

## Scope

This document presents recommended practices regarding the TV 3.0 Transport Layer, defined in [1], (extended and adapted version of the ATSC 3.0 Transport Layer, defined in [3]). In addition, specific configurations for the Brazilian scenario are presented in Annex A, the TV 3.0 Link Layer (originating from the ATSC 3.0 system, defined in [2]) are presented in Annex B and the Studio-To-Transmitter Link (STL) (originating from the ATSC 3.0 system, defined in [11]) are presented in Annex C.

## 1 Terms and Definitions

For the purposes of this Document, the following terms and definitions apply.

### ATSC 3.0

Digital Terrestrial Television System defined in the set of standards ATSC A/200 to ATSC A/360

### TV 3.0

Digital Terrestrial Television System defined in the set of standards ABNT NBR 25601 to ABNT NBR 25609, also known as DTV+

## 2 Abbreviations

For the purposes of this Document, the following abbreviations apply.

|       |                                                         |
|-------|---------------------------------------------------------|
| ALP   | ATSC Link-Layer Protocol                                |
| APD   | Associated Procedure Description                        |
| BALD  | Broadcaster Application Location Description            |
| CTP   | Common Tunneling Protocol                               |
| DASH  | Dynamic Adaptive Streaming over HTTP                    |
| DWD   | Distribution Window Description                         |
| IP    | Internet Protocol                                       |
| OTA   | Over-The-Air                                            |
| OTT   | Over-The-Top                                            |
| PRRD  | Privacy Record Request Description                      |
| ROUTE | Real-time Object delivery over Unidirectional Transport |
| RSAT  | Regional Service Availability Table                     |

|        |                                                      |
|--------|------------------------------------------------------|
| STL    | Studio-to-Transmitter Link                           |
| S-TSID | Service-based Transport Session Instance Description |
| TS     | Transport Stream                                     |

### 3 TV 3.0 Transport Layer Recommendations

Regarding the Real-time Object delivery over Unidirectional Transport (ROUTE)/ Dynamic Adaptive Streaming over HTTP (DASH) transport method, the directives established in standard [1] are followed and the practices presented in standard [5] and standard [6] are recommended. In the latter document, practices are recommended for ATSC3.0 signaling, delivery, synchronization, and error protection. The scope of this standard is specified in section 1 of [5].

Regarding Signaling and Scheduling of TV 3.0 Transport Layer, Section 5.3 of [6] is recommended with the following changes:

- Ensure the SLT has proper globally unique URN `SLT.Service@globalServiceId` as indicated in Section 8.1 of [1],

e.g., `urn:atsc:serviceid:usc32;`

- Ensure SLT indicates the service category as in Table 1 of [1];
- If a Service based on Bootstrap Application is sent, BALD should also be present.

The SLS fragments for Broadcast and Broadband configurations, specified in Annex A of [1], to be transmitted via ROUTE to enable reception of ATSC 3.0 Services, depending on the type/nature of the Service. Other types of SLS fragments may be additionally transmitted, also presented in Annex A of [1].

The operational guidelines corresponding to the technologies used in the TV 3.0 Transport Layer are contained in the following Annexes:

- Annex A - Specific configurations for the Brazilian scenario;
- Annex B - TV 3.0 Link Layer Recommendations; and
- Annex C – TV 3.0 STL Recommendations.

#### 3.1 Exclusion of MMT technology

MPEG Media Transport (MMT) technology is not used for TV 3.0 Over-The-Air (OTA) transmissions.

## Annex A

### Specific configurations for the Brazilian scenario

This appendix presents specific recommendations for Brazil, in accordance with local standards, guidelines, specifications, and regulations. It is important to note that this information may not be valid for use in other countries.

#### A.1 LLS Delivery to the *Plataforma Comum*

The delivery of the LLS belonging to the *Plataforma Comum* (the Brazilian government's official platform) is carried out via broadband, provided it is done through a secure URL (HTTPS) [7]. This decision was made to ensure the proper functioning of the *Plataforma Comum*, in accordance with the guidelines established by Federal Decree No. 12,595 [8]. It is worth noting that, on TV 3.0, this measure applies only to this service.

#### A.2 Content Advisory Rating Schemes

In Brazil, it is recommended to use the value 0x06 to define the `rating_region` field. Table A 1 presents the recommended dimensions for use in the content classification system, which is in accordance with the provisions of Ordinance [9].

Table A 1: Recommended Dimensions for Content Classification in TV 3.0.

| (0) Rating Classification            | (1) Sex and Nudity                         | (2) Violence                           | (3) Drugs                           | (4) Interactivity                           | (5) Self-classification                        |
|--------------------------------------|--------------------------------------------|----------------------------------------|-------------------------------------|---------------------------------------------|------------------------------------------------|
| grad = "1"                           | grad = "0"                                 | grad = "0"                             | grad = "0"                          | grad = "0"                                  | grad = "0"                                     |
| [0] abbrev= " "<br>value = " "       | [0] abbrev= " "<br>value = " "             | [0] abbrev= " "<br>value = " "         | [0] abbrev= " "<br>value = " "      | [0] abbrev= " "<br>value = " "              | [0] abbrev= " "<br>value = " "                 |
| [1] abbrev= "N"<br>value = "Nenhum"  | [1] abbrev= "SN"<br>value = "Sexo e Nudez" | [1] abbrev= "V"<br>value = "Violência" | [1] abbrev= "D"<br>value = "Drogas" | [1] abbrev= "I"<br>value = "Interatividade" | [1] abbrev= "A"<br>value = "Autoclassificação" |
| [2] abbrev= "L"<br>value = "Livre"   |                                            |                                        |                                     |                                             |                                                |
| [3] abbrev= "6+ "<br>value = "6+ "   |                                            |                                        |                                     |                                             |                                                |
| [4] abbrev= "10+ "<br>value = "10+ " |                                            |                                        |                                     |                                             |                                                |
| [5] abbrev= "12+ "<br>value = "12+ " |                                            |                                        |                                     |                                             |                                                |
| [6] abbrev= "14+ "<br>value = "14+ " |                                            |                                        |                                     |                                             |                                                |
| [7] abbrev= "16+ "<br>value = "16+ " |                                            |                                        |                                     |                                             |                                                |
| [8] abbrev= "18+ "<br>value = "18+ " |                                            |                                        |                                     |                                             |                                                |

### A.3 BSID value in the Multiplexer

Each broadcasting station in Brazil is assigned a call sign by ANATEL, which serves as a unique identifier for each transmitting station. This broadcaster prefix consists of six characters, where the first two characters are the letters ZY (for example, ZYA 205). The third character (counting from left to right) is one of the letters A, B, P, Q, or T, while the last three characters are a number ranging from 000 to 999.

To generate the BSID, it is recommended to follow the steps described below:

- 1) Discard the first two characters of the broadcaster's prefix;
- 2) Replace the third character of the broadcaster's prefix with a decimal value, according to Table A 2;
- 3) Concatenate the result from step 2 with the last three characters, unchanged.

Table A 2: Correspondence between numbers and letters in the broadcaster's prefix.

| Third Character of the broadcaster's prefix | Decimal value to be assigned |
|---------------------------------------------|------------------------------|
| A                                           | 0                            |
| B                                           | 1                            |
| P                                           | 2                            |
| Q                                           | 3                            |
| T                                           | 4                            |

As a result of this methodology, the possible BSID values are limited as shown in Table A 3.

Table A 3: BSID Value Range.

| BSID Value Range | Assignment                                       |
|------------------|--------------------------------------------------|
| 0 a 4999         | Recommended range of values                      |
| 5000 a 65535     | Recommendation on values reserved for future use |

Prefix examples:

- 1: ZYA 508. The resulting BSID is 0508 in decimal.
- 2: ZYB 855. The resulting BSID is 1855 in decimal.
- 3: ZYP 302. The resulting BSID is 2302 in decimal.
- 4: ZYQ 808. The resulting BSID is 3808 in decimal.
- 5: ZYT 240. The resulting BSID is 4240 in decimal.

## A.4 Identification of transmission stations

The TV 3.0 physical layer standard [10], in Section 3.5, establishes that the `txid_address` is a 13-bit identifier that can be assigned to each transmitter in a network and allows for the differentiation of even each polarization, as described in Annex A.

The TxID allows for the identification of up to 8,191 transmissions, as per Section N.2.3 of Annex N of the ATSC physical layer standard [11]. It is suggested that the assignment of the `txid_address` in terrestrial broadcast networks begin with the value 0001 and be incremented according to the deployment sequence of each network.

It is also suggested that the identification of transmission stations be performed combining two parameters: `L1D_bsid` and `txid_address`. In this way, each transmission station, even if it belongs to a different network or broadcaster, can be uniquely identified.

For example, for a transmitting station with the prefix ZYA 508 and TxID 3:

The resulting `L1D_bsid` is 0508 and the `txid_address` is 0003;

Thus, the transmitting station's unique identifier consists of these concatenated elements, resulting in 05080003.

## Annex B

### TV 3.0 Link Layer Recommendations

Regarding the TV 3.0 Link Layer, structured through the ATSC Link-Layer Protocol (ALP) and Link Layer Signaling, the directives established in standard [2] are followed and the practices presented in standard [4] are recommended. The latter document addresses recommendations regarding Internet Protocol (IP) header compression, packet encapsulation, IP header decompression and functional interoperability tests.

#### B.1 Exclusion of MPEG-2 TS technology

MPEG-2 Transport Stream (TS) technology is not used for TV 3.0 Over-The-Air (OTA) and Over-The-Top (OTT) transmissions.

## Annex C

### TV 3.0 STL Recommendations

Regarding the TV 3.0 STL, structured through the Common Tunneling Protocol (CTP) packets, the directives established in standard [12] are followed.

## Bibliography

- [1] ABNT NBR 25602, TV 3.0 — Transport Layer
- [2] ATSC A/330:2024-04, ATSC Standard: Link-Layer Protocol
- [3] ATSC A/331:2024-04, ATSC Standard: Signaling, Delivery, Synchronization and Error Protection
- [4] ATSC A/350:2024-04, ATSC Recommended Practice: Guide to the Link-Layer Protocol
- [5] ATSC A/351:2024-04, ATSC Recommended Practice: Techniques for Signaling, Delivery, and Synchronization
- [6] ATSC CIT-196r23:2022-04, ATSC Implementation Guide: Emissions Testing Process
- [7] SBTVD Forum, Guideline nº 10 - TV 3.0 Operational Guidelines Common Public Communication and Digital Government Platform Support in Experimental Tv 3.0 AoP Implementations
- [8] BRAZIL. Decree No. 12,595, of August 27, 2025, Article 21
- [9] BRAZIL. MJSP Ordinance No. 1,048, October 15, 2025
- [10] ABNT NBR 25601, TV 3.0 — Physical Layer
- [11] ATSC A/322:2026-06, ATSC Standard: Physical Layer Protocol
- [12] ATSC A/324:2024-04, ATSC Standard: Scheduler / Studio to Transmitter Link