

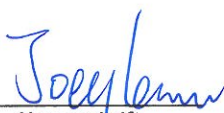
Prüfbericht - Nr.: 14031260 001		Seite 1 von 9	
<i>Test Report No.:</i>		<i>Page 1 of 9</i>	
Auftraggeber: <i>Client:</i>	GUANGDONG SYMA MODEL AIRCRAFT INDUSTRIAL CO., LTD NO.2 WEST XINGYE ROAD, LAIMEI INDUSTRIAL AREA CHENGHAI, SHANTOU GUANGDONG CHINA		
Gegenstand der Prüfung: <i>Test Item:</i>	Short Range Device - Radio Control Toy Transmitter (2.4GHz)		
Bezeichnung: <i>Identification:</i>	Please refer to "Models" on page 5	Serien-Nr.: <i>Serial No.:</i>	Engineering sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	00120920172-001	Eingangsdatum: <i>Date of Receipt:</i>	20.09.2012
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>	Test sample(s) is/are not damaged and suitable for testing.		
Prüfört: <i>Testing Location:</i>	Shenzhen Emtex 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:		
01.11.2012	Joey Leung Test Engineer		01.11.2012
			Sharon Li Section 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: <i>Other Aspects</i>	FCCID: QV7-GC887552-3		
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. <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	2406 - 2475 MHz
Type of modulation	GFSK
Number of channels	16
Type of antenna	Integral
Power level	fix
Connection to public utility power line	No
Nominal voltage	V_{nor} : 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 16 channels only and channel number was decided during frequency binding procedure with associated receiver. The transmitter is powered by batteries only.

FCCID: QV7-GC887552-3

Models	Product description
X1, X2, X3, X4, X5, X6, X7, X8, X9, X10, X11, X12, X13, X14, X15, X16, X17, X18, X19, X20, Traxl, H1	Radio Control Toy Quad-copter

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	Manufacturer	Type	S/N	Due Date
EMI Test Receiver	Rohde & Schwarz	ESU26	LR114196	May 29, 2013
Pre-Amplifier	HP	8447D	2944A07999	May 29, 2013
Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2013
Loop Antenna	ARA	PLA-1030/B	1029	May 29, 2013
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2013
Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2013
Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2013
Cable	Rosenberger	N/A	FP2RX2	May 29, 2013
Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2013
Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2013
Spectrum Analyzer	Rohde & Schwarz	FSP30	100007	Sept 16, 2013

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:	For test protocols refer to Appendix 1, page 4-7.	
Tx frequency 2406MHz 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 2406MHz 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
2483.659	62.81	74.0 / P
2483.659	41.67	54.0 / A
Tx frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.579	63.03	74.0 / P
2483.579	43.49	54.0 / A

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 2-3.			
Frequency (MHz)	20 dB left (MHz)	Limit (MHz)	20 dB right (MHz)	Limit (MHz)
2406	2405.37	> 2400	2407.37	< 2483.5
2440	2439.40	> 2400	2441.09	< 2483.5
2475	2474.43	> 2400	2475.61	< 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 2406MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.423	84.91	114.0 / P		
2405.423	65.64	94.0 / A		
Fundamental Frequency 2406MHz		Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.423	84.57	114.0 / P		
2405.423	65.58	94.0 / A		

Harmonics 2406MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4814.103	51.02	74.0 / P	
4814.103	33.27	54.0 / A	
7211.538	66.01	74.0 / P	
7211.538	46.63	54.0 / A	
9636.218	54.72	74.0 / P	
9636.218	38.21	54.0 / A	
Harmonics 2406MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4814.103	47.00	74.0 / P	
4814.103	31.08	54.0 / A	
7211.538	65.04	74.0 / P	
7211.538	47.92	54.0 / A	
9636.218	51.84	74.0 / P	
9636.218	34.20	54.0 / A	
Fundamental Frequency 2440MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2440.667	90.87	114.0 / P	
2440.667	73.33	94.0 / A	
Fundamental Frequency 2440MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2440.667	90.34	114.0 / P	
2440.667	72.30	94.0 / A	
Harmonics 2440MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4868.590	54.53	74.0 / P	
4868.590	36.12	54.0 / A	
7320.513	65.30	74.0 / P	
7320.513	49.35	54.0 / A	
9772.436	56.40	74.0 / P	
9772.436	40.44	54.0 / A	
Harmonics 2440MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4868.590	53.80	74.0 / P	
4868.590	37.09	54.0 / A	
7320.513	66.07	74.0 / P	
7320.513	49.36	54.0 / A	
9772.436	51.63	74.0 / P	
9772.436	35.04	54.0 / A	

Fundamental Frequency 2475MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.154	94.01	114.0 / P
2475.154	76.54	94.0 / A
Fundamental Frequency 2475MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.154	94.27	114.0 / P
2475.154	75.45	94.0 / A
Harmonics 2475MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.321	59.74	74.0 / P
4950.321	42.08	54.0 / A
7429.487	60.92	74.0 / P
7429.487	45.74	54.0 / A
Harmonics 2475MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.321	60.15	74.0 / P
4950.321	42.23	54.0 / A
7429.487	55.88	74.0 / P
7429.487	37.83	54.0 / A

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 2406MHz		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 2406MHz			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 2440MHz			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 2440MHz			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			