

FCC TEST REPORT

Product : POP Display
Trade mark : N/A
Model/Type reference : 850-074027
Serial Number : N/A
Report Number : EED32L001336
FCC ID : 2ABMA-850-074029
Date of Issue : Jun. 20, 2019
Test Standards : 47 CFR Part 15 Subpart C
Test result : PASS

Prepared for:

Lynx Innovation Limited
Unit 8A, 331 Rosedale Road Albany, 0632 North Shore City
Auckland, New Zealand

Prepared by:

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Date:

Jun. 20, 2019

Check No.:3915677614



2 Version

| Version No. | Date | Description |
|-------------|---------------|-------------|
| 00 | Jun. 20, 2019 | Original |
| | | |
| | | |

3 Test Summary

| Test Item | Test Requirement | Test method | Result |
|----------------------------------|--|------------------|--------|
| AC Power Line Conducted Emission | 47 CFR Part 15 Subpart C Section 15.207 | ANSI C63.10-2013 | PASS |
| Radiated Emission | 47 CFR Part 15 Subpart C Section 15.209;15.225(a)(b)(c)(d) | ANSI C63.10-2013 | PASS |
| Frequency Tolerance | 47 CFR Part 15 Subpart C Section 15.225(e) | ANSI C63.10-2013 | PASS |
| Occupied Bandwidth | 47 CFR Part 15 Subpart C Section 15.215 | ANSI C63.10-2013 | PASS |

Remark:

The tested sample and the sample information are provided by the client.

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5 General Information

5.1 Client Information

| | |
|--------------------------|--|
| Applicant: | Lynx Innovation Limited |
| Address of Applicant: | Unit 8A, 331 Rosedale Road Albany, 0632 North Shore City Auckland, New Zealand |
| Manufacturer: | Jiaxing Lynx Displays Limited |
| Address of Manufacturer: | Bldg#7, No. 3288, Zhongshan Road(W), Xiuzhou Industrial Park, Jiaxing, Zhejiang, China |

5.2 General Description of EUT

| | |
|----------------------------------|--|
| Product Name: | POP Display |
| Model No.(EUT): | 850-074027 |
| Trade Mark: | N/A |
| EUT Supports Radios application: | NFC: 13.56MHz |
| Power Supply: | Adapter: Model: EA1012AVRU-050 Input: 100-240Vac, 1.0A, 50/60Hz Output: 5V --- 2.4A |

5.3 Product Specification subjective to this standard

| | |
|-----------------------|--------------------------------|
| Carrier Frequency: | 13.56MHz |
| Modulation Type: | ASK |
| Antenna Type: | Internal antenna |
| Antenna Gain: | 1 dBi |
| Test voltage: | AC 120V, 60Hz |
| Sample Received Date: | Jun. 10, 2019 |
| Sample tested Date: | Jun. 10, 2019 to Jun. 17, 2019 |

5.4 Test Environment and Mode

| | |
|-------------------------------|---|
| Operating Environment: | |
| Temperature: | 22°C |
| Humidity: | 53% RH |
| Atmospheric Pressure: | 101kPa |
| Test mode: | |
| TX mode: | The EUT transmitted the continuous signal at the specific channel(s). |

5.5 Description of Support Units

The EUT has been tested independently.

5.6 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China 518101

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

FCC Designation No.: CN1164

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.

5.10 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1 | Radio Frequency | 7.9×10^{-8} |
| 2 | RF power, conducted | 0.46dB (30MHz-1GHz) |
| | | 0.55dB (1GHz-18GHz) |
| 3 | Radiated Spurious emission test | 4.3dB (30MHz-1GHz) |
| | | 4.5dB (1GHz-12.75GHz) |
| 4 | Conduction emission | 3.5dB (9kHz to 150kHz) |
| | | 3.1dB (150kHz to 30MHz) |
| 5 | Temperature test | 0.64°C |
| 6 | Humidity test | 3.8% |
| 7 | DC power voltages | 0.026% |

6 Equipment List

| Conducted disturbance Test | | | | | |
|---------------------------------|--------------|----------------------|---------------|------------------------|----------------------------|
| Equipment | Manufacturer | Model No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Receiver | R&S | ESCI | 100435 | 05-20-2019 | 05-18-2020 |
| Temperature/ Humidity Indicator | Defu | TH128 | / | 07-02-2018 | 07-01-2019 |
| Communication test set | Agilent | E5515C | GB47050 534 | 03-01-2019 | 02-28-2020 |
| Communication test set | R&S | CMW500 | 102898 | 01-18-2019 | 01-17-2020 |
| LISN | R&S | ENV216 | 100098 | 05-08-2019 | 05-06-2020 |
| LISN | schwarzbeck | NNLK8121 | 8121-529 | 05-08-2019 | 05-06-2020 |
| Voltage Probe | R&S | ESH2-Z3 0299.7810.56 | 100042 | 06-13-2017 | 06-11-2020 |
| Current Probe | R&S | EZ-17 816.2063.03 | 100106 | 05-20-2019 | 05-18-2020 |
| ISN | TESEQ | ISN T800 | 30297 | 01-06-2019 | 01-15-2020 |
| Barometer | changchun | DYM3 | 1188 | 07-02-2018 | 07-01-2019 |

| Conducted RF test | | | | | |
|-----------------------------------|-------------------|-----------|----------------|------------------------|----------------------------|
| Equipment | Manufacturer | Model No. | Serial Number | Cal. Date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| Spectrum Analyzer | R&S | FSP40 | 100416 | 04-28-2019 | 04-26-2020 |
| Signal Generator | Agilent | E4438C | MY45095744 | 03-01-2019 | 02-29-2020 |
| Attenuator | HuaXiang | SHX370 | 15040701 | 03-01-2019 | 02-29-2020 |
| high-low temperature test chamber | DongGuangQ inZhuo | LK-80GA | QZ20150611 879 | 03-01-2019 | 02-28-2020 |
| DC Power | Keysight | E3642A | MY54426035 | 03-01-2019 | 02-28-2020 |
| Temperature/ Humidity Indicator | biaozhi | HM10 | 1804186 | 10-12-2018 | 10-11-2019 |

| 3M Semi/full-anechoic Chamber | | | | | |
|----------------------------------|------------------|--------------------------|---------------|------------------------|----------------------------|
| Equipment | Manufacturer | Model No. | Serial Number | Cal. date (mm-dd-yyyy) | Cal. Due date (mm-dd-yyyy) |
| 3M Chamber & Accessory Equipment | TDK | SAC-3 | --- | 05-24-2019 | 05-22-2022 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB9163 | 9163-401 | 12-21-2018 | 12-20-2019 |
| TRILOG Broadband Antenna | Schwarzbeck | VULB9163 | 9163-618 | 07-30-2018 | 07-29-2019 |
| Microwave Preamplifier | Agilent | 8449B | 3008A02425 | 08-21-2018 | 08-20-2019 |
| Microwave Preamplifier | Tonscend | EMC051845 SE | 980380 | 01-16-2019 | 01-15-2020 |
| Horn Antenna | Schwarzbeck | BBHA 9120D | 9120D-1869 | 04-25-2018 | 04-23-2021 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00057410 | 06-05-2018 | 06-03-2021 |
| Double ridge horn antenna | A.H.SYSTEMS | SAS-574 | 374 | 06-05-2018 | 06-04-2021 |
| Pre-amplifier | A.H.SYSTEMS | PAP-1840-60 | 6041.6041 | 08-08-2018 | 08-07-2019 |
| Loop Antenna | ETS | 6502 | 00071730 | 06-22-2017 | 06-21-2019 |
| Spectrum Analyzer | R&S | FSP40 | 100416 | 04-28-2019 | 04-26-2020 |
| Receiver | R&S | ESCI | 100435 | 05-20-2019 | 05-18-2020 |
| Receiver | R&S | ESCI7 | 100938-003 | 11-23-2018 | 11-22-2019 |
| Multi device Controller | maturio | NCD/070/1071112 | --- | 01-09-2019 | 01-08-2020 |
| LISN | schwarzbeck | NNBM8125 | 81251547 | 05-11-2018 | 05-10-2019 |
| LISN | schwarzbeck | NNBM8125 | 81251548 | 05-11-2018 | 05-10-2019 |
| Signal Generator | Agilent | E4438C | MY45095744 | 03-01-2019 | 02-28-2020 |
| Signal Generator | Keysight | E8257D | MY53401106 | 03-01-2019 | 02-28-2020 |
| Temperature/Humidity Indicator | Shanghai qixiang | HM10 | 1804298 | 10-12-2018 | 10-11-2019 |
| Communication test set | Agilent | E5515C | GB47050534 | 03-01-2019 | 02-28-2020 |
| Cable line | Fulai(7M) | SF106 | 5219/6A | 01-09-2019 | 01-08-2020 |
| Cable line | Fulai(6M) | SF106 | 5220/6A | 01-09-2019 | 01-08-2020 |
| Cable line | Fulai(3M) | SF106 | 5216/6A | 01-09-2019 | 01-08-2020 |
| Cable line | Fulai(3M) | SF106 | 5217/6A | 01-09-2019 | 01-08-2020 |
| Communication test set | R&S | CMW500 | 104466 | 01-18-2019 | 01-17-2020 |
| High-pass filter | Sinoscite | FL3CX03WG18NM12-0398-002 | --- | 01-09-2019 | 01-08-2020 |
| High-pass filter | MICRO-TRONICS | SPA-F-63029-4 | --- | 01-09-2019 | 01-08-2020 |
| band rejection filter | Sinoscite | FL5CX01CA09CL12-0395-001 | --- | 01-09-2019 | 01-08-2020 |
| band rejection filter | Sinoscite | FL5CX01CA08CL12-0393-001 | --- | 01-09-2019 | 01-08-2020 |
| band rejection filter | Sinoscite | FL5CX02CA04CL12-0396-002 | --- | 01-09-2019 | 01-08-2020 |
| band rejection filter | Sinoscite | FL5CX02CA03CL12-0394-001 | --- | 01-09-2019 | 01-08-2020 |

7 Test Result & Measurement Data

7.1 Conducted Emissions

Test Requirement: 47 CFR Part 15C Section 15.207

Test Method: ANSI C63.10-2013

Test Frequency Range: 150kHz to 30MHz

Limit:

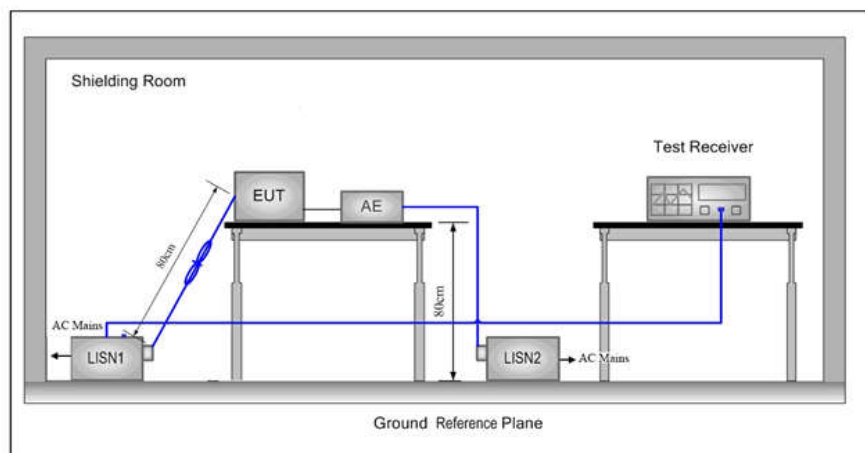
| Frequency range (MHz) | Limit (dB μ V) | |
|-----------------------|--------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

Test Procedure:

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Test Setup:



Test Mode: Transmitting mode

Instruments Used: Refer to section 6 for details

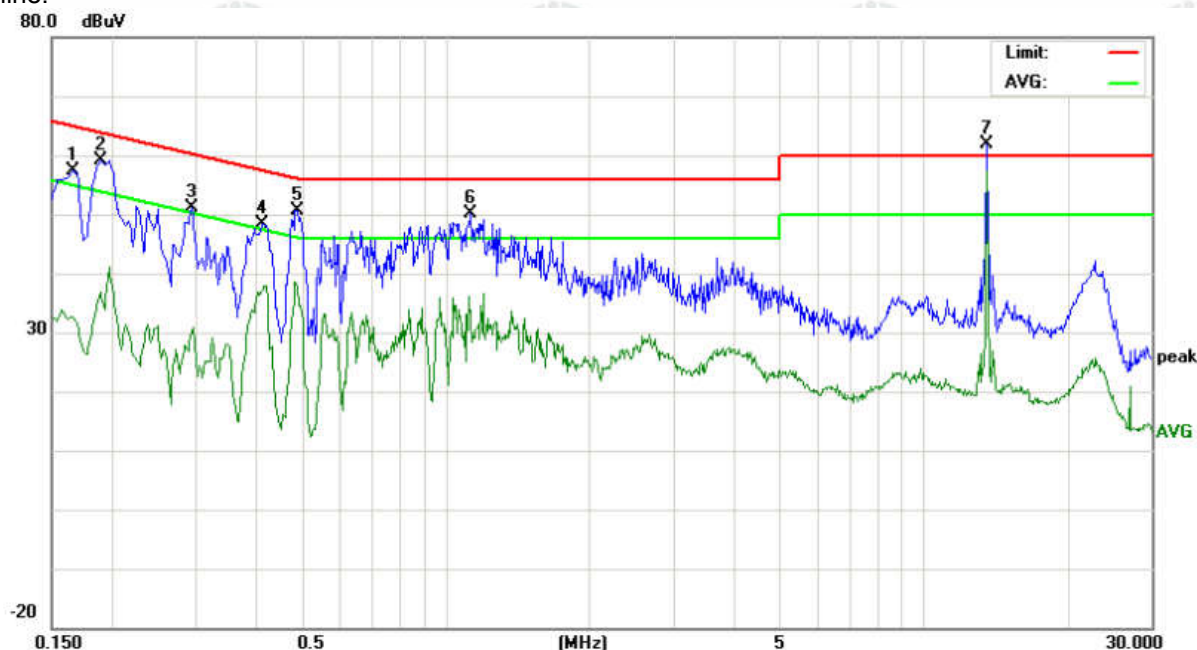
Test Results: Pass

Test Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live line:

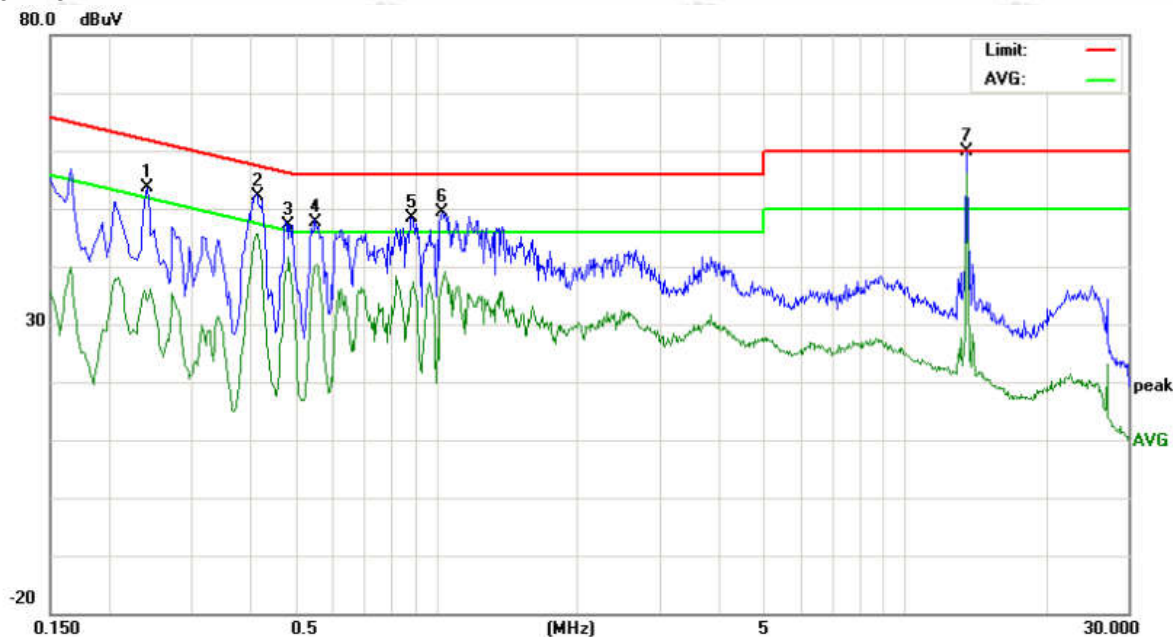


| No. | Freq. MHz | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.1660 | 47.52 | | 22.78 | 9.91 | 57.43 | | 32.69 | 65.15 | 55.15 | -7.72 | -22.46 | P | |
| 2 | 0.1900 | 49.19 | | 26.93 | 9.91 | 59.10 | | 36.84 | 64.03 | 54.03 | -4.93 | -17.19 | P | |
| 3 | 0.2940 | 41.09 | | 20.25 | 9.99 | 51.08 | | 30.24 | 60.41 | 50.41 | -9.33 | -20.17 | P | |
| 4 | 0.4140 | 38.41 | | 27.14 | 9.89 | 48.30 | | 37.03 | 57.57 | 47.57 | -9.27 | -10.54 | P | |
| 5 | 0.4900 | 40.78 | | 28.05 | 9.89 | 50.67 | | 37.94 | 56.17 | 46.17 | -5.50 | -8.23 | P | |
| 6 | 1.1340 | 40.41 | | 22.49 | 9.80 | 50.21 | | 32.29 | 56.00 | 46.00 | -5.79 | -13.71 | P | |
| 7 | 13.5617 | 51.98 | | 47.42 | 9.94 | 61.92 | | 57.36 | 60.00 | 50.00 | 1.92 | 7.36 | F | |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.
3. 13.56MHz is the Fundamental field strength of NFC. According to the 15.207, the limit is not apply.

Neutral line:



| No. | Freq. MHz | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|--------------|-------------------------|-------|-------|-------------------------|-----------------------|-------|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.2420 | 43.65 | | 24.10 | 9.95 | 53.60 | | 34.05 | 62.02 | 52.02 | -8.42 | -17.97 | P | |
| 2 | 0.4176 | 41.20 | 38.77 | 35.41 | 9.89 | 51.09 | 48.66 | 45.30 | 57.49 | 47.49 | -8.83 | -2.19 | P | |
| 3 | 0.4860 | 37.31 | | 31.64 | 9.89 | 47.20 | | 41.53 | 56.24 | 46.24 | -9.04 | -4.71 | P | |
| 4 | 0.5580 | 36.65 | | 30.38 | 9.98 | 46.63 | | 40.36 | 56.00 | 46.00 | -9.37 | -5.64 | P | |
| 5 | 0.8860 | 38.59 | | 26.62 | 9.82 | 48.41 | | 36.44 | 56.00 | 46.00 | -7.59 | -9.56 | P | |
| 6 | 1.0300 | 39.46 | | 27.12 | 9.81 | 49.27 | | 36.93 | 56.00 | 46.00 | -6.73 | -9.07 | P | |
| 7 | 13.5579 | 50.06 | | 46.22 | 9.94 | 60.00 | | 56.16 | 60.00 | 50.00 | 0.00 | 6.16 | F | |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.
3. 13.56MHz is the Fundamental field strength of NFC. According to the 15.207, the limit is not apply.

7.2 Radiated Emissions

Test Requirement: 47 CFR Part 15 Subpart C Section 15.209; 15.225(a)(b)(c)(d)

Test Method: ANSI C63.10-2013

Test Site: 3m (Semi-Anechoic Chamber)

Requirements:

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

Receiver Setup:

| Frequency | Detector | RBW | VBW | Remark |
|-------------------|------------|---------|--------|------------|
| 0.009MHz-0.090MHz | Quasi-peak | 10kHz | 30kHz | Peak |
| 0.009MHz-0.090MHz | Quasi-peak | 10kHz | 30kHz | Average |
| 0.090MHz-0.110MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| 0.110MHz-0.490MHz | Quasi-peak | 10kHz | 30kHz | Peak |
| 0.110MHz-0.490MHz | Quasi-peak | 10kHz | 30kHz | Average |
| 0.490MHz -30MHz | Quasi-peak | 10kHz | 30kHz | Quasi-peak |
| 30MHz-1GHz | Quasi-peak | 120 kHz | 300kHz | Quasi-peak |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Peak | 1MHz | 10Hz | Average |

Test Setup:

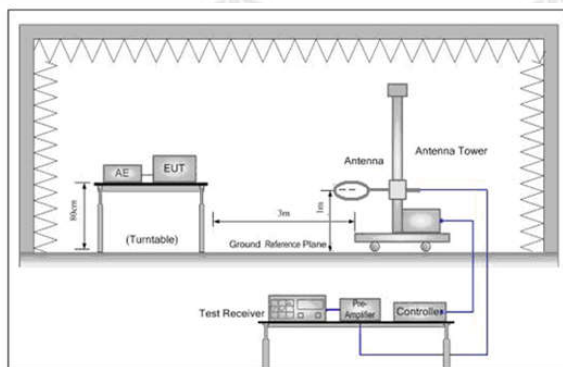


Figure 1. Below 30MHz

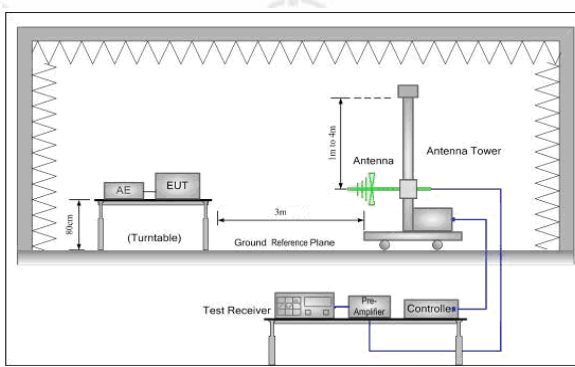


Figure 2. 30MHz to 1GHz

Test Procedure:

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The limit 1.705MHz to 30MHz in clause 4.3 are specified at 30 meters, and measurements were made at 3 meters, the limit is translated to 3 meters by using a formula as follows:
$$\text{Limit}_{3\text{m}} = \text{Limit}_{30\text{m}} + 40\log(30\text{m}/3)$$
8. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

Test Mode:

Transmitting mode

Instruments Used:

Refer to section 6 for details

Test Result:

Pass

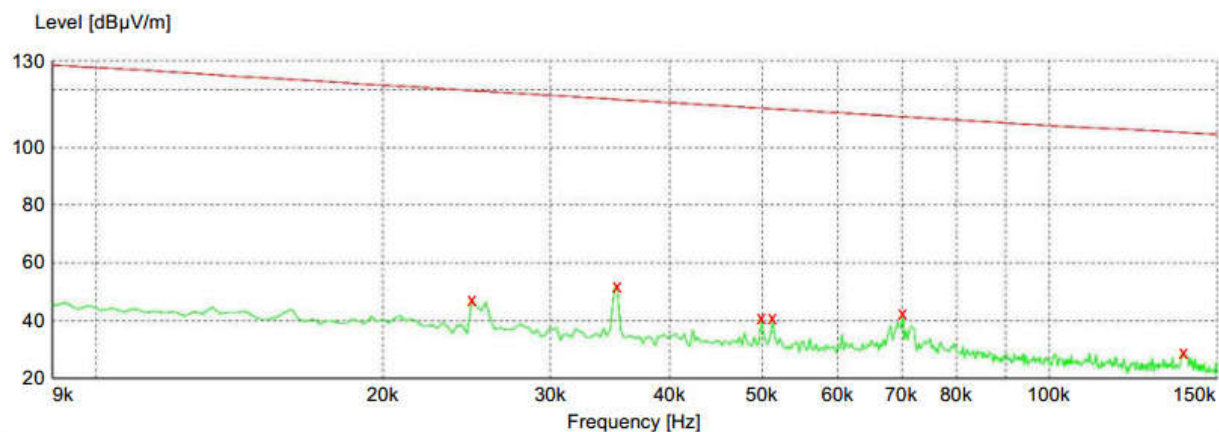
1.705-30MHz

Mode

Test Procedure: For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4: 2014, section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Test data:

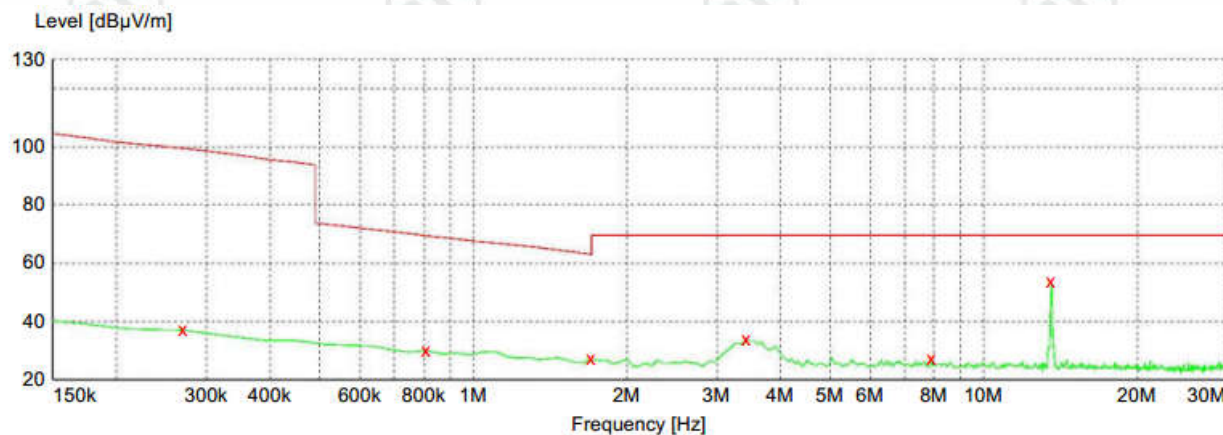
9 kHz-150kHz



x x x MES CTI190616034_red

| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 0.024792 | 46.90 | 20.4 | 119.7 | 72.8 | PK | 100.0 | 360.00 | X |
| 0.035226 | 52.00 | 20.4 | 116.7 | 64.7 | PK | 100.0 | 360.00 | X |
| 0.049890 | 40.70 | 20.4 | 113.7 | 73.0 | PK | 100.0 | 360.00 | X |
| 0.051300 | 40.10 | 20.5 | 113.4 | 73.3 | PK | 100.0 | 360.00 | X |
| 0.070194 | 42.10 | 20.5 | 110.7 | 68.6 | PK | 100.0 | 360.00 | X |
| 0.138438 | 28.80 | 20.5 | 105.2 | 76.4 | PK | 100.0 | 360.00 | X |

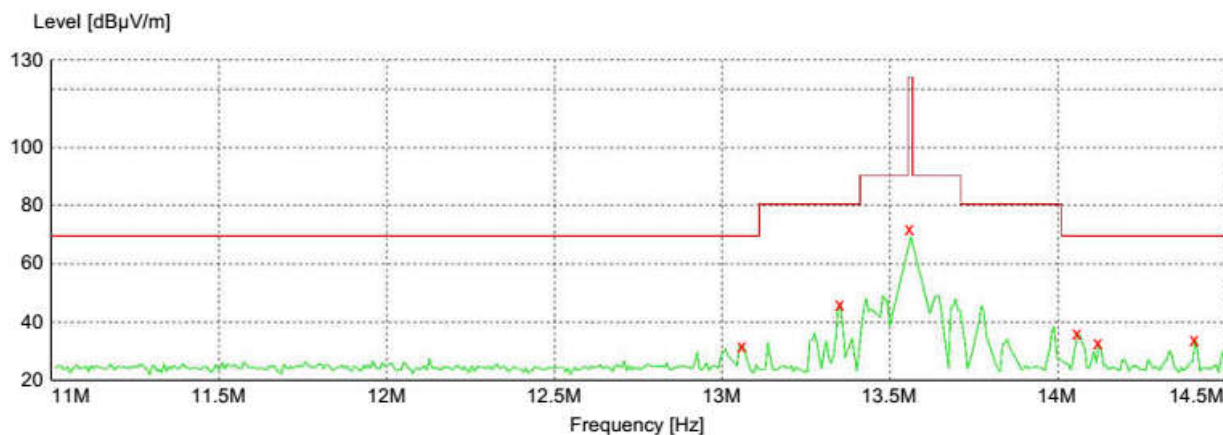
150kHz-30MHz



x x x MES CTI190616035_red

| Frequency MHz | Level dB μ V/m | Transd dB | Limit dB μ V/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------------|--------------|-----------------------|--------------|------|--------------|----------------|--------------|
| 0.269400 | 36.90 | 20.5 | 99.5 | 62.6 | PK | 100.0 | 320.00 | X |
| 0.806700 | 30.00 | 20.4 | 69.5 | 39.5 | PK | 100.0 | 312.00 | X |
| 1.702200 | 27.00 | 20.6 | 63.0 | 36.0 | PK | 100.0 | 255.00 | X |
| 3.433500 | 33.90 | 20.7 | 69.5 | 35.6 | PK | 100.0 | 320.00 | X |
| 7.911000 | 26.90 | 20.5 | 69.5 | 42.6 | PK | 100.0 | 117.00 | X |
| 13.582500 | 53.40 | 20.4 | 69.5 | 16.1 | PK | 100.0 | 265.00 | X |

11MHz~14.5MHz

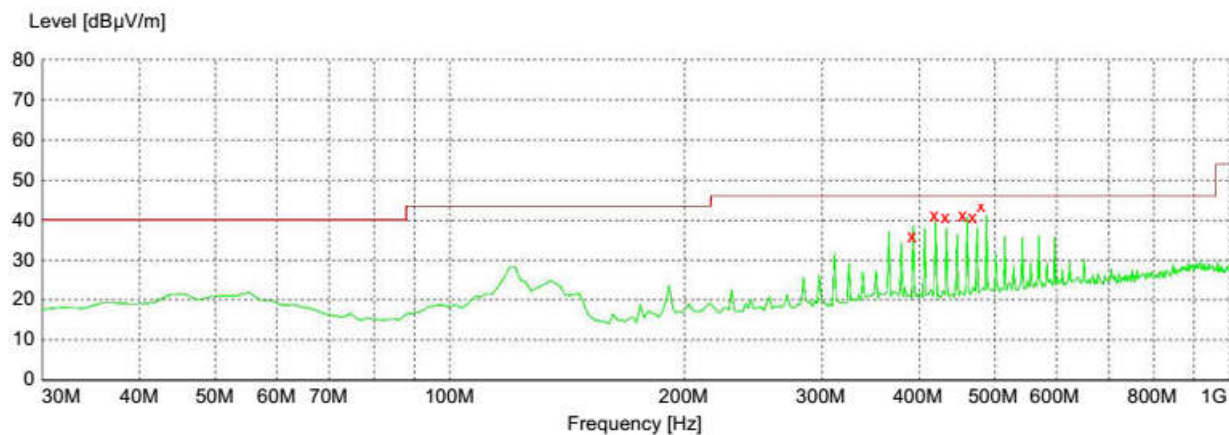


x x x MES CTI190616039_red

| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 13.058000 | 31.80 | 20.4 | 69.5 | 37.7 | QP | 100.0 | 360.00 | X |
| 13.352000 | 45.90 | 20.4 | 80.5 | 34.6 | QP | 100.0 | 360.00 | X |
| 13.561000 | 71.40 | 20.4 | 124.0 | 52.6 | QP | 100.0 | 360.00 | X |
| 14.059000 | 35.70 | 20.4 | 69.5 | 33.8 | QP | 100.0 | 180.00 | X |
| 14.122000 | 32.40 | 20.4 | 69.5 | 37.1 | QP | 100.0 | 360.00 | X |
| 14.409000 | 33.90 | 20.4 | 69.5 | 35.6 | QP | 100.0 | 360.00 | X |

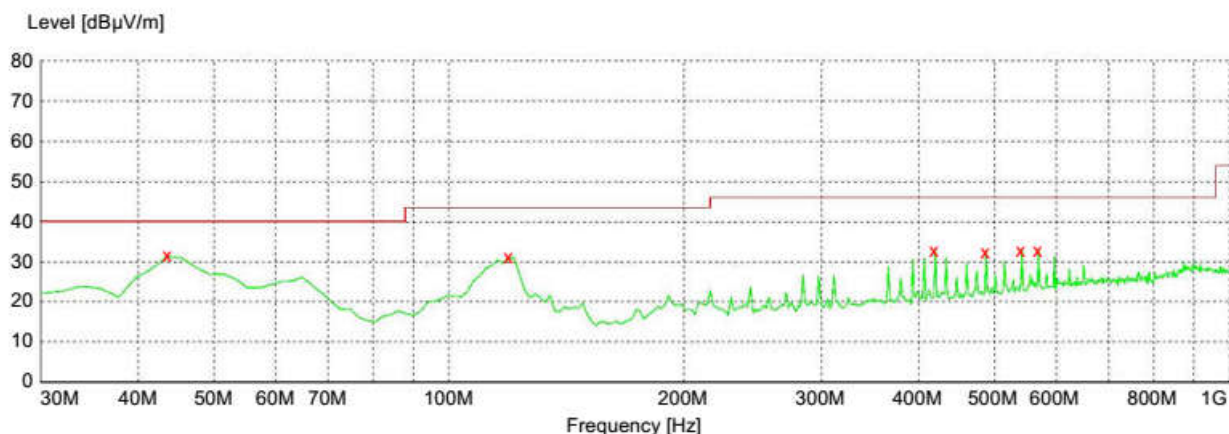
Remark: The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case X axis is shown in the report.

30MHz-1000MHz



x x x MES CTI190612010_red

| Frequency MHz | Level dB μ V/m | Transd dB | Limit dB μ V/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------------|--------------|-----------------------|--------------|------|--------------|----------------|--------------|
| 392.780000 | 38.60 | 16.3 | 46.0 | 7.4 | QP | 100.0 | 258.00 | HORIZONTAL |
| 419.940000 | 39.40 | 16.8 | 46.0 | 6.6 | QP | 100.0 | 196.00 | HORIZONTAL |
| 433.520000 | 38.00 | 17.0 | 46.0 | 8.0 | QP | 100.0 | 184.00 | HORIZONTAL |
| 460.680000 | 40.60 | 17.5 | 46.0 | 5.4 | QP | 100.0 | 196.00 | HORIZONTAL |
| 474.260000 | 37.90 | 17.7 | 46.0 | 8.1 | QP | 100.0 | 162.00 | HORIZONTAL |
| 487.840000 | 41.20 | 18.0 | 46.0 | 4.8 | QP | 100.0 | 162.00 | HORIZONTAL |



x x x MES CTI190612009_red

| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 43.580000 | 31.30 | 14.3 | 40.0 | 8.7 | QP | 100.0 | 360.00 | VERTICAL |
| 119.240000 | 31.00 | 11.9 | 43.5 | 12.5 | QP | 100.0 | 10.00 | VERTICAL |
| 419.940000 | 32.70 | 16.8 | 46.0 | 13.3 | QP | 200.0 | 157.00 | VERTICAL |
| 487.840000 | 32.30 | 18.0 | 46.0 | 13.7 | QP | 200.0 | 72.00 | VERTICAL |
| 542.160000 | 32.90 | 18.7 | 46.0 | 13.1 | QP | 100.0 | 340.00 | VERTICAL |
| 569.320000 | 32.90 | 19.1 | 46.0 | 13.1 | QP | 100.0 | 330.00 | VERTICAL |

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

7.3 Frequency Tolerance

Test Requirement: 47 CFR Part 15 Subpart C Section 15.225(e)

Test Method: ANSI C63.10-2013

Frequency range: Operation within the band 13.110-14.010 MHz

Requirement :

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

Test Mode: Transmitter mode

Method of measurement:

The EUT was placed in an environmental test chamber and powered such that control element received normal voltage and the transmitter provided maximum RF output.

Instruments Used: Refer to section 6 for details

Test Result: Pass

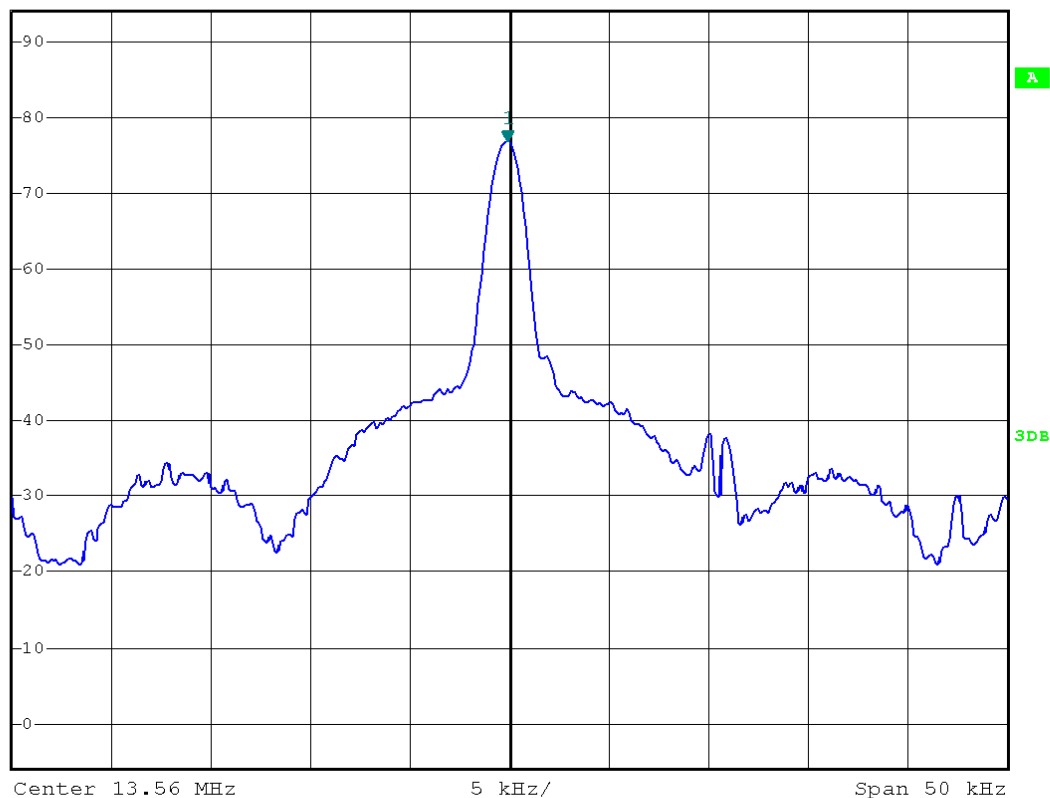
| Test Frequency: 13.56MHz | | | Temperature:22°C | |
|--------------------------|-------------------|-----------------|------------------|--------|
| Supply Voltage (V) | Test Result (MHz) | Deviation (kHz) | Limit (kHz) | Result |
| 5.0 | 13.55990 | 0.10 | 1.356 | Pass |

| Test Frequency: 13.56MHz | | | Temperature:20°C | |
|--------------------------|-------------------|-----------------|------------------|--------|
| Supply Voltage (V) | Test Result (MHz) | Deviation (kHz) | Limit (kHz) | Result |
| 4.25 | 13.55988 | 0.12 | 1.356 | Pass |
| 5.0 | 13.55991 | 0.09 | 1.356 | Pass |
| 5.75 | 13.55988 | 0.12 | 1.356 | Pass |

| Test Frequency: 13.56MHz | | | Voltage: 5.0V | |
|--------------------------|-------------------|-----------------|---------------|--------|
| Temperature (°C) | Test Result (MHz) | Deviation (kHz) | Limit (kHz) | Result |
| -20 | 13.55989 | 0.11 | 1.356 | Pass |
| -10 | 13.55989 | 0.11 | 1.356 | |
| 0 | 13.55988 | 0.12 | 1.356 | |
| 10 | 13.55988 | 0.12 | 1.356 | |
| 20 | 13.55990 | 0.10 | 1.356 | |
| 30 | 13.55989 | 0.11 | 1.356 | |
| 40 | 13.55988 | 0.12 | 1.356 | |
| 50 | 13.55988 | 0.12 | 1.356 | |



Ref 94 dBμV *Att 10 dB *RBW 1 kHz Marker 1 [T1] 76.93 dBμV
*VBW 3 kHz 13.559900000 MHz
SWT 50 ms



Date: 14.JUN.2019 15:30:43

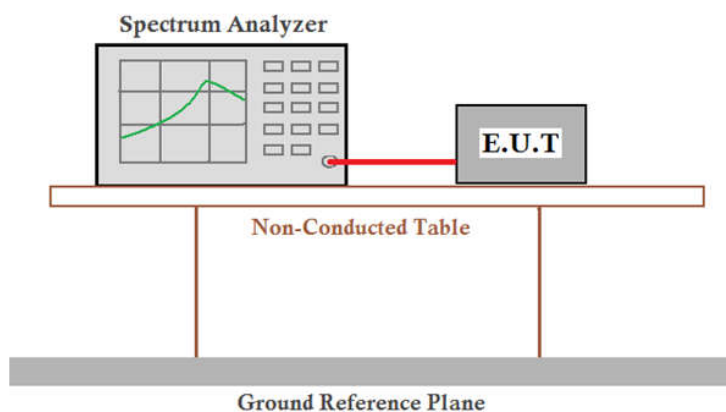
7.4 Occupied Bandwidth

Test Requirement: 47 CFR Part 15C Section 15.215 (C)
Test Method: ANSI C63.10-2013
Frequency range: Operation within the band 13.110 – 14.010 MHz

Requirement :

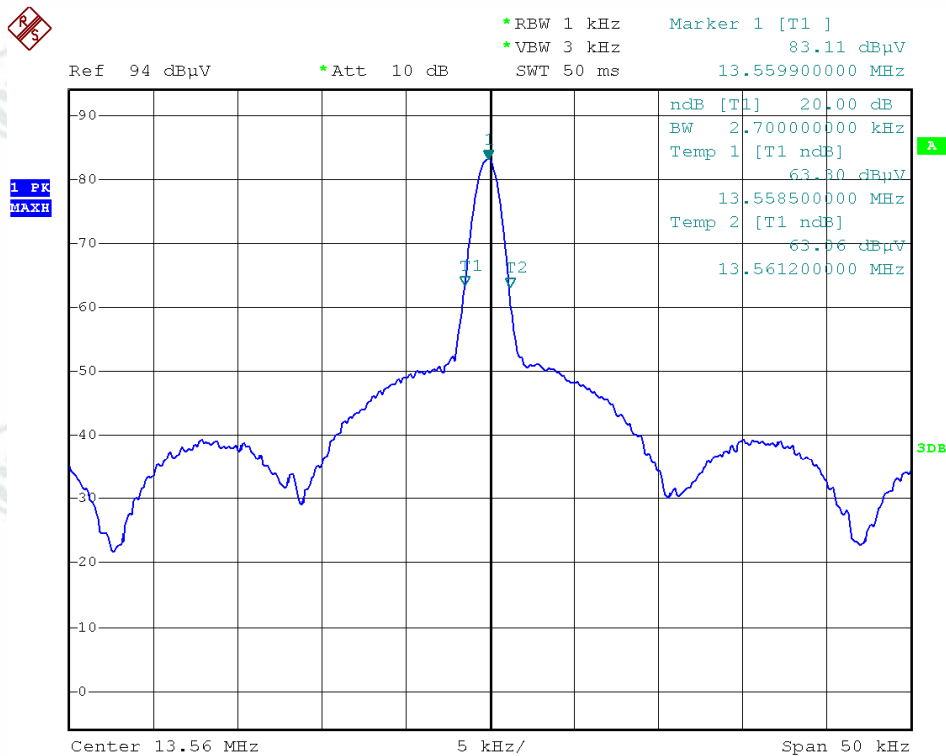
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that 20dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equip compliance with the 20dB attenuation specification may base on measurement at the intentional radiator's antenna output terminal unless the intentional radiator uses a permanently attached antenna, in which case compliance shall be demonstrated by measuring the radiated emissions.

Test Setup:



Test Mode: Transmitter mode
Instruments Used: Refer to section 6 for details
Test Result: Pass

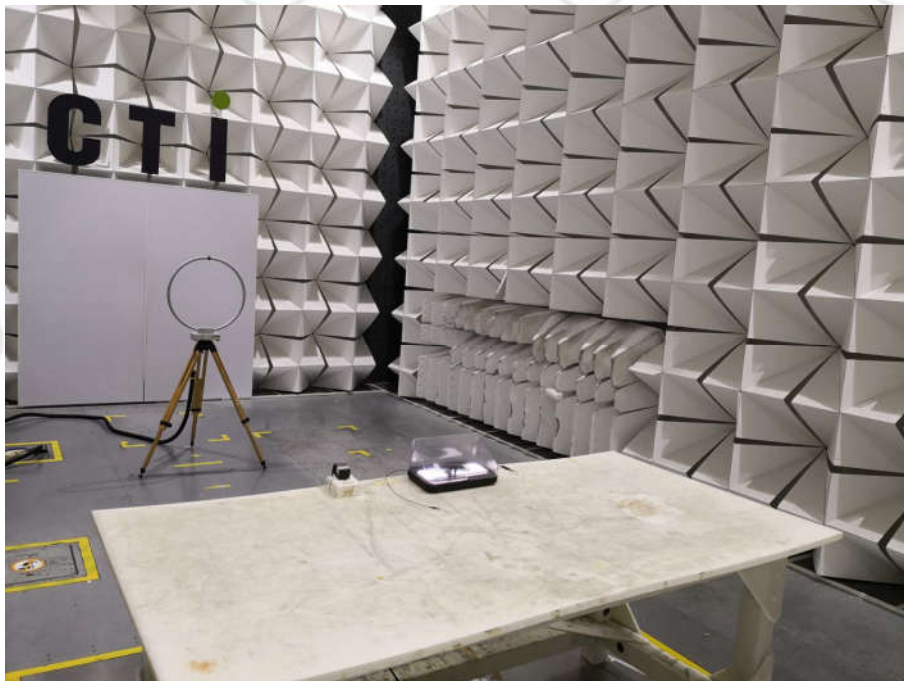
The graph as below: represents the emissions take for this device.



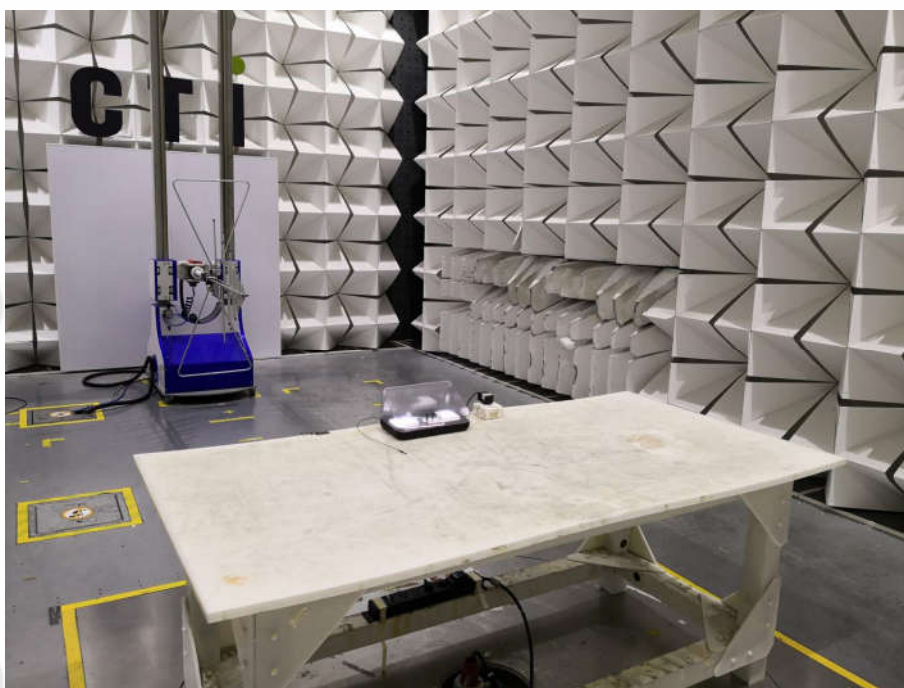
Date: 14.JUN.2019 15:32:37

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

Test Model No.: 850-074027



Radiated emission Test Setup (Below 30MHz)



Radiated emission Test Setup (30MHz-1000MHz)



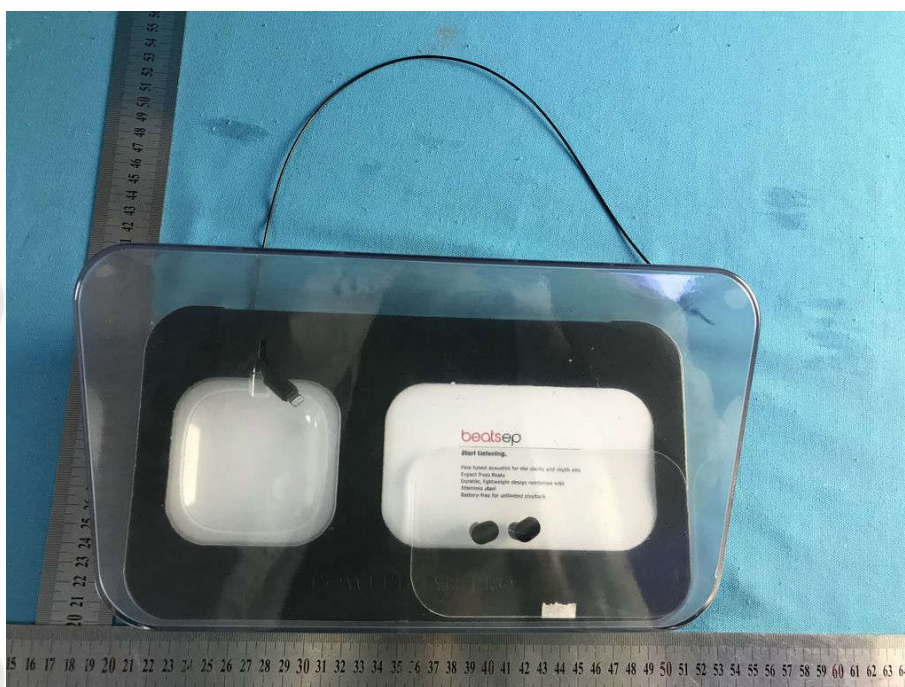
Conducted Emissions Test Setup

APPENDIX 2 PHOTOGRAPHS OF EUT

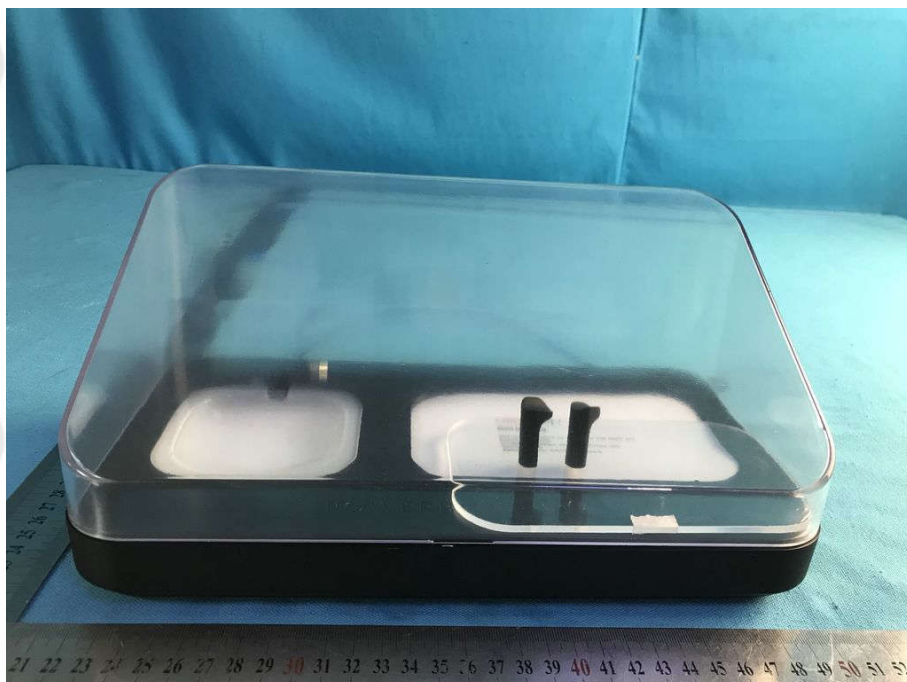
Test model No.: 850-074027



View of Product-1



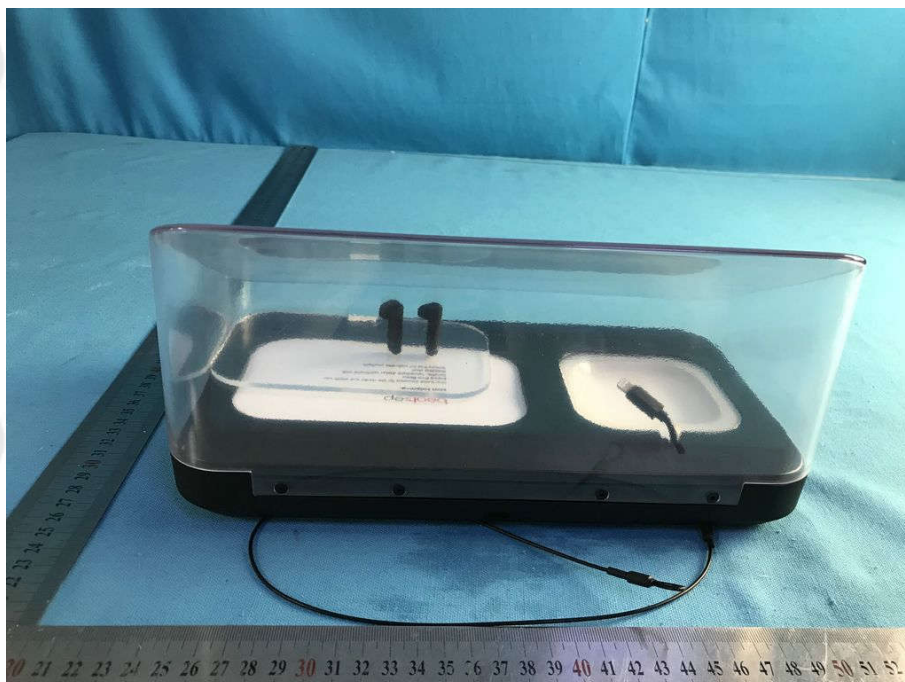
View of Product-2



View of Product-3



View of Product-4



View of Product-5



View of Product-6



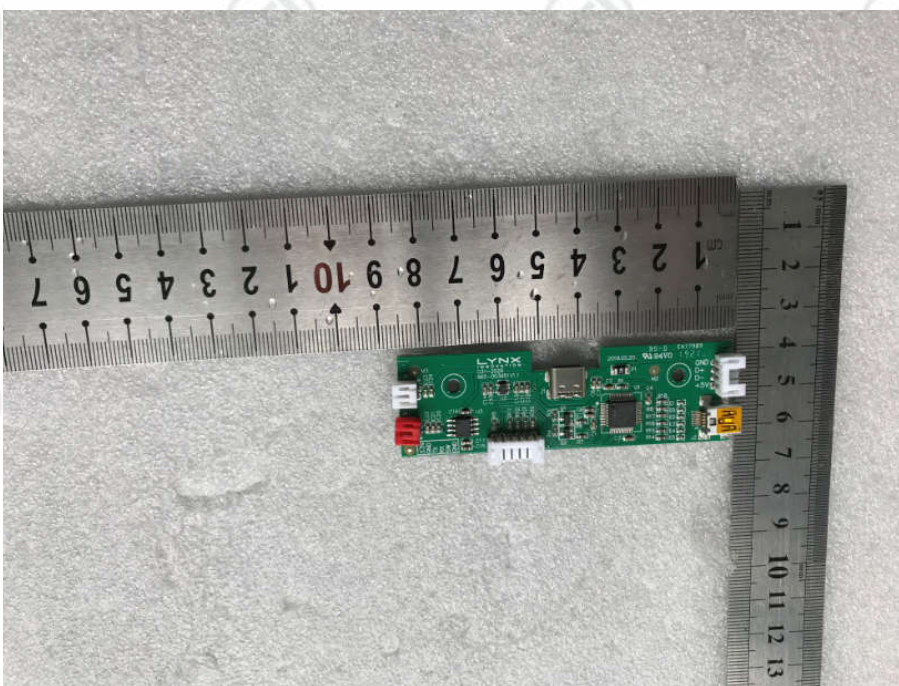
View of Product-7



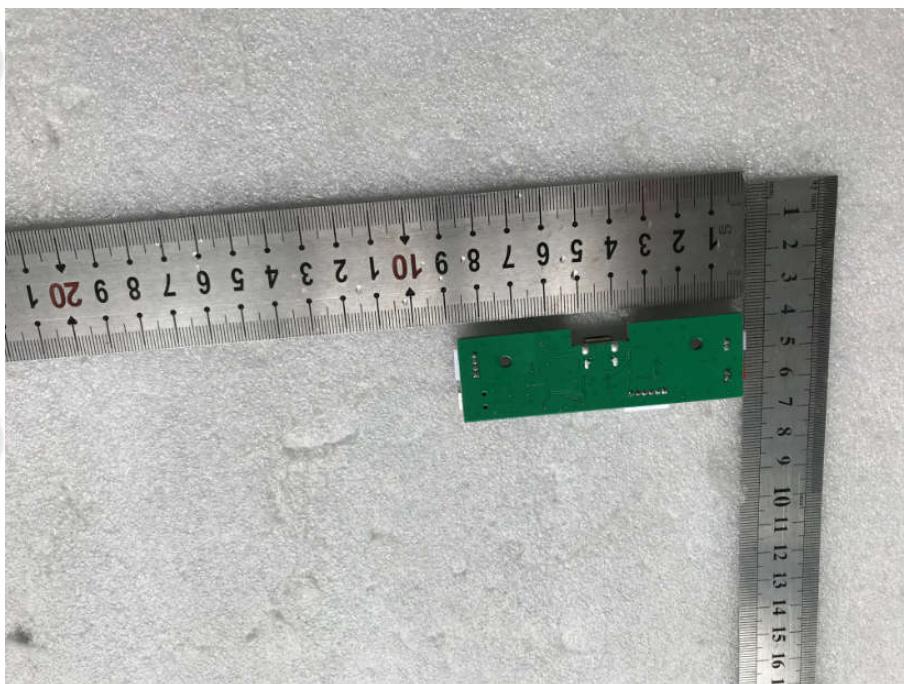
View of Product-8



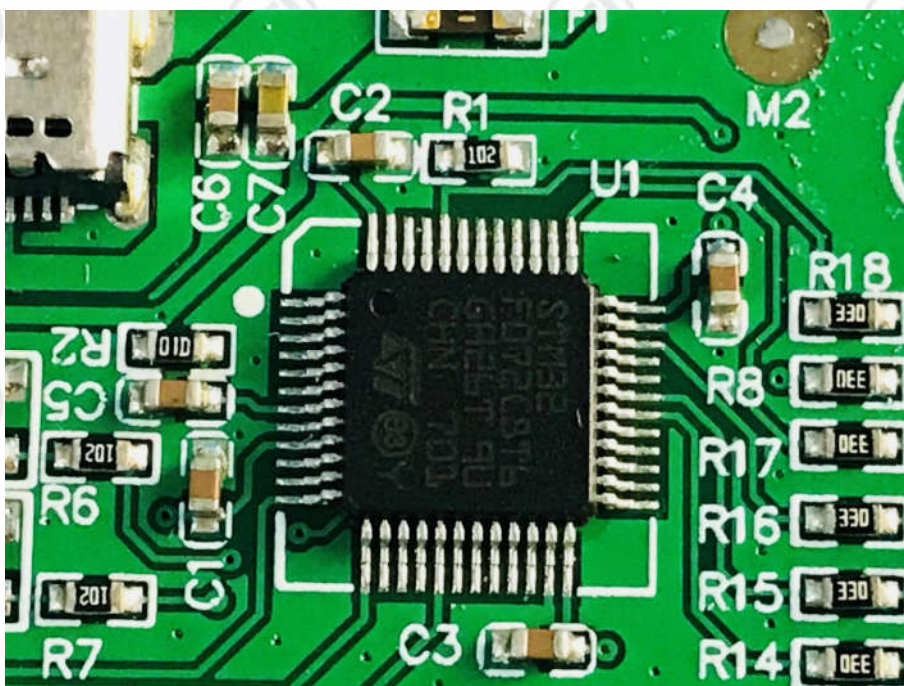
View of Product-9



View of Product-10



View of Product-11



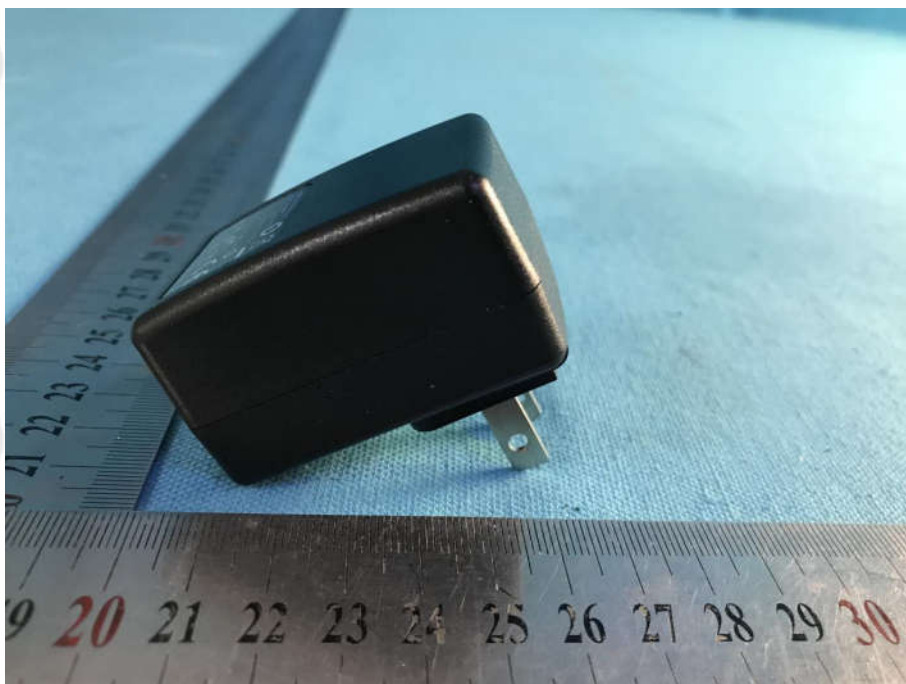
View of Product-12



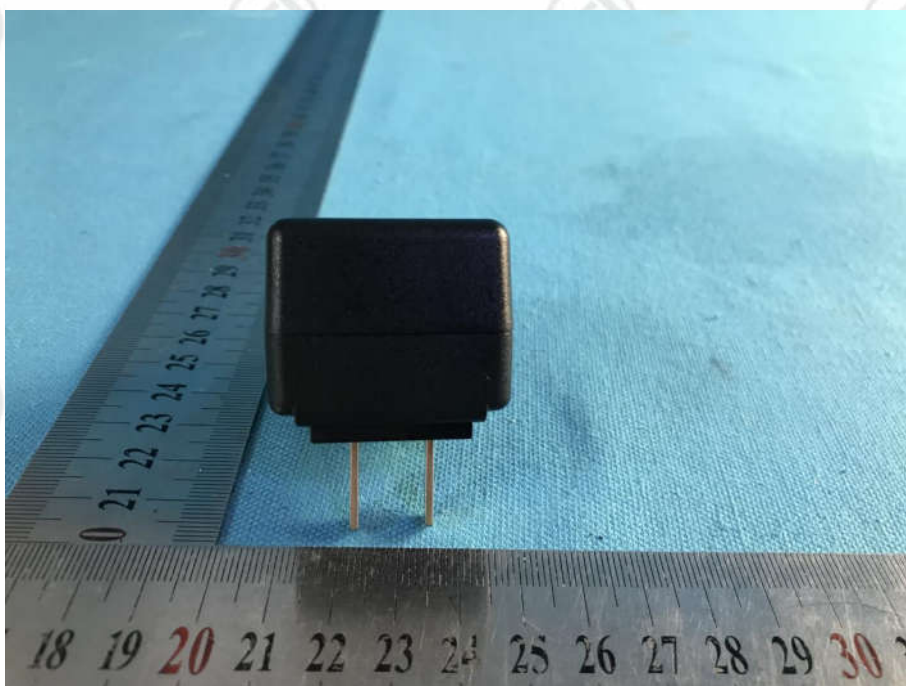
View of Product-13



View of Product-14



View of Product-15



View of Product-16



View of Product-17



View of Product-18

*** End of Report ***

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