Test Report

FCC ID.: MTi160413E004

Date of issue: Jul. 16, 2016

Sample Description:	Wireless POS Terminal
Model(s):	G3
Applicant:	Shenzhen Xinguodu Technology Co., Ltd.
Address:	17/A, Jinsong Building Tairan Industry And Trading Garden Shenzhen China
Date of Test:	Jun. 04, 2016 to Jul. 14, 2016

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TEST RESULT CERTIFICATION	
Applicant's name:	**Shenzhen Xinguodu Technology Co., Ltd.**
Address:	17/A, Jinsong Building Tairan Industry And Trading Garden Shenzhen China
Manufacture's Name:	**Shenzhen Xinguodu Technology Co., Ltd.**
Address:	17/A, Jinsong Building Tairan Industry And Trading Garden Shenzhen China
Product description	
Product name:	Wireless POS Terminal
Trademark:	**NEXGO**
Model name:	G3
Standards:	FCC Part 15.225
Test Procedure:	ANSI C63.4-2014

This device described above has been tested by Shenzhen Toby Technology Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Tested by: David Chen

David Chen Jul. 16, 2016

Reviewed by: Leon Chen

Leon Chen Jul. 16, 2016

Approved by: Ares Liu

Ares Liu Jul. 16, 2016

SUMMARY OF TEST RESULT

Item	FCC Part No.	Description of Test	Result
1	15.203	Antenna requirement	Pass
2	15.207	AC power line conducted emission	Pass
3	15.231(c)	20dB bandwidth	Pass
4	15.225	Radiated emission	Pass
5	15.225	Frequency stability	Pass

1. General description

1.1 Feature of equipment under test (EUT)

Product name:	Wireless POS Terminal
Model name:	G3
Operating frequency:	13.56MHz
Modulation type:	FSK
Power supply:	DC 7.4V form Polymer-Li-ion battery
Adapter information:	Model: HKA02108525-8A Input: 100-240V~0.8A 50/60Hz Output: 8.5V 2.5A
Antenna designation:	PCB antenna (Antenna Gain: 0dBi)

2. Test Configuration of EUT

2.1 EUT operation mode

During testing, the EUT is operated in a normal mode.

2.2 Test conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 20ºC~30ºC
- Humidity: 30%~70%
- Atmospheric pressure: 98kPa~101kPa

2.3 Testing site

Test Site	Shenzhen Toby Technology Co., Ltd.
Test Site Location	1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467, Shenzhen, Guangdong, China
FCC Registration No.:	811562
CNAS Registration No.:	CNAS L5813

2.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
/	/	/	/

2.5 Measurement uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %, U=2xUc(y)

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

3. List of test equipment

For AC power line conducted emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
LISN	R&S	ENV216	101313	2016.12.06
LISN	SCHWARZBECK	NNLK 8129	8129245	2016.12.25
Pulse Limiter	SCHWARZBECK	VTSD 9561F	9716	2016.12.25
Test Cable	N/A	N/A	C01	2016.12.06
EMI Test Receiver	R&S	ESCI	101160	2016.12.06

For Radiated emission:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9160	3058	2016.12.11
Horn Antenna	Schwarzbeck	BBHA 9120D	631	2016.12.05
Horn Antenna	Schwarzbeck	BBHA 9170	373	2016.12.05
Loop Antenna	Schwarzbeck	FMZB 1519 B	00005	2016.12.05
Test Cable	United Microwave	57793	1m	2016.12.05
Test Cable	United Microwave	A30A30-5006	10M	2016.12.05
Microwave Pre_amplifier	Agilent	8449B	3008A01714	2016.12.05
Pre-Amplifier	Anritsu	MH648A	M09961	2016.12.05
EMI Test Receiver	R&S	ESCI-7	101318	2016.12.05
Spctrum analyzer	Agient	E4470B	MY41441082	2017.06.01

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

4. Test Result

4.1 Conducted emission

4.1.1 Limit

Frequency (MHz)	Limit	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 50 46
0.5-5	56	46
5-30	60	50

Note: Decreases with the logarithm of the frequency from 0.15MHz to 0.5MHz.

4.1.2 Test method

1. 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 equipment powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

2. 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.

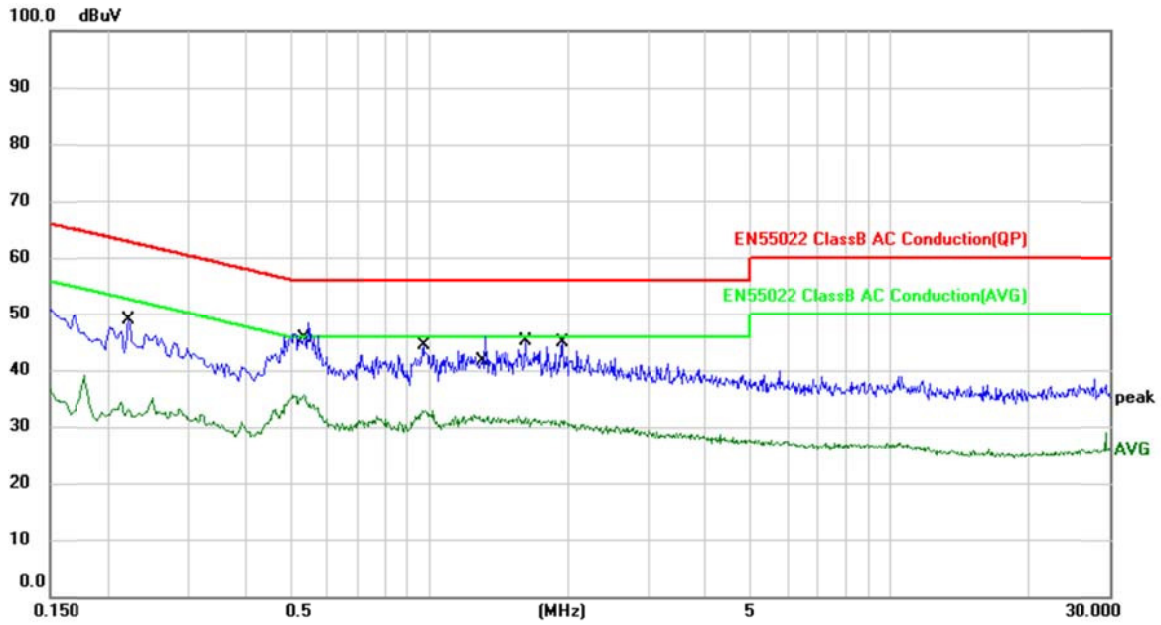
3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

4. LISN is at least 80 cm from nearest part of EUT chassis.

5. The resolution bandwidth of EMI test receiver is set at 9kHz.

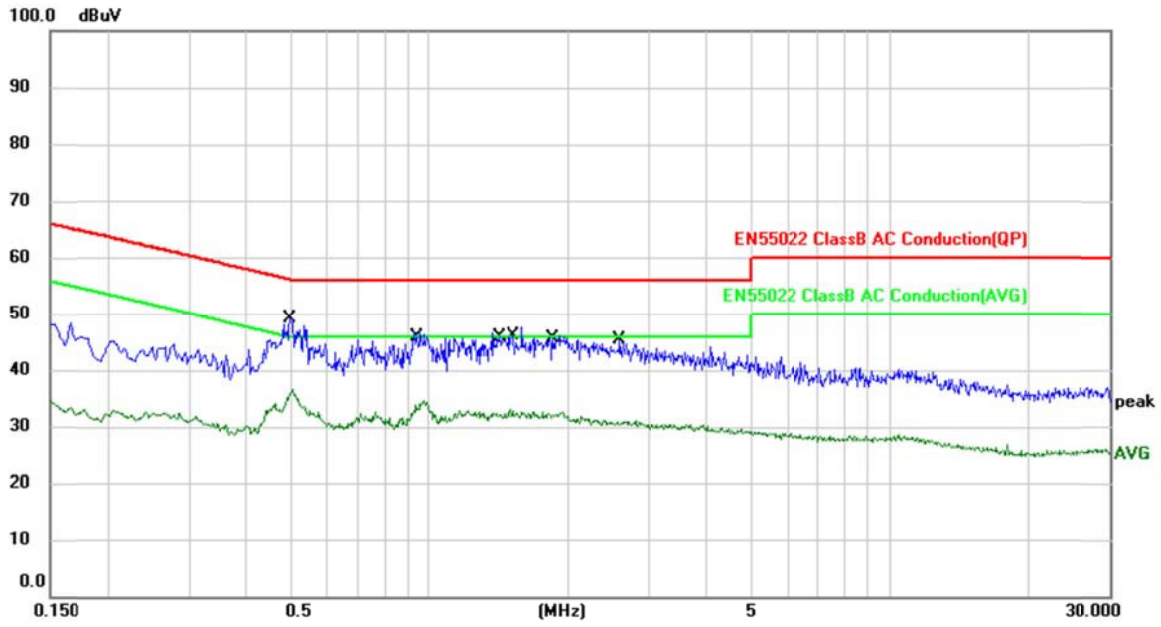
4.1.3 Test Result

Temperature:	22℃	Relative	51%
Pressure:	101kPa	Polarization:	L
Test voltage:	AC 120V/60Hz	Test mode:	Transmitting



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2235	9.72	30.02	39.74	62.68	-22.94	QP	
2		0.2235	1.89	30.02	31.91	52.68	-20.77	AVG	
3		0.5298	9.07	30.02	39.09	56.00	-16.91	QP	
4	*	0.5298	4.51	30.02	34.53	46.00	-11.47	AVG	
5		0.9839	7.35	30.02	37.37	56.00	-18.63	QP	
6		0.9839	2.51	30.02	32.53	46.00	-13.47	AVG	
7		1.3044	5.69	30.02	35.71	56.00	-20.29	QP	
8		1.3044	1.03	30.02	31.05	46.00	-14.95	AVG	
9		1.6038	6.42	30.02	36.44	56.00	-19.56	QP	
10		1.6038	1.12	30.02	31.14	46.00	-14.86	AVG	
11		1.9628	5.33	30.02	35.35	56.00	-20.65	QP	
12		1.9628	0.54	30.02	30.56	46.00	-15.44	AVG	

Temperature:	24℃	Relative	57%
Pressure:	101kPa	Polarization:	N
Test voltage:	AC 120V/60Hz	Test mode:	Transmitting



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4976	12.75	30.02	42.77	56.04	-13.27	QP	
2	*	0.4976	5.85	30.02	35.87	46.04	-10.17	AVG	
3		0.9406	9.45	30.02	39.47	56.00	-16.53	QP	
4		0.9406	3.42	30.02	33.44	46.00	-12.56	AVG	
5		1.4213	7.78	30.02	37.80	56.00	-18.20	QP	
6		1.4213	1.68	30.02	31.70	46.00	-14.30	AVG	
7		1.5254	8.72	30.02	38.74	56.00	-17.26	QP	
8		1.5254	1.99	30.02	32.01	46.00	-13.99	AVG	
9		1.8668	7.99	30.02	38.01	56.00	-17.99	QP	
10		1.8668	1.95	30.02	31.97	46.00	-14.03	AVG	
11		2.6080	6.72	30.03	36.75	56.00	-19.25	QP	
12		2.6080	0.20	30.03	30.23	46.00	-15.77	AVG	

4.2 Antenna requirement

4.2.1 Requirement defined in FCC 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.2.2 EUT antenna description

The radio antenna of EUT is an internal permanently attached antenna, the maximum gain is 0dBi. So the antenna meets the requirement of this part.

4.3 20dB emission bandwidth

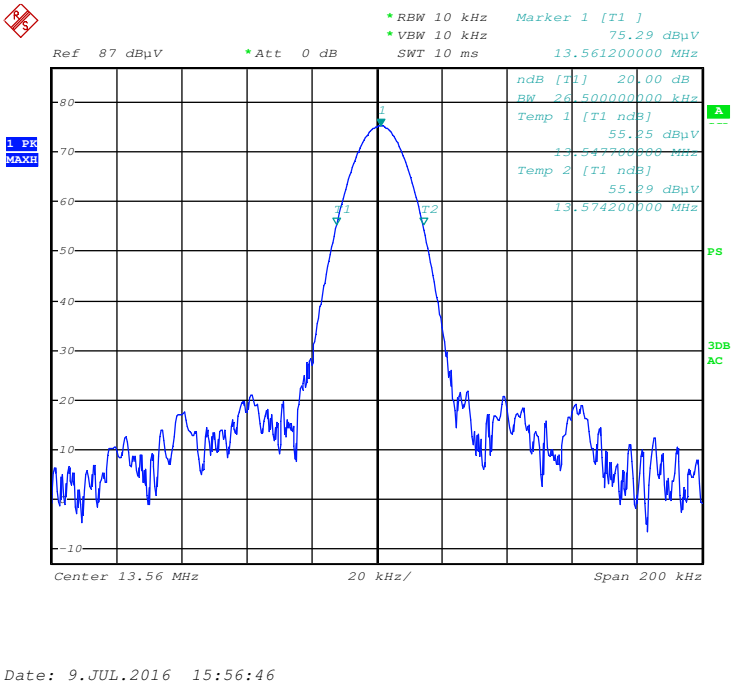
4.3.1 Test method

Set Spectrum Analyzer centre Frequency= Fundamental Frequency, RBW=3 kHz, VBW= 10 kHz, Span= 1 MHz

Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission.

4.3.2 Test result

Frequency (MHz)	20dB Bandwidth (kHz)
13.56	26.5



4.4 Radiated emission

4.4.1 Limit

The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209, the field strength of emissions from intentional radiators shall not exceed the following:

Frequency (MHz)	Field strength μV/m	Field strength dBμV/m	Detector	Measurement distance
1.705-30	30	29.54	QP	3m
30-88	100	40	QP	
88-216	150	43.5	QP	
216-960	200	46	QP	
960-1000	500	46	QP	
Above 1000	500	54	AV	
Above 1000	5000	74	PK	

Note: the measurement distance is 30m for 1.705MHz to 30MHz, 3m for above 30MHz.

4.4.2 Test method

The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground; the table was rotated 360 degrees to determine the position of the highest radiation.

For test frequency up to 30MHz, a loop antenna is used, the enter of the loop antenna is 1m above the ground.

For test frequency above 30MHz, he Test antenna shall vary between 1m and 4m, both Horizontal and Vertical polarization are set to make measurement.

For the actual test configuration, please see the test setup photo.

4.4.3 Test Result

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dBμV/m	dBμV/m		
13.56	/	89.6	124	QP	Pass
27.12	/	37.5	69.54	QP	
40.68	V	33.1	40	QP	
40.68	H	30.9	40	QP	
54.24	V	28.4	40	QP	
54.24	H	29.6	40	QP	

Remark:

other frequency noises omitted in this report were not seen or had enough margin (more than 20dB).

4.5 Frequency stability

4.5.1 Limit

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to + 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.5.2 Test Result

Voltage (VAC)	Temp. (℃)	Frequency (MHz)	Deviation (%)	Limit (%)
120	-20	13.560659	0.0049%	+/-0.01%
120	-10	13.560673	0.0050%	
120	0	13.560676	0.0050%	
120	10	13.56078	0.0058%	
120	20	13.560865	0.0064%	
120	30	13.560602	0.0044%	
120	40	13.560554	0.0041%	
120	50	13.560704	0.0052%	
138	20	13.561048	0.0077%	
102	20	13.560589	0.0043%	

----END OF REPORT----