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BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

मसौदा भारतीय मानक

उपग्रह रिसीवर — विशिष्टि

(पहला पुनरीक्षण)

Draft Indian Standard
Satellite Receiver – Specification
(First Revision)

LITD 07 Audio, Video and Multimedia Systems and Equipment Sectional Committee	**Last Date for Comments: 26 October 2025**

FOREWORD

This Indian Standard may be adopted by the Bureau of Indian Standards, after the draft finalized by Audio, Video and Multimedia Systems and Equipment Sectional Committee would be approved by the Electronics and Information Technology Divisional Council.

This standard was originally published in 1995. First Revision has been taken up to include specification for satellite receivers receiving both IP and digital AVB inputs, in contrast to earlier standard which was more focused towards only analog signals. The incorporation of this change has led to major modifications in the Performance Parameters listed in Table 1.

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 the same as that of the specified value in this standard.

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Indian Standard

Satellite Receiver- specification

1 SCOPE

This Indian Standard specifies the performance for satellite receivers used for cabled distribution system for television and sound signals.

2 REFERENCES

The Standards listed below 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 editions of the standards indicated below.

***IS* No.**	***Title***
IS 13986 (Part 1) : 1994	Methods of measurement on receivers for satellite broadcast transmissions in the 12 GHz band: Part 1 Radio frequency measurements on outdoor units.
IS 13986 (Part 2) : 1994	Methods of measurement on receivers for satellite broadcast transmissions in the 12GHz band : Part 2 Electrical measurements on DBS tuner units
IS 14231 (Part 1)	Cabled distribution system for television and sound signals - Specification : Part 1 Safety requirements

3 PERFORMANCE REQUIREMENTS

3.1 Methods of Measurements

The general test conditions and .methods of measurements shall be in accordance with IS 13986 (Part 1) : 1994 and IS 13986 (Part 2) : 1994.

3.2 Performance Parameters

The requirements for various performance parameters for satellite receiver shall be as given in Table 1.

3.3 Safety Requirements

The safety requirements of satellite receiver shall conform to IS 14231 (Part 1): 1995.

4 MARKING

4.1 The following information shall be provided with each satellite receiver:

i) Manufacturer's name or trade-mark,
ii) Technical specifications,
iii) Connectors details, and
iv) Power supply requirements.

4.2 BIS Certification Marking

Standard Mark may be provided on the satellite receiver. The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations made thereunder. Details of conditions under which a licence for the use of Standard Mark may be granted to manufacturers and producers may be obtained from the Bureau of Indian Standards.

Table 1 Performance Parameters
(Clause 3.2)

1	**RF. Parameters**	Mandatory	Optional
	Input frequency	i) 950-l 450 MHz ii) 950-Z 050 MHz	
	Input impedance	75 ohms	
	Input return loss	Better than 15 dB	
	Input level	-60 to 30 dBm	
	L.O. leakage at input	-60 dBm or less	
	Image rejection	Better than 40 dB	
	IF bandwidth	27 MHz (typical)	
	Demodulator threshold	Less than 8dB C/N	
	Tuning frequency control	Synthesized in 1MHz or less steps or continuously variable	
	No. of Ports	2	
	Connector	F type 75 ohm female connector (as per IEC 60169-2)	
	Frequency Range	950-2150Mhz	
	RF input level	-25 to -65 dBm	
	LNB Power	13V DC , 18V DC /350mA	
	Diseqc Support	Supports Diseqc 1.0 , Diseqc 1.2 and Diseqc 2.0	
2. a)	**Transport Stream Input**		
	DVB S		
i	Constellation	QPSK	
ii	Symbol Rate	1-45Msym/s	

iii	FEC	All ratios compliant with standards	
	DVB-S2		
i	Constellation	QPSK/8PSK/16PSK/32APSK	
ii	Symbol Rate	1-45Msym/s	
iii	FEC	All ratios compliant with standards	
	DVB-S2X		
i	Constellation		QPSK/8PSK/16PSK/32APSK
ii	Symbol Rate		1-64Msym/s
iii	FEC		All ratios compliant with standards
iv	Roll Off		0.05,0.1,0.15,0.2,0.25 and 0.35
v	RF Input Max Bitrate		160Mbps per port
vi	Mode		CCM , VCM
b)	**IP Port Input**		
i	Physical	RJ45	
ii	Ethernet	100/1000 BASE-T Ethernet , RJ45	
iii	In/Output Modes	UDP, RTP, FEC (SMPTE 2022)	Optionally to support Zixi Input
iv	Addressing	Unicast / Multicast	
v	TS Type	SPTS or MPTS	
vi	Rates	Input : 400 Mbps	
vii	MPE Data	Up to 10 Mbps	
viii	Sockets	Minimum One	
c)	**ASI**		
i	Number of Inputs		Minimum One
ii	Connectors		BNC / HD BNC / DIN 1.0-2.3 / SMA
iii	TS MAX Bitrate		169 Mbps
iv	Packet length		188 byte packets
d)	MPEG over IP1		
i	Number of Inputs	04 SPTS/MPTS	
ii	Sockets	4	
iii	Encapuslation Protocol	MPEG 2 TS over UDP	
Iv	Addressing	Multicast/Unicast	

V	Connectors	Two 100/1000 Base T RJ45 for redundancy	
e)	**G.7032**		
i	Connectivity		DS3
ii	No of ports		Two
iii	Input Data Rate		44.736
Iv	Interface		B3ZS
V	Levels		ITU -T, G823/G824/ANSI T1.103-1993
3	**Transport Stream Outputs**		
a)	**IP Port Output**		
i	Physical	RJ45	
ii	Ethernet	100/1000 BASE-T Ethernet , RJ45	
iii	In/Output Modes	UDP, RTP, FEC (SMPTE 2022)	
Iv	Addressing	Unicast / Multicast	
V	TS Type	SPTS or MPTS	
Vi	Rates	Output : up to 800 Mbps	
Vii	MPE Data	Up to 10 Mbps	
Viii	Sockets	minimum 02 - duplicate or independent	
b)	**ASI**		
i	Number of Outputs		Minimum One
ii	Connectors		BNC / HD BNC / DIN 1.0-2.3 / SMA
iii	Packet Length		188
Iv	TS Maximum Output		108 Mbps
4	**Conditional Accesss Handling**		
i	BISS	Embedded upto full TS	
ii	DVB CI Interface EN 50221	one (EN 50221)	
iii	CA Methods	Multicrypt and Simulcrypt support	
5	**Video Decoding**		
	MPEG 2 SD	4:2:0 MP @ ML	

	MPEG-2 SD	4:2:2 @ ML	
	MPEG-2 HD	4:2:0 MP @ HL	
	MPEG-4 AVC SD	4:2:2 P @ HL	
	MPEG-4 AVC HD	4:2:0 MP @ L3	
	HEVC HD	4:2:2 HP @ L3	
		4:2:0 MP @ L4.0 / HP @ 4.1	
		4:2:2 @ HiP/Hi10P/Hi422P @ L4.1 (8 and 10 bit)	
		Main/Main 10	
		1080i/720p 4:2:0 @L4.0	
		**1080P and 4:2:2@L4.1 (8 and 10 bit)	
6	**Maximum Video Rate**		
	MPEG-2 SD	4:2:0 – 15 Mbps	
	MPEG-2 HD	4:2:2 – 50 Mbps	
	MPEG-4 AVC SD	4:2:0 – 50 Mbps	
	MPEG-4 AVC HD	4:2:2 – 80 Mbps	
		4:2:0 – 10 Mbps	
		4:2:2 – 50 Mbps	
		4:2:0 – 20 Mbps (MP), 25 Mbps (HP)	
		4:2:2 – 100 Mbps (CAVLAC), 50 Mbps (CABAC)	
	HEVC HD	Up to 50 Mbps (CABAC)	
7	**Decoded Baseband Outputs**		
a)	SDI	SD-SDI (SMPTE ST 259) / HD-SDI (SMPTE ST 292-1)	
	Connector	BNC / HD BNC / DIN 1.0-2.3 / SMA	
b)	Analog		PAL-B/G/I/M/N/D, NTSC, Russian SECAM
	Type		CVBS
	Connector		RCA / BNC 75 ohm
c)	Format HDMI		Digital

8	**Audio Options**		
	Balanced Audio Output	Connector: 2x 9-Pin D-type	
		Analog audio: two balanced stereo pairs	
		Digital audio: two balanced stereo pairs	
	Standard with any Video Decode Option:	2x MPEG-1 Layer-II audio decode	
			2x Dolby Digital® decode
			2x Dolby Digital® Pass-through
			2x Dolby® Digital Plus Pass-through
			2x Dolby®E pass-through
		2x Linear PCM decode	
		Audio sampling rate: 48 kHz	
		Decoded audio gain adjustment	
	AAC Audio		2x 5.1 down-mix to 2.0
			2x 2.0 decode
			1x 5.1 decode
	Phase Aligned Audio	MPEG-1 Layer II audio or AAC audio	
		2x phase aligned groups of 4x stereo pairs, or 1x group of 8x stereo pairs	
		Phase aligned to enable 5.1 carriage	
9	**Video Processing**		
	High Quality Format-Conversion	Simultaneous Down-conversion (HD to SD): center cut out, manual/AFD controlled	
	Grade 1 quality down-conversion	Down-conversion from 1080p 50/60 to 1080i, 720p	

		or SD	
	Up-conversion	Non-simultaneous up-conversion (SD to HD): To 720p or 1080i (4:2:0 modes only)	
	Cross-conversion	Non-simultaneous cross-conversion 720p to 1080i or 1080 to 720p	
		No frame rate conversion	
	Aspect Ratio Conversion	16:9 to 4:3 center cut ARC in SD modes	
	Frame Synchronization	Enables Frame Sync	
		Connector: 1x BNC (F) 75 Ohm	
		Input signal: Analog SD HSync (black & burst)	
10	**Control**	Front panel keypad and LCD	
		SNMP control, traps and alarms	
		Web browser	
		Ethernet – RJ45 10/100BaseT control interface	
		Terminal via RS-232 or RS-485	
		Presets	
11	**Input Voltage**	90 VAC / 240 VAC	
12	**Power Consumption**	100W Max. (depending on options fitted)	
13	**Cooling**	Integrated fan	
14	**Dimensions (H x W x D)**	1.75 in x 19 in x 15.5 in (1 RU)	
		4.4 cm x 48.3 cm x 39.37 cm	
15	**Power Supply**		
	Mains voltage	230 V ±10 percent, 50 Hz single phase	

	Supply to LNC/LNBC/LNB	+16 V to +28 Vdc via RF coaxial cable with RF input	
16	**Environmental**		
	Operating temperature range	+ 10°C to 40°C	
	Relative humidity	95 percent at 40°C	
	Storage Temperature	-20°C to +60°C (-4° to 140°F)	
17	**EMC Compliance**	IS/CISPR 32	
18	**Safety Compliance**	IS/IEC 62368-1	