Produkte
Products

Prüfbericht - Nr.: *Test Report No.:*	**14040384 001**		**Seite 1 von 10** *Page 1 of 10*
Auftraggeber: *Client:*	**Stadlbauer Marketing + Vertrieb Ges.M.B.H** **Rennbahnallee 1** **5412 Puch** **Salzburg** **Austria**		
Gegenstand der Prüfung: *Test Item:*	**Short Range Device - Radio Control Toy Transmitter (2.4GHz)**		
Bezeichnung: *Identification:*	**Please refer to "Models" on page 3**	**Serien-Nr.:** *Serial No.:*	**Engineering sample**
Wareneingangs-Nr.: *Receipt No.:*	**A000212001-009**	**Eingangsdatum:** *Date of Receipt:*	**10.06.2015**
Zustand des Prüfgegenstandes bei Anlieferung: *Condition of test item at delivery:*	Test sample is not damaged and suitable for testing.		
Prüfort: *Testing Location:*	**TÜV Rheinland Hong Kong Ltd.** 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: *Test Specification:*	**FCC Part 15 Subpart C** **ANSI C63.4-2009**		
Prüfergebnis: *Test Results:*	**Das vorstehend beschriebene Gerät wurde geprüft und entspricht oben genannter Prüfgrundlage.** The above mentioned product was tested and **passed**.		
Prüflaboratorium: *Testing Laboratory:*	**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:*		
31.08.2015	Joey Leung Project Engineer		31.08.2015	Benny Lau Senior Project Manager	
Datum *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name/Stellung** *Name/Position*	**Unterschrift** *Signature*

Sonstiges: **FCCID: YFA370900038**
Other Aspects

Abkürzungen:				*Abbreviations:*			
P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*	
F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*	
N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*	
N/T	=	*nicht getestet*		*N/T*	=	*not tested*	

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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_{nor}: 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: YFA370900038

Models	Product description
900038, 370900038	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

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 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 370900038 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	S/N	Cal. interval	Last cal.
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	---	2 year	04 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	07 Jun 2015
Loop Antenna	Zhinan	ZN30900A	---	1 year	27 Jun 2015
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	---	1 year	08 Mar 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	---	1 year	08 Mar 2015
RF Amplifier	HP	8347A	---	1 year	07 Jun 2015
RF Amplifier	HP	8349B	---	1 year	07 Jun 2015
EMI Test Software	AUDIX	E3	---	N/A	N/A
Coaxial cable	GTS	N/A	---	1 year	07 Jun 2015
Coaxial Cable	GTS	N/A	---	1 year	07 Jun 2015
Thermo meter	N/A	N/A	---	1 year	07 Jun 2015
Spectrum Analyzer	Rohde & Schwarz	FSP30	100007	1 year	12 Jan 2015

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 15.215 (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 : 23ºC
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	2407.490	> 2400	2409.490	< 2483.5
2441	2440.500	> 2400	2442.460	< 2483.5
2474	2472.260	> 2400	2474.740	< 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 : 23ºC
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**
2408.101	87.03	114.0 / PK
2408.101	69.00	94.0 / AV

Fundamental Frequency 2408MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2408.101	83.79	114.0 / PK
2408.101	65.76	94.0 / AV
Harmonics 2408MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4815.810	55.38	74.0 / PK
4815.810	34.29	54.0 / AV
7222.000	54.24	74.0 / PK
7222.000	35.11	54.0 / AV
Harmonics 2408MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4815.810	53.20	74.0 / PK
4815.810	35.96	54.0 / AV
7222.000	49.90	74.0 / PK
7222.000	35.77	54.0 / AV
Fundamental Frequency 2441MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2441.290	88.06	114.0 / PK
2441.290	68.01	94.0 / AV
Fundamental Frequency 2441MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2441.310	83.03	114.0 / PK
2441.310	64.98	94.0 / AV
Harmonics 2441MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4882.105	53.91	74.0 / PK
4882.105	33.56	54.0 / AV
7324.000	49.95	74.0 / PK
7324.000	33.15	54.0 / AV
Harmonics 2441MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4882.131	53.90	74.0 / PK
4882.131	33.30	54.0 / AV
7324.000	49.91	74.0 / PK
7324.000	33.11	54.0 / AV
Fundamental Frequency 2474MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2474.033	87.07	114.0 / PK

2474.033	68.12	94.0 / AV
Fundamental Frequency 2474MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2474.024	81.73	114.0 / PK
2474.024	64.78	94.0 / AV
Harmonics 2474MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4948.250	56.09	74.0 / PK
4948.250	32.56	54.0 / AV
7426.000	49.35	74.0 / PK
7426.000	33.90	54.0 / AV
Harmonics 2474MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
4948.100	54.31	74.0 / PK
4948.100	33.78	54.0 / AV
7426.000	49.09	74.0 / PK
7426.000	31.64	54.0 / AV

Subclause 15.249 (d) – Spurious Emission – Band Edge **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 : 23ºC
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: PASS.

Tx frequency 2408MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2400.000	40.28	74.0 / PK
2400.000	28.24	54.0 / AV
Tx frequency 2408MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2400.000	36.19	74.0 / PK
2400.000	27.91	54.0 / AV

Tx frequency 2474MHz	Vertical Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2483.500	40.45	74.0 / PK
2483.500	26.54	54.0 / AV
Tx frequency 2474MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
2483.500	44.37	74.0 / PK
2483.500	29.45	54.0 / AV

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
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 : 23ºC
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 2408MHz	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 2408MHz	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 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**
No peak found	---	74.0 / PK
No peak found	---	54.0 / AV
Tx frequency 2474MHz	Horizontal Polarization	
Freq MHz	**Level dBuV/m**	**Limit/ Detector dBuV/m**
No peak found	---	74.0 / PK
No peak found	---	54.0 / AV