



**CTS (NINGBO) TESTING SERVICE TECHNOLOGY
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

EMC TEST REPORT

TEST REPORT NUMBER : CGZ3150202-00093-E



CTS (Ningbo) Testing Service Technology Co., Ltd.
2/F., South Tower, Huoju Building, No.181, Canghai Road,
Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

| | |
|--|--|
| TEST REPORT | |
| EN 61000-6-3:2007+A1:2011+AC:2012 | |
| Electromagnetic compatibility (EMC) —Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments | |
| EN 61000-6-1:2007 | |
| Electromagnetic compatibility (EMC) —Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments | |
| Report Reference No. | CGZ3150202-00093-E |
| Date of issue | 04 February 2015 |
| Testing Laboratory Name | CTS (Ningbo) Testing Service Technology Co., Ltd. |
| Address | GZ test site: A101, No.65, Zhuji Road, Tianhe District, Guangzhou, Guangdong, China. |
| Testing location/ procedure | Full application of Harmonised standards <input checked="" type="checkbox"/> Partial application of Harmonised standards <input type="checkbox"/> Other standard testing method <input type="checkbox"/> |
| Applicant's name | Adafruit Industries |
| Address | 150 Varick St. #3 New York, NY 10013 |
| Test specification: | |
| Standard | EN 61000-6-3:2007+A1:2011+AC:2012, EN 61000-6-1:2007 |
| Test Report Form No. | CTSEMC-1.0 |
| TRF Originator | CTS (Ningbo) Testing Service Technology Co., Ltd. |
| Master TRF | Dated 2009-01 |
| CTS (Ningbo) Testing Service Technology Co., Ltd. All rights reserved. | |
| This publication may be reproduced in whole or in part for non-commercial purposes as long as the CTS (Ningbo) Testing Service Technology Co., Ltd. is acknowledged as copyright owner and source of the material. CTS (Ningbo) Testing Service Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. | |
| Test item description | Pro Trinket 3V |
| Trade Mark | Adafruit |
| Manufacturer | Adafruit Industries |
| Model/Type reference | Pro Trinket 3V |
| Ratings | Battery 3V |
| Result | PASSED |

Compiled by:


Kate zhang / File administrators

Supervised by:


Duke yang / Technique principal

Approved by:


Vincent yao / Manager

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



EMC -- TEST REPORT

| | |
|--|--|
| Test Report No. : CGZ3150202-00093-E | <u>04 February 2015</u> Date of issue |
|--|--|

| | |
|---------------------------|--------------------------------------|
| Type / Model..... | Pro Trinket 3V |
| EUT..... | Pro Trinket 3V |
| Applicant | Adafruit Industries |
| Address..... | 150 Varick St. #3 New York, NY 10013 |
| Telephone..... | +1-760-884-7727 |
| Fax..... | +1-760-887-8574 |
| Contact..... | Mary Jungman |
| Manufacturer | Adafruit Industries |
| Address..... | 150 Varick St. #3 New York, NY 10013 |
| Telephone..... | +1-760-884-7727 |
| Fax..... | +1-760-887-8574 |
| Contact..... | Mary Jungman |
| Factory | Adafruit Industries |
| Address..... | 150 Varick St. #3 New York, NY 10013 |
| Telephone..... | +1-760-884-7727 |
| Fax..... | +1-760-887-8574 |
| Contact..... | Mary Jungman |

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

TABLE OF CONTENTS

| Description | Page |
|--|------|
| 1 TEST STANDARDS..... | 4 |
| 2 SUMMARY | 4 |
| 2.1 GENERAL REMARKS..... | 4 |
| 2.2 FINAL ASSESSMENT | 4 |
| 3 EQUIPMENT UNDER TEST | 5 |
| 3.1 Power supply system utilised | 5 |
| 3.2 Short description of the Equipment under Test (EUT)..... | 5 |
| 3.3 EUT operation mode | 5 |
| 3.4 EUT configuration | 6 |
| 3.5 Performance level | 6 |
| 3.6 Definition related to the performance level | 6 |
| 4 TEST ENVIRONMENT..... | 7 |
| 4.1 Address of the test laboratory | 7 |
| 4.2 Test facility..... | 7 |
| 4.3 Environmental conditions | 7 |
| 4.4 Definitions of symbols used in this test report..... | 7 |
| 4.5 Statement of the measurement uncertainty | 7 |
| 4.6 Measurement Uncertainty | 8 |
| 4.7 Test Description | 8 |
| 5 TEST CONDITIONS AND RESULTS | 9 |
| 5.1 Radiated disturbance (electric field) | 9 |
| 5.2 Electrostatic discharge | 15 |
| 5.3 Radiated, radio-frequency, electromagnetic field..... | 17 |
| 5.4 Power frequency magnetic field | 19 |
| 6 USED TEST EQUIPMENT..... | 21 |
| 7 TEST PHOTOGRAPHS | 22 |
| 7.1. Photo of radiated emission measurement (R.E. Electric field)..... | 22 |
| 7.2. Photo of electrostatic discharge Immunity measurement (E.S.D.)..... | 22 |
| 7.3. Photo of RF field strength Immunity measurement (R.S.)..... | 22 |
| 7.4. Photo of PFM field immunity measurement (P.F.M.F.)..... | 23 |
| 8 EXTERNAL AND INTERNAL PHOTOS OF THE EUT..... | 24 |
| 9 Manufacturer/ Approval holder Declaration | 26 |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

1 TEST STANDARDS

The tests were performed according to following standards:

EN 61000-6-3:2007+A1:2011+AC:2012 Electromagnetic compatibility (EMC) —Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments

EN 61000-6-1:2007 Electromagnetic compatibility (EMC) —Part 6-1: Generic standards — Immunity for residential, commercial and light-industrial environments

2 SUMMARY

2.1 GENERAL REMARKS

| | |
|--------------------------------|---------------------|
| Date of receipt of test sample | 02 February 2015 |
| Testing commenced on | 02~03 February 2015 |
| Testing concluded on | 04 February 2015 |

2.2 FINAL ASSESSMENT

The EMC requirements pertaining to the technical standards and tested operation modes are

- fulfilled.
- **not** fulfilled.

The equipment under test

- fulfils the EMC requirements cited on page 1.
- **does not** fulfil the EMC requirements cited on page 1.

3 EQUIPMENT UNDER TEST

3.1 Power supply system utilised

Power supply voltage: Battery 3V
 Other (Specified blank below)

3.2 Short description of the Equipment under Test (EUT)

Number of tested samples: 1
Serial number: Prototype

3.3 EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

- Normal

Operating Mode: Normal

Emissions tests.....: According to EN 61000-6-3, searching for the highest disturbance.

Immunity tests : According to EN 61000-6-1, searching for the highest susceptibility.

3.4 EUT configuration

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurement:

Not Applicable

3.5 Performance level

The test results shall be classified in terms of the loss of function or degradation of performance of the equipment under test, relative to a performance level defined by its manufacturer or the requestor of the test, or agreed between the manufacturer and the purchaser of the product.

3.6 Definition related to the performance level

- based on the used product standard
- based on the declaration of the manufacturer, requestor or purchaser

Criterion A:

Definition: normal performance within limits specified by the manufacturer, requestor or purchaser:

Criterion B:

Definition: temporary loss of function or degradation of performance which ceases after the disturbance ceases, and from which the equipment under test recovers its normal performance, without operator intervention:

Criterion C:

Definition: temporary loss of function or degradation of performance, the correction of which requires operator intervention:

Criterion D:

Definition: loss of function or degradation of performance, which is not recoverable, owing to damage to hardware or software, or loss of data:

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

GZ test site: A101, No.65, Zhuji Road, Tianhe District, Guangzhou, Guangdong, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

4.2 Test facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L3394

CTS (Ningbo) Testing Service Technology Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01: 2006 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

IC-Registration No.: 8374A

The 3m Alternate Test Site of CTS (Ningbo) Testing Service Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 8374A on May 22, 2014.

FCC-Registration No.: 971995

CTS (Ningbo) Testing Service Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration No.971995, July 13, 2012.

4.3 Environmental conditions

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

| | |
|-----------------------|------------|
| Temperature: | 15~35 ° C |
| Humidity: | 25~75 % |
| Atmospheric pressure: | 86~106 kPa |

4.4 Definitions of symbols used in this test report

- - The black square indicates that the listed condition, standard or equipment is applicable for this report.
- - The empty square indicates that the listed condition, standard or equipment is **not** applicable for this report.

4.5 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the CTS quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

4.6 Measurement Uncertainty

| Test Item | Frequency Range | Uncertainty | Note |
|-------------------------|-----------------|-------------|------|
| Conduction disturbance | 150kHz~30MHz | ±1.22dB | (1) |
| Power disturbance | 30MHz~300MHz | ±1.38dB | (1) |
| Radiation emission (3m) | 30MHz~300MHz | ±3.14dB | (1) |
| | 300MHz~1000MHz | ±3.18dB | (1) |

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- (2) The actual EUT tested items in this test report, only applies to this "measurement uncertainty" in part / all of the corresponding data.

4.7 Test Description

4.7.1 Description of Standards and Results

| EMISSION (EN 61000-6-3:2007+A1:2011+AC:2012) | | | |
|---|-------------------------------------|----------------------|---------|
| Description of Test Item | Standard | Limits | Results |
| Conducted disturbance at mains terminals | EN 61000-6-3:2007+A1:2011+AC:2012 | ----- | N/A |
| Conducted disturbance at telecommunication port | EN 61000-6-3:2007+A1:2011+AC:2012 | ----- | N/A |
| Radiated disturbance | EN 61000-6-3:2007+A1:2011+AC:2012 | ----- | PASS |
| Harmonic current emissions | EN 61000-3-2:2006+A2:2009 | Class A | N/A |
| Voltage fluctuations & flicker | EN 61000-3-3:2013 | ----- | N/A |
| IMMUNITY (EN 61000-6-1:2007) | | | |
| Description of Test Item | Basic Standard | Performance Criteria | Results |
| Electrostatic discharge (ESD) | IEC 61000-4-2: 2008 | B | PASS |
| Radio-frequency, Continuous radiated disturbance | IEC 61000-4-3:2006 +A1:2007+A2:2010 | A | PASS |
| Electrical fast transient (EFT) | IEC 61000-4-4:2012 | B | N/A |
| Surge (Input a.c. power ports) | IEC 61000-4-5: 2005 | B | N/A |
| Radio-frequency, Continuous conducted disturbance | IEC 61000-4-6: 2008 | A | N/A |
| Power frequency magnetic field | IEC 61000-4-8: 2009 | A | PASS |
| Voltage dips, >95% reduction | IEC 61000-4-11: 2004 | B | N/A |
| Voltage dips, 30% reduction | | B | N/A |
| Voltage interruptions | | C | N/A |
| N/A is an abbreviation for Not Applicable. | | | |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5 TEST CONDITIONS AND RESULTS

5.1 Radiated disturbance (electric field)

For test instruments and accessories used see section 6 part 6.1.

5.1.1 Description of the test location

Test location : Semi-Anechoic chamber

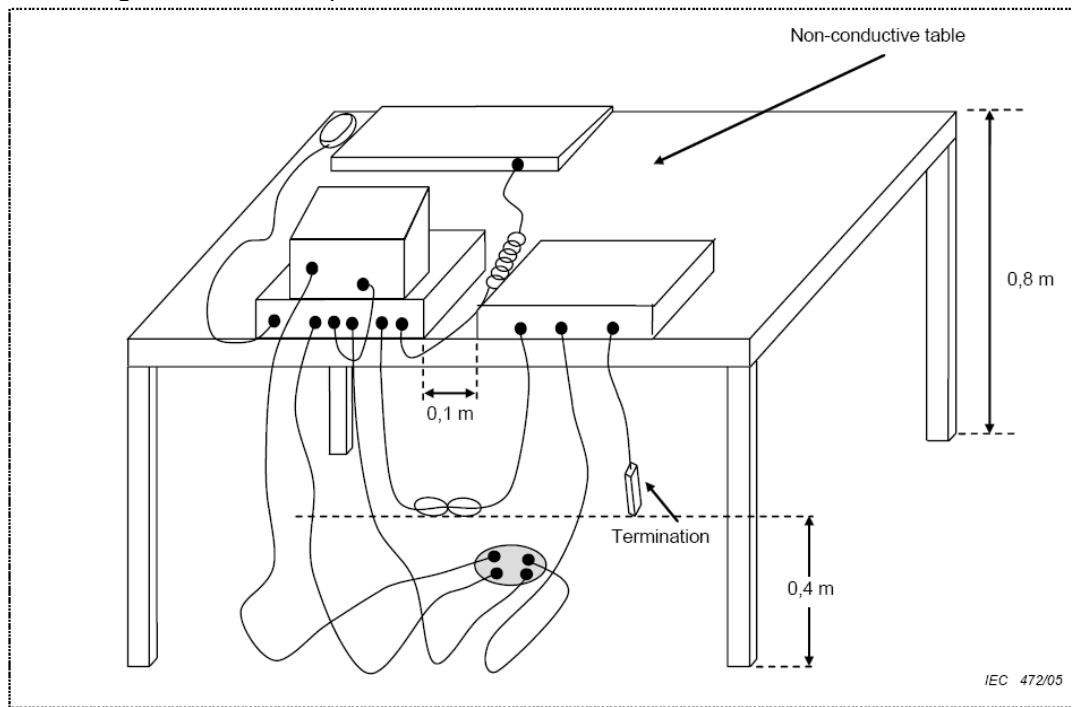
Test disturbance: 3 Meter

5.1.2 Description of the test set-up

5.1.2.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.1.2.2 Block Diagram of Test Setup



5.1.3 Limits of disturbance

| Frequency (MHz) | Distance (Meters) | Field Strengths Limits (dB μ V/m) |
|-----------------|-------------------|---------------------------------------|
| 30 ~ 230 | 3 | 40 |
| 230 ~ 1000 | 3 | 47 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

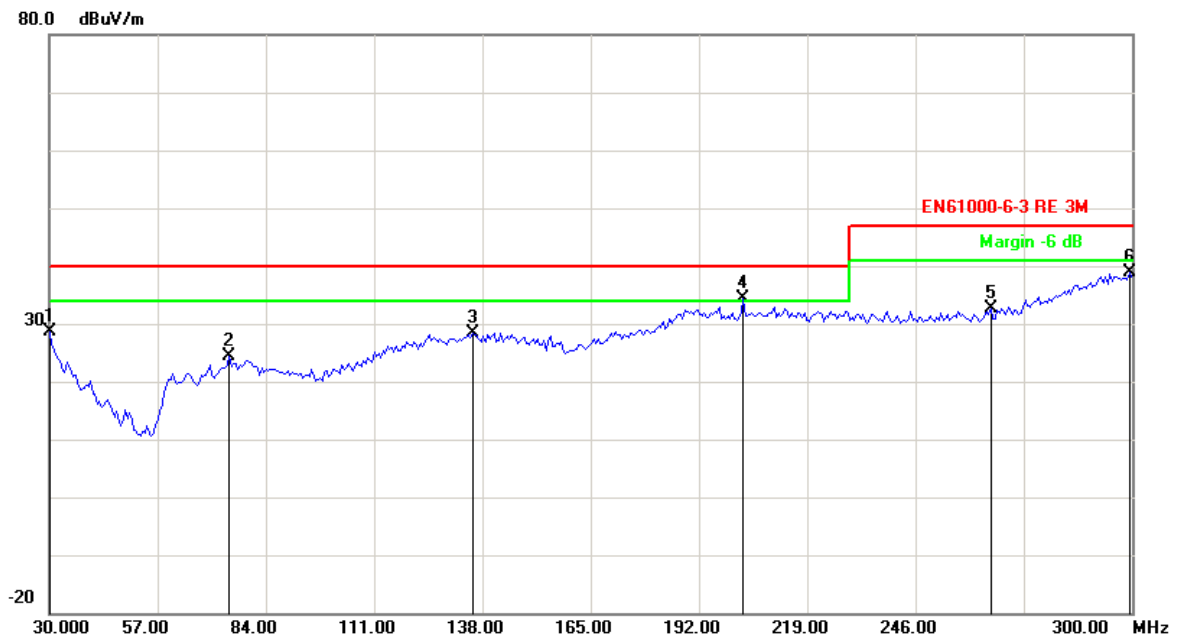
5.1.4 Test result

| The requirements are | Fulfilled |
|----------------------|---------------------------|
| Band width | 120kHz |
| Frequency range | 30 MHz - 1000 MHz |
| Min. limit margin | >5.63 dB at 30 - 1000 MHz |

Remarks: The limits are kept. For detailed results, please see the following page(s).

5.1.5 Test protocol

| | | | |
|---|---|---------|---|
| Test point: Operation mode Remarks: | Horizontal Normal | Result: | <input checked="" type="checkbox"/> - passed <input type="checkbox"/> - not passed |
| EUT | Pro Trinket 3V | | |
| Operating Condition | Battery 3V | | |
| Test Condition | Ambient Temperature: 24°C Humidity: 56% | | |
| Operator | Clark | | |
| MODEL NO. | Pro Trinket 3V | | |



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|------|
| 1 | 30.0000 | -24.45 | 53.13 | 28.68 | 40.00 | -11.32 | QP |
| 2 | 74.9098 | -27.48 | 51.94 | 24.46 | 40.00 | -15.54 | QP |
| 3 | 135.5110 | -22.69 | 50.95 | 28.26 | 40.00 | -11.74 | QP |
| 4 | 203.1463 | -18.47 | 52.84 | 34.37 | 40.00 | -5.63 | QP |
| 5 | 264.8297 | -18.20 | 50.85 | 32.65 | 47.00 | -14.35 | QP |
| 6 | 299.4589 | -11.65 | 50.48 | 38.83 | 47.00 | -8.17 | QP |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

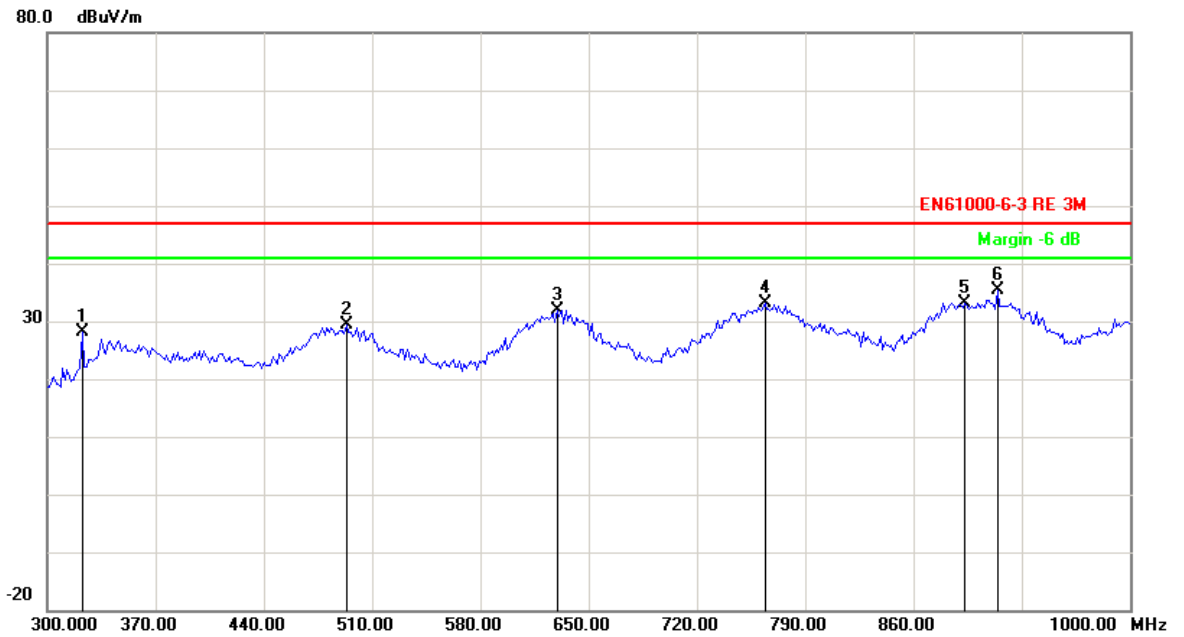
Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|------|
| 1 | 322.4449 | -27.17 | 55.35 | 28.18 | 47.00 | -18.82 | QP |
| 2 | 493.5872 | -18.92 | 48.42 | 29.50 | 47.00 | -17.50 | QP |
| 3 | 629.6593 | -15.83 | 47.79 | 31.96 | 47.00 | -15.04 | QP |
| 4 | 764.3287 | -14.00 | 47.08 | 33.08 | 47.00 | -13.92 | QP |
| 5 | 893.3868 | -11.64 | 44.88 | 33.24 | 47.00 | -13.76 | QP |
| 6 | 914.4289 | -12.08 | 47.41 | 35.33 | 47.00 | -11.67 | QP |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

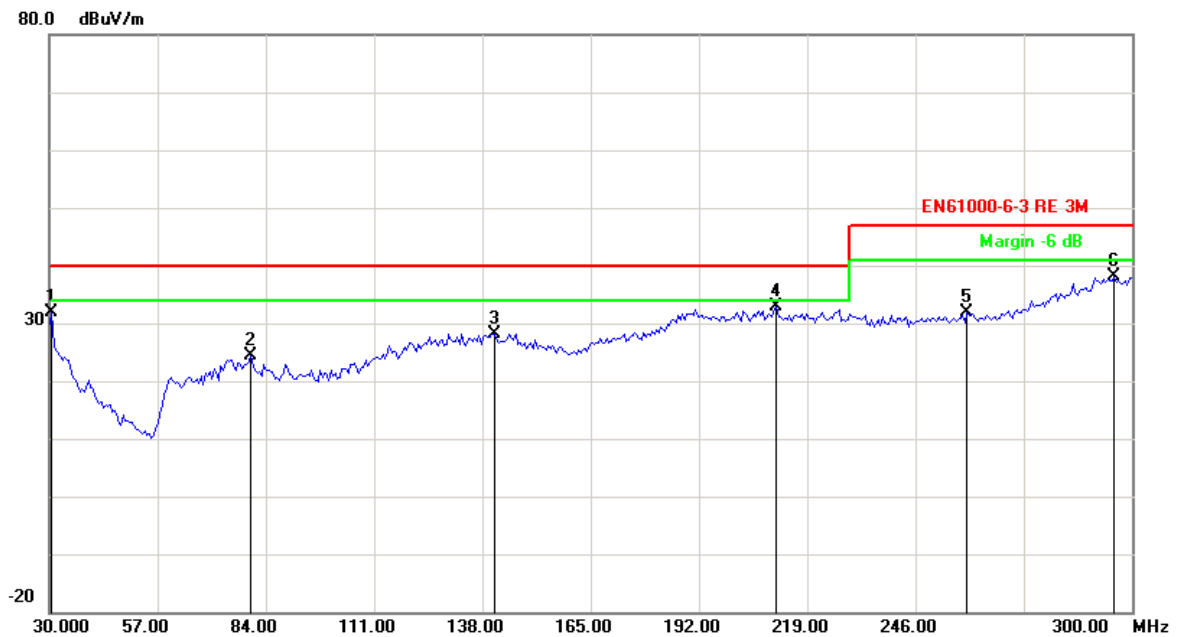
E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



| | | | |
|---|--------------------|---------|---|
| Test point: Operation mode Remarks: | Vertical Normal | Result: | <input checked="" type="checkbox"/> - passed <input type="checkbox"/> - not passed |
|---|--------------------|---------|---|

| | |
|---------------------|---|
| EUT | Pro Trinket 3V |
| MODEL NO. | Pro Trinket 3V |
| Operating Condition | Battery 3V |
| Test Condition | Ambient Temperature: 24°C Humidity: 56% |
| Operator | Clark |



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|------|
| 1 | 30.5411 | -24.94 | 56.90 | 31.96 | 40.00 | -8.04 | QP |
| 2 | 80.3206 | -27.48 | 51.83 | 24.35 | 40.00 | -15.65 | QP |
| 3 | 140.9218 | -22.47 | 50.55 | 28.08 | 40.00 | -11.92 | QP |
| 4 | 211.2625 | -18.11 | 51.10 | 32.99 | 40.00 | -7.01 | QP |
| 5 | 258.8778 | -18.64 | 50.44 | 31.80 | 47.00 | -15.20 | QP |
| 6 | 295.6713 | -12.21 | 50.23 | 38.02 | 47.00 | -8.98 | QP |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

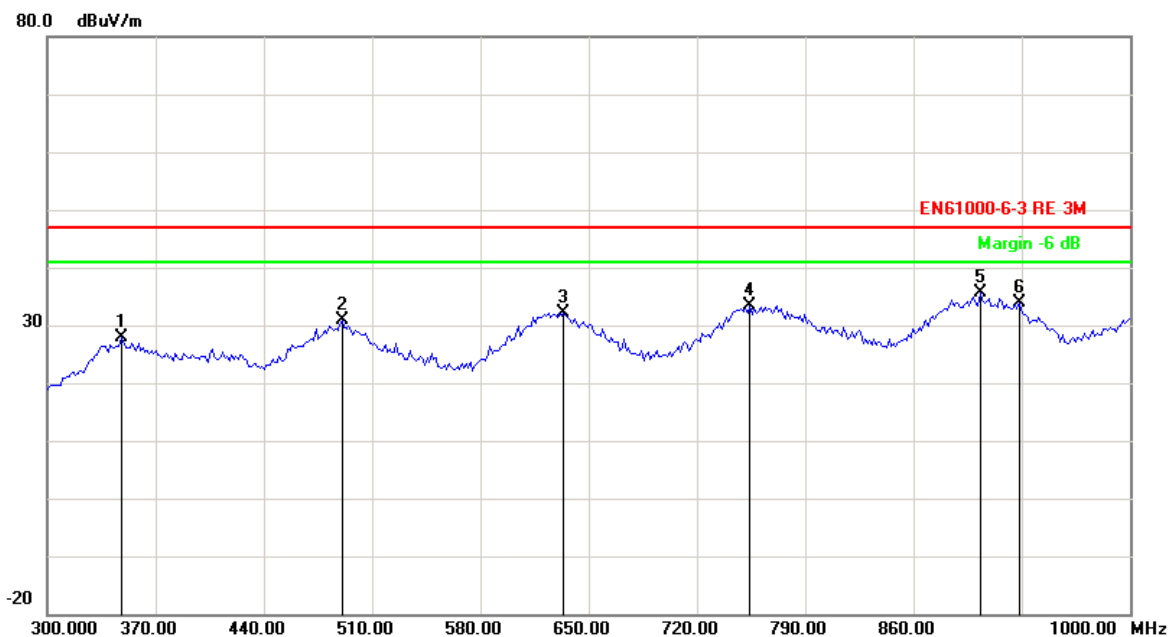
Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service



| No. | Frequency (MHz) | Factor (dB/m) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Det. |
|-----|-----------------|---------------|----------------|----------------|----------------|-------------|------|
| 1 | 347.6954 | -23.24 | 51.03 | 27.79 | 47.00 | -19.21 | QP |
| 2 | 490.7816 | -18.88 | 49.81 | 30.93 | 47.00 | -16.07 | QP |
| 3 | 633.8677 | -15.93 | 48.12 | 32.19 | 47.00 | -14.81 | QP |
| 4 | 754.5090 | -14.33 | 47.78 | 33.45 | 47.00 | -13.55 | QP |
| 5 | 903.2064 | -11.53 | 47.16 | 35.63 | 47.00 | -11.37 | QP |
| 6 | 928.4569 | -13.55 | 47.41 | 33.86 | 47.00 | -13.14 | QP |

Note: Level=Reading+Factor. Margin= Limit-Level

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.2 Electrostatic discharge

For test instruments and accessories used see section 6 part 6.2.

5.2.1 Description of the test location

| | |
|-----------------|---|
| Test location : | Test location no. 2 |
| Power supply: | Battery 3V |
| Test condition: | Ambient Temperature: 24°C, Humidity:56% |
| Date of test : | 02~03 February 2015 |
| Operator : | Clark |

5.2.2 Severity of levels electrostatic discharge

5.2.2.1 Severity level: Contact discharge at $\pm 4\text{KV}$ air discharge at $\pm 8\text{KV}$

| Level | Test Voltage Contact Discharge (kV) | Test Voltage Air Discharge (kV) |
|-------|-------------------------------------|---------------------------------|
| 1 | 2 | 2 |
| 2 | 4 | 4 |
| 3 | 6 | 8 |
| 4 | 8 | 15 |
| X | Special | Special |

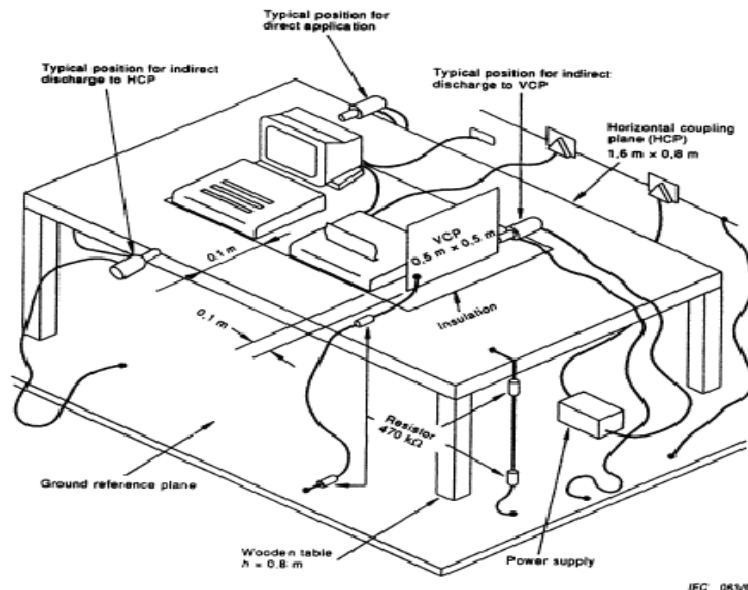
5.2.2.2 Performance criterion: B

5.2.3 Description of the test set-up

5.2.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.2.3.2 Block Diagram of Test Setup



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.2.4 Test specification:

| | | | |
|----------------------------|--|---|--|
| Contact discharge voltage: | <input checked="" type="checkbox"/> 2 kV | <input checked="" type="checkbox"/> 4 kV | |
| Air discharge voltage: | <input checked="" type="checkbox"/> 2 kV | <input checked="" type="checkbox"/> 4 kV | <input checked="" type="checkbox"/> 8 kV |
| Discharge impedance: | <input checked="" type="checkbox"/> 330 Ω / 150 pF | | |
| Discharge factor: | <input checked="" type="checkbox"/> ≥ 1 sec. | | |
| Number of discharges: | <input checked="" type="checkbox"/> ≥ 10 | | |
| Type of discharge: | Direct discharge | <input checked="" type="checkbox"/> Air discharge | |
| | | <input checked="" type="checkbox"/> Contact discharge | |
| | Indirect discharge | <input checked="" type="checkbox"/> Contact discharge | |
| Polarity: | <input checked="" type="checkbox"/> Positive | <input checked="" type="checkbox"/> Negative | |
| Discharge location: | <input checked="" type="checkbox"/> see photo documentation of the test set-up | | |
| | <input checked="" type="checkbox"/> all external locations accessible by hand | | |
| | <input checked="" type="checkbox"/> horizontal plate (HCP) | | |
| | <input checked="" type="checkbox"/> vertical coupling plate (VCP) | | |

5.2.5 Test result

The requirements are **Fulfilled**Performance Criterion: **B****Remarks:** During the test no deviation was detected to the selected operation mode(s).

5.3 Radiated, radio-frequency, electromagnetic field

For test instruments and accessories used see section 6 part 6.3.

5.3.1 Description of the test location

| | |
|-----------------|---|
| Test location : | Test location no. 2 |
| Power supply: | Battery 3V |
| Test condition: | Ambient Temperature: 24°C, Humidity:56% |
| Date of test : | 02~03 February 2015 |
| Operator : | Clark |

5.3.2 Severity levels of radiated, Radio-frequency, electromagnetic field

5.3.2.1 Severity level: 3V/m and 1V/m

| Level | Field strenght(V/m) |
|-------|---------------------|
| 1 | 1 |
| 2 | 3 |
| 3 | 10 |
| X | Special |

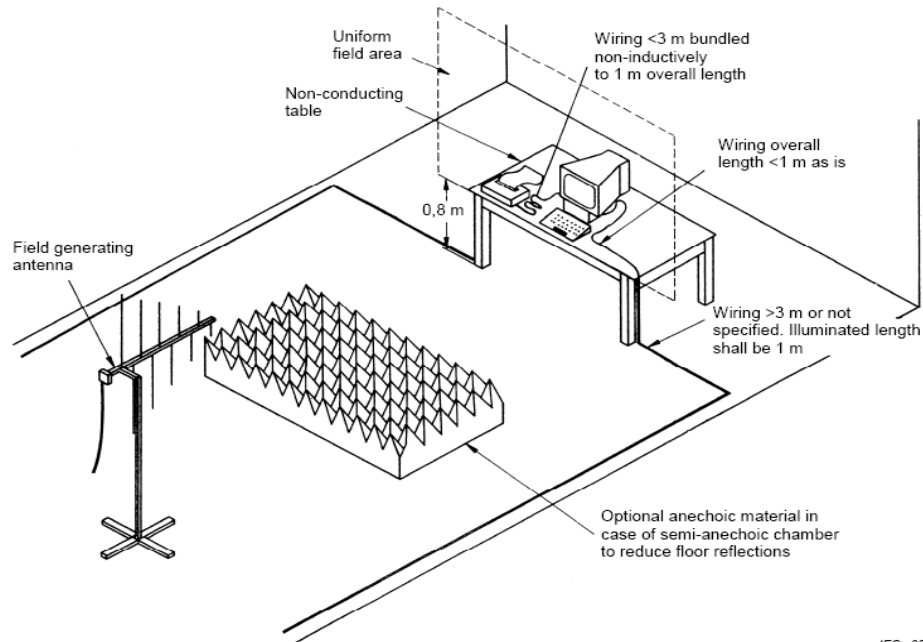
5.3.2.2 Performance criterion: A

5.3.3 Description of the test set-up

5.3.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.3.3.2 Block Diagram of Test Setup



IEC 034/06

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.3.4 Test specification:

| | |
|---------------------------|-----------------------------------|
| Frequency range: | ■ 80 MHz to 1000 MHz |
| Field strength: | ■ 3 V/m |
| EUT - antenna separation: | ■ 3 m |
| Modulation: | ■ AM: 80 % ■ sinusoidal 1000Hz |
| Frequency step: | ■ 1 % with 3 s dwell time |
| Antenna polarisation: | ■ horizontal ■ vertical |

| | |
|---------------------------|-----------------------------------|
| Frequency range: | ■ 1400 MHz to 2000 MHz |
| Field strength: | ■ 3 V/m |
| EUT - antenna separation: | ■ 3 m |
| Modulation: | ■ AM: 80 % ■ sinusoidal 1000Hz |
| Frequency step: | ■ 1 % with 3 s dwell time |
| Antenna polarisation: | ■ horizontal ■ vertical |

| | |
|---------------------------|-----------------------------------|
| Frequency range: | ■ 2000 MHz to 2700 MHz |
| Field strength: | ■ 1 V/m |
| EUT - antenna separation: | ■ 3 m |
| Modulation: | ■ AM: 80 % ■ sinusoidal 1000Hz |
| Frequency step: | ■ 1 % with 3 s dwell time |
| Antenna polarisation: | ■ horizontal ■ vertical |

5.3.5 Test result

The requirements are **Fulfilled**

Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.4 Power frequency magnetic field

For test instruments and accessories used see section 6 part 6.4.

5.4.1 Description of the test location

| | |
|-----------------|---|
| Test location : | Test location no. 2 |
| Power supply: | Battery 3V |
| Test condition: | Ambient Temperature: 24°C, Humidity:56% |
| Date of test : | 02~03 February 2015 |
| Operator : | Clark |

5.4.2 Severity levels of magnetic field immunity

5.4.2.1 Severity Level: 3A/m

| Level | Magnetic Field Strength (A/m) |
|-------|-------------------------------|
| 1 | 1 |
| 2 | 3 |
| 3 | 10 |
| 4 | 30 |
| 5 | 100 |
| X | Special |

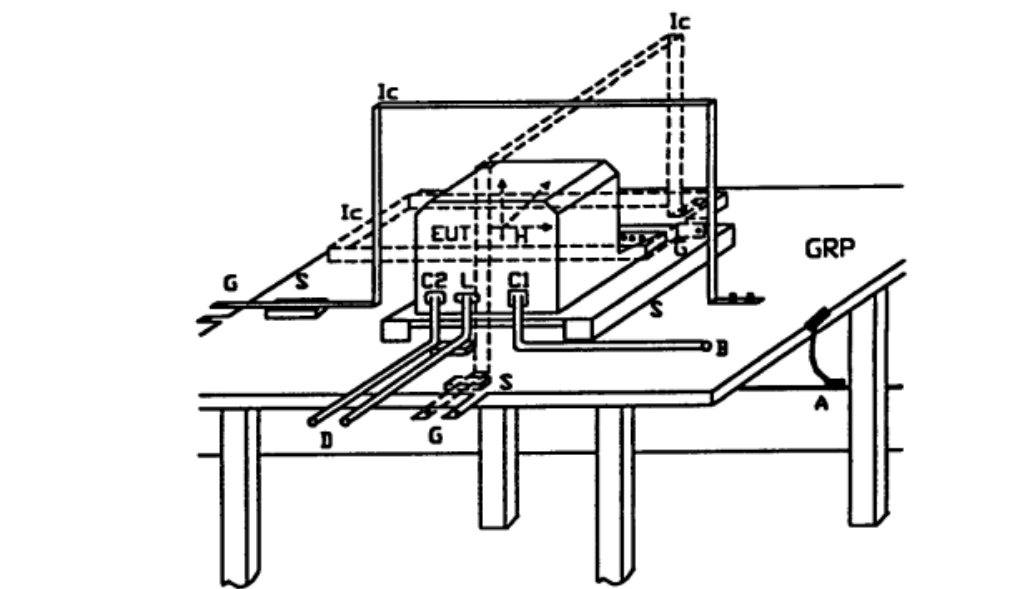
5.4.2.2 Performance Criterion: A

5.4.3 Description of the test set-up

5.4.3.1 Operating Condition

The EUT is normal during the test, and the results of the maximum emanation are recorded

5.4.3.2 Block Diagram of Test Setup



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

5.4.4 Test specification:

| | | | |
|------------------------------|------------------|----------|----------|
| Test frequency: | ■ 50 Hz | | |
| Continuous field: | ■ 3 A/m | | |
| Duration (Continuous field): | ■ 60 s each Axis | | |
| Short duration (1-3s): | ■ 3 S | | |
| Axis: | ■ x-axis | ■ y-axis | ■ z-axis |

5.4.5 Test result

The requirements are **Fulfilled**

Performance Criterion: **A**

Remarks: During the test no deviation was detected to the selected operation mode(s).

6 USED TEST EQUIPMENT

6.1

| Radiated Emission(Electric field) | | | | | |
|-----------------------------------|-------------------|-----------------|-----------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Signal analyzer | ROHDE & SCHWARZ | FSIQ26 | 100311 | 2014/03/25 |
| 2 | EMI Test Receiver | ROHDE & SCHWARZ | ESVS 10 | 842885/001 | 2014/11/04 |
| 3 | Biconical Antenna | ROHDE & SCHWARZ | HK116 | 100221 | 2014/03/30 |
| 4 | Log per Antenna | ROHDE & SCHWARZ | HL223 | 100226 | 2014/03/30 |
| 5 | Log per Antenna | ROHDE & SCHWARZ | HL050 | 100186 | 2014/03/30 |
| 6 | Pre-Amplifier | EMC | EMC330 | 980113 | 2014/03/25 |
| 7 | Pre-Amplifier | EMC | EMC012645 | 980114 | 2014/03/25 |
| 8 | EMI Test Software | Farad | EZ-EMC | N/A | N/A |

6.2

| Electrostatic Discharge | | | | | |
|-------------------------|----------------|--------------|-----------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | ESD Simulator | Schlöder | SESD 200 | 0302016 | 2014/03/27 |

6.3

| RF Field Strength Susceptibility | | | | | |
|----------------------------------|------------------|-----------------|-----------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Signal Generator | ROHDE & SCHWARZ | SMY 01 | 843215/014 | 2014/11/04 |
| 2 | Signal Generator | ROHDE & SCHWARZ | SML03 | 102986 | 2014/11/04 |
| 3 | Amplifier | KALMUS | 713FC | 7385-1 | 2014/11/04 |
| 4 | Power Meter | ROHDE & SCHWARZ | NRVS | 842856/049 | 2014/11/04 |
| 5 | Field Probe | ETS | HI-6005 | 00075047 | 2014/11/11 |
| 6 | RS Test Software | Farad | EZ-RS | N/A | N/A |

6.4

| Power Frequency Magnetic Field Susceptibility | | | | | |
|---|--|--------------|-------------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Power frequency mag-field generator System | EM TEST | EMS61000-8K | 409001 | 2014/11/04 |

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

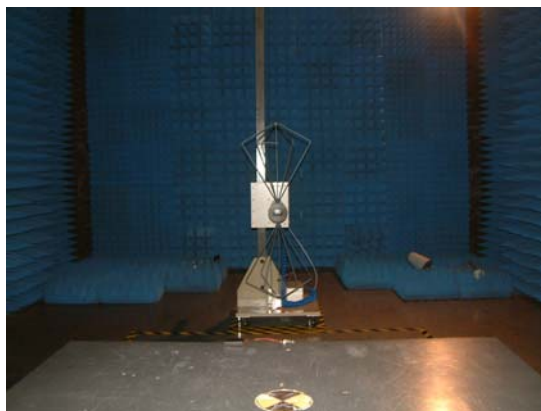
Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

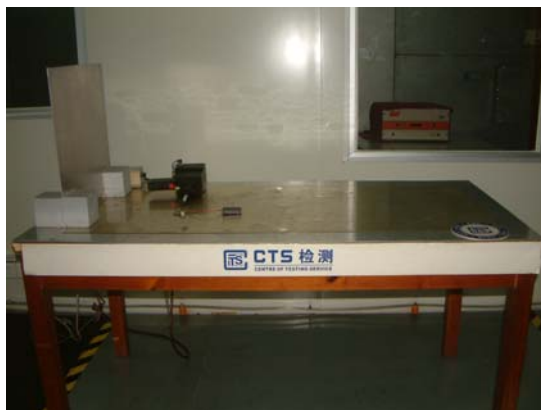
See Reverse For Terms And Conditions of Service

7 TEST PHOTOGRAPHS

7.1. Photo of radiated emission measurement (R.E. Electric field)



7.2. Photo of electrostatic discharge Immunity measurement (E.S.D.)



7.3. Photo of RF field strength Immunity measurement (R.S.)



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

7.4. Photo of PFM field immunity measurement (P.F.M.F.)



Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

8 EXTERNAL AND INTERNAL PHOTOS OF THE EUT



External view 1



External view 2



External view 3

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

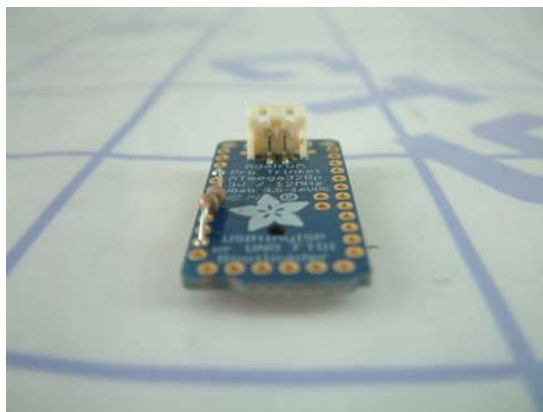
Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

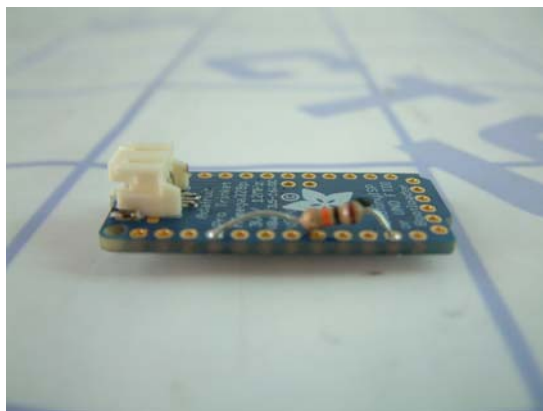
Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

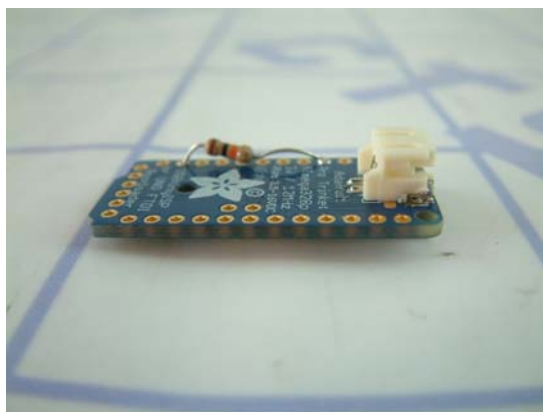
See Reverse For Terms And Conditions of Service



External view 4



External view 5



External view 6

Copyright of this report is owned by Centre of Testing Service and may not be reproduced other than in full except with the written approval of the issuing Company.

CTS (Ningbo) Testing Service Technology Co., Ltd.

2/F., South Tower, Huoju Building, No.181, Canghai Road, Jiangdong Science and Technology Park, Ningbo, Zhejiang, China

Tel: +86-20-85543113 (32 lines)

Fax: +86-20-38780406

Complaint line: +86-20-85533471

E-mail: cts@cts-lab.com.cn

See Reverse For Terms And Conditions of Service

9 Manufacturer/ Approval holder Declaration

The following identical model(s):

N/A

Belong to the tested device:

Product description: **Pro Trinket 3V**
Model name: **Pro Trinket 3V**