

**अनिवार्य आवश्यकताएँ**

**संख्या : TEC28822108**

**Essential Requirements**

**ER No. : TEC28822108**

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**Smart Camera**

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MTCTE के तहत जारी:

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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:

### Smart Camera

Certification Scheme: **GCS**

Product Fee Group: **B**

This ER covers Smart / CCTV camera with Wireless and Wired connectivity

*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. Smart Security Camera

##### 1. Variant 1 : Smart Security Camera

###### 1.1 Parameters Linked with Product Variant

| S.No. | Parameter Name   | Standard Name  |
|-------|--|--|
| 1.1.1 | Conducted And Radiated Emission - Class A                | TEC EMI EMC Standard CISPR 22/32 EN55022/32. Annex-B |
| 1.1.2 | Conducted And Radiated Emission - Class B                | TEC EMI EMC Standard CISPR 22/32 EN55022/32. Annex-B |
| 1.1.3 | Dual IP Parameters                                       | RFC 4213. Annex-P6                                   |
| 1.1.4 | Immunity to AC Voltage Dips and Short Interruptions      | TEC EMI EMC Standard EN/IEC:61000-4-11. Annex-B      |
| 1.1.5 | Immunity to DC Voltage Dips and Short Interruptions      | EN/IEC:61000-4-29. Annex-B                           |
| 1.1.6 | Immunity to Electrostatic Discharge (Level 2 or Level 3) | TEC EMI EMC Standard EN/IEC:61000-4-2. Annex-B       |
| 1.1.7 | Immunity to Fast Transients (Burst)                      | TEC EMI EMC Standard EN/IEC:61000-4-4. Annex-B       |

|        |  |  |
|--------|--|--|
| 1.1.8  | Immunity to Radiated RF                            | TEC EMI EMC Standard EN/IEC:61000-4-3. Annex-B     |
| 1.1.9  | Immunity to RF Field Induced Conducted Disturbance | TEC EMI EMC Standard EN/IEC:61000-4-6. Annex-B     |
| 1.1.10 | Immunity to Surges                                 | TEC EMI EMC Standard EN/IEC:61000-4-5. Annex-B     |
| 1.1.11 | IoT Dev - Non-0 IMEI or MEID or Unique MAC         | Annex-M  |
| 1.1.12 | IPV4 Parameters                                    | RFC 791. Annex-P6                                  |
| 1.1.13 | IPV6 Parameters                                    | RFC 2460 / 8200. Annex-P7                          |
| 1.1.14 | IT Equipment Safety                                | IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1 |

## 1.2 Interface 1 : 1 G Optical Ethernet

| S.No. | Parameter Name                    | Standard Name               |
|-------|-----------------------------------|-----------------------------|
| 1.2.1 | Average Launch power for 1 GE Opt | IEEE 802.3z Cl. 38. Annex-H |
| 1.2.2 | Receiver Sensitivity 1 GE Opt     | IEEE 802.3z Cl. 38. Annex-H |
| 1.2.3 | Wavelength for 1 GE Opt           | IEEE 802.3z Cl. 38. Annex-H |

## 1.3 Interface 2 : 10 100 1000 BASE-T Ethernet

| S.No. | Parameter Name                         | Standard Name       |
|-------|--|---------------------|
| 1.3.1 | Link Speed and Autonegotiation Test GE | IEEE 802.3. Annex-H |

## 1.4 Interface 3 : 10 100 BASE-T Ethernet

| S.No. | Parameter Name                         | Standard Name      |
|-------|--|--------------------|
| 1.4.1 | Link Speed and Autonegotiation Test FE | IEEE 802.3 Annex-H |

## 1.5 Interface 4 : ADSL

| S.No. | Parameter Name                        | Standard Name            |
|-------|---------------------------------------|--------------------------|
| 1.5.1 | Bit Rate for ADSL Int                 | ANSI.T1.413-2. Annex-J1  |
| 1.5.2 | Impulse Noise Protection for ADSL Int | Annex-J1                 |
| 1.5.3 | Insulation Test for 2 wire Int        | ETSI EN 300 001. Annex-D |
| 1.5.4 | Insulation Test for ADSL Int          | Annex-J1                 |

|       |  |                           |
|-------|--|---------------------------|
| 1.5.5 | Line Port impedance for ADSLx Int        | Annex-J1                  |
| 1.5.6 | Loop resistance for ADSLx                | ETSI EN 300 001. Annex-J1 |
| 1.5.7 | PSD for ADSL Int                         | G.992.3 G992.5. Annex-J1  |
| 1.5.8 | Transmitted Power At ATU-C for ADSLx Int | Annex-J1                  |

### 1.6 Interface 5 : BLE for IoT

| S.No. | Parameter Name                           | Standard Name                                   |
|-------|--|---|
| 1.6.1 | Basic RF Requirements for BLE Interface  | Annex G4 (4.4 to 4.15). ETSI EN 300 328 V2.2.2. |
| 1.6.2 | EIRP for BLE Interface                   | WPC GSR 45(E). Annex-G4 (4.2)                   |
| 1.6.3 | Frequency of Operation for BLE Interface | Latest NFAP. Annex-G4(4.1)                      |
| 1.6.4 | Maximum Transmitted Power for BLE Int    | WPC GSR 45(E). Annex-G4 (4.3)                   |

### 1.7 Interface 6 : CDMA

| S.No. | Parameter Name                   | Standard Name                           |
|-------|----------------------------------|---|
| 1.7.1 | CDMA Int Parameters              | 1xS0011 or EN 301 908-04 CDMA. Annex-F9 |
| 1.7.2 | Operating Frequency for CDMA Int | NFAP. Annex-F                           |

### 1.8 Interface 7 : Fast Ethernet Optical

| S.No. | Parameter Name                  | Standard Name        |
|-------|---------------------------------|----------------------|
| 1.8.1 | Average Launch power for FE Opt | IEEE 802.3u. Annex-H |
| 1.8.2 | Receiver Sensitivity for FE Opt | IEEE 802.3u. Annex-H |
| 1.8.3 | Wavelength for FE Opt           | IEEE 802.3u. Annex-H |

### 1.9 Interface 8 : GSM or GPRS or EDGE

| S.No. | Parameter Name                                  | Standard Name                             |
|-------|---|---|
| 1.9.1 | Int Parameters for GSM or GPRS or EDGE          | 3GPP TS 51 010-1 or EN 301 511. Annex-F10 |
| 1.9.2 | Operating Frequency for GSM or GPRS or EDGE Int | NFAP. Annex-F                             |

### 1.10 Interface 9 : LTE or LTE-A

| S.No.  | Parameter Name                           | Standard Name                                |
|--------|--|--|
| 1.10.1 | Int Parameters for LTE or LTE-A          | 3GPP TS 36.521-1 or EN 301 908-13. Annex-F12 |
| 1.10.2 | Operating Frequency for LTE or LTE-A Int | NFAP. Annex-F                                |

### 1.11 Interface 10 : NFC for IoT

| S.No.  | Parameter Name                      | Standard Name                                   |
|--------|-------------------------------------|---|
| 1.11.1 | Basic RF Requirements for NFC - Int | Annex- G6 (6.2 to 6.13). ETSI EN 300 330 V2.1.1 |
| 1.11.2 | Frequency of Operation for NFC Int  | Latest NFAP. Annex-G6(6.1)                      |

### 1.12 Interface 11 : SHDSL

| S.No.  | Parameter Name                                | Standard Name     |
|--------|---|-------------------|
| 1.12.1 | Impedance Unbalance About Earth for SHDSL Int | G.991.2. Annex-J1 |
| 1.12.2 | Insulation Resistance for SHDSL int           | G.991.2. Annex-J1 |
| 1.12.3 | LCL for SHDSL Interface                       | G.991.2. Annex-J1 |
| 1.12.4 | PSD for SHDSL Int                             | G.991.2. Annex-J1 |
| 1.12.5 | Return Loss for SHDSL                         | G.991.2. Annex-J1 |
| 1.12.6 | Throughput for SHDSL Interface                | G.991.2. Annex-J1 |
| 1.12.7 | Transmitted Power for SHDSL Int               | G.991.2. Annex-J1 |

### 1.13 Interface 12 : VDSL

| S.No.  | Parameter Name                           | Standard Name  |
|--------|--|--|
| 1.13.1 | Bit Rate for VDSLx Int                   | G.993.1 and G993.2. Annex-J1                         |
| 1.13.2 | Insulation Test for 2 wire Int           | ETSI EN 300 001. Annex-D                             |
| 1.13.3 | Line Port impedance for VDSLx Int        | Annex-J1   |
| 1.13.4 | Loop resistance for VDSLx                | ETSI EN 300 001. Annex-J1                            |
| 1.13.5 | Profiles for VDSLx                       | G.993.2(cl 7.2). Annex-J1                            |
| 1.13.6 | PSD for VDSLx Int                        | G.993.1(cl 6.2). G.993.2(cl 7.2) Ann-A B C. Annex-J1 |
| 1.13.7 | Return Loss for VDSLx                    | G.993.1 Cl. 6.5. Annex-J1                            |
| 1.13.8 | Transmitted Power At ATU-C for VDSLx Int | Annex-J1   |

#### 1.14 Interface 13 : WCDMA or HSPA

| S.No.  | Parameter Name                            | Standard Name                               |
|--------|---|---|
| 1.14.1 | Operating Frequency for WCDMA or HSPA Int | NFAP. Annex-F                               |
| 1.14.2 | WCDMA or HSPA Int Parameters              | 3GPP TS 34.121-1 or EN 301 908-2. Annex-F11 |

#### 1.15 Interface 14 : WiFi

| S.No.  | Parameter Name                 | Standard Name   |
|--------|--------------------------------|---|
| 1.15.1 | 2.4 GHz WiFi Radio Conformance | ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3 |
| 1.15.2 | 5 GHz WiFi Radio Conformance   | ETSI EN 301 893 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-G3 |
| 1.15.3 | EIRP for Wifi Interface        | Latest NFAP and GSRs issued by DoT WPC. Annex-G2                        |
| 1.15.4 | Frequency for WiFi equipments  | DoT WPC GSR No. 45(E) 1048(E). Annex-G1                                 |