



RF EXPOSURE REPORT

Report Reference No. : **TRE1605002602** R/C.....: 40947

FCC ID. : **2AJWA-LTL-5610WMG**

Applicant's name : **Zhuhai Ltl Acorn Electronics Co., Ltd.**

Address : 3F,Bldg. B,Kindly Medical Industrial Park, No. 288 Airport East Rd.,Sanzao Town,Jinwan Dist., Zhuhai, Guangdong, China

Manufacturer.....: Zhuhai Ltl Acorn Electronics Co., Ltd.

Address.....: 3F,Bldg. B,Kindly Medical Industrial Park, No. 288 Airport East Rd.,Sanzao Town,Jinwan Dist., Zhuhai, Guangdong, China

Test item description..... : **Infrared Digital Scouting Camera**

Trade Mark.....: LTL ACORN

Model/Type reference..... : Ltl-5610WMG

Listed Model(s) : Ltl-5610MG,Ltl-5310WMG,Ltl-5310MG ,Ltl-5511WMG, Ltl-5511MG

Standard : **FCC Per 47 CFR 2.1091(b)**

Date of receipt of test sample : May 10 ,2016

Date of testing : May 11 ,2016 – Sept 12, 2016

Date of issue... : Sept 12, 2016

Result : **PASS**

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Testing Laboratory Name : **Shenzhen Huatongwei International Inspection Co., Ltd**

Address.....: Bldg3, Hongfa Hi-tech Industrial Park, Genyu Road, Shenzhen, China

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1. SUMMARY

1.1. Client Information

| | |
|---------------|--|
| Applicant: | Zhuhai Ltl Acorn Electronics Co., Ltd. |
| Address: | 3F,Bldg. B,Kindly Medical Industrial Park, No. 288 Airport East Rd., Sanzao Town,Jinwan Dist., Zhuhai, Guangdong, China |
| Manufacturer: | Zhuhai Ltl Acorn Electronics Co., Ltd. |
| Address: | 3F,Bldg. B,Kindly Medical Industrial Park, No. 288 Airport East Rd., Sanzao Town,Jinwan Dist., Zhuhai, Guangdong, China |

1.2. Product Description

| | |
|----------------------|---|
| Name of EUT | Infrared Digital Scouting Camera |
| Trade Mark: | LTL ACORN |
| Model No.: | Ltl-5610WMG |
| Listed Model(s): | Ltl-5610MG,Ltl-5310WMG,Ltl-5310MG ,Ltl-5511WMG,Ltl-5511MG |
| Power supply: | DC 6V From internal battery |
| Adapter information: | - |
| 2G: | |
| Support Network: | GPRS |
| Support Band: | GPRS850, GPRS1900 |
| Modulation: | GPRS: GMSK |
| Transmit Frequency: | GPRS850: 824.20MHz-848.80MHz GPRS1900: 1850.20MHz-1909.80MHz |
| Receive Frequency: | GPRS850: 869.20MHz-893.80MHz GPRS1900: 1930.20MHz-1989.80MHz |
| GPRS Class: | 12 |
| EGPRS Class: | 12 |
| Antenna type: | Dedicated Antenna |
| Antenna gain: | GSM850:3dBi PCS1900:3dBi |
| Hardware version: | LTL-5610-07 |
| Software version: | V1604139_GPS |

Operation Frequency List:

| GPRS 850 | | GPRS1900 | |
|----------|-----------------|----------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 128 | 824.20 | 512 | 1850.20 |
| 190 | 836.60 | 661 | 1880.00 |
| 251 | 848.80 | 810 | 1909.80 |

Note: In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above gray bottom.

1.3. EUT operation mode

The EUT has been tested under test mode condition. The Applicant provides software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Test mode: GPRS communication.

1.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

| | | |
|--|----------------|---|
| | Length (m) : | / |
| | Shield : | / |
| | Detachable : | / |
| | Manufacturer : | / |
| | Model No. : | / |

1.5. Modifications

No modifications were implemented to meet testing criteria.

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Phone: 86-755-26748019 Fax: 86-755-26748089

2.2. Test Facility

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

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: February 28, 2015. Valid time is until February 27, 2018.

A2LA-Lab Cert. No. 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until December 31, 2016.

FCC-Registration No.: 317478

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered 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 317478, Renewal date Jul. 18, 2014, valid time is until Jul. 18, 2017.

IC-Registration No.: 5377A&5377B

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Dec. 31, 2013, valid time is until Dec. 31, 2016.

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377B on Dec.03, 2014, valid time is until Dec.03, 2017.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

The 3m Semi-

anechoic chamber (12.2m×7.95m×6.7m) of Shenzhen Huatongwei International Inspection Co., Ltd.

has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2484. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 29, 2015.

Radiated disturbance above 1GHz measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2013. Valid time is until Dec. 23, 2016.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2013. Valid time is until May 06, 2016.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

2.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| | |
|--------------------|-------------|
| Temperature: | 15~35°C |
| Relative Humidity: | 30~60 % |
| Air Pressure: | 950~1050mba |

2.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system according to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

| Test Items | Measurement Uncertainty | Notes |
|---|-------------------------|-------|
| Transmitter power conducted | 0.57 dB | (1) |
| Transmitter power Radiated | 2.20 dB | (1) |
| Conducted spurious emission 9KHz-40 GHz | 1.60 dB | (1) |
| Radiated spurious emission 9KHz-40 GHz | 2.20 dB | (1) |
| Conducted Emission 9KHz-30MHz | 3.39 dB | (1) |
| Radiated Emission 30~1000MHz | 4.24 dB | (1) |
| Radiated Emission 1~18GHz | 5.16 dB | (1) |
| Radiated Emission 18-40GHz | 5.54 dB | (1) |
| Occupied Bandwidth | ----- | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=1.96$.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to §1.1310 and §2.1091 RF exposure is calculated.

KDB447498: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

| Frequency Range(MHz) | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------|
| Limits for Occupational/Controlled Exposure | | | | |
| 0.3 – 3.0 | 614 | 1.63 | (100) * | 6 |
| 3.0 – 30 | 1842/f | 4.89/f | (900/f ²)* | 6 |
| 30 – 300 | 61.4 | 0.163 | 1.0 | 6 |
| 300 – 1500 | / | / | f/300 | 6 |
| 1500 – 100,000 | / | / | 5 | 6 |

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

| Frequency Range(MHz) | Electric Field Strength(V/m) | Magnetic Field Strength(A/m) | Power Density (mW/cm ²) | Averaging Time (minute) |
|---|------------------------------|------------------------------|-------------------------------------|-------------------------|
| Limits for Occupational/Controlled Exposure | | | | |
| 0.3 – 3.0 | 614 | 1.63 | (100) * | 30 |
| 3.0 – 30 | 824/f | 2.19/f | (180/f ²)* | 30 |
| 30 – 300 | 27.5 | 0.073 | 0.2 | 30 |
| 300 – 1500 | / | / | f/1500 | 30 |
| 1500 – 100,000 | / | / | 1.0 | 30 |

F=frequency in MHz

*=Plane-wave equivalent power density

3.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

TEST RESULTS

| GPRS850 | | | | | | |
|----------------------|----------------------------------|--------------------|------------------|------------------------|-------------------------------------|-----------------------------|
| Test Frequency (MHz) | Minimum Separation Distance (cm) | Output Power (dBm) | Output Power (W) | Antenna Gain (Nemeric) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
| 824.20 | 30 | 34.00 | 2.512 | 2.00 | 0.444 | 0.5495 |
| 836.60 | 30 | 34.00 | 2.512 | 2.00 | 0.444 | 0.5577 |
| 848.80 | 30 | 34.00 | 2.512 | 2.00 | 0.444 | 0.5659 |

| GPRS1900 | | | | | | |
|----------------------|----------------------------------|--------------------|------------------|------------------------|-------------------------------------|-----------------------------|
| Test Frequency (MHz) | Minimum Separation Distance (cm) | Output Power (dBm) | Output Power (W) | Antenna Gain (Nemeric) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
| 1850.20 | 30 | 31.00 | 1.259 | 2.00 | 0.223 | 1.0000 |
| 1880.00 | 30 | 31.00 | 1.259 | 2.00 | 0.223 | 1.0000 |
| 1909.80 | 30 | 31.00 | 1.259 | 2.00 | 0.223 | 1.0000 |



Remark: The device complies with RF specifications when the device is used at 30cm from your body.

4. Conclusion

So standalone SAR measurements are not required for both head and body.

.....End of Report.....