Prüfbericht-Nr.: *Test Report No.:*	**17034485 001**	**Auftrags-Nr.:** *Order No.:*	164005637	Seite 1 von 17 *Page 1 of 17*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	01.08.2013	
Auftraggeber: *Client:*	Blue Ocean Innovation Limited, Rm.1813, Fo Tan Industrial Centre, 26-28 Au Pui Wan Street, Fotan, Hong Kong			
Prüfgegenstand: *Test item:*	JTECH PAGER			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	450303			
Auftrags-Inhalt: *Order content:*	FCC Certification and Verification			
Prüfgrundlage: *Test specification:*	FCC Part 15 Subpart B (ANSI C63.4: 2003) ICES-003 Issue 5 February 2012 (CAN/CSA-CEI/IEC CISPR 22-02) RSS-Gen Issue 3 December 2010			
Wareneingangsdatum: *Date of receipt:*	2013-08-01			
Prüfmuster-Nr.: *Test sample No.:*	N/A			
Prüfzeitraum: *Testing period:*	2013-08-12 to 2013-08-13			
Ort der Prüfung: *Place of testing:*	Shenzhen Accurate Technology Co., Ltd.			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: *Test result*:*	Pass			

geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
13.09.2013	Owen Tian / Project Manager		25.09.2013	Winnie Hou/ Technical Certifier	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TÜV Rheinland LGA Products GmbH · Tillystraße 2 · D - 90431 Nürnberg · Tel.: +49 911 655 5225 · Fax: +49 911 655 5226
Mail: service@de.tuv.com · Web: www.tuv.com

TEST SUMMARY

5.1.1 CONDUCTED EMISSION
RESULT: Passed

5.2.1 RADIATED EMISSION
RESULT: Passed

Contents

1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Result

2. Test Sites

2.1 Test Facilities

Shenzhen Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Meterial Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China

FCC Registration No.: 752051
Test site Industry Canada No.: 5077A

The tests at the test site have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Conducted Emission				
Test Receiver	Rohde & Schwarz	ESCS30	100307	2014-01-07
Artificial Mains Network	Schwarzbeck	NLSK8126	8126431	2014-01-07
Radiated Emission				
Spectrum Analyzer	Agilent	E7405A	MY45115511	2014-01-07
Test Receiver	Rohde & Schwarz	ESCS30	100307	2014-01-07
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	2014-01-07
Loop Antenna	Schwarzbeck	FMZB1516	1516131	2014-01-07
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	2014-01-07
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	2014-01-07
Pre-Amplifier	Rohde & Schwarz	CBLU11835 40-01	3791	2014-01-07

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are ±3dB.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen Accurate Technology Co., Ltd. located at F1, Bldg. A, Changyuan New Meterial Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUT is JTECH pager, which are UHF recevers work at 457.6MHz. The EUT is used to call customers.
For more information refer to the Instruction Manual & Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment	JTECH PAGER
Type Designation	450303
FCC ID	VU3-RECHAR303

Table 3: Technical Specification of EUT

Technical Specification	Value
Operating Frequency band	457.6MHz
Operation Voltage	DC2.4V (via built-in rechargable battery)
Modulation	FSK
Antenna Type	Internal Antenna, Non-User Replaceable

3.3 Independent Operation Modes

The basic operation modes are:
A. Receiving
B. Charging (via external specified charger)
C. Stand by
D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- Construction Drawing
- User's Manual
- PCB Layout
- Bill of Material
- Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

Item Description	Model No.	Manufacturer
AC/DC Adapter	TR36A-13 03A03	CINCON Electronics Co., Ltd.
Battery Plate	--	Ocean Springs Metal Manufacture Limited.

Note: the adapter is only for testing, not marketed with EUT.

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

(Test diagrams removed? Pls. still put in. Also it will be much helpful to Rene is you can draw a system diagram, i.e. adaptor + charging docking + EUT.)

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

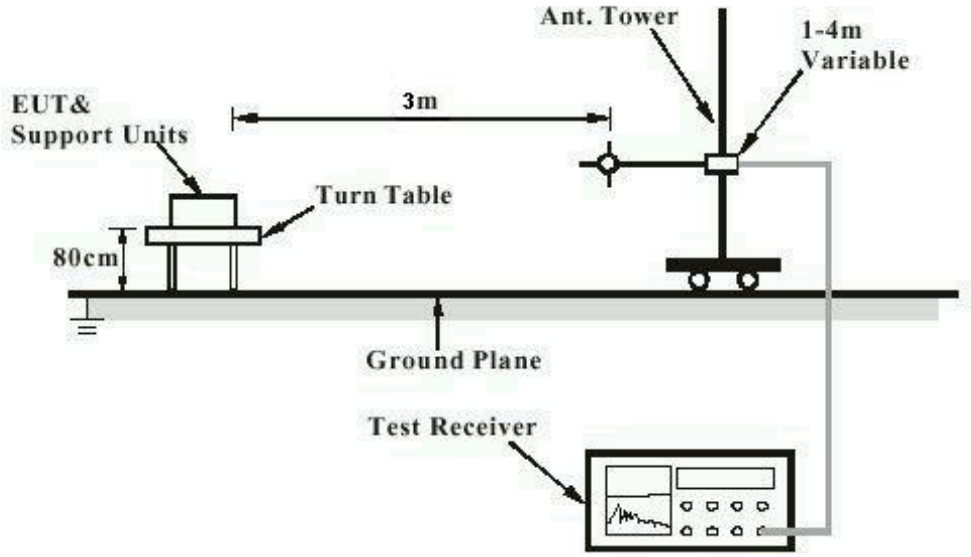


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

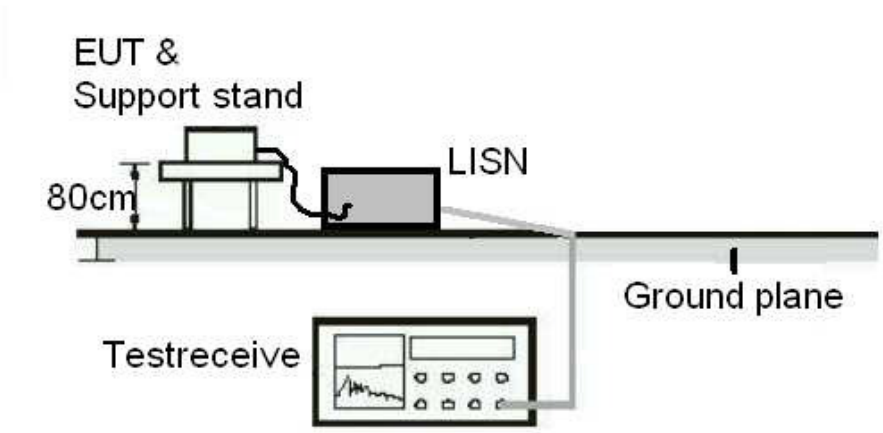
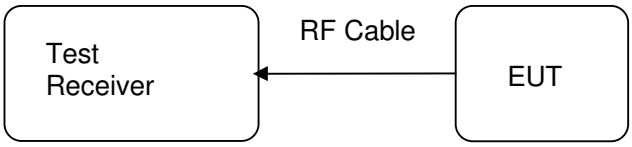


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Conducted Emission

RESULT: **Passed**

Date of testing	:	2013-08-12
Test specification	:	FCC Part 15 Per Section 15.107(a) Clause 5 of ICES-003 RSS-Gen 7.2.4
Frequency range	:	0.15 – 30MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003 CAN/CSA-CEI/IEC CISPR 22-02 Table 4 of RSS-GEN
Deviations from standard test procedure	:	None
Kind of test site	:	Shielded room

Test setup

Input Voltage	:	AC120V 60Hz to AC/DC Adapter
Operation mode	:	B
Artificial hand	:	Not applied
Earthing	:	Not connected

Test data refer to Appendix 1.

5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Emission

RESULT: **Passed**

Date of testing	:	2013-08-13
Test standard	:	FCC Part 15 Per Section 15.109(a) Clause 5 of ICES-003 RSS-Gen 7.1.4
Frequency range	:	30 - 6000MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003 CAN/CSA-CEI/IEC CISPR 22-02 RSS-Gen Table 5
Deviation from standard test procedure	:	None
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	AC120V 60Hz to AC/DC Adapter
Operation mode	:	A, B
Earthing	:	Not connected

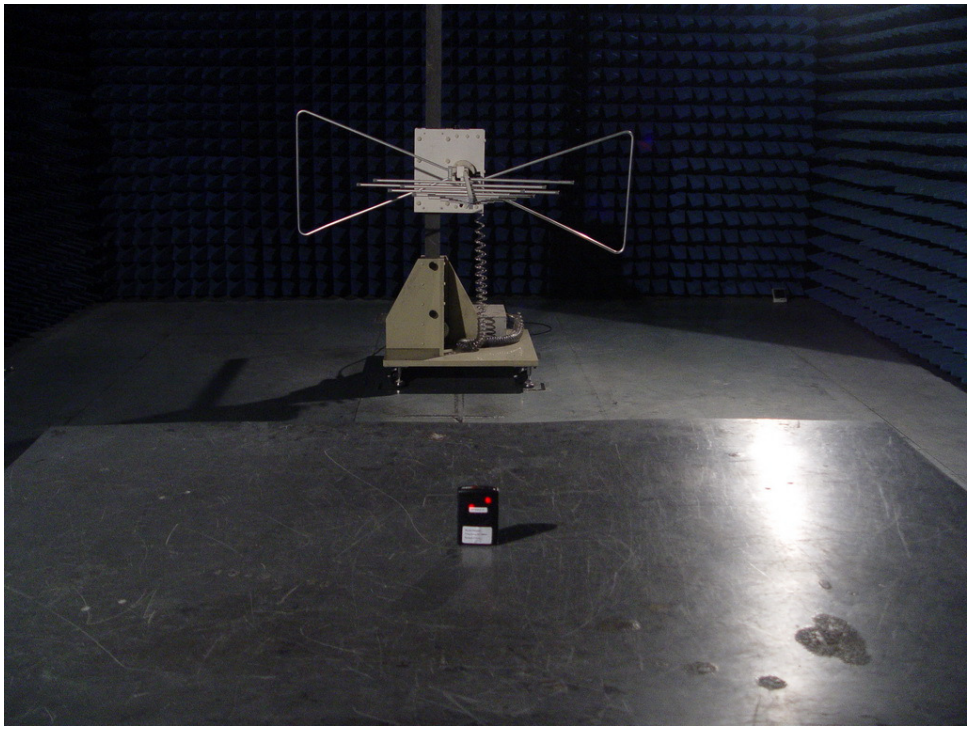
Note:
For IC requirement, mode A (receiving mode) was tested according to RSS-Gen Issue 3, while mode B (charging mode) was tested according to ICES-003 Issue 4.

Test data refer to Appendix 1.

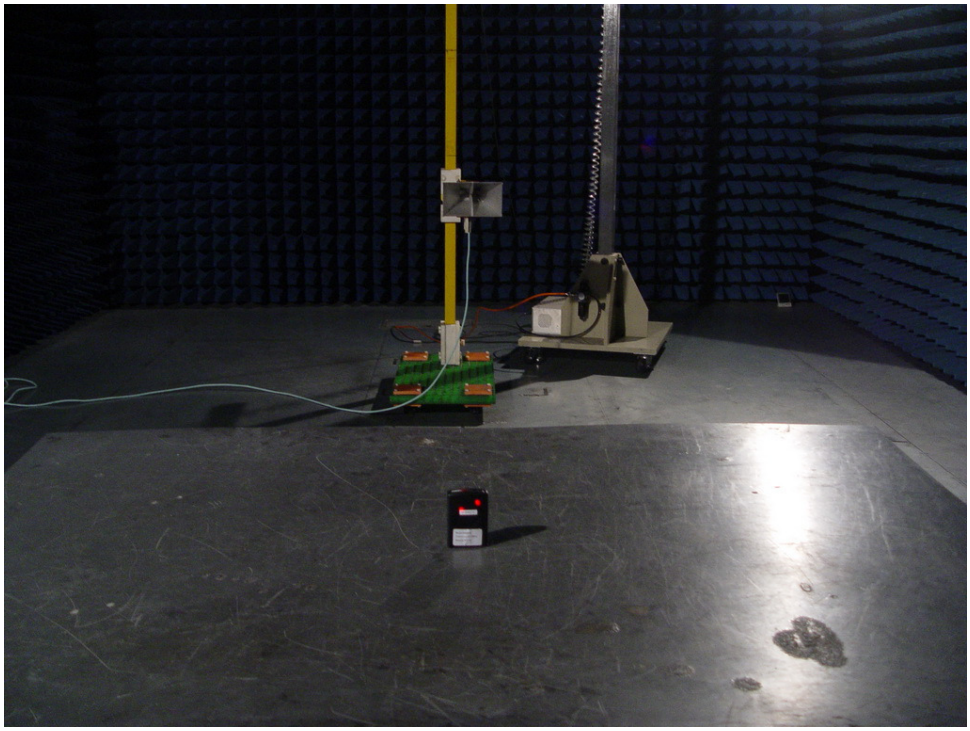
6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission

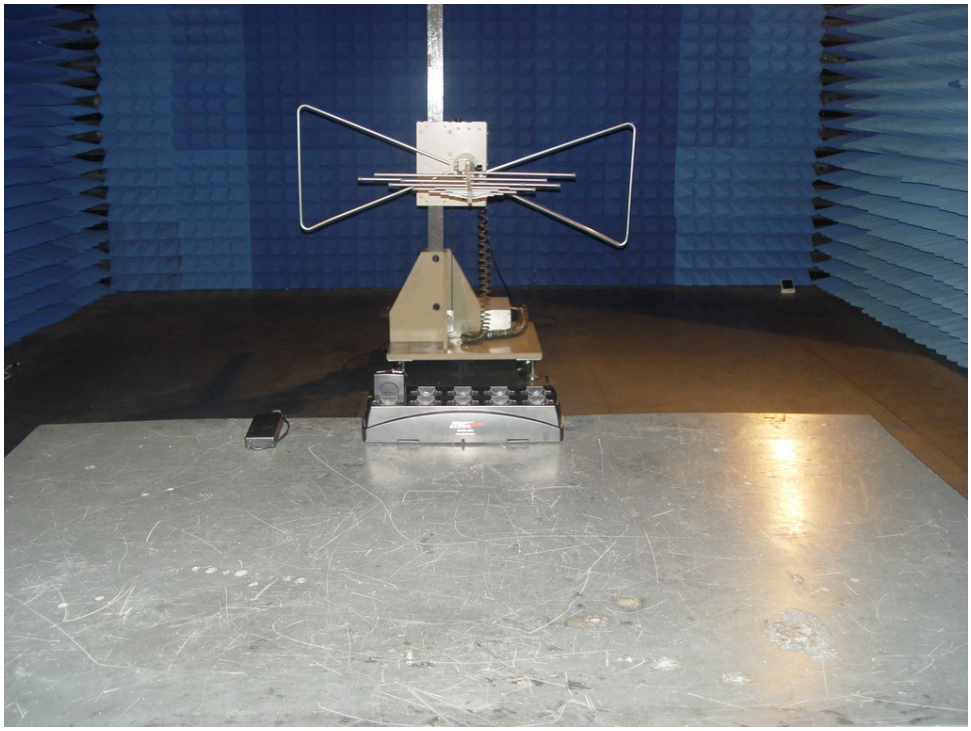
Photograph 2: Set-up for Radiated Emission, below 1GHz, mode A



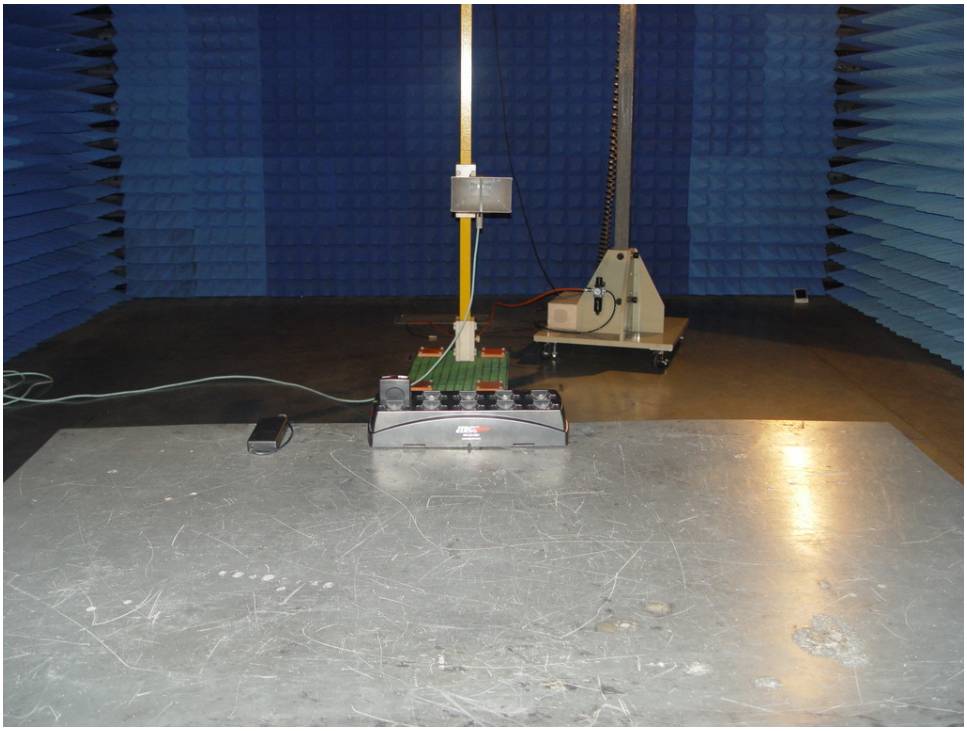
Photograph 3: Set-up for Radiated Emission, above 1GHz, mode A



Photograph 4: Set-up for Radiated Emission, below 1GHz, mode B



Photograph 5: Set-up for Radiated Emission, above 1GHz, mode B



7. List of Tables

8. List of Photographs

List of Figures

Figure 1: Test figure of conducted emissions, mode B, line live

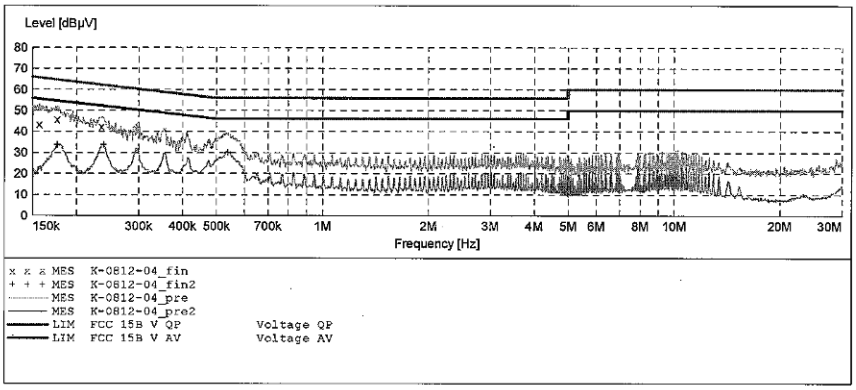
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

```
EUT:                  450303
Manufacturer:         Blue Ocean Innovation
Operating Condition:  Charging
Test Site:            1#Shielding Room
Operator:             LAN
Test Specification:   L 120V/60Hz
Comment:              Mains Port
Start of Test:        8/12/2013 / 10:53:58AM
```

SCAN TABLE: "V 150K-30MHz fin"

```
Short Description:                _SUB_STD_VTERM2 1.70
Start      Stop       Step        Detector  Meas.     IF       Transducer
Frequency  Frequency  Width                 Time      Bandw.
150.0 kHz  30.0 MHz   4.5 kHz     QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "K-0812-04_fin"

8/12/2013 10:56AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.156734	43.50	11.5	66	22.1	QP	L1	GND
0.175970	45.80	11.6	65	18.9	QP	L1	GND
0.235505	42.30	11.9	62	20.0	QP	L1	GND

MEASUREMENT RESULT: "K-0812-04_fin2"

8/12/2013 10:56AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.175970	33.60	11.6	55	21.1	AV	L1	GND
0.238343	33.70	11.9	52	18.5	AV	L1	GND
0.538120	29.90	12.6	46	16.1	AV	L1	GND

Figure 2: Test figure of conducted emissions, mode B, line neutral

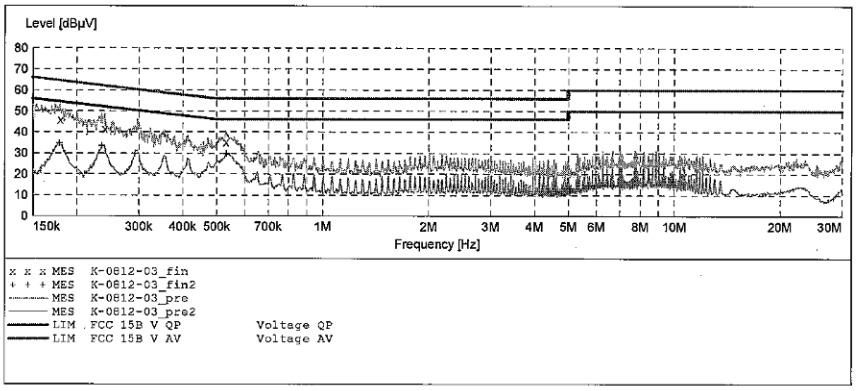
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

```
EUT:                  450303
Manufacturer:         Blue Ocean Innovation
Operating Condition:  Charging
Test Site:            1#Shielding Room
Operator:             LAN
Test Specification:   N 120V/60Hz
Comment:              Mains Port
Start of Test:        8/12/2013 / 10:51:03AM
```

SCAN TABLE: "V 150K-30MHz fin"

```
  Short Description:              _SUB_STD_VTERM2 1.70
  Start      Stop       Step      Detector  Meas.     IF       Transducer
  Frequency  Frequency  Width               Time      Bandw.
  150.0 kHz  30.0 MHz   4.5 kHz   QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "K-0812-03_fin"

8/12/2013 10:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.179518	45.80	11.6	65	18.7	QP	N	GND
0.240253	41.50	11.9	62	20.6	QP	N	GND
0.531714	35.20	12.6	56	20.8	QP	N	GND

MEASUREMENT RESULT: "K-0812-03_fin2"

8/12/2013 10:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.178091	34.60	11.6	55	20.0	AV	N	GND
0.235505	33.50	11.9	52	18.8	AV	N	GND
0.531714	29.60	12.6	46	16.4	AV	N	GND

Figure 3: Test figure of Radiated emissions, mode A, Horizontal polarity (30MHz – 1GHz)

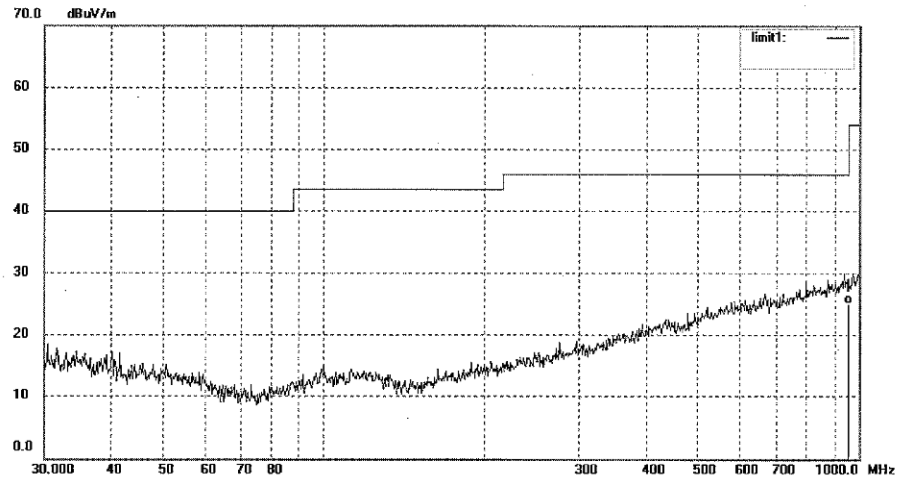
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	960.0000	23.25	2.37	25.62	46.00	-20.38	QP			

Figure 4: Test figure of Radiated emissions, mode A, Vertical polarity (30MHz – 1GHz)

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2537	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 2.4V
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 7/40/13
EUT:	Engineer Signature: PEI
Mode: A	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	960.0000	22.71	2.37	25.08	46.00	-20.92	QP			

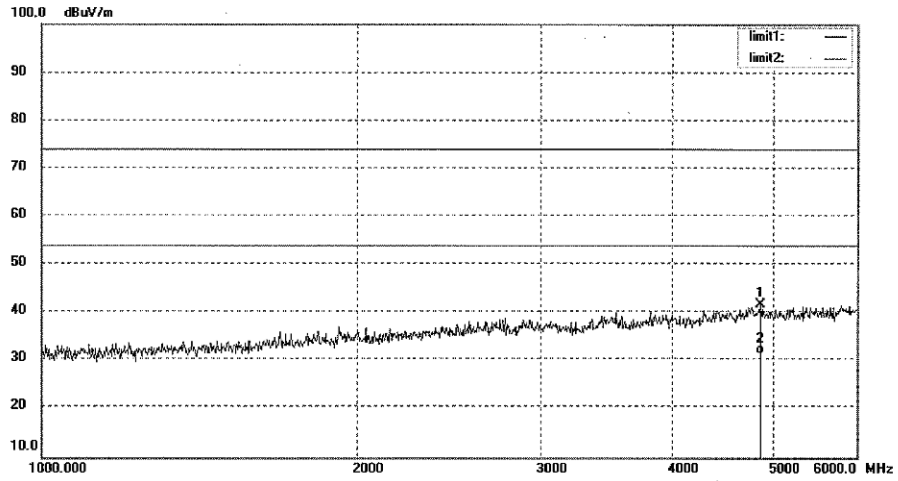
Figure 5: Test figure of Radiated emissions, mode A, Horizontal polarity (1GHz – 6GHz)

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2540
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT:
Mode: A
Model: 450303
Manufacturer: Blue Ocean Innovation

Polarization: Horizontal
Power Source: DC 2.4V
Date: 13/08/12/
Time: 8/05/52
Engineer Signature: PEI
Distance: 3m

Note:



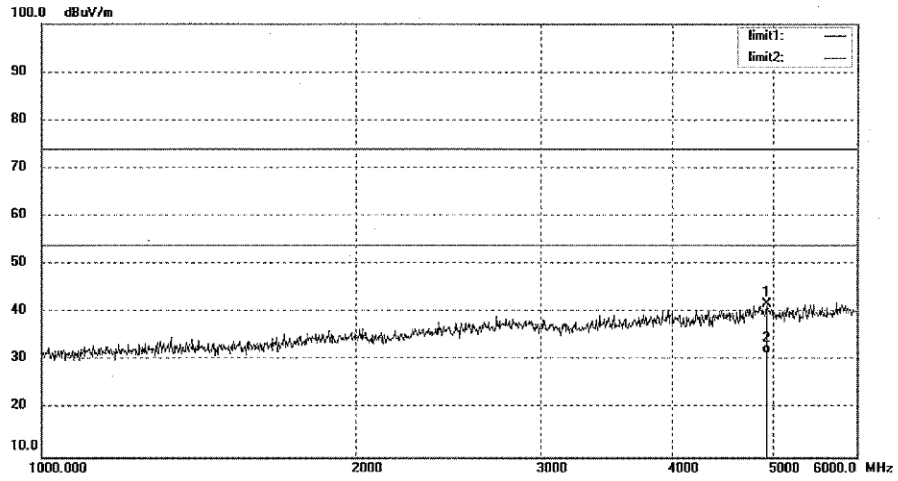
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4859.124	41.80	0.01	41.81	74.00	-32.19	peak			
2	4859.124	31.58	0.01	31.59	54.00	-22.41	AVG			

Figure 6: Test figure of Radiated emissions, mode A, Vertical polarity (1GHz – 6GHz)

ATC®
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2539	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 2.4V
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 7/57/49
EUT:	Engineer Signature: PEI
Mode: A	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



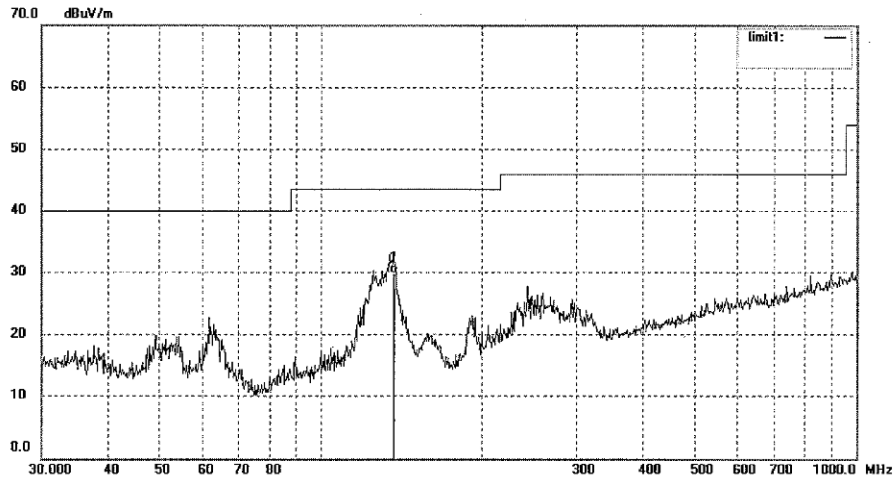
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4926.095	41.56	0.37	41.93	74.00	-32.07	peak			
2	4926.095	31.13	0.37	31.50	54.00	-22.50	AVG			

Figure 7: Test figure of Radiated emissions, mode B, Horizontal polarity (30MHz – 1GHz)

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2534	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 7/16/25
EUT:	Engineer Signature: PEI
Mode: B	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



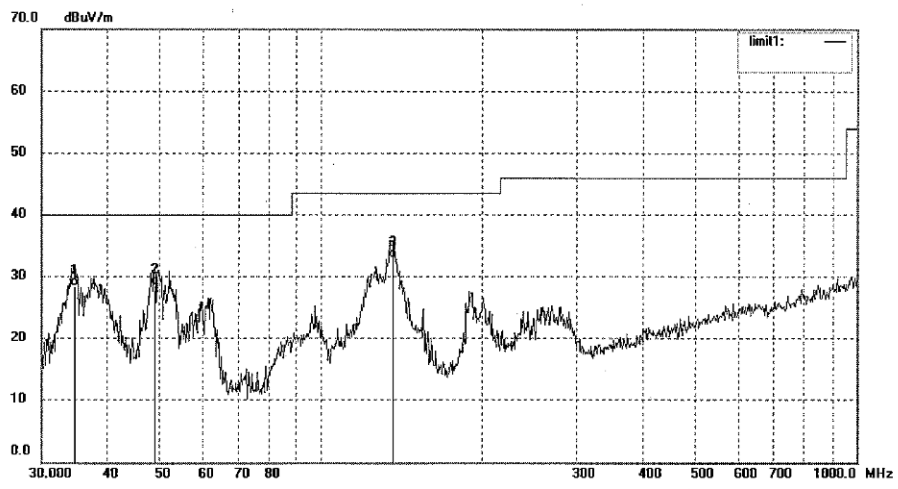
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	137.1026	44.37	-14.56	29.81	43.50	-13.69	QP			

Figure 8: Test figure of Radiated emissions, mode B, Vertical polarity (30MHz – 1GHz)

ATC®
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2533	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 7/08/40
EUT:	Engineer Signature: PEI
Mode: B	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



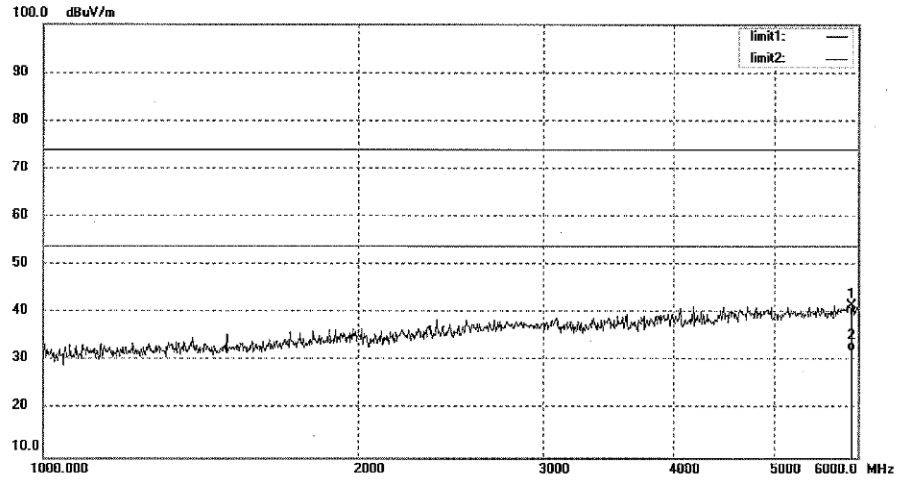
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.6515	38.82	-10.38	28.44	40.00	-11.56	QP			
2	49.0910	41.27	-12.61	28.66	40.00	-11.34	QP			
3	137.0667	47.59	-14.55	33.04	43.50	-10.46	QP			

Figure 9: Test figure of Radiated emissions, mode B, Horizontal polarity (1GHz – 6GHz)

ATC®
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2545	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 8/47/24
EUT:	Engineer Signature: PEI
Mode: B	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



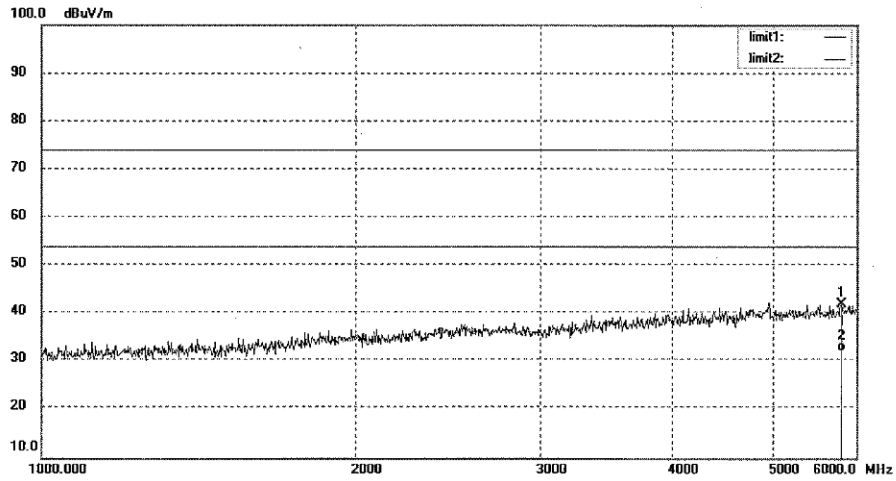
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5924.767	39.64	2.03	41.67	74.00	-32.33	peak			
2	5924.767	30.13	2.03	32.16	54.00	-21.84	AVG			

Figure 10: Test figure of Radiated emissions, mode B, Vertical polarity (1GHz – 6GHz)

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: PYH #2546	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 13/08/12/
Temp.(C)/Hum.(%) 23 C / 48 %	Time: 8/55/53
EUT:	Engineer Signature: PEI
Mode: B	Distance: 3m
Model: 450303	
Manufacturer: Blue Ocean Innovation	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5808.446	40.16	1.97	42.13	74.00	-31.87	peak			
2	5808.446	30.24	1.97	32.21	54.00	-21.79	AVG			