

FCC Part 18 Measurement and Test Report

For

Eggtronic Engineering Srl

Via Giorgio Campagna 8 41126, Modena, Italy

FCC ID: 2ANP7TX016LP15M001

| | | |
|--------------------------------------|---|-------------------|
| Test Rule(s): | <u>FCC Part 18</u> | |
| Product Description: | <u>Fast Charge Leather Charging Pad</u> | |
| Tested Model: | <u>EGG170028-10</u> | |
| Report No.: | <u>STR18048214I-1</u> | |
| Sample Receipt Date: | <u>2018-04-19</u> | |
| Tested Date: | <u>2018-04-20 to 2018-08-09</u> | |
| Issued Date: | <u>2018-08-09</u> | |
| Tested By: | <u>Mike Shi / Engineer</u> | <i>Mike Shi</i> |
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Eggtronic Engineering Srl
Address of applicant: Via Giorgio Campagna 8 41126, Modena, Italy

Manufacturer: Shenzhen Jibang Technology Co., Ltd
Address of manufacturer: 5th Building, BaoHuaCheng Industrial Park,
HuaSheng Road, Dalang, Longhua District,
Shenzhen

| General Description of EUT | |
|--|----------------------------------|
| Product Name: | Fast Charge Leather Charging Pad |
| Trade Name: | Eggtronic |
| Model No.: | EGG170028-10 |
| Adding Model(s): | / |
| <i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i> | |

| Technical Characteristics of EUT | |
|----------------------------------|------------------------------|
| Frequency Range: | 110~205KHz |
| Modulation Type: | ASK |
| Antenna Type: | Coil Antenna |
| Rated Voltage: | DC5V/DC 9V (Wireless output) |
| Rated Current: | <1.1A (Wireless output) |
| Rated Power: | < 15W (Wireless output) |

1.2 Test Standards

The following report is prepared on behalf of Eggtronic Engineering Srl in accordance with FCC Part 18, Subpart C, and section 18.307 and 18.311 of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 18, Subpart C, and section 18.307 and 18.311 of the Federal Communication Commissions rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

| Test Mode | Description | Remark |
|-----------|-------------|--|
| TM1 | Charging | The EUT charging to the load through wireless. |

EUT Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| USB CABLE | 1.0 | Unshielded | Without Core |

Auxiliary Equipment List and Details

| Description | Manufacturer | Model | Serial Number |
|-------------|--------------|--------------|---------------|
| Adapter | TECLAST | APS-KI018W-S | / |

Special Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| / | / | / | / |

1.6 Measurement Uncertainty

| Measurement uncertainty | | |
|-------------------------|------------|--------------------------|
| Parameter | Conditions | Uncertainty |
| Conducted Emissions | Conducted | 9-150kHz ± 3.74 dB |
| | | 0.15-30MHz ± 3.34 dB |
| Radiated Emissions | Radiated | 30-200MHz ± 4.52 dB |
| | | 0.2-1GHz ± 5.56 dB |
| | | 1-6GHz ± 3.84 dB |
| | | 6-18GHz ± 3.92 dB |

1.7 Test Equipment List and Details

| No. | Description | Manufacturer | Model | Serial No. | Cal Date | Due Date |
|-----------|-------------------|-----------------|-----------------------|------------|------------|------------|
| SEMT-1072 | Spectrum Analyzer | Agilent | E4407B | MY41440400 | 2017-06-12 | 2018-06-11 |
| SEMT-1031 | Spectrum Analyzer | Rohde & Schwarz | FSP30 | 836079/035 | 2017-06-12 | 2018-06-11 |
| SEMT-1007 | EMI Test Receiver | Rohde & Schwarz | ESVB | 825471/005 | 2017-06-12 | 2018-06-11 |
| SEMT-1008 | Amplifier | Agilent | 8447F | 3113A06717 | 2017-06-12 | 2018-06-11 |
| SEMT-1011 | Broadband Antenna | Schwarz beck | VULB9163 | 9163-333 | 2017-06-08 | 2020-06-07 |
| SEMT-1069 | Loop Antenna | Schwarz beck | FMZB 1516 | 9773 | 2017-06-08 | 2020-06-07 |
| SEMT-1001 | EMI Test Receiver | Rohde & Schwarz | ESPI | 101611 | 2017-06-12 | 2018-06-11 |
| SEMT-1002 | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100911 | 2017-06-12 | 2018-06-11 |
| SEMT-C001 | Cable | Zheng DI | LL142-07-07-10M(A) | / | 2018-03-19 | 2019-03-18 |
| SEMT-C002 | Cable | Zheng DI | ZT40-2.92J-2.92J-6M | / | 2018-03-19 | 2019-03-18 |
| SEMT-C003 | Cable | Zheng DI | ZT40-2.92J-2.92J-2.5M | / | 2018-03-19 | 2019-03-18 |
| SEMT-C004 | Cable | Zheng DI | 2M0RFC | / | 2018-03-19 | 2019-03-18 |
| SEMT-C005 | Cable | Zheng DI | 1M0RFC | / | 2018-03-19 | 2019-03-18 |
| SEMT-C006 | Cable | Zheng DI | 1M0RFC | / | 2018-03-19 | 2019-03-18 |

2. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|--------------|---------------------|-----------|
| § 18.307 (b) | Conducted Emission | Compliant |
| § 18.305 (b) | Radiated Emission | Compliant |

3. Conducted Emissions

3.1 Standard Applicable

According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

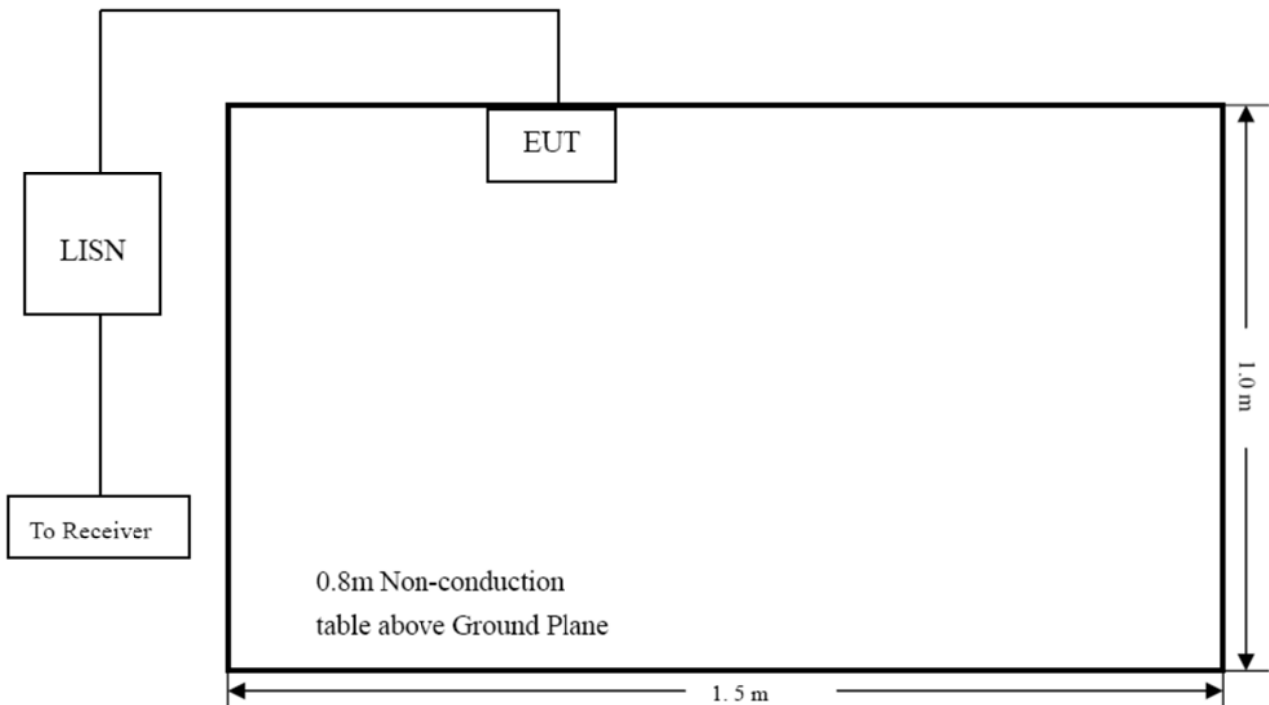
| Frequency of emission (MHz) | Conducted limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

3.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

3.3 Basic Test Setup Block Diagram



3.4 Environmental Conditions

| | |
|--------------|-------|
| Temperature: | 25° C |
|--------------|-------|

| | |
|--------------------|-----------|
| Relative Humidity: | 54% |
| ATM Pressure: | 1016 mbar |

3.5 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

Start Frequency 450 kHz
Stop Frequency..... 30 MHz
Sweep Speed Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth 9 kHz
Quasi-Peak Adapter Mode Normal

3.6 Summary of Test Results/Plots

According to the data in this section, the EUT complied with the FCC Part 18C Conducted margin for a RF lighting device, with the *worst* margin reading of:

-6.04 dB at 0.8220 MHz in the **Live, AVG** detector, 0.15-30MHz

Plot of Conducted Emissions Test Data

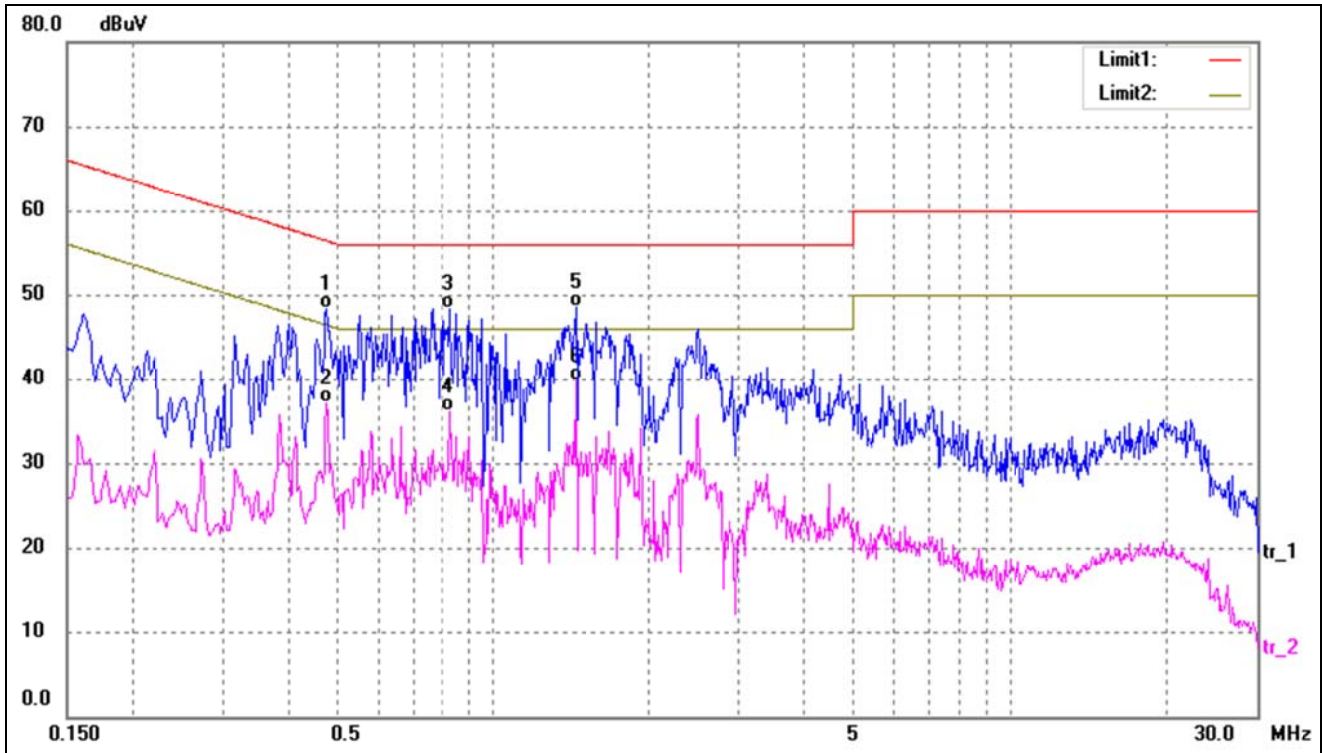
EUT: *Fast Charge Leather Charging Pad*

Tested Model: *EGG170028-10*

Operating Condiation: *TM1*

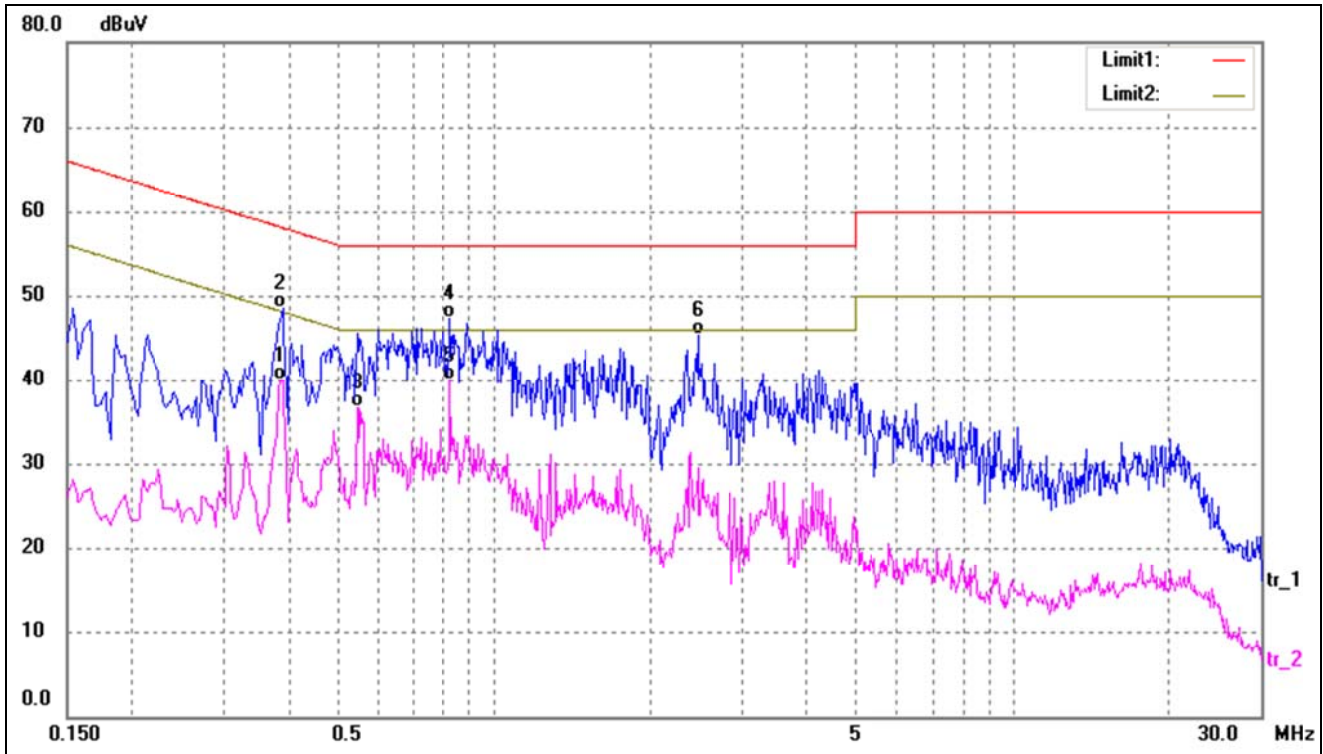
Comment: *AC 120V/60Hz*

Test Specification: *Neutral*



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|-----------------|----------------|----------------|---------------|--------------|-------------|----------|
| 1 | 0.4780 | 38.43 | 9.80 | 48.23 | 56.37 | -8.14 | QP |
| 2 | 0.4780 | 27.31 | 9.80 | 37.11 | 46.37 | -9.26 | AVG |
| 3 | 0.8300 | 38.56 | 9.77 | 48.33 | 56.00 | -7.67 | QP |
| 4 | 0.8300 | 26.41 | 9.77 | 36.18 | 46.00 | -9.82 | AVG |
| 5 | 1.4420 | 38.84 | 9.75 | 48.59 | 56.00 | -7.41 | QP |
| 6* | 1.4420 | 30.01 | 9.75 | 39.76 | 46.00 | -6.24 | AVG |

Test Specification: Line



| No. | Frequency (MHz) | Reading (dBuV) | Correct (dB/m) | Result (dBuV) | Limit (dBuV) | Margin (dB) | Detector |
|-----|--------------------|-------------------|-------------------|------------------|-----------------|----------------|----------|
| 1 | 0.3860 | 30.15 | 9.80 | 39.95 | 48.15 | -8.20 | AVG |
| 2 | 0.3900 | 38.66 | 9.80 | 48.46 | 58.06 | -9.60 | QP |
| 3 | 0.5460 | 27.00 | 9.80 | 36.80 | 46.00 | -9.20 | AVG |
| 4 | 0.8220 | 37.44 | 9.77 | 47.21 | 56.00 | -8.79 | QP |
| 5* | 0.8220 | 30.19 | 9.77 | 39.96 | 46.00 | -6.04 | AVG |
| 6 | 2.4620 | 35.63 | 9.72 | 45.35 | 56.00 | -10.65 | QP |

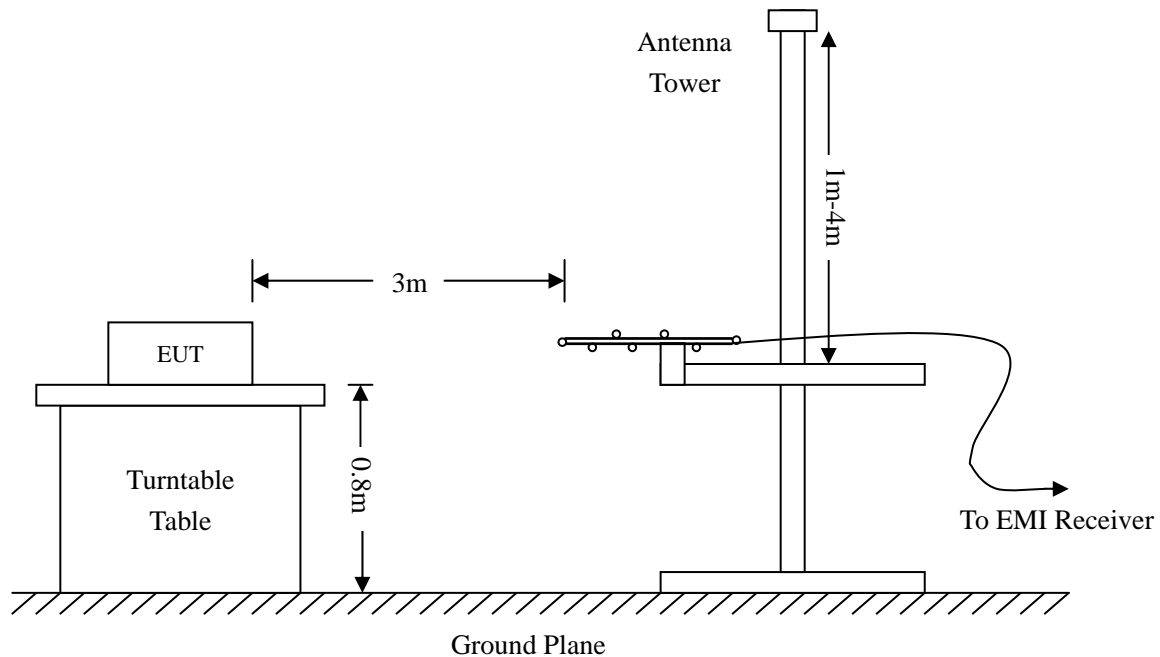
4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.2 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

| | |
|------------------------------------|----------|
| Start Frequency | 30 MHz |
| Stop Frequency | 1000 MHz |
| Sweep Speed | Auto |
| Quasi-Peak Adapter Bandwidth | 120 kHz |
| Quasi-Peak Adapter Mode | Normal |

4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a RF lighting

device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 18.305 Limit}$$

4.4 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 23 °C |
| Relative Humidity: | 55 % |
| ATM Pressure: | 1011 mbar |

4.5 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 18.305 rule, and had the worst margin of:

-12.80 dB at 59.8588 MHz in the Vertical polarization, 9 kHz to 1 GHz, 3Meters

Plot of Radiated Emissions Test Data

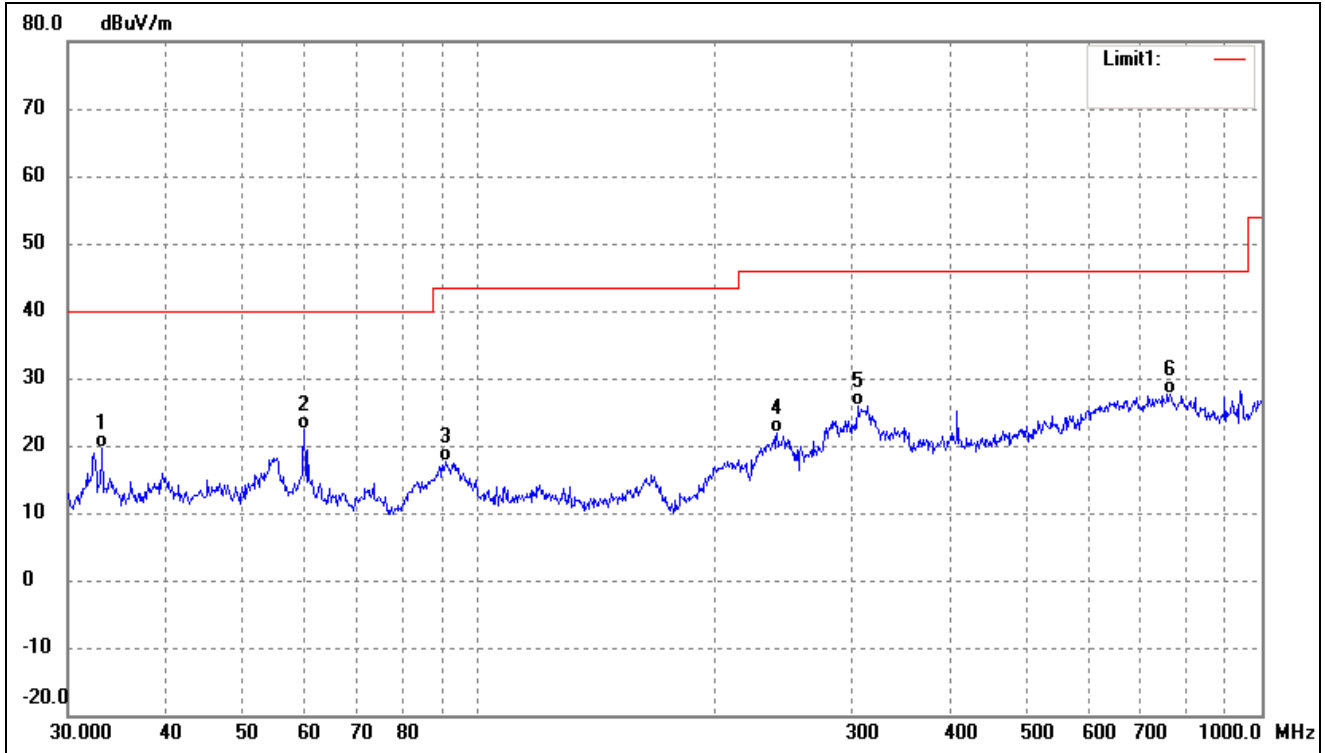
EUT: *Fast Charge Leather Charging Pad*

Tested Model: *EGG170028-10*

Operating Condition: *TM1*

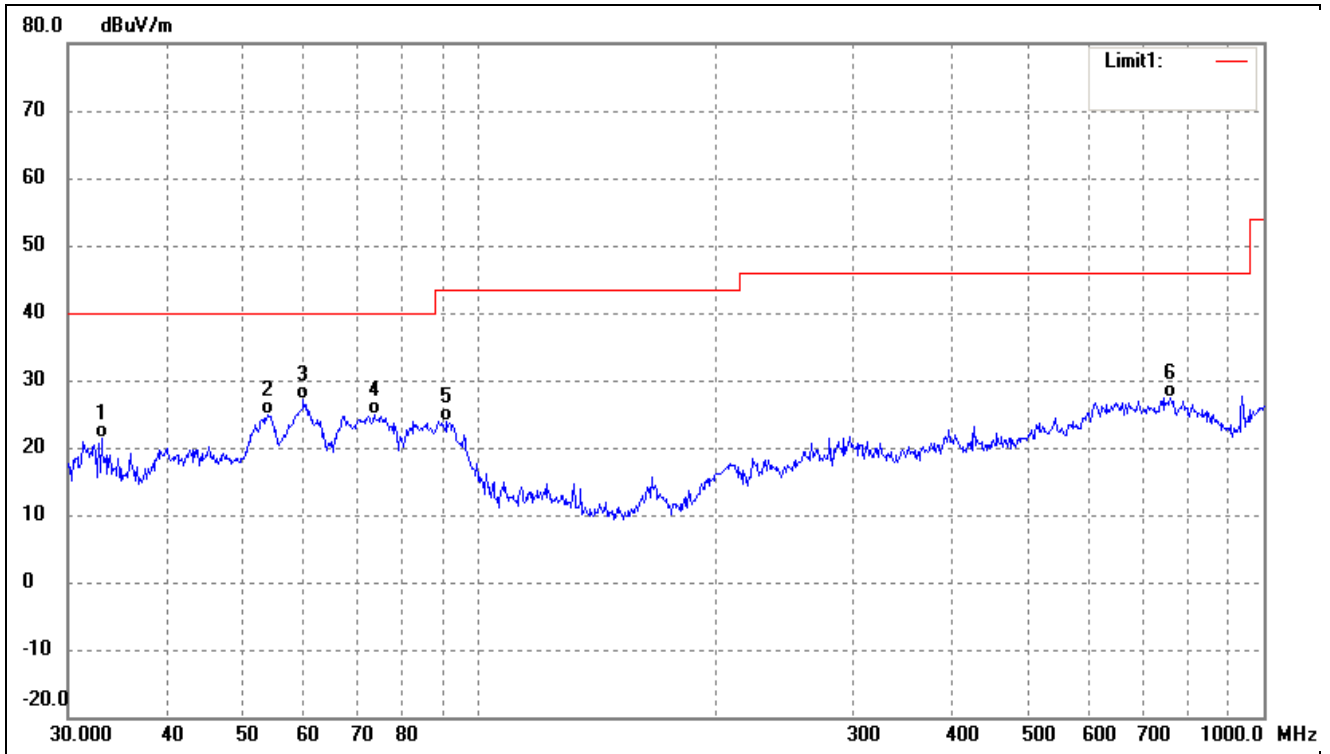
Comment: *AC 120V/60Hz*

Test Specification: *Horizontal*



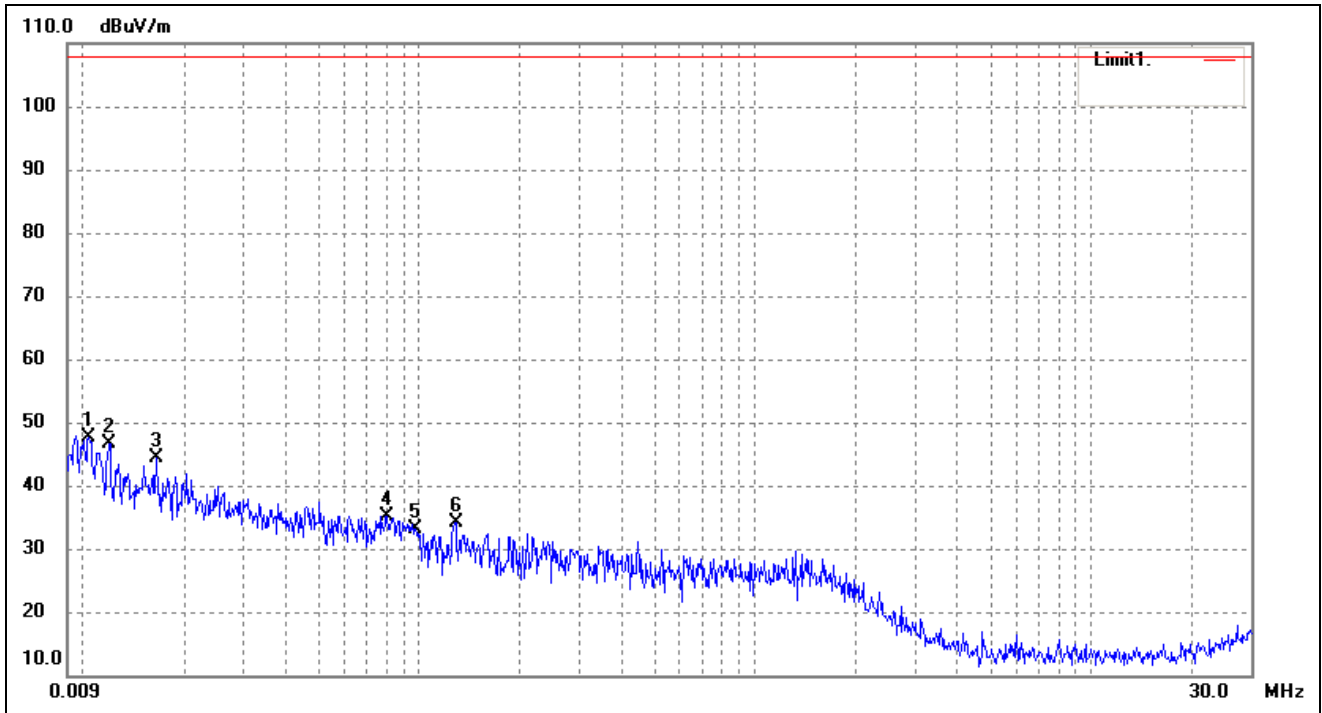
| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree () | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1 | 33.2112 | 37.27 | -17.62 | 19.65 | 40.00 | -20.35 | 268 | 100 | QP |
| 2 | 60.0691 | 38.91 | -16.52 | 22.39 | 40.00 | -17.61 | 90 | 100 | QP |
| 3 | 91.1746 | 35.52 | -17.89 | 17.63 | 43.50 | -25.87 | 324 | 100 | QP |
| 4 | 240.8304 | 34.28 | -12.51 | 21.77 | 46.00 | -24.23 | 111 | 100 | QP |
| 5 | 305.6800 | 35.53 | -9.53 | 26.00 | 46.00 | -20.00 | 282 | 100 | QP |
| 6 | 763.3757 | 28.41 | -0.78 | 27.63 | 46.00 | -18.37 | 186 | 100 | QP |

Test Specification: Vertical



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree () | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1 | 33.0950 | 39.08 | -17.64 | 21.44 | 40.00 | -18.56 | 75 | 100 | QP |
| 2 | 53.8818 | 41.31 | -16.49 | 24.82 | 40.00 | -15.18 | 175 | 100 | QP |
| 3 | 59.8588 | 43.71 | -16.51 | 27.20 | 40.00 | -12.80 | 55 | 100 | QP |
| 4 | 73.6170 | 43.93 | -19.13 | 24.80 | 40.00 | -15.20 | 319 | 100 | QP |
| 5 | 91.1746 | 41.83 | -17.89 | 23.94 | 43.50 | -19.56 | 91 | 100 | QP |
| 6 | 760.7036 | 28.03 | -0.64 | 27.39 | 46.00 | -18.61 | 300 | 100 | QP |

Radiated Emissions 9kHz to 30MHz:



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree () | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1 | 0.0104 | 53.15 | -5.64 | 47.51 | 108.00 | -60.49 | | | peak |
| 2 | 0.0120 | 52.54 | -5.90 | 46.64 | 108.00 | -61.36 | | | peak |
| 3 | 0.0165 | 50.95 | -6.62 | 44.33 | 108.00 | -63.67 | | | peak |
| 4 | 0.0803 | 42.80 | -7.69 | 35.11 | 108.00 | -72.89 | | | peak |
| 5 | 0.0976 | 39.35 | -6.17 | 33.18 | 108.00 | -74.82 | | | peak |
| 6 | 0.1287 | 39.69 | -5.60 | 34.09 | 108.00 | -73.91 | | | peak |

5. Occupied Bandwidth

5.1 Standard Applicable

According to 15.205, 99% emission bandwidth.

5.2 Test Procedure

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

5.3 Environmental Conditions

| | |
|--------------------|-----------|
| Temperature: | 25 °C |
| Relative Humidity: | 53% |
| ATM Pressure: | 1018 mbar |

5.4 Summary of Test Results/Plots

| Test Channel(kHz) | 99% Bandwidth(kHz) |
|-------------------|--------------------|
| 126.65 | 31.1828 |

