

Produkte
Products



| | | | |
|---|--|--|---|
| Prüfbericht - Nr.: 14044893 001 <i>Test Report No.:</i> | | Seite 1 von 9 Page 1 of 9 | |
| Auftraggeber: <i>Client:</i> | | Dickie Toys Hong Kong Ltd. 19/F., Prudential Tower The Gateway, Harbour City 21 Canton Road, Tsimshatsui Kowloon, Hong Kong | |
| Gegenstand der Prüfung: <i>Test Item:</i> | | Short Range Device - Superregenerative Receiver (49.860MHz) | |
| Bezeichnung: <i>Identification:</i> | 20 111 9886 | Serien-Nr.: <i>Serial No.:</i> | Engineering sample |
| Wareneingangs-Nr.: <i>Receipt No.:</i> | A000383151-001 | Eingangsdatum: <i>Date of Receipt:</i> | 24.06.2016 |
| Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i> | | Test sample is not damaged and suitable for testing. | |
| Prüfört: <i>Testing Location:</i> | | TÜV Rheinland Hong Kong Ltd. 8/F, First Group Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong | |
| Prüfgrundlage: <i>Test Specification:</i> | | FCC Part 15 Subpart B ANSI C63.4-2014 | |
| Prüfergebnis: <i>Test Results:</i> | | Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed . | |
| Prüflaboratorium: <i>Testing Laboratory:</i> | | TÜV Rheinland Hong Kong Ltd. 8 - 10/F., Goldin Financial Global Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong | |
| geprüft/ tested by: | | kontrolliert/ reviewed by: | |
| 28.07.2016 | Joey Leung Project Manager | 28.07.2016 | Benny Lau Senior Project Manager |
| Datum <i>Date</i> | Name/Stellung <i>Name/Position</i> | Unterschrift <i>Signature</i> | Datum <i>Date</i> |
| | |  |  |
| Sonstiges: Other Aspects | | FCC ID: NLB201119886RX | |
| Abkürzungen: P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet | | Abbreviations: P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested | |
| <p>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.</p> <p><i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i></p> | | | |



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Product information

Manufacturers declarations

| | Superregenerative Receiver |
|---|-----------------------------------|
| Operating frequency range | 49.860MHz |
| Type of equipment | stand alone radio device |
| Connection to public utility power line | No |
| Nominal voltage | V _{nom} : 6.0VDC |
| Independent Operation Modes | Receiving mode |

Product function and intended use

The equipment under test (EUT) is a receiver operating at 49.860MHz. It is powered by battery only.

FCC ID: NLB201119886RX

| Models | Product description |
|---------------|----------------------------|
| 20 111 9886 | Radio Control Toy Car |

Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual
Rating Label

Independent Operation Modes

The basic operation mode is transmitting mode .

For further information refer to User Manual

Related Submittal(s) Grants

This is a single application for certification of the receiver. The FCC ID of the corresponding transmitter is NLB49028TX.

Remark

The test results in this test report are only relevant to the tested sample and does not involve any assessment in the production

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.

- No testing software is provided by the applicant.

Special Accessories and Auxiliary Equipment

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

- none

Countermeasures to achieve EMC Compliance

- none

Test Methodology

Radiated Emission

The radiated emission measurements of the transmitter part were performed according to the procedures in ANSI C63.10-2013. The radiated emission measurements of the receiver part were performed according to the procedures in ANSI C63.4-2014.

For measurement below 1GHz, the equipment under test (EUT) was placed at the middle of the 80 cm height turntable. For measurement above 1GHz, the EUT was placed at the middle of the 1.5 m height turntable and RF absorbing material was placed on ground plane between turntable and 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 particular parts 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:

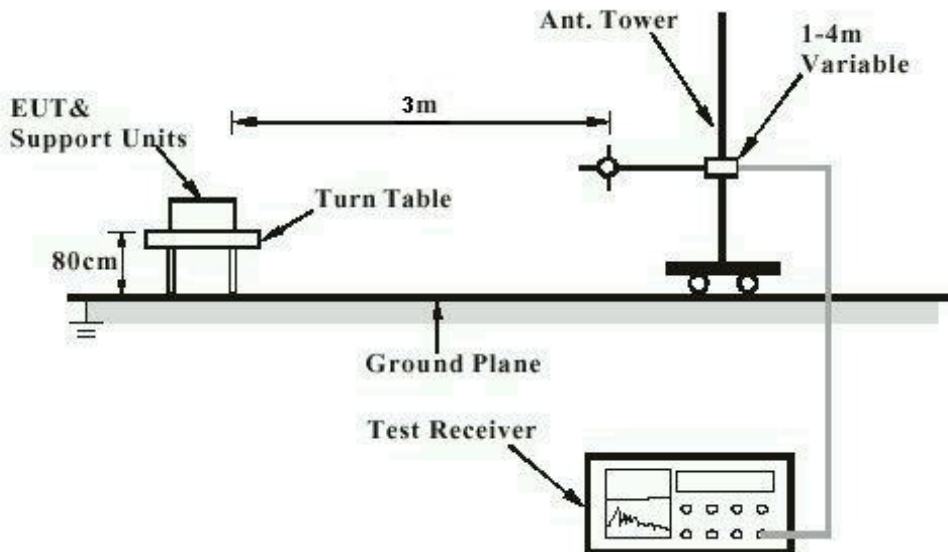
$$FS = R + AF + CF + FA - PA$$

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.

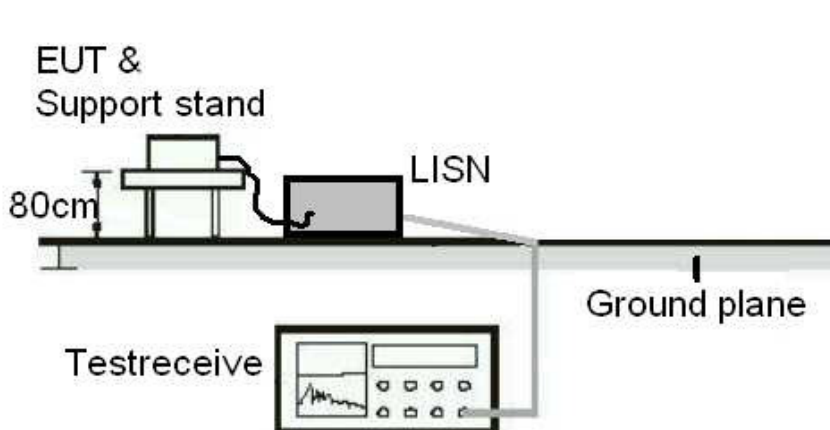
Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1 GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)



List of Test and Measurement Instruments

Hong Kong Productivity Council (FCC Registration number: 90656)

Radiated Emission

| Equipment | Manufacturer | Type | S/N | Last Cal. Date | Due Date |
|--|--------------|--------|------------|----------------|-------------|
| Semi anechoic Chamber | Frankonia | Nil | Nil | 14 Apr 2015 | 25 Apr 2017 |
| Test Receiver | R & S | ESU40 | 100190 | 07 Dec 2015 | 07 Dec 2016 |
| Bi conical Antenna | R & S | HK116 | 100241 | 01 Sep 2015 | 01 Sep 2017 |
| Log Periodic Antenna | R & S | HL223 | 841516/017 | 01 Sep 2015 | 01 Sep 2017 |
| Coaxial cable | Harbour | LL335 | N/A | 10 Jun 2016 | 10 Jun 2018 |
| Microwave amplifier 0.5 26.5GHz, 25dB gain | HP | 83017A | 3950M00241 | 18 Jul 2016 | 18 Jul 2018 |
| High Pass Filter (cutoff freq. =1000MHz) | Trilithic | 23042 | 9829213 | 28 Oct 2015 | 28 Oct 2017 |
| Horn Antenna | EMCO | 3115 | 9002 3347 | 26 Aug 2015 | 26 Aug 2017 |

Measurement Uncertainty

The estimated combined standard uncertainty for power-line conducted emissions measurements is ± 3.43 dB.

The estimated combined standard uncertainty for radiated emissions measurements is ± 4.68 dB (30MHz to 200MHz) and ± 5.73 dB (200MHz to 1000MHz) and ± 5.57 dB (above 1GHz).

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for the level of confidence is approximately 95%.

Results FCC Part 15 – Subpart B

| | |
|--|------------|
| FCC 15.107 – Conducted Emission on AC Mains | N/A |
| There is no AC power input or output ports on the EUT. | |

| | | |
|--|-------------------------|-----------------------------------|
| FCC 15.109 – Radiated Emissions | Pass | |
| Test Specification : ANSI C63.4-2014 Mode of operation : Receiving mode Port of testing : Enclosure Detector : Peak RBW/VBW : 120 kHz for f < 1 GHz Supply voltage : 6.0VDC Frequency range : 30MHz – 1GHz Temperature : 23°C Humidity : 50% | | |
| Requirement: The field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the radiated limits shown in §15.109(a). | | |
| Results: | Pass | |
| Vertical Polarization | | |
| Freq MHz | Level dBuV/m | Limit dBuV/m |
| 49.380 | 26.6 | 40.0 |
| 51.360 | 23.8 | 40.0 |
| Horizontal Polarization | | |
| Freq MHz | Level dBuV/m | Limit/ Detector dBuV/m |
| 49.380 | 18.2 | 40.0 |