

**Produkte**  
*Products*

<b>Prüfbericht - Nr.:</b> 14039418 001		<b>Seite 1 von 9</b>	
<i>Test Report No.:</i>		<i>Page 1 of 9</i>	
<b>Auftraggeber:</b> <i>Client:</i>		SHANTOU CHENGHAI WEILI TOYS CO.,LTD No.2 FENGXIN Road Industrial Area CHENGHAI, SHANTOU CHINA	
<b>Gegenstand der Prüfung:</b> <i>Test Item:</i>		Short Range Device - Radio Control Toy Transmitter (2.4GHz)	
<b>Bezeichnung:</b> <i>Identification:</i>	Please refer to "Models" on page 3	<b>Serien-Nr.:</b> <i>Serial No.:</i>	Engineering sample
<b>Wareneingangs-Nr.:</b> <i>Receipt No.:</i>	A000192003-001	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	28.04.2015
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of test item at delivery:</i>		Test samples received are not damaged and suitable for testing.	
<b>Prüfört:</b> <i>Testing Location:</i>		TÜV Rheinland Hong Kong Ltd. 8/F, First Group Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong <b>Global United Technology Services Co., Ltd.</b> 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 C63.4-2009	
<b>Prüfergebnis:</b> <i>Test Results:</i>		Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and <b>passed</b> .	
<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>	
08.05.2015	Joey Leung Project Engineer	08.05.2015	Benny Lau Senior Project Manager
<i>Datum</i> <i>Date</i>	<i>Name/Stellung</i> <i>Name/Position</i>	<i>Datum</i> <i>Date</i>	<i>Name/Stellung</i> <i>Name/Position</i>
	<i>Unterschrift</i> <i>Signature</i>		<i>Unterschrift</i> <i>Signature</i>
<b>Sonstiges:</b> Other Aspects		FCCID: O85WL20150520	
<b>Abkürzungen:</b>	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	<b>Abbreviations:</b>	P(ass) = passed F(ail) = failed N/A = not applicable 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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## Product information

### Manufacturers declarations

	<b>Transmitter</b>
Operating frequency range	2405 - 2475 MHz
Type of modulation	GFSK
Number of channels	16
Type of antenna	Wire Antenna
Power level	fix
Connection to public utility power line	No
Nominal voltage	9.0 V

### Product function and intended use

The equipment under test (EUT) is a radio control toy transmitter operating at 2.4GHz. It is powered by batteries only.

#### FCCID: O85WL20150520

<b>Models</b>	<b>Product description</b>
K100, K110, K120, K123, K124, K150, K200, K250, K300, K350, K400, K450, K500, K550, K600, X100, X150, X200, X250, X300, X350, X400, X450, X500, X550, X560, X600, X700, X800, X900, X1000, X260, X50, A500, A550, A600, A700, A800, A900, A100, A110, A120, A130, A150, A160, A180, A200, F929, F939, F949, F959, F500, F550, F600, F660, F700, F800, F900, F120, F130, F150, F160, F180, F200	Radio Controlled Toy

### Submitted documents

Circuit Diagram  
 Block Diagram  
 Bill of material  
 User manual  
 Rating Label

### Special accessories and auxiliary equipment

The product has been tested together with the following additional accessory:

Nil

### **Independent Operation Modes**

The basic operation mode is transmitting control signal for the RC toy helicopter.

For further information refer to User Manual

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

This is a single application for certification of the transmitter.

## List of Test and Measurement Instruments

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

Equipment	Manufacturer	Type	S/N	Cal. interval	Last cal.
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	---	2 year	27 Mar 2015
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	---	1 year	N/A
ESU EMI Test Receiver	R&S	ESU26	---	1 year	27 Jun 2014
Loop Antenna	Zhinan	ZN30900A	---	1 year	27 Jun 2014
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	---	1 year	08 Mar 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	---	1 year	08 Mar 2015
RF Amplifier	HP	8347A	---	1 year	27 Jun 2014
RF Amplifier	HP	8349B	---	1 year	27 Jun 2014
EMI Test Software	AUDIX	E3	---	1 year	N/A
Coaxial cable	GTS	N/A	---	1 year	27 Jun 2014
Coaxial Cable	GTS	N/A	---	1 year	27 Jun 2014
Thermo meter	N/A	N/A	---	1 year	27 Jun 2014
Spectrum Analyzer	Rohde & Schwarz	FSP30	100007	1 year	12 Jan 2015



Subclause 15.215 (c) – 20 dB Bandwidth		Pass		
Test Specification : ANSI C63.4 – 2009 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 100 kHz / 300 kHz Supply voltage : 9.0VDC, 6 x 1.5V AA size new battery Temperature : 23°C Humidity : 50%				
Requirement: The intentional radiators must be designed to ensure that the 20dB bandwidth of the emission, is contained within the frequency band designated in the rule section under which the equipment is operated.				
<b>Results:</b> For test protocols refer to Appendix 1, page 2-3.				
Frequency (MHz)	20 dB left (MHz)	Limit (MHz)	20 dB right (MHz)	Limit (MHz)
2405	2404.410	> 2400	2405.810	< 2483.5
2440	2439.420	> 2400	2440.800	< 2483.5
2475	2474.410	> 2400	2475.700	< 2483.5

Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics		Pass		
Test Specification : ANSI C63.4 – 2009 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 100 kHz / 300 kHz for f < 1 GHz 1 MHz / 3 MHz for f > 1 GHz Supply voltage : 9.0VDC, 6 x 1.5V AA size new battery Temperature : 23°C Humidity : 50%				
Requirement: The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following limit.				
<b>Results:</b> PASS				
Fundamental Frequency 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2404.850	87.50	114.0 / P		
2404.850	57.48	94.0 / A		
Fundamental Frequency 2405MHz		Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2404.850	88.67	114.0 / P		
2404.850	57.47	94.0 / A		
Harmonics 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
4809.700	53.19	74.0 / P		

4809.700	39.72	54.0 / A
Harmonics 2405MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4809.700	51.12	74.0 / P
4809.700	38.62	54.0 / A
Fundamental Frequency 2440MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2440.300	89.17	114.0 / P
2440.300	57.61	94.0 / A
Fundamental Frequency 2440MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2440.300	89.24	114.0 / P
2440.300	57.61	94.0 / A
Harmonics 2440MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4880.600	52.25	74.0 / P
4880.600	38.46	54.0 / A
Harmonics 2440MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4880.600	50.94	74.0 / P
4880.600	38.11	54.0 / A
Fundamental Frequency 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2474.840	89.20	114.0 / P
2474.840	57.97	94.0 / A
Fundamental Frequency 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2474.840	89.61	114.0 / P
2474.840	58.17	94.0 / A
Harmonics 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4949.700	54.13	74.0 / P
4949.700	38.16	54.0 / A
Harmonics 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4949.700	52.90	74.0 / P
4949.700	38.46	54.0 / A



<b>Subclause 15.249 (d) – Emissions radiated outside of the specified frequency bands Pass</b>		
Test Specification : ANSI C63.4 - 2009 Mode of operation : Tx mode Port of testing : Enclosure Detector : Peak RBW/VBW : 100 kHz / 300 kHz for f < 1 GHz 1 MHz / 3 MHz for f > 1 GHz Supply voltage : 9.0VDC, 6 x 1.5V AA size new battery Temperature : 23°C Humidity : 50%		
Requirement: Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.		
<b>Results:</b> All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.		
Tx frequency 2405MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2405MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2440MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2440MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
No peak found	---	74.0 / P
No peak found	---	54.0 / A