Annex A

ISDB-T Standards

Receiver

While most of all the technical parameters related to receivers shall be in accordance with ABNT NBR15604, there are some modifications required. The main points to be modified are shown here-below. See Annex 6 for the details.

- In order to adopt the BML for data broadcasting, some items that are based on Ginga such as the remote control key and the demodulator for data broadcasting shall be modified.
- As the analog video format of the Philippines is of NTSC-M, those items of PAL-M format shall be replaced to NTSC-M.
- As for the RF INPUT-TERMINAL of the receivers for the Philippines, it is enough that the interface with the F-type terminal (IEC 61169-24) can be finally established. So, bundled adaptor for "F" type terminal is also acceptable.
- The priority parameters of the receiver unit of Annex A are described as the operational guidelines, thus it should be subject to ISDB-T Harmonization Document PART 1: Hardware.
- Since there is no detailed specification of "Accessibility resources (Audio locution)" in ABNT, it is preferable to remove it.
- Since "Accessibility resources (LIBRAS window)" is a specification unique only to Brazil, it is desirable to remove it.
- Annex B is the information related to GINGA; and it is not necessary to keep it.
- Silicon-Tuner is mostly adopted in the recent TV-Front-End products, making outputs of Low-IF below 10MHz. Thus Low-IF below 10MHz shall also be acceptable. Accordingly, with respect to the frequency conversion, either upper or lower heterodyne conversion shall be acceptable as long as there is no side-effect.
- There is the "PNS IEC 60065:2007" as the Philippine original safety standards, and thus the safety standards shall be in reference to it.

Annex 6 Receiver

The details of the modifications from ABNT NBR 15604 are shown in Table A6-1.

Table A6-1 Modifications from ABNT NBR 15604

|	Page	Original	Modified
5.2 Figure 2: Basic	8	PAL-M	NTSC-M

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configuration of the IRD			
6: Environment and safety conditions	10	Environment and safety conditions	About safety regulations, there is "PNS IEC 60065:2007" in the Philippines.It is enough to refer to that.
7.2.1.1: Integrated receiver	12	The receiver unit integrated with display shall offer at least one antenna terminal input with impedance 75 Ω, type F, unbalanced.	The receiver unit integrated with display shall offer at least one antenna terminal input with impedance 75 Ω, type F, unbalanced. Bundled adaptor for "F" type terminal is also acceptable.
7.2.7: First intermediate frequency (IF)	16	The central frequency of the IF shall be of 44 MHz, and optionally direct conversion in base band. The local oscillator frequency shall be located at the upper side of the received frequency.	The central frequency of the IF shall be of 44 MHz, and optionally direct conversion in base band. Low-IF under 10MHz is also acceptable such as for Silicon-Tuner use. As for frequency conversion, either upper or lower heterodyne conversion is acceptable as long as there is no side-effect.
7.2.21: Primary data decoder	20	The porting of middleware Ginga is optional; however when it is embedded in the receiver, the minimum requirements defined in Table B.1 shall necessarily to be implemented (see Clause 9).	All the technical methods and parameters for BML data broadcasting shall be in accordance with ARIB STD-B24.
7.2.24: Accessibility	21	c) locution;	"Locution" specification is not necessary since there is no detail in ABNT.
	21	e) LIBRAS window.	"LIBRAS window" is a unique item to Brazilian standard. So it is not necessary.
7.2.27.1: Antenna input	21	The integrated type receivers shall provide a terminal for antenna input "F" type, 75 Ω, unbalanced.	The integrated type receivers shall provide a terminal for antenna input "F" type, 75 Ω, unbalanced. It is enough that the interface by F-type (IEC 61169-24) can be finally established. So, bundled adaptor for "F" type terminal is also acceptable.
7.2.27.7: RF Output	22	It is optional for the receiver's manufacturer to provide a RF output with the audio and video signals modulated in RF. However, if this output is provided, the signals shall be encoded in	It is optional for the receiver manufacturers to provide an RF output with the audio and video signals modulated in RF. However, if this output is provided, the signals shall be encoded in

		PAL-M...	NTSC-M...
7.2.27.7: RF Output	22	according to Clause 8, Table 9.	according to Clause 8, Table 10.
7.2.28: Remote control	22	7.2.28 Remote control	See Table A6-2 for remote control keys used for data broadcasting; and Fig A6-1 for examples of remote controllers.
8.1.6.1: Full-seg receivers type digital converter	27	8.1.6.1 Full-seg receivers type digital converter The digital converter receiver (set-top box) shall have a RCA connector, 75 Ω, for composite video 525i output encoded in PAL-M. The video signal with the specified configuration shall be always present independently of the encoder parameters of a video pertaining to a stream received for decoding. This requirement is optional for integrated receivers with display, fixed or portable.	8.1.6.1 Full-seg receivers type digital converter The digital converter receiver (set-top box) shall have an RCA connector, 75 Ω, for composite video 525i output encoded in NTSC-M. The video signal with the specified configuration shall always be present independently of the encoder parameters of a video pertaining to the stream received for decoding. This requirement is optional for integrated receivers with display, fixed or portable.
8.1.7.1.1 Table 9: Composite video output (CVBS)	27	color system PAL	color system NTSC
9: Primary data decoding	34	9 Primary data decoding	About Data broadcasting, all the technical methods and parameters for BML shall be in accordance with ARIB STD-B24.
11: Television contents access control-Parental rating	35	All item 11	Deleted (Note: ABNT NBR 15603-2:2007 Multiplexing and service information (SI) Part 2: Data Structure and definitions of basic information of SI item 8.3.11 page 55-56- Deleted)
12: Accessibility resources	39	Portuguese	English and Tagalog
	39	c) Audio locution	"Locution" specification is not necessary since there is no detail in ABNT.
	39	e) LIBRAS window	"LIBRAS window" is an item unique to Brazilian standard. So it is not necessary.
14.1.2: Full-seg receiver	42	It is optional for the full-seg receivers manufacturers the implementation of the USB port, since such equipment do not have interactivity channel, even if the middleware Ginga	It is optional for the full-seg receiver manufacturers to provide the USB port.

		is embedded on them.	
Annex A: Priority parameters of the receiver unit	47	In Table A.1	In "ISDB-T HARMONIZATION DOCUMENT PART 1: HARDWARE"
	48 - 57	Table A.1	Deleted
Annex B: Priority parameters of middleware Ginga	58-62	Annex B Priority parameters of middleware Ginga	Deleted
C.1 Sensitivity" of "ABNTNBR15604 Annex C		Consequently, it can be classified as desirable value the one that need to use a low noise amplifier in order to allow the reception with intensity of electrical field of 60 dBμV/m, comprehended in the service area. The receiver that meets these conditions shall be considered as commercially valid.	this sentence should be deleted. Because it does not specify receiver's measurement method directly.

Table A6-2 Remote control keys used for data broadcasting

Key type	Guidelines
↑、↓、←、→ (up, down, left, right keys)	To move up, down, left, right.
0 - 9 (number keys)	To input numbers
Confirm	Separator of operation (enter)
Back	Cancel operation
	Back space of user input character (or bulk erase)
	Disconnection of a call to a communication server (*)During connection, receiver units will take the instruction; after connection, instruction is carried out in the contents.　(A display to the effect that the connection will be terminated is desirable when the back key is pressed.)
	(*)It is okay to use BML documents for the purpose of going back. However, whether or not there is something after returning should be considered.
Data	Switches display/non-display of multi-media data broadcasting. (*)Separated "Data" button is recommended.
Red, green, yellow, and blue (color keys)	Selection of operation (execution) (*)Location of buttons on the remote control should be in order of red, green, yellow, blue from the left.
Bookmark (Optional)	Recording of bookmark.

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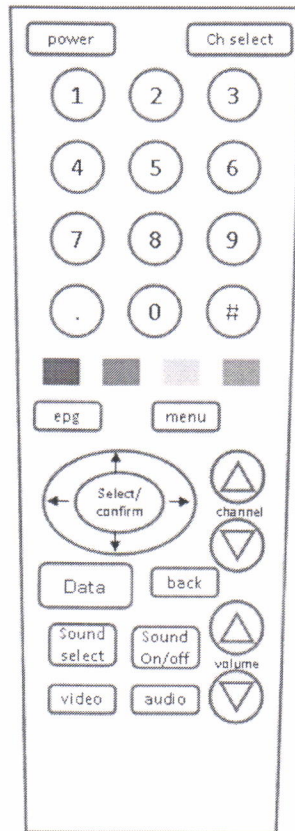
Appendix 6 Receiver

The operational guideline on receiver should be based on "ISDB-T HARMONIZATION DOCUMENT PART 1: HARDWARE" (at least mandatory and recommended items). Guard interval mask characteristics should be referred to the recommendation ITU-R BT.2036. Any other items should be in accordance with the Chapter 6 of the main body.

Bibliography

(ABNT Standards)

http://forumsbtvd.org.br/acervo-online/normas-brasileiras-de-tv-digital/

The versions of ABNT Standards refered in the Filipino ISDB-T Standards are as follows.

Standrd		Version
Number	Title	
ABNT NBR 15604	Digital terrestrial television – Receivers	2007