

भारतीय मानक

IS 18112 : 2025

Indian Standard

उपग्रह प्रसारण प्रेषण के लिए डिजिटल
टेलीविजन रिसीवर — विशिष्टि
(पहला पुनरीक्षण)

Digital Television Receiver for
Satellite Broadcast Transmission —
Specification
(First Revision)

ICS 33.160.25

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Audio, Video and Multimedia Systems and Equipment Sectional Committee, LITD 07

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by Audio, Video and Multimedia Systems and Equipment Sectional Committee had been approved by the Electronics and Information Technology Divisional Council.

There is no ISO/IEC standard on this subject. This standard was formulated based on the proposal received from *Prasar Bharti (Doordarshan)*. Presently the televisions in India come with built in analog tuner to receive the analog terrestrial transmission.

Prasar Bharti (Doordarshan) is in the process of closing analogue terrestrial transmission barring those in strategic areas. Specifications for TV with in-built satellite tuner (DVB-S and DVB-S2) given in this document are for replacement of the analog TV tuner with DVB-S and DVB-S2 compliant satellite tuner in all TV sets (LED/LCD etc). TV with in-built satellite tuner (DVB-S and DVB-S2) would enable reception of non-encrypted (free-to-air) multichannel by connecting an appropriate dish antenna with LNB mounted on a suitable place, that is, at roof top or side wall of the building-

This standard was first published in 2022. This revision has been brought out to provide further guidance to demonstrate compliance with this standard. Major changes are as follows:

- a) Definitions based on IS 1885 (Part 24) : 2023 have been included;
- b) IS/IEC 62368-1 has been also referred for safety requirements;
- c) Annexure for abbreviations has been included;
- d) Power consumption requirement has been removed as *Bureau of Energy Efficiency (BEE) Regulations*, notifications are taking care of this requirement for TV;
- e) Column (5) has been included in [Table 1](#) and [Table 2](#) to provide further guidance related to procedures to demonstrate compliance to the requirements; and
- f) Editorial corrections have been incorporated.

Abbreviations are given in [Annex B](#).

The composition of the Committee responsible for revision of this standard is given in [Annex C](#).

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard.

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Indian Standard

DIGITAL TELEVISION RECEIVER FOR SATELLITE BROADCAST TRANSMISSION — SPECIFICATION

(*First Revision*)

1 SCOPE

This standard describes a baseline profile, based on open standards for a digital television receiver (DTV) for the reception of digital satellite free-to-air (FTA) TV and radio signals. This profile is based predominantly on digital video broadcasting (DVB) standards.

2 REFERENCES

The standards listed in [Annex A](#) contains provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreement based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards indicated in [Annex A](#).

3 DEFINITIONS

For the purpose of this standard, the following definition(s) shall apply.

3.1 Aspect Ratio — the ratio of the width to the height of a rectangular picture.

3.2 Digital Television — television in which picture information is represented by a digital signal.

3.3 Rated Voltage — value of voltage assigned by the manufacturer to a component, device or equipment and to which operation and performance characteristics are referred.

NOTE — Equipment may have more than one rated voltage value or may have a rated voltage range

3.4 Rated Voltage Range — supply voltage range, as declared by the manufacturer, expressed by its lower and upper rated voltages.

3.5 Satellite Broadcasting [Direct Broadcasting by Satellite (DBS)] — a radiocommunication service in which the transmissions from space stations are intended for direct reception by the general public.

3.6 Television (TV) — form of telecommunication for the transmission of signals representing scenes, images of the scenes being reproduced on a screen as they are received or recorded for subsequent use.

NOTE — This form of telecommunication finds major application in television broadcasting and the word “television” is often used without qualification to describe this application.

3.7 Television Broadcasting — broadcasting service of visual programmes with associated sounds.

3.8 Television Receiver (TV Set) — a receiver designed to reproduce the picture and accompanying sound of a television programme.

4 REQUIREMENTS

4.1 The DTV shall support DVB-S and DVB-S2 reception for free-to-air (FTA) services. The DTV shall fully comply with detailed specifications as given in [Table 1](#).

4.2 The manufacturer shall ensure compatibility and interfacing with consumer electronic equipment such as audio and video systems in the country.

4.3 Specifications

The specifications for the various features and capabilities for the DTV shall be as given in [Table 1](#).

NOTE — Transport stream for testing the compliance with requirements of [Table 1](#) should be provided by service providers.

4.4 Performance Requirements

The requirements for various performance parameters for the DTV shall be as given in [Table 2](#).

4.5 Safety Requirements

The safety requirements of DTV shall conform to IS 616 or IS/IEC 62368-1.

NOTE — Conformance to IS 616 or IS/IEC 62368-1 shall be selected based on the compulsory registration order and associated guidelines issued by Ministry of Electronics and Information Technology (MeitY) and Bureau of Indian Standards (BIS).

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4.6 Electromagnetic Compatibility (EMC) Requirements

The EMC requirements of the DTV shall conform to IS/CISPR 32.

5 MARKING

5.1 Each DTV shall be legibly and indelibly marked with at least the following information:

- a) Manufacturer's name or trade mark (if any);
- b) Model designation and serial number;
- c) Country of manufacture;
- d) Input supply voltage and frequency (If an external power adapter is provided, d.c. input voltage, polarity and wattage shall be marked on the DTV and a.c. input voltage, frequency and wattage shall be marked on the power adapter);
- e) Power consumption;
- f) Input terminals as applicable; and
- g) All connectors.

5.2 The user interface (UI) of the DTV shall display all the hardware input ports available, serial number and model number of the DTV unit at appropriate place.

5.3 BIS Certification Marking

The DTV may also be marked with the Standard Mark. The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulation made there under. Details of conditions under which a license for the use of Standard Mark may be granted to manufacturers and producers may be obtained from the Bureau of Indian Standards.

6 OPERATING LIFE TEST

The DTV shall be subjected to operating life test while viewing live free-to-air TV channel through the in-built satellite tuner. The test shall consist of 48 h of operation at 1.1 times of upper voltage of input voltage range (declared by the DTV manufacturer) and at ambient temperature (45 °C). For supply voltage and temperature to be maintained during the test, tolerance of ± 5 percent is allowed.

The DTV shall be considered to have failed the test:

- a) if there is loss of video and/or audio longer than 5 s; and
- b) if the DTV reboots or is non-responsive to the remote control at the end of the test.

At the end of the operating life duration, the requirements specified in [Table 2](#) shall also be met with.

Table 1 Specifications
(Clause [4.1](#) and [4.3](#))

Sl No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
i)	BASIC DTV PROFILE:			
	a) Hardware specification;	The processing power and memory configuration of the DTV shall be suitable for the normal operation of the digital reception of the DVB-S and DVB-S2 signals, and DTV shall have provision of the routine upgradation or replacement of software.	—	DTV is said to be compliant with this requirement if it is complying with all other mandatory requirements of Table 1 and Table 2 .
	b) Decompression and decoding of SDTV video;	Capability to decompress and decode SDTV signals compressed using MPEG-2 MP@ML (see Sl No. 7 and Sl No. 8 of Annex A) and MPEG-4 Part 10 AVC MP @ L3 (see Sl No. 3 and Sl No. 9 of Annex A).	—	Compliance is checked by reception of SDTV signals compressed using MPEG-2 MP@ML and MPEG-4 Part 10 AVC MP @ L3.
	c) Decompression and decoding of HDTV video;	a) Capability to decompress and decode HDTV signals compressed using MPEG-4 Part 10 AVC HP@L4 (see Sl No. 3 and Sl No. 9 of Annex A); and b) The DTV shall be capable of decoding both 1080i and 720p formats and up scaling/down scaling it to the best format supported by it.	—	a) Compliance is checked by reception of HDTV signals compressed using MPEG-4 Part 10 AVC HP@L4; and b) Compliance is checked by reception of 1080i and 720p formats.
	d) Decompression and decoding of audio;	a) Capability to decompress and decode audio compressed using MPEG-1 Layer II (see Sl No. 6 of Annex A); and	a) Capability to decompress and decode the multi-channel audio formats.	a) Compliance is checked by reception of audio compressed using MPEG-1 Layer II; and b) Compliance is checked by passing through the multi-channel audio formats over HDMI ARC,S/PDIF etc.

Table 1 (Continued)

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Sl No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
		b) Capability to pass through the multi-channel audio formats over compatible outputs such as HDMI ARC, S/PDIF etc. NOTES 1 Capability to decompress and decode using other audio codecs should be provided by TV manufacturers based on the market dynamics. 2 The requirement of multi-channel with surround sound audio decoder shall be reviewed from time to time based on the status of available free-to-air satellite channels supporting multi-channel with surround sound audio.		
	e) Active format descriptors;	Ability to handle 16 : 9 widescreen and 4 : 3 picture format changes as detailed in the 'transmission rules' including support for correct aspect ratio and active format descriptors (see Sl No. 11 of Annex A).	—	Compliance is checked by display of 16 : 9 and 4 : 3 video signals. Displayed signal shall not be distorted.
	f) Captioning and sub-titling;	Capability to receive and process DVB subtitle streams (see Sl No. 13 and Sl No. 18 of Annex A). DVB subtitles shall be invoked from a remote control.		Compliance is checked by reception of DVB subtitle streams.
	g) Teletext;	—	The DTV shall include a teletext decoder (as laid down in Sl No. 17 of Annex A) including up to teletext Ver 1.5. A suitable remote control functionality should be	Compliance is checked by reception of teletext.

Table 1 (*Continued*)

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SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
			provided to launch the teletext OSD display.	
	h) Multi-language support;	The DTV is to at least support the setting of a primary and secondary audio language based on the language descriptors associated with the audio-streams transport stream (see SI No. 7 and SI No. 8 of Annex A). If the primary language is not present then the DTV shall automatically select the secondary audio language.	When the secondary audio language is also not available then the 'country default language' shall be selected. When the default language is also not available then the DTV shall select the first audio PID appearing in the PMT elementary stream loop.	Compliance is checked by inspection.
	j) DTV mixed audio description;	—	DTVs that are capable of presenting audio description should provide at least the minimum user controls (as per SI No. 11 of Annex A).	Compliance is checked by inspection.
	k) Broadcast mixed audio description;	In addition to multi-language support specifications mentioned at SI No. (i) (h) of Table 1 specified above, DTV shall provide a user preference to enable or prioritize broadcast mixed audio description.	—	Compliance is checked by inspection.
	m) Service demultiplexing;	Capability to receive and process SI (Service Information) (see SI No. 13 and SI No. 16 of Annex A).	—	Compliance is checked by inspection.
	n) Data services;	If DVB SSU is supported then capability to receive and process data streams (see SI No. 12 and SI No. 19 of Annex A).	—	Manufacturer shall give declaration to this effect and shall provide associated documents to demonstrate this capability.

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Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
				Compliance is checked based on the manufacturer's declaration and documents.
	p) OSD;	Video layer (a full colour layer displaying the output of the MPEG video decoder) to support: a) Y = 8 bit, CB = 8 bit, CR = 8 bit; b) Chroma to be sub-sampled to either 4 : 2 : 0 or 4 : 2 : 2; and c) Alpha blending need not be supported, but the layer may be shown or hidden. OSD/Graphics layer (an 8-bit palletized layer which can display region-based graphics): 1) each CLUT palette entry to support: Y = 6 bit, CB = 4 bit, CR = 4 bit; 2) Chroma to be sub-sampled to either 4 : 2 : 0 or 4 : 2 : 2; and 3) alpha blending to be either 6 bit across the entire layer, or 2 bit per pixel.	—	Manufacturer shall give declaration to this effect and shall provide associated documents to demonstrate this capability. Compliance is checked based on the manufacturer's declaration and documents.
	q) DTV character set;	The main character set of the DTV shall be the character code table 00 – Latin alphabet (as per SI No. 5 of Annex A).	—	Manufacturer shall give declaration to this effect and shall provide associated documents to demonstrate this capability. Compliance is checked based on the manufacturer's declaration and documents.
	r) Electronic Service Guide (ESG) 'now/next';	'now/next' information for use in an on-screen banner shall be derived using information from DVB SI EIT p/f tables (see SI No. 16 of Annex A). The actual appearance of the now/next banner is left to the manufacturer but it is recommended that the following information be displayed in the bottom third of the screen: a) Current time;	a) The ESG 'now and next' shall be displayed when the user changes channels for approximately 2 s and shall also be launched using the <i>i</i> (info) button on the remote control; and	Compliance is checked by inspection.

Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
		b) Start time of now and next program; c) End time of now and next program; d) Channel number; e) Channel name; and f) Date.	b) ESG 'Schedule': An electronic program guide (EPG) application may be provided using EIT schedule information from the SI.	
	s) Time; and	The DTV shall have a time clock or calendar running continuously (see SI No. 16 of Annex A). The clock shall be updated by the incoming TDT and TOT table in the SI. The time displayed by the DTV shall be the current time based on time zone.	—	Compliance is checked by inspection
	t) Digital TV output.	—	The DTV may offer output(s) for connection to a recording device.	Compliance is checked by inspection.
ii)	DIGITAL SATELLITE RECEPTION:			
	a) Demodulation and FEC decoding;	Capability to demodulate and decode satellite signals, channel coded and modulated (see SI No.15 and 20 of Annex A).	—	Compliance is checked by reception of DVB-S and DVB-S2 signals.
	b) DTV installation;	During DTV installation, the user shall be able to perform tuning by: a) tuning to a list of user selectable transponders or performing a linear scan of all frequencies and polarisations; and b) manually entering the tuning parameters of the transponder. NOTE — For details of tuning parameters, DTV OEM shall discuss with the respective service providers. Details of tuning parameters related to DD free dish are available on <i>Doordarshan's</i> website.	—	Compliance is checked by inspection.

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Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
	c) Network evolution;	The DTV shall support dynamic SI/PSI on tuned transponder in order to automatically detect and suitably handle service changes without the need for user intervention. The DTV shall also have the capability to update the service list, including suitably handle transponder changes based on the installation method selected by the user, and appropriate menu options, where applicable. The DTV should not delete transponder parameters and channels due to low signal.		Compliance is checked by inspection.
	d) Services available;	After DTV installation, all services that may be received shall be available to the viewer. The actual services being broadcast may subsequently change [see (ii) (c) of Table 1].	—	Compliance is checked by inspection.
	e) Selection through service list;	The service list displayed immediately following a full automatic scan shall present services in ascending channel number or service ID.	—	Compliance is checked by inspection.
	f) Selection through numeric entry;	Selection of a service using numeric entry shall always select a service with that channel number regardless of any viewer favourites.	—	Compliance is checked by inspection.
	g) Favourite channel list;	The user shall be able to move, sort, swap and delete channels and lock in those changes to update the main channel list based on their preferences. The user shall also be able to add channels and remove channels for one or more favourite lists, which shall be separate to the main channel list.	—	Compliance is checked by inspection.

Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
	h) Hidden services;	—	Services marked as 'hidden' in the logical channel number (LCN) descriptor shall not appear in the service list presented to the viewer. Services may also be identified as not selectable by numeric entry in a similar way. The DTV shall locate conflict services and store the same.	Compliance is checked by inspection.
	j) Logical channel number for satellite services;	—	The DTV service list shall be managed by logical channel number descriptors (LCN) carried by the SDT (service description table) or NIT (network information table). The DTV shall locate, store and handle services with logical channel numbers (LCNs).	Compliance is checked by inspection.
	k) RF input signal;	- 65 dBm to - 25 dBm	—	Compliance is checked by supplying signal of signal strength - 65 dBm to - 25 dBm. DTV shall be able decode and receive signal of signal strength - 65 dBm to - 25 dBm. Modulator and attenuator may be utilized to vary signal strength.

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Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
	m) LNB supply current;	Minimum 300mA	—	Compliance is checked by measuring current through RF port by utilizing appropriate load. DTV shall be able to supply at least 300 mA to load.
	n) LNB supply voltage;	Vertical polarisation: 13 V d.c. Horizontal polarisation: 18 V d.c.	—	Compliance is checked by measuring voltage through RF port. DTV shall supply 13 V d.c. for vertical polarisation and 18 V d.c. for horizontal polarisation. Tolerance of + 1.5 V is allowed for LNB supply voltage. DTV shall be considered as compliant for vertical polarisation, if LNB supply voltage is in the range of 13 V to 14.5 V. DTV shall be considered as compliant for horizontal polarisation, if LNB supply voltage is in the range of 18 V to 19.5 V.
	p) LNB Control; and	The following control of the LNB shall be provided: a) Low band/High band switching: 1) Low band: 10.70 GHz to 11.70 GHz; 2) High Band: 11.70 GHz to 12.75 GHz b) Polarization: horizontal/vertical selection.	—	Compliance is checked by inspection.
	q) Modulation/Demodulation parameters for DVB-S and DVB-S2 standard.	As per SI No. 15 and 20 of Annex A .	—	DTV is said to be compliant with this requirement if it is complying with all other mandatory requirements of Table 1 and Table 2 .
iii)	CONNECTORS:			

Table 1 (Continued)

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SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
	a) Interfaces, connectors.	a) Satellite input: 75 Ω , Female Type (see SI No. 10 of Annex A); b) Input: One HDMI version 1.3a port, or higher port; and c) Output: Coaxial or Optical compatible connector such as HDMI ARC, S/PDIF etc.	a) Analog video: RCA Type: Yellow; b) Analog Audio: RCA Stereo: L (White) and R (Red); c) Additional HDMI inputs and/or outputs; d) HDMI inputs having audio return channel (ARC); e) Component (Y, Pb, Pr) video; f) USB 2.0 Ports; g) RJ11 (for PSTN Modem); h) RJ45 for fast ethernet connection; j) 3.5mm headphone jack for stereo audio output or audio description and broadcast mix audio description as mentioned in SI No. (i) (j) and (i) (k) of Table 1 above; k) 15-pin D-sub female connector for PC connectivity; m) DVI-I Connector for PC connectivity; and n) ARC capable HDMI inputs should pass	Compliance is checked by inspection.

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Table 1 (Continued)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
			through native, input audio bit streams.	
iv)	MAINTENANCE AND UPGRADE:			
	a) Automatic software upgrade mechanism.	The software upgrade mechanism shall be DVB SSU, to at least the simple profile (as per SI No. 14 of Annex A) is required or through a USB port for uploading the control software or through network.	RS 232C or USB port or RJ 45 ethernet for uploading control software and/or additional services.	Compliance is checked by inspection to check the availability and functionality of mechanism as per the manufacturer's declaration.
v)	USER INFORMATION:			
	a) Remote control;	The manufacture is free to design the remote control. The following remote control functionalities are required: a) numeric 0-9; b) Power – to turn the DTV on and off; c) Program up/down - to switch between programs; d) Volume up/down - to adjust the volume output level; e) Mute – to mute,unmute; f) Subtitle - to display as per SI No. (i) (f) of Table 1 above; g) Info - to display additional information like reception quality, signal strength indicator and channel ID etc; h) EPG/Guide - to display an electronic program guide; j) Back - this function exits from the current menu or OSD and returns to the previous state; and k) Free satellite - user shall be able to access FTA satellite channels from any menu by this shortcut key or functionality. This shortcut key or	—	Compliance is checked by inspection.

Table 1 (Concluded)

SI No.	Specification	Mandatory	Optional	Compliance Criteria and Test Method(s)
(1)	(2)	(3)	(4)	(5)
		functionality shall also guide user for scanning of satellite channels.		
	b) Easy to use and simple documentation; and	DTV shall be simple to set up and operate and be provided with clear easy to understand user documentation in line with that requirement.	—	Compliance is checked by inspection.
	c) Support package.	The following peripheral items shall be included within a baseline DTV package: a) Remote control and batteries; and b) An easy to understand user manual.	A basic status check should be invoked by a menu driven option or a user selected key.	Compliance is checked by inspection

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Table 2 Performance Requirements

(Clause [4.4](#) and [6](#))

SI No. (1)	Specifications/Parameters (2)	Mandatory Values (3)	Optional (4)	Compliance and Test Method(s) (5)
i)	Electrical specifications a) Input voltage range; and b) Frequency.	a) 110 V a.c. to 240 V a.c; and b) 50 Hz $\pm$ 2 percent	—	No separate test is required. DTV is compliant to this requirement if it complies with IS 616 or IS/IEC 62368-1.
ii)	RF characteristics to be supported by the DTV	As per DVB-S and DVB-S2 standard for satellite signal	—	DTV is said to be compliant with this requirement if it is complying with all other mandatory requirements of Table 1 and Table 2 .
iii)	Satellite DTV: DVB-S tuner performance characteristics: a) Input level per carrier; b) Input frequency range; and c) RF input impedance.	a) Required C/N for QEF (BER = 10^{-10} to 10^{-11}); Mode Pilots C/N (dB) QPSK 1/2 No 3.8 QPSK 2/3 No 5.6 QPSK 3/4 No 6.7 QPSK 5/6 No 7.7 QPSK 7/8 No 8.4 b) 950 to 2150 MHz; and c) 75 Ω .		DTV shall be able to demodulate and decode L-band signal of the specified carrier/noise (C/N) ratio mentioned against the respective modulation mode and the specified input frequency range. L-band modulated DVB-S signal, using DVB-S/S2 compliant modulator shall be fed to DTV. Power and frequency of this signal shall be varied to check the compliance. DTV complying to the requirement of input level per carrier and input frequency range shall be said to be compliant with the requirement of RF input impedance.

Table 2 (Continued)

Sl No.	Specifications/Parameters	Mandatory Values	Optional	Compliance and Test Method(s)
(1)	(2)	(3)	(4)	(5)
iv)	Satellite DTV: DVB-S2 tuner performance characteristics: a) Input level per carrier; <			

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Table 2 (Concluded)

SI No. (1)	Specifications/Parameters (2)	Mandatory Values (3)	Optional (4)	Compliance and Test Method(s) (5)
vi)	RF input return loss	8dB Minimum	—	DTV is said to be compliant with this requirement if it complies with requirement (iii) and (iv) of Table 2 .
vii)	DisEqC	—	DisEqC 1.2	Manufacturer shall give declaration to this effect and shall provide associated documents to demonstrate this capability. Compliance is checked based on the manufacturer's declaration and documents.
viii)	Operating ambient temperature range	5 °C to 45 °C	—	No separate test is required. DTV is compliant to this requirement if it complies with IS 616 or IS/IEC 62368-1.
ix)	Operating humidity range	Up to 90 percent (non-condensing)	—	No separate test is required. DTV is compliant to this requirement if it complies with IS 616 or IS/IEC 62368-1.

ANNEX A

(Clause 2 and Table 1)

LIST OF REFERRED STANDARDS

Sl No.	IS No.	Title	Sl No.	IS No.	Title
1)	IS/CISPR 32 : 2015	Electromagnetic compatibility of multimedia equipment — Emission requirements			Generic coding of moving pictures and associated audio information — Part 1: Systems (MPEG 2)
2)	IS 616 : 2017	Audio, video and similar electronic apparatus — Safety requirements (<i>fifth revision</i>)	8)	ISO/IEC 13818-2 : 2000	Information technology — Generic coding of moving pictures and associated audio information — Part 2: Video
3)	IS/ISO/IEC 14496 - 15 : 2019	Information technology — Coding of audio-visual objects: Part 15 Carriage of network abstraction layer (NAL) unit structured video in the ISO base media file format (<i>first revision</i>)	9)	ISO/IEC 14496-10 : 2020	Information technology — Coding of audio-visual objects — Part 10: Advance video coding (MPEG-4 Part 10 AVC)
4)	IS/IEC 62368-1 : 2023	Audio/video, information and communication technology equipment — Part 1: Safety requirements (<i>second revision</i>)	10)	IEC 61169-24	Radio-frequency connectors — Part 24: Sectional specification — Radio frequency coaxial connectors with screw coupling, typically for use in 75 Ω cable networks (Type F)
5)	ISO/IEC 6937	Information technology — Coded graphic character set for text communication — Latin alphabet	11)	ETSI TS 101 154 Ver 2.7.1	Digital video broadcasting (DVB); Specification for the use of video and audio coding in broadcast and broadband applications
6)	ISO/IEC 11172-3 : 1993	Information technology — Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s — Part 3: Audio (MPEG-1 Audio layer II)	12)	ETSI TR 101 202 Ver 1.2.1	Digital video broadcasting (DVB); Implementation guidelines for data broadcasting
7)	ISO/IEC 13818-1 : 2007	Information technology —	13)	ETSI TS 101 211 Ver 1.12.1	Digital video broadcasting (DVB); Guidelines on

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<i>Sl No.</i>	<i>IS No.</i>	<i>Title</i>	<i>Sl No.</i>	<i>IS No.</i>	<i>Title</i>
		implementation and usage of service information (SI)	17)	ETSI EN 300 706 Ver 1.2.1	Enhanced teletext specification
14)	ETSI TS 102 006 Ver 1.4.1	Digital video broadcasting (DVB); Specification for system software update in DVB systems	18)	ETSI EN 300 743 Ver 1.6.1	Digital video broadcasting (DVB); Subtitling systems
			19)	ETSI EN 301 192 Ver 1.7.1	Digital video broadcasting (DVB); DVB specification for data broadcasting
15)	ETSI EN 300 421 Ver 1.1.2	Digital Video Broadcasting (DVB); Framing structure, channel coding and modulation for 11/12 GHz satellite services (DVB-S)	20)	ETSI EN 302 307 Ver 1.4.1	Digital video broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for broadcasting, interactive services, news gathering and other broadband satellite applications (DVB-S2)
16)	ETSI EN 300 468 Ver 1.16.1	Digital video broadcasting (DVB); Specifications for service information (SI) in DVB systems			

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ANNEX B

(Foreword)

ABBREVIATIONS

<i>Sl No.</i>	<i>Acronym</i>	<i>Full Form</i>
(1)	(2)	(3)
i)	a.c.	Alternating current
ii)	ARC	Audio return channel
iii)	BEE	Bureau of energy efficiency
iv)	C/N	Carrier/noise
v)	CLUT	Color look-up table
vi)	d.c.	Direct current
vii)	DTV	Digital television receiver
viii)	DVB	Digital video broadcasting
ix)	DVB-S	Digital video broadcasting – satellite
x)	DVB-S2	Digital video broadcasting-satellite-second generation
xi)	DVI-I	Digital visual interface
xii)	EPG	Electronic program guide
xiii)	ESG	Electronic service guide
xiv)	FEC	Forward error correction
xv)	FTA	Free-to-air
xvi)	HDMI	High-definition multimedia interface
xvii)	HDTV	High definition television
xviii)	ID	Identity descriptors
xix)	LCN	Logical channel number
xx)	LNB	Low-noise block downconverter
xxi)	ML	Main level
xxii)	MPEG	Moving picture experts group
xxiii)	Msp/s	Mega symbols per second
xxiv)	NIT	Network information table
xxv)	OSD	On screen display
xxvi)	PID	Packet identifier
xxvii)	PMT	Program map table
xxviii)	PSK	Phase shift keying
xxix)	PSTN	Public switched telephone network
xxx)	QEF	Quasi-error-free
xxxi)	QPSK	Quadrature phase shift keying
xxxii)	RCA	Radio corporation of america
xxxiii)	RF	Radio frequency
xxxiv)	RJ	Registered jack
xxxv)	RS	Recommended standard
xxxvi)	s	Second (time)
xxxvii)	S/PDIF	Sony/philips digital interface
xxxviii)	SDT	Service description table

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<i>Sl No.</i>	<i>Acronym</i>	<i>Full Form</i>
(1)	(2)	(3)
xxxix)	SDTV	Standard definition television
xl)	SI/PSI	Service information/program specific information
xli)	SSU	System software update
xlii)	TDT	Time and date table
xliii)	TOT	Time offset table
xliv)	TV	Television
xliv)	UI	User interface
xlvi)	USB	Universal serial bus

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Audio, Video and Multimedia Systems and Equipment Sectional Committee, LITD 07

<i>Organization</i>	<i>Representative(s)</i>
Directorate General Doordarshan, Prasar Bharti, New Delhi	SHRIMATI ANURADHA AGARWAL (Chairperson)
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All India Institute for Speech and Hearing, Mysuru	DR AJISH K. ABRAHAM DR M. PUSHPAVATI (<i>Alternate</i>)
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CSIR - National Physical Laboratory, New Delhi	DR PARAMITA GUHA DR CHITRA GAUTAM (<i>Alternate</i>)
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Consumer Electronics and Appliances Manufacturers Association, Noida	SHRI ANIL MEHTA
Dell Technologies, New Delhi	SHRI RAJENDER SAINI
Development Commissioner Micro-Small and Medium Enterprises, New Delhi	SHRI S. V. SHARMA SHRI ANUJ KANSAL (<i>Alternate</i>)
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<i>Organization</i>	<i>Representative(s)</i>
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Electronic Industries Association of India, New Delhi	SHRI RAJOO GOEL SHRI M. P. DUBEY (<i>Alternate</i>)
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Ministry of Electronics and Information Technology, New Delhi	MS ASHA NANGIA DR BHARAT KUMAR YADAV (<i>Alternate I</i>) SHRI SAURABH RANJAN (<i>Alternate II</i>)
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Tata Play Limited, Mumbai	MS NANDINI SHRI VISHAL (<i>Alternate I</i>) SHRI SUMAN K. GHOSH (<i>Alternate II</i>)
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Telecommunication Engineering Center, New Delhi	SHRI SHASHI MOHAN SHRI B. K. SINGH (<i>Alternate</i>)
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Set Top Box Standards Panel LITD 07/P5

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Cable Operators Federation of India, New Delhi	SHRI K. K. SHARMA
Centre for Development of Telematics, New Delhi	SHRI PALLAB DUTTA SHRI UPENDRA G. (<i>Alternate</i>)
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Directorate General Doordarshan, Prasar Bharti, New Delhi	SHRI N. N. MAURYA
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Irdeto Technology India Private Limited, Delhi	SHRI SANJIV KAINTH
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Ministry of Electronics and Information Technology, New Delhi	SHRI MUKUL KUMAR YADAV SHRI PRASHANT KUMAR (<i>Alternate</i>)
Ministry of Information and Broadcasting, New Delhi	DR DEEPALI SHARMA
Nagravision India Private Limited, Bengaluru	SHRI ANIL KUMAR SAROHA SHRI TARAL PARIKH (<i>Alternate I</i>) SHRI HITESH LOKHANDWALA (<i>Alternate II</i>)
Samsung India Electronics Private Limited, New Delhi	SHRI VIRENDER SHARMA SHRI NAVIN KUMAR (<i>Alternate</i>)
Sony India, New Delhi	SHRI ABHAY SHARMA SHRI ANOOP KUMAR PANDEY (<i>Alternate</i>)

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Tata Play Limited, Mumbai	MS NANDINI SHRI VISHAL (<i>Alternate I</i>) SHRI SUMAN K. GHOSH (<i>Alternate II</i>)
Technicolor India Private Limited, Bengaluru	SHRI ABHISHEK PANDEY SHRI SUNDEEP SINGH REKHI (<i>Alternate</i>)
In Personal Capacity India	SHRI RAJIV KHATTAR

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