
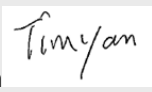


Test report No: 4915190.55

TEST REPORT

Radio Spectrum Matters (RF)

| | |
|---------------------------------|---|
| Identification of item tested | Cync Direct Connect Strip |
| Trademark | GE |
| Model and /or type reference | CSTR16CBDM, CSTR32CBDM |
| FCC/IC ID | FCC ID: PUU-STR-CBDM; IC: 10798A-STRCBDM |
| HVIN | N/A |
| Features | 120Vac, 60Hz |
| Applicant's name / address | Savant Technologies LLC dba GE Lighting, a Savant company 1975 Noble Road, Cleveland, Ohio, United States, 44112 |
| Test method requested, standard | FCC CFR Title 47 Part15 Subpart C Section 15.247; KDB558074 D01v05r02; RSS-Gen Issue 5; RSS-247 Issue 3 |
| Verdict Summary | COMPLIANCE |
| Tested by (name & signature) | Johnny Bo  Johnny Bo |
| Approved by (name & signature) | Tim Yan  Tim Yan |
| Date of issue | 2024-04-11 |
| Report template No | TRF_EMCC 2017-06- FCC_Exposure |

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GENERAL CONDITIONS

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. This report will not be used for social proof function in China market.

UNCERTAINTY

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

| | |
|-----------------------|------------------|
| Ambient temperature | 15 °C – 35 °C |
| Relative Humidity air | 30% - 60% |
| Atmospheric pressure | 86 kPa – 106 kPa |

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

| | |
|---|-----------------|
| Test case does not apply to test object | N/A |
| Test object does meet requirement | P (Pass) / PASS |
| Test object does not meet requirement | F (Fail) / FAIL |
| Not measured | N/M |

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

| | |
|--|--|
| <input checked="" type="checkbox"/> Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT. | |
| <input type="checkbox"/> Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT. | |
| Decimal separator used in this report | <input type="checkbox"/> Comma (,) <input checked="" type="checkbox"/> Point (.) |

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

| | |
|-------|-------------------------------|
| EUT | : Equipment Under Test |
| QP | : Quasi-Peak |
| CAV | : CISPR Average |
| AV | : Average |
| CDN | : Coupling Decoupling Network |
| SAC | : Semi-Anechoic Chamber |
| OATS | : Open Area Test Site |
| BW | : Bandwidth |
| AM | : Amplitude Modulation |
| PM | : Pulse Modulation |
| HCP | : Horizontal Coupling Plane |
| VCP | : Vertical Coupling Plane |
| U_N | : Nominal voltage |
| T_x | : Transmitter |
| R_x | : Receiver |
| N/A | : Not Applicable |
| N/M | : Not Measured |

DOCUMENT HISTORY

| Report nr. | Date | Description |
|------------|------------|----------------|
| 4915190.55 | 2024-04-11 | First release. |
| | | |

REMARKS AND COMMENTS

The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

| | |
|-------------------------------|--|
| Description of the item | Cync Direct Connect Strip |
| Trademark..... | GE |
| Model / Type number | CSTR16CBDM, CSTR32CBDM |
| FCC/IC ID | FCC ID: PUU-STR-CBDM; IC: 10798A-STRCBDM |
| HVIN | N/A |
| Ratings..... | 120Vac, 60Hz |
| Manufacturer..... | Savant Technologies LLC,dba GE Lighting, a Savant company 1975 Noble Road, Cleveland, OH, 44112-1719, US |
| Factory 1 | Foshan Lighting Chanchang Optoelectronics Co., Ltd. Hecheng Street, Cangjiang Industrial Park, Gaoming District, Foshan City, Guangdong Province, P. R. China |
| Factory 2 | Foshan Electrical And Lighting Co.,Ltd.Gaoming Fitting Branch Fuwan Industrial Zone, Hecheng Street, Gaoming District, Foshan, Guangdong, China |
| Factory 3 | Foshan Electrical and Lighting Co.,Ltd. Gaoming Branch No.19, Hengchang Road, Fuwan Industrial Park, Hecheng Street, Gaoming District, Foshan, Guangdong, P.R.China |

| | | | | | | | |
|--------------------------|-------------------------------------|--------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|--------------------------|
| Rated power supply | Voltage and Frequency | | Reference poles | | | | |
| | | | L1 | L2 | L3 | N | PE |
| | <input checked="" type="checkbox"/> | AC: 120 V, 60Hz | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <input type="checkbox"/> | DC: | | | | | |
| | <input type="checkbox"/> | Battery: | | | | | |
| Mounting position..... | <input type="checkbox"/> | Table top equipment | | | | | |
| | <input checked="" type="checkbox"/> | Wall/Ceiling mounted equipment | | | | | |
| | <input type="checkbox"/> | Floor standing equipment | | | | | |
| | <input type="checkbox"/> | Hand-held equipment | | | | | |
| | <input type="checkbox"/> | Other: Built-in | | | | | |

According to customer's declaration, the product contains RF module and the characteristics of radio module:

BLE

| | |
|------------------------------------|---------------------|
| Operating frequency range(s).....: | 2402 MHz – 2480 MHz |
| Type of Modulation | GFSK |
| Maximum e.i.r.p | 7,7 dBm |
| Antenna type..... | Integral Antenna |
| Operating Temperature Range.....: | -20 °C – 40 °C |
| Antenna gain..... | 0.5 dBi |

WIFI

| | |
|-----------------------------------|--|
| Frequency Band | 2412 MHz-2462 MHz |
| Type of Modulation | IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM(64-QAM, 16-QAM, QPSK, BPSK) IEEE 802.11n-HT20: OFDM(64-QAM, 16-QAM, QPSK, BPSK) |
| Data Rate..... | IEEE 802.11b: Up to 11 Mbps IEEE 802.11g: Up to 54 Mbps IEEE 802.11n-HT20: Up to MCS7 |
| Geo-location Capability..... | Not Support |
| Adaptivity | Adaptive |
| Maximum RF output power(EIRP) ..: | 17,0 dBm |
| Antenna type..... | Integral Antenna |
| Antenna gain..... | 0.5 dBi |
| Number of channel | IEEE 802.11b: 11 IEEE 802.11g: 11 IEEE 802.11n-HT20: 11 |
| Operating Temperature Range.....: | -20 °C – 40 °C |

| |
|---|
| Intended use of the Equipment Under Test (EUT) |
| The apparatus as supplied for the test is Cync Direct Connect Strip intended for residential use. |
| Based on customer description: All model are identical except ranging power. |
| Hence, models CSTR16CBDM was chosen for full test, and the corresponding test data are also representative of the other models as well. |

1.2 Test data

| | |
|----------------------------------|--|
| Test Location | DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China FCC Designation Number: CN1324; ISED CAB identifier: CN0130 |
| Date of receipt of test item | 2024-01-29 |
| Date (s) of performance of tests | 2024-01-29 to 2024-02-19 |

1.3 The environment(s) in which the EUT is intended to be used

The equipment under test (EUT) is intended to be used in the following environment(s):

| | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Residential (domestic) environment. |
| <input checked="" type="checkbox"/> | Commercial and light-industrial environment. |
| <input type="checkbox"/> | Industrial environment. |

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

| Operating mode | Operating mode description | Used for methods | |
|-------------------------------|--------------------------------|-------------------------------------|-------------------------------------|
| | | Conducted | Radiated |
| 1 | Transmitting at 802.11b mode | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2 | Transmitting at 802.11g mode | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3 | Transmitting at 802.11n20 mode | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4 | Transmitting at BLE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Supplemental information: --- | | | |

2.2 Port(s) of the EUT

| Port name and description | Connected to / Termination | Cable | | |
|-------------------------------|----------------------------|-----------------------------|-------------------------------------|--------------------------|
| | | Length used during test [m] | Attached during test | Shielded |
| AC input | AC mains | 0 | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> |
| | | | <input type="checkbox"/> | <input type="checkbox"/> |
| Supplemental information: --- | | | | |

2.3 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

| Auxiliary equipment / unit / software | Type / Version | Manufacturer | Supplied by |
|---------------------------------------|----------------|--------------|-------------|
| Laptop | Latitude 5488 | DELL | DEKRA |
| | | | |
| Supplemental information: --- | | | |

2.4 Test Configuration / Block diagram used for tests

Refer to Annex 3.

3 RF EXPOSURE EVALUATION

3.1 Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Average Time (Minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| (A) Limits for Occupational/ Control Exposures | | | | |
| 300-1500 | -- | -- | F/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |
| (B) Limits for General Population/ Uncontrolled Exposures | | | | |
| 300-1500 | -- | -- | F/1500 | 6 |
| 1500-100,000 | -- | -- | 1 | 30 |

F= Frequency in MHz

According to RSS 102 Issue 5: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in RSS 102 Clause 4
 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency Range (MHz) | Electric Field (V/m rms) | Magnetic Field (A/m rms) | Power Density (W/m ²) | Reference Period (minutes) |
|---|----------------------------------|---|------------------------------------|---------------------------------|
| 0.003-10 ²¹ | 83 | 90 | - | Instantaneous* |
| 0.1-10 | - | 0.73/ <i>f</i> | - | 6** |
| 1.1-10 | 87/ <i>f</i> ^{0.5} | - | - | 6** |
| 10-20 | 27.46 | 0.0728 | 2 | 6 |
| 20-48 | 58.07/ <i>f</i> ^{0.25} | 0.1540/ <i>f</i> ^{0.25} | 8.944/ <i>f</i> ^{0.5} | 6 |
| 48-300 | 22.06 | 0.05852 | 1.291 | 6 |
| 300-6000 | 3.142 <i>f</i> ^{0.3417} | 0.008335 <i>f</i> ^{0.3417} | 0.02619 <i>f</i> ^{0.6834} | 6 |
| 6000-15000 | 61.4 | 0.163 | 10 | 6 |
| 15000-150000 | 61.4 | 0.163 | 10 | 616000/ <i>f</i> ^{1.2} |
| 150000-300000 | 0.158 <i>f</i> ^{0.5} | 4.21 x 10 ⁻⁴ <i>f</i> ^{0.5} | 6.67 x 10 ⁻⁵ <i>f</i> | 616000/ <i>f</i> ^{1.2} |
| <p>Note: <i>f</i> is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).</p> | | | | |

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

P_d is the limit of MPE, 1 mW/cm² of FCC and 0.54 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

3.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 20 °C and 50% RH.

3.3 Test Result

| Test Mode | Frequency Band (MHz) | Maximum EIRP (dBm) | Tune up tolerance (dBm) | Power Density at R = 20 cm (mW/cm ²) | Limit of Power Density S(mW/cm ²) | Verdict |
|-----------|----------------------|--------------------|-------------------------|--|---|---------|
| BLE | 2402 ~ 2480 | 7.7 | ± 1 | 0.0014 | 1 (FCC) 0.54 (RSS) | PASS |

| Test Mode | Frequency Band (MHz) | Maximum EIRP (dBm) | Tune up tolerance (dBm) | Power Density at R = 20 cm (mW/cm ²) | Limit of Power Density S(mW/cm ²) | Verdict |
|----------------------------------|----------------------|--------------------|-------------------------|--|---|---------|
| WiFi: Mode 2 (The highest power) | 2400 ~ 2483.5 | 17.0 | ± 1 | 0.0125 | 1 (FCC) 0.54 (RSS) | PASS |

Note: This wireless module does not support simultaneous transmission of WI-FI and Bluetooth.

--- END ---