



FCC Part 15C Test Report

FCC ID: 2AE40GINT

| | |
|------------------|--|
| Product Name: | Drones/Quadcopter/uav |
| Trademark: | keyshare |
| Model Name : | Glint |
| Prepared For : | Hunan Keyshare Information Technology Co., Ltd. |
| Address : | No.1 and No.19 Building, No.39 Jianshan Rod , Changsha CEC Software Park Headquarter, High-tech Development Zone, Changsha, Hunan Province, China |
| Prepared By : | Shenzhen BCTC Technology Co., Ltd. |
| Address : | No.101,Yousong Road,Longhua New District, Shenzhen,China |
| Test Date: | Jun. 8 - Jun. 15, 2015 |
| Date of Report : | Jun. 17, 2015 |
| Report No.: | BCTC-15060082 |



TEST RESULT CERTIFICATION

Applicant's name : Hunan Keyshare Information Technology Co., Ltd.

Address : No.1 and No.19 Building, No.39 Jianshan Rod , Changsha CEC Software Park Headquarter, High-tech Development Zone, Changsha, Hunan Province, China

Manufacturer's Name : Hunan Keyshare Information Technology Co., Ltd.

Address : No.1 and No.19 Building, No.39 Jianshan Rod , Changsha CEC Software Park Headquarter, High-tech Development Zone, Changsha, Hunan Province, China

Product description

Product name : Drones/Quadcopter/uav

Model and/or type reference : Glint

Serial Model : N/A

Standards : FCC Part15.247

Test procedure ANSI C63.10-2013

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.247) , Subpart C | | | |
|--|----------------------------|----------|--------|
| Standard Section | Test Item | Judgment | Remark |
| 15.207 | Conducted Emission | PASS | |
| 15.247 (a)(2) | 6dB Bandwidth | PASS | |
| 15.247 (b) | Peak Output Power | PASS | |
| 15.247 (c) | Radiated Spurious Emission | PASS | |
| 15.247 (d) | Power Spectral Density | PASS | |
| 15.205 | Band Edge Emission | PASS | |
| 15.203 | Antenna Requirement | PASS | |

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add. : No.101, Yousong Road, Longhua New District, Shenzhen, China

FCC Registered No.: 187086

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %** .

| No. | Item | Uncertainty |
|-----|-------------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | RF power, conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions, conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions, radiated(<1G) | $\pm 4.68\text{dB}$ |
| 5 | All emissions, radiated(>1G) | $\pm 4.89\text{dB}$ |
| 6 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | | | | | | | | | | | | |
|------------------------|--|--|----------------------|--|------------------|------|------------------------|------|----------------------|--------------------|--------------------|--------|
| Equipment | Drones/Quadcopter/uav | | | | | | | | | | | |
| Trade Name | keyshare | | | | | | | | | | | |
| Model Name | Glint | | | | | | | | | | | |
| Serial Model | N/A | | | | | | | | | | | |
| Model Difference | All the model are the same circuit and RF module,except model names. | | | | | | | | | | | |
| Product Description | <table border="1"><tr><td>Operation Frequency:</td><td>2405~2479 MHz 5733~5866MHz(Receiver only)</td></tr><tr><td>Modulation Type:</td><td>DSSS</td></tr><tr><td>Channel separation is:</td><td>1MHz</td></tr><tr><td>Antenna Designation:</td><td>Please see Note 3.</td></tr><tr><td>Antenna Gain (dBi)</td><td>3.0dbi</td></tr></table> | | Operation Frequency: | 2405~2479 MHz 5733~5866MHz(Receiver only) | Modulation Type: | DSSS | Channel separation is: | 1MHz | Antenna Designation: | Please see Note 3. | Antenna Gain (dBi) | 3.0dbi |
| Operation Frequency: | 2405~2479 MHz 5733~5866MHz(Receiver only) | | | | | | | | | | | |
| Modulation Type: | DSSS | | | | | | | | | | | |
| Channel separation is: | 1MHz | | | | | | | | | | | |
| Antenna Designation: | Please see Note 3. | | | | | | | | | | | |
| Antenna Gain (dBi) | 3.0dbi | | | | | | | | | | | |
| | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. | | | | | | | | | | | |
| Channel List | Please refer to the Note 2. | | | | | | | | | | | |
| Adapter | N/A | | | | | | | | | | | |
| Battery | DC 7.4V 800mA | | | | | | | | | | | |
| Connecting I/O Port(s) | Please refer to the User's Manual | | | | | | | | | | | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- 3.

Table for Filed Antenna

| Ant . | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | NOTE |
|-------|-------|------------|----------------|-----------|------------|------|
| A | N/A | N/A | Dipole Antenna | N/A | 3.0 | |



2.2 DESCRIPTION OF TEST MODES

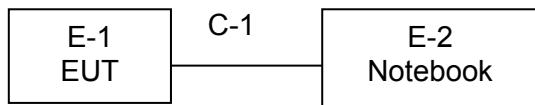
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

| Alltest Mode | Description |
|--------------|-------------|
| Mode 1 | TX Mode |

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------------------|-----------|----------------|------------|------|
| E-1 | Drones/Quadcopter/uav | keyshare | Glint | N/A | EUT |
| E-2 | Notebook | N/A | X550C | N/A | |
| | | | | | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| C1 | NO | NO | 0.8M | |
| | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in «Length» column.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|--------------------|-----------------|------------|-------------------|------------------|------------------|--------------------|
| 1 | Spectrum Analyzer | Agilent | E4407B | MY4510957 2 | 2014.08.25 | 2015.08.24 | 1 year |
| 2 | Test Receiver | R&S | ESPI | 101396 | 2014.08.25 | 2015.08.24 | 1 year |
| 3 | Bilog Antenna | SCHWARZB ECK | VULB9160 | VULB9160- 3369 | 2014.08.25 | 2015.08.24 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 620026441 6 | 2015.06.07 | 2016.06.06 | 1 year |
| 5 | Spectrum Analyzer | ADVANTEST | R3132 | 150900201 | 2015.06.07 | 2016.06.06 | 1 year |
| 6 | Horn Antenna | SCHWARZB ECK | 9120D | 9120D-1275 | 2014.08.25 | 2015.08.24 | 1 year |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2014.07.06 | 2015.07.05 | 1 year |
| 8 | Amplifier | SCHWARZB ECK | BBV9718 | 9718-270 | 2014.08.25 | 2015.08.24 | 1 year |
| 9 | Amplifier | SCHWARZB ECK | BBV9743 | 9743-119 | 2014.08.25 | 2015.08.24 | 1 year |
| 10 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2015.06.08 | 2016.06.07 | 1 year |
| 11 | Power Meter | R&S | NRVS | 100696 | 2014.07.06 | 2015.07.05 | 1 year |
| 12 | Power Sensor | R&S | URV5-Z4 | 0395.1619. 05 | 2014.07.06 | 2015.07.05 | 1 year |
| 13 | RF cables | R&S | N/A | N/A | 2014.07.06 | 2015.07.05 | 1 year |

Conduction Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|-----------------------|-----------------|----------|----------------|------------------|------------------|--------------------|
| 1 | Test Receiver | R&S | ESCI | 101421 | 2014.08.25 | 2015.08.24 | 1 year |
| 2 | LISN | SCHWARZB ECK | NSLK8127 | 812779 | 2014.08.25 | 2015.08.24 | 1 year |
| 3 | LISN | EMCO | Feb-16 | 42990 | 2014.08.24 | 2015.08.23 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 620026441 7 | 2015.06.07 | 2016.06.06 | 1 year |
| 5 | Passive Voltage Probe | R&S | ESH2-Z3 | 100196 | 2015.06.07 | 2016.06.06 | 1 year |



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class B (dBuV) | | Standard |
|-----------------|----------------|-----------|----------|
| | Quasi-peak | Average | |
| 0.15 -0.5 | 66 - 56 * | 56 - 46 * | CISPR |
| 0.50 -5.0 | 56.00 | 46.00 | CISPR |
| 5.0 -30.0 | 60.00 | 50.00 | CISPR |

| | | | |
|-----------|-----------|-----------|-----|
| 0.15 -0.5 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 60.00 | 50.00 | FCC |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

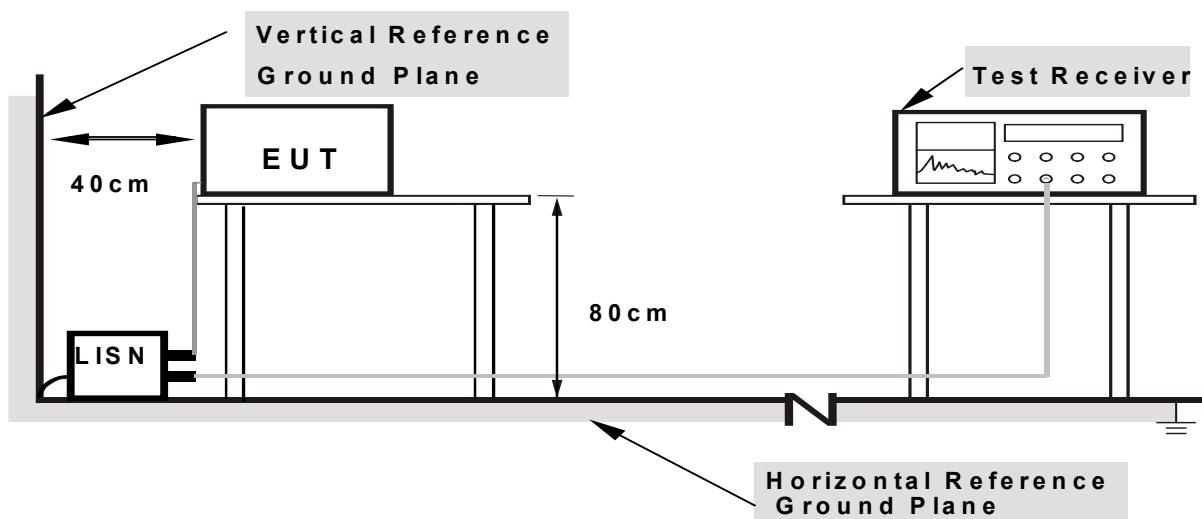
3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



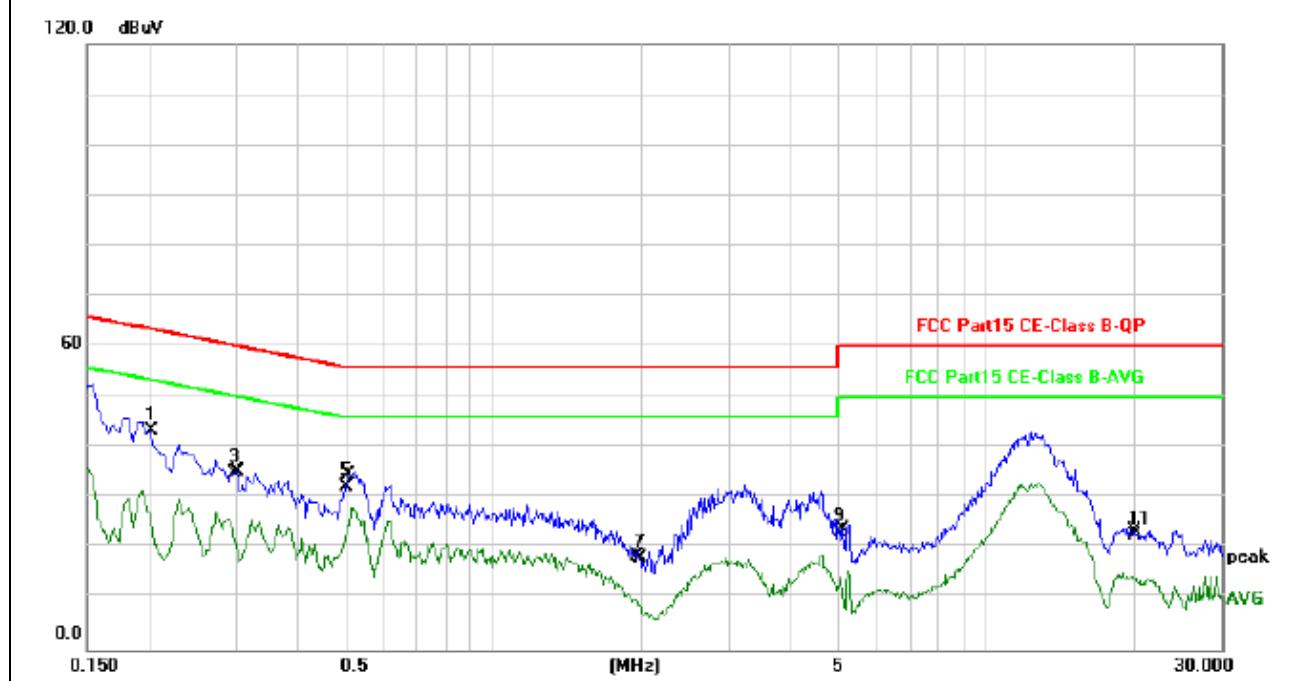
3.1.6 TEST RESULTS

| | | | |
|----------------|-----------------------|---------------------|-------|
| EUT : | Drones/Quadcopter/uav | Model Name. : | Glint |
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | AC120V/60Hz | Test Mode : | TX |

| Frequency (MHz) | Meter Reading (dB μ V) | Factor (dB) | Emission Level (dB μ V) | Limits (dB μ V) | Margin (dB) | Detector Type |
|--------------------|-------------------------------|----------------|--------------------------------|------------------------|----------------|---------------|
| 0.2007 | 33.46 | 10.07 | 43.53 | 63.58 | -20.05 | |
| 0.2007 | 17.12 | 10.07 | 27.19 | 53.58 | -26.39 | AVG |
| 0.2987 | 25.13 | 10.09 | 35.22 | 60.28 | -25.06 | QP |
| 0.3003 | 10.56 | 10.09 | 20.65 | 50.23 | -29.58 | AVG |
| 0.5060 | 22.12 | 10.12 | 32.24 | 56.00 | -23.76 | QP |
| 0.5060 | 13.67 | 10.12 | 23.79 | 46.00 | -22.21 | AVG |
| 1.9820 | 9.93 | 10.18 | 20.11 | 56.00 | -35.89 | QP |
| 1.9820 | 5.22 | 10.18 | 15.40 | 46.00 | -30.60 | AVG |
| 5.0340 | 13.09 | 10.15 | 23.24 | 60.00 | -36.76 | QP |
| 5.0860 | 6.34 | 10.14 | 16.48 | 50.00 | -33.52 | AVG |
| 19.8620 | 12.51 | 10.17 | 22.68 | 60.00 | -37.32 | QP |
| 19.9740 | 5.85 | 10.17 | 16.02 | 50.00 | -33.98 | AVG |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



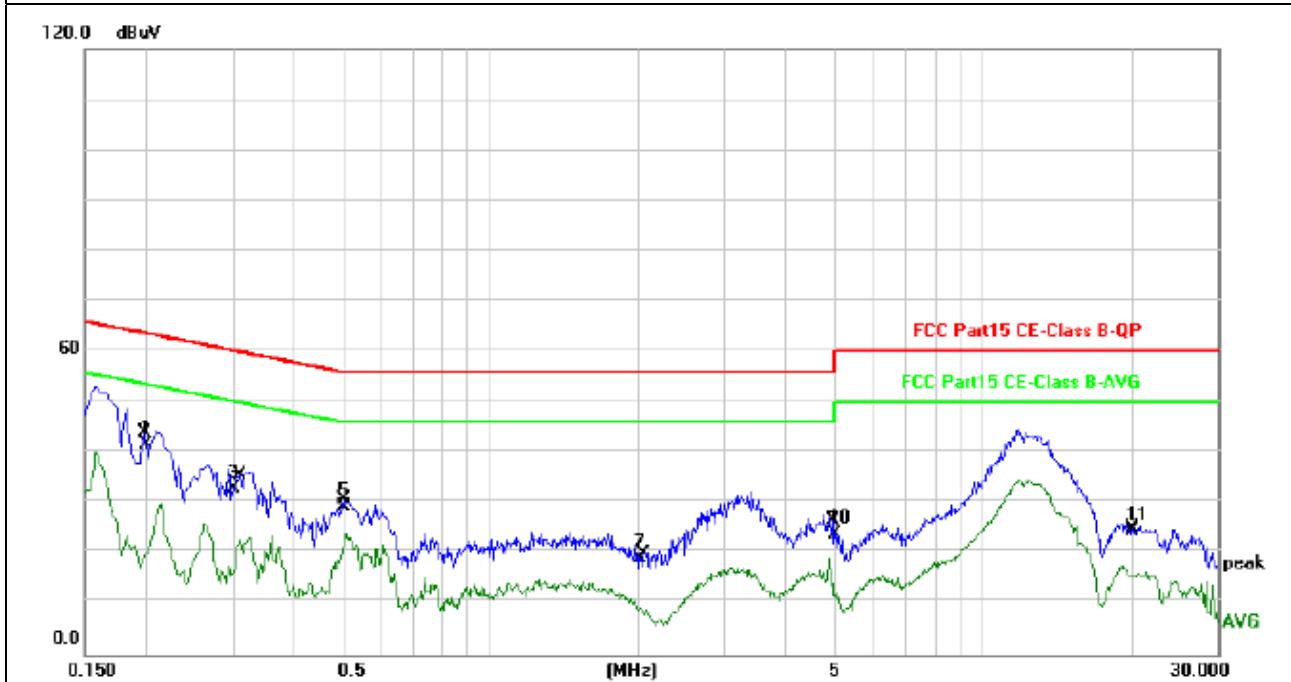


| | | | |
|----------------|-----------------------|---------------------|-------|
| EUT : | Drones/Quadcopter/uav | Model Name. : | Glint |
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | AC120V/60Hz | Test Mode : | TX |

| Frequency (MHz) | Meter Reading (dB μ V) | Factor (dB) | Emission Level (dB μ V) | Limits (dB μ V) | Margin (dB) | Detector Type |
|--------------------|-------------------------------|----------------|--------------------------------|------------------------|----------------|---------------|
| 0.1997 | 31.54 | 10.06 | 41.60 | 63.62 | -22.02 | QP |
| 0.1997 | 10.88 | 10.06 | 20.94 | 53.62 | -32.68 | AVG |
| 0.3003 | 22.88 | 10.09 | 32.97 | 60.23 | -27.26 | QP |
| 0.3035 | 9.65 | 10.09 | 19.74 | 50.14 | -30.40 | AVG |
| 0.5060 | 19.13 | 10.12 | 29.25 | 56.00 | -26.75 | QP |
| 0.5060 | 11.95 | 10.12 | 22.07 | 46.00 | -23.93 | AVG |
| 2.0220 | 8.96 | 10.18 | 19.14 | 56.00 | -36.86 | QP |
| 2.0220 | 4.05 | 10.18 | 14.23 | 46.00 | -31.77 | AVG |
| 4.9820 | 14.11 | 10.15 | 24.26 | 46.00 | -21.74 | QP |
| 5.0220 | 5.85 | 10.15 | 16.00 | 60.00 | -44.00 | AVG |
| 20.2060 | 14.26 | 10.17 | 24.43 | 60.00 | -35.57 | QP |
| 20.3140 | 5.55 | 10.17 | 15.72 | 50.00 | -34.28 | AVG |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (micorvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009~0.490 | 2400/F(KHz) | 300 |
| 0.490~1.705 | 24000/F(KHz) | 30 |
| 1.705~30.0 | 30 | 30 |
| 30~88 | 100 | 3 |
| 88~216 | 150 | 3 |
| 216~960 | 200 | 3 |
| Above 960 | 500 | 3 |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Class B (dBuV/m) (at 3M) | |
|-----------------|--------------------------|---------|
| | PEAK | AVERAGE |
| Above 1000 | 74 | 54 |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

| Spectrum Parameter | Setting |
|---------------------------------------|--|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |



3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters(above 1GHz, the hight was 1.5m) above the ground at a 3 meter Chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m(above 1GHz, the hight was 1.5m); the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

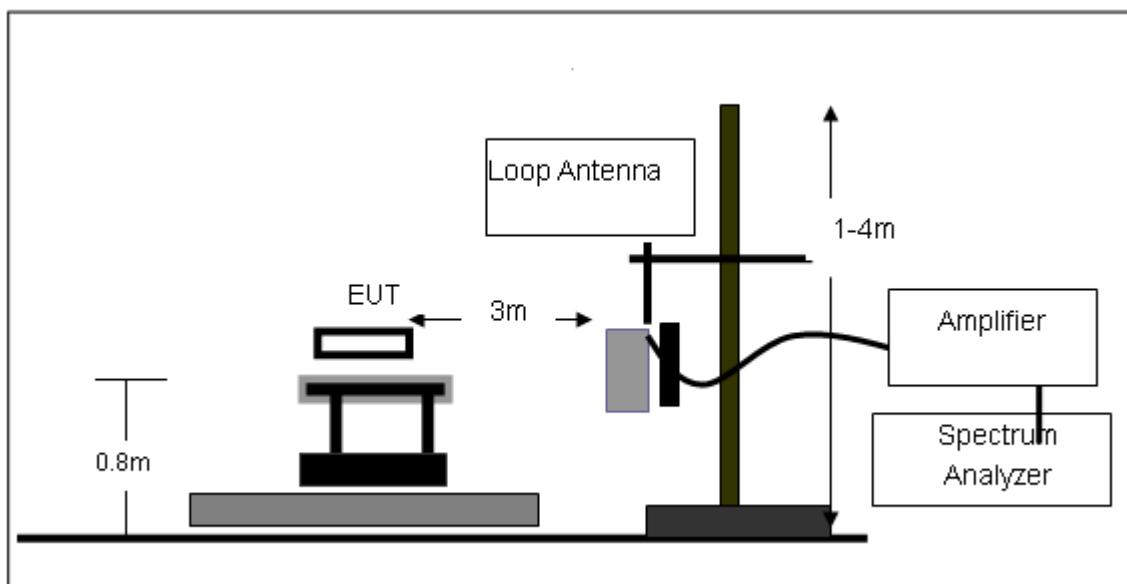
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

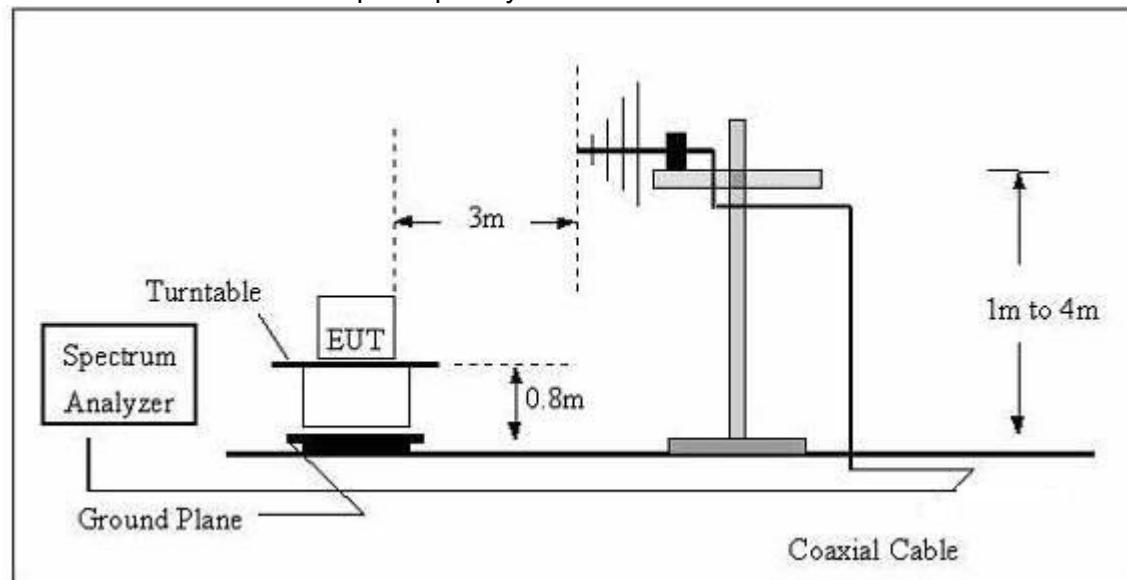
No deviation

3.2.4 TEST SETUP

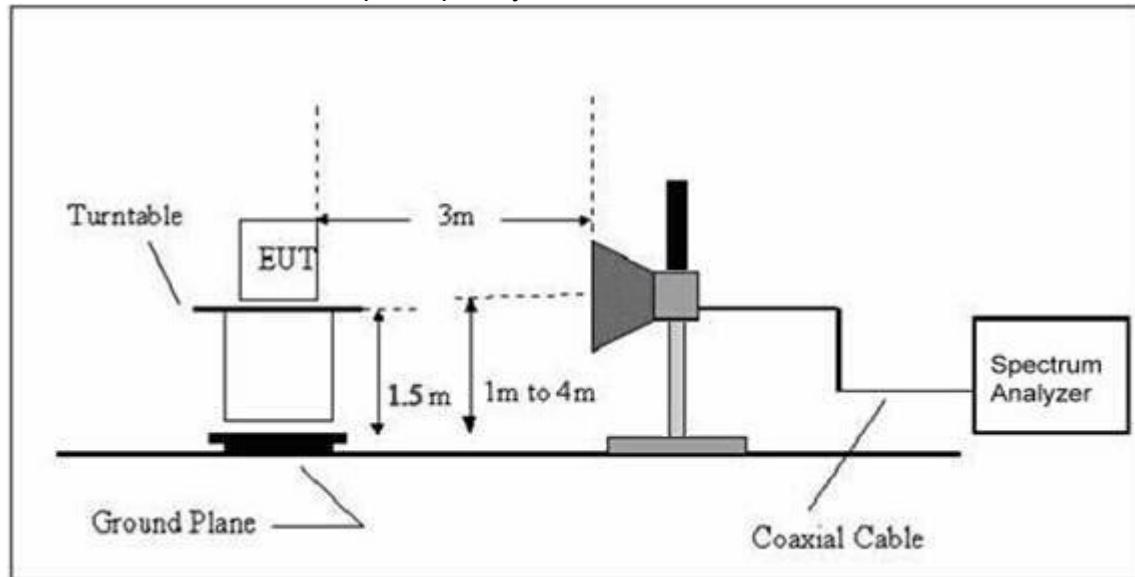
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

| | | | |
|--------------|-----------------------|--------------------|---------|
| EUT: | Drones/Quadcopter/uav | Model Name. : | Glint |
| Temperature: | 20°C | Relative Humidity: | 48% |
| Pressure: | 1010 hPa | Test Voltage : | DC 7.4V |
| Test Mode : | TX | Polarization : | -- |

| Freq. | Reading | Limit | Margin | State |
|-------|----------|----------|--------|-------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F |
| -- | -- | -- | -- | PASS |
| -- | -- | -- | -- | PASS |

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);
Limit line = specific limits(dBuV) + distance extrapolation factor.



3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

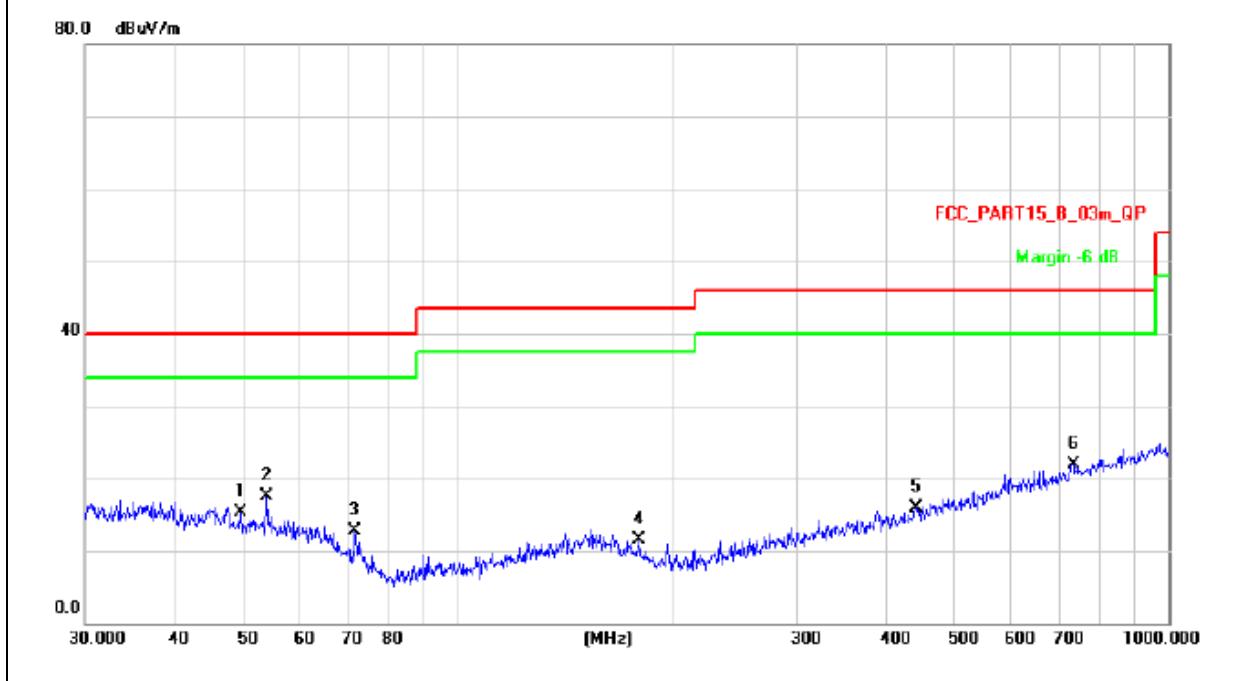
| | | | |
|----------------|-----------------------|---------------------|------------|
| EUT : | Drones/Quadcopter/uav | Model Name : | Glint |
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Polarization : | Horizontal |
| Test Voltage : | DC 7.4V | | |
| Test Mode : | TX | | |

| Frequency (MHz) | Meter Reading (dB μ V) | Factor (dB) | Emission Level (dB μ V/m) | Limits (dB μ V/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|---------------|
| 49.5328 | 25.57 | -10.20 | 15.37 | 40.00 | -24.63 | QP |
| 53.8818 | 28.55 | -10.93 | 17.62 | 40.00 | -22.38 | QP |
| 71.8320 | 28.12 | -15.19 | 12.93 | 40.00 | -27.07 | QP |
| 180.0165 | 25.96 | -14.34 | 11.62 | 43.50 | -31.88 | QP |
| 441.7426 | 25.14 | -9.16 | 15.98 | 46.00 | -30.02 | QP |
| 734.4913 | 25.83 | -3.69 | 22.14 | 46.00 | -23.86 | QP |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.





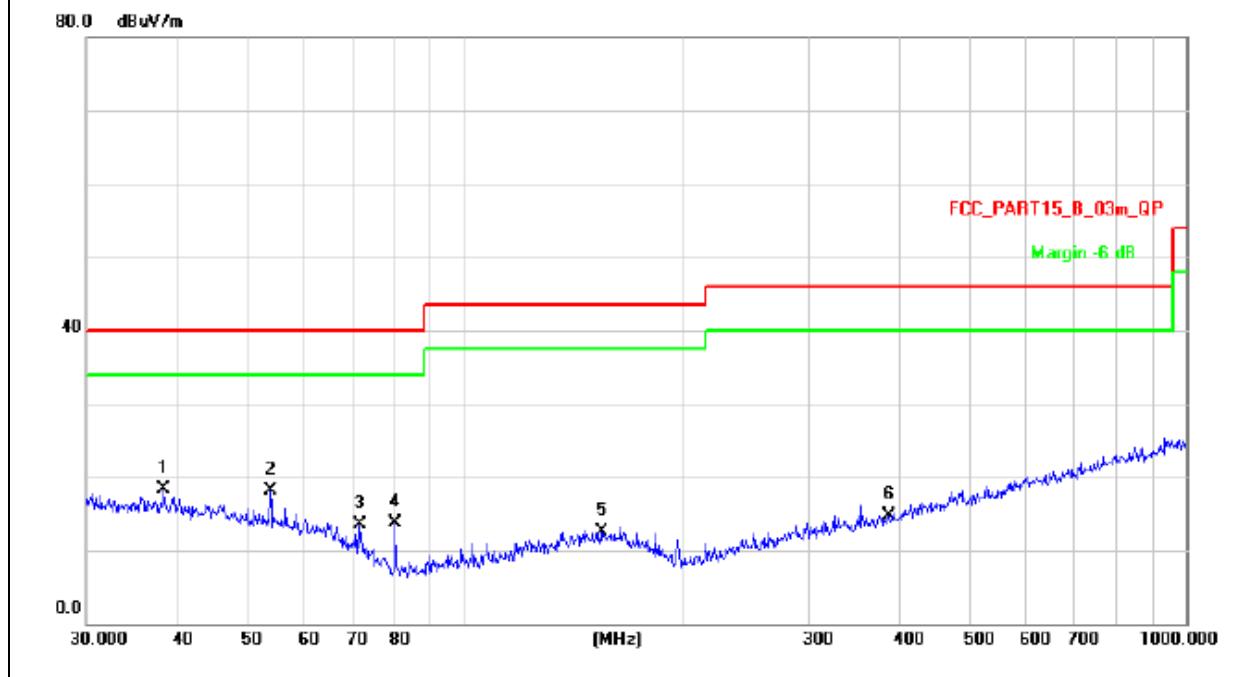
| | | | |
|----------------|-----------------------|---------------------|----------|
| EUT : | Drones/Quadcopter/uav | Model Name : | Glint |
| Temperature : | 26°C | Relative Humidity : | 54% |
| Pressure : | 1010 hPa | Polarization : | Vertical |
| Test Voltage : | DC 7.4V | | |
| Test Mode : | TX | | |

| Frequency (MHz) | Meter Reading (dB μ V) | Factor (dB) | Emission Level (dB μ V/m) | Limits (dB μ V/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|---------------|
| 38.3462 | 27.15 | -8.77 | 18.38 | 40.00 | -21.62 | QP |
| 53.8818 | 29.23 | -10.93 | 18.30 | 40.00 | -21.70 | QP |
| 71.8320 | 28.95 | -15.19 | 13.76 | 40.00 | -26.24 | QP |
| 80.3619 | 32.01 | -18.10 | 13.91 | 40.00 | -26.09 | QP |
| 154.8204 | 25.52 | -12.86 | 12.66 | 43.50 | -30.84 | QP |
| 387.9920 | 25.40 | -10.47 | 14.93 | 46.00 | -31.07 | QP |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

All interfaces was connected, and BT TX mode was link.





3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

Low

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---------------------------------|-----------|------------------|--------|-------------------|----------|--------|------------------|
| | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| operation frequency:2405 | | | | | | | |
| V | 4810.00 | 53.52 | -3.58 | 49.94 | 74 | -24.06 | PK |
| V | 4810.00 | 44.44 | -3.58 | 40.86 | 54 | -13.14 | AV |
| V | 7215.00 | 54.16 | -4.16 | 50.00 | 74 | -24.00 | PK |
| V | 7215.00 | 45.62 | -4.16 | 41.46 | 54 | -12.54 | AV |
| H | 4810.00 | 55.65 | -3.58 | 52.07 | 74 | -21.93 | PK |
| H | 4810.00 | 46.54 | -3.58 | 42.96 | 54 | -11.04 | AV |
| H | 7215.00 | 55.32 | -4.16 | 51.16 | 74 | -22.84 | PK |
| H | 7215.00 | 46.28 | -4.16 | 42.12 | 54 | -11.88 | AV |

Middle

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---------------------------------|-----------|------------------|--------|-------------------|----------|--------|------------------|
| | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| operation frequency:2441 | | | | | | | |
| V | 4882.00 | 53.84 | -3.64 | 50.20 | 74 | -23.80 | PK |
| V | 4882.00 | 44.62 | -3.64 | 40.98 | 54 | -13.02 | AV |
| V | 7323.00 | 54.66 | -4.53 | 50.13 | 74 | -23.87 | PK |
| V | 7323.00 | 44.89 | -4.53 | 40.36 | 54 | -13.64 | AV |
| H | 4882.00 | 54.02 | -3.64 | 50.38 | 74 | -23.62 | PK |
| H | 4882.00 | 45.84 | -3.64 | 42.20 | 54 | -11.80 | AV |
| H | 7323.00 | 55.67 | -4.53 | 51.14 | 74 | -22.86 | PK |
| H | 7323.00 | 46.87 | -4.53 | 42.34 | 54 | -11.66 | AV |

High

| Polar (H/V) | Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|---------------------------------|-----------|------------------|--------|-------------------|----------|--------|------------------|
| | (MHz) | (dBuV) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | |
| operation frequency:2479 | | | | | | | |
| V | 4958.00 | 54.28 | -3.92 | 50.36 | 74 | -23.64 | PK |
| V | 4958.00 | 45.39 | -3.92 | 41.47 | 54 | -12.53 | AV |
| V | 7437.00 | 55.06 | -5.18 | 49.88 | 74 | -24.12 | PK |
| V | 7437.00 | 45.84 | -5.18 | 40.66 | 54 | -13.34 | AV |
| H | 4958.00 | 55.76 | -3.92 | 51.84 | 74 | -22.16 | PK |
| H | 4958.00 | 46.27 | -3.92 | 42.35 | 54 | -11.65 | AV |
| H | 7437.00 | 54.89 | -5.18 | 49.71 | 74 | -24.29 | PK |
| H | 7437.00 | 45.67 | -5.18 | 40.49 | 54 | -13.51 | AV |

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Limit- Absolute Level



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|------------------------|------------------------|-----------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247 | Power Spectral Density | 8 dBm (in any 3KHz) | 2400-2483.5 | PASS |

4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW \geq 30 kHz.
4. Set the VBW \geq 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

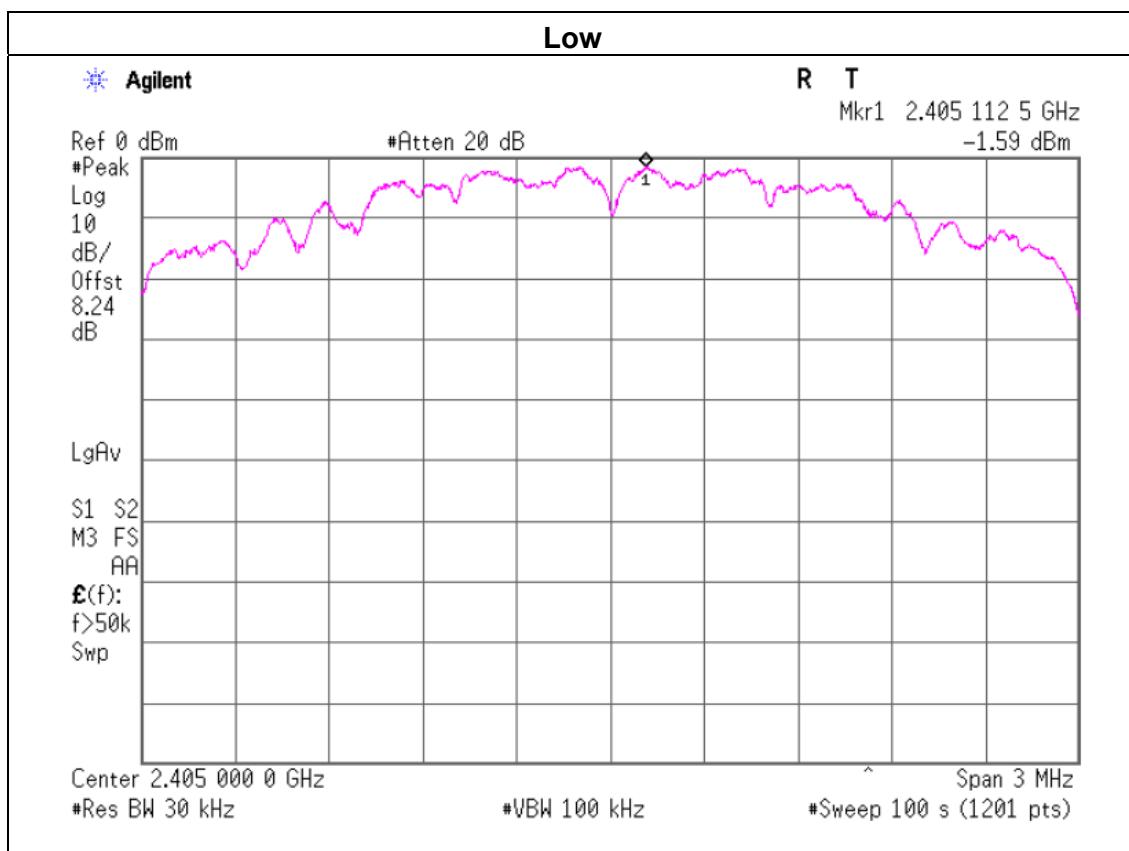
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

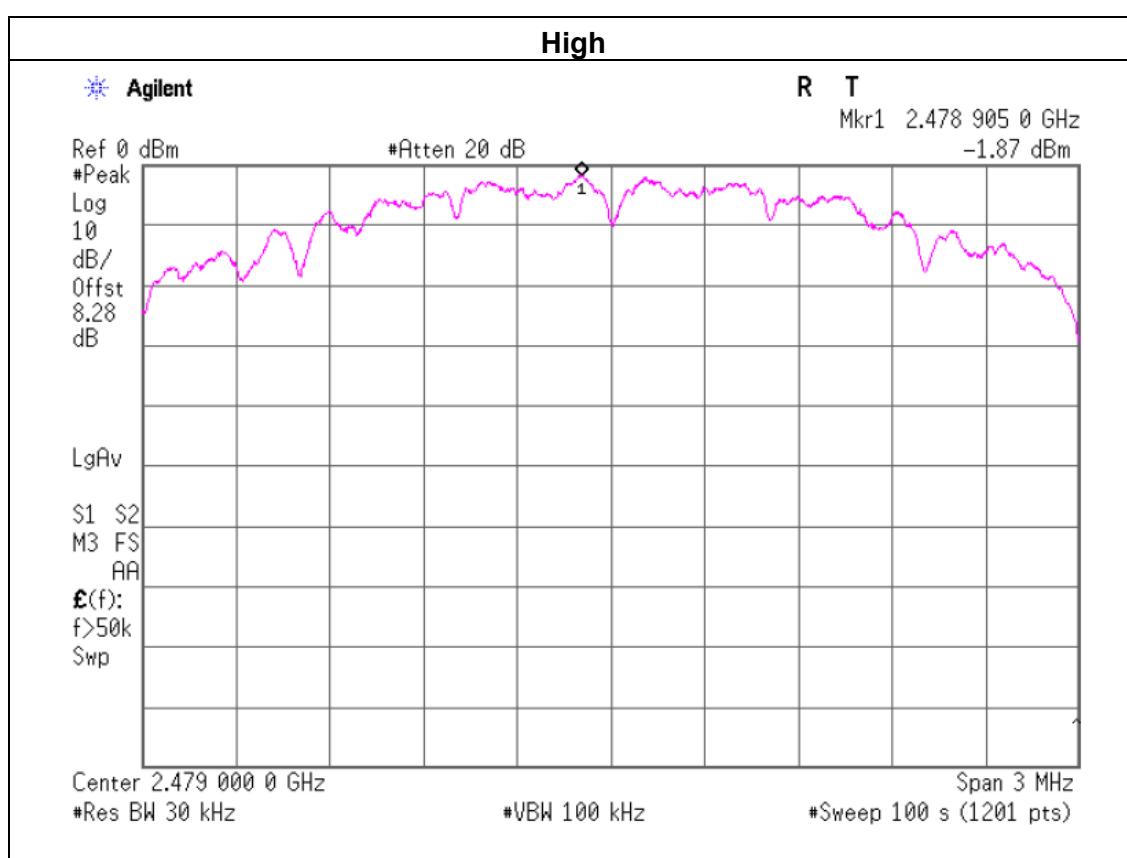
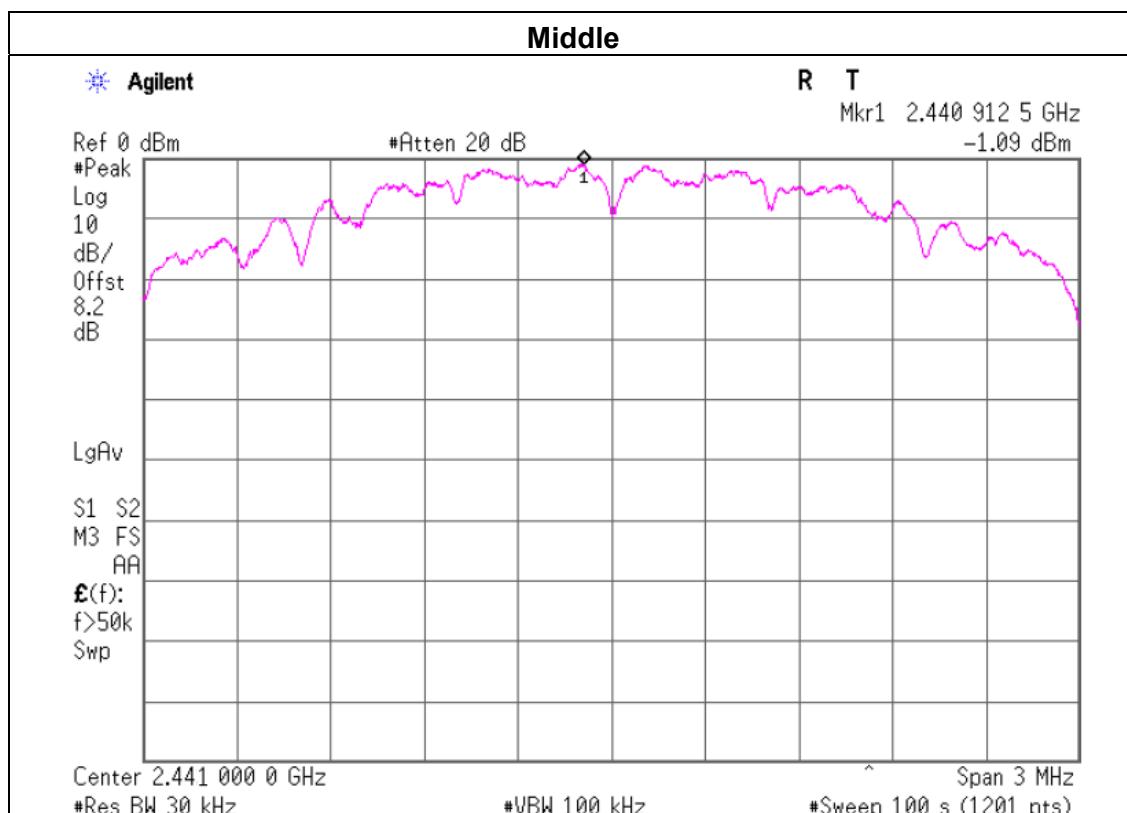


4.1.5 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|---------|
| EUT : | Drones/Quadcopter/uav | Model Name : | Glint |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 7.4V |
| Test Mode : | TX | | |

| Channel | Power Density (dBm) | Limit (dBm) | Result |
|---------|---------------------|-------------|--------|
| Low | -1.59 | 8 | PASS |
| Middle | -1.09 | 8 | PASS |
| High | -1.87 | 8 | PASS |







5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|-----------|------------------------------|-----------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(a)(2) | Bandwidth | >= 500KHz (6dB bandwidth) | 2400-2483.5 | PASS |

5.1.1 TEST PROCEDURE

1. Set resolution bandwidth (RBW) = 180kHz
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

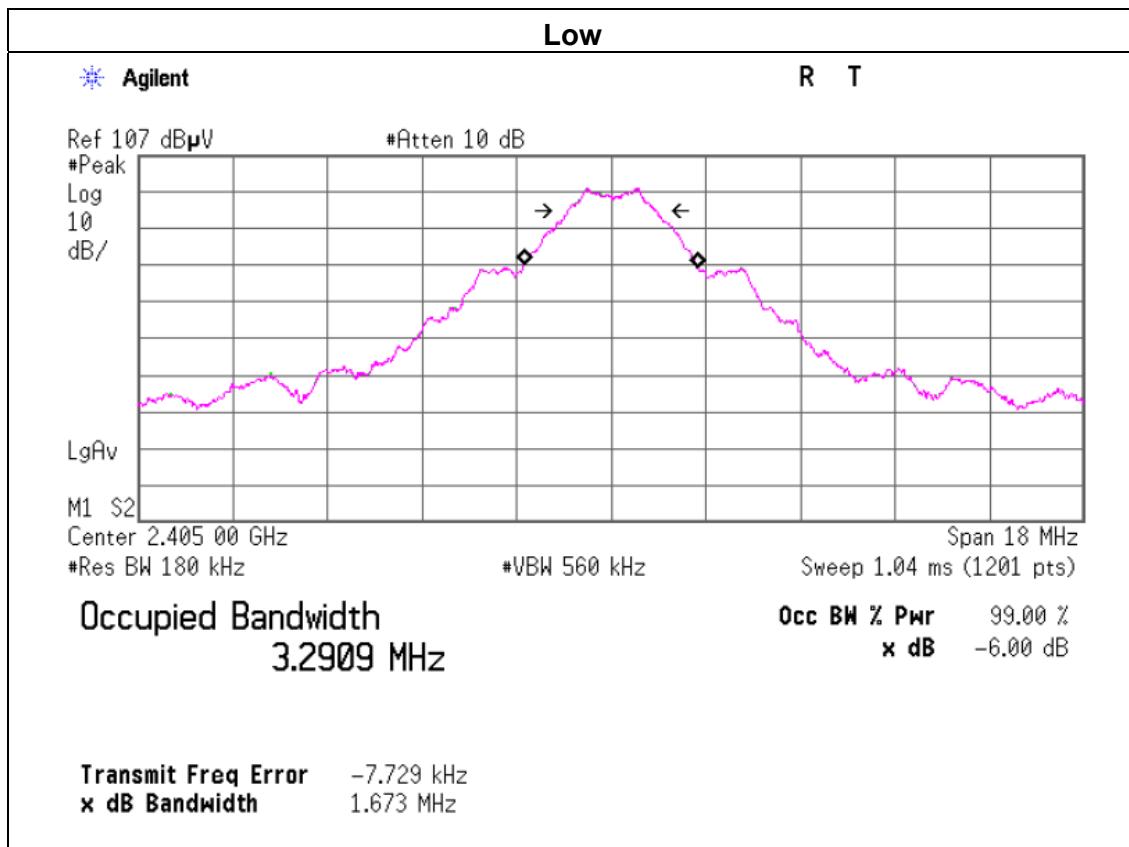
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

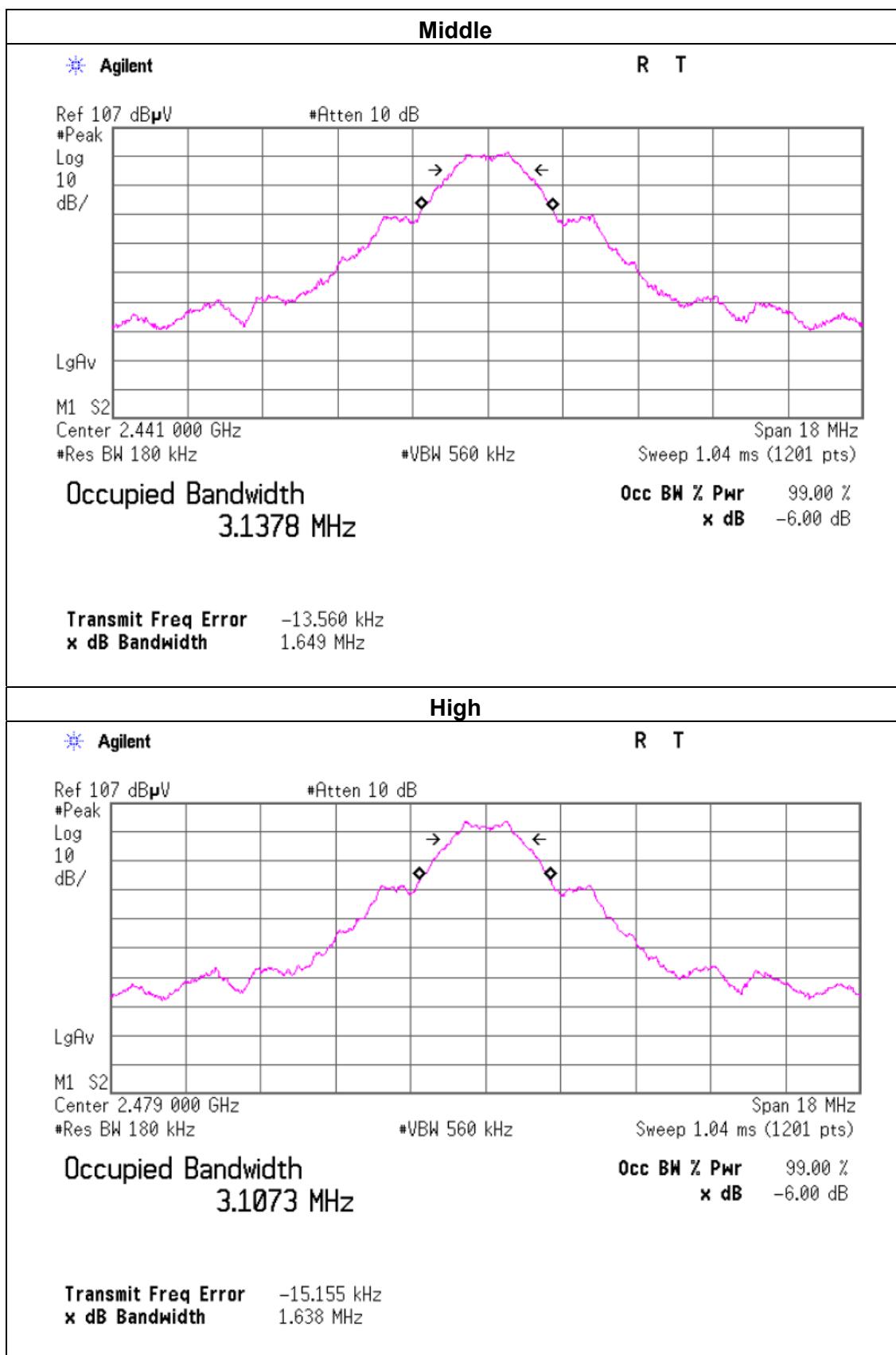


5.1.5 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|---------|
| EUT : | Drones/Quadcopter/uav | Model Name : | Glint |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 7.4V |
| Test Mode : | TX | | |

| Channel | Frequency (MHz) | 6dB bandwidth (MHz) | Limit (kHz) | Result |
|---------|-----------------|---------------------|-------------|--------|
| Low | 2405 | 1.673 | 500 | Pass |
| Middle | 2441 | 1.649 | 500 | Pass |
| High | 2479 | 1.638 | 500 | Pass |







6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|-------------------|-----------------|-----------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(b)(3) | Peak Output Power | 1 watt or 30dBm | 2400-2483.5 | PASS |

6.1.1 TEST PROCEDURE

- The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



6.1.5 TEST RESULTS

| | | | |
|---------------|-----------------------|---------------------|---------|
| EUT : | Drones/Quadcopter/uav | Model Name : | Glint |
| Temperature : | 25°C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 7.4V |
| Test Mode : | TX | | |

| Test Channel | Frequency (MHz) | Maximum Conducted Output Power(AV) | LIMIT |
|--------------|--------------------|------------------------------------|-------|
| | | (dBm) | dBm |
| Low | 2405 | 9.42 | 30 |
| Middle | 2441 | 9.37 | 30 |
| High | 2479 | 9.41 | 30 |



7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

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 (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters(above 1GHz, the hight was 1.5m) above the ground at a 3 meter Chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m(above 1GHz, the hight was 1.5m); the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Average Mode Limit, the EUT shall be deemed to meet AV Limits and then no additional AV Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



7.3 TEST RESULTS

| Frequency (MHz) | Antenna polarization (H/V) | Test Frequency (MHz) | Emission (dBuV/m) | Band edge Limit (dBuV/m) | | Result |
|--------------------|----------------------------------|----------------------------|----------------------|-----------------------------|-------|--------|
| | | | | PK | PK | |
| <2400 | H | 2397.72 | 50.52 | 74.00 | 54.00 | Pass |
| <2400 | V | 2395.49 | 50.84 | 74.00 | 54.00 | Pass |
| >2483.5 | H | 2486.37 | 50.94 | 74.00 | 54.00 | Pass |
| >2483.5 | V | 2485.61 | 50.23 | 74.00 | 54.00 | Pass |



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

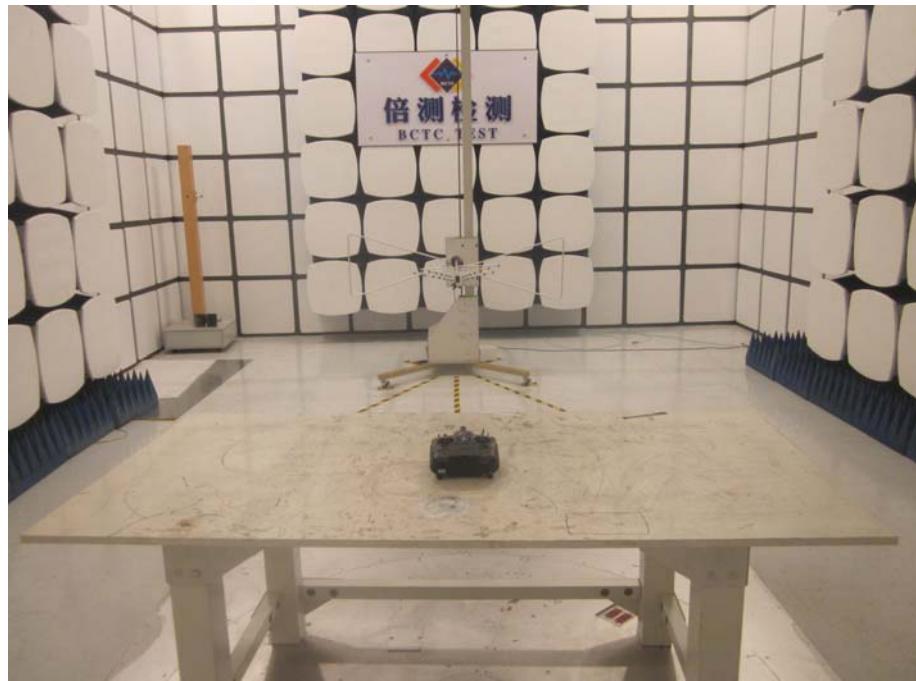
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is Permanently attached antenna. It comply with the standard requirement.

9. EUT TEST PHOTO

Radiated Measurement Photos



Radiated Measurement Photos





Conducted Measurement Photos

