TEST REPORT

Reference No.	:	WTS17S0271118-4E
FCC ID	:	XBAFT122
Applicant	:	Aeon Labs LLC.
Address	:	121 Buckingham Drive, Unit 36, Santa Claras, California, United States
Manufacturer	:	Fantem Technologies (Shenzhen) Co., Ltd.
Address	:	North,3/F, Yitoa Technology Industrial Park, Baihua Yuan Rd.,The Second Industrial Area,Guangming Sub-districtOffice,Guangming New District,Shenzhen, Guangdong, China.
Product Name	:	Water Sensor 6
Product Type	:	Water Sensor 6 with Water Sensor 6 Dock
Model No.	:	ZW122-A
Brand		AEOTEC
Standards	:	FCC CFR47 Part 1.1307
Date of Receipt sample	:	Feb. 20, 2017
Date of Test	:	Feb. 21 – Mar. 21, 2017
Date of Issue	:	Mar. 22, 2017
Test Result	:	Pass
Note	:	This report is for RF Exposure

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company.

The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS17S0271118-4E	Feb. 20, 2017	Feb. 21 – Mar. 21, 2017	Mar. 22, 2017	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product Name:	Water Sensor 6
Product Type:	Water Sensor 6 with Water Sensor 6 Dock
Model No.:	ZW122-A
Model Differences Description:	N/A
Accessory:	Product Name: Water Sensor 6 Dock Model No.: ZW160-Z
Note: Water Sensor 6 and Water Sensor 6 Dock is a combination, Water Sensor 6 can power supply from Water Sensor 6 Dock.	
Type of Modulation:	FSK for Z-wave
Z-wave Frequency Range:	908.40MHz,908.42MHz
NFC:	Not support
Antenna installation:	Integrated Antenna for Z-wave
Antenna Gain:	-3dBi for Z-wave
Hardware Version:	AA
Software Version:	V1.00

4.2 Details of E.U.T.

Technical Data: Battery: CR123A 1500mAh
DC 5V from Dock to USB port from PC

4.3 Channel List

Z-wave Test Mode			
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	908.40	1	908.42

4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

  Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A-1, October 15, 2015.

- **FCC Test Site 1#– Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

5 Equipment Used during Test

5.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP	100091	Apr.29, 2016	Apr.28, 2017
2	Amplifier	Agilent	8447D	2944A10178	Sep.12, 2016	Sep.11, 2017
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	Oct.17, 2016	Oct.16, 2017
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	33 6	Apr.09, 2016	Apr.08, 2017
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.12, 2016	Sep.11, 2017
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.09, 2016	Apr.08, 2017
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr.13, 2016	Apr.12, 2017
8	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	Apr.13, 2016	Apr.12, 2017
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.12, 2016	Sep.11, 2017
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.12, 2016	Sep.11, 2017
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.12, 2016	Sep.11, 2017

5.2 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method: FCC Part 2.1091 & KDB 447498 D01 General RF Exposure Guidance v06

6.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

6.2 The procedures / limit

(0) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength € (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength € (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

6.3 MPE Calculation Method

For Z-wave						
Frequency (MHz)	E_{Meas}(dBuV/m)	EIRP(dBm)	EIRP(mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)	Result
908.42	75.38	-19.82	0.01	0.00000199	0.61	Compliance

$EIRP=E_{Meas}+20\log(d_{Meas})-104.7$, $PD=EIRP / 4\pi d^2$

Where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBuV/m

d_{Meas} is the measurement distance, in m

d is the minimum mobile separation distance, d=0.2m

======End of Report======