

Produkte
Products


Prüfbericht - Nr.: 14041370 001		Seite 1 von 9 Page 1 of 9	
<i>Test Report No.:</i>			
Auftraggeber: <i>Client:</i>	Hobbico, Inc. 2904 Research Road Champaign Illinois 61821 USA		
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>	A000244554-001	Eingangsdatum: <i>Date of Receipt:</i>	21.08.2015
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>	Test sample received is not damaged and suitable for testing.		
Prüfört: <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:		
08.09.2015	Joey Leung Project Engineer		08.09.2015
			Benny Lau Senior Project Manager
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
			Name/Stellung <i>Name/Position</i>
			Unterschrift <i>Signature</i>
Sonstiges: Other Aspects	FCCID: IYFRVLC01		
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
<p>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.</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

	Transmitter
Operating frequency range	2407 - 2472 MHz
Type of modulation	GFSK
Number of channels	66
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: IYFRVLC01

Models	Product description
RVLC01, LB84, LB85, LB86, LB87, LB88, LB89, LB90, LB91, LB92, LB93, LB94, LB95, LB96, LB97, LB98, RVLC01LL, RVLC01WW	Radio Controlled Car

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 Car.

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 15.215 (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 : 4.5VDC, 3 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)
2407	2406.370	> 2400	2408.030	< 2483.5
2445	2444.350	> 2400	2445.580	< 2483.5
2472	2470.540	> 2400	2472.600	< 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 : 4.5VDC, 3 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 2407MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2407.320	86.88	114.0 / P
2407.320	70.03	94.0 / A

Fundamental Frequency 2407MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2407.320	93.40	114.0 / P	
2407.320	76.19	94.0 / A	
Harmonics 2407MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4814.020	53.87	74.0 / P	
4814.020	47.18	54.0 / A	
Harmonics 2407MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4814.020	58.73	74.0 / P	
4814.020	49.04	54.0 / A	
Fundamental Frequency 2445MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2444.080	85.08	114.0 / P	
2444.080	67.99	94.0 / A	
Fundamental Frequency 2445MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2444.080	94.09	114.0 / P	
2444.080	76.97	94.0 / A	
Harmonics 2445MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4890.300	53.73	74.0 / P	
4890.300	47.13	54.0 / A	
Harmonics 2445MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4890.300	60.16	74.0 / P	
4890.300	49.35	54.0 / A	
Fundamental Frequency 2472MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2470.790	89.18	114.0 / P	
2470.790	72.08	94.0 / A	
Fundamental Frequency 2472MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2470.746	93.58	114.0 / P	
2470.746	76.39	94.0 / A	

Harmonics 2472MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4942.000	54.36	74.0 / P	
4942.000	46.83	54.0 / A	
Harmonics 2472MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4942.590	60.18	74.0 / P	
4942.590	49.49	54.0 / A	

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 : 4.5VDC, 3 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 2407MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2400.000	35.13	74.0 / P	
2400.000	23.09	54.0 / A	
Tx frequency 2407MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2400.000	37.07	74.0 / P	
2400.000	23.03	54.0 / A	
Tx frequency 2472MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2483.500	43.04	74.0 / P	
2483.500	27.13	54.0 / A	
Tx frequency 2472MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2483.500	44.45	74.0 / P	
2483.500	28.54	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 : 4.5VDC, 3 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 2407MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
300.367	28.83	46.0 / QP
649.660	26.97	46.0 / QP
Tx frequency 2407MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
649.660	27.37	46.0 / QP
672.845	27.36	46.0 / QP
Tx frequency 2445MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
300.367	29.07	46.0 / QP
324.456	26.95	46.0 / QP
Tx frequency 2445MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
649.660	28.99	46.0 / QP
672.845	26.86	46.0 / QP
Tx frequency 2472MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
300.367	28.32	46.0 / QP
324.456	26.50	46.0 / QP
649.660	26.78	46.0 / QP
Tx frequency 2472MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
649.660	27.89	46.0 / QP