

Produkte
Products



Prüfbericht - Nr.: 14024157 001			Seite 1 von 8 Page 1 of 8		
<i>Test Report No.:</i>					
Auftraggeber: <i>Client:</i>		Stadlbauer Marketing + Vertrieb Gesellschaft m.b.H. A-5027 Salzburg Magazinstrasse 4 Austria			
Gegenstand der Prüfung: <i>Test Item:</i>		Short Range Device - Radio Control Toys (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>	00100809091-001	Eingangsdatum: <i>Date of Receipt:</i>	09.08.2010		
Prüfört: <i>Testing Location:</i>	TÜV Rheinland Hong Kong Ltd. 8/F., Niche Centre, 14 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong Hong Kong Productivity Council HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong				
Prüfgrundlage: <i>Test Specification:</i>	FCC Part 15 Subpart C ANSI C63.4-2003 CISPR 22:1997				
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. 9-10/F., Emperor International Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong				
geprüft/ tested by:			kontrolliert/ reviewed by:		
16.08.2010 Sharon Li Project Manager 			16.08.2010 Thomas Berns 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: FCCID: YFA120007 <i>Other Aspects</i>					
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. <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>					

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Product information

Manufacturers declarations

	Transceiver
Operating frequency range	2410 - 2481 MHz
Type of modulation	FSK
Number of channels	64
Type of antenna	Integral
Power level	fix
Connection to public utility power line	No
Nominal voltage	V_{nor} : 9.0 V

Models	Model	Description
	120007	Racing Machine Red
	Assorted Model	Description
	120008	Racing Machine Black
	120009	Racing Machine Blue
	120011	Racing Machine Green

Product function and intended use

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

Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual

List of Test and Measurement Instruments

	Equipment used	Manufacturer	Model No.	S/N	Due Date
<input checked="" type="checkbox"/>	Semi-anechoic Chamber	Albatross Projects GmbH	Nil	9460000.9	16-Mar-11
<input checked="" type="checkbox"/>	EMI Test Receiver	R & S	ESCI	100216	16-Mar-11
<input checked="" type="checkbox"/>	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	209	21-Aug-11
<input checked="" type="checkbox"/>	Double-Ridged Waveguide Horn Antenna	R & S	HF 906	100407	16-Mar-11
<input checked="" type="checkbox"/>	Pre-Amplifier	MITEQ	AFS42-00101800-25S-42	1101599	16-Mar-11
<input checked="" type="checkbox"/>	Pre-Amplifier	MITEQ	AFS42-00101800-25S-44	1108282	16-Mar-11
<input checked="" type="checkbox"/>	Band Reject Filter	Micro-Tronics	BRM50702	023	16-Mar-11
<input checked="" type="checkbox"/>	Horn Antenna	EMCO	3160-09	21642	26-Jun-14
<input checked="" type="checkbox"/>	FSP 30 Spectrum Analyser	R & S	FSP 30	100286	16-Mar-11
<input checked="" type="checkbox"/>	EMI Test Receiver	R & S	ESCS 30	100316	16-Mar-11
<input checked="" type="checkbox"/>	Artificial Mains Network	R & S	ESH3-Z5	100114	16-Mar-11
<input checked="" type="checkbox"/>	Pulse Limiter	R & S	ESH3-Z2	100701	16-Mar-11
<input checked="" type="checkbox"/>	Loop Antenna	R & S	HFH2-Z2	9107-2651	16-Mar-11

Models	Model	Description
	120007	Racing Machine Red
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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 : internal batteries has been activated Temperature : 23°C Humidity : 50%	
Requirement:	Radiated emissions which fall in the restricted bans, as defined in 15.205 (a), must also comply with the radiated emission limits specified in 15.209(a).
Results:	There is no peak found in the restricted bands. For test protocols refer to Appendix 1, page 4-7.

Subclause 15.215 (c) – 20 dB Bandwidth		Pass		
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.			
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 : internal batteries has been activated Temperature : 23°C Humidity : 50%				
Results: For test protocols refer to Appendix 1, page 1-3.				
Frequency (MHz)	20 dB left (MHz)	Limit (MHz)	20 dB right (MHz)	Limit (MHz)
2410	2409.606	> 2400	2410.386	< 2483.5
2450	2449.962	> 2400	2450.748	< 2483.5
2481	2480.756	> 2400	2481.554	< 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 : internal batteries has been activated 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 2410MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2409.935	85.61	114.0 / P
2409.935	30.05	94.0 / A
Fundamental Frequency 2410MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2409.935	86.36	114.0 / P
2409.935	32.44	94.0 / A
Harmonics 2410MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A
Harmonics 2410MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A
Fundamental Frequency 2450MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2450.224	80.11	114.0 / P
2450.224	32.99	94.0 / A
Fundamental Frequency 2450MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2450.225	83.94	114.0 / P
2450.225	33.75	94.0 / A
Harmonics 2450MHz Vertical Polarization		

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A
Harmonics 2450MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A
Fundamental Frequency 2480MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2481.009	82.86	114.0 / P
2481.009	31.18	94.0 / A
Fundamental Frequency 2480MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2481.009	86.18	114.0 / P
2481.009	31.52	94.0 / A
Harmonics 2480MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A
Harmonics 2480MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
no peak found	---	74.0 / P
no peak found	---	54.0 / A

Subclause 15.249 (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 : internal batteries has been activated 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.	
Result	All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.	

Tx frequency 2410MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
572.000	38.10	46 / QP	572.000	38.10	46 / QP
1282.516	35.70	74.0 / P	1282.516	35.70	74.0 / P
1282.516	27.05	54.0 / A	1282.516	27.05	54.0 / A
Tx frequency 2410MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
572.000	37.70	46 / QP	572.000	37.70	46 / QP
no peak found	---	74.0 / P	no peak found	---	74.0 / P
no peak found	---	54.0 / A	no peak found	---	54.0 / A
Tx frequency 2450MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
545.999	40.70	46 / QP	545.999	40.70	46 / QP
no peak found	---	74.0 / P	no peak found	---	74.0 / P
no peak found	---	54.0 / A	no peak found	---	54.0 / A
Tx frequency 2450MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
572.000	33.0	46 / QP	572.000	33.0	46 / QP
no peak found	---	74.0 / P	no peak found	---	74.0 / P
no peak found	---	54.0 / A	no peak found	---	54.0 / A
Tx frequency 2480MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
611.002	35.2	46 / QP	611.002	35.2	46 / QP
no peak found	---	74.0 / P	no peak found	---	74.0 / P
no peak found	---	54.0 / A	no peak found	---	54.0 / A
Tx frequency 2480MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
546.001	21.00	46 / QP	546.001	21.00	46 / QP
no peak found	---	74.0 / P	no peak found	---	74.0 / P
no peak found	---	54.0 / A	no peak found	---	54.0 / A