

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>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
	Unterschrift <i>Signature</i>		Unterschrift <i>Signature</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	
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. <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>			



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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:

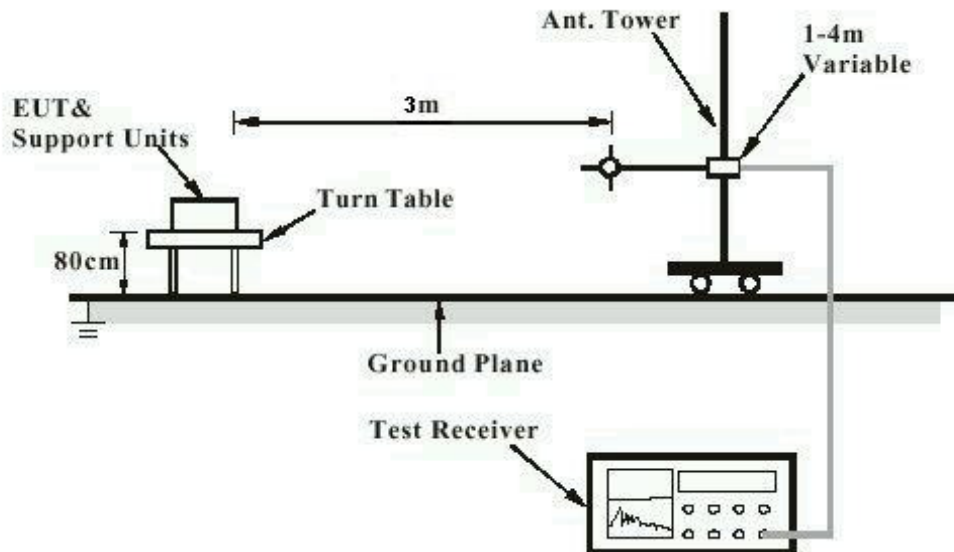
$$FS = R + AF + CF + FA - PA$$

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.

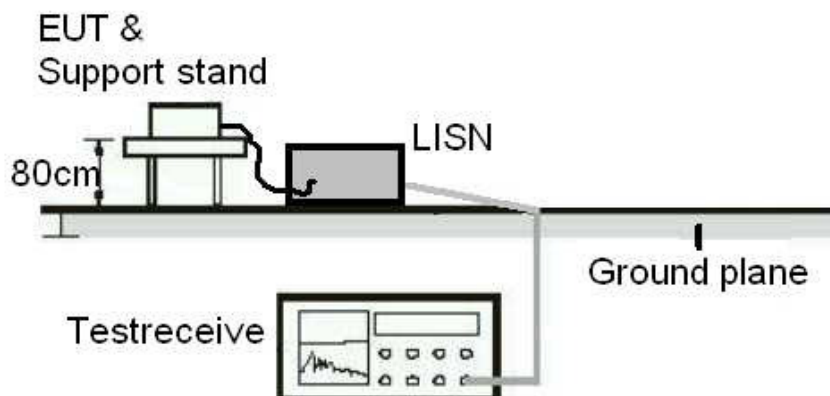
Test Setup Diagram

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 $\pm 3.43\text{dB}$.

The estimated combined standard uncertainty for radiated emissions measurements is $\pm 4.68\text{dB}$ (30MHz to 200MHz) and $\pm 5.73\text{dB}$ (200MHz to 1000MHz) and $\pm 5.57\text{dB}$ (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