



**Produkte**  
*Products*

<b>Prüfbericht - Nr.:</b> 14039879 001 <i>Test Report No.:</i>		Seite 1 von 10 <i>Page 1 of 10</i>	
<b>Auftraggeber:</b> <i>Client:</i>		GUANGDONG ATTOP TECHNOLOGY CO., LTD. Linghai Industry Zone, Laimei Road Chenghai District, 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>	A000219948-001	<b>Eingangsdatum:</b> <i>Date of Receipt:</i>	29.06.2015
<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>	
08.07.2015	Joey Leung Project Engineer	08.07.2015	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: 2AEVN075485509076	
<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	71
Type of antenna	Wire Antenna
Power level	fix
Connection to public utility power line	No
Nominal voltage	6.0 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: 2AEVN075485509076

<b>Models</b>	<b>Product description</b>
A1, A2, A3, A5, A6, A7, A8, A9, A10, A11, A12, A13, A14, A15, A16, A17, A18, A19, YD-711, YD-712, YD-713, YD-715, YD-716, YD-717, YD-718, YD-719, YD-719C, YD-821, YD-822, YD-822S, YD-823, YD-825, YD-826, YD-827, YD-828, YD-829, YD-829C, YD-212, YD-215, YD-218, YD-219, YD-921, YD-922, YD-923, YD-925, YD-926, YD-927, YD-928, YD-929, YD-311, YD-312, YD-313, YD-315, YD-316, YD-317, YD-318, YD-319, 6182-7B, DR-50, DR-40, 0424, 0426, 9808, A8C, YD-938, YD-912, YD-613, 6182-3M, 6182-6B, 6182-5N, DR-WING W, FLY-60, 814044, 814044AA	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 quadcopter.

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

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

<b>Subclause 15.205 – Restricted bands – Spurious Emissions – Band edge</b>	<b>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 : 6.0VDC, 4 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).	
<b>Results:</b>	PASS	
Tx frequency 2405MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2400.000	43.39	74.0 / P
2400.000	32.35	54.0 / A
Tx frequency 2405MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2400.000	41.59	74.0 / P
2400.000	31.55	54.0 / A
Tx frequency 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2483.500	38.09	74.0 / P
2483.500	26.05	54.0 / A
Tx frequency 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2483.500	35.08	74.0 / P
2483.500	26.99	54.0 / A

<b>Subclause 15.215 (c) – 20 dB Bandwidth</b>		<b>Pass</b>		
Test Specification : ANSI C63.4 – 2009 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 100 kHz / 300 kHz Supply voltage : 6.0VDC, 4 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	2403.680	> 2400	2406.130	< 2483.5
2440	2439.240	> 2400	2440.510	< 2483.5
2475	2474.200	> 2400	2475.460	< 2483.5

<b>Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics</b>		<b>Pass</b>		
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 : 6.0VDC, 4 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		
2405.165	61.52	114.0 / P		
2405.165	54.48	94.0 / A		
Fundamental Frequency 2405MHz		Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.165	58.20	114.0 / P		
2405.165	50.16	94.0 / A		
Harmonics 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
4810.330	49.24	74.0 / P		

4810.330	36.52	54.0 / A
7215.495	50.59	74.0 / P
7215.495	35.38	54.0 / A
Harmonics 2405MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4810.330	49.23	74.0 / P
4810.330	36.52	54.0 / A
7215.495	49.87	74.0 / P
7215.495	37.66	54.0 / A
Fundamental Frequency 2440MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2440.050	61.36	114.0 / P
2440.050	54.60	94.0 / A
Fundamental Frequency 2440MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2440.050	57.43	114.0 / P
2440.050	50.38	94.0 / A
Harmonics 2440MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4880.100	51.02	74.0 / P
4880.100	37.40	54.0 / A
7320.000	51.44	74.0 / P
7320.000	37.61	54.0 / A
Harmonics 2440MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4880.100	48.53	74.0 / P
4880.100	36.91	54.0 / A
7320.000	48.47	74.0 / P
7320.000	37.65	54.0 / A
Fundamental Frequency 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2474.825	61.97	114.0 / P
2474.825	55.04	94.0 / A
Fundamental Frequency 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
2474.825	61.48	114.0 / P
2474.825	54.55	94.0 / A
Harmonics 2475MHz Vertical Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>



4949.650	50.06	74.0 / P
4949.650	36.53	54.0 / A
7424.475	49.84	74.0 / P
7424.475	37.39	54.0 / A
Harmonics 2475MHz Horizontal Polarization		
<b>Freq MHz</b>	<b>Level dBuV/m</b>	<b>Limit/ Detector dBuV/m</b>
4949.650	50.96	74.0 / P
4949.650	37.43	54.0 / A
7424.475	51.38	74.0 / P
7424.475	37.93	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 : 6.0VDC, 4 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		
<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