



Fangguang Inspection & Testing Co., Ltd.



MEASUREMENT REPORT

FCC PART 15 Subpart C Section 231

Report No.: S20240525011101

Issue Date: 07-11-2024

Applicant: Jiangyin SINBON Electronics Co., Ltd.

Address: 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China

FCC ID: ZUA-AUTO-NACS02

Product: NACS Charging Cable Assembly-J3400

Model No.: NACS02

Classification: Part 15 Security/Remote Control Devices

FCC Rule Part(s): Part 15 Subpart C (15.231)

Test Procedure(s): ANSI C63.10-2013

Result: Pass

Item Receipt Date: May. 25, 2024

Test Date: Jun. 19 ~ Jul. 04, 2024

Compiled By

Stone Zhang

Senior Test Engineer

Line Chen

(Line Chen)

Engineer Manager

Approved By

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. Test results reported herein relate only to the item(s) tested. The test report shall not be reproduced except in full without the written approval of Fangguang Inspection & Testing Co., Ltd. Wuxi Branch

The test report must not be used by the client to claim product certifications, approval, or endorsement by NVLAP, NIST or any agency of U.S. Government.

Revision History

| Report No. | Version | Description | Issue Date |
|-----------------|---------|-------------|------------|
| S20240525011101 | Rev. 01 | / | 07-11-2024 |
| | | | |

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§2.1033 General Information

| | |
|--------------------------------|---|
| Applicant: | Jiangyin SINBON Electronics Co., Ltd. |
| Applicant Address: | 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China |
| Manufacturer: | Jiangyin SINBON Electronics Co., Ltd. |
| Manufacturer Address: | 288 Chengjiang Middle Rd., Jiangyin, Jiangsu, China |
| Test Site: | Fangguang Inspection & Testing Co., Ltd. |
| LAB ID: | CN5037 |
| Test Site Address: | G9 Building, China Sensor Network International Innovation Park No.200, Linghu Avenue Wuxi, Jiangsu 214000 China |
| FCC Rule Part(s): | Part 15 Subpart C (15.231) |
| FCC ID: | ZUA-AUTO-NACS02 |
| Test Device Serial No.: | S/N.:/ <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering |
| FCC Classification: | Part 15 Security/Remote Control Devices |

1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2. Fangguang Test Location

These measurement tests were performed at the Fangguang Inspection and testing Co.,LTD located at 200 Linghu Avenue, Xinwu District, Wuxi City. The detailed description of the measurement facility was found to be in compliance with the requirements of ANSI C63.4-2014.

2. PRODUCT INFORMATION

2.1. Equipment Description

| | |
|----------------------|------------------------------------|
| Product Name: | NACS Charging Cable Assembly-J3400 |
| Model Name: | NACS02 |
| Trade Mark: | SINBON |
| Input Voltage Range: | DC 3-15V 10mA |

2.2. Product Specification Subjective to this Report

| | |
|---------------------|-------------|
| Operating Frequency | 315MHz |
| Channel number | 1 |
| Type of modulation | OOK |
| Antenna Type: | PCB Antenna |
| Antenna Gain: | -15 dBi |
| Hardware Version: | NACS02 |
| Software Version: | / |

2.3. Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.4. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.5. EUT Photo

The EUT external photo, internal photo and test setup photo, please refer to the plots in the S20240525011101-A1/A2/A3.

2.6. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase.

However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

2.7. Calculation with all conversion and correction factors used

For AC Line Conducted Emissions Test:

Measure Level (dB μ V) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB)

For Radiated Emissions Below 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m).

For Radiated Emissions Above 1GHz Test:

Measure Level (dB μ V/m) = Reading Level (dB μ V) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in Part 15 Subpart C (15.231) were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. The turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-25GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- Use a unique coupling to the intentional radiator.

5. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|--------------------|--------------|----------|-----------------|----------------|----------------|
| EMI Test Receiver | R&S | ESR3 | FWXGJC-2016-181 | 1 year | 2025/03/07 |
| Two-Line V-Network | R&S | ENV 216 | FWXGJC-2016-182 | 1 year | 2025/04/28 |
| Thermohygrometer | Yuhuaze | HTC-1 | FWXDA-2016-385 | 1 year | 2025/02/25 |

Radiated Emission

| Instrument | Manufacturer | Type No. | Asset No. | Cali. Interval | Cali. Due Date |
|------------------------|--------------|-----------------|--------------------|----------------|----------------|
| Loop Antenna | Schwarzbeck | FMZB 1519B | FWXGJC-2018-015 | 3 year | 2024/08/13 |
| Bi-Log Antenna | R&S | HL562E | FWXGJC-2016-267-06 | 3 year | 2025/03/02 |
| Broadband Horn Antenna | R&S | HF907 | FWXGJC-2016-267-07 | 1 year | 2025/03/01 |
| EMI Receiver | R&S | ESR26 | FWXGJC-2016-267-01 | 1 year | 2024/11/05 |
| Pre-Amplifier | R&S | SCU-18D | FWXGJC-2016-267-05 | 1 year | 2024/11/05 |
| Pre-Amplifier | R&S | EMC184055 SE | FWXGJC-2018-018 | 3 year | 2025/04/13 |
| Thermohygrometer | Yuhuaze | HTC-1 | FWXDA-2016-387 | 1 year | 2024/11/03 |
| Anechoic Chamber | Aimuke | EMCCT-3 | FWXGJC-2016-270 | 1 year | 2025/06/07 |

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

| |
|---|
| AC Conducted Emission Measurement |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 2.05dB |
| Radiated Emission Measurement |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 30MHz-1GHz: 3.06dB 1GHz-12.75GHz: 4.13dB |
| Spurious Emissions, Conducted |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 30MHz-1GHz: 1.00 dB 1GHz-26.5GHz: 1.30 dB |
| Output Power |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 0.60dB |
| Power Spectrum Density |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 0.80dB |
| Occupied Bandwidth |
| Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_{c(y)}$): 0.20MHz |

7. TEST RESULT

7.1. Summary

| FCC Part Section(s) | Test Description | Test Result | Reference |
|-------------------------------|-------------------------|------------------------------|-------------|
| § 15.205, §15.209, §15.231(b) | Radiated Emissions | Pass | Section 7.2 |
| § 15.231 (a) (1) | Transmission Time | Pass | Section 7.3 |
| § 15.231 (c) | 20dB Emission Bandwidth | Pass | Section 7.4 |
| § 15.207(a) | Conducted Emissions | Not applicable (See Note) | Section 7.5 |

Notes:

1. The EUT is powered by DC 12V, this item only for the EUT is designed to be connected to the public utility (AC) power line.

7.2. Radiated Emissions

7.2.1. Limit

FCC §15.205, §15.209, §15.231 (b)

According to FCC §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

| Fundamental frequency (MHz) | Field strength of fundamental (microvolts/meter) | Field strength of spurious emissions (microvolts/meter) |
|-----------------------------|--|---|
| 40.66-40.70 | 2,250 | 225 |
| 70-130 | 1,250 | 125 |
| 130-174 | ¹ 1,250 to 3,750 | ¹ 125 to 375 |
| 174-260 | 3,750 | 375 |
| 260-470 | ¹ 3,750 to 12,500 | ¹ 375 to 1,250 |
| Above 470 | 12,500 | 1,250 |

¹ Linear interpolations.

- (1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.
- (2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

| Frequency (MHz) | Field strength (microvolts/meter) | Measurement distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 ** | 3 |
| 88-216 | 150 ** | 3 |
| 216-960 | 200 ** | 3 |
| Above 960 | 500 | 3 |

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

7.2.2. Test Procedure

- 1) The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2) The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3) Height of receiving antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4) The test-receiver system was set to Peak Detect Function and Specified Bandwidth with

Maximum Hold Mode.

5) If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

7.2.3. Test Setting

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3RBW
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

| Frequency | RBW |
|---------------|---------------|
| 9 ~ 150 kHz | 200 ~ 300 Hz |
| 0.15 ~ 30 MHz | 9 ~ 10 kHz |
| 30 ~ 1000 MHz | 100 ~ 120 kHz |
| > 1000 MHz | 1 MHz |

7.2.4. Test Setup

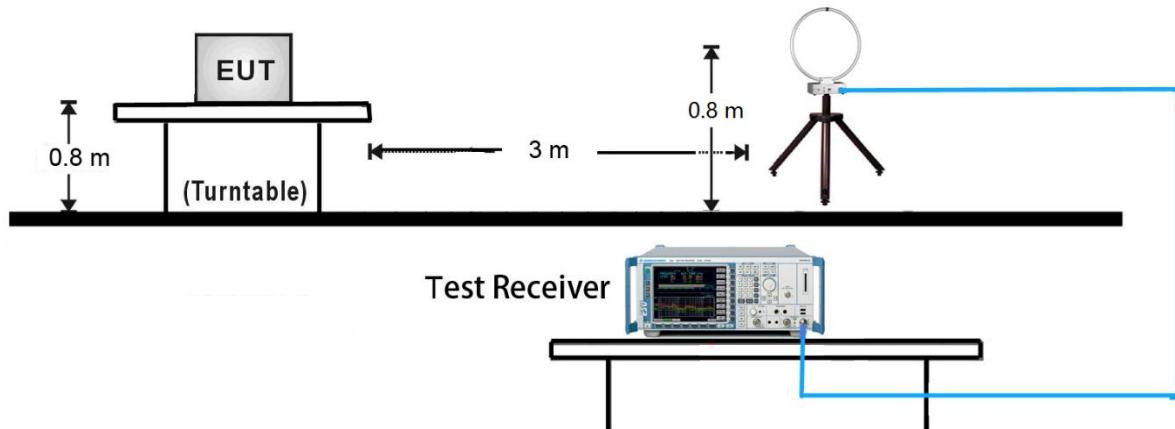


Figure 1. 9KHz to 30MHz radiated emissions test configuration

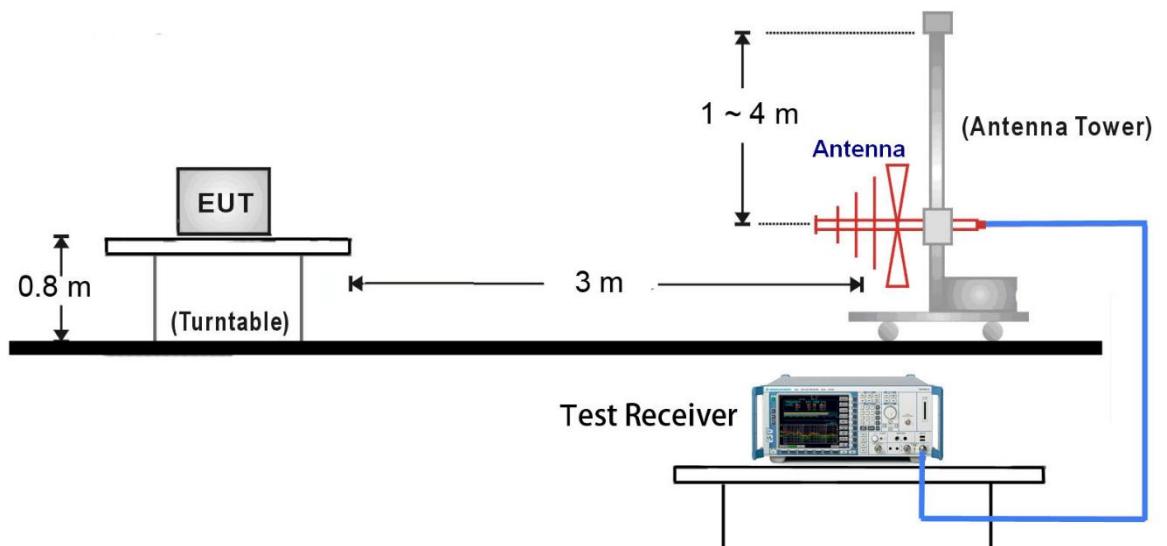


Figure 2. 30MHz to 1GHz radiated emissions test configuration

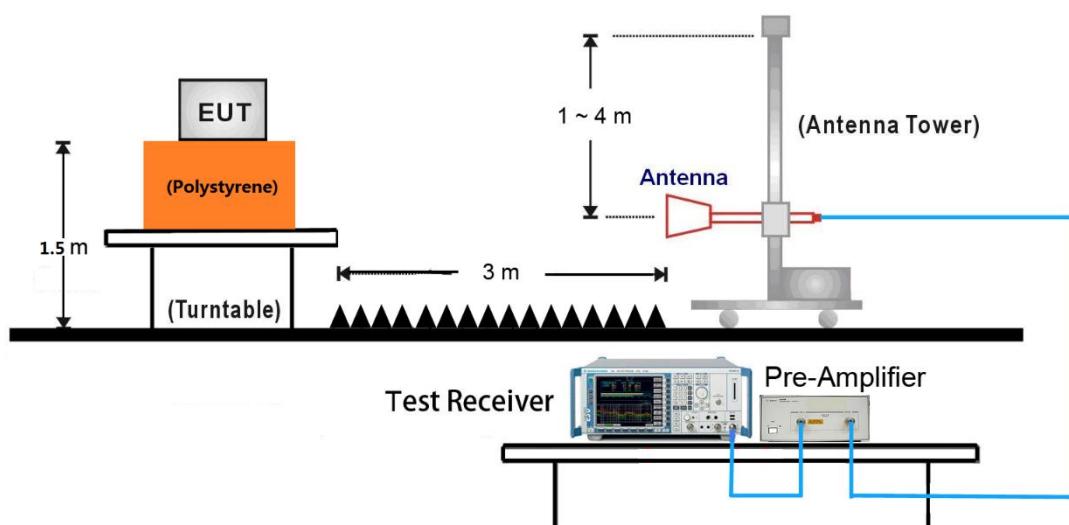


Figure 3. Above 1GHz radiated emissions test configuration

7.2.5. Test Result

Fundamental:

| Frequency [MHz] | Level [dB μ V/m] | Factor [dB] | Limit [dB μ V/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
|--------------------|-------------------------|----------------|-------------------------|----------------|----------------|--------------|------------|
| 315.000 | 62.13 | 13.32 | 75.62 | 13.49 | 100 | 176 | Horizontal |
| 315.000 | 51.19 | 12.44 | 75.62 | 24.43 | 100 | 117 | Vertical |

Note:

- 1) If the spurious emissions maximized peak measured value complies with the QP/Average limit, it is unnecessary to perform QP/Average measurement.

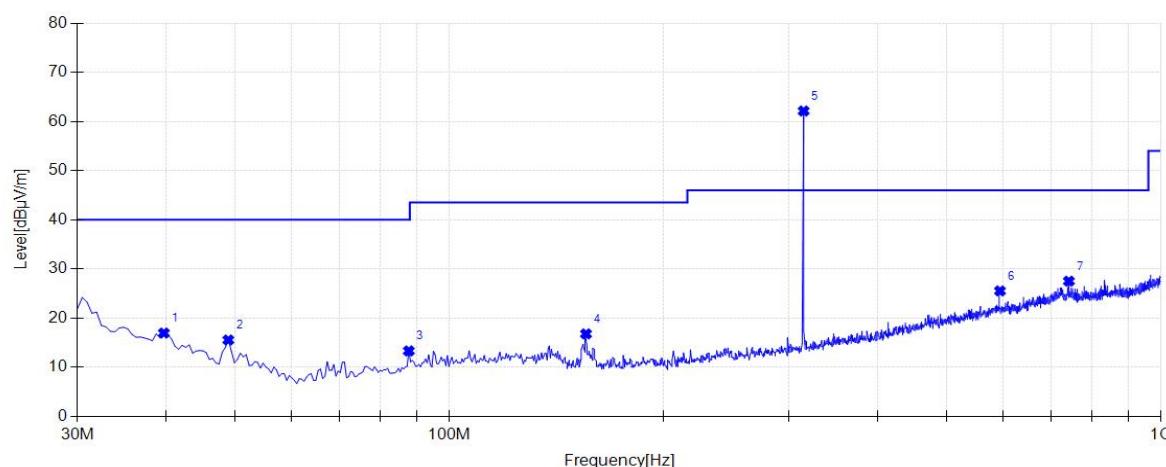
Radiated Spurious Emission:

9 kHz to 30MHz

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

30MHz – 1GHz

| | | | |
|--------------|------------------------------------|-----------|-------------|
| EUT: | NACS Charging Cable Assembly-J3400 | Polarity: | Horizontal |
| Model: | NACS02 | Voltage: | DC 12V |
| Environment: | Temp: 23°C; Humi:42% | Engineer: | Stone Zhang |

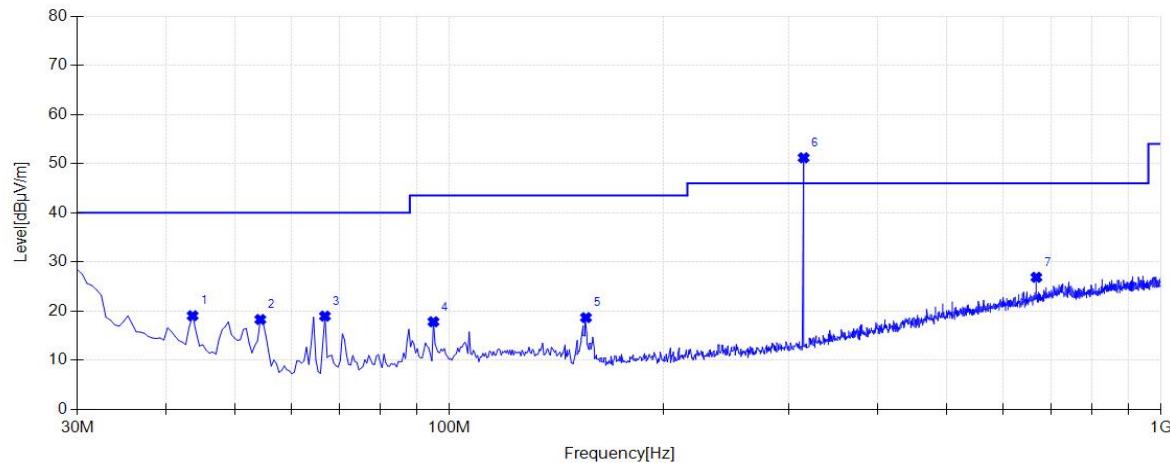


| Suspected Data List | | | | | | | | | |
|---------------------|-----------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|------------|
| NO. | Frequency [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Detector | Polarity |
| 1 | 39.700 | 16.96 | 15.44 | 40.00 | 23.04 | 200 | 216 | Peak | Horizontal |
| 2 | 48.915 | 15.55 | 10.60 | 40.00 | 24.45 | 200 | 27 | Peak | Horizontal |
| 3 | 87.715 | 13.33 | 10.07 | 40.00 | 26.67 | 200 | 105 | Peak | Horizontal |
| 4 | 155.615 | 16.80 | 9.88 | 43.50 | 26.70 | 200 | 129 | Peak | Horizontal |
| 5 | 315.000 | 62.13 | 13.32 | / | / | 100 | 176 | Peak | Horizontal |
| 6 | 594.055 | 25.53 | 19.65 | 46.00 | 20.47 | 100 | 301 | Peak | Horizontal |
| 7 | 742.465 | 27.52 | 22.13 | 46.00 | 18.48 | 100 | 190 | Peak | Horizontal |

Note:

- 1) If the spurious emissions maximized peak measured value complies with the QP/Average limit, it is unnecessary to perform QP/Average measurement.
- 2) The Mark 5 is fundamental.

| | | | |
|--------------|------------------------------------|-----------|-------------|
| EUT: | NACS Charging Cable Assembly-J3400 | Polarity: | Vertical |
| Model: | NACS02 | Voltage: | DC 12V |
| Environment: | Temp: 23°C; Humi:42% | Engineer: | Stone Zhang |



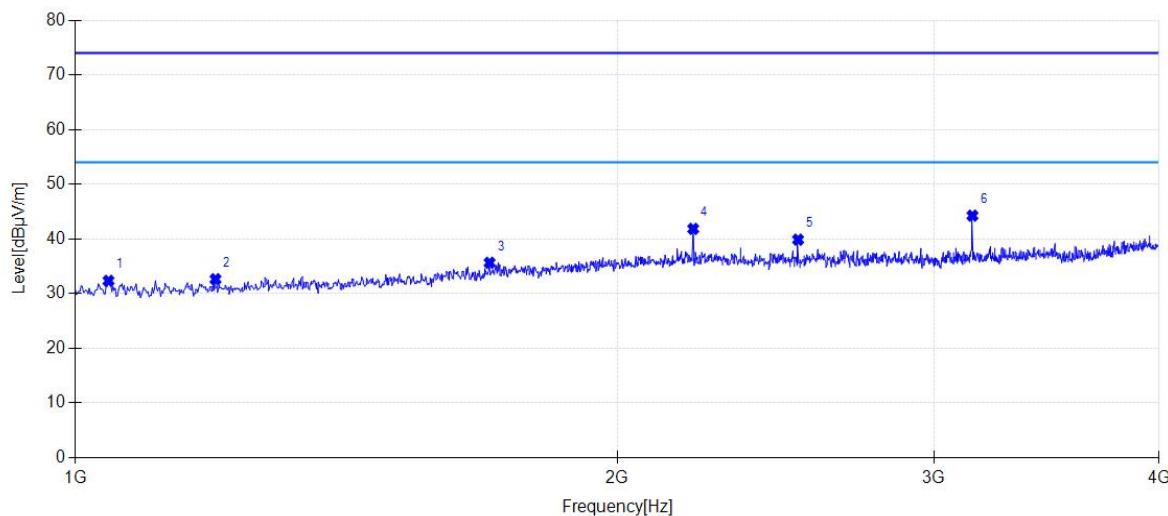
| Suspected Data List | | | | | | | | | |
|---------------------|-------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|----------|
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Detector | Polarity |
| 1 | 43.580 | 19.06 | 12.45 | 40.00 | 20.94 | 100 | 93 | Peak | Vertical |
| 2 | 54.250 | 18.30 | 8.52 | 40.00 | 21.70 | 200 | 276 | Peak | Vertical |
| 3 | 66.860 | 18.98 | 7.62 | 40.00 | 21.02 | 200 | 276 | Peak | Vertical |
| 4 | 94.990 | 17.83 | 10.06 | 43.50 | 25.67 | 100 | 2 | Peak | Vertical |
| 5 | 155.6150 | 18.68 | 9.58 | 43.50 | 24.82 | 100 | 89 | Peak | Vertical |
| 6 | 315.000 | 51.19 | 12.44 | / | / | 100 | 117 | Peak | Vertical |
| 7 | 668.2600 | 26.88 | 20.44 | 46.00 | 19.12 | 100 | 80 | Peak | Vertical |

Note:

- 1) If the spurious emissions maximized peak measured value complies with the QP/Average limit, it is unnecessary to perform QP/Average measurement.
- 2) The Mark 6 is fundamental.

Emission above 1GHz

| | | | |
|--------------|------------------------------------|-----------|-------------|
| EUT: | NACS Charging Cable Assembly-J3400 | Polarity: | Horizontal |
| Model: | NACS02 | Voltage: | DC 12V |
| Environment: | Temp: 23°C; Humi:42% | Engineer: | Stone Zhang |

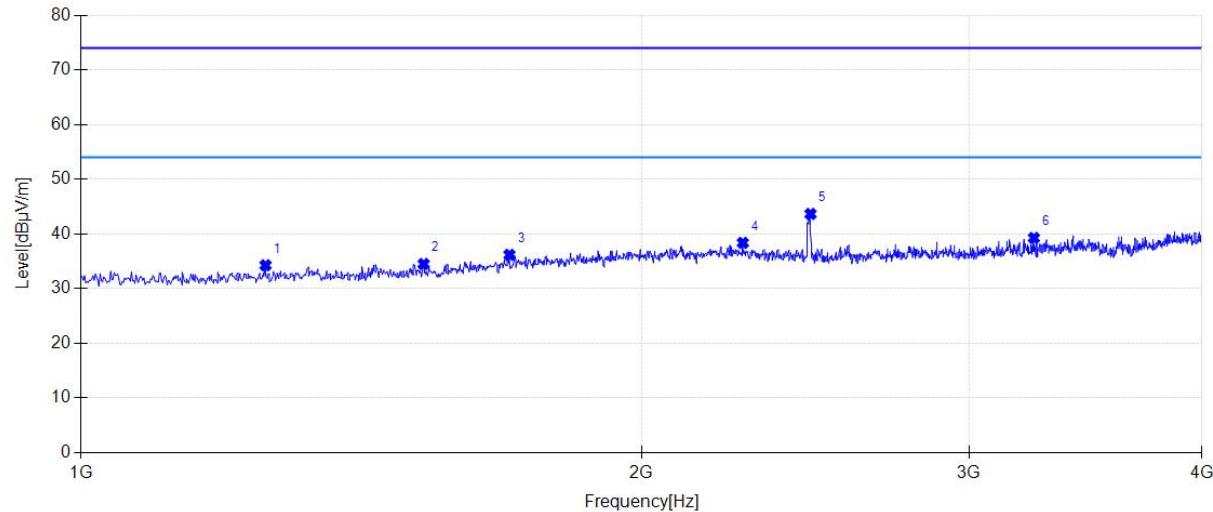


| Suspected Data List | | | | | | | | | |
|---------------------|-------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|------------|
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Detector | Polarity |
| 1 | 1043.5000 | 32.33 | -4.66 | 54.00 | 21.67 | 150 | 152 | Peak | Horizontal |
| 2 | 1196.5000 | 32.63 | -4.12 | 54.00 | 21.37 | 150 | 353 | Peak | Horizontal |
| 3 | 1699.0000 | 35.63 | -2.01 | 54.00 | 18.37 | 150 | 195 | Peak | Horizontal |
| 4 | 2204.5000 | 41.84 | -0.05 | 54.00 | 12.16 | 150 | 56 | Peak | Horizontal |
| 5 | 2521.0000 | 39.86 | 0.57 | 54.00 | 14.14 | 150 | 84 | Peak | Horizontal |
| 6 | 3151.0000 | 44.25 | 1.72 | 54.00 | 9.75 | 150 | 114 | Peak | Horizontal |

Note:

- 1) If the spurious emissions maximized peak measured value complies with the QP/Average limit, it is unnecessary to perform QP/Average measurement.

| | | | |
|--------------|------------------------------------|-----------|-------------|
| EUT: | NACS Charging Cable Assembly-J3400 | Polarity: | Vertical |
| Model: | NACS02 | Voltage: | DC 12V |
| Environment: | Temp: 23°C; Humi:42% | Engineer: | Stone Zhang |



| Suspected Data List | | | | | | | | | |
|---------------------|-------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|----------|
| NO. | Freq. [MHz] | Level [dBμV/m] | Factor [dB] | Limit [dBμV/m] | Margin [dB] | Height [cm] | Angle [°] | Detector | Polarity |
| 1 | 1256.5000 | 34.26 | -2.91 | 54.00 | 19.74 | 150 | 59 | Peak | Vertical |
| 2 | 1528.0000 | 34.50 | -2.10 | 54.00 | 19.50 | 150 | 338 | Peak | Vertical |
| 3 | 1699.0000 | 36.17 | -1.29 | 54.00 | 17.83 | 150 | 44 | Peak | Vertical |
| 4 | 2267.5000 | 38.36 | 0.19 | 54.00 | 15.64 | 150 | 1 | Peak | Vertical |
| 5 | 2465.5000 | 43.65 | 0.22 | 54.00 | 10.35 | 150 | 131 | Peak | Vertical |
| 6 | 3250.0000 | 39.26 | 2.28 | 54.00 | 14.74 | 150 | 338 | Peak | Vertical |

Note:

- 1) If the spurious emissions maximized peak measured value complies with the QP/Average limit, it is unnecessary to perform QP/Average measurement.

7.3. Transmission Time

7.3.1. Limit

Per FCC §15.231(a) (1), A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

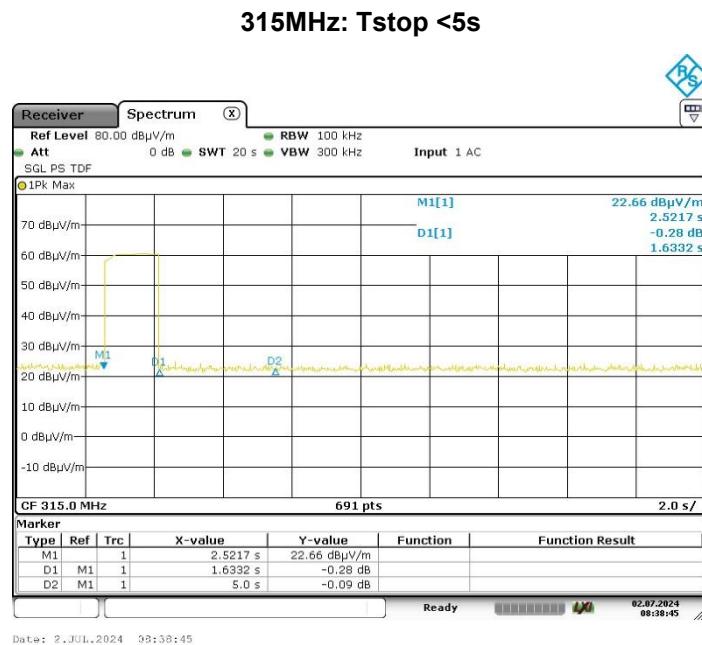
7.3.2. Test Procedure

1. With the EUT's antenna attached, the waveform was received by the test antenna which was connected to the spectrum analyzer.
2. Set center frequency of spectrum analyzer=operating frequency.
3. Set the spectrum analyzer as RBW=100k VBW=300k Span=0Hz.
4. Repeat above procedures until all frequency measured was complete.

7.3.3. Test Result

| Frequency (MHz) | Transmission Time (s) | Limit (s) | Result |
|-----------------|-----------------------|-----------|--------|
| 315 | 1.6332 | 5 | Pass |

Test Plot:



7.4. 20dB Emission Bandwidth

7.4.1. Limit

Per 15.231(c), The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. Bandwidth is determined at the points 20 dB down from the modulated carrier.

7.4.2. Test Procedure

1. With the EUT's antenna attached, the waveform was received by the test antenna which was connected to the spectrum analyzer, plot the 20dB bandwidth.
2. Set center frequency of spectrum analyzer=operating frequency.
3. Set the RBW to 1% to 5% of the OBW.
4. Set the VBW $\geq [3 \times \text{RBW}]$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.

7.4.3. Test Result

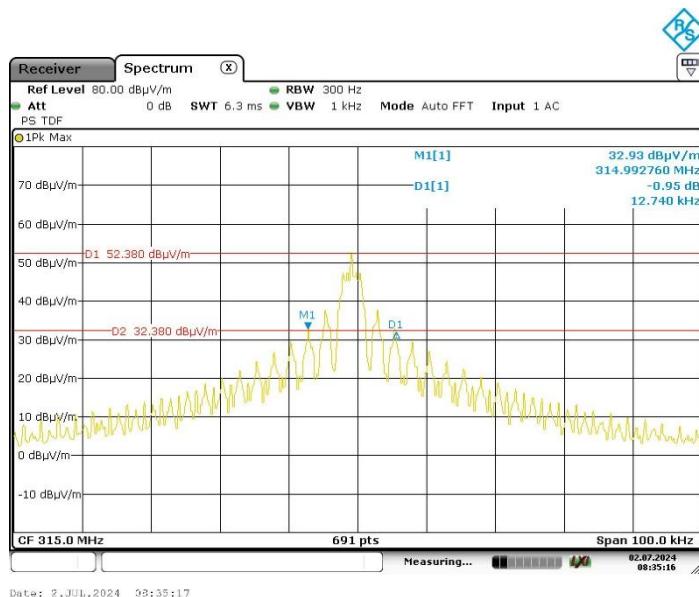
| Frequency (MHz) | 20dB Bandwidth (kHz) | Limit (kHz) | Result |
|-----------------|----------------------|-------------|--------|
| 315 | 12.740 | 787.50 | Pass |

Note:

1. 315 MHz Limit = 0.25% * Center Frequency = 0.25% * 315 MHz = 787.50 kHz

Test Plot:

315 MHz:20 dB Emission Bandwidth



7.5. AC Conducted Emissions Measurement

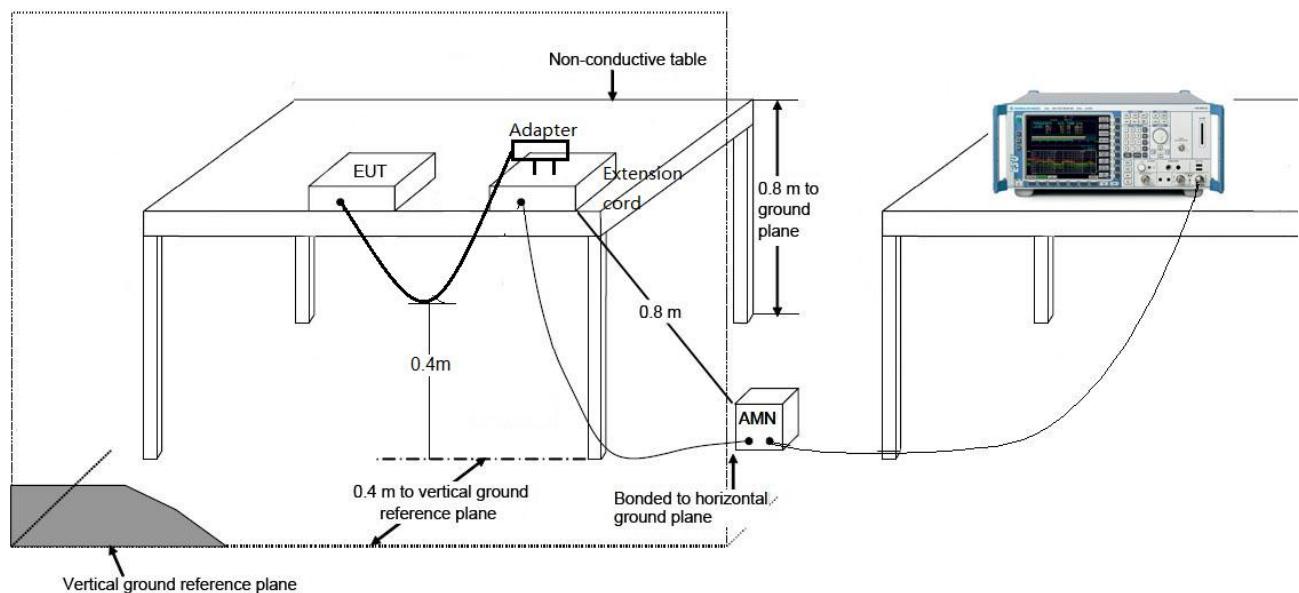
7.5.1. Test Limit

| FCC Part 15 Subpart C Paragraph 15.207 Limits | | |
|---|-----------|-----------|
| Frequency (MHz) | QP (dBuV) | AV (dBuV) |
| 0.15 - 0.50 | 66 - 56 | 56 – 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30 | 60 | 50 |

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

7.5.2. Test Setup



7.5.3. Test Result

The EUT is DC supply, this item only for the EUT is designed to be connected to the public utility (AC) power line. Not applicable.

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **NACS Charging Cable Assembly-J3400** is compliance with Part 15C of the FCC Rules.

The End