# RF TEST REPORT

| | |
|---|---|
| **Applicant** | Copeland ComfortControl Lp |
| **FCC ID** | 2A4JN-OS01-SG5468 |
| **Product** | outdoor remote sensor |
| **Model** | OS01-SG |
| **Report No.** | EFTA25021415-IE-11-R1 |
| **Issue Date** | May 9, 2026 |

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15C (2025)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

*Prepared by: Xu Ying* *Approved by: Xu Kai*


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# Summary of Measurement Results

| Number | Test Case | Clause in FCC rules | Verdict |
|---|---|---|---|
| 1 | Unwanted Emissions | 15.247(d),15.205,15.209 | PASS |
| 2 | Conducted Emissions | 15.207 | PASS |
| Date of Testing: (Original) February 1, 2023 ~ February 16, 2023<br>(Variant) December 20, 2024 ~ December 23, 2024<br>Date of Sample Received: (Original) January 31, 2023<br>(Variant) November 3, 2024 | | | |
| Note: PASS: The EUT complies with the essential requirements in the standard.<br>FAIL: The EUT does not comply with the essential requirements in the standard.<br>All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. | | | |

**OS01-SG (FCC ID: 2A4JN-OS01-SG5468) is a variant model of RS01-SG (FCC ID: 2A4JN-OS01-SG5468).**
**Detailed changes are listed below:**
**This design is based on the indoor remote sensor RS01-SG (FCC ID: 2A4JN-OS01-SG5468), The PCB design of the above is exactly the same no change for PCB layout while add conformal coating on the component side, change from AAA battery to AA battery; reskin the plastic cover, base; add bracket, middle button.**

**The detailed product change description please refers to the Difference Declaration Letter.**

**This report tests Unwanted Emissions and Conducted Emissions, and recorded in the report.**


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# 1 Test Laboratory

## 1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

## 1.2. Test facility

**FCC (Designation number: CN1179, Test Firm Registration Number: 446626)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

**A2LA (Certificate Number: 3857.01)**

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

## 1.3 Testing Location

| | |
|---|---|
| Company: | Eurofins TA Technology (Shanghai) Co., Ltd. |
| Address: | Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China |
| City: | Shanghai |
| Post code: | 201201 |
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| Fax: | +86-021-50791141/2/3-8000 |
| Website: | https://www.eurofins.com/electrical-and-electronics |
| E-mail: | Kain.Xu@cpt.eurofinscn.com |


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# 2 General Description of Equipment under Test

## 2.1 Applicant and Manufacturer Information

| | |
|---|---|
| **Applicant** | Copeland ComfortControl Lp |
| **Applicant address** | 8100 West Florissant Ave, St. Louis, United States of America |
| **Manufacturer** | Copeland ComfortControl Lp |
| **Manufacturer address** | 8100 West Florissant Ave, St. Louis, United States of America |

## 2.2 General information

| **EUT Description** | |
|---|---|
| Model | OS01-SG |
| Lab internal SN | R2301A0085/S01 |
| Hardware Version | 0059-5468 |
| Software Version | 0170-1641v01_02_0x66 |
| Power Supply | Battery |
| Antenna Type | PCB Antenna |
| Antenna Connector | A permanently attached antenna (meet with the standard FCC Part 15.203 requirement) |
| Antenna Gain | -2.26 dBi |
| Test Mode(s) | Model 900MHz |
| Modulation Type | FSK2 |
| Total Channel Number | 67 |
| Channel Space | 380 kHz |
| **EUT Accessory** | |
| Battery | Manufacturer: Energizer<br>Model: AA E91 |
| BASE | Manufacturer: Copeland ComfortControl Lp<br>PN: 0004 202900 (4.437" x 3.115" x 0.664") |
| Cover | Manufacturer: Copeland ComfortControl Lp<br>PN: 0016 931200 (4.638" x 3.115" x 0.772") |
| Bracket | Manufacturer: Copeland ComfortControl Lp<br>PN: 0006 228200 (2.68" x 2.2" x 0.679") |
| Note: 1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant. | |


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# 3 Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test standards:**

**FCC CFR47 Part 15C (2025) Radio Frequency Devices**

**ANSI C63.10-2020**

**Reference standard:**

**KDB 558074 D01 15.247 Meas Guidance v05r02**


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# 4 Information about the FHSS characteristics

## 4.1 Frequency Hopping System Requirement

Standard requirement:
(g) Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.
(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.


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## 4.2 Test Configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

**The test software is used MTS 8310 V 2.0.0.0.**

**Channel list**

| Channel (N) | Frequency (MHz) | Channel (N) | Frequency (MHz) | Channel (N) | Frequency (MHz) |
|---|---|---|---|---|---|
| 0 | 902.46 | 23 | 911.2 | 46 | 919.94 |
| 1 | 902.84 | 24 | 911.58 | 47 | 920.32 |
| 2 | 903.22 | 25 | 911.96 | 48 | 920.7 |
| 3 | 903.6 | 26 | 912.34 | 49 | 921.08 |
| 4 | 903.98 | 27 | 912.72 | 50 | 921.46 |
| 5 | 904.36 | 28 | 913.1 | 51 | 921.84 |
| 6 | 904.74 | 29 | 913.48 | 52 | 922.22 |
| 7 | 905.12 | 30 | 913.86 | 53 | 922.6 |
| 8 | 905.5 | 31 | 914.24 | 54 | 922.98 |
| 9 | 905.88 | 32 | 914.62 | 55 | 923.36 |
| 10 | 906.26 | 33 | 915 | 56 | 923.74 |
| 11 | 906.64 | 34 | 915.38 | 57 | 924.12 |
| 12 | 907.02 | 35 | 915.76 | 58 | 924.5 |
| 13 | 907.4 | 36 | 916.14 | 59 | 924.88 |
| 14 | 907.78 | 37 | 916.52 | 60 | 925.26 |
| 15 | 908.16 | 38 | 916.9 | 61 | 925.64 |
| 16 | 908.54 | 39 | 917.28 | 62 | 926.02 |
| 17 | 908.92 | 40 | 917.66 | 63 | 926.4 |
| 18 | 909.3 | 41 | 918.04 | 64 | 926.78 |
| 19 | 909.68 | 42 | 918.42 | 65 | 927.16 |
| 20 | 910.06 | 43 | 918.8 | 66 | 927.54 |
| 21 | 910.44 | 44 | 919.18 | -- | -- |
| 22 | 910.82 | 45 | 919.56 | -- | -- |


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# 5 Test Case

## 5.1 Unwanted Emission

**Ambient condition**

| Temperature | Relative humidity | Pressure |
|---|---|---|
| 25°C | 57% | 101.3 kPa |

**Method of Measurement**

The test set-up was made in accordance to the general provisions of ANSI C63.10. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m/10m below 1GHz, 3m above 1GHz between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

9kHz~150 kHz

RBW=200Hz, VBW=1kHz/ Sweep=AUTO

150 kHz~30MHz

RBW=9kHz, VBW=30kHz,/ Sweep=AUTO

Below 1GHz

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz

(a) PEAK: RBW=1MHz VBW=3MHz/ Sweep=AUTO

(b) AVERAGE: RBW=1MHz / VBW=3MHz / Sweep=AUTO

detector; The measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

The dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit.

If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak- average correction factor, derived form the appropriate duty cycle calculation.


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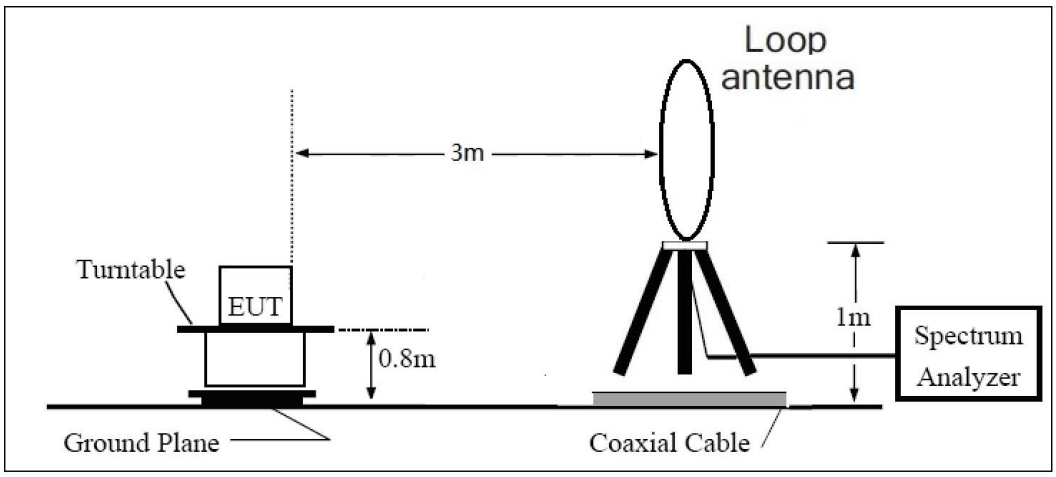
This setting method can refer to **KDB 558074 D01.**

This mode was measured in the following mode: EUT with cradle and EUT without cradle. The worst emission was found in EUT with cradle mode and the worst case was recorded.

The test is in transmitting mode.

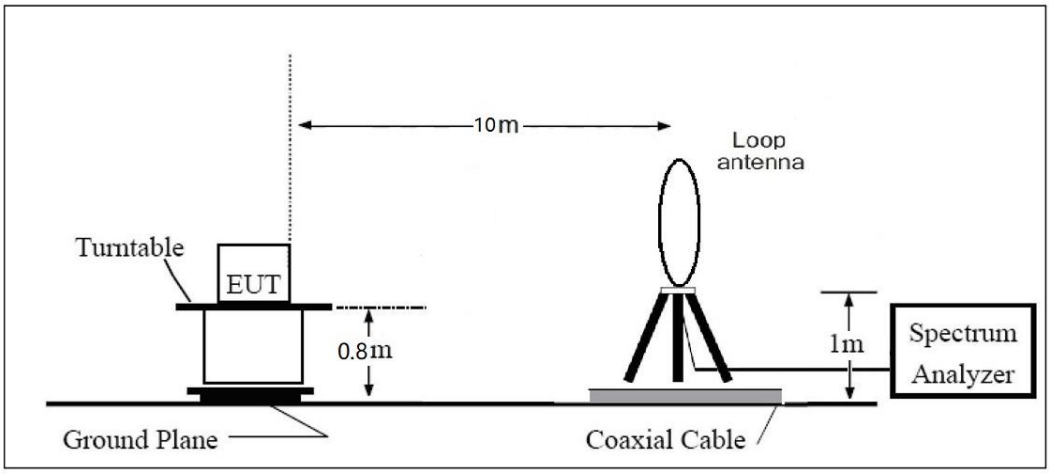
**Test setup**

**9kHz~ 30MHz**




Note: Area side:2.4mX3.6m

**Distance 10m**




Note: Area side: 21m x 12m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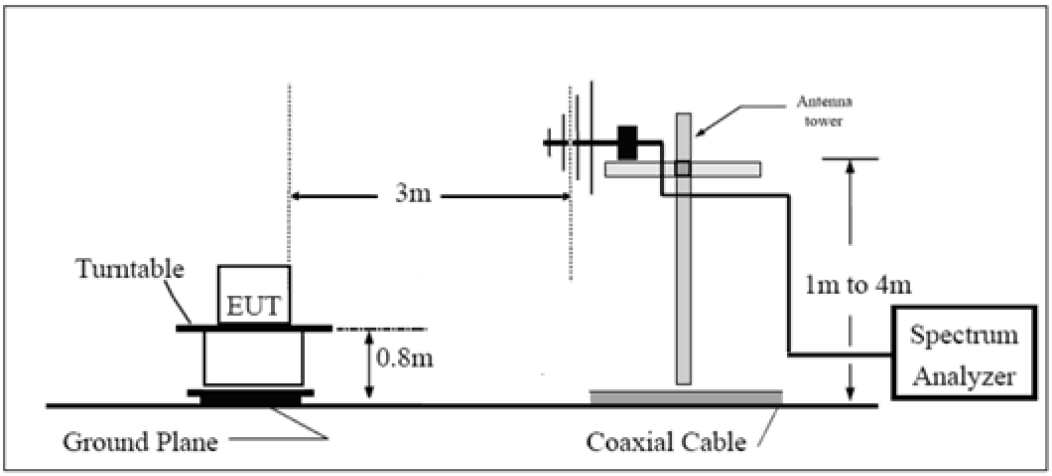
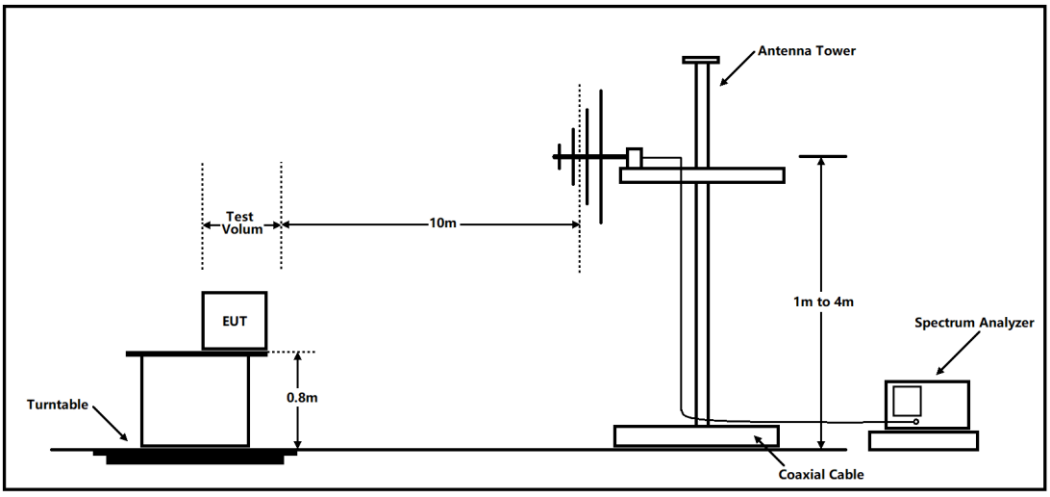
**30MHz~ 1GHz**



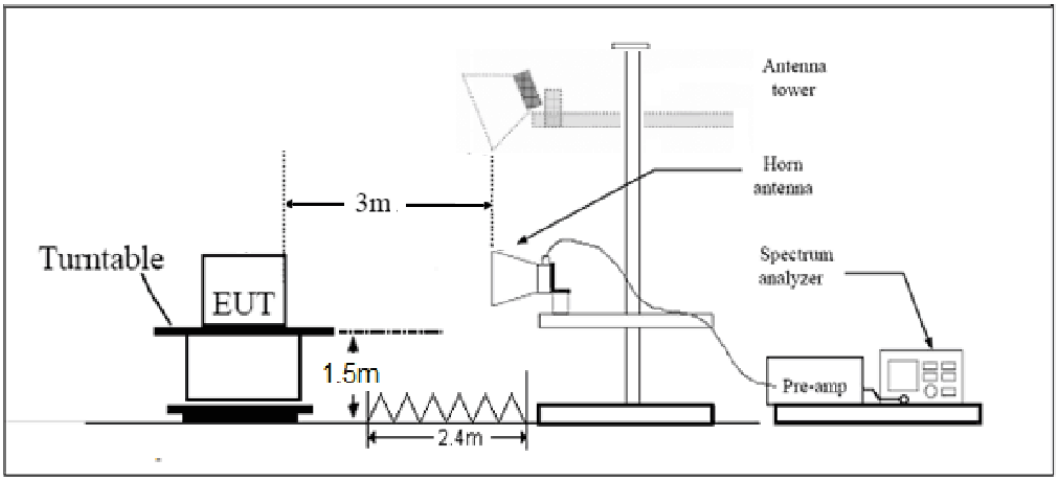

Note: Area side:2.4mX3.6m

**Distance 10m**




Note: Area side: 21m x 12m

**Above 1GHz**




Note: Area side:2.4mX3.6m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**Limits**

Rule Part 15.247(d) specifies that “In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).”

Limit in restricted band

| Frequency of emission (MHz) | Field strength(μV/m) | Field strength(dBμV/m) |
|---|---|---|
| 0.009–0.490 | 2400/F(kHz) | / |
| 0.490–1.705 | 24000/F(kHz) | / |
| 1.705–30.0 | 30 | / |
| 30-88 | 100 | 40 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| Above960 | 500 | 54 |

§15.35(b)

There is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

Peak Limit=74dBμV/m

Average Limit=54dBμV/m


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Spurious Radiated Emissions are permitted in any of the frequency bands listed below:

| 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]) |
| 13.36-13.41 | | | |


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**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

| Frequency | Uncertainty for 3m |
|---|---|
| 9kHz-30MHz | 3.55 dB |
| 30MHz-200MHz | 4.17 dB |
| 200MHz-1GHz | 4.84 dB |
| 1-18GHz | 4.35 dB |
| 18-26.5GHz | 5.90 dB |
| 26.5GHz~40GHz | 5.92 dB |
| Frequency | Uncertainty for 10m |
| 30MHz – 200MHz | 3.39 dB |
| 200MHz – 1GHz | 3.82 dB |
| 1GHz – 18GHz | 6.51 dB |
| 18GHz – 40GHz | 6.31 dB |


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## 5.2 Conducted Emission

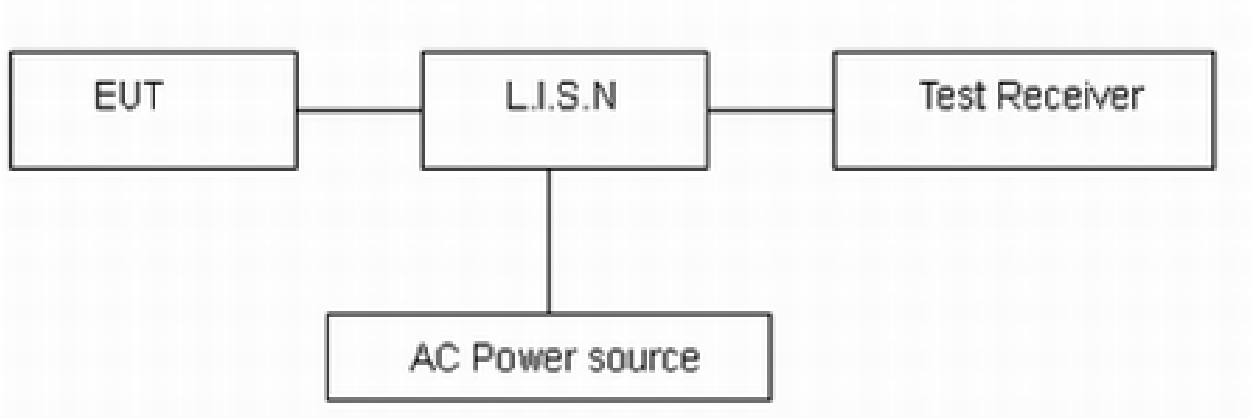
### Ambient condition

| Temperature | Relative humidity | Pressure |
|---|---|---|
| 25°C | 57% | 101.3 kPa |

### Methods of Measurement

The EUT is placed on a non-metallic table of 80cm height above the horizontal metal reference ground plane. During the test, the EUT was operating in its typical mode. The test method is according to ANSI C63.10. Connect the AC power line of the EUT to the L.I.S.N. Use EMI receiver to detect the average and Quasi-peak value. RBW is set to 9 kHz, VBW is set to 30kHz.The measurement result should include both L line and N line.
The test is in transmitting mode.

### Test Setup




Note: AC Power source is used to 120V/60Hz.

### Limits

| Frequency (MHz) | Conducted Limits(dBμV) | |
|---|---|---|
| | 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. | | |

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k$ = 1.96, $U$=2.69 dB.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# 6 Test Results

## 6.1 Unwanted Emission

**The detailed test data see *EFTA25021415-IE-11-R1-ANNEX A* Test Result.**


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## 6.2 Conducted Emission

**The detailed test data see *EFTA25021415-IE-11-R1-ANNEX A* Test Result.**


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# 7 Main Test Instruments

| Name | Manufacturer | Type | Serial Number | Calibration Date | Expiration Date |
|---|---|---|---|---|---|
| Power sensor | R&S | NRP18S | 101954 | 2022-05-14 | 2023-05-13 |
| Spectrum Analyzer | KEYSIGHT | N9020A | MY51330870 | 2022-05-14 | 2023-05-13 |
| EMI Test Receiver | R&S | ESCI3 | 100948 | 2022-05-25 | 2023-05-24 |
| Signal Analyzer | R&S | FSV40 | 101298 | 2022-05-14 | 2023-05-13 |
| Loop Antenna | SCHWARZBECK | FMZB1519 | 1519-047 | 2020-04-02 | 2023-04-01 |
| TRILOG Broadband Antenna | SCHWARZBECK | VULB 9163 | 01111 | 2022-10-25 | 2025-10-24 |
| Horn Antenna | Schwarzbeck | BBHA 9120D | 430 | 2021-07-26 | 2024-07-25 |
| Software | R&S | EMC32 | 9.26.01 | / | / |


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# 8 The EUT Appearance

**Refer to *EUT Appearance*.**


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# 9 Test Setup Photos

**Refer to *Part15C Test Setup.***


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# 10 Product Change Description

**Refer to Product Change Description.**

******** END OF REPORT ********


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