

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

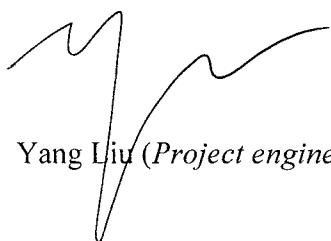
The equipment complies with the requirements according to the following standards:

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

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Reviewed by:



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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 : Table top
 Floor standing

Sample received date : 2009-1-20

Date of test : 2009-1-20~2009-5-30

1.2 Description of Test Facility

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

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
	Address	Inspection Institute
	Telephone	No. 10, Geixiang, Zhongqiao, Wuxi, P.R. China
		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-Hygrometer	EC 3323	ZJ1-2A	2010-1-09
<input checked="" type="checkbox"/>	Thermo-Hygrometer	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

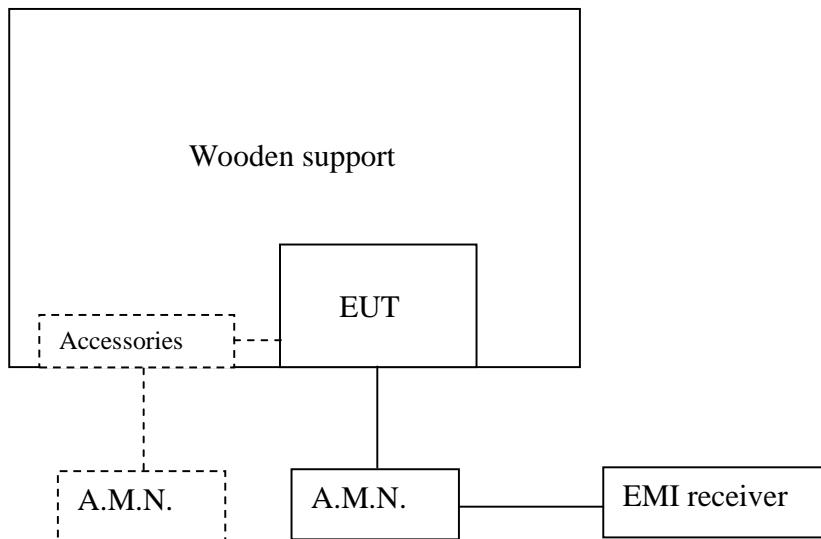
3.1 Terminal Voltage Limits for the frequency range 150kHz to 30MHz

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 50Ω 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

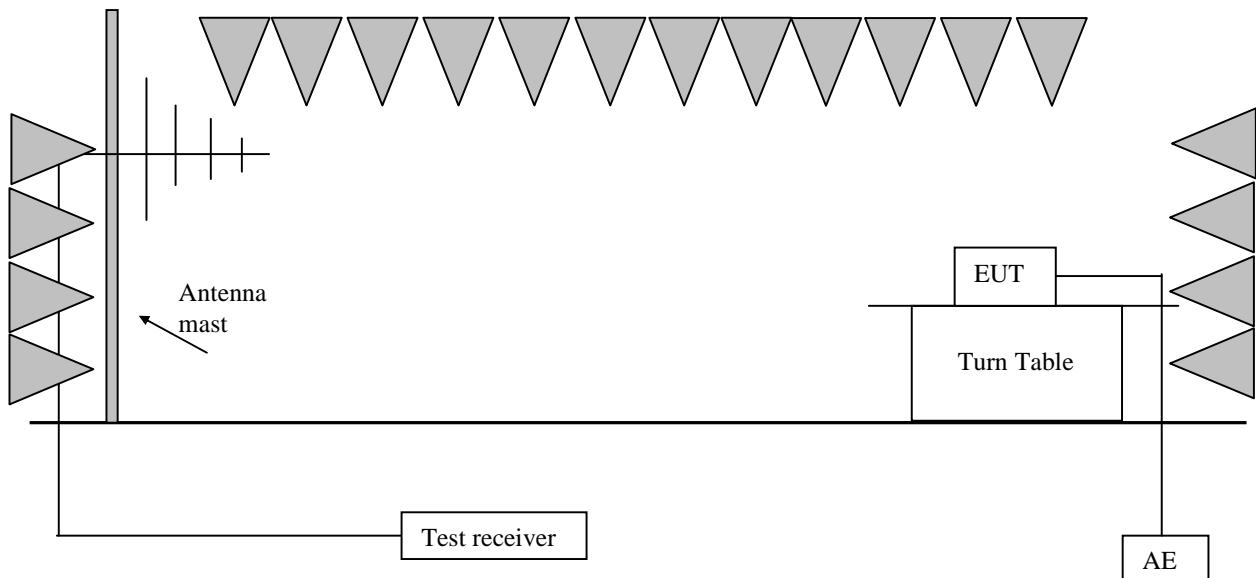
Test result: Pass

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

Frequency of emission (MHz)	Field Strength (microvolts/meter)	Field strength (dB μ V/m)
30-88	100	40.0
88-216	150	43.5
216-960	200	46
Above 960	500	53.9

Radiated emission in dB μ V/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 (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/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 (dB μ V/m)	Limits (dB μ V/m)	Margin (dB μ V/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.