

Produkte
Products

Prüfbericht - Nr.: 14037544 001			Seite 1 von 11 Page 1 of 11		
<i>Test Report No.:</i>					
Auftraggeber: <i>Client:</i>		Wachsmuth & Krogmann, Inc 621 IL Rt. 83, Ste. 202, Bensenville Illionis, USA			
Gegenstand der Prüfung: <i>Test Item:</i>		Short Range Device - 433MHz Transmitter			
Bezeichnung: <i>Identification:</i>	FB6200-S	Serien-Nr.: <i>Serial No.:</i>	Engineering sample		
Wareneingangs-Nr.: <i>Receipt No.:</i>	A000149783-001 A000149783-002	Eingangsdatum: <i>Date of Receipt:</i>	30.12.2014		
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>		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 C63.4-2003			
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:		
27.01.2015 Benny Lau Project Manager 			27.01.2015 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: FCC ID: 2ADQUFB6200 <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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Test Summary

Conducted Emissions

Result: N/A

20dB bandwidth

Result: Pass

Radiated Emission of Carrier Frequency

Result: Pass

Spurious Radiated Emissions

Result: Pass

Transmission duration and silent period

Result: Pass

Product information

1. Manufacturers declarations

	Transmitter
Operating frequency range	433.92 MHz
Type of modulation	ASK
Number of channels	1
Type of antenna	Integral PCB Antenna
Power level	fix
Connection to public utility power line	No
Nominal voltage	V_{nor} : 3.0Vdc (2 x 1.5V "AAA" battery)

2. Product function and intended use

The equipment under test (EUT) is a transmitter operating at 433.92MHz. And it is powered by 3.0Vdc (2 x 1.5V "AAA" battery).

FCC ID: **2ADQUFB6200**

Models	Product description
FB6200-S	BBQ thermometer

3. Submitted documents

Circuit Diagram
Block Diagram
Bill of material
User manual
Rating Label

4. Independent Operation Modes

The basic operation modes are:

- Transmitting Bluetooth signal .

For further information refer to User Manual

5. Related Submittal(s) Grants

This is a single application for certification of the transmitter.

6. Remark

- None.

Test Set-up and Operation Mode

7. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

8. Test Operation and Test Software

Test operation should refer to test methodology.

- No testing software is provided by the applicant.

9. Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

- none

10. Countermeasures to achieve EMC Compliance

- none

Test Methodology

11. Radiated Emission

The radiated emission measurements were performed according to the procedures in ANSI C63.4-2003.

The equipment under test (EUT) was placed at the middle of the 80 cm height turntable, and the turntable is 3 meters far from the measuring antenna. During the testing, the EUT was operated standalone and arranged for maximum emissions. The EUT was tested in three orthogonal planes.

The investigation is performed with the EUT rotated 360 °, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained.

All radiated tests were performed at an antenna to EUT with 3 meters distance, unless stated otherwise in particular parts of this test report.

12. Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

$$FS = R + AF + CF + FA - PA$$

Where FS = Field Strength in dBuV/m at 3 meters.
R = Reading of Spectrum Analyzer in dBuV.
AF = Antenna Factor in dB.
CF = Cable Attenuation Factor in dB.
FA = Filter Attenuation Factor in dB.
PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

List of Test and Measurement Instruments

Global United Technology Services Co., Ltd. (Registration number: 600491)

Radiated Emission

Equipment	Manufacturer	Type	S/N	Cal. Due date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	---	05 Apr 2015
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	---	N/A
ESU EMI Test Receiver	R&S	ESU26	---	27 Jun 2015
Loop Antenna	Zhinan	ZN30900A	---	27 Jun 2015
Bi-log Hybrid Antenna	SCHWARZBECK	VULB9163	---	08 Mar 2015
Double-ridged horn antenna	SCHWARZBECK	9120D	---	08 Mar 2015
RF Amplifier	HP	8347A	---	27 Jun 2015
RF Amplifier	HP	8349B	---	27 Jun 2015
EMI Test Software	AUDIX	E3	---	N/A
Coaxial cable	GTS	N/A	---	27 Jun 2015
Coaxial Cable	GTS	N/A	---	27 Jun 2015
Thermo meter	N/A	N/A	---	27 Jun 2015
FSP 30 Spectrum Analyzer	Rohde & Schwarz	FSP 30	100007	03 Dec 2014

Results FCC Part 15 – Subpart C

Subclause 15.203 – Antenna Information		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 15.207 – Conducted Emission on AC Mains		N/A
There is no AC power input or output ports on the EUT.		

Subclause 15.231 (c) – 20 dB Bandwidth		Pass
Requirement: The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.		
Test Specification : ANSI C63.4 – 2003 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 100kHz/300kHz Supply voltage : 3.0VDC Temperature : 23°C Humidity : 50%		
Results:	Pass	
Frequency (MHz)	20 dB Bandwidth (kHz)	Limit (kHz)
433.92	620.00	<1084

Subclause 15.231 (e) – Radiated Emission (Fundamental and Harmonics)		Pass
Test Specification : ANSI C63.4 – 2003 Mode of operation : Tx mode Port of testing : Enclosure RBW/VBW : 120 kHz for f < 1 GHz 1 MHz / 3 MHz for f > 1 GHz Supply voltage : 3.0VDC Frequency range : 9kHz to tenth harmonic 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		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
433.913	38.0	72.9 / AV
Fundamental Frequency		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
433.913	43.2	72.9 / AV
Harmonics		Vertical Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	52.9 / AV
Harmonics		Horizontal Polarization
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	52.9 / AV

Subclause 15.205 – Spurious Radiated Emissions		Pass
Test Specification : ANSI C63.4 - 2003 Mode of operation : Tx mode Port of testing : Enclosure Detector : Peak RBW/VBW : 120 kHz for f < 1 GHz 1 MHz / 3 MHz for f > 1 GHz Supply voltage : 3.0VDC Frequency range : 9kHz to tenth harmonic Temperature : 23°C Humidity : 50%		
Requirement:	The field strength of emissions appearing within the restricted frequency bands shall not exceed the limits shown in §15.209.	
Results:	Pass	
Vertical Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	---
Horizontal Polarization		
Freq MHz	Level dBuV/m	Limit/ Detector dBuV/m
No peak found	---	---

Subclause 15.231 (e) – Transmission Timing Requirement		Pass
Requirement: Devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.		
Results: Pass		
Freq MHz	Transmission Duration Sec	Limit Sec
433.88	0.161	<1
Results: Pass		
Freq MHz	Silent Period Sec	Limit Sec
433.88	12.88	>10