

**Produkte**  
*Products*

<b>Prüfbericht - Nr.: 14041785 001</b>		<b>Seite 1 von 13</b>	
<i>Test Report No.:</i>		<i>Page 1 of 13</i>	
<b>Auftraggeber:</b>		<b>Dickie Toys Hong Kong Ltd.</b>	
<i>Client:</i>		19/F., Prudential Tower, The Gateway, Harbour City, 21 Canton Road, Tsimshatsui, Kowloon, Hong Kong	
<b>Gegenstand der Prüfung:</b>		<b>Short Range Device - RC Toy Walkie Talkie (49.860MHz)</b>	
<i>Test Item:</i>			
<b>Bezeichnung:</b>	<b>49026</b>	<b>Serien-Nr.:</b>	<b>Engineering sample</b>
<i>Identification:</i>		<i>Serial No.:</i>	
<b>Wareneingangs-Nr.:</b>	<b>A000265005-011</b>	<b>Eingangsdatum:</b>	<b>10.10.2015</b>
<i>Receipt No.:</i>		<i>Date of Receipt:</i>	
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b>		Test sample received is sufficient for testing and not damaged.	
<i>Condition of test item at delivery:</i>			
<b>Prüfört:</b>		<b>TÜV Rheinland Hong Kong Ltd.</b>	
<i>Testing Location:</i>		8/F., First Group Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong  <b>Hong Kong Productivity Council</b> HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong	
<b>Prüfgrundlage:</b>		<b>FCC Part 15, Subpart B</b>	
<i>Test Specification:</i>		<b>FCC Part 15, Subpart C</b> <b>ANSI C63.10-2013</b>	
<b>Prüfergebnis:</b>		<b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b>	
<i>Test Result:</i>		<i>The test item passed the test specification(s).</i>	
<b>Prüflaboratorium:</b>		<b>TÜV Rheinland Hong Kong Ltd.</b>	
<i>Testing Laboratory:</i>		8 - 10/F., Goldin Financial Global Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong	
<b>geprüft / tested by:</b>		<b>kontrolliert / reviewed by:</b>	
26.11.2015	Joey Leung Project Manager	26.11.2015	Sharon Li Department Manager
<b>Datum</b>	<b>Name/Stellung</b>	<b>Datum</b>	<b>Name/Stellung</b>
<i>Date</i>	<i>Name/Position</i>	<i>Date</i>	<i>Name/Position</i>
	<b>Unterschrift</b>		<b>Unterschrift</b>
	<i>Signature</i>		<i>Signature</i>
<b>Sonstiges / Other Aspects:</b>			
<b>FCC ID: NLB49026TX</b>			
<b>Abkürzungen:</b>		<b>Abbreviations:</b>	
P(ass) = entspricht Prüfgrundlage		P(ass) = passed	
F(ail) = entspricht nicht Prüfgrundlage		F(ail) = failed	
N/A = nicht anwendbar		N/A = not applicable	
N/T = nicht getestet		N/T = not tested	
<p><b>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.</b></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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## Test Summary

### Conducted Emissions

*Result: N/A*

### Bandwidth Measurement

*Result: Pass*

### Radiated Emission of Carrier Frequency

*Result: Pass*

### Spurious Radiated Emissions

*Result: Pass*

## List of Test and Measurement Instruments

### Hong Kong Productivity Council (Registration number: 90656)

#### Radiated Emission

Equipment used	Manufacturer	Model No.	S/N	Cal. Interval	Last Cal. Date
Semi-anechoic Chamber	Frankonia	Nil	Nil	1 year	14 Apr 2015
Cable	Hubersuhner	SUCOFLEX 104	72799 /6	2 years	31 Mar 2014
Test Receiver	R & S	ESU26	100050	1 year	12 Feb 2015
Log Periodic Antenna	R & S	HL223	841516/020	2 year	01 Sep 2014
Coaxial cable	Harbour	LL335	N/A	2 year	10 Jun 2014
Microwave amplifier 0.5-26.5GHz, 25dB gain	HP	83017A	3123A00437	2 years	14 Jul 2014
High Pass Filter (cutoff freq. =1000MHz)	Trilithic	23042	9829213	2 years	29 Oct 2015
Active Loop Antenna	EMCO	6502	9107-2651	1 year	15 Aug 2015

### TÜV Rheinland Hong Kong Ltd.

#### Bandwidth Measurement

Equipment used	Manufacturer	Model No.	S/N	Cal. Interval	Last Cal. Date
Spectrum Analyzer	R & S	FSP 3	100561	1 year	28 May 2015

## General Product Information

### Product Function and Intended Use

The equipment under test (EUT) is a RC toy walkie talkie operating at 49.860MHz. The EUT has a switch and a push button.

#### FCC ID: NLB49026TX

Models	Product description
20 111 8176	Radio Control Toy Walkie Talkie

### Ratings and System Details

	Transmitter
Frequency range	: 49.860MHz
Number of channels	: 1
Type of antenna	: Permanently attached wire antenna with 0dBi gain
Power supply	: Battery operated 9V
Ports	: none
Protection Class	: III

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## **Independent Operation Modes**

The basic operation mode is voice transmission and reception.

For further information refer to User Manual

## **Submitted Documents**

The submitted documents are listed as follow:

- Circuit diagram
- Block diagram
- User manual
- Label artwork
- Bill of material

## **Related Submittal(s) Grants**

This is a single application for certification of the transmitter and superregenerative receiver.

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## 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

- none

## Test Methodology

### Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.10-2013.

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 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.



## Results FCC Part 15 – Subpart B

### Subclause 15.107 – Conducted Emission on AC Mains

**N/A**

Test Specification	:	FCC Part 15 Subclause 15.107(a)
Measurement Procedure	:	ANSI 63.10-2013
Port of Testing	:	AC Mains Input Port
Detector Function	:	Quasi-peak and Average
Resolution Bandwidth	:	9 kHz
Supply Voltage	:	120VAC 60Hz
Mode of Operation	:	N/A
Temperature	:	N/A
Humidity	:	N/A

This test is not applicable due to EUT is powered by 9V battery only. The EUT is not designed to be connected to the public utility (AC) power line.

**Subclause 15.109 (b) – Spurious Radiated Emissions****Pass**

Test Specification : FCC Part 15 Subclause 15.109  
Measurement Procedure : ANSI 63.10-2013  
Port of Testing : Enclosure  
Measurement Location : Semi Anechoic Chamber  
Measurement Distance : 3m  
Detector Function : Quasi Peak  
Resolution Bandwidth : 120 kHz  
Supply Voltage : DC 9V  
Measuring Frequency Range : 9kHz – 1GHz  
Mode of Operation : Receiving  
Temperature : 23°C  
Humidity : 53%

**Polarization: Vertical**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
47.910	17.2	40.0	-22.8
No peak found	---	43.5	---
No peak found	---	46.0	---

**Polarization: Horizontal**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
No peak found	---	40.0	---
No peak found	---	43.5	---
No peak found	---	46.0	---

## Results FCC Part 15 – Subpart C

### Subclause 15.203 – Antenna Requirement

**Pass**

Requirement : No antenna other than that furnished by the responsible party shall be used with the device

Result : Permanent attached antenna

### Subclause 15.215(c) – Bandwidth Measurement

**Pass**

Test Specification : ANSI C63.10-2013  
Port of Testing : Antenna port  
Detector Function : Peak  
Mode of Operation : Transmitting  
Supply Voltage : DC 9V

The field strength of any emissions appearing at the lower edge 49.82 MHz and upper edge 49.90 MHz are 64.42 dB and 62.16 dB below the carrier respectively.

For test results refer to Appendix 1.

**Subclause 15.235(a) – Radiated Emission of Carrier Frequency**
**Pass**

Test Specification : FCC Part 15 Subclause 15.235(a)  
 Measurement Procedure : ANSI 63.10-2013  
 Port of Testing : Enclosure  
 Measurement Location : Semi Anechoic Chamber  
 Measurement Distance : 3m  
 Detector Function : Peak and Average  
 Measurement BW : 120 kHz  
 Supply Voltage : DC 9V  
 Mode of Operation : Transmitting mode  
 Temperature : 23°C  
 Humidity : 53%

**Polarization: Vertical**

Detector function	Frequency (MHz)	Measured Field strength at 3m (dB $\mu$ V/m)	Delta to Limit (dB)
Peak	49.859	72.4	-27.6
Average	49.859	72.2	-7.8

**Polarization: Horizontal**

Detector function	Frequency (MHz)	Measured Field strength at 3m (dB $\mu$ V/m)	Delta to Limit (dB)
Peak	49.859	52.8	-47.2
Average	49.859	52.6	-27.4

**Limit**
**Subclause 15.227(a)**

Frequency within the band	Peak Emission		Average Emission	
	( $\mu$ V/m)	dB $\mu$ V/m	( $\mu$ V/m)	dB $\mu$ V/m
49.82 – 49.90 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.

**Subclause 15.235(b) – Spurious Radiated Emissions**
**Pass**

Test Specification	:	FCC Part 15 Subclause 15.209
Measurement Procedure	:	ANSI 63.10-2013
Measurement Location	:	Semi Anechoic Chamber
Measurement Distance	:	3m
Detector Function	:	Quasi Peak
Measurement BW	:	120 kHz
Supply Voltage	:	DC 9V
Measuring Frequency Range	:	30 - 1000MHz
Mode of Operation	:	Transmitting mode
Temperature	:	23°C
Humidity	:	53%

**Polarization: Vertical**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
99.719	30.4	43.5	-13.1
149.579	38.6	43.5	-4.9
199.439	32.1	43.5	-11.4
598.318	30.7	46.0	-15.3
698.038	31.7	46.0	-14.3
797.758	35.5	46.0	-10.5

**Polarization: Horizontal**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
99.719	23.4	43.5	-19.6
149.579	30.2	43.5	-13.3
199.439	29.4	43.5	-14.1
249.299	24.1	46.0	-21.9
797.758	29.9	46.0	-16.1

Remark: (1) ‘ \* ’ 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.  
(2) 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 (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30-88	100	$20 \cdot \log(100) = 40.0$	3
88-216	150	$20 \cdot \log(150) = 43.5$	3
216-960	200	$20 \cdot \log(200) = 46.0$	3
960-2500	500	$20 \cdot \log(500) = 54.0$	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.