

Technology Group Report:

Collision Avoidance for Private Fields and Ranges

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The Advanced Television Systems Committee (ATSC), is an international, non-profit membership organization developing voluntary standards for the entire spectrum of advanced television systems.

Specifically, ATSC is working to coordinate television standards among different communications media focusing on digital television, interactive systems, and broadband multimedia communications. ATSC is also developing digital television implementation strategies and presenting educational seminars on the ATSC standards.

ATSC was formed in 1982 by the member organizations of the Joint Committee on InterSociety Coordination (JCIC): the Electronic Industries Association (EIA), the Institute of Electrical and Electronic Engineers (IEEE), the National Association of Broadcasters (NAB), the National Cable Television Association (NCTA), and the Society of Motion Picture and Television Engineers (SMPTE). Currently, there are approximately 190 members representing the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

ATSC Digital TV Standards include digital high definition television (HDTV), standard definition television (SDTV), data broadcasting, multichannel surround-sound audio, and satellite direct-to-home broadcasting.

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1. PROBLEM STATEMENT

The ATSC (and MPEG [MPEG]) standards have numerous syntactical fields set aside for private use. In addition, many other fields have ranges defined as *user private*. The current situation allows the use of these fields in any way desired. While some scoping mechanisms exist—for example, the MPEG Registration Descriptor (MRD)—the use of these mechanisms is voluntary. Indiscrete use of private fields and ranges can lead to collisions between privately defined services. This document presents a solution to the collision problem, through a number of guidelines.

2. REFERENCES:

- [MPEG] ITU-T Rec. H.222.0 | ISO/IEC 13818-1:2000, Information Technology — Generic Coding of Moving Pictures and Associated Audio Information: Systems.
- [MRD] “ATSC Usage of the MPEG-2 Registration Descriptor,” ATSC Technology Group Report, T3 Doc.-.548r1, 9 October 2001.

3. GUIDELINES

3.1 General

ATSC legal transport shall have PIDs that are either referenced in PMTs or that are well-defined by an approved standard. Unreferenced PIDs are unlikely to survive a remultiplexing process (for example, at a cable head-end). There is no expectation that a standards-compliant receiver will understand the usage of the unreferenced PIDs, nor even discover their presence.

3.2 Scoping by MPEG-2 Registration Descriptor Possible

The MPEG-2 defined Registration Descriptor (MRD) shall be used to uniquely identify the use of user private fields and ranges. Usage of the MRD is further outlined in the accompanying document [MRD].

The registration descriptor shall be used at the highest possible level to adequately associate the use of private fields and ranges, representing a hierarchical approach, following the precedence rules outlined in [MRD]. Association at the transport level via the Transport Stream Description Table (TSDT) should be restricted to situations where the scoping via the MRD does not contradict the associations at lower levels, due to the non-deterministic delivery problem discussed in [MRD]. If the use of private fields/ranges applies to the entire Program, then the MRD shall be used within the Program descriptor loop in the PMT. If the necessary association is at the Program Element level, then the Registration Descriptor shall be present within the Program Element descriptor loop in the PMT.

The use of user private *stream_types* must be correctly scoped with an MRD. An MRD shall be used in the Program Element descriptor loop in the PMT to uniquely identify each user private *stream_type*.

The use of user private `table_types` within the Master Guide Table (MGT) must be correctly scoped with an MRD. In situations where the scoping applies to all of the user private `table_types` in the MGT, an MRD shall be used in the MGT outer descriptor loop. In situations where the scoping applies to individual user private `table_types` in the MGT, an MRD shall be used in each particular MGT inner descriptor loop that describes a user private `table_type`.

3.3 Scoping by MPEG-2 Registration Descriptor Not Possible

The use of private fields or private ranges which can not be scoped by an MRD shall be forbidden in a broadcast system.