Test Report FCC Part15 Subpart E

Product Name :3-Axis Gimbal CameraModel No.:CGO2+FCC ID:2ACS5-CGO2-GB

- Applicant : Yuneec Technology Co., Limited
- Address : 2/F Man Shung Industrial Building, 7 Lai Yip Street, Kwun Tong, Hong Kong

| Date of Receipt | : | Mar. 17, 2015 |
|-----------------|---|-----------------------------|
| Test Date | : | Mar. 17, 2015~Apr. 02, 2015 |
| Issued Date | : | Apr. 21, 2015 |
| Report No. | : | 1530328R-RF-US-P06V01 |
| Report Version | : | V1.0 |

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement any agency of the government.

The test report shall not be reproduced without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : Apr. 21, 2015 Report No. : 1530328R-RF-US-P09V01



| Product Name | : | 3-Axis Gimbal Camera | | |
|---------------------|---|-----------------------------------------------------------|--|--|
| Applicant | : | Yuneec Technology Co., Limited | | |
| Address | : | 2/F Man Shung Industrial Building, 7 Lai Yip Street, Kwun | | |
| | | Tong, Hong Kong | | |
| Manufacturer | : | Good Power Technology Co., Ltd. | | |
| Address | : | No.388 East Zhengwei Road, Jinxi Town, Kunshan, Jiangsu | | |
| | | 215324, China | | |
| Model No. | : | CGO2+ | | |
| FCC ID | : | 2ACS5-CGO2-GB | | |
| EUT Voltage | : | DC: 5V | | |
| Brand Name | : | YUNEEC | | |
| Applicable Standard | : | FCC CFR Title 47 Part 15 Subpart E: 2014 | | |
| | | ANSI C63.4: 2014; ANSI C63.10: 2013 | | |
| | | KDB 789033 D02 New Rules v01 | | |
| Test Result | : | Complied | | |
| Performed Location | : | Suzhou EMC Laboratory | | |
| | | No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech | | |
| | | Development Zone., Suzhou, China | | |
| | | TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 | | |
| | | FCC Registration Number: 800392 | | |
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| Documented By | | | | |
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| Reviewed By | : | | | |
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| Approved By | : | | | |
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Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

| Taiwan R.O.C. | : | BSMI, NCC |
|---------------|---|---------------|
| Germany | : | TUV Rheinland |
| Norway | : | Nemko, DNV |
| USA | : | FCC |
| Japan | : | VCCI |
| China | : | CNAS |

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site :<u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <u>http://www.quietek.com/</u>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

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History of This Test Report

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|-----------------------|---------|-----------------------|---------------|
| 1530328R-RF-US-P09V01 | V1.0 | Initial Issued Report | Apr. 21, 2015 |
| | | | |
| | | | |
| | | | |

1. General Information

1.1. EUT Description

| Product Name | 3-Axis Gimbal Camera |
|--------------------|------------------------------------|
| Brand Name | YUNEEC |
| Model No. | CGO2+ |
| EUT Voltage | DC 5V |
| Frequency Range | 802.11a: 5745~5825MHz |
| Channel Number | 802.11a: 5 |
| Type of Modulation | 802.11a: OFDM |
| Data Rate | 802.11a: 6/9/12/18/24/36/48/54Mbps |
| Channel Control | Auto |
| Antenna Delivery | 1*Tx + 1*Rx |
| Peak Antenna Gain | 0 dBi |

| 802.11a(20MHz) Working Frequency of Each Channel: | | | | | | | |
|---------------------------------------------------|-------------------------------------------------------------------------|-----|----------|-----|----------|-----|----------|
| Channel | Channel Frequency Channel Frequency Channel Frequency Channel Frequency | | | | | | |
| 149 | 5745 MHz | 153 | 5765 MHz | 157 | 5785 MHz | 161 | 5805 MHz |
| 165 | 5825 MHz | N/A | N/A | N/A | N/A | N/A | N/A |

Duty Cycle

| Test Mode | Duty Cycle | |
|-----------|------------|--|
| 802.11a | 98% | |

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode

Mode 1: Transmit by 802.11a

Note:

1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.



1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

| Product | | Manufacturer | Model No. | Serial No. | Power Cord |
|---------|-----|--------------|-----------|------------|------------|
| 1 | N/A | N/A | N/A | N/A | N/A |



1.4. Configuration of Tested System

| Connection Diagram | | | | | |
|--------------------|--------------------------|--|--|--|--|
| Connection Diagram | EUT | | | | |
| Signal Cable Type | Signal cable Description | | | | |



1.5. EUT Exercise Software

| 1 | Setup the EUT and simulators as shown on above. |
|---|-------------------------------------------------------------------------------------------------------------------------------|
| 2 | Turn on the power of equipment. |
| 3 | Run the RF test software "UltraEdit", and set the test mode and channel, then press OK to start continue transmit or receive. |

2. Technical Test

2.1. Summary of Test Result

- \boxtimes No deviations from the test standards
- Deviations from the test standards as below description:

FCC CFR Title 47 Part 15 Subpart E: 2014

| Performed Test Item | FCC Rule | Test Performed | Deviation |
|-----------------------------|--------------------|-------------------|-----------|
| Conducted Emission | §15.207 | No | No |
| Radiated Emission | § 15.209 | Yes | No |
| 6dB&99% Occupied Bandwidth | § 15.407(a)(5)&(e) | No | No |
| Power Output | §15.407(a)(3) | Yes | No |
| Peak Power Spectral Density | §15.407(a)(3) | No | No |
| Radiated Emission Band Edge | §15.407(b)(4) | Yes | No |
| Frequency Stability | §15.407(g) | No | No |

This report is for non-critical circuit changed and asking for permissive change, so only output power and radiated spurious emission test were performed.



2.2. Test Environment

| Items | Required (IEC 68-1) | Actual |
|----------------------------|---------------------|----------|
| Temperature (°C) | 15-35 | 21 |
| Humidity (%RH) | 25-75 | 50 |
| Barometric pressure (mbar) | 860-1060 | 950-1000 |

3. Radiated Emission

3.1. Test Equipment

Radiated Emission / AC-2

| Instrument | Manufacturer | Туре No. | Serial No. | Cali. Due Date |
|----------------------|--------------|--------------|------------|----------------|
| EMI Test Receiver | R&S | ESCI | 100573 | 2016.03.10 |
| Loop Antenna | R&S | HFH2-Z2 | 833799/003 | 2015.11.17 |
| Bilog Chainenna | Teseq GmbH | CBL6112D | 27611 | 2015.10.15 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC2-C | 2016.03.01 |
| Temperature/Humidity | | | | |
| Meter | Zhicheng | ZC1-2 | AC2-TH | 2016.01.07 |

Radiated Emission / AC-5

| Instrument Manufacturer Type No. | | Type No. | Serial No. | Cali. Due Date |
|----------------------------------|--------------|--------------|-------------|----------------|
| Spectrum Analyzer | Agilent | N9020A | MY49100159 | 2016.03.10 |
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2016.01.07 |
| Preamplifier | Miteq | NSP1800-25 | 1364185 | 2015.05.05 |
| Preamplifier | QuieTek | AP-040G | CHM-0906001 | 2015.05.05 |
| DRG Horn | ETS-Lindgren | 3117 | 00123988 | 2016.01.07 |
| Broad-Band Horn | | | | |
| Antenna | Schwarzbeck | BBHA9170 | 294 | 2015.11.24 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C1 | 2016.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C2 | 2016.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 102 | AC5-C3 | 2016.03.01 |
| EMI Receiver | Agilent | N9038A | MY51210196 | 2015.06.09 |
| Temperature/Humidity | | | | |
| Meter | Zhichen | ZC1-2 | AC5-TH | 2016.01.07 |

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.



3.2. Test Setup

Below 30MHz Test Setup:



Below 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limit

| FCC Part 15 Subpart C Paragraph 15.209 | | | | |
|----------------------------------------|-----------------|-------------------|--|--|
| Frequency (MHz) | Distance (m) | Level (dBuV/m) | | |
| 30 - 88 | 3 | 40 | | |
| 88 - 216 | 3 | 43.5 | | |
| 216 - 960 | 3 | 46 | | |
| Above 960 | 3 | 54 | | |

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument Chainenna and the closed point of any part of the device or system.

Note 3: E field strength $(dBuV/m) = 20 \log E$ field strength (uV/m)

3.4. Test Procedure

The EUT was tested according to ANSI C63.4:2014&ANSI C63.10:2013 &KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from Chainenna to the EUT was 3 meters.

The Chainenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the Chainenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2014 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn Chainenna will be bended down a little (as horn Chainenna has the narrow beamwidth) in order to keeping the Chainenna in the "cone of radiation" of EUT. The 3dB beamwidth is 60~10 degrees for H-plane and 90~10 degrees for E-plane.

The measurement was applied in a semi-anechoic chamber. While testing for spurious Page: 15 of 27

emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna.

The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1 meter to 4 meters to find out the maximum emission level.

The EUT was tested according to KDB 789033D02 Section II G.4/5/6, for the average unwanted emission measurements above 1GHz, use KDB 789033D02 Section II G. 6(c) Method AD (Average Detection).

The radiated emission was measured using the Spectrum Analyzer with the resolutions bandwidth & method set as:

RBW = 100kHz, VBW = 300kHz, Detector: CISPR QP (30MHz~1GHz) RBW = 1MHz, VBW = 3MHz, Detector: Peak (>1GHz for PK) RBW = 1MHz, VBW = 3MHz, Detector: RMS Use power average type, perform a trace average of at least 100 traces. (>1GHz for AV)

3.5. Uncertainty

The measurement uncertainty above 1GHz is defined as ± 3.9 dB below 1GHz is defined as ± 3.8 dB

3.6. Test Result

| Mode1: | Transmit by 802.11a |
|--------|---------------------|
|--------|---------------------|

| СН | Antenna | Frequency | Reading | Factor | Measure | Limit | Margin | Detector |
|-----|---------|-----------|----------|--------|----------|-----------|--------|----------|
| | | (MHz) | Level | (dB) | Level | (dBuV/m) | (dB) | |
| | | | (dBuV/m) | | (dBuV/m) | | | |
| | Н | 11490.0 | 30.4 | 13.6 | 44.0 | 54(Note3) | -10.0 | PK |
| 140 | Н | 17235.0 | 31.6 | 18.8 | 50.4 | 54(Note3) | -3.6 | PK |
| 149 | V | 11490.0 | 30.3 | 13.5 | 43.8 | 54(Note3) | -10.2 | PK |
| | V | 17235.0 | 31.8 | 18.8 | 50.6 | 54(Note3) | -3.4 | PK |
| | Н | 11570.0 | 31.1 | 13.8 | 44.9 | 54(Note3) | -9.1 | PK |
| 157 | Н | 17355.0 | 31.8 | 19.1 | 50.9 | 54(Note3) | -3.1 | PK |
| 157 | V | 11570.0 | 31.4 | 13.8 | 45.2 | 54(Note3) | -8.8 | PK |
| | V | 17355.0 | 31.4 | 19.1 | 50.5 | 54(Note3) | -3.5 | PK |
| | Н | 11650.0 | 30.0 | 14.2 | 44.2 | 54(Note3) | -9.8 | PK |
| 165 | Н | 17475.0 | 31.7 | 19.5 | 51.2 | 54(Note3) | -2.8 | PK |
| 105 | V | 11650.0 | 29.9 | 14.2 | 44.1 | 54(Note3) | -9.9 | PK |
| | V | 17475.0 | 31.1 | 19.5 | 50.6 | 54(Note3) | -3.4 | PK |

Note: 1. Measure Level = Reading Level + Factor.

2. The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz,

18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.



The worst case of Radiated Emission below 1GHz:

| Engineer: Nam | | |
|------------------------------|--------------------------|--|
| Site: AC2 | Time: 2015/04/17 - 14:56 | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | |
| Probe: CBL6112D_(30-2000MHz) | Polarity: Horizontal | |
| EUT: 3-Axis Gimbal Camera | Power: By Battery | |
| | | |

Note: Mode1: Transmit at channel 5745MHz by 802.11b



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | * | 94.990 | 18.717 | 8.038 | -24.783 | 43.500 | 10.679 | QP |
| 2 | | 255.525 | 16.892 | 2.401 | -29.108 | 46.000 | 14.491 | QP |



| Engineer: Nam | | |
|------------------------------|--------------------------|--|
| Site: AC2 | Time: 2015/04/17 - 15:34 | |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0 | |
| Probe: CBL6112D_(30-2000MHz) | Polarity: Vertical | |
| EUT: 3-Axis Gimbal Camera | Power: By Battery | |

Note: Mode1: Transmit at channel 5745MHz by 802.11b



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 113.905 | 15.665 | 2.990 | -27.835 | 43.500 | 12.675 | QP |
| 2 | * | 539.250 | 25.255 | 4.343 | -20.745 | 46.000 | 20.912 | QP |

4. Power Output

4.1. Test Equipment

Power Output / TR-8

| Instrument | Manufacturer | Туре No. | Serial No. | Cali. Due Date |
|-------------------------------|--------------|----------|------------|----------------|
| Spectrum Analyzer | Agilent | E4446A | MY45300103 | 2016.01.07 |
| Temperature/Humidity Meter | zhicheng | ZC1-2 | TR8-TH | 2015.04.09 |

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup



4.3. Limit

According to 15.407(a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing



high gain directional antennas are used exclusively for fixed, point-to-point operations

According to 15.407(a)(4)

The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

4.4. Test Procedure

The EUT was tested according to ANSI C63.4:2014&ANSI C63.10:2013 &KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

- a) Method PM (Measurement using an RF average power meter):
- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
- The EUT is configured to transmit continuously or to transmit with a constant duty cycle.

• At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.

• The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

(ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section II.B.

(iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

(iv) Adjust the measurement in dBm by adding $10 \log(1/x)$ where x is the duty cycle (e.g., $10 \log(1/0.25)$ if the duty cycle is 25 percent).

Use the wideband power meter to test RMS power and record the result.

4.5. Uncertainty

The measurement uncertainty is defined as \pm 1.27 dB



4.6. Test Result

Power output test was verified over all data rates 6/9/12/18/24/36/48/54Mbps, and the 6Mbps was the worst case and data was recorded in the result.

| Product | : | 3-Axis Gimbal Camera |
|-----------|---|-----------------------------|
| Test Item | : | Power Output |
| Test Site | : | TR-8 |
| Test Mode | : | Mode 1: Transmit by 802.11a |

Output Power Results

| Channel No. | Frequency (MHz) | Meas Power (dBm) | Power Limit(dBm) | Power Margin(dBm) | Result |
|-------------|--------------------|---------------------|---------------------|----------------------|--------|
| 149 | 5745 | 10.73 | 30.00 | -19.27 | Pass |
| 157 | 5785 | 10.89 | 30.00 | -19.11 | Pass |
| 165 | 5825 | 10.64 | 30.00 | -19.36 | Pass |

5. Radiated Emission Band Edge

5.1. Test Equipment

Radiated Emission Band Edge / AC-5

| Instrument | Manufacturer | Туре No. | Serial No. | Cali. Due Date |
|----------------------|--------------|--------------|-------------|----------------|
| Spectrum Analyzer | Agilent | N9020A | MY49100159 | 2016.03.10 |
| Preamplifier | Miteq | NSP1800-25 | 1364185 | 2016.03.10 |
| Preamplifier | QuieTek | AP-040G | CHM-0906001 | 2016.03.10 |
| Bilog Antenna | Teseq GmbH | CBL6112D | 27612 | 2015.10.15 |
| DRG Horn | ETS-Lindgren | 3117 | 00123988 | 2016.01.07 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C1 | 2016.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 106 | AC5-C2 | 2016.03.01 |
| Coaxial Cable | Huber+Suhner | SUCOFLEX 102 | AC5-C3 | 2016.03.01 |
| EMI Receiver | Agilent | N9038A | MY51210196 | 2015.06.09 |
| Temperature/Humidity | | | | |
| Meter | Zhichen | ZC1-2 | AC5-TH | 2016.01.07 |

5.2. Test Setup



5.3. Limit

For 15.205 requirement:

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a).



| 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) | |

For 15.407(b) requirement:

• For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

| Operating Frequency Band (MHz) | EIRP Limit (dBm/MHz) | Equivalent Field Strength at 3m (dBuV/m) | |
|-----------------------------------|-------------------------|---------------------------------------------|--|
| 5150 - 5250 | -27 | 68.2 | |
| 5250 - 5350 | -27 | 68.2 | |
| 5470 - 5725 | -27 | 68.2 | |
| 5705 5005 | -27 [Note(1)] | 68.2 | |
| 5725 - 5825 | -17 [Note(2)] | 78.2 | |

Note(1): Outsitde the frequency range 5715 - 5835MHz.

Note(2): Within the frequency range from the band edge to 10MHz below or above the band edge, 5715 – 5725MHz and 5825 - 5835MHz.

5.4. Test Procedure

The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4: 2009 on radiated measurement.

Note: When doing emission measurement above 1GHz, the horn Chainenna will be bended down a little (as horn Chainenna has the narrow beamwidth) in order to keeping the Chainenna in the "cone of radiation" of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

According to KDB 789033 D02: section G3 d) (ii)

(ii) Integration Method

• For maximum emissions measurements, follow the procedures described in section II.G.5., "Procedures for Unwanted Maximum Emissions Measurements above 1000 MHz", except for the following changes:

- Set RBW = 100 kHz
- Set VBW \geq 3 · RBW

• Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured. CAUTION: You must ensure that the spectrum analyzer or EMI receiver is set for peak-detection and max-hold for this measurement.

 For average emissions measurements, follow the procedures described in section II.G.6., "Procedures for Average Unwanted Emissions Measurements above 1000 MHz", except for the following changes:

- Set RBW = 100 kHz
- Set VBW \geq 3 · RBW

• Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.

5.5. Uncertainty

The measurement uncertainty above 1GHz is defined as \pm 3.9 dB



5.6. Test Result

For band edge points:

Peak detector: RBW = 100kHz, VBW = 300kHz, detector = peak, sweep time = auto; power integration across 1MHz.

Average detector: RBW = 100kHz, VBW = 300kHz, detector = RMS, sweep time = auto.







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|---|-------|-----------|---------------|---------------|---------|----------|---------|-----------------------------------------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 5707.280 | 54.368 | 12.849 | -13.832 | 68.200 | 41.519 | РК |
| 2 | | 5724.880 | 54.153 | 12.610 | -24.047 | 78.200 | 41.543 | РК |
| 3 | * | 5751.440 | 97.815 | 56.238 | N/A | N/A | 41.577 | РК |



| Engineer: Nam | | | | |
|------------------------------------|--------------------------|--|--|--|
| Site: AC5 | Time: 2015/03/31 - 10:31 | | | |
| Limit: FCC-15.407 | Margin: 0 | | | |
| Probe: Horn_3117_00167055(1-18GHz) | Polarity: Vertical | | | |
| EUT: 3-Axis Gimbal Camera | Power: By Battery | | | |

Note: Mode 1: Transmit at channel 5745MHz by 802.11a



| No | Mark | Frequency | Measure Level | Reading Level | Over Limit | Limit | Factor | Туре |
|----|------|-----------|---------------|---------------|------------|----------|--------|------|
| | | (MHz) | (dBuV/m) | (dBuV) | (dB) | (dBuV/m) | (dB) | |
| 1 | | 5705.000 | 52.904 | 11.390 | -15.296 | 68.200 | 41.514 | РК |
| 2 | | 5725.040 | 52.648 | 11.105 | -15.552 | 78.200 | 41.543 | РК |
| 3 | * | 5752.200 | 95.693 | 54.115 | N/A | N/A | 41.578 | РК |

The End