

Produkte
Products

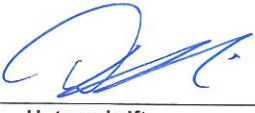
Prüfbericht - Nr.: 14034731 001			Seite 1 von 11		
<i>Test Report No.:</i>			<i>Page 1 of 11</i>		
Auftraggeber: <i>Client:</i>		Wincotime Electronic Ltd Room 2, 8/F, Fonda Ind Bld. 37-39 Au Pui Wan Street Fo Tan, Sha Tin, NT			
Gegenstand der Prüfung: <i>Test Item:</i>		Bluetooth Low Energy Activity Tracker			
Bezeichnung: <i>Identification:</i>	RBX GO	Serien-Nr.: <i>Serial No.:</i>	Engineering sample		
Wareneingangs-Nr.: <i>Receipt No.:</i>	A000035614-001 A000039405-001	Eingangsdatum: <i>Date of Receipt:</i>	20.01.2014 28.02.2014		
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of test item at delivery:</i>		Test sample(s) is/are not damaged and suitable for testing.			
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			
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:			
24.03.2014	Joey Leung Project Engineer		24.03.2014	Sharon Li Section 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: Other Aspects		FCCID: 2ABPTYX3600			
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			
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 BLE Mode
Operating frequency range	2402 - 2480 MHz
Type of modulation	GFSK
Number of channels	40
Channel separation	2 MHz
Type of antenna	PCB Antenna
Antenna gain (dBi)	0
Power level	fix
Type of equipment	stand alone radio device
Connection to public utility power line	No
Nominal voltage	V _{nor} : 3.0 VDC
Independent Operation Modes	Transmitting Receiving

Product function and intended use

The RBX Go is a digital pedometer that features a 3 Axis Accelerometer that accurately tracks and stores your every step, whether you are walking, jogging or running. It then synchronizes the data, via Bluetooth to the RBX Go App, developed for the IOS devices.

For details, please refer to the user manual.

Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual

Remark

Special accessories and auxiliary equipment

Nil

List of Test and Measurement Instruments

Hong Kong Productivity Council (FCC Registration number: 90656)

Equipment	Manufacturer	Type	S/N	Due Date
Semi-anechoic Chamber	Frankonia	Nil	Nil	12 Apr 2014
Cable	Hubersuhner	SUCOFLEX 104	72799 /6	30 Mar 2014
Test Receiver	R & S	ESU40	100190	18 Sep 2014
Log Periodic Antenna	R & S	HL223	841516/017	10 Jun 2015
Coaxial cable 50ohm	Rosenberger	RTK081-05S-05S-10m	LA2-001-10M / 001	15 Nov 2015
Microwave amplifier 0.5-26.5GHz, 25dB gain	HP	83017A	3123A00437	30 Dec 2015
High Pass Filter (cutoff freq. =1000MHz)	Trilithic	23042	9829213	28 Oct 2015
Horn Antenna	EMCO	3115	9002-3347	11 Jun 2015
Active Loop Antenna	EMCO	6502	9107-2651	21 Jun 2014
FSP 30 Spectrum Analyzer	Rohde & Schwarz	FSP 30	100007	03 Dec 2014

Results FCC Part 15 – Subpart C

Subclause 15.203 – Antenna Requirement 1		Pass
Requirement:	No antenna other than that furnished by the responsible party shall be used with the device	
Results:	Permanent attached antenna	
Verdict:	Pass	

Subclause 15.204 – Antenna Requirement 2		Pass
Requirement:	Provide information for every antenna proposed for the use with the EUT	
Results:	a) Antenna type: PCB Antenna b) Manufacturer and model no: N.A. c) Gain with reference to an isotropic radiator: 0 dBi	
Verdict:	Pass	

Subclause 15.207 – Disturbance Voltage on AC Mains		N/A
The EUT does not have AC mains power input power, hence this test is not applicable.		

Subclause 15.247 (a)(2) – 6dB Bandwidth Measurement		Pass	
Requirement:	Systems using digital modulation techniques may operate in the 902 – 928 MHz, 2400 – 2483.5 MHz, and 5725 – 5850 MHz bands. The minimum 6dB bandwidth shall be at least 500kHz.		
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode, (2402MHz, 2440MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100KHz/ 300KHz Supply voltage : 3.0 VDC from DC power supply Temperature : 23°C Humidity : 50%			
Results:	For test protocols please refer to Appendix 1, page 2-3.		
Channel frequency (MHz)	6 dB left (MHz)	6 dB right (MHz)	6dB bandwidth (MHz)
2402	0.318	0.354	0.672
2440	0.300	0.372	0.672
2480	0.306	0.342	0.648

Subclause 15.247 (b) (1), (3) – Maximum Peak Output Power				Pass	
Requirement: For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz bands: 1 Watt (30dBm)					
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode, (2402MHz, 2440MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : ≥ DTS BW / ≥ 3xRBW Span : ≥ 3 x RBW Supply voltage : 3.0 VDC from DC power supply Temperature : 23°C Humidity : 50%					
Results: For test protocols please refer to Appendix 1, page 4-5.					
Frequency (MHz)	Maximum peak output power (dBm)	Cable attenuation (dB)	Output power (dBm)	Limit (W/dBm)	Verdict
2402	-3.14	0.00	-3.14	1 / 30.0	Pass
2440	-4.43	0.00	-4.43	1 / 30.0	Pass
2480	-6.28	0.00	-6.28	1 / 30.0	Pass

Subclause 15.247 (d) – Spurious Conducted Emissions					Pass
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2440MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.0 VDC from DC power supply Temperature : 23 °C Humidity : 50 %					
Requirement: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.					
Results: All three transmit frequency modes comply with the limit stated in subclause 15.247(d). For test protocols refer to Appendix 1, page 6-7.					
Operating frequency (MHz)	Spurious frequency (MHz)	Spurious Level (dBm)	Reference value (dBm)	Delta (dB)	Verdict
2402	7200.006	-47.23	-3.31	-43.92	Pass
2440	7300.006	-45.66	-4.56	-41.10	Pass
2480	7450.006	-44.64	-6.58	-38.06	Pass

Subclause 15.247 (d) – Spurious Radiated Emissions			Pass
Test Specification : ANSI C63.4 – 2003 Mode of operation : Tx mode (2402MHz, 2440MHz, 2480MHz) Port of testing : Enclosure Detector : Peak RBW/VBW : 100 kHz / 300 kHz for f < 1 GHz 1 MHz / 1 MHz for f > 1 GHz Supply voltage : 3.0 VDC from battery Temperature : 23°C Humidity : 50%			
Requirement: In any 100kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a).			
Results: Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and packet types. All three transmit frequency modes comply with the field strength within the restricted bands. There is no spurious found below 30MHz.			
Tx frequency 2402MHz Vertical Polarization			
Freq MHz	Level dBµV/m	Limit/ Detector dBµV/m	
4805.907	53.68	74.0 / PK	
4804.192	33.24	54.0 / AV	
7206.875	62.05	74.0 / PK	
7206.218	49.44	54.0 / AV	
Tx frequency 2402MHz Horizontal Polarization			
Freq MHz	Level dBµV/m	Limit/ Detector dBµV/m	
4805.465	51.20	74.0 / PK	
4804.135	34.53	54.0 / AV	
7207.067	56.56	74.0 / PK	
7206.218	44.08	54.0 / AV	
Tx frequency 2440MHz Vertical Polarization			
Freq MHz	Level dBµV/m	Limit/ Detector dBµV/m	
4880.288	54.64	74.0 / PK	
4880.144	43.05	54.0 / AV	
7321.138	63.23	74.0 / PK	
7320.256	50.73	54.0 / AV	
Tx frequency 2440MHz Horizontal Polarization			
Freq MHz	Level dBµV/m	Limit/ Detector dBµV/m	
4879.872	52.87	74.0 / PK	
4880.192	41.17	54.0 / AV	

Tx frequency 2480MHz			Vertical Polarization		
Freq MHz			Level dBµV/m		Limit/ Detector dBµV/m
4960.721			54.10		74.0 / PK
4960.144			43.47		54.0 / AV
7439.519			59.77		74.0 / PK
7440.288			48.19		54.0 / AV
Tx frequency 2480MHz			Horizontal Polarization		
Freq MHz			Level dBµV/m		Limit/ Detector dBµV/m
4960.080			57.54		74.0 / PK
4960.144			47.07		54.0 / AV
7439.503			62.93		74.0 / PK
7440.240			50.53		54.0 / AV

Subclause 15.247 (d) – Band Edge Emissions		Pass
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : 100 kHz / 300 kHz Supply voltage : 3.0 VDC from DC power supply Temperature : 23°C Humidity : 50%		
Requirement:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.	
Results:	The peak found outside any 100 kHz bandwidth of the operating frequency band comply with the requirement. For test protocols refer to Appendix 1, page 8.	

Subclause 15.205 – Restricted Bands Next to The Band Edge		Pass
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 Mode of operation : Tx mode (2402MHz, 2480MHz) Port of testing : Enclosure Detector : Peak RBW/VBW : 1 MHz / 1 MHz Supply voltage : 3.0 VDC from battery 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 9-16.	

Subclause 15.247 (e) – Power Spectral Density			Pass
Requirement: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.			
Test Specification : FCC Part 15 Subpart A – Subclause 15.31 / RSS-Gen Mode of operation : Tx mode (2402MHz, 2440MHz, 2480MHz) Port of testing : Temporary antenna port Detector : Peak RBW/VBW : ≥ 100 KHz / $\geq 3 \times$ RBW span : $\geq 1.5 \times$ DTS BW Supply voltage : 3.0 VDC from DC power supply Temperature : 23°C Humidity : 50%			
Results: For test protocols please refer to Appendix 1, page 17-18.			
Operating frequency (MHz)	Power density (dBm)	Limit (dBm)	Verdict
2402	-3.30	8.0	Pass
2440	-4.56	8.0	Pass
2480	-6.40	8.0	Pass