
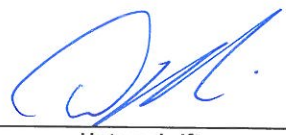


Produkte  
 Products

<b>Prüfbericht - Nr.: 14032330 002</b>		Seite 1 von 10 Page 1 of 10			
<i>Test Report No.:</i>					
<b>Auftraggeber:</b> <i>Client:</i>	<b>Stadlbauer Marketing + Vertrieb Ges.M.B.H.</b> Rennbahnallee 1 5412 Puch, Salzburg Austria				
<b>Gegenstand der Prüfung:</b> <i>Test Item:</i>	<b>Short Range Device – Low Power Transmitter (27.145MHz)</b>				
<b>Bezeichnung:</b> <i>Identification:</i>	<b>900030</b>	<b>Serien-Nr.:</b> <i>Serial No.:</i>	<b>Engineering sample</b>		
<b>Wareneingangs-Nr.:</b> <i>Receipt No.:</i>	<b>00131223071-001</b>	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	<b>23.12.2013</b>		
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of test item at delivery:</i>	Test samples received are sufficient for testing and not damaged.				
<b>Prüfört:</b> <i>Testing Location:</i>	<b>Hong Kong Productivity Council</b> HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong				
<b>Prüfgrundlage:</b> <i>Test Specification:</i>	<b>FCC Part 15, Subpart C</b> <b>ANSI C63.4-2003</b> <b>CISPR 22:1997</b>				
<b>Prüfresultat:</b> <i>Test Result:</i>	<b>Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).</b> <i>The test item passed the test specification(s).</i>				
<b>Prüflaboratorium:</b> <i>Testing Laboratory:</i>	<b>TÜV Rheinland Hong Kong Ltd.</b> 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>				
02.04.2014	Hugo Wan Senior Project Manager		02.04.2014	Sharon Li Section Manager	
<i>Date</i>	<i>Name/Position</i>	<i>Unterschrift</i> <i>Signature</i>	<i>Date</i>	<i>Name/Position</i>	<i>Unterschrift</i> <i>Signature</i>
<b>Sonstiges / Other Aspects:</b>					
<b>FCC ID: YFA900022</b>					
Permissive class II change.					
<b>Abkürzungen:</b>		<b>Abbreviations:</b>			
<i>P(ass)</i>	= entspricht Prüfgrundlage	<i>P(ass)</i>	=	passed	
<i>F(ail)</i>	= entspricht nicht Prüfgrundlage	<i>F(ail)</i>	=	failed	
<i>N/A</i>	= nicht anwendbar	<i>N/A</i>	=	not applicable	
<i>N/T</i>	= nicht getestet	<i>N/T</i>	=	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

### **Radiated Emission of Carrier Frequency**

*Result: Pass*

### **Spurious Radiated Emissions**

*Result: Pass*

## Contents

<b>List of Test and Measurement Instruments.....</b>	<b>4</b>
<b>General Product Information .....</b>	<b>5</b>
Product Function and Intended Use.....	5
Ratings and System Details.....	5
Independent Operation Modes.....	6
Submitted Documents .....	6
Related Submittal(s) Grants .....	6
<b>Test Set-up and Operation Mode.....</b>	<b>7</b>
Principle of Configuration Selection .....	7
Test Operation and Test Software .....	7
Special Accessories and Auxiliary Equipment.....	7
Countermeasures to achieve EMC Compliance .....	7
<b>Test Methodology .....</b>	<b>8</b>
Radiated Emission.....	8
Field Strength Calculation .....	8
<b>Test Results .....</b>	<b>9</b>
Radiated Emission of Carrier Frequency Subclause 15.227(a).....	9
Spurious Radiated Emissions Subclause 15.227(b).....	10
<b>Appendix 1 Test Protocol</b>	
<b>Appendix 2 Test Setup</b>	
<b>Appendix 3 EUT External Photo</b>	
<b>Appendix 4 EUT Internal Photo</b>	
<b>Appendix 5 FCCID Label, Block Diagram, Schematics, BOM and User manual</b>	

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## List of Test and Measurement Instruments

Hong Kong Productivity Council (FCC Registration number: 90656)

### Radiated Emission

Equipment	Manufacturer	Type	S/N	Cal Due Date
Semi-anechoic Chamber	Frankonia	Nil	Nil	12 Apr 2014
EMI Test Receiver	Rohde & Schwarz	ESU40	100190	19 Feb 2014
Biconical Antenna	Rohde & Schwarz	HK116	100241	11 Jun 2015
Log-Periodic Antenna	Rohde & Schwarz	HL223	841516/017	10 Jun 2015
Horn Antenna	EMCO	3115	9002-3347	11 Jun 2015
Coaxial Cable 50ohm	Rosenberger	RTK081-05S-05S-10m	LA2-001-10M / 001	15 Nov 2015
Active Loop Antenna	EMCO	6502	9107-2651	21 Jun 2014

## General Product Information

### Product Function and Intended Use

The equipment under test (EUT) is a transmitter for a RC toy car operating at 27.145MHz. The EUT has 2 control rods to command the forward, backward, left and right movement of the associated receiver.

#### FCC ID: YFA900022

Model	Product description
900030	Radio Control Toy Transmitter

According to client declaration, the transmitter of model mentioned in above table are totally identical to previous tested transmitter of model 900022 in test report 14032330 001 except the change of battery compartment from LR6 (AA) type battery to LR03 (AAA) type battery and model number.

### Ratings and System Details

		Transmitter
Frequency range	:	27.145MHz
Number of channels	:	1
Type of antenna	:	External Telescopic Antenna
Antenna length	:	36 cm
Power supply	:	2 x AAA size batteries, 3.0V DC
Ports	:	none
Protection Class	:	III

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## **Independent Operation Modes**

The basic operation modes are:

- Transmitting control signal for the RC toy Car.

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 materials

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

This is a permissive class II change application for certification of the transmitter.

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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

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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 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 Results

### Radiated Emission of Carrier Frequency

### Subclause 15.227(a)

**RESULT:**
**Pass**

Test Specification : FCC Part 15 Subclause 15.227(a)  
 Test Method : ANSI 63.4-2003  
 Measurement Location : Semi Anechoic Chamber  
 Measurement Distance : 3m  
 Detector Function : Peak and Average  
 Measurement BW : 120 kHz  
 Supply Voltage : 3.0V DC

**Polarization: Vertical**

Detector function	Frequency (MHz)	Measured Field strength at 3m (dB $\mu$ V/m)	Delta to Limit (dB)
Peak	27.145	67.1	-32.9
Average	27.145	61.2	-18.8

**Polarization: Horizontal**

Detector function	Frequency (MHz)	Measured Field strength at 3m (dB $\mu$ V/m)	Delta to Limit (dB)
Peak	27.145	49.3	-50.7
Average	27.145	43.5	-36.5

The measured values in above table are deviated from previous results by more than 3 dB.

**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
26.96-27.28 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.

**Spurious Radiated Emissions**
**Subclause 15.227(b)**
**RESULT:**
**Pass**

Test Specification : FCC Part 15 Subclause 15.209  
 Test Method : ANSI 63.4-2003  
 Measurement Location : Semi Anechoic Chamber  
 Measurement Distance : 3m  
 Detector Function : Quasi Peak  
 Measurement BW : 120 kHz  
 Supply Voltage : 3.0V DC  
 Measuring Frequency Range : 30-1000MHz

**Polarization: Vertical**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
81.436	22.3	40.0	-17.7
135.726	25.4	43.5	-18.1
488.613	31.2	46.0	-14.8
434.323	27.8	46.0	-18.2
597.195	31.6	46.0	-14.4

**Polarization: Horizontal**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
135.726	23.7	43.5	-19.8
434.323	29.4	46.0	-16.6

The measured values in above table are deviated from previous results by more than 3 dB.

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*log(100) = 40.0	3
88-216	150	20*log(150) = 43.5	3
216-960	200	20*log(200) = 46.0	3
960-2500	500	20*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.