

Produkte
Products

Prüfbericht - Nr.: 14037748 001

Test Report No.:

Seite 1 von 10

Page 1 of 10

Auftraggeber: Shantou Chenghai K-best Toys CO. Ltd
Client: Guangtou Industrial Area
Longtian Guangyi Street, Chenghai Town
Shantou City, Guangdong
CHINA

Gegenstand der Prüfung: Short Range Device - Radio Control Transmitter (2.4GHz)
Test Item:

Bezeichnung: Please refer to "Models" on
Identification: page 3
Serien-Nr.: Engineering sample
Serial No.:

Wareneingangs-Nr.: A000132213 (001-003)
Receipt No.:
Eingangsdatum: 18.11.2014
Date of Receipt:

Zustand des Prüfgegenstandes bei Anlieferung: Test samples are not damaged and suitable for testing.
Condition of test item at delivery:

Prüfört: TÜV Rheinland Hong Kong Ltd.
Testing Location: 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: FCC Part 15 Subpart C
Test Specification: ANSI C63.4-2003

Prüfergebnis: Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben
Test Results: genannter Prüfgrundlage.
The above mentioned product was tested and **passed**.

Prüflaboratorium: TÜV Rheinland Hong Kong Ltd.
Testing Laboratory: 8 - 10/F., Goldin Financial Global Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong

geprüft/ tested by:

kontrolliert/ reviewed by:

25.11.2014 Joey Leung
Datum *Name/Stellung*
Date *Name/Position*


Unterschrift
Signature

25.11.2014 Sharon Li
Datum *Name/Stellung*
Date *Name/Position*


Unterschrift
Signature

Sonstiges: FCCID: 2ADFQ-KB666FCT
Other Aspects

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.
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.

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 15.205 – Band edge compliance of radiated emissions	Pass..... 6
Subclause 15.215 (c) – 20 dB Bandwidth.....	Pass..... 7
Subclause 15.249 (a) – Radiated Emission (Fundamental and Harmonics).....	Pass..... 7
Subclause 15.249 (d) – Spurious Radiated Emissions.....	Pass..... 9
Appendix 1 – Test Results.....	7 pages
Appendix 2 – Test Setup Photos.....	3 pages
Appendix 3 – Photo documentation.....	7 pages
Appendix 4 – Product documentation.....	16 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	71
Type of antenna	Wire Antenna
Power level	fix
Connection to public utility power line	No
Nominal voltage	V _{nom} : 4.5 V

Product function and intended use

The equipment under test (EUT) is a radio control transmitter operating at 2.4GHz. It is powered by batteries only.

FCCID: 2ADFQ-KB666FCT

Models	Product description
KB301, KB302, KB303, KB304, KB305, KB306, KB307, KB308, KB309, KB310, KB401, KB402, KB403, KB404, KB405, KB406, KB407, KB408, KB409, KB410, KB411, KB412, KB413, KB414, KB415, KB416, KB417, KB418, KB419, KB420, KB421, KB422, KB423, KB424, KB425, KB601, KB602, KB603, KB604, KB605, KB606, KB607, KB608, KB609, 6040, KB801, KB802, KB803, KB804, KB805	Radio Controlled Helicopter

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 modes are:

- Transmitting control signal for the RC helicopter.

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. Due date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	---	05 Apr 2015
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	---	N/A
ESU EMI Test Receiver	R&S	ESU26	---	27 Jun 2015
Loop Antenna	Zhinan	ZN30900A	---	27 Jun 2015
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	---	08 Mar 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	---	08 Mar 2015
RF Amplifier	HP	8347A	---	27 Jun 2015
RF Amplifier	HP	8349B	---	27 Jun 2015
EMI Test Software	AUDIX	E3	---	N/A
Coaxial cable	GTS	N/A	---	27 Jun 2015
Coaxial Cable	GTS	N/A	---	27 Jun 2015
Thermo meter	N/A	N/A	---	27 Jun 2015
FSP 30 Spectrum Analyzer	Rohde & Schwarz	FSP 30	100007	03 Dec 2014

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 : 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: For test protocols refer to Appendix 1, page 4-7.		
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 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

Subclause 15.215 (c) – 20 dB Bandwidth				Pass
Test Specification : ANSI C63.4 – 2003 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)
2405	2401.760	> 2400	2406.920	< 2483.5
2445	2442.720	> 2400	2447.020	< 2483.5
2475	2472.700	> 2400	2476.900	< 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 : 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 2405MHz		Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.350	72.49	114.0 / P		
2405.350	38.89	94.0 / A		
Fundamental Frequency 2405MHz		Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m		
2405.350	74.26	114.0 / P		
2405.350	39.35	94.0 / A		
Harmonics 2405MHz		Vertical Polarization		

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4810.310	49.60	74.0 / P
4810.310	32.08	54.0 / A
Harmonics 2405MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4810.310	50.48	74.0 / P
4810.310	30.34	54.0 / A
Fundamental Frequency 2445MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2445.360	72.89	114.0 / P
2445.360	38.84	94.0 / A
Fundamental Frequency 2445MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2445.360	72.50	114.0 / P
2445.360	38.60	94.0 / A
Harmonics 2445MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.000	42.77	74.0 / P
4890.000	32.10	54.0 / A
Harmonics 2445MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.000	43.08	74.0 / P
4890.000	32.27	54.0 / A
Fundamental Frequency 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.370	70.48	114.0 / P
2475.370	37.44	94.0 / A
Fundamental Frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.370	74.11	114.0 / P
2475.370	39.58	94.0 / A
Harmonics 2475MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.170	48.96	74.0 / P
4950.170	28.48	54.0 / A
Harmonics 2475MHz Horizontal Polarization		
Freq	Level	Limit/ Detector

MHz	dBuV/m	dBuV/m
4950.170	48.74	74.0 / P
4950.170	30.61	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 : 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 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