

## EMC TEST REPORT

**No. SH09010750-001**

Applicant : ONBEST TECHNOLOGY HOLDINGS LIMITED  
FLAT/RM A605 PO YIP BLDGS 23 HING YIP ST  
KWUN TONG

Manufacturer : Centron Electronics (Kunshan) Co., Ltd  
No. 333 Nanzi Road, Export Processing Park,  
Kunshan, Jiangsu, China

Equipment : PASSBAO

Type/Model : OB-P8118

**TEST RESULT : PASS**

## SUMMARY

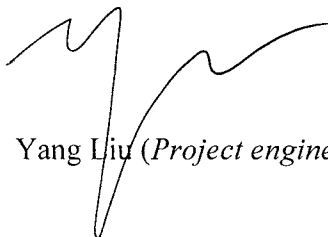
The equipment complies with the requirements according to the following standards:

**47CFR Part 15 (2008):** Radio Frequency Device

**ANSI C63.4 (2003):** Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.

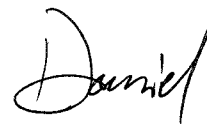
Date of issue: June 1, 2009

Prepared by:



Yang Liu (*Project engineer*)

Reviewed by:



Daniel Zhao (*Reviewer*)

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## 1. GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

EUT	:	PASSBAO
Description of EUT	:	The EUT has only one model. PASSBAO OB-P8118 is a safe and easy-to-use hand-held financial equipment which enables financial transactions using various bank cards, including debit cards and credit cards. The EUT is classified class B equipment and the highest frequency used in it is 192MHz on Main controller. The EUT which is powered and functioned by the USB cable is supplied by two cable (1m & 0.5m). Both cables are tested and listed detail in the report.
Model number	:	OB-P8118
Rating	:	Input 5V, 500mA
Mains lead	:	None
EUT type	:	<input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing
Sample received date	:	2009-1-20
Date of test	:	2009-1-20~2009-5-30

### 1.2 Description of Test Facility

<input checked="" type="checkbox"/> Name	Intertek Testing Service Shanghai Limited
Address	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Telephone	86 21 61278200
Telefax	86 21 54262353



FCC ID: W3WOBP8118

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Subcontractor :

<input type="checkbox"/>	Name	Shanghai Institute of Measurement Technology
	Address	716 Yishan Road, Shanghai 200233, P.R. China
	Telephone	86 21 64700066
<input type="checkbox"/>	Name	Jiangsu Electronic Products Supervision and Inspection Institute
	Address	No. 10, Geixiang, Zhongqiao, Wuxi, P.R. China
	Telephone	0510-5140037

## 2. TEST SPECIFICATIONS

### 2.1 Standards

47CFR Part 15 (2008): Radio Frequency Device

ANSI C63.4 (2003): Interim Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.

### 2.2 Mode of operation during the test / Test peripherals used

Within this test report, EUT was worked on the flashing mode to simulate its normal operation.

### 2.3 Instrument list

Selected	Instrument	EC no.	Model	Valid until date
<input checked="" type="checkbox"/>	EMI test receiver	EC 2107	ESCS 30	2010-1-16
<input checked="" type="checkbox"/>	A.M.N.	EC 3119	ESH2-Z5	2010-1-16
<input checked="" type="checkbox"/>	EMI test receiver	EC 3045	ESIB26	2009-6-29
<input checked="" type="checkbox"/>	Broadband antenna	EC 3046-1	HL562	2009-6-29
<input checked="" type="checkbox"/>	Semi anechoic chamber	EC 3048	-	2009-7-12
<input checked="" type="checkbox"/>	Horn antenna	EC 3049	HF906	2009-6-29
<input checked="" type="checkbox"/>	Pre-amplifier	EC 3222	pre-amp 18	2009-6-29
<input checked="" type="checkbox"/>	Shielded room	EC 2838	GB88	2010-2-3
<input checked="" type="checkbox"/>	Thermo-Hygrograph	EC 3323	ZJ1-2A	2010-1-09
<input checked="" type="checkbox"/>	Thermo-Hygrograph	EC 3783	ZJ1-2A	2010-1-28



## 2.4 Test Summary

**This report applies to tested sample only. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.**

TEST ITEM	RESULT	NOTE
Mains terminal continuous disturbance voltage	Pass	
Radiated emission	Pass	

Notes: NA =Not Applicable

## Emission Test

### 3. Mains/Load/Control Terminal Continuous Disturbance Voltage

Test result: Pass

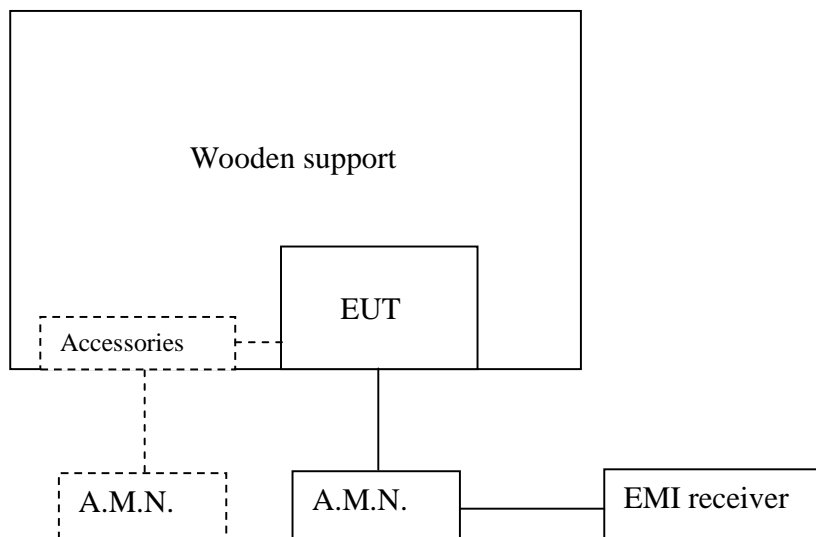
#### 3.1 Terminal Voltage Limits for the frequency range 150kHz to 30MHz

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 ~ 56 *	56 ~ 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

Note: If the limit for the measurement with the average detector is met when using a receiver with a quasi-peak detector, the equipment under test shall be deemed to meet both limits and the measurement using the receiver with an average detector need not be carried out.

#### 3.2 Test setup

☒ At mains terminal



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

### 3.3 Test Setup and Test Procedure

The EUT was set to achieve the maximum emission level.

The mains terminal disturbance voltage was measured with the EUT in a shielded room.

The EUT was connected to AC power source through an Artificial Mains Network which providing a  $50\Omega$  linear impedance artificial hand is used if appropriate.

The load/control terminal disturbance voltage was measured with passive voltage probe.

For Table top ☒

The EUT was placed on a 0.8m high non-metallic table above a metallic plane, The wall of shielded room used as Ground Reference Plane (GRP)

For Floor standing ☐

The EUT was placed on a 0.1m high non-metallic support above a metallic plane, The wall of shielded room used as Ground Reference Plane (GRP)

For Both Table Top and Floor Standing ☐

The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver ESCS 30 was set at 9kHz.

The frequency range from 150kHz to 30MHz was checked.

Amplitude measurements were performed with a quasi-peak detector and, if necessary ,with an average detector.



### 3.4 Test Protocol

Temperature : 22°C

Relative Humidity: 52%

With 0.5m USB cable

#### L line

Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.21	*	63.28	35.63	53.28
0.35	*	59.00	31.98	49.00
0.49	36.60	56.22	32.66	46.22
1.04	*	56.00	27.66	46.00
2.65	*	56.00	27.61	46.00
12.76	*	60.00	35.37	50.00
Note: * means the emission level 20dB below the relevant limit.				

#### N line

Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.21	43.76	63.25	40.94	53.25
0.28	*	60.86	35.12	50.86
0.49	37.46	56.22	32.61	46.22
2.17	*	56.00		46.00
12.76	40.73	60.00	37.40	50.00
14.44	*	60.00	36.00	50.00
Note: * means the emission level 20dB below the relevant limit.				

With 1m USB cable

### L line

Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.21	*	63.25	35.55	53.25
0.35	*	59.04	31.14	49.04
0.49	*	56.22	32.49	46.22
0.83	*	56.00	29.09	46.00
12.76	41.05	60.00	37.64	50.00
13.60	*	60.00	35.59	50.00
Note: * means the emission level 20dB below the relevant limit.				

### N line

Frequency (MHz)	Quasi-peak		Average	
	Disturbance level dB(μV)	Permitted limit dB(μV)	Disturbance level dB(μV)	Permitted limit dB(μV)
0.21	*	63.28	40.56	53.28
0.28	*	60.89	34.74	50.89
0.49	37.06	56.22	31.96	46.22
1.74	*	56.00	26.08	46.00
12.76	42.20	60.00	39.14	50.00
14.15	*	60.00	34.72	50.00
Note: * means the emission level 20dB below the relevant limit.				

### 3.5 Measurement Uncertainty

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty at mains terminal:  $\pm 1.99\text{dB}$

Measurement uncertainty at load/control terminal:  $\pm 1.99\text{dB}$

The measurement uncertainty is given with a confidence of 95%,  $k=2$ .

The measurement uncertainty is traceable to internal procedure TI-036.

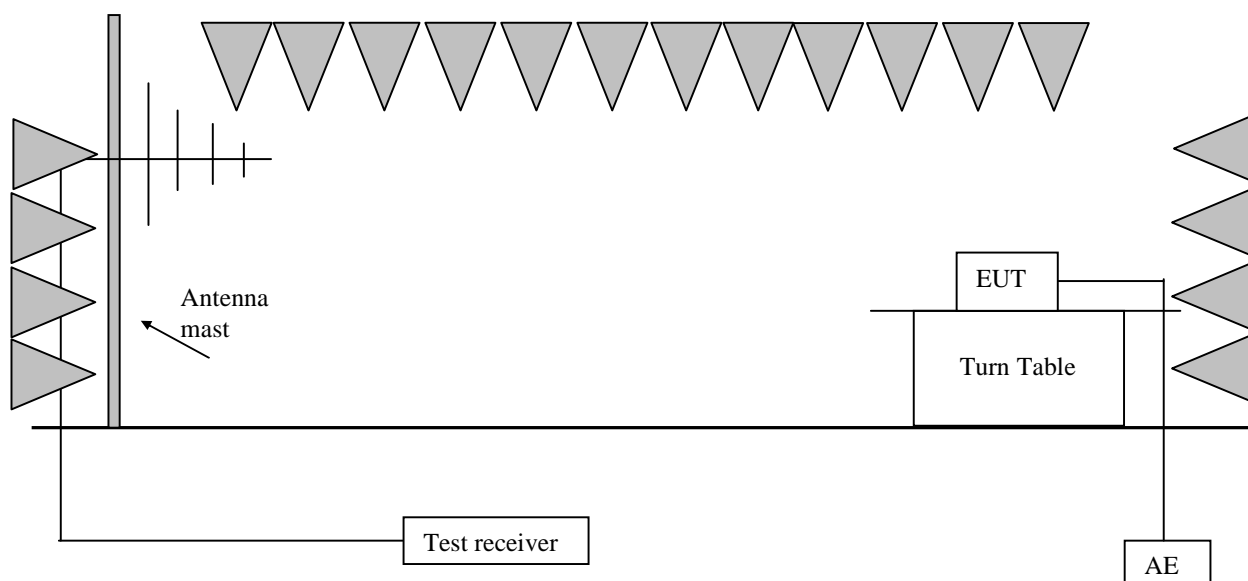
## 4. Radiated emission

**Test result: Pass**

### 4.1 Radiated emission limit from frequency range 30MHz – 1000MHz

Frequency of emission (MHz)	Field Strength (microvolts/meter)	Field strength (dBμV/m)
30-88	100	40.0
88-216	150	43.5
216-960	200	46
Above 960	500	53.9
Radiated emission in dBμV/m = 20lg ( microvolts/meter)		

### 4.2 Block diagram and test set up



The measurement was applied in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, the pre-amplifier is equipped just at the output terminal of the antenna.

The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turn table rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level. The bandwidth setting on R&S Test Receiver ESI26 was 120 kHz (from 30 MHz to 1000 MHz).

The bandwidth setting on R&S Test Receiver ESI26 was 1MHz (above 1000 MHz).

### 4.3 Test Protocol

Temperature : 25 °C

Relative humidity : 52 %

With 0.5m USB cable

Frequency (MHz)	Emission level (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)	Polarization (H/V)
79.14	32.80	40.00	7.20	H
288.02	33.90	46.00	12.10	H
384.03	39.10	46.00	6.90	H
530.58	33.50	46.00	12.50	H
864.53	32.30	46.00	13.70	H
1152.01	44.20	54.00	9.80	H
78.78	30.90	40.00	9.10	V
384.03	35.20	46.00	10.80	V
530.54	39.35	46.00	6.65	V
575.23	33.70	46.00	12.30	V
864.87	33.00	46.00	13.00	V
1152.02	43.60	54.00	10.40	V

\*Note: For test result above 1GHz to 2GHz, all measurement point below the AV detector limit when employ the PEAK detector.

With 1m USB cable

Frequency (MHz)	Emission level (dBμV/m)	Limits (dBμV/m)	Margin (dBμV/m)	Polarization (H/V)
192.00	35.00	43.50	8.50	H
384.02	36.30	46.00	9.70	H
530.66	33.00	46.00	13.00	H
728.94	33.80	46.00	12.20	H
864.05	35.50	46.00	10.50	H
1152.01	43.00	54.00	11.00	H
56.23	28.20	40.00	11.80	V
532.69	33.30	46.00	12.70	V
576.05	35.25	46.00	10.75	V
768.06	34.70	46.00	11.30	V
864.29	36.10	46.00	9.90	V
1152.00	42.50	54.00	11.50	V

\*Note: For test result above 1GHz to 2GHz, all measurement point below the AV detector limit when employ the PEAK detector.

#### **4.4 Measurement uncertainty**

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty of radiated emission is:  $\pm 5.31\text{dB}$

The measurement uncertainty is given with a confidence of 95%,  $k=2$ .

The measurement uncertainty is traceable to internal procedure TI-036.