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| Prüfbericht - Nr.: Test Report No. | 14011779 001 | Seite 1 von 12 Page 1 of 12 | |
| Auftraggeber: Applicant | Lucky Plastic Factory Ltd. Suite 502, Chinachem Golden Plaza 77 Mody Road T.S.T. East, Kowloon Hong Kong | | |
| Gegenstand der Prüfung: Test item | Low Power Transmitter | | |
| Bezeichnung: Identification | 9432M | Serien-Nr.: Serial No. | Engineering sample |
| Wareneingangs-Nr.: Receipt No. | 060104044, 060223056 | Eingangsdatum: Date of receipt | 04.01.2006, 23.02.2006 |
| Prüfört: Testing location | TÜV Rheinland Hong Kong Ltd. Unit 8, 25 th Floor, Skyline Tower, 39 Wang Kwong Road, Kowloon Bay Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong | | |
| Prüfgrundlage: Test specification | FCC Part 15, Subpart C | | |
| Prüfergebnis: Test Result | Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed . | | |
| geprüft / tested by: | | kontrolliert / reviewed by: | |
| 27.05.2006 | Hugo Wan Project Engineer | 27.05.2006 | Thomas Berns Manager |
| Datum Date | Name Name | Unterschrift Signature | Unterschrift Signature |
| Sonstiges: FCCID: NEX-9432M-27TX Other Aspects | | | |
| Abkürzungen: | OK, Pass, P = entspricht Prüfgrundlage Fail, F = entspricht nicht Prüfgrundlage N/A = nicht anwendbar NT = nicht getestet | Abbreviations: | OK, Pass, P = passed Fail, F = failed N/A = not applicable NT = not tested |
| Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicate in extracts. This test report does not entitle to carry any safety mark on this or similar products. | | | |

Test Summary

Radiated Emission of Carrier Frequency

Result: Pass

Spurious Radiated Emissions

Result: Pass

Bandwidth Measurement

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| Appendix 4: EUT Internal Photo | |
| Appendix 5: FCCID Label, Block Diagram, Schematics and User manual. | |

List of Test and Measurement Instruments

| Kind of Equipment | Manufacturer | Type | S/N |
|---------------------------|-----------------|--------|--------------|
| Test Receiver | Rohde & Schwarz | ESVS30 | 842807/009 |
| Active Loop Antenna | EMCO | 6502 | 9107-2651 |
| Biconical Antenna | Rohde & Schwarz | HK116 | 841489/015 |
| Log.-Periodic Antenna | Rohde & Schwarz | HL223 | 841516/017 |
| Double Ridge Horn Antenna | EMCO | 3115 | 9002-3347 |
| Spectrum Analyzer | Rohde & Schwarz | FSP30 | 1093.4495K30 |

General Product Information

Product Function and Intended Use

The equipment under test (EUT) is a transmitter for a RC toy car operating at 27.145 MHz. The EUT has one control button and one control wheel for commanding the forward, backward, left and right movement of the associated receiver. There are another 2 steering control trims for trimming the steering and speed of associated receiver.

FCCID: NEX-9432M-27TX

| Model | Product description |
|-------|-------------------------------|
| 9432M | Radio Control Toy Transmitter |

Circuit Description

IC and the associated circuit act as AF-Modulator. Q3 and the associated circuit act as a RF-Transmitter. Q4, XTAL and the associated circuit act as an oscillator.

The EUT is using surface mount technology (SMT) electronic components on the PCB circuit.

Ratings and System Details

| | Transmitter |
|--------------------|-----------------------------------------------------|
| Frequency range | : 27.145MHz |
| Number of channels | : 3 (same frequencies but different coding schemes) |
| Type of antenna | : External telescopic antenna |
| Power supply | : Battery operated 9V |
| Ports | : none |
| Protection Class | : III |

Independent Operation Modes

The basic operation modes are:

- Remote Control: On and Off

For further information refer to User Manual

Submitted Documents

The submitted documents are listed as follow:

- Circuit diagram
- Block diagram
- Label artwork
- User manual

Related Submittal(s) Grants

This is a single application for certification of the transmitter.

Test Set-up and Operation Mode

Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

Test Operation and Test Software

Test operation should refer to test methodology.

- There was no special software to exercise the device.

Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- none

Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Circuit Diagram or the Technical Construction File. No additional measures were employed to achieve compliance.

Test Methodology

Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.4-2003.

The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. During the testing, the EUT was operated standalone and arranged for maximum emissions. The EUT was tested in three orthogonal planes.

The investigation is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

All radiated tests were performed at an antenna to EUT with 3 meters distance, unless stated otherwise in section 7.1.1 and 7.1.2 of this test report.

Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

$$FS = R + AF + CF + FA - PA$$

Where FS = Field Strength in dBuV/m at 3 meters.

R = Reading of Spectrum Analyzer in dBuV.

AF = Antenna Factor in dB.

CF = Cable Attenuation Factor in dB.

FA = Filter Attenuation Factor in dB.

PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

Test Results

Radiated Emission of Carrier Frequency

Subclause 15.227(a)

RESULT:
Pass

Test Specification : FCC Part 15 Subclause 15.227(a)
 Test Method : ANSI 63.4-2003
 Measurement Location : Semi Anechoic Chamber
 Measurement Distance : 3m
 Detector Function : Peak and Average
 Measurement BW : 100 kHz
 Supply Voltage : DC 9V
 Tested channel : A (it was chosen as a representative channel for testing since the other 2 channels gave similar performance level)

Polarization: Vertical

| Detector function | Frequency (MHz) | Measured Field strength at 3m (dB μ V/m) | Delta to Limit (dB) |
|-------------------|--------------------|----------------------------------------------------|------------------------|
| Peak | 27.145 | 49.4 | -50.6 |
| Average | 27.145 | 33.6 | -46.4 |

Polarization: Horizontal

| Detector function | Frequency (MHz) | Measured Field strength at 3m (dB μ V/m) | Delta to Limit (dB) |
|-------------------|--------------------|----------------------------------------------------|------------------------|
| Peak | 27.145 | 32.5 | -67.5 |
| Average | 27.145 | 17.0 | -63.0 |

Limit
Subclause 15.227(a)

| Frequency within the band | Peak Emission | | Average Emission | |
|---------------------------|---------------|----------------|------------------|----------------|
| | (μ V/m) | (dB μ V/m) | (μ V/m) | (dB μ V/m) |
| 26.96-27.28 MHz | 100,000 | 100.0 | 10,000 | 80.0 |

According to section 15.35(b), when average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

Spurious Radiated Emissions**Subclause 15.227(b)****RESULT:****Pass**

Test Specification : FCC Part 15 Subclause 15.209
 Test Method : ANSI 63.4-2003
 Measurement Location : Semi Anechoic Chamber
 Measurement Distance : 3m
 Detector Function : Quasi Peak
 Measurement BW : 100 kHz
 Supply Voltage : DC 9V
 Tested channel : A (it was chosen as a representative channel for testing since the other 2 channels gave similar performance level)
 Measuring Frequency Range : 12-1000MHz

Polarization: Vertical

| Frequency (MHz) | Field strength at 3m (dBμV/m) | Limit at 3m (dBμV/m) | Delta to Limit (dB) |
|-----------------|-------------------------------|----------------------|---------------------|
| 54.290 | 25.7 | 40.00 | -14.30 |
| 81.436 | 27.4 | 40.00 | -12.60 |
| *108.581 | 31.6 | 43.52 | -11.92 |
| *135.727 | 36.2 | 43.52 | -7.32 |
| *162.873 | 16.9 | 43.52 | -26.62 |
| 190.018 | 15.8 | 43.52 | -27.72 |
| 217.164 | 13.5 | 46.02 | -32.52 |
| *244.309 | 11.8 | 46.02 | -34.22 |
| *271.454 | 12.4 | 46.02 | -33.62 |
| 298.600 | 14.0 | 46.02 | -32.02 |

Polarization: Horizontal

| Frequency (MHz) | Field strength at 3m (dBμV/m) | Limit at 3m (dBμV/m) | Delta to Limit (dB) |
|-----------------|-------------------------------|----------------------|---------------------|
| 54.290 | 14.8 | 40.00 | -25.20 |
| 81.436 | 21.1 | 40.00 | -18.90 |
| *108.582 | 26.6 | 43.52 | -16.92 |
| *135.727 | 31.5 | 43.52 | -12.02 |
| *162.875 | 16.5 | 43.52 | -27.02 |
| 190.018 | 17.2 | 43.52 | -26.32 |
| 217.164 | 13.1 | 46.02 | -32.92 |
| *244.309 | 12.1 | 46.02 | -33.92 |
| *271.454 | 12.8 | 46.02 | -33.22 |
| 298.600 | 14.0 | 46.02 | -32.02 |

Remark: ' * ' indicates the frequency of the emissions fall into the restricted band as defined in Section 15.205(a). They comply with the radiated emission limits specified in Section 15.209.
 There is no spurious emission found between lowest oscillating frequency to 30 MHz.

Limit**Subclause 15.209**

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

Limit for Radiated Emission under Section 15.209:

| Frequency (MHz) | Field strength (microvolt/meter) | Field strength (dB μ V/m) | Measurement distance (meters) |
|-----------------|-------------------------------------|----------------------------------|----------------------------------|
| 30-88 | 100 | $20 \cdot \log(100) = 40.00$ | 3 |
| 88-216 | 150 | $20 \cdot \log(150) = 43.52$ | 3 |
| 216-960 | 200 | $20 \cdot \log(200) = 46.02$ | 3 |
| 960-2500 | 500 | $20 \cdot \log(500) = 53.98$ | 3 |

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector and above 1000 MHz are based on the measurements employing an average detector.

Bandwidth Measurement

Port of Testing : Antenna Coupler
Detector Function : Peak
Supply Voltage : DC 9V

The field strength of any emissions appearing at the lower edge 26.96 MHz and upper edge 27.28 MHz are 45.08 dB and 42.60 dB below the carrier respectively.

For test results refer to Appendix 1.