
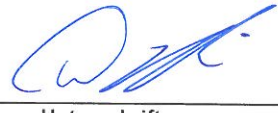


Produkte  
Products

<b>Prüfbericht - Nr.: 14036325 001</b>		Seite 1 von 11 Page 1 of 11			
<i>Test Report No.:</i>					
<b>Auftraggeber:</b> <i>Client:</i>	Stadlbauer Marketing + Vertrieb GmbH Rennbahnallee 1 5412 Puch/ Salzburg Austria				
<b>Gegenstand der Prüfung:</b> <i>Test Item:</i>	Short Range Device – Low Power Transmitter (27.145MHz)				
<b>Bezeichnung:</b> <i>Identification:</i>	900031	<b>Serien-Nr.:</b> <i>Serial No.:</i>	Engineering sample		
<b>Wareneingangs-Nr.:</b> <i>Receipt No.:</i>	A000049689-002	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	12.04.2014		
<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>	Global United Technology Services Co., Ltd. 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, China				
<b>Prüfgrundlage:</b> <i>Test Specification:</i>	FCC Part 15, Subpart C ANSI C63.4-2003				
<b>Prüfergebnis:</b> <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test item passed the test specification(s).</i>				
<b>Prüflaboratorium:</b> <i>Testing Laboratory:</i>	TÜV Rheinland Hong Kong Ltd. 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>				
25.07.2014	Benny Lau Project Manager		25.07.2014	Sharon Li Section Manager	
<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name/Stellung</b> <i>Name/Position</i>	<b>Unterschrift</b> <i>Signature</i>
<b>Sonstiges / Other Aspects:</b>					
<b>FCC ID: YFA900031</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

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

*Result: Pass*

### **Spurious Radiated Emissions**

*Result: Pass*

### **Bandwidth Measurement**

*Result: Pass*

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## List of Test and Measurement Instruments

Global United Technology Services Co., Ltd. (Registration number: 600491)

### Radiated Emission

<b>Radiated Emission</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Type</b>	<b>Cal. Date</b>	<b>Cal. Due Date</b>
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	April. 6 2013	April. 5 2015
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	N/A	N/A
ESU EMI Test Receiver	Rohde & Schwarz	ESU26	June. 27 2014	June. 27 2015
Loop Antenna	Zhinan	ZN30900A	June. 27 2014	June. 27 2015
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	Mar. 09 2014	Mar. 08 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	Mar. 09 2014	Mar. 08 2015
Horn Antenna	ETS-LINDGREN	3160-09	Mar. 09 2014	Mar. 08 2015
RF Amplifier	HP	8347A	June. 27 2014	June. 27 2015
RF Amplifier	HP	8349B	June. 27 2014	June. 27 2015
EMI Test Software	AUDIX	E3	N/A	N/A
Coaxial cable	GTS	N/A	June. 27 2014	June. 27 2015
Coaxial Cable	GTS	N/A	June. 27 2014	June. 27 2015
Thermo meter	N/A	N/A	April. 6 2013	April. 5 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	Dec 03 2012	Dec 03 2014

<b>Bandedge Measurement</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Type</b>	<b>Cal. Date</b>	<b>Cal Due Date</b>
Spectrum Analyzer	Rohde& Schwarz	FSP30	Dec. 02 2012	Dec. 03 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: YFA900031

Model	Product description
900031	Radio Control Toy Transmitter

### 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 single 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.



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## 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	64.84	-35.16
Average	27.145	59.87	20.13

**Polarization: Horizontal**

Detector function	Frequency (MHz)	Measured Field strength at 3m (dB $\mu$ V/m)	Delta to Limit (dB)
Peak	27.145	54.73	-45.27
Average	27.145	49.46	-30.54

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 : 9kHz –1000MHz

**Polarization: Vertical**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
54.247	32.18	40.0	-7.28
81.395	22.18	40.0	-17.82
*108.533	24.79	43.5	-18.71

**Polarization: Horizontal**

Frequency (MHz)	Field strength at 3m (dBuV/m)	Limit at 3m (dBuV/m)	Delta to Limit (dB)
54.247	26.83	40.0	-13.17
155.798	19.84	43.5	-23.66

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 below 30MHz.

**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.

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## Bandwidth Measurement

## Subclause 15.227(b) and 15.215

### RESULT:

Pass

Test Specification : FCC Part 15.227(b)  
Port of Testing : Antenna port  
Detector Function : Peak  
Supply Voltage : DC 3.0V

The field strength of any emissions at the band edges is at least 34.94dB below the carrier. It meets the requirement of 15.227(b).

For test results refer to Appendix 1.

### Limit

### Subclause 15.227(b) and 15.215

15.227 (b) - The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in 15.209.

15.215 (c) - Intentional radiators operating under the alternative provisions to the general emission limits, as contained in 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.