

Produkte
Products

Prüfbericht - Nr.: 14040286 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 Rennbahnallee 1 5412 Puch Salzburg Austria		
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>	A000230452-001	Eingangsdatum: <i>Date of Receipt:</i>	21.07.2015
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 C63.4-2009		
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:		
29.07.2015	Benny Lau Senior Project Manager	29.07.2015	Sharon Li Department 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: YFA370900027		
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>			

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
Remarks	4
List of Test and Measurement Instruments	5
Results FCC Part 15 – Subpart C	6
Subclause 15.203 – Antenna Requirement	Pass 6
Subclause 15.207 – Disturbance Voltage on AC Mains.....	N/A 6
Subclause 15.215 (c) – 20 dB Bandwidth.....	Pass 6
Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics.....	Pass 7
Subclause 15.249 (d), 15.205 – Out Of Band Radiated Emission	Pass 9
Appendix 1 – Test Results.....	3 pages
Appendix 2 – Test Setup Photos.....	3 pages
Appendix 3 – Photo documentation.....	6 pages
Appendix 4 – Product documentation.....	14 pages
Appendix 5 – RF Exposure Information.....	2 pages

Product information

Manufacturers declarations

	Transmitter
Operating frequency range	2408 - 2474 MHz
Type of modulation	GFSK
Number of channels	67
Type of antenna	Wire Antenna
Power level	fix
Connection to public utility power line	No
Nominal voltage	V _{nom} : 3.0 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: YFA370900027

Models	Product description
370900027, 900027, 370900039, 900039	Radio Controlled Toy Transmitter

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 370900027 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 C63.4 – 2009 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.0VDC, 2 x 1.5V AAA 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)
2408	2407.500	> 2400	2408.880	< 2483.5
2441	2440.520	> 2400	2441.950	< 2483.5
2474	2475.110	> 2400	2474.800	< 2483.5

Subclause 15.249 (a) – Field Strength of Fundamental and Harmonics		Pass
Test Specification : ANSI C63.4 – 2009 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 : 3.0VDC, 2 x 1.5V AAA 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 2408MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2408.300	88.73	114.0 / PK
2408.300	69.54	94.0 / AV
Fundamental Frequency 2408MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2408.300	92.11	114.0 / PK
2408.300	72.08	94.0 / AV
Harmonics 2408MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4816.000	56.47	74.0 / PK
4816.000	36.79	54.0 / AV
7224.000	55.32	74.0 / PK
7224.000	36.45	54.0 / AV
Harmonics 2408MHz		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4816.000	56.96	74.0 / PK
4816.000	36.27	54.0 / AV
7224.000	52.32	74.0 / PK
7224.000	36.19	54.0 / AV
Fundamental Frequency 2441MHz		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2441.018	90.71	114.0 / PK
2441.018	69.66	94.0 / AV

Fundamental Frequency 2441MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2441.018	95.11	114.0 / PK	
2441.018	72.06	94.0 / AV	
Harmonics 2441MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4882.000	57.00	74.0 / PK	
4882.000	36.39	54.0 / AV	
7323.000	55.36	74.0 / PK	
7323.000	37.56	54.0 / AV	
Harmonics 2441MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4882.000	54.75	74.0 / PK	
4882.000	34.14	54.0 / AV	
7323.000	52.68	74.0 / PK	
7323.000	36.27	54.0 / AV	
Fundamental Frequency 2474MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2474.105	91.12	114.0 / PK	
2474.105	69.17	94.0 / AV	
Fundamental Frequency 2474MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2474.105	93.94	114.0 / PK	
2474.105	72.98	94.0 / AV	
Harmonics 2474MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4948.000	58.94	74.0 / PK	
4948.000	37.41	54.0 / AV	
7422.000	52.72	74.0 / PK	
7422.000	37.26	54.0 / AV	
Harmonics 2474MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4948.000	56.07	74.0 / PK	
4948.000	37.18	54.0 / AV	
7422.000	54.64	74.0 / PK	
7422.000	36.71	54.0 / AV	

Subclause 15.249 (d), 15.205 – Out Of Band Radiated Emission		Pass
Test Specification : ANSI C63.4 – 2009 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 : 3.0VDC, 2 x 1.5V AAA 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 2408MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	39.51	74.0 / PK
2400.000	27.47	54.0 / AV
Tx frequency 2408MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	36.97	74.0 / PK
2400.000	24.93	54.0 / AV
Tx frequency 2441MHz 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 2441MHz 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 2474MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.500	45.75	74.0 / PK
2483.500	33.38	54.0 / AV
Tx frequency 2474MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.500	47.67	74.0 / PK
2483.500	34.61	54.0 / AV