

Produkte
Products



Prüfbericht - Nr.: 14041388 001 <i>Test Report No.:</i>		Seite 1 von 9 <i>Page 1 of 9</i>	
Auftraggeber: <i>Client:</i>		JINXINGDA PLASTIC TOYS FACTORY CHENGHAI DISTRICT SHANTOU CITY GUANGDONG PROVINCE 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 3	Serien-Nr.: <i>Serial No.:</i>	Engineering sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	A000257138-001	Eingangsdatum: <i>Date of Receipt:</i>	19.09.2015
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>		Test sample is not damaged and suitable for testing.	
Prüfört: <i>Testing Location:</i>	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 C63.10-2013		
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:	
23.09.2015 Datum <i>Date</i>	Benny Lau Senior Project Manager Name/Stellung <i>Name/Position</i>	23.09.2015 Datum <i>Date</i>	Sharon Li Department Manager Name/Stellung <i>Name/Position</i>
	 Unterschrift <i>Signature</i>		 Unterschrift <i>Signature</i>
Sonstiges: Other Aspects		FCCID: ZSY-JXD76499509	
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	2402 - 2475 MHz
Type of modulation	GFSK
Number of channels	71
Type of antenna	Wire Antenna
Antenna Gain	0dBi
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 is powered by battery only.

FCCID: ZSY-JXD76499509

Models	Product description
509, 391, 392, 393, 395, 396, 398, 399, 501, 502, 503, 505, 506, 507, 508, 510, 511, 512, 513, 515, 516, 517, 518, 509V, 509W, 509G	R/C TOYS

Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual
Rating Label
Declaration of Equivalence

Special accessories and auxiliary equipment

- Nil

Independent Operation Modes

The basic operation modes are transmitting control signal for the RC toy car.

For further information refer to User Manual

Related Submittal(s) Grants

This is a single application for certification of the transmitter.

Remarks

Due to the client declaration of equivalence, the model 509, 391, 392, 393, 395, 396, 398, 399, 501, 502, 503, 505, 506, 507, 508, 510, 511, 512, 513, 515, 516, 517, 518, 509V, 509W, 509G are identical except the packaging. The model 509 was randomly selected as a representative for testing.

List of Test and Measurement Instruments

Global United Technology Services Co., Ltd. (Registration number: 600491)

Equipment	Manufacturer	Type	Cal.Date	Cal.Due date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	April 5 2015	April 4 2017
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	N/A	N/A
ESU EMI Test Receiver	R&S	ESU26	June 8 2015	June 7 2016
Loop Antenna	Zhinan	ZN30900A	June 8 2015	June 7 2016
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	Mar. 08 2015	Mar. 08 2016
Double-ridged horn antenna	SCHWARZBECK	9120D	Mar. 08 2015	Mar. 08 2016
RF Amplifier	HP	8347A	Mar. 08 2015	Mar. 08 2016
RF Amplifier	HP	8349B	June 8 2015	June 7 2016
EMI Test Software	AUDIX	E3	June 8 2015	June 7 2016
Coaxial cable	GTS	N/A	N/A	N/A
Coaxial Cable	GTS	N/A	June 8 2015	June 7 2016
Thermo meter	N/A	N/A	June 8 2015	June 7 2016
Spectrum Analyzer	Rohde & Schwarz	FSP30	Jan 12 2015	Jan. 12 2017

Results FCC Part 15 – Subpart C

Subclause 15.203 – Antenna Requirement		Pass
FCC Requirement: No antenna other than that furnished by the responsible party shall be used with the device		
Results:	Antenna type:	Fixed Integral wire antenna
Verdict:	Pass	

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 C63.10-2013 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.				
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)
2402	2400.28	> 2400	2404.24	< 2483.5
2445	2443.80	> 2400	2446.76	< 2483.5
2475	2473.84	> 2400	2476.76	< 2483.5

Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics			Pass
Test Specification : ANSI C63.10-2013 Mode of operation : Tx mode Port of testing : Enclosure Frequency range : 9kHz – 25GHz 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.			
Results: PASS.			
Fundamental Frequency 2402MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2402.120	90.97	114.0 / PK	
2402.120	71.05	94.0 / AV	
Fundamental Frequency 2402MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2402.120	89.12	114.0 / PK	
2402.120	69.08	94.0 / AV	
Harmonics 2402MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4804.115	54.92	74.0 / PK	
4804.115	37.21	54.0 / AV	
7205.070	53.96	74.0 / PK	
7205.070	37.76	54.0 / AV	
Harmonics 2402MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4804.050	57.59	74.0 / PK	
4804.050	37.87	54.0 / AV	
7206.000	57.00	74.0 / PK	
7206.000	35.79	54.0 / AV	
Fundamental Frequency 2445MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2445.000	91.74	114.0 / PK	
2445.000	71.69	94.0 / AV	

Fundamental Frequency 2445MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2445.000	88.87	114.0 / PK	2445.000	69.83	94.0 / AV
Harmonics 2445MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.130	55.45	74.0 / PK	4890.130	37.85	54.0 / AV
7335.410	54.49	74.0 / PK	7335.410	37.75	54.0 / AV
Harmonics 2445MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4890.000	56.37	74.0 / PK	4890.000	37.77	54.0 / AV
7335.065	54.80	74.0 / PK	7335.065	38.06	54.0 / AV
Fundamental Frequency 2475MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.065	90.02	114.0 / PK	2475.065	71.09	94.0 / AV
Fundamental Frequency 2475MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2475.065	89.28	114.0 / PK	2475.065	69.34	94.0 / AV
Harmonics 2475MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.440	54.40	74.0 / PK	4950.440	37.87	54.0 / AV
7425.000	52.52	74.0 / PK	7425.000	37.07	54.0 / AV
Harmonics 2475MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4950.440	56.40	74.0 / PK	4950.440	37.87	54.0 / AV
7425.000	54.97	74.0 / PK	7425.000	37.35	54.0 / AV

Subclause 15.249 (d), 15.205 – Out Of Band Radiated Emission			Pass
Test Specification : ANSI C63.10-2013 Mode of operation : Tx mode Port of testing : Enclosure Detector : Peak Frequency range : 9kHz – 25GHz RBW/VBW : 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 limit of section 15.209. There is no spurious found below 30MHz.	
Tx frequency 2402MHz Vertical Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2400.000	59.64	74.0 / PK	
2400.000	29.59	54.0 / AV	
Tx frequency 2402MHz Horizontal Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2400.000	60.38	74.0 / PK	
2400.000	28.96	54.0 / AV	
Tx frequency 2445MHz Vertical Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
No peak found	---	74.0 / PK	
No peak found	---	54.0 / AV	
Tx frequency 2445MHz Horizontal Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
No peak found	---	74.0 / PK	
No peak found	---	54.0 / AV	
Tx frequency 2475MHz Vertical Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2483.500	56.92	74.0 / PK	
2483.500	28.09	54.0 / AV	
Tx frequency 2475MHz Horizontal Polarization			
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2483.500	57.24	74.0 / PK	
2483.500	28.32	54.0 / AV	