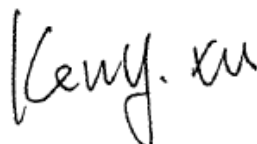


TEST REPORT

Application No.: SZEM2102002073AT
Applicant: Seeed Technology Co., Ltd.
Address of Applicant: 9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P. R. C
Manufacturer: Seeed Technology Co., Ltd.
Address of Manufacturer: 9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P. R. C
Factory: Seeed Technology Co., Ltd.
Address of Factory: 9F, G3 Building, TCL International E City, Zhongshanyuan Road, Nanshan District, Shenzhen, Guangdong Province, P. R. C
Equipment Under Test (EUT):
EUT Name: BeagleBone® Black
Model No.: BeagleBone® Black, BeagleBone® Black Industrial ♣
Trade Mark: Beagleboard. org
Standard(s) : 47 CFR Part 15, Subpart B
Date of Receipt: 2021-02-25
Date of Test: 2021-03-01 to 2021-03-04
Date of Issue: 2021-03-12

| | |
|---------------------|--------------|
| Test Result: | Pass* |
|---------------------|--------------|

* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch, EMC Laboratory

Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/terms-and-conditions/terms-e-document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.
Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgsgroup.com.cn
 中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

| Revision Record | | | | |
|-----------------|---------|------------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 01 | | 2021-03-12 | | Original |
| | | | | |
| | | | | |

| | | | | |
|--------------------------|--|--|--|--|
| Authorized for issue by: | | | | |
| | |  | | |
| | | Harry Wu/Project Engineer | | |
| | |  | | |
| | | Eric Fu/Reviewer | | |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

2 Test Summary

| Emission Part | | | | |
|---|---------------------------|-----------------|-------------|--------|
| Item | Standard | Method | Requirement | Result |
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | 47 CFR Part 15, Subpart B | ANSI C63.4:2014 | Class B | Pass |
| Radiated Emissions (30MHz-1GHz) | 47 CFR Part 15, Subpart B | ANSI C63.4:2014 | Class B | Pass |
| Radiated Emissions (above 1GHz) | 47 CFR Part 15, Subpart B | ANSI C63.4:2014 | Class B | Pass |

Declaration of EUT Family Grouping:

Model No.: BeagleBone® Black, BeagleBone® Black Industrial

Only the model BeagleBone® Black was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used and internal wiring and functions were identical for the above models, with only difference on the work temperature. BeagleBone® Black work between 0-70°, but BeagleBone® Black Industrial work between -40 and +85°.

3 Contents

| | Page |
|---|-------|
| 1 COVER PAGE | 1 |
| 2 TEST SUMMARY | 3 |
| 3 CONTENTS | 4 |
| 4 GENERAL INFORMATION | 5 |
| 4.1 DETAILS OF E.U.T. | 5 |
| 4.2 DESCRIPTION OF SUPPORT UNITS | 5 |
| 4.3 MEASUREMENT UNCERTAINTY | 5 |
| 4.4 TEST LOCATION | 6 |
| 4.5 TEST FACILITY | 6 |
| 4.6 DEVIATION FROM STANDARDS | 6 |
| 4.7 ABNORMALITIES FROM STANDARD CONDITIONS | 6 |
| 5 EQUIPMENT LIST | 7 |
| 6 EMISSION TEST RESULTS | 9 |
| 6.1 CONDUCTED EMISSIONS AT MAINS TERMINALS (150kHz-30MHz) | 9 |
| 6.1.1 E.U.T. Operation | 9 |
| 6.1.2 Test Mode Description | 9 |
| 6.1.3 Test Setup Diagram | 9 |
| 6.1.4 Measurement Procedure and Data | 9 |
| 6.2 RADIATED EMISSIONS (30MHz-1GHz) | 12 |
| 6.2.1 E.U.T. Operation | 12 |
| 6.2.2 Test Mode Description | 12 |
| 6.2.3 Test Setup Diagram | 12 |
| 6.2.4 Measurement Procedure and Data | 13 |
| 6.3 RADIATED EMISSIONS (ABOVE 1GHz) | 18 |
| 6.3.1 E.U.T. Operation | 18 |
| 6.3.2 Test Mode Description | 18 |
| 6.3.3 Test Setup Diagram | 18 |
| 6.3.4 Measurement Procedure and Data | 18 |
| 7 TEST SETUP PHOTO | 21 |
| 8 EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS) | 22-23 |



4 General Information

4.1 Details of E.U.T.

| | |
|---------------|--------------|
| Power supply: | DC5.0V, 1.0A |
|---------------|--------------|

4.2 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|----------------|--------------|-------------------------------|-------------------|
| Network Cable | SGS | N/A | REF. No.SEA1100 |
| Router | NETGEAR | DGN2200 | REF. No.SEA2200 |
| Television | SONY | KDL-24EX520 | 6351646 |
| Adapter | Apple | A1443 | REF. No.SEA05D08A |
| Mini USB Cable | SANBO | SU-T21 | REF. No.SEA07B01 |
| TF Card | Kingston | SDC8GB | REF. No.SEA04A00 |
| U-Disk | Sandisk | SDCZ60-016G | REF. No.SEA01A00 |
| HDMI Cable | Seeed | 1.34 meters, Shielded, 3 Core | N/A |

4.3 Measurement Uncertainty

| Test Item | Measurement Uncertainty |
|---|-------------------------|
| Conducted Emissions at Mains Terminals (150kHz-30MHz) | $\pm 3.0\text{dB}$ |
| Radiated Emissions (30MHz-1GHz) | $\pm 4.5\text{dB}$ |
| Radiated Emissions (above 1GHz) | $\pm 4.8\text{dB}$ |

Remark:

The U_{lab} (lab Uncertainty) is less than U_{CISPR} (CISPR Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

5 Equipment List

| Conducted Emissions at Mains Terminals (150kHz-30MHz) | | | | | |
|---|------------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Shielding Room | ZhongYu Electron | GB-88 | SEM001-06 | 2019-06-13 | 2022-06-12 |
| EMI Test Receiver | Rohde&Schwarz | ESCI | SEM004-02 | 2020-03-24 | 2021-03-23 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM024-01 | 2020-07-10 | 2021-07-09 |
| LISN | Rohde&Schwarz | ENV216 | SEM007-01 | 2020-09-23 | 2021-09-22 |
| LISN | ETS-LINDGREN | 3816/2 | SEM007-02 | 2020-04-01 | 2021-03-31 |

| Radiated Emissions (30MHz-1GHz) | | | | | |
|---------------------------------|----------------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| 3m Semi-Anechoic Chamber | ETS-LINDGREN | N/A | SEM001-01 | 2020-07-19 | 2023-07-18 |
| MXE EMI Receiver | Agilent Technologies | N9038A | SEM004-15 | 2020-11-02 | 2021-11-01 |
| BiConiLog Antenna | ETS-LINDGREN | 3142C | SEM003-02 | 2019-05-24 | 2022-05-23 |
| Pre-Amplifier | Agilent Technologies | 8447D | SEM005-01 | 2020-04-01 | 2021-03-31 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2020-07-10 | 2021-07-09 |

| Radiated Emissions (above 1GHz) | | | | | |
|---------------------------------|------------------------------------|-----------------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2018-03-13 | 2021-03-12 |
| EXA Signal Analyzer | Agilent Technologies Inc | N9010A | SEM004-12 | 2020-04-09 | 2021-04-08 |
| Horn Antenna | Rohde&Schwarz | HF907 | SEM003-07 | 2018-04-13 | 2021-04-12 |
| Pre-Amplifier | Compliance Directions Systems Inc. | PAP-0126 | SEM004-11 | 2020-09-23 | 2021-09-22 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM026-01 | 2020-07-10 | 2021-07-09 |



| General used equipment | | | | | |
|---------------------------------|---|----------|--------------|------------|--------------|
| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory | ZJ1-2B | SEM002-04 | 2020-09-15 | 2021-09-14 |
| Humidity/ Temperature Indicator | Mingle | N/A | SEM002-08 | 2020-09-15 | 2021-09-14 |
| Barometer | Changchun Meteorological Industry Factory | DYM3 | SEM002-01 | 2020-04-07 | 2021-04-06 |



Unless otherwise agreed in writing, this document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Documents.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

Attention: To check the authenticity of testing / inspection report & certificate, please contact us at telephone: (86-755) 8307 1443, or email: CN.Doccheck@sgs.com

No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China 518057 t (86-755) 26012053 f (86-755) 26710594 www.sgs.com.cn
中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Limit:

| | |
|--------------|--|
| 0.15M-0.5MHz | 66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average |
| 0.5M-5MHz | 56dB(μV) quasi-peak, 46dB(μV) average |
| 5M-30MHz | 60dB(μV) quasi-peak, 50dB(μV) average |
| Detector: | Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz |

6.1.1 E.U.T. Operation

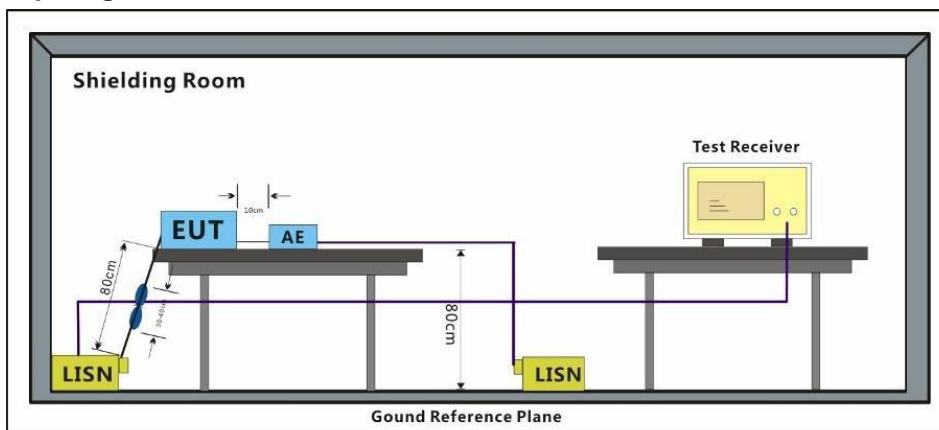
Operating Environment:

Temperature: 22.8 °C Humidity: 64.3 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|-----------------------|-----------|--|
| Final test | 00 | Normal working(BeagleBone® Black)_Keep all the port of EUT working normally. |

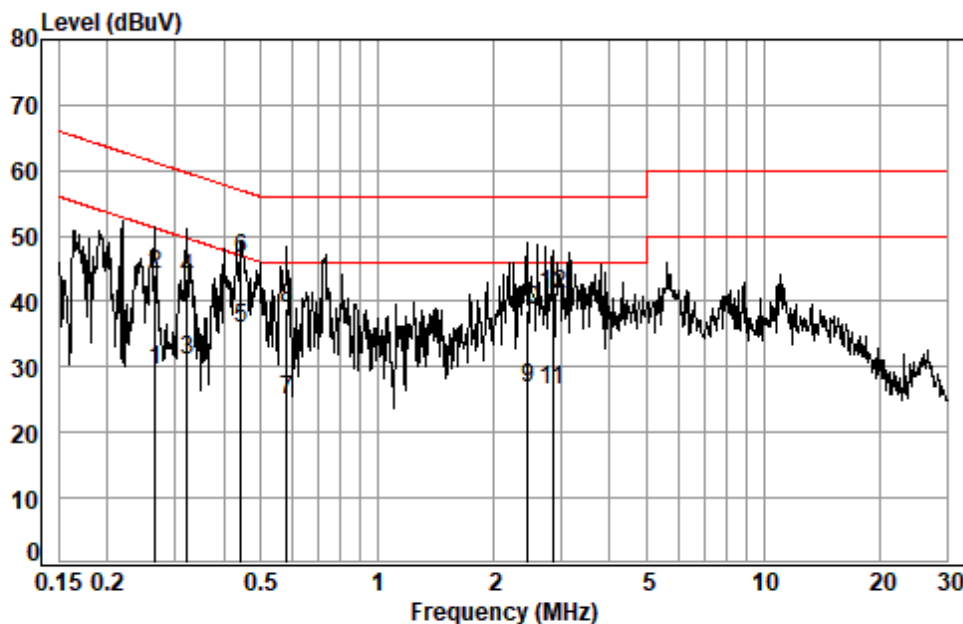
6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Test Mode: 00; Line: Live line

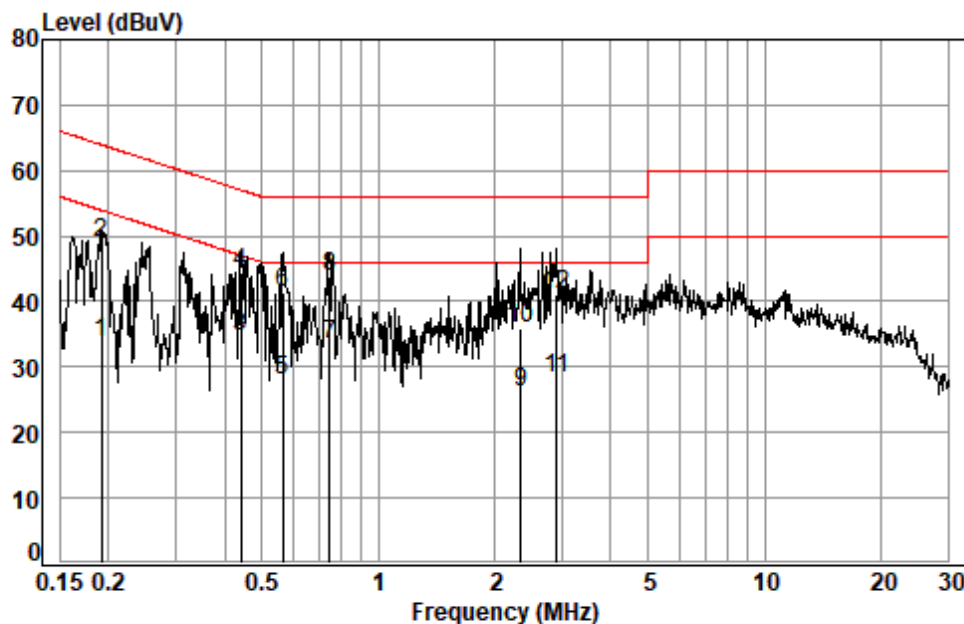


Site : Shielding Room
Condition: Line
Job No. : 02073AT
Test mode: 00

| | Freq | Cable Loss | LISN Factor | Read Level | Limit Level | Over Limit | Remark |
|----|--------|------------|-------------|------------|-------------|--------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.2658 | 0.05 | 9.74 | 19.80 | 29.59 | 51.25 -21.66 | Average |
| 2 | 0.2658 | 0.05 | 9.74 | 34.32 | 44.11 | 61.25 -17.14 | QP |
| 3 | 0.3217 | 0.06 | 9.74 | 21.14 | 30.94 | 49.66 -18.72 | Average |
| 4 | 0.3217 | 0.06 | 9.74 | 33.79 | 43.59 | 59.66 -16.07 | QP |
| 5 | 0.4444 | 0.07 | 9.76 | 25.93 | 35.76 | 46.98 -11.22 | Average |
| 6 | 0.4444 | 0.07 | 9.76 | 36.76 | 46.59 | 56.98 -10.39 | QP |
| 7 | 0.5823 | 0.08 | 9.77 | 15.06 | 24.91 | 46.00 -21.09 | Average |
| 8 | 0.5823 | 0.08 | 9.77 | 29.20 | 39.05 | 56.00 -16.95 | QP |
| 9 | 2.4606 | 0.13 | 9.82 | 16.68 | 26.63 | 46.00 -19.37 | Average |
| 10 | 2.4606 | 0.13 | 9.82 | 28.70 | 38.65 | 56.00 -17.35 | QP |
| 11 | 2.8390 | 0.14 | 9.83 | 16.58 | 26.55 | 46.00 -19.45 | Average |
| 12 | 2.8390 | 0.14 | 9.83 | 31.11 | 41.08 | 56.00 -14.92 | QP |



Test Mode: 00; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 02073AT
Test mode: 00

| | Freq | Cable Loss | LISN Factor | Read Level | Limit Level | Limit Line | Over Limit | Remark |
|----|--------|------------|-------------|------------|-------------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.1924 | 0.04 | 9.72 | 23.92 | 33.68 | 53.93 | -20.25 | Average |
| 2 | 0.1924 | 0.04 | 9.72 | 39.12 | 48.88 | 63.93 | -15.05 | QP |
| 3 | 0.4421 | 0.07 | 9.75 | 24.85 | 34.67 | 47.02 | -12.35 | Average |
| 4 | 0.4421 | 0.07 | 9.75 | 34.59 | 44.41 | 57.02 | -12.61 | QP |
| 5 | 0.5671 | 0.08 | 9.77 | 18.14 | 27.99 | 46.00 | -18.01 | Average |
| 6 | 0.5671 | 0.08 | 9.77 | 31.56 | 41.41 | 56.00 | -14.59 | QP |
| 7 | 0.7470 | 0.09 | 9.77 | 23.58 | 33.44 | 46.00 | -12.56 | Average |
| 8 | 0.7470 | 0.09 | 9.77 | 34.01 | 43.87 | 56.00 | -12.13 | QP |
| 9 | 2.3336 | 0.13 | 9.82 | 16.31 | 26.26 | 46.00 | -19.74 | Average |
| 10 | 2.3336 | 0.13 | 9.82 | 26.07 | 36.02 | 56.00 | -19.98 | QP |
| 11 | 2.9025 | 0.14 | 9.84 | 18.38 | 28.36 | 46.00 | -17.64 | Average |
| 12 | 2.9025 | 0.14 | 9.84 | 31.18 | 41.16 | 56.00 | -14.84 | QP |

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Measurement Distance: 3m

Limit:

| FREQUENCY (MHz) | dBμV/m (At 10m) | dBμV/m (At 3m) |
|--|-----------------|----------------|
| | Class B | Class B |
| 30MHz -88MHz | 29.5 | 40.0 |
| 88MHz-216MHz | 33.1 | 43.5 |
| 216MHz-960MHz | 35.6 | 46.0 |
| 960MHz-1000MHz | 43.5 | 54.0 |
| Detector: Peak for pre-scan (120kHz resolution bandwidth) 30M to 1000MHz | | |

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

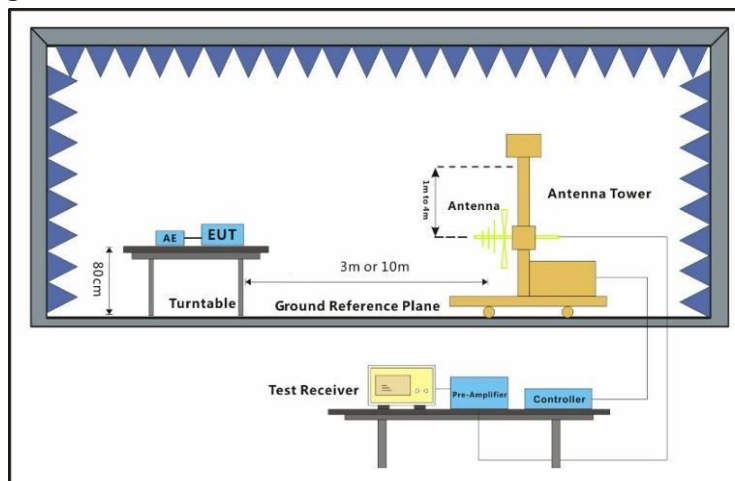
Humidity: 50.3 % RH

Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|-----------------------|-----------|--|
| Final test | 00 | Normal working(BeagleBone® Black)_Keep all the port of EUT working normally. |
| Final test | 01 | Normal working(BeagleBone® Black Industria)_Keep all the port of EUT working normally. |

6.2.3 Test Setup Diagram

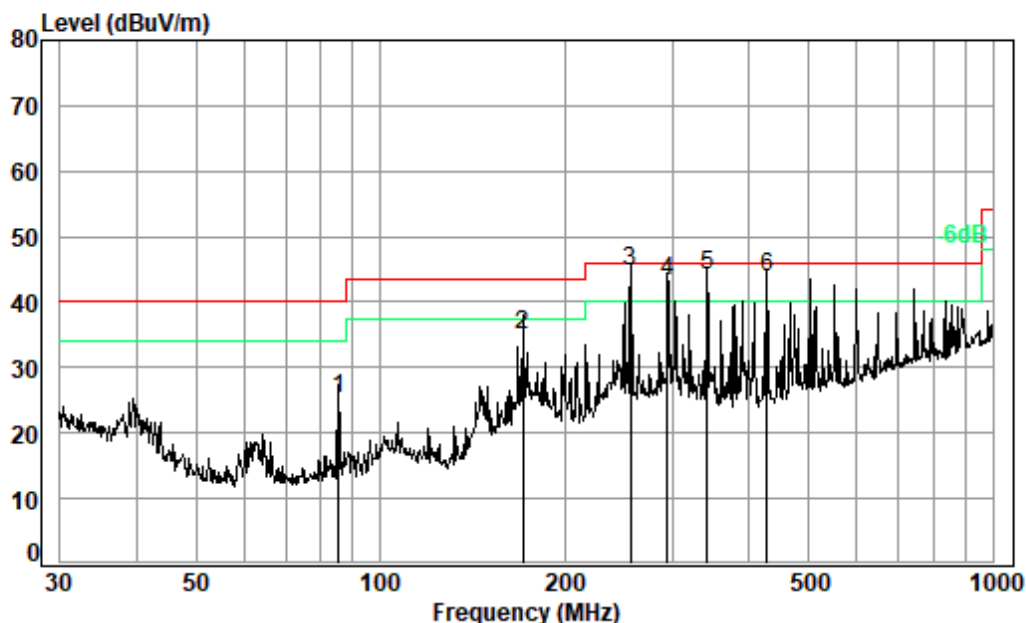


6.2.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.



Test Mode: 00; Polarity: Horizontal



Condition: 3m HORIZONTAL

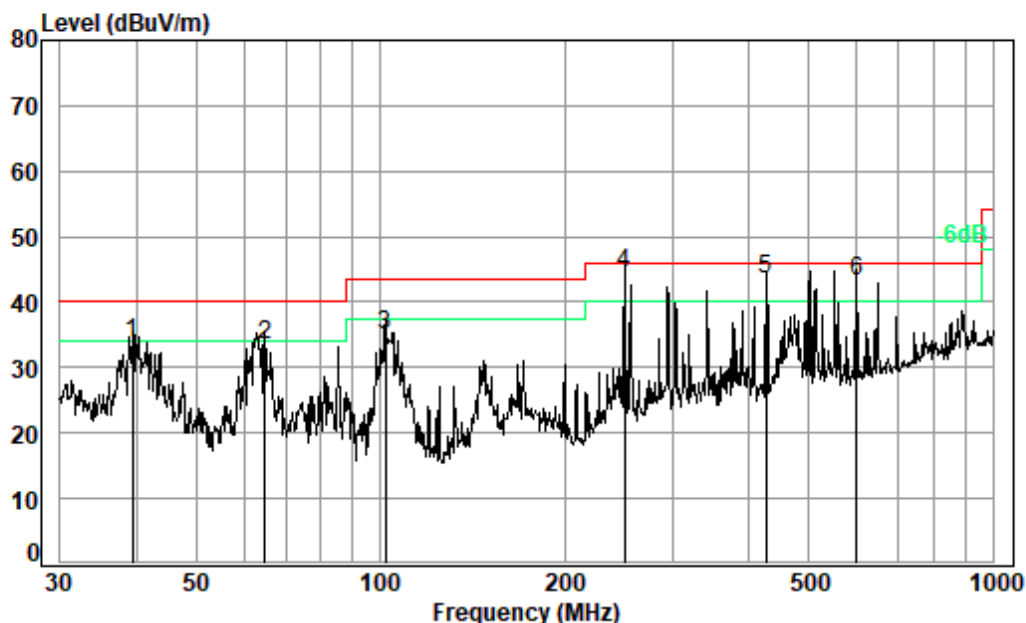
Job No. : 02073AT

Test Mode: 00

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|------|--------|------------|------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 85.60 | 1.26 | 12.46 | 27.63 | 39.17 | 25.26 | 40.00 | -14.74 | QP |
| 2 | 170.79 | 1.18 | 15.58 | 27.25 | 45.49 | 35.00 | 43.50 | -8.50 | QP |
| 3 pp | 256.52 | 1.69 | 18.13 | 26.98 | 51.79 | 44.63 | 46.00 | -1.37 | QP |
| 4 | 294.11 | 1.96 | 18.63 | 26.88 | 49.60 | 43.31 | 46.00 | -2.69 | QP |
| 5 | 341.98 | 2.14 | 20.52 | 27.11 | 48.61 | 44.16 | 46.00 | -1.84 | QP |
| 6 | 428.02 | 2.36 | 22.16 | 27.52 | 46.81 | 43.81 | 46.00 | -2.19 | QP |



Test Mode: 00; Polarity: Vertical



Condition: 3m VERTICAL

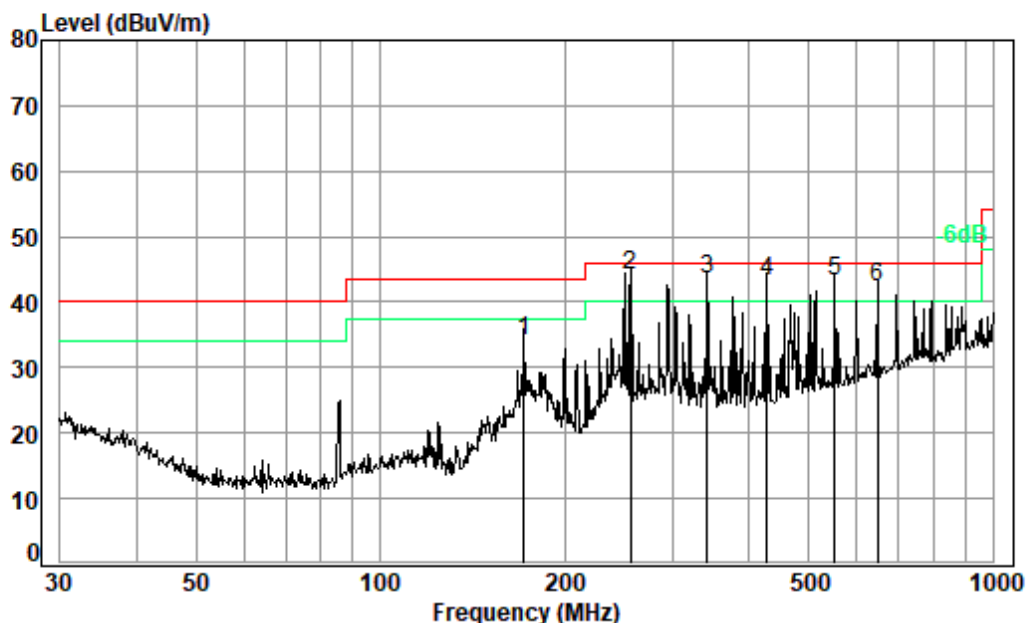
Job No. : 02073AT

Test Mode: 00

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|------|--------|------------|------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 39.44 | 0.70 | 18.33 | 27.71 | 42.39 | 33.71 | 40.00 | -6.29 | QP |
| 2 | 64.89 | 0.80 | 12.74 | 27.66 | 47.52 | 33.40 | 40.00 | -6.60 | QP |
| 3 | 102.00 | 1.10 | 13.94 | 27.60 | 47.63 | 35.07 | 43.50 | -8.43 | QP |
| 4 pp | 250.30 | 1.64 | 18.20 | 26.99 | 51.65 | 44.50 | 46.00 | -1.50 | QP |
| 5 | 426.52 | 2.36 | 22.13 | 27.51 | 46.65 | 43.63 | 46.00 | -2.37 | QP |
| 6 | 599.32 | 2.70 | 25.79 | 28.13 | 42.78 | 43.14 | 46.00 | -2.86 | QP |



Test Mode: 01; Polarity: Horizontal



Condition: 3m HORIZONTAL

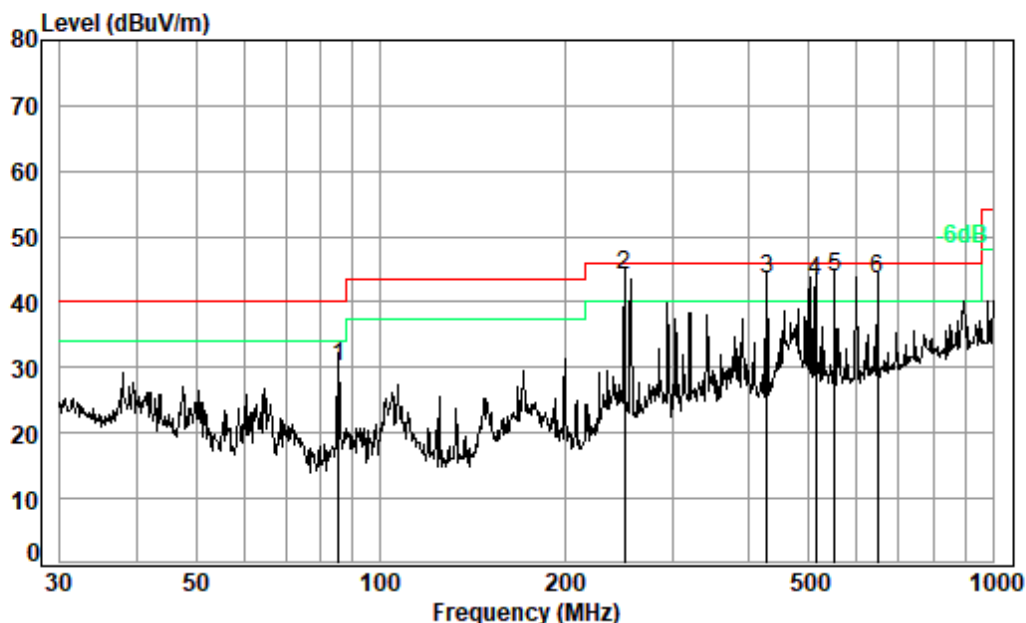
Job No. : 02073AT

Test Mode: 01

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|--------|------------|------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 171.39 | 1.18 | 15.57 | 27.25 | 44.54 | 34.04 | 43.50 | -9.46 | QP |
| 2 | 256.52 | 1.69 | 18.13 | 26.98 | 51.32 | 44.16 | 46.00 | -1.84 | QP |
| 3 | 341.98 | 2.14 | 20.52 | 27.11 | 48.00 | 43.55 | 46.00 | -2.45 | QP |
| 4 | 428.02 | 2.36 | 22.16 | 27.52 | 46.32 | 43.32 | 46.00 | -2.68 | QP |
| 5 | 552.88 | 2.61 | 25.07 | 27.98 | 43.44 | 43.14 | 46.00 | -2.86 | QP |
| 6 | 647.39 | 2.80 | 26.27 | 28.02 | 41.20 | 42.25 | 46.00 | -3.75 | QP |



Test Mode: 01; Polarity: Vertical



Condition: 3m VERTICAL

Job No. : 02073AT

Test Mode: 01

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|--------|------------|------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 85.60 | 1.26 | 12.46 | 27.63 | 44.04 | 30.13 | 40.00 | -9.87 | QP |
| 2 | 250.30 | 1.64 | 18.20 | 26.99 | 51.18 | 44.03 | 46.00 | -1.97 | QP |
| 3 | 428.02 | 2.36 | 22.16 | 27.52 | 46.51 | 43.51 | 46.00 | -2.49 | QP |
| 4 | 513.63 | 2.53 | 24.41 | 27.85 | 44.22 | 43.31 | 46.00 | -2.69 | QP |
| 5 | 552.88 | 2.61 | 25.07 | 27.98 | 44.13 | 43.83 | 46.00 | -2.17 | QP |
| 6 | 647.39 | 2.80 | 26.27 | 28.02 | 42.48 | 43.53 | 46.00 | -2.47 | QP |



6.3 Radiated Emissions (above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Measurement Distance: 3m

Limit:

Above 1GHz 74(dBμV/m) peak, 54(dBμV/m) average

Detector: Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.6 °C

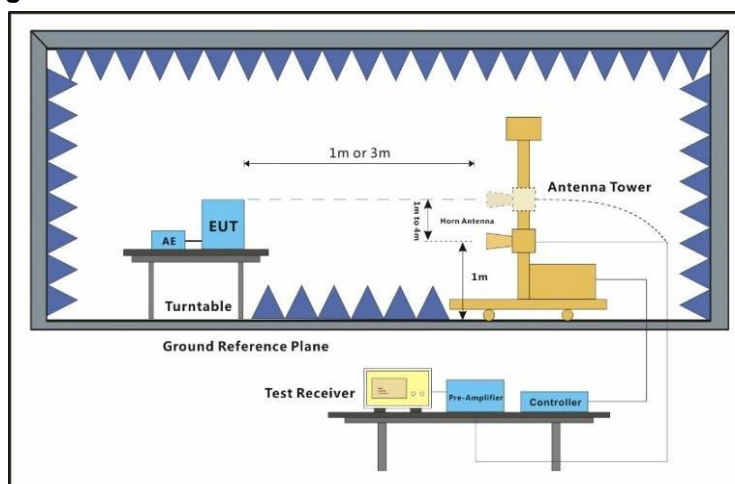
Humidity: 51.9 % RH

Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|-----------------------|-----------|--|
| Final test | 00 | Normal working(BeagleBone® Black)_Keep all the port of EUT working normally. |

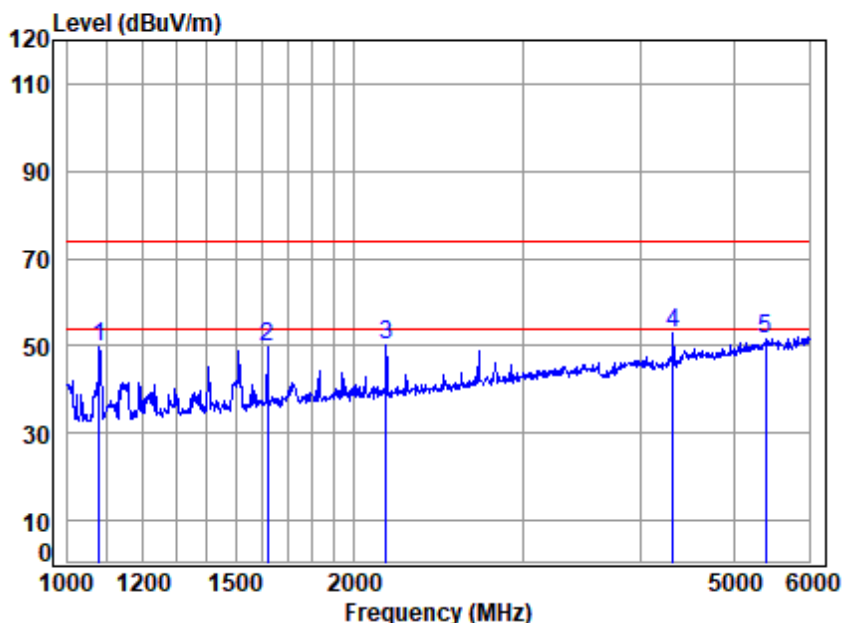
6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

Test Mode: 00; Polarity: Horizontal

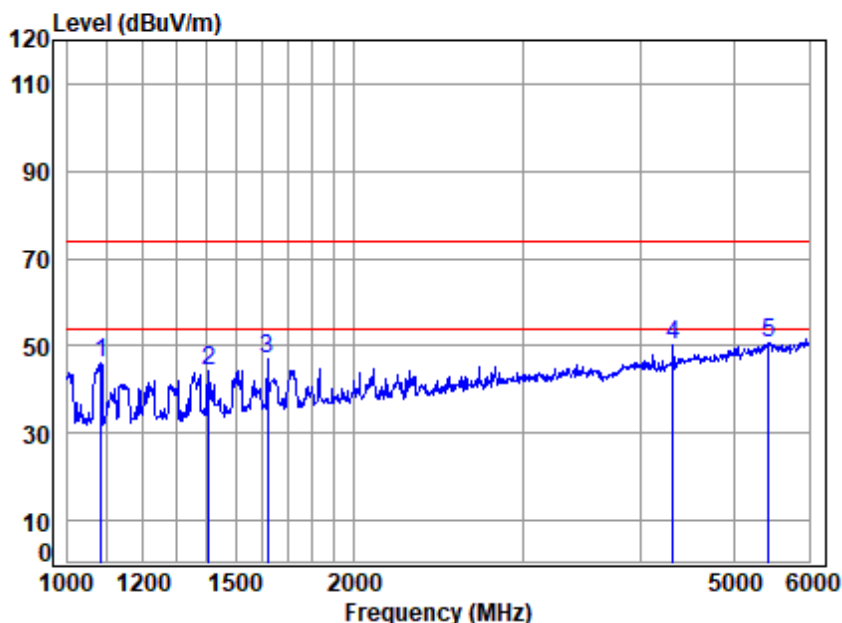


Site : chamber
Condition: 3m HORIZONTAL
Job No : 02073AT
Mode : 00
Note : yellow

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1080.091 | 2.53 | 24.02 | 39.67 | 62.98 | 49.86 | 74.00 | -24.14 | Peak |
| 2 | 1622.187 | 3.37 | 26.34 | 40.02 | 60.25 | 49.94 | 74.00 | -24.06 | Peak |
| 3 | 2160.753 | 3.95 | 28.11 | 40.30 | 58.35 | 50.11 | 74.00 | -23.89 | Peak |
| 4 | 4322.645 | 6.60 | 33.29 | 41.71 | 54.81 | 52.99 | 74.00 | -21.01 | Peak |
| 5 | 5407.773 | 8.02 | 34.53 | 42.34 | 51.46 | 51.67 | 74.00 | -22.33 | Peak |



Test Mode: 00; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 02073AT
Mode : 00
Note : yellow

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1083.969 | 2.54 | 24.04 | 39.67 | 59.26 | 46.17 | 74.00 | -27.83 | Peak |
| 2 | 1405.558 | 3.12 | 25.45 | 39.89 | 55.63 | 44.31 | 74.00 | -29.69 | Peak |
| 3 | 1619.283 | 3.36 | 26.33 | 40.02 | 57.28 | 46.95 | 74.00 | -27.05 | Peak |
| 4 | 4314.907 | 6.59 | 33.28 | 41.71 | 52.17 | 50.33 | 74.00 | -23.67 | Peak |
| 5 | 5436.920 | 8.07 | 34.55 | 42.35 | 50.54 | 50.81 | 74.00 | -23.19 | Peak |



7 Test Setup Photo

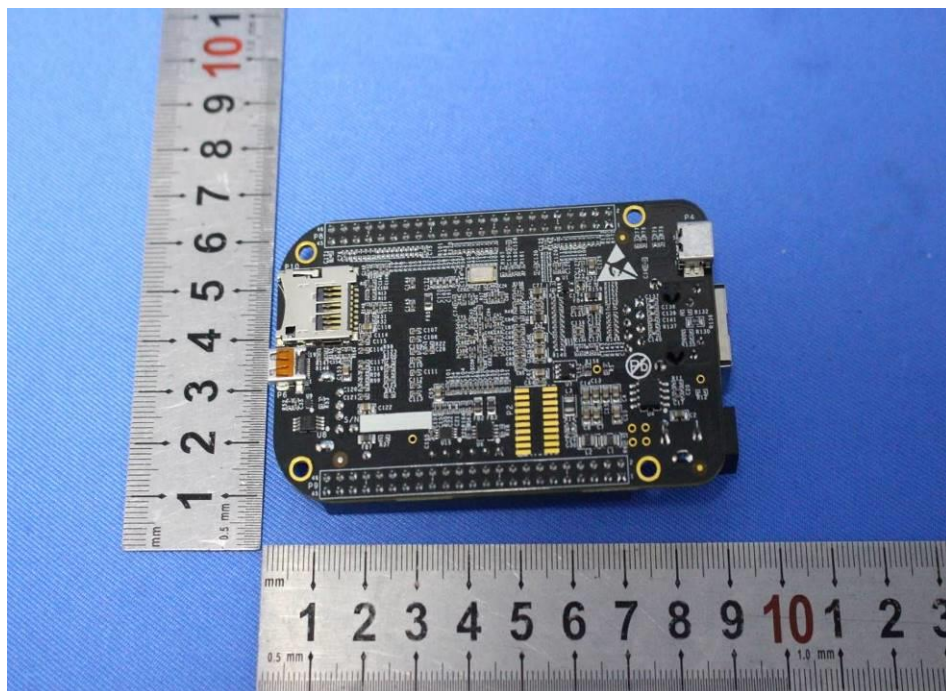
Conducted Emissions at Mains Terminals (150kHz-30MHz)

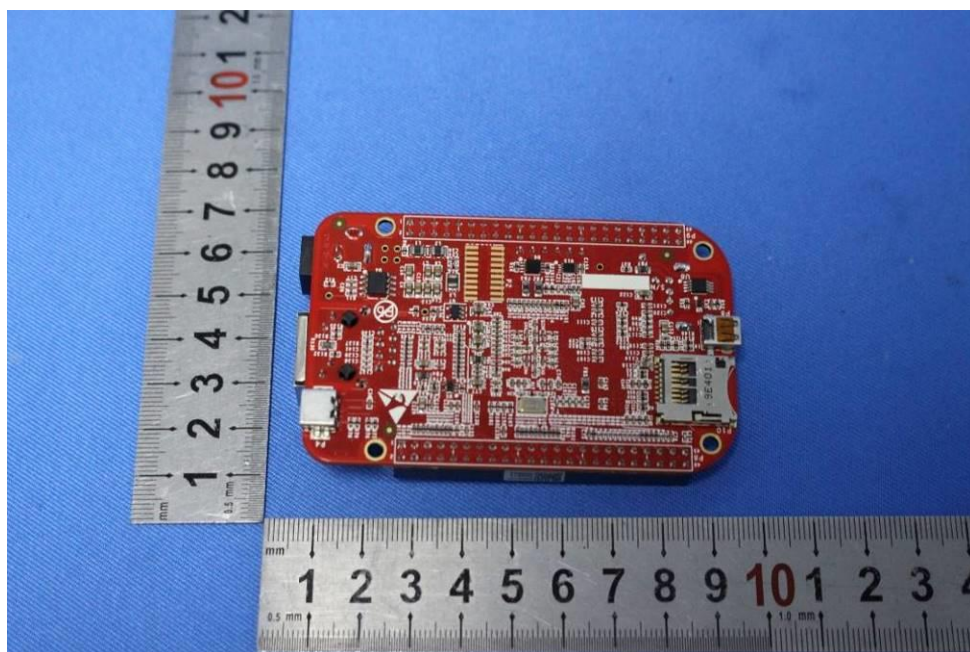


Radiated Emissions (30MHz-1GHz)



8 EUT Constructional Details (EUT Photos)





- End of the Report -