

Prüfbericht - Nr.: 14029718 001		Seite 1 von 9	
<i>Test Report No.:</i>		<i>Page 1 of 9</i>	
Auftraggeber: <i>Client:</i>		A.E. YAYINCILIK, FILM, REK. BILGI.VE ORG. HIZ. LTD. MENEKSELI SK, NO:22 LEVENT ISTANBUL 34330 Turkey	
Gegenstand der Prüfung: <i>Test Item:</i>		Short Range Device - Radio Control Toys Transmitter (2.4GHz)	
Bezeichnung: <i>Identification:</i>	DE9988	Serien-Nr.: <i>Serial No.:</i>	Engineering sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	00120411106-001	Eingangsdatum: <i>Date of Receipt:</i>	11.04.2012
Prüfört: <i>Testing Location:</i>	TÜV Rheinland Hong Kong Ltd. 8/F., First Group 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. 8 - 10/F., Goldin Financial Global Square, 7 Wang Tai Road, Kowloon Bay, Kowloon, Hong Kong		
geprüft/ tested by:		kontrolliert/ reviewed by:	
29.03.2011	Joey Leung Test Engineer	29.03.2011	Sharon Li Assistant Manager
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
	Unterschrift <i>Signature</i>		Unterschrift <i>Signature</i>
Sonstiges: Other Aspects		FCCID: N2U99881216022698	
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>			

Table of Content

	Page
Cover Page	1
Table of Content	2
Product information.....	3
Manufacturers declarations	3
Submitted documents.....	3
List of Test and Measurement Instruments.....	4
Results FCC Part 15 – Subpart C	5
Subclause 15.207 – Disturbance Voltage on AC Mains.....	Pass..... 5
Subclause 15.205 – Band edge compliance of radiated emissions	Pass..... 5
Subclause 15.215 (c) – 20 dB Bandwidth.....	Pass..... 6
Subclause 15.249 (a) – Radiated Emission (Fundamental and Harmonics).....	Pass..... 7
Subclause 15.249 (d) – Spurious Radiated Emissions.....	Pass..... 8
Appendix 1 – Test Results.....	5 pages
Appendix 2 – Test Setup Photos.....	2 pages
Appendix 3 – Photo documentation.....	7 pages
Appendix 4 – Product documentation.....	13 pages

Product information

Manufacturers declarations

	Transmitter
Operating frequency range	2400 - 2483 MHz
Type of modulation	GFSK
Number of channels	125
Type of antenna	Integral
Power level	fix
Connection to public utility power line	No
Nominal voltage	V _{nom} : 3.7 V

Submitted documents

- Circuit Diagram
- Block Diagram
- Bill of material
- User manual
- Rating Label

Remark

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

List of Test and Measurement Instruments

Shenzhen EMTEK Co., Ltd. (Registration number: 709623)

Equipment	Manufacturer	Type	S/N	Due Date
EMI Test Receiver	Rohde & Schwarz	ESU26	LR114196	May 29, 2012
Pre-Amplifier	HP	8447D	2944A07999	May 29, 2012
Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2012
Loop Antenna	ARA	PLA-1030/B	1029	May 29, 2012
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170399	May 29, 2012
Horn Antenna	Schwarzbeck	BBHA 9120	D143	May 29, 2012
Cable	Schwarzbeck	AK9513	ACRX1	May 29, 2012
Cable	Rosenberger	N/A	FP2RX2	May 29, 2012
Cable	Schwarzbeck	AK9513	CRPX1	May 29, 2012
Cable	Schwarzbeck	AK9513	CRRX2	May 29, 2012

Hong Kong Productivity Council (Registration number: 90656)

Equipment used	Manufacturer	Model No.	S/N	Due Date
Test Receiver	Rohde & Schwarz	ESCS30	100201	13 Feb 13
LISN	Rohde & Schwarz	ESH3-Z5	100230	13 Feb 13

Results FCC Part 15 – Subpart C

Subclause 15.207 – Disturbance Voltage on AC Mains						Pass
Mode of operation: Charging Mode						
Live measurement						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak (dBµV)	Average (dBµV)	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.150	61.7	41.9	66 - 56	56 - 46	Pass
	0.198	55.1	33.8	66 - 56	56 - 46	Pass
> 0,5 - 5	---	---	---	56	46	Pass
> 5 - 30	14.406	31.9	26.9	60	50	Pass
Neutral measurement						
Frequency range (MHz)	Frequency (MHz)	Quasi-peak (dBµV)	Average (dBµV)	Limit QP (dBµV)	Limit AV (dBµV)	Verdict
0,15 – 0,5	0.150	55.1	35.1	66 - 56	56 - 46	Pass
> 0,5 - 5	0.540	31.4	30.2	56	46	Pass
> 5 - 30	7.596	36.4	35.4	60	50	Pass

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 bands, 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.	

page 6 of 9

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 2405MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2405.000	64.84	114 / P
2405.000	46.84	94 / A
Fundamental Frequency 2405MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2405.000	58.37	114 / P
2405.000	41.44	94 / A
Harmonics 2405MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Harmonics 2405MHz 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 2440MHz Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2440.000	58.58	114.0 / P
2440.000	41.53	94.0 / A
Fundamental Frequency 2440MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2440.000	55.78	114.0 / P
2440.000	39.53	94.0 / A
Harmonics 2440MHz Vertical Polarization		

Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	74.0 / P
No peak found	---	54.0 / A
Harmonics 2440MHz 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
2480.000	50.38	114.0 / P
2480.000	35.43	94.0 / A
Fundamental Frequency 2480MHz Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
2480.000	47.46	14.0 / P
2480.000	34.47	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.	
Results:	All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.	

Tx frequency 2405MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
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 2405MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
808.798	32.77	46 / QP	808.798	32.77	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 2440MHz			Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
539.872	32.75	46 / QP	539.872	32.75	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 2440MHz			Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m	Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
779.263	35.02	46 / QP	779.263	35.02	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
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
834.421	28.94	46 / QP	834.421	28.94	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