

Produkte
Products



Prüfbericht - Nr.: 14028676 001 <i>Test Report No.:</i>		Seite 1 von 9 <i>Page 1 of 9</i>	
Auftraggeber: <i>Client:</i>		Stadlbauer Marketing + Vertrieb Ges.m.b.H Rennbahn Allee 1 5412 Puch, Salzburg Austria	
Gegenstand der Prüfung: <i>Test Item:</i>		Short Range Device - Radio Control Toys 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>	00111207151-001	Eingangsdatum: <i>Date of Receipt:</i>	07.12.2011
Prüfört: <i>Testing Location:</i>	TÜV Rheinland Hong Kong Ltd. 8/F., Niche Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong Shenzhen Emtek Co., Ltd. Bldg. 69, Majialong Industry Zone, Nanshan District, ShenZhen, Guangdong, 518052 P.R. China		
Prüfgrundlage: <i>Test Specification:</i>	FCC Part 15 Subpart C ANSI C63.4-2003 CISPR 22:1997		
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:	
03.01.2012	Mika Chan Senior Project Engineer	03.01.2012	Sharon Li Assistant Manager
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
			
Sonstiges: <i>Other Aspects</i>	FCCID: YFA401001		
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>			

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Product information

Manufacturers declarations

	Transmitter
Operating frequency range	2405 - 2475 MHz
Type of modulation	FSK
Number of channels	71
Type of antenna	Integral
Length of antenna	4.8 cm
Power level	fix
Connection to public utility power line	No
Nominal voltage	V _{nom} : 6.0 V

Product function and intended use

The equipment under test (EUT) is a radio control toy transmitter operating at 2.4GHz. It transmits on one of the 71 channel only and channel number was decided during frequency binding procedure with associated receiver. The transmitter is powered by batteries only.

FCCID: YFA401001

Model	Product description
501003, 501004, 501005, 501006, 501007, 501008, 501009, 5010010, 5010011, 5010012, 5010013, 5010014, 5010015	Radio Control Toy Helicopter

Submitted documents

- Circuit Diagram
- Block Diagram
- Bill of material
- User manual
- Rating Label

List of Test and Measurement Instruments

Shenzhen EMTEK Co., Ltd. (Registration number: 709623)

Equipment used	Manufacturer	Model No.	S/N	Due Date
3m Fully anechoic chamber	TDK	9m*6m*6m	EE001	25-Mar-2012
EMI Test Receiver	Rohde & Schwarz	ESU26	LR114196	29-May-2012
Pre-Amplifier	HP	8447D	2944A07999	29-May-2012
Bilog Antenna	Schwarzbeck	VULB9163	142	29-May-2012
Loop Antenna	ARA	PLA-1030/B	1029	29-May-2012
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	29-May-2012
Horn Antenna	Schwarzbeck	BBHA 9120	D143	29-May-2012
Cable	Schwarzbeck	AK9513	ACRX1	29-May-2012
Cable	Rosenberger	N/A	FP2RX2	29-May-2012
Cable	Schwarzbeck	AK9513	CRPX1	29-May-2012
Cable	Schwarzbeck	AK9513	CRRX2	29-May-2012

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 15.205 – Band edge compliance of radiated emissions	Pass
Test Specification : ANSI C63.4 – 2003 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 : 6.0VDC, 4x1.5V AA size new battery Temperature : 23°C Humidity : 50%	
Requirement:	Radiated emissions which fall in the restricted bans, as defined in 15.205 (a), must also comply with the radiated emission limits specified in 15.209(a).
Results:	There is no peak found in the restricted bands. For test protocols refer to Appendix 1, page 4-7.

Subclause 15.215 (c) – 20 dB Bandwidth	Pass			
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.			
Test Specification : ANSI C63.4 – 2003 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 : 6.0VDC, 4x1.5V AA size new battery Temperature : 23°C Humidity : 50%				
Results:	For test protocols refer to Appendix 1, page 1-3.			
Frequency (MHz)	20 dB left (MHz)	Limit (MHz)	20 dB right (MHz)	Limit (MHz)
2405	2404.952	> 2400	2405.126	< 2483.5
2440	2439.950	> 2400	2440.124	< 2483.5
2475	2474.954	> 2400	2475.116	< 2483.5

Subclause 15.249 (a) – Radiated Emission (Fundamental and Harmonics)		Pass
Test Specification : ANSI C63.4 – 2003 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 : 6.0VDC, 4x1.5V 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
2405.000	61.83	94.0 / A
2405.000	79.13	114.0 / P
Fundamental Frequency 2405MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2405.000	60.83	94.0 / A
2405.000	77.83	114.0 / P
Harmonics 2405MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4810.000	34.37	54.0 / A
4810.000	50.77	74.0 / P
7215.000	46.89	54.0 / A
7215.000	63.89	74.0 / P
9881.410	40.43	54.0 / A
9881.410	58.13	74.0 / P
Harmonics 2405MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4810.000	30.77	54.0 / A
4810.000	47.77	74.0 / P
7215.000	45.59	54.0 / A
7215.000	60.39	74.0 / P
Fundamental Frequency 2440MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2440.000	61.45	94.0 / A
2440.000	78.65	114.0 / P

Fundamental Frequency 2440MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2440.000	60.25	94.0 / A	
2440.000	76.75	114.0 / P	
Harmonics 2440MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4880.000	35.95	54.0 / A	
4880.000	52.45	74.0 / P	
7320.000	46.50	54.0 / A	
7320.000	63.50	74.0 / P	
9772.436	41.69	54.0 / A	
9772.463	59.69	74.0 / P	
Harmonics 2440MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4880.000	33.05	54.0 / A	
4880.000	50.25	74.0 / P	
7320.000	41.10	54.0 / A	
7320.000	58.30	74.0 / P	
Fundamental Frequency 2475MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2475.000	61.98	94.0 / A	
2475.000	78.98	114.0 / P	
Fundamental Frequency 2475MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2475.000	58.48	94.0 / A	
2475.000	75.78	114.0 / P	
Harmonics 2475MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4950.000	35.75	54.0 / A	
4950.000	52.65	74.0 / P	
7425.000	44.96	54.0 / A	
7425.000	61.96	74.0 / P	
9908.654	41.42	54.0 / A	
9908.654	59.42	74.0 / P	
Harmonics 2475MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4950.000	34.55	54.0 / A	
4950.000	50.95	74.0 / P	
7425.000	41.76	54.0 / A	
7425.000	58.36	74.0 / P	

9908.654	40.32	54.0 / A
9908.654	58.32	74.0 / P

Subclause 15.249 (d) – Spurious Radiated Emissions		Pass
Test Specification : ANSI C63.4 - 2003 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 : 6.0VDC, 4x1.5V 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
658.013	22.03	46.0 / QP
824.343	25.58	46.0 / QP
21623.390	33.10	54.0 / A
21623.390	52.06	74.0 / P
24876.600	36.15	54.0 / A
24876.600	53.48	74.0 / P
Tx frequency 2405MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
575.625	19.80	46.0 / QP
699.984	24.37	46.0 / QP
18426.280	35.16	54.0 / A
20288.460	52.43	74.0 / P
23283.650	34.89	54.0 / A
23283.650	52.86	74.0 / P
Tx frequency 2440MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
706.202	23.72	46.0 / QP
799.471	23.62	46.0 / QP
21612.170	33.38	54.0 / A
21612.170	52.15	74.0 / P
24977.560	36.35	54.0 / A
24977.560	54.14	74.0 / P

Tx frequency 2440MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
541.426	20.71	46.0 / QP	
733.045	24.24	46.0 / QP	
23104.160	35.62	54.0 / A	
23104.160	53.55	74.0 / P	
24360.570	36.11	54.0 / A	
24360.570	54.20	74.0 / P	
Tx frequency 2475MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
334.679	16.53	46.0 / QP	
574.070	20.75	46.0 / QP	
23171.470	35.27	54.0 / A	
23171.470	53.16	74.0 / P	
Tx frequency 2475MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
508.782	19.81	46.0 / QP	
860.096	23.78	46.0 / QP	
24192.300	36.55	54.0 / A	
24192.300	53.98	74.0 / P	