

FCC Part15, Subpart B

TEST REPORT

For

WisePOS 4G

MODEL NUMBER: WisePOS 4G

REPORT NUMBER: 4788704908.1

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Prepared for

BBPOS International Limited Suite 1903-04, Tower 2, Nina Tower, 8 Yeung Uk Road, Tsuen Wan, NT, Hong Kong

Prepared by

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The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.



Revision History

Rev.	Issue Date	Revisions	Revised By
	12/11/2018	Initial Issue	



Summary of Test Results							
Standard Test Item Limit Result Ren							
	Conducted Disturbance	Class B	PASS				
FCC Part15, Subpart B	Radiated Disturbance below 1 GHz	Class B	PASS				
ANOI 003.4-2014	Radiated Disturbance above 1 GHz	Class B	PASS	NOTE (1)			

Note:

(1) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	BBPOS International Limited
Address:	Suite 1903-04, Tower 2, Nina Tower, 8 Yeung Uk Road, Tsuen Wan, NT, Hong Kong
Manufacturer Information	
Company Name:	BBPOS International Limited
Address:	Suite 1903-04, Tower 2, Nina Tower, 8 Yeung Uk Road, Tsuen Wan, NT, Hong Kong
EUT Information	
EUT Name:	WisePOS 4G
Model:	WisePOS 4G
Brand:	BBPOS
Sample Received Date:	October 17, 2018

October 17, 2018 ~ October 18, 2018

APPLICABLE STANDARDS					
STANDARDS TEST RESULTS					
FCC Part15, Subpart B ANSI C63.4-2014	PASS				

Prepared By:

Grany thema

Date of Tested:

Gary Zhang Engineer Project Associate

Approved By:

Aephenbuo

Checked By:

Shenny ben

Shawn Wen Laboratory Leader

Stephen Guo Laboratory Manager



2. TEST METHODOLOGY

All tests were performed in accordance with the standard FCC Part15 Subpart B, ANSI C63.4-2014.

3. FACILITIES AND ACCREDITATION

	A2LA (Certificate No.: 4102.01)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with A2LA.
	FCC (FCC Recognized No.: CN1187)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	Has been recognized to perform compliance testing on equipment subject to
	the Commission's Declaration of Conformity (DoC) and Certification rules
	IC(Company No.: 21320)
Accreditation	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
Certificate	has been registered and fully described in a report filed with
	Industry Canada. The Company Number is 21320.
	VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011)
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.
	has been assessed and proved to be in compliance with VCCI, the
	Membership No. is 3793.
	Facility Name:
	Chamber D, the VCCI registration No. is G-20019 and R-20004
	Shielding Room B, the VCCI registration No. is C-20012 and T-20011

Note: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China



4. CALIBRATION AND UNCERTAINTY

4.1. Measuring Instrument Calibration

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Measurement Frequency Range	к	U(dB)			
Conducted emissions from the AC mains power ports	0.009MHz ~ 0.15MHz	2	4.00			
Conducted emissions from the AC mains power ports	0.15MHz ~ 30MHz	2	3.62			
Radiated emissions	30MHz ~ 1GHz	2	4.00			
Radiated emissions	1GHz ~ 18GHz	2	5.78			
Radiated emissions	18GHz ~ 40GHz	2	5.64			
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.						

5. EQUIPMENT UNDER TEST

5.1. Description of EUT

EUT Name	WisePOS 4G
Model	WisePOS 4G
Rated Input	DC 5V 1A

5.2. Test Mode

Test mode	2G3G4G	wifi	BT	USB Camera		GPS	NFC		
1	Idle	on	on	Charg +USB Rea	ing d/Write	on	on	on	
_	Receive m Banc	ode(LTE d 5)		Low		Middle		High	
2	Char	nel		2450	2525		2600		
	Frequency			874	881.5		889		
•	Receive m Band	ode(LTE 17)		Low		dle	High	1	
3	Char	nel		5780	579	90	5800)	
	Frequ	ency		739	74	.0	741		

Note: For Mode 2 and Mode 3, according to pre-test results, the final test mode(LTE Band 5 high channel and LTE Band 17 high channel) are each independent function's worst case and only shown in the report.

5.3. EUT Accessory

Item	Accessory	Brand Name	Model Name	Description
1	USB Cable	/	/	Shield, 1.2m

5.4. Support Units or Accessories for System Test

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ltem	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
1	PC	Lenovo	E42-80	N/A	R303U5EB
2	Headphone	Sony	N/A	N/A	N/A
3	Mouse	Lenovo	MO28UOB	USB port	8SSM50G45918FCCC1545
4	Adapter	XIAOMI	MDY-08-EF	5Vdc,2A	15120026342

The following cables were used to form a representative test configuration during the tests.

Item	Type of cable	Shielded Type	Ferrite Core	Specification
1	USB Cable	YES	NO	1.2m



6. MEASURING EQUIPMENT AND SOFTWARE USED

Conducted Emissions						
Equipment	Manufacturer	Model	No.	Serial No.	Last Cal.	Due Date
EMI Test Receiver	R&S	ESR	3	101961	Dec. 12, 2017	Dec. 12, 2018
Two-Line V- Network	R&S	ENV2	16	101983	Dec. 12, 2017	Dec. 12, 2018
Artificial Mains Networks	Schwarzbeck	NSLK 8	126	8126465	Dec. 12, 2017	Dec. 12, 2018
		So	oftware	Э		1
C	Description		Μ	anufacturer	Name	Version
Test Software f	for Conducted Em	issions		Farad	EZ-EMC	Ver. UL-3A1
		Radiate	d Emi	ssions		
Equipment	Manufacturer	Model	No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KESIGHT	N9038	BA	MY56400036	Dec. 12, 2017	Dec. 12, 2018
Hybrid Log Periodic Antenna	TDK	HLP-3003C		130960	Jan. 09, 2016	Jan. 09, 2019
Preamplifier	HP	8447	D	2944A09099	Dec. 12, 2017	Dec. 12, 2018
EMI Measurement Receiver	R&S	ESR26		101377	Dec. 12, 2017	Dec. 12, 2018
Horn Antenna	TDK	HRN-0 ⁻	118	130939	Jan. 09, 2016	Jan. 09, 2019
Horn Antenna	Schwarzbeck	BBHA9	170	#691	Jan. 06, 2016	Jan. 06, 2019
Preamplifier	TDK	PA-02-0118		TRS-305- 00067	Dec. 12, 2017	Dec. 12, 2018
Preamplifier	TDK	PA-02-2		TRS-307- 00003	Dec. 12, 2017	Dec. 12, 2018
Preamplifier	TDK	PA-02	2-3	TRS-308- 00002	Dec. 12, 2017	Dec. 12, 2018
		So	oftware	Э		
C	Description		Μ	anufacturer	Name	Version
Test Software for Radiated Emissions				Farad	EZ-EMC	Ver. UL-3A1



7. EMISSION TEST

7.1. Conducted Disturbance Measurement

7.1.1. Limits of conducted disturbance voltage

FREQUENCY	Class A	(dBµV)	Class B (dBµV)		
(MHz)	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46*	
0.50 -5.0	73.00	60.00	56.00	46.00	
5.0 -30.0	73.00	60.00	60.00	50.00	

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

7.1.2. Test Procedure

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item: Photographs of Test Configuration.



7.1.3. Test Setup



For the actual test configuration, please refer to Appendix I: Photographs of Test Configuration.

7.1.4. Test Environment

Temperature:	25°C
Humidity:	52%
ATM pressure:	101kPa

7.1.5. Test Mode

Pre-test Mode:	Mode 1 ~ Mode 3
Final Test Mode:	Mode 1 ~ Mode 3



7.1.6. Test Results

Test Mode:

Mode 1



Remark:

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit

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Mode 1



Remark:

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor)

Margin = Result - Limit



Mode 2(High channel)



35.33

20.64

18.63

7.97

16.26

8.56

33.93

20.03

56.00

46.00

56.00

46.00

60.00

50.00

60.00

50.00

-20.67

-25.36

-37.37

-38.03

-43.74

-41.44

-26.07

-29.97

OP

AVG

OP

AVG

OP

AVG

QP

AVG

9.64

9.64

9.65

9.65

9.76

9.76

9.83

9.83

12
Densedu
Remark:

5

6

7

8

9

10

11

0.5902

0.5902

1.7305

1.7305

6.0771

6.0771

16.9389

16.9389

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit

25.69

11.00

8.98

-1.68

6.50

-1.20

24.10

10.20



Mode 2(High channel)



3	0.5907	30.25	9.64	39.89	56.00	-16.11	QP
4	0.5907	18.45	9.64	28.09	46.00	-17.91	AVG
5	0.8343	18.42	9.64	28.06	56.00	-27.94	QP
6	0.8343	6.99	9.64	16.63	46.00	-29.37	AVG
7	1.5506	17.20	9.65	26.85	56.00	-29.15	QP
8	1.5506	6.20	9.65	15.85	46.00	-30.15	AVG
9	4.4553	11.58	9.70	21.28	56.00	-34.72	QP
10	4.4553	1.59	9.70	11.29	46.00	-34.71	AVG
11	17.2635	28.50	9.84	38.34	60.00	-21.66	QP
12	17.2635	13.20	9.84	23.04	50.00	-26.96	AVG
emark:							·

Re

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit

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Mode 3(High channel)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1815	26.52	9.63	36.15	64.42	-28.27	QP
2	0.1815	10.63	9.63	20.26	54.42	-34.16	AVG
3	0.2530	17.52	9.63	27.15	61.66	-34.51	QP
4	0.2530	1.54	9.63	11.17	51.66	-40.49	AVG
5	0.5851	23.62	9.64	33.26	56.00	-22.74	QP
6	0.5851	11.02	9.64	20.66	46.00	-25.34	AVG
7	1.5506	9.80	9.65	19.45	56.00	-36.55	QP
8	1.5506	-0.68	9.65	8.97	46.00	-37.03	AVG
9	3.6401	8.22	9.69	17.91	56.00	-38.09	QP
10	3.6401	1.00	9.69	10.69	46.00	-35.31	AVG
11	17.1962	23.21	9.84	33.05	60.00	-26.95	QP
12	17.1962	10.63	9.84	20.47	50.00	-29.53	AVG

Remark:

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit



Mode 3 (High channel)



Remark:

12

Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor)

9.84

14.20

Margin = Result - Limit

17.2623

24.04

-25.96

50.00

AVG



7.2. Radiated Disturbance Measurement

7.2.1. Limits of radiated disturbance measurement

Below 1 GHz

Measurement Method and Applied Limits: ANSI C63.4:

Frequency		Class B	
(MHz)	Field strength $(u)/(m)$ (at 10m)	Field strength	Field strength $(dBu)/(m)$ (at $3m$)
	(uv/iii) (at 1011)	(ubuv/iii) (at 5iii)	(ubuv/iii) (at 5iii)
30 - 88	90	49.5	40
88 - 216	150	53.9	43.5
216 - 960	210	56.9	46
Above 960	300	60	54

Above 1 GHz Measurement Method and Applied Limits: ANSI C63.4:

Frequency		Clas	Clas	ss B		
	(dBuV/m) (at 3m)		(dBuV/m) (at 10m)		(dBuV/m) (at 3m)	
(1011-12)	Peak	Average	Peak	Average	Peak	Average
Above 1000	80	60	69.5	49.5	74	54

Frequency Range of Radiated Disturbance Measurement

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

NOTE:

- (1) The limit for radiated test was performed according to FCC Part 15, Subpart B;
- (2) The tighter limit applies at the band edges;
- (3) Emission level (dBuV/m) = 20log Emission level (uV/m), 3m Emission level = 10m Emission level + 20log(10m/3m);

7.2.2. Test Procedure

- The measuring distance of at 3m shall be used for measurements at frequency up to 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For the actual test configuration, please refer to the related Item:EUT Photographs of Test Configuration.

7.2.3. Test Setup

(a) Radiated Disturbance Test Set-Up Frequency 30MHz - 1GHz





(b) Radiated Disturbance Test Set-Up Frequency above 1GHz



For the actual test configuration, please refer to Appendix I: Photographs of Test Configuration.

7.2.4. Test Environment

Radiated Disturbance - below 1 GHz		Radiated Disturbance - above 1 GHz		
Temperature:	23.2°C	Temperature:	23.5°C	
Humidity:	53%	Humidity:	54%	
ATM pressure:	101kPa	ATM pressure:	101kPa	

7.2.5. Test Mode

Radiated Dist	urbance - below 1 GHz	Radiated Disturbance - above 1 GHz		
Pre-test Mode:	Mode 1 ~ Mode 3	Pre-test Mode: Mode 1 ~ Mode 3		
Final Test Mode:	Mode 1 ~ Mode 3	Final Test Mode:	Mode 1 ~ Mode 3	

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7.2.6. Test Results – below 1GHz

Test Mode:

Mode 1



Remark:



Mode 1



Remark:



Mode 2(High channel)



Remark:



Mode 2(High channel)



Remark:



Mode 3 (High channel)



Remark:



Mode 3(High channel)



Remark:



7.2.7. Test Results – above 1GHz

Test Mode:

Mode 1





Mode 1



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1060.000	52.28	-13.62	38.66	74.00	-35.34	peak
2	2125.000	49.94	-9.25	40.69	74.00	-33.31	peak
3	2410.000	48.68	-8.15	40.53	74.00	-33.47	peak
4	3820.000	43.85	-3.87	39.98	74.00	-34.02	peak
5	4265.000	43.53	-2.44	41.09	74.00	-32.91	peak
6	5820.000	43.60	2.39	45.99	74.00	-28.01	peak

Remark:



Mode 1





Mode 1



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	7500.000	37.51	8.22	45.73	74.00	-28.27	peak
2	10524.000	35.27	13.75	49.02	74.00	-24.98	peak
3	11520.000	35.34	15.73	51.07	74.00	-22.93	peak
4	13752.000	31.50	20.85	52.35	74.00	-21.65	peak
5	14316.000	32.42	19.77	52.19	74.00	-21.81	peak
6	17880.000	28.56	26.32	54.88	74.00	-19.12	peak

Remark:



Mode 1



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18304.000	48.47	-5.49	42.98	74.00	-31.02	peak
2	20408.000	49.46	-5.45	44.01	74.00	-29.99	peak
3	22976.000	47.26	-3.46	43.80	74.00	-30.20	peak
4	24448.000	45.42	-2.42	43.00	74.00	-31.00	peak
5	24896.000	46.55	-2.19	44.36	74.00	-29.64	peak
6	25728.000	46.11	-0.72	45.39	74.00	-28.61	peak

Remark:



Mode 1



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18528.000	48.91	-5.26	43.65	74.00	-30.35	peak
2	20416.000	48.30	-5.45	42.85	74.00	-31.15	peak
3	21184.000	48.10	-4.79	43.31	74.00	-30.69	peak
4	21528.000	47.78	-4.65	43.13	74.00	-30.87	peak
5	23976.000	46.86	-2.80	44.06	74.00	-29.94	peak
6	25760.000	45.82	-0.63	45.19	74.00	-28.81	peak

Remark:





Mode 2(High channel)



Remark:



Mode 2(High channel)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1680.000	52.32	-11.90	40.42	74.00	-33.58	peak
2	2144.000	45.35	-9.90	35.45	74.00	-38.55	peak
3	2472.000	47.40	-8.35	39.05	74.00	-34.95	peak
4	3096.000	44.40	-5.75	38.65	74.00	-35.35	peak
5	3304.000	45.56	-5.72	39.84	74.00	-34.16	peak
6	4192.000	43.45	-3.12	40.33	74.00	-33.67	peak

Remark:



Mode 3(High channel)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1628.000	46.68	-12.00	34.68	74.00	-39.32	peak
2	1996.000	46.55	-10.70	35.85	74.00	-38.15	peak
3	2432.000	44.97	-8.69	36.28	74.00	-37.72	peak
4	2980.000	43.72	-6.42	37.30	74.00	-36.70	peak
5	3372.000	44.28	-5.85	38.43	74.00	-35.57	peak
6	4700.000	42.89	-1.38	41.51	74.00	-32.49	peak

Remark:



Mode 3(High channel)



Remark:

Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) Margin = Result - Limit

END OF REPORT

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