TÜVRheinland®

Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**14010720 002**		Seite 1 von 10 *Page 1 of 10*
Auftraggeber: *Client:*	**Zaptoys International Limited** **Unit 1105, 11/F, Tower II** **South Seas Centre** **T.S.T. East, Kowloon** **Hong Kong**		
Gegenstand der Prüfung: *Test Item:*	**Superregenerative Receiver (49MHz)**		
Bezeichnung: *Identification:*	**Please refer to page 5 Model list for details**	**Serien-Nr.:** *Serial No.:*	**Engineering sample**
Wareneingangs-Nr.: *Receipt No.:*	**080130002-1**	**Eingangsdatum:** *Date of Receipt:*	**30.01.2008**
Prüfort: *Testing Location:*	**TÜV Rheinland Hong Kong Ltd.** 9th Floor, Oriental News Building, 7 Wang Tai 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 B**		
Prüfergebnis: *Test Result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*		
Prüflaboratorium: *Testing Laboratory:*	**TÜV Rheinland Hong Kong Ltd.** 9th Floor, Oriental News Building, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong		

geprüft / *tested by:*			**kontrolliert** / *reviewed by:*		
12.02.2008	Hugo Wan Project Engineer		12.02.2008	Thomas Berns Manager	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges / *Other Aspects:*

FCCID: NEX-9344RX-SMT

Abkürzungen:				*Abbreviations:*			
	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*

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 duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

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Test Summary

Spurious Radiated Emissions

Result: Pass

Contents

List of Test and Measurement Instruments

Hong Kong Productivity Council (Registration number: 90656)

Kind of Equipment	Manufacturer	Type	S/N	Cal Due Date
Semi-anechoic Chamber	Frankonia	Nil	Nil	28 Mar 08
Test Receiver	Rohde & Schwarz	ESU26	100050	06 Aug 08
Biconical Antenna	Rohde & Schwarz	HK116	841489/016	08 Feb 08
Log.-Periodic Antenna	Rohde & Schwarz	HL223	841516/020	03 Feb 08
Horn Antenna	EMCO	3115	9002-3347	02 Feb 08

General Product Information

Product Function and Intended Use

The equipment under test (EUT) is a RC toy car operating at 49.86MHz. The EUT moves forward, backward, left and right according to the command of the associate transmitter.

FCCID: NEX-9344RX-SMT

Models	Product descriptions
8415	1:20 Citroen/Ford Focus Twin Pack
8417	1:20 Citroen/Subaru Twin Pack
8418	1:20 Citroen/Mitsubishi Twin Pack
8419	1:20 Subaru/Ford Twin Pack
8420	1:20 Subaru/Mitsubishi Twin Pack
8426	1:20 Mitsubishi/Ford Twin Pack
8456	1:20 NASCAR Twin Pack
8486	1:20 Ford GT with Lap Timer
PEBL8486	1:20 Ford GT with Lap Timer
93561	7" Mini Cooper S
93761	1:20 BMW Z4
9344	7" Mini Cooper
9356	Mini Cooper S
9376	1:20 BMW Z4
9390	RC Smart Car
9396	1:20 Subaru
9403	1:20 Ford Focus
9404	1:20 RC Mitsubishi
9409	1:20 Citroen
9449	1:20 RC GM Colorado
9450	1:20 RC Avalanche
9451	1:20 RC Jeep Rescue
9452	1:20 RC Ford Explorer Sport Trac
9453	1:20 RC Ford Bronco
9454	1:20 RC Toyota Tundra
9455	1:20 Hummer H2
9456	1:20 Ford GT
9457	1:20 RC GM Corvette C5
9462	1:20 Subaru WRX Street Version
9463	1:20 Mitsubishi Lancer VIII Street Version
9472	1:20 AC Schnitzer Z4
9485	1:20 Mustang GT
9493	1:20 RC Range Rover
9501	1:20 RC Subaru WRC 2007
9502	1:20 Muscle Car Series
9474	1:20 FF RC Muscle Car
9475	1:20 Muscle Car Dodge Challenger
9476	1:20 Muscle Car Barracuda
9477	1:20 Muscle Car Camero
9503	1:32 Muscle Car Series
9478	1:20 Muscle Car Pontiac
9479	1:32 Muscle Car Oldsmobile 442

9480	1:32 Muscle Car Camero
9507	1:20 FF RC Chevy NASCAR
9506	Dale Ernhardt Sr.#3
9508	Kevin Harwick #29
9509	Generic #99
9510	Generic #9
9523	1:20 RC Mini Cooper Classic Car
9534	1:20 Plug & Play with Generic Game
9534R	1:20 Plug & Play with Generic Game (Clamshell)
9535	Plug & Play Generic Controller + Subaru
9535R	Plug & Play Generic Controller + Subaru (Clamshell)
9536	Plug & Play Generic Controller + Citroen WRC
9536R	Plug & Play Generic Controller + Citroen WRC (Clamshell)
9537	Plug & Play Generic Controller + Mitsubishi Evolution VIII
9537R	Plug & Play Generic Controller + Mitsubishi Evolution VIII (Clamshell)
9538	Plug & Play Generic Controller + Mini Cooper S
9538R	Plug & Play Generic Controller + Mini Cooper S (Clamshell)
9539	Plug & Play Generic Controller + Ford GT
9539R	Plug & Play Generic Controller + Ford GT(Clamshell)
9540	Plug & Play Generic Controller + AC Schnitzer Z4
9540R	Plug & Play Generic Controller + AC Schnitzer Z4 (Clamshell)
9560	1:20 Citroen C4
9520	1:20 Jeep
9559	1:20 Subaru WRX Street Version
9608	1:20 2008 Dodge Viper STR10
9609	1:20 Mitsubishi Lancer Evo X
9610	1:20 BMW X5
9611	1:20 Honda Civic Type R
9596	1:32 Farm Tractor

The client declares that the above models shares the same electrical circuit design, layout, components used and internal wiring. Hence the model 9344 was selected as a representative for testing.

Circuit Description

The receiver was modified from previous model “9344” in test report 14010720 001. The circuit design, components, wiring and outlook are the same except the PCB layout is reduced in size.

Ratings and System Details

		Receiver
Frequency range	:	49.86MHz
Number of channels	:	1
Type of antenna	:	Fixed External Antenna
Power supply	:	4.5V, 3 x 1.5V “AA” size batteries
Ports	:	none
Protection Class	:	III

Independent Operation Modes

The basic operation modes are:

- Power: On and Off
- Motor movement: left and right, forward and backward.

For further information refer to User Manual

Submitted Documents

The submitted documents are listed as follow:

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

Related Submittal(s) Grants

This is a test report regarding the modified sample which is going to be reviewed by TCB for permissive class change.

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.

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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.

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Test Results

Spurious Radiated Emissions — Section 15.109

RESULT: **Pass**

Test Specification	:	FCC Part 15 Section 15.109
Test Method	:	ANSI 63.4-2003
Measurement Location	:	Semi Anechoic Chamber
Measurement Distance	:	3m
Detector Function	:	Quasi Peak
Measurement BW	:	120 kHz
Supply Voltage	:	DC 4.5V
Measuring Frequency Range	:	30-1000MHz
Mode of operation	:	Standby

Polarization: Vertical

Frequency (MHz)	Field strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Delta to Limit (dB)
49.633	36.6	40.0	-3.4
52.345	33.7	40.0	-6.3
101.519	25.5	43.5	-18.0
240.410	29.7	46.0	-16.3
288.410	33.1	46.0	-12.9

Polarization: Horizontal

Frequency (MHz)	Field strength at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Delta to Limit (dB)
49.635	19.5	40.0	-20.5
239.720	17.8	46.0	-28.2

Limit **Section 15.109**

The field strength of radiated emissions from unintentional radiators at a distance of 3 meters:

Frequency (MHz)	Field strength (µV/m)	Field strength (dBµV/m)	Measurement distance (m)
30-88	100	20*log(100) = 40.00	3
88-216	150	20*log(150) = 43.52	3
216-960	200	20*log(200) = 46.02	3
Above 960	500	20*log(500) = 53.98	3