Prüfbericht - Nr.: Test Report No.	**14007063 001**	**Seite 1 von 11** Page 1 of 11
Auftraggeber: Applicant	**Lucky Plastic Factory Ltd.** **Suite 907-908, Chinachem Golden Plaza** **77 Mody Road** **T.S.T. East, Kowloon** **Hong Kong**	
Gegenstand der Prüfung: Test item	**Superregenative Receiver**	
Bezeichnung: Identification	**Refer to page 6.**	**Serien-Nr.:** Serial No. **Engineering sample**
Wareneingangs-Nr.: Receipt No.	**040607030**	**Eingangsdatum:** Date of receipt **06.07.2004**
Prüfort: Testing location	**TÜV Rheinland Hong Kong Ltd.** Unit 8, 25th 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:		
10.08.2004	Prudence Poon		10.08.2004	Thomas Berns	
Datum Date	**Name** Name	**Unterschrift** Signature	**Datum** Date	**Name** Name	**Unterschrift** Signature

Sonstiges: **FCCID: NEX-94102**
Other Aspects

Abkürzungen:			**Abbreviations:**		
	OK, Pass, P	**= entspricht Prüfgrundlage**		**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**

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Test Summary

Spurious Radiated Emissions

Result: Pass

Contents

General Remarks

Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Results
Appendix 2: Test Setup
Appendix 3: EUT External Photo
Appendix 4: EUT Internal Photo
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	9002-3351
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 40.680 MHz. The EUT moves forward, backward, left and right according to the command of the associate transmitter.

Due to declaration from the manufacturer, it is deemed that that the transmitter of 9412 and 9417 are same in circuit design and PCB layout as the transmitter of 9410, they only differ in the cosmetic design. Hence, all testing was conducted on the representative model: 9410.

FCCID: NEX-94102

Model	Product description
9410	**Pro Racer Subaru**
9412	**Pro Racer Citroen**

Circuit Description

1) Q1-IC1 and the associated circuit act as a RF-receiver.
2) IC2 and the associated circuit act an AF amplifier.
3) Q2-Q17 and the associated circuit act as a power amplifier for DC motor.

Ratings and System Details

		Receiver
Frequency range	:	40.680MHz
Number of channels	:	1
Type of antenna	:	Integral antenna
Power supply	:	Battery operated 9.6V
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 C63.4-2001.

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 63.4-2001
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)	Reading (dBuV/m)	Antenna Factor (dBuV/m)	Attenuation of cable (dB)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
37.10	0.20	15.00	0.40	15.60	40.00	-24.40
52.52	2.80	12.90	0.50	16.20	40.00	-23.80
141.62	0.50	13.60	0.90	15.00	43.50	-28.50
176.30	0.05	15.35	1.00	16.40	43.50	-27.10
194.12	0.20	16.00	1.00	17.20	43.50	-26.30
391.16	0.00	15.80	1.50	17.30	46.00	-28.70
508.04	0.10	17.60	2.00	19.70	46.00	-26.30
735.56	0.25	20.75	2.40	23.40	46.00	-22.60
850.28	0.15	21.85	2.60	24.60	46.00	-21.40
924.26	0.30	20.80	2.40	23.50	46.00	-22.50

For test results refer to Appendix 1, page 1-4

Polarization: Horizontal

Frequency (MHz)	Reading (dBuV/m)	Antenna Factor (dBuV/m)	Attenuation of cable (dB)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
31.88	0.10	17.30	0.40	17.80	40.00	-22.20
46.88	0.25	13.50	0.45	14.20	40.00	-25.80
163.64	0.50	14.70	1.00	16.20	43.50	-27.30
193.40	0.00	16.00	1.10	17.10	43.50	-26.40
211.58	0.20	10.40	1.10	11.70	43.50	-31.80
294.20	0.70	12.80	1.30	14.80	46.00	-31.20
489.98	0.65	17.45	2.00	20.10	46.00	-25.90
680.96	0.20	20.60	2.30	23.10	46.00	-22.90
851.60	0.15	21.85	2.60	24.60	46.00	-21.40
940.46	0.30	22.20	2.70	25.20	46.00	-20.80

For test results refer to Appendix 1, page 1-4

Limit **Section 15.109**

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

Frequency (MHz)	Field strength (microvolts/meter)	Field strength (dBμV/m)	Measurement distance (meters)
30-88	100	20*log(100) = 40.0	3
88-216	150	20*log(150) = 43.5	3
216-960	200	20*log(200) = 46.0	3
Above 960	500	20*log(500) = 54.0	3