

Produkte
Products

Prüfbericht - Nr.: 14041502 001 <i>Test Report No.:</i>			Seite 1 von 9 <i>Page 1 of 9</i>		
Auftraggeber: <i>Client:</i>			geobra Brandstätter Stiftung & Co. KG Brandstätterstr. 2 - 10 90513 ZIRNDORF Germany		
Gegenstand der Prüfung: <i>Test Item:</i>			Short Range Device - Radio Control Toy Motor Module (2.4GHz)		
Bezeichnung: <i>Identification:</i>		6914RX	Serien-Nr.: <i>Serial No.:</i>		Engineering sample
Wareneingangs-Nr.: <i>Receipt No.:</i>		A000134728-002	Eingangsdatum: <i>Date of Receipt:</i>		30.07.2015
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>			Test sample is not damaged and suitable for testing.		
Prüfort: <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 C63.4-2013			
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:		
24.11.2015 Benny Lau Senior Project Manager			24.11.2015 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: N2T30822144		
Abkürzungen:			Abbreviations:		
P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet			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>					

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.....	7 pages
Appendix 4 – Product documentation.....	21 pages
Appendix 5 – RF Exposure Information.....	2 pages

Product information

Manufacturers declarations

	Transmitter
Operating frequency range	2403 - 2475MHz
Type of modulation	GFSK
Number of channels	3
Type of antenna	Wire Antenna
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 transceiver operating at 2.4GHz. It is powered by battery only.

FCCID: N2T30822144

Models	Product description
6914RX	Radio Controlled Motor module for toy car

Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual
Rating Label

Special accessories and auxiliary equipment

- Nil

Independent Operation Modes

The basic operation modes are transmitting mode.

For further information refer to User Manual

Related Submittal(s) Grants

This is a single application for certification of the transmitter.

Remarks

Nil

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)
2403	2402.12	> 2400	2404.38	< 2483.5
2440	2439.24	> 2400	2441.21	< 2483.5
2475	2473.84	> 2400	2475.62	< 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 2403MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2403.208	90.29	114.0 / PK	
2403.208	70.26	94.0 / AV	
Fundamental Frequency 2403MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2403.208	84.20	114.0 / PK	
2403.208	63.17	94.0 / AV	
Harmonics 2403MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4806.080	56.72	74.0 / PK	
4806.080	38.01	54.0 / AV	
7209.050	55.19	74.0 / PK	
7209.050	38.99	54.0 / AV	
Harmonics 2403MHz		Horizontal Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
4806.080	53.97	74.0 / PK	
4806.080	36.26	54.0 / AV	
7209.050	59.82	74.0 / PK	
7209.050	39.61	54.0 / AV	
Fundamental Frequency 2440MHz		Vertical Polarization	
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	
2439.733	91.88	114.0 / PK	
2439.733	70.83	94.0 / AV	

Fundamental Frequency 2440MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2439.733	84.82	114.0 / PK	2439.733	63.78	94.0 / AV
Harmonics 2440MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4880.760	57.70	74.0 / PK	4880.760	38.08	54.0 / AV
7320.240	53.11	74.0 / PK	7320.240	38.31	54.0 / AV
Harmonics 2440MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
4880.760	55.03	74.0 / PK	4880.760	38.41	54.0 / AV
7320.240	58.48	74.0 / PK	7320.240	40.68	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
2474.950	91.09	114.0 / PK	2474.950	70.15	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
2474.950	85.31	114.0 / PK	2474.950	63.38	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	59.20	74.0 / PK	4950.440	38.67	54.0 / AV
7426.000	55.35	74.0 / PK	7426.000	40.90	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	55.90	74.0 / PK	4950.440	38.37	54.0 / AV
7426.000	60.12	74.0 / PK	7426.000	42.67	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 2403MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	59.12	74.0 / PK
2400.000	33.70	54.0 / AV
Tx frequency 2403MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2400.000	56.66	74.0 / PK
2400.000	34.44	54.0 / AV
Tx frequency 2440MHz 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 2440MHz 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	47.96	74.0 / PK
2483.500	30.83	54.0 / AV
Tx frequency 2475MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2483.500	44.76	74.0 / PK
2483.500	29.71	54.0 / AV