BOCRA

BOTSWANA COMMUNICATIONS REGULATORY AUTHORITY **SPECIFICATIONS FOR DIGITAL TERRESTRIAL SET TOP BOX**

Botswana is in the process of converting its analogue terrestrial television broadcasting to digital. Pursuant to its mandate of protecting and promoting the interests of consumers with respect to quality and affordability of broadcasting equipment, Botswana Communications Regulatory Authority (BOCRA) has released the Minimum Specifications for Digital Terrestrial Television (DTT) Set Top Box (STB) to be used. The Set Top Box will enable television viewers to watch the new digital broadcast using their existing television sets. The STB is necessary only for viewers that receive their broadcast signal through terrestrial reception (aerial). The migration will not affect satellite reception (dish).

BOCRA is using the minimum specifications to approve any STB manufactured, imported, sold and/or, distributed in Botswana. The approval process is accompanied by issuance of a Certificate to the supplier to indicate that the STB has been approved for sale in Botswana. Purchasers of the STBs can request to view the approval Certificate from the supplier they intend to buy the STB from. For prospective distributors /manufacturers /retailers full specifications are available in the BOCRA website at www.bocra.org.bw

The table below gives a summary of mandatory minimum specifications that the Set Top Box should comply to. The specifications are meant to give a guide to local or international equipment suppliers, distributors and manufacturers wishing to make available STBs in Botswana. The minimum specifications also give the consumers the basis of what to expect from an approved STB sold in Botswana.

MINIMUM SPECIFICATIONS FOR DIGITAL TERRESTRIAL SET TOP BOX

Table 1 - Operational Specifications

	Feature	Description/Functionality
1	On/Off Button	Switches the STB power On or Off
2	On Screen Display	Presents the channel programme Number or Programme guide on the screen
3	Electronic Programme Guide (EPG)	Lists the schedules, displays them on screen once operated
4	Auto/Manual Search	The unit will perform an automatic search for channels or can be selected manually
5	Signal Quality Level Indicator	Illuminates green when broadcast signal is good and yellow when weak or poor quality (reception)
6	Video Output	PAL I is the video signal for Botswana and most analogue TV sets have PAL I inputs
7	Languages	STB Operational Manual should be in English. Setswana is a welcome optional add on
8	Remote Control IR	Commands and execute the full STB functions. Small in size and using AA or AAA batteries
9	Channels 1-100; Minimum of 100 TV Channels storing	The STB software must perform the storing of a least 100 programmes be selectable at random as and when the viewer wishes
10	Warranty	The STB should carry a minimum of 1 year/12 months warranty
11	Operations Manual	English language: Clear and easy to understand with basic trouble shooting and pictorial illustrations
12	Conditional Access (Optional)	Optional and shall not prohibit viewers on free-to-air DTT channels
13	Connectors	Rear Panel

Table 2 - Technical Specification Summary

	Feature	Description/Functionality
1	Input Impedance	75Ω
2	AC Main Power Supply	220V ±20V 50Hz ±2Hz
3	DC Power Supply	Optional 12V
4	Power Plugs	BS 1363, 4573, 546-3pin

Table 2 - Technical Specification Summary (continued)

	Feature	Description/Functionality
5	Network Functionality	MFN & SFN
6	Connectors	RCA 3 Connectors (2 audio & 1 video)
7	Modulation	In compliance with the GE06 Channeling Plan of Rec. **ITU-R BT. 1306 (ITU Region 1 Equivalent Optional)**
8	FEC on OFDM	Comply with ITU-R.BT.1306 (ITU Region 1 Equivalent-Optional)
9	Input Signal	-35 to -85dBm
10	Frequency	UHF (470-694MHz) VHF (174-230MHz) Optional
11	Signal Bandwidth	8MHz Channelization Plan of GE06
12	Guard Intervals	1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 19/128, 19/256
13	Channel/Noise Ratio	3dB(QPSK1/2) to 24dB(256QAM 5/6) ITU-R.BT.1306 (ITU Region 1 Equivalent-optional)
14	Interleaving	Bit+Cell+Time+Frame
15	Video Decoding	MPEG-2 and MPEG-4 (H.264) are required.
16	PAL I	625 Lines, 50 Hz, Video bandwidth: 5MHz
17	Aspect Ratio	4:3 & 16:9
18	Frame Frequency	25Hz
19	Conditional Access	Smart card /software applicable (optional)
20	RAM	128Mbytes (DDRAM) 8Mbytes (Flash)
21	Processor	≥300MHz
22	Bit Stream Conversion	MPEG-2 ISO/IEC 13818
23	Audio Decoding	Sampling rate: 32kHz, 44.1kHz and 48kHz (Dolby and other related approved audio decoding optional)
24	Serial Interface	RS 232
25	Audio Mode	Single track/dual track/stereo
26	GE06 Channelization Plan	Compliant
27	STB Electronic Components	Comply with approved testing procedures and ITU equivalent
28	Intrinsic Radiation Immunity	EN 55024 or CISPR 24
29	Harmonic Current Emission	EN 61000-3-2/IEC 61000-3-2
30	Voltage Fluctuations	EN 61000-3-3/IEC 61000-3-3
31	Emission For Residential & Commercial Premises	EN 61000-6-X/IEC 61000-6-X

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