PANASONIC R&D CENTER SINGAPORE

SUBMISSION OF COMMENTS

TECHNICAL SPECIFICATION FOR INTEGRATED RECEIVER DECODER FOR USE WITH THE SECOND GENERATION DIGITAL TERRESRIAL TELEVISION BROADCASTING SYSTEM (DVB-T2)

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1 Summary of Major Points

The proposed technical specifications for the DVB-T2 basic IRD-T2 define comprehensively the minimum requirements for the IRD-T2. Panasonic has some comments suggestions to avoid misunderstandings.

2 Statement of Interest

Panasonic Corporation is a Japanese multinational electronics corporation with headquarter in Kadoma, Osaka Japan. It is s one of the largest electronic product manufacturers in the world, comprised of over 634 companies. It manufactures and markets a wide range of products under the Panasonic brand to enhance and enrich lifestyles all around the globe.

PRDCSG is the Corporate R&D arm of Panasonic Corporation (Panasonic), located in the Asia Pacific Region. At PRDCSG, we conduct R&D activities in cutting edge technologies for the next generation of products.

3 Comments

3.1 With reference to section 2.3 Electromagnetic Compatibility "The IRD-T2 shall comply with the EMC requirements defined in ISO/IEC CISPR 13 [3]."

We believe that this requirement should be included in a higher level document not in the basic receiver specifications. We also need more information on the conformance testing requirement as EMC testing takes time to be performed in-house thus sometimes 3rd party testing is required to expedite production.

3.2 4.3.3 Decoding & Presentation Options for 2 Channels of Decoder Output

The table in this section suggested that Optical/Coaxial (SPDIF) output is compulsory for MPEG-1 Layer II and MPEG-4 HE AAC. However in section 8.9 Digital Audio Data Stream Output, SPDIF output is optional.

To prevent ambiguity we suggested that there is a supplementary comment like what was included for HDMI* output where * indicates only applicable for IRD-T2 (standalone module) or to specify SPIF output column as optional.

3.3 4.4.4.2 Metadata "The IRD-T2 shall apply bit-stream metadata parameters and down mix multichannel input configurations to stereo PCM for Enhanced AC-3 and MPEG-4 HE AAC in accordance with guidelines given in ETSI TS 101 154 [1], and as specified in ETSI TS 102 366 [9] and ISO/IEC14496-3 [8] respectively.

" Based on this expression, ambiguity occurs as there are 3 references and no indication given on which reference is to be used when the IRD-T2 is performing down-mix. Another reason is the possibility of Dynamic Range Control (DRC) defined in ETSI 101 154 in the future causing confusion whether the IRD-T2 shall follow ETSI 101 154 or ISO/IEC 14496-3. We would like to suggest the following expression

"The IRD-T2 shall support the use of a complete set of Dolby metadata as specified in ETSI TS102 366 embedded in the audio stream when decoding E-AC3 bitstreams, transcoding E-

AC3 bitstreams to AC3, or creating a PCM stereo downmix from a decoded E-AC3 or AC3 bitstream.

The IRD-T2 also shall support the use of the following MPEG-4 HE AAC metadata embedded in the audio stream when decoding MPEG-4 HE AAC and transcoding HE AAC multichannel to AC3 or DTS:

- Dynamic Range Control according to ISO/IEC 14496-3
- Program Reference Level according to ISO/IEC 14496-3
- Mix Down Parameters according to "Transmission of MPEG4 Ancillary Data" part of DVB specification ETSI TS 101 154"

3.4 4.3.4.3 Pass-through "The IRD-T2 shall pass through the native input bit-stream over the HDMI (and ARC on compatible HDMI inputs) output."

This expression causes some ambiguity on whether only IRD-T2 with ARC capability to support this or that ARC is to be supported by all IRD-T2. We would like to suggest the following expression instead "The IRD-T2 (standalone module) shall pass through the native input bit-stream over the HDMI output. The IRD-T2 with ARC output of HDMI input shall pass through the native input bit-stream."

3.5 4.3.4.4 Trans-coding.

Similar to our comments on 4.3.4.3 to avoid misunderstanding we would like to suggest that the AC-3 bit-stream shall be provided on the following outputs.

A) S/PDIF; and

B) HDMI output (standalone module); and

C) ARC output of HDMI input for the IRD-T2 with ARC

3.6 4.3.4.5 Decoding and Presentation Options for Multi-Channel Decoder:

Similar to our previous comments on 4.3.3 we would like to add a supplementary comment on SPDIF column, for example SPDIF* where * means only applicable to IRD-T2 with SPDIF output.

3.7 4.3.7 Loudness Matching "The IRD-T2 shall apply format dependent attenuation to decoded stereo PCM audio, in order to achieve loudness alignment between different input formats."

Panasonic would strongly suggest that this feature to be optional. This is because to achieve this feature it would require much time for implementation and testing. Broadcasters would require broadcasting using correct parameters as specified in specifications such as D-Book and manufacturers need to test it. Introducing this feature now may add more cost to the IRD-T2 or delay product launch to implement it.

This feature is still in its early stage even in the EU specifications; therefore it may be more prudent to wait until it is more mature before adopting it for Singapore market.

Panasonic would like to understand better the motivation behind adding this feature in Singapore IRD-T2 specifications, what is the problem that MDA-IDA wants to counter with the Loudness Matching feature. To implement this more information is required such as

- Which implementation for Loudness Matching shall be adopted, for example D-Book or Nordig specifications
- Which meta-data are going to be used for example DRC (dyn_rng_sgn, dyn_rng_ctrl), Program Reference Level (prog_ref_level) and etc.

3.8 7.2.3 Languages and Fonts

Panasonic would like to understand better the motivation behind mandating the support for Tamil fonts in EPG.

As Tamil EPG is not yet common it will take manufacturers like Panasonic much time and cost to re-work our software and subsequently for testing. Therefore it is not commercially viable unless if major broadcaster like Mediacorp also decided to implement and broadcast Tamil EPG.

In our opinion majority of the Tamil speaking populace in Singapore is well versed in English, thus minimising the value-added for introducing Tamil font support in EPG.

3.9 8.11 Copy Protection on Outputs:

Panasonic would like to add a clause that this is only for IRD-T2 with HDMI output(s). This is because according to 8.10 HDMI, HDMI output is only mandatory for IRD-T2 (standalone module).

3.10 9.2 First-Time Power Up, process c) includes Set active antenna power (Default – off);

Since antenna output power is specified as optional in 8.4, we would like to suggest modifying the expression of process c) to " c) Set active antenna power (Default – off, only for IRD-T2 with antenna output power)"

4 Conclusion

Panasonic would like to thank MDA and IDA for the opportunity to comment on the Technical Specification for IRD-T2 for Singapore. We laud the efforts put into drafting the Technical Specifications to ensure that Singapore residents can enjoy good quality Digital TV receivers while keeping cost reasonable.

To reduce the total cost for IRD-T2 we suggests that Singapore would leverage on the economies of scale by mandating only the basic and common features for the IRD-T2; and avoid uncommon and not yet mature technologies such as Loudness Matching and Tamil font support in EPG.