

FCC TEST REPORT
for
CIRCUS WORLD DISPLAYS LTD
Soundbase

Model Number: AB40

FCC ID: SMHAB40
IC: 4593A-AB40

Prepared for : CIRCUS WORLD DISPLAYS LTD
Address : 4080 Montrose Rd, Niagara Falls, Ontario L2H 1J9, Canada

Prepared by : Keyway Testing Technology Co., Ltd.
Address : Baishun Industrial Zone, Zhangmutou Town,
Dongguan, Guangdong, China

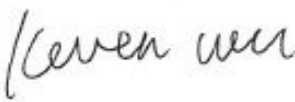
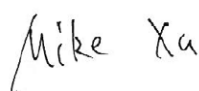
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Report No. : 16KWE043676F
Date of Test : Apr. 14~Apr.19, 2016
Date of Report : Apr. 20, 2016

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Keyway Testing Technology Co., Ltd.

| | | | |
|---|--|---|--------------------------|
| Applicant: | CIRCUS WORLD DISPLAYS LTD | | |
| Address: | 4080 Montrose Rd, Niagara Falls, Ontario L2H 1J9, Canada | | |
| Manufacturer: | CIRCUS WORLD DISPLAYS LTD | | |
| Address: | 4080 Montrose Rd, Niagara Falls, Ontario L2H 1J9, Canada | | |
| E.U.T: | Soundbase | | |
| Model Number: | AB40 | | |
| Trade Name: | Circus World Displays Ltd. | Serial No.: | ----- |
| Date of Receipt: | Apr. 13, 2016 | Date Test: | of Apr. 14~Apr. 19, 2016 |
| Test Specification: | FCC Part 15, Subpart 15.247: 2015 ANSI C63.10:2013 KDB558074 D01 DTS Meas Guidance v03r03 RSS-247 Issue 1 May 2015 RSS-Gen Issue 4 November 2014 | | |
| Test Result: | The equipment under test was found to be compliance with the requirements of the standards applied. | | |
| | | Issue Date: Apr. 20, 2016 | |
| Tested by: | Reviewed by: | Approved by: | |
|  <hr style="width: 100%;"/> Keven Wu / Engineer |  <hr style="width: 100%;"/> Mike Xu / Supervisor |  <hr style="width: 100%;"/> Andy Gao / Supervisor | |
| Other Aspects: | None. | | |
| <i>Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested</i> | | | |
| <i>This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Keyway Testing Technology Co., Ltd.</i> | | | |

1. TEST SUMMARY

| Test Items | Test Requirement | Result |
|---------------------|--|--------|
| Conducted Emissions | 15.207 &RSS-Gen §8.8 | PASS |
| Radiated Emissions | 15.205(a)/15.209/15.247(d) &RSS-Gen §6.13 | PASS |

Note: This C2PC testing, the changed is: only add adapter.

2. GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

| | |
|------------------------|--|
| Product Name: | Soundbase |
| Model No.: | AB40 |
| Operation Frequency: | 2402MHz-2480MHz |
| Channel numbers: | BT: 40 Channels |
| Modulation technology: | BT: GFSK |
| Antenna Type: | PCB |
| Antenna gain: | 1.0dBi |
| Power supply: | DC 19V from adapter AC 120V/60Hz |
| Adapter: | Adapter 1: Product: AC/DC ADAPTER Model: BI60-190315-E1 Input: AC 100-240V; 50-60Hz 2A Output: DC 19V/3.15A Adapter 2: Product: AC/DC ADAPTER Model: DQS751-190315-3 Input: AC 100-240V~50-60Hz 2.0A Max Output: DC 19V/3.15A |

Report Version:

This copy was issued based on 15KWE113214F (Issued date: 2015-11-09), the adapter has been changed, so the data of test item Conducted Emission and Spurious Emission (radiated) were updated. Other data was the same as the original report.

2.3. Independent Operation Modes

The basic operation modes are:

2.3.1. EUT work BT TX mode, and frequency as below:

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | CH00 |
| Mode 2 | CH19 |
| Mode 3 | CH39 |
| Mode 4 | BT link |

Remark: According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup”

2.4. Test Supporting System

None.

2.5. Product Version

| | |
|-----------------------------|----------------------|
| Product SW version | CWDAMP_150521 VER:02 |
| Product HW version | CWDAMP_150521 VER:02 |
| Radio SW version | F-3188 V2.0 |
| Radio HW version | F-3188 V2.0 |
| Test SW Version | B2.4 |
| RF power setting in TEST SW | BT:4 dBm |

Note: SW means software, HW means hardware.

2.6. TEST SITES

2.6.1. Test Facilities

Lab Qualifications :
Certificated by Industry Canada
Registration No.: 9868A
Date of registration: December 8, 2011

Certificated by FCC, USA
Registration No.: 370994
Date of registration: February 21, 2012

Certificated by CNAS China
Registration No.: CNAS L5783
Date of registration: August 8, 2012

2.7. List of Test and Measurement Instruments

2.7.1. For conducted emission at the mains terminals test

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|--------------------------------|---------------|-----------|------------|------------|------------|
| EMI Test Receiver | Rohde&Schwarz | ESCI | 101156 | Apr. 27,15 | Apr. 27,16 |
| Artificial Mains Network | Rohde&Schwarz | ENV216 | 101315 | Apr. 27,15 | Apr. 27,16 |
| Artificial Mains Network (AUX) | Rohde&Schwarz | ENV216 | 101314 | Apr. 27,15 | Apr. 27,16 |
| RF Cable | FUJIKURA | 3D-2W | 944 Cable | Apr. 27,15 | Apr. 27,16 |

2.7.2. For radiated emission test

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---------------------------------------|---------------|--------------------|----------------------|------------|------------|
| EMI Test Receiver | Rohde&Schwarz | ESCI | 101156 | Apr. 27,15 | Apr. 27,16 |
| System Simulator | Agilent | E5515C | GB43130245 | Apr. 27,15 | Apr. 27,16 |
| Power Splitter | Weinschel | 1506A | NW425 | Apr. 27,15 | Apr. 27,16 |
| Bilog Antenna | ETS-LINDGREEN | 3142D | 135452 | Apr. 27,15 | Apr. 27,16 |
| Spectrum Analyzer | Agilent | E4411B | MY4511304 | Apr. 27,15 | Apr. 27,16 |
| Spectrum Analyzer | R&S | FSV40 | 132.1.3008K39-100967 | Apr. 27,15 | Apr. 27,16 |
| 3m Semi-anechoic Chamber | ETS-LINDGREEN | 966 | KW01 | Apr. 27,15 | Apr. 27,16 |
| Signal Amplifier | SONOMA | 310 | 187016 | Apr. 27,15 | Apr. 27,16 |
| Signal Amplifier | Agilent | 8449B | 3008A00251 | Apr. 27,15 | Apr. 27,16 |
| RF Cable | IMRO | IMRO-400 | 966 Cable 1# | N/A | N/A |
| MULTI-DEVICE Controller | ETS-LINDGREEN | 2090 | 126913 | N/A | N/A |
| Horn Antenna | DAZE | ZN30701 | 11003 | Apr. 27,15 | Apr. 27,16 |
| Horn Antenna | SCHWARZBECK | BBHA9170 | 9170-068 | Apr. 27,15 | Apr. 27,16 |
| Spectrum Analyzer | Agilent | 8593E | 3911A04271 | Apr. 27,15 | Apr. 27,16 |
| Spectrum Analyzer | Agilent | E4408B | MY44211125 | Apr. 27,15 | Apr. 27,16 |
| Signal Amplifier | DAZE | ZN3380C | 11001 | Apr. 27,15 | Apr. 27,16 |
| High Pass filter | Micro | HPM50111 | 324216 | Apr. 27,15 | Apr. 27,16 |
| Filter | COM-MW | ZBSF-C836.5-25-X | KW032 | Apr. 27,15 | Apr. 27,16 |
| Filter | COM-MW | ZBSF-C1747.5-75-X2 | KW035 | Apr. 27,15 | Apr. 27,16 |
| Filter | COM-MW | ZBSF-C1880-60-X2 | KW037 | Apr. 27,15 | Apr. 27,16 |
| DC Power Supply | LongWei | PS-305D | 010964729 | Apr. 27,15 | Apr. 27,16 |
| Constant temperature and humidity box | GF | GTH-800-40-1P | MAA9906-005 | Apr. 27,15 | Apr. 27,16 |
| Universal radio communication tester | Rohde&Schwarz | CMU200 | 3215420 | Apr. 27,15 | Apr. 27,16 |
| Splitter | Agilent | 11636B | 0025164 | Apr. 27,15 | Apr. 27,16 |

3. TEST SET-UP AND OPERATION MODES

3.1. 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 Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: Soundbase)

3.3. Test Operation Mode and Test Software

None.

3.4. Special Accessories and Auxiliary Equipment

None.

3.5. Countermeasures to Achieve EMC Compliance

None.

4. EMISSION TEST RESULTS

4.1. Conducted Emission at the Mains Terminals Test

4.1.1. Limit 15.209 limits

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB μ V) | |
|-----------------------------|------------------------------|----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56 | 56 to 46 |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

4.1.2. Test Setup

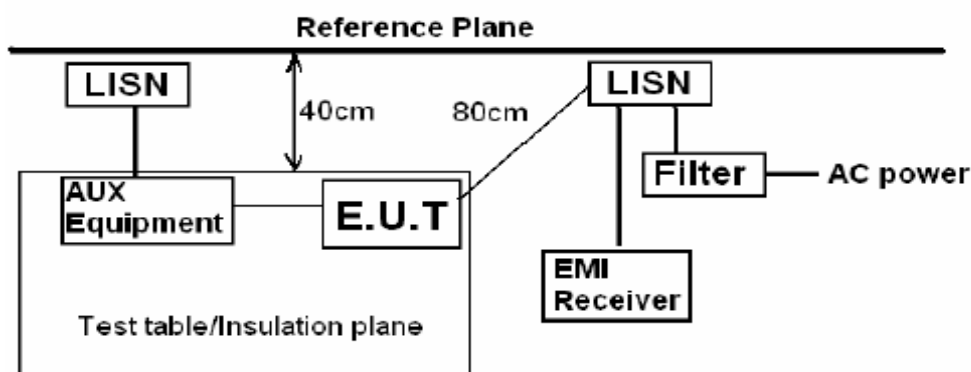
The EUT was put on a wooden table which was 0.8 m high above the ground and connected to the AC mains through the Artificial Mains Network (AMN). Where the mains cable supplied by the manufacture was longer than 0.8 m, the excess was folded back and forth parallel to the cable at the centre so as to form a bundle no longer than 0.4 m.

The EUT was kept 0.4 m from any other earthed conducting surface. Both sides of AC line were checked to find out the maximum conducted emission levels according to the test procedure during the conducted emission test.

The frequency range from 150 kHz to 30 MHz was investigated.

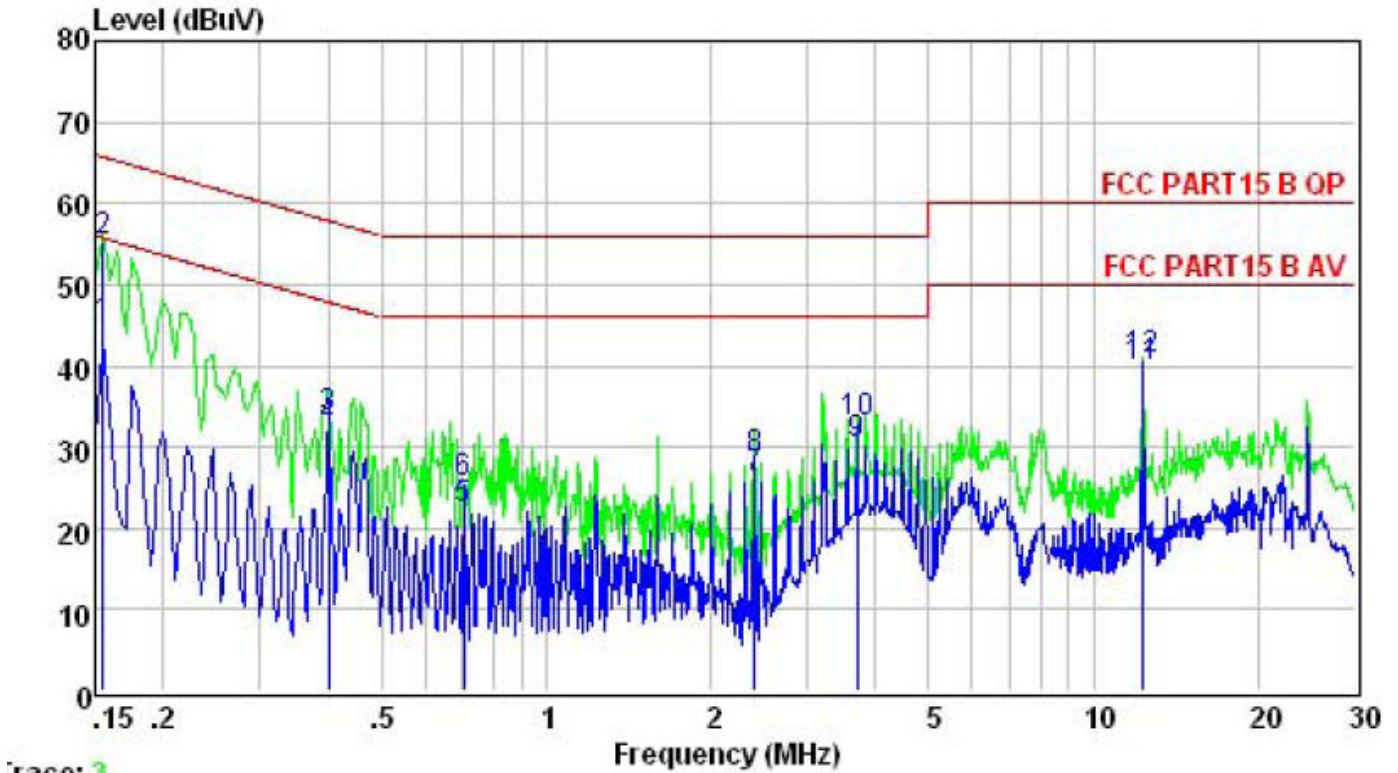
The bandwidth of the test receiver was set at 9 kHz.

Pretest for all mode, The test data of the worst case condition(s) was reported on the following page.



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedance Stabilization Network
Test table height=0.8m

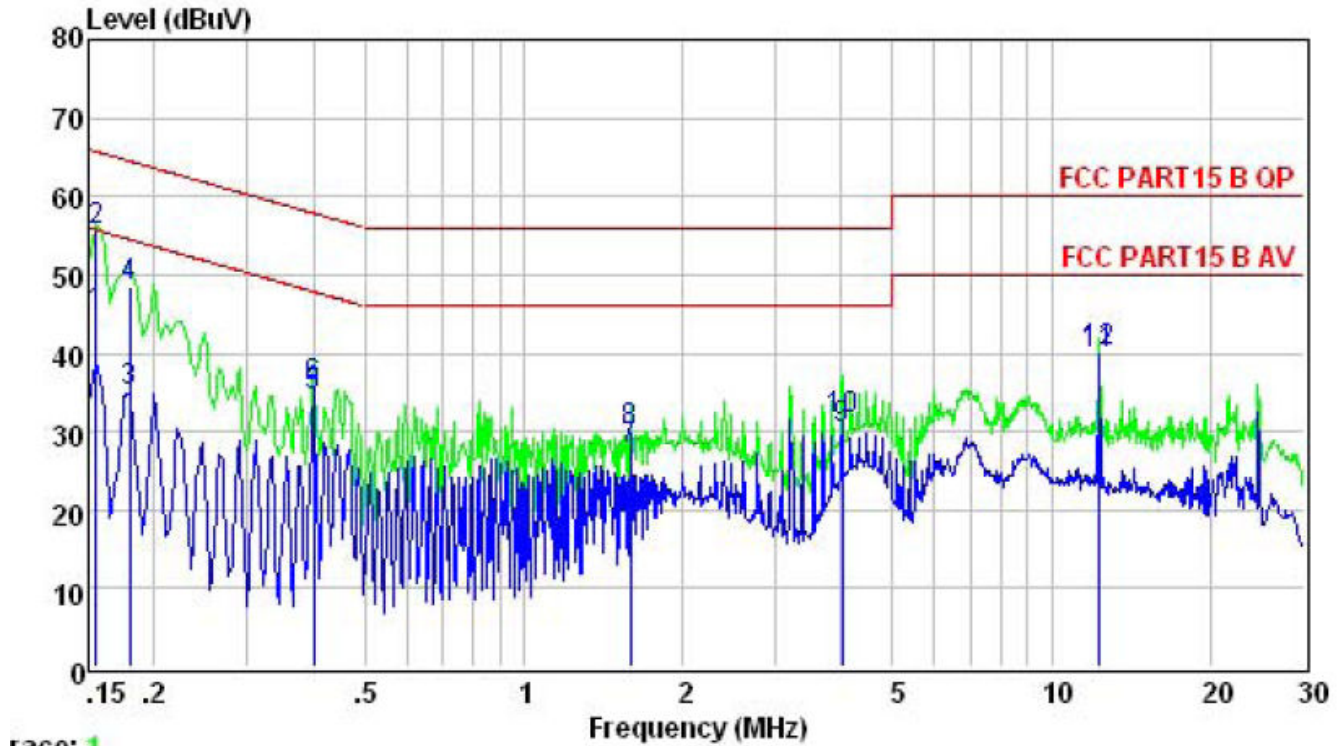
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 19.0V form Adapter 1 AC 120V/60Hz | Test Mode : | Mode 4 |



Trace: 3

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | dBuV | dB | |
| 1 | 0.155 | 44.80 | 55.74 | -10.94 | Average |
| 2 | 0.155 | 55.20 | 65.74 | -10.54 | QP |
| 3 | 0.400 | 33.54 | 47.86 | -14.32 | Average |
| 4 | 0.400 | 32.56 | 57.86 | -25.30 | QP |
| 5 | 0.708 | 22.19 | 46.00 | -23.81 | Average |
| 6 | 0.708 | 25.64 | 56.00 | -30.36 | QP |
| 7 | 2.396 | 26.16 | 46.00 | -19.84 | Average |
| 8 | 2.396 | 28.69 | 56.00 | -27.31 | QP |
| 9 | 3.700 | 30.34 | 46.00 | -15.66 | Average |
| 10 | 3.700 | 32.89 | 56.00 | -23.11 | QP |
| 11 | 12.318 | 39.85 | 50.00 | -10.15 | Average |
| 12 | 12.318 | 40.79 | 60.00 | -19.21 | QP |

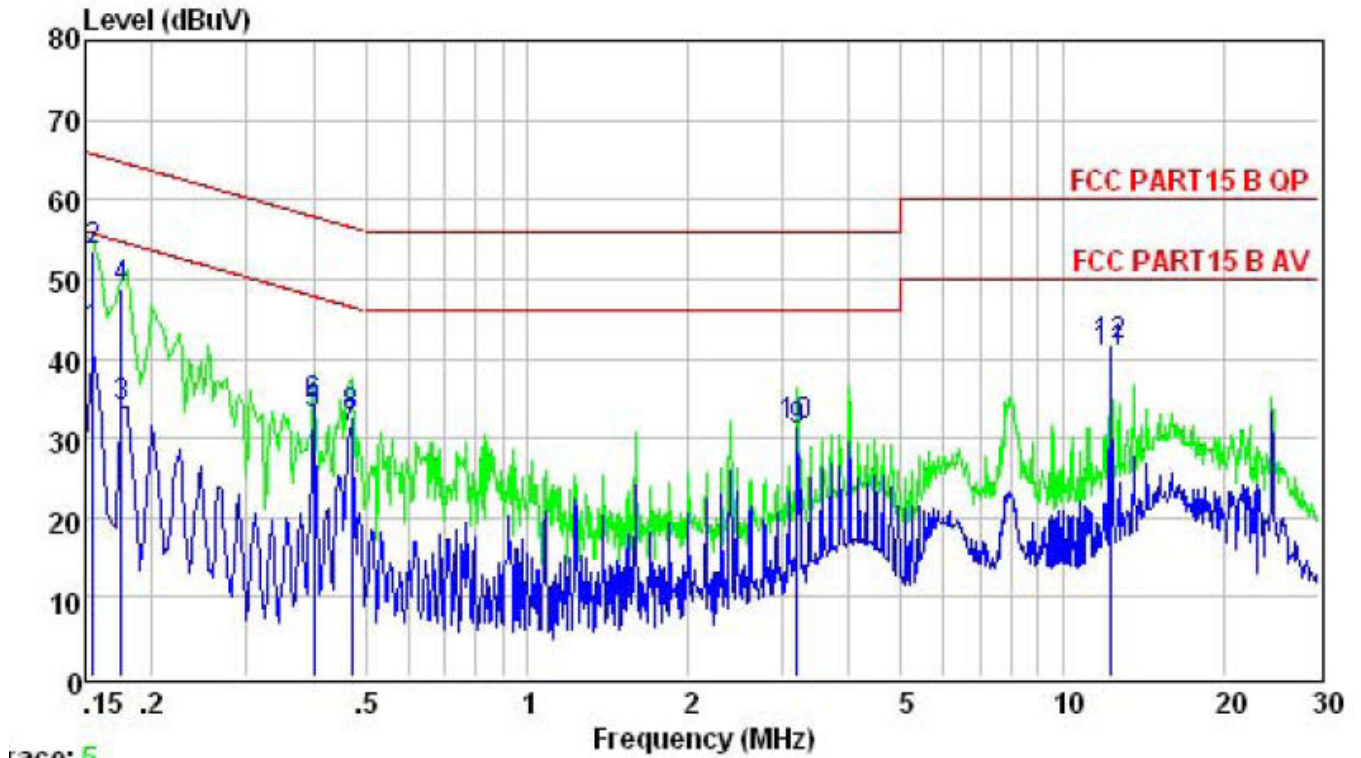
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 19.0V form Adapter 1 AC 120V/60Hz | Test Mode : | Mode 4 |



Trace: 1

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | Line | Limit | |
| | | | dBuV | dB | |
| 1 | 0.155 | 44.80 | 55.74 | -10.94 | Average |
| 2 | 0.155 | 55.70 | 65.74 | -10.04 | QP |
| 3 | 0.180 | 35.03 | 54.50 | -19.47 | Average |
| 4 | 0.180 | 48.56 | 64.50 | -15.94 | QP |
| 5 | 0.400 | 34.57 | 47.86 | -13.29 | Average |
| 6 | 0.400 | 35.69 | 57.86 | -22.17 | QP |
| 7 | 1.593 | 27.67 | 46.00 | -18.33 | Average |
| 8 | 1.593 | 30.12 | 56.00 | -25.88 | QP |
| 9 | 4.006 | 30.36 | 46.00 | -15.64 | Average |
| 10 | 4.006 | 31.59 | 56.00 | -24.41 | QP |
| 11 | 12.318 | 39.86 | 50.00 | -10.14 | Average |
| 12 | 12.318 | 40.12 | 60.00 | -19.88 | QP |

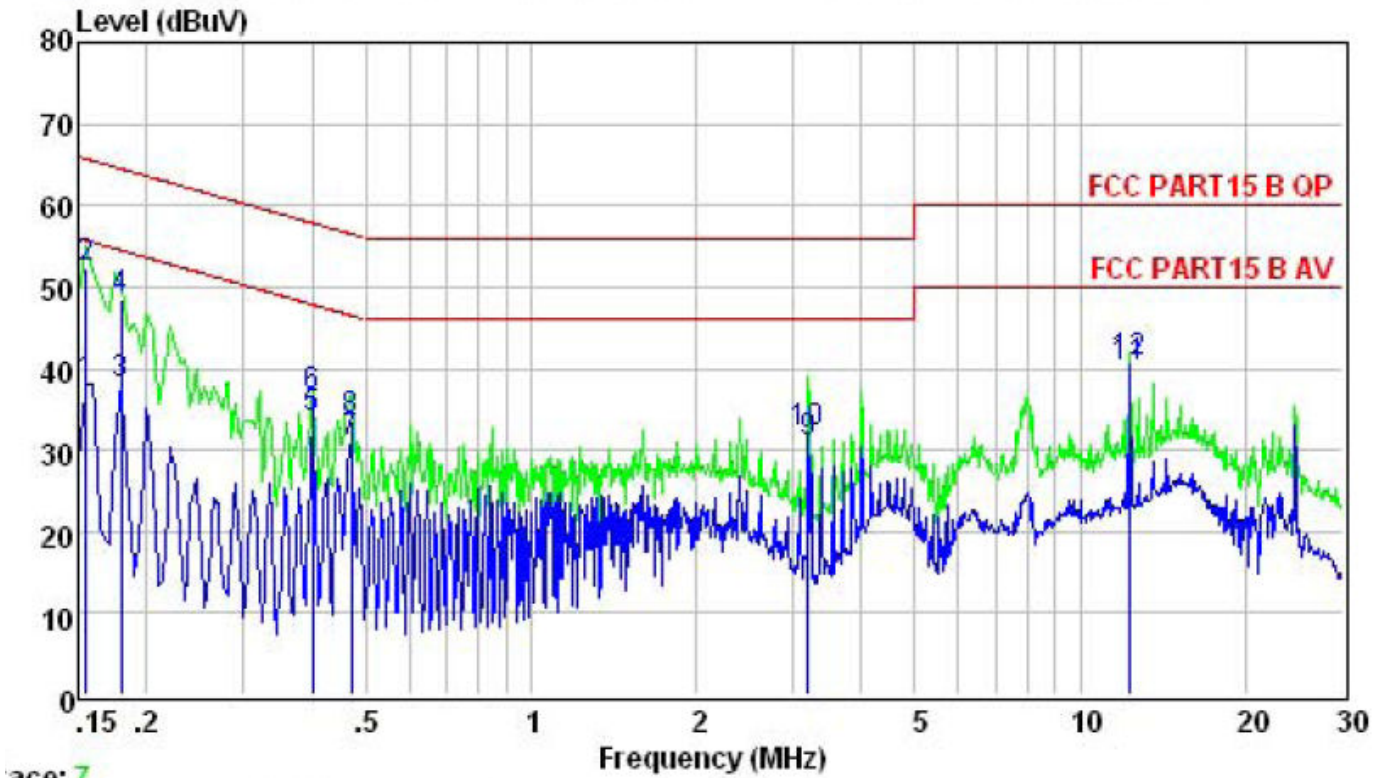
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 19.0V form Adapter 1 AC 240V/60Hz | Test Mode : | Mode 4 |



Trace: 5

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | Line | Limit | |
| | | | dBuV | dB | |
| 1 | 0.155 | 43.30 | 55.74 | -12.44 | Average |
| 2 | 0.155 | 53.60 | 65.74 | -12.14 | QP |
| 3 | 0.175 | 34.03 | 54.72 | -20.69 | Average |
| 4 | 0.175 | 48.69 | 64.72 | -16.03 | QP |
| 5 | 0.400 | 32.97 | 47.86 | -14.89 | Average |
| 6 | 0.400 | 34.21 | 57.86 | -23.65 | QP |
| 7 | 0.471 | 31.18 | 46.49 | -15.31 | Average |
| 8 | 0.471 | 32.58 | 56.49 | -23.91 | QP |
| 9 | 3.190 | 30.93 | 46.00 | -15.07 | Average |
| 10 | 3.190 | 31.59 | 56.00 | -24.41 | QP |
| 11 | 12.318 | 40.61 | 50.00 | -9.39 | Average |
| 12 | 12.318 | 41.52 | 60.00 | -18.48 | QP |

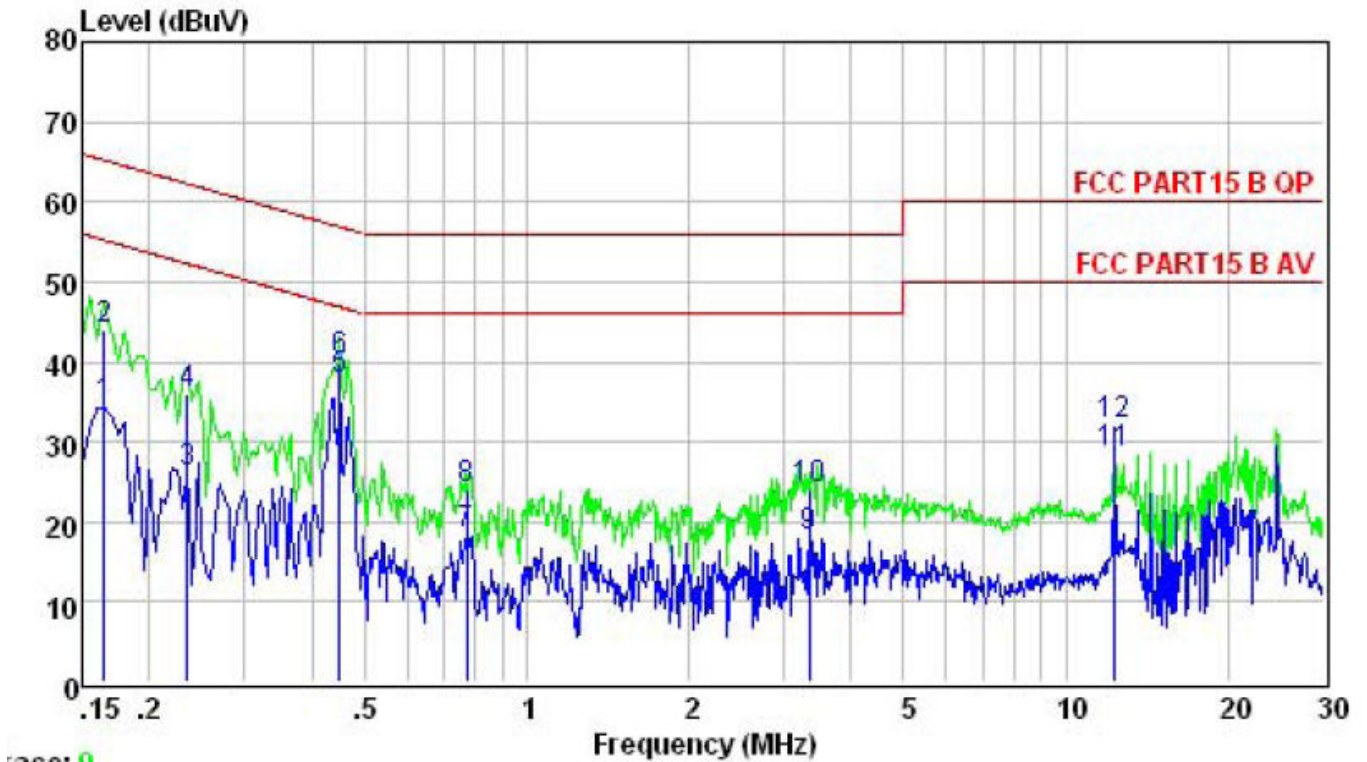
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 19.0V form Adapter 1 AC 240V/60Hz | Test Mode : | Mode 4 |



ace: 7

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | Line | Limit | |
| | | | dBuV | dB | |
| 1 | 0.155 | 38.00 | 55.74 | -17.74 | Average |
| 2 | 0.155 | 52.36 | 65.74 | -13.38 | QP |
| 3 | 0.180 | 37.97 | 54.50 | -16.53 | Average |
| 4 | 0.180 | 48.56 | 64.50 | -15.94 | QP |
| 5 | 0.400 | 33.80 | 47.86 | -14.06 | Average |
| 6 | 0.400 | 36.60 | 57.86 | -21.26 | QP |
| 7 | 0.471 | 30.84 | 46.49 | -15.65 | Average |
| 8 | 0.471 | 33.56 | 56.49 | -22.93 | QP |
| 9 | 3.190 | 30.78 | 46.00 | -15.22 | Average |
| 10 | 3.190 | 32.15 | 56.00 | -23.85 | QP |
| 11 | 12.318 | 40.10 | 50.00 | -9.90 | Average |
| 12 | 12.318 | 40.89 | 60.00 | -19.11 | QP |

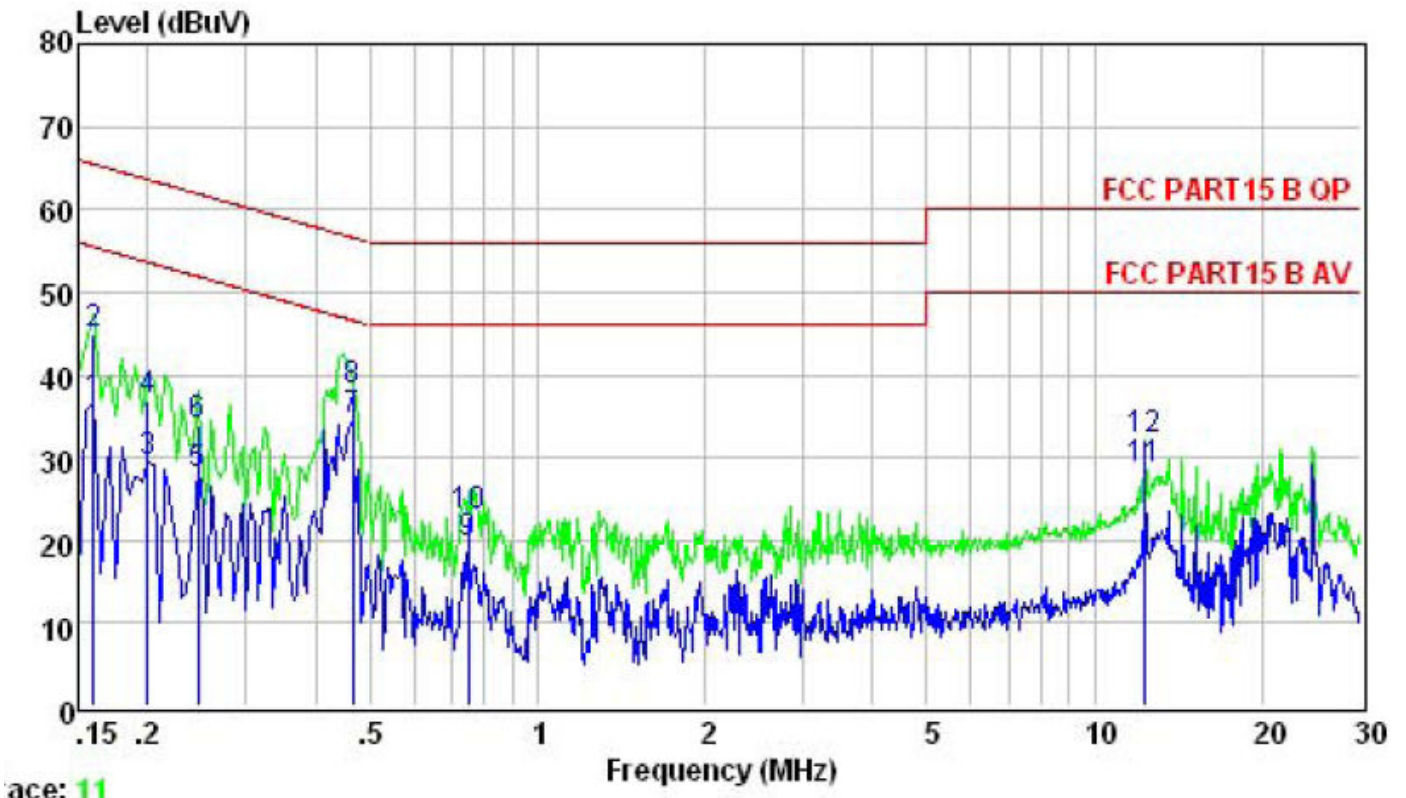
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 19.0V form Adapter 2 AC 120V/60Hz | Test Mode : | Mode 4 |



Trace: 9

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | dBuV | dB | |
| 1 | 0.165 | 34.38 | 55.21 | -20.83 | Average |
| 2 | 0.165 | 44.00 | 65.21 | -21.21 | QP |
| 3 | 0.235 | 26.16 | 52.26 | -26.10 | Average |
| 4 | 0.235 | 36.00 | 62.26 | -26.26 | QP |
| 5 | 0.449 | 37.78 | 46.89 | -9.11 | Average |
| 6 | 0.449 | 40.00 | 56.89 | -16.89 | QP |
| 7 | 0.775 | 18.34 | 46.00 | -27.66 | Average |
| 8 | 0.775 | 24.00 | 56.00 | -32.00 | QP |
| 9 | 3.346 | 18.26 | 46.00 | -27.74 | Average |
| 10 | 3.346 | 24.00 | 56.00 | -32.00 | QP |
| 11 | 12.318 | 28.68 | 50.00 | -21.32 | Average |
| 12 | 12.318 | 32.20 | 60.00 | -27.80 | QP |

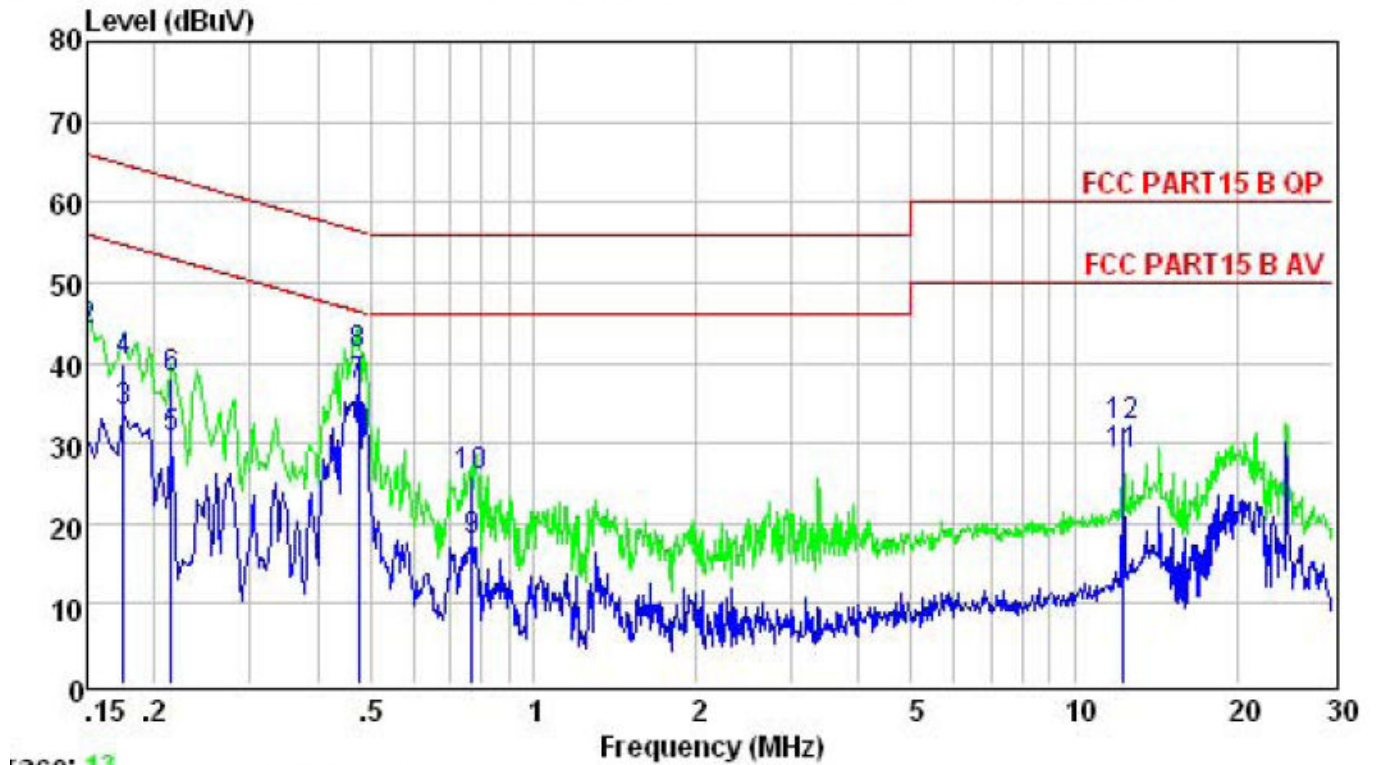
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 19.0V form Adapter 2 AC 120V/60Hz | Test Mode : | Mode 4 |



ace: 11

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | Line | Limit | |
| | | | dBuV | dB | |
| 1 | 0.160 | 36.53 | 55.47 | -18.94 | Average |
| 2 | 0.160 | 45.00 | 65.47 | -20.47 | QP |
| 3 | 0.200 | 29.51 | 53.62 | -24.11 | Average |
| 4 | 0.200 | 37.00 | 63.62 | -26.62 | QP |
| 5 | 0.246 | 27.88 | 51.91 | -24.03 | Average |
| 6 | 0.246 | 34.00 | 61.91 | -27.91 | QP |
| 7 | 0.466 | 34.39 | 46.58 | -12.19 | Average |
| 8 | 0.466 | 38.00 | 56.58 | -18.58 | QP |
| 9 | 0.751 | 19.49 | 46.00 | -26.51 | Average |
| 10 | 0.751 | 23.00 | 56.00 | -33.00 | QP |
| 11 | 12.318 | 28.49 | 50.00 | -21.51 | Average |
| 12 | 12.318 | 32.00 | 60.00 | -28.00 | QP |

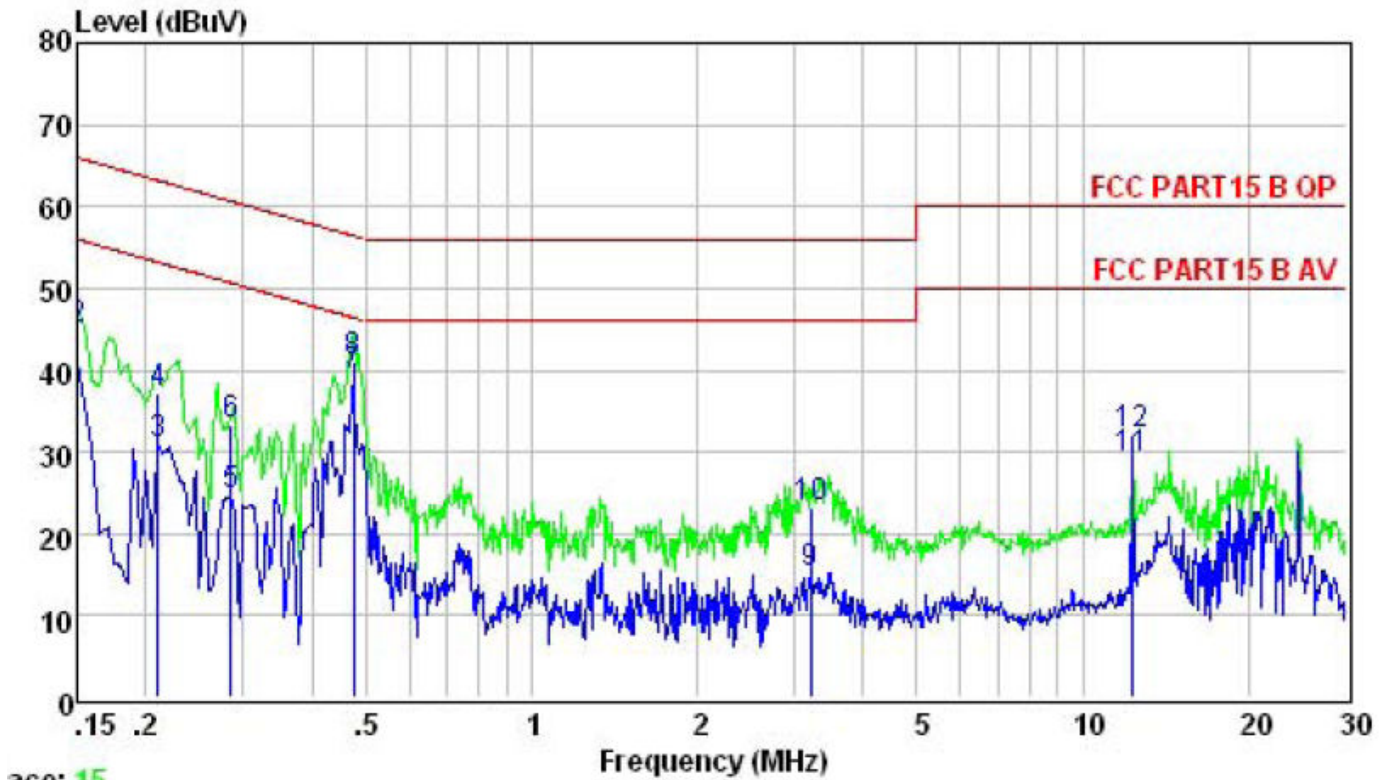
| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 19.0V form Adapter 2 AC 240V/60Hz | Test Mode : | Mode 4 |



Trace: 13

| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | dBuV | dB | |
| 1 | 0.150 | 30.30 | 56.00 | -25.70 | Average |
| 2 | 0.150 | 44.00 | 66.00 | -22.00 | QP |
| 3 | 0.175 | 33.85 | 54.72 | -20.87 | Average |
| 4 | 0.175 | 40.00 | 64.72 | -24.72 | QP |
| 5 | 0.215 | 30.53 | 53.01 | -22.48 | Average |
| 6 | 0.215 | 38.00 | 63.01 | -25.01 | QP |
| 7 | 0.476 | 37.23 | 46.41 | -9.18 | Average |
| 8 | 0.476 | 41.00 | 56.41 | -15.41 | QP |
| 9 | 0.771 | 17.93 | 46.00 | -28.07 | Average |
| 10 | 0.771 | 26.00 | 56.00 | -30.00 | QP |
| 11 | 12.318 | 28.63 | 50.00 | -21.37 | Average |
| 12 | 12.318 | 32.00 | 60.00 | -28.00 | QP |

| | | | |
|----------------|---|---------------------|--------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 19.0V form Adapter 2 AC 240V/60Hz | Test Mode : | Mode 4 |



| | Freq | Level | Limit | Over | Remark |
|----|--------|-------|-------|--------|---------|
| | MHz | dBuV | dBuV | dB | |
| 1 | 0.150 | 40.62 | 56.00 | -15.38 | Average |
| 2 | 0.150 | 45.00 | 66.00 | -21.00 | QP |
| 3 | 0.211 | 31.07 | 53.18 | -22.11 | Average |
| 4 | 0.211 | 37.30 | 63.18 | -25.88 | QP |
| 5 | 0.285 | 24.66 | 50.68 | -26.02 | Average |
| 6 | 0.285 | 33.30 | 60.68 | -27.38 | QP |
| 7 | 0.476 | 39.24 | 46.41 | -7.17 | Average |
| 8 | 0.476 | 41.00 | 56.41 | -15.41 | QP |
| 9 | 3.207 | 15.14 | 46.00 | -30.86 | Average |
| 10 | 3.207 | 23.30 | 56.00 | -32.70 | QP |
| 11 | 12.318 | 29.20 | 50.00 | -20.80 | Average |
| 12 | 12.318 | 32.20 | 60.00 | -27.80 | QP |

4.2. Radiated Emission Test

4.2.1. Limit 15.209 limits

| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMIT | |
|------------------|--------------------|---|-----------------------------------|
| | | $\mu\text{V}/\text{m}$ | $\text{dB}(\mu\text{V})/\text{m}$ |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 | 3 | 74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average) | |

4.2.2. Restricted bands of operation

| MHz | MHz | MHz | GHz |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| ¹ 0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | (²) |

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.2.3. Test setup

The EUT was placed on a turn table which was 0.8 m (above 1GHz, the high was 1.5m) above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was set 3 m away from the receiving antenna which was mounted on an antenna tower. The measuring antenna moved up and down to find out the maximum emission level. It moved from 1 m to 4 m for both horizontal and vertical polarizations.

The EUT was tested in the Chamber Site. It was pre-scanned with a Peak detector from the spectrum, and all the final readings from the test receiver were measured with the Quasi-Peak detector.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz, Both PK and AV measure, PK detector is used.

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

Notes: 1. Emission Level = Antenna Factor + Cable Loss + Meter Reading-Preamp Factor.

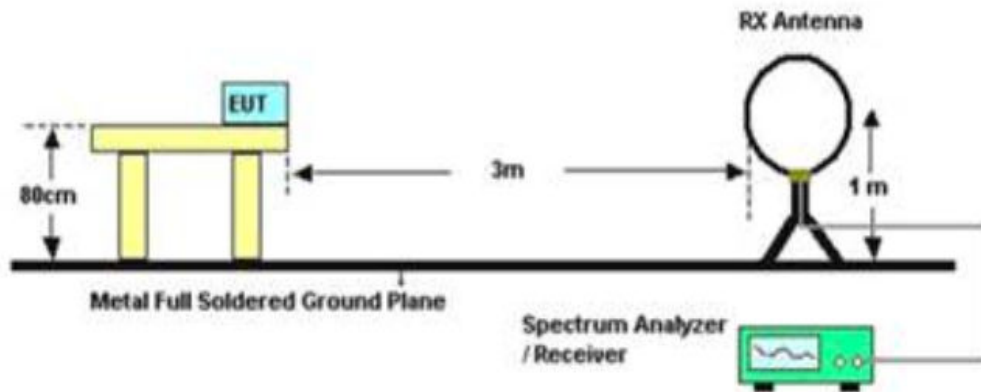
2. Measurement Uncertainty: ± 3.2 dB at a level of confidence of 95%.

3. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

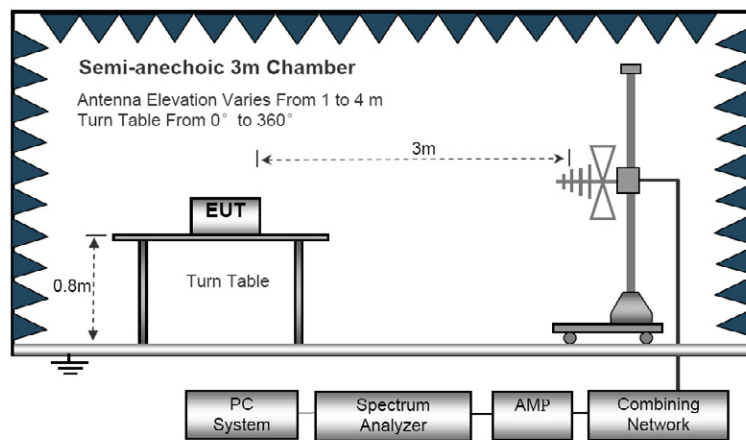
4. For emissions below 1GHz, pretest for all mode, The test data of the worst case condition(s) was reported on the following pages.

5. For Both PK and AV value above 1GHz, PK detector is used.

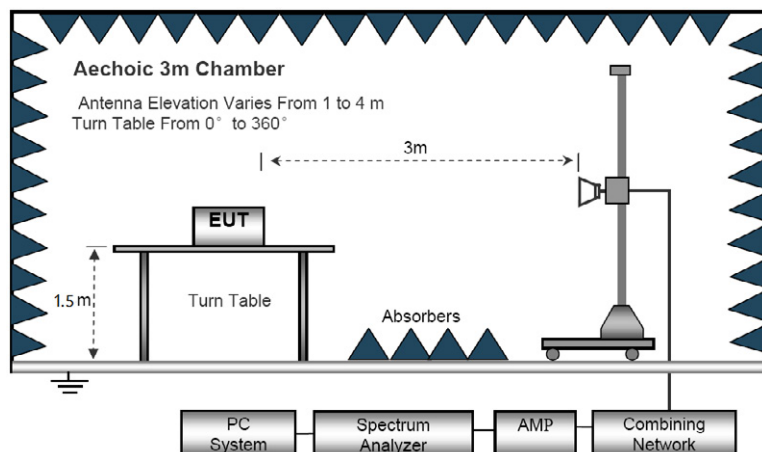
Radiated Emission Test-Up Frequency Below 30MHz



30MHz- 1GHz



Above 1GHz



Below 30MHz

| Freq. | Reading | Limit | Margin | State |
|-------|----------|----------|--------|-------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB) | P/F |
| -- | -- | -- | -- | P |
| -- | -- | -- | -- | P |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

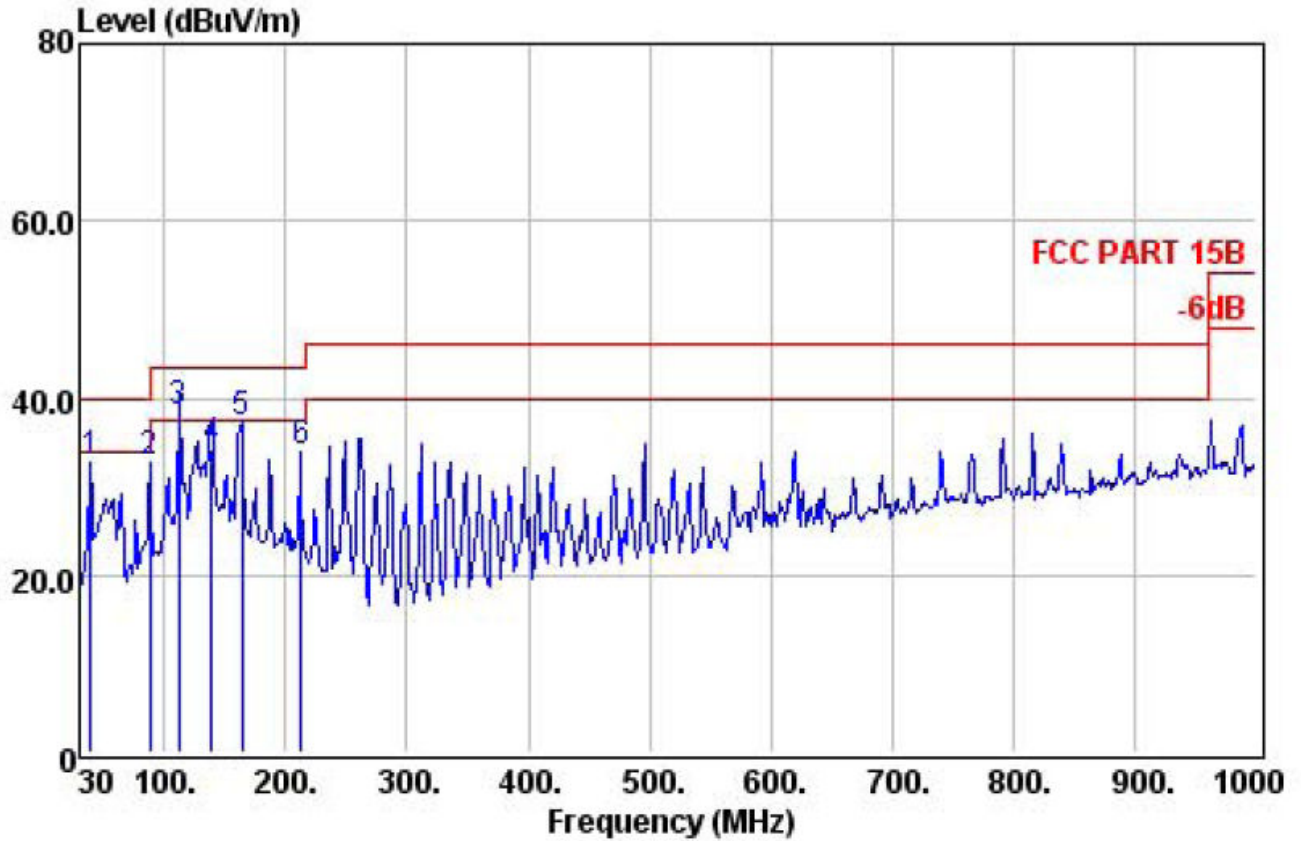
Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

30MHz- 1GHz

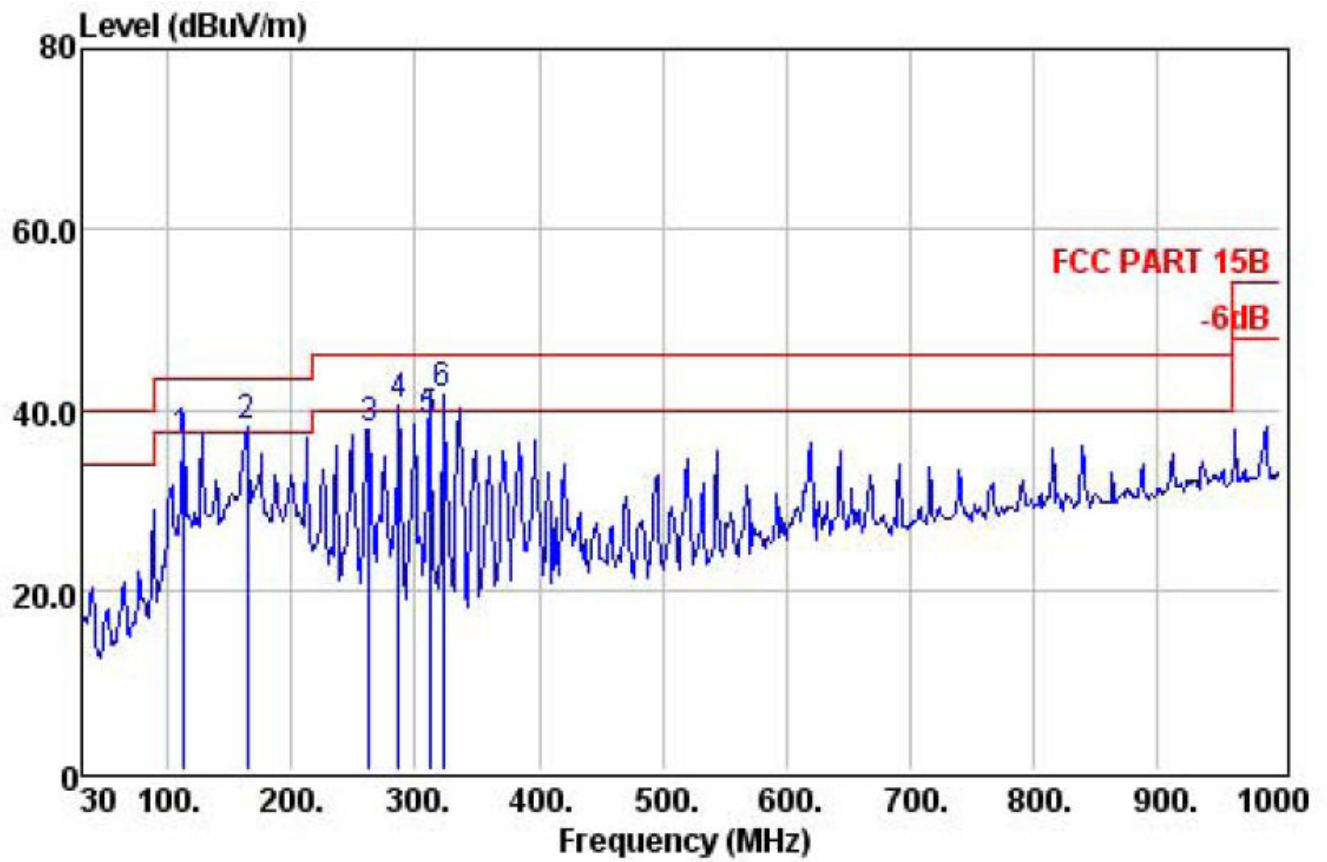
| | | | |
|----------------|---|---------------------|------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010hPa | Test Mode : | TX |
| Test Voltage : | DC 19V from adapter AC 120V/60Hz- adapter 1 | | |

Vertical



| | Preamp | Read | Cable | Limit | Over | | |
|------|--------|-------|-------|--------|--------|--------|-----------|
| Freq | Factor | Level | Loss | Line | Limit | Remark | |
| MHz | dB | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 39.70 | 31.37 | 50.51 | 0.56 | 32.78 | 40.00 | -7.22 QP |
| 2 | 88.20 | 31.35 | 54.16 | 0.94 | 32.65 | 43.50 | -10.85 QP |
| 3 | 112.45 | 31.29 | 59.60 | 1.03 | 38.44 | 43.50 | -5.06 QP |
| 4 | 138.64 | 31.21 | 55.85 | 1.22 | 34.25 | 43.50 | -9.25 QP |
| 5 | 163.86 | 31.21 | 57.40 | 1.30 | 37.04 | 43.50 | -6.46 QP |
| 6 | 212.36 | 31.06 | 51.70 | 1.53 | 33.76 | 43.50 | -9.74 QP |

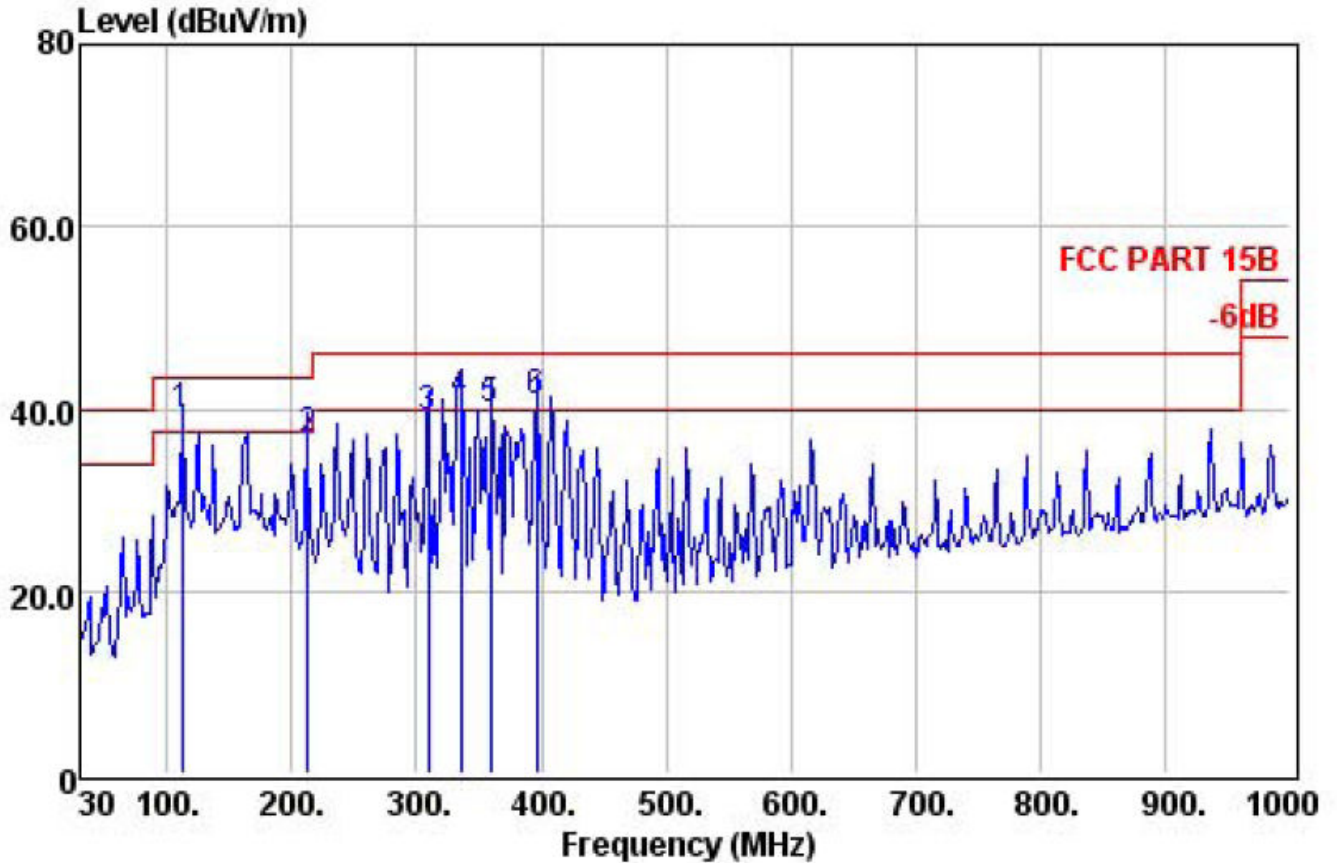
Horizontal



| | Preamp | Read | Cable | Limit | Over | |
|--------|--------|-------|-------|--------|--------|----------|
| Freq | Factor | Level | Loss | Line | Limit | Remark |
| MHz | dB | dBuV | dB | dBuV/m | dBuV/m | dB |
| 1 | | | | | | |
| 112.45 | 31.29 | 57.71 | 1.03 | 36.55 | 43.50 | -6.95 QP |
| 2 ! | | | | | | |
| 163.86 | 31.21 | 58.33 | 1.30 | 37.97 | 43.50 | -5.53 QP |
| 3 | | | | | | |
| 262.80 | 30.96 | 53.95 | 1.78 | 37.72 | 46.00 | -8.28 QP |
| 4 ! | | | | | | |
| 287.05 | 30.94 | 56.07 | 1.87 | 40.39 | 46.00 | -5.61 QP |
| 5 | | | | | | |
| 311.30 | 30.91 | 53.64 | 1.94 | 38.79 | 46.00 | -7.21 QP |
| 6 ! | | | | | | |
| 322.94 | 30.83 | 56.12 | 2.02 | 41.75 | 46.00 | -4.25 QP |

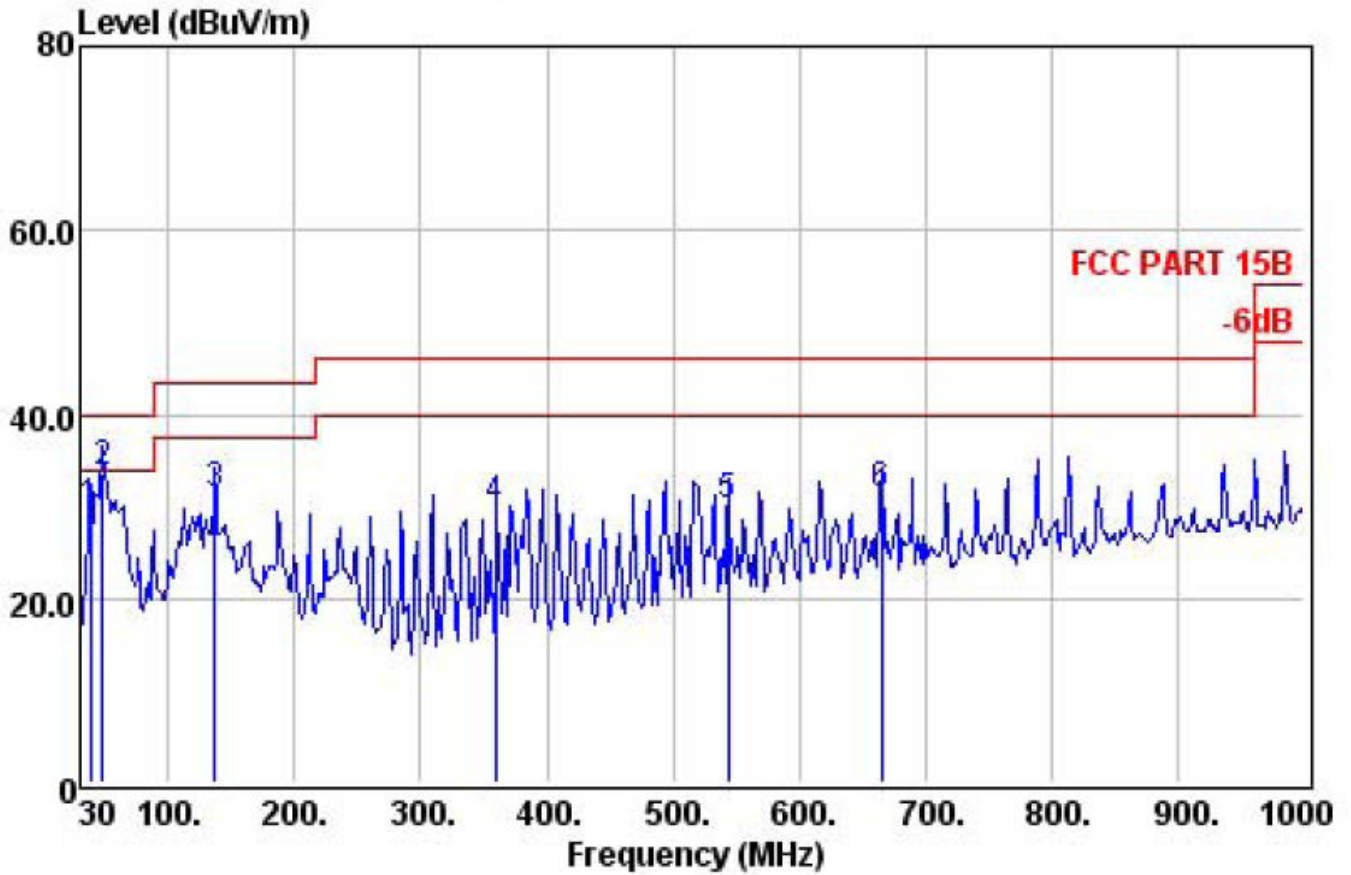
| | | | |
|----------------|---|---------------------|------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010hPa | Test Mode : | TX |
| Test Voltage : | DC 19V from adapter AC 120V/60Hz- adapter 2 | | |

Horizontal



| | | Preamp | Read | Cable | Limit | Over | |
|-----|--------|--------|-------|-------|--------|--------|----------|
| | Freq | Factor | Level | Loss | Line | Limit | Remark |
| | MHz | dB | dBuV | dB | dBuV/m | dBuV/m | dB |
| 1 ! | 112.45 | 31.29 | 60.30 | 1.03 | 39.14 | 43.50 | -4.36 QP |
| 2 | 212.36 | 31.06 | 54.61 | 1.53 | 36.67 | 43.50 | -6.83 QP |
| 3 | 309.36 | 30.91 | 53.89 | 1.94 | 38.98 | 46.00 | -7.02 QP |
| 4 ! | 335.55 | 30.74 | 54.58 | 2.10 | 40.86 | 46.00 | -5.14 QP |
| 5 | 359.80 | 30.62 | 52.32 | 2.18 | 39.99 | 46.00 | -6.01 QP |
| 6 ! | 396.66 | 30.63 | 52.73 | 2.37 | 40.75 | 46.00 | -5.25 QP |

Vertical



| | Preamp | Read | Cable | Limit | Over | | | |
|---|--------|--------|-------|-------|--------|--------|--------|--------|
| | Freq | Factor | Level | Loss | Level | Line | Limit | Remark |
| | MHz | dB | dBuV | dB | dBuV/m | dBuV/m | dB | |
| 1 | 37.76 | 31.36 | 45.97 | 0.56 | 29.39 | 40.00 | -10.61 | QP |
| 2 | 47.46 | 31.39 | 54.41 | 0.75 | 33.61 | 40.00 | -6.39 | QP |
| 3 | 136.70 | 31.20 | 53.03 | 1.12 | 31.32 | 43.50 | -12.18 | QP |
| 4 | 359.80 | 30.62 | 42.05 | 2.18 | 29.72 | 46.00 | -16.28 | QP |
| 5 | 544.10 | 30.84 | 38.44 | 3.03 | 30.06 | 46.00 | -15.94 | QP |
| 6 | 665.35 | 30.80 | 36.59 | 3.69 | 31.25 | 46.00 | -14.75 | QP |

Above 1GHz

| | | | |
|----------------|----------------------------------|---------------------|------|
| EUT : | Soundbase | Model Name : | AB40 |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010hPa | Test Mode : | TX |
| Test Voltage : | DC 19V from adapter AC 120V/60Hz | | |

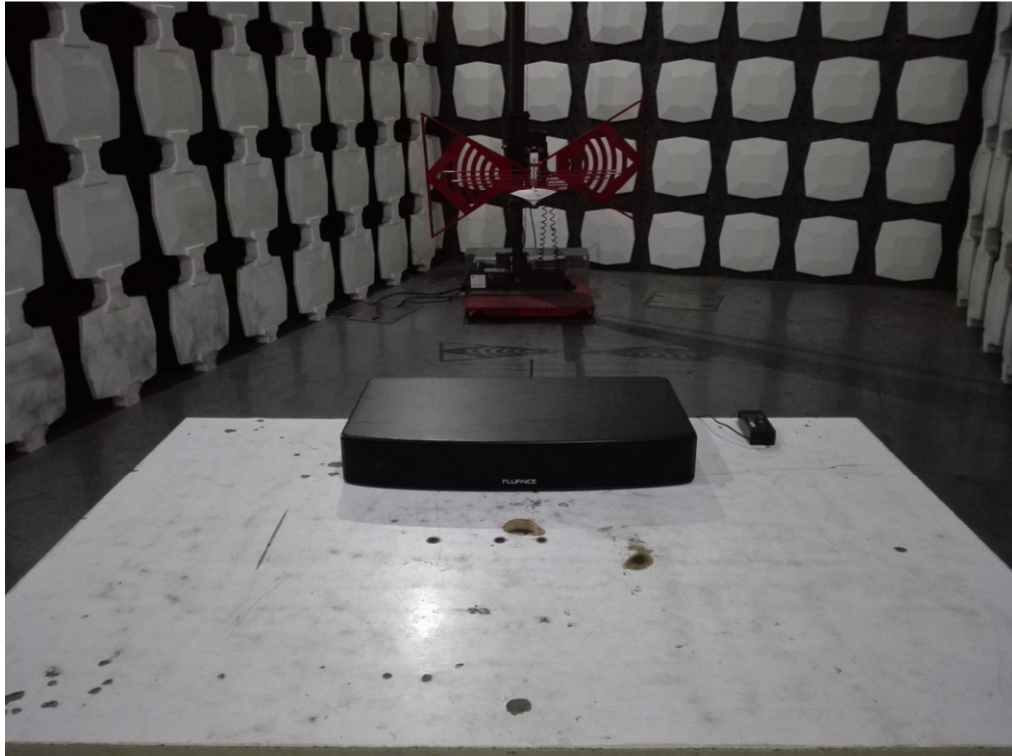
| Frequency (MHz) | Reading (dB μ V) | Factor (dB) | Corrected Amplitude (dB μ V/m) | Limit (dB μ V/m) | Margin (dB) | Remark | Polar (H/V) |
|--------------------------------|----------------------|-------------|------------------------------------|----------------------|-------------|--------|-------------|
| low channel(2402MHz) | | | | | | | |
| 4804.000 | 45.14 | 10.12 | 55.26 | 74 | -18.74 | Pk | Vertical |
| 4804.000 | 34.56 | 10.12 | 44.68 | 54 | -9.32 | AV | Vertical |
| 7206.000 | 43.49 | 12.05 | 55.54 | 74 | -18.46 | Pk | Vertical |
| 7206.000 | 32.47 | 12.05 | 44.52 | 54 | -9.48 | AV | Vertical |
| 4804.000 | 46.26 | 10.12 | 56.38 | 74 | -17.62 | Pk | Horizontal |
| 4804.000 | 34.41 | 10.12 | 44.53 | 54 | -9.47 | AV | Horizontal |
| 7206.000 | 46.52 | 12.05 | 58.57 | 74 | -15.43 | Pk | Horizontal |
| 7206.000 | 33.58 | 12.05 | 45.63 | 54 | -8.37 | AV | Horizontal |
| Middle channel(2440MHz) | | | | | | | |
| 4880.000 | 52.13 | 10.42 | 62.55 | 74 | -11.45 | Pk | Vertical |
| 4880.000 | 36.34 | 10.42 | 46.76 | 54 | -7.24 | AV | Vertical |
| 7320.000 | 45.32 | 12.81 | 58.13 | 74 | -15.87 | Pk | Vertical |
| 7320.000 | 33.11 | 12.81 | 45.92 | 54 | -8.08 | AV | Vertical |
| 4880.000 | 54.21 | 10.42 | 64.63 | 74 | -9.37 | Pk | Horizontal |
| 4880.000 | 35.62 | 10.42 | 46.04 | 54 | -7.96 | AV | Horizontal |
| 7320.000 | 48.22 | 12.81 | 61.03 | 74 | -12.97 | Pk | Horizontal |
| 7320.000 | 34.16 | 12.81 | 46.97 | 54 | -7.03 | AV | Horizontal |
| High channel(2480MHz) | | | | | | | |
| 4960.000 | 46.78 | 10.48 | 57.26 | 74 | -16.74 | Pk | Vertical |
| 4960.000 | 35.45 | 10.48 | 45.93 | 54 | -8.07 | AV | Vertical |
| 7440.000 | 46.54 | 12.87 | 59.41 | 74 | -14.59 | Pk | Vertical |
| 7440.000 | 35.37 | 12.87 | 48.24 | 54 | -5.76 | AV | Vertical |
| 4960.000 | 45.25 | 10.48 | 55.73 | 74 | -18.27 | Pk | Horizontal |
| 4960.000 | 36.22 | 10.48 | 46.7 | 54 | -7.3 | AV | Horizontal |
| 7440.000 | 43.16 | 12.87 | 56.03 | 74 | -17.97 | Pk | Horizontal |
| 7440.000 | 35.45 | 12.87 | 48.32 | 54 | -5.68 | AV | Horizontal |

5. PHOTOGRAPHS OF TEST SET-UP

Conducted Emission



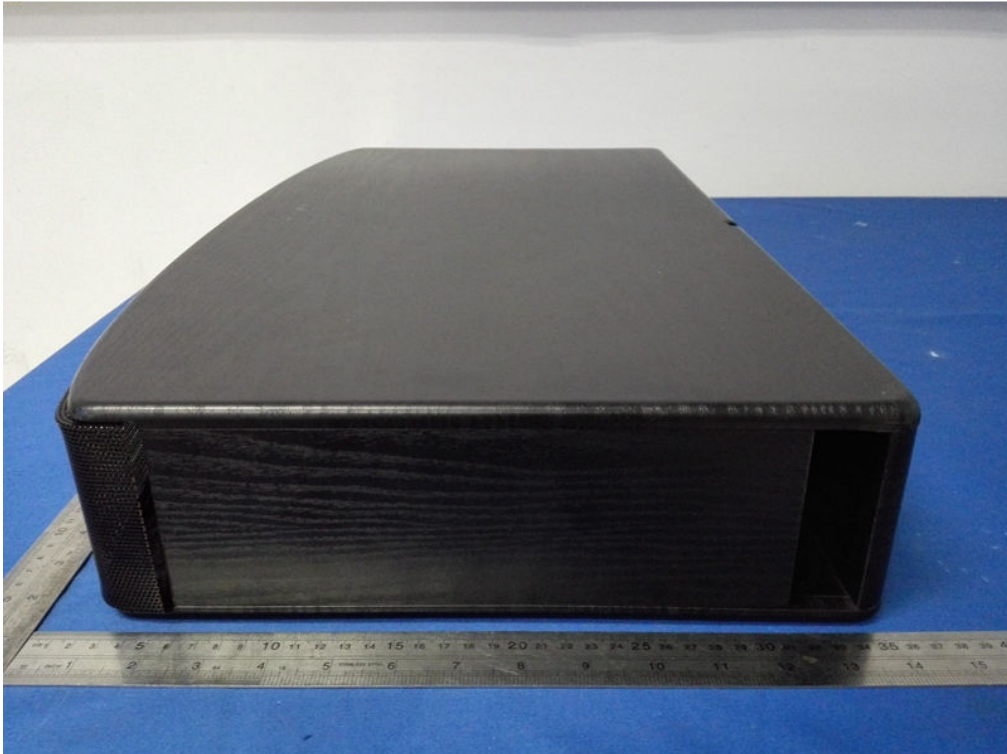
Radiated Emission Test

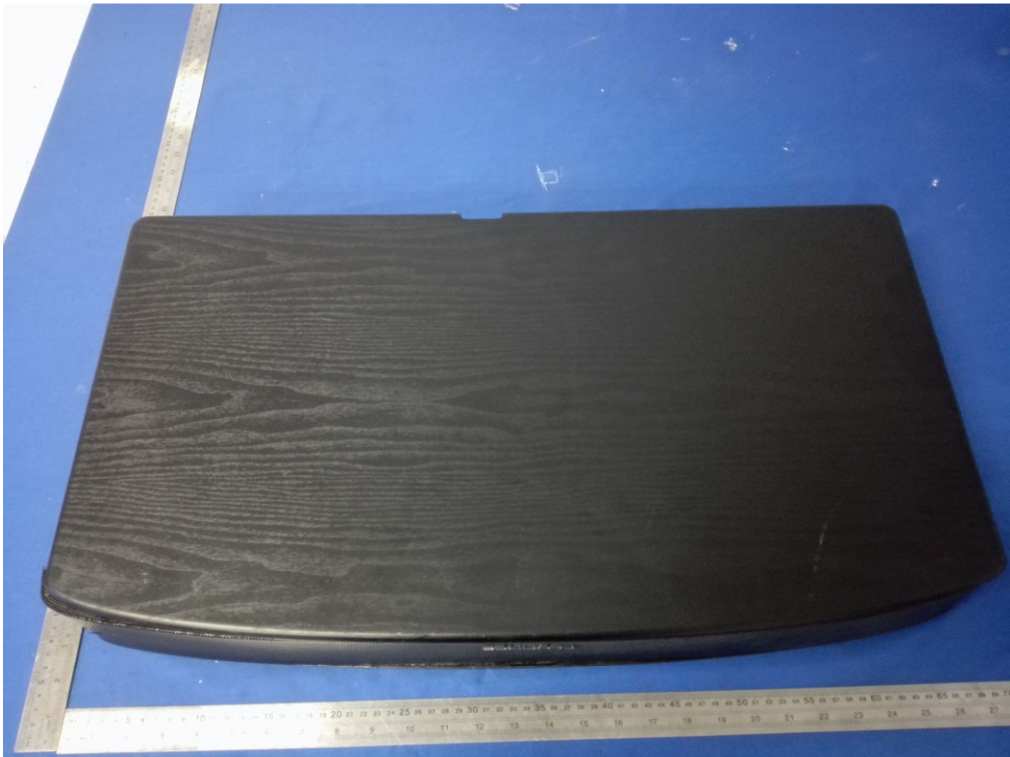
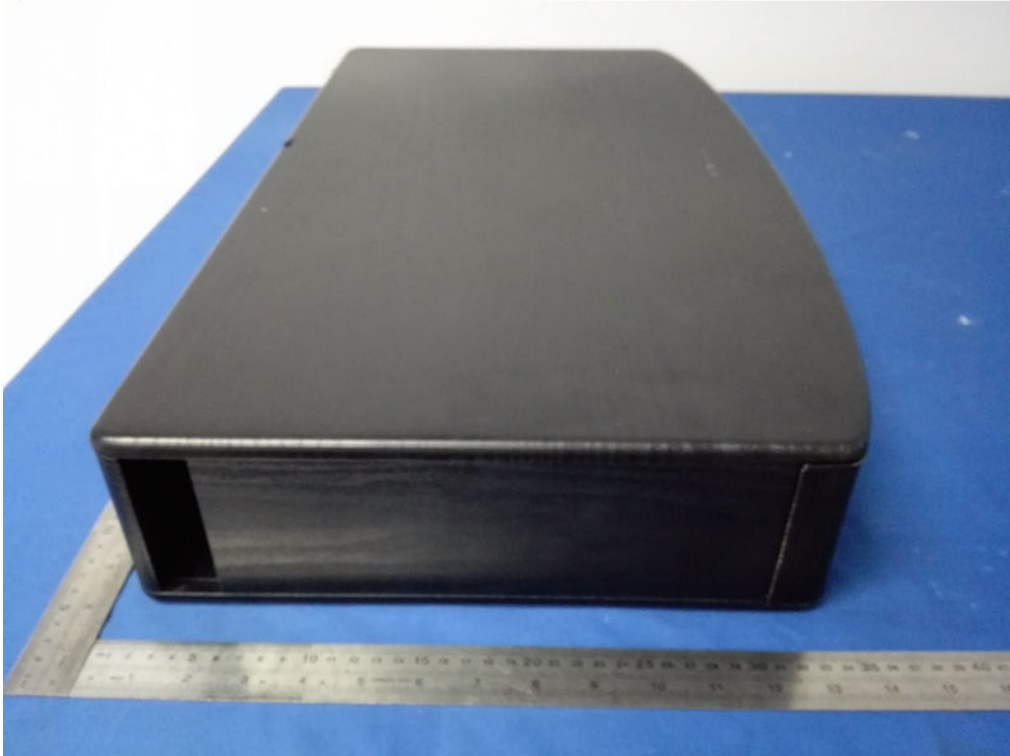


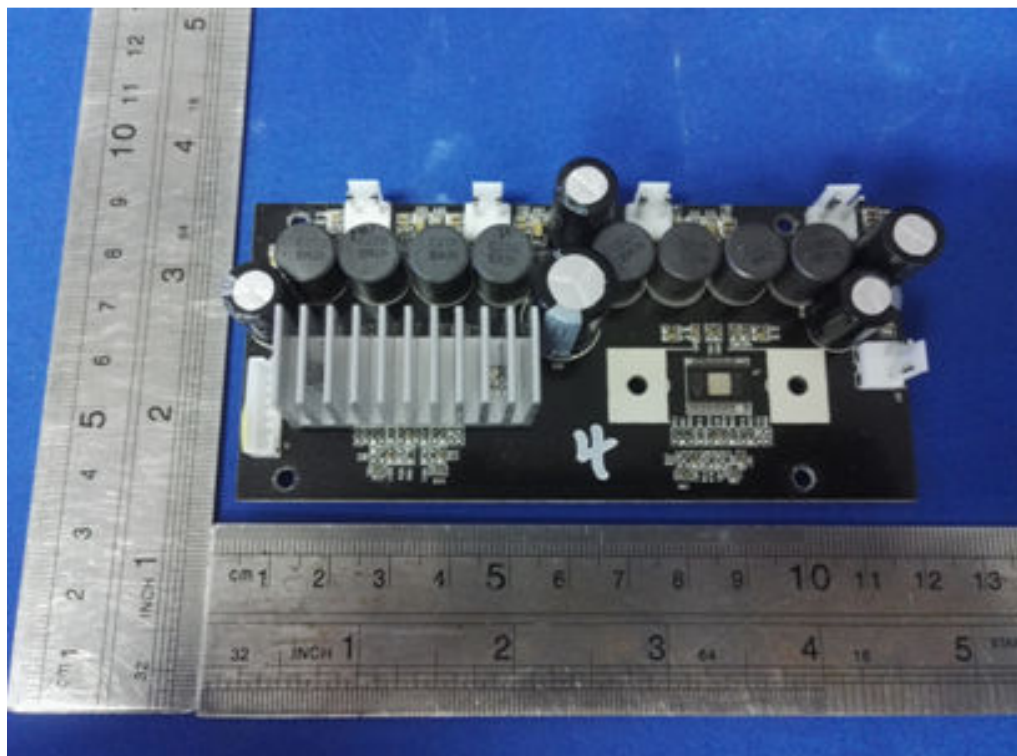
6. PHOTOGRAPHS OF THE EUT

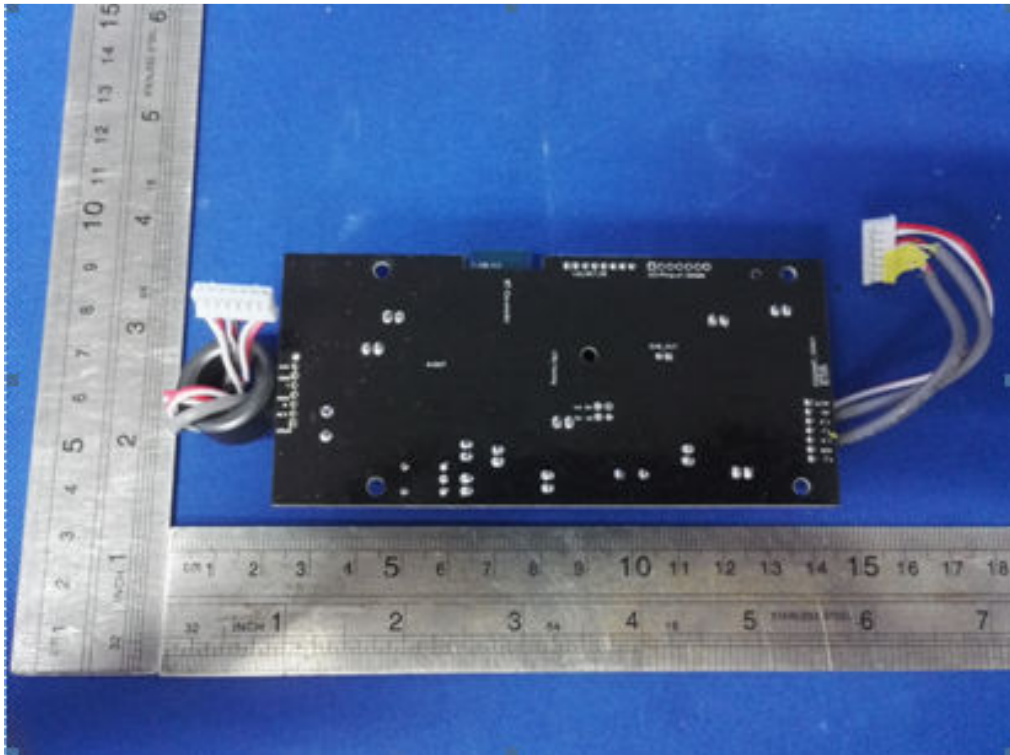
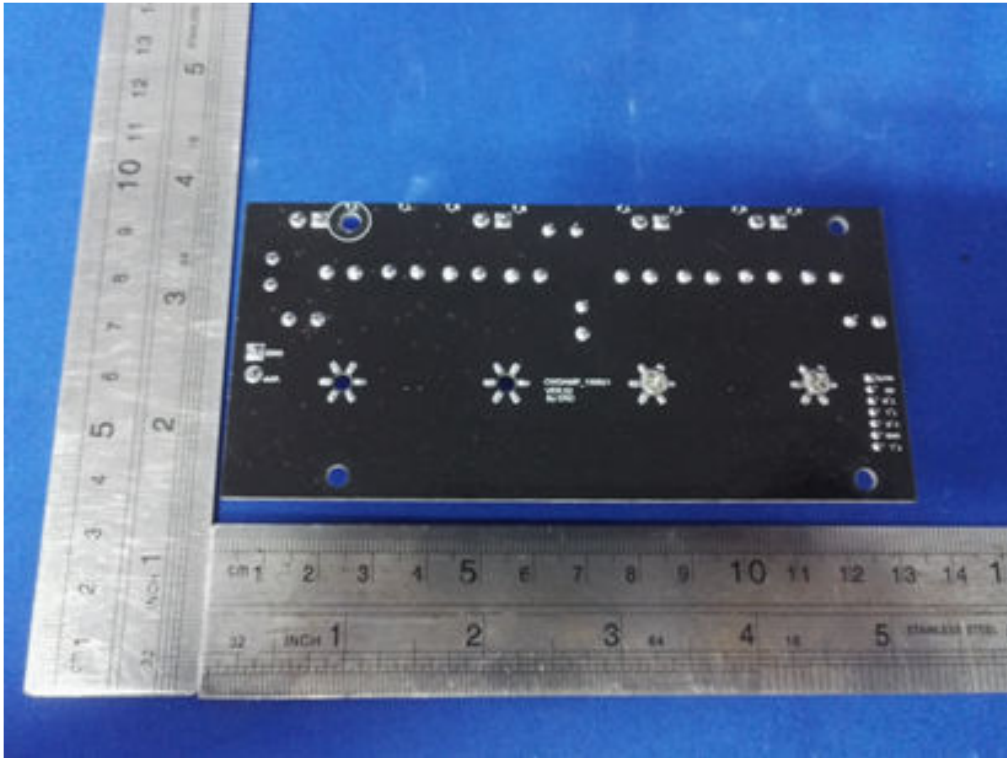


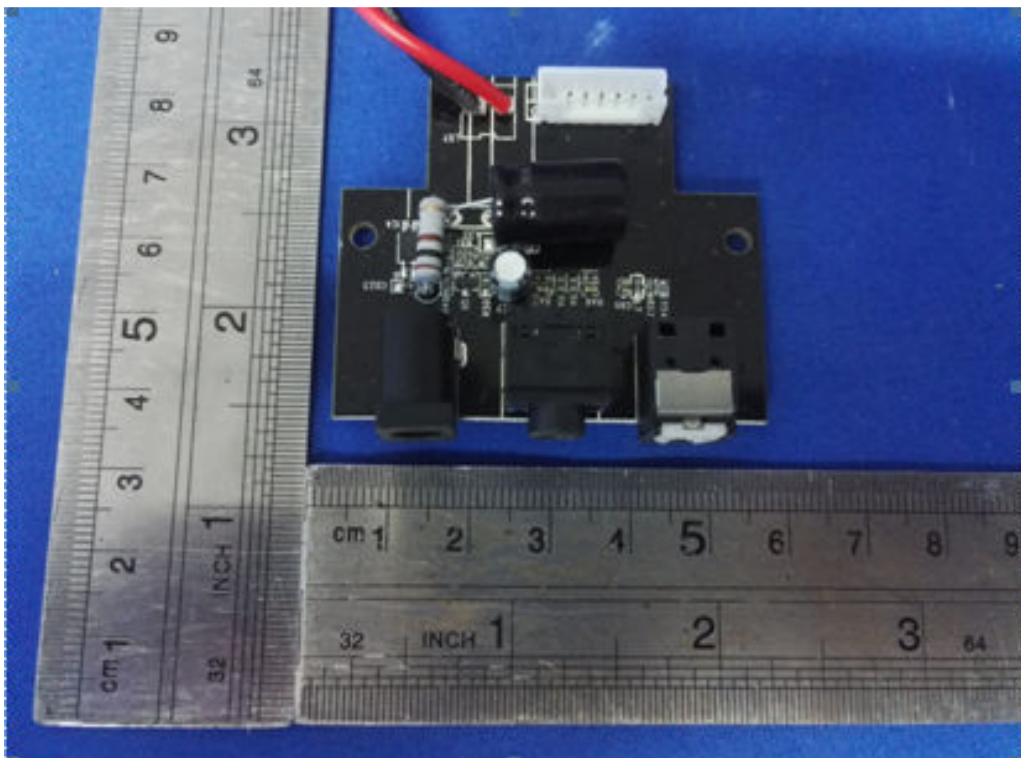
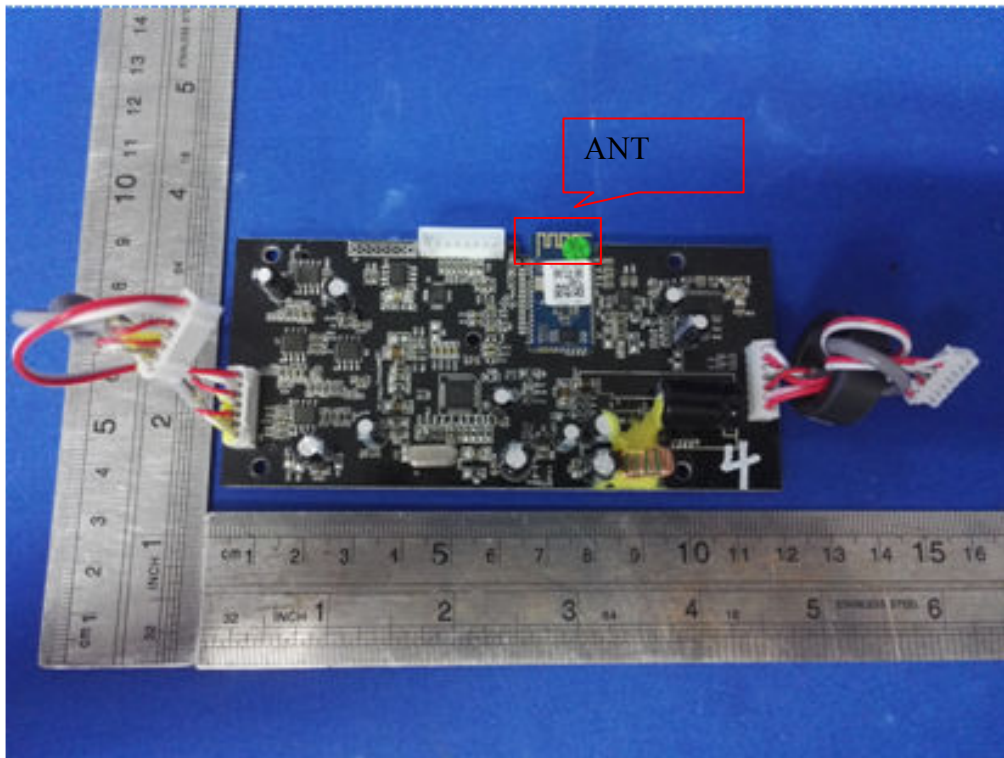


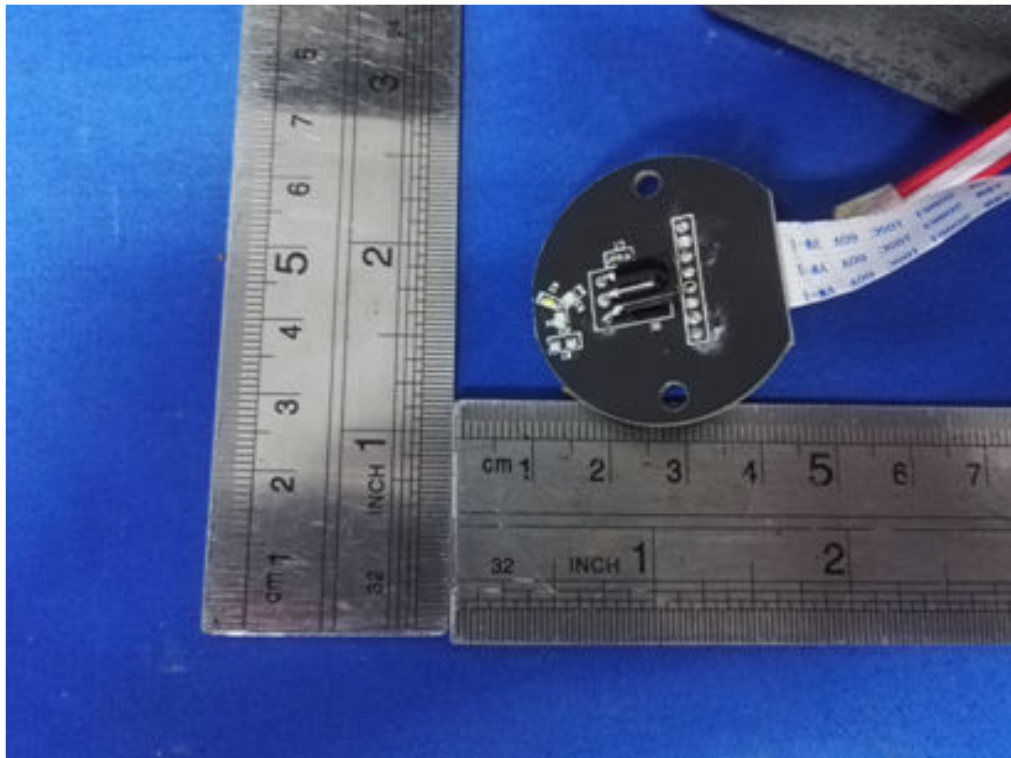


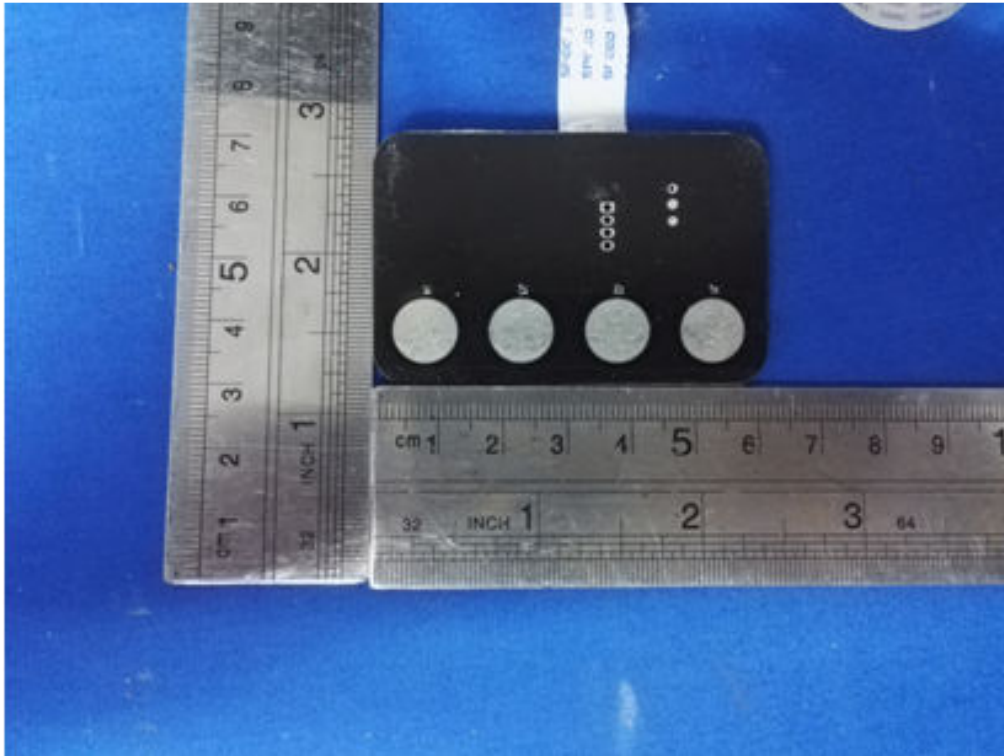














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