

# अनिवार्य आवश्यकताएँ

संख्या: TEMP1646386699659

**Essential Requirements**

**ER No. : TEMP1646386699659**

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## HYBRID SET TOP BOX

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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**

Essential Requirements for:

## Hybrid Set Top Box

Certification Scheme: **GCS**

Product Fee Group: **B**

Hybrid Set Top Box for Broadcasting and IP based video. Such Devices allow users to view Television using digital cables or Direct to Home (DTH) as well as video from the Internet or local IP network.

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. Hybrid Set Top Box

#### 1. Variant 1 : Hybrid Set Top Box

##### 1.1 Parameters Linked with Product Variant

S.No	Parameter Name	Standard Name
1.1.1	Conducted And Radiated Emission - Class A EMC Standard CISPR 22/32	EN55022/32. Annex-B
1.1.2	Conducted And Radiated Emission - Class B EMC Standard CISPR 22/32	EN55022/32. Annex-B
1.1.3	Immunity to AC Voltage Dips and Short Interruptions	TEC EMI EMC Standard EN/IEC:61000-4- 11. Annex-B
1.1.4	Immunity to DC Voltage Dips and Short Interruptions	EN/IEC:61000-4-29. Annex-B
1.1.6	Immunity to Electrostatic Discharge	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	IPV6 Dual Stack as per RFC 4213	RFC 4213 clause 2.1 and 2.2. Annex-P6
1.1.12	IPV6 Parameters	RFC 2460 / 8200. Annex-P7
1.1.13	IT Equipment Safety	IS 13252-1 or IEC:60950-1 or IEC 62368-1. Annex-A1
1.1.14	Safety Requirements (Optical Fibre Cables - Indoor or Outdoor)	Annex -Tx-A4-OFC
1.1.15	TCP Parameters	RFC 793. Annex-P11
1.1.16	UDP Parameters	RFC 768. Annex-P5
1.1.17	Video Codecs	MPEG-4,H.265
1.1.18	Video Container	MP4
1.1.19	Audio Codecs	MPEG-4 AUDIO
1.1.20	Audio Container	MP4
1.1.21	Conditional Access System (CAS)	<b>Schedule IX</b> : The Telecommunication (Broadcasting and Cable) services Interconnection (Addressable Systems) (Third Amendment) Regulations, 2021 ; <b>By TRAI</b>
1.1.22	RF Tuner	DVB-C / DVB-T / SVB-S Tuner

## 1.2 Interface 1 : 10 100 BASE-T Ethernet

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

## 1.3 Interface 2 : Bluetooth Low Energy

S.No	Parameter Name	Standard Name
1.3.1	EIRP for BLE Interface	WPC GSR 45(E). Annex-G4 (4.2)
1.3.2	Frequency of Operation for BLE Interface	Latest NFAP. Annex-G4(4.1)
1.3.3	Spurious Emission for BLE Interface	Annex G3

## 1.4 Interface 3 : RF Video(IN/OUT)

S.No.	Parameter Name	Standard Name
1.4.1	RF Video Output Bandwidth	52 + 870 MHz. - 870 MHz. Annex-J2
1.4.2	RF Video Output Level	14 dBmV. Annex-J2
1.4.3	RF Video Output Tilt	0 dB. Annex-J2
1.4.4	RF Input	IEC 60169 – 24 F-type female

## 1.5 Interface 4 : WiFi

S.No	Parameter Name	Standard Name
1.5.1	2.4 GHz WiFi Radio Conformance	ETSI EN 300 328 or FCC CFR47 pt 15.247 or FCC CFR47 pt 15.249. Annex-G3
1.5.2	5 GHz WiFi Radio Conformance	ETSI EN 301 893 or FCC CFR47 pt 15.407 or FCC CFR47 pt 15.249. Annex-

		G3
1.5.3	EIRP for Wifi Interface	Latest NFAP and GSRs issued by DoT WPC. Annex-G2
1.5.4	Frequency for WiFi equipments	DoT WPC GSR No. 45(E) 1048(E). Annex G1

#### 1.6 Interface 5 : HDMI 2.0

S.No	Parameter Name	Standard Name
1.6.1	Bandwidth	Upto 18 Gbps
1.6.2	Video resolution	Upto 4K@50/60 (2160p)
1.6.3	Multi-dimensional Immersive Audio experience	Upto 32 Audio channels

#### 1.7 Interface 6 : 10G Optical Ethernet

S.No	Parameter Name	Standard Name
1.7.1	Average Launch power for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
1.7.2	Receiver Sensitivity 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H
1.7.3	Wavelength for 10 GE Opt	IEEE 802.3ae Cl. 52. Annex-H

#### 1.8 Interface 7 : USB 2.0

S.No	Parameter Name	Standard Name
1.8.1	Data Transfer rates	Up to 480 Mbps
1.8.2	Low – power device	Up to 100 mA; 5V; 0.50W

## 1.9 Interface 8: RCA Cables

S.No	Parameter Name	Standard Name
1.9.1	RCA connector	<b>3.5mm Jack connector-</b> Stereo (L and R) analogue audio signal and composite video output