



Shenzhen Certification Technology Service Co., Ltd
2F, Building B, East Area of Nanchang Second Industrial
Zone, Gushu 2nd Road, Bao'an District, Shenzhen
518126, P.R. China.

TEST REPORT

FCC ID: ZF3-LTL-6210MM

Applicant : Shenzhen Ltl Acorn Electronics Co., Ltd

Address : 2th floor, Building 8, ShiLing Industrial Park, XinWei, XiLi Town,
Nanshan District, Shenzhen

Equipment Under Test (EUT):

Name : Mobile HD Video Scouting Camera

Model : Ltl-6210MC, Ltl-6210MM, Ltl-MM2

In Accordance with: FCC PART 2; FCC PART 22H; FCC PART PART 24E

Report No : STE120315257

Date of Test : March 20-25, 2012

Date of Issue : March 26, 2012

Test Result: **PASS**

In the configuration tested, the EUT complied with the standards specified above

Authorized Signature

A handwritten signature in black ink, appearing to read "Mark Zhu", is written over a horizontal line.

(Mark Zhu)

General Manager

The manufacture should ensure that all the products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of Shenzhen Certification Technology Service Co., Ltd. Or test done by Shenzhen Certification Technology Service Co., Ltd. Approvals in connection with, distribution or use of the product described in this report must be approved by Shenzhen Certification Technology Service Co., Ltd. Approvals in writing.

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1. General Information

1.1. Description of Device (EUT)

| | | |
|-------------------------|---|--|
| EUT | : | Mobile HD Video Scouting Camera |
| Model No. | : | Ltl-6210MC, Ltl-6210MM, Ltl-MM2 Note: No any difference with each model. |
| Trade Name | : | Ltl Acorn |
| Power supply | : | DC 12V Supply by battery |
| Radio Technology | : | GSM/GPRS 850/900/1800/1900 |
| GPRS Multislot Class | : | Class 10 |
| Power class | : | GSM/GPRS 850/900: Class 4 GSM/GPRS 1800/1900: Class 1 |
| FCC Operation frequency | : | 824.2MHz—848.8MHz and 1850.2MHz—1909.8MHz |
| Modulation | : | GMSK |
| Antenna Type | : | PCB antenna, 2.5dBi Peak Gain. |
| Applicant | : | Shenzhen Ltl Acorn Electronics Co.,Ltd |
| Address | : | 2th floor, Building 8, ShiLing Industrial Park, XinWei, XiLi Town, Nanshan District, Shenzhen |
| Manufacturer | : | Shenzhen Ltl Acorn Electronics Co.,Ltd |
| Address | : | 2th floor, Building 8, ShiLing Industrial Park, XinWei, XiLi Town, Nanshan District, Shenzhen |

1.2. Test Lab information

Shenzhen Certification Technology Service Co., Ltd.
2F, Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China
FCC Registered No.:197647

2. Summary of test

2.1. Summary of test result

| Description of Test Item | Standard | Results |
|---|--|---------|
| Conducted Output power | FCC PART 2: 2.1046 FCC PART 22H: 22.913 (a) FCC PART 24E: 24.232 (c) | PASS |
| Occupied bandwidth | FCC PART 2: 2.1049 FCC PART 22H: 22.917 (b) FCC PART 24E: 24.238 (b) | PASS |
| Frequency stability | FCC PART 2: 2.1055 FCC PART 22H: 22.355 FCC PART 24E: 24.235 | PASS |
| Conducted spurious emission (Antenna terminal) | FCC PART 2: 2.1051 FCC PART 22H: 22.917 FCC PART 24E: 24.238 | PASS |
| Radiated spurious emissions | FCC PART 2: 2.1053 FCC PART 22H: 22.917 FCC PART 24E: 24.238 | PASS |
| Block edge compliance | FCC PART 22H: 22.917 (b) FCC PART 24E: 24.238 (b) | PASS |
| Power Line Conducted Emission Test | FCC Part 15: 15.207 ANSI C63.4: 2003 | N/A |

Note: The Radiated spurious emissions Test with our Shenzhen Certification Technology Service Co.,Ltd. lab. Other test Refer to original test report SH09070021AR02.

2.2. Assistant equipment used for test

N/A

2.3. Test mode

During all testing, EUT is in link mode with base station emulator at maximum power level in each test mode and channel as below:

| Mode | Channel | Frequency(MHz) |
|-----------|---------|----------------|
| GSM 850 | 128 | 824.2 |
| | 190 | 836.6 |
| | 251 | 848.8 |
| GPRS 850 | 128 | 824.2 |
| | 190 | 836.6 |
| | 251 | 848.8 |
| PCS 1900 | 512 | 1850.2 |
| | 661 | 1880.0 |
| | 810 | 1909.8 |
| GPRS 1900 | 512 | 1850.2 |
| | 661 | 1880.0 |
| | 810 | 1909.8 |

2.4. Test Environment Conditions

| | |
|-------------------|-----------|
| Temperature range | 21-25℃ |
| Humidity range | 40-75% |
| Pressure range | 86-106kPa |

2.5. Measurement Uncertainty (95% confidence levels, k=2)

| Item | MU | Remark |
|--|--------------------|-------------|
| Uncertainty for Power point Conducted Emissions Test | 2.42dB | |
| Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz) | 3.54dB | Polarize: V |
| | 4.1dB | Polarize: H |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz) | 2.08dB | Polarize: H |
| | 2.56dB | Polarize: V |
| Uncertainty for radio frequency | 1×10^{-9} | |
| Uncertainty for conducted RF Power | 0.65dB | |
| Uncertainty for temperature | 0.2℃ | |
| Uncertainty for humidity | 1% | |
| Uncertainty for DC and low frequency voltages | 0.06% | |

2.6. Test Equipment

| Equipment | Manufacture | Model No. | Serial No. | Last cal. | Cal Interval |
|------------------------|-----------------|-----------------------------|--------------|------------|--------------|
| 3m Semi-Anechoic | ETS-LINDGREN | N/A | SEL0017 | 04/06/2011 | 1 Year |
| Spectrum analyzer | Agilent | E4443A | MY46185649 | 06/06/2011 | 1 Year |
| Receiver | R&S | ESCI | 100492 | 04/06/2011 | 1 Year |
| Receiver | R&S | ESCI | 101202 | 07/01/2011 | 1 Year |
| Bilog Antenna | Sunol | JB3 | A121206 | 04/06/2011 | 1 Year |
| Horn Antenna | EMCO | 3115 | 640201028-06 | 04/06/2011 | 1 Year |
| Power Meter | Anritsu | ML2487A | 6K00001491 | 02/23/2012 | 1 Year |
| ETS Horn Antenna | ETS | 3160 | SEL0076 | 08/12/2011 | 1 Year |
| Active Loop Antenna | Beijing Daze | ZN30900A | SEL0097 | 04/06/2011 | 1 Year |
| Cable | Resenberger | N/A | No.1 | 04/06/2011 | 1 Year |
| Cable | SCHWARZBEC K | N/A | No.2 | 04/06/2011 | 1 Year |
| Cable | SCHWARZBEC K | N/A | No.3 | 04/06/2011 | 1 Year |
| Pre-amplifier | R&S | AFS42-00101 800-25-S-42 | SEL0081 | 04/06/2011 | 1 Year |
| Pre-amplifier | R&S | AFS33-18002 650-30-8P-44 | SEL0080 | 04/06/2011 | 1 Year |
| Base station | Agilent | E5515C | GB44300243 | 04/06/2011 | 1 Year |
| Temperature controller | Terchy | MHQ | 120 | 04/06/2011 | 1 Year |
| Power divider | Anritsu | K240C | 020346 | 04/06/2011 | 1 Year |
| Signal Generator | HP | 83732B | VS3449051 | 04/06/2011 | 1 Year |
| Attenuator | Agilent | 8491B | MY39262165 | 04/06/2011 | 1 Year |
| GPS Signal | Welnavigate | GS50 | 6423517 | N/A | N/A |

3. Conducted Output power

3.1. Limit

| | |
|---------------------------|-------------|
| Cellular Telephone 850MHz | PCS 1900MHz |
| 38.5dBm(ERP) | 33dBm(EIRP) |

Refer to original test report SH09070021AR02, Page 15.

See original test report SH09070021AR02 Page 15 ,The original test result :

| Band | Channel | Frequency (MHz) | Measured Output Power | | Rated Output Power | | Verdict |
|-----------------|---------|-----------------|-----------------------|---------------|--------------------|----------------|---------|
| | | | dBm | Refer to Plot | dBm | Tolerance (dB) | |
| GSM 850MHz | 128 | 824.2 | 33.08 | Plot A1 | 33 | ±3 | PASS |
| | 190 | 836.6 | 33.24 | Plot B1 | | | PASS |
| | 251 | 848.8 | 33.05 | Plot C1 | | | PASS |
| GSM 1900MHz | 512 | 1850.2 | 29.39 | Plot D1 | 30 | ±3 | PASS |
| | 661 | 1880.0 | 29.58 | Plot E1 | | | PASS |
| | 810 | 1909.8 | 29.86 | Plot F1 | | | PASS |
| GPRS 850MHz | 128 | 824.2 | 29.53 | Plot A2 | 33 | ±3 | PASS |
| | 190 | 836.6 | 29.58 | Plot B2 | | | PASS |
| | 251 | 848.8 | 29.41 | Plot C2 | | | PASS |
| GPRS 1900MHz | 512 | 1850.2 | 26.45 | Plot D2 | 30 | ±3 | PASS |
| | 661 | 1880.0 | 26.59 | Plot E2 | | | PASS |
| | 810 | 1909.8 | 26.95 | Plot F2 | | | PASS |

The GSM 850 max out power is 33.24 dBm,

EIRP=out power +antenna gain, ERP=EIRP-2.15, so the GSM 850
max ERP= 33.59 dBm.

The GPRS 850 max out power is 29.58 dBm,

EIRP=out power +antenna gain, ERP=EIRP-2.15, so the GSM 850
max ERP= 29.93 dBm.

The PCS 1900 max out power is 29.86 dBm,

EIRP=out power +antenna gain, so the GSM 850 max EIRP= 32.36
dBm.

The GPRS 1900 max out power is 26.95 dBm,

EIRP=out power +antenna gain, so the GSM 850 max EIRP= 29.45
dBm.

Note: antenna gain is 2.5dBi.

4. Occupied Bandwidth

Refer to original test report SH09070021AR02, Page 22.

5. Frequency stability

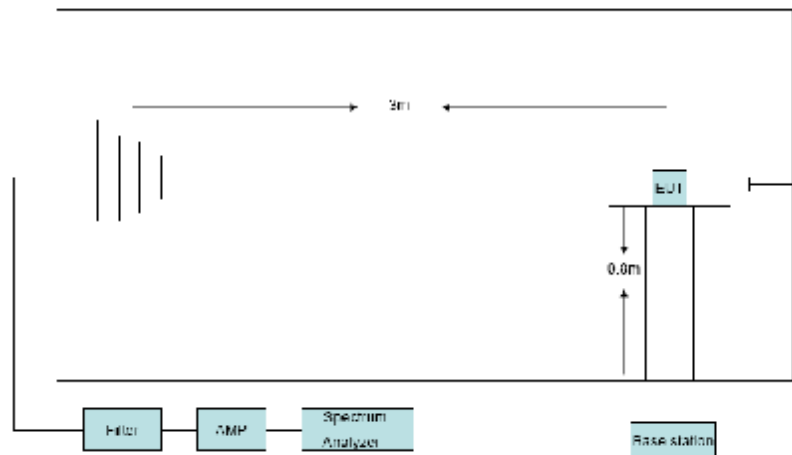
Refer to original test report SH09070021AR02, Page 29.

6. Conducted spurious emissions

Refer to original test report SH09070021AR02, Page 31.

7. Radiated Spurious emissions

7.1. Block Diagram of Test Setup



7.2. Limit

The mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency outside the frequency band by at least $(43 + 10 \log P)$ dB, in this case, -13dBm.

7.3. Test Procedure

1. The EUT was placed on a non-conductive rotating platform with 0.8 meter height in an anechoic chamber. The radiated spurious emissions from 30MHz to 10th harmonics of fundamental frequency were measured at 3m with a test antenna and a spectrum analyzer with RBW= 1MHz, VBW= 1MHz, peak detector settings.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. All the spurious emissions (record as LVL) at 3m were measured by rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Final spurious emissions levels were measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by a dipole antenna (for frequency below 1GHz) or Horn antenna (for frequency above 1GHz) at the same location with the same polarized receiver antenna and then a known power of each measured frequency from S.G. was applied into the dipole antenna or Horn antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna.

7.4. Test Result

| | | | | | | | | | |
|-----------------------------|-------------------------|---------------|------------------------|---------------------------------------|----------------------|-------------------|----------------|------------|--|
| EUT: Wireless GPS Car Alarm | | | | | | | | M/N: TK210 | |
| Power: DC 12V | | | | | | | | | |
| Test Date: 2011-12-05 | | | Test site: RF Chamber | | | Tested by: Simple | | | |
| Ambient Temperature: 24 ℃ | | | Relative Humidity: 60% | | | | | | |
| Conclusion: PASS | | | | | | | | | |
| Test result | | | | | | | | | |
| Test Mode: GSM 850 CH128 | | | | | | | | | |
| Frequency (MHz) | Antenna polarization | S.G. (dBm) | Cable loss(dB) | Substitution antenna gain (dBd) | Result (ERP)(dBm) | Limit (dBm) | Margin (dB) | | |
| 1648.4 | H | -57.51 | 2.71 | 11.74 | -48.48 | -13 | 35.48 | | |
| 1648.4 | V | -58.32 | 2.71 | 11.74 | -49.29 | -13 | 36.29 | | |
| Test Mode: GSM 850 CH190 | | | | | | | | | |
| 1673.2 | H | -56.33 | 3.12 | 11.63 | -47.82 | -13 | 34.82 | | |
| 2509.8 | H | / | / | / | / | -13 | / | | |
| 1673.2 | V | -53.23 | 3.12 | 11.63 | -44.72 | -13 | 31.72 | | |
| 2509.8 | V | / | / | / | / | -13 | / | | |
| Test mode: GSM 850 CH251 | | | | | | | | | |
| 1697.6 | H | -54.58 | 3.38 | 11.42 | -46.54 | -13 | 33.54 | | |
| 2546.4 | H | / | / | / | / | -13 | / | | |
| 1697.6 | V | -51.13 | 3.38 | 11.42 | -43.09 | -13 | 30.09 | | |
| 2546.4 | V | / | / | / | / | -13 | / | | |

Note: Result =S.G.-Cable loss + Substitution antenna gain.

| | | | | | | | |
|---|-------------------------|------------------------|-------------------|---------------------------------------|----------------------|----------------|----------------|
| EUT: Wireless GPS Car Alarm M/N: TK210 | | | | | | | |
| Power: DC 12V | | | | | | | |
| Test Date: 2011-12-05 | | Test site: RF Chamber | | | Tested by: Simple | | |
| Ambient Temperature: 24℃ | | Relative Humidity: 60% | | | | | |
| Conclusion: PASS | | | | | | | |
| Test result | | | | | | | |
| Test Mode: GPRS 850 CH128 | | | | | | | |
| Frequency (MHz) | Antenna polarization | S.G. (dBm) | Cable loss(dB) | Substitution antenna gain (dBd) | Result (ERP)(dBm) | Limit (dBm) | Margin (dB) |
| 1648.4 | H | -57.31 | 2.71 | 11.74 | -48.28 | -13 | 35.28 |
| 1648.4 | V | -53.49 | 2.71 | 11.74 | -44.46 | -13 | 31.46 |
| Test Mode: GSM 850 CH190 | | | | | | | |
| 1673.2 | H | -58.35 | 3.12 | 11.63 | -49.84 | -13 | 36.84 |
| 2509.8 | H | / | / | / | / | -13 | / |
| 1673.2 | V | -54.34 | 3.12 | 11.63 | -45.83 | -13 | 32.83 |
| 2509.8 | V | / | / | / | / | -13 | / |
| Test mode: GSM 850 CH251 | | | | | | | |
| 1697.6 | H | -55.61 | 3.38 | 11.42 | -47.57 | -13 | 34.57 |
| 2546.4 | H | / | / | / | / | -13 | / |
| 1697.6 | V | -54.33 | 3.38 | 11.42 | -46.29 | -13 | 33.29 |
| 2546.4 | V | / | / | / | / | -13 | / |

| Test Mode: GSM 1900 CH512 | | | | | | | |
|---|----------------------|------------|----------------|---------------------------------|--------------------|-------------|-------------|
| Frequency (MHz) | Antenna polarization | S.G. (dBm) | Cable loss(dB) | Substitution antenna gain (dBi) | Result (EIRP)(dBm) | Limit (dBm) | Margin (dB) |
| 3700.4 | H | -47.24 | 4.75 | 6.54 | -45.45 | -13 | 32.45 |
| 5550.6 | H | / | / | / | / | -13 | / |
| 3700.4 | V | -45.36 | 4.75 | 6.54 | -43.57 | -13 | 30.57 |
| 5550.6 | V | / | / | / | / | -13 | / |
| Test Mode: GSM 1900 CH661 | | | | | | | |
| 3760 | H | -42.43 | 4.86 | 6.33 | -40.96 | -13 | 27.96 |
| 5640 | H | / | / | | / | -13 | / |
| 3760 | V | -40.94 | 4.86 | 6.33 | -39.47 | -13 | 26.47 |
| 5640 | V | / | / | / | / | -13 | / |
| Test mode: GSM 1900 CH810 | | | | | | | |
| 3819.6 | H | -45.82 | 4.89 | 6.18 | -44.53 | -13 | 31.53 |
| 5729.4 | H | / | / | / | / | -13 | / |
| 3819.6 | V | -42.97 | 4.89 | 6.18 | -41.68 | -13 | 28.68 |
| 5729.4 | V | / | / | / | / | -13 | / |
| Note: All the other emissions not recorded were too low to read, and deemed to comply with limit. | | | | | | | |
| Note: Result =S.G.-Cable loss + Substitution antenna gain. | | | | | | | |

| Test Mode: GPRS 1900 CH512 | | | | | | | |
|---|----------------------|------------|----------------|---------------------------------|--------------------|-------------|-------------|
| Frequency (MHz) | Antenna polarization | S.G. (dBm) | Cable loss(dB) | Substitution antenna gain (dBi) | Result (EIRP)(dBm) | Limit (dBm) | Margin (dB) |
| 3700.4 | H | -46.86 | 4.75 | 6.54 | -45.07 | -13 | 32.07 |
| 5550.6 | H | / | / | / | / | -13 | / |
| 3700.4 | V | -45.92 | 4.75 | 6.54 | -44.13 | -13 | 31.13 |
| 5550.6 | V | / | / | / | / | -13 | / |
| Test Mode: GSM 1900 CH661 | | | | | | | |
| 3760 | H | -47.44 | 4.86 | 6.33 | -45.97 | -13 | 32.97 |
| 5640 | H | / | / | | / | -13 | / |
| 3760 | V | -46.31 | 4.86 | 6.33 | -44.84 | -13 | 31.84 |
| 5640 | V | / | / | / | / | -13 | / |
| Test mode: GSM 1900 CH810 | | | | | | | |
| 3819.6 | H | -49.58 | 4.89 | 6.18 | -48.29 | -13 | 35.29 |
| 5729.4 | H | / | / | / | / | -13 | / |
| 3819.6 | V | -49.02 | 4.89 | 6.18 | -47.73 | -13 | 34.73 |
| 5729.4 | V | / | / | / | / | -13 | / |
| Note: All the other emissions not recorded were too low to read, and deemed to comply with limit. | | | | | | | |
| Note: Result =S.G.-Cable loss + Substitution antenna gain. | | | | | | | |

8. Block Edge Compliance

Refer to original test report SH09070021AR02, Page 44.

9. Testsetup photo



10.Photos of EUT

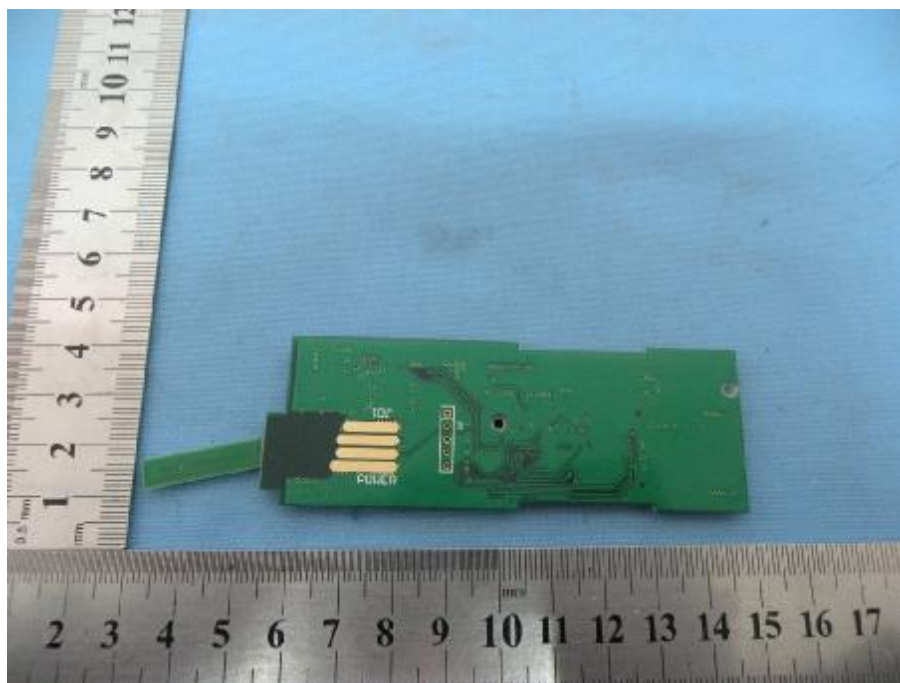
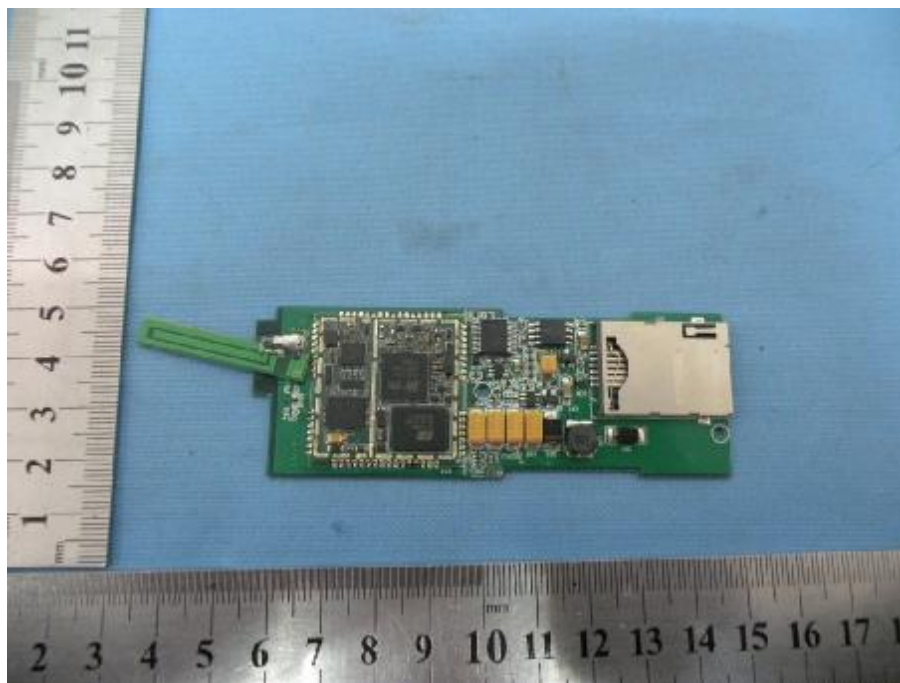


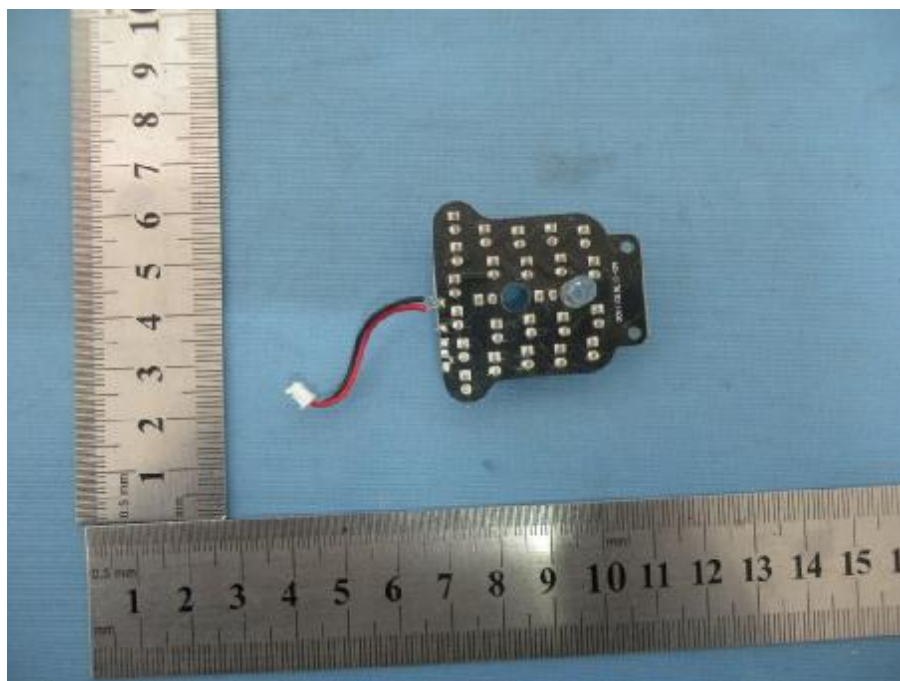


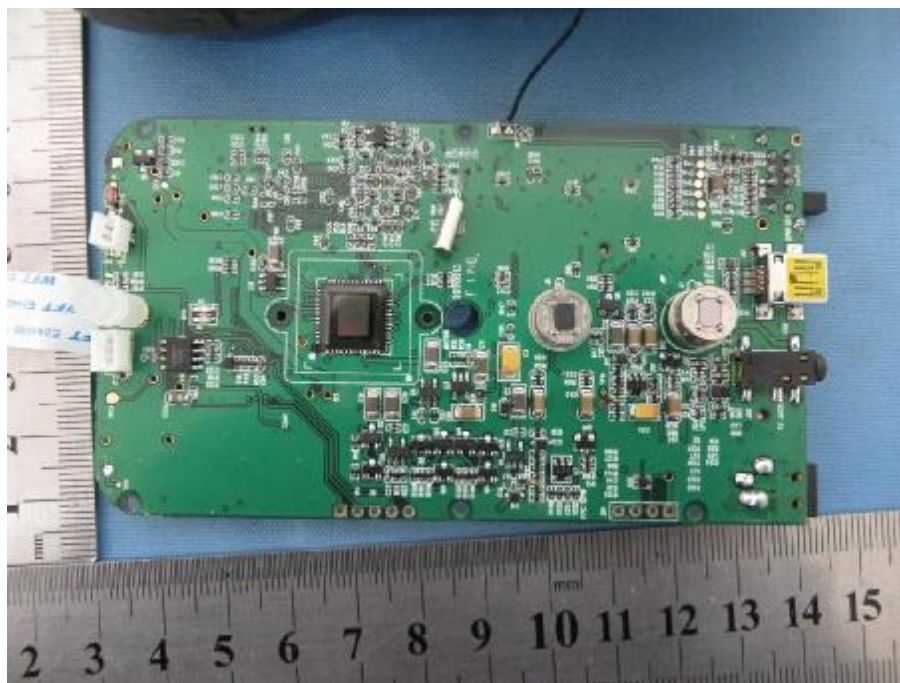


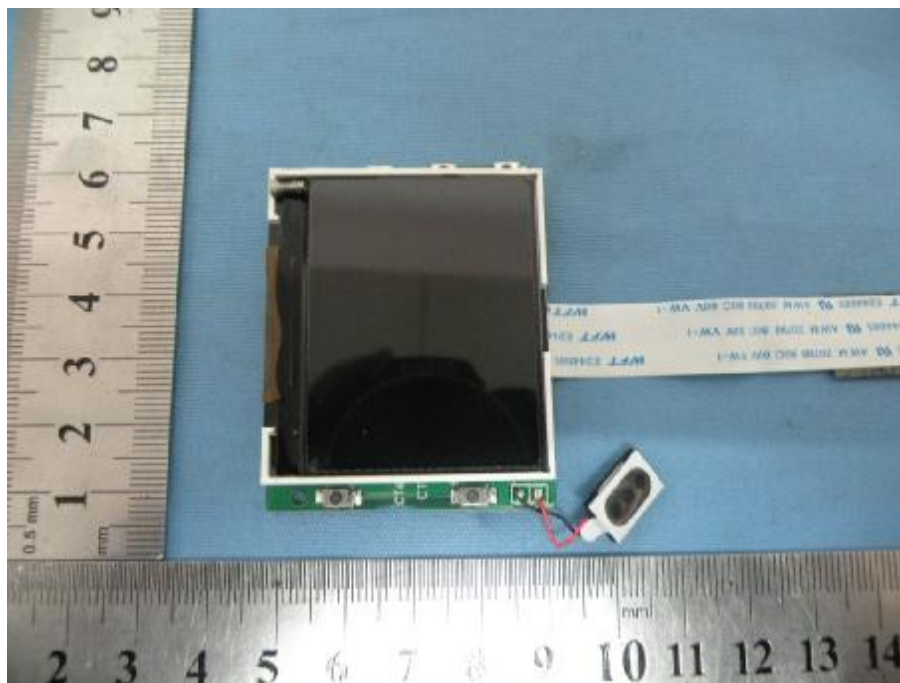


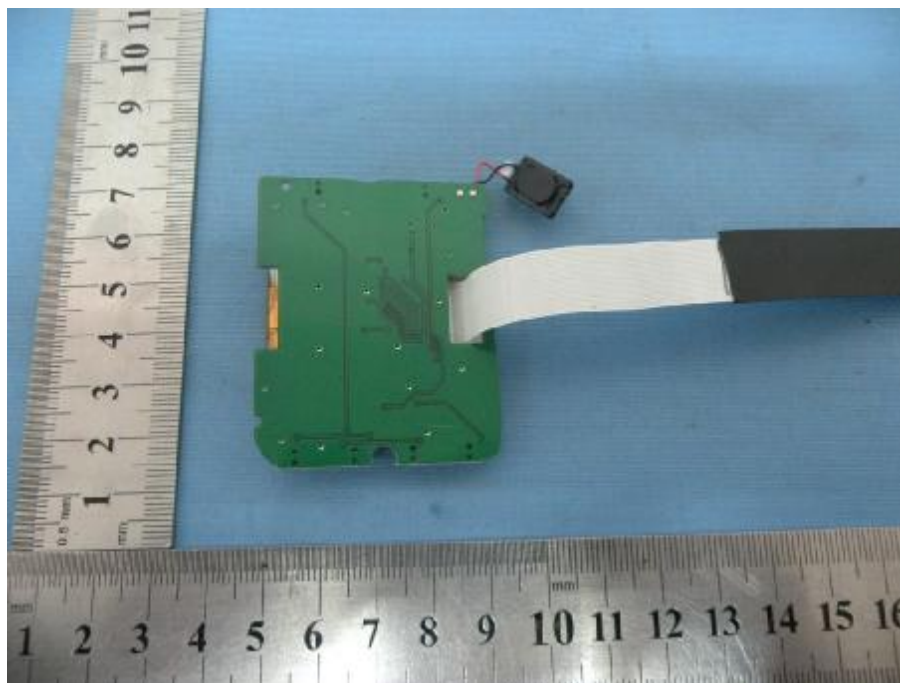












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