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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 Envitest Laboratories Private Limited, Bangalore

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

No. 14-1510, Shamanna Reddy Layout, Garvebhavi Palya, Hosur Road, Maruthi Timber Road, Bangalore Urban –560 068

In the field of Testing

Certificate No. TEC/MRA/CAB/IND-D/91

Issue Date: 04/04/2024 **Validity: 04/04/2024 to 03/04/2027**

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

Signed by Vijay Dixit
Date: 04-04-2024 11:48:02

Vijay Dixit
Director (CA)
For Designating Authority
TEC

Certificate No: TEC/MRA/CAB/IND-D/91 dated 04/04/2024 issued to
M/s Envitest Laboratories Private Limited, Bangalore
No.14-1510, Shamanna Reddy Layout, Garvebhavi Palya,
Hosur Road, Maruthi Timber Road, Bangalore Urban –560 068

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Validity: - 04/04/2024 to 03/04/2027

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 3 NO. TEC 04019:2023.

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.

*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.

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SCOPE OF DESIGNATION
(ANNEXURE)

Laboratory Name: **M/s Envitest Laboratories Private Limited, Bangalore**
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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 1 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
1.	PON Family of Broadband Equipment	Parameters Linked with Product Variant	Frame loss of PON RFC 2544. Annex-J3	TEC ER No. TEC14762401
			Latency of PON RFC 2544. Annex-J3	TEC ER No. TEC14762401
			MAC Address Learning and Aging Control G.984.1 Annex-J3	TEC ER No. TEC14762401
			MAC Address Limitation in PON IEEE 802.3 Annex-J3	TEC ER No. TEC14762401
			MAC Learning Support at OLT G.984.1. Annex-J3	TEC ER No. TEC14762401
			ECR TEC 74046 Annex-R	TEC ER No. TEC14762401
			Maximum Bandwidth Limiting in PON Annex-J3	TEC ER No. TEC14762401
			Minimum Two Classification in PON Annex-J3	TEC ER No. TEC14762401
			Password Based Authentication in PON ITU-T G. 988, IEEE 802.3 Annex-J3	TEC ER No. TEC14762401
			Port-id Based VLAN Support at OLT G.984.1 IEEE 802.1Q Annex-J3	TEC ER No. TEC14762401
			Switch Fabric Throughput Capability OLT Annex-J3	TEC ER No. TEC14762401

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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Parameters Linked with Product Variant**	VLAN Stacking to Network Support at OLT IEEE 802.1ad & IEEE 802.1Q (testing procedure), Annex J3	TEC ER No. TEC14762401
			Dual IP Layer Operation RFC 4213 – Address RFC 4213 Cl. 2.1. Annex-P6	TEC ER No. TEC14762401
			Dual IP Layer Operation RFC 4213 –DNS RFC 4213 Cl. 2.2 Annex-P6	TEC ER No. TEC14762401
			IPV6 Extn Header Parameters RFC 2460 or RFC 8200 Annex-P7	TEC ER No. TEC14762401
			IPV6 Header Parameters RFC 2460 / RFC 8200 Annex-P7	TEC ER No. TEC14762401
		Interface: EPON	Operating Wavelength in Upstream direction for EPON Int. IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401
			Operating Wavelength in downstream direction for EPON Int. IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401
			Optical Output Power for EPON Int. at OLT IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401
			Optical Output Power for EPON Int. at ONT IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity for EPON Int. at OLT IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401

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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 3 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: EPON**	Receiver Sensitivity for EPON Int. at ONT IEEE 802.3ah, Annex-J2	TEC ER No. TEC14762401
			Throughput IEEE 802.3ah, RFC 2544 Annex-J3	TEC ER No. TEC14762401
		Interface: GPON	Operating Wavelength in Upstream direction G.984.2, Cl. 8.2.5.2 Annex-J2	TEC ER No. TEC14762401
			Operating Wavelength in downstream direction G.984.2, Cl. 8.2.5.1 Annex-J2	TEC ER No. TEC14762401
			Opt Output Power for GPON Int. at OLT G.984.2, Annex-J2	TEC ER No. TEC14762401
			Opt Output Power for GPON Int. at ONT G.984.2, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity for GPON Int. at OLT G.984.2, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity for GPON Int. at ONT G.984.2, Annex-J2	TEC ER No. TEC14762401
			Throughput for GPON Interface G.984.2/ Cl. 8.2.1 RFC 2544, Annex-J3	TEC ER No. TEC14762401
		Interface: NGPON2	Operating Wavelength in downstream direction for NGPON2 Interface G.989.2, Annex-J2	TEC ER No. TEC14762401
			Operating Wavelength in upstream direction for NGPON2 Interface G.989.2, Annex-J2	TEC ER No. TEC14762401

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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: NGPON2**	Optical Output Power for NGPON2 Interface at OLT G.989.2, Annex-J2	TEC ER No. TEC14762401
			Optical Output Power for NGPON2 Interface at ONT G.989.2, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity for NGPON2 Interface at OLT G.989.2, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity for NGPON2 Interface at ONT G.989.2, Annex-J2	TEC ER No. TEC14762401
			Throughput G.989.2, RFC 2544, Annex-J3	TEC ER No. TEC14762401
		Interface: XGPON	Operating Wavelength in downstream direction for XGPON Interface ITU-T G.987.2, Annex-J2	TEC ER No. TEC14762401
			Operating Wavelength in upstream direction for XGPON Interface ITU-T G.987.2, Annex-J2	TEC ER No. TEC14762401
			Opt Output Power XGPON Interface at OLT G.987.2, Annex-J2	TEC ER No. TEC14762401
			Opt Output Power XGPON Int. at ONT G.987.2, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity XGPON Int. at OLT G.987.2, Annex-J2	TEC ER No. TEC14762401

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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 5 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: XGPON**	Receiver Sensitivity XGPON Int. at ONT G.987.2, Annex-J2	TEC ER No. TEC14762401
			Throughput G.987.1, RFC 2544 Annex-J3	TEC ER No. TEC14762401
		Interface: XGSPON	Operating wavelength in upstream direction XGSPON Interface G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Operating wavelength in downstream direction XGSPON Interface G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Optical Output Power XGSPON Interface at OLT G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Opt Output Power XGSPON Interface at ONT G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity XGSPON Int. at OLT G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Receiver Sensitivity XGSPON Int. at ONT G.9807.1, Annex-J2	TEC ER No. TEC14762401
			Throughput G.9807.1, RFC 2544, Annex-J3	TEC ER No. TEC14762401
		Interface: 1 G Optical Ethernet	Average Launch Power IEEE 802.3z Cl. 38, Annex-H	TEC ER No. TEC14762401

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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 6 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: 1 G Optical Ethernet**	Receiver Sensitivity IEEE 802.3z Cl. 38, Annex-H	TEC ER No. TEC14762401
			Wavelength IEEE 802.3z Cl. 38, Annex-H	TEC ER No. TEC14762401
		Interface: 10 G Optical Ethernet	Average Launch Power IEEE 802.3ae Cl. 52, Annex-H	TEC ER No. TEC14762401
			Receiver Sensitivity IEEE 802.3ae Cl. 52, Annex-H	TEC ER No. TEC14762401
			Wavelength IEEE 802.3ae Cl. 52, Annex-H	TEC ER No. TEC14762401
		Interface: 100 G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl. 86 88, Annex-H	TEC ER No. TEC14762401
			Receiver Sensitivity IEEE 802.3ba Cl. 86 88, Annex-H	TEC ER No. TEC14762401
			Wavelength IEEE 802.3ba Cl. 86 88, Annex-H	TEC ER No. TEC14762401
		Interface: 40 G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl. 86 87, Annex-H	TEC ER No. TEC14762401
			Receiver Sensitivity IEEE 802.3ba Cl. 86 87, Annex-H	TEC ER No. TEC14762401
			Wavelength IEEE 802.3ba Cl. 86 87, Annex-H	TEC ER No. TEC14762401

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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 7 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: 25 G Optical Ethernet**	Average Launch Power IEEE 802.3-2018 Cl. 114, Annex-H	TEC ER No. TEC14762401
			Receiver Sensitivity IEEE 802.3-2018 Cl. 114, Annex-H	TEC ER No. TEC14762401
			Wavelength IEEE 802.3-2018 Cl. 114, Annex-H	TEC ER No. TEC14762401
		Interface: Fast Ethernet Optical	Average Launch Power for FE Optical IEEE 802.3u Annex-H	TEC ER No. TEC14762401
			Receiver Sensitivity for FE Optical IEEE 802.3u Annex-H	TEC ER No. TEC14762401
			Wavelength for FE Optical IEEE 802.3u Annex-H	TEC ER No. TEC14762401
		Interface: 10 BASE-T Ethernet	Link Speed IEEE 802.3 Annex-H	TEC ER No. TEC14762401
		Interface: 10/ 100 BASE-T Ethernet	Link Speed and Auto negotiation Test FE IEEE 802.3 Annex-H	TEC ER No. TEC14762401
		Interface: 10/ 100/1000 BASE-T Ethernet	Link Speed and Auto negotiation Test GE IEEE 802.3 Annex-H	TEC ER No. TEC14762401
		Interface: 2 Mbps-E1	Input Jitter Tolerance for 2 Mbps Int. ITU-T G.823/ETSI TBR-4. Annex-I	TEC ER No. TEC14762401

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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: 2 Mbps-E1**	Input Return Loss for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.3.1 Annex-I	TEC ER No. TEC14762401
			Nominal Bit Rate with Tolerance for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.2.3 Annex-I	TEC ER No. TEC14762401
			Output Jitter for 2 Mbps Int. ITU-T G.823 / ETSI TBR-4 Annex-I	TEC ER No. TEC14762401
			Pulse Mask for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.2.1 Annex-I	TEC ER No. TEC14762401
		Interface: STM-1 Optical	Mean Launched Power for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC14762401
			Nominal Bit Rate with Tolerance for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC14762401
			Operating Wavelength Range for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC14762401
			Receiver Overload for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC14762401
			Receiver Sensitivity for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC14762401

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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	PON Family of Broadband Equipment	**Interface: 2 Wire**	Idle State Current ETSI EN 300 001 ETSI TBR-21 Cl. 4.4.1, Annex-D	TEC ER No. TEC14762401
			Insulation Test ETSI EN 300 001, Annex-D	TEC ER No. TEC14762401
			Maximum Loop Current ETSI EN 300 001 ETSI TBR-21 Cl. 4.4.3, Annex-D	TEC ER No. TEC14762401
2.	**LAN Switch**	**Parameters Linked with Product Variant**	Dynamic Routing Annex-P11	TEC ER No. TEC37942403
			IPV4 Parameters Set-D RFC 791, Annex-P11	TEC ER No. TEC37942403
			IPV6 RFC 2460 RFC 8200, Annex-P11	TEC ER No. TEC37942403
			MAC Learning and Packet Forwarding Annex-P11	TEC ER No. TEC37942403
			Spanning Tree Protocol IEEE 802.1d, Annex-P11	TEC ER No. TEC37942403
			Static Routing Annex-P11	TEC ER No. TEC37942403
		Interface: 10/100 BASE-T Ethernet	Link Speed and Auto Negotiation Test FE IEEE 802.3 Annex-H	TEC ER No. TEC37942403
		Interface: 10/100/1000 BASE-T Ethernet	Link Speed and Auto Negotiation Test GE IEEE 802.3 Annex-H	TEC ER No. TEC37942403

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Certificate Number: TEC/MRA/CAB/IND-D/91 **Page 10 of 21**

Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	LAN Switch	**Interface: 1G Optical Ethernet**	Average Launch Power, IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37942403
		Interface: 10G Optical Ethernet	Average Launch Power IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37942403
		Interface: 100G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl 86,88, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3ba Cl 86,88, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3ba Cl 86, 88. Annex-H	TEC ER No. TEC37942403
		Interface: 40G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37942403
		Interface: Fast Ethernet Optical	Average Launch Power IEEE 802.3u, Annex-H	TEC ER No. TEC37942403

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	LAN Switch	**Interface: Fast Ethernet Optical**	Receiver Sensitivity IEEE 802.3u, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3u, Annex-H	TEC ER No. TEC37942403
		Interface: 25G Optical Ethernet	Average Launch Power IEEE 802.3 - 2018 Cl. 114	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3 - 2018 Cl. 114	TEC ER No. TEC37942403
			Wavelength, IEEE 802.3 - 2018 Cl. 114	TEC ER No. TEC37942403
		Interface: 200G Optical Ethernet	Average Launch Power IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37942403
		Interface: 400G Optical Ethernet	Average Launch Power IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37942403
			Receiver Sensitivity IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37942403
			Wavelength IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37942403
		Interface: 2 Mbps–E1	Input Jitter Tolerance for 2 Mbps Int. ITU-T G.823/ETSI TBR-4, Annex-I	TEC ER No. TEC37942403
			Input Return Loss for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.3.1 Annex-I	TEC ER No. TEC37942403

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SCOPE OF DESIGNATION
(ANNEXURE)

Laboratory Name: **M/s Envitest Laboratories Private Limited, Bangalore**
No.14-1510, Shamanna Reddy Layout, Garvebhavi Palya,
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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	LAN Switch	**Interface: 2 Mbps–E1**	Nominal Bit Rate with Tolerance for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.2.3, Annex-I	TEC ER No. TEC37942403
			Output Jitter for 2 Mbps Int. ITU-T G.823 / ETSI TBR-4, Annex-I	TEC ER No. TEC37942403
			Pulse Mask for 2 Mbps Int. ITU-T G.703 / ETSI TBR-4 Cl. 9.2.1, Annex-I	TEC ER No. TEC37942403
		Interface: 34 Mbps-E3	Input Jitter Tolerance ITU-T G.823 Annex-I	TEC ER No. TEC37942403
			Nominal Bit Rate with Tolerance ITU-T G.703Annex-I	TEC ER No. TEC37942403
			Output Jitter ITU-T G.823 Annex-I	TEC ER No. TEC37942403
			Pulse Mask ITU-T G.703 Annex-I	TEC ER No. TEC37942403
		Interface: STM-1 Optical	Mean Launched Power for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC37942403
			Nominal Bit Rate with Tolerance for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC37942403
			Operating Wavelength Range for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC37942403

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	LAN Switch	**Interface: STM-1 Optical**	Receiver Overload for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC37942403
			Receiver Sensitivity for STM-1 Optical Interface ITU-T G.957, Annex-K	TEC ER No. TEC37942403
		Interface: STM-4 Optical	Mean Launched Power ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Nominal Bit Rate with Tolerance. ITU-T G.957 Annex-K	TEC ER No. TEC37942403
			Operating Wavelength Range ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Receiver Overload ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Receiver Sensitivity ITU-T G.957. Annex-K	TEC ER No. TEC37942403
		Interface: STM-16 Optical	Mean Launched Power ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Nominal Bit Rate with Tolerance ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Operating Wavelength Range ITU-T G.957. Annex-K	TEC ER No. TEC37942403
			Receiver Overload (TU-T G.957. Annex-K	TEC ER No. TEC37942403
			Receiver Sensitivity ITU-T G.957. Annex-K	TEC ER No. TEC37942403

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
3.	**Router**	**Parameters Linked with Product Variant**	BGP for IPv6 RFC 2545, Annex-P11	TEC ER No. TEC37682308
			BGP4 as per RFC 4271, Annex-P11	TEC ER No. TEC37682308
			IPv6 Dual Stack RFC 4213 clause 2.1 and 2.2, Annex-P6	TEC ER No. TEC37682308
			OSPFv2 RFC 2328 Annex-P11	TEC ER No. TEC37682308
			OSPFv3 for IPv6 RFC 2740 Annex-P11	TEC ER No. TEC37682308
			PPPoE RFC 2516. Annex-P11	TEC ER No. TEC37682308
			Radius as per RFC 2865	TEC ER No. TEC37682308
			Static Routing Annex-P11	TEC ER No. TEC37682308
			TCP Parameters RFC 793, Annex-P11	TEC ER No. TEC37682308
			Dynamic Routing Annex-P11	TEC ER No. TEC37682308
			IPv4 Set-D RFC 791, Annex-P11	TEC ER No. TEC37682308
			LDP as per RFC 5036 RFC 5036 Annex-P11	TEC ER No. TEC37682308
		Interface: 10/100 BASE-T Ethernet	Link Speed and Auto Negotiation Test FE IEEE 802.3 Annex-H	TEC ER No. TEC37682308

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: 10/100/1000 BASE-T Ethernet**	Link Speed and Auto Negotiation Test GE IEEE 802.3 Annex-H	TEC ER No. TEC37682308
		Interface: 1G Optical Ethernet	Average Launch Power, IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37682308
			Wavelength IEEE 802.3z Cl 38, Annex-H	TEC ER No. TEC37682308
		Interface: 10G Optical Ethernet	Average Launch Power IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37682308
			Wavelength IEEE 802.3ae Cl 52, Annex-H	TEC ER No. TEC37682308
		Interface: 100G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl 86,88, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3ba Cl 86,88, Annex-H	TEC ER No. TEC37682308
			Wavelength IEEE 802.3ba Cl 86, 88, Annex-H	TEC ER No. TEC37682308
		Interface: 40G Optical Ethernet	Average Launch Power IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37682308

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: 40G Optical Ethernet**	Wavelength IEEE 802.3ba Cl 86,87, Annex-H	TEC ER No. TEC37682308
		Interface: Fast Ethernet Optical	Average Launch Power IEEE 802.3u, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3u, Annex-H	TEC ER No. TEC37682308
			Wavelength IEEE 802.3u, Annex-H	TEC ER No. TEC37682308
		Interface: 25G Optical Ethernet	Average Launch Power IEEE 802.3 - 2018 Cl. 114, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3 - 2018 Cl. 114, Annex-H	TEC ER No. TEC37682308
			Wavelength, IEEE 802.3 - 2018 Cl. 114, Annex-H	TEC ER No. TEC37682308
		Interface: 200G Optical Ethernet	Average Launch Power IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37682308
			Wavelength IEEE 802.3cn Cl 121 122, Annex-H	TEC ER No. TEC37682308
		Interface: 400G Optical Ethernet	Average Launch Power IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37682308
			Receiver Sensitivity IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37682308

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: 400G Optical Ethernet**	Wavelength IEEE 802.3cn Cl 122 124, Annex-H	TEC ER No. TEC37682308
		Interface: 2 Mbps–E1	Input Return Loss ITU-T G.703 / ETSI TBR-4 Cl. 9.3.1, Annex-I	TEC ER No. TEC37682308
			Input Jitter Tolerance ITU-T G.823 / ETSI TBR-4, Annex-I	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.703 / ETSI TBR-4, Cl. 9.2.3, Annex-I	TEC ER No. TEC37682308
			Output Jitter ITU-T G.823 / ETSI TBR-4, Annex-I	TEC ER No. TEC37682308
			Pulse Mask (ITU-T G.703 / ETSI TBR-4, Cl. 9.2.1, Annex-I	TEC ER No. TEC37682308
		Interface: 34 Mbps-E3	Input Jitter Tolerance. ITU-T G.823, Annex-I	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.703, Annex-I	TEC ER No. TEC37682308
			Output Jitter ITU-T G.823, Annex-I	TEC ER No. TEC37682308
			Pulse Mask ITU-T G.703, Annex-I	TEC ER No. TEC37682308

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: PRI**	Input Return Loss for PRI G.703 Cl. 11.3 ETSI TBR-4, Cl. 9.3.1, Annex-I	TEC ER No. TEC37682308
			Input Jitter Tolerance for PRI G.823 I.431 ETSI TBR-4, Annex-I	TEC ER No. TEC37682308
			Output Jitter for PRI G.823 I.431 ETSI TBR-4, Annex-I	TEC ER No. TEC37682308
			Pulse Mask for PRI G.703 Cl. 11.2 ETSI TBR-4, Cl. 9.2.1, Annex-I	TEC ER No. TEC37682308
		Interface: STM-1 Electrical	Input Jitter Tolerance ITU-T G.825 Annexure-K	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.703, Annexure-K	TEC ER No. TEC37682308
			Output Jitter ITU-T G.825, Annexure-K	TEC ER No. TEC37682308
			Pulse Mask ITU-T G.703, Annexure-K	TEC ER No. TEC37682308
		Interface: STM-1 Optical	Mean Launched Power ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Operating Wavelength Range ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Receiver Overload. ITU-T G.957, Annex-K	TEC ER No. TEC37682308

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Validity: 04/04/2024 to 03/04/2027 **Last Amended on: ----**

Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: STM-1 Optical**	Receiver Sensitivity ITU-T G.957, Annex-K	TEC ER No. TEC37682308
		Interface: STM-4 Optical	Mean Launched Power ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Operating Wavelength Range ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Receiver Overload ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Receiver Sensitivity ITU-T G.957, Annex-K	TEC ER No. TEC37682308
		Interface: STM-16 Optical	Mean Launched Power ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Operating Wavelength Range ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Receiver Overload ITU-T G.957, Annex-K	TEC ER No. TEC37682308
			Receiver Sensitivity ITU-T G.957, Annex-K	TEC ER No. TEC37682308
		Interface: STM-64 Optical	Mean Launched Power ITU-T G.691, Annex-K	TEC ER No. TEC37682308
			Nominal Bit Rate with Tolerance ITU-T G.707, Annex-K	TEC ER No. TEC37682308

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing		Standard/ Specification
	Router	**Interface: STM-64 Optical**	Receiver Overload ITU-T G.691, Annex-K	TEC ER No. TEC37682308
			Receiver Sensitivity ITU-T G.691, Annex-K	TEC ER No. TEC37682308
			Operating Wavelength Range ITU-T G.691, Annex-K	TEC ER No. TEC37682308
4.	**Environmental Testing of Telecommunication Equipment**	Low Temperature (Cold Cycle) Test		QM-333 Issue March 2010
		High Temperature (Dry Heat Cycle) Test		QM-333 Issue March 2010
		Tropical Exposure (Damp Heat Cyclic) Test		QM-333 Issue March 2010
		Rapid Temperature Cycle Test		QM-333 Issue March 2010
		Damp Heat (Steady State) Test		QM-333 Issue March 2010
		Vibration Test		QM-333 Issue March 2010
		Sealing (Gas Tightness)/ High Altitude Test		QM-333 Issue March 2010
		Water Immersion Test		QM-333 Issue March 2010
		Corrosion- Salt Test		QM-333 Issue March 2010
		Drop Test		QM-333 Issue March 2010
		Topple Test		QM-333 Issue March 2010

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Sl. No.	Telecom Equipment/ Product	Test Parameter or Type of Testing	Standard/ Specification
	Environmental Testing of Telecommunication Equipment	Fall Test	QM-333 Issue March 2010
		Bump/Roadability Test	QM-333 Issue March 2010
		Rain Test	QM-333 Issue March 2010
		Dust Test	QM-333 Issue March 2010

Signed by Sanjay Bhardwaj
Date: 04-04-2024 12:01:26

AD (CA), TEC

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