

Prüfbericht - Nr.: Test Report No.	14010720 001	Seite 1 von 9 Page 1 of 9	
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	Superregenerative Receiver		
Bezeichnung: Identification	Please refer to page 5 for details	Serien-Nr.: Serial No.	Engineering sample
Wareneingangs-Nr.: Receipt No.	050720046	Eingangsdatum: Date of receipt	20.07.2005
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 B		
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:	
13.02.2006	Hugo Wan Project Engineer	13.02.2006	Thomas Berns Senior Project Manager
Datum Date	Name Name	Unterschrift Signature	Datum Date
Sonstiges: FCCID: NEX-9344RX-SMT			
Other Aspects			
Abkürzungen:	OK, Pass, P = entspricht Prüfgrundlage	Abbreviations:	OK, Pass, P = passed
Fail, F	= entspricht nicht Prüfgrundlage	Fail, F	= failed
N/A	= nicht anwendbar	N/A	= not applicable
NT	= nicht getestet	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

Spurious Radiated Emissions

Result: Pass

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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
Biconical Antenna	Rohde & Schwarz	HK116	841489/015
Log.-Periodic Antenna	Rohde & Schwarz	HL223	841516/017
Double Ridge Horn Antenna	EMCO	3115	9002-3347
Signal Generator	Rohde & Schwarz	SMY 01	844146/024

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
9344	7" Mini Cooper
9356	7" Mini Cooper S
93561	7" Mini Cooper S
9376	1:20 BMW-Z4
93761	1:20 BMW-Z4
9390	1:14 R/C Smart Car
9396	1:20 Subaru
9403	1:20 R/C Ford Focus
9404	1:20 R/C Mitsubishi
9409	1:20 R/C Citroen
9449	1:20 R/C GM Colorado
9450	1:20 R/C Avalanche
9451	1:20 R/C Jeep Rescue
9452	1:20 R/C Ford Explorer Sport Trac
9453	1:20 R/C Ford Bronco
9454	1:20 R/C Toyota Tundra
9456	1:20 R/C Ford GT
9457	1:20 R/C GM Corvette
9462	1:20 Subaru WRX Street Version
9463	1:20 Mitsubishi Lancer VIII Street Version

According to the manufacturer declaration, the above models are identical in electrical circuit design, layout, components used and internal wiring, except the housing different. The housing of the above models are all using plastic material only.

Model "9344 7" Mini Cooper S" was chosen randomly as a representative model for testing.

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

Ratings and System Details

	Receiver
Frequency range	: 49.86MHz
Number of channels	: 1
Type of antenna	: Fixed External Antenna
Power supply	: 4.5VDC, 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 single application for certification of the Receiver.

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

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 : 100 kHz
 Supply Voltage : DC 9V
 Measuring Frequency Range : 30-1000MHz

Polarization: Vertical

Frequency (MHz)	Field strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Delta to Limit (dB)
50.36	27.90	40.00	-12.10
52.94	25.60	40.00	-14.40
196.34	28.00	43.52	-15.52
244.64	30.20	46.02	-15.82
255.20	28.90	46.02	-17.12

Polarization: Horizontal

Frequency (MHz)	Field strength at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Delta to Limit (dB)
50.72	30.20	40.00	-9.80
52.94	28.60	40.00	-11.40
147.50	30.20	43.52	-13.32
197.78	30.40	43.52	-13.12
201.92	28.20	43.52	-15.32
244.64	26.80	46.02	-19.22
293.22	28.60	46.02	-17.42

The receiver was tested under receiving on mode. The spurious emissions are all complied with the limit.

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 (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
Above 960	500	$20 \cdot \log(500) = 53.98$	3