



# GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi-110001

#### **CERTIFICATE OF DESIGNATION**

M/s Sunren Telecom Laboratory, Mumbai

has been assessed and designated as Conformity Assessment Body (CAB) for its facilities at

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai, Maharashtra-400 705

In the field of Testing

Certificate No. TEC/MRA/CAB/IND-D/68-II

Issue Date: 06/01/2023

Validity: 06/01/2023 to 05/01/2026

This Certificate remains valid for the Scope of Designation as specified in the Annexure subject to the continued validity of NABL Accreditation and satisfied compliance to the Standards/specifications against which lab has been designated and strict compliance to the relevant terms and conditions of TEC CAB Designation Scheme.

(To see the scope of designation of this laboratory, you may also visit TEC website www.tec.gov.in)

Signed for and on behalf of TEC

Sanjeev Kumar Arya Director (CA) For Designating Authority

TEC

Certificate No: TEC/MRA/CAB/IND-D/68-II dated 06/01/2023 issued to M/s Sunren Telecom Laboratory, Mumbai, C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai, Maharashtra-400 705



Validity: - 06/01/2023 to 05/01/2026

#### **Terms & Conditions**

This certificate is issued as per the terms and conditions stipulated in the TEC SCHEME FOR DESIGNATING DOMESTIC CONFORMITY ASSESEMENT BODIES AND CERTIFICATION BODIES FOR CONFORMITY ASSESEMENT AND CERTIFICATION OF TELECOMMUNICATION EQUIPMENT ISSUE 2 NO. TEC/DES-01/02.DEC.2017.

Some of the conditions are reiterated as under:

#### A. Obligations of the Designated CAB.

- 1. It shall ensure that it maintains its accreditation status from any recognised Indian accreditation body like NABL during validity period of certificate.
- 2. It shall follow the stipulated procedures, rules and policies laid down by Designating Authority (DA) or Mutual Recognition Agreement (MRA)\* partner for testing and evaluation.
- 3. In respect of tests for which it is seeking designation, it shall have no interest whatsoever in any business to carry on testing in an unfair or biased manner.
- 4. It shall fully indemnify DA from and against all liabilities, damages, claims, costs, and expenses incurred or sustained by DA as a result of any action taken or omitted by DA relating to the process of designation.
- 5. It shall comply with DA's or MRA partner's terms and conditions for designation and recognition as modified from time to time.
- It shall be under obligation to participate in the online process prescribed by TEC for test and certification against TEC's GR/IR/ER and standards.
- 7. It shall have a record system which shall have a retention period of at least 5 years for documents related to the equipment testing. It shall maintain all the relevant documents including list of products submitted for testing, product-wise testing and evaluation reports. These documents shall be produced before the DA within seven days, as and when required.
- 8. It shall ensure the Intellectual Property Rights of the customers in the course of testing by maintaining professional ethics, secrecy and keeping all the product related information confidential.

<sup>\*</sup>Applicable only if recognized by MRA (Mutual Recognition Agreement) partner.



- 9. It shall notify the DA in writing of occurrence of any of the following incident(s) within 2 weeks of its occurrence
  - a) Cessation of its business of conformity assessment for which it is Designated or accredited
  - b) Changes in its legal, commercial, or Organisational status
  - c) Changes, which may affect continuing compliance with any of the criteria or requirement specified by DA or MRA partner.
  - d) Change of premises

#### B. REFERENCE TO DESIGNATION STATUS

- 1. Designated CABs may advertise their designation status with regard to standards or parts thereof which are included in the scope of designation.
- 2. The advertisement should not imply, or otherwise suggest that DA or MRA Partner has endorsed the product or imply that the designated CAB is an agent or representative of DA or MRA Partner.
- 3. CABs whose designations have been suspended or withdrawn for any reason, shall discontinue advertisement of their designated status and not make any misleading statements regarding their designation status.

#### C. POST-DESIGNATION SURVEILLANCE

As and when required, DA shall conduct surveillance assessments and other non-routine assessments on the Designated CABs to ensure that standards of practices are maintained as well as to investigate complaints made against them.

#### D. SUSPENSION OR WITHDRAWAL OF DESIGNATION

- 1. DA shall suspend or withdraw the designation of a CAB if
  - a. Its accreditation is withdrawn.
  - b. It is found that the CAB is not complying with the stipulated criteria or requirements.
  - c. It is guilty of any offence involving fraud or dishonesty.
  - d. DA concludes that there is a just cause for withdrawing the designation.
- A CAB whose designation, and recognition in case of MRA, has been suspended or withdrawn shall be removed from the list of designated CABs, in case it fails to take corrective measures.
- 3. DA shall keep the designation of a Designated CAB under suspension, until the completion of formal review process.

#### E. AMENDMENT TO THE SCHEME

DA reserves the rights to amend the scheme, as and when required, for the purpose of streamlining designation process.

and



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

Last Amended on: ----

| Sl. | Telecom                   | Test Parameter or Type of Testing              | Standard/      |
|-----|---------------------------|--|----------------|
| No. | Equipment/ Product        |  | Specification  |
|     | Troduct                   |  |                |
| 1.  | EMI/EMC                   | Conducted Emission Test                        | TEC/SD/DD/EMC- |
|     | testing of                | CISPR 32                                       | 221/OCT-16     |
|     | Telecom<br>Products       |  |                |
| 2.  | Audio, video              | Clearances and Creepage Distances              | IEC 60065:2014 |
|     | and similar               | Clause 13                                      |                |
|     | electronic<br>apparatus – | Components (Verification of reports as per     | IEC 60065:2014 |
|     | Safety                    | relevant Standards)                            |                |
|     | requirements              | Clause 14                                      |                |
|     | •                         | Constructional Requirements with regard to the | IEC 60065:2014 |
|     |                           | Protection against Electric Shock              |                |
|     |                           | Clause 8                                       |                |
|     |                           | Electric Shock hazard under normal Operating   | IEC 60065:2014 |
|     |                           | Condition                                      |                |
|     |                           | Clause 9.1, 9.2                                |                |
|     |                           | Electrical Connection and Mechanical fixings   | IEC 60065:2014 |
|     |                           | Clause 17                                      |                |
|     |                           | External Flexible Cords                        | IEC 60065:2014 |
|     |                           | Clause 16                                      |                |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product   | Test Parameter or Type of Testing   | Standard/<br>Specification     |
|------------|--|---|--------------------------------|
|            | Audio, video<br>and similar<br>electronic<br>apparatus –<br>Safety<br>requirements | Fault Conditions Clause 11 Heating under normal Operating Conditions- General Clause 7.1                                  | IEC 60065:2014 IEC 60065:2014  |
|            |  | Heating under normal Operating Conditions Heat Resistance of insulating material Clause 7.2 Input Rating                  | IEC 60065:2014  IEC 60065:2014 |
|            |  | Clause 4.2 & 5.1 Insulation resistance and dielectric strength Clause 10.4 Marking & Instructions-Identification & supply | IEC 60065:2014  IEC 60065:2014 |
|            |  | rating Clause 5.1, 5.3, 5.4, 5.5 Mechanical Strength  | IEC 60065:2014                 |
|            |  | Clause 12.6 Stability and Mechanical hazards Clause 19  | IEC 60065:2014                 |



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| Sl.<br>No. | Telecom Equipment/ Product | Test Paramete | er or Type of Testing       | Standard/<br>Specification |
|------------|----------------------------|---------------|-----------------------------|----------------------------|
|            |                            |               |                             |                            |
|            | Audio, video               | Surge Test    |                             | IEC 60065:2014             |
|            | and similar                | Clause 10.2   |                             | i la i                     |
|            | electronic                 | Terminals     |                             | IEC 60065:2014             |
|            | apparatus –<br>Safety      | Clause 15     |                             | 11 - 11 - 2                |
|            | requirements               |               |                             |                            |
| 3.         | Equipment                  | Parameters    | IPV6 Extn Header Parameters | TEC ER No.                 |
|            | operating in 2.4           | link with     | RFC 2460, RFC 8200          | TEC 59432203               |
|            | GHz, 5 GHz                 | Product       | IPV6 Header Parameters      | TEC ER No.                 |
|            | frequency bands            | Variant       | RFC 2460, RFC 8200          | TEC 59432203               |
|            |                            | Interface:    | EIRP (Conducted)            | TEC ER No.                 |
|            |                            | Wi-Fi         | ETSI EN 300 328             | TEC 59432203               |
|            |                            |               | Frequency Range / Frequency | TEC ER No.                 |
|            |                            |               | Stability/ Frequency of     | TEC 59432203               |
|            |                            |               | Operation                   |                            |
|            |                            |               | ETSI EN 300 328             |                            |
|            |                            |               | 6 dB & 20 dB Bandwidth/ TX  | TEC ER No.                 |
|            |                            |               | Occupied bandwidth/ Carrier | TEC 59432203               |
|            |                            |               | bandwidth                   |                            |
|            |                            |               | ETSI EN 300 328             |                            |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product                      | Test Parameter or Type of Testing |   | Standard/<br>Specification  |
|------------|---|-----------------------------------|---|---|
|            | Equipment operating in 2.4 GHz, 5 GHz frequency bands |                                   | Accumulated Transmit Time, Frequency Operation and Hopping Sequence ETSI EN 300 328 Adaptivity ETSI EN 300 328 Duty Cycle, Tx sequence, Tx gap ETSI EN 300 328 Geolocation Capability ETSI EN 300 328 Hopping Frequency Separation ETSI EN 300 328 Medium Utilization Factor ETSI EN 300 328 Power Spectral Density | TEC ER No. TEC 59432203  TEC ER No. TEC 59432203 |
|            |   |                                   | ETSI EN 300 328   | TEC 59432203  |



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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |  | Standard/<br>Specification  |
|------------|----------------------------------|-----------------------------------|--|---|
|            | 1                                |                                   | Receiver Blocking ETSI EN 300 328 Receiver Spurious Emission (Conducted) ETSI EN 300 328 Transmitted unwanted Emission in OOB Domain (Conducted) ETSI EN 300 328 Transmitted unwanted Emission in the spurious domain (Conducted) ETSI EN 300 328 EIRP (Conducted) ETSI EN 301 893 Frequency Range / Frequency Stability/ Frequency of | TEC ER No. TEC 59432203 |
|            |                                  |                                   | Operation<br>ETSI EN 301 893   |   |

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**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

Test Parameter or Type of Testing

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Sl. Telecom

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Standard/

| No. | Equipment/<br>Product | Test l'alameter of Type of Testing |                             | Specification |
|-----|-----------------------|------------------------------------|-----------------------------|---------------|
|     | Equipment             |                                    | 6 dB & 20 dB Bandwidth/ TX  | TEC ER No.    |
|     | operating in 2.4      |                                    | Occupied bandwidth/ Carrier | TEC 59432203  |
|     | GHz, 5 GHz            | 1                                  | bandwidth                   |               |
|     | frequency bands       |                                    | ETSI EN 301 893             | 1 =           |
|     |                       |                                    | Adaptivity                  | TEC ER No.    |
|     |                       |                                    | ETSI EN 301 893             | TEC 59432203  |
|     |                       |                                    | Geolocation Capability      | TEC ER No.    |
|     |                       |                                    | ETSI EN 301 893             | TEC 59432203  |
|     |                       |                                    | Peak Power/ EIRP/ ERP/      | TEC ER No.    |
|     |                       |                                    | Output Power/ Maximum       | TEC 59432203  |
|     |                       |                                    | Transmit Power (Conducted)  |               |
|     |                       |                                    | ETSI EN 301 893             |               |
|     |                       |                                    | Power Spectral Density      | TEC ER No.    |
|     |                       |                                    | ETSI EN 301 893             | TEC 59432203  |
|     |                       |                                    | Receiver Blocking           | TEC ER No.    |
|     |                       |                                    | ETSI EN 301 893             | TEC 59432203  |
|     |                       |                                    | Receiver Spurious Emission  | TEC ER No.    |
|     |                       |                                    | (Conducted)                 | TEC 59432203  |
|     |                       |                                    | ETSI EN 301 893             |               |



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| Sl.<br>No. | Telecom<br>Equipment/<br>Product                      | Test Parameter or Type of Testing |  | Standard/<br>Specification  |
|------------|---|-----------------------------------|--|---|
|            | Equipment operating in 2.4 GHz, 5 GHz frequency bands |                                   | Carrier Frequencies ETSI EN 301 893  Designation of Centre Frequencies and frequency error ETSI EN 301 893  Dynamic Frequency Selection (DFS) ETSI EN 301 893  Nominal and occupied, channel bandwidth ETSI EN 301 893  RF output power, Transmit power control (TPC), Power Density ETSI EN 301 893  Transmitted unwanted | TEC ER No. TEC 59432203 |
|            |   |                                   | Emission outside the 5 GHz<br>RLAN bands (Conducted)<br>ETSI EN 301 893  | TEC 59432203  |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramete | er or Type of Testing       | Standard/<br>Specification |
|------------|----------------------------------|---------------|-----------------------------|----------------------------|
|            |                                  |               |                             | •                          |
|            | Equipment                        |               | Transmitted unwanted        | TEC ER No.                 |
|            | operating in 2.4                 | *             | Emission within the 5 GHZ   | TEC 59432203               |
|            | GHz, 5 GHz                       |               | RLAN bands (Conducted)      | , 1 % och                  |
|            | frequency bands                  |               | ETSI EN 301 893             | 1,                         |
|            |                                  |               | EIRP (Conducted)            | TEC ER No.                 |
|            |                                  | 0.0           | ETSI EN 302 502             | TEC 59432203               |
|            |                                  |               | Frequency Range / Frequency | TEC ER No.                 |
|            |                                  |               | Stability/ Frequency of     | TEC 59432203               |
|            |                                  | =             | Operation                   |                            |
|            |                                  | *             | ETSI EN 302 502             |                            |
|            |                                  |               | 6 dB & 20 dB Bandwidth/ TX  | TEC ER No.                 |
|            |                                  |               | Occupied bandwidth/ Carrier | TEC 59432203               |
|            |                                  |               | bandwidth                   |                            |
|            |                                  |               | ETSI EN 302 502 .           |                            |
|            |                                  |               | Adaptivity                  | TEC ER No.                 |
|            |                                  |               | ETSI EN 302 502             | TEC 59432203               |
|            |                                  |               | Geolocation Capability      | TEC ER No.                 |
|            |                                  | -             | ETSI EN 302 502             | TEC 59432203               |

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## SCOPE OF DESIGNATION (ANNEXURE)

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |  | Standard/<br>Specification |
|------------|----------------------------------|-----------------------------------|--|----------------------------|
|            | Equipment operating in 2.4       |                                   | Peak Power/ EIRP/ ERP/ Output Power/ Maximum Transmit Power  | TEC ER No.<br>TEC 59432203 |
|            | GHz, 5 GHz<br>frequency bands    |                                   | ETSI EN 302 502  | 1 .1                       |
|            |                                  |                                   | Power Spectral Density<br>ETSI EN 302 502                    | TEC ER No.<br>TEC 59432203 |
|            | ,                                |                                   | Receiver Blocking<br>ETSI EN 302 502                         | TEC ER No.<br>TEC 59432203 |
|            |                                  |                                   | Receiver Spurious Emission<br>(Conducted)<br>ETSI EN 302 502 | TEC ER No.<br>TEC 59432203 |
|            |                                  |                                   | Carrier Frequencies<br>ETSI EN 302 502                       | TEC ER No.<br>TEC 59432203 |
|            | ·                                |                                   | Designation of Centre<br>Frequencies and frequency           | TEC ER No.<br>TEC 59432203 |
|            |                                  |                                   | error<br>ETSI EN 302 502                                     |                            |
|            | ·                                |                                   | Dynamic Frequency Selection (DFS) ETSI EN 302 502            | TEC ER No.<br>TEC 59432203 |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product                      | Test Parameter or Type of Testing    |   | Standard/<br>Specification   |
|------------|---|--------------------------------------|---|--|
|            | Equipment operating in 2.4 GHz, 5 GHz frequency bands |                                      | Nominal and occupied, channel bandwidth ETSI EN 302 502 RF output power, Transmit power control (TPC), Power Density ETSI EN 302 502 Transmitted unwanted Emission outside the 5 GHz RLAN bands (Conducted) ETSI EN 302 502 Transmitted unwanted Emission within the 5 GHZ RLAN bands (Conducted) ETSI EN 302 502 | TEC ER No. TEC 59432203  TEC ER No. TEC 59432203  TEC ER No. TEC 59432203  TEC ER No. TEC 59432203 |
| 4.         | Point of Sale<br>Devices                              | Interface:<br>GSM or GPRS<br>or EDGE | Frequency of Operation Latest NFAP issued by WPC  | TEC ER No.<br>TEC17672201  |



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| Sl.<br>No. | Telecom Equipment/ Product | Test Parameter or Type of Testing |   | Standard/<br>Specification                     |
|------------|----------------------------|-----------------------------------|---|--|
|            | Point of Sale<br>Devices   |                                   | Transmitter Maximum output power for GSM 3GPP TS 51 010-1 Clause 13.3 EN 301 511 (GSM) Clause 4.2.5 Transmitter Maximum output power for GPRS/EDGE 3GPP TS 51 010-1 Clause 13.16.2 EN 301 511 (GSM) Clause 4.2.10 | TEC ER No. TEC17672201  TEC ER No. TEC17672201 |
|            |                            |                                   | Output RF Spectrum for GSM<br>3GPP TS 51 010-1<br>Clause 13.4<br>EN 301 511 (GSM)<br>Clause 4.2.6   | TEC ER No.<br>TEC17672201                      |

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## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

Sl. Telecom

M/s Sunren Telecom Laboratory,

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Standard/

| No. | Equipment/ Product | restratameter of Type of Testing  | Specification  |
|-----|--------------------|---|--|
|     |                    | Output RF Spectrum for GPRS/EDGE 3GPP TS 51 010-1 Clause 13.16.3 EN 301 511 (GSM) Clause 4.2.11 Spurious emissions (MS allocated a channel) 3GPP TS 51 010-1 Clause 12.1.1 EN 301 511 (GSM) Clause 4.2.12 Spurious emission (MS in idle mode) 3GPP TS 51 010-1 Clause 12.1.2 EN 301 511 (GSM) | TEC ER No. TEC17672201  TEC ER No. TEC17672201  TEC ER No. TEC17672201 |
|     |                    | Clause 4.2.13   |  |

AD (CA), TEC

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| SI.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramet | Test Parameter or Type of Testing   |  |
|------------|----------------------------------|--------------|---|--|
|            | Point of Sale<br>Devices         |              | Frequency Error and Phase error for GSM 3GPP TS 51 010-1 Clause 13.1 EN 301 511 (GSM) Clause 4.2.1 Frequency Error and Phase error for GPRS/EDGE 3GPP TS 51 010-1 Clause 13.16.1 EN 301 511 (GSM) | TEC ER No. TEC17672201  TEC ER No. TEC17672201 |
|            |                                  |              | Clause 4.2.4  Reference sensitivity level (speech channels)  3GPP TS 51 010-1  Clause 14.2.1  EN 301 511 (GSM)  Clause 4.2.42   | TEC ER No.<br>TEC17672201                      |



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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |  | Standard/<br>Specification                             |
|------------|----------------------------------|-----------------------------------|--|--|
|            | Point of Sale<br>Devices         |                                   | Adjacent Channel Rejection<br>(speech channels)<br>3GPP TS 51 010-1<br>Clause 14.5.1<br>EN 301 511 (GSM)<br>Clause 4.2.38<br>Receiver blocking<br>3GPP TS 51 010-1<br>Clause 14.7.1<br>EN 301 511 (GSM)<br>Clause 4.2.20 | TEC ER No. TEC17672201  TEC ER No. TEC17672201         |
|            |                                  | Interface:<br>LTE or<br>LTE-A     | Frequency of Operation Latest NFAP issued by WPC Maximum output power 3GPP TS 36.521-1 Clause 6.2.2 EN 301 908-13 (LTE) Clause 4.2.2.1   | TEC ER No.<br>TEC17672201<br>TEC ER No.<br>TEC17672201 |



<sup>\*</sup>The validity of Certificate is up to 05/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

#### **SCOPE OF DESIGNATION** (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramete | Test Parameter or Type of Testing   |  |
|------------|----------------------------------|---------------|---|--|
|            | Point of Sale<br>Devices         |               | Spectrum emissions mask 3GPP TS 36.521-1 Clause 6.6.2.1 EN 301 908-13 (LTE) Clause 4.2.3.1 Spurious emissions 3GPP TS 36.521-1 Clauses 6.6.3.1, 6.6.3.2, 6.6.3.3 EN 301 908-13 (LTE) Clause 4.2.4.1 Receiver spurious emission 3GPP TS 36.521-1 Clause 7.9 EN 301 908-13 (LTE) Clause 4.2.10 Receiver Reference Sensitivity level 3GPP TS 36.521-1 Clause 7.3 EN 301 908-13 (LTE) | TEC ER No. TEC17672201  TEC ER No. TEC17672201  TEC ER No. TEC17672201  TEC ER No. TEC17672201 |
|            |                                  |               | Clause 4.2.12   |  |



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Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

#### SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |   | Standard/<br>Specification                     |
|------------|----------------------------------|-----------------------------------|---|--|
|            | Point of Sale<br>Devices         |                                   | Receiver Adjacent Channel Selectivity (ACS) 3GPP TS 36.521-1 Clause 7.5 EN 301 908-13 (LTE) Clause 4.2.6.1 Receiver In-band blocking 3GPP TS 36.521-1 | TEC ER No. TEC17672201  TEC ER No. TEC17672201 |
|            |                                  |                                   | Clause 7.6.1<br>EN 301 908-13 (LTE)<br>Clause 4.2.7.1   | 12017072201                                    |
|            |                                  | Interface:<br>WCDMA or<br>HSPA    | Frequency of Operation Latest NFAP issued by WPC  | TEC ER No.<br>TEC17672201                      |
|            |                                  |                                   | Transmitter Maximum output<br>power<br>3GPP TS 34.121-1<br>Clause 5.2<br>EN 301 908-2 (UMTS)<br>Clause 4.2.2.1  | TEC ER No.<br>TEC17672201                      |

<sup>\*</sup>The validity of Certificate is up to 05/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

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| Point of Sale   Transmitter Spectrum   TEC ER N   emissions mask   3GPP TS 34.121-1   Clause 5.9   EN 301 908-2 (UMTS)   Clause 4.2.3.1   Transmitter spurious   emissions   TEC ER N   emissions   3GPP TS 34.121-1   Clause 5.11   EN 301 908-2 (UMTS)   Clause 4.2.4.1   Receiver spurious emission   3GPP TS 34.121-1   Clause 6.8   EN 301 908-2 (UMTS)   Clause 4.2.10   TEC 17672.5   TEC 176 | 201<br>D.<br>201 |
|--|------------------|

<sup>\*</sup>The validity of Certificate is up to 05/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

Sl. Telecom

M/s Sunren Telecom Laboratory,

Test Parameter or Type of Testing

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

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Standard/

| No. | Equipment/ Product | Test l'arameter of Type of Testing |                                | Specification |
|-----|--------------------|------------------------------------|--------------------------------|---------------|
|     | Point of Sale      | Т                                  | Transmitter Minimum Output     | TEC ER No.    |
|     | Devices            |                                    | Power                          | TEC17672201   |
|     |                    |                                    | 3GPP TS 34.121-1               |               |
|     |                    |                                    | Clause 5.4.3                   | , **          |
|     |                    |                                    | EN 301 908-2 (UMTS)            |               |
|     | *                  |                                    | Clause 4.2.5.1                 |               |
|     |                    |                                    | Receiver Reference sensitivity | TEC ER No.    |
|     |                    |                                    | level                          | TEC17672201   |
|     |                    |                                    | 3GPP TS 34.121-1               |               |
|     |                    |                                    | Clause 6.2                     |               |
|     | -                  |                                    | EN 301 908-2 (UMTS)            |               |
|     |                    |                                    | Clause 4.2.13                  |               |
|     |                    |                                    | Receiver Adjacent Channel      | TEC ER No.    |
|     |                    |                                    | Selectivity                    | TEC17672201   |
|     |                    |                                    | (ACS)                          |               |
|     |                    |                                    | 3GPP TS 34.121-1               |               |
|     |                    |                                    | Clause 6.4                     |               |
|     |                    |                                    | EN 301 908-2 (UMTS)            |               |
|     |                    |                                    | Clause 4.2.6                   |               |



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Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

Last Amended on: ----

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing    |   | Standard/<br>Specification   |
|------------|----------------------------------|--------------------------------------|---|--|
|            | Point of Sale<br>Devices         |                                      | Receiver In-band blocking<br>3GPP TS 34.121-1<br>Clause 6.5.2.1<br>EN 301 908-2 (UMTS)<br>Clause 4.2.7  | TEC ER No.<br>TEC17672201  |
| 5.         | LAN Switch                       | Parameters link with Product Variant | Mac Learning and Packet Forwarding Annex-P11  Manageability SNMP V2 or V3  RFC 3410 3416  Spanning Tree Protocol IEEE 802.1d  Dynamic Routing Annex-P11  Static Routing Annex-P11 | TEC ER No. TEC37942207  TEC ER No. TEC37942207 |

<sup>\*</sup>The validity of Certificate is up to 05/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



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## SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

CI Tolosom

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-II

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Validity: 06/01/2023 to 05/01/2026

Last Amended on: ----

Standard/

| No. | Equipment/ Product | Test Parameter or Type of Testing              | Specification             |
|-----|--------------------|--|---------------------------|
|     | LAN Switch         | IPV4 Parameters Set-D<br>RFC 791, Annex-P11    | TEC ER No.<br>TEC37942207 |
|     |                    | IPV6 as per RFC 2460 or<br>RFC 8200, Annex-P11 | TEC ER No.<br>TEC37942207 |

<sup>\*</sup>The validity of Certificate is up to 05/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.





# GOVERNMENT OF INDIA MINISTRY OF COMMUNICATIONS DEPARTMENT OF TELECOMMUNICATIONS TELECOMMUNICATION ENGINEERING CENTRE Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi-110001

#### **CERTIFICATE OF DESIGNATION**

M/s Sunren Telecom Laboratory, Mumbai

has been assessed and designated as Conformity Assessment Body (CAB) for its facilities at

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai, Maharashtra-400 705

In the field of Testing

Certificate No. TEC/MRA/CAB/IND-D/68-III

Issue Date: 17/01/2023

Validity: 17/01/2023 to 16/01/2026

This Certificate remains valid for the Scope of Designation as specified in the Annexure subject to the continued validity of NABL Accreditation and satisfied compliance to the Standards/specifications against which lab has been designated and strict compliance to the relevant terms and conditions of TEC CAB Designation Scheme.

(To see the scope of designation of this laboratory, you may also visit TEC website www.tec.gov.in)

Signed for and on behalf of TEC

Sanjeev Kumar Arya Director (CA) For Designating Authority

TEC

Certificate No: TEC/MRA/CAB/IND-D/68-III dated 17/01/2023 issued to M/s Sunren Telecom Laboratory, Mumbai, C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai, Maharashtra-400 705



Validity: - 17/01/2023 to 16/01/2026

#### **Terms & Conditions**

This certificate is issued as per the terms and conditions stipulated in the TEC SCHEME FOR DESIGNATING DOMESTIC CONFORMITY ASSESEMENT BODIES AND CERTIFICATION BODIES FOR CONFORMITY ASSESEMENT AND CERTIFICATION OF TELECOMMUNICATION EQUIPMENT ISSUE 2 NO. TEC/DES-01/02.DEC.2017.

Some of the conditions are reiterated as under:

#### A. Obligations of the Designated CAB.

- 1. It shall ensure that it maintains its accreditation status from any recognised Indian accreditation body like NABL during validity period of certificate.
- 2. It shall follow the stipulated procedures, rules and policies laid down by Designating Authority (DA) or Mutual Recognition Agreement (MRA)\* partner for testing and evaluation.
- 3. In respect of tests for which it is seeking designation, it shall have no interest whatsoever in any business to carry on testing in an unfair or biased manner.
- 4. It shall fully indemnify DA from and against all liabilities, damages, claims, costs, and expenses incurred or sustained by DA as a result of any action taken or omitted by DA relating to the process of designation.
- 5. It shall comply with DA's or MRA partner's terms and conditions for designation and recognition as modified from time to time.
- 6. It shall be under obligation to participate in the online process prescribed by TEC for test and certification against TEC's GR/IR/ER and standards.
- 7. It shall have a record system which shall have a retention period of at least 5 years for documents related to the equipment testing. It shall maintain all the relevant documents including list of products submitted for testing, product-wise testing and evaluation reports. These documents shall be produced before the DA within seven days, as and when required.
- 8. It shall ensure the Intellectual Property Rights of the customers in the course of testing by maintaining professional ethics, secrecy and keeping all the product related information confidential.

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Page 1 of 2

<sup>\*</sup>Applicable only if recognized by MRA (Mutual Recognition Agreement) partner.

- 9. It shall notify the DA in writing of occurrence of any of the following incident(s) within 2 weeks of its occurrence
  - a) Cessation of its business of conformity assessment for which it is Designated or accredited
  - b) Changes in its legal, commercial, or Organisational status
  - c) Changes, which may affect continuing compliance with any of the criteria or requirement specified by DA or MRA partner.
  - d) Change of premises

#### B. REFERENCE TO DESIGNATION STATUS

- 1. Designated CABs may advertise their designation status with regard to standards or parts thereof which are included in the scope of designation.
- 2. The advertisement should not imply, or otherwise suggest that DA or MRA Partner has endorsed the product or imply that the designated CAB is an agent or representative of DA or MRA Partner.
- 3. CABs whose designations have been suspended or withdrawn for any reason, shall discontinue advertisement of their designated status and not make any misleading statements regarding their designation status.

#### C. POST-DESIGNATION SURVEILLANCE

As and when required, DA shall conduct surveillance assessments and other non-routine assessments on the Designated CABs to ensure that standards of practices are maintained as well as to investigate complaints made against them.

#### D. SUSPENSION OR WITHDRAWAL OF DESIGNATION

- 1. DA shall suspend or withdraw the designation of a CAB if
  - a. Its accreditation is withdrawn.
  - b. It is found that the CAB is not complying with the stipulated criteria or requirements.
  - c. It is guilty of any offence involving fraud or dishonesty.
  - d. DA concludes that there is a just cause for withdrawing the designation.
- 2. A CAB whose designation, and recognition in case of MRA, has been suspended or withdrawn shall be removed from the list of designated CABs, in case it fails to take corrective measures.
- 3. DA shall keep the designation of a Designated CAB under suspension, until the completion of formal review process.

#### E. AMENDMENT TO THE SCHEME

DA reserves the rights to amend the scheme, as and when required, for the purpose of streamlining designation process.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

#### **SCOPE OF DESIGNATION** (ANNEXURE)

Test Parameter or Type of Testing

Laboratory Name:

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Telecom

SI.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

Last Amended on: ----

Standard/

| No. | Equipment/<br>Product |   | er or Type or Testing   | Specification                                 |
|-----|-----------------------|---|---|---|
| 1.  | Smart Camera          | Parameters<br>link with<br>Product<br>Variant | IPV4 Parameters RFC 791. Annex-P6 IPV6 Parameters RFC 2460 / 8200. Annex-P7 | TEC ER No. TEC28822301 TEC ER No. TEC28822301 |
|     |                       |   | IoT Dev - Non-0 IMEI or MEID or Unique MAC. Annex-M                         | TEC ER No.<br>TEC28822301                     |
| 2.  | Smart Watch           | Parameters<br>link with<br>Product            | IPV4 Parameters RFC 791. Annex-P6   | TEC ER No.<br>TEC28982301                     |
|     |                       | Variant                                       | IPV6 Parameters RFC 2460 / 8200. Annex-P7                                   | TEC ER No.<br>TEC28982301                     |
|     |                       |   | IoT Dev - Non-0 IMEI or MEID or Unique MAC. Annex-M                         | TEC ER No.<br>TEC28982301                     |
|     |                       |   | GPS Compliance  | TEC ER No.<br>TEC28982301                     |



\*The validity of Certificate is up to 16/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

#### SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name:

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing             |  | Standard/<br>Specification   |
|------------|----------------------------------|---|--|--|
| 3.         | Smart<br>Electricity<br>Meter    | Parameters<br>link with<br>Product<br>Variant | IPV4 Parameters RFC 791. Annex-P6 IPV6 Parameters RFC 2460 / 8200. Annex-P7 IoT Dev - Non-0 IMEI or MEID or Unique MAC. Annex-M                            | TEC ER No. TEC28362211 TEC ER No. TEC28362211 TEC ER No. TEC28362211                           |
| 4.         | Tracking<br>Device               | Parameters link with Product Variant          | IPV6 Extn. Header Parameters RFC 2460, RFC 800 IPV6 Header Parameters RFC 2460, RFC 800 IoT Dev - Non-0 IMEI or MEID or Unique MAC. Annex-M GPS Compliance | TEC ER No. TEC28732301  TEC ER No. TEC28732301  TEC ER No. TEC28732301  TEC ER No. TEC28732301 |



<sup>\*</sup>The validity of Certificate is up to 16/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

### SCOPE OF DESIGNATION (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

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| Sl.<br>No.     | Telecom<br>Equipment/<br>Product | - JF                                   |  | Standard/<br>Specification                                |  |
|----------------|----------------------------------|--|--|---|--|
| 5. IoT Gateway |                                  | Parameters<br>link with<br>Product     | IPV4 Parameters RFC 791. Annex-P6 IPV6 Parameters  | TEC ER No.<br>TEC24492301<br>TEC ER No.                   |  |
|                |                                  | Variant                                | RFC 2460 / 8200. Annex-P7  IoT Dev - Non-0 IMEI or MEID or Unique MAC. Annex-M  GPS Compliance | TEC24492301 TEC ER No. TEC24492301 TEC ER No. TEC24492301 |  |
|                |                                  | Interface: Bluetooth Low Energy (BLE)/ | Frequency of Operation  Peak Power / EIRP / ERP/ Output Power/ Maximum                         | TEC ER No.<br>TEC24492301<br>TEC ER No.<br>TEC24492301    |  |
|                |                                  | ZigBee/<br>6LowPAN                     | Transmit Power (Conducted) ETSI EN 300 328 V2.2.2 Clause 5.4.2.2 Power Spectral Density        | TEC ER No.  |  |
|                | 8.                               |  | ETSI EN 300 328 V2.2.2<br>Clause 5.4.3   | TEC24492301   |  |

<sup>\*</sup>The validity of Certificate is up to 16/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



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## SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name:

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |  | Standard/<br>Specification                    |  |
|------------|----------------------------------|-----------------------------------|--|---|--|
|            | IoT Gateway                      |                                   | Duty cycle, Tx-Sequence, Tx-gap ETSI EN 300 328 V2.2.2 Clause 5.4.2 Accumulated Transmit Time, Frequency occupation and Hopping sequence / TX FHSS ETSI EN 300 328 V2.2.2 Clause 5.4.4 | TEC ER No. TEC24492301 TEC ER No. TEC24492301 |  |
|            |                                  |                                   | Hopping Frequency Separation ETSI EN 300 328 V2.2.2 Clause 5.4.5  Medium utilization Factor ETSI EN 300 328 V2.2.2   | TEC ER No. TEC ER No. TEC 24492301            |  |
|            |                                  |                                   | Clause 5.4.2  Adaptivity  ETSI EN 300 328 V2.2.2  Clause 5.4.6   | TEC ER No.<br>TEC24492301                     |  |



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Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

### SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name:

Sl. | Telecom

M/s Sunren Telecom Laboratory,

Test Parameter or Type of Testing

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

Last Amended on: ----

Standard/

| No. | Equipment/<br>Product       |  |                                | Specification |
|-----|-----------------------------|--|--------------------------------|---------------|
|     | IoT Gateway                 | The state of the s | Occupied bandwidth / Carrier   | TEC ER No.    |
|     | d 10 kg 1 kg 1              |  | Bandwidth                      | TEC24492301   |
|     |                             |  | ETSI EN 300 328 V2.2.2         | 1             |
|     |                             |  | Clause 5.4.7                   |               |
|     | A-335-                      | - r r gerkele  | Transmitter unwanted emission  | TEC ER No.    |
|     |                             |  | in the OOB domain (Conducted)  | TEC24492301   |
|     | to the grade of the same of |  | ETSI EN 300 328 V2.2.2         |               |
|     |                             |  | Clause 5.4.8                   |               |
|     |                             | Name of  | Transmitter unwanted emissions | TEC ER No.    |
|     | ust in the                  |  | in the spurious domain         | TEC24492301   |
|     |                             |  | (Conducted)                    |               |
|     |                             |  | ETSI EN 300 328 V2.2.2         |               |
|     |                             |  | Clause 5.4.9                   | E-1 1         |
|     |                             | row vije gin   | Receiver spurious emissions    | TEC ER No.    |
|     |                             |  | (Conducted)                    | TEC24492301   |
|     | 6                           | e day har tea.   | ETSI EN 300 328 V2.2.2         |               |
|     |                             |  | Clause 5.4.10                  |               |
|     |                             |  | equation of the second second  |               |

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<sup>\*</sup>The validity of Certificate is up to 16/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

#### **SCOPE OF DESIGNATION** (ANNEXURE)

**Laboratory Name:** 

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramet   | Standard/<br>Specification     |             |  |  |
|------------|----------------------------------|----------------|--------------------------------|-------------|--|--|
|            | T m G                            | 1              |                                | THE CARD IV |  |  |
|            | IoT Gateway                      |                | Receiver Blocking              | TEC ER No.  |  |  |
|            |                                  | a T            | ETSI EN 300 328 V2.2.2         | TEC24492301 |  |  |
|            |                                  | F47151         | Clause 5.4.11.2                |             |  |  |
|            |                                  |                | Geo location Capability        | TEC ER No.  |  |  |
|            | *                                |                | ETSI EN 300 328 V2.2.2         | TEC24492301 |  |  |
|            | -, vie -, i                      | 1 2 - 2 - 20   | Clause 4.3.1.13 or 4.3.2.12    |             |  |  |
|            | ***                              | Interface:     | Operating Frequency            | TEC ER No.  |  |  |
|            |                                  | LPWAN-         |                                | TEC24492301 |  |  |
|            |                                  | LoRa /         | EIRP / Maximum Transmit        | TEC ER No.  |  |  |
|            |                                  | LPWAN-         | Power                          | TEC24492301 |  |  |
|            |                                  | SigFox         | ETSI EN 300 220-1 V3.1.1       |             |  |  |
|            |                                  |                | Clause 5.2.2                   |             |  |  |
|            |                                  |                | Transmitter Unwanted emissions | TEC ER No.  |  |  |
|            |                                  | eri e alfa Sal | in the spurious domain         | TEC24492301 |  |  |
|            |                                  |                | (Conducted)                    |             |  |  |
|            |                                  |                | ETSI EN 300 220-1 V3.1.1       |             |  |  |
|            |                                  |                | Clause 5.9.3                   |             |  |  |
|            |                                  |                |                                |             |  |  |

<sup>\*</sup>The validity of Certificate is up to 16/01/2026 or the continued validity of NABL Accreditation, whichever is earlier.



Gate No. 5, Khurshid Lal Bhawan, Janpath, New Delhi - 110 001

## SCOPE OF DESIGNATION (ANNEXURE)

Laboratory Name:

M/s Sunren Telecom Laboratory,

C-475, TTC Industrial Area, MIDC Pawane, Navi Mumbai,

Maharashtra-400 705.

Certificate Number: TEC/MRA/CAB/IND-D/68-III

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Validity: 17/01/2023 to 16/01/2026

Last Amended on: ----

| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parame | t Parameter or Type of Testing Stand Specif   |                           |  |
|------------|----------------------------------|-------------|---|---------------------------|--|
|            |                                  | ,           |   |                           |  |
|            | IoT Gateway                      |             | TX maximum e.r.p spectral<br>Density<br>ETSI EN 300 220-1 V3.1.1<br>Clause 5.3.2            | TEC ER No.<br>TEC24492301 |  |
|            |                                  |             | Tx Duty Cycle ETSI EN 300 220-1 V3.1.1 Clause 5.5.2   | TEC ER No.<br>TEC24492301 |  |
| ı          |                                  |             | TX Occupied bandwidth / Carrier bandwidth ETSI EN 300 220-1 V3.1.1                          | TEC ER No.<br>TEC24492301 |  |
|            |                                  |             | Clause 5.6.3  |                           |  |
|            |                                  |             | Out of Band / Spurious<br>Emissions (Conducted)<br>ETSI EN 300 220-1 V3.1.1<br>Clause 5.8.3 | TEC ER No.<br>TEC24492301 |  |
| ,          |                                  |             | TX Transient ETSI EN 300 220-1 V3.1.1 Clause 5.10.3   | TEC ER No.<br>TEC24492301 |  |

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#### **SCOPE OF DESIGNATION** (ANNEXURE)

**Laboratory Name:** 

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramet   | er or Type of Testing   | Standard/<br>Specification |
|------------|----------------------------------|--|---|----------------------------|
|            | TX Adaptiv<br>ETSI EN 3          | TX Adjacent channel power / TX Adaptive power control ETSI EN 300 220-1 V3.1.1 Clause 5.11.3 | TEC ER No.<br>TEC24492301   |                            |
|            |                                  |  | TX behaviour under low voltage conditions / TX Short term behavior ETSI EN 300 220-1 V3.1.1 Clause 5.12.3 | TEC ER No.<br>TEC24492301  |
|            |                                  |  | TX Adjacent channel power / TX Adaptive power control ETSI EN 300 220-1 V3.1.1 Clause 5.13.3              | TEC ER No.<br>TEC24492301  |
|            |                                  | ,  | TX FHSS<br>ETSI EN 300 220-2 V3.1.1<br>Clause 4.3.10.3  | TEC ER No.<br>TEC24492301  |

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**Laboratory Name:** 

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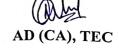
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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Standard/<br>Specification |                                |             |
|------------|----------------------------------|----------------------------|--------------------------------|-------------|
|            | IoT Gateway                      |                            | TX behaviour under low voltage | TEC ER No.  |
|            |                                  | . IAY                      | conditions / TX Short term     | TEC24492301 |
|            | 2 1 2 E 2 1                      |                            | behavior                       |             |
|            |                                  |                            | ETSI EN 300 220-1              | -           |
|            |                                  |                            | Clause 5.5.2                   |             |
|            |                                  |                            | RX sensitivity                 | TEC ER No.  |
|            |                                  | 11.51-7- 8-11              | ETSI EN 300 220-1              | TEC24492301 |
|            |                                  | THE T                      | Clause 5.14.3                  |             |
|            |                                  | . 1 1                      | Clear channel assessment       | TEC ER No.  |
|            |                                  | 1.3                        | threshold &                    | TEC24492301 |
|            |                                  |                            | ETSI EN 300 220-1 V3.1.1       |             |
|            |                                  |                            | Clause 5.21.2.3                |             |
|            |                                  |                            | Polite spectrum access timing  | TEC ER No.  |
|            |                                  |                            | parameters                     | TEC24492301 |
|            |                                  |                            | ETSI EN 300 220-1 V3.1.1       |             |
|            |                                  |                            | Clause 5.21.3.2                |             |
|            |                                  | Interface:                 | Frequency of Operation         | TEC ER No.  |
|            |                                  | GSM or                     | Latest NFAP issued             | TEC24492301 |
|            | A SA SA                          |                            | by WPC                         |             |



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| No. | Equipment/<br>Product |                 |  | Specification             |
|-----|-----------------------|-----------------|--|---------------------------|
|     | IoT Gateway           | GPRS or<br>EDGE | Transmitter Maximum output power for GSM 3GPP TS 51 010-1 Clause 13.3 EN 301 511 (GSM) Clause 4.2.5                          | TEC ER No.<br>TEC24492301 |
|     |                       |                 | Transmitter Maximum output<br>power for GPRS/EDGE<br>3GPP TS 51 010-1<br>Clause 13.16.2<br>EN 301 511 (GSM)<br>Clause 4.2.10 | TEC ER No.<br>TEC24492301 |
|     |                       |                 | Output RF Spectrum for GSM<br>3GPP TS 51 010-1 Clause 13.4<br>EN 301 511 (GSM)<br>Clause 4.2.6                               | TEC ER No.<br>TEC24492301 |

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Standard/

| No. | Equipment/<br>Product |            |                               | Specification |
|-----|-----------------------|------------|-------------------------------|---------------|
| ,   | IoT Gateway           |            | Output RF Spectrum for        | TEC ER No.    |
|     | 2.1                   |            | GPRS/EDGE                     | TEC24492301   |
|     | 1 - 1 - 1             |            | 3GPP TS 51 010-1              | 2.5           |
|     |                       |            | Clause 13.16.3                |               |
|     |                       |            | EN 301 511 (GSM)              |               |
|     |                       |            | Clause 4.2.11                 | 1             |
|     |                       | 49.00      | Spurious emissions (MS        | TEC ER No.    |
|     |                       | - "E-F-    | allocated a channel)          | TEC24492301   |
|     |                       |            | 3GPP TS 51 010-1              |               |
|     |                       |            | Clause 12.1.1                 |               |
|     |                       |            | EN 301 511 (GSM)              |               |
|     |                       |            | Clause 4.2.12                 |               |
|     | 4. 41.                |            | Spurious emission (MS in idle | TEC ER No.    |
|     |                       |            | mode)                         | TEC24492301   |
|     |                       | 7          | 3GPP TS 51 010-1              |               |
|     |                       |            | Clause 12.1.2                 |               |
|     |                       | <u>.</u> . | EN 301 511 (GSM)              |               |
|     |                       |            | Clause 4.2.13                 |               |



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| No. | Equipment/ Product | Test Parameter or Type of Testing |  | Standard/<br>Specification |
|-----|--------------------|-----------------------------------|--|----------------------------|
|     | IoT Gateway        |                                   | Frequency Error and Phase error<br>for GSM<br>3GPP TS 51 010-1 Clause 13.1<br>EN 301 511 (GSM)<br>Clause 4.2.1             | TEC ER No.<br>TEC24492301  |
|     |                    |                                   | Frequency Error and Phase error<br>for GPRS/EDGE<br>3GPP TS 51 010-1<br>Clause 13.16.1<br>EN 301 511 (GSM)<br>Clause 4.2.4 | TEC ER No.<br>TEC24492301  |
|     |                    |                                   | Reference sensitivity level<br>(speech channels)<br>3GPP TS 51 010-1<br>Clause 14.2.1<br>EN 301 511 (GSM)<br>Clause 4.2.42 | TEC ER No.<br>TEC24492301  |
|     | 4                  | .•                                | Clause 4.2.42  |                            |



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| Sl.<br>No. | 71          |                   | er or Type of Testing         | Standard/<br>Specification |
|------------|-------------|-------------------|-------------------------------|----------------------------|
|            |             | H H H H H         |                               |                            |
|            | IoT Gateway | from Effective or | Adjacent Channel Rejection    | TEC ER No.                 |
|            |             | * P               | (speech channels)             | TEC24492301                |
|            | 1 •         |                   | 3GPP TS 51 010-1              |                            |
|            |             |                   | Clause 14.5.1                 |                            |
|            |             | 7                 | EN 301 511 (GSM)              |                            |
|            |             |                   | Clause 4.2.38                 |                            |
|            |             |                   | Receiver blocking             | TEC ER No.                 |
|            | 5 12.3      |                   | 3GPP TS 51 010-1              | TEC24492301                |
|            |             | . W Ta. Tr - in   | Clause 14.7.1                 |                            |
|            | ×           |                   | EN 301 511 (GSM)              | 1                          |
|            |             | 5 30 m 7 m        | Clause 4.2.20                 |                            |
|            |             | Interface:        | Frequency of Operation        | TEC ER No.                 |
|            |             | LTE or            | Latest NFAP issued by WPC     | TEC24492301                |
|            |             | LTE-A             |                               | . 1                        |
|            |             |                   | Maximum output power          | TEC ER No.                 |
|            |             |                   | 3GPP TS 36.521-1 Clause 6.2.2 | TEC24492301                |
|            |             |                   | EN 301 908-13 (LTE)           |                            |
|            | 54.         | 4 11 1 2          | Clause 4.2.2.1                |                            |



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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Ty              | Cest Parameter or Type of Testing  |                           |  |
|------------|----------------------------------|-----------------------------------|--|---------------------------|--|
|            | IoT Gateway                      | 3GPP<br>Clause<br>EN 30<br>Clause | um emissions mask<br>TS 36.521-1<br>6.6.2.1<br>1 908-13 (LTE)<br>4.2.3.1<br>us emissions | TEC ER No. TEC24492301    |  |
|            |                                  | 3GPP Clause<br>EN 30              | TS 36.521-1<br>s 6.6.3.1, 6.6.3.2, 6.6.3.3<br>1 908-13 (LTE)<br>4.2.4.1                  | TEC ER No.<br>TEC24492301 |  |
|            |                                  | 3GPP                              | er spurious emission<br>TS 36.521-1 Clause 7.9<br>1 908-13 (LTE)<br>4.2.10               | TEC ER No.<br>TEC24492301 |  |
|            |                                  | level 3GPP                        | er Reference Sensitivity  FS 36.521-1 Clause 7.3  1 908-13 (LTE)  4.2.12                 | TEC ER No.<br>TEC24492301 |  |

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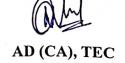
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| SI.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramete                  | er or Type of Testing   | Standard/<br>Specification |
|------------|----------------------------------|--------------------------------|---|----------------------------|
|            | IoT Gateway                      |                                | Receiver Adjacent Channel<br>Selectivity<br>(ACS)<br>3GPP TS 36.521-1 Clause 7.5<br>EN 301 908-13 (LTE)<br>Clause 4.2.6.1 | TEC ER No.<br>TEC24492301  |
|            |                                  |                                | Receiver In-band blocking<br>3GPP TS 36.521-1 Clause 7.6.1<br>EN 301 908-13 (LTE)<br>Clause 4.2.7.1                       | TEC ER No.<br>TEC24492301  |
| P          |                                  | Interface:<br>WCDMA or<br>HSPA | Frequency of Operation Latest NFAP issued by WPC  | TEC ER No.<br>TEC24492301  |
|            |                                  |                                | Transmitter Maximum output<br>power<br>3GPP TS 34.121-1 Clause 5.2<br>EN 301 908-2 (UMTS)<br>Clause 4.2.2.1               | TEC ER No.<br>TEC24492301  |



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| No.             | Equipment/<br>Product   | · · · · · · · · · · · · · · · · · · ·   | Specification             |
|-----------------|---|---|---------------------------|
|                 | Transmitter Spectrum emission mask 3GPP TS 34.121-1 Clause 5.9 EN 301 908-2 (UMTS) Clause 4.2.3.1 | TEC ER No.<br>TEC24492301   |                           |
| es <sup>2</sup> |   | Transmitter spurious emissions<br>3GPP TS 34.121-1 Clause 5.11<br>EN 301 908-2 (UMTS)<br>Clause 4.2.4.1       | TEC ER No.<br>TEC24492301 |
|                 |   | Receiver spurious emission<br>3GPP TS 34.121-1 Clause 6.8<br>EN 301 908-2 (UMTS)<br>Clause 4.2.10             | TEC ER No.<br>TEC24492301 |
|                 |   | Transmitter Minimum Output<br>Power<br>3GPP TS 34.121-1 Clause 5.4.3<br>EN 301 908-2 (UMTS)<br>Clause 4.2.5.1 | TEC ER No.<br>TEC24492301 |



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| Sl.<br>No. | Telecom Equipment/ Product  IoT Gateway | Test Parameter or Type of Testing |  | Standard/<br>Specification |
|------------|---|-----------------------------------|--|----------------------------|
|            |   |                                   | Receiver Reference sensitivity<br>level<br>3GPP TS 34.121-1 Clause 6.2<br>EN 301 908-2 (UMTS)<br>Clause 4.2.13       | TEC ER No.<br>TEC24492301  |
|            |   |                                   | Receiver Adjacent Channel<br>Selectivity (ACS)<br>3GPP TS 34.121-1 Clause 6.4<br>EN 301 908-2 (UMTS)<br>Clause 4.2.6 | TEC ER No.<br>TEC24492301  |
|            |   |                                   | Receiver In-band blocking<br>3GPP TS 34.121-1<br>Clause 6.5.2.1<br>EN 301 908-2 (UMTS)<br>Clause 4.2.7               | TEC ER No.<br>TEC24492301  |
|            |   | Interface:<br>NFC                 | Frequency of Operation of interface ETSI EN 300 330 V2.1.1 Clause 6.2.2  | TEC ER No.<br>TEC24492301  |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Parameter or Type of Testing |   | Standard/<br>Specification   |
|------------|----------------------------------|-----------------------------------|---|--|
|            | IoT Gateway                      |                                   | Permitted Frequency Range ETSI EN 300 330 V2.1.1 Clause 4.3.1 Modulation bandwidth ETSI EN 300 330 V2.1.1 Clause 6.2.3 Transmitter H-field ETSI EN 300 330 V2.1.1 Clause 6.2.4 Transmitter conducted spurious emissions ETSI EN 300 330 V2.1.1 Clause 6.2.7 Transmitter radiated spurious domain emission limits < 30 MHz | TEC ER No. TEC24492301  TEC ER No. TEC24492301  TEC ER No. TEC24492301  TEC ER No. TEC24492301  TEC ER No. TEC24492301 |
| \$         |                                  |                                   | ETSI EN 300 330 V2.1.1<br>Clause 6.2.8  |  |

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| Sl.<br>No. | Telecom<br>Equipment/<br>Product | Test Paramet | Standard/<br>Specification   |   |
|------------|----------------------------------|--------------|--|---|
|            | IoT Gateway                      |              | Transmitter radiated spurious domain emission limits >30 MHz ETSI EN 300 330 V2.1.1 Clause 6.2.9                       | TEC ER No.<br>TEC24492301                     |
|            |                                  |              | Transmitter Frequency stability ETSI EN 300 330 V2.1.1 Clause 6.2.10 Receiver spurious Emission ETSI EN 300 330 V2.1.1 | TEC ER No. TEC24492301 TEC ER No. TEC24492301 |
|            |                                  |              | Clause 6.3.1  Adjacent channel selectivity ETSI EN 300 330 V2.1.1  Clause 6.3.2  | TEC ER No.<br>TEC24492301                     |
|            | ***                              |              | Receiver blocking<br>ETSI EN 300 330 V2.1.1<br>Clause 6.3.3  | TEC ER No.<br>TEC24492301                     |



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