

**अनिवार्य आवश्यकताएँ**

**संख्या : TEC16632108**

**Essential Requirements**

**ER No. : TEC16632108**

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**Modem**

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**Telecommunication Engineering Centre**

**Government of India**

**Khurshid Lal Bhawan, Janpath, New Delhi-110001, INDIA**

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## Essential Requirements for:

### Modem

Certification Scheme: **SCS**

Product Fee Group: **A**

This ER covers all types of Data Modem connectable on 2-wire Analog Line

*Note: Annexures referred to in this ER are Annexures as mentioned in "Annexures to ERs" No. TEC/SD/DD/TCP-222/02/June19 as updated from time to time and available on MTCTE portal.*

This product has the following variants:

1. V.90 or V.92 or V.21 to V.34 Modem

1. **Variant 1 : V.90 or V.92 or V.21 to V.34 Modem**

#### 1.1 Parameters Linked with Product Variant

S.No.	Parameter Name	Standard Name
1.1.1	Conducted And Radiated Emission - Class B	TEC EMI EMC Standard CISPR 22/32 EN55022/32. Annex-B
1.1.2	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B
1.1.3	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
1.1.4	Immunity to Electrostatic Discharge	TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B
1.1.5	Immunity to Fast Transients (Burst)	TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B
1.1.6	Immunity to Radiated RF	TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B
1.1.7	Immunity to RF Field Induced Conducted	TEC EMI EMC Standard EN/IEC:61000-4-6.

	Disturbance	Annex-B
1.1.8	Immunity to Surges	TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B
1.1.9	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
1.1.10	Modem Receiver Signal	V.34 (para 6.6). Annex-D
1.1.11	Modem Transmit Power	T.4 (-3dBm to -15 dbm). Annex-D
1.1.12	Over Voltage and over Current Protection on 2W	K.21. Annex-D

### 1.2 Interface 1 : 2 Wire

S.No.	Parameter Name	Standard Name
1.2.1	Idle State Current for 2 wire Int	ETSI EN 300 001 ETSI TBR-21 Cl. 4.4.1. Annex-D
1.2.2	Insulation Test for 2 wire Int	ETSI EN 300 001. Annex-D
1.2.3	Longitudinal Conversion Loss for 2W Int	Q.552 Cl. 2.2.2. Annex-D
1.2.4	Maximum Loop Current for 2W Int	ETSI EN 300 001 ETSI TBR-21 Cl.4.4.3. Annex-D
1.2.5	Return Loss for 2W Int	Q.552 Cl. 2.2.1.2. Annex-D

### 1.3 Interface 2 : ISDN BRI

S.No.	Parameter Name	Standard Name
1.3.1	Layer-III BRI Specification - Call Clearing	Q.931. Annex-D1
1.3.2	Layer-III BRI Specification - Call Setup	Q.931. Annex-D1