

# FCC TEST REPORT

For

#### FLYING TECHNOLOGY INDUSTRIAL CO., LTD.

Remote Control

Model No.: FY-919

Prepared For : FLYING TECHNOLOGY INDUSTRIAL CO., LTD.

Address RM1504, FENGBO PLAZA, DAXIN ROAD, YUEXIU DISTRICT,

GUANGZHOU, CHINA

Prepared By : Shenzhen Anbotek Compliance Laboratory Limited

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Report Number : R0217060195W

Date of Test : Jun. 23~Jul. 06, 2017

Date of Report : Jul. 07, 2017



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# **TEST REPORT**

Applicant : FLYING TECHNOLOGY INDUSTRIAL CO., LTD.

Manufacturer : DONGGUAN FAIRLAND UAV TECHNOLOGY CO., LTD.

Product Name : Remote Control

Model No. : FY-919

Trade Mark : N.A.

Date of Test:

Rating(s) : Input DC 2.8V (Battery DC 6V 60mA)

Test Standard(s) : FCC Part15 Subpart C, Paragraph 15.249

**Test Method(s)** : **ANSI C63.10: 2013** 

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Jun. 23~Jul. 06, 2017

|                                 | - van. 25 van. 00, 2017         |
|---------------------------------|---------------------------------|
| Prepared by :                   | Winkey Wang                     |
| ANDOREM S                       | (Tested Engineer / Winkey Wang) |
| Reviewer:                       | Tanguz. 7.                      |
|                                 | (Project Manager / Tangcy. T)   |
| : Approved & Authorized Signer: | Ton Chen                        |
|                                 | (Manager / Tom Chen)            |



# 1. General Information

#### 1.1. Client Information

| Applicant    | : | FLYING TECHNOLOGY INDUSTRIAL CO., LTD.                    |  |  |
|--------------|---|---|--|--|
| A d'duoso    |   | RM1504, FENGBO PLAZA, DAXIN ROAD, YUEXIU DISTRICT,        |  |  |
| Address      |   | GUANGZHOU, CHINA  |  |  |
| Manufacturer | : | DONGGUAN FAIRLAND UAV TECHNOLOGY CO., LTD.                |  |  |
| Address :    |   | A1009, ZHONGKE TECHNOLOGY PLAZA, SONGSHAN LAKE, DONGGUAN, |  |  |
|              |   | CHINA   |  |  |

### 1.2. Description of Device (EUT)

| Product Name        | : | Remote Control       |              |  |  |
|---------------------|---|----------------------|--------------|--|--|
| Model No.           | : | FY-919               |              |  |  |
| Trade Mark          | : | N.A.                 |              |  |  |
| Test Power Supply   | : | DC 6V Battery inside |              |  |  |
|                     |   | Operation Frequency: | 2453-2475MHz |  |  |
|                     |   | Number of Channel:   | 6 Channels   |  |  |
| Product Description |   | Modulation Type:     | FSK          |  |  |
| Description         |   | Antenna Type:        | whip antenna |  |  |
|                     |   | Antenna Gain(Peak):  | 1 dBi        |  |  |

**Remark:** 1)For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

### 1.3. Auxiliary Equipment Used During Test

|  | - 1 |
|--|-----|
|  | - 1 |
|  |     |



#### 1.4. Description of Test Modes

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1       | Normal Mode |
| Mode 2       | CH01        |
| Mode 3       | CH04        |
| Mode 4       | CH06        |

| For Radiated Emission       |      |  |  |  |
|-----------------------------|------|--|--|--|
| Final Test Mode Description |      |  |  |  |
| Mode 2                      | CH01 |  |  |  |
| Mode 3                      | CH04 |  |  |  |
| Mode 4                      | CH06 |  |  |  |

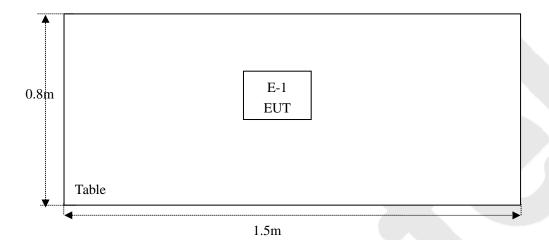
### 1.5. List of Channels

| Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|---------|----------------|---------|----------------|
| 1       | 2453           | 4       | 2465           |
| 2       | 2457           | 5       | 2470           |
| 3       | 2460           | 6       | 2475           |



# 1.6. Description of Test Setup

RE





# 1.7. Test Equipment List

| Item | Equipment                            | Manufacturer            | Model No.      | Serial No.                | Last Cal.     | Cal. Interval |
|------|--------------------------------------|-------------------------|----------------|---------------------------|---------------|---------------|
| 1.   | L.I.S.N. Artificial Mains Network    | Rohde & Schwarz         | ENV216         | 100055                    | May 27, 2017  | 1 Year        |
| 2.   | EMI Test Receiver                    | Rohde & Schwarz         | ESCI           | 100627                    | May 27, 2017  | 1 Year        |
| 3.   | RF Switching Unit                    | Compliance<br>Direction | RSU-M2         | 38303                     | May 27, 2017  | 1 Year        |
| 4.   | Spectrum Analysis                    | Agilent                 | E4407B         | US39390582                | May 27, 2017  | 1 Year        |
| 5.   | Preamplifier                         | SKET Electronic         | BK1G18G30<br>D | KD17503                   | May 27, 2017  | 1 Year        |
| 6.   | EMI Test Receiver                    | Rohde & Schwarz         | ESPI           | 101604                    | May 27, 2017  | 1 Year        |
| 7.   | Double Ridged Horn<br>Antenna        | Instruments corporation | GTH-0118       | 351600                    | May 31, 2017  | 1 Year        |
| 8.   | Bilog Broadband<br>Antenna           | Schwarzbeck             | VULB9163       | VULB 9163-289             | May 31, 2017  | 1 Year        |
| 9.   | Loop Antenna                         | Schwarzbeck             | HFH2-Z2        | 100047                    | Apr. 03, 2017 | 1 Year        |
| 10.  | Pre-amplifier                        | SONOMA                  | 310N           | 186860                    | May 27, 2017  | 1 Year        |
| 11.  | EMI Test Software<br>EZ-EMC          | SHURPLE                 | N/A            | N/A                       | N/A           | N/A           |
| 12.  | Power Sensor                         | DAER                    | RPR3006W       | 15I00041SN045             | May 27, 2017  | 1 Year        |
| 13.  | Power Sensor                         | DAER                    | RPR3006W       | 15I00041SN046             | May 27, 2017  | 1 Year        |
| 14.  | MXA Spectrum Analysis                | Agilent                 | N9020A         | MY51170037                | May 27, 2017  | 1 Year        |
| 15.  | MXG RF Vector<br>Signal Generator    | Agilent                 | N5182A         | MY48180656                | May 27, 2017  | 1 Year        |
| 16.  | Signal Generator                     | Agilent                 | E4421B         | MY41000743                | May 27, 2017  | 1 Year        |
| 17.  | DC Power supply                      | IVYTECH                 | IV6003         | 1601D6030007              | May 26, 2017  | 1 Year        |
| 18.  | TEMP&HUMI<br>PROGRAMMABLE<br>CHAMBER | Sertep                  | ZJ-HWHS80<br>B | ZI-17042804   Mar 03 2017 |               | 1 Year        |

# 1.8. Measurement Uncertainty

| Radiation Uncertainty  | Radiation Uncertainty : Ur = 4.1 dB (Horizontal) |                         |
|------------------------|--|-------------------------|
|                        |  | Ur = 4.3  dB (Vertical) |
|                        |  |                         |
| Conduction Uncertainty | :  | Uc = 3.4dB              |



#### 1.9. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### FCC-Registration No.: 752021

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, July 06, 2016.

#### ISED-Registration No.: 8058A-1

Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (ISED) Innovation, Science and Economic Development Canada. The acceptance letter from the ISED is maintained in our files. Registration 8058A-1, June 13, 2016.

#### **Test Location**

All Emissions tests were performed at

Shenzhen Anbotek Compliance Laboratory Limited.

at 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China



# 2. Summary of Test Results

| Standard Section                                     | Test Item           | Result |  |  |
|--|---------------------|--------|--|--|
| 15.203   | Antenna Requirement | PASS   |  |  |
| 15.207   | Conducted Emission  | N/A    |  |  |
| 15.249   | Radiated Emission   | PASS   |  |  |
| 15.215(c)  | 20dB Bandwidth      | PASS   |  |  |
| 15.249(c) Band Edge                                  |                     | PASS   |  |  |
| Remark: "N/A" is an abbreviation for Not Applicable. |                     |        |  |  |



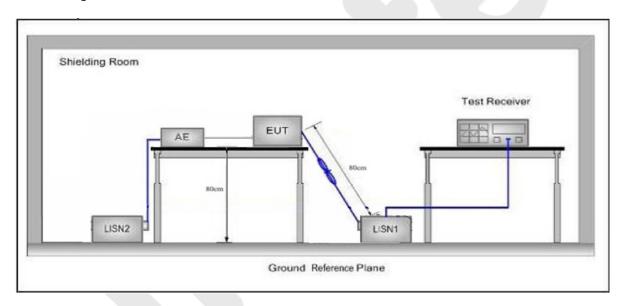
### 3. Conducted Emission Test

#### 3.1. Test Standard and Limit

| Test Standard | FCC Part15 Section 15.207 |                                |               |  |  |
|---------------|---------------------------|--------------------------------|---------------|--|--|
|               | Eraguanav                 | Maximum RF Line Voltage (dBuV) |               |  |  |
|               | Frequency                 | Quasi-peak Level               | Average Level |  |  |
| Test Limit    | 150kHz~500kHz             | 66 ~ 56 *                      | 56 ~ 46 *     |  |  |
|               | 500kHz~5MHz               | 56                             | 46            |  |  |
|               | 5MHz~30MHz                | 60                             | 50            |  |  |

**Remark:** (1) \*Decreasing linearly with logarithm of the frequency.

#### 3.2. Test Setup



#### 3.3. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.10-2013 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

#### 3.4. Test Data

The EUT is powered by DC 6V battery inside, so there is no need to conduct this test.

<sup>(2)</sup> The lower limit shall apply at the transition frequency.



# 4. Radiated Emission and Band Edge

#### 4.1. Test Standard and Limit

| Test Standard | FCC Part15 C Section 15.2 | 209 and 15.205                   |                   |            |                          |
|---------------|---------------------------|----------------------------------|-------------------|------------|--------------------------|
|               | Frequency<br>(MHz)        | Field strength (microvolt/meter) | Limit<br>(dBuV/m) | Remark     | Measurement distance (m) |
|               | 0.009MHz~0.490MHz         | 2400/F(kHz)                      | -                 | <u>-</u>   | 300                      |
|               | 0.490MHz-1.705MHz         | 24000/F(kHz)                     | -                 | -          | 30                       |
|               | 1.705MHz-30MHz            | 30                               | -                 | -          | 30                       |
| Test Limit    | 30MHz~88MHz               | 100                              | 40.0              | Quasi-peak | 3                        |
|               | 88MHz~216MHz              | 150                              | 43.5              | Quasi-peak | 3                        |
|               | 216MHz~960MHz             | 200                              | 46.0              | Quasi-peak | 3                        |
|               | 960MHz~1000MHz            | 500                              | 54.0              | Quasi-peak | 3                        |
|               | Above 1000MHz             | 500                              | 54.0              | Average    | 3                        |
|               | AUUVE TUUUIVIITZ          | -                                | 74.0              | Peak       | 3                        |

#### Remark:

(2) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

| Test Standard | FCC Part15 C    | FCC Part15 C Section 15.249                              |  |                   |         |                          |  |  |  |  |
|---------------|-----------------|--|--|-------------------|---------|--------------------------|--|--|--|--|
| Test Limit    | Frequency (MHz) | Field Strength of<br>fundamental<br>((millivolts /meter) | Field Strength of Harmonics (microvolts/meter) | Limit<br>(dBuV/m) | Remark  | Measurement distance (m) |  |  |  |  |
|               | 2400~2483.5     | 50   | -  | 114.0             | Peak    | 3                        |  |  |  |  |
|               | 2400~2483.5     | 50   | -  | 94.0              | Average | 3                        |  |  |  |  |
|               | 2400~2483.5     | -  | 500  | 74.0              | Peak    | 3                        |  |  |  |  |
|               | 2400~2483.5     | -  | 500  | 54.0              | Average | 3                        |  |  |  |  |

#### Remark:

(1) 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

<sup>(1)</sup> The lower limit shall apply at the transition frequency.



### 4.2. Test Setup

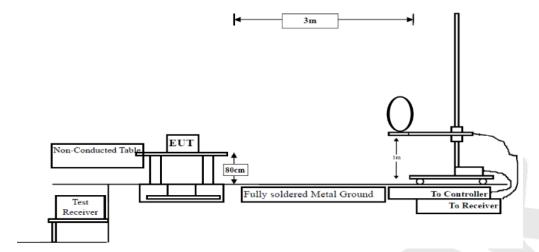


Figure 1. Below 30MHz

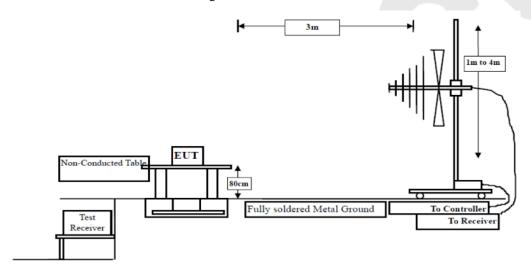


Figure 2. 30MHz to 1GHz

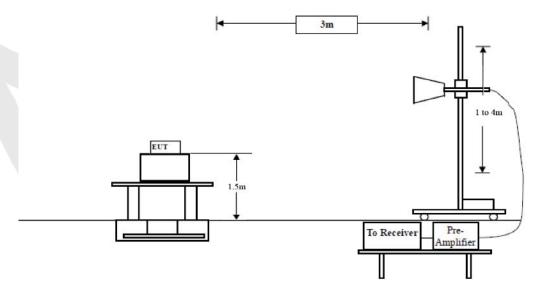


Figure 3. Above 1 GHz



#### 4.3. Test Procedure

For below 1GHz: The EUT is placed on a turntable, which is 0.8m above the ground plane.

For above 1GHz: The EUT is placed on a turntable, which is 1.5m above the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Rotated the EUT through three orthogonal axes to determine the maximum emissions, both horizontal and vertical polarization of the antenna are set on test. The EUT is tested in 9\*6\*6 Chamber. The device is evaluated in xyz orientation.

For 9kHz to 150kHz, Set the spectrum analyzer as:

RBW = 200Hz, VBW =1kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 150kHz to 30MHz, Set the spectrum analyzer as:

RBW = 9KHz, VBW = 30kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For 30MHz to 1000MHz, Set the spectrum analyzer as:

RBW = 100kHz, VBW =300kHz, Detector= Quasi-Peak, Trace mode= Max hold, Sweep- auto couple.

For above 1GHz,Set the spectrum analyzer as:

RBW =1MHz, VBW =1MHz, Detector= Peak, Trace mode= Max hold, Sweep- auto couple.

RBW =1MHz, VBW =10Hz, Detector= Average, Trace mode= Max hold, Sweep- auto couple.

#### 4.4. Test Data

#### **PASS**

During the test, Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the X-axis is the worst case.

The test results of 9kHz-30MHz and above 18000MHz are attenuated more than 20dB below the permissible limits, so the results don't record in the report.

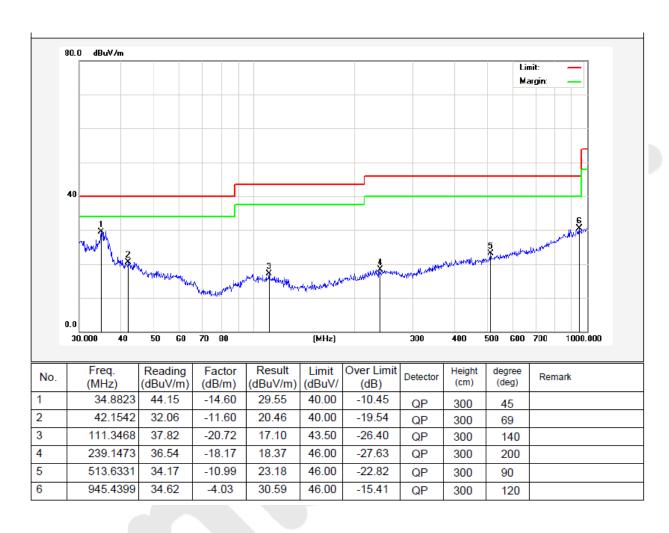


#### Test Results (30~1000MHz)

Job No.: 0217060195W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH

Standard: FCC PART 15C Power Source: DC 6V

Test Mode: TX Mode Polarization: Horizontal



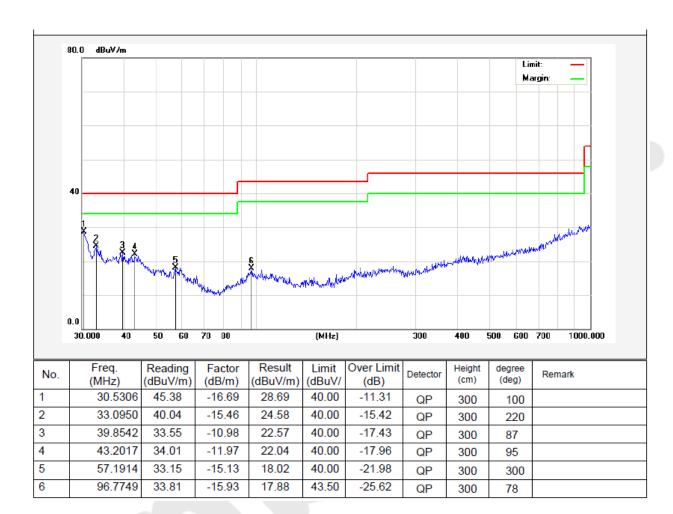


Test Results (30~1000MHz)

Job No.: 0217060195W Temp.(°C)/Hum.(%RH): 24.3°C/55%RH

Standard: FCC PART 15C Power Source: DC 6V

Test Mode: TX Mode Polarization: Vertical





#### Test Results (Above 1000MHz)

| Test Mode: O    | CH01 (Low ch         | annel)                      |                 |                          |                |                |                 |      |          |
|-----------------|----------------------|-----------------------------|-----------------|--------------------------|----------------|----------------|-----------------|------|----------|
| Frequency (MHz) | Read Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable Loss (dB) | Preamp<br>Factor<br>(dB) | Level (dBuV/m) | Limit (dBuV/m) | Over Limit (dB) | Pol. | Detector |
| 2453.0000       | 94.21                | 31.21                       | 2.22            | 35.41                    | 92.23          | 114.00         | -21.77          | V    | Peak     |
| 2453.0000       | 85.15                | 31.21                       | 2.22            | 35.41                    | 83.17          | 94.00          | -10.83          | V    | AVG      |
| 4906.0000       | 49.32                | 34.11                       | 2.62            | 34.80                    | 51.25          | 74.00          | -22.75          | V    | Peak     |
| 4906.0000       | 43.51                | 34.11                       | 2.62            | 34.80                    | 45.44          | 54.00          | -8.56           | V    | AVG      |
| 7359.0000       | 43.74                | 36.12                       | 2.98            | 35.11                    | 47.73          | 74.00          | -26.27          | V    | Peak     |
| 7359.0000       | 36.38                | 36.12                       | 2.98            | 35.11                    | 40.37          | 54.00          | -13.63          | V    | AVG      |
| 9812.0000       | *                    |                             |                 |                          |                |                |                 |      |          |
| 12265.0000      | *                    |                             |                 |                          |                |                | 7 4             |      | <i></i>  |
| 14718.0000      | *                    |                             |                 |                          |                |                |                 |      |          |
| 17171.0000      | *                    |                             |                 |                          |                |                |                 |      |          |
| 2453.0000       | 90.82                | 31.21                       | 2.22            | 35.41                    | 88.84          | 114.00         | -25.16          | Н    | Peak     |
| 2453.0000       | 84.75                | 31.21                       | 2.22            | 35.41                    | 82.77          | 94.00          | -11.23          | Н    | AVG      |
| 4906.0000       | 46.52                | 34.11                       | 2.62            | 34.80                    | 48.45          | 74.00          | -25.55          | Н    | Peak     |
| 4906.0000       | 38.78                | 34.11                       | 2.62            | 34.80                    | 40.71          | 54.00          | -13.29          | Н    | AVG      |
| 7359.0000       | 41.52                | 36.12                       | 2.98            | 35.11                    | 45.51          | 74.00          | -28.49          | Н    | Peak     |
| 7359.0000       | 35.54                | 36.12                       | 2.98            | 35.11                    | 39.53          | 54.00          | -14.47          | Н    | AVG      |
| 9812.0000       | *                    |                             |                 |                          |                |                |                 |      |          |
| 12265.0000      | *                    |                             |                 |                          |                |                |                 |      |          |
| 14718.0000      | *                    |                             |                 |                          |                |                |                 |      |          |
| 17171.0000      | *                    |                             |                 |                          |                |                |                 |      |          |



FCC ID: 2ANCDFY-919

|                 |                      | Antenna       |                    | Preamp      |                   |                |                    |      |          |
|-----------------|----------------------|---------------|--------------------|-------------|-------------------|----------------|--------------------|------|----------|
| Frequency (MHz) | Read Level<br>(dBuV) | Factor (dB/m) | Cable Loss<br>(dB) | Factor (dB) | Level<br>(dBuV/m) | Limit (dBuV/m) | Over Limit<br>(dB) | Pol. | Detector |
| 2465.0000       | 92.48                | 31.20         | 2.24               | 34.62       | 91.30             | 114.00         | -22.70             | V    | Peak     |
| 2465.0000       | 87.92                | 31.22         | 2.24               | 34.62       | 86.76             | 94.00          | -7.24              | V    | AVG      |
| 4930.0000       | 48.02                | 35.01         | 2.52               | 34.24       | 51.31             | 74.00          | -22.69             | V    | Peak     |
| 4930.0000       | 43.11                | 35.01         | 2.52               | 34.24       | 46.40             | 54.00          | -7.60              | V    | AVG      |
| 7395.0000       | 39.62                | 36.14         | 3.10               | 34.64       | 44.22             | 74.00          | -29.78             | V    | Peak     |
| 7395.0000       | 35.44                | 36.14         | 3.10               | 34.64       | 40.04             | 54.00          | -13.96             | V    | AVG      |
| 9860.0000       | *                    |               |                    |             |                   |                |                    |      |          |
| 12325.0000      | *                    |               |                    |             |                   |                |                    |      |          |
| 14790.0000      | *                    |               |                    |             |                   |                |                    |      |          |
| 17255.0000      | *                    |               |                    |             |                   |                |                    |      |          |
| 2465.0000       | 90.21                | 31.20         | 2.24               | 34.62       | 89.03             | 114.00         | -24.97             | Н    | Peak     |
| 2465.0000       | 80.21                | 31.20         | 2.24               | 34.62       | 79.03             | 94.00          | -14.97             | Н    | AVG      |
| 4930.0000       | 41.47                | 35.01         | 2.52               | 34.24       | 44.76             | 74.00          | -29.24             | Н    | Peak     |
| 4930.0000       | 38.51                | 35.01         | 2.52               | 34.24       | 41.80             | 54.00          | -12.20             | Н    | AVG      |
| 7395.0000       | 39.00                | 36.14         | 3.10               | 34.64       | 43.60             | 74.00          | -30.40             | Н    | Peak     |
| 7395.0000       | 35.01                | 36.14         | 3.10               | 34.64       | 39.61             | 54.00          | -14.39             | Н    | AVG      |
| 9860.0000       | *                    |               |                    |             |                   |                |                    |      |          |
| 12325.0000      | *                    |               |                    |             |                   |                |                    |      |          |
| 14790.0000      | *                    |               |                    |             |                   |                |                    |      |          |
| 17255.0000      | *                    |               |                    |             |                   |                |                    |      |          |



17325.0000

\*

Test Mode: CH06 (High channel) Antenna Preamp Read Level Cable Loss Frequency Level Limit Over Limit Factor Factor Pol. Detector (dB) (MHz) (dBuV) (dBuV/m) (dBuV/m) (dB) (dB/m) (dB) 94.21 2.25 2475.0000 31.66 36.08 92.04 114.00 -21.96 V Peak 2475.0000 86.32 2.25 36.08 84.15 94.00 -9.85 V AVG 31.66 4950.0000 53.11 35.07 34.94 55.86 74.00 V 2.62 -18.14 Peak 43.25 35.07 34.94 46.00 54.00 AVG 4950.0000 2.62 -8.00V 39.32 V 7425.0000 36.20 3.13 35.12 43.53 74.00 -30.47 Peak 7425.0000 34.21 36.20 3.13 35.12 38.42 54.00 -15.58 V AVG 9900.0000 12375.0000 \* 14850.0000 \* 17325.0000 \* 2475.0000 93.00 36.08 90.83 114.00 -23.17 Η 31.66 2.25 Peak AVG 2475.0000 80.22 31.66 2.25 36.08 78.05 94.00 -15.95Η 4950.0000 47.20 34.94 49.95 35.07 2.62 74.00 -24.05 Η Peak 4950.0000 39.21 35.07 2.62 34.94 41.96 54.00 -12.04 Η AVG 7425.0000 46.32 36.20 3.13 35.12 50.53 74.00 -23.47 Η Peak 7425.0000 36.22 36.20 3.13 35.12 40.43 54.00 -13.57 Η **AVG** 9900.0000 \* 12375.0000 \* 14850.0000 \*



#### Radiated Band Edge:

| Test Mode:      |                      |                             |                 |                          | channel: Lowe     | est               |                 |      |
|-----------------|----------------------|-----------------------------|-----------------|--------------------------|-------------------|-------------------|-----------------|------|
|                 |                      |                             |                 | Peak Value               |                   |                   |                 |      |
| Frequency (MHz) | Read Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable Loss (dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Over Limit (dB) | Pol. |
| 2390.00         | 52.74                | 29.15                       | 3.41            | 34.01                    | 51.29             | 74.00             | -22.71          | V    |
| 2400.00         | 56.01                | 29.16                       | 3.43            | 34.01                    | 54.59             | 74.00             | -19.41          | V    |
| 2390.00         | 52.33                | 29.15                       | 3.41            | 34.01                    | 50.88             | 74.00             | -23.12          | Н    |
| 2400.00         | 55.01                | 29.16                       | 3.43            | 34.01                    | 53.59             | 74.00             | -20.41          | Н    |
|                 |                      |                             | A               | verage Value             | e                 |                   |                 |      |
| Frequency (MHz) | Read Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable Loss (dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit (dBuV/m)    | Over Limit (dB) | Pol. |
| 2390.00         | 42.03                | 29.15                       | 3.41            | 34.01                    | 40.58             | 54.00             | -13.42          | V    |
| 2400.00         | 45.36                | 29.16                       | 3.43            | 34.01                    | 43.94             | 54.00             | -10.06          | V    |
| 2390.00         | 41.52                | 29.15                       | 3.41            | 34.01                    | 40.07             | 54.00             | -13.93          | Н    |
| 2400.00         | 44.36                | 29.16                       | 3.43            | 34.01                    | 42.94             | 54.00             | -11.06          | Н    |

| Test Mode:      |                      |                             |                 | Test                     | channel: High     | est               |                 |      |
|-----------------|----------------------|-----------------------------|-----------------|--------------------------|-------------------|-------------------|-----------------|------|
|                 |                      |                             |                 | Peak Value               |                   |                   |                 |      |
| Frequency (MHz) | Read Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable Loss (dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit<br>(dBuV/m) | Over Limit (dB) | Pol. |
| 2483.50         | 54.21                | 29.28                       | 3.53            | 34.03                    | 52.99             | 74.00             | -21.01          | V    |
| 2500.00         | 50.33                | 29.30                       | 3.56            | 34.03                    | 49.16             | 74.00             | -24.84          | V    |
| 2483.50         | 56.93                | 29.28                       | 3.53            | 34.03                    | 55.71             | 74.00             | -18.29          | Н    |
| 2500.00         | 52.11                | 29.30                       | 3.56            | 34.03                    | 50.94             | 74.00             | -23.06          | Н    |
|                 |                      |                             | A               | verage Valu              | e                 |                   |                 |      |
| Frequency (MHz) | Read Level<br>(dBuV) | Antenna<br>Factor<br>(dB/m) | Cable Loss (dB) | Preamp<br>Factor<br>(dB) | Level<br>(dBuV/m) | Limit (dBuV/m)    | Over Limit (dB) | Pol. |
| 2483.50         | 46.33                | 29.28                       | 3.53            | 34.03                    | 45.11             | 54.00             | -8.89           | V    |
| 2500.00         | 40.60                | 29.30                       | 3.56            | 34.03                    | 39.43             | 54.00             | -14.57          | V    |
| 2483.50         | 45.02                | 29.28                       | 3.53            | 34.03                    | 43.80             | 54.00             | -10.20          | Н    |
| 2500.00         | 41.23                | 29.30                       | 3.56            | 34.03                    | 40.06             | 54.00             | -13.94          | Н    |

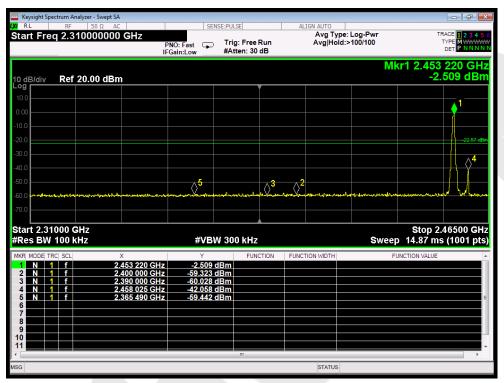
#### Remark:

1. Level =Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

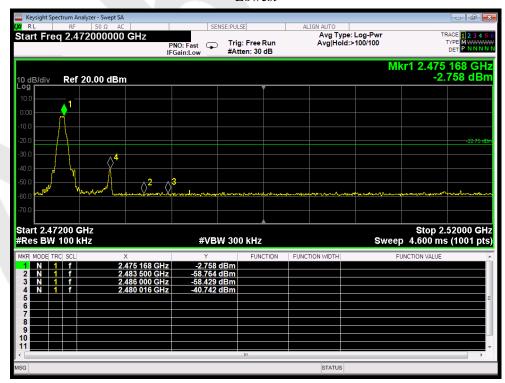
#### Conducted band edge



| Frequency Band (MHz) | Delta Peak toBand Emission (dBc) | Limit (dBc) | Results |
|----------------------|----------------------------------|-------------|---------|
| 2400                 | 56.814                           | >20         | PASS    |
| 2483.5               | 56.006                           | >20         | PASS    |



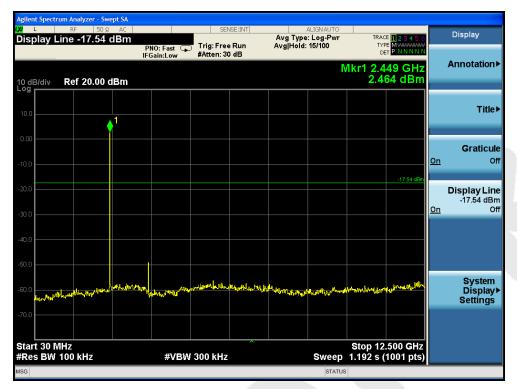
Lowest



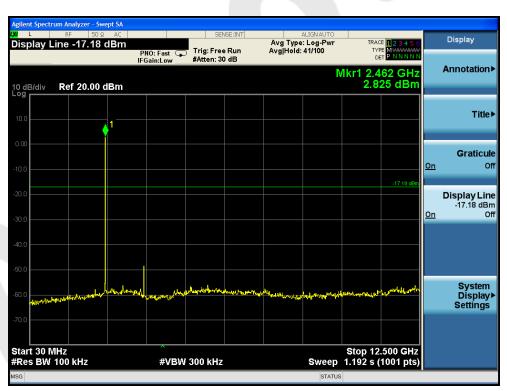
Highest



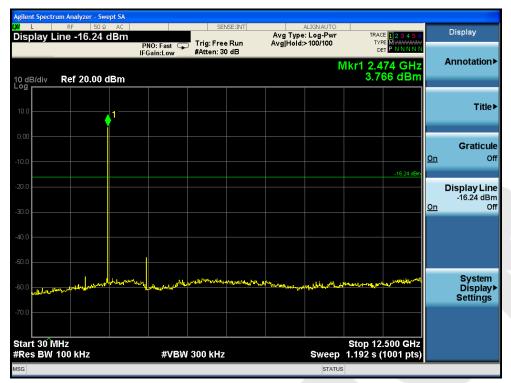
#### Conducted Emission Method



CH: Low



CH: Middle



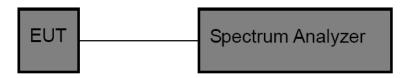
CH: High



### 5. 20dB Bandwidth Test

#### 5.1. Test Standard and Limit

#### 5.2. Test Setup



#### **5.3. Test Procedure**

- 1. Place the EUT on the table and set it in the transmitting mode.
- 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 3. Set the spectrum analyzer as:

RBW = 30kHz, VBW $\geqslant 3*RBW = 100kHz$ ,

Detector= Average

Trace mode= Max hold.

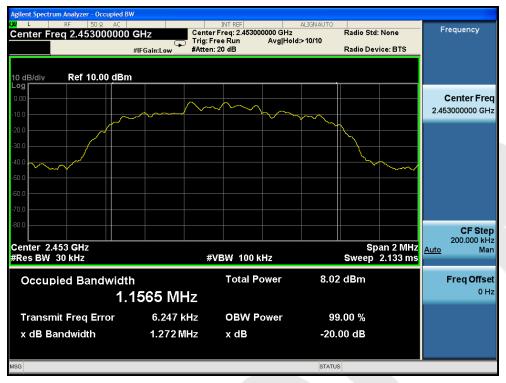
Sweep- auto couple.

- 4. Mark the peak frequency and –20dB (upper and lower) frequency.
- 5. Repeat until all the rest channels are investigated.

### 5.4. Test Data

Test Item : 20dB Bandwidth Test Mode : TX Mode Test Voltage : DC 6V Temperature :  $24^{\circ}$ C Test Result : PASS Humidity : 55%RH

| Frequency<br>(MHz) | Bandwidth<br>(kHz) | Result |
|--------------------|--------------------|--------|
| 2453MHZ            | 1272               | PASS   |
| 2465MHZ            | 1262               | PASS   |
| 2475MHZ            | 1266               | PASS   |



Test Mode: Low



Test Mode: Middle



Test Mode: High



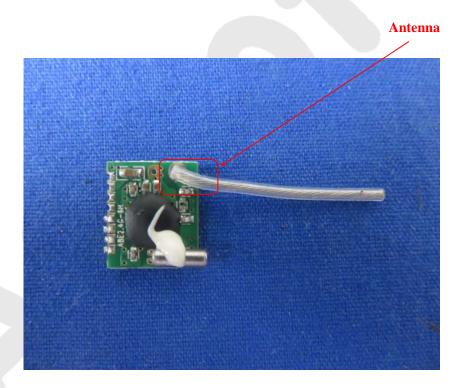
# 6. Antenna Requirement

### 6.1. Test Standard and Requirement

| Test Standard | FCC Part15 Section 15.203   |
|---------------|---|
| Requirement   | 1) 15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. |

#### **6.2.** Antenna Connected Construction

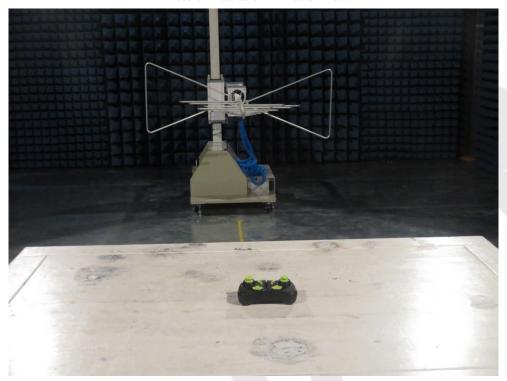
The antenna is a whip antenna which permanently attached, and the best case gain of the antenna is 1dBi. It complies with the standard requirement.





# **APPENDIX I -- TEST SETUP PHOTOGRAPH**









# **APPENDIX II -- EXTERNAL PHOTOGRAPH**



















# APPENDIX III -- INTERNAL PHOTOGRAPH









