Manufacturer:			
Test item: **Digital Television Receiver for Satellite Broadcast Transmission —Specification** *(First Revision)*			
Identification:		*Serial No.:*	**--**
Receipt No.:		*Date of receipt:*	
Testing laboratory and its address:			
Test specification:	**IS 18112 : 2025**		
Test Result:	*The test item **passed** / **failed** the test specification(s).*		
Other Aspects:			
This test report relates to the test sample submitted and list of documents attached.			

Tested by:	**Approved by / Authorized Signatory:**	**Issued by:**
(Name / Designation)	(Name / Designation	(Name / Designation)
Date:	Date:	Date:

TEST REPORT
IS 18112 : 2025
Digital Television Receiver for Satellite Broadcast Transmission — Specification

Report Reference No. ..... :
Date of issue ..... :
Total number of pages .....

Applicants name ..... :
Address ..... :

Test specification:
Standard ..... : **IS 18112 : 2025**
Test procedure ..... :
Non-standard test method……..:

Test Report Form No. ..... :
BIS_IS 18112_V2.0
Test Report Form(s) Originator : **Bureau of Indian Standards**
Master TRF ..... :

Test item description ..... :
Trade Mark..... :
Manufacturer……:
Model/Type reference ..... :
Ratings ..... :
Other Documents submitted ..... :

Tested by:	**Approved by / Authorized Signatory:**	**Issued by:**
(Name / Designation)	(Name / Designation)	(Name / Designation)
Date:	Date:	Date:

Description	Measurement / Testing	Total no. of tests	Total no of applicable tests / Req.	No. of tests / Req. passed	Page no.
Cl. 4 **Requirements**					
Cl. 4.1 **Shall fully comply with detailed specification as given in Table 1**					
Cl. 4.2 **The manufacturer shall ensure compatibility and interfacing with Consumer Electronic equipment such as Audio and Video systems in the country.**					
Cl. 4.3 **The specifications for the various features and capabilities for the DTV shall be as given in Table 1.**					
Cl. 4.4 **Performance Requirement** **Shall comply table 2.**					
Cl. 4.5 **Safety requirement** **Shall confirm to IS 616 or IS/IEC 62368-1.**					
Cl. 4.6 **Electromagnetic Compatibility (EMC) requirement** **Shall confirm to IS/CISPR 32.**					
Cl. 5 **Marking**					
Cl. 6 **Operating life test**					

Certificate: It is certified that the above tests were performed and found to be passing in the requirement test.

Test item particulars……..:

Sample received condition……....: ☒ Good ☐ Others

Classification of installation and use……:

Supply Connection……....:

Laboratory conditions……..……..: As below

Ambient Temperature ……: (45 ºC).

Ambient Humidity……: <70 %RH

Testing:

Date of receipt of test item……:

Date (s) of performance of tests……..:

Copy of marking plate:

Copy of trademark:
(provided on the equipment)

Table – List of Attachments

Attachment No.	Attachment Description	No. of pages in Attachment
Attachment – 0	Photo Documentation	Page No.

Possible test case verdicts:

- test case does not apply to the test object : N/A
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

General Product Information:-
Product Description:

Model Tested:

Sr. No.	Product description	Model	specification
1.			

Representative Models:

Sr. No.	Product description	Model	Specification	Variation From Family Representative
1				
2				
3				
4				
5				

Supply Connections:
Condition of sample at the time of receipt:

Tested Model:
Technical Considerations:

Report summary:

3.1,3.2, 3.3	General requirements	CODE	Test Result Observation	Verdict
	Table 1 Specifications			
i)	**BASIC DTV RECEIVER PROFILE:.....:**		TO BE DECLARED BY MANUFACTURER	
a)	**Hardware specification**			
	The processing power and memory configuration of the DTV receiver shall be suitable for the routine operation of the digital reception of the DVB-S and DVB S2 signals, and DTV receiver 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);	a) Compliance is checked by reception of HDTV signals compressed using MPEG-4 Part 10 AVC HP@L4;		
	b) The DTV receiver shall be capable of decoding both 1080i and 720p formats and up scaling/down scaling it to the best format supported by it.	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			
	b) Capability to pass through the multi-channel audio formats over compatible outputs such as HDMIARC,S/PDIF etc.			
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).			

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			
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. 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 ssociated with the audio-streams transport stream (*see* Sl No. 7 and Sl 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			
j)	**DTV receiver mixed Audio Description**			
	DTV receivers that are capable of presenting audio description should provide at least the minimum user controls (as per Sl No. 11 of Annex A).			
k)	**Broadcast mixed audio description**			
	In addition to multi-language support specifications mentioned at Sl No. (i) (h) of Table 1 specified above, DTV shall provide a user preference to enable or prioritize broadcast mixed audio description.			
m)	**Service demultiplexing**			

	Capability to receive and process SI (Service Information) (see Sl No. 13 and Sl 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 Sl No. 12 and Sl No. 19 of Annex A).	Manufacturer shall give declaration to this effect and shall provide associated documents to demonstrate this capability		
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 Receiver character set**			
	The main character set of the DTV receiver shall be the character code table 00 – Latin Alphabet (as per Sl No. 5 of Annex A)			
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 Sl 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; 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.			
	a) The ESG "Now and next" shall be displayed when the user changes channels for approximately 2 seconds and shall also be launched using the *i* (info) button on the remote control. b) ESG 'Schedule': An Electronic Program Guide (EPG) application may be provided using EIT schedule informationfrom the SI.			
s)	**Time**			
	The DTV receiver shall have a time clock or calendar running continuously (*see* Sl 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 receiver shall be the current time based on time zone	Compliance is checked by inspection		
t)	**Digital TV output**			
	The DTV receiver 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* Sl No. 15 and 20 of Annex A).	Compliance is checked by reception of DVB-S and DVB-S2 signals		
b)	DTV Receiver 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 *Doordarshan's* website..			
c)	Network evolution			
	The DTV receiver 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 receiver 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 receiver should not delete transponder parameters and channels due to low signal.	Compliance is checked by inspection		
d)	Services available			
	After DTV receiver 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 Table1].	Compliance is checked by inspection		
e)	Selection via Service List			
	The service list displayed immediately following a full automatic scan shall present services in ascending Channel Number or Service ID.			
f)	Selection via Numeric Entry			
	Selection of a service using numeric entry shall always select a service with that Channel Number regardless of any viewer favourites.			
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.			
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 receiver shall locate conflict services and store the same.			
j)	Logical Channel Number for Satellite services			
	The DTV service list shall be managed by ogical 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).			
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.		
m)	LNB supply current			
	Minimum 300mA			
n)	LNB supply voltage			
	Vertical polarisation: 13 V D.C Horizontal polarisation: 18 V D.C			
p)	LNB Control			

	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.			
q)	Modulation/Demodulation parameters for DVB-S & DVB-S2standard			

	As per Sl No. 15 and 20 of Annex A			
iii)	**CONNECTORS:**			
a)	Interfaces, Connectors			
	a) Satellite Input: 75 Ω, Female Type (see Sl No. 10 of Annex A). b) Input: One HDMI version 1.3a port, or higher port. 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 Sl No. i) j) and k) of Table 1 above. k) 15-pin D-sub female connector for PC connectivity. m) DVI-I Connector for PC connectivity. n) ARC capable HDMI inputs should pass through native, input audio bit streams.			
iv)	**MAINTENANCE AND UPGRADE:**			
	Automatic software upgrade mechanism			
	The software upgrade mechanism shall be DVB SSU, to at least the simple profile (as per Sl. 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.			
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 receiver 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: i) Subtitle — to display as per Sl No. f) of Table 1 above; f) Info — to display additional information like reception quality, signal strength indicator and Channel ID etc.; g) EPG/Guide — to display an Electronic Program Guide; h) Back — this function exits from the current menu or OSD and returns to the previous state; and j) Free satellite — user shall be able toaccess FTA satellite channels from any menu by this shortcut key or functionality. This shortcut key or functionality shall also guide user for scanning of satellite channels.			
b)	Easy to use and simple documentation			
	DTV receivers shall be simple to set up and operate and be provided with clear easy to understand user documentation in line with that requirement.			
c)	Support package			
	The following peripheral items shall be included within a baseline DTV receiver 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.			

3.4	**Performance Requirements**			
	Table – 2			
i)	**Electrical specifications**			
a)	Input voltage range (110 – 240 VA.C.)			
b)	Frequency (50 Hz ± 2 percent.)			
ii)	**RF characteristics to be supported by the DTV receiver**			
	As per DVB-S and DVB-S2 standard forSatellite 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			
	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)	Input frequency range (950 to 2150 MHz)			
c)	RF input impedance(75 Ω)			
iv)	**Satellite DTV: DVB-S2 tuner performance Characteristics**			
	a) Required C/N for QEF(PER = 10^{-10} to 10^{-11})			
a)	Input level per carrier	**Mode** **Pilots** **C/N (dB)** QPSK ½ No 2.0 QPSK 3/5 No 3.2 QPSK 2/3 No 4.1 QPSK 3/4 No 5.0 QPSK 4/5 No 5.7 QPSK 5/6 No 6.2 QPSK 8/9 No 7.2 QPSK 9/10 No 7.4 8PSK 3/5 Yes 6.5 8PSK 2/3 Yes 7.6 8PSK 3/4 Yes 8.9 8PSK 5/6 Yes 10.4 8PSK 8/9 Yes 11.7 8PSK 9/10 Yes 12.0		
b)	Input frequency range (950 to 2150 MHz)	950 to 2150 MHz; and		
c)	RF input impedance(75 Ω)			

v)	Symbol rate(2 to 45 Msps)	2 Msps to 45 Msps		
vi)	RF input return loss(8dB Minimum)	8dB Minimum		
vii)	DisEqC (DisEqC 1.2)	DisEqC 1.2		
viii)	Operating ambienttemperature range(5 °C to 45 °C)	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))	Up to 90 percent (non-condensing)		

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

4.6	**Electromagnetic Compatibility (EMC) Requirements**			
	The EMC requirements of the DTV receiver shall conform to IS .CISPR 32			

5	**MARKING**			
5.1	Each DTV receiver 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, DC input voltage, polarity and wattage shall be marked on the TV and AC 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 receiver shall display all the hardware input ports available, serial number and model number of the DTV receiver unit at appropriate place			
5.3	**BIS Certification Marking**			

4.3.1	The DTV receiver 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 receiver shall be subjected to operating life test while viewing Live Free-To-Air TV Channel via 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 TV manufacturer) and at ambient temperature (45 ºC). For supply voltage and temperature to be maintained during the test, tolerance of ± 5 percent is allowed The DTV receiver shall be considered to have failed the test: a) if there is loss of video and/or Audio longer than 5 seconds; b) if the DTV receiver 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.		

Attachment –I

<u>Copy of marking plate</u>:

Photographs of the sample tested:

*****End of Test Report*****