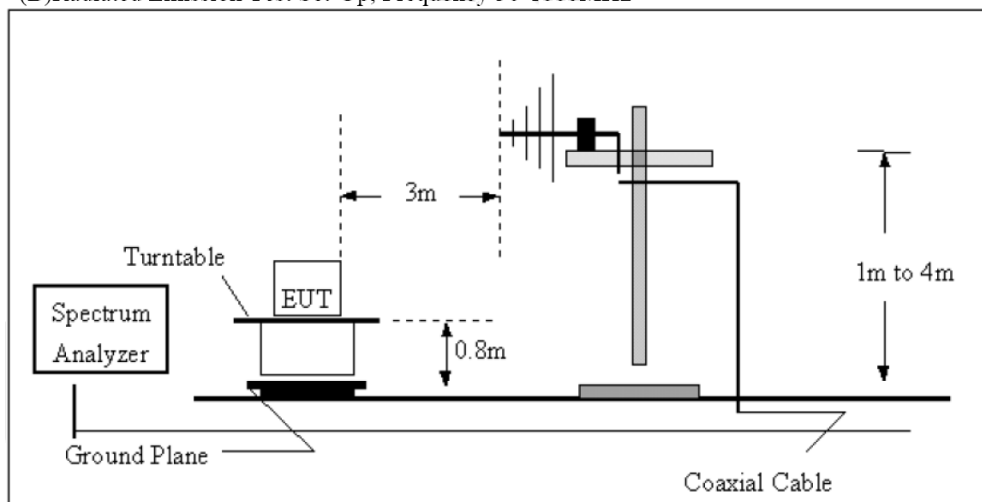


7.1.2. Semi-Anechoic Chamber Test Setup Diagram

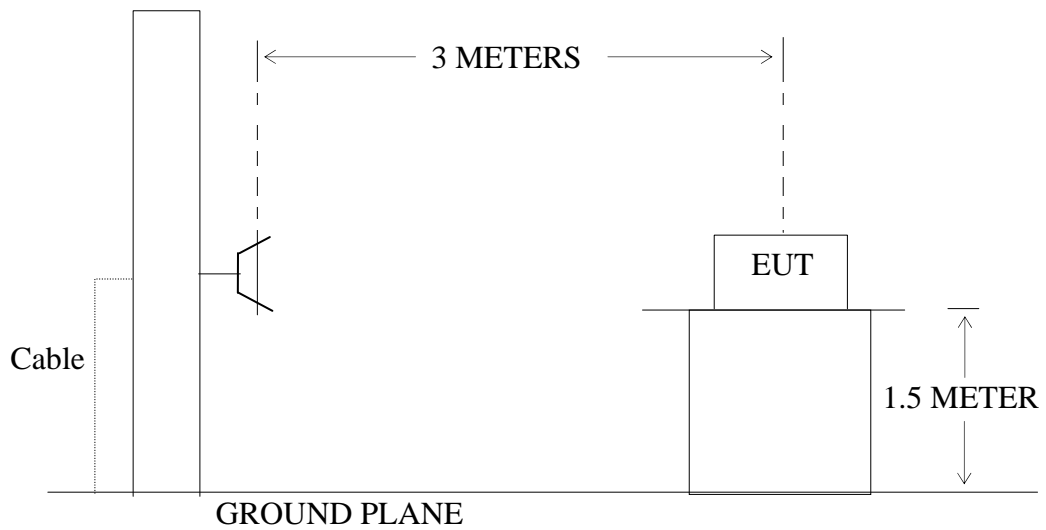
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



7.2.The Limit For Section 15.249

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph A8.4(4), the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

7.3.Restricted bands of operation

7.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

7.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.5. Operating Condition of EUT

7.5.1. Setup the EUT and simulator as shown as Section 7.1.

7.5.2. Turn on the power of all equipment.

7.5.3. Let the EUT work in TX modes and measure it. The transmit frequency are 2405, 2439, 2479MHz.

7.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter (Below 1GHz) and 1.5m (above 1GHz) high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz

Peak detector above 1GHz

RBW (1 MHz), VBW (3MHz) for Peak measurement

RBW (1 MHz), VBW (10Hz) for AV measurement

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

7.7.The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3. The EUT is tested radiation emission in three axes. The worst emissions are reported in all channels.

4. The radiation emissions from 9KHz-30MHz and 18GHz-25GHz are not reported, because the test values lower than the limits of 20dB.

5. The average measurement was not performed when peak measured data under the limit of average detection.

Below 1GHz



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Site: 1# Chamber

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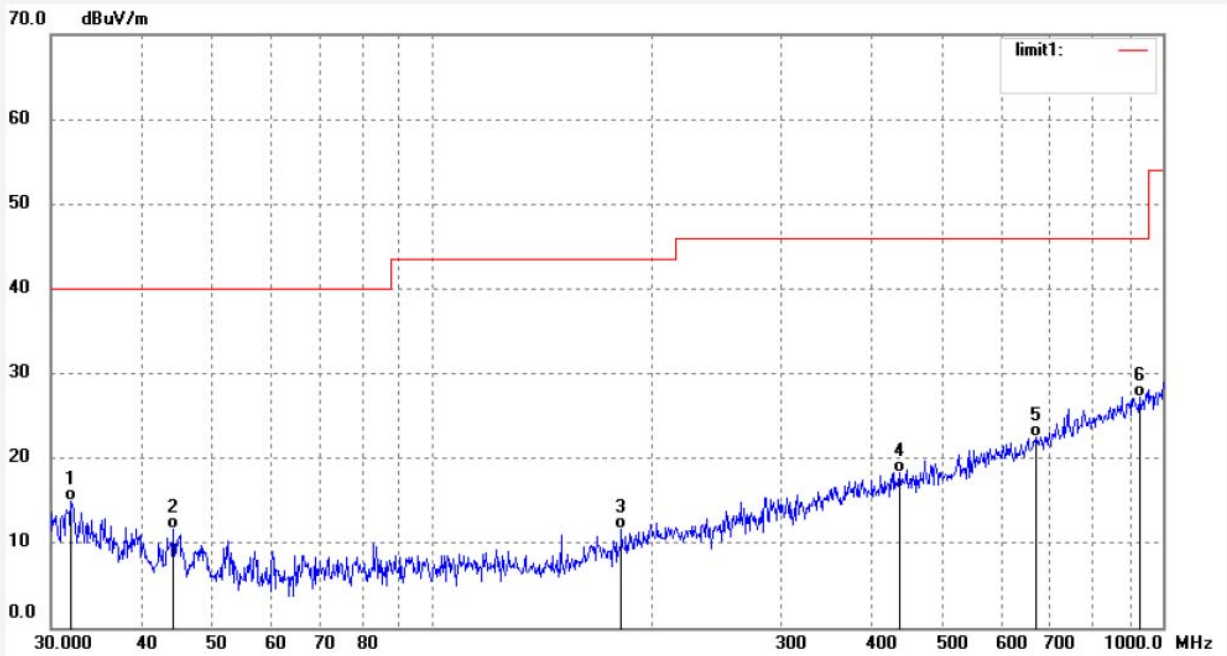
Fax:+86-0755-26503396

Job No.: frank2017 #892
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: X-Detector
Mode: TX2405MHz
Model: 66139

Polarization: Horizontal
Power Source: DC 6V
Date: 17/08/9/
Time: 9/21/55
Engineer Signature: Frank
Distance: 3m

Manufacturer: Shenzhen Yangri Electronic Company Limit

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.11	-15.19	14.92	40.00	-25.08	QP	100	158	
2	44.1544	30.42	-18.79	11.63	40.00	-28.37	QP	100	235	
3	181.3000	31.79	-20.19	11.60	43.50	-31.90	QP	100	236	
4	436.3956	30.60	-12.23	18.37	46.00	-27.63	QP	100	210	
5	669.9523	29.46	-6.93	22.53	46.00	-23.47	QP	100	331	
6	928.8710	29.10	-1.84	27.26	46.00	-18.74	QP	100	222	

Job No.: frank2017 #893

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2405MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

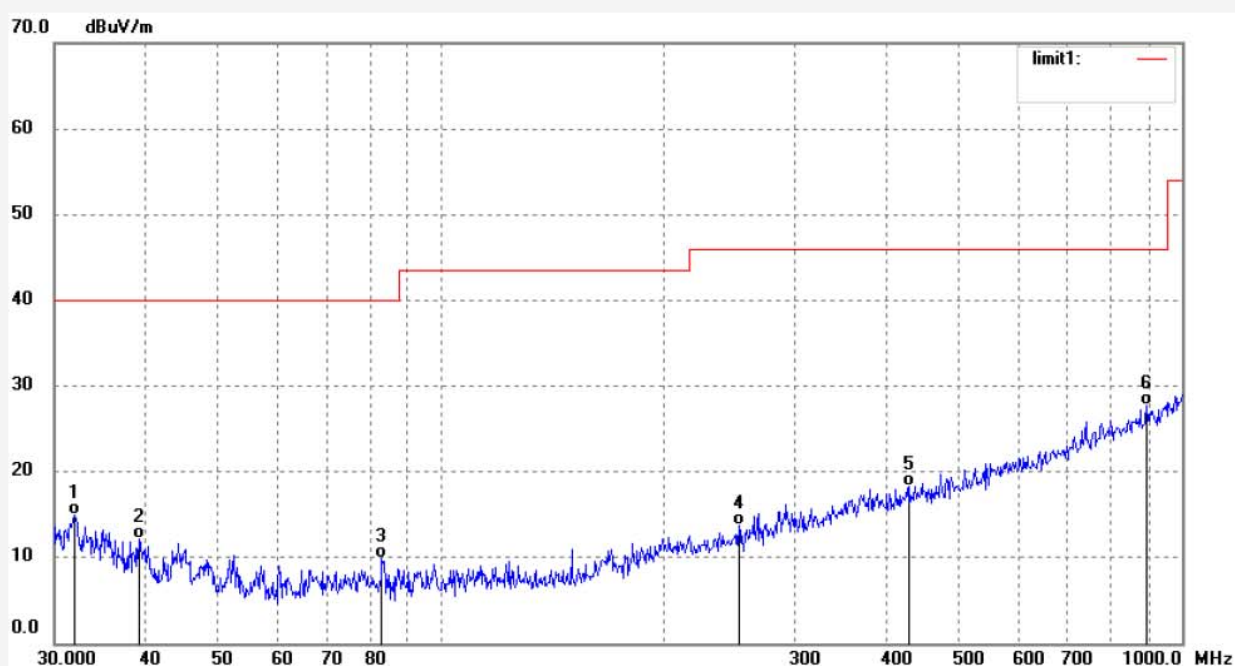
Date: 17/08/9/

Time: 9/22/00

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.11	-15.19	14.92	40.00	-25.08	QP	100	105	
2	39.0449	29.84	-17.69	12.15	40.00	-27.85	QP	100	215	
3	83.1076	31.89	-21.98	9.91	40.00	-30.09	QP	100	224	
4	252.2522	31.80	-18.01	13.79	46.00	-32.21	QP	100	111	
5	428.7959	30.77	-12.47	18.30	46.00	-27.70	QP	100	154	
6	896.8011	30.09	-2.36	27.73	46.00	-18.27	QP	100	210	



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Job No.: frank2017 #894

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2439MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

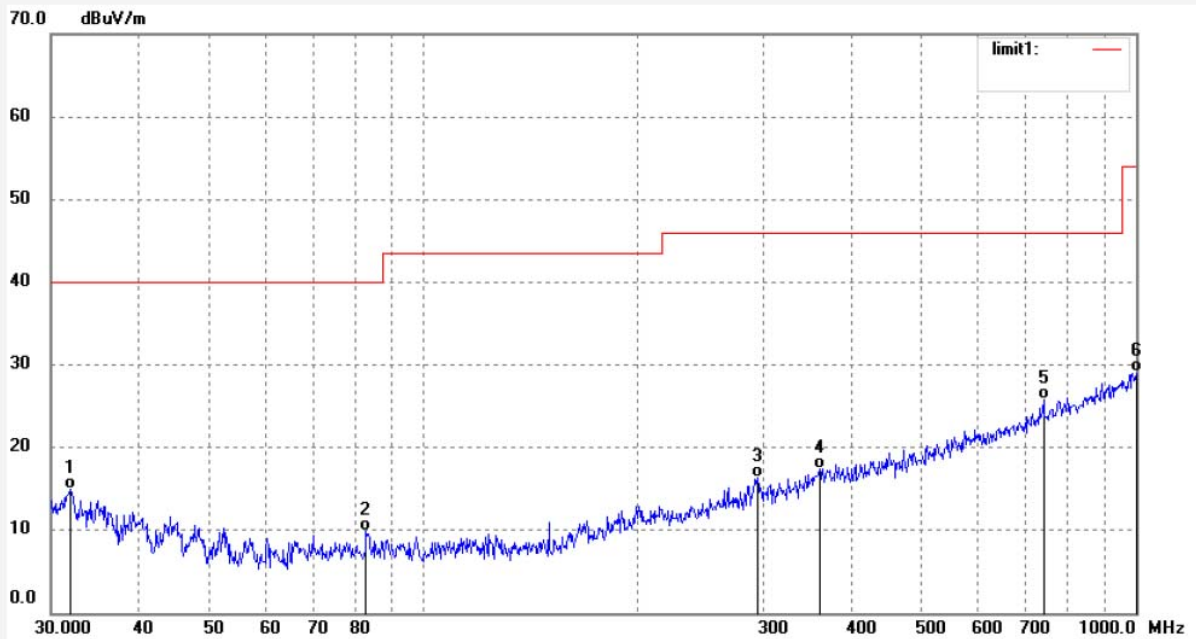
Date: 17/08/9/

Time: 9/22/11

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.11	-15.19	14.92	40.00	-25.08	QP	100	157	
2	83.1076	31.89	-21.98	9.91	40.00	-30.09	QP	100	210	
3	294.4259	32.39	-15.95	16.44	46.00	-29.56	QP	100	146	
4	359.7114	30.85	-13.45	17.40	46.00	-28.60	QP	100	233	
5	741.8155	31.23	-5.33	25.90	46.00	-20.10	QP	100	302	
6	1000.0000	29.29	-0.20	29.09	54.00	-24.91	QP	100	116	

Job No.: frank2017 #895

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2439MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal

Power Source: DC 6V

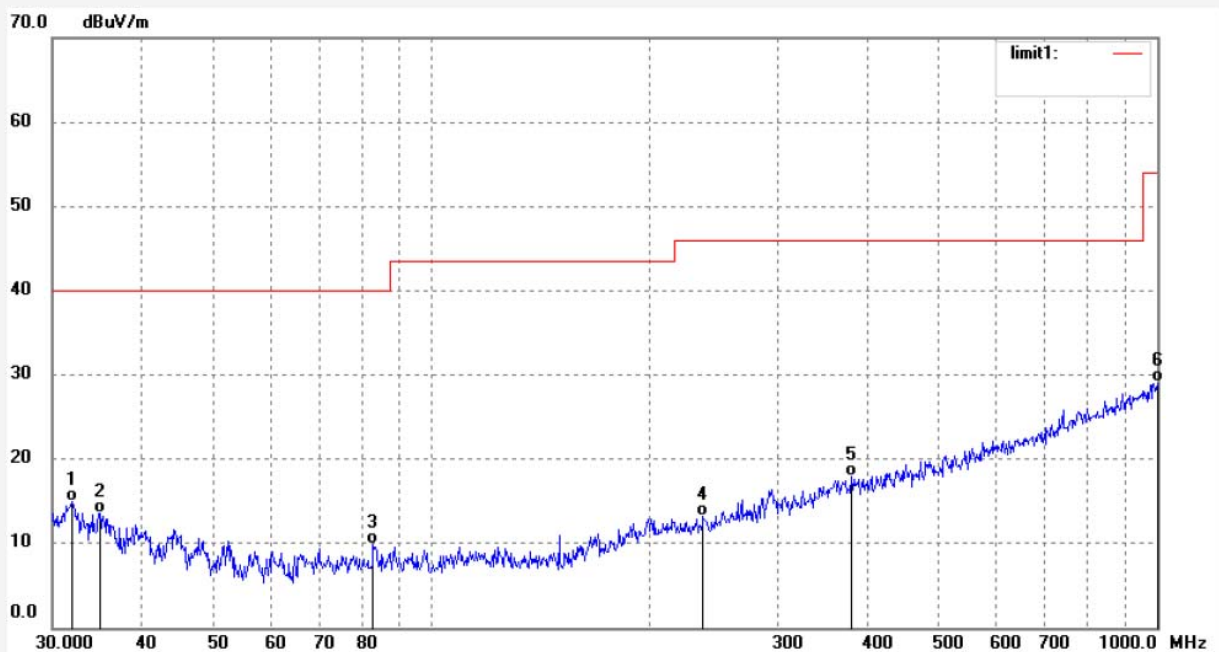
Date: 17/08/9/

Time: 9/22/20

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.11	-15.19	14.92	40.00	-25.08	QP	100	332	
2	34.8928	29.47	-15.92	13.55	40.00	-26.45	QP	100	221	
3	83.1076	31.89	-21.98	9.91	40.00	-30.09	QP	100	136	
4	236.7927	31.43	-18.22	13.21	46.00	-32.79	QP	100	210	
5	379.1779	31.23	-13.24	17.99	46.00	-28.01	QP	100	335	
6	1000.0000	29.29	-0.20	29.09	54.00	-24.91	QP	100	215	



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Job No.: frank2017 #896

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: DC 6V

Test item: Radiation Test

Date: 17/08/9/

Temp.(C)/Hum.(%) 25 C / 55 %

Time: 9/22/28

EUT: X-Detector

Engineer Signature: Frank

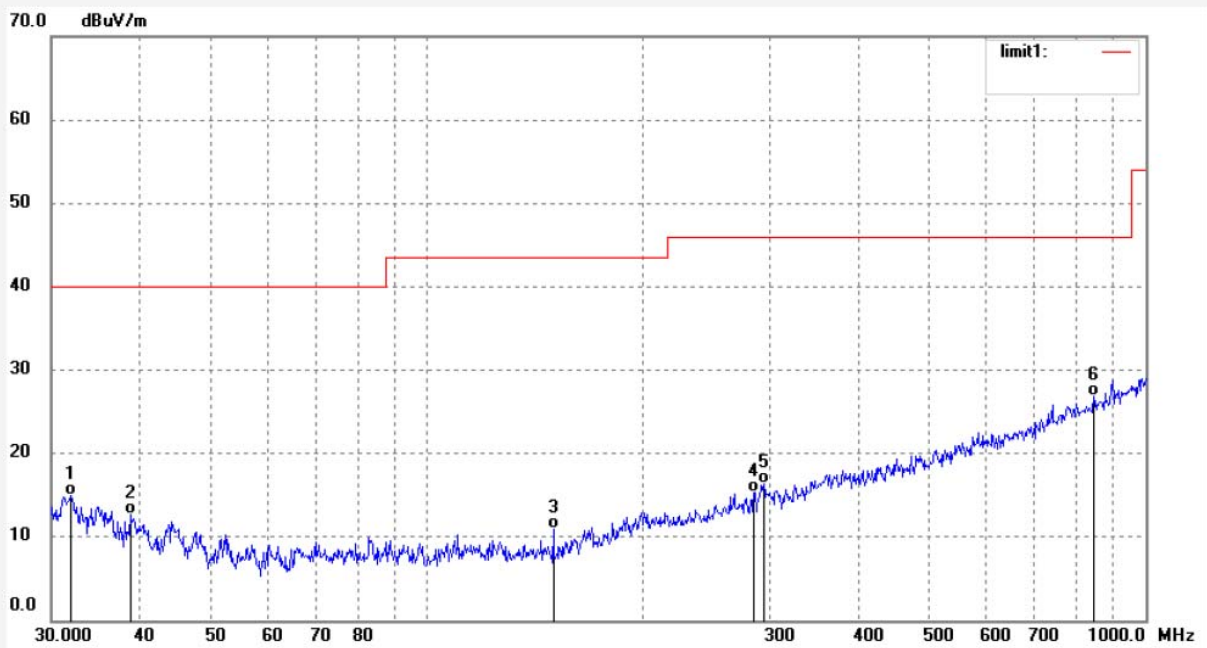
Mode: TX2479MHz

Distance: 3m

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.15	-15.19	14.96	40.00	-25.04	QP	100	116	
2	38.6355	30.13	-17.51	12.62	40.00	-27.38	QP	100	205	
3	149.9676	33.21	-22.35	10.86	43.50	-32.64	QP	100	263	
4	285.2611	31.69	-16.37	15.32	46.00	-30.68	QP	100	323	
5	294.4259	32.39	-15.95	16.44	46.00	-29.56	QP	100	233	
6	847.7762	30.09	-3.27	26.82	46.00	-19.18	QP	100	116	



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Job No.: frank2017 #897

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2479MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

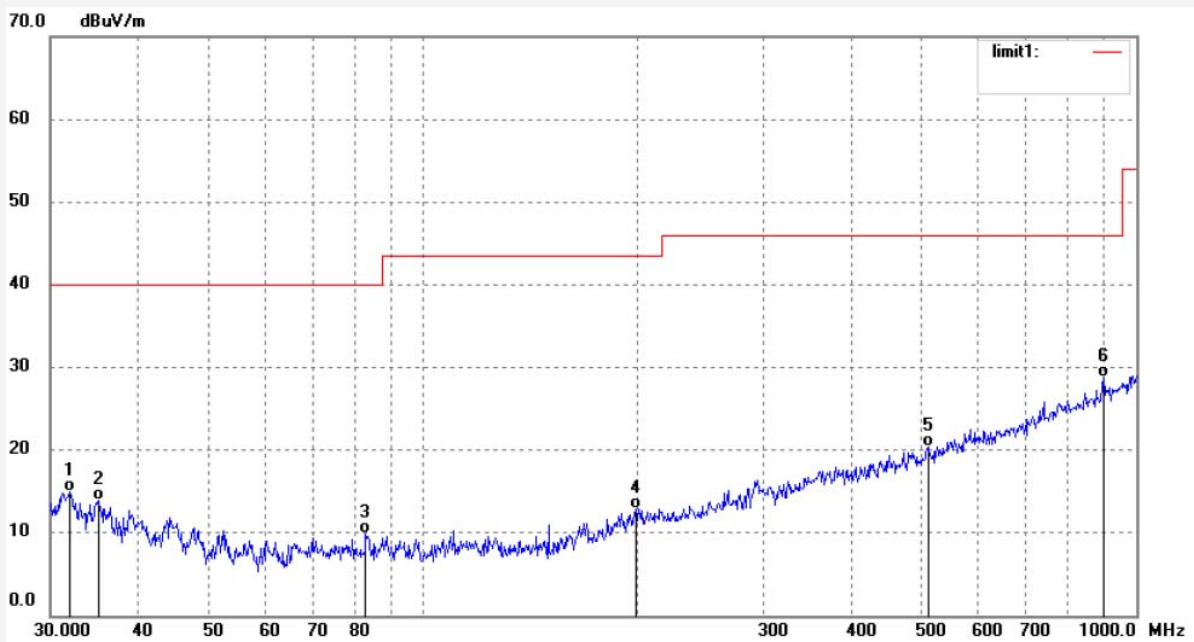
Date: 17/08/9/

Time: 9/22/31

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	31.9586	30.15	-15.19	14.96	40.00	-25.04	QP	100	144	
2	35.0157	29.95	-15.96	13.99	40.00	-26.01	QP	100	132	
3	83.1076	31.89	-21.98	9.91	40.00	-30.09	QP	100	100	
4	198.6424	31.66	-18.74	12.92	43.50	-30.58	QP	100	175	
5	511.1487	30.94	-10.63	20.31	46.00	-25.69	QP	100	215	
6	899.9577	31.14	-2.31	28.83	46.00	-17.17	QP	100	222	

Above 1GHz


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Job No.: frank2017 #864

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2405MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

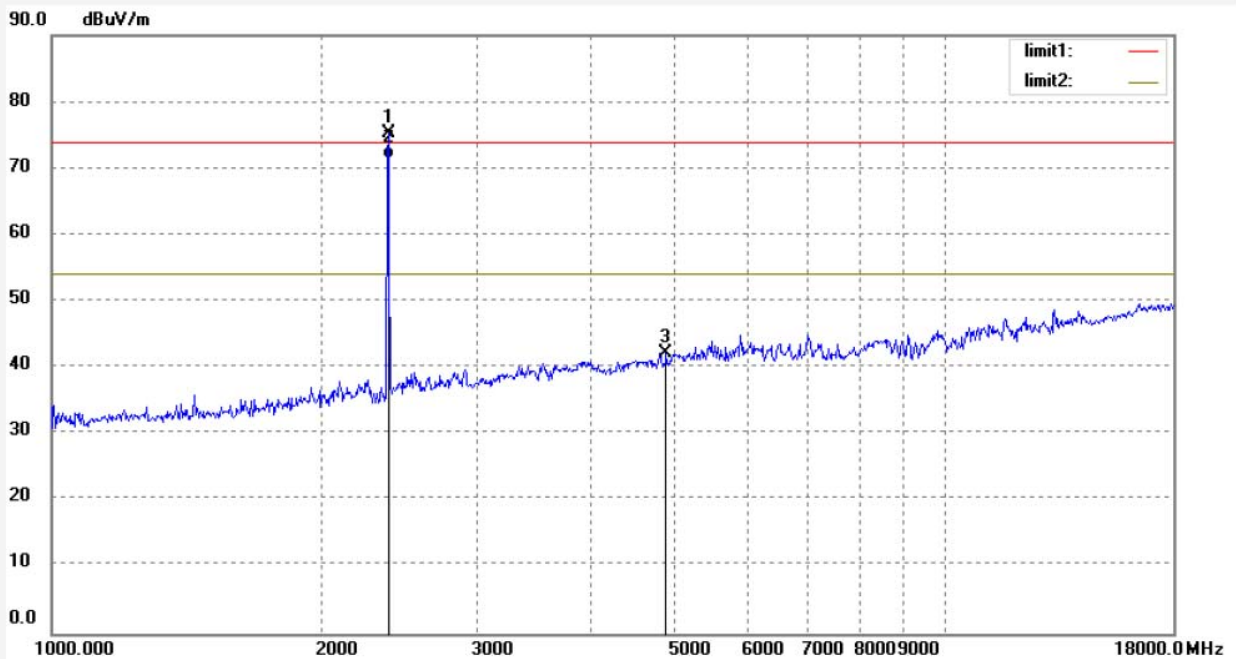
Date: 17/08/09/

Time: 14/12/36

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2405.000	79.26	-4.01	75.25	114.00	-38.75	peak	150	120	
2	2405.000	75.45	-4.01	71.44	94.00	-22.56	AVG	150	120	
3	4810.000	38.14	4.06	42.20	74.00	-31.80	peak	150	226	



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Job No.: frank2017 #865

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2405MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal

Power Source: DC 6V

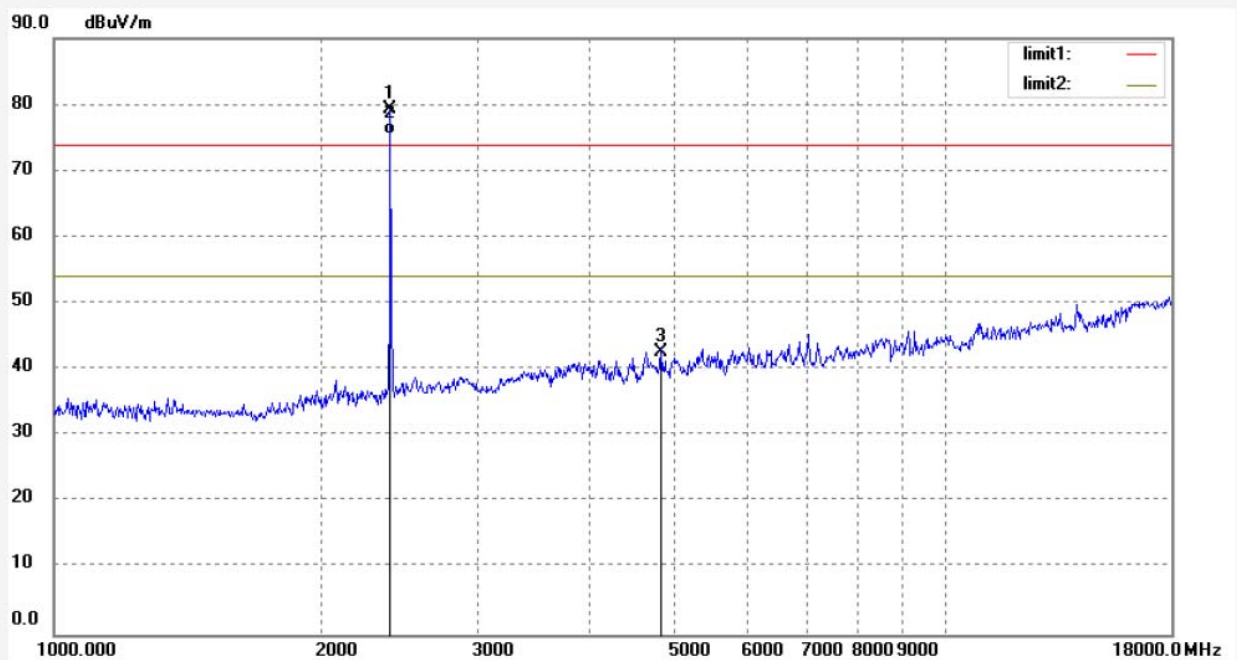
Date: 17/08/09/

Time: 14/13/38

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2405.000	83.35	-3.97	79.38	114.00	-34.62	peak	150	220	
2	2405.000	79.45	-3.97	75.48	94.00	-18.54	AVG	150	220	
3	4810.000	38.76	3.80	42.56	74.00	-31.44	peak	150	238	



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Job No.: frank2017 #866

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2439MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal

Power Source: DC 6V

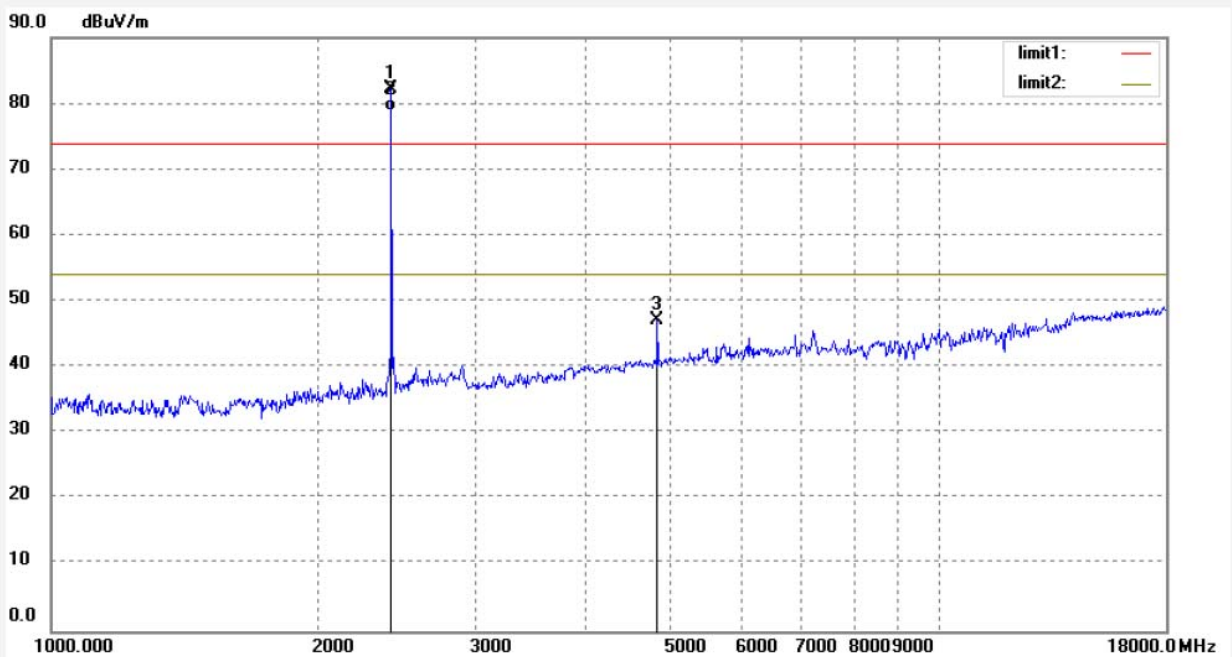
Date: 17/08/09/

Time: 14/17/03

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2439.000	86.17	-3.83	82.34	114.00	-31.66	peak	150	247	
2	2439.000	82.65	-3.83	78.82	94.00	-15.18	AVG	150	247	
3	4878.000	43.28	3.82	47.10	74.00	-26.90	peak	150	136	



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Job No.: frank2017 #867

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2439MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

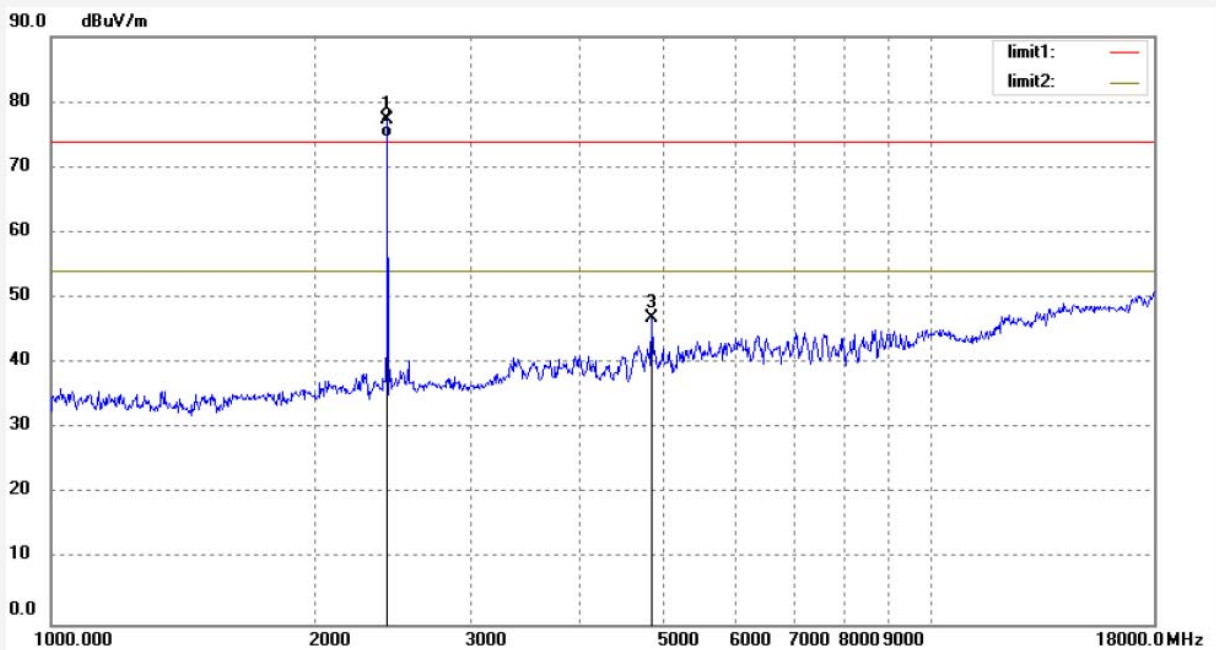
Date: 17/08/09/

Time: 14/18/44

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2439.000	81.22	-3.83	77.39	114.00	-36.61	peak	150	157	
2	2439.000	78.45	-3.83	74.62	94.00	-19.38	AVG	150	157	
3	4878.000	42.95	3.88	46.83	74.00	-27.17	peak	150	200	



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Job No.: frank2017 #868

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: X-Detector

Mode: TX2479MHz

Model: 66139

Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Vertical

Power Source: DC 6V

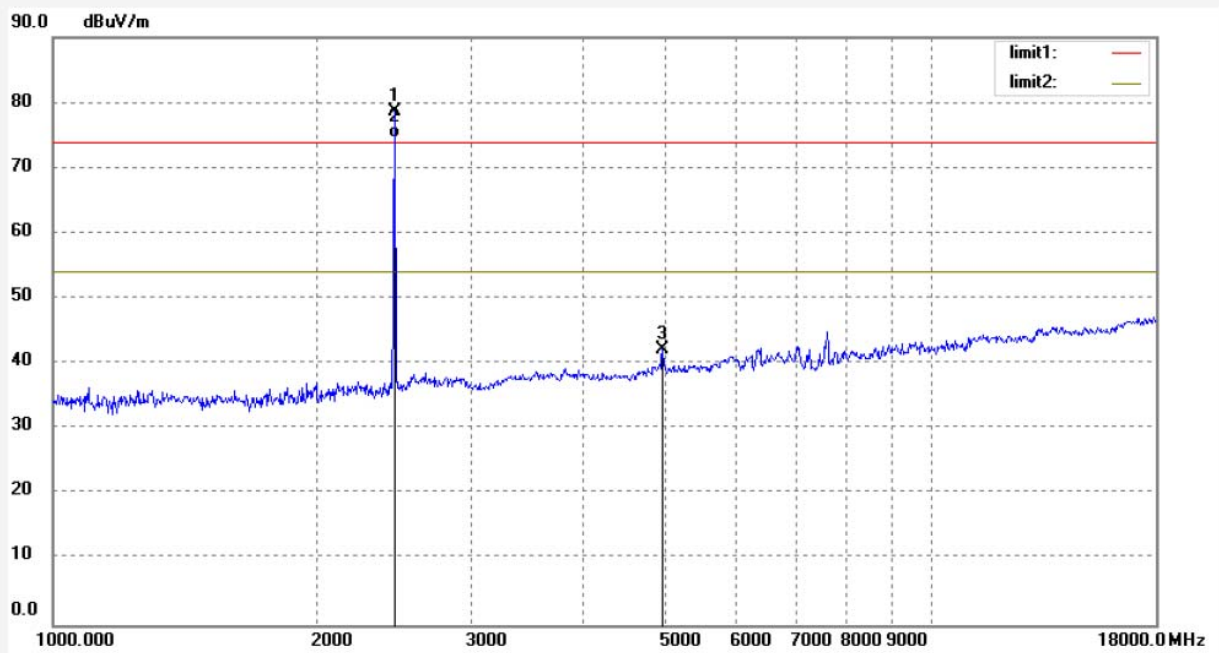
Date: 17/08/09/

Time: 15/11/37

Engineer Signature: Frank

Distance: 3m

Note: Report NO.:ATE20171648

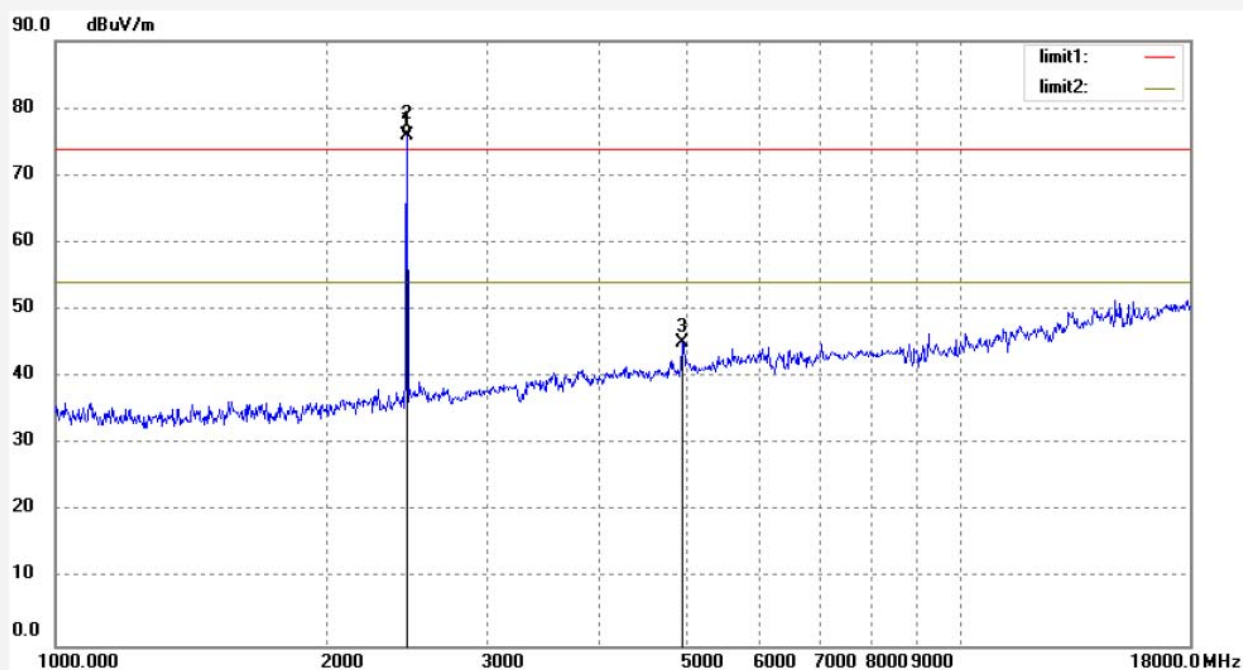


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2479.000	82.28	-3.67	78.61	114.00	-35.39	peak	150	305	
2	2479.000	78.32	-3.67	74.65	94.00	-19.35	AVG	150	305	
3	4958.000	37.76	4.37	42.13	74.00	-31.87	peak	150	221	

Job No.: frank2017 #869
 Standard: FCC PK
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 25 C / 55 %
 EUT: X-Detector
 Mode: TX2479MHz
 Model: 66139
 Manufacturer: Shenzhen Yangri Electronic Company Limit

Polarization: Horizontal
 Power Source: DC 6V
 Date: 17/08/09/
 Time: 15/13/10
 Engineer Signature: Frank
 Distance: 3m

Note: Report NO.:ATE20171648



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2479.000	79.50	-3.67	75.83	114.00	-38.17	peak	150	291	
2	2479.000	79.50	-3.67	71.74	94.00	-22.26	AVG	150	291	
3	4958.000	40.74	4.37	45.11	74.00	-28.89	peak	150	334	

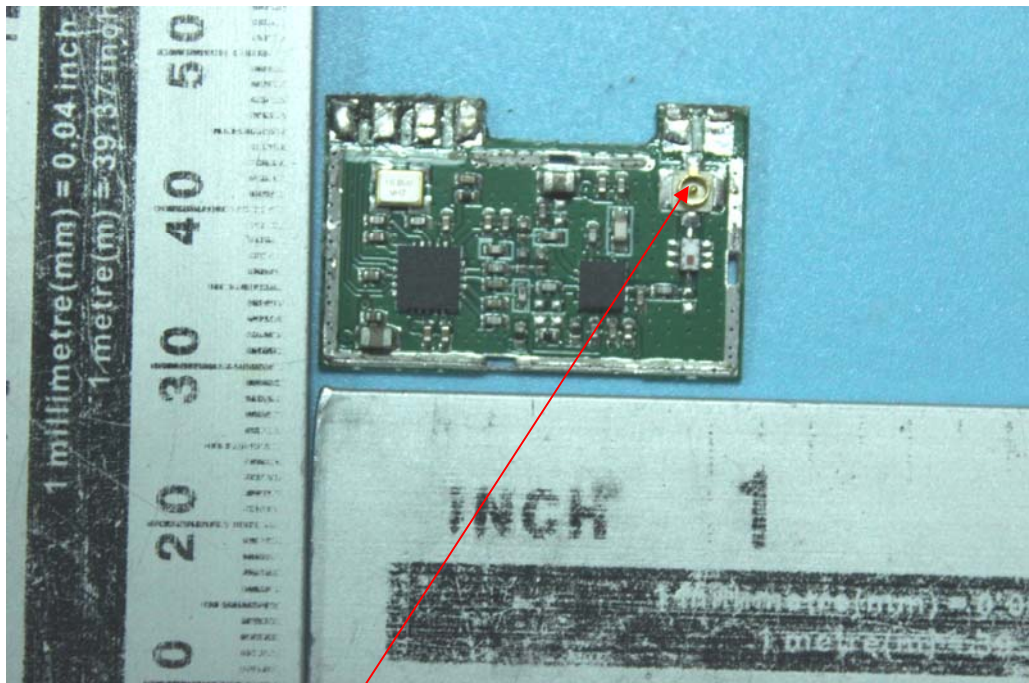
8. ANTENNA REQUIREMENT

8.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 1dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna