

Produkte
Products

Prüfbericht - Nr.: 14039858 001		Seite 1 von 10	
<i>Test Report No.:</i>		<i>Page 1 of 10</i>	
Auftraggeber: <i>Client:</i>	Chenghai Henglong Plastic Toys Co., Ltd. Ningchuan Road, Chenghai District Shantou City China		
Gegenstand der Prüfung: <i>Test Item:</i>	Short Range Device - Radio Control Toy Transmitter (2.4GHz)		
Bezeichnung: <i>Identification:</i>	Please refer to "Models" on page 3	Serien-Nr.: <i>Serial No.:</i>	Engineering sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	A000242001 (001-003)	Eingangsdatum: <i>Date of Receipt:</i>	15.08.2015
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>		Test samples received are not damaged and suitable for testing.	
Prüfort: <i>Testing Location:</i>	TÜV Rheinland Hong Kong Ltd. 8/F, First Group Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong Global United Technology Services Co., Ltd. 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, China		
Prüfgrundlage: <i>Test Specification:</i>	FCC Part 15 Subpart C ANSI C63.4-2009		
Prüfergebnis: <i>Test Results:</i>	Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage. The above mentioned product was tested and passed .		
Prüflaboratorium: <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		
geprüft/ tested by:		kontrolliert/ reviewed by:	
26.08.2015	Joey Leung Project Engineer	26.08.2015	Benny Lau Senior Project Manager
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
	Unterschrift <i>Signature</i>		Unterschrift <i>Signature</i>
Sonstiges: Other Aspects		FCCID: UI8HENGLONGTANK	
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	P(ass) = passed F(ail) = failed N/A = not applicable N/T = 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. <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>			

Table of Content

	Page
Cover Page	1
Table of Content.....	2
Product information.....	3
Manufacturers declarations	3
Product function and intended use	3
Submitted documents.....	3
Special accessories and auxiliary equipment	3
Independent Operation Modes.....	4
Related Submittal(s) Grants	4
List of Test and Measurement Instruments	5
Results FCC Part 15 – Subpart C.....	6
Subclause 15.207 – Disturbance Voltage on AC Mains.....	N/A 6
Subclause 15.249(d) – Spurious Emissions – Band edge.....	Pass 6
Subclause 15.215 (c) – 20 dB Bandwidth.....	Pass 7
Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics.....	Pass 7
Subclause 15.249 (d) – Emissions radiated outside of the specified frequency bands .	Pass 9
Appendix 1 – Test Results.....	3 pages
Appendix 2 – Test Setup Photos.....	3 pages
Appendix 3 – Photo documentation.....	7 pages
Appendix 4 – Product documentation.....	27 pages
Appendix 5 – RF Exposure Information.....	2 pages

Product information

Manufacturers declarations

	Transmitter
Operating frequency range	2405 - 2475 MHz
Type of modulation	GFSK
Number of channels	7
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: UI8HENGLONGTANK

Models	Product description
3918-1, 3888, 3888A, 3888-1, 3888A-1, 3889, 3889-1, 3898, 3898-1, 3899, 3899-1, 3899A, 3899A-1, 3838, 3838-1, 3839, 3839-1, 3848, 3848-1, 3849, 3849-1, 3858, 3858-1, 3840, 3859, 3859-1, 3868-1, 3869, 3869-1, 3878, 3878-1, 3879, 3879-1, 3841, 3841-01, 3841-02, 3808, 3809, 3816, 3818, 3818-1, 3819, 3819-1, 3908, 3908-1, 3909, 3909-1, 3918, 3919, 3919-1, 3928, 3928-1, 3929, 3929-1, 3938, 3938-1, 3939, 3939-1, 3948, 3948-1, 3949, 3949-1, 3958, 3958-1, 3959, 3959-1, 3968, 3968-1, 3969, 3969-1, 3978, 3978-1, 3979, 3979-1, 3988, 3988-1, 3989, 3989-1, 3998, 3998-1, 3999, 3999-1	Radio Controlled Tank

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 Tank.

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	05 Apr 2015
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	---	N/A	N/A
ESU EMI Test Receiver	R&S	ESU26	---	1 year	08 Jun 2015
Loop Antenna	Zhinan	ZN30900A	---	1 year	08 Jun 2015
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	---	1 year	09 Mar 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	---	1 year	09 Mar 2015
RF Amplifier	HP	8347A	---	1 year	08 Jun 2015
RF Amplifier	HP	8349B	---	1 year	08 Jun 2015
EMI Test Software	AUDIX	E3	---	1 year	N/A
Coaxial cable	GTS	N/A	---	1 year	08 Jun 2015
Coaxial Cable	GTS	N/A	---	1 year	08 Jun 2015
Thermo meter	N/A	N/A	---	1 year	08 Jun 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	100007	1 year	12 Jan 2015

Results FCC Part 15 – Subpart C

Subclause 15.207 – Disturbance Voltage on AC Mains	N/A
There is no AC power input or output ports on the EUT.	

Subclause 15.249(d) – Spurious Emissions – Band edge		Pass
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: Radiated emissions which fall in the restricted bands, as defined in 15.205 (a), must also comply with the radiated emission limits specified in 15.209(a).		
Results: PASS		
Tx frequency 2405MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	35.75	74.0 / P
2400.000	23.11	54.0 / A
Tx frequency 2405MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	34.60	74.0 / P
2400.000	24.43	54.0 / A
Tx frequency 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.500	33.78	74.0 / P
2483.500	23.49	54.0 / A
Tx frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.500	33.43	74.0 / P
2483.500	22.11	54.0 / A

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.				
Results: 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	2403.994	> 2400	2408.290	< 2483.5
2445	2443.320	> 2400	2445.720	< 2483.5
2475	2473.864	> 2400	2476.424	< 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.				
Results: PASS				
Fundamental Frequency 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.150	85.44	114.0 / P		
2405.150	64.41	94.0 / A		
Fundamental Frequency 2405MHz		Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.150	79.65	114.0 / P		
2405.150	69.62	94.0 / A		
Harmonics 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
4810.330	51.45	74.0 / P		

4810.330	40.73	54.0 / A
7215.000	48.92	74.0 / P
7215.000	37.74	54.0 / A
Harmonics 2405MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4810.330	53.11	74.0 / P
4810.330	38.39	54.0 / A
7215.000	52.44	74.0 / P
7215.000	38.26	54.0 / A
Fundamental Frequency 2445MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2445.205	85.72	114.0 / P
2445.205	69.68	94.0 / A
Fundamental Frequency 2445MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2445.205	79.24	114.0 / P
2445.205	65.07	94.0 / A
Harmonics 2445MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.170	51.81	74.0 / P
4890.170	42.21	54.0 / A
7335.000	37.86	74.0 / P
7335.000	48.60	54.0 / A
Harmonics 2445MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.170	52.84	74.0 / P
4890.170	39.24	54.0 / A
7335.000	51.22	74.0 / P
7335.000	37.47	54.0 / A
Fundamental Frequency 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.081	83.39	114.0 / P
2475.081	69.45	94.0 / A
Fundamental Frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.081	79.06	114.0 / P
2475.081	65.13	94.0 / A
Harmonics 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m

4950.210	50.07	74.0 / P
4950.210	38.52	54.0 / A
7425.000	48.85	74.0 / P
7425.000	37.39	54.0 / A
Harmonics 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.210	52.76	74.0 / P
4950.210	39.23	54.0 / A
7425.000	50.75	74.0 / P
7425.000	38.26	54.0 / A

Subclause 15.249 (d) – Emissions radiated outside of the specified frequency bands Pass

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.

Results: 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

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A

Tx frequency 2405MHz Horizontal Polarization

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A

Tx frequency 2445MHz Vertical Polarization

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A

Tx frequency 2445MHz Horizontal Polarization

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P

No peak found	---	54.0 / A
Tx frequency 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Tx frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A